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		15	2+3+4 N =7 REC =18"		
					20	3+4+5 N =9 REC =18"		
22.0	SANDY SILT, fine to medium, moist, dark greenish gray, contains mica.	ML	46.4		25	4+6+6 N =12 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-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"		
	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: 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"		
	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: 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.					5+8+10 N =18 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-81.6		150			

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-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			3+3+4 N =7 REC =12"		0-14'- 6-1/4" hollow stem auger
	Poorly graded sand FILL, trace gravel, fine to coarse grained, moist, brown.	FILL						
	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
14.5	FAT CLAY, moist, gray, trace sand.	CH	47.1		15	1+4+3 N =7 REC =18"		14': 3-7/8 roller bit
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			
	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-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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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-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.
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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:
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2. * = See 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			

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-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"		
10.8	fine to medium grained, orange.		108.3		10			
	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					

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. 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.				5 10 15 20 25			Boring was advanced without sampling to 58.5' (depth at which original boring was terminated)

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

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See 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.					REC =7"	PP=2.25 tsf	
					65			
	with sand.					2+4+5 N =9 REC =18"		
					70			
						REC =18"		Bottom of tube contains fine sand
75.0	CLAYEY SAND, fine grained, moist, greenish gray.	SC	44.1		75			
78.5	POORLY GRADED SAND, fine to medium grained, moist, brown.	SP	40.6			9+11+50/5" N =61/11" REC =16"		
					80			
	yellowish brown.					50/2" N =50/2" REC =1"		
					85			
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			42+50/4" N =50/4" REC =10"		
					90			

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: 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"		

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-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% *	
5.6	CLAYEY SAND, fine to medium grained, wet, orangeish brown and reddish brown, trace root fragments, trace gravel, iron staining.	SC	75.9	▽	5	3+3+3 N =6 REC =18"		
7.5	SANDY LEAN CLAY, wet, orangeish brown.	CL	74.0			1+2+1 N =3 REC =12"	w=27.4% *	
	orangeish brown and gray				10	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% *	
18.5	ORGANIC CLAY, moist, gray	OH	63.0		15	1+2+3 N =5 REC =18"		
					20			
					25	REC =16"	w=37.9% LL=61 PL=19	

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
	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: 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%	
	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: 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 *	
						5+7+9 N =16 REC =18"		
					130			
						5+7+7 N =14 REC =18"		
					135			
						4+6+6 N =12 REC =18"		
					140			
						5+6+8 N =14 REC =18"		
					145			
						6+7+8 N =15 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-68.6		150			

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-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"		
	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: 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					33.5'- Start of day 8/8/06
					35	2+4+3 N =7 REC =18"		
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.							
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		50	5+5+16 N =21 REC =18"		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"		

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-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"		
	continued on next page				25			

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							

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

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 *	
70.0	FAT CLAY, moist, gray	CH	52.9		65 70	4+5+7 N =12 REC =18"	PP=1.50 tsf	
					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"		
	continued on next page							

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

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%	

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: 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					

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

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-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"		
5	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					10	6+7+8 N =15 REC =16"		
	wet, light orangeish brown.			▽		5+9+7 N =16 REC =15"		
15					15			
						6+7+10 N =17 REC =13"	w=9.2% *	
20					20			
						13+17+19 N =36 REC =17"		
25	*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-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"		
	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-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.

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	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		20			
	continued on next page				25	6+6+8 N =14 REC =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-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. fine to coarse grained below 49.5 ft.	SC	72.3		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. *continued on next page*	CH	62.3					

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-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"		
	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-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"		

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-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%	
	Brown, colors are mottled.				15			
					20	2+1+1 N =2		
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					
	continued on next page				25	2+3+4 N =7 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-416
Contract Number: 06120048
Sheet: 2 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	With sand, some clayey sand lenses present <1/8".	CH			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
	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-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%	
	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-416
Contract Number: 06120048
Sheet: 4 of 4

DEPTH (FT)	STRATA DESCRIPTION	CLASS.	ELEV. (FT)	WL	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
		SC						93'- Harder drilling with rig chatter
	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"		
	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					

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-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	CL	39.2		10			
10.8	reddish brown, trace root fragments.	SP-SM	38.4	▽		3+7+16 N =23 REC =18"		start of mud rotary drilling
12.0	POORLY GRADED SAND with silt, fine to medium grained, wet, yellowish brown and orangeish brown.	SP-SC	37.2			6+6+6 N =12 REC =11"		
	POORLY GRADED SAND with clay, fine to medium grained, wet, gray, 1/8th inch clay lenses throughout.							
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
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"		Harder drilling
24.5		SM	24.7		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-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			3+4+5 N =9 REC =18"		Rig chatter
					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, *continued on next page*					8+14+20		resumed drilling on7/25/06 @ 7:00am

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-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		
	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-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					

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-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			41.7					
	CLAYEY SAND, fine to coarse grained, moist, gray and orangeish brown.	SC				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.	SM	36.7	▽		5+4+3 N =7 REC =14"	w=30.9% LL=NP PL=NP *	
	With sand.				10	3+2+3 N =5 REC =18"		
13.0	SANDY LEAN CLAY, fine to medium, moist, gray, contains mica.	CL	30.7			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		15			
					20	15+8+8 N =16 REC =18"		
	30-40% fine to coarse shell fragments, strong HCl reaction.					4+5+8 N =13 REC =18"	w=25.2% *	
	continued on next page				25			

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	ML	-13.3					
	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: 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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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%	

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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: 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
145.0	FAT CLAY, moist, no shell fragments.	CH	-101.3		145	4+7+9 N =16 REC =18"		
					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"		
	continued on next page							

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"		
	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: 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					

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-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"		
	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-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			
	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-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"		
								63' Rig chatter
					65	8+13+21 N =34 REC =18"		
	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"		
	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-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					

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-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	62.1			7+4+7 N =11 REC =6"	w=17.2% LL=52 PL=21 *	
		FILL						
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.					4+5+8 N =13 REC =18"	w=42.1% LL=74 PL=31 *	
	gray and dark gray, contains fat clay with sand pockets.				15	7+8+9 N =17 REC =18"	w=28.6% *	
					20			
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			38.6	▽		5+17+37 N =54 REC =16"	w=24.4% LL=NP PL=NP	
	POORLY GRADED SAND WITH SILT,	SP-SM			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-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% *	*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).
37.0	LEAN CLAY with sand, fine to medium grained, moist, gray, trace fine to medium shell fragments (±5%), weak HCl reaction.	CL	25.6		40	13+15+50/3" N =65/9" REC =16"	w=20% LL=30 PL=19 *	
	wet, gray and light gray, trace fine to coarse shell fragments (±5%), contains sandy lean clay pockets, moderate HCl reaction below 39.3 ft							
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% *	
	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-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	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	-4.4		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	SANDY ELASTIC SILT, trace fine to medium shell fragments (±<5%), dark green.	MH	-20.9		85	5+9+13 N =22 REC =18"	w=47.3% LL=60 PL=39 *	
87.0	FAT CLAY, moist, light greenish gray, trace fine to medium sand and mica, and fine to medium shell fragments (±1%), weak HCl reaction.	CH	-24.4		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
		CH						
	fine to medium sandy, gray, very weak HCl reaction (high percentage of sand).				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					*Osterberg sampler tube push from 128.5 to 130.3 ft
					130	REC =22"	w=39.0% LL=59 PL=34 PP=4.00 tsf *	
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					

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: 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	

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-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% *	
	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-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	6+6+8 N =14 REC =18"	w=47.4% *	
150.0	BOTTOM OF BORING @ 150.0 FT.		-34.4					

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. * = See 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							

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-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"		
	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: 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		100	5+6+8 N =14 REC =18"		1/4 inch shell lense
100.0	BOTTOM OF BORING @ 100.0 FT.		4.0					

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-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.					5+6+8 N =14 REC =6"	w=12.3% LL=NP PL=NP *	
					15			
						2+5+12 N =17 REC =8"	w=10.4% *	*4-3/4" O.D. Drag bit used below 20 ft.
					20			
23.5	POORLY GRADED SAND WITH SILT, fine to medium grained.	SP-SM	86.6			13+13+16 N =29 REC =10"	w=16.6% *	
	continued on next page				25			

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 *	
	continued on next page							

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% *	
	continued on next page							

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
		SM						*Very difficult rotary advancement from 88.5 to 92 ft (strong rig chatter).
	gray and dark gray, trace fine to medium shell fragments (±5%), weak HCl reaction.				95	5+6+10 N =16 REC =18"	w=29.8% *	
	light greenish gray and gray, few fine to coarse shell fragments (±10%).					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		100			
						REC =21"	w=23.1% LL=24 PL=18 *	*Osterberg sampler tube push from 103.5 to 105.3 ft
					105			
	greenish gray and blueish gray, trace fine to medium shell fragments (±1%), very weak HCl reaction.					4+8+9 N =17 REC =18"	w=30.8% *	
					110			
						REC =0"		*Osterberg sampler tube push ftom 113.5 to 113.8 ft
					115			*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			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.
					120			*Slight to moderate difficulty in rotary advancement from 118.5 to 120 ft (slight rig chatter).
	gray and greenish gray, weak HCl					4+11+19	w=33.9%	

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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: 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% *	
	continued on next page							

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
	continued on next page							

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					

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-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.					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		15			
					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.	SP-SM	96.9	▽				
	moist, orangeish brown and gray.				25	6+13+12 N =25 REC =14"		
	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-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.					6+9+15 N =24 REC =14"		
					30			
	orangeish brown and brown, <1/2 " clay lenses.							
						9+14+17 N =31 REC =14"		
					35			
	brownish orange and gray.							
						3+4+5 N =9 REC =15"		1/4" clay lense
					40			
	brownish orange and mottled gray, <1/8" clay lenses .							
						6+5+4 N =9		
44.8			74.1		45			
	CLAYEY SAND, fine to medium grained, moist, brownish orange and gray.	SC						
48.5			70.4					
	POORLY GRADED SAND WITH SILT, medium to coarse grained, wet, orange brown, trace gravel.	SP-SM				9+11+16 N =27 REC =16"		
					50			
52.0			66.9					
	LEAN CLAY with sand, moist, dark gray.	CL						
						1+5+6 N =11 REC =18"		
					55			
57.0			61.9					
	FAT CLAY with sand, moist, dark gray.	CH						
	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-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"		
	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-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					
						9+9+17 N =26 REC =18"		
					95			
	gray and brownish white, trace gravel.							Hard drilling
						4+19+27 N =46 REC =18"		
100.0	BOTTOM OF BORING @ 100.0 FT.		18.9		100			

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-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					5	3+4+3 N =7 REC =18"	w=2.5% *	
	brown.					2+2+3 N =5 REC =14"	w=10.8% *	
10					10	3+3+4 N =7 REC =14"	w=14.2% *	
						6+5+6 N =11 REC =14"	w=16.4% *	
15	fine to medium grained, moist, brown, trace fine gravel.				15			
20					20	8+9+9 N =18 REC =15"	w=11.1% *	
25	*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
		SP-SM				15+19+14 N =33 REC =18"	w=11.6% *	
	orangeish brown.							
					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	
	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-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 *	
81.0	SILTY SAND, fine grained, moist, dark reddish brown, with fine to coarse shell fragments.	SM	37.4		80	22+35+50/4" N =85/10" REC =18"	w=31.7% *	
81.5	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.

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"		
	moist, orangeish brown and reddish brown.				10	3+4+5 N =9 REC =12"		
12.0	CLAYEY SAND, fine to coarse grained, wet, yellowish brown and orangeish brown.	SC	71.7			3+2+3 N =5 REC =17"		*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.
17.0	SILTY SAND, fine to coarse grained, wet, yellowish brown, trace fine grave.	SM	66.7		15			
					20	3+2+1 N =3 REC =0"		
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				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-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). *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
	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"		
	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-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.				90	18+7+9 N =16 REC =18"		
	light greenish gray, some fine to coarse							

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-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					

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-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			1+5+4 N =9 REC =16"	PP=4.50 tsf	Hollow stem auger
	SILTY SAND, fine to medium grained, moist, orangeish brown.	SM				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"		
						4+4+4 N =8 REC =15"		
					15			
17.0	SILTY SAND, fine to medium grained, moist, orange	SM	99.3			4+4+5 N =9 REC =18"	w=8.2% *	
					20			
22.0	POORLY GRADED SAND WITH SILT, fine to coarse grained, moist, orange.	SP-SM	94.3			9+13+14 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.

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"		
	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-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"		
	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-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			12.8					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, with fine to coarse shell fragments, weak HCl reaction.	SP-SM				8+12+13 N =25 REC =16"	w=24.8% *	
					105			
108.5			7.8					
	SILTY SAND, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, moderate HCl reaction.	SM				7+9+11 N =20 REC =18"		
					110			
113.5			2.8					
	POORLY GRADED SAND WITH SILT, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, weak HCl reaction.	SP-SM				9+9+8 N =17 REC =13"		
					115			
118.5			-2.2					
	SILTY SAND, fine to medium grained, moist, grayish green, trace fine to coarse shell fragments, moderate HCl reaction.	SM				3+3+4 N =7 REC =18"	w=29.2% *	
					120			
	greenish white, with medium to coarse *continued on next page*					6+11+14		

Comments:
1. Boring backfilled with cement/bentonite grout through tremie pipe upon completion.
2. * = See 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					

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

Comments:
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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			
					25	14+14+16 N =30 REC =14"		
	continued on next page							

Comments:
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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							
	fine to medium grained, wet, light brown.				35	24+16+10 N =26 REC =4"		
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					
	orange, no rock fragments.				45	16+9+10 N =19 REC =13"		
					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:
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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"		
71.0	CLAYEY SAND, fine to medium grained, moist, dark gray.	SC	43.1		70			
	with fine rock fragments.				75	9+10+12 N =22 REC =18"		
					80	50/4" N =50/4" REC =4"	PP=1.50 tsf	
					85	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					
					90	50/4" N =50/4" REC =4"		

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

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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"		
105.0	POORLY GRADED SAND, fine to medium grained, moist, gray.	SP	9.1		105	14+15+19 N =34 REC =18"		
	trace fine to medium shell fragments.				110	19+24+30 N =54 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		115	4+5+10 N =15 REC =18"		
					120	10+18+25 N =43 REC =18"		
						30+47+36		

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Comments:

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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
		SC			125	N =83 REC =17"		
	trace fine to coarse shell fragments, moderate HCl reaction.							
					130	8+10+17 N =17 REC =18"		
					135	11+17+22 N =39 REC =18"		
					140	10+13+18 N =31 REC =18"		
					145	7+12+17 N =29 REC =18"		
	with fine to coarse shell fragments, moderate HCl reaction.							
					150	6+8+13 N =21 REC =18"		
150.0	BOTTOM OF BORING @ 150.0 FT.		-35.9					

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

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3. Ground Water Observation Well OW-428A installed at a nearby location