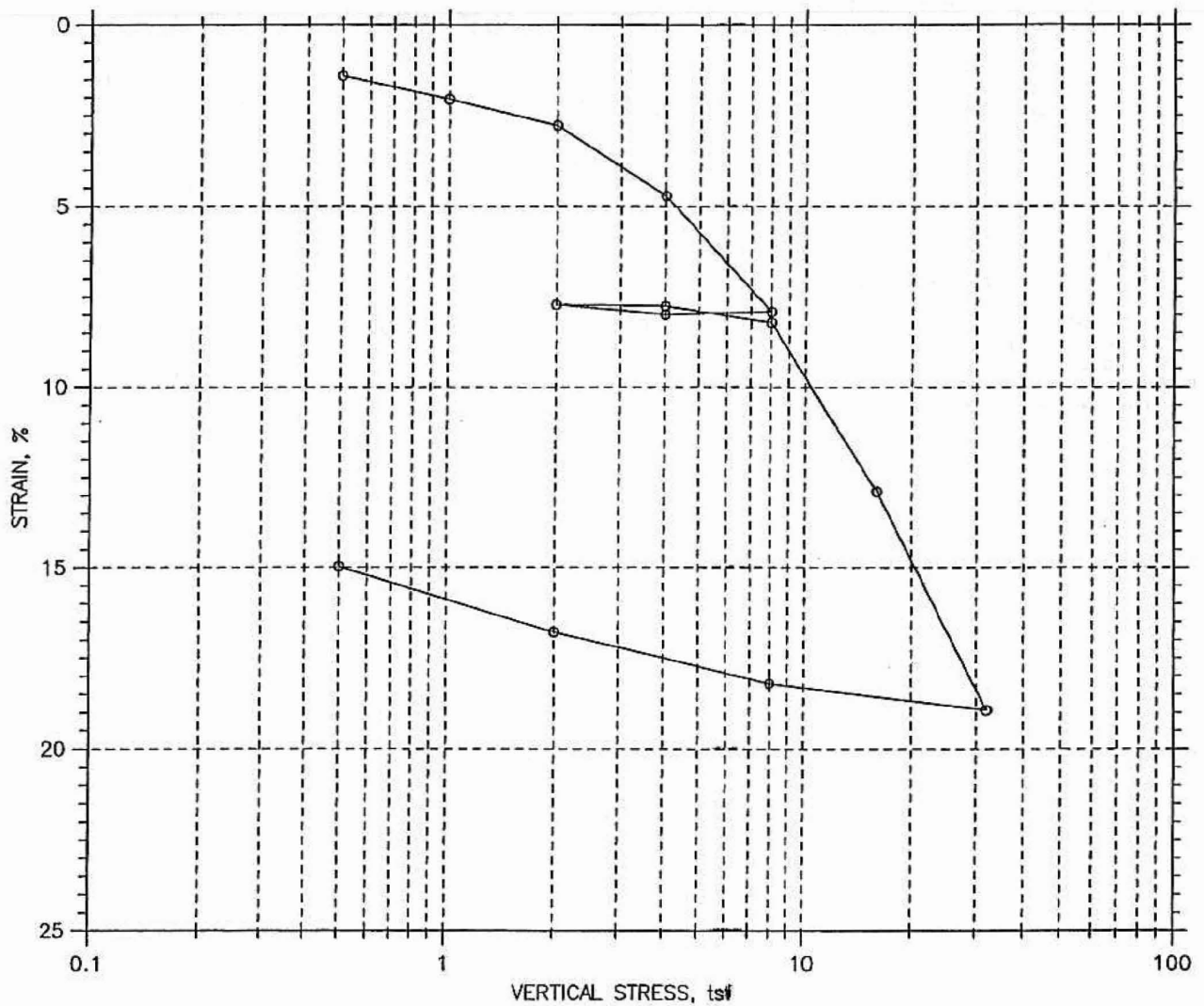


## CONSOLIDATION TEST DATA SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: ---				28.35	21.46
Preconsolidation Pressure: 5.4 tsf				90.1	106.
Compression Index: ---				89.06	100.00
Diameter: 2.5 in		Height: 1 in		0.85	0.57
LL: 49	PL: 12	PI: 37	GS: 2.67		

<b>GeoTesting express</b> <small>a subsidiary of Geocomp Corporation</small>	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		

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

Measured Specific Gravity: 2.67  
 Initial Void Ratio: 0.85  
 Final Void Ratio: 0.57

Liquid Limit: 49  
 Plastic Limit: 12  
 Plasticity Index: 37

Initial Height: 1.00 in  
 Specimen Diameter: 2.50 in

Container ID	Before Consolidation		After Consolidation	
	Trimmings	Specimen+Ring	Specimen+Ring	Trimmings
	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

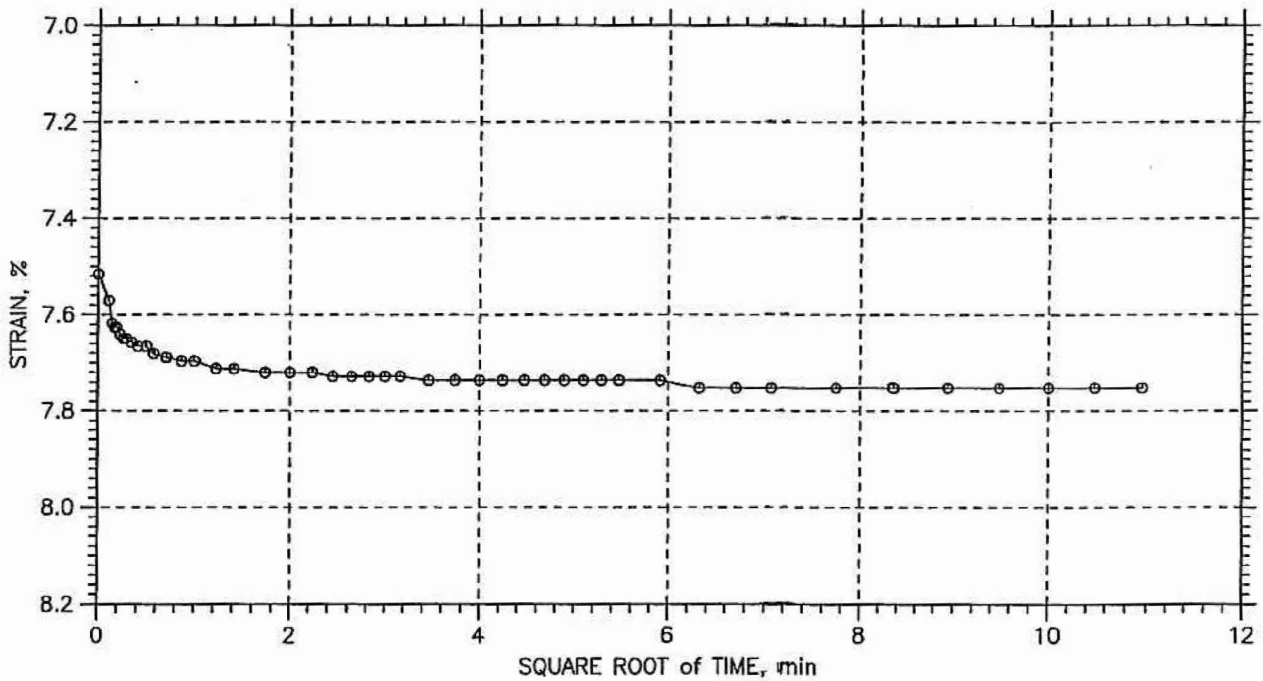
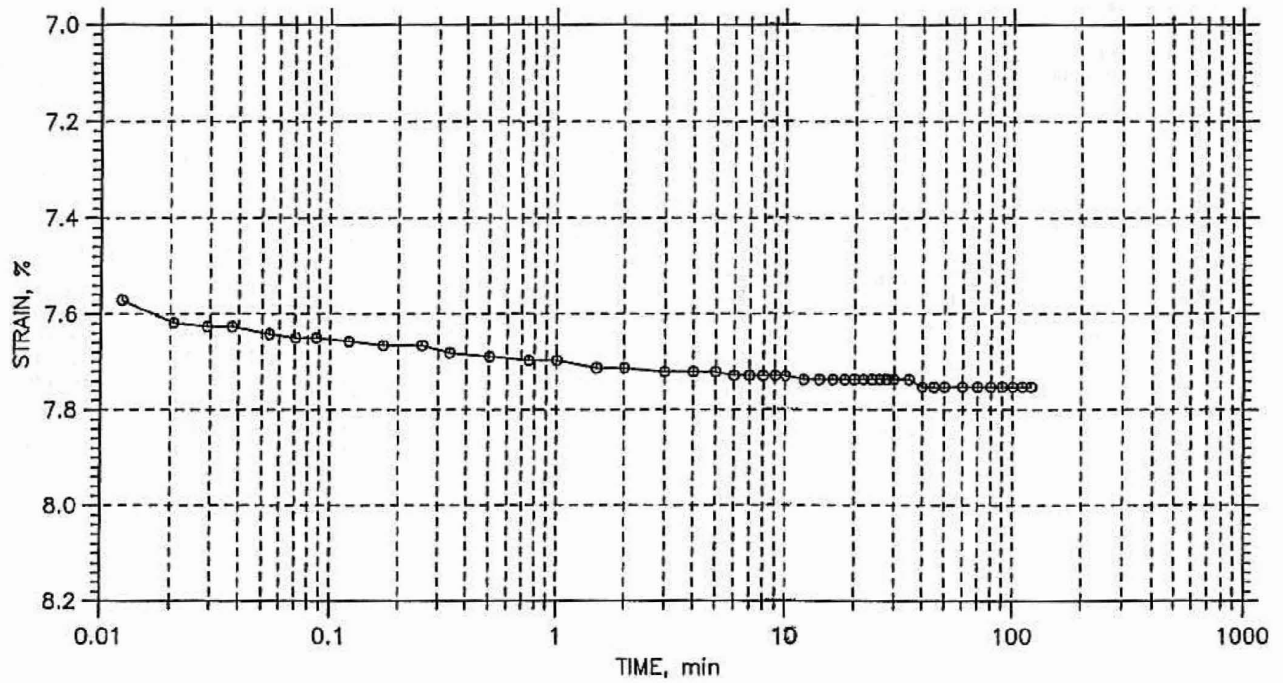
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	Fitting		Coefficient of Consolidation		
						Log min	Sq.Rt. in <sup>2</sup> /sec	Log in <sup>2</sup> /sec	Ave. in <sup>2</sup> /sec	
1	0.5	0.01405	0.824	1.40	0.1	0.0	1.01e-002	0.00e+000	1.01e-002	
2	1	0.02055	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



<b>GeoTesting</b> <b>express</b> <small>a subsidiary of Geocomp Corporation</small>	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: 09/08/08	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		

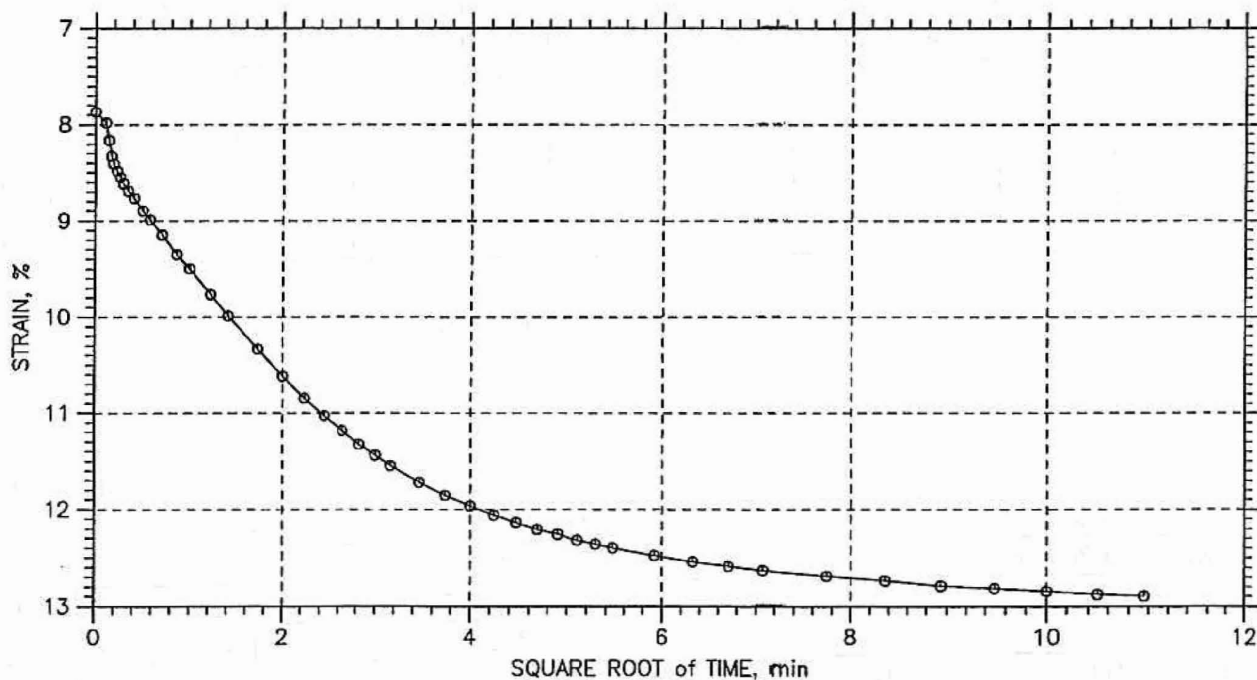
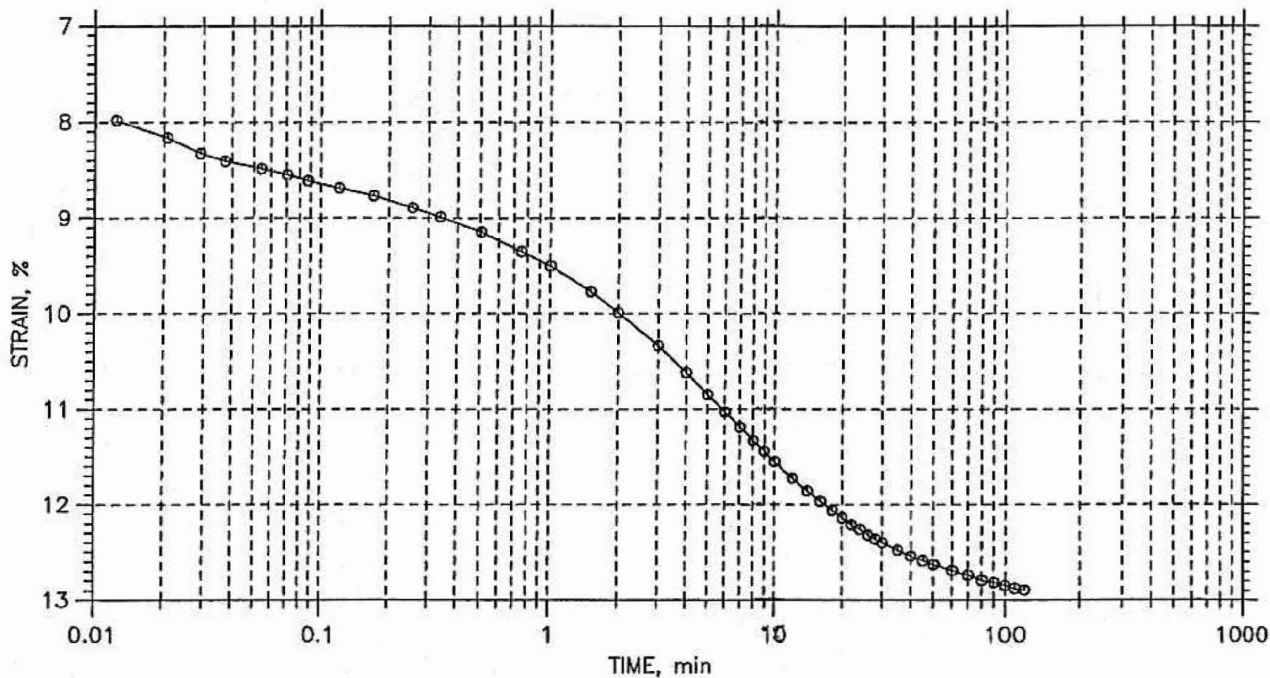


# CONSOLIDATION TEST DATA

## TIME CURVES

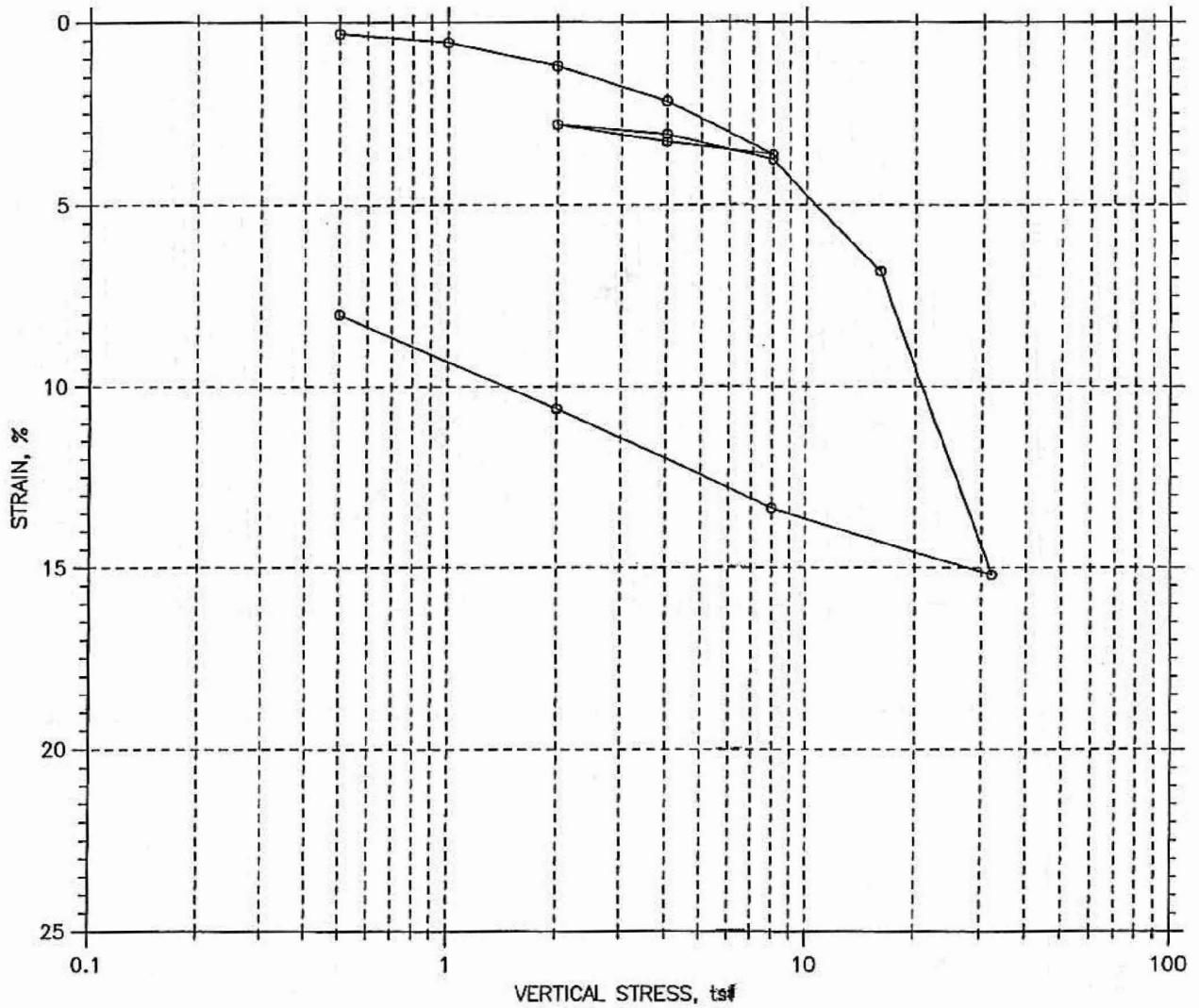
Constant Load Step: 10 of 14

Stress: 16. tsf



<b>GeoTesting</b> <b>express</b> <small>a subsidiary of Geocomp Corporation</small>	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		

## 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			

<b>GeoTesting express</b> <small>a subsidiary of Geocomp Corporation</small>	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					

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

Measured Specific Gravity: 2.73  
 Initial Void Ratio: 0.82  
 Final Void Ratio: 0.67

Liquid Limit: 58  
 Plastic Limit: 13  
 Plasticity Index: 45

Initial Height: 1.00 in  
 Specimen Diameter: 2.50 in

	Before Consolidation		After Consolidation	
	Trimming	Specimen+Ring	Specimen+Ring	Trimming
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

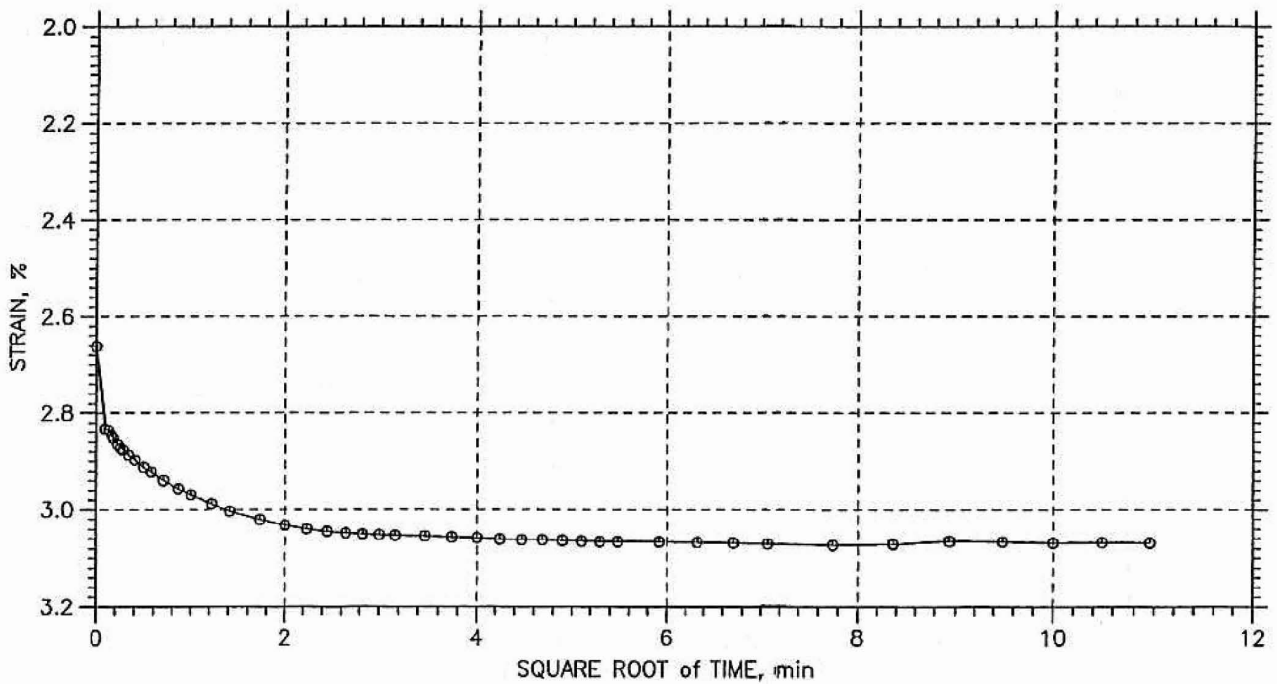
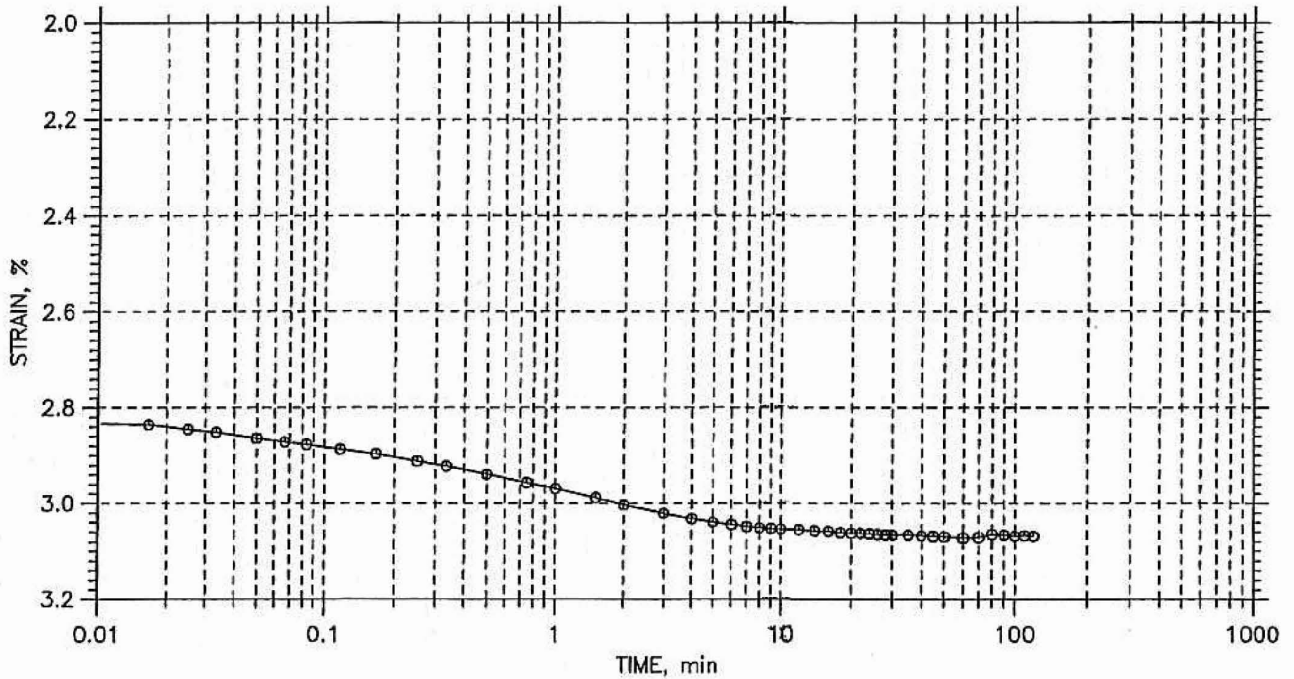
	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	T50 Fitting Sq.Rt. min	Coefficient of Consolidation			
						Fitting Log min	Sq.Rt. in <sup>2</sup> /sec	Log in <sup>2</sup> /sec	Ave. in <sup>2</sup> /sec
1	0.5	0.003141	0.813	0.31	0.0	0.0	6.14e-002	0.00e+000	6.14e-002
2	1	0.005529	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



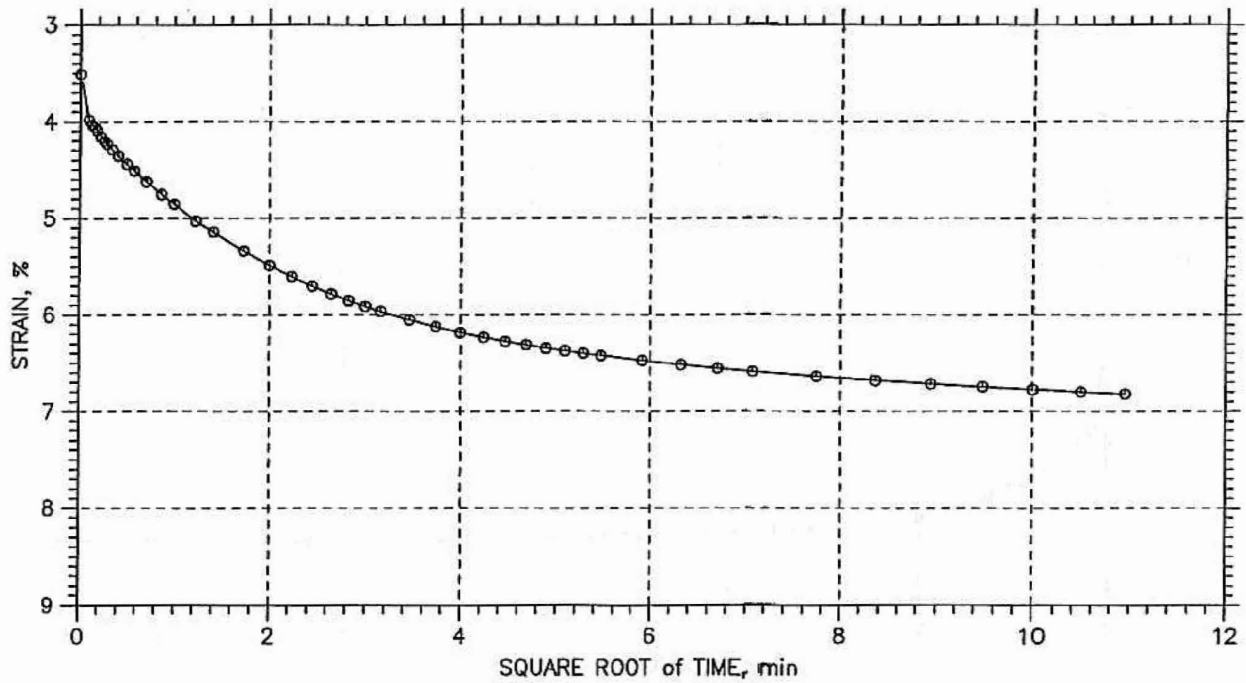
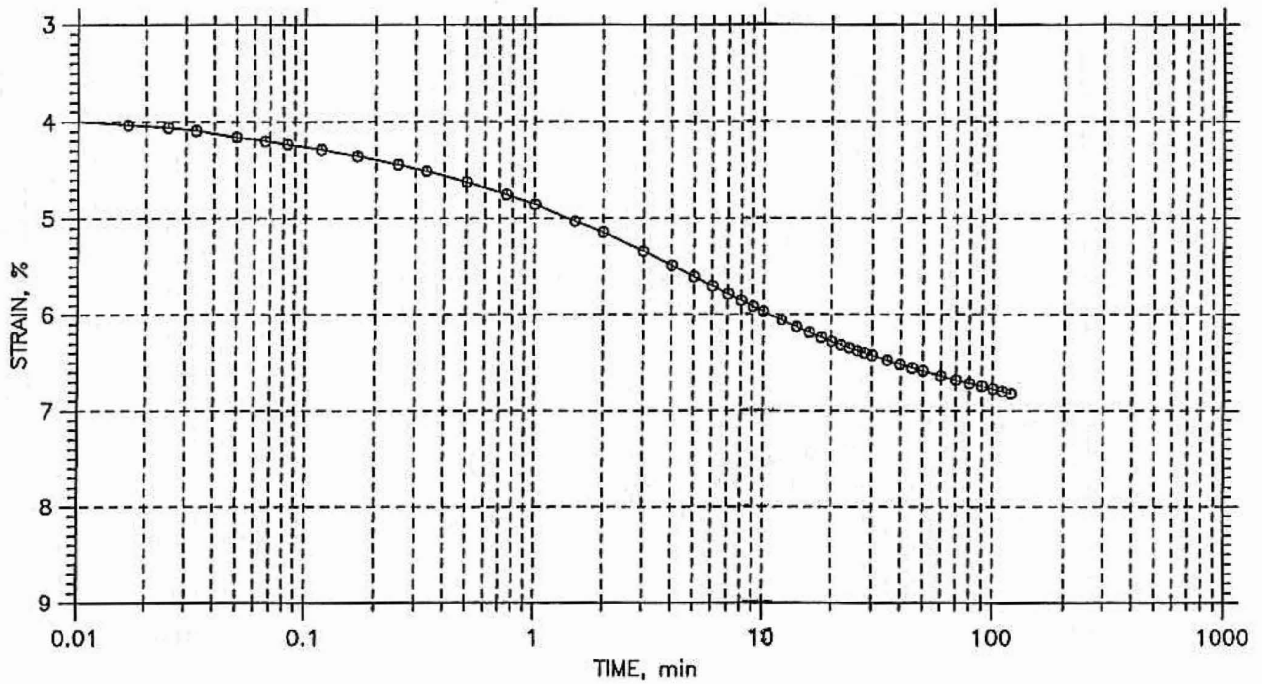
 <small>a subsidiary of Geocomp Corporation</small>	Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
	Boring No.: B-319	Tested By: md	Checked By: njh
	Sample No.: S-12	Test Date: 09/07/06	Depth: 43.5-45.2
	Test No.: C-3	Sample Type: tube	Elevation: ---
	Description: Moist,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

# CONSOLIDATION TEST DATA

## TIME CURVES

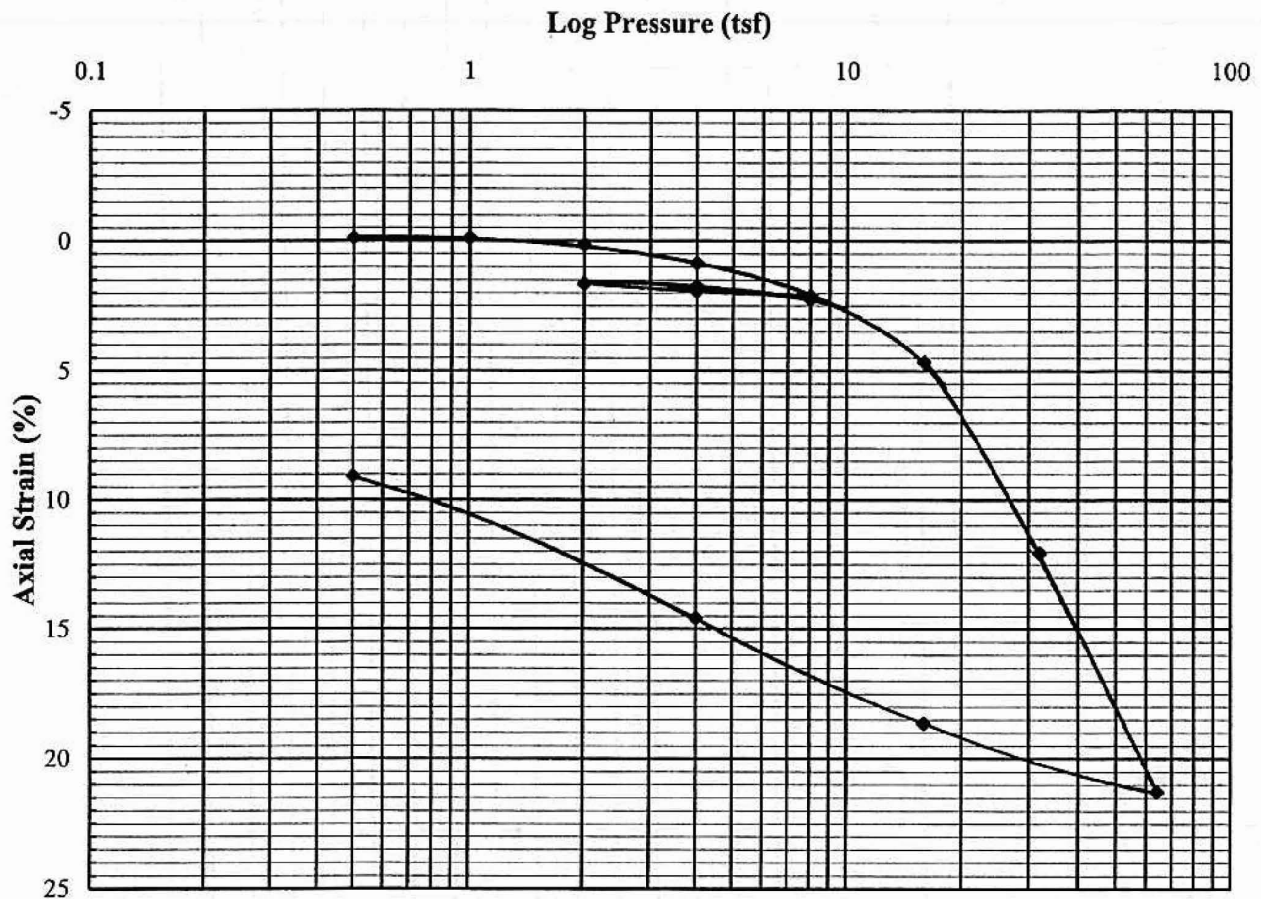
Constant Load Step: 10 of 14

Stress: 16. tsf




<b>GeoTesting</b> <b>express</b> <small>a subsidiary of Geocomp Corporation</small>	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		





Coefficient of Consolidation,  $C_v$ , equals 563 and 9 ft<sup>2</sup>/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

<b>Probable Preconsolidation Pressure (<math>P_p</math>), tsf:</b> 19				<b>Recompression Ratio (<math>C_{\alpha r}</math>):</b> 0.009	
<b>Type of Specimen:</b> Tube Sample				<b>Compression Ratio (<math>C_{\alpha c}</math>):</b> 0.306	
<b>Description:</b> LEAN CLAY (CL) - gray				<b>Initial</b>	<b>Final</b>
				<b>Water Content, %</b>	30.6
<b>LL:</b> 45	<b>PI:</b> 27	<b>Gs:</b> 2.79	<b><math>P_o'</math> (tsf):</b> 1.05	<b>Void Ratio</b>	0.84
<b>% &lt; No. 200:</b> 99.7		<b>Test Method:</b> ASTM D2435 Method A		<b>Saturation, %</b>	100
<b>Test Condition:</b> Inundated @ 4 tsf				<b>Dry Unit Weight, pcf</b>	94.4
<b>Remarks:</b> Initial specimen height set at 0.750 in.; possible range in value could be 0.732 to 0.761 inch.				<b>Project:</b> Calvert Cliffs Nuclear Power Plant	
<b>Average Water Content of Trimmings, %:</b> 31.4				<b>Location:</b> Calvert County, MD	
		<b>Boring:</b> B-321		<b>Schnabel No.:</b> 06120048	
		<b>Depth:</b> 23.5-25.5 ft		<b>Elevation:</b> 47.2 to 45.2	
		<b>Date:</b> 2/15/2007		<b>Reviewed by:</b> CJS	
		<b>Consolidation Test Report</b>			

# 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

Test Method: *ASTM D2435 Method A*

Schnabel Contract: 06120048

Test Condition: *Inundated @ 4 tsf*

Project: *Calvert Cliffs Nuclear Power Plant*

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)	Time Readings Required	Date Load Applied	Time Load Applied	Load Applied By	A	B	C	D	Vertical Strain <sup>5</sup> , $\epsilon_i$ (%)	Void Ratio <sup>6</sup> , $e_i$
					Final <sup>1</sup> Dial Reading, $D_{fi}$ $\times 10^{-4}$ in.	Apparatus Correction <sup>2</sup> , $D_{ci}$ $\times 10^{-4}$ in.	Cumulative Change in Height <sup>3</sup> , $\Delta H_i$ in.	Height of Voids <sup>4</sup> , $H_{vi}$ in.		
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:
- "Final" based on test method; 24 hrs for Method A, end of primary for Method B.
  - Correction value, for the current pressure, from the consolidometer's calibration curve.
  - $\Delta H = D_{fi} - D_o - D_{ci} = \text{Col. A} - D_o - \text{Col. B}$
  - $H_{vi} = (H_o - H_s) - \Delta H$
  - $\epsilon_i = (\Delta H / H_o) \times 100 = (\text{Col. C} / H_o) \times 100$
  - $e_i = H_{vi} / H_s = \text{Col. D} / H_s$





# 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	32 tsf Load	X tsf Load	X tsf Load	X tsf Load	X tsf Load
	10/12/2006	10/16/2006	Date	Date	Date	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						



# 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

