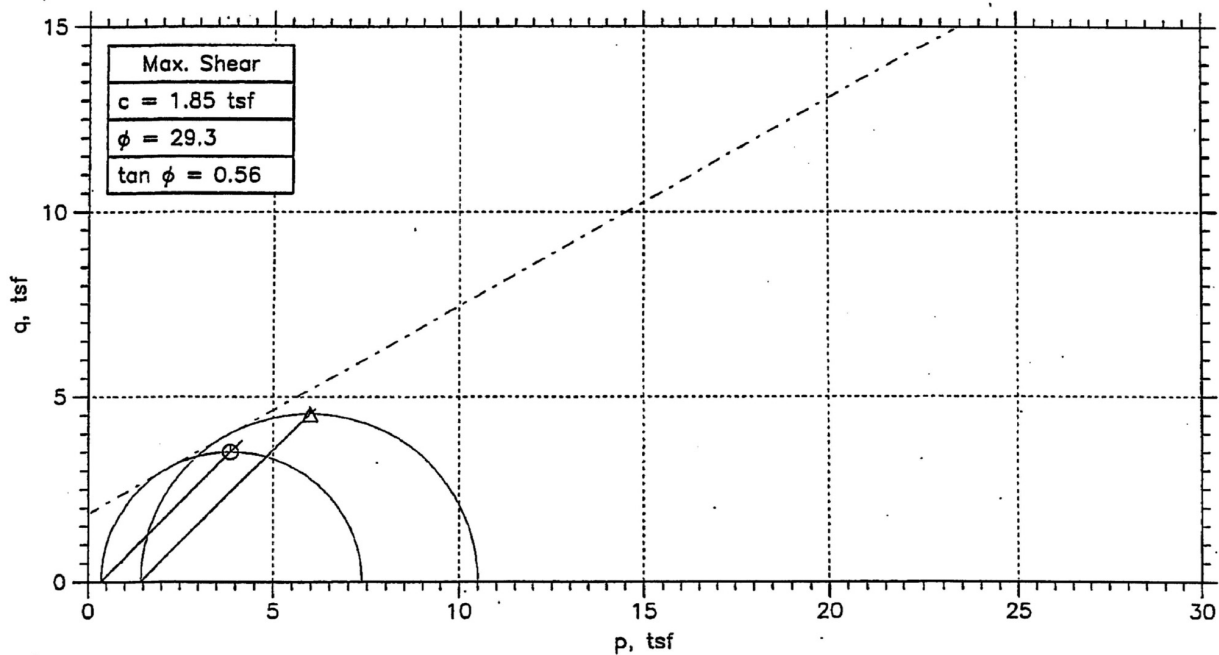
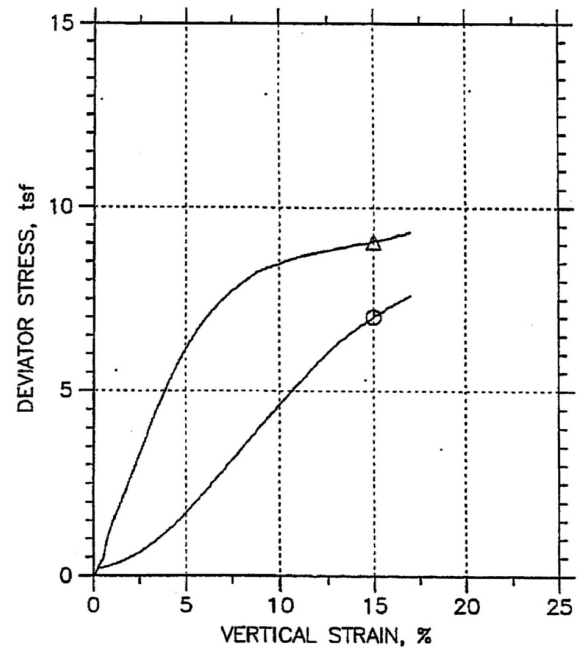
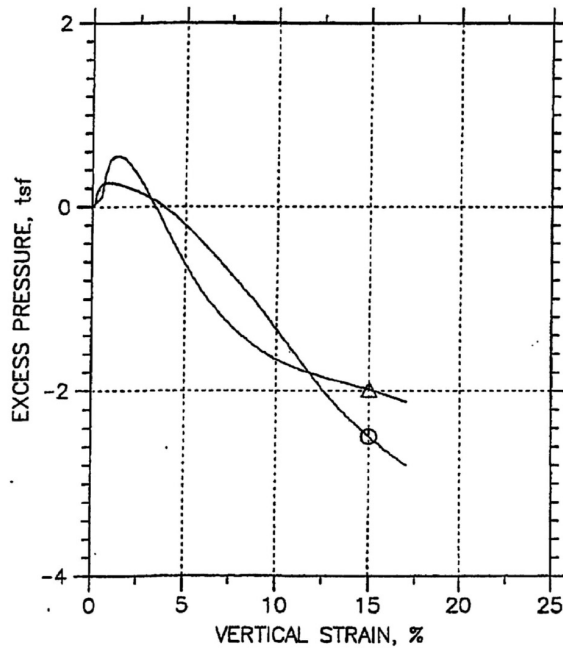


CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

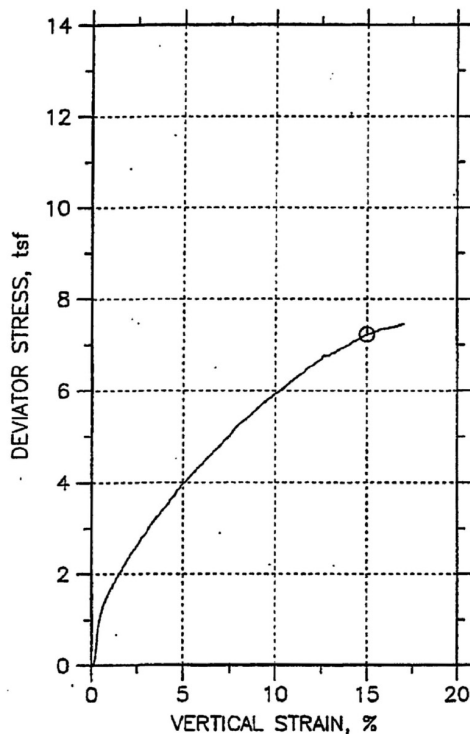
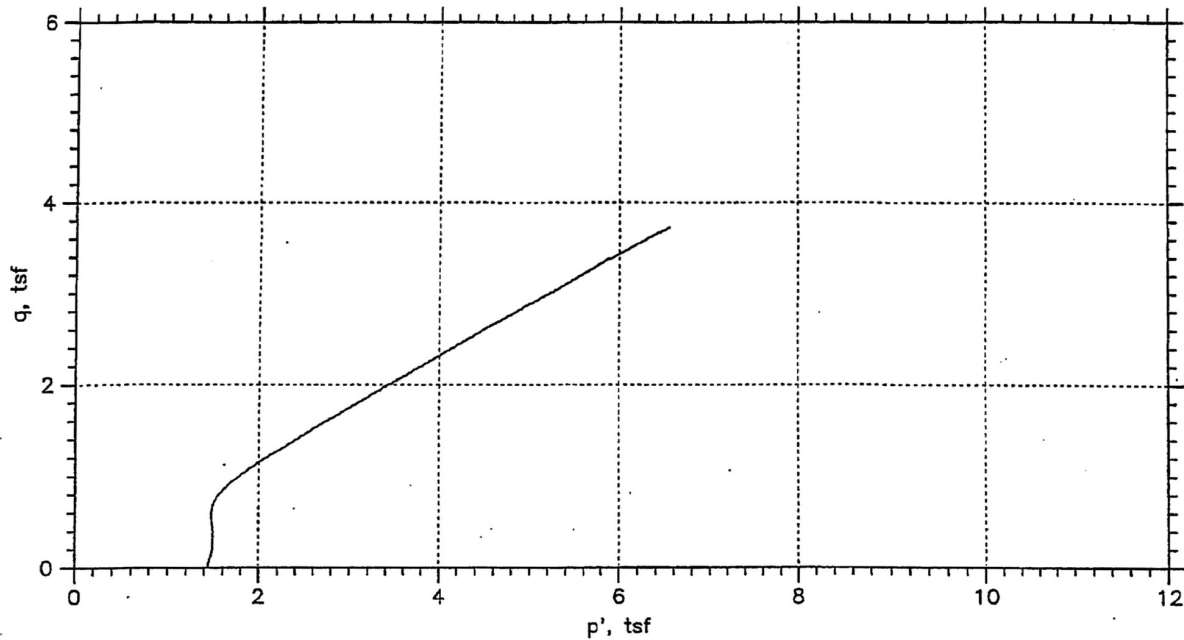


	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	UD-3	8343.1	13.5-16.0 F	HJ	4/3/08	JW	5/22	8343.1_2546.dat
△	UD-3	8343.2	13.5-16 Ft	HJ	4/3/08	JW	4/15/08	8343.2a_2580.dat

MACTEC	Project: Exelon Texas COL Victoria		Location: B-2302UD, UD-3	Project No.: 6468071777
	Boring No.: B-2302UD		Sample Type: Undisturbed	
	Description: Pale Yellow Silty SAND (SM)			
	Remarks: ASTM D4767-04. Wet method was followed for specimen saturation.			

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CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙			
Sample No.	UD-7			
Test No.	8344.1			
Depth	59-60.2 Ft			
Initial	Diameter, in	2.854		
	Height, in	6.004		
	Water Content, %	20.1		
	Dry Density, pcf	106.4		
	Saturation, %	92.4		
	Void Ratio	0.59		
Before Shear	Water Content, %	21.1		
	Dry Density, pcf	107.7		
	Saturation*, %	100.0		
	Void Ratio	0.571		
	Back Press., tsf	5.759		
Ver. Eff. Cons. Stress, tsf		1.439		
Shear Strength, tsf		3.611		
Strain at Failure, %		15		
Strain Rate, %/min		0.05		
B-Value		0.96		
Measured Specific Gravity		2.71		
Liquid Limit		22		
Plastic Limit		16		

MACTEC	Project: Exelon Texas COL Victoria				
	Location: B-2302UD, UD-7				
	Project No.: 6468071777				
	Boring No.: B-2302UD				
	Sample Type: Undisturbed				
	Description: Light Gray Silty, Clayey SAND (SC-SM)				
	Remarks: ASTM D4767-04. Wet method was followed for specimen saturation.				

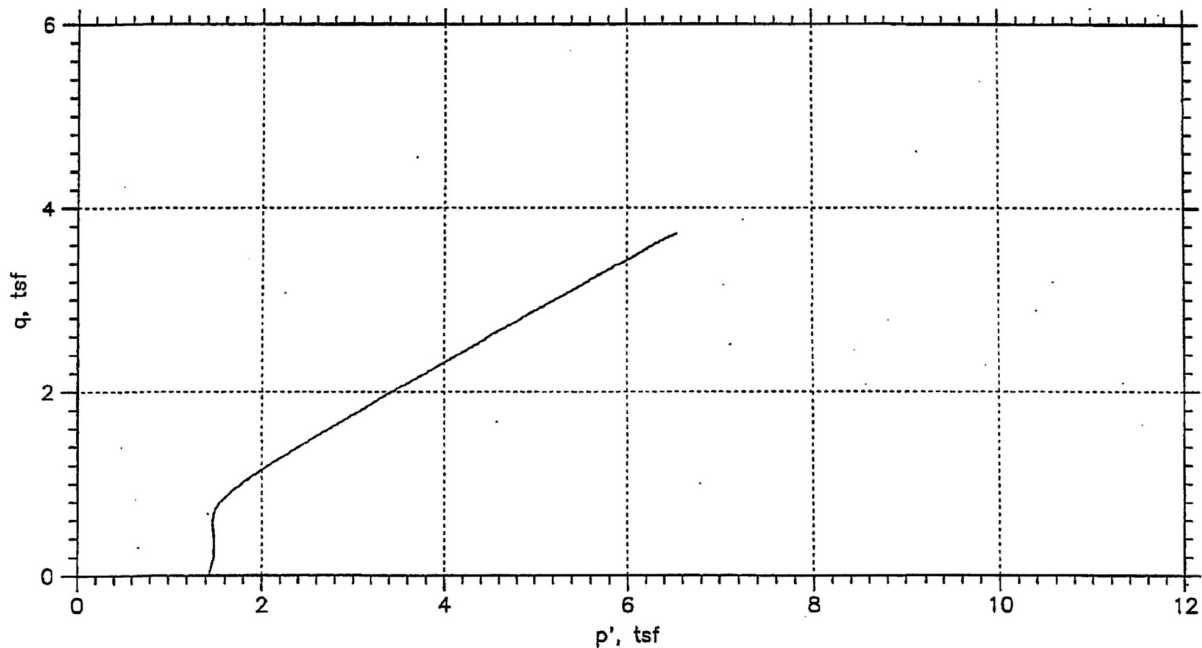
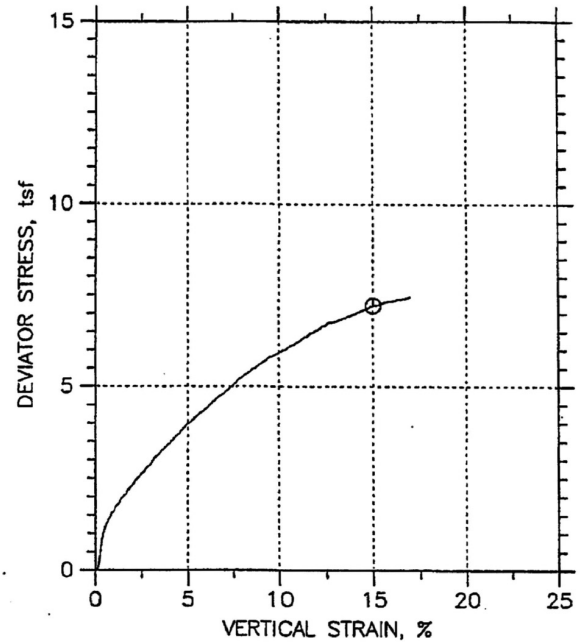
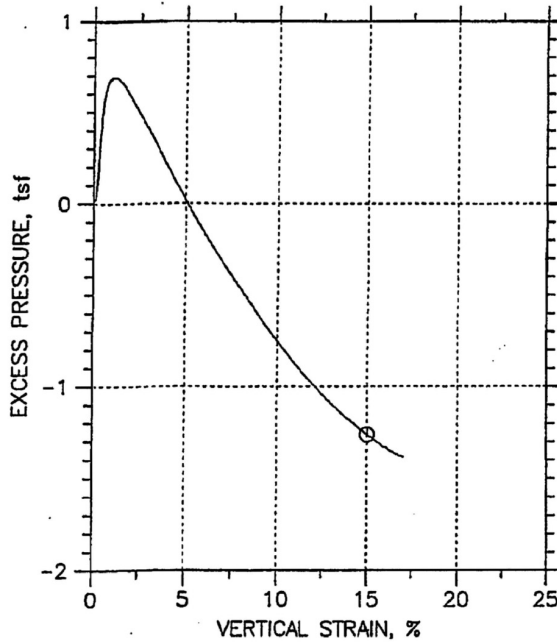
Tue, 15-APR-2008 16:22:32

Phase calculations based on start and end of test.

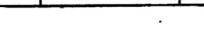
* Saturation is set to 100% for phase calculations.

KAW 4-15-08

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

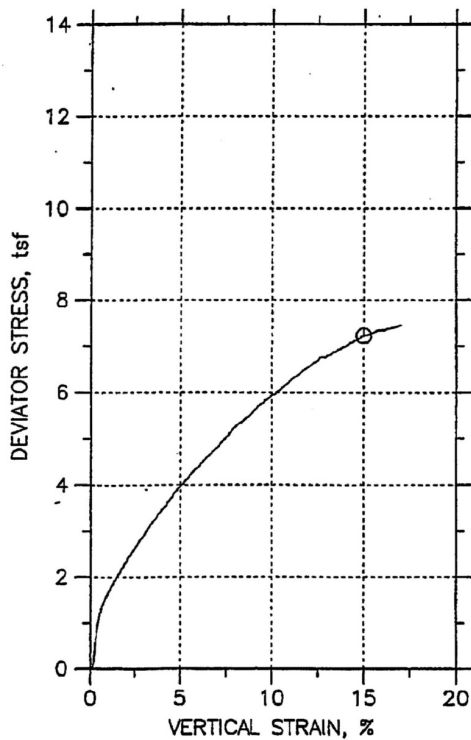
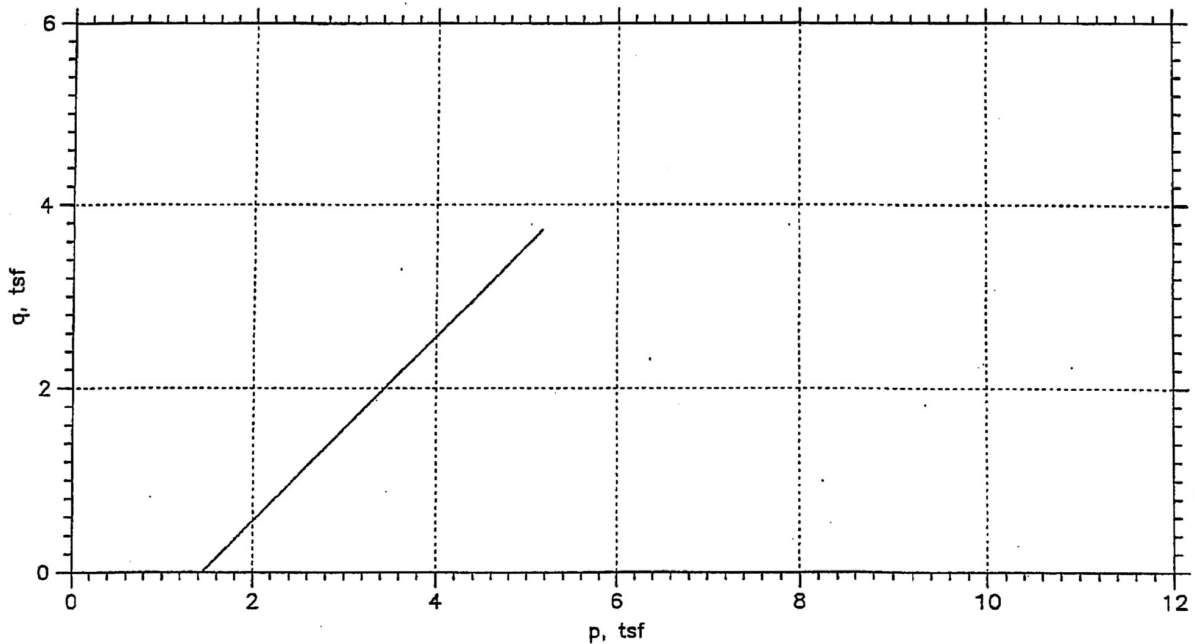


	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	UD-7	8344.1	59-60.2 Ft	HJ	4/4/08	JW	FLW 4/15/08	8344.1_2582.dat

			
	Project: Exelon Texas COL Victoria	Location: B-2302UD, UD-7	Project No.: 6468071777
	Boring No.: B-2302UD	Sample Type: Undisturbed	
	Description: Light Gray Silty, Clayey SAND (SC-SM)		
	Remarks: ASTM D4767-04. Wet method was followed for specimen saturation.		

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CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙			
Sample No.	UD-7			
Test No.	8344.1			
Depth	59-60.2 Ft			
Initial	Diameter, in	2.854		
	Height, in	6.004		
	Water Content, %	20.1		
	Dry Density, pcf	106.4		
	Saturation, %	92.4		
Before Shear	Void Ratio	0.59		
	Water Content, %	21.1		
	Dry Density, pcf	107.7		
	Saturation*, %	100.0		
	Void Ratio	0.571		
	Back Press., tsf	5.759		
	Ver. Eff. Cons. Stress, tsf	1.439		
	Shear Strength, tsf	3.611		
	Strain at Failure, %	15		
	Strain Rate, %/min	0.05		
	B-Value	0.96		
	Measured Specific Gravity	2.71		
	Liquid Limit	22		
	Plastic Limit	16		

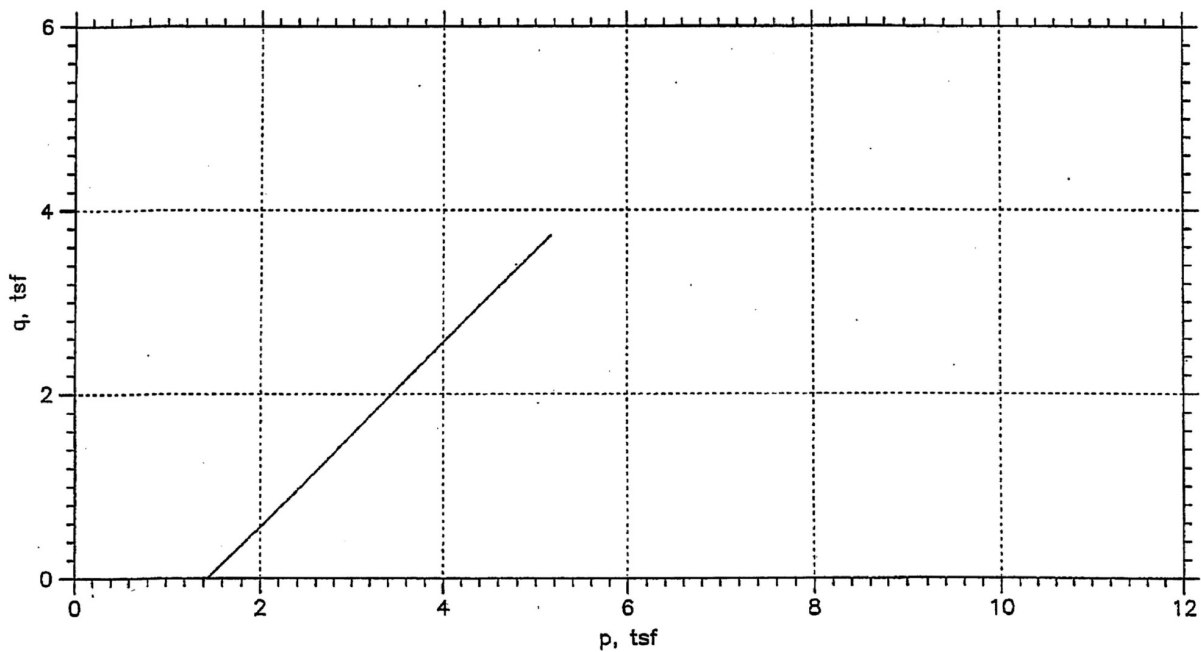
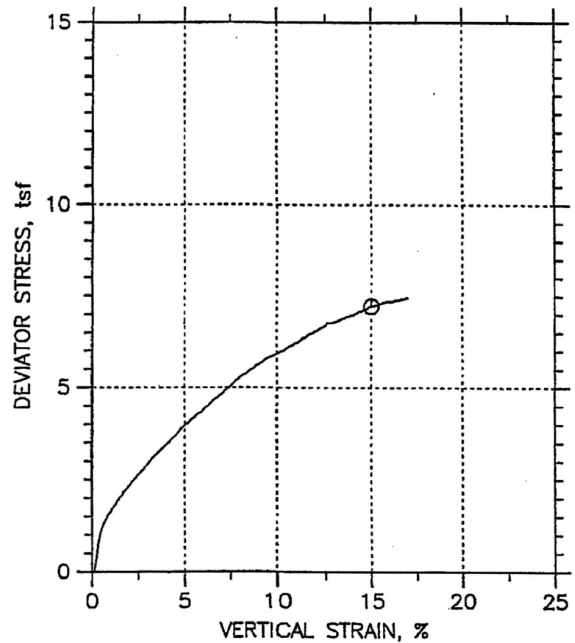
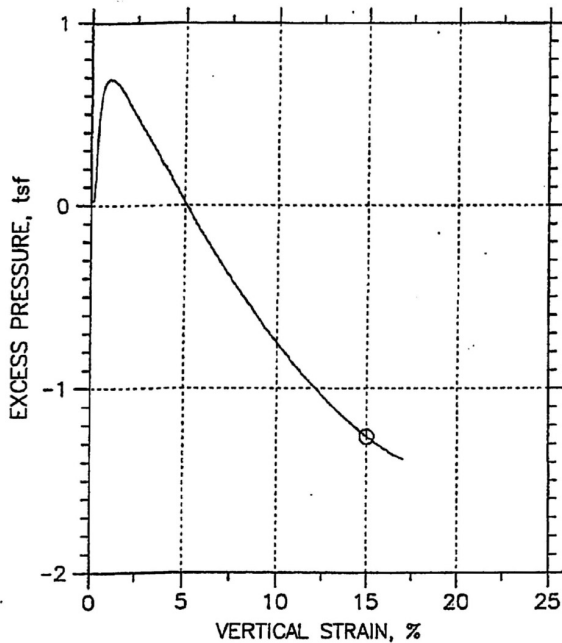
MACTEC	Project: Exelon Texas COL Victoria	(1)			
	Location: B-2302UD, UD-7				
	Project No.: 6468071777				
	Boring No.: B-2302UD				
	Sample Type: Undisturbed				
	Description: Light Gray Silty, Clayey SAND (SC-SM)				
	Remarks: ASTM D4767-04. Wet method was followed for specimen saturation.				

Phase calculations based on start and end of test.

* Saturation is set to 100% for phase calculations.

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CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
① UD-7	8344.1	59-60.2 Ft	HJ	4/4/08	JW	JW 4/15/08	8344.1_2582.dat

	Project: Exelon Texas COL Victoria		Location: B-2302UD, UD-7	Project No.: 6468071777
	Boring No.: B-2302UD		Sample Type: Undisturbed	
	Description: Light Gray Silty, Clayey SAND (SC-SM)			
	Remarks: ASTM D4767-04. Wet method was followed for specimen saturation.			

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TRIAXIAL TEST (ASTM D 4767-04): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: CIU Triaxial Cell No.: TRX-4 File Name: 2304UD_UD8
 Task No.: NA Test Stress(es), σ'_c or $\sigma'_{v,c}$ = 8.64, NA, NA & NA ksf
 Project Name: Exelon (Victoria) $k (\sigma'_{h,c} / \sigma'_{v,c})$ = 1.00 Induced OCR = 1.00 $K_{ua} (\sigma_{d,ua} / 2\sigma'_{v,c})$ = NA

Assig. Remarks: Specific Gravity: 2.710 ☒ Meas.; ☐ Assumed

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	Constant Effort: Blows/Tamps per Layer =
Boring No.: B-2304UD	☐ Reconstituted	☐ Impact/Rammer		Rammer Wgt. (lb) =	No. Layers =
Sample No.: UD8	Compostite No.:	☐ Pluviated:		Tamper Force (lb) =	Drop (in.) =
Depth (ft): 83.5-85.5	Specimen No.: c	☐ Kneading		Undercompaction: U_{ni} (%) =	Dia. (in.) =
☐ Spec. Selection by X-ray;	☐ Geomarine Sample			Ref. Effort =	% Comp. = $\pm$ Opt. =

Type	☒ Isotropic	☐ K_o stress path	☒ Used automated system: Drained Axial Strain Rate, $\epsilon_{a,rate}$ (%/h) = NA
Consolidation:	☐ Anisotropic	☐ 45° stress path	Remarks:
Loading	☒ Static	☒ Undrained	☒ Comp.
Conditions:	☐ Post Cyclic	☐ Drained	☐ Ext.
		☒ Strain	☐ Stress
		☒ Constant Cell Pressure	☐ Cyclic (Hz)
		☐ Variable Cell Pressure	Rate: ☐ 0.1; ☐ 1; Other:

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	
Container No	1114	4115	4027	4000
Mass Moist Soil + Cont. (g)	77.74	68.22	87.68	143.08
Mass Dry Soil + Container (g)	67.02	59.45	73.69	115.34
Mass Container (g)	31.72	30.27	30.13	30.16
Water Content, $W_{o,n}$ (%)	30.37	30.05	32.12	32.57
Avg. Initial WC, $W_{o,avg}$ (%)	30.85	Final (W_{at}):	☒ Slice ;	Whole Spec.
See attached data sheet(s) for additional water contents				

SOIL MASSES:	Initial	Final
Moist + Tare (etc.) (g)	444.57	450.72
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., M_n (g)	444.57	450.72
Excess Dry Soil (soil not included in final mass measurement)		
Container No.		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.00

Specimen Dimensions, (mm)					
Height		Dia., X indicates with membrane			
Initial (H_o)	Final (H_{at})	Initial (D_o)	Final (D_{at})		
GB 100.000	100.000	1 T 50.90	61.00		For
1 15.12	-1.52	2 M 50.75	60.20		Wedge
2 15.19	-2.52	3 B 50.80	60.10		Failure
3 15.19	-2.18	1 T	51.40		= d_{max}
4 15.11	-2.84	2 M	51.40		= d_{min}
5 15.12	-3.04	3 B			= Δd
Avg. 115.15	97.58	Avg. 50.82	56.82	xxxxx	

Measuring Devices:	$A_o = \pi D^2 / 400$ (cm ²)	20.28
Pi Tape: ☒ Dia	V_o (cm ³)	233.53
Calipers: ☐ Ht.; ☐ Dia	$A_{slb,m} = \pi (D^*_{sl})^2 / 400$ (cm ²)	25.10
Dial Comparator: ☒ Ht.; ☐ Dia	$A_{slw,m} = (d_{min} - 2\Delta d) d_{max} \pi / 400$ (cm ²)	NA
Remarks: ID# PI-002	$D^*_{sl} = (D_T + 2D_M + D_B) / 4$ (mm)	56.53

☐ Photo Taken.

Failure Mode: NA - Not Applicable

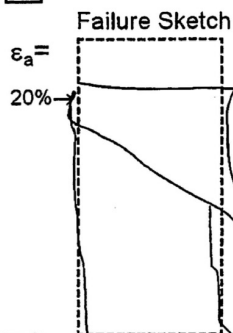
☐ Bulge GB - Gage Block

☒ Wedge Other Remarks:

☐ Parabolic LL=61 PL=26 PI=35

Wedge/Bulge Ht. = NA (mm)

Final Visual Classification: Mottled Brownish Yellow and Pale Yellow Fat CLAY (CH)



☐ See more detailed sketch on attached sheet. Remarks:

Estimated Initial Unit Weight			
Total, γ_{to} (lb/ft ³) =	118.84	Dry, $\gamma_{d,o}$ (lb/ft ³) =	90.83
Membrane / Filter Paper / Apparatus			
Membrane (mm):		Top	Bottom
Number:	Thickness:	0.51	0.71
= 1	Single; ☒ Double	0.54	0.67
Circumference ($C_{m,o}$)		146.0	147.0
Total Thickness		Dia. ($C_{m,o} / \pi$)	
Average:		0.30	46.63
Filter Paper: Top + Bottom: ☐ Yes; ☒ No			
Filter Strips: ☒ Yes; ☐ No Number = 8			
Type of Filter Strips: ☐ Vertical: 1/4 in. & Whatman #54			
☒ Sprial: 1/4 in. & Whatman #1			
Apparatus: Mass Top Cap, M_{tc} = 65.8 g, 0.15 lbf			
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) = NA g, NA lbf			
Top Cap Attached: ☒ Yes; ☐ No;		Piston Dia. (in.)	
Top Cap - Rotation ☒ Fixed, <1°;		Load Cell: ☐ External ☒ Internal	
With: ☒ Frictionless End Caps;		Limited, <5°; ☐ Unlimited, >5°	
Internal LVDT Jacket		Lat. Movement Top Cap	

Trimmed / Reconstituted By: TP Set Up By: TP Taken Down By: AW
 Date: 3/27/2008 Date: 3/27/2008 Date: 4/14/2008
 Prelim. Calc. By: TP Final Calc. By: TP Reviewed By: WLD

MULTISTAGE TRIAXIAL TEST: Specimen Calculations & Summary(1)

Project Number: 0411-08-1686 Cell No.: TRX-4 File Name: 2304UD_UD8c
 Task Number: NA Specific Gravity: 2.710 ☒ Measured; ☒ Assumed
 Boring No.: B-2304UD Sample No.: UD8 Specimen No.: c Depth (ft): 83.5-85.5
 Type Test: CIU Triaxial Specimen: ☒ "Undisturbed"; ☐ Reconstituted; ☐
 Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = ppm

Initial Water Contents (WC), (W_o) over Saturation, (S_o), in (%):						Calculated Mass of Dry Soil (g)	
Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Select., $W_{o,s}$	Back Cal., $W_{o,bc}$	Initial Selected WC, w_o (%)	29.81
W_c 30.37	30.05	32.12	30.85	29.81	30.76	Initial, $M_{d,o}$	342.48
S_o 96.5	96.0	99.2	97.3	95.6	97.1	Final, $M_{d,at}$	340.00
Measured final mass of moist soil, $M_{t,at}$ (g)						Selected, M_d	342.48
Final mass of moist soil corrected for excess dry soil, $M_{t,at,c}$ (g)							

Consolidation Data	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Changes in Height (mm) and Volume (cm^3) Within Given Consolidation Stages/Columns	At Initial Seating Stress	During Back-Pressuring	1st Consol. Increment (1)	Column 2 or 3 to 1st Test Stage (1)	Column 4 to 2nd Test Stage	Column 5 to 3rd Test Stage	Column 6 to 4th Test Stage
Sign Convention: (+) Deformation in compression or Flow out of spec.; (-) Deformation in extension (swell) or Flow into spec.							
Change in Height, $\Delta H_{c,n}$	-0.07	-0.80		1.40	NA	NA	NA
Sum of changes in (+ out) burette readings, $\Delta b_{r,n}$ (- in)	0.31	-9.58	NA	12.51	NA	NA	NA
Theoretical $\Delta V_{ct,n} = (3V_o \times \Delta H_{c,n} / H_o)$	-0.42	-4.84		8.52	NA	NA	NA
Vol. Factor, $F_v = \Delta b_{r,n} / \Delta V_{t,n}$				1.47	NA	NA	NA
Corrected $\Delta V_{ct,n} = F_v \times \Delta V_{t,n}$			NA	0.00	NA	NA	NA
Selected $\Delta V_{c,n}$	-0.42	-4.84		6.51	NA	NA	NA

Summary For Test Stages					
Test Stage:	1st = 1	2nd = 2	3rd = 3	4th = 4	
Cell Pressure, $\sigma_{c,n}$ (psi)	110.04	NA	NA	NA	Number of Test Stages = 1 $t_{50} = 45$ min
Back Pressure, $U_{b,n}$ (psi)	50.27	NA	NA	NA	
Axial Force Reading, $P_{r,n}$ (lbf)	1.51	NA	NA	NA	
Eff. Consol. Stress (σ'_c or $\sigma'_{v,c}$) (4), (ksf)	8.66	NA	NA	NA	
t_c , ON or in ☒ days ☐ hrs	11.00	NA	NA	NA	

At Final Test Stress/Stage - Summary of Calculation of ΔV_c (cm^3) by Different Procedures				
By Selected Volumes $\Delta V_c = 1.25$	By Saturation = 100 % $\Delta V_c = -1.50$	By Change in Mass (5) $\Delta V_c = 3.41$	For Diff. in Meas. Vol. ($V_o - V_{at}$) & corr. for ΔH_{id} $\Delta V_c =$	For Selected ΔV_c , required G_s for $S_c = 100$ %: 2.770

At Final Test Stress/Stage - Consolidation Conclusions					
$\Delta H_{c,f}$ (mm) = 0.54	$\Delta V_{c,f}$ (cm^3) = 1.25	Back Cal. G_s for $S=100\%$ = 2.770	Normalized	Ht. Ch. (%) = -0.51	
$\epsilon_{ac,c}$ (%) = 0.47	$\epsilon_{vc,f}$ (%) = 0.54		Diff. in:	Vol. Ch. (%) =	

Summary of Specimen Physical Properties											
Specific Gravity: $G_s = 2.710$ Measured	Height (mm)	Volume (cm^3)	Area (cm^2)	Water Content (%)	Unit Weight Total (pcf)	Dry (pcf)	Saturation (%)	Void Ratio e	Volumetric Water Content	Porosity n	Skempton B parameter % (6)
Condition:											
Initial:	115.15	233.53	20.28	29.81	118.84	91.55	95.6	0.845	0.4379	0.458	98.0
After to 1st σ'_c	114.61	232.28	20.27	31.60	121.13	92.04	102.6	0.835	0.4668	0.455	
Consol.: to 2nd σ'_c											
to 3rd σ'_c											
to 4th σ'_c											

Notes: (1) If the consol. stress in the 1st consol. increment & 1st test stage are equal, log the data in Column 4.
 (2) The height changes occurring within each shearing and unloading stage (1 - 4) are recorded in these rows (after Column 3).
 (3) The volume changes occurring within each shearing and unloading stage (1 - 4) are calculated/recorded in these rows (after Column 3).
 (4) Stresses are corrected for membrane. (5) $\sim M_{t,o} - (M_{t,at,c} + P_{water} \times \Delta V_{in, column 1 \& 2})$
 (6) Initial value is after back pressuring

NA - Not Applicable ON - Over Night WC - Water Content Remarks: Wet Method used in the Saturation Stage

Calculated By: TP Reviewed By: HP

MULTISTAGE TRIAXIAL TEST: Specimen Calculations Summary(2)

Project Number: 0411-08-1686 Test Type: CIU Triaxial App. No.: TRX-4 File Name: 2304UD_UD8
 Project Name: Exelon (Victoria) Task No.: NA Test No.: 0 Test Series for: 0

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	☐ Constant Effort: Blows/Tamps per Layer =
Boring No.: <u>B-2304UD</u>	☐ Reconstituted	☐ Impact/Rammer		Rammer Wgt. (lbf) =	No. Layers =
Sample No.: <u>UD8</u>	Composite No.: <u></u>	☐ Pluviated:		Tamper Force (lbf) =	Drop (in.) =
Depth (ft): <u>83.5-85.5</u>	Specimen No.: <u>c</u>	☐ Kneading		Undercompaction: U_{nl} (%) =	Dia. (in.) =
☐ Spec. Selection by X-ray;	☐ Geomarine Sample			Ref. Effort =	% Comp. = $\pm$ Opt. =

Type Consolidation	☒ Isotropic	☐ K_0 stress path	☒ Used automated system	Drained Axial Strain Rate, $\epsilon_{a,rate}$ (%/hr.) = <u>NA</u>
	☐ Anisotropic	☐ 45° stress path	Remarks: <u></u>	
Loading Conditions	☒ Static	☒ Undrained	☒ Comp.	☒ Strain
	☐ Post Cyclic	☐ Drained	☐ Ext.	☐ Stress
			☒ Constant Cell pressure	☒ Cyclic (Hz)
			☐ Variable Cell pressure	Rate: ☐ 0.1; ☐ 1; Other: <u></u>

Specific Gravity: $G_s = 2.710$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Unit Weight		Saturation (%)	Void Ratio e	Skempton B para- meter % (1)
					Total (pcf)	Dry (pcf)			
Condition: Initial:	115.15	233.53	20.28	29.81	118.84	91.55	95.63	0.84	98.0
After to 1st σ'_c	114.61	232.28	20.27	31.60	121.13	92.04	102.59	0.83	
Consol.: to 2nd σ'_c									
to 3rd σ'_c									
to 4th σ'_c									

Unit for Stresses: (ksf)

Item	Unit	1st Stage	2nd Stage	3rd Stage	4th Stage
Axial Strain during Consol., ϵ_c	%	0.465	NA	NA	NA
Vol. Strain during Consol., ϵ_v	%	0.535	NA	NA	NA
Effective Vertical Stress, σ'_v	(ksf)	8.659	NA	NA	NA
Effective Horizontal Stress, σ'_h	(ksf)	8.616	NA	NA	NA
Consol. Stress Ratio, k (σ'_h / σ'_v)	-	0.995			
Induced OCR	-	1.00	NA	NA	NA
Eff. Average Stress, $(\sigma'_v + \sigma'_h)/2$	(ksf)	17.275			
Eff. Mean Stress, $(\sigma'_v + 2\sigma'_h)/3$	(ksf)	8.630			
Undr. Ambient Shear Stress, $\tau_{a,ua}$	(ksf)	NA	NA	NA	NA
Undr. Ambient Shear Strain, $\epsilon_{a,ua}$	%	NA	NA	NA	NA

Membrane Correction		
Type:	<u>Bulge</u>	
Modulus:	<u>150.0</u> psi	
Diameter:	<u>46.63</u> mm	
Thickness:	<u>0.30</u> mm	
Area Correction		
Type:	<u>Bulge</u>	
Stage	Area Corr. Const.:	Final Area (cm ²):
1st	1.338	25.10
2nd		
3rd		
4th		
Filter Paper Correction		
Type:	<u>None</u>	
Type Strips:	<u>Spiral #1</u>	
Strips:	<u>8</u>	
Force:	<u>0.000</u> lbf/strip	

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

(1) Initial B is after saturation

NA - Not Applicable

Final Visual Description and Remarks: Mottled Brownish Yellow and Pale Yellow Fat CLAY (CH)

Stage	Stress Status	ϵ_a (%)	q (ksf)	p' (ksf)	ΔU (ksf)	σ_1' (ksf)	σ_3' (ksf)
1st	Max Shear Stress	2.10	1.950	8.271	2.287	10.221	6.320
	Max Obliquity	4.91	1.922	7.939	2.592	9.862	6.017
2nd	Max Shear Stress						
	Max Obliquity						
3rd	Max Shear Stress						
	Max Obliquity						
4th	Max Shear Stress						
	Max Obliquity						

Remarks: Stain Rate (%/min) = 8.89E-03

STAGE 1

Project: 0411-08-1686
Test Type: CIU Triaxial

Boring No.: B-2304UD
Sample No.: UD8
Specimen No.: c

Depth (ft.): 83.5-85.5
Stage No.: 1

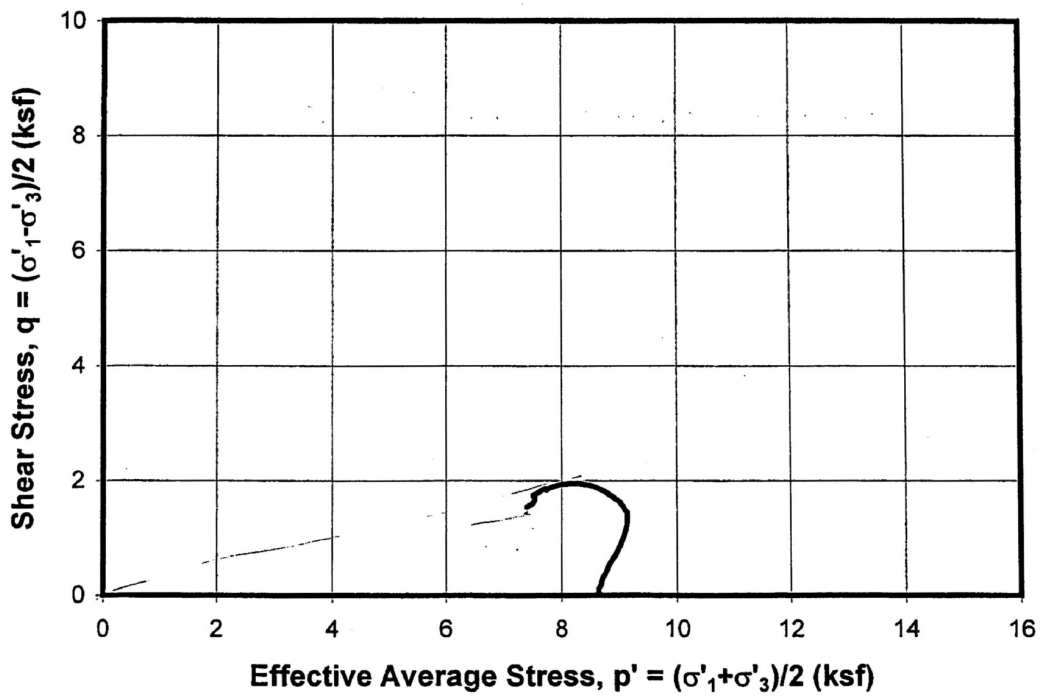
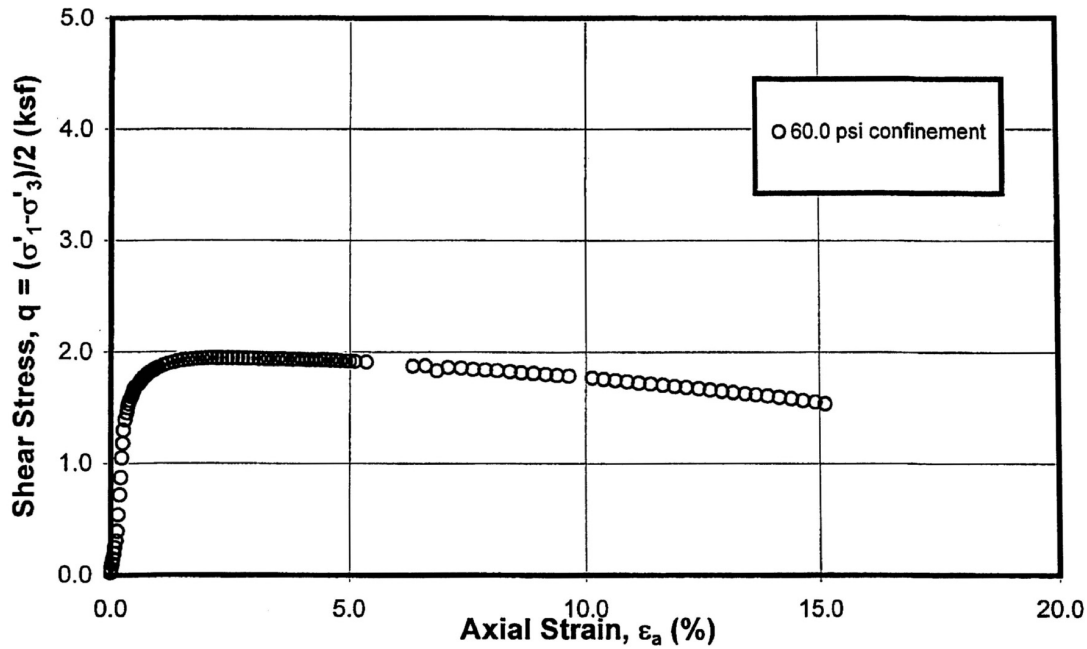
Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
0.0	0.000	0.022	8.637	0.000	0.000	1.005	0.000	-	-
3.0	0.008	0.057	8.649	0.021	0.000	1.013	0.333	844.3	580.9
6.0	0.035	0.100	8.639	0.064	0.000	1.023	0.487	444.3	524.9
9.0	0.048	0.145	8.659	0.091	0.000	1.034	0.411	519.3	550.8
12.0	0.074	0.193	8.690	0.117	0.000	1.045	0.346	466.0	559.6
15.0	0.088	0.245	8.693	0.165	0.000	1.058	0.376	511.1	642.4
18.0	0.111	0.307	8.720	0.196	0.000	1.073	0.355	516.0	610.9
21.0	0.135	0.391	8.769	0.231	0.000	1.093	0.321	547.1	1076.3
24.0	0.156	0.541	8.829	0.321	0.000	1.131	0.315	668.0	1307.7
27.0	0.187	0.722	8.946	0.389	0.000	1.175	0.280	749.0	1257.3
30.0	0.210	0.876	9.017	0.464	0.000	1.215	0.278	815.4	1794.5
33.0	0.225	1.050	9.086	0.571	0.000	1.261	0.282	913.3	1718.7
36.0	0.247	1.180	9.118	0.666	0.000	1.297	0.292	939.3	1532.3
39.0	0.259	1.298	9.140	0.765	0.000	1.331	0.303	984.4	1191.0
42.0	0.295	1.393	9.140	0.863	0.000	1.360	0.317	929.4	424.7
45.1	0.334	1.454	9.138	0.928	0.000	1.379	0.325	859.1	482.1
48.1	0.348	1.500	9.091	1.018	0.000	1.395	0.347	850.4	485.7
51.1	0.369	1.535	9.077	1.065	0.000	1.407	0.355	819.5	287.5
54.1	0.396	1.569	9.051	1.124	0.000	1.419	0.366	780.6	213.2
57.1	0.428	1.597	9.021	1.186	0.000	1.430	0.378	736.2	226.7
60.1	0.448	1.624	9.010	1.226	0.000	1.440	0.384	715.8	233.8
63.1	0.471	1.646	8.983	1.279	0.000	1.449	0.394	690.3	268.9
66.1	0.482	1.665	8.955	1.318	0.000	1.457	0.403	682.4	236.5
69.1	0.510	1.683	8.927	1.365	0.000	1.465	0.413	651.5	110.5
72.1	0.544	1.699	8.913	1.396	0.000	1.471	0.418	616.8	103.1
75.1	0.573	1.716	8.902	1.427	0.000	1.477	0.422	591.2	104.3
78.1	0.599	1.728	8.873	1.462	0.000	1.484	0.431	569.6	128.5
81.1	0.620	1.745	8.858	1.499	0.000	1.491	0.436	555.7	121.4
84.1	0.645	1.755	8.826	1.533	0.000	1.497	0.446	537.2	111.7
87.1	0.666	1.770	8.815	1.562	0.000	1.502	0.449	525.2	104.4
90.1	0.692	1.779	8.806	1.582	0.000	1.506	0.452	507.5	63.2
93.1	0.722	1.787	8.787	1.608	0.000	1.511	0.458	489.0	76.7
96.1	0.744	1.798	8.779	1.630	0.000	1.515	0.460	477.5	91.4
99.1	0.766	1.807	8.754	1.657	0.000	1.520	0.467	466.5	87.6
102.1	0.790	1.818	8.746	1.684	0.000	1.525	0.470	454.6	61.0
105.1	0.819	1.823	8.731	1.707	0.000	1.528	0.474	439.9	41.3
108.1	0.845	1.829	8.707	1.732	0.000	1.532	0.481	427.9	46.4
111.1	0.880	1.837	8.701	1.746	0.000	1.535	0.483	412.7	115.4

STAGE 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
114.1	0.889	1.846	8.687	1.774	0.000	1.540	0.486	410.3	109.8
117.1	0.916	1.851	8.677	1.786	0.000	1.542	0.489	399.4	42.3
120.1	0.948	1.859	8.655	1.809	0.000	1.547	0.495	387.7	39.9
123.1	0.978	1.863	8.643	1.829	0.000	1.550	0.498	376.6	34.1
135.1	1.074	1.882	8.601	1.890	0.000	1.560	0.510	346.4	35.1
147.1	1.175	1.897	8.557	1.955	0.000	1.570	0.521	319.4	25.5
159.1	1.281	1.908	8.519	2.002	0.000	1.577	0.531	294.5	23.4
171.1	1.384	1.922	8.484	2.051	0.000	1.586	0.540	274.7	19.5
183.1	1.481	1.928	8.439	2.095	0.000	1.592	0.552	257.3	11.2
195.1	1.590	1.933	8.392	2.153	0.000	1.599	0.564	240.5	10.3
207.1	1.693	1.938	8.371	2.168	0.000	1.603	0.569	226.5	8.4
219.1	1.791	1.942	8.341	2.209	0.000	1.607	0.577	214.5	6.2
231.1	1.897	1.945	8.318	2.238	0.000	1.610	0.583	202.8	4.3
243.1	2.001	1.946	8.288	2.270	0.000	1.614	0.591	192.4	5.6
255.1	2.095	1.950	8.271	2.287	0.000	1.617	0.595	184.1	1.7
267.1	2.210	1.947	8.248	2.303	0.000	1.618	0.601	174.3	-2.6
279.1	2.312	1.947	8.220	2.338	0.000	1.621	0.608	166.5	0.3
291.1	2.426	1.948	8.205	2.357	0.000	1.623	0.612	158.8	0.5
303.1	2.540	1.948	8.176	2.377	0.000	1.625	0.620	151.6	-1.1
315.1	2.654	1.947	8.159	2.393	0.000	1.627	0.624	145.0	-3.1
327.1	2.757	1.945	8.165	2.395	0.000	1.625	0.623	139.5	-3.0
339.1	2.882	1.943	8.136	2.411	0.000	1.628	0.630	133.3	-0.4
351.1	2.986	1.944	8.122	2.419	0.000	1.629	0.634	128.8	-1.5
363.1	3.097	1.941	8.129	2.431	0.000	1.628	0.632	124.0	-3.4
375.1	3.206	1.940	8.113	2.437	0.000	1.629	0.637	119.7	-1.5
387.1	3.300	1.940	8.095	2.444	0.000	1.630	0.641	116.3	-2.2
399.1	3.410	1.938	8.086	2.457	0.000	1.630	0.644	112.4	-1.8
411.1	3.510	1.938	8.077	2.465	0.000	1.631	0.646	109.2	3.0
423.1	3.611	1.941	8.068	2.475	0.000	1.633	0.648	106.3	-1.6
435.1	3.704	1.936	8.057	2.492	0.000	1.633	0.652	103.4	-5.8
447.1	3.818	1.935	8.042	2.495	0.000	1.634	0.655	100.2	-0.5
459.1	3.911	1.936	8.045	2.507	0.000	1.634	0.655	97.9	0.5
471.1	4.007	1.935	8.031	2.511	0.000	1.635	0.658	95.5	-1.9
483.1	4.101	1.934	8.033	2.516	0.000	1.634	0.658	93.3	-2.3
495.1	4.205	1.933	8.004	2.542	0.000	1.637	0.666	90.9	-1.7
507.1	4.303	1.932	8.001	2.540	0.000	1.637	0.667	88.8	-1.2
519.1	4.396	1.932	7.985	2.552	0.000	1.638	0.671	86.9	-0.9
531.1	4.499	1.931	7.989	2.549	0.000	1.638	0.670	84.9	-4.5
543.1	4.608	1.927	7.972	2.560	0.000	1.638	0.675	82.7	-5.1
555.2	4.707	1.926	7.969	2.571	0.000	1.637	0.675	80.9	-2.9
567.2	4.805	1.924	7.963	2.576	0.000	1.637	0.677	79.2	-3.5
579.2	4.910	1.922	7.939	2.592	0.000	1.639	0.684	77.4	-3.6
591.2	5.001	1.921	7.937	2.591	0.000	1.639	0.684	76.0	-4.1

STAGE 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
603.2	5.110	1.918	7.933	2.592	0.000	1.638	0.686	74.2	-5.0
633.2	5.358	1.912	7.924	2.608	0.000	1.636	0.689	70.6	-1665.0
753.2	6.354	1.875	7.795	2.694	0.000	1.633	0.727	58.3	1332.4
783.2	6.633	1.877	7.789	2.700	0.000	1.635	0.729	55.9	-16.6
813.2	6.886	1.833	7.729	2.713	0.000	1.622	0.751	52.6	-4.5
843.2	7.125	1.864	7.725	2.747	0.000	1.636	0.748	51.7	10.9
873.2	7.398	1.858	7.692	2.784	0.000	1.637	0.757	49.7	-6.1
903.2	7.645	1.848	7.694	2.762	0.000	1.632	0.758	47.8	-6.9
933.2	7.894	1.841	7.668	2.792	0.000	1.632	0.766	46.1	-5.1
963.2	8.135	1.836	7.649	2.795	0.000	1.632	0.773	44.6	-5.8
993.2	8.401	1.826	7.638	2.800	0.000	1.629	0.777	43.0	-8.0
1023.2	8.643	1.815	7.619	2.803	0.000	1.626	0.784	41.5	-7.4
1053.2	8.897	1.808	7.621	2.797	0.000	1.622	0.784	40.2	-6.0
1083.2	9.149	1.800	7.597	2.810	0.000	1.621	0.792	38.9	-6.0
1113.2	9.392	1.793	7.596	2.811	0.000	1.618	0.794	37.7	-5.9
1143.2	9.645	1.786	7.576	2.826	0.000	1.617	0.801	36.6	-543.0
1203.2	10.144	1.769	7.543	2.841	0.000	1.613	0.813	34.5	517.4
1233.2	10.398	1.758	7.522	2.852	0.000	1.610	0.821	33.4	-9.1
1263.2	10.647	1.746	7.501	2.853	0.000	1.607	0.829	32.4	-9.2
1293.2	10.898	1.735	7.520	2.832	0.000	1.600	0.826	31.4	-9.0
1323.2	11.144	1.724	7.500	2.829	0.000	1.597	0.834	30.6	-8.0
1353.2	11.394	1.715	7.521	2.805	0.000	1.591	0.829	29.7	-7.7
1383.2	11.655	1.704	7.533	2.786	0.000	1.585	0.828	28.9	-9.2
1413.2	11.898	1.692	7.531	2.784	0.000	1.580	0.831	28.1	-8.6
1443.2	12.145	1.683	7.534	2.767	0.000	1.575	0.832	27.4	-8.1
1473.2	12.406	1.671	7.526	2.762	0.000	1.571	0.837	26.6	-9.3
1503.2	12.651	1.660	7.525	2.752	0.000	1.566	0.840	25.9	-8.9
1533.2	12.900	1.649	7.519	2.751	0.000	1.562	0.843	25.2	-8.3
1563.2	13.143	1.639	7.516	2.742	0.000	1.558	0.846	24.6	-8.6
1593.2	13.401	1.628	7.501	2.736	0.000	1.554	0.854	24.0	-8.2
1623.2	13.646	1.619	7.500	2.733	0.000	1.550	0.856	23.4	-8.5
1653.2	13.899	1.606	7.493	2.728	0.000	1.546	0.861	22.8	-9.4
1683.2	14.148	1.595	7.480	2.721	0.000	1.542	0.868	22.2	-9.4
1713.2	14.402	1.583	7.467	2.733	0.000	1.538	0.875	21.7	-10.9
1743.2	14.648	1.568	7.417	2.762	0.000	1.536	0.895	21.1	-11.6
1773.2	14.909	1.553	7.418	2.753	0.000	1.530	0.898	20.5	-12.2
1800.7	15.120	1.539	7.386	2.769	0.000	1.526	0.912	20.1	-13.4



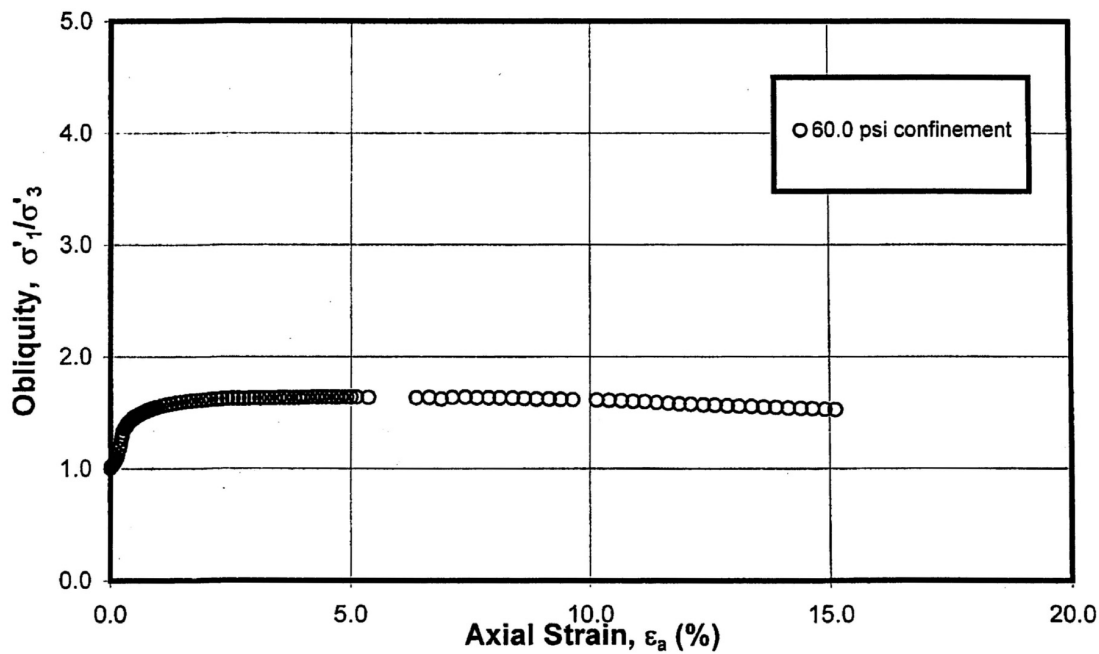
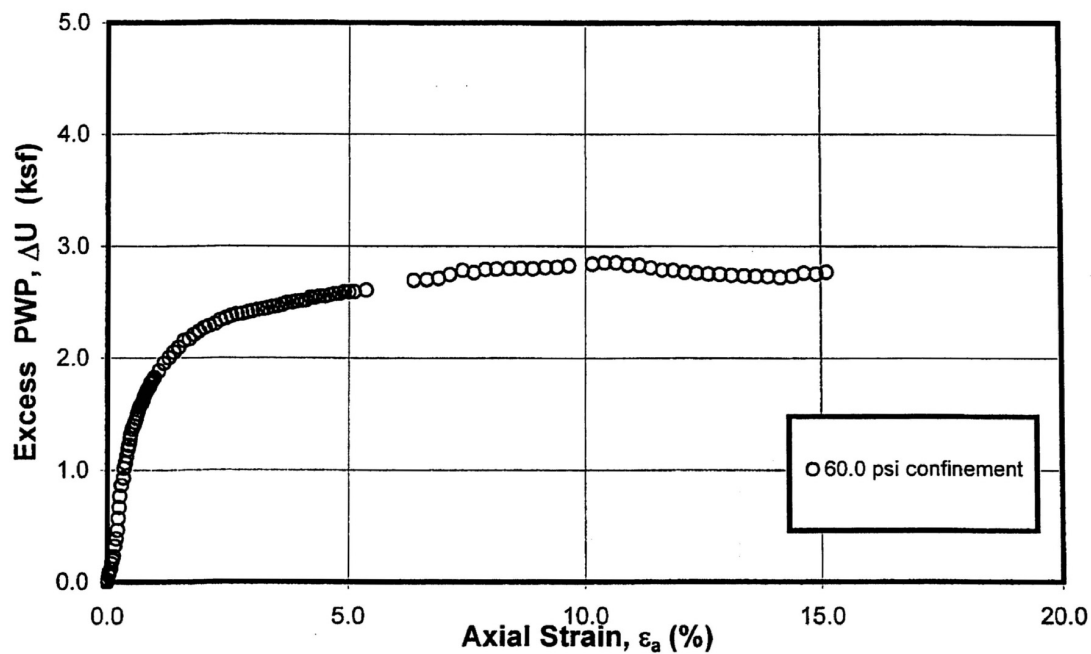
UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated

Sample: UD8c - Depth: 83.5-85.5 ft

Boring B-2304UD

Reviewed By: *WFD*



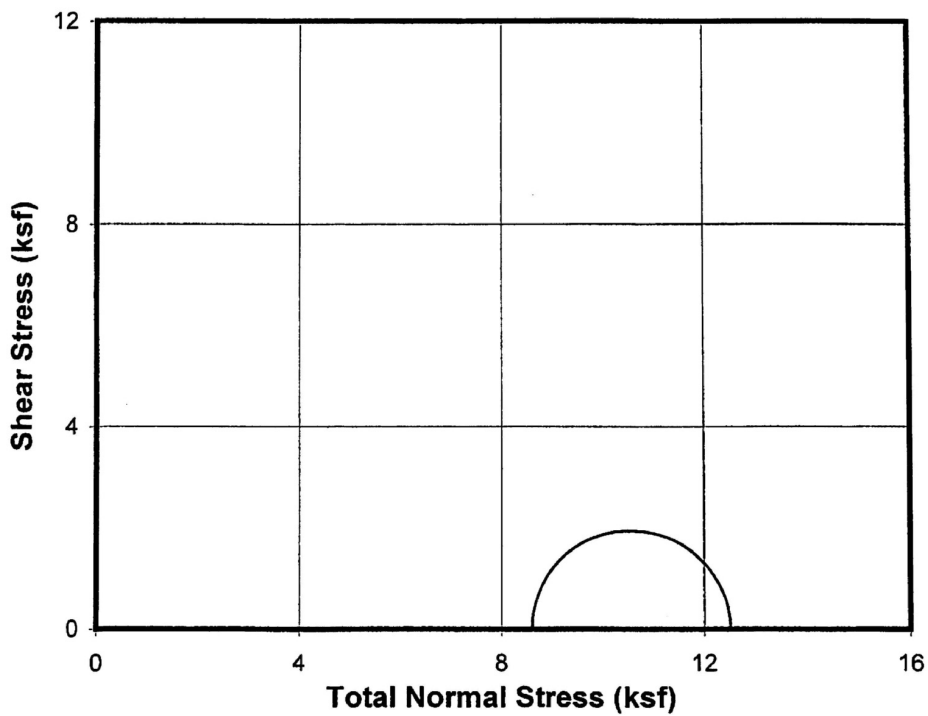
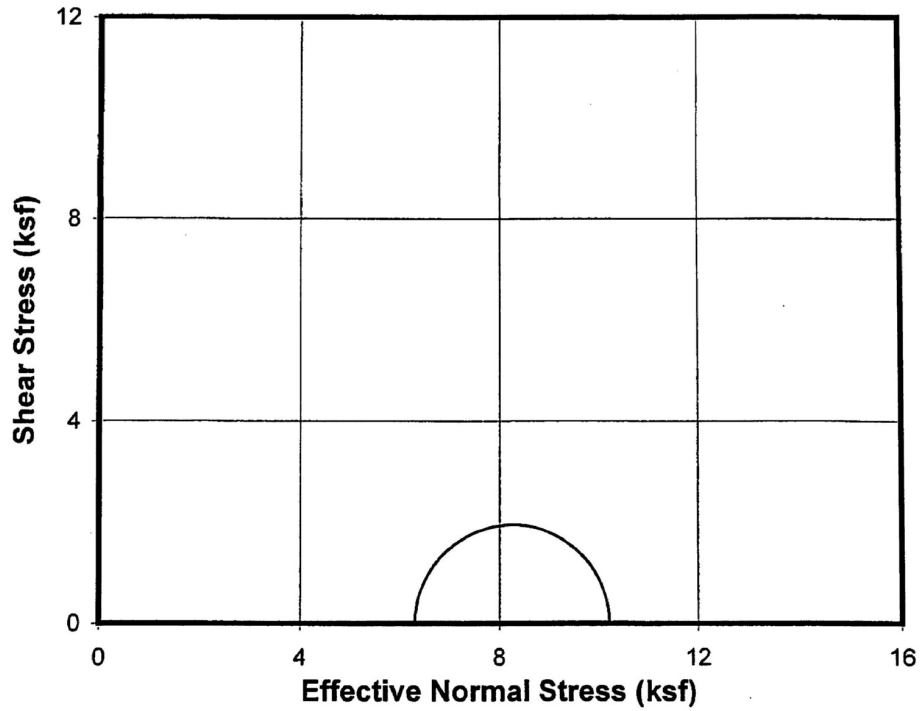
UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated

Sample: UD8c - Depth: 83.5-85.5 ft

Boring B-2304UD

Reviewed By: *WLD*



UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated- Mohr's Circles

Sample: UD8c - Depth: 83.5-85.5 ft

Boring B-2304UD

Reviewed By: W1D

TRIAXIAL TEST (ASTM D 4767-04): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: CIU Triaxial Cell No.: File Name: B-2304UD_UD11d
 Task No.: NA Test Stress(es), σ'_c or $\sigma'_{v,c}$ = 10.08 , & ksf
 Project Name: Exelon (Victoria) $k(\sigma'_{h,c} / \sigma'_{v,c})$ = 1.00 Induced OCR = 1.00 $K_{ua}(\sigma'_{d,ua} / 2\sigma'_{v,c})$ = NA

Assig. Remarks: Specific Gravity: 2.710 ☒ Meas.; ☐ Assumed

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	☐ Constant Effort: Blows/Tamps per Layer =
Boring No.: B-2304UD	☐ Reconstituted	☐ Impact/Rammer	Rammer Wgt. (lb) =	No. Layers =	
Sample No.: UD11	Compostite No.:	Pluviated:	Tamper Force (lb) =	Drop (in.) =	
Depth (ft): 111.0-113.0	Specimen No.: D	Kneading	Undercompaction: U_{ni} (%) =	Dia. (in.) =	
☐ Spec. Selection by X-ray;	☐ Geomarine Sample	Ref. Effort =	% Comp. =	$\pm$ Opt. =	

Type	☒ Isotropic	☐ K_o stress path	☒ Used automated system: Drained Axial Strain Rate, $\epsilon_{a,rate}$ (%/h) = ?Value
Consolidation:	☐ Anisotropic	☐ 45° stress path	Remarks:
Loading	☒ Static	☒ Undrained	☒ Comp.
Conditions:	☐ Post Cyclic	☐ Drained	☐ Ext.
☐ Strain	☐ Stress	☒ Constant Cell Pressure	☐ Cyclic (Hz)
☐ Stress Path	☐ Variable Cell Pressure	Rate: 0.1;	1; Other.

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	
Container No	997	584	715	5065
Mass Moist Soil + Cont. (g)	111.67	107.65	104.58	113.04
Mass Dry Soil + Container (g)	92.20	90.05	88.10	98.18
Mass Container (g)	31.59	31.74	32.04	31.14
Water Content, $W_{o,n}$ (%)	32.12	30.18	29.40	22.17
Avg. Initial WC, $W_{o,avg}$ (%)	30.57	Final (W_{at});	X Slice ;	Whole Spec.
See attached data sheet(s) for additional water contents				

SOIL MASSES:	Initial	Final
Moist + Tare (etc.) (g)	459.98	452.88
Tare (etc.) (g)	0.00	0.00
Mass Moist Spec., M_n (g)	459.98	452.88
Excess Dry Soil (soil not included in final mass measurement)		
Container No		
Mass Dry Soil + Cont. (g)		
Mass Container (g)		
Mass Excess Dry Soil, M_{des} (g)	0.00	

Specimen Dimensions, (mm)					
Height		Dia., X indicates with membrane			
Initial (H_o)	Final (H_{at})	Initial (D_o)	Final (D_{at})		
GB	100.000	87.000	1 T	50.90	55.50
1	15.44	8.64	2 M	51.00	60.50
2	15.43	8.59	3 B	50.90	51.50
3	15.42	7.98	1 T		
4	15.41	8.62	2 M		
5	15.40	9.28	3 B		
Avg.	115.42	95.62	Avg.	50.93	55.83

Estimated Initial Unit Weight		
Total, $\gamma_{t,o}$ (lb/ft ³) =	122.11	Dry, $\gamma_{d,o}$ (lb/ft ³) = 93.52
Membrane / Filter Paper / Apparatus		
Membrane (mm):	Top	Bottom
Number:	Thickness:	0.60
= 1	Single; ☒ Double	0.60
Circumference ($C_{m,o}$)		148.0
Total Thickness		Dia. ($C_{m,o} / \pi$)
Average:		0.33
		47.11

Measuring Devices:		$A_o = \pi D^2 / 400$ (cm ²)	20.37
PI Tape: ☒ Dia		V_o (cm ³)	235.17
Calipers: ☐ Ht.; ☐ Dia		$A_{alt,m} = \pi (D^*_{alt})^2 / 400$ (cm ²)	25.52
Dial Comparator: ☒ Ht.; ☐ Dia		$A_{alt,m} = (d_{min} - 2\Delta d) d_{max} / 400$ (cm ²)	NA
Remarks: ID# PI-002		$D^*_{alt} = (D_T + 2D_M + D_B) / 4$ (mm)	57.00

Filter Paper: Top + Bottom:	☐ Yes ; ☒ No
Filter Strips: ☒ Yes ; ☐ No	Number = 8
Type of Filter Strips	Vertical: 1/4 in. & Whatman #54
☒ Spiral: 1/4 in. & Whatman #1	

Apparatus: Mass Top Cap, M_{tc} =	53.4 g, 0.12 lbf
Mass Displ. System, M_{ds} (cap, dial, piston, etc.) =	NA g, NA lbf

Photo Taken. Failure Mode: NA - Not Applicable

Failure Sketch

$\epsilon_a =$ 20% →

☐ Bulge

☒ Wedge

☐ Parabolic

Wedge/Bulge Ht. = NA (mm)

Other Remarks: LL = 77 PL = 19 PI = 58

Final Visual Classification: Mottled Pale Yellow and Yellow Fat CLAY (CH)

Top Cap Attached:	Piston Dia. (in.)	Load Cell:
☐ Yes; ☒ No;	☒ 1/2; ☐ 3/4;	☐ External ☒ Internal
Top Cap - Rotation	Fixed, <1°;	Limited, <5°; ☒ Unlimited, >5°
With:	Frictionless End Caps;	Lat. Movement Top Cap
	Internal LVDT Jacket	

Trimmed / Reconstituted By: AW Set Up By: TP Taken Down By: TP
 Date: 5/16/2008 Date: 5/16/2008 Date: 6/2/2008
 Prelim. Calc. By: TP Final Calc. By: TP Reviewed By: *MDR*

☐ See more detailed sketch on attached sheet. Remarks: