Schnabel Engineering

Consolidated Undrained Triaxial Compression Test

ASTM D4767

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel Contract: *06120048*
Boring No.: *B-321*
Depth: *73.5-75.5ft.*
Elevation: *-2.8 to -4.8*
Confining Stress (psi): *80.0*

Date: *10/20/2006*

Reviewed by: *CJS*

	Specimen Conditions	
	Initial	Consolidated
Diameter (in)	2.893	2.87
Height (in)	5.838	5.81
Area (in^2)	6.58	6.46
Moisture (%)	25.0	
W_{solids} (lbs)	2.15	
ρ_{wet} (pcf)	120.8	
ρ_{dry} (pcf)	96.6	98.7
Void Ratio	0.72	0.69
Saturation, %	92	100

Shear Testing Conditions	
Cell Pressure (psi):	100.0
Back Pressure (psi):	20.0
Eff. Confining Stress (psi):	80.0
Final B check	0.97
t_{50} (min.):	0.1
Rate of Strain (%/min):	0.125

Filter strips used? *NO*

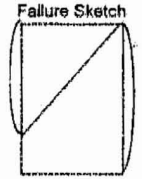
Specimen Type: *Tube Sample*

Soil Description: *Fine SILTY SAND (SM) - gray*

Liquid Limit: —
Plasticity Index: *NP*
% finer that No. 200: *15.3*
Specific Gravity: *2.67*

Remarks:

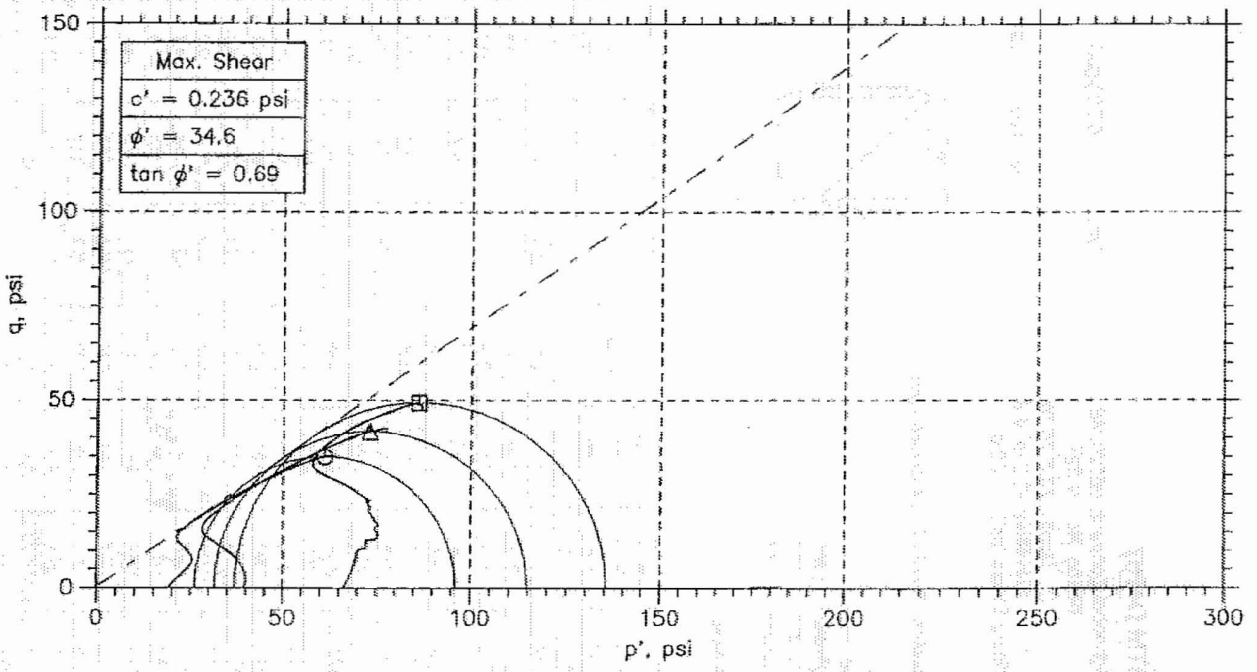
Failure Sketch

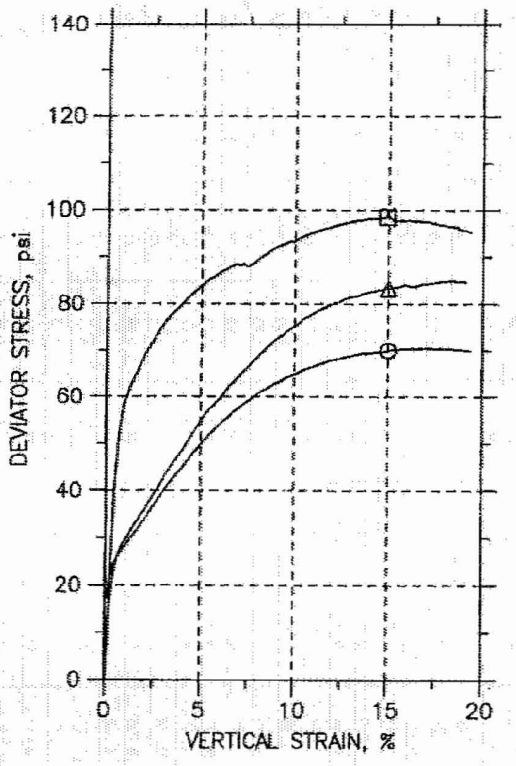


Reading No.	Deviator Load (lbs)	Corrected[1] Dev. Load (lbs.)	Axial Deformation (in.)	Axial Strain (%)	Pore Pressure (psi)	Change in Pore Press. (psi)	Corrected Area[2] (in^2)	σ_1 (psi)	σ_3 (psi)	σ'_1 (psi)	σ'_3 (psi)	Deviator Stress (psi)	Principal Stress Ratio	A_{bar}	P (psi)	P' (psi)	q (psi)
Zero	0.0	0.0	0.000	0.00	20.0	0.0	6.46	80.0	80.0	80.0	80.0	0.0	1.00	0.00	80.0	80.0	0.0
1	43.6	43.6	0.006	0.10	22.0	2.0	6.47	86.7	80.0	84.7	78.0	6.7	1.09	0.30	83.4	81.4	3.4
2	211.8	211.8	0.011	0.19	33.0	13.0	6.48	112.7	80.0	99.7	67.0	32.7	1.49	0.40	96.3	83.3	16.3
3	306.9	306.8	0.017	0.29	40.6	20.6	6.48	127.3	80.0	106.7	59.4	47.3	1.80	0.44	103.7	83.1	23.7
4	375.0	374.9	0.022	0.38	46.2	26.2	6.49	137.8	80.0	111.6	53.8	57.8	2.07	0.45	108.9	82.7	28.9
5	419.5	419.4	0.028	0.48	49.8	29.8	6.50	144.6	80.0	114.8	50.2	64.6	2.29	0.46	112.3	82.5	32.3
6	458.8	458.7	0.034	0.59	52.6	32.6	6.50	150.5	80.0	117.9	47.4	70.5	2.49	0.46	115.3	82.7	35.3
7	487.4	487.3	0.039	0.67	54.4	34.4	6.51	154.9	80.0	120.5	45.6	74.9	2.64	0.46	117.4	83.0	37.4
8	513.9	513.7	0.045	0.77	55.9	35.9	6.51	158.9	80.0	123.0	44.1	78.9	2.79	0.46	119.4	83.5	39.4
9	534.9	534.7	0.050	0.86	56.9	36.9	6.52	162.0	80.0	125.1	43.1	82.0	2.90	0.45	121.0	84.1	41.0
10	552.0	551.8	0.056	0.96	57.5	37.5	6.53	164.5	80.0	127.0	42.5	84.5	2.99	0.44	122.3	84.8	42.3
11	616.8	616.5	0.084	1.45	58.7	38.7	6.56	174.0	80.0	135.3	41.3	94.0	3.28	0.41	127.0	88.3	47.0
12	661.3	660.9	0.112	1.93	58.1	38.1	6.59	180.3	80.0	142.2	41.9	100.3	3.39	0.38	130.1	92.0	50.1
13	704.4	703.9	0.146	2.51	56.9	36.9	6.63	186.2	80.0	149.3	43.1	106.2	3.46	0.35	133.1	96.2	53.1
14	733.5	732.9	0.174	3.00	55.7	35.7	6.66	190.0	80.0	154.3	44.3	110.0	3.48	0.32	135.0	99.3	55.0
15	786.4	785.5	0.230	3.96	53.3	33.3	6.73	196.7	80.0	163.4	46.7	116.7	3.50	0.29	138.4	105.1	58.4
16	842.3	841.2	0.291	5.01	50.7	30.7	6.80	203.6	80.0	172.9	49.3	123.6	[illegible]	0.25	141.8	111.1	61.8
17	867.2	865.9	0.348	5.99	48.6	28.6	6.88	208.8	80.0	180.2	51.4	128.8	3.51	0.22	144.4	115.8	64.4
18	929.0	927.5	0.404	6.95	46.6	26.6	6.95	213.5	80.0	186.9	53.4	133.5	3.50	0.20	146.8	120.2	66.8
19	973.5	971.8	0.465	8.01	44.4	24.4	7.03	218.3	80.0	193.9	55.6	138.3	3.49	0.18	149.2	124.8	69.2
20	1014.6	1012.7	0.521	8.97	42.5	22.5	7.10	222.6	80.0	200.1	57.5	142.6	3.48	0.16	151.3	128.8	71.3
21	1051.8	1049.7	0.577	9.93	40.7	20.7	7.18	226.3	80.0	205.6	59.3	[illegible]	3.47	0.14	153.1	132.4	73.1
22	1089.0	1086.6	0.639	11.00	38.8	18.8	7.26	229.6	80.0	210.8	61.2	149.6	3.44	0.13	154.8	136.0	74.8
23	1121.5	1118.9	0.695	11.96	37.2	17.2	7.34	232.4	80.0	215.2	62.8	152.4	3.43	0.11	156.2	139.0	76.2
24	1148.3	1145.5	0.751	12.93	35.7	15.7	7.42	234.3	80.0	218.6	64.3	154.3	3.40	0.10	157.2	141.5	77.2
25	1184.2	1181.2	0.813	14.00	34.1	14.1	7.52	237.2	80.0	223.1	65.9	157.2	3.38	0.09	158.6	144.5	78.6
26	1217.5	1214.3	0.869	14.96	32.8	12.8	7.60	239.8	80.0	227.0	67.2	159.8	3.38	0.08	159.9	147.1	79.9

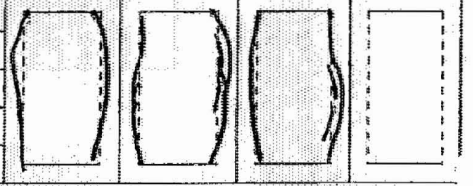
Notes: 1. Deviator load corrected for membrane and filter cage (if applicable) effects.
2. Right Cylinder Correction Method

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		○	△	□	
Sample No.		S-16	S-16	S-16	
Test No.		CU4	CU5	CU6	
Depth		63.5-65.5	63.5-65.5	63.5-65.5	
Initial	Diameter, in	2.87	2.87	2.87	
	Height, in	6.05	6	6.2	
	Water Content, %	27.0	26.8	23.2	
	Dry Density, pcf	94.64	96.94	98.	
	Saturation, %	95.2	99.8	88.8	
	Void Ratio	0.755	0.713	0.695	
Before Shear	Water Content, %	27.4	25.4	20.0	
	Dry Density, pcf	96.04	99.1	108.4	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.729	0.676	0.532	
	Back Press., psi	64.	60.98	57.99	
Ver. Eff. Cons. Stress, psi		20.	40.	70.	
Shear Strength, psi		34.99	41.66	49.27	
Strain at Failure, %		15	15	14.9	
Strain Rate, %/min		0.005	0.005	0.005	
B-Value		0.96	0.95	0.95	
Measured Specific Gravity		2.66	2.66	2.66	
Liquid Limit		72	72	72	
Plastic Limit		41	41	41	



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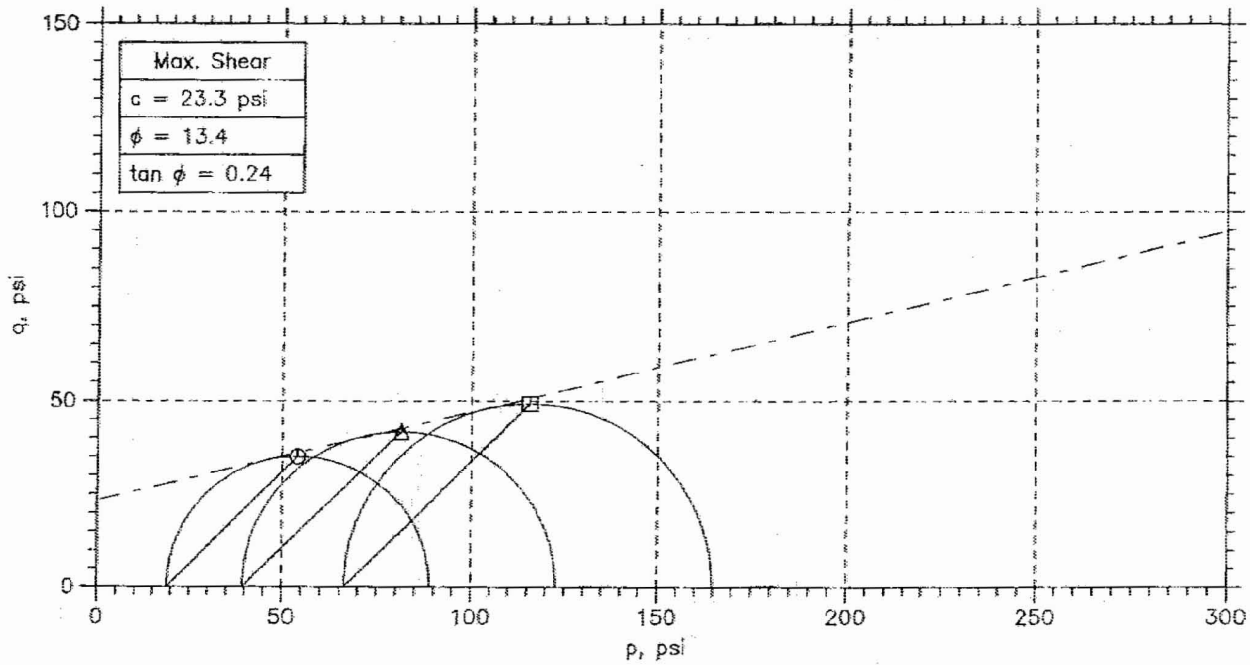
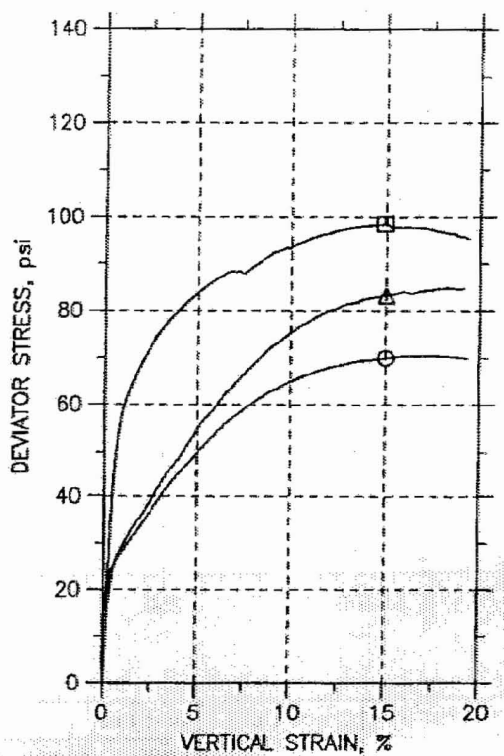
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-328
Sample Type: tube
Description: Moist, dark gray organic silt (OH), 87% passing #200 sieve
Remarks: System 0 - t50 = 84.5 min, Triaxial Rev 1.0.6.318

Wed, 15-NOV-2006 14:14:00

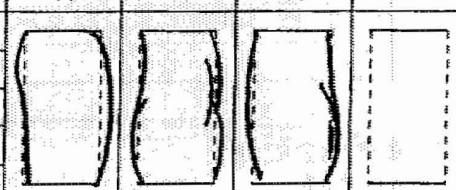
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⏲	△	⊡	
Sample No.		S-16	S-16	S-16	
Test No.		CU4	CU5	CU6	
Depth		63.5-65.5	63.5-65.5	63.5-65.5	
Initial	Diameter, in	2.87	2.87	2.87	
	Height, in	6.05	6	6.2	
	Water Content, %	27.0	26.8	23.2	
	Dry Density, pcf	94.64	96.94	98.	
	Saturation, %	95.2	99.8	88.8	
	Void Ratio	0.755	0.713	0.695	
Before Shear	Water Content, %	27.4	25.4	20.0	
	Dry Density, pcf	96.04	99.1	108.4	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.729	0.676	0.532	
	Back Press., psi	64.	60.98	57.99	
Ver. Eff. Cons. Stress, psi		20.	40.	70.	
Shear Strength, psi		34.99	41.66	49.27	
Strain at Failure, %		15	15	14.9	
Strain Rate, %/min		0.005	0.005	0.005	
B-Value		0.96	0.95	0.95	
Measured Specific Gravity		2.66	2.66	2.66	
Liquid Limit		72	72	72	
Plastic Limit		41	41	41	



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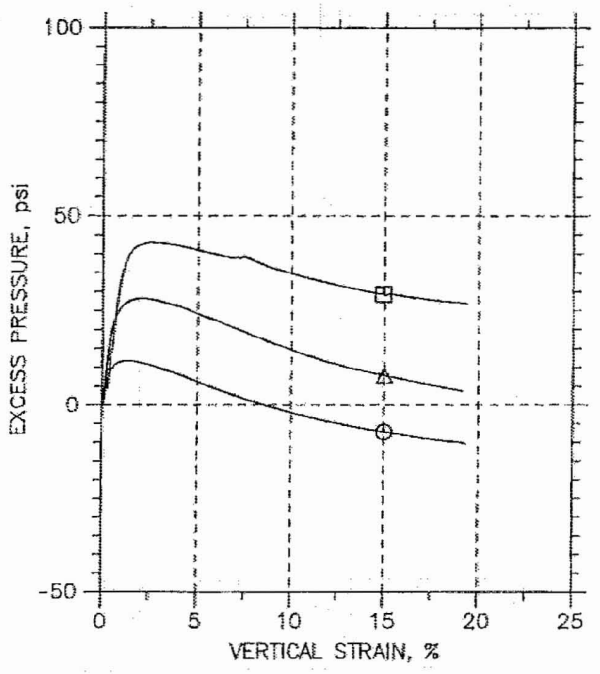
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-328
Sample Type: tube
Description: Moist, dark gray organic silt (OH), 87% passing #200 sieve
Remarks: System 0 - t50 = 84.5 min, Triaxial Rev 1.0.6.318

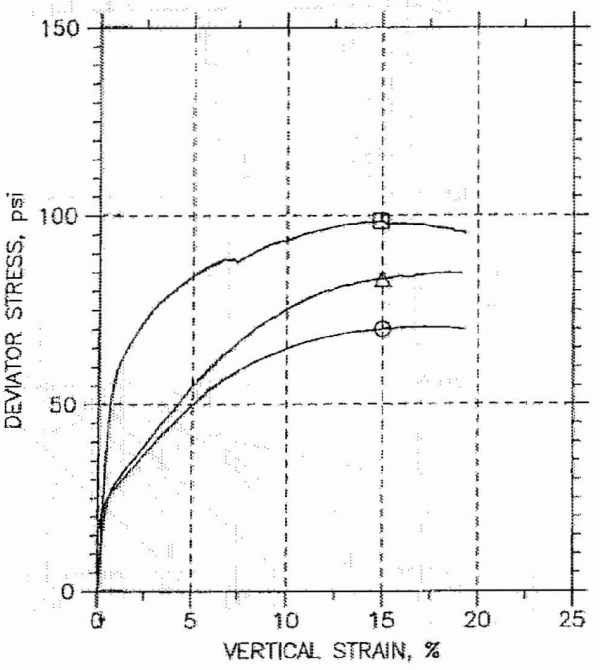
Phase calculations based on start and end of test.

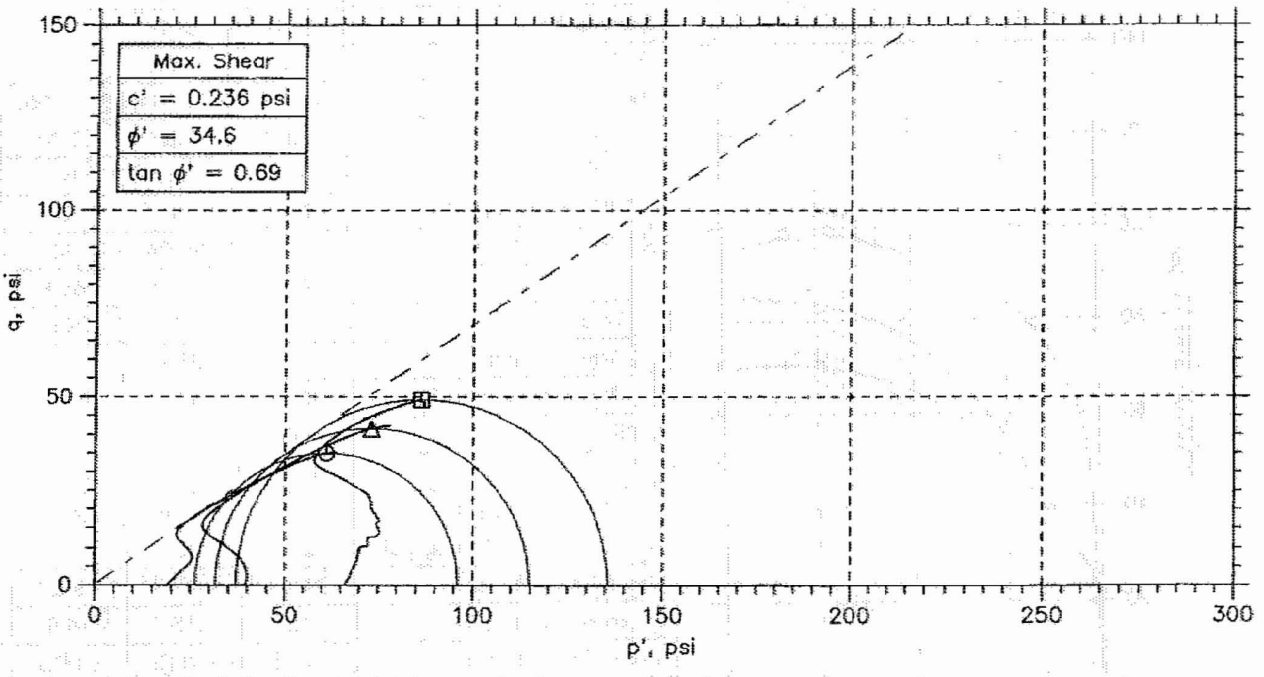
Thu, 16-NOV-2006 14:10:49

* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	S-16	CU4	63.5-65.5	njh	09/21/06	jdt		6880-cu4n.dat
△	S-16	CU5	63.5-65.5	njh	09/20/06	jdt		6880-CU5n.dat
□	S-16	CU6	63.5-65.5	njh	09/19/06	jdt		6880-CU6an.dat

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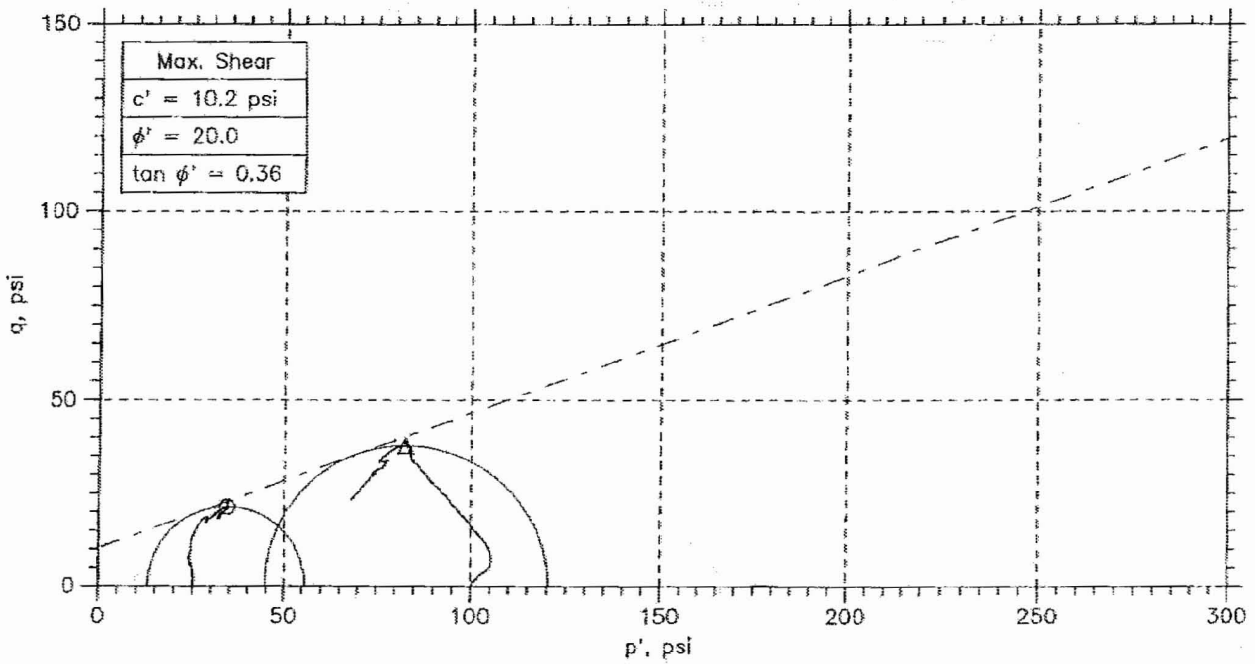
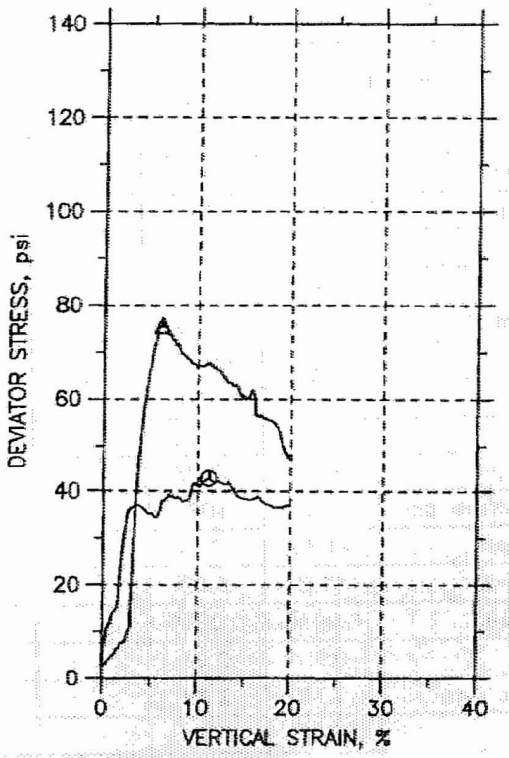
Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-328	Sample Type: tube	
Description: Moist, dark gray organic silt (OH), 87% passing #200 sieve		
Remarks: System 0 - t50 = 84.5 min, Triaxial Rev 1.0.6.318		

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△		
Sample No.		S-17	S-17		
Test No.		CU18	CU19		
Depth		68-70	68-70		
Initial	Diameter, in	2.87	2.87		
	Height, in	6.07	5.9		
	Water Content, %	35.1	36.5		
	Dry Density, pcf	84.52	83.09		
	Saturation, %	92.6	93.1		
	Void Ratio	1.05	1.09		
Before Shear	Water Content, %	38.5	33.6		
	Dry Density, pcf	83.86	89.77		
	Saturation*, %	100.0	100.0		
	Void Ratio	1.07	0.933		
	Back Press., psi	115.	87.83		
Ver. Eff. Cons. Stress, psi		25.	100.		
Shear Strength, psi		21.35	37.82		
Strain at Failure, %		11.2	6.06		
Strain Rate, %/min		0.0036	0.0036		
B-Value		0.95	0.94		
Measured Specific Gravity		2.78	2.78		
Liquid Limit		51	51		
Plastic Limit		15	15		

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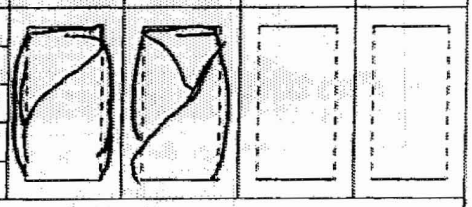
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-414
Sample Type: tube

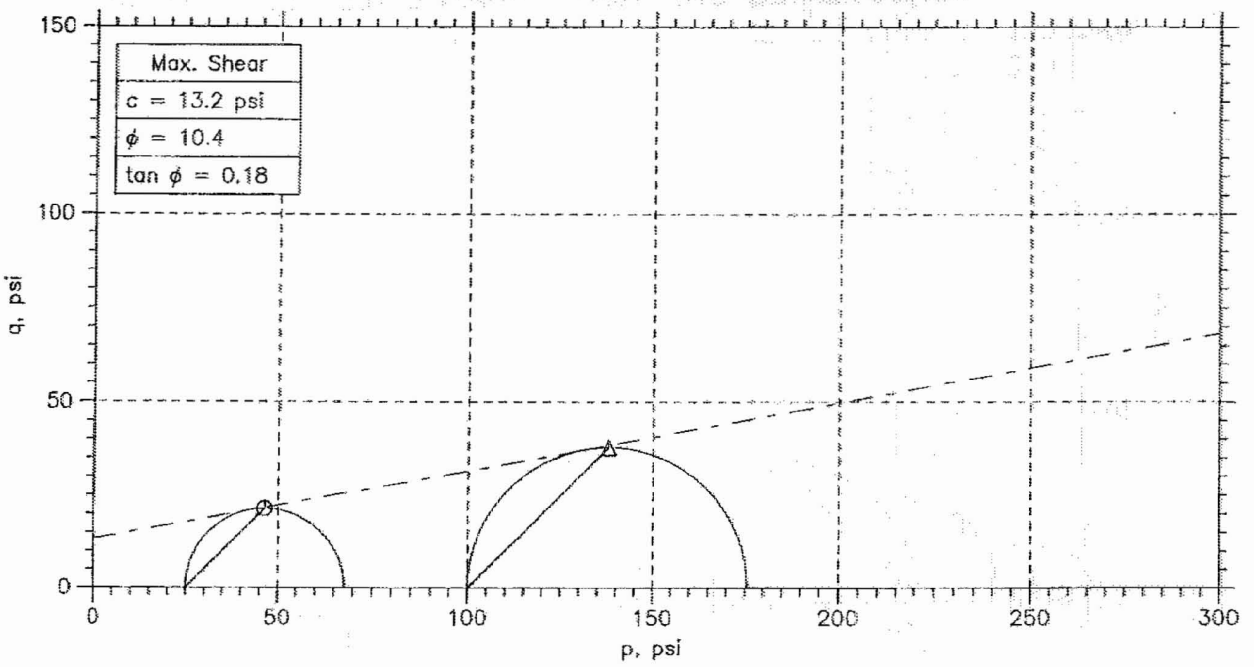


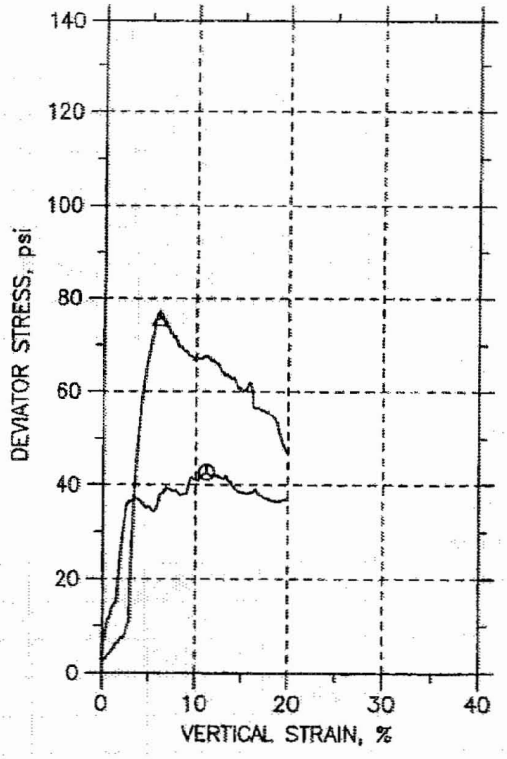
Description: Moist, dark greenish gray clay (CH), 97% passing the #200 sieve
Remarks: System B - t50 = 112.5 min, Triaxial 1.0.6.318

Wed, 15-NOV-2006 18:17:22

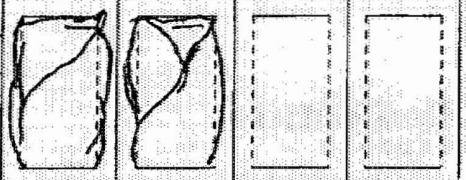
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⏀	△		
Sample No.		S-17	S-17		
Test No.		CU18	CU19		
Depth		68-70	68-70		
Initial	Diameter, in	2.87	2.87		
	Height, in	6.07	5.9		
	Water Content, %	35.1	36.5		
	Dry Density, pcf	84.52	83.09		
	Saturation, %	92.6	93.1		
	Void Ratio	1.05	1.09		
Before Shear	Water Content, %	38.5	33.6		
	Dry Density, pcf	83.86	89.77		
	Saturation*, %	100.0	100.0		
	Void Ratio	1.07	0.933		
	Back Press., psi	115.	87.83		
Ver. Eff. Cons. Stress, psi		25.	100.		
Shear Strength, psi		21.35	37.82		
Strain at Failure, %		11.2	6.06		
Strain Rate, %/min		0.0036	0.0036		
B-Value		0.95	0.94		
Measured Specific Gravity		2.78	2.78		
Liquid Limit		51	51		
Plastic Limit		15	15		



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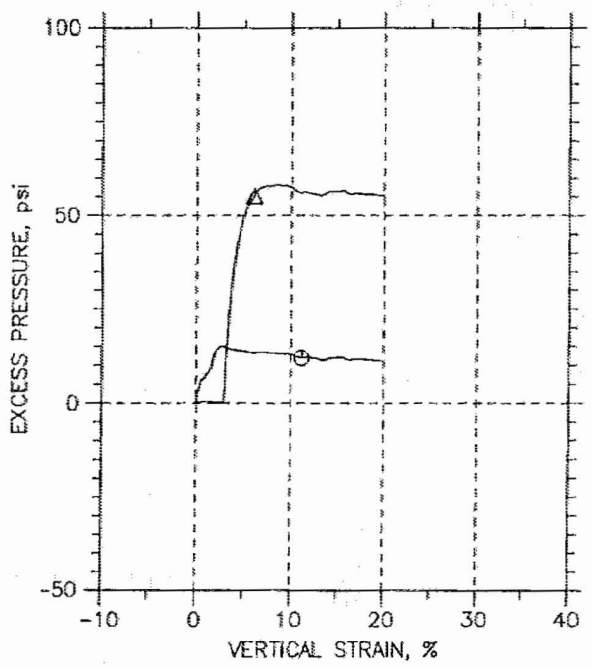
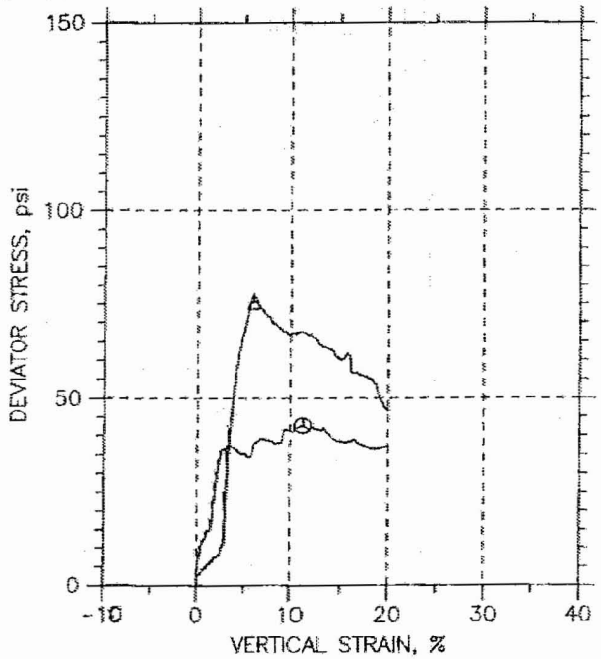
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-414
Sample Type: tube
Description: Moist, dark greenish gray clay (CH), 97% passing the #200 sieve
Remarks: System B - t50 = 112.5 min, Triaxial 1.0.6.318

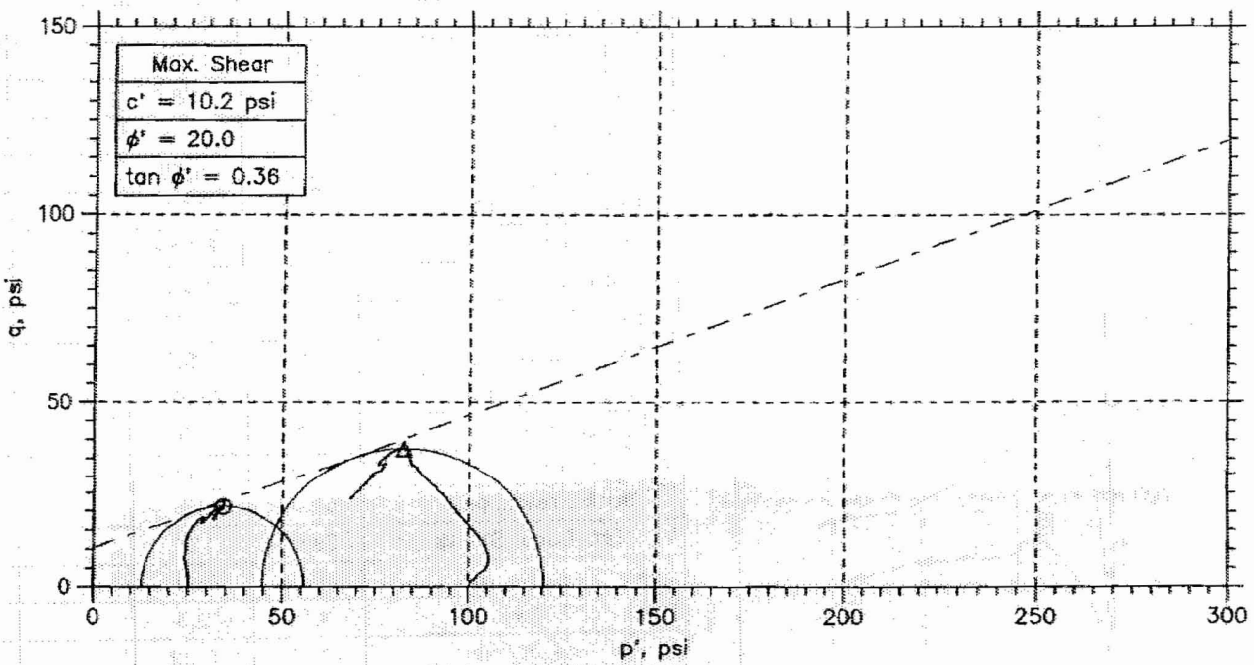
Thu, 16-NOV-2006 14:15:26

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	S-17	CU18	68-70	njh	11/06/06	jdt		6880-CU18.dat
△	S-17	CU19	68-70	njh	11/06/06	jdt		6880-CU19.dat

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Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-414	Sample Type: tube	
Description: Moist, dark greenish gray clay (CH), 97% passing the #200 sieve		
Remarks: System B - t50 = 112.5 min, Triaxial 1.0.6.318		

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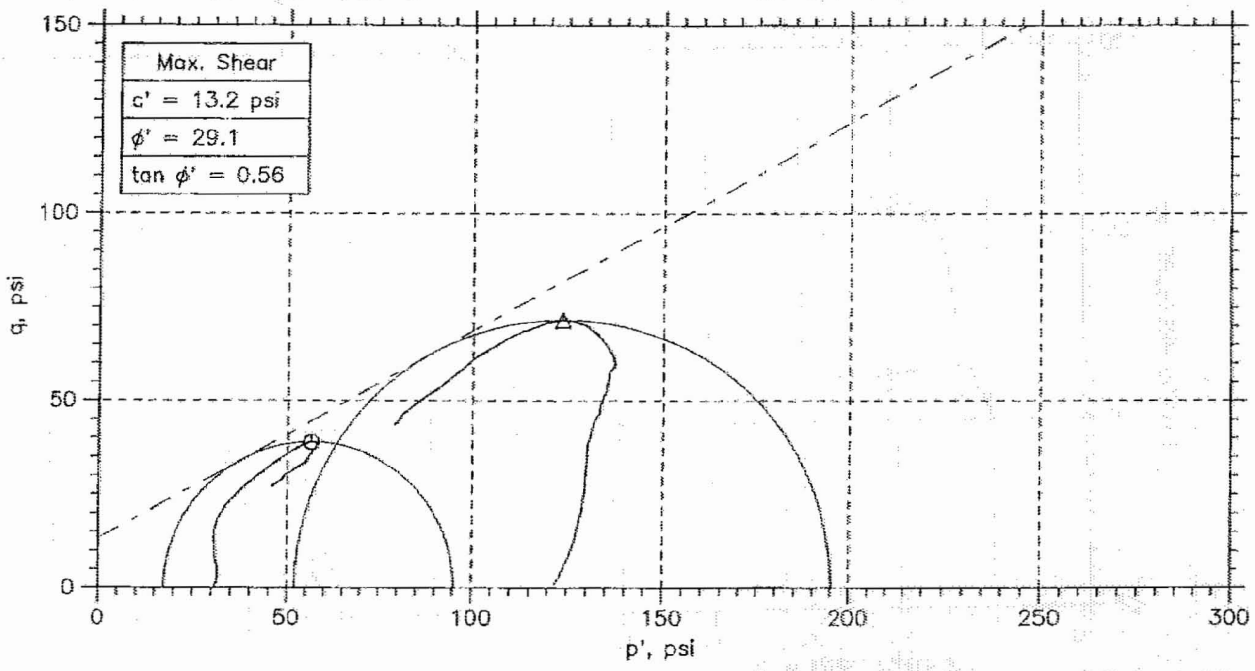
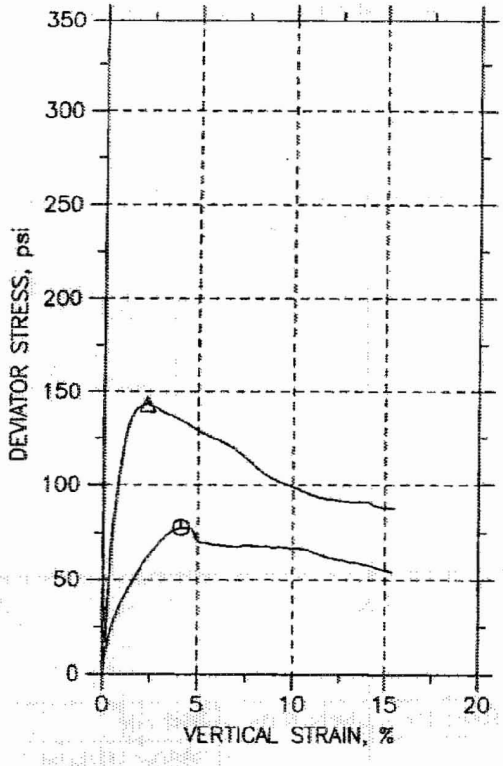
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⏲	△		
Sample No.		S-29	S-29		
Test No.		CU16	CU17		
Depth		128.5	128.5		
Initial	Diameter, in	2.87	2.86		
	Height, in	5.9	5.78		
	Water Content, %	32.6	35.5		
	Dry Density, pcf	87.99	80.59		
	Saturation, %	99.5	90.2		
	Void Ratio	0.859	1.03		
Before Shear	Water Content, %	37.9	35.6		
	Dry Density, pcf	82.05	84.62		
	Saturation*, %	100.0	100.0		
	Void Ratio	0.994	0.933		
	Back Press., psi	52.01	37.		
Ver. Eff. Cons. Stress, psi		29.98	120.		
Shear Strength, psi		38.91	71.57		
Strain at Failure, %		4.11	2.3		
Strain Rate, %/min		0.02	0.02		
B-Value		0.95	0.95		
Measured Specific Gravity		2.62	2.62		
Liquid Limit		59	59		
Plastic Limit		34	34		

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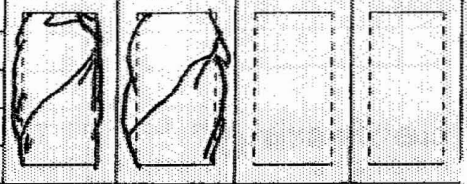
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-420
Sample Type: tube

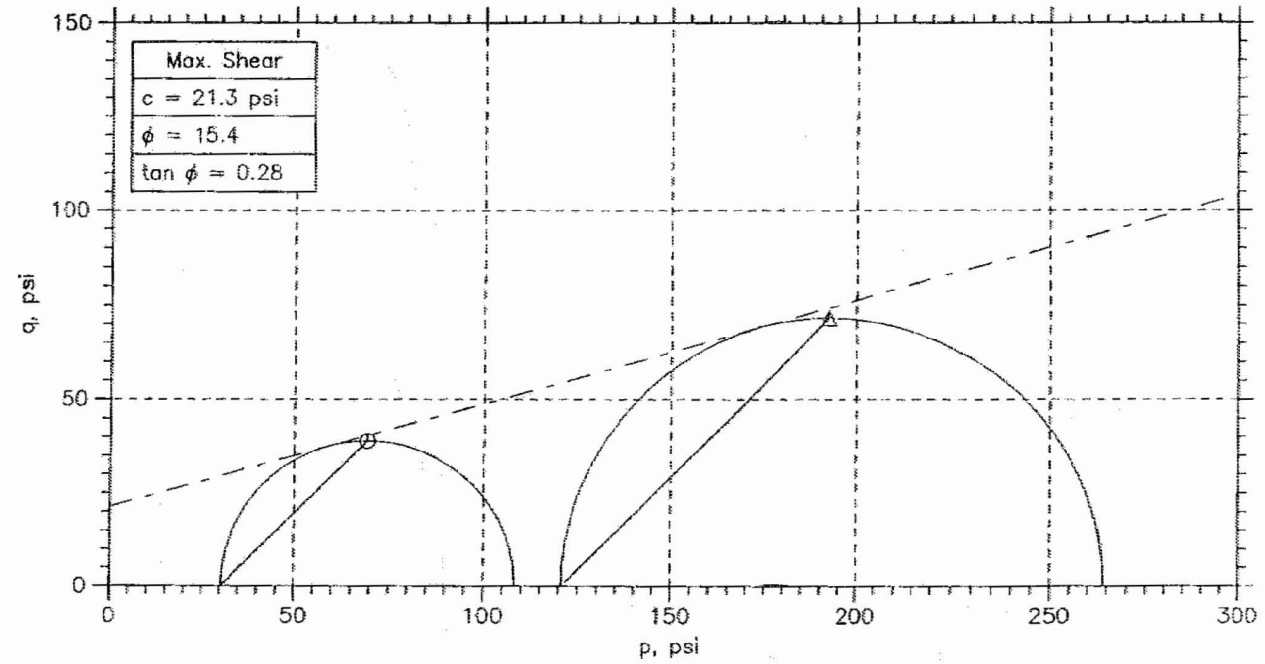


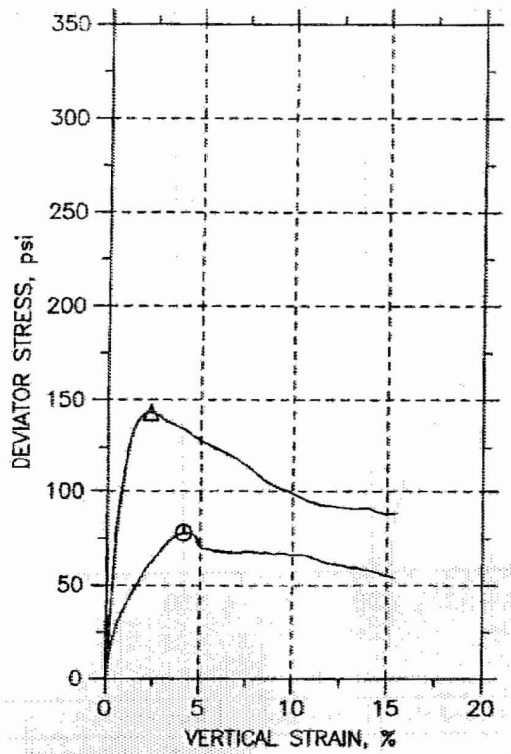
Description: Moist, very dark grayish brown sandy organic silt (OH), 50% passing #200 sieve
Remarks: System B - t50 = 18 min, Triaxial Rev 1.0.6.318

Wed, 15-NOV-2006 17:42:55

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⏀	△		
Sample No.		S-29	S-29		
Test No.		CU16	CU17		
Depth		128.5	128.5		
Initial	Diameter, in	2.87	2.86		
	Height, in	5.9	5.78		
	Water Content, %	32.6	35.5		
	Dry Density, pcf	87.99	80.59		
	Saturation, %	99.5	90.2		
	Void Ratio	0.859	1.03		
Before Shear	Water Content, %	37.9	35.6		
	Dry Density, pcf	82.05	84.62		
	Saturation*, %	100.0	100.0		
	Void Ratio	0.994	0.933		
	Back Press., psi	52.01	37.		
Ver. Eff. Cons. Stress, psi		29.98	120.		
Shear Strength, psi		38.91	71.57		
Strain at Failure, %		4.11	2.3		
Strain Rate, %/min		0.02	0.02		
B-Value		0.95	0.95		
Measured Specific Gravity		2.62	2.62		
Liquid Limit		59	59		
Plastic Limit		34	34		

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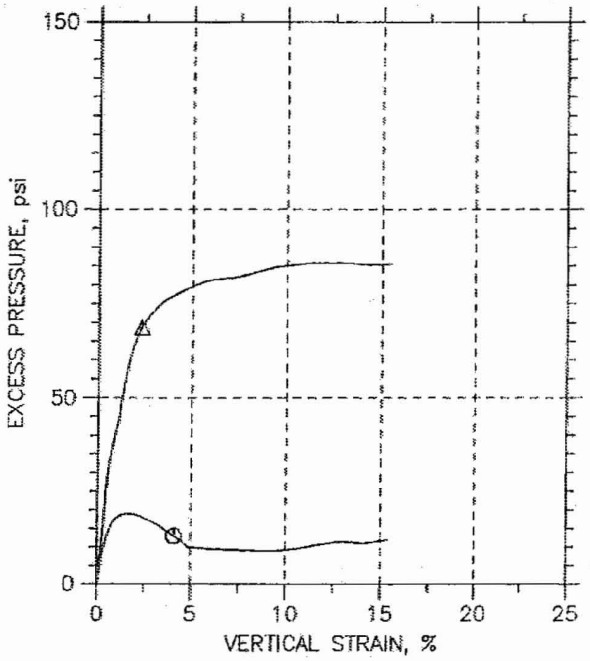
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-420
Sample Type: tube

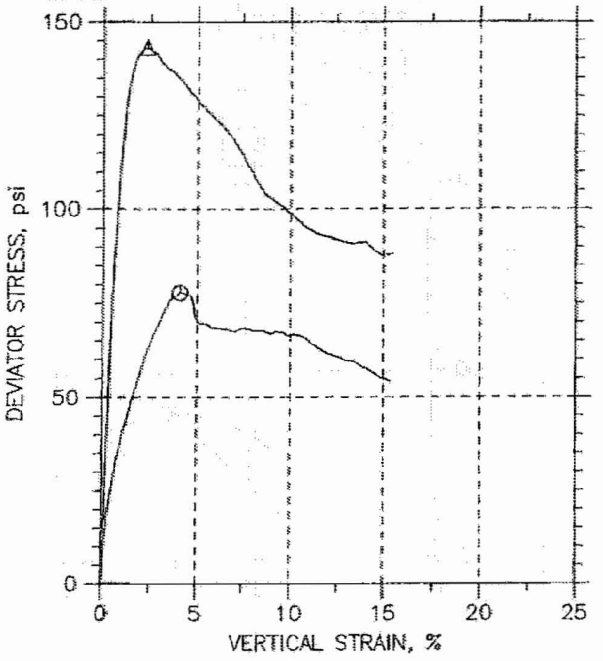
Description: Moist, very dark grayish brown sandy organic silt (OH), 50% passing #200 sieve
Remarks: System B - t50 = 18 min, Triaxial Rev 1.0.6.318

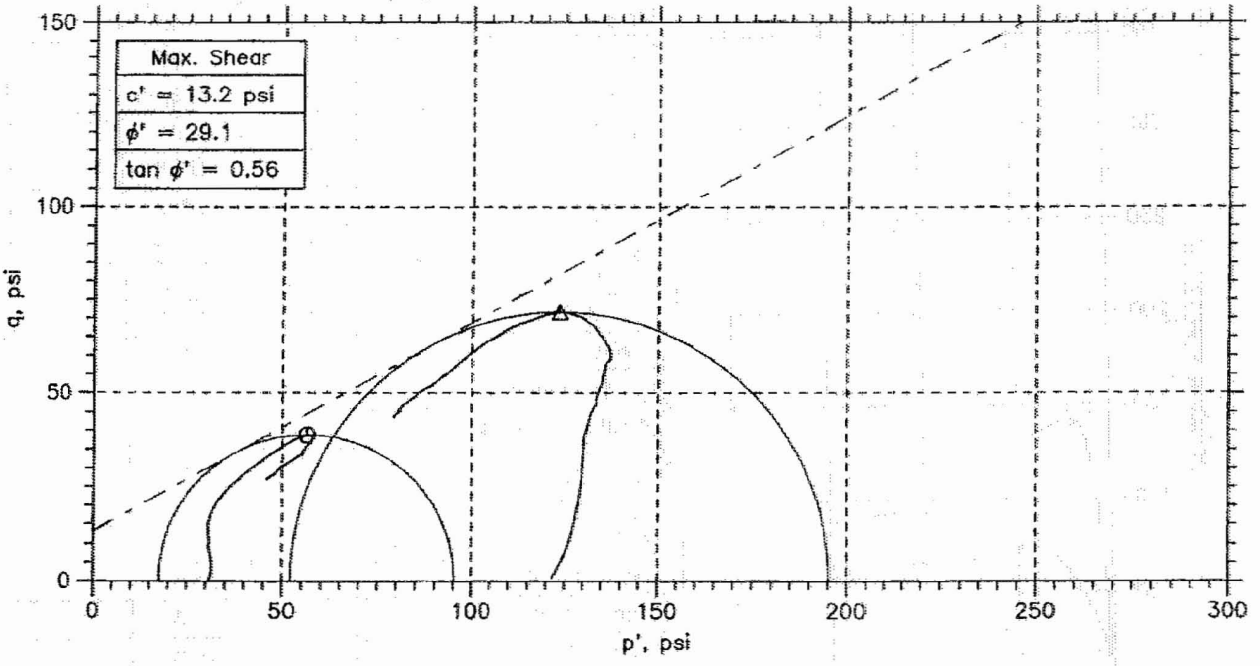
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

Thu, 16-NOV-2006 14:14:33

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⏲	S-29	CU16	128.5	njh	11/03/06	jdt		6880-CU16n.dat
△	S-29	CU17	128.5	njh	11/03/06	jdt		6880-CU17n.dat

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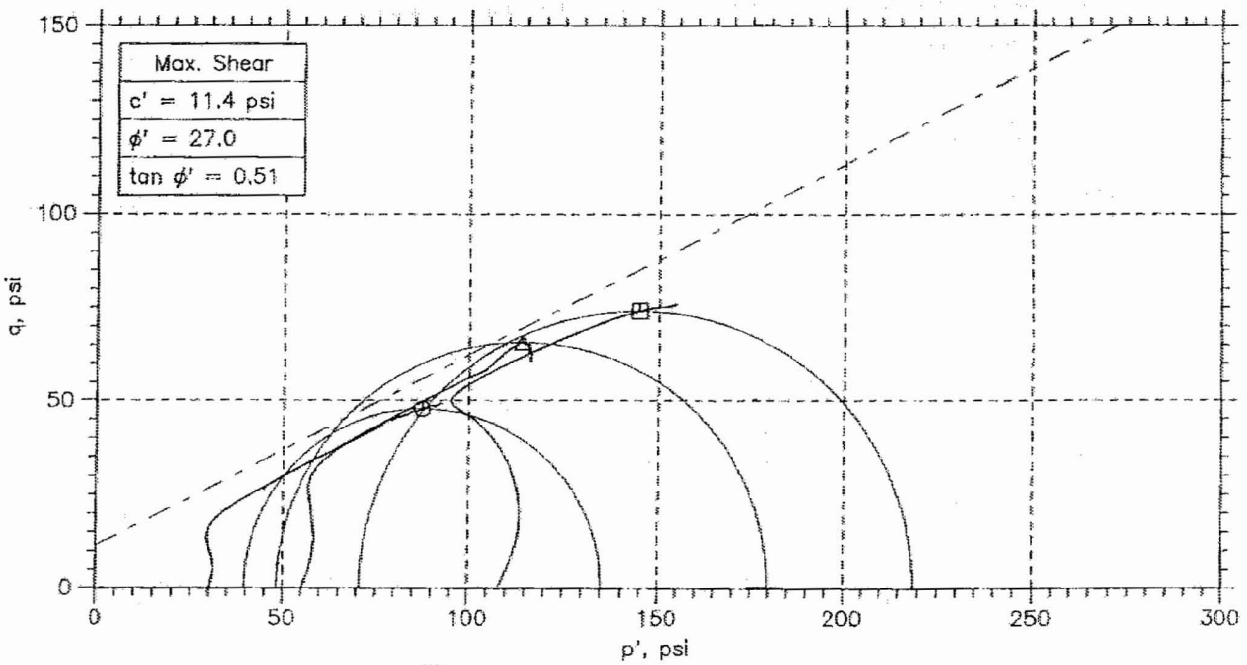
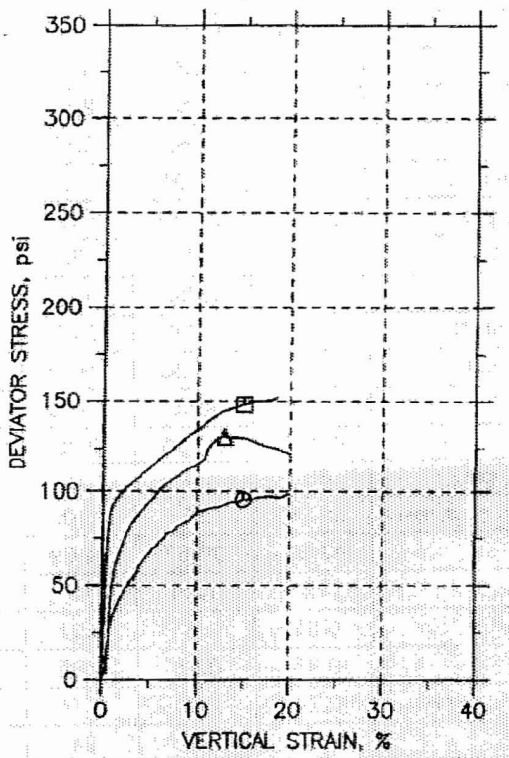
Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-420	Sample Type: tube	
Description: Moist, very dark grayish brown sandy organic silt (OH), 50% passing #200 sieve		
Remarks: System B - t50 = 18 min, Triaxial Rev 1.06.318		

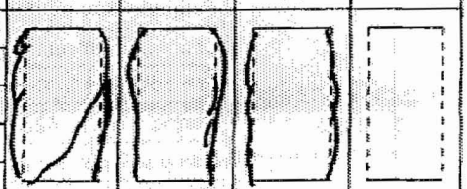
Wed, 15-NOV-2006 17:43:03

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		S-24	S-24	S-24	
Test No.		CU10	CU11A	CU12	
Depth		103.5	103.5	103.5	
Initial	Diameter, in	2.87	2.87	2.87	
	Height, in	5.82	5.85	5.85	
	Water Content, %	26.6	22.6	23.1	
	Dry Density, pcf	93.43	95.13	97.17	
	Saturation, %	87.7	77.7	83.1	
	Void Ratio	0.831	0.798	0.76	
Before Shear	Water Content, %	27.2	26.9	26.3	
	Dry Density, pcf	98.04	98.36	99.47	
	Saturation*, %	100.0	99.9	100.0	
	Void Ratio	0.745	0.739	0.72	
	Back Press., psi	85.	79.	70.	
Ver. Eff. Cons. Stress, psi		29.99	55.	110.	
Shear Strength, psi		47.81	65.67	74.09	
Strain at Failure, %		15	12.9	15	
Strain Rate, %/min		0.01	0.01	0.01	
B-Value		0.95	0.95	0.95	
Measured Specific Gravity		2.74	2.74	2.74	
Liquid Limit		24	24	24	
Plastic Limit		18	18	18	



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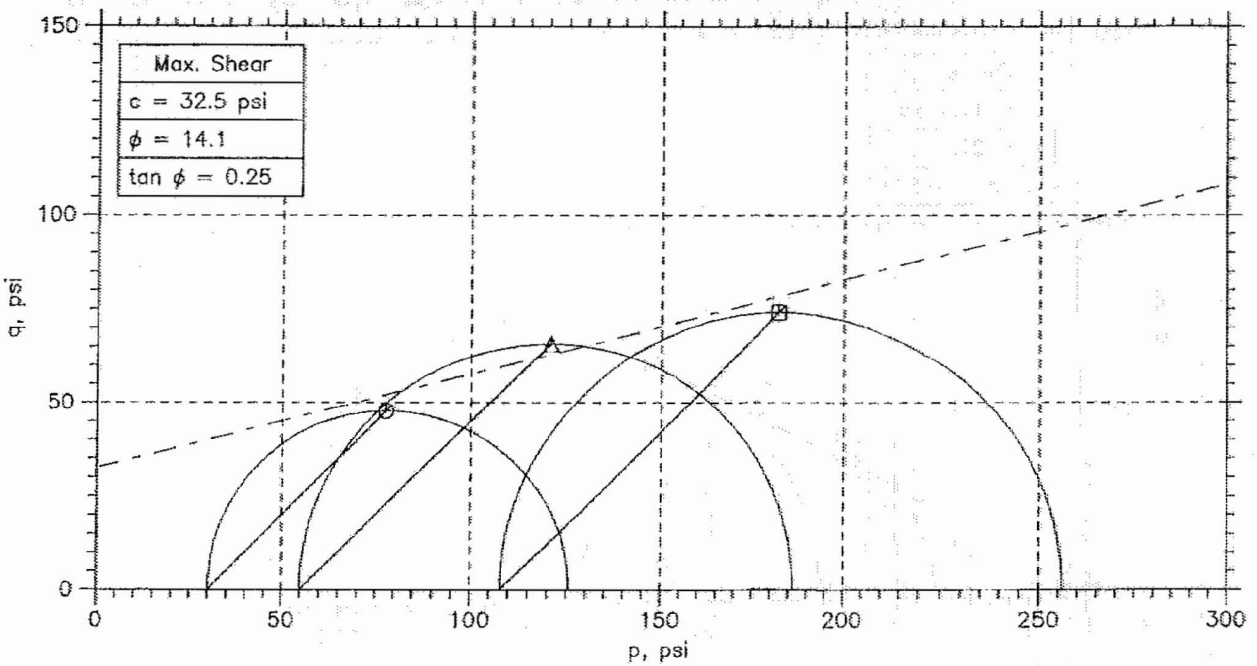
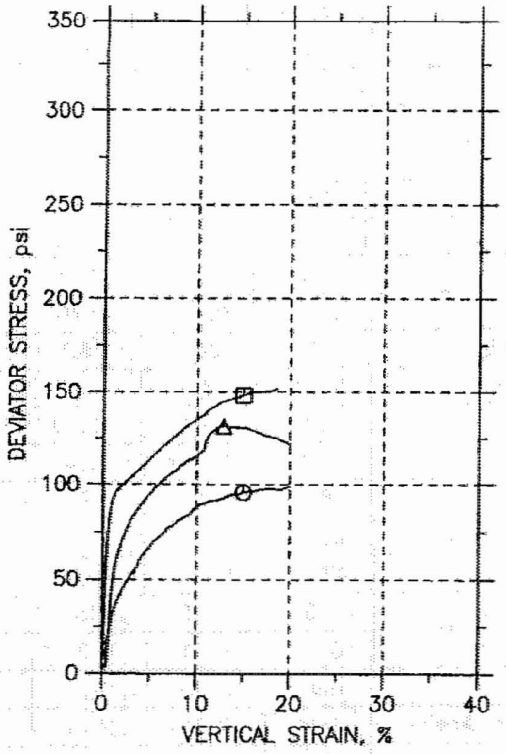
Project: Calvert Cliffs Nuclear PP
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-423
Sample Type: tube
Description: Moist, dark olive gray sand with silty clay (SP-SC), 10% passing #200 sieve
Remarks: System F - t50 = 40.5 min, Triaxial Rev 1.0.6.318

Wed, 15-NOV-2006 15:45:22

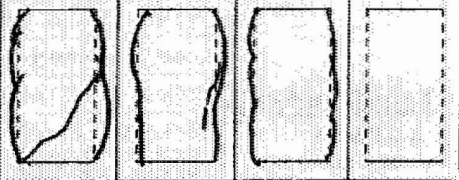
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		S-24	S-24	S-24	
Test No.		CU10	CU11A	CU12	
Depth		103.5	103.5	103.5	
Initial	Diameter, in	2.87	2.87	2.87	
	Height, in	5.82	5.85	5.85	
	Water Content, %	26.6	22.6	23.1	
	Dry Density, pcf	93.43	95.13	97.17	
	Saturation, %	87.7	77.7	83.1	
	Void Ratio	0.831	0.798	0.76	
Before Shear	Water Content, %	27.2	26.9	26.3	
	Dry Density, pcf	98.04	98.36	99.47	
	Saturation*, %	100.0	99.9	100.0	
	Void Ratio	0.745	0.739	0.72	
	Back Press., psi	85.	79.	70.	
Ver. Eff. Cons. Stress, psi		29.99	55.	110.	
Shear Strength, psi		47.81	65.67	74.09	
Strain at Failure, %		15	12.9	15	
Strain Rate, %/min		0.01	0.01	0.01	
B-Value		0.95	0.95	0.95	
Measured Specific Gravity		2.74	2.74	2.74	
Liquid Limit		24	24	24	
Plastic Limit		18	18	18	



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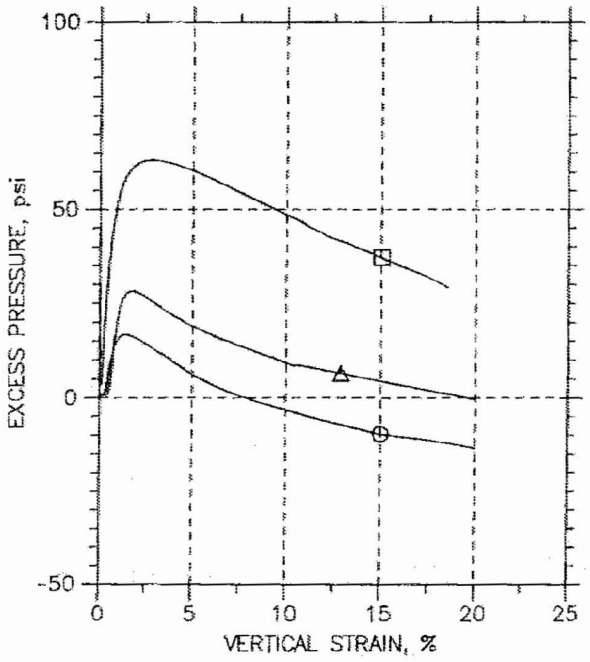
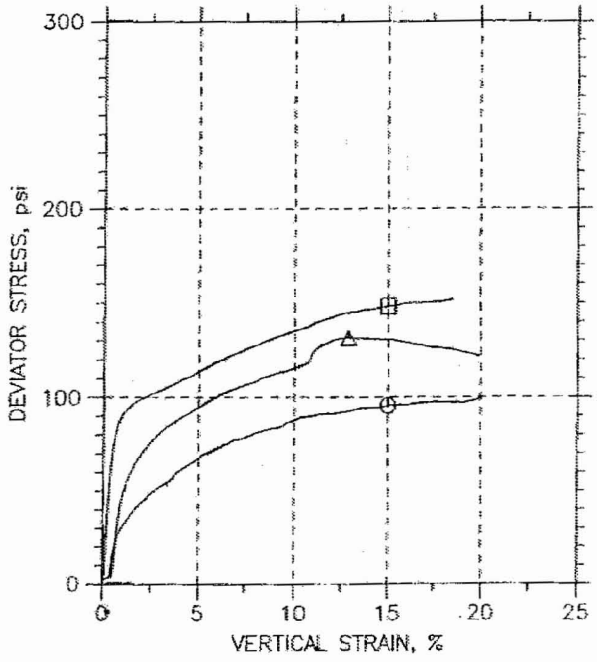
Project: Calvert Cliffs Nuclear PP
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-423
Sample Type: tube
Description: Moist, dark olive gray sand with silty clay (SP-SC), 10% passing #200 sieve
Remarks: System F - t50 = 40.5 min, Triaxial Rev 1.0.6.318

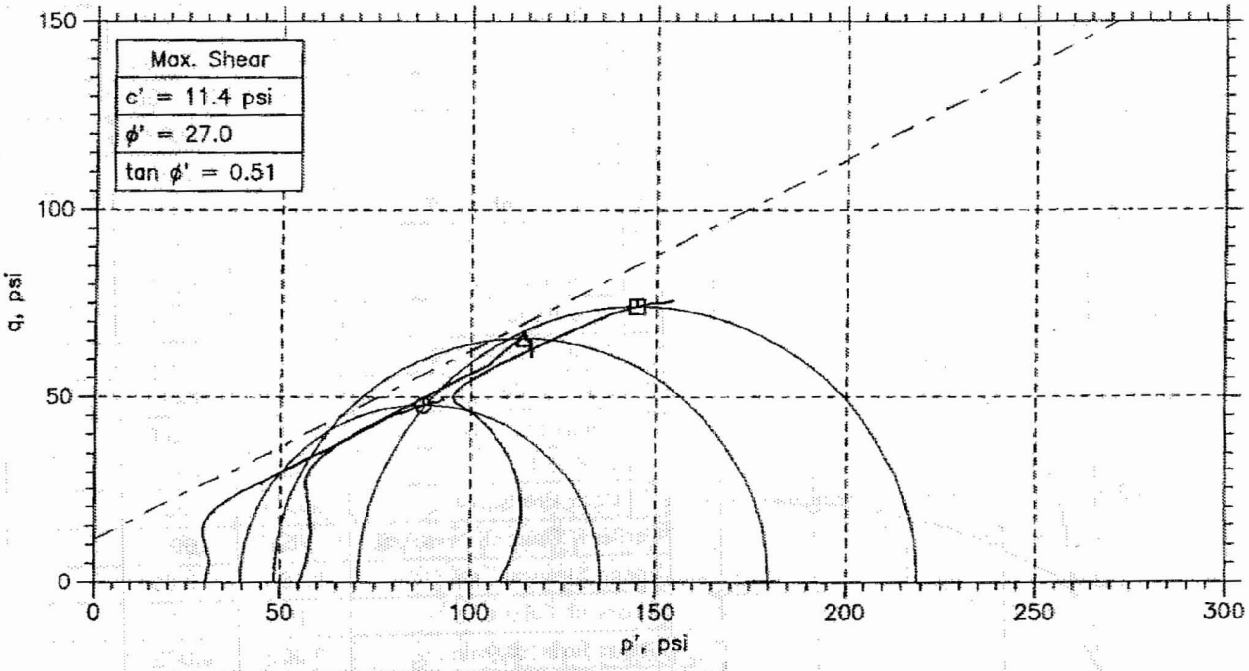
Thu, 16-NOV-2006 14:12:27

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	S-24	CU10	103.5	njh	10/28/06	jdt		6880-CU10n.dat
△	S-24	CU11A	103.5	njh	10/25/06	jdt		6880-CU11an.dat
□	S-24	CU12	103.5	njh	10/20/06	jdt		6880-CU12n.dat

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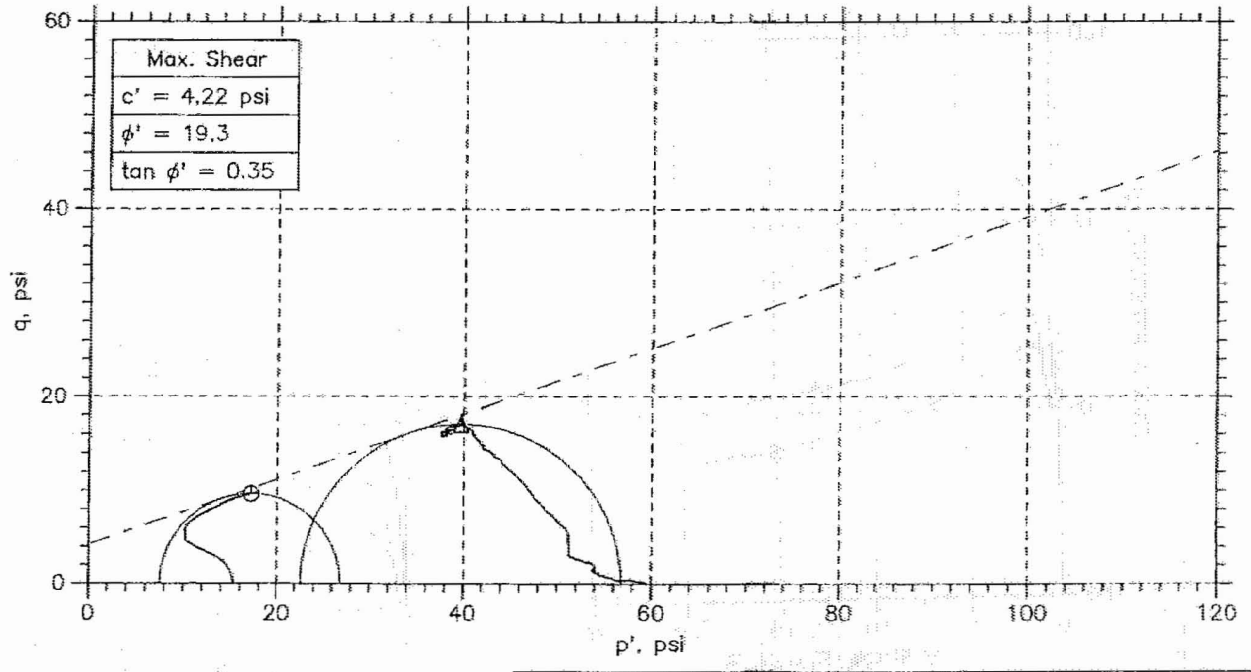
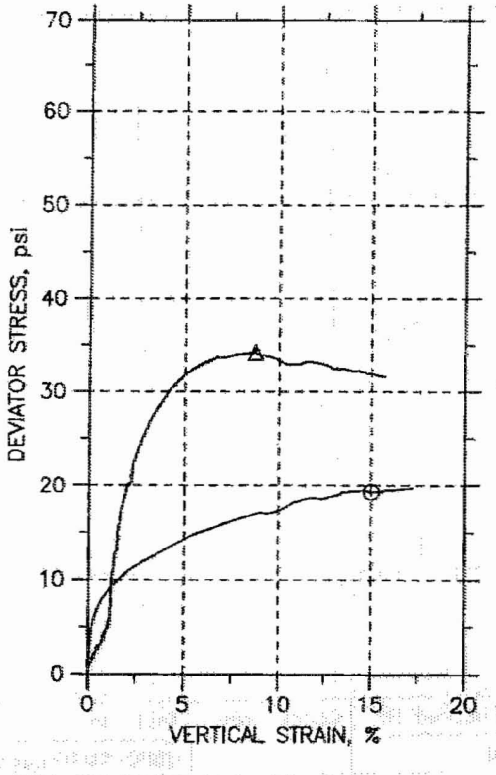
Project: Calvert Cliffs Nuclear PP	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-423	Sample Type: tube	
Description: Moist, dark olive gray sand with silty clay (SP-SC), 10% passing #200 sieve		
Remarks: System F - t50 = 40.5 min, Triaxial Rev 1.0.6.318		

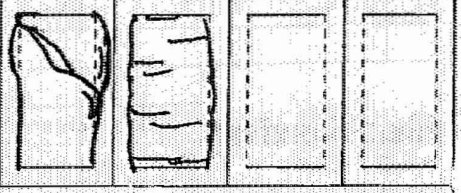
Wed, 15-NOV-2006 15:45:34

CONSOLIDATED UNDRAINED TRIAXIAL TEST





Symbol		⏲	△		
Sample No.		S-13	S-13		
Test No.		CU13	CU15a		
Depth		48.5-50.5	48.5-50.5		
Initial	Diameter, in	2.87	2.87		
	Height, in	5.89	5.95		
	Water Content, %	34.0	47.3		
	Dry Density, pcf	85.03	70.77		
	Saturation, %	95.0	93.4		
	Void Ratio	0.953	1.35		
Before Shear	Water Content, %	38.7	35.5		
	Dry Density, pcf	81.85	85.45		
	Saturation*, %	100.0	100.0		
	Void Ratio	1.03	0.943		
	Back Press., psi	99.99	103.		
Ver. Eff. Cons. Stress, psi		15.	60.		
Shear Strength, psi		9.653	17.09		
Strain at Failure, %		15	8.73		
Strain Rate, %/min		0.002	0.002		
B-Value		0.95	0.95		
Measured Specific Gravity		2.66	2.66		
Liquid Limit		64	64		
Plastic Limit		23	23		



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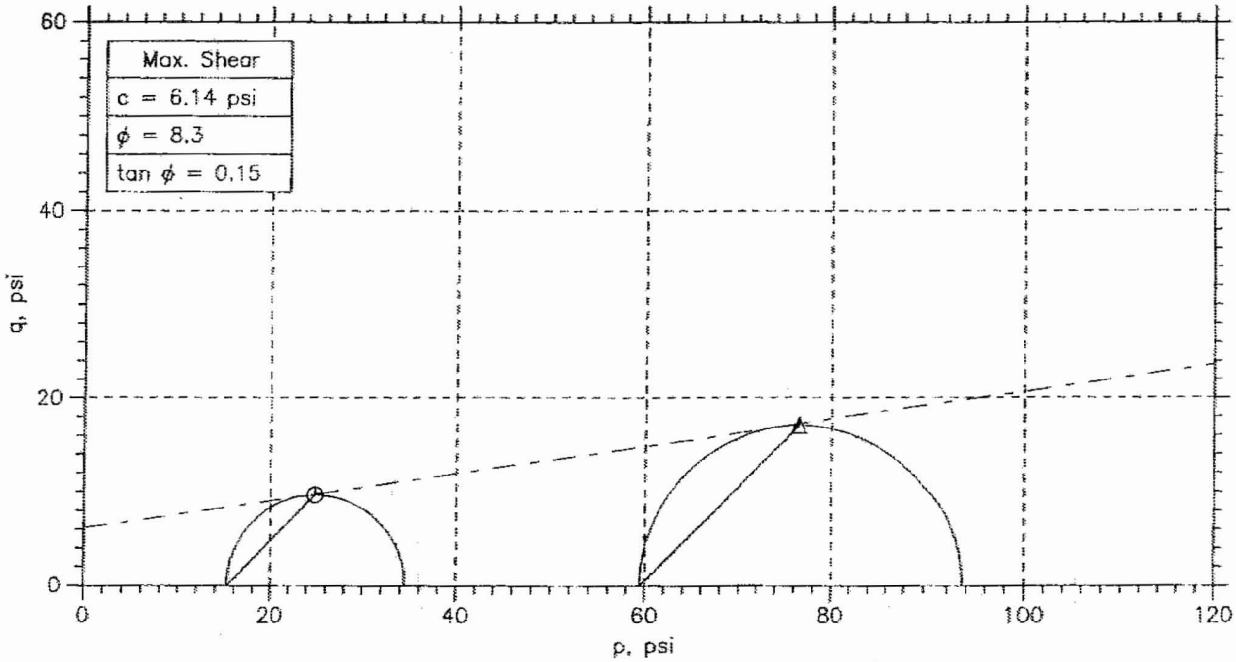
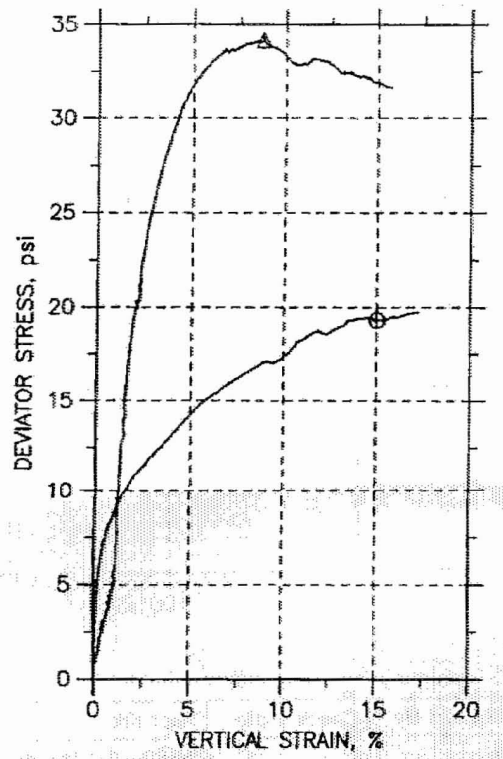
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-433
Sample Type: tube
Description: Moist, black clay, 95% passing #200 sieve
Remarks: System B - t50 = 200 min, Triaxial Rev 1.0.6.318

Wed, 15-NOV-2006 16:37:22

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST





Symbol		⊙	△		
Sample No.		S-13	S-13		
Test No.		CU13	CU15a		
Depth		48.5-50.5	48.5-50.5		
Initial	Diameter, in	2.87	2.87		
	Height, in	5.89	5.95		
	Water Content, %	34.0	47.3		
	Dry Density, pcf	85.03	70.77		
	Saturation, %	95.0	93.4		
	Void Ratio	0.953	1.35		
Before Shear	Water Content, %	38.7	35.5		
	Dry Density, pcf	81.85	85.45		
	Saturation*, %	100.0	100.0		
	Void Ratio	1.03	0.943		
	Back Press., psi	99.99	103.		
Ver. Eff. Cons. Stress, psi		15.	60.		
Shear Strength, psi		9.653	17.09		
Strain at Failure, %		15	8.73		
Strain Rate, %/min		0.002	0.002		
B-Value		0.95	0.95		
Measured Specific Gravity		2.66	2.66		
Liquid Limit		64	64		
Plastic Limit		23	23		

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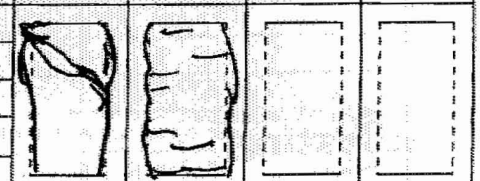
Project: Calvert Cliffs Nuclear
Location: Calvert County, MD
Project No.: GTX-6880
Boring No.: B-433
Sample Type: tube

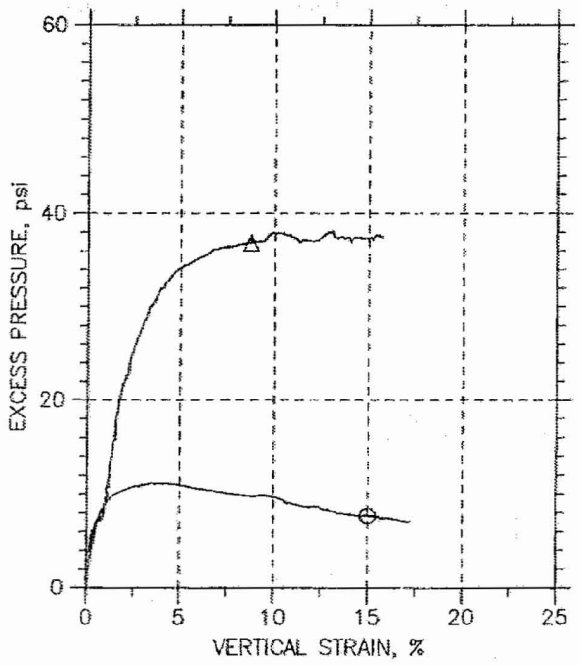


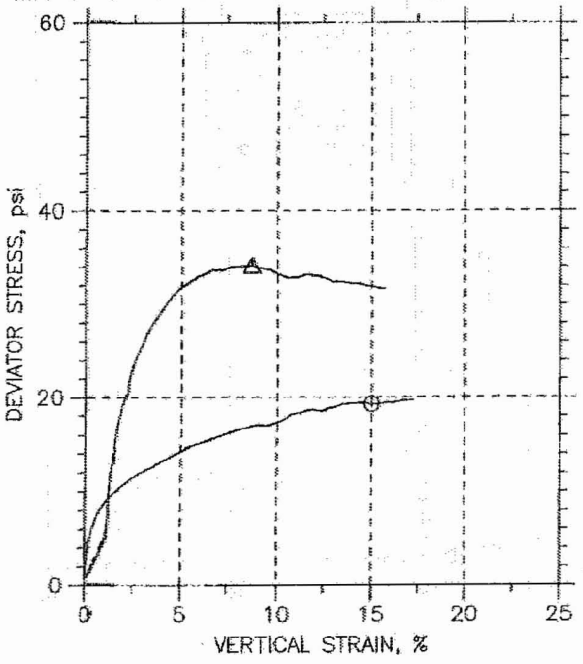
Description: Moist, black clay, 95% passing #200 sieve
Remarks: System B - t50 = 200 min, Triaxial Rev 1.0.6.318

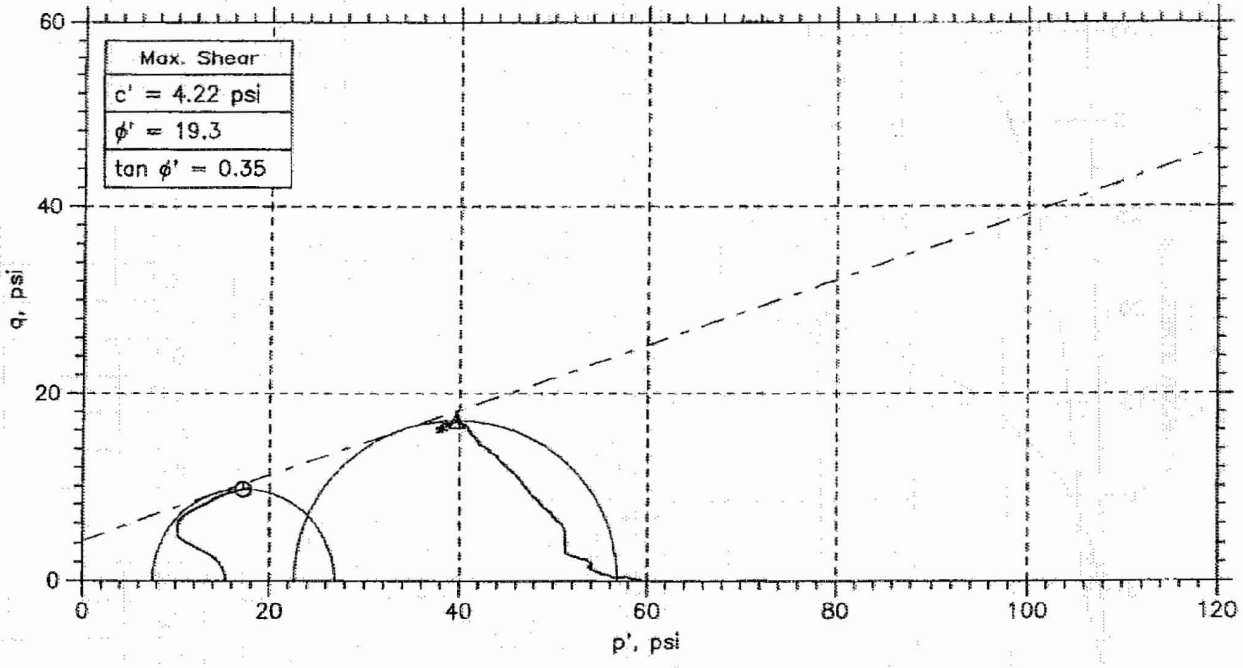
Thu, 16-NOV-2006 14:13:58

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	S-13	CU13	48.5-50.5	njh	10/20/06	jdt		6880-CU13na.dat
△	S-13	CU15a	48.5-50.5	njh	10/25/06	jdt		6880-CU15Anan.dat

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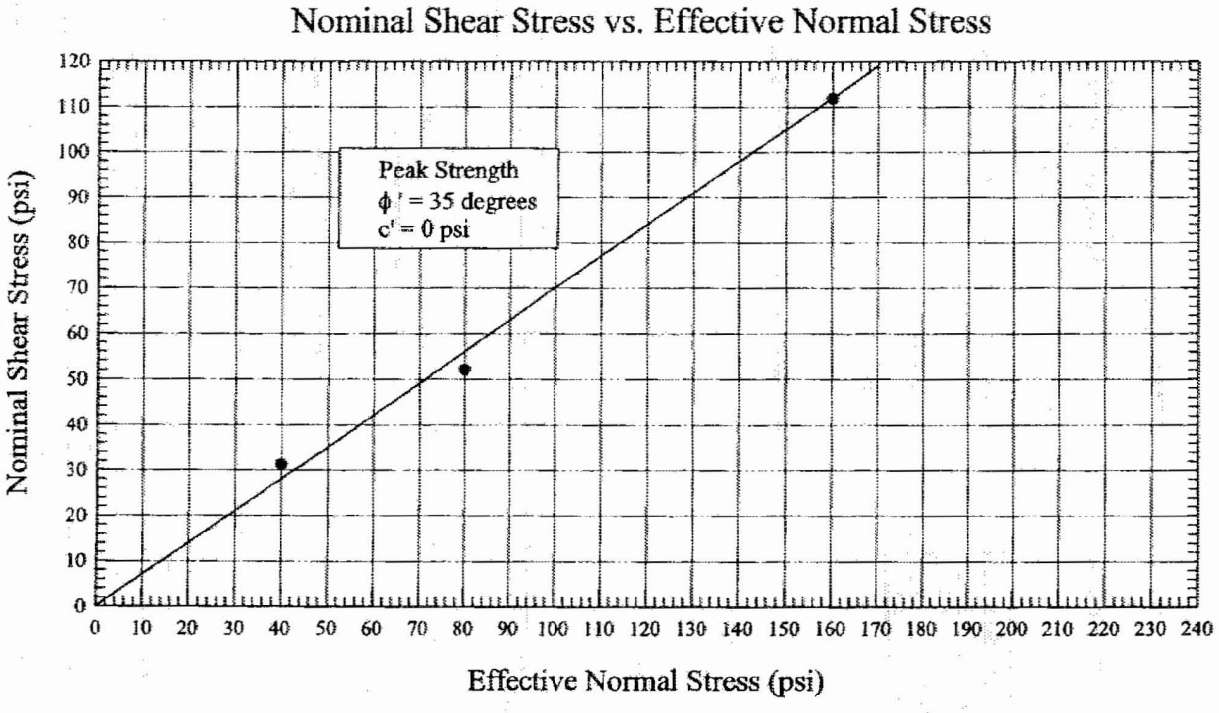
Project: Calvert Cliffs Nuclear	Location: Calvert County, MD	Project No.: GTX-6880
Boring No.: B-433	Sample Type: tube	
Description: Moist, black clay, 95% passing #200 sieve		
Remarks: System B - t50 = 200 min, Triaxial Rev 1.0.6.318		

DIRECT SHEAR RESULTS

Consolidated Drained Direct Shear (ASTM D3080)



Boring No.: *B-307* Depth: *178.5-180.4 ft* SEI Contract: *06120048* Date: *12/12/06*

Sample Description: *F-m CLAYEY SAND (SC), contains shell fragments - green gray* Reviewed By: *CJS*

Specimen Type: *Tube Sample* Specific Gravity: *2.67* LL: *41* PI: *16* %<200: *37.7*

Schnabel Engineering

Calvert Cliffs Nuclear Power Plant
Calvert County, MD