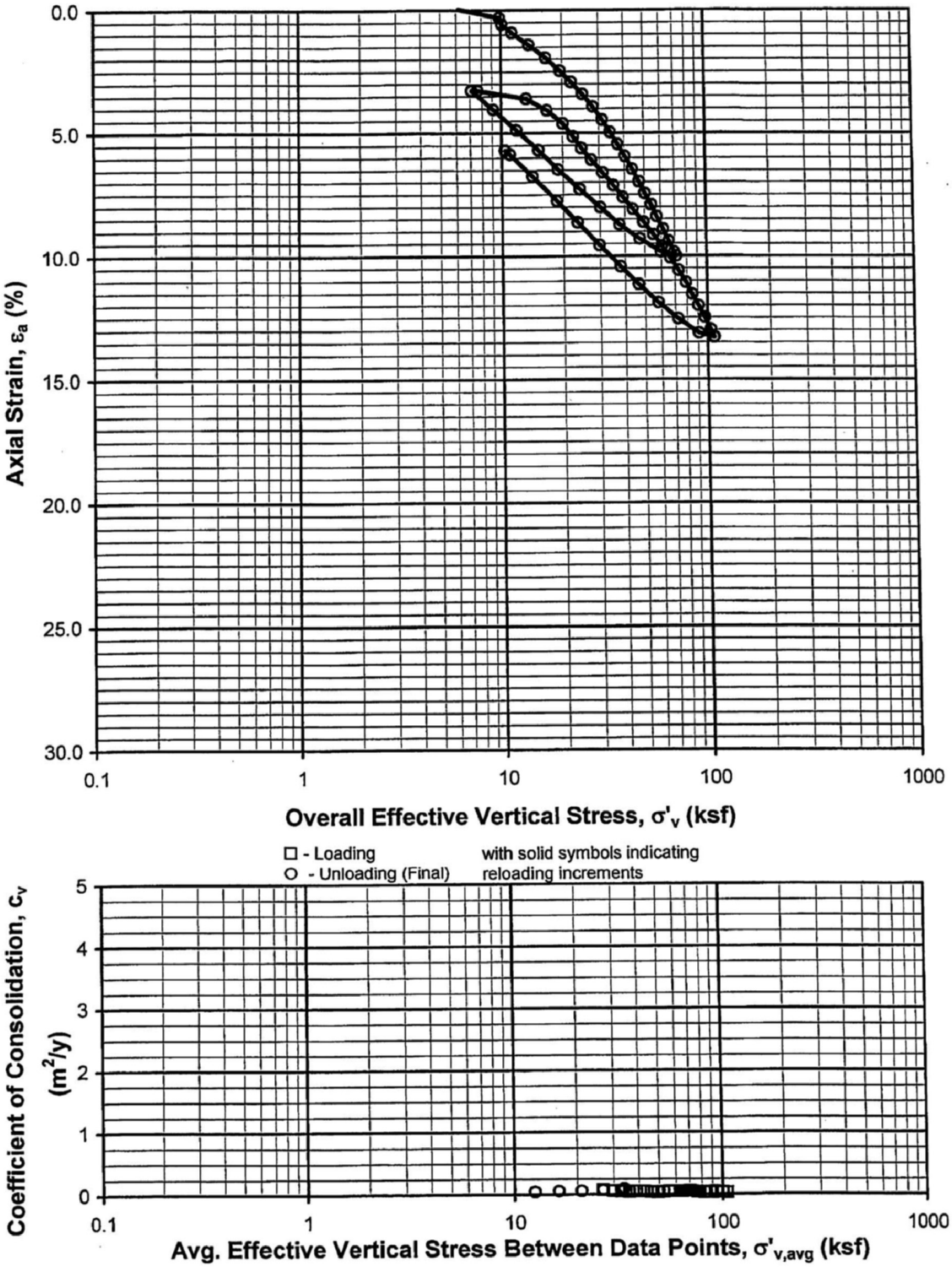
ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Load-ing Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water Pressure, ΔU_n (2) (ksf)	Loading Pore-Water Pressure Ratio, R_u $\Delta U_n / \sigma_{v,n}$ (%)	Corrected Specimen Height, $H_{c,n}$ (mm)	Calculations Between n and n-1: Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf)	Coefficient of Consolidation, c_v (m^2/y)	Average Void Ratio, e_{avg}	Hydraulic Conductivity, k @ 20°C (m/y)	Steady State Ratio, $SSR_n = \frac{c_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$	Rate of Secondary Comp. (3), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
	2057	77.81	10.48	0.492	80.24	3.618	4.5	17.204	74.27	3.72	0.495	4.13E-04	13.77	
	2099	84.45	10.85	0.486	87.06	3.888	4.5	17.133	81.13	3.33	0.489	3.81E-04	14.22	
	2140	91.03	11.25	0.479	93.93	4.318	4.6	17.056	87.74	3.04	0.482	3.74E-04	14.73	
	2181	97.33	11.63	0.473	100.53	4.757	4.7	16.982	94.18	2.62	0.476	3.22E-04	14.21	
	2223	103.67	12.01	0.466	107.15	5.171	4.8	16.910	100.50	2.38	0.470	2.85E-04	14.31	
	2264	110.35	12.41	0.460	114.15	5.659	5.0	16.832	107.01	2.29	0.463	2.77E-04	15.16	
	2305	117.11	12.80	0.453	121.21	6.101	5.0	16.758	113.73	2.10	0.456	2.43E-04	15.21	
	2346	123.78	13.16	0.447	128.07	6.368	5.0	16.688	120.45	1.91	0.450	2.13E-04	15.01	
	2388	131.06	13.56	0.441	135.55	6.679	4.9	16.612	127.42	1.97	0.444	2.22E-04	16.78	
	2429	138.47	13.94	0.434	143.12	6.909	4.8	16.538	134.77	1.90	0.437	2.03E-04	17.38	
UE	2470	145.90	14.30	0.428	150.69	7.128	4.7	16.470	142.19	1.83	0.431	1.79E-04	17.91	
	2472	146.27	14.33	0.428	151.07	7.143	4.7	16.465	146.08		0.428			
	2474	145.55	14.33	0.428	150.29	7.066	4.7	16.464	145.91		0.428			
	2658	100.88	14.21	0.430	100.51	-0.556	-0.6	16.487	123.21		0.429			
	2842	71.35	13.71	0.438	70.10	-1.875	-2.7	16.582	86.12		0.434			
	3026	49.99	13.07	0.449	48.18	-2.737	-5.7	16.707	60.67		0.443			
	3210	34.38	12.27	0.462	32.32	-3.135	-9.7	16.860	42.18		0.455			
US	3394	22.93	11.36	0.477	20.86	-3.184	-15.3	17.035	28.66		0.470			
	3578	14.88	10.36	0.494	12.79	-3.260	-25.5	17.226	18.91	1.17	0.486	2.58E-04	2.79	
	3761	9.21	9.32	0.511	7.18	-3.244	-45.2	17.427	12.04	0.88	0.503	2.69E-04	4.09	
	3945	5.84	8.29	0.528	3.99	-3.084	-77.3	17.624	7.53	0.57	0.520	2.73E-04	3.93	
	4129	3.33	7.19	0.547	1.77	-2.789	-157.3	17.836	4.59	0.52	0.538	3.13E-04	4.62	
UE	4313	1.71	6.02	0.566	0.67	-2.076	-310.8	18.062	2.52	0.41	0.556	4.00E-04	4.45	
	4336	1.64	5.87	0.569	0.64	-2.006	-315.0	18.090	1.68		0.567			

Boring B-2302UD, Sample UD-12A, Depth 78.5 - 80.5 ft

FUGRO CONSULTANTS, INC.



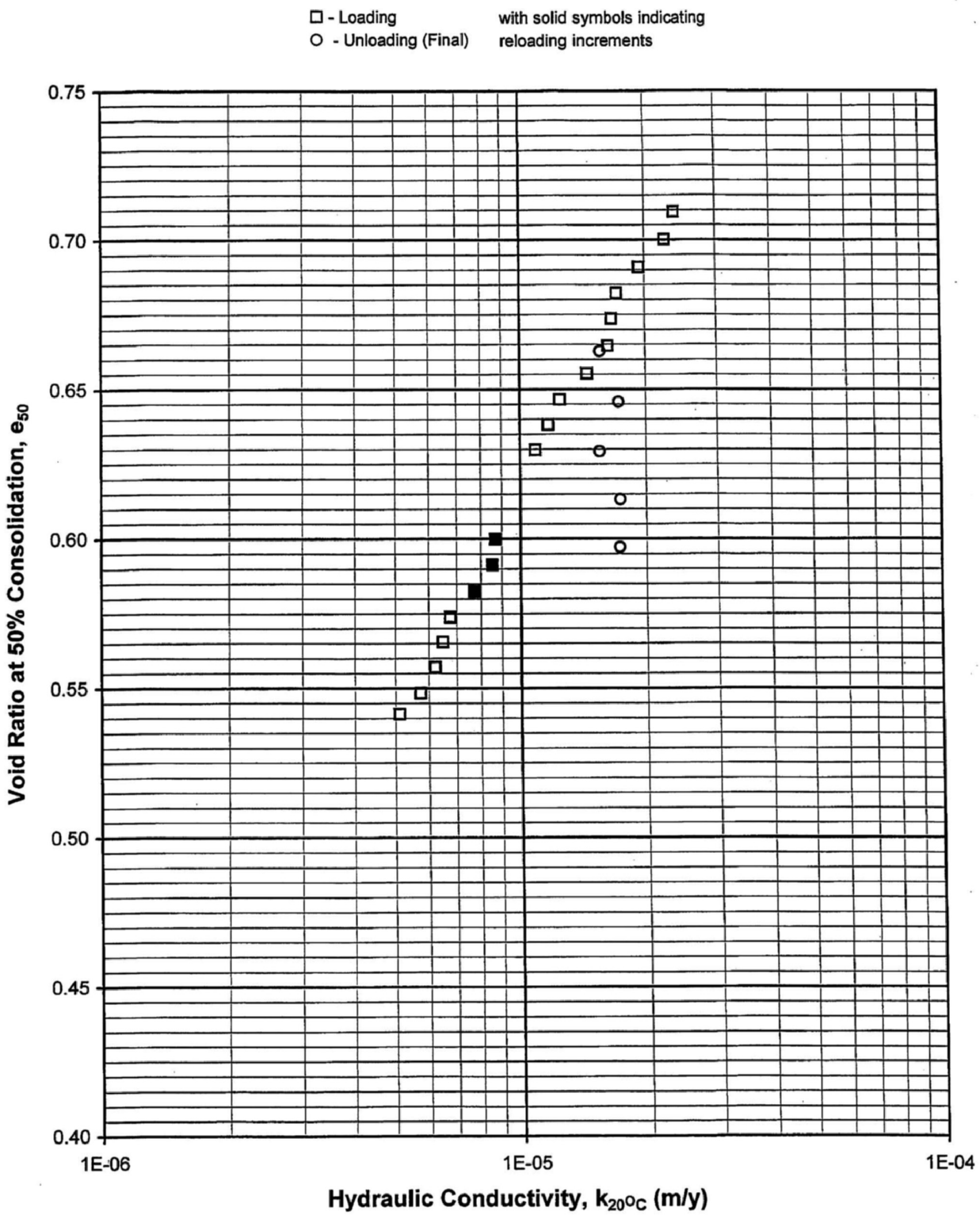
1-D CONSOLIDATION TEST: CRS

Sample No. UD-16A - Depth 120.5 - 122.5 ft

Boring B-2302UD

Reviewed By: HP

KAW 7/16/08 DCN# EXE808



1-D CONSOLIDATION TEST: CRS

Sample No. UD-16A - Depth 120.5 - 122.5 ft

Boring B-2302UD

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 | Test Station No.: CRS-9 | File Name: B-2302_UD16a
Task No.: NA | Specific Gravity, G_s: 2.720 [X] Meas. ; [ ] Assumed | Ring No.: 9
Project Name: Exelon (Victoria) | Assig. Remarks: | Ring Area, A_r (cm^2) = 31.659
TEST TYPE: [X] CRS (D 4186-06); [ ] Method A; [ ] Method B; [ ] Method C; [ ] Method D; | Ring Height (mm) = NA
[ ] Method E; [ ] Method F; [ ] Method G; [ ] Method H; [ ] Method I; [ ] Method J; | **Summary of Methods:** NA

[X] Tube [ ] Field Extruded	[ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer =
Boring No.: B-2302UD	[ ] LPC Core	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =
Sample No.: UD-16	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =
Depth (ft): 120.5 - 122.5	Specimen No.: A	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) =
[X] Spec. Selection by X-ray;	[X] Geomarine Sample		Ref. Effort= % Comp. =	± Opt.=

Water Content (W);	Initial - Trimming Location			Final, W_{at}	Soil and Ring Masses	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)	(see below)	Mass Moist Soil + Ring (g)	331.74	329.84
Container No.	2021	2037	5028	752	Mass Ring (g)	212.46	
Mass Moist Soil + Container (g)	122.09	116.59	89.61	59.46	Mass Moist Soil, $M_{t,o}$ or $M_{t,at}$ (g)	119.28	117.38
Mass Dry Soil + Container (g)	103.67	98.75	77.84	54.14	**EXCESS DRY SOIL (soil not incl. in final mass above)**		
Mass Container (g)	30.70	30.77	30.92	31.99	Container No.		2018
WATER CONTENT (%)	25.24	26.24	25.09	24.02	Mass Dry Soil + Container (g)		30.76
Avg. Initial Water Content, W4 (%)	25.52	Final W_{at}: [X] Slice ; [ ] Whole Spec.			Mass Container (g)		30.56
[ ] See attached data sheet(s) for additional water contents					Mass Excess Dry Soil, $M_{d,es}$ (g)		0.20

Soil Height: Measurements (mm)					Soil Height: Calculations, (mm)	Initial	Final
Initial		Final					
with Spec.	without Spec.	with Spec.	without Spec.		Height of Gauge Block, H_{gb} (1)	0.000	19.050
19.220	0.000	12.180	13.040		Reading on Gauge Block, d_{gb}	0.000	0.000
19.190	0.000	12.080	12.930		Avg. Reading on Soil, d_{soil}	19.192	12.140
19.210	0.000	12.180	12.970		Avg. Reading on Apparatus without Specimen, d_{app}	0.000	12.968
19.160	0.000	12.200	12.980		Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$	19.192	18.222
19.180	0.000	12.060	12.920		**Soil Height: Final by Dial Change During Test (mm)**		
[ ] Yes ;	[X] No	[X] Yes ;	[ ] No	Require H_{gb} & d_{gb} (1)	Initial Height, H_o		19.192
[ ] Yes ;	[X] No	[X] Yes ;	[ ] No	Filter Paper Included:	Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$		1.092
(1) Req. block ht. to set bench comparator so the final soil ht. can be determined directly by the diff. between the reading with and without spec. : ~ 12.7 mm; CRS ~ 25 mm					Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$		18.100
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.					Final Soil Height Measurement, $H_{f,m}$		18.222
					Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$		-0.64

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf)= 122.55	Dry, $\gamma_{d,o}$ (pcf)= 97.63

Filter Paper Used: [X] Whatman No. 54; [ ] Other
Incremental Test: Top & Bottom: [ ] Yes ; [ ] No
CRS Test: Top Only: [X] Yes ; [ ] No

Soil Extruded During Loading	
Container No.	
Mass Dry Soil + Cont. (g)	NA
Mass Cont. (g)	NA
Dry Mass - Soil Extruded During Loading, $M_{d,et}$ (g)	0.00

Photo taken of Sliced Test Specimen: [ ] Yes ; [X] No

Final Visual Description: Very Pale Brown Fat CLAY (CH)

Trimming/Etc. Remarks:

Method of trimming periphery: [X] "Casagrande" Lathe ; [ ] Cutting Shoe ; [ ] Wire Saw; [ ] Other
Method of trimming ends: [ ] Wire Saw & Sharp (knife) Straight Edge; [X] Wire Saw & Straight Edge; [ ] Wire Saw

Trim./Recon. By: JTG | Setup By: JTG | Prelim. Calc. By: DH | Take Down By: JTG
Date: 3/31/2008 | Date: 4/1/2008 | Final Calc. By: DH | Date: 4/23/2008
Reviewed By: HP HP

Note: NA - Not Applicable

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: CRS-9 File Name: B-2302_UD16a

Task No.: NA Specific Gravity, G_s: 2.720 [X] Measured ; [ ] Assumed.

Calculations Corrected for Salt (dissolved solids): [X] No or, [ ] Yes, with Concentration = _____ g/kg

Cal.-Routine	ITEM	Water Content, (%)	Mass Dry Soil, (g)	Degree of Saturation, S in %		
				Height Initial	Final Height Meas.	Final Height Dial
1	Initial, Top, W1	25.24	95.24	93.8	98.1	99.8
2	" Bottom, W2	26.24	94.48	95.7	100.2	101.9
3	" Sides, W3	25.09	95.36	93.5	97.8	99.5
4	" Average, W4	25.52	95.03	94.3	98.7	100.4
5	" Back Calculated (1)	25.76	94.85 (3)	94.8	99.2	100.9
6	Final	24.02	94.85 (2)	94.8	99.2	100.9

Calculated Specific Gravity for Final Saturation = 100%:

Used Cal. Routine No. 5 to obtain the mass of dry soil

and final height by: [X] Measurement; [ ] Dial Change.

Back Cal. G_s = 2.706

Avg. G_s (measured/assumed) & Back Cal. G_s = 2.713

Calculation Constant, K = (unit conversion) / $G_s \times \rho_w \times A_r$	
Estimated, K_e	0.11634
Final Selected, K_f	0.11634

Calculated Mass Dry Soil for Final Saturation = 100%: using measured/assumed G_s

and final height by: [X] Measurement; [ ] Dial Change.

Back Cal. Mass Dry Soil, (g) = 94.56

Avg. Back Calculated and Measured Mass Dry Soil (g) = 94.70

Summary of Specimen Physical Properties

Specific Gravity G_s = 2.720		[ ] Assumed	[ ]	To make S_f = 100% at end of test.	
		[X] Measured	[ ]	Avg. of measured/assumed G_s and G_s to make S_f = 100%	
Mass Dry Soil, (g)	Initial: 94.85	[X] From Cal. Routine No.	5	Note: Routine #5 is based on final measurements.	
	Final (4): NA	[ ] Make S_f = 100%, or;	[ ]	Avg. of measured & make S_f = 100%	
Initial Height (mm) = 19.19		[X] Measured ;	[ ]	Back Calculated	Back-cal. Sat. (%) = NA
Final Height (mm) = 18.22		[X] Measured ;	[ ]	Initial H_o & dial change during loading	

	Water Content, w (%)	Void Ratio, e	Degree of Saturation, S (%)	Total Unit Weight, γ_t (pcf)	Dry Unit Weight, γ_d (pcf)	Height of Solids, H_s (2,4) (mm)	Extruded soil loss proportioned in increasing loading increments (5) : From	To (ksf)
Initial	25.8	0.739	94.8	122.6	97.5	11.034		
Final	23.8	0.651	99.2	127.0	102.6	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ε_a (%)	CR	RR	OCR			
Casagrande Method	30.00	NA	0.181	0.103	2.8	Liquid Limit (LL)	76	Minus 200 (%)
Becker Method	NA	Becker minimium σ'_p (ksf):			NA	Plastic Limit (PL)	16	87.1
						Plasticity Index (PI)	60	

NA - Indicates not applicable

Notes:

(1) Back Calculated based on final mass of oven-dry soil (corrected for dry mass of any excess and extruded soil).

(2) Corrected for any excess dry soil (soil stuck to ring, filter paper, etc.).

(3) This value is only different from the final value if there is soil extrusion during loading.

(4) Final is only different from the initial value if there is soil extrusion during loading.

(5) There should not be any soil loss in a CRS test, unless stress increments are applied.

Calculated By: DH Reviewed By: HP

Date: 4/24/2008

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-9 File Name: B-2302_UD16a
Task No.: NA Date; Start: 4/1/2008 Initial Height, H_o (mm): 19.19
Project Name: Exelon (Victoria) Completed: 4/23/2008 Ring Area, A_r (cm^2): 31.6591
Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 [X] Undisturbed or ; [ ] Reconstituted - Specimen.
Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.27159 ,V: 0.023597341 Piston Uplift, P_{up} (lbf): 34.52
Back Pressure, $U_{b,CS}$ (psi): 70.27511 ,V: 0.023598519 Setup DT_{ref} (V): 0.000662986
Displacement Transducer No.: DT-109 Calib. Factor (mm/V): 216.802057 Ch. No.: 2
Pore Press. Transducer No.: PT-118 Calib. Factor (psi/V): 2990.57176 Ref. Zero (V): 0.000100 Ch. No.: 3
Force Cell No.: FT-110 Calib. Factor (lbf/V): -468290.88 Ref. Zero (V): -0.000065 Ch. No.: 1

Notes:

(1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain
US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate

(2) Total Vertical Stress (σ_v) corrected to account for the force caused by the back pressure acting on the piston (Piston Uplift).

(3) Increasing deformation value indicates: [X] compression; or [ ] swell.

(4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: DH Reviewed By: HP

Remarks:

Loading Info. (1)	Julian Day (dd)	Hour (hr.:min.:s)	Elapsed Time from Start of Loading, Δt_n (min)	Total Vertical Stress, $\sigma_{v,n}$ (2) (ksf)	Excess Pore-Water Pressure, ΔU_n (ksf)	Total Specimen Deformation, ΔH_n (3) (mm)	Apparatus Flexibility Correction, $\Delta d_{afc,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta\varepsilon_{ac,rate}$ (%/hr)
S	92	17 : 10 : 09		0.14		0.000			
BS	92	17 : 41 : 49		2.35		0.039	0.000	0.039	
BE	93	09 : 24 : 17		6.18	-0.001	-0.009	0.000	-0.009	
CS	93	09 : 24 : 20	0	6.18	0.000	-0.009	0.000	-0.009	
	93	10 : 04 : 56	41	11.98	2.986	0.059	0.000	0.059	0.520
	93	11 : 14 : 58	111	13.93	5.270	0.108	0.000	0.108	0.222
	93	14 : 13 : 09	289	16.61	7.206	0.174	0.000	0.174	0.116
US	93	18 : 50 : 06	566	20.26	8.945	0.269	0.000	0.269	0.107
	93	23 : 27 : 02	843	24.91	11.337	0.372	0.000	0.372	0.116
	94	04 : 03 : 59	1120	29.03	13.020	0.473	0.000	0.473	0.114
	94	08 : 40 : 56	1397	32.27	14.052	0.561	0.000	0.561	0.100
	94	13 : 17 : 53	1674	35.71	14.724	0.655	0.000	0.655	0.106
	94	17 : 54 : 50	1951	40.22	16.731	0.753	0.000	0.753	0.110
	94	22 : 31 : 47	2227	44.34	18.164	0.857	0.000	0.857	0.117
	95	03 : 08 : 44	2504	47.89	19.036	0.954	0.000	0.954	0.109
	95	07 : 45 : 41	2781	51.28	19.779	1.044	0.000	1.044	0.102
	95	12 : 22 : 38	3058	55.81	21.516	1.139	0.000	1.139	0.107
	95	16 : 59 : 35	3335	60.74	23.491	1.241	0.000	1.241	0.115
	95	21 : 36 : 32	3612	65.20	24.945	1.340	0.000	1.340	0.112
	96	02 : 13 : 29	3889	68.97	25.795	1.430	0.000	1.430	0.102
	96	06 : 50 : 26	4166	73.56	27.289	1.520	0.000	1.520	0.101
UE	96	11 : 27 : 22	4443	79.51	30.693	1.612	0.000	1.612	0.104
	96	16 : 04 : 19	4720	84.58	32.034	1.710	0.000	1.710	0.111
	96	20 : 41 : 16	4997	88.79	32.370	1.801	0.000	1.801	0.103

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Loading Info. (1)	Julian Day (dd)	Hour (hr.:min.:s)	Elapsed Time from Start of Loading, Δt_n (min)	Total Vertical Stress, $\sigma_{v,n}$ (2) (ksf)	Excess Pore-Water Pressure, ΔU_n (ksf)	Total Specimen Deformation, ΔH_n (3) (mm)	Apparatus Flexibility Correction, $\Delta d_{afc,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta\varepsilon_{ac,rate}$ (%/hr)
	97	01 : 18 : 16	5274	93.50	33.173	1.890	0.000	1.890	0.100
	97	03 : 50 : 35	5426	95.40	33.722	1.920	0.000	1.920	0.061
	97	03 : 50 : 36	5426	95.40	33.722	1.920	0.000	1.920	0.435
	97	18 : 04 : 32	6280	62.33	3.421	1.888	0.000	1.888	-0.012
	98	08 : 18 : 31	7134	46.38	-1.617	1.786	0.000	1.786	-0.037
	98	22 : 32 : 29	7988	34.79	-4.250	1.672	0.000	1.672	-0.042
US	99	12 : 46 : 27	8842	26.46	-5.802	1.539	0.000	1.539	-0.049
	100	03 : 00 : 26	9696	19.76	-6.725	1.398	0.000	1.398	-0.051
	100	17 : 14 : 23	10550	14.27	-7.438	1.242	0.000	1.242	-0.057
	101	07 : 28 : 24	11404	10.47	-7.805	1.090	0.000	1.090	-0.056
	101	21 : 42 : 23	12258	7.24	-7.970	0.937	0.000	0.937	-0.056
UE	102	11 : 56 : 20	13112	4.70	-8.053	0.775	0.000	0.775	-0.059
	103	01 : 48 : 03	13944	3.05	-7.885	0.626	0.000	0.626	-0.056
	103	02 : 10 : 17	13966	3.46	-7.854	0.625	0.000	0.625	-0.009
	103	07 : 10 : 18	14266	9.07	-6.981	0.689	0.000	0.689	0.066
	103	12 : 10 : 20	14566	13.46	-5.220	0.781	0.000	0.781	0.097
	103	17 : 10 : 21	14866	18.78	-1.903	0.884	0.000	0.884	0.106
	103	22 : 10 : 23	15166	24.46	2.919	0.986	0.000	0.986	0.107
	104	03 : 10 : 24	15466	30.08	7.756	1.076	0.000	1.076	0.093
	104	08 : 10 : 26	15766	35.99	12.050	1.167	0.000	1.167	0.095
US	104	13 : 10 : 27	16066	43.22	16.882	1.267	0.000	1.267	0.104
	104	18 : 10 : 29	16366	49.91	20.340	1.368	0.000	1.368	0.106
	104	23 : 10 : 31	16666	55.50	22.438	1.461	0.000	1.461	0.097
	105	04 : 10 : 32	16966	61.53	24.379	1.554	0.000	1.554	0.096
	105	09 : 10 : 33	17266	69.34	27.461	1.654	0.000	1.654	0.105
	105	14 : 10 : 34	17566	76.53	29.561	1.753	0.000	1.753	0.102
	105	19 : 10 : 35	17866	82.85	30.810	1.844	0.000	1.844	0.095
	106	00 : 10 : 37	18166	89.66	32.151	1.934	0.000	1.934	0.094
	106	05 : 10 : 38	18466	98.47	35.569	2.030	0.000	2.030	0.100
	106	10 : 10 : 40	18766	106.40	37.886	2.126	0.000	2.126	0.100
	106	15 : 10 : 41	19066	112.82	39.397	2.215	0.000	2.215	0.093
	106	20 : 10 : 43	19366	120.00	41.006	2.305	0.000	2.305	0.094
	107	01 : 10 : 45	19666	129.24	44.876	2.398	0.000	2.398	0.097
	107	06 : 10 : 46	19966	137.57	47.615	2.492	0.000	2.492	0.098
	107	09 : 27 : 38	20163	142.43	48.587	2.550	0.000	2.550	0.091
UE	107	09 : 38 : 29	20174	141.69	48.329	2.553	0.000	2.553	0.090
	108	02 : 10 : 55	21167	95.56	6.718	2.520	0.000	2.520	-0.010
	108	18 : 43 : 23	22159	71.15	-1.756	2.410	0.000	2.410	-0.035
	109	11 : 15 : 48	23151	54.77	-4.786	2.283	0.000	2.283	-0.040
	110	03 : 48 : 14	24144	42.38	-6.493	2.137	0.000	2.137	-0.046
US	110	20 : 20 : 41	25136	33.05	-7.416	2.001	0.000	2.001	-0.043
	111	12 : 53 : 07	26129	24.61	-8.161	1.834	0.000	1.834	-0.052

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Loading Info. (1)	Julian Day (dd)	Hour (hr.:min.:s)	Elapsed Time from Start of Loading, Δt_n (min)	Total Vertical Stress, $\sigma_{v,n}$ (2) (ksf)	Excess Pore-Water Pressure, ΔU_n (ksf)	Total Specimen Deformation, ΔH_n (3) (mm)	Apparatus Flexibility Correction, $\Delta d_{afc,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta\varepsilon_{ac,rate}$ (%/hr)
	112	05 : 25 : 35	27121	17.98	-8.714	1.655	0.000	1.655	-0.057
	112	21 : 58 : 01	28114	13.14	-8.997	1.488	0.000	1.488	-0.053
	113	14 : 30 : 27	29106	8.75	-9.199	1.297	0.000	1.297	-0.060
UE	114	07 : 02 : 54	30099	5.86	-9.248	1.122	0.000	1.122	-0.055
	114	09 : 58 : 21	30274	5.33	-9.246	1.092	0.000	1.092	-0.053
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ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Project Number: 0411-08-1686 Test Station No.: CRS-9 [X] Undisturbed or ; [ ] Reconstituted - Specimen. File Name: B-2302_UD1(

Task No.: NA Date; Start: 4/1/2008 Back Pressure, $U_{b,cs}$ (psi): 70.3 Piston Uplift, P_{up} (lbf): 34.52

Project Name: Exelon (Victoria) Completed: 4/23/2008 Transient Time Factor, $T_v = (C_v \cdot t) / H^2$ = 0.5

4186-06-Summary of Methods: NA [ ] Data corrected for salt _____; in [ ] g/kg

Final Description of Specimen: Very Pale Brown Fat CLAY (CH)

	Ring No.:	9	Area, A_r (cm^2):	31.659	Solids Ht., H_s (mm):	11.034	Specific Gravity, G_s =	2.720	[X] Meas. ;	[ ] Assumed					
Initial:	Height	H_o:	19.19	Water	25.8	Void	0.739	Deg. of	94.8	Total Unit	122.6	Dry Unit	97.5		
Final:	(mm):	H_f:	18.22	Content, w (%):	23.8	Ratio, e:	0.651	Sat., S (%):	99.2	Weight, γ_t (pcf):	127.0	Weight, γ_d (pcf):	102.6		

Notes:

(1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain, US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate or ΔU_n to errati

(2) Excess pore-water pressure measured at the base of the specimen.

(3) Only applicable during stress controlled (SC) loading.

Data Management by: DH Reviewed By: HP HP

Load-ing Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water Pressure, ΔU_n (2) (ksf)	Loading Pore-Water Pressure Ratio, R_u $\Delta U_n / \sigma_{v,n}$ (%)	Corrected Specimen Height, $H_{c,n}$ (mm)	Calculations Between n and n-1: Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf)	Coefficient of Consolidation, c_v (m^2/y)	Average Void Ratio, e_{avg}	Hydraulic Conductivity, k @ 20°C (m/y)	Steady State Ratio, $SSR_n = \frac{c_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$	Rate of Secondary Comp. (3), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
S					0.14				Data on given line represents average conditions between that line and the previous line of data.					
BS			0.20	0.736	2.35			19.153						
BE		6.18	-0.05	0.740	6.18	-0.001	0.0	19.201			0.738			
CS	0	6.18	-0.05	0.740	6.18	0.000	0.0	19.201			0.740			
	41	9.89	0.30	0.734	11.98	2.986	24.9	19.133	8.04		0.737			
	111	10.15	0.56	0.730	13.93	5.270	37.8	19.084	10.02		0.732			
	289	11.37	0.91	0.724	16.61	7.206	43.4	19.018	10.76		0.727			
US	566	13.74	1.40	0.715	20.26	8.945	44.1	18.923	12.56		0.719			
	843	16.61	1.94	0.706	24.91	11.337	45.5	18.820	15.18		0.710		0.35	
	1120	19.52	2.46	0.696	29.03	13.020	44.9	18.719	18.07		0.701		0.51	
	1397	22.04	2.92	0.688	32.27	14.052	43.5	18.631	20.78		0.692		0.54	
	1674	25.05	3.41	0.680	35.71	14.724	41.2	18.537	23.55		0.684		0.74	
	1951	28.10	3.92	0.671	40.22	16.731	41.6	18.439	26.58	0.07	0.676	2.37E-05	1.11	
	2227	31.20	4.46	0.662	44.34	18.164	41.0	18.335	29.65	0.06	0.666	2.25E-05	1.10	
	2504	34.16	4.97	0.653	47.89	19.036	39.7	18.238	32.68	0.05	0.657	1.94E-05	1.05	
	2781	37.06	5.44	0.645	51.28	19.779	38.6	18.148	35.61	0.04	0.649	1.71E-05	1.10	
	3058	40.34	5.93	0.636	55.81	21.516	38.6	18.053	38.70	0.05	0.640	1.66E-05	1.57	

ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Load-ing Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water Pressure, ΔU_n (2) (ksf)	Loading Pore-Water Pressure Ratio, R_u $\Delta U_n / \sigma_{v,n}$ (%)	Corrected Specimen Height, $H_{c,n}$ (mm)	Calculations Between n and n-1: Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf)	Coefficient of Consolidation, c_v (m^2/y)	Average Void Ratio, e_{avg}	Hydraulic Conductivity, k @ 20°C (m/y)	Steady State Ratio, $SSR_n = \frac{c_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$	Rate of Secondary Comp. (3), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
	3335	43.84	6.46	0.627	60.74	23.491	38.7	17.951	42.09	0.05	0.632	1.62E-05	1.73	
	3612	47.28	6.98	0.618	65.20	24.945	38.3	17.852	45.56	0.04	0.622	1.45E-05	1.61	
	3889	50.48	7.45	0.610	68.97	25.795	37.4	17.762	48.88	0.04	0.614	1.25E-05	1.42	
	4166	54.00	7.92	0.602	73.56	27.289	37.1	17.672	52.24	0.04	0.606	1.17E-05	1.79	
UE	4443	57.43	8.40	0.593	79.51	30.693	38.6	17.580	55.72	0.05	0.597	1.09E-05	2.29	
	4720	61.58	8.91	0.584	84.58	32.034	37.9	17.482	59.51		0.589			
	4997	65.62	9.39	0.576	88.79	32.370	36.5	17.391	63.60		0.580			
	5274	69.81	9.85	0.568	93.50	33.173	35.5	17.302	67.72		0.572			
	5426	71.33	10.00	0.565	95.40	33.722	35.3	17.272	70.57		0.567			
	5426	71.33	10.00	0.565	95.40	33.722	35.3	17.272	71.33		0.565			
	6280	60.02	9.84	0.568	62.33	3.421	5.5	17.304	65.68		0.567			
	7134	47.45	9.31	0.577	46.38	-1.617	-3.5	17.406	53.74		0.573			
	7988	37.57	8.71	0.588	34.79	-4.250	-12.2	17.520	42.51		0.583			
US	8842	30.20	8.02	0.600	26.46	-5.802	-21.9	17.653	33.88		0.594			
	9696	24.03	7.28	0.613	19.76	-6.725	-34.0	17.794	27.11	0.12	0.606	2.22E-05	1.22	
	10550	18.88	6.47	0.627	14.27	-7.438	-52.1	17.950	21.45	0.09	0.620	2.18E-05	1.87	
	11404	15.18	5.68	0.640	10.47	-7.805	-74.5	18.102	17.03	0.06	0.634	1.98E-05	1.94	
	12258	11.87	4.88	0.654	7.24	-7.970	-110.1	18.255	13.53	0.06	0.647	1.93E-05	2.32	
UE	13112	9.14	4.04	0.669	4.70	-8.053	-171.4	18.417	10.51	0.05	0.662	1.99E-05	2.54	
	13944	7.14	3.26	0.683	3.05	-7.885	-258.9	18.566	8.14		0.676			
	13966	7.62	3.26	0.683	3.46	-7.854	-227.1	18.567	7.38		0.683			
	14266	13.27	3.59	0.677	9.07	-6.981	-76.9	18.503	10.45		0.680			
	14566	16.75	4.07	0.669	13.46	-5.220	-38.8	18.411	15.01		0.673			
	14866	20.03	4.60	0.659	18.78	-1.903	-10.1	18.308	18.39		0.664			
	15166	22.48	5.14	0.650	24.46	2.919	11.9	18.206	21.25		0.655			
	15466	24.66	5.61	0.642	30.08	7.756	25.8	18.116	23.57		0.646			
	15766	27.42	6.08	0.634	35.99	12.050	33.5	18.025	26.04		0.638			
US	16066	31.07	6.60	0.625	43.22	16.882	39.1	17.925	29.25		0.629			
	16366	35.21	7.13	0.615	49.91	20.340	40.8	17.824	33.14		0.620		0.28	
	16666	39.29	7.61	0.607	55.50	22.438	40.4	17.731	37.25		0.611		0.41	

Boring B-2302UD, Sample UD-16A, Depth 120.5 - 122.5 ft

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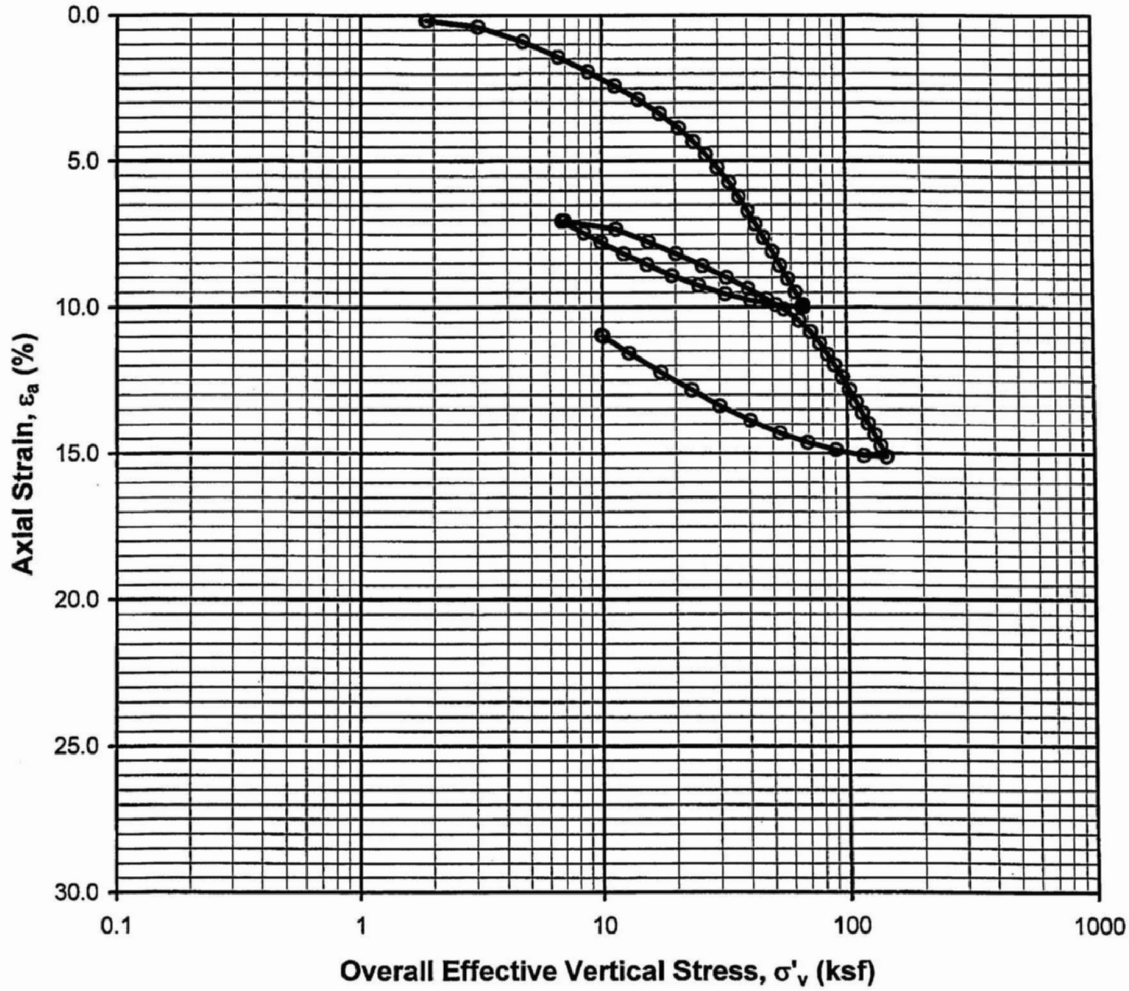
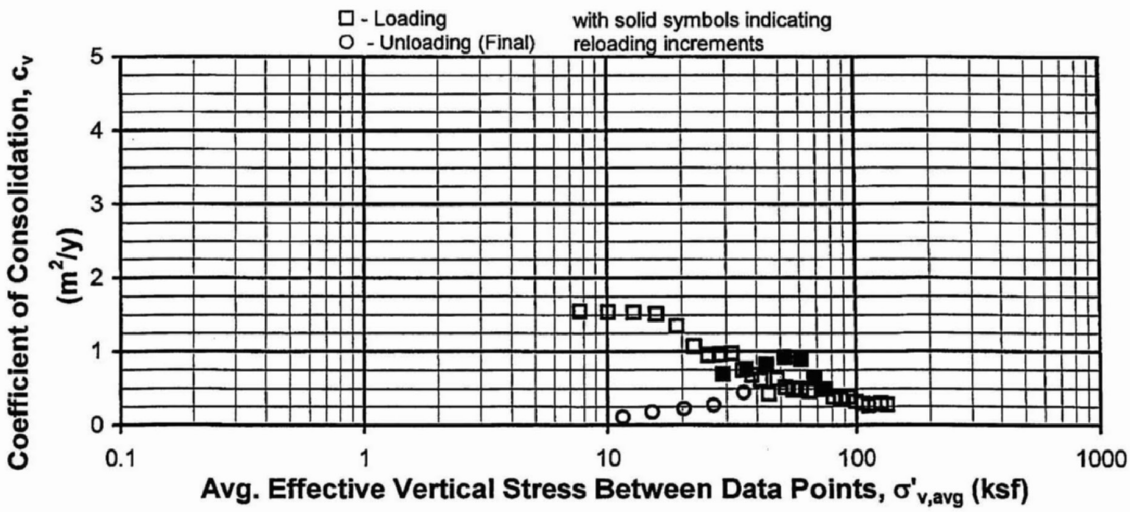
ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

Load-ing Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water Pressure, ΔU_n (2) (ksf)	Loading Pore-Water Pressure Ratio, R_u $\Delta U_n / \sigma_{v,n}$ (%)	Corrected Specimen Height, $H_{c,n}$ (mm)	Calculations Between n and n-1: Average Effective Vertical Stress, $\sigma'_{v,avg}$ (ksf)	Coefficient of Consolidation, c_v (m^2/y)	Average Void Ratio, e_{avg}	Hydraulic Conductivity, k @ 20°C (m/y)	Steady State Ratio, $SSR_n = \frac{c_v \cdot t_n \cdot UCF}{T_v \cdot (H_{c,avg})^2}$	Rate of Secondary Comp. (3), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
	16966	43.96	8.10	0.599	61.53	24.379	39.6	17.638	41.62		0.603		0.61	
	17266	49.55	8.62	0.589	69.34	27.461	39.6	17.538	46.75		0.594		0.95	
	17566	55.27	9.13	0.580	76.53	29.561	38.6	17.439	52.41		0.585		0.99	
	17866	60.76	9.61	0.572	82.85	30.810	37.2	17.348	58.02		0.576		1.00	
	18166	66.68	10.08	0.564	89.66	32.151	35.9	17.258	63.72	0.05	0.568	8.69E-06	1.22	
	18466	73.04	10.58	0.555	98.47	35.569	36.1	17.162	69.86	0.05	0.560	8.54E-06	1.68	
	18766	79.34	11.08	0.547	106.40	37.886	35.6	17.066	76.19	0.04	0.551	7.72E-06	1.57	
	19066	84.73	11.54	0.539	112.82	39.397	34.9	16.977	82.04	0.03	0.543	6.75E-06	1.35	
	19366	90.81	12.01	0.530	120.00	41.006	34.2	16.887	87.77	0.04	0.534	6.48E-06	1.60	
	19666	97.25	12.50	0.522	129.24	44.876	34.7	16.794	94.03	0.04	0.526	6.21E-06	2.11	
	19966	103.64	12.99	0.513	137.57	47.615	34.6	16.700	100.44	0.04	0.518	5.73E-06	1.91	
	20163	107.84	13.29	0.508	142.43	48.587	34.1	16.642	105.74	0.03	0.511	5.10E-06	1.72	
UE	20174	107.28	13.30	0.508	141.69	48.329	34.1	16.639	107.56		0.508		-4.74	
	21167	91.03	13.13	0.511	95.56	6.718	7.0	16.672	99.16		0.509			
	22159	72.32	12.56	0.521	71.15	-1.756	-2.5	16.782	81.67		0.516			
	23151	57.91	11.89	0.532	54.77	-4.786	-8.7	16.909	65.11		0.527			
	24144	46.61	11.14	0.546	42.38	-6.493	-15.3	17.055	52.26		0.539			
US	25136	37.83	10.42	0.558	33.05	-7.416	-22.4	17.191	42.22		0.552			
	26129	29.79	9.56	0.573	24.61	-8.161	-33.2	17.358	33.81	0.10	0.566	1.73E-05	1.23	
	27121	23.40	8.62	0.589	17.98	-8.714	-48.5	17.537	26.59	0.08	0.581	1.73E-05	1.88	
	28114	18.60	7.75	0.604	13.14	-8.997	-68.5	17.704	21.00	0.06	0.597	1.54E-05	2.09	
	29106	14.12	6.76	0.622	8.75	-9.199	-105.2	17.895	16.36	0.06	0.613	1.72E-05	2.69	
UE	30099	11.02	5.85	0.638	5.86	-9.248	-157.9	18.070	12.57	0.04	0.630	1.55E-05	2.45	
	30274	10.42	5.69	0.640	5.33	-9.246	-173.5	18.100	10.72		0.639			

Boring B-2302UD, Sample UD-16A, Depth 120.5 - 122.5 ft

FUGRO CONSULTANTS, INC.





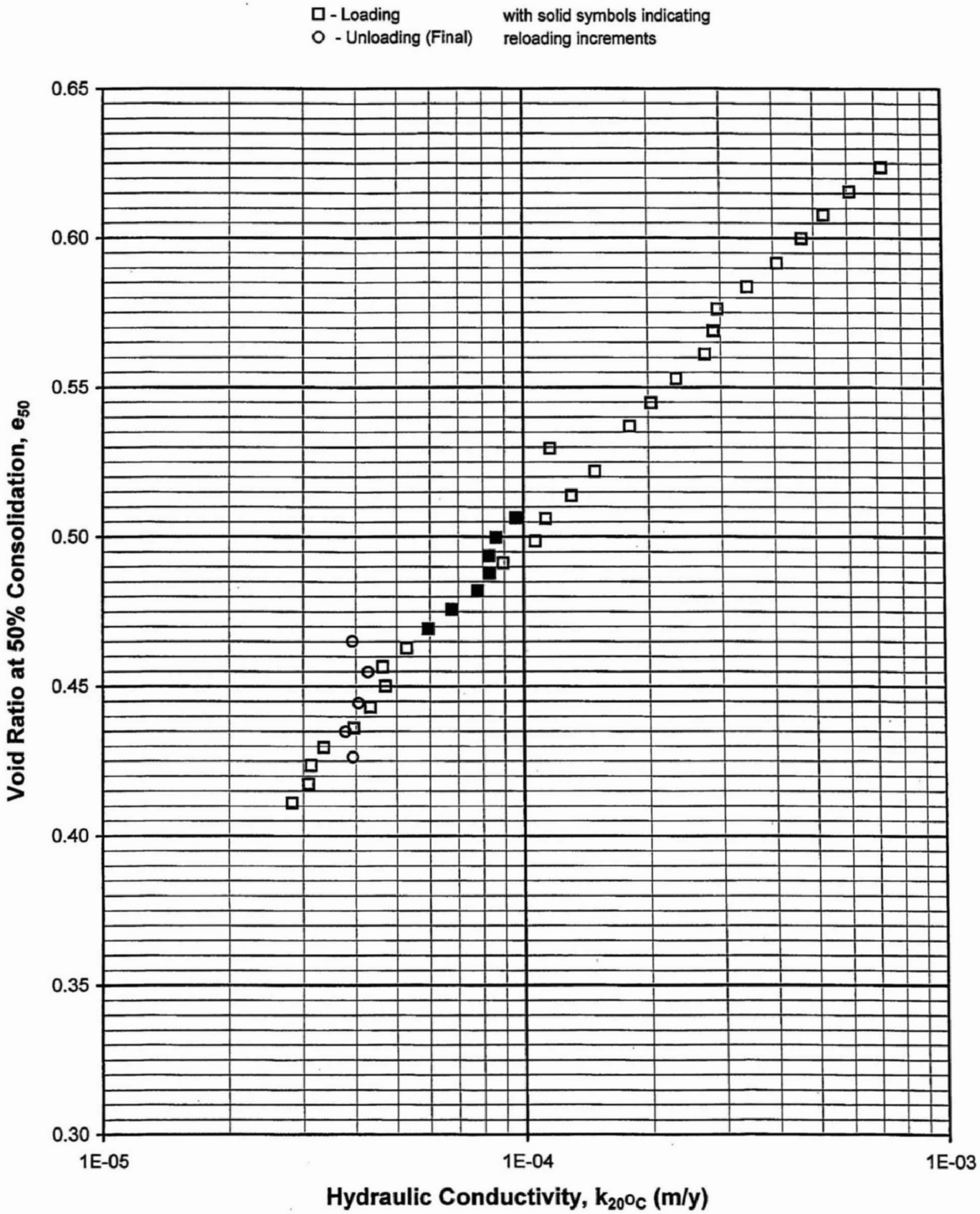
1-D CONSOLIDATION TEST: CRS

Sample No. UD-19B - Depth 145.5 - 147.3 ft

Boring B-2302UD

Reviewed By: HP

KAW 7/16/08



1-D CONSOLIDATION TEST: CRS

Sample No. UD-19B - Depth 145.5 - 147.3 ft

Boring B-2302UD

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 | Test Station No.: CRS-6 | File Name: B-2302UD_19b
Task No.: NA | Specific Gravity, G_s: 2.690 [X] Meas.; [ ] Assumed | Ring No.: 16
Project Name: Exelon (Victoria) | Assig. Remarks: | Ring Area, A_r (cm^2) = 31.661
TEST TYPE: [X] CRS (D 4186-06); [ ] Method A; [ ] Method B; [ ] Method C; [ ] Method D; | Ring Height (mm) = NA
[ ] Method E; [ ] Method F; [ ] Method G; [ ] Method H; [ ] Method I; [ ] Method J; | **Summary of Methods:** NA

[X] Tube [ ] Field Extruded	[ ] Liner [ ] Remolded	[ ] Tamping	[ ] Constant Effort:	Blows/Tamps per Layer =
Boring No.: B-2302UD	[ ] LPC Core	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =
Sample No.: UD-19	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =
Depth (ft): 145.5 - 147.3	Specimen No.: B	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) =
[X] Spec. Selection by X-ray;	[X] Geomarine Sample		Ref. Effort= % Comp. =	± Opt.=

Water Content (W);	Initial - Trimming Location			Final, W_{at}	Soil and Ring Masses	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)	(see below)	Mass Moist Soil + Ring (g)	337.50	332.99
Container No.	148	160	1156	189	Mass Ring (g)	215.06	
Mass Moist Soil + Container (g)	126.12	134.00	95.37	60.14	Mass Moist Soil, $M_{t,o}$ or $M_{t,at}$ (g)	122.44	117.93
Mass Dry Soil + Container (g)	108.72	115.60	84.47	55.60	**EXCESS DRY SOIL (soil not incl. in final mass above)**		
Mass Container (g)	30.03	30.55	32.26	30.39	Container No.		859
WATER CONTENT (%)	22.11	21.63	20.88	18.01	Mass Dry Soil + Container (g)		31.75
Avg. Initial Water Content, W4 (%)	21.54	Final W_{at}: [X] Slice ; [ ] Whole Spec.			Mass Container (g)		31.73
[ ] See attached data sheet(s) for additional water contents					Mass Excess Dry Soil, $M_{d,es}$ (g)		0.02

Soil Height: Measurements (mm)					Soil Height: Calculations, (mm)	Initial	Final
Initial		Final					
with Spec.	without Spec.	with Spec.	without Spec.		Height of Gauge Block, H_{gb} (1)	0.000	19.060
18.960	0.000	11.080	12.940		Reading on Gauge Block, d_{gb}	0.000	0.000
19.020	0.000	10.950	12.910		Avg. Reading on Soil, d_{soil}	18.992	11.058
19.000	0.000	11.140	12.920		Avg. Reading on Apparatus without Specimen, d_{app}	0.000	12.918
18.970	0.000	11.160	12.910		Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$	18.992	17.200
19.010	0.000	10.960	12.910		**Soil Height: Final by Dial Change During Test (mm)**		
[ ] Yes ;	[X] No	[ ] Yes ;	[ ] No	Require H_{gb} & d_{gb} (1)	Initial Height, H_o		18.992
[ ] Yes ;	[X] No	[ ] Yes ;	[ ] No	Filter Paper Included:	Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$		2.080
					Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$		16.912
					Final Soil Height Measurement, $H_{f,m}$		17.200
					Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$		-1.52

(1) Req. block ht. to set bench comparator so the final soil ht. can be determined directly by the diff. between the reading with and without spec. : ~ 12.7 mm; CRS ~ 25 mm
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.

Estimated Initial Unit Weight

Total, $\gamma_{t,o}$ (pcf)= 127.12 | Dry, $\gamma_{d,o}$ (pcf)= 104.59

Filter Paper Used: [X] Whatman No. 54; [ ] Other
Incremental Test: Top & Bottom: [ ] Yes ; [ ] No
CRS Test: Top Only: [X] Yes ; [ ] No

Soil Extruded During Loading

Container No.	
Mass Dry Soil + Cont. (g)	NA
Mass Cont. (g)	NA
Dry Mass - Soil Extruded During Loading, $M_{d,et}$ (g)	0.00

Photo taken of Sliced Test Specimen: [ ] Yes ; [X] No
Final Visual Description: Pale Brown Lean CLAY (CH)

Trimming/Etc. Remarks:

Method of trimming periphery: [X] "Casagrande" Lathe ; [ ] Cutting Shoe ; [ ] Wire Saw; [ ] Other
Method of trimming ends: [ ] Wire Saw & Sharp (knife) Straight Edge; [X] Wire Saw & Straight Edge; [ ] Wire Saw

Trim./Recon. By: JTG | Setup By: JTG | Prelim. Calc. By: DH | Take Down By: JTG
Date: 4/3/2008 | Date: 4/3/2008 | Final Calc. By: DH | Date: 4/14/2008
Reviewed By: HP HP

Note: NA - Not Applicable

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Calculations & Summary

Project Number: 0411-08-1686 Test Station No.: CRS-6 File Name: B-2302UD_19b

Task No.: NA Specific Gravity, G_s: 2.690 [X] Measured ; [ ] Assumed.

Calculations Corrected for Salt (dissolved solids): [X] No or, [ ] Yes, with Concentration = _____ g/kg

Cal.-Routine	ITEM	Water Content, (%)	Mass Dry Soil, (g)	Degree of Saturation, S in %		
				Height Initial	Final Height Meas.	Final Height Dial
1	Initial, Top, W1	22.11	100.27	97.5	103.4	109.2
2	" Bottom, W2	21.63	100.66	96.4	101.9	107.7
3	" Sides, W3	20.88	101.29	94.5	99.6	105.4
4	" Average, W4	21.54	100.74	96.1	101.7	107.5
5	" Back Calculated (1)	22.50	99.95 (3)	98.3	104.5	110.4
6	Final	18.01	99.95 (2)	98.3	104.5	110.4

Calculated Specific Gravity for Final Saturation = 100%:

Used Cal. Routine No. [5] to obtain the mass of dry soil

and final height by: [X] Measurement; [ ] Dial Change.

Back Cal. G_s = 2.747

Avg. G_s (measured/assumed) & Back Cal. G_s = 2.719

Calculation Constant, K = (unit conversion) / $G_s \times \rho_w \times A_r$	
Estimated, K_e	0.11763
Final Selected, K_f	0.11763

Calculated Mass Dry Soil for Final Saturation = 100%: using measured/assumed G_s

and final height by: [X] Measurement; [ ] Dial Change.

Back Cal. Mass Dry Soil, (g) = 101.19

Avg. Back Calculated and Measured Mass Dry Soil (g) = 100.57

Summary of Specimen Physical Properties

Specific Gravity G_s = 2.690		[ ] Assumed	[ ]	To make S_f = 100% at end of test.	
		[X] Measured	[ ]	Avg. of measured/assumed G_s and G_s to make S_f = 100%	
Mass Dry Soil, (g)	Initial: 99.95	[X] From Cal. Routine No.	5	Note: Routine #5 is based on final measurements.	
	Final (4): NA	[ ] Make S_f = 100%, or;	[ ]	Avg. of measured & make S_f = 100%	
Initial Height (mm) = 18.99	[X] Measured ;	[ ] Back Calculated	Back-cal. Sat. (%) = NA		
Final Height (mm) = 17.20	[X] Measured ;	[ ] Initial H_o & dial change during loading			

	Water Content, w (%)	Void Ratio, e	Degree of Saturation, S (%)	Total Unit Weight, γ_t (pcf)	Dry Unit Weight, γ_d (pcf)	Height of Solids, H_s (2,4) (mm)	Extruded soil loss proportioned in increasing loading increments (5) :	
Initial	22.5	0.615	98.3	127.1	103.8	11.757	From	To (ksf)
Final	18.0	0.463	104.5	135.2	114.6	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ε_a (%)	CR	RR	OCR	Liquid Limit (LL)	49	Minus 200 (%)
Casagrande Method	30.00	NA	0.155	0.040	2.4	Plastic Limit (PL)	15	95.8
Becker Method	NA	Becker minimum σ'_p (ksf):			NA	Plasticity Index (PI)	34	

NA - Indicates not applicable

Notes:

(1) Back Calculated based on final mass of oven-dry soil (corrected for dry mass of any excess and extruded soil).

(2) Corrected for any excess dry soil (soil stuck to ring, filter paper, etc.).

(3) This value is only different from the final value if there is soil extrusion during loading.

(4) Final is only different from the initial value if there is soil extrusion during loading.

(5) There should not be any soil loss in a CRS test, unless stress increments are applied.

Calculated By: DH Reviewed By: HP HP

Date: 4/16/2008

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-6 File Name: B-2302UD_19b
Task No.: NA Date; Start: 4/3/2008 Initial Height, H_o (mm): 18.99
Project Name: Exelon (Victoria) Completed: 4/14/2008 Ring Area, A_r (cm^2): 31.6608
Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 [X] Undisturbed or ; [ ] Reconstituted - Specimen.
Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.1088 ,V: 0.023004734 Piston Uplift, P_{up} (lbf): 34.42
Back Pressure, $U_{b,CS}$ (psi): 70.09251 ,V: 0.022999357 Setup DT_{ref} (V): 0.001638443
Displacement Transducer No.: DT-025 Calib. Factor (mm/V): 228.61978 Ch. No.: 2
Pore Press. Transducer No.: PT-112 Calib. Factor (psi/V): 3029.91431 Ref. Zero (V): -0.000134 Ch. No.: 3
Force Cell No.: FT-100 Calib. Factor (lbf/V): -468015.73 Ref. Zero (V): -0.000467 Ch. No.: 1

Notes:

(1) S - Seating, BS - Start of Back Pressure, BE - End of Back Pressure, SC - Stress Controlled, CS - Constant Rate of Strain
US - Start of Uniform Strain Rate, UE - End of Uniform Strain Rate

(2) Total Vertical Stress (σ_v) corrected to account for the force caused by the back pressure acting on the piston (Piston Uplift).

(3) Increasing deformation value indicates: [X] compression; or [ ] swell.

(4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: DH Reviewed By: HP HP

Remarks:

Loading Info. (1)	Julian Day (dd)	Hour (hr.:min.:s)	Elapsed Time from Start of Loading, Δt_n (min)	Total Vertical Stress, $\sigma_{v,n}$ (2) (ksf)	Excess Pore-Water Pressure, ΔU_n (ksf)	Total Specimen Deformation, ΔH_n (3) (mm)	Apparatus Flexibility Correction, $\Delta d_{afc,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta\varepsilon_{ac,rate}$ (%/hr)
S	94	15 : 10 : 22		0.24		0.000			
BS	94	15 : 37 : 30		1.31		0.039	0.000	0.039	
BE	95	08 : 51 : 17		1.86	0.002	0.033	0.000	0.033	
CS	95	08 : 51 : 20	0	1.88	0.000	0.033	0.000	0.033	
	95	09 : 58 : 24	67	3.31	0.394	0.075	0.000	0.075	0.202
	95	12 : 43 : 26	232	5.08	0.618	0.171	0.000	0.171	0.182
US	95	15 : 28 : 28	397	7.06	0.744	0.271	0.000	0.271	0.192
	95	18 : 13 : 29	562	9.39	0.860	0.367	0.000	0.367	0.184
	95	20 : 58 : 30	727	12.01	0.940	0.459	0.000	0.459	0.175
	95	23 : 43 : 31	892	14.89	1.042	0.547	0.000	0.547	0.169
	96	02 : 28 : 32	1057	18.24	1.274	0.640	0.000	0.640	0.177
	96	05 : 13 : 33	1222	21.75	1.428	0.735	0.000	0.735	0.182
	96	07 : 58 : 34	1387	24.87	1.563	0.825	0.000	0.825	0.173
	96	10 : 43 : 36	1552	27.83	1.605	0.907	0.000	0.907	0.158
	96	13 : 28 : 37	1717	30.97	1.697	0.992	0.000	0.992	0.162
	96	16 : 13 : 38	1882	34.68	2.124	1.087	0.000	1.087	0.181
	96	18 : 58 : 40	2047	38.07	2.317	1.181	0.000	1.181	0.181
	96	21 : 43 : 42	2212	41.48	2.563	1.272	0.000	1.272	0.174
	97	00 : 28 : 43	2377	44.85	2.713	1.360	0.000	1.360	0.169
	97	04 : 13 : 44	2602	48.35	2.994	1.444	0.000	1.444	0.118
	97	06 : 58 : 46	2767	52.69	3.539	1.536	0.000	1.536	0.175
	97	09 : 43 : 47	2932	56.80	3.896	1.628	0.000	1.628	0.177
	97	12 : 28 : 49	3097	60.99	4.124	1.715	0.000	1.715	0.167
	97	15 : 13 : 51	3263	65.59	4.286	1.802	0.000	1.802	0.167

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Load-ing Info. (1)	Julian Day (dd)	Hour (hr.:min.:s)	Elapsed Time from Start of Loading, Δt_n (min)	Total Vertical Stress, $\sigma_{v,n}$ (2) (ksf)	Excess Pore-Water Pressure, ΔU_n (ksf)	Total Specimen Deformation, ΔH_n (3) (mm)	Apparatus Flexibility Correction, $\Delta d_{afc,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta\varepsilon_{ac,rate}$ (%/hr)
UE	97	17 : 58 : 53	3428	70.33	4.928	1.883	0.000	1.883	0.154
	97	18 : 30 : 42	3459	70.93	5.286	1.899	0.000	1.899	0.163
	97	18 : 43 : 53	3473	69.70	4.949	1.901	0.000	1.901	0.030
	97	23 : 28 : 56	3758	52.19	0.136	1.886	0.000	1.886	-0.016
	98	04 : 13 : 59	4043	40.27	-0.714	1.856	0.000	1.856	-0.033
	98	08 : 59 : 01	4328	31.06	-1.232	1.815	0.000	1.815	-0.046
	98	13 : 44 : 04	4613	23.72	-1.675	1.759	0.000	1.759	-0.061
US	98	18 : 29 : 07	4898	18.10	-1.953	1.695	0.000	1.695	-0.071
	98	23 : 14 : 10	5183	13.94	-2.119	1.622	0.000	1.622	-0.080
	99	03 : 59 : 12	5468	10.96	-2.069	1.551	0.000	1.551	-0.080
	99	08 : 44 : 15	5753	8.65	-2.014	1.477	0.000	1.477	-0.081
	99	13 : 29 : 18	6038	7.20	-1.852	1.415	0.000	1.415	-0.069
UE	99	18 : 04 : 46	6313	5.56	-1.904	1.340	0.000	1.340	-0.086
	99	18 : 14 : 21	6323	5.79	-1.843	1.338	0.000	1.338	-0.057
	99	20 : 59 : 23	6488	12.30	1.252	1.391	0.000	1.391	0.102
	99	23 : 44 : 24	6653	17.55	2.925	1.474	0.000	1.474	0.157
	100	02 : 29 : 25	6818	22.58	3.579	1.550	0.000	1.550	0.146
US	100	05 : 14 : 27	6983	28.60	4.190	1.629	0.000	1.629	0.152
	100	07 : 59 : 29	7148	35.29	4.430	1.708	0.000	1.708	0.150
	100	10 : 44 : 30	7313	42.75	4.339	1.780	0.000	1.780	0.139
	100	13 : 29 : 32	7478	50.49	4.113	1.848	0.000	1.848	0.130
	100	16 : 14 : 34	7643	58.89	4.061	1.915	0.000	1.915	0.128
	100	18 : 59 : 36	7808	67.92	4.913	1.984	0.000	1.984	0.133
	100	21 : 44 : 38	7973	75.85	5.841	2.057	0.000	2.057	0.139
	101	00 : 29 : 39	8138	82.82	6.594	2.132	0.000	2.132	0.143
	101	03 : 14 : 41	8303	88.88	7.119	2.205	0.000	2.205	0.141
	101	05 : 59 : 42	8468	94.98	7.710	2.276	0.000	2.276	0.135
	101	08 : 44 : 43	8633	102.33	8.567	2.355	0.000	2.355	0.152
	101	11 : 29 : 45	8798	109.14	9.311	2.436	0.000	2.436	0.155
	101	14 : 14 : 46	8963	115.87	9.690	2.515	0.000	2.515	0.152
	101	16 : 59 : 48	9128	122.26	10.154	2.586	0.000	2.586	0.136
	101	19 : 44 : 50	9294	129.39	10.503	2.656	0.000	2.656	0.133
	101	22 : 29 : 52	9459	137.49	11.502	2.729	0.000	2.729	0.141
UE	102	01 : 14 : 54	9624	145.64	12.130	2.802	0.000	2.802	0.139
	102	03 : 50 : 59	9780	153.31	12.131	2.869	0.000	2.869	0.135
	102	03 : 59 : 55	9789	152.53	11.905	2.871	0.000	2.871	0.071
	102	11 : 45 : 00	10254	118.19	1.711	2.863	0.000	2.863	-0.005
	102	19 : 30 : 03	10719	90.20	-0.519	2.825	0.000	2.825	-0.026
	103	03 : 15 : 09	11184	68.63	-1.441	2.778	0.000	2.778	-0.032
	103	11 : 00 : 15	11649	51.89	-2.525	2.717	0.000	2.717	-0.041
US	103	18 : 45 : 18	12114	38.05	-3.548	2.636	0.000	2.636	-0.055
	104	02 : 30 : 22	12579	27.37	-4.245	2.541	0.000	2.541	-0.065