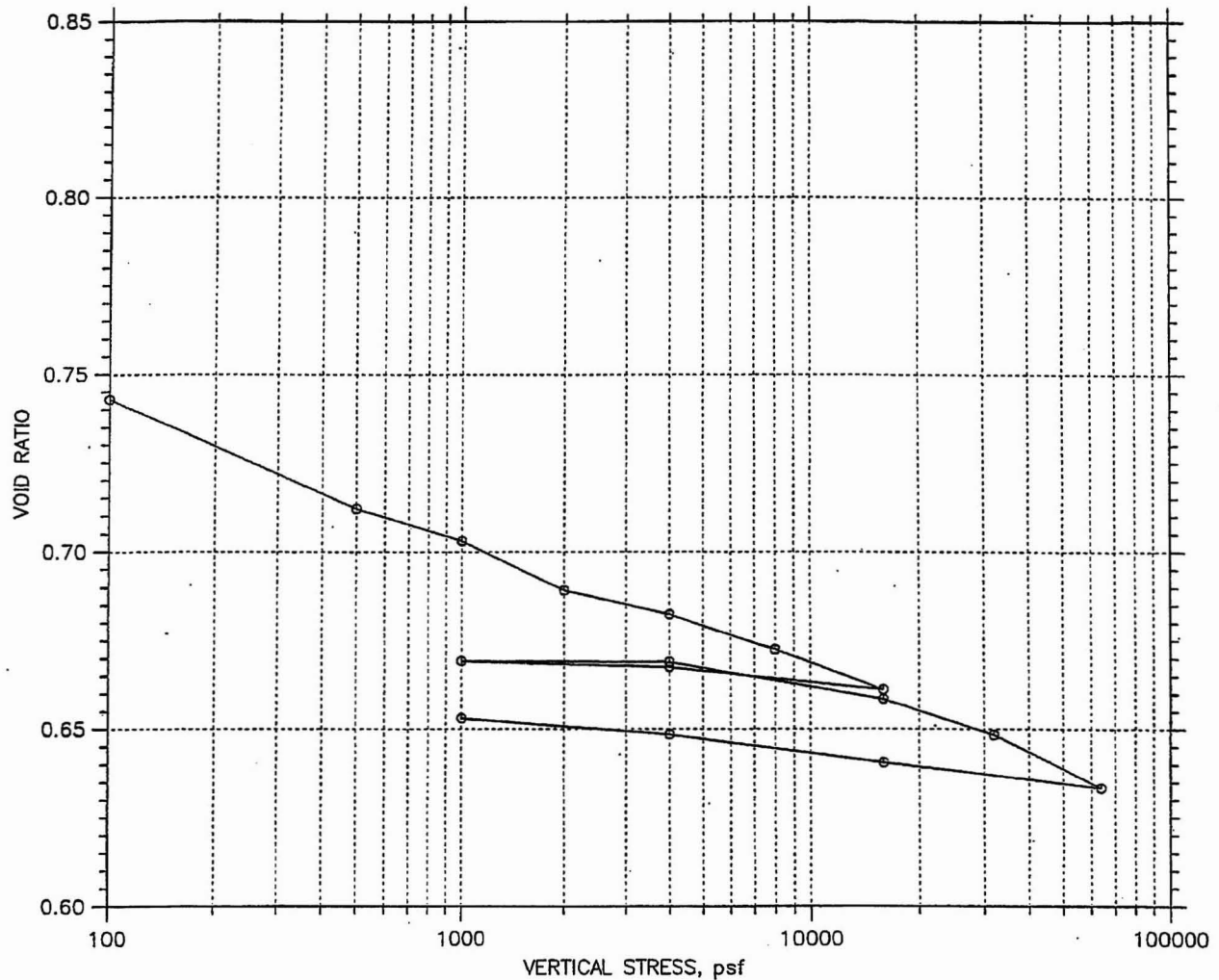


CONSOLIDATION TEST DATA SUMMARY REPORT

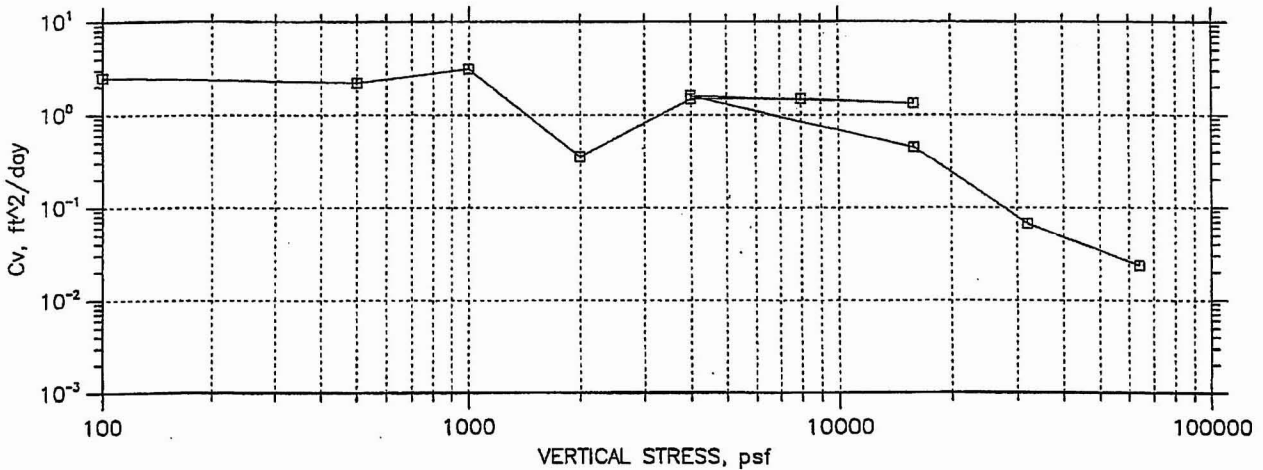
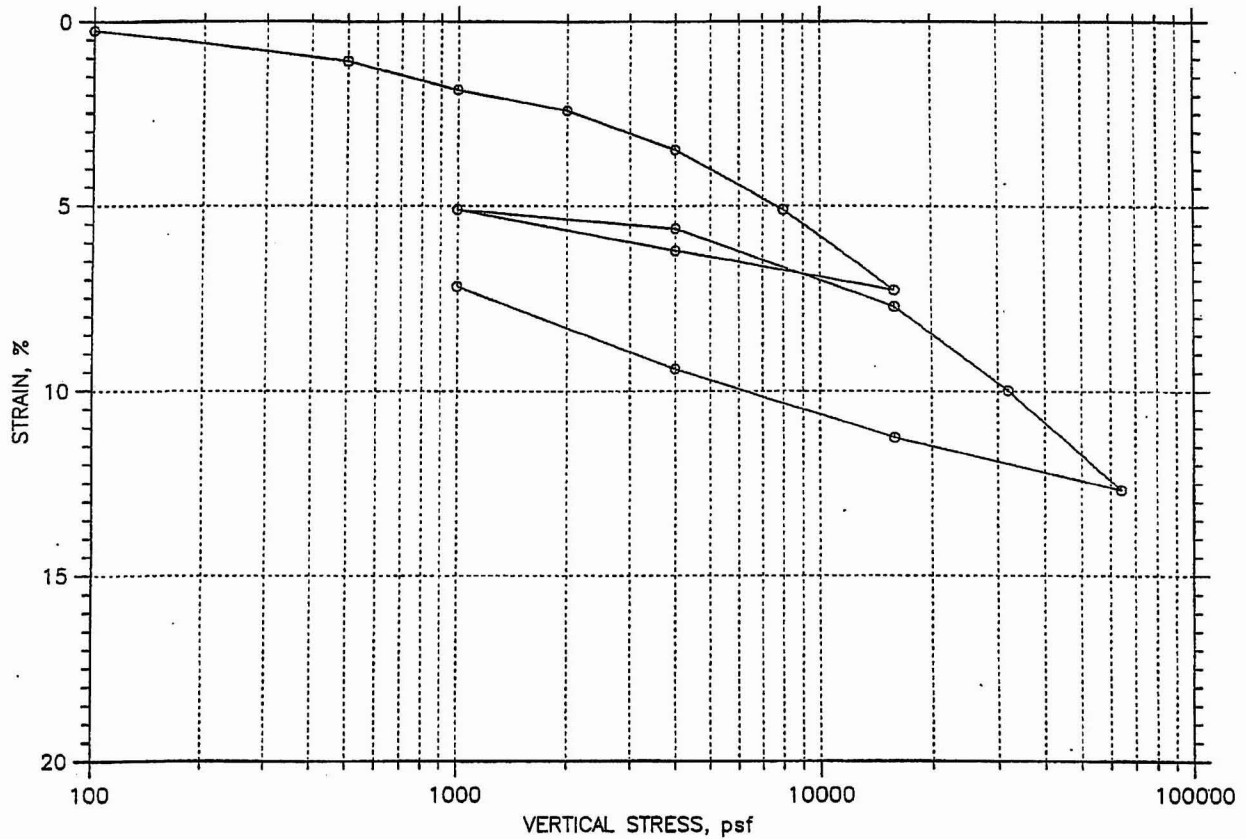


				Before Test	After Test	
Overburden Pressure: 7900 psf		Water Content, %		25.28	23.84	
Preconsolidation Pressure: 1.79e+004 psf		Dry Unit Weight, pcf		96.62	103.1	
Compression Index: 0.05		Saturation, %		90.33	99.66	
Diameter: 2.499 in		Height: 0.9954 in		Void Ratio	0.76	0.65
LL: NP	PL: NP	PI: NP	GS: 2.73			

	Project: Exelon Texas COL Victoria		Location: B-2319UD UD-8	Project No.: 6468071777
	Boring No.: B-2319UD		Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-8		Test Date: 2/27/08	Depth: 75-77' <i>41.4/08</i>
	Test No.: 8356		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Poorly Graded SAND with Silt (SP-SM)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.010

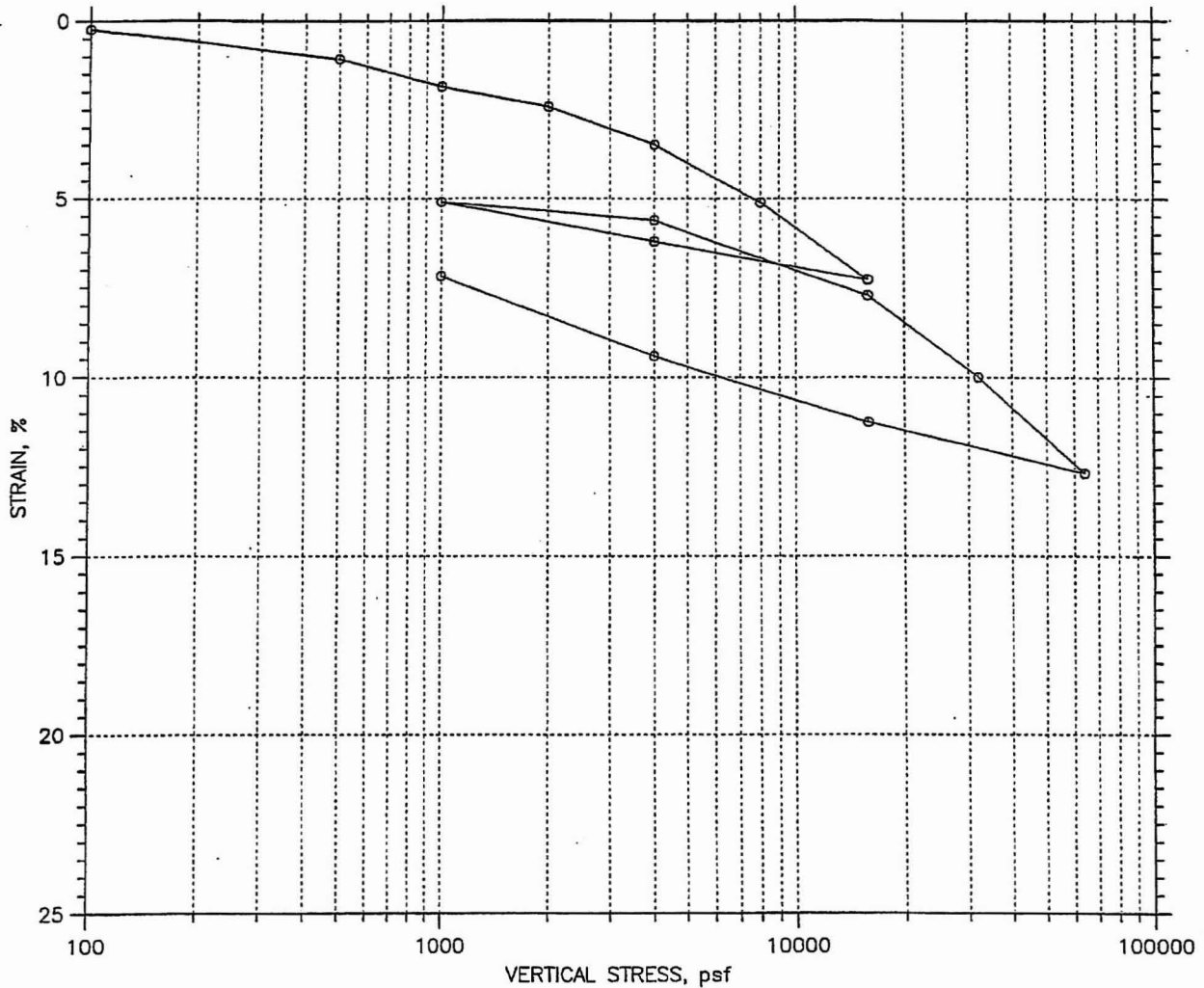
Mon, 14-APR-2008 13:55:54

CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2321UD UD-7	Project No.: 6468071777
	Boring No.: B-2321UD	Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-7	Test Date: 3/28/08	Depth: 38.5-40.2' <i>41.4/03</i>
	Test No.: 8358	Sample Type: Undisturbed	Elevation: N/A
	Description: Very Pale Brown Mottled Brownish Yellow Fat Clay (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.032

CONSOLIDATION TEST DATA SUMMARY REPORT

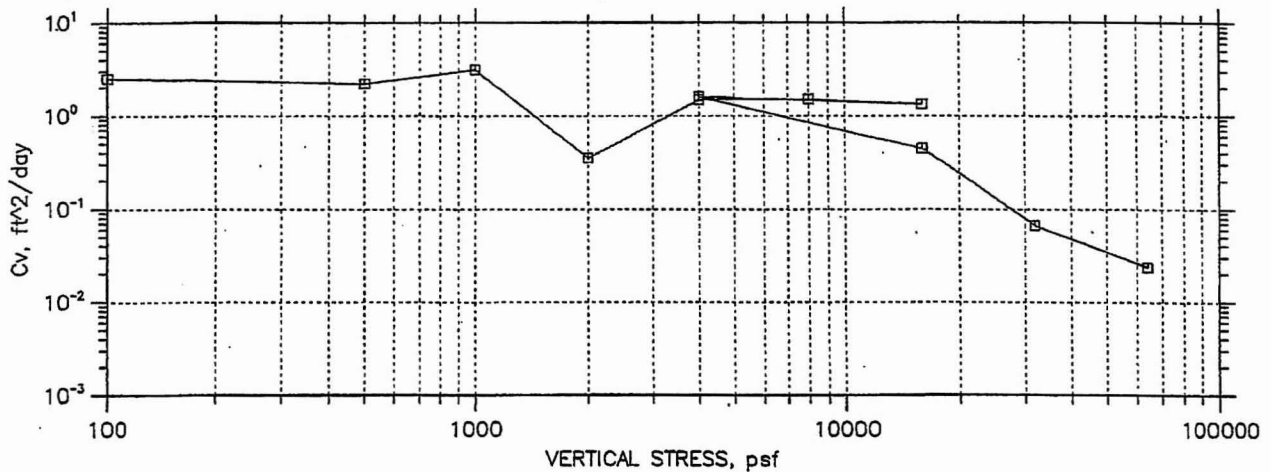
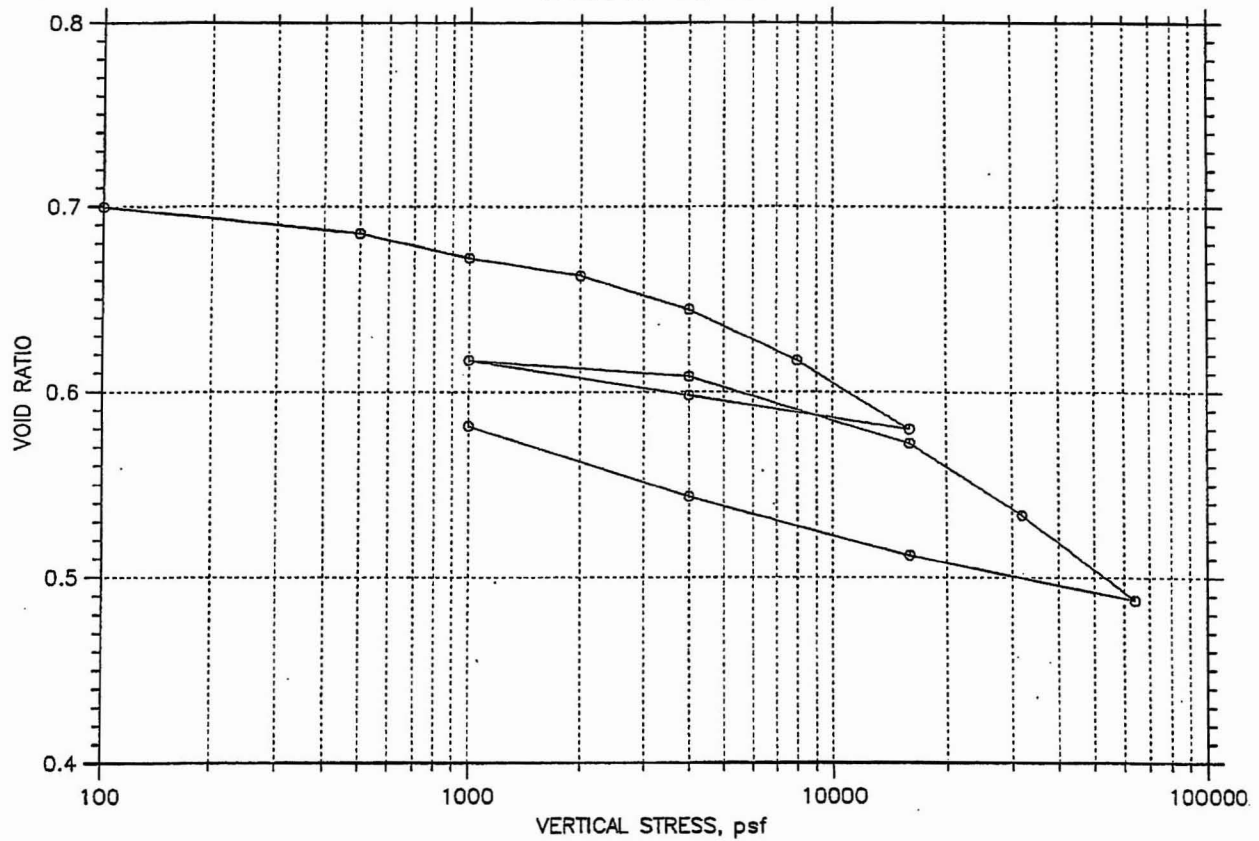


				Before Test	After Test	
Overburden Pressure: 4900 psf				Water Content, %	21.29	20.71
Preconsolidation Pressure: 1.04e+004 psf				Dry Unit Weight, pcf	101.9	109.7
Compression Index: 0.153				Saturation, %	84.11	99.02
Diameter: 2.498 in		Height: 0.9974 in		Void Ratio	0.70	0.58
LL: 60	PL: 23	PI: 37	GS: 2.78			

MACTEC	Project: Exelon Texas COL Victoria	Location: B-2321UD UD-7	Project No.: 6468071777
	Boring No.: B-2321UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-7	Test Date: 3/28/08	Depth: 38.5-40.2'
	Test No.: 8358	Sample Type: Undisturbed	Elevation: N/A
	Description: Very Pale Brown Mottled Brownish Yellow Fat Clay (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.032

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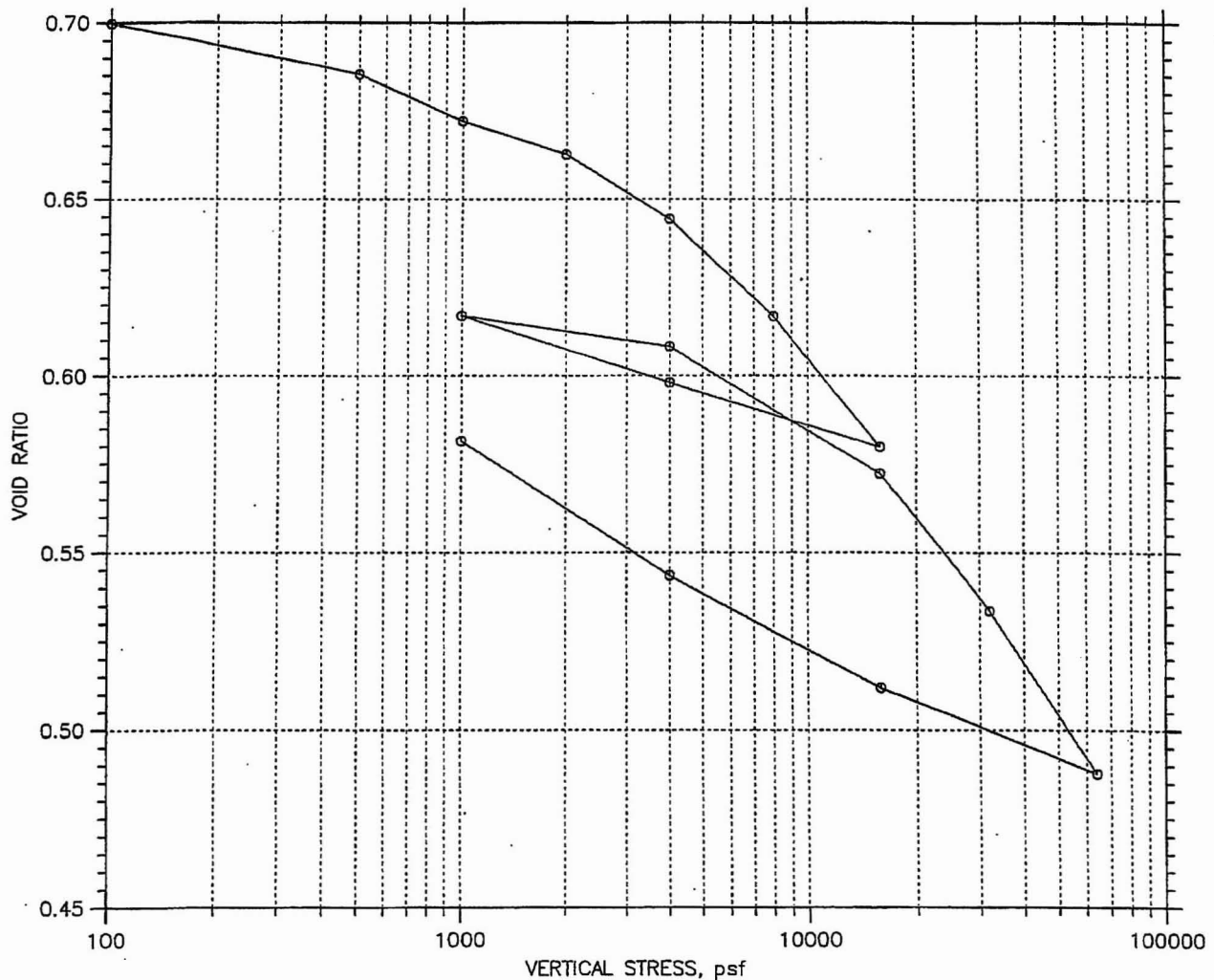
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2321UD UD-7	Project No.: 6468071777
	Boring No.: B-2321UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-7	Test Date: 3/28/08	Depth: 38.5-40.2'
	Test No.: 8358	Sample Type: Undisturbed	Elevation: N/A
	Description: Very Pale Brown Mottled Brownish Yellow Fat Clay (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.032

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CONSOLIDATION TEST DATA SUMMARY REPORT

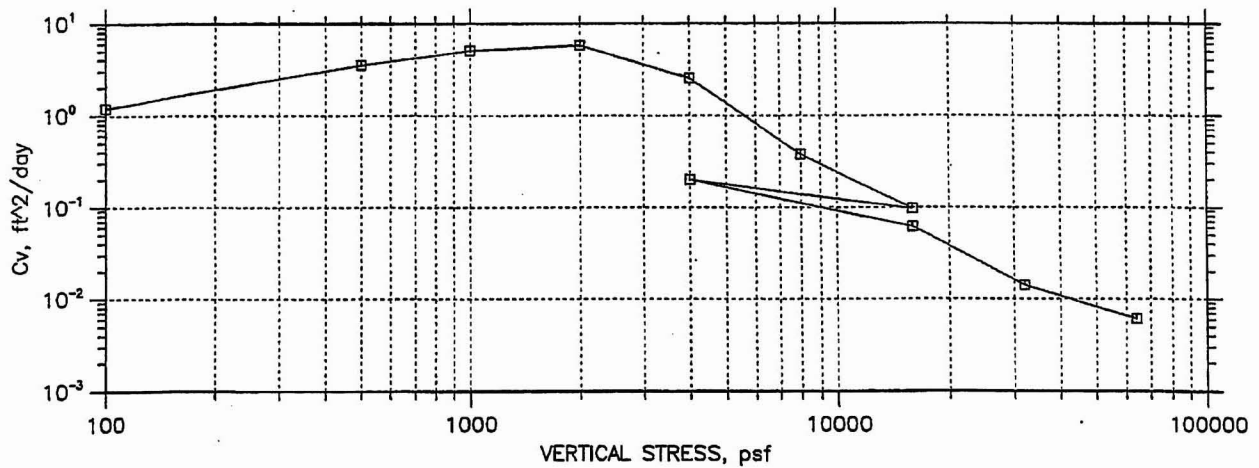
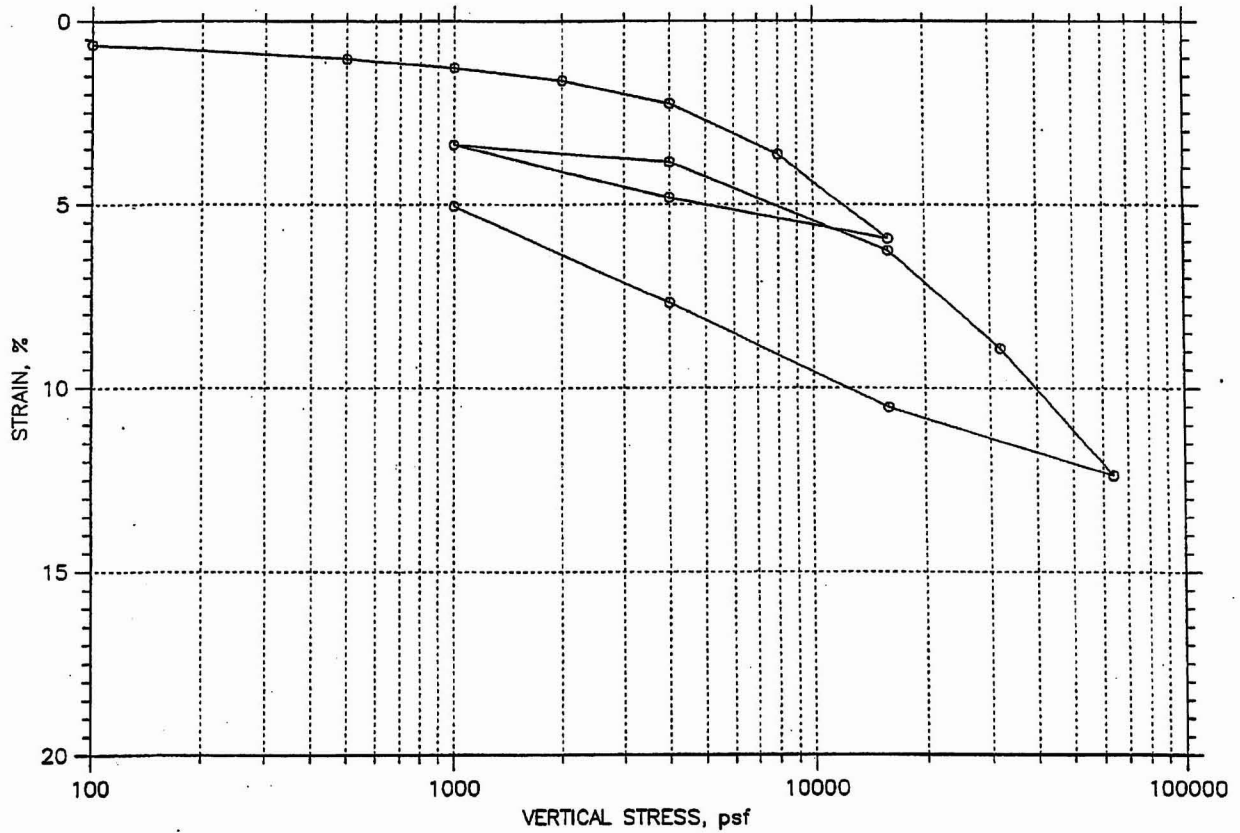


				Before Test	After Test	
Overburden Pressure: 4900 psf				Water Content, %	21.29	20.71
Preconsolidation Pressure: 1.04e+004 psf				Dry Unit Weight, pcf	101.9	109.7
Compression Index: 0.153				Saturation, %	84.11	99.02
Diameter: 2.498 in		Height: 0.9974 in		Void Ratio	0.70	0.58
LL: 60	PL: 23	PI: 37	GS: 2.78			

	Project: Exelon Texas COL Victoria		Location: B-2321UD UD-7	Project No.: 6468071777
	Boring No.: B-2321UD		Tested By: BM	Checked By: HJ
	Sample No.: UD-7		Test Date: 3/28/08	Depth: 38.5-40.2'
	Test No.: 8358		Sample Type: Undisturbed	Elevation: N/A
	Description: Very Pale Brown Mottled Brownish Yellow Fat Clay (CH)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.032

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CONSOLIDATION TEST DATA SUMMARY REPORT

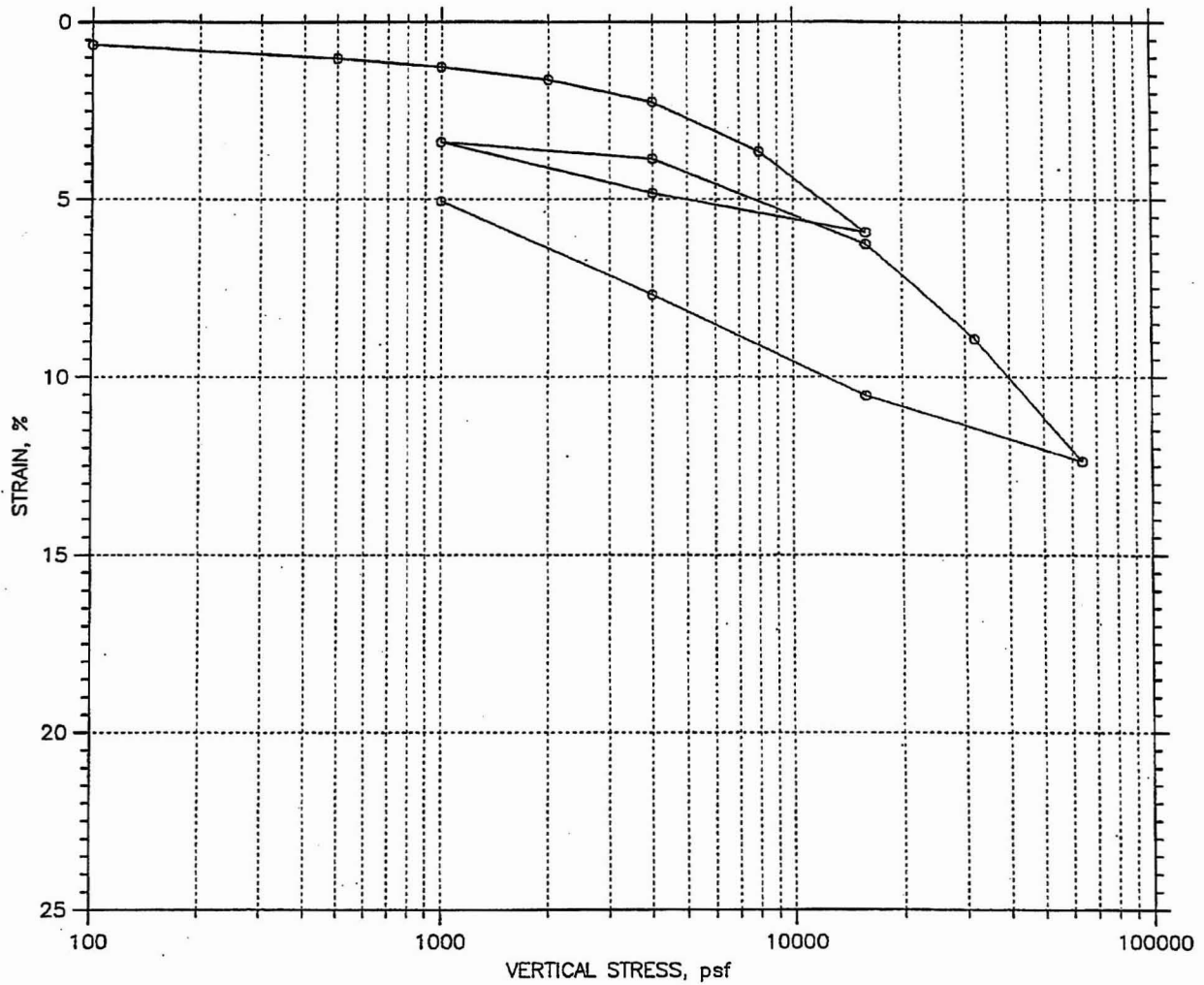


MACTEC	Project: Exelon Texas COL Victoria	Location: B-2321UD UD-14	Project No.: 6468071777
	Boring No.: B-2321UD	Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-14	Test Date: 4/18/08	Depth: 128.5-130'
	Test No.: 8360	Sample Type: Undisturbed	Elevation: N/A <i>5/5/08</i>
	Description: Pale Yellow Fat CLAY with Sand (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.033		

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KAW 5/9/08

CONSOLIDATION TEST DATA SUMMARY REPORT

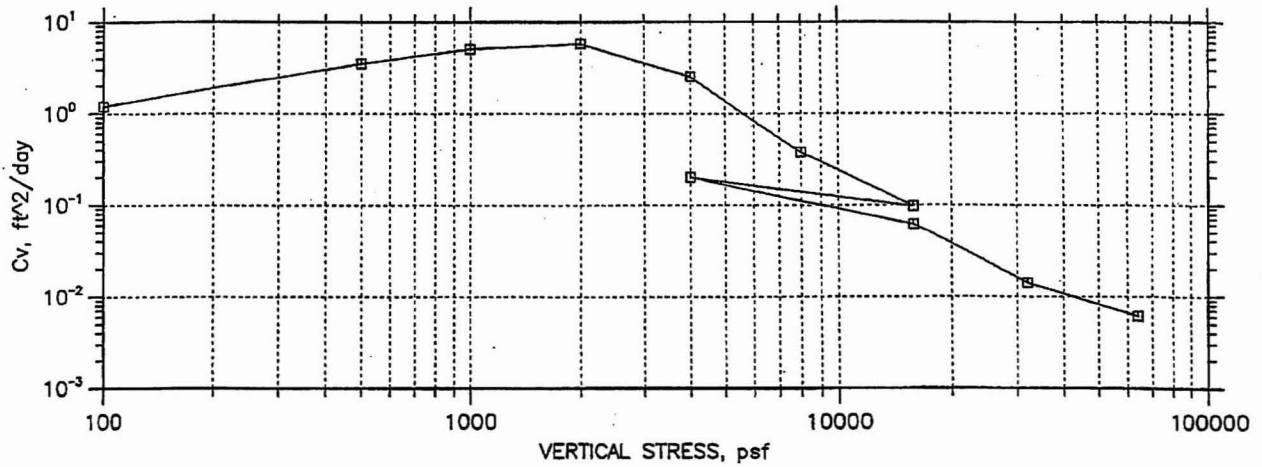
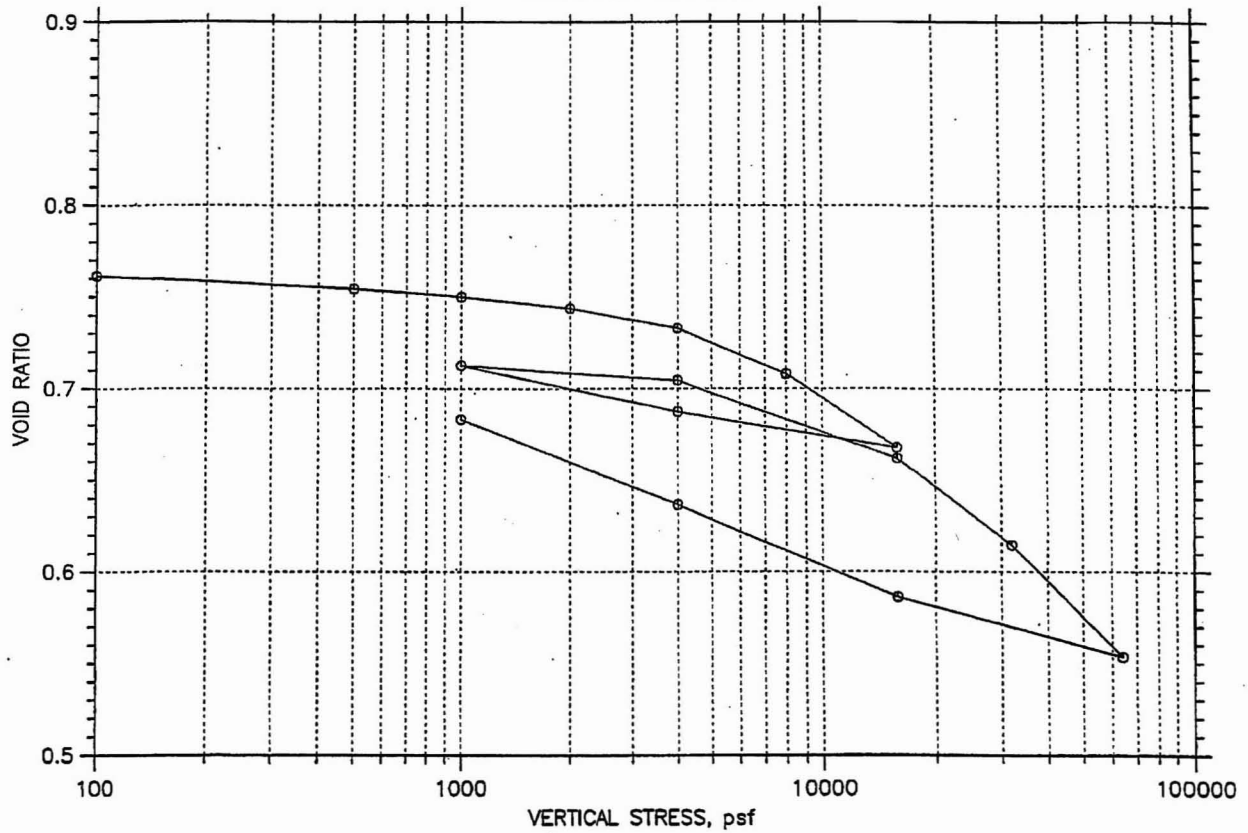


				Before Test	After Test	
Overburden Pressure: 1.12e+004 psf				Water Content, %	25.47	24.85
Preconsolidation Pressure: 1.12e+004 psf				Dry Unit Weight, pcf	96.84	102.
Compression Index: 0.203				Saturation, %	90.64	100.03
Diameter: 2.499 in		Height: 0.9945 in		Void Ratio	0.77	0.68
LL: 58	PL: 27	PI: 31	GS: 2.75			

	Project: Exeion Texas COL Victoria		Location: B-2321UD UD-14	Project No.: 6468071777
	Boring No.: B-2321UD		Tested By: BM	Checked By: HJ
	Sample No.: UD-14		Test Date: 4/18/08	Depth: 128.5-130'
	Test No.: 8360		Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Yellow Fat CLAY with Sand (CH)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.033

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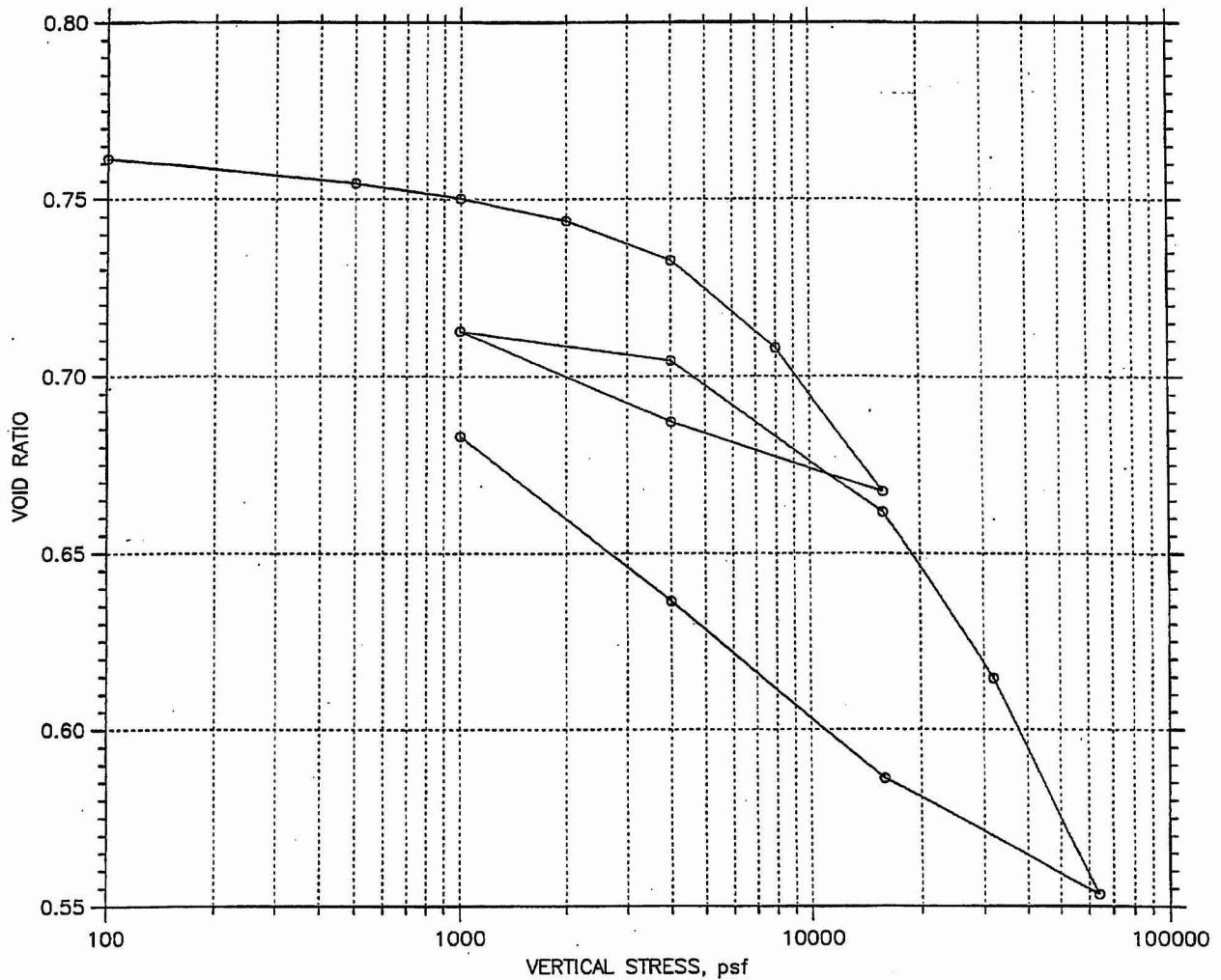
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2321UD UD-14	Project No.: 6468071777
	Boring No.: B-2321UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-14	Test Date: 4/18/08	Depth: 128.5-130'
	Test No.: 8360	Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Yellow Fat CLAY with Sand (CH)		5/5/08
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.033

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CONSOLIDATION TEST DATA SUMMARY REPORT

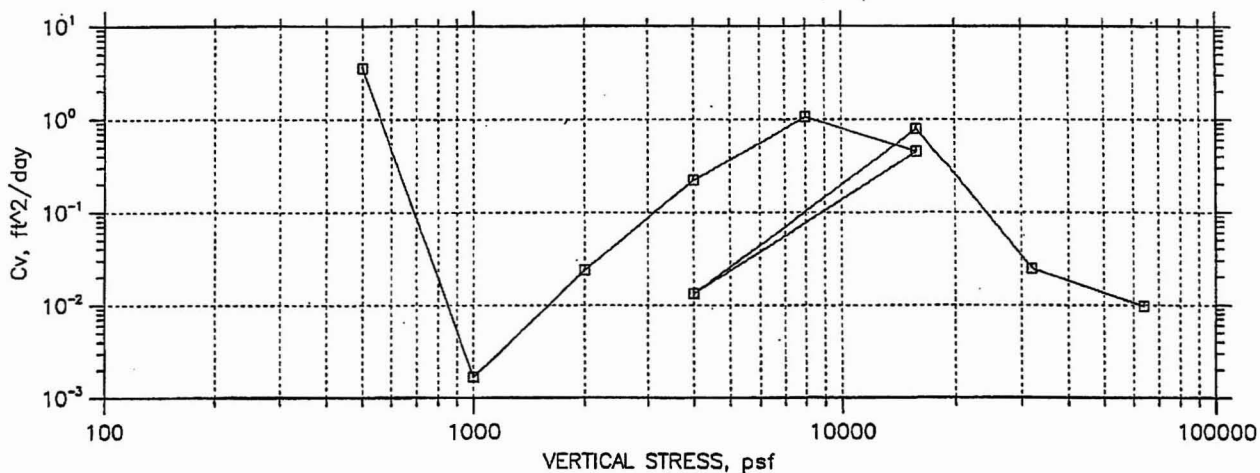
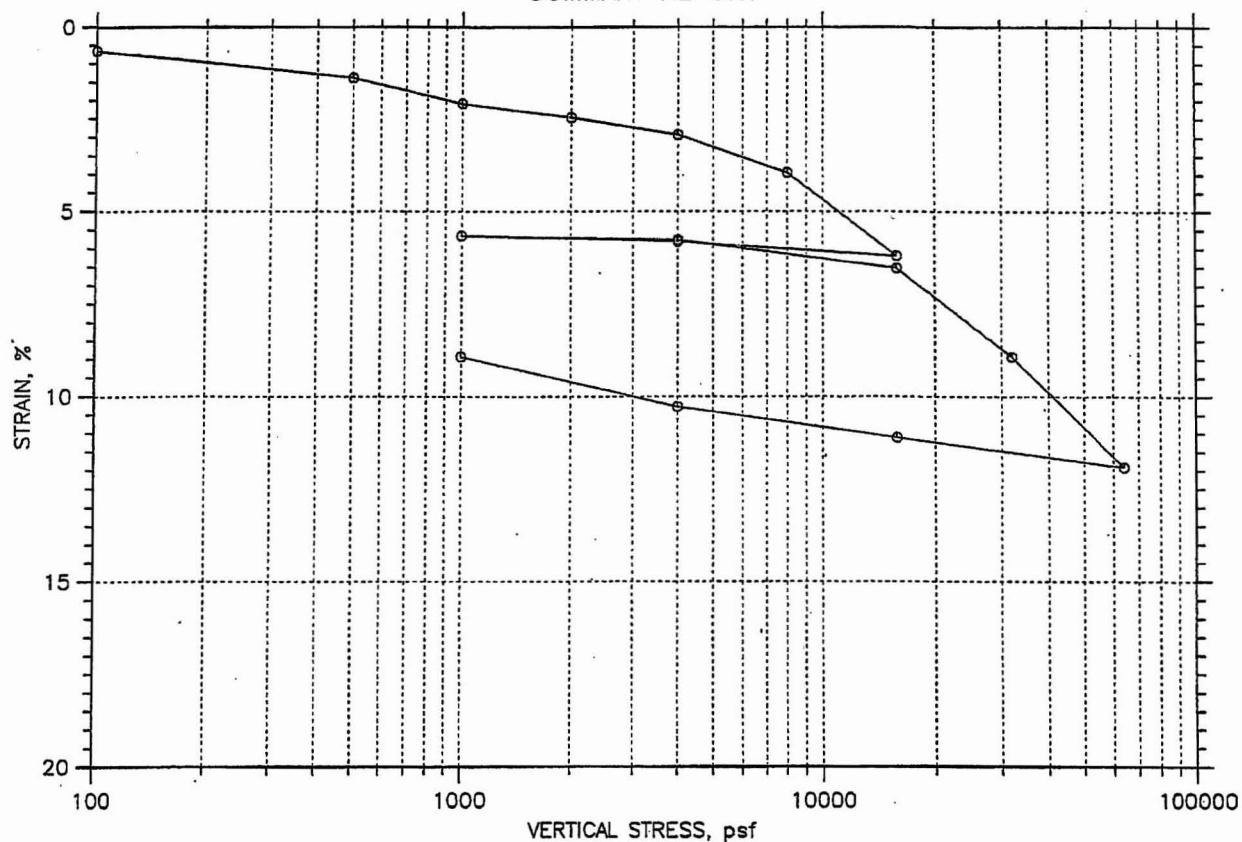


				Before Test	After Test
Overburden Pressure: 1.12e+004 psf				25.47	24.85
Preconsolidation Pressure: 1.12e+004 psf				96.84	102.
Compression Index: 0.203				90.64	100.03
Diameter: 2.499 in		Height: 0.9945 in		Void Ratio	
LL: 58		PL: 27		0.77	
PI: 31		GS: 2.75		0.68	

	Project: Exelon Texas COL Victoria		Location: B-2321UD UD-14	Project No.: 6468071777
	Boring No.: B-2321UD		Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-14		Test Date: 4/18/08	Depth: 128.5-130'
	Test No.: 8360		Sample Type: Undisturbed	Elevation: N/A <i>5/5/08</i>
	Description: Pale Yellow Fat CLAY with Sand (CH)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.033

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CONSOLIDATION TEST DATA SUMMARY REPORT

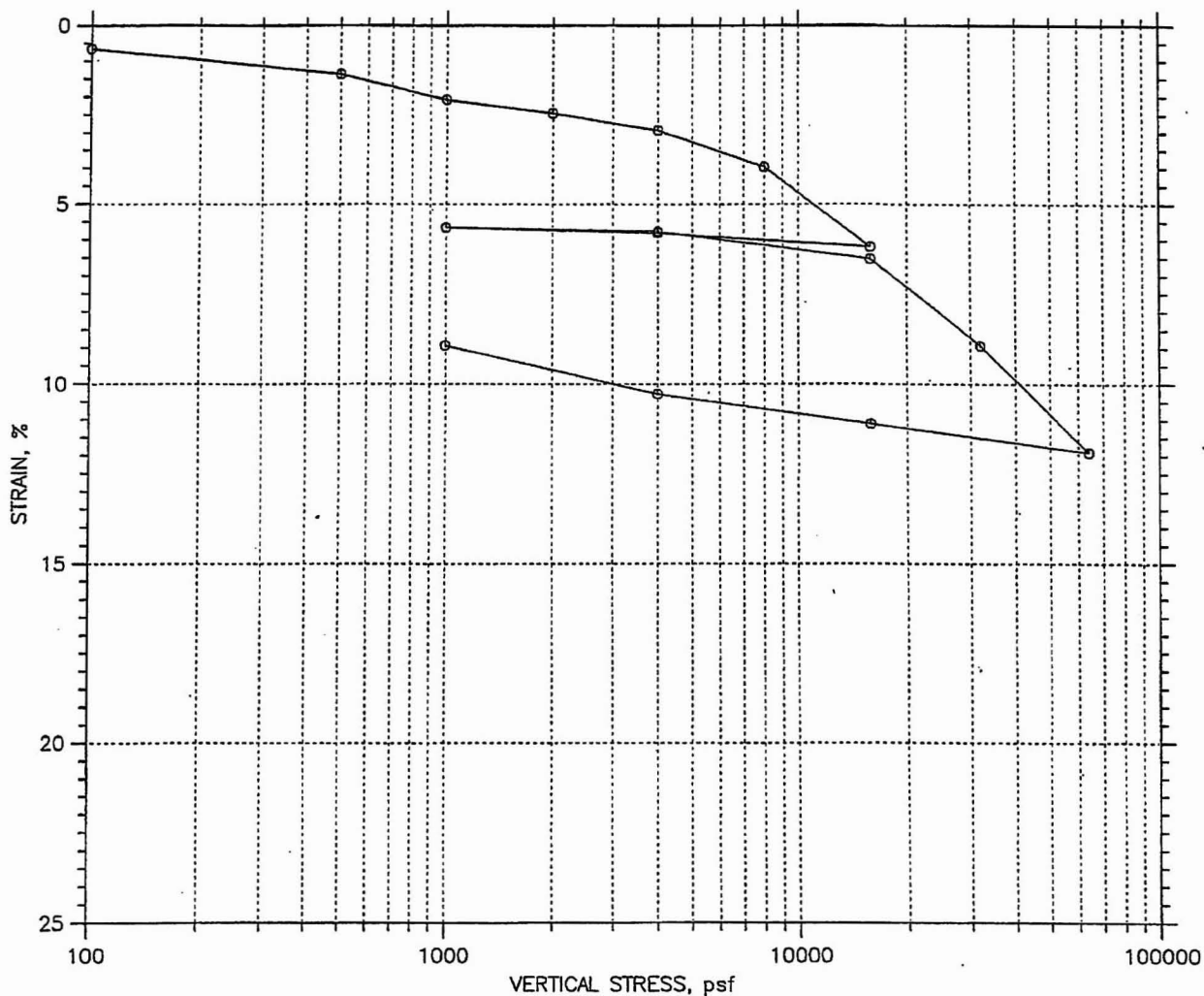


MACTEC	Project: Exelon Texas COL Victoria	Location: B-2352UD UD-1	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-1	Test Date: 2/26/08	Depth: 3.5-5.2'
	Test No.: 8361	Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Brown Sandy Lean CLAY (CL)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.003

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KAW 4-15-08

CONSOLIDATION TEST DATA SUMMARY REPORT

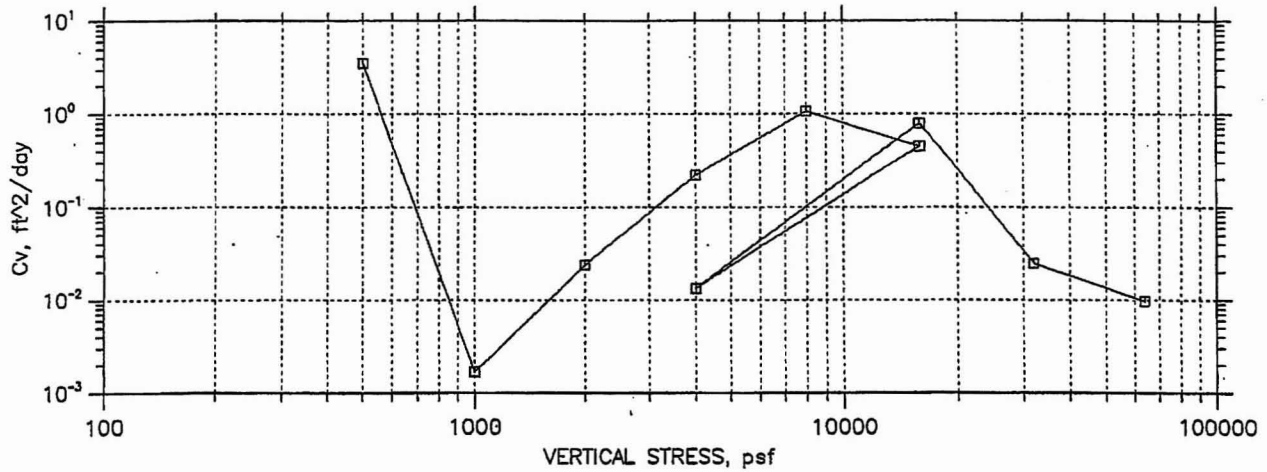
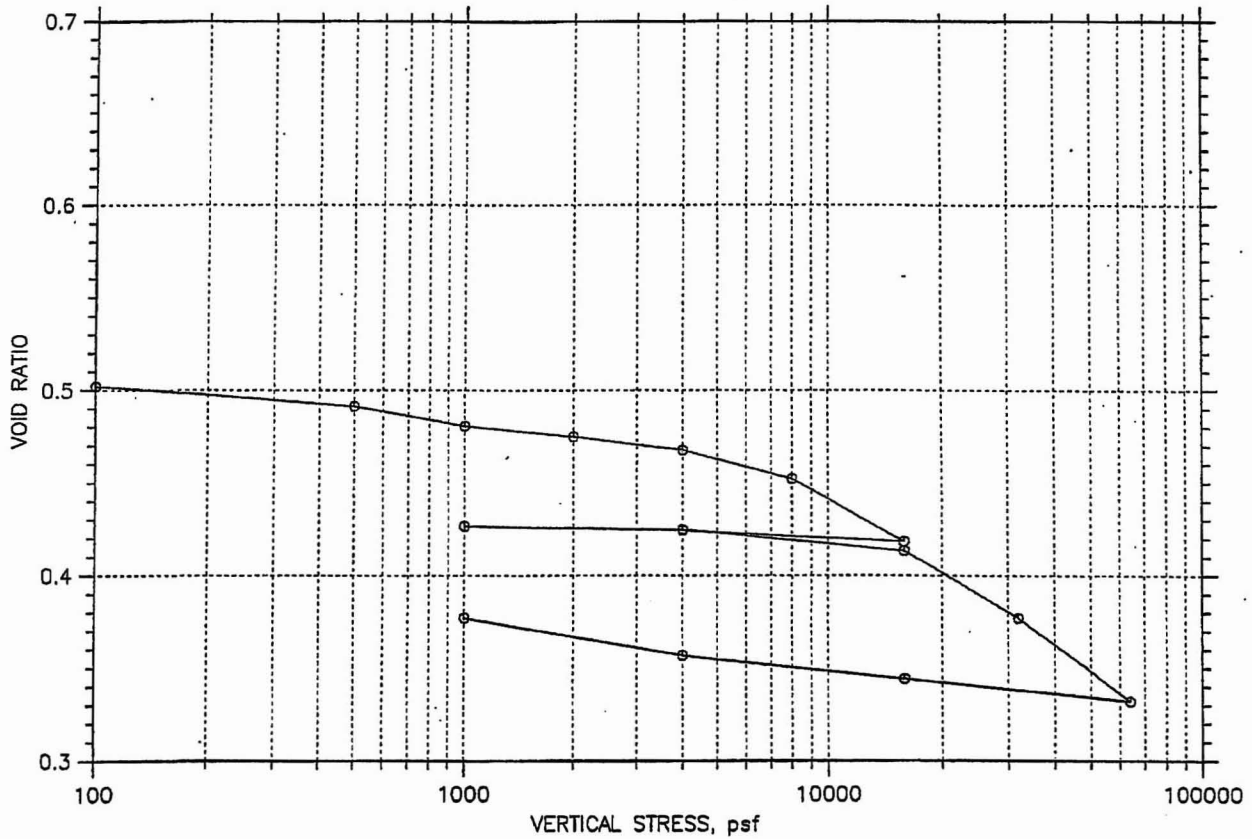


				Before Test	After Test	
Overburden Pressure: 500 psf				Water Content, %	17.25	13.82
Preconsolidation Pressure: 1.22e+004 psf				Dry Unit Weight, pcf	111.5	122.4
Compression Index: 0.149				Saturation, %	90.97	98.97
Diameter: 2.5 in		Height: 0.9963 in		Void Ratio	0.51	0.38
LL: 46	PL: 19	PI: 27	GS: 2.70			

	Project: Exelon Texas COL Victoria		Location: B-2352UD UD-1	Project No.: 6468071777
	Boring No.: B-2352UD		Tested By: BM	Checked By: HJ ☒
	Sample No.: UD-1		Test Date: 2/26/08	Depth: 3.5-5.2' 4/14/08
	Test No.: 8361		Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Brown Sandy Lean CLAY (CL)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr=0.003

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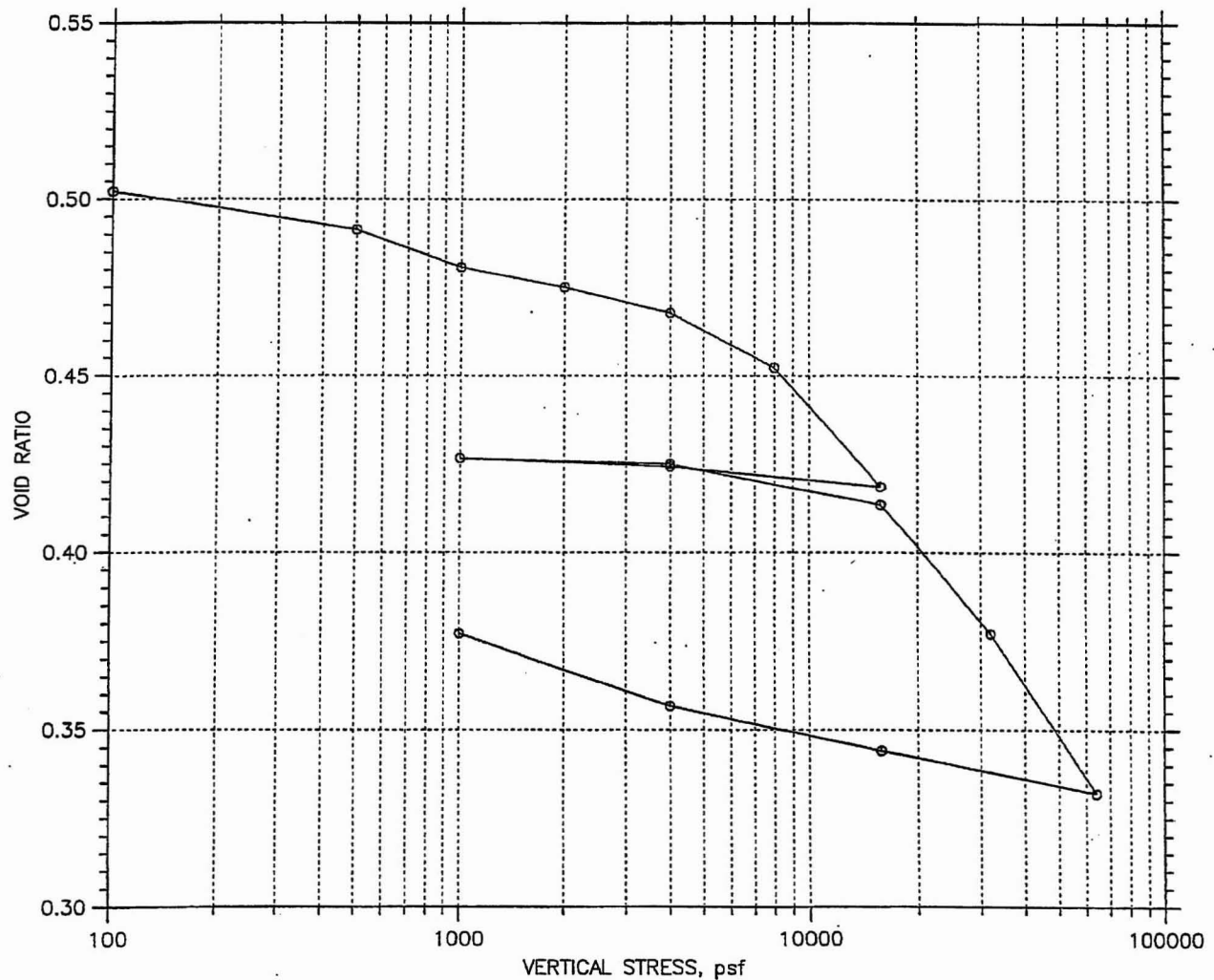
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2352UD UD-1	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: BM	Checked By: HJ 4/14/08
	Sample No.: UD-1	Test Date: 2/26/08	Depth: 3.5-5.2'
	Test No.: 8361	Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Brown Sandy Lean CLAY (CL)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.003

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CONSOLIDATION TEST DATA SUMMARY REPORT

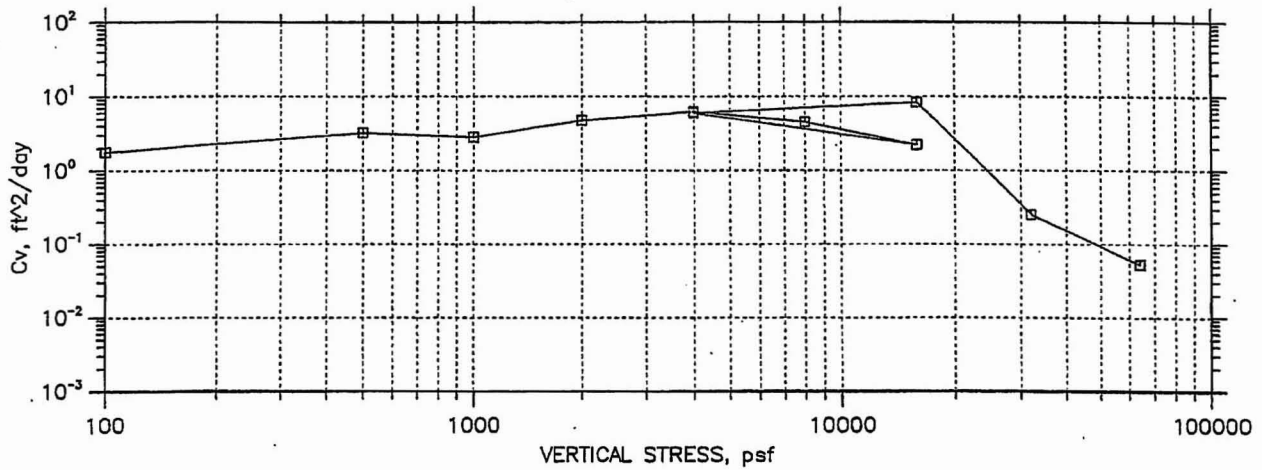
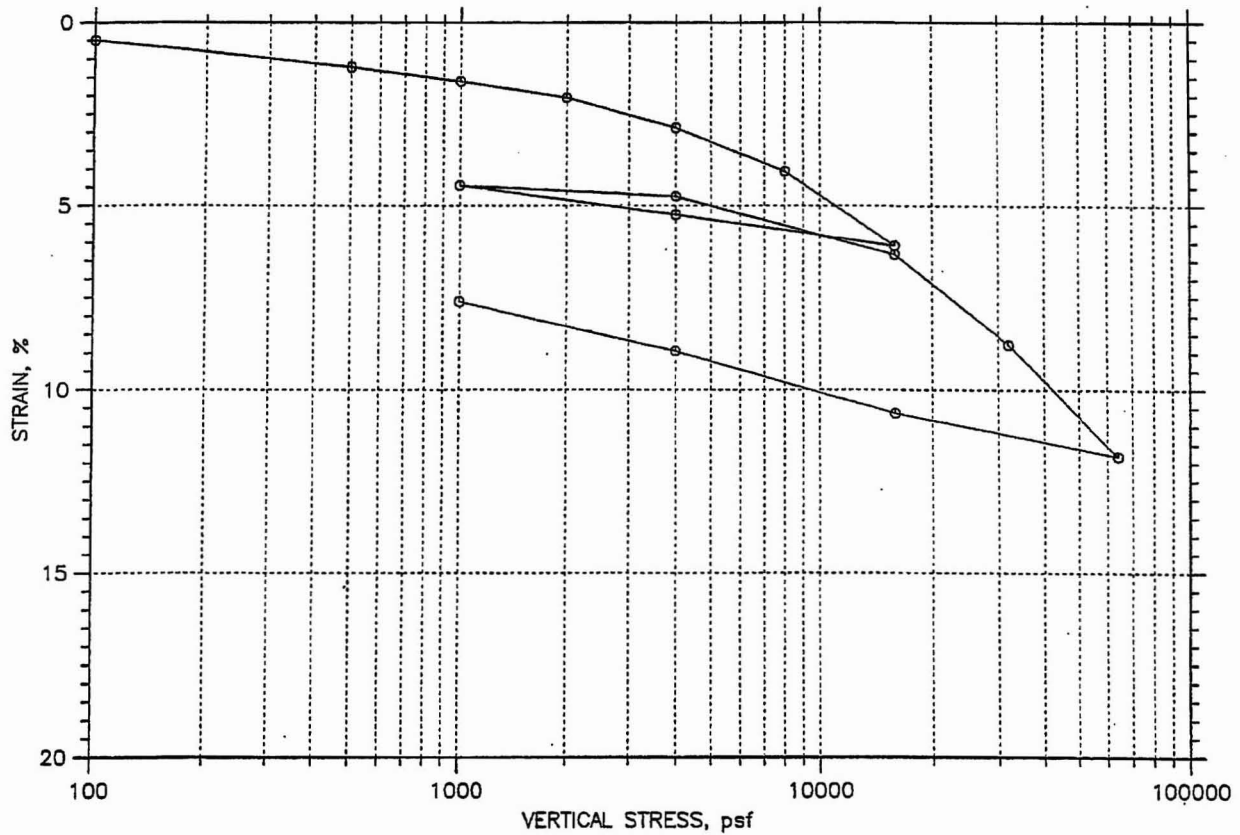


				Before Test	After Test	
Overburden Pressure: 500 psf				Water Content, %	17.25	13.82
Preconsolidation Pressure: 1.22e+004 psf				Dry Unit Weight, pcf	111.5	122.4
Compression Index: 0.149				Saturation, %	90.97	98.97
Diameter: 2.5 in		Height: 0.9963 in		Void Ratio	0.51	0.38
LL: 46	PL: 19	PI: 27	GS: 2.70			

	Project: Exelon Texas COL Victoria		Location: B-2352UD UD-1	Project No.: 6468071777
	Boring No.: B-2352UD		Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-1		Test Date: 2/26/08	Depth: 3.5-5.2' <i>4/14/08</i>
	Test No.: 8361		Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Brown Sandy Lean CLAY (CL)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr=0.003

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CONSOLIDATION TEST DATA SUMMARY REPORT

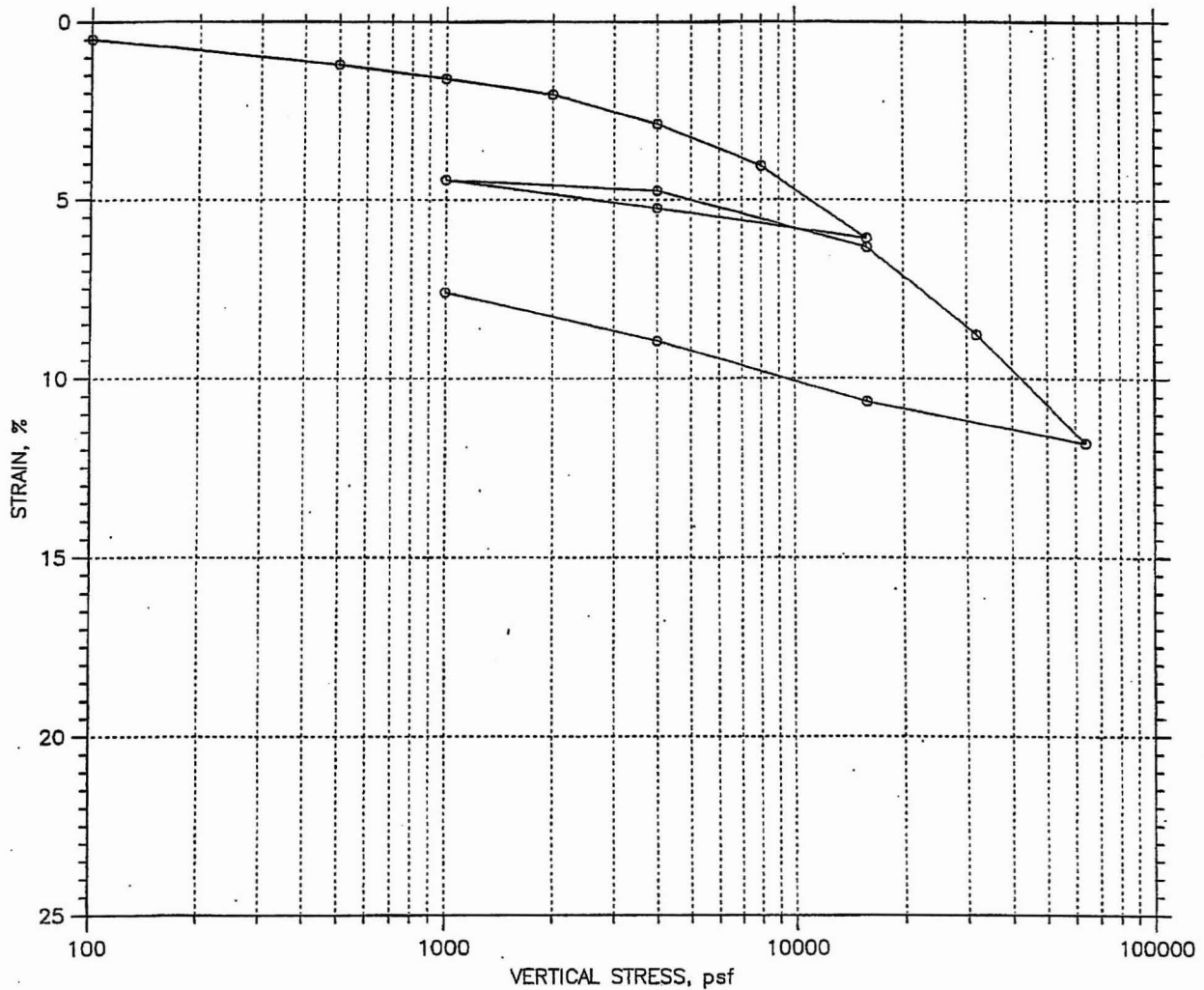


MAC TEC	Project: Exelon Texas COL Victoria	Location: B-2352UD UD-3	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-3	Test Date: 2/26/08	Depth: 11.5-13.2'
	Test No.: 8362	Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Lean CLAY (CL)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.020

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KAW 4.15.08

CONSOLIDATION TEST DATA SUMMARY REPORT

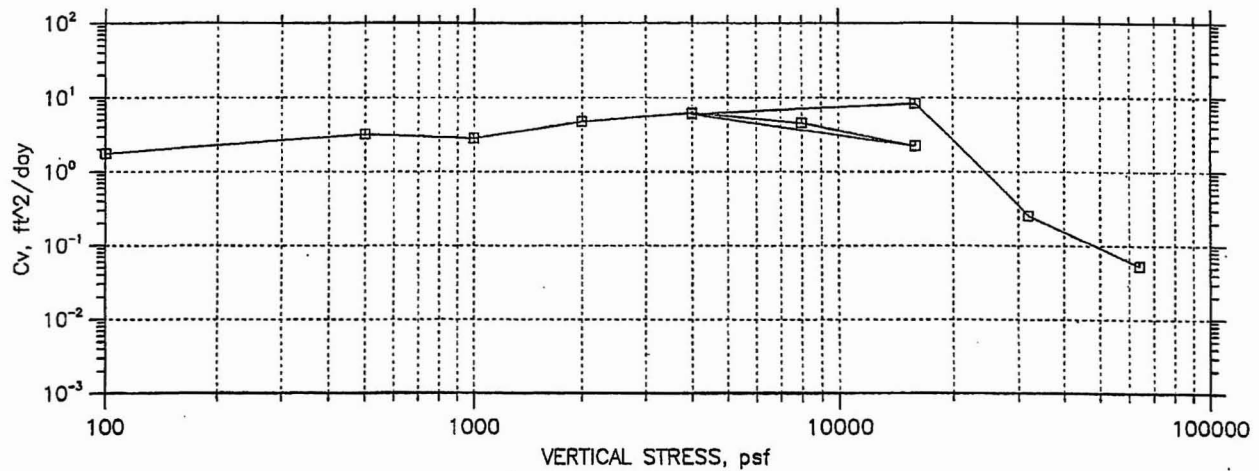
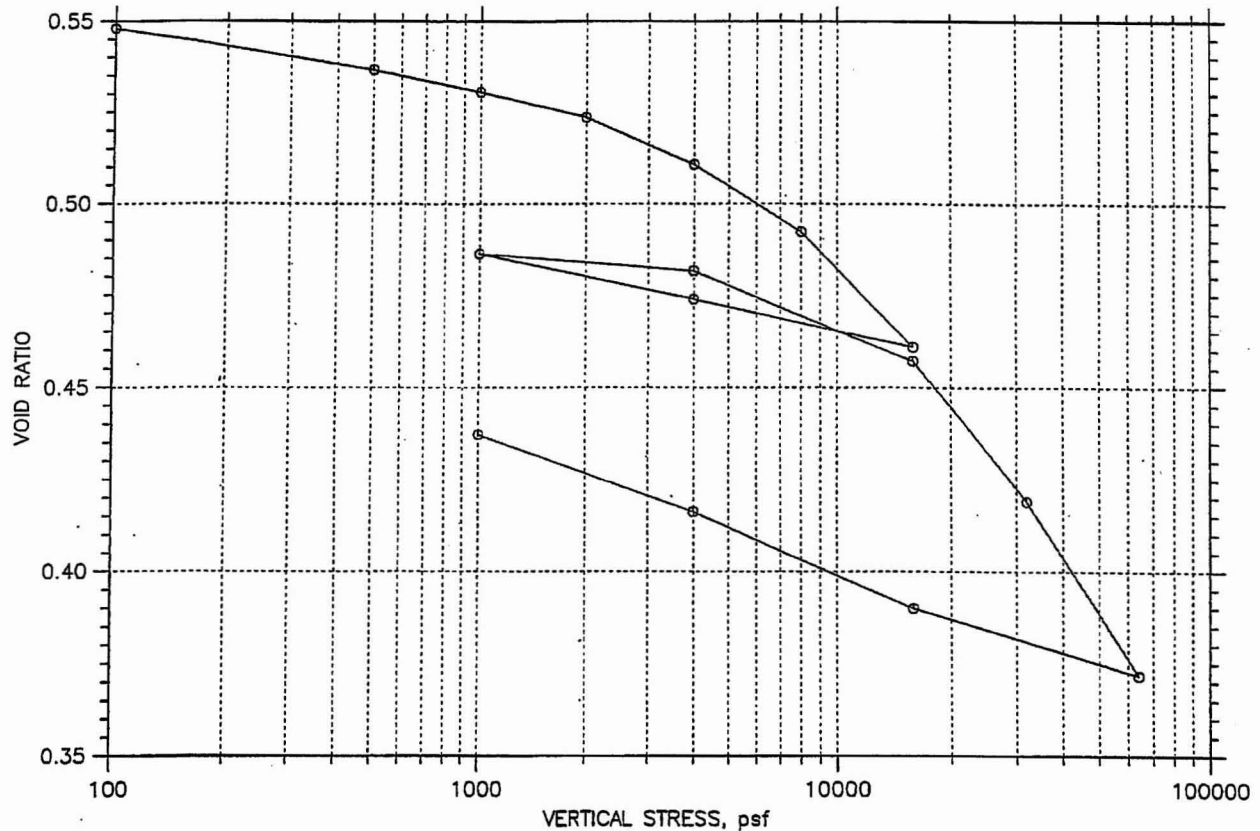


		Before Test	After Test
Overburden Pressure: 1500 psf		Water Content, %	18.36
Preconsolidation Pressure: 1.34e+004 psf		Dry Unit Weight, pcf	108.8
Compression Index: 0.156		Saturation, %	89.55
Diameter: 2.499 in	Height: 0.9963 in	Void Ratio	
LL: 39	PL: 18	0.56	
PI: 21	GS: 2.71	0.44	

	Project: Exelon Texas COL Victoria	Location: B-2352UD UD-3	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-3	Test Date: 2/26/08	Depth: 11.5-13.2'
	Test No.: 8362	Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Lean CLAY (CL)		
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr= 0.020

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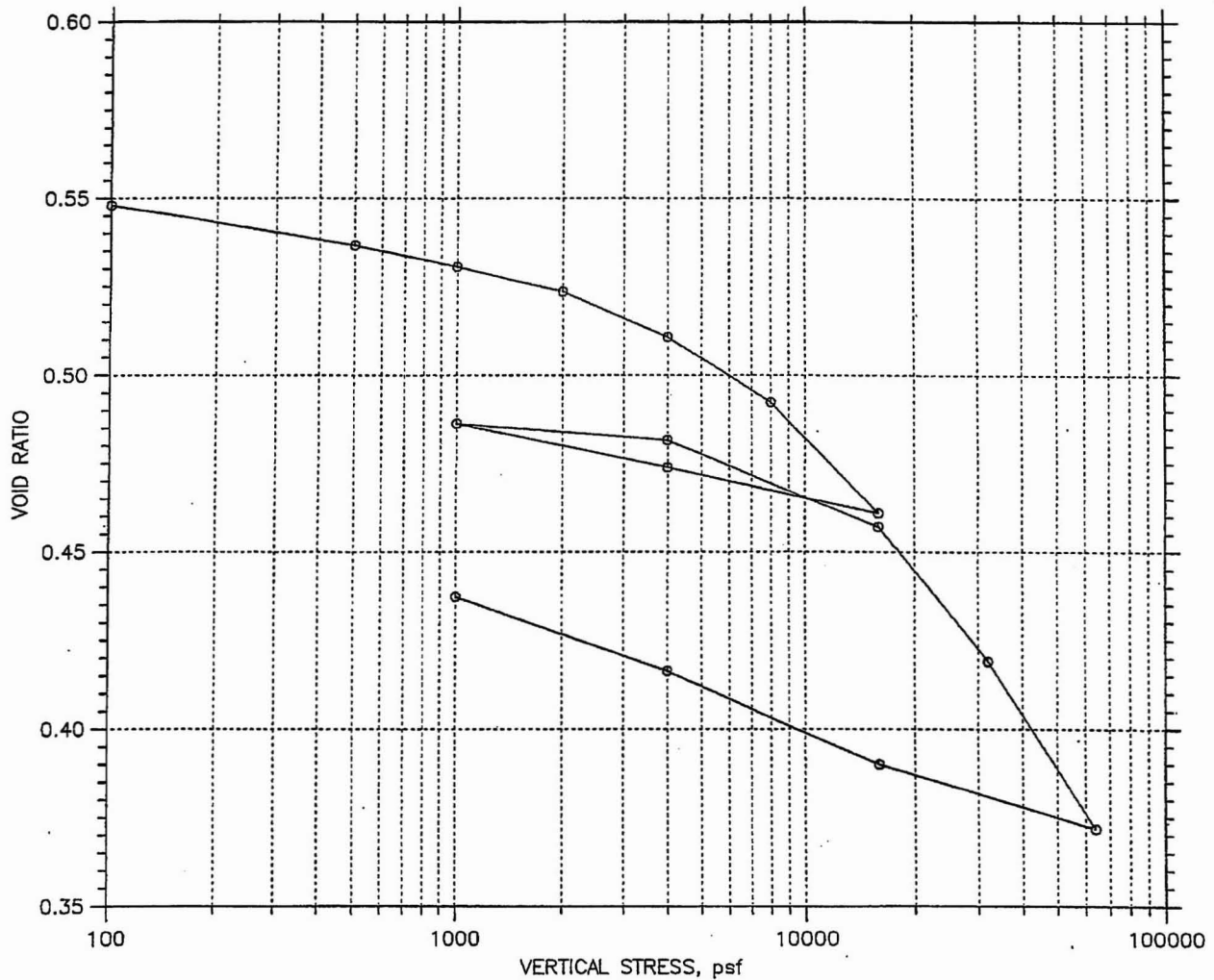
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2352UD UD-3	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-3	Test Date: 2/26/08	Depth: 11.5-13.2'
	Test No.: 8362	Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Lean CLAY (CL)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.020		

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CONSOLIDATION TEST DATA SUMMARY REPORT

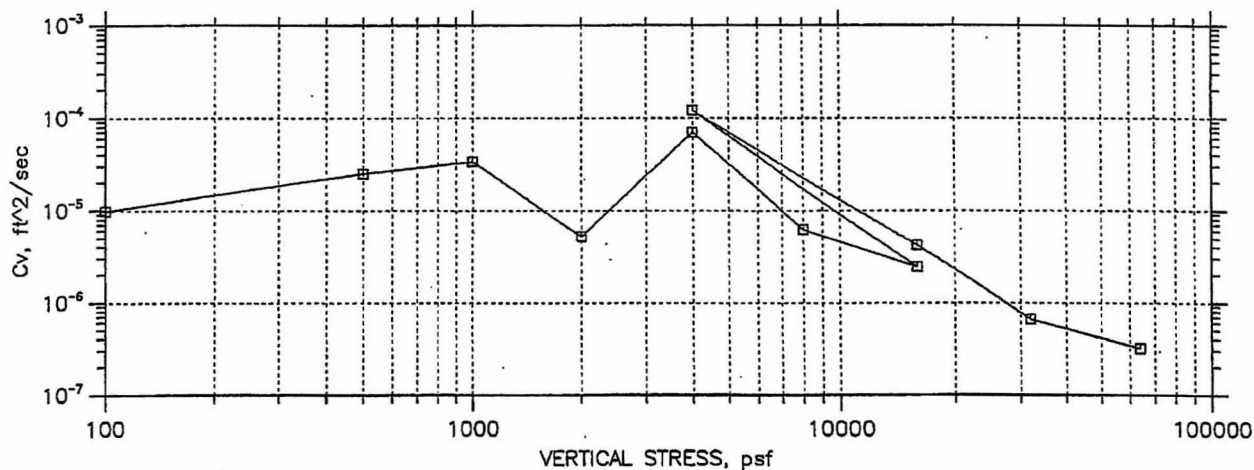
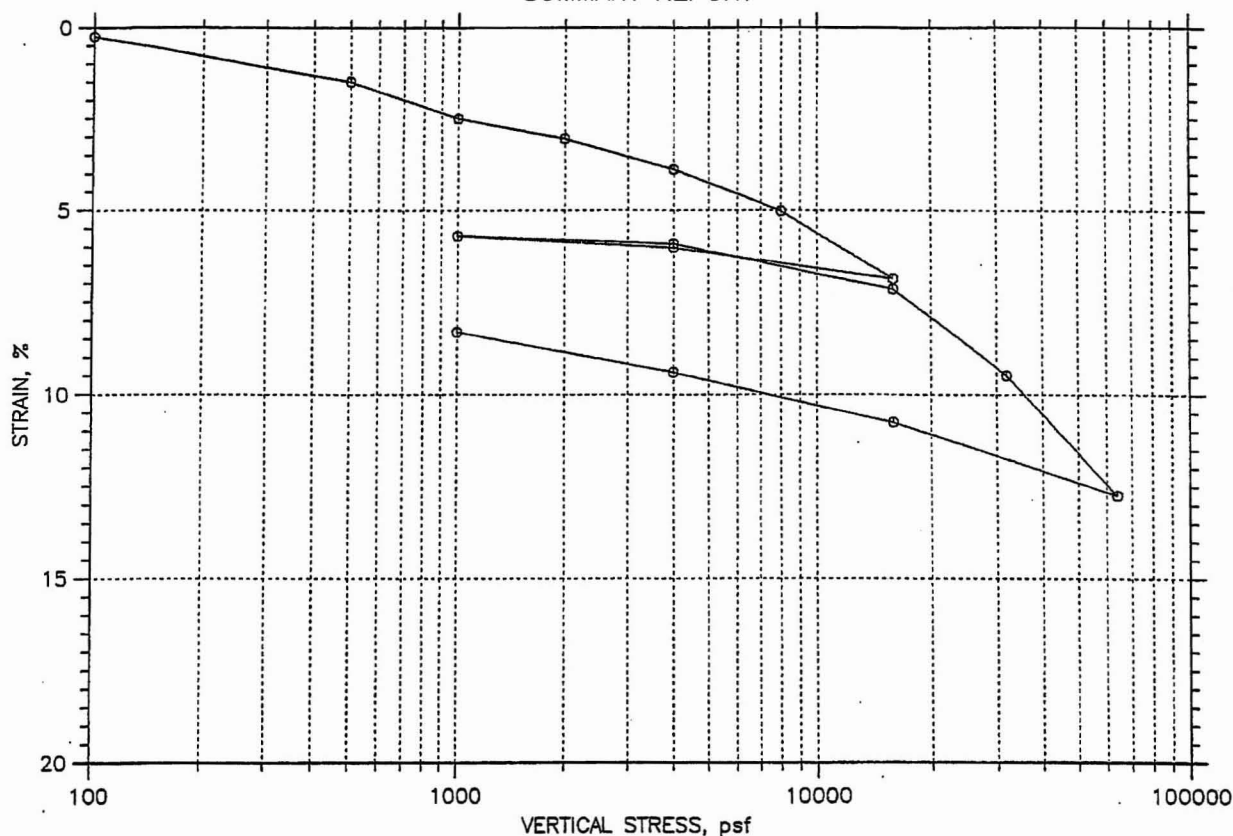


				Before Test	After Test	
Overburden Pressure: 1500 psf				Water Content, %	18.36	15.77
Preconsolidation Pressure: 1.34e+004 psf				Dry Unit Weight, pcf	108.8	117.7
Compression Index: 0.156				Saturation, %	89.55	97.74
Diameter: 2.499 in		Height: 0.9963 in		Void Ratio	0.56	0.44
LL: 39	PL: 18	PI: 21	GS: 2.71			

	Project: Exelon Texas COL Victoria		Location: B-2352UD UD-3	Project No.: 6468071777
	Boring No.: B-2352UD		Tested By: BM	Checked By: HJ
	Sample No.: UD-3		Test Date: 2/26/08	Depth: 11.5-13.2'
	Test No.: 8362		Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Lean CLAY (CL)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.020

Mon, 14-APR-2008 14:19:58

CONSOLIDATION TEST DATA SUMMARY REPORT

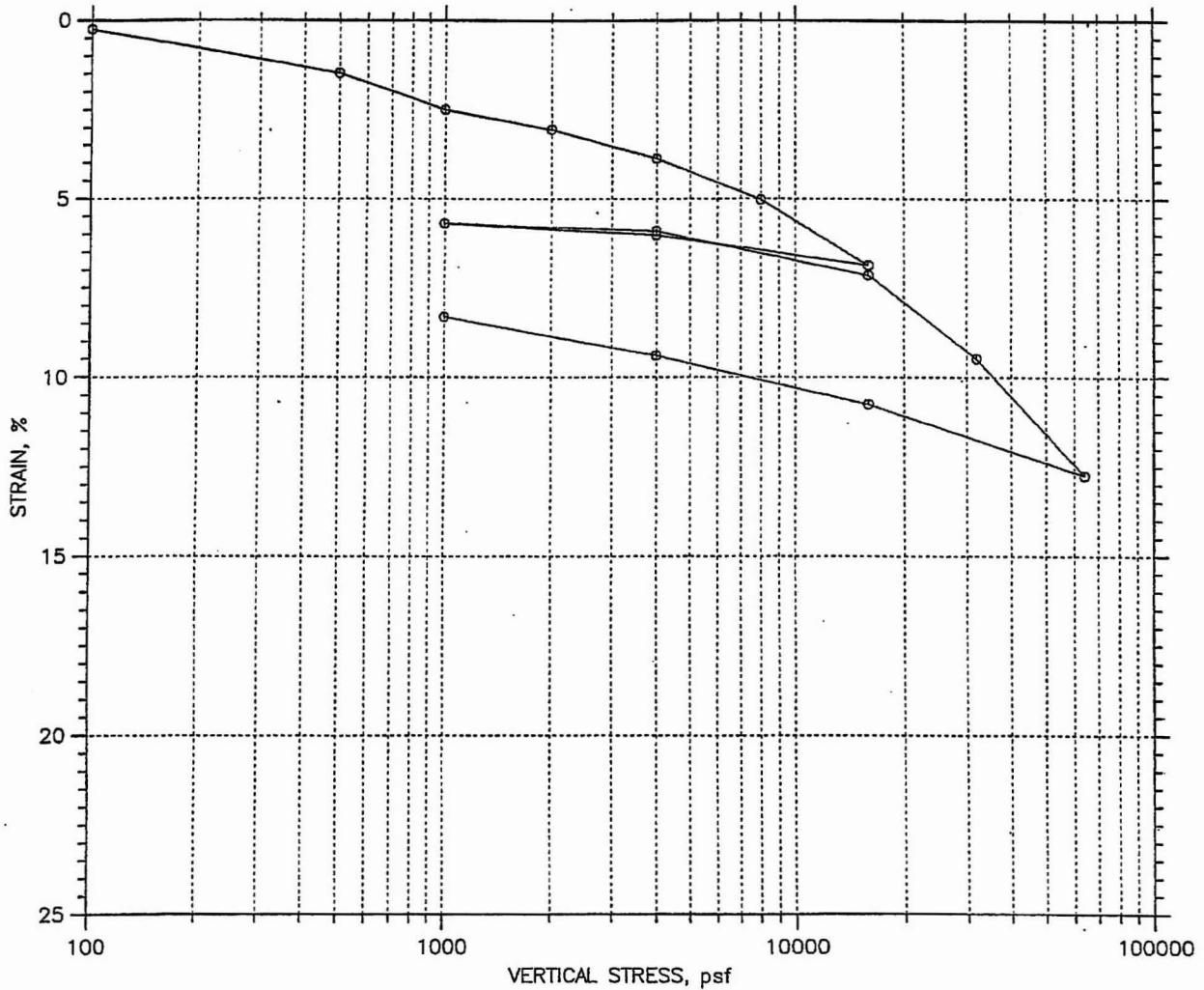


MACTEC	Project: Exelon Texas COL Victoria	Location: B-2352UD	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-5	Test Date: 3/6/08	Depth: 24-25.7'
	Test No.: 8363	Sample Type: Undisturbed	Elevation: N/A
	Description: Brownish Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.010

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KAW 4.15.08

CONSOLIDATION TEST DATA SUMMARY REPORT

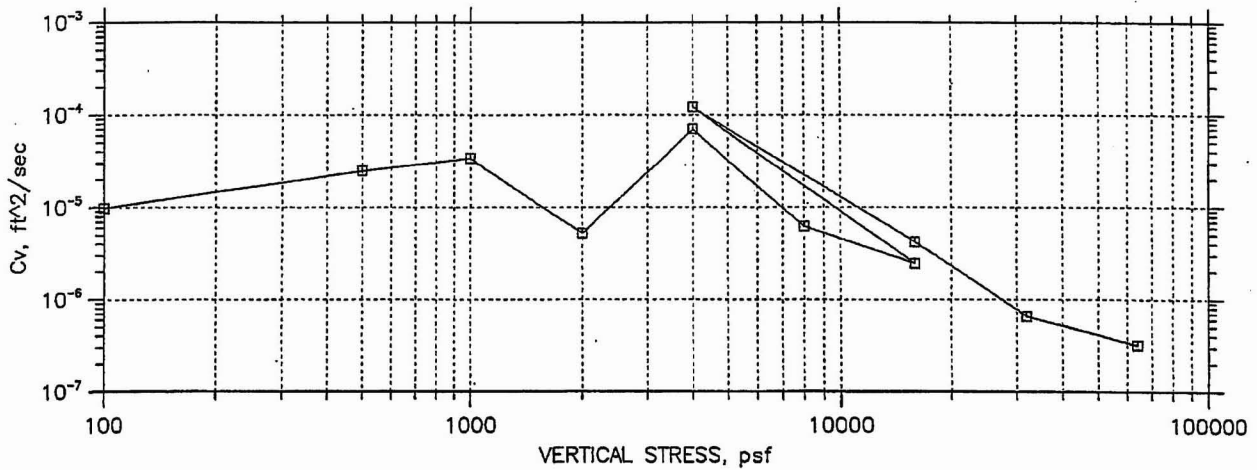
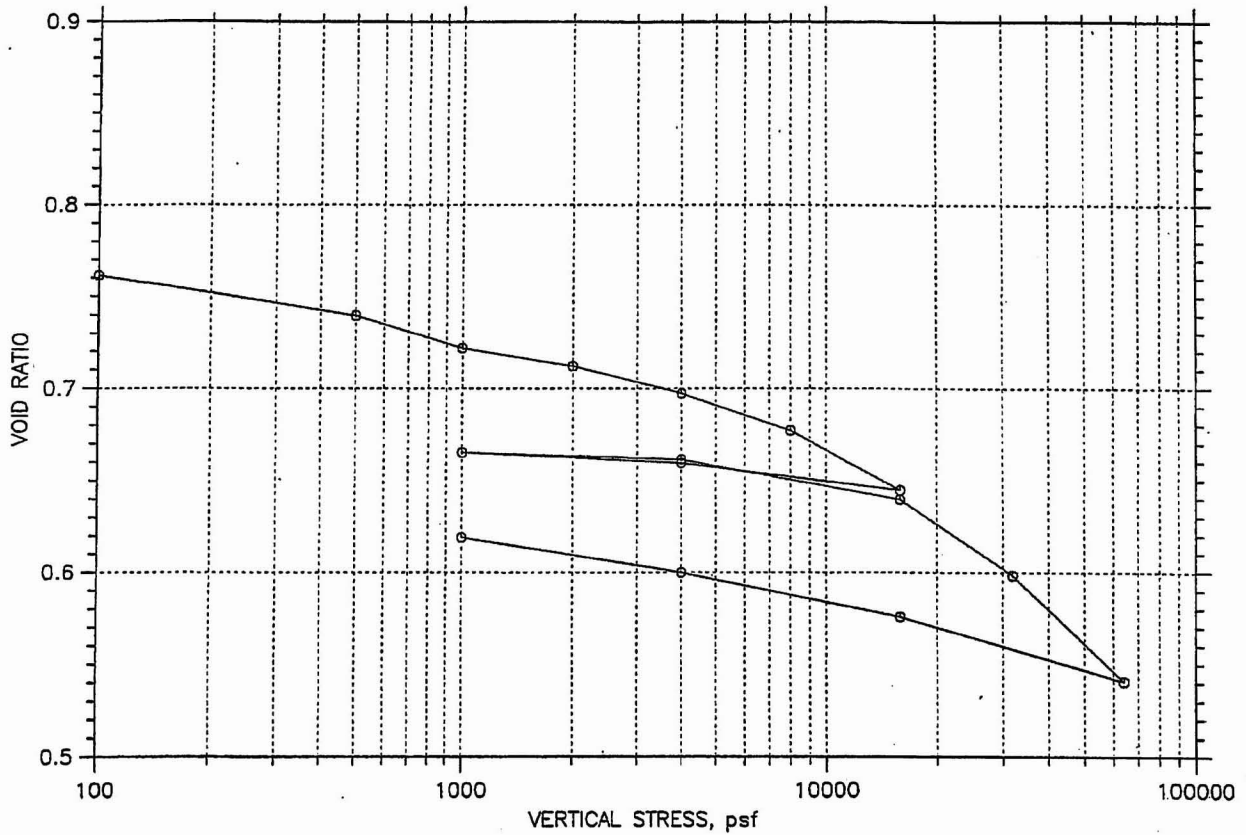


				Before Test	After Test	
Overburden Pressure: 3100 psf				Water Content, %	28.01	22.98
Preconsolidation Pressure: 1.48e+004 psf				Dry Unit Weight, pcf	94.4	103.
Compression Index: 0.189.				Saturation, %	97.66	99.10
Diameter: 2.498 in		Height: 0.9978 in		Void Ratio	0.77	0.62
LL: 67	PL: 29	PI: 38	GS: 2.67			

	Project: Exelon Texas COL Victoria		Location: B-2352UD	Project No.: 6468071777
	Boring No.: B-2352UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-5		Test Date: 3/6/08	Depth: 24-25.7'
	Test No.: 8363		Sample Type: Undisturbed	Elevation: N/A
	Description: Brownish Yellow Fat CLAY (CH)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.010

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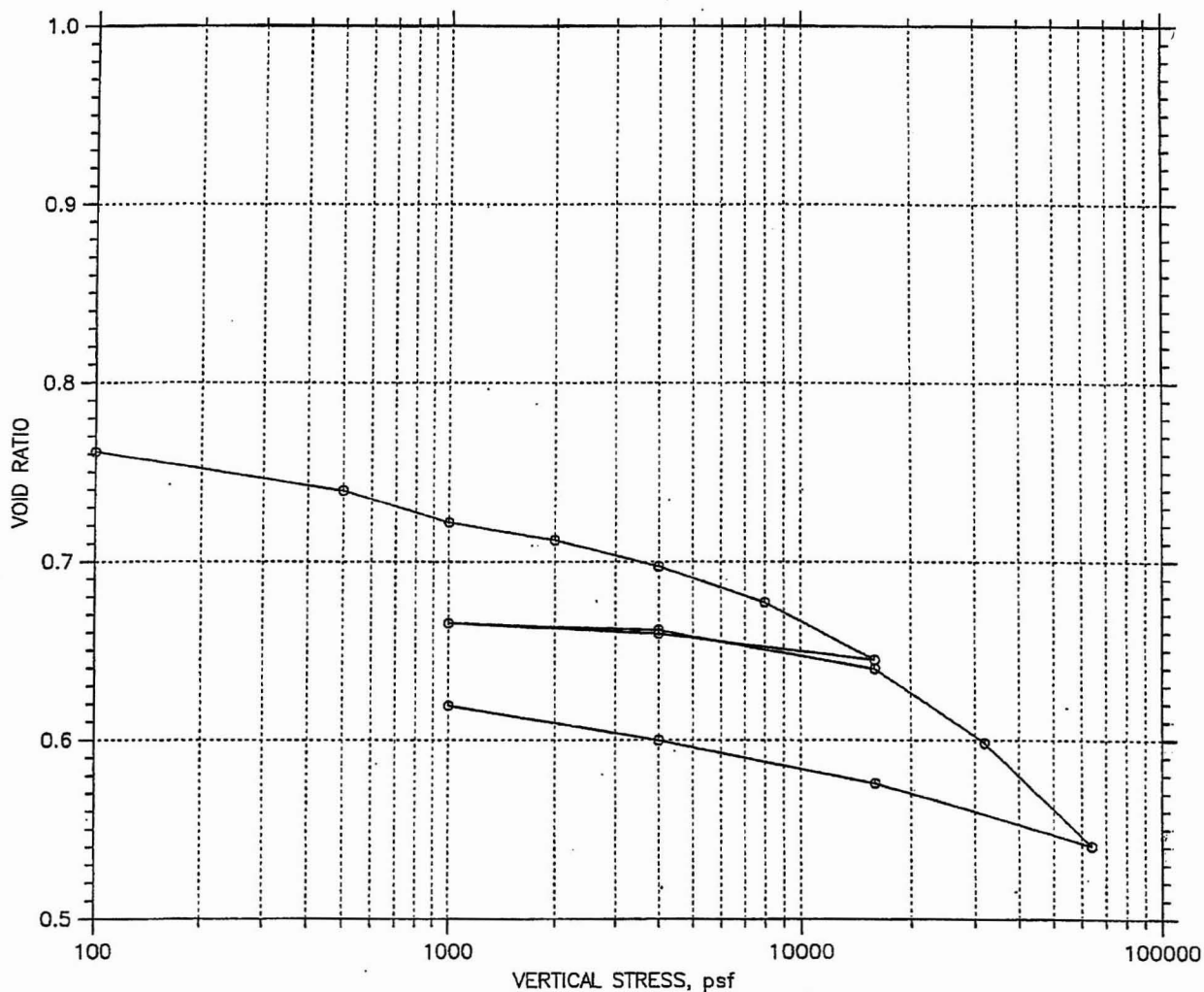
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2352UD	Project No.: 6468071777
	Boring No.: B-2352UD	Tested By: HJ	Checked By: JW <i>JLW</i>
	Sample No.: UD-5	Test Date: 3/6/08	Depth: 24-25.7' <i>4/14/08</i>
	Test No.: 8363	Sample Type: Undisturbed	Elevation: N/A
	Description: Brownish Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.010		

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CONSOLIDATION TEST DATA SUMMARY REPORT

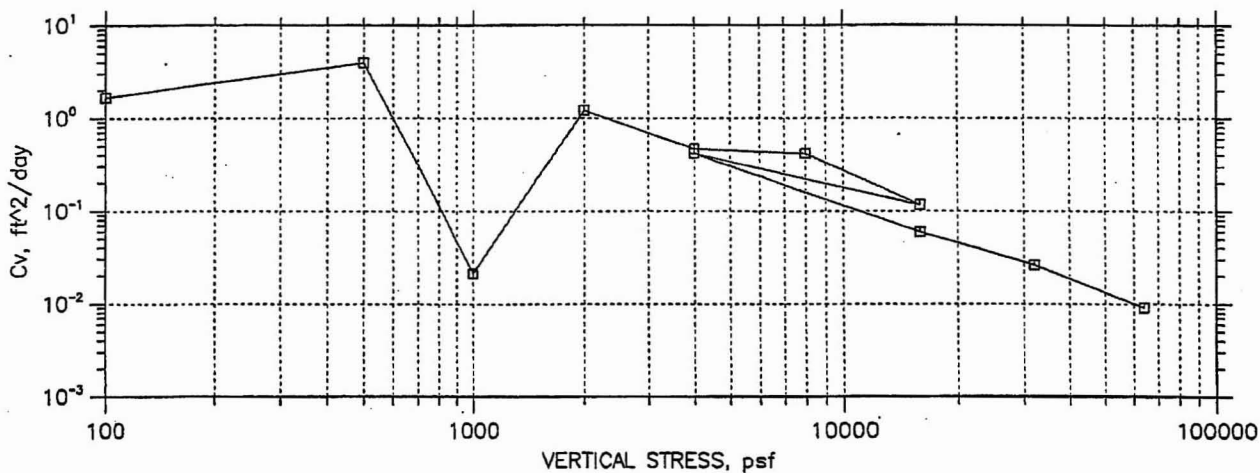
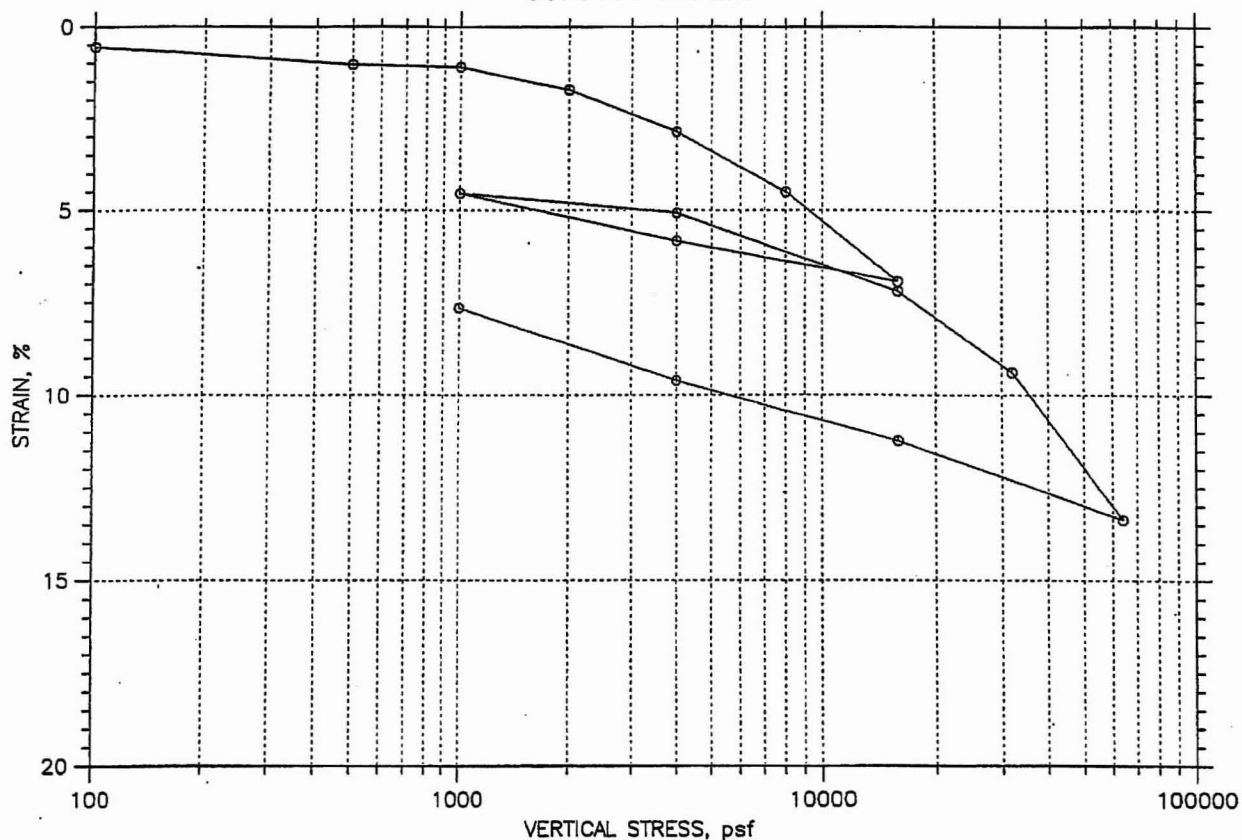


				Before Test	After Test	
Overburden Pressure: 3100 psf				Water Content, %	28.01	22.98
Preconsolidation Pressure: 1.48e+004 psf				Dry Unit Weight, pcf	94.4	103.
Compression Index: 0.189				Saturation, %	97.66	99.10
Diameter: 2.498 in		Height: 0.9978 in		Void Ratio	0.77	0.62
LL: 67	PL: 29	PI: 38	GS: 2.67			

	Project: Exelon Texas COL Victoria		Location: B-2352UD	Project No.: 6468071777
	Boring No.: B-2352UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-5		Test Date: 3/6/08	Depth: 24-25.7'
	Test No.: 8363		Sample Type: Undisturbed	Elevation: N/A
	Description: Brownish Yellow Fat CLAY (CH)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.010

Mon, 14-APR-2008 14:02:05

CONSOLIDATION TEST DATA SUMMARY REPORT

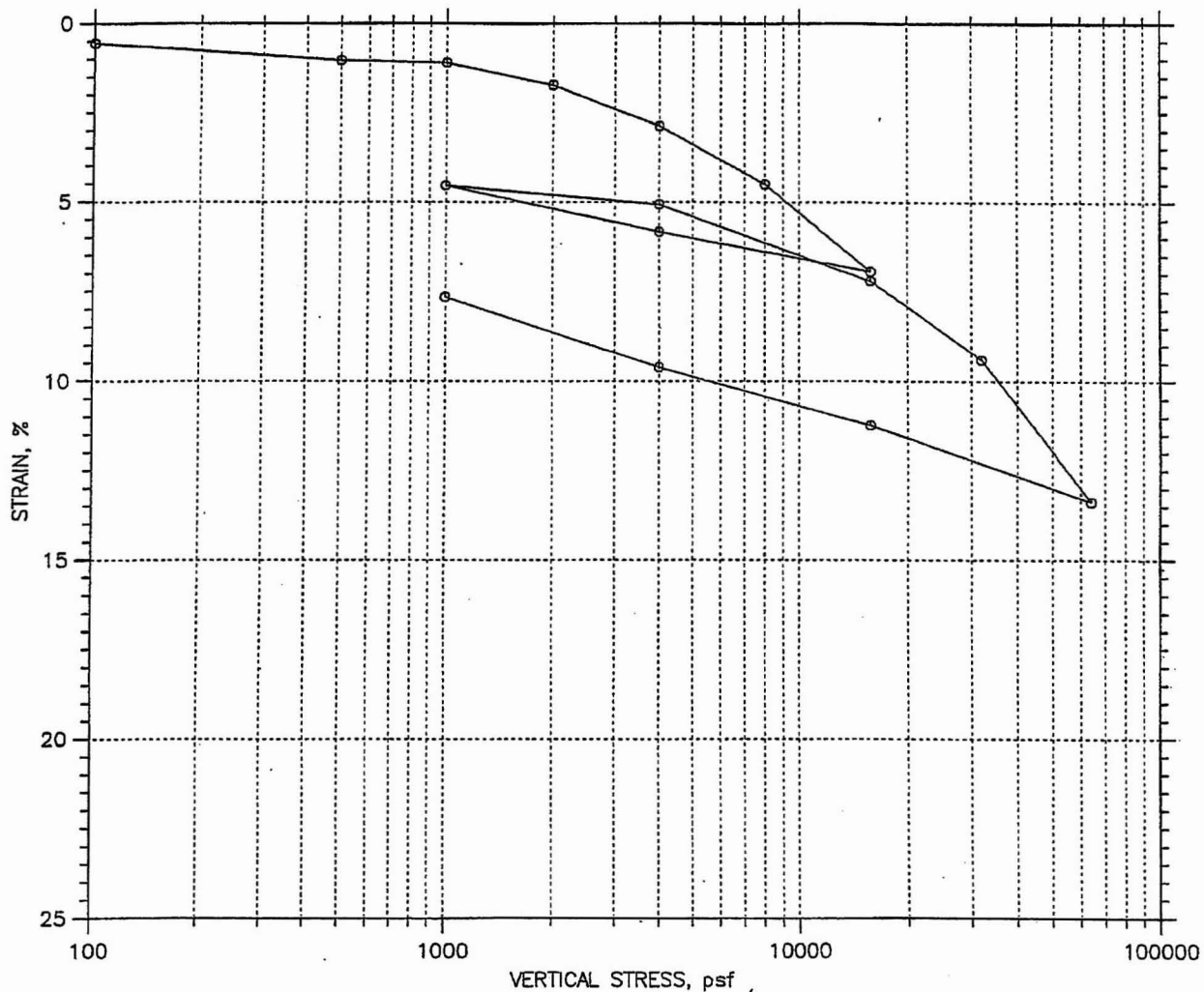


MACTEC	Project: Exelon Texas COL Victoria	Location: B-2359UD UD-3	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: BM	Checked By: HJ <i>HJ</i>
	Sample No.: UD-3	Test Date: 3/28/08	Depth: 30.8-32.8' <i>4/15/08</i>
	Test No.: 8558	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Mottled Brownish Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.035

Tue, 15-APR-2008 13:51:02

KAW 4.15.08

CONSOLIDATION TEST DATA SUMMARY REPORT

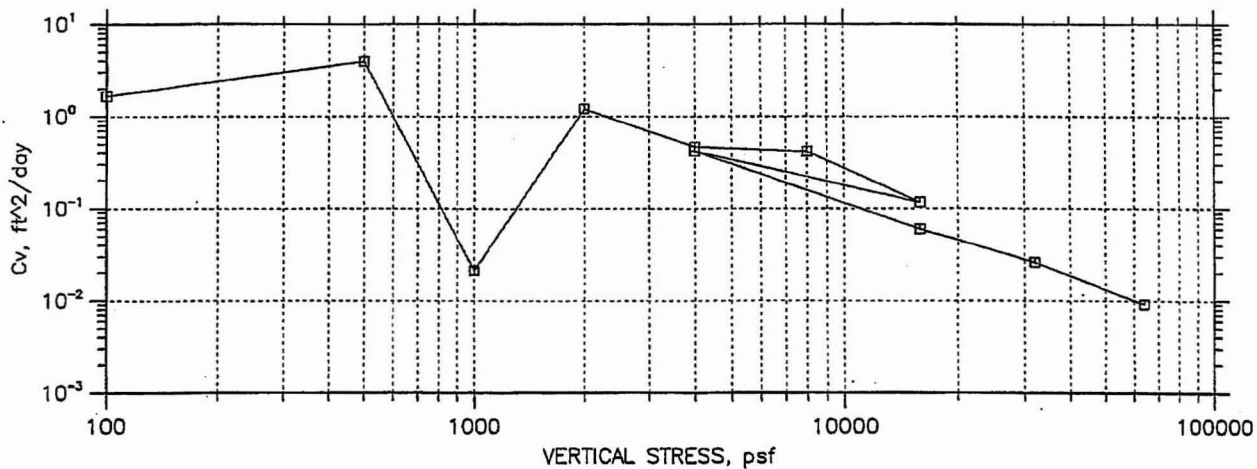
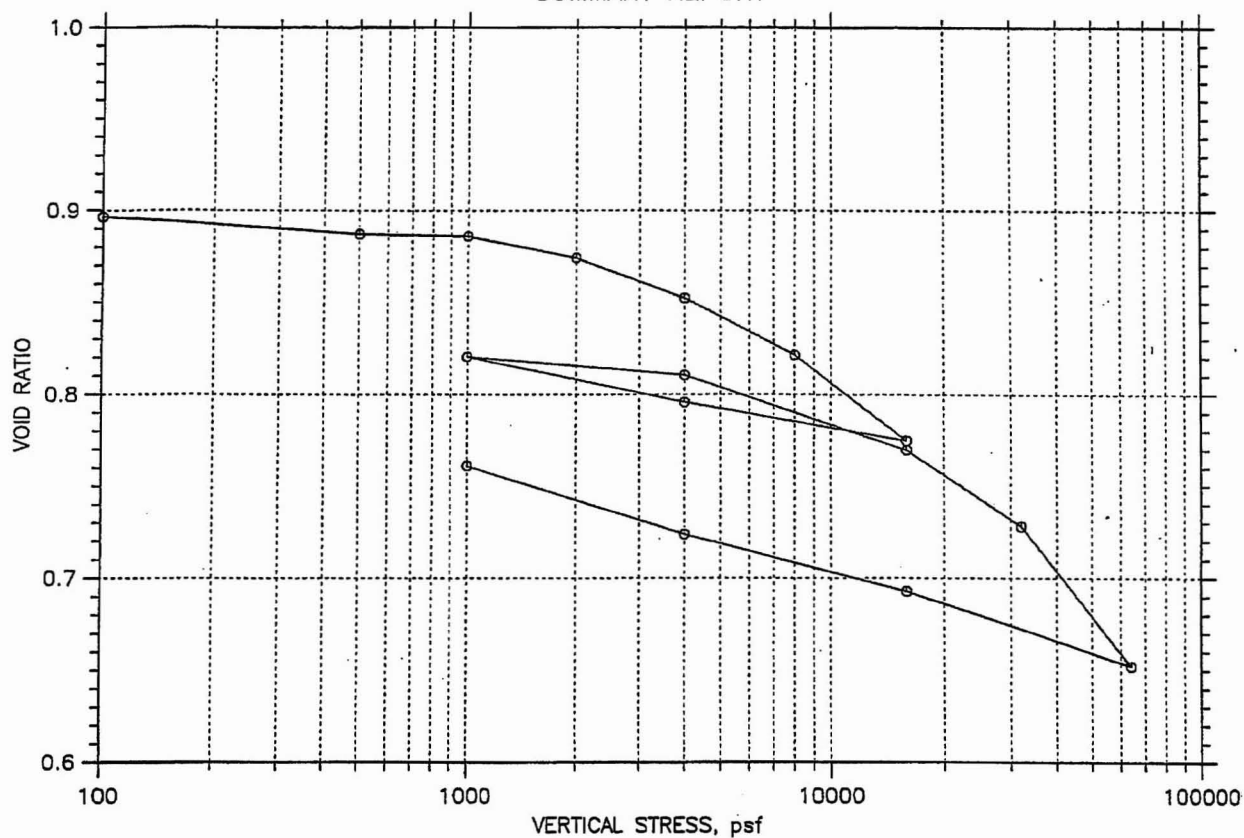


				Before Test	After Test	
Overburden Pressure: 4000 psf				Water Content, %	30.15	27.21
Preconsolidation Pressure: 1.55e+004 psf				Dry Unit Weight, pcf	91.	98.55
Compression Index: 0.252				Saturation, %	92.39	99.40
Diameter: 2.499 in		Height: 1.001 in		Void Ratio	0.91	0.76
LL: 66	PL: 30	PI: 36	GS: 2.78			

	Project: Exelon Texas COL Victoria		Location: B-2359UD UD-3	Project No.: 6468071777
	Boring No.: B-2359UD		Tested By: BM	Checked By: HJ
	Sample No.: UD-3		Test Date: 3/28/08	Depth: 30.8-32.8'
	Test No.: 8558		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Mottled Brownish Yellow Fat CLAY (CH)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.035

Tue, 15-APR-2008 13:51:02

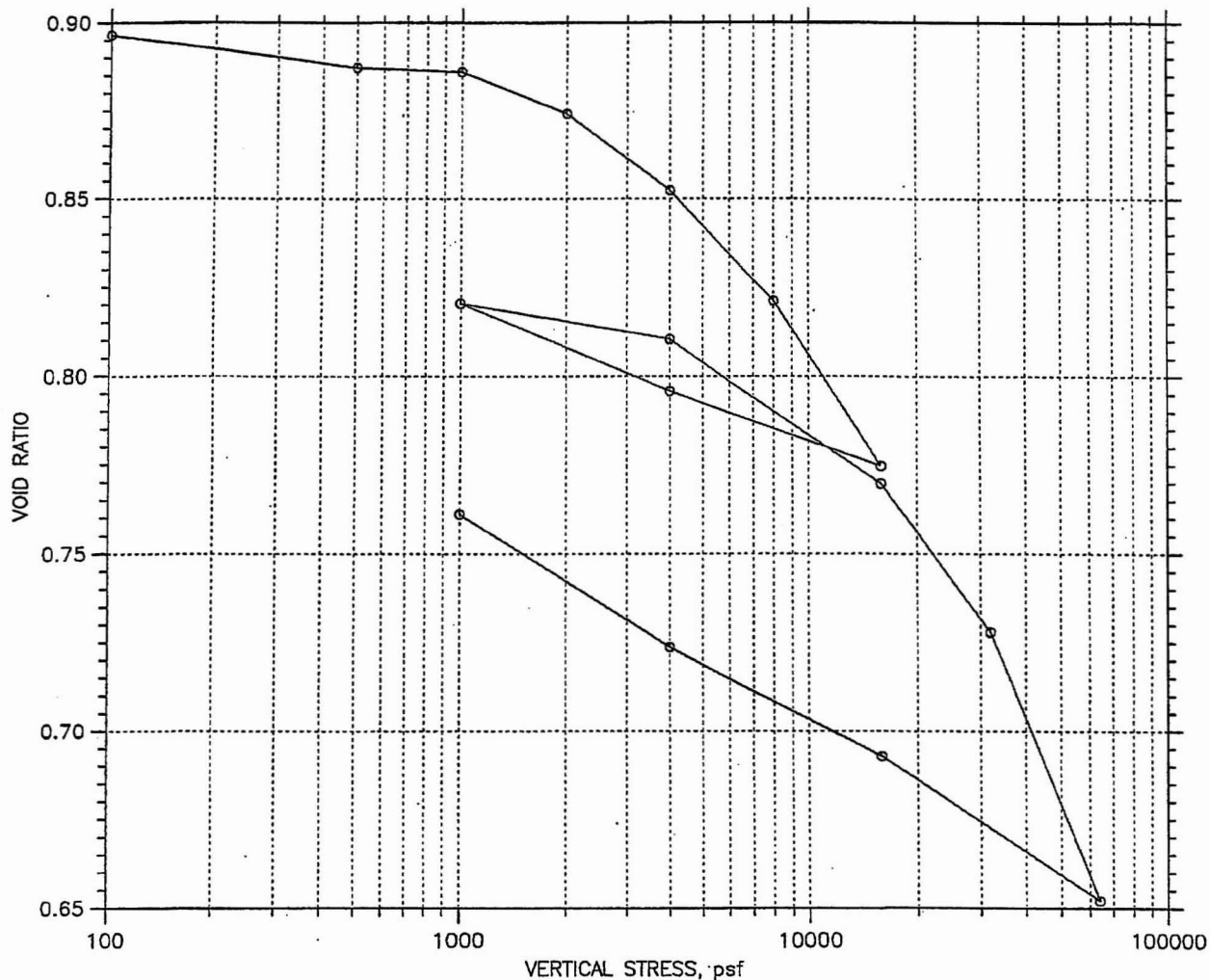
CONSOLIDATION TEST DATA SUMMARY REPORT



	Project: Exelon Texas COL Victoria	Location: B-2359UD UD-3	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: BM	Checked By: HJ
	Sample No.: UD-3	Test Date: 3/28/08	Depth: 30.8-32.8'
	Test No.: 8558	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Mottled Brownish Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.035

Tue, 15-APR-2008 13:51:16

CONSOLIDATION TEST DATA SUMMARY REPORT

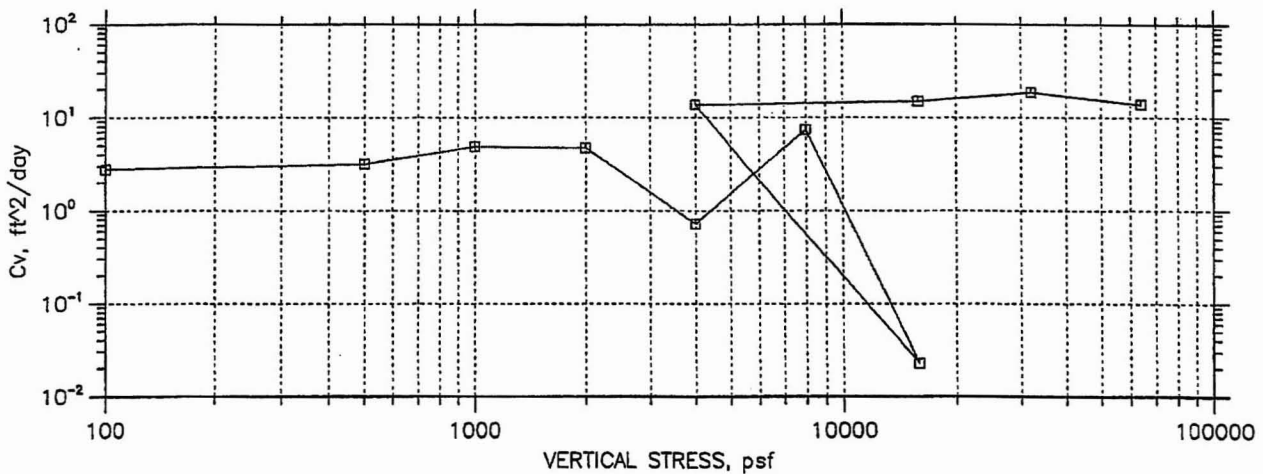
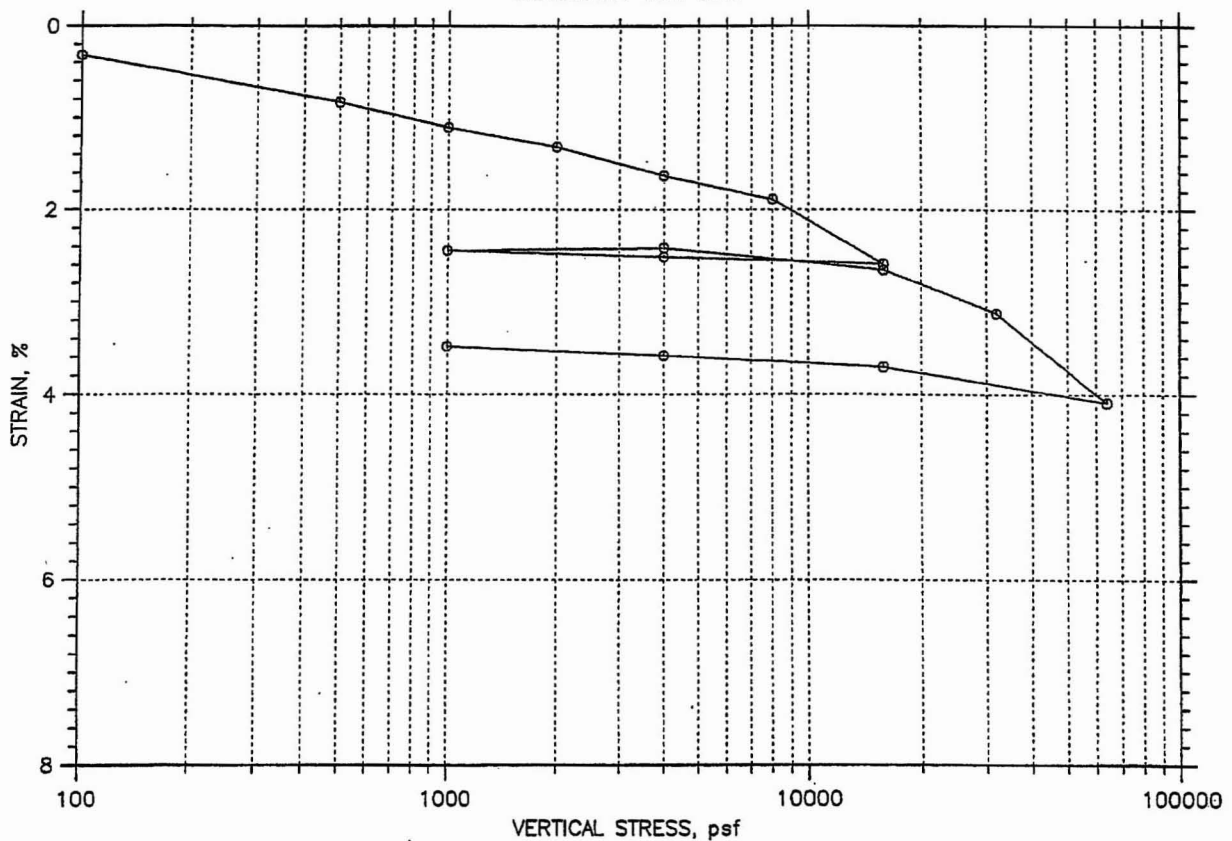


				Before Test	After Test
Overburden Pressure: 4000 psf				30.15	27.21
Preconsolidation Pressure: 1.55e+004 psf				91.	98.55
Compression Index: 0.252				92.39	99.40
Diameter: 2.499 in		Height: 1.001 in		Void Ratio	
LL: 66		PL: 30		0.91	
PI: 36		GS: 2.78		0.76	

	Project: Exelon Texas COL Victoria		Location: B-2359UD UD-3	Project No.: 6468071777
	Boring No.: B-2359UD		Tested By: BM	Checked By: HJ
	Sample No.: UD-3		Test Date: 3/28/08	Depth: 30.8-32.8'
	Test No.: 8558		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Mottled Brownish Yellow Fat CLAY (CH)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.035

Tue, 15-APR-2008 13:51:16

CONSOLIDATION TEST DATA SUMMARY REPORT

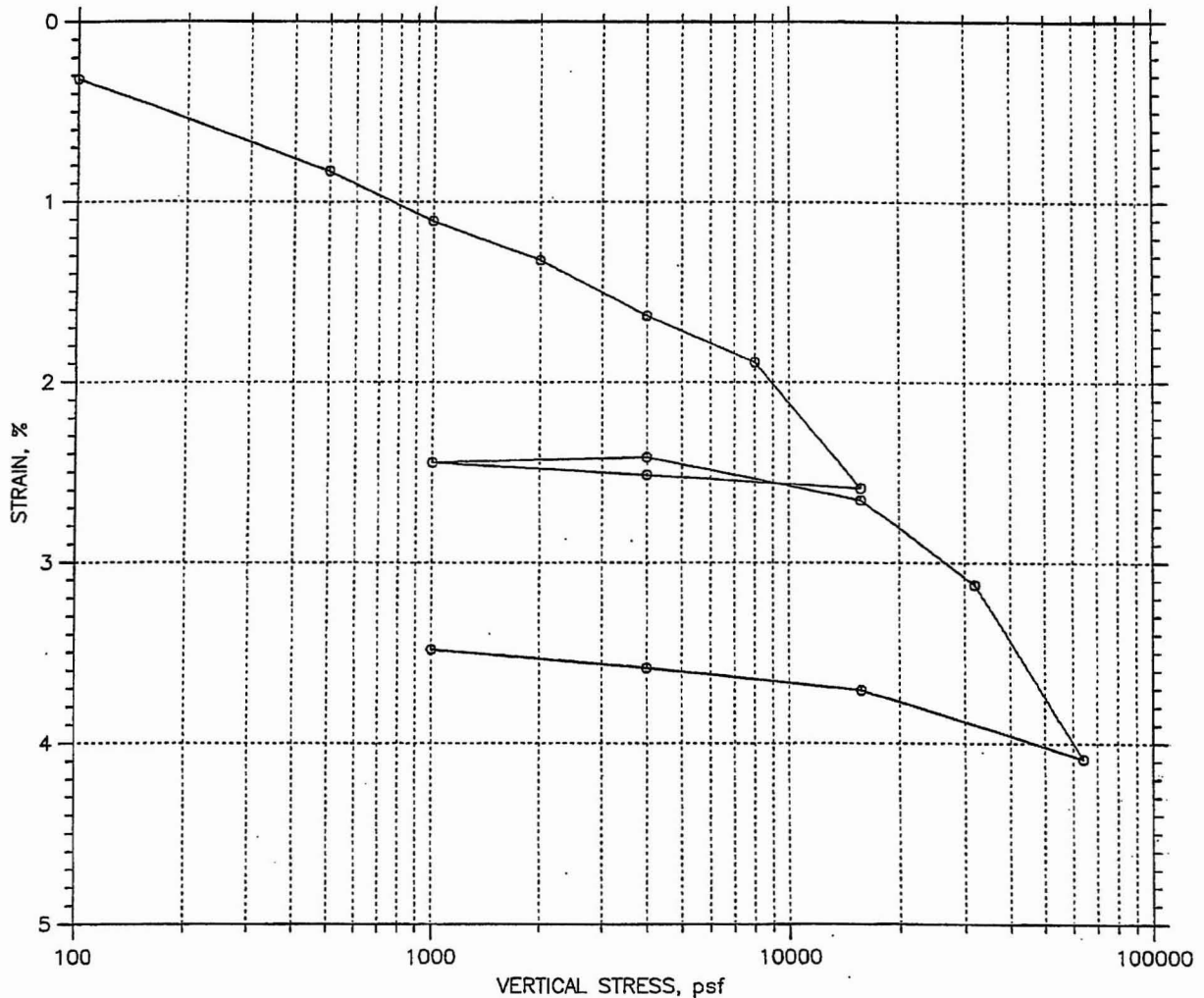


	Project: Exelon Texas COL Victoria	Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: HJ	Checked By: JW <i>JW</i>
	Sample No.: UD-11	Test Date: 3/5/08	Depth: 77-78.7'
	Test No.: 8366	Sample Type: Undisturbed	Elevation: N/A <i>4/14/08</i>
	Description: Light Gray Silty Clayey SAND (SC-SM)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.002		

Mon, 14-APR-2008 14:20:25

KAW 4-15-08

CONSOLIDATION TEST DATA SUMMARY REPORT

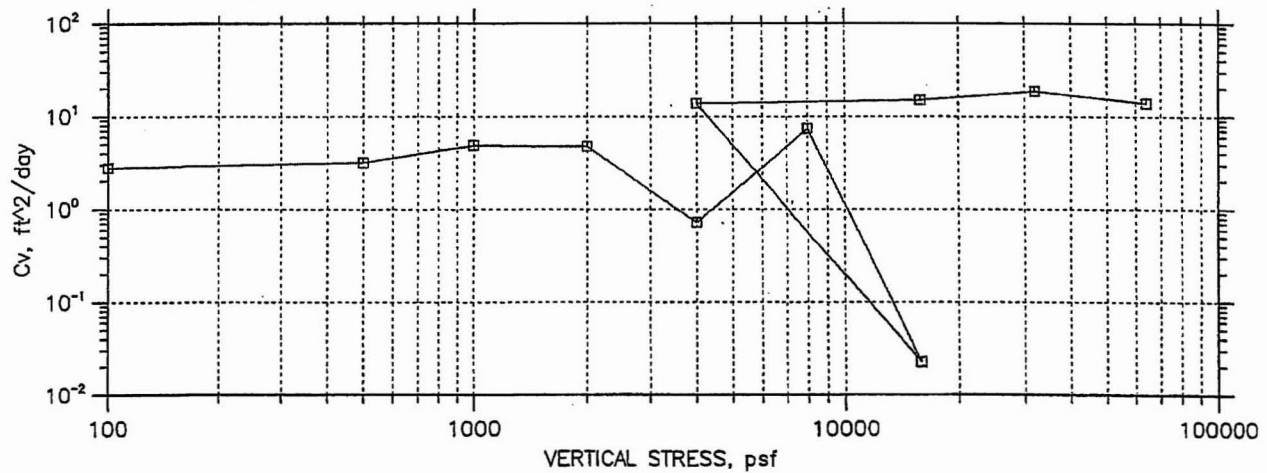
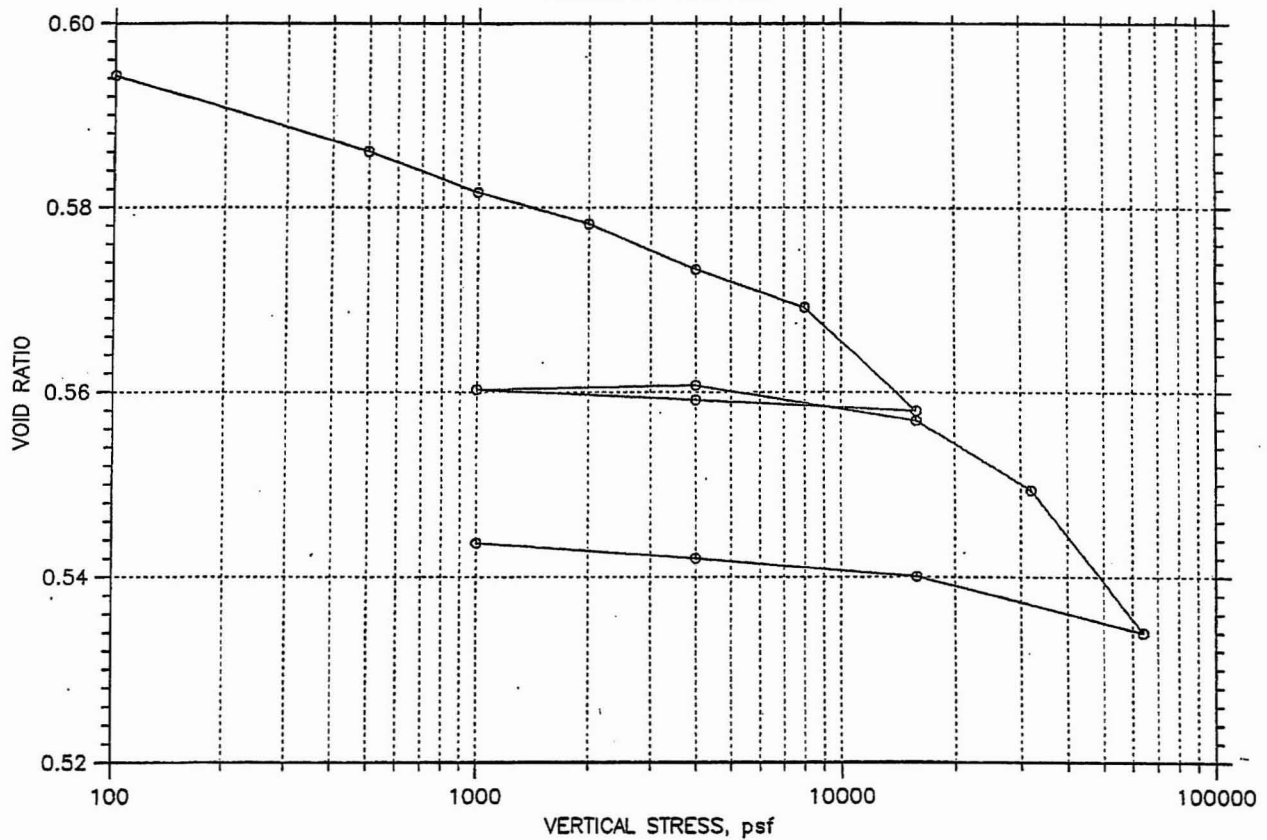


				Before Test	After Test
Overburden Pressure: 8000 psf				19.38	19.27
Preconsolidation Pressure: 2.27e+004 psf				106.2	110.
Compression Index: 0.05				87.97	96.43
Diameter: 2.499 in		Height: 0.9975 in		0.60	0.54
LL: 23	PL: 19	PI: 4	GS: 2.72		

	Project: Exelon Texas COL Victoria	Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: HJ	Checked By: JW <i>JW</i>
	Sample No.: UD-11	Test Date: 3/5/08	Depth: 77-78.7'
	Test No.: 8366	Sample Type: Undisturbed	Elevation: N/A <i>4/14/08</i>
	Description: Light Gray Silty Clayey SAND (SC-SM)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.002		

Mon, 14-APR-2008 14:20:25

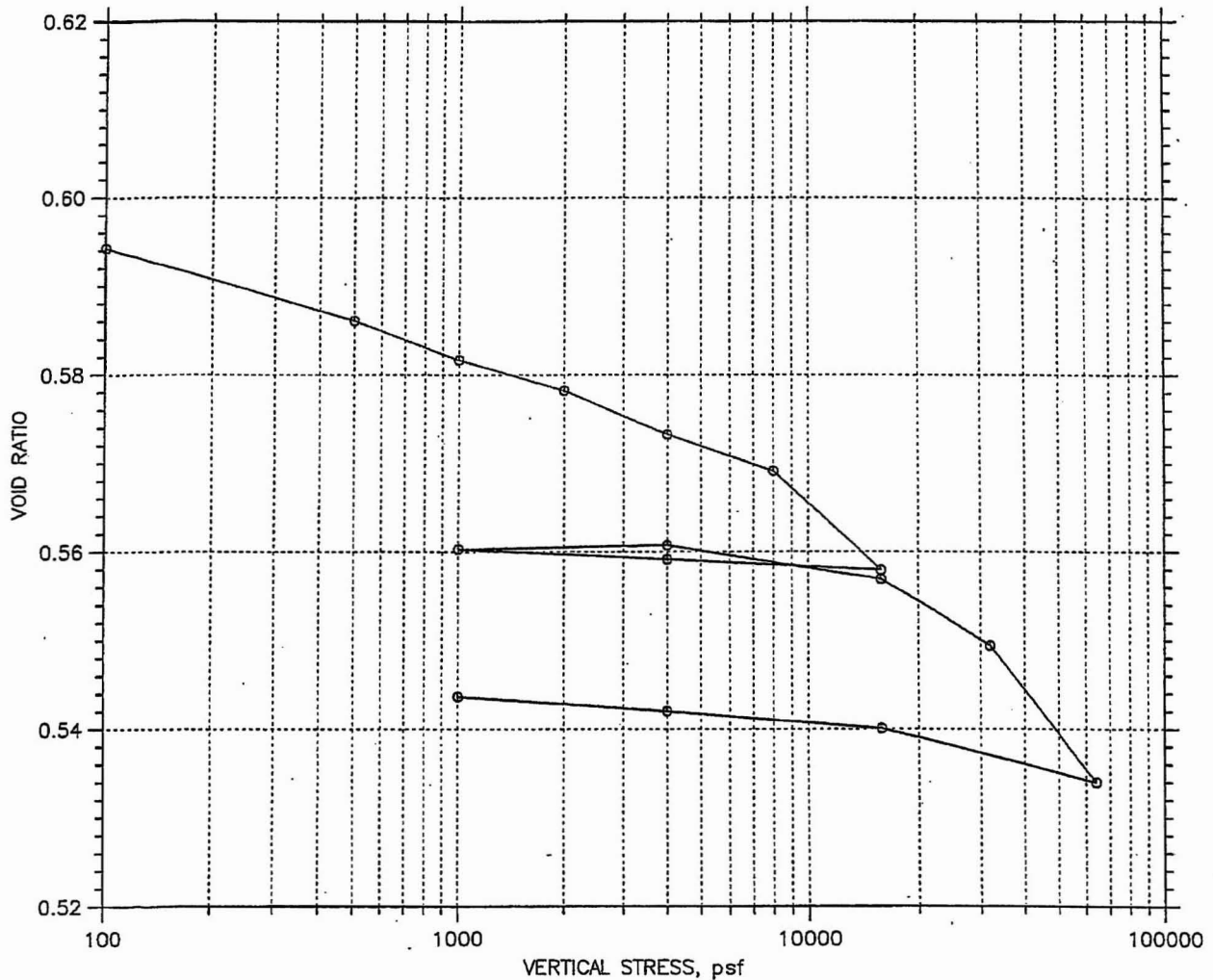
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-11	Test Date: 3/5/08	Depth: 77-78.7'
	Test No.: 8366	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Silty Clayey SAND (SC-SM)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.002

Mon, 14-APR-2008 14:20:33

CONSOLIDATION TEST DATA SUMMARY REPORT

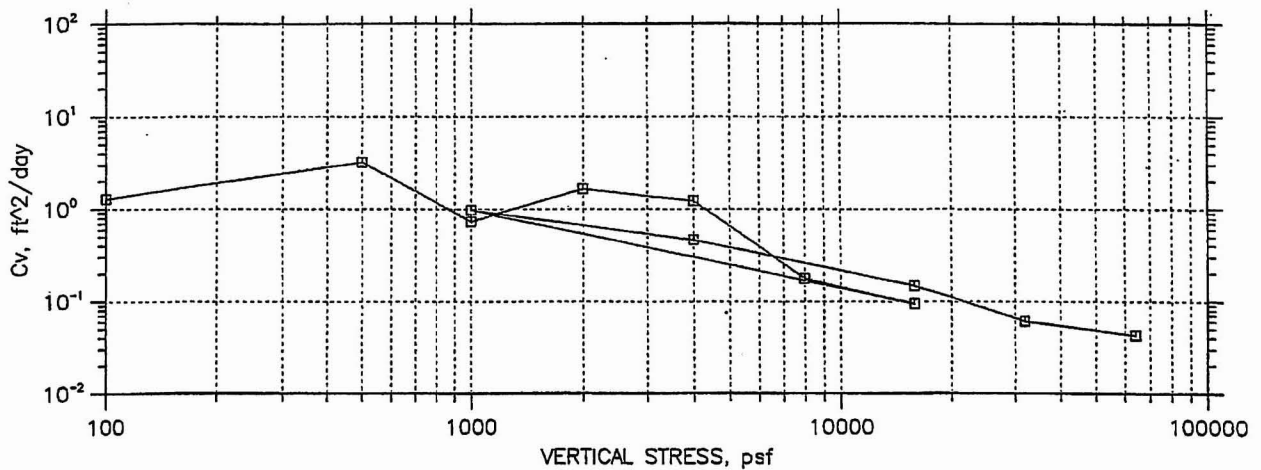
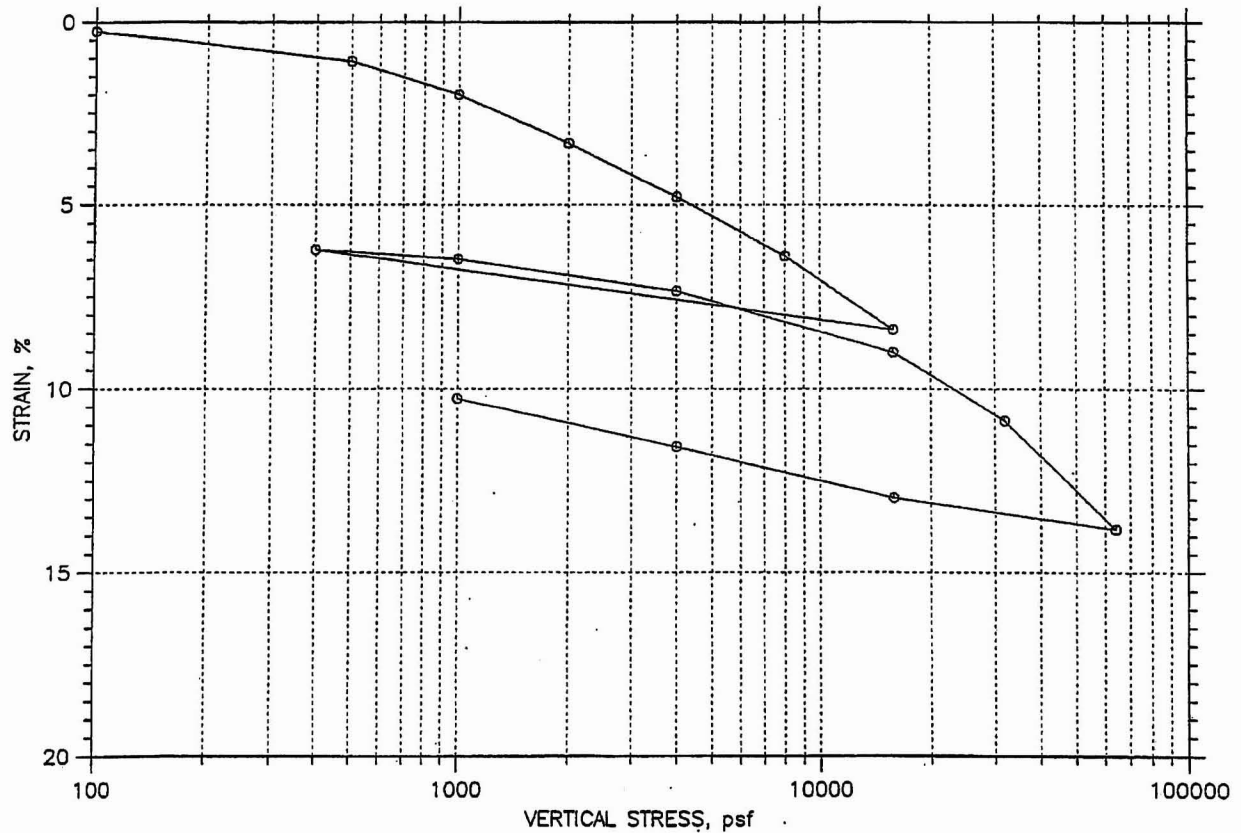


				Before Test	After Test
Overburden Pressure: 8000 psf				19.38	19.27
Preconsolidation Pressure: 2.27e+004 psf				106.2	110.
Compression Index: 0.05				87.97	96.43
Diameter: 2.499 in		Height: 0.9975 in		Void Ratio	
LL: 23		PL: 19		0.60	
PI: 4		GS: 2.72		0.54	

	Project: Exelon Texas COL Victoria		Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-11		Test Date: 3/5/08	Depth: 77-78.7'
	Test No.: 8366		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Silty Clayey SAND (SC-SM)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.002

Mon, 14-APR-2008 14:20:33

CONSOLIDATION TEST DATA SUMMARY REPORT

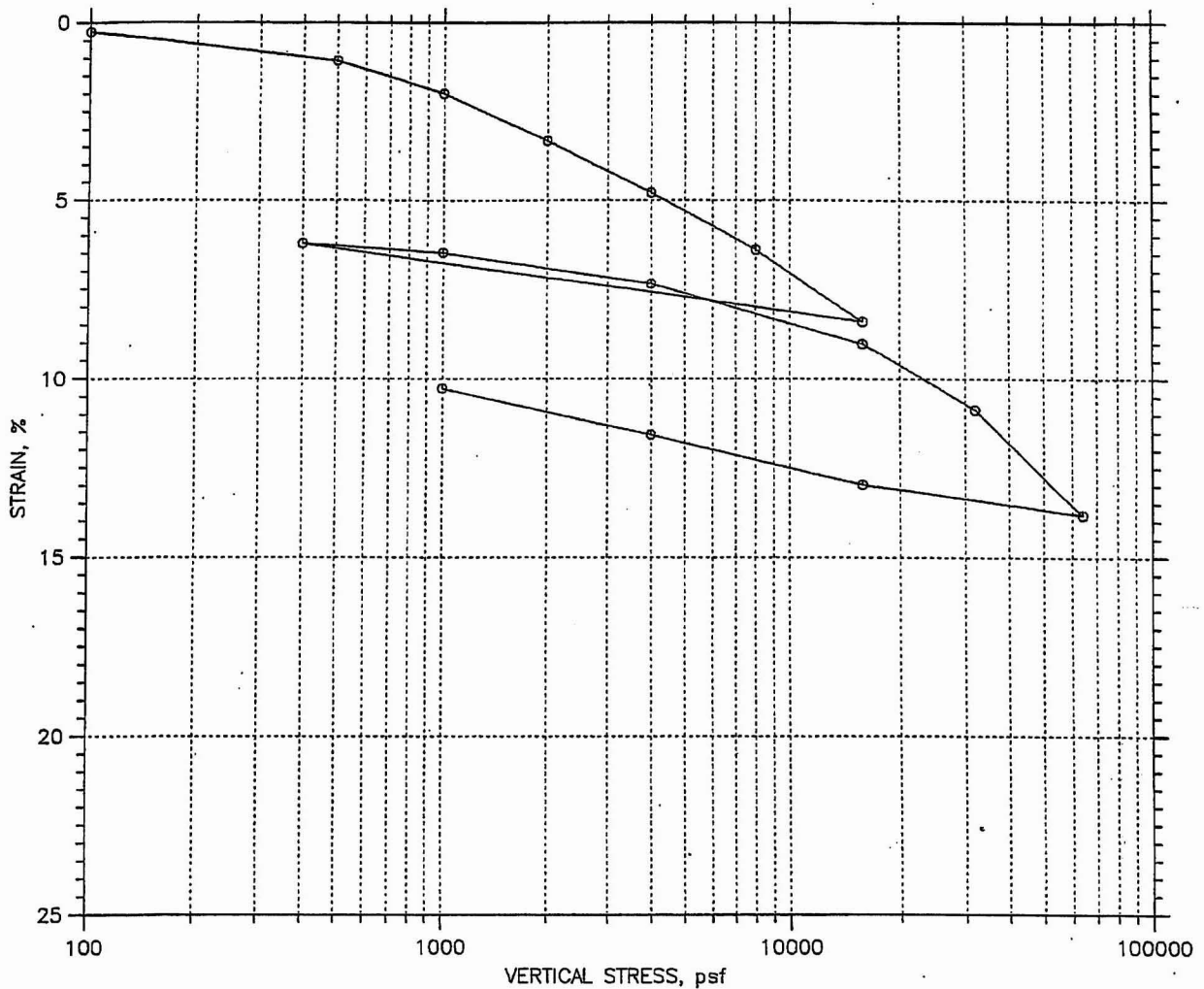


MACTEC	Project: Exelon Texas COL Victoria	Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-18	Test Date: 3/5/08	Depth: 112-113.1'
	Test No.: 8369	Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Clayey SAND (SC)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr= 0.025		

Mon, 14-APR-2008 14:20:55

KAW 4-15-08

CONSOLIDATION TEST DATA SUMMARY REPORT

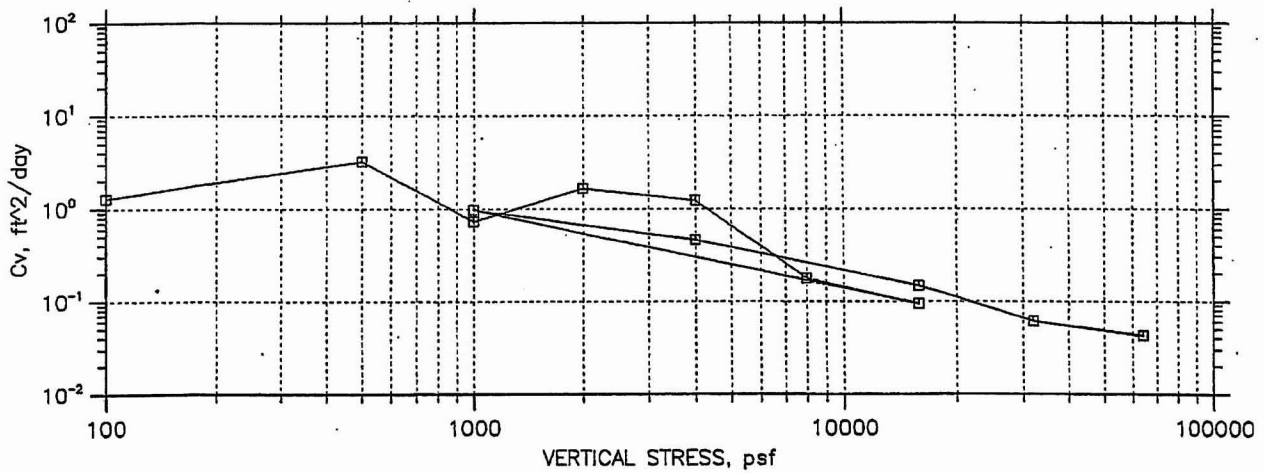
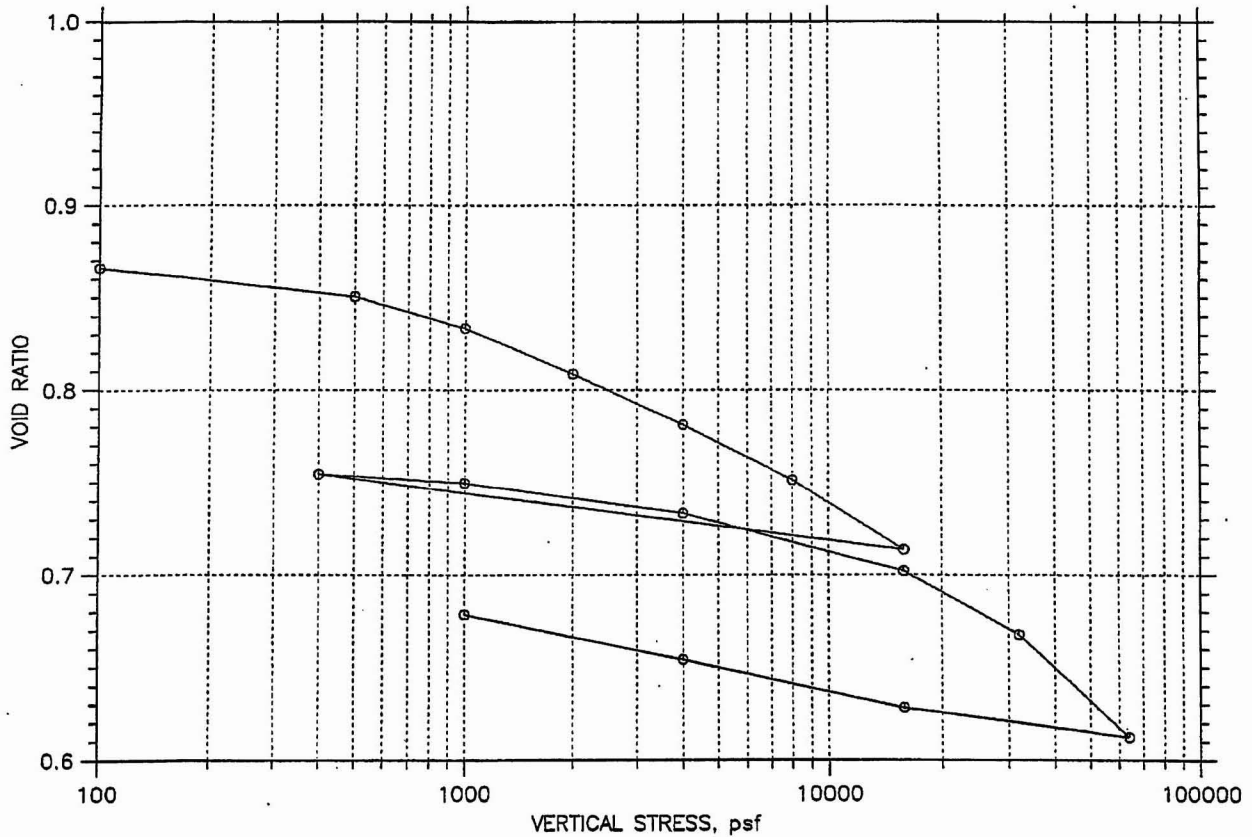


				Before Test	After Test
Overburden Pressure: 1.02e+004 psf				25.50	23.77
Preconsolidation Pressure: 2.42e+004 psf				92.44	103.
Compression Index: 0.186				81.12	97.01
Diameter: 2.5 in		Height: 0.998 in		0.87	0.68
LL: 27	PL: 15	PI: 12	GS: 2.77		

	Project: Exelon Texas COL Victoria		Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD		Tested By: HJ	Checked By: JW <i>JW</i>
	Sample No.: UD-18		Test Date: 3/5/08	Depth: 112-113.1'
	Test No.: 8369		Sample Type: Undisturbed	Elevation: N/A <i>4/14/08</i>
	Description: Yellowish Brown Clayey SAND (SC)			
Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr= 0.025

Mon, 14-APR-2008 14:20:55

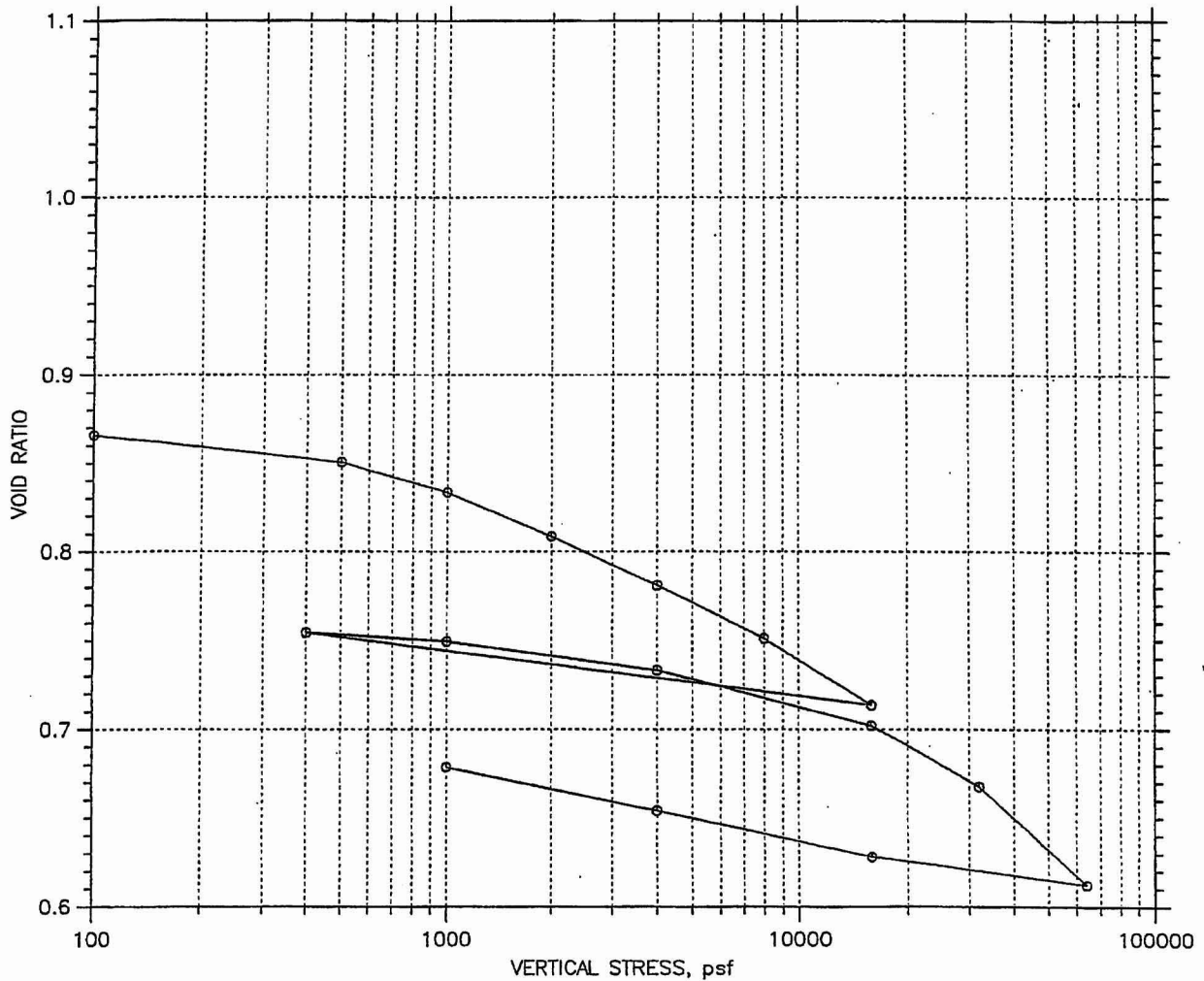
CONSOLIDATION TEST DATA SUMMARY REPORT



MACTEC	Project: Exelon Texas COL Victoria	Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-18	Test Date: 3/5/08	Depth: 112-113.1'
	Test No.: 8369	Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Clayey SAND (SC)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr= 0.025

Mon, 14-APR-2008 14:21:02

CONSOLIDATION TEST DATA SUMMARY REPORT

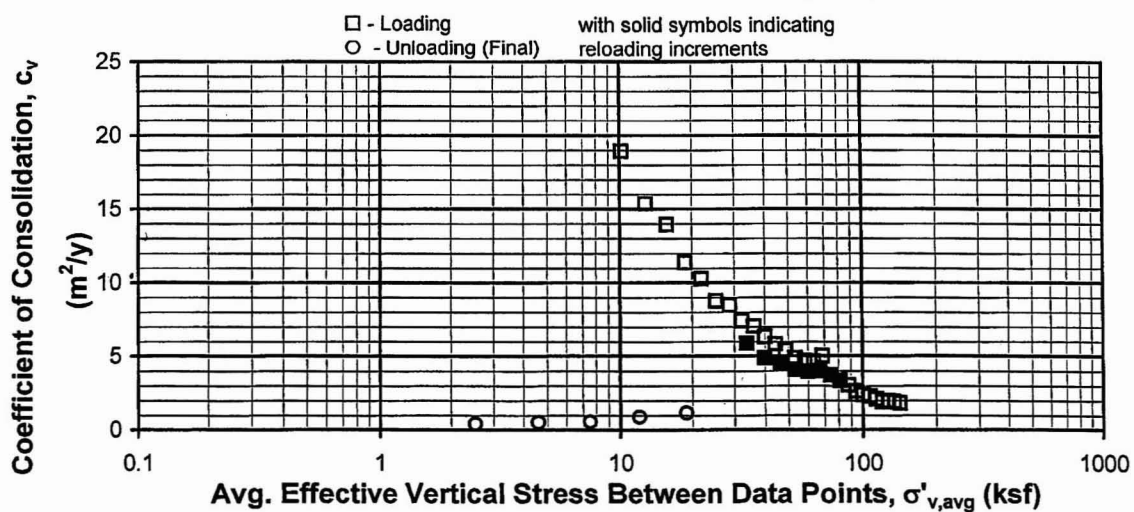
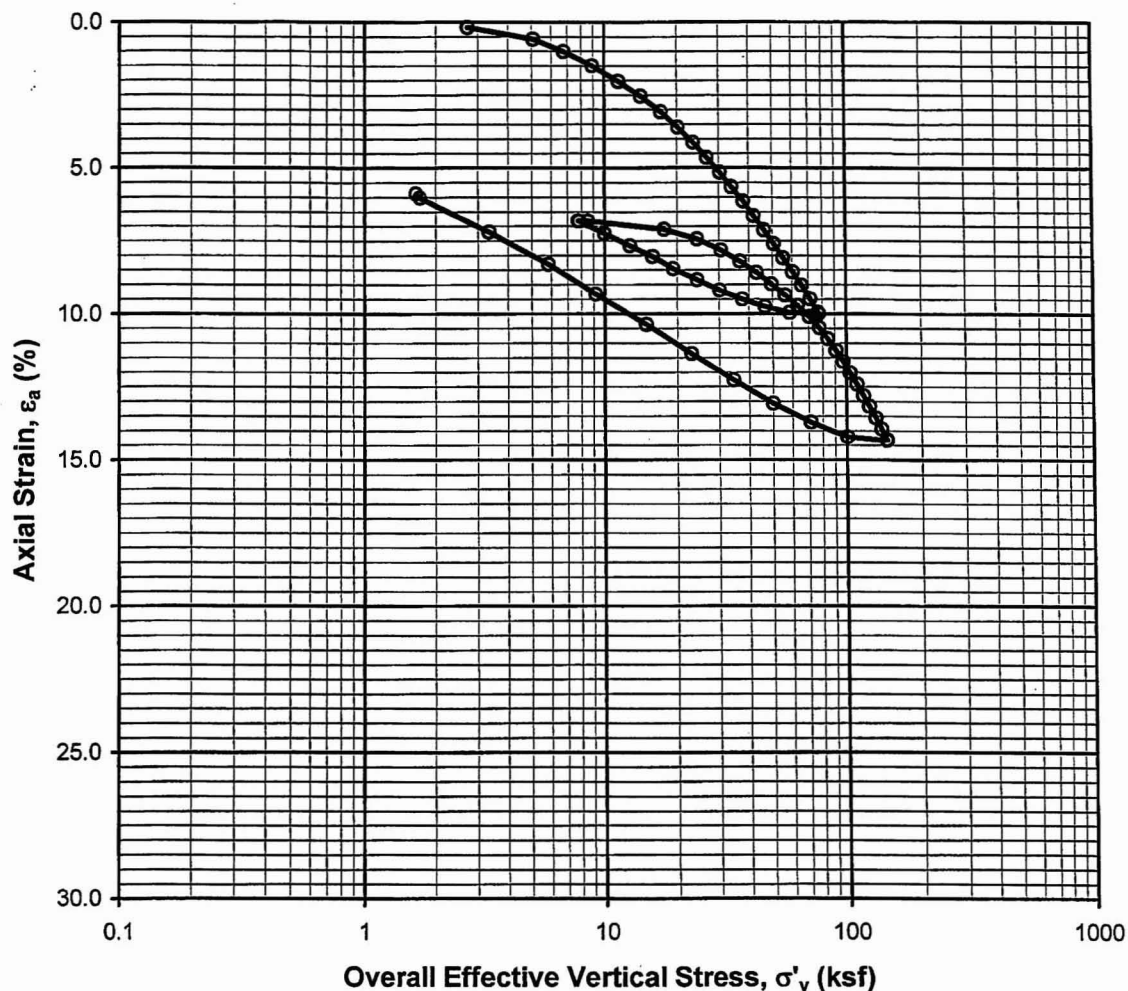


				Before Test	After Test	
Overburden Pressure: 1.02e+004 psf				Water Content, %	25.50	23.77
Preconsolidation Pressure: 2.42e+004 psf				Dry Unit Weight, pcf	92.44	103.
Compression Index: 0.186				Saturation, %	81.12	97.01
Diameter: 2.5 in		Height: 0.998 in		Void Ratio	0.87	0.68
LL: 27	PL: 15	PI: 12	GS: 2.77			

	Project: Exelon Texas COL Victoria		Location: B-2359UD	Project No.: 6468071777
	Boring No.: B-2359UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-18		Test Date: 3/5/08	Depth: 112-113.1'
	Test No.: 8369		Sample Type: Undisturbed	Elevation: N/A
	Description: Yellowish Brown Clayey SAND (SC)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			
				Cr= 0.025

Mon, 14-APR-2008 14:21:02

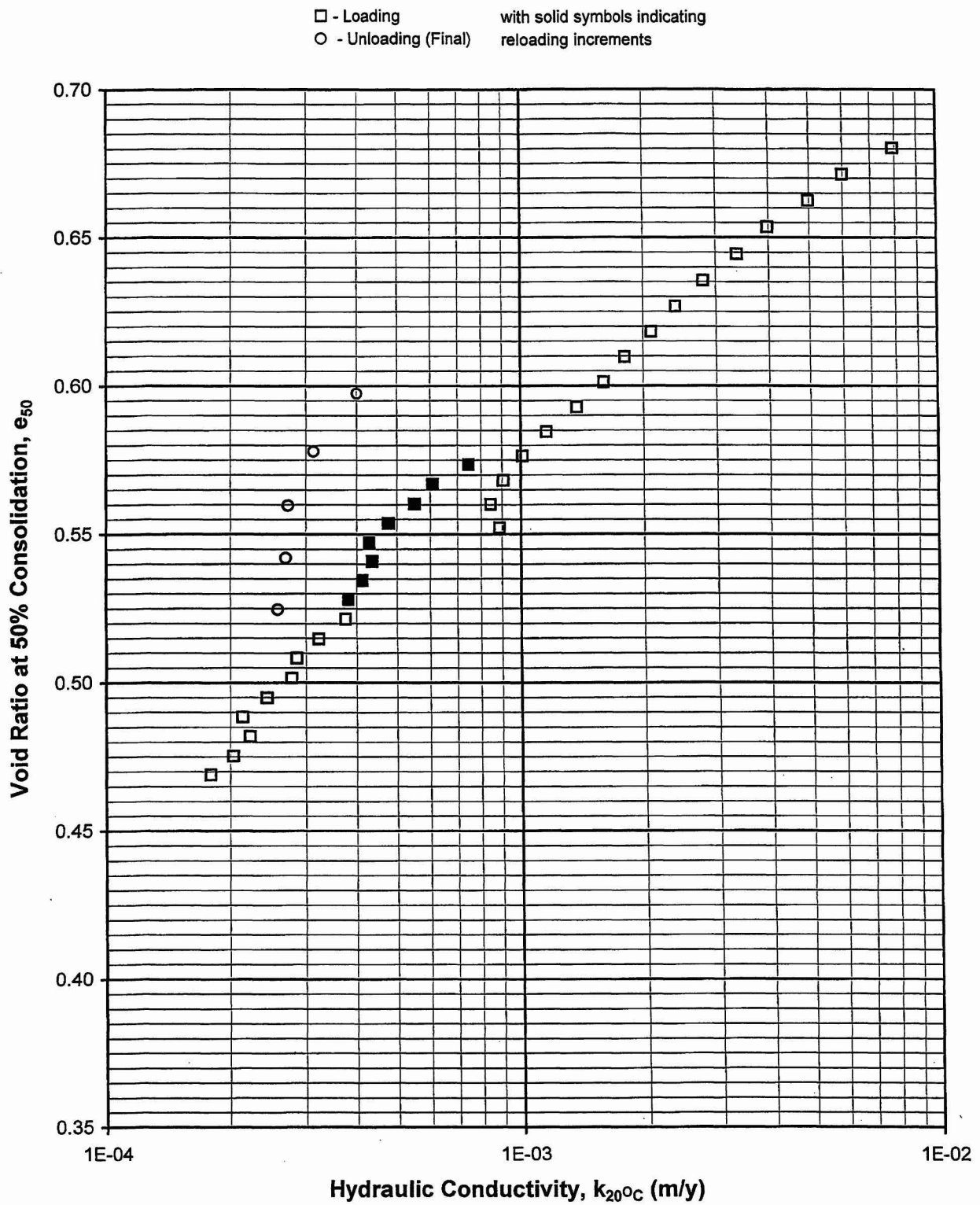
Consolidation (Constant Rate of Strain) Tests



1-D CONSOLIDATION TEST: CRS

Sample No. UD-12A - Depth 78.5 - 80.5 ft
Boring B-2302UD

Reviewed By: HP



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-12A - Depth 78.5 - 80.5 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-8 File Name: B-2302_UD12a
 Task No.: NA Specific Gravity, G_s : 2.680 ☒ Meas. ; ☐ Assumed Ring No.: 8
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area, A_r (cm²) = 31.686
 TEST TYPE: ☒ 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

☒ 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-12	Composite No.:	Pluviated:		Tamper Force (lbf)=	Drop (in.) =	
Depth (ft): 78.5 - 80.5	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} (see below)	Soil and Ring Masses		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Ring (g)		334.01	332.97
Container No.	811	2016	2033	893	Mass Ring (g)		214.27	
Mass Moist Soil + Container (g)	123.55	137.51	80.29	65.09	Mass Moist Soil, $M_{t,o}$ or $M_{t,at}$ (g)		119.74	118.70
Mass Dry Soil + Container (g)	107.80	120.05	71.29	59.25	EXCESS DRY SOIL (soil not incl. in final mass above)			
Mass Container (g)	32.06	30.70	30.91	32.27		Container No.	5042	
WATER CONTENT (%)	20.79	19.54	22.29	21.65		Mass Dry Soil + Container (g)	31.14	
Avg. Initial Water Content, W_4 (%)	20.87	Final W_{at} : ☒ Slice ;		Whole Spec.		Mass Container (g)	30.97	
See attached data sheet(s) for additional water contents						Mass Excess Dry Soil, $M_{d,es}$ (g)	0.17	

Soil Height: Measurements (mm)				Soil Height: Calculations, (mm)		Initial	Final
Initial		Final		Height of Gauge Block, H_{gb} (1)		0.000	19.050
with Spec.	without Spec.	with Spec.	without Spec.	Reading on Gauge Block, d_{gb}		0.000	0.000
19.230	0.000	12.160	13.040	Avg. Reading on Soil, d_{soil}		19.218	12.114
19.210	0.000	12.090	12.940	Avg. Reading on Apparatus without Specimen, d_{app}		0.000	12.986
19.220	0.000	12.120	12.970	Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$		19.218	18.178
19.210	0.000	12.110	12.990	Soil Height: Final by Dial Change During Test (mm)			
19.220	0.000	12.090	12.990			Initial Height, H_o	19.218
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Require H_{gb} & d_{gb} (1)	Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$		1.128
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Filter Paper Included:	Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$		18.090
(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 Soil Height Measurement, $H_{f,m}$		18.178
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.					Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$		-0.46

Estimated Initial Unit Weight		Soil Extruded During Loading	
Total, $\gamma_{t,o}$ (pcf)= 122.76	Dry, $\gamma_{d,o}$ (pcf)= 101.56	Container No.	
Filter Paper Used: ☒ Whatman No. 54; ☐ Other		Mass Dry Soil + Cont. (g)	NA
Incremental Test: Top & Bottom: ☐ Yes ; ☐ No		Mass Cont. (g)	NA
CRS Test: Top Only: ☒ Yes ; ☐ No		Dry Mass - Soil Extruded During Loading, $M_{d,el}$ (g)	0.00

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

Final Visual Description: Light Gray Fat CLAY with sand (CH)

Trimming/Etc. Remarks:

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

Trim./Recon. By: JTG Setup By: JTG Prelim. Calc. By: LF Take Down By: JTG
 Date: 4/1/2008 Date: 4/1/2008 Final Calc. By: LF Date: 4/5/2008
 Reviewed By: HP

Note: NA - Not Applicable

KAW 7/16/08

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-8 File Name: B-2302_UD12a
 Task No.: NA Date: Start: 4/1/2008 Initial Height, H_o (mm): 19.22
 Project Name: Exelon (Victoria) Completed: 4/5/2008 Ring Area, A_r (cm²): 31.6861
 Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 ☒ Undisturbed or ; ☐ Reconstituted - Specimen.
 Reference Values: Back Pressure, $U_{b, BE}$ (psi): 70.97216 ,V: 0.023539169 Piston Uplift, P_{up} (lbf): 34.87
 Back Pressure, $U_{b, CS}$ (psi): 70.96606 ,V: 0.023537141 Setup DT_{ref} (V): 0.002111251
 Displacement Transducer No.: DT-108 Calib. Factor (mm/V): 227.98906 Ch. No.: 2
 Pore Press. Transducer No.: PT-116 Calib. Factor (psi/V): 3007.15024 Ref. Zero (V): -0.000062 Ch. No.: 3
 Force Cell No.: FT-108 Calib. Factor (lbf/V): -156066.76 Ref. Zero (V): -0.000006 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: ☒ compression; or ☐ swell.
- (4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: LF Reviewed By: HP *HP*

Remarks:

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, $\Delta \epsilon_{ac,rate}$ (%/hr)
S	92	16 : 59 : 09		0.40		0.000			
BS	92	19 : 24 : 16		2.83		0.040	0.000	0.040	
BE	93	09 : 22 : 19		2.73	0.001	0.035	0.000	0.035	
CS	93	09 : 22 : 24	0	2.72	0.000	0.034	0.000	0.034	
	93	10 : 00 : 07	38	5.20	0.174	0.111	0.000	0.111	0.634
	93	10 : 38 : 10	76	6.95	0.255	0.194	0.000	0.194	0.688
US	93	11 : 23 : 12	121	9.10	0.239	0.288	0.000	0.288	0.652
	93	12 : 08 : 14	166	11.71	0.330	0.390	0.000	0.390	0.702
	93	12 : 53 : 16	211	14.43	0.390	0.488	0.000	0.488	0.681
	93	13 : 38 : 19	256	17.51	0.500	0.590	0.000	0.590	0.706
	93	14 : 23 : 21	301	20.61	0.586	0.690	0.000	0.690	0.696
	93	15 : 08 : 23	346	23.99	0.712	0.793	0.000	0.793	0.712
	93	15 : 53 : 26	391	27.35	0.780	0.892	0.000	0.892	0.689
	93	16 : 38 : 28	436	31.03	0.887	0.989	0.000	0.989	0.667
	93	17 : 23 : 30	481	34.71	1.003	1.085	0.000	1.085	0.666
	93	18 : 08 : 32	526	38.73	1.141	1.179	0.000	1.179	0.656
	93	18 : 53 : 35	571	42.83	1.277	1.275	0.000	1.275	0.661
	93	19 : 38 : 36	616	47.20	1.479	1.369	0.000	1.369	0.653
	93	20 : 23 : 39	661	51.88	1.662	1.461	0.000	1.461	0.635
	93	21 : 08 : 41	706	56.71	1.910	1.553	0.000	1.553	0.639
	93	21 : 53 : 43	751	61.91	2.052	1.646	0.000	1.646	0.644
	93	22 : 38 : 46	796	67.12	1.935	1.733	0.000	1.733	0.609
UE	93	23 : 23 : 49	841	72.60	1.899	1.823	0.000	1.823	0.622
	94	00 : 08 : 52	886	78.45	2.220	1.911	0.000	1.911	0.609

**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, $\Delta d_{af,n}$ (mm)	Corr. Total Specimen Deformation, $\Delta H_{c,n}$ (4) (mm)	Strain Rate, between n & n-1, $\Delta \epsilon_{ac,rate}$ (%/hr)
	94	00 : 12 : 08	890	79.03	2.244	1.920	0.000	1.920	0.844
	94	00 : 12 : 37	890	78.87	2.241	1.922	0.000	1.922	1.565
	94	01 : 27 : 40	965	58.73	-0.180	1.914	0.000	1.914	-0.032
	94	02 : 42 : 44	1040	46.13	-0.634	1.875	0.000	1.875	-0.165
	94	03 : 57 : 47	1115	36.99	-0.905	1.825	0.000	1.825	-0.207
	94	05 : 12 : 52	1190	29.49	-1.075	1.766	0.000	1.766	-0.245
US	94	06 : 27 : 57	1266	23.53	-1.140	1.699	0.000	1.699	-0.281
	94	07 : 43 : 01	1341	18.46	-1.187	1.625	0.000	1.625	-0.308
	94	08 : 58 : 04	1416	15.00	-1.189	1.545	0.000	1.545	-0.331
	94	10 : 13 : 07	1491	11.98	-1.172	1.473	0.000	1.473	-0.298
	94	11 : 28 : 10	1566	9.20	-1.219	1.394	0.000	1.394	-0.331
UE	94	12 : 43 : 14	1641	7.03	-1.218	1.310	0.000	1.310	-0.347
	94	12 : 44 : 04	1642	6.97	-1.219	1.309	0.000	1.309	-0.421
	94	12 : 46 : 59	1645	7.82	-1.113	1.309	0.000	1.309	-0.037
	94	13 : 28 : 16	1686	18.11	0.730	1.366	0.000	1.366	0.430
	94	14 : 09 : 33	1727	25.24	1.392	1.429	0.000	1.429	0.482
US	94	14 : 50 : 51	1768	31.90	1.902	1.502	0.000	1.502	0.547
	94	15 : 32 : 08	1810	38.38	2.359	1.576	0.000	1.576	0.562
	94	16 : 13 : 26	1851	44.86	2.739	1.649	0.000	1.649	0.554
	94	16 : 54 : 43	1892	51.69	3.059	1.725	0.000	1.725	0.573
	94	17 : 36 : 00	1934	58.58	3.278	1.798	0.000	1.798	0.550
	94	18 : 17 : 18	1975	65.66	3.419	1.868	0.000	1.868	0.527
	94	18 : 58 : 35	2016	73.08	3.494	1.941	0.000	1.941	0.558
	94	19 : 39 : 53	2057	80.24	3.618	2.014	0.000	2.014	0.548
	94	20 : 21 : 10	2099	87.06	3.888	2.085	0.000	2.085	0.538
	94	21 : 02 : 27	2140	93.93	4.318	2.162	0.000	2.162	0.582
	94	21 : 43 : 44	2181	100.53	4.757	2.236	0.000	2.236	0.559
	94	22 : 25 : 01	2223	107.15	5.171	2.308	0.000	2.308	0.546
	94	23 : 06 : 18	2264	114.15	5.659	2.386	0.000	2.386	0.585
	94	23 : 47 : 36	2305	121.21	6.101	2.460	0.000	2.460	0.561
	95	00 : 28 : 53	2346	128.07	6.368	2.530	0.000	2.530	0.527
	95	01 : 10 : 11	2388	135.55	6.679	2.606	0.000	2.606	0.579
	95	01 : 51 : 29	2429	143.12	6.909	2.680	0.000	2.680	0.557
UE	95	02 : 32 : 45	2470	150.69	7.128	2.748	0.000	2.748	0.512
	95	02 : 34 : 18	2472	151.07	7.143	2.753	0.000	2.753	1.132
	95	02 : 36 : 31	2474	150.29	7.066	2.754	0.000	2.754	0.169
	95	05 : 40 : 25	2658	100.51	-0.556	2.731	0.000	2.731	-0.040
	95	08 : 44 : 21	2842	70.10	-1.875	2.636	0.000	2.636	-0.161
	95	11 : 48 : 15	3026	48.18	-2.737	2.511	0.000	2.511	-0.211
	95	14 : 52 : 07	3210	32.32	-3.135	2.358	0.000	2.358	-0.261
US	95	17 : 56 : 02	3394	20.86	-3.184	2.183	0.000	2.183	-0.296
	95	20 : 59 : 57	3578	12.79	-3.260	1.992	0.000	1.992	-0.326

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

[illegible]

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

Project Number: 0411-08-1686 Test Station No.: CRS-8 ☒ Undisturbed or; ☐ Reconstituted - Specimen. File Name: B-2302_UD1:
 Task No.: NA Date; Start: 4/1/2008 Back Pressure, $U_{b,CS}$ (psi): 71.0 Piston Uplift, P_{up} (lb): 34.87
 Project Name: Exelon (Victoria) Completed: 4/5/2008 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 Gray Fat CLAY with sand (CH)
 Ring No.: 8 Area, A_r (cm²): 31.686 Solids Ht., H_s (mm): 11.532 Specific Gravity, $G_s =$ 2.680 ☒ Meas.; ☐ Assumed
 Initial: Height H_o : 19.22 Water 22.5 Void 0.667 Deg. of 90.5 Total Unit 122.8 Dry Unit 100.2
 Final: (mm): H_f : 18.18 Content, w (%): 21.4 Ratio, e : 0.576 Sat., S (%): 99.7 Weight, γ_t (pcf): 128.7 Weight, γ_d (pcf): 105.9

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

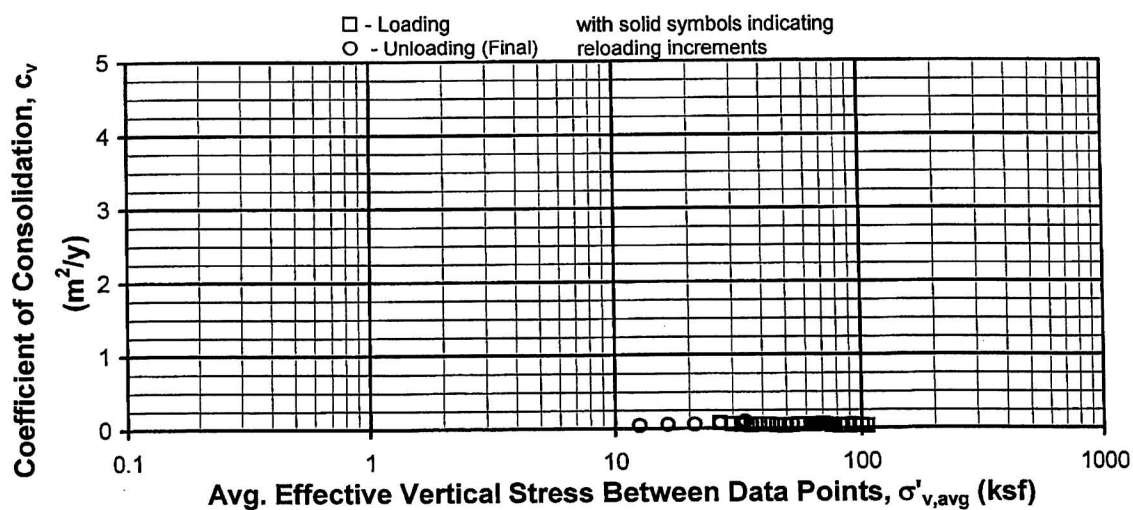
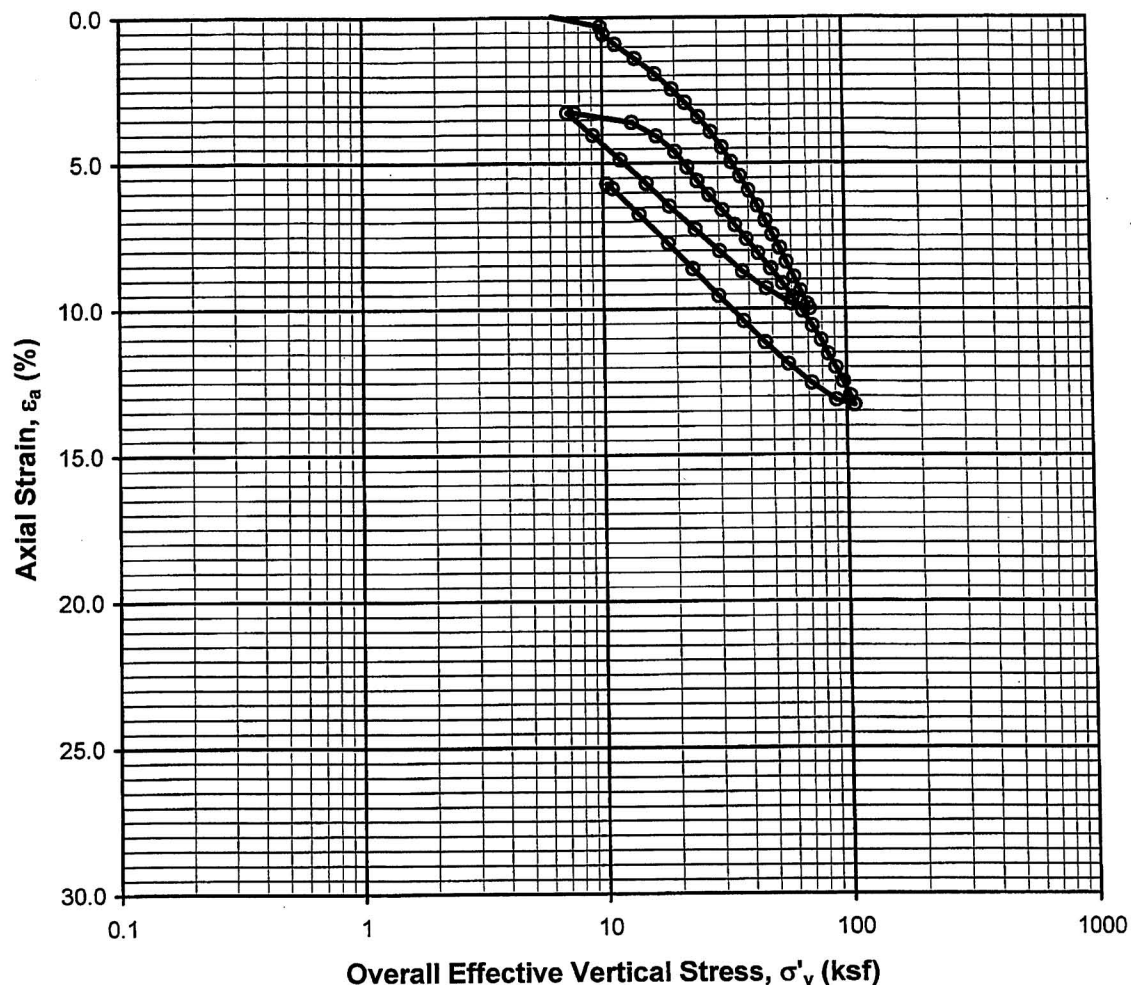
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n} (\epsilon_{ac,n})$ $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				Steady State Ratio, $SSR_n = C_v \cdot t_n \cdot UCF$ $T_v \cdot (H_{c,avg})^2$	Rate of Secondary Comp. (3), $c_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
									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)		
S					0.40				Data on given line represents average conditions					
BS			0.21	0.663	2.83			19.178	between that line and the previous line of data.					
BE		2.73	0.18	0.664	2.73	0.001	0.0	19.183			0.663			
CS	0	2.72	0.18	0.664	2.72	0.000	0.0	19.184			0.664			
	38	5.08	0.58	0.657	5.20	0.174	3.4	19.107	3.90		0.660			
	76	6.78	1.01	0.650	6.95	0.255	3.7	19.024	5.93		0.653			
US	121	8.94	1.50	0.642	9.10	0.239	2.6	18.930	7.86		0.646			
	166	11.49	2.03	0.633	11.71	0.330	2.8	18.828	10.21	18.93	0.637	7.91E-03	9.10	
	211	14.16	2.54	0.624	14.43	0.390	2.7	18.730	12.83	15.36	0.629	5.99E-03	14.93	
	256	17.17	3.07	0.615	17.51	0.500	2.9	18.628	15.67	13.93	0.620	4.97E-03	20.53	
	301	20.21	3.59	0.607	20.61	0.586	2.8	18.528	18.69	11.36	0.611	3.98E-03	22.56	
	346	23.51	4.13	0.598	23.99	0.712	3.0	18.425	21.86	10.25	0.602	3.37E-03	25.74	
	391	26.83	4.64	0.589	27.35	0.780	2.9	18.326	25.17	8.76	0.593	2.80E-03	26.68	
	436	30.43	5.14	0.581	31.03	0.887	2.9	18.229	28.63	8.48	0.585	2.40E-03	30.45	
	481	34.04	5.64	0.572	34.71	1.003	2.9	18.133	32.24	7.42	0.577	2.09E-03	30.78	
	526	37.96	6.14	0.564	38.73	1.141	2.9	18.039	36.00	7.05	0.568	1.80E-03	33.22	
	571	41.98	6.63	0.556	42.83	1.277	3.0	17.943	39.97	6.32	0.560	1.59E-03	33.47	

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

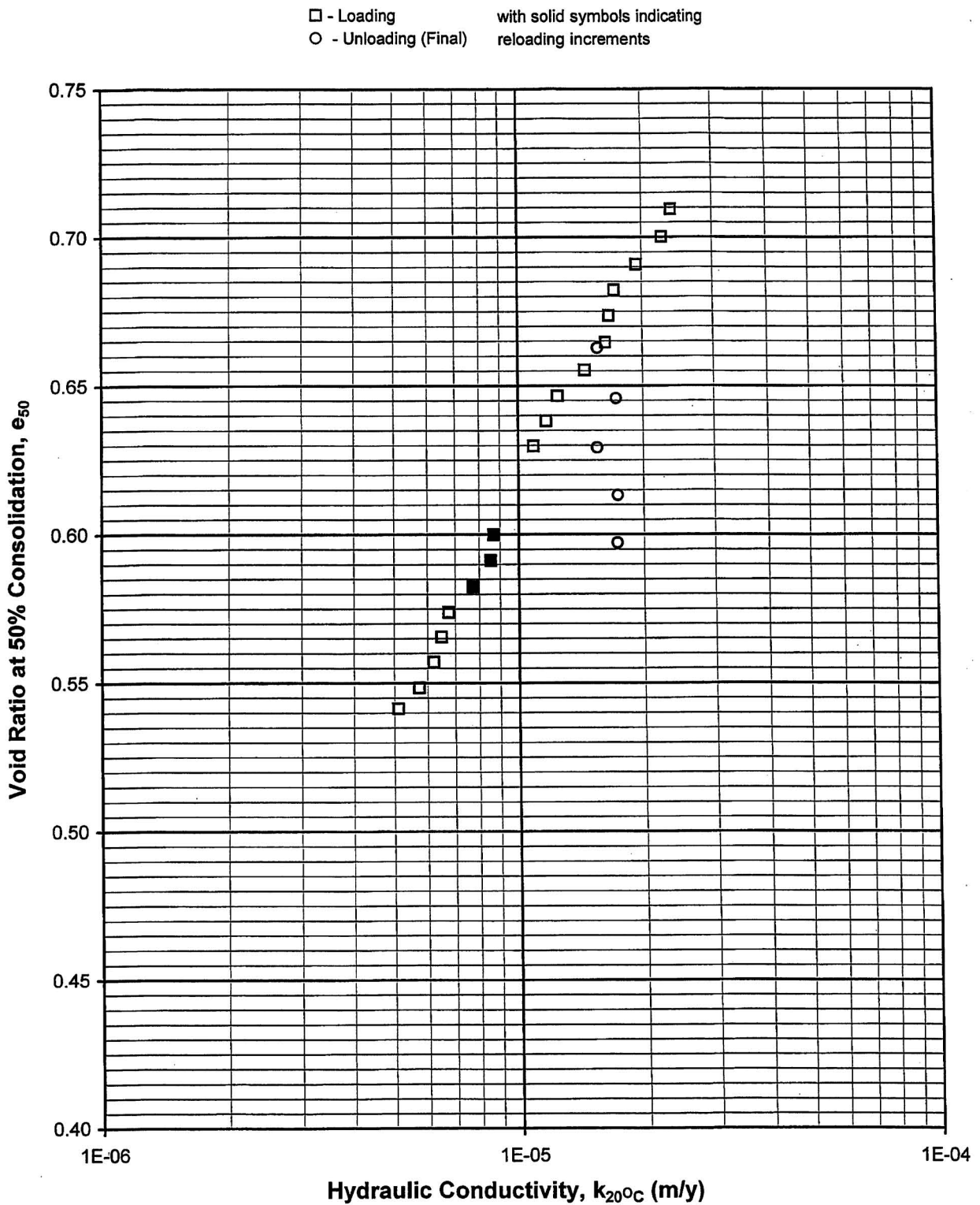
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ($\epsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				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), $C_\alpha = \frac{\Delta d_{a,sc}}{H_o} (\times 10^{-4})$
									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)		
	616	46.21	7.12	0.548	47.20	1.479	3.1	17.849	44.09	5.84	0.552	1.37E-03	34.38	
	661	50.76	7.60	0.540	51.88	1.662	3.2	17.757	48.49	5.42	0.544	1.15E-03	35.16	
	706	55.42	8.08	0.532	56.71	1.910	3.4	17.665	53.09	4.87	0.536	1.01E-03	34.60	
	751	60.54	8.56	0.524	61.91	2.052	3.3	17.572	57.98	4.68	0.528	9.07E-04	36.21	
	796	65.82	9.02	0.516	67.12	1.935	2.9	17.485	63.18	4.61	0.520	8.44E-04	38.57	
UE	841	71.32	9.49	0.508	72.60	1.899	2.6	17.395	68.57	5.00	0.512	8.87E-04	45.09	
	886	76.96	9.94	0.501	78.45	2.220	2.8	17.307	74.14		0.505			
	890	77.53	9.99	0.500	79.03	2.244	2.8	17.298	77.25		0.500			
	890	77.37	10.00	0.500	78.87	2.241	2.8	17.296	77.45		0.500			
	965	58.85	9.96	0.501	58.73	-0.180	-0.3	17.304	68.11		0.500			
	1040	46.55	9.76	0.504	46.13	-0.634	-1.4	17.343	52.70		0.502			
	1115	37.59	9.50	0.508	36.99	-0.905	-2.4	17.393	42.07		0.506			
	1190	30.21	9.19	0.513	29.49	-1.075	-3.6	17.452	33.90		0.511			
US	1266	24.29	8.84	0.519	23.53	-1.140	-4.8	17.519	27.25		0.516			
	1341	19.24	8.45	0.526	18.46	-1.187	-6.4	17.593	21.76	4.86	0.522	7.23E-04	4.50	
	1416	15.78	8.04	0.533	15.00	-1.189	-7.9	17.673	17.51	3.29	0.529	7.67E-04	6.04	
	1491	12.75	7.67	0.539	11.98	-1.172	-9.8	17.745	14.27	2.94	0.536	6.99E-04	8.04	
	1566	10.00	7.25	0.546	9.20	-1.219	-13.3	17.824	11.37	2.73	0.542	7.69E-04	9.88	
UE	1641	7.82	6.82	0.553	7.03	-1.218	-17.3	17.908	8.91	2.14	0.549	7.95E-04	9.59	
	1642	7.76	6.81	0.553	6.97	-1.219	-17.5	17.909	7.79		0.553			
	1645	8.54	6.81	0.553	7.82	-1.113	-14.2	17.909	8.15		0.553			
	1686	17.62	7.11	0.548	18.11	0.730	4.0	17.852	13.08		0.551			
	1727	24.30	7.44	0.543	25.24	1.392	5.5	17.789	20.96		0.545			
US	1768	30.62	7.81	0.536	31.90	1.902	6.0	17.716	27.46		0.539			
	1810	36.79	8.20	0.530	38.38	2.359	6.1	17.642	33.71	5.88	0.533	7.46E-04	2.96	
	1851	43.02	8.58	0.524	44.86	2.739	6.1	17.569	39.91	4.87	0.527	6.09E-04	4.94	
	1892	49.63	8.98	0.517	51.69	3.059	5.9	17.493	46.32	4.47	0.520	5.50E-04	6.86	
	1934	56.38	9.36	0.511	58.58	3.278	5.6	17.420	53.00	4.10	0.514	4.78E-04	8.46	
	1975	63.37	9.72	0.505	65.66	3.419	5.2	17.350	59.87	3.96	0.508	4.29E-04	10.30	
	2016	70.73	10.10	0.498	73.08	3.494	4.8	17.277	67.05	4.00	0.501	4.37E-04	12.57	

DCN# EXE808

FUGRO CONSULTANTS, INC.



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-16A - Depth 120.5 - 122.5 ft
 Boring B-2302UD



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 ☒ Meas.; ☐ Assumed Ring No.: 9
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area, A_r (cm²) = 31.659
 TEST TYPE: ☒ 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

☒ 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_{ri} (%) =	Dia. (in.) =
☒ Spec. Selection by X-ray;	☒ Geomarine Sample				Ref. Effort =	% Comp. = $\pm$ Opt. =

Water Content (W);	Initial - Trimming Location			Final, W _{at} (see below)	Soil and Ring Masses	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		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		Height of Gauge Block, H_{gb} (1)		0.000	19.050
with Spec.	without Spec.	with Spec.	without Spec.	Reading on Gauge Block, d_{gb}		0.000	0.000
19.220	0.000	12.180	13.040	Avg. Reading on Soil, d_{soil}		19.192	12.140
19.190	0.000	12.080	12.930	Avg. Reading on Apparatus without Specimen, d_{app}		0.000	12.968
19.210	0.000	12.180	12.970	Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$		19.192	18.222
19.160	0.000	12.200	12.980	Soil Height: Final by Dial Change During Test (mm)			
19.180	0.000	12.060	12.920	Initial Height, H_0		19.192	
☐ Yes ; ☒ No	☒ Yes ; ☐ No	☒ Yes ; ☐ No	☐ Yes ; ☒ No	Require H_{gb} & d_{gb} (1)	Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,r}$	1.092	
☐ Yes ; ☒ No	☒ Yes ; ☐ No	☒ Yes ; ☐ No	☐ Yes ; ☒ No	Filter Paper Included:	Final Calculated Height, $H_{f,c} = H_0 - \Delta H_{c,r}$	18.100	
(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 Soil Height Measurement, $H_{f,m}$	18.222	
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.					Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_0$	-0.64	

Estimated Initial Unit Weight		Soil Extruded During Loading	
Total, $\gamma_{t,o}$ (pcf) = 122.55	Dry, $\gamma_{d,o}$ (pcf) = 97.63	Container No.	
Filter Paper Used: ☒ Whatman No. 54; ☐ Other		Mass Dry Soil + Cont. (g)	NA
Incremental Test: Top & Bottom: ☐ Yes ; ☐ No		Mass Cont. (g)	NA
CRS Test: Top Only: ☒ Yes ; ☐ No		Dry Mass - Soil Extruded During Loading, $M_{d,el}$ (g)	0.00

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

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

Trimming/Etc. Remarks:

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

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 ☒ Measured ; ☐ Assumed.
 Calculations Corrected for Salt (dissolved solids): ☒ 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.	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: ☒ 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: ☒ 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_r = 100% at end of test.				
		X	Measured		Avg. of measured/assumed G_s and G_s to make S_r = 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_r = 100%, or;		Avg. of measured & make S_r = 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) :		
Initial	25.8	0.739	94.8	122.6	97.5	11.034	From	To (ksf)	
Final	23.8	0.651	99.2	127.0	102.6	NA	NA	NA	

Graphical Construction	σ'_p (ksf)	ϵ_a (%)	CR	RR	OCR	Liquid Limit (LL)	76	Minus 200 (%)
Casagrande Method	30.00	NA	0.181	0.103	2.8	Plastic Limit (PL)	16	87.1
Becker Method	NA	Becker minimum σ'_p (ksf):		NA		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 *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 (cm²): 31.6591
 Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 ☒ 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: ☒ compression; or ☐ swell.
- (4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: DH Reviewed By: HP *HP*

Remarks: _____

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, $\Delta \epsilon_{ac,rate}$ (%/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

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)
	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

CALCULATED CRS LOADING DATA

[illegible]

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

Project Number: 0411-08-1686 Test Station No.: CRS-9 ☒ Undisturbed or ; ☐ Reconstituted - Specimen. File Name: B-2302_UD16

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 (cm²): 31.659 Solids Ht., H_s (mm): 11.034 Specific Gravity, $G_s = 2.720$ ☒ 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 erratic
- (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

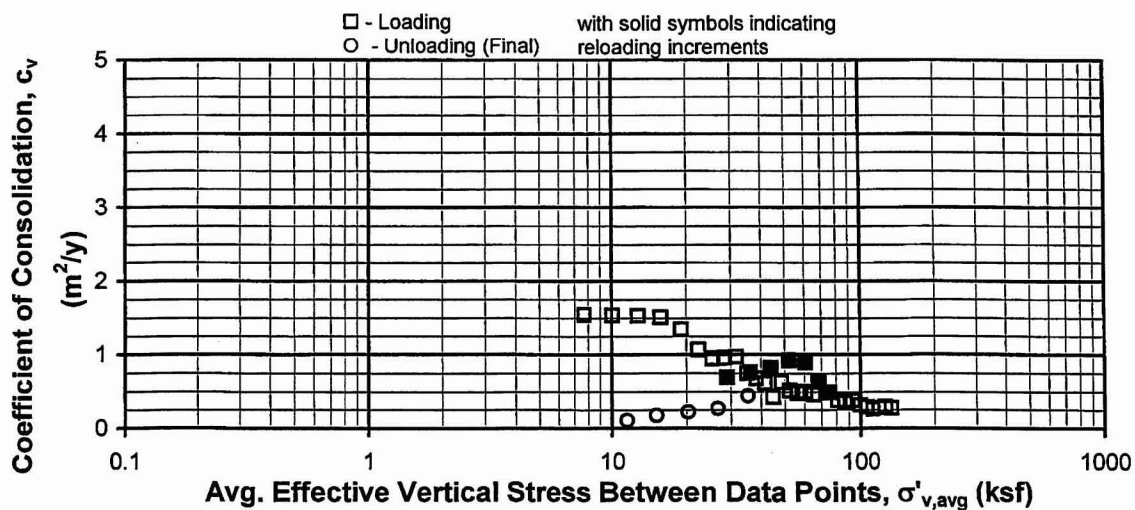
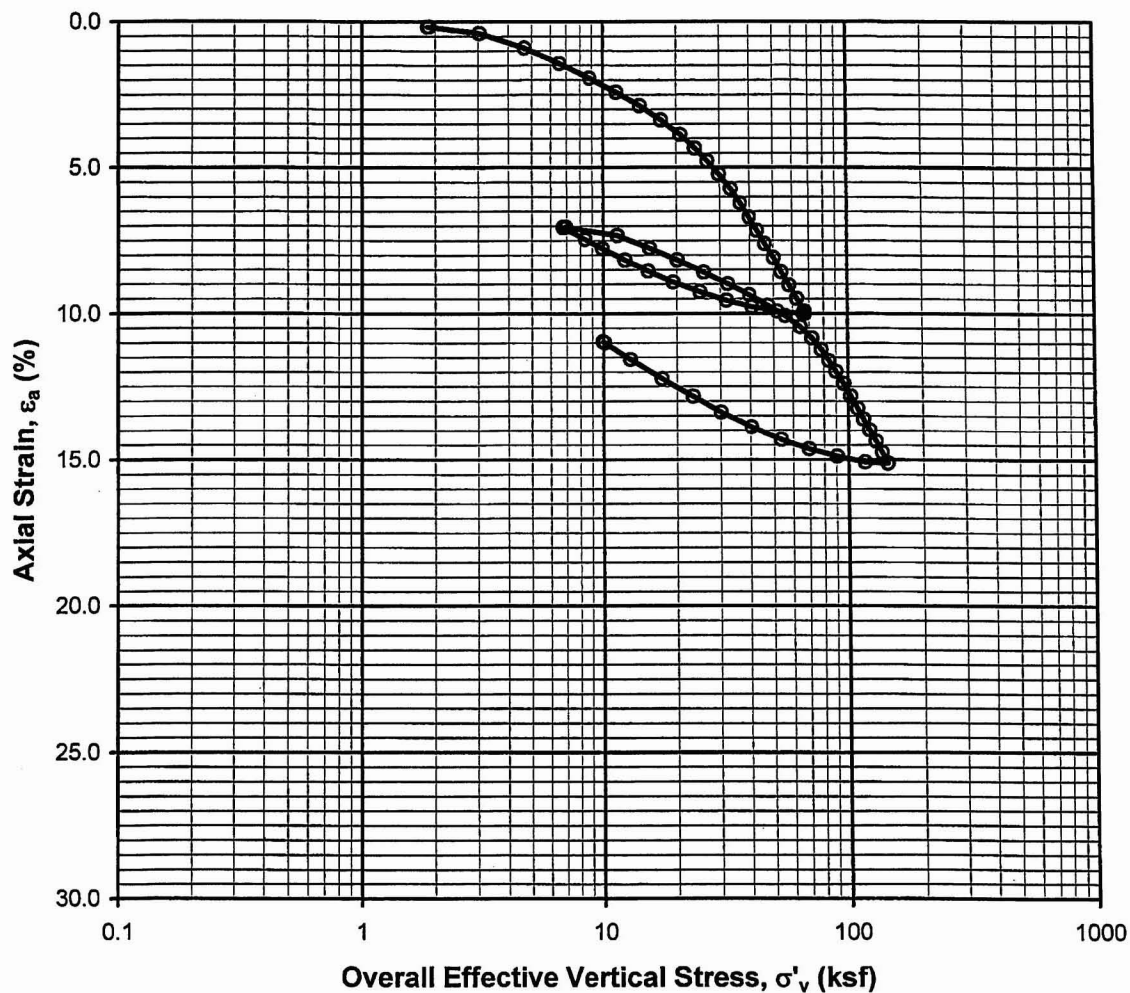
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ($\epsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				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), $C_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
									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)		
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)

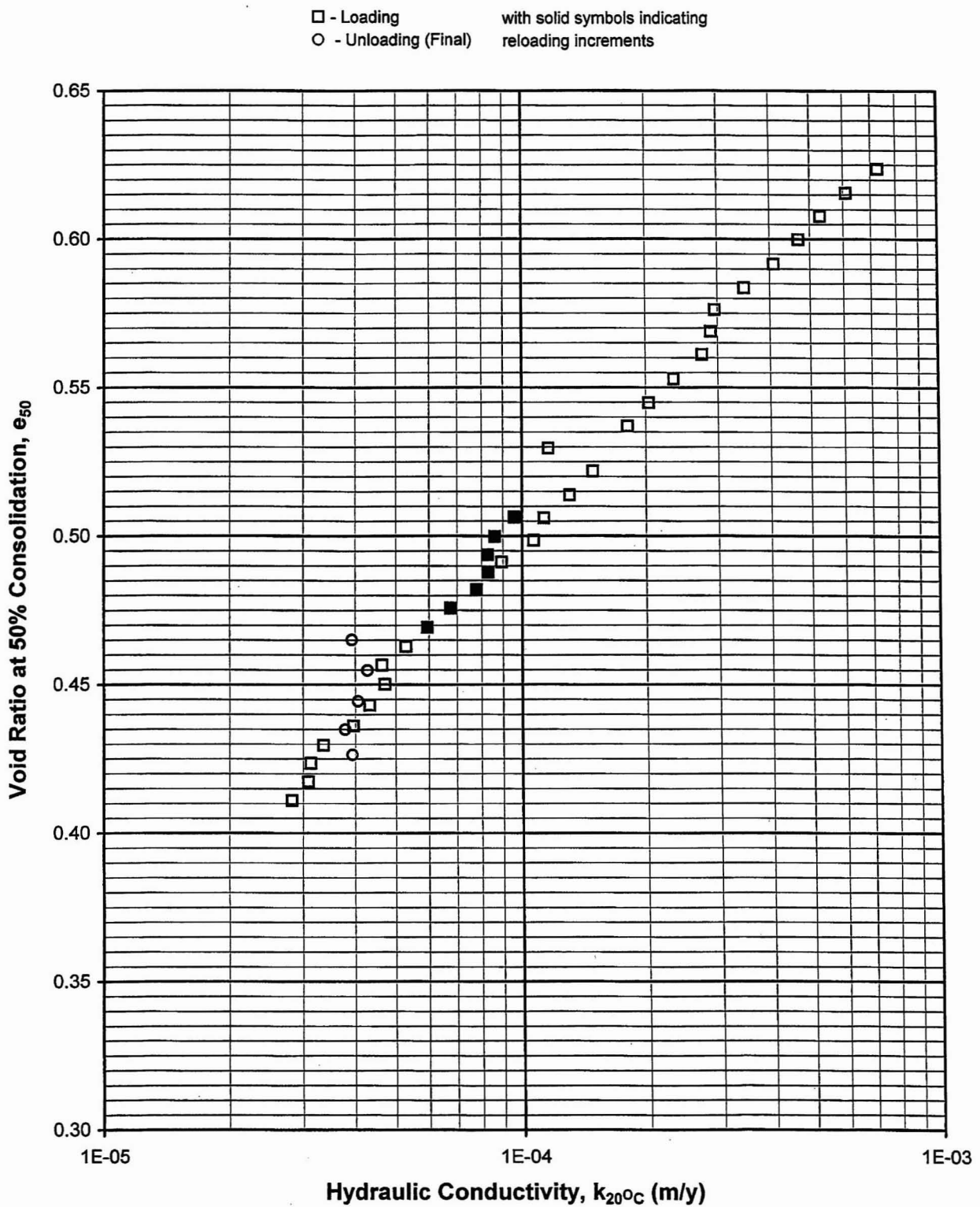
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess 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				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), $C_\alpha = \frac{\Delta d_{a,sc}}{H_o} (\times 10^{-4})$
									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)		
	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	

DCN# EXE808

FUGRO CONSULTANTS, INC.



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-19B - Depth 145.5 - 147.3 ft
 Boring B-2302UD



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-19B - Depth 145.5 - 147.3 ft
 Boring B-2302UD

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 ☒ Meas.; ☐ Assumed Ring No.: 16
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area, A_r (cm²) = 31.661
 TEST TYPE: ☒ 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

☒ 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	Composite No.:			Pluviated:	Tamper Force (lbf) =	Drop (in.) =
Depth (ft): 145.5 - 147.3	Specimen No.: B			Kneading	Undercompaction: U_{ni} (%) =	Dia. (in.) =
☒ Spec. Selection by X-ray;	☒ Geomarine Sample			Ref. Effort =	% Comp. =	$\pm$ Opt. =

Water Content (W);	Initial - Trimming Location			Final, W_{at} (see below)	Soil and Ring Masses	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		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, W_4 (%)	21.54	Final W_{at} :	☒ 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		Height of Gauge Block, H_{gb} (1)		0.000	19.060
with Spec.	without Spec.	with Spec.	without Spec.	Reading on Gauge Block, d_{gb}		0.000	0.000
18.960	0.000	11.080	12.940	Avg. Reading on Soil, d_{soil}		18.992	11.058
19.020	0.000	10.950	12.910	Avg. Reading on Apparatus without Specimen, d_{app}		0.000	12.918
19.000	0.000	11.140	12.920	Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$		18.992	17.200
18.970	0.000	11.160	12.910	Soil Height: Final by Dial Change During Test (mm)			
19.010	0.000	10.960	12.910	Initial Height, H_0		18.992	
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Require H_{gb} & d_{gb} (1)		Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$	
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Filter Paper Included:		Final Calculated Height, $H_{f,c} = H_0 - \Delta H_{c,f}$	
(1) Req. block h.t. 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.				Final Soil Height Measurement, $H_{f,m}$		17.200	
				Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_0$		-1.52	

Estimated Initial Unit Weight		Soil Extruded During Loading	
Total, $\gamma_{t,o}$ (pcf) = 127.12	Dry, $\gamma_{d,o}$ (pcf) = 104.59	Container No.	
Filter Paper Used: ☒ Whatman No. 54;	☐ Other	Mass Dry Soil + Cont. (g)	NA
Incremental Test: Top & Bottom: ☐ Yes ; ☐ No		Mass Cont. (g)	NA
CRS Test: Top Only: ☒ Yes ; ☐ No		Dry Mass - Soil Extruded During Loading, $M_{d,et}$ (g)	0.00

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

Final Visual Description: Pale Brown Lean CLAY (CH)

Trimming/Etc. Remarks:

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

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 ☒ Measured ; ☐ Assumed.
 Calculations Corrected for Salt (dissolved solids): ☒ 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.	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: ☒ 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: ☒ 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 $S_r = 100\%$ at end of test.			
			X	Measured		Avg. of measured/assumed G_s and G_s to make $S_r = 100\%$			
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 $S_r = 100\%$, or,		Avg. of measured & make $S_r = 100\%$			
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 (cm²): 31.6608
 Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 ☒ 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: ☒ compression; or ☐ swell.
- (4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: DH Reviewed By: HP *HP*

Remarks:

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, $\Delta \epsilon_{ac,rate}$ (%/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, $\Delta \epsilon_{ac,rate}$ (%/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

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

[illegible]

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

Project Number: 0411-08-1686 Test Station No.: CRS-6 ☒ Undisturbed or; ☐ Reconstituted - Specimen. File Name: B-2302UD_11

Task No.: NA Date, Start: 4/3/2008 Back Pressure, $U_{b,CS}$ (psi): 70.1 Piston Uplift, P_{up} (lbf): 34.42

Project Name: Exelon (Victoria) Completed: 4/14/2008 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: Pale Brown Lean CLAY (CH)

Ring No.: 16 Area, A_r (cm²): 31.661 Solids Ht., H_s (mm): 11.757 Specific Gravity, $G_s =$ 2.690 ☒ Meas. ; ☐ Assumed

Initial: Height H_o : 18.99 Water 22.5 Void 0.615 Deg. of 98.3 Total Unit 127.1 Dry Unit 103.8

Final: (mm): H_f : 17.20 Content, w (%): 18.0 Ratio, e : 0.463 Sat., S (%): 104.5 Weight, γ_t (pcf): 135.2 Weight, γ_d (pcf): 114.6

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 erratic
- (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 NP

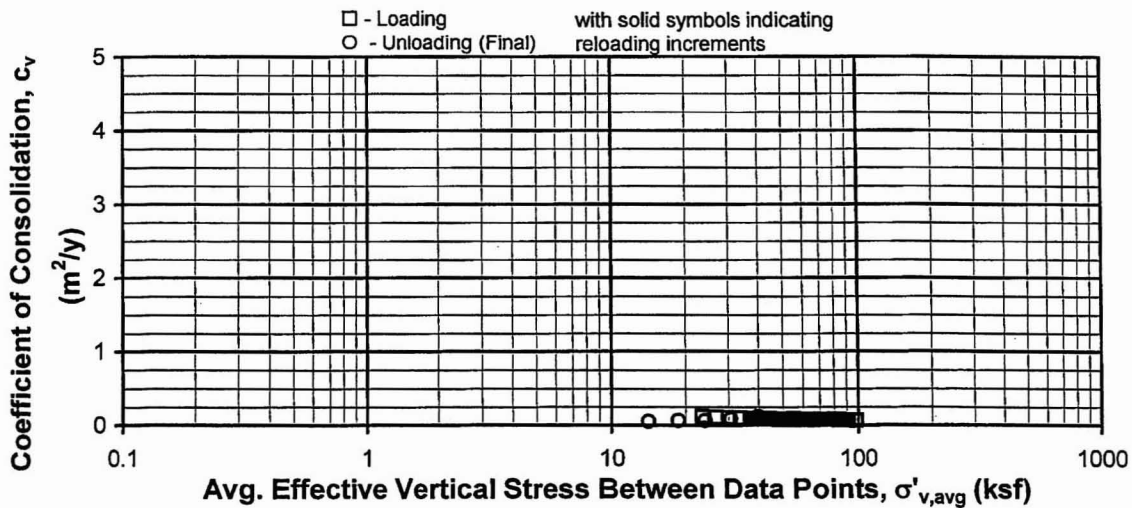
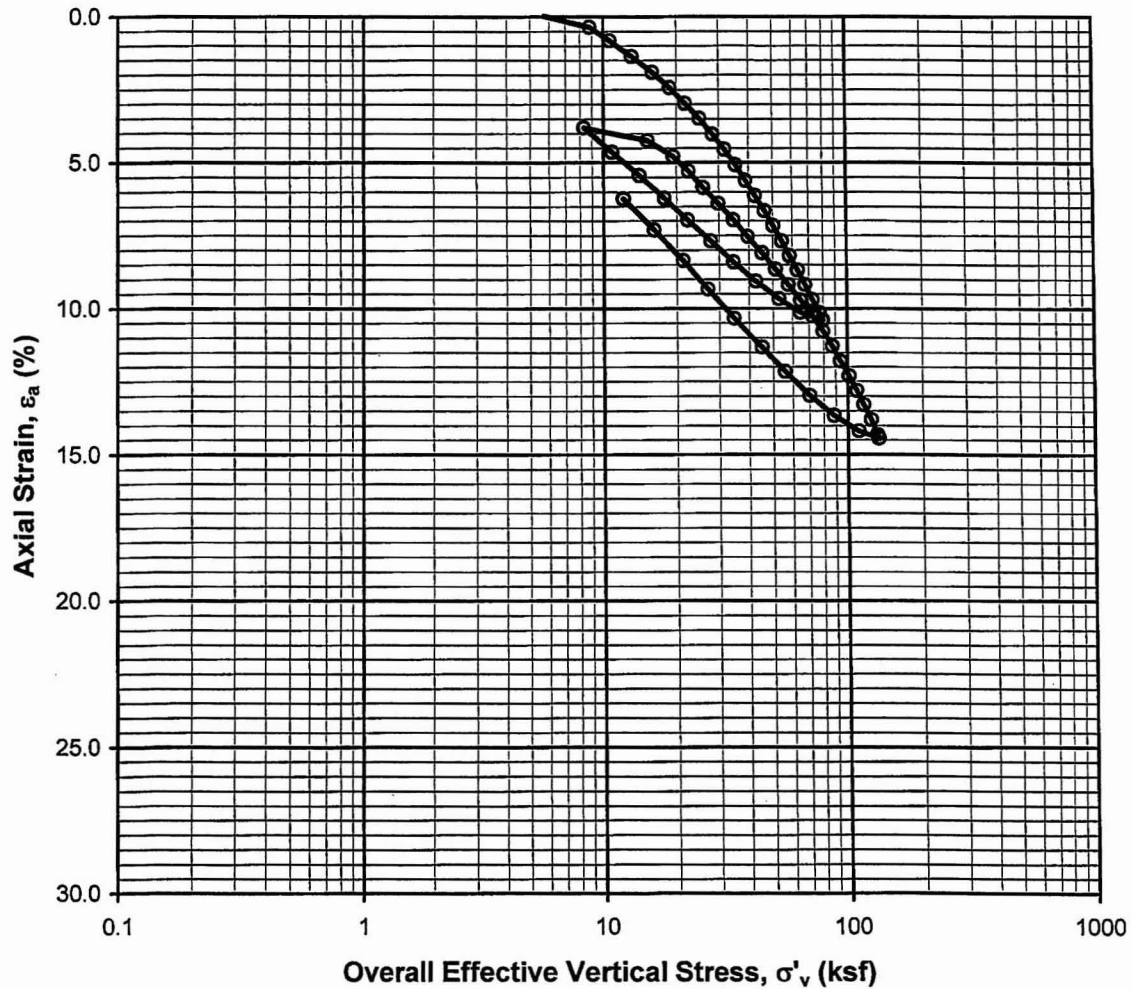
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ($\epsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				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), $C_\alpha = \Delta d_{a,sc} / H_o$ ($\times 10^{-4}$)
									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)		
S					0.24				Data on given line represents average conditions					
BS			0.20	0.612	1.31			18.953	between that line and the previous line of data.					
BE		1.86	0.17	0.613	1.86	0.002	0.1	18.959			0.612			
CS	0	1.88	0.17	0.613	1.88	0.000	0.0	18.959			0.613			
	67	3.05	0.40	0.609	3.31	0.394	11.9	18.917	2.47		0.611			
	232	4.66	0.90	0.601	5.08	0.618	12.2	18.821	3.85		0.605			
US	397	6.56	1.43	0.592	7.06	0.744	10.5	18.721	5.61		0.597			
	562	8.81	1.93	0.584	9.39	0.860	9.2	18.625	7.68	1.54	0.588	7.26E-04	2.78	
	727	11.37	2.41	0.576	12.01	0.940	7.8	18.533	10.09	1.54	0.580	6.10E-04	5.59	
	892	14.19	2.88	0.569	14.89	1.042	7.0	18.445	12.78	1.53	0.573	5.29E-04	8.45	
	1057	17.38	3.37	0.561	18.24	1.274	7.0	18.352	15.79	1.51	0.565	4.69E-04	11.19	
	1222	20.79	3.87	0.553	21.75	1.428	6.6	18.257	19.09	1.34	0.557	4.08E-04	12.58	
	1387	23.81	4.34	0.545	24.87	1.563	6.3	18.167	22.30	1.07	0.549	3.47E-04	12.10	
	1552	26.75	4.78	0.538	27.83	1.605	5.8	18.085	25.28	0.95	0.542	2.96E-04	12.70	
	1717	29.83	5.22	0.531	30.97	1.697	5.5	18.000	28.29	0.96	0.535	2.89E-04	14.81	
	1882	33.25	5.72	0.523	34.68	2.124	6.1	17.905	31.54	0.97	0.527	2.75E-04	17.01	
	2047	36.51	6.22	0.515	38.07	2.317	6.1	17.811	34.88	0.75	0.519	2.35E-04	14.77	

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

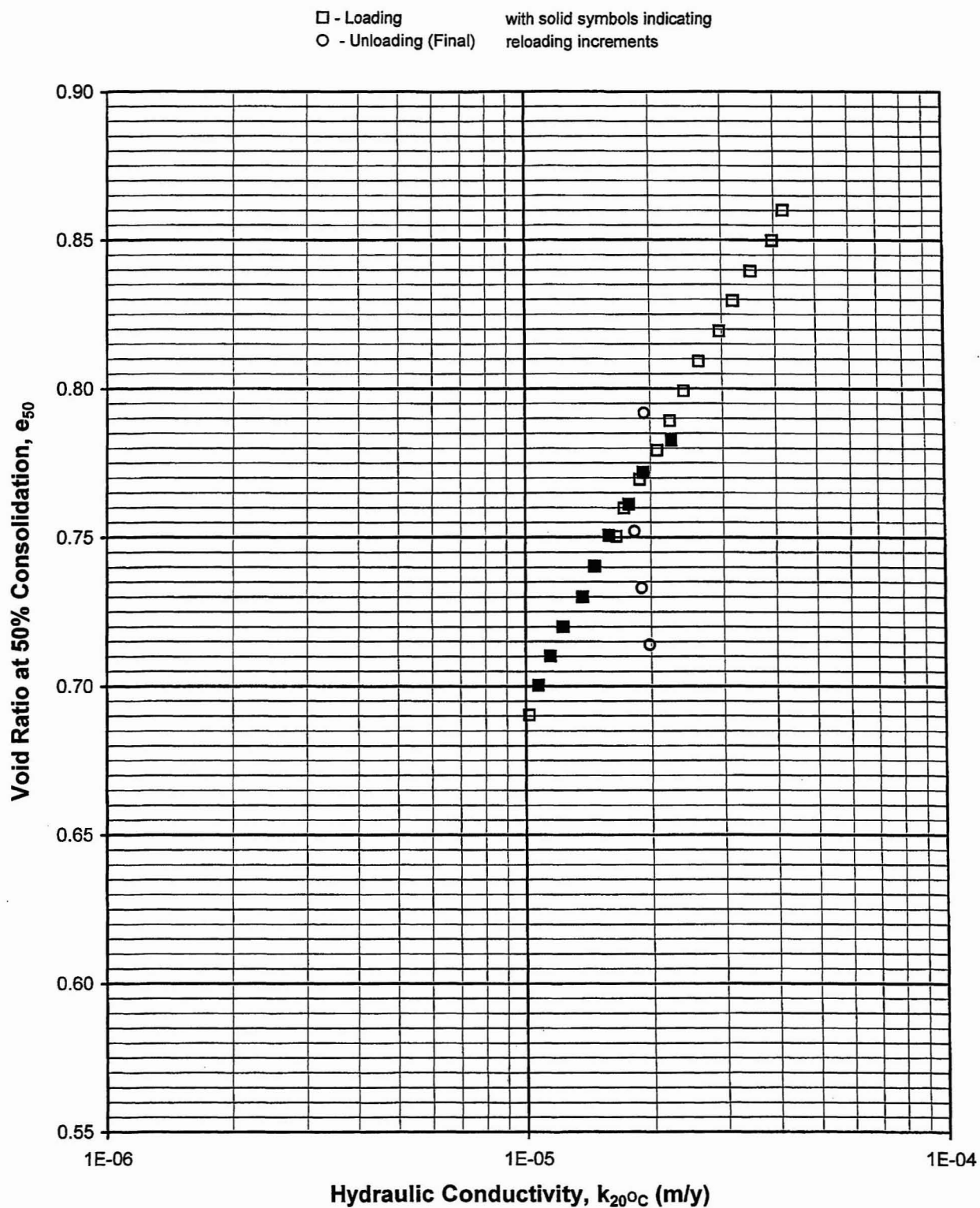
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ($\epsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				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), $c_\alpha = \frac{\Delta d_{a,sc}}{H_o} (\times 10^{-4})$
									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)		
	2212	39.75	6.70	0.507	41.48	2.563	6.2	17.720	38.13	0.68	0.511	2.04E-04	14.90	
	2377	43.02	7.16	0.500	44.85	2.713	6.0	17.632	41.38	0.62	0.503	1.81E-04	14.86	
	2602	46.33	7.60	0.493	48.35	2.994	6.2	17.548	44.68	0.43	0.496	1.16E-04	11.67	
	2767	50.30	8.09	0.485	52.69	3.539	6.7	17.456	48.32	0.63	0.489	1.49E-04	18.45	
	2932	54.18	8.57	0.477	56.80	3.896	6.9	17.364	52.24	0.52	0.481	1.30E-04	16.44	
	3097	58.21	9.03	0.469	60.99	4.124	6.8	17.277	56.19	0.48	0.473	1.13E-04	16.51	
	3263	62.70	9.49	0.462	65.59	4.286	6.5	17.190	60.46	0.50	0.466	1.07E-04	18.35	
UE	3428	67.00	9.91	0.455	70.33	4.928	7.0	17.109	64.85	0.47	0.459	8.93E-05	18.25	
	3459	67.36	10.00	0.454	70.93	5.286	7.5	17.093	67.18		0.455			
	3473	66.36	10.01	0.454	69.70	4.949	7.1	17.091	66.86		0.454			
	3758	52.09	9.93	0.455	52.19	0.136	0.3	17.106	59.23		0.454			
	4043	40.74	9.77	0.457	40.27	-0.714	-1.8	17.136	46.42		0.456			
	4328	31.88	9.55	0.461	31.06	-1.232	-4.0	17.177	36.31		0.459			
	4613	24.83	9.26	0.466	23.72	-1.675	-7.1	17.233	28.35		0.463			
US	4898	19.38	8.92	0.471	18.10	-1.953	-10.8	17.297	22.10		0.468			
	5183	15.32	8.54	0.477	13.94	-2.119	-15.2	17.370	17.35	0.60	0.474	1.04E-04	2.18	
	5468	12.30	8.16	0.483	10.96	-2.069	-18.9	17.441	13.81	0.43	0.480	1.01E-04	3.10	
	5753	9.95	7.78	0.490	8.65	-2.014	-23.3	17.515	11.12	0.35	0.487	1.05E-04	3.75	
	6038	8.39	7.45	0.495	7.20	-1.852	-25.7	17.577	9.17	0.24	0.492	9.50E-05	3.36	
UE	6313	6.76	7.05	0.501	5.56	-1.904	-34.3	17.652	7.58	0.30	0.498	1.23E-04	5.17	
	6323	6.96	7.04	0.502	5.79	-1.843	-31.8	17.654	6.86		0.501			
	6488	11.45	7.33	0.497	12.30	1.252	10.2	17.601	9.21		0.499			
	6653	15.54	7.76	0.490	17.55	2.925	16.7	17.518	13.50		0.494			
	6818	20.13	8.16	0.483	22.58	3.579	15.9	17.442	17.83		0.487			
US	6983	25.74	8.58	0.477	28.60	4.190	14.7	17.363	22.93		0.480			
	7148	32.28	8.99	0.470	35.29	4.430	12.6	17.284	29.01	0.69	0.473	9.59E-05	1.45	
	7313	39.81	9.37	0.464	42.75	4.339	10.1	17.212	36.04	0.76	0.467	8.61E-05	3.22	
	7478	47.71	9.73	0.458	50.49	4.113	8.1	17.144	43.76	0.82	0.461	8.26E-05	5.25	
	7643	56.16	10.08	0.452	58.89	4.061	6.9	17.077	51.93	0.92	0.455	8.30E-05	7.93	
	7808	64.60	10.45	0.447	67.92	4.913	7.2	17.008	60.38	0.90	0.450	7.78E-05	9.71	

DCN# EXE808

FUGRO CONSULTANTS, INC.



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-8A - Depth 83.5 - 85.5 ft
 Boring B-2304UD



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-8A - Depth 83.5 - 85.5 ft
 Boring B-2304UD

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Station No.: CRS-7 File Name: B-2304_UD8a
 Task No.: NA Specific Gravity, G_s : 2.710 ☒ Meas. ; ☐ Assumed Ring No.: 7
 Project Name: Exelon (Victoria) Assig. Remarks: _____ Ring Area, A_r (cm²) = 31.684
 TEST TYPE: ☒ 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

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	☐ Constant Effort:	Blows/Tamps per Layer = _____
Boring No.: <u>B-2304UD</u>	☐ LPC Core			☐ Impact/Rammer	Rammer Wgt. (lb) = _____	No. Layers = _____
Sample No.: <u>UD-8</u>	Compositite No.: _____			☐ Pluviated:	Tamper Force (lb) = _____	Drop (in.) = _____
Depth (ft): <u>83.5 - 85.5</u>	Specimen No.: <u>A</u>			☐ 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} (see below)	Soil and Ring Masses	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Ring (g)	330.96	328.66
Container No.	902	2018	2020	959	Mass Ring (g)	215.66	
Mass Moist Soil + Container (g)	129.14	129.17	85.00	58.34	Mass Moist Soil, M _{t,o} or M _{t,at} (g)	115.30	113.00
Mass Dry Soil + Container (g)	107.76	106.81	72.02	52.40	EXCESS DRY SOIL (soil not incl. in final mass above)		
Mass Container (g)	32.15	30.56	30.58	32.11	Container No.		2032
WATER CONTENT (%)	28.28	29.32	31.32	29.28	Mass Dry Soil + Container (g)		31.08
Avg. Initial Water Content, W ₄ (%)	29.64	Final W _{at} :	X Slice ;	Whole Spec.	Mass Container (g)		30.70
	See attached data sheet(s) for additional water contents				Mass Excess Dry Soil, M _{d,es} (g)		0.38

Soil Height: Measurements (mm)				Soil Height: Calculations, (mm)		Initial	Final
Initial		Final		Height of Gauge Block, H_{gb} (1)		0.000	19.050
with Spec.	without Spec.	with Spec.	without Spec.	Reading on Gauge Block, d_{gb}		0.000	0.000
19.340	0.000	12.230	13.100	Avg. Reading on Soil, d_{soil}		19.304	12.212
19.290	0.000	12.110	13.060	Avg. Reading on Apparatus without Specimen, d_{app}		0.000	13.040
19.290	0.000	12.180	13.040	Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$		19.304	18.222
19.320	0.000	12.270	13.010	Soil Height: Final by Dial Change During Test (mm)			
19.280	0.000	12.270	12.990	Initial Height, H_o		19.304	
☐ Yes ; ☒ No	☒ Yes ; ☐ No	☒ Yes ; ☐ No	☐ Yes ; ☒ No	Require H_{gb} & d_{gb} (1)	Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,f}$	1.203	
☐ Yes ; ☒ No	☒ Yes ; ☐ No	☒ Yes ; ☐ No	☐ Yes ; ☒ No	Filter Paper Included:	Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,f}$	18.101	
(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 Soil Height Measurement, $H_{f,m}$	18.222	
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.					Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$	-0.63	

Estimated Initial Unit Weight		Soil Extruded During Loading	
Total, $\gamma_{t,o}$ (pcf) = <u>117.68</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>90.78</u>	Container No.	
Filter Paper Used: ☒ Whatman No. 54; ☐ Other		Mass Dry Soil + Cont. (g)	NA
Incremental Test: Top & Bottom: ☐ Yes ; ☐ No		Mass Cont. (g)	NA
CRS Test: Top Only: ☒ Yes ; ☐ No		Dry Mass - Soil Extruded During Loading, $M_{d,el}$ (g)	0.00

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

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

Trimming/Etc. Remarks: _____

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

Trim./Recon. By: JTG Setup By: JTG Prelim. Calc. By: DH Take Down By: JTG
 Date: 3/27/2008 Date: 3/27/2008 Final Calc. By: DH Date: 4/17/2008
 Reviewed By: 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-7 File Name: B-2304_UD8a
 Task No.: NA Specific Gravity, G_s : 2.710 ☒ Measured ; ☐ Assumed.
 Calculations Corrected for Salt (dissolved solids): ☒ 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.	Dial
1	Initial, Top, W1	28.28	89.88	91.1	94.5	96.0
2	" Bottom, W2	29.32	89.16	92.9	96.4	97.9
3	" Sides, W3	31.32	87.80	96.0	99.9	101.4
4	" Average, W4	29.64	88.94	93.4	97.0	98.5
5	" Back Calculated (1)	31.34	87.79 (3)	96.0	99.9	101.4
6	Final	29.28	87.79 (2)	96.0	99.9	101.4

Calculated Specific Gravity for Final Saturation = 100%:

Used Cal. Routine No. 5 to obtain the mass of dry soil
 and final height by: ☒ Measurement; ☐ Dial Change.
 Back Cal. G_s = 2.708
 Avg. G_s (measured/assumed) & Back Cal. G_s = 2.709

Calculation Constant, K

= (unit conversion) / $G_s \times \rho_w \times A_r$
 Estimated, K_e 0.11667
 Final Selected, K_f 0.11667

Calculated Mass Dry Soil for Final Saturation = 100%:

using measured/assumed G_s
 and final height by: ☒ Measurement; ☐ Dial Change.
 Back Cal. Mass Dry Soil, (g) = 87.75
 Avg. Back Calculated and Measured Mass Dry Soil (g) = 87.77

Summary of Specimen Physical Properties

Specific Gravity $G_s = 2.710$		☐ Assumed	To make $S_r = 100\%$ at end of test.					
		☒ Measured	Avg. of measured/assumed G_s and G_s to make $S_r = 100\%$					
Mass Dry Soil, (g)	Initial: 87.79	☒ From Cal. Routine No. 5	Note: Routine #5 is based on final measurements.					
	Final (4): NA	☐ Make $S_r = 100\%$, or;	Avg. of measured & make $S_r = 100\%$					
Initial Height (mm) =		19.30	☒ Measured ;		Back Calculated	Back-cal. Sat. (%) = NA		
Final Height (mm) =		18.22	☒ 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	31.3	0.885	96.0	117.7	89.6	10.243	From	To (ksf)
Final	28.7	0.779	99.9	122.2	94.9	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ϵ_a (%)	CR	RR	OCR	Liquid Limit (LL)	61	Minus 200 (%)
Casagrande Method	26.60	NA	0.180	0.083	3.1	Plastic Limit (PL)	26	93.7
Becker Method	NA	Becker minimum σ'_p (ksf):		NA	Plasticity Index (PI)	35		

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: 4/22/2008

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-7 File Name: B-2304_UD8a
 Task No.: NA Date; Start: 3/27/2008 Initial Height, H_o (mm): 19.30
 Project Name: Exelon (Victoria) Completed: 4/17/2008 Ring Area, A_r (cm²): 31.6844
 Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 ☒ Undisturbed or ; ☐ Reconstituted - Specimen.
 Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.52337 ,V: 0.023161541 Piston Uplift, P_{up} (lbf): 34.64
 Back Pressure, $U_{b,CS}$ (psi): 70.52399 ,V: 0.023161744 Setup DT_{ref} (V): 0.001766231
 Displacement Transducer No.: DT-107 Calib. Factor (mm/V): 226.37841 Ch. No.: 2
 Pore Press. Transducer No.: PT-114 Calib. Factor (psi/V): 3029.45109 Ref. Zero (V): -0.000118 Ch. No.: 3
 Force Cell No.: FT-107 Calib. Factor (lbf/V): -155699.54 Ref. Zero (V): -0.000155 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: ☒ compression; or ☐ swell.

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

Data Management By: DH Reviewed By: HP

Remarks: _____

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, $\Delta \epsilon_{ac,rate}$ (%/hr)
S	87	15 : 26 : 11		0.17		0.000			
BS	87	16 : 01 : 12		2.22		0.040	0.000	0.040	
BE	88	11 : 59 : 15		5.71	0.000	-0.006	0.000	-0.006	
CS	88	11 : 59 : 18	0	5.71	0.000	-0.006	0.000	-0.006	
	88	13 : 42 : 13	103	10.21	2.044	0.068	0.000	0.068	0.225
	88	17 : 06 : 55	308	13.50	4.015	0.156	0.000	0.156	0.133
	88	21 : 26 : 57	568	17.18	5.715	0.261	0.000	0.261	0.125
US	89	01 : 46 : 59	828	21.05	7.218	0.368	0.000	0.368	0.128
	89	06 : 07 : 00	1088	24.68	8.257	0.469	0.000	0.469	0.122
	89	10 : 27 : 01	1348	28.15	9.034	0.572	0.000	0.572	0.122
	89	14 : 47 : 03	1608	32.05	9.965	0.671	0.000	0.671	0.119
	89	19 : 07 : 04	1868	35.96	10.814	0.776	0.000	0.776	0.125
	89	23 : 27 : 06	2128	39.93	11.677	0.878	0.000	0.878	0.122
	90	03 : 47 : 07	2388	44.14	12.693	0.979	0.000	0.979	0.121
	90	08 : 07 : 09	2648	48.52	13.782	1.082	0.000	1.082	0.123
	90	12 : 27 : 11	2908	52.88	14.756	1.183	0.000	1.183	0.120
	90	16 : 47 : 12	3168	57.60	15.933	1.283	0.000	1.283	0.120
	90	21 : 07 : 13	3428	62.14	16.814	1.383	0.000	1.383	0.119
	91	01 : 27 : 14	3688	67.12	17.952	1.483	0.000	1.483	0.119
	91	05 : 47 : 16	3948	71.98	18.935	1.580	0.000	1.580	0.116
	91	10 : 07 : 17	4208	77.17	20.108	1.676	0.000	1.676	0.114
UE	91	14 : 27 : 19	4468	82.36	21.026	1.773	0.000	1.773	0.116
	91	18 : 47 : 20	4728	87.79	21.929	1.871	0.000	1.871	0.117
	91	23 : 07 : 21	4988	92.28	21.740	1.957	0.000	1.957	0.102

**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, $\Delta \epsilon_{ac,rate}$ (%/hr)
	92	01 : 29 : 05	5130	95.74	22.466	2.006	0.000	2.006	0.108
	92	01 : 47 : 23	5148	94.45	21.770	2.007	0.000	2.007	0.021
	92	14 : 07 : 28	5888	65.31	0.772	1.956	0.000	1.956	-0.021
	93	02 : 27 : 33	6628	51.00	-2.973	1.865	0.000	1.865	-0.038
	93	14 : 47 : 38	7368	39.85	-4.489	1.749	0.000	1.749	-0.049
US	94	03 : 07 : 43	8108	30.56	-5.861	1.623	0.000	1.623	-0.053
	94	15 : 27 : 48	8849	23.63	-6.436	1.483	0.000	1.483	-0.059
	95	03 : 47 : 53	9589	17.96	-6.776	1.345	0.000	1.345	-0.058
	95	16 : 07 : 57	10329	13.42	-7.033	1.200	0.000	1.200	-0.061
	96	04 : 28 : 03	11069	9.71	-7.186	1.049	0.000	1.049	-0.063
	96	16 : 48 : 08	11809	6.82	-6.926	0.894	0.000	0.894	-0.065
UE	97	06 : 08 : 15	12609	4.56	-6.693	0.733	0.000	0.733	-0.063
	97	11 : 48 : 17	12949	12.09	-4.861	0.818	0.000	0.818	0.078
	97	16 : 48 : 19	13249	18.20	-1.863	0.924	0.000	0.924	0.110
	97	21 : 48 : 21	13549	24.84	3.392	1.022	0.000	1.022	0.101
US	98	02 : 48 : 23	13849	31.67	8.371	1.129	0.000	1.129	0.112
	98	07 : 48 : 25	14149	38.26	11.948	1.235	0.000	1.235	0.109
	98	12 : 48 : 27	14449	44.83	14.729	1.345	0.000	1.345	0.114
	98	17 : 48 : 29	14749	51.30	16.597	1.455	0.000	1.455	0.114
	98	22 : 48 : 32	15049	58.27	18.191	1.561	0.000	1.561	0.110
	99	03 : 48 : 34	15349	65.13	19.413	1.669	0.000	1.669	0.111
	99	08 : 48 : 35	15649	72.59	20.772	1.773	0.000	1.773	0.108
	99	13 : 48 : 37	15949	80.28	21.819	1.877	0.000	1.877	0.108
	99	18 : 48 : 39	16249	88.11	22.661	1.980	0.000	1.980	0.107
	99	23 : 48 : 40	16549	96.54	23.819	2.079	0.000	2.079	0.102
	100	04 : 48 : 42	16849	104.73	25.257	2.177	0.000	2.177	0.102
	100	09 : 48 : 44	17149	113.15	27.430	2.277	0.000	2.277	0.103
UE	100	14 : 48 : 47	17449	121.01	27.570	2.377	0.000	2.377	0.104
	100	19 : 48 : 49	17750	129.57	29.196	2.472	0.000	2.472	0.099
	101	00 : 48 : 50	18050	138.76	31.864	2.566	0.000	2.566	0.097
	101	05 : 48 : 51	18350	148.22	33.606	2.663	0.000	2.663	0.101
	101	10 : 48 : 54	18650	157.08	35.877	2.763	0.000	2.763	0.103
	101	11 : 58 : 42	18719	159.45	36.327	2.785	0.000	2.785	0.100
	101	12 : 08 : 54	18730	158.66	35.914	2.788	0.000	2.788	0.096
	102	04 : 49 : 03	19730	113.24	2.960	2.740	0.000	2.740	-0.015
	102	21 : 29 : 11	20730	86.74	-2.475	2.637	0.000	2.637	-0.032
	103	14 : 09 : 16	21730	66.95	-4.889	2.506	0.000	2.506	-0.041
	104	06 : 49 : 21	22730	51.63	-6.450	2.347	0.000	2.347	-0.049
US	104	23 : 29 : 28	23730	40.36	-7.334	2.184	0.000	2.184	-0.051
	105	16 : 09 : 35	24730	29.37	-7.993	1.994	0.000	1.994	-0.059
	106	08 : 49 : 40	25730	21.62	-8.375	1.801	0.000	1.801	-0.060
	107	01 : 29 : 50	26731	15.94	-8.557	1.611	0.000	1.611	-0.059

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

[illegible]

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

Project Number: 0411-08-1686 Test Station No.: CRS-7 ☒ Undisturbed or; ☐ Reconstituted - Specimen. File Name: B-2304_UD8
 Task No.: NA Date; Start: 3/27/2008 Back Pressure, $U_{b,cs}$ (psi): 70.5 Piston Uplift, P_{up} (lbf): 34.64
 Project Name: Exelon (Victoria) Completed: 4/17/2008 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: Mottled Brownish Yellow and Pale Yellow Fat CLAY (CH)

Ring No.: 7 Area, A_r (cm²): 31.684 Solids Ht., H_s (mm): 10.243 Specific Gravity, $G_s =$ 2.710 ☒ Meas.; ☐ Assumed
 Initial: Height H_o : 19.30 Water 31.3 Void 0.885 Deg. of 96.0 Total Unit 117.7 Dry Unit 89.6
 Final: (mm): H_f : 18.22 Content, w (%): 28.7 Ratio, e : 0.779 Sat., S (%): 99.9 Weight, γ_t (pcf): 122.2 Weight, γ_d (pcf): 94.9

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: DH

Reviewed By: HP

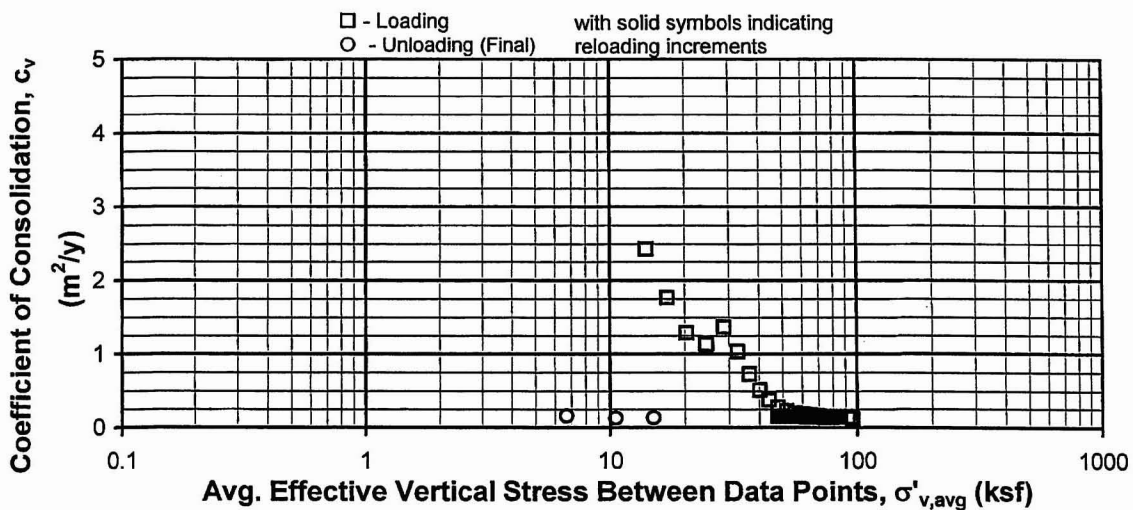
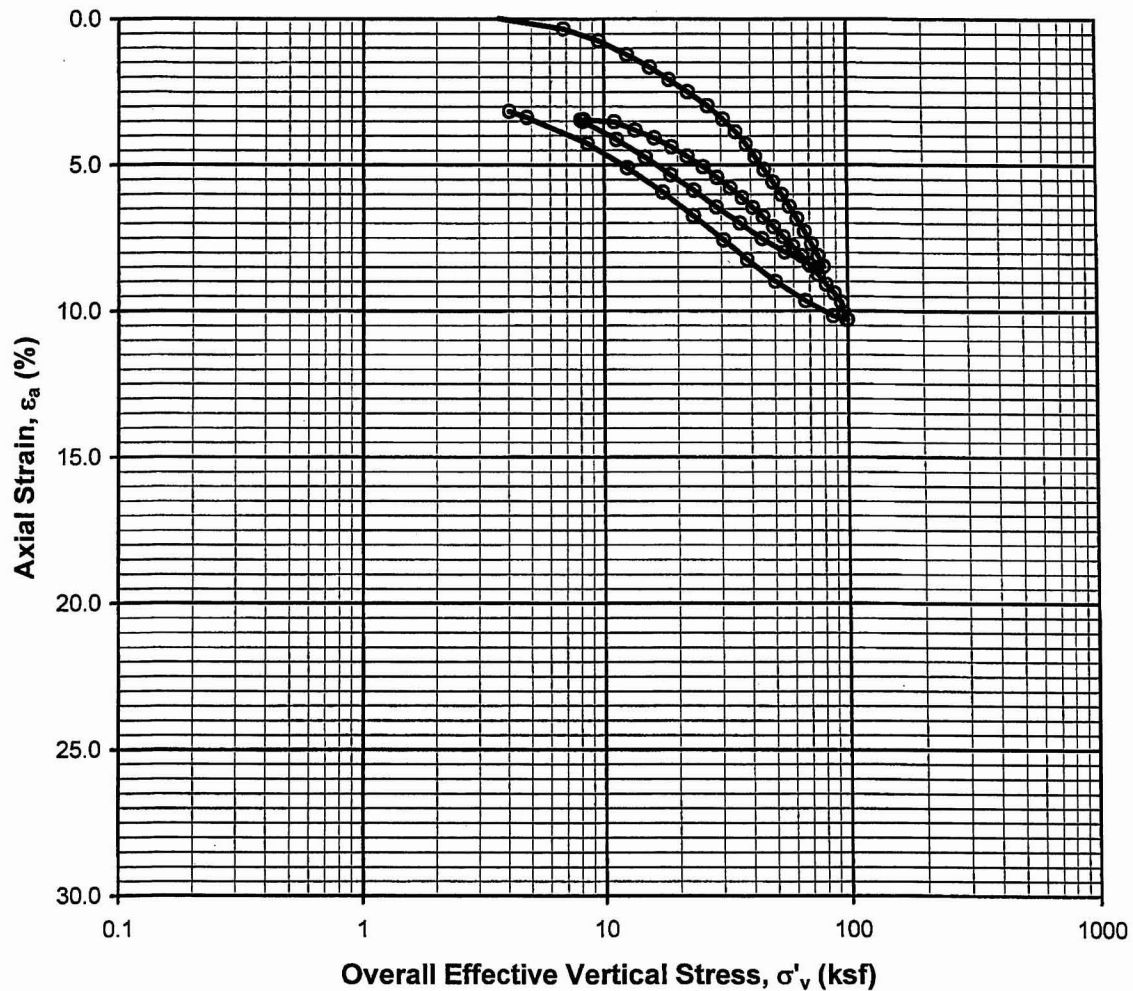
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\varepsilon_{v,n}$ ($\varepsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess 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				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), $C_\alpha = \frac{\Delta d_{a,sc}}{H_o} (\times 10^{-4})$
									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)		
S					0.17				Data on given line represents average conditions					
BS			0.21	0.881	2.22			19.264	between that line and the previous line of data.					
BE		5.71	-0.03	0.885	5.71	0.000	0.0	19.310			0.883			
CS	0	5.71	-0.03	0.885	5.71	0.000	0.0	19.310			0.885			
	103	8.80	0.35	0.878	10.21	2.044	20.0	19.236	7.26		0.882			
	308	10.66	0.81	0.869	13.50	4.015	29.7	19.148	9.73		0.874			
	568	13.12	1.35	0.859	17.18	5.715	33.3	19.043	11.89		0.864			
US	828	15.91	1.90	0.849	21.05	7.218	34.3	18.936	14.51		0.854			
	1088	18.81	2.43	0.839	24.68	8.257	33.5	18.835	17.36		0.844		0.39	
	1348	21.75	2.96	0.829	28.15	9.034	32.1	18.732	20.28		0.834		0.66	
	1608	25.00	3.48	0.819	32.05	9.965	31.1	18.633	23.37	0.12	0.824	4.20E-05	1.03	
	1868	28.33	4.02	0.809	35.96	10.814	30.1	18.528	26.66	0.11	0.814	3.97E-05	1.26	
	2128	31.71	4.55	0.799	39.93	11.677	29.2	18.426	30.02	0.10	0.804	3.53E-05	1.49	
	2388	35.21	5.07	0.789	44.14	12.693	28.8	18.325	33.46	0.10	0.794	3.20E-05	1.76	
	2648	38.83	5.61	0.779	48.52	13.782	28.4	18.222	37.02	0.09	0.784	2.96E-05	1.97	
	2908	42.52	6.13	0.769	52.88	14.756	27.9	18.121	40.67	0.09	0.774	2.64E-05	2.08	
	3168	46.42	6.65	0.759	57.60	15.933	27.7	18.021	44.47	0.09	0.764	2.42E-05	2.37	

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

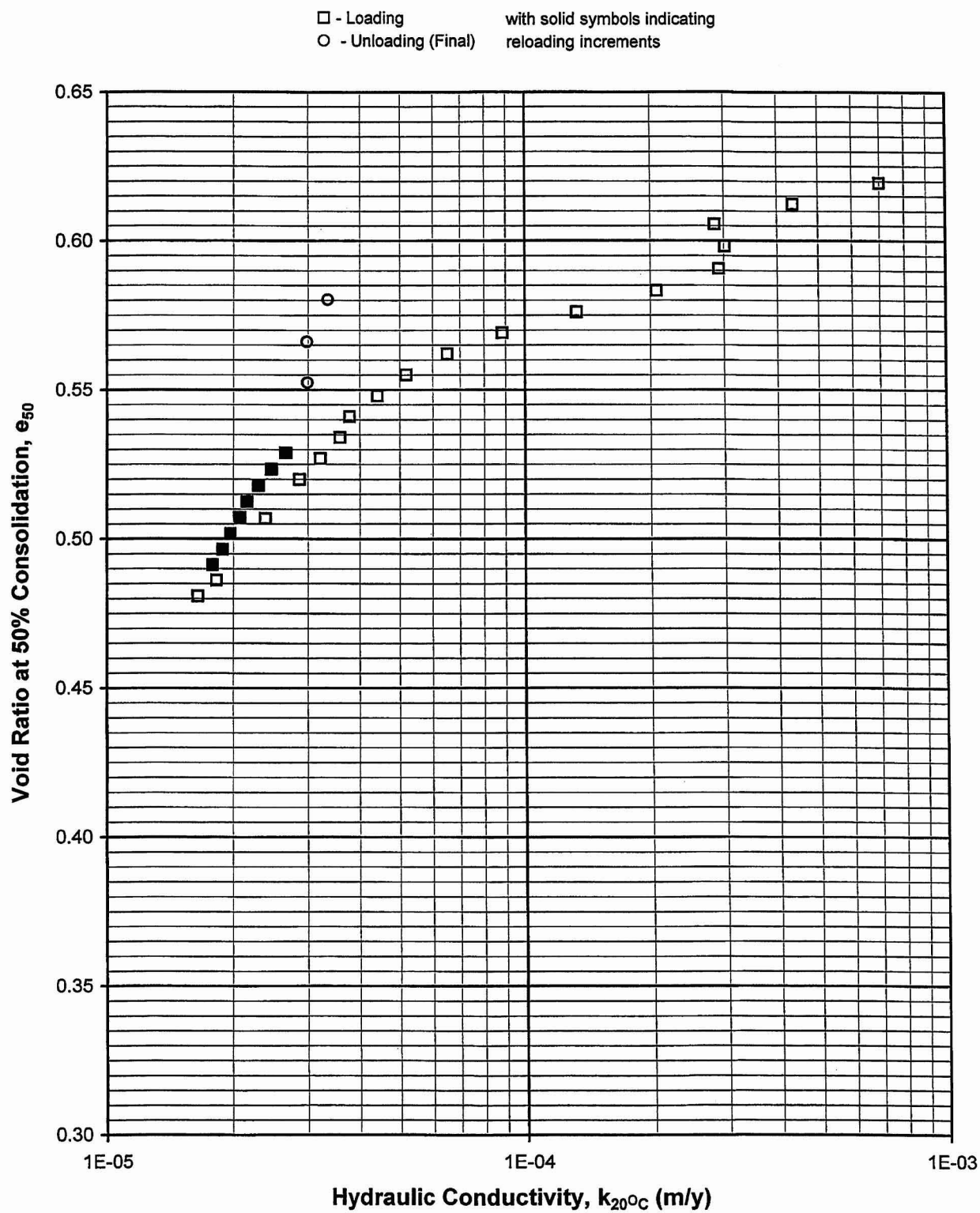
Loading Info. (1)	Elapsed Time from Start of Loading, Δt_n (min)	Overall Effective Vertical Stress, $\sigma'_{v,n}$ (ksf)	Corrected Volumetric (Axial) Strain, $\epsilon_{v,n}$ ($\epsilon_{ac,n}$) $\Delta H_{c,n} / H_o$ (%)	Overall Void Ratio, e_n	Total Vertical Stress, $\sigma_{v,n}$ (ksf)	Excess Pore-Water 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				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), $c_{\alpha} = \frac{\Delta d_{a,sc}}{H_o} (\times 10^{-4})$
									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)		
	3428	50.35	7.16	0.750	62.14	16.814	27.1	17.921	48.39	0.08	0.755	2.23E-05	2.37	
	3688	54.54	7.68	0.740	67.12	17.952	26.7	17.821	52.45	0.08	0.745	2.08E-05	2.71	
	3948	58.73	8.19	0.730	71.98	18.935	26.3	17.724	56.64	0.07	0.735	1.88E-05	2.72	
	4208	63.10	8.68	0.721	77.17	20.108	26.1	17.628	60.91	0.07	0.726	1.72E-05	2.98	
UE	4468	67.66	9.19	0.712	82.36	21.026	25.5	17.531	65.38	0.07	0.716	1.65E-05	3.06	
	4728	72.48	9.69	0.702	87.79	21.929	25.0	17.433	70.07		0.707			
	4988	77.14	10.14	0.694	92.28	21.740	23.6	17.347	74.81		0.698			
	5130	80.10	10.39	0.689	95.74	22.466	23.5	17.298	78.62		0.691			
	5148	79.31	10.40	0.689	94.45	21.770	23.0	17.297	79.71		0.689			
	5888	64.79	10.13	0.694	65.31	0.772	1.2	17.348	72.05		0.691			
	6628	52.97	9.66	0.703	51.00	-2.973	-5.8	17.439	58.88		0.698			
	7368	42.79	9.06	0.714	39.85	-4.489	-11.3	17.555	47.88		0.708			
US	8108	34.36	8.41	0.726	30.56	-5.861	-19.2	17.681	38.57		0.720			
	8849	27.75	7.68	0.740	23.63	-6.436	-27.2	17.821	31.05	0.14	0.733	2.60E-05	1.26	
	9589	22.23	6.97	0.753	17.96	-6.776	-37.7	17.959	24.99	0.11	0.747	2.41E-05	1.99	
	10329	17.77	6.21	0.768	13.42	-7.033	-52.4	18.104	20.00	0.09	0.760	2.43E-05	2.40	
	11069	14.05	5.43	0.782	9.71	-7.186	-74.0	18.255	15.91	0.08	0.775	2.46E-05	2.70	
	11809	10.88	4.63	0.797	6.82	-6.926	-101.6	18.410	12.46	0.07	0.790	2.54E-05	2.87	
UE	12609	8.32	3.80	0.813	4.56	-6.693	-146.9	18.571	9.60	0.06	0.805	2.53E-05	2.88	
	12949	15.15	4.24	0.805	12.09	-4.861	-40.2	18.486	11.74		0.809			
	13249	19.42	4.79	0.794	18.20	-1.863	-10.2	18.380	17.28		0.800			
	13549	22.52	5.29	0.785	24.84	3.392	13.7	18.282	20.97		0.790			
US	13849	25.81	5.85	0.774	31.67	8.371	26.4	18.175	24.16		0.780			
	14149	29.81	6.40	0.764	38.26	11.948	31.2	18.069	27.81		0.769		0.55	
	14449	34.38	6.97	0.753	44.83	14.729	32.9	17.959	32.09		0.759		0.82	
	14749	39.53	7.54	0.743	51.30	16.597	32.4	17.849	36.95	0.10	0.748	2.25E-05	1.02	
	15049	45.40	8.09	0.732	58.27	18.191	31.2	17.743	42.47	0.09	0.737	1.92E-05	1.33	
	15349	51.44	8.64	0.722	65.13	19.413	29.8	17.635	48.42	0.08	0.727	1.77E-05	1.53	
	15649	57.98	9.18	0.712	72.59	20.772	28.6	17.531	54.71	0.09	0.717	1.58E-05	1.89	
	15949	64.98	9.72	0.701	80.28	21.819	27.2	17.427	61.48	0.08	0.706	1.47E-05	2.16	

DCN# EXE808

FUGRO CONSULTANTS, INC.



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-11A - Depth 111.0 - 113.0 ft
 Boring B-2304UD



1-D CONSOLIDATION TEST: CRS
 Sample No. UD-11A - Depth 111.0 - 113.0 ft
 Boring B-2304UD

ONE - DIMENSIONAL CONSOLIDATION TEST: Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Station No.: CRS-11 File Name: B-2304_UD11a
 Task No.: NA Specific Gravity, G_s : 2.720 ☒ Meas. ; ☐ Assumed Ring No.: 10
 Project Name: Exelon (Victoria) Assig. Remarks: Ring Area, A_r (cm²) = 31.644
 TEST TYPE: ☒ 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

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	☐ Constant Effort:	Blows/Tamps per Layer =
Boring No.: B-2304UD	☐ LPC Core	☐ Impact/Rammer		Rammer Wgt. (lbf) =	No. Layers =	
Sample No.: UD-11	Compostite No.:	☐ Pluviated:		Tamper Force (lbf) =	Drop (in.) =	
Depth (ft): 111.0 - 113.0	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} (see below)	Soil and Ring Masses	Initial	Final	
		Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Ring (g)	338.09	337.95	
Container No.		S6	836	2012	829	Mass Ring (g)	215.51		
Mass Moist Soil + Container (g)		114.74	122.27	104.11	65.84	Mass Moist Soil, M _{t,o} or M _{t,at} (g)	122.58	122.44	
Mass Dry Soil + Container (g)		100.31	106.23	90.54	59.75	EXCESS DRY SOIL (soil not incl. in final mass above)			
Mass Container (g)		30.33	32.32	30.56	32.30	Container No.		2014	
WATER CONTENT (%)		20.62	21.70	22.62	22.19	Mass Dry Soil + Container (g)		30.36	
Avg. Initial Water Content, W4 (%)		21.65	Final W _{at} : X		Slice ;	Whole Spec.	Mass Container (g)		30.24
See attached data sheet(s) for additional water contents							Mass Excess Dry Soil, M _{d,es} (g)		0.12

Soil Height: Measurements (mm)				Soil Height: Calculations, (mm)		Initial	Final
Initial		Final		Height of Gauge Block, H_{gb} (1)		0.000	19.050
with Spec.	without Spec.	with Spec.	without Spec.	Reading on Gauge Block, d_{gb}		0.000	0.000
19.190	0.000	12.980	13.280	Avg. Reading on Soil, d_{soil}		19.186	12.948
19.210	0.000	12.880	13.200	Avg. Reading on Apparatus without Specimen, d_{app}		0.000	13.238
19.180	0.000	12.940	13.220	Soil Height, $H = d_{soil} - d_{app} + H_{gb} - d_{gb}$		19.186	18.760
19.170	0.000	13.020	13.260	Soil Height: Final by Dial Change During Test (mm)			
19.180	0.000	12.920	13.230	Initial Height, H_o		19.186	
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Require H_{gb} & d_{gb} (1)		Final (end of test) Corr. Total Spec. Deformation, $\Delta H_{c,t}$	
☐ Yes ;	☒ No	☒ Yes ;	☐ No	Filter Paper Included:		Final Calculated Height, $H_{f,c} = H_o - \Delta H_{c,t}$	
(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 Soil Height Measurement, $H_{f,m}$		18.760	
Enter value of H_{gb} & d_{gb} only when that value has to be included in the determination of the soil height.				Normalized Difference in %, $(H_{f,c} - H_{f,m})/H_o$		-0.94	

Estimated Initial Unit Weight		Soil Extruded During Loading	
Total, $\gamma_{t,o}$ (pcf) = 126.04	Dry, $\gamma_{d,o}$ (pcf) = 103.61	Container No.	
Filter Paper Used: ☒ Whatman No. 54; ☐ Other		Mass Dry Soil + Cont. (g)	NA
Incremental Test: Top & Bottom: ☐ Yes ; ☐ No		Mass Cont. (g)	NA
CRS Test: Top Only: ☒ Yes ; ☐ No		Dry Mass - Soil Extruded During Loading, $M_{d,el}$ (g)	0.00

Photo taken of Sliced Test Specimen: ☐ Yes ; ☒ No

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

Trimming/Etc. Remarks:

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

Trim./Recon. By: JTG Setup By: JTG Prelim. Calc. By: LF Take Down By: JTG
 Date: 3/27/2008 Date: 3/27/2008 Final Calc. By: LF Date: 4/5/2008
 Reviewed By: 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-11 File Name: B-2304_UD11a
 Task No.: NA Specific Gravity, G_s : 2.720 ☒ Measured ; ☐ Assumed.
 Calculations Corrected for Salt (dissolved solids): ☒ 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.	Dial
1	Initial, Top, W1	20.62	101.62	90.2	95.1	97.6
2	" Bottom, W2	21.70	100.72	92.7	97.7	100.3
3	" Sides, W3	22.62	99.96	94.8	99.9	102.5
4	" Average, W4	21.65	100.77	92.6	97.6	100.1
5	" Back Calculated (1)	22.18	100.33 (3)	93.8	98.8	101.4
6	Final	22.19	100.33 (2)	93.8	98.8	101.4

Calculated Specific Gravity for Final Saturation = 100%:

Used Cal. Routine No. 5 to obtain the mass of dry soil
 and final height by: ☒ Measurement; ☐ Dial Change.
 Back Cal. G_s = 2.701
 Avg. G_s (measured/assumed) & Back Cal. G_s = 2.710

Calculation Constant, K

= (unit conversion) / $G_s \times \rho_w \times A_r$
 Estimated, K_e 0.11639
 Final Selected, K_f 0.11639

Calculated Mass Dry Soil for Final Saturation = 100%:

using measured/assumed G_s
 and final height by: ☒ Measurement; ☐ Dial Change.
 Back Cal. Mass Dry Soil, (g) = 99.92
 Avg. Back Calculated and Measured Mass Dry Soil (g) = 100.12

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: 100.33	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) =			19.19	X	Measured ;		Back Calculated Back-cal. Sat. (%) = NA	
Final Height (mm) =			18.76	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	22.2	0.643	93.8	126.0	103.2	11.677	From	To (ksf)
Final	22.0	0.607	98.8	128.8	105.5	NA	NA	NA

Graphical Construction	σ'_p (ksf)	ϵ_a (%)	CR	RR	OCR	Liquid Limit (LL)	77	Minus 200 (%)
Casagrande Method	33.30	NA	0.150	0.068	3.3	Plastic Limit (PL)	19	99.1
Becker Method	NA	Becker minimum σ'_p (ksf):		NA		Plasticity Index (PI)	58	

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
 Date: 3/7/2008

ONE - DIMENSIONAL CONSOLIDATION TEST: CALCULATED CRS LOADING DATA

Project Number: 0411-08-1686 Test Station No.: CRS-11 File Name: B-2304_UD11a
Task No.: NA Date; Start: 3/27/2008 Initial Height, H_o (mm): 19.19
Project Name: Exelon (Victoria) Completed: 4/5/2008 Ring Area, A_r (cm²): 31.6439
Test: Initial / Pressure Gauge Back Pressure, U_G (psi): 70 ☒ Undisturbed or ; ☐ Reconstituted - Specimen.
Reference Values: Back Pressure, $U_{b,BE}$ (psi): 70.21998, V : 0.023022376 Piston Uplift, P_{up} (lbf): 34.48
Back Pressure, $U_{b,CS}$ (psi): 70.20113, V : 0.023016166 Setup DT_{ref} (V): 0.003953888
Displacement Transducer No.: DT-099 Calib. Factor (mm/V): 387.222306 Ch. No.: 2
Pore Press. Transducer No.: PT-122 Calib. Factor (psi/V): 3035.3833 Ref. Zero (V): -0.000111 Ch. No.: 3
Force Cell No.: FT-410 Calib. Factor (lbf/V): -160210.65 Ref. Zero (V): -0.000058 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: ☒ compression; or ☐ swell.
- (4) "App. Flex. Corr." values based on the apparatus calibration.

Data Management By: LF Reviewed By: HP *HP*

Remarks: _____

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 & $n-1$, $\Delta \epsilon_{ac,rate}$ (%/hr)
S	87	15 : 18 : 27		0.16		0.000			
BS	87	15 : 40 : 02		1.54		0.039	0.000	0.039	
BE	88	12 : 12 : 16		3.63	0.003	-0.004	0.000	-0.004	
CS	88	12 : 12 : 19	0	3.63	0.000	-0.004	0.000	-0.004	
	88	13 : 31 : 59	80	7.28	0.685	0.064	0.000	0.064	0.271
	88	15 : 22 : 00	190	10.22	0.990	0.142	0.000	0.142	0.221
US	88	17 : 12 : 01	300	13.11	0.904	0.235	0.000	0.235	0.263
	88	19 : 02 : 02	410	16.29	1.262	0.317	0.000	0.317	0.234
	88	20 : 52 : 03	520	19.98	2.124	0.398	0.000	0.398	0.229
	88	22 : 42 : 04	630	24.22	3.092	0.479	0.000	0.479	0.232
	89	00 : 32 : 05	740	28.09	2.302	0.569	0.000	0.569	0.256
	89	02 : 22 : 07	850	32.65	2.968	0.656	0.000	0.656	0.245
	89	04 : 12 : 08	960	37.51	4.320	0.741	0.000	0.741	0.242
	89	06 : 02 : 10	1070	42.79	6.614	0.823	0.000	0.823	0.233
	89	07 : 52 : 12	1180	48.52	9.654	0.905	0.000	0.905	0.232
	89	09 : 42 : 13	1290	54.52	12.761	0.987	0.000	0.987	0.235
	89	11 : 32 : 15	1400	60.28	15.263	1.069	0.000	1.069	0.234
	89	13 : 22 : 16	1510	65.90	17.363	1.151	0.000	1.151	0.233
	89	15 : 12 : 17	1620	71.37	19.192	1.230	0.000	1.230	0.225
	89	17 : 02 : 18	1730	77.09	21.065	1.314	0.000	1.314	0.237
	89	18 : 52 : 20	1840	83.07	23.161	1.396	0.000	1.396	0.235
	89	20 : 42 : 21	1950	89.14	25.227	1.478	0.000	1.478	0.232
US	89	22 : 32 : 23	2060	95.22	27.264	1.557	0.000	1.557	0.224
	90	00 : 05 : 53	2154	100.48	29.048	1.625	0.000	1.625	0.228