GEOTECHNICAL SUBSURFACE INVESTIGATION DATA REPORT (REVISION NO. 1)

CGG Combined Operating License Application (COLA) Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

April 13, 2007

Prepared By:

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Submitted To:

BECHTEL POWER CORPORATION
Frederick, Maryland
(Bechtel Subcontract No. 25237-103-HC4-CY00-00001)

Schnabel

Schnabel Engineering North, LLC

April 13, 2007

Mr. Frank Lopez, Jr., P.E.
Bechtel Power Corporation
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Subject: **Geotechnical Subsurface Investigation Data Report (Revision No. 1) CGG Combined Operating License Application (COLA) Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland Subcontract No. 25237-103-HC4-CY00-00001 (Schnabel Project No. 06120001)**

Dear Mr. Lopez:

Schnabel Engineering North, LLC (Schnabel) is pleased to submit this Geotechnical Subsurface Investigation Data Report (Revision No. 1) for the above referenced project. This data report contains a summary of the equipment and methods used, subsurface information Schnabel personnel collected for this project, and soil and water laboratory testing. This report supersedes the Geotechnical Subsurface Investigation Data Report dated December 19, 2006, and incorporates information contained in Addendum No. 1, dated January 8, 2007, and Addendum No. 2, dated January 31, 2007.

This report has been prepared in accordance with the Technical Services Subcontract agreement between Bechtel Power Corporation (Bechtel) and Schnabel, dated March 23, 2006, and subsequent Change Orders.

Sampling and testing activities for this project were performed under Bechtel's quality assurance program meeting NQA-1 requirements, and according to the pre-approved project technical specification, technical procedures, and work plans.

We appreciate the opportunity to be of service to you for this project. Please contact Mr. Brian Banks at (301) 417-2400 if you have any questions regarding this report.

Very truly yours,

SCHNABEL ENGINEERING NORTH, LLC

Brian K. Banks, P.G.
Associate

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1.0 Introduction

Schnabel Engineering North, LLC (Schnabel) performed a geotechnical subsurface investigation under the direction of Bechtel Power Corporation (Bechtel) to support the Combined Operation License Application (COLA) for two new nuclear reactors and associated infrastructure (e.g., heat sinks, cooling towers, switch yard, construction access road, water intake structure, etc.) and help evaluate the siting feasibility for the new reactors.

1.1 Site Description

The project site is located adjacent to the existing Calvert Cliffs Nuclear Power Plant (CCNPP). The site is bordered by the CCNPP to the north, and by Calvert Cliffs along the western shores of the Chesapeake Bay to the east.

The site includes the land currently occupied by "Camp Canoy", a lightly developed recreational facility with a few small, widely-spaced buildings and shelters; a baseball field; tennis courts; pool; a small, earth-dam pond; both paved and un-paved access roads; and utilities.

The majority of the site is wooded with small to large trees and a thin understory of brush and vines, except for some open grassy areas in Camp Canoy. The topography generally consists of gently to moderately sloped terrain, although some areas exhibit steep slopes. Streams and wetland areas occupy many of the topographic lows. Wetland areas were also found at intermediate levels on some of the slopes.

1.2 Scope of Work

The scope of our work as defined by Exhibit D, Scope of Work and Technical Specification 25237-103-3PS-CY00-00001 of the Subcontract included performing field testing and sampling, conducting laboratory testing, providing quality control surveillances during field and laboratory activities, and preparing this data report. Specifically, the following scope items were performed:

- Surveying to establish the horizontal and vertical locations of subsurface exploration points;
- Detecting underground utilities at subsurface exploration points;

- Drilling 145 standard penetration test (SPT) borings to depths up to 403 feet, and collection of disturbed SPT and undisturbed tube soil samples;
- Installation and development of 40 ground water observation wells to depths up to 122 feet, permeability testing in each well, and ground water sampling in each well;
- Excavating 20 test pits to depths up to ten feet and collection of bulk soil samples;
- Performing 63 cone penetration test (CPT) soundings, some including shear wave and/or pore water pressure dissipation measurements, to depths up to 142.4 feet with auger pre-drilling;
- Conducting two-dimensional field electrical resistivity testing along four alignments;
- Performing borehole geophysical logging including natural gamma, long- and short-normal resistivity, spontaneous potential, three-arm caliper, and direction survey, and P-S velocity logging in 10 SPT borings;
- Conducting SPT hammer energy testing for each of the five hammer-rod combinations used.
- Soils laboratory testing for moisture content, unit weight, specific gravity, sieve and hydrometer analysis, Atterberg limits, organic content, chemical analysis (pH, sulfate, chloride, cation exchange capacity), moisture-density, unconfined compression, unconsolidated-undrained triaxial compression, consolidated-undrained triaxial compression, direct shear, resonant column torsional shear (RCTS), and consolidation properties. RCTS data is not yet available and will be submitted as an addendum to this report.
- Water laboratory testing for alkalinity, ammonia, nitrogen, bromide, chloride, dissolved solids, fluoride, nitrate, nitrite, sulfate, and sulfide.

This data report, prepared to convey information collected during the subsurface investigation, includes the following:

- Table listing the manufacturer field equipment used,
- As-built exploration point survey data,
- List of subcontractors used,
- Underground utility detection report,
- Typed SPT boring logs,
- CPT report,
- Typed observation well logs,

- Field permeability test results,
- Field electrical resistivity test results,
- Borehole geophysical logging results,
- Laboratory test results, and
- SPT hammer energy study results.

Services with respect to providing engineering analyses and recommendations, approval of testing locations, environmental assessments, and wetlands identification are not included in our scope of services.

2.0 Field Testing and Sampling

The subsurface investigation, including field testing and sampling, was performed between April 27, 2006 and August 8, 2006, except for the as-built survey which was performed between September 15, 2006 and October 19, 2006, and the ground water sampling which was performed between December 19 through 21, 2006. All field testing and sample collection was performed in accordance with technical procedures and work plans established for this project. The field equipment used during field testing and sampling activities is provided as Table A1 in Appendix A.

The subsurface exploration test locations were planned by Bechtel personnel and presented to us on the Subsurface Investigation Location Plan (Drawings 25237-0-CY-0000-00001 and 25237-0-CY-0000-00002) and on the Test Pit Location Plan, (Drawing 25237-0-CY-0000-00003). Each planned test location was staked in the field in advance of the associated testing activity. Offsets from the planned locations were sometimes necessary to avoid steep slopes, large trees, wetland buffers, overhead power lines, underground utilities, and debris piles. Offset locations were approved by Bechtel personnel in advance of testing.

2.1 Surveying Services

Surveying services included both an initial stakeout prior to testing and an as-built survey after testing. The originally planned subsurface exploration point locations (i.e., northing and easting) were staked in the field during the initial stakeout. The follow-up survey was performed after completion of field testing activities to determine the as-built locations for subsurface exploration points offset from their originally planned locations. A summary of the as-built subsurface exploration point locations is provided as Table A2 in Appendix A.

2.2 Underground Utility Detection

Underground utility detection activities were performed to investigate for the presence of underground utilities at each subsurface exploration point location. When underground utility conflicts were detected, subsurface exploration point locations were offset to avoid underground utilities. The underground utility location report prepared by AMT (provided in Appendix B) includes the methods used and the results of the underground utility detection activities.

2.3 SPT Drilling and Sampling

A total of 145 SPT borings were performed to depths up to 403 feet. Schnabel personnel provided full-time field inspection of SPT boring activities and logged each boring during drilling. SPT boring logs are presented in Appendix C. Five drilling rigs equipped with automatic SPT hammers were used to advance the borings, including:

1. Failing 1500 (truck-mounted)
2. CME 75 (truck-mounted)
3. CME 550 (ATV-mounted)
4. CME 750 (ATV-mounted)
5. Diedrich D50 (ATV-mounted)

Borings were advanced using primarily mud rotary techniques, although hollow-stem augers were used as casing in the upper portions of some borings. Details about the drilling tools used for each boring are included on the boring logs. The drilling mud, consisting of a weighted bentonite-water mixture, was used to stabilize the borehole walls and to facilitate sediment removal during drilling. Clean water was used during drilling. The water was brought in from offsite and stored in a water tank.

Standard penetration testing (ASTM D 1586) was generally conducted at a regular spacing of one test every five feet. However, tests were conducted every two-and-a-half feet in the upper 15 feet of each boring. Additionally, SPTs were conducted approximately every ten feet below a depth of about 300 feet in boring B-401. Pocket penetrometer measurements were collected on the exposed bottom portion of selected cohesive undisturbed tube samples. SPT and pocket penetrometer results are included on the boring logs in Appendix C.

Soil sampling in SPT borings included collecting disturbed SPT samples and undisturbed tube samples. SPT split-spoon samples retrieved at each SPT interval were visually described and classified by a Schnabel field inspector. A representative portion of each recovered split-spoon sample was placed in a glass sample jar sealed with a moisture-proof lid. Undisturbed tube samples were collected at selected intervals between SPT tests. The methods used to collect tube samples, including Shelby tubes, Osterberg, and Pitcher sampling, were selected on based on geologic conditions. When possible, the exposed bottom portion of each recovered tube sample

was visually described and classified by a Schnabel field inspector before the tubes were capped and sealed with wax.

SPT borings were backfilled with bentonite-cement grout using a tremie-pipe to displace drilling mud during grout placement. All borings were sealed with grout except for the boring in which wells were installed. A note indicating whether a boring was sealed with grout or finished with a well is included on each boring log.

2.4 Test Pit Excavation

A total of 20 test pits were excavated to depths up to ten feet with a backhoe. Schnabel personnel provided full-time field inspection of test pit excavation activities and logged each test pit during excavation. The Schnabel field inspector collected bulk soil samples at various depths within the test pit excavations. Test pit logs, including subsurface soil descriptions and classifications, ground water observations, and sampling depth intervals, are presented in Appendix C.

2.5 Well Installation

A total of 40 ground water observation wells were installed to depths up to 122 feet. Schnabel personnel provided full-time field inspection of well installation activities and prepared a well construction field log during well installation. Wells were either installed in SPT boreholes in lieu of grout backfill, or at an offset location, typically about ten feet from the SPT "companion" boring. For wells installed in SPT boreholes, the borehole was grouted to the planned bottom depth of the well and reamed to at least six-inch diameter using mud rotary methods and biodegradable drilling fluid. The well holes installed at offset locations were advance using either six-and-a-quarter-inch inside diameter hollow-stem augers or six-inch diameter mud rotary methods with biodegradable drilling fluid. No SPT sampling was conducted at offset well locations.

Well construction logs are presented in Appendix D. Ground water observation wells were constructed using two-inch diameter schedule 40 PVC riser casing; ten-foot long, ten-slot (0.01-inch), machine-cut PVC screen; and a two-foot long sump made of blank casing capped on the bottom. Centralizers were placed above and below the screen interval. Filter pack sand consisting of clean, well-graded sand was placed around the sump and screen intervals, and at

least two feet above the top of the screen. A bentonite seal at least three feet thick was placed above the filter pack. The annular space around the riser casing above the bentonite seal was backfilled with cement-bentonite grout. A protective steel well cover, locking cap, and concrete surface seal were installed for each well.

Each well was developed by pumping and/or flushing with clean water to remove sediment from the well and filter pack prior to field permeability testing. The duration and extent of well development was determined by Bechtel field personnel. However, in general development was carried out until the well water appeared clear.

2.6 Field Permeability Testing

Schnabel personnel performed field permeability testing at each of the 40 ground water observation wells from July 21 to 31, 2006. We followed the falling head slug test method in accordance with Section 8 of ASTM D 4044. A falling head slug test is an unsophisticated test method in which an object of known volume is lowered into a well to induce a rise in water level in the well. Water in the well is subsequently forced out into the surrounding aquifer due to an increase in water pressure at a rate proportional to the hydraulic conductivity of the aquifer. Permeability testing results are presented in Appendix D.

Of the 40 wells tested, 38 contained water immediately prior to testing and two, OW-729 and OW-770, were dry immediately prior to testing. We used a mechanical slug in the wet wells and a water slug in the two dry wells. The mechanical slug was a five-foot long, 1-¼ inch internal diameter (1-¾ external diameter) PVC pipe filled with sand. The water slug was a measured amount of water poured quickly into the well.

We recorded a pre-test water level for each well using a water level indicator. Prior to conducting the falling head test at each well, we used an In-situ, Inc. LevelTroll pressure transducer to obtain pre-test water level trends. The LevelTroll was inserted into the well and linked by a cable to a field laptop at the surface. We recorded water level measurements with the LevelTroll every two seconds until the water level in the well recovered from the insertion of the transducer.

To conduct the falling head test, we quickly inserted the slug in the well to raise the water height almost instantaneously. The LevelTroll recorded the water level in the well every 0.250 seconds for the first five minutes, and every two seconds thereafter. The duration of the tests

varied from several minutes to three hours, depending on the time it took for the water levels to return to approximate pre-test levels. We ended the test when the water level recovered to within about 0.3 feet of the pre-test water levels, or three hours duration.

2.7 Hydraulic Conductivity Analysis

Hydraulic conductivity analysis was performed for each set of permeability test data using the Bouwer and Rice method for slug/bail testing and Aquifer Test software (version 2.57) by Waterloo Hydrogeologic, Inc. Input parameters (static water level, depth to bottom of aquifer, length of screen, casing radium, and radius of influence) used in the analysis are included on each of the hydraulic conductivity data report sheets included in Appendix D. The porosity of the well filter pack was assumed to be 25%. The hydraulic conductivity results are summarized in Table 1. The hydraulic conductivity analysis results for the two dry observation wells (OW-729 and OW-770) are not reported because the permeability testing for these wells impacted the filter pack material rather than the surrounding formation soil.

Table 1: Summary of Hydraulic Conductivity Results

Location	Screened Interval Depth (ft)	USCS	Hydraulic Conductivity (ft/s)
OW-301	65 – 75	SP	$1.58X10^{-4}$
OW-313A	40 – 50	SM, ML	$7.50X10^{-6}$
OW-313B	95 – 105	CL, ML, MH	$2.74X10^{-7}$
OW-319A	20 – 30	SP-SM, SC, CH, CL	$2.89X10^{-6}$
OW-319B	70 – 80	SM	$3.42X10^{-5}$
OW-323	30 – 40	SP, SP-SM	$6.24X10^{-5}$
OW-328	60 – 70	SM, OH	$3.79X10^{-6}$
OW-336	60 – 70	SP-SM, SM	$2.10X10^{-5}$
OW-401	63 – 73	SM	$6.77X10^{-6}$
OW-413A	35 – 45	SP-SM	$1.21X10^{-5}$
OW-413B	110 – 120	SP-SM, SM	$2.78X10^{-6}$
OW-418A	25 – 35	SP-SM	$4.41X10^{-6}$
OW-418B	75 – 85	SC, SM	$2.16X10^{-7}$
OW-423	28 – 38	SP-SM, SM, SC	$6.86X10^{-5}$
OW-428	35 – 45	SM, SC	$1.19X10^{-5}$
OW-436	29 – 39	SC, SM	$2.80X10^{-6}$
OW-703A	35 – 45	SM	$1.34X10^{-5}$

OW-703B	68 – 78	SM, ML	$1.08X10^{-6}$
OW-705	40 – 50	SC, SM	$4.99X10^{-6}$
OW-708	22 – 32	SM	$2.56X10^{-5}$
OW-711	35 – 45	SM	$6.04X10^{-6}$
OW-714	38 – 48	SP-SM, SC	$2.81X10^{-6}$
OW-718	30 – 40	SP-SM	$4.44X10^{-6}$
OW-725	48 – 58	SM	$7.54X10^{-6}$
OW-735	60 – 70	SP-SM, SM	$5.48X10^{-5}$
OW-743	40 – 50	SP-SM, SM	$6.23X10^{-7}$
OW-744	38 – 48	CL, SC, SM	$1.07X10^{-6}$
OW-752A	25 – 35	CH, SM	$7.03X10^{-5}$
OW-752B	85 – 95	SP-SM	$3.35X10^{-6}$
OW-754	32 – 42	CL, SM	$5.29X10^{-6}$
OW-756	30 – 40	SP-SM, SP-SC	$2.01X10^{-4}$
OW-759A	20 – 30	SM, SC, MH	$4.64X10^{-7}$
OW-759B	75 – 85	SM, SP, SP-SM	$1.17X10^{-6}$
OW-765A	17 – 27	SP-SM	$1.00X10^{-5}$
OW-765B	82 – 92	SM	$1.36X10^{-6}$
OW-766	20 – 30	SP-SM	$1.10X10^{-6}$
OW-768	30 – 40	SM	$5.29X10^{-6}$
OW-769	32 – 42	SM, SC	$1.74X10^{-6}$

2.8 Ground Water Sampling

Ground water sampling was performed between December 19 and 21, 2006 to obtain ground water samples for laboratory analysis. A total of 15 ground water observation wells, were sampled, including OW-301, OW-323, OW-336, OW-401, OW-423, OW-428, OW-705, OW-708A, OW-711, OW-725, OW-735, OW-744, OW-752, OW-768A, and OW-769. The wells were purged prior to obtaining the ground water samples. Water quality field parameters including pH, dissolved oxygen, electrical conductivity, oxidation-reduction potential, and turbidity, were measured during purging in accordance with ASTM D 6452. Water sampling was also performed in accordance with ASTM D 6452 using a submersible pump laced below the water level in the well and above the screen interval, if possible. The well sampling records for each well are included in Appendix D.

2.9 Field Electrical Resistivity Testing

Field electrical resistivity (ER) testing was performed on June 19 and 20, 2006 to provide apparent resistivity values and modeled one dimensional ground resistivity profiles for

grounding design. ER testing results are provided in Tables 1 and 2 below, and in graphical format (i.e., Resistivity Sounding Data Sheets) in Appendix E.

Schnabel personnel collected field resistivity data using an Advanced Geosciences, Inc., Sting resistivity meter, a Wenner four-electrode array, and "a" spacings of 1.5, 3, 5, 7.5, 10, 15, 20, 30, 40, 50, 100, 200, and 300 feet in accordance with ASTM G57 and IEEE 81. The arrays were centered on the surveyed and staked locations R-1 and 2, R-3, and R-4 as shown on the Subsurface Investigation Location Plan. The electrode locations used for the "a" spacings were located using 300 ft measuring tapes along the appropriate bearings using a Brunton compass. ER line R-1, oriented to site east-west, and line R-2, oriented to site north-south crossed at their midpoints. ER lines R-3 and R-4 were single lines in two separate locations oriented to site north-south. Ground cover at the testing locations generally consisted of forest litter underlain by sandy soil.

Perpendicular lines R-1 and R-2 may be used to observe resistivity anisotropy in the subsurface. Anisotropy is typically caused by differing soil types, soil grain orientation, or moisture content within the test area. In general, the site soils exhibited anisotropy at greater depths. However, consideration should be given to the terrain, which varied between lines R-1 and R-2. The measurements appear to be consistent with those expected from coastal plain soils. The location of the vertical resistivity profile is considered at the midpoint of the array. The depth of the measurements is about ⅓ of the "a" spacing (Roy, A. and Apparao, A., 1971, *Depth of Investigation in Direct Current Methods,* Geophysics, v. 36, No. 5, pp. 943-959).

The raw field data are considered "apparent" resistivity values because the measured data includes influences from the large volume of material that is sampled and influences from the geometry of the array used. Modeling the data is an attempt to remove these influences and develop vertical profiles that estimate the true subsurface resistivity values. Schnabel personnel modeled the apparent resistivity data using the modeling software Res1D by M.H. Loke, which uses an iterative approach to model true conditions, and a multi-layer approach. The multiple-layer inversion method results in models with much lower RMS error than a simple two layer method. We found that a seven-layer scenario resulted in the lowest error for ER-1 (12.4%), and a five-layer scenario resulted in the lowest RMS error for line R-2 (7.70%). The inversion results for lines R-1 and R-2 are presented in Table 2 below and on the Resistivity Sounding Data Sheet (sheet one of three) in Appendix E.

Table 2: Field Resistivity Results, ER Lines R-1 and R-2

Location	Bottom Depth of Layer (ft)	Resistivity (Ohm-feet)
R-1	0.5	1,404
	2.2	40,413
	6.3	3,169
	15.0	10,216
	43.1	167
	119.4	56
	N/A	308
R-2	0.5	2,096
	7.6	11,969
	17.9	7,372
	62.9	3,885
	N/A	223

The two perpendicular lines R-1 and R-2 show similar apparent resistivity values in the upper layers. However, the models show differences between their layer resistivities and thicknesses. This may be due to complexities in the subsurface that the inversion program cannot resolve or the fact that lines R-1 and R-2 had potentially significant differences in topography.

The model inversions for lines R-3 and R-4 resulted in best fit of a four layer model with an RMS error of 9.4%, and a best fit of a five layer model with an RMS error of 11.2%, respectively. Although these ER lines were collected with the same trend, the raw data show significant differences which are reflected in the inverted model results. The inversion results for lines R-3 and R-4 are presented in Table 3 below and on the Resistivity Sounding Data Sheets (sheets 2 and 3 of 3) in Appendix E.

Table 3: Field Resistivity Results, ER Lines R-3 and R-4

Location	Bottom Depth of Layer (ft)	Resistivity (Ohm-feet)
ER-3	2.4	9,685
	10.6	39,140
	59.8	420
	N/A	98
ER-4	4.6	1,621
	13.8	16,535
	39.9	2,923
	53.2	1,230
	N/A	118

2.10 CPT Soundings

ConeTec, Inc. completed a total of 63 cone penetration test (CPT) soundings to depths up to 142.4 feet, including seismic and pore pressure dissipation testing at selected depth intervals. Many CPT soundings encountered refusal above the target depths. Predrilling with hollow-stem augers was performed in several locations to penetrate refusal zones. Schnabel personnel provided full-time field inspection of CPT activities.

The ConeTec report, *Presentation of In Situ Testing Program Results*, is presented in Appendix F. The ConeTec report includes a summary of the equipment and methods used as well as CPT test results (i.e., CPT logs, shear wave velocity data, and pore pressure dissipation curves).

2.11 Borehole Geophysical Logging

Geovision, Inc. performed borehole geophysical logging in a total of ten SPT borings. Borehole geophysical methods included natural gamma, long- and short-normal resistivity, spontaneous potential, three-arm caliper, direction survey, and P-S velocity logging. Schnabel personnel provided full-time field inspection of borehole geophysical logging activities. The Geovision report, *Boring Geophysical Logging*, is presented in Appendix G. The Geovision report includes a summary of the equipment and methods used as well as the borehole geophysics test results.

2.12 SPT Hammer Energy Testing

GRL Engineers, Inc. performed SPT energy measurements for each of the five SPT drilling rigs used for this project to evaluate the energy transfer efficiency for each rig-hammer combination. Schnabel personnel provided full-time field inspection of SPT energy measurement activities. The GRL report, *Summary Report for SPT Energy Measurements*, is included in Appendix H. The GRL report presents a summary of the equipment and methods used as well as the results of the SPT hammer energy testing.

2.13 Subcontractors

Table A3 in Appendix A lists the subcontractors used by Schnabel on the project.

3.0 Laboratory Testing

Laboratory testing of selected soil samples was performed on disturbed SPT and bulk samples, and undisturbed tube samples recovered from the SPT test borings and test pit excavations. Laboratory testing of selected water samples was performed on ground water samples obtained from ground water observation wells. The samples selected for testing were based on laboratory assignments provided by Bechtel personnel. Soil laboratory tests included moisture content, grain size (sieve and hydrometer), Atterberg limits, organic content, chemical analysis (pH, chloride, sulfate, cation exchange capacity), unit weight, specific gravity, moisture-density, California bearing ratio (CBR), consolidation, unconfined compression (UC), unconsolidated-undrained triaxial compression (UU), consolidated-undrained triaxial compression (CIU-bar), direct shear, resonant column torsional shear (RCTS) testing. Water laboratory testing included total dissolved solids, inorganic ions (bromide, chloride, fluoride, sulfide, sulfate, nitrite, and nitrate), alkalinity (bicarbonate/carbonate), and ammonia. Laboratory testing was conducted in accordance with the following ASTM standards:

1) Identification and Index Testing:
   a) Unified Soil Classification System (USCS) – ASTM D 2487 and ASTM D 2488
   b) Sieve and Hydrometer Analysis – ASTM D 422 and ASTM D 6913
   c) Atterberg Limits – ASTM D 4318
   d) Natural Moisture Content – ASTM D 2216
   e) Specific Gravity – ASTM D 854
   f) Organic Content – ASTM D 2974

2) Compaction and Strength Tests
   a) Moisture-Density Relationship – ASTM D 1557
   b) California Bearing Ratio – ASTM D 1883
   c) Unconfined Compression – ASTM D 2166
   d) Unconsolidated-undrained Triaxial Compression – ASTM D 2850
   e) Consolidated-undrained Triaxial compression – ASTM D 4767
   f) Direct Shear – ASTM D 3080

3) Compressibility Tests
   a) Consolidation – ASTM D 2435

4) Chemical Testing – Soil
   a) pH – ASTM D 4972
   b) Chloride – EPA 300.0
   c) Sulfate – EPA 300.0
   d) Cation Exchange Capacity – ECL-SOP-313

5) Chemical Testing – Water
   a) Total Dissolved Solids – ECL-SOP-306
   b) Inorganic Ions – ECL-SOP-301a
   c) Alkalinity – ECL-SOP-312
   d) Ammonia – ECL-SOP-320 and ECL-SOP-350

A total of five approved soil testing laboratories were used to conduct soil laboratory testing for this project, including:

- Schnabel Engineering, Baltimore, Maryland

  Performed moisture content, sieve, sieve with hydrometer, Atterberg limits, unit weight, specific gravity, moisture density, and CBR tests.

- Schnabel Engineering, Blacksburg, Virginia

  Performed moisture content, sieve with hydrometer, Atterberg limits, unit weight, specific gravity, consolidation, UC, UU, CIU-bar and direct shear tests.

- GeoTesting Express, Boxborough, Massachusetts

  Performed moisture content, sieve, sieve with hydrometer, Atterberg limits, unit weight, specific gravity, consolidation, UC, UU, CIU-bar and direct shear tests.

- Enviro-Chem, Baltimore, Maryland

  Performed chemical analysis tests on soil and ground water samples.

- Fugro Consultants, Houston, Texas

  Performed RCTS tests (results pending).

Detailed laboratory test results are presented in Appendix I. The boring logs in Appendix B include moisture content, grain size, and Atterberg limits results. The Unified Soil Classification System (USCS) group names and group symbols shown on the logs are consistent with laboratory testing results. The color descriptions on the gradation curves indicate the colors observed during laboratory testing and therefore may differ from the color descriptions on the boring logs which reflect field observations.

APPENDIX A
SUMMARY TABLES

- Table A1: Field Equipment List
- Table A2: As-Built Subsurface Exploration Point Locations
- Table A3: Subcontractors

Table A1
Field Equipment List

Table A1
Field Equipment List
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Field Activity	Equipment Used				
	General Description	Manufacturer	Model	Serial Number	Calibration Certification Date
Surveying	Transit	Topcon	GPT-3002W	990609	2/13/2006
Underground Utility Detection	Pipe/Cable Locator	Radiodetection	RD-4000	142021NZ	1/26/2006
	Pipe/Cable Locator	Radiodetection	RD-4001	2938UZ	1/26/2006
	Pipe/Cable Locator	Metrotech	Metrotech	3222	3/13/2006
	Pipe/Cable Locator	Metrotech	Metrotech	3222	3/13/2006
Standard Penetration Testing (SPT) and Well Installation	SPT Drilling Rig	Failing	1500 (truck-mounted)	N/A	N/A
	SPT Drilling Rig	Central Mine Equipment Co.	75 (truck-mounted)	N/A	N/A
	SPT Drilling Rig	Central Mine Equipment Co.	550 (ATV-mounted)	N/A	N/A
	SPT Drilling Rig	Central Mine Equipment Co.	750 (ATV-mounted)	N/A	N/A
	SPT Drilling Rig	Diedrich Drill, Inc.	D50 (ATV-mounted)	N/A	N/A
	Automatic SPT Hammer	Central Mine Equipment Co.	N/A	C-I	4/18/2006
	Automatic SPT Hammer	Central Mine Equipment Co.	N/A	C-II	4/18/2006
	Automatic SPT Hammer	Diedrich Drill, Inc.	N/A	C-III	5/12/2006
	Automatic SPT Hammer	Central Mine Equipment Co.	N/A	UTD-001	4/20/2006
	Automatic SPT Hammer	Central Mine Equipment Co.	N/A	UTD-002	4/24/2006
Cone Penetration Testing (CPT)	CPT Sounding Rig	ConeTec, Inc./Moroka	TC3	N/A	N/A
	Load Cell	ConeTec, Inc.	N/A	LC1129	5/15/2006
	Electronic Seismic Piezo Cone	ConeTec, Inc.	N/A	AD195	2/13/2006 & 7/11/2006
	Electronic Seismic Piezo Cone	ConeTec, Inc.	N/A	AD184	9/14/2005 & 7/11/2006
Field Electrical Resistivity	Resistivity Meter	Advanced Geosciences, Inc.	STING R1 Resistivity Meter	990324	6/16/2006

Table A1
Field Equipment List
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Field Activity	Equipment Used				
	General Description	Manufacturer	Model	Serial Number	Calibration Certification Date
SPT Hammer Energy Study	Accelerometer	Pile Dynamics, Inc.	N/A	P548	11/11/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0280	11/17/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0018	6/29/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0262	6/30/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0277	5/30/2006
	Accelerometer	Pile Dynamics, Inc.	N/A	K0019	5/16/2006
	Accelerometer	Pile Dynamics, Inc.	N/A	122J	11/3/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0363	9/22/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0455	2/2/2006
	Accelerometer	Pile Dynamics, Inc.	N/A	K0417	12/1/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0397	12/1/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0281	7/20/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0286	7/20/2005
	Accelerometer	Pile Dynamics, Inc.	N/A	K0287	7/20/2006
	Accelerometer	Pile Dynamics, Inc.	N/A	K0288	12/13/2005
	Pile Driving Analyzer	Pile Dynamics, Inc.	Model PAK	1702	5/19/2006
	Pile Driving Analyzer	Pile Dynamics, Inc.	Model PAK	1638	3/23/2005
Downhole Geophysics	Caliper Calibration Plate	Robertson Geo Logging	N/A	201	4/6/2006
	Suspension Logger	Oyo Corp.	3331-A	19029	4/21/2006
	Suspension Telemetry	Oyo Corp.	3403	160023	4/21/2006
	Seismograph	Geometrics	STRATAVIEW	75299	4/21/2006
	Counter	Hewlett Packard	2626A09881	5335A	4/21/2006
	FCTN Gen	Hewlett Packard	2847A14447	3325B	4/21/2006

Table A1
Field Equipment List
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Field Activity	Equipment Used				
	General Description	Manufacturer	Model	Serial Number	Calibration Certification Date
Permeability Testing	Pressure Transducer	InSitu, Inc.	Level Troll 700	104259	1/24/2006
	Pressure Transducer	InSitu, Inc.	Level Troll 700	104213	1/19/2006
	Pressure Transducer	InSitu, Inc.	Level Troll 700	104255	1/23/2006
	Water Level Meter	Heron Instruments	Dipper-T	WLP-001	7/20/2006
Pocket Penetration Index Testing	Pocket Penetrometer	Ben Meadows Company	5JF-49015	PP-01	4/25/2006
	Pocket Penetrometer	Ben Meadows Company	5JF-49015	PP-02	4/25/2006
	Pocket Penetrometer	Ben Meadows Company	5JF-49015	PP-03	4/25/2006
	Pocket Penetrometer	Ben Meadows Company	5JF-49015	PP-04	4/25/2006

Table A2
As-Built Subsurface Exploration Point Locations

Table A2
As-Built Subsurface Exploration Point Locations
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Location	Depth (ft)	Termination Elevation (ft)	Coordinates (ft) Maryland State Plane (NAD 1927)		Ground Surface Elevation (ft) (NGVD 29)	Elevation (ft) Top of Concrete at Base of Well Head Protector	Elevation (ft) Ground Water Level Measuring Point (V-Notch)	Date of As Built Survey
			North	East				
B-301	403.0	-308.5	217024.06	960815.05	94.51	N/A	N/A	9/15/2006
B-302	200.0	-123.6	217122.24	960766.98	76.41	N/A	N/A	9/15/2006
B-303	200.0	-112.6	217016.91	960867.69	87.40	N/A	N/A	9/15/2006
B-304	200.0	-132.0	217188.61	960896.88	68.00	N/A	N/A	9/15/2006
B-305	151.5	-79.5	217166.25	960686.74	72.01	N/A	N/A	9/15/2006
B-306	150.0	-31.4	217024.31	960681.82	118.58	N/A	N/A	9/15/2006
B-307	201.5	-82.2	216955.27	960690.13	119.28	N/A	N/A	9/15/2006
B-308	150.0	-42.9	216906.69	960771.28	107.10	N/A	N/A	9/15/2006
B-309	150.0	-49.9	216949.24	960890.70	100.06	N/A	N/A	9/15/2006
B-310	100.0	-8.4	217081.40	960616.60	91.62	N/A	N/A	5/15/2006
B-311	150.0	-91.6	217268.61	960771.76	58.43	N/A	N/A	9/15/2006
B-312	99.5	-44.2	217293.00	960740.00	55.27	N/A	N/A	5/15/2006
B-313	150.0	-99.3	217372.34	960713.67	50.73	N/A	N/A	9/15/2006
B-314	100.0	-47.2	217321.89	960654.50	52.78	N/A	N/A	9/15/2006
B-315	100.0	-34.5	217184.68	960559.43	65.54	N/A	N/A	9/15/2006
B-316	100.0	8.1	216767.16	960864.35	108.07	N/A	N/A	9/15/2006
B-317	100.0	-5.6	217094.70	961249.20	94.42	N/A	N/A	5/15/2007
B-318	200.0	-102.2	217019.30	961227.20	97.82	N/A	N/A	5/15/2006
B-319	100.0	2.9	216963.62	961123.01	102.87	N/A	N/A	9/15/2006
B-320	150.0	-43.6	216943.50	961044.10	106.43	N/A	N/A	5/15/2006
B-321	150.0	-79.3	217152.50	960333.20	70.66	N/A	N/A	5/25/2006
B-322	100.0	-10.1	217170.03	960202.65	89.87	N/A	N/A	9/15/2006
B-323	200.0	-92.5	217027.97	960060.86	107.48	N/A	N/A	9/15/2006
B-324	101.5	3.7	216906.40	960114.44	105.20	N/A	N/A	9/15/2006
B-325	100.0	-15.0	216948.98	960549.73	84.97	N/A	N/A	9/15/2006
B-326	100.0	3.1	216859.22	960652.25	103.11	N/A	N/A	9/15/2006
B-327	150.0	-63.1	216865.70	960573.37	86.92	N/A	N/A	9/15/2006
B-328	150.0	-73.7	216828.86	960493.21	76.29	N/A	N/A	9/19/2006
B-329	100.0	-25.2	216800.38	960379.43	74.83	N/A	N/A	9/19/2006
B-330	100.0	-14.5	216715.40	960523.70	85.46	N/A	N/A	9/15/2006
B-331	100.0	-31.7	216970.57	960481.79	68.32	N/A	N/A	9/15/2006
B-332	100.0	-34.6	217127.42	960400.52	65.40	N/A	N/A	9/15/2006
B-333	98.8	-9.3	216657.04	960386.24	89.49	N/A	N/A	9/15/2006
B-334	100.0	-13.3	216515.53	960556.61	86.75	N/A	N/A	9/15/2006
B-335	100.0	-0.5	216732.70	960703.30	99.47	N/A	N/A	5/15/2006
B-336	100.0	-3.1	216632.91	960750.27	96.87	N/A	N/A	9/15/2006
B-337	100.0	-28.2	217257.88	960264.41	71.77	N/A	N/A	9/15/2006
B-338	99.6	-1.6	217121.10	960150.10	97.97	N/A	N/A	5/25/2006
B-339	100.0	-8.0	217095.21	960211.99	91.96	N/A	N/A	9/15/2006

Table A2
As-Built Subsurface Exploration Point Locations
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Location	Depth (ft)	Termination Elevation (ft)	Coordinates (ft) Maryland State Plane (NAD 1927)		Ground Surface Elevation (ft) (NGVD 29)	Elevation (ft) Top of Concrete at Base of Well Head Protector	Elevation (ft) Ground Water Level Measuring Point (V-Notch)	Date of As Built Survey
			North	East				
B-340	100.0	-15.4	217171.34	961225.22	84.57	N/A	N/A	9/15/2006
B-341	100.5	-2.3	217036.40	961104.48	98.16	N/A	N/A	9/15/2006
B-401	401.5	-329.4	216344.12	961516.81	72.06	N/A	N/A	9/15/2006
B-402	200.0	-117.8	216405.10	961463.50	82.22	N/A	N/A	5/15/2006
B-403	200.0	-136.6	216305.80	961562.90	63.41	N/A	N/A	5/15/2006
B-404	200.0	-132.1	216441.34	961596.49	67.90	N/A	N/A	9/21/2006
B-405	150.0	-28.0	216487.38	961408.73	122.00	N/A	N/A	9/15/2006
B-406	150.0	-31.6	216315.62	961352.01	118.36	N/A	N/A	9/15/2006
B-407	200.0	-118.4	216238.96	961412.45	81.63	N/A	N/A	9/15/2006
B-408	150.0	-81.6	216261.74	961482.04	68.41	N/A	N/A	9/15/2006
B-409	150.0	-88.5	216253.80	961614.80	61.55	N/A	N/A	4/20/2006
B-410	55.0	64.1	216374.30	961323.70	119.05	N/A	N/A	4/20/2006
B-410A*	98.7	20.4	216381.30	961323.70	119.05	N/A	N/A	4/20/2006
B-411	150.0	-68.6	216556.31	961517.19	81.45	N/A	N/A	9/15/2006
B-412	98.9	-6.7	216589.24	961495.42	92.17	N/A	N/A	9/15/2006
B-413	150.0	-27.1	216694.88	961413.25	122.90	N/A	N/A	9/15/2006
B-414	100.0	21.2	216630.18	961354.48	121.20	N/A	N/A	9/15/2006
B-415	98.7	20.6	216480.90	961264.20	119.26	N/A	N/A	4/20/2006
B-416	100.0	-13.8	216084.50	961596.34	86.22	N/A	N/A	9/15/2006
B-417	101.5	-52.3	216435.75	961901.11	49.23	N/A	N/A	9/15/2006
B-418	200.0	-156.3	216340.25	961976.71	43.67	N/A	N/A	9/22/2006
B-419	100.0	-44.7	216267.83	961895.60	55.29	N/A	N/A	9/21/2006
B-420	150.0	-87.4	216213.53	961670.44	62.57	N/A	N/A	9/15/2006
B-421	150.0	-34.4	216497.56	961019.77	115.58	N/A	N/A	9/15/2006
B-422	100.0	4.0	216478.23	960915.01	104.02	N/A	N/A	9/15/2006
B-423	201.5	-91.4	216331.76	960850.21	110.14	N/A	N/A	9/15/2006
B-424	100.0	18.9	216263.30	960818.60	118.92	N/A	N/A	4/26/2006
B-425	101.5	16.9	216247.50	961274.70	118.43	N/A	N/A	4/20/2006
B-426	100.0	-16.3	216193.04	961386.57	83.73	N/A	N/A	9/21/2006
B-427	150.0	-33.7	216164.05	961272.73	116.27	N/A	N/A	9/19/2006
B-428	150.0	-35.9	216109.19	961210.06	114.11	N/A	N/A	9/19/2006
B-429	100.0	3.7	216087.85	961119.27	103.66	N/A	N/A	9/19/2006
B-430	100.0	2.5	216006.88	961193.12	102.48	N/A	N/A	9/19/2006
B-431	101.5	16.9	216271.10	961177.30	118.43	N/A	N/A	4/20/2006
B-432	100.0	18.6	216399.00	961139.10	118.62	N/A	N/A	4/20/2006
B-433	100.0	-2.5	215963.80	961107.50	97.49	N/A	N/A	4/27/2006
B-434	100.0	5.2	215827.10	961244.30	105.15	N/A	N/A	5/2/2006
B-435	100.0	7.7	216020.06	961404.74	107.71	N/A	N/A	9/15/2006
B-436	100.0	8.3	215923.92	961441.55	108.29	N/A	N/A	9/22/2006

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Calvert County, Maryland

Location	Depth (ft)	Termination Elevation (ft)	Coordinates (ft) Maryland State Plane (NAD 1927)		Ground Surface Elevation (ft) (NGVD 29)	Elevation (ft) Top of Concrete at Base of Well Head Protector	Elevation (ft) Ground Water Level Measuring Point (V-Notch)	Date of As Built Survey
			North	East				
B-437	100.5	10.1	216521.76	960968.80	110.63	N/A	N/A	9/15/2006
B-438	6.5	99.5	216414.91	960848.90	105.95	N/A	N/A	9/28/2006
B-438A	100.0	6.6	216411.98	960867.31	106.59	N/A	N/A	9/28/2006
B-439	100.0	13.8	216340.49	960948.68	113.80	N/A	N/A	9/15/2006
B-440	100.0	-43.7	216349.47	961813.66	56.34	N/A	N/A	9/21/2006
B-701	75.0	-66.3	219485.54	960507.60	8.66	N/A	N/A	9/21/2006
B-702	50.0	-39.7	218980.62	961183.23	10.33	N/A	N/A	9/21/2006
B-703	100.0	-54.6	218171.00	960957.01	45.42	N/A	N/A	9/21/2006
B-704	50.0	-10.4	217991.06	960926.05	39.58	N/A	N/A	9/21/2006
B-705	50.0	-3.3	217581.30	960917.90	46.75	N/A	N/A	4/19/2006
B-706	50.0	27.4	217140.14	961339.74	77.42	N/A	N/A	9/21/2006
B-707	50.0	17.4	217396.98	961481.84	67.38	N/A	N/A	9/21/2006
B-708	100.0	-62.7	217585.84	961810.64	37.35	N/A	N/A	9/28/2006
B-709	50.0	-18.8	217642.82	961978.18	31.25	N/A	N/A	9/28/2006
B-710	75.0	-27.0	217542.51	962136.88	47.96	N/A	N/A	9/28/2006
B-711	50.0	3.0	216755.70	961743.50	53.01	N/A	N/A	4/19/2006
B-712	50.0	-7.6	216506.16	961997.56	42.41	N/A	N/A	9/22/2006
B-713	50.0	8.0	216117.68	962283.16	57.99	N/A	N/A	9/28/2006
B-714	50.0	66.0	215705.73	962034.37	116.02	N/A	N/A	10/16/2006
B-715	50.0	36.3	214951.76	962639.59	86.29	N/A	N/A	10/17/2006
B-716	49.5	32.9	215003.21	961364.57	82.35	N/A	N/A	10/16/2006
B-717	50.0	40.7	214302.45	962349.27	90.72	N/A	N/A	10/17/2006
B-718	50.0	67.5	214130.52	961929.05	117.47	N/A	N/A	10/18/2006
B-719	49.4	25.8	213978.69	961500.20	75.23	N/A	N/A	10/18/2006
B-720	75.0	-1.5	215674.48	962378.47	73.47	N/A	N/A	9/28/2006
B-721	100.0	1.3	215545.80	962462.10	101.30	N/A	N/A	5/4/2006
B-722	73.9	25.9	215386.10	962467.00	99.78	N/A	N/A	5/4/2006
B-723	75.0	15.0	215108.00	963000.80	90.02	N/A	N/A	4/28/2006
B-724	100.0	-3.0	214780.00	963106.20	96.97	N/A	N/A	4/28/2006
B-725	75.0	-16.0	214664.30	963219.40	59.02	N/A	N/A	4/28/2006
B-726	75.0	3.3	215564.67	961709.57	78.33	N/A	N/A	10/16/2006
B-727	100.0	4.9	215300.85	961884.98	104.88	N/A	N/A	10/16/2006
B-728	75.0	37.3	215163.63	961910.05	112.30	N/A	N/A	10/16/2006
B-729	75.0	42.3	214861.87	962454.60	117.28	N/A	N/A	10/17/2006
B-730	75.0	40.4	214728.50	962523.84	115.36	N/A	N/A	10/17/2006
B-731	99.3	16.4	214546.48	962547.88	115.67	N/A	N/A	10/17/2006
B-732	75.0	15.7	215034.10	961594.70	90.72	N/A	N/A	5/11/2006
B-733	100.0	-12.1	214866.80	961697.70	87.92	N/A	N/A	5/11/2006
B-734	75.0	30.7	214589.60	961812.50	105.73	N/A	N/A	5/9/2006

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Constellation Generation Group (CGG) COLA Project
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Calvert County, Maryland

Location	Depth (ft)	Termination Elevation (ft)	Coordinates (ft) Maryland State Plane (NAD 1927)		Ground Surface Elevation (ft) (NGVD 29)	Elevation (ft) Top of Concrete at Base of Well Head Protector	Elevation (ft) Ground Water Level Measuring Point (V-Notch)	Date of As Built Survey
			North	East				
B-735	75.0	16.2	214805.48	961021.83	91.20	N/A	N/A	10/16/2006
B-736	75.0	23.3	214681.67	961154.26	98.29	N/A	N/A	10/16/2006
B-737	100.0	-36.5	214511.91	961147.40	63.47	N/A	N/A	10/16/2006
B-738	75.0	12.3	213826.30	961679.62	87.29	N/A	N/A	10/19/2006
B-739	99.8	0.5	213719.60	961793.32	100.35	N/A	N/A	10/19/2006
B-740	75.0	-0.7	213605.13	961781.13	74.29	N/A	N/A	10/19/2006
B-741	75.0	6.4	213760.48	961029.82	81.38	N/A	N/A	10/18/2006
B-742	100.0	2.4	213472.84	961217.19	102.39	N/A	N/A	10/18/2006
B-743	75.0	28.6	213315.70	961232.00	103.60	N/A	N/A	5/9/2006
B-744	100.0	13.3	216377.30	959963.38	113.28	N/A	N/A	9/29/2006
B-745	75.0	36.7	215971.20	960529.02	111.71	N/A	N/A	9/29/2006
B-746	75.0	7.8	215743.35	960721.36	82.79	N/A	N/A	9/29/2006
B-747	75.0	15.3	216176.28	959944.95	90.34	N/A	N/A	9/29/2006
B-748	100.0	-17.6	216039.74	960288.74	82.40	N/A	N/A	9/29/2006
B-749	75.0	27.5	215775.08	960332.24	102.53	N/A	N/A	9/29/2006
B-750	73.9	-1.6	215849.16	959930.06	72.35	N/A	N/A	9/29/2006
B-751	73.9	18.3	215588.86	960146.20	92.23	N/A	N/A	9/29/2006
B-752	100.0	-4.2	215489.21	960257.57	95.79	N/A	N/A	9/29/2006
B-753	40.0	8.8	217831.20	960648.86	48.81	N/A	N/A	9/21/2006
B-754	50.0	17.0	217369.78	960290.37	67.00	N/A	N/A	9/21/2006
B-755	40.0	55.0	215923.66	961637.86	94.98	N/A	N/A	9/22/2006
B-756	50.0	56.9	215504.60	961215.10	106.85	N/A	N/A	4/21/2006
B-757	40.0	66.9	215135.13	960760.60	106.86	N/A	N/A	10/16/2006
B-758	40.0	42.6	215133.29	960332.67	82.63	N/A	N/A	10/16/2006
B-759	100.0	-1.7	214526.25	960025.32	98.35	N/A	N/A	10/19/2006
B-765	102.0	-4.6	216424.51	959701.22	97.37	N/A	N/A	9/29/2006
B-766	50.0	58.9	216932.89	959791.50	108.89	N/A	N/A	9/19/2006
B-768	100.0	-51.6	217116.03	962242.98	48.39	N/A	N/A	9/28/2006
B-769	50.0	4.2	216589.75	962559.47	54.23	N/A	N/A	9/28/2006
B-770	50.0	71.6	215466.60	962826.95	121.59	N/A	N/A	10/18/2006
C-301	52.3	42.5	217041.78	960820.13	94.84	N/A	N/A	9/15/2006
C-302	61.7	29.3	217088.90	960833.77	90.94	N/A	N/A	9/15/2006
C-302-2*	55.3	39.2	217026.56	960817.55	94.51	N/A	N/A	7/26/2006
C-302-2a*	138.0	-43.5	217026.56	960817.55	94.51	N/A	N/A	7/26/2006
C-303	25.4	36.2	217230.60	960804.00	61.58	N/A	N/A	4/24/2006
C-303a*	47.1	14.5	217230.60	960804.00	61.58	N/A	N/A	7/25/2006
C-303a-1*	71.4	-9.8	217230.60	960804.00	61.58	N/A	N/A	7/25/2006
C-303b*	123.4	-61.8	217230.60	960804.00	61.58	N/A	N/A	7/25/2006

Table A2
As-Built Subsurface Exploration Point Locations
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Location	Depth (ft)	Termination Elevation (ft)	Coordinates (ft) Maryland State Plane (NAD 1927)		Ground Surface Elevation (ft) (NGVD 29)	Elevation (ft) Top of Concrete at Base of Well Head Protector	Elevation (ft) Ground Water Level Measuring Point (V-Notch)	Date of As Built Survey
			North	East				
C-304	26.7	34.2	217235.29	960606.73	60.95	N/A	N/A	9/15/2006
C-305	74.3	41.6	216876.50	960961.50	115.91	N/A	N/A	4/24/2006
C-306	56.9	40.4	217042.12	961184.89	97.31	N/A	N/A	9/15/2006
C-306a*	102.5	-5.2	217038.92	961181.69	97.31	N/A	N/A	7/27/2006
C-307	75.3	42.4	216853.68	961079.64	117.64	N/A	N/A	9/15/2006
C-308	48.2	36.1	217129.90	960263.70	84.33	N/A	N/A	5/1/2006
C-309	70.1	36.0	217045.62	960110.76	106.04	N/A	N/A	9/15/2006
C-311	34.9	39.0	216869.75	960488.16	73.97	N/A	N/A	9/15/2006
C-312	56.4	43.3	216799.20	960596.36	99.75	N/A	N/A	9/15/2006
C-313	37.2	42.7	216757.92	960336.75	79.93	N/A	N/A	9/15/2006
C-314	39.5	40.6	216531.40	960493.83	80.09	N/A	N/A	9/15/2006
C-401	28.1	39.4	216384.26	961574.09	67.46	N/A	N/A	9/15/2006
C-401-2a*	81.9	-14.4	216381.06	961570.89	67.46	N/A	N/A	7/27/2006
C-401-2b*	131.2	-63.8	216381.06	961570.89	67.46	N/A	N/A	7/27/2006
C-402	34.5	38.7	216333.85	961494.18	73.13	N/A	N/A	9/15/2006
C-403	43.8	39.2	216517.33	961511.47	82.96	N/A	N/A	9/15/2006
C-404	80.1	39.2	216524.30	961308.90	119.21	N/A	N/A	4/20/2006
C-405	40.0	35.5	216163.49	961666.32	75.54	N/A	N/A	9/15/2006
C-406	15.6	28.3	216380.92	961901.51	43.89	N/A	N/A	9/28/2006
C-407	32.3	30.9	216159.20	961732.20	63.23	N/A	N/A	6/22/2006
C-407-2a*	96.3	-33.1	216161.50	961726.70	63.23	N/A	N/A	7/28/2006
C-407-b*	142.4	-79.2	216161.50	961726.70	63.23	N/A	N/A	7/31/2006
C-408	77.4	40.8	216396.64	961001.81	118.18	N/A	N/A	9/15/2006
C-408a*	98.3	19.9	216398.76	960999.69	118.18	N/A	N/A	7/24/2006
C-408-2a*	123.7	-5.5	216393.81	961004.64	118.18	N/A	N/A	7/31/2006
C-409	80.5	38.6	216288.45	960760.56	119.12	N/A	N/A	9/15/2006
C-411	80.4	36.2	216178.94	961178.21	116.60	N/A	N/A	9/19/2006
C-412	76.8	37.5	216093.75	961306.66	114.31	N/A	N/A	9/28/2006
C-413	13.6	86.3	216045.53	961037.78	99.90	N/A	N/A	9/28/2006
C-414	62.5	39.9	215893.42	961201.10	102.36	N/A	N/A	9/28/2006
C-415	20.0	36.6	216305.70	961857.40	56.63	N/A	N/A	5/26/2006
C-701	29.5	-18.6	219262.19	960933.61	10.95	N/A	N/A	9/21/2006
C-701a*	28.1	-17.1	219265.39	960936.81	10.95	N/A	N/A	7/21/2006
C-702	20.3	-9.0	218720.05	961033.95	11.34	N/A	N/A	9/21/2006
C-703	32.6	35.2	217361.27	961165.03	67.82	N/A	N/A	10/17/2006
C-704	48.2	-2.9	217500.74	961710.02	45.36	N/A	N/A	9/28/2006
C-705	34.0	-2.9	217637.26	961983.10	31.08	N/A	N/A	9/28/2006
C-706	50.0	55.2	216958.95	961494.86	105.28	N/A	N/A	9/21/2006
C-707	19.5	20.8	216308.12	962079.42	40.35	N/A	N/A	9/22/2006

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			North	East				
C-708	50.0	62.9	215658.28	961962.86	112.97	N/A	N/A	10/16/2006
C-709	50.0	61.7	215027.59	962824.89	111.73	N/A	N/A	10/18/2006
C-710	21.2	85.0	214875.83	961187.31	106.15	N/A	N/A	10/16/2006
C-711	34.9	65.6	214222.13	962176.75	100.54	N/A	N/A	10/17/2006
C-712	29.7	29.4	213909.83	961370.06	59.05	N/A	N/A	10/18/2006
C-713	41.8	21.3	215855.86	962296.57	63.11	N/A	N/A	9/28/2006
C-714	85.1	24.2	214920.30	963057.62	109.32	N/A	N/A	10/18/2006
C-715	57.3	33.6	215445.62	961798.99	90.85	N/A	N/A	10/16/2006
C-716	20.5	75.7	214432.49	962659.44	96.21	N/A	N/A	10.17/2006
C-717	66.6	35.8	214698.14	961692.58	102.35	N/A	N/A	10/16/2006
C-718	34.1	33.6	214343.71	961205.59	67.67	N/A	N/A	10/16/2006
C-719	12.0	78.2	214025.30	961636.90	90.21	N/A	N/A	10/18/2006
C-720	70.7	28.0	213593.77	961134.09	98.66	N/A	N/A	10/18/2006
C-721	52.0	35.6	216157.88	960330.47	87.62	N/A	N/A	9/29/2006
C-722	38.4	36.1	215478.76	960648.26	74.52	N/A	N/A	10/16/2006
C-723	68.7	28.9	215988.18	959760.36	97.60	N/A	N/A	9/29/2006
R-1	N/A	N/A	215837.30	960255.80	85.45	N/A	N/A	5/3/2006
R-2	N/A	N/A	215837.30	960255.80	85.45	N/A	N/A	5/3/2006
R-3	N/A	N/A	216622.50	960406.80	89.12	N/A	N/A	5/2/2006
R-4	N/A	N/A	215915.40	961114.00	99.40	N/A	N/A	4/27/2006
OW-301	80.0	14.5	217048.02	960814.47	94.51	94.78	96.27	9/15/2006
OW-313A	57.5	-6.5	217367.31	960705.30	51.03	51.31	53.20	9/15/2006
OW-313B	110.0	-59.3	217372.34	960713.67	50.73	51.16	53.54	9/15/2006
OW-319A	35.0	68.1	216962.56	961116.12	103.13	103.31	104.91	9/15/2006
OW-319B	85.0	18.5	216957.32	961125.02	103.53	103.85	105.35	9/19/2006
OW-323	43.5	63.5	217034.46	960057.07	106.96	107.55	109.69	9/19/2006
OW-328	72.0	4.3	216828.86	960493.21	76.29	76.55	77.85	9/19/2006
OW-336	74.0	23.1	216643.18	960746.61	97.11	97.50	99.07	9/16/2006
OW-401	77.5	-6.1	216348.86	961530.99	71.38	71.91	73.49	9/21/2006
OW-413A	50.0	73.2	216703.14	961418.81	123.15	123.51	125.04	9/15/2006
OW-413B	125.0	-2.1	216694.88	961413.25	122.90	123.25	124.85	9/15/2006
OW-418A	40.0	3.7	216340.41	961966.46	43.66	44.31	45.83	9/22/2006
OW-418B	92.0	-48.3	216340.25	961976.71	43.67	44.13	45.77	9/22/2006
OW-423	43.0	68.1	216339.99	960882.24	111.12	111.67	113.16	9/15/2006
OW-428	50.0	63.9	216105.21	961212.38	113.92	114.32	115.92	9/19/2006
OW-436	50.0	58.1	215922.47	961446.87	108.13	108.53	110.39	9/22/2006
OW-703A	49.0	-5.0	218171.23	960967.72	44.02	44.44	45.65	9/21/2006

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			North	East				
OW-703B	80.0	-34.4	218171.67	960958.91	45.57	45.97	47.53	9/21/2006
OW-705	52.0	-4.3	217566.62	960917.18	47.71	47.77	50.22	9/15/2006
OW-708A	34.0	3.4	217586.23	961803.52	37.44	37.82	39.61	9/28/2006
OW-711	50.0	2.9	216748.48	961741.61	52.92	53.26	55.31	9/22/2006
OW-714	50.0	66.0	215705.73	962034.37	116.02	116.32	117.98	10/16/2006
OW-718	43.0	75.5	214133.58	961924.87	118.53	118.96	120.41	10/18/2006
OW-725	60.0	-2.0	214649.30	963212.73	58.04	58.38	59.94	10/18/2006
OW-729	42.0	76.9	214872.58	962445.93	118.88	119.44	121.11	10/17/2006
OW-735	72.0	19.2	214805.48	961021.83	91.20	91.81	93.44	10/16/2006
OW-743	55.0	48.7	213320.62	961234.01	103.65	104.05	105.89	10/18/2006
OW-744	50.0	47.5	216405.37	960089.41	97.50	97.96	99.81	9/29/2006
OW-752A	37.0	58.3	215482.18	960250.12	95.30	95.73	97.00	9/29/2006
OW-752B	97.0	-1.2	215489.21	960257.57	95.79	96.09	97.41	9/29/2006
OW-754	44.0	23.0	217369.78	960290.37	67.00	67.21	68.85	9/15/2006
OW-756	42.0	64.6	215497.07	961212.39	106.56	107.07	108.77	10/16/2006
OW-759A	35.0	62.8	214536.47	960055.02	97.78	98.05	99.69	10/19/2006
OW-759B	90.0	8.3	214526.25	960056.32	98.35	98.72	100.14	10/19/2006
OW-765A	29.0	68.4	216424.51	959701.22	97.37	97.92	99.60	9/29/2006
OW-765B	102.0	-5.2	216420.42	959693.64	96.82	97.19	98.47	9/29/2006
OW-766	50.0	58.9	216932.89	959791.50	108.89	109.32	110.72	9/19/2006
OW-768A	42.0	6.5	217106.06	962238.98	48.48	48.96	49.84	9/28/2006
OW-769	42.0	12.2	216589.75	962559.47	54.23	54.39	56.43	9/28/2006
OW-770	42.0	79.6	215466.60	962826.95	121.59	121.79	123.08	10/18/2006
TP-B307	6.7	112.7	216957.53	960690.62	119.35	N/A	N/A	9/19/2006
TP-B314	9.0	43.8	217320.35	960658.25	52.78	N/A	N/A	9/15/2006
TP-B315	8.5	57.3	217182.50	960563.12	65.80	N/A	N/A	9/15/2006
TP-B334	10.0	77.0	216515.64	960560.94	87.03	N/A	N/A	9/19/2006
TP-B335	8.0	91.6	216730.79	960706.97	99.64	N/A	N/A	9/19/2006
TP-B407	7.0	74.3	216391.76	961465.02	81.25	N/A	N/A	9/21/2006
TP-B414	6.5	114.3	216631.18	961530.95	120.83	N/A	N/A	9/15/2006
TP-B415	6.5	112.4	216490.91	961298.37	118.92	N/A	N/A	9/15/2006
TP-B423	8.0	97.9	216414.95	960849.03	105.86	N/A	N/A	9/19/2006
TP-B434	8.5	96.7	215825.90	961244.18	105.24	N/A	N/A	9/22/2006
TP-B435	10.0	97.7	216020.06	961404.74	107.71	N/A	N/A	9/19/2006
TP-B715	8.5	79.7	214964.18	962637.77	88.16	N/A	N/A	10/17/2006
TP-B716	8.8	88.3	214983.83	961289.79	97.13	N/A	N/A	10/16/2006
TP-B717	8.0	82.5	214297.68	962346.36	90.53	N/A	N/A	10/17/2006
TP-B719	8.0	64.3	213966.93	961493.94	72.28	N/A	N/A	10/18/2006

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Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
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			North	East				
TP-B727	7.0	97.3	215299.14	961883.13	104.33	N/A	N/A	10/16/2006
TP-B744	6.5	106.8	316377.30	959963.38	113.28	N/A	N/A	9/29/2006
TP-B758	9.0	73.6	215133.29	960332.67	82.63	N/A	N/A	10/16/2006
TP-C309	8.0	100.5	217020.05	960105.24	108.45	N/A	N/A	9/19/2006
TP-C723	7.0	89.8	215989.07	959754.78	96.75	N/A	N/A	9/29/2006

* Location and elevation approximated based on offset observed in the field and recorded on Field Checklist

Table A3
Subcontractors

Table A3
Subcontractors
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Subcontractor Name	Contact Information	Services Provided
ABM Construction	Mr. Al Muirhead P.O. Box 402 Lusby, MD 20657 (410) 326-4277	Test pit excavation, and path construction and grading for boring access.
A. Morton Thomas and Associates, Inc.	Mr. Ken Williams 12750 Twinbrook Parkway Rockville, MD 20852-1700 (301) 881-2545	Underground utility location.
Collinson, Oliff & Associates, Inc.	Mr. Richard Lewis P.O. Box 2209 Prince Frede4rick, MD 20678 (301)-855-1599	Test location surveying.
Connelly and Associates, Inc.	Mr. Sam Connelly 260 Interstate Ct. Frederick, MD 21704-6627 (301) 696-8820	SPT drilling and sampling, and ground water observation well installation and development.
Enviro-Chem Laboratories, Inc.	Mr. Stephen Shelley 100 Lakefront Dr. Hunt Valley, MD 21030 (410) 785-9739	Soil (pH, chloride, sulfate, cation exchange capacity) and water (total dissolved solids, inorganic ions, alkalinity, ammonia) chemical laboratory testing .
GeoTesting Express	Mr. Gary Torosian 1145 Massachusetts Ave. Boxborough, MA 01719 (978) 635-0424	Soil laboratory testing (moisture content, grain size, Atterberg limits, organic content, unit weight, specific gravity, consolidation, unconfined compression, unconsolidated-undrained triaxial compression, consolidated-undrained triaxial compression, direct shear).
GEOVision, Inc.	Mr. John Diehl 1151 Pomona Rd., Unit P Corona, CA 92882 (951) 549-1234	Borehole geophysical logging (natural gamma, long- and short-normal resistivity, spontaneous potential, three-arm caliper, direction survey, and P-S velocity logging)

Table A3
Subcontractors
Constellation Generation Group (CGG) COLA Project
Calvert Cliffs Nuclear Power Plant (CCNPP)
Calvert County, Maryland

Subcontractor Name	Contact Information	Services Provided
GRL Engineers, Inc.	Mr. Wondem Toferra 4535 Renaissance Parkway Cleveland, OH 44128 (216) 831-6131	SPT hammer energy testing.
Mark's Lawn Service, Inc.	Mr. Mark Cox 50 Mulberry Lane Huntington, MD 20639 (410) 257-3885	Silt fence construction.
Uni-Tech Drilling Co., Inc.	Ms. Joan Baer P.O. Box 407 Franklinville, NJ 08322-0407 (856)-694-4200	SPT drilling and sampling, and ground water observation well installation and development.

APPENDIX B
UNDERGROUND UTILITIES

- Underground Utility Location Report

UNDERGROUND UTILITY LOCATION REPORT

Underground Utility Detection Report
A Morton Thomas and Associates, Inc.
October 3, 2006

Consulting Engineers

October 3, 2006

Mr. Brian K. Banks, P.G.
Schnabel Engineering North, LLC
656 Quince Orchard Road, Suite 700
Gaithersburg, MD 20878

Subject: **Underground Utility Detection Report**
CGG Combined Operating License Application (COLA) Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland
AMT Project No. 106-219.001U

Dear Mr. Banks:

A Morton Thomas and Associates, Inc. (AMT) is pleased to submit this Underground Utility Detection Report for the above referenced project. This report contains a summary of the equipment and methods used for, and results of the underground utility detection activities. Underground utility detection activities for this project were performed in accordance with the Subcontractor Agreement between AMT and Schnabel Engineering North, LLC, dated May 31, 2006, and according to the pre-approved project technical specification, technical procedures, and work plans.

1.0 Introduction

AMT performed underground utility location activities under the direction of Schnabel personnel to support the subsurface investigation. Geophysical prospecting techniques including conductive and inductive techniques were used to investigate the occurrence and approximate horizontal location of underground utilities within a 10-foot radial distance of each of the subsurface exploration point locations. 1. Inductive refers to "dropping the box" in the vicinity of a known utility and "sweeping" that area to pick up the electromagnetic signature and alignment of the utility. 2. Conductive refers to "directly connecting to any and all utilities in the dig area to verify there exact location. This work is considered quality Level B. Quality level B refers to utility designating. The marking of the utility in 2 dimensions

on the ground's surface, with paint depicting its approximate horizontal location. This method was needed to clear all bore hole locations.

2.0 Equipment Used

The equipment used on this project included:

1) Metro Tech 810 DX (calibrated on March 13, 2006), and

2) RD 4000 RX (calibrated January 26, 2006)

The Metro Tech 810 DX and the RD 4000 RX are geophysical prospecting instruments that apply a radio signal to a conductive utility with the use of a transmitter. The receiver "senses" that signal and shows a approximate measurement of the location of said utility, both horizontally and vertically. The accuracy of this unit is within 2 feet vertically and horizontally.

3.0 Results

Nine subsurface exploration point locations were found to have a conflicting utility present, either within the ten foot radius of the staked location or directly outside of this area. These locations include: B-316, B-421, B-408, B-702, B-707, B-717, C-703, C-715, and TP-B415. A site plan showing the approximate locations will be submitted with highlighted bubbles that will include type of utility found to be in conflict with an approximate location of that utility.

We appreciate the opportunity to be of service to you for this project. Please contact Mr. Ken Williams at (301) 881-2545 if you have any questions regarding this report.

Very truly yours,
A MORTON THOMAS AND ASSOCIATES, INC.

Ken Williams

Director of S.U.E.

KW: kw

APPENDIX C
BORINGS AND TEST PITS

- Test Boring and Test Pit Log General Notes
- SPT Boring Logs
- Test Pit Logs

TEST BORING AND TEST PIT LOG GENERAL NOTES

Test Boring and Test Pit Log General Notes

1. Test borings and test pits were logged by Schnabel personnel to provide a record for geotechnical evaluation, construction inspection or other specialized purposes. The log itself includes a description of soil materials encountered using visual classification in the field. The group symbols on the logs represent the Unified Soil Classification System Group Symbols (ASTM D-2487) based on visual observation and limited laboratory testing of the samples. Criteria for visual identification of soil samples are included in this appendix. Some variation may be expected between samples visually classified and samples classified in the laboratory. Boundary lines between various strata are identified where possible and a graphical presentation is included based on the material excavated from the pit. Any significant features such as fill conditions, underground structures, ground water, or water seepage conditions are recorded.

2. Numbers in the sampling data column of test boring logs indicate the standard penetration test (SPT) blow counts, N value, and recovery length for each SPT sample, and the recovery length for each undisturbed sample. The blow counts indicate the number of SPT hammer blows required to drive the SPT sampler three successive 6 in intervals. The first 6 in interval typically represents a seating interval. The total number of blows for the second and third intervals is the N value, unless the standard penetration testing for a given interval was stopped when blow counts reached 50 blows in any 6 in interval (i.e., stopped at "refusal"). In cases where refusal is reached, the N value is defined as the total number of blows performed in the last two intervals (or the total number of blows performed in the first interval if refusal was achieved in the first interval) over the penetration length resulting from those blows (e.g., 60/8").

3. Strata descriptions are based on visual inspection and are in accordance with the Unified Soil Classification System. Representative soil samples are recovered from the boring logs and test pits, generally from each stratum, for later identification and testing. The locations of samples obtained during test pit excavation are generally not shown on the logs unless laboratory tests performed on samples are referred to in the geotechnical analysis.

4. The values following "PP=" in the Sampling Data column of the logs represent pocket penetrometer readings. Pocket penetrometer readings provide an estimate of the unconfined compressive strength of fine-grained soils.

5. Key to abbreviations and symbols:

PL	= Plastic Limit	☒	= Interval Sampled by SPT
w	= Moisture Content	■	= Tube Sample Pushed
LL	= Liquid Limit		
WOW	= Ground Water Observation Well		

6. The boring and test pit logs and related information depict subsurface conditions at these specific locations and at the particular time when drilled or excavated. Soil conditions at

other locations may differ from conditions occurring at these boring and test pit locations. The passage of time may result in a change in the subsurface soil and ground water conditions at these boring and test pit locations.

7. The stratification lines represent the approximate boundary between soils and/or rock types as observed in the drilling and sampling operation. Some variation may be expected vertically between samples taken. The soil profile, water level observations and penetration resistances presented on the boring and test pit logs have been made with reasonable care and accuracy, but must be considered only an approximate representation of subsurface conditions to be encountered at the particular location.

8. Estimated ground water levels are indicated on the logs. These are only estimates from available data and may vary with precipitation, porosity of the soil, site topography and similar factors.

SPT BORING LOGS

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 1 of 13

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 5/25/06 **Finished:** 6/6/06

Location: Northing: 217024.06 ft
Easting: 960815.05 ft

Ground Surface Elevation: 94.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/25	---	10.5'	---	---
Start of day	5/26	---	25.0'	---	---
Start of day	5/30	---	41.0'	---	---
Start of day	6/1	---	10.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	CLAYEY SAND, fine to medium grained, contains root fragments, moist, brown. Majority of root system extends about 0.7 ft below ground surface.	SC				3+3+4 N =7 REC =9"		
2.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to medium grained, moist, stratified orangeish brown and brown, contains fine to coarse silty sand lense at 3.5 ft.	SP-SM	92.5			3+4+5 N =9 REC =13"	w=6.6% *	
	fine to coarse grained, brown.				5	4+7+7 N =14 REC =10"		
	fine to medium grained,stratified light brown and yellowish brown					4+7+8 N =15 REC =12"		
	wet, brown and light brown			▽	10	6+9+9 N =18 REC =9"	w=14.3% *	
	light orangeish brown.					8+6+8 N =14 REC =10"		
14.5	CLAYEY SAND, fine to medium grained, moist, brown	SC	80.0		15			
17.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, wet, dark orangeish brown and orangeish brown, contains fine to medium clayey sand pockets.	SP-SM	77.5			6+11+10 N =21 REC =14"	w=19% *	Drilling foreman used 5.4" O.D. Drag Bit from 0 to 18.5 ft. Switched to 4-3/4" O.D. Drag bit below 18.5 ft.
					20			
22.0	SANDY LEAN CLAY, fine to medium, trace mica, moist, gray.	CL	72.5			3+3+5 N =8 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/6/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 2 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
27.0	SANDY LEAN CLAY, with fine to medium sand, trace mica, contains fine to medium sandy fat clay and fine to medium clayey sand pockets, moist, gray.	CL	67.5		30	2+4+3 N =7 REC =18"	w=28.9% LL=48 PL=17 *	
32.0	FAT CLAY, with fine to medium sand and mica, moist, gray.	CH	62.5		35	REC =22"	w=31.1% LL=59 PL=17 *	Osterberg sampler tube push from 33.5 to 35.5 ft
	gray and dark gray, trace organic matter (±1%), contains fine to medium silty sand pockets.				40	4+5+5 N =10 REC =18"		
	gray and light greenish gray.				45	REC =22"	PP=2.00 tsf	Osterberg sampler tube push from 43.5 to 45.2 ft
47.0	SANDY LEAN CLAY, fine to medium, trace mica, contains indurated lean clay pockets, moist, gray.	CL	47.5		50	5+6+8 N =14 REC =18"	w=29.6% *	
52.0	CLAYEY SAND, fine to medium grained, trace fine to medium shell fragments (±5%), strong HCl reaction, moderate cementation, moist, dark gray, contains indurated silt layer from 54.5 to 54.7 ft (layer exhibits fissility).	SC	42.5		55	11+48+50/3" N =98/9" REC =16"		Switched to 4-3/4" Tri-cone roller bit below 53.5 ft. Moderate difficulty in rotary advancement from 54.5 to 56.5 ft (slight rig chatter).
57.0	POORLY GRADED SAND, trace silt, fine to medium grained, wet, gray, weak	SP	37.5					

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Comments:
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Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 3 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	HCl reaction, trace coarse gravel.	SP				50/3" N =50/3" REC =1"		Sampler refusal at 54.7 ft. Sampler refusal at 58.8 ft.
	few fine to coarse shell fragments (±10%), moderate HCl reaction.				60 65	44+50/2" N =50/2" REC =8"	w=20.4% *	Switched to 4-3/4" O.D. Drag Bit below 63.5 ft. Sampler refusal at 64.2 ft.
	contains fine to medium strongly cemented sand pockets, strong HCl reaction.				70	50 REC =6"		
	moist and light gray, mostly strongly cemented sand layers (±80%), trace fine to coarse shell fragments (±5%), weak HCl reaction.				75	50/5" N =50/5" REC =3"		Slow rotary advancement from 72.5 to 73.5 ft Sampler refusal at 73.9 ft. Slight to difficult rotary advancement from 74 to 75 ft.
	light oliveish gray, mostly fine to medium strongly cemented sand layer (±95%), trace fine to coarse shell fragments (±5%), moderate HCl reaction.				80	50/5" N =50/5" REC =3"		Slight to moderately difficult rotary advancement from 77 to 78.5 ft. Switched to 4-3/4" O.D. Tri-cone roller bit below 78.5 ft. Sampler refusal at 78.9 ft.
82.0	SILTY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.	SM	12.5		85	4+5+8 N =13 REC =16"	w=26.5% *	Moderate to difficult rotary advancement from 80 to 82 ft. Switched to 4-3/4" O.D. Drag Bit below 83.5 ft.
87.0	No sample recovery.		7.5		90	REC =0"		Osterberg sampler tube push from 88.5 to 90.5 ft

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3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 4 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
92.0	SILTY SAND, fine to medium grained, wet, gray, trace mica, very weak HCl reaction.	SM	2.5		95	6+10+12 N =22 REC =16"	w=25.8% *	
	moist, gray, contains fine to medium moderately cemented sand pockets, moderate HCl reaction.				100	REC =6"		Osterberg sampler tube pushed from 98.5 to 99.8 ft
102.0	LEAN CLAY, moist, greenish gray and light greenish gray, little fine to coarse shell fragments (±20%), contains fine to medium silty sand and silt pockets, strong HCl reaction, trace fine to medium sand.	CL	-7.5		105	14+28+24 N =52 REC =18"	w=17.8% *	
104.5	SILTY SAND, fine to medium grained, wet, light gray, some fine to coarse shell fragments (±40%), strong HCl reaction.	SM	-10.0					
	trace fine to medium shell fragments (±5%).				110	22+29+30 N =59 REC =15"	w=23.2% *	
	contains fine to medium weakly cemented sand pockets below 109.7 ft							
112.0	SANDY LEAN CLAY, fine to medium, moist, greenish gray and gray, trace fine to coarse shell fragments (±5%), strong HCl reaction.	CL	-17.5		115	7+10+15 N =25 REC =18"		
117.0	SILTY SAND, fine to medium grained, wet, gray and light greenish gray, trace fine to medium shell fragments (±1%), weak HCl reaction.	SM	-22.5		120	10+15+19 N =34 REC =18"	w=33.1% *	Resumed drilling at 7:50 AM on 5/26/06.
122.0	ELASTIC SILT, moist, greenish gray, trace fine to medium sand and fine to medium shell fragments (±1%), weak HCl reaction.	MH	-27.5			9+10+16		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/6/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 5 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			125	N =26 REC =18"		
127.0	CLAYEY SAND, moist, greenish gray, trace fine to medium shell fragments (±5%) and mica, weak HCl reaction, contains silt pockets.	SC	-32.5		130	7+10+19 N =29 REC =17"	w=42.3% *	
132.0	CLAYEY SAND, fine grained, moist, greenish gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	SC	-37.5		135	5+8+12 N =20 REC =17"		
	fine to medium grained, moist, gray, few fine to coarse shell fragments (±10%)				140	REC =4"		Osterberg sampler tube pushed from 138.5 to 140.5 ft
142.0	SANDY LEAN CLAY, moist, dark greenish gray, with fine sand, trace mica, weak HCl reaction.	CL	-47.5		145	8+13+15 N =28 REC =18"	w=45% *	
147.0	ELASTIC SILT, moist, dark greenish gray, trace fine to medium sand and mica, moderate HCl reaction.	MH	-52.5		150	8+10+13 N =23 REC =18"	w=62.2% LL=114 PL=55 *	Resumed drilling at 8:45 AM on 5/30/06.
152.0	SILTY SAND, moist, dark greenish gray, few fine to medium shell fragments (±10%), strong HCl reaction.	SM	-57.5		155	6+8+11 N =19 REC =18"	w=34% *	
155.0	FAT CLAY, with fine to medium sand, trace mica, very weak HCl reaction.	CH	-60.5					

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3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 6 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			160	REC =13"	w=38.7% LL=76 PL=30 PP=>4.5 tsf *	Osterberg sampler tube push from 158.5 to 159.6 ft
162.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray, trace mica, very weak HCl reaction.	SC	-67.5		165	7+8+11 N =19 REC =18"		
167.0	SANDY FAT CLAY, gray.	CH	-72.5		170	REC =9"	w=65.4% LL=112 PL=39 *	Osterberg sampler push from 168.5 to 170.4 ft
172.0	SANDY ELASTIC SILT, moist, greenish gray, trace fine to medium sand and mica, weak HCl reaction.	MH	-77.5		175	7+10+13 N =23 REC =18"		
	trace fine to medium shell fragments (±<5%), moderate HCl reaction, and indurated elastic silt pockets (<1/4 inch). wet, weak HCl reaction below 179.5 ft.				180	6+9+10 N =19 REC =18"	w=60.4% LL=111 PL=47 *	
	moist, mostly indurated elastic silt layers (±100%).				185	REC =10"	PP=>4.5 tsf	Osterberg sampler tube push from 183.5 to 184.3 ft
	dark greenish gray.				190	8+10+15 N =25 REC =18"		

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Comments:
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3. * = See Appendix I for additional lab testing data.
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Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 7 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	with fine to medium sand, trace organic matter (±1%).				195	6+10+13 N =23 REC =18"	w=53.2% LL=98 PL=45 *	
	greenish gray, trace fine to medium sand, moderate HCl reaction				200	8+9+12 N =21 REC =18"	w=82.6% LL=157 PL=71 *	Resumed drilling at 7:20 AM on 5/31/06.
202.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray, few fine to coarse shell fragments (±10%), strong HCl reaction.	SC	-107.5					
204.0	SILTY SAND, fine to medium grained, moist, dark gray, few fine to coarse shell fragments (±10%), strong HCl reaction.	SM	-109.5		205	10+20+22 N =42 REC =18"	w=27.5% *	
	wet, dark greenish gray, trace fine to medium shell fragments (±5%), strong HCl reaction				210	8+12+21 N =33 REC =18"	w=32.4% *	
212.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, weak HCl reaction.	SC	-117.5		215	5+8+19 N =27 REC =3"		Driller notes increase in rotary resistance in formation below 214 ft.
217.0	SANDY LEAN CLAY, moist, greenish gray, trace mica, very weak HCl reaction.	CL	-122.5		220	6+10+23 N =33 REC =18"	w=47.9% *	

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Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 8 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray and gray, trace fine to medium circular, orangeish brown organic matter (±1%).	CL			225	5+8+18 N =26 REC =18"		
228.5	CLAYEY SAND, greenish gray, weak HCl reaction.	SC	-134.0		230	7+10+17 N =27 REC =18"	w=54% *	
	with fine sand.				235	7+9+16 N =25 REC =18"		
238.5	LEAN CLAY, moist, greenish gray, with fine sand, trace mica, very weak HCl reaction.	CL	-144.0		240	8+11+17 N =28 REC =18"	w=56.8% *	Resumed drilling at 7:05 AM on 6/1/06.
					245	8+13+19 N =32 REC =18"		
					250			No SPT conducted at 248.5 ft because 210 ft of rods free fell 40 ft (slipped free of slide ring), thus penetrating soil to 251.4 ft due to drill rod free fall momentum.
252.0	SANDY ELASTIC SILT, moist, greenish gray, with fine sand, trace mica, very weak HCl reaction.	MH	-157.5		255	7+9+19 N =28 REC =18"	w=72.7% LL=137 PL=87 *	

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Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 9 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
257.0	LEAN CLAY, moist, greenish gray, with fine sand, trace mica, and orangeish brown organic matter (±1%), very weak HCl reaction.	CL	-162.5		260	9+12+23 N =35 REC =18"		
	trace fine sand, moderate HCl reaction.				265	8+12+24 N =36 REC =18"	w=100.9% *	
267.0	ELASTIC SILT, moist, greenish gray, trace fine sand and mica, moderate HCl reaction.	MH	-172.5		270	10+12+23 N =35 REC =18"		
	trace orangeish brown organic matter (±1%), weak HCl reaction.				275	7+10+19 N =29 REC =18"	w=102% LL=199 PL=119 *	
	trace fine sand and mica.				280	8+12+21 N =33 REC =18"		
282.0	LEAN CLAY with sand, moist, greenish gray, trace fine sand and mica, weak HCl reaction.	CL	-187.5		285	7+11+20 N =31 REC =18"	w=91.3% *	
287.0	ELASTIC SILT, moist, greenish gray, with fine sand, trace mica and dark orangeish brown organic matter (±1%), weak HCl reaction.	MH	-192.5			8+11+21		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/6/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 10 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			290	N =32 REC =18"		
	fine sandy.				295	7+11+21 N =32 REC =18"	w=64.4% LL=117 PL=73 *	Resumed drilling at 6:55 AM on 6/2/06.
	trace fine sand, very weak HCl reaction.				300	9+14+22 N =36 REC =18"		Moderate to difficult rotary advancement from 301.5 to 303 ft (moderate rig chatter).
302.0	CLAYEY SAND, fine to coarse grained, moist, dark greenish gray, trace mica, contains fine to coarse sandy fat clay lenses, weak HCl reaction trace organic matter (±1%), very weak HCl reaction below 304.5 ft	SC	-207.5		305	21+17+23 N =40 REC =18"	w=24.8% *	
307.0	SANDY FAT CLAY, fine to medium, moist, dark greenish gray and dark gray, contains fine to medium clayey sand pockets and lenses , and indurated fat clay pockets, trace fine to coarse shell fragments (±1%), strong HCl reaction.	CH	-212.5		310	10+13+22 N =35 REC =10"		
312.0	CLAYEY SAND, fine to coarse grained, moist, dark greenish gray and greenish gray, trace fine gravel, few fine to coarse shell fragments (±10%), contains lean clay pockets, strong HCl reaction.	SC	-217.5		315	9+17+28 N =45 REC =18"	w=20% *	
					320	50/2" N =50/2" REC =0"		Sampler refusal at 318.7 ft.
	contains indurated clayey sand pockets, weak HCl reaction, glauconitic. *continued on next page*							Very to extremely difficult rotary

Comments:
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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 11 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						advancement from 319 to 320.5 ft (strong rig chatter).
						11+13+22 N =35 REC =18"	w=27.8% *	
324.7	LEAN CLAY, wet, dark gray, with fine to coarse sand, trace mica, strong HCl reaction.	CL	-230.2		325			
327.0	CLAYEY SAND, fine to coarse grained, moist, dark greenish gray and dark gray, trace fine gravel and mica, very weak HCl reaction, glauconitic.	SC	-232.5					
						10+15+19 N =34 REC =18"		Slight to moderate difficulty in rotary advancememt below 328.5 ft.
					330			
	light blueish gray and greenish gray, contains fine to coarse sandy fat clay pockets, weak HCl reaction.					9+14+29 N =43 REC =18"	w=31.8% *	
					335			Resumed drilling at 6:50 AM on 6/3/06. Start of day at 6:56 AM
337.0	CLAYEY SAND, moist, dark blackish gray and dark greenish gray, trace mica, contains indurated lean clay pockets and clayey sand pockets, weak HCl reaction, glauconitic.	SC	-242.5					Below 338.5 ft, drillers describe rotary advancement moderately slow due to dense/stiff soils.
						18+30+40 N =70 REC =18"		
					340			
	fine to coarse sandy, trace shell fragment, strong cementation.					20+50 N =50 REC =12"	w=22.9% LL=47 PL=24 *	
					345			Moderate to difficult rotary advancement from 347 to 347.5 ft (moderate to strong chatter).
	dark greenish gray and dark gray, with fine to medium sand, contains fine to medium sandy lean clay pockets.					8+17+35 N =52 REC =8"		
					350			
	fine to medium sandy, dark blackish gray and dark gray, very weak HCl reaction.					14+18+28 N =46 REC =13"	w=36.1% LL=58 PL=22	Slight difficulty in rotary advancement
					355			

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4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 12 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC					*	from 355 to 356 ft (slight wobble in kelly bar rotation).
	fine to coarse sandy, trace coarse gravel, and mica, weak HCl reaction.				360	16+27+50 N =77 REC =15"		
362.0	SILTY SAND, fine to medium grained, moist, dark blackish gray and brownish gray, trace mica, weak HCl reaction, glauconitic.	SM	-267.5		365	11+15+27 N =42 REC =18"	w=37.2% LL=54 PL=36 *	Resumed drilling at 6:55 AM on 6/4/06. Start of day at 7:05 AM, drilling mud at 35 ft on 6/4/06. Mubtub (270 gallons) was empty of mud except for soil cuttings at the bottom of the tub on 6/4/06.
					370	14+30+43 N =73 REC =18"		
372.0	CLAYEY SAND, fine to medium grained, moist, dark gray, contains silt pockets, very weak HCl reaction, glauconitic.	SC	-277.5		375	15+28+42 N =70 REC =18"	w=30.3% LL=61 PL=26 *	
377.0	CLAYEY SAND, fine to medium grained, wet, dark blackish gray, trace mica, very weak HCl reaction, glauconitic.	SC	-282.5		380	24+50 N =50 REC =12"		
	dark blackish gray and dark brownish gray.				385	34+50/5" N =50/5" REC =10"		Moderately difficult rotary advancement from 383 to 383.5 ft. Sampler refusal at 384.4 ft. Moderately difficult rotary advancement from 383.5 to 384.5 ft .

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Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/6/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-301** Contract Number: 06120048 Sheet: 13 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to coarse grained, dark blackish gray.	SC			390	16+28+50 N =78 REC =12"	w=32.7% *	
					395	18+50 N =50 REC =0"		Resumed drilling at 6:45 AM on 6/5/06. Start of day at 6:53 AM, drilling mud at 25 ft on 6/5/06.
	fine to medium grained, dark blackish gray and dark brownish gray, contains clayey sand pockets.				400	19+28+43 N =71 REC =3"	w=33.7% *	
								Start of day at 7:20 AM, drilling mud at 48 ft on 6/6/06.
403.0	BOTTOM OF BORING @ 403.0 FT.		-308.5					

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/6/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-301 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 5/30/06 **Finished:** 5/31/06

Location: Northing: 217122.24 ft
Easting: 960766.98 ft

Ground Surface Elevation: 76.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/30	---	40.0'	---	---
Start of day	5/31	---	38.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		75.9					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown, trace root fragments.	SP-SM				1+2+2 N =4 REC =11"		
						2+3+4 N =7 REC =16"		
	yellowish brown and orange, trace gravel.				5	4+5+6 N =11 REC =18"		
7.0	CLAYEY SAND, fine to coarse grained, moist, orangeish brown, trace gravel.	SC	69.4			4+5+3 N =8 REC =14"		
					10			
	orangeish brown and gray, trace root fragments					3+7+8 N =15 REC =17"		
12.0	FAT CLAY, moist, gray, trace sand.	CH	64.4					color change in mud tub from orangeish brown to gray
						2+2+4 N =6 REC =18"		
					15			
						3+3+5 N =8 REC =18"		
					20			
						4+4+7 N =11 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
						6+8+10 N =18 REC =18"		water loss from mud tub
					30			
32.0	SILTY SAND, fine to medium grained, moist, gray and greenish gray.	SM	44.4					
						6+10+14 N =24 REC =17"		
					35			
	greenish gray and white, trace fine to coarse shell fragments, trace cobbles, 20-30%, HCl reaction moderate.			▽		24+50/4" N =50/4" REC =7"		
					40			
	.					50/5" N =50/5" REC =5"		
					45			
47.0	SANDY SILT, wet, gray and white, with fine to coarse shell fragments, trace organic matter, HCl reaction strong.	ML	29.4					
						26+30+30 N =60 REC =15"		
					50			
	greenish gray and white, with fine to coarse shell fragments, 10-20%, HCl reaction moderate.					3+50/5" N =50/5" REC =9"		
					55			
								Rig chatter
	continued on next page							

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			60	6+50/4" N =50/4" REC =10"		
					65	5+5+7 N =12 REC =17"		
					70	5+4+7 N =11 REC =18"		
					75	4+4+8 N =12 REC =17"		
					80	2+4+5 N =9 REC =18"		
82.0	SILTY SAND, fine to medium grained, wet, light gray and white, with fine to coarse shell fragments, 20-30%, weak cementation, HCl reaction strong.	SM	-5.6		85	REC =16"	PP=2.00 tsf	
					90	11+11+18 N =29 REC =16"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			95	5+8+14 N =22 REC =18"		
	with fine to coarse shell fragments, 25-35%, HCl reaction moderate.				100	4+7+12 N =19 REC =16"		
	trace fine to coarse shell fragments, 5-10%, HCl reaction weak.				105	5+7+11 N =18 REC =18"		Resumed drilling on 5/31/06 @ 7:30am
107.0	SANDY SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-30.6		110	6+7+10 N =17 REC =18"		
					115	6+8+9 N =17 REC =18"		
117.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, with fine to coarse shell fragments, 40-50%, HCl reaction strong.	SM	-40.6		120	6+19+20 N =39 REC =18"		
122.0	SANDY SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-45.6			6+8+11		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	N =19 REC =18"		
127.0	SANDY ELASTIC SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	-50.6		130	REC =12"	PP=>4.5 tsf	
					135	6+7+10 N =17 REC =18"		
					140	5+7+9 N =16 REC =18"		
					145	4+7+9 N =16 REC =18"		
147.0	SANDY FAT CLAY, moist, greenish gray and gray.	CH	-70.6		150	6+8+12 N =20 REC =18"		
152.0	SANDY ELASTIC SILT, moist, greenish gray.	MH	-75.6		155	6+9+12 N =21 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			160	5+7+10 N =17 REC =18"		
					165	7+9+12 N =21 REC =18"		
					170	7+7+10 N =17 REC =18"		
					175	8+11+14 N =25 REC =18"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				180	6+9+13 N =22 REC =17"		
182.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	-105.6		185	4+5+9 N =14 REC =18"		
					190	8+11+16 N =27 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-302** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					195	5+8+16 N =24 REC =18"		
					200	6+7+14 N =21 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-123.6					

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/9/06 **Finished:** 5/10/06

Location: Northing: 217016.91 ft
Easting: 960867.69 ft

Ground Surface Elevation: 87.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/9	---	15.0'	---	---
Start of Day	5/10	---	20.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Silty sand FILL, fine to medium grained, moist, dark brown, contains root fragments, organic matter, and brick fragments..	FILL				2+2+6 N =8 REC =6"		
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light brown.	SP-SM	85.4			2+3+3 N =6 REC =15"		
					5	2+3+4 N =7 REC =14"		
	medium to coarse grained, orangeish brown, some organic matter.					3+5+7 N =12 REC =15"		
9.0	CLAYEY SAND, fine to medium grained, moist, light brown, layers of white clay.	SC	78.4		10	3+3+3 N =6 REC =14"		
	light orange, contains mottles of white clay.			▽	15	2+1+1 N =2 REC =18"		
	dark gray.					2+2+2 N =4 REC =18"		
20.0	LEAN CLAY with sand, fine to medium grained, moist, dark gray.	CL	67.4		20			
					25	2+3+5 N =8 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
					30	REC =24"	PP=4.25 tsf	
	trace sand.					7+7+10 N =17 REC =18"		
35.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	52.4		35			
					40	REC =24"	PP=4.50 tsf	
41.0	SILTY SAND, fine to medium grained, moist, dark brown, contains mica, and organic matter.	SM	46.4					
					45	10+14+23 N =37 REC =12"		
45.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, greenish gray, 25% shell fragments, weak HCl reaction, coarse flat shells.	SP-SM	42.4					
					50	50/5" N =50/5" REC =5"		
51.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, 50% coarse shell fragments, weak HCl reaction.	SC	36.4					
					55	50/3" N =50/3" REC =4"		
55.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, greenish gray, 40% medium to coarse shell fragments, weak HCl reaction.	SP-SM	32.4					

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM			60	38+35+19 N =54 REC =15"		
61.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, greenish gray, , 5% shell fragments, fine to coarse shell fragments, weak HCl reaction.	SP-SC	26.4		65	5+9+25 N =34 REC =18"		
65.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light greenish gray, 5% shell fragments, medium to coarse shell fragments, weak HCl reaction.	SP-SM	22.4		70	8+50/3" N =50/3" REC =10"		
73.0	SILTY SAND, fine to medium grained, moist, light greenish gray, 5% shell fragments, medium to coarse shell fragments, weak HCl reaction.	SM	14.4		75	5+6+8 N =14 REC =18"		
					80	3+7+12 N =19 REC =18"		
82.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light greenish gray, 5% shell fragments, medium to coarse shell fragments, weak HCl reaction.	SP-SM	5.4		85	6+7+9 N =16 REC =18"		
					90	3+5+8 N =13 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
91.0	SILTY SAND, fine to medium grained, moist, light gray, 40% shell fragments, and cemented sand pockets, moderate HCl reaction.	SM	-3.6		95	12+23+50/5" N =73/11" REC =17"		
	greenish gray, 15% shell fragments.				100	12+18+27 N =45 REC =18"		
	50% shell fragments, layers of shells.				105	9+11+15 N =26 REC =18"		
					110	4+10+14 N =24 REC =18"		
	3% shell fragments.				115	7+11+20 N =31 REC =18"		
					120	8+8+12 N =20 REC =18"		
	25% shell fragments.					7+11+15		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			125	N =26 REC =18"		
					130	7+18+15 N =33 REC =18"		
	5% shell fragments.				135	5+8+12 N =20 REC =18"		
	contains mica.				140	8+9+12 N =21 REC =18"		
	greenish gray, 5% shell fragments, weak HCl reaction.				145	8+8+14 N =22 REC =18"		
	3% shell fragments.				150	7+8+10 N =18 REC =18"		
	contains mica.				155	6+10+15 N =25 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					160	9+10+14 N =24 REC =18"		
					165	8+10+12 N =22 REC =18"		
					170	7+8+10 N =18 REC =18"		
					175	8+12+14 N =26 REC =18"		
					180	7+8+11 N =19 REC =18"		
					185	7+11+14 N =25 REC =18"		
					190	6+8+13 N =21 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-303** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	dark greenish gray, 25% shell fragments.					4+6+15 N =21 REC =18"		
195.0	POORLY GRADED SAND, fine to medium grained, moist, dark greenish gray, 5% shell fragments, moderate HCl reaction.	SP	-107.6		195			
						7+10+15 N =25 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-112.6		200			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 5/26/06 **Finished:** 5/31/06

Location: Northing: 217188.61 ft
Easting: 960896.88 ft

Ground Surface Elevation: 68.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/26	---	Dry	0.0'	---
Start of day	5/30	---	10.0'	0.0'	---
Start of day	5/31	---	12.0'	0.0'	---
Start of day	6/1	---	5.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat, and topsoil..		67.5					
	SILTY SAND, fine to coarse grained, moist, yellowish orange, trace gravel.	SM				2+3+5 N =8 REC =16"	w=17.1% *	
	fine to medium grained, dark orange, contains cemented sand.					10+3+4 N =7 REC =6"	w=25.9% *	3'- Driller noted softer material
4.5	SANDY SILT, fine to medium, moist, mottled brownish orange, with clay.	ML	63.5		5	2+2+3 N =5 REC =18"	w=29.4% *	
7.0	FAT CLAY with sand, fine to medium, moist, mottled brownish orange, with shell fragments, 10-15% shell frag, brown colored.	CH	61.0			1+2+3 N =5 REC =18"	w=34.1% LL=57 PL=23 *	
	dark gray, with sand.				10			
	fine to medium sandy.					2+4+5 N =9 REC =18"	w=31.4% LL=59 PL=19 *	
	with sand.					3+3+5 N =8 REC =18"	w=31.7% LL=63 PL=23 *	
	fine to medium sandy				15			
	very stiff.				20	3+6+8 N =14 REC =18"	w=32.1% LL=62 PL=21 *	
22.0	SANDY LEAN CLAY, fine to medium grained, moist, dark gray.	CL	46.0					
					25	4+5+6 N =11 REC =18"	w=25.6% LL=38 PL=20	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL					*	
27.0	SILTY SAND, fine to coarse grained, moist, mottled brown and orange, with shell fragments, 25-30% brown/red shell frag.	SM	41.0			6+15+45 N =60 REC =18"	w=32.3% *	
29.4	CLAYEY SAND, fine to medium grained, moist, dark gray, contains cemented sand, slightly cemented.	SC	38.6		30			
32.0	POORLY GRADED SAND, fine to medium grained, moist, dark gray, contains cemented sand.	SP	36.0		35	50/5" N =50/5" REC =5"	w=20.1% *	
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.	SP-SM	31.0		40	28+50/5" N =50/5" REC =11"	w=19.3% *	
	wet, green and white, 60-70% shell frag.				45	16+11+10 N =21 REC =14"	w=21.9% *	
47.0	SILTY and CLAYEY ROCK FRAGMENTS, fine to medium grained, moist, greenish gray, contains cemented sand. 4" shell layer at 49.3 ft	GM-GC	21.0		50	21+15+50/4" N =65/10" REC =16"	w=14.5% LL=25 PL=18 *	49.3'- 4" shell layer
52.0	SILTY SAND, fine to medium grained, moist, green and white, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 80% shell frag.	SM	16.0		55	50/2" N =50/2" REC =3"	w=13.5% *	55'- Harder drilling

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	20-30% shell frag.	SM			60	5+6+11 N =17 REC =18"	w=29.1% LL=NP PL=NP *	
	10-20% shell frag.				65	5+7+9 N =16 REC =18"	w=29.4% LL=30 PL=23 *	65'- Start of day, 5/30/06
	dark green.				70	5+5+6 N =11 REC =18"	w=29.5% *	
	green, with fine to coarse shell fragments, strong HCl reaction, 15-20% shell frag.				75	REC =22"		
77.0	CLAYEY SAND, fine to medium grained, moist, green and white, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 45-55% shell frag.	SC	-9.0		80	12+20+15 N =35 REC =18"	w=16.3% LL=32 PL=19 *	77'- Rig chatter
83.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, moderate HCl reaction, 15-25% shell frag.	SM	-15.0		85	5+12+15 N =27 REC =13"	w=21.8% *	
	strong HCl reaction,10-15% shell frag.				90	9+11+11 N =22 REC =18"	w=38.7% LL=49 PL=28 *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			95	5+12+15 N =27 REC =18"	w=33% *	
97.0	CLAYEY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag, med dense.	SC	-29.0		100	REC =12"	w=42.1% LL=79 PL=28 *	
103.0	SILTY SAND, fine to medium grained, moist, green, trace fine to coarse shell fragments, strong HCl reaction, 5-10% shell frag.	SM	-35.0		105	8+9+18 N =27 REC =18"	w=44% *	
	fine to coarse shell fragments, 20-30% shell frag.				110	6+9+17 N =26 REC =18"	w=33.8% *	
	with fine to coarse shell fragments, strong HCl reaction, 20-25% shell frag.				115	9+9+15 N =24 REC =18"	w=43.9% *	
	trace fine to medium shell fragments, 5-10% shell frag.				120	8+11+12 N =23 REC =18"	w=47.9% *	
123.0	SILT, moist, oliveish green.	ML	-55.0			5+10+14	w=60.2%	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	N =24 REC =18"	*	
127.0	CLAYEY SAND, fine to medium grained, moist, oliveish green, with fine to coarse shell fragments, strong HCl reaction, 10-15% shell frag.	SC	-59.0		130	6+6+10 N =16 REC =18"	w=34.9% *	
133.0	FINE TO MEDIUM SANDY SILT, moist, oliveish green, moderate HCl reaction.	ML	-65.0		135	8+9+11 N =20 REC =18"	w=45% *	
137.0	CLAYEY SAND, dark green	SC	-69.0			REC =10"	w=36.5% LL=43 PL=26 *	
140.0	FAT CLAY, trace sand, dark green	CH	-72.0		140			140'- Start of day, 5/31/06
145.0	SANDY ELASTIC SILT, moist, oliveish green, with sand, moderate HCl reaction.	MH	-77.0		145	9+9+15 N =24 REC =18"	w=70% LL=134 PL=49 *	
					150	8+8+13 N =21 REC =18"	w=72.1% *	
	trace fine to medium shell fragments, moderate HCl reaction, 0-3% shell frag.				155	9+10+16 N =26 REC =18"	w=70.9% *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	weak HCl reaction.				160	8+10+12 N =22 REC =18"	w=55.1% LL=92 PL=53 *	
					165	8+10+10 N =20 REC =18"	w=47.2% *	
					170	8+11+14 N =25 REC =18"	w=62.9% *	
					175	8+8+10 N =18 REC =18"	w=84% LL=158 PL=84 *	
177.0	CLAYEY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 25-30% shell frag.	SC	-109.0		180	12+14+23 N =37 REC =18"	w=27.5% *	
					185	8+15+15 N =30 REC =18"	w=39.2% *	
					190	7+12+16 N =28 REC =18"	w=42.8% *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-304** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
193.0	SANDY LEAN CLAY, fine to medium, green, moist	CL	-125.0		195	9+10+13 N =23 REC =18"	w=51.1% *	
	with sand, small 1/4" pockets of gray sand				200	4+5+17 N =22 REC =18"	w=55.8% *	
200.0	BOTTOM OF BORING @ 200.0 FT.		-132.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/1/2006
3. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-305** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 7/17/06 **Finished:** 7/20/06

Location: Northing: 217166.25 ft
Easting: 960686.74 ft

Ground Surface Elevation: 72.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/18	---	37.5'	---	---
Start of Day	7/19	---	35.0'	---	---
Start of Day	7/20	---	24.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace root fragments, trace wood fragments.	SP-SM	71.5			woh+1+2 N =3 REC =11"		
		SP-SM						
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace root fragments, trace wood fragments.	SC	70.0			1+1+3 N =4 REC =7"		
4.5	CLAYEY SAND, fine to medium grained, moist, yellowish brown and orangeish brown, trace root fragments, trace wood fragments.	SM	67.5		5	2+2+3 N =5 REC =12"		
	SILTY SAND, fine grained, moist, gray and orangeish brown, trace root fragments.					woh+woh+1 N =1 REC =4"		
10.0	FAT CLAY, moist, gray and orangeish brown, trace sand.	CH	62.0		10	2+2+2 N =4 REC =15"		
						REC =22"	PP=2.50 tsf	
					15	2+3+4 N =7 REC =18"		color change in mud tub from orangeish brown to gray
						3+4+6 N =10 REC =18"		
19.0	SILTY SAND, fine to medium grained, moist, gray.	SM	53.0		20	REC =16"		
22.5	ELASTIC SILT, moist, gray, trace sand.	MH	49.5			4+4+6 N =10 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-305** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH				5+7+9 N =16 REC =18"		
27.0	SANDY SILT, moist, gray.	ML	45.0			5+5+7 N =12 REC =18"		
	weak cementation				30	4+5+8 N =13 REC =18"		
						8+13+25 N =38 REC =18"		Harder drilling
35.0	CLAYEY SAND, fine to medium grained, wet, gray and white, contains fine to medium shell fragments, 30-40%, HCl reaction strong.	SC	37.0	▽	35	REC =5"		resumed drilling on 7/18/06 @7:30am Harder drilling
						32+45+48 N =93 REC =12"		
					40	REC =23"	w=34.7% LL=72 PL=22 *	
						30+50/5" N =50/5" REC =10"		
					45	50/5" N =50/5" REC =4"		
47.0	CLAYEY SAND, fine to medium grained, wet, white and gray, with fine to coarse shell fragments, 60-70%, HCl reaction strong.	SC	25.0			40+50/5" N =50/5" REC =8"		
					50	12+8+8 N =16 REC =16"		
50.8	LEAN CLAY, wet, gray, trace sand, contains fine to medium shell fragments, 20-30%, HCl reaction moderate.	CL	21.2			REC =8"	PP=>4.5 tsf	harder
55.0	SILTY SAND, fine to medium grained, wet, greenish gray, strong cementation.	SM	17.0		55	50/5" N =50/5" REC =5"		
	with fine to coarse shell fragments,					36+50/1"		

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Comments:
1. Boring backfilled with cement/bentonite grout through
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-305** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	50-60%, HCl reaction strong	SM				N =50/1" REC =7"		Harder drilling
	contains fine to coarse shell fragments, 20-30%				60	3+4+12 N =16 REC =18"		
	HCl reaction moderate					4+6+8 N =14 REC =18"		
					65	8+9+12 N =21 REC =18"		
						4+5+9 N =14 REC =18"		
					70	4+4+7 N =11 REC =18"		
						4+5+7 N =12 REC =18"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak				75	3+4+7 N =11 REC =18"		
						4+5+8 N =13 REC =18"		
79.5	SANDY SILT, wet, greenish gray and white, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	ML	-7.5		80	4+7+9 N =16 REC =18"		
82.0	SILTY SAND, fine to medium grained, wet, white and gray, with fine to coarse shell fragments, 60-70%, strong cementation, HCl reaction strong.	SM	-10.0			8+34+50/2" N =84/8" REC =13"		
84.0	CLAYEY SAND, fine to medium grained, wet, white and gray, with fine to coarse shell fragments, 60-70%, HCl reaction strong.	SC	-12.0		85	9+15+9 N =24 REC =18"		Rig chatter
87.0	SILTY SAND, fine to medium grained, wet, gray, contains fine to coarse shell fragments, 30-40%, strong cementation, HCl reaction strong.	SM	-15.0			16+11+29 N =40 REC =18"		
					90	REC =8"		resumed drilling on 7/19/06 @ 7:15am

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Comments:
1. Boring backfilled with cement/bentonite grout through
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-305** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	contains fine to coarse shell fragments, 10-20%, HCl reaction moderate					6+9+14 N =23 REC =18"		
95.0	SANDY SILT, wet, greenish gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction moderate.	ML	-23.0		95	7+9+12 N =21 REC =18"		
97.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.	SM	-25.0			6+7+10 N =17 REC =18"		
					100	4+7+11 N =18 REC =18"		
102.0	SANDY SILT, wet, greenish gray and white, trace fine to coarse shell fragments, 5-10%, HCl reaction moderate,weak cementation.	ML	-30.0			8+10+17 N =27 REC =18"		
105.0	SANDY ELASTIC SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	-33.0		105	7+13+13 N =26 REC =18"		
107.0	SANDY SILT, wet, greenish gray and white , trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-35.0			7+7+11 N =18 REC =18"		
					110	6+8+13 N =21 REC =18"		
						6+6+11 N =17 REC =18"		
					115	7+8+12 N =20 REC =18"		
						8+9+16 N =25 REC =18"		
					120	5+7+11 N =18 REC =18"		
						7+10+14 N =24 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-305** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	6+9+12 N =21 REC =18"		resumed drilling on 7/20/06 @ 7:15am
						9+10+14 N =24 REC =18"		
					130	8+9+11 N =20 REC =18"		
	HCl reaction moderate					7+7+12 N =19 REC =18"		
					135	6+8+10 N =18 REC =18"		
						7+8+11 N =19 REC =18"		
					140	7+7+10 N =17 REC =18"		
						5+8+9 N =17 REC =18"		
	CLAYEY SILT				145	8+8+12 N =20 REC =18"		
						8+9+11 N =20 REC =18"		
					150	10+10+12 N =22 REC =18"		
151.5	BOTTOM OF BORING @ 151.5 FT.		-79.5					

Comments:
1. Boring backfilled with cement/bentonite grout through
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-306** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: FAILING-1500

Schnabel Representative: R. Vinzant

Dates Started: 5/5/06 **Finished:** 5/8/06

Location: Northing: 217024.31 ft
Easting: 960681.82 ft

Ground Surface Elevation: 118.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/5	---	18.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM				3+3+2 N =5 REC =16"		
	light orangeish brown and black.					2+2+3 N =5 REC =16"		
	light gray and black.				5	3+4+4 N =8 REC =13"		
	light orangeish gray and black.					4+3+4 N =7 REC =13"		
					10	4+4+5 N =9 REC =13"		
	light orangeish gray.					3+4+5 N =9 REC =14"		
					15			
	wet, no black, trace fine gravel.			▽		5+6+6 N =12 REC =13"		
					20			
	light orangeish gray and black.					5+7+8 N =15 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-306** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	trace fine gravel.					8+13+17 N =30 REC =16"		
	medium to coarse grained,dark orangeish brown.				30			
	orangeish brown and black.					5+8+10 N =18 REC =13"		
					35			
	light orangeish brown, with 3" layer of fine gravel.					4+9+10 N =19 REC =14"		
					40			
41.0	CLAYEY SAND, fine to medium grained, moist, orange and gray.	SC	77.6					
						3+2+2 N =4 REC =18"		
					45			
	gray, contains mica.					3+3+5 N =8 REC =18"		
					50			
51.0	LEAN CLAY, with sand, fine to medium grained, moist, gray.	CL	67.6					
						3+3+5 N =8 REC =18"		
					55			
	continued on next page							

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-306** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray.	CL			60	REC =24"	PP=2.00 tsf	
	with fine to medium sand lenses.				65	6+6+7 N =13 REC =18"	PP=1.50 tsf	
67.0	FAT CLAY, trace fine sand, moist, light gray.	CH	51.6		70	REC =24"	w=30.7% LL=62 PL=24 PP=3.15 tsf *	
71.0	SILTY SAND, fine grained, moist, greenish gray, contains mica.	SM	47.6		75	6+8+10 N =18 REC =18"		
	dark gray, with fine shell fragments, weak HCl reaction.				80	38+50/4" N =50/4" REC =10"		
81.0	POORLY GRADED SAND, fine to medium grained, moist, gray, with fine to medium shell fragments, weak HCl reaction.	SP	37.6		85	50/3" N =50/3" REC =4"		
87.0	SILTY SAND, fine to medium grained, moist, light gray, with fine to medium shell fragments, strong HCl reaction.	SM	31.6		90	35+29+41 N =70 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-306** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	CLAYEY SAND, fine to medium grained, moist, gray, with fine to medium shell fragments, strong HCl reaction. with fine to medium shell fragments, strong HCl reaction.	SC	26.6		95	8+9+9 N =18 REC =18"		
96.0	SILTY SAND, fine and coarse grained, wet, gray, with fine shell fragments, weak HCl reaction.	SM	22.6					
	trace fine to medium shell fragments, weak HCl reaction, contains cemented sand.				100	50/4" N =50/4" REC =4"		
	with fine to coarse shell fragments, no cemented sand, moderate HCl reaction.				105	8+10+17 N =27 REC =18"		
	fine to medium grained, moist, greenish gray, with fine to coarse shell fragments, moderate HCl reaction.				110	8+14+18 N =32 REC =18"		
	gray, trace fine to medium shell fragments, weak HCl reaction.				115	10+14+19 N =33 REC =18"		
	no shell fragments, no HCl reaction.				120	5+9+12 N =21 REC =18"		
121.0	CLAYEY SAND, fine to medium grained, wet, gray, with fine to coarse shell fragments, moderate HCl reaction on shells only.	SC	-2.4			4+11+21		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-306** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			125	N =32 REC =18"		
127.0	SILTY SAND, fine to medium grained, wet, light gray and white, with fine to medium shell fragments, strong HCl reaction, contains cemented sand.	SM	-8.4		130	34+50/1" N =50/1" REC =7"		
	greenish gray, trace fine to medium shell fragments, weak HCl reaction.				135	17+14+20 N =34 REC =18"		
					140	9+17+26 N =43 REC =18"		
	no visable shell fragments, no HCl reaction.				145	8+10+18 N =28 REC =18"		
	moist, greenish gray, trace fine to medium shell fragments, moderate HCl reaction.				150	8+9+17 N =26 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-31.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 6/14/06 **Finished:** 6/16/06

Location: Northing: 216955.27 ft
Easting: 960690.13 ft

Ground Surface Elevation: 119.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/15	---	23.5'	---	---
Start of day	6/16	---	42.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil.		119.0					
	FAT CLAY, moist, brown, trace fine to medium sand, contains root fragments, contains clayey sand and lean clay lenses.	CH				3+6+7 N =13 REC =8"		
2.0	CLAYEY SAND, trace gravel, fine to medium grained, moist, brown, contains clayey sand pockets.	SC	117.3			2+1+2 N =3 REC =17"		
	fine to coarse grained, light orangeish brown below 4.5 ft				5	4+5+6 N =11 REC =11"	w=11.6% *	
5.5	CLAYEY SAND, fine to coarse grained, moist, orangeish brown and light brown.	SC	113.8					
7.0	SILTY SAND, fine to medium grained, moist, brown and orangeish brown.	SM	112.3			6+7+9 N =16 REC =15"		
9.5	POORLY GRADED SAND, fine to medium grained, moist, stratified light brown and orangeish brown, trace silt.	SP	109.8		10	5+9+13 N =22 REC =12"		
12.0	SILTY SAND, fine to medium grained, moist, light brown and orangeish brown, with silt.	SM	107.3		15	22+32+38 N =70 REC =13"	w=7.9% LL=NP PL=NP *	
17.0	SILTY SAND, fine to coarse grained, moist, stratified light brown and light yellowish brown.	SM	102.3		20	9+12+12 N =24 REC =11"		*Drilling foreman used 5.4" O.D. Drag bit from 0 to 18.5 ft. *Switched to 4-3/4" O.D. Drag bit below 18.5 ft.
22.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, moist, light brown.	SP-SM	97.3	▽				
24.0	SILTY SAND, fine to coarse grained, wet, light brown.	SM	95.3		25	7+10+13 N =23 REC =13"	w=13% *	

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	stratified light brown and light yellowish brown below 24.5 ft.	SM						
	light orangeish brown, fine silty gravel layer below 29.8 ft.				30	8+14+20 N =34 REC =12"		
	fine to medium grained, orangeish brown and light brown.				35	8+11+13 N =24 REC =11"	w=14.5% LL=NP PL=NP *	
	fine to coarse grained, orangeish brown, trace fine gravel.				40	7+7+7 N =14 REC =8"		
	fine to medium grained, light grayish brown and orangeish brown. fine to coarse grained, gray below 44 ft .				45	3+1+2 N =3 REC =18"	w=24.8% *	
47.0	SANDY LEAN CLAY, fine to medium, wet, gray, (difficult soil to field classify - may lab classify as SC with high percentage of fines).	CL	72.3		50	3+3+6 N =9 REC =18"	w=25.1% *	
52.0	SANDY FAT CLAY, moist, gray and light gray, with fine sand, trace mica.	CH	67.3		55	3+4+4 N =8 REC =18"	w=28.1% *	

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray and light greenish gray, with fine to medium sand, contains clayey sand lense (1/8 inch thick) at 59.5 ft.	CH			60	4+4+6 N =10 REC =18"	w=33.1% LL=62 PL=20 *	
	trace fine to medium sand, contains sandy fat clay pockets.				65	4+11+16 N =27 REC =18"	w=35.5% LL=52 PL=18 *	
64.5	SILTY SAND, fine to medium grained, wet, dark gray.	SM	54.8					
67.0	FAT CLAY, moist, gray and light gray, with fine sand.	CH	52.3					
	light greenish gray, trace fine sand and organic matter (±1%).				70	6+9+11 N =20 REC =18"	w=34% LL=66 PL=23 *	
72.0	CLAYEY SAND, fine to medium grained, moist, gray, contains fine to medium sandy lean clay pockets, trace mica.	SC	47.3		75	4+7+11 N =18 REC =18"	w=24.9% *	
77.0	SILTY SAND, fine to medium grained, moist, dark gray, few fine to coarse shell fragments (±10%), contains moderately cemented sand, moderate HCl reaction.	SM	42.3		80	28+50/5" N =50/5" REC =11"		*Switched to 5" O.D. Tri-cone roller bit below 78.5 ft.
	wet, gray, contains black particles (1/16 inch), strong HCl reaction.				85	36+50/3" N =50/3" REC =10"	w=20.6% *	
	Silt, gray and light gray, mostly fine to coarse shell fragments (±50%).				90	16+22+31 N =53 REC =15"	w=21.5% LL=NP PL=NP *	*Switched to 4-3/4" O.D. Drag bit below 88.5 ft.

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	some fine to coarse shell fragments (±40%).					8+10+17 N =27 REC =18"	w=27.7% *	
94.5	LEAN CLAY, moist, gray, trace fine to medium sand, little fine to coarse shell fragments (±25%), strong HCl reaction.	CL	24.8		95			*Very difficult rotary advancement from 97.5 to 98.5 ft (slow advancement rate). *Switched to 5" O.D. Tri-cone roller bit below 98.5 ft. *Very to extremely difficult rotary advancement from 98.5 to 100 ft (very strong rig chatter). *Very to extremely difficult rotary advancement from 101 to 103 ft (very strong rig chatter). *Rotary advancement from 98.5 to 103 ft is extremely difficult. *Switched to 4-3/4" O.D. Drag bit below 103.5 ft.
97.5	CLAYEY SAND, fine to medium grained, moist, light greenish gray and light brownish gray, contains strongly cemented sand pockets, weak HCl reaction.	SC	21.8			50/5" N =50/5" REC =5"		
					100			
103.0	POORLY GRADED SAND with silt, trace shells, green	SP-SM	16.3			8+12+15 N =27 REC =18"		
					105			
						10+14+19 N =33 REC =18"	w=29.2% LL=NP PL=NP *	
110.0	SILTY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%), moderate HCl reaction.	SM	9.3		110			
	gray and light greenish gray, trace fine to medium shell fragments (±5%), weak HCl reaction.					6+10+14 N =24 REC =18"		
					115			
	light greenish gray, trace fine to medium shell fragments (±1%), very weak HCl reaction.					4+7+14 N =21 REC =18"	w=28.9% LL=32 PL=25 *	
					120			
122.0	CLAYEY SAND gray and light gray, weak HCl reaction.	SC	-2.7					
						REC =14"	w=29.8%	*Osterberg
	continued on next page							

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			125		LL=35 PL=19 *	sampler tube push from 123.5 to 124.7 ft .
	moist, little fine to coarse shell fragments (±25%), contains strongly cemented sand layer, strong HCl reaction.				130	50 REC =6"		*Slight to moderate difficulty in rotary advancement from 128.5 to 128.8 ft (slight rig chatter).
132.0	SILTY SAND, wet, light greenish gray, trace fine to medium shell fragments (±5%).	SM	-12.7		135	13+20+30 N =50 REC =17"	w=26% *	
	moist, greenish gray, trace fine to coarse shell fragments (±1%), weak HCl reaction.				140	10+13+20 N =33 REC =18"		
142.0	FINE TO MEDIUM SANDY ELASTIC SILT, moist, greenish gray, trace mica, weak HCl reaction.	MH	-22.7		145	9+11+18 N =29 REC =18"	w=36.8% LL=59 PL=33 *	
	fine sandy.				150	7+12+20 N =32 REC =18"	w=50.6% *	
153.5	SILTY SAND, fine to medium sandy, trace fine to medium shell fragments (±1%), very weak HCl reaction.	SM	-34.2		155	7+13+17 N =30 REC =18"	w=38.8% LL=58 PL=37 *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
157.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, little fine to coarse shell fragments (±15%), strong HCl reaction.	SC	-37.7		160	7+18+18 N =36 REC =18"		
162.0	FINE TO MEDIUM SANDY LEAN CLAY, moist, gray and light greenish gray, trace fine to medium shell fragments (±5%), strong HCl reaction.	CL	-42.7		165	6+11+18 N =29 REC =18"		
167.0	FINE SANDY SILT, moist, gray and greenish gray, trace fine to medium shell fragments (±5%) and mica, weak HCl reaction.	ML	-47.7		170	8+12+18 N =30 REC =18"		
172.0	CLAYEY SAND, moist, dark greenish gray, trace fine sand and mica, contains indurated elastic silt pockets, weak HCl reaction.	SC	-52.7		175	7+12+14 N =26 REC =18"		
	trace fine to medium sand, mostly indurated elastic silt layers, strong HCl reaction.				180	REC =23"	w=33.5% LL=41 PL=25 PP=>4.5 tsf *	*Osterberg sampler tube push from 178.5 to 180.4 ft
183.5	SILTY SAND, very weak HCl reaction .	SM	-64.2		185	7+12+14 N =26 REC =18"		
					190	6+9+15 N =24 REC =18"	w=43% LL=61 PL=39	

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-307** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM					*	
193.5	Sandy ELASTIC SILT, trace fine sand, weak HCl reaction.	MH	-74.2		195	7+11+14 N =25 REC =18"		
	very weak HCl reaction.				200	7+11+14 N =25 REC =18"	w=68.7% LL=137 PL=61 *	**Resumed grouting at 7:45 AM on 6/16/06.
201.5	BOTTOM OF BORING @ 201.5 FT.		-82.2					

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/16/06.
3. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-308** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: FAILING-1500

Schnabel Representative: R. Vinzant

Dates Started: 5/3/06 **Finished:** 5/4/06

Location: Northing: 216906.69 ft
Easting: 960771.28 ft

Ground Surface Elevation: 107.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/3	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.8	SILTY SAND, fine to medium grained, moist, dark brown, with organic matter, trace fine gravel.	SM	106.4			3+3+3 N =6 REC =18"		
	POORLY GRADED SAND, fine to medium grained, moist, light brown, trace silt.	SP				2+2+4 N =6 REC =14"		
	grayish brown.				5	2+6+5 N =11 REC =16"		
	orangeish brown.					4+4+6 N =10 REC =16"		
	medium to coarse grained, orangeish brown.				10	6+6+9 N =15 REC =16"		
						10+13+14 N =27 REC =14"		
15.0	SILTY SAND, fine to medium grained, moist, orangeish brown, contains mica.	SM	92.1		15			
						7+10+12 N =22 REC =13"		
	medium to coarse grained, dark orange.				20			
				▽		12+12+14 N =26 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-308** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	wet, orange, with organic matter, trace fine gravel.	SM						
						2+2+3 N =5 REC =14"		
30.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	77.1		30			
						2+2+3 N =5 REC =18"		
35.0	SANDY LEAN CLAY, fine, moist, dark gray.	CL	72.1		35			
						2+3+2 N =5 REC =18"		
					40			
						REC =24"	PP=3.00 tsf	
					45			
						4+5+6 N =11 REC =18"		
	contains mica.				50			
						REC =16"	PP=3.25 tsf	
					55			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-308** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL				5+7+7 N =14 REC =18"		
60.0	SILTY SAND, fine to medium grained, moist, dark gray, with cemented sand.	SM	47.1		60			
						REC =0"		
65.0	CLAYEY SAND, fine grained, moist, gray, with fine to coarse shell fragments, moderate HCl reaction.	SC	42.1		65			
						17+21+50/5" N =71/11" REC =16"		
					70			
73.5	SILTY SAND, fine to medium grained, moist, dark gray, with cemented sand.	SM	33.6			50/4" N =50/4" REC =1"		
					75			
	gray, with fine to coarse shell fragments, strong HCl reaction.					50/4" N =50/4" REC =1"		
					80			
83.5	CLAYEY SAND, fine to medium grained, moist, gray, with fine to coarse shell fragments, moderate HCl reaction.	SC	23.6			50/2" N =50/2" REC =0"		
					85			
						50/5" N =50/5" REC =1"		
					90			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-308** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
93.5	SILTY SAND, fine grained, moist, dark greenish gray, with fine to coarse shell fragments, moderate HCl reaction.	SM	13.6		95	7+14+14 N =28 REC =18"		
	contains mica.				100	9+11+14 N =25 REC =18"		
103.5	CLAYEY SAND, fine to medium grained, moist, greenish gray.	SC	3.6		105	4+7+13 N =20 REC =18"		
					110	3+5+7 N =12 REC =18"		
113.5	SILTY SAND, fine to medium grained, moist, light gray, with fine to coarse shell fragments, strong HCl reaction.	SM	-6.4		115	15+24+50/4" N =74/10" REC =15"		
	greenish gray and white.				120	34+29+23 N =52 REC =18"		
	trace fine to coarse shell fragments,					10+19+21		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-308** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	strong HCl reaction.	SM			125	N =40 REC =18"		
128.5	CLAYEY SAND, fine to medium grained, moist, trace fine shell fragments, weak HCl reaction	SC	-21.4		130	9+10+21 N =31 REC =18"		
133.5	SANDY SILT, fine to medium grained, moist, greenish gray, trace fine to medium shell fragments, weak HCl reaction where shell fragments are present	ML	-26.4		135	9+13+22 N =35 REC =18"		
138.5	SILTY SAND, fine to medium grained, moist, greenish gray, few fine to coarse shell fragments, strong HCl reaction.	SM	-31.4		140	10+10+15 N =25 REC =18"		
					145	7+10+16 N =26 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-42.9		150	10+17+30 N =47 REC =18"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-309** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/11/06 **Finished:** 5/12/06

Location: Northing: 216949.24 ft
Easting: 960890.7 ft

Ground Surface Elevation: 100.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Start of day	5/12	---	12.5'	14.0'	---
Start of day	5/15	---	21.5'	14.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		99.7					Drill hollow stem auger Fill, water loss and hole collapse, drillers cased auger to 14' to keep hole open
	Clayey Sand FILL, fine to medium grained, moist, brownish orange.	FILL				2+2+2 N =4 REC =17"		
2.0	Poorly graded sand FILL, fine to coarse grained, moist, brownish orange, contains wood fragments, with clay, trace silt.	FILL	98.1			WOH/18" N = WOH/18" REC =11"		
		FILL			5	1+WOR +WOR N = WOR REC =4"		
7.0	Silty Sand FILL, fine to coarse grained, moist, grayish brown, contains wood fragments.	FILL	93.1			WOH/18" N = WOH/18" REC =18"		
					10			
11.0	wet, brown, trace gravel.	FILL	89.1			WOH+2+2 N =4 REC =18"		
12.0	SILTY SAND, fine to coarse grained, moist, brown, trace gravel.	SM	88.1					
	SANDY LEAN CLAY, fine to coarse, moist, brown.	CL				2+2+3 N =5 REC =13"	PP=0.25 tsf	
					15			
17.0	POORLY GRADED SAND WITH SILT AND GRAVEL, fine to coarse grained, moist, orangeish brown.	SP-SM	83.1			7+10+11 N =21 REC =17"		
					20			
	orange.					9+14+8 N =22 REC =14"		
24.8			75.3		25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-309** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, moist, orange.	SM						
27.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	73.1					
					30	1+3+2 N =5 REC =18"		
32.0	SANDY LEAN CLAY, fine, moist, dark gray.	CL	68.1					
					35	REC =23"		
					40	4+4+6 N =10 REC =18"	PP=2.50 tsf	
	trace sand.				45	REC =24"	PP=3.75 tsf	
	gray.				50	3+4+7 N =11 REC =18"		
52.0	CLAYEY SAND, fine to medium grained, moist, greenish gray.	SC	48.1					
					55	REC =23"		
57.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, grayish *continued on next page*	SP-SC	43.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-309** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	green, with fine to coarse shell fragments (15-20%), HCl+, contains cemented sand.	SP-SC			60	31+50/3" N =50/3" REC =10"		
62.0	CLAYEY SAND, fine to medium grained, moist, grayish green, 1/4" layers of clay and sand.	SC	38.1		65	6+12+16 N =28 REC =18"		
67.0	POORLY GRADED SAND, fine to medium grained, moist, grayish green, trace silt, with fine to medium shell fragments (0-10%).	SP	33.1		70	50/3" N =50/3" REC =4"		
72.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green and white, with fine to coarse shell fragments (30-40%), HCl+.	SP-SM	28.1		75	23+19+14 N =33 REC =16"		
					80	50/4" N =50/4" REC =2"		
	greenish gray, with fine to coarse shell fragments (10-20%).				85	8+17+22 N =39 REC =18"		
	with fine to coarse shell fragments (15-30%).				90	9+10+9 N =19 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-309** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	trace fine to medium shell fragments (<1%).				95	6+7+8 N =15 REC =18"		
					100	3+3+4 N =7 REC =18"		
	grayish green, with fine to coarse shell fragments (15-30%).				105	5+6+11 N =17 REC =18"		
107.0	SILTY SAND, fine to medium grained, moist, grayish green, with fine to coarse shell fragments (30-40%).	SM	-6.9		110	23+10+26 N =36 REC =18"		
112.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments (10-15%), with silt, HCl+.	SP-SM	-11.9		115	9+9+14 N =23 REC =18"		
					120	5+6+7 N =13 REC =18"		
122.0	POORLY GRADED SAND, fine to medium grained, moist, green, trace silt.	SP	-21.9			8+8+10		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-309** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP			125	N =18 REC =18"		
127.0	SILTY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments (0-5%).	SM	-26.9		130	7+7+9 N =16 REC =18"		
132.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, trace fine to medium shell fragments (0-5%), HCl+.	SP-SM	-31.9		135	5+7+7 N =14 REC =18"		
	with fine to coarse shell fragments (10-25%).				140	4+6+8 N =14 REC =18"		
					145	5+6+9 N =15 REC =18"		
147.0	SILTY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments (0-10%).	SM	-46.9		150	5+7+8 N =15 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-49.9					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-310** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/15/06 **Finished:** 6/15/06

Location: Northing: 217081.4 ft
Easting: 960616.6 ft

Ground Surface Elevation: 91.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/15	---	48.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		91.1					
	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, orangeish brown, trace gravel.	SP-SC				1+1+1 N =2 REC =6"		
2.0			89.6					
	CLAYEY SAND, fine to medium grained, moist, orangeish brown, trace root fragments, trace gravel, moderate cementation.	SC				3+4+4 N =8 REC =18"		
	yellowish brown				5	4+3+5 N =8 REC =16"		
7.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, yellowish brown, trace gravel.	SP-SC	84.6			4+6+6 N =12 REC =15"		
10.0	SILTY SAND, fine to medium grained, moist, yellowish brown and orangeish brown.	SM	81.6		10	3+6+6 N =12 REC =5"		start of mud rotary drilling
13.0	SANDY LEAN CLAY, wet, yellowish brown and gray.	CL	78.6			1+1+2 N =3 REC =18"		
					15			
						2+2+2 N =4 REC =18"		
					20			color change in mud tub from orangeish brown to gray
						2+2+3 N =5 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-310** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
					30	2+4+5 N =9 REC =18"		
32.0	ELASTIC SILT, moist, gray, trace sand.	MH	59.6					
					35	3+6+7 N =13 REC =17"		
37.0	CLAYEY SAND, fine to medium grained, moist, gray.	SC	54.6					Harder drilling
					40	4+5+7 N =12 REC =18"		
	strong cementation				45	11+21+50/5" N =71/11" REC =16"		Harder drilling
47.0	SILTY SAND, fine to coarse grained, wet, gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	44.6	▽	50	50/5" N =50/5" REC =5"		
					55	50/4" N =50/4" REC =4"		Rig chatter

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-310** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray and white, with fine to coarse shell fragments, 60-70%, HCl reaction strong .	SM			60	10+13+9 N =22 REC =18"		
62.0	CLAYEY SILT, moist, greenish gray.	ML	29.6		65	4+50 N =50 REC =12"		Harder drilling Rig chatter
	No recovery.				70	50/2" N =50/2" REC =0"		Harder drilling/rig chatter
72.0	CLAYEY SAND, fine to medium grained, wet, greenish gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction moderate.	SC	19.6		75	5+7+10 N =17 REC =18"		
					80	REC =15"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				85	5+6+8 N =14 REC =18"		
					90	4+4+8 N =12 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-310** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						Rig chatter
	white and gray, with fine to coarse shell fragments, 60-70%, strong cementation, HCl reaction strong.				95	50/5" N =50/5" REC =4"		Rig chatter
	contains fine to medium shell fragments, 10-20%, HCl reaction moderate.				100	27+27+26 N =53 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-8.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-311** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/15/06 **Finished:** 5/16/06

Location: Northing: 217268.61 ft
Easting: 960771.76 ft

Ground Surface Elevation: 58.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/15	---	23.5'	---	---
Start of day	5/16	---	10.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	ROOTMAT AND TOPSOIL.							
0.8	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace root fragments.	SP-SM	57.6			1+1+1 N =2 REC =14"		
	yellowish brown and brown, with wood fragments.					4+3+2 N =5 REC =8"		
					5	1+3+5 N =8 REC =0"		
7.0	FAT CLAY with sand, moist, orangeish brown and gray, trace root fragments.	CH	51.4			2+4+5 N =9 REC =12"		
					10	1+3+5 N =8 REC =17"		
12.0	SILTY SAND, fine to medium grained, moist, gray.	SM	46.4			6+9+10 N =19 REC =20"		
					15			
	gray and greenish gray.					4+5+9 N =14 REC =20"		
					20			Harder drilling
22.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and greenish gray.	SP-SM	36.4	▽				
					25	10+15+17 N =32 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-311** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to medium shell fragments, HCl reaction weak.	SP-SM			30	23+17+15 N =32 REC =14"		
32.0	SILTY SAND, fine to medium grained, wet, gray and white, with fine to coarse shell fragments, HCl reaction strong.	SM	26.4		35	11+11+18 N =29 REC =12"		
37.0	SANDY LEAN CLAY, moist, greenish gray, trace fine to coarse shell fragments, HCl reaction moderate.	CL	21.4		40	28+22+50/3" N =72/9" REC =21"		
42.0	CLAYEY SAND, fine to coarse grained, wet, oliveish gray and gray, trace fine to coarse shell fragments, HCl reaction moderate, weak cementation.	SC	16.4		45	11+19+17 N =36 REC =17"		Harder drilling
47.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, trace fine to coarse shell fragments, HCl reaction weak.	SM	11.4		50	4+4+6 N =10 REC =14"		
					55	4+4+5 N =9 REC =14"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-311** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray.	SM			60	2+3+5 N =8 REC =17"		
					65	4+4+7 N =11 REC =18"		
67.0	CLAYEY SAND, fine to medium grained, wet, light gray and white, with fine to coarse shell fragments, HCl reaction strong.	SC	-8.6		70	50/3" N =50/3" REC =2"		
72.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to coarse shell fragments, HCl reaction moderate.	SM	-13.6		75	18+17+23 N =40 REC =17"		
	HCl reaction weak.				80	8+12+15 N =27 REC =18"		
	greenish gray and white, HCl reaction moderate.				85	9+8+10 N =18 REC =18"		
87.0	SANDY ELASTIC SILT, wet, gray and greenish gray.	MH	-28.6		90	6+7+10 N =17 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-311** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	trace fine to medium shell fragments (5%), HCl reaction weak.				95	6+8+12 N =20 REC =18"		
	greenish gray				100	7+14+12 N =26 REC =18"		Resumed drilling 5/16/06 @ 7:15am
102.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, and fine to coarse shell fragments (35-45%), HCl reaction stronng.	SM	-43.6		105	11+12+31 N =43 REC =20"		
107.0	LEAN CLAY with sand, wet, greenish gray and white, trace fine to medium shell fragments (2-5%), HCl reaction moderate.	CL	-48.6		110	7+7+10 N =17 REC =19"		
	trace fine to medium shell fragment (5-10%).				115	5+7+10 N =17 REC =19"		
					120			
	trace fine to medium shell fragments *continued on next page*					5+7+9		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-311** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	(2-5%), HCl reaction weak.	CL			125	N =16 REC =18"		
	greenish gray.				130	5+7+9 N =16 REC =20"		Softer drilling
132.0	FAT CLAY with sand, moist, greenish gray and gray.	CH	-73.6		135	7+9+12 N =21 REC =21"		
	trace fine to medium shell fragments (<5%), HCl reaction weak.				140	7+9+12 N =21 REC =19"		
	trace fine to medium shell fragments (5%).				145	6+7+11 N =18 REC =20"		
	trace fine to medium shell fragments (<5%).				150	9+10+13 N =23 REC =20"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-91.6					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-312** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/18/06 **Finished:** 5/18/06

Location: Northing: 217293 ft
Easting: 960740 ft

Ground Surface Elevation: 55.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/18	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		54.8					
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace root fragments.	SP-SM	53.3			woh+1+2 N =3 REC =15"		
	FAT CLAY, moist, yellowish brown and orangeish brown, trace sand and root fragments.	CH				2+3+4 N =7 REC =11"		
					5	3+4+5 N =9 REC =0"		
	orangeish brown and gray, trace wood fragments.					2+3+3 N =6 REC =13"		
					10	REC =21"	PP=>4.5 tsf	
12.0	ELASTIC SILT with sand, moist, dark gray.	MH	43.3					Color change in tub from yellow brown to gray
					15	3+4+8 N =12 REC =18"		
17.0	SILTY SAND, fine to medium grained, moist, dark gray and black, organic odor, weakly cemented with no HCl reaction.	SM	38.3					Color change in tub from gray to brown
					20	38+50/5" N =50/5" REC =10"		
22.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, light gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.	SP-SM	33.3	▽				
					25	50 REC =10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-312** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	trace fine to medium shell fragments (5-10%), HCl reaction weak.				30	50/5" N =50/5" REC =5"		
32.0	ELASTIC SILT with sand, wet, gray, trace organic matter and fine to medium shell fragments (2-5%), HCl reaction weak.	MH	23.3		35	4+4+6 N =10 REC =15"		
								Rig chatter
					40	REC =0"		
								Rig chatter
42.0	SILTY SAND, fine to coarse grained, wet, greenish gray and gray, trace fine to coarse shell fragments (15-20%), HCl reaction moderate.	SM	13.3		45	4+6+12 N =18 REC =18"		
	greenish gray and white.				50	6+8+14 N =22 REC =17"		
	greenish gray, trace fine to coarse shell fragments (10-15%).				55	6+5+8 N =13 REC =17"		
57.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to	SC	-1.7					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-312** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	medium shell fragments (2-5%), HCl reaction weak.	SC			60	3+4+5 N =9 REC =15"		
62.0	SANDY FAT CLAY, wet, greenish gray, trace fine to coarse shell fragments (30-40%), HCl reaction strong.	CH	-6.7		65	5+7+11 N =18 REC =18"		Rig chatter
67.0	SILTY SAND, fine to coarse grained, wet, gray and white, with cemented sand, HCl reaction strong.	SM	-11.7		70	47+10+7 N =17 REC =16"		
69.5	CLAYEY SAND, fine to coarse grained, wet, greenish gray and white, trace fine to coarse shell fragments (30-40%), HCl reaction strong.	SC	-14.2					
	fine to medium grained, greenish gray and light gray, trace fine to medium shell fragments (5-15%), HCl reaction moderate.				75	17+26+29 N =55 REC =18"		
77.0	SANDY ELASTIC SILT, wet, greenish gray, trace fine to coarse shell fragments (10-20%), HCl reaction moderate.	MH	-21.7		80	4+6+11 N =17 REC =17"		
	greenish gray and white, trace fine to medium shell fragments (5-10%), HCl reaction weak.				85	7+8+13 N =21 REC =18"		
	with sand, trace fine to medium shell fragments (2-5%).				90	7+9+12 N =21 REC =20"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-312** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
					95	5+9+3 N =12 REC =20"		
					100	REC =12"	PP=>4.5 tsf	
100.5	BOTTOM OF BORING @ 100.5 FT.		-45.2					

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-313** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/19/06 **Finished:** 5/22/06

Location: Northing: 217372.34 ft
Easting: 960713.67 ft

Ground Surface Elevation: 50.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/19	---	8.7'	---	---
Start of day	5/22	---	20.0'	---	---
Start of day	5/23	---	0.0'	---	---
Water Reading	7/27	---	20.3'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		50.2					
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM				WOH+1+1 N =2 REC =13"	w=9.9% *	
2.0	Sandy SILTY CLAY, fine to medium grained, moist, light brown, trace organic matter, contains root fragments.	CL-ML	48.7			WOH+2+1 N =3 REC =10"	w=11.8% LL=19 PL=14 *	
4.5	FAT CLAY, moist, light orangeish brown and light brown, trace fine to medium sand.	CH	46.2		5	2+4+4 N =8 REC =18"	w=27.6% LL=67 PL=21 *	
7.5	Sandy LEAN CLAY, light gray and orangeish brown, with fine to medium sand.	CL	43.2			3+4+6 N =10 REC =13"	w=15.1% LL=30 PL=17 *	
8.7		SM	42.0	▽				
9.5	SILTY SAND, fine to medium grained, wet, grayish brown and brown.	ML	41.2		10			
	SANDY SILT, fine to medium, wet, light grayish brown and orangeish brown.					2+3+3 N =6 REC =17"	w=27% *	*Slight drill rig chatter from 11.5 to 13.5 ft.
	light grayish brown, yellowish brown and orangeish brown, trace mica.				15	2+2+2 N =4 REC =16"	w=31.5% *	
17.0	POORLY GRADED SAND, fine to medium grained, wet, light brown, with silt.	SP-SM	33.7					
					20	4+11+15 N =26 REC =16"	w=23.1% *	
22.0	SILTY SAND, fine to medium grained, wet, dark orangeish brown.	SM	28.7					
					25	16+17+10 N =27 REC =15"	w=21.1% LL=NP PL=NP	

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Comments:
1. Ground water observation well OW-313B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-313A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-313** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM					*	
	gray, mostly fine to coarse shell fragments (±60%), strong HCl reaction, contains black particles (<1/16 inch).				30	11+14+14 N =28 REC =16"	w=18.2% LL=NP PL=NP *	
32.0	SANDY LEAN CLAY, moist, gray, with fine to medium sand, weak HCl reaction.	CL	18.7					*Switched to 3-7/8" Tri-cone roller bit below 33.5 ft.
33.9	SILTY SAND, fine to medium grained, moist, gray, mostly strongly cemented sand (±95%), moderate HCl reaction.	SM	16.8		35	50 REC =6"	w=28.1% LL=38 PL=21 *	*Very to extremely difficult rotary advancement from 34 to 35.5 ft (strong rig chatter).
	wet, oliveish gray, little fine to coarse shell fragments (±30%), contains cemented sand pockets, strong HCl reaction.				40	24+50/4" N =50/4" REC =10"	w=17.1% *	*Moderate difficulty with rotary advancement from 35.5 to 37.5 ft.
41.0	SANDY SILT, fine to medium grained, wet, gray, few fine to coarse shell fragments (±10%), contains silty sand pockets, weak HCl reaction.	ML	9.7		45	4+5+6 N =11 REC =18"	w=29.3% LL=34 PL=27 *	*Very difficult rotary advancement from 37.5 to 38 ft (moderate to strong rig chatter). *Moderate to difficult rotary advancement from 40.5 to 41 ft (moderate rig chatter).
47.0	SILTY SAND, fine to medium grained, wet, greenish gray and gray, few fine to coarse shell fragments (±10%), moderate HCl reaction.	SM	3.7		50	6+7+8 N =15 REC =18"	w=27.9% *	
52.0	SILTY SAND, fine to medium grained, wet, greenish gray and gray, weak HCl reaction, contains black particles (<1/16 inch).	SM	-1.3		55	5+6+9 N =15 REC =18"	w=31.5% LL=NP PL=NP *	**Resumed drilling at 8:40 AM on 5/22/06.
	trace fine to medium shell fragments (±5%) below 54.8 ft.							

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Comments:
1. Ground water observation well OW-313B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-313A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-313** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	light greenish gray and gray, trace fine to coarse shell fragments (±5%).	SM			60	3+5+9 N =14 REC =18"		
62.0	SANDY LEAN CLAY, fine to medium, wet, gray and light gray, mostly fine to coarse shell fragments (±60%), contains clayey sand pockets, strong HCl reaction.	CL	-11.3		65	11+14+50/5" N =64/11" REC =17"	w=26.2% LL=33 PL=17 *	*Moderate to difficult rotary advancement from 65 to 67 ft (moderate to strong rig chatter).
67.0	SILTY SAND, fine to medium grained, wet, gray, little fine to medium shell fragments (±20%), strong HCl reaction.	SM	-16.3		70	6+13+22 N =35 REC =18"		
72.0	SANDY SILT, fine to medium, moist, light greenish gray and gray, trace fine to coarse shell fragments (±5%), moderate HCl reaction.	ML	-21.3		75	5+10+16 N =26 REC =18"	w=28.4% *	
77.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, few fine to coarse shell fragments (±10%), contains cemented shell pockets and strongly cemented sand layer from 77.7 to 77.8 ft, strong HCl reaction.	SC	-26.3		80	50/4" N =50/4" REC =4"		
82.0	SANDY ELASTIC SILT, fine to medium, moist, greenish gray, trace mica, weak HCl reaction.	MH	-31.3		85	5+6+13 N =19 REC =18"	w=37.3% *	
87.0	ELATIC SILT, moist, light greenish gray, trace fine to medium sand, mica and fine to medium shell fragments (±1%), weak HCl reaction.	MH	-36.3		90	7+9+12 N =21 REC =18"	w=55% LL=98 PL=47 *	

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Comments:
1. Ground water observation well OW-313B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-313A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-313** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
92.0	LEAN CLAY, gray, with fine to medium sand, trace mica, weak HCl reaction, trace fine to coarse shell fragments (±<5%).	CL	-41.3		95	REC =14"	w=35.6% LL=49 PL=25 PP=>4.5 tsf *	*Shelby tube sampler push from 93.5 to 94.7 ft.
97.0	SANDY SILT, moist, dark gray, some fine to coarse shell fragments (±40%), trace mica, weak HCl reaction.	ML	-46.3		100	8+13+18 N =31 REC =18"	w=32.4% LL=42 PL=28 *	
102.0	SANDY ELASTIC SILT, fine to medium, moist, dark greenish gray, trace fine to medium shell fragments (±<5%), trace mica, moderate HCl reaction.	MH	-51.3		105	6+8+12 N =20 REC =18"	w=43.4% LL=70 PL=45 *	
	trace fine to medium sand and mica, moderate HCl reaction.				110	6+10+11 N =21 REC =18"	w=57.7% LL=106 PL=55 *	
	with fine to medium sand, trace mica and fine to coarse shell fragments (±5%), moderate HCl reaction.				115	6+10+12 N =22 REC =18"	w=44.3% LL=72 PL=46 *	
	weak HCl reaction.				120	5+8+11 N =19 REC =18"	w=43.5% LL=81 PL=42 *	*Considered pushing tube at 118.5 ft, but drilling resistance increased from 117.5 to 118.5 ft.
122.0	CLAYEY SAND, dark greenish gray, trace mica, contains indurated sandy silt pockets, weak HCl reaction.	SC	-71.3			REC =10"	w=33.1%	*Shelby tube

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Comments:
1. Ground water observation well OW-313B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-313A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-313** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			125		LL=44 PL=26 PP=>4.5 tsf *	sampler push from 123.5 to 124.3 ft.
127.0	ELASTIC SILT, dark greenish gray, trace mica, contains indurated sandy silt pockets, weak HCL reaction.	MH	-76.3		130	7+9+12 N =21 REC =18"	w=66% LL=132 PL=60 *	
					135	8+10+11 N =21 REC =18"	w=69.1% *	*Relatively slow rotary advancement below 135 ft.
					140	7+8+12 N =20 REC =18"	w=62.9% LL=106 PL=51 *	
142.0	Sandy FAT CLAY, moist, greenish gray, trace fine to medium sand, and mica, weak HCl reaction.	CH	-91.3		145	7+11+14 N =25 REC =18"	w=49.1% *	
	dark greenish gray, moderate HCl reaction.				150	7+12+14 N =26 REC =18"	w=49.4% LL=103 PL=30 *	**Resumed observation well construction for SPT borehole at 7:00 AM on 5/23/06.
150.0	BOTTOM OF BORING @ 150.0 FT.		-99.3					

Comments:

1. Ground water observation well OW-313B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-313A installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-314** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/16/06 **Finished:** 5/17/06

Location: Northing: 217321.89 ft
Easting: 960654.5 ft

Ground Surface Elevation: 52.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/16	---	3.5'	---	---
Start of day	5/17	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		52.4					
	SILTY SAND, fine to medium grained, moist, yellowish brown, trace silt and root fragments.	SM				WOH/18" N = WOH/18" REC =6"	w=9.7% *	
	fine to coarse grained, wet, trace gravel.					2+2+5 N =7 REC =15"	w=14.1% LL=NP PL=NP *	
3.5	FAT CLAY with sand, moist, orangeish brown and gray, trace root fragments.	CH	49.3	▽	5	1+2+3 N =5 REC =12"	w=35% LL=73 PL=25 *	
						2+4+5 N =9 REC =19"	w=41.2% LL=59 PL=21 *	Started drilling 5/17/06 @ 7:30am
					10	5+7+9 N =16 REC =19"	w=26.2% LL=73 PL=25 *	Color change in tub, yellow/brown to gray below 10 ft.
13.5	CLAYEY SAND, moist, light gray and gray.	SC	39.3		15	REC =12"	w=25.9% LL=54 PL=11 PP=>4.5 tsf *	
17.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, trace fine to medium shell fragments (5%), HCl reaction weak.	SM	35.8		20	26+50/5" N =50/5" REC =11"	w=24.2% *	Harder drilling at 16.5 ft.
22.0	SILTY SAND, fine to medium grained, wet, light gray and white, trace fine to medium shell fragments (5-10%), HCl reaction moderate .	SM	30.8		25	29+50/5" N =50/5" REC =13"	w=22.6% LL=NP PL=NP	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-314** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM					*	
27.0	SILTY SAND, fine to coarse grained, wet, gray and white, with fine to coarse shell fragments (60-70%), HCl reaction strong.	SM	25.8		30	10+10+17 N =27 REC =15"	w=20.3% *	
32.0	Sandy LEAN CLAY with sand, moist, greenish gray.	CL	20.8		35	3+4+6 N =10 REC =20"	w=25.4% LL=42 PL=22 *	
37.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, trace fine to coarse shell fragments (25-30%), HCl reaction strong, (50-60% medium to coarse grained shell fragments from 39.9-40.0 ft).	SM	15.8		40	5+5+50/3" N =55/9" REC =19"	w=26.8% LL=NP PL=NP *	Rig chatter at 36.5 ft.
					45	4+4+7 N =11 REC =16"	w=31.9% *	
					50	5+9+7 N =16 REC =18"	w=25.4% *	
52.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.	SM	0.8		55	4+4+6 N =10 REC =18"	w=32.8% LL=NP PL=NP *	
57.0	POORLY GRADED SAND, trace silt, fine to medium grained, wet, gray and *continued on next page*	SP	-4.2					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-314** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.	SP			60	3+4+6 N =10 REC =16"	w=33% LL=NP PL=NP *	
62.0	SANDY FAT CLAY with sand, wet, greenish gray and white, trace fine to coarse shell fragments (35-45%), HCl reaction strong.	CH	-9.2		65	3+5+8 N =13 REC =18"	w=40.3% LL=59 PL=24 *	
67.0	SANDY SILT, fine to coarse grained, wet, greenish gray and white, trace fine to medium shell fragments (10-15%), HCl reaction moderate.	ML	-14.2		70	5+11+17 N =28 REC =18"	w=19.5% LL=NP PL=NP *	Rig chatter at 67.5 ft.
	fine to medium grained, gray and greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.				75	8+13+16 N =29 REC =15"	w=27.9% LL=NP PL=NP *	
	greenish gray and white, trace fine to medium shell fragments (20-30%), HCl reaction moderate.				80	13+50/5" N =50/5" REC =16"	w=36.5% LL=NP PL=NP *	
83.5	SANDY ELASTIC SILT, trace fine to medium shell fragments (15-20%), HCl reaction moderate.	MH	-30.7		85	5+7+11 N =18 REC =18"	w=41.2% LL=57 PL=36 *	
87.0	SANDY FAT CLAY, wet, greenish gray and, trace fine to medium shell fragments (<5%), HCl reaction weak, (strongly cemented lense at 89.6 ft exhibits strong HCl reaction).	CH	-34.2		90	8+10+15 N =25 REC =18"	w=34.3% LL=68 PL=20 *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-314** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
92.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments (5-10%), HCl reaction moderate.	SM	-39.2		95	7+12+15 N =27 REC =18"	w=36.4% *	
	greenish gray and white, trace fine to medium shell fragments (20-30%), trace organic matter, HCl reaction strong.				100	7+9+14 N =23 REC =18"	w=31% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		-47.2					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-315** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/19/06 **Finished:** 5/22/06

Location: Northing: 217184.68 ft
Easting: 960559.43 ft

Ground Surface Elevation: 65.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/22	---	14.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	ROOTMAT AND TOPSOIL.							
0.8	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orangeish brown, trace root fragments. trace gravel.	SP-SM	64.7			1+1+1 N =2 REC =12"		
						3+4+4 N =8 REC =17"		
					5	4+6+8 N =14 REC =17"		
						6+6+7 N =13 REC =14"	w=5.6% *	
10.0	SILTY SAND, fine to coarse grained, moist, yellowish brown and orangeish brown, trace gravel.	SM	55.5		10	8+8+9 N =17 REC =16"		
	fine to medium grained, wet, gray.			▽	15	4+7+6 N =13 REC =15"	w=28.3% *	Resumed drilling on 5/22/06 at 8:30am.
17.0	CLAYEY SAND, moist, gray, trace sand.	SC	48.5					
					20	4+7+8 N =15 REC =18"	w=28.3% *	
					25	REC =14"	w=23.3% LL=41 PL=11	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-315** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
25.0	SILTY SAND, fine to medium grained, wet, gray and white, trace fine to coarse shell fragments (30-40%), HCl reaction moderate.	SM	40.5				PP=>4.5 tsf *	
					30	26+21+22 N =43 REC =18"	w=27.6% *	
					35	38+44+42 N =86 REC =14"		
	fine to coarse grained, light gray and white, with fine to coarse shell fragments (60-70%), HCl reaction strong.				40	14+16+16 N =32 REC =14"	w=22.2% LL=NP PL=NP *	
42.0	SILTY SAND, fine to medium grained, moist, greenish gray and gray, trace organic matter.	SM	23.5					
					45	3+4+4 N =8 REC =18"		Rig chatter at 46.5 ft.
	strong cementation, HCl reaction strong.				50	50 REC =6"		
53.5	SANDY SILT, light gray and white, trace fine to coarse shell fragments (10-20%), HCl reaction moderate.	ML	12.0		55	5+7+8 N =15 REC =17"	w=25.6% LL=NP PL=NP *	

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-315** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to coarse shell fragments (35-45%), HCl reaction strong .	ML			60	6+8+8 N =16 REC =16"		Rig chatter at 61 ft.
63.5	POORLY GRADED SAND WITH SILT, greenish gray, trace fine to medium shell fragments (5-10%), HCl reaction weak.	SP-SM	2.0		65	5+5+9 N =14 REC =15"	w=29.4% LL=NP PL=NP *	
					70	4+4+6 N =10 REC =18"		
73.5	SANDY FAT CLAY, trace fine to medium shell fragments (20-30%), HCl reaction moderate, green.	CH	-8.0		75	4+5+6 N =11 REC =20"	w=36.3% LL=58 PL=18 *	
77.0	SILTY SAND, fine to coarse grained, wet, light gray and white, trace fine to coarse shell fragments (20-30%), strong HCl reaction, cemented layer from 79' to 79.9 ft.	SM	-11.5		80	16+41+9 N =50 REC =18"		
	fine to medium grained, greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.				85	7+10+10 N =20 REC =19"	w=29.6% LL=NP PL=NP *	
87.0	SANDY ELASTIC SILT, wet, greenish gray and white, trace fine to medium shell fragments (20-30%), HCl reaction moderate.	MH	-21.5		90	6+7+13 N =20 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-315** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
92.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.	SM	-26.5		95	5+7+11 N =18 REC =18"	w=35.6% *	
					100	7+11+12 N =23 REC =19"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-34.5					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-316** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 5/3/06 **Finished:** 5/3/06

Location: Northing: 216767.16 ft
Easting: 960864.35 ft

Ground Surface Elevation: 108.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/4	---	24.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		107.6					Auger
	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, brown, contains root fragments.	SP-SC				2+3+4 N =7 REC =18"		
2.5	SANDY LEAN CLAY, moist, brown.	CL	105.6			2+2+2 N =4 REC =16"	w=19.1% LL=35 PL=16 PP=2.00 tsf *	changed to 3 7/8" roller bit
					5	2+1+2 N =3 REC =11"		
	fine to coarse grained, moist, brown.					2+1+1 N =2 REC =10"	w=14.5% *	
					10			
10.5	SILTY SAND, fine to medium grained, moist, yellowish brown.	SM	97.6			2+3+2 N =5 REC =12"		
13.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brownish orange.	SP-SM	94.6			6+8+8 N =16 REC =12"		
					15			
18.5	CLAYEY SAND, fine to coarse grained, moist, orangeish white.	SC	89.6			3+3+4 N =7 REC =12"		
					20			
23.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, orangeish brown, .	SP-SM	84.6	▽		3+4+5 N =9 REC =15"	w=20% LL=NP PL=NP	
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-316** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM					*	
	brownish orange, 1" clay seam				30	3+5+3 N =8 REC =12"		1" clay seam
					35	2+3+3 N =6 REC =18"	w=20.1% LL=43 PL=17 *	
38.5	SANDY LEAN CLAY, moist, dark gray.	CL	69.6		40	1+3+2 N =5 REC =18"	w=28.5% *	
	with sand.				45	REC =24"	w=28.6% LL=44 PL=16 PP=2.00 tsf *	
48.5	SANDY ELASTIC SILT, moist, dark gray, trace sand.	MH	59.6		50	3+4+4 N =8 REC =18"	w=38.0% PP=1.50 tsf *	
53.5	LEAN CLAY, moist, dark gray, with sand.	CL	54.6		55	REC =24"	w=26.2% LL=33 PL=11 PP=3.25 tsf *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-316** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.5	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	49.6		60	5+5+6 N =11 REC =18"	w=24.4% *	
	greenish gray, trace cemented sand.				65	9+10+13 N =23 REC =17"	w=31.3% *	changed to 2 15/16" roller bit Harder drilling
68.5	SILTY SAND, fine to medium grained, moist, gray, with silt, trace fine to medium shell fragments, moderate HCl reaction.	SM	39.6		70	42+50/4" N =50/4" REC =10"	w=19.8% *	softer drilling
73.5	POORLY GRADED SAND, fine to medium grained, moist, gray, trace fine to medium shell fragments, trace clay, moderate HCl reaction.	SP	34.6		75	50/5.5" N =50/5.5" REC =6"	w=21.2% *	
	with fine to coarse shell fragments, strong HCl reaction.				80	50/2" N =50/2"		
	with fine to coarse shell fragments, strong HCl reaction, 1" cemented sand frag.				85	50/3" N =50/3" REC =1"		Rig chatter
	trace fine to medium shell fragments, moderate HCl reaction.				90	50/3" N =50/3" REC =1"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-316** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
93.5	CLAYEY SAND, fine to medium grained, moist, grayish green, with silt, with fine to coarse shell fragments, moderate HCl reaction.	SC	14.6		95	5+5+7 N =12 REC =18"	w=32% *	Easier drilling
	trace medium to coarse shell fragments, weak HCl reaction.				100	6+5+8 N =13 REC =18"	w=27.7% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		8.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-317** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 5/4/06 **Finished:** 5/8/06

Location: Northing: 217094.7 ft
Easting: 961249.2 ft

Ground Surface Elevation: 94.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Start of day	5/8	---	21.0'	4.5'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		93.9			2+2+2 N =4 REC =12"		Hollow stem auger
	POORLY GRADED SAND WITH CLAY, trace fine gravel, fine to coarse grained, moist, brown, contains root fragments.	SP-SC						
2.0	CLAYEY SAND, fine to coarse grained, moist, orangeish brown.	SC	92.4			1+1+1 N =2 REC =12"		
4.5	POORLY GRADED SAND, with fine gravel, medium to coarse grained, moist, orangeish brown.	SP	89.9		5	1+2+3 N =5 REC =12"		
7.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, moist, brownish orange.	SP-SM	87.4			2+5+7 N =12 REC =14"		
9.5	CLAYEY SAND, with siltfine to coarse grained, moist, brownish orange.	SC	84.9		10	4+5+6 N =11 REC =12"		
12.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brownish orange.	SP-SM	81.9		15			
	fine to coarse grained, orange.				20	6+7+7 N =14 REC =12"		1" clay layer Finer sand
22.0	SANDY SILT, fine to medium, moist, orange.	ML	72.4					
24.5	SANDY LEAN CLAY, fine to medium,	CL	69.9		25	2+2+3 N =5 REC =18"	w=28.4% PP=1.25 tsf *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing dat.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-317** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	moist, gray.	CL					PP=1.5, 1.2 tsf	
	dark gray.				30	REC =24"	w=31.7% LL=27 PL=19 PP=2.25 tsf *	lean clay
32.0	SANDY FAT CLAY, fine to medium, moist, dark gray, Pockets of more/less sand.	CH	62.4		35	2+3+3 N =6 REC =18"	w=30.2% PP=1.25,1.0 tsf *	
	dark gray, trace sand.				40	REC =24"	PP=3.50 tsf	
	gray.				45	4+6+7 N =13 REC =18"	PP=3.5,3.75 tsf	
47.0	SANDY LEAN CLAY, fine to medium grained, moist, grayish green.	CL	47.4		50	REC =22"	w=22.8% LL=35 PL=17 *	
51.0	POORLY GRADED SAND WITH SILT, contains cemented sand, fine to medium grained, moist, dark brownish orange.	SP-SM	43.4		55	50/4" N =50/4" REC =1"		2 15/16" OD roller bit

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing dat.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-317** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	light orangeish brown.	SP-SM			60	16+12+50/4" N =62/10" REC =14"	w=26% *	
61.0	CLAYEY SAND, fine to medium grained, moist, gray.	SC	33.4		65	28+50/4" N =50/4" REC =5"		
	trace shell fragments, contains cemented sand, shell frag fine to coarse size, moderate HCl reaction.				70	5+50/1" N =50/1" REC =4"		Harder drilling
	wet, greenish white, with fine to coarse shell fragments, strong HCl reaction.				75	8+50/5" N =50/5" REC =11"	w=22.3% *	
77.0	SILTY SAND, fine to medium grained, moist, green, 15% medium to coarse shell frag, strong HCl reaction.	SM	17.4		80	4+6+7 N =13 REC =18"		
	contains cemented sand, 25% medium to coarse shell frag, strong HCl reaction.				85	9+10+13 N =23 REC =18"		
87.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, trace shell fragments, 5% f-m shell frag.	SP-SM	7.4		90	5+6+8 N =14 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing dat.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-317** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
					95	3+5+5 N =10 REC =18"		
	20-30% medium to coarse shell frag, moderate HCl reaction.				100	9+11+20 N =31 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-5.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing dat.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 6/2/06 **Finished:** 6/5/06

Location: Northing: 217019.3 ft
Easting: 961227.2 ft

Ground Surface Elevation: 97.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/2	---	20.0'	0.0'	---
Start of day	6/3	---	0.0'	0.0'	---
Start of day	6/4	---	31.0'	0.0'	---
Start of day	6/5	---	31.0'	0.0'	---
Start of day	6/5	---	28.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	CRUSHED STONE.		97.3					
	POORLY GRADED SAND WITH CLAY, fine to coarse grained, dry, brown.	SP-SC				5+5+8 N =13 REC =15"		
2.0	POORLY GRADED SAND, fine to coarse grained, moist, orange, trace gravel.	SP	95.8			5+6+5 N =11 REC =15"		
	yellowish orange				5	5+5+5 N =10 REC =12"		
7.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish orange.	SP-SM	90.8			4+6+6 N =12 REC =12"		
	with gravel, 1/8" orange layers with more silt.				10	5+7+8 N =15 REC =16"		
					15	11+18+7 N =25 REC =14"		
18.0	FINE TO COARSE SANDY SILT, wet, orange.	ML	79.8			5+6+7 N =13 REC =12"		
				▽	20			
	moist, mottled orange and gray.				25	2+1+1 N =2 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
27.0	FINE TO MEDIUM SANDY LEAN CLAY, moist, dark gray.	CL	70.8		30	2+2+3 N =5 REC =18"		
33.0	FAT CLAY, moist, dark gray, with sand.	CH	64.8		35	3+4+4 N =8 REC =18"		
					40	4+4+4 N =8 REC =18"		
	3" Clayey sand layer				45	4+8+9 N =17 REC =18"		
					50	7+8+12 N =20 REC =18"		50' Start of day 6/3
53.0	CLAYEY SAND, fine to medium grained, moist, dark gray. Cemented sand lenses 55-58'	SC	44.8		55	5+8+9 N =17 REC =18"		
57.0	POORLY GRADED SAND, fine to medium grained, moist, reddish orange, *continued on next page*	SP	40.8					

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	1/4" red lenses.	SP			60	50/2" N =50/2" REC =2"		
63.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray.	SP-SM	34.8		65	50/2" N =50/2" REC =2"		
67.0	POORLY GRADED SAND, fine to medium grained, moist, gray, 1/8" and smaller clay lenses.	SP	30.8		70	50/5" N =50/5" REC =5"		
73.0	CLAYEY SAND, fine to medium grained, moist, gray, with silt, contains cemented sand, 80% cemented sand.	SC	24.8		75	50/3" N =50/3" REC =2"		
77.0	SILTY SAND, fine to medium grained, moist, green and white, with fine to coarse shell fragments, strong HCl reaction, 60-70% shell frag.	SM	20.8		80	15+8+15 N =23 REC =18"		
	green, 15-25% shell frag.				85	5+8+12 N =20 REC =18"		
87.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, strong HCl reaction, 15-20% shell frag.	SP-SM	10.8		90	7+11+16 N =27 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	trace fine to coarse shell fragments, moderate HCl reaction, 5-10% shell frag.				95	6+10+12 N =22 REC =18"		
97.0	SILTY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag.	SM	0.8		100	5+6+11 N =17 REC =18"		
	green and white, with fine to coarse shell fragments, strong HCl reaction, 75-80% shell frag.				105	10+13+33 N =46 REC =18"		104' thicker shell beds
107.0	POORLY GRADED SAND WITH SILT, with fine to coarse shell fragments, , fine to medium grained, moist, green, strong HCl reaction, 50-60% shell frag.	SP-SM	-9.2		110	13+22+30 N =52 REC =18"		
	25-35% shell frag.				115	7+12+19 N =31 REC =18"		
117.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SM	-19.2		120	9+12+14 N =26 REC =18"		
	trace fine to coarse shell fragments,					6+10+13		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	moderate HCl reaction, 0-5% shell frag.	SM			125	N =23 REC =18"		
					130	8+11+12 N =23 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.				135	8+10+12 N =22 REC =18"		
	45-55% shell frag.				140	10+17+15 N =32 REC =18"		
	trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.				145	5+7+10 N =17 REC =18"		
	contains shell fragments.				150	REC =3"		Shelby tube pushed 150' Start of day 6/4
					155	6+8+10 N =18 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
157.0	FINE TO MEDIUM SANDY SILT, moist, green, trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.	ML	-59.2		160	4+5+7 N =12 REC =18"		
					165	4+7+8 N =15 REC =18"		
167.0	ELASTIC SILT, moist, green, trace sand.	MH	-69.2		170	6+7+12 N =19 REC =18"		
	with clay.				175	4+8+13 N =21 REC =18"		
	moist, green, with clay.				180	4+8+9 N =17 REC =18"		
182.0	LEAN CLAY, with silt, moist, green.	CL	-84.2		185	6+10+13 N =23 REC =18"		
187.0	ELASTIC SILT, moist, green.	MH	-89.2		190	4+5+10 N =15 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-318** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	oliveish green, trace sand.				195	8+9+13 N =22 REC =18"		
	with sand.				200	5+6+9 N =15 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-102.2					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-319** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/5/06 **Finished:** 5/8/06

Location: Northing: 216963.62 ft
Easting: 961123.01 ft

Ground Surface Elevation: 102.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/5	---	10.5'	---	---
Start of day	5/8	---	26.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		102.6					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brown, contains clayey sand pockets.	SP-SM				3+4+2 N =6 REC =12"		
						3+3+4 N =7 REC =10"	w=5.7% *	
5.0	POORLY GRADED SAND, wet, brown	SP	97.9		5	4+6+6 N =12 REC =11"		
						5+5+8 N =13 REC =11"	w=4.7% LL=NP PL=NP *	
10.0	POORLY GRADED SAND WITH SILT, light yellowish brown and light grayish brown	SP-SM	92.9	▽	10	6+6+7 N =13 REC =10"		
						5+5+7 N =12 REC =10"	w=7.6% *	
					15			
	orangeish brown, trace fine gravel.					8+9+8 N =17 REC =7"		
					20			
23.5	CLAYEY SAND, trace gravel, yellowish brown, contains clayey sand lenses (<1/4 inch thick).	SC	79.4			5+3+2 N =5 REC =15"	w=19.8% *	
24.8			78.1		25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Ground water observation wells OW-319A and OW-319B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-319** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SANDY FAT CLAY, fine to medium, wet, light gray and dark brown.	CH						
27.0	CLAYEY SAND, fine to medium grained, wet, mottled yellowish brown and light gray (high percentage of fines).	SC	75.9			WOH/18" N = WOH/18" REC =18"	w=24.5% *	
29.5	SANDY LEAN CLAY, fine to medium, wet, gray, trace mica.	CL	73.4		30			
					35	REC =24"	w=29.2% LL=49 PL=12 PP=2.75 tsf *	*Shelby tube sampler push from 33.5 to 35.5 ft.
37.0	FAT CLAY, moist, gray, trace sand, and mica.	CH	65.9		40	WOH+3+5 N =8 REC =18"	w=27.9% *	
					45	REC =20"	w=32.1% LL=58 PL=13 PP=3.25 tsf *	*Shelby tube sampler push from 43.5 to 45.2 ft.
	light gray.				50	4+4+8 N =12 REC =18"	w=38.6% LL=79 PL=27 *	
					55	REC =4"	PP=4.25 tsf	*Shelby tube sampler push from 53.5 to 54.3 ft.
57.0	FINE TO MEDIUM SILT, with sand, moist, gray and dark greenish gray,	ML	45.9					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Ground water observation wells OW-319A and OW-319B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-319** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace mica, contains indurated lean clay pockets.	ML			60	7+10+17 N =27 REC =18"	w=26.7% LL=40 PL=32 *	
62.0	SILTY SAND, fine to medium grained, moist, brown.	SM	40.9		65	50/5" N =50/5" REC =1"		
	gray, trace mica.				70	50/4" N =50/4" REC =1"		
	wet, gray and light gray, mostly fine to coarse shell fragments (±80%), strong HCl reaction, (shell fragments up to 1/2 inch in size).				75	31+36+50/3" N =86/9" REC =13"	w=17.5% *	**Resumed drilling at 8:30 AM on 5/8/06.
	light gray, mostly strongly cemented sand (±>90%), weak HCl reaction.				80	50/5" N =50/5" REC =1"		*Slight to moderate drill rig vibrations at 82 ft.
	light oliveish gray and light gray, few fine to coarse shell fragments (±10%), moderate HCl reaction, strong cementation.				85	32+43+50/3" N =93/9" REC =11"	w=18.2% *	*Moderately difficult drilling below 85 ft.
					90	6+6+9 N =15 REC =18"	w=29.8% PP=0.25 tsf *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.

Ground water observation wells OW-319A and OW-319B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-319** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	6+7+11 N =18 REC =18"		
	moderate HCl reaction.							
					100	6+7+11 N =18 REC =18"	w=30% LL=NP PL=NP *	
100.0	BOTTOM OF BORING @ 100.0 FT.		2.9					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/5/2006.
3. * = See Appendix I for additional lab testing data.
Ground water observation wells OW-319A and OW-319B installed at nearby locations.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-320** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/8/06 **Finished:** 5/8/06

Location: Northing: 216943.5 ft
Easting: 961044.1 ft

Ground Surface Elevation: 106.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/8	---	28.0'	3.5'	---
Start of day	5/9	---	11.3'	3.5'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		105.9					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown, contains root fragments.	SP-SM				1+2+2 N =4 REC =18"		
	no observable root fragments.					2+3+3 N =6 REC =18"	w=10.4% *	
4.5	CLAYEY SAND, fine to coarse grained, moist, brownish orange, with fine gravel.	SC	101.9		5	3+3+5 N =8 REC =16"		
7.0	POORLY GRADED SAND, fine to coarse grained, moist, brownish orange.	SP	99.4			5+6+7 N =13 REC =13"	w=6.3% *	
	with gravel.				10	5+7+8 N =15 REC =14"		
	reddish orange.				15	6+8+7 N =15 REC =12"		
	orange.				20	10+12+10 N =22 REC =14"	w=9.1% *	
	orangeish white.				25	8+14+11 N =25 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-320** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
27.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, orange.	SP-SM	79.4	▽				
						7+5+4 N =9 REC =18"		
29.5	SILTY SAND, fine to medium grained, wet, orange.	SM	76.9		30			
32.0	CLAYEY SAND, moist, dark gray.	SC	74.4					
						WOH+1+2 N =3	w=26.1% LL=33 PL=18 *	
					35			
	with sand.					REC =24"	w=29.4% LL=36 PL=16 PP=1.50 tsf *	
					40			
42.0	SANDY FAT CLAY, moist, dark gray, with sand.	CH	64.4					
						2+2+3 N =5 REC =18"	w=30% LL=56 PL=19 *	
					45			
	fine to medium grained, moist, dark gray.							
						REC =18"	w=34.4% LL=59 PL=19 *	
					50			
	trace sand.							
						5+6+7 N =13 REC =18"	w=34.9% LL=69 PL=24 *	
					55			
57.0	SILTY SAND, fine to medium grained, moist, greenish gray.	SM	49.4					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-320** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	5+7+7 N =14 REC =18"		
62.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish gray,contains snail shell fragments.	SP-SM	44.4					
64.0 64.5	POORLY GRADED SAND, fine to medium grained, moist, orangeish red, trace silt, 10% fine to medium shell fragments.	SP SP-SM	42.4 41.9		65	13+24+20 N =44 REC =18"		
67.0	POORLY GRADED SAND, fine to medium grained, moist, greenish gray, with silt.	SM	39.4					
	SILTY SAND, fine to medium grained, moist, brownish yellow.				70	50/3" N =50/3" REC =2"		
	grayish green, contains cemented sand, 30-40% fine to medium shell fragments, HCl+.				75	35+50/2" N =50/2" REC =8"	w=18.8% *	
	5% fine to medium shell fragments.				80	50/2" N =50/2" REC =2"		
					85	50/1" N =50/1" REC =0"		
87.0	CLAYEY SAND, fine to medium grained, moist, gray, 50% cemented sand.	SC	19.4		90	50/2" N =50/2" REC =0"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-320** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
92.0	SILTY SAND, fine to medium grained, moist, green, trace silt, with 10-20% fine to coarse shell fragments, HCl+.	SM	14.4		95	7+10+12 N =22 REC =18"	w=25.4% *	
	fine to medium grained.				100	6+6+9 N =15 REC =18"		
	fine to medium grained, moist, dark green, with silt.				105	3+5+5 N =10 REC =18"	w=29.2%	
	20-30% fine to coarse shell fragments, HCl+ below 109.7.				110	4+5+5 N =10 REC =18"		
112.0	SANDY LEAN CLAY, fine to medium grained, wet, dark green and white, contains cemented sand, 25-35% fine to coarse shell fragments, HCl+.	CL	-5.6		115	20+18+14 N =32 REC =18"	w=28.5% LL=44 PL=16 *	
	20-30% fine to coarse shell fragments.				120	10+14+14 N =28 REC =18"		
119.5	SILTY SAND, fine to medium grained, moist, dark green, 0-5% fine to medium shell fragments.	SM	-13.1					
						5+7+12		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-320** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
124.5	ELASTIC SILT, fine to medium grained, moist, green, with silt, 25-35% fine to coarse shell fragments, HCl+.	MH	-18.1		125	N =19 REC =18"		
	dark green.				130	7+8+10 N =18 REC =18"	w=34.1% LL=50 PL=30 *	
132.0	CLAYEY SAND, fine to medium grained, moist, dark green.	SC	-25.6		135	7+7+9 N =16 REC =18"		
137.0	SILTY SAND, fine to medium grained, moist, dark green, 0-10% fine to medium shell fragments.	SM	-30.6		140	4+6+8 N =14 REC =18"		
					145	5+6+6 N =12 REC =18"		
	10-30% fine to coarse shell fragments.				150	5+7+7 N =14 REC =18"	w=37% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-43.6					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-321** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/5/06 **Finished:** 6/6/06

Location: Northing: 217152.5 ft
Easting: 960333.2 ft

Ground Surface Elevation: 70.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/5	---	13.5'	---	---
Start of day	6/6	---	15.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		70.2					
	CLAYEY SAND, trace gravel, fine to medium grained, moist, yellowish brown, trace wood fragments, trace root fragments.	SC				1+2+2 N =4 REC =12"		
						3+3+4 N =7 REC =17"	w=9.7% *	
4.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown, trace root fragments.	SP-SM	66.2		5	7+7+8 N =15 REC =18"	w=7.4% *	
7.0	SANDY LEAN CLAY, moist, orangeish brown and gray, trace root fragments.	CL	63.7			3+2+2 N =4 REC =18"	w=25.2% *	
10.0	SANDY FAT CLAY, moist, orangeish brown and gray.	CH	60.7		10	1+1+2 N =3 REC =18"	w=36.2% LL=55 PL=20 *	
13.0	CLAYEY SAND, fine to medium grained, wet, gray.	SC	57.7	▽	15	1+2+3 N =5 REC =18"	w=30% *	
					20	2+4+7 N =11 REC =18"	w=29.7% *	
23.5	LEAN CLAY, moist, gray	CL	47.2		25	REC =18"	w=26.2% LL=45 PL=18	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-321** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL					PP=3.50 tsf *	
27.0	SILTY SAND, wet, gray.	SM	43.7					
					30	3+4+7 N =11 REC =18"	w=27% LL=47 PL=29 *	
33.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, gray, strong cementation, platty structure.	SP-SM	37.7					
					35	39+50/3" N =50/3" REC =10"	w=30.9% *	
	white, with fine to coarse shell fragments, 50-60%, HCl reaction strong.				40	15+17+31 N =48 REC =16"	w=27.1% *	
					45	9+9+7 N =16 REC =18"	w=26% *	
47.0	ELASTIC SILT with sand , gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak	MH	23.7					
					50	4+4 N =4	w=35.1% *	
52.0	SILTY SAND, fine to medium grained, wet, light gray and greenish gray, contains fine to coarse shell fragments, 20-30%, HCl reaction strong, weak cementation.	SM	18.7					
					55	30+11+10 N =21 REC =18"	w=25% LL=NP PL=NP *	
	fine to medium grained, wet, greenish gray, trace fine to coarse shell *continued on next page*							

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-321** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments, 5-10%, HCl reaction moderate.	SM			60	4+4+6 N =10 REC =18"	w=27.4% *	
	gray and white, trace fine to coarse shell fragments, 20-30%, HCl reaction strong, strong cementation.				65	8+9+14 N =23 REC =18"	w=27.6% *	
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				70	4+7+9 N =16 REC =18"	w=28.4% *	
					75	REC =24"	w=28.5% LL=NP PL=NP PP=3.75 tsf *	
					80	4+6+12 N =18 REC =18"	w=34.9% *	
	fine to medium grained, wet, light gray and white, contains fine to medium shell fragments, 20-30%, HCl reaction strong, strong cementation.				85	22+16+9 N =25 REC =17"	w=20.6% *	
	fine to medium grained, wet, gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.				90	6+12+18 N =30 REC =18"	w=31% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-321** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	CLAYEY SAND, wet, gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SC	-21.3		95	4+8+12 N =20 REC =18"	w=36.9% LL=59 PL=26 *	
97.0	SILTY SAND, wet, greenish gray.	SM	-26.3		100	4+9+13 N =22 REC =18"	w=36.1% *	
	Remarks 105 ft:Resumed Drilling on 6/6/06 @ 7:15 am				105	7+10+13 N =23 REC =17"	w=58.2% *	Resumed Drilling on 6/6/06 @ 7:15 am
					110	5+7+11 N =18 REC =18"	w=42.6% *	
					115	5+4+9 N =13 REC =18"	w=34.6% *	
					120	5+8+13 N =21 REC =18"	w=39.8% *	
						6+9+15	w=43.1%	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-321** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				N =24 REC =18"	*	
125.0	SANDY ELASTIC SILT, wet, greenish gray, trace fine to medium shell fragments, 5-10%, HCl reaction moderate	MH	-54.3		125			
					130	8+11+15 N =26 REC =17"	w=49.5% *	
					135	5+7+11 N =18 REC =18"	w=42.3% *	
	ELASTIC SILT, moist, greenish gray, trace sand				140	6+7+11 N =18 REC =18"	w=39.7% *	
					145	7+10+14 N =24 REC =18"	w=60.2% *	
					150	7+12+15 N =27 REC =18"	w=66% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-79.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-322** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/18/06 **Finished:** 5/18/06

Location: Northing: 217170.03 ft
Easting: 960202.65 ft

Ground Surface Elevation: 89.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/18	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, rootmat and topsoil.		89.5					
	SILTY SAND, fine to medium grained, moist, brown.	SM				1+2+2 N =4 REC =14"		
						3+3+4 N =7 REC =13"		
	stratified brown and light brown				5	3+3+4 N =7 REC =10"	*	
7.0	CLAYEY SAND, fine to coarse grained, moist, brown, contains fat clay pockets.	SC	82.9			2+4+4 N =8 REC =12"		
9.5	SILTY SAND, fine to medium grained, wet, dark yellowish brown, contains lean clay lenses (<1/8 inch).	SM	80.4	▽	10	5+8+10 N =18 REC =15"		
	dark yellowish brown and yellowish brown.				15	4+4+5 N =9 REC =13"		
17.0	CLAYEY SAND, fine to medium grained, wet, mottled dark yellowish brown and light gray.	SC	72.9		20	WOH/18" N = WOH/18" REC =18"		
22.0	SANDY LEAN CLAY, fine to medium, moist, gray, trace mica.	CL	67.9		25	2+2+4 N =6 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-322** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	with fine to medium sand.	CL			30	REC =28"	PP=2.75 tsf	*Shelby tube sampler push from 28.5 to 30.5 ft.
32.0	FAT CLAY, moist, light greenish gray and gray, trace fine to medium sand and mica, contains silty sand lenses.	CH	57.9		35	2+3+5 N =8 REC =18"		
37.0	SILTY SAND, fine to medium grained, wet, gray.	SM	52.9		40	REC =27"	PP=NP tsf	*Shelby tube sampler push 38.5 from 39.9 ft.
42.0	ELASTIC SILT, moist, light greenish gray, trace fine sand, and mica.	MH	47.9		45	5+7+9 N =16 REC =18"	PP=3.50 tsf	
47.0	CLAYEY SAND, fine to medium grained, moist, gray, trace mica.	SC	42.9		50	REC =10"	PP=NP tsf	*Shelby tube sampler push from 48.5 to 49.3 ft.
52.0	SANDY SILT, fine to medium, moist, gray, trace mica.	ML	37.9		55	19+34+50/5" N =84/11" REC =17"		*Switched to 3-7/8" O.D. Tri-cone roller bit below 53.5 ft. *Sampler refusal at 54.9 ft. *Difficult to very difficult rotary advacement
57.0	SILTY SAND, fine to medium grained, wet, gray, trace fine to medium shell	SM	32.9					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-322** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments (±5%), contains black particles (1/16 inch), strong HCl reaction (strong HCl reaction with shell fragments only).	SM			60	31+50 N =50 REC =10"		from 55.5 to 56 ft. *Moderate to difficult rotary advancement below 57 ft.
62.0	LEAN CLAY, moist, gray, trace fine to medium sand, and mica, weak HCl reaction.	CL	27.9		65	6+7+9 N =16 REC =18"		
	with fine to medium sand.				70	3+4+6 N =10 REC =18"		
72.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, trace fine to coarse shell fragments (±5%), contains indurated clayey sand layers from 73.5 to 73.8 ft, strong HCl reaction. contains strongly cemented sand layer from 73.8 to 74 ft.	SC	17.9		75	50/5" N =50/5" REC =5"		*Moderate to difficult rotary advancement below 72 ft (moderate to strong rig chatter). *Very difficult rotary advancement from 75 to 76 ft (strong rig chatter). *Moderately difficult rotary advancement from 76 to 78 ft. *Very difficult rotary advancement from 78 to 78.5 ft (strong rig chatter).
78.5	SILTY SAND, fine to medium grained, wet, gray, few fine to coarse shell fragments (±10%), strong HCl reaction.	SM	11.4		80	7+9+11 N =20 REC =18"		
	dark greenish gray, little fine to coarse shell fragments (±20%), moderate HCl reaction.				85	12+13+13 N =26 REC =18"		
	light greenish gray, trace fine to medium shell fragments (±5%), weak HCl reaction.				90	7+11+14 N =25 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-322** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	CLAYEY SAND, fine to medium grained, wet, gray, trace mica, weak HCl reaction.	SC	-2.1		95	5+7+14 N =21 REC =18"		
	blueish gray and gray, trace fine to coarse shell fragments (±5%).				100	4+5+11 N =16 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-10.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 6/7/06 **Finished:** 6/14/06

Location: Northing: 217027.97 ft
Easting: 960060.86 ft

Ground Surface Elevation: 107.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/7	---	18.5'	0.0'	---
Start of Day	6/8	---	0.0'	0.0'	---
Start of day	6/12	---	20.0'	0.0'	---
Start of Day	6/13	---	0.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine grained, moist, orange.	SP				1+1+3 N =4 REC =16"		0-4' drag bit
	fine to coarse, with gravel.					3+3+6 N =9 REC =13"	w=5% *	
4.5	POORLY GRADED SAND WITH SILT, moist, orange	SP-SM	103.0		5	7+9+8 N =17 REC =12"		
						9+11+10 N =21 REC =14"	w=13% *	
10.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellow.	SP-SM	97.5		10	7+9+11 N =20 REC =15"		
						6+9+9 N =18	w=16.2% *	
					15			15-45' orange mud return
17.0	SILTY SAND, fine to coarse grained, wet, orange and brown, with silt, 1/8" color lenses.	SM	90.5	▽				
					20	10+20+20 N =40 REC =17"	w=11.9% LL=NP PL=NP *	
22.0	CLAYEY SAND, fine to coarse grained, wet, orange and red, 1/4" pink clay lenses .	SC	85.5					
					25	2+2+2 N =4 REC =16"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
27.0	POORLY GRADED SAND, fine to coarse grained, wet, orange, trace gravel.	SP	80.5		30	8+9+10 N =19	w=17.6% *	
32.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, orange	SP-SM	75.5		35	7+8+9 N =17 REC =13"		
					40	8+15+9 N =24 REC =17"	w=20.7% *	
42.0	SILT, wet, gray, with sand.	ML	65.5					
	mottled grayish orange.				45	8+9+9 N =18 REC =18"		45-70' grayish mud return
47.0	SANDY FAT CLAY, fine to medium, moist, dark gray.	CH	60.5		50	3+2+5 N =7 REC =18"	w=28.1% LL=50 PL=17 *	
					55	3+3+4 N =7 REC =18"		
	no sand, very stiff.							

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	1+4+6 N =10 REC =18"	w=35.1% LL=65 PL=22 *	
	with sand.				65	6+10+12 N =22 REC =18"		
67.0	CLAYEY SAND, fine to medium grained, moist, green.	SC	40.5		70	8+12+12 N =24 REC =18"	w=29% LL=46 PL=24 *	70' greenish mud return 71' harder drilling
71.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, dark green, with fine to coarse shell fragments, strong HCl reaction.	SP-SM	36.5		75	34+50/3" N =50/3" REC =6"		
77.0	FINE TO MEDIUM SANDY LEAN CLAY, moist, green, with fine to coarse shell fragments, strong HCl reaction, 60-70% shell frag. trace sand, no shells.	CL	30.5		80	5+5+7 N =12 REC =18"		
	moist, green, contains fine to coarse shell fragments, moderate HCl reaction.				85	REC =16"	w=36.2% LL=42 PL=20 *	
88.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 50-60% shell frag .	SM	19.5		90	30+33+15 N =48 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	24+16+33 N =49 REC =18"	w=26.3% LL=NP PL=NP *	
	30-40% shell frag.				100	4+8+11 N =19 REC =18"		
102.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SP-SM	5.5		105	8+12+14 N =26 REC =18"	w=28.6% LL=NP PL=NP *	
107.0	SILTY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag.	SM	0.5		110	3+6+9 N =15 REC =18"		110' more sandy drilling
					115	4+7+12 N =19 REC =18"	w=30.2% *	116' hard layer shells
	with fine to coarse shell fragments, strong HCl reaction, 70-80% shell frag.				120	50/5" N =50/5" REC =5"		118.5 switch to roller bit 118.5 rig chatter
						10+50/5"	w=19.4%	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			125	N =50/5" REC =11"	*	125' start of day 6/8/06
	trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.				130	8+15+25 N =40 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.				135	9+12+15 N =27 REC =18"	w=33.1% *	
138.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.	SP-SM	-30.5		140	6+9+20 N =29 REC =18"		
142.0	SANDY ELASTIC SILT, fine to medium grained, moist, green, trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.	MH	-34.5		145	7+10+13 N =23 REC =18"	w=48.3% LL=73 PL=38 *	144.5 switch to drag bit
					150	10+12+15 N =27 REC =18"		
153.0	SILT with sand, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 60-70% shell frag.	ML	-45.5		155	11+17+27 N =44 REC =18"	w=31.3% LL=39 PL=30 *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
	trace fine to coarse shell fragments, 0-10% shell frag.				160	6+10+12 N =22 REC =18"		
163.0	FINE TO MEDIUM SANDY ELASTIC SILT, moist, green.	MH	-55.5		165	7+12+16 N =28 REC =18"	w=54.2% *	
167.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SM	-59.5		170	7+8+13 N =21 REC =18"		
172.0	SANDY FAT CLAY, moist, green, with sand, moderate HCl reaction.	CH	-64.5		175	6+8+13 N =21 REC =18"	w=44% LL=97 PL=31 *	
179.2	SAND, fine to coarse grained, moist, grayish green, with silt.	SP-SM	-71.7		180	REC =0"		180' Start of day 6/12/06
182.0	FAT CLAY, trace sand, moist, green.	CH	-74.5		185	8+11+16 N =27 REC =18"	w=68.3% LL=124 PL=33 *	
					190	7+11+12 N =23 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-323** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
						7+11+14 N =25 REC =18"	w=58.1% LL=116 PL=36 *	
195.0	SANDY ELASTIC SILT, trace fine to medium shell fragments, 0-5% shell frag.	MH	-87.5		195			
						7+11+12 N =23 REC =18"	w=52.9% LL=97 PL=62 *	
200.0	BOTTOM OF BORING @ 200.0 FT.		-92.5		200			

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole Geophysical Testing Performed on 6/14/2006
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-323 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-324** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: W. Wolfe

Drilling Method: Mud Rotary

Drilling Equipment: CME-550 (ATV)

Schnabel Representative: K. Bell

Dates Started: 7/12/06 **Finished:** 7/14/06

Location: Northing: 216906.4 ft
Easting: 960114.44 ft

Ground Surface Elevation: 105.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/13	---	27.0'	---	---
Start of Day	7/14	---	25.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		104.6					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown, trace gravel.	SP-SM				1+2+1 N =3 REC =10"		
	yellowish brown and reddish brown					2+2+2 N =4 REC =13"		
					5	2+2+3 N =5 REC =12"		
						3+4+4 N =8 REC =15"		
					10	1+1+3 N =4 REC =11"		
12.0	SILTY SAND, fine to coarse grained, moist, orangeish brown, trace gravel.	SM	93.2			4+4+5 N =9 REC =16"		
					15	3+4+5 N =9 REC =16"		
17.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown and orangeish brown, trace gravel.	SP-SM	88.2			5+7+7 N =14 REC =10"		
19.5	SILTY SAND, fine to coarse grained, moist, orangeish brown and yellowish brown, trace gravel.	SM	85.7		20	3+4+7 N =11 REC =15"		
22.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown and reddish brown.	SC	83.2			5+4+5 N =9 REC =9"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-324** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC				3+2+2 N =4 REC =10"		Resumed drilling on 7-13-06 @ 7:00 am
	Remarks 27 ft:Resumed drilling on 7-13-06 @ 7:00 am			▽		2+2+3 N =5 REC =11"		
30.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, orangeish brown.	SP-SM	75.2		30	3+4+5 N =9 REC =7"		
						4+6+7 N =13 REC =10"		
34.5	CLAYEY SAND, fine to coarse grained, wet, orangeish brown and yellowish brown.	SC	70.7		35	6+6+10 N =16 REC =12"		
	orangeish brown and reddish brown, trace gravel					3+5+7 N =12 REC =18"		
38.5	SANDY FAT CLAY, moist, orangeish brown and reddish brown, iron staining, strong cementation. gray	CH	66.7		40	1+2+3 N =5 REC =18"		
						2+2+3 N =5 REC =18"		
					45	2+2+3 N =5 REC =18"		
						3+3+3 N =6 REC =18"		
	black cemented sand lenses				50	2+4+4 N =8 REC =18"		
52.0	SILTY SAND, fine to medium grained, wet, gray.	SM	53.2			10+18+28 N =46 REC =18"		
54.5	FAT CLAY, moist, gray, trace sand.	CH	50.7		55	3+4+5 N =9 REC =18"		
						3+4+7		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-324** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH				N =11 REC =18"		
					60	REC =21"	PP=>4.5 tsf	
62.5	SANDY LEAN CLAY, wet, gray.	CL	42.7			4+5+7 N =12 REC =18"		
64.5	SANDY FAT CLAY, moist, light gray.	CH	40.7		65	5+6+10 N =16 REC =18"		
67.0	SILTY SAND, fine to medium grained, wet, gray, strong cementation.	SM	38.2			13+36+50/4" N =86/10" REC =16" REC =22"		
					70			
	gray and white, with fine to coarse shell fragments, 50-60%, HCl reaction strong					23+16+26 N =42 REC =18"		
74.5	SANDY ELASTIC SILT, wet, gray and white, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	MH	30.7		75	4+7+9 N =16 REC =18"		
	greenish gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak					4+5+6 N =11 REC =18"		
					80	4+5+6 N =11 REC =18"		
	trace organic matter					3+3+4 N =7 REC =18"		
84.5	SILTY SAND, fine to medium grained, wet, greenish gray and white, with fine to coarse shell fragments, 50-60%, strong cementation, HCl reaction strong.	SM	20.7		85	50/5" N =50/5" REC =5" REC =3"		
	contains fine to coarse shell fragments, 40-50%, strong cementation, HCl reaction strong					19+12+13 N =25 REC =18"		
					90	9+19+50/4" N =69/10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-324** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				REC =16"		
	contains fine to coarse shell fragments, 30-40%					5+7+9 N =16 REC =18"		
	contains fine to coarse shell fragments, 20-30%, HCl reaction moderate				95	5+6+11 N =17 REC =18"		
	gray and white, contains fine to coarse shell fragments, 10-20%					9+13+16 N =29 REC =18"		
					100	4+6+10 N =16 REC =18"		
101.5	BOTTOM OF BORING @ 101.5 FT.		3.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-325** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/23/06 **Finished:** 5/23/06

Location: Northing: 216948.98 ft
Easting: 960549.73 ft

Ground Surface Elevation: 85.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/23	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		84.4					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown, trace root fragments, trace gravel.	SP-SM				1 REC =12"		
	orangeish brown.					3+2+2 N =4 REC =18"		
4.0	SILTY SAND, fine to coarse grained, moist, orangeish brown and reddish brown, trace gravel.	SM	81.0		5	2+2+3 N =5 REC =18"		
	orangeish brown and gray, fine to medium grained.					3+2+3 N =5 REC =17"		
	trace root fragments.				10	3+3+3 N =6 REC =11"		
	gray and orangeish gray.				15	3+3+3 N =6 REC =17"		Color change in tub from orangeish brown to gray at 14.5 ft.
17.0	FAT CLAY, moist, gray and greenish gray, trace sand.	CH	68.0					
					20	2+3+3 N =6 REC =18"		
	wet.			▽	25	2+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-325** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
27.0	SILTY SAND, fine to medium grained, wet, gray and black.	SM	58.0		30	3+4+10 N =14 REC =16"		
32.0	FAT CLAY, moist, gray, trace sand.	CH	53.0		35	4+7+10 N =17 REC =18"		
37.0	CLAYEY SAND, fine to medium grained, moist, greenish gray and gray.	SC	48.0		40	6+9+17 N =26 REC =18"		
42.0	SILTY SAND, fine to coarse grained, moist, gray, trace fine to medium shell fragments (5-10%), HCl reaction weak.	SM	43.0		45	31+50 N =50 REC =12"		Harder drilling at 42 ft.
	wet, gray and white				50	31+50 N =50 REC =12"		
	trace fine to coarse shell fragments (50-60%), HCl reaction strong.				55	17+26+18 N =44 REC =14"		
57.0	SANDY ELASTIC SILT, wet, gray and greenish gray, trace fine to medium *continued on next page*	MH	28.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-325** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments (2-5%), HCl reaction weak.	MH			60	2+4+6 N =10 REC =16"		Rig chatter at 60.5 ft.
62.0	CLAYEY SAND, fine to medium grained, wet, light gray and greenish gray, trace fine to coarse shell fragments (20-30%), HCl reaction moderate.	SC	23.0		65	36+10+12 N =22 REC =18"		
67.0	SILTY SAND, fine to coarse grained, wet, gray and greenish gray, trace fine to coarse shell fragments (10-20%), HCl reaction moderate.	SM	18.0		70	7+7+7 N =14 REC =18"		
					75	7+10+9 N =19 REC =17"		
	fine to medium grained, trace fine to medium shell fragments (<5%), HCl reaction weak.				80	6+7+10 N =17 REC =17"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				85	4+7+10 N =17 REC =18"		
87.0	SANDY ELASTIC SILT, wet, gray and white, trace fine to coarse shell fragments (15-25%), HCl reaction moderate.	MH	-2.0		90	5+5+7 N =12 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-325** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
92.0	SILTY SAND, fine to medium grained, wet, light gray and, trace fine to coarse shell fragments (30-40%), HCl reaction moderate.	SM	-7.0		95	8+6+8 N =14 REC =18"		
	gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.				100	6+10+9 N =19 REC =16"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-15.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-326** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/4/06 **Finished:** 5/4/06

Location: Northing: 216859.22 ft
Easting: 960652.25 ft

Ground Surface Elevation: 103.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/4	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		102.6					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light brown, contains root fragments.	SP-SM				2+2+2 N =4 REC =18"		
	fine to coarse grained.					3+2+4 N =6 REC =13"		
	fine to medium grained, stratified light brown and light orangeish brown.				5	4+4+3 N =7 REC =11"	w=8.2% *	
	fine to coarse grained, yellowish brown and grayish brown, trace fine gravel.					7+6+11 N =17 REC =11"		
	fine to medium grained, light orangeish brown below 8.5 ft.				10			
	fine to coarse grained.					10+9+10 N =19 REC =12"		
	fine to medium grained, wet, light yellowish brown.			▽	15	5+5+6 N =11 REC =11"	w=12.2% *	
	orangeish brown and dark brown.				20	10+12+8 N =20 REC =10"		
23.5	SILTY SAND, fine to coarse grained, wet, light orangeish brown and light grayish brown.	SM	79.6		25	5+2+2 N =4 REC =16"	w=22.7% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-326** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
28.5	SANDY LEAN CLAY, fine to medium, wet, gray, contains silt pockets and mica.	CL	74.6		30	2+1+2 N =3 REC =18"		
	moist, with sand.				35	REC =24"	w=27.6% LL=41 PL=16 PP=2.00 tsf *	*Shelby tube sampler push from 33.5 to 35.5 ft.
38.5	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	64.6		40	2+4+5 N =9 REC =18"		
43.5	ORGANIC CLAY, moist, gray, trace fine to medium sand and mica, contains fine to medium clayey sand pockets.	OH	59.6		45	REC =24"	w=33.9% LL=63 PL=22 PP=2.25 tsf *	*Shelby tube sampler push from 43.5 to 45.5 ft.
48.5	FAT CLAY, moist, gray and light gray, trace fine to medium, mica and organic matter (±1%).	CH	54.6		50	4+6+8 N =14 REC =18"		
53.5	SANDY LEAN CLAY, fine to medium, wet, gray, trace mica.	CL	49.6		55	REC =24"	PP=2.25 tsf	*Shelby tube sampler push from 53.5 to 55.5 ft.

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-326** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL				17+8+28 N =36 REC =16"	PP=2.00 tsf	
59.5	SILTY SAND, fine to medium grained, moist, gray, trace mica, contains cemented sand pockets.	SM	43.6		60			
63.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray	SP-SM	39.6		65	50/3" N =50/3" REC =1"		
68.5	SILTY SAND, fine to medium grained, wet, gray, trace fine to medium shell fragments (±<5%), strong HCl reaction	SM	34.6		70	50/5" N =50/5" REC =1"		
	little fine to coarse shell fragments (±25%), contains clayey sand pockets.				75	19+24+23 N =47 REC =12"		
	moist, light gray, mostly moderately cemented sand, weak HCl reaction.				80	50/3" N =50/3" REC =4"		*Rotary advancement considerably slower below 78.5 ft (Moderately difficult rotary advancement). *Rotary advancement comparatively easier from 81 to 83 ft; moderately difficult rotary advancement below 83 ft.
	wet, oliveish gray and gray, trace fine to coarse shell fragments (±5%), strong HCl reaction.				85	23+13+50/4" N =63/10" REC =14"		*Switched to 3-7/8" O.D. Tri-cone roller bit below 88 ft.
88.5	CLAYEY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%), strong HCl reaction.	SC	14.6		90	9+7+12 N =19 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-326** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
93.5	SILTY SAND, fine to medium grained, wet, gray, trace fine to medium shell fragments (±5%), strong HCl reaction.	SM	9.6		95	7+7+12 N =19 REC =18"		
	SILTY SAND, fine to medium grained, wet, gray, trace fine shell fragments (±1%), weak HCl reaction.							
100.0	BOTTOM OF BORING @ 100.0 FT.		3.1		100	6+8+12 N =20 REC =16"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-327** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 5/25/06 **Finished:** 5/26/06

Location: Northing: 216865.7 ft
Easting: 960573.37 ft

Ground Surface Elevation: 86.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/25	---	28.0'	---	---
Start of day	5/26	---	38.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		86.4					
	SILTY SAND, fine to coarse grained, moist, brown and yellowish brown, trace root fragments.	SM				2+3+3 N =6 REC =11"		
2.0			84.9					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orangeish brown, trace root fragments.	SP-SM				2+3+3 N =6 REC =3"		
4.5			82.4					
	CLAYEY SAND, fine to coarse grained, moist, orangeish brown and reddish brown, trace root fragments.	SC			5	3+5+6 N =11 REC =12"		
7.0			79.9					
	SILTY SAND, fine to medium grained, moist, orangeish brown and gray.	SM				5+4+3 N =7 REC =18"		
					10			
						3+2+1 N =3 REC =18"		
13.0			73.9					
	CLAYEY SAND, fine to medium grained, moist, gray.	SC				3+4+3 N =7 REC =17"		
					15			
17.0			69.9					
	SANDY LEAN CLAY, moist, gray.	CL				2+3+3 N =6 REC =18"		
					20			
22.0			64.9					
	SILTY SAND, fine to medium grained, moist, gray and light gray.	SM				3+3+4 N =7 REC =18"		
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-327** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
				▽				
					30	4+5+5 N =10 REC =18"		
33.0	FAT CLAY, moist, light gray, trace sand.	CH	53.9					
					35	5+6+4 N =10 REC =18"		
37.0	SANDY SILT, moist, greenish gray and gray.	ML	49.9					
					40	4+4+5 N =9 REC =16"		Harder drilling
43.0	SILTY SAND, fine to medium grained, moist, gray and white, trace fine to medium shell fragments, 15-25%, HCl reaction weak. trace fine to medium shell fragments, >5%, HCl reaction weak, platty structure.	SM	43.9		45	27+50 N =50 REC =12"		Rig chatter
					50	13+50 N =50 REC =11"		
					55	50/5" N =50/5" REC =5"		
57.0	SANDY LEAN CLAY, moist, gray and greenish gray, trace fine to medium *continued on next page*	CL	29.9					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-327** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments, 2-5%, HCl reaction weak.	CL			60	4+4+7 N =11 REC =18"		Rig chatter
62.0	SILTY SAND, fine to medium grained, moist, greenish gray and gray, trace fine to medium shell fragments, 2-5, cementation, HCl reaction strong.	SM	24.9		65	50/4" N =50/4" REC =2"		
	wet, trace fine to coarse shell fragments, 20-30%, HCl reaction moderate.				70	5+5+7 N =12 REC =18"		
					75	7+8+8 N =16 REC =17"		Rig chatter
77.0	ELASTIC SILT wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	9.9		80	5+5+8 N =13 REC =16"		
					85	4+4+8 N =12 REC =18"		
87.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to coarse shell fragments, 20-30%, HCl reaction moderate.	SM	-0.1		90	4+8+12 N =20 REC =17"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-327** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						Rig chatter
	fine to coarse grained, light gray and white, with fine to coarse shell fragments, 50-60%, strong cementation, HCl reaction strong.				95	20+17+13 N =30 REC =18"		
								Rig chatter
					100	6+15+18 N =33 REC =16"		
					105	6+12+19 N =31 REC =18"		
107.0	FAT CLAY, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	CH	-20.1		110	5+7+12 N =19 REC =18"		
					115	REC =9"	w=44.3% LL=60 PL=24 PP=>4.5 tsf *	
					120	5+7+11 N =18 REC =18"		
122.0	SILTY SAND, fine to coarse grained, wet, light gray and white, trace fine to coarse shell fragments, 30-40%, strong cementation, HCl reaction strong. *continued on next page*	SM	-35.1			50/3"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-327** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			125	N =50/3" REC =2"		
					130	5+7+11 N =18 REC =0"		Resumed drilling on 5/26/06 @ 7:20am
	fine to medium grained, moist, greenish gray and gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.				135	5+6+11 N =17 REC =18"		
					140	REC =10"	PP=>4.5 tsf	
	trace fine to medium shell fragments, 5-10%, HCl reaction weak.				145	3+5+7 N =12 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-63.1		150	5+7+10 N =17 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-328** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/19/06 **Finished:** 6/20/06

Location: Northing: 216828.86 ft
Easting: 960493.21 ft

Ground Surface Elevation: 76.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/19	---	9.0'	---	---
Start of day	6/20	---	9.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	ROOTMAT AND TOPSOIL.		76.1					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace root fragments.	SP-SM				2+1+2 N =3 REC =16"		
						2+2+4 N =6 REC =15"	w=4.5% LL=NP PL=NP *	
4.5	SANDY LEAN CLAY, moist, orangeish brown and gray, trace root fragments.	CL	71.8		5	2+3+3 N =6 REC =18"		
7.0	SANDY FAT CLAY, trace sand, wet, gray.	CH	69.3	▽		2+2+2 N =4 REC =18"	w=30% *	
					10	3+3+4 N =7 REC =18"	w=28.8% LL=59 PL=17 *	start of mud rotary drilling
13.0	FAT CLAY, trace sand, moist, gray.		63.3			2+3+4 N =7 REC =18"		color change in mud tub from orangeish brown to gray
					15			
18.5	ELASTIC SILT, gray	MH	57.8			5+4+6 N =10 REC =18"	w=35.1% LL=64 PL=36 *	
					20			
23.5	FAT CLAY, dark green	CH	52.8			4+6+9 N =15 REC =18"	w=33% LL=77 PL=28	
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-328 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-328** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					*	
27.0	CLAYEY SAND, contains shells, moist, gray and black.	SC	49.3					
					30	7+9+14 N =23 REC =18"	w=30.5% LL=40 PL=21 *	Harder drilling
32.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	SP-SM	44.3					
					35	33+34+50/4" N =84/10" REC =16"	w=18.2% *	
					40	50/4" N =50/4" REC =4"	w=22.6% *	
	gray and white, with fine to coarse shell fragments, 50-60%.				45	3+15+10 N =25 REC =18"	w=24.2% LL=NP PL=NP *	
47.0	CLAYEY SILT, moist, greenish gray, strong cementation, HCl reaction strong.	ML	29.3					
					50	10+15+50/1" N =65/7" REC =12"	w=25.8% *	harder drilling/ heavy rig chatter
52.0	SILTY SAND, fine to medium grained, wet, greenish gray, contains fine to coarse shell fragments, 25-35% , HCl reaction strong.	SM	24.3					
					55	5+5+21 N =26 REC =18"	w=24%	Rig chatter

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-328 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-328** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	5+5+8 N =13 REC =18"		
61.0	ORGANIC SILT, wet, greenish gray, contains fine to coarse shell fragments, 25-35%, HCl reaction, strong.	OH	15.3		65	REC =24"	w=44.2% LL=72 PL=41 *	
67.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	9.3		70	4+6+9 N =15 REC =18"	w=29.4% LL=NP PL=NP *	
					75	4+4+7 N =11 REC =18"	w=32.2% LL=NP PL=NP *	
	greenish gray and white, with fine to coarse shell fragments, 50-60%, strong cementation, HCl reaction strong.				80	8+18+28 N =46 REC =18"		Rig chatter
	contains fine to coarse shell fragments, 30-40%				85	8+16+50/5" N =66/11" REC =16"	w=21.2% LL=NP PL=NP *	
85.0	SANDY ELASTIC SILT, green	MH	-8.7					Rig chatter
					90	9+10+16 N =26 REC =18"	w=34% LL=47 PL=31 *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-328 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-328** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
						REC =13"		
					95			
						5+6+12 N =18 REC =18"	w=38.2% LL=53 PL=34 *	
					100			softer drilling
102.0	SILTY SAND, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	-25.7					
						6+9+12 N =21 REC =18"	w=62.7% *	
					105			
						5+8+13 N =21 REC =18"		
					110			Resumed drilling on 6/20/06 @ 7:30am
112.0	SANDY ELASTIC SILT, fine to medium grained, wet, greenish gray, contains fine to coarse shell fragments, 20-30%, HCl reaction strong.	MH	-35.7					
						6+7+14 N =21 REC =18"	w=30.5% *	
					115			
117.0	ELASTIC SILT, moist, greenish gray, trace fine to medium shell fragments, 5-10%, HCl reaction weak.	MH	-40.7					
						5+6+8 N =14 REC =18"	w=44.7% *	
					120			softer drilling
						REC =11"	w=45.6%	

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-328 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-328** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			125		LL=72 PL=45 PP=>4.5 tsf *	
	oliveish gray				130	5+7+10 N =17 REC =18"		
					135	6+6+9 N =15 REC =18"	w=48.2% LL=70 PL=51 *	
					140	6+7+9 N =16 REC =18"		
					145	5+7+8 N =15 REC =18"	w=59.3% *	
					150	6+8+11 N =19 REC =18"	w=74.8% LL=134 PL=100 *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-73.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-328 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-329** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/13/06 **Finished:** 6/15/06

Location: Northing: 216800.38 ft
Easting: 960379.43 ft

Ground Surface Elevation: 74.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/13	---	33.5'	---	---
Start of day	6/14	---	28.0'	---	---
Start of Day	6/15	---	30.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		74.3					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown, trace root fragments.	SP-SM				2+2+2 N =4 REC =5"		
2.5	CLAYEY SAND, fine to medium grained, moist, orangeish brown.	SC	72.3			3+4+4 N =8 REC =10"		
4.5	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM	70.3		5	3+4+4 N =8 REC =18"		
7.0	SANDY FAT CLAY, moist, gray.	CH	67.8			3+3+3 N =6 REC =18"		
					10	1+4+6 N =10 REC =18"		
					15	2+3+3 N =6 REC =18"		Softer drilling
17.0	ELASTIC SILT with sand, moist, gray.	MH	57.8					
					20	3+4+5 N =9 REC =18"		
22.0	SANDY SILT, moist, gray.	ML	52.8					
					25	4+6+8 N =14 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-329** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			30	5+8+13 N =21 REC =18"		
32.0	SILTY SAND, fine to medium grained, wet, light gray.	SM	42.8	▽	35	13+27+33 N =60 REC =18"		
	gray and white, contains fine to medium shell fragments, 10-20%, HCl reaction moderate				40	18+21+31 N =52 REC =13"		
42.0	CLAYEY SILT, moist, gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	32.8		45	3+4+6 N =10 REC =18"		
47.0	SILTY SAND, fine to coarse grained, wet, gray, with fine to coarse shell fragments, 40-50%, srong cementation, HCl reaction strong.	SM	27.8		50	50/4" N =50/4" REC =2"		Rig chatter
52.0	CLAYEY SAND, fine to medium grained, wet, light gray, with fine to coarse shell fragments, 40-50%, srong cementation, HCl reaction strong.	SC	22.8		55	11+30+33 N =63 REC =17"		
57.0	SILTY SAND, fine to medium grained, wet, greenish gray, contains fine to	SM	17.8					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-329** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	coarse shell fragments, 20-30%, HCl reaction moderate.	SM			60	4+5+6 N =11 REC =18"		
					65	REC =22"		Resumed drilling on 6/14/06 @ 7:00am
					70	5+5+10 N =15 REC =18"		
					75	REC =24"		
	with fine to coarse shell fragments, 60-70%, strong cementation, HCl reaction strong				80	50/3" N =50/3" REC =2"		Rig chatter
	contains fine to coarse shell fragments, 30-40%				85	14+50 N =50 REC =10"		
87.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments, 5-10%, HCl reaction moderate.	SC	-12.2		90	10+12+24 N =36 REC =18"		Resumed drilling on6/15/06 @ 7:00am

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-329** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	greeninsh gray and white, contains fine to medium shell fragments, 30-40%, HCl reaction strong .				95	5+10+14 N =24 REC =16"		
					100	6+8+13 N =21 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-25.2					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-330** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 5/25/06 **Finished:** 5/26/06

Location: Northing: 216715.4 ft
Easting: 960523.7 ft

Ground Surface Elevation: 85.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/25	---	10.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL		85.2					
	POORLY GRADED SAND, fine to coarse grained, moist, yellowish orange, trace gravel.	SP				WOH+2+2 N =4 REC =13"		
2.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, moist, orangeish yellow.	SP-SM	83.5			5+4+6 N =10 REC =18"		
5.0	POORLY GRADED SAND, fine to coarse grained, moist, yellow, with gravel, contains cemented sand.	SP	80.5		5	2+4+4 N =8 REC =10"		
7.0	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, moist, brownish orange.	SP-SM	78.5			2+3+3 N =6 REC =10"		
	wet, dark orange, with gravel.			▽	10	4+6+9 N =15 REC =15"		
13.0	SANDY LEAN CLAY,fine to medium, moist, dark gray.	CL	72.5		15	1+2+3 N =5 REC =18"		
					20	3+3+3 N =6 REC =18"		
	with sand.				25	4+5+6 N =11 REC =18"		

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-330** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
27.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	58.5			REC =0"		
					30			
32.0	LEAN CLAY, moist, gray, trace sand.	CL	53.5			5+8+9 N =17 REC =18"		
					35			
37.0	CLAYEY SAND, fine to medium grained, moist, greenish gray.	SC	48.5			6+6+8 N =14 REC =18"		
					40			
42.0	POORLY GRADED SAND, fine to medium grained, moist, greenish gray, with clay, with fine to coarse shell fragments, strong HCl reaction, 10-15% shell frag.	SP	43.5			34+50/5" N =50/5" REC =8"		
					45			
	fine to coarse grained, grayish green.					50/5" N =50/5" REC =5"		
					50			
	fine to medium grained, with fine to medium shell fragments, strong HCl reaction.					42+50/3" N =50/3" REC =10"		
					55			
	continued on next page							

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-330** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.0	CLAYEY SAND, fine to medium grained, moist, grayish green. with fine to coarse shell fragments, 25-30% shell frag.	SC	27.5		60	4+3+5 N =8 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.				65	50/5" N =50/5" REC =5"		
67.0	SILTY SAND, fine to medium grained, wet, green, with fine to coarse shell fragments, strong HCl reaction, 15-25% shell frag.	SM	18.5		70	6+4+9 N =13 REC =18"		
					75	9+11+10 N =21 REC =18"		
	trace fine to coarse shell fragments, moderate HCl reaction, 5-10% shell frag.				80	6+7+14 N =21 REC =18"		
	0-5% shell frag.				85	5+6+12 N =18 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.				90	6+11+18 N =29 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-330** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, with silt, strong HCl reaction, 40-50% shell frag, contains cemented sand.	SP-SM	-6.5		95	50/4" N =50/4" REC =4"		
	10-25% shell frag.				100	8+12+15 N =27 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-14.5					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-331** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/24/06 **Finished:** 5/24/06

Location: Northing: 216970.57 ft
Easting: 960481.79 ft

Ground Surface Elevation: 68.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/24	---	14.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	ROOTMAT AND TOPSOIL.							
0.7	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown, trace root fragments, trace wood fragments.	SP-SM	67.6			1/18" N =1/18" REC =18"		
	yellowish brown.					4+3+3 N =6 REC =14"		
4.5	LEAN CLAY, moist, orangeish brown and gray, trace sand, trace root fragments.	CL	63.8		5	3+4+6 N =10 REC =11"	w=20.2% LL=43 PL=15 *	
	sandy.					3+2+7 N =9 REC =18"		
					10	7+9+9 N =18 REC =0"		
11.5	SILTY SAND, fine to medium grained, wet, gray.	SM	56.8					
14.2	FAT CLAY, moist, gray, trace sand.	CH	54.1	▽	15	5+6+6 N =12 REC =16"		
					20	REC =24"	w=30.8% LL=57 PL=23 PP=>4.5 tsf *	
21.5	SANDY SILT, moist, gray.	ML	46.8					
					25	7+12+16 N =28 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-331** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
26.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, gray and white, trace fine to coarse shell fragments (20-30%), HCl reaction strong, weak cementation.	SP-SM	41.8		30	30+50 N =50 REC =12"		
	fine to medium shell fragments (40-50%).				35	31+40+50/4" N =90/10" REC =16"	w=21.9% *	Rig chatter at 34 ft.
	wet, fine to coarse shell fragments.				40	11+8+12 N =20 REC =18"		
41.5	SILTY SAND, fine to medium grained, moist, gray and greenish gray, trace fine to medium shell fragments (2-5%), HCl reaction weak.	SM	26.8		45	3+4+7 N =11 REC =18"	w=31.6% *	
					50	8+6+7 N =13 REC =18"		Rig chatter at 49 ft.
	white, fine to coarse shell fragments (15-25%).				55	6+5+5 N =10 REC =17"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-331** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	3+4+10 N =14 REC =18"	w=26.6% *	
	greenish gray, fine to medium shell fragments (2-5%), HCl reaction weak.				65	5+6+8 N =14 REC =16"		
					70	3+4+6 N =10 REC =18"		
	fine to coarse shell fragments (35-45%), HCl reaction strong.				75	3+5+12 N =17 REC =18"	w=35.8% *	
					80	6+6+6 N =12 REC =18"		
	fine to medium shell fragments (2-5%), HCl reaction weak.				85	7+11+12 N =23 REC =16"		
	fine to coarse shell fragments (5-10%), cementation with strong HCl reaction .				90	5+7+16 N =23 REC =18"	w=32.7% *	

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-331** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	5+7+10 N =17 REC =18"		
96.5	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to coarse shell fragments (5-10%), HCl reaction moderate.	SC	-28.2					
					100	7+10+17/5" N =27/11" REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-31.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-332** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/1/06 **Finished:** 6/2/06

Location: Northing: 217127.42 ft
Easting: 960400.52 ft

Ground Surface Elevation: 65.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/1	---	13.5'	---	---
Start of day	6/2	---	10.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		65.0					
	CLAYEY SAND, fine to coarse grained, moist, yellowish brown, trace root fragments.	SC				1+1+2 N =3 REC =5"		
	fine to medium grained, moist, orangeish brown and reddish brown, trace wood fragments, cemented sand gravel size.					22+2+3 N =5 REC =16"		
4.0	FAT CLAY, moist, orangeish brown and gray, trace sand.	CH	61.4		5	2+2+3 N =5 REC =14"		
8.0	SANDY SILT, moist, gray.	ML	57.4			3+3+4 N =7 REC =18"		
					10	2+5+7 N =12 REC =18"		
13.0	SILTY SAND, fine to medium grained, wet, dark gray.	SM	52.4	▽		1+2+3 N =5 REC =18"		
					15			
17.0	ELASTIC SILT, moist, light gray, trace sand.	MH	48.4			4+6+10 N =16 REC =18"		
					20			
22.0	SILTY SAND, fine to coarse grained, moist, greenish gray and gray, weak cementation.	SM	43.4			3+6+11 N =17 REC =16"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-332** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	fine to medium grained, wet, dark gray and white, contains fine to medium shell fragments, 20-30%, HCl reaction strong.				30	32+50/5" N =50/5" REC =8"		
	with fine to coarse shell fragments, 60-70%				35	16+15+16 N =31 REC =16"		
37.0	CLAYEY SAND, fine to medium grained, wet, gray and white, with fine to coarse shell fragments, 40-50%, HCl reaction strong.	SC	28.4		40	7+8+15 N =23 REC =16"		
42.0	SANDY SILT, wet, greenish gray, trace organic matter.	ML	23.4		45	3+3+5 N =8 REC =18"		rig chatter
					50	50/0.5" N =50/0.5"		rig chatter
	white, contains fine to coarse shell fragments, 20-30%, HCl reaction strong.				55	5+6+7 N =13 REC =18"		
57.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, contains	SM	8.4					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-332** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to coarse shell fragments, 20-30%, strong cementation, HCl reaction strong.	SM			60	6+9+50/5" N =59/11" REC =16"		
								rig chatter
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				65	5+6+11 N =17 REC =18"		
					70	4+4+8 N =12 REC =18"		
					75	REC =13"		resumed driling on 6/2/06 @ 7:15am
								harder drilling
	light gray and white, with fine to medium shell fragments, 40-50%, strong cementation, HCl reaction strong.				80	38+17+15 N =32 REC =18"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak.				85	8+12+21 N =33 REC =18"		
87.0	SANDY SILT, wet, greenish gray, trace fine to medium shell fragments, 10-20%, HCl reaction moderate.	ML	-21.6		90	6+8+18 N =26 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-332** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
	HCl reaction weak				95	6+8+14 N =22 REC =17"		
					100	7+12+14 N =26 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-34.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-333** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/17/06 **Finished:** 5/17/06

Location: Northing: 216657.04 ft
Easting: 960386.24 ft

Ground Surface Elevation: 89.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/17	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		89.0					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brown, contains root fragments.	SP-SM				1+4+3 N =7 REC =17"		
	fine to medium grained.					2+3+5 N =8 REC =13"	w=6.2% *	
	fine to coarse grained, light brown, contains clayey sand pockets.				5	3+4+4 N =8 REC =10"		
	fine to medium grained.					5+5+6 N =11 REC =11"	w=4.8% *	
	fine to coarse grained, wet, brown.			▽	10	4+8+8 N =16 REC =10"		
	dark yellowish brown, trace fine gravel.				15	2+3+5 N =8 REC =17"		
17.0	CLAYEY SAND, fine to coarse grained, wet, dark orangeish brown and dark yellowish brown, contains fine to medium cemented sand pockets, moderate HCl reaction.	SC	72.5			12+10+10 N =20 REC =14"		
19.5	FAT CLAY, moist, mottled yellowish brown and light gray, trace fine to medium sand, contains fine to medium clayey sand pockets.	CH	70.0		20			
	gray, trace mica.				25	2+2+3 N =5 REC =18"	w=32% LL=57 PL=33	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-333** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					*	
	moist, gray, trace fine to medium sand.				30	REC =24"	w=38.9% LL=52 PL=19 PP=2.25 tsf *	*Shelby tube sampler push from 28.5 to 30.5 ft.
	gray and dark gray, trace mica.				35	4+4+6 N =10 REC =18"		
	moist, gray, with fine to medium sand, trace mica.				40	REC =24"	w=39.7% LL=61 PL=23 PP=4.00 tsf *	*Shelby tube sampler push from 38.5 to 40.5 ft.
43.5	SILTY SAND, fine to medium grained, moist, dark blackish gray, trace fine to medium shell fragments (±1%), contains fine to medium moderately cemented sand pockets, weak HCl reaction.	SM	46.0		45	5+8+8 N =16 REC =18"	w=26.1% *	
48.5	CLAYEY SAND, wet, gray, some fine to coarse shell fragments (±30%), contains clayey sand and lean clay pockets, strong HCl reaction.	SC	41.0		50	REC =4"	w=25.2% LL=34 PL=13 *	*Shelby tube sampler push from 48.5 to 48.8 ft
53.5	SILTY SAND, moist, gray, with fine to medium sand, trace fine to medium shell fragments (±5%), moderate HCl reaction, trace mica.	SM	36.0		55	18+32+33 N =65 REC =16"	w=20.9% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-333** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	4+4+6 N =10 REC =18"	w=34.5% *	
62.0	SANDY SILT,fine to medium, moist, gray, contains strongly cemented sand pockets and indurated silt pockets, weak HCl reaction, trace fine to medium shell fragments (±1%).	ML	27.5		65	22+12+15 N =27 REC =8"		*Slight to moderate difficulty in rotary advancement below 62 ft. *Slight to moderately difficult drilling as rotary advanced below 65.5 ft. *Switched to 3-7/8" Tri-cone roller bit below 68.5 ft.
67.0	SILTY SAND, with gravel, fine to medium grained, wet, light oliveish gray and greenish gray, contains thin (1 inch) shell bed layer and strongly cemented sand pockets, trace fine to coarse shell fragments (±5%), strong HCl reaction.	SM	22.5		70	50 REC =6"	w=19.3% *	*Moderate difficultly in rotary advancement below 68 ft (moderate drill rig chatter). *Difficult to very difficult rotary advancement from 69.5 to 70 ft (moderate to strong rig chatter).
	gray, few fine to coarse shell fragments (±10%), weak HCl reaction, (weak HCl reaction applicable to test area where no shell fragments were observed).				75	8+9+14 N =23 REC =18"		
78.5	POORLY GRADED SAND WITH SILT, trace fine to medium shell fragments (±5%).	SP-SM	11.0		80	5+8+12 N =20 REC =18"	w=28.7% LL=NP PL=NP *	
	light greenish gray and gray, trace fine to medium shell fragments (±1%), contains silt pockets, weak HCl reaction.				85	4+6+7 N =13 REC =18"		
87.0	SILTY SAND, fine to medium grained, wet, light greenish gray and gray, trace fine to medium shell fragments (±1%), moderate HCl reaction.	SM	2.5		90	6+6+11 N =17 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-333** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	light gray and gray, mostly fine to coarse shell fragments (±50%), contains fine to medium sandy lean clay pockets, strong HCl reaction, strong cementation, contains black particles (<1/8 inch).				95	11+39+50/5" N =89/11" REC =17"	w=16.1% *	*Moderate to dufficult rotary advancement below 95.5 ft (moderate to strong rig chatter at 95.5, 97, and 98 ft).
98.8	mostly moderately cemented sand below 98.7 ft. BOTTOM OF BORING @ 98.8 FT.		-9.3			50/4" N =50/4" REC =4"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-334** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500

Schnabel Representative: R. Vinzant

Dates Started: 5/23/06 **Finished:** 5/24/06

Location: Northing: 216515.53 ft
Easting: 960556.61 ft

Ground Surface Elevation: 86.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/23	---	11.0'	---	---
Start of day	5/24	---	4.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, dark brown, and organic matter.	SP-SM				1+1+2 N =3 REC =18"	w=9.6% *	
	Yellowish brown, contains root fragments.					1+1+1 N =2 REC =18"		
5.0	SILTY SAND, light brown	SM	81.8		5	4+2+2 N =4 REC =12"	w=15.9% *	
7.5	LEAN CLAY, moist, oliveish gray, with sand, Fine-med. sand.	CL	79.3			1+1+1 N =2 REC =18"		
9.5	SILTY SAND, fine to medium grained, wet, light gray.	SM	77.3	▽	10	4+4+3 N =7 REC =18"	w=15.6% LL=NP PL=NP *	
	Orangeish brown, Med. - coarse sand.				15	4+7+7 N =14 REC =18"		
18.5	SANDY LEAN CLAY, moist, greenish gray, contains mica.	CL	68.3		20	1+1+2 N =3 REC =18"	w=31.3% *	
23.0	FAT CLAY with sand, moist, dark greenish gray	CH	63.8		25	REC =24"	w=35.3% LL=51 PL=16 PP=2.00 tsf	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-334** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					*	
					30	3+5+5 N =10 REC =18"	w=42.5% *	
33.0	LEAN CLAY, moist, gray	CL	53.8		35	REC =13"	w=32.6% LL=47 PL=13 *	No PP due to bent tube
38.5	SILTY SAND, fine to medium grained, moist, greenish gray, contains mica.	SM	48.3		40	6+6+7 N =13 REC =18"		
					45	10+15+24 N =39 REC =18"	w=27% *	
					50	15+27+50/2" N =77/8" REC =14"	w=27.2% *	
53.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, light gray, shell fragments, moderate HCl reaction, 40% fine-med. shell.	SP-SM	33.3		55	16+26+36 N =62 REC =18"	w=21.4% *	Start of drilling for the day, harder drilling
56.0	SILTY SAND, fine to medium grained, wet, light gray, shell fragments, strong HCl reaction, 40% shell.	SM	30.8					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-334** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	12+12+9 N =21 REC =18"		
61.0	SILTY GRAVEL with sand, fine to medium grained, wet, greenish gray, shell fragments, contains cemented sand, weak HCl reaction, 5% med. - coarse shell.	GM	25.8		65	50/5" N =50/5" REC =5"	w=19% LL=NP PL=NP *	
66.0	SILTY SAND, fine to medium grained, wet, greenish gray, shell fragments, contains cemented sand, weak HCl reaction, 5% fine - med. shell.	SM	20.8		70	7+7+7 N =14 REC =18"		
	Moderate HCl reaction, 15% med. - coarse shell.				75	10+11+15 N =26 REC =18"	w=27.3% *	
	3% med. - coarse shell.				80	5+7+13 N =20 REC =18"		
	3% fine - med. shell.				85	4+6+10 N =16 REC =18"	w=28% *	
	25% med. - coarse shell.				90	4+7+12 N =19 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-334** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	Light gray, strong HCl reaction, 40% med. - coarse shell.				95	21+50/5" N =50/5" REC =11"		
	Light gray, 25% med. - coarse shell.				100	9+14+22 N =36 REC =18"	w=28.9% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		-13.3					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-335** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750

Schnabel Representative: B. Bradfield

Dates Started: 5/2/06 **Finished:** 5/3/06

Location: Northing: 216732.7 ft
Easting: 960703.3 ft

Ground Surface Elevation: 99.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/2	---	19.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		99.1					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown, trace root fragments.	SP-SM				2+3+3 N =6 REC =15"		
2.5	LEAN CLAY with sand, moist, orangeish brown, trace root fragments.	CL	97.0			1+3+4 N =7 REC =13"		
5.0	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM	94.5		5	1+2+1 N =3 REC =8"		
7.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown and orangeish brown.	SP-SM	92.0			4+5+10 N =15 REC =16"		
					10			
10.5	SILTY SAND, fine to medium grained, moist, brown and orangeish brown.	SM	89.0			12+12+7 N =19 REC =14"		
13.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, white and orangeish brown.	SP-SM	86.0			7+8+13 N =21 REC =12"		
					15			
	wet, orange and brownish yellow.			▽		7+9+10 N =19 REC =18"		
					20			
23.5	CLAYEY SAND, fine to coarse grained, moist, brown and reddish yellow, trace fine gravel.	SC	76.0			7+7+2 N =9		
24.5		SM	75.0					
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-335** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, trace fine gravel, fine to coarse grained, wet, yellow and orangeish brown.	SM						
28.5	LEAN CLAY with sand, moist, gray.	CL	71.0		30	WOH+WOH +9 N =9 REC =18"		Resumed drilling on 5/3/06, drilling mud @ ground surface
						REC =24"	PP=2.50 tsf	
33.5	FAT CLAY with sand, moist, gray.	CH	66.0		35	WOH+3+3 N =6 REC =18"		
					40	REC =24"	PP=2.50 tsf	
43.5	LEAN CLAY with sand, moist, gray.	CL	56.0		45	4+4+5 N =9 REC =18"		
					50		PP=>4.5 tsf	
	gray and light gray.				55	4+4+5 N =9 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-335** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						tube refusal at 13 inches bent tube
58.8	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, gray and light gray, trace fine to medium shell fragments, moderate HCl reaction.	SP-SM	40.7		60	REC =1" 30+50/2" N =50/2" REC =13"		hard pan encountered
63.5	SILTY SAND, moist, light gray, trace fine to medium shell fragments, moderate HCl reaction.	SM	36.0		65	15+18+21 N =39 REC =18"		
	fine to coarse shell fragments, strong HCl reaction.				70	18+20+20 N =40 REC =17"		
73.5	LEAN CLAY with sand, moist, light gray and white, trace fine to medium shell fragments, strong HCl reaction.	CL	26.0		75	10+50/2" N =50/2" REC =17"	PP=1.50 tsf	Changed to roller bit
78.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light gray and white, with fine to coarse shell fragments, strong HCl reaction.	SP-SM	21.0		80	8+8+24 N =32 REC =18"		
79.2	SILTY SAND, fine to medium grained, moist, light gray and grayish brown, with fine to coarse shell fragments, strong HCl reaction.	SM	20.3					
	gray and white.				85	6+8+7 N =15 REC =18"		
	dark gray and white.				90	5+3+5 N =8 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-335** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	wet, gray and greenish gray, trace fine to coarse shell fragments.				95	4+5+5 N =10 REC =18"		
	SILTY SAND, fine to medium grained, wet, gray and greenish gray, trace shell fragments.	SM						
100.0	BOTTOM OF BORING @ 100.0 FT.		-0.5		100	5+7+9 N =16 REC =18"		

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-336** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/12/06 **Finished:** 5/15/06

Location: Northing: 216632.91 ft
Easting: 960750.27 ft

Ground Surface Elevation: 96.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/12	---	10.5'	---	---
Start of day	5/15	---	12.8'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Forest litter, rootmat and topsoil.		96.6					*NWJ rods used.
	Silty sand PROBABLE FILL, fine to coarse grained, moist, brown, FILL.	FILL				3+4+3 N =7 REC =18"		
	fine to medium grained.					2+2+2 N =4 REC =11"		
	brown and grayish brown.				5	WOH+1+2 N =3 REC =12"		
	brown.					1+1+1 N =2 REC =10"		
10.5	Clayey sand PROBABLE FILL, fine to medium grained, wet, brown, contains leaf fragments.	FILL	86.4	▽	10	WOH+WOH +6 N =6 REC =16"		
11.5	CLAYEY SAND, fine to medium grained, moist, brown.	SC	85.4					
	light blueish gray.				15	2+6+4 N =10 REC =14"	w=11.4% *	
17.0	SANDY LEAN CLAY, fine to medium, moist, light blueish gray and light orangeish brown.	CL	79.9					
					20	WOH+3+6 N =9 REC =14"	PP=2.00 tsf	
22.0	SANDY SILT, fine to medium, wet, yellowish brown and light gray.	ML	74.9					
					25	1+2+1 N =3 REC =18"	PP=1.00 tsf	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-336 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-336** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
27.0	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	69.9		30	1+3+4 N =7 REC =18"	w=26.9% *	
	trace fine sand.				35	REC =27"	PP=2.25 tsf	
37.0	ELASTIC SILT, moist, light greenish gray and gray, trace fine sand and mica.	MH	59.9		40	3+4+6 N =10 REC =18"		
42.0	FAT CLAY, moist, gray, trace fine sand and mica.	CH	54.9		45	REC =27"	PP=3.25 tsf	
47.0	SANDY LEAN CLAY, fine to medium, moist, gray, trace mica.	CL	49.9		50	6+6+7 N =13 REC =18"	w=25.9% *	**Resumed drilling at 8:45 AM on 5/15/06.
52.0	CLAYEY SAND, fine to medium grained, moist, gray, contains clayey sand pockets.	SC	44.9		55	REC =19"	PP=NA tsf	
56.0	POORLY GRADED SAND WITH SILT, fine to medium grained, trace coarse gravel, contains clayey sand pockets, moist, gray.	SP-SM	40.9					*Relative difficultly in rotary advancement below 56 ft.

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-336 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-336** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM			60	33+50 N =50 REC =12"		
62.0	SILTY SAND, fine to medium grained, moist, gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	SM	34.9		65	50/5" N =50/5" REC =4"		
	wet, gray, little fine to coarse shell fragments (±20%), strong HCl reaction.				70	20+17+20 N =37 REC =14"	w=19.6% *	
	moist, light gray, mostly moderately cemented sand layers, weak HCl reaction.				75	50/3" N =50/3" REC =2"		*Moderate to difficult rotary advancement below 73.5 ft. *Slight to moderate difficultly in rotary advancement below 75 ft.
	wet, oliveish gray and light gray, few fine to coarse shell fragments (±10%), moderate HCl reaction, moderate cementation.				80	50/3" N =50/3" REC =4"		
	gray, trace fine to coarse shell fragments (±5%), strong HCl reaction, (strong HCl reaction with shell fragments only).				85	6+7+12 N =19 REC =18"	w=27.3% *	
	weak HCl reaction.				90	7+6+14 N =20 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-336 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-336** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray, trace fine to medium shell fragments (±5%), contains contains clayey sand layers, weak HCl reaction.	SM			95	7+7+11 N =18 REC =18"		
97.0	CLAYEY SAND, fine to medium grained, wet, gray, trace fine to medium shell fragments (±1%), weak HCl reaction.	SC	-0.1					
					100	4+6+7 N =13 REC =18"	w=32.1% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		-3.1					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-336 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-337** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/6/06 **Finished:** 6/7/06

Location: Northing: 217257.88 ft
Easting: 960264.41 ft

Ground Surface Elevation: 71.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/6	---	9.0'	---	---
Start of day	6/7	---	10.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	ROOTMAT AND TOPSOIL.							
0.8	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orangeish brown, trace root fragments.	SP-SM	71.0			1+2+2 N =4 REC =9"		
2.5	CLAYEY SAND, fine to coarse grained, moist, orangeish brown, trace root fragments, trace wood fragments.	SC	69.3			3+3+4 N =7 REC =15"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown.	SP-SM	67.3		5	3+3+2 N =5 REC =7"		
7.0	SILTY SAND, fine to medium grained, wet, gray.	SM	64.8	▽		2+3+3 N =6 REC =16"		
					10	3+3+6 N =9 REC =18"		
13.0	SANDY ELASTIC SILT, wet, gray.	MH	58.8			2+3+4 N =7 REC =18"		resumed drilling on 6/7/06 @ 7:30am
					15			
17.0	SILTY SAND, fine to medium grained, wet, gray.	SM	54.8			5+7+7 N =14 REC =18"		
					20			
22.0	FAT CLAY, moist, gray, trace sand.	CH	49.8			4+5+7 N =12 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-337** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
27.0	CLAYEY SILT, moist, gray, trace sand.	ML	44.8					
					30	4+6+6 N =12 REC =18"		
					35	9+19+50 N =69 REC =16"	w=29% *	
37.0	SILTY SAND, fine to medium grained, moist, gray and white, contains fine to medium shell fragments, 20-30%, weak cementation, HCl reaction strong.	SM	34.8		40	29+50/4" N =50/4" REC =9"		
	wet, with fine to coarse shell fragments, 40-50%.				45	13+17+17 N =34 REC =15"		
47.0	CLAYEY SAND, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SC	24.8		50	3+5+5 N =10 REC =18"	w=39.9% *	
					55	REC =13"	w=25.7% LL=38 PL=19 PP=2.00 tsf *	
57.0	SILTY SAND, fine to medium grained, wet, greenish gray, contains fine to *continued on next page*	SM	14.8					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-337** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	coarse shell fragments, 20-30%, HCl reaction strong.	SM			60	21+20+10 N =30 REC =18"		
62.0	LEAN CLAY with sand, wet, greenish gray, trace fine to coarse shell fragments, 10-20%, HCl reaction weak.	CL	9.8		65	5+8+10 N =18 REC =18"		
67.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, trace fine to medium shell fragments, 5-10%, HCl reaction weak.	SM	4.8		70	4+6+9 N =15 REC =18"		
					75	5+5+9 N =14 REC =18"	w=30.9% *	
					80	4+5+8 N =13 REC =18"		Rig chatter
	fine to coarse grained, gray and white, with fine to coarse shell fragments, 50-60%, strong cementation, HCl reation strong.				85	50/5" N =50/5" REC =4"		Rig chatter
	contains fine to coarse shell fragments, 10-20%.				90	12+14+50/5" N =64/11" REC =16"	w=21% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-337** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	SANDY SILT, wet, greenish gray, trace fine to medium shell fragments, 5-10%, HCl reaction weak.	ML	-20.2		95	4+7+12 N =19 REC =18"		
					100	4+5+7 N =12 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-28.2					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-338** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/8/06 **Finished:** 6/13/06

Location: Northing: 217121.1 ft
Easting: 960150.1 ft

Ground Surface Elevation: 98.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/8	---	25.0'	---	---
Start of day	6/13	---	35.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		97.5					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown.	SP-SM				2+2+2 N =4 REC =12"		
	orangeish brown and reddish brown.					3+3+3 N =6 REC =18"		
	trace gravel.				5	3+4+5 N =9 REC =16"		
						5+6+7 N =13 REC =18"		
	trace gravel.				10	7+8+9 N =17 REC =18"		
						6+8+6 N =14 REC =16"		
17.0	CLAYEY SAND, fine to coarse grained, wet, orangeish brown.	SC	81.0		15			resumed drilling on 6/9/06 @ 7:00
						6+4+9 N =13 REC =18"		fat clay layer
					20			
				▽		2+2+2 N =4 REC =16"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-338** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
27.0	LEAN CLAY, moist, gray, with sand.	CL	71.0					
					30	1+2+2 N =4 REC =18"		color change in mud tub from orangeish brown to gray
32.0	FAT CLAY, moist, gray, with sand.	CH	66.0					
					35	2+3+3 N =6 REC =18"		
					40	1+3+4 N =7 REC =18"		
42.0	SANDY SILT, moist, gray.	ML	56.0					
					45	3+3+4 N =7 REC =18"		
						REC =24"	PP=>4.5 tsf	
49.5	ELASTIC SILT, moist, gray, trace sand.	MH	48.5		50			
					55	6+8+11 N =19 REC =18"		
57.0	SANDY SILT, moist, gray, weak cementation.	ML	41.0					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-338** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			60	9+11+14 N =25 REC =18"		
					65	50/5" N =50/5" REC =5"		Rig chatter
67.0	SILTY SAND, fine to medium grained, wet, gray and white, contains fine to coarse shell fragments, 30-40%, HCl reaction strong, 1/2" clay lense.	SM	31.0		70	10+17+19 N =36 REC =15"		
72.0	LEAN CLAY, moist, greenish gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	CL	26.0		75	5+5+7 N =12 REC =18"		
77.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, trace fine to coarse shell fragments, 2-5%, HCl reaction weak.	SC	21.0		80	4+4+6 N =10 REC =18"		Rig chatter
82.0	SILTY SAND, fine to coarse grained, wet, light gray, contains fine to coarse shell fragments, 20-30%, strong cementation, HCl reaction strong.	SM	16.0		85	7+19+21 N =40 REC =18"		no shelby tube taken due to heavy rig chatter Resumed drilling on 6/13/06 @ 7:00am
	greenish gray and white.				90	7+9+12 N =21 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-338** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	with fine to coarse shell fragments, 50-60%, strong cementation.					50/4" N =50/4" REC =3" REC =0"		
					95			
	contains fine to medium shell fragments, 10-20%, HCl reaction moderate.					3+6+6 N =12 REC =18"		
						REC =7"	PP=2.00 tsf	
99.6	BOTTOM OF BORING @ 99.6 FT.		-1.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-339** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 6/7/06 **Finished:** 6/8/06

Location: Northing: 217095.21 ft
Easting: 960211.99 ft

Ground Surface Elevation: 92.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/7	---	15.0'	---	---
Start of day	6/8	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		91.5					
	POORLY GRADED SAND, trace gravel, trace silt, fine to coarse grained, moist, yellowish brown.	SP				1+4+6 N =10 REC =15"		
	orangeish brown.					3+2+3 N =5 REC =10"		
					5	3+3+4 N =7 REC =16"	w=6.9% *	
	reddish brown and orangeish brown.					5+6+6 N =12 REC =17"		
					10	4+6+6 N =12 REC =16"		
13.5	SILTY SAND, trace rock fragments, red-brown, 0.5" cemented sand lense	SM	78.5	▽	15	7+11+9 N =20 REC =18"	w=19.9% *	
17.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown and gray.	SC	75.0		20	1+1+2 N =3 REC =18"		resumed drilling on 6/8/06 @ 7:30am
22.0	LEAN CLAY, wet, gray, with sand.	CL	70.0		25	1+3+6 N =9 REC =18"		

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-339** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
27.0	SANDY FAT CLAY, wet, gray, with sand.	CH	65.0					
					30	2+2+3 N =5 REC =18"	w=31.5% LL=55 PL=19 *	
					35	2+3+4 N =7 REC =18"	w=27% LL=62 PL=21 *	
					40	2+3+5 N =8 REC =18"	w=28.6% LL=71 PL=17 *	
					45	3+4+7 N =11 REC =18"	w=31% LL=60 PL=22 *	
48.5	SANDY LEAN CLAY, dark gray	CL	43.5		50	4+6+7 N =13 REC =17"	w=27.8% LL=40 PL=20 *	
53.5	SILTY SAND, moist, greenish gray, trace sand.	SM	38.5		55	6+11+15 N =26 REC =18"	w=30.8% LL=48 PL=30 *	
57.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and *continued on next page*	SP-SM	35.0					Harder drilling

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-339** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	white, contains fine to coarse shell fragments, 10-20%, strong cementation, HCl reaction moderate.	SP-SM			60	28+50/5" N =50/5" REC =10"	w=28.1% LL=NP PL=NP *	
62.0	CLAYEY SAND, fine to coarse grained, wet, gray and white, with fine to coarse shell fragments, 60-70%, HCl reaction strong.	SC	30.0		65	8+8+7 N =15 REC =18"	w=25% LL=49 PL=21 *	
67.0	ELASTIC SILT, moist, gray and greenish gray, trace sand.	MH	25.0		70	4+5+5 N =10 REC =18"	w=38.8% LL=53 PL=38 *	
72.0	SILTY SAND, fine to coarse grained, wet, gray, Strong cementation, HCl reaction strong.	SM	20.0		75	50/2" N =50/2" REC =1"		No shelby tube taken due to heavy rig chatter Rig chatter
	fine to medium grained, gray and white, with fine to coarse shell fragments, 40-50%.				80	21+22+15 N =37 REC =18"	w=16.6% *	
	greenish gray and white, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.				85	5+7+12 N =19 REC =18"	w=31.5% *	Rig chatter
88.5	POORLY GRADED SAND WITH SILT, contains shells, dark gray	SP-SM	3.5		90	7+7+14 N =21 REC =18"	w=29% *	

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-339** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
					95	5+6+10 N =16 REC =17"	w=31.7% *	
					100	4+5+8 N =13 REC =18"	w=32.7% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		-8.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-340** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: Mud Rotary

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 8/3/06 **Finished:** 8/7/06

Location: Northing: 217171.34 ft
Easting: 961225.22 ft

Ground Surface Elevation: 84.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/3	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	TOPSOIL.		84.2					
	SILTY SAND, fine to coarse grained, moist, orangeish brown, trace root fragments, trace gravel, PROBABLE FILL.	SM				3+5+5 N =10 REC =18"		0-15'- Used 6 1/4" HSA to enlarge hole for taking Pitcher samples
						3+3+2 N =5 REC =18"		
	brown, trace gravel.				5	2+2+2 N =4 REC =18"		
						4+2+2 N =4 REC =18"		
	grayish brown.				10	5+5+5 N =10 REC =18"		
13.0	CLAYEY SAND, fine to coarse grained, wet, orangeish brown.	SC	71.6	▽		4+9+9 N =18 REC =16"		
					15			15'- Start of day 8/4/06 15'- Begin mud rotary
17.0	SILTY SAND, fine to coarse grained, wet, orangeish brown.	SM	67.6					
						4+6+6 N =12 REC =13"		
					20			
22.0	SANDY FAT CLAY, fine to medium, moist, dark gray.	CH	62.6					
						4+2+4 N =6 REC =18"		
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-340** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
	with sand, contains mica.				30	3+3+4 N =7 REC =18"		
	gray.				35	4+6+8 N =14 REC =18"		
37.0	CLAYEY SAND, fine to medium grained, wet, dark gray, contains mica.	SC	47.6		40	5+7+9 N =16 REC =18"		
42.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, dark orangeish brown, trace cemented sand, weak cementation.	SP-SM	42.6		45	8+8+8 N =16 REC =18"		45'- Driller noted harder drilling
	fine to medium grained, light brownish white.				50	29+34+50/4" N =84/10" REC =0"		
	light gray.				55	31+50/5" N =50/5" REC =7"		
57.0	FINE TO MEDIUM SANDY FAT CLAY, moist, gray and brownish white, 0-10% *continued on next page*	CH	27.6					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-340** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to decomposed shell fragments.	CH			60	4+4+20 N =24 REC =18"		
62.0	CLAYEY SAND, fine to medium grained, wet, light gray and brownish white, 20-30% fine to coarse shell fragments, some cemented sand, strong HCl reaction, moderate cementation, HCl reaction localized to decomposed shell fragments.	SC	22.6		65	7+13+15 N =28 REC =18"		
	1' zone of strongly cemented sand and fine to coarse shell fragments, strong HCl reaction, gray weak cementation, HCl reaction localized to decomposed shell fragments.				70	6+8+12 N =20 REC =11"		66'- Pitcher sample; 68'- Start of day 8/7/06
	20-30% fine to coarse shell fragments, with cemented sand, strong HCl reaction, moderate cementation, 1" of highly cemented sand at tip of shoe.				75	7+14+40 N =54 REC =12"		
77.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, dark gray and brownish white, 0-10% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.	SP-SC	7.6		80	4+7+9 N =16 REC =16"		
	dark gray, 0-10% fine to medium shell fragments, weak HCl reaction, HCl reaction localized to shell fragments.				85	4+7+14 N =21 REC =13"		
87.0	CLAYEY SAND, fine to medium grained, wet, greenish gray and brownish white, 30-40% fine to coarse shell fragments, strong HCl reaction, HCl reaction generally localized to shell fragments.	SC	-2.4		90	4+8+11 N =19 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-340** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	light gray and brownish white, 30-40% fine to coarse shell fragments, with cemented sand, strong HCl reaction, strong cementation.				95	7+10+46 N =56 REC =15"		
97.0	POORLY GRADED SAND WITH CLAY, wet, dark gray, 0-10% fine to medium shell fragments, weak HCl reaction, HCl reaction localized to very small shell fragments.	SP-SC	-12.4					
					100	14+15+27 N =42 REC =14"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-15.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-341** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 7/11/06 **Finished:** 7/12/06

Location: Northing: 217036.4 ft
Easting: 961104.48 ft

Ground Surface Elevation: 98.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/11	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Poorly graded sand FILL, fine to coarse grained, moist, light brown, trace silt, contains black filter fabric fragment at 0.5 ft.	FILL SM	97.7			2+5+7 N =12 REC =10"		
	SILTY SAND, fine to coarse grained, moist, brown yellowish brown and light brown. stratified below 3.8 ft					3+4+5 N =9 REC =12"		
	stratified brown and yellowish brown, trace fine gravel				5	4+5+6 N =11 REC =12"		
	yellowish brown.					3+4+4 N =8 REC =13"		
	trace fine to coarse gravel.				10	5+8+11 N =19 REC =12"		
	wet, yellowish brown and light orangeish brown. stratified below 14.7 ft.			▽	15	6+10+11 N =21 REC =11"		
	brown and light brown.				20	3+7+10 N =17 REC =11"		*5.4" O.D. Drag bit from 0 to 18.5 ft. *Switched to 4-3/4" O.D. Drag bit below 18.5 ft.
	fine to medium grained, light brownish gray, yellowish brown, and orangeish brown, contains clayey sand layer below *continued on next page*				25	1+3+2 N =5 REC =4"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-341** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	24.7 ft .	SM						
27.0	SANDY LEAN CLAY, fine to medium, wet, yellowish brown and light grayish brown, contains clayey sand pockets. gray, trace mica below 29 ft.	CL	71.2		30	2+3+3 N =6 REC =18"		
32.0	FAT CLAY, moist, brownish gray and dark gray, trace fine to medium sand and mica, contains fine to medium clayey sand pockets.	CH	66.2		35	2+2+4 N =6 REC =18"		
	brownish gray and gray, contains fat clay with fine to medium sand pockets.				40	2+4+4 N =8 REC =18"		
	trace organic matter (±1%), (soil may lab classify as MH).				45	3+5+7 N =12 REC =18"		
47.0	ELASTIC SILT, moist, gray, trace fine to medium sand and mica, contains silty sand and clayey sand pockets and lenses.	MH	51.2		50	6+8+12 N =20 REC =18"		
52.0	CLAYEY SAND, fine to medium grained, moist, gray, trace mica. grayish brown and dark reddish brown, little fine to coarse oxidized shell fragments (±20%), contains silty sand pockets below 54.5 ft.	SC	46.2		55	8+15+27 N =42 REC =18"		
57.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, dark *continued on next page*	SP-SM	41.2					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-341** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	brown and brown.	SP-SM			60	40+50/4" N =50/4" REC =10"		*Switched to 5" O.D. Tri-cone roller bit below 58.5 ft.
62.0	POORLY GRADED SAND, trace silt, fine to medium grained, moist, gray.	SP	36.2		65	50 REC =5"		*Switched to 4-3/4" O.D. Drag bit below 63.5 ft.
67.0	SILTY SAND, fine to medium grained, moist, gray, some fine to coarse shell Fragments (±40%), strong HCl reaction.	SM	31.2		70	27+50/5" N =50/5" REC =9"		
	mostly strongly cemented sand layers (±80%), little fine to coarse shell fragments (±20%).				75	50/2" N =50/2" REC =1"		*Very difficult rotary advancement from 73 to 73.5 ft (slow rotary advancement). *Very to extremely difficult rotary advancement from 73.5 to 78.5 ft (very strong rig chatter).
	oliveish gray, mostly weak to strongly cemented sand pockets.				80	21+50/3" N =50/3" REC =9"		*Switched to 5" O.D. Tri-cone roller bit below 73.5 ft. *Extremely difficult rotary advancement fron 78.5 to 82.5 ft (very strong rig chatter).
	gray, trace fine to coarse shell fragments (±5%), moderate HCl reaction.				85	6+7+11 N =18 REC =18"		*Switched to 4-3/4" O.D. Drag bit below 83.5 ft.
	trace fine to medium shell fragments (±<5%).				90	REC =24"		*Osterberg sampler tube push from 88.5 to 90.5 ft

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-341** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	very weak HCl reaction				95	5+8+11 N =19 REC =15"		
97.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, trace fine to medium shell fragments (±1%), moderate HCl reaction, (soil may lab classify as SP).	SP-SM	1.2		100	REC =24"		*Osterberg sampler tube push from 98.5 to 100.5 ft
100.5	BOTTOM OF BORING @ 100.5 FT.		-2.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 1 of 13

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 6/19/06 **Finished:** 6/29/06

Location: Northing: 216344.12 ft
Easting: 961516.81 ft

Ground Surface Elevation: 72.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/19	---	33.5'	---	---
Start of day	6/20	---	12.0'	---	---
Start of day	6/22	---	35.0'	---	---
Start of day	6/26	---	33.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM				2+3+3 N =6 REC =13"		*Relatively difficult rotary advancement from 2 to 2.5 ft (difficult advancement probably due to large root fragment).
	stratified brown and light brown, trace fine gravel.					2+3+2 N =5 REC =14"	w=3.6% *	
	fine to medium grained, light brown.				5	2+6+12 N =18 REC =13"		*5.4" O.D. Drag bit below 0 ft.
	fine to coarse grained, brown.					5+6+7 N =13 REC =14"		
9.5	fine to medium grained, light grayish brown and light orangeish brown below 8.5 ft.		62.6		10			
	FAT CLAY, trace fine to medium sand, moist, light gray, yellowish brown and orangeish brown, contains root fragments.	CH				2+4+5 N =9 REC =16"	w=26.6% LL=66 PL=20 *	*Slight rig chatter at 11 ft.
	light gray and yellowish brown, contains dark reddish brown pockets and subvertical planes.				15	2+4+4 N =8 REC =18"	w=34.2% LL=62 PL=20 *	
18.5	SANDY ELASTIC SILT, with shells, gray, trace mica and organic matter (±1%).	MH	53.6		20	2+3+6 N =9 REC =18"	w=36.9% LL=70 PL=37 *	*4-3/4" O.D. Drag bit below 18.5 ft.
23.5	SANDY LEAN CLAY, with fine to medium sand, contains clayey sand lenses and pockets, moist, grayish	CL	48.6		25	3+5+6 N =11 REC =18"	w=27.9% LL=47 PL=28	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 2 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	brown and dark yellowish brown, contains dark orangeish brown pockets.	CL					*	
	fine to medium sandy, gray and grayish brown, contains dark orangeish brown pockets.				30	4+7+16 N =23 REC =18"		
32.0	POORLY GRADED SAND, fine to medium grained, trace silt, wet, light brown	SP	40.1	▽	35	23+50/5" N =50/5" REC =11"	w=20.8% *	
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray.	SP-SM	35.1		40	36+50/5" N =50/5" REC =8"		
42.0	SILTY SAND, fine to medium grained, wet, gray.	SM	30.1					
	moist, oliveish gray, mostly moderately cemented sand (±100%), moderate HCl reaction below 44 ft.				45	WOH+50/4" N =50/4" REC =4"	w=21.4% *	*Very to extremely difficult rotary advancement from 44 to 48 ft (moderate to strong rig chatter).
	wet, gray, little fine to coarse shell fragments (±15%), strong HCl reaction.				50	7+6+15 N =21 REC =18"		**Resumed drilling at 6:55 AM on 6/20/06. *Switched to 5" O.D. Tri-cone roller bit below 48.5 ft. *Moderate to difficult rotary advancement from 50 to 53.5 ft (moderate to strong rig chatter).
	trace fine to coarse shell fragments (±5%), very weak HCl reaction.				55	4+7+10 N =17 REC =18"	w=31.6% *	*Switched to 4-3/4" O.D. Drag bit below 53.5 ft.

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 3 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	little fine to coarse shell fragments (±20%), weak HCl reaction.	SM				7+14+50 N =64 REC =18"	w=25% *	
	gray and light gray, some fine to coarse shell fragments (±30%), contains moderately cemented sand pockets, strong HCl reaction below 59.5 ft.				60			
	gray, trace fine to medium shell fragments (±1%), very weak HCl reaction.				65	5+7+10 N =17 REC =13"		
	weak HCl reaction.				70	REC =23"		*Osterberg sampler tube push from 68.5 to 70.5 ft
	gray and light gray, some fine to coarse shell fragments (±40%), strong HCl reaction.				75	16+50/5" N =50/5" REC =11"		*Moderate to difficult rotary advancement from 74 to 78 ft (moderate to strong rig chatter).
	gray and oliveish gray, mostly fine to coarse shell fragments (±50%), contains strongly cemented sand pockets.				80	5+20+27 N =47 REC =13"	w=17.5% *	
	gray and greenish gray, trace fine to medium shell fragments (±1%), trace organic matter (±<1%), weak HCl reaction, contains clayey sand pockets.				85	5+9+13 N =22 REC =16"		
					90	9+12+17 N =29 REC =18"	w=35.3% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 4 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	ELASTIC SILT, moist, gray and light greenish gray, trace fine to coarse shell fragments (±<5%),weak HCl reaction.	MH	-19.9		95	6+11+16 N =27 REC =18"		
					100	REC =15"	w=50.5% LL=78 PL=48 PP=>4.5 tsf *	*Osterberg sampler tube push from 98.5 to 99.8 ft
103.5	SILTY SAND, fine to medium sandy, light greenish gray, trace fine to coarse shell fragments (±5%) and organic matter (±<1%), contains clayey sand layers.	SM	-31.4		105	5+9+22 N =31 REC =18"		
					110	5+10+17 N =27 REC =13"	w=35.6% *	
112.0	LEAN CLAY, moist, gray and light greenish gray, with fine to medium sand, trace and fine to coarse shell fragments (±5%), strong HCl reaction.	CL	-39.9		115	4+8+10 N =18 REC =18"	w=46.1% *	
117.0	SILT, moist, gray and light greenish gray, with fine to medium sand, trace mica and fine to medium shell fragments (±5%), weak HCl reaction.	ML	-44.9		120	5+9+12 N =21 REC =18"		
122.0	ELASTIC SILT, moist, gray, trace fine to medium sand, mica, and fine to medium shell fragments (±1%), weak HCl reaction.	MH	-49.9			REC =16"	w=57.4%	*Osterberg

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 5 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			125		LL=85 PL=54 PP=>4.5 tsf *	sampler tube push from 123.5 to 124.8 ft
128.5	SANDY SILT, gray and greenish gray, with fine to medium sand, trace fine to medium shell fragments (±<5%), strong HCl reaction.	ML	-56.4		130	5+6+11 N =17 REC =18"	w=43.8% *	
	fine to medium sandy, greenish gray, very weak HCl reaction.				135	7+9+11 N =20 REC =18"		
137.0	SANDY FAT CLAY, moist, greenish gray, fine to medium sand, strong HCl reaction.	CH	-64.9		140	REC =23"	w=44.1% LL=80 PL=31 PP=>4.5 tsf *	*Osterberg sampler tube push from 138.5 to 140.5 ft
142.0	ELASTIC SILT, moist, greenish gray, trace fine to medium sand, weak HCl reaction	MH	-69.9		145	7+9+11 N =20 REC =18"	w=77.1% LL=142 PL=104 *	
	trace mica.				150	8+10+12 N =22 REC =18"	w=72.7% LL=150 PL=89 *	**Resumed drilling at 6:55 AM on 6/21/06.
					155	6+8+11 N =19 REC =18"	w=68.8% LL=142 PL=93 *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 6 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	dark greenish gray.					REC =10"	w=49.9% LL=81 PL=54 PP=>4.5 tsf *	*Osterberg sampler tube push from 158.5 to 159.3 ft
					160			
	with fine to medium sand.							
					165			
						8+10+15 N =25 REC =18"	w=53.9% LL=103 PL=52 *	
					170			
172.0	FAT CLAY, trace fine sand, greenish gray.	CH	-99.9					
						REC =11"	w=33.7% LL=57 PL=17 PP=>4.5 tsf *	*Osterberg sampler tube push from 173.5 to 174.4 ft
					175			
						4+10+21 N =31 REC =0"		
					180			
182.0	SILTY SAND, fine to medium grained, contains clayey sand pockets, wet, dark greenish gray, trace fine to medium shell fragments (±1%), moderate HCl reaction.	SM	-109.9					
						7+15+22 N =37 REC =18"	w=31.2% *	
					185			
187.0	CLAYEY SAND, fine to medium grained, contains sandy lean clay pockets, wet, dark greenish gray and brownish gray, trace fine to medium shell fragments (±1%)	SC	-114.9					
						5+9+19 N =28 REC =11"		
					190			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 7 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
192.0	SANDY SILT, fine to medium, contains clayey sand pockets, moist, dark greenish gray, very weak HCl reaction	ML	-119.9		195	6+9+17 N =26 REC =18"	w=49.2% *	
197.0	SILTY SAND, fine grained, moist, greenish gray, very weak HCL reaction, trace mica.	SM	-124.9		200	REC =22"	w=48.8% LL=82 PL=55 PP=>4.5 tsf *	*Osterberg sampler tube push from 198.5 to 200.3 ft
202.0	ELASTIC SILT, with fine to medium sand, trace mica and organic matter (±1%), moist, greenish gray, very weak HCl reaction.	MH	-129.9		205	5+8+13 N =21 REC =18"	w=58.4% LL=94 PL=69 *	
	trace fine to medium shell fragments (±1%).				210	7+11+16 N =27 REC =18"	w=62.7% LL=113 PL=74 *	**Resumed drilling at 7:00 AM on 6/22/06.
212.0	ELASTIC SILT, trace fine to medium sand, contains indurated silt pockets, moist, greenish gray, very weak HCl reaction.	MH	-139.9		215	REC =13"	PP=>4.5 tsf	*Osterberg sampler tube push from 213.5 to 214.6 ft
	trace mica.				220	7+11+15 N =26 REC =18"	w=77.4% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 8 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace organic matter (±<1%).	MH			225	9+13+18 N =31 REC =18"		
	contains indurated silt pockets.				230	REC =13"	w=58.6% LL=139 PL=88 PP=>4.5 tsf *	*Osterberg sampler tube push from 228.5 to 229.6 ft
					235	10+15+21 N =36 REC =18"		
	weak HCl reaction.				240	8+11+21 N =32 REC =18"	w=122.5% *	
	mostly indurated silt layers.				245	REC =8"	w=96.2% LL=140 PL=65 PP=>4.5 tsf *	*Osterberg sampler tube push from 243.5 to 244.4 ft
					250	7+8+17 N =25 REC =18"	w=122.8% LL=218 PL=100 *	
					255	7+10+15 N =25 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 9 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	trace fine to medium sand, very weak HCl reaction.				260	8+11+19 N =30 REC =18"	w=130.2% *	
					265	9+16+21 N =37 REC =0"		**Resumed drilling at 7:15 AM on 6/23/06.
267.0	SILTY SAND, dark green, with fine to medium sand, trace organic matter (±<1%), very weak HCl reaction.	SM	-194.9		270	7+12+18 N =30 REC =18"	w=63.5% *	
	greenish gray, weak HCl reaction.				275	8+12+15 N =27 REC =18"		
	trace fine to medium sand, moderate HCl reaction.				280	50/3" N =50/3" REC =4"		*Switched to 5" O.D. Tri-cone roller bit below 278.5 ft.
283.0	SANDY ELASTIC SILT, moist, dark greenish gray, trace fine to coarse sand, some fine to coarse shell fragments (±30%), strong HCl reaction.	MH	-210.9		285	11+13+17 N =30 REC =18"	w=30.2% LL=76 PL=42 *	*Very to extremely difficult rotary advancement from 278 to 280 ft (moderate rig chatter). *Switched to 5" O.D. Drag bit below 284.5 ft. **Resumed drilling at 11:00 AM on 6/26/06.
287.0	CLAYEY SAND, fine to medium grained, wet, dark brownish gray and blackish gray, few fine to coarse shell fragments (±10%), trace mica, strong *continued on next page*	SC	-214.9			9+17+23		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 10 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	HCl reaction, glauconitic	SC			290	N =40 REC =18"		
	dark brownish gray and dark greenish gray, trace fine to coarse shell fragments (±5%). fine to coarse grained, moist, dark brownish gray and blackish gray, trace fine gravel and fine to medium shell fragments (±<5%) below 294.5 ft.				295	8+12+50/2" N =62/8" REC =14"	w=20.7% *	*Switched to 5" O.D. Tri-cone roller bit below 293.5 ft. *Extremely difficult rotary advancement from 294.5 to 295.5 ft (very strong rig chatter). *Extremely difficult rotary advancememt from 297.3 to 298.3 ft (mod to strong rig chatter). **Resumed drilling at 7:20 AM on 6/27/06. *Switched to 4-3/4" O.D. Drag bit below 298.5 ft.
	brownish gray and light blackish gray, trace fine to coarse shell fragments (±5%), weak HCl reaction, contains lean clay layers and pockets.				300	9+14+18 N =32 REC =18"		
					305			
306.0	SILTY SAND, fine to coarse, contains clayey sand pockets, moist, dark greenish gray and dark blackish brown, very weak HCl reaction	SM	-233.9			10+12+20 N =32 REC =18"	w=27.4% LL=57 PL=42 *	
					310			
					315			
317.0	SANDY FAT CLAY, fine to medium grained, moist, dark greenish gray and dark blackish gray, very weak HCl reaction, glauconitic.	CH	-244.9		320	18+26+35 N =61 REC =18"	w=28.9% LL=58 PL=28 *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 11 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			325			
					330	11+11+17 N =28 REC =0"		
					335			
337.0	SILT with fine to coarse sand, trace fine gravel and mica, contains sandy lean clay pockets, moist, dark brownish gray and blackish gray, moderate HCl reaction, silt exhibits fissility.	ML	-264.9		340	8+12+29 N =41 REC =8"	w=25.3% *	
345.0	SILTY SAND, fine to coarse grained, moist, dark brownish gray and blackish gay, moderate HCl reaction	SM	-272.9		345			
					350	REC =7"	w=35.6% LL=52 PL=39 *	*Osterberg sampler tube push from 348.5 to 350.5 ft
					355			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 12 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	contains clayey sand pockets, trace mica, very weak HCl reaction				360	30+50/5" N =50/5" REC =9"		
					365			
367.0	POORLY GRADED SAND WITH SILT, fine to medium grained, contains silty sand and lean clay pockets, trace mica, moist, dark brownish gray and blackish gray, very weak HCl reaction.	SP-SM	-294.9		370	16+25+44 N =69 REC =18"	w=36.9% *	**Resumed drilling at 7:00 AM on 6/28/06.
					375			
377.0	SILTY SAND, fine to medium grained, moist, dark brownish gray and blackish gray, trace mica, very weak HCl reaction.	SM	-304.9		380	16+21+36 N =57 REC =18"		
					385			
	fine to coarse grained, contains lean clay pockets, moist, dark brownish gray							

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-401** Contract Number: 06120048 Sheet: 13 of 13

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	and blackish gray, trace mica, very weak HCl reaction.	SM				12+20+32 N =52 REC =18"		
					390			
					395			
								**Resumed grouting at 7:00 AM on 6/29/06.
	fine to medium grained.				400	11+15+29 N =44 REC =18"	w=33.1% *	
401.5	BOTTOM OF BORING @ 401.5 FT.		-329.4					

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground water observation well OW-401 installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/19/06 **Finished:** 7/21/06

Location: Northing: 216405.1 ft
Easting: 961463.5 ft

Ground Surface Elevation: 82.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/19	---	7.5'	0.0'	---
Start of day	7/20	---	15.0'	0.0'	---
Start of day	7/21	---	12.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine to coarse grained, moist, brown, contains root fragments, contains organic matter.	SP				1+3+4 N =7 REC =18"		
2.5	SILTY SAND, fine to coarse grained, moist, brown.	SM	79.7			1+1+2 N =3 REC =12"		
4.5	POORLY GRADED SAND, fine to coarse grained, moist, orangeish brown,	SP	77.7		5	1+4+4 N =8 REC =14"		
	wet, orange, with gravel.			▽		3+4+2 N =6 REC =8"		
10.0	SILTY SAND, fine to medium grained, moist, orange.	SM	72.2		10	2+3+4 N =7 REC =14"		
13.0	SANDY SILT, fine to medium grained, wet, mottled grayish orange.	ML	69.2		15	1+3+6 N =9 REC =16"		
17.0	FAT CLAY, moist, gray, with sand.	CH	65.2		20	WOH+2+3 N =5 REC =18"		
	no sand.				25	2+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
					30	3+4+6 N =10 REC =18"		
	fine to medium sandy				35	4+4+5 N =9 REC =18"		
37.0	SILTY SAND, fine to medium grained, moist, mottled grayish red, contains cemented sand.	SM	45.2		40	6+10+10 N =20 REC =14"		
42.0	POORLY GRADED SAND, fine to medium grained, moist, yellowish white.	SP	40.2		45	21+50 N =50 REC =9"		
	gray.				50	29+50/5" N =50/5" REC =11"		
	cemented sand with shells, strong HCl reaction. Cemented sand with shells, strong HCl reaction.					50/2" N =50/2" REC =1"		54' hard drilling
55.0	SILTY SAND, fine to medium grained, wet, grayish green, contains cemented sand, with fine to coarse shell fragments, strong HCl reaction, 70-80% shell frag.	SM	27.2		55			

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				50 REC =6"		
62.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SP-SM	20.2		60 65	4+6+9 N =15 REC =18"		
67.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.	SM	15.2		70	6+8+11 N =19 REC =18"		
72.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, green, weak HCl reaction.	SP-SM	10.2		75	6+9+13 N =22 REC =16"		
77.0	SILTY SAND, fine to medium grained, wet, green, weak HCl reaction.	SM	5.2		80	3+4+7 N =11 REC =18"		
	contains cemented sand, with fine to coarse shell fragments, strong HCl reaction, 70-80% shell frag.				85	9+13+21 N =34 REC =18"		
	strong HCl reaction, 50-60% shell frag.				90	13+11+17 N =28 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	moist, trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.				95	8+12+21 N =33 REC =18"		
	moist, with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.				100	6+9+12 N =21 REC =18"		
	trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.				105	5+8+11 N =19 REC =18"		
107.0	SANDY SILT, fine to medium, moist, green, weak HCl reaction.	ML	-24.8		110	6+8+9 N =17 REC =18"		
112.0	SILTY SAND, fine to medium grained, moist, green, trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.	SM	-29.8		115	6+9+11 N =20 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.				120	7+10+13 N =23 REC =18"		
122.0	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	ML	-39.8			5+6+9		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	N =15 REC =18"		
127.0	ELASTIC SILT, moist, oliveish green.	MH	-44.8		130	6+8+11 N =19 REC =18"		
	trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag.				135	4+6+8 N =14 REC =18"		
					140	4+7+8 N =15 REC =18"		
					145	4+6+7 N =13 REC =18"		
					150	4+8+9 N =17 REC =18"		
					155	5+9+11 N =20 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
					160	4+6+8 N =14 REC =18"		
					165	6+9+11 N =20 REC =18"		
	with sand.				170	7+7+10 N =17 REC =18"		
	no sand.				175	4+5+9 N =14 REC =18"		
					180	5+8+9 N =17 REC =18"		
					185	5+9+12 N =21 REC =18"		
187.0	SILTY SAND, fine to medium grained, moist, oliveish green, with fine to coarse shell fragments, strong HCl reaction, 20-40% shell frag.	SM	-104.8		190	10+13+16 N =29 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-402** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	40-60% shell frag.				195	8+10+12 N =22 REC =18"		
	no sand, weak HCl reaction.				200	5+6+14 N =20 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-117.8					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 6/20/06 **Finished:** 6/22/06

Location: Northing: 216305.8 ft
Easting: 961562.9 ft

Ground Surface Elevation: 63.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/20	---	13.5'	---	---
Start of day	6/21	---	10.5'	---	---
Start of day	6/22	---	9.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		62.9					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown, trace root fragments, trace wood fragments.	SP-SM				1+2+3 N =5 REC =4"		
2.0		SP-SC	61.4			3+2+2 N =4 REC =11"		
	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, yellowish brown and gray.							
4.5	CLAYEY SAND, fine to coarse grained, moist, yellowish brown and gray.	SC	58.9		5	4+3+3 N =6 REC =10"		
7.0	SANDY LEAN CLAY, moist, orange and gray, trace root fragments, iron staining.	CL	56.4			3+2+3 N =5 REC =18"		
10.0	FAT CLAY, moist, orangeish brown and gray, trace sand, iron staining.	CH	53.4		10	2+3+3 N =6 REC =18"		
				▽	15	3+5+6 N =11 REC =18"		
17.0	SANDY LEAN CLAY, wet, gray.	CL	46.4					start mud rotary drilling
					20	3+4+5 N =9 REC =17"		
22.0	SILTY SAND, fine to medium grained, wet, yellowish brown and orangeish brown.	SM	41.4					
					25	34+50/5" N =50/5" REC =10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	gray				30	36+34+50/4" N =84/10" REC =12"		
32.0	CLAYEY SAND, fine to medium grained, wet, gray and black.	SC	31.4					Resumed drilling on6/21/06 @ 7:00am
34.0	SILTY SAND, fine to medium grained, wet, light gray, strong cementation, HCl reaction strong.	SM	29.4		35	2+50/5" N =50/5" REC =12"		
37.0	CLAYEY SAND, fine to medium grained, wet, light gray, contains fine to coarse shell fragments, 20-30%, moderate cementation, HCl reaction strong.	SC	26.4		40	4+8+13 N =21 REC =18"		
					45	4+4+7 N =11 REC =18"		
					50	7+7+11 N =18 REC =18"		
52.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	11.4		55	4+6+7 N =13 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	2+3+4 N =7 REC =18"		
					65	REC =20"		Rig chatter
67.0	CLAYEY SAND, fine to medium grained, wet, greenish gray and white, with fine to coarse shell fragments, 40-50%, HCl reaction strong.	SC	-3.6		70	21+18+12 N =30 REC =18"		
	trace fine to coarse shell fragments, 5-10%, HCl reaction moderate				75	6+7+12 N =19 REC =18"		
77.0	SANDY LEAN CLAY, wet, greenish gray, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.	CL	-13.6		80	11+7+9 N =16 REC =18"		
82.0	SANDY SILT, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction moderate .	ML	-18.6		85	5+8+13 N =21 REC =18"		
					90	6+6+10 N =16 REC =17"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
					95	6+9+13 N =22 REC =18"		
					100	REC =12"	PP=3.00 tsf	
					105	4+6+9 N =15 REC =18"		
					110	5+6+11 N =17 REC =18"		
					115	5+7+9 N =16 REC =18"		
					120	4+6+8 N =14 REC =18"		
						REC =12"	PP=>4.5 tsf	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125			
127.0	ELASTIC SILT, moist, greenish gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	-63.6		130	4+8+10 N =18 REC =18"		
					135	6+8+11 N =19 REC =18"		
137.0	SANDY SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction moderate.	ML	-73.6		140	6+7+10 N =17 REC =18"		
					145	7+8+13 N =21 REC =18"		
					150	7+9+12 N =21 REC =18"		resumed drilling on 6/22/06 @ 7:30am
					155	5+8+12 N =20 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
					160	6+8+11 N =19 REC =18"		
					165	5+8+12 N =20 REC =18"		
	oliveish gray, trace fine to medium shell fragments, 5-10%, HCl reaction moderate.				170	3+6+9 N =15 REC =18"		
172.0	CLAYEY SAND, fine to medium grained, wet, oliveish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SC	-108.6		175	6+10+23 N =33 REC =17"		
177.0	SANDY SILT, moist, oliveish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-113.6		180	6+10+20 N =30 REC =18"		softer drilling
					185	6+8+15 N =23 REC =18"		
					190	5+8+13 N =21 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-403** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
					195	6+6+12 N =18 REC =18"		
					200	7+9+14 N =23 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-136.6					

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: B. Bradfield

Dates Started: 6/22/06 **Finished:** 6/27/06

Location: Northing: 216441.34 ft
Easting: 961596.49 ft

Ground Surface Elevation: 67.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/22	---	30.0'	---	---
Start of day	6/23	---	27.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to coarse grained, moist, orangeish brown, trace fine rounded gravel, contains root fragments.	SM				1+2+2 N =4 REC =13"		1.5'- Mud rotary with 3 7/8" drag bit
2.0	SANDY SILT, fine to coarse, moist, orangeish brown and gray, contains decomposed root fragments.	ML	65.9			5+5+5 N =10 REC =8"		
4.5	LEAN CLAY with sand, moist, orangeish brown and gray, colors layered <1/2" thick.	CL	63.4		5	4+4+5 N =9 REC =12"		
7.0	FAT CLAY with sand, moist, gray and orangeish brown, colors layered 1/4" to 3/4" thick.	CH	60.9			2+2+2 N =4 REC =18"		
10.0	LEAN CLAY with sand, moist, gray, contains mica.	CL	57.9		10	3+3+5 N =8 REC =18"		
	With darker gray pockets up to 1" thick.				15	4+5+6 N =11 REC =18"		
					20	3+6+7 N =13 REC =18"		
22.0	CLAYEY SAND, fine to medium grained, moist, dark gray, contains mica.	SC	45.9		25	3+4+7 N =11 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
27.5	POORLY GRADED SAND, fine to medium grained, wet, orange and yellowish brown, trace silt.	SP	40.4					29-30'- Harder drilling
				▽	30	40+50/3" N =50/3" REC =8"		
	None silt, with gray clay lenses <1/4" thick.				35	21+50/5" N =50/5" REC =10"		
					40	WOH/18" N = WOH/18" REC =2"		
39.9	CLAYEY SAND, fine to medium grained, moist, gray.	SC	28.0					
43.0	SILTY SAND, fine to coarse grained, wet, light gray and brownish white, 20-30% cemented sand, 30-40% fine to coarse shell fragments.	SM	24.9		45	48+32+29 N =61 REC =18"		
47.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish white, 20-30% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.	SP-SM	20.4		50	4+4+5 N =9 REC =18"		
	20-30% fine to medium shell fragments, strong HCl reaction.					REC =18"	w=27.7% LL=NP PL=NP *	52'- Shelby tube pushed
	10-20% fine to medium shell fragments, HCl reaction localized to shell fragments.				55	5+10+10 N =20 REC =18"		
57.5	SILTY SAND, fine to medium grained, *continued on next page*	SM	10.4					

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	wet, dark gray, 0-10% fine to medium shell fragments, weak HCl reaction.	SM			60	4+5+7 N =12 REC =18"		
62.5	CLAYEY SAND, fine to medium grained, wet, dark gray, 0-10% fine to medium shell fragments, weak HCl reaction, HCl reaction localized to shell fragments.	SC	5.4		65	2+3+4 N =7 REC =18"		
	Gray and brownish white, 20-30% fine to medium shell fragments, strong HCl reaction.					REC =18"		66'- Shelby tube pushed
	Wet, dark gray and brownish white, 30-40% fine to medium shell fragments, strong HCl reaction.				70	10+14+13 N =27 REC =18"		68.5'- Start of day 6/23/06
	20-30% fine to medium shell fragments, 10-20% cemented sand, strong HCl reaction, cemented sand fragments <3/4" in diameter.				75	4+19+21 N =40 REC =13"		
77.5	SILTY SAND, fine to medium grained, wet, dark gray, 0-10% fine to medium shell fragments, weak HCl reaction.	SM	-9.6		80	6+7+10 N =17 REC =15"		
	greenish gray and brownish white, 20-30% fine to medium shell fragments, strong HCl reaction.				85	REC =17"	w=32.2% LL=53 PL=28 *	83.5'- Shelby tube pushed
87.5	SILTY SAND, fine to medium grained, wet, greenish gray and dark gray, 0-10% fine to medium shell fragments, weak HCl reaction.	SM	-19.6		90	5+8+11 N =19		
	continued on next page							

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				REC =18"		
92.5	SANDY ELASTIC SILT, fine to medium, moist, greenish gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction.	MH	-24.6		95	6+9+10 N =19 REC =18"		
97.5	SILTY SAND, fine to medium grained, wet, greenish gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction.	SM	-29.6		100	4+9+12 N =21 REC =18"		
103.0	CLAYEY SAND, fine to medium grained, moist, greenish gray and brownish white, 30-40% fine to medium shell fragments, contains mica, strong HCl reaction, shell fragments decomposed and fractured.	SC	-35.1		105	7+12+15 N =27 REC =18"		
107.5	FINE TO MEDIUM SANDY ELASTIC SILT, moist, greenish gray, 10-20% fine to medium shell fragments, contains mica, moderate HCl reaction, shell fragments decomposed.	MH	-39.6		110	4+6+10 N =16 REC =18"		
	0-10% fine to medium shell fragments, weak HCl reaction, shell fragments decomposed.				115	5+7+10 N =17 REC =18"		
117.5	SANDY SILT, fine to medium, moist, greenish gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction, HCl reaction localized to shell fragments.	ML	-49.6		120	5+8+10 N =18 REC =18"		
						5+5+7		

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	N =12 REC =10"		
127.5	ELASTIC SILT with sand, moist, greenish gray, contains mica.	MH	-59.6		130	5+6+8 N =14 REC =18"		128.5'- Start of day 6/26/06
					135	6+9+10 N =19 REC =18"		
137.5	FAT CLAY with sand, moist, greenish gray, contains mica.	CH	-69.6		140	5+6+8 N =14 REC =18"		
					145	5+6+11 N =17 REC =18"		
147.5	SANDY ELASTIC SILT, fine to coarse, moist, greenish gray, contains mica.	MH	-79.6		150	6+8+12 N =20 REC =18"		
					155			

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			160	6+8+12 N =20 REC =18"		
					165	7+9+9 N =18 REC =18"		
167.5	LEAN CLAY, moist, greenish gray, trace sand, contains mica.	CL	-99.6		170	6+8+11 N =19 REC =18"		
172.0	CLAYEY SAND, fine to medium grained, wet, greenish gray and white, 10-20% fine to medium shell fragments, moderate HCl reaction, shell fragments decomposed.	SC	-104.1		175	3+5+12 N =17 REC =18"		
	0-10% fine to medium shell fragments, weak HCl reaction, shell fragments decomposed.				180	6+14+20 N =34 REC =18"		
	no shell fragments.				185	5+7+18 N =25 REC =18"		183.5'- Start of day 6/27/06
187.0	SANDY LEAN CLAY with silt, fine to medium, moist, greenish gray, trace sand.	CL	-119.1		190	4+6+15 N =21 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-404** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
193.0	SANDY ELASTIC SILT, fine to medium, wet, greenish gray.	MH	-125.1		195	4+8+13 N =21 REC =3"		
197.5	SANDY LEAN CLAY, fine to medium, moist, greenish gray.	CL	-129.6			3+5+9 N =14 REC =18"		
200.0	BOTTOM OF BORING @ 200.0 FT.		-132.1		200			

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/27/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-405** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/15/06 **Finished:** 5/16/06

Location: Northing: 216487.38 ft
Easting: 961408.73 ft

Ground Surface Elevation: 122.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/15	---	43.5'	19.0'	---
Start of day	5/16	---	25.0'	18.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		121.7					4-1/4" I.D. Hollow stem augers to 18 ft.
	SILTY SAND, fine to coarse grained, moist, orangeish brown, contains root fragments.	SM				WOH+2+2 N =4 REC =18"		
	brownish orange, trace gravel.					2+1+2 N =3 REC =18"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brownish orange, trace gravel.	SP-SM	117.5		5	2+1+1 N =2 REC =18"		
7.0	POORLY GRADED SAND, fine to coarse grained, moist, orange, trace silt, with gravel.	SP	115.0			2+1+1 N =2 REC =18"		
					10	1+1+1 N =2 REC =14"		
12.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, light orange, trace gravel.	SP-SC	110.0			2+4+6 N =10 REC =18"		
					15			Mud rotary below 18 ft.
	orange (small 1/8" layers of clay sand).					4+5+6 N =11 REC =16"		
					20			
	with gravel.					8+8+9 N =17 REC =16"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-405** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SC						
27.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange, trace gravel.	SP-SM	95.0		30	4+7+10 N =17 REC =8"		
					35	6+9+13 N =22 REC =12"		
	with gravel.				40	5+10+10 N =20 REC =14"		
42.0	POORLY GRADED SAND, trace silt, with gravel, fine to coarse grained, wet, yellowish white.	SP	80.0	▽	45	7+15+15 N =30 REC =12"		
47.0	SILTY SAND, fine to medium grained, moist, yellowish orange.	SM	75.0		50	4+2+1 N =3 REC =18"		
52.0	SANDY SILT, fine to medium, moist, orange.	ML	70.0					
53.8	SANDY LEAN CLAY, fine to medium, moist, dark gray.	CL	68.2		55	2+2+1 N =3 REC =18"		
54.5	POORLY GRADED GRAVEL WITH CLAY, fine to medium grained, wet, orange.	GP-GC	67.5					
57.0	LEAN CLAY, moist, dark gray, with sand.	CL	65.0					

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-405** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL			60	REC =22"		
62.0	FAT CLAY, moist, dark gray, trace sand.	CH	60.0		65	2+4+4 N =8 REC =18"		
67.0	LEAN CLAY, moist, dark gray.	CL	55.0		70	REC =24"		
72.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	50.0		75	4+5+7 N =12 REC =18"		
77.0	SILTY SAND, fine to coarse grained, moist, red and gray.	SM	45.0		80	9+15+15 N =30 REC =18"		
82.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown.	SP-SM	40.0		85	50/4" N =50/4" REC =2"		Harder drilling
	gray.				90	50 REC =4"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-405** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
94.0	SILTY SAND, fine to coarse grained, moist, white and gray, with fine to coarse shell fragments (15-25%), contains cemented sand, strong HCl reaction.	SM	28.0		95	15+26+50/2" N =76/8" REC =14"		Start of drilling for the day (5/16/06).
	fine to medium grained, grayish green, with fine to medium shell fragments (10-20%), moderate HCl reaction.				100	5+5+7 N =12 REC =18"		
102.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments (10-20%), moderate HCl reaction.	SP-SM	20.0		105	7+5+4 N =9 REC =18"		
	grayish green, with fine to coarse shell fragments (15-25%), strong HCl reaction. 4 inch shell bed below 109 ft.				110	9+12+16 N =28 REC =18"		
	trace fine to medium shell fragments (0-10%), strong HCl reaction.				115	6+6+7 N =13 REC =18"		
	dark green.				120	3+3+7 N =10 REC =18"		
122.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments (15-30%), strong HCl reaction.	SM	0.0			4+9+22		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-405** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			125	N =31 REC =18"		
127.0	CLAYEY SAND, fine to medium grained, moist, greenish white, with fine to coarse shell fragments (20-35%), strong HCl reaction.	SC	-5.0		130	7+9+11 N =20 REC =18"		
132.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, with fine to coarse shell fragments (10-15%), moderate HCl reaction.	SP-SM	-10.0		135	8+12+12 N =24 REC =18"		
137.0	CLAYEY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments (10-20%), strong HCl reaction.	SC	-15.0		140	6+7+12 N =19 REC =18"		
142.0	SILTY SAND, fine to medium grained, moist, green.	SM	-20.0		145	6+8+10 N =18 REC =18"		
147.0	CLAYEY SAND, fine to medium grained, moist, grayish green.	SC	-25.0		150	6+7+12 N =19 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-28.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-406** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500

Schnabel Representative: B. Bradfield / R. Vinzant

Dates Started: 5/17/06 **Finished:** 5/17/06

Location: Northing: 216315.62 ft
Easting: 961352.01 ft

Ground Surface Elevation: 118.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/17	---	18.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		118.1					Drilling with N3 rods
	Silty sand FILL, fine and coarse grained, moist, orangeish brown, trace gravel.	FILL				2+3+3 N =6 REC =15"		
	fine to medium grained.					2+5+2 N =7 REC =15"		4.0-5.0'-rig chatter
	fine and coarse grained.				5	1+2+2 N =4 REC =17"		
6.0	CLAYEY SAND, fine to coarse grained, moist, orangeish brown and gray, <1/8" clay lenses throughout sample.	SC	112.4			4+5+5 N =10 REC =18"		
9.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown and yellowish brown.	SP-SM	109.4		10	3+3+3 N =6 REC =18"		
	1 1/2" piece of limonitic cemented sand.				15	5+3+4 N =7 REC =1"		
17.0	SILTY SAND, fine to coarse grained, wet, orangeish brown.	SM	101.4	▽	20	3+3+4 N =7 REC =12"		
	orangeish brown and yellowish brown.				25	8+11+7 N =18 REC =17"		
24.8	*continued on next page*		93.6					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-406** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine and coarse grained, wet, white and yellowish brown.	SP-SM				REC =0"		
	slight layering (<1 1/2") throughout sample.				30	10+12+12 N =24 REC =14"		30'-change from 6" to 4" drag bit
32.0	POORLY GRADED SAND, fine and coarse grained, moist, orangeish brown and yellowish brown, trace fine gravel, trace silt.	SP	86.4		35	14+14+15 N =29 REC =14"		34.5'- 1" lense of fine rounded gravel
	medium to coarse grained, gravel is limonitic cemented sand.				40	9+9+15 N =24 REC =9"		39.8' - 1" limonitic cemented sand lense
42.0	CLAYEY SAND, fine to medium grained, moist, mottled orangeish brown and brown, some grayish brown clay pockets <1/8" thick.	SC	76.4		45	3+7+7 N =14 REC =8"		45'-Penetrol wetting agent added
48.0	SANDY ELASTIC SILT, fine to medium, moist, orangeish brown and gray.	MH	70.4		50	2+1+1 N =2 REC =18"		~48'-driller noted probable change from sand to silt/clay
52.0	SILTY SAND, fine to medium grained, wet, gray, contains mica.	SM	66.4		55	17+23+22 N =45 REC =17"		53.5'-return mud changed color from brown to grayish brown
57.0	LEAN CLAY with sand, moist, gray and dark gray, contains mica, fine to *continued on next page*	CL	61.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-406** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	medium grained.	CL			60	2+3+4 N =7 REC =15"		
62.0	ORGANIC SILT, with sand, moist, gray, contains mica, fine to medium grained,	OH	56.4		65	REC =24"	w=36.1% LL=63 PL=19 *	63.5'- Pushed tube using Osterberg
67.0	LEAN CLAY with sand, moist, light gray, fine to medium grained. 1" clay lense	CL	51.4		70	4+6+7 N =13 REC =18"		69.2' - 1" clayey sand lense
72.0	CLAYEY SAND, fine to medium grained, moist, gray.	SC	46.4		75	REC =12"		73.5'- Pushed tube using Osterberg
77.0	POORLY GRADED SAND, fine to coarse grained, moist, dark orangeish brown and gray, trace silt, with fine to coarse gravel consisting of limonitic cemented sand.	SP	41.4		80	31+30+31 N =61 REC =14"		78.5'- Distinct shell patterns imprinted on surfaces of cemented sand gravel
	fine to medium grained, yellowish brown. gray.				85	20+15+13 N =28 REC =12"		86'-Lost 200 gallons of drilling mud to formation
87.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and white, 40-50% fine to medium shell fragments, strong HCl reaction.	SP-SM	31.4		90	33+29+19 N =48 REC =16"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-406** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
92.0	FINE TO MEDIUM SANDY LEAN CLAY, moist, gray and brownish white, <10% fine to medium shell fragments, weak HCl reaction.	CL	26.4		95	27+50/5" N =50/5" REC =10"		94.4'- change to 3 7/8" tri-cone roller bit and encountered slight rig chatter
97.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, light gray and brownish white, 10-20% fine to coarse shell fragments, moderate HCl reaction.	SP-SM	21.4		100	35+25+12 N =37 REC =18"		
102.0	POORLY GRADED SAND, fine to medium grained, wet, gray and brownish white, trace silt, 10-20% fine to coarse shell fragments, moderate HCl reaction.	SP	16.4		105	6+13+15 N =28 REC =18"		
107.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish white, <% fine to medium shell fragments, weak HCl reaction.	SP-SM	11.4		110	8+10+11 N =21 REC =14"		
112.0	SILTY SAND, fine to medium grained, wet, greenish gray, weak HCl reaction, <5% fine to medium shell fragments.	SM	6.4		115	6+8+8 N =16 REC =17"		
117.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, weak HCl reaction, <5% fine to medium shell fragments.	SC	1.4		120	3+4+6 N =10 REC =15"		
122.0	SILTY SAND, fine to medium grained, wet, light gray, strong HCl reaction, 45-55% fine to coarse shell.	SM	-3.6			7+50/3"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-406** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				N =50/3" REC =10"		
					125			
	greenish gray.					16+28+20 N =48 REC =18"		
					130			
	trace mica, weak HCl reaction.					3+8+17 N =25 REC =15"		133.5'-No return water
					135			
	<5% medium to coarse shell fragments, weak HCl reaction, HCl reaction limited to shell fragments.					4+9+14 N =23 REC =18"		140'-Drilled blind to 140', 1 bag quck gel 141.5'-added 1 bag quick gel and 500 gallons of water, still no return
					140			
142.0	SANDY LEAN CLAY, fine to medium, moist, greenish gray, trace mica, <5% medium to coarse shell fragments, weak HCl reaction.	CL	-23.6			9+12+24 N =36 REC =18"		
					145			
						6+11+14 N =25		148.5'-3rd bag quick get added, no return
150.0	BOTTOM OF BORING @ 150.0 FT.		-31.6		150			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 6/14/06 **Finished:** 6/16/06

Location: Northing: 216238.96 ft
Easting: 961412.45 ft

Ground Surface Elevation: 81.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/14	---	10.5'	0.0'	---
Start of day	6/15	---	30.0'	0.0'	---
Start of Day	6/16	---	20.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SANDY SILT, fine to coarse grained, moist, brown, contains root fragments.	ML				2+2+2 N =4 REC =18"		
	goldenish brown, with gravel.					2+2+5 N =7 REC =14"	w=4.8% LL=NP PL=NP *	
4.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light brown, with gravel.	SP-SM	77.6		5	4+4+4 N =8 REC =16"		
	orange.					3+6+5 N =11 REC =12"		
	with gravelly sand, wet.			▽	10	4+5+7 N =12 REC =12"	w=12.3% *	
	with gravel.				15	2+3+6 N =9 REC =15"		
17.0	SILTY SAND, fine to medium, moist, orange.	SM	64.6					
					20	6+11+12 N =23 REC =18"	w=24.9% *	
23.0	ELASTIC SILT, moist, dark gray, trace sand.	MH	58.6		25	2+2+3 N =5 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
					30	3+4+4 N =8 REC =18"	w=35.1% *	
					35	4+6+6 N =12 REC =18"	w=39.4% LL=77 PL=43 *	
37.0	SANDY LEAN CLAY, fine to medium, moist, dark gray.	CL	44.6					
					40	3+5+7 N =12 REC =18"		
42.0	SILTY SAND, fine to coarse grained, moist, reddish orange, contains cemented sand, small 1/4" more silty or sand lenses, 1/8" cemented sand layers.	SM	39.6		45	6+13+21 N =34 REC =18"	w=23.3% *	
47.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, dark gray.	SP-SC	34.6		50	4+10+14 N =24 REC =16"		
52.0	SILTY SAND, fine to coarse grained, moist, green, with fine to coarse shell fragments, strong HCl reaction.	SM	29.6		55	REC =11"		55' start of day 6/15/06 55' grinding, switch to rollerbit

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray, contains cemented sand, moderate HCl reaction, 60-70% cemented sand.	SM			60	50/5" N =50/5" REC =5"		
63.0	SILTY SAND, fine to coarse grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 25-35% shell frag.	SM	18.6		65	5+6+8 N =14 REC =16"	w=28.1% *	
					70	6+8+15 N =23 REC =18"	w=30% *	
					75	4+6+13 N =19 REC =18"	w=27.3% *	
								77' softer drilling, try tube
	greenish gray, 0-5% shell frag.				80	REC =4"		
	green, with clay, with fine to coarse shell fragments, strong HCl reaction, 40-60% shell frag.				85	3+6+9 N =15 REC =18"	w=38.3% *	
	70-90% shell frag, 10-20% cemented sand.				90	21+29+30 N =59 REC =10"	w=12.4% *	90' Rig chatter

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Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND, fine to medium grained, moist, green, with silt, with fine to coarse shell fragments, strong HCl reaction, 15-25% shell frag.	SP-SM	-10.4		95	6+11+24 N =35 REC =16"		
	moderate HCl reaction, 5-15% shell frag.				100	5+12+14 N =26 REC =18"	w=30.8% *	
102.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	-20.4		105	4+5+8 N =13 REC =18"		
107.0	SANDY SILT, fine to medium, moist, green, weak HCl reaction.	ML	-25.4		110	6+9+10 N =19 REC =18"	w=47.8% *	
112.0	SILTY SAND, fine to medium grained, moist, green, trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.	SM	-30.4		115	8+9+11 N =20 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.				120	5+11+16 N =27 REC =18"	w=34.2% *	
123.0	SANDY ELASTIC SILT, fine to medium, moist, green, with fine to medium shell *continued on next page*	MH	-41.4			4+7+7	w=42.2%	

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments, strong HCl reaction, 10-20% shell frag.	MH			125	N =14 REC =18"	*	125-128' harder drilling then softer
127.0	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, moderate HCl reaction.	ML	-45.4					
						REC =6"	PP=4.00 tsf	128.5' Pushed tube 6" recovered 6"
					130			
	trace fine to medium shell fragments, 0-5% shell frag.				135	4+8+10 N =18 REC =18"		
136.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	-54.4					
					140	3+4+8 N =12 REC =18"	w=49.2% *	
142.0	SANDY ELASTIC SILT, fine to medium, moist, oliveish green.	MH	-60.4					
					145	4+7+8 N =15 REC =18"	w=56.4% LL=92 PL=63 *	
147.0	FAT CLAY, moderate HCl reaction.	CH	-65.4					
					150	5+5+8 N =13 REC =18"	w=43.1% LL=81 PL=45 *	
153.5	SANDY ELASTIC SILT, contains sand.	MH	-71.9					
						REC =5"	PP=0.17 tsf	
					155			

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	with clay.				160	3+5+8 N =13 REC =18"	w=78.4% *	
					165	5+7+11 N =18 REC =18"	w=62.7% LL=120 PL=50 *	
					170	5+7+8 N =15 REC =18"	w=55.2% LL=104 PL=69 *	
170.0	FAT CLAY, oliveish brown.	CH	-88.4					
					175	4+7+12 N =19 REC =18"	w=53.7% LL=102 PL=37 *	
					180	6+8+12 N =20 REC =18"	w=50.9% LL=102 PL=40 *	
180.0	ELASTIC SILT, moist, oliveish green.	MH	-98.4					
					185	3+5+11 N =16 REC =18"	w=82.2% LL=154 PL=97 *	
187.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-25% shell frag.	SM	-105.4					
					190	4+7+25 N =32 REC =18"	w=32.6% *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-407** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	trace fine to coarse shell fragments, weak HCl reaction, 0-5% shell frag.				195	7+9+13 N =22 REC =18"	w=31.6% *	
					200	5+7+12 N =19 REC =18"	w=32.7% *	
200.0	BOTTOM OF BORING @ 200.0 FT.		-118.4					

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-408** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: R. Vinzant

Dates Started: 7/24/06 **Finished:** 7/25/06

Location: Northing: 216261.74 ft
Easting: 961482.04 ft

Ground Surface Elevation: 68.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/24	---	6.0'	---	---
Start of day	7/25	---	20.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		67.9					
	SILTY SAND, fine to medium grained, moist, light brown, contains root fragments, and organic matter.	SM				2+2+1 N =3 REC =18"		
	Yellowish brown.					3+6+5 N =11 REC =18"		
4.5	CLAYEY SAND, fine to medium grained, wet, mottled grayish orange, contains root fragments, trace mica.	SC	63.9	▽	5	2+4+3 N =7 REC =15"		
	Mottled orangeish gray.					2+3+3 N =6 REC =18"		
10.0	SANDY SILT, fine to medium, moist, gray, contains mica.	ML	58.4		10	2+2+4 N =6 REC =18"		
13.0	SANDY SILT, fine to medium, moist, dark greenish gray, contains mica.	ML	55.4			2+3+4 N =7 REC =18"		
					15			
						3+4+5 N =9 REC =18"		
					20			
22.0	SANDY SILT, fine to medium, moist, dark greenish gray, contains mica.	ML	46.4					
						4+6+6 N =12 REC =18"		
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-408** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
27.0	SILTY SAND, fine to medium grained, moist, reddish brown.	SM	41.4		30	11+11+30 N =41 REC =18"		
	Gray.				35	24+28+49 N =77 REC =18"		
	Wet.				40	10+6+3 N =9 REC =11"		
42.0	SANDY SILT, fine to medium, moist, greenish gray, strong HCl reaction, strong cementation, 5% med. - coarse shell fragments.	ML	26.4		45	34+50/2" N =50/2" REC =8"		
	Moderate HCl reaction, no cemented sand, 15% med. - coarse shell fragments.				50	7+6+8 N =14 REC =18"		Rig chatter
	Dark greenish gray, moderate HCl reaction, 15% med. - coarse shell fragments.				55	9+13+16 N =29 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-408** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Weak HCl reaction, 5% med. - coarse shell fragments.	ML			60	5+8+12 N =20 REC =18"		
	5% med. - coarse shell fragments.				65	4+3+5 N =8 REC =18"		
	5% med. - coarse shell fragments.				70	2+6+6 N =12 REC =18"		
	Light greenish gray, strong HCl reaction, strong cementation, 40% med. - coarse shell fragments.				75	26+48+50/5" N =98/11" REC =17"		
	Dark greenish gray, weak HCl reaction, 3% med. - coarse shell fragments.				80	6+11+12 N =23 REC =18"		
	Greenish gray, no shell fragments.				85	6+9+17 N =26 REC =18"		
					90	5+8+12 N =20 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-408** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
	Weak HCl reaction, 3% med. - coarse shell fragments.				95	7+8+11 N =19 REC =18"		
	Weak HCl reaction, 3% med. - coarse shell fragments.				100	4+8+11 N =19 REC =18"		
	Weak HCl reaction, 3% med. - coarse shell fragments.				105	4+6+7 N =13 REC =18"		
	Weak HCl reaction, 3% med. - coarse shell fragments.				110	5+7+13 N =20 REC =18"		
	Dark greenish gray, weak HCl reaction, 5% med. - coarse shell fragments.				115	6+7+9 N =16 REC =18"		Start of drilling for the day
	Weak HCl reaction, 3% med. - coarse shell fragments.				120	5+8+8 N =16 REC =18"		
	Weak HCl reaction, 5% med. - coarse *continued on next page*					5+6+9		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-408** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments.	ML			125	N =15 REC =18"		
	Weak HCl reaction, 3% med. - coarse shell fragments.				130	4+6+9 N =15 REC =18"		
	No shell fragments.				135	5+7+7 N =14 REC =18"		
	Greenish gray.				140	4+6+8 N =14 REC =18"		Rig chatter
	Dark greenish gray, weak HCl reaction, 3% med. - coarse shell fragments.				145	6+9+12 N =21 REC =18"		
	Greenish gray, no shell fragments.				150	5+8+10 N =18 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-81.6					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-409** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 6/21/06 **Finished:** 6/27/06

Location: Northing: 216253.8 ft
Easting: 961614.8 ft

Ground Surface Elevation: 61.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/21	---	7.5'	7.5'	---
Start of day	6/22	---	3.0'	14.0'	---
Start of day	6/23	---	5.0'	14.0'	---
Start of day	6/26	---	19.5'	14.0'	---
Start of day	6/27	---	20.0'	14.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Crushed Stone		61.1					0-14'- 6-1/4" hollow stem auger
	Poorly graded sand FILL, trace gravel, fine to coarse grained, moist, brown.	FILL				3+3+4 N =7 REC =12"		
	trace silt. brownish gray.					3+2+2 N =4 REC =18"		
	contains wood fragments, FILL.				5	1+1+2 N =3 REC =18"		
	wet, blackish gray, with gravel, PROBABLE FILL.			▽		3+1+1 N =2 REC =18"		
8.5	LEAN CLAY, moist, gray, trace sand.	CL	53.1					9' very soft augering
	with silt.				10	1+2+2 N =4 REC =16"		
						3+5+5 N =10 REC =18"		14' start of day 6/22/06 14': 3-7/8 roller bit
14.5	FAT CLAY, moist, gray, trace sand.	CH	47.1		15	1+4+3 N =7 REC =18"		
17.0	CLAYEY SAND, fine to medium grained, moist, greenish gray.	SC	44.6			REC =24"		17.5' Tube pushed
	green.				20	3+4+4 N =8 REC =18"		
22.0	SANDY FAT CLAY, fine to medium, moist, gray.	CH	39.6					22.5' harder drilling
23.0	CLAYEY SAND, fine to medium grained, moist, reddish orange.	SC	38.6			4+2+4 N =6 REC =18"		
24.5	POORLY GRADED SAND WITH CLAY,	SP-SC	37.1		25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-409** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium grained, moist, orange, small 1/16" clay layers.	SP-SC				15+26+28 N =54 REC =18"		
27.0	POORLY GRADED SAND, fine to medium grained, moist, orange.	SP	34.6			38+50/5" N =50/5" REC =11"		
29.0	POORLY GRADED SAND with silt, fine to medium grained, moist, gray	SP-SM	32.6		30	18+50/5" N =50/5" REC =11"		
						30+40+40 N =80 REC =18"		
					35		w=23.3% LL=NP PL=NP *	pitcher sample pushed
37.0	CLAYEY SAND, fine to medium grained, moist, gray, contains cemented sand, with fine to coarse shell fragments, 10% shell frag, gray colored.	SC	24.6			3+26+6 N =32 REC =12"		
	wet, grayish green.				40	WOH+WOR +WOR N = WOR REC =18"		
	contains cemented sand.					3+38+28 N =66 REC =18"		43' cemented layer, grinding
44.5	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 20-30% shell frag.	SM	17.1		45	5+6+6 N =12 REC =18"		
						4+5+5 N =10 REC =18"		
					50	REC =24"		tube pushed
						4+5+5 N =10 REC =18"		
54.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, strong HCl reaction, 10-20% shell frag.	SP-SM	7.1		55	4+5+6 N =11 REC =18"		
	weak HCl reaction.					4+3+5		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-409** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM				N =8 REC =18"		
59.5	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SM	2.1		60	2+3+2 N =5 REC =18"		
	contains fine to coarse shell fragments, moderate HCl reaction.					REC =24"		tube pushed
	with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.				65	3+6+9 N =15 REC =18"		
67.0	CLAYEY SAND, fine to medium grained, moist, green and white, contains cemented sand, with fine to coarse shell fragments, strong HCl reaction, 70-80% shell frag.	SC	-5.5			8+14+16 N =30 REC =18"		
69.5	WELL GRADED SAND WITH CLAY, fine to medium grained, wet, green and white, with fine to coarse shell fragments, strong HCl reaction, 70-90% shell frag.	SW-SC	-8.0		70	11+6+12 N =18 REC =18"		
	moist, green, with silt, with fine to coarse shell fragments, strong HCl reaction, 60-80% shell frag.					7+29+45 N =74 REC =18"		
74.5	SILTY SAND, fine to medium grained, moist, green, trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.	SM	-13.0		75	5+7+13 N =20 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.					5+7+9 N =16 REC =18"		79' start of day 6/23/06
					80	5+7+10 N =17 REC =18"		
						7+8+11 N =19 REC =18"		
	trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.				85	4+5+7 N =12 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.					4+5+8 N =13 REC =18"		
89.5	SANDY SILT, fine to medium, moist, green, trace fine to medium shell fragments, moderate HCl reaction,	ML	-28.0		90	5+7+9 N =16		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-409** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	0-10% shell frag.	ML				REC =18"		
92.0	SILTY SAND, fine to medium grained, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.	SM	-30.5			5+6+6 N =12 REC =18"		
	contains fine to medium shell fragments, greenish gray				95	REC =19"	w=33.1% LL=61 PL=42 *	95' tube pushed
97.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SM	-35.5			4+6+5 N =11 REC =18"		
	30-50% shell frag.				100	2+5+6 N =11 REC =18"		
102.0	CLAYEY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 50-60% shell frag.	SC	-40.5			8+10+8 N =18 REC =18"		
104.5	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	ML	-43.0		105	4+5+8 N =13 REC =18"		105' start of day 6/26/06
	oliveish green, trace fine to coarse shell fragments, weak HCl reaction, 0-5% shell frag.					4+6+6 N =12 REC =18"		
	moderate HCl reaction, 0-10% shell frag.				110	5+6+7 N =13 REC =18"		
	with sand.					5+6+8 N =14 REC =18"		
114.5	ELASTIC SILT, moist, oliveish green, trace fine to medium shell fragments, weak HCl reaction, 0-10% shell frag.	MH	-53.0		115	6+6+9 N =15 REC =18"		
117.0	SANDY SILT, fine to medium, moist, oliveish green, trace fine to coarse shell fragments, moderate HCl reaction, 0-10% shell frag.	ML	-55.5			4+6+8 N =14 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 10-25% shell frag.				120	4+5+5 N =10 REC =18"		
122.0	ELASTIC SILT, moist, oliveish green, trace fine to medium shell fragments, with sand, weak HCl reaction, 0-5% shell frag.	MH	-60.5			4+5+7 N =12 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-409** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	no shells.				125	5+5+7 N =12 REC =18"		
	with clay.					4+5+6 N =11 REC =18"		
					130	5+5+7 N =12 REC =18"		130' start of day 6/27/06
						6+7+9 N =16 REC =18"		
					135	5+6+9 N =15 REC =18"		
						REC =18"	PP=4.00 tsf	137.5' tube pushed
					140	5+6+8 N =14 REC =18"		
						5+6+8 N =14 REC =18"		
					145	4+6+7 N =13 REC =18"		
147.5	LEAN CLAY, moist, oliveish green, with silt.	CL	-86.0					
						7+8+10 N =18 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-88.5		150			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 4/28/06 **Finished:** 5/2/06

Location: Northing: 216374.3 ft
Easting: 961323.7 ft

Ground Surface Elevation: 119.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/28	---	44.0'	5.0'	---
Start of day	5/1	---	35.1'	5.0'	---
Start of day	5/2	---	26.0'	5.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		118.8					
	SILTY SAND, fine to coarse grained, moist, orange.	SM				1+2+4 N =6 REC =18"		
2.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orange.	SP-SM	116.6			3+3+4 N =7 REC =18"		
					5	4+3+2 N =5 REC =14"		
	fine to coarse grained, yellow orange.					3+3+3 N =6 REC =12"		
					10			
10.8	fine to medium grained, orange.		108.3					
	POORLY GRADED SAND, fine to medium grained, moist, orange.	SP				2+3+3 N =6 REC =12"		
13.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orange white, small layers of color changes.	SP-SM	105.6			2+3+4 N =7 REC =15"		
					15			
	fine to coarse grained, orange, grades fine to coarse.					3+5+8 N =13 REC =18"		
					20			
						7+10+8 N =18 REC =17"		
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Boring abandoned due to stuck tube at 55 feet. Offset to 410A

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
28.5	SILTY SAND, fine to coarse grained, moist, orange.	SM	90.6		30	5+8+8 N =16 REC =12"		
33.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange.	SP-SM	85.6		35	6+9+11 N =20 REC =18"		
					40	4+13+14 N =27 REC =16"		
43.5	SILTY SAND, fine grained, wet, orange white.	SM	75.6	▽	45	3+1+1 N =2 REC =18"		
					50	WOH+3+3 N =6 REC =18"		
53.5	LEAN CLAY, moist, dark gray, with sand.	CL	65.6		55	5+3+3 N =6 REC =18"		Pushed tube and some metal; Bechtel abandon hole due to stuck tube problem
55.0	BOTTOM OF BORING @ 55.0 FT.		64.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Boring abandoned due to stuck tube at 55 feet. Offset to 410A

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410A** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 4/28/06 **Finished:** 5/2/06

Location: Northing: 216381.3 ft
Easting: 961323.7 ft

Ground Surface Elevation: 119.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/28	1:46	44.0'	5.0'	---
Start of day	5/1	9:07	35.1'	5.0'	---
Start of day	5/2	7:14	26.0'	5.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SEE BORING LOG B-410 FOR SAMPLE DESCRIPTIONS FROM 0 TO 58.0 FEET.							Boring was advanced without sampling to 58.5' (depth at which original boring was terminated)
5								
10								
15								
20								
25								

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410A** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SEE BORING LOG B-410 FOR SAMPLE DESCRIPTIONS FROM 0 TO 58.0 FEET.							
30								
35								
40								
				▽				
45								
50								
55								
	continued on next page							

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410A** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	FAT CLAY, moist, dark gray, with sand.	CH			60	1+2+3 N =5 REC =18"		
	trace sand.				65	REC =7"	PP=2.25 tsf	
	with sand.				70	2+4+5 N =9 REC =18"		
					75	REC =18"		Bottom of tube contains fine sand
75.0	CLAYEY SAND, fine grained, moist, greenish gray.	SC	44.1					
78.5	POORLY GRADED SAND, fine to medium grained, moist, brown.	SP	40.6		80	9+11+50/5" N =61/11" REC =16"		
	yellowish brown.				85	50/2" N =50/2" REC =1"		
88.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, greenish gray, with fine to medium shell fragments, moderate HCl reaction.	SP-SM	30.6		90	42+50/4" N =50/4" REC =10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-410A** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						Rig chatter
93.5	POORLY GRADED SAND, fine to coarse grained, moist, greenish gray, with fine to medium shell fragments, moderate HCl reaction.	SP	25.6		95	50/1" N =50/1" REC =1"		
98.5 98.6	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, greenish gray, with fine to coarse shell fragments, moderate HCl reaction. BOTTOM OF BORING @ 98.6 FT.	SP-SM	20.6 20.5			50/2" N =50/2" REC =1"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-411** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 7/26/06 **Finished:** 7/27/06

Location: Northing: 216556.31 ft
Easting: 961517.19 ft

Ground Surface Elevation: 81.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/26	---	7.0'	---	---
Start of Day	7/27	---	5.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		81.0					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, trace gravel.	SP-SM				woh+woh+2 N =2 REC =11"		
	yellowish brown and orangeish brown, trace root fragments.					2+2+2 N =4 REC =15"	w=6.8% *	
					5	3+3+3 N =6 REC =18"		
5.6	CLAYEY SAND, fine to medium grained, wet, orangeish brown and reddish brown, trace root fragments, trace gravel, iron staining.	SC	75.9	▽				
7.5	SANDY LEAN CLAY, wet, orangeish brown.	CL	74.0			1+2+1 N =3 REC =12"	w=27.4% *	
					10			
	orangeish brown and gray					1+1+1 N =2 REC =16"		start of mud rotary drilling
13.0	FAT CLAY, moist, gray, trace sand.	CH	68.5			2+2+3 N =5 REC =18"	w=31.0% *	
					15			
18.5	ORGANIC CLAY, moist, gray	OH	63.0			1+2+3 N =5 REC =18"		
					20			
						REC =16"	w=37.9% LL=61 PL=19	
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-411** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		OH					PP=3.50 tsf *	
27.0	ELASTIC SILT, moist, gray, trace sand.	MH	54.5		30	3+4+6 N =10 REC =18"		
32.0	SANDY SILT, moist, gray.	ML	49.5		35	4+5+6 N =11 REC =18"	w=24.4% *	
37.0	CLAYEY SAND, fine to medium grained, wet, reddish brown and orangeish brown, contains fine to medium shell fragments, 10-20%, weak cementation,HCl reaction moderate.	SC	44.5		40	10+12+14 N =26 REC =13"		
42.0	SILTY SAND, fine grained, moist, yellowish brown and orangeish gray.	SM	39.5		45	21+50 N =50 REC =12"	w=24.0% *	
					50	50/5" N =50/5" REC =4"		
52.0	SANDY LEAN CLAY, moist, gray.	CL	29.5		55	11+6+23 N =29 REC =18"	w=25.2% LL=44 PL=17 *	
								Harder drilling
57.0	SILTY SAND, fine to medium grained, wet, light gray, with fine to coarse shell *continued on next page*	SM	24.5					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-411** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments, 50-60%, HCl reaction strong.	SM			60	28+6+13 N =19 REC =18"		
62.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and white, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	SP-SM	19.5		65	6+4+5 N =9 REC =18"	w=34.4% *	
	contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.				70	6+5+7 N =12 REC =18"		
	trace fine to medium shell fragments, 2-5%, HCl reaction weak				75	5+4+6 N =10 REC =18"	w=32.0% *	
					80	3+3+3 N =6 REC =18"		
	gray and white, contains fine to coarse shell fragments, 40-50%, weak cementation, HCl reaction strong				85	6+7+7 N =14 REC =18"	w=36.4% *	
87.0	SILTY SAND, fine to medium grained, wet, gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction strong.	SM	-5.6		90	7+9+11 N =20 REC =18"		resumed drilling at 7/27/06 @ 7:45am

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-411** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	SANDY SILT, wet, greenish gray, trace fine to coarse shell fragments, 5-10%, HCl reaction weak.	ML	-10.6		95	11+10+15 N =25 REC =18"	w=31.6% *	
					100	5+5+6 N =11 REC =18"		
					105	5+6+10 N =16 REC =18"	w=38.2% LL=43 PL=30 *	
					110	7+7+9 N =16 REC =18"		
	wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.				115	5+8+11 N =19 REC =18"	w=40.4% *	
	contains fine to coarse shell fragments, 20-30%, HCl reaction strong				120	6+8+16 N =24 REC =18"		
122.0	ELASTIC SILT, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak	MH	-40.6			3+6+10	w=42.7%	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-411** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			125	N =16 REC =18"	LL=63 PL=43 *	
					130	5+7+9 N =16 REC =18"		
					135	5+7+7 N =14 REC =18"		
					140	4+6+6 N =12 REC =18"		
					145	5+6+8 N =14 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-68.6		150	6+7+8 N =15 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-412** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: Mud Rotary

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 8/7/06 **Finished:** 8/8/06

Location: Northing: 216589.24 ft
Easting: 961495.42 ft

Ground Surface Elevation: 92.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/7	---	13.5'	---	---
24 hours	8/8	---	6.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Silt with sand, PROBABLE FILL, moist, brown, contains root fragments.	FILL				3+6+6 N =12 REC =18"		Drilled 4 1/4" HSA to 13.5'
2.0	Silty sand PROBABLE FILL, fine to coarse grained, moist, reddish brown, contains root fragments, trace gravel.	FILL	90.2			4+3+3 N =6 REC =18"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light brown and brown.	SP-SM	87.7		5	4+4+8 N =12 REC =18"		
	fine to medium grained, light yellowish brown and brownish white, some slight iron stained bands <1/4" thick.			▼		5+11+10 N =21 REC =18"		
10.0	SILTY SAND, fine to coarse grained, moist, light yellowish brown and dark reddish brown, trace cemented sand, moderate cementation, some iron stained bands ~1.5" thick.	SM	82.2		10	8+10+10 N =20 REC =18"		
13.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, light grayish brown and dark reddish brown, with cemented sand, trace gravel, strong cementation, limonitic cemented bands up to 2" thick.	SP-SM	79.2	▽	15	4+6+8 N =14 REC =18"		15'- Begin mud rotary with 2 15/16" tri-cone roller bit
17.0	SILTY SAND, fine grained, wet, light yellowish brown and mottled gray, limonitic cemented bands up to 2" thick.	SM	75.2		20	1+1+1 N =2 REC =18"		
22.0	SANDY LEAN CLAY, fine, moist, dark gray, contains mica.	CL	70.2		25	1+2+3 N =5 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-412** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
	with sand, gray.							
					30	2+2+3 N =5 REC =18"		
32.0	FAT CLAY with sand, moist, gray, contains mica.	CH	60.2					
					35	2+4+3 N =7 REC =18"		33.5'- Start of day 8/8/06
37.0	LEAN CLAY with sand, moist, gray, contains mica.	CL	55.2					
					40	3+3+6 N =9 REC =18"		
42.0	SANDY FAT CLAY, fine to medium, moist, gray, contains mica.	CH	50.2					
					45	5+7+9 N =16 REC =18"		
	trace cemented sand, weak cementation.							
					50	5+5+16 N =21 REC =18"		
49.5	SILTY SAND, fine to coarse grained, wet, dark reddish brown and grayish white, with limonitic cemented sand, moderate cementation, imprints of shell fragments, highly oxidized zone.	SM	42.7					51'- Driller noted harder drilling
52.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, light grayish white.	SP-SM	40.2					
					55	19+22+50 N =72 REC =12"		54.5'- Some light iron staining in sample
	light gray and mottled orangeish brown.							

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-412** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM			60	50/5" N =50/5" REC =5"		
	light brown.				65	50/5" N =50/5" REC =2"		
67.0	CLAYEY SAND, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, trace cemented sand, moderate HCl reaction, moderate cementation.	SC	25.2		70	24+11+11 N =22 REC =18"		
	gray and grayish white, 10-20% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to decomposed shell fragments.				75	6+6+10 N =16 REC =18"		
	10-20% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to decomposed shell fragments.				80	9+9+10 N =19 REC =14"		
	dark gray, 10-20% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to decomposed shell fragments.				85	7+9+15 N =24 REC =18"		
	weak HCl reaction, <5% fine shell fragments, HCl reaction localized to decomposed shell fragments.				90	5+4+6 N =10 REC =18"		

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-412** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	dark gray and brownish white, 30-40% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to decomposed shell fragments.				95	4+9+18 N =27 REC =18"		
	light gray and brownish white, 40-50% fine to coarse shell fragments, with cemented sand, strong HCl reaction, moderate cementation.							
98.9	BOTTOM OF BORING @ 98.9 FT.		-6.7			50/5" N =50/5" REC =4"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-413** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/12/06 **Finished:** 5/15/06

Location: Northing: 216994.88 ft
Easting: 961413.25 ft

Ground Surface Elevation: 122.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Start of day	5/15	---	20.0'	---	---
Water Reading	5/16	---	84.6'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, root mat and topsoil.		122.5					
	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, light orangeish brown.	SP-SM				4+6+8 N =14 REC =18"		
						5+4+6 N =10 REC =18"		
	light orangeish gray.				5	4+6+7 N =13 REC =14"		
	light orangeish brown.					4+5+7 N =12 REC =16"	w=9.7% *	
	light reddish brown.				10	3+4+5 N =9 REC =14"		
	light orangeish brown.					3+2+3 N =5 REC =12"		
					15			
						4+6+6 N =12 REC =15"	w=12.9% *	
					20			
	3" layer of darker strata.					9+10+14 N =24 REC =16"		
					25			

continued on next page

Comments:
1. Ground Water Observation Well OW-413B installed upon completion
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-413A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-413** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
					30	9+12+16 N =28 REC =15"		
	orangeish brown.				35	10+12+14 N =26 REC =17"	w=8.6% *	
	wet, light orangeish gray.				40	16+18+18 N =36 REC =16"		
	moist, light orangeish brown.				45	7+14+16 N =30 REC =16"		
45.0	SILTY SAND, fine to medium grained, moist, light orange, mottles of white clay.	SM	77.9		50	3+2+2 N =4 REC =18"	w=26.9% LL=NP PL=NP *	
53.5	SANDY ELASTIC SILT, moist, oliveish gray.	MH	69.4		55	2+3+3 N =6 REC =18"	w=25.7% LL=56 PL=27 *	

continued on next page

Comments:
1. Ground Water Observation Well OW-413B installed upon completion
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-413A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-413** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	with sand, fine to medium grained, moist, oliveish gray,	MH			60	2+4+4 N =8 REC =18"	w=27.5% LL=58 PL=29 *	
					65			
					70	4+5+7 N =12 REC =18"	PP=1.50 tsf	
70.0	FAT CLAY, moist, gray	CH	52.9					
					75	REC =24"	w=35.5% LL=51 PL=15 PP=4.25 tsf *	
75.0	SILTY SAND, fine to medium grained, moist, greenish gray, contains mica.	SM	47.9					
					80	4+4+10 N =14 REC =18"	w=26.1% *	
81.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, dark orangeish brown.	SP-SM	41.9					
					85	25+50/3" N =50/3" REC =10"	w=21% *	
	light greenish gray, mottles of orange color.				90	50/3" N =50/3" REC =4"		

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Comments:
1. Ground Water Observation Well OW-413B installed upon completion
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-413A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-413** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	greenish gray, trace fine gravel, orange.					50/3" N =50/3" REC =4"		
95.0	SILTY SAND, fine to medium grained, moist, greenish gray, trace shell fragments, moderate HCl reaction.	SM	27.9		95			
					100	8+11+50/5" N =61/11" REC =17"	w=34.9% *	
	25% shell fragments, and cemented sand, weak HCl reaction.					50/5" N =50/5" REC =5"		Resumed on 5/15/06 8:30am
105.0	POORLY GRADED SAND WITH SILT, fine to medium grained, greenish gray, moderate HCl reaction, 25% shell fragments, layers of flat shells.	SP-SM	17.9		105			
					110	11+12+18 N =30 REC =18"	w=24.8% *	
113.5	SILTY SAND, fine to medium grained, light gray, strong HCl reaction, 50% shell fragments.	SM	9.4		115	7+9+13 N =22 REC =18"	w=26.3% *	
					120	5+9+9 N =18 REC =18"	w=32.5% *	
						3+7+9	w=35.1%	

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Comments:
1. Ground Water Observation Well OW-413B installed upon completion
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-413A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-413** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			125	N =16 REC =18"	*	
					130	15+43+23 N =66 REC =18"	w=18.7% *	
	15% shell fragments.							
					135	28+27+34 N =61 REC =18"	w=24.8% *	
	5% shell fragments, moderate HCl reaction, one layer of flat shells.							
					140	11+12+16 N =28 REC =8"	w=27.5% *	
	weak HCl reaction.							
					145	12+18+19 N =37 REC =18"	w=32.1% *	
					150	8+13+22 N =35 REC =18"	w=39.8% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-27.1					

Comments:
1. Ground Water Observation Well OW-413B installed upon completion
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-413A installed at a nearby location

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-414** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/11/06 **Finished:** 5/11/06

Location: Northing: 216630.18 ft
Easting: 961354.48 ft

Ground Surface Elevation: 121.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/11	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown, with root fragments and organic matter.	SP-SM				3+5+6 N =11 REC =15"		
	light orangeish brown.					3+5+7 N =12 REC =14"		
	fine to medium grained, light reddish orange.				5	5+7+9 N =16 REC =18"		
	fine to coarse grained.					6+8+12 N =20 REC =17"	w=4.2% *	
					10	6+7+8 N =15 REC =16"		
	wet, light orangeish brown.			▽	15	5+9+7 N =16 REC =15"		
					20	6+7+10 N =17 REC =13"	w=9.2% *	
					25	13+17+19 N =36 REC =17"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-414** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	POORLY GRADED SAND, fine to coarse grained, wet, grayish brown, trace silt and white clay.	SP	94.2					
29.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, orangeish brown.	SP-SM	91.7		30	5+6+14 N =20 REC =15"		
					35	11+12+14 N =26 REC =18"	w=9.7% *	
					40	10+13+17 N =30 REC =14"		
42.0	SILTY SAND, fine to medium grained, moist, orange.	SM	79.2		45	2+3+2 N =5 REC =18"	w=20.6% LL=NP PL=NP *	
	light orange, mottles of white clay.				50	2+1+1 N =2 REC =18"	w=27.7% LL=NP PL=NP *	
53.5	SANDY LEAN CLAY, moist, greenish gray, with fine sand.	CL	67.7		55	2+3+3 N =6 REC =18"	w=28.0% LL=42 PL=23 *	
57.0	FAT CLAY, moist, greenish gray, with fine sand *continued on next page*	CH	64.2					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-414** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	REC =24"	w=33.2% LL=58 PL=19 PP=3.25 tsf *	
					65	3+5+6 N =11 REC =18"	w=38.3% * PP=2.50 tsf	
					70	REC =24"	w=36.7% LL=51 PL=15 PP=3.80 tsf *	
72.0	SANDY LEAN CLAY, moist, greenish gray, fine grained.	CL	49.2		75	4+6+9 N =15 REC =18"	w=22.9% LL=39 PL=20 PP=2.75 tsf *	
77.0	SANDY SILT, greenish gray, with organic matter, 50% dark brown and black organic matter.	ML	44.2		80	4+8+14 N =22 REC =18"	w=29.8% *	
82.0	SILTY SAND, fine to medium grained, wet, light greenish gray.	SM	39.2		85	42+50/4" N =50/4" REC =10"	w=19.0% *	
	dark gray.				90	50/5" N =50/5" REC =5"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-414** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
						8+50/2" N =50/2" REC =8"	w=20.1% *	water loss from 93.5-95 ft, 1 bag quick gel
95.0	SILTY GRAVEL, weak HCl reaction.	GM	26.2		95			
						35+50/3" N =50/3" REC =10"	w=13.5% *	600 gal. water, 4 bag bentonite, still loosing water
100.0	BOTTOM OF BORING @ 100.0 FT.		21.2		100			

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-415** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Megginson

Dates Started: 4/27/06 **Finished:** 4/28/06

Location: Northing: 216480.9 ft
Easting: 961264.2 ft

Ground Surface Elevation: 119.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/27	---	18.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Poorly graded sand FILL, fine to medium grained, contains lean clay layer, moist, brown.	FILL				3+2+5 N =7 REC =18"		
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, trace silt, moist, light brown.	SP-SM	117.3			4+3+4 N =7 REC =16"		
	light brown and brown.				5	3+4+4 N =8 REC =18"	w=3.6% *	
	light brown.					3+4+5 N =9 REC =14"		
	light brown and yellowish brown.				10	3+4+4 N =8 REC =17"		
12.0	POORLY GRADED SAND, fine to coarse grained, moist, light brown and orangeish brown, trace silt.	SP	107.3			4+4+6 N =10 REC =17"	w=2.5% *	
	wet, contains lean clay pockets.			▽	15 20	6+7+9 N =16 REC =15"		*Used hollow stem augers to depth of 18.5 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 18.5 ft.
22.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, yellowish brown.	SP-SM	97.3			6+6+8 N =14 REC =6"		
	continued on next page				25			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-415** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	orangeish brown and yellowish brown, trace gravel, contains clayey sand pockets.				30	5+7+9 N =16 REC =9"	w=13.5% *	
	light brown.				35	4+10+13 N =23 REC =6"		
	light brown and brown, contains clayey sand pockets.				40	4+9+13 N =22 REC =8"		
42.0	SILTY SAND, fine to medium, wet, dark gray, contains mica.	SM	77.3		45	2+2+2 N =4 REC =15"	w=28.2% LL=26 PL=22 PP=0.50 tsf *	
47.0	CLAYEY SAND, fine to medium grained, wet, dark gray, contains mica.	SC	72.3					
	fine to coarse grained below 49.5 ft.				50	4+7+2 N =9 REC =14"		
52.0	LEAN CLAY, moist, light greenish gray, trace sand, contains mica.	CL	67.3		55	2+3+3 N =6 REC =18"		
57.0	FAT CLAY, moist, light greenish gray, trace sand, contains mica.	CH	62.3					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-415** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	2+4+5 N =9 REC =18"	w=36.6% LL=61 PL=21 PP=1.50 tsf *	
62.0	ELASTIC SILT, moist, light greenish gray and dark gray, trace sand, contains mica.	MH	57.3		65	3+4+5 N =9 REC =18"		**Resumed drilling at 7:00 on 4/28/06.
67.0	FAT CLAY, moist, light greenish gray, trace sand.	CH	52.3		70	5+7+9 N =16 REC =18"		
72.0	SANDY SILT, fine to coarse, moist, gray, trace gravel, contains mica.	SM	47.3		75	5+5+8 N =13 REC =18"	w=26.3% LL=40 PL=30 PP=2.00 tsf *	
					80	26+100 N =100 REC =11"		
	fine to coarse grained, wet, gray and greenish gray, contains shell fragments and lean clay lenses, strong HCl reaction.				85	17+22+31 N =53 REC =14"	w=17.0% *	
	gray, contains clayey sand pockets.				90	100 REC =6"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-415** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	CLAYEY SAND, fine to coarse grained, wet, light gray, contains cemented sand, and lean clay layers, moderate HCl reaction.	SC	27.3		95	⊠ 100/3" N =100/3" REC =4"		
97.0	SILTY SAND, fine to coarse grained, moist, light gray, contains cemented sand, and shell fragments, strong HCl reaction.	SM	22.3					
98.7	BOTTOM OF BORING @ 98.7 FT.		20.6			⊠ 100/2" N =100/2" REC =2"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-416** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: Mud Rotary

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 8/2/06 **Finished:** 8/3/06

Location: Northing: 216084.5 ft
Easting: 961596.34 ft

Ground Surface Elevation: 86.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/3	---	58.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, moist, light brown, contains wood fragments.	SM				1+2+2 N =4 REC =13"		Drilled with 4 1/4 HSA to 45'
	Orangeish brown, trace gravel.					5+5+6 N =11 REC =18"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light brown and orangeish brown, trace gravel.	SP-SM	81.7		5	4+4+6 N =10 REC =16"	w=3.8%	
	Slight banding of colors 1/4-1/2" thick.					4+7+7 N =14 REC =17"		
					10	5+6+6 N =12 REC =14"		
13.0	SILTY SAND, fine to medium grained, moist, light orangeish brown and gray, some iron staining visable.	SM	73.2			4+4+4 N =8 REC =18"	w=13.0%	
					15			
	Brown, colors are mottled.					2+1+1 N =2		
					20			
22.0	SANDY FAT CLAY, moist, dark gray and greenish gray, contains mica, some gray pockets of fine sand present <3/4".	CH	64.2			2+3+4 N =7 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-416** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
	With sand, some clayey sand lenses present <1/8".				30	4+4+7 N =11 REC =18"	w=33.7% LL=58 PL=17	
32.0	LEAN CLAY with sand, moist, dark gray and greenish gray, contains mica.	CL	54.2		35	3+4+4 N =8 REC =18"		
37.0	FAT CLAY with sand, moist, dark gray and greenish gray, contains mica.	CH	49.2		40	3+4+6 N =10 REC =18"		
42.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, contains mica, 1" pocket of gray clayey sand in sample.	SC	44.2		45	3+4+7 N =11 REC =18"	w=25.6%	45'- Begin mud rotary with 2 15/16" tri-cone roller bit
	Moist, reddish brown and brownish gray, with cemented sand, weak cementation, impressions of shell fragments, highly oxidized zone.				50	3+13+21 N =34 REC =18"		
52.0	SILTY SAND, fine to medium grained, moist, gray.	SM	34.2		55	22+33+50/3" N =83/9" REC =13"		55'- Start of day 8/3/06

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-416** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Wet, contains mica.	SM		▽	60	41+35 +50/5.5" N =85/11.5" REC =16"	w=26.2%	
62.0	SANDY LEAN CLAY with silt, moist, gray and brownish white, trace cemented sand, 0-10% fine to medium shell fragments, moderate HCl reaction, moderate cementation, strong HCl reaction at decomposed shell fragments.	CL	24.2		65	49+50/3" N =50/3" REC =8"		
67.0	CLAYEY SAND, fine to coarse grained, wet, light gray and gray, trace cemented sand, 10-20% fine to medium shell fragments, strong HCl reaction, moderate cementation, darker gray areas are similar to strata at 65'. Light gray, with cemented sand, 30-40% fine to coarse shell fragments, strong HCl reaction, strong cementation.	SC	19.2		70	13+16+42 N =58 REC =16"		
72.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, gray and brownish white, 10-20% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to shell fragments.	SP-SC	14.2		75	6+8+10 N =18 REC =18"	w=29.5%	
	20-30% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to shell fragments.				80	6+8+9 N =17 REC =15"		
82.0	CLAYEY SAND, fine to medium grained, wet, gray, 0-10% fine to coarse shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.	SC	4.2		85	4+5+8 N =13 REC =16"		
	0-10% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.				90	5+4+7 N =11 REC =18"	w=33.5%	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-416** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	Light gray and white, 40-50% fine to coarse shell fragments, with cemented sand, strong HCl reaction, strong cementation.				95	24+17+15 N =32 REC =14"		93'- Harder drilling with rig chatter
	Light gray and brownish white, 20-30% fine to coarse shell fragments, trace cemented sand, strong HCl reaction, weak cementation.				100	10+9+11 N =20		
100.0	BOTTOM OF BORING @ 100.0 FT.		-13.8					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-417** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 7/24/06 **Finished:** 7/25/06

Location: Northing: 216435.75 ft
Easting: 961901.11 ft

Ground Surface Elevation: 49.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/24	---	10.8'	---	---
Start of Day	7/25	---	7.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		48.7					
	SANDY LEAN CLAY, moist, brown, trace root fragments.	CL				2+2+4 N =6 REC =8"		
	trace wood fragments, iron staining					5+5+5 N =10 REC =18"		
					5	1+2+3 N =5 REC =7"		
7.0	POORLY GRADED SAND with silt, fine to medium grained, moist, yellowish brown and orangeish brown, trace fine to coarse shell fragments, iron staining, HCl reaction moderate.	SP-SM	42.2			6+10+17 N =27 REC =16"		possible fill
10.0	SANDY LEAN CLAY, moist, brown and reddish brown, trace root fragments.	CL	39.2		10	3+7+16 N =23 REC =18"		
10.8	POORLY GRADED SAND with silt, fine to medium grained, wet, yellowish brown and orangeish brown.	SP-SM	38.4	▽				start of mud rotary drilling
12.0	POORLY GRADED SAND with clay, fine to medium grained, wet, gray, 1/8th inch clay lenses throughout.	SP-SC	37.2			6+6+6 N =12 REC =11"		
14.5	FAT CLAY, moist, gray, trace sand.	CH	34.7		15	2+2+2 N =4 REC =18"		color change in mud tub from orangeish brown to gray
						1+2+2 N =4 REC =18"		
	trace fine to coarse shell fragments, 2-5%, HCl reaction weak				20	23+11+6 N =17 REC =18"		cemented sand lenses Harder drilling
22.0	CLAYEY SAND, fine to medium grained, wet, gray and greenish gray, contains fine to coarse shell fragments, 30-40%, strong cementation, HCl reaction strong.	SC	27.2			14+38+38 N =76 REC =18"		
24.5		SM	24.7		25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-417** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, wet, gray and greenish gray, contains fine to coarse shell fragments, 30-40%, strong cementation, HCl reaction strong.	SM				6+8+27 N =35 REC =18"		
						44+5+6 N =11 REC =18"		
30.0	CLAYEY SAND, fine to medium grained, wet, gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction moderate.	SC	19.2		30	3+4+4 N =8 REC =18"		
	gray and white					4+7+7 N =14 REC =18"		
					35	5+10+9 N =19 REC =16"		
37.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, trace fine to medium shell fragments, 5-10%, HCl reaction weak.	SM	12.2					Rig chatter
						3+4+5 N =9 REC =18"		
					40	3+3+3 N =6 REC =18"		
						2+3+3 N =6 REC =18"		
					45	2+2+3 N =5 REC =18"		
47.0	SANDY SILT, wet, gray and greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	2.2			2+3+4 N =7 REC =18"		
	greenish gray and white, contains fine to coarse shell fragments, 40-50%, strong cementation , HCl reaction strong.				50	5+8+50/3" N =58/9" REC =16"		
52.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, contains fine to coarse shell fragments, 40-50%, strong cementation, HCl reaction strong.	SM	-2.8			6+10+44 N =54 REC =18"		
					55	27+14+20 N =34 REC =18"		
	contains fine to coarse shell fragments,					8+14+20		resumed drilling on7/25/06 @ 7:00am

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-417** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	10-20%, weak cementation , HCl reaction moderate	SM				N =34 REC =16"		
					60	11+14+27 N =41 REC =18"		
62.0	SANDY SILT, wet, greenish gray, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.	ML	-12.8			4+6+10 N =16 REC =18"		
					65	4+7+14 N =21 REC =18"		
67.0	SILTY SAND, fine to medium grained, wet, greenish gray, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.	SM	-17.8			5+6+10 N =16 REC =18"		
70.0	SANDY SILT, wet, greenish gray, contains fine to coarse shell fragments, 10-20%, HCl reaction moderate.	ML	-20.8		70	4+6+9 N =15 REC =18"		
72.0	ELASTIC SILT, moist, blueish gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	-22.8			6+7+10 N =17 REC =18"		
					75	5+7+10 N =17 REC =18"		
						6+6+8 N =14 REC =18"		
79.5	SANDY SILT, moist, blueish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-30.3		80	5+7+10 N =17 REC =18"		
						5+6+8 N =14 REC =18"		
84.5	SILTY SAND, fine to medium grained, moist, blueish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	SM	-35.3		85	4+6+7 N =13 REC =18"		
87.0	SANDY SILT, moist, blueish gray and white, contains fine to medium shell fragments, 10-20%, HCl reaction moderate .	ML	-37.8			7+7+14 N =21 REC =18"		organic oder
	trace fine to medium shell fragments, 5-10%, HCl reaction weak				90	5+6+9 N =15		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-417** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML				REC =18"		
92.0	ELASTIC SILT, moist, greenish gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	-42.8			5+7+9 N =16 REC =18"		
94.5	SANDY SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	ML	-45.3		95	5+6+9 N =15 REC =18"		
						6+6+8 N =14 REC =18"		
					100	5+6+10 N =16 REC =18"		
101.5	BOTTOM OF BORING @ 101.5 FT.		-52.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: B. Bradfield

Dates Started: 6/28/06 **Finished:** 6/29/06

Location: Northing: 216340.25 ft
Easting: 961976.71 ft

Ground Surface Elevation: 43.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/28	---	6.5'	---	---
Water Reading	7/6	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		43.4					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brownish gray and orange, contains root fragments, weak limonitic cementation.	SP-SM				8+8+5 N =13 REC =8"		1.5'- Mud rotary with 3 7/8" drag bit
2.0	CLAYEY SAND, fine to coarse grained, moist, gray and orangeish brown.	SC	41.7			4+3+4 N =7 REC =13"	w=27.9% *	
4.5	SILTY SAND, fine to medium grained, wet, orangeish brown and reddish brown.	SM	39.2	▽	5	6+7+8 N =15 REC =14"		
7.0	SILTY SAND, fine to medium, moist, gray. With sand.	SM	36.7			5+4+3 N =7 REC =14"	w=30.9% LL=NP PL=NP *	
					10	3+2+3 N =5 REC =18"		
13.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica.	CL	30.7		15	4+4+5 N =9 REC =18"	w=32.7% LL=49 PL=22 *	
17.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, strong HCl reaction.	SP-SM	26.7		20	15+8+8 N =16 REC =18"		
	30-40% fine to coarse shell fragments, strong HCl reaction.				25	4+5+8 N =13 REC =18"	w=25.2% *	

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Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	20-30% fine to coarse shell fragments, strong HCl reaction.				30	6+8+10 N =18 REC =14"		
	10-20% fine to coarse shell fragments, strong HCl reaction.				35	4+5+7 N =12 REC =15"	w=28.4% *	
	Brownish, 0-10% fine to coarse shell fragments, weak HCl reaction.				40	1+1+2 N =3 REC =18"		
42.0	CLAYEY SAND, fine to medium grained, wet, gray and brownish white, 30-40% fine to coarse shell fragments, strong HCl reaction.	SC	1.7		45	3+8+13 N =21 REC =18"	w=27.4% *	47'- Grinding/ rig chatter
	White, 30-40% fine to coarse shell fragments, 40-50% cemented sand, strong HCl reaction, strong cementation.				50	11+13+18 N =31 REC =18"		
52.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, gray and brownish white, 10-20% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.	SP-SC	-8.3		55	7+19+19 N =38 REC =16"	w=23.3% *	
57.0	SANDY SILT with clay, fine to medium, moist, gray, 10-20% fine to medium *continued on next page*	ML	-13.3					

Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments, moderate HCl reaction, HCl reaction limited to shell fragments.	ML			60	5+10+5 N =15 REC =18"		
62.0	SILTY SAND, fine to medium grained, moist, gray, 0-10% fine to medium shell fragments, weak HCl reaction, HCl reaction localized to shell fragments.	SM	-18.3		65	6+9+14 N =23 REC =18"	w=32.1% *	
67.0	SANDY LEAN CLAY with silt, fine to medium, moist, greenish gray, 10-20% fine to medium shell fragments, weak HCl reaction, HCl reaction localized to shell fragments.	CL	-23.3		70	5+9+9 N =18 REC =18"		
72.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, 0-10% fine to medium shell fragments, weak HCl reaction.	SC	-28.3		75	6+8+15 N =23 REC =18"	w=41.7% *	
	10-20% fine to medium shell fragments, moderate HCl reaction				80	5+6+8 N =14 REC =18"		
82.0	SILTY SAND, fine to medium grained, moist, greenish gray, 10-20% fine to medium shell fragments, moderate HCl reaction.	SM	-38.3		85	10+13+10 N =23 REC =18"		
87.0	SANDY ELASTIC SILT with clay, fine to medium, moist, greenish gray, 10-20% fine to medium shell fragments, moderate HCl reaction.	MH	-43.3		90	4+8+9 N =17 REC =18"	w=49.8% LL=76 PL=49 *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	With sand, trace decayed organic matter.				95	4+6+9 N =15 REC =18"		
97.0	LEAN CLAY, fine to medium, moist, greenish gray, 10-20% fine to medium shell fragments, moderate HCl reaction.	CL	-53.3		100	4+6+9 N =15 REC =18"	w=36.7% LL=46 PL=25 *	
					105	7+7+9 N =16 REC =18"		
107.0	SANDY ELASTIC SILT, fine to medium, moist, greenish gray.	MH	-63.3		110	5+7+9 N =16 REC =18"	w=39.8% LL=55 PL=38 *	
112.0	FAT CLAY with sand, moist, greenish gray.	CH	-68.3		115	7+8+10 N =18 REC =18"		
					120	5+8+11 N =19 REC =18"		
						5+7+10	w=56.4%	

continued on next page

Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			125	N =17 REC =18"	LL=106 PL=41 *	
	0-10% fine to medium shell fragments, weak HCl reaction.				130	8+11+12 N =23 REC =18"		
					135	8+8+11 N =19 REC =6"		
135.0	ELASTIC SILT with sand, moist, greenish gray, 0-10% fine to medium shell fragments, weak HCl reaction.	MH	-91.3		140	10+12+14 N =26 REC =18"	w=64.4% LL=103 PL=63 *	140'- Start drilling on 6/29/06
					145	4+7+9 N =16 REC =18"		
145.0	FAT CLAY, moist, no shell fragments.	CH	-101.3		150	5+8+8 N =16 REC =18"	w=52.6% LL=69 PL=27 *	
152.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, 10-20% fine to medium shell fragments, weak HCl reaction.	SC	-108.3		155	7+13+21 N =34 REC =14"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			160	4+8+16 N =24 REC =18"		
162.0	SANDY ELASTIC SILT, fine to medium, moist, greenish gray.	MH	-118.3		165	4+8+15 N =23 REC =18"		
	With sand.				170	3+6+9 N =15 REC =18"	w=57.3% LL=76 PL=49 *	
	fine to medium, moist, greenish gray.				175	7+9+15 N =24 REC =18"		
	With sand, 0-10% fine to medium shell fragments, weak HCl reaction.				180	8+10+13 N =23 REC =18"		
					185	6+9+11 N =20 REC =18"	w=56.7% LL=100 PL=60 *	
	No shell fragments.				190	7+9+13 N =22 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-418** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
					195	5+6+10 N =16 REC =18"		
					200	6+7+9 N =16 REC =18"	w=66.5% LL=109 PL=71 *	
200.0	BOTTOM OF BORING @ 200.0 FT.		-156.3					

Comments:

1. Observation Well OW-418B installed upon completion.
2. Downhole geophysical logging performed on 6/29/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-418A installed at a nearby location

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-419** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 6/5/06 **Finished:** 6/6/06

Location: Northing: 216267.83 ft
Easting: 961895.6 ft

Ground Surface Elevation: 55.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/5	---	15.0'	20.0'	---
Start of Day	6/6	---	30.0'	20.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Crushed Stone		54.8			5+8+5 N =13 REC =6"		0-20' Hollow stem augers
	Clayey sand FILL, fine to coarse grained, moist, yellow, with gravel.	FILL						
2.0	Lean clay FILL, moist, orange, with sand.	FILL	53.3			2+1+WOH N =1 REC =4"		
					5	WOH/18" N = WOH/18" REC =0"		
	fine to coarse sandy, wet.					1+WOH+2 N =2 REC =12"		
8.3	Clayey Sand PROBABLE FILL, fine to coarse grained, moist, gray, contains wood fragments.	FILL	47.0					
					10	2+2+3 N =5 REC =18"		
11.6	Sandy lean clay PROBABLE FILL, moist, gray, contains wood fragments.	FILL	43.7					
13.5	SANDY LEAN CLAY, fine to coarse, moist, gray.	CL	41.8	▽	15	3+3+5 N =8 REC =18"		
17.0	POORLY GRADED SAND, fine to medium grained, moist, orange and gray, 1/8-1/4" color changes.	SP	38.3					
					20	10+20+12 N =32 REC =18"		2-15/16" Drag bit
	wet, yellowish gray.				25	7+1+1 N =2 REC =6"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-419** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
					30	50/0" N =50/0" REC =0"		28.5' Harder drilling 28.5'-100' 4 1/4" roller bit
32.0	SILTY SAND, fine to coarse grained, moist, grayish green, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 35-45% shell frag.	SM	23.3		35	17+20+13 N =33 REC =18"		
	green				40	4+7+9 N =16 REC =18"		
	fine to medium grained, wet, contains cemented sand.				45	32+12+7 N =19 REC =14"		
	trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.				50	4+4+6 N =10 REC =18"		
								53.5' Pushed tube
					55			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-419** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	moist, greenish white, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 35-45% shell frag.	SM			60	11+10+43 N =53 REC =18"		
					65	8+13+21 N =34 REC =18"		63' Rig chatter
	25-30% shell frag.				70	6+7+12 N =19 REC =18"		
					75	4+5+9 N =14 REC =18"		
77.0	SANDY SILT, fine to medium, moist, green, trace fine to medium shell fragments, strong HCl reaction, 0-5% shell frag.	ML	-21.7		80	6+9+13 N =22 REC =18"		
	with clay, weak HCl reaction, 0-5% shell frag.				85	5+8+8 N =16 REC =18"		
	moderate HCl reaction, 0-10% shell frag.				90	5+8+12 N =20 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-419** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
92.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 35-45% shell frag.	SM	-36.7		95	6+11+13 N =24 REC =18"		
					100	4+6+9 N =15 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-44.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-420** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson / B. Bradfield

Dates Started: 6/6/06 **Finished:** 6/7/06

Location: Northing: 216213.53 ft
Easting: 961670.44 ft

Ground Surface Elevation: 62.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/6	---	24.0'	---	---
Start of day	6/7	---	15.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Crushed stone FILL, moist, brown and dark gray, contains fine to coarse sandy silt pockets.	FILL FILL	62.1			7+4+7 N =11 REC =6"	w=17.2% LL=52 PL=21 *	
2.0	Fat clay PROBABLE FILL, moist, yellowish brown and light gray, with fine to medium sand, trace mica, contains root fragments.	CH	60.6			2+3+3 N =6 REC =16"	w=28.6% LL=68 PL=23 *	
	SANDY FAT CLAY, moist, stratified orangeish brown and light gray, trace fine to medium sand, contains iron oxide stained pockets (1/8 inch) and root fragments.				5	2+3+4 N =7 REC =18"	w=29.7% LL=64 PL=22 *	
	light gray and dark yellowish brown.					2+2+3 N =5 REC =18"	w=38.3% LL=71 PL=19 *	
	light gray, dark yellowish brown and dark orangeish brown gray, trace mica and organic matter (±1%) below 11 ft.				10	3+4+7 N =11 REC =18"		
	contains fine to medium sandy fat clay pockets.				15	4+5+8 N =13 REC =18"	w=42.1% LL=74 PL=31 *	
	gray and dark gray, contains fat clay with sand pockets.				20	7+8+9 N =17 REC =18"	w=28.6% *	
22.0	SANDY SILT, fine to medium grained, moist, yellowish brown and dark orangeish brown, contains moderately cemented sand pockets.	ML	40.6					
24.0	POORLY GRADED SAND WITH SILT,	SP-SM	38.6	▽	25	5+17+37 N =54 REC =16"	w=24.4% LL=NP PL=NP	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-420** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium grained, wet, brown and yellowish brown, contains black particles.	SP-SM					*	
	contains iron oxidized zone from 28.5 to 28.6 ft				30	50 REC =5"		
32.0	SILTY SAND, fine to medium grained, wet, dark gray.	SM	30.6		35	26+31+22 N =53 REC =16"	w=24.2% *	
37.0	LEAN CLAY with sand, fine to medium grained, moist, gray, trace fine to medium shell fragments (±5%), weak HCl reaction. wet, gray and light gray, trace fine to coarse shell fragments (±5%), contains sandy lean clay pockets, moderate HCl reaction below 39.3 ft	CL	25.6		40	13+15+50/3" N =65/9" REC =16"	w=20% LL=30 PL=19 *	*Very to extremely difficult rotary advancement from 37 to 38.5 ft (slow rotary advancement). Difficult rotary advancement may be in part be due to using drag bit. *Difficult to very difficult rotary advancement from 38.5 to 39.5 ft. *Difficult to very difficult rotary advancement from 42.5 to 43.5 ft (slight to moderate rig chatter).
43.5	SILTY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.	SM	19.1		45	5+8+11 N =19 REC =18"	w=26.5% *	
	dark gray, little fine to coarse shell fragments (±15%).				50	10+12+12 N =24 REC =18"	w=28.4% *	
	gray, trace fine to coarse shell fragments (±5%), very weak HCl reaction.				55	5+5+8 N =13 REC =18"	w=28.0% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-420** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to medium shell fragments (±<5%).	SM			60	3+4+5 N =9 REC =18"	w=34.9% *	
62.0			0.6					
	CLAYEY SAND, few fine to coarse shell fragments (±10%), strong HCl reaction, moist, olive gray.	SC			65	REC =24"	w=28.3% LL=49 PL=11 *	*Osterberg sampler tube push *Slight to moderate rotary resistance from 66 to 68.5 ft.
67.0			-4.4					
	SILTY SAND, light greenish gray, mostly fine to coarse shell fragments (±50%), contains strongly cemented sand pockets (1 inch), clayey sand pockets and shark teeth.	SM			70	20+20+32 N =52 REC =18"	w=16.8% *	
	gray, trace fine to coarse shell fragments (±5%). fine to medium grained, wet, gray, trace fine to medium shell fragments (±1%) and mica, moderate HCl reaction.				75	5+11+12 N =23 REC =16"	w=24.4% *	
	moist, gray and light greenish gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.				80	10+14+16 N =30 REC =18"	w=26.2% LL=48 PL=32 *	**Resumed drilling at 7:00 AM on 6/7/06.
83.5			-20.9					
	SANDY ELASTIC SILT, trace fine to medium shell fragments (±<5%), dark green.	MH			85	5+9+13 N =22 REC =18"	w=47.3% LL=60 PL=39 *	
87.0			-24.4					
	FAT CLAY, moist, light greenish gray, trace fine to medium sand and mica, and fine to medium shell fragments (±1%), weak HCl reaction.	CH			90	7+10+12 N =22 REC =18"	w=55.3% LL=90 PL=35 *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-420** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium sandy, gray, very weak HCl reaction (high percentage of sand).	CH			95	7+12+19 N =31 REC =12"	w=39.4% *	
98.5	SANDY SILT, wet, trace fine to medium shell fragments (±5%), weak HCl reaction.	ML	-35.9		100	5+7+12 N =19 REC =18"	w=34.8% LL=49 PL=30 *	
103.5	SILTY SAND, moist, gray, trace fine to coarse shell fragments (±5%), moderate HCl reaction.	SM	-40.9		105	6+10+19 N =29 REC =18"	w=38.5% LL=57 PL=42 *	
108.5	SANDY ELASTIC SILT, with shells, gray	MH	-45.9		110	7+10+14 N =24 REC =18"	w=46.4% LL=80 PL=51 *	
113.5	FAT CLAY, greenish gray and gray, trace fine to medium sand, contains indurated lean clay pockets.	CH	-50.9		115	7+8+12 N =20 REC =18"	w=64.9% LL=118 PL=38 *	
118.5	SANDY ELASTIC SILT, dark gray, with fine to medium sand, moderate HCl reaction.	MH	-55.9		120	7+9+15 N =24 REC =18"	w=41.6% LL=65 PL=40 *	
123.5	SANDY FAT CLAY, dark greenish gray, *continued on next page*	CH	-60.9			5+7+10	w=47.5%	

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-420** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	very weak HCl reaction.	CH			125	N =17 REC =18"	LL=83 PL=29 *	
127.0	SANDY ORGANIC SILT, weak HCl reaction.	OH	-64.4		130	REC =22"	w=39.0% LL=59 PL=34 PP=4.00 tsf *	*Osterberg sampler tube push from 128.5 to 130.3 ft
133.5	ELASTIC SILT, moist, dark greenish gray, trace fine to medium sand, and mica.	MH	-70.9		135	7+9+11 N =20 REC =18"	w=73.4% LL=147 PL=75 *	
					140	7+9+11 N =20 REC =18"	w=78.8% LL=145 PL=76 *	
	fine to medium shell fragments, moderate HCl reaction.				145	7+8+11 N =19 REC =18"	w=58.9% LL=107 PL=56 *	
	weak HCl reaction, blocky.				150	7+12+12 N =24 REC =18"	w=74.2% LL=127 PL=100 *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-87.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-421** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/10/06 **Finished:** 5/11/06

Location: Northing: 216497.56 ft
Easting: 961019.77 ft

Ground Surface Elevation: 115.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/10	---	33.8'	3.5'	---
Start of day	5/11	---	11.5'	3.5'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		115.3					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown, contains root fragments.	SP-SM				1+3+2 N =5 REC =10"	w=11.6% *	
						1+3+3 N =6 REC =14"	w=14.8% *	
4.5	CLAYEY SAND, fine to medium grained, moist, brown.	SC	111.1		5	1+2+2 N =4 REC =12"	w=11.9% *	
7.0	SILTY SAND, fine to medium grained, moist, yellowish brown.	SM	108.6			2+2+2 N =4 REC =12"	w=7.6% *	
10.5	POORLY GRADED SAND, trace silt, tan yellow	SP	105.1		10	7+7+7 N =14 REC =16"	w=11.8% LL=NP PL=NP *	
	fine to coarse grained.				15	16+10+18 N =28 REC =12"	w=9.2% *	
18.5	WELL GRADED SAND WITH SILT, trace gravel, light brown, contains 1/8" thick clay lenses.	SW-SM	97.1		20	5+8+8 N =16 REC =12"	w=9.4% *	
23.5	SILTY SAND, light brown	SM	92.1		25	8+13+14 N =27 REC =14"	w=11.0% LL=NP PL=NP	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-421** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM					*	
27.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, orange.	SP-SM	88.6					
					30	10+14+15 N =29 REC =10"	w=15.6% *	
	wet.			▽	35	2+1+1 N =2 REC =18"		
					40	4+6+5 N =11 REC =14"	w=17.3% *	
42.0	SANDY ELASTIC SILT, moist, mottled white and orange.	MH	73.6					
					45	WOH+WOH +1 N =1 REC =18"	w=31.5% *	
47.0	SANDY FAT CLAY, moist, dark gray.	CH	68.6					
					50	REC =24"	w=28.8% LL=50 PL=18 *	
					55	3+3+4 N =7 REC =18"	w=29.6% PP=1.00 tsf *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-421** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	REC =24"	w=34.2% LL=78 PL=32 PP=1.50 tsf *	
					65	3+4+5 N =9 REC =18"	w=28.6% PP=2.50 tsf *	
67.0	SILTY SAND, fine to medium grained, moist, greenish gray.	SM	48.6		70	4+5+5 N =10 REC =18"	w=22.2% *	
					75	50/4" N =50/4" REC =6"	w=24.9% *	
					80	11+11+45 N =56 REC =14"	w=19.7% *	
	with fine to medium shell fragments (10%).				85	50/4" N =50/4" REC =4"	w=20.5% *	
	wet, greenish white, with fine to coarse shell fragments (25-30%), HCl reaction.				90	22+26+29 N =55 REC =18"	w=26% *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-421** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, greenish gray, with fine to medium shell fragments (20-30%), HCl reaction. contains cemented sand, with fine to medium shell fragments (10-20%), HCl reaction.	SP-SC	23.6		95	6+8+50 N =58 REC =18"	w=20.7% LL=NP PL=NP *	
97.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, with fine to coarse shell fragments (10-20%).	SP-SM	18.6		100	6+6+8 N =14 REC =18"	w=28.4% *	
102.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments (25-40%), HCl reaction.	SM	13.6		105	10+8+8 N =16 REC =18"	w=26% *	
					110	6+6+7 N =13 REC =18"	w=26.1% LL=NP PL=NP *	
					115	3+3+5 N =8 REC =18"	w=31.7% *	
118.5	SANDY SILT, green, with fine to coarse shell fragments (20-30%), HCl reaction.	ML	-2.9		120	10+8+9 N =17 REC =18"	w=27.8% LL=NP PL=NP *	
						50/4"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-421** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			125	N =50/4" REC =0"		
					130	10+11+13 N =24 REC =18"	w=22.0% *	
133.5	SILTY SAND, dark green, trace fine to coarse shell fragments (0-5%).	SM	-17.9		135	7+13+14 N =27 REC =18"	w=29.0% *	
138.5	SANDY FAT CLAY, dark gray	CH	-22.9		140	4+6+8 N =14 REC =18"	w=38.5% LL=53 PL=25 *	
142.0	SILTY SAND, fine to medium grained, moist, dark green, trace fine to medium shell fragments (0-5%), HCl reaction.	SM	-26.4		145	6+7+8 N =15 REC =18"	w=46.8% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-34.4		150	6+6+8 N =14 REC =18"	w=47.4% *	

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-422** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550

Schnabel Representative: K. Bell

Dates Started: 5/4/06 **Finished:** 5/4/06

Location: Northing: 216478.23 ft
Easting: 960915.01 ft

Ground Surface Elevation: 104.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/4	---	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		103.7					
	SILTY SAND, fine to coarse grained, moist, brown and orangeish brown, trace root fragments.	SM				1+2+1 N =3 REC =14"		
2.5	LEAN CLAY with sand, moist, brown, trace root fragments, trace wood fragments.	CL	101.5			2+1+2 N =3 REC =14"		
	yellowish brown, trace root fragments.				5	2+3+4 N =7 REC =18"		
7.5	SILTY SAND, fine to coarse grained, moist, yellowish brown, trace root fragments.	SM	96.5			6+6+8 N =14 REC =18"		
					10	5+7+9 N =16 REC =13"		
13.5	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, orange and brownish white, trace gravel.	SP-SC	90.5			6+8+9 N =17 REC =14"		
					15			
	brownish orange, no gravel.					5+4+5 N =9 REC =13"		
					20			
						3+2+2 N =4 REC =16"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-422** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
25.5	CLAYEY SAND, fine to medium grained, moist, orange and grayish white.	SC	78.5					
	medium to coarse grained, orange and yellowish brown, trace gravel.				30	1+1+3 N =4 REC =18"		
33.5	LEAN CLAY with sand, moist, brownish orange and reddish gray.	CL	70.5		35	1+1+2 N =3 REC =18"		
					40			
43.5	FAT CLAY with sand, moist, gray.	CH	60.5		45	2+3+5 N =8		
					50		PP=>4.5 tsf	
					55	5+7+8 N =15 REC =18"		

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-422** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
59.5	CLAYEY SAND, fine to coarse grained, moist, dark gray, trace organic matter, organic oder.	SC	44.5		60	7+11+26 N =37 REC =18"		1/4 inch orgnic lense changed to a 2 7/8" roller bit
63.5	SILTY SAND, fine to coarse grained, moist, light gray.	SM	40.5		65	30+7+100/4" N =107/10" REC =13"		
	light gray and white.				70	69+100 N =100 REC =14"		
	wet, light gray and white, with fine to coarse shell fragments, strong HCl reaction.				75	17+15+18 N =33 REC =15"		
78.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, light gray and white, with fine to coarse shell fragments, strong HCl reaction.	SP-SM	25.5		80	100/5" N =100/5" REC =12"		
79.4	SILTY SAND, fine to medium grained, wet, light gray and white, trace fine to coarse shell fragments, moderate HCl reaction.	SM	24.6					
	fine to coarse grained, light greenish gray and white, with fine to coarse shell fragments, strong HCl reaction.				85	100/4" N =100/4" REC =5"		
	trace fine to medium shell fragments, moderate HCl reaction.				90	5+5+8 N =13 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-422** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	6+7+10 N =17 REC =18"		
98.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish gray, trace fine to medium shell fragments, weak HCl reaction.	SP-SM	5.5					1/4 inch shell lense
					100	5+6+8 N =14 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		4.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 1 of 7

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 6/8/06 **Finished:** 6/14/06

Location: Northing: 216331.76 ft
Easting: 960850.21 ft

Ground Surface Elevation: 110.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/8	---	10.5'	---	---
Start of day	6/12	---	30.0'	---	---
Start of day	6/13	---	4.0'	---	---
Start of day	6/14	---	0.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, moist, brown, trace organic matter (±1%).	SM				2+3+3 N =6 REC =10"		*5.4" O.D. Drag bit from 0 to 20 feet.
	brown and light brown.					2+2+3 N =5 REC =11"	w=4.9% *	
	contains clayey sand pockets.				5	5+10+8 N =18 REC =14"		
	brown.					4+5+6 N =11 REC =8"		
	fine to coarse grained, wet, brown and light brown, contains poorly graded sand with silt lenses.			▽	10	4+4+6 N =10 REC =7"		
	yellowish brown.				15	5+6+8 N =14 REC =6"	w=12.3% LL=NP PL=NP *	
					20	2+5+12 N =17 REC =8"	w=10.4% *	*4-3/4" O.D. Drag bit used below 20 ft.
23.5	POORLY GRADED SAND WITH SILT, fine to medium grained.	SP-SM	86.6		25	13+13+16 N =29 REC =10"	w=16.6% *	

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Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 2 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	stratified light brown and yellowish brown below 24.5 ft .	SP-SM						
28.5	SILTY SAND, yellowish brown and light brown.	SM	81.6		30	4+5+8 N =13 REC =7"	w=17.4% *	
	yellowish brown.				35	8+11+11 N =22 REC =10"	w=13.6% LL=NP PL=NP *	
37.0	CLAYEY SAND, wet, yellowish brown and light grayish brown, contains clayey sand lenses.	SC	73.1					
39.5	SILTY SAND, fine to coarse grained, wet, yellowish brown.	SM	70.6		40	4+3+8 N =11 REC =12"	w=43.9% LL=43 PL=15 *	
42.0	FAT CLAY, moist, gray, with fine to medium sand, trace mica.	CH	68.1		45	2+3+4 N =7 REC =18"	w=30.9% LL=55 PL=20 *	
	gray and light greenish gray, trace fine to medium sand, contains organic matter pocket.				50	3+3+4 N =7 REC =18"	w=36.6% LL=61 PL=16 *	
	trace mica and organic matter (±1%).				55	4+4+6 N =10 REC =18"	w=38.1% LL=80 PL=34 *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 3 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.5	ELASTIC SILT, gray	MH	51.6		60	6+7+10 N =17 REC =18"	w=33.8% LL=78 PL=45 *	
63.5	SANDY SILT, gray	ML	46.6		65	4+7+7 N =14 REC =18"	w=21.9% LL=37 PL=27 *	
68.5	SILTY SAND, trace fine to medium sand and organic matter (±1%), mostly indurated lean clay layers (±100%).	SM	41.6		70	34+50/2" N =50/2" REC =8"	w=25.4% LL=NP PL=NP *	*Switched to 5" O.D. Tri-cone roller bit below 69 ft. *Moderately difficult rotary advancement from 69.5 to 72 ft (slow rotary advancement).
					75	50 REC =5"	w=22.8% *	
78.5	SANDY SILT, wet, mostly fine to coarse shell fragments (±70%), strong HCl reaction.	ML	31.6		80	16+18+21 N =39 REC =12"	w=21.9% *	
83.5	SILTY SAND, gray and light greenish gray, contains strongly cemented sand pockets.	SM	26.6		85	9+8+17 N =25 REC =14"	w=25.6% *	*Switched to 4-3/4" O.D. Drag bit below 83.5 ft. *Extreme difficultly in rotary advancement from 85.5 to 88.5 ft (moderate rig chatter, slow advancement). *Switched to 5" O.D. Tri-cone roller bit below 88.5 ft.
	little fine to coarse shell fragments (±15%), contains black particles (1/16 inch).				90	25+11+12 N =23 REC =18"	w=23.1% *	

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Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 4 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray and dark gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	SM			95	5+6+10 N =16 REC =18"	w=29.8% *	*Very difficult rotary advancement from 88.5 to 92 ft (strong rig chatter).
	light greenish gray and gray, few fine to coarse shell fragments (±10%).				100	13+13+18 N =31 REC =18"	w=27.4% *	
100.0	POORLY GRADED SAND WITH CLAY, gray, trace fine to medium shell fragments (±5%), moderate HCl reaction.	SP-SC	10.1		105	REC =21"	w=23.1% LL=24 PL=18 *	*Osterberg sampler tube push from 103.5 to 105.3 ft
	greenish gray and blueish gray, trace fine to medium shell fragments (±1%), very weak HCl reaction.				110	4+8+9 N =17 REC =18"	w=30.8% *	
					115	REC =0"		*Osterberg sampler tube push ftom 113.5 to 113.8 ft *Slight to moderately difficult rotary advancement from 113.5 to 118.5 ft (slight to moderate rig chatter).
117.0	SILTY SAND, fine to medium grained, wet, gray and light greenish gray, mostly fine to coarse shell fragments (±70%), strong HCl reaction.	SM	-6.9		120	6+16+50/4" N =66/10" REC =18"	w=26.2% LL=NP PL=NP *	**Resumed drilling at 10:30 AM on 6/12/06. *Slight to moderate difficulty in rotary advancement from 118.5 to 120 ft (slight rig chatter).
	gray and greenish gray, weak HCl *continued on next page*					4+11+19	w=33.9%	

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 5 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	reaction.	SM			125	N =30 REC =18"	*	
					130	11+17+20 N =37 REC =18"	w=31.9% *	
132.0	SANDY SILT, fine to medium, moist, greenish gray, trace fine to coarse shell fragments (±5%), contains indurated silt pockets, very weak HCl reaction. trace fine to medium shell fragments (±1%) below 134.5 ft.	ML	-21.9		135	6+12+18 N =30 REC =18"	w=37.1% *	
137.0	SILTY SAND, moist, greenish gray, trace fine to medium shell fragments (±5%), very weak HCl reaction.	SM	-26.9		140	8+10+14 N =24 REC =18"	w=45.1% *	
	dark greenish gray, few fine to coarse shell fragments (±10%), trace organic matter (±1%), contains clayey sand layers (high percentage of sand). strong HCl reaction				145	7+9+17 N =26 REC =18"	w=38.9% *	
					150	7+18+15 N =33 REC =18"	w=32.8% *	
152.0	SANDY LEAN CLAY, fine to medium, moist, dark greenish gray, trace fine to coarse shell fragments (±<5%), strong HCl reaction.	CL	-41.9		155	5+9+13 N =22 REC =18"	w=44.9% *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 6 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						*Osterberg sampler tube push from 158.5 to 160.0 ft
158.5	ORGANIC CLAY, trace fine to coarse shell fragments (±5%) and mica, contains indurated lean clay pockets, weak HCl reaction.	OH	-48.4		160	REC =19"	w=44.9% LL=74 PL=18 PP=>4.5 tsf *	
162.0	ELASTIC SILT, moist, dark greenish gray, trace fine to medium sand and mica, weak HCl reaction.	MH	-51.9		165	8+10+14 N =24 REC =18"	w=59.7% *	
167.0	SILT, moist, dark greenish gray, with fine to medium sand, trace fine to coarse shell fragments (±5%), moderate HCl reaction.	ML	-56.9		170	4+7+11 N =18 REC =18"	w=41.0% *	
172.0	SILTY SAND, moist, gray	SM	-61.9		175	8+8+12 N =20 REC =18"	w=49.7% *	
	contains indurated elastic silt pockets.				180	REC =16"	w=41.5% LL=64 PL=34 PP=>4.5 tsf *	*Osterberg sampler tube push from 178.5 to 179.5 ft *Swiched to 5" O.D. Tri-cone roller bit below 178.5 ft.
	greenish gray, very weak HCl reaction.				185	6+8+11 N =19 REC =18"	w=73.3% *	**Resumed drilling at 7:00 AM on 6/13/06.
185.0	ELASTIC SILT, moist, dark greenish gray, trace fine to medium sand and mica, weak HCl reaction.	MH	-74.9					
	trace fine sand, mostly indurated elastic silt layers.				190	REC =8"	w=72.4% LL=111 PL=70	*Osterberg sampler tube push from 188.5 to 190.0

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-423** Contract Number: 06120048 Sheet: 7 of 7

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH					*	ft
	contains indurated elastic silt pockets, weak HCl reaction.				195	5+10+14 N =24 REC =18"	w=71% *	
199.0	LEAN CLAY, moist, greenish gray and dark greenish gray, with fine to medium sand, trace mica, weak HCl reaction.	CL	-88.9		200	6+9+15 N =24 REC =18"	w=45.3% *	**Resumed grouting at 7:00 AM on 6/14/06.
201.5	BOTTOM OF BORING @ 201.5 FT.		-91.4					

Comments:

1. Boring backfilled with cement/bentonite grout via tremie pipe upon completion.
2. Downhole geophysical logging performed on 6/14/06.
3. * = See Appendix I for additional lab testing data.
4. Ground Water Observation Well OW-423 installed at a nearby location

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-424** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750

Schnabel Representative: B. Bradfield

Dates Started: 4/27/06 **Finished:** 4/28/06

Location: Northing: 216263.3 ft
Easting: 960818.6 ft

Ground Surface Elevation: 118.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/27	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		118.6					
	SILTY SAND, fine to medium grained, moist, light brown, contains root fragments.	SM				1+2+3 N =5 REC =15"		
2.5	SANDY LEAN CLAY, fine to medium, moist, orangeish brown.	CL	116.4			1+2+3 N =5 REC =13"		
					5	2+2+4 N =6 REC =2"		
7.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, brownish orange, w/ iron staining.	SP-SM	111.9			2+1+3 N =4 REC =12"		
	orangeish brown, no iron staining.				10	2+5+4 N =9 REC =12"		
	yellowish brown, trace gravel, w/ slt. iron staining.				15	5+7+8 N =15 REC =12"		
17.0	SILTY SAND, medium to coarse grained, moist, orangeish brown, trace fine to medium gravel.	SM	101.9		20	10+10+9 N =19 REC =13"		
22.0	POORLY GRADED SAND WITH SILT, fine and coarse grained, wet, orangeish brown and gray, trace fine to medium gravel. moist, orangeish brown and gray.	SP-SM	96.9	▽	25	6+13+12 N =25 REC =14"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-424** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	brownish orange and gray.							
	fine to medium grained.				30	6+9+15 N =24 REC =14"		
	orangeish brown and brown, <1/2 " clay lenses.				35	9+14+17 N =31 REC =14"		
	brownish orange and gray.				40	3+4+5 N =9 REC =15"		1/4" clay lense
	brownish orange and mottled gray, <1/8" clay lenses .				45	6+5+4 N =9		
44.8	CLAYEY SAND, fine to medium grained, moist, brownish orange and gray.	SC	74.1					
48.5	POORLY GRADED SAND WITH SILT, medium to coarse grained, wet, orange brown, trace gravel.	SP-SM	70.4		50	9+11+16 N =27 REC =16"		
52.0	LEAN CLAY with sand, moist, dark gray.	CL	66.9		55	1+5+6 N =11 REC =18"		
57.0	FAT CLAY with sand, moist, dark gray.	CH	61.9					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-424** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	WOH+5+7 N =12 REC =18"	PP=1.25 tsf	
64.5	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	54.4		65	WOH+4+5 N =9 REC =18"	PP=2.50 tsf	
67.0	FAT CLAY with sand, moist, gray.	CH	51.9		70	3+6+9 N =15 REC =18"	PP=3.00 tsf	
72.0	CLAYEY SAND, fine to medium grained, moist, gray.	SC	46.9		75	4+6+7 N =13 REC =18"		
77.0	POORLY GRADED SAND, fine to medium grained, wet, dark greenish gray, trace clay, glauconite cementation.	SP	41.9		80	33+50/3" N =50/3" REC =6"		
					85	50/2" N =50/2" REC =2"		
	with fine to medium shell fragments, strong HCl reaction.				90	50/4" N =50/4"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-424** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
92.0	CLAYEY SAND, fine and coarse grained, moist, gray and white, with fine to coarse shell fragments, strong HCl reaction.	SC	26.9		95	9+9+17 N =26 REC =18"		
	gray and brownish white, trace gravel.				100	4+19+27 N =46 REC =18"		Hard drilling
100.0	BOTTOM OF BORING @ 100.0 FT.		18.9					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-425** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: FAILING-1500

Schnabel Representative: R. Vinzant

Dates Started: 4/28/06 **Finished:** 5/1/06

Location: Northing: 216247.5 ft
Easting: 961274.7 ft

Ground Surface Elevation: 118.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/28	---	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish brown, trace organic matter.	SP-SM				2+6+8 N =14 REC =18"	w=13.7% *	
						3+3+4 N =7 REC =13"	w=7.3% *	
					5	3+4+3 N =7 REC =18"	w=2.5% *	
	brown.					2+2+3 N =5 REC =14"	w=10.8% *	
					10	3+3+4 N =7 REC =14"	w=14.2% *	
						6+5+6 N =11 REC =14"	w=16.4% *	
	fine to medium grained, moist, brown, trace fine gravel.				15			
					20	8+9+9 N =18 REC =15"	w=11.1% *	
	continued on next page				25			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-425** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	orangeish brown.	SP-SM				15+19+14 N =33 REC =18"	w=11.6% *	
					30	13+14+15 N =29 REC =13"	w=15.2% *	
					35	13+13+14 N =27 REC =13"	w=12% *	
					40	14+17+19 N =36 REC =12"	w=14.9% *	
41.5	WELL GRADED SAND WITH SILT, medium grained, wet, orangeish brown.	SW-SM	76.9					
	dark brown, with fine gravel.				45	17+17+19 N =36 REC =16"	w=13.7% *	
					50	11+14+14 N =28 REC =14"	w=12.1% LL=28 PL=17 *	
51.5	SANDY LEAN CLAY, fine to medium grained, wet, orange.	CL	66.9					
					55	3+3+4 N =7 REC =18"	w=28.2% LL=46 PL=19 *	
57.0	FAT CLAY, with sand, wet, gray.	CH	61.4			REC =24"	w=31.2% LL=55	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-425** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					PL=25 *	
					60	3+3+4 N =7 REC =18"	w=35.1% LL=63 PL=21 *	
					65	REC =24"	w=39.5% LL=69 PL=28 *	
70.0	ELASTIC SILT, gray	MH	48.4		70	6+6+9 N =15 REC =18"	w=38.4% LL=77 PL=42 *	
75.0	CLAYEY SAND, dark gray	SC	43.4		75	REC =24"	w=21.8% LL=41 PL=20 *	
					80	22+35+50/4" N =85/10" REC =18"	w=31.7% *	
81.0 81.5	SILTY SAND, fine grained, moist, dark reddish brown, with fine to coarse shell fragments.	SM	37.4					
	POORLY GRADED SAND, fine to medium grained, wet, dark gray, with shell fragments.	SP	36.9					
					85	7+10+24 N =34 REC =16"	w=19% *	
					90	29+19+17 N =36	w=20.5% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-425** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP				REC =18"		
					95	50/4" N =50/4" REC =4"	w=17.9% *	
96.5	SILTY SAND, fine to medium grained, wet, light gray, with fine gravel	SM	21.9					
					100	50/0.5" N =50/0.5" REC =0"		
101.5	BOTTOM OF BORING @ 101.5 FT.		16.9					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-426** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: W. Wolf

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell / K. Megginson

Dates Started: 7/28/06 **Finished:** 8/3/06

Location: Northing: 216193.04 ft
Easting: 961386.57 ft

Ground Surface Elevation: 83.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/28	---	9.0'	---	---
Start of day	7/31	---	11.5'	---	---
Start of day	8/1	---	43.5'	---	---
Start of day	8/2	---	43.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED WITH SILT, fine and coarse grained, moist, brown, trace root fragments.	SP-SM				3+3+3 N =6 REC =14"		AWJ rods used
	yellowish brown, trace gravel.					2+3+4 N =7 REC =16"		
					5	4+4+4 N =8 REC =16"		
	wet, yellowish brown and orangeish brown.			▽		2+2+3 N =5 REC =12"		
					10			
	moist, orangeish brown and reddish brown.					3+4+5 N =9 REC =12"		
12.0	CLAYEY SAND, fine to coarse grained, wet, yellowish brown and orangeish brown.	SC	71.7					*4-1/4" I.D. Hollow Stem Augers used from 0 to 13.5 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 13.5 ft.
						3+2+3 N =5 REC =17"		
					15			
17.0	SILTY SAND, fine to coarse grained, wet, yellowish brown, trace fine grave.	SM	66.7					
						3+2+1 N =3 REC =0"		
					20			
22.0	FAT CLAY, wet, grayish brown and orangeish brown, trace fine to medium sand.	CH	61.7					*Slight to moderate rig chatter at 22.5 ft.
	gray and dark gray, trace mica, contains clayey sand and silty sand pockets					1+2+3 N =5 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-426** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	below 24 ft.	CH						
27.0	ELASTIC SILT, moist, gray and dark gray, trace fine to medium sand, mica, and organic matter (±1%), contains clayey sand lenses	MH	56.7		30	3+3+3 N =6 REC =18"		
	gray.				35	3+3+5 N =8 REC =18"		
37.0	SANDY LEAN CLAY, fine to medium, moist, gray, trace mica, contains light gray clayey sand pockets, contains indurated sandy lean clay pockets.	CL	46.7		40	3+4+5 N =9 REC =18"		
42.0	CLAYEY SAND, fine to medium grained, moist, gray, mostly indurated clayey sand layers (±100%) .	SC	41.7					*Slight to moderate rig chatter at 43 ft.
44.0	SILTY SAND, fine to medium grained, moist, dark orangeish brown, dark yellowish brown and light brown, contains poorly graded sand trace silt layers and pockets, and dark reddish brown lense (oxidized) from 44 to 44.1 ft.	SM	39.7		45	8+13+43 N =56 REC =18"		
	wet, gray.				50	7+5+3 N =8 REC =15"		*Lost ~80 gal of mud from 48.5 to 53.5 ft. Thickened mud. *Lost another 160 gal of mud (2 batches).
	few fine to coarse shell fragments (±10%), contains shell bed layer from 54 to 54.3 ft, strong HCl reaction.				55	19+36+50 N =86 REC =18"		*Rotary bit became frictionally seized at 47 ft (presumaedly by running sands). Ran 4-1/4" I.D. HSA to 53.5 ft to free rod. *Switched to 3-7/8" O.D. Tri-cone roller

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-426** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	moist, mostly strongly cemented sand layers (±90%), few fine to coarse shell fragments (±10%).	SM			60	50/5" N =50/5" REC =2"		bit below 53.5 ft. *Slight to moderate difficulty in rotary advancement from 53.5 to 57.5 ft (slight rig chatter). *Very to extremely difficult rotary/auger advancement from 57.5 to 58.5 ft. *Lost additional 80 gal of mud between 53.5 to 58.5 ft. With rig off, can hear mud quickly draining into formation. *Ran 4-1/4" I.D. HSA to 58.5 ft. *Sampler refusal at 58.9 ft. **Resumed drilling at 7:20 AM on 8/1/06. *Due to significant mud loss, attempted to run augers to 63.5 ft in order to socket augers in a low permeable strata. However, augers became sand-locked overnight due to running sands. Augers successfully un-sand-locked with considerable effort. **Resumed drilling at 12:40 PM on 8/2/06. *Moderate to very difficult rotary advancement from 59 to 60.5 ft (moderate to strong rig chatter). *Moderate to difficult rotary advancement from 60.5 to 62
62.0	CLAYEY SAND, fine to medium grained, moist, gray and oliveish gray, contains strongly cemented sand pockets, trace fine to coarse shell fragments (±5%).	SC	21.7		65	6+50 N =50 REC =14"		
67.0	SILTY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments (±15%), moderate HCl reaction.	SM	16.7		70	6+7+11 N =18 REC =18"		
72.0	CLAYEY SAND, fine to medium grained, wet, gray and greenish gray, trace fine to coarse shell fragments (±5%), contains sandy silt pockets, weak HCl reaction.	SC	11.7		75	5+5+9 N =14 REC =18"		
77.0	SILTY SAND, fine to medium grained, wet, gray and light greenish gray, trace fine to medium shell fragments (±<5%), very weak HCl reaction.	SM	6.7		80	4+5+8 N =13 REC =18"		
82.0	CLAYEY SAND, fine to medium grained, wet, gray and light greenish gray, trace fine to medium shell fragments (±5%), contains black particles (1/16 inch), very weak HCl reaction.	SC	1.7		85	4+4+7 N =11 REC =18"		
	light greenish gray and greenish gray, mostly fine to coarse shell fragments (±70%), contains moderately cemented sand pockets, strong HCl reaction. light greenish gray, some fine to coarse				90	18+7+9 N =16 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-426** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments (±30%) below 89 ft.	SC						ft. *Ran 4-1/4" I.D. HSA to 63.5 ft. *More mud loss. *Modrate to difficult rotary advancement from 88 to 88.5 ft (moderate to strong rig chatter).
92.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, few fine to coarse shell fragments (±10%), weak HCl reaction.	SM	-8.3		95	6+8+10 N =18 REC =18"		
97.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments (±1%), moderate HCl reaction.	SC	-13.3		100	7+11+18 N =29 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-16.3					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-427** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 5/2/06 **Finished:** 5/2/06

Location: Northing: 216164.05 ft
Easting: 961272.73 ft

Ground Surface Elevation: 116.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/2	---	44.0'	3.5'	---
Start of day	5/3	---	17.0'	5.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		116.0					
	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM				1+5+4 N =9 REC =16"	PP=4.50 tsf	Hollow stem auger
						3+3+3 N =6 REC =14"	w=9.4% *	Mud rotary
					5	1+2+2 N =4 REC =14"		
7.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orange	SP-SM	109.3			4+5+7 N =12 REC =18"	w=7.9% *	
					10	3+3+3 N =6 REC =18"		
					15	4+4+4 N =8 REC =15"		
17.0	SILTY SAND, fine to medium grained, moist, orange	SM	99.3					
					20	4+4+5 N =9 REC =18"	w=8.2% *	
22.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange.	SP-SM	94.3					
					25	9+13+14 N =27 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-427** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM			30	7+9+7 N =16 REC =10"	w=12.2% *	
33.5	POORLY GRADED SAND, fine to coarse grained, moist, orangeish white, with fine gravel.	SP	82.8		35	11+12+12 N =24 REC =14"		
	orange.				40	10+15+13 N =28 REC =18"	w=13.6% *	
43.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, orange.	SP-SM	72.8	▽	45	10+12+13 N =25 REC =15"		
					50	10+12+13 N =25 REC =15"	w=18.6% *	
53.5	SILTY SAND, fine grained, moist, mottled orange and white.	SM	62.8		55	5+9+15 N =24 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-427** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.5	LEAN CLAY, moist, dark gray, with sand.	CL	57.8		60	4+5+7 N =12 REC =18"		
63.5	SANDY, ORGANIC CLAY, moist, dark gray.	OH	52.8		65	REC =24"	w=32.8% LL=56 PL=18 PP=2.50 tsf *	
	trace sand.				70	5+7+5 N =12 REC =18"		
73.5	CLAYEY SAND, fine grained, moist, dark gray.	SC	42.8		75	REC =16"		
78.5	SILTY SAND, fine to medium grained, moist, dark brownish orange.	SM	37.8		80	44+50/3" N =50/3" REC =10"	w=23.1% *	
					85	50/4" N =50/4" REC =4"		
	trace fine to medium shell fragments, weak HCl reaction.				90	50/2" N =50/2" REC =2"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-427** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						Rig chatter
						50/4" N =50/4" REC =3"	w=12.0% *	
					95			
	fine to medium grained, moist, grayish green, trace fine to medium shell fragments, weak HCl reaction.					5+7+8 N =15 REC =18"		
					100			
103.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments, weak HCl reaction.	SP-SM	12.8			8+12+13 N =25 REC =16"	w=24.8% *	
					105			
108.5	SILTY SAND, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, moderate HCl reaction.	SM	7.8			7+9+11 N =20 REC =18"		
					110			
113.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, weak HCl reaction.	SP-SM	2.8			9+9+8 N =17 REC =13"		
					115			
118.5	SILTY SAND, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, moderate HCl reaction.	SM	-2.2			3+3+4 N =7 REC =18"	w=29.2% *	
					120			
	greenish white, with medium to coarse					6+11+14		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-427** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	shell fragments, contains cemented sand, moderate HCl reaction.	SM			125	N =25 REC =18"		
					130	9+11+14 N =25 REC =18"	w=31.4% *	
					135	7+8+8 N =16 REC =12"		
					140	5+4+9 N =13 REC =18"	w=38.5% *	
	with sand, trace fine to medium shell fragments, moderate HCl reaction.				145	7+5+8 N =13 REC =18"	PP=3.00 tsf	
	fine to medium grained, moist, green.				150	5+6+9 N =15 REC =18"	w=44.3% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-33.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-428** Contract Number: 06120048 Sheet: 1 of 5

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: FAILING-1500 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/2/06 **Finished:** 5/3/06

Location: Northing: 216109.19 ft
Easting: 961210.06 ft

Ground Surface Elevation: 114.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/2	---	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL		113.7					
	LEAN CLAY, fine to medium grained, moist, reddish brown.	CL				3+4+4 N =8 REC =14"		
						3+3+3 N =6 REC =16"		
4.0	CLAYEY SAND, fine to medium grained, moist, reddish brown.	SC	110.1		5	2+3+3 N =6 REC =18"		
6.5	SILTY SAND, fine to medium grained, moist, reddish brown.	SM	107.6			1+2+2 N =4 REC =16"		
	light reddish brown.				10	3+4+4 N =8 REC =16"		
12.0	POORLY GRADED SAND, fine to medium grained, moist, light brown, trace fine gravel.	SP	102.1			5+6+7 N =13 REC =15"		
15.0	CLAYEY SAND, fine to medium grained, moist, reddish brown.	SC	99.1		15	15+15+12 N =27 REC =18"		
20.0	SILTY SAND, fine to medium grained, moist, light orangeish brown.	SM	94.1		20	14+14+16 N =30 REC =14"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-428A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-428** Contract Number: 06120048 Sheet: 2 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	medium to coarse grained.	SM						
					30	11+13+16 N =29 REC =13"		
	fine to medium grained, dark reddish brown, with fine gravel				35	24+16+10 N =26 REC =4"		
	fine to medium grained, wet, light brown.							
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, light brown.	SP-SM	77.1					
					40	11+13+11 N =24 REC =15"		
40.0	CLAYEY SAND, fine to medium grained, moist, orangeish brown and black, trace fine rock fragments.	SC	74.1					
					45	16+9+10 N =19 REC =13"		
	orange, no rock fragments.							
					50	6+9+6 N =15 REC =18"		
50.0	FAT CLAY, moist, gray.	CH	64.1					
					55	4+3+5 N =8 REC =18"		
						REC =21"	PP=1.00 tsf	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-428A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-428** Contract Number: 06120048 Sheet: 3 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
59.0	FAT CLAY, moist, gray, with sand.	CH	55.1					
					60	REC =24"	w=37.1% LL=61 PL=17 PP=2.00 tsf	
						REC =24"	* PP=2.00 tsf	
						REC =20"		
					65			
						REC =24"	PP=2.50 tsf	
						REC =7"		
					70			
71.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	43.1					
						9+10+12 N =22 REC =18"		
	with fine rock fragments.				75			
						50/4" N =50/4" REC =4"	PP=1.50 tsf	
					80			
						50/3" N =50/3" REC =0"		
85.0	SILTY SAND, fine grained, moist, gray, with fine to coarse shell fragments, moderate HCl reaction.	SM	29.1		85			
						50/4" N =50/4" REC =4"		
					90			

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-428A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-428** Contract Number: 06120048 Sheet: 4 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	7+13+50/2" N =63/8" REC =19"		
					100	7+8+8 N =16 REC =18"		
					105	14+15+19 N =34 REC =18"		
105.0	POORLY GRADED SAND, fine to medium grained, moist, gray.	SP	9.1					
					110	19+24+30 N =54 REC =18"		
	trace fine to medium shell fragments.				115	4+5+10 N =15 REC =18"		
115.0	CLAYEY SAND, fine to coarse grained, moist, greenish gray, with fine to coarse shell fragments, strong HCl reaction.	SC	-0.9					
					120	10+18+25 N =43 REC =18"		
						30+47+36		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-428A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-428** Contract Number: 06120048 Sheet: 5 of 5

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to coarse shell fragments, moderate HCl reaction.	SC			125	N =83 REC =17"		
					130	8+I0+17 N =17 REC =18"		
					135	11+17+22 N =39 REC =18"		
					140	10+13+18 N =31 REC =18"		
	with fine to coarse shell fragments, moderate HCl reaction.				145	7+12+17 N =29 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-35.9		150	6+8+13 N =21 REC =18"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-428A installed at a nearby location

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-429** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750

Schnabel Representative: B. Bradfield

Dates Started: 5/1/06 **Finished:** 5/2/06

Location: Northing: 216087.85 ft
Easting: 961119.27 ft

Ground Surface Elevation: 103.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/1	---	17.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		103.4					
	SILTY SAND, fine to medium grained, moist, reddish brown, contains organic matter.	SM				1+1+3 N =4 REC =6"		
	orangeish brown, trace gravel, trace organic matter.					WOH+WOH +1 N =1 REC =6"		
	fine to coarse grained, trace root fragments.				5	2+3+4 N =7 REC =16"		
	fine to medium grained, yellowish brown.					3+3+3 N =6 REC =14"		
9.5	POORLY GRADED SAND, fine to coarse grained, moist, yellowish brown and orangeish brown, trace silt.	SP	94.2		10	7+8+11 N =19 REC =12"		
12.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orangeish brown, trace gravel.	SP-SM	91.7			9+9+13 N =22 REC =12"		
					15			
17.0	POORLY GRADED SAND, fine to coarse grained, wet, white and orangeish brown, trace gravel, trace silt.	SP	86.7	▽		3+7+17 N =24 REC =12"		
					20			
22.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, orangeish brown, trace gravel.	SP-SM	81.7			5+10+9 N =19 REC =9"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-429** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to coarse grained, yellowish brown, no gravel.	SP-SM			30	7+11+12 N =23 REC =12"		
32.0	POORLY GRADED SAND, medium to coarse grained, wet, light orangeish brown and yellowish brown, trace gravel, trace silt.	SP	71.7		35	10+10+10 N =20 REC =12"		
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brownish orange and gray.	SP-SM	66.7		40	5+4+6 N =10 REC =18"		
42.0	FAT CLAY with sand, moist, gray, contains mica.	CH	61.7		45	3+4+5 N =9 REC =18" REC =24"	PP=2.00 tsf	
49.5	SANDY ELASTIC SILT, wet, gray.	MH	54.2		50	2+2+3 N =5 REC =18"		
52.0	FAT CLAY, moist, gray, trace sand.	CH	51.7		55	REC =0" 3+6+8 N =14 REC =18"	PP=3.50 tsf	
57.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray. *continued on next page*	SC	46.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-429** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			60	REC =18"		
					65	11+16+28 N =44 REC =18"		Hard drilling
67.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray.	SP-SM	36.7		70	50/3" N =50/3" REC =4"		
72.0	POORLY GRADED SAND, fine to medium grained, wet, gray.	SP	31.7		75	21+20+19 N =39 REC =18"		
77.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, gray and white, with fine to coarse shell fragments, strong HCl reaction.	SP-SM	26.7		80	20+19+14 N =33 REC =16"		Resumed drilling on 5/2/06 Augers grinding/scraping Changed to roller bit
82.0	CLAYEY SAND, fine to medium grained, moist, gray, trace fine to medium shell fragments, weak HCl reaction.	SC	21.7		85	17+11+15 N =26 REC =18"		
87.0	POORLY GRADED SAND, fine to medium grained, wet, gray and white, trace silt, with fine to coarse shell fragments, moderate HCl reaction.	SP	16.7		90	5+8+8 N =16 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-429** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
					95	8+12+12 N =24 REC =17"		
97.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray, trace fine to coarse shell fragments, weak HCl reaction.	SP-SM	6.7					
					100	5+7+9 N =16 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		3.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-430** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/1/06 **Finished:** 5/1/06

Location: Northing: 216006.88 ft
Easting: 961193.12 ft

Ground Surface Elevation: 102.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/1	---	10.5'	---	---
Start of Day	5/2	---	17.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		102.0					
	SANDY SILT, fine to medium, moist, brown, contains root fragments.	ML				2+3+3 N =6 REC =11"	PP=1.00 tsf	
2.0	CLAYEY SAND, fine to coarse grained, moist, brown.	SC	100.5			3+2+2 N =4 REC =14"		
4.5	POORLY GRADED SAND WITH SILT, trace gravel, fine to coarse grained, moist, brown and light brown.	SP-SM	98.0		5	3+5+4 N =9 REC =11"		
7.0	CLAYEY SAND, fine to coarse grained, moist, brown.	SC	95.5			3+6+8 N =14 REC =12"		
	wet.			▽	10	6+6+7 N =13 REC =11"		
12.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, light brown and light yellowish brown.	SP-SM	90.5			7+6+8 N =14 REC =10"		*Switched to 3-7/8" O.D. Tri-cone roller bit below 13.5 ft.
	light brown.				15	11+12+19 N =31 REC =8"		
					20	6+8+8 N =16 REC =9"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-430** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	SANDY SILT, fine to medium, wet, light yellowish brown.	ML	75.5					
	gray.				30	1+1+2 N =3 REC =16" REC =10"	PP=1.50 tsf	
32.0	LEAN CLAY, wet, gray, trace sand, contains mica.	CL	70.5					
34.5	CLAYEY SAND, fine to coarse grained, wet, gray, contains mica, and lean clay pockets.	SC	68.0		35	1+2+3 N =5 REC =18"		
						REC =5"	PP=NM tsf	
39.7	LEAN CLAY, wet, dark gray, trace sand, contains clayey sand lenses and mica.	CL	62.8		40	6+6+7 N =13 REC =18"		
42.0	ELASTIC SILT, moist, gray, trace sand, contains mica.	MH	60.5		45	3+3+4 N =7 REC =18"		
						REC =18"	PP=2.50 tsf	
50.2	LEAN CLAY, moist, gray and light greenish gray, trace sand, contains mica.	CL	52.3		50	3+3+4 N =7 REC =18"		
52.0	FAT CLAY, moist, light greenish gray, trace sand, contains mica.	CH	50.5		55	4+4+7 N =11 REC =18"		
57.0	SANDY SILT, fine to medium, moist, gray.	ML	45.5					

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-430** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML				REC =17"	PP=4.50 tsf	
62.0	SILTY SAND, fine to coarse grained, moist, dark gray, trace gravel, trace fine to medium shell fragments, moderate HCl reaction.	SM	40.5		60 65	24+15+15 N =30 REC =12"		*Switched to 2-15/16" Tri-cone roller bit below 65 ft.
67.0	POORLY GRADED SAND, fine grained, wet, gray, with silt, with fine to medium shell fragments, moderate HCl reaction.	SP-SM	35.5		70	45+43+12/1" N =55/7" REC =10"		
72.0	SILTY SAND, fine to coarse grained, wet, gray, with fine to coarse shell fragments, strong HCl reaction.	SM	30.5		75	11+12+14 N =26 REC =11"		
77.0	CLAYEY SAND, fine to coarse grained, wet, light gray, trace fine to medium shell fragments, moderate HCl reaction.	SC	25.5		80	12+7+6 N =13 REC =14"		
	oliveish gray and grayish brown, trace fine to medium shell fragments, moderate HCl reaction.				85	26+9+23 N =32 REC =16"		
	fine to medium grained, trace fine to coarse shell fragments, strong HCl reaction.				90	6+5+9 N =14 REC =0"		**Resumed drilling at 7:00 AM on 5/2/06.

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-430** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	few fine to medium shell fragments, strong HCl reaction.							
					95	15+7+8 N =15 REC =17"		
	trace fine to medium shell fragments, strong HCl reaction.							
					100	7+8+12 N =20 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		2.5					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-431** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: FAILING-1500

Schnabel Representative: R. Vinzant

Dates Started: 4/27/06 **Finished:** 4/28/06

Location: Northing: 216271.1 ft
Easting: 961177.3 ft

Ground Surface Elevation: 118.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/27	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	CLAYEY SAND, fine to coarse grained, moist, orangeish brown	SC				1+4+5 N =9 REC =10"		
1.5	SANDY LEAN CLAY, fine to medium grained, moist, orangeish brown.	CL	116.9			2+3+3 N =6 REC =16"	PP=1.00 tsf	
					5			
6.0	CLAYEY SAND, fine to medium grained, moist, orangeish brown.	SC	112.4			2+2+2 N =4 REC =12"		
	orangeish brown and brown.					3+4+4 N =8 REC =11"		
					10			
	fine to coarse grained, orangeish brown and yellowish brown.					5+7+8 N =15 REC =11"		
13.5	POORLY GRADED SAND WITH SILT and gravel, fine to coarse grained, wet, orangeish brown and white.	SP-SM	104.9	▽		5+7+11 N =18 REC =12"		
					15			
					20			
20.5	SILTY SAND, fine to coarse grained, moist, orangeish brown.	SM	97.9			10+14+18 N =32 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-431** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				10+14+19 N =33 REC =11"		
					30	11+14+20 N =34 REC =9"		
31.5	POORLY GRADED SAND WITH SILT, fine gravel, fine to medium grained, wet, orangeish brown and brown.	SP-SM	86.9					
					35	18+13+30 N =43 REC =13"		
	yellowish brown.							
40.0			78.4		40			
40.5	POORLY GRADED GRAVEL, fine to medium grained, with sand, trace silt, wet, yellowish brown and white.	GP	77.9			10+10+10 N =20 REC =12"		
	CLAYEY SAND, fine to coarse grained, trace fine gravel, moist, orangeish brown and yellowish brown.	SC						
	no gravel, wet.				45	12+14+15 N =29 REC =12"		
50.0	SANDY ELASTIC SILT, fine to medium grained, moist, orangeish brown and gray.	MH	68.4		50	2+4+6 N =10 REC =18"		
55.0	FAT CLAY with sand, moist, c. mica, gray.	CH	63.4		55	3+3+5 N =8 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-431** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
					60	4+3+6 N =9 REC =18"		
	sandy				65	4+4+6 N =10 REC =18"		
70.0	LEAN CLAY with sand, c. mica, moist, greenish gray.	CL	48.4		70	5+7+10 N =17 REC =18"		
	sandy				75	4+5+7 N =12 REC =18"		
80.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown and gray.	SC	38.4		80	13+50/5" N =50/5" REC =11"		
85.0	SANDY ELASTIC SILT, medium to coarse grained, wet, gray.	MH	33.4		85	50/4" N =50/4" REC =4"		
86.5	SILTY SAND, fine to medium grained, moist, light gray, with shell fragments, trace rock fragments.	SM	31.9					
					90	13+11+31 N =42		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-431** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				REC =12"		
	with fine to coarse shell fragments, strong HCl reaction.				95	17+50/2" N =50/2" REC =8"		
96.5	CLAYEY SAND, fine to medium grained, moist, light gray, with shell fragments, trace rock fragments.	SC	21.9					
	trace fine to medium shell fragments, moderate HCl reaction.				100	10+32+16 N =48 REC =18"		
101.5	BOTTOM OF BORING @ 101.5 FT.		16.9					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-432** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75

Schnabel Representative: M. Arles

Dates Started: 4/27/06 **Finished:** 4/28/06

Location: Northing: 216399 ft
Easting: 961139.1 ft

Ground Surface Elevation: 118.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	4/27	---	29.0'	---	---
Start of day	4/28	---	12.7'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		118.3					
	Poorly graded sand FILL, moist, brown, with clay.	FILL				WOH+2+2 N =4 REC =14"		
2.5	SILTY SAND, fine and coarse grained, moist, brownish orange.	SM	116.1			5+3+4 N =7 REC =18"		
5.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish orange.	SP-SM	113.6		5	2+3+4 N =7 REC =18"		
	white.					3+4+5 N =9 REC =14"		
					10			
	orange.					4+5+7 N =12 REC =18"		
	orangeish white layering 1/4" thick.					4+5+7 N =12 REC =16"		Switch to mud rotary at 15' using 2 15/16" bit
					15			
						9+9+10 N =19 REC =10"		
					20			
	fine to coarse grained, orange, layering.					12+13+13 N =26 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-432** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	wet.			▽	30	10+12+12 N =24 REC =10"		
	yellow, trace gravel.				35	19+18+21 N =39 REC =13"		
38.5	SILTY SAND, fine to medium grained, wet, light brownish orange.	SM	80.1		40	7+8+8 N =16 REC =13"		
	orange.				45	5+7+7 N =14 REC =13"		
48.5	SILT, moist, dark orange, with sand.	ML	70.1		50	2+2+1 N =3 REC =18"		
49.3	LEAN CLAY, moist, dark gray, with sand.	CL	69.3		55	3+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-432** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray.	CL			60	3+3+4 N =7 REC =18"		
63.5	FAT CLAY, wet, dark gray.	CH	55.1		65	3+3+3 N =6		
					70	4+6+4 N =10 REC =5"		
73.5	CLAYEY SAND, fine grained, moist, dark greenish gray.	SC	45.1		75	4+5+5 N =10 REC =18"		
78.5	SILTY SAND, fine grained, moist, reddish brown.	SM	40.1		80	34+50/4" N =50/4" REC =10"		
83.5	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, grayish green, contains shell fragments, strong HCl reaction.	SP-SM	35.1		85	6+8+30 N =38 REC =17"		
	moist, greenish white.				90	48+27+29 N =56 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-432** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
93.5	POORLY GRADED SAND WITH CLAY, fine to coarse grained, wet, green.	SP-SC	25.1			7+12+50/5" N =62/11" REC =18"		
94.5	CLAYEY SAND, fine to medium grained, moist, green, contains shell fragments.	SC	24.1		95			
	wet.					50/3" N =50/3" REC =2"		
100.0	BOTTOM OF BORING @ 100.0 FT.		18.6		100			

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-433** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: Mud Rotary

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/16/06 **Finished:** 5/17/06

Location: Northing: 215963.8 ft
Easting: 961107.5 ft

Ground Surface Elevation: 97.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/17	---	33.5'	4.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		97.0					0-4' Hollow stem auger
	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.	SC				WOH+1+1 N =2 REC =15"		
2.0	SANDY SILT, moist, orangeish brown, contains root fragments.	ML	95.5			2+2+3 N =5 REC =18"		4-48.5'- 3 7/8" roller bit Start of drilling for the day
					5	4+3+2 N =5 REC =18"	w=27% *	
6.3	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, brown.	SP-SM	91.2					
7.0	SANDY SILT, fine to medium, moist, brown.	ML	90.5			2+2+2 N =4 REC =16"		
9.5	WELL GRADED SAND WITH SILT, fine to coarse grained, moist, brown.	SW-SM	88.0		10	5+5+5 N =10 REC =15"	w=5.8% *	
	brownish orange, with gravel.				15	8+12+10 N =22 REC =16"		
	orange.				20	6+8+8 N =16 REC =12"		
	brownish orange.				25	5+8+5 N =13 REC =18"	w=14.4% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-433** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SW-SM						
27.0	SILTY SAND, fine to medium grained, moist, orange.	SM	70.5		30	1+2+2 N =4 REC =18"		
32.0	SANDY ELASTIC SILT, fine to medium, wet, orange.	MH	65.5	▽	35	4+4+5 N =9 REC =18"	w=23.3% *	
34.5	SILTY SAND, fine to medium grained, moist, grayish orange	SM	63.0					
36.5	SANDY FAT CLAY, moist, dark gray, with sand.	CH	61.0		40	REC =24"	w=33.5% LL=61 PL=14 PP=2.50 tsf *	
					45	3+4+5 N =9 REC =18"	w=33.5% LL=59 PL=22 *	
					50	REC =24"	w=33.6% LL=64 PL=23 PP=4.00 tsf *	48.5-100' - 2 15/16" roller bit
52.0	SANDY LEAN CLAY, fine to medium grained, moist, dark gray.	CL	45.5		55	5+7+8 N =15 REC =18"	w=21% LL=45 PL=18 *	
57.0	SILTY SAND, fine to medium grained, moist, dark greenish gray.	SM	40.5					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-433** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	7+13+19 N =32 REC =18"	w=29.3% LL=44 PL=35 *	
62.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray.	SP-SM	35.5		65	50/5" N =50/5" REC =4"		
67.0	WELL GRADED SAND WITH SILT, fine to medium grained, moist, greenish gray, with fine to coarse 20-30% shell fragments, strong HCl reaction.	SW-SM	30.5		70	23+19+32 N =51 REC =16"		
	50-70% shell fragments.				75	6+8+14 N =22 REC =18"	w=23.7% *	
	25-30% shell fragments.				80	11+8+8 N =16 REC =18"		
	20-25% shell fragments.				85	6+9+11 N =20 REC =18"		
87.0	SANDY SILT, fine to medium grained, moist, dark green, with fine to coarse 15-20% shell fragments, strong HCl reaction.	ML	10.5		90	9+9+9 N =18 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-433** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
	weak HCl reaction, 0-5% shell fragments.				95	5+6+8 N =14 REC =18"	w=31.5% *	
					100	5+4+5 N =9 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-2.5					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-434** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/9/06 **Finished:** 5/10/06

Location: Northing: 215827.1 ft
Easting: 961244.3 ft

Ground Surface Elevation: 105.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/9	---	28.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	CLAYEY SAND, fine to medium grained, moist, orangeish brown and reddish brown, trace root fragments, trace wood fragments.	SC	104.7			3+4+4 N =8 REC =18"		
	SILTY SAND, fine to medium grained, moist, orangeish brown, trace root fragments.	SM				3+4+5 N =9 REC =18"		
	orangeish brown and grayish brown.				5	2+4+6 N =10 REC =18"		
7.0	POORLY SAND SAND WITH SILT, trace gravel, fine to coarse grained, moist, orangeish brown and yellowish brown.	SP-SM	98.2			3+6+7 N =13 REC =15"	w=11.8% *	
9.5	SILTY SAND, fine to coarse grained, moist, orangeish brown.	SM	95.7		10	4+7+8 N =15 REC =11"		
						9+9+9 N =18 REC =9"	w=7.0% *	
14.8	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orange.	SP-SM	90.4		15			
					20	5+8+11 N =19 REC =10"	w=10.6% *	
22.0	SILTY SAND, medium to coarse grained, moist, orangeish brown and yellowish brown.	SM	83.2					
					25	2+4+3 N =7 REC =12"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-434** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	wet, orangeish brown and gray.			▽	30	3+2+2 N =4 REC =18"	w=21.9% *	
	fine to medium grained, light gray.				35	2+2+2 N =4 REC =18"	w=26.6% *	
					40	2+1+1 N =2 REC =18"	w=27.4% LL=NP PL=NP *	
					45	REC =7"	PP=1.50 tsf	
47.0	FAT CLAY, trace sand, moist, gray and greenish gray.	CH	58.2		50	2+3+5 N =8 REC =18"	w=38.2% LL=73 PL=24 *	
					55	REC =18"	w=87.8% LL=56 PL=23 PP=2.50 tsf *	

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-434** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	5+5+8 N =13 REC =18"	w=36.6% LL=86 PL=22 PP=2.75 tsf *	Resumed drilling on 5/10/06 @ 7:30 am
62.0	SILTY SAND, fine to medium grained, moist, greenish gray and white, trace fine to medium shell fragments, HCl reaction moderate, weakly cemented.	SM	43.2		65	REC =19"	w=23.7% LL=NP PL=NP PP=2.00 tsf *	
					70	20+100/5" N =100/5" REC =10"	w=25% *	
	HCl reaction weak.				75	48+50 N =50 REC =13"	w=22.6% *	
					80	36+29+49 N =78 REC =17"	w=15.6% *	
82.0	SANDY LEAN CLAY, moist, light gray, trace fine to coarse shell fragments, HCl reaction moderate.	CL	23.2		85	50 REC =6"	w=19.8% LL=30 PL=22 PP=1.00 tsf *	
87.0	SILTY SAND, fine to medium grained, moist, gray and greenish gray, with fine to coarse shell fragments, HCl reaction strong.	SM	18.2		90	8+28+21 N =49 REC =18"	w=15.6% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-434** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND, trace silt, wet, gray and white, trace fine to coarse shell fragments, HCl reaction moderate.	SP	13.2		95	6+6+8 N =14 REC =18"	w=31.2% LL=NP PL=NP *	
97.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, trace fine to coarse shell fragments, HCl reaction strong.	SM	8.2		100	11+7+11 N =18 REC =18"	w=25.6% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		5.2					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-435** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/2/06 **Finished:** 5/3/06

Location: Northing: 216020.06 ft
Easting: 961404.74 ft

Ground Surface Elevation: 107.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/2	---	7.5'	---	---
Start of Day	5/3	---	9.7'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, rootmat and topsoil.		107.3					
	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.	SC				1+1+2 N =3 REC =10"		
2.0	SILTY SAND, fine to medium grained, moist, brown, contains root fragments.	SM	105.7			2+2+2 N =4 REC =13"		
	fine to coarse grained.				5	3+4+4 N =8 REC =12"		
7.0	CLAYEY SAND, fine to coarse grained, wet, brown.	SC	100.7	▽		3+5+6 N =11 REC =12"		*Used hollow stem augers to depth of 9 ft. *3-7/8" Tri-cone roller bit below 9 ft.
9.5	SILTY SAND, fine to medium grained, wet, brown.	SM	98.2		10	6+5+6 N =11 REC =11"		
	light yellowish brown.				15	6+6+8 N =14 REC =10"		
	light brown.				20	5+7+8 N =15 REC =8"		
	fine to coarse grained, brown and light brown.				25	5+9+10 N =19 REC =10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-435** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	brown.				30	2+10+12 N =22 REC =7"		
32.0	CLAYEY SAND, fine to medium grained, wet, brown.	SC	75.7		35	3+2+2 N =4 REC =13"		*Switched to 2-15/16" Tri-cone roller bit below 33.5 ft.
37.0	SANDY SILT, fine, wet, yellowish brown and light gray, contains mica.	ML	70.7		40	WOH/18" N = WOH/18" REC =18"		
42.0	SILTY SAND, fine to medium grained, wet, gray, contains mica.	SM	65.7		45	2+4+5 N =9 REC =18"		
47.0	FAT CLAY, moist, gray and dark gray, trace sand, contains mica.	CH	60.7		50	2+2+4 N =6 REC =18"	PP=1.00 tsf	**Resumed drilling at 6:50 AM on 5/3/06.
	gray and light greenish gray, trace sand, contains mica and organic matter.				55	2+5+5 N =10 REC =14"	PP=1.75 tsf	
	gray, trace sand, contains mica.							*Switched to 3-7/8" Tri-cone

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-435** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	3+4+6 N =10 REC =18"		roller bit below 58.5 ft because smaller roller bit was clogged with sediment.
62.0	LEAN CLAY, moist, gray, with sand, contains mica.	CL	45.7		65	3+6+6 N =12 REC =18"		*Switched to 2-15/16" Tri-cone roller bit below 33.5 ft.
67.0	SANDY SILT, fine to medium, moist, orangeish brown and grayish brown, contains fine to coarse silty sand pockets gray below 69 ft.	ML	40.7		70	7+13+33 N =46 REC =18"		
72.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray.	SP-SM	35.7		75	7+6+7 N =13 REC =12"		
77.0	SILTY SAND, fine to medium grained, wet, gray, with fine to coarse shell fragments, strong HCl reaction.	SM	30.7		80	23+25+40 N =65 REC =14"		
82.0	CLAYEY SAND, fine to medium grained, wet, light gray, mostly fine to coarse shell fragments (±60%), strong HCl reaction	SC	25.7		85	17+23+29 N =52 REC =18"		
	gray and oliveish gray, little fine to coarse shell fragments.				90	6+46+19 N =65 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-435** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	gray.							
					95	5+4+5 N =9 REC =18"		
97.0	SILTY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments, strong HCl reaction.	SM	10.7					
					100	7+10+10 N =20 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		7.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-436** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: Mud Rotary

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/5/06 **Finished:** 5/9/06

Location: Northing: 515923.92 ft
Easting: 961441.55 ft

Ground Surface Elevation: 108.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/9	---	37.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	ROOTMAT AND TOPSOIL.		108.0					
	SILTY SAND, fine to medium grained, moist, orangeish brown and reddish brown.	SM				1+2+4 N =6 REC =13"		
						3+2+2 N =4 REC =20"		
	orangeish brown and yellowish brown.				5	3+2+3 N =5 REC =15"		
7.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, orangeish brown and brown.	SP-SM	101.3			2+3+4 N =7 REC =14"	w=3.3% *	
9.5	SILTY SAND, medium to coarse grained, moist, orangeish brown and yellowish brown.	SM	98.8		10	4+5+6 N =11 REC =12"		
12.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, yellowish brown and orange.	SP-SM	96.3			5+6+8 N =14 REC =14"		
					15			
17.0	SILTY SAND, fine to coarse grained, moist, yellowish brown and orange.	SM	91.3			5+7+9 N =16 REC =11"		
					20			
22.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown, trace gravel.	SP-SM	86.3			7+7+10 N =17 REC =12"	w=11.1% *	
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-436A installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-436** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	CLAYEY SAND, fine to coarse grained, moist, orangeish brown and black, trace gravel.	SC	81.3					
	4 inch orange and white fat clay layer below 29.6 ft.				30	3+4+8 N =12 REC =15"		
32.0	SILTY SAND, fine to medium grained, moist, orangeish brown and reddish white.	SM	76.3					
					35	2+2+2 N =4 REC =17"	w=25.2% *	
37.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown and gray.	SC	71.3	▽				
39.4	SANDY LEAN CLAY, wet, gray.	CL	68.9		40	2+2+2 N =4 REC =20"		
	moist				45	1+2+3 N =5 REC =19"		drilling resumed 5/9/06 @7:00 am
					50	REC =24"		
52.0	FAT CLAY with sand, moist, gray.	CH	56.3					
					55	4+4+6 N =10 REC =20"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-436A installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-436** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	3+5+5 N =10 REC =20"		
	light gray and greenish gray.				65	5+7+11 N =18 REC =19"		
67.0	SANDY LEAN CLAY, moist, gray and greenish gray.	CL	41.3		70	5+7+11 N =18 REC =20"		
72.0	SILTY SAND, fine to medium grained, moist, light gray.	SM	36.3		75	35+67+100/4" N =167/10" REC =14"		
	wet, light gray and white, with shell fragments, HCl reaction strong.				80	88+100/4" N =100/4" REC =11"		
	fine to coarse grained, gray and white.				85	100 REC =6"		
87.0	CLAYEY SAND, fine to coarse grained, wet, oliveish gray and reddish white, trace fine to coarse shell fragments, HCl reaction strong.	SC	21.3		90	50+10+11 N =21 REC =20"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-436A installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-436** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
	oliveish gray and white.				95	7+6+6 N =12 REC =18"		
	light gray and white.				100	8+10+17 N =27 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		8.3					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground Water Observation Well OW-436A installed at a nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-437** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 7/10/06 **Finished:** 7/11/06

Location: Northing: 216521.76 ft
Easting: 960968.8 ft

Ground Surface Elevation: 110.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/10	---	18.5'	---	---
Start of day	7/11	---	20.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil	FILL	110.4			3+3+6 N =9 REC =10"		
2.0	Silty Sand PROBABLE FILL fine to coarse grained, moist, brown, trace coarse gravel, contains root fragments and fine to coarse sandy fat clay layer from 0.2 to 0.4 ft.	SC	108.6			2+2+1 N =3 REC =18"		
4.5	CLAYEY SAND, fine to coarse grained, moist, brown.	CL	106.1		5	WOH+1+1 N =2 REC =14"		
	LEAN CLAY, moist, brown, trace fine to medium sand.							
	trace organic matter (±1%).					3+5+7 N =12 REC =18"		
9.5	CLAYEY SAND, fine to medium grained, moist, brown and light brown, trace organic matter (±1%), contains sandy lean clay pockets.	SC	101.1		10	4+7+8 N =15 REC =18"		
12.0	brown and grayish brown below 11 ft.	SP-SM	98.6					
	POORLY GRADED SAND, with silt, fine to coarse grained, moist, brown, trace fine gravel, contains clayey sand pockets.				15	REC =23"	w=7.2% LL=NP PL=NP PP=NP tsf *	*Osterberg sampler tube push from 13.5 to 15.5 ft
	fine to medium grained, wet, brown.			▽				*5.4" O.D. Drag bit from 0 to 18.5 ft. *Swtiched to 4-3/4" O.D. Drag bit below 18.5 ft.
	fine to coarse grained, moist, yellowish brown and dark reddish brown, contains strongly cemented sand pockets and lenses below 19 ft .				20	7+17+12 N =29 REC =12"		
	wet, contains clayey sand lenses.				25	5+5+8 N =13 REC =13"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-437** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	fine to medium grained, mottled light gray and yellowish brown.				30	2+1+1 N =2 REC =18"		
	brown, yellowish brown, and light gray.				35	7+12+12 N =24 REC =10"		
37.0	LEAN CLAY, wet, yellowish brown and light gray, trace fine to medium sand.	CL	73.6					
39.5	SILTY SAND, fine to medium grained, wet, stratified brown and orangeish brown.	SM	71.1		40	1+3+6 N =9 REC =18"		
42.0	LEAN CLAY, wet, light grayish brown and yellowish brown, trace fine to medium sand, contains cemented sand fragments, contains silty sand layer from 43.8 to 44 ft.	CL	68.6					
44.0	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	66.6		45	4+4+5 N =9 REC =18"		
	gray and dark gray, contains silty sand pockets.				50	2+3+4 N =7 REC =18"		
	gray, contains silty sand layers from 54.1 to 54.2 ft and from 54.8 to 55 ft.				55	2+3+4 N =7 REC =18"		
57.0	ELASTIC SILT, moist, gray, trace fine sand and mica.	MH	53.6					

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-437** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			60	4+5+9 N =14 REC =18"		
62.0	CLAYEY SAND, fine to medium grained, moist, gray, contains light gray to white clayey sand pockets, trace organic matter (±1%).	SC	48.6		65	4+5+7 N =12 REC =18"		
67.0	SANDY SILT, fine to medium, moist, dark gray, contains clayey sand pockets and indurated silt pockets.	ML	43.6		70	27+50/5" N =50/5" REC =11"		
72.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray.	SP-SM	38.6		75	22+50/4" N =50/4" REC =10"		
	weak HCl reaction.				80	50/4" N =50/4" REC =3"		
82.0	SILTY SAND, fine to medium grained, wet, gray, mostly fine to coarse shell fragments (±80%), strong HCl reaction.	SM	28.6		85	12+16+18 N =34 REC =14"		*Extremely difficult rotary advancement from 86.5 to 88.5 ft (strong to very strong rig chatter). *Switched to 5" O.D. Tri-cone roller bit below 87 ft. *Moderate to
	oliveish gray, trace fine to medium sand . few fine to coarse shell fragments (±10%), contains weakly cemented				90	9+11+25 N =36 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-437** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	sand pockets, moderate HCl reaction below 89.8 ft.	SM						difficult rotary advancement from 88.8 to 93.5 ft (slight to moderate rig chatter).
	gray, strong HCl reaction.				95	6+9+13 N =22 REC =18"		
								*Osterberg sampler tube push from 98.5 to 100.5 ft
	some fine to coarse shell fragments (±30%), moderate HCl reaction.				100	REC =22"	PP=NP tsf	**Resumed grouting at 7:00 AM on 7/11/06.
100.5	BOTTOM OF BORING @ 100.5 FT.		10.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-438** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 7/6/06 **Finished:** 7/6/06

Location: Northing: 216414.91 ft
Easting: 960848.9 ft

Ground Surface Elevation: 106.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/7	5:00	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil.	FILL	106.4			2+2+2 N =4 REC =16"		
	Clayey Sand FILL, fine to medium grained, moist, mottled light orangeish brown and grayish brown, contains root fragments.							
2.0	Lean Clay FILL, moist, mottled light orangeish brown and grayish brown, contains root fragments and organic matter (±1%).	FILL	104.6			2+1+2 N =3 REC =14"		
	fine to coarse, mottled yellowish brown, grayish brown, and orangeish brown.				5	1+1+12 N =13 REC =14"		*Advancing rotary bit was deflected by a considerable angle at a depth from 6 to 6.5 ft.
	contains cement fragments at 6 ft.							
6.5	BOTTOM OF BORING @ 6.5 FT.		100.1					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Obstruction ecountered at 6.5 feet. Boring offset B-438A

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-438A** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 7/7/06 **Finished:** 7/7/06

Location: Northing: 216411.98 ft
Easting: 960867.31 ft

Ground Surface Elevation: 106.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/7	---	18.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Rotary probe to 7.5 ft; see B-438 alt for strata description.				5			
7.5	SILTY SAND, fine to coarse grained, moist, brown.	SM	98.5			5+8+8 N =16 REC =11"		
					10			
	fine to medium grained, stratified yellowish brown and light brown, contains poorly graded sand with silt lenses.					4+7+8 N =15 REC =12"		
	fine to coarse grained, stratifed yellowish brown, orangeish brown, and light brown.				15	3+6+7 N =13 REC =10"		
	wet, light orangeish brown.			▽	20	5+6+7 N =13 REC =8"		*5.4" O.D. Drag bit used from 0 to 18.5 ft. *4-3/4" O.D. Drag bit below 18.5 ft.
	fine to medium grained, light orangeish brown and light grayish brown.				25	3+4+4 N =8 REC =10"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-438A** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	yellowish brown and light brownish gray, trace coarse gravel.				30	3+3+3 N =6 REC =11"		
32.0	CLAYEY SAND, fine to medium grained, wet, light orangeish brown and light gray.	SC	74.0					
33.8	SILTY SAND, fine to coarse grained, wet, yellowish brown, contains clayey sand pockets (coarse sand is subangular to subrounded).	SM	72.2		35	3+4+4 N =8 REC =11"		
37.0	FAT CLAY, wet, gray, with fine to medium sand, trace mica.	CH	69.0		40	1+3+3 N =6 REC =18"		
	moist, dark oliveish gray and dark gray, trace fine to medium sand.				45	2+3+3 N =6 REC =18"		
	gray and light greenish gray, trace organic matter (±<1%), contains sandy fat clay pockets and elastic silt lenses (elastic silt lenses based on contrasting texture and appearance).				50	3+5+6 N =11 REC =18"		
52.0	ELASTIC SILT, moist, gray and light greenish gray, trace fine to medium sand and mica, (soil may lab classify as CH).	MH	54.0		55	4+6+9 N =15 REC =18"		
57.0	FINE TO MEDIUM SANDY LEAN CLAY, moist, gray, contains light gray to *continued on next page*	CL	49.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-438A** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	whiteish clayey sand pockets, trace mica.	CL			60	4+6+8 N =14 REC =18"		
62.0	SILTY SAND, fine to medium grained, moist, dark gray, trace mica, weak cementation, (no visible HCl reaction).	SM	44.0		65	24+50 N =50 REC =12"		*Slight to moderately difficult rotary advancement from 64 to 66.5 ft (slow rotary advancement).
	gray.				70	50/3" N =50/3" REC =4"		*5" O.D. Tri-cone roller bit below 68.5 ft.
	wet, few fine to medium shell fragments (±10%), contains greenish gray lean clay lenses and black particles (1/16 inch), strong HCl reaction. mostly fine to medium shell fragments (±50%) below 74 ft.				75	33+38+26 N =64 REC =11"		
	mostly fine to coarse shell fragments (±70%), contains silt pockets.				80	8+15+14 N =29 REC =18"		*Moderately difficult rotary advancement from 82.5 to 83.5 ft (slow rotary advancement).
	moist, mostly cemented sand (±100%), trace fine to medium shell fragments (±5%).				85	50/2" N =50/2" REC =1"		*Very to extremely difficult rotary advancement from 83.5 to 87.5 ft (strong to very strong rig chatter).
	wet, dark oliveish gray, trace fine to coarse shell fragments (±5%), (soil fines exhibit low cohesion - used as basis for potential successful tube push).				90	7+10+12 N =22 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-438A** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	gray, few fine to coarse shell fragments (±10%), (shell fragment approximately 2 inches in diameter and 1/4 inch thick).				95	REC =14"	PP=NP tsf	
	trace fine to medium shell fragments (±1%), very weak HCl reaction.				100	8+13+17 N =30 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		6.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-439** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: Mud Rotary

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: K. Megginson

Dates Started: 7/5/06 **Finished:** 7/6/06

Location: Northing: 216340.49 ft
Easting: 960948.68 ft

Ground Surface Elevation: 113.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/5	---	18.5'	---	---
Start of day	7/6	---	14.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Crushed Stone FILL, moist, dark gray, contains root fragments, and silty gravel pockets.	FILL FILL	113.3			6+6+6 N =12 REC =10"		
2.0	Lean Clay PROBABLE FILL, moist, brown, trace fine to medium sand.	SC	111.8			2+3+4 N =7 REC =14"		
	CLAYEY SAND, fine to medium grained, moist, brown, trace organic matter (±1%).							
4.5	SILTY SAND, fine to medium grained, moist, brown.	SM	109.3		5	2+2+3 N =5 REC =11"		
	fine to coarse grained.					3+4+6 N =10 REC =11"		
					10	4+5+8 N =13 REC =10"		
12.0	stratified brown and light brown below 11.5 ft.	SP-SM	101.8					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, stratified light brown and orangeish brown.				15	4+6+10 N =16 REC =6"		
17.0	SILTY SAND, fine to medium grained, wet, brown.	SM	96.8	▽	20	5+8+11 N =19 REC =6"		*Switched to 4-3/4" O.D. Drag bit below 18.5 ft.
22.0	SILTY GRAVEL, fine grained, wet, dark gray and brown, trace fine to coarse sand.	GM	91.8					
24.8			89.0		25	WOH+3+9 N =12 REC =5"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-439** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED GRAVEL WITH SILT, wet, dark gray and brown, fine to medium sand.	GP-GM						
27.0	SILTY GRAVEL, fine to coarse grained, wet, dark gray and brown, trace fine to medium sand.	GM	86.8		30	WOH+2+7 N =9 REC =2"		
	trace fine to coarse sand				35	1+2+6 N =8 REC =5"		
39.0	dark gray, brown and red brown.		74.8		40	2+3+6 N =9 REC =10"		
	SILTY SAND, fine to medium grained, wet, brown, trace coarse gravel, contains clayey sand layer from 39 to 39.1 ft.	SM						
42.0	SANDY LEAN CLAY, fine to medium, wet, mottled yellowish brown and light gray, trace mica, contains sandy fat clay pockets.	CL	71.8		45	1+1+2 N =3 REC =18"		
47.0	FAT CLAY, moist, light brownish gray and gray, trace fine to medium sand and mica, contains clayey sand pockets.	CH	66.8		50	2+3+4 N =7 REC =18"		
	gray and dark gray .				55	2+3+5 N =8 REC =18"		
	light greenish gray and gray, trace organic matter (±1%).							

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-439** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray, contains 2 inch thick dark gray clayey sand layer from 59.3 to 59.5 ft. gray and oliveish gray below 59.5 ft .	CH			60	3+3+6 N =9 REC =18"		
62.0	ELASTIC SILT, moist, gray and dark gray, trace fine to medium sand and mica, contains clayey sand lenses.	MH	51.8		65	6+8+11 N =19 REC =18"		
67.0	LEAN CLAY, moist, gray, dark gray and light greenish gray, with fine to medium sand, contains silty sand lenses and light gray to white clayey sand pockets.	CL	46.8		70	5+6+11 N =17 REC =18"		
72.0	POORLY GRADED SAND, fine to medium grained, moist, dark gray, trace silt, contains indurated silty sand pockets.	SP	41.8		75	37+50 N =50 REC =12"		*Perceptible increase in rotary resistance from 73 to 73.5 ft.
	very weak HCl reaction.				80	50/5" N =50/5" REC =4"		**Resumed drilling at 10:30 AM on 7/6/05. *Switched to 5 " O.D. Tri-cone roller bit below 78.5 ft. *Moderately difficult rotary advancement from 78.5 to 83.5 ft (slow rotary advancement).
82.0	SILTY SAND, fine to medium grained, wet, gray, mostly fine to coarse shell fragments (±70%), strong HCl reaction.	SM	31.8		85	16+15+16 N =31 REC =12"		
88.0	SANDY SILT, fine to medium, moist, gray, moderate HCl reaction. strongly cemented sand layer from 88.7 to 88.8 ft.	ML	25.8		90	50/4" N =50/4" REC =4"		*Very difficult rotary advancement from 88 to 88.5 ft (strong rig chatter). *Extremely difficult rotary advancement

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-439** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						from 88.5 to 93.5 ft (very strong rig chatter).
93.5	SILTY SAND, fine to medium grained, wet, gray and oliveish gray, few fine to coarse shell fragments (±10%), contains black particles .	SM	20.3		95	7+7+12 N =19 REC =18"		
97.0	CLAYEY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%).	SC	16.8		100	4+7+14 N =21 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		13.8					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-440** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: Mud Rotary

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 6/6/06 **Finished:** 6/7/06

Location: Northing: 216349.47 ft
Easting: 961813.66 ft

Ground Surface Elevation: 56.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/6	---	18.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Crushed Stone.		55.8					0-30' 4-1/4" drag bit
	Sandy lean clay FILL, fine to coarse, moist, grayish orange.	FILL				8+8+4 N =12		
2.0	Clayey Sand FILL with gravel, fine to coarse grained, wet, orange.	FILL	54.3			5+6+4 N =10 REC =9"	w=8.6% *	
4.0	Poorly graded sand FILL with gravel, medium to coarse grained, moist, gray.	FILL	52.3		5	3+3+4 N =7 REC =10"		
						2+3+2 N =5 REC =0"		
9.0	Clayey Sand FILL, fine to coarse grained, wet, gray, trace gravel, contains root fragments, contains wood fragments.	FILL	47.3		10	1+1+1 N =2 REC =8"		
	with gravel, PROBABLE FILL.				15	5+4+5 N =9 REC =6"	w=16.1% *	
17.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, gray.	SP-SM	39.3	▽	20	9+15+35 N =50 REC =18"		
	dark gray.				25	16+27+30 N =57 REC =12"	w=22.1% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-440** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	SANDY SILT, fine to medium, moist, greenish gray, contains cemented sand.	ML	29.3			50/5" N =50/5"		30-100 4-1/4" tri-cone roller bit
					30			
32.0	SILTY SAND, fine to coarse grained, wet, gray and white, with fine to coarse shell fragments, strong HCl reaction, 70-80% shell frag.	SM	24.3			13+24+36 N =60 REC =18"	w=20.1% *	
					35			
	moist, green, 35-45% shell frag.					5+3+4 N =7 REC =14"		
					40			
	25-35% shell frag.					7+11+30 N =41 REC =18"	w=27.1% *	
					45			
47.0	CLAYEY SAND, fine to medium grainedt, dark green, trace fine to coarse shell fragments, weak HCl reaction, 0-5% shell frag.	SC	9.3			4+3+6 N =9 REC =18"		
					50			
	green, no shells.					REC =24"	w=30.0% LL=30 PL=21 *	51' tube pushed
53.5	SILTY SAND, wet, trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.	SM	2.8			3+4+4 N =8 REC =18"		
					55			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-440** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				REC =0"		58.5' pushed tube
					60			60-63' rig chatter
	fine to coarse grained, green and white, with fine to coarse shell fragments, contains cemented sand, strong HCl reaction, 60-75%shell frag.				65	35+20+15 N =35 REC =18"	w=19.4% *	
	20-30%shell frag.				70	4+10+16 N =26 REC =18"		69.6' shell layer 1" thick
					75	5+10+15 N =25 REC =18"		
	sandy, moderate HCl reaction, 10-15% shell frag.				80	6+7+9 N =16 REC =18"	w=41.0% *	
82.0	LEAN CLAY, moist, green, trace fine to medium shell fragments, with silt, 0-5% shell frag.	CL	-25.7		85	6+9+10 N =19 REC =18"		
87.0	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, moderate HCl reaction, 10-20% shell frag.	ML	-30.7		90	6+7+9 N =16 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 300 & 400.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-440** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
92.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	-35.7		95	4+5+9 N =14 REC =18"		
	moderate HCl reaction, 10-20% shell frag.				100	7+7+9 N =16 REC =12"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-43.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-701** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 6/28/06 **Finished:** 6/29/06

Location: Northing: 219485.54 ft
Easting: 960507.6 ft

Ground Surface Elevation: 8.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/28	---	7.5'	7.5'	---
Start of Day	6/29	---	7.0'	24.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	CRUSHED STONE.		8.2					
	Poorly graded sand, PROBABLE FILL, with gravel, fine to coarse grained, moist, orange.	FILL				4+6+7 N =13 REC =16"		
2.0			6.7					
	POORLY GRADED SAND WITH CLAY, trace gravel, fine to coarse grained, moist, orange.	SP-SC				4+5+7 N =12 REC =16"		
					5	6+6+7 N =13 REC =18"		
5.5	SILTY SAND, fine to medium grained, moist, brownish orange.	SM	3.2					
	trace gravel, fine to coarse grained, wet, orange.			▽		1+3+6 N =9 REC =12"	w=15.9% *	7.5' switched to mud rotary from hollow stem augers 8'-16' grinding
10.0	WELL GRADED SAND WITH SILT	SW-SM	-1.3		10	3+6+5 N =11 REC =12"	w=12.4% *	
13.0	SILTY SAND, fine to medium grained, moist, green and white, with fine to coarse shell fragments, strong HCl reaction, 70-90% shell frag.	SM	-4.3		15	1+5+10 N =15 REC =2"		
	fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, contains cemented sand, 30-40% shell frag.				20	4+10+13 N =23 REC =18"	w=28.2% *	
	fine to medium grained, wet, green, contains fine to coarse shell fragments, strong HCl reaction.				25	19+17+11 N =28 REC =2"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-701** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					30	37+11+12 N =23 REC =18"	w=37.3% *	
					35	5+6+8 N =14 REC =18"		
37.0	ELASTIC SILT, with clay, moist, green, trace fine to coarse shell fragments, moderate HCl reaction, 0-5% shell frag.	MH	-28.3					
					40	5+8+7 N =15 REC =18"		
	contains fine to medium shell fragments.				45	REC =17"	w=37.3% LL=54 PL=33 PP=4.00 tsf *	
47.0	SILTY SAND, fine to medium grained, moist, oliveish green, with fine to coarse shell fragments, strong HCl reaction, 40-60% shell frag.	SM	-38.3					
					50	5+6+8 N =14 REC =18"	w=33.1% *	
52.0	SANDY SILT, fine to medium, moist, green, contains fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	ML	-43.3					
					55	5+6+9 N =15 REC =18"	w=42.5% *	
57.0	ELASTIC SILT, with clay, moist, oliveish green, moderate HCl reaction.	MH	-48.3					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-701** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			60	6+7+9 N =16 REC =18"	w=55.7% *	
62.0	SANDY SILT, fine to medium grained, moist, oliveish green, with fine to coarse shell fragments, strong HCl reaction, 20-40% shell frag.	ML	-53.3		65	4.+5+6 N =11 REC =18"	w=40.4% *	
67.0	ELASTIC SILT, with clay, moist, oliveish green, with clay, moderate HCl reaction.	MH	-58.3		70	5+7+4 N =11 REC =18"	w=48% *	
75.0	BOTTOM OF BORING @ 75.0 FT.		-66.3		75	4+6+8 N =14 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-702** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M Arles

Dates Started: 6/29/06 **Finished:** 6/29/06

Location: Northing: 218980.62 ft
Easting: 961183.23 ft

Ground Surface Elevation: 10.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/29	---	10.5'	8.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.		9.8					0-24' hollow stem auger advanced to 24' to prevent mud loss and hole cave in from gravel and loose soils, mud rotary drilling 24'-50'
	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, orange.	SP-SC				1+4+4 N =8 REC =14"		
2.0	SILTY SAND, fine to coarse grained, moist, green, with fine to medium shell fragments, moderate HCl reaction, 10-20% shell frag.	SM	8.3			5+5+6 N =11 REC =14"		
					5	8+11+15 N =26 REC =18"		
5.5	POORLY GRADED SAND WITH CLAY, with gravel, fine to coarse grained, moist, orange.	SP-SC	4.8					
6.0	POORLY GRADED SAND, fine to coarse grained, moist, orangeish white. with gravel, contains clay, contains 1/8-1/4" clay lenses, yellowish orange.	SP	4.3			6+8+10 N =18 REC =18"		
					10			
	wet.			▽		4+4+5 N =9 REC =18"		
14.0	grayish black, contains cemented sand, with fine to coarse shell fragments, shells are black, no HCl reaction.	SM	-3.7			5+3+5 N =8 REC =18"		
					15			
17.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-40% shell frag.	SC	-6.7					
	CLAYEY SAND, fine to coarse grained, wet, green, contains cemented sand, with fine to coarse shell fragments, strong HCl reaction, 70-90% shell frag. fine to medium grained, moist, 30-40% shell frag.					4+9+5 N =14 REC =18"		
					20			
22.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	-11.7			3+3+6 N =9 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-702** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	trace fine to coarse shell fragments, weak HCl reaction, 0-5% shell frag.				30	4+6+5 N =11 REC =18"		
	with fine to coarse shell fragments, strong HCl reaction, 20-35% shell frag.				35	5+7+7 N =14 REC =18"		
					40	4+5+7 N =12 REC =18"		
42.0	SANDY SILT, fine to medium grained, moist, green, trace fine to medium shell fragments, strong HCl reaction, 0-10% shell frag.	ML	-31.7		45	5+6+7 N =13 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		-39.7		50	5+6+7 N =13 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-703** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-550 (ATV)

Schnabel Representative: K. Bell

Dates Started: 7/7/06 **Finished:** 7/10/06

Location: Northing: 218171 ft
Easting: 960957.01 ft

Ground Surface Elevation: 45.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/7	---	23.5'	---	---
Start of day	7/10	---	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	ROOTMAT AND TOPSOIL.							
0.7	CLAYEY SAND, fine to medium grained, moist, brown and yellowish brown.	SC	44.7			WOH+WOH +1 N =1 REC =8"		
2.5	SANDY LEAN CLAY, trace roots and wood fragments, moist, brown and orangeish brown.	CL	42.9			2+2+3 N =5 REC =10"		
	iron staining				5	2+3+5 N =8 REC =16"		
	weak cementation					3+4+4 N =8 REC =18"		
10.0	ORGANIC CLAY WITH SAND, moist, gray and orangeish brown.	OH	35.4		10	2+3+4 N =7 REC =18"		
	iron staining				15	3+2+2 N =4 REC =18"		
					20	REC =19"	w=45.1% PP=>4.5 tsf *	
22.0	SILTY SAND, fine to coarse grained, wet, reddish brown, contains fine to coarse shell fragments, 10-20%, weak cementation, HCl reaction strong.	SM	23.4	▽	25	WOH+2+2 N =4 REC =10"		Harder drilling

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Comments:
1. Ground water observation wells OW-703A and OW-703B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-703** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						total fluid loss in mud tub
27.0	ELASTIC SILT, moist, gray and yellowish brown.	MH	18.4					resumed drilling on 7/10/06 @ 9:00am
					30	WOH/18" N = WOH/18" REC =10"		
33.0	SILTY SAND, fine to medium grained, wet, gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction strong.	SM	12.4		35	4+4+7 N =11 REC =16"		furthest advancement of hollow stem augers Rig chatter
	greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction moderate				40	4+4+6 N =10 REC =18"		
					45	3+3+6 N =9 REC =18"		
47.0	SANDY LEAN CLAY, wet, greenish gray and white, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	CL	-1.6		50	3+5+7 N =12 REC =18"		
52.0	SILTY SAND, fine to medium grained, wet, gray and white, with fine to coarse shell fragments, 50-60%, strong cementation, HCl reaction strong.	SM	-6.6		55	8+11+7 N =18 REC =18"		Rig chatter

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Comments:

1. Ground water observation wells OW-703A and OW-703B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-703** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	greenish gray and white, contains fine to medium shell fragments, 20-30%, HCl reaction moderate	SM			60	5+7+10 N =17 REC =16"		
62.0	SANDY SILT, wet, gray and white, contains fine to coarse shell fragments, 20-30%, strong cementation, HCl reaction strong.	ML	-16.6		65	11+23+50/4" N =73/10" REC =16"		Rig chatter
67.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction moderate.	SM	-21.6		70	5+8+12 N =20 REC =18"		
					75	REC =10"		
77.0	SANDY SILT, moist, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction moderate.	ML	-31.6		80	6+7+10 N =17 REC =18"		
82.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments, 2-5%, HCl reaction moderate.	SC	-36.6		85	5+7+9 N =16 REC =18"		
	contains fine to coarse shell fragments, 20-30%, HCl reaction strong				90	7+15+15 N =30 REC =18"		

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Comments:

1. Ground water observation wells OW-703A and OW-703B installed at nearby locations.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-703** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
92.0	SANDY SILT, fine to medium grained, wet, greenish gray, trace fine to coarse shell fragments, 2-5%, HCl reaction moderate .	ML	-46.6		95	5+7+12 N =19 REC =18"		
					100	7+10+12 N =22 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-54.6					

Comments:

1. Ground water observation wells OW-703A and OW-703B installed at nearby locations.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-704** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-550 (ATV)

Schnabel Representative: K. Bell

Dates Started: 7/6/06 **Finished:** 7/7/06

Location: Northing: 217991.06 ft
Easting: 960926.05 ft

Ground Surface Elevation: 39.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/6	---	23.5'	---	---
Start of Day	7/7	---	23.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		39.0					
	CLAYEY SAND, trace roots and wood fragments, fine to medium grained, moist, reddish brown.	SC				woh+1+2 N =3 REC =7"		
2.5	SANDY LEAN CLAY, trace wood fragments, moist, reddish brown and orangeish brown.	CL	37.1			2+2+3 N =5 REC =6"		
	iron staining, weak cementation.				5	2+2+2 N =4 REC =15"		
						2+4+4 N =8 REC =15"		
10.0	SANDY FAT CLAY, trace root fragments, moist, reddish brown and orangeish brown, iron staining, weak cementation.	CH	29.6		10	2+2+2 N =4 REC =16"		start of mud rotary drilling
13.0	SANDY SILT, moist, blueish gray.	ML	26.6			3+4+5 N =9 REC =18"		
					15			
17.0	SILTY SAND, fine to medium grained, moist, gray and white, contains fine to coarse shell fragments, 30-40%, strong cementation, HCl reaction strong.	SM	22.6					Rig chatter
						40+29+16 N =45 REC =18"		
					20			
				▽		4+8+6 N =14 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-704** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	contains fine to coarse shell fragments, 20-30%, HCl reaction moderate .	SM			30	5+7+7 N =14 REC =18"		resumed drilling on 7/7/06 @ 7:30am Rig chatter
32.0	CLAYEY SAND, fine to medium grained, wet, blueish gray, trace fine to coarse shell fragments, 2-5%, HCl reaction weak.	SC	7.6		35	3+3+5 N =8 REC =18"		
					40	3+3+4 N =7 REC =18"		
42.0	SANDY FAT CLAY, wet, gray and white, contains fine to coarse shell fragments, 20-30%, HCl reaction moderate.	CH	-2.4		45	2+3+6 N =9 REC =18"		Rig chatter
47.0	SILTY SAND, fine to medium grained, wet, white and gray, contains fine to coarse shell fragments, 20-30%, strong cementation, HCl reaction strong.	SM	-7.4		50	14+16+11 N =27 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		-10.4					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-705** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: W. Wolfe

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 6/26/06 **Finished:** 6/27/06

Location: Northing: 217581.3 ft
Easting: 960917.9 ft

Ground Surface Elevation: 46.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/27	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		46.2					
	CLAYEY SAND, trace wood and root fragments, fine to medium grained, moist, orangeish brown.	SC				2+3+2 N =5 REC =5"		
2.5	SANDY FAT CLAY, trace root fragments, moist, orangeish brown and gray.	CH	44.3			3+3+5 N =8 REC =5"		
4.5	CLAYEY SAND, trace root fragments, fine to medium grained, moist, gray and orangeish brown.	SC	42.3		5	3+3+5 N =8 REC =16"		
7.0	SILTY SAND, fine to medium grained, moist, gray and orangeish brown, with yellow sand lenses.	SM	39.8			4+5+6 N =11 REC =18"		
	gray and reddish brown, weak cementation, iron staining				10	2+5+16 N =21 REC =11"		resumed drilling on 6/27/06 @ 7:30am
13.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, yellowish brown and gray.	SP-SC	33.8	▽	15	5+12+8 N =20 REC =10"		
17.0	SILTY SAND, fine to medium grained, wet, gray and white, contains fine to medium shell fragments, 20-30%, HCl reaction moderate.	SM	29.8		20	15+14+10 N =24 REC =15"		
22.0	SANDY ELASTIC SILT, moist, gray, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	MH	24.8		25	3+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-705 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-705** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
27.0	SILTY SAND, fine to medium grained, wet, light gray, contains fine to coarse shell fragments, 20-30%, strong cementation, HCl reaction strong.	SM	19.8		30	50/5" N =50/5" REC =5"		Rig chatter
32.0	CLAYEY SAND, fine to medium grained, wet, gray, contains fine to coarse shell fragments, 30-40%, HCl reaction strong.	SC	14.8		35	5+5+6 N =11 REC =15"		
					40	5+6+11 N =17 REC =18"		softer drilling
42.0	SILTY SAND, fine to medium grained, wet, greenish gray, trace fine to coarse shell fragments, 2-5%, HCl reaction weak.	SM	4.8		45	4+5+7 N =12 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		-3.3		50	3+3+4 N =7 REC =18"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-705 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-706** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/15/06 **Finished:** 5/16/06

Location: Northing: 217140.14 ft
Easting: 961339.74 ft

Ground Surface Elevation: 77.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/15	---	5.0'	---	---
Start of day	5/16	---	0.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil.		77.1					*NWJ rods used.
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM				1+5+3 N =8 REC =17"		
						2+4+6 N =10 REC =11"		
4.5	CLAYEY SAND, fine to medium grained, wet, brown, trace organic matter (±1%).	SC	72.9	▽	5	2+2+1 N =3 REC =14"		
7.0	SANDY LEAN CLAY, fine to medium grained, moist, yellowish brown and light gray.	CL	70.4			2+2+1 N =3 REC =18"		
9.5	FAT CLAY, with fine to medium sand, trace mica, moist, mottled yellowish brown and grayish brown.	CH	67.9		10			
	trace fine to medium sand, gray.					2+2+2 N =4 REC =18"		
	trace fine sand.				15	1+4+4 N =8 REC =0"		
17.0	ELASTIC SILT, trace fine to medium sand and mica, moist, light greenish gray and dark gray.	MH	60.4					
					20	2+4+4 N =8 REC =18"		
	trace fine sand, light greenish gray and light gray.				25	3+6+6 N =12 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-706** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
27.0	SANDY LEAN CLAY, trace mica, fine to medium grained, moist, gray.	CL	50.4					
					30	8+9+12 N =21 REC =18"		
34.0	CLAYEY SAND, trace mica, fine to medium grained, moist, dark orangeish brown and light brown, (shell impressions observed in soil sample).	SC	43.4		35	9+9+18 N =27 REC =18"		
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light brown.	SP-SM	40.4					
					40	50 REC =6"		
	light brown and orangeish brown.				45	50 REC =5"		
47.0	SANDY LEAN CLAY, trace mica, fine to medium grained, moist, light greenish gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	CL	30.4					
					50	WOH+3+4 N =7 REC =18"	PP=2.00 tsf	**Resumed grouting at 7:10 AM on 5/16/06.
50.0	BOTTOM OF BORING @ 50.0 FT.		27.4					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-707** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" OD Drag Bit (Mud Rotary)

Drilling Equipment: CME-750

Schnabel Representative: B. Bradfield

Dates Started: 5/2/06 **Finished:** 5/2/06

Location: Northing: 217396.98 ft
Easting: 961481.84 ft

Ground Surface Elevation: 67.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/2	---	25.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	TOPSOIL.		67.1					
	SANDY LEAN CLAY, moist, orangeish brown and gray.	CL				2+3+4 N =7 REC =18"		
2.5	SANDY FAT CLAY, moist, gray, contains mica.	CH	64.9			4+6+4 N =10 REC =18"	w=27.3% *	
	with sand.				5	4+4+5 N =9 REC =18"		
	fine to medium sandy, greenish gray and dark gray.					3+3+4 N =7 REC =18"	w=32.8% LL=59 PL=21 *	
					10	2+5+5 N =10 REC =18"		
	with sand, gray.					4+6+8 N =14 REC =18"	w=32.7% *	
					15			
						3+7+9 N =16 REC =18"		
					20			
22.0	CLAYEY SAND, fine to medium grained, moist, dark gray, contains mica.	SC	45.4					
						6+6+9 N =15 REC =18"	w=29.5% *	
24.6			42.8	▽	25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-707** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	CLAYEY SAND, trace gravel, wet, orangeish brown and yellowish brown, limonitic cementation & Fe oxide staining .	SC						
27.0	ELASTIC SILT with sand, moist, gray, contains mica.	MH	40.4					
					30	8+8+10 N =18 REC =18"		
	organic odor.							
					35	6+8+8 N =16 REC =18"	w=45.5% LL=59 PL=45 *	
	brown, contains organic matter.							
					40	2+4+4 N =8 REC =17"		
42.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, gray and brownish white, with fine to coarse shell fragments, strong HCl reaction.	SP-SM	25.4					Harder drilling
					45	30+15+12 N =27 REC =18"		
	brownish white, with fine to coarse shell fragments, strong HCl reaction.							
					50	5+7+26 N =33 REC =16"	w=27% *	
50.0	BOTTOM OF BORING @ 50.0 FT.		17.4					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-708** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/8/06 **Finished:** 5/9/06

Location: Northing: 217585.84 ft
Easting: 961810.64 ft

Ground Surface Elevation: 37.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/8	---	5.0'	---	---
Start of day	5/9	---	0.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Rootmat and topsoil.		37.0					
	CLAYEY SAND, fine to coarse grained, moist, brown, contains root fragments.	SC				1+3+4 N =7 REC =14"		
2.0	SILTY SAND, fine to medium grained, moist, mottled orangeish brown and grayish brown.	SM	35.4			2+2+1 N =3 REC =12"		
4.5	SILT, wet, dark brown, with fine to medium sand, trace mica.	ML	32.9	▽	5	WOH/18" N = WOH/18" REC =11"		
7.0	CLAYEY SAND, fine to coarse grained, moist, brown, (coarse sand is angular to subangular).	SC	30.4			1+3+3 N =6 REC =12"		
9.5	SILTY SAND, fine to coarse grained, wet, reddish brown and light orangeish brown, (coarse sand is subrounded to rounded).	SM	27.9		10	10+10+13 N =23 REC =10"		
12.0	SILTY GRAVEL, fine to coarse grained, wet, orangeish brown and brown, (maximum dimension of subangular to subrounded fine gravel is 3/4 inch).	GM	25.4					
14.0	SILTY SAND, fine to medium grained, wet, dark orangeish brown, contains cemented sand pockets, (no observed HCL reaction with cemented sand pockets).	SM	23.4		15	20+9+3 N =12 REC =9"		
17.0	CLAYEY SAND, fine to medium grained, wet, light brown, few fine to coarse shell fragments (±10%), contains silty sand pockets, strong HCl reaction.	SC	20.4		20	WOH+2+3 N =5 REC =18"		
22.0	SILTY SAND, fine to medium grained, wet, gray, little fine to medium shell fragments (±20%), strong HCL reaction.	SM	15.4					
	light gray, mostly fine to coarse shell				25	5+19+18 N =37 REC =14"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-708A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-708** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments (±>50%), contains strongly cemented sand lense (1/4 inch thick) at 24.9 ft, strong HCl reaction, (maximum dimension of shell fragment is 1/2 inch). trace fine to medium shell fragments (±5%), weak HCl reaction.	SM			30	4+4+5 N =9 REC =18"		
32.0	CLAYEY SAND, fine to medium grained, wet, gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	SC	5.4		35	3+2+4 N =6 REC =18"		
37.0	SILTY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments (±20%), strong HCl reaction.	SM	0.4		40	6+9+16 N =25 REC =18"		*Very difficult rotary advancement at 41 ft; moderate difficulty in rotary advancement below 42 ft.
	light gray and light oliveish gray, mostly fine to coarse shell fragments (±70%), contains strongly cemented sand pockets, (maximum dimension of cemented sand pockets is 1-1/2 inches).				45	7+14+14 N =28 REC =12"		
	light greenish gray, few fine to coarse shell fragments (±10%).				50	7+11+26 N =37 REC =16"		*Relative difficultly in rotary advancement below 51 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 53.5 ft.
52.0	SANDY SILT, fine to medium, moist, light greenish gray, trace fine to medium shell fragments (±5%), moderate HCl reaction.	ML	-14.7		55	5+9+14 N =23 REC =10"		
57.0	SILTY SAND, fine to medium grained, wet, gray, few fine to medium shell	SM	-19.7					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-708A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-708** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments (±10%), strong HCl reaction.	SM			60	11+11+11 N =22 REC =18"		
62.0	SANDY SILT, fine to medium, moist, gray, trace fine to coarse shell fragments (±5%), strong HCl reaction, (shell fragments easily crumble and roll with slight finger pressure).	ML	-24.7		65	6+8+12 N =20 REC =18"		
	trace fine to medium shell fragments (±1%).				70	6+6+9 N =15 REC =18"		
72.0	SANDY LEAN CLAY, fine to medium, moist, light greenish gray, trace fine to coarse shell fragments (±5%), contains dark brownish particles (< 1/8 inch), (dark brownish particles may be fish scales).	CL	-34.7		75	8+6+13 N =19 REC =18"		**Resumed drilling at 6:55 AM on 5/9/06. *Slight to moderate rig chatter from 75 to 76 ft.
77.0	SILTY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments (±20%), contains subrounded to rounded black particles (1/16 inch), strong HCl reaction.	SM	-39.7		80	REC =12"		
82.0	SILT, moist, greenish gray, with fine to medium sand, trace mica and fine to medium shell fragments (±5%), weak HCl reaction.	ML	-44.7		85	6+7+13 N =20 REC =18"		
87.0	LEAN CLAY, moist, greenish gray, trace fine to medium sand and mica, weak HCl reaction.	CL	-49.7		90	8+7+11 N =18 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-708A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-708** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
	with fine to medium sand, trace fine to medium shell fragments (±5%), moderate HCl reaction.				95	4+5+7 N =12 REC =18"		
	dark greenish gray, weak HCl reaction.				100	6+7+9 N =16 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-62.7					

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-708A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-709** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/9/06 **Finished:** 5/9/06

Location: Northing: 217642.82 ft
Easting: 961978.18 ft

Ground Surface Elevation: 31.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/9	---	7.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Rootmat and topsoil.		30.9					
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments and clayey sand pockets.	SM				WOH+2+2 N =4 REC =14"		*NWJ rods used.
2.0	LEAN CLAY, moist, orangeish brown and grayish brown, with fine to medium sand.	CL	29.3			2+3+2 N =5 REC =8"		
4.5	SILTY SAND, moist, fine to medium grained, dark orangeish brown.	SM	26.8		5	3+2+3 N =5 REC =12"		
7.0	CLAYEY SAND, fine to coarse grained, wet, mottled dark orangeish brown and grayish brown (high percentage of fines).	SC	24.3	▽		WOH/18" N = WOH/18" REC =12"	w=27.3% *	
9.5	SANDY SILT, fine to medium, wet, dark orangeish brown.	ML	21.8		10	2+2+3 N =5 REC =13"		
11.7	SILTY SAND, fine to medium grained, moist, dark orangeish brown and dark gray, (dark gray color is a 2 inch thick layer from 11.5 to 11.7 ft). wet, dark brown and orangeish brown (bottom of sample vertically two different colors). gray below 14.5 ft.	SM	19.6		15	WOH+WOH +1 N =1 REC =12"	w=29.1% *	
	moist, light gray, mostly fine to medium strongly cemented sand (±100%), strong HCl reaction. wet, gray, trace fine to medium shell fragments (±5%) below 19.5 ft.				20	19+4+1 N =5 REC =10"		
22.0	CLAYEY SAND, fine to medium grained, wet, gray, weak HCl reaction.	SC	9.3		25	3+3+3 N =6 REC =18"	w=30.4% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-709** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to medium shell fragments (±5%), contains black particles (1/16 inch).	SC			30	2+4+4 N =8 REC =18"		
32.0	SANDY SILT, fine to medium, wet, gray and light gray, mostly fine to coarse shell fragments (±50%), strong HCl reaction.	ML	-0.8		35	5+5+11 N =16 REC =18"	w=33.8% *	
37.0	SILTY SAND, fine to medium grained, wet, gray and light gray, some fine to coarse shell fragments (±40%), contains clayey sand lenses (1/4 inch thick) and black particles (1/16 inch), strong HCl reaction.	SM	-5.8		40	13+15+17 N =32 REC =10"		*Slight to moderate rig chatter from 37 to 38.5 ft.
	light gray, trace fine to coarse shell fragments (±5%), contains strongly cemented sand pockets, moderate HCl reaction.				45	11+28+23 N =51 REC =13"		
47.0	SANDY LEAN CLAY, fine to medium, moist, gray, few fine to coarse shell fragments (±10%), contains black particles (< 1/8 in), strong HCl reaction, (some shell fragments are orange brown).	CL	-15.8		50	8+11+30 N =41 REC =18"	w=23% *	
50.0	contains moderately cemented sand lense below 49.8 ft. BOTTOM OF BORING @ 50.0 FT.		-18.8					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-710** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/9/06 **Finished:** 5/10/06

Location: Northing: 217542.51 ft
Easting: 962136.88 ft

Ground Surface Elevation: 48.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/10	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		47.5					
	Clayey sand PROBABLE FILL, fine to medium grained, moist, brown, contains root fragments and fine to medium silty sand pockets.	FILL				2+4+3 N =7 REC =6"		*NWJ rods used.
2.0			46.0					
	Fat Clay PROBABLE FILL, moist, light yellowish brown and light grayish brown, with fine to medium sand, contains silty sand lenses.	FILL				3+2+3 N =5 REC =10"		
	trace fine sand, contains root fragments, mostly mottled light yellowish brown and light grayish brown.				5	2+2+2 N =4 REC =6"		
	mottled yellowish brown, light brownish gray and orangeish brown, contains leaf fragments, trace organic matter (±1%).					2+2+2 N =4 REC =8"		
9.5	LEAN CLAY, moist, brown, with fine to medium sand.	CL	38.5		10	3+3+4 N =7 REC =10"		*Continued water loss as rotary advanced to 10.5 ft.
	light brown and light orangeish brown (mostly transecting curvilinear laminations), trace fine sand and mica.				15	2+4+5 N =9 REC =16"		*Boring grouted from depth of 15 ft to ground surface due to continued mud loss from 7.5 to 15 ft.
17.0	FAT CLAY, moist, brown, trace fine sand (NOTE: hydrated bentonite observed in top of spoon, dry bentonite observed in shoe of spoon).	CH	31.0					
	contains fine to medium cemented sand pockets below 19.5 ft (no observed HCl reaction with cemented sand pockets).				20	7+5+3 N =8 REC =6"		
22.0	SANDY LEAN CLAY, fine to medium, wet, dark orangeish brown and dark reddish brown, trace organic matter (±1%).	CL	26.0	▽	25	7+5+3 N =8 REC =7"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-710** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
27.0	SILTY SAND, fine to medium grained, wet, light orangeish brown and grayish brown.	SM	21.0		30	WOR/18" N = WOR/18" REC =12"		
	brown and light gray, trace fine to medium shell fragments (±5%), strong HCl reaction, (shell fragments easily crumble and roll with slight finger pressure).				35	6+7+7 N =14 REC =12"		
37.0	gray, few fine to coarse shell fragments (±10%), strong HCl reaction below 34.5 ft (shell fragments are rigid).	CL	11.0					
39.0	LEAN CLAY, wet, light brown and orangeish brown, with fine sand, trace mica.	SM	9.0		40	WOH+10+8 N =18 REC =10"		
	SILTY SAND, fine to medium grained, moist, gray, mostly fine to medium strongly cemented sand (±>50%), trace fine to medium shell fragments (±5%), strong HCl reaction.							
	wet, trace fine to medium shell fragments (±5%), weak HCl reaction.				45	3+3+5 N =8 REC =18"		*No return of rotary cuttings below 40 ft. Hollow stem augers used to 40 ft in order to case borehole and prevent significant mud loss.
47.0	LEAN CLAY, moist, gray, with fine to medium sand, few fine to coarse shell fragments (±10%), strong HCl reaction.	ML	1.0		50	3+4+8 N =12 REC =18"		
52.0	CLAYEY SAND, fine to medium grained, moist, gray and light gray, some fine to coarse shell fragments (±40%), strong HCl reaction.	SC	-4.0		55	23+15+7 N =22 REC =18"		
57.0	SANDY LEAN CLAY, fine to medium, moist, light greenish gray and gray,	CL	-9.0					

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-710** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to medium shell fragments (±5%) and mica, strong HCl reaction.	CL						
59.5	CLAYEY SAND, fine to medium grained, moist, light greenish gray and gray, trace fine to medium shell fragments (±5%) and mica, strong HCl reaction.	SC	-11.5		60	5+5+13 N =18 REC =18"		
62.0	SANDY SILT, fine to medium, moist, light greenish gray, trace fine to coarse shell fragments (±5%), contains dark brownish particles (1/16 inch), strong HCl reaction.	ML	-14.0		65	6+16+36 N =52 REC =18"		
67.0	LEAN CLAY, moist, greenish gray, with fine to medium sand, few fine to coarse shell fragments (±10%), strong HCl reaction, (some shell fragments are dark reddish brown).	CL	-19.0		70	8+7+16 N =23 REC =18"		
72.0	SANDY SILT, fine to medium, moist, greenish gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	ML	-24.0		75	5+7+13 N =20 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		-27.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-711** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/11/06 **Finished:** 5/11/06

Location: Northing: 216755.7 ft
Easting: 961743.5 ft

Ground Surface Elevation: 53.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/11	---	28.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil.		52.7					*NWJ rods used.
	CLAYEY SAND, fine to coarse grained, moist, light brown and brown, contains root fragments.	SC				3+2+3 N =5 REC =12"		
2.0	FAT CLAY, moist, light orangeish brown and light gray, trace fine sand.	CH	51.0			4+5+6 N =11 REC =14"		
4.5	ELASTIC SILT, moist, mottled orangeish brown and light gray, trace fine sand, (orangeish brown particles appear to be weathered shell fragments based on shape) .	MH	48.5		5	4+4+7 N =11 REC =18"		
7.0	SANDY SILT,fine to medium, moist, orangeish brown and light grayish brown, trace mica (high percentage of sand).	ML	46.0			4+4+5 N =9 REC =18"		
9.5	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	43.5		10	3+6+5 N =11 REC =16"		
12.0	light brown and dark reddish brown, contains fine to medium weakly cemented sand pockets, trace fine to medium shell fragments (±5%), below 11.5 ft (shell fragments are stained dark orangeish brown due to oxidation).	SM	41.0			32+50 N =50 REC =12"		
	SILTY SAND, fine to medium grained, moist, dark orangeish brown and dark reddish brown, (oxidized).				15			
17.0	LEAN CLAY, moist, gray, trace fine to medium sand and mica.	CL	36.0			5+3+5 N =8 REC =14"		
					20			
	with fine to medium sand.					3+3+2 N =5 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-711 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-711** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						*Slight to moderate rig chatter as rotary advanced below 27 ft.
27.0	SILTY SAND, fine to medium grained, wet, gray, few fine to coarse shell fragments (±10%), strong HCl reaction.	SM	26.0	▽	30	5+8+9 N =17 REC =18"		
					35	9+4+6 N =10 REC =16"		*Moderate difficultly in rotary advancement below 33 ft.
					40	7+8+10 N =18 REC =17"		
	trace fine to medium shell fragments (±5%), weak HCl reaction.				45	4+4+7 N =11 REC =18"		
47.0	CLAYEY SAND, fine to medium grained, wet, light greenish gray and gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	SC	6.0		50	1+3+4 N =7 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		3.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-711 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-712** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 2-15/16" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/22/06 **Finished:** 5/22/06

Location: Northing: 216506.16 ft
Easting: 961997.56 ft

Ground Surface Elevation: 42.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/22	---	19.0'	9.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	ROOTMAT AND TOPSOIL.		42.2					0-9' hollow stem auger
	SILTY SAND, fine to medium grained, moist, brown, contains root fragments.	SM				1+3+2 N =5 REC =14"		
2.0	SANDY SILT, fine to medium, moist, mottled orangeish brown, contains root fragments.	ML	40.4			2+3+3 N =6 REC =10"		
	mottled brownish orange.				5	3+3+4 N =7 REC =18"		
	orangeish gray.					2+3+4 N =7 REC =18"		9-50' 2-15/1" mud rotary
	mottled grayish orange.				10	3+3+4 N =7 REC =18"		
	gray.							
13.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments, strong HCl reaction, 10-15% shell frag.	SP-SM	29.4			2+3+5 N =8 REC =18"		
					15			
17.5	SILTY SAND, fine to medium grained, wet, green, with fine to coarse shell fragments, strong HCl reaction, 25-35% shell frag.	SM	24.9	▽		4+5+50/5" N =55/11" REC =17"		
					20			
22.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SP-SM	19.9			2+3+4 N =7 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-712** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	15-25% shell frag.				30	4+4+4 N =8 REC =18"		
					35	2+2+3 N =5 REC =18"		
					40	2+3+4 N =7 REC =18"		
43.0	SILTY SAND, fine to medium grained, moist, green and white, with fine to coarse shell fragments, strong HCl reaction, 60-70% shell frag.	SM	-0.6		45	28+16+21 N =37 REC =18"		
	30-40% shell frag.				50	9+7+6 N =13 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		-7.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-713** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/11/06 **Finished:** 5/11/06

Location: Northing: 216117.68 ft
Easting: 962283.16 ft

Ground Surface Elevation: 58.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/11	---	33.5'	---	---
Start of day	5/12	---	17.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	silty sand FILL, fine to coarse grained, moist, brown, contains crushed stone.	FILL				2+3+4 N =7 REC =7"		*NWJ rods used.
2.0	LEAN CLAY, moist, brown, with fine to medium sand, contains root fragments.	CL	56.0			2+3+4 N =7 REC =10"		
4.5	FAT CLAY, moist, orangeish brown and light gray, trace fine to medium sand, contains fine to coarse sandy fat clay layers.	CH	53.5		5	7+3+4 N =7 REC =11"		
	yellowish brown and light grayish brown (dark orangeish brown soil appears to be weathered shell fragments).					3+3+4 N =7 REC =18"		
	light grayish brown, light orangeish brown and gray below 8.5 ft.				10			
	fine sandy, gray, trace mica.					4+5+7 N =12 REC =18"		
12.0	ELASTIC SILT, moist, light blueish gray and dark gray, trace fine sand.	MH	46.0			5+5+8 N =13 REC =18"		
					15			
17.0	SANDY SILT, fine to medium, moist, gray, trace mica.	ML	41.0			4+3+5 N =8 REC =18"		
					20			
22.0	LEAN CLAY, moist, gray, trace fine to medium sand and mica.	CL	36.0			4+3+5 N =8 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-713** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
	light greenish gray and gray, with fine to medium sand, weak HCl reaction.				30	5+4+5 N =9 REC =18"		
	wet, gray, trace fine to medium sand, strong HCl reaction, contains fine to medium strongly cemented sand layer from 35.6 to 35.7 ft (strong HCL reaction on cemented sand only).			▽	35	50/2" N =50/2" REC =2"		
37.0	CLAYEY SAND, fine to medium grained, wet, light gray, some fine to coarse shell fragments (±30%), contains fine to medium strongly cemented sand pockets, strong HCl reaction.	SC	21.0		40	7+50/5" N =50/5" REC =11"		*Moderate difficultly in rotary advancement below 39 ft.
	dark gray, trace fine to coarse shell fragments (±5%), contains black particles (1/16 inch), moderate HCl reaction.				45	3+5+7 N =12 REC =18"		
47.0	SILTY SAND, fine to medium grained, wet, dark gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.	SM	11.0					**Resumed grouting at 7:00 AM on 5/12/06.
					50	4+5+8 N =13 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		8.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-714** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 4-1/4" ID Hollow Stem Auger

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/27/06 **Finished:** 6/27/06

Location: Northing: 215705.73 ft
Easting: 962034.37 ft

Ground Surface Elevation: 116.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/27	---	Dry	---	---
Water Reading	7/25	---	44.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	TOPSOIL.		115.5					
	SILTY SAND, fine to medium grained, moist, yellowish brown, contains root fragments.	SM				2+2+4 N =6 REC =18"		
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown.	SP-SM	114.0			2+3+2 N =5 REC =18"		
	Light orangeish brown.				5	3+3+4 N =7 REC =18"		
	Med. - coarse sand.					3+4+6 N =10 REC =18"		
	Contains root fragments.				10	4+6+6 N =12 REC =18"		
	No root fragments.				15	4+5+6 N =11 REC =18"		
	Light orangeish white.				20	3+4+6 N =10 REC =18"		
	Fine - med. sand.				25	4+5+7 N =12 REC =18"		

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Comments:
1. Ground water observation well OW-714 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-714** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Light orangeish brown, Med. - coarse sand.				30	6+7+10 N =17 REC =18"		
	Yellowish orange, Fine - med. sand.				35	7+7+9 N =16 REC =18"		
	Orangeish brown.				40	12+13+16 N =29 REC =18"		
42.0	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC	74.0		45	7+1+2 N =3 REC =18"		
						REC =24"	PP=1.50 tsf	
50.0	BOTTOM OF BORING @ 50.0 FT.		66.0		50			

Comments:

1. Ground water observation well OW-714 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-715** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/1/06 **Finished:** 6/1/06

Location: Northing: 214951.76 ft
Easting: 962639.59 ft

Ground Surface Elevation: 86.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/1	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	TOPSOIL.		85.8					
	SILTY SAND, fine to medium grained, moist, dark brown, with organic matter, and root fragments.	SM				1+1+2 N =3 REC =12"		
	Dark orangeish brown, trace root fragments.					3+3+3 N =6 REC =17"		
					5	3+3+2 N =5 REC =18"		
6.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light orangeish brown.	SP-SM	80.3					
						2+3+3 N =6 REC =18"		
					10			Change from hollow stem auger to mud rotary drilling
	Wet, orangeish brown.			▽		6+7+10 N =17 REC =11"		
						9+10+13 N =23 REC =17"		
					15			
	Reddish brown.					10+12+13 N =25 REC =16"		
					20			
	Dark reddish brown, contains organic matter.					9+6+5 N =11 REC =18"		Brown return water
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-715** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
26.0	LEAN CLAY, moist, mottled grayish orange, with sand.	CL	60.3					
					30	4+3+4 N =7 REC =18"		
	Gray.				35	2+3+4 N =7 REC =18"		
					40	2+4+5 N =9 REC =18"		
					45	4+5+6 N =11 REC =18"		
					50	5+7+9 N =16 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		36.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-716** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" O.D. Tri-cone roller bit (Mud Rotary)

Drilling Equipment: Diedrich D-50 Turbo (Track)

Schnabel Representative: K. Megginson

Dates Started: 7/20/06 **Finished:** 7/20/06

Location: Northing: 215003.21 ft
Easting: 961364.57 ft

Ground Surface Elevation: 82.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/20	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Forest litter, rootmat and topsoil.		82.1					
	SILT, moist, brown, trace fine to medium sand, contains root fragments.	ML				1+1+2 N =3 REC =18"		*AWJ rods used.
	light brown and brown, trace organic matter (±1%).					2+5+6 N =11 REC =18"		
	brown and dark brown.				5	5+6+7 N =13 REC =18"		*4-1/4" I.D. Hollow Stem Augers used from 0 to 5 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 5 ft.
7.0	LEAN CLAY, moist, mottled orangeish brown and light gray, with fine to medium sand.	CL	75.4			8+10+11 N =21 REC =18"		
9.5	SILTY SAND, fine to coarse grained, moist, orangeish brown and grayish brown, contains moderately cemented sand pockets, trace fine gravel, (coarse sand and fine gravel is subangular to subrounded; maximum dmension of fine gravel is 1/4 inch).	SM	72.9		10	8+11+12 N =23 REC =14"		
	wet, dark yellowish brown, light gray, and light grayish brown.			▽	15	2+1+2 N =3 REC =12"		
17.0	FAT CLAY, wet, gray, with fine to medium sand, trace mica.	CH	65.4		20	3+2+3 N =5 REC =18"		
	moist, gray and dark gray, trace fine to medium sand, contains clayey sand and sandy fat clay lenses.				25	3+3+3 N =6 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-716** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	gray, trace organic matter (±1%), contains light grayish sandy fat clay and clayey sand pockets.	CH			30	4+4+5 N =9 REC =18"		
34.3	ELASTIC SILT, moist, gray, trace fine to medium sand and mica.	MH	48.1		35	3+5+6 N =11 REC =18"		
37.0	SANDY LEAN CLAY, moist, gray and light gray, contains light grayish clayey sand pockets.	CL	45.4		40	5+7+10 N =17 REC =18"		
42.0	SILTY SAND, fine to medium grained, moist, dark gray, trace fine to medium shell fragments (±5%), mostly cemented sand layers (±95%), (no observable HCl reaction with cemented sand layers).	SM	40.4		45	38+50/3" N =50/3" REC =10"		*Moderate to difficult rotary advancement from 44 to 48.5 ft (slow advancement).
49.0 49.5	wet, gray, mostly fine to medium shell fragments (±80%), strong HCl reaction. POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, few fine to medium shell fragments (±10%), moderate HCl reaction. BOTTOM OF BORING @ 49.5 FT.	SP-SM	33.4 32.9			12+50 N =50 REC =12"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-717** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/14/06 **Finished:** 7/14/06

Location: Northing: 214302.45 ft
Easting: 962349.27 ft

Ground Surface Elevation: 90.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/14	---	13.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	TOPSOIL		90.2					
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM				WOH+WOH +1 N =1 REC =18"		
2.0	SANDY LEAN CLAY, fine to medium, moist, brown, contains root fragments.	CL	88.7			WOH+2+4 N =6 REC =14"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown.	SP-SM	86.2		5	9+10+9 N =19 REC =17"		
7.0	POORLY GRADED SAND, with gravel, fine to coarse grained, moist, orange.	SP	83.7			8+13+13 N =26 REC =18"		
10.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, reddish orange.	SP-SM	80.7		10	4+7+7 N =14 REC =16"		
12.0	SILTY SAND, fine to coarse grained, wet, orange.	SM	78.7	▽	15	6+5+6 N =11 REC =16"		
	fine to medium grained, wet, mottled grayish orange.				20	WOH+WOH +1 N =1 REC =18"		
					25	WOH+WOH +4 N =4		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-717** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM				REC =18"		
27.0	SANDY SILT, fine to medium, moist, gray.	ML	63.7		30	1+2+2 N =4 REC =18"		
32.0	SILTY SAND, fine to medium grained, moist, gray.	SM	58.7		35	1+2+3 N =5 REC =18"		
					40	3+3+7 N =10 REC =18"		
42.0	FAT CLAY, moist, gray, with silt.	CH	48.7		45	2+4+5 N =9 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		40.7		50	4+5+6 N =11 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-718** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: R. Vinzant

Dates Started: 6/19/06 **Finished:** 6/19/06

Location: Northing: 214130.52 ft
Easting: 961929.05 ft

Ground Surface Elevation: 117.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/19	---	8.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		117.0					
	SILTY SAND, fine to medium grained, moist, reddish brown, contains mica.	SM				2+3+5 N =8 REC =18"		
						6+13+17 N =30 REC =18"		
4.5	POORLY GRADED SAND, fine to medium grained, moist, light orange, with clay.	SP-SC	113.0		5	6+6+8 N =14 REC =18"		Change to mud rotary drilling from hollow stem auger
	Wet, Med. - coarse sand.			▽		6+9+8 N =17 REC =18"		
					10	2+2+2 N =4 REC =10"		
12.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light orangeish brown.	SP-SM	105.0			8+9+9 N =18 REC =18"		
					15			
	Light brown.					9+12+16 N =28 REC =16"		
					20			
	Med. - coarse sand.					8+12+15 N =27 REC =15"		
					25			

continued on next page

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-718 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-718** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Wet.				30	11+15+17 N =32 REC =16"		
	Moist, light orangeish brown.				35	11+13+13 N =26 REC =17"		
	Dark reddish brown, Fine - med. sand.				40	7+10+12 N =22 REC =18"		
42.0	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC	75.5		45	2+1+2 N =3 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		67.5		50	2+1+2 N =3 REC =18"		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-718 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-719** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 6/15/06 **Finished:** 6/16/06

Location: Northing: 213978.69 ft
Easting: 961500.2 ft

Ground Surface Elevation: 75.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/15	---	10.5'	---	---
Start of day	6/16	---	5.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	FL, R AND TOPSOIL.		75.0					0-9'- Advanced 4-1/4" HSA
	SANDY SILT, fine to medium, moist, brown and light brown, comtains wood fragments, contains root fragments.	ML				2+2+2 N =4 REC =7"		
2.0	SILTY SAND, fine to medium grained, moist, light orangeish brown and yellowish brown, trace root fragments, slightly mottled.	SM	73.2			3+5+6 N =11 REC =18"		
4.5	SANDY SILT, fine to medium, moist, light orangeish brown and yellowish brown, slight layering <1/2" thick.	ML	70.7		5	4+7+9 N =16 REC =13"		
7.0	CLAYEY SAND, fine to medium grained, moist, grayish white and light yellowish brown.	SC	68.2			4+5+5 N =10 REC =12"		9'- Changed to mud rotary with 3-7/8" tri-cone roller bit
10.0	SILTY SAND, fine to medium grained, wet, light orangeish brown and light gray. 1" layer of moderately cemented sand, dark orangeish brown .	SM	65.2	▽	10	3+6+5 N =11 REC =13"		
	mottled orangeish brown and light gray.				15	1+2+1 N =3 REC =14"		17'- Color change in mud return from light brown to orangeish brown
					20	2+1+2 N =3 REC =16"		
22.0	LEAN CLAY with sand, moist, gray, contains mica.	CL	53.2		25	2+3+4 N =7 REC =18"		22'- mud return from orangeish brown to gray

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-719** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
27.0	FAT CLAY with sand, moist, gray, contains mica.	CH	48.2		30	2+4+5 N =9 REC =18"		
32.0	SANDY ELASTIC SILT, fine to medium, moist, dark gray, contains mica.	MH	43.2		35	3+4+6 N =10 REC =18"		35'- Start of day on 6/16/06
37.0	SANDY LEAN CLAY, fine to medium, with sand, moist, gray and dark gray, contains mica.	CL	38.2		40	5+7+8 N =15 REC =18"		
42.0	CLAYEY SAND, fine to coarse grained, moist, dark gray, contains mica, moderate cementation.	SC	33.2		45	7+11+21 N =32 REC =18"		45-48.5'- Harder drilling
47.0	POORLY GRADED SAND WITH CLAY, wet, dark gray and brownish white, 50-60% fine to medium shell fragments, contains mica, strong HCl reaction.	SP-SC	28.2			37+50/5" N =50/5"		47.5'- Rig chatter
49.4	BOTTOM OF BORING @ 49.4 FT.		25.8					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-720** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/17/06 **Finished:** 7/18/06

Location: Northing: 215674.48 ft
Easting: 962378.47 ft

Ground Surface Elevation: 73.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/17	---	11.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	FL, R AND TOPSOIL.		73.2					
	POORLY GRADED SAND, fine to coarse grained, moist, brown, contains root fragments.	SP				1+2+1 N =3 REC =18"		
2.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, yellowish white.	SP-SC	71.5			3+3+5 N =8 REC =18"		
4.5	CLAYEY SAND, fine to coarse grained, moist, yellowish orange.	SC	69.0		5	2+2+4 N =6 REC =16"		
7.0	SANDY LEAN CLAY, fine to coarse, moist, yellowish gray.	CL	66.5			2+2+3 N =5 REC =17"		
10.0	FAT CLAY, wet, brownish gray, with sand.	CH	63.5	▽	10	1+1+1 N =2 REC =18"		
13.0	POORLY GRADED SAND, fine to coarse grained, wet, orangeish white.	SP	60.5		15	4+3+2 N =5 REC =10"		
17.0	FAT CLAY, moist, gray, with sand.	CH	56.5		20	WOH+2+3 N =5 REC =18"		
					25	2+2+3 N =5 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-720** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH						
					30	3+4+7 N =11 REC =18"		
	fine to medium sandy				35	4+7+8 N =15 REC =18"		
37.0	ELASTIC SILT, moist, gray, with sand.	MH	36.5					
					40	4+4+6 N =10 REC =18"		
	fine to medium sandy, greenish gray.				45	4+4+8 N =12 REC =18"		
	with sand.				50	5+6+10 N =16 REC =18"		
52.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 10-20% shell frag.	SM	21.5		55	4+7+12 N =19 REC =18"		
57.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, green, with *continued on next page*	SP-SM	16.5					

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-720** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to coarse shell fragments, strong HCl reaction, 20-40% shell frag.	SP-SM			60	8+9+11 N =20 REC =18"		
	10-30% shell frag.				65			63-75' grinding
67.0	SILTY SAND, fine to medium grained, wet, green, with fine to coarse shell fragments, strong HCl reaction, 5-15% shell frag.	SM	6.5		70	5+8+11 N =19 REC =18"		
	0-5% shell frag.				75	3+6+8 N =14 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		-1.5					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-721** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/18/06 **Finished:** 7/19/06

Location: Northing: 215545.8 ft
Easting: 962462.1 ft

Ground Surface Elevation: 101.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/18	---	33.5'	0.0'	---
Start of day	7/19	---	8.0'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown.	SP-SM				1+1+1 N =2 REC =6"		
	orangeish brown.					4+4+5 N =9 REC =14"		
4.5	POORLY GRADED SAND, with gravel, fine to coarse grained, moist, orange.	SP	96.8		5	3+3+4 N =7 REC =14"		
7.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, orange, trace gravel.	SP-SC	94.3			7+12+15 N =27 REC =16"		
					10	4+5+8 N =13 REC =14"		
13.0	POORLY GRADED SAND, fine to coarse grained, moist, yellowish white, trace gravel.	SP	88.3			5+8+12 N =20 REC =12"		
					15			
	no gravel.					5+8+12 N =20 REC =10"		
					20			
						6+8+10 N =18 REC =9"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-721** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
	orange.				30	6+8+7 N =15 REC =9"		
	wet.			▽	35	4+6+6 N =12 REC =14"		
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, orange.	SP-SM	64.3		40	2+9+9 N =18 REC =16"		
42.0	SILT, wet, reddish orange, with sand, with clay.	ML	59.3		45	5+3+4 N =7 REC =12"		
45.0	SANDY FAT CLAY, fine to medium, moist, gray.	CH	56.3		50	2+4+4 N =8 REC =18"		
	trace sand, with silt.				55	4+5+5 N =10 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-721** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	3+6+7 N =13 REC =18"		
62.0	SILTY SAND, fine to medium grained, moist, dark grayish green.	SM	39.3		65	2+4+5 N =9 REC =18"		
67.0	ELASTIC SILT, moist, gray, with sand.	MH	34.3		70	2+4+5 N =9 REC =18"		
	fine sandy, greenish gray.				75	3+4+6 N =10 REC =18"		
77.0	SILTY SAND, fine to medium grained, moist, greenish gray, contains cemented sand, with fine to coarse shell fragments, strong HCl reaction, 80-100% shell frag.	SM	24.3		80	50/1" N =50/1" REC =1"		
	wet, green, 40-60% shell frag.				85	20+11+9 N =20 REC =18"		
	20-40% shell frag.				90	5+10+14 N =24 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-721** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SP-SM	9.3		95	6+9+15 N =24 REC =16"		
					100	6+12+19 N =31 REC =12"		
100.0	BOTTOM OF BORING @ 100.0 FT.		1.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-722** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/18/06 **Finished:** 7/18/06

Location: Northing: 215386.1 ft
Easting: 962467 ft

Ground Surface Elevation: 99.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/18	---	28.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brownish gray, contains root fragments.	SP-SM				WOH+1+2 N =3 REC =18"		
	fine to coarse grained, orangeish brown, trace gravel.					3+3+2 N =5 REC =16"		
4.5	POORLY GRADED SAND, fine to coarse grained, moist, orange, with gravel.	SP	95.3		5	5+6+10 N =16 REC =15"	w=3.5% *	
7.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange, trace gravel, with silt.	SP-SM	92.8			5+8+12 N =20 REC =12"		
10.0	POORLY GRADED SAND, fine to coarse grained, moist, yellowish orange, with gravel.	SP	89.8		10	6+8+11 N =19 REC =12"		
					15	4+9+9 N =18 REC =10"	w=12.4% *	
					20	6+12+16 N =28 REC =12"		
22.0	SANDY SILT, fine to medium, moist, reddish orange, with clay.	ML	77.8					
24.5	POORLY GRADED SAND WITH SILT,	SP-SM	75.3		25	3+8+9 N =17 REC =16"	w=21.1% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-722** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium grained, moist, orange.	SP-SM						
27.0	SILTY SAND, fine to medium grained, wet, orange.	SM	72.8	▽				
					30	3+4+5 N =9 REC =18"		
					35	REC =24"	w=26.8% PP=0.50 tsf *	
	trace sand.				40	WOH+4+2 N =6 REC =14"		
42.0	FAT CLAY, moist, gray, with sand.	CH	57.8					
					45	2+3+4 N =7 REC =18"	w=37.1% *	
					50	2+4+4 N =8 REC =18"		
	moist, gray.				55	3+3+6 N =9 REC =18"	w=41.9% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-722** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to medium sandy	CH			60	3+5+5 N =10 REC =18"		
					65	3+3+4 N =7 REC =7"	w=47.5% *	
					70	3+4+6 N =10 REC =18"		
72.0	SILTY SAND, fine to medium grained, wet, greenish gray, contains cemented sand, with fine to coarse shell fragments, moderate HCl reaction, 70-90% shell frag/cemented sand.	SM	27.8					
73.9			25.9		75	50/5" N =50/5" REC =5"	w=18.8% *	
	BOTTOM OF BORING @ 75.0 FT.							

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-723** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/1/06 **Finished:** 6/1/06

Location: Northing: 215108 ft
Easting: 963000.8 ft

Ground Surface Elevation: 90.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/1	---	6.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FOREST LITTER, ROOTMAT AND TOPSOIL.	SP-SM	89.5			1+1+1 N =2 REC =16"		
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, dark brown. Light brown, trace root fragments.					3+4+6 N =10 REC =18"		Change from hollow stem auger to mud rotary drilling
5.0	POORLY GRADED SAND, Wet, light brown.	SP	85.0	▽	5	2+3+5 N =8 REC =12"		
7.5	POORLY GRADED SAND WITH SILT, Reddish brown.	SP-SM	82.5			10+14+20 N =34 REC =18"		
					10			
	Light orange.					10+16+21 N =37 REC =18"		
	Moist, orangeish brown, Mottles of gray clay.				15	9+8+7 N =15 REC =18"		
18.5	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, mottled grayish orange.	SP-SC	71.5		20	w.o.h.+1+2 N =3 REC =18"		
	Contains mica.				25	2+2+2 N =4 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-723** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SC						
27.0	FAT CLAY, moist, gray	CH	63.0					
					30	REC =20"	w=31.9% LL=56 PL=15 PP=1.50 tsf *	
	with sand, contains mica, Fine - med. grained sand.				35	w.o.h.+2+4 N =6 REC =18"		
					40	REC =24"	w=33.9% LL=64 PL=19 PP=3.00 tsf *	
					45	3+5+6 N =11 REC =18"		
					50	4+5+7 N =12 REC =18"		
53.5	SILTY SAND, fine to medium grained, moist, gray, contains mica.	SM	36.5		55	6+6+7 N =13 REC =18"		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-723** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	3+3+6 N =9 REC =18"		
	With cemented sand, moderate HCl reaction.				65	50/3" N =50/3" REC =4"		Drilling penetration rate slower
	Greenish gray, strong HCl reaction, 15% med. - coarse shell fragments.				70	9+14+50/5" N =64/11" REC =17"		
	25% shell fragments.				75	4+5+10 N =15 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		15.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-724** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/2/06 **Finished:** 6/5/06

Location: Northing: 214780 ft
Easting: 963106.2 ft

Ground Surface Elevation: 97.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/2	---	10.5'	---	---
Start of day	6/5	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		96.5					
	POORLY GRADED SAND WITH SILT, fine to medium grained, dry, orangeish brown, contains organic matter.	SP-SM				woh+2+1 N =3 REC =18"		
	Moist.					3+4+4 N =8 REC =18"		
	Med. - coarse sand.				5	3+6+7 N =13 REC =18"		
	Light orangeish brown.					5+6+6 N =12 REC =18"		
	Wet.			▽	10	4+6+6 N =12 REC =16"		Change from hollow stem auger to mud rotary drilling
	Moist, yellowish brown.				15	5+9+11 N =20 REC =16"		
	Wet, light orangeish brown, Fine - med. sand.				20	9+12+13 N =25 REC =14"		
22.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, mottled grayish orange.	SP-SC	75.0					
					25	7+5+4 N =9 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-724** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SC						
26.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, mottled orangeish gray.	SP-SM	71.0		30	2+6+6 N =12 REC =17"		
					35	2+2+2 N =4 REC =18"		
36.0	SILTY SAND, fine to medium grained, moist, gray, contains mica.	SM	61.0		40	3+4+4 N =8 REC =18"		
					45	3+6+6 N =12 REC =18"		
46.0	LEAN CLAY, moist, gray, with sand, contains mica.	CL	51.0		50	woh+3+4 N =7 REC =18"		
					55	3+4+5 N =9 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-724** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL			60	3+5+5 N =10 REC =18"		
					65	4+6+8 N =14 REC =18"		
66.0	SILTY SAND, fine to medium grained, moist, dark greenish gray, contains mica.	SM	31.0		70	4+5+5 N =10 REC =18"		
73.5	SANDY ORGANIC CLAY, moist, geenish gray	OL	23.5		75	REC =22"	w=31.9% LL=45 PL=24 PP=4.00 tsf *	
78.5	LEAN CLAY with cemented sand, weak HCl reaction, 3% med. coarse shell fragments.	CL	18.5		80	15+45+39 N =84 REC =18"		
	Light greenish gray, strong HCl reaction, 40% med. - coarse fragmented shell.				85	18+50/5" N =50/5" REC =11"		
	Greenish gray.				90	5+5+12 N =17 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-724** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
	Weak HCl reaction, 5% med. - coarse shell.				95	11+8+9 N =17 REC =18"		
					100	6+9+12 N =21 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-3.0					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-725** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/5/06 **Finished:** 6/6/06

Location: Northing: 214664.3 ft
Easting: 963219.4 ft

Ground Surface Elevation: 59.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/5	---	8.0'	---	---
Start of day	6/6	---	9.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		58.5					
	SILT, moist, light brown, with sand, and organic matter.	ML				1+2+2 N =4 REC =13"		
2.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, yellowish brown.	SP-SM	57.0			2+3+2 N =5 REC =18"		
					5	3+3+3 N =6 REC =18"		
7.0	CLAYEY SAND, medium to coarse grained, wet, mottled grayish brown, contains gravel.	SC	52.0	▽		1+2+4 N =6 REC =18"		Change from hollow stem auger to mud rotary drilling Start of drilling for the day
10.0	SILTY SAND, fine to medium grained, wet, reddish brown.	SM	49.0		10	3+6+5 N =11 REC =13"		
13.0	LEAN CLAY, moist, gray, with sand, Fine - med. sand.	CL	46.0			2+4+4 N =8 REC =18"		
					15			
						3+4+6 N =10 REC =18"		
					20			
						3+4+6 N =10 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-725 installed in nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-725** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
	Greenish gray.				30	4+7+8 N =15 REC =18"		
					35	3+4+6 N =10 REC =18"		
38.0	SANDY SILT, fine to medium, moist, dark greenish gray.	ML	21.0		40	3+6+50/3" N =56/9" REC =19"		
42.0	SILTY SAND, fine to medium grained, moist, dark greenish gray, 25% med. - coarse shell fragments.	SM	17.0		45	5+9+14 N =23 REC =18"		
48.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, greenish gray, 25% medium to coarse shell fragments.	SP-SM	11.0		50	7+6+6 N =12 REC =18"		
					55	7+8+13 N =21 REC =18"		
57.0	SILTY SAND, fine to medium grained, moist, greenish gray, 5% medium to *continued on next page*	SM	2.0					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-725 installed in nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-725** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	coarse shell fragments, weak HCl reaction.	SM			60	5+5+7 N =12 REC =18"		
					65	REC =18"	PP=2.50 tsf	
					70	3+6+5 N =11 REC =18"		
	strong HCl reaction.				75	8+14+11 N =25 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		-16.0					

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-725 installed in nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-726** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 2-15/16" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 8/1/06 **Finished:** 8/1/06

Location: Northing: 215564.67 ft
Easting: 961709.57 ft

Ground Surface Elevation: 78.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/1	---	4.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	FL, R AND TOPSOIL.		78.0					0'- 4 1/4" HSA drilled to 4 feet
	SILTY SAND, fine to coarse grained, moist, light brown and orangeish brown, some iron staining.	SM				1+2+2 N =4 REC =15"		
2.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, light brown and orangeish brown, trace gravel.	SP-SM	75.8	▽		4+5+6 N =11 REC =18"		4'- Begin mud rotary with 3 7/8" tri-cone roller bit
4.5	SILTY SAND, fine to coarse grained, wet, light brownish orange and brown.	SM	73.8		5	4+7+4 N =11 REC =18"		
7.0	SANDY SILT,fine to medium, wet, light orangeish brown and dark reddish brown, contains mica, gray lenses <1/16" throughout sample.	ML	71.3			1+2+1 N =3 REC =14"		
					10	REC =0"		
13.0	SILTY SAND, fine to medium grained, wet, gray and light oliveish gray, contains mica.	SM	65.3			1+2+3 N =5 REC =15"		
					15			
17.0	SANDY ELASTIC SILT, moist, gray, contains mica.	MH	61.3			2+2+3 N =5 REC =15"		
					20			
22.0	FAT CLAY, moist, gray, trace sand, contains mica.	CH	56.3			REC =19"	w=35.7% LL=69 PL=22	
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-726** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					*	
27.0	LEAN CLAY with sand, moist, gray, contains mica.	CL	51.3		30	3+4+5. N =9 REC =18"		
					35	4+6+8 N =14 REC =18"		
37.0	CLAYEY SAND, fine to medium grained, wet, dark gray, trace mica.	SC	41.3		40	4+5+5 N =10 REC =18"		
	Weak cementation, some 1/4-1/2" pockets of lean clay.				45	7+20+48 N =68 REC =18"		
47.0	POORLY GRADED SAND, fine to medium grained, wet, dark gray, trace clay, contains mica.	SP	31.3		50	8+10+12 N =22 REC =14"		
	Gray and brownish white, 30-40% fine to medium shell fragments, strong HCl reaction.				55	4+6+8 N =14 REC =14"		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-726** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.0	POORLY GRADED GRAVEL, fine to medium grained, wet, gray, trace sand, trace clay, strong HCl reaction, strong cementation, gravel is actually cemented sand fragments.	GP	20.3		60	50/2" N =50/2" REC =2"		
62.0	SILTY SAND, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, strong HCl reaction.	SM	16.3		65	5+8+9 N =17 REC =16"		
67.0	CLAYEY SAND, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, strong HCl reaction.	SC	11.3		70	7+7+9 N =16 REC =18"		
72.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, gray and brownish white, 0-10% fine to coarse shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments.	SP-SC	6.3		75	6+7+11 N =18 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		3.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-727** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/11/06 **Finished:** 5/11/06

Location: Northing: 215300.85 ft
Easting: 961884.98 ft

Ground Surface Elevation: 104.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/10	---	23.5'	---	---
Start of Day	5/11	---	36.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		104.3					
2.0	CLAYEY SAND, fine to medium grained, moist, orangeish brown and brown, trace wood and root fragments.	SC	102.9			1+2+5 N =7 REC =18"		
	LEAN CLAY with sand, moist, orangeish brown and gray, trace root fragments.	CL				4+2+3 N =5 REC =18"		
4.5	SILTY SAND, fine to coarse grained, moist, orangeish brown and yellowish brown.	SM	100.4		5	1+5+6 N =11 REC =14"		
7.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish brown and orange.	SP-SM	97.9			5+7+7 N =14 REC =15"		
9.5	SILTY SAND, fine to medium grained, moist, orangeish brown and reddish brown.	SM	95.4		10	5+6+6 N =12 REC =11"		
	fine to coarse grained, orangeish brown and yellowish brown.				15	3+6+9 N =15 REC =15"		
17.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown and yellowish brown.	SP-SM	87.9		20	6+9+12 N =21 REC =10"		
	wet.			▽	25	6+8+12 N =20 REC =9"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-727** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	SANDY ELASTIC SILT, wet, orangeish brown and gray.	MH	77.9		30	2+2+2 N =4 REC =15"		
	reddish brown. gray.				35	2+2+5 N =7 REC =18"		
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, yellowish brown.	SP-SM	67.9		40	4+5+8 N =13 REC =12"		
42.0	FAT CLAY with sand, wet, gray.	CH	62.9		45	3+3+4 N =7 REC =20"		
					50	REC =22"	PP=2.50 tsf	
	moist.				55	3+5+7 N =12 REC =18"		Resumed drilling on 5/11/06 at 7:30 am
54.9	SILTY SAND, fine to medium grained, wet, gray.	SM	50.0					
57.0	FAT CLAY with sand, moist, gray.	CH	47.9					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-727** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	2+3+5 N =8 REC =19"		
					65	REC =20"	PP=>4.5 tsf	
67.0	SILTY SAND, fine to medium grained, moist, light gray and oliveish gray.	SM	37.9		70	28+27+50/5" N =77/11" REC =20"		
72.0	CLAYEY SAND, fine to medium grained, moist, light gray and white.	SC	32.9		75	50/5" N =50/5" REC =5"		
77.0	SILTY SAND, fine to medium grained, wet, gray and white, with fine to coarse shell fragments, HCl reaction strong.	SM	27.9		80	4+9+11 N =20 REC =14"		
82.0	CLAYEY SAND, fine to medium grained, wet, greenish gray and white, with fine to coarse shell fragments, HCl reaction strong.	SC	22.9		85	9+8+6 N =14 REC =16"		
87.0	SILTY SAND, fine to medium grained, wet, greenish gray and white, trace fine to coarse shell fragments, HCl reaction moderate.	SM	17.9		90	6+6+7 N =13 REC =20"		

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-727** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	contains fine to coarse shell fragments.				95	6+8+9 N =17 REC =18"		
	light gray and greenish gray, trace fine to medium shell fragments, HCl reaction weak.				100	6+8+12 N =20 REC =20"		
100.0	BOTTOM OF BORING @ 100.0 FT.		4.9					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-728** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Bender

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-550X (ATV)

Schnabel Representative: K. Bell

Dates Started: 5/11/06 **Finished:** 5/12/06

Location: Northing: 215163.63 ft
Easting: 961910.05 ft

Ground Surface Elevation: 112.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/11	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		111.9					
	SANDY LEAN CLAY, moist, brown and orangeish brown, trace root and wood fragments.	CL				3+3+3 N =6 REC =18"		
2.0			110.3					
	CLAYEY SAND, fine to medium grained, moist, reddish brown and orangeish brown, trace root fragments.	SC				3+6+5 N =11 REC =18"		
4.5			107.8					
	SILTY SAND, fine to medium grained, moist, orangeish brown and reddish brown.	SM			5	4+3+4 N =7 REC =17"		
						3+3+7 N =10 REC =11"		
					10			
	fine to coarse grained, orangeish brown and white.					3+4+5 N =9 REC =11"		
	fine to medium grained, wet, orangeish brown and yellowish brown.			▽		5+5+5 N =10 REC =10"		
					15			
17.0			95.3					
	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, orangeish brown and yellowish brown.	SP-SM				5+6+10 N =16 REC =12"		
					20			
	fine to medium grained.					8+10+12 N =22 REC =9"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-728** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	orangeish brown and reddish brown.				30	5+7+9 N =16 REC =9"		
32.0	SILTY SAND, fine to medium grained, wet, orangeish brown and reddish gray, (color change at 39.9 feet).	SM	80.3		35	5+3+4 N =7 REC =14"		
37.0	SANDY LEAN CLAY, wet, gray and greenish gray.	CL	75.3		40	3+2+3 N =5 REC =18"		
42.0	SILTY SAND, fine to medium grained, wet, orangeish brown and gray.	SM	70.3		45	2+2+10 N =12 REC =16"		
47.0	FAT CLAY with sand, wet, orangeish brown and gray.	CH	65.3		50	2+3+2 N =5 REC =19"		
	gray, trace sand.				55	REC =23"	PP=2.50 tsf	
57.0	ELASTIC SILT, moist, greenish gray, trace sand.	MH	55.3					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-728** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH			60	2+4+4 N =8 REC =18"		
					65	REC =23"	PP=>4.5 tsf	
67.0	FAT CLAY with sand, moist, light gray and greenish gray.	CH	45.3		70	5+7+5 N =12 REC =18"		
	gray and greenish gray, cemented 2/16ths inch silt lense.				75	8+10+16 N =26 REC =18"		Harder drilling
75.0	BOTTOM OF BORING @ 75.0 FT.		37.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-729** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/18/06 **Finished:** 5/19/06

Location: Northing: 214861.87 ft
Easting: 962454.6 ft

Ground Surface Elevation: 117.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/18	---	Dry	---	---
Start of day	5/19	---	15.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		116.8					
	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.	SC				1+1+2 N =3 REC =16"		4-1/4 in. hollow stem auger advanced to 4 ft.
	mottled brownish red.					4+7+7 N =14 REC =18"	w=16% *	4 ft.-switched to 3 7/8" tri-cone roller bit
					5	2+5+5 N =10 REC =14"		
7.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, reddish orange.	SP-SM	110.3			5+8+8 N =16 REC =13"	w=13.5% *	
9.5	POORLY GRADED SAND, fine to coarse grained, moist, yellowish orange, trace silt, with fine gravel.	SP	107.8		10	8+14+16 N =30 REC =13"		
12.0	SILTY SAND, fine to coarse grained, wet, orange, trace gravel.	SM	105.3			7+5+4 N =9 REC =16"		
14.7	SANDY FAT CLAY, fine to medium, moist, orange.	CH	102.6		15			
17.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish orange.	SP-SM	100.3			5+7+8 N =15 REC =12"	w=14.2% *	
					20			
						11+14+20 N =34 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-729 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-729** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	with gravel.				30	12+17+17 N =34 REC =14"	w=12.5% *	
32.0	POORLY GRADED SAND, fine to coarse grained, moist, yellowish orange, trace silt and gravel.	SP	85.3		35	4+14+15 N =29 REC =18"		
37.0	SILTY SAND, fine to coarse grained, moist, orange.	SM	80.3		40	2+2+6 N =8 REC =12"	w=18.4% *	
42.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish orange, with silt.	SP-SM	75.3		45	16+21+24 N =45 REC =14"		
47.0	SANDY SILT, fine to medium, moist, grayish orange.	ML	70.3		50	WOH+1+1 N =2 REC =18"	w=28.2% *	
52.0	SILTY SAND, fine to medium grained, wet, orangeish brown and gray, slight layering, almost mottled.	SM	65.3		55	3+1+1 N =2 REC =14"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-729 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-729** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	6+5+6 N =11 REC =6"	w=28.8% *	
62.0	ORGANIC CLAY, fine to medium, moist, gray, contains mica.	OH	55.3		65	1+3+4 N =7 REC =18"		
	with sand.				70	REC =24"	w=32.8% LL=56 PL=18 *	
72.0	LEAN CLAY with sand, moist, gray, contains mica.	CL	45.3		75	2+4+4 N =8 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		42.3					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-729 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-730** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/17/06 **Finished:** 5/18/06

Location: Northing: 214728.5 ft
Easting: 962523.84 ft

Ground Surface Elevation: 115.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/22	1:32	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	ROOTMAT AND TOPSOIL.							0-4' hollow stem auger
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM	114.9			1+2+3 N =5 REC =18"		
2.5	POORLY GRADED SAND WITH SILT and gravel, fine to coarse grained, moist, brown and red.	SP-SM	112.9			5+7+5 N =12 REC =18"		4-75' 3 7/8" roller bit, mud rotary drilling Start of day 5/18/06
5.0	POORLY GRADED SAND, fine to coarse grained, moist, reddish brown, trace silt and gravel.	SP	110.4		5	3+5+6 N =11 REC =15"		
	yellowish orange, with gravel.					6+11+13 N =24 REC =12"		
9.5	SILTY SAND, fine to medium grained, moist, orange, trace gravel.	SM	105.9		10	4+5+6 N =11 REC =15"		
13.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange and red.	SP-SM	102.4		15	6+7+7 N =14 REC =14"		
	orange, with gravel.				20	10+13+13 N =26 REC =14"		
	trace gravel.				25	9+15+17 N =32 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-730** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	POORLY GRADED SAND, fine to coarse grained, moist, yellow, trace silt, with gravel.	SP	88.4		30	8+11+13 N =24 REC =14"		
					35	9+7+10 N =17 REC =13"		
37.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish orange.	SP-SM	78.4		40	9+13+9 N =22 REC =14"		
	fine to coarse grained (small 1/16" lenses of clay).				45	5+11+18 N =29 REC =14"		
44.8	SILTY SAND, fine to medium grained, moist, reddish orange.	SM	70.6					
46.5	SANDY SILT, fine to medium, moist, orange.	ML	68.9		50	1+2+2 N =4 REC =0"		
53.0	SILTY SAND, fine to medium grained, moist, orange.	SM	62.4		55	REC =0"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-730** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	10+9+8 N =17 REC =12"		
62.0	FAT CLAY, moist, dark gray, with sand.	CH	53.4		65	1+2+4 N =6 REC =18"		
	trace sand.				70	REC =24"	PP=2.50 tsf	
71.0	LEAN CLAY, moist, dark gray, with sand.	CL	44.4		75	3+4+6 N =10 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		40.4					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-731** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 5/31/06 **Finished:** 5/31/06

Location: Northing: 214546.48 ft
Easting: 962547.88 ft

Ground Surface Elevation: 115.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/31	---	14.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		115.2					
	SANDY SILT, moist, dark oliveish brown, with organic matter, and root fragments, Fine - med. sand.	ML				1+3+3 N =6 REC =9"		
2.5	SILTY SAND, fine to medium grained, moist, light orangeish brown.	SM	113.2			5+9+13 N =22 REC =18"		Change from hollow stem auger to mud rotary drilling
					5	2+4+11 N =15 REC =18"		
	Reddish brown.					5+7+9 N =16 REC =18"		
					10			
10.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, mottled grayish orange.	SP-SM	105.2			7+7+7 N =14 REC =18"		
	Wet, light orangeish brown.			▽		8+9+9 N =18 REC =15"		
					15			
	Moist.					10+12+16 N =28 REC =18"		
					20			
	Wet, Med. - coarse sand.					4+8+11 N =19 REC =14"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-731** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Moist.				30	9+12+15 N =27 REC =18"		
	Wet, light yellowish brown.				35	20+20+20 N =40 REC =18"		
	Light orangeish brown.				40	17+23+26 N =49 REC =18"		
43.5	SILTY SAND, fine to medium grained, moist, dark gray, contains mica.	SM	72.2		45	3+5+5 N =10 REC =18"		
	Oliveish gray.				50	3+4+4 N =8 REC =18"		
					55	1+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-731** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained, moist, oliveish gray, contains mica.	SM			60	REC =24"	PP=1.50 tsf	
63.5	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC	52.2		65	3+2+10 N =12 REC =18"		
68.5	LEAN CLAY, greenish gray, moist, with fine to medium grained sand, contains mica.	CL	47.2		70	3+3+5 N =8 REC =18"		
					75	3+5+6 N =11 REC =18"		
					80	3+5+7 N =12 REC =18"		
83.5	SILTY SAND, fine to medium grained, moist, oliveish gray, contains mica.	SM	32.2		85	5+6+8 N =14 REC =18"		
	Contains cemented sand.				90	23+25+50/5" N =75/11" REC =17"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-731** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
					95	11+17+14 N =31 REC =18"		
99.3	Shell fragments, weak HCl reaction, 5% shell. BOTTOM OF BORING @ 99.3 FT.		16.4			4+50/5" N =50/5" REC =11"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-732** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/8/06 **Finished:** 6/9/06

Location: Northing: 215034.1 ft
Easting: 961594.7 ft

Ground Surface Elevation: 90.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/8	---	6.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		90.2					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown, with silt, trace organic matter, and root fragments.	SP-SM				1+1+2 N =3 REC =15"		
	Light brown, no organic.					5+6+7 N =13 REC =18"		
	Wet, reddish brown, no root fragments.			▽	5	2+3+3 N =6 REC =18"		
	Orangeish brown, med. - coarse sand.					3+5+6 N =11 REC =18"		
9.0	POORLY GRADED SAND WITH CLAY, medium to coarse grained, wet, orangeish brown.	SP-SC	81.7		10	4+6+6 N =12 REC =13"		Change from hollow stem auger to mud rotary drilling
12.0	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC	78.7		15	3+3+4 N =7 REC =16" REC =24"	w=23.1% LL=26 PL=19 PP=1.50 tsf *	
					20	1+2+2 N =4 REC =18"		
20.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, orange.	SP-SC	70.7					
					25	1+2+5 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-732** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
25.0	LEAN CLAY, moist, gray, with sand, contains mica.	CL	65.7					
					30	2+3+3 N =6 REC =18"		
					35	2+3+4 N =7 REC =18"		
					40	2+4+4 N =8 REC =18"		
					45	4+5+7 N =12 REC =18"		
					50	4+6+6 N =12 REC =18"		
50.0	SILTY SAND, fine to medium grained, moist, dark gray.	SM	40.7					
					55	50/4" N =50/4" REC =4"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-732** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Gray, moderate HCl reaction, 15% med. - coarse shell fragments.	SM			60	25+50/5" N =50/5" REC =11"		
	Light gray, strong HCl reaction, 25% med. - coarse shell fragments.				65	14+12+15 N =27 REC =18"		Drilling penetration rate slower
	Greenish gray, trace cemented sand, moderate HCl reaction, 5% med. - coarse sand.				70	35+13+10 N =23 REC =18"		
71.0	LEAN CLAY, dark greenish gray, moderate HCl reaction, 15% med. - coarse shell fragments.	CL	19.7					
					75	6+7+7 N =14 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		15.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-733** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/7/06 **Finished:**

Location: Northing: 214866.8 ft
Easting: 961697.7 ft

Ground Surface Elevation: 87.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/7	---	7.5'	---	---
Start of day	6/8	---	13.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		87.4					
	SANDY SILT, fine to medium, moist, light yellowish brown, trace root fragments, and organic matter.	ML				2+1+2 N =3 REC =16"		
4.5	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC	83.4		5	6+9+20 N =29 REC =18"		
7.0	POORLY GRADED SAND WITH SILT, medium to coarse grained, wet, reddish brown.	SP-SM	80.9	▽		6+9+20 N =29 REC =12"		
8.5			79.4					
9.0	SANDY SILT, fine to medium, moist, light orangeish brown, contains gravel.	ML	78.9					
	CLAYEY SAND, fine to medium grained, moist, mottled grayish orange.	SC			10	2+3+3 N =6 REC =18"		Change from hollow stem auger drilling to mud rotary
	Mottled orangeish gray.				15	2+2+3 N =5 REC =18"		
18.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, mottled grayish orange, with clay.	SP-SC	69.9		20	2+1+2 N =3 REC =18"		
22.0	FAT CLAY, moist, oliveish gray, contains mica, and sand, fine to med. grained.	CH	65.9		25	REC =24"	w=33.2% LL=51 PL=15	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-733** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					PP=2.00 tsf *	
						2+2+3 N =5 REC =18"		
					30			
						2+3+4 N =7 REC =18"		
					35			
						2+4+4 N =8 REC =18"		
					40			
42.0	SILTY SAND, fine to medium grained, moist, dark gray.	SM	45.9					
						5+6+8 N =14 REC =18"		
					45			
	Trace cemented sand, weak HCl reaction.					15+35+50/3" N =85/9" REC =16"		
					50			
	Light gray, strong HCl reaction, 35-45% med. - coarse shell fragments.					24+22+28 N =50 REC =18"		
					55			

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-733** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Contains cemented sand, strong HCl reaction, 35-45% med. - coarse shell fragments.	SM				50 REC =6"		Drilling penetration rate slower
60								
	And cemented sand, weak HCl reaction, <5% med. - coarse shell fragments.					50/4" N =50/4" REC =4"		
65								
	Light greenish gray, strong HCl reaction, <5% med. - coarse shell fragments.					15+23+11 N =34 REC =18"		
70								
	Weak HCl reaction, 10-20% med. - coarse shell fragments.					5+6+8 N =14		
75								
	Moderate HCl reaction, 10-20% med. - coarse shell fragments.					20+9+8 N =17 REC =18"		Harder drilling
80								
	Dark greenish gray, no shell fragments.					7+6+6 N =12 REC =18"		
85								
	strong HCl reaction, 10-20% med. - coarse shell fragments.					REC =24"	PP=4.00 tsf	
90								

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-733** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, light gray, with clay, strong HCl reaction, 35-45% med. - coarse shell fragments.	SP-SC	-4.1		95	17+14+11 N =25 REC =18"		
96.0	SILTY SAND, fine to medium grained, moist, light greenish gray, strong HCl reaction, 20-30% med. - coarse shell fragments.	SM	-8.1		100	18+32+38 N =70 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-12.1					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-734** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/6/06 **Finished:** 6/7/06

Location: Northing: 214589.6 ft
Easting: 961812.5 ft

Ground Surface Elevation: 105.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/6	---	8.0'	---	---
Start of day	6/7	---	15.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		105.2					
	SILTY SAND, fine to medium grained, moist, light brown, contains organic matter, and root fragments.	SM				1+1+1 N =2 REC =14"		
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light brown.	SP-SM	103.7			5+5+5 N =10 REC =18"		
	Light orangeish brown.				5	2+3+4 N =7 REC =18"		
	Wet, light reddish brown.			▽		2+2+2 N =4 REC =18"		
					10	2+3+4 N =7 REC =13"		Change from hollow stem auger to mud rotary drilling
	Light orangeish brown.				15	2+4+6 N =10 REC =13"		
					20	4+4+5 N =9 REC =12"		
	Med. - coarse sand. Moist, dark reddish brown.				25	3+4+16 N =20 REC =11"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-734** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Wet, light orangeish brown.				30	7+10+7 N =17 REC =14"		
32.0	SANDY LEAN CLAY, fine to medium, moist, mottled grayish orange.	CL	73.7		35	4+3+2 N =5 REC =18"		
39.5	SILTY SAND, fine to medium grained, moist, gray, contains mica.	SM	66.2		40	2+1+3 N =4 REC =12"		
					45	3+4+4 N =8 REC =18"		
46.0	LEAN CLAY, moist, dark gray, contains mica.	CL	59.7		50	REC =24"	PP=3.00 tsf	Start of drilling for the day
					55	2+4+4 N =8 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-734** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Dark greenish gray.	CL			60	3+5+5 N =10 REC =18"		
					65	3+5+6 N =11 REC =18"		
	Dark gray, with sand, Fine - med. sand.				70	5+7+9 N =16 REC =18"		
72.0	SILTY SAND, fine to medium grained, moist, light greenish gray, contains cemented sand, strong HCl reaction, 40% med. - coarse shell fragments.	SM	33.7					
					75	25+15+30 N =45 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		30.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-735** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/28/06 **Finished:** 6/28/06

Location: Northing: 214805.48 ft
Easting: 961021.83 ft

Ground Surface Elevation: 91.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/28	---	Dry	---	---
Water Reading	7/27	---	52.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		90.7					
	POORLY GRADED SAND WITH SILT, medium to coarse grained, contains organic matter, moist, orangeish brown.	SP-SM				1+1+3 N =4 REC =18"		
	Fine - med. sand.					2+2+2 N =4 REC =18"	w=7.6% *	
	Yellowish orange, Med. - coarse sand, no organic matter.				5	2+4+7 N =11 REC =18"		
7.0	SILTY SAND, fine to medium grained, moist, yellowish brown, contains organic matter.	SM	84.2			3+5+4 N =9 REC =18"		
	No organic matter.				10	3+4+5 N =9 REC =18"	w=13.5% *	
	Mottled grayish orange, trace mica.				15	3+5+5 N =10 REC =18"		
						2+2+1 N =3 REC =18"	w=28.7% *	Change from hollow stem auger to mud rotary drilling
	Mottled grayish orange.				20	3+4+2 N =6 REC =18"		
	continued on next page				25			

Comments:
1. Ground water observation well OW-735 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-735** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
27.0	FAT CLAY, moist, gray, with sand, contains mica, Fine - med. sand.	CH	64.2		30	REC =24"	w=32.3% LL=51 PL=16 PP=3.00 tsf *	
	Dark greenish gray.				35	3+3+4 N =7 REC =18"		
					40	4+3+5 N =8 REC =18"		
					45	4+7+8 N =15 REC =18"	w=39.6% LL=85 PL=30 *	
47.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, oliveish gray, contains mica.	SP-SM	44.2		50	4+5+7 N =12 REC =18"		
	Wet, mottled reddish orange.				55	22+50 N =50 REC =12"		

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Comments:
1. Ground water observation well OW-735 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-735** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Gray.	SP-SM			60	32+31+19 N =50 REC =18"	w=20.9% *	
63.0	SILTY SAND, medium to coarse grained, moist, light gray, 40% medium to coarse shell fragments, strong HCl reaction.	SM	28.2		65	10+12+11 N =23 REC =18"		
	greenish gray, fine - med. grained.				70	15+10+10 N =20 REC =18"		
	Moderate HCl reaction, 15% med. - coarse shell fragments.				75	5+6+10 N =16 REC =18"	w=24.5% *	
75.0	BOTTOM OF BORING @ 75.0 FT.		16.2					

Comments:

1. Ground water observation well OW-735 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-736** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" O.D. Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: Diedrich D-50 Turbo (Track)

Schnabel Representative: K. Megginson

Dates Started: 7/18/06 **Finished:** 7/19/06

Location: Northing: 214681.67 ft
Easting: 961154.26 ft

Ground Surface Elevation: 98.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/18	---	23.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, rootmat and topsoil.		97.9					*AWJ rods used. *4-1/4" I.D. Hollow Stem Augers used from 0 to 23.5 ft.
1.0	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.	SC	97.3			1+2+2 N =4 REC =18"		
	SILTY SAND, fine to medium grained, moist, brown, contains root fragments. fine to coarse grained.	SM				2+1+2 N =3 REC =18"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, stratified light orangeish brown and light brown, with silt, trace fine gravel	SP-SM	93.8		5	4+3+2 N =5 REC =14"		
	light brown and orangeish brown, dark orangeish/reddish brown weakly to moderately cemented sand layer at 8.5 ft.					3+4+6 N =10 REC =16"		
9.5	POORLY GRADED SAND, fine to coarse grained, moist, stratified light brown and light orangeish brown.	SP	88.8		10	3+7+10 N =17 REC =14"		
	stratified yellowish brown, orangeish brown, and light brown.				15	6+10+14 N =24 REC =16"		
17.0	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM	81.3		20	4+8+10 N =18 REC =14"		
22.0	CLAYEY SAND, fine to medium grained, wet, yellowish gray and light gray.	SC	76.3	▽	25	2+4+4 N =8 REC =18"		*Switched to 3-7/8" O.D. Tri-cone roller bit below 23.5

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-736** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						ft.
27.0	SILTY SAND, fine to medium grained, wet, yellowish brown and light gray.	SM	71.3		30	3+2+2 N =4 REC =18"		
34.0	dark yellowish brown and orangeish brown.	CL	64.3		35	3+1+3 N =4 REC =18"		
	SANDY LEAN CLAY, fine to medium, moist, gray, trace mica.							
37.0	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	61.3		40	2+3+4 N =7 REC =18"		
42.0	ELASTIC SILT, moist, gray, trace fine to medium sand, mica, and organic matter (±1%).	MH	56.3		45	2+4+5 N =9 REC =18"		
	gray and dark gray.				50	3+5+5 N =10 REC =18"		
	fine to medium sandy, gray and light greenish gray below 54.5 ft. contains clayey sand and silty sand layers below 54.9 ft.				55	5+7+9 N =16 REC =18"		
57.0	CLAYEY SAND, fine to medium grained, moist, gray, trace mica,	SC	41.3					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-736** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	contains indurated clayey sand pockets.	SC						
	dark gray below 59.5 ft.				60	4+3+20 N =23 REC =18"		
61.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, very weak HCl reaction.	SP-SM	37.3					
					65	13+26+33 N =59 REC =15"		
69.5	SILTY SAND, fine to medium grained, wet, gray, mostly fine to medium shell fragments (±50%), strong HCl reaction.	SM	28.8		70	4+3+9 N =12 REC =18"		
72.0	CLAYEY SAND, fine to medium grained, moist, gray and light greenish gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.	SC	26.3					*Moderate to difficult rotary advancement from 73 to 73.3 ft (strong rig chatter).
74.5			23.8					
75.0	SILTY SAND, fine to medium grained, moist, gray and oliveish gray, mostly strongly cemented sand (±70%), some fine to coarse shell fragments (±30%), strong HCl reaction.	SM	23.3		75	4+4+12 N =16 REC =18"		
	BOTTOM OF BORING @ 75.0 FT.							

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-737** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" O.D. Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: Diedrich D-50 Turbo (Track)

Schnabel Representative: K. Megginson

Dates Started: 7/19/06 **Finished:** 7/20/06

Location: Northing: 214511.91 ft
Easting: 961147.4 ft

Ground Surface Elevation: 63.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/19	---	7.5'	---	---
Start of day	7/20	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Forest litter, rootmat and topsoil.		63.2					*AWJ rods used.
	SILTY SAND, fine to medium grained, moist, brown, contains root fragments.	SM				1+1/12" N =1/12" REC =17"		
	fine to coarse grained, moist, brown.					3+3+3 N =6 REC =18"		
4.5	CLAYEY SAND, fine to coarse grained, moist, brown, trace fine gravel.	SC	59.0		5	2+1+3 N =4 REC =18"		
	wet, light grayish brown, orangeish brown, and yellowish brown.			▽		5+4+6 N =10 REC =18"		
9.5	FAT CLAY, moist, light gray and orangeish brown, trace fine to medium sand.	CH	54.0		10	REC =24"	w=37.6% PP=1.50 tsf *	*4-1/4" I.D. hollow stem augers used from 0 to 13.5 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 13.5 ft.
	light brown, grayish brown, and orangeish brown.					3+4+5 N =9 REC =18"		
14.5	SANDY LEAN CLAY, fine to medium, moist, gray, trace mica.	CL	49.0		15			
17.0	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	46.5					
					20	3+4+6 N =10 REC =18"		
22.0	CLAYEY SAND, fine to medium grained, moist, gray, trace mica.	SC	41.5					
					25	3+4+9 N =13 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-737** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
27.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, with silt.	SP-SM	36.5		30	6+15+18 N =33 REC =18"		
34.0	SILTY SAND, fine to medium grained, wet, gray, some fine to medium shell fragments (±30%), strong HCl reaction.	SM	29.5		35	1+6+9 N =15 REC =17"		*Moderate to difficult rotary advancement from 36 to 38.5 ft (slight rig chatter).
36.0	CLAYEY SAND, fine to medium grained, wet, oliveish gray, gray and light greenish gray, little fine to coarse shell fragments.	SC	27.5		40	5+19+19 N =38 REC =18"		
42.0	SILTY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments (±25%), strong HCl reaction.	SM	21.5		45	10+8+9 N =17 REC =18"		
	few fine to coarse shell fragments (±10%), weak HCl reaction.				50	4+5+9 N =14 REC =18"		
	trace fine to medium shell fragments (±5%).				55	4+6+8 N =14 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-737** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	trace fine to medium shell fragments (±1%), very weak HCl reaction.	SM			60	4+4+7 N =11 REC =18"		
62.0	CLAYEY SAND, fine to medium grained, moist, gray, little fine to coarse shell fragments (±20%), strong HCl reaction.	SC	1.5					
64.7	SILTY SAND, fine to medium grained, wet, gray, mostly fine to medium shell fragments (±50%), contains black particles (1/16 inch), strong HCl reaction.	SM	-1.2		65	6+6+30 N =36 REC =18"		*Moderate to difficult rotary advancement from 64.7 to 65.5 ft (moderate to strong rig chatter). *Difficult to very difficult rotary advancement from 65.5 to 66 ft (strong rig chatter). *Moderate to difficult rotary advancement from 67.5 to 68 ft (moderate rig chatter). *Intermittent moderate to difficult rotary advancement from 71.5 to 73.5 ft.
	some fine to coarse shell fragments (±40%). trace fine to medium shell fragments (±5%) below 69 ft.				70	10+13+17 N =30 REC =18"		
	oliveish gray and light greenish gray, contains moderately cemented sand pockets.				75	13+20+27 N =47 REC =18"		
77.0	CLAYEY SAND, fine to medium grained, wet, gray, little fine to coarse shell fragments (±20%), contains sandy silt lenses, strong HCl reaction.	SC	-13.5		80	7+11+14 N =25 REC =18"		
82.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, with silt, trace fine to coarse shell fragments (±5%), moderate HCl reaction, contains clayey sand pockets.	SM	-18.5		85	14+17+24 N =41 REC =24"		
87.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, trace fine to medium shell fragments (±1%), very weak HCl reaction.	SC	-23.5		90	5+9+15 N =24 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-737** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
92.0	SANDY SILT, fine to medium, moist, greenish gray, trace fine to medium shell fragments (±1%), and mica, very weak HCl reaction.	ML	-28.5		95	6+8+11 N =19 REC =18"		
	trace fine to coarse shell fragments (±<5%), contains black particles (1/16 inch), weak HCl reaction.				100	7+12+13 N =25 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-36.5					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-738** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 6/13/06 **Finished:** 6/13/06

Location: Northing: 213826.3 ft
Easting: 961679.62 ft

Ground Surface Elevation: 87.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/13	---	10.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Forest litter, rootmat and topsoil.		87.1			1+2+2 N =4 REC =12"		0-9'- Drilled with 4 1/4" HSA
	SANDY SILT, fine to medium, moist, yellowish brown, contains wood fragments.	ML						
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown and yellowish brown.	SP-SM	85.3			6+7+8 N =15 REC =18"		
4.0	SILTY SAND, fine to coarse grained, moist, orangeish brown and yellowish brown.	SM	83.3		5	8+13+14 N =27 REC =18"	w=9% *	
6.0	POORLY GRADED SAND, fine to coarse grained, moist, grayish white and yellowish brown, trace gravel, 1 1/2" rounded piece of gravel in spoon shoe.	SP	81.3			6+8+11 N =19 REC =14"		9'- Switched to mud rotary with 3 7/8" tri-cone roller bit
	wet, yellowish brown and orangeish brown, trace silt.			▽	10	7+8+9 N =17 REC =14"	w=12.3% *	
12.0	SILTY SAND, fine to medium grained, wet, dark orangeish brown and mottled yellowish brown, contains mica.	SM	75.3		15	5+6+6 N =12 REC =13"		
16.0	SANDY FAT CLAY, fine to medium, wet, orangeish brown and gray, strong layering, gray lenses 1/16" thick.	CH	71.3			2+2+2 N =4 REC =18"	w=24.2% *	
20.0	SANDY ELASTIC SILT, fine to medium, wet, light orangeish brown and gray, layered, gray lenses <1/8" thick.	MH	67.3		20			
					25	1+2+2 N =4 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-738** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
						2+2+4 N =6 REC =18"	w=28.4% *	
30.0	CLAYEY SILTY SAND, fine to medium grained, wet, gray, contains mica.	SC-SM	57.3		30			
						4+4+5 N =9 REC =18"		
					35	REC =24" REC =24"	w=26.4% LL=26 PL=22 *	
38.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica.	CL	49.3					
						4+5+5 N =10 REC =18"		
					40			
	with sand, moist, gray and light gray.					3+4+7 N =11 REC =18"		
					45			
46.0	FAT CLAY with sand, moist, gray, contains mica.	CH	41.3					
						5+6+7 N =13 REC =18"	w=32.1% *	
					50			
52.0	LEAN CLAY with sand, moist, light gray and blackish gray, contains mica, blackish gray pockets <1" consist of sandy clay.	CL	35.3					
						4+7+8 N =15 REC =18"		
					55			
56.0	CLAYEY SAND, fine to medium grained, moist, gray, contains mica, weak HCl reaction, <5% fine shell fragments.	SC	31.3					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-738** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC			60	7+11+18 N =29 REC =18"	w=28.7% *	
62.0	POORLY GRADED SAND, fine to coarse grained, wet, gray and brownish white, 60-70% fine to coarse shell fragments, trace silt, strong HCl reaction.	SP	25.3		65	29+31+20 N =51 REC =16"		62'- Harder drilling
67.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica, weak HCl reaction, <5% shell fragments, HCl reaction limited to shell fragments.	CL	20.3		70	4+4+5 N =9 REC =18"	w=30.9% *	
71.0	CLAYEY SAND, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, trace silt, moderate HCl reaction.	SC	16.3		75	25+22+11 N =33 REC =18"		71-73.5'- Rig chatter
75.0	BOTTOM OF BORING @ 75.0 FT.		12.3					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-739** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC. FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 6/13/06 **Finished:** 6/15/06

Location: Northing: 23719.6 ft
Easting: 961793.32 ft

Ground Surface Elevation: 100.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/13	---	23.5'	---	---
Start of day	6/14	---	16.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, rootmat, and topsoil.		100.0					0-9'- Drilled with 4 1/4" HSA
	SILTY SAND, fine to medium grained, moist, light brown, contains root fragments.	SM				2+1+3 N =4 REC =12"		85'- Hard drilling with rig chatter
2.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light brown and orangeish brown.	SP-SM	98.4			11+12+10 N =22 REC =18"		
	Moist, orangeish brown and yellowish brown.				5	7+5+5 N =10 REC =18"		
6.0	POORLY GRADED SAND, fine to coarse grained, moist, orangeish brown and yellowish brown.	SP	94.4			4+4+6 N =10 REC =18"		9'- Switched to mud rotary using 3 7/8" tri-cone roller bit
	Orangeish brown and yellowish white, stratified into 1/2" to 1" lenses of alternating color.				10	5+6+6 N =12 REC =18"		
	Yellowish brown and gray, stratified into 1/2" to 1" lenses of alternating color.				15	4+5+6 N =11 REC =14"		
17.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown and yellowish gray, slight stratification, trace medium grained rounded gravel.	SP-SM	83.4		20	8+10+9 N =19 REC =15"		
22.0	SILTY SAND, fine to coarse grained, wet, orangeish brown and dark brown.	SM	78.4	▽	25	10+15+16 N =31 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-739** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
27.0	SANDY SILT, fine to medium, wet, mottled orangeish brown and light gray.	ML	73.4		30	3+2+3 N =5 REC =18"		
					35	2+2+2 N =4 REC =18"		
37.0	CLAYEY SAND, fine to medium grained, wet, mottled orangeish brown and gray.	SC	63.4		40	2+1+3 N =4 REC =18"		
42.0	SILTY SAND, fine to medium grained, wet, dark gray.	SM	58.4		45	3+3+5 N =8 REC =17"		
	Contains mica.				50	4+6+8 N =14 REC =15"		
50.5	CLAYEY SAND, fine to medium grained, wet, dark gray, trace mica.	SC	49.9			REC =12"		
53.0	FAT CLAY with sand, moist, light gray and dark gray, contains mica.	CH	47.4		55	2+4+4 N =8 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-739** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	3+5+6 N =11 REC =18"		
62.0	SANDY LEAN CLAY, fine to medium, moist, dark gray, contains mica.	CL	38.4		65	5+5+7 N =12 REC =18"		
	With sand.				70	5+9+9 N =18 REC =18"		
72.0	CLAYEY SAND, fine to medium grained, moist, dark gray and brownish white, 10-20% fine to coarse shell fragments, contains mica, strong HCl reaction.	SC	28.4		75	14+31+50/4" N =81/10" REC =16"		
79.5	Wet, gray and brownish white, 70-80% fine to medium shell fragments, contains mica, strong HCl reaction.	CL	20.9		80	9+8+9 N =17		
	LEAN CLAY with sand, moist, gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction.							
84.0	fine to medium sandy, gray and brownish white, 10-20% fine to coarse shell fragments.	SP-SC	16.4		85	REC =5" 50/2" N =50/2" REC =2"		85'- Hard drilling with rig chatter
	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, gray, 10-20% fine to coarse shell fragments, strong HCl reaction, strong cementation.							
87.0	SILTY SAND, fine to coarse grained, wet, light gray and brownish white, 60-70% fine to medium shell fragments, strong HCl reaction, weak cementation.	SM	13.4		90	7+12+50/5" N =62/11" REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-739** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
91.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light gray and white, 60-70% fine to medium shell fragments, strong HCl reaction, moderate cementation.	SP-SM	9.3					
	Wet, gray and brownish white, 30-40% fine to coarse shell fragments, HCl reaction limited to shell fragments.				95	11+10+10 N =20 REC =18"		
	And, 20-30% fine to coarse shell fragments, HCl reaction limited to shell fragments.					REC =10"		
96.8	CLAYEY SAND, fine to medium grained, wet, gray and brownish white, 30-40% fine to medium shell fragments, strong HCl reaction.	SC	3.6			8+9+50/4" N =59/10" REC =15"		
99.6	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish white, 30-40% fine to coarse shell fragments, HCl reaction limited to shell fragments.	SP-SM	0.8					
99.8	BOTTOM OF BORING @ 99.8 FT.		0.5					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-740** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" O.D. Tri-cone Roller bit (Mud Rotary)

Drilling Equipment: Diedrich D-50 Turbo (Track)

Schnabel Representative: K. Megginson

Dates Started: 7/20/06 **Finished:** 7/21/06

Location: Northing: 213605.13 ft
Easting: 961781.13 ft

Ground Surface Elevation: 74.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/20	---	13.5'	---	---
Start of day	7/21	---	4.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		73.8					*AWJ rods used.
	SILTY SAND, fine to medium grained, moist, brown, trace fine gravel, contains root fragments.	SM				1+1+2 N =3 REC =18"		
2.0			72.3					
3.0	SANDY LEAN CLAY, fine to medium, moist, brown, contains root fragments.	CL	71.3			4+8+12 N =20 REC =18"		
4.5	SANDY SILT, fine to medium, moist, light grayish brown, yellowish brown, and orangeish brown.	ML	69.8					
	SILTY SAND, fine to coarse grained, moist, orangeish brown and brown, trace fine gravel, contains clayey sand layers.	SM			5	15+13+14 N =27 REC =18"		
7.0		SC	67.3					
8.0	CLAYEY SAND, fine to coarse grained, moist, yellowish brown and light grayish brown, contains root fragments.	SM	66.3			4+5+5 N =10 REC =18"		
9.5	SILTY SAND, fine grained, moist, stratified orangeish brown and light brown. contains poorly graded sand with silt layer below 8.8 ft.	SC	64.8		10	3+3+3 N =6 REC =18"		
	CLAYEY SAND, fine grained, moist, yellowish brown and light gray.							*4-1/4" I.D. hollow stem augers used from 0 to 13.5 ft. *Switched to 3-7/8" O.D. Tri-cone roller bit below 13.5 ft.
	wet, mottled dark yellowish brown and light gray.			▽		2+2+2 N =4 REC =18"		
14.5	SANDY SILT, fine to medium, wet, gray, trace organic matter (±1%), and mica.	ML	59.8		15			
17.0	SILTY SAND, fine grained, wet, gray.	SM	57.3					
					20	3+3+4 N =7 REC =18"		
	trace mica.				25	3+3+5 N =8 REC =16"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-740** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
27.0	FAT CLAY, moist, gray, with fine sand, trace mica.	CH	47.3					
					30	3+4+5 N =9 REC =18"		
	gray and dark gray, trace fine to medium sand and organic matter (±1%).				35	4+5+7 N =12 REC =18"		**Resumed drilling at 7:00 AM on 7/21/06.
	with fine to medium sand, contains clayey sand lenses.				40	5+7+10 N =17 REC =18"		
42.0	ELASTIC SILT, moist, gray, trace fine to medium sand, mica, and organic matter (±1%).	MH	32.3		45	6+10+12 N =22 REC =18"		
47.0	CLAYEY SAND, fine to medium grained, moist, dark gray and dark brownish gray.	SC	27.3					
49.0	SILTY SAND, fine to medium grained, moist, dark gray, trace fine to medium shell fragments (±5%), contains weak to moderately cemented sand layers, strong HCl reaction.	SM	25.3		50	30+50/4" N =50/4" REC =10"		*Moderate to difficult rotary advancement from 49 to 50.5 ft (strong rig chatter).
52.0	SANDY LEAN CLAY, fine to medium, moist, gray, trace fine to medium shell fragments (±5%), moderate HCl reaction.	CL	22.3		55	4+5+6 N =11 REC =18"		*Moderate difficulty in rotary advancement

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-740** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	contains clayey sand pockets, moderate HCl reaction. oliveish gray below 59.8 ft.	CL			60	11+6+13 N =19 REC =18"		from 56.5 to 58 ft (slight rig chatter). *Intermittent moderate difficultly in rotary advancement from 58.5 to 63.5 ft (slight to moderate rig chatter). *Moderate to difficult rotary advancement from 63.5 to 64 ft (strong rig chatter). *Intermittent moderate difficultly in rotary advancement from 68.5 to 73.5 ft (slight to moderate rig chatter).
62.0	CLAYEY SAND, fine to medium grained, oliveish gray and dark gray, mostly fine to medium shell fragments (±50%), strong HCl reaction.	SC	12.3		65	50/3" N =50/3" REC =2"		
67.0	SILTY SAND, fine to medium grained, wet, gray, few fine to coarse shell fragments (±10%), moderate HCl reaction.	SM	7.3		70	5+6+8 N =14 REC =18"		
	trace fine to medium shell fragments (±5%), weak HCl reaction.				75	24+11+12 N =23 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		-0.7					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-741** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/13/06 **Finished:** 7/13/06

Location: Northing: 213760.48 ft
Easting: 961029.82 ft

Ground Surface Elevation: 81.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/13	---	53.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		80.9					
	SANDY SILT, fine to medium, moist, orangeish brown, contains root fragments.	ML				WOH/18" N = WOH/18" REC =12"		
2.0			79.4					
	POORLY GRADED SAND WITH SILT and gravel, fine to coarse grained, moist, brownish orange.	SP-SM				2+3+4 N =7 REC =16"		
4.5			76.9					
	POORLY GRADED SAND with gravel, fine to coarse grained, moist, brownish orange.	SP			5	3+5+7 N =12 REC =16"		
						6+15+14 N =29 REC =15"		
					10	5+8+8 N =16 REC =14"		
13.0			68.4					
	SILTY SAND, fine to medium grained, moist, orange.	SM				3+3+4 N =7 REC =14"		
					15			
17.0			64.4					
	SANDY SILT, fine to medium, moist, orange.	ML				3+3+3 N =6 REC =14"		
					20			
						REC =0"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-741** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
27.0	ELASTIC SILT, moist, gray.	MH	54.4		30	1+2+3 N =5 REC =18"		
32.0	FAT CLAY, moist, gray.	CH	49.4		35	3+4+6 N =10 REC =18"		
					40	4+5+6 N =11 REC =18"		
	with sand, contains cemented sand, small pods of sand and cemented sand.				45	5+6+7 N =13 REC =18"		
47.0	SILTY SAND, fine to medium grained, moist, dark greenish gray, contains cemented sand.	SM	34.4		50	4+6+14 N =20 REC =18"		
52.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, dark green, with fine to coarse shell fragments, strong HCl reaction, 70-90% shell frag.	SP-SM	29.4	▽	55	16+19+21 N =40 REC =16"		
57.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell	SM	24.4					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-741** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments, moderate HCl reaction, 20-30% shell frag.	SM			60	4+5+7 N =12 REC =18"		
					65	13+21+15 N =36 REC =18"		64' grinding
67.0	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.	ML	14.4		70	6+50/3" N =50/3" REC =10"		71' grinding
72.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	9.4		75	5+6+9 N =15 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		6.4					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-742** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/11/06 **Finished:** 7/11/06

Location: Northing: 213472.84 ft
Easting: 961217.19 ft

Ground Surface Elevation: 102.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/11	---	23.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		101.9					
	SILT, moist, orangeish brown, with sand, contains root fragments.	ML				WOH+2+2 N =4 REC =14"		
2.0	SILTY SAND, fine to coarse grained, moist, orangeish brown, contains root fragments.	SM	100.4			3+2+3 N =5 REC =15"		
4.0	POORLY GRADED SAND, with gravel, fine to coarse grained, moist, orange.	SP	98.4		5	3+3+5 N =8 REC =12"		
7.0	POORLY GRADED SAND WITH CLAY and gravel, fine to coarse grained, moist, dark orange.	SP-SC	95.4			3+8+10 N =18 REC =14"		
					10	4+5.+8 N =13 REC =14"		
13.0	POORLY GRADED SAND, fine to coarse grained, moist, orange.	SP	89.4			5+7+10 N =17 REC =14"		
					15			
	trace clay.					5+16+19 N =35 REC =14"		
					20			
	wet.			▽		7+16+21 N =37 REC =10"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-742** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
27.0	SILTY SAND, fine to medium grained, wet, orange.	SM	75.4		30	2+3+2 N =5 REC =14"		
	moist, mottled grayish orange.				35	1+1+1 N =2 REC =18"		
37.0	SANDY SILT, fine to medium, wet, mottled grayish orange.	ML	65.4		40	WOH/18" N = WOH/18" REC =18"		
42.0	SILTY SAND, fine to medium grained, wet, gray.	SM	60.4		45	1+2+3 N =5 REC =18"		
					50	2+3+4 N =7 REC =18"		
52.0	SANDY LEAN CLAY, fine to medium, moist, gray.	CL	50.4		55	1+2+4 N =6 REC =18"		
57.0	FAT CLAY, moist, gray, trace sand.	CH	45.4					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-742** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	2+5+7 N =12 REC =18"		
	with silt.				65	4+7+8 N =15 REC =18"		
					70	5+7+7 N =14 REC =18"		
72.0	SILTY SAND, fine to medium grained, moist, dark grayish green, contains cemented sand, trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag.	SM	30.4		75	6+18+30 N =48 REC =18"		
						REC =0"		
					80			
82.0	SANDY SILT, fine to medium, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-40% shell frag.	ML	20.4					82' Switched to roller bit
					85	4+4+5 N =9 REC =18"		
87.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 20-30% shell frag.	SM	15.4					
						REC =4"		
					90			

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-742** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	wet, 50-70% shell frag.				95	6+8+10 N =18 REC =18"		
97.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, green, with fine to coarse shell fragments, moderate HCl reaction, 20-30% shell frag.	SP-SM	5.4					
					100	7+10+10 N =20 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		2.4					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-743** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 4-1/4" Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: M. Arles

Dates Started: 7/10/06 **Finished:** 7/10/06

Location: Northing: 213315.7 ft
Easting: 961232 ft

Ground Surface Elevation: 103.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/10	---	28.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	FL, R AND TOPSOIL.		103.3					
	SILT, moist, orangeish brown, with sand, contains root fragments.	ML				WOH/18" N = WOH/18" REC =12"		
2.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, brown, with clay.	SP-SC	101.6			1+2+3 N =5 REC =14"		
4.5	POORLY GRADED SAND, fine to coarse grained, moist, brownish yellow, with gravel.	SP	99.1		5	3+3+3 N =6 REC =12"		
	brownish orange, with gravel, trace clay.					6+7+12 N =19 REC =15"		
	trace gravel.				10	7+12+17 N =29 REC =14"		
12.0	POORLY GRADED GRAVEL, moist, brownish orange, with sand.	GP	91.6					
14.0	POORLY GRADED SAND, with gravel, trace clay, fine to coarse grained, moist, dark orangeish brown.	SP	89.6		15	25+17+12 N =29 REC =16"		
	brownish orange.					4+10+5 N =15 REC =12"		
19.6	FAT CLAY, with silt, moist, orange.	CH	84.0		20			
22.0	LEAN CLAY,with fine to medium grained sand, moist, goldenish orange.	CL	81.6					
					25	REC =19"	w=21.1% LL=38 PL=13	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-743 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-743** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL					*	
27.0	POORLY GRADED SAND, fine to coarse grained, wet, yellowish orange.	SP	76.6	▽	30	12+18+11 N =29 REC =12"		
32.0	SILTY SAND, fine to medium grained, moist, mottled grayish orange.	SM	71.6		35	2+2+2 N =4 REC =18"		
					40	REC =0"		
	gray.				45	WOH+3+3 N =6 REC =18"		
47.0	POORLY GRADED SAND with silt, fine to medium grained, moist, gray.	SP-SM	56.6		50	3+5+4 N =9 REC =18"		
52.0	POORLY GRADED SAND, fine to medium grained, wet, gray.	SP	51.6		55	4+8+7 N =15 REC =12"		
57.0	FAT CLAY, moist, gray, trace sand.	CH	46.6					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-743 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-743** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH			60	3+5+7 N =12 REC =18"		
					65	3+6+8 N =14 REC =10"		
					70	6+8+10 N =18 REC =18"		
74.0	CLAYEY SAND, fine to medium grained, moist, gray.	SC	29.6		75	9+10+14 N =24 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		28.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-743 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-744** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/20/06 **Finished:** 6/21/06

Location: Northing: 216377.3 ft
Easting: 959963.38 ft

Ground Surface Elevation: 113.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/20	---	18.5'	---	---
Start of day	6/21	---	20.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		112.8					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light brown.	SP-SM				3+5+7 N =12 REC =18"		
2.0			111.3					
	POORLY GRADED SAND, fine to medium grained, moist, light grayish white.	SP				5+8+9 N =17 REC =18"		
4.0			109.3					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, light orangeish brown.	SP-SM			5	4+6+6 N =12 REC =18"		
	Med. - coarse sand.					5+5+6 N =11 REC =18"		
					10			
	Light yellowish brown, Fine - med. sand.					4+4+6 N =10 REC =18"		
	Light orangeish brown, Med. - coarse sand.				15	3+3+3 N =6 REC =10"		Change from hollow stem auger to mud rotary drilling
	Wet, yellowish orange.			▽	20	4+3+4 N =7 REC =18"		
	Orangeish brown, contains gravel.				25	4+2+2 N =4 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-744 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-744** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray, contains mica.	SC	86.3		30	2+2+2 N =4 REC =18"		
31.0	SANDY LEAN CLAY, fine to medium, moist, dark greenish gray, contains mica.	CL	82.3		35	3+3+3 N =6 REC =18"		
36.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray, contains mica.	SC	77.3		40	4+3+4 N =7 REC =18"		
42.0	LEAN CLAY, moist, dark greenish gray, with sand, contains mica, Fine - med. sand.	CL	71.3		45	5+7+9 N =16 REC =18"		
46.0	SILTY SAND, fine to medium grained, moist, dark greenish gray, contains mica.	SM	67.3		50	5+6+9 N =15 REC =18"		
	Contains cemented sand.				55	13+30+30 N =60 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-744 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-744** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Weak HCl reaction.	SM			60	4+6+7 N =13 REC =18"		
62.0	CLAYEY SAND, fine to medium grained, moist, dark greenish gray, weak HCl reaction, <5% med. - coarse shell fragments, no cemented sand.	SC	51.3		65	6+6+7 N =13 REC =18"		
	Strong HCl reaction, <10% shell fragments.				70	4+50/4" N =50/4" REC =10"		
72.0	SILTY SAND, fine to medium grained, moist, greenish gray, moderate HCl reaction, 10-20% shell fragments.	SM	41.3		75	8+11+35 N =46 REC =18"		
	Weak HCl reaction, 5-15% shell fragments.				80	7+7+9 N =16 REC =18"		
	Moderate HCl reaction.				85	10+13+13 N =26 REC =18"		
	Weak HCl reaction.				90	5+8+11 N =19 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-744 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-744** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	No shell fragments.				95	5+8+11 N =19 REC =18"		
	Strong HCl reaction, 20-30% shell fragments.				100	9+14+25 N =39 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		13.3					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-744 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-745** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 2-15/16" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/23/06 **Finished:** 5/24/06

Location: Northing: 215971.2 ft
Easting: 960529.02 ft

Ground Surface Elevation: 111.7 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/23	---	Dry	---	---
Start of day	5/24	---	11.0'	4.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL.		111.3					0-4' Hollow stem auger
	SANDY LEAN CLAY, fine to coarse, moist, brown, contains root fragments.	CL				1+2+4 N =6 REC =15"		
2.0	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.	SC	109.7			5+6+5 N =11 REC =18"		
3.5	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, brown.	SP-SC	108.2		5	2+2+2 N =4 REC =11"		4-40' 2-15/16 tri-cone roller bit
7.0	POORLY GRADED SAND with gravel, fine to coarse grained, wet, yellowish brown.	SP	104.7		10	3+3+4 N =7 REC =10" 3+4+7 N =11 REC =11"		
13.0	POORLY GRADED SAND WITH CLAY and gravel, fine to coarse grained, moist, yellowish orange.	SP-SC	98.7		15	3+8+5 N =13 REC =10"		
	orange.				20	4+5+7 N =12 REC =12"		
22.5	POORLY GRADED SAND with gravel, fine to coarse grained, moist, orange.	SP	89.2		25	3+4+7 N =11 REC =3"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-745** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP						
27.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange.	SP-SM	84.2		30	7+9+11 N =20 REC =8"		
					35	4+8+8 N =16 REC =10"		
					40	4+4+5 N =9 REC =10"		
	trace gravel.				45	8+13+14 N =27 REC =18"		
47.0	SILTY GRAVEL, fine and coarse grained, wet, orange, with sand.	GM	64.7		50	3+8+6 N =14 REC =12"		
53.0	FAT CLAY, moist, dark gray, with sand.	CH	58.7		55	3+3+5 N =8 REC =18"		
56.0	LEAN CLAY, moist, dark gray, with sand.	CL	55.7					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-745** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL			60	3+3+4 N =7 REC =18"		
					65	5+6+7 N =13 REC =18"		
67.0	CLAYEY SAND, fine to medium grained, moist, greenish gray, with silt.	SC	44.7		70	3+4+6 N =10 REC =18"		
72.0	SILTY SAND, fine to medium grained, moist, greenish gray.	SM	39.7		75	7+15+35 N =50 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		36.7					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-746** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" O.D. Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: Diedrich D-50 Turbo (Track)

Schnabel Representative: K. Megginson

Dates Started: 7/18/06 **Finished:** 7/18/06

Location: Northing: 215743.35 ft
Easting: 960721.36 ft

Ground Surface Elevation: 82.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/18	---	7.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Forest litter, rootmat and topsoil.		82.5					
	LEAN CLAY, moist, brown, with fine to medium sand, contains root fragments.	CL				1/12+2" N =2 REC =18"		*AWJ rods used. *4-1/4" I.D. Hollow Stem Augers used from 0 to 13.5 ft
2.0	SILT, moist, yellowish brown and grayish brown, with fine to medium sand. fine sandy below 3.5 ft.	ML	80.8			3+5+9 N =14 REC =18"	w=14.4% *	
4.5	CLAYEY SAND, fine to coarse grained, moist, yellowish brown and grayish brown.	SC	78.3		5	5+9+11 N =20 REC =18"		
6.0	SILTY SAND, fine to coarse grained, moist, orangeish brown, trace fine gravel.	SM	76.8	▽		2+2+1 N =3 REC =18"	w=25.1% *	
					10	2+2+1 N =3 REC =18"		
13.5	CLAYEY SILTY SAND, moist, orangeish brown	SC-SM	69.3		15	REC =24"	w=27.2% LL=25 PL=21 *	*Switched to 3-7/8" O.D. Tri-cone roller bit below 13.5 ft.
	orangeish brown below 19 ft.				20	4+4+3 N =7 REC =18"		
22.0	FAT CLAY, moist, gray, with fine to medium sand, contains clayey sand pockets and layers.	CH	60.8		25	3+4+4 N =8 REC =18"	w=30.8% LL=52 PL=17	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-746** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CH					*	
27.0	ELASTIC SILT, moist, gray and dark gray, trace fine to medium sand and mica, contains clayey sand pockets.	MH	55.8		30	4+4+6 N =10 REC =18"		
32.0	FAT CLAY, moist, gray and dark gray, trace fine to medium sand and mica.	CH	50.8		35	3+3+6 N =9 REC =18"	w=34.8% LL=64 PL=24 *	
34.5	contains silty sand layer from 34.2 to 34.5 ft, wet.	MH	48.3					
	ELASTIC SILT, moist, gray, trace fine to medium sand and mica.							
	light greenish gray, contains sandy elastic silt pockets.				40	6+8+9 N =17 REC =18"		
42.0	SANDY SILT, fine to medium, moist, gray, trace mica, contains clayey sand pockets and indurated lean clay pockets.	ML	40.8		45	4+6+7 N =13 REC =18"	w=29.2% LL=40 PL=34 *	
47.0	SILTY SAND, fine to medium grained, wet, dark gray, little fine to coarse shell fragments (±15%), contains black particles (1/16 inch), moderate HCl reaction, contains strongly cemented sand pockets.	SM	35.8		50	20+21+35 N =56 REC =18"		*Perceptible increase in rotary resistance from 47 to 48.5 ft.
	trace fine shell fragments (±1%) below 49.8 ft.							
52.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray, trace fine to medium shell fragments (±1%), contains black particles (1/16 inch), weak HCl reaction.	SP-SM	30.8		55	42+50/3" N =50/3" REC =10"		*Increase in rotary resistance from 53.5 to 58.5 ft (slight intermittent rig chatter).
57.0	SILTY SAND, fine to medium grained, wet, gray, few fine to medium shell	SM	25.8					

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-746** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fragments (±10%), contains black particles (1/16 inch) and shell bed layers.	SM			60	44+40+27 N =67 REC =16"	w=17.9% *	
62.0	CLAYEY SAND, fine to medium grained, moist, light greenish gray, few fine to coarse shell fragments (±10%), contains moderately cemented sand pockets, strong HCl reaction.	SC	20.8		65	50/5" N =50/5" REC =5"		*Moderate to difficult rotary advancement from 62 to 63.5 ft (slight to moderate rig chatter). *Difficult to very difficult rotary advancement from 63.5 to 65 ft and 66.5 to 67 ft (strong rig chatter).
67.0	SILTY SAND, fine to medium grained, wet, gray and greenish gray, few fine to coarse shell fragments (±15%), contains black particles (1/16 inch), strong HCl reaction.	SM	15.8		70	5+7+9 N =16 REC =18"	w=24.8% *	
	gray, little fine to coarse shell fragments (±20%).				75	7+12+15 N =27 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		7.8					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-747** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 7/13/06 **Finished:** 7/13/06

Location: Northing: 216176.28 ft
Easting: 959944.95 ft

Ground Surface Elevation: 90.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/13	---	14.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		89.8					
	SILTY SAND, fine to medium, moist, yellowish brown, contains root fragments, and organic matter.	SM				1+1+2 N =3 REC =18"		
						2+4+4 N =8 REC =18"	w=7.5% *	
4.0	SANDY SILT, few root fragments, dark orangeish brown.	ML	86.3		5	2+3+5 N =8 REC =18"	w=12.7% *	
7.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown.	SP-SM	83.3			5+7+8 N =15 REC =18"		
	Few root fragments.				10	1+2+2 N =4 REC =18"	w=20.3% *	
12.5	SILTY SAND, fine to coarse grained, wet, yellowish orange.	SM	77.8	▽	15	3+2+2 N =4 REC =18"	w=26.6% *	
	Orange.				20	3+2+1 N =3 REC =18"	w=23.9% *	
22.0	Sandy SILT, fine to medium grained, moist, gray, contains mica.	ML	68.3		25	2+2+3 N =5 REC =18"	w=28.2% *	

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-747** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			30	3+3+3 N =6 REC =18"	w=32.6% *	
32.0	FAT CLAY, fine to medium, moist, dark greenish gray, contains mica.	CH	58.3		35	4+4+6 N =10 REC =18"	w=34.2% *	
					40	5+7+8 N =15 REC =18"	w=32.6% *	
					45	4+5+7 N =12 REC =18"	w=27.5% *	
					50	6+5+6 N =11 REC =18"	w=39.4% *	
53.5	ELASTIC SILT, moist, dark greenish gray.	MH	36.8		55	3+6+6 N =12 REC =18"	w=48.6% LL=78 PL=47 *	

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Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-747** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
58.0	FAT CLAY, fine to medium, moist, dark greenish gray, contains mica.	CH	32.3			REC =18"	* w=35% LL=53 PL=16	
60.0	CLAYEY SAND, greenish gray, moderate HCl reaction, moderate cementation, 15% med. - coarse shell fragments.	SC	30.3		60	6+7+50/3" N =57/9" REC =16"	w=27.6% LL=43 PL=20 *	Strong cemented sand at bottom 3" of sample Harder drilling
65.0	SILTY SAND, strong HCl reaction, strong cementation, 25% med. - coarse shell fragments.	SM	25.3		65	18+14+20 N =34 REC =18"	w=30.3% LL=NP PL=NP *	
70.0	POORLY GRADED SAND WITH SILT, weak HCl reaction, 15% med. - coarse shell fragments.	SP-SM	20.3		70	7+9+13 N =22 REC =18"	w=28.1% LL=NP PL=NP *	
75.0	BOTTOM OF BORING @ 75.0 FT.		15.3		75			

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-748** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" O.D. Drag Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 7/17/06 **Finished:** 7/17/06

Location: Northing: 216039.74 ft
Easting: 960288.74 ft

Ground Surface Elevation: 82.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/17	---	8.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		81.9					
	SANDY SILT, fine to medium, moist, light brown, contains organic matter.	ML				1+2+2 N =4 REC =16"		
	Mottled grayish orange, No organic.					4+5+9 N =14 REC =18"		
4.5	SILTY SAND, fine to medium grained, moist, mottled grayish orange, few root fragments.	SM	77.9		5	6+8+12 N =20 REC =18"		
7.0	POORLY GRADED SAND WITH CLAY, medium to coarse grained, wet, yellowish brown, with clay.	SP-SC	75.4	▽		4+8+7 N =15 REC =18"		
9.5	CLAYEY SAND, medium to coarse grained, wet, orange.	SC	72.9		10	3+3+4 N =7 REC =18"		
13.0	SANDY SILT, fine to medium, moist, dark gray, contains mica.	ML	69.4		15	REC =24"		
17.0	SANDY LEAN CLAY, fine to medium, moist, dark gray, contains mica.	CL	65.4		20	1+1+3 N =4 REC =18"		
22.0	SANDY SILT, fine to medium, moist, dark greenish gray, contains mica.	ML	60.4		25	3+3+5 N =8 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-748** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
						3+4+5 N =9 REC =18"		
30								
	Greenish gray, contains no sand.					5+7+8 N =15 REC =18"		
35								
	With fine - med. sand.					4+5+7 N =12 REC =18"		
40								
	Moist, dark greenish gray, weak HCl reaction, moderate cementation, 3% med. - coarse shell fragments.					12+24+5/3" N =29/9" REC =16"		
45								
	5% med. - coarse shell fragments, no cemented sand.					7+6+8 N =14 REC =18"		
50								
	3% med. - coarse shell fragments.					4+4+6 N =10 REC =18"		
55								

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-748** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			60	18+13+11 N =24 REC =18"		Drilling penetration rate slower
	Greenish gray, moderate HCl reaction, moderate cementation, 15% med. - coarse shell fragments.				65	50/4" N =50/4" REC =4"		
	Dark greenish gray, no cemented sand.				70	5+6+13 N =19 REC =18"		
					75	7+7+9 N =16 REC =18"		
	Greenish gray, weak HCl reaction, 3% med. - coarse shell fragments.				80	7+8+9 N =17 REC =18"		
	Dark greenish gray.				85	3+5+6 N =11 REC =18"		
	Light greenish gray, strong HCl reaction, strong cementation, 40% med. - coarse shell fragments.				90	13+26+17 N =43 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-748** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
	Dark greenish gray, weak HCl reaction, 15% med. - coarse shell fragments.				95	31+21+17 N =38 REC =18"		
	Weak HCl reaction, 3% med. - coarse shell fagments.				100	7+12+16 N =28 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-17.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-749** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/23/06 **Finished:** 5/23/06

Location: Northing: 215775.08 ft
Easting: 960332.24 ft

Ground Surface Elevation: 102.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/23	---	23.5'	4.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	ROOTMAT AND TOPSOIL.	SC	102.3			1+1+2 N =3 REC =14"		0-4' hollow stem auger
	CLAYEY SAND, fine to medium grained, moist, brown, contains root fragments.							
2.0	POORLY GRADED SAND WITH CLAY, fine to coarse grained, moist, brown.	SP-SC	100.5			3+2+2 N =4 REC =16"		4-55' 3-7/8" mud rotary
	orangeish brown.				5	WOH+3+3 N =6 REC =14"		
7.0	POORLY GRADED SAND, fine to coarse grained, moist, yellow, with gravel.	SP	95.5			3+4+5 N =9 REC =14"		
	orangeish yellow.				10	4+6+8 N =14 REC =18"		
13.0	POORLY GRADED SAND WITH SILT and gravel, fine to coarse grained, moist, yellowish orange.	SP-SM	89.5			5+8+10 N =18 REC =18"		
					15			
	brownish, orange.					6+12+12 N =24 REC =12"		
					20			
	wet, orange.			▽		4+5+6 N =11 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-749** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	orangeish brown.				30	4+5+11 N =16 REC =14"		
32.0	SANDY SILT, fine to medium, moist, dark gray.	ML	70.5		35	1+2+2 N =4 REC =18"		
37.0	LEAN CLAY, moist, dark gray, with sand.	CL	65.5		40	1+3+3 N =6 REC =18"		
	fine to medium sandy				45	REC =24"		
47.0	SANDY SILT, fine to medium, moist, dark gray.	ML	55.5		50	3+4+5 N =9 REC =18"		
52.0	LEAN CLAY, moist, dark gray, with shell fragments, sand.	CL	50.5		55	3+4+5 N =9 REC =18"		2-15/16" mud rotary
57.0	SILTY SAND, fine to medium grained, moist, dark gray. *continued on next page*	SM	45.5					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-749** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM			60	5+5+6 N =11 REC =18"		
	contains cemented sand.				65	15+50 N =50 REC =12"		
67.0	SANDY SILT, fine to medium, moist, dark gray, trace fine to medium shell fragments, weak HCl reaction, 0-5% shell frag.	ML	35.5		70	3+3+4 N =7 REC =18"		
75.0	BOTTOM OF BORING @ 75.0 FT.		27.5		75	4+4+4 N =8 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-750** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 7/10/06 **Finished:** 7/10/06

Location: Northing: 215849.16 ft
Easting: 959930.06 ft

Ground Surface Elevation: 72.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/10	---	43.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to coarse grained, moist, yellowish brown.	SM				1+1+2 N =3		Augered with 4-1/4" HSA to 9 ft.
	Dark orangeish brown.					3+3+3 N =6 REC =18"		
4.5	SANDY LEAN CLAY, fine to medium, moist, orangeish brown and light gray.	CL	67.9		5	2+3+4 N =7 REC =13"		
7.0	FAT CLAY with sand, moist, gray, contains mica.	CH	65.4			3+3+14 N =17 REC =18"		9'- Started mud rotary with 3-7/8" tri-cone roller bit
10.0	ELASTIC SILT with sand, moist, gray, contains mica.	MH	62.4		10	1+2+3 N =5 REC =15"		
	Gray and dark gray, some pockets (<1/2") of sandy clay.				15	4+3+4 N =7 REC =18"		
17.0	FAT CLAY with silt and sand, moist, gray and dark gray, contains mica, some pockets (<1/2") of sandy clay.	CH	55.4			4+4+7 N =11		
22.0	LEAN CLAY with silt and sand, moist, gray and dark gray, contains mica.	CL	50.4		20			
					25	7+9+10 N =19 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-750** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
						REC =20"		
					30			
	sandy					3+4+4 N =8 REC =18"		
					35			
37.0	SANDY SILT, fine, moist, greenish gray, contains mica.	ML	35.4					
						4+5+7 N =12 REC =18"		
					40			
42.0	CLAYEY SAND, fine to coarse grained, wet, gray and brownish white, 10-20% fine to medium shell fragments, contains mica, strong HCl reaction, weak cementation.	SC	30.4	▽				
						6+8+15 N =23 REC =18"		
					45			46-52'- Harder drilling
	Light gray and brownish white, 50-60% fine to coarse shell fragments, strong HCl reaction, moderate cementation.					REC =11"		
					50			
52.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to shell fragments.	SP-SC	20.4					
						5+6+7 N =13 REC =18"		
					55			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-750** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SC			60	7+8+9 N =17 REC =18"		
62.0	CLAYEY SAND, fine to medium grained, wet, greenish gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction, HCl reaction localized to shell fragments.	SC	10.4		65	4+6+9 N =15 REC =18"		
					70	3+5+7 N =12 REC =18"		
73.9	BOTTOM OF BORING @ 73.9 FT.		-1.6			50/5" N =50/5" REC =0"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-751** Contract Number: 06120048 Sheet: 1 of 3

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M. Arles

Dates Started: 5/22/06 **Finished:** 5/22/06

Location: Northing: 215588.86 ft
Easting: 960146.2 ft

Ground Surface Elevation: 92.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/22	---	13.5'	4.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	ROOTMAT AND TOPSOIL		91.8					0-4' hollow stem auger
	SILTY SAND, fine to medium grained, moist, brown, contains root fragments.	SM				1+1+2 N =3 REC =9"		
2.5	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, brown.	SP-SM	89.7			3+4+3 N =7 REC =18"		4-75' mud rotary
5.0	POORLY GRADED SAND, fine to coarse grained, moist, brown, trace gravel.	SP	87.2		5	1+2+3 N =5 REC =12"		
	yellowish orange, with gravel.					5+6+6 N =12 REC =18"		
10.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, yellowish orange.	SP-SM	82.2		10	5+7+8 N =15 REC =16"		
13.0	POORLY GRADED SAND with gravel, fine to coarse grained, moist, brownish orange.	SP	79.2	▽	15	7+10+10 N =20 REC =18"		
17.0	SILTY SAND, fine to coarse grained, wet, orange, trace gravel.	SM	75.2		20	3+3+2 N =5 REC =13"		
	fine to medium grained, no gravel.				25	2+1+1 N =2 REC =14"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-751** Contract Number: 06120048 Sheet: 2 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
26.5	SANDY SILT, fine to medium, moist, reddish orange.	ML	65.7					
29.0	SANDY LEAN CLAY, fine to medium, moist, gray.	CL	63.2		30	1+2+3 N =5 REC =16"		
					35	REC =24"		
					40	3+3+4 N =7 REC =18"		
					45	REC =24"		
47.0	CLAYEY SAND, fine to medium grained, moist, greenish gray.	SC	45.2		50	6+6+7 N =13 REC =18"		
					55	3+3+4 N =7 REC =18"		
57.0	SANDY SILT, fine to medium, moist, greenish gray.	ML	35.2					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-751** Contract Number: 06120048 Sheet: 3 of 3

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			60	3+4+3 N =7 REC =18"		
62.0	SILTY SAND, fine to medium grained, moist, greenish gray, trace fine to coarse shell fragments, strong HCl reaction, 0-10% shell frag.	SM	30.2		65	5+6+7 N =13 REC =18"		
	with fine to coarse shell fragments, 15-20% shell frag..				70	11+16+22 N =38 REC =18"		
73.9	BOTTOM OF BORING @ 73.9 FT.		18.3			50/5" N =50/5" REC =5"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-752** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 7/5/06 **Finished:** 7/6/06

Location: Northing: 215489.21 ft
Easting: 960257.57 ft

Ground Surface Elevation: 95.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/5	---	23.5'	---	---
Start of day	7/6	---	23.0'	---	---
Water Reading	7/27	---	58.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		95.3					
1.5	SILTY SAND, fine to medium grained, moist, orangeish brown, contains root fragments.	SM	94.3			wor+1+2 N =3 REC =14"		
	POORLY GRADED SAND WITH SILT, medium to coarse grained, moist, orangeish brown.	SP-SM				2+2+2 N =4 REC =18"	w=5.9% *	
	Light yellowish orange, contains root fragments.				5	1+3+3 N =6 REC =18"		
	No root fragments.					2+2+4 N =6 REC =18"		
10.0	WELL GRADED SAND WITH SILT, fine to medium grained, moist, yellowish orange, trace organic matter.	SW-SM	85.8		10	2+2+5 N =7 REC =18"	w=6.7% *	
					15	3+5+13 N =18 REC =18"		
					20	2+5+6 N =11 REC =18"	w=12.7% *	
22.0	SILTY SAND, fine to medium grained, wet, mottled grayish orange, contains mica. **Remarks** 23.5 ft:Change from hollow stem auger	SM	73.8	▽	25	3+3+2 N =5 REC =18"		Change from hollow stem auger to mud rotary drilling

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Comments:
1. Ground water observation well OW-752B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-752A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-752** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	to mud rotary drilling	SM						
	Moist, gray.				30	2+1+2 N =3 REC =18"	w=29.0% *	
31.0	Sandy FAT CLAY, fine to medium grained, moist, dark greenish gray, contains mica.	CH	64.8		35	3+4+5 N =9 REC =18"	w=29.1% LL=52 PL=23 *	
36.0	ELASTIC SILT, moist, dark greenish gray, with sand, fine - med. sand.	MH	59.8		40	3+4+5 N =9 REC =18"	w=33.1% LL=63 PL=31 *	
	Trace sand.				45	3+5+6 N =11 REC =18"	w=37.1% LL=71 PL=26 *	
45.0	FAT CLAY, moist, dark greenish gray	CH	50.8		50	5+6+8 N =14 REC =18"	w=40.3% LL=68 PL=24 *	
52.0	SILTY SAND, fine to medium grained, moist, dark greenish gray, contains mica.	SM	43.8		55	10+8+9 N =17 REC =18"	w=27.7% LL=40 PL=29 *	
56.0	ORGANIC CLAY, moist, dark greenish gray, contains mica.	OH	39.8					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Ground water observation well OW-752B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-752A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-752** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		OH				REC =18"	w=45.3% LL=65 PL=17 *	
60.0	ELASTIC SILT, moist, gray	MH	35.8		60			
						4+5+5 N =10 REC =18"	w=37.0% LL=64 PL=43 *	
65.0			30.8		65			
	Sandy SILT, fine to medium grained, moist, dark greenish gray, weak HCl reaction, 3% medium - coarse shell fragments.	ML						
						5+6+7 N =13 REC =18"	w=34.6% *	
					70			
	Remarks 73 ft:Rig chatter Strong HCl reaction, 15% medium - coarse shell.							Rig chatter
						25+15+25 N =40 REC =18"		
					75			
	Contains cemented sand, strong HCl reaction, 25% medium - coarse shell fragments.					50/5" N =50/5" REC =5"		
80.0	POORLY GRADED SAND WITH SILT, weak HCl reaction, 5% medium - coarse shell fragments.	SP-SM	15.8		80			
						8+9+10 N =19 REC =18"	w=28.0% *	
					85			
	Weak HCl reaction, 3% medium - coarse shell fragments.					7+9+13 N =22 REC =18"		
					90			

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Comments:
1. Ground water observation well OW-752B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-752A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-752** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Weak HCl reaction, 3% medium - coarse shell fragments.					5+7+9 N =16 REC =18"		
95.0	CLAYEY SAND, greenish gray, strong HCl reaction, 25% medium - coarse shell fragments.	SC	0.8		95			
						17+20+16 N =36 REC =18"	w=31.6% *	
100.0	BOTTOM OF BORING @ 100.0 FT.		-4.2		100			

Comments:

1. Ground water observation well OW-752B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-752A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-753** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-550 (ATV)

Schnabel Representative: K. Bell

Dates Started: 7/6/06 **Finished:** 7/6/06

Location: Northing: 217831.2 ft
Easting: 960648.86 ft

Ground Surface Elevation: 48.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/6	---	13.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	ROOTMAT AND TOPSOIL.		48.2					
	CLAYEY SAND, fine to coarse grained, moist, yellowish brown, trace root fragments.	SC				2+6+10 N =16 REC =15"		
	yellowish brown and orangeish brown, Iron staining.					4+4+6 N =10 REC =16"		
	yellowish brown and gray.				5	2+4+5 N =9 REC =15"		
7.0	Sandy LEAN CLAY, moist, orangeish brown and gray, Iron staining.	CL	41.8			4+4+6 N =10 REC =18"		
10.0	CLAYEY SAND, fine to coarse grained, moist, orangeish brown and gray.	SC	38.8		10	4+5+6 N =11 REC =10"		Start of mud rotary drilling
13.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, yellowish brown and orangeish brown.	SP-SM	35.8	▽	15	9+11+9 N =20 REC =9"		
17.0	FAT CLAY, moist, gray, trace sand, trace fine to medium shell fragments, 2-5%, HCl reaction weak.	CH	31.8		20	2+4+4 N =8 REC =18"		
22.0	SANDY ELASTIC SILT, moist, gray and blueish gray.	MH	26.8		25	3+3+4 N =7 REC =18"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-753** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
27.0	SILTY SAND, fine to medium grained, moist, gray, trace fine to medium shell fragments, 2-5%, strong cementation, HCl reaction strong.	SM	21.8		30	50/1" N =50/1" REC =1"		Harder drilling
	wet, blueish gray, contains fine to coarse shell fragments, 30-40%.				35	5+5+7 N =12 REC =18"		Rig chatter
40.0	BOTTOM OF BORING @ 40.0 FT.		8.8		40	5+9+9 N =18 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-754** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/16/06 **Finished:** 5/16/06

Location: Northing: 217369.78 ft
Easting: 960290.37 ft

Ground Surface Elevation: 67.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/16	---	2.5'	---	---
Water Reading	7/26	---	29.4'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		66.5					*NWJ rods used.
	SILTY SAND, fine to coarse grained, moist, brown, contains root fragments.	SM				3+5+4 N =9 REC =13"		
	wet, brown and dark brown.			▽		2+1+3 N =4 REC =12"		
	fine to medium grained, brown.				5	4+7+9 N =16 REC =12"		
						6+6+4 N =10 REC =12"		
9.5	LEAN CLAY, moist, gray, with fine to medium sand, trace mica.	CL	57.5		10	WOH+2+3 N =5 REC =18"		
12.0	FAT CLAY, moist, gray, trace fine to medium sand and mica.	CH	55.0			WOH+2+3 N =5 REC =18"		
					15			
						3+4+6 N =10 REC =18"		
					20			
22.0	ELASTIC SILT, moist, light greenish gray and gray, trace fine to medium sand.	MH	45.0					
						5+8+10 N =18 REC =18"		
					25			

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Comments:
1. Ground water observation well OW-754 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-754** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		MH						
	gray, with fine to medium sand, trace organic matter (±1%).				30	6+8+10 N =18 REC =18"		
32.0	SILTY SAND, fine to medium grained, wet, dark gray, little fine to coarse shell fragments (±15%), strong HCl reaction.	SM	35.0		35	25+43+26 N =69 REC =16"		
	light brown, mostly fine to coarse shell fragments (±80%). brown, some fine to coarse shell fragments (±40%) below 39.5 ft.				40	9+23+31 N =54 REC =15"		*Very slight rig chatter as rotary advanced from 38 to 41 ft.
41.0	LEAN CLAY, moist, greenish gray and gray, with fine to medium sand, trace fine to coarse shell fragments (±1%), weak HCl reaction.	CL	26.0		45	3+5+7 N =12 REC =18"		
	greenish gray, trace fine to medium sand and mica.				50	4+5+4 N =9 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		17.0					

Comments:

1. Ground water observation well OW-754 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-755** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Chew

Drilling Method: 2-15/16" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: B. Bradfield

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 215923.66 ft
Easting: 961637.86 ft

Ground Surface Elevation: 95.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/2	---	NE	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine to coarse grained, moist, light brown, trace silt.	SP				2+1+1 N =2 REC =6"		
						4+2+3 N =5 REC =10"		
					5	2+3+3 N =6 REC =12"		
7.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown.	SP-SM	88.0			5+5+5 N =10 REC =11"		
	No cemented sand.				10	3+5+5 N =10 REC =16"		
13.0	POORLY GRADED SAND, fine to coarse grained, moist, light brown and orangeish brown, trace silt.	SP	82.0			4+9+9 N =18 REC =13"		
					15			
17.0	SILTY SAND, fine to medium grained, moist, light brown and gray, alternating colors form layers <1/8" thick.	SM	78.0			2+3+5 N =8 REC =12"		
					20			
22.0	SANDY SILT, fine to medium, moist, light brown and gray, alternating colors form layers 1/16-1/8" thick.	ML	73.0			2+2+1 N =3 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-755** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML						
						3+1+3 N =4 REC =18"		
29.5	SILTY SAND, fine to medium grained, moist, dark gray.	SM	65.5		30			
32.0	SANDY FAT CLAY, moist, dark gray, contains mica.	CH	63.0					
						4+4+11 N =15 REC =18"		
					35			
37.0	SANDY LEAN CLAY, moist, dark gray, contains mica.	CL	58.0					
						2+3+6 N =9 REC =18"		
40.0	BOTTOM OF BORING @ 40.0 FT.		55.0		40			

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-756** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/25/06 **Finished:** 5/25/06

Location: Northing: 215504.6 ft
Easting: 961215.1 ft

Ground Surface Elevation: 106.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/25	---	7.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		106.4					
	SANDY LEAN CLAY, fine to medium, moist, dark brown, with root fragments, and organic matter.	CL				1+1+2 N =3 REC =18"		
	orangeish brown.					3+2+3 N =5 REC =18"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, light brown.	SP-SM	102.4		5	6+5+5 N =10 REC =13"		Change from hollow stem auger to mud rotary drilling
	wet, light orangeish brown.			▽		4+5+5 N =10 REC =15"		
					10	6+5+5 N =10 REC =13"		
	fine to medium grained, moist, reddish brown.				15	7+9+8 N =17 REC =16"		
	fine to coarse grained, wet, light grayish orange.				20	8+9+11 N =20 REC =13"		
	fine to medium grained, dark orangeish brown.				25	3+5+6 N =11 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-756 installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-756** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	fine to coarse grained, deddish brown.				30	13+17+18 N =35 REC =16"		
	dark reddish orange (3" layer of white clay).				35	5+6+12 N =18 REC =17"		
36.0	CLAYEY SAND, fine to medium grained, wet, mottled grayish orange.	SC	70.9		40	1+2+1 N =3 REC =18"		
	greenish gray, contains mica.				45	1+2+1 N =3 REC =18"		
46.0	LEAN CLAY, moist, oliveish gray, with fine to medium sand, contains mica.	CL	60.9		50	3+3+3 N =6 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		56.9					

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-756 installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-757** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/25/06 **Finished:** 5/25/06

Location: Northing: 215135.13 ft
Easting: 960760.6 ft

Ground Surface Elevation: 106.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/25	---	11.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		106.4					
	SILTY SAND, fine to medium grained, moist, brown, contains root fragments, and organic matter.	SM				1+1+1 N =2 REC =14"		
2.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, orangeish brown.	SP-SM	104.9			4+4+3 N =7 REC =18"		
	fine to medium grained.				5	3+4+5 N =9 REC =18"		
	light orangeish brown.					7+8+8 N =16 REC =18"		
	wet, orangeish brown.			▽	10	7+11+13 N =24 REC =15"		Changed from hollow stem auger to mud rotary drilling
					15	5+8+8 N =16 REC =16"		
	light orangeish brown.				20	6+7+10 N =17 REC =14"		
	orangeish brown.				25	4+6+7 N =13 REC =15"		

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-757** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
26.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, orangeish brown.	SP-SC	80.9					
					30	3+3+2 N =5 REC =18"		
	mottled grayish orange.				35	2+1+1 N =2 REC =18"		
					40	2+2+2 N =4 REC =18"		
40.0	BOTTOM OF BORING @ 40.0 FT.		66.9					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-758** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: CME-75

Schnabel Representative: R. Vinzant

Dates Started: 5/24/06 **Finished:** 5/24/06

Location: Northing: 215133.29 ft
Easting: 960332.67 ft

Ground Surface Elevation: 82.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/24	---	Dry	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, medium to coarse grained, organic matter, trace gravel, moist, light orangeish brown.	SP-SM				2+2+2 N =4 REC =16"		
	Reddish brown.					2+1+1 N =2 REC =17"		
	Orangeish brown, trace organic matter.				5	3+2+2 N =4 REC =18"		
	Light yellowish brown, trace gravel, and mica.					13+7+5 N =12		
	Light orangeish brown, fine - med. sand.				10	3+3+3 N =6 REC =18"		
						3+3+3 N =6 REC =18"		Start of mud rotary drilling
17.0	CLAYEY SAND, fine to medium grained, wet, light orange.	SC	65.6		15			
						2+1+1 N =2 REC =18"		
22.5	SANDY LEAN CLAY, fine to medium, moist, greenish gray, with mica.	CL	60.1		20			
						1+3+3 N =6 REC =18"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-758** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		CL						
					30	1+3+3 N =6 REC =18"		
					35	3+4+4 N =8 REC =18"		
40.0	BOTTOM OF BORING @ 40.0 FT.		42.6		40	4+5+6 N =11 REC =18"		

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-759** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" OD Drag Bit

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: B. Bradfield

Dates Started: 6/20/06 **Finished:** 6/21/06

Location: Northing: 214526.25 ft
Easting: 960025.32 ft

Ground Surface Elevation: 98.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/20	---	10.5'	---	---
Water Reading	7/26	---	61.3'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Forest litter, rootmat, and topsoil.		98.2					
	SILT with sand, moist, yellowish brown and brown, contains root fragments	ML				3+3+3 N =6 REC =7"		1.5'-Begin mud-rotary with 3-7/8" drag bit
2.0	CLAYEY SAND, fine to medium grained, moist, orangeish brown, contains root fragments	SC	96.4			4+6+9 N =15 REC =14"		
4.5	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orangeish brown and brown	SP-SM	93.9		5	2+3+3 N =6 REC =14"		
7.0	POORLY GRADED SAND, fine to coarse grained, trace gravel, trace silt, moist, orangeish brown.	SP	91.4			4+7+8 N =15 REC =10"		
	wet, yellowish brown			▽	10	4+5+8 N =13 REC =10"		
13.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, wet, yellowish brown	SP-SM	85.4		15	4+6+9 N =15 REC =6"		
17.0	SILTY SAND, fine to coarse grained, trace gravel, wet, orangeish brown and reddish brown.	SM	81.4		20	8+7+5 N =12 REC =6"		
22.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown and light gray	SC	76.4		25	2+2+2 N =4 REC =15"		

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Comments:
1. Ground water observation well OW-759B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-759A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-759** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
27.0	SANDY ELASTIC SILT, fine to medium, wet, orangeish brown and mottled gray	MH	71.4		30	1+1+2 N =3 REC =15"		
32.0	FAT CLAY with sand, moist, gray, contains mica	CH	66.4		35	2+3+2 N =5 REC =18"		
37.0	LEAN CLAY with sand, moist, gray, contains mica	CL	61.4		40	2+4+4 N =8 REC =18"		
42.0	FAT CLAY with sand, moist, gray, contains mica	CH	56.4		45	2+4+5 N =9 REC =18"		
44.5	POORLY GRADED SAND WITH CLAY, fine to medium grained, wet, dark gray, contains mica.	SP-SC	53.9					
47.0	LEAN CLAY with sand, moist, dark gray, contains mica	CL	51.4		50	4+6+8 N =14 REC =18"		
52.0	CLAYEY SAND, fine to medium grained, moist, dark gray, contains mica	SC	46.4		55	4+6+8 N =14 REC =18"		
						REC =0"		57-62'-Harder drilling

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Ground water observation well OW-759B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-759A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-759** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	fine to coarse grained, wet, gray and brownish white, 30-40% fine to coarse shell fragments, strong HCl reaction	SC						
59.5	SANDY LEAN CLAY, fine to coarse, wet, gray, 10-20% fine to medium shell fragments, moderate HCl reaction, moderate cementation	CL	38.9		60	12+14+21 N =35 REC =18"		
	moist, 0-10% fine to medium shell fragments, weak HCl reaction				65	1+3+4 N =7 REC =18"		
65.5	SANDY FAT CLAY, fine to medium, moist, gray, 0-10% fine to medium shell fragments, contains mica, weak HCl reaction	CH	32.9			REC =24"		68'-Start of day 6/21/06
68.5	SANDY SILT, fine to coarse, moist, gray, 20-30% fine to coarse shell fragments, moderate HCl reaction, moderate cementation, cemented sand up to 1" in diameter	ML	29.9		70	1+3+50/5" N =53/11" REC =8"		70'-Intermittent moderate to hard drilling
72.0	SILTY SAND, fine to medium grained, wet, gray and brownish white, 30-40% fine to medium shell fragments, strong HCl reaction	SM	26.4		75	4+6+10 N =16 REC =18"		
77.0	POORLY GRADED SAND, fine to medium grained, wet, gray and brownish white, trace silt, 10-20% fine to medium shell fragments, strong HCl reaction, HCl reaction localized to shell fragments	SP	21.4		80	10+7+5 N =12 REC =15"		
82.0	POORLY GRADED SAND WITH SILT, fine to medium grained, wet, gray and brownish white, 20-30% fine to coarse shell fragments, strong HCl reaction, HCl reaction localized to shell fragments	SP-SM	16.4		85	6+7+8 N =15 REC =18"		
87.0	CLAYEY SAND, fine to medium grained, wet, gray, 0-10% fine to medium shell fragments, moderate HCl reaction, HCl reaction localized to shell fragments	SC	11.4		90	3+4+8 N =12 REC =18"		

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Comments:
1. Ground water observation well OW-759B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-759A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-759** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						
					95	4+5+8 N =13 REC =18"		
	brownish white, 50-60% fine to coarse shell fragments, strong HCl reaction					REC =1"		
	30-40% fine to medium shell fragments, trace cemented sand, strong HCl reaction					7+11+13 N =24		
100.0			-1.7		100	REC =12"		
	BOTTOM OF BORING @ 100.0 FT.							

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:

1. Ground water observation well OW-759B installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-759A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-765** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 7/11/06 **Finished:** 7/12/06

Location: Northing: 216424.51 ft
Easting: 959701.22 ft

Ground Surface Elevation: 97.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/11	---	19.5'	---	---
Start of day	7/12	---	20.0'	---	---
Water Reading	7/27	---	19.4'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		96.9					
	POORLY GRADED SAND WITH SILT, medium to coarse grained, trace organic matter, moist, dark yellowish brown.	SP-SM						
	Orangeish brown, contains root fragments.					1+1+1 N =2 REC =18"		
						2+2+4 N =6 REC =18"		
	No root fragments.				5	2+4+4 N =8 REC =18"		
						3+3+8 N =11 REC =18"		
	Light yellowish brown.				10	3+4+6 N =10 REC =18"		
	Orangeish brown.				15	5+5+5 N =10 REC =18"		
	Wet, 4" section of light gray material .			▽	20	2+2+5 N =7 REC =18"		
	2" layer of dark reddish brown .				25	5+6+7 N =13 REC =18"		

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Comments:
1. Ground water observation well OW-765A installed in boring upon completion.
2. * = See Appendix C for additional lab testing data.
3. Ground water observation well OW-765B installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-765** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
27.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica.	CL	70.4		30	3+3+3 N =6 REC =18"		
					35	3+3+4 N =7 REC =18"		
37.0	SILTY SAND, fine to medium grained, moist, gray, contains mica.	SM	60.4		40	6+8+13 N =21 REC =18"		
42.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica.	CL	55.4		45	5+9+10 N =19 REC =18"		
47.0	SANDY SILT, fine to medium, moist, dark greenish gray, contains mica.	ML	50.4		50	4+7+9 N =16 REC =18"		
52.0	LEAN CLAY, moist, dark greenish gray, with sand, contains mica, fine - med. sand.	CL	45.4		55	3+4+6 N =10 REC =18"		
57.0	SILT, moist, dark greenish gray, with sand, contains mica, fine - med. sand.	ML	40.4					

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Ground water observation well OW-765A installed in boring upon completion.
2. * = See Appendix C for additional lab testing data.
3. Ground water observation well OW-765B installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-765** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		ML			60	5+5+6 N =11 REC =18"		
					65	7+8+13 N =21 REC =18"		Harder drilling
	Contains cemented sand, strong HCl reaction, weak cementation, 15% med. - coarse shell fragments.				70	9+50/5" N =50/5" REC =11" REC =8"		
	Strong HCl reaction, moderate cementation, 15% med. - coarse shell fragments.							
73.0	SILTY SAND, fine to medium grained, moist, greenish gray, strong HCl reaction, moderate cementation, 25% med. - coarse shell fragments.	SM	24.4		75	14+12+50/5" N =62/11" REC =17"		Drilling penetration rate faster
	Dark greenish gray, moderate HCl reaction, weak cementation, 15% layered med. - coarse shell fragments.				80	6+7+11 N =18 REC =18"		
	Wet, weak HCl reaction, 5% med. - coarse shell fragments, no cementation.				85	6+8+12 N =20 REC =18"		
	3% med. - coarse shell fragments.				90	4+6+8 N =14 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Ground water observation well OW-765A installed in boring upon completion.
2. * = See Appendix C for additional lab testing data.
3. Ground water observation well OW-765B installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-765** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	Moist.				95	4+6+6 N =12 REC =18"		
	Wet, light gray, strong HCl reaction, strong cementation, 50% med. - coarse shell fragments.				100	50 REC =6" REC =20"	*	
102.0	BOTTOM OF BORING @ 102.0 FT.		-4.6					

Comments:

1. Ground water observation well OW-765A installed in boring upon completion.
2. * = See Appendix C for additional lab testing data.
3. Ground water observation well OW-765B installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-766** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Evans

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: Failing-1500 (Truck)

Schnabel Representative: R. Vinzant

Dates Started: 5/23/06 **Finished:** 5/23/06

Location: Northing: 216932.89 ft
Easting: 959791.5 ft

Ground Surface Elevation: 108.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/23	---	0.0'	---	---
Water Reading	7/26	---	27.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL ▽	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, trace root fragments, fine to medium grained, wet, dark brown.	SP-SM				5+8+4 N =12 REC =18"		
	reddish brown.					2+1+2 N =3 REC =18"		
	orangeish brown.				5	2+3+3 N =6 REC =16"		
	moist.					3+3+4 N =7 REC =15"		
	wet, trace gravel, fine to coarse grained.				10	4+8+9 N =17 REC =18"		
					15	12+16+17 N =33 REC =18"		
					20	12+13+19 N =32 REC =18"		
	reddish brown.				25	10+15+20 N =35 REC =18"		

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Comments:
1. Ground water observation well OW-766 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-766** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	light orangeish brown mottled of white.				30	5+4+5 N =9 REC =18"		
32.0	CLAYEY SAND, fine to medium grained, wet, orangeish brown, contains white clay.	SC	76.9		35	2+2+2 N =4 REC =18"		
	greenish gray, contains mica.				40	2+1+2 N =3 REC =18"		
					45	2+2+3 N =5 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		58.9		50	2+3+4 N =7 REC =18"		

Comments:

1. Ground water observation well OW-766 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-768** Contract Number: 06120048 Sheet: 1 of 4

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: D. Reese

Drilling Method: 3-7/8" OD Tri-cone Roller Bit (Mud Rotary)

Drilling Equipment: CME-75 (Truck)

Schnabel Representative: M Arles

Dates Started: 6/19/06 **Finished:** 6/20/06

Location: Northing: 217116.03 ft
Easting: 962242.98 ft

Ground Surface Elevation: 48.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/20	---	23.5'	0.0'	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	FL, R AND TOPSOIL.		48.1					0-40' Hollow stem auger
	Sandy lean clay FILL, contains root fragments, fine to coarse, moist, brown.	FILL				1+3+3 N =6 REC =12"		
2.0	SILTY SAND, fine to medium grained, moist, brown.	SM	46.4			5+6+6 N =12 REC =18"		
					5	5+6+7 N =13 REC =18"		
7.0	LEAN CLAY, moist, brown and green.	CL	41.4			3+4+5 N =9 REC =12"		
					10			
	trace sand.					2+2+3 N =5 REC =14"		
13.0	ELASTIC SILT, moist, green and brown.	MH	35.4			1+3+3 N =6 REC =16"		
					15			
	with ironite layers.					1+3+4 N =7 REC =18"		
					20			
23.0	SILTY SAND, fine to medium grained, wet, brown.	SM	25.4	▽		WOH+1+1 N =2 REC =12"		
					25			

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-768A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-768** Contract Number: 06120048 Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
	moist, green, with fine to coarse shell fragments, strong HCl reaction, 30-40% shell frag.				30	3+4+4 N =8 REC =18"		
	contains cemented sand, 40-50% shell frag.				35	3+5+5 N =10 REC =18"		
	fine grained, trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.				40	3+3+4 N =7 REC =18"		40-100' mud rotary, 3-7/8" roller bit
	fine to medium grained, weak HCl reaction.				45	REC =20"		
	with fine to coarse shell fragments, strong HCl reaction, 60-70% shell frag.				50	8+21+19 N =40 REC =18"		
	wet, green and white, contains cemented sand, 60-80% shell frag, 1/4" layers of cemented sand and shells.				55	31+11+18 N =29 REC =14"		53' rig chatter

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Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-768A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-768** Contract Number: 06120048 Sheet: 3 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	green, moderate HCl reaction, 10-20% shell frag.	SM			60	5+17+23 N =40 REC =18"		
					65	5+7+12 N =19 REC =18"		
67.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.	SP-SM	-18.6		70	5+8+10 N =18 REC =18"		
72.0	SILTY SAND, fine to medium grained, moist, green.	SM	-23.6		75	REC =13"		
77.0	SANDY SILT, fine to medium, moist, green, trace fine to medium shell fragments, moderate HCl reaction, 0-10% shell frag.	ML	-28.6		80	5+5+5 N =10 REC =18"		
82.0	SILTY SAND, fine to medium grained, moist, green, with fine to coarse shell fragments, strong HCl reaction, 40-60% shell frag.	SM	-33.6		85	4+13+9 N =22 REC =18"		
					90	5+12+12 N =24 REC =18"		

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TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-768A installed at nearby location.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-768** Contract Number: 06120048 Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SM						
92.0	SANDY SILT, fine to medium, moist, oliveish green, with fine to medium shell fragments, moderate HCl reaction, 10-15% shell frag.	ML	-43.6		95	4+6+7 N =13 REC =18"		
97.0	ELASTIC SILT, moist, oliveish green, with sand, trace fine to medium shell fragments, moderate HCl reaction, 0-5% shell frag.	MH	-48.6		100	4+7+8 N =15 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		-51.6					

Comments:

1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See Appendix I for additional lab testing data.
3. Ground water observation well OW-768A installed at nearby location.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-769** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: UNI-TECH DRILLING
MALAGA, NEW JERSEY

Boring Foreman: J. Blemings

Drilling Method: 3-7/8" O.D. Drag Bit (Mud Rotary)

Drilling Equipment: CME-750 (ATV)

Schnabel Representative: K. Megginson

Dates Started: 5/11/06 **Finished:** 5/11/06

Location: Northing: 216589.75 ft
Easting: 962559.47 ft

Ground Surface Elevation: 54.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/11	---	24.5'	---	---
Water Reading	7/25	---	24.3'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil.							*NWJ rods used.
0.7	SILTY SAND, fine to medium grained, moist, brown and dark brown, contains root fragments.	SM	53.5			1+1/12" N =1/12" REC =7"		
	fine to coarse grained, light brown.					3+5+5 N =10 REC =15"		
4.5	CLAYEY SAND, fine to coarse grained, moist, brown, (coarse sand is subangular to subrounded).	SC	49.7		5	3+4+6 N =10 REC =12"		
	orangeish brown and brown.					5+4+5 N =9 REC =16"		
8.5	LEAN CLAY, moist, light orangeish brown and grayish brown, trace fine to medium sand.	CL	45.7		10			
	fine to medium sandy, light orangeish brown and light grayish brown, trace mica, contains clayey sand lenses, (bedding thickness 1/8 inch).					6+6+8 N =14 REC =16"		
	grayish brown and light orangeish brown.				15	3+2+4 N =6 REC =18"		
	orangeish brown and grayish brown, trace fine to medium sand, (soil structure exhibits vertical laminations - laminations no greater than 1/16 inch thick).				20	WOH+3+3 N =6 REC =18"		
	orangeish brown and light brown, trace fine to medium sand.			▽	25	WOH+2+2 N =4 REC =18"		

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Comments:
1. Ground water observation wel OW-769 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-769** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	wet, light brown and dark orangeish brown, with fine to medium sand.	CL						
27.0	CLAYEY SAND, fine to medium grained, wet, brown and orangeish brown, (high percentage of fines).	SC	27.2					
	light gray and gray below 29.7 ft.				30	4+1+4 N =5 REC =18"		
32.0	SILTY SAND, fine to medium grained, wet, gray, trace fine to coarse shell fragments (±5%), weak HCl reaction.	SM	22.2		35	4+4+4 N =8 REC =18"		
37.0	CLAYEY SAND, fine to medium grained, wet, gray, few fine to coarse shell fragments (±10%), strong HCl reaction, contains fine to medium strongly cement sand layer from 38.5 to 39 ft.	SC	17.2		40	17+9+6 N =15 REC =16"		
	dark gray, weak HCl reaction.				45	3+3+5 N =8 REC =18"		
50.0	BOTTOM OF BORING @ 50.0 FT.		4.2		50	3+4+3 N =7 REC =18"		

Comments:

1. Ground water observation wel OW-769 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-770** Contract Number: 06120048 Sheet: 1 of 2

Boring Contractor: CONNELLY AND ASSOCIATES, INC.
FREDERICK, MARYLAND

Boring Foreman: T. Connelly

Drilling Method: 3-7/8" OD Tri-cone Roller Bit

Drilling Equipment: Diedrich D-50 (ATC)

Schnabel Representative: R. Vinzant

Dates Started: 6/22/06 **Finished:** 6/22/06

Location: Northing: 215466.6 ft
Easting: 962826.95 ft

Ground Surface Elevation: 121.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	6/22	---	11.0'	---	---
Water Reading	7/25	---	DRY	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	FL, R AND TOPSOIL.		121.1					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, yellowish brown.	SP-SM				2+1+2 N =3 REC =18"		
	Moist, yellowish orange, trace root fragments.					6+8+6 N =14 REC =18"		
4.5	SANDY ELASTIC SILT, fine to medium, moist, yellowish orange, trace root fragments.	MH	117.1		5	3+4+5 N =9 REC =18"		
7.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish brown.	SP-SM	114.6			7+10+12 N =22 REC =18"		
	Wet.			▽	10	5+7+10 N =17 REC =18"		Change from hollow stem auger to mud rotary drilling
	Yellowish orange, Med. - coarse sand.				15	5+5+8 N =13 REC =18"		
	Moist, reddish brown.				20	9+10+9 N =19 REC =18"		
	Orangeish brown.				25	9+13+12 N =25 REC =18"		

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Comments:
1. Ground water observation well OW-770 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

Schnabel Engineering	TEST BORING LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Boring Number: **B-770** Contract Number: 06120048 Sheet: 2 of 2

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SP-SM						
	Wet, light yellowish brown.				30	10+11+13 N =24 REC =15"		
					35	9+12+14 N =26 REC =18"		
37.0	POORLY GRADED SAND WITH CLAY, fine to medium grained, moist, mottled grayish orange.	SP-SC	84.6		40	3+3+1 N =4 REC =14"		
44.0	Gray, contains organic matter.		77.6					
	LEAN CLAY, moist, mottled orangeish gray, with sand, Fine - med. sand.	CL			45	2+1+1 N =2 REC =6"		
46.0	FAT CLAY, moist, mottled orangeish gray, with sand, Fine - med. sand.	CH	75.6					
49.5			72.1		50	2+8+8 N =16 REC =12"		
50.0	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, reddish brown.	SP-SM	71.6					
	BOTTOM OF BORING @ 50.0 FT.							

Comments:

1. Ground water observation well OW-770 installed in boring upon completion.
2. * = See Appendix I for additional lab testing data.

TEST BORING LOG 06120048 PLOG SPT 700.GPJ SCHNABEL.GDT 3/6/08

TEST PIT LOGS

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B307** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 216957.53 ft
Easting: 960690.62 ft

Ground Surface Elevation: 119.4 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil		119.1					
	SILT (ML), trace fine to medium sand, contains root fragments, moist, brown. Fine to medium sandy below 1.5 ft.	ML						
3.0	SILTY SAND (SM), fine to medium, contains poorly graded sand with silt lenses, moist, brown and light brown.	SM	116.4					
4.0	POORLY GRADED SAND WITH SILT (SP-SM), fine to coarse, contains clayey sand pockets, moist, light brown and yellowish brown.	SP-SM	115.4		5	Bulk Sample	w=2.3% *	Test Pit consistently caved-in at about 5.0 ft.
6.7	BOTTOM OF BORING @ 6.7 FT.		112.7					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B314** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 217320.35 ft
Easting: 960658.25 ft

Ground Surface Elevation: 52.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/2	---	4.0'	---	---
Encountered	8/2	---	6.5'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil							
0.8	SILTY SAND (SM), fine to medium, trace fine gravel, contains root fragments, moist, brown light brown below 1.5 ft.	SM	52.0					
4.0	FAT CLAY (CH), trace fine to medium sand, moist, light gray, orange-brown and yellow-brown.	CH	48.8	▽	5	Bulk Sample	w=37.0% LL=71 PL=24 *	Perched ground water from 4 to 4.5 ft. Water infiltration from back sidewall at 6.5 ft.
8.0	ELASTIC SILT (MH), trace fine sand and mica, moist, gray.	MH	44.8	▽				
9.0	BOTTOM OF BORING @ 9.0 FT.		43.8					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B315** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 217182.5 ft
Easting: 960563.12 ft

Ground Surface Elevation: 65.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil							
1.0	SILTY SAND (SM), fine to medium, contains root fragments, moist, light brown.	SM	64.8					
2.0	CLAYEY SAND (SC), fine to medium, contains silty sand pockets, moist, orange-brown.	SC	63.8					
3.0	SILTY SAND (SM), fine to medium, moist, stratified brown and yellow-brown.	SM	62.8					
5.0	POORLY GRADED SAND WITH SILT (SP-SM), fine to coarse, contains silty sand lenses, moist, light brown and brown.	SP-SM	60.8		5	Bulk Sample	w=5.4% *	
8.5	BOTTOM OF BORING @ 8.5 FT.		57.3					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B334** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 216515.64 ft
Easting: 960560.94 ft

Ground Surface Elevation: 87.0 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	8/2	12:00	8.0'	---	---

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil							
0.7	SILTY SAND (SM), fine to medium, contains root fragments, moist, brown	SM	86.3					
	light brown below 2.5 ft.					Bulk Sample	w=7.4% *	
					5			
						Bulk Sample	w=14.5% *	
7.5	LEAN CLAY (CL), trace fine to medium sand and mica, moist, dark brown.	CL	79.5	▽				Water infiltration as bucket advanced below 8 ft.
	wet below 8.0 ft.							
9.3	POORLY GRADED SAND WITH SILT (SP-SM), fine to medium, wet, light gray and orangish-brown	SP-SM	77.7					
10.0	BOTTOM OF BORING @ 10.0 FT.		77.0		10			

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B335** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 216730.79 ft
Easting: 960706.97 ft

Ground Surface Elevation: 99.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Forest litter, rootmat and topsoil.		99.2					
	SILTY SAND (SM), fine to medium, contains clayey sand pockets and root fragments, moist, brown.	SM						
2.0	SANDY LEAN CLAY (CL), fine to medium, contains root fragments, moist, brown.	CL	97.6			Bulk Sample	w=19.0% LL=30 PL=20 *	
5.0	SILTY SAND (SM), fine to medium, moist, brown.	SM	94.6		5	Bulk Sample	w=8.9% *	
8.0	BOTTOM OF BORING @ 8.0 FT.		91.6					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B407** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 216391.76 ft
Easting: 961465.02 ft

Ground Surface Elevation: 81.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	SILTY SAND (SM), fine to coarse, contains root fragments, moist, brown	SW-SM	80.9					
	WELL GRADED SAND WITH SILT (SW-SM), fine to coarse, trace fine and coarse gravel, moist, brown. Observed cobble at 5 ft. Contains fine to medium silty sand lenses from 5.5 to 5.7 ft. Light brown below 6.0 ft.				5	Bulk Sample	w=7.1% *	
7.0	BOTTOM OF BORING @ 7.0 FT.		74.3					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B414** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 216631.18 ft
Easting: 961530.95 ft

Ground Surface Elevation: 120.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil		120.5					
0.7	SILTY SAND (SM), fine to medium, contains root fragments, moist, yellowish brown and light orangish brown.	SM	120.1					
	POORLY GRADED SAND WITH SILT (SP-SM), fine to medium, contains silty sand lenses and layers, moist, stratified brown and light orangish brown.	SP-SM			5	Bulk Sample	w=6.0% *	
7.0	BOTTOM OF BORING @ 6.5 FT.		113.8					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B415** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 216490.91 ft
Easting: 961298.37 ft

Ground Surface Elevation: 118.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Rootmat and topsoil.		118.5					
1.0	Clayey sand FILL, fine to medium, contains root fragments, moist, brown. Contains steel spun cable at 1.0 ft.	FILL SP	117.9					
	POORLY GRADED SAND, fine to medium, trace silt, contains silty sand lenses and layers, moist, stratfied light brown and orangish-brown.					Bulk Sample	w=10.2% *	
					5			
6.5	BOTTOM OF BORING @ 6.5 FT.		112.4					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B423** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 216414.95 ft
Easting: 960849.03 ft

Ground Surface Elevation: 105.9 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil	FILL	105.6					Top of cinder block wall and man made debris at 1.5 ft. Underground cinder block wall at least 10 ft wide (in an east-west direction) and 6 ft. deep. Structure appears to have been used as refuse depository.
1.0	Silty sand FILL, fine to medium, contains root fragments, moist, brown	FILL	104.9					
	Clayey sand FILL, fine to medium, moist, brown. Contains cement block, diamond-plated steel and asphalt fragments below 1.5 ft.	FILL						
	fine to coarse, contains root fragments. Contains rebar, bed frame and metal fragments below 2.5 ft.	FILL						
5.0	fine to coarse sand, trace coarse gravel, contains root fragments, brown, grayish-brown and orangish-brown, contains sandy silt pockets below 5 ft.	FILL	100.9		5	Bulk Sample	w=16% LL=24 PL=16 *	
8.0	sandy lean clay FILL, fine to coarse, trace coarse gravel, moist, brown. Contains cement fragments at 6 ft.		97.9					
	BOTTOM OF BORING @ 8.0 FT.							

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B434** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 215825.9 ft
Easting: 961244.18 ft

Ground Surface Elevation: 105.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil		104.7					
	LEAN CLAY, trace fine to medium sand, contains root fragments, moist, brown.	CL				Bulk Sample	w=21% LL=25 PL=18 *	
					5			
7.0	SILTY SAND, fine to medium, moist, brown.	SM	98.2					
8.0			97.2					
8.5	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine gravel, contains weakly cemented sand pockets, moist, light brown.	SP-SM	96.7					
	BOTTOM OF BORING @ 8.5 FT.							

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B435** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 216020.06 ft
Easting: 961404.74 ft

Ground Surface Elevation: 107.7 (feet)

Groundwater Observations

Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil.							
0.7	CLAYEY SAND, fine to medium, contains root fragments, moist, brown.	SC	107.0					
2.5	SILTY SAND, fine to medium, contains root fragments, moist, orangish brown.	SM	105.2					
4.0	SILTY SAND, fine to coarse, moist, light brown and brown.	SM	103.7		5	Bulk Sample	w=6.0% *	
6.0	POORLY GRADED SAND WITH SILT, fine to coarse, trace silt, contains silty sand and poorly-graded sand with silt lenses, moist, brown and light brown trace cobbles (+/-1%) below 8 ft.	SP-SM	101.7			Bulk Sample	w=4.6% *	
9.0	CLAYEY SAND, fine to coarse, trace fine gravel, contains clayey sand pockets, moist, brown.	SC	98.7		10	Bulk Sample	w=6.7% LL=34 PL=17 *	
10.0	BOTTOM OF BORING @ 10.0 FT.		97.7					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B715** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 214964.18 ft
Easting: 962637.77 ft

Ground Surface Elevation: 88.2 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil							
0.9	CLAYEY SAND, fine to coarse, contains root fragments, moist, brown	SC	87.3					
4.0	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine to coarse gravel (+/- 5%) and cobbles (+/- 1%), contains root fragments, moist, brown and light brown. Contians weakly cemented sand pockets at 6 ft.	SP-SM	84.2		5	Bulk Sample	w=4.8% *	
8.5	BOTTOM OF BORING @ 8.5 FT.		79.7					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B716** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 214983.83 ft
Easting: 961289.79 ft

Ground Surface Elevation: 97.1 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil.							
0.8	SILTY SAND, fine to medium, contains root fragments, moist, brown, contains weakly bonded silty sand pockets.	SM	96.3					
					5			
5.5	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine gravel, moist, stratified light brown and brown. Light grayish brown and yellowish brown below 6.5 ft.	SP-SM	91.6			Bulk Sample	w=3.8% *	
8.0			89.1					
8.8	SILTY SAND, fine to coarse, contains chert fragments, moist, yellowish brown.	SM	88.3					
	BOTTOM OF BORING @ 8.8 FT.							

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B717** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 214297.68 ft
Easting: 962346.36 ft

Ground Surface Elevation: 90.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil.							
1.0	SANDY SILT, fine to medium, contains root fragments, moist, brown.	ML	89.5					
5.0	SILTY SAND, fine to coarse, contains clayey sand pockets, moist, light brown.	SM	85.5		5			
7.0	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine to coarse gravel (+/- 5%), moist, orangish brown, contains iron oxide cemented sand pockets at 7.5 ft.	SP-SM	83.5			Bulk Sample	w=3.4% *	
8.0	BOTTOM OF BORING @ 8.0 FT.		82.5					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B719** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 213966.93 ft
Easting: 261493.94 ft

Ground Surface Elevation: 72.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Forest litter, rootmat and topsoil		72.0					
	LEAN CLAY, with fine to medium sand, contains root fragments, moist, brown and light brown	CL				Bulk Sample	w=23.9% LL=35 PL=22 *	
3.2	SILT, with fine to medium sand, contians root fragments, moist, grayish brown.	ML	69.1					
4.8	SILTY SAND, fine to coarse, trace fine gravel, contains clayey sand pockets and poorly graded sand with silt lenses, moist, light brown and light grayish brown	SM	67.5		5			
	Wet, light gray and yellowish brown below 7 ft.					Bulk Sample	w=26.7% *	
8.0	BOTTOM OF BORING @ 8.0 FT.		64.3					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B727** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 215299.14 ft
Easting: 961883.13 ft

Ground Surface Elevation: 104.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Forest litter, rootmat and topsoil							
0.7	CLAYEY SAND, fine to coarse, contains root fragments, moist, brown, orangish brown, and light grayish brown	SC	103.6					
5.0	SILT, with fine to medium sand, moist, brown.	ML	99.3		5			
6.0	SILTY SAND, fine to medium, contains clayey sand pockets, moist, brown.	SM	98.3			Bulk Sample	w=10.3% *	
7.0	BOTTOM OF BORING @ 7.0 FT.		97.3					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B744** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 316377.3 ft
Easting: 959963.38 ft

Ground Surface Elevation: 113.3 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		112.8					
1.0	SILT, trace fine to medium sand, contains root fragments, moist, brown.	ML	112.3					
	SANDY LEAN CLAY (CL), fine to medium, contains root fragments, moist, brown.	CL				Bulk Sample	w=18% LL=25 PL=17 *	
3.5	SILTY SAND (SM), fine to medium, moist, brown.	SM	109.8					
5.0	POORLY GRADED SAND WITH SILT (SP-SM), fine to coarse, trace fine gravel, moist, light brown.	SP-SM	108.3		5			
6.5	BOTTOM OF BORING @ 6.5 FT.		106.8					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-B758** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/28/06 **Finished:** 7/28/06

Location: Northing: 215133.29 ft
Easting: 960332.67 ft

Ground Surface Elevation: 82.6 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.6	Forest litter, rootmat and topsoil.		82.0					
	CLAYEY SAND, fine to medium, contains root fragments, moist, brown.	SC						
2.0	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine gravel and cobbles, contains weakly bonded silty sand pockets, moist, brown, contains iron oxide cemented sand lenses and pockets.	SP-SM	80.6			Bulk Sample	w=6.0% *	
3.9		SM	78.7					
	SILTY SAND, fine to coarse, trace fine gravel, moist, light brown. Contains silty sand layers, stratified light brown and yellowish brown below 6 ft.				5			Test Pit consistently caved-in below 6 ft.
						Bulk Sample	w=11.8% *	
9.0	BOTTOM OF BORING @ 9.0 FT.		73.6					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-C309** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 8/2/06 **Finished:** 8/2/06

Location: Northing: 217020.05 ft
Easting: 960105.24 ft

Ground Surface Elevation: 108.5 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		108.0					
	POORLY GRADED SAND, fine to coarse, trace fine gravel, contains root fragments, moist, brown and orange-brown.	SP				Bulk Sample	w=4.3% *	
					5			Test Pit consistently caves-in between 5 and 6 ft.
6.0	POORLY GRADED SAND WITH SILT, fine to medium, trace silt, contains silty sand pockets and lenses moist, light grayish brown, blackish gray, and orangish brown.	SP-SM	102.5			Bulk Sample	w=8.7% *	
8.0	BOTTOM OF BORING @ 8.0 FT.		100.5					

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

Schnabel Engineering	TEST PIT LOG	Project: Calvert Cliffs Nuclear Power Plant Calvert County, Maryland	Test Pit Number: **TP-C723** Contract Number: 06120048 Sheet: 1 of 1

Boring Contractor:

Boring Foreman: Paul Schaffer

Excavation Equipment: John Deere 410D (Rubber Tired)

Schnabel Representative: K Megginson

Dates Started: 7/29/06 **Finished:** 7/29/06

Location: Northing: 215989.07 ft
Easting: 959754.78 ft

Ground Surface Elevation: 96.8 (feet)

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Forest litter, rootmat and topsoil.		96.3					
	SANDY SILT, fine to medium, contains root fragments, moist, brown.	ML						
2.0	CLAYEY SAND, fine to medium, contains root fragments, moist, brown.	SC	94.8			Bulk Sample	w=12% LL=30 PL=15 *	
4.0	SILTY SAND, fine to coarse, moist, brown.	SM	92.8					
5.0	POORLY GRADED SAND WITH SILT, fine to coarse, trace fine gravel, moist, brown and light brown.	SP-SM	91.8		5	Bulk Sample	w=4.6% *	
7.0	Contains poorly graded sand trace silt lenses below 6.0 ft.		89.8					
	BOTTOM OF BORING @ 7.0 FT.							

Comments:
1. Backfilled upon completion
2. * See Appendix I for additional laboratory testing data.

TEST PIT LOG NEW TEST PITS 06120048.GPJ SCHNABEL.GDT 3/10/08

APPENDIX D
GROUND WATER OBSERVATION WELLS

- Well Construction Logs
- Field Permeability Test Data
- Well Sampling Records

WELL CONSTRUCTION LOGS

WELL NO. : **OW-301**

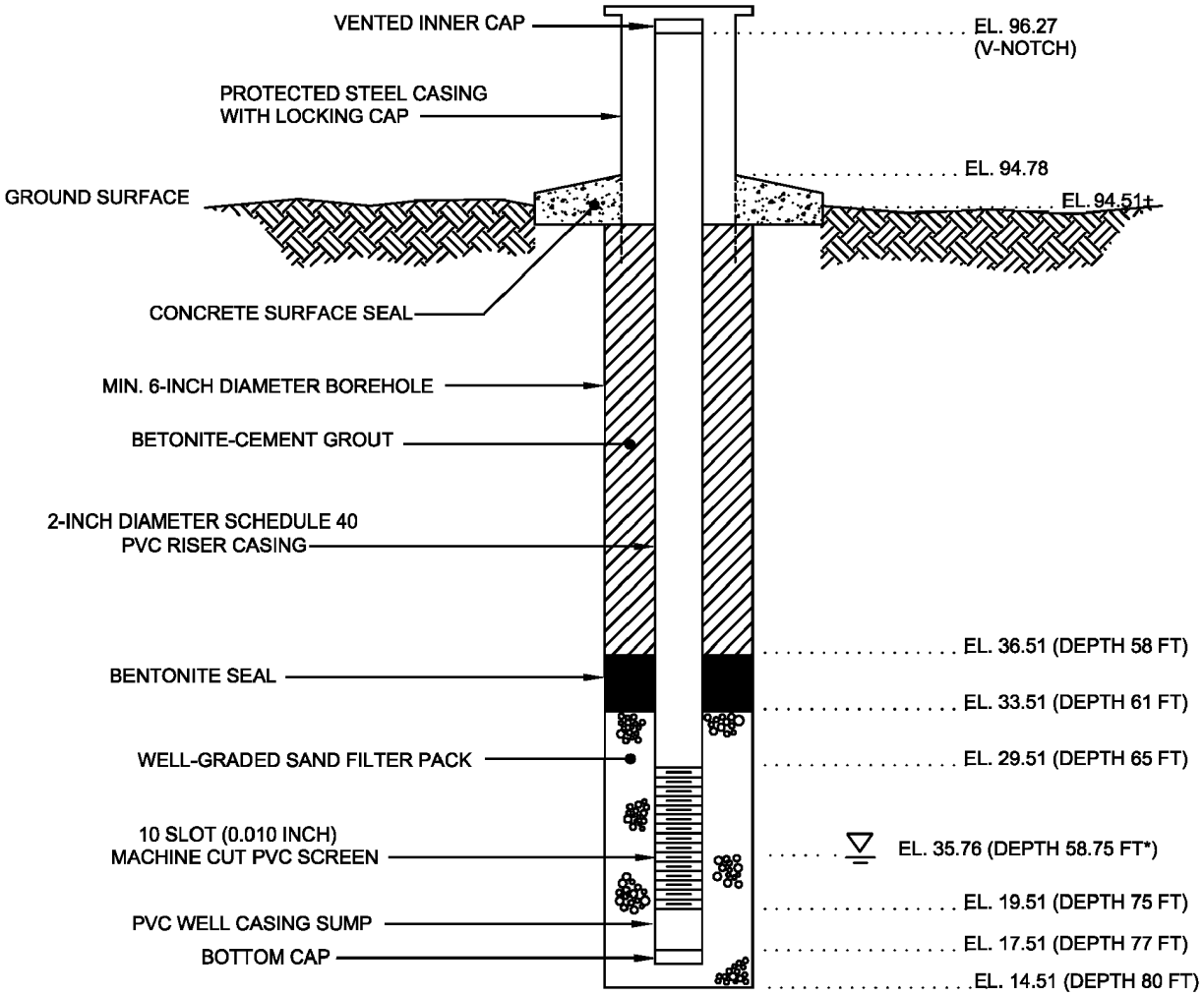
DATE COMPLETED : 07/07/2006

NORTHING: 217048.02

EASTING: 960814.47

GROUND SURFACE ELEVATION: 94.51

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7–27–06	58.74	35.76



NOTES:
1) SEE B-301 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * = GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-301.DWG

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WELL NO. : **OW-313A**

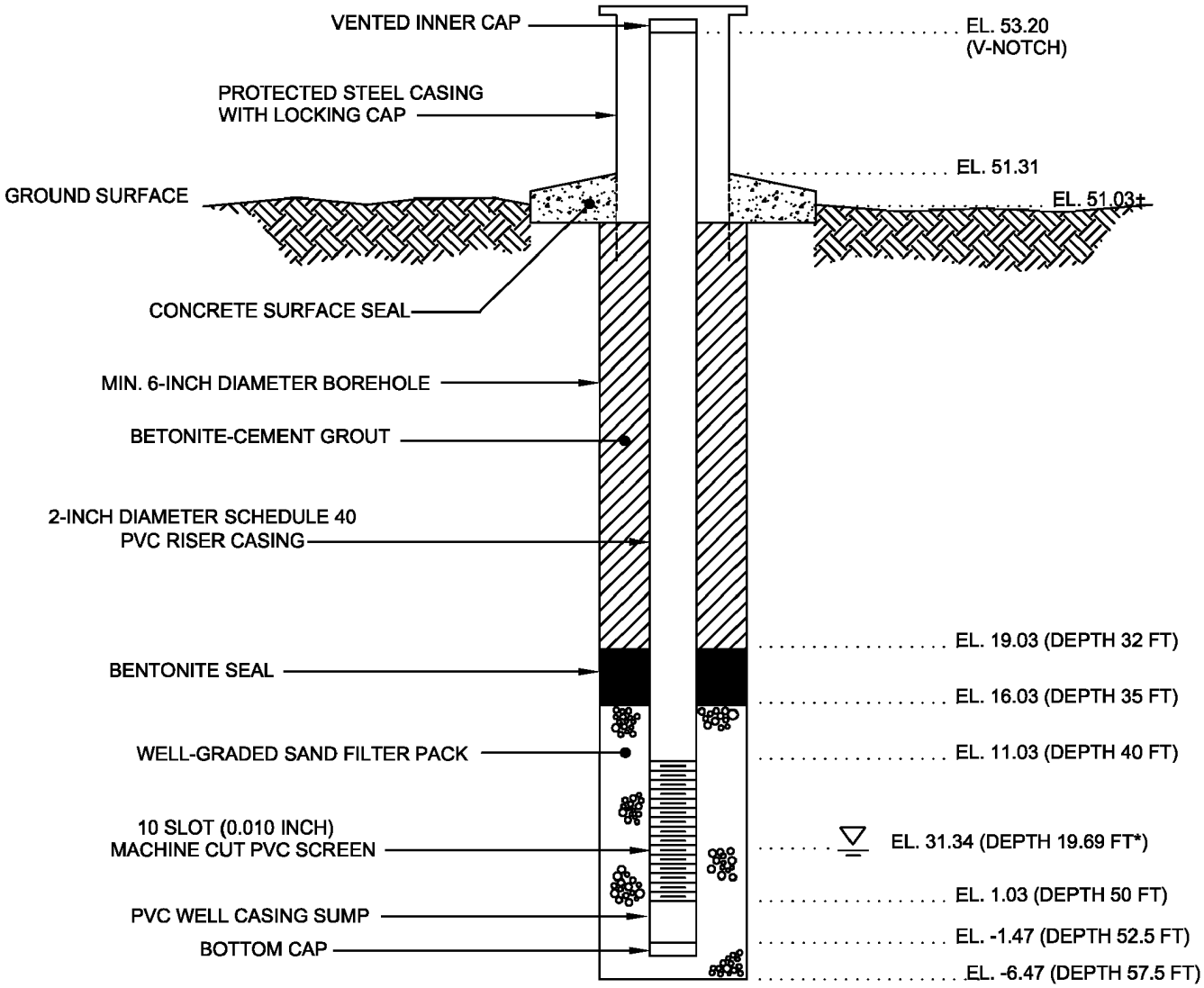
DATE COMPLETED : 05/24/2006

NORTHING: 217367.31

EASTING: 960705.30

GROUND SURFACE ELEVATION: 51.03

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	19.69	31.34



NOTES:
1) SEE B-313 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-313A.DWG

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WELL NO. : **OW-313B**

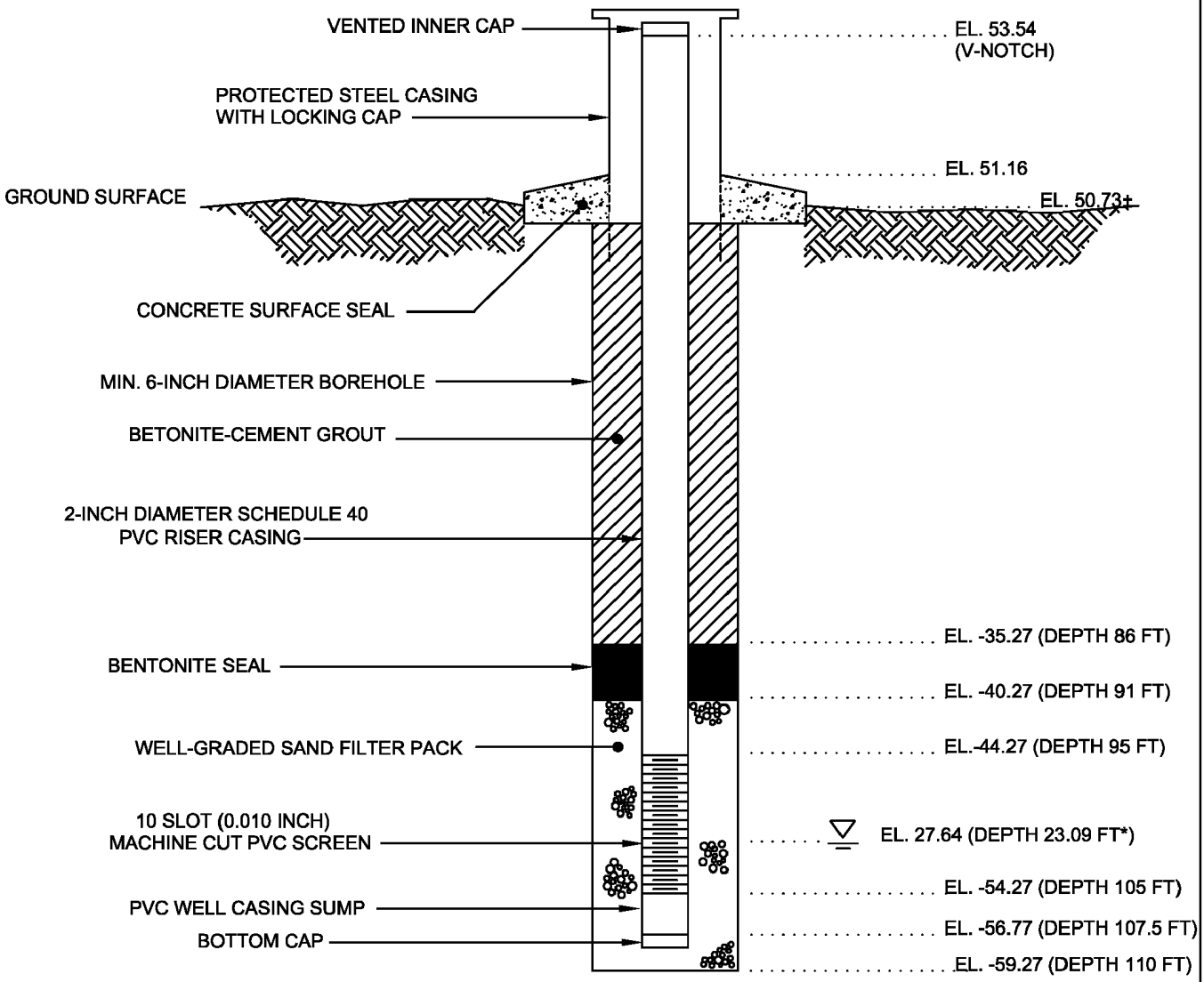
DATE COMPLETED : 05/23/2006

NORTHING: 217372.35

EASTING: 960713.67

GROUND SURFACE ELEVATION: 50.73

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	23.09	27.64



NOTES:
1) SEE B-313 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-313B.DWG

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WELL NO. : **OW-319A**

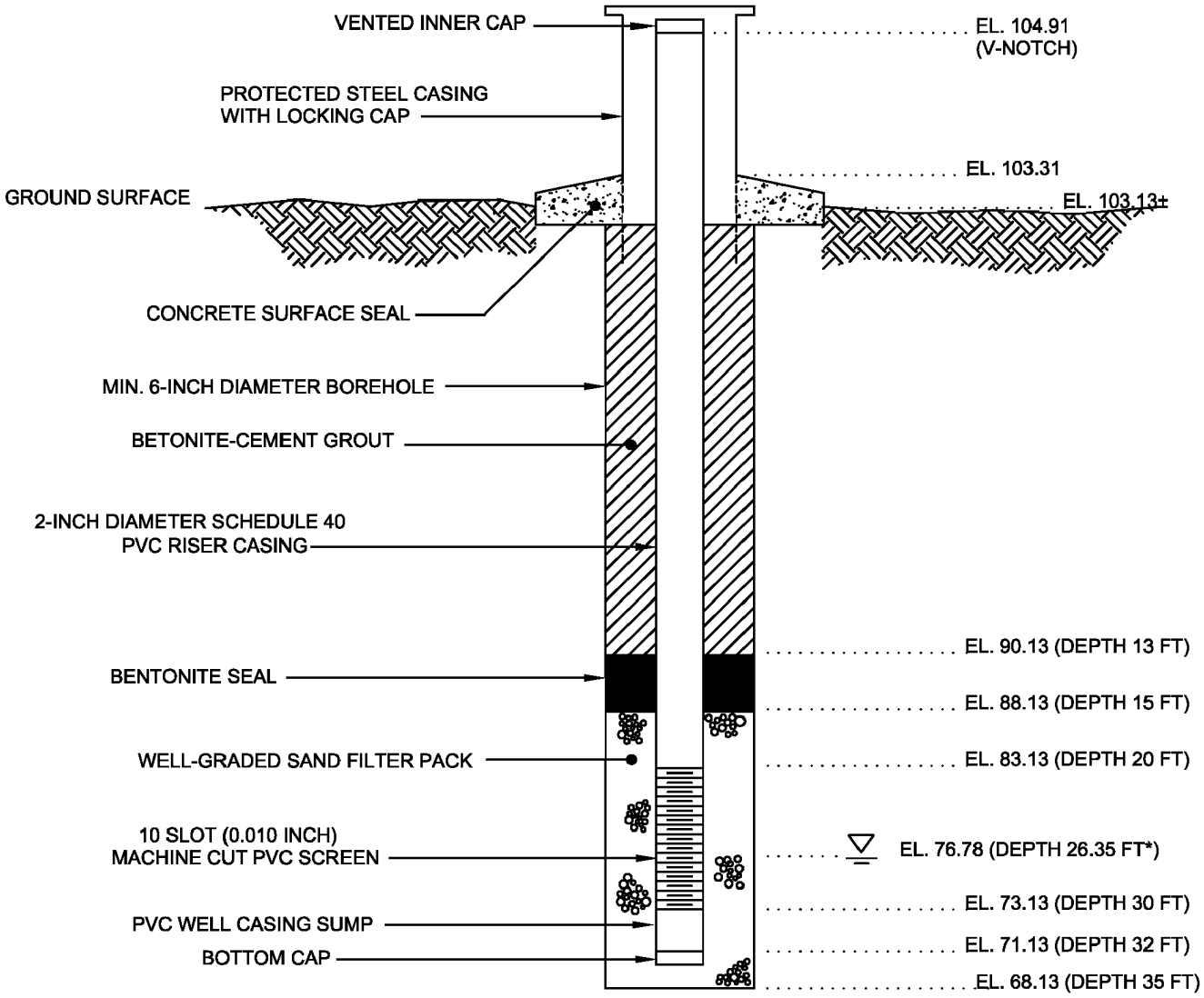
DATE COMPLETED : 05/18/2006

NORTHING: 216962.56

EASTING: 961116.12

GROUND SURFACE ELEVATION: 103.13

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-21-06	26.35	76.78



NOTES:
1) SEE B-319 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-319A.DWG

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WELL NO. : **OW-319B**

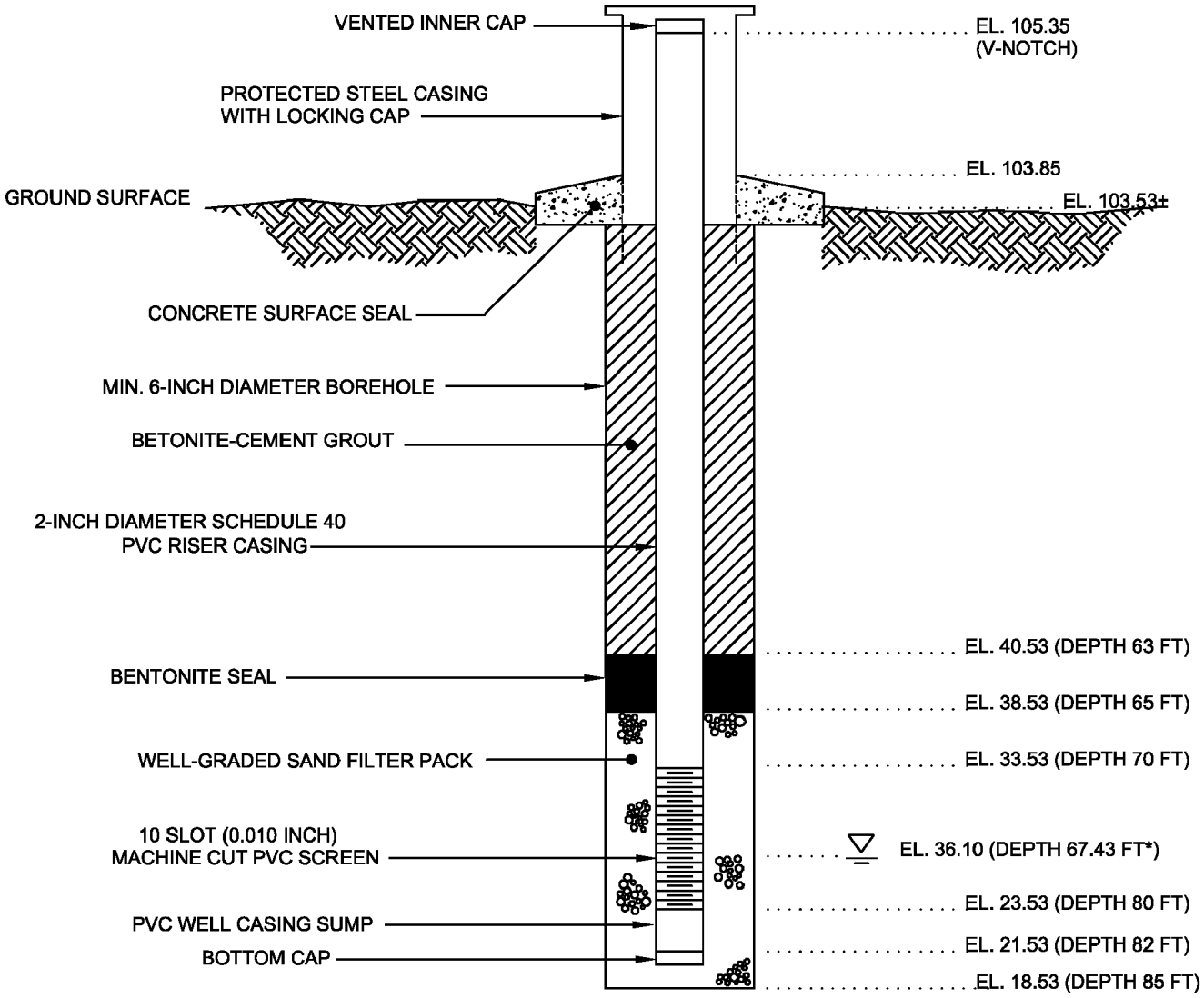
DATE COMPLETED : 05/18/2006

NORTHING: 216957.32

EASTING: 961125.02

GROUND SURFACE ELEVATION: 103.53

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-28-26	67.43	36.10



NOTES:
1) SEE B-319 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-319B.DWG

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WELL NO. : **OW-323A**

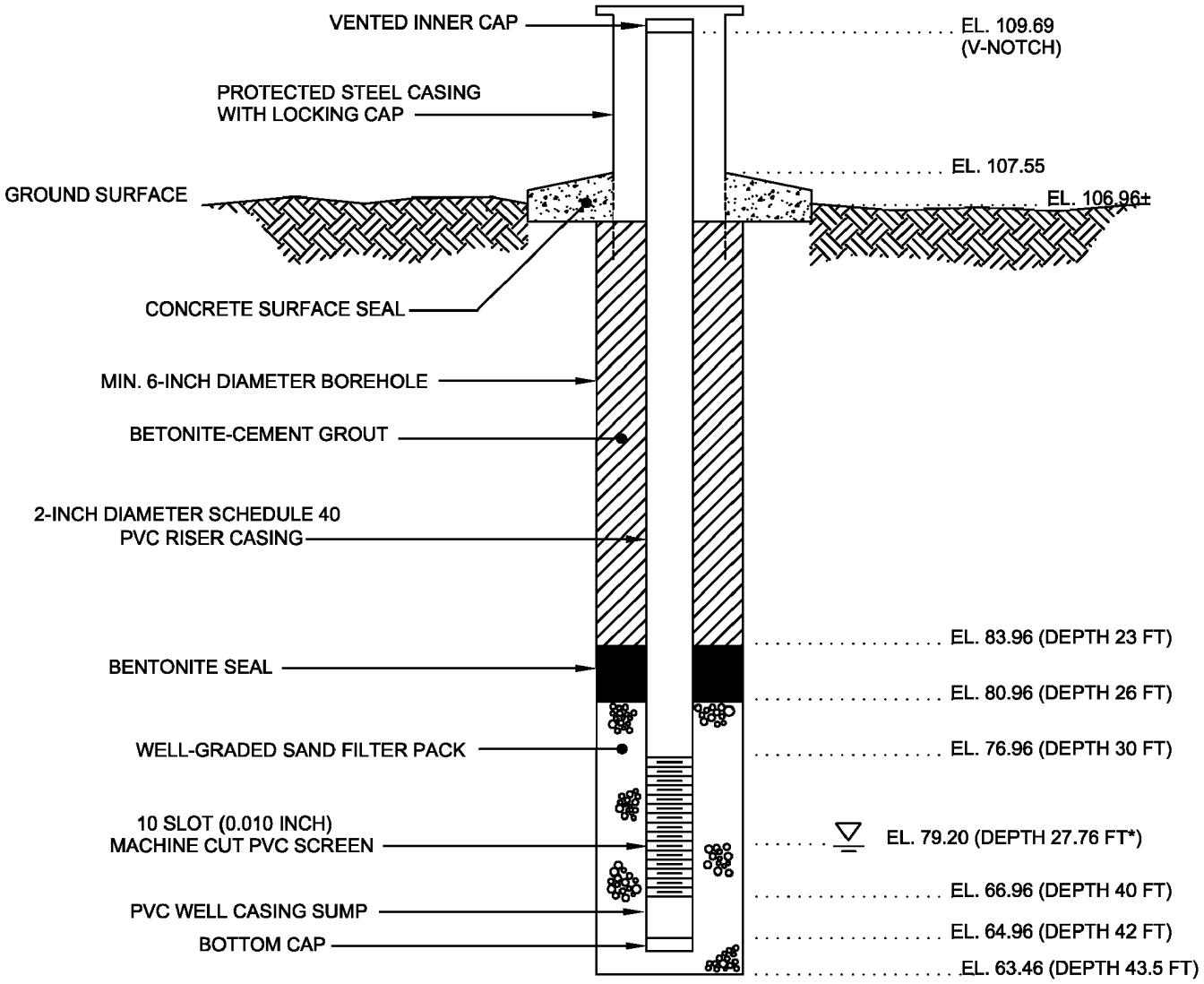
DATE COMPLETED : 07/17/2006

NORTHING: 217034.46

EASTING: 960057.07

GROUND SURFACE ELEVATION: 106.96

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	27.76	79.20



NOTES:
1) SEE B-323 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-323A.DWG

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WELL NO. : **OW-328**

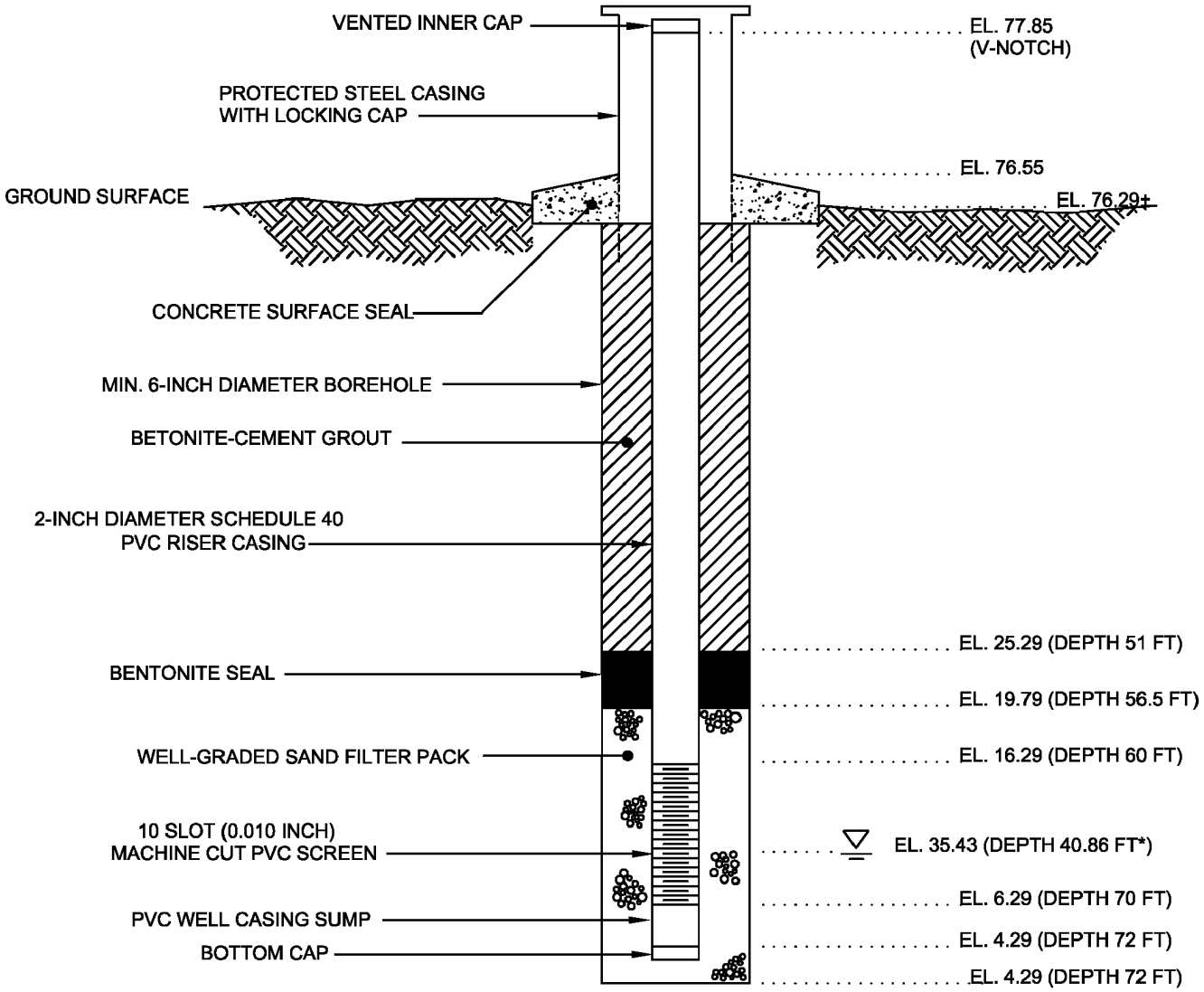
DATE COMPLETED : 06/29/2006

NORTHING: 216828.86

EASTING: 960493.21

GROUND SURFACE ELEVATION: 76.29

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	40.86	35.43



NOTES:
1) SEE B-328 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-328.DWG

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WELL NO. : **OW-336**

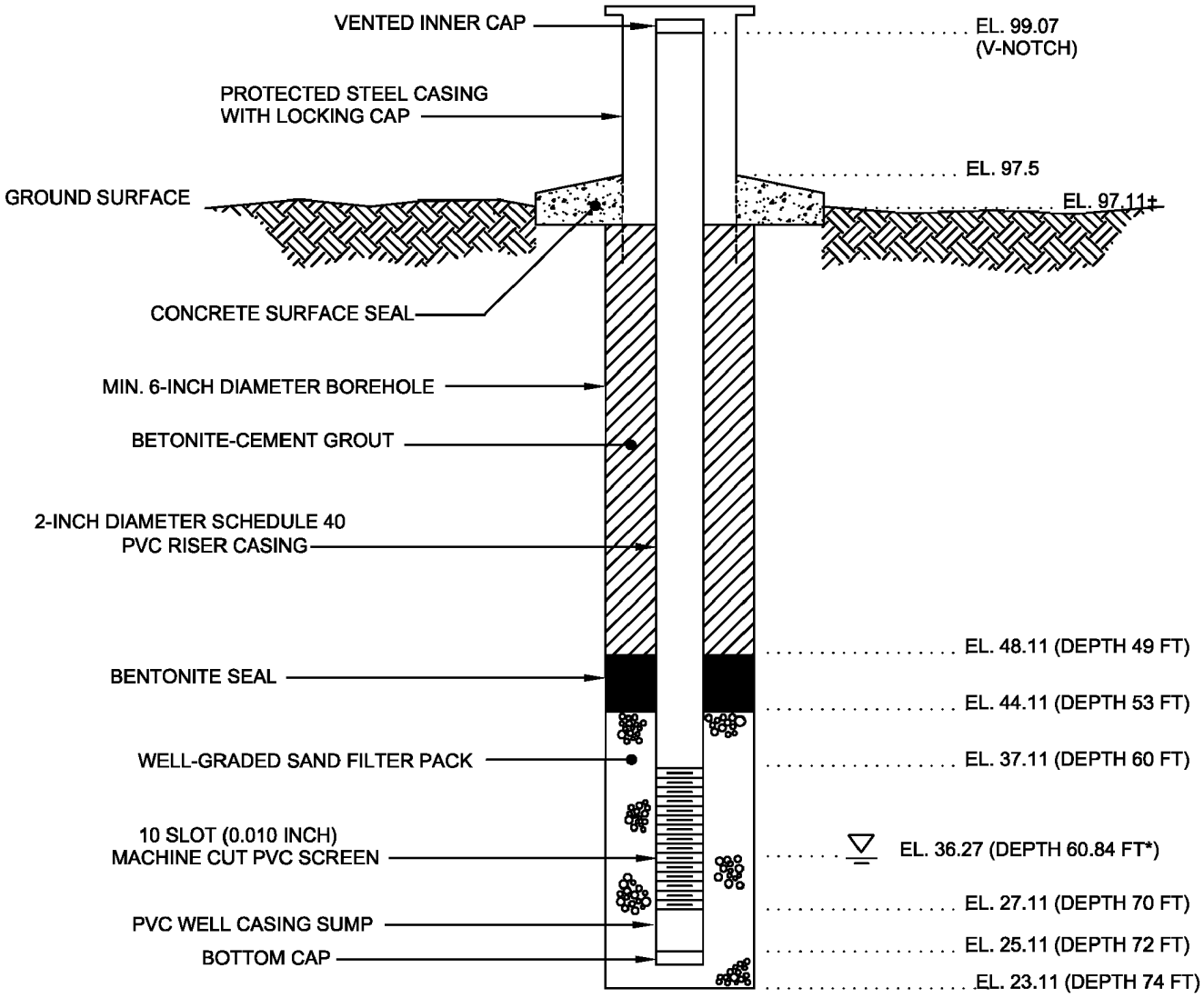
DATE COMPLETED : 06/30/2006

NORTHING: 216643.18

EASTING: 960746.61

GROUND SURFACE ELEVATION: 97.11

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-31-06	60.84	36.27



NOTES:
1) SEE B-336 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-336.DWG

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WELL NO. : **OW-401**

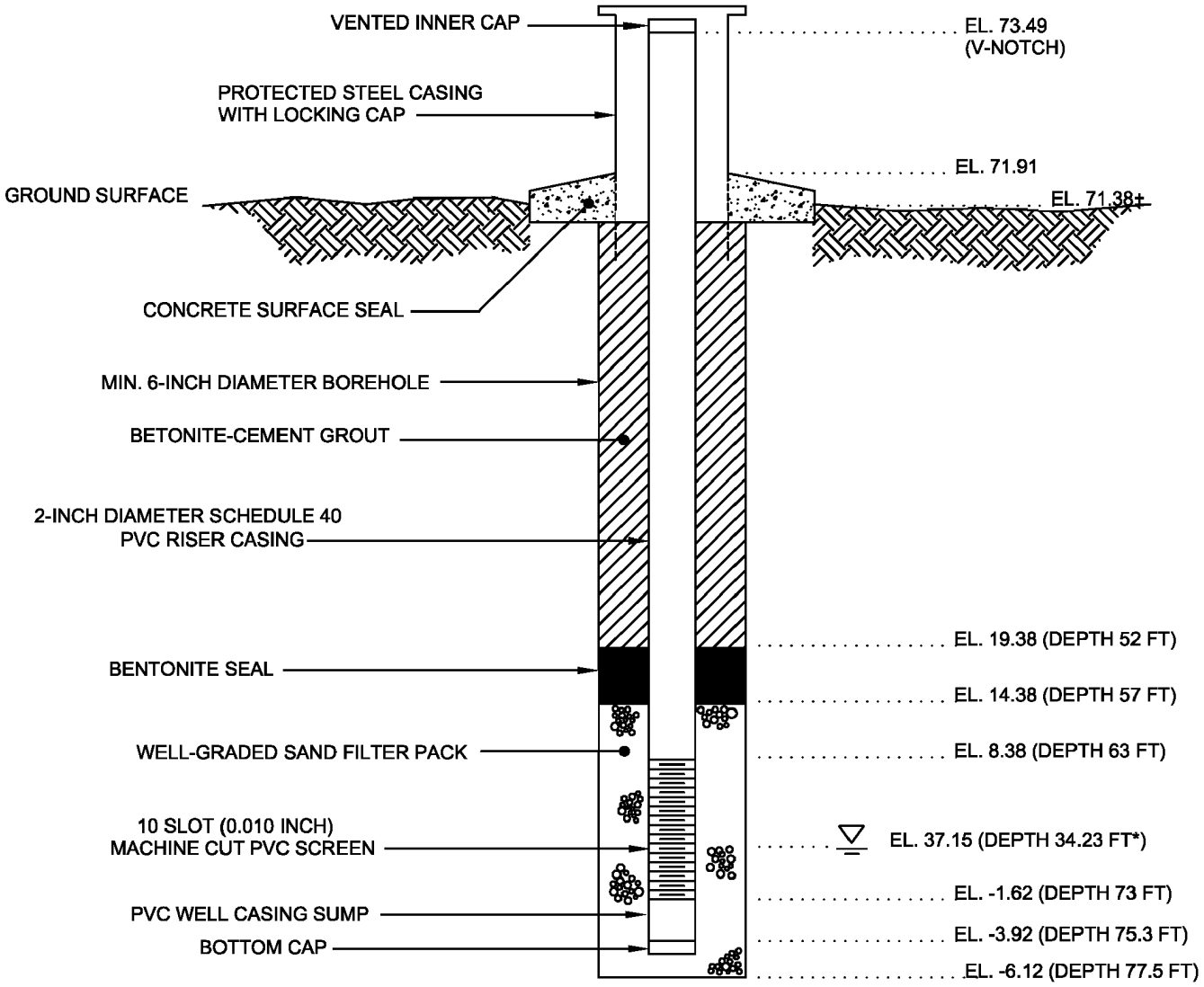
DATE COMPLETED : 06/30/2006

NORTHING: 216348.86

EASTING: 961530.99

GROUND SURFACE ELEVATION: 71.38

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-28-06	34.23	37.15



NOTES:
1) SEE B-401 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

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WELL NO. : **OW-413A**

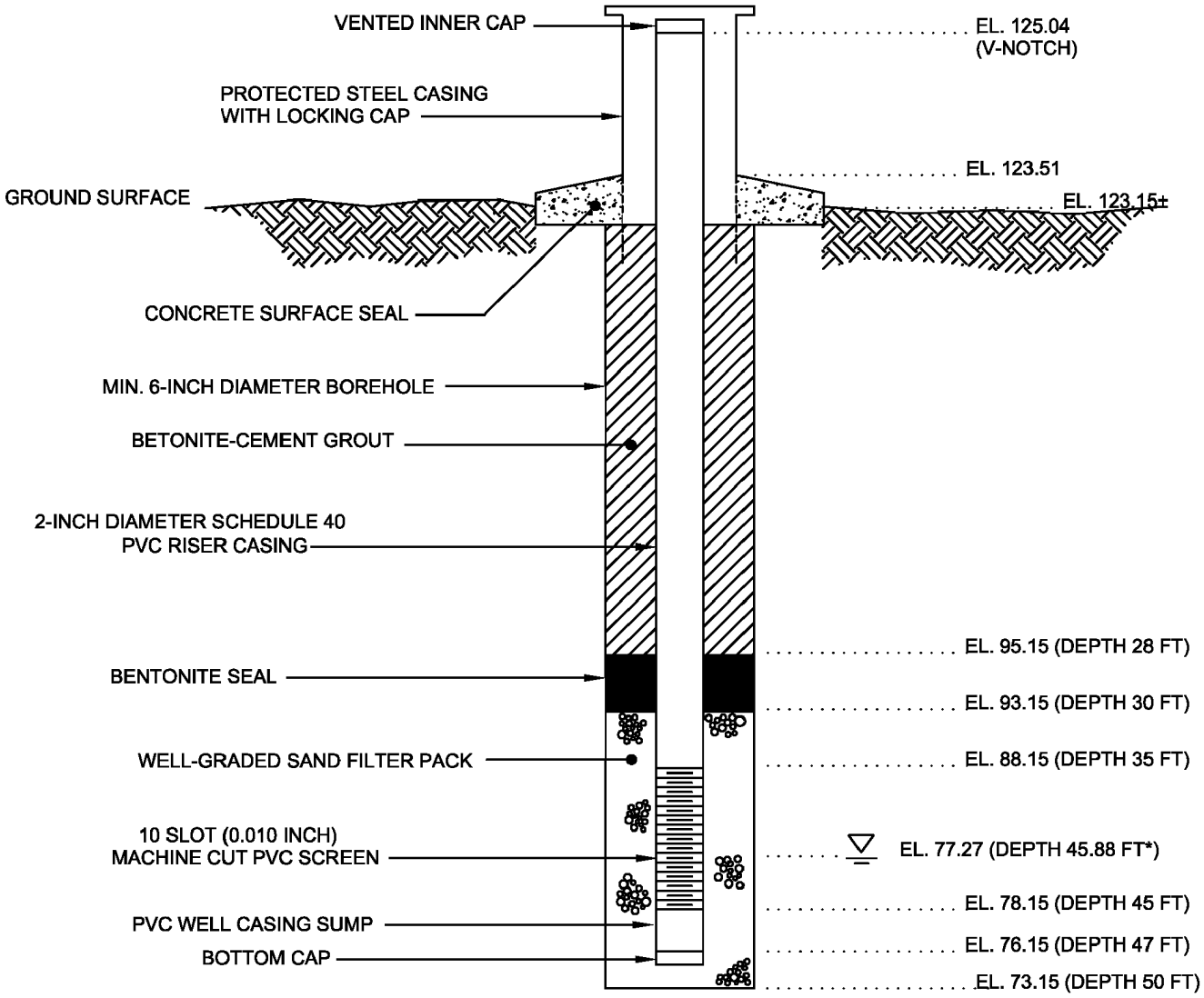
DATE COMPLETED : 05/16/2006

NORTHING: 216703.14

EASTING: 961418.81

GROUND SURFACE ELEVATION: 123.15

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-31-06	45.88	77.27



NOTES:
1) SEE B-413 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

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WELL NO. : **OW-413B**

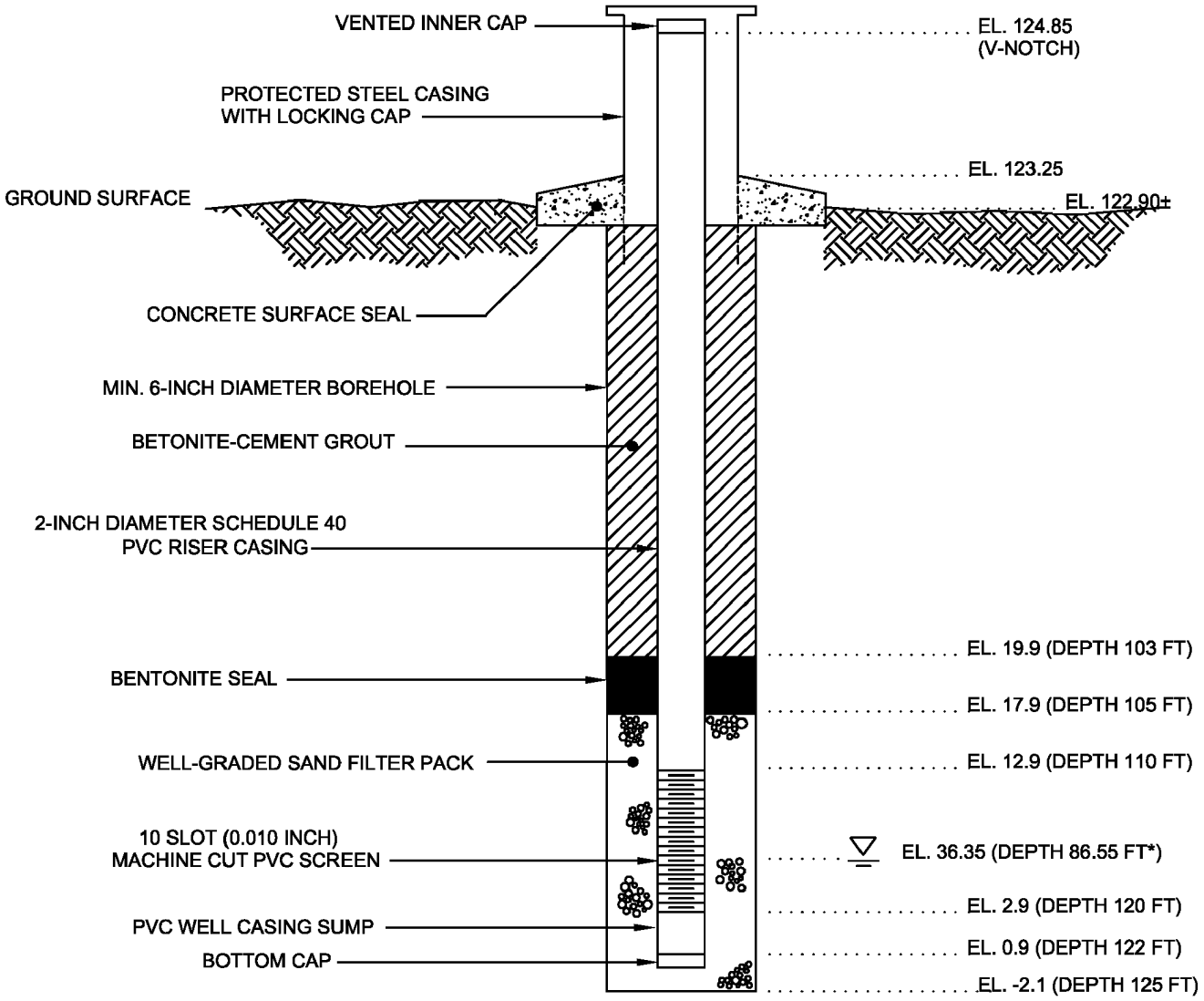
DATE COMPLETED : 05/16/2006

NORTHING: 216694.88

EASTING: 961413.25

GROUND SURFACE ELEVATION: 122.90

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-31-06	86.55	36.35



NOTES:
1) SEE B-413 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

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WELL NO. : **OW-418A**

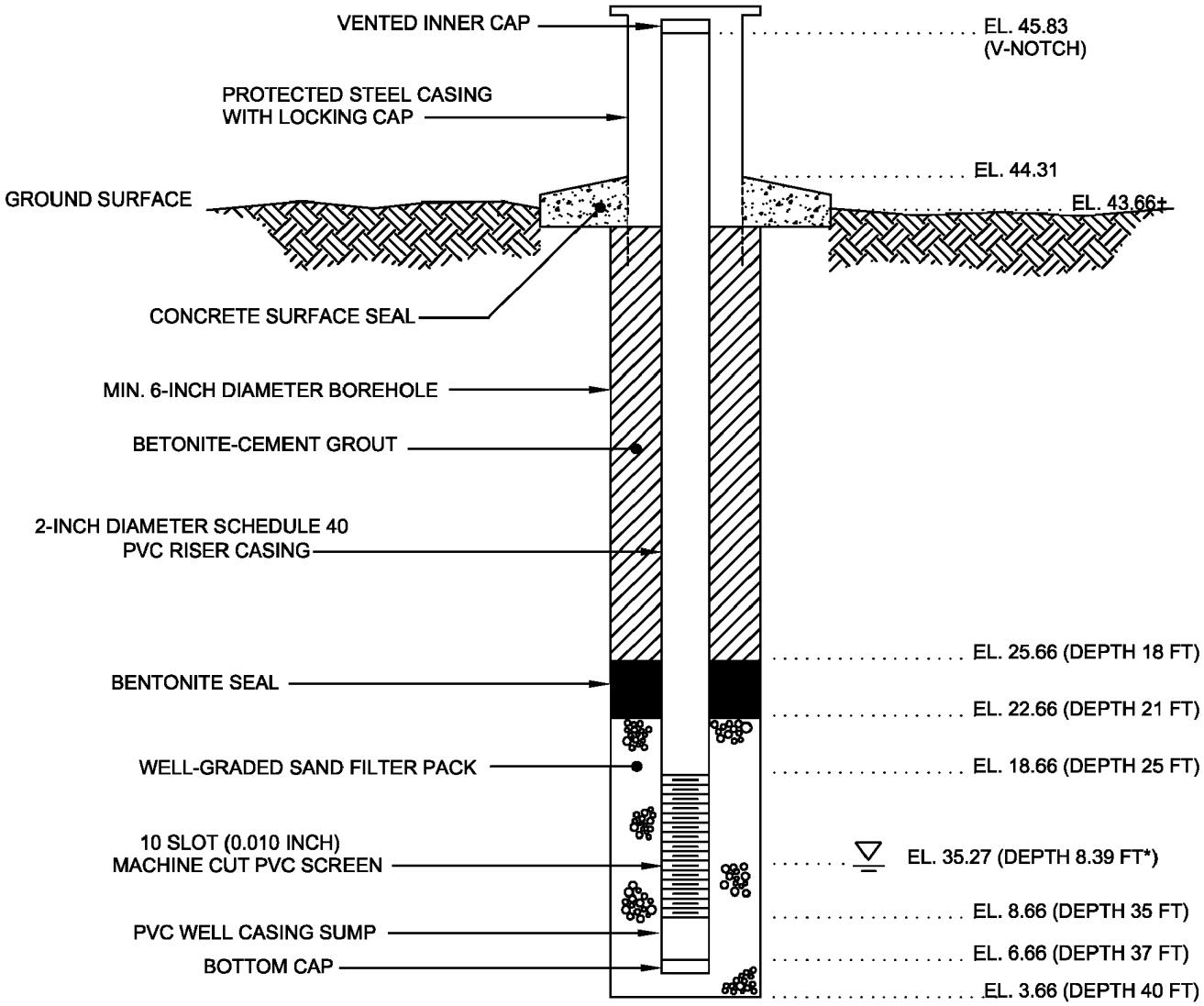
DATE COMPLETED : 07/06/2006

NORTHING: 216340.41

EASTING: 961966.46

GROUND SURFACE ELEVATION: 43.66

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-28-06	8.39	35.27



NOTES:
1) SEE B-418 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-418A.DWG

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WELL NO. : **OW-418B**

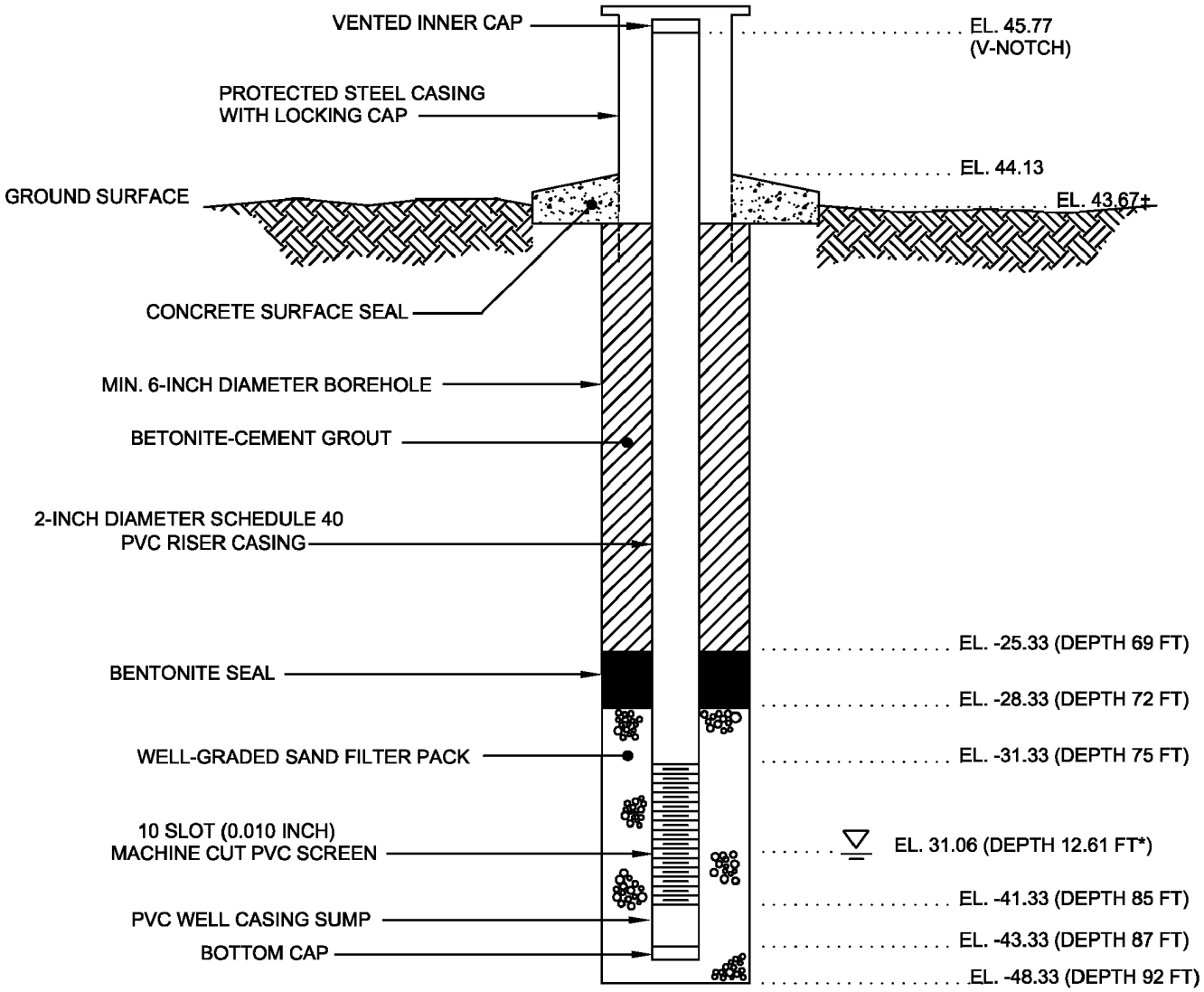
DATE COMPLETED : 07/06/2006

NORTHING: 216340.25

EASTING: 961976.71

GROUND SURFACE ELEVATION: 43.67

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-31-06	12.61	31.06



NOTES:
1) SEE B-418 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-418B.DWG

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WELL NO. : **OW-423**

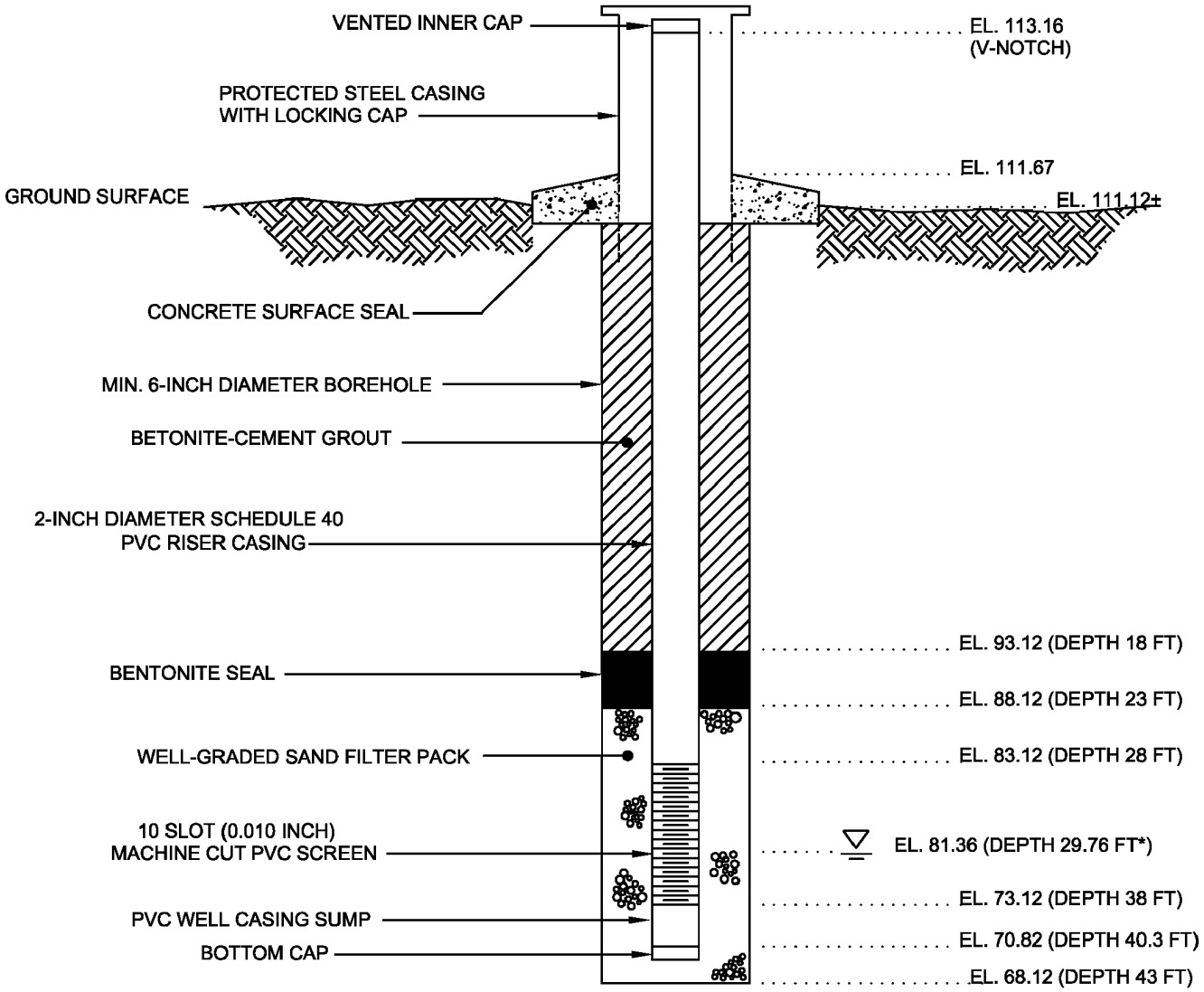
DATE COMPLETED : 07/06/2006

NORTHING: 216339.99

EASTING: 960882.24

GROUND SURFACE ELEVATION: 111.12

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-24-06	29.76	81.36



NOTES:
1) SEE B-423 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-423.DWG

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WELL NO. : **OW-428**

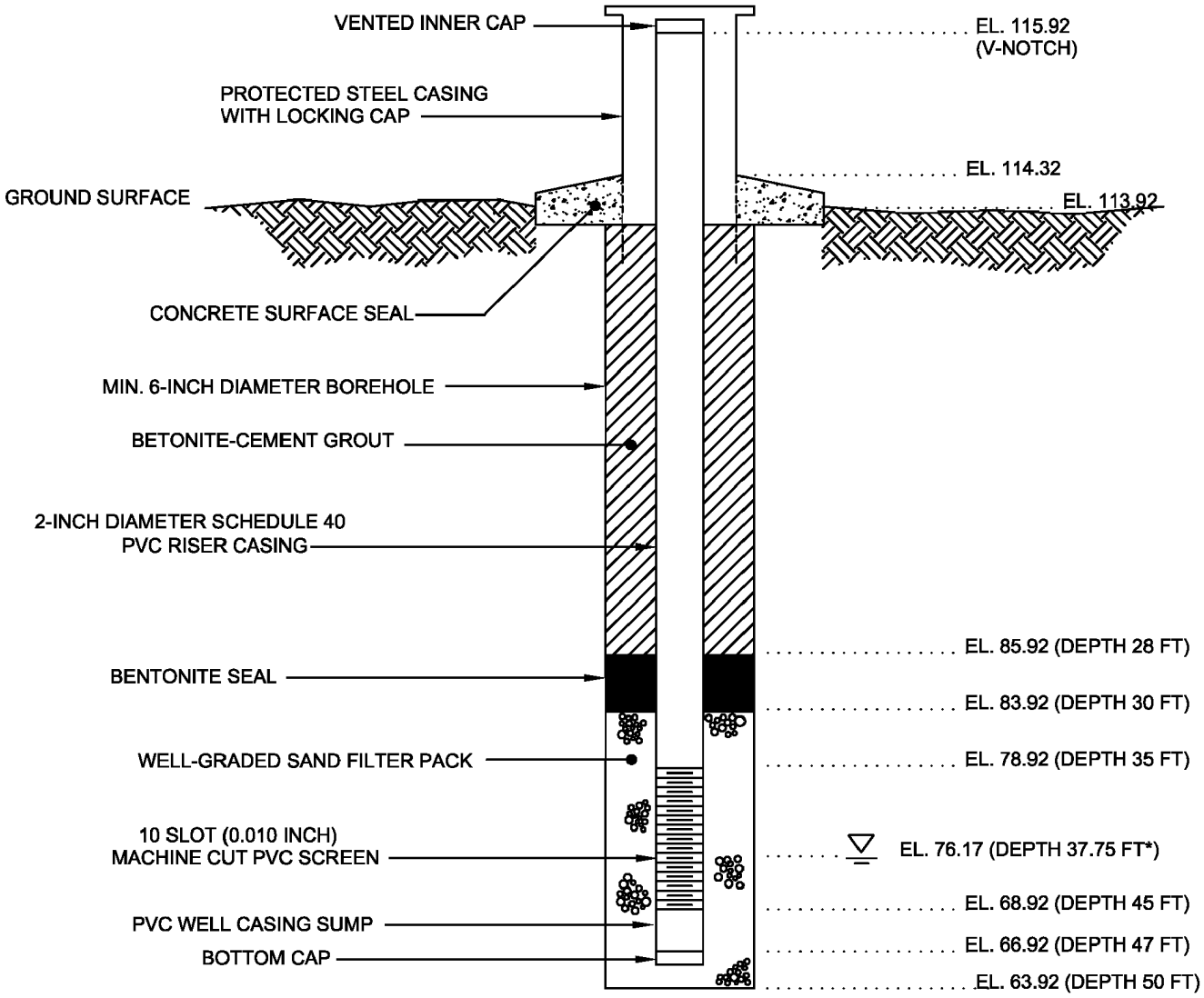
DATE COMPLETED : 05/19/2006

NORTHING: 216105.21

EASTING: 961212.38

GROUND SURFACE ELEVATION: 113.92

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-24-06	37.75	76.17



NOTES:
1) SEE B-428 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-428A.DWG

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WELL NO. : **OW-436**

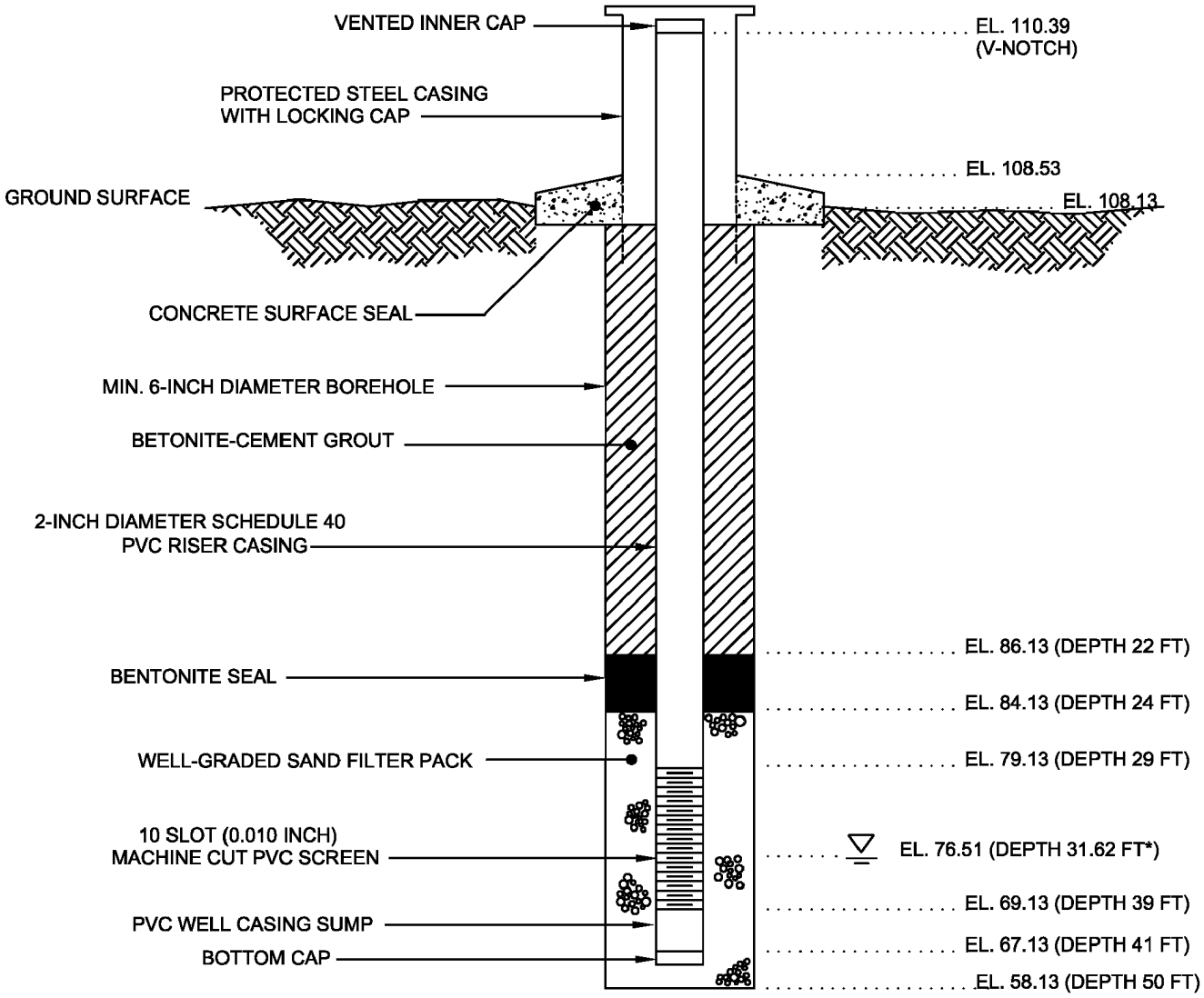
DATE COMPLETED : 05/22/2006

NORTHING: 215922.47

EASTING: 961446.87

GROUND SURFACE ELEVATION: 108.13

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	31.62	76.51



NOTES:
1) SEE B-436 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-436A.DWG

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WELL NO. : **OW-703A**

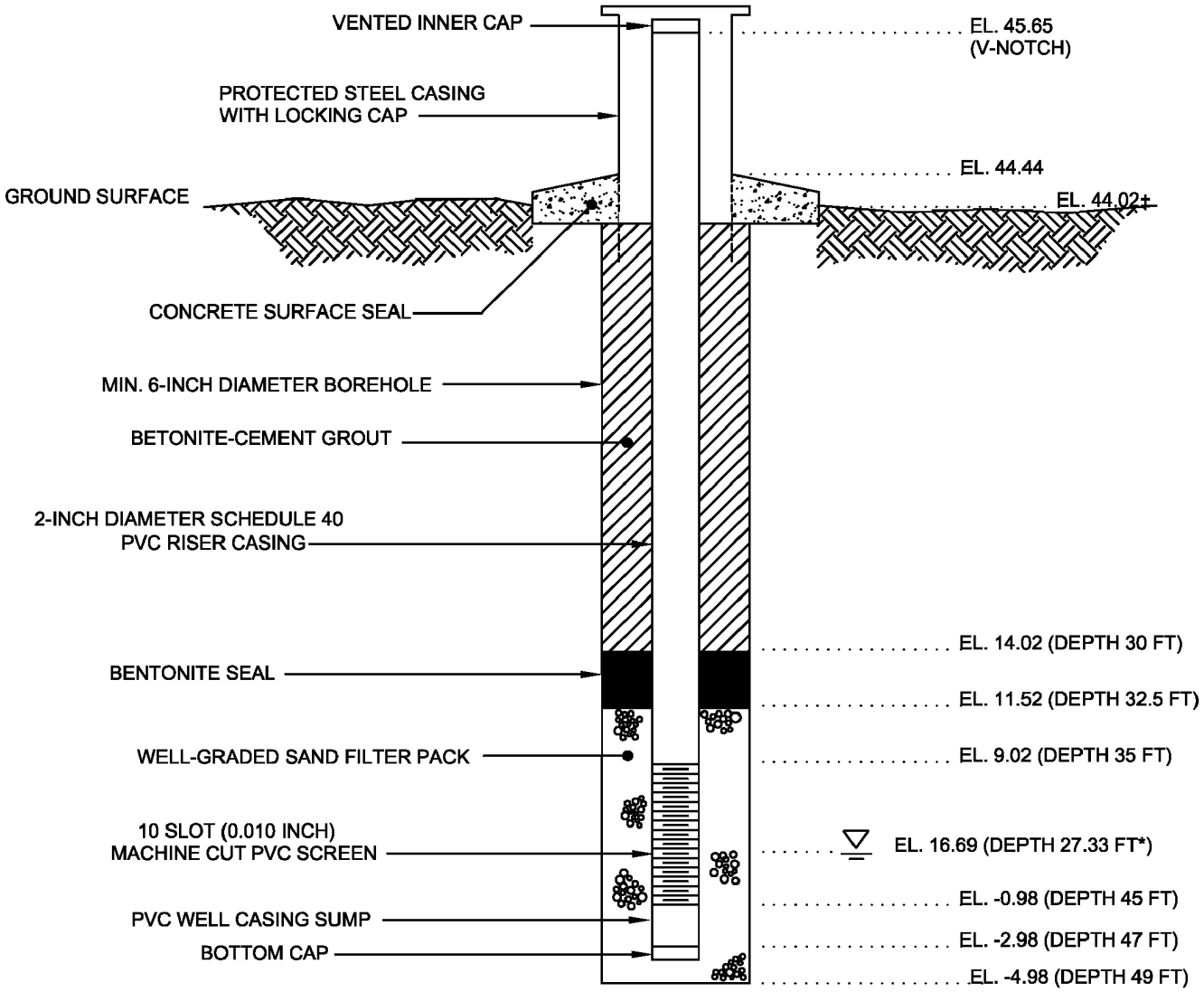
DATE COMPLETED : 07/12/2006

NORTHING: 218171.23

EASTING: 960967.72

GROUND SURFACE ELEVATION: 44.02

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	27.33	16.69



NOTES:
1) SEE B-703 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

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WELL NO. : **OW-703B**

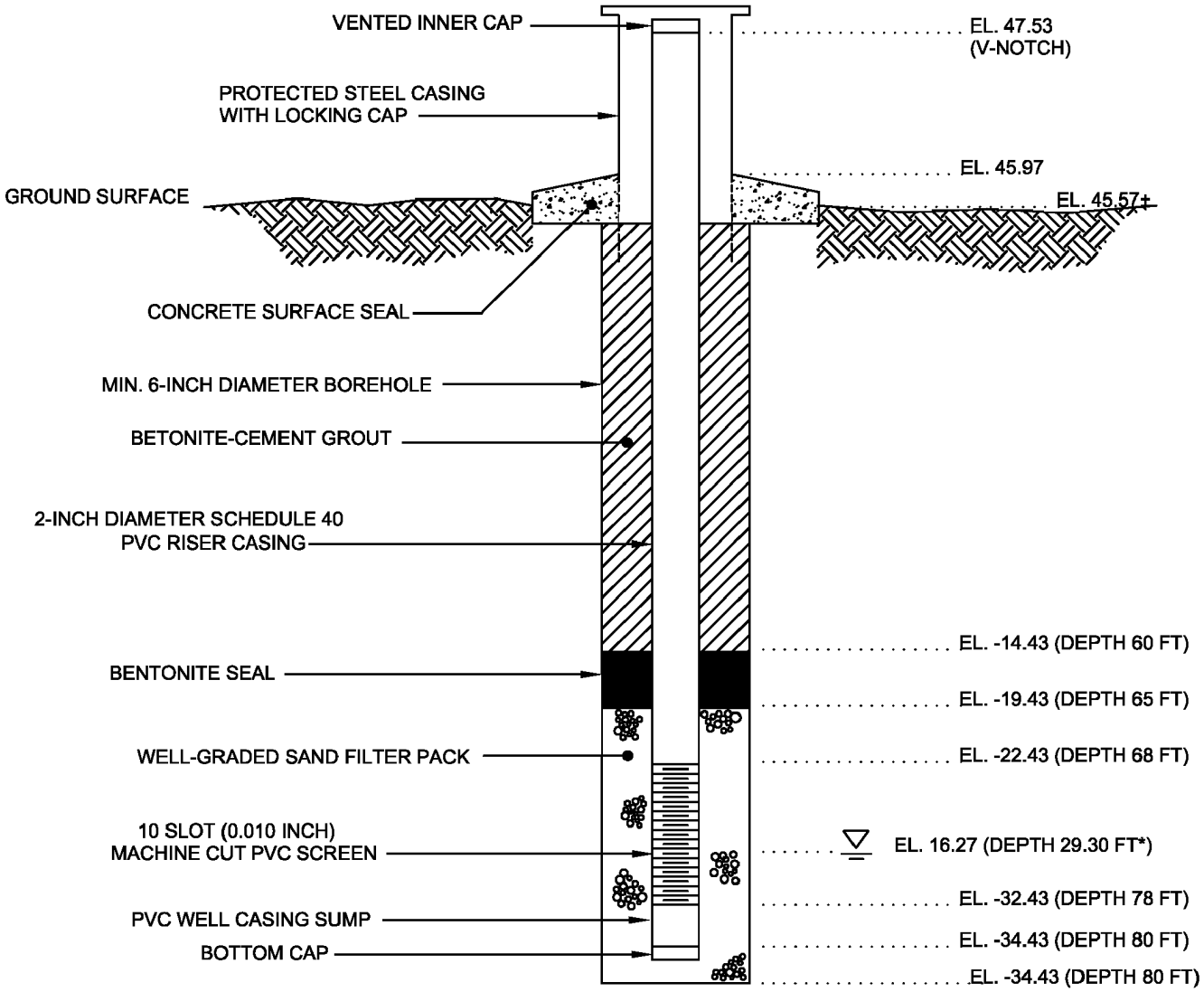
DATE COMPLETED : 07/12/2006

NORTHING: 218171.67

EASTING: 960958.91

GROUND SURFACE ELEVATION: 45.57

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	29.30	16.27



NOTES:
1) SEE B-703 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-703B.DWG

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WELL NO. : **OW-705**

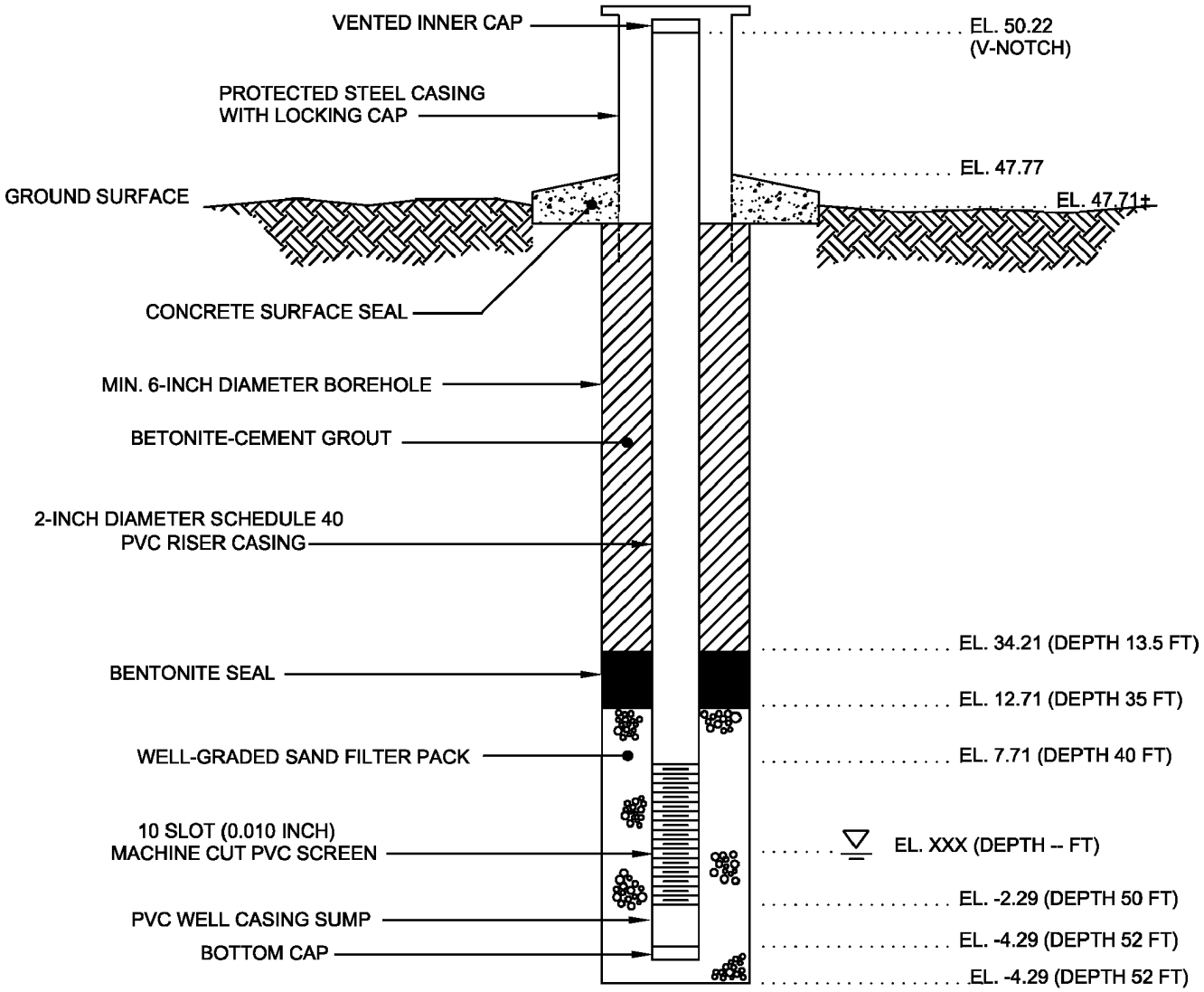
DATE COMPLETED : 06/28/2006

NORTHING: 217566.62

EASTING: 960917.18

GROUND SURFACE ELEVATION: 47.71

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT)	ELEVATION (FT)



NOTES: 1) SEE B-705 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED

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WELL NO. : **OW-708A**

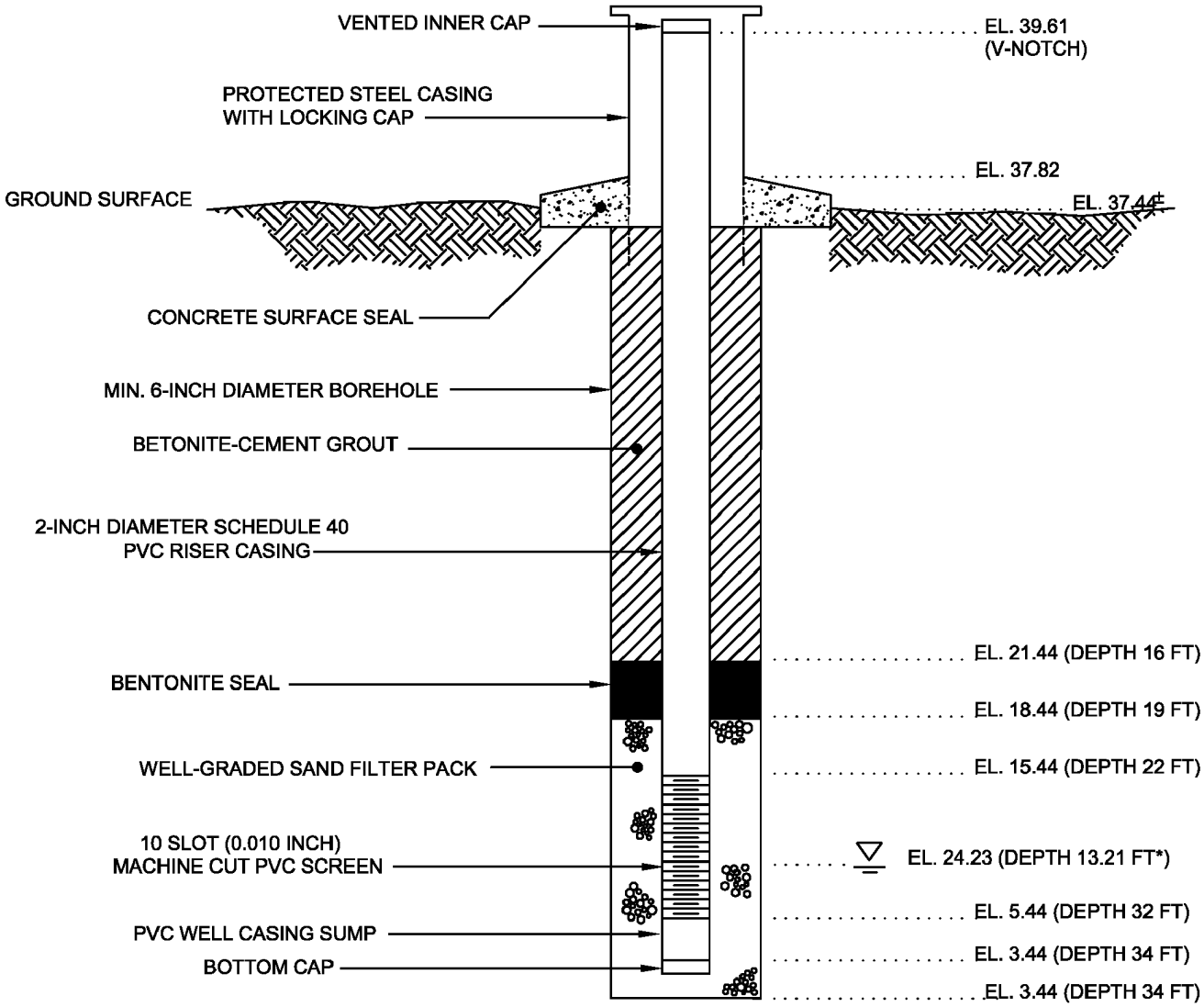
DATE COMPLETED : 06/21/2006

NORTHING: 217586.23

EASTING: 961803.52

GROUND SURFACE ELEVATION: 37.44

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-24-06	13.21	24.23



NOTES:
1) SEE B-708 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-708.DWG

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WELL NO. : **OW-711**

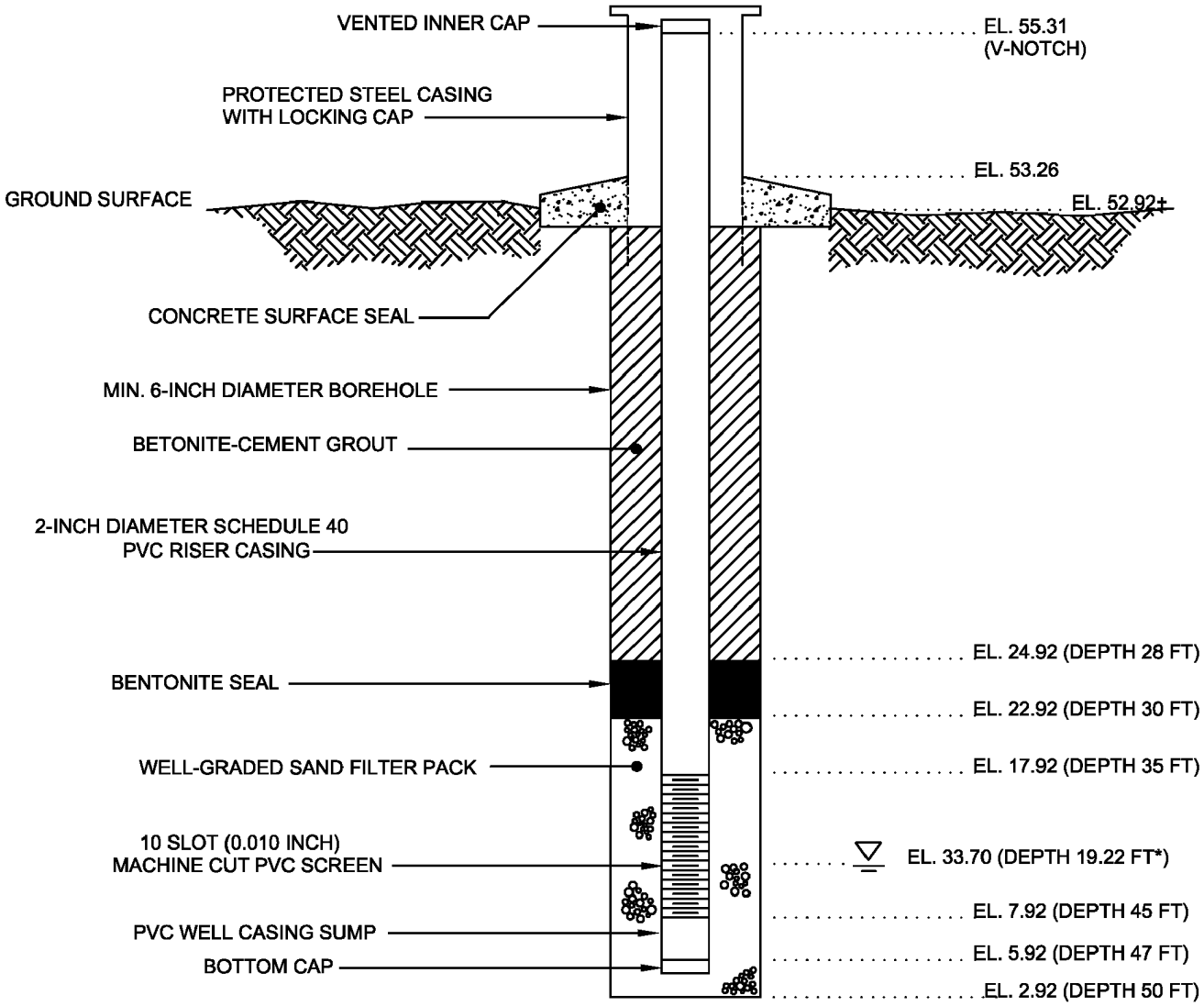
DATE COMPLETED : 05/22/2006

NORTHING: 216748.48

EASTING: 961741.61

GROUND SURFACE ELEVATION: 52.92

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-24-06	19.22	33.70



NOTES:
1) SEE B-711 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-711.DWG

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WELL NO. : **OW-714**

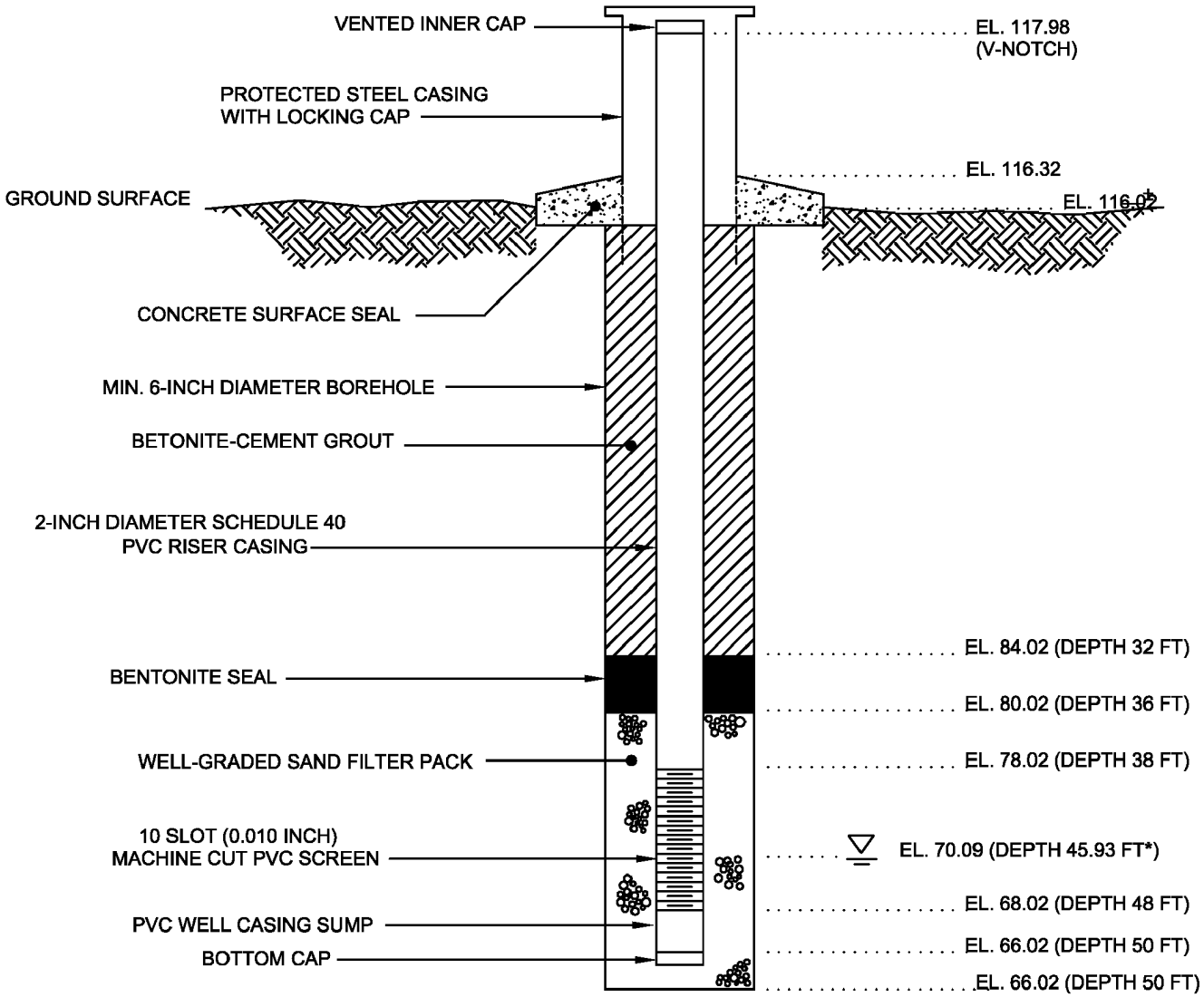
DATE COMPLETED : 06/27/2006

NORTHING: 215705.73

EASTING: 962034.37

GROUND SURFACE ELEVATION: 116.02

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	45.93	70.09



NOTES:
1) SEE B-714 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-714.DWG

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WELL NO. : **OW-718**

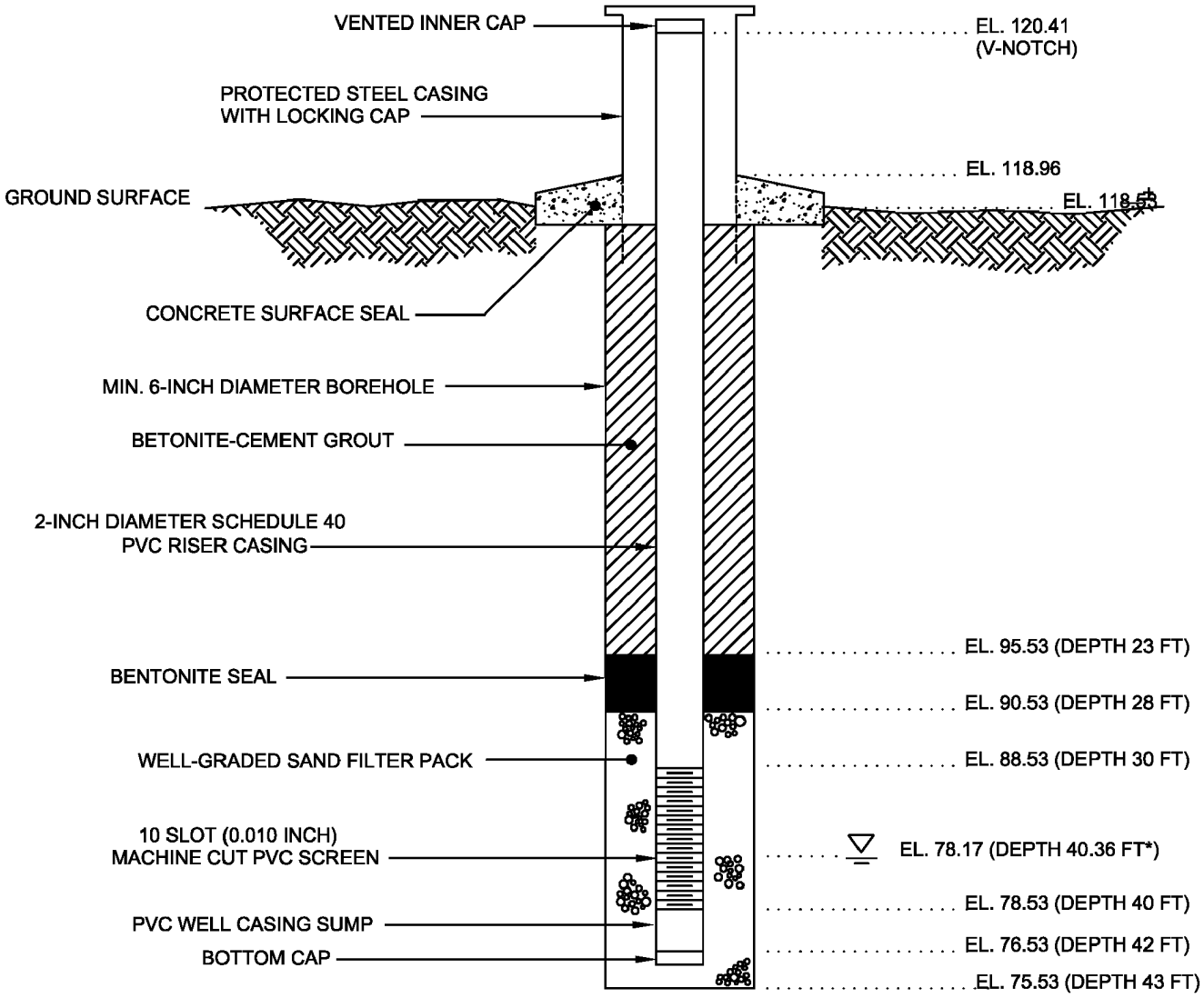
DATE COMPLETED : 06/21/2006

NORTHING: 214133.58

EASTING: 961924.87

GROUND SURFACE ELEVATION: 118.53

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	40.36	78.17



NOTES:
1) SEE B-718 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-718.DWG

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WELL NO. : **OW-725**

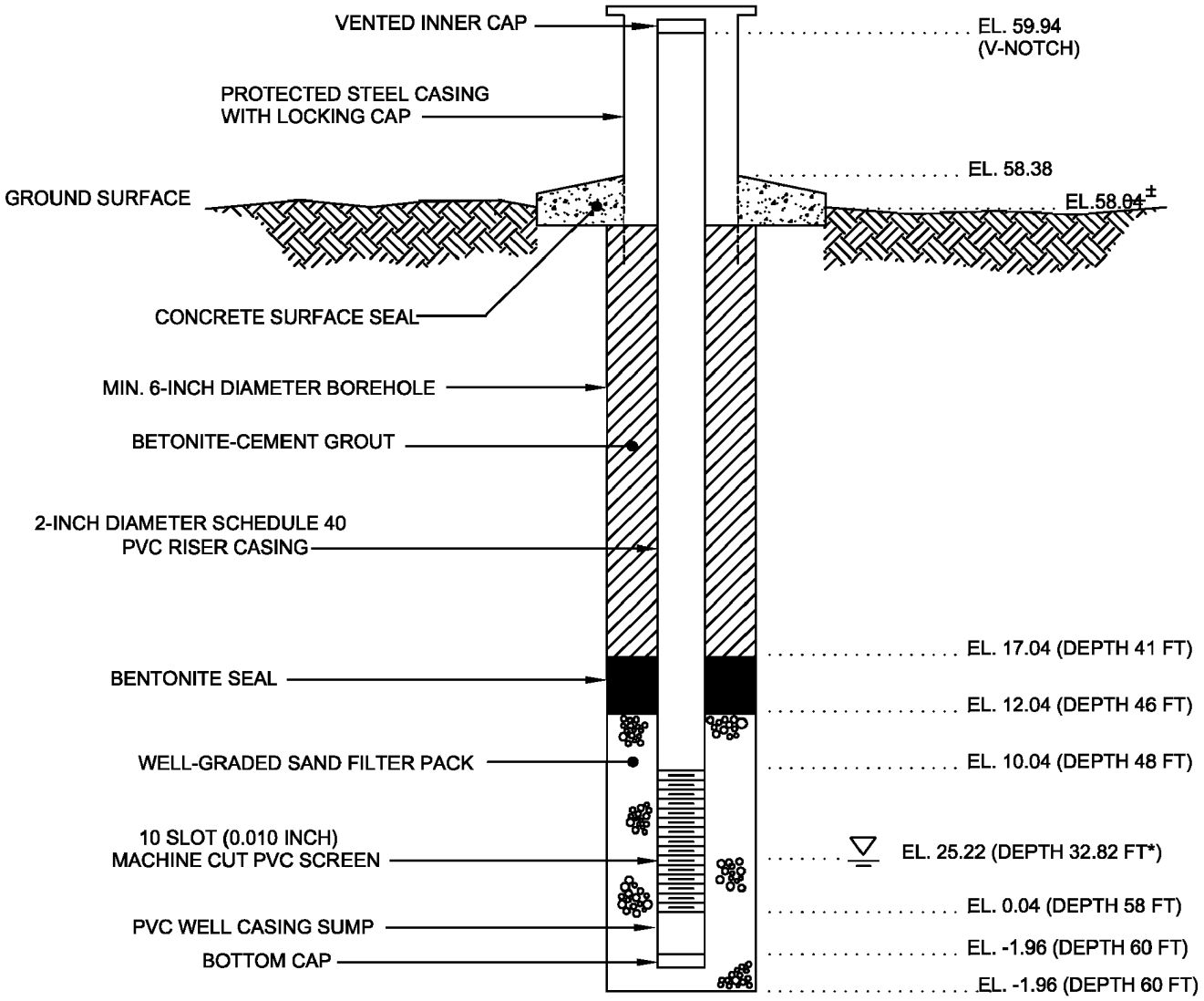
DATE COMPLETED : 06/272006

NORTHING: 214649.30

EASTING: 963212.73

GROUND SURFACE ELEVATION: 58.04

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	32.82	25.22



NOTES:
1) SEE B-725 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-725.DWG

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WELL NO. : **OW-729**

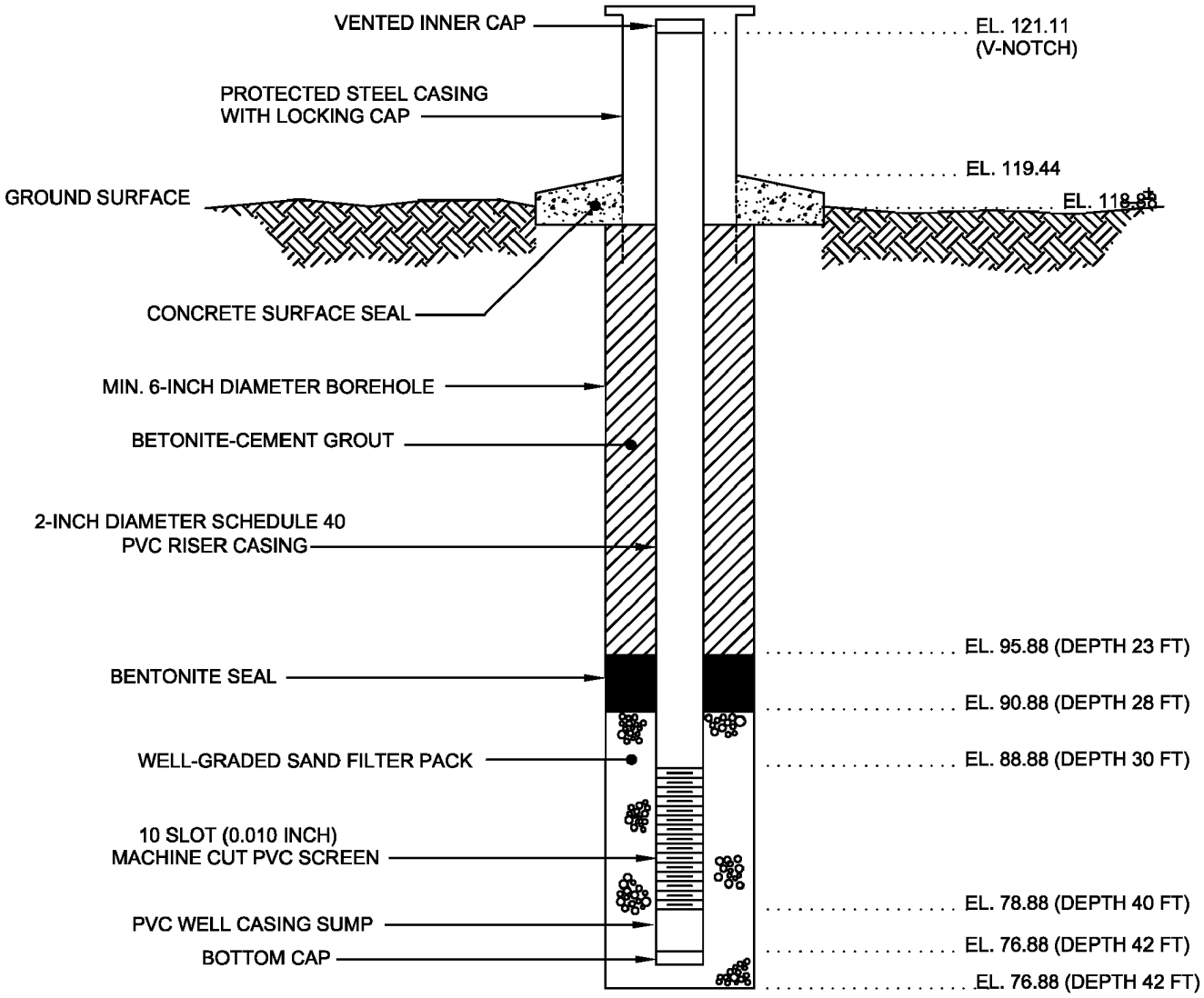
DATE COMPLETED : 06/23/2006

NORTHING: 214872.58

EASTING: 962445.93

GROUND SURFACE ELEVATION: 118.88

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	DRY	-------



NOTES:
1) SEE B-729 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-729.DWG

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WELL NO. : **OW-735**

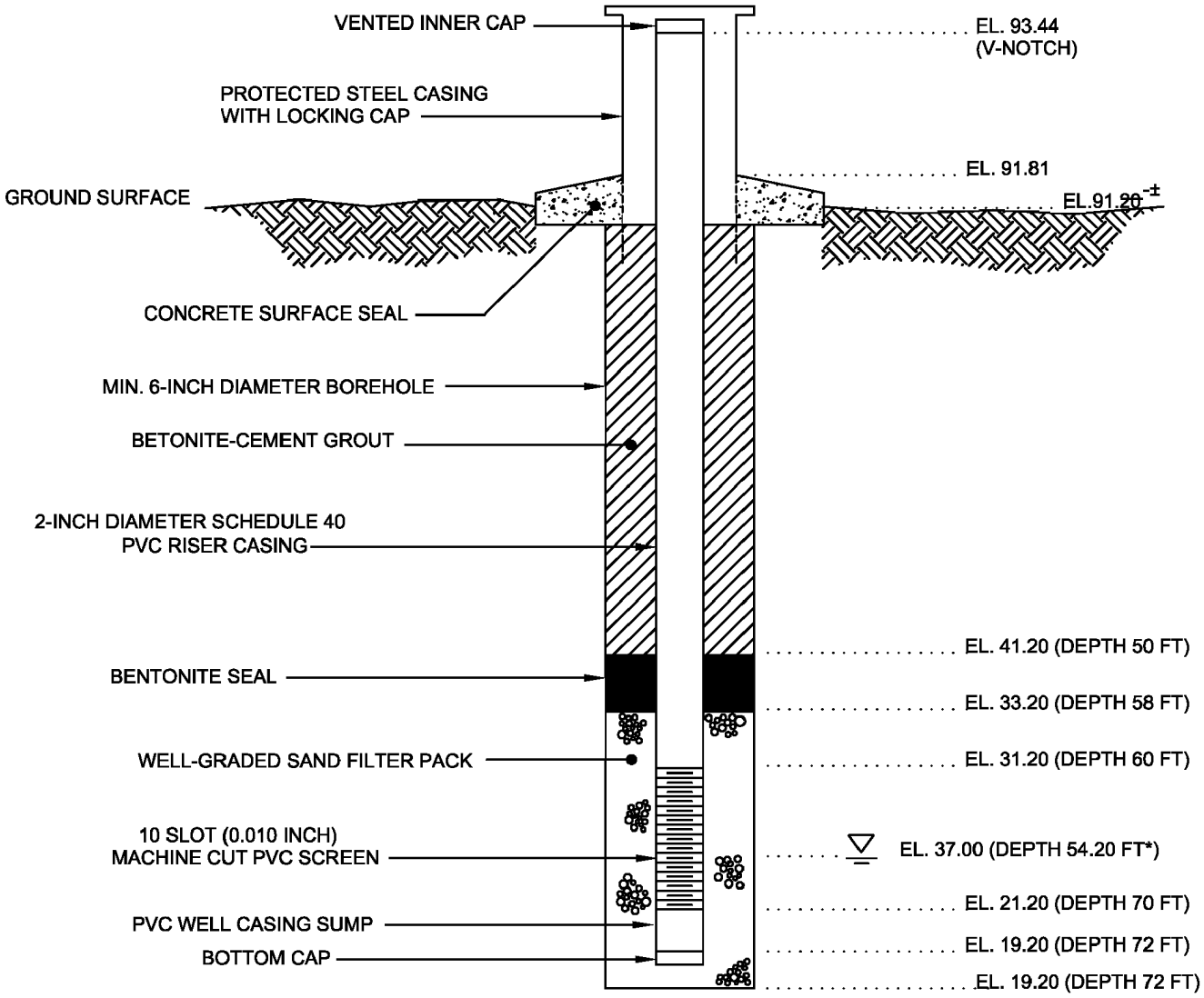
DATE COMPLETED : 06/29/2006

NORTHING: 214805.48

EASTING: 961021.83

GROUND SURFACE ELEVATION: 91.20

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	54.20	37.00



NOTES:
1) SEE B-735 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-735.DWG

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WELL NO. : **OW-743**

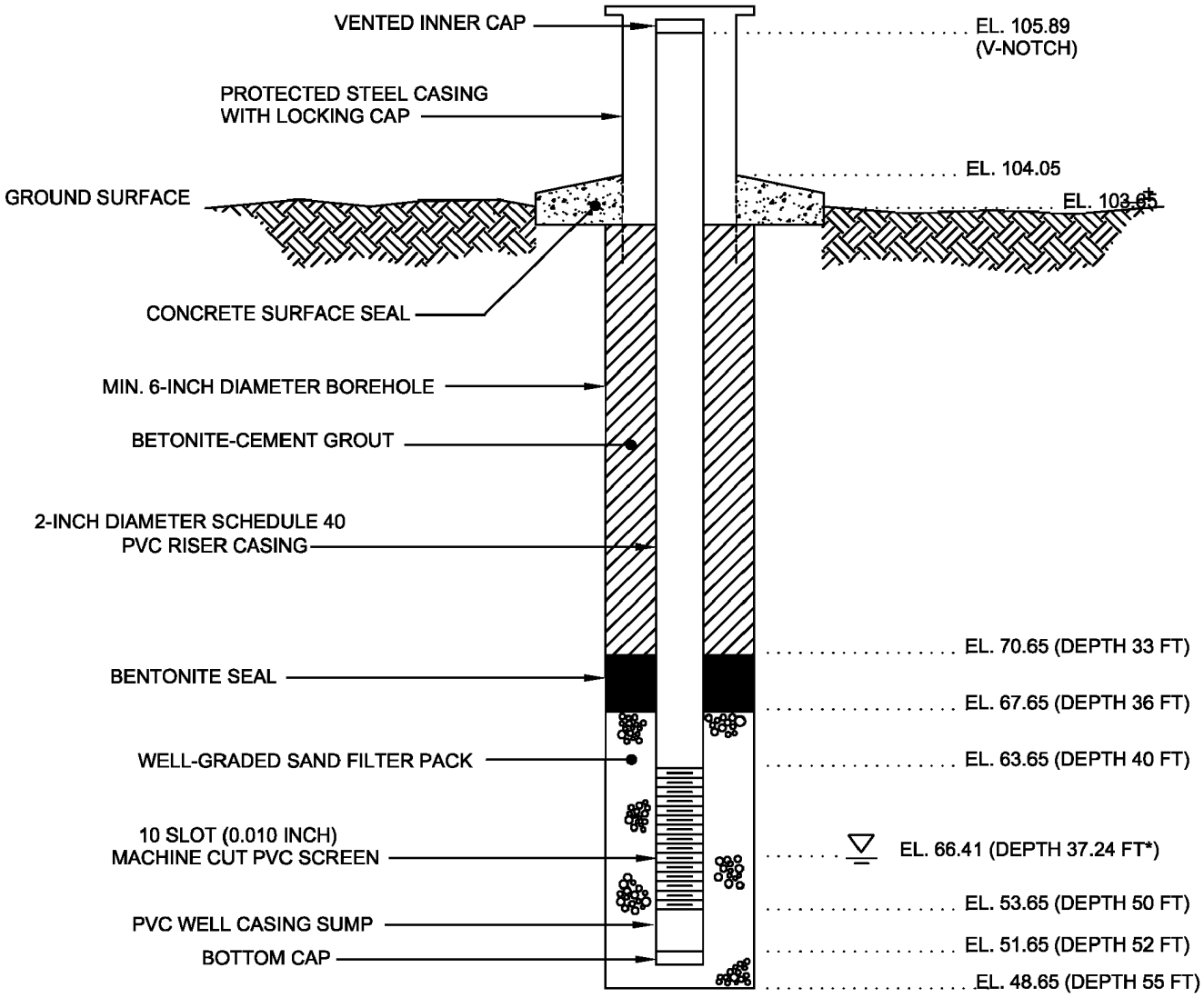
DATE COMPLETED : 07/11/2006

NORTHING: 213320.62

EASTING: 961234.01

GROUND SURFACE ELEVATION: 103.65

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	37.24	66.41



NOTES:
1) SEE B-743 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-743.DWG

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WELL NO. : **OW-744**

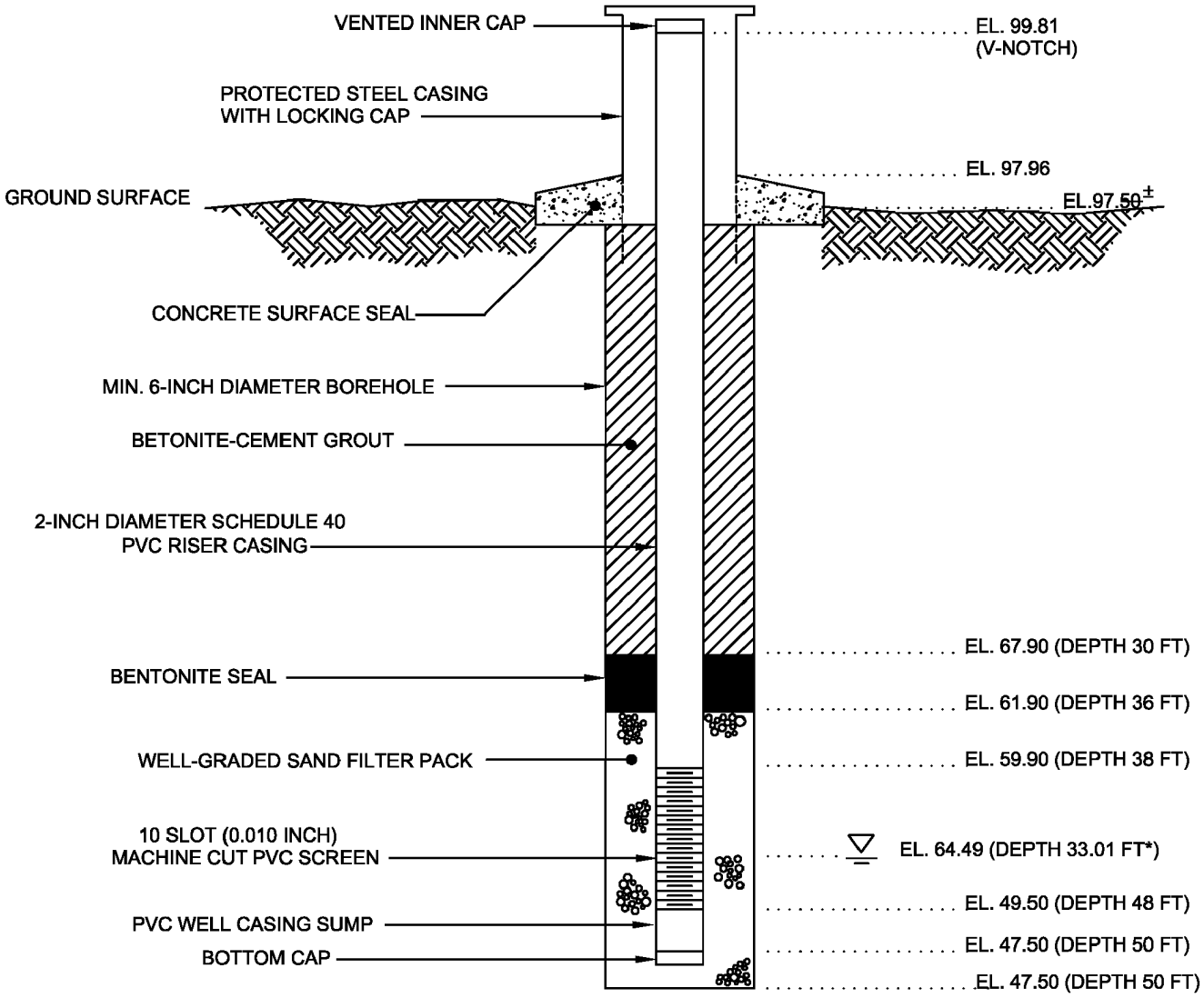
DATE COMPLETED : 06/21/2006

NORTHING: 216405.37

EASTING: 960089.41

GROUND SURFACE ELEVATION: 97.50

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	33.01	64.49



NOTES:
1) SEE B-744 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-744.DWG

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WELL NO. : **OW-752A**

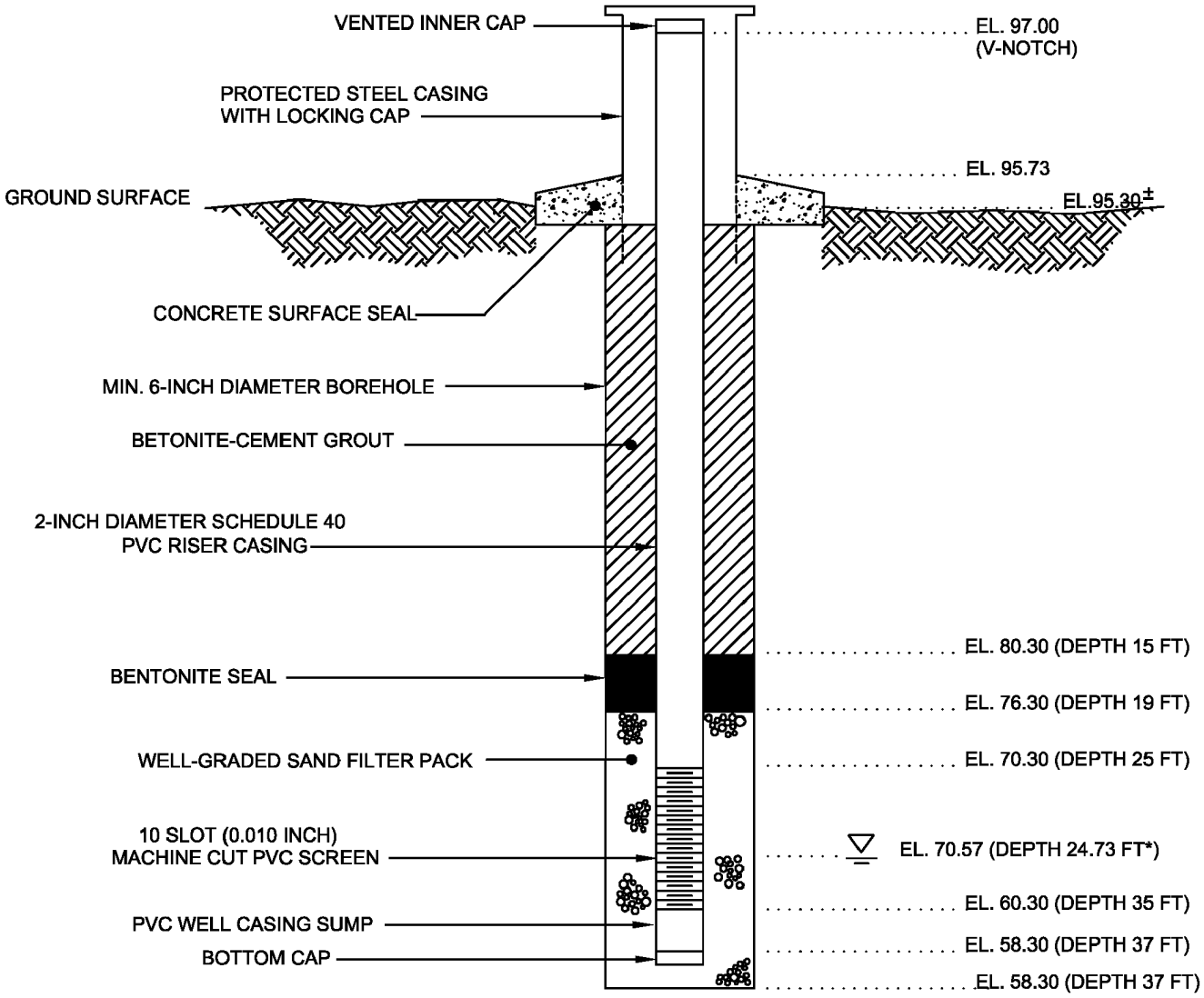
DATE COMPLETED : 07/07/2006

NORTHING: 215482.18

EASTING: 960250.12

GROUND SURFACE ELEVATION: 95.30

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	24.73	70.57



NOTES:
1) SEE B-752 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-752A.DWG

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WELL NO. : **OW-752B**

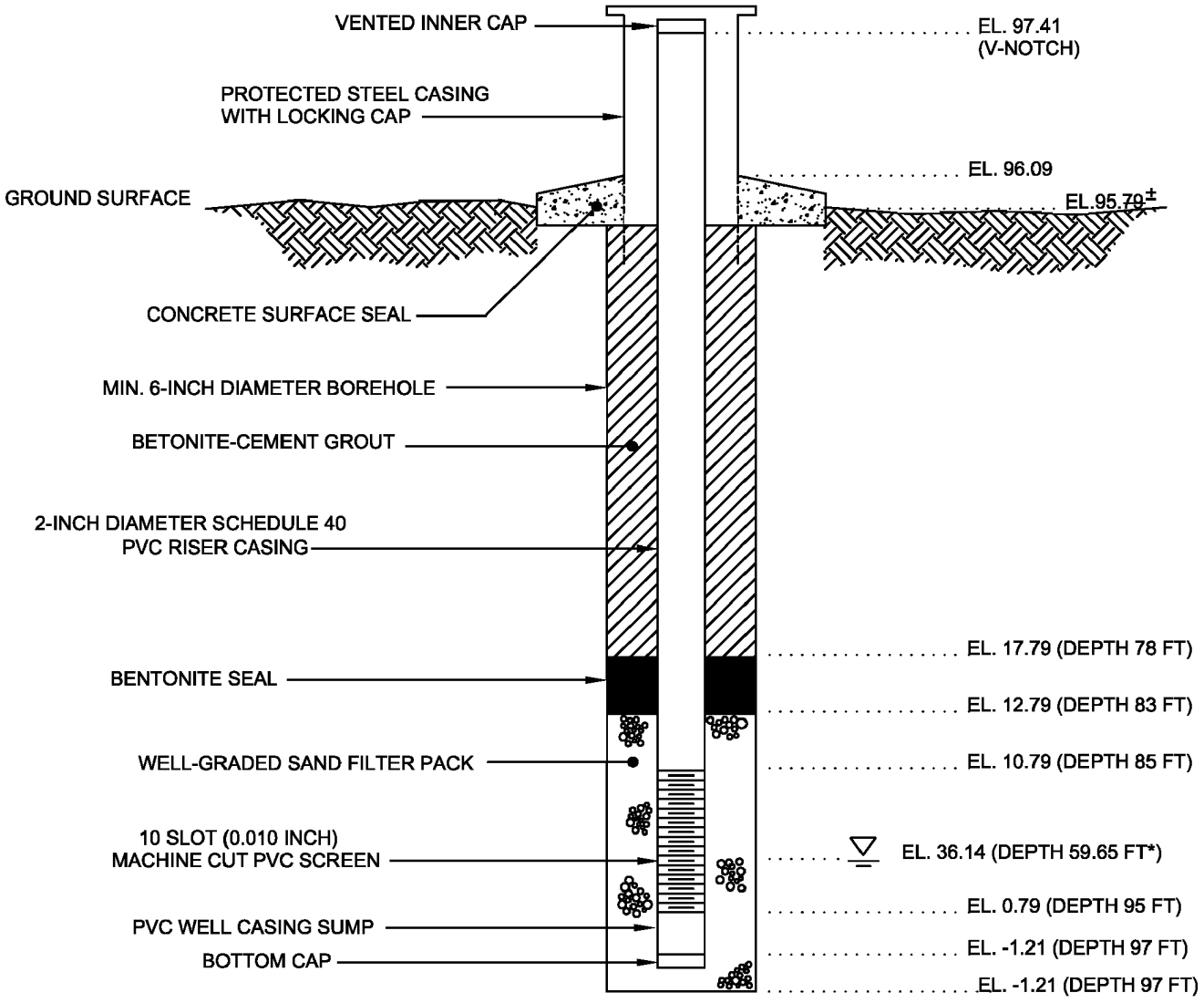
DATE COMPLETED : 07/07/2006

NORTHING: 215489.21

EASTING: 960257.57

GROUND SURFACE ELEVATION: 95.79

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	59.65	36.14



NOTES:
1) SEE B-752 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-752B.DWG

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WELL NO. : **OW-754**

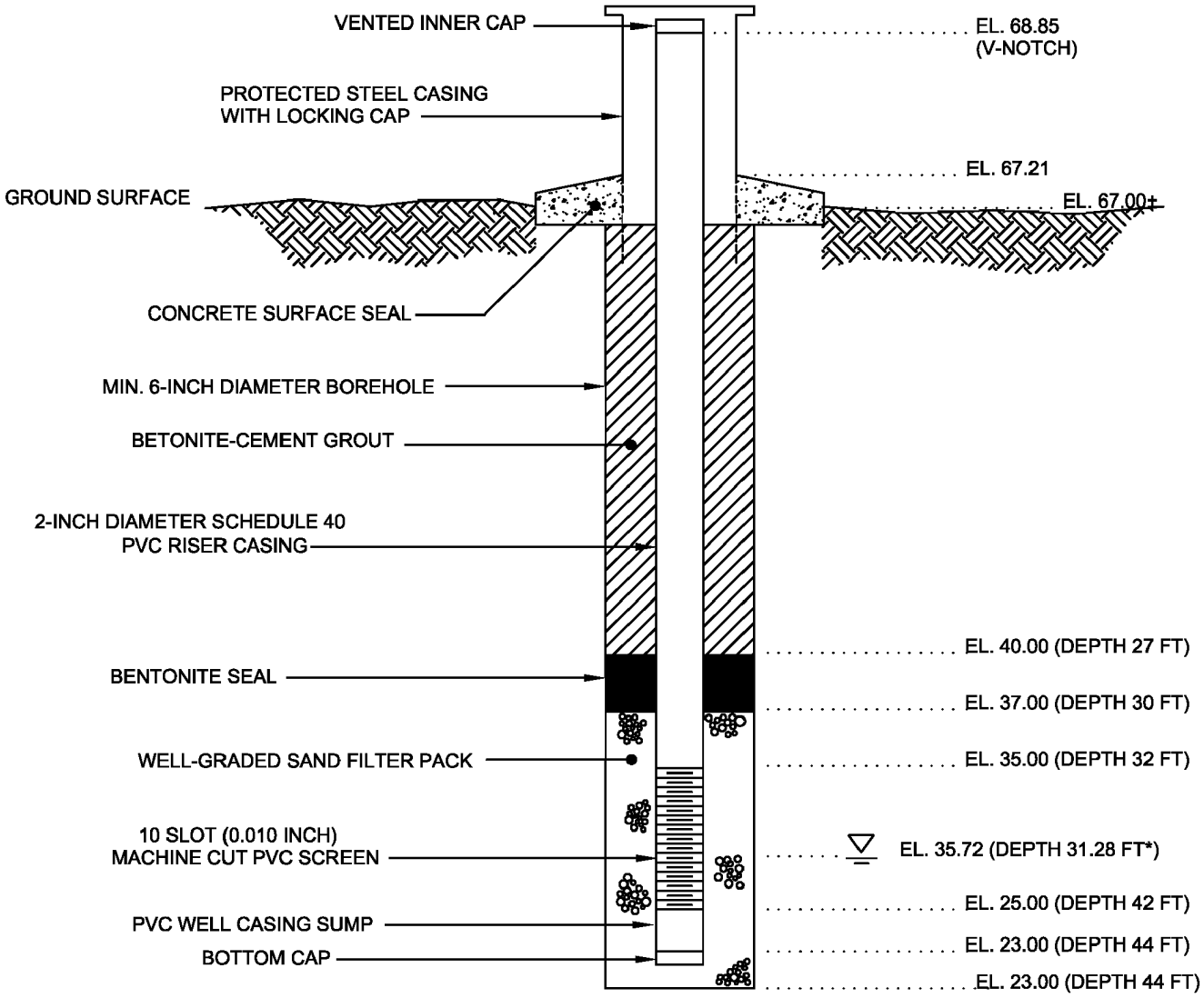
DATE COMPLETED : 07/06/2006

NORTHING: 217369.78

EASTING: 960290.37

GROUND SURFACE ELEVATION: 67.00

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	31.28	35.72



NOTES:
1) SEE B-754 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-754.DWG

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WELL NO. : **OW-756**

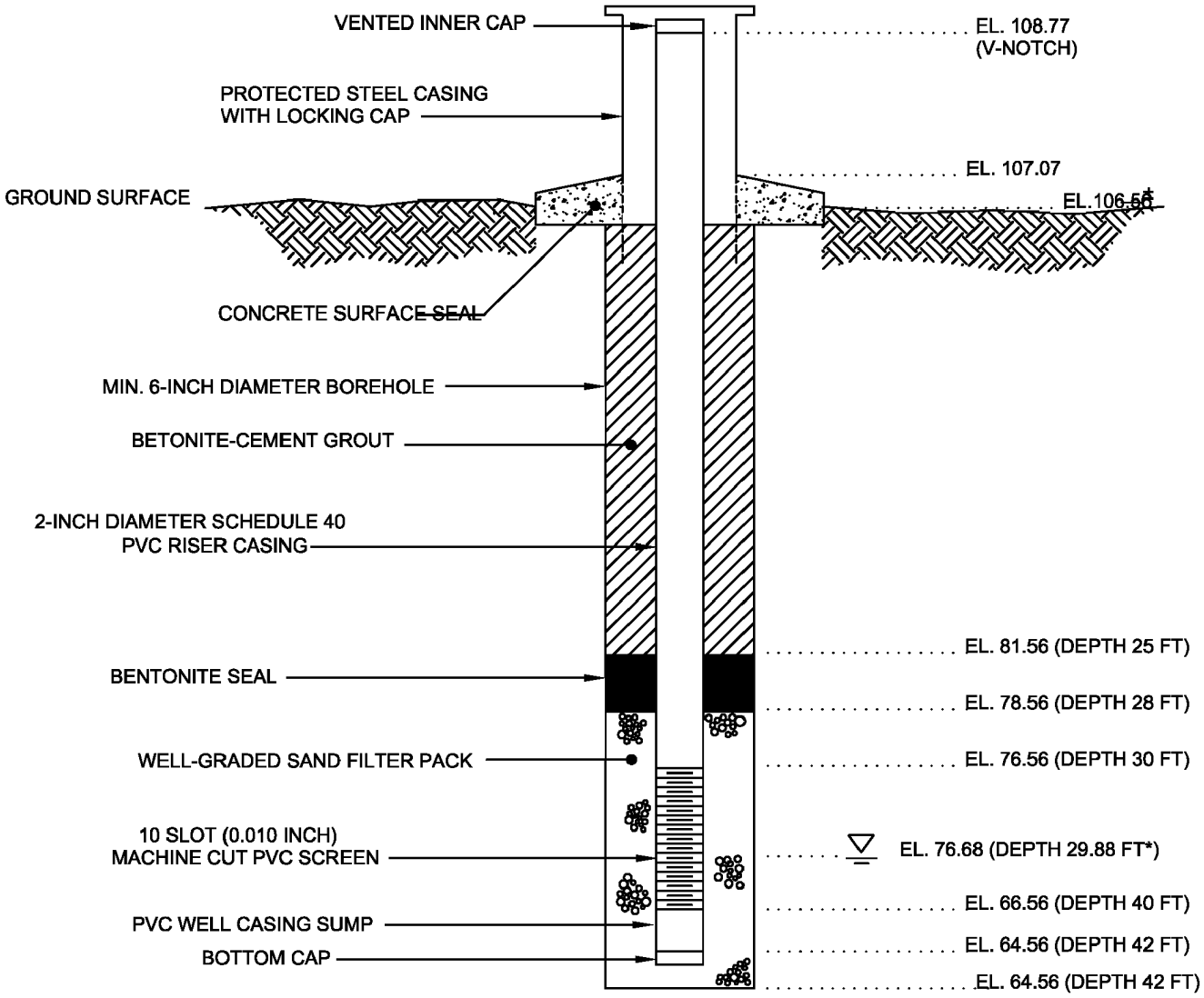
DATE COMPLETED : 06/21/2006

NORTHING: 215497.07

EASTING: 961212.39

GROUND SURFACE ELEVATION: 106.56

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-24-06	29.88	76.68



NOTES:
1) SEE B-756 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-756.DWG

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WELL NO. : **OW-759A**

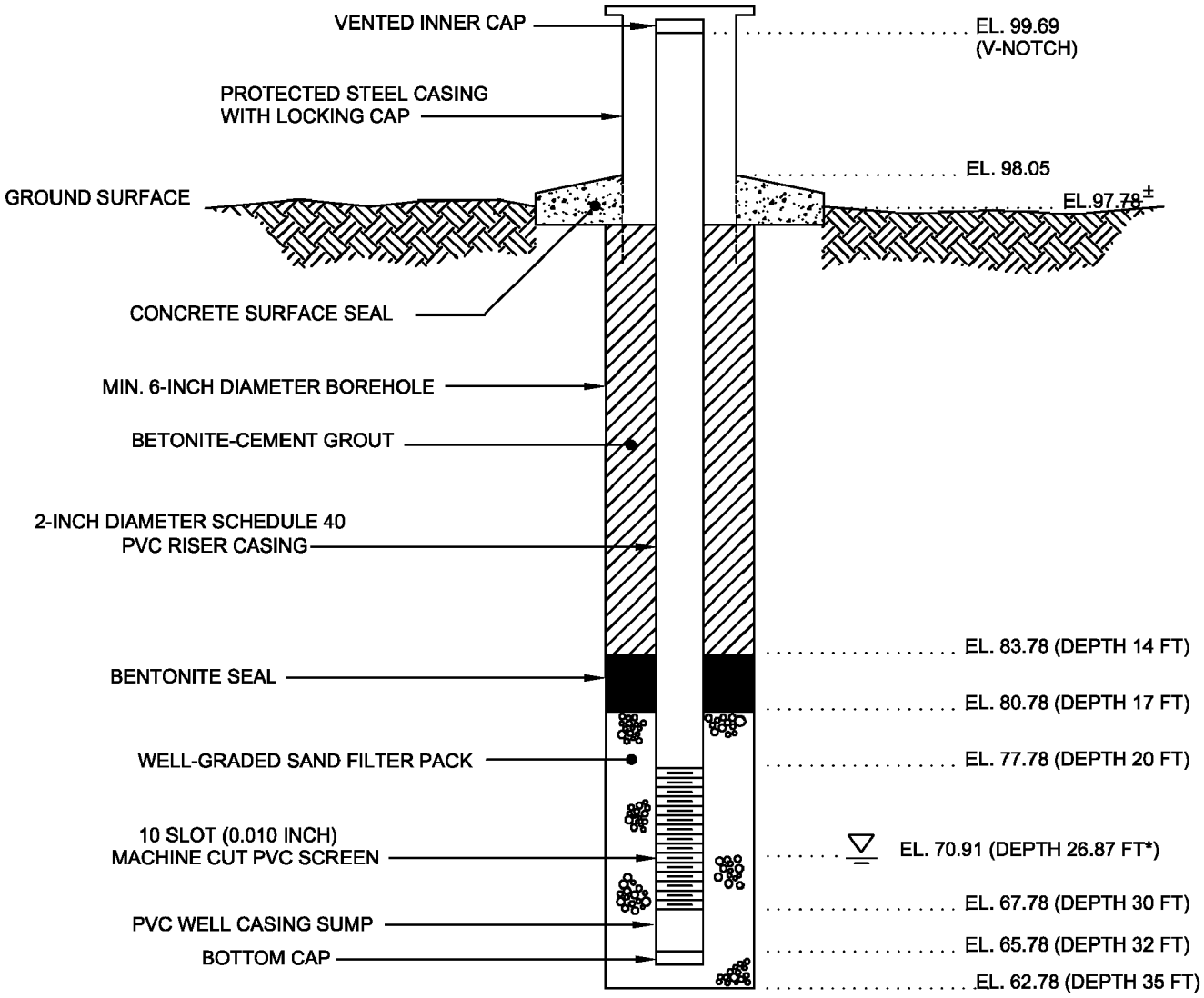
DATE COMPLETED : 06/22/2006

NORTHING: 214536.47

EASTING: 960055.02

GROUND SURFACE ELEVATION: 97.78

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	26.87	70.91



NOTES:
1) SEE B-759 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-759A.DWG

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WELL NO. : **OW-759B**

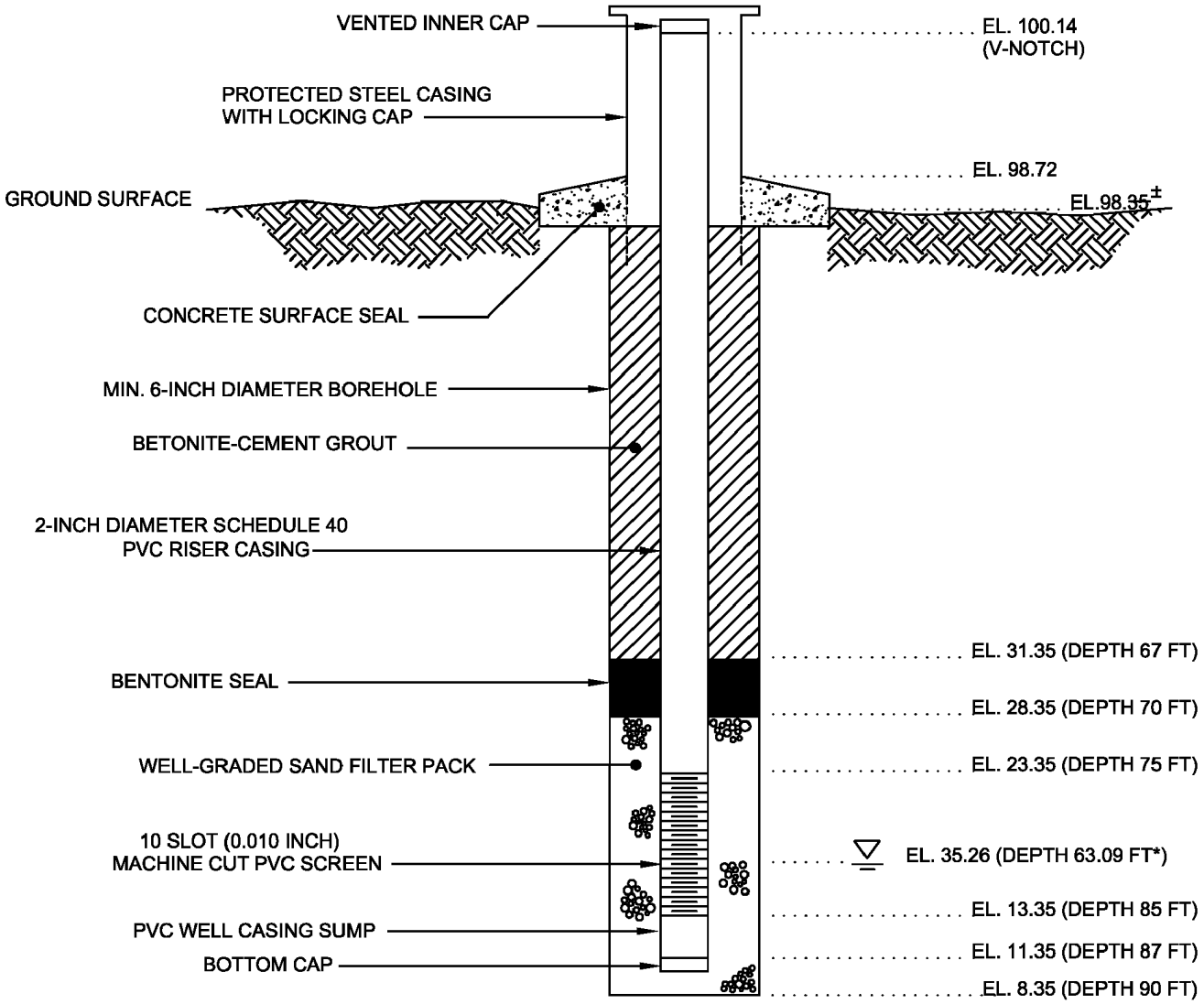
DATE COMPLETED : 06/22/2006

NORTHING: 214526.25

EASTING: 960056.32

GROUND SURFACE ELEVATION: 98.35

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	63.09	35.26



NOTES:
1) SEE B-759 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-759B.DWG

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WELL NO. : **OW-765A**

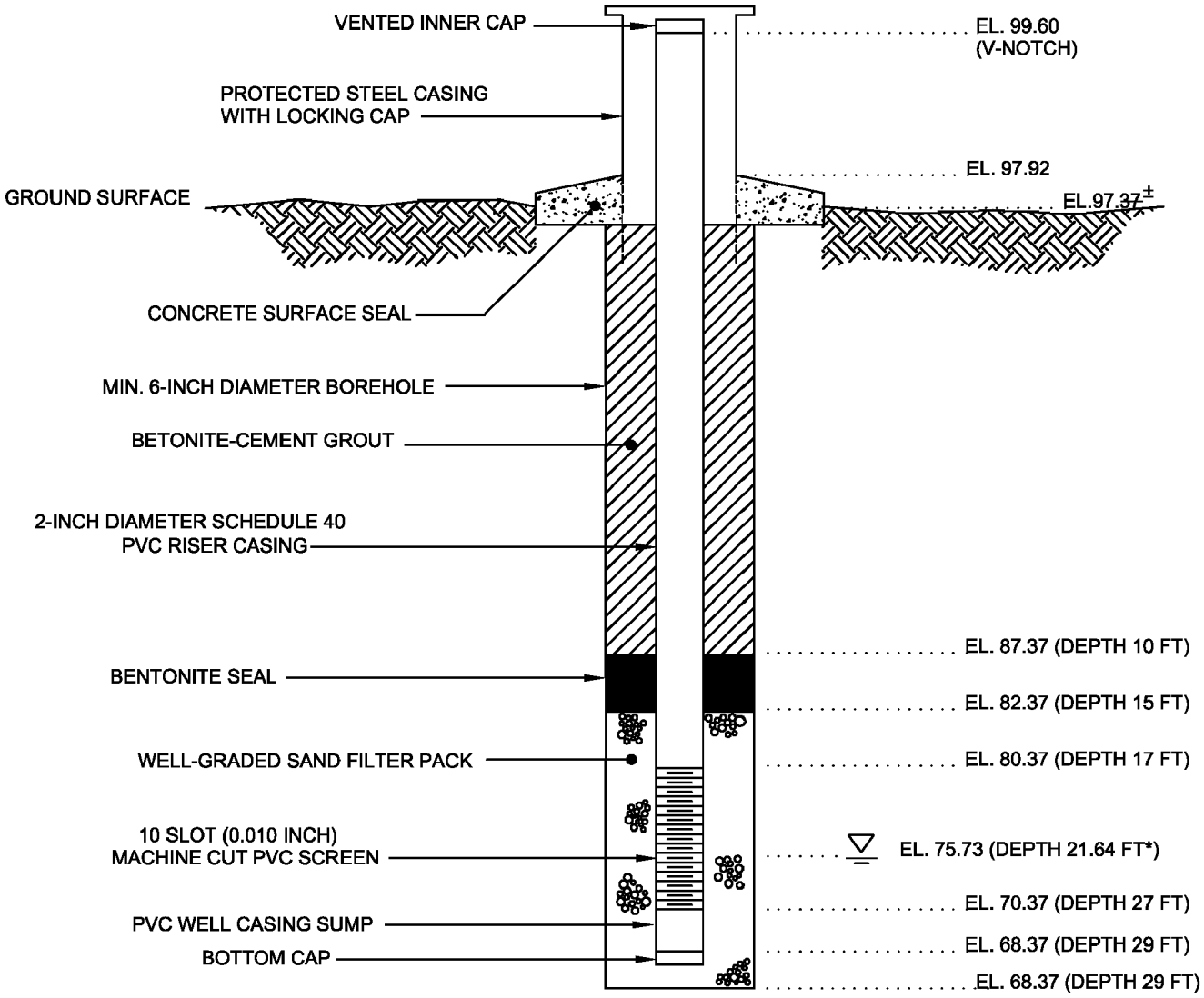
DATE COMPLETED : 07/13/2006

NORTHING: 216424.51

EASTING: 959701.22

GROUND SURFACE ELEVATION: 97.37

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	21.64	75.73



NOTES:
1) SEE B-765 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-765A.DWG

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WELL NO. : **OW-765B**

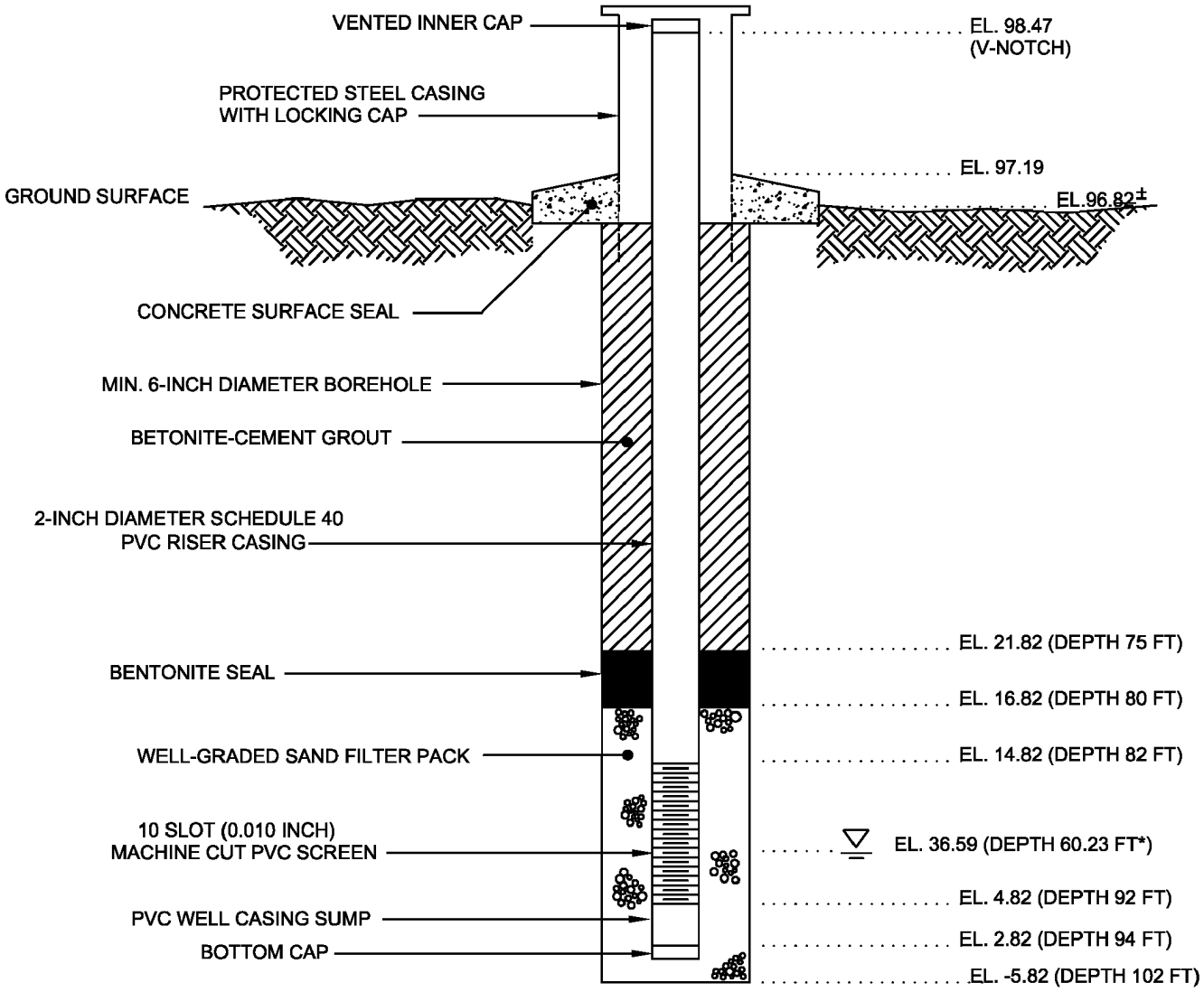
DATE COMPLETED : 07/13/2006

NORTHING: 216420.42

EASTING: 959693.64

GROUND SURFACE ELEVATION: 96.82

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-27-06	60.23	36.59



NOTES:
1) SEE B-765 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-765B.DWG

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WELL NO. : **OW-766**

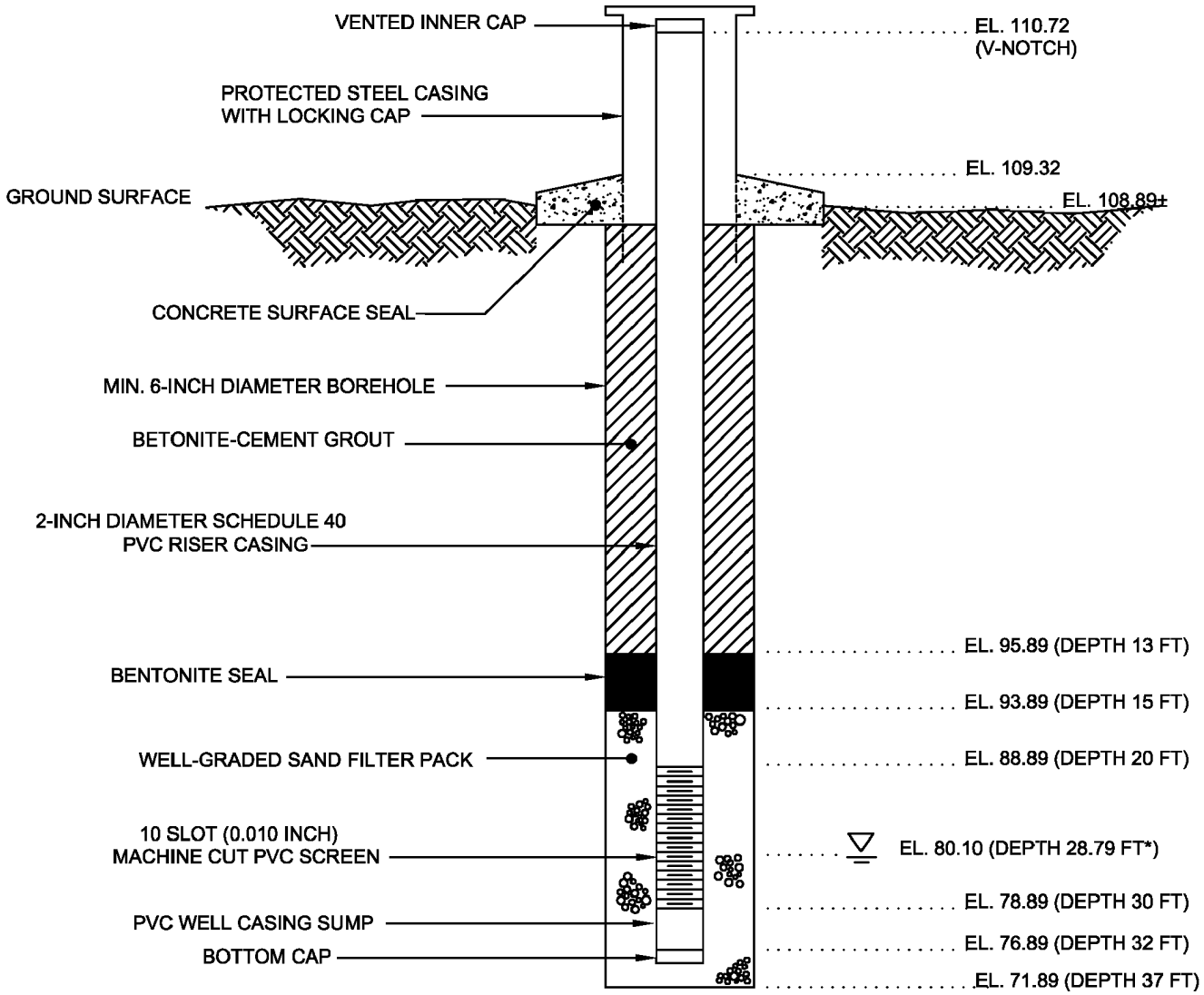
DATE COMPLETED : 07/13/2006

NORTHING: 216932.89

EASTING: 959791.50

GROUND SURFACE ELEVATION: 108.89

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-26-06	28.79	80.10



NOTES:
1) SEE B-766 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH
5) BENTONITE HOLE PLUG USED TO BACKFILL BORING B-766 FROM 50 FT TO 37 FT.

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-766.DWG

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WELL NO. : **OW-768A**

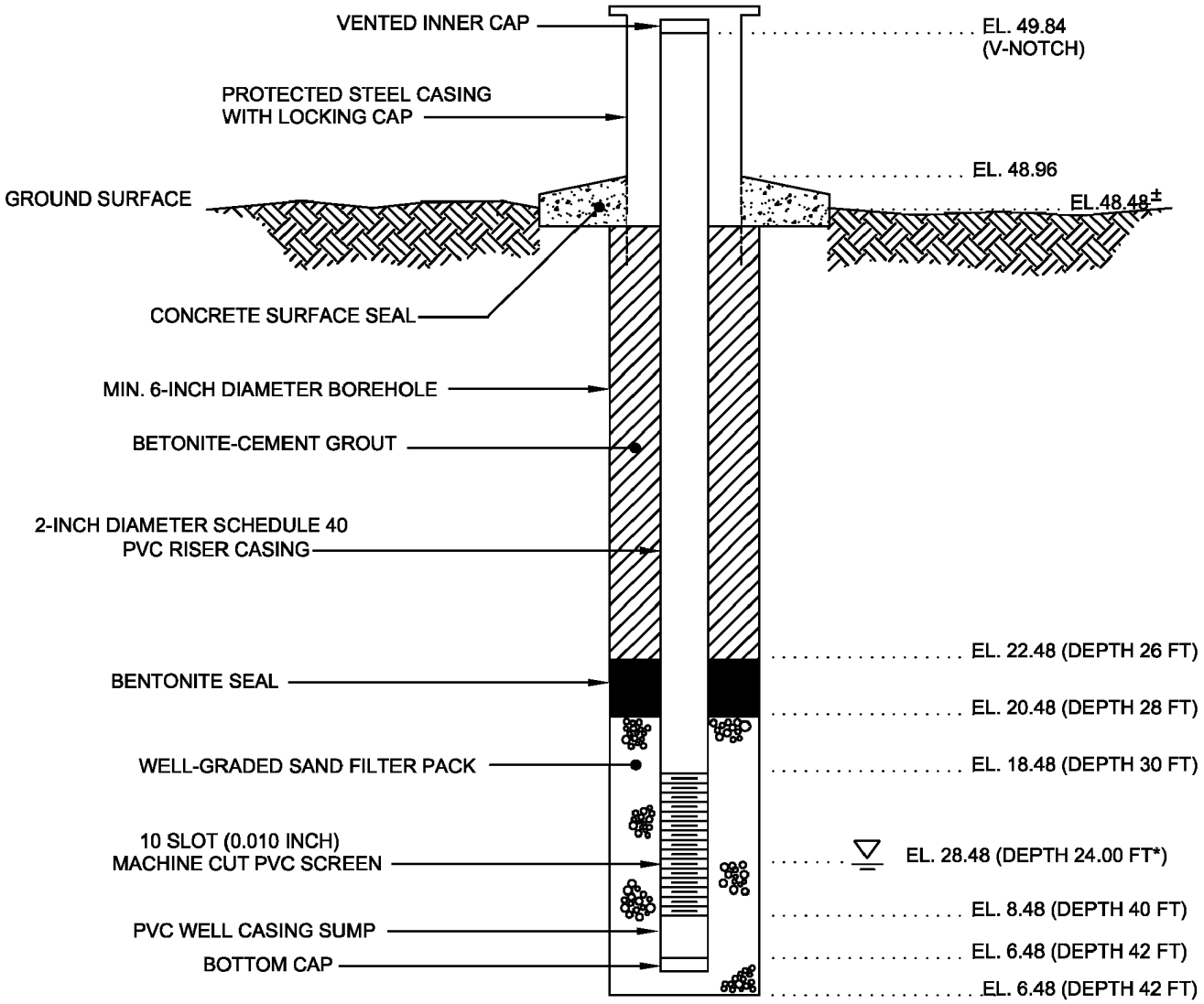
DATE COMPLETED : 06/20/2006

NORTHING: 217106.06

EASTING: 962238.98

GROUND SURFACE ELEVATION: 48.48

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	24.00	24.48



NOTES:
1) SEE B-768 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MEASURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-768.DWG

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WELL NO. : **OW-769A**

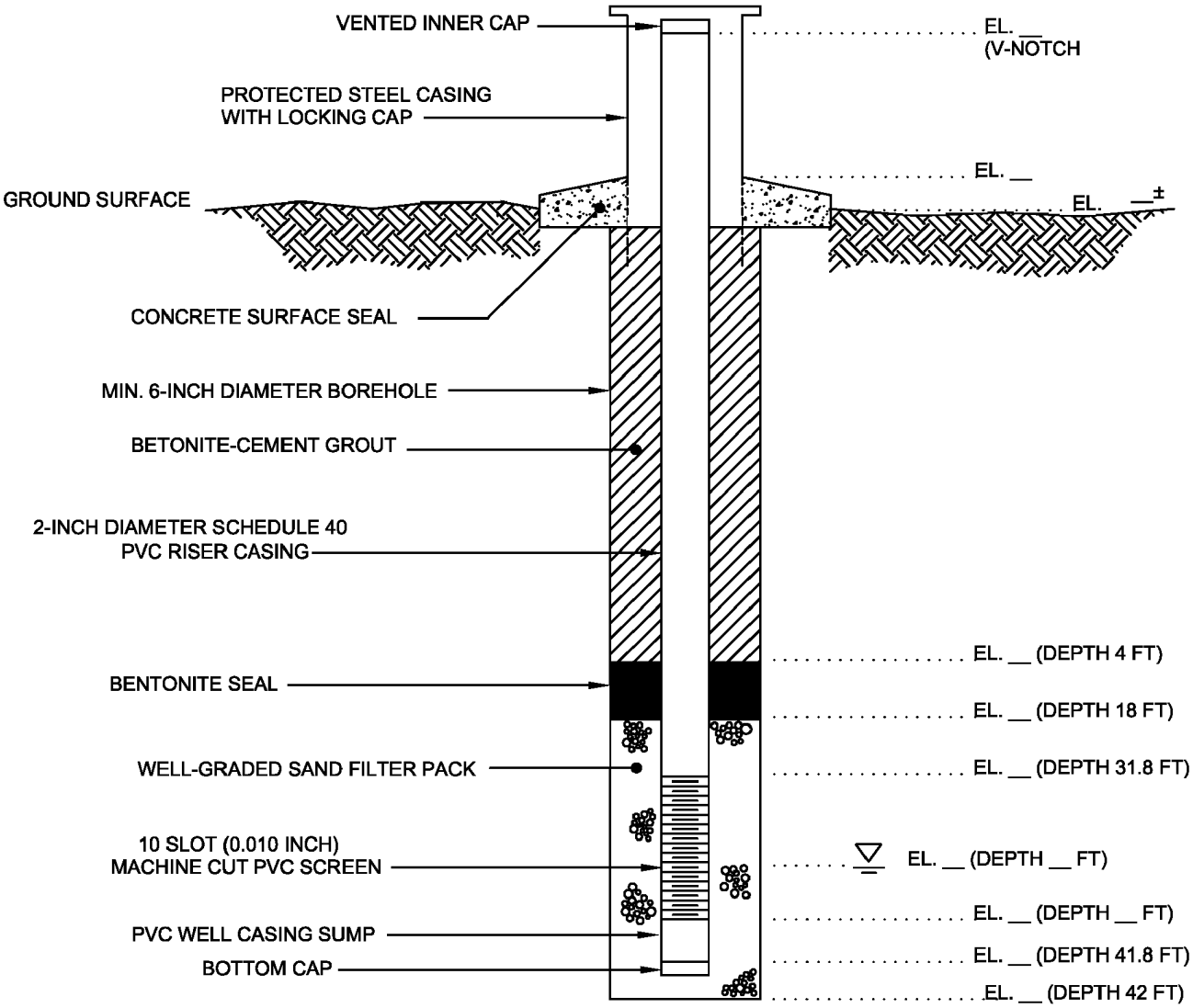
DATE COMPLETED : 06/23/2006

NORTHING:

EASTING:

GROUND SURFACE ELEVATION:

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT)	ELEVATION (FT)



NOTES: 1) SEE B-769 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED

Schnabel Engineering	CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-769.DWG

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WELL NO. : **OW-770**

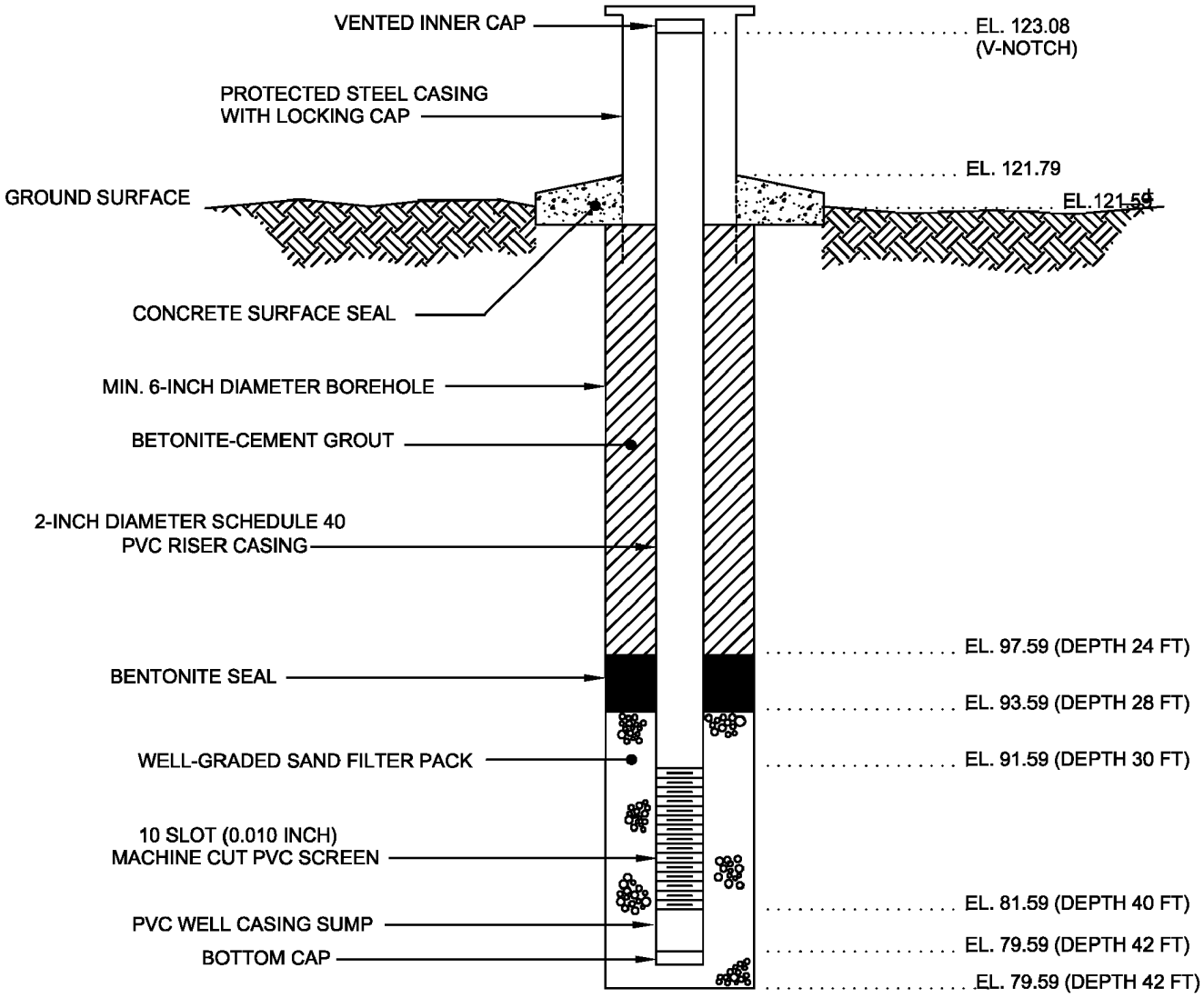
DATE COMPLETED : 06/22/2006

NORTHING: 215466.60

EASTING: 962826.95

GROUND SURFACE ELEVATION: 121.59

GROUND WATER TABLE OBSERVATIONS		
DATE	DEPTH (FT) *	ELEVATION (FT)
7-25-06	DRY	------



NOTES:
1) SEE B-770 BORING LOG FOR STRATA DESCRIPTIONS
2) DEVELOPED BY PUMPING
3) CENTRALIZERS USED
4) * =GROUND WATER DEPTH MESURED FROM V-NOTCH

Schnabel Engineering	**CALVERT CLIFFS NUCLEAR POWER PLANT CALVERT COUNTY, MD**	GROUND WATER OBSERVATION WELL CONSTRUCTION LOG PROJECT NO. 06120048 DWG NO. OW-770.DWG

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FIELD PERMEABILITY TEST DATA

Schnabel
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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 90 humid

PROJECT NO.: 06120048
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.32~~ 0.625 Gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104259
Slug S/N:	SLUG-002

WELL INFORMATION	
WELL ID:	DW-301
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	79.1
Screen Interval Depth (ft, TOC):	65-75
Riser Height (ft):	2'

1 Pre-Test Water Level (ft, TOC)/ Time : 58.75 / 15:35
2 Water Level after Probe Insertion (ft, TOC)/ Time: 58.74 / 15:52
3 Transducer Depth: 70 ft
4 Calc. Pre-Test Head over Transducer: 11.26 ft
5 Measured Pre-Test Head over Transducer: 11.45 ft
6 Time Test Started: Pretest / Slug-test 3:39 pm / 3:54 PM
7 Time Test Ended: 4:31 pm
8 ~~Percent Recovery~~ Head at End of Test: 11.42 ft
9 Datalogger File Name: 06120048-PTD-DW-301-SLUG

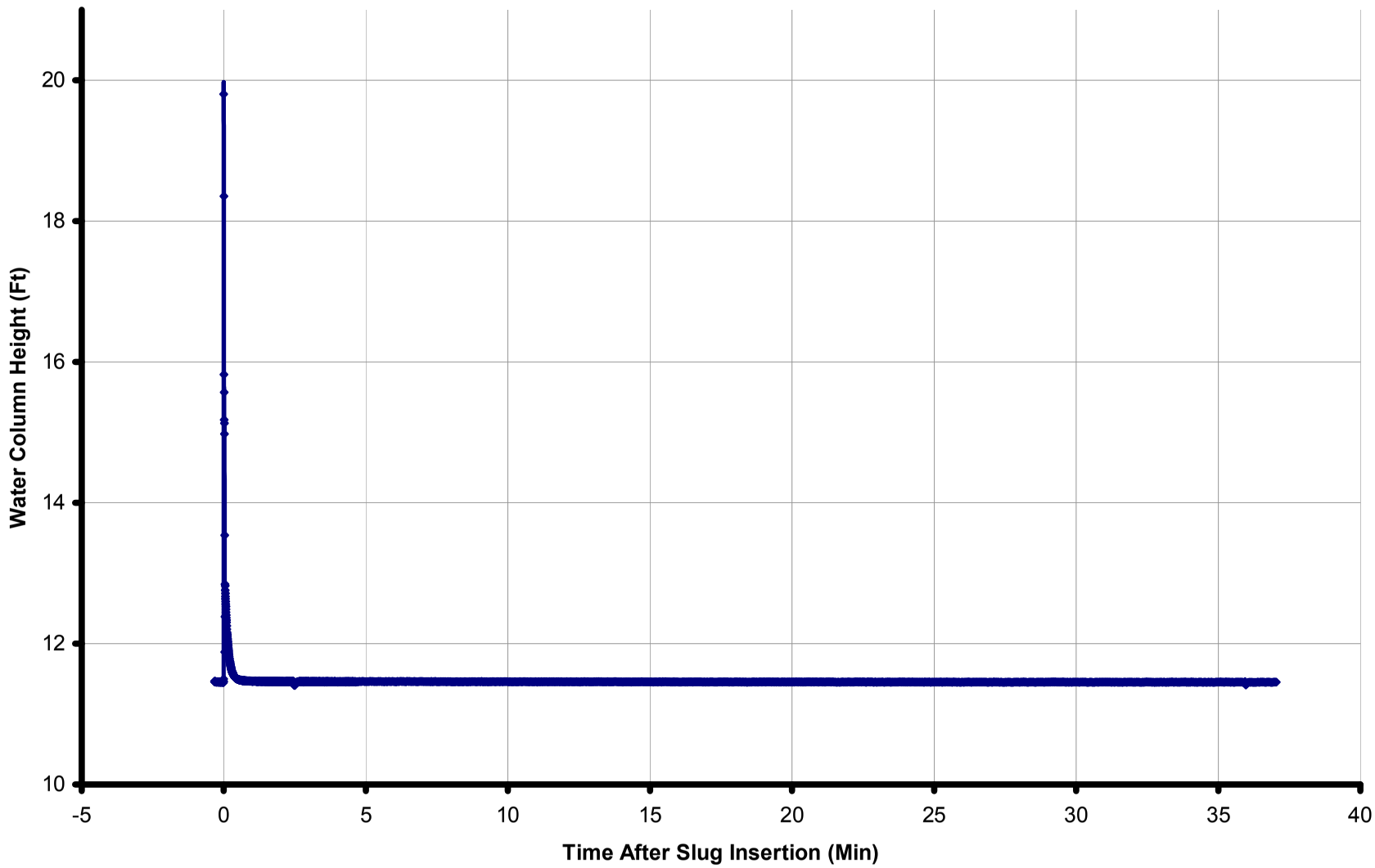
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White **Date:** July 27, 2006
Approved By: [signature] **Date:** 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-301 Permeability Test



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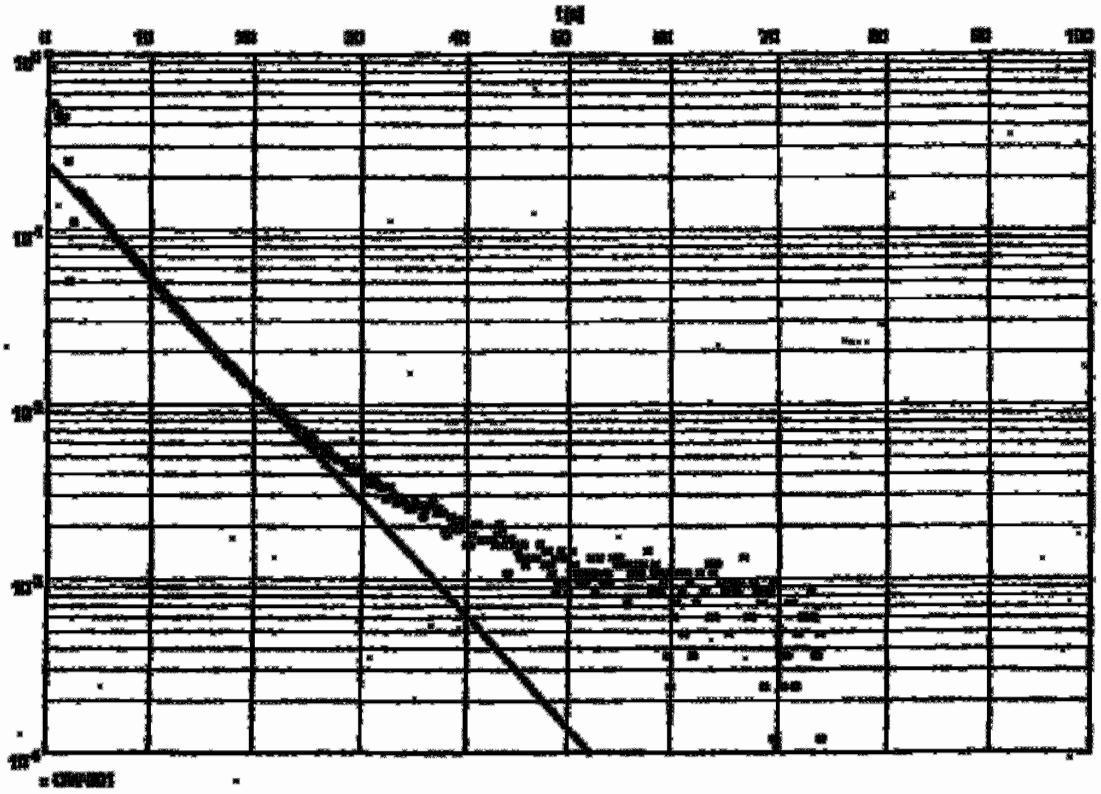
[illegible] Engineering Health, LLC [illegible] Oakton-Gallant Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis KEMMERER-BOUWS method	Date: [illegible]	Page 1
		Project: Gallant Gills	
		Conducted by: [illegible]	
Slug Test No. [illegible]		Test conducted on: [illegible]	
[illegible]			



Hydraulic conductivity [m/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Injection = [illegible] ft
Conducted by: [illegible]

Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 90, humid

PROJECT NO.: 06120048
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.32 GAL~~ 0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104213
Slug S/N:	Slug-003

WELL INFORMATION	
WELL ID:	OW-313A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	52.9
Screen Interval Depth (ft, TOC):	40-50
Riser Height (ft):	2.0

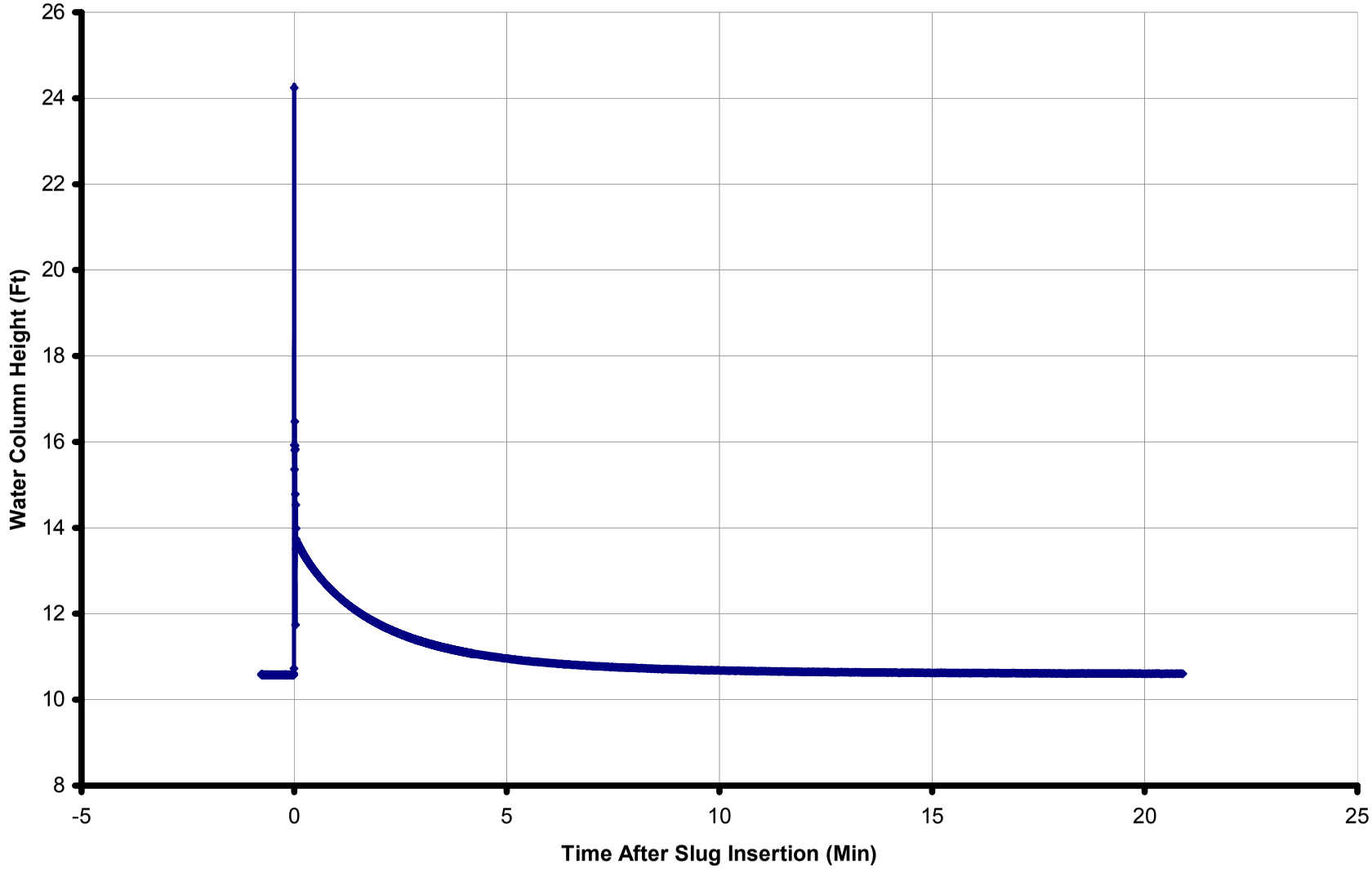
1	Pre-Test Water Level (ft, TOC)/ Time :	19.69 ft / 4:10 PM
2	Water Level after Probe Insertion (ft, TOC)/ Time:	19.70 ft / 4:45 PM
3	Transducer Depth:	30 ft
4	Calc. Pre-Test Head over Transducer:	10.30 ft
5	Measured Pre-Test Head over Transducer:	10.53 ft
6	Time Test Started: Slug-test	4:48 PM
7	Time Test Ended:	5:10 PM
8	~~Percent Recovery~~ Head at End of Test:	10.58 ft
9	Datalogger File Name:	06120098-PTD-OW-313A-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White **Date:** July 27, 2006
Approved By: [signature] **Date:** 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-313A Permeability Test



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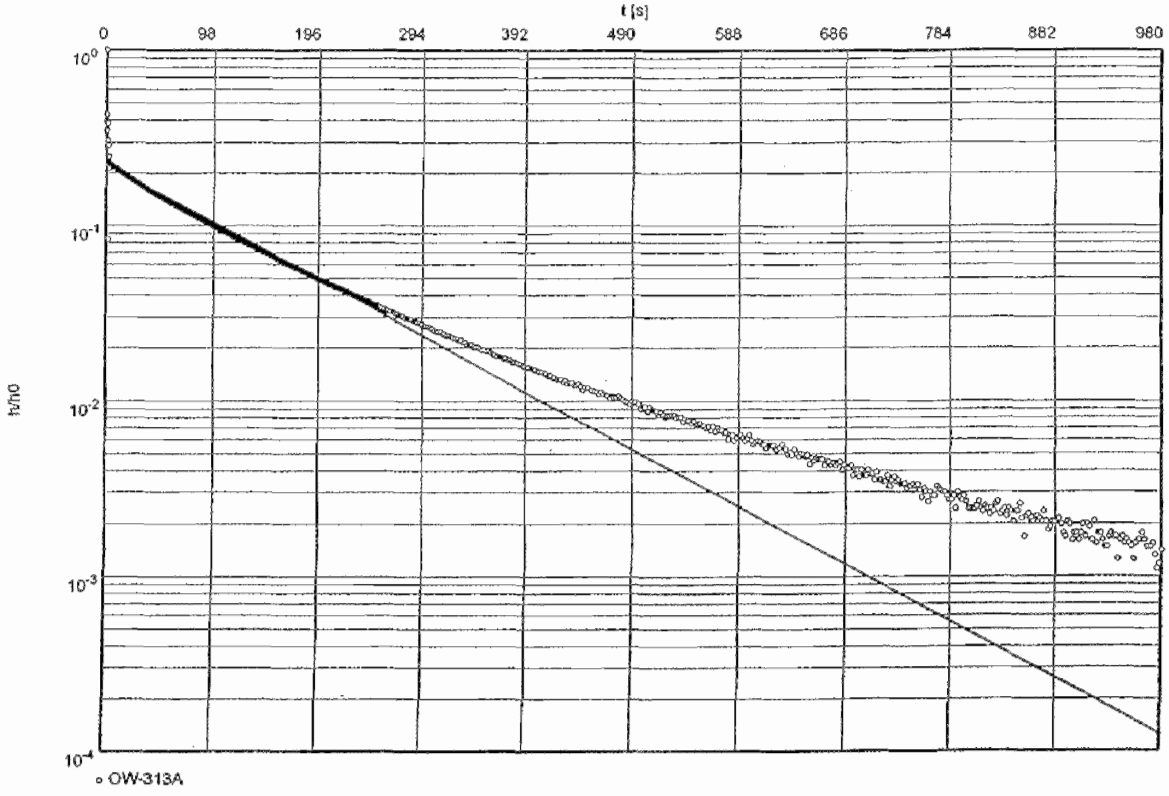
Schnabel Engineering North, LLC 656 Quince Orchard Road, Suite 700 Gaithersburg, MD 20878 (301) 417-2400	slug/bail test analysis BOUWER-RICE's method	Date: 11/8/2006	Page 1
		Project: Calvert Cliffs	
		Evaluated by: patrick	

Slug Test No. 313A	Test conducted on: 7/27/2003
OW-313A	



Hydraulic conductivity [ft/s]: 7.50×10^{-6}

INPUT PARAMETERS
Static Water Level = 10.60 ft
Depth to Bottom of Aquifer = 62.00 ft
Length of Screen = 10.00 ft
Radius of Casing = 0.08 ft
Radius of Influence = 0.25 ft
Evaluated by: Pamela Patrick
Pamela Patrick
Reviewed by: Christopher Krantz

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: [illegible]

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~[illegible]~~ 0.625 GAL
Manual Water Level Meter S/N:	W.L.P-001
Transducer S/N:	10259
Slug S/N:	SL06-002

WELL INFORMATION	
WELL ID:	OW-3B/S
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	110
Screen Interval Depth (ft, TOC):	95-105
Riser Height (ft):	1.7'

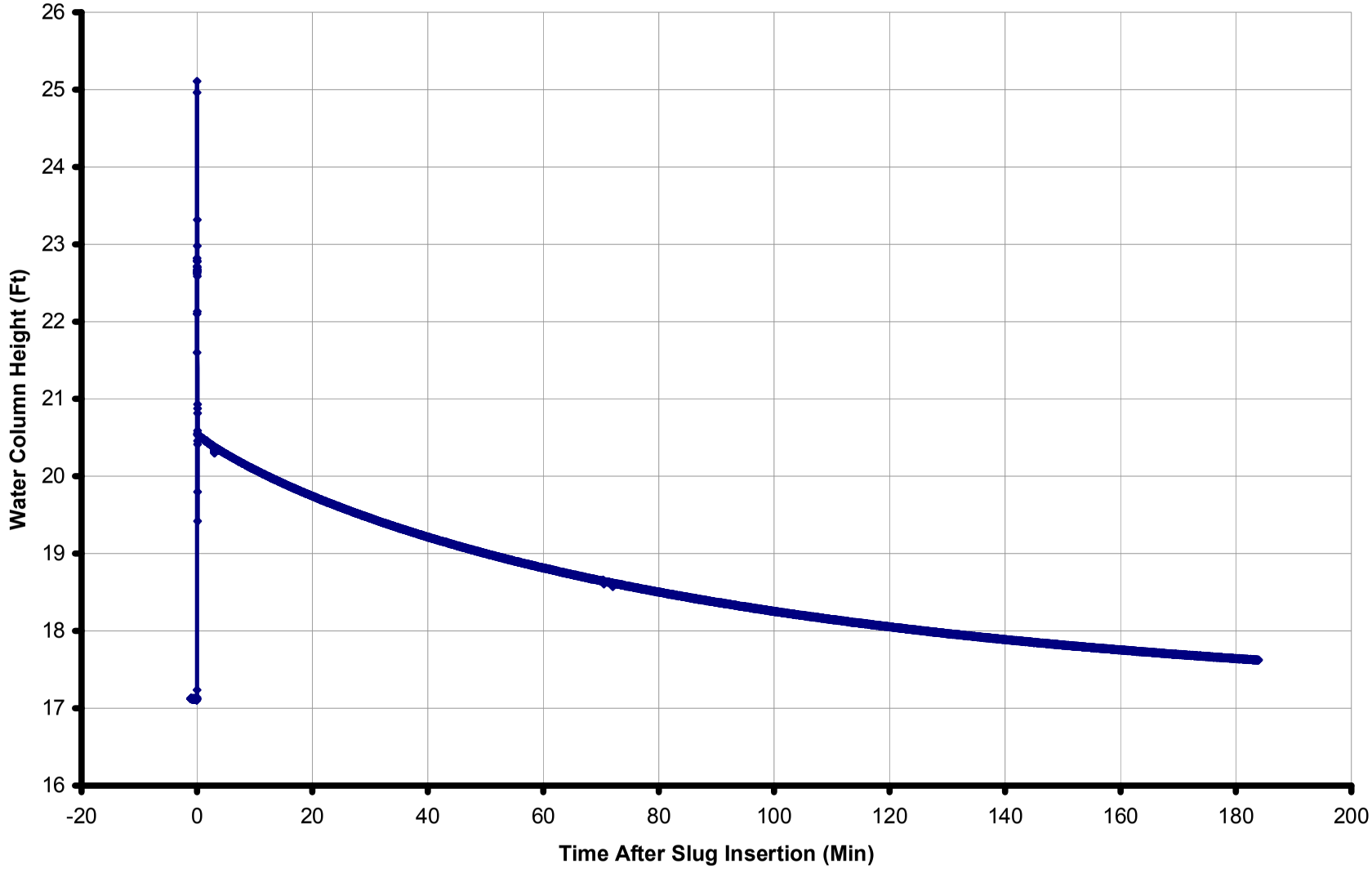
1. Pre-Test Water Level (ft, TOC)/ Time: 23.09 ft / 7:50 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 22.91 ft / 8:52 AM
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 17.08 ft
5. Measured Pre-Test Head over Transducer: 17.08 ft
6. Time Test Started: "Rising Head" | Slug Insert 7:55 / 8:56 AM
7. Time Test Ended: 12:00 pm
8. Pressure/Recovery at End of Test: 17.63
9. Datalogger File Name: 06120049-TD-OW-3B/S-SL06

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 28, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-313B Permeability Test



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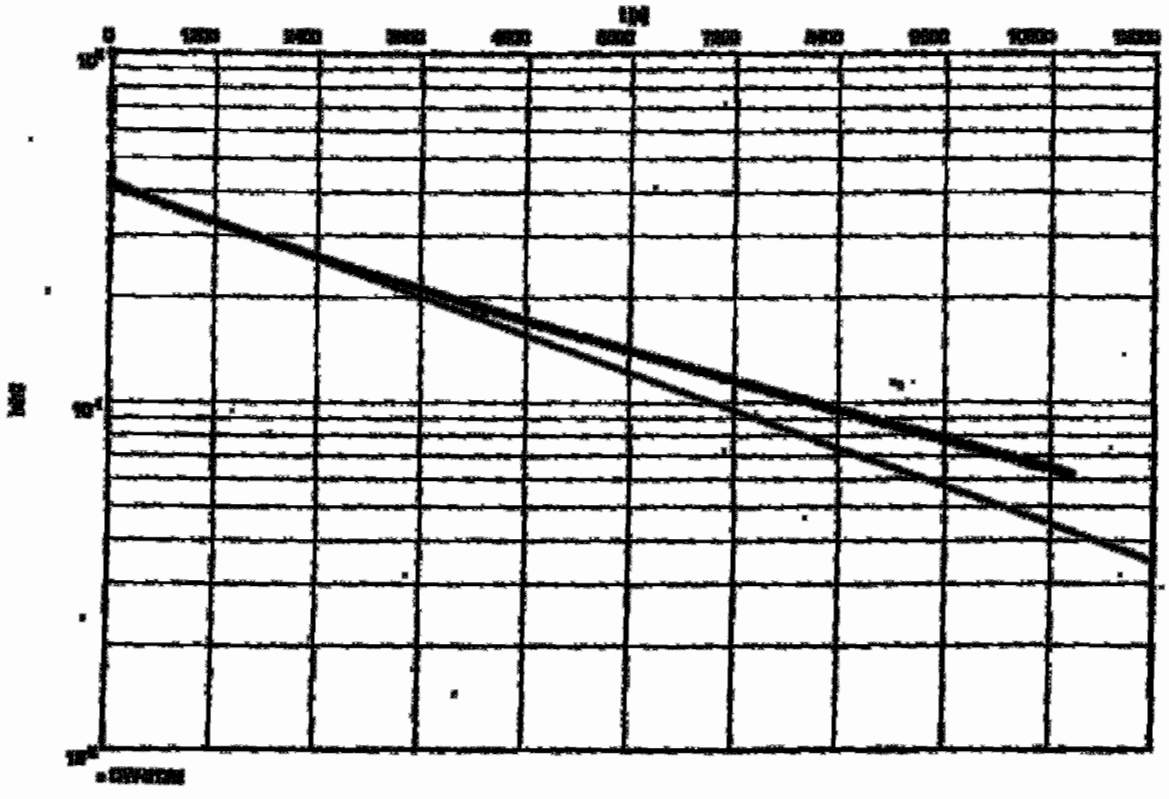
[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	
		[illegible]	

[illegible]	[illegible]
[illegible]	



Hydraulic conductivity (K): [illegible]

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: 7/21/06
WEATHER/ TEMP: 9-Cloudy, 90°

PROJECT NO.: 50120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~[illegible] 0.625 GAL
Manual Water Level Meter S/N:	1319-001
Transducer S/N:	104895
Slug S/N:	Slug-001

WELL INFORMATION	
WELL ID:	OW-319A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	54.13
Screen Interval Depth (ft, TOC):	44.5'-54.5'
Riser Height (ft):	19" = 1'7"

1 Pre-Test Water Level (ft, TOC)/ Time: 26.55' / 11:15 AM
2 Water Level after Probe Insertion (ft, TOC)/ Time: 26.36' / 11:42 AM
3 Transducer Depth: [illegible] 32'
4 Calc. Pre-Test Head over Transducer: [illegible] 5.46
5 Measured Pre-Test Head over Transducer: 5.36'
6 Time Test Started: Slug-test 11:48 AM
7 Time Test Ended: 1:13 PM
8 Remaining Head at End of Test: 5.59
9 Datalogger File Name: 06120048-PID-OW-319A-SLUG

Step 1 0-5 min @ 14 sec
75 @ [illegible]

NOTE: Bottom of slug @ 33 ft depth, may not be fully submerged

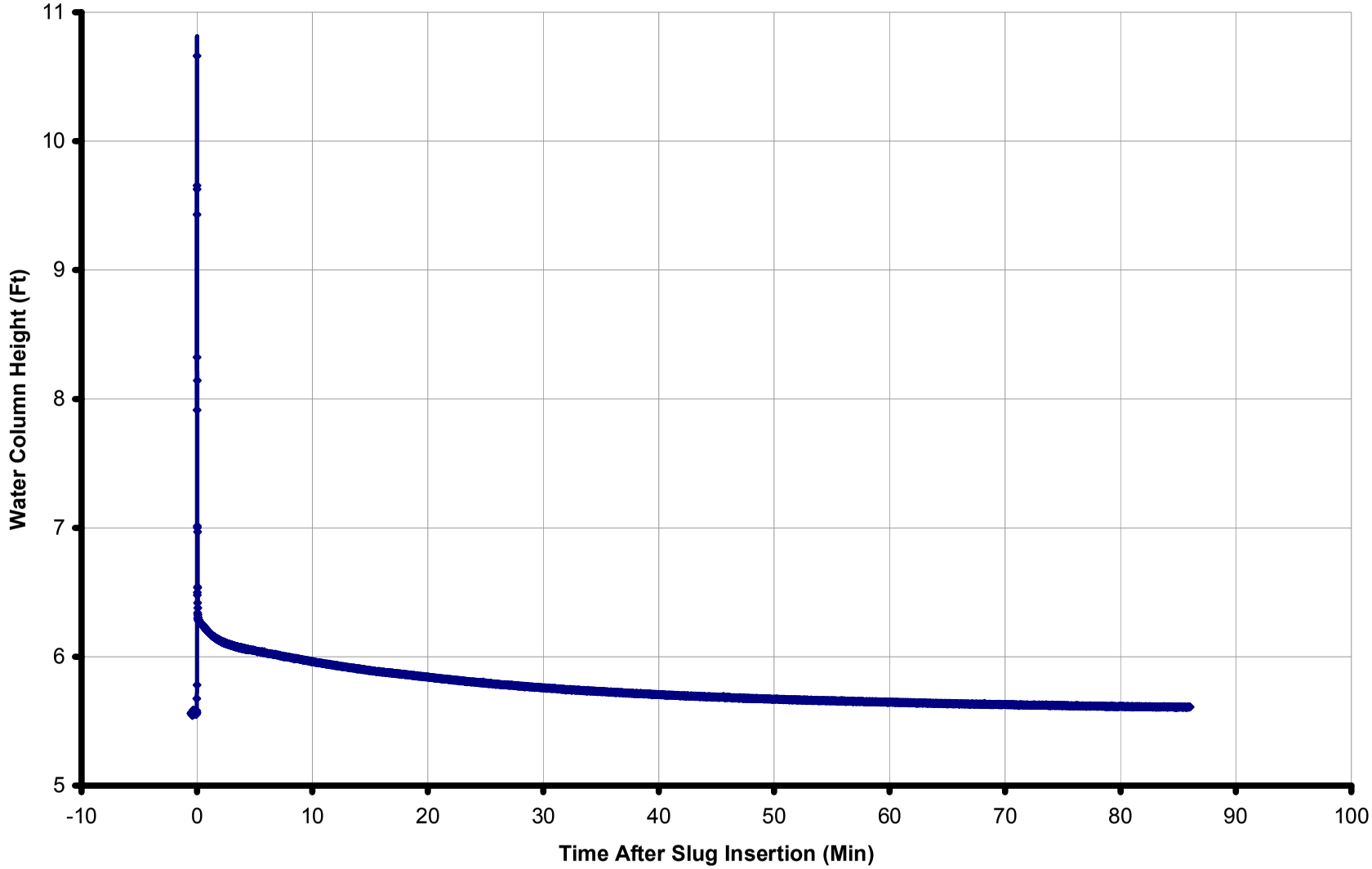
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 21, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-319A Permeability Test



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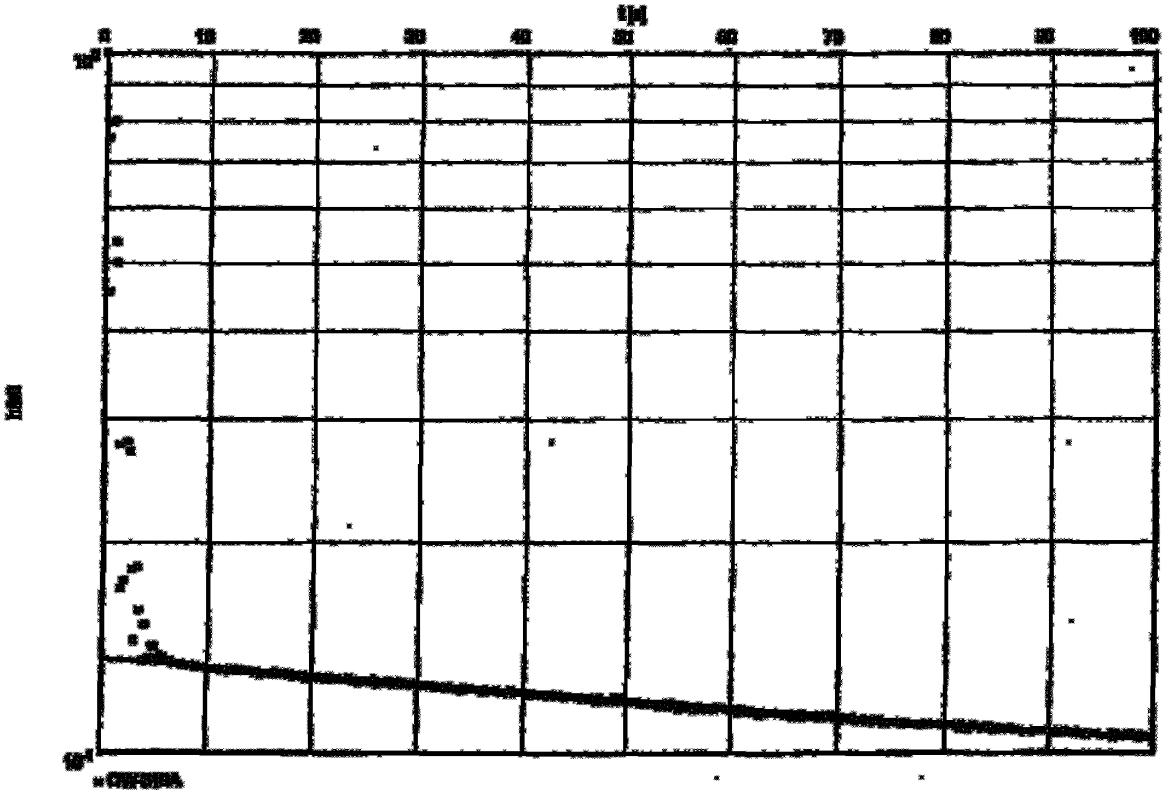
[illegible] Engineering North, LLC [illegible] Colonel Grant Road, Suite 102 [illegible] [illegible]	slug/bail test analysis [illegible] method	Date: [illegible]	Page 1
		Project: Closure Site	
		Evaluated by: [illegible]	
Slug Test No. [illegible]		Test conducted on: [illegible]	
CHP/DHA			



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 90, humid

PROJECT NO.: 09120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~[illegible]~~ 0.625 GAL
Manual Water Level Meter S/N:	WLP-09
Transducer S/N:	04259
Slug S/N:	Slug-002

WELL INFORMATION	
WELL ID:	OW-3/15
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	77.15 ft
Screen Interval Depth (ft, TOC):	70-80'
Riser Height (ft):	1.19'

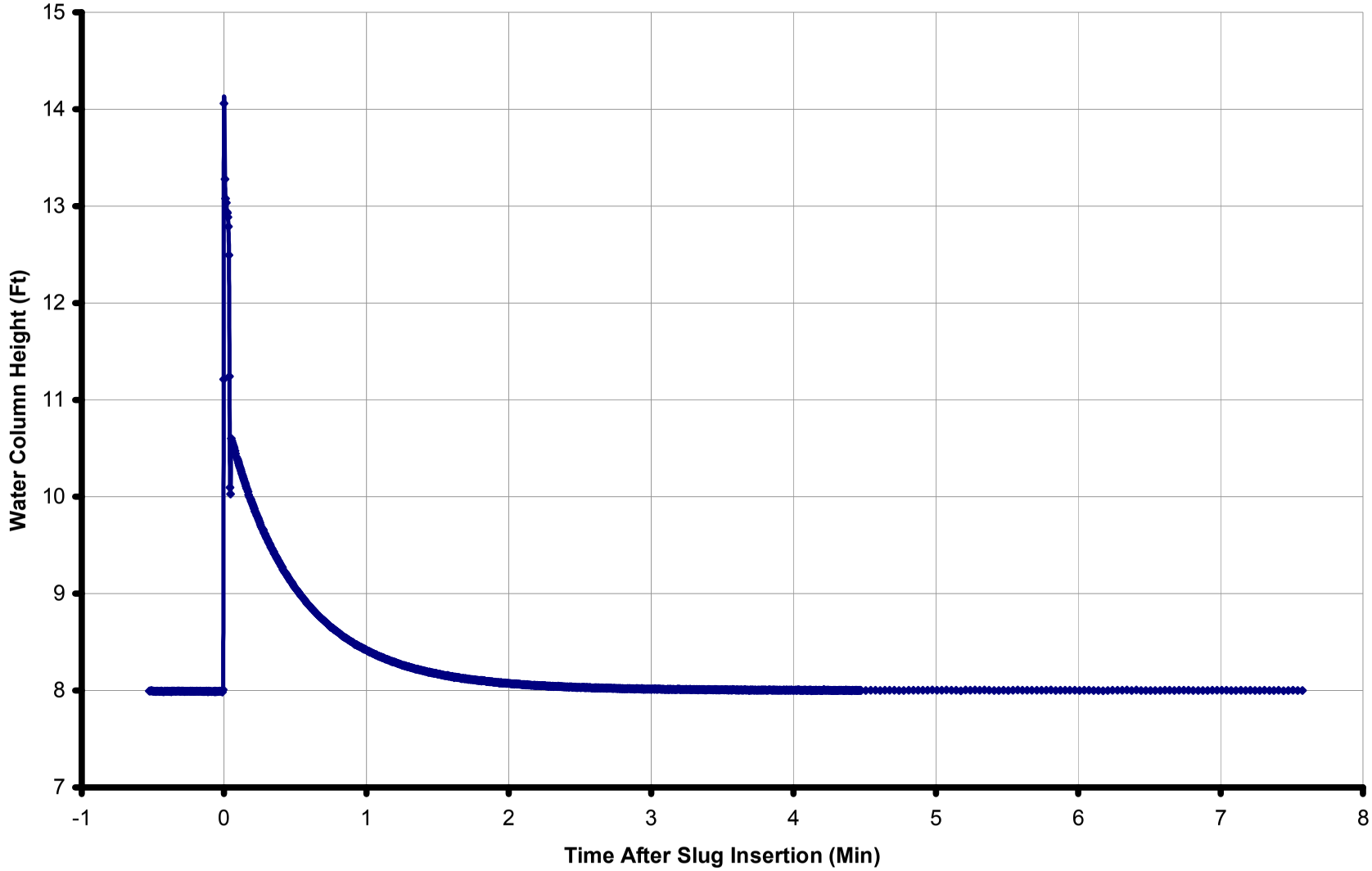
1 Pre-Test Water Level (ft, TOC)/ Time: 67.43 ft / 7:10 AM
2 Water Level after Probe Insertion (ft, TOC)/ Time: 67.42 ft / 7:25 AM
3 Transducer Depth: 75 ft
4 Calc. Pre-Test Head over Transducer: 7.58 ft
5 Measured Pre-Test Head over Transducer: ~~[illegible]~~ 7.98 ft
6 Time Test Started: Rising-test / Slug-test 7:15 / 7:30 AM
7 Time Test Ended: 7:36 AM
8 ~~Percent Recovery~~ Head at End of Test: 7.99
9 Datalogger File Name: D:\2006-PTD-OW-3/15-Slug

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approved By: [signature] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-319B Permeability Test



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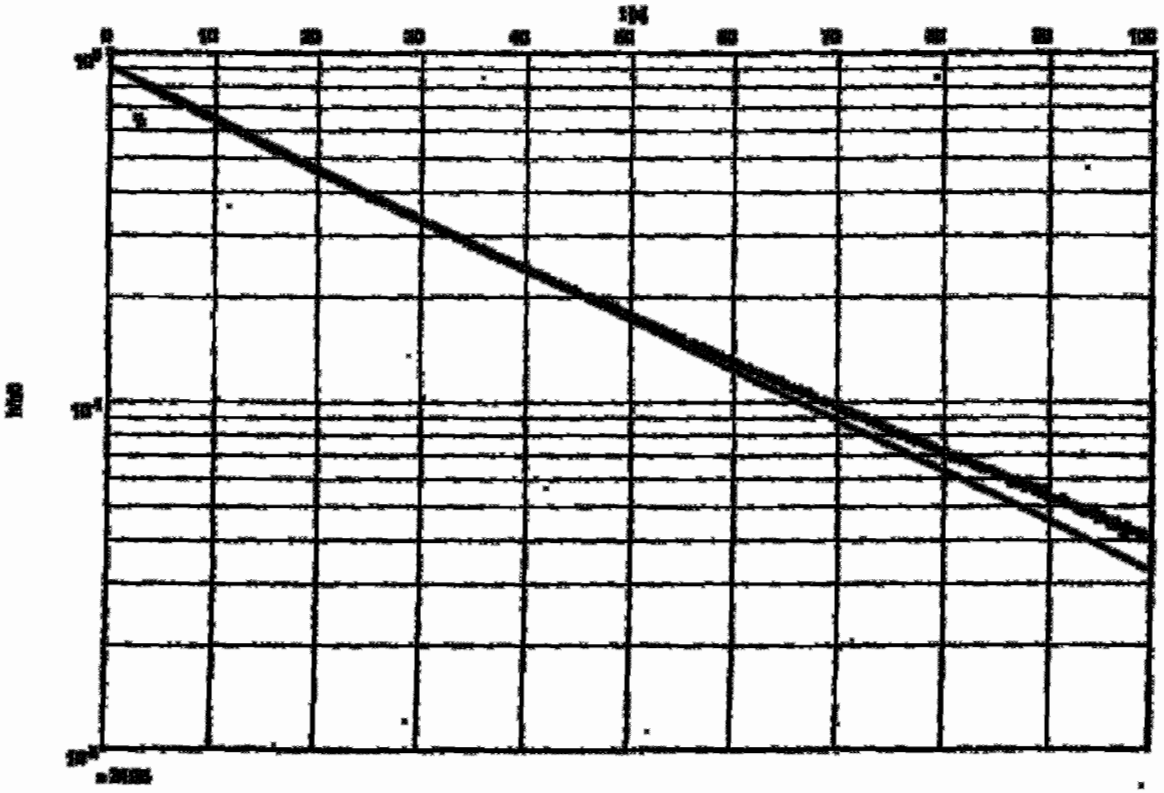
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	
[illegible]		[illegible]	



Hydraulic conductivity (Dig: [illegible])

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft

Evaluated by: [illegible]

Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2010
WEATHER/ TEMP: 85, humid

PROJECT NO.: 8812048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mineral Oil / Water)
Approximate Volume of Slug:	0.625 Gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104755
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-323
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	49.61
Screen Interval Depth (ft, TOC):	30-40
Riser Height (ft):	1.5'

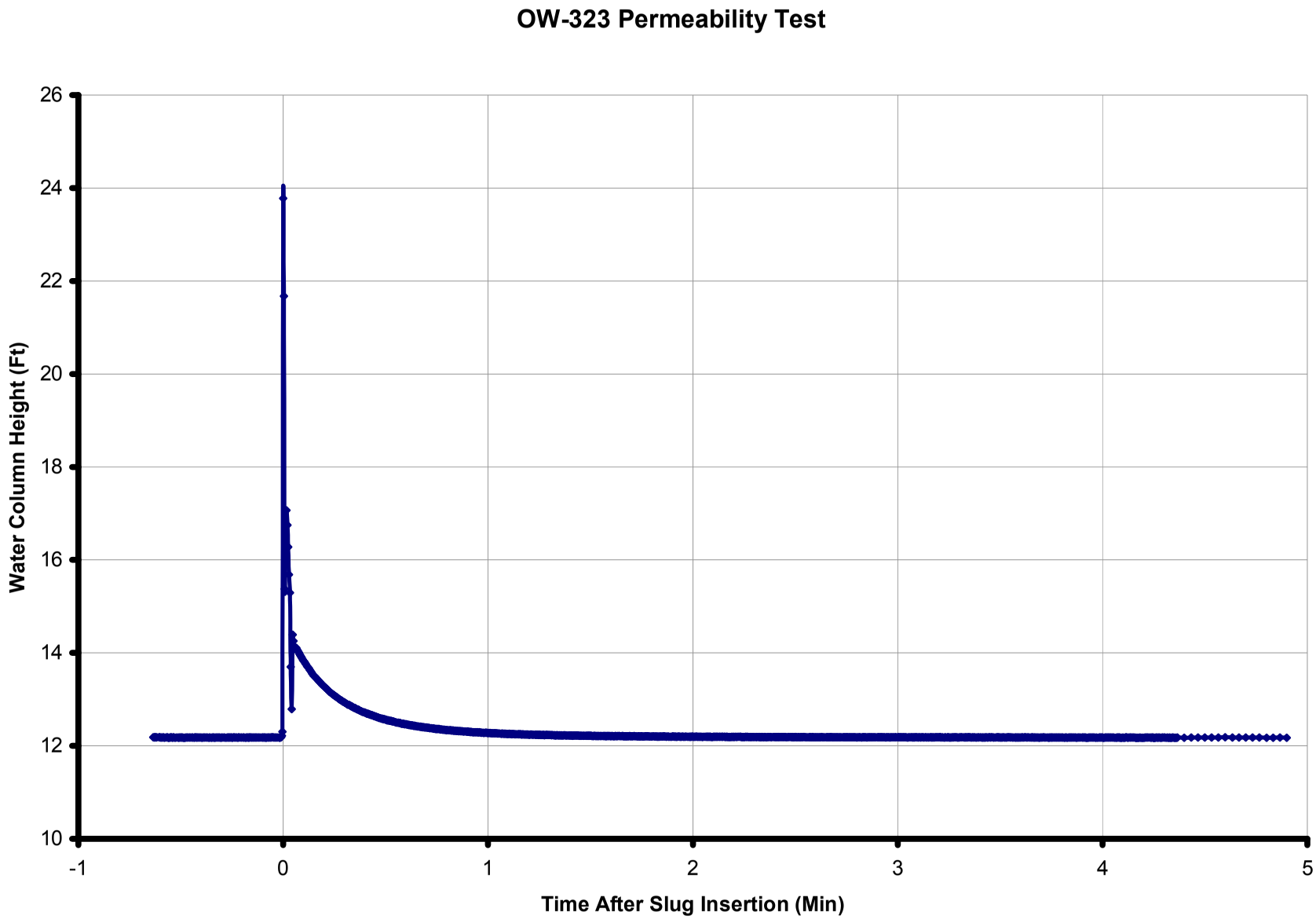
1. Pre-Test Water Level (ft, TOC)/ Time: 27.76 ft / 12:18 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 27.76 ft / 12:25 pm
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 12.24 ft
5. Measured Pre-Test Head over Transducer: 12.15 ft
6. Time Test Started: Rebound / Slug test 12:20 / 12:29 PM
7. Time Test Ended: 12:34 PM
8. ~~Percent Rebound~~ Head at End of Test: 12.00
9. Datalogger File Name: 07120010-PM-OW-323-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2010
Approved By: [illegible] Date: 9/21/10

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048



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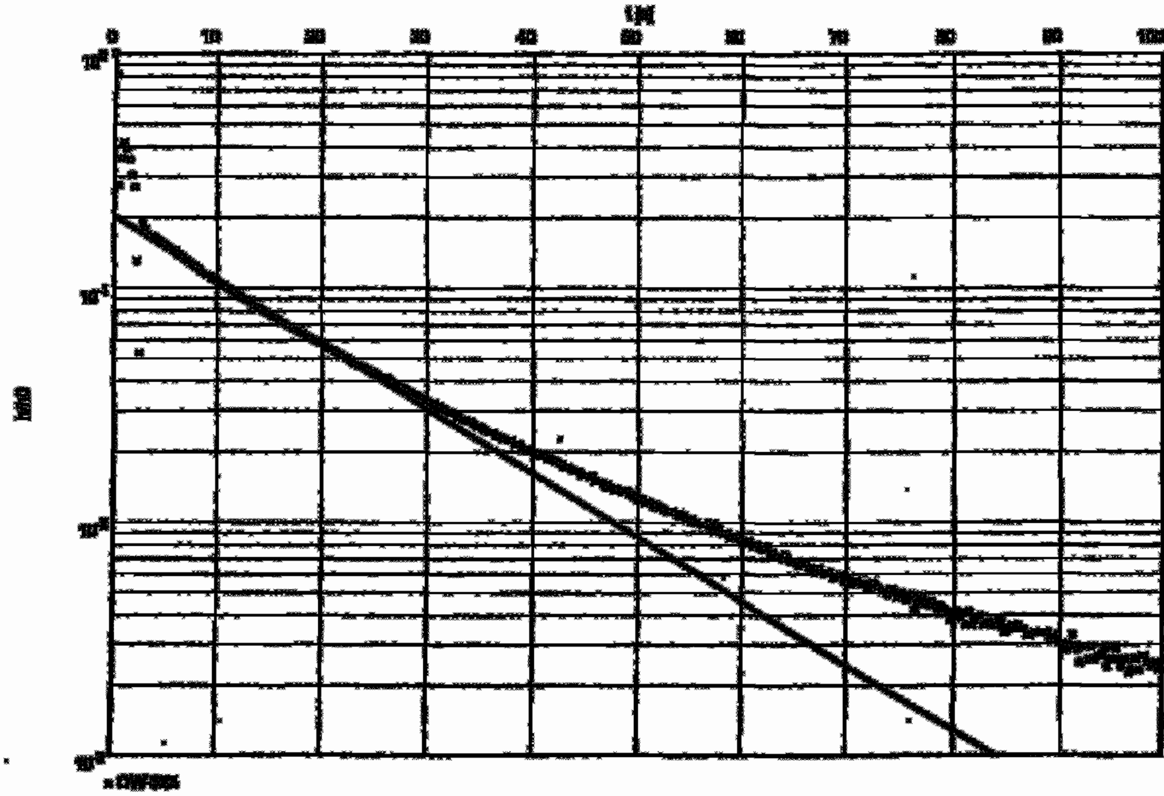
Schnabel Engineering North, LLC [illegible] Quince Orchard Road, Suite 700 Gaithersburg, MD [illegible] [illegible]	slug test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
CW-[illegible]	



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 90° humid

PROJECT NO.: [illegible]
CLIENT: Nuclear Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-328
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	70.5
Screen Interval Depth (ft, TOC):	60-70'
Riser Height (ft):	2'

1 Pre-Test Water Level (ft, TOC)/ Time: 40.86 ft / 8:15 AM
2 Water Level after Probe Insertion (ft, TOC)/ Time: 40.85 ft / 8:37 AM
3 Transducer Depth: 48 ft
4 Calc. Pre-Test Head over Transducer: 8.15
5 Measured Pre-Test Head over Transducer: 7.28
6 Time Test Started: Pre-test / Slug test 8:38 AM / 8:41 AM
7 Time Test Ended: 10:14 AM
8 ~~Pressure Transducer~~ Water at End of Test: 7.26 ft
9 . Datalogger File Name: 06R0048-PTD-OW-328-SLUG

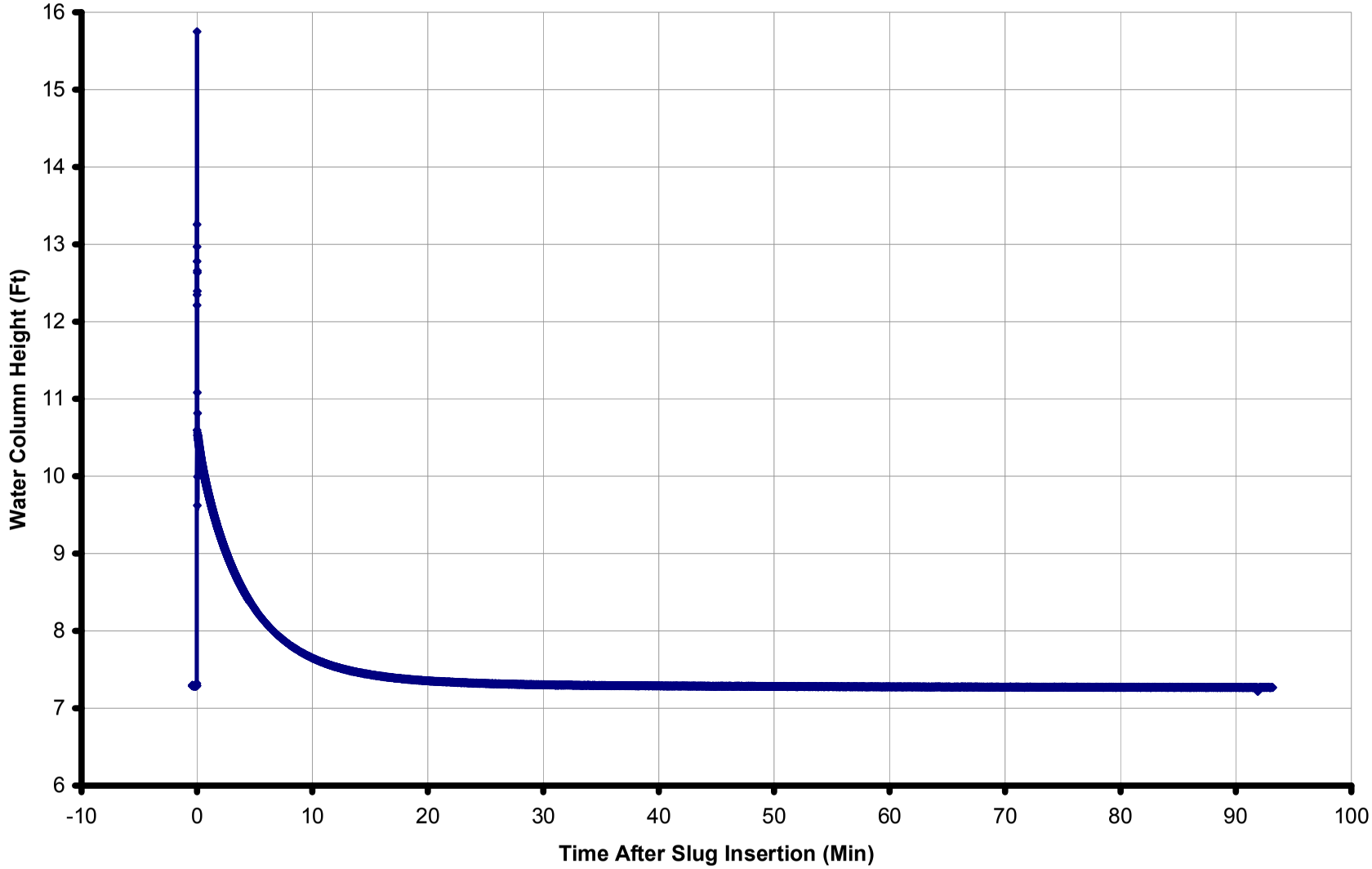
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-328 Permeability Test



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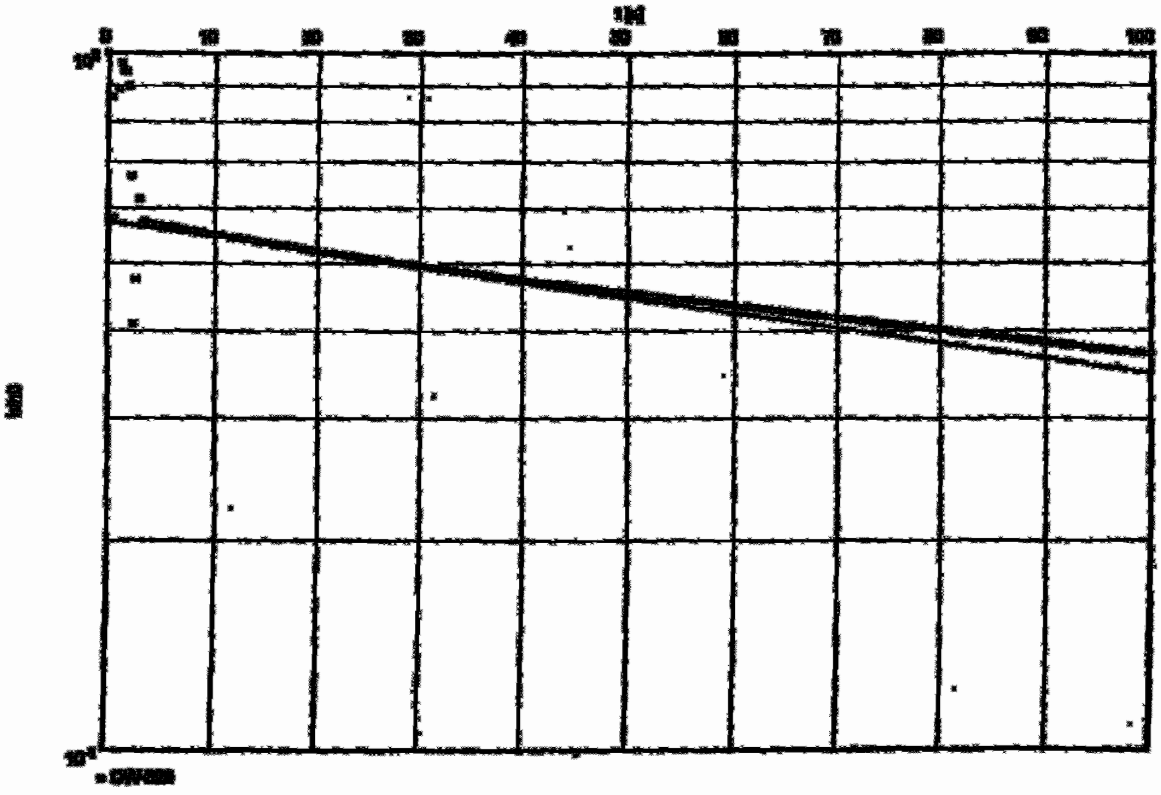
[illegible]	[illegible]	[illegible]	Page 1
		Project: [illegible]	
		Reviewed by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity (ft/d): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Screen = [illegible] ft
Reviewed by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GDLA Project
LOCATION: Calvert Cliffs, MD
DATE: July 31, 2006
WEATHER/TEMP: 90-humid

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Method of Water Withdrawal/ Injection:	(Mechanical Slug / Water Injection/removal)
Volume of Slug:	0.625 GAL
Water Level Meter Make and Model:	WLP-001
Water Level Meter S/N:	—
Transducer Make and Model:	SLUG-001
Transducer S/N:	104259

WELL INFORMATION	
WELL ID:	OW-33
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Depth of Well (ft, TOC):	75.2
Screened Interval (ft, TOC):	60-70'
Riser Height (ft):	2'

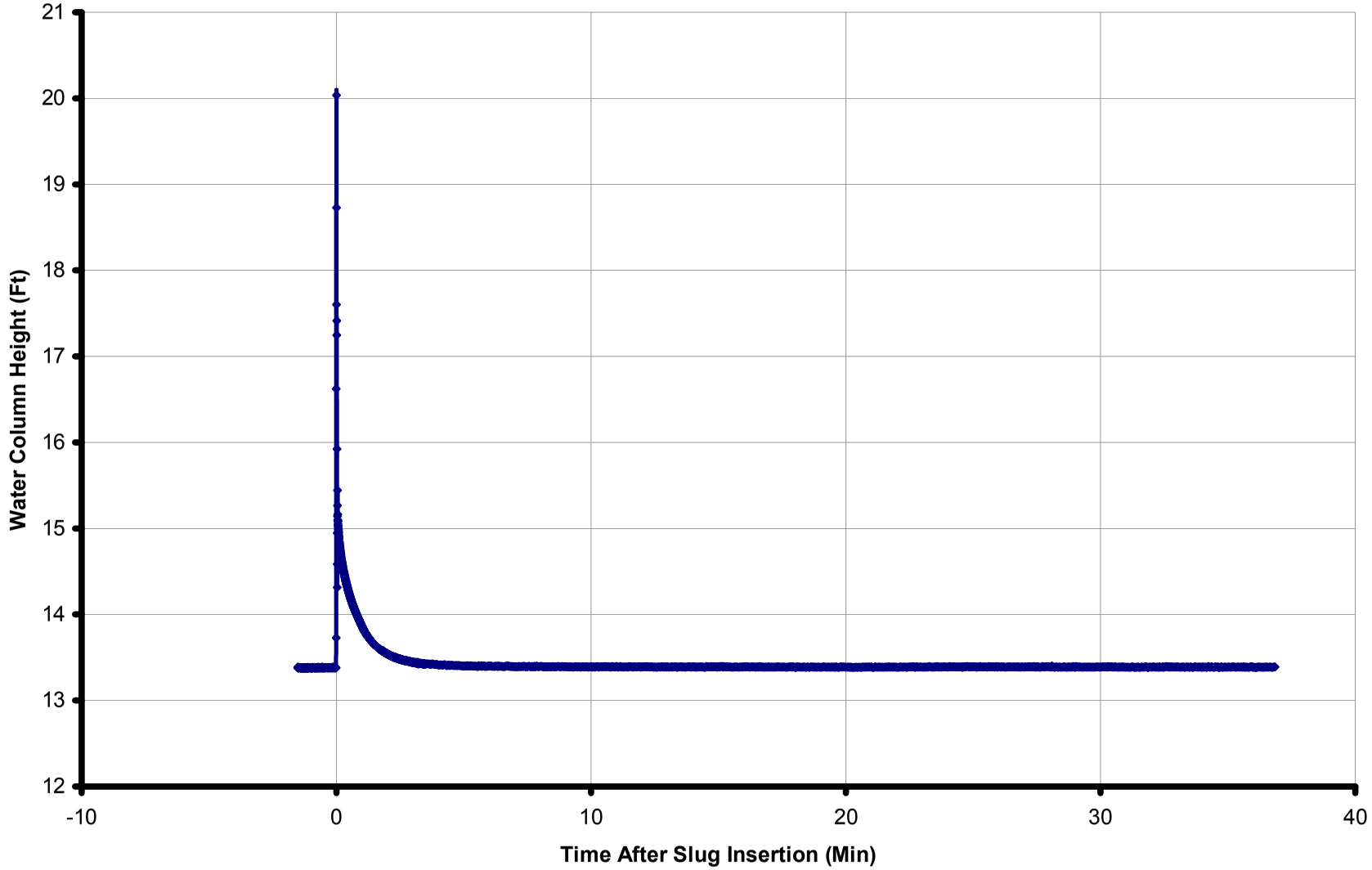
1 Pre-Test Static Depth to Water (ft, TOC): 60.84 ft / 11:36 AM — pre-test 60.83 ft / 11:40 AM
2 Transducer Depth: 71 ft
3 Calc. Pre-Test Head over Transducer: 13.7 ft
4 Measured Pre-Test Head over Transducer: 13.58 ft
5 Time Test Started: Pre-test/slug test 11:45 AM / 12:25 PM
6 Time Test Ended: 13:00
7 Percent Recovery at End of Test: Head 13.39 ft
8 Datalogger File Name: 06120048-TD-OW-33-SLD6

Comments:

NAME: Todd White
SIGNATURE: [signature]

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-336 Permeability Test



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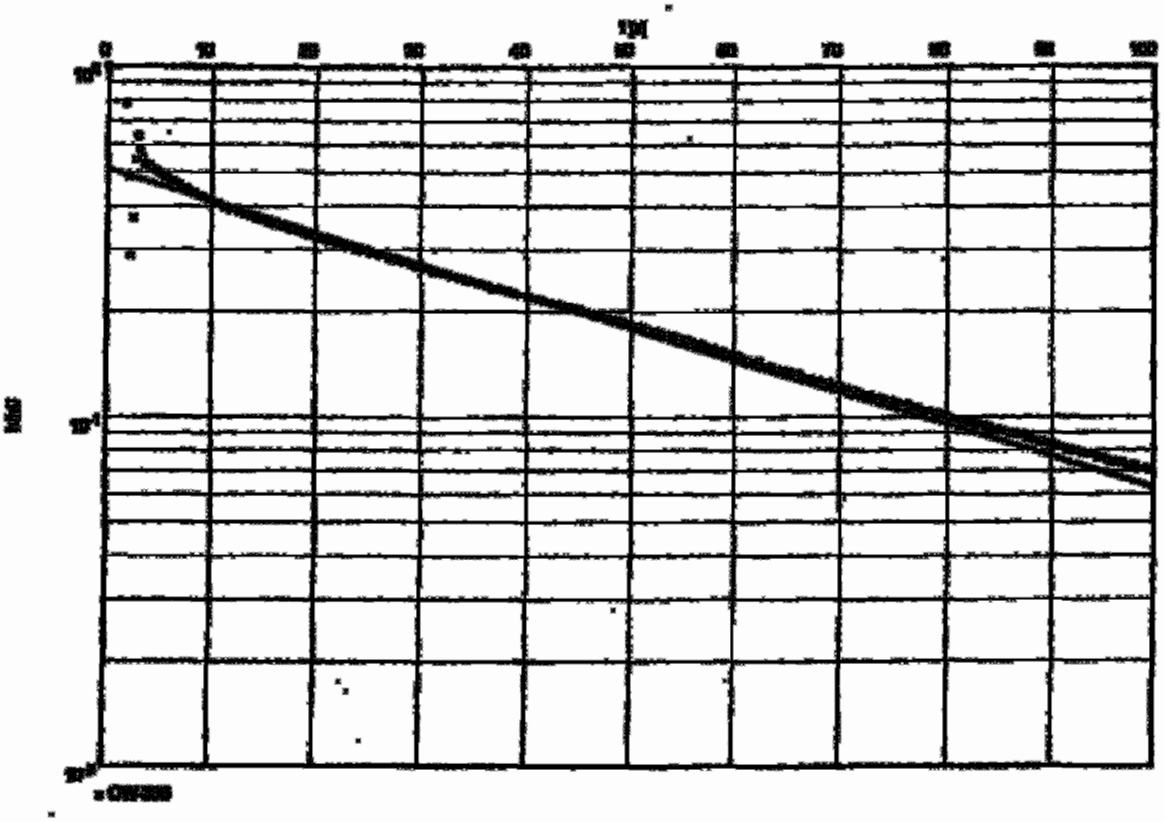
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]
[illegible]	



Hydraulic conductivity [illegible]

INPUT PARAMETERS
[illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Influence = [illegible]
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 28, 2006
WEATHER/TEMP: 90 - humid

PROJECT NO.: [illegible]
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	([illegible] / Water)
Approximate Volume of Slug:	0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104213
Slug S/N:	SLUG-003

WELL INFORMATION	
WELL ID:	OW-401
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	77.35'
Screen Interval Depth (ft, TOC):	63-73
Riser Height (ft):	2.1

1 Pre-Test Water Level (ft, TOC)/ Time: 34.23 ft / 9:11 AM
2 Water Level after Probe Insertion (ft, TOC)/ Time: 34.22 ft / 9:30 AM
3 Transducer Depth: 45 ft
4 Calc. Pre-Test Head over Transducer: 13.78 ft
5 Measured Pre-Test Head over Transducer: 11.12 ft
6 Time Test Started: Rise Head / Slug test 9:15 AM / 9:33 AM
7 Time Test Ended: 9:59 AM
8 Percent Recovery at End of Test: 14.19 ft
9 Datalogger File Name: 0620017-PTD-OW-401-SLUG

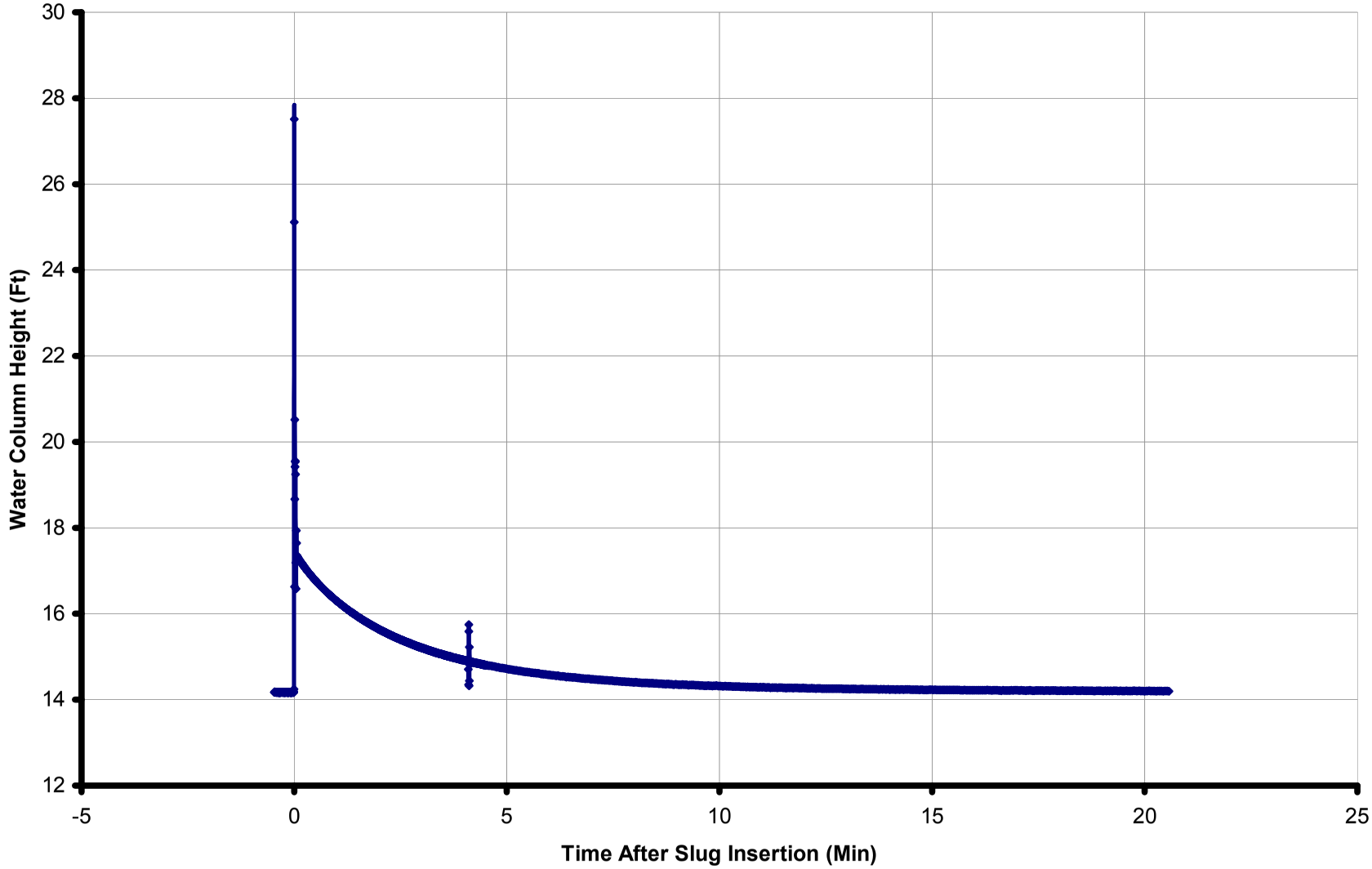
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 28, 2006
Approved By: [illegible] Date: 7/31/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-401 Permeability Test



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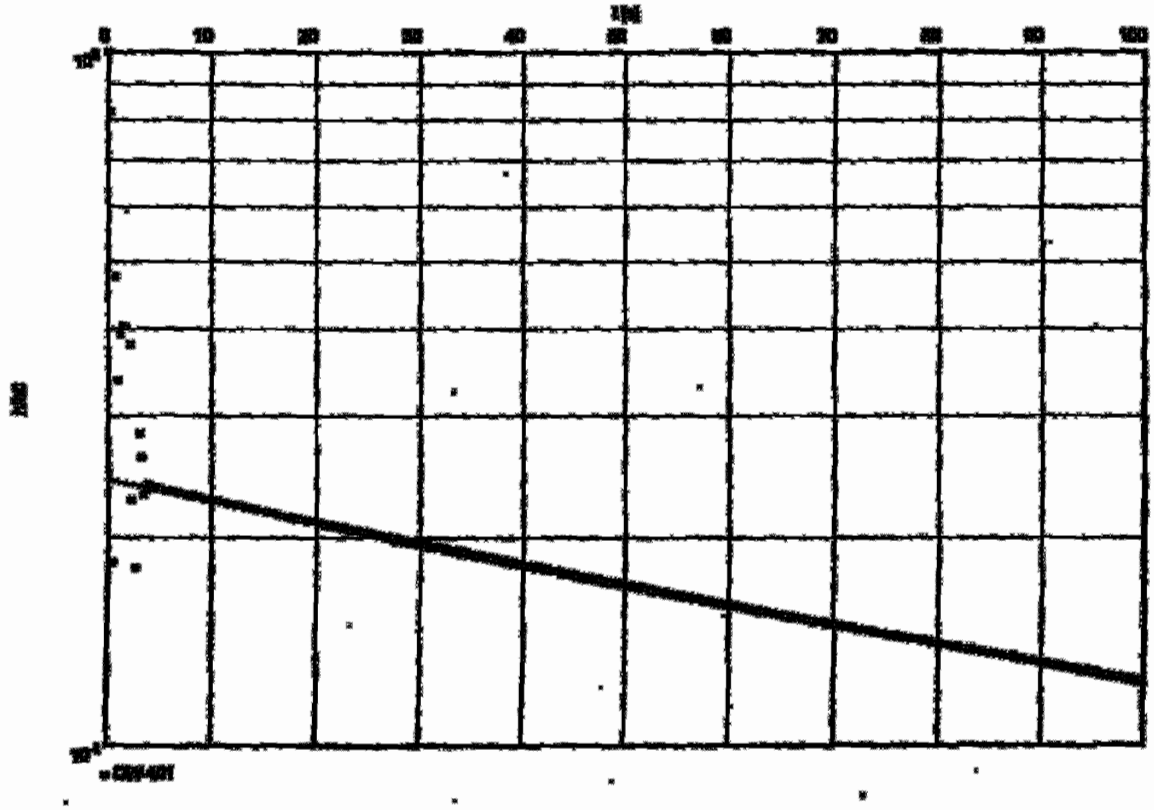
[illegible]	[illegible]	[illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	
Slug Test No. 401		Test conducted on: [illegible]	
CRS-401			



Hydraulic conductivity (Slug): 3.27×10^{-4}

INPUT PARAMETERS
Static Water Level = 14.17 ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Reference = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Underground Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Calvert Cliffs, MD
DATE: 7/13/06
WEATHER/TEMP: 95 - humid

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Method of Water Withdrawal/ Injection:	(Mechanical Slug / Water Injection/removal)
Volume of Slug:	~~[illegible] Gal~~ 0.625 Gal
Water Level Meter Make and Model:	WLP-08
Water Level Meter S/N:	
Transducer Make and Model:	
Transducer S/N:	104255 3U36-001

WELL INFORMATION	
WELL ID:	PZ-13A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Depth of Well (ft, TOC):	49.19
Screened Interval (ft, TOC):	35'-45'
Riser Height (ft):	2'

1. Pre-Test Static Depth to Water (ft, TOC): 45.86 / 8:55 AM
2. Transducer Depth: 49'
3. Calc. Pre-Test Head over Transducer: 3.12 ft
4. Measured Pre-Test Head over Transducer: 3.16 ft
5. Time Test Started: Slug test 9:01 AM
6. Time Test Ended: 11:12 AM
7. Percent Recovery/Head at End of Test: 3.25 ft
8. Datalogger File Name: 06120048-PTD-01-PZ13A.VDG

PRE-TEST 45.86' / 9:20 AM
NOTE Bottom of slug @ 48' depth. Slug may not be fully submerged!

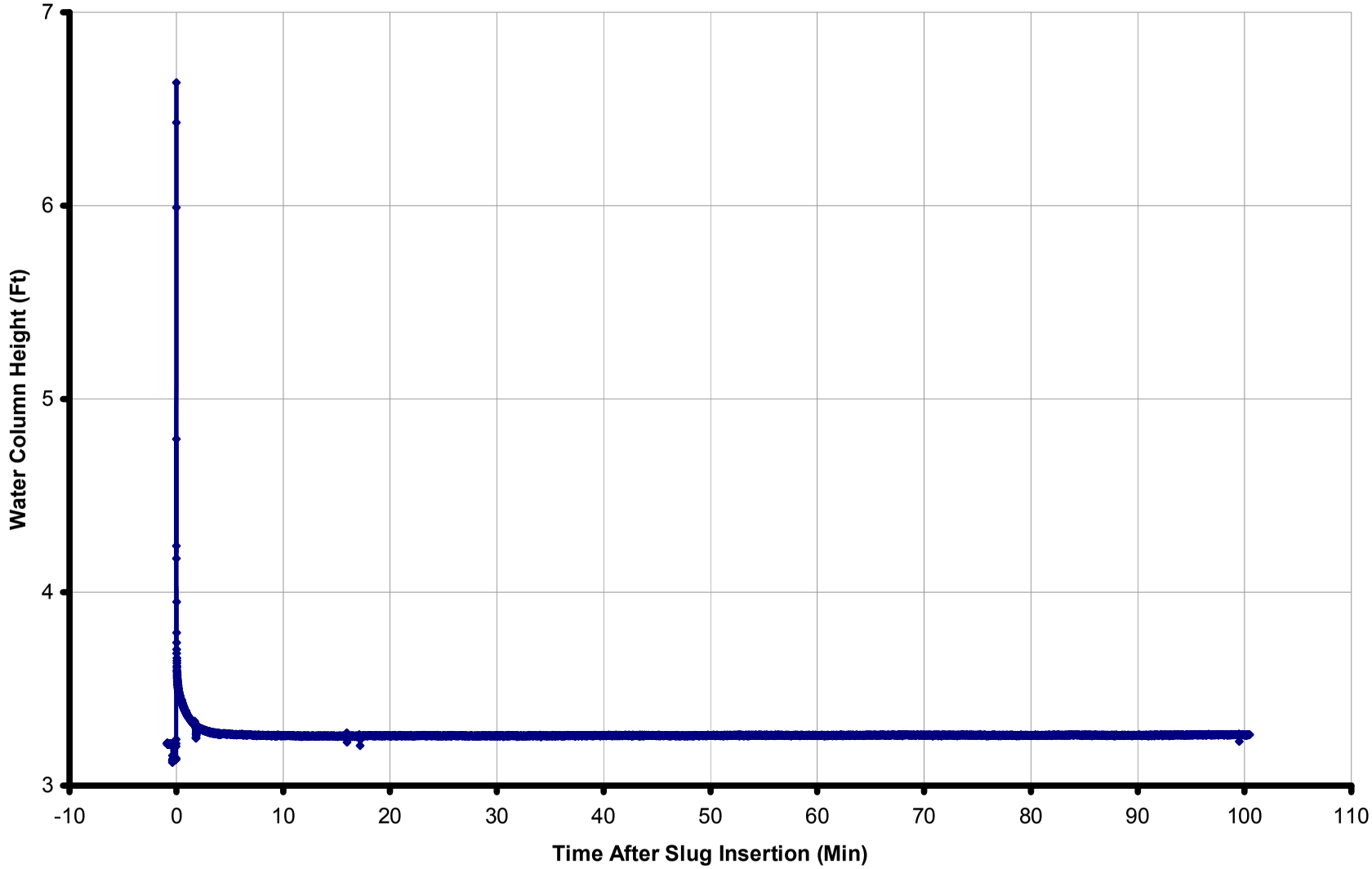
Comments:

NAME: Todd [illegible]
SIGNATURE: [illegible]

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

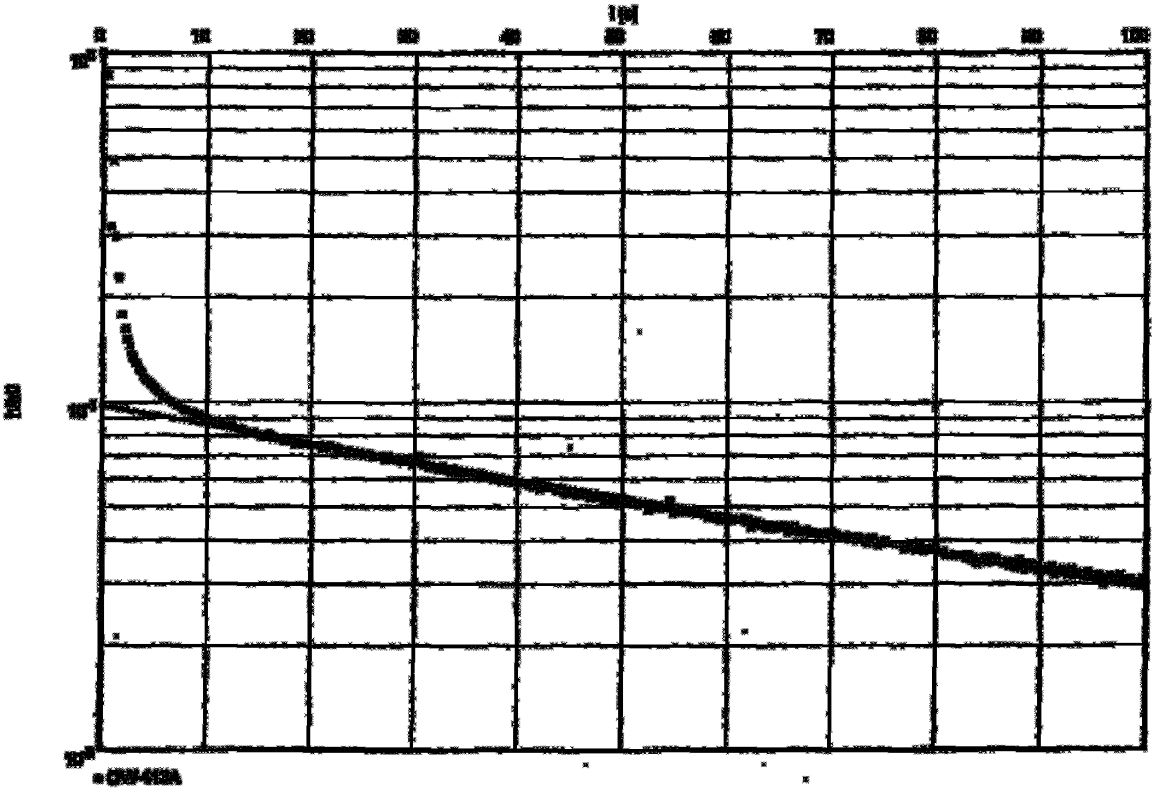
OW-413A Permeability Test



Schnabel
Schnabel Engineering

[illegible]	[illegible]	Date: [illegible]	Page 1
		Project: [illegible]	
		Reviewed by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [m/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible]
Depth to Bottom of Aquifer = [illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Influence = [illegible]
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Subsurface Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Calvert Cliffs, MD
DATE: July 21, 2008
WEATHER/ TEMP: [illegible]

PROJECT NO.: 08120048
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Method of Water Withdrawal/ Injection:	(Mechanical Slug / Water Injection/removal)
Volume of Slug:	[illegible] 0.125 GAL
Water Level Meter Make and Model:	
Water Level Meter S/N:	LLP-001
Transducer Make and Model:	
Transducer S/N:	104159 SU16-002

WELL INFORMATION	
WELL ID:	OW-413B
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Depth of Well (ft, TOC):	500
Screened Interval (ft, TOC):	110-120'
Riser Height (ft):	2'

1 Pre-Test Static Depth to Water (ft, TOC): 86.55 / 9:00 AM
2 Transducer Depth: 100 ft
3 Calc. Pre-Test Head over Transducer: 13.45 ft
4 Measured Pre-Test Head over Transducer: 13.90 ft
5 Time Test Started: Rising/Slug test 9:42 AM / 9:47 AM
6 Time Test Ended: 11:09 AM
7 Pressure/Stability at End of Test: 13.88 ft
8 Datalogger File Name: 08120048-PD-OW-413B-SL08

PRE-TEST 86.55 / 9:41 AM

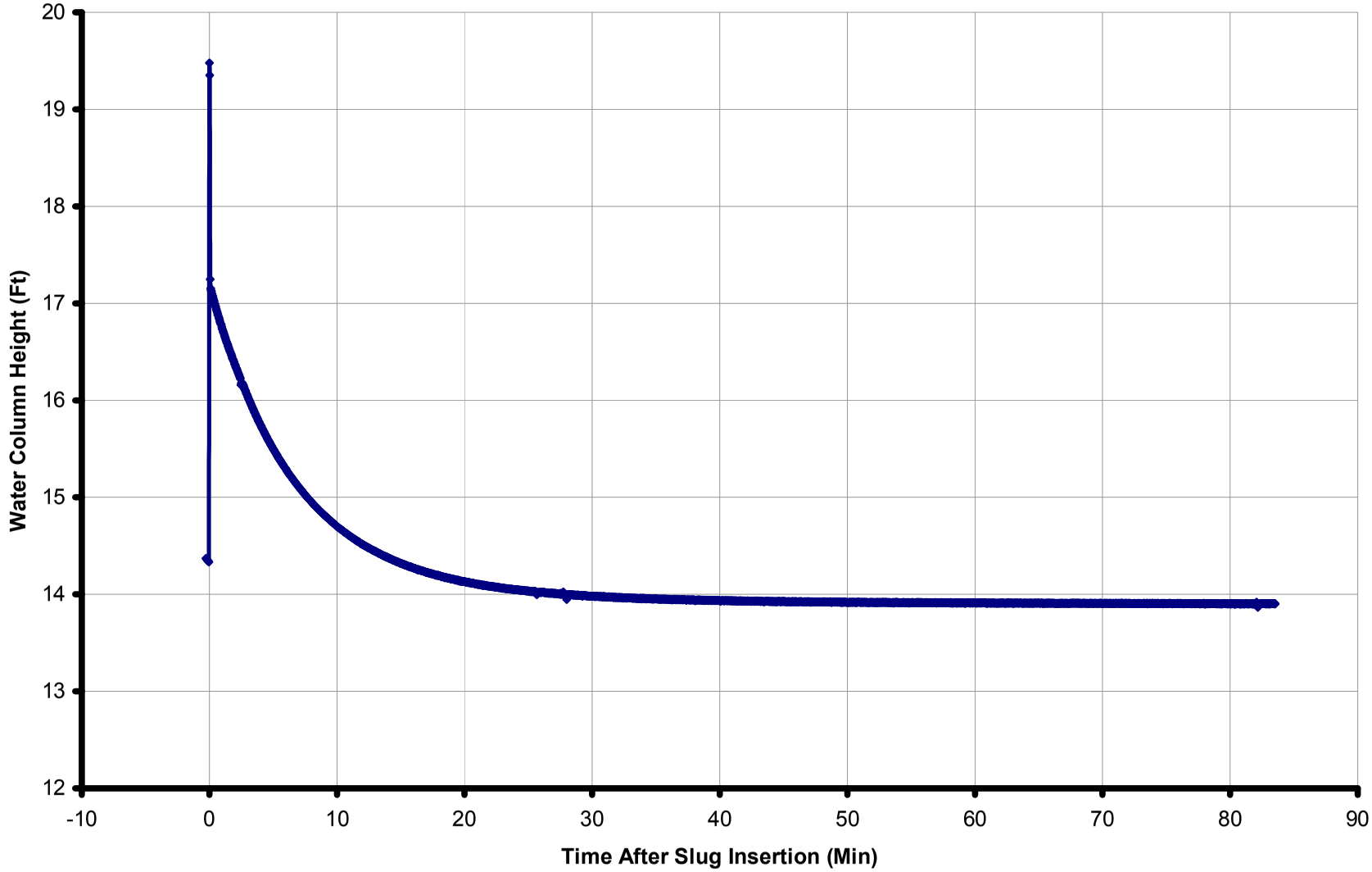
Comments:

NAME: Todd Wilson
SIGNATURE: [signature]

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

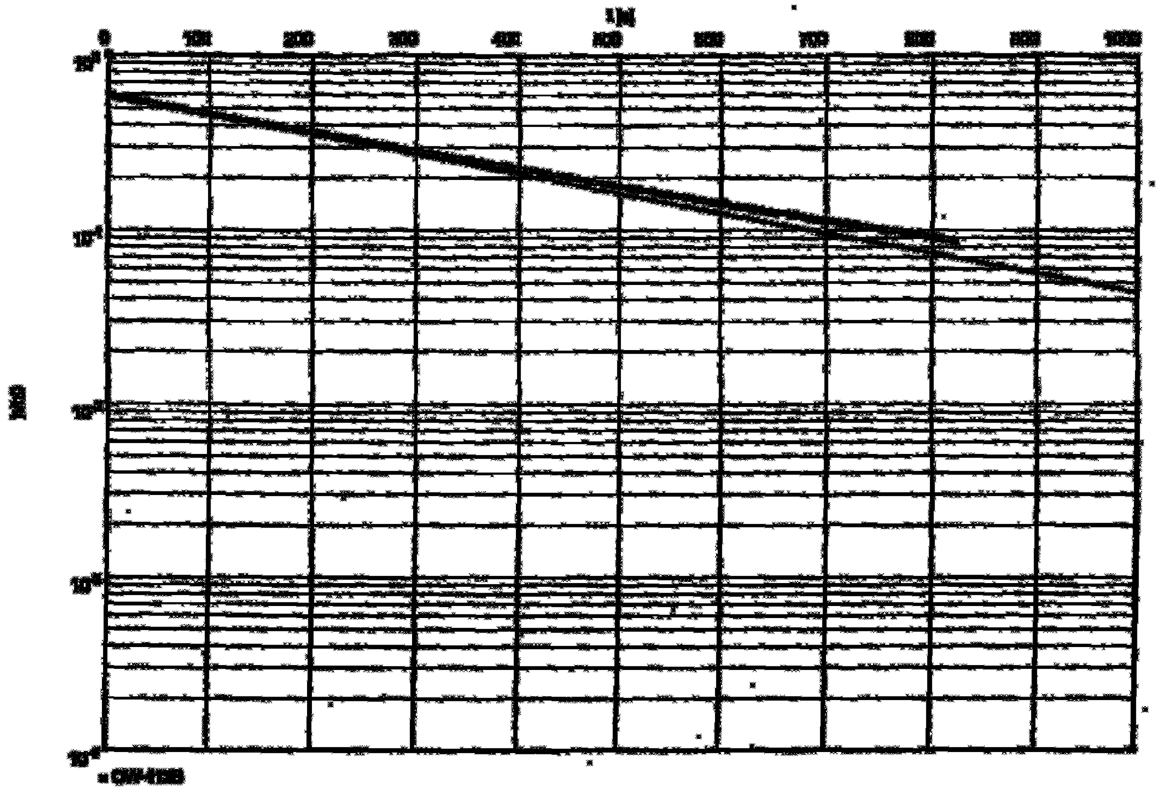
OW-413B Permeability Test



Schnabel
Schnabel Engineering

[illegible] Engineering [illegible], LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	Slug test analysis [illegible]'s method	Date: [illegible] — Page 1 Project: Calvert Cliffs Evaluated by: [illegible]

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: 3.78 x 10[illegible]

INPUT PARAMETERS
Static Water Level = 13.91 ft
Depth to Bottom of Aquifer = 150.00 ft
Length of Screen = 10.00 ft
Radius of Casing = 0.08 ft
Radius of Influence = 0.25 ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Geotechnical Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GGLA Project
LOCATION: Lusby, MD
DATE: July 28, 2006
WEATHER/ TEMP: 85 - humid

PROJECT NO.: 06120049
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~[illegible]~~ 0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-418A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	39.45
Screen Interval Depth (ft, TOC):	25-35
Riser Height (ft):	2.2'

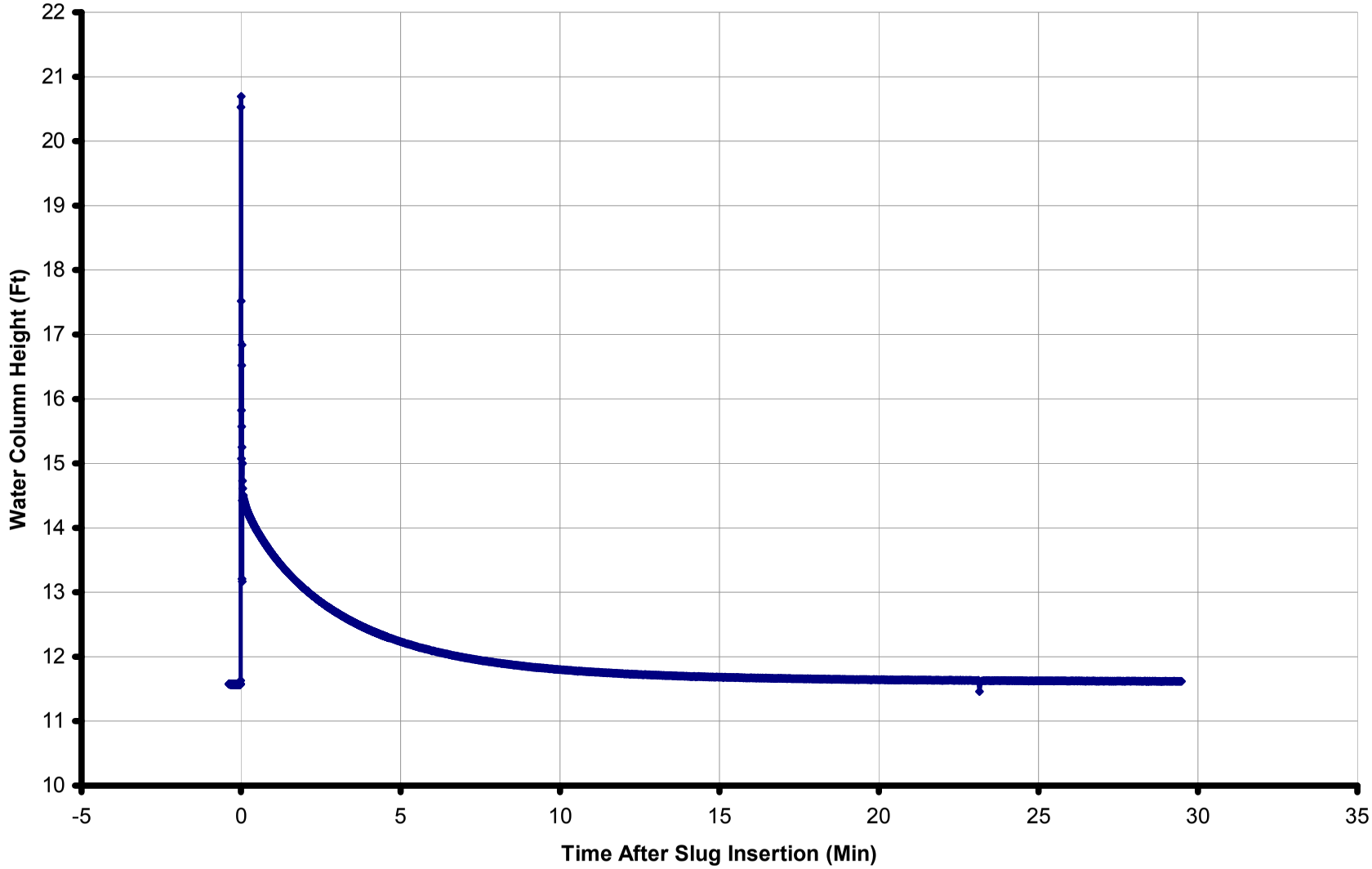
1. Pre-Test Water Level (ft, TOC)/ Time: 8.39 ft/10:50 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 8.39 ft/11:10 AM
3. Transducer Depth: 20 ft
4. Calc. Pre-Test Head over Transducer: 11.61 ft
5. Measured Pre-Test Head over Transducer: 11.52 ft
6. Time Test Started: (Pre-test/Slug test) 10:52/11:17 AM
7. Time Test Ended: 11:41 AM
8. Percent Recovered at End of Test: 11.62 ft
9. Datalogger File Name: 06120049-PTD-OW-418A-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 28, 2006
Approved By: Mark Dougherty Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

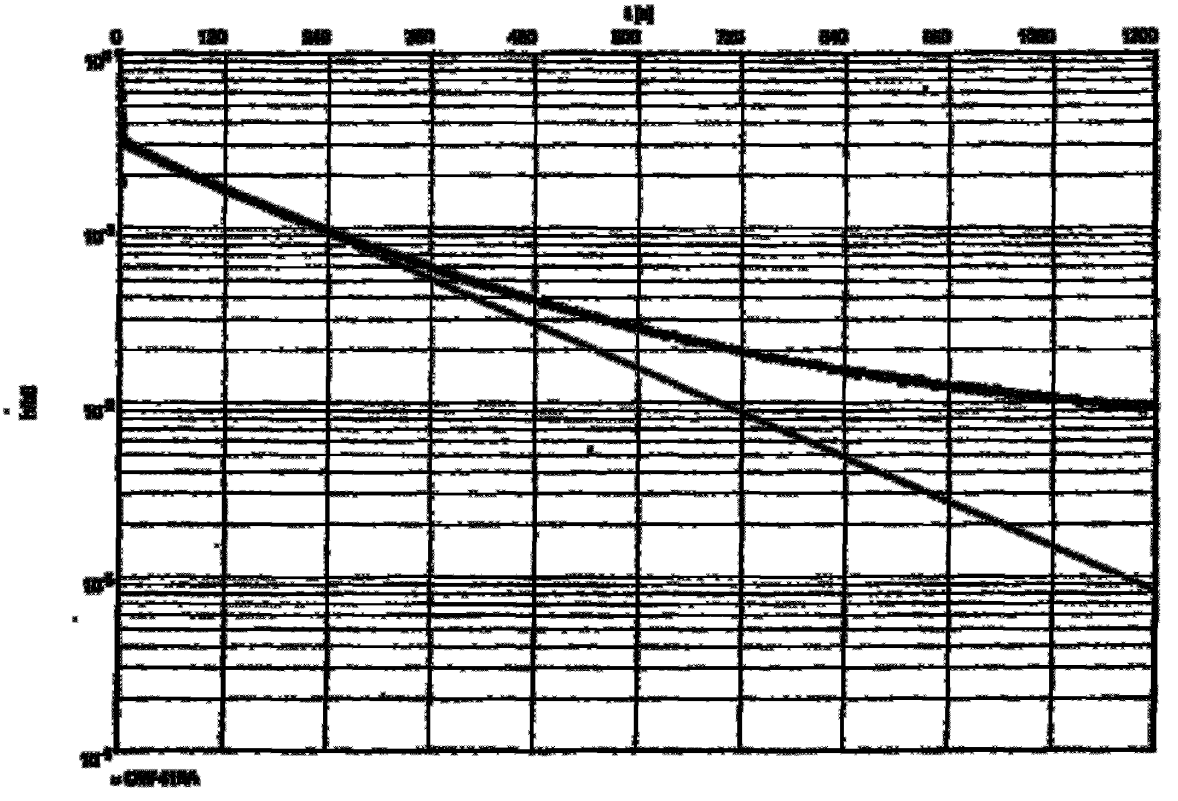
OW-418A Permeability Test



Schnabel
Schnabel Engineering

[illegible]	[illegible]	Date: [illegible]	Page 1
[illegible]		Project: Cultural [illegible]	
[illegible]		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GGLA Project
LOCATION: Lusby, MD
DATE: July 28, 2006
WEATHER TEMP: 90 - humid

PROJECT NO.: [illegible]
CLIENT: Nuclear Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	[illegible] 0.425 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104213
Slug S/N:	SLUG-003

WELL INFORMATION	
WELL ID:	OW-4185
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	25.54
Screen Interval Depth (ft, TOC):	5.85
Riser Height (ft):	2.7

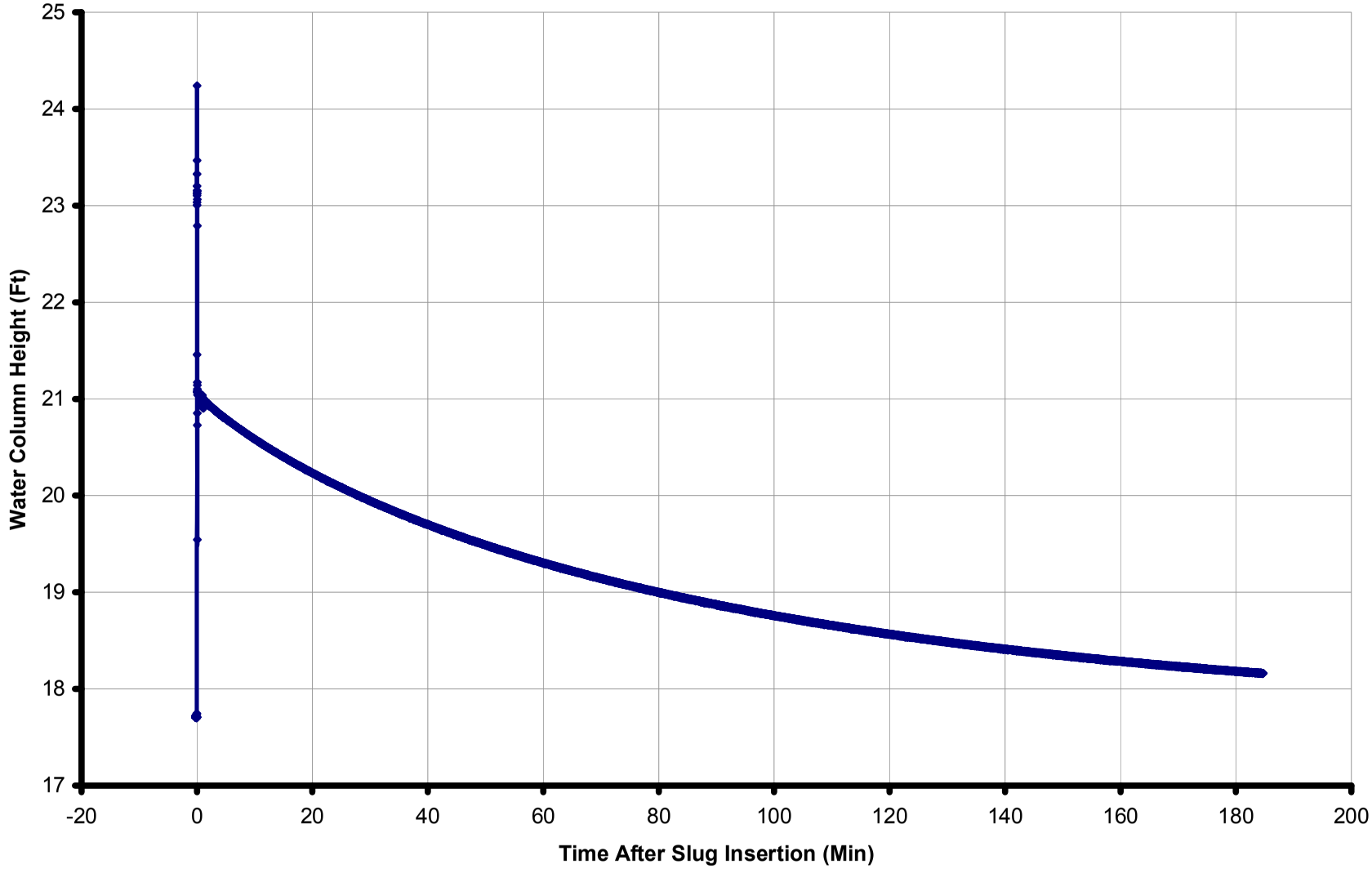
1. Pre-Test Water Level (ft, TOC)/ Time: 12.63 / [illegible] 8:10 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 12.55' / 10:00 AM
3. Transducer Depth: 30 FT
4. Calc. Pre-Test Head over Transducer: 17.45 FT
5. Measured Pre-Test Head over Transducer: 17.67 FT
6. Time Test Started: 8:41 AM / 10:05 AM
7. Time Test Ended: 1:09 PM
8. Recent Hydraulic Head at End of Test: 18.04 FT
9. Datalogger File Name: 06120048-PD-OW-4185-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: 7/28/06
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

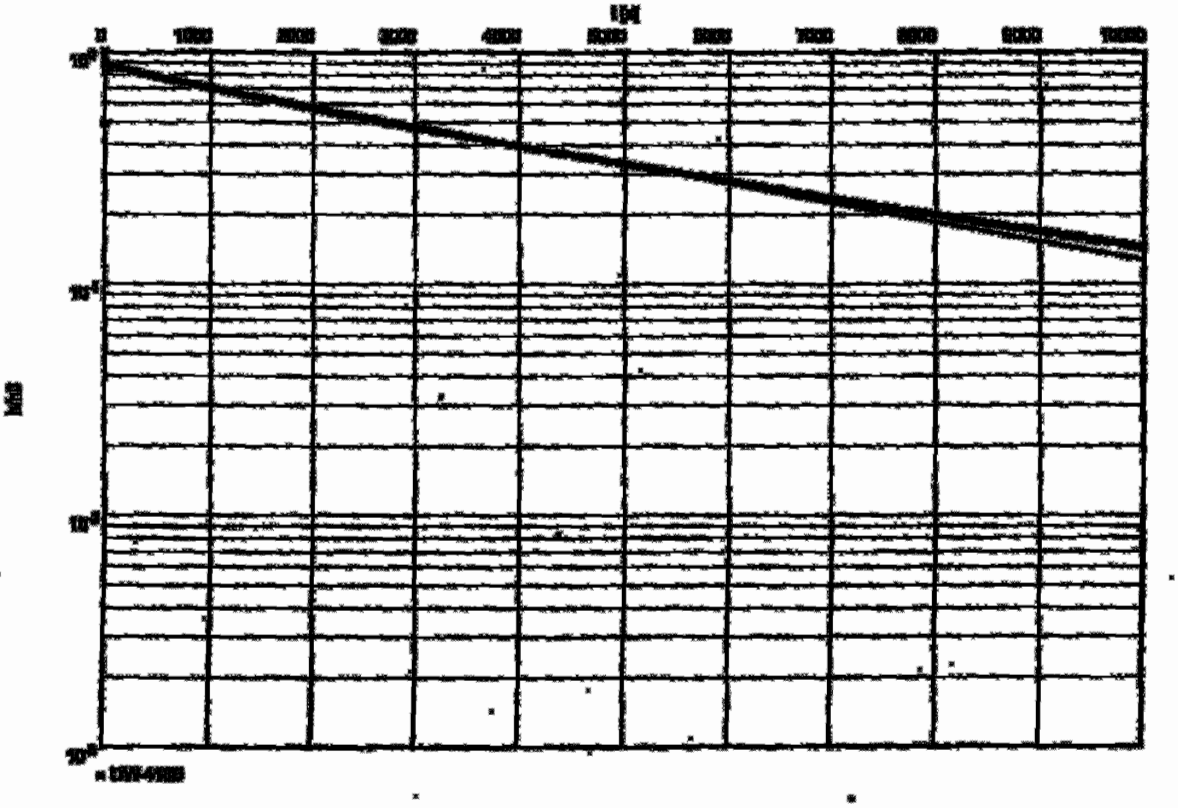
OW-418B Permeability Test



Schnabel
Schnabel Engineering

[illegible]	[illegible]	Date: [illegible] Page 1
[illegible]		Project: [illegible]
[illegible]		Reviewed by: [illegible]

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity (K): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Reviewed by: [illegible]
Reviewed by: [illegible]

Schnabel
Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 24th, 2006
WEATHER/ TEMP: 85° sunny

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	10255
Slug S/N:	Slug-001

WELL INFORMATION	
WELL ID:	OW-423
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	42.12
Screen Interval Depth (ft, TOC):	30-40'
Riser Height (ft):	18"

1	Pre-Test Water Level (ft, TOC)/ Time:	29.76 / 3:09 pm
2	Water Level after Probe Insertion (ft, TOC)/ Time:	29.75 / 3:29 pm
3	Transducer Depth:	40 ft
4	Calc. Pre-Test Head over Transducer:	10.25
5	Measured Pre-Test Head over Transducer:	10.10
6	Time Test Started: Pre-test / Slug test	15:15 / 15:35
7	Time Test Ended:	15:35
8	Pseudo-Equilibrium at End of Test:	10.16
9	Datalogger File Name:	06120048-PTD-OW-423-SLUG

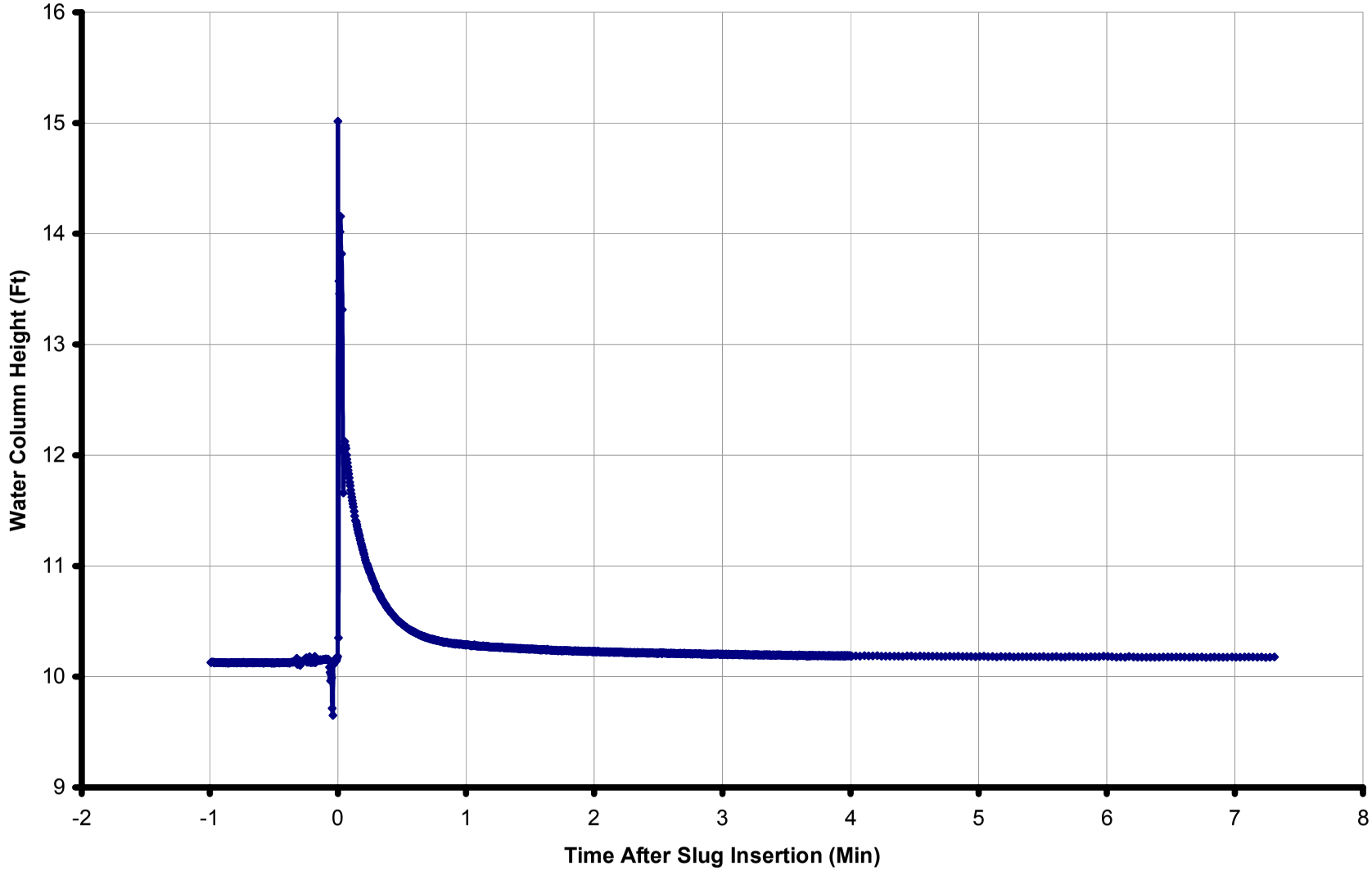
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 24th 2006
Approved By: [signature] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

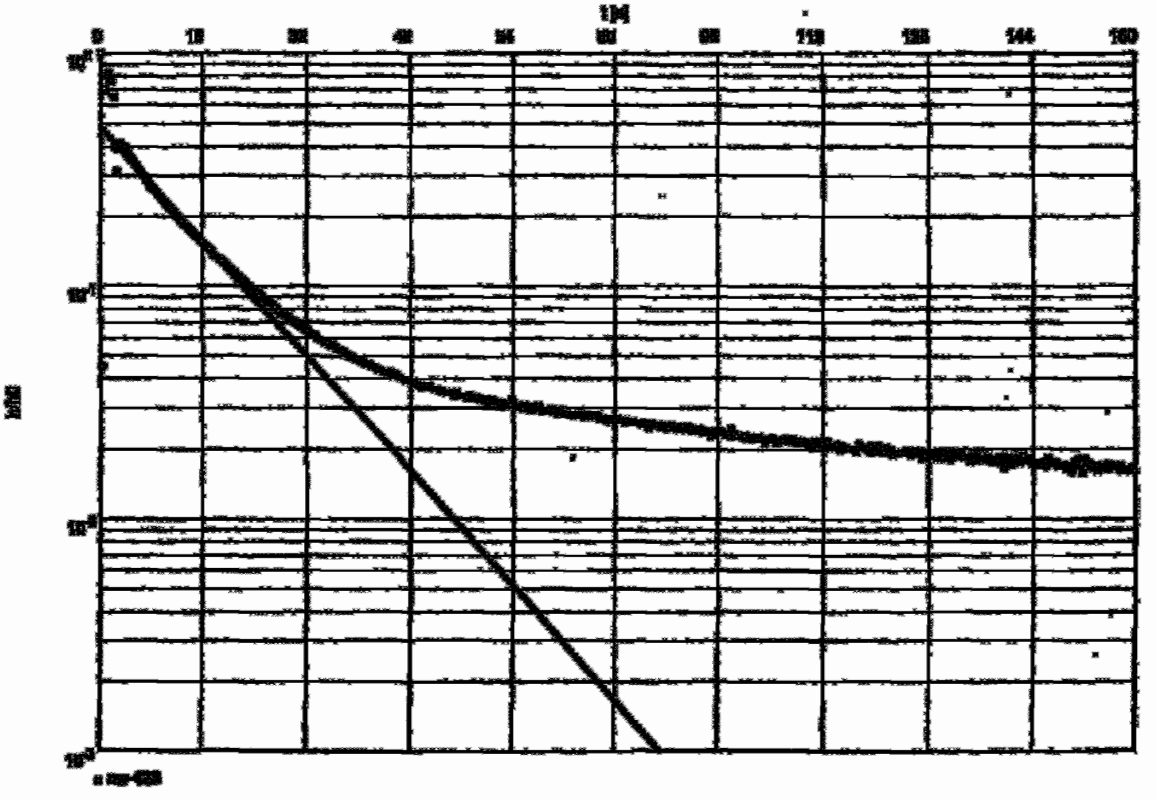
Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-423 Permeability Test



Schnabel
Schnabel Engineering

[illegible] Engineering North, LLC [illegible] Oakwood Road, Suite [illegible] [illegible] [illegible]	[illegible] analysis [illegible] method	Date: [illegible]	Page 1
		Project: Calumet [illegible]	
		Evaluated by: [illegible]	
Slug Test No. [illegible]		Test conducted on: [illegible]	
[illegible]			



Hydraulic conductivity (avg): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Multidisciplinary Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 24, 2006
WEATHER/TEMP: 78° Dry

PROJECT NO.: 0912048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 Gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-425
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	41.05'
Screen Interval Depth (ft, TOC):	30'-40.15'
Riser Height (ft):	19"

1. Pre-Test Water Level (ft, TOC)/ Time: 37.75 / 1:17 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 37.71 / 1:26 pm
3. Transducer Depth: 44 ft
4. Calc. Pre-Test Head over Transducer: 6.25 ft
5. Measured Pre-Test Head over Transducer: 6.12 ft
6. Time Test Started: Pre-test / Slug test 13:20 / 15:45
7. Time Test Ended: 1:50 PM
8. ~~Percent Recovery~~ Head at End of Test: 37.75 0.0 ft
9. Datalogger File Name: 06120048-PTD-OW-425-SLUG

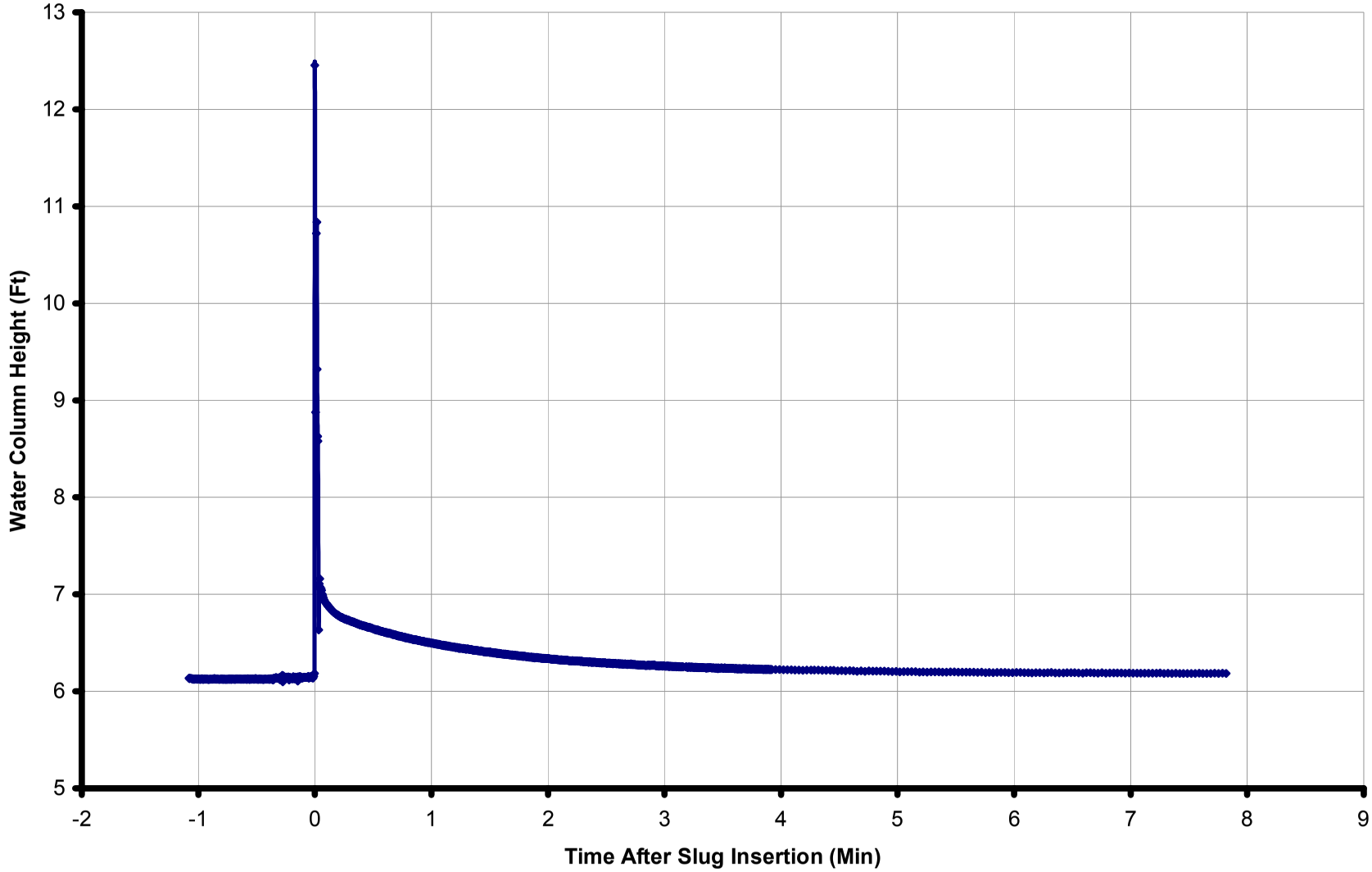
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 24, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

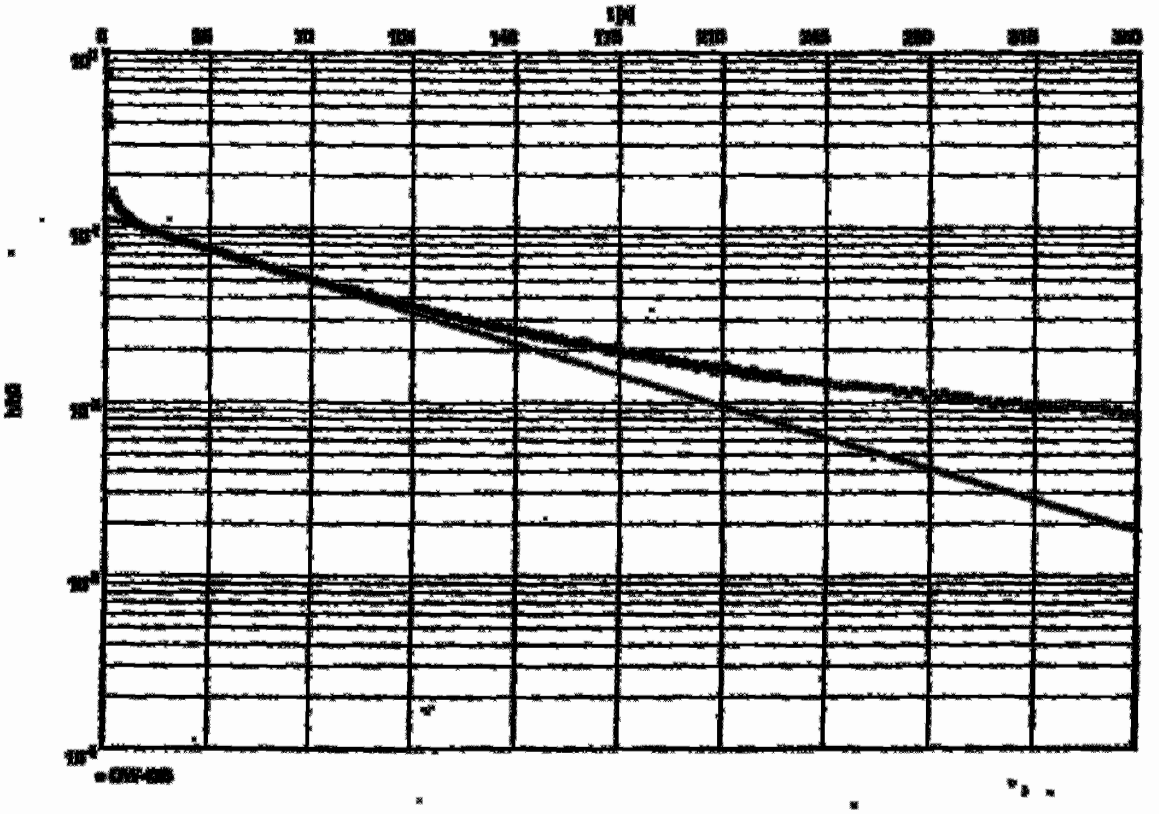
Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-428 Permeability Test



Schnabel
Schnabel Engineering

[illegible]	[illegible]	Date: [illegible] Page 1
		Project: [illegible]
		Engineer: [illegible]
Slug Test No. [illegible]	Test completed on: [illegible]	
[illegible]		



Hydraulic conductivity [m/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Formation = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/ TEMP: 80° Clear

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~[illegible]~~ 0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	101755
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-436
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	43.5'
Screen Interval Depth (ft, TOC):	29-39'
Riser Height (ft):	22.5'

1. Pre-Test Water Level (ft, TOC)/ Time: 31.62 ft / 8:07 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 31.62 ft / 8:35 AM
3. Transducer Depth: 40.0 ft
4. Calc. Pre-Test Head over Transducer: 8.38 ft
5. Measured Pre-Test Head over Transducer: 8.26 ft
6. Time Test Started: Preheat Slug test 8:44 / 8:59 AM
7. Time Test Ended: 9:29 AM
8. ~~Percent~~ Recovery at End of Test: 84%
9. Datalogger File Name: 061206-PH-OW-436-SLUG

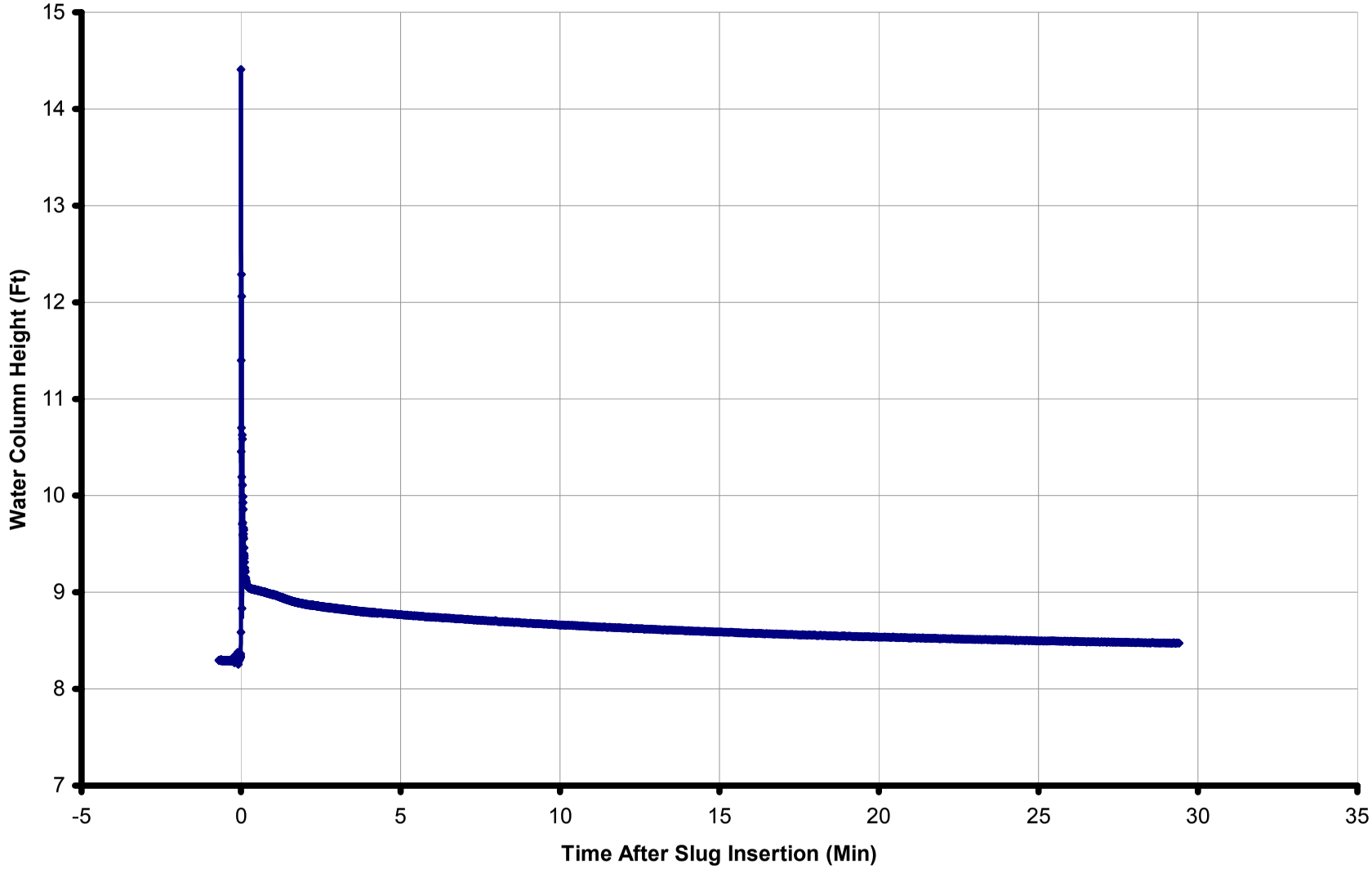
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd Uhl Date: July 25th, 2006
Approved By: [illegible] Date: 4/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

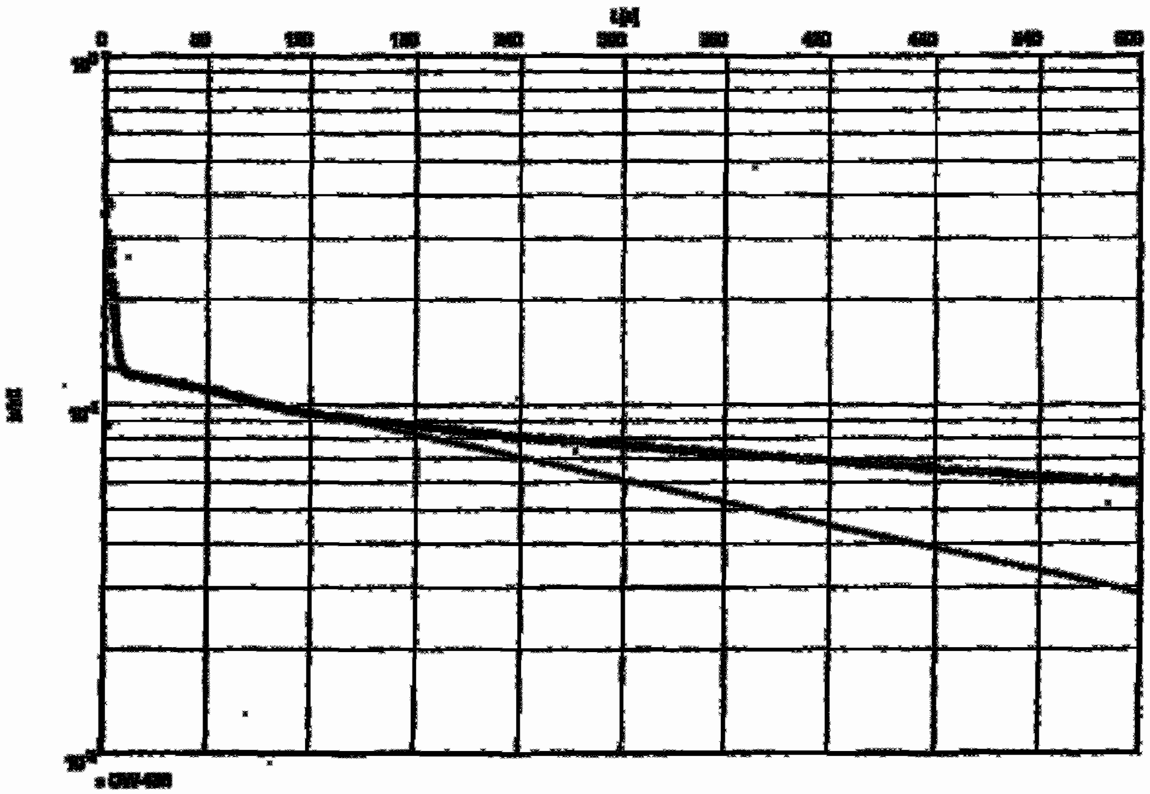
OW-436 Permeability Test



Schnabel
Schnabel Engineering

[illegible] Engineering [illegible], LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug test analysis [illegible] method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/ TEMP: 85, humid

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head/ Rising Head)
Slug Type:	(Aluminum/ Water)
Approximate Volume of Slug:	0.32 Gal — 0.6256 ft
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104256
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-703A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	48.9
Screen Interval Depth (ft, TOC):	35-45
Riser Height (ft):	2'

1	Pre-Test Water Level (ft, TOC)/ Time:	27.33 ft / 8:10 am
2	Water Level after Probe Insertion (ft, TOC)/ Time:	27.34 ft / 8:36 AM
3	Transducer Depth:	40 ft
4	Calc. Pre-Test Head over Transducer:	12.66 ft
5	Measured Pre-Test Head over Transducer:	12.52 ft
6	Time Test Started: Pre test / Slug test	8:15 AM / 8:40 AM
7	Time Test Ended:	9:06 AM
8	Manual Recovery at End of Test:	12.59 ft
9	Datalogger File Name:	060726-PTD-OW-703A--SLUG

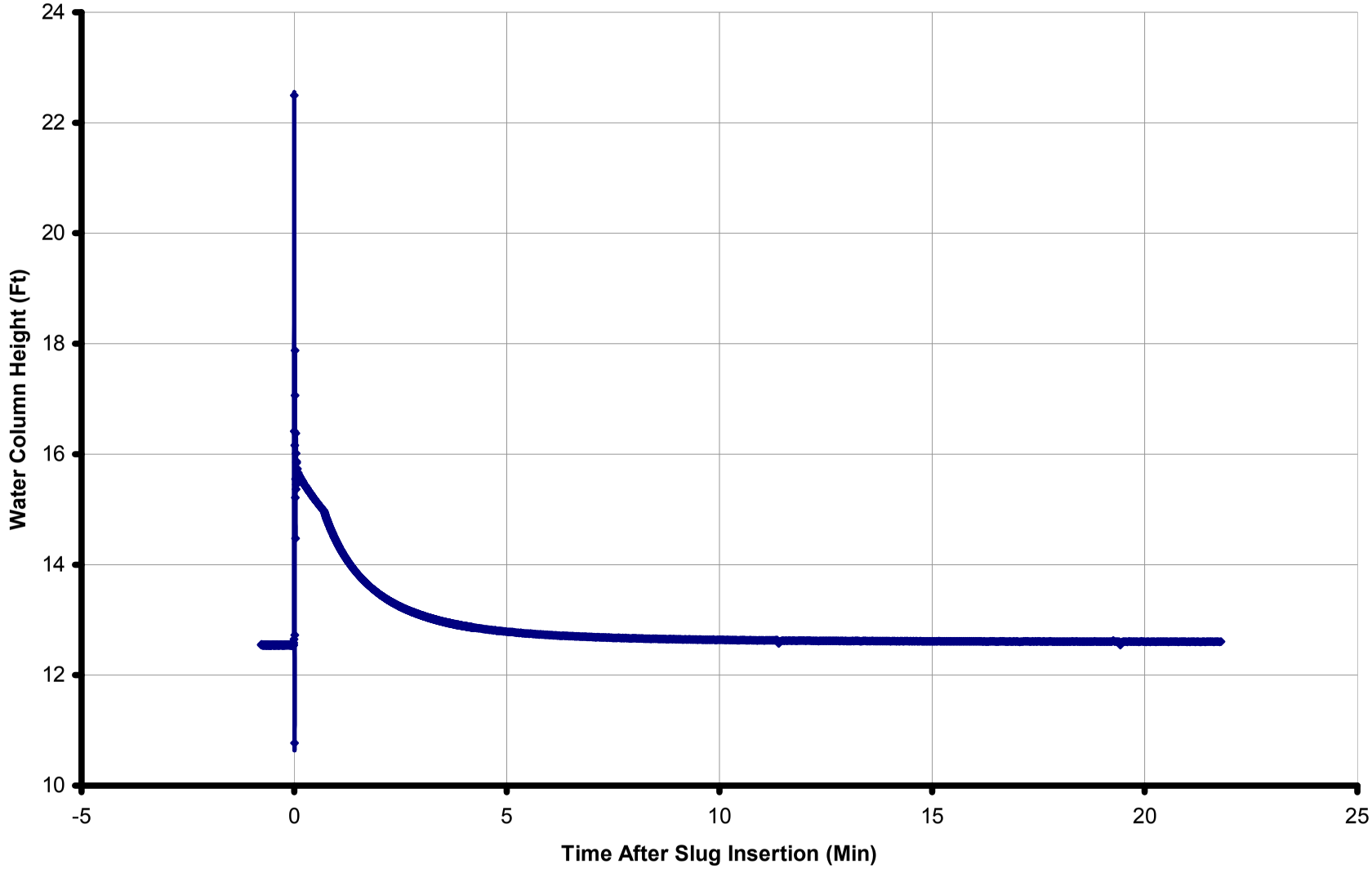
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: [signature] Date: July 26, 2006
Approved By: [signature] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-703A Permeability Test



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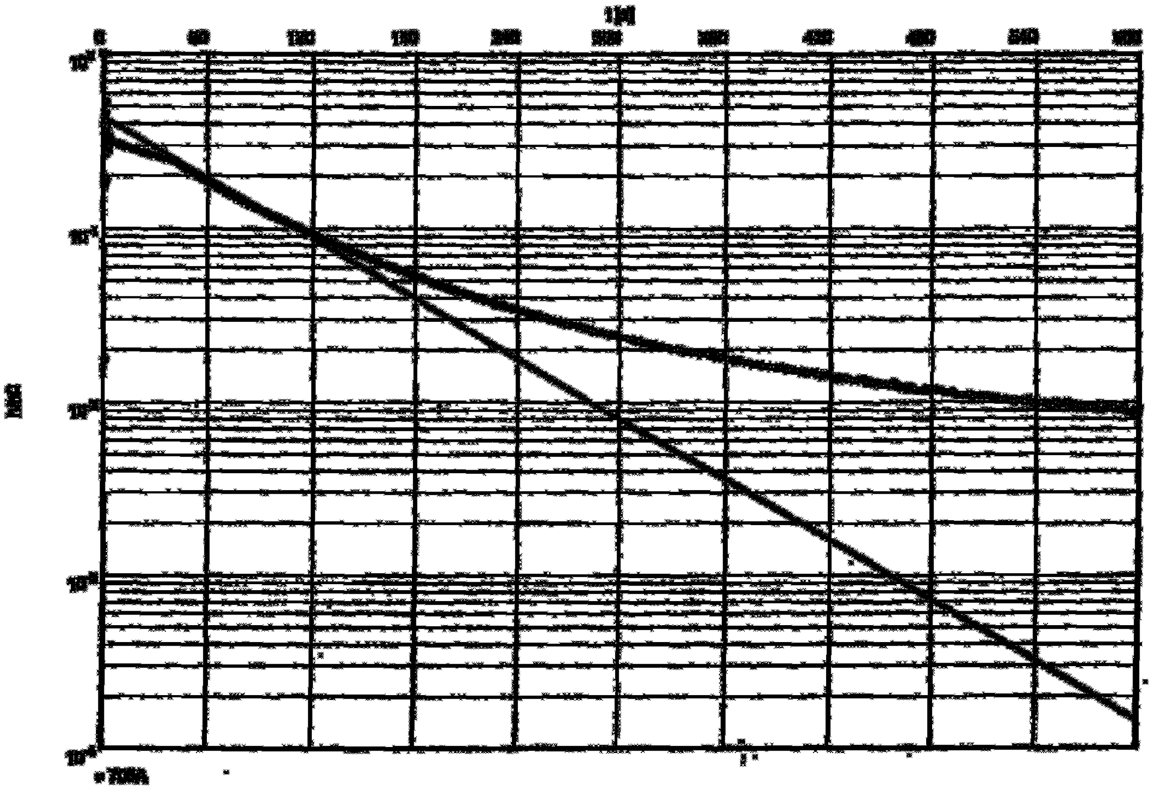
Schnabel Engineering North, LLC [illegible] [illegible] [illegible]	slug test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. 702A	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible]
Depth to Bottom of Aquifer = [illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Influence = [illegible]
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/ TEMP: [illegible]

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	[illegible] 0.625 GAL
Manual Water Level Meter S/N:	LL-P-001
Transducer S/N:	101259
Slug S/N:	SLUG-002

WELL INFORMATION	
WELL ID:	OW-703R
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	81.65
Screen Interval Depth (ft, TOC):	68-78
Riser Height (ft):	2'

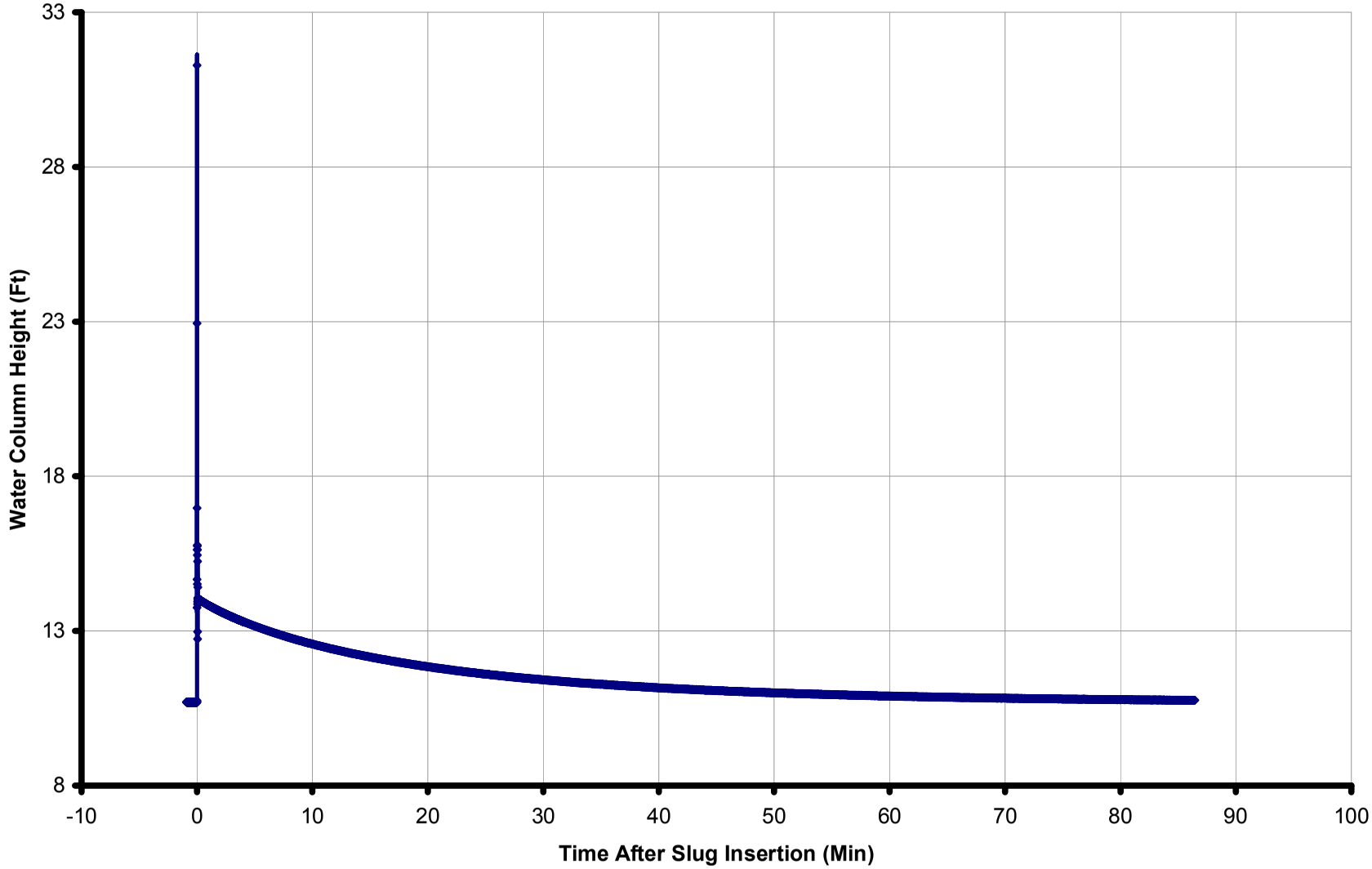
1. Pre-Test Water Level (ft, TOC)/ Time: 29.30 / 8:53 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 29.27 AM / 9:42 AM
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 10.73 ft
5. Measured Pre-Test Head over Transducer: 10.69 ft
6. Time Test Started: Pre-test / Slug test 9:01 AM / 9:49 AM
7. Time Test Ended: 11:16 AM
8. Final Head Recovery at End of Test: 10.29 ft
9. Datalogger File Name: 060048-PTD-OW-703R-Slug

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-703B Permeability Test



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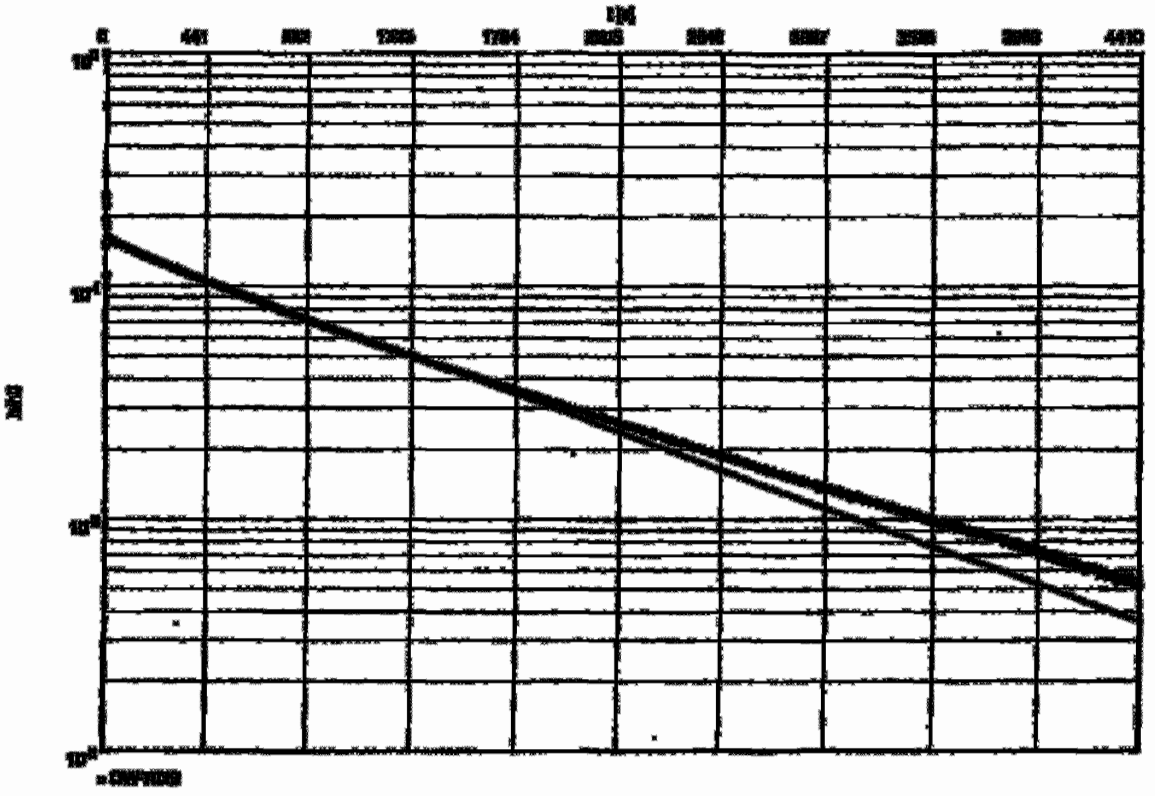
[illegible]	[illegible]	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	
Slug Test No. [illegible]		Test conducted on [illegible]	
[illegible]			



Hydraulic conductivity (K): [illegible]

SUPPLIT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]

Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 90's humid

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.32 Gals~~ 0.625 GAL
Manual Water Level Meter S/N:	~~[illegible]~~ WLP-001
Transducer S/N:	104255
Slug S/N:	Slug-001

WELL INFORMATION	
WELL ID:	OW-705
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	51.46
Screen Interval Depth (ft, TOC):	40-50
Riser Height (ft):	2' 5"

1. Pre-Test Water Level (ft, TOC)/ Time: 20.28 ft / 2:49 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 20.27 ft / 3:16 pm
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 19.73
5. Measured Pre-Test Head over Transducer: 19.58
6. Time Test Started: Re-test / Slug test 2:52 / 3:24 pm
7. Time Test Ended: 4:22 pm
8. Percent Recovery at End of Test: 19.65
9. Datalogger File Name: [illegible]-PTD-OW-705-SLUG

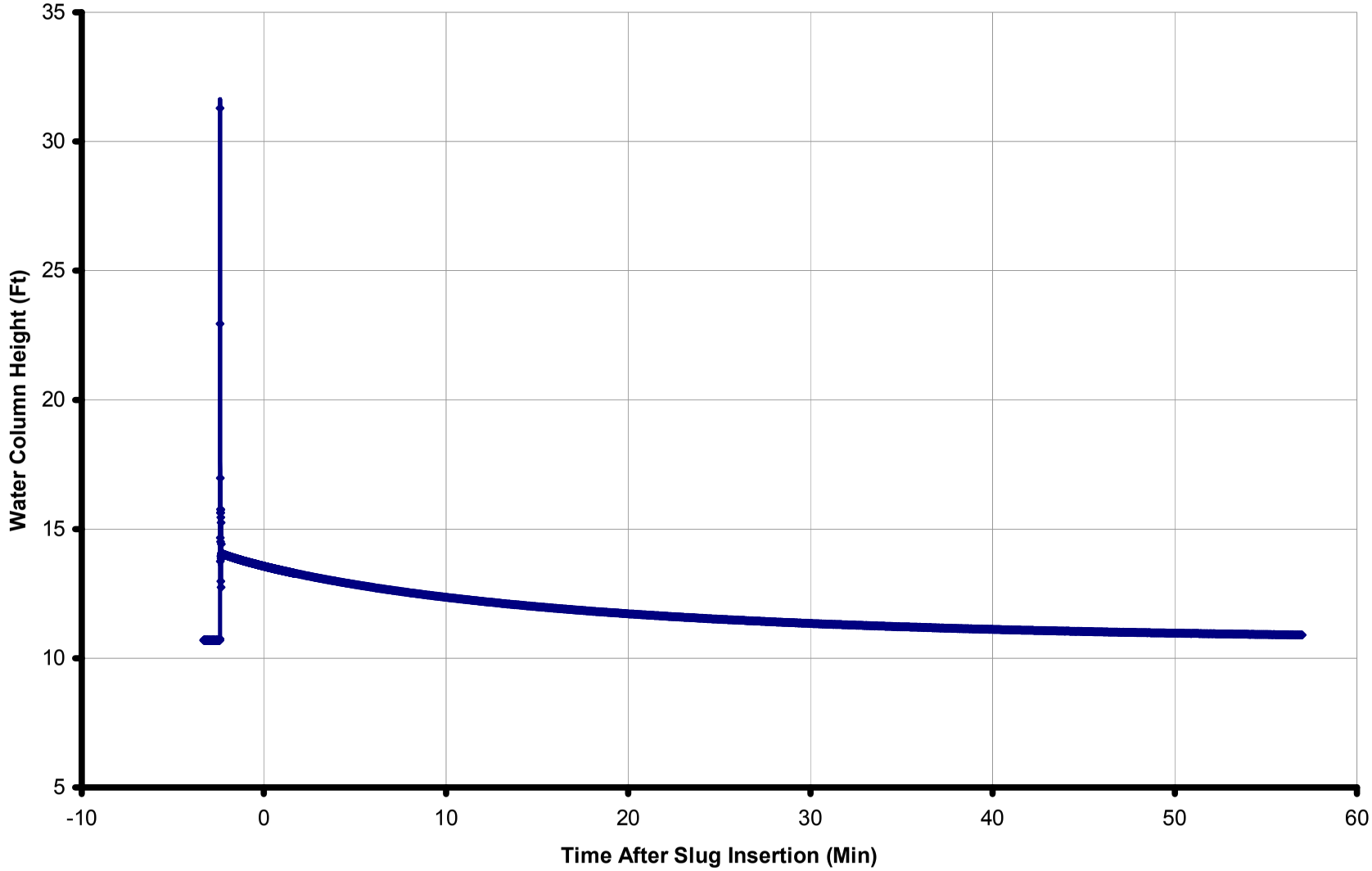
Remarks:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd Wh[illegible] Date: July 27, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-705 Permeability Test



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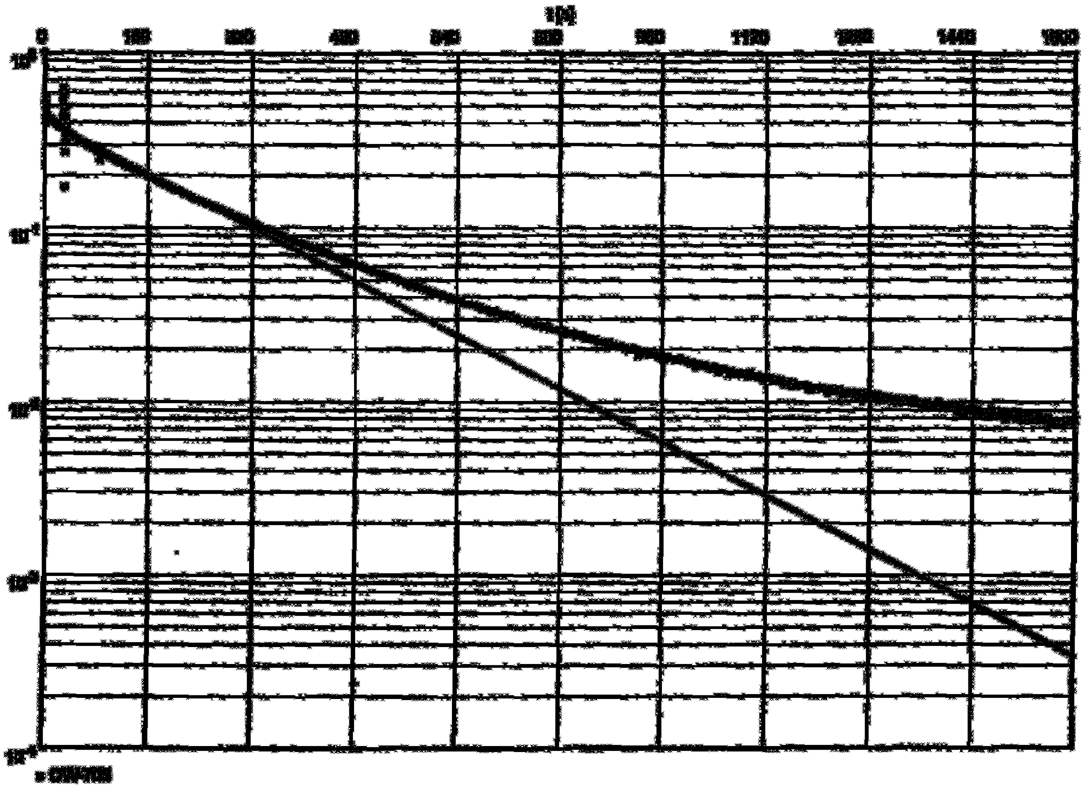
[illegible] Engineering North, LLC [illegible] Orchard Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [ft/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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Schnabel
Environmental Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 24th, 2006
WEATHER/ TEMP: 90 Clear

PROJECT NO.: 05120048
CLIENT: Nuclear Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 Gal.
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	1047.55
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	708
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	52.74
Screen Interval Depth (ft, TOC):	22-32'
Riser Height (ft):	22.5

1	Pre-Test Water Level (ft, TOC)/ Time:	15.21 / 10:39 AM
2	Water Level after Probe Insertion (ft, TOC)/ Time:	15.23 / 11:00 AM
3	Transducer Depth:	30 ft
4	Calc. Pre-Test Head over Transducer:	16.79 ft
5	Measured Pre-Test Head over Transducer:	16.77
6	Time Test Started: Pre-test / Slug test	10:43 / 11:07 AM
7	Time Test Ended:	11:34 AM
8	Water Level Recovery at End of Test:	15.18 16.74'
9	Datalogger File Name:	061706KB-PTD-DWJ-708-SLUG

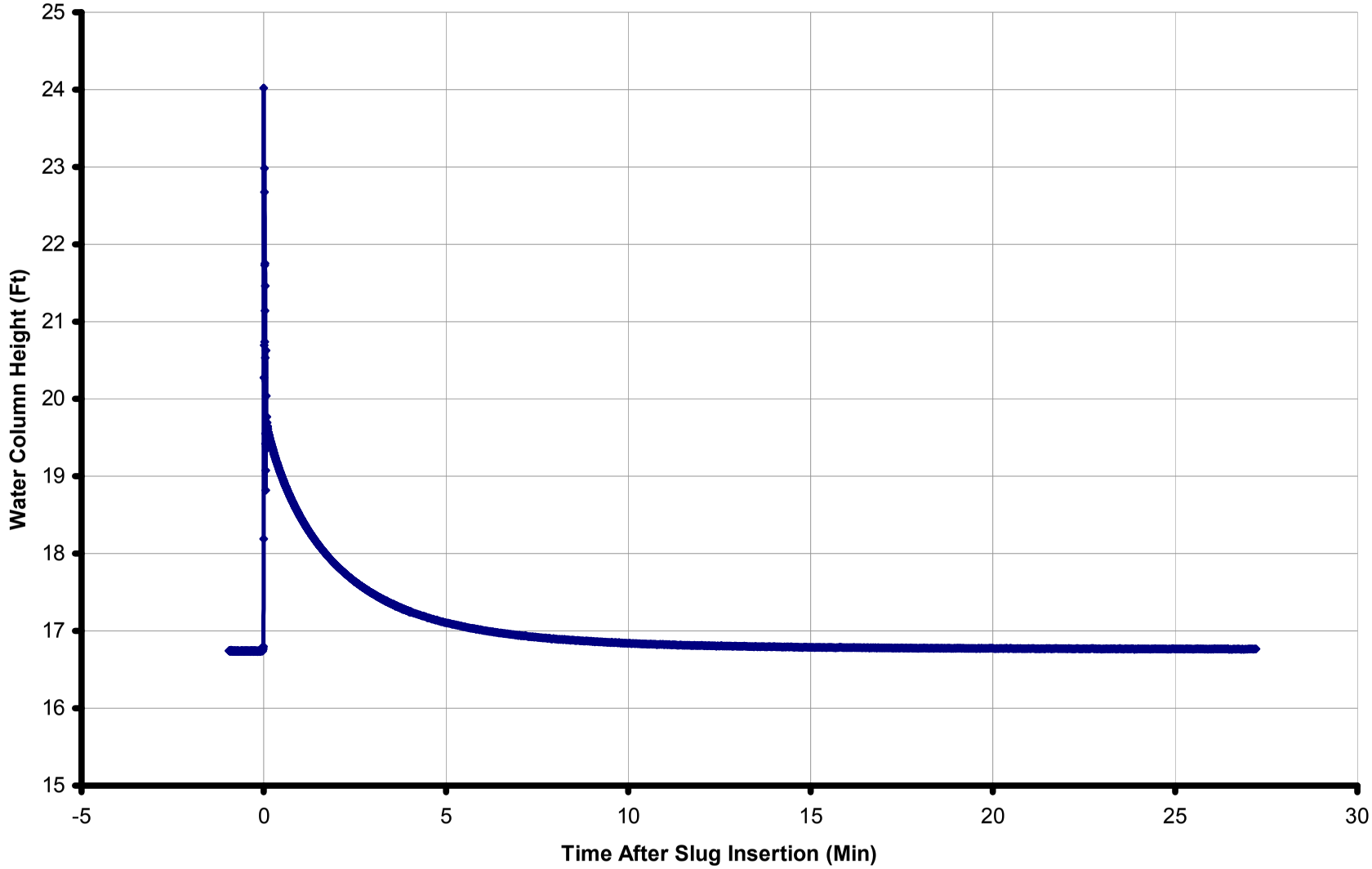
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 24, 2006
Approved By: [illegible] Date: 7/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-708 Permeability Test



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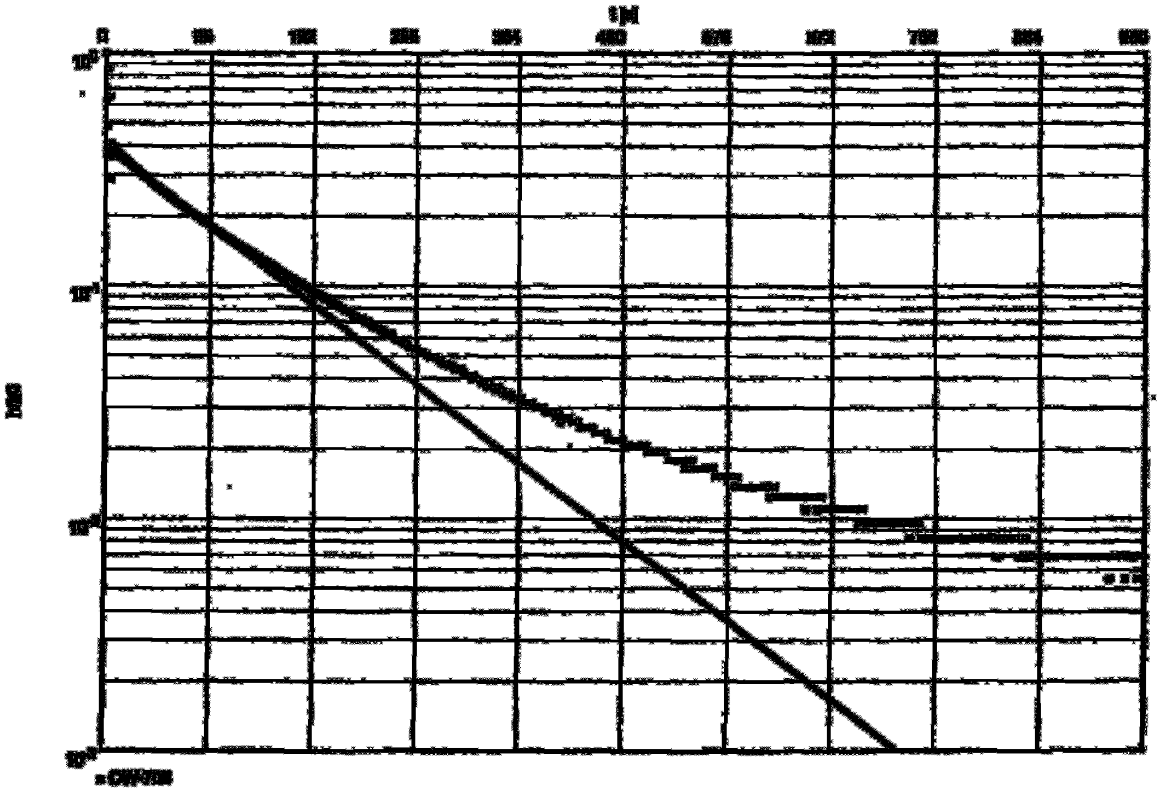
[illegible]	[illegible]	[illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	
Slug Test No. [illegible]		Test conducted on: [illegible]	
[illegible]			



Hydraulic conductivity [m/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Screen = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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Schnabel
Professional Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP CCLA Project
LOCATION: Lusby, MD
DATE: July 24th 2006
WEATHER/TEMP: 90° Clear

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.0~~ 0.625 gal
Manual Water Level Meter S/N:	LILR-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	[redacted] OW-711
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	49.68
Screen Interval Depth (ft, TOC):	35-45
Riser Height (ft):	24.5"

1	Pre-Test Water Level (ft, TOC)/ Time :	19.22 / 12:11 pm
2	Water Level after Probe Insertion (ft, TOC)/ Time:	19.12 / 12:20 pm
3	Transducer Depth:	30 ft
4	Calc. Pre-Test Head over Transducer:	10.88 ft
5	Measured Pre-Test Head over Transducer:	10.93 ft
6	Time Test Started: Free Fall / Slug Test	12:12 / 12:40 ~~AM~~ PM
7	Time Test Ended:	12:57 PM
8	Percent Recovery at End of Test:	10.90
9	Datalogger File Name:	06120048-PID-OW-711-Slug

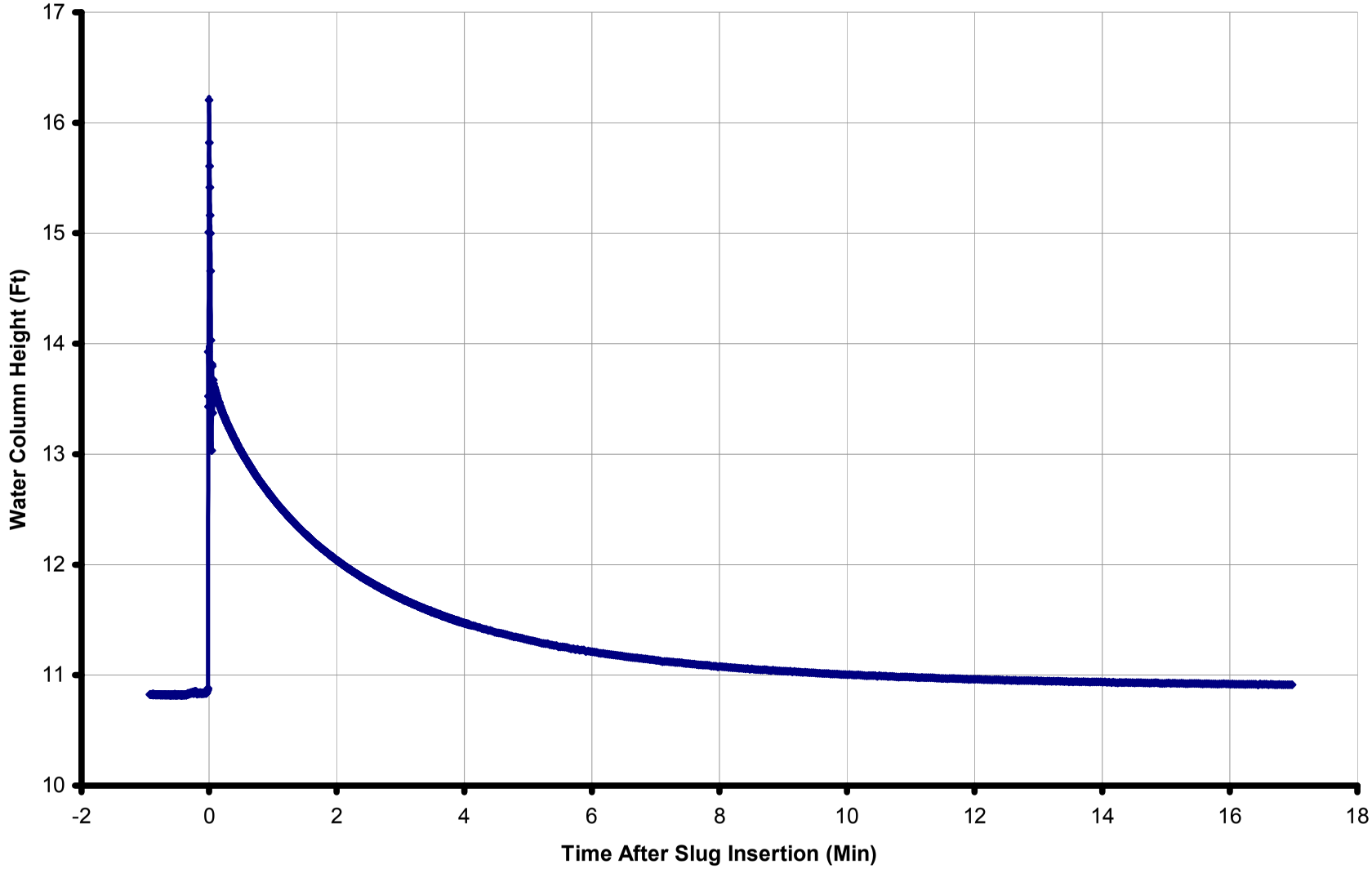
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 24th 2006
Approved By: [signature] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-711 Permeability Test



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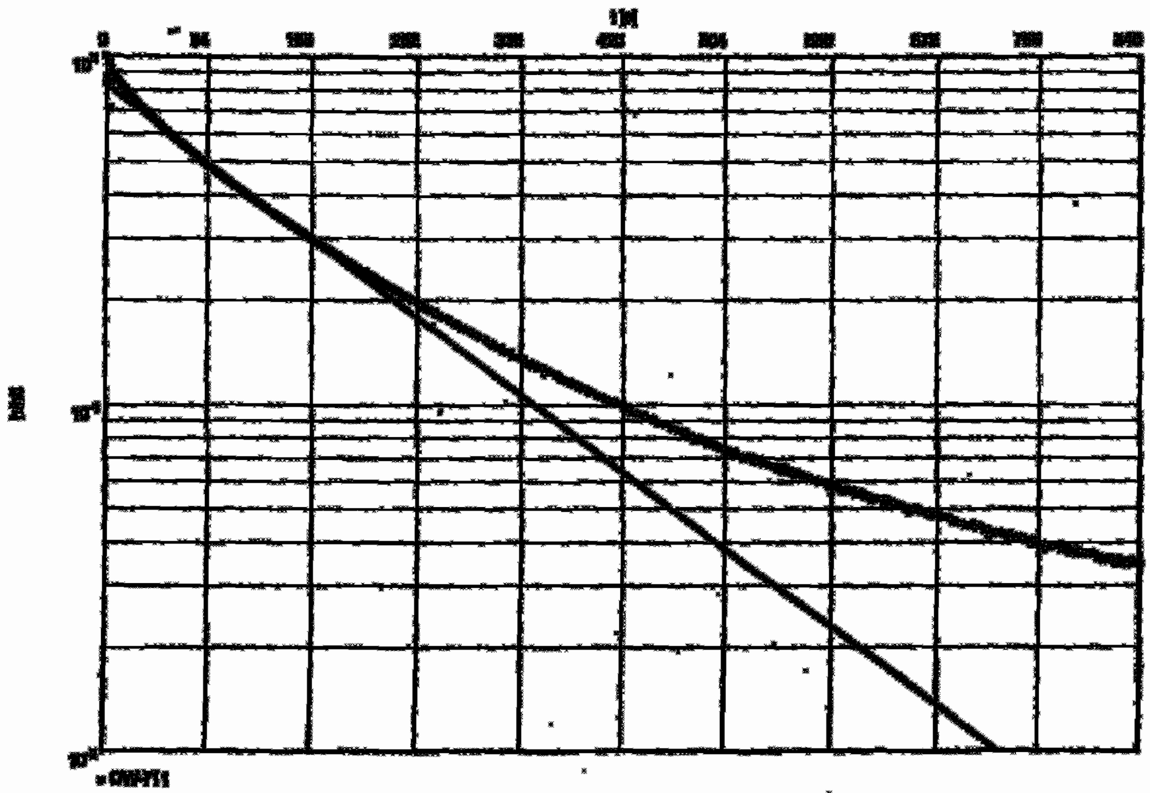
[illegible] Engineering [illegible], LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. 711	Test conducted on: [illegible]
[illegible]-711	



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calumet Cliffs IPP CCLA Project
LOCATION: Lansing, MD
DATE: July 25, 2006
WEATHER/ TEMP: 80 Clear

PROJECT NO.: 06120048
CLIENT: Sechital Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 Gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104265
Slug S/N:	SL46-001

WELL INFORMATION	
WELL ID:	OW-714
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	522
Screen Interval Depth (ft, TOC):	38-48 ft
Riser Height (ft):	2' 2"

1	Pre-Test Water Level (ft, TOC)/ Time :	45.93/10:25 AM
2	Water Level after Probe Insertion (ft, TOC)/ Time:	45.92/10:12 AM
3	Transducer Depth:	49.0
4	Calc. Pre-Test Head over Transducer:	3.08
5	Measured Pre-Test Head over Transducer:	2.98
6	Time Test Started: Rising head / Slug test	10:39/10:57 AM
7	Time Test Ended:	11:36 AM
8	Pressure Transducer at End of Test:	5.055
9	Datalogger File Name:	06120048-PTD-OW-714-SLUG

NOTE: Bottom of 5' slug at 43' depth. May not be fully submerged!

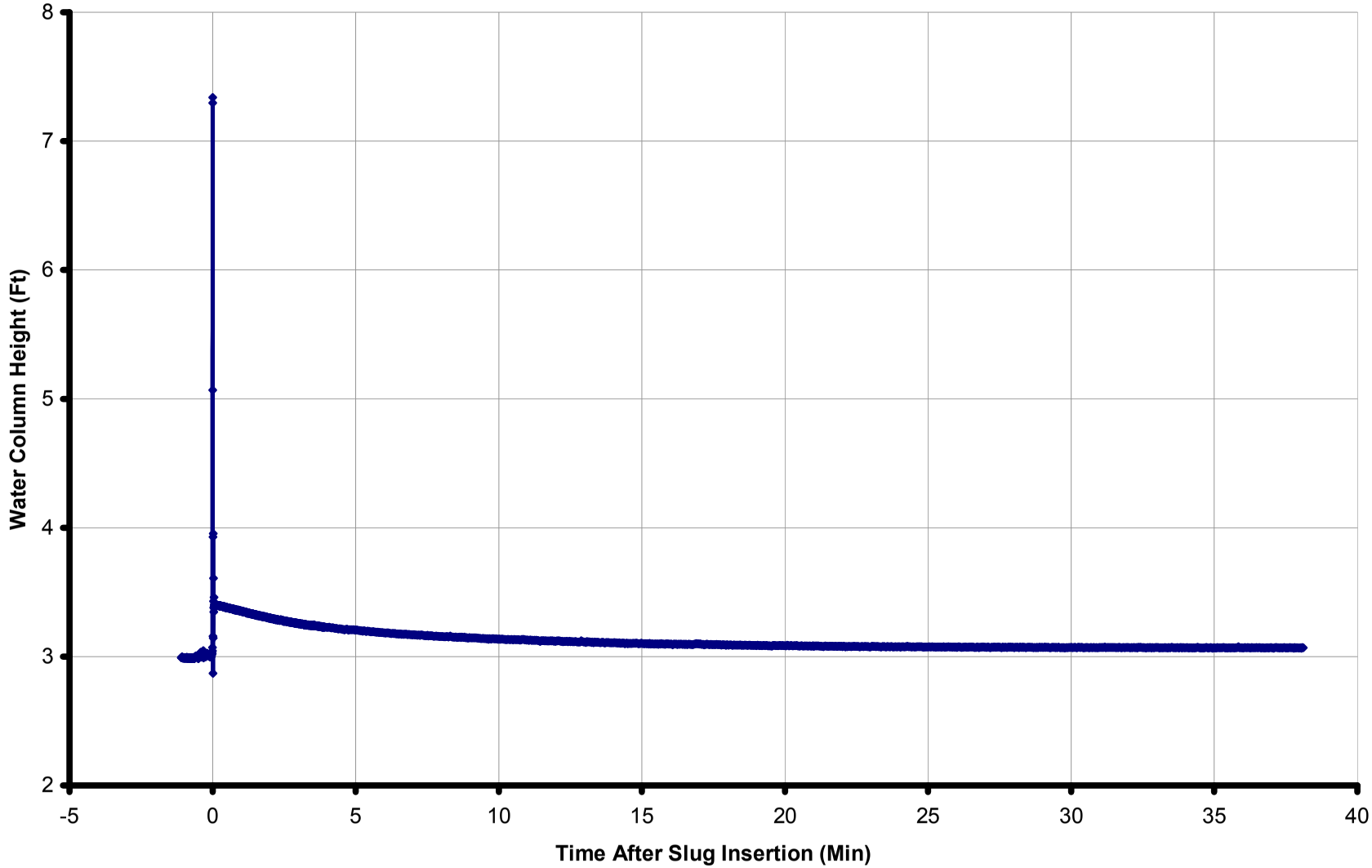
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 25, 2006
Approved By: [illegible] Date: 9/18/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-714 Permeability Test



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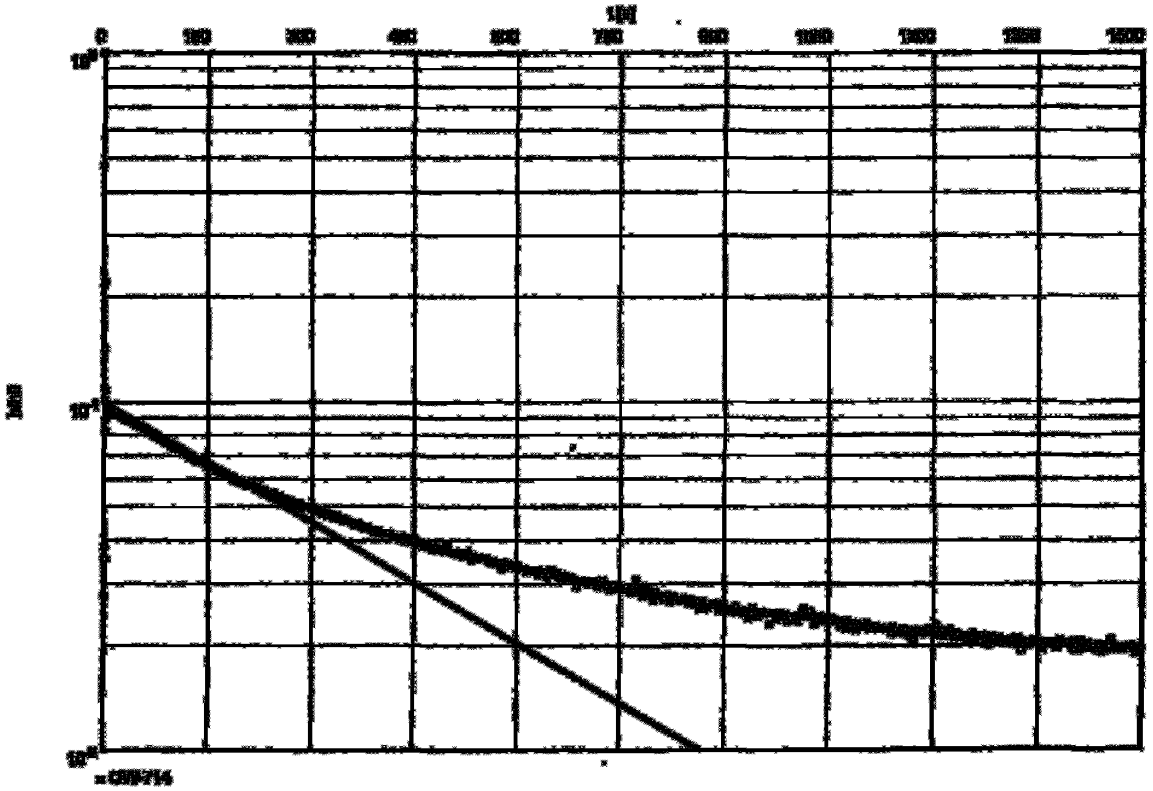
[illegible] Engineering Health, LLC [illegible] Orchard Road, Suite 700 [illegible] [illegible]	slug/bail test analysis [illegible] method	Date: [illegible]	Page 1
		Project: Orchard Hills	
		Evaluated by: [illegible]	

Slug Test No. 714	Test conducted on: [illegible]
CRH-714	



Hydraulic conductivity (K): [illegible]

INPUT VARIABLES
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]

Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER TEMP: 80, clear

PROJECT NO.: 8812048
CLIENT: Nuclear Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.130 cu.ft 0.625 gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	Slug-001

WELL INFORMATION	
WELL ID:	OW - 718
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	49
Screen Interval Depth (ft, TOC):	30-40
Riser Height (ft):	1' 10"

1	Pre-Test Water Level (ft, TOC)/ Time :	10.36 ft / 15:15
2	Water Level after Probe Insertion (ft, TOC)/ Time:	10.35 ft / 15:15
3	Transducer Depth:	14 ft
4	Calc. Pre-Test Head over Transducer:	3.65 ft
5	Measured Pre-Test Head over Transducer:	3.57 ft
6	Time Test Started: Pre-test / Slug test	15:21 / 15:47
7	Time Test Ended:	15:59
8	Measured Head over Transducer at End of Test:	3.26
9	Datalogger File Name:	061200B-PTD-OW-718-Slug

Bottom of Slug @ 13 ft depth! May not be fully Submerged.

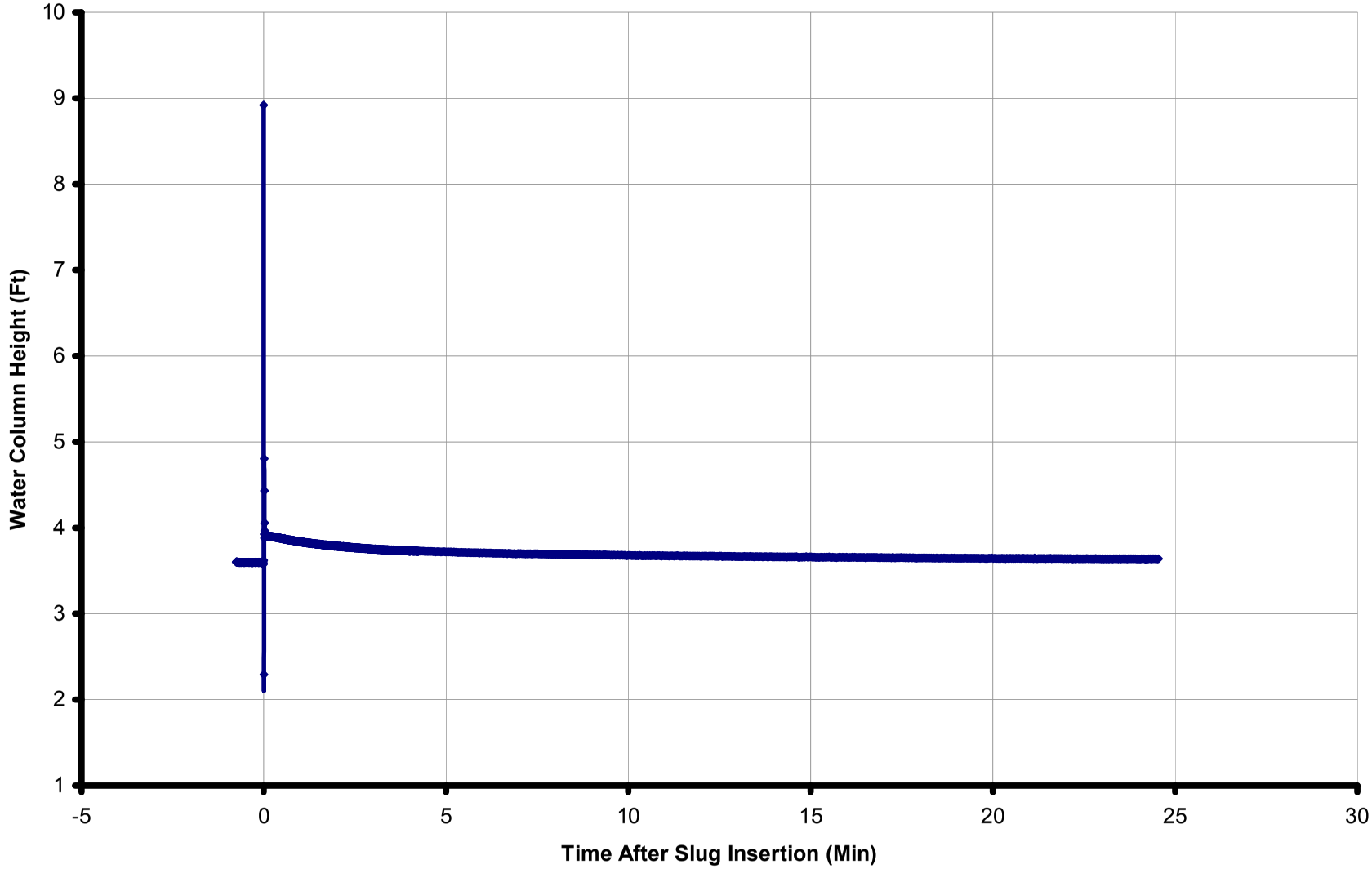
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 25, 2006
Approved By: [signature] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-718 Permeability Test



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[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	
		[redacted]	
[redacted]	[redacted]		
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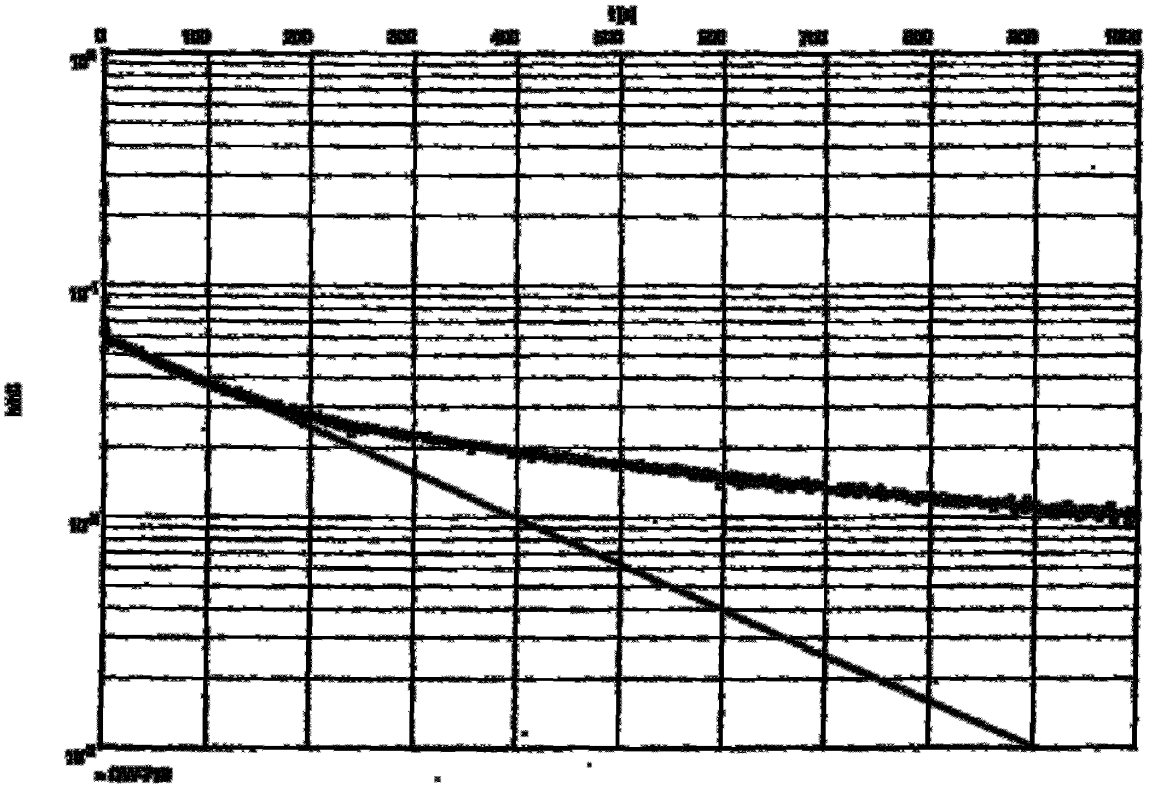

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/TEMP: 90 Clear

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	[illegible] 0.625 Gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104265
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-725
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	61.2
Screen Interval Depth (ft, TOC):	48'-58'
Riser Height (ft, GS):	1ft 3/4"

1. Pre-Test Water Level (ft, TOC)/ Time: 32.82 ft / 2:05 PM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 32.83 ft / 2:25 PM
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 7.17 ft
5. Measured Pre-Test Head over Transducer: 7.09 ft
6. Time Test Started: Retest / Slug test 2:10 / 2:30 PM
7. Time Test Ended: 2:32 PM
8. ~~Percent Recovered~~ Head at End of Test: 7.12
9. Datalogger File Name: 06170041-PID-OW-725-SLUG

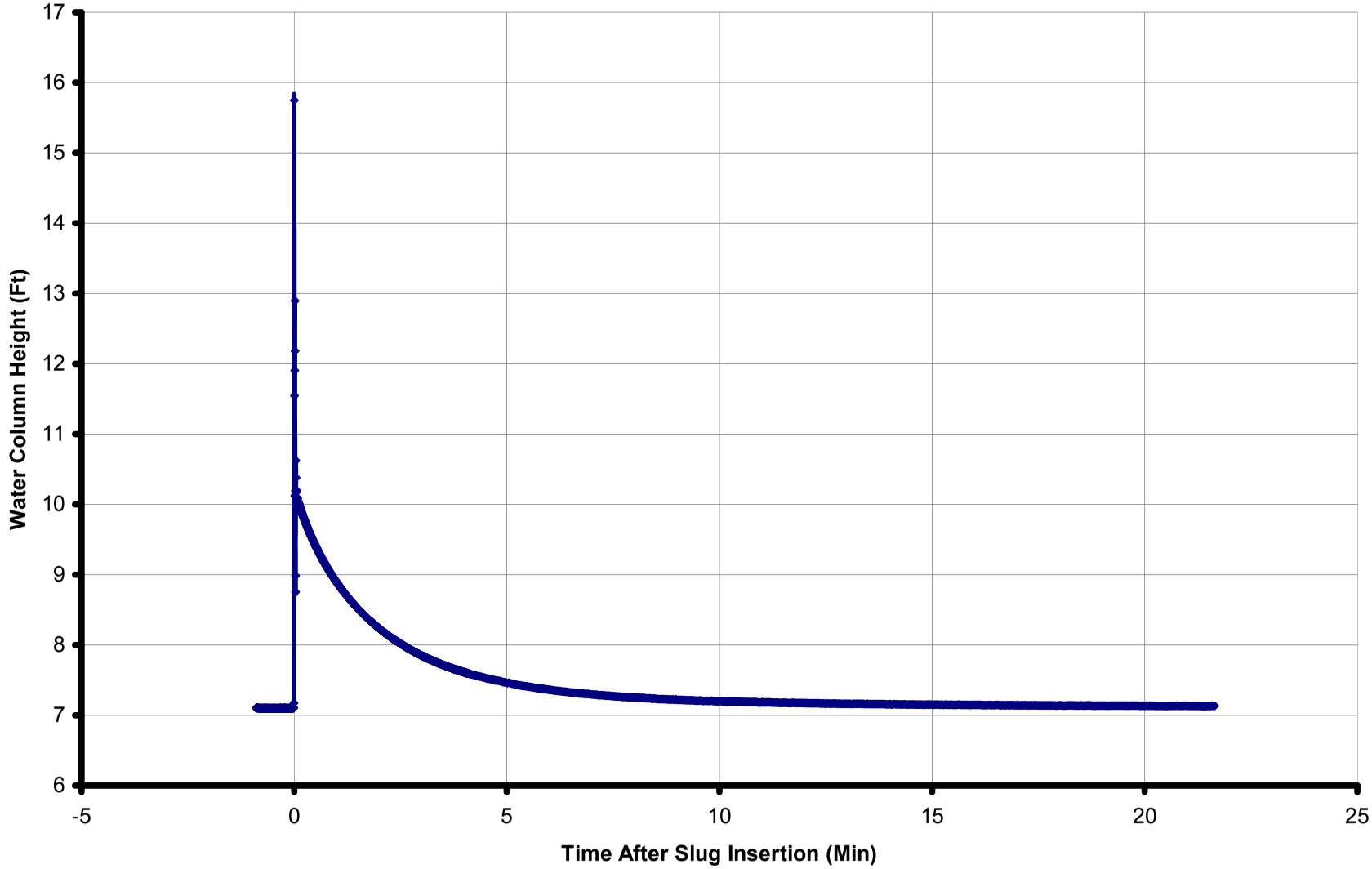
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: 7/25/06
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-725 Permeability Test



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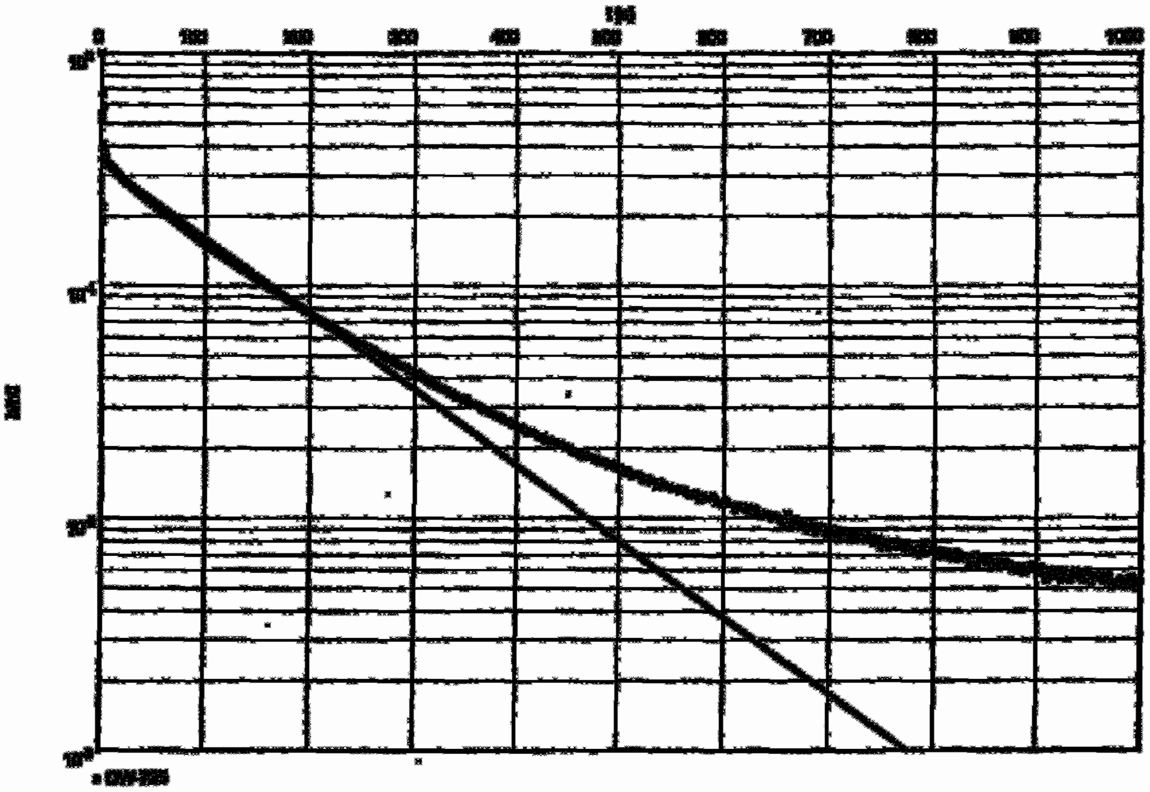
[illegible] Engineering North, LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug test analysis [illegible] method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/ TEMP: 70 Clear

PROJECT NO.: 06120048
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	1 gal
Manual Water Level Meter S/N:	1/18-001
Transducer S/N:	124256
Slug S/N:	Water

WELL INFORMATION	
WELL ID:	OW-729
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft. TOC):	49.1
Screen Interval Depth (ft. TOC):	30-40
Riser Height (ft):	20' 3/4"

1 Pre-Test Water Level (ft. TOC)/ Time: 41.1 (DRY)
2 Water Level after Probe Insertion (ft. TOC)/ Time: 40 (DRY)
3 Transducer Depth: 44 ft
4 Calc. Pre-Test Head over Transducer: 0
5 Measured Pre-Test Head over Transducer: 0
6 Time Test Started: (before/Slug test) 11:51 / 12:20 PM
7 Time Test Ended: 12:35 pm
8 Percent Recovery at End of Test: 100
9 Datalogger File Name: 06120048-PD-OW-729-SLUG-GW02

10 gallons of Water as Slug
Water dropped and stabilized
at 41.79 ft
2nd Slug related
1 gallon of Water

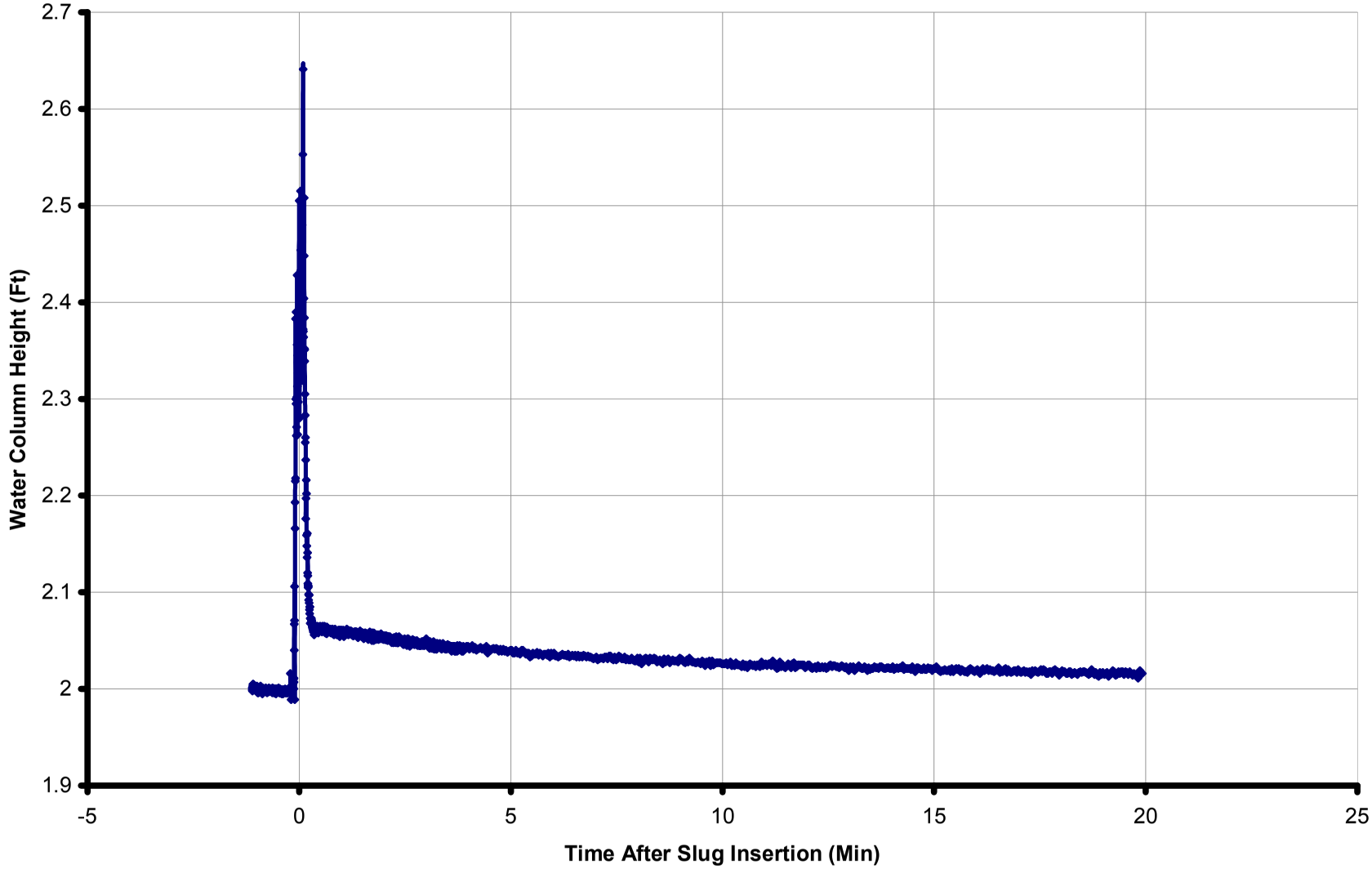
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd Wilcke Date: July 25, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-729 Permeability Test



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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER TEMP: 75 - Humid

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 Gal. 0.625 Gal.
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	101259
Slug S/N:	SLUG-002

WELL INFORMATION	
WELL ID:	OW-755
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	75 ft
Screen Interval Depth (ft, TOC):	60-70
Riser Height (ft):	1' 10"

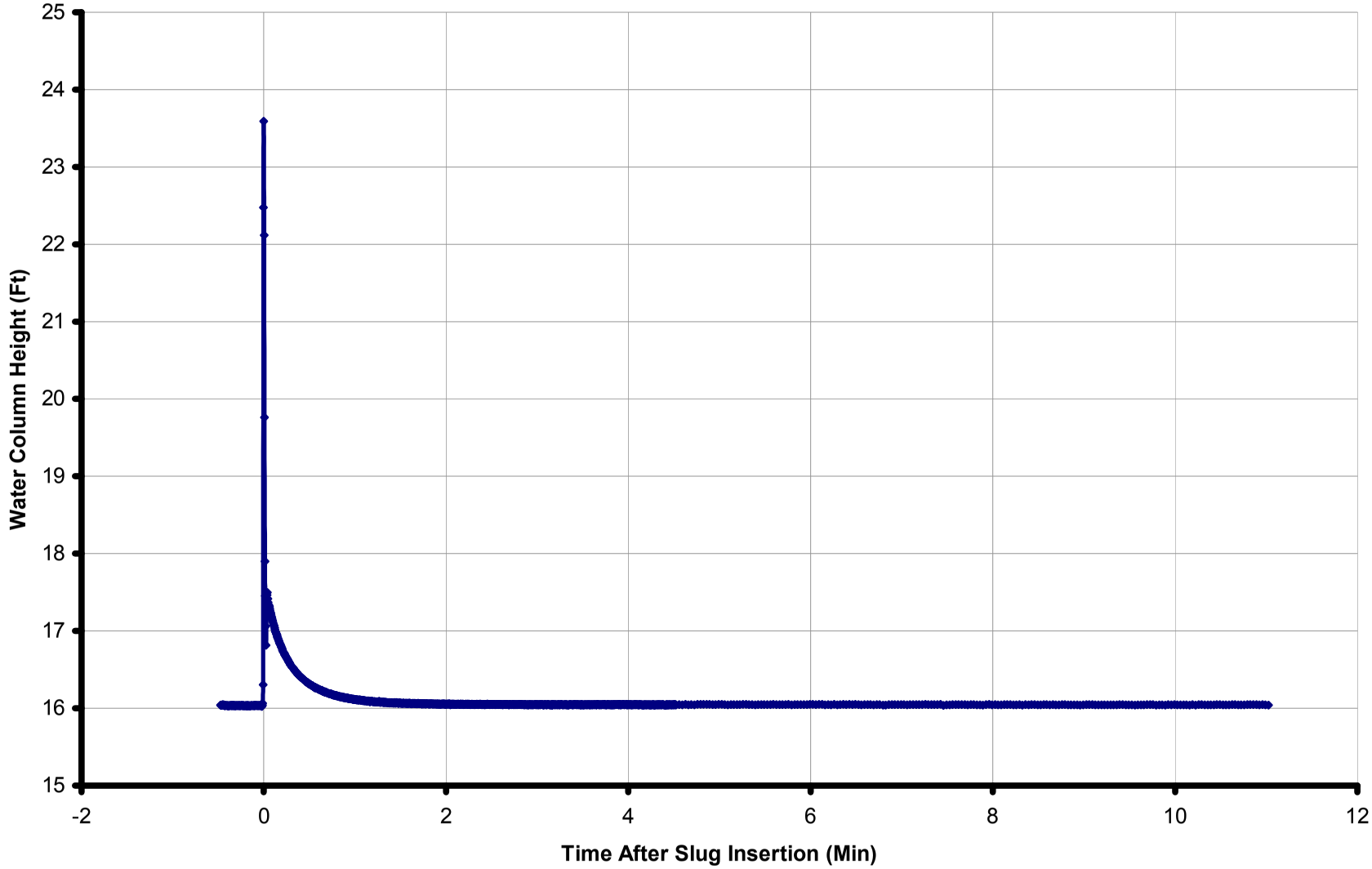
1	Pre-Test Water Level (ft, TOC)/ Time:	54.20 ft / 1147 am
2	Water Level after Probe Insertion (ft, TOC)/ Time:	54.20 / 1155
3	Transducer Depth:	70 ft
4	Calc. Pre-Test Head over Transducer:	15.80
5	Measured Pre-Test Head over Transducer:	16.023
6	Time Test Started: (Pre-test/Slug test)	13:49 / 14:00
7	Time Test Ended:	14:13
8	Percent Recovery at End of Test:	16.03
9	Datalogger File Name:	06120048-BD-OW-755-SL06

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd Whitten Date: July 27, 2006
Approved By: [illegible] Date: 7/28/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-735 Permeability Test



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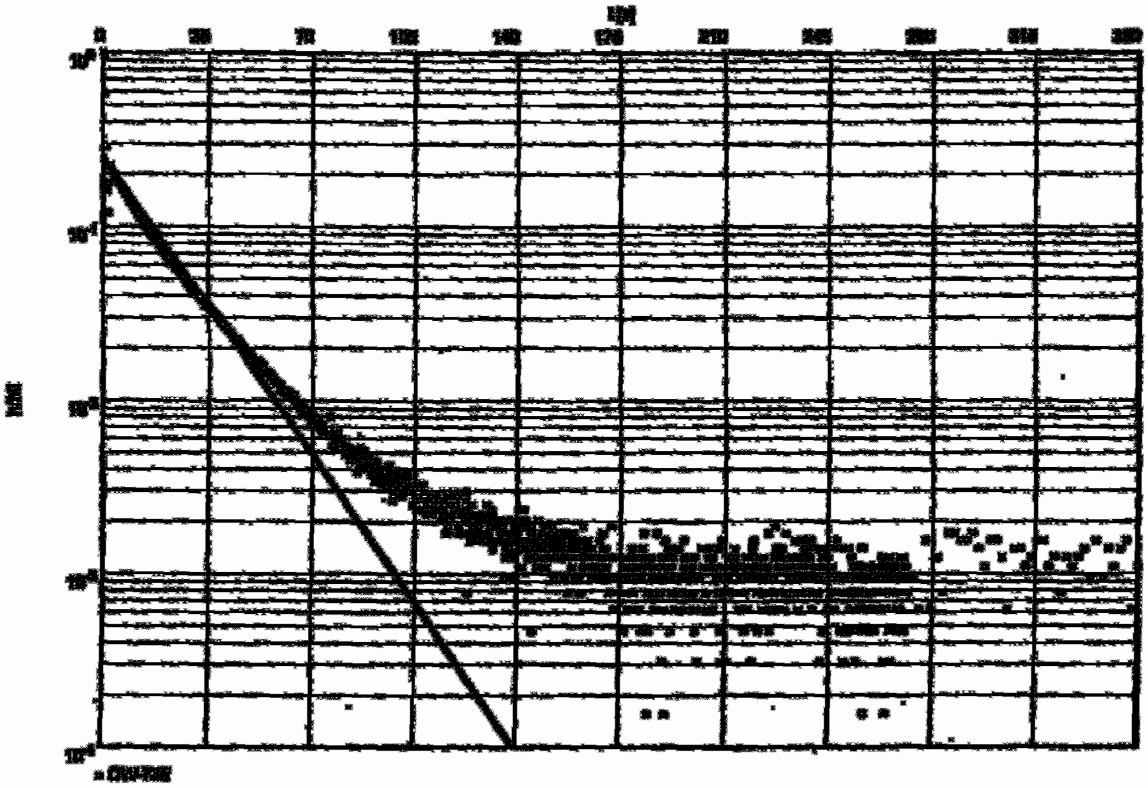
[illegible] Engineering North, LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]

Reviewed by: [illegible]

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Environmental Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/ TEMP: 85°, Humid

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.625 GAL~~ 0.625 GAL
Manual Water Level Meter S/N:	WLF-001
Transducer S/N:	104213
Slug S/N:	SLUG-003

WELL INFORMATION	
WELL ID:	OW-745
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	54
Screen Interval Depth (ft, TOC):	42-52'
Filter Height (ft):	2'

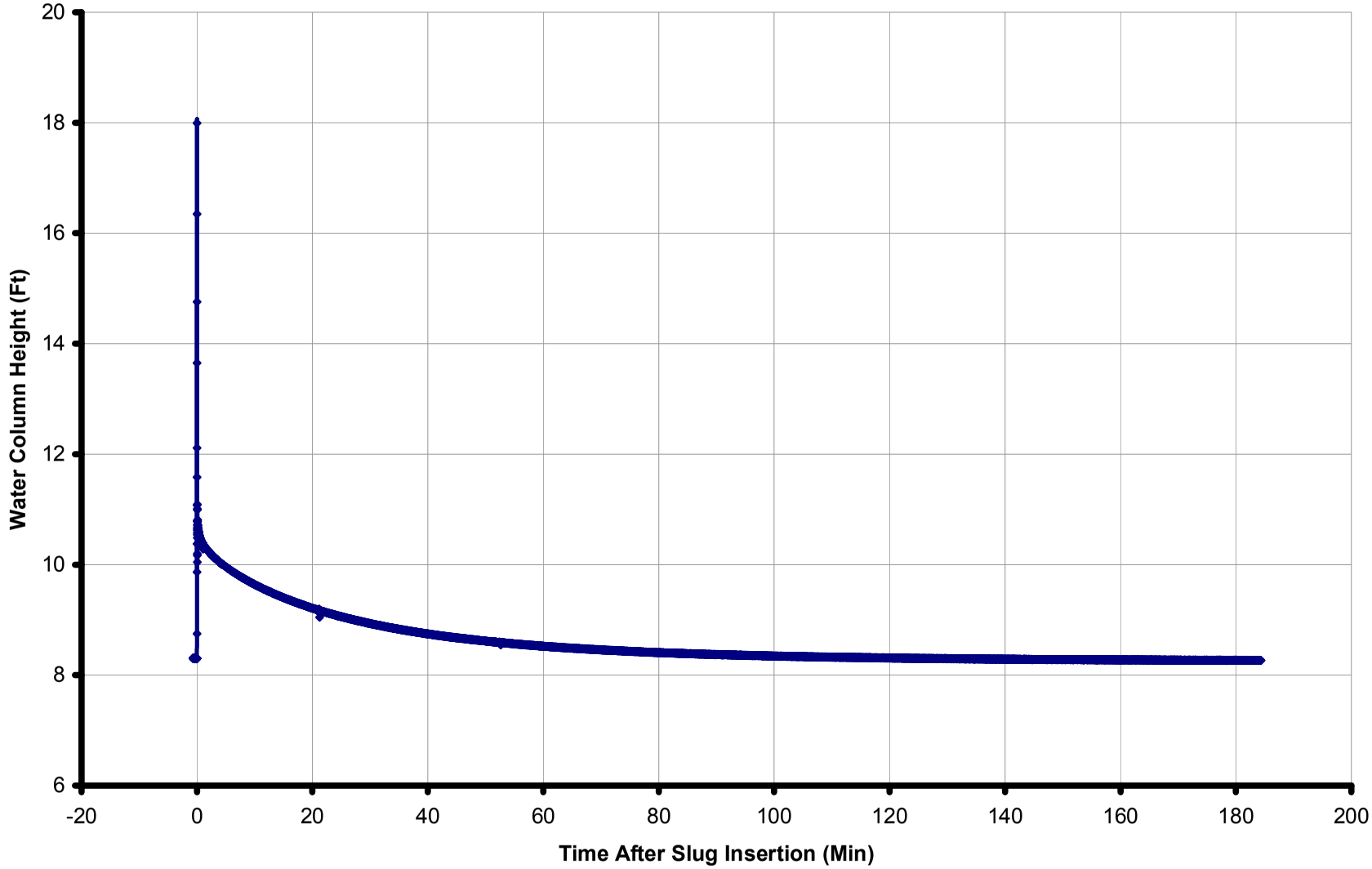
1. Pre-Test Water Level (ft, TOC)/ Time: 37.24 / 5:09 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 37.22 / 5:37 pm
3. Transducer Depth: 45 ft
4. Calc. Pre-Test Head over Transducer: 7.78 ft
5. Measured Pre-Test Head over Transducer: 8.27 ft
6. Time Test Started: Pre-test / Slug test 5:00 / 5:42 PM
7. Time Test Ended: 5:45 pm
8. Percent Recovery at End of Test: 8.25
9. Datalogger File Name: 061206PT-OW-745-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2006
Approved By: [illegible] Date: 8/2/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-743 Permeability Test



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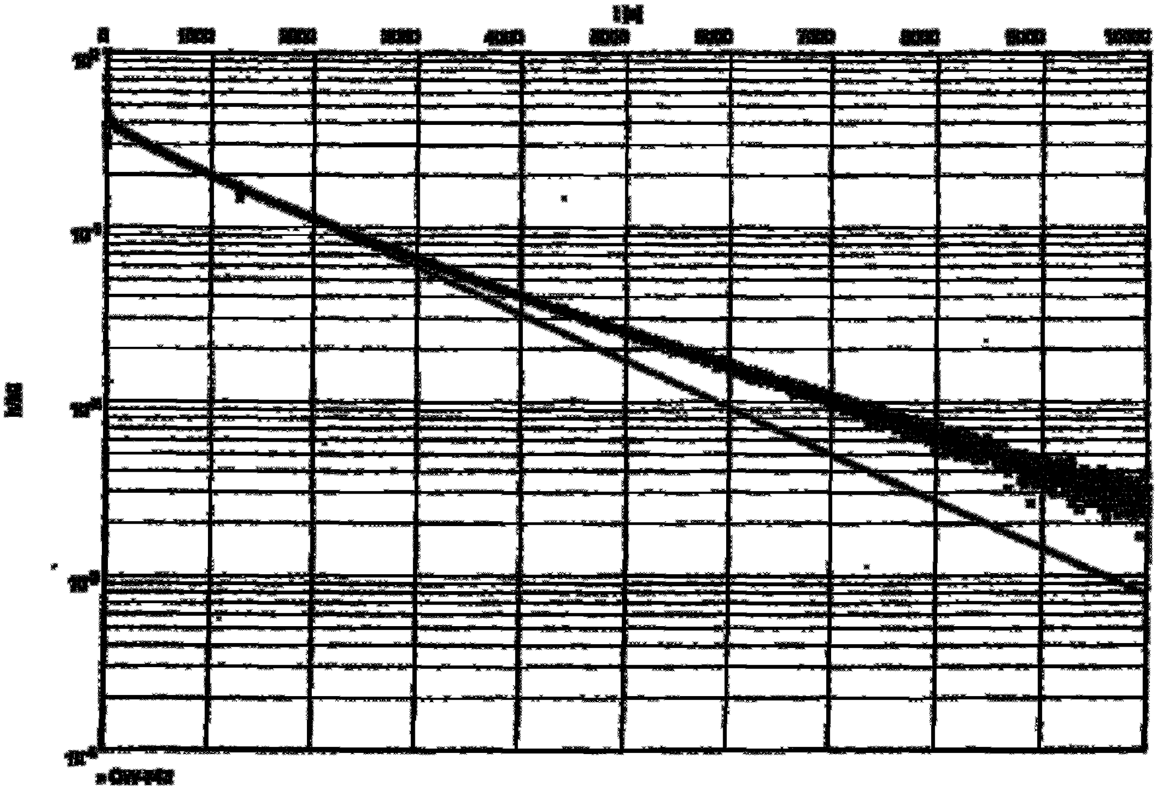
Schnabel Engineering North, LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [m/s]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible]
Depth to Bottom of Aquifer = [illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Influence = [illegible]
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 85 - [illegible]

PROJECT NO.: [illegible]
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Displacement / Water)
Approximate Volume of Slug:	0.0324 GAL 0.625 GAL
Manual Water Level Meter S/N:	LWL-02
Transducer S/N:	109213
Slug S/N:	SLUG-003

WELL INFORMATION	
WELL ID:	OW-744
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	52.3
Screen Interval Depth (ft, TOC):	38-48
Riser Height (ft):	1'10"

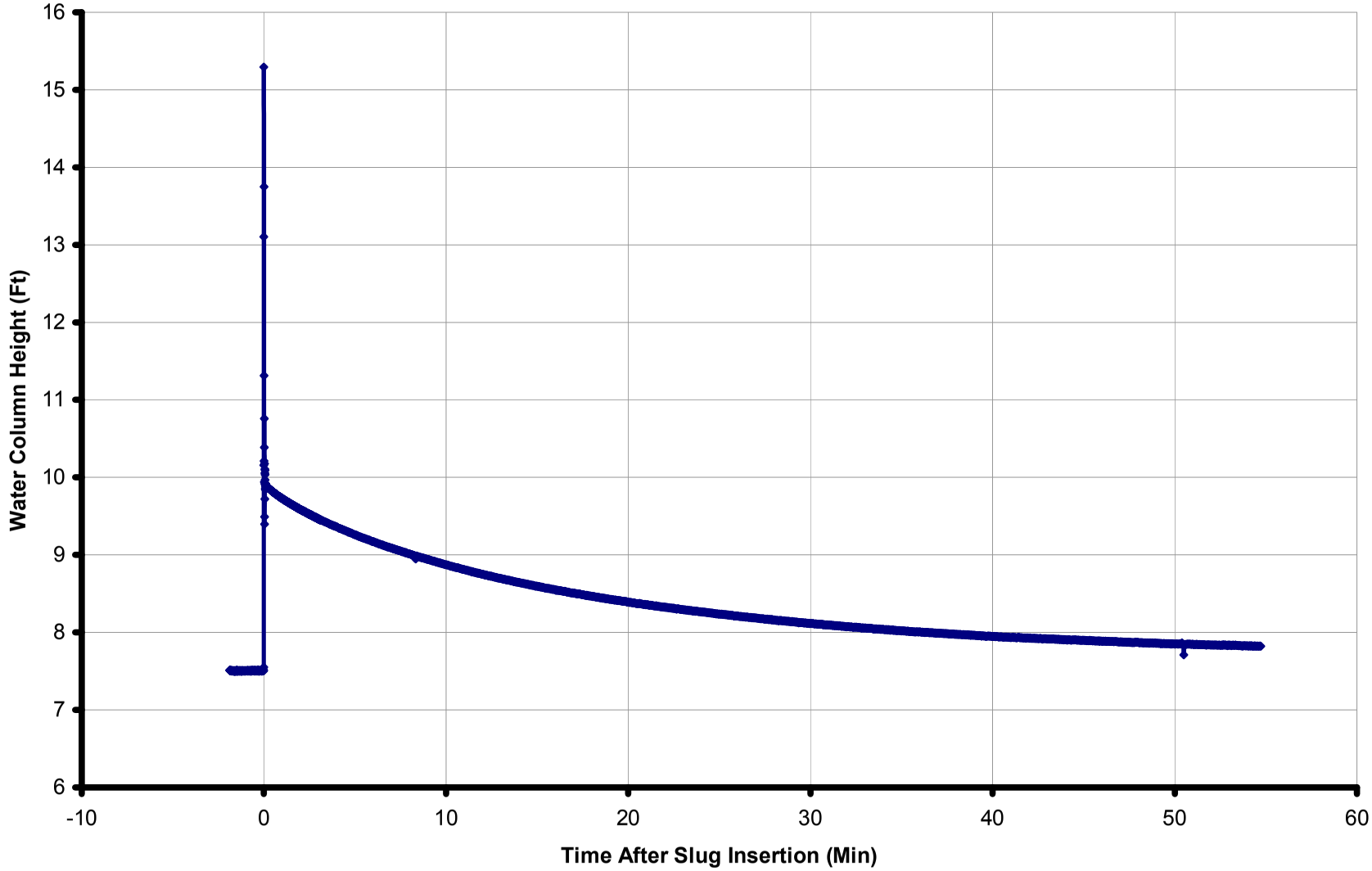
1 Pre-Test Water Level (ft, TOC)/ Time: 33.01 / 9:40 AM
2 Water Level after Probe Insertion (ft, TOC)/ Time: [illegible] 9:10:27 [illegible]
3 Transducer Depth: 40.47
4 Calc. Pre-Test Head over Transducer: 7.09
5 Measured Pre-Test Head over Transducer: 7.15
6 Time Test Started: Re-test/Slug test 9:49 / 10:35 AM
7 Time Test Ended: 11:30 AM
8 Percent Recovery at End of Test: 7.75
9 Datalogger File Name: 06R0048-PTD-OW-744-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-744 Permeability Test



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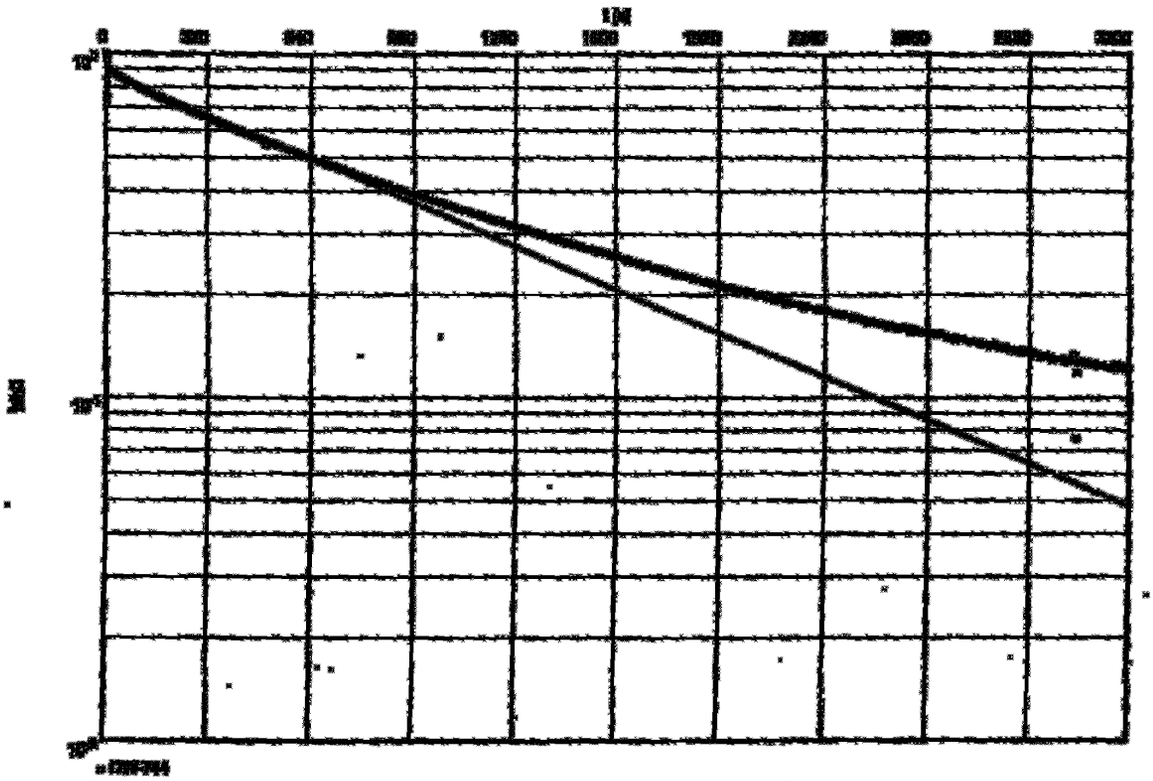
[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	
		[illegible]	

[illegible]	[illegible]
[illegible]	



Hydraulic conductivity (cm/s): [illegible]

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP CCLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: [illegible]

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head) Rising Head)
Slug Type:	(Mechanical + Water)
Approximate Volume of Slug:	[illegible] 0.625 gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-752A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft. TOC):	38.6
Screen Interval Depth (ft. TOC):	26-36
Riser Height (ft):	1' 0"

1 Pre-Test Water Level (ft. TOC)/ Time: 24.73 / 12:19 pm
2 Water Level after Probe Insertion (ft. TOC)/ Time: 24.67 / 12:25 pm
3 Transducer Depth: 28 ft
4 Calc. Pre-Test Head over Transducer: 13.33 ft
5 Measured Pre-Test Head over Transducer: 13.17 ft
6 Time Test Started: Pre-test/Slug test 12:17 / 12:38 pm
7 Time Test Ended: [illegible] 1:30 pm
8 Recent Pumping at End of Test: [illegible] 13.28 ft
9 Datalogger File Name: 060728-PID-OW-752A-SLUG

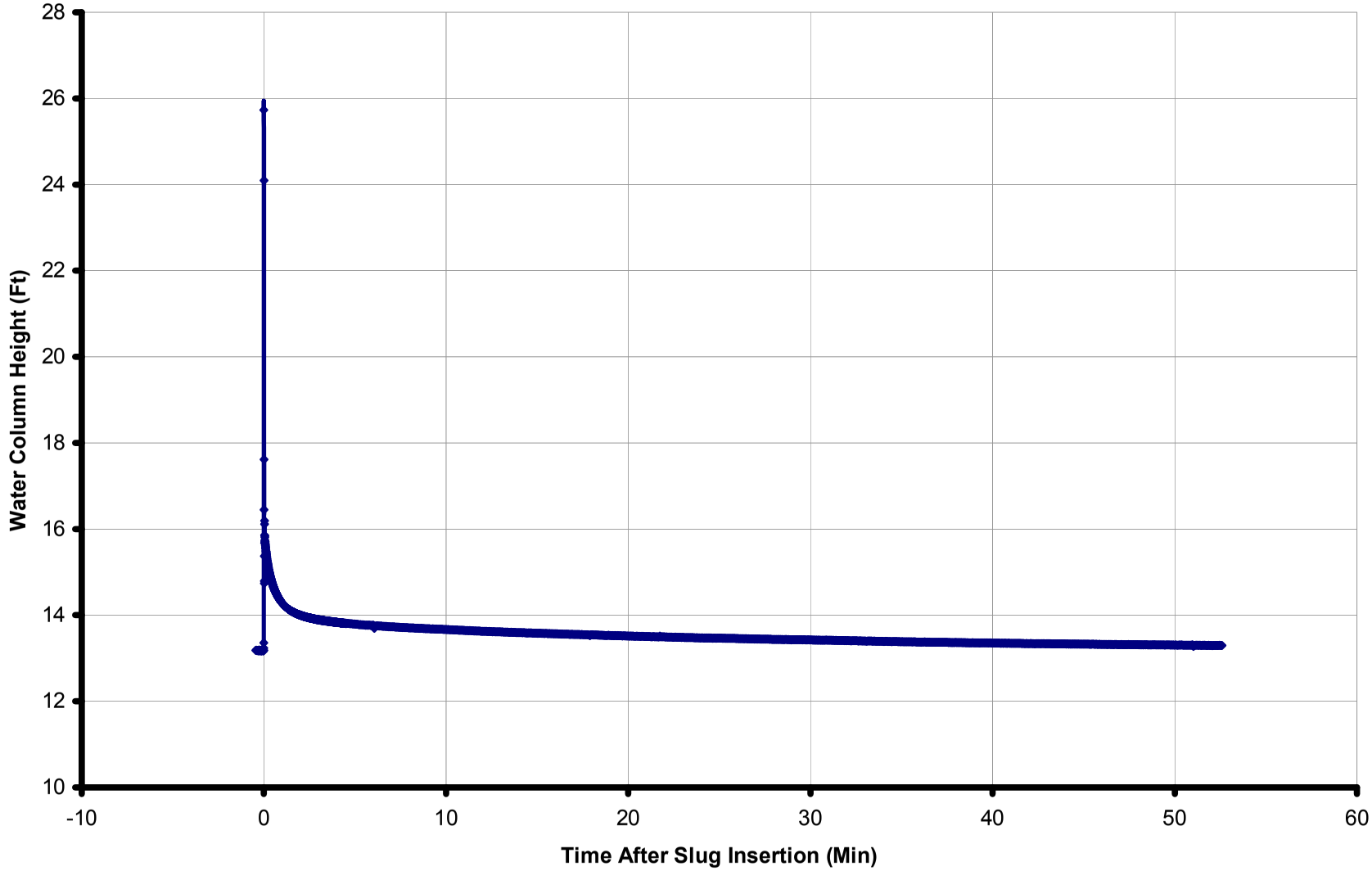
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approved By: [illegible] Date: 8/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-752A Permeability Test



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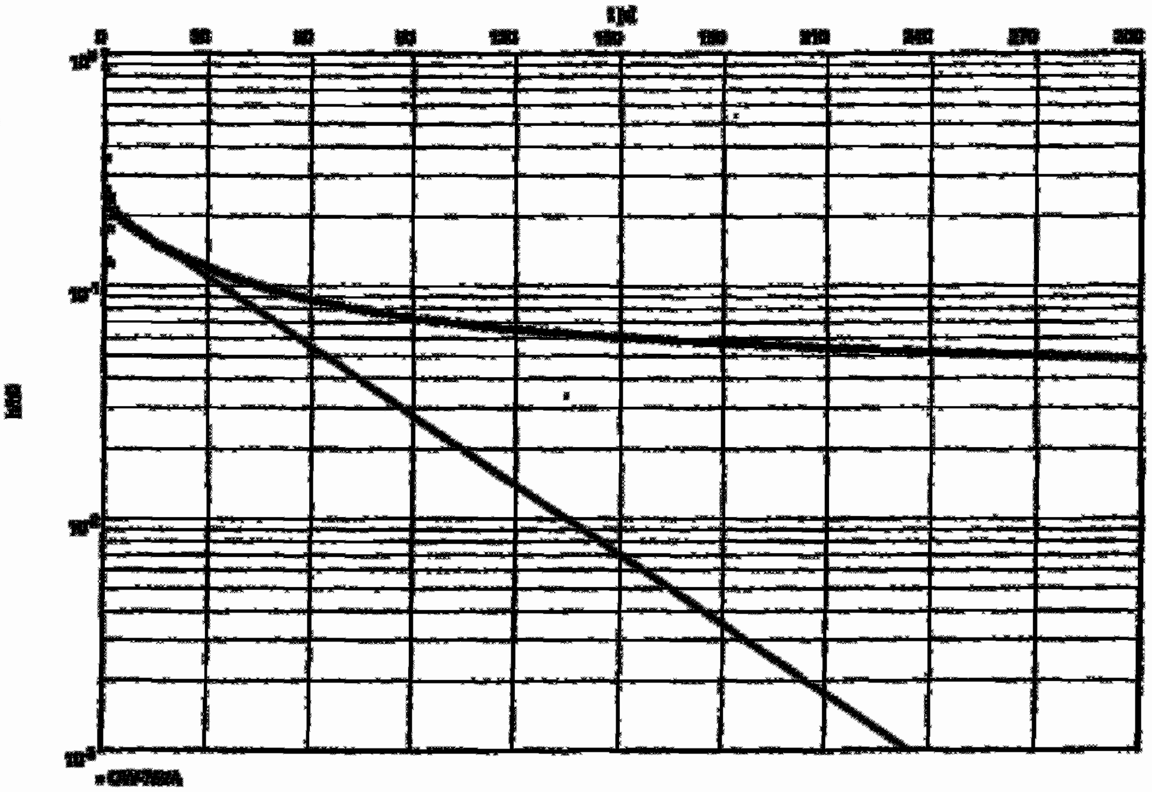
Schnabel Engineering North, LLC [illegible] [illegible] [illegible]	Slug test analysis BOUWER-RICE's method	Date: [illegible]	Page 1
		Project: Calvert Cliffs	
		Evaluated by: patrick	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [ft/d]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = 10.00 ft
Radius of Casing = [illegible] ft
Radius of Borehole = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 85 - humid

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.0625 Gal.~~ 0.625 Gal.
Manual Water Level Meter S/N:	M/LP-001
Transducer S/N:	104257
Slug S/N:	SLUG-002

WELL INFORMATION	
WELL ID:	OW-752-B
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	97
Screen Interval Depth (ft, TOC):	85-95
Riser Height (ft):	1'10"

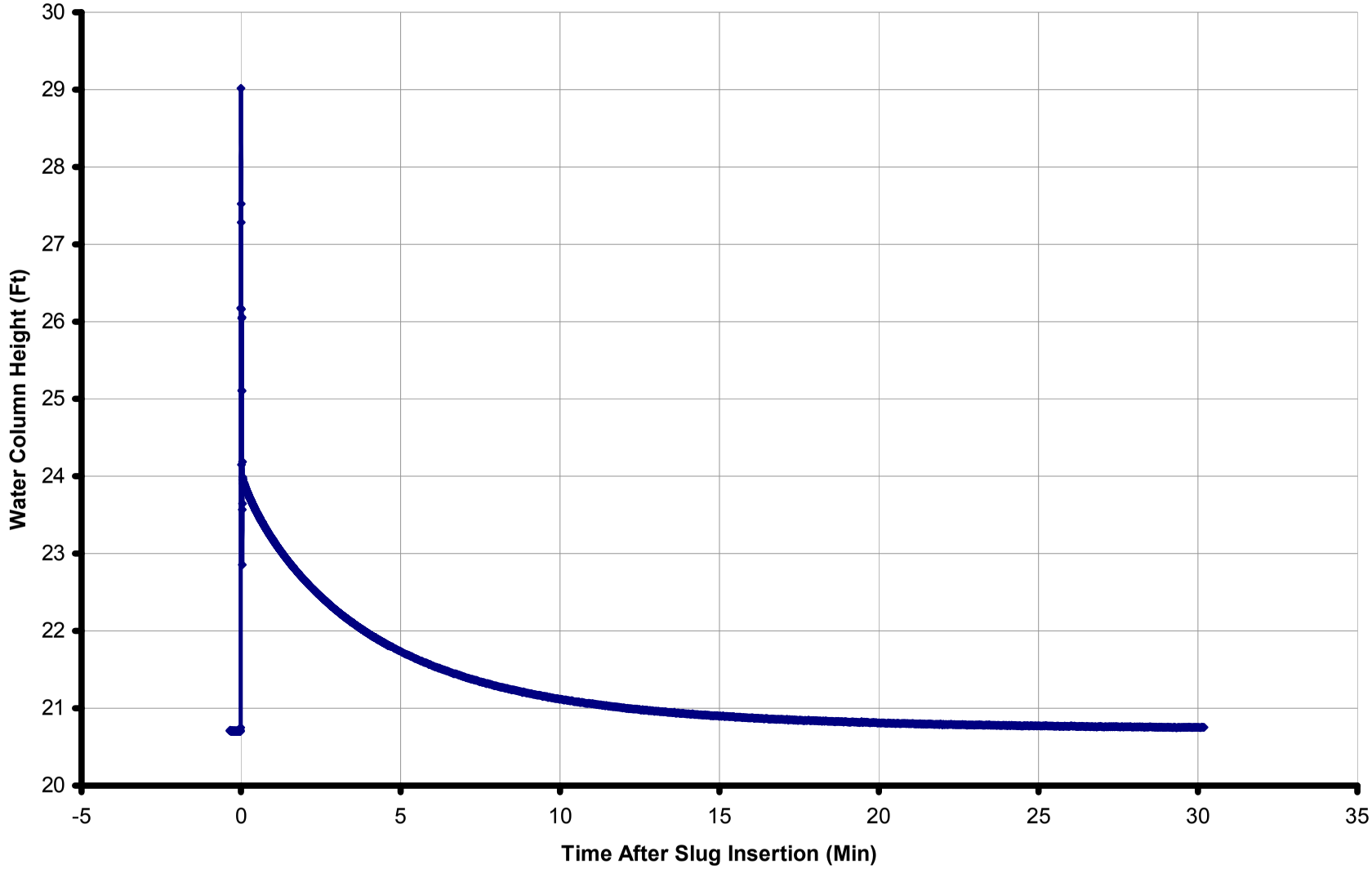
1. Pre-Test Water Level (ft, TOC)/ Time: 59.65 / 12:12 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 59.61 / 12:[illegible] pm
3. Transducer Depth: 80 ft
4. Calc. Pre-Test Head over Transducer: 20.39 ft
5. Measured Pre-Test Head over Transducer: 20.28 ft
6. Time Test Started: file test / slug test 12:22 / 12:59 PM
7. Time Test Ended: 11:28 pm
8. Pressure Transducer at End of Test: 20.74
9. Datalogger File Name: CR1000R-TD-OW-752B-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-752B Permeability Test



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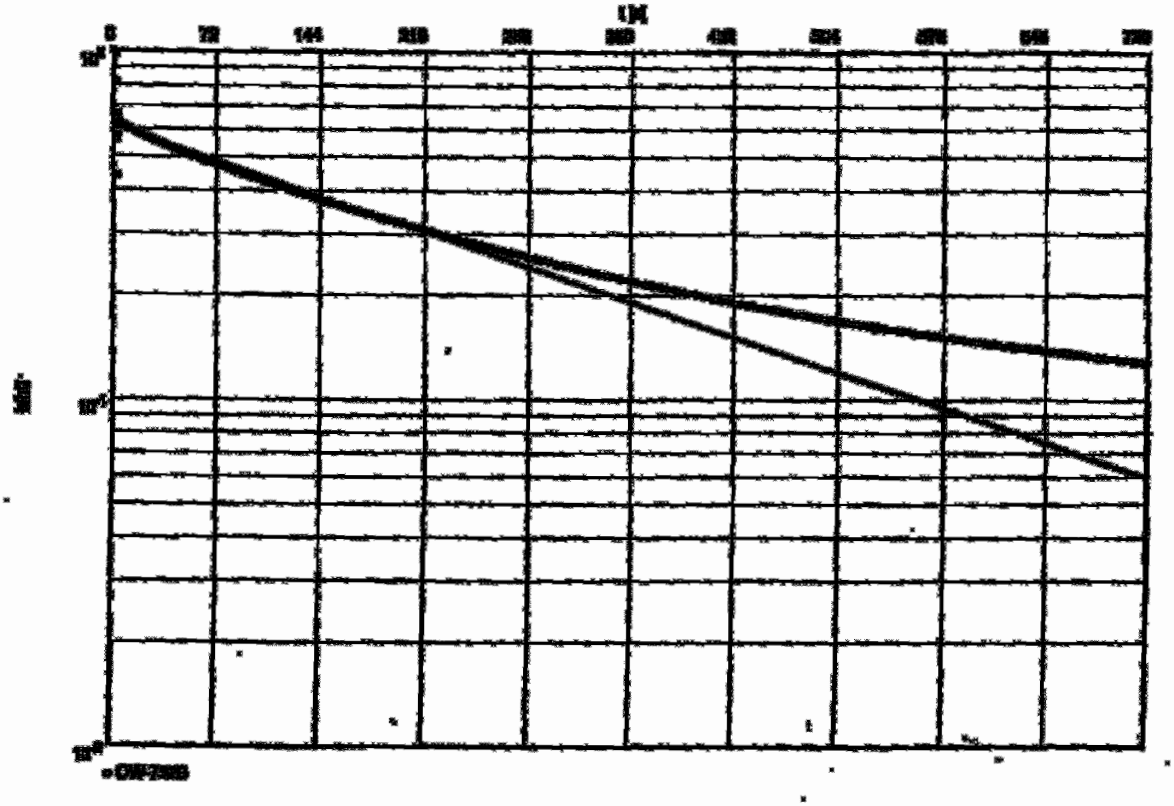
Schnabel Engineering

[illegible]	[illegible]	[illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Step Test No. [illegible]	Test conducted on: [illegible]
CHP-[illegible]	



Hydraulic conductivity (ft/s): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Filtrum = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

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PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/TEMP: 85s, Partial

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.022~~ 0.625 Gal
Manual Water Level Meter S/N:	SILP-001
Transducer S/N:	109265
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-754
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	46.15
Screen Interval Depth (ft, TOC):	32-42
Riser Height (ft):	1'6"

1	Pre-Test Water Level (ft, TOC)/ Time :	31.28 ft / 11:27 AM
2	Water Level after Probe Insertion (ft, TOC)/ Time:	31.28 ft / 11:42 AM
3	Transducer Depth:	40 ft
4	Calc. Pre-Test Head over Transducer:	8.72 ft
5	Measured Pre-Test Head over Transducer:	8.596 ft
6	Time Test Started: Pre test / Slug test	11:30 / 11:49 AM
7	Time Test Ended:	12:00 PM
8	Percent Recovery at End of Test:	86.16 ft
9	Datalogger File Name:	06172045-PID-OW-754-SLUG

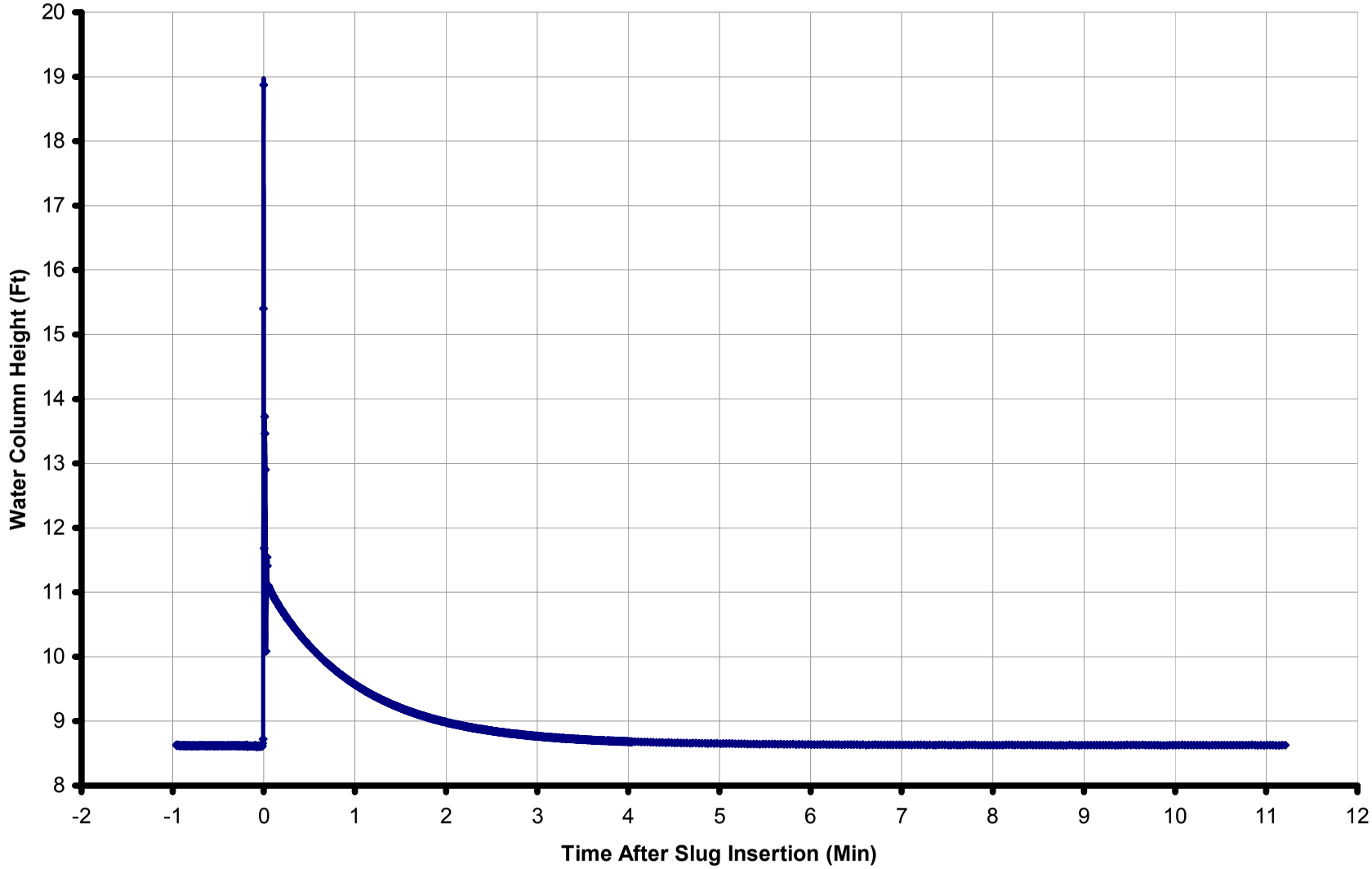
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: [signature] Date: July 26, 2006
Approved By: [signature] Date: 9/11/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-754 Permeability Test



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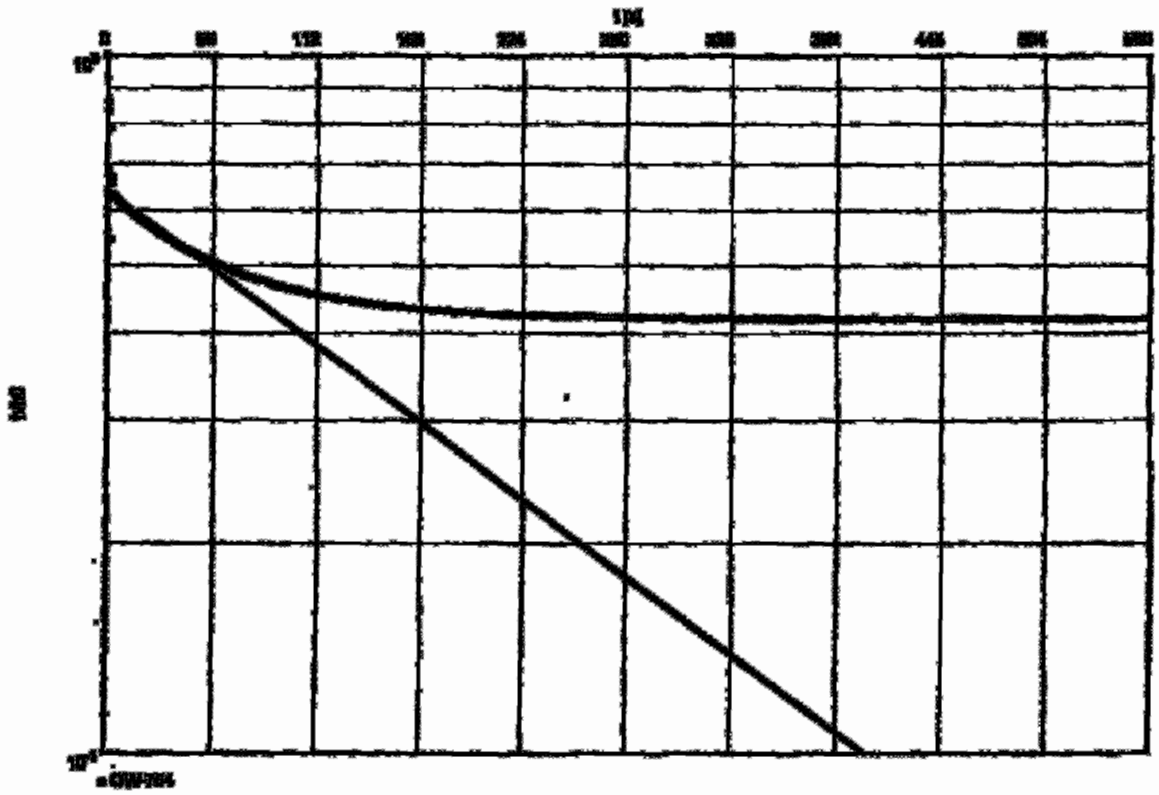
Schnabel Engineering

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	
[illegible]		[illegible]	

[illegible]	[illegible]
[illegible]	



Hydraulic conductivity (K): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible]
Depth to Bottom of Aquifer = [illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Screen = [illegible]
Evaluated by: [illegible]
Reviewed by: [illegible]

Page 1 of 1

Schnabel
Technical Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 24, 2006
WEATHER/ TEMP: 70 - Clear

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.22 0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-756
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft. TOC):	42.8
Screen Interval Depth (ft. TOC):	30-40
Riser Height (ft):	19.5"

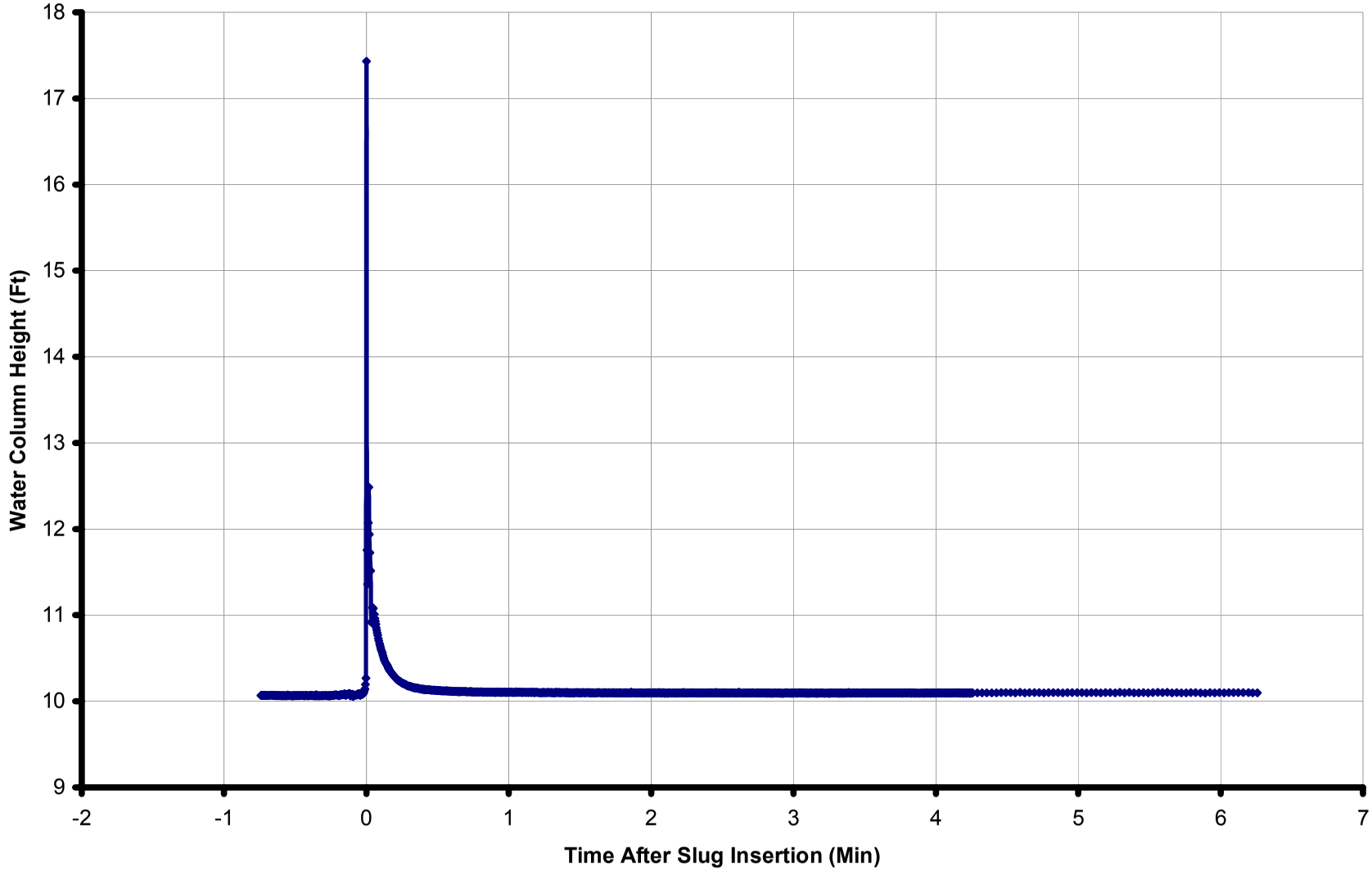
1. Pre-Test Water Level (ft. TOC)/ Time: 29.98 / 4:06 pm
2. Water Level after Probe Insertion (ft. TOC)/ Time: 29.72 / 4:20 pm
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 10.14
5. Measured Pre-Test Head over Transducer: 10.05
6. Time Test Started: Pre-test / Slug test 16:10 / 16:31
7. Time Test Ended: 4:40 pm
8. ~~Pressure~~ Rising Head Recovery at End of Test: 10.08
9. Datalogger File Name: 06120048-PTD-OW-756-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 24, 2006
Approved By: [signature] Date: 8/01/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-756 Permeability Test



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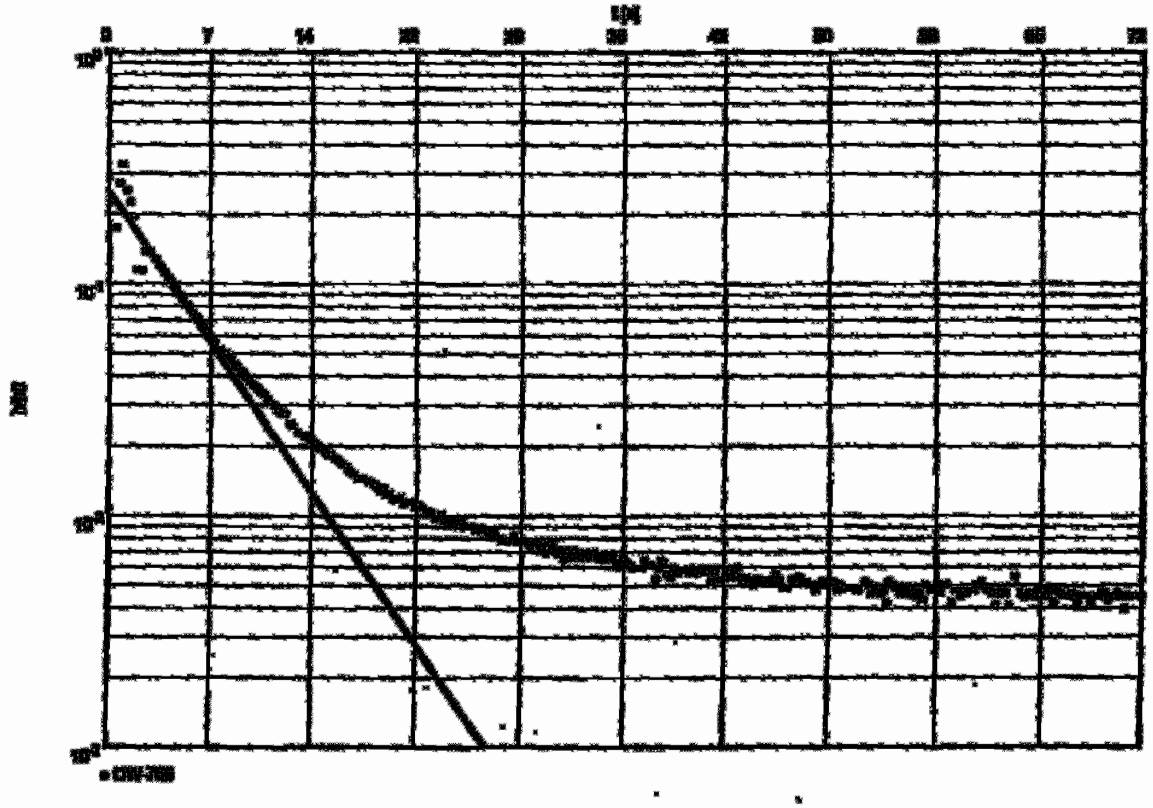
[illegible]	[illegible]	[illegible]	Page 1
		Project [illegible]	
		[illegible]	

Slug Test No. [illegible]	Test conducted on [illegible]
[illegible]	



Hydraulic conductivity (K): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Screen = [illegible] ft
Evaluated by: [illegible]

Reviewed by: [illegible]

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Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GDLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/ TEMP: 85-Sunny

PROJECT NO.: [illegible]
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-757A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	33.72
Screen Interval Depth (ft, TOC):	20-30
Riser Height (ft):	1.5'

1 Pre-Test Water Level (ft, TOC)/ Time: 26.87 / 2:59 PM
2 Water Level after Probe Insertion (ft, TOC)/ Time: 26.87' / 3:31 PM
3 Transducer Depth: 33.0
4 Calc. Pre-Test Head over Transducer: 6.13 ft
5 Measured Pre-Test Head over Transducer: 6.12 ft
6 Time Test Started: Pre-test / Slug test - 3:00 / 3:35 PM
7 Time Test Ended: 5:48
8 Peak Head over Transducer at End of Test: 6.18 ft
9 Datalogger File Name: 06120048-PTD-OW-757A-Slug

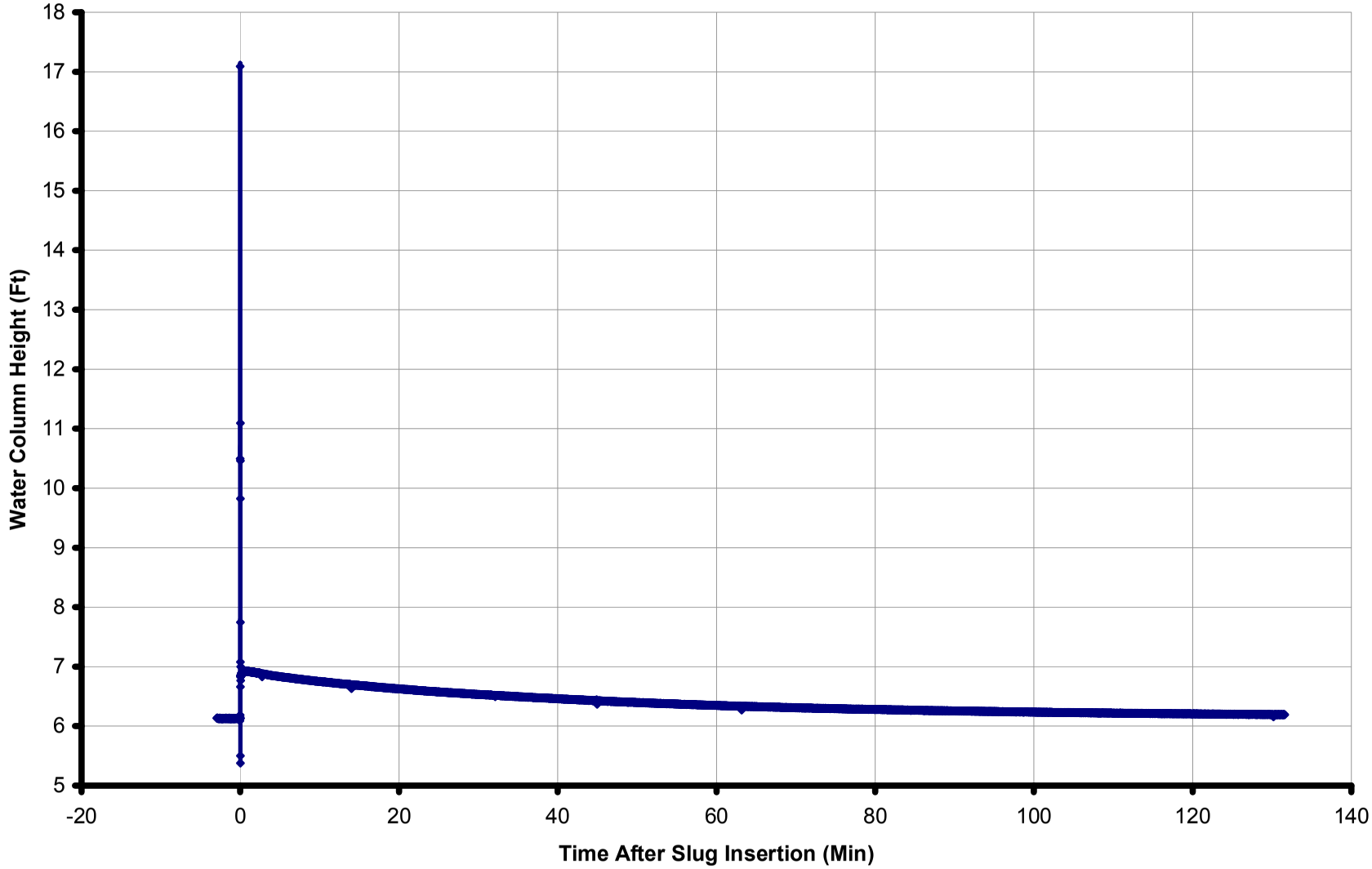
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2006
Approved By: [illegible] Date: 8/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-759A Permeability Test



Schnabel
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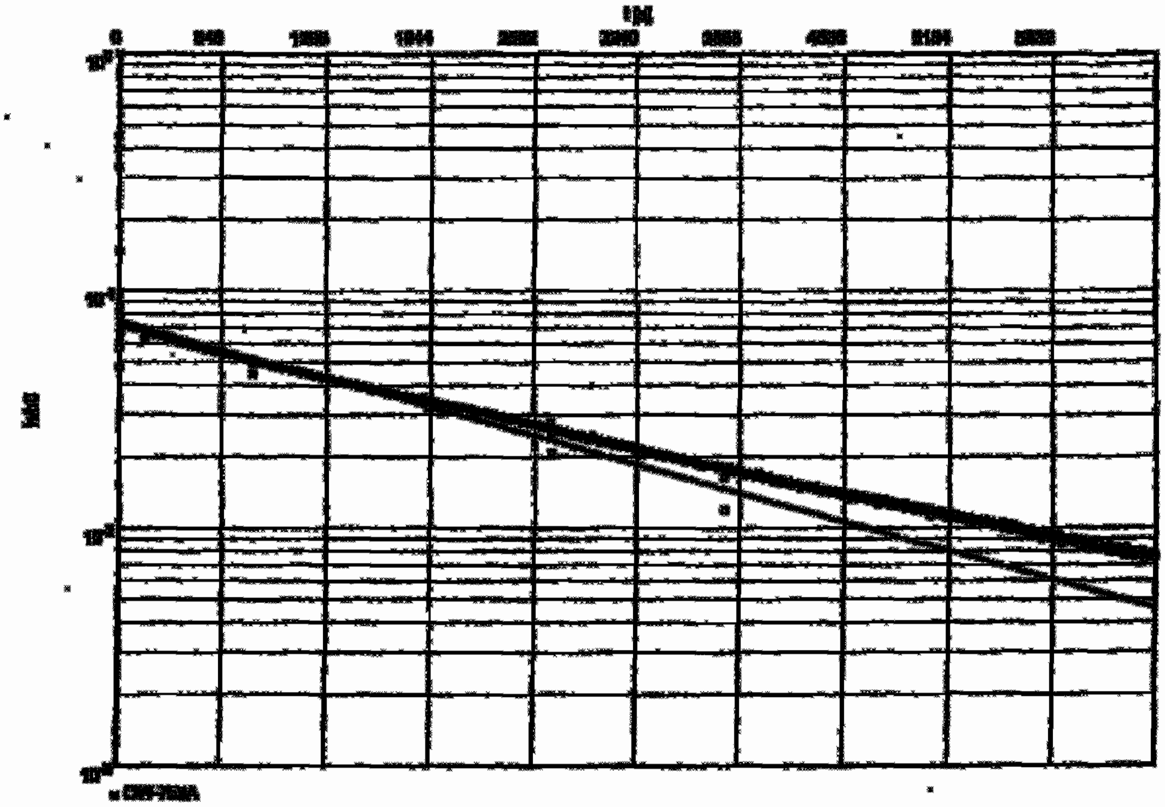
[illegible] Engineering [illegible], LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	slug/bail test analysis [illegible] method	Date: [illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [ft/s]: [illegible] x 10^{-7}

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = 10.00 ft
Radius of Casing = 0.08 ft
Radius of Influence = 0.[illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Technical Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GOLA Project
LOCATION: Lusby, MD
DATE: July 26 2006
WEATHER/ TEMP: / 80-[illegible]

PROJECT NO.: [illegible]
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	Omega - 0.625 GAL
Manual Water Level Meter S/N:	LLP-001
Transducer S/N:	109259
Slug S/N:	Slug-002

WELL INFORMATION	
WELL ID:	OW-759B
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	87.7
Screen Interval Depth (ft, TOC):	75-85
Riser Height (ft):	1.5'

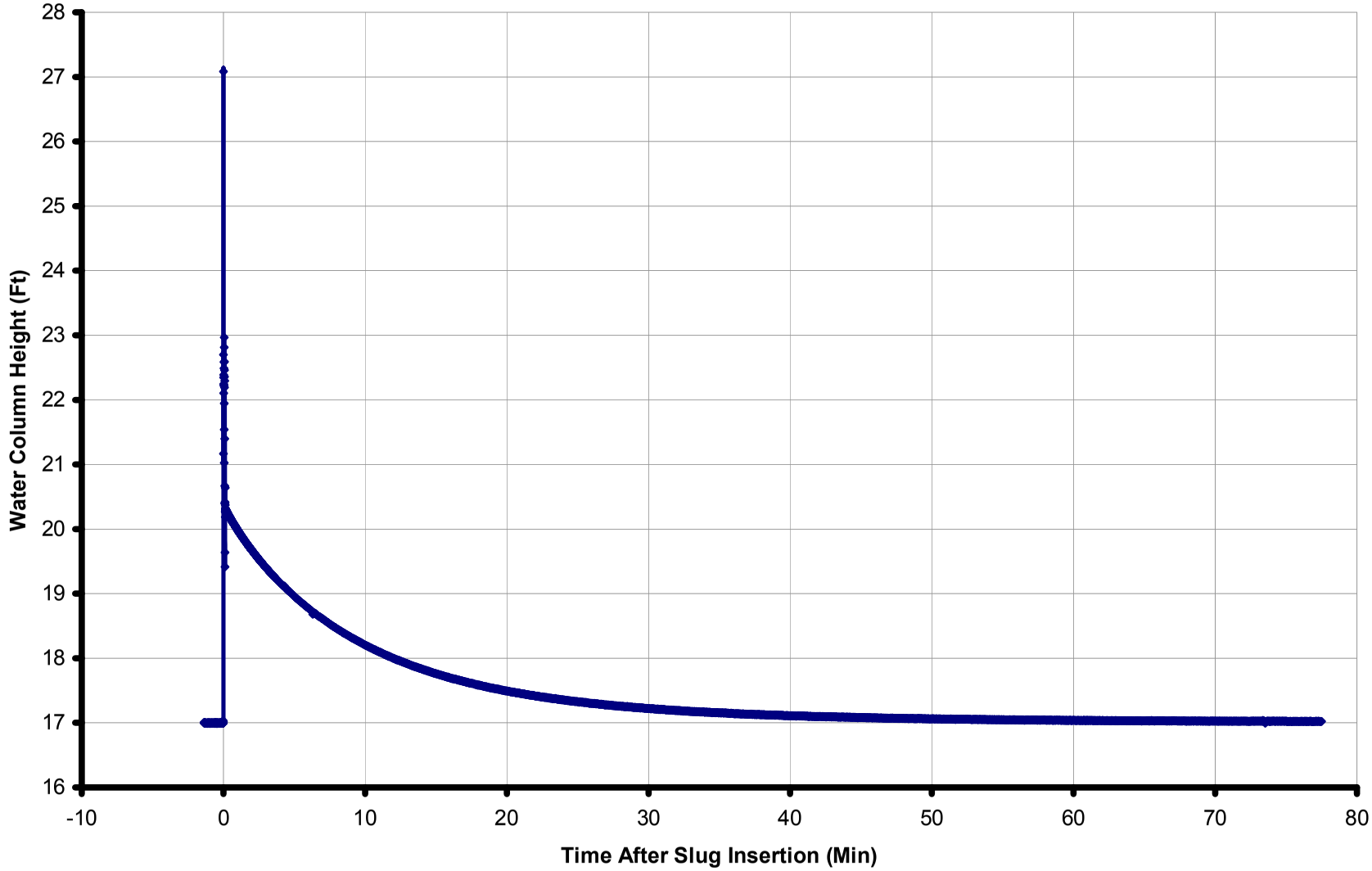
1. Pre-Test Water Level (ft, TOC)/ Time: 63.09 ft / 3:00 pm
2. Water Level after Probe Insertion (ft, TOC)/ Time: 63.08 ft / 4:30 pm
3. Transducer Depth: 80 ft
4. Calc. Pre-Test Head over Transducer: 16.92 ft
5. Measured Pre-Test Head over Transducer: 16.96 ft
6. Time Test Started: Pre-test/Slug test 3:01 / 4:38 PM
7. Time Test Ended: 5:59 pm
8. ~~Pressure Transducer~~ Head at End of Test: 17.01 ft
9. Datalogger File Name: 06170058-TD-OW-759B-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-759B Permeability Test



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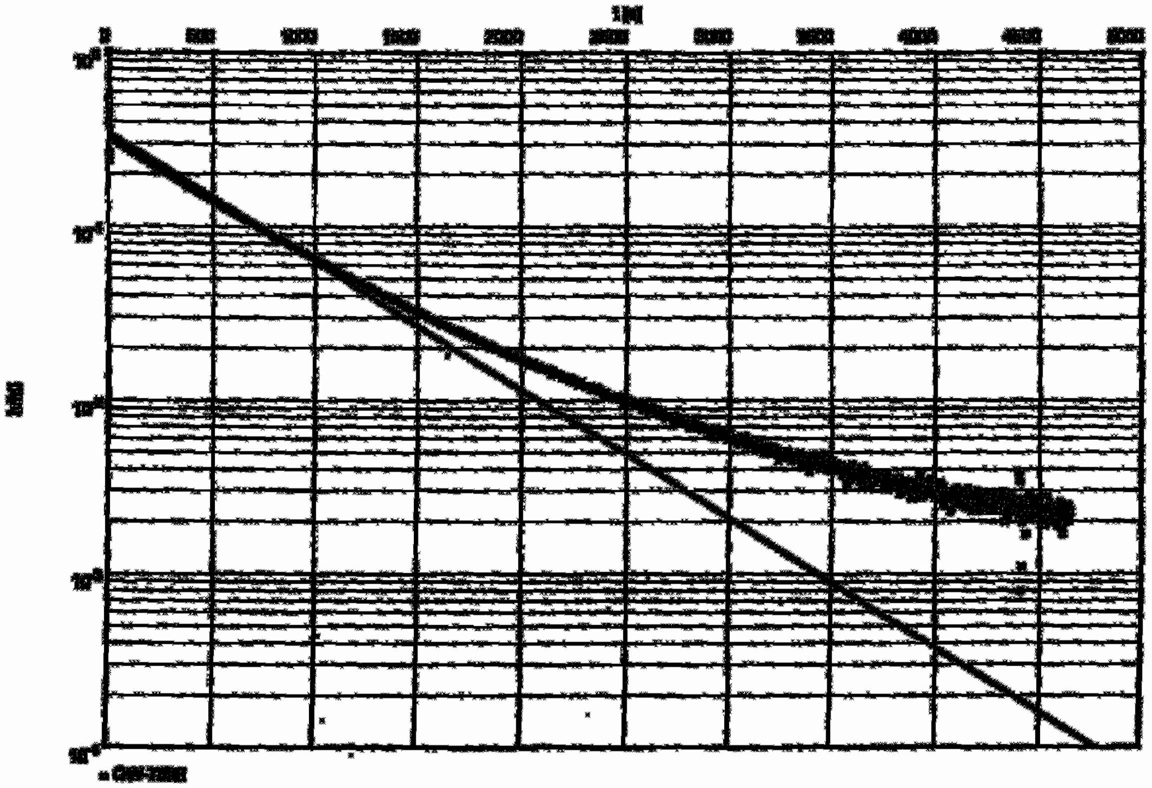
Schnabel Engineering North, LLC [illegible] Road, Suite [illegible] [illegible] [illegible]	Slug test analysis BOUWER-RICE's method	Date: [illegible] — Page 1 Project: [illegible] Evaluated by: patrick
Slug Test No. [illegible]	Test conducted on: [illegible]	
CW-[illegible]		



= CW-[illegible]

Hydraulic conductivity [ft/s]: $1.77 \times 10^{[illegible]}$

INPUT PARAMETERS
Static Water Level = 17.00 ft
Depth to Bottom of Aquifer = 100.00 ft
Length of Screen = 10.00 ft
Radius of Casing = 0.08 ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible] Patrick
Reviewed by: Christopher [illegible]

Johnabel Geotechnical Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 85 [illegible]

PROJECT NO.: 06120048
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head/ Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 gal. 0.625 gal
Manual Water Level Meter S/N:	WL P-001
Transducer S/N:	107255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-765A
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	31
Screen Interval Depth (ft, TOC):	11 - 27'
Riser Height (ft):	2'

1. Pre-Test Water Level (ft, TOC)/ Time: 21.69 / 7:53 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 21.69 / 8:20 AM
3. Transducer Depth: 30 ft
4. Calc. Pre-Test Head over Transducer: 8.36 ft
5. Measured Pre-Test Head over Transducer: 8.40 ft
6. Time Test Started: Pre-test / Slug test 8:10 / 8:28 AM
7. Time Test Ended: 9:27 AM
8. Percent Recovery at End of Test: 8.40 ft
9. Datalogger File Name: 06120048-PTD-OW-765A-SLUG

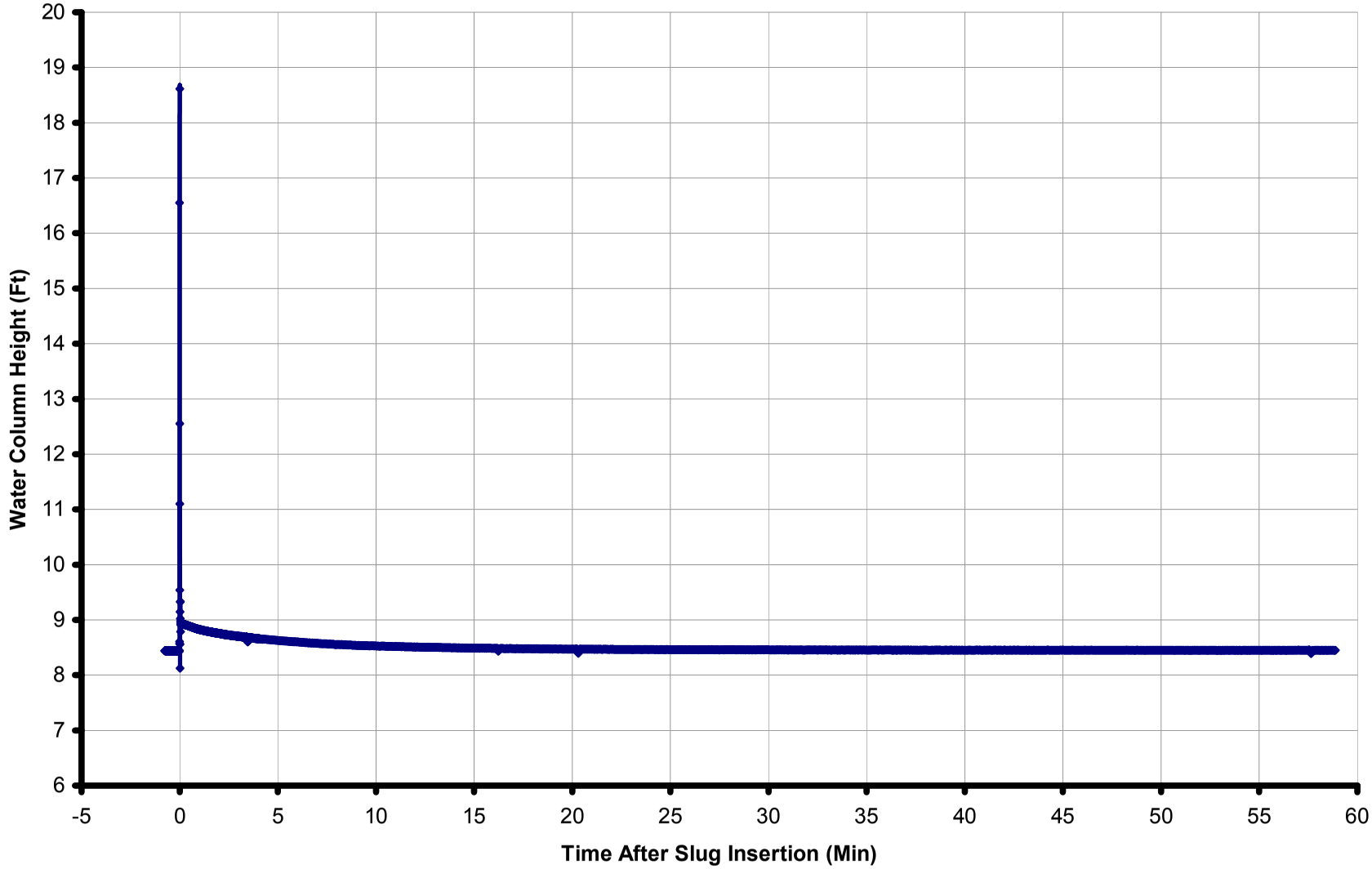
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 27, 2006
Approval By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-765A Permeability Test



Schnabel
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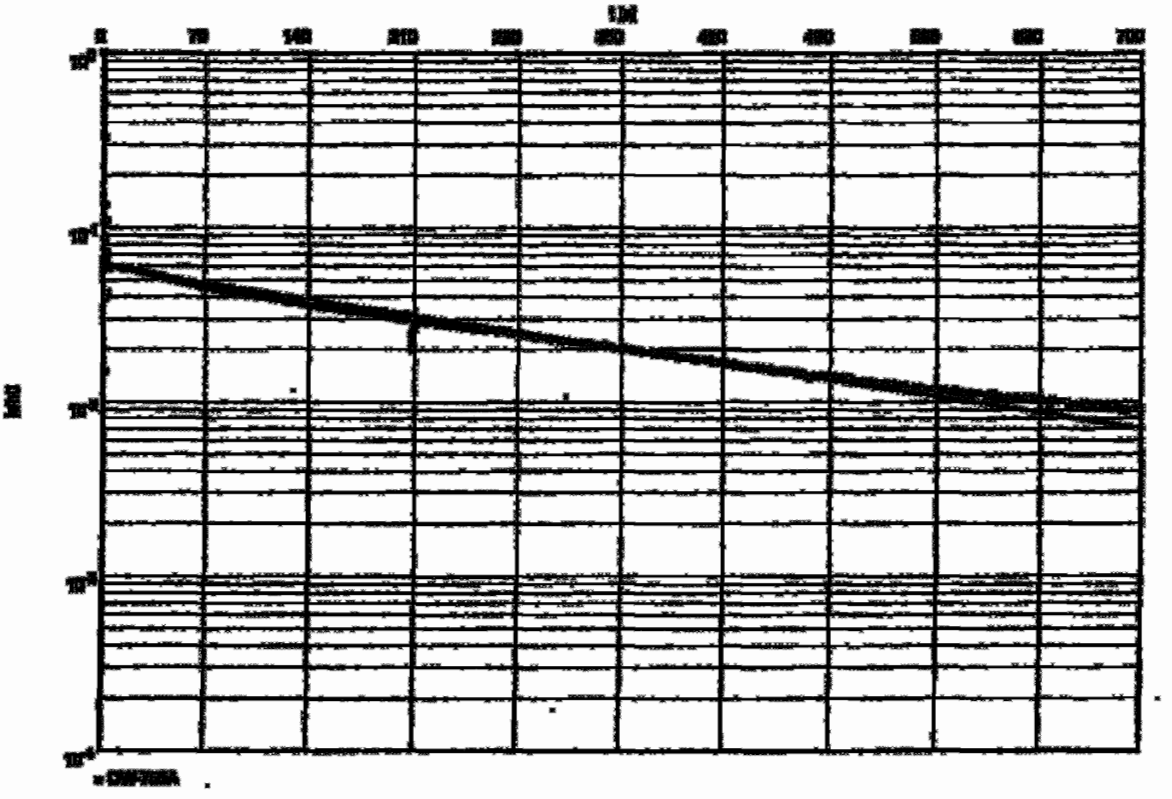
[illegible]	[illegible]	Date: [illegible]	Page 1
		Project: [illegible]	
		Reviewed by: [illegible]	

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Reviewed by: [illegible]

Reviewed by: [illegible]

Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP GCLA Project
LOCATION: Lusby, MD
DATE: July 27, 2006
WEATHER/ TEMP: 85 - humid

PROJECT NO.: [illegible]
CLIENT: Nuclear Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	ORIGINAL 0.625 GAL
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104259
Slug S/N:	SLUG-002

WELL INFORMATION	
WELL ID:	OW-765B
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	97
Screen Interval Depth (ft, TOC):	82-92'
Riser Height (ft):	2'

1. Pre-Test Water Level (ft, TOC)/ Time: 60.23 / 8:35 AM
2. Water Level after Probe Insertion (ft, TOC)/ Time: 60.23 / 9:30 AM
3. Transducer Depth: 80.94
4. Calc. Pre-Test Head over Transducer: 19.77
5. Measured Pre-Test Head over Transducer: 20.06
6. Time Test Started: Re-test / Slug test 8:39 AM / 9:35 AM
7. Time Test Ended: 11:20 AM
8. Measured Water Level at End of Test: 20.07
9. Datalogger File Name: 06120049.PTD-OW-765B-SLUG

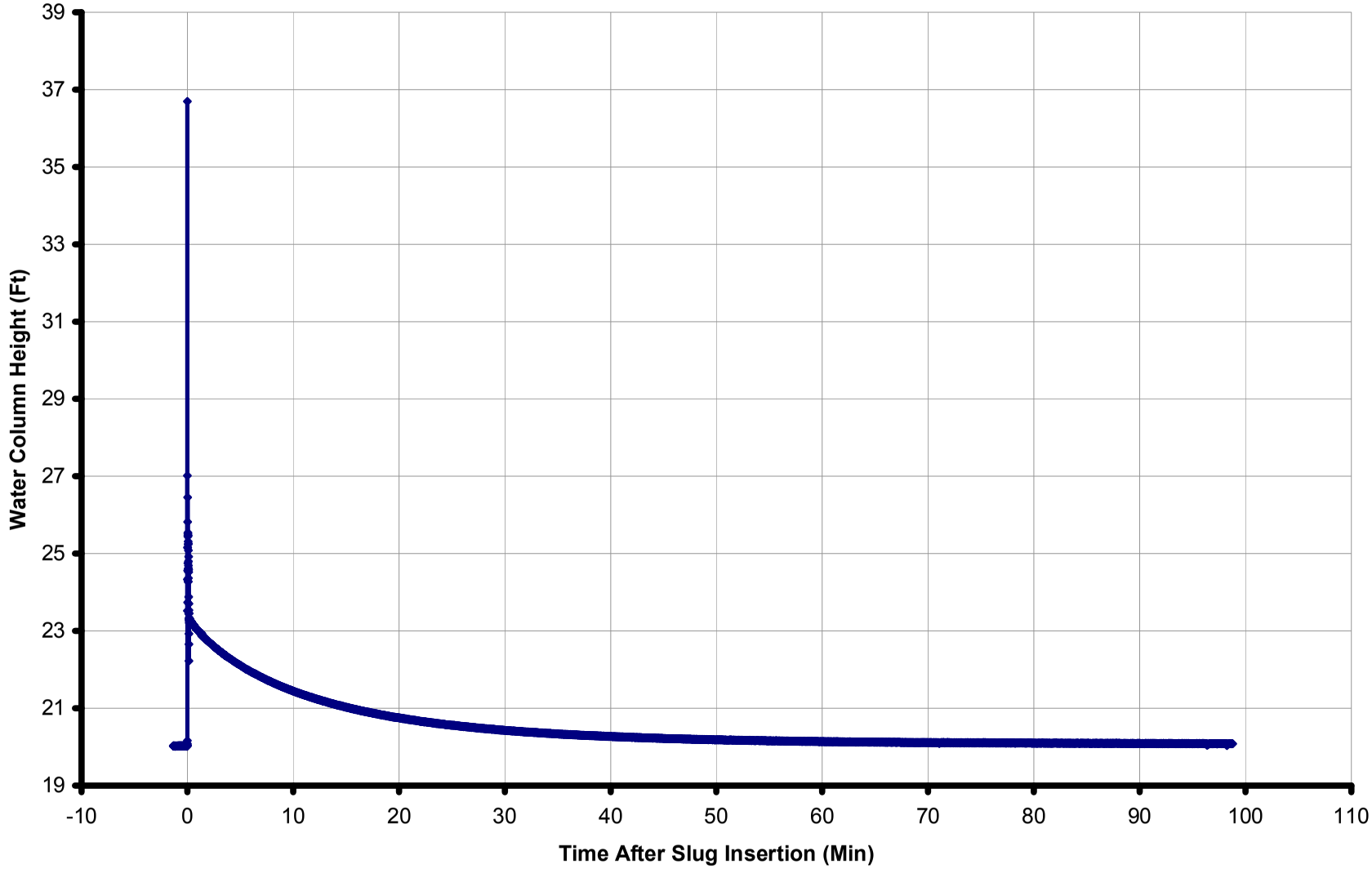
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd [illegible] Date: July 27, 2006
Approved By: [illegible] Date: 9/8/06

Note: All water level measurements obtained from well measurement point at top of casing.
References: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-765B Permeability Test



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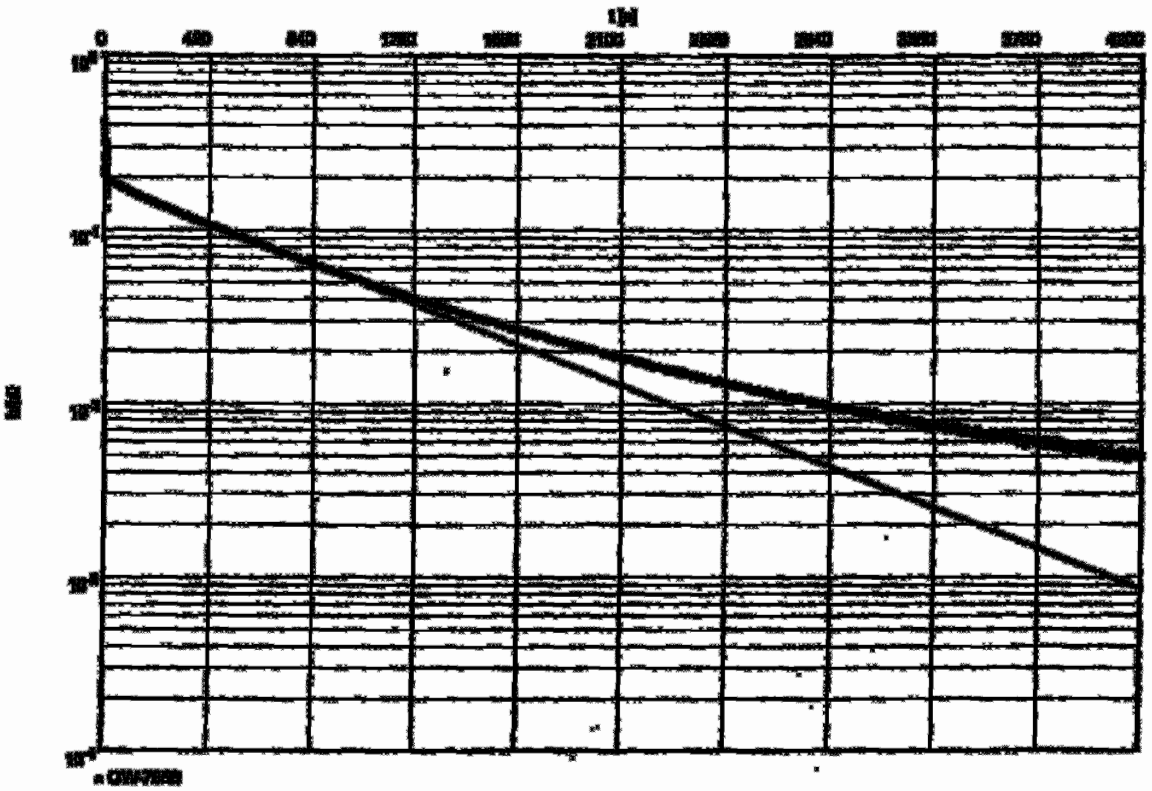
[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	
		[redacted]	

[redacted]	[redacted]
[redacted]	



Hydraulic conductivity [m/s]: [redacted]

INPUT PARAMETERS
Static Water Level = [redacted]
Depth to Bottom of Aquifer = [redacted]
Length of Screen = [redacted]
Radius of Casing = [redacted]
Radius of Influence = [redacted]
Reviewed by: [redacted]
Reviewed by: [redacted]

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Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 26, 2006
WEATHER/ TEMP: 85, humid

PROJECT NO.: 09120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	~~0.012 Gal.~~ 0.625 Gal.
Manual Water Level Meter S/N:	149-001
Transducer S/N:	147555
Slug S/N:	5206-001

WELL INFORMATION	
WELL ID:	OW-766
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	34.05'
Screen Interval Depth (ft, TOC):	20-30
Riser Height (ft):	16.38"

1	Pre-Test Water Level (ft, TOC)/ Time :	28.79 ft / 1:31 pm
2	Water Level after Probe Insertion (ft, TOC)/ Time:	28.77 ft / 1:42 pm
3	Transducer Depth:	34 ft
4	Calc. Pre-Test Head over Transducer:	5.23
5	Measured Pre-Test Head over Transducer:	5.21
6	Time Test Started: (Fall test / Slug test)	1:32 pm / 1:45
7	Time Test Ended:	2:33 pm
8	Percent Recovery at End of Test:	5.31
9	Datalogger File Name:	06120048-PTD-OW-766-5206

NOTE: Bottom of slug @ 33 ft depth. May not be fully submerged.

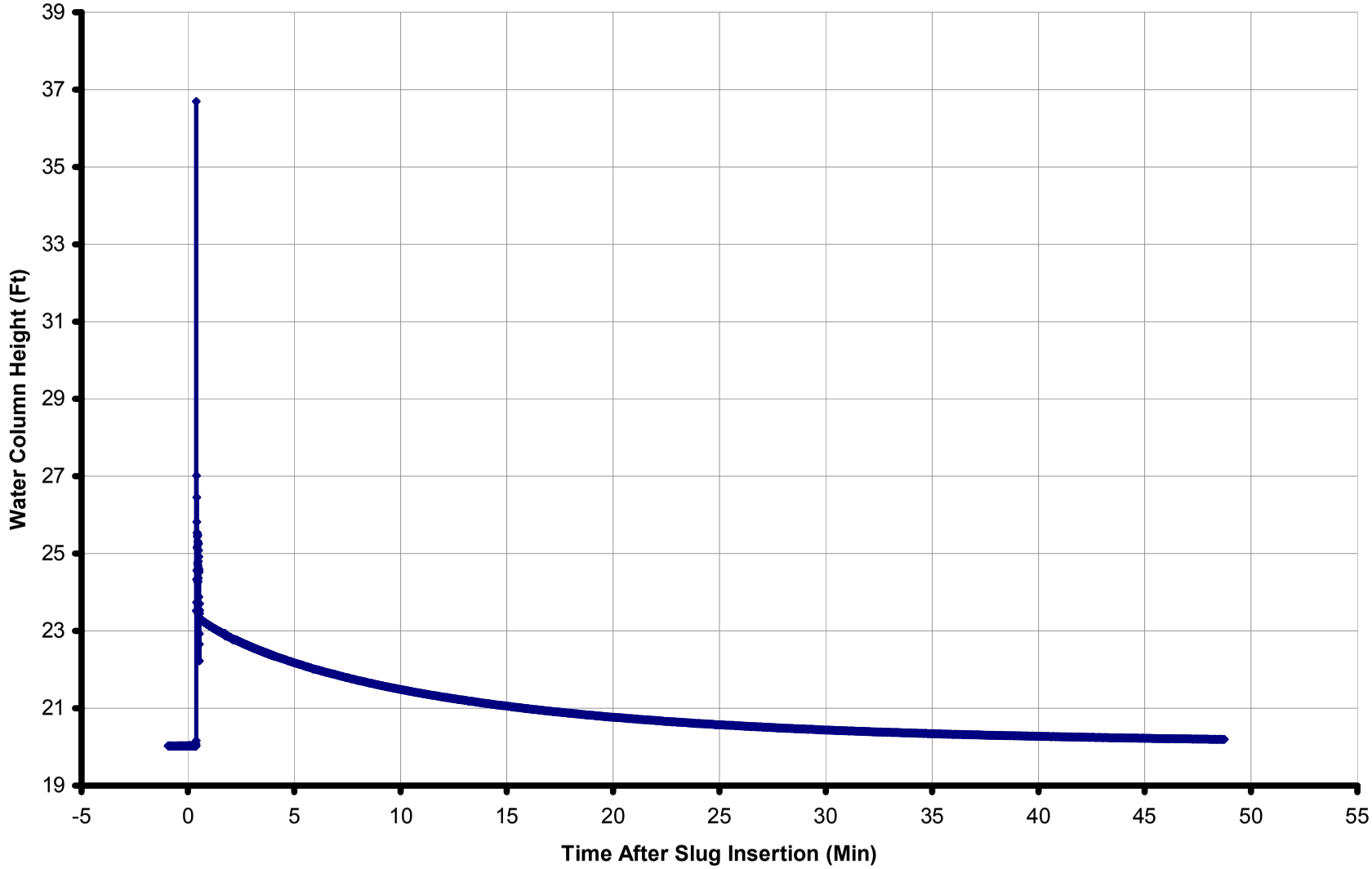
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 26, 2006
Approved By: [signature] Date: 8/24/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

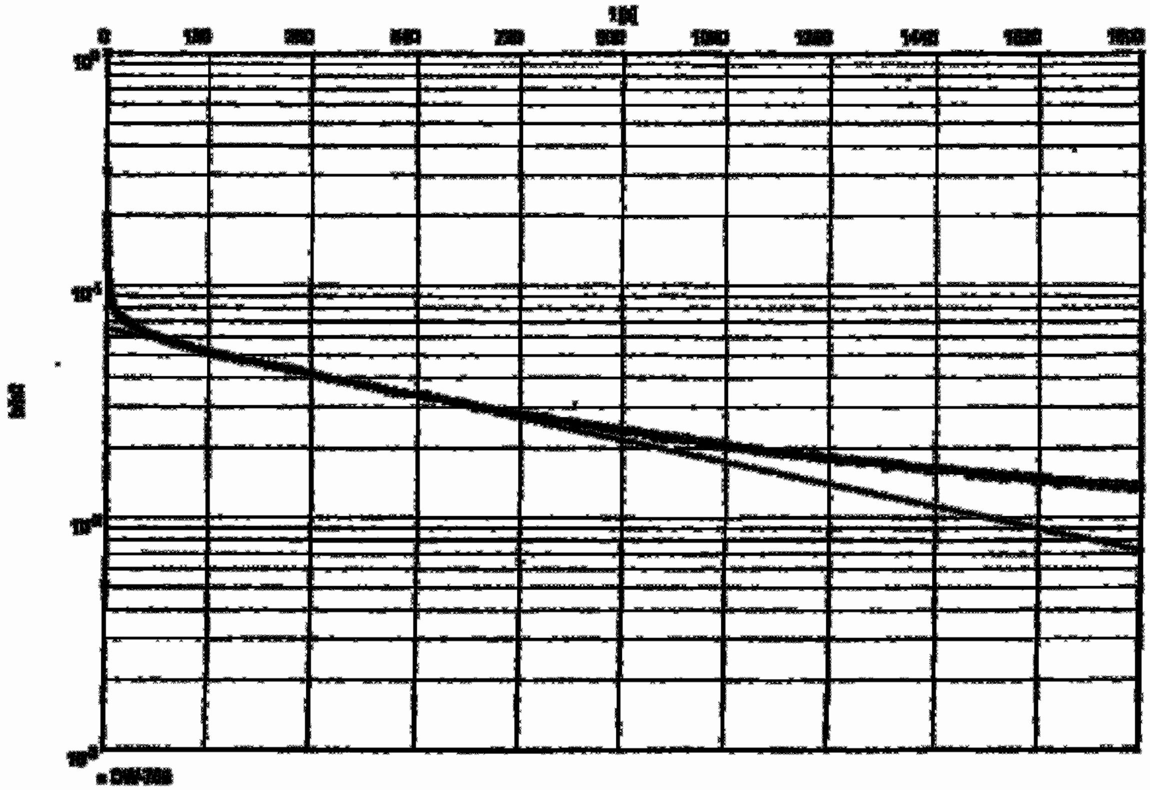
OW-766 Permeability Test



Schnabel
Schnabel Engineering

Schnabel Engineering North, LLC [illegible]	slug/bail test analysis BOUWER-RICE's method	Date: [illegible] | Page 1 Project: [illegible] Evaluated by: [illegible]

Slug Test No. [illegible]	Test conducted on: [illegible]
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Influence = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Extraordinary Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/ TEMP: 90 Clear

PROJECT NO.: 06120049
CLIENT: Bechtel Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Displacement / Water)
Approximate Volume of Slug:	Displacement 0.625 gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-768
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	44.15
Screen Interval Depth (ft, TOC):	30-40
Riser Height (ft):	1.5'

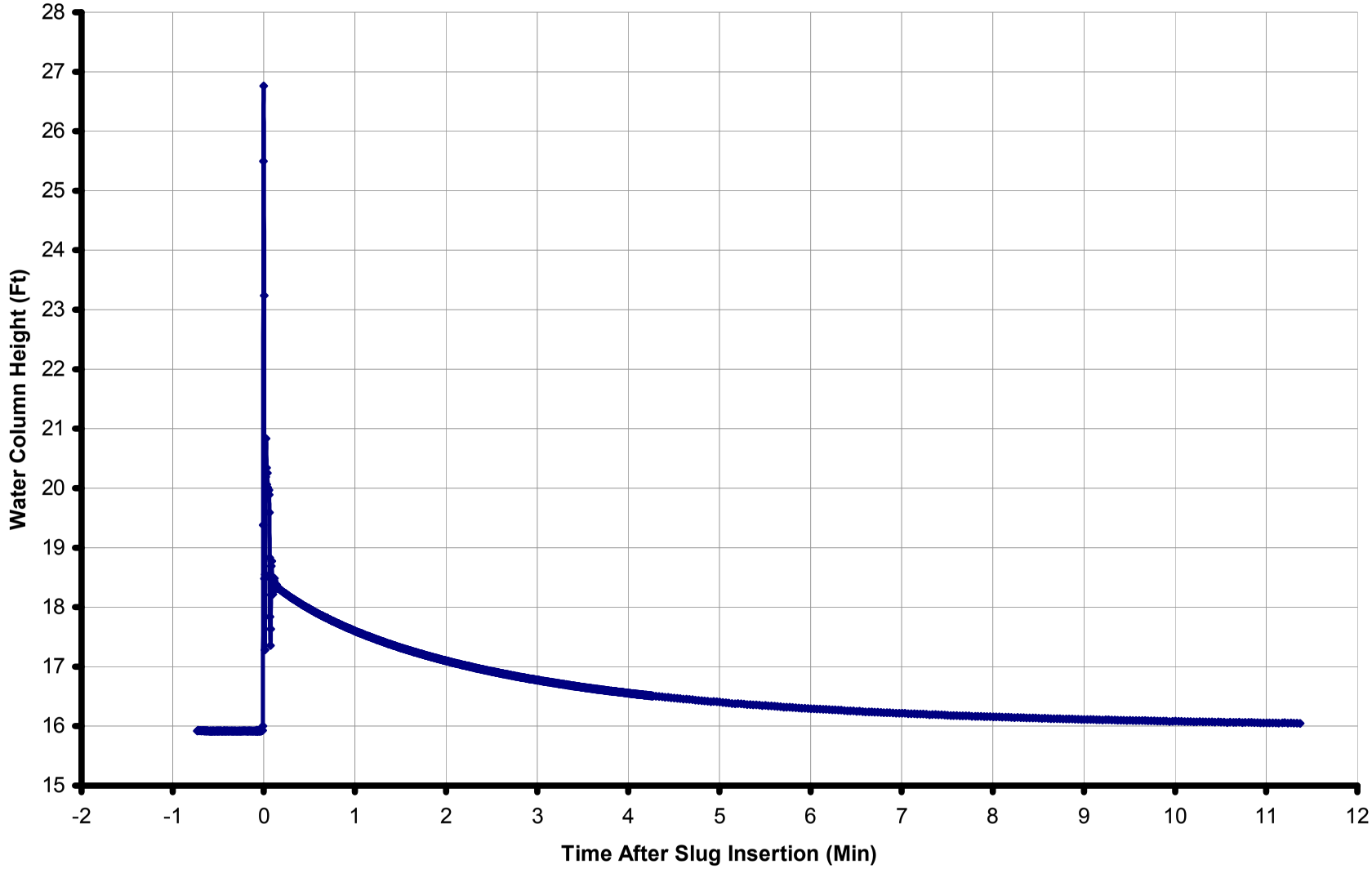
1. Pre-Test Water Level (ft, TOC)/ Time: 24.0 ft / 16:45
2. Water Level after Probe Insertion (ft, TOC)/ Time: 23.99 ft / 17:10
3. Transducer Depth: 30.0 ft
4. Calc. Pre-Test Head over Transducer: 16.01 ft
5. Measured Pre-Test Head over Transducer: 15.83 ft
6. Time Test Started: the last / Slug last 16:48 / 17:15
7. Time Test Ended: 17:27
8. Pressure Transducer at End of Test: 16.05
9. Datalogger File Name: 060725-PTD-OW-768

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 25, 2006
Approved By: [signature] Date: 9/21/06

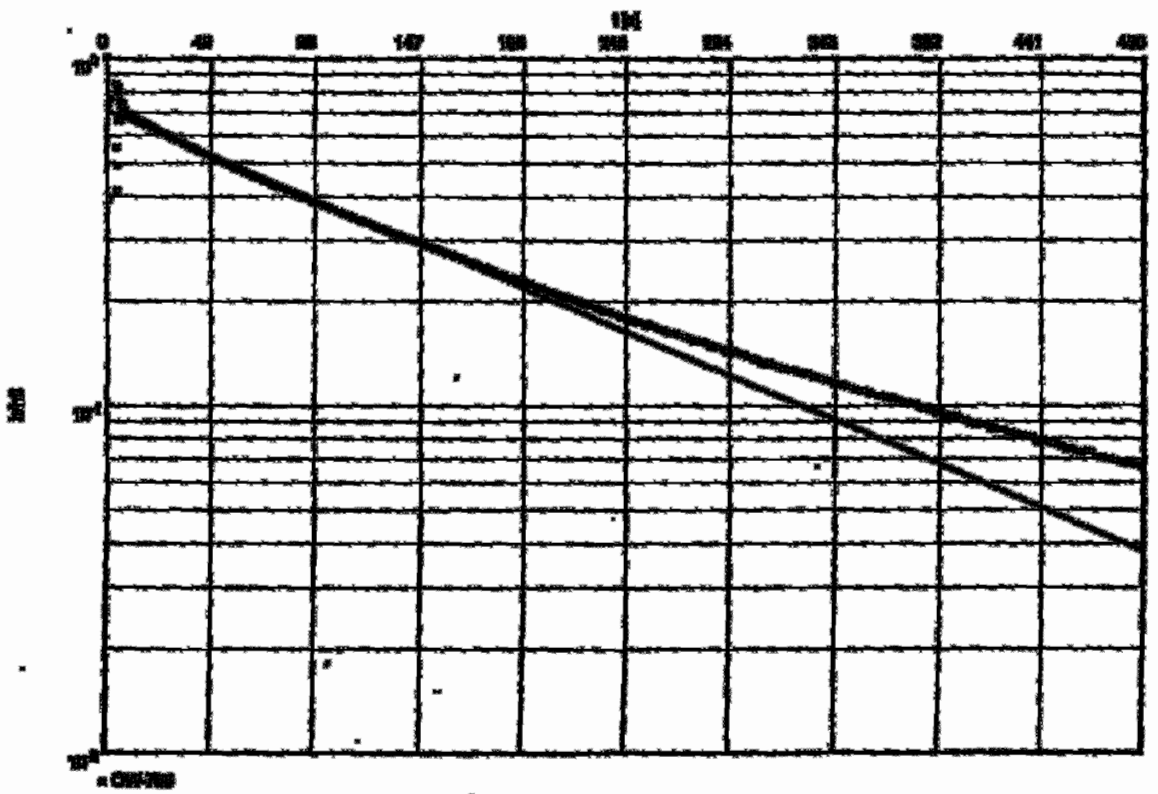
Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-768 Permeability Test



Schnabel
Schnabel Engineering

[illegible]	[illegible]	[illegible]	Page 1
		Project: [illegible]	
		Evaluated by: [illegible]	
Slug Test No. [illegible]		Test conducted on [illegible]	
[illegible]			



Hydraulic conductivity (avg): [illegible]

INPUT PARAMETERS
Static Water Level = [illegible]
Depth to Bottom of Aquifer = [illegible]
Length of Screen = [illegible]
Radius of Casing = [illegible]
Radius of Influence = [illegible]
Evaluated by: [illegible]

Reviewed by: [illegible]

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Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/ TEMP: 80, Clear

PROJECT NO.: 06120048
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	0.625 gal
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	SLUG-001

WELL INFORMATION	
WELL ID:	OW-769
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	45.05
Screen Interval Depth (ft, TOC):	31.10' - 41.10'
Riser Height (ft):	2' 3"

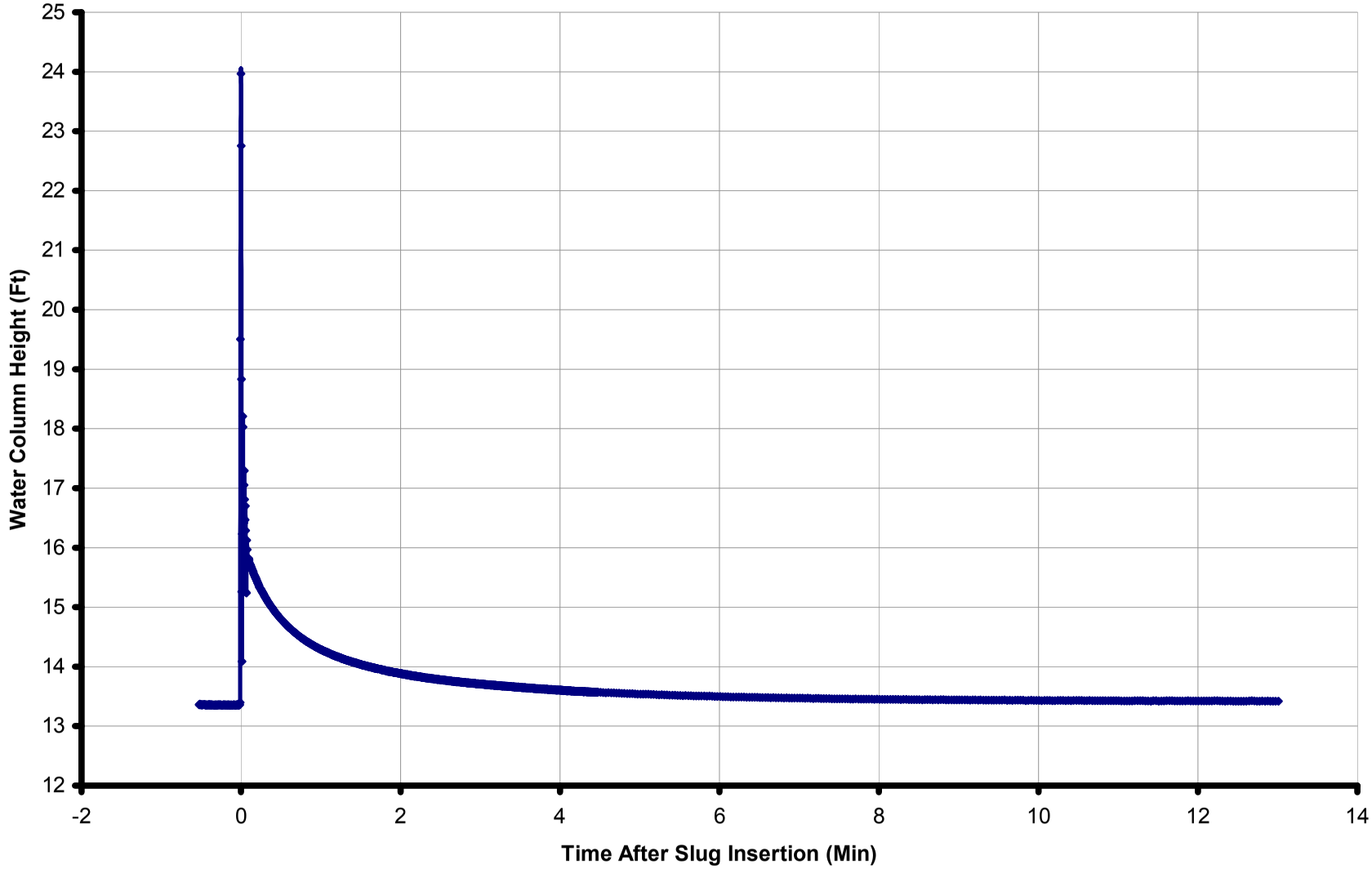
1. Pre-Test Water Level (ft, TOC)/ Time: 26.49 ft / 17:35
2. Water Level after Probe Insertion (ft, TOC)/ Time: 22.48 ft / 18:05
3. Transducer Depth: 40 ft
4. Calc. Pre-Test Head over Transducer: 13.52 ft
5. Measured Pre-Test Head over Transducer: 13.57 ft
6. Time Test Started: Re-test/Slug test 17:40 / 18:06
7. Time Test Ended: 18:11
8. Percent Recovery at End of Test: 13.41
9. Datalogger File Name: 06120048-PTD-OW-769-SLUG

Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 25, 2006
Approved By: [illegible] Date: 9/21/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

OW-769 Permeability Test



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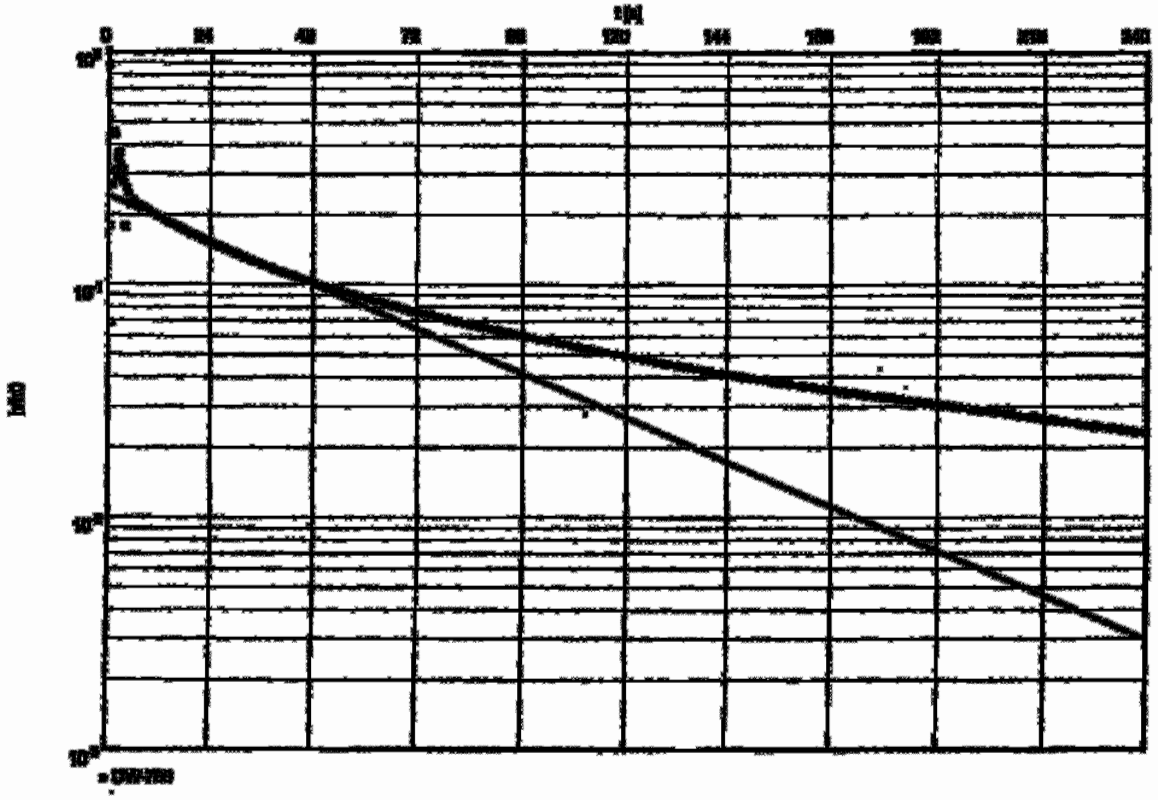
Schnabel Engineering

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	

[illegible]	[illegible]
[illegible]	
[illegible]	



Hydraulic conductivity [illegible]: [illegible]

INPUT PARAMETERS
Static Water Level = [illegible] ft
Depth to Bottom of Aquifer = [illegible] ft
Length of Screen = [illegible] ft
Radius of Casing = [illegible] ft
Radius of Screen = [illegible] ft
Evaluated by: [illegible]
Reviewed by: [illegible]

Schnabel
Schnabel Engineering

PERMEABILITY (SLUG) TEST FIELD FORM

PROJECT: Calvert Cliffs NPP COLA Project
LOCATION: Lusby, MD
DATE: July 25, 2006
WEATHER/TEMP: 90 - Clear

PROJECT NO.: 06120045
CLIENT: Baltimore Power Corporation

TEST INFORMATION	
Type of Test:	(Falling Head / Rising Head)
Slug Type:	(Mechanical / Water)
Approximate Volume of Slug:	3 Gallons
Manual Water Level Meter S/N:	WLP-001
Transducer S/N:	104255
Slug S/N:	—

WELL INFORMATION	
WELL ID:	OW-770
Screen Inside Diameter:	2"
Casing Inside Diameter:	2"
Total Well Depth (ft, TOC):	44.25
Screen Interval Depth (ft, TOC):	30-40
Riser Height (ft):	1.5' 3/4"

1 Pre-Test Water Level (ft, TOC)/ Time: 0 (Dry)
2 Water Level after Probe Insertion (ft, TOC)/ Time: 0 (Dry)
3 Transducer Depth: 44
4 Calc. Pre-Test Head over Transducer: 0
5 Measured Pre-Test Head over Transducer: -0.03
6 Time Test Started: Pre-test/Slug test 15:35/15:36
7 Time Test Ended: 1:45 PM
8 Partial Recovery at End of Test: 2 ft
9 Datalogger File Name: 06120045-PTD-OW-770-SL06

3 gallon water Slug

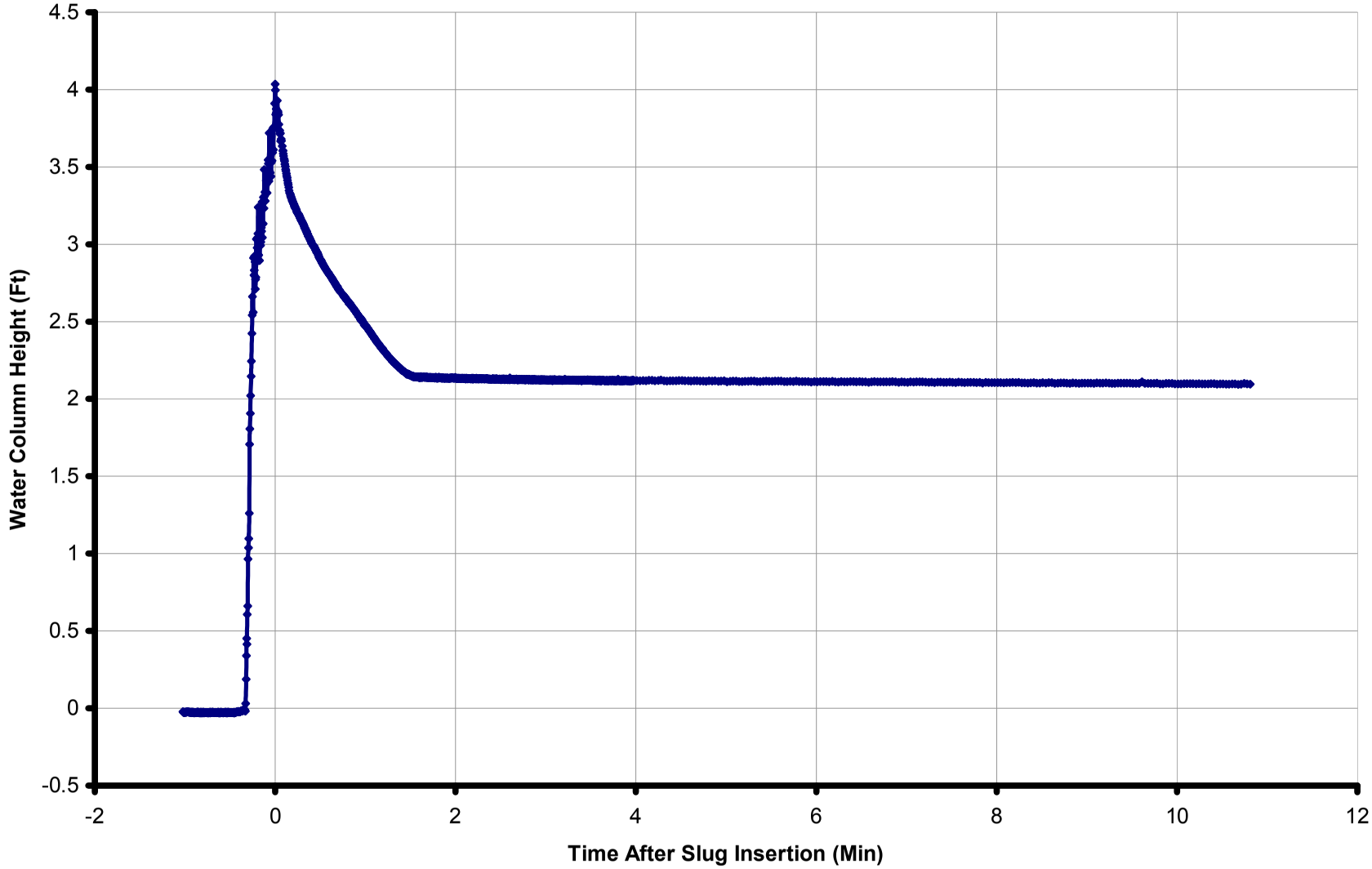
Comments:
TOC = Bottom of the V-notch at top of casing

Performed By: Todd White Date: July 25 2006
Approved By: [signature] Date: 9/11/06

Note: All water level measurements obtained from well measurement point at top of casing.
Reference: ASTM D4044

Calvert Cliffs Nuclear Power Plant
Combined Operating License Application (COLA)
Schnabel Engineering Project No. 06120048

OW-770 Permeability Test



Schnabel Engineering

WELL SAMPLING RECORDS

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CCNPP	OW-301

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	A Brasko K Powell

PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
Submersible	Grab	Volume & Stabilization

PUMP TYPE		
2" Grundfos	PURGING DATE: 12/20/06 WEATHER: Sunny/Cold TEMPERATURE: 40 INITIAL WATER LEVEL: 56.18	DATE OF SAMPLING: 12/20/06 TIME OF SAMPLING: 1455 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_w = (3.14)(\frac{3}{12})^2(21.82)(\frac{7.48}{1})$

$= (3.6)(3) = 10.9$ gal

$V_s = (3.14)(\frac{16}{12})^2(18)(0.3)(\frac{7.48}{1})$

$= 3.7(3) = 11.1$

$V_T = 22.0$

d_w - well diameter (in)

l - well depths (ft)

n-porosity

d_b - Boring diameter

$1\ ft^3 = 7.48$ gal

$V_w = \pi\ (\frac{dw}{2})^2\ h * 7.48$

$V_s = \pi\ [\frac{db-dw}{2}]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS				COMMENTS		
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (S.U.)	Conductivity (µ mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1353	1423	164							
1423	1428	5.5	13.93 ~~12.90~~	6.47	0.460	12.4	6.89	0.3	
1428	1433	5.5	14.31	6.89	0.478	12.4	~~6.90~~ 4.80	1.5	
1433	1438	5.5	14.12	7.09	0.478	12.5	3.23	1.6	
1438	1443	5.5	14.37	7.14	0.480	12.5	3.03	1.9	
1443	1448	5.5	14.58	7.16	0.477	12.4	1.17	2.7	
1448	1453	5.5	14.13	7.18	0.480	12.5	1.12	2.9	
1453	1453	5.5	14.12	7.18	0.478	12.5	1.11	2.5	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

5 gal / 55 sec

5 gal / 55 sec | 60 sec

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CCNPP	~~OW-323~~ OW-323

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	ABresko, K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	sub pump	grab	Volume or Stabilization

PUMP TYPE	PURGING DATE:	DATE OF SAMPLING:
2" Sub grundfos	12/7/06	12/7/06
	WEATHER: Cloudy/Rain	TIME OF SAMPLING: 0818
	TEMPERATURE: 0°C	SAMPLE MATRIX: GROUND WATER:
	INITIAL WATER LEVEL: 35.92	

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{2}{12})^2(3.48)(\frac{7.48}{1}\frac{gal}{ft^3})$
$= 0.2\,gal(3) = 0.6\,gal$

$V_s = 3.14(\frac{8.5}{12})^2(17.5)(0.3)\frac{7.48}{1}$
$= 11.4(3) = 34.2\,gal$

$V_T = 34.8\,gal$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi\,(\frac{dw}{24})^2\,2\,h$ *

$V_s = \pi\,[\frac{db-dw}{24}]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS						COMMENTS: 13.6' below TOS 43.6' below V notch
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (±.01)	Conductivity (µ mhos) (± 3%)	ORP (mV) (± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
0735		57	~~14.36~~						
0750		19	14.38	6.32	0.078	12.4	1.44	2.4	
0755		19	14.43	5.96	0.068	12.5	1.77	0.2	
0800		19	14.39	5.62	0.067	12.5	1.95	0.5	
0805		19	14.37	5.45	0.0660	12.4	2.03	0.9	
0810		19	14.39	5.46	0.065	12.5	2.09	0.2	
0815	0815	—	14.37	5.43	0.065	12.4	2.12	0.0	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

3 gal / 1:3 min

3.8 gal/min #

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PROJECT	WELL NO.
CCNPP	BW-336 ~~BW-705~~

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120049	Calvert Cliffs	A Brooks K Powell

PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
sub pump	Grab	Volume + Stabilization

PUMP TYPE	PURGING DATE:	DATE OF SAMPLING:
2" Grundfos	WEATHER: Clear TEMPERATURE: 40° INITIAL WATER LEVEL: ~~[illegible]~~ 60.36	TIME OF SAMPLING: 15:17:50 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_{w0} = 3.14\left(\frac{3}{24}\right)^2(13.69)\left(\frac{7.48\,gal}{ft^3}\right)$
$= 2.23(3) = 6.7\,gal$

$V_s = 3.14\left(\frac{11}{24}\right)^2(21)(0.30)\left(\frac{7.48}{1\,ft^3}\right)$
$= 4.1(3) = 12.3\,gal$

$V_T = 19.0\,gal$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

$1\,ft^3 = 7.48\,gal$

$V_w = \pi\left(\frac{dw}{24}\right)^2 h *$

$V_s = \pi\left[\frac{db-dw}{24}\right]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA	FIELD PARAMETERS	COMMENTS
		Sample collected @ 68.5' below V.L.

Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (µ mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1709	[illegible]	-36							
1723		12.0	13.78	7.26	0.427	12.5	1.89	~~14.8~~ 19.8	
1729		12.0	14.08	7.29	0.421	12.5	1.06	14.6	
1739		12.0	14.12	7.30	0.422	12.5	0.97	12.4	
1738		12.0	13.93	7.30	0.421	12.5	1.05	13.2	
1743	~~1743~~	—	14.05	7.30	0.420	12.5	1.00	12.2	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

5 gal / 2.0 m
2.4 gal/min

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PROJECT	WELL NO.
CCNPP	DW-3D+ 4D1

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	A Brosko K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub pump	Sub pump	Volume + Stabilization

PUMP TYPE	PURGING DATE: 12/20/06	DATE OF SAMPLING: 12/20/06
Grundfos 2"	WEATHER: Clear/Cold TEMPERATURE: 40s INITIAL WATER LEVEL: 33.60	TIME OF SAMPLING: SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_W = 3.14\left(\frac{2}{12}\right)^2(28.5)(43.9)\left(\frac{7.48}{1}\right)$
$= 7.2(3) = 21.6$ gal

$V_S = 3.14\left(\frac{8}{12}\right)^2(20.5)(0.3)\left(\frac{7.48}{1}\right)$
$= 4.0(3) = 12.0$

$V_T = 33.6$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi \frac{(dw)}{24}^2 h$ *

$V_s = \pi \frac{[db-dw]}{24}^2 * 7.48 * n$

Checked by: [illegible]

PURGING DATA			FIELD PARAMETERS				COMMENTS		
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
0924	0945	40 gal							dry
0944	0948	26 gal							
0949		7 gal	14.04	7.43	0.394	12.4	3.13	30.2	
0954		7 gal	14.57	7.41	0.380	12.5	2.41	20.3	
0959		7 gal	14.82	7.40	0.380	12.5	1.70	16.7	
1004	1004	7 gal	14.52	7.40	0.382	12.5	1.66	6.0	dry

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

11 min

$\frac{5 \text{ gal}}{1.35 \text{ min}} = 3.7$ gal/min

$\frac{5 \text{ gal}}{1.35 \text{ min}}$

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PROJECT	WELL NO.
CCNPP	DW-423

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06130048	Calvert Cliffs	A Brooks, K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub pump	grab	Volume + Stabilization

PUMP TYPE	PURGING DATE: 12/20/06	DATE OF SAMPLING: 12/20/06
QA Grundfos	WEATHER: Clear/Sunny	TIME OF SAMPLING:
	TEMPERATURE: 49°	SAMPLE MATRIX: GROUND WATER:
	INITIAL WATER LEVEL: 29.55	

PUMPING VOLUME CALCULATION

$V_w = 3.14\left(\frac{8}{24}\right)^2 (13.45) \times \frac{7.48\,gal}{1\,ft^3} = 7.99\,gal \times 3 = 23.7$

$V_b = 3.14\left(\frac{8}{24}\right)^2 (20.0)(0.3) \frac{7.48\,gal}{1\,ft^3} = 1.25 \times 3 = 3.75$

$V_T = 27.4\,gal$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

$1\,ft^3 = 7.48\,gal$

$V_w = \pi \frac{(dw)^2}{24} h * 7.48 * n$

$V_b = \pi \frac{[db - dw]^2}{24} * 7.48 * n$

Checked by: CDP

PURGING DATA	FIELD PARAMETERS	COMMENTS: Sample collected at 39.7' BLS

Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (µ mhos) (± 3%)	ORP (mV) (± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1229		~~19.2~~ 28.6							
1254		19.2	14.53	5.10	0.153	12.4	18.71	1.7	
1259		19.2	15.09	5.15	0.156	12.4	18.69	41.2	
1304		19.2	15.19	5.15	0.154	12.4	18.67	8.4	
1309		19.2	15.24	5.17	0.153	12.5	18.66	6.4	
1314		~~19.2~~ -	15.22	5.18	0.153	12.4	18.61	6.8	pumped dry

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

1:18 = /5 gal

Set @ 11.7 + 28 = 39.7'

2

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PROJECT	WELL NO.
CCNPP	OW-4 2B

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	A. Brooke, K. Powell

PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
Sub Mers Pump	Grab	Volume + Stabilization

PUMP TYPE	PURGING DATE: 12/20/06	DATE OF SAMPLING: 12/20/06
2" Grundfos.	WEATHER: Clear/Sunny	TIME OF SAMPLING:
	TEMPERATURE: 45	SAMPLE MATRIX: GROUND WATER:
	INITIAL WATER LEVEL: 37.97	

PUMPING VOLUME CALCULATION

$V_{w2} = 3.14(\frac{2}{2\cdot12})^2(42.03)(\frac{7.48\,gal}{1\,ft^3})$

$= 1.96(3) = 5.9\,gal$

$V_{b3} = 3.14(\frac{4}{2\cdot12})^2(20.0)(0.3)(\frac{7.48\,gal}{1\,ft^3})$

$= 3.91(3) = 11.8\,gal$

$V_T = 17.6\,gal.$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

$1\,ft^3 = 7.48\,gal$

$V_w = \pi\,(dw)^2\,h * \frac{}{24}$

$V_b = \pi\,[db - dw]^2 * 7.48 * n \,/\, 24$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS						COMMENTS: Sample collected at 48.3' below V
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (±.01)	Conductivity (µ mhos) (±3%)	ORP (mV) (±10mV)	DO (mg/L) (±10%)	Turbidity (NTU) (±10%)	Comments
1055	1059	20.25							pump dry
1104	1124	25 gal							
1126	1130	5.7	14.54	6.10	0.111	12.5	16.77	4.1	low flow/dry
1131		1	14.29	5.41	0.1285	12.4	23.36	2.5	purging
1136		1	14.03	5.22	0.107	12.5	22.27	2.0	
1141	1141	—	14.19	5.14	0.108	12.5	23.74	3.8	pumped dry

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

1 gal = 20 s
6.75 min

Sample collected @ 48.3' due to static water level

$\frac{1\,gal}{20\,s} \cdot \frac{6.75\,min}{} \cdot \frac{60\,s}{1\,min}$

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PROJECT	WELL NO.
CCNPP	OW-705

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	D6120048	Calvert Cliffs	A. Brosko K. Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub pump	grab	Volume / Stabilization

PUMP TYPE	PURGING DATE / WEATHER / TEMPERATURE / INITIAL WATER LEVEL	DATE OF SAMPLING / TIME OF SAMPLING / SAMPLE MATRIX: GROUND WATER:
Grundfos 2"	PURGING DATE: 12/20/06 WEATHER: Clear TEMPERATURE: 40° INITIAL WATER LEVEL: 18.53 (19.52)	DATE OF SAMPLING: 12/20/06 TIME OF SAMPLING: 16:35 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{2}{24})^2 \cdot 32.48 \cdot \frac{7.48\ gal}{ft^3}$

$= 5.3\ gal \times 3 = 15.9\ gal$

$V_s = 3.14(\frac{4}{24})^2 \cdot 17.03 \cdot \frac{7.48\ gal}{ft^3} = 0.445\ ft^3 \cdot 3 = 3.3$

$V_T = 19.2\ gal.$

dw - well diameter (in)
h-well depths (ft)
n-porosity - 0.30
d_b - Boring diameter - 6"

$1\ ft^3 = 7.48\ gal$

$V_w = \pi (\frac{dw}{24})^2 h *$

$V_s = \pi [\frac{db - dw}{24}]^2 * 7.48 * n$

V_w - well volume
V_s - sandpack volume

Checked by: [illegible]

PURGING DATA			FIELD PARAMETERS				COMMENTS		
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± 0.1)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1530	1533	6.5							Pump dry
1535	1538	3.0							[illegible]
1540	1602	19.0							[illegible]
1602	1607	9.4	13.55	7.20	0.512	12.4	0.12	28.6	
1607		9.4	13.95	7.23	0.515	12.5	0.04	24.4	
1612		9.4	13.88	7.24	0.517	12.5	0.08	19.4	
1617		9.4	13.93	7.24	0.516	12.5	0.02	16.6	
1622		9.4	13.98	7.26	0.510	12.5	0.09	~~13.5~~ 13.8	
1627		9.4	13.97	7.25	0.514	12.4	0.10	13.7	
1632	1632	9.4	14.01	7.25	0.516	12.4	0.13	12.5	

Equipment Calibration Performed By: K. Powell

Number of Sample Containers Collected: 3

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PROJECT	WELL NO.
CCNPP	OW-708A

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
PURGE METHOD: sub grad / SAMPLING METHOD:	06120048	Calvert Cliffs	A Breeko, K Powell
PURGING CRITERIA: Volume + stabilization			

PUMP TYPE		
2" Grundfos	PURGING DATE: 12/19/06 WEATHER: overcast TEMPERATURE: ~40°F INITIAL WATER LEVEL: ~~13.51~~ 12.61	DATE OF SAMPLING: 12/19/06 TIME OF SAMPLING: 1205 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_{sw} = 3.14(\frac{2}{12})^2(21.39)(\frac{7.48}{1})$
$= (3.5)(3) = 10.5$ gal

$V_s = 3.14(\frac{4}{12})^2(15)(0.30)(\frac{7.48}{1})$
$= 2.9(3) = 8.7$ gal

$V_T = 19.2$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi (dw)^2 h * 7.48$ / 24

$V_s = \pi [db-dw]^2 * 7.48 * n$ / 24

Checked by: [illegible]

PURGING DATA			FIELD PARAMETERS						COMMENTS
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (µ mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
0945	-	1 gal.	16.34	6.79	0.386	12.5	11.56	337.7	dry
~~1155~~		~~3.5~~							Recal DO meter
1055	1059	3.5	16.34	7.07	0.749	12.5	2.31	126.8	dry
1115	1129	2.5 gal	16.30	7.08	0.744	~~10.5~~ 12.5	1.74	123.4	dry
1133	1133	5 gal	16.36	7.39	0.727	12.5	6.01	482.5	low flow
1138	1138	1 gal	16.73	7.21	0.731	12.5	6.11	477.1	
1143	-	1.5 gal	16.83	7.18	~~0.730~~	12.5	6.12	481.1	

Equipment Calibration Performed By: Kibby Powell

Number of Sample Containers Collected: 3 + 3 composite

CU-1 | 708a
CU-2 | 708a
CU-3 | 708a

~~17:15~~
0750

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CLNPP	OW-711

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	A Brasko K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub pump	grab	Volume & Stabilization

PUMP TYPE	PURGING DATE: 12/20/06 WEATHER: Clear/Cold TEMPERATURE: 32° INITIAL WATER LEVEL: 18.34 / 18.50	DATE OF SAMPLING: 12/20/06 TIME OF SAMPLING: 0850 SAMPLE MATRIX: GROUND WATER:
Grundfos 2"		

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{2}{12})^2(31.5)(\frac{7.48\ gal}{1\ ft^3})$
$= (5.14)3 = 15.4\ gal$

$V_s = 3.14(\frac{4}{12})^2(20)(0.3)(\frac{7.48\ gal}{1\ ft^3})$
$= 3.9(3) = 11.7$

$V_T = 27.1\ gal$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

$1\ ft^3 = 7.48\ gal$

$V_w = \pi\ \frac{(dw)}{24}\ 2\ h * $

$V_s = \pi\ \frac{[db-dw]^2}{24} * 7.48 * n$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS						COMMENTS: Purged dry then refilled & collect sample
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
0805	0817	16.5							dry
0820	0824	3.75							slow pump
0826	0831	0.9	12.06	6.75	0.439	12.5 / 12.0	6.77	43.9	dry/slow
0831	0837	0.5	13.92	7.22	0.454	12.5	6.08	12.0	
0837	0842	0.5	14.73	7.33	0.452	12.5	7.07	4.8	
0842	—	—	15.03	7.39	0.452	12.5	5.96	5.2	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3 0850

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CCNPP	DW-725

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
PURGE METHOD: sub pump; SAMPLING METHOD: grab	D6120048	Calvert Cliffs	A Brosko, K Powell
	PURGING CRITERIA: Volume + stabilization		

PUMP TYPE		
2" grundfos	PURGING DATE: 12/21/06 WEATHER: cloudy/cold TEMPERATURE: 45° INITIAL WATER LEVEL: 23.41	DATE OF SAMPLING: 12/21/06 TIME OF SAMPLING: 1435 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{3}{24})^2(36.59)(\frac{7.48}{1})$
$= 5.97(3) = 17.9$ gal

$V_s = 3.14(\frac{4}{24})^2(14)(0.30)(\frac{7.48}{1})$
$= 2.74(3) = 8.2$

$V_T = 26.1$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi (\frac{dw}{24})^2 h$ *

$V_s = \pi [\frac{db-dw}{24}]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS						COMMENTS
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (µ mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1320	1324	9.5							dry
1326	1358	30.5							
1358		9.5	14.59	6.66	0.381	73.2	2.52	30.5	
1408		9.5	14.67	6.67	0.386	62.8	2.39	3.0	
1418		9.5	14.61	6.68	0.385	67.3	2.62	8.4	
1428	1428	–	14.58	6.68	0.386	67.1	2.52	8.2	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

5 gal / 5.25

5 gal / 2.1 min

0.95 gal/min

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CC NPP	DW-735

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	061200448	Calvert Cliffs	A Bresko K Powell

PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
Sub pump	grab	Volume + stabilization

PUMP TYPE	PURGING DATE	DATE OF SAMPLING
2" Grundfos	PURGING DATE: 12/21/06 WEATHER: Clouds/Cool TEMPERATURE: 48° INITIAL WATER LEVEL: 53.38	DATE OF SAMPLING: 12/22/06 TIME OF SAMPLING: 1123 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_{ws} = 3.14(\frac{2}{24})^2(18.62)(7.48)$
$= 3.04(3) = 9.1$ gal

$V_s = 3.14(\frac{4}{24})^2(14)(0.30)(7.48)$
$= 2.74(3) = 8.2$

$V_T = 17.3$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi (\frac{dw}{24})^2 h$ *

$V_s = \pi [\frac{db - dw}{24}]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA	FIELD PARAMETERS	COMMENTS
		Sample collected at 66.4 ft below 3" notch.

Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
~~10:31~~ 10:35	1105	155							
1105	1110	2.3	13.36	6.21	0.217	21.3	4.97	0.7	
1110	1115	2.3	13.71	6.35	0.215	17.9	3.01	2.7	
1115	1120	2.3	13.72	6.37	0.212	20.4	3.19	2.3	
1120	1120	—	13.79	6.37	0.214	21.6	3.14	2.8	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

5 gal | 1.10 min

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CCNPP	OW-744

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	D012D048	Calvert Cliffs	A Brooks K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	pump	grab	volume + stabilization

PUMP TYPE	PURGING DATE: 12/21/04 WEATHER: cloudy/cool TEMPERATURE: 45° INITIAL WATER LEVEL: 40.75	DATE OF SAMPLING: 12/21/04 TIME OF SAMPLING: 0945 SAMPLE MATRIX: GROUND WATER:
2" grunfos		

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{4}{12})^2(40.75)(\frac{7.48}{1})$
$= 1.10(3) = 3.3$ gal
$V_b = 3.14(\frac{4}{12})^2(14)(0.30)(\frac{7.48}{1})$
$= 2.74(3) = 8.2$
$V_T = 11.5$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal
$V_w = \pi \frac{(dw)^2}{24} h * 7.48$
$V_a = \pi \frac{[db-dw]^2}{24} * 7.48 * n$

Checked by: _____

PURGING DATA | FIELD PARAMETERS | COMMENTS: Sample collected 47.2' below 1' notch

Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
0853	0855	7.5							dry
0900	0905	7.5							low flow / dry
0911	0916	2 gal				74.2			low flow / dry
0921	0921	5 gal	13.54	5.79	0.104	72.5	7.02	1169.9	mod flow
0931	0938		16.01	6.02	0.104	74.4	6.39	622.8	74.2
0938	0943		14.09	6.15	0.106	68.4	4.99	479.6	dry
0943	0943	—	16.00	6.08	0.108	78.7	5.88	495.6	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

5 gal / 1.5 min

set below screen

Schnabel
Geotechnical Engineering North, LLC

PROJECT	WELL NO.
CCNPP	OW-752

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	060200418	Calvert Cliffs	A Brooks K Powell

PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
sub pump	grab	Volume + stabilization

PUMP TYPE	PURGING DATE: 12/21/06 WEATHER: Cloudy Cool TEMPERATURE: 48 INITIAL WATER LEVEL: 24.10	DATE OF SAMPLING: 12/21/06 TIME OF SAMPLING: 1225 SAMPLE MATRIX: GROUND WATER:
2" grundfos		

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{2}{24})^2(12.9)(\frac{7.48}{1})$
$= 2.11(3) = 6.3$ gal

$V_b = 3.14(\frac{8}{24})^2(18)(0.30)\frac{7.48}{1}$
$= 3.52(3) = 10.6$ gal

$V_T = 16.9$ gal

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

1 ft³ = 7.48 gal

$V_w = \pi(\frac{dw}{24})^2 h * 7.48$

$V_a = \pi(\frac{db-dw}{24})^2 * 7.48 * n$

Checked by: [illegible]

PURGING DATA			FIELD PARAMETERS						COMMENTS: Sample collected at 33.7' below "V"
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (µ mhos) (± 3%)	ORP (mV) ± 10mV	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1144	1145	2.4							dry
1147	1148	1.8							dry/slow purge
1149	1150	1							dry/slow purge
1153	1208	2.5							micro purge/dry
1210	1215	.25	15.94	5.77	0.209	33.3	8.03	1257.2	
1215	1220	.25	16.46	5.27	0.210	110.6	6.42	790.9	
1220	1220	—	17.08	5.28	0.207	112.3	6.29	261.9	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

Sample collected @ 33.7 ft below "V" notch.

12:30

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CLNPP	OW-76A

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	06120048	Calvert Cliffs	A Brosko, K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub Pump	Grab	Volume + stabilization

PUMP TYPE	PURGING DATE:	DATE OF SAMPLING:
2" Grundfos	WEATHER: Cold/Overcast TEMPERATURE: 44 INITIAL WATER LEVEL: [redacted] 23.63	TIME OF SAMPLING: 1435 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_w = 3.14(\frac{3}{24})^2(18.37)(\frac{7.48}{1ft^3})$

$= (3.2)(3) = 9.6$ gal

$V_b = 3.14(\frac{6}{24})^2(14)(0.3)(\frac{7.48}{1ft^3})$

$= 2.74$ gal $(3) = 8.2$

$V_T = 17.2$ gal

dw - well diameter (in)

h-well depths (ft)

n-porosity

d_b - Boring diameter

$1 ft^3 = 7.48$ gal

$V_w = \pi (\frac{dw}{24})^2 h *$

$V_b = \pi [\frac{db-dw}{24}]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA	FIELD PARAMETERS	COMMENTS
		Initial Purge pumped dry

Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
12:30	12:33	15.8							Purge Dry
13:35	14:35	37.7							Low Flow
14:20		0.5	12.88	7.47	0.610	12.5	9.64	42.0	low flow/dry
14:25		0.5	11.96	7.50	0.618	12.4	9.44	112.10	dry
14:30	2:30	0.5	13.22	7.52	0.324	12.5	11.81	46.53	dry
	4:30								

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

1GAL 3.9 max

1GAL = 1.0 x 3.1 (6in) 59 max 37.7

1525

Schnabel
Schnabel Engineering North, LLC

PROJECT	WELL NO.
CCNPP	OW-769

WELL SAMPLING RECORD	JOB NO.	SITE	PREPARED BY
	09120049.15	Calvert Cliffs	A Breske, K Powell

	PURGE METHOD	SAMPLING METHOD	PURGING CRITERIA:
	Sub pump	Sub pump	Volume + Stabilization

PUMP TYPE		
2" Grundfos	PURGING DATE: 12/19/06 WEATHER: overcast TEMPERATURE: 45° INITIAL WATER LEVEL: 25.73	DATE OF SAMPLING: 12/19/06 TIME OF SAMPLING: 1634 SAMPLE MATRIX: GROUND WATER:

PUMPING VOLUME CALCULATION

$V_{ss} = 3.14\left(\frac{2}{24}\right)^2(16.27)\left(\frac{7.48\,gal}{1\,ft^3}\right)$

$= 0.02^2 \cdot 26 \cdot 3 = 7.9\,gal$

$V_s = 3.14\left(\frac{4}{24}\right)^2(24)(0.3)\left(\frac{7.48\,gal}{1\,ft^3}\right)$

$= 0.4 \cdot 7(3) = 14.1$

$V_T = 21.9\,gal$

dw - well diameter (in)
h-well depths (ft)
n-porosity
d_b - Boring diameter

$1\,ft^3 = 7.48\,gal$

$V_w = \pi\left(\frac{dw}{24}\right)^2 h *$

$V_s = \pi\left[\frac{db-dw}{24}\right]^2 * 7.48 * n$

Checked by: [signature]

PURGING DATA			FIELD PARAMETERS				COMMENTS		
Time Begin (hrs)	Time Finish (hrs)	Water Removal (gal)	Temp (°C)	pH (± .01)	Conductivity (u mhos) (± 3%)	ORP (mV) ± 10mV)	DO (mg/L) (± 10%)	Turbidity (NTU) (± 10%)	Comments
1525	1531	2							dry
1535	1610	13.8							low flow
1610	1612	0.8	11.73	7.89	0.478	12.5	12.40	149.0	dry/low flow
1615		0.4	11.31	7.23	0.461	12.5	12.23	152.5	
1622		0.6	13.25	7.16	0.193	12.5	11.05	140.9	
1628	1628	—	14.61	7.00	0.471	12.5	9.92	277.6	

Equipment Calibration Performed By: K Powell

Number of Sample Containers Collected: 3

$\frac{L}{min} \cdot \frac{1\,gal}{3.9\,L} \cdot \frac{60\,s}{1\,min} =$

$17.5 = 1\,gal$

$\frac{17.5\,L}{} \cdot \frac{1\,min}{60\,s} \cdot \frac{1\,gal}{3.9\,L}$ 13.8

545 $\frac{13.8\,gal}{35\,min} = 0.4\,gal/min$

APPENDIX E
FIELD ELECTRICAL RESISTIVITY

- Field Electrical Resistivity Test Data

FIELD ELECTRICAL RESISTIVITY TEST DATA

RESISTIVITY SOUNDING DATA SHEET

Schnabel Engineering

Date: June 19, 2006 ***Project:*** Calvert Cliffs COLA ***Representative:*** Todd White

Weather: Sunny, 92 Degrees ***Project Number:*** 06120048 ***Array type:*** Wenner Array

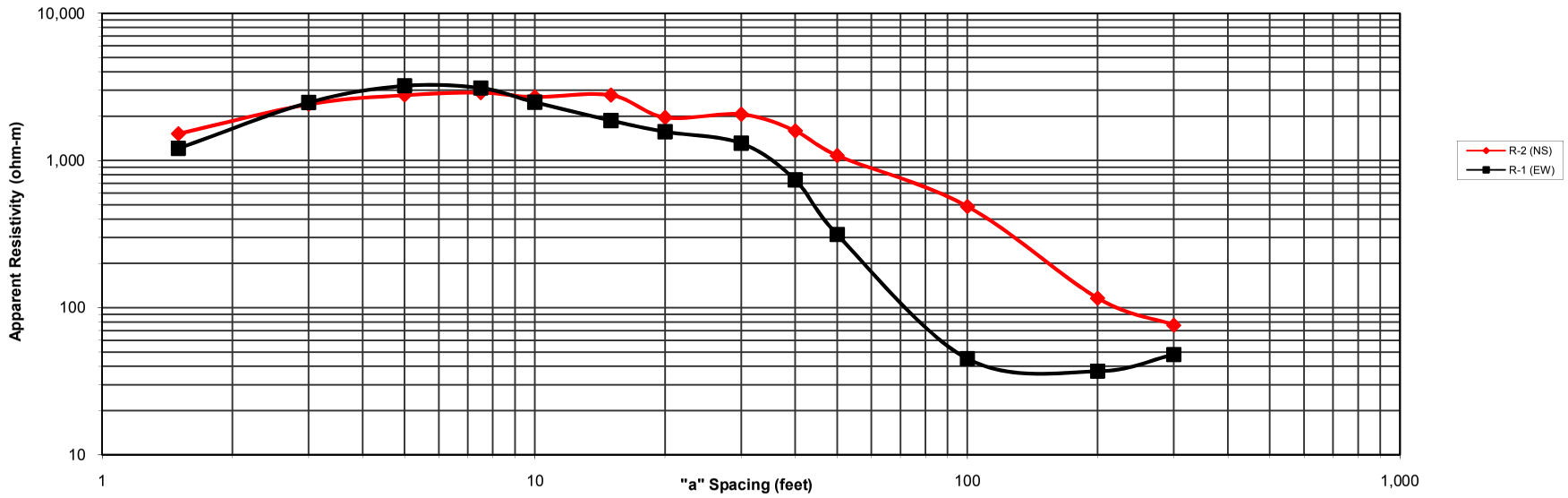
Surficial Soil: Forest litter ***Meter:*** Sting R1 Earth Resistivity Meter S/N 990324

"a" spacing (feet)			1.5	3.0	5.0	7.5	10.0	15.0	20.0	30.0	40.0	50.0	100.0	200.0	300.0
R-1 (EW)		R	419.800	431.4	336.3	216.5	129.9	65.16	40.87	22.87	9.643	3.274	0.2375	0.09787	0.08322
	ρ	(ohm-ft)	3,960	8,130	10,570	10,200	8,162	6,141	5,140	4,310	2,424	1,030	149	123	157
	ρ	(ohm-m)	1,210	2,480	3,220	3,110	2,490	1,870	1,570	1,310	739	314	45	37	48
	ρ	(ohm-cm)	121,000	248,000	322,000	311,000	249,000	187,000	157,000	131,000	73,900	31,400	4,500	3,700	4,800

"a" spacing (feet)			1.5	3.0	5.0	7.5	10.0	15.0	20.0	30.0	40.0	50.0	100.0	200.0	300.0
R-2 (NS)		R	529.800	419.3	290.7	201.4	140.9	96.71	51.12	35.83	20.71	11.3	2.541	0.3023	0.1331
	ρ	(ohm-ft)	4,993	7,904	9,133	9,491	8,853	9,115	6,420	6,750	5,205	3,550	1,600	380	250
	ρ	(ohm-m)	1,520	2,410	2,780	2,890	2,700	2,780	1,960	2,060	1,590	1,080	487	116	76
	ρ	(ohm-cm)	152,000	241,000	278,000	289,000	270,000	278,000	196,000	206,000	159,000	108,000	48,700	11,600	7,600

Notes: Resistivity calculated using the standard equation for the Wenner array as shown:
Electrodes were hammered into the subsurface at various depths
depending on the "a" spacing.

$$\rho = 2\pi a R$$



RESISTIVITY SOUNDING DATA SHEET

Schnabel Engineering

Date: June 19, 2006 ***Project:*** Calvert Cliffs COLA ***Representative:*** Todd White

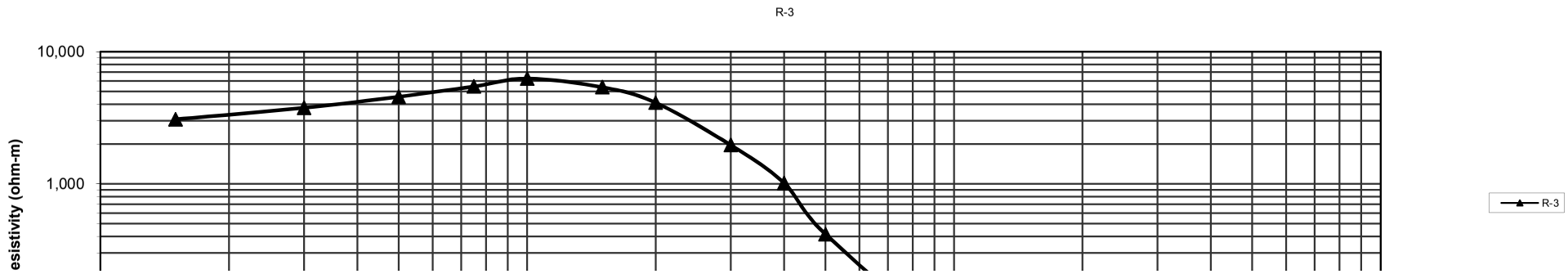
Weather: P-Cloudy,80 Degrees ***Project Number:*** 06120048 ***Array type:*** Wenner Array

Surficial Soil: Forest litter ***Meter:*** Sting R1 Earth Resistivity Meter S/N 990324

"a" spacing (feet)			1.5	3.0	5.0	7.5	10.0	15.0	20.0	30.0	40.0	50.0	100.0	200.0	300.0
R-3 (NS)		R	1069.000	651.8	474.8	378.4	325.7	187	107.1	34.14	13.21	4.338	0.3577	0.1002	0.05408
	ρ	(ohm-ft)	10,080	12,290	14,920	17,830	20,460	17,620	13,460	6,440	3,320	1,360	220	130	100
	ρ	(ohm-m)	3,070	3,750	4,550	5,440	6,240	5,370	4,100	1,960	1,010	415	69	38	31
	ρ	(ohm-cm)	307,000	375,000	455,000	544,000	624,000	537,000	410,000	196,000	101,000	41,500	6,900	3,800	3,100

Notes: Resistivity calculated using the standard equation for the Wenner array as shown:
Electrodes were hammered into the subsurface at various depths
depending on the "a" spacing.

$$\rho = 2\pi a R$$



RESISTIVITY SOUNDING DATA SHEET

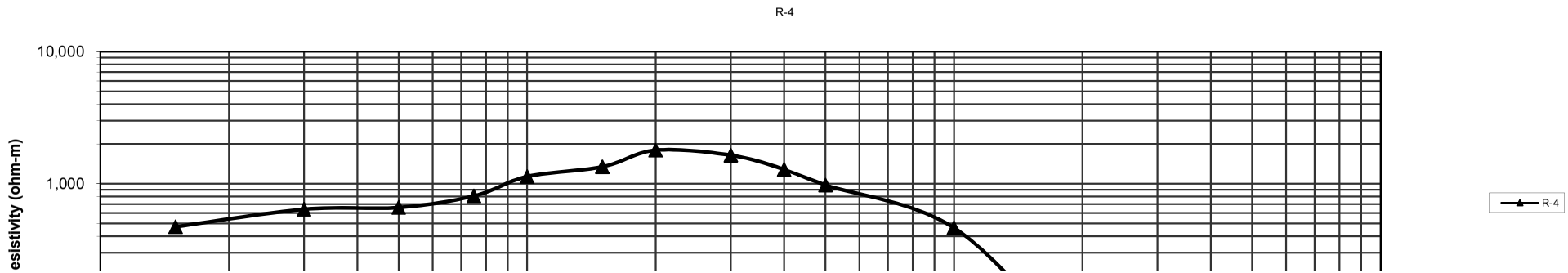
Schnabel Engineering

Date: June 20, 2006 ***Project:*** Calvert Cliffs COLA ***Representative:*** Todd White

Weather: P-Cloudy,80 Degrees ***Project Number:*** 06120048 ***Array type:*** Wenner Array

Surficial Soil: Forest litter ***Meter:*** Sting R1 Earth Resistivity Meter S/N 990324

"a" spacing (feet)			1.5	3.0	5.0	7.5	10.0	15.0	20.0	30.0	40.0	50.0	100.0	200.0	300.0
R-4 (NS)		R	164.000	111.3	68.86	56.1	59.21	46.53	46.73	28.51	16.73	10.18	2.418	0.1492	0.07195
	ρ	(ohm-ft)	1,550	2,100	2,160	2,640	3,720	4,390	5,870	5,370	4,200	3,200	1,520	190	140
	ρ	(ohm-m)	471	640	660	806	1,130	1,340	1,790	1,640	1,280	975	463	57	41
	ρ	(ohm-cm)	47,100	64,000	65,950	80,600	113,000	134,000	179,000	164,000	128,000	97,500	46,300	5,700	4,100

Notes: Resistivity calculated using the standard equation for the Wenner array as shown:
Electrodes were hammered into the subsurface at various depths
depending on the "a" spacing.

$$\rho = 2\pi a R$$