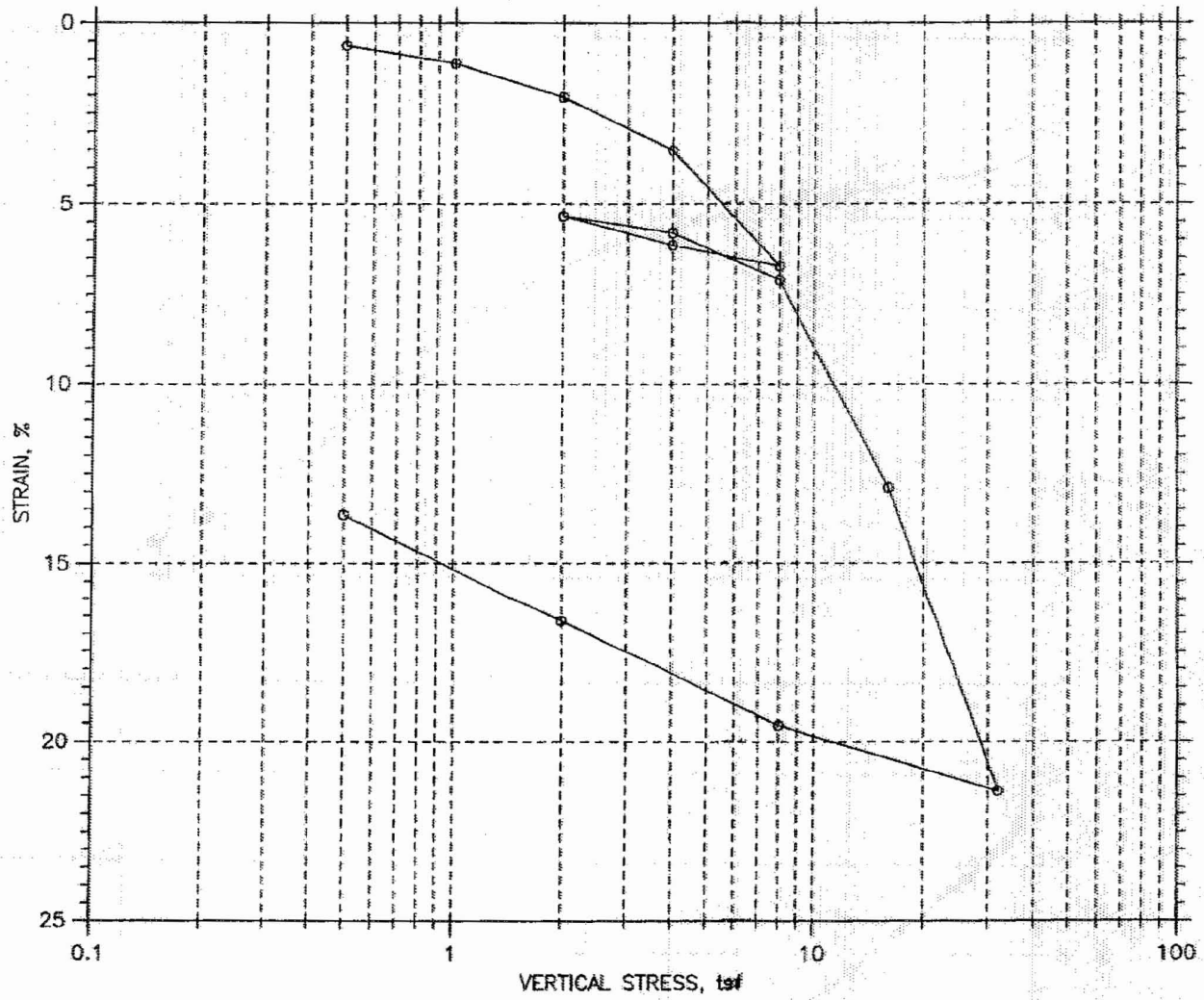
CONSOLIDATION TEST DATA
SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: ---				Water Content, %	35.88	26.32
Preconsolidation Pressure: 8.3 tsf				Dry Unit Weight, pcf	86.36	100.
Compression Index: ---				Saturation, %	99.13	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	1.00	0.73
LL: 61	PL: 14	PI: 47	GS: 2.77			

GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-11	Test Date: 09/23/06	Depth: 38.5-40.5
	Test No.: C-27	Sample Type: tube	Elevation: ---
	Description: Moist, very dark gray clay (CH), 91% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System C - Compression Ratio: 0.28, Recompression Ratio: 0.04		

Thu, 09-NOV-2006 18:59:51

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-433	Tested By: md	Checked By: jdt
Sample No.: S-11	Test Date: 09/23/06	Depth: 38.5-40.5
Test No.: C-27	Sample Type: tube	Elevation: ---

Soil Description: Moist, very dark gray clay (CH), 91% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System C - Compression Ratio: 0.28, Recompression Ratio: 0.04

Measured Specific Gravity: 2.77	Liquid Limit: 61	Initial Height: 1.00 in
Initial Void Ratio: 1.00	Plastic Limit: 14	Specimen Diameter: 2.50 in
Final Void Ratio: 0.73	Plasticity Index: 47	

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	2008	RING		2154
Wt. Container + Wet Soil, gm	182.63	368.09	357.46	147.6
Wt. Container + Dry Soil, gm	139.37	328.17	328.17	118.54
Wt. Container, gm	8.16	216.9	216.9	8.14
Wt. Dry Soil, gm	131.21	111.27	111.27	110.4
Water Content, %	32.97	35.88	26.32	26.32
Void Ratio	---	1.00	0.73	---
Degree of Saturation, %	---	99.13	100.00	---
Dry Unit Weight, pcf	---	86.355	100.01	---

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear PP
Boring No.: B-433
Sample No.: S-11
Test No.: C-27

Location: Calvert County, MD
Tested By: md
Test Date: 09/23/06
Sample Type: tube

Project No.: GTX-6880
Checked By: jdt
Depth: 38.5-40.5
Elevation: ---

Soil Description: Moist, very dark gray clay (CH), 91% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System C - Compression Ratio: 0.28, Recompression Ratio: 0.04

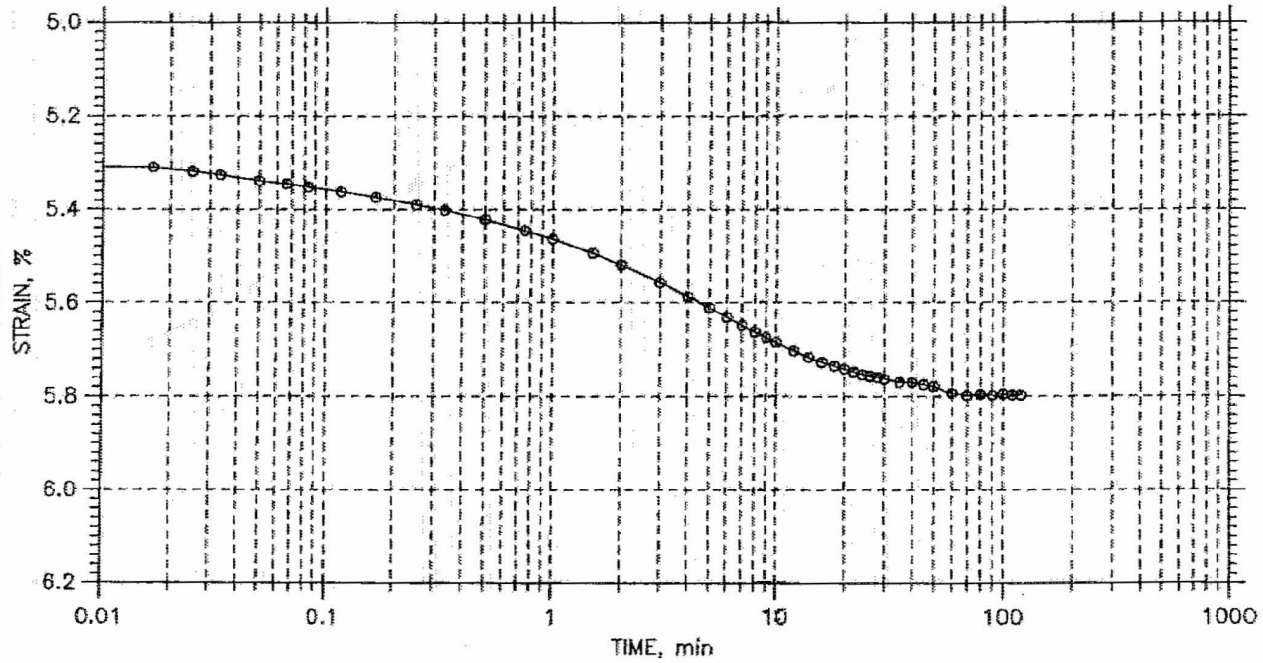
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	T50 Fitting Log min	Coefficient of Consolidation Sq.Rt. in^2/sec	Coefficient of Consolidation Log in^2/sec	Coefficient of Consolidation Ave. in^2/sec
1	0.5	0.006276	0.990	0.63	0.0	0.0	4.12e-002	0.00e+000	4.12e-002
2	1	0.01117	0.980	1.12	0.6	0.0	1.30e-003	0.00e+000	1.30e-003
3	2	0.02049	0.961	2.05	0.9	0.0	9.03e-004	0.00e+000	9.03e-004
4	4	0.0352	0.932	3.52	1.1	0.0	6.93e-004	0.00e+000	6.93e-004
5	8	0.06713	0.868	6.71	2.9	3.9	2.54e-004	1.89e-004	2.16e-004
6	4	0.06138	0.880	6.14	0.9	0.0	7.92e-004	0.00e+000	7.92e-004
7	2	0.05338	0.896	5.34	4.5	4.1	1.64e-004	1.78e-004	1.71e-004
8	4	0.05797	0.886	5.80	1.2	0.0	6.24e-004	0.00e+000	6.24e-004
9	8	0.07104	0.860	7.10	1.9	1.9	3.80e-004	3.75e-004	3.77e-004
10	16	0.1289	0.744	12.89	8.3	10.5	8.03e-005	6.35e-005	7.09e-005
11	32	0.2137	0.575	21.37	16.4	17.0	3.44e-005	3.33e-005	3.39e-005
12	8	0.1956	0.611	19.56	0.9	0.0	6.01e-004	0.00e+000	6.01e-004
13	2	0.1664	0.669	16.64	16.6	0.0	3.31e-005	0.00e+000	3.31e-005
14	0.5	0.1365	0.729	13.65	57.8	0.0	1.02e-005	0.00e+000	1.02e-005

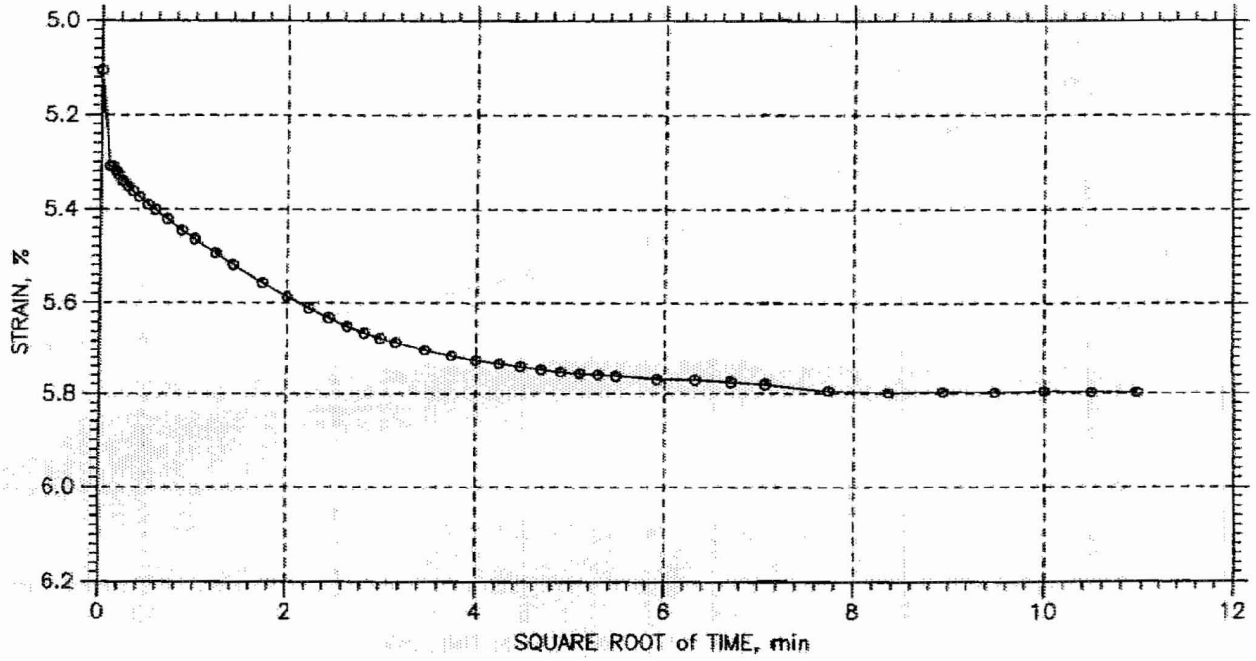
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 4. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-11	Test Date: 09/23/06	Depth: 38.5-40.5
	Test No.: C-27	Sample Type: tube	Elevation: ---
	Description: Moist, very dark gray clay (CH), 91% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System C - Compression Ratio: 0.28, Recompression Ratio: 0.04		

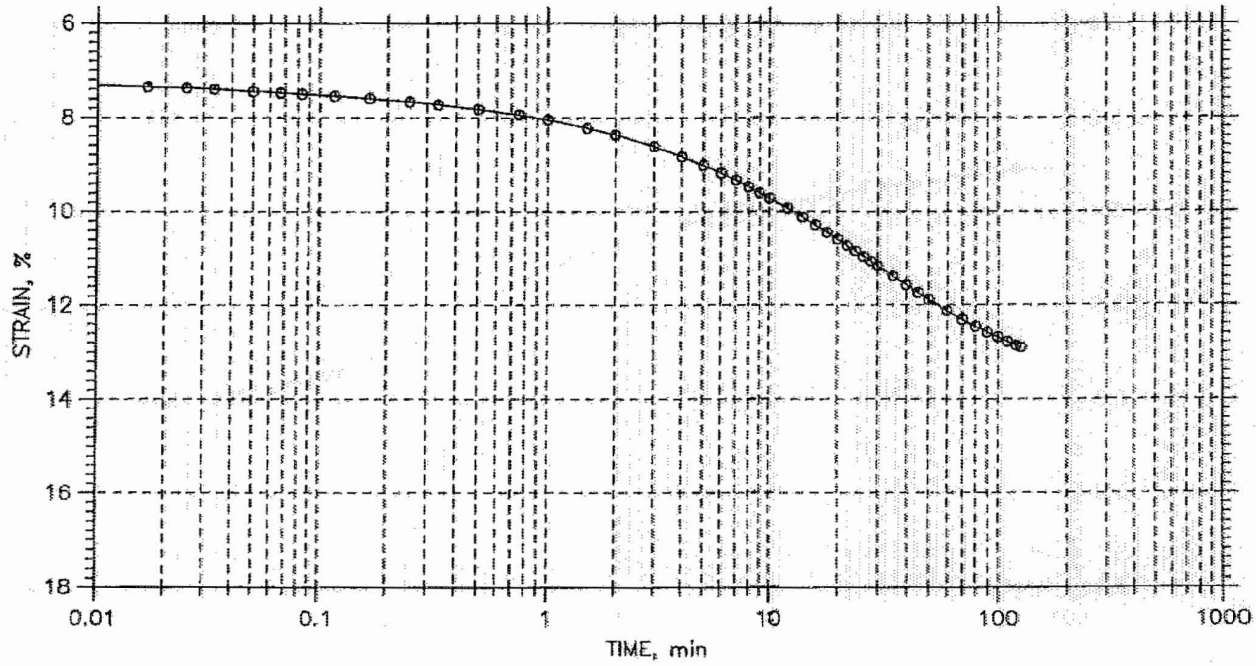
Thu, 09-NOV-2006 19:00:03

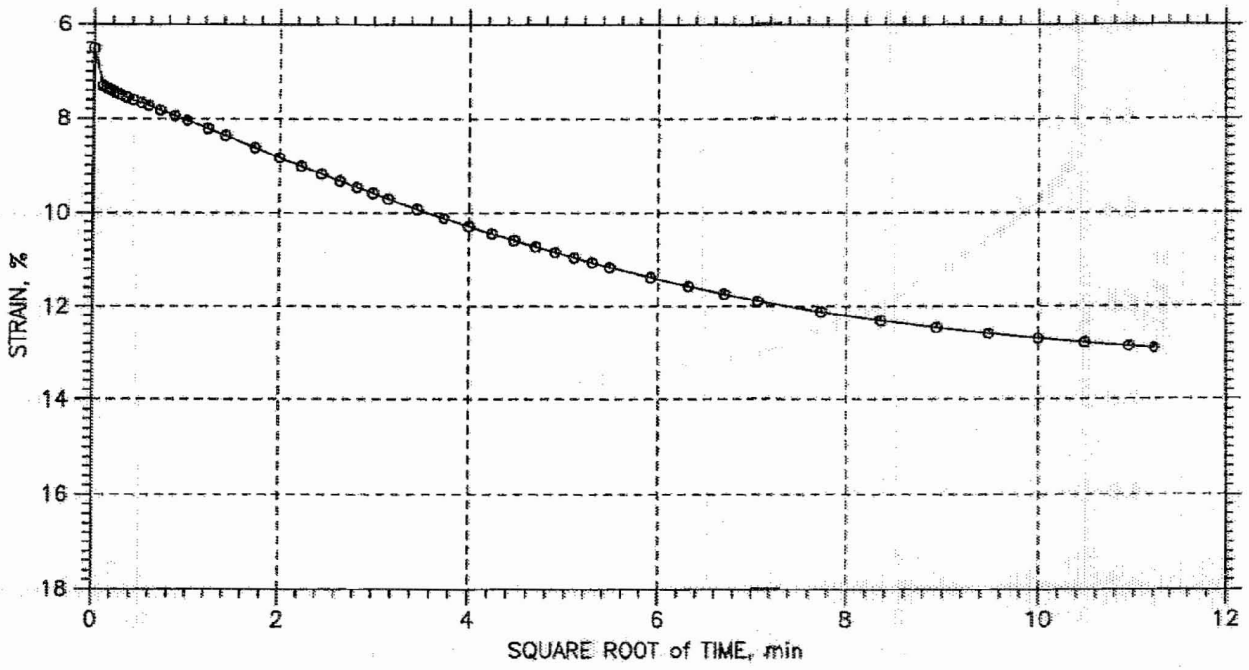
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 10 of 14

Stress: 16. tsf

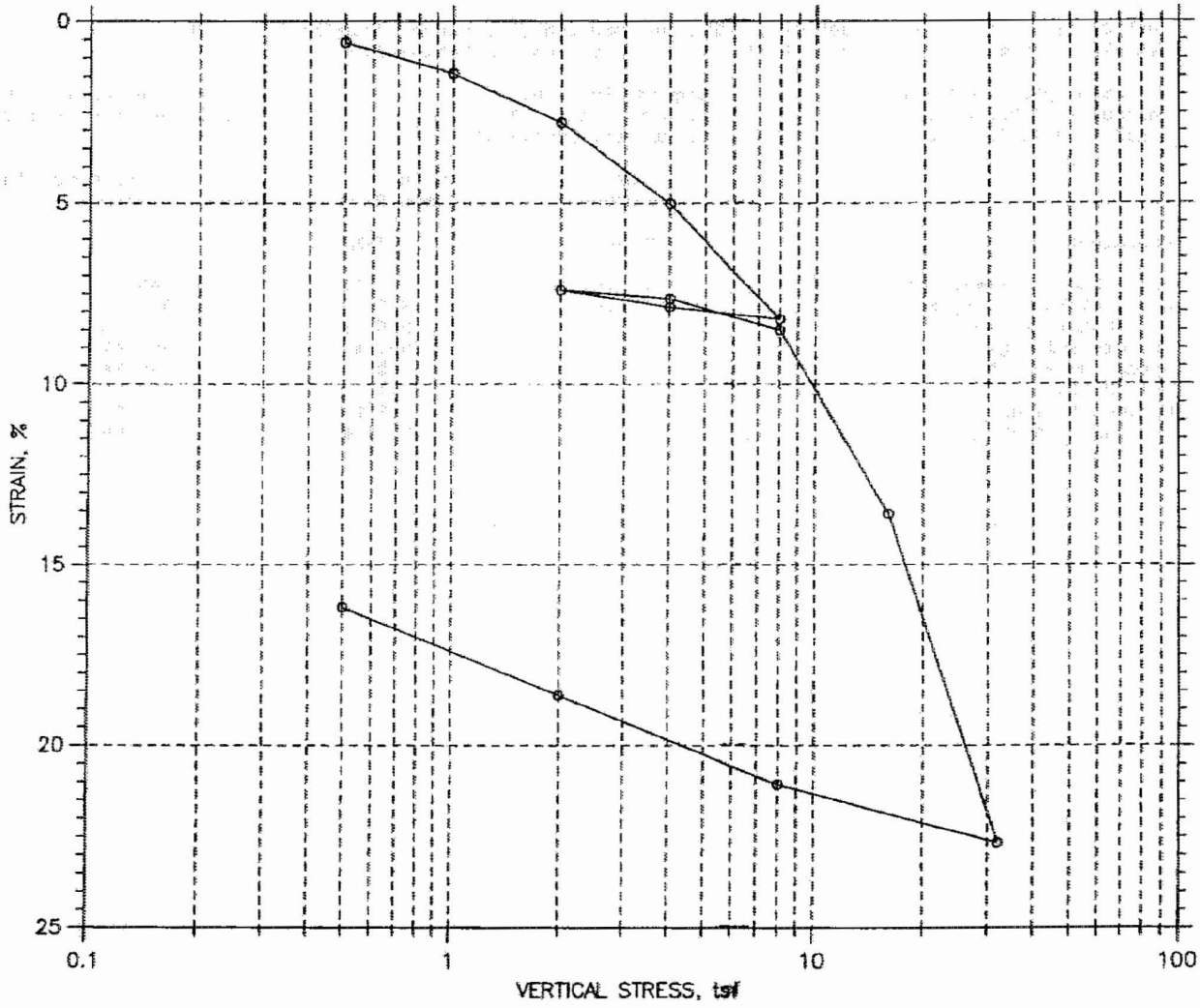




GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-11	Test Date: 09/23/06	Depth: 38.5-40.5
	Test No.: C-27	Sample Type: tube	Elevation: ---
	Description: Moist, very dark gray clay (CH), 91% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System C - Compression Ratio: 0.28, Recompression Ratio: 0.04		

Thu, 09-NOV-2006 19:00:13

CONSOLIDATION TEST DATA
SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: ---				Water Content, %	42.17	30.34
Preconsolidation Pressure: 10 tsf				Dry Unit Weight, pcf	77.02	91.89
Compression Index: ---				Saturation, %	97.04	99.99
Diameter: 2.5 in		Height: 1 in		Void Ratio	1.16	0.81
LL: 64	PL: 23	PI: 41	GS: 2.66			

GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-13	Test Date: 09/23/06	Depth: 48.5-50.5
	Test No.: C-28	Sample Type: tube	Elevation: ---
	Description: Moist, black clay (CH), 95% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.31, Recompression Ratio: 0.03		

Thu, 09-NOV-2006 19:01:54

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear PP
Boring No.: B-433
Sample No.: S-13
Test No.: C-28

Location: Calvert County, MD
Tested By: md
Test Date: 09/23/06
Sample Type: tube

Project No.: GTX-6880
Checked By: jdt
Depth: 48.5-50.5
Elevation: ---

Soil Description: Moist, black clay (CH), 95% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System G - Compression Ratio: 0.31, Recompression Ratio: 0.03

Measured Specific Gravity: 2.66
Initial Void Ratio: 1.16
Final Void Ratio: 0.81

Liquid Limit: 64
Plastic Limit: 23
Plasticity Index: 41

Initial Height: 1.00 in
Specimen Diameter: 2.50 in

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	Danvers	RING		2145
Wt. Container + Wet Soil, gm	235.63	357.56	345.82	140.87
Wt. Container + Dry Soil, gm	175.05	315.71	315.71	109.98
Wt. Container, gm	8.29	216.46	216.46	8.17
Wt. Dry Soil, gm	166.76	99.247	99.247	101.81
Water Content, %	36.33	42.17	30.34	30.34
Void Ratio	---	1.16	0.81	---
Degree of Saturation, %	---	97.04	99.99	---
Dry Unit Weight, pcf	---	77.024	91.89	---

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear PP
Boring No.: B-433
Sample No.: S-13
Test No.: C-28

Location: Calvert County, MD
Tested By: md
Test Date: 09/23/06
Sample Type: tube

Project No.: GTX-6880
Checked By: jdt
Depth: 48.5-50.5
Elevation: ---

Soil Description: Moist, black clay (CH), 95% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System G - Compression Ratio: 0.31, Recompression Ratio: 0.03

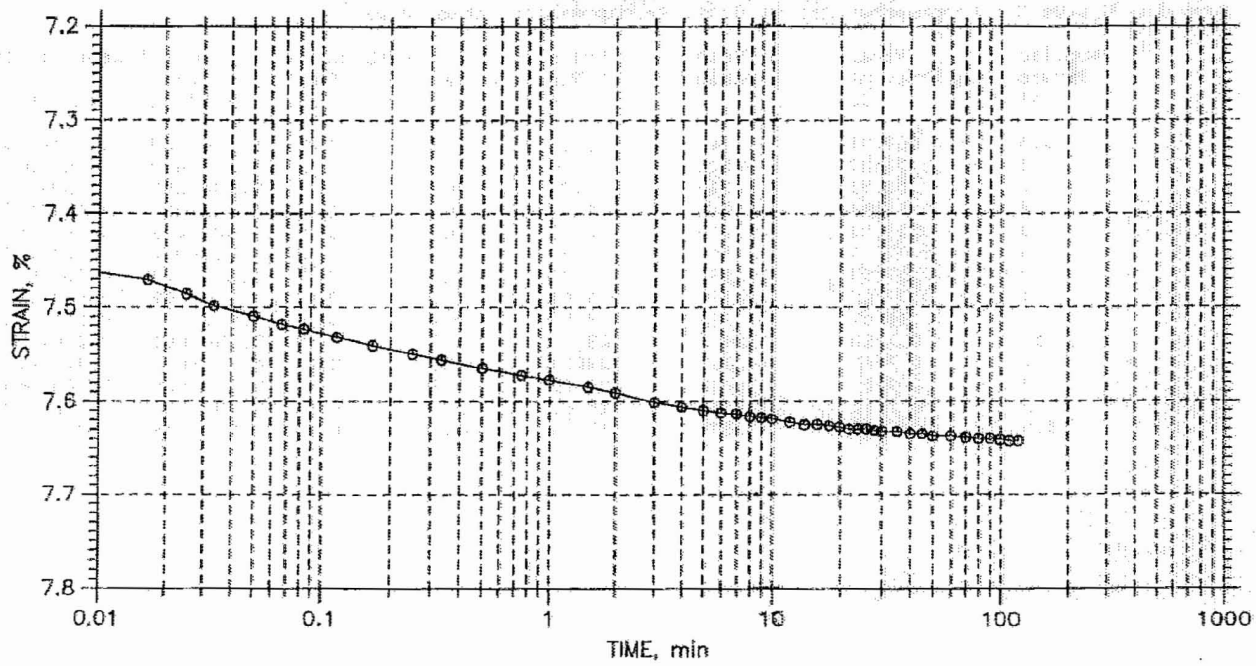
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	T50 Fitting Log min	Coefficient of Consolidation Sq.Rt. in^2/sec	Coefficient of Consolidation Log in^2/sec	Coefficient of Consolidation Ave. in^2/sec
1	0.5	0.005771	1.143	0.58	0.0	0.0	4.25e-002	0.00e+000	4.25e-002
2	1	0.01427	1.125	1.43	0.1	0.0	1.52e-002	2.56e-002	1.91e-002
3	2	0.02778	1.096	2.78	0.0	0.0	2.70e-002	3.53e-002	3.06e-002
4	4	0.05014	1.048	5.01	0.1	0.0	7.60e-003	3.65e-002	1.26e-002
5	8	0.08201	0.979	8.20	0.4	0.0	1.68e-003	0.00e+000	1.68e-003
6	4	0.07871	0.986	7.87	0.1	0.0	1.21e-002	5.98e-001	2.37e-002
7	2	0.07393	0.997	7.39	0.3	0.0	2.26e-003	0.00e+000	2.26e-003
8	4	0.07642	0.991	7.64	0.0	0.0	2.74e-002	0.00e+000	2.74e-002
9	8	0.08501	0.973	8.50	0.4	0.0	1.81e-003	0.00e+000	1.81e-003
10	16	0.1358	0.863	13.58	2.8	0.0	2.33e-004	0.00e+000	2.33e-004
11	32	0.2267	0.667	22.67	11.7	12.8	4.73e-005	4.31e-005	4.51e-005
12	8	0.2107	0.702	21.07	0.9	0.0	5.71e-004	0.00e+000	5.71e-004
13	2	0.1861	0.755	18.61	13.9	0.0	3.79e-005	0.00e+000	3.79e-005
14	0.5	0.1618	0.807	16.18	51.3	0.0	1.09e-005	0.00e+000	1.09e-005

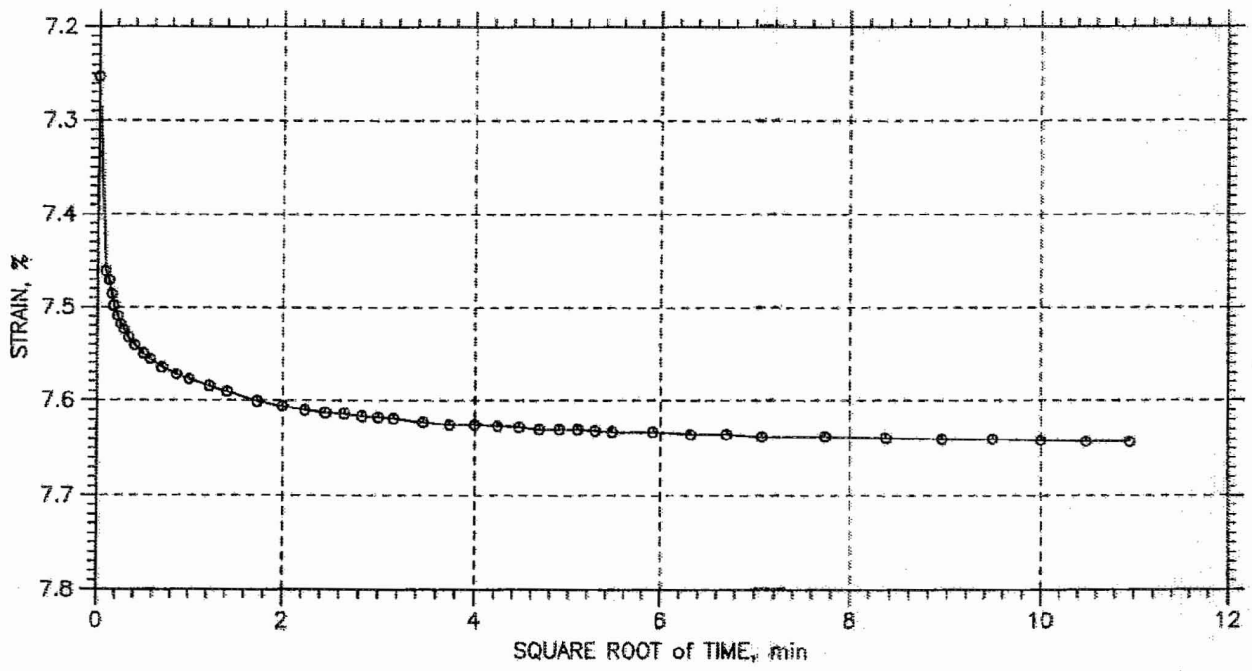
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 4. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-13	Test Date: 09/23/06	Depth: 48.5-50.5
	Test No.: C-28	Sample Type: tube	Elevation: ---
	Description: Moist, black clay (CH), 95% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.31, Recompression Ratio: 0.03		

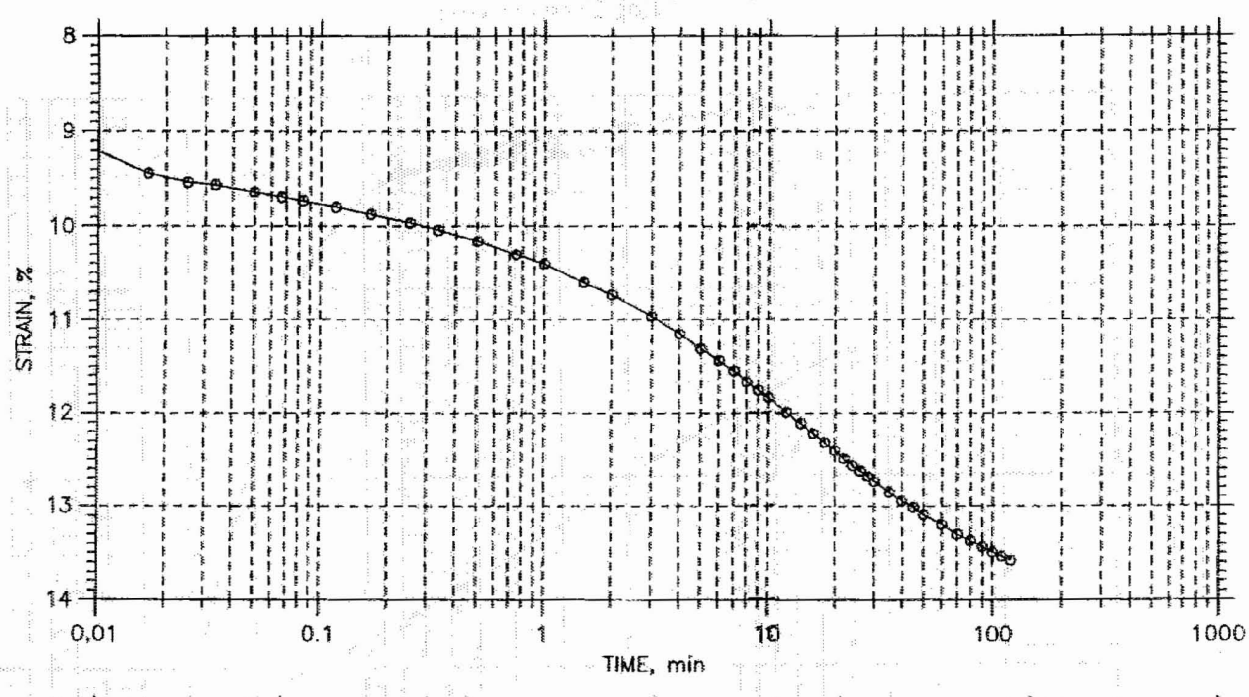
Thu, 09-NOV-2006 19:02:11

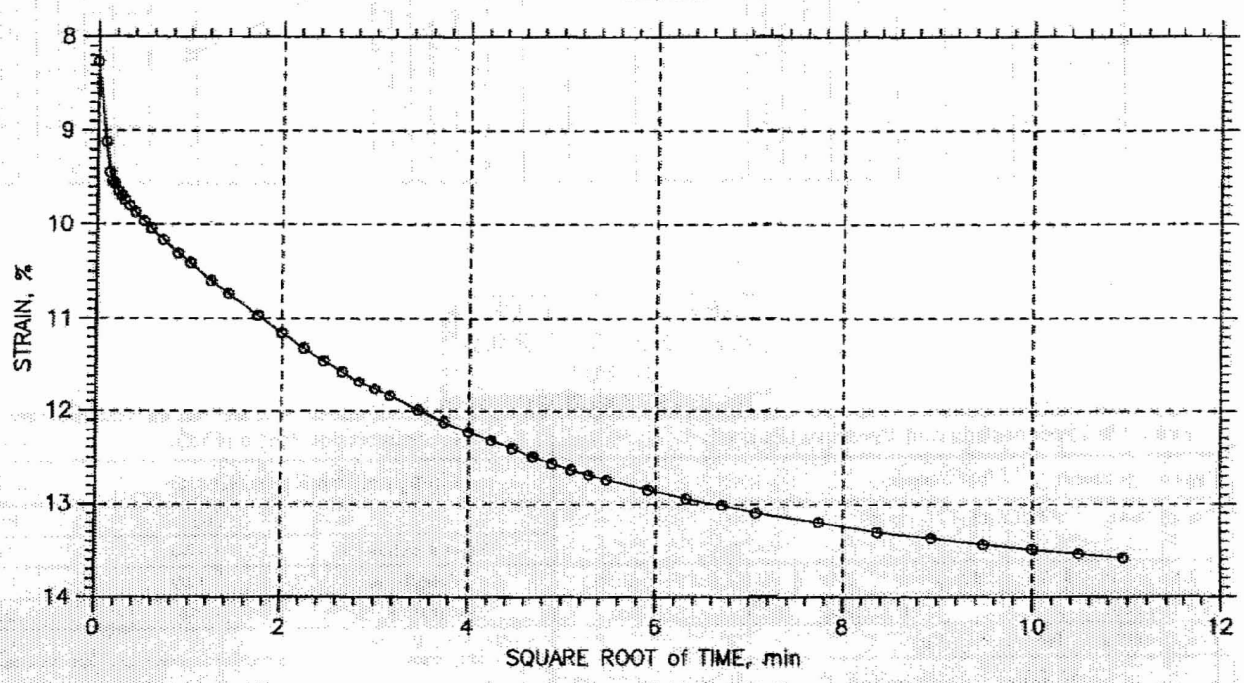
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 10 of 14

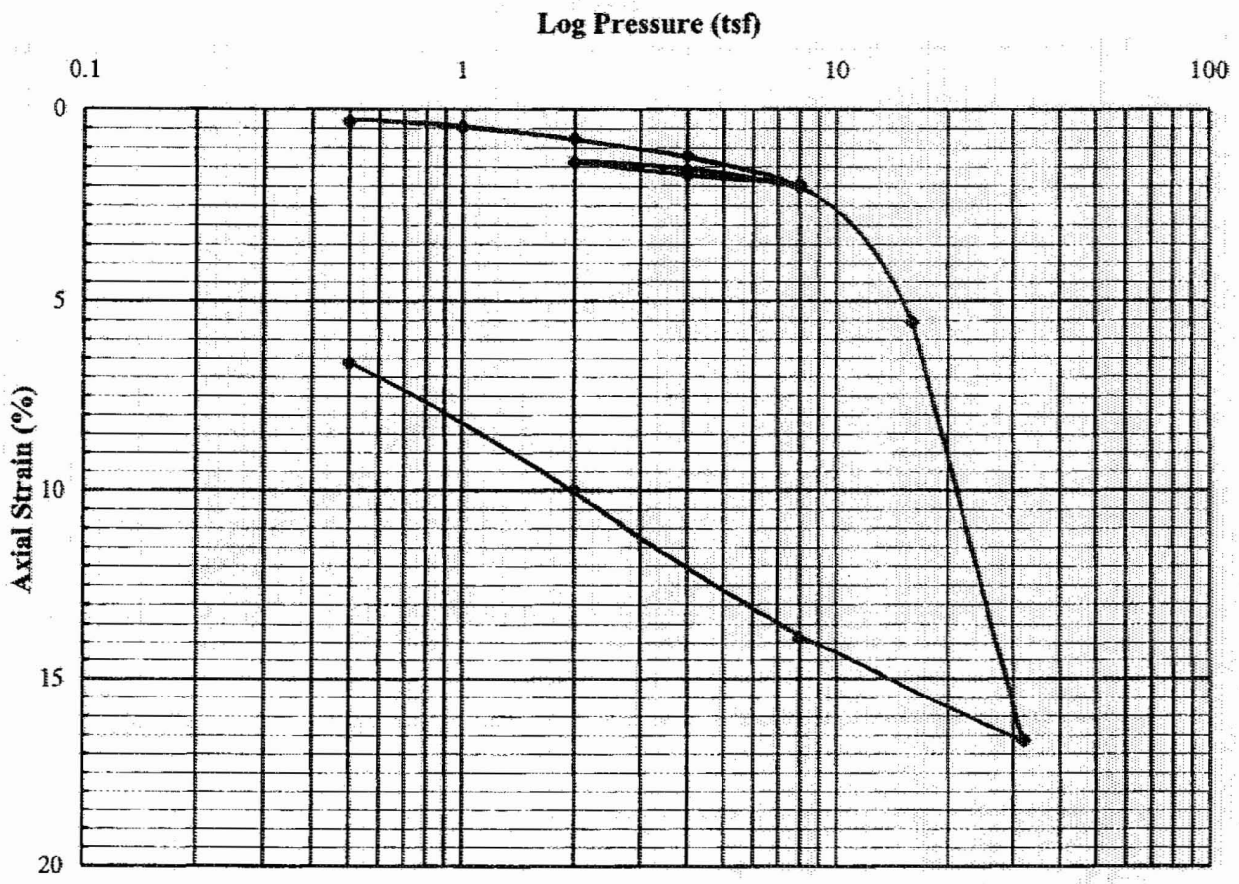
Stress: 16. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-433	Tested By: md	Checked By: jdt
	Sample No.: S-13	Test Date: 09/23/06	Depth: 48.5-50.5
	Test No.: C-28	Sample Type: tube	Elevation: ---
	Description: Moist, black clay (CH), 95% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.31, Recompression Ratio: 0.03		

Thu, 09-NOV-2006 19:02:21



REVISED FORM FOR
NCR NO. 25237-NCR-028
2/12/07

Probable Preconsolidation Pressure (Pp), tsf:	*14.0*			**Recompression Ratio (Cεr):**	*0.010*
Type of Specimen:	*Tube Sample*			**Compression Ratio (Cεc):**	*0.368*
Description:	*FAT CLAY (CH) - gray*				**Initial** / **Final**
				Water Content, %	*37.6* / *33.6*
LL: *56*	**PI:** *32*	**Gs:** *2.84*	**P_o' (tsf):** *2.50*	**Void Ratio**	*1.09* / *0.95*
% < No. 200: *94.9*		**Test Method:**	*ASTM D2435 Method A*	**Saturation, %**	*98* / *100*
Test Condition:	*Inundated @ 1 tsf*			**Dry Unit Weight, pcf**	*84.7* / *90.7*

Remarks: Coefficient of Consolidation, Cv, equals 202 and 27 ft2/yr at average pressures of 3 and 12 tsf (square root of time method).

Average Water Content of Trimmings, %: *35.5*

Project: Calvert Cliffs Nuclear Power Plant

Location:	*Calvert County, MD*		
Boring:	*B-434*	**Schnabel No.:**	*06120048*
Depth:	*53.5-55.5 ft*	**Elevation:**	*51.7 to 49.7*
Date:	*11/21/2006*	**Reviewed by:**	*CJS*

Schnabel
Schnabel Engineering

Consolidation Test Report

Consolidation Test Data Sheet

Consolidometer ID: 1

11/21/06

REVISED FORM FOR
NCR NO. 25237-NCR-028
2/12/2007

Schnabel Contract: *06120048*

Test Method: *ASTM D2435 Method A*

Project: *Calvert Cliffs Nuclear Power Plant*

Test Condition: *Inundated @ 1 tsf*

Initial Height of Specimen (H_o), in.: 0.7505

Boring No.: *B-434*

Height of Solids (H_s), in.: 0.3590

Depth: *53.5-55.5 ft*

Seating Press. (tsf): 0.05

Initial Dial Gauge Reading (D_o), in.: -0.0005

Reviewed by: CJS

Pressure, P (tsf)	Time Readings Required	Date Load Applied	Time Load Applied	Load Applied By	A: Final[1] Dial Reading, D_{fi} x 10^{-4} in.	B: Apparatus Correction[2], D_{ci} x 10^{-4} in.	C: Cumulative Change in Height[3], ΔH_i in.	D: Height of Voids[4], H_{vi} in.	Vertical Strain[5], ε_i (%)	Void Ratio[6], e_i
0.5		11/2/2006	9:00	DWC	27	8	0.0024	0.3892	0.32	1.084
1		11/3/2006	9:00	DWC	43	13	0.0035	0.3881	0.47	1.081
2		11/4/2006	9:00	CJS	69	17	0.0057	0.3859	0.76	1.075
4		11/6/2006	9:00	DWC	111	25	0.0091	0.3825	1.21	1.065
8		11/7/2006	9:00	DWC	180	39	0.0146	0.3770	1.95	1.050
4		11/8/2006	9:00	DWC	148	25	0.0128	0.3788	1.71	1.055
2		11/9/2006	9:00	DWC	116	17	0.0104	0.3812	1.39	1.062
4		11/10/2006	9:00	DWC	139	25	0.0119	0.3797	1.59	1.058
8		11/11/2006	9:00	DWC	186	39	0.0152	0.3764	2.03	1.048
16		11/13/2006	9:00	DWC	460	48	0.0417	0.3499	5.56	0.975
32		11/14/2006	9:00	DWC	1300	56	0.1249	0.2667	16.64	0.743
8		11/15/2006	9:00	CJS	1075	39	0.1041	0.2875	13.87	0.801
2		11/16/2006	9:00	DWC	761	17	0.0749	0.3167	9.98	0.882
0.5		11/17/2006	9:00	DWC	500	8	0.0497	0.3419	6.62	0.952

Notes:
1. "Final" based on test method; 24 hrs for Method A, end of primary for Method B.
2. Correction value, for the current pressure, from the consolidometer's calibration curve.
3. $\Delta H = D_{fi} - D_o - D_{ci}$ = Col. A - D_o - Col. B
4. $H_{vi} = (H_o - H_s) - \Delta H$
5. $\varepsilon_i = (\Delta H / H_o) \times 100$ = (Col. C / H_o) x 100
6. $e_i = H_{vi}$ / Hs = Col. D / Hs

Consol 8/2006 Rev. 1

Schnabel
Schnabel Engineering

Load Time Readings

11/21/06

Project: Calvert Cliffs Nuclear Power Plant
Schnabel Contract: 06120048
Boring No.: B-434 Depth: 53.5-55.5 ft

Consol. ID: 1 Reviewed by: CJS

Elapsed Time (min.)	Dial Guage Readings (inches)					
	4 tsf Reload 11/10/2006	16 tsf Load 11/13/2006	X tsf Load Date	X tsf Load Date	X tsf Load Date	X tsf Load Date
0.1	0.0123	0.0216				
0.25	0.0124	0.0223				
0.5	0.0126	0.0231				
1	0.0129	0.0243				
2	0.0131	0.0259				
4	0.0132	0.0280				
8	0.0133	0.0307				
15	0.0134	0.0332				
30	0.0135	0.0361				
60	0.0136	0.0381				
120	0.0137	0.0402				
240	0.0138	0.0419				
480	0.0138	0.0436				
720	0.0138	0.0447				
960	0.0138	0.0452				
1200	0.0138	0.0459				
1440	0.0139	0.0460				
1680						
1920						
2160						
2400						
2640						
2880						

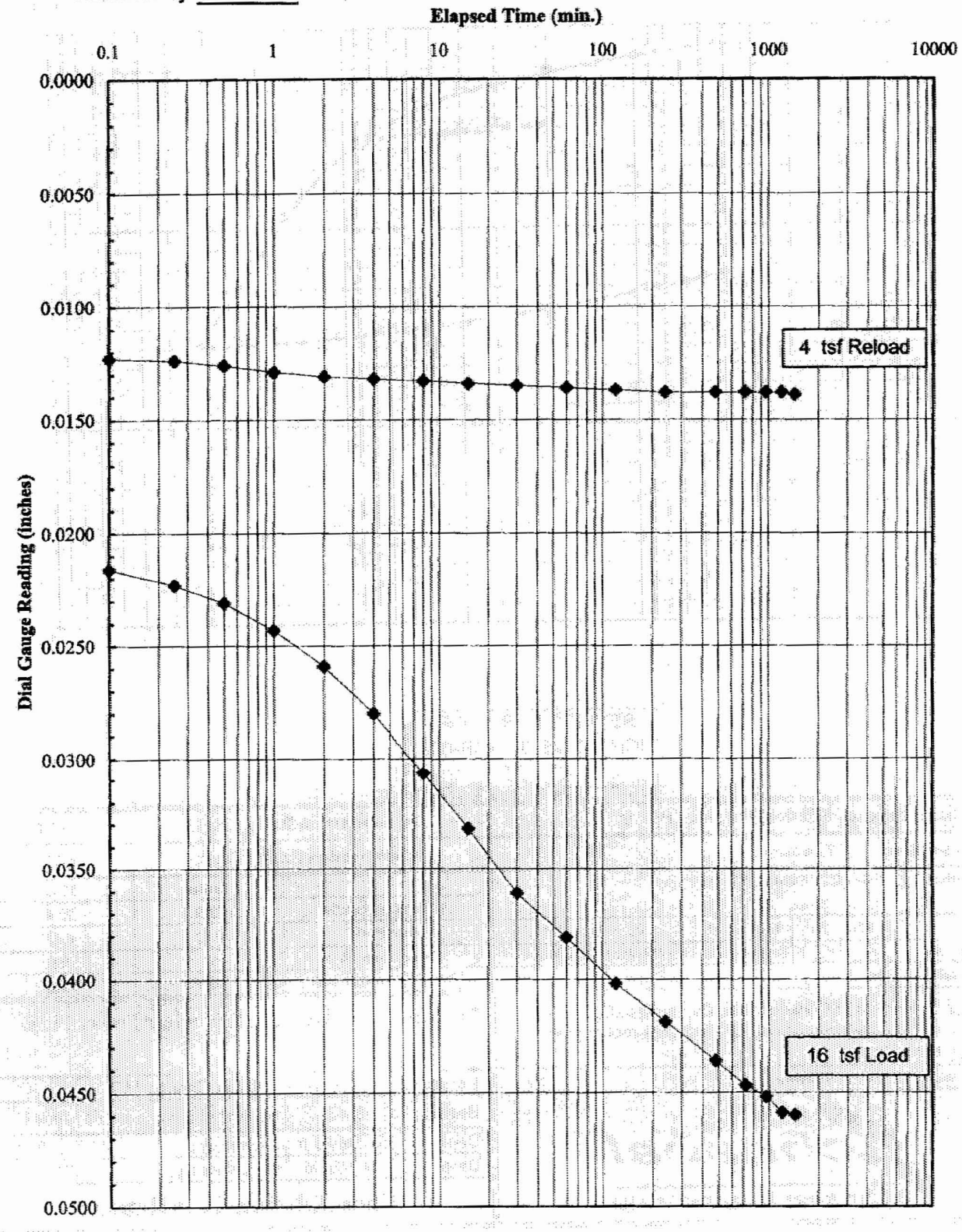
Schnabel
Schnabel Engineering

Consolidation Time Curves

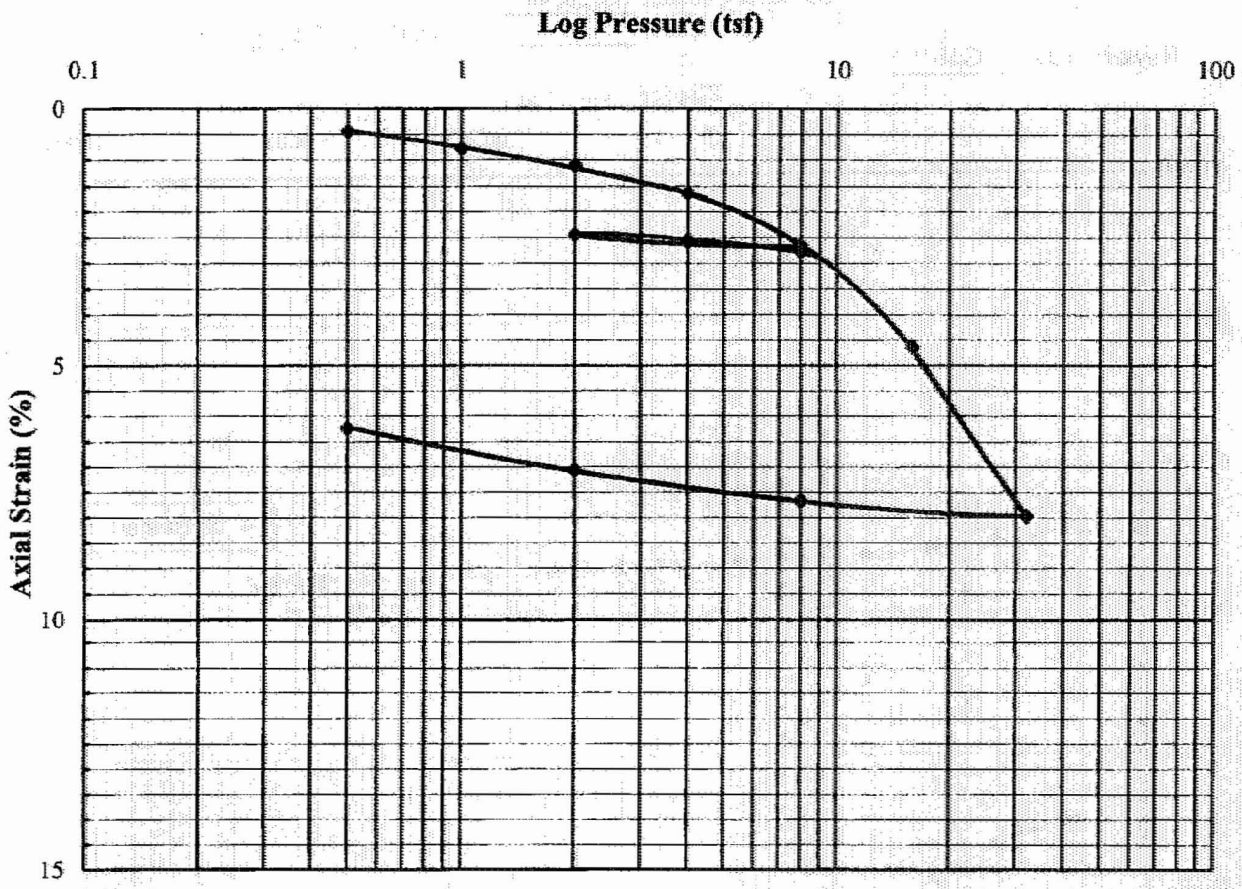
11/21/06

Project: Calvert Cliffs Nuclear Power Plant
Schnabel Contract: 06120048
Boring No.: B-434 Depth: 53.5-55.5 ft

Reviewed by: CJS



Consol 8/2006 Rev. 1



REVISED FORM FOR
NCR NO. 25237-NCR-028
2/12/07

Probable Preconsolidation Pressure (Pp), tsf:	*11.8*			**Recompression Ratio (Cεr):**	*0.004*
Type of Specimen:	*Tube Sample*			**Compression Ratio (Cεc):**	*0.111*
Description:	*Fine SILTY SAND (SM) - dark gray*				**Initial** / **Final**
				Water Content, %	*22.9* / *22.8*
LL: —	**PI:** *NP*	**Gs:** *2.72*	**P_c' (tsf):** *2.75*	**Void Ratio**	*0.72* / *0.61*
% < No. 200:	*36.9*	**Test Method:**	*ASTM D2435 Method A*	**Saturation, %**	*87* / *100*
Test Condition:	*Inundated @ 0.5 tsf*			**Dry Unit Weight, pcf**	*98.9* / *105.5*

Remarks: Coefficient of Consolidation, Cv, equals 2023 ft2/yr at an average pressure of 12 tsf (square root of time method).

Average Water Content of Trimmings, %: *22.9*

Schnabel
Schnabel Engineering

Project: Calvert Cliffs Nuclear Power Plant

Location:	*Calvert County, MD*		
Boring:	*B-434*	**Schnabel No.:**	*06120048*
Depth:	*63.5-64.3 ft*	**Elevation:**	*41.7 to 40.9*
Date:	*12/4/2006*	**Reviewed by:**	*CJS*

Consolidation Test Report

Consolidation Test Data Sheet

Consolidometer ID: 2

12/4/06

REVISED FORM FOR
NCR NO. 25237-NCR-028
2/12/2007

Schnabel Contract: *06120048*

Test Method: *ASTM D2435 Method A*

Project: *Calvert Cliffs Nuclear Power Plant*

Test Condition: *Inundated @ 0.5 tsf*

Initial Height of Specimen (H_o), in.: 0.7514

Boring No.: *B-434*

Height of Solids (H_s), in.: 0.4381

Depth: *63.5-64.3 ft*

Seating Press. (tsf): 0.05

Initial Dial Gauge Reading (D_o), in.: 0.0000

Reviewed by: CJS

Pressure, P (tsf)	Time Readings Required	Date Load Applied	Time Load Applied	Load Applied By	A: Final[1] Dial Reading, D_{fi} x 10^{-4} in.	B: Apparatus Correction[2], D_{ci} x 10^{-4} in.	C: Cumulative Change in Height[3], ΔH_i in.	D: Height of Voids[4], H_{vi} in.	Vertical Strain[5], ε_i (%)	Void Ratio[6], e_i
0.5		11/9/2006	9:05	DWC	45	11	0.0034	0.3099	0.45	0.707
1		11/10/2006	9:05	DWC	73	15	0.0058	0.3075	0.77	0.702
2		11/11/2006	9:05	DWC	104	21	0.0083	0.3050	1.10	0.696
4		11/13/2006	9:05	DWC	151	28	0.0123	0.3010	1.64	0.687
8		11/14/2006	9:05	DWC	236	36	0.0200	0.2933	2.66	0.670
4		11/15/2006	9:05	CJS	222	28	0.0194	0.2939	2.58	0.671
2		11/16/2006	9:05	DWC	205	21	0.0184	0.2949	2.45	0.673
4		11/17/2006	9:05	DWC	219	28	0.0191	0.2942	2.54	0.672
8		11/21/2006	9:05	DWC	245	36	0.0209	0.2924	2.78	0.667
16		11/22/2006	9:05	DWC	394	45	0.0349	0.2784	4.64	0.636
32		11/27/2006	9:05	DWC	656	57	0.0599	0.2534	7.97	0.578
8		11/28/2006	11:25	DWC	612	36	0.0576	0.2557	7.67	0.584
2		11/29/2006	11:25	DWC	552	21	0.0531	0.2602	7.07	0.594
0.5		11/30/2006	11:25	DWC	480	11	0.0469	0.2664	6.24	0.608

Notes:
1. "Final" based on test method; 24 hrs for Method A, end of primary for Method B.
2. Correction value, for the current pressure, from the consolidometer's calibration curve.
3. $\Delta H = D_{fi} - D_o - D_{ci}$ = Col. A - D_o - Col. B
4. $H_{vi} = (H_o - H_s) - \Delta H$
5. $\varepsilon_i = (\Delta H / H_o) \times 100$ = (Col. C / H_o) x 100
6. $e_i = H_{vi} / Hs$ = Col. D / Hs

Consol 8/2006 Rev. 1

Schnabel
Schnabel Engineering

Load Time Readings

12/4/06

Project: Calvert Cliffs Nuclear Power Plant
Schnabel Contract: 06120048
Boring No.: B-434 Depth: 63.5-64.3 ft
Consol. ID: 2 Reviewed by: CJS

Elapsed Time (min.)	Dial Guage Readings (inches)					
	4 tsf Reload 11/17/2006	16 tsf Load 11/22/2006	X tsf Load Date	X tsf Load Date	X tsf Load Date	X tsf Load Date
0.1	0.0216	0.0335				
0.25	0.0216	0.0341				
0.5	0.0216	0.0346				
1	0.0216	0.0349				
2	0.0216	0.0353				
4	0.0216	0.0357				
8	0.0216	0.0361				
15	0.0216	0.0365				
30	0.0217	0.0369				
60	0.0217	0.0373				
120	0.0217	0.0378				
240	0.0218	0.0382				
480	0.0219	0.0388				
720	0.0219	0.0389				
960	0.0219	0.0391				
1200	0.0219	0.0392				
1440	0.0219	0.0394				
1680	0.0219	0.0396				
1920	0.0219	0.0396				
2160	0.0219	0.0396				
2400	0.0219	0.0397				
2640	0.0219	0.0397				
2880	0.0219	0.0398				