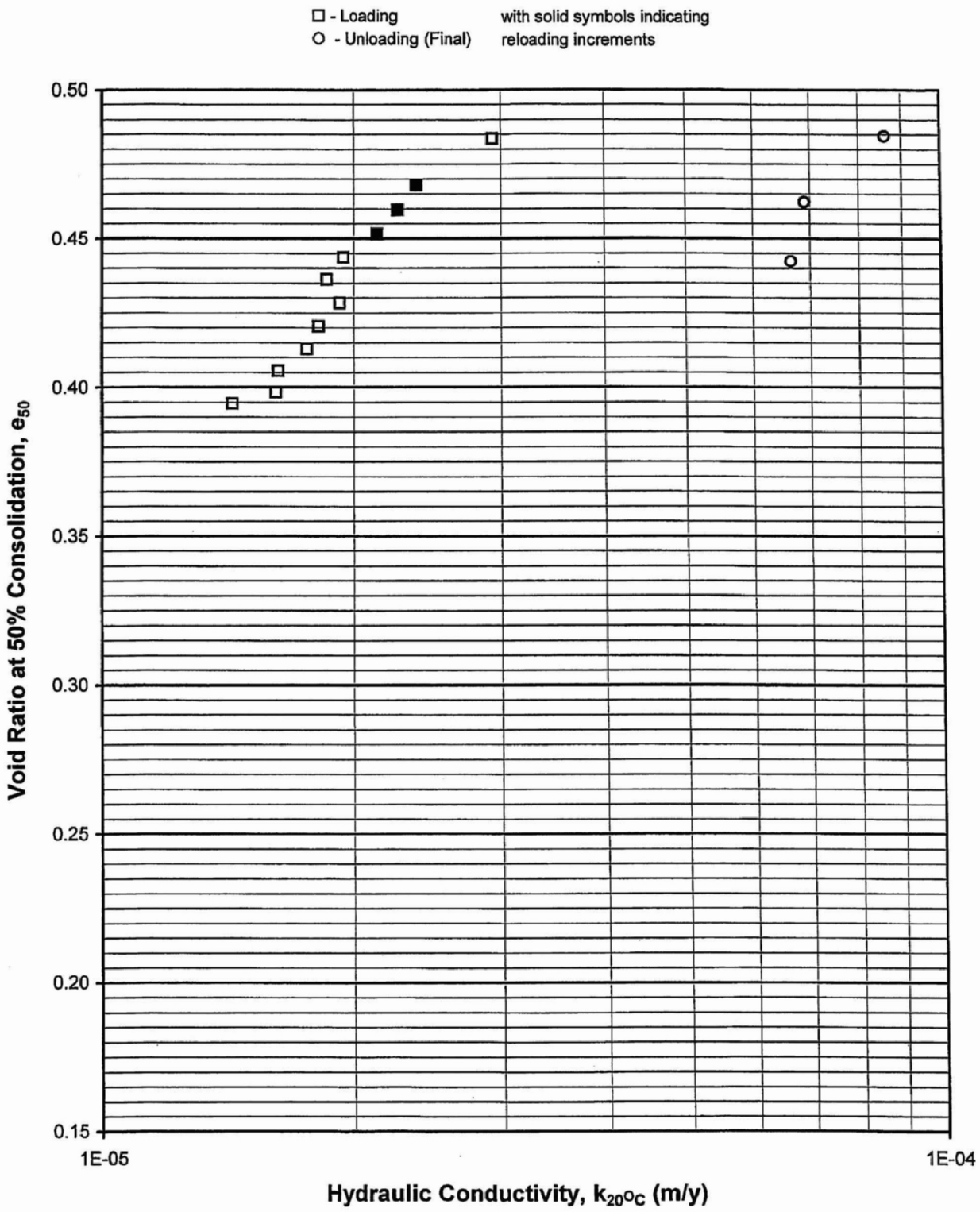

1-D CONSOLIDATION TEST: CRS

Sample No. UD-4A - Depth 25.0 - 27.0 ft

Boring B-2319UD

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 | Test Station No.: CRS-1 | File Name: B-2319_UD4a
Task No.: NA | Specific Gravity, G_s: 2.720 [X] Meas.; [ ] Assumed | Ring No.: 1
Project Name: Exelon (Victoria) | Assig. Remarks: | Ring Area, A_r (cm^2) = 31.239
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-2319UD	[ ] LPC Core	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =
Sample No.: UD-4	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =
Depth (ft): 25.0 - 27.0	Specimen No.: A	[ ] Kneading	[ ] Undercompaction: U_{ni} (%) =	Dia. (in.) =
[ ] Spec. Selection by X-ray;	[ ] Geomarine Sample		Ref. Effort= % Comp. =	± Opt.=

Water Content (W);	Initial - Trimming Location			Final, W_{at}
	Top (W1)	Bottom (W2)	Sides (W3)	(see below)
Container No.	654	2028	2039	169
Mass Moist Soil + Container (g)	110.30	125.10	132.74	61.26
Mass Dry Soil + Container (g)	97.94	109.42	116.46	55.88
Mass Container (g)	31.94	30.63	30.61	30.01
WATER CONTENT (%)	18.73	19.90	18.96	20.80
Avg. Initial Water Content, W4 (%)	19.20	Final W_{at}:	[X] Slice ;	[ ] Whole Spec.
[ ] See attached data sheet(s) for additional water contents				

Soil and Ring Masses	Initial	Final
Mass Moist Soil + Ring (g)	330.88	332.26
Mass Ring (g)	208.35	
Mass Moist Soil, $M_{t,o}$ or $M_{t,at}$ (g)	122.53	123.91
EXCESS DRY SOIL (soil not incl. in final mass above)		
Container No.		684
Mass Dry Soil + Container (g)		25.39
Mass Container (g)		24.64
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.75

Soil Height: Measurements (mm)								
Initial				Final				
with Spec.	without Spec.			with Spec.	without Spec.			
18.820	0.000			13.080	13.360			
18.820	0.000			12.940	13.300			
18.850	0.000			13.090	13.260			
18.840	0.000			13.190	13.300			
18.810	0.000			13.090	13.340			
[ ] Yes ;	[X] No		[X] Yes ;		[ ] No	Require H_{gb} & d_{gb} (1)		
[ ] Yes ;	[X] No		[X] Yes ;		[ ] No	Filter Paper Included:		

(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.

Soil Height: Calculations, (mm)	Initial	Final
Height of Gauge Block, H_{gb} (1)	0.000	19.040
Reading on Gauge Block, d_{gb}	0.000	0.000
Avg. Reading on Soil, d_{soil}	18.828	13.078
Avg. Reading on Apparatus without Specimen, d_{app}	0.000	13.312
Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$	18.828	18.806

Soil Height: Final by Dial Change During Test (mm)	
Initial Height, H_o	18.828
Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$	-0.084
Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$	18.912
Final Soil Height Measurement, $H_{f,m}$	18.806
Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$	0.56

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf)= 130.06	Dry, $\gamma_{d,o}$ (pcf)= 109.11

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: Light Yellowish Brown Fat CLAY with sand (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: LF | Take Down By: JTG
Date: 3/28/2008 | Date: 3/28/2008 | Final Calc. By: LF | Date: 4/6/2008
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-1 File Name: B-2319_UD4a

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	18.73	103.20	93.1	100.0	98.5
2	" Bottom, W2	19.90	102.19	96.2	103.1	101.5
3	" Sides, W3	18.96	103.00	93.7	100.7	99.1
4	" Average, W4	19.20	102.80	94.3	101.3	99.7
5	" Back Calculated (1)	18.58	103.33 (3)	92.7	99.7	98.1
6	Final	20.80	103.33 (2)	92.7	99.7	98.1

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 = 2.715

Avg. G_s (measured/assumed) & Back Cal. G_s = 2.717

Calculation Constant, K = (unit conversion) / $G_s \times \rho_w \times A_r$	
Estimated, K_e	0.11790
Final Selected, K_f	0.11790

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) = 103.22

Avg. Back Calculated and Measured Mass Dry Soil (g) = 103.27

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: 103.33	[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) = 18.83		[X] Measured ;		[ ] Back Calculated	Back-cal. Sat. (%) = NA
Final Height (mm) = 18.81		[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	18.6	0.545	92.7	130.1	109.7	12.183	From	To (ksf)
Final	19.9	0.544	99.7	131.7	109.8	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ε_a (%)	CR	RR	OCR	Liquid Limit (LL)	61	Minus 200 (%)
Casagrande Method	30.00	NA	0.126	0.053	9.0	Plastic Limit (PL)	16	80.3
Becker Method	NA	Becker minimium σ'_p (ksf):			NA	Plasticity Index (PI)	45	

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: LF Reviewed By: HP HP

Date: 4/7/2008

ONE - DIMENSIONAL CONSOLIDATION TEST:
CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-1 File Name: B-2319_UD4a
Task No.: NA Date; Start: 3/28/2008 Initial Height, H_o (mm): 18.83
Project Name: Exelon (Victoria) Completed: 4/6/2008 Ring Area, A_r (cm^2): 31.2385
Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 [X] Undisturbed or ; [ ] Reconstituted - Specimen.
Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.57482 ,V: 0.02283611 Piston Uplift, P_{up} (lbf): 34.63
Back Pressure, $U_{b,CS}$ (psi): 70.49868 ,V: 0.02281144 Setup DT_{ref} (V): 0.04464874
Displacement Transducer No.: DT-101 Calib. Factor (mm/V): -213.274 Ch. No.: 1
Pore Press. Transducer No.: PT-107 Calib. Factor (psi/V): 3086.313 Ref. Zero (V): -0.000031 Ch. No.: 2
Force Cell No.: FT-099 Calib. Factor (lbf/V): 161209.607 Ref. Zero (V): 0.000119 Ch. No.: 3

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: LF 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	88	15 : 02 : 00		0.31		0.000			
BS	88	15 : 22 : 00		1.50		0.047	0.030	0.017	
BE	89	16 : 51 : 00		3.06	0.011	-0.006	0.054	-0.060	
CS	89	16 : 52 : 00	0	3.07	0.000	-0.006	0.054	-0.060	
	89	17 : 28 : 00	36	6.03	1.993	0.042	0.087	-0.045	0.137
	89	18 : 04 : 00	72	8.09	3.229	0.095	0.104	-0.009	0.315
	89	19 : 00 : 00	128	10.64	4.671	0.166	0.120	0.045	0.310
	89	20 : 12 : 00	200	13.88	6.432	0.254	0.137	0.118	0.320
	89	21 : 24 : 00	272	17.26	8.126	0.344	0.151	0.194	0.336
	89	22 : 36 : 00	344	20.96	9.922	0.434	0.164	0.270	0.338
	89	23 : 48 : 00	416	24.83	11.627	0.523	0.176	0.347	0.339
	90	01 : 00 : 00	488	28.98	13.397	0.609	0.188	0.421	0.331
	90	02 : 12 : 00	560	33.21	15.062	0.693	0.200	0.493	0.318
US	90	03 : 24 : 00	632	37.34	16.503	0.773	0.210	0.563	0.309
	90	04 : 36 : 00	704	42.17	18.564	0.856	0.222	0.634	0.313
	90	05 : 48 : 00	776	47.01	20.575	0.938	0.234	0.704	0.310
	90	07 : 00 : 00	848	52.43	23.112	1.022	0.247	0.775	0.316
	90	08 : 12 : 00	920	57.42	25.188	1.104	0.259	0.845	0.310
	90	09 : 24 : 00	992	62.88	27.718	1.189	0.272	0.916	0.316
	90	10 : 36 : 00	1064	67.97	29.801	1.270	0.284	0.986	0.308
	90	11 : 48 : 00	1136	73.28	32.019	1.351	0.297	1.054	0.301
UE	90	13 : 00 : 00	1208	78.99	34.664	1.435	0.311	1.124	0.311
	90	14 : 12 : 00	1280	83.77	36.179	1.511	0.322	1.189	0.288
	90	15 : 22 : 00	1350	89.22	38.523	1.589	0.335	1.254	0.293

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)
	90	15 : 24 : 00	1352	89.01	38.348	1.590	0.335	1.256	0.299
	90	22 : 48 : 00	1796	68.13	6.381	1.654	0.292	1.362	0.077
	91	06 : 12 : 00	2240	64.90	1.867	1.665	0.284	1.380	0.013
	91	13 : 36 : 00	2684	64.10	1.190	1.669	0.283	1.387	0.005
	91	21 : 00 : 00	3128	63.57	0.397	1.671	0.281	1.389	0.002
US	92	15 : 46 : 00	4254	62.14	-0.970	1.668	0.278	1.390	0.000
	92	23 : 10 : 00	4698	32.14	-8.660	1.512	0.198	1.314	-0.055
	93	06 : 34 : 00	5142	13.58	-10.804	1.264	0.129	1.134	-0.129
	93	13 : 58 : 00	5586	4.70	-10.991	0.977	0.081	0.896	-0.171
UE	93	21 : 22 : 00	6030	1.02	-10.707	0.687	0.043	0.645	-0.181
	94	04 : 46 : 00	6474	0.15	-9.856	0.379	0.012	0.366	-0.200
	94	04 : 50 : 00	6478	0.14	-9.841	0.376	0.012	0.364	-0.206
	94	06 : 30 : 00	6578	2.16	-9.159	0.506	0.059	0.447	0.267
	94	08 : 28 : 00	6696	6.93	-5.823	0.646	0.095	0.550	0.278
	94	12 : 04 : 00	6912	21.15	10.294	0.801	0.161	0.640	0.133
US	94	13 : 54 : 00	7022	29.52	17.061	0.947	0.190	0.758	0.339
	94	15 : 40 : 00	7128	38.18	23.194	1.061	0.216	0.845	0.263
	94	17 : 28 : 00	7236	46.98	28.512	1.179	0.241	0.938	0.275
	94	19 : 16 : 00	7344	56.16	33.392	1.297	0.264	1.033	0.281
	94	21 : 04 : 00	7452	65.68	37.573	1.413	0.286	1.127	0.277
	94	22 : 52 : 00	7560	75.19	40.687	1.531	0.307	1.224	0.286
	95	00 : 40 : 00	7668	84.52	39.476	1.652	0.326	1.326	0.302
	95	02 : 28 : 00	7776	93.29	38.483	1.769	0.345	1.424	0.290
	95	04 : 16 : 00	7884	103.25	39.538	1.889	0.369	1.520	0.281
	95	06 : 04 : 00	7992	112.62	40.371	2.002	0.392	1.610	0.267
	95	07 : 52 : 00	8100	122.94	42.466	2.118	0.417	1.701	0.268
	95	09 : 40 : 00	8208	132.65	40.580	2.238	0.441	1.797	0.284
	95	11 : 28 : 00	8316	142.35	41.520	2.353	0.464	1.889	0.269
	95	13 : 16 : 00	8424	153.07	41.688	2.470	0.491	1.980	0.268
	95	15 : 04 : 00	8532	163.35	41.487	2.581	0.516	2.065	0.252
	95	16 : 52 : 00	8640	175.49	41.258	2.697	0.546	2.151	0.253
	95	17 : 00 : 00	8648	176.25	41.041	2.704	0.548	2.156	0.224
UE	95	19 : 56 : 00	8824	163.22	29.035	2.740	0.530	2.210	0.098
	96	00 : 58 : 00	9126	94.27	-8.062	2.580	0.419	2.162	-0.051
	96	04 : 56 : 00	9364	55.21	-10.762	2.390	0.335	2.055	-0.143
	96	08 : 54 : 00	9602	30.35	-11.415	2.174	0.266	1.908	-0.197
US	96	12 : 52 : 00	9840	15.75	-11.404	1.911	0.213	1.698	-0.281
	96	16 : 50 : 00	10078	6.87	-11.397	1.633	0.169	1.465	-0.312
	96	20 : 48 : 00	10316	2.09	-11.415	1.353	0.132	1.221	-0.326
UE	97	00 : 46 : 00	10554	0.30	-11.411	1.065	0.132	0.934	-0.385
	97	04 : 44 : 00	10792	0.06	-11.370	0.754	0.132	0.622	-0.417
		: :							

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

Project Number: 0411-08-1686 Test Station No.: CRS-1 [X] Undisturbed or ; [ ] Reconstituted - Specimen. File Name: B-2319_UD4

Task No.: NA Date; Start: 3/28/2008 Back Pressure, $U_{b,CS}$ (psi): 70.5 Piston Uplift, P_{up} (lbf): 34.63

Project Name: Exelon (Victoria) Completed: 4/6/2008 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: Light Yellowish Brown Fat CLAY with sand (CH)

	Ring No.:	1	Area, A_r (cm^2):	31.239	Solids Ht., H_s (mm):	12.183	Specific Gravity, G_s =	2.720	[X] Meas. ;	[ ] Assumed					
Initial:	Height	H_o:	18.83	Water	18.6	Void	0.545	Deg. of	92.7	Total Unit	130.1	Dry Unit	109.7		
Final:	(mm):	H_f:	18.81	Content, w (%):	19.9	Ratio, e:	0.544	Sat., S (%):	99.7	Weight, γ_t (pcf):	131.7	Weight, γ_d (pcf):	109.8		

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 erratic

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

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

Data Management by: LF 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					0.31				Data on given line represents average conditions					
BS			0.09	0.544	1.50			18.811	between that line and the previous line of data.					
BE		3.05	-0.32	0.550	3.06	0.011	0.4	18.888			0.547			
CS	0	3.07	-0.32	0.550	3.07	0.000	0.0	18.888			0.550			
	36	4.62	-0.24	0.549	6.03	1.993	33.0	18.873	3.84		0.550			
	72	5.76	-0.05	0.546	8.09	3.229	39.9	18.837	5.19		0.548			
	128	7.24	0.24	0.542	10.64	4.671	43.9	18.783	6.50		0.544			
	200	9.17	0.62	0.536	13.88	6.432	46.3	18.710	8.20		0.539			
	272	11.29	1.03	0.530	17.26	8.126	47.1	18.634	10.23		0.533			
	344	13.67	1.43	0.523	20.96	9.922	47.3	18.558	12.48		0.526			
	416	16.30	1.84	0.517	24.83	11.627	46.8	18.481	14.98		0.520			
	488	19.17	2.24	0.511	28.98	13.397	46.2	18.407	17.73		0.514			
	560	22.20	2.62	0.505	33.21	15.062	45.4	18.335	20.68		0.508			
US	632	25.31	2.99	0.499	37.34	16.503	44.2	18.265	23.75		0.502			
	704	28.64	3.37	0.493	42.17	18.564	44.0	18.194	26.98		0.496		0.21	
	776	32.03	3.74	0.488	47.01	20.575	43.8	18.124	30.33		0.491		0.38	
	848	35.59	4.12	0.482	52.43	23.112	44.1	18.053	33.81		0.485		0.57	

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), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
	920	39.07	4.49	0.476	57.42	25.188	43.9	17.983	37.33		0.479		0.63	
	992	42.68	4.87	0.470	62.88	27.718	44.1	17.912	40.87		0.473		0.78	
	1064	46.26	5.24	0.465	67.97	29.801	43.8	17.842	44.47		0.467		0.81	
	1136	49.97	5.60	0.459	73.28	32.019	43.7	17.774	48.11		0.462		0.92	
UE	1208	53.74	5.97	0.453	78.99	34.664	43.9	17.704	51.85	0.15	0.456	2.93E-05	1.04	
	1280	57.46	6.32	0.448	83.77	36.179	43.2	17.639	55.60		0.451			
	1350	61.20	6.66	0.443	89.22	38.523	43.2	17.574	59.33		0.445			
	1352	61.13	6.67	0.442	89.01	38.348	43.1	17.572	61.17		0.443			
	1796	63.81	7.24	0.434	68.13	6.381	9.4	17.466	62.47		0.438			
	2240	63.65	7.33	0.432	64.90	1.867	2.9	17.448	63.73		0.433			
	2684	63.30	7.37	0.432	64.10	1.190	1.9	17.441	63.47		0.432			
	3128	63.30	7.38	0.431	63.57	0.397	0.6	17.439	63.30		0.432			
US	4254	62.79	7.38	0.431	62.14	-0.970	-1.6	17.438	63.05		0.431			
	4698	37.68	6.98	0.438	32.14	-8.660	-26.9	17.514	50.24	1.23	0.434	3.05E-05	6.78	
	5142	20.06	6.02	0.452	13.58	-10.804	-79.6	17.694	28.87	0.45	0.445	3.49E-05	4.86	
	5586	10.50	4.76	0.472	4.70	-10.991	-233.8	17.932	15.28	0.25	0.462	4.04E-05	4.05	
UE	6030	5.19	3.42	0.493	1.02	-10.707	-1051.9	18.183	7.85	0.19	0.482	4.28E-05	3.91	
	6474	2.45	1.95	0.515	0.15	-9.856	-6732.8	18.462	3.82		0.504			
	6478	2.42	1.93	0.516	0.14	-9.841	-6881.7	18.464	2.44		0.516			
	6578	6.51	2.38	0.509	2.16	-9.159	-424.5	18.381	4.47		0.512			
	6696	10.40	2.92	0.500	6.93	-5.823	-84.1	18.278	8.46		0.505			
	6912	13.56	3.40	0.493	21.15	10.294	48.7	18.188	11.98		0.497			
US	7022	16.61	4.02	0.483	29.52	17.061	57.8	18.070	15.08		0.488			
	7128	20.47	4.49	0.476	38.18	23.194	60.7	17.983	18.54		0.480		0.28	
	7236	25.21	4.98	0.468	46.98	28.512	60.7	17.890	22.84		0.472		0.44	
	7344	30.76	5.49	0.461	56.16	33.392	59.5	17.795	27.99		0.465		0.58	
	7452	37.29	5.99	0.453	65.68	37.573	57.2	17.701	34.03		0.457		0.71	
	7560	44.73	6.50	0.445	75.19	40.687	54.1	17.604	41.01		0.449		0.83	
	7668	55.56	7.04	0.437	84.52	39.476	46.7	17.502	50.15	0.13	0.441	2.38E-05	1.00	
	7776	65.43	7.56	0.429	93.29	38.483	41.3	17.404	60.50	0.13	0.433	2.26E-05	1.19	

Boring B-2319UD, Sample UD-4A, Depth 25.0 - 27.0 ft

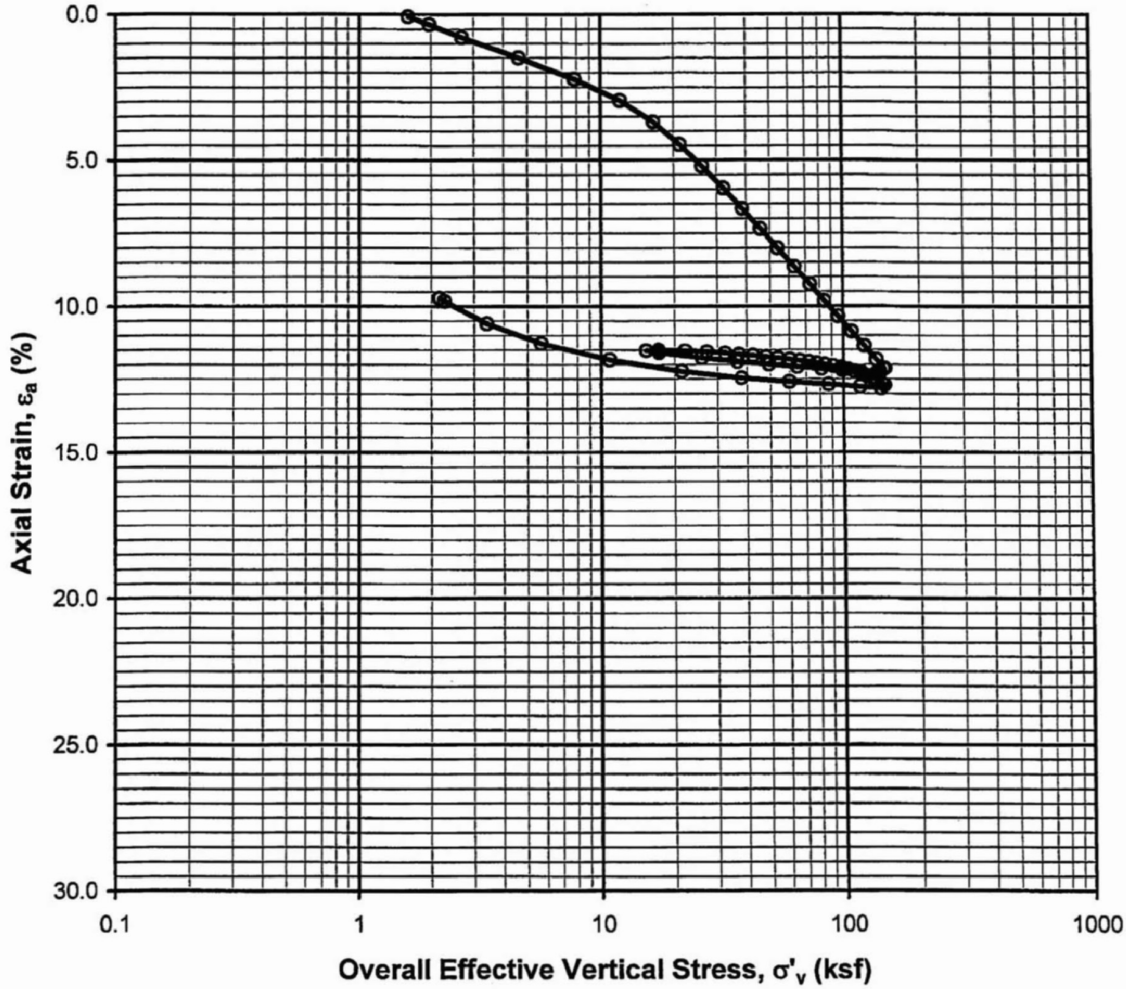
FUGRO CONSULTANTS, INC.

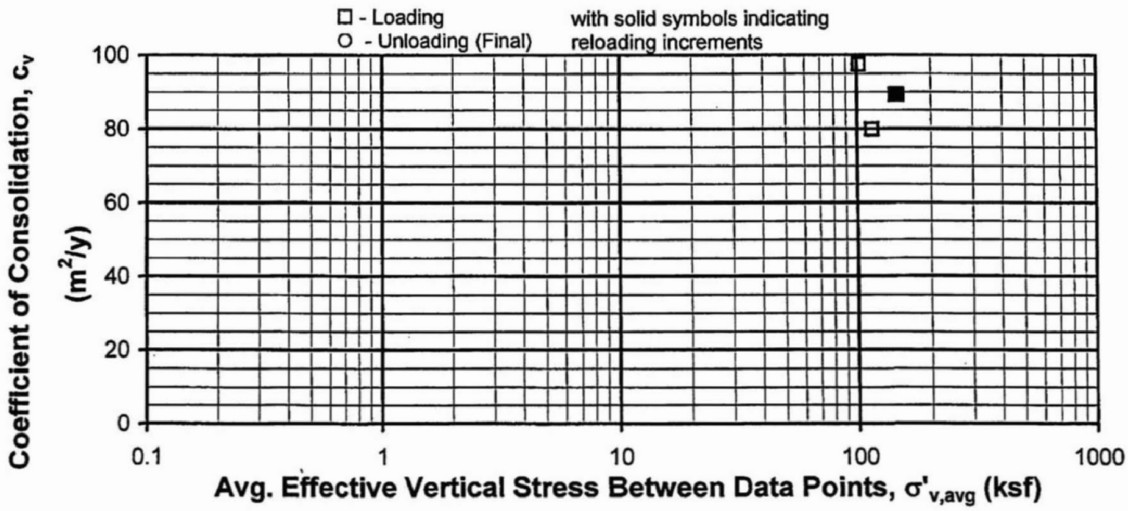
ONE - DIMENSIONAL CONSOLIDATION TEST: CRS LOADING RESULTS (Load Time - Deformation Properties)

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), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
	7884	74.84	8.07	0.421	103.25	39.538	38.3	17.308	70.14	0.15	0.425	2.14E-05	1.60	
	7992	83.77	8.55	0.413	112.62	40.371	35.8	17.218	79.30	0.14	0.417	1.94E-05	1.69	
	8100	92.68	9.03	0.406	122.94	42.466	34.5	17.127	88.23	0.15	0.410	1.85E-05	2.02	
	8208	103.98	9.55	0.398	132.65	40.580	30.6	17.031	98.33	0.14	0.402	1.92E-05	2.12	
	8316	113.11	10.03	0.390	142.35	41.520	29.2	16.939	108.55	0.14	0.394	1.81E-05	2.39	
	8424	123.84	10.51	0.383	153.07	41.688	27.2	16.848	118.48	0.15	0.387	1.75E-05	2.85	
	8532	134.36	10.97	0.376	163.35	41.487	25.4	16.763	129.10	0.15	0.379	1.62E-05	2.98	
	8640	146.78	11.42	0.369	175.49	41.258	23.5	16.677	140.57	0.17	0.372	1.61E-05	3.84	
	8648	147.70	11.45	0.368	176.25	41.041	23.3	16.672	147.24	0.15	0.369	1.42E-05	3.30	
UE	8824	143.24	11.74	0.364	163.22	29.035	17.8	16.618	145.47		0.366		-3.40	
	9126	99.57	11.48	0.368	94.27	-8.062	-8.6	16.666	121.40		0.366			
	9364	62.17	10.91	0.377	55.21	-10.762	-19.5	16.773	80.87		0.372			
	9602	37.55	10.13	0.389	30.35	-11.415	-37.6	16.920	49.86		0.383			
US	9840	22.65	9.02	0.406	15.75	-11.404	-72.4	17.130	30.10		0.398			
	10078	13.18	7.78	0.425	6.87	-11.397	-166.0	17.363	17.92	0.39	0.416	6.64E-05	1.19	
	10316	7.26	6.48	0.445	2.09	-11.415	-545.3	17.607	10.22	0.32	0.435	6.90E-05	1.88	
UE	10554	3.45	4.96	0.469	0.30	-11.411	-3826.5	17.894	5.35	0.29	0.457	8.60E-05	2.48	
	10792	1.98	3.31	0.494	0.06	-11.370	-19071.8	18.206	2.71		0.482			

Boring B-2319UD, Sample UD-4A, Depth 25.0 - 27.0 ft

FUGRO CONSULTANTS, INC.





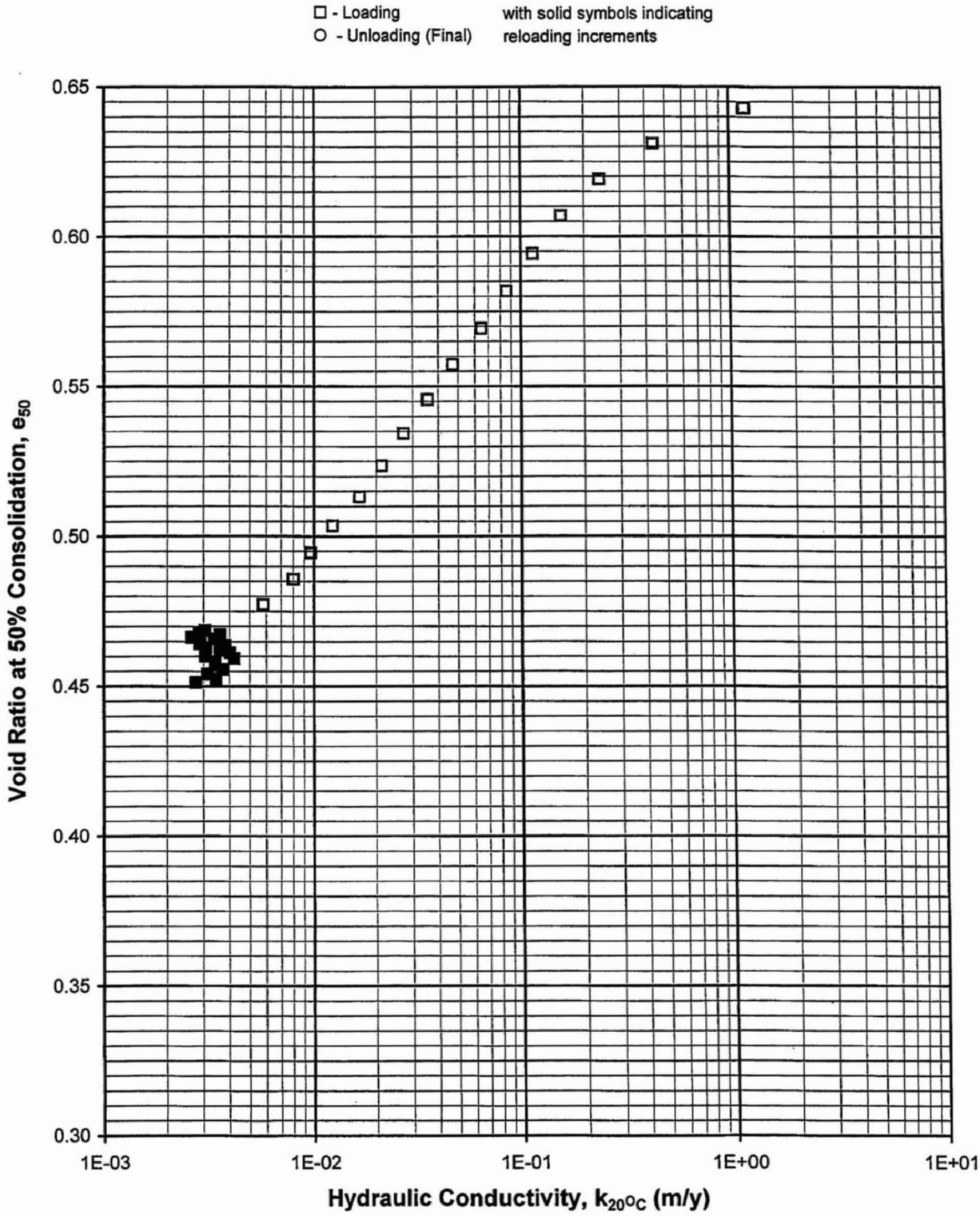
1-D CONSOLIDATION TEST: CRS

Sample No. UD-7A - Depth 65.0 - 67.0 ft

Boring B-2319UD

KAW 7/16/08

Reviewed By: HO



1-D CONSOLIDATION TEST: CRS

Sample No. UD-7A - Depth 65.0 - 67.0 ft

Boring B-2319UD

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 | Test Station No.: CRS-1 | File Name: B-2319_UD7a
Task No.: NA | Specific Gravity, G_s: 2.660 [X] Meas. ; [ ] Assumed | Ring No.: 1
Project Name: Exelon (Victoria) | Assig. Remarks: | Ring Area, A_r (cm^2) = 31.739
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-2319UD	[ ] LPC Core	[ ] Impact/Rammer	Rammer Wgt.(lbf)=	No. Layers =
Sample No.: UD-7	Compostite No.:	[ ] Pluviated:	Tamper Force (lbf)=	Drop (in.) =
Depth (ft): 65.0 - 67.0	Specimen No.: A	[ ] Kneading	[ ] Undercompaction: U_{nl} (%) =	Dia. (in.) =
[ ] Spec. Selection by X-ray;	[ ] Geomarine Sample	[ ]	Ref. Effort= % Comp. =	± Opt.=

Water Content (W);	Initial - Trimming Location			Final, W_{at}
	Top (W1)	Bottom (W2)	Sides (W3)	(see below)
Container No.	160	1109	2043	170
Mass Moist Soil + Container (g)	110.08	114.72	120.05	62.56
Mass Dry Soil + Container (g)	97.16	101.81	106.04	57.50
Mass Container (g)	30.55	31.81	30.69	30.02
WATER CONTENT (%)	19.40	18.44	18.59	18.41
Avg. Initial Water Content, W4 (%)	18.81	Final W_{at}:	[X] Slice ;	[ ] Whole Spec.
[ ] See attached data sheet(s) for additional water contents				

Soil and Ring Masses	Initial	Final
Mass Moist Soil + Ring (g)	326.33	326.21
Mass Ring (g)	208.34	
Mass Moist Soil, $M_{t,o}$ or $M_{t,at}$ (g)	117.99	117.87
EXCESS DRY SOIL (soil not incl. in final mass above)		
Container No.		5057
Mass Dry Soil + Container (g)		30.56
Mass Container (g)		30.54
Mass Excess Dry Soil, $M_{d,es}$ (g)		0.02

Soil Height: Measurements (mm)			
Initial		Final	
with Spec.	without Spec.	with Spec.	without Spec.
18.950	0.000	12.100	13.540
18.970	0.000	11.860	13.470
18.920	0.000	12.070	13.510
18.890	0.000	12.130	13.470
18.880	0.000	11.920	13.410
[ ] Yes ;	[X] No	[X] Yes ;	[ ] No
[ ] Yes ;	[X] No	[X] Yes ;	[ ] No

Require H_{gb} & d_{gb} (1)
Filter Paper Included:

(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.

Soil Height: Calculations, (mm)	Initial	Final
Height of Gauge Block, H_{gb} (1)	0.000	19.070
Reading on Gauge Block, d_{gb}	0.000	0.000
Avg. Reading on Soil, d_{soil}	18.922	12.016
Avg. Reading on Apparatus without Specimen, d_{app}	0.000	13.480
Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$	18.922	17.606

Soil Height: Final by Dial Change During Test (mm)	
Initial Height, H_o	18.922
Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$	1.188
Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$	17.734
Final Soil Height Measurement, $H_{f,m}$	17.606
Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$	0.68

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf)= 122.65	Dry, $\gamma_{d,o}$ (pcf)= 103.23

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: Light Yellowish Brown Sandy Lean CLAY (CL)

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: JTG | Take Down By: JTG
Date: 3/24/2008 | Date: 3/25/2008 | Final Calc. By: LF | Date: 3/28/2008
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-1 File Name: B-2319_UD7a

Task No.: NA Specific Gravity, G_s: 2.660 [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	19.40	98.82	84.1	102.3	100.1
2	" Bottom, W2	18.44	99.62	81.7	99.6	97.4
3	" Sides, W3	18.59	99.49	82.1	100.0	97.9
4	" Average, W4	18.81	99.31	82.6	100.6	98.5
5	" Back Calculated (1)	18.51	99.56 (3)	81.8	99.8	97.6
6	Final	18.41	99.56 (2)	81.8	99.8	97.6

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 = 2.657

Avg. G_s (measured/assumed) & Back Cal. G_s = 2.659

Calculation Constant, K = (unit conversion) / $G_s \times \rho_w \times A_r$	
Estimated, K_e	0.11866
Final Selected, K_f	0.11866

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) = 99.50

Avg. Back Calculated and Measured Mass Dry Soil (g) = 99.53

Summary of Specimen Physical Properties

Specific Gravity G_s = 2.660		[ ] 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: 99.56	[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) = 18.92		[X] Measured ;	[ ]	Back Calculated	Back-cal. Sat. (%) = NA
Final Height (mm) = 17.61		[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	18.5	0.602	81.8	122.7	103.5	11.814		
Final	18.4	0.490	99.8	131.7	111.2	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ε_a (%)	CR	RR	OCR	Liquid Limit (LL)	39	Minus 200 (%)
Casagrande Method	19.60	NA	0.095	0.009	2.7	Plastic Limit (PL)	17	54.7
Becker Method	NA	Becker minimum σ'_p (ksf):			NA	Plasticity Index (PI)	22	

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: LF Reviewed By: HP HP

Date: 3/31/2008

ONE - DIMENSIONAL CONSOLIDATION TEST:
CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-1 File Name: B-2319_UD7a
Task No.: NA Date; Start: 3/25/2008 Initial Height, H_o (mm): 18.92
Project Name: Exelon (Victoria) Completed: 3/28/2008 Ring Area, A_r (cm^2): 31.7385
Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 [X] Undisturbed or ; [ ] Reconstituted - Specimen.
Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.50734 ,V: 0.02280863 Piston Uplift, P_{up} (lbf): 34.63
Back Pressure, $U_{b,CS}$ (psi): 70.50605 ,V: 0.02280821 Setup DT_{ref} (V): 0.04501135
Displacement Transducer No.: DT-101 Calib. Factor (mm/V): -213.274 Ch. No.: 1
Pore Press. Transducer No.: PT-107 Calib. Factor (psi/V): 3086.313 Ref. Zero (V): -0.000037 Ch. No.: 2
Force Cell No.: FT-099 Calib. Factor (lbf/V): 161209.607 Ref. Zero (V): -0.000101 Ch. No.: 3

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: LF 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	85	16 : 43 : 00		1.14		0.000			
BS	85	16 : 55 : 00		1.44		0.041	0.029	0.012	
BE	86	09 : 24 : 00		1.25	0.000	0.013	0.026	-0.013	
CS	86	09 : 25 : 00	0	1.25	0.000	0.012	0.026	-0.014	
	86	09 : 39 : 00	14	1.60	0.001	0.047	0.032	0.015	0.656
	86	09 : 53 : 00	28	1.97	0.002	0.105	0.038	0.067	1.162
US	86	10 : 10 : 00	45	2.69	0.001	0.198	0.049	0.149	1.544
	86	10 : 38 : 00	73	4.63	0.007	0.358	0.074	0.284	1.527
	86	11 : 06 : 00	101	7.86	0.015	0.523	0.103	0.420	1.534
	86	11 : 34 : 00	129	12.07	0.025	0.686	0.129	0.557	1.556
	86	12 : 02 : 00	157	16.52	0.037	0.847	0.149	0.698	1.597
	86	12 : 30 : 00	185	21.22	0.048	1.009	0.166	0.843	1.641
	86	12 : 58 : 00	213	26.26	0.060	1.166	0.182	0.984	1.597
	86	13 : 26 : 00	241	32.04	0.081	1.322	0.198	1.124	1.589
	86	13 : 54 : 00	269	38.51	0.102	1.474	0.215	1.259	1.526
	86	14 : 22 : 00	297	45.89	0.130	1.624	0.233	1.390	1.487
	86	14 : 50 : 00	325	54.11	0.156	1.769	0.253	1.516	1.421
	86	15 : 18 : 00	353	63.42	0.192	1.913	0.276	1.637	1.374
	86	15 : 46 : 00	381	73.61	0.224	2.053	0.301	1.752	1.299
	86	16 : 14 : 00	409	84.35	0.282	2.183	0.327	1.857	1.186
	86	16 : 42 : 00	437	96.00	0.325	2.312	0.355	1.957	1.135
	86	17 : 10 : 00	465	109.15	0.400	2.445	0.388	2.057	1.134
UE	86	17 : 38 : 00	493	122.92	0.516	2.571	0.422	2.150	1.048
	86	18 : 06 : 00	521	137.56	0.598	2.698	0.458	2.240	1.025

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)
	86	18 : 24 : 00	539	147.95	0.721	2.780	0.484	2.296	0.989
	86	18 : 26 : 00	541	146.98	0.408	2.784	0.483	2.301	0.782
	86	19 : 06 : 00	581	141.82	0.037	2.800	0.475	2.325	0.187
	86	19 : 46 : 00	621	137.07	-0.027	2.796	0.467	2.329	0.033
	86	20 : 26 : 00	661	118.70	-0.059	2.757	0.438	2.319	-0.076
	86	21 : 06 : 00	701	99.48	-0.074	2.712	0.404	2.309	-0.085
	86	21 : 46 : 00	741	81.47	-0.088	2.667	0.369	2.298	-0.084
	86	22 : 26 : 00	781	64.44	-0.099	2.617	0.332	2.285	-0.102
US	86	23 : 06 : 00	821	49.25	-0.125	2.566	0.295	2.270	-0.117
	86	23 : 46 : 00	861	36.34	-0.140	2.511	0.259	2.252	-0.146
	87	00 : 26 : 00	901	25.79	-0.171	2.454	0.225	2.229	-0.187
	87	01 : 06 : 00	941	17.15	-0.216	2.386	0.192	2.194	-0.274
UE	87	01 : 18 : 00	953	15.15	-0.217	2.365	0.184	2.181	-0.345
	87	01 : 20 : 00	955	15.23	-0.113	2.364	0.184	2.180	-0.205
	87	01 : 28 : 00	963	17.32	0.167	2.369	0.193	2.176	-0.134
	87	01 : 36 : 00	971	22.30	0.242	2.395	0.213	2.182	0.224
	87	01 : 44 : 00	979	27.36	0.261	2.419	0.231	2.189	0.265
US	87	01 : 52 : 00	987	32.52	0.268	2.445	0.247	2.198	0.365
	87	02 : 00 : 00	995	37.12	0.256	2.467	0.261	2.206	0.319
	87	02 : 08 : 00	1003	42.58	0.258	2.490	0.277	2.213	0.295
	87	02 : 16 : 00	1011	48.25	0.260	2.515	0.292	2.223	0.375
	87	02 : 24 : 00	1019	54.21	0.262	2.537	0.308	2.230	0.277
	87	02 : 32 : 00	1027	60.39	0.255	2.561	0.323	2.239	0.349
	87	02 : 40 : 00	1035	66.51	0.236	2.584	0.337	2.248	0.358
	87	02 : 48 : 00	1043	72.40	0.228	2.604	0.350	2.254	0.270
	87	02 : 56 : 00	1051	78.14	0.242	2.626	0.362	2.263	0.362
	87	03 : 04 : 00	1059	84.47	0.249	2.646	0.375	2.271	0.306
	87	03 : 12 : 00	1067	91.37	0.278	2.669	0.388	2.281	0.383
	87	03 : 20 : 00	1075	98.60	0.305	2.695	0.402	2.293	0.475
	87	03 : 28 : 00	1083	104.84	0.270	2.715	0.414	2.302	0.357
	87	03 : 36 : 00	1091	111.55	0.327	2.740	0.425	2.315	0.509
	87	03 : 44 : 00	1099	118.18	0.368	2.764	0.437	2.327	0.482
	87	03 : 52 : 00	1107	124.88	0.439	2.789	0.448	2.341	0.555
	87	04 : 00 : 00	1115	132.01	0.500	2.818	0.459	2.359	0.710
	87	04 : 08 : 00	1123	138.59	0.526	2.845	0.470	2.375	0.655
	87	04 : 16 : 00	1131	144.81	0.580	2.874	0.479	2.395	0.780
UE	87	04 : 20 : 00	1135	147.72	0.589	2.887	0.484	2.403	0.659
	87	04 : 22 : 00	1137	147.17	0.304	2.889	0.483	2.406	0.470
	87	05 : 26 : 00	1201	142.78	-0.003	2.901	0.476	2.425	0.093
	87	06 : 30 : 00	1265	117.52	-0.095	2.850	0.436	2.414	-0.054
	87	07 : 34 : 00	1329	87.20	-0.127	2.779	0.380	2.399	-0.077
	87	08 : 38 : 00	1393	59.90	-0.157	2.705	0.322	2.383	-0.078

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)
	87	09 : 42 : 00	1457	37.80	-0.162	2.622	0.263	2.358	-0.122
	87	10 : 46 : 00	1521	21.23	-0.223	2.523	0.209	2.314	-0.217
	87	11 : 50 : 00	1585	10.66	-0.293	2.404	0.163	2.241	-0.365
	87	12 : 54 : 00	1649	5.49	-0.318	2.266	0.133	2.133	-0.536
	87	13 : 58 : 00	1713	3.20	-0.287	2.120	0.116	2.005	-0.634
	87	15 : 02 : 00	1777	2.12	-0.228	1.963	0.105	1.858	-0.727
	87	15 : 10 : 00	1785	2.01	-0.227	1.942	0.104	1.839	-0.767
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