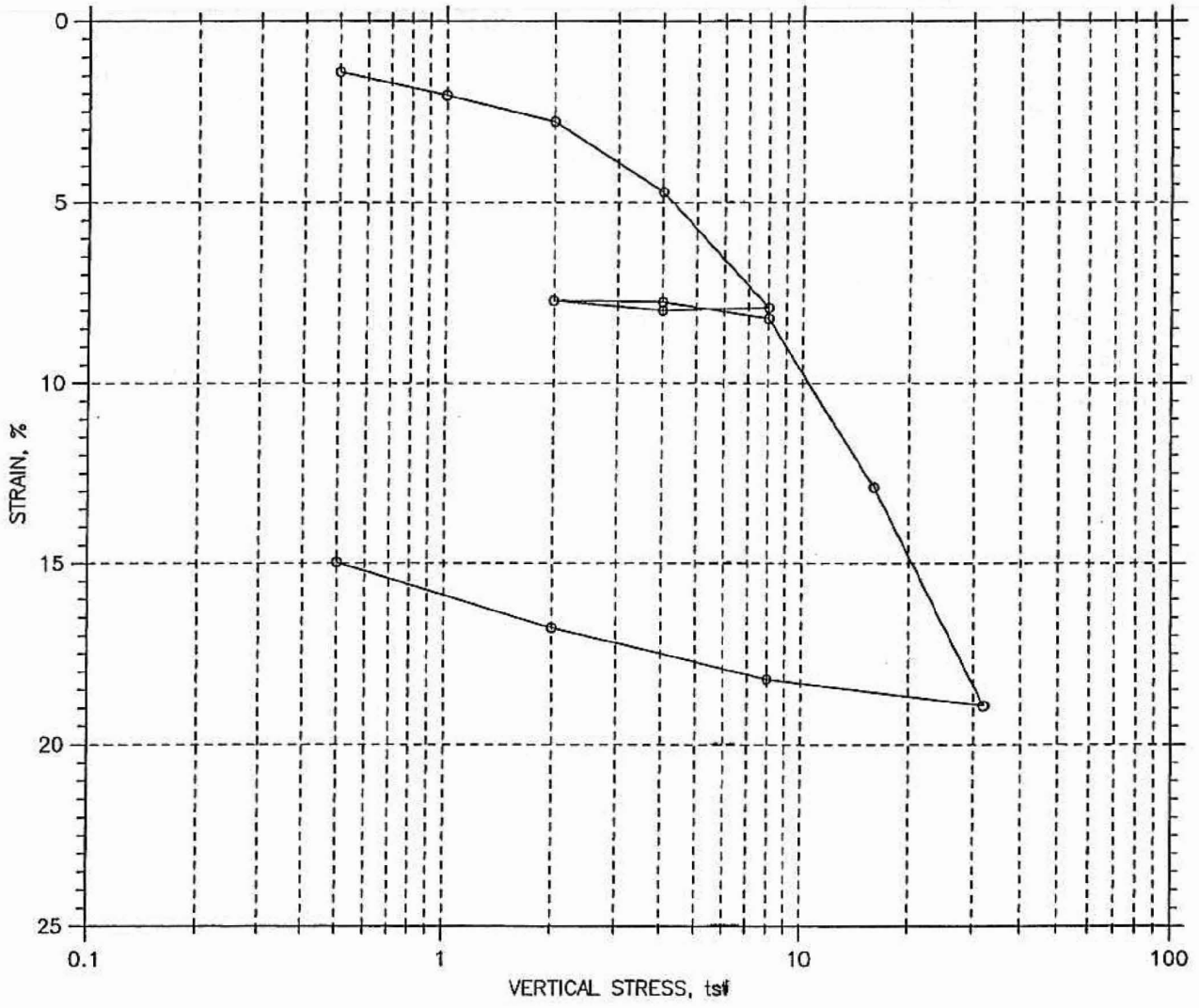
CONSOLIDATION TEST DATA

SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: ---				Water Content, %	28.35	21.46
Preconsolidation Pressure: 5.4 tsf				Dry Unit Weight, pcf	90.1	106.
Compression Index: ---				Saturation, %	89.06	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.85	0.57
LL: 49	PL: 12	PI: 37	GS: 2.67			

GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: jdt
	Sample No.: S-10	Test Date: 09/08/06	Depth: 33.5-35.5
	Test No.: C-4	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay with sand (CL), 72% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System Q-Compression Ratio: 0.19, Recompression Ratio: 0.01		

Thu, 09-NOV-2006 15:38:09

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-319	Tested By: md	Checked By: jdt
Sample No.: S-10	Test Date: 09/08/06	Depth: 33.5-35.5
Test No.: C-4	Sample Type: tube	Elevation: ---

Soil Description: Moist, dark gray clay with sand (CL), 72% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System Q-Compression Ratio: 0.19, Recompression Ratio: 0.01

Measured Specific Gravity: 2.67	Liquid Limit: 49	Initial Height: 1.00 in
Initial Void Ratio: 0.85	Plastic Limit: 12	Specimen Diameter: 2.50 in
Final Void Ratio: 0.57	Plasticity Index: 37	

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	1611	RING		6
Wt. Container + Wet Soil, gm	105.39	356.66	348.66	148.94
Wt. Container + Dry Soil, gm	82.64	323.74	323.74	124.1
Wt. Container, gm	8.42	207.65	207.65	8.37
Wt. Dry Soil, gm	74.22	116.09	116.09	115.73
Water Content, %	30.65	28.35	21.46	21.46
Void Ratio	---	0.85	0.57	---
Degree of Saturation, %	---	89.06	100.00	---
Dry Unit Weight, pcf	---	90.097	105.96	---

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear
Boring No.: B-319
Sample No.: S-10
Test No.: C-4

Location: Calvert County, MD
Tested By: md
Test Date: 09/08/06
Sample Type: tube

Project No.: GTX-6880
Checked By: jdt
Depth: 33.5-35.5
Elevation: ---

Soil Description: Moist, dark gray clay with sand (CL), 72% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System Q-Compression Ratio: 0.19, Recompression Ratio: 0.01

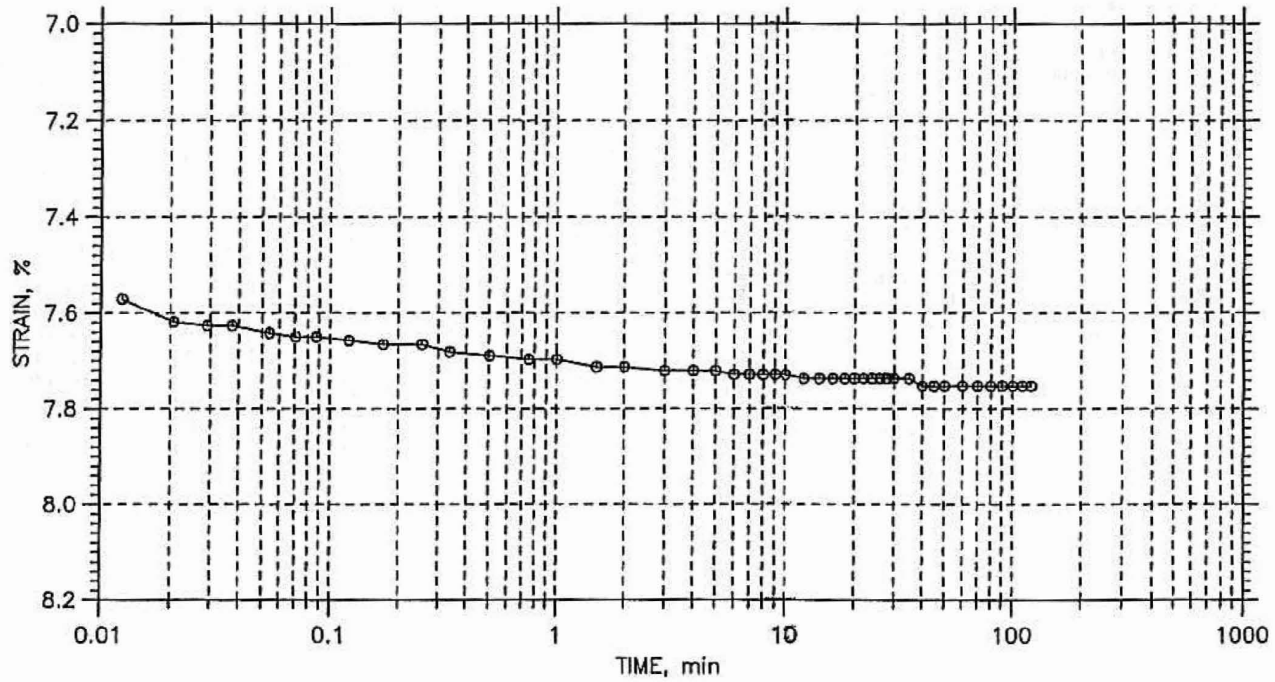
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	T50 Fitting Log min	Coefficient of Consolidation Sq.Rt. in^2/sec	Coefficient of Consolidation Log in^2/sec	Coefficient of Consolidation Ave. in^2/sec
1	0.5	0.01405	0.824	1.40	0.1	0.0	1.01e-002	0.00e+000	1.01e-002
2	1	0.02055	0.812	2.05	1.2	0.0	6.81e-004	0.00e+000	6.81e-004
3	2	0.02771	0.799	2.77	0.1	0.0	1.53e-002	1.73e-002	1.63e-002
4	4	0.0472	0.763	4.72	0.2	0.1	3.54e-003	7.12e-003	4.73e-003
5	8	0.07909	0.704	7.91	0.9	1.0	7.71e-004	7.04e-004	7.36e-004
6	4	0.07988	0.702	7.99	0.2	0.0	3.30e-003	0.00e+000	3.30e-003
7	2	0.07716	0.707	7.72	0.7	0.5	1.06e-003	1.38e-003	1.20e-003
8	4	0.07752	0.707	7.75	0.1	0.0	6.99e-003	0.00e+000	6.99e-003
9	8	0.08201	0.698	8.20	0.7	0.2	9.75e-004	3.77e-003	1.55e-003
10	16	0.1289	0.611	12.89	2.1	2.7	3.16e-004	2.46e-004	2.76e-004
11	32	0.1893	0.500	18.93	2.8	3.8	2.08e-004	1.53e-004	1.76e-004
12	8	0.182	0.513	18.20	0.3	0.0	1.87e-003	0.00e+000	1.87e-003
13	2	0.1678	0.540	16.78	3.5	4.8	1.58e-004	1.17e-004	1.34e-004
14	0.5	0.1497	0.573	14.97	10.9	0.0	5.34e-005	0.00e+000	5.34e-005

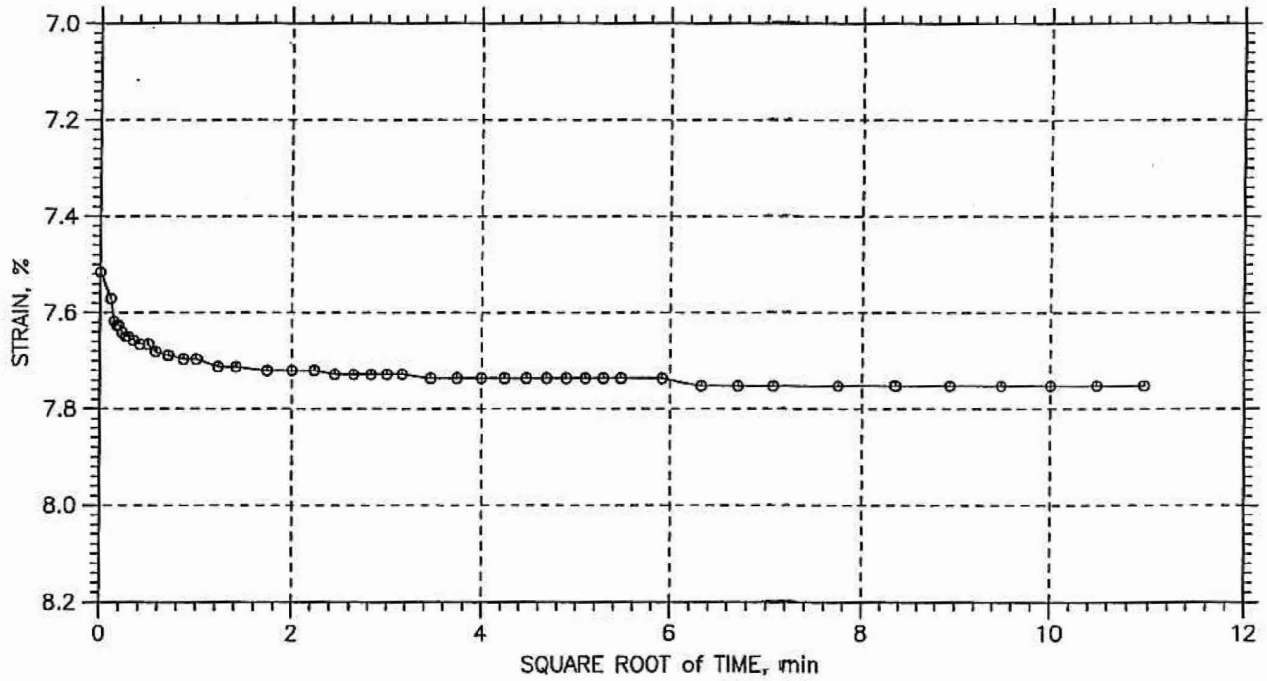
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 4. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: jdt
	Sample No.: S-10	Test Date: 09/08/06	Depth: 33.5-35.5
	Test No.: C-4	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay with sand (CL), 72% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System Q-Compression Ratio: 0.19, Recompression Ratio: 0.01		

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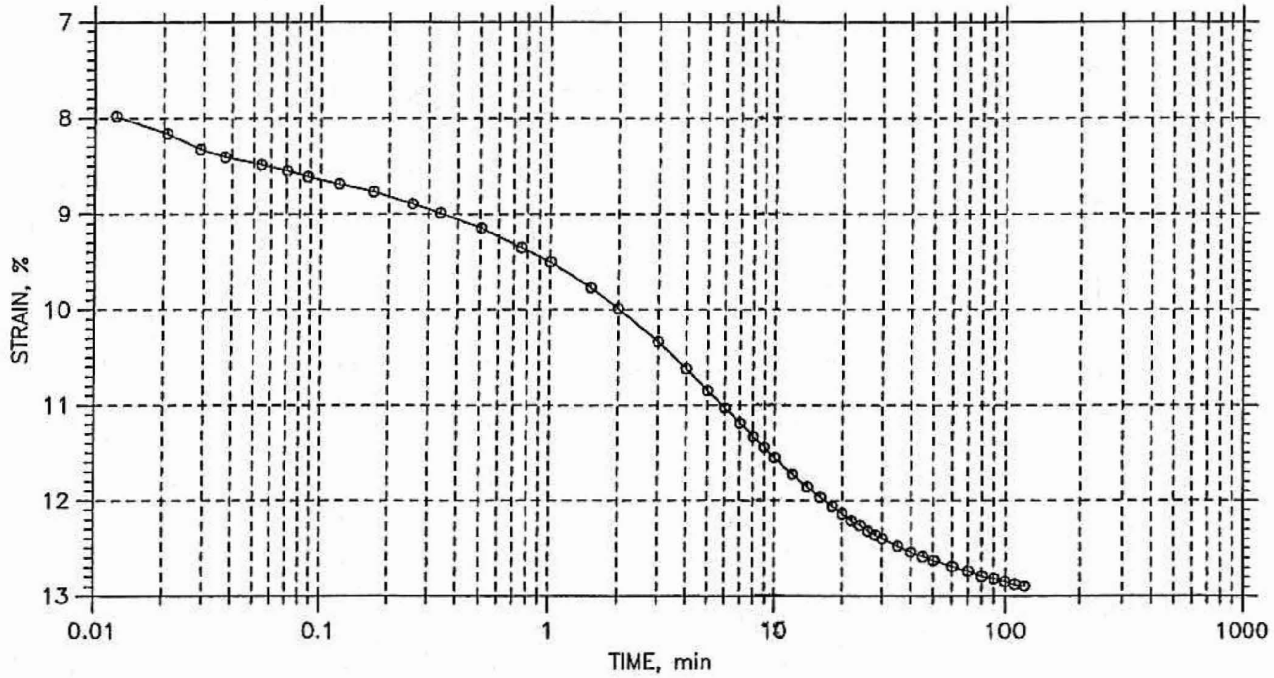
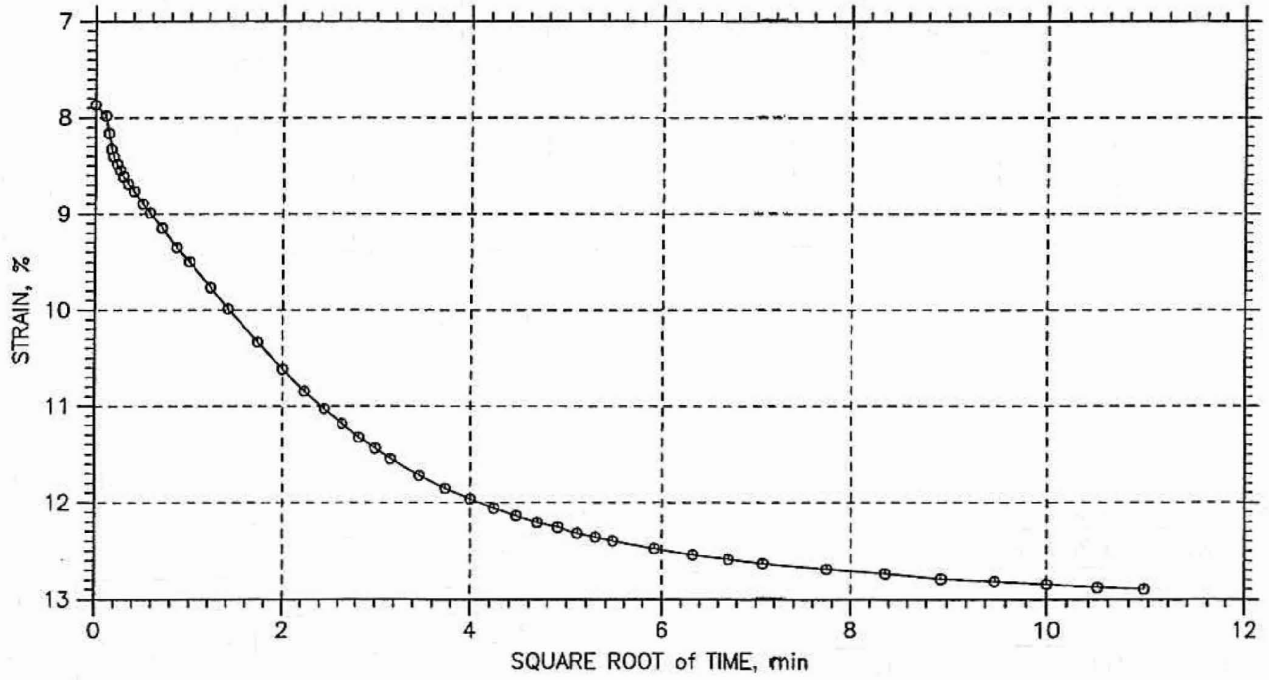
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 10 of 14

Stress: 16. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: jdt
	Sample No.: S-10	Test Date: 09/08/06	Depth: 33.5-35.5
	Test No.: C-4	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay with sand (CL), 72% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System Q-Compression Ratio: 0.19, Recompression Ratio: 0.01		

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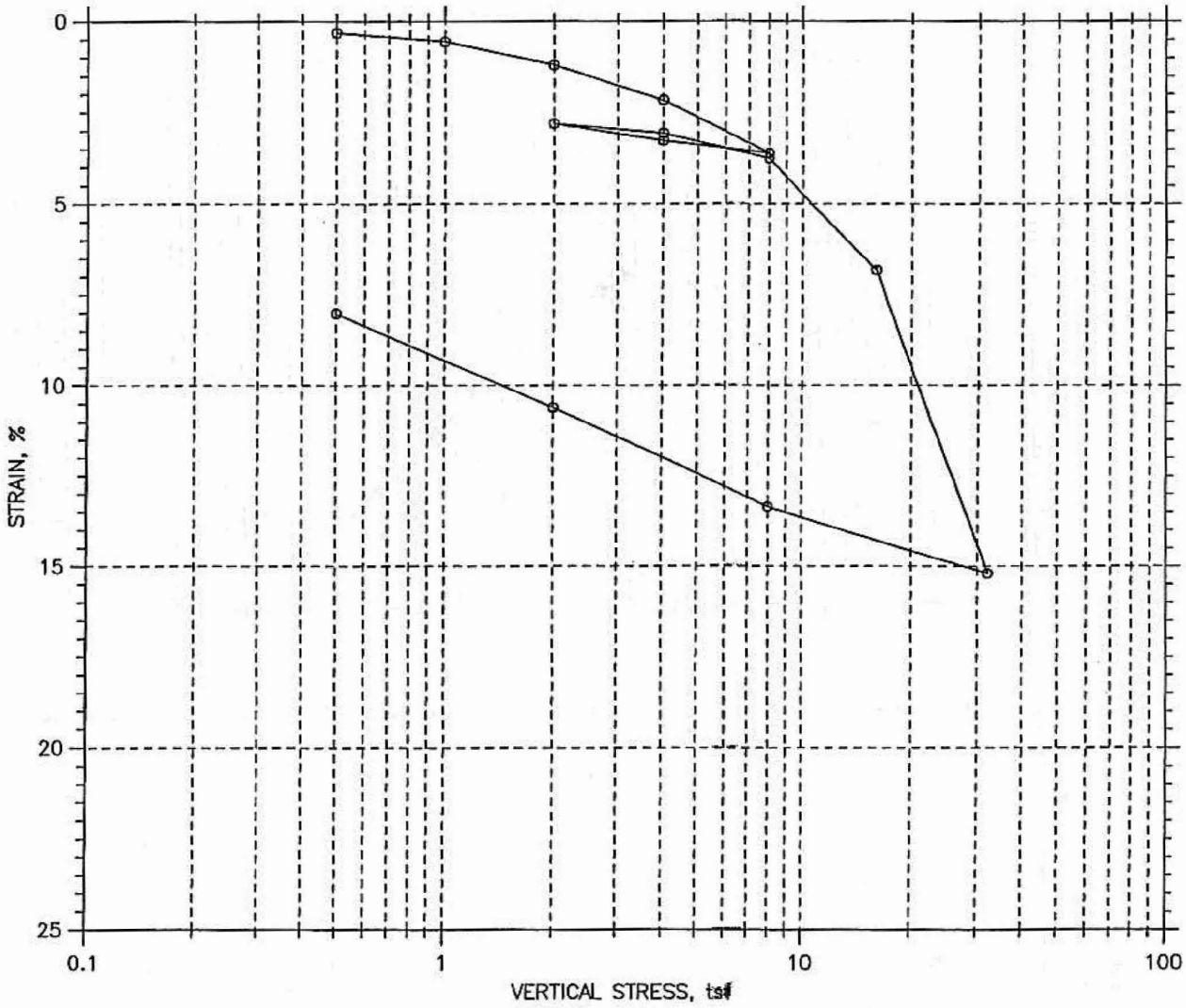
CONSOLIDATION TEST DATA

SUMMARY REPORT



					Before Test	After Test
Overburden Pressure: ---				Water Content, %	27.51	24.64
Preconsolidation Pressure: 12 tsf				Dry Unit Weight, pcf	93.73	101.9
Compression Index: ---				Saturation, %	91.78	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	0.82	0.67
LL: 58	PL: 13	PI: 45	GS: 2.73			

GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: njh
	Sample No.: S-12	Test Date: 09/07/06	Depth: 43.5-45.2
	Test No.: C-3	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay (CH), 87% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.28, Recompression Ratio: 0.04		

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CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-319	Tested By: md	Checked By: njh
Sample No.: S-12	Test Date: 09/07/06	Depth: 43.5-45.2
Test No.: C-3	Sample Type: tube	Elevation: ---

Soil Description: Moist, dark gray clay (CH), 87% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System G - Compression Ratio: 0.28, Recompression Ratio: 0.04

Measured Specific Gravity: 2.73	Liquid Limit: 58	Initial Height: 1.00 in
Initial Void Ratio: 0.82	Plastic Limit: 13	Specimen Diameter: 2.50 in
Final Void Ratio: 0.67	Plasticity Index: 45	

	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
Container ID	Z178C	RING		1223
Wt. Container + Wet Soil, gm	116.43	370.45	366.98	151.31
Wt. Container + Dry Soil, gm	90.31	337.22	337.22	123.06
Wt. Container, gm	8.35	216.45	216.45	8.4
Wt. Dry Soil, gm	81.96	120.77	120.77	114.66
Water Content, %	31.87	27.51	24.64	24.64
Void Ratio	---	0.82	0.67	---
Degree of Saturation, %	---	91.78	100.00	---
Dry Unit Weight, pcf	---	93.73	101.89	---

CONSOLIDATION TEST DATA

Project: Calvert Cliffs Nuclear
Boring No.: B-319
Sample No.: S-12
Test No.: C-3

Location: Calvert County, MD
Tested By: md
Test Date: 09/07/06
Sample Type: tube

Project No.: GTX-6880
Checked By: njh
Depth: 43.5-45.2
Elevation: ---

Soil Description: Moist, dark gray clay (CH), 87% passing #200 sieve, inundated @ 0.5 tsf
Remarks: System G - Compression Ratio: 0.28, Recompression Ratio: 0.04

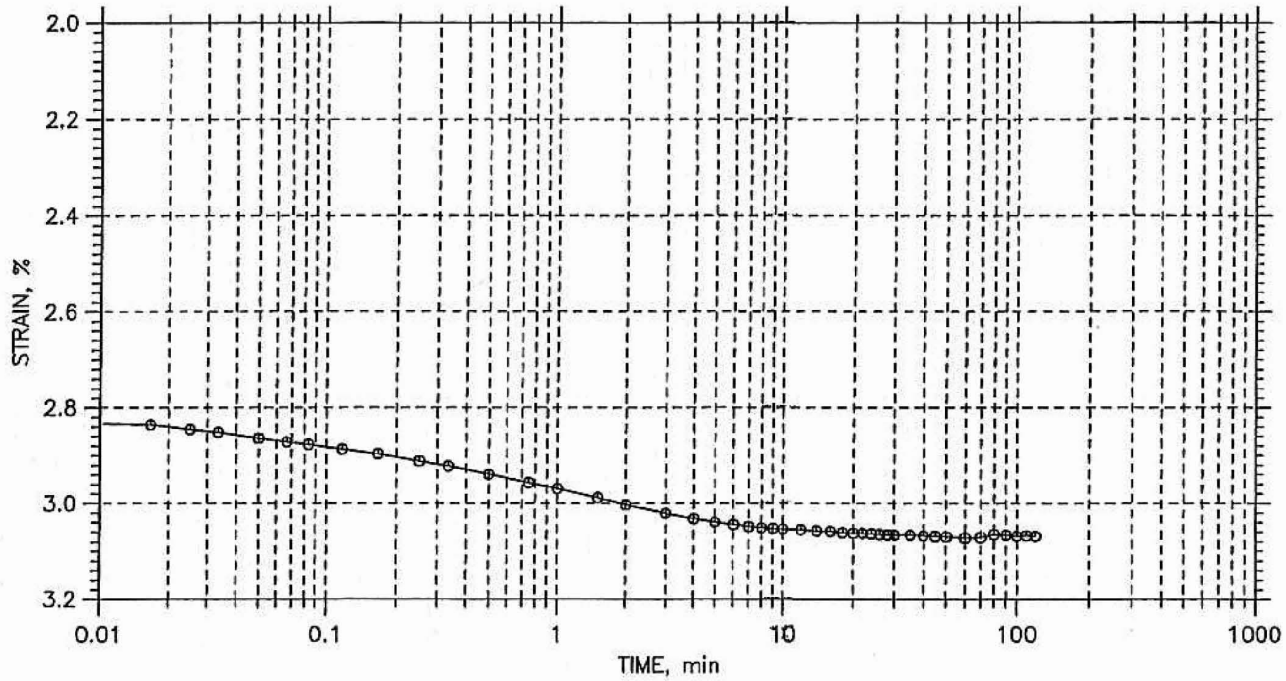
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	T50 Fitting Log min	Coefficient of Consolidation Sq.Rt. in^2/sec	Coefficient of Consolidation Log in^2/sec	Coefficient of Consolidation Ave. in^2/sec
1	0.5	0.003141	0.813	0.31	0.0	0.0	6.14e-002	0.00e+000	6.14e-002
2	1	0.005529	0.808	0.55	0.3	0.0	2.52e-003	0.00e+000	2.52e-003
3	2	0.01195	0.797	1.19	0.5	0.0	1.66e-003	0.00e+000	1.66e-003
4	4	0.02158	0.779	2.16	0.4	0.0	1.80e-003	0.00e+000	1.80e-003
5	8	0.03606	0.753	3.61	0.7	0.0	1.16e-003	0.00e+000	1.16e-003
6	4	0.03264	0.759	3.26	0.2	0.0	3.54e-003	0.00e+000	3.54e-003
7	2	0.02802	0.767	2.80	0.7	0.0	1.16e-003	0.00e+000	1.16e-003
8	4	0.03068	0.762	3.07	0.2	0.0	4.56e-003	0.00e+000	4.56e-003
9	8	0.03751	0.750	3.75	0.4	0.0	1.75e-003	0.00e+000	1.75e-003
10	16	0.0682	0.694	6.82	1.8	2.0	4.21e-004	3.77e-004	3.98e-004
11	32	0.152	0.542	15.20	5.1	9.0	1.28e-004	7.23e-005	9.23e-005
12	8	0.1335	0.575	13.35	1.1	0.0	5.74e-004	0.00e+000	5.74e-004
13	2	0.1061	0.625	10.61	7.3	0.0	8.70e-005	0.00e+000	8.70e-005
14	0.5	0.08009	0.673	8.01	13.0	0.0	5.20e-005	0.00e+000	5.20e-005

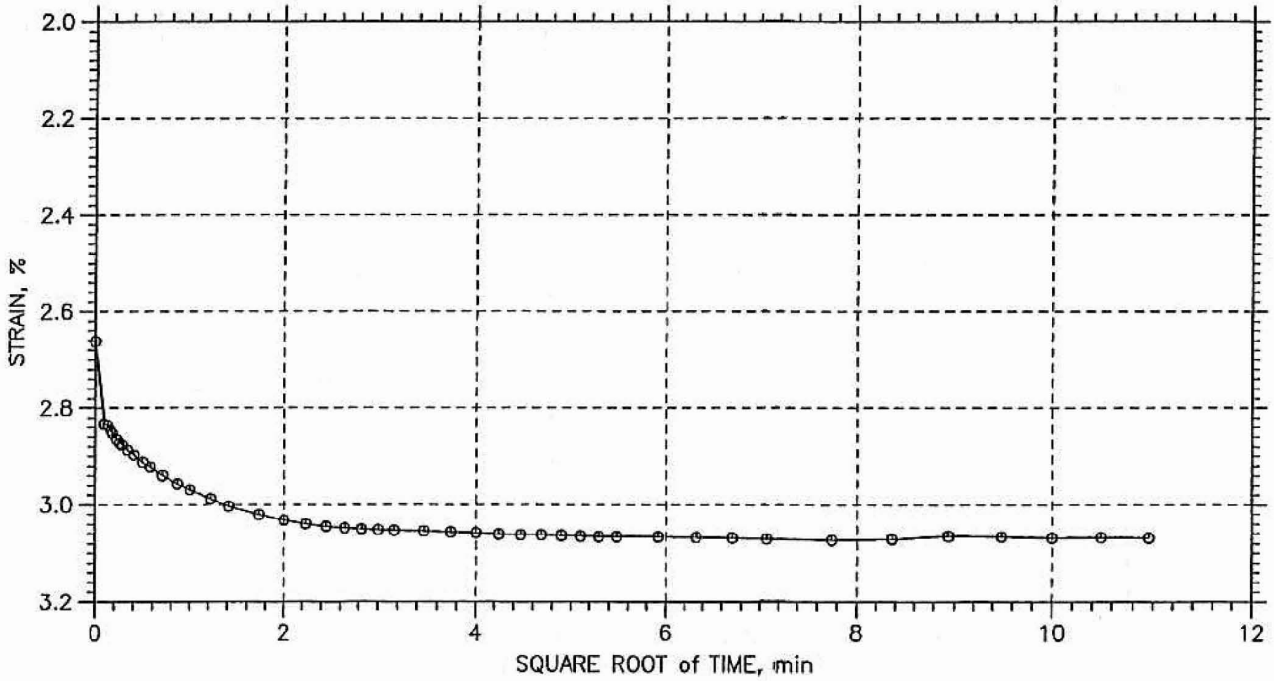
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 4. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: njh
	Sample No.: S-12	Test Date: 09/07/06	Depth: 43.5-45.2
	Test No.: C-3	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay (CH), 87% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.28, Recompression Ratio: 0.04		

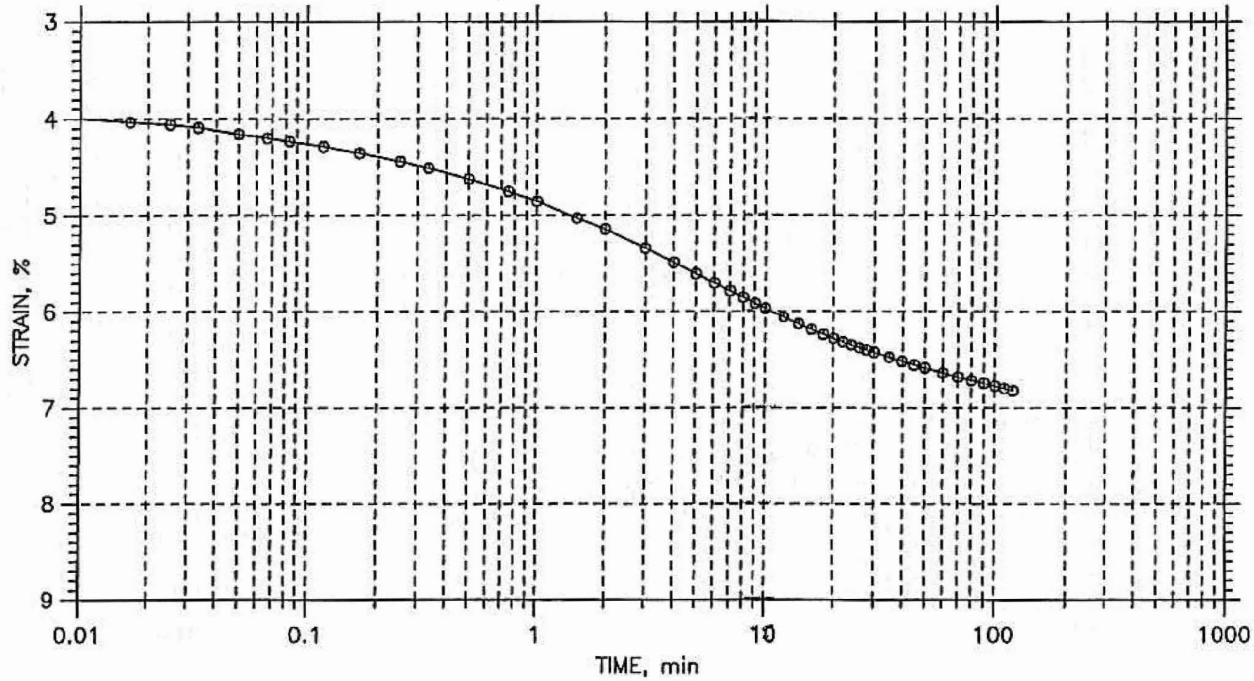
Thu, 09-NOV-2006 15:57:35

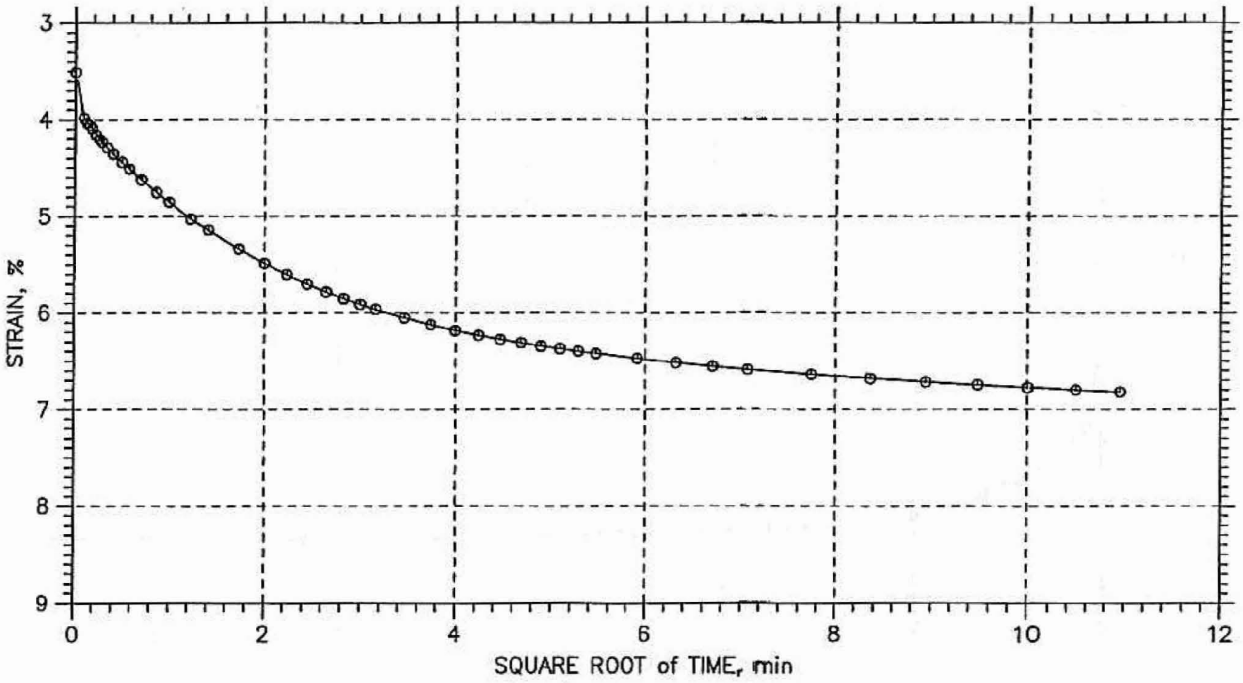
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 10 of 14

Stress: 16. tsf





GeoTesting express a subsidiary of Geocomp Corporation	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: njh
	Sample No.: S-12	Test Date: 09/07/06	Depth: 43.5-45.2
	Test No.: C-3	Sample Type: tube	Elevation: ---
	Description: Moist, dark gray clay (CH), 87% passing #200 sieve, inundated @ 0.5 tsf		
	Remarks: System G - Compression Ratio: 0.28, Recompression Ratio: 0.04		

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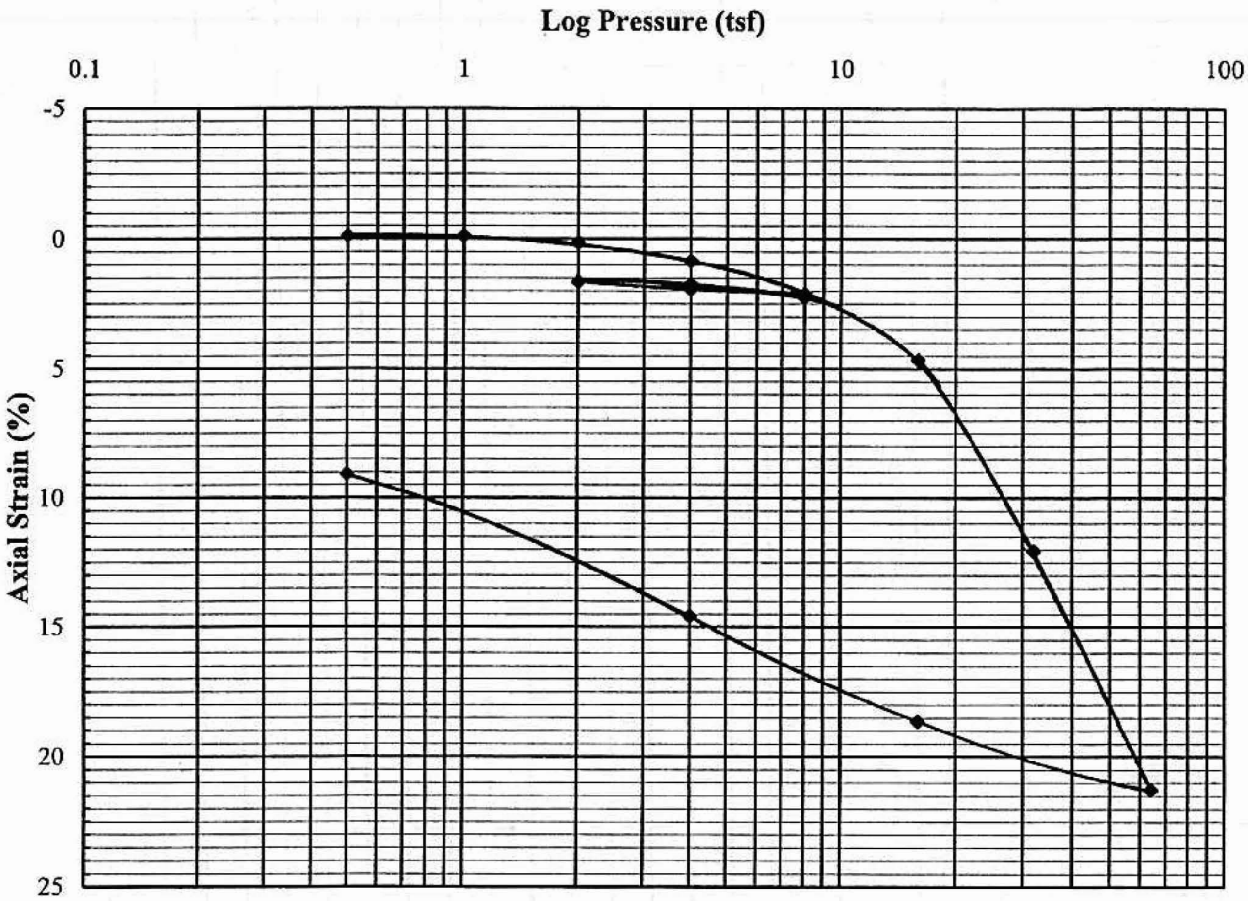


Coefficient of Consolidation, Cv, equals 563 and 9 ft2/yr at average pressures of 3 and 12 tsf (square root of time method).

REVISED FORM FOR NCR NO. 25237-NCR-028 AND HEIGHT OF SPECIMEN DATA ENTRY ERROR (NCR NO. 25237-NCR-031) 3/9/07

Probable Preconsolidation Pressure (Pp), tsf:	*19*			**Recompression Ratio (Cεr):**	*0.009*
Type of Specimen:	*Tube Sample*			**Compression Ratio (Cεc):**	*0.306*
Description:	*LEAN CLAY (CL) - gray*				**Initial** / **Final**
				Water Content, %	*35.8* / *30.6*
LL: *45*	**PI:** *27*	**Gs:** *2.79*	**P_o' (tsf):** *1.05*	**Void Ratio**	*1.03* / *0.84*
% < No. 200:	*99.7*	**Test Method:**	*ASTM D2435 Method A*	**Saturation, %**	*97* / *100*
Test Condition:	*Inundated @ 4 tsf*			**Dry Unit Weight, pcf**	*85.8* / *94.4*

Remarks: *Initial specimen height set at 0.750 in.; possible range in value could be 0.732 to 0.761 inch.*

Average Water Content of Trimmings, %: *31.4*

Project: Calvert Cliffs Nuclear Power Plant

Location:	*Calvert County, MD*		
Boring:	*B-321*	**Schnabel No.:**	*06120048*
Depth:	*23.5-25.5 ft*	**Elevation:**	*47.2 to 45.2*
Date:	*2/15/2007*	**Reviewed by:**	*CJS*

Schnabel

Schnabel Engineering

Consolidation Test Report

Consolidation Test Data Sheet

REVISED FORM FOR NCR NO. 25237-NCR-028 and 25237-NCR-031 3/9/2007

Consolidometer ID: 5

2/15/07

Schnabel Contract: *06120048*

Test Method: *ASTM D2435 Method A*

Project: *Calvert Cliffs Nuclear Power Plant*

Test Condition: *Inundated @ 4 tsf*

Initial Height of Specimen (H_o), in.: 0.7500

Boring No.: *B-321*

Height of Solids (H_s), in.: 0.3699

Depth: *23.5-25.5 ft*

Seating Press. (tsf): 0.05

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

Reviewed by: CJS

Pressure, P (tsf)	TimeReadings 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		10/4/2006	9:20	DWC	-1	12	-0.0008	0.3809	-0.11	1.030
1		10/5/2006	9:20	DWC	8	21	-0.0008	0.3809	-0.11	1.030
2		10/6/2006	9:20	DWC	40	33	0.0012	0.3789	0.16	1.024
4		10/7/2006	9:20	DWC	99	40	0.0064	0.3737	0.85	1.010
8		10/9/2006	9:20	DWC	204	50	0.0159	0.3642	2.12	0.985
4		10/10/2006	9:20	DWC	181	40	0.0146	0.3655	1.95	0.988
2		10/11/2006	9:20	DWC	152	33	0.0124	0.3677	1.65	0.994
4		10/12/2006	9:20	DWC	166	40	0.0131	0.3670	1.75	0.992
8		10/13/2006	9:20	DWC	213	50	0.0168	0.3633	2.24	0.982
16		10/14/2006	9:20	CJS	408	63	0.0350	0.3451	4.67	0.933
32		10/16/2006	9:20	DWC	976	76	0.0905	0.2896	12.07	0.783
64		10/17/2006	9:20	DWC	1677	87	0.1595	0.2206	21.27	0.596
16		10/18/2006	9:20	DWC	1457	63	0.1399	0.2402	18.65	0.649
4		10/19/2006	9:20	DWC	1129	40	0.1094	0.2707	14.59	0.732
0.5		10/20/2006	9:20	DWC	689	12	0.0682	0.3119	9.09	0.843

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

10/26/06

Project: Calvert Cliffs Nuclear Power Plant
Schnabel Contract: 06120048
Boring No.: B-321 Depth: 23.5-25.5ft.

Consol. ID: 5 Reviewed by: CJS

Elapsed Time (min.)	Dial Guage Readings (inches)					
	4 tsf Reload 10/12/2006	32 tsf Load 10/16/2006	X tsf Load Date	X tsf Load Date	X tsf Load Date	X tsf Load Date
0.1	0.0156	0.0468				
0.25	0.0158	0.0480				
0.5	0.0160	0.0492				
1	0.0161	0.0508				
2	0.0162	0.0531				
4	0.0163	0.0562				
8	0.0163	0.0604				
15	0.0163	0.0653				
30	0.0163	0.0716				
60	0.0164	0.0784				
120	0.0164	0.0844				
240	0.0165	0.0892				
480	0.0166	0.0931				
720	0.0166	0.0949				
960	0.0166	0.0961				
1200	0.0166	0.0968				
1440	0.0166	0.0976				
1680						
1920						
2160						
2400						
2640						
2880						

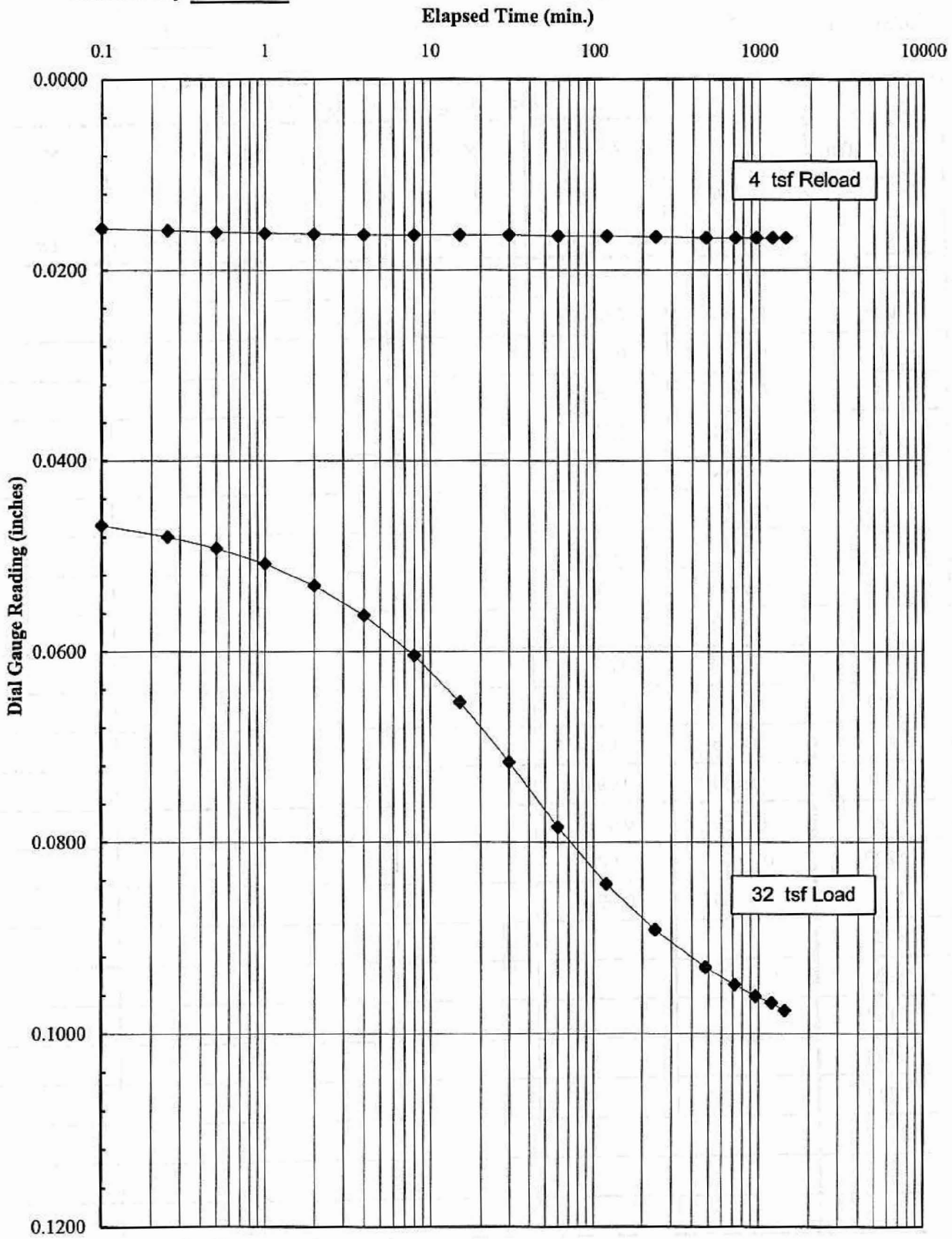
Schnabel
Schnabel Engineering

Consolidation Time Curves

10/26/06

Project: Calvert Cliffs Nuclear Power Plant
Schnabel Contract: 06120048
Boring No.: B-321 Depth: 23.5-25.5ft.

Reviewed by: CJS



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