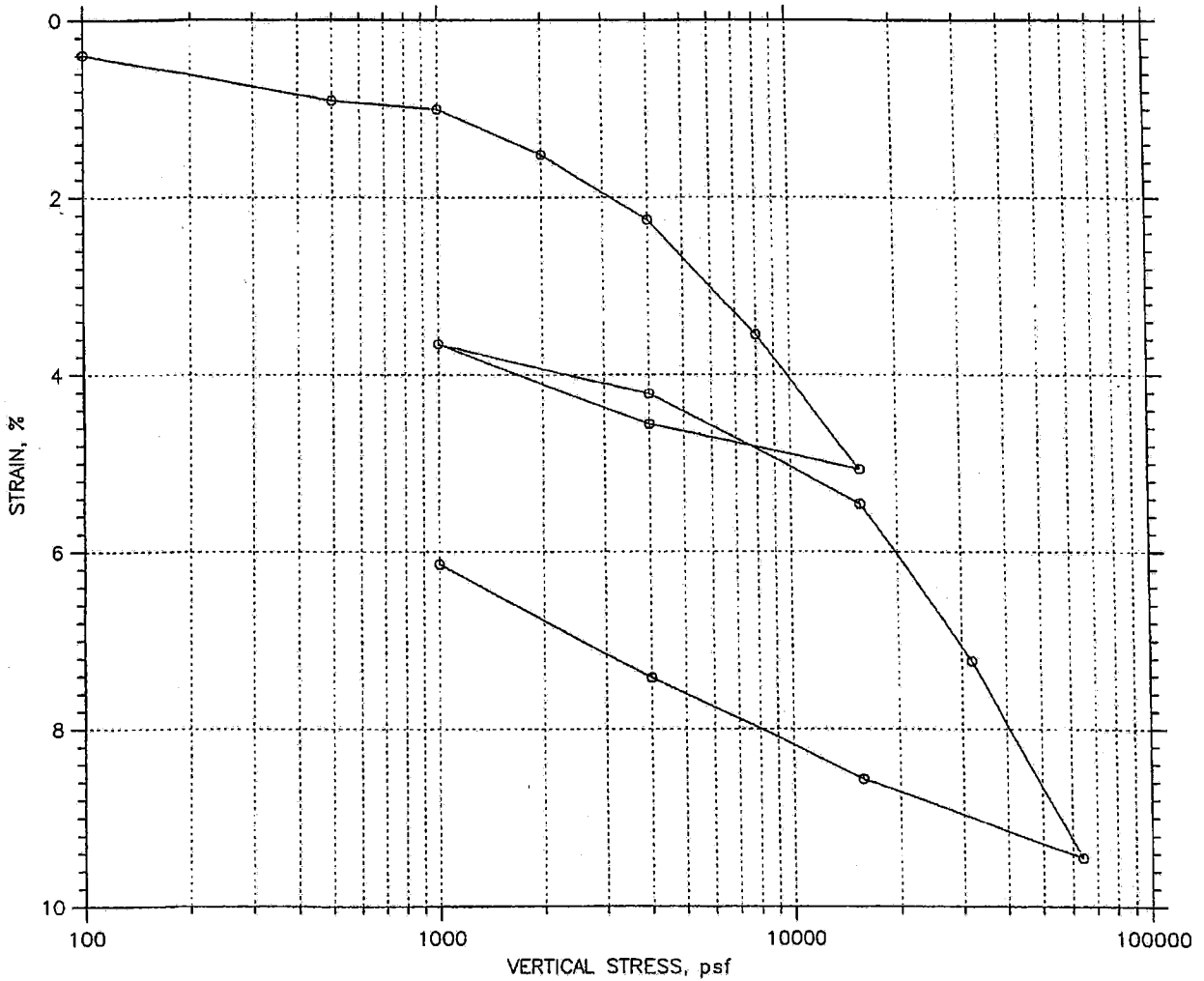


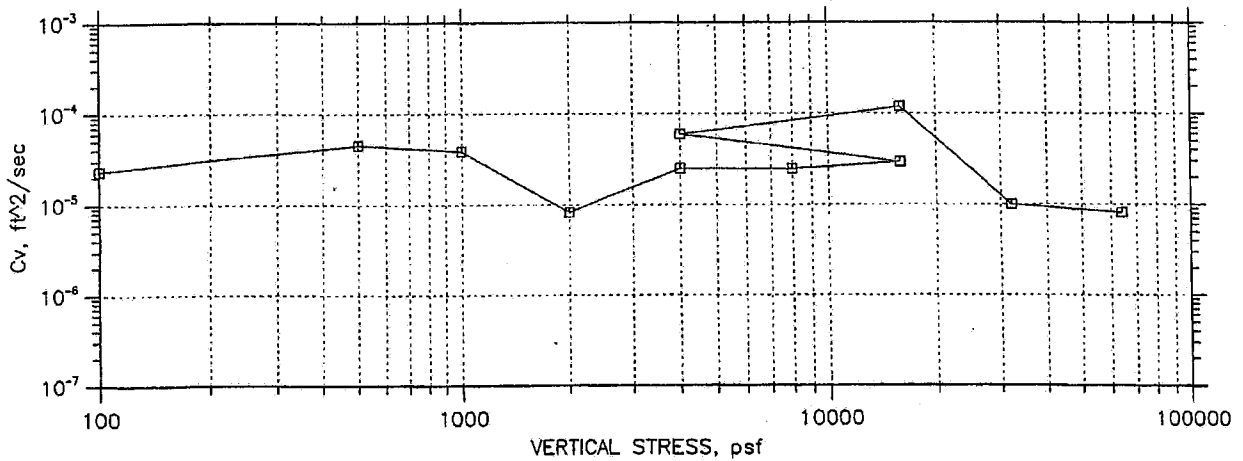
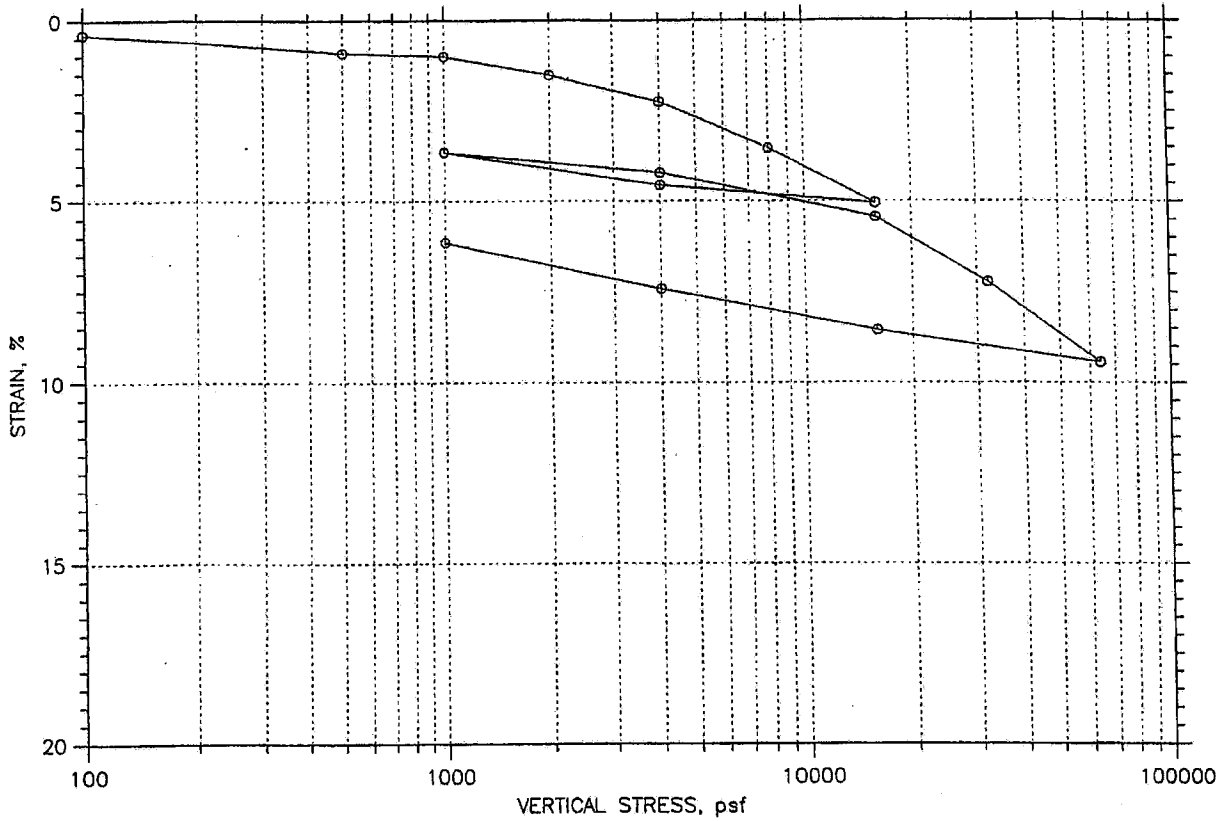
# CONSOLIDATION TEST DATA SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: 1400 psf		Water Content, %		16.44	15.01
Preconsolidation Pressure: 5800 psf		Dry Unit Weight, pcf		113.8	121.2
Compression Index: 0.11		Saturation, %		88.80	99.13
Diameter: 2.499 in	Height: 1.004 in	Void Ratio		0.51	0.42
LL: 33	PL: 15	PI: 18	GS: 2.75		

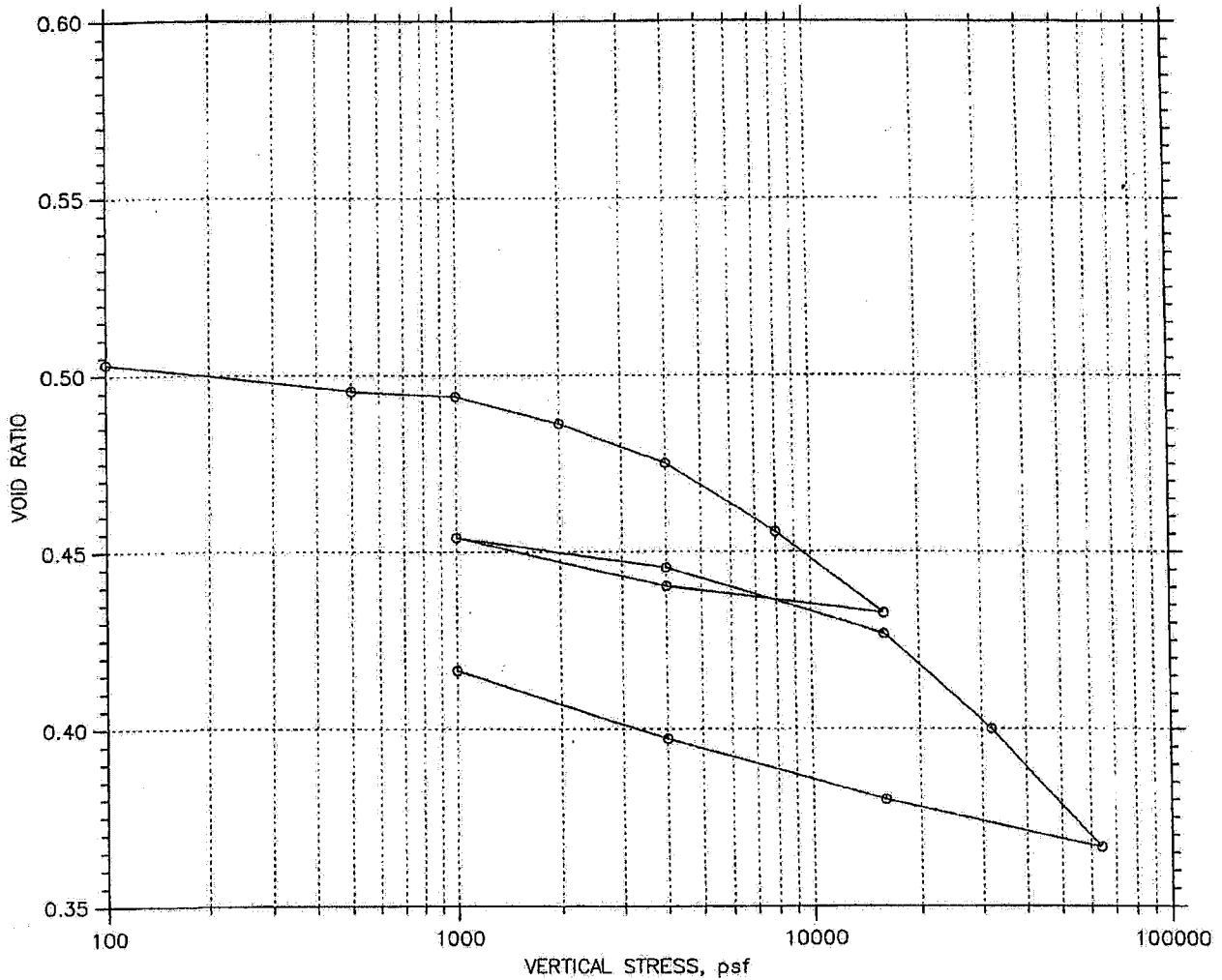
<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-1	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW	
	Sample No.: UD-1	Test Date: 2/1/08	Depth: 10.2-11.9' <i>JW</i>	
	Test No.: 8312	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>	
	Description: Light Yellowish Brown Lean CLAY (CL)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr=0.013

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria Location: 2274UD UD-1	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-1	Test Date: 2/1/08	Depth: 10.2-11.9'
	Test No.: 8312	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Yellowish Brown Lean CLAY (CL)		3/14/08
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.013

## CONSOLIDATION TEST DATA SUMMARY REPORT

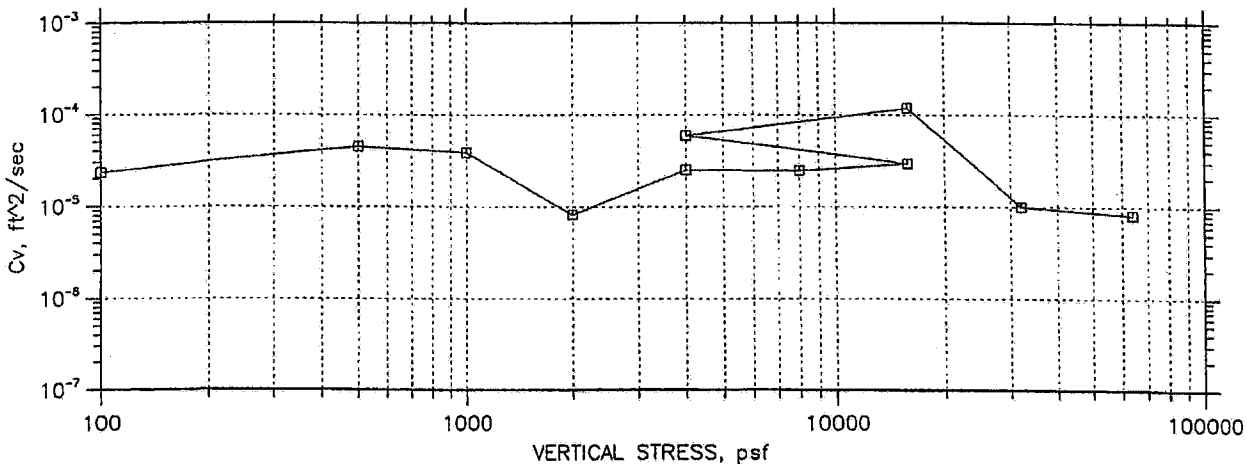
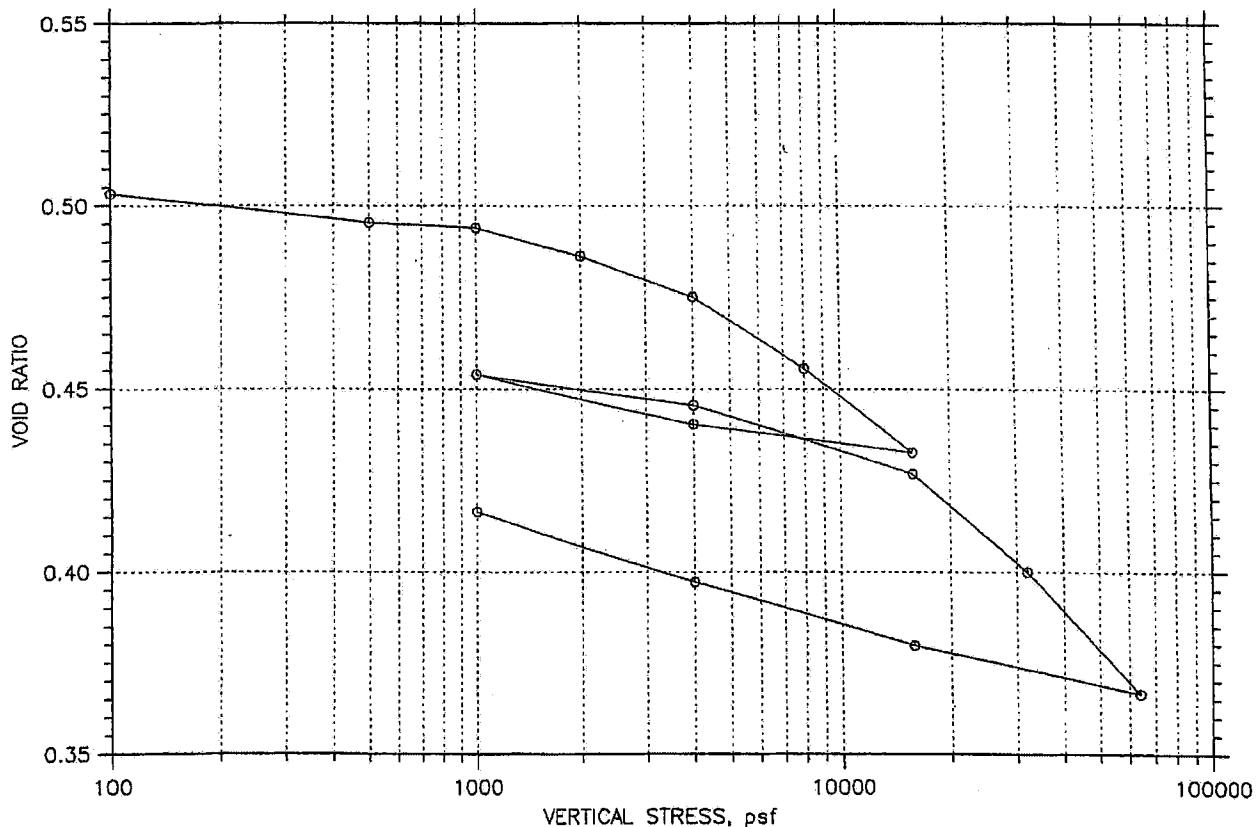


				Before Test	After Test	
Overburden Pressure: 1400 psf				Water Content, %	16.44	15.01
Preconsolidation Pressure: 5800 psf				Dry Unit Weight, pcf	113.8	121.2
Compression Index: 0.11				Saturation, %	88.80	99.13
Diameter: 2.499 in		Height: 1.004 in		Void Ratio	0.51	0.42
LL: 33	PL: 15	PI: 18	GS: 2.75			

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: 2274UD UD-1		Project No.: 6468071777	
	Boring No.: 2274UD		Tested By: HJ		Checked By: JW	
	Sample No.: UD-1		Test Date: 2/1/08		Depth: 10.2-11.9'	
	Test No.: 8312		Sample Type: Undisturbed		Elevation: N/A	
	Description: Light Yellowish Brown Lean CLAY (CL)					
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04					Cr=0.013

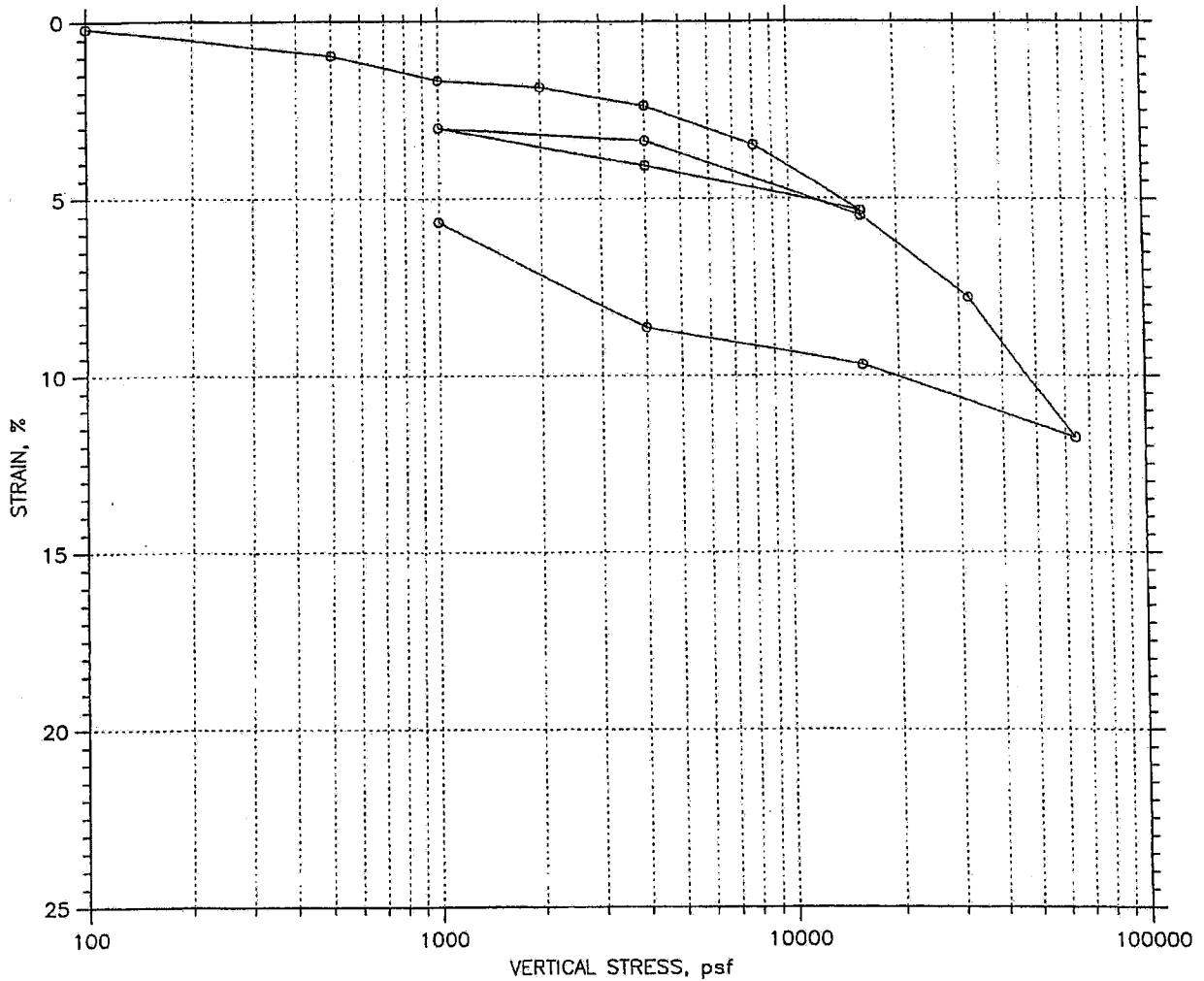
DSC  
2-14-08

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-1	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-1	Test Date: 2/1/08	Depth: 10.2-11.9'
	Test No.: 8312	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Yellowish Brown Lean CLAY (CL)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr=0.013		

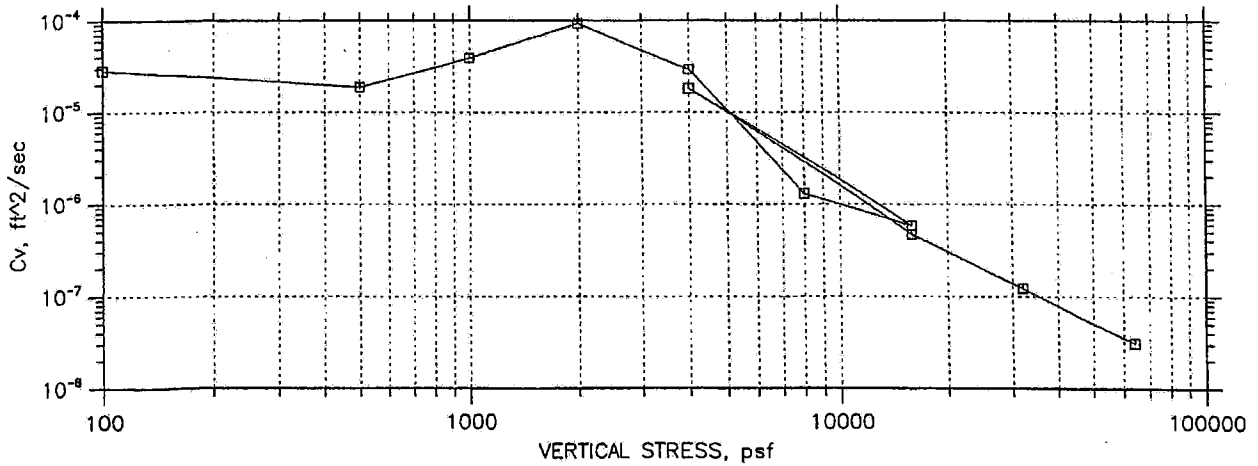
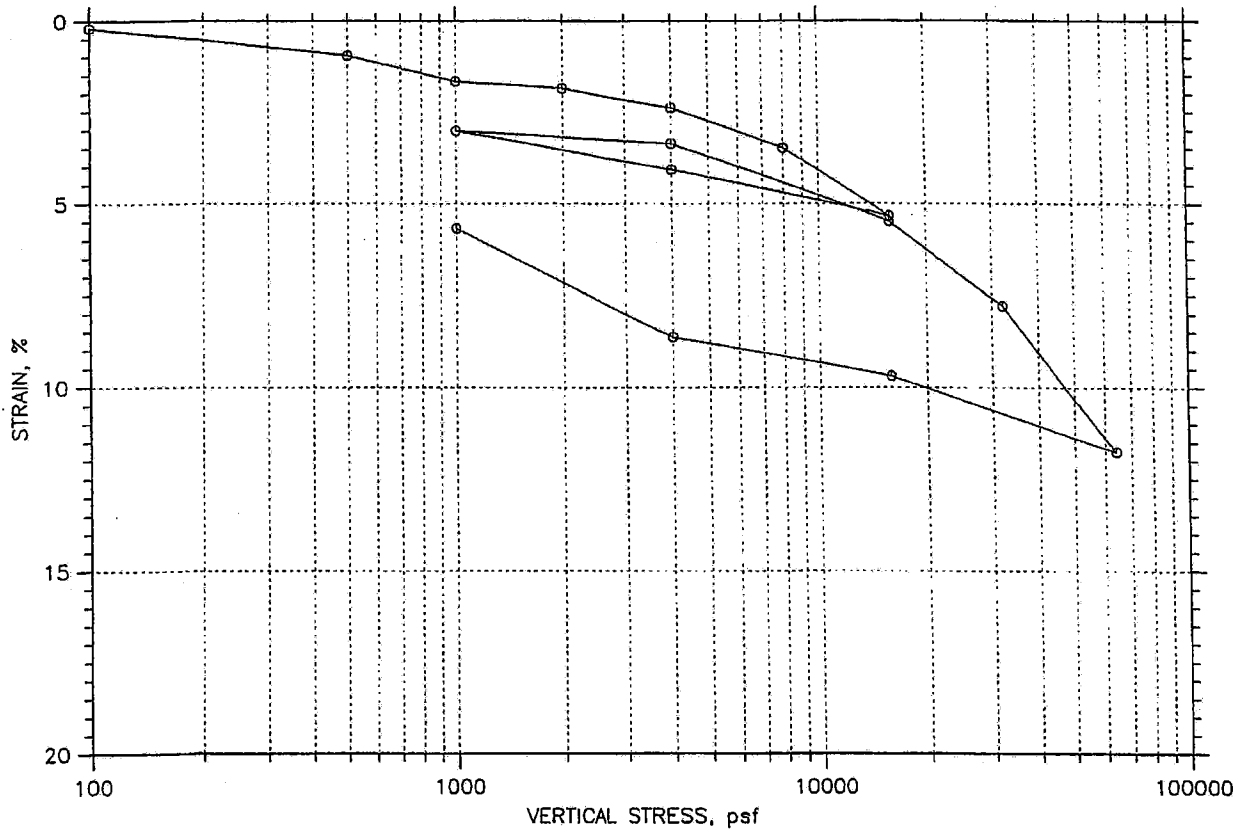
## CONSOLIDATION TEST DATA SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: 7400 psf		Water Content, %		32.60	29.98
Preconsolidation Pressure: 1.71e+004 psf		Dry Unit Weight, pcf		89.24	94.61
Compression Index: 0.252		Saturation, %		96.67	100.76
Diameter: 2.498 in	Height: 0.998 in		Void Ratio	0.93	0.82
LL: 79	PL: 33	PI: 46	GS: 2.76		

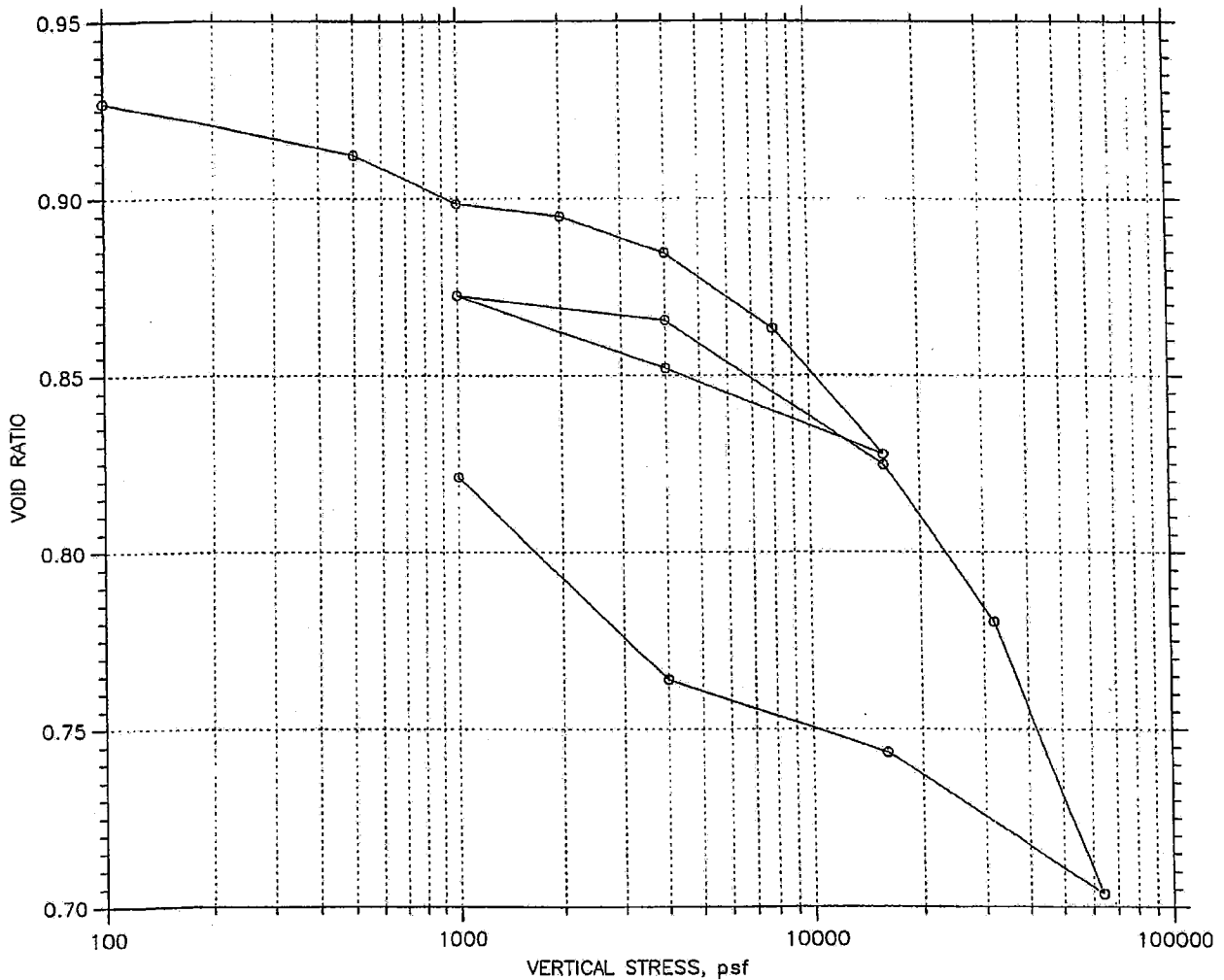
<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: 2274UD UD-4		Project No.: 6468071777	
	Boring No.: 2274UD		Tested By: HJ		Checked By: JW <i>JW</i>	
	Sample No.: UD-4		Test Date: 2/1/08		Depth: 67-68.7'	
	Test No.: 8314		Sample Type: Undisturbed		Elevation: N/A <i>3/14/08</i>	
	Description: Light Yellowish Brown Fat CLAY (CH)					
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr=0.039	

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-4	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW <i>JW</i>
	Sample No.: UD-4	Test Date: 2/1/08	Depth: 67-68.7'
	Test No.: 8314	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Light Yellowish Brown Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.039

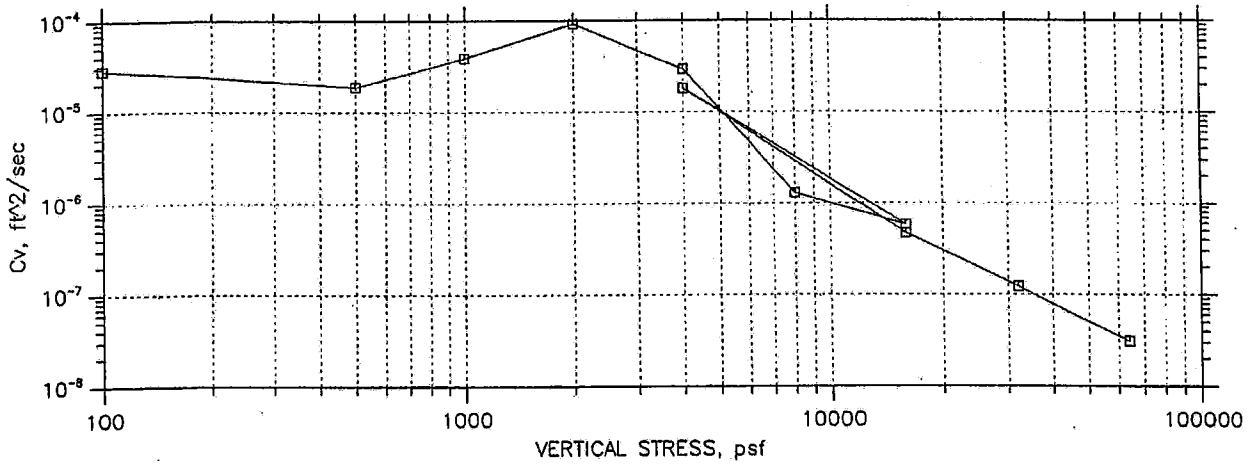
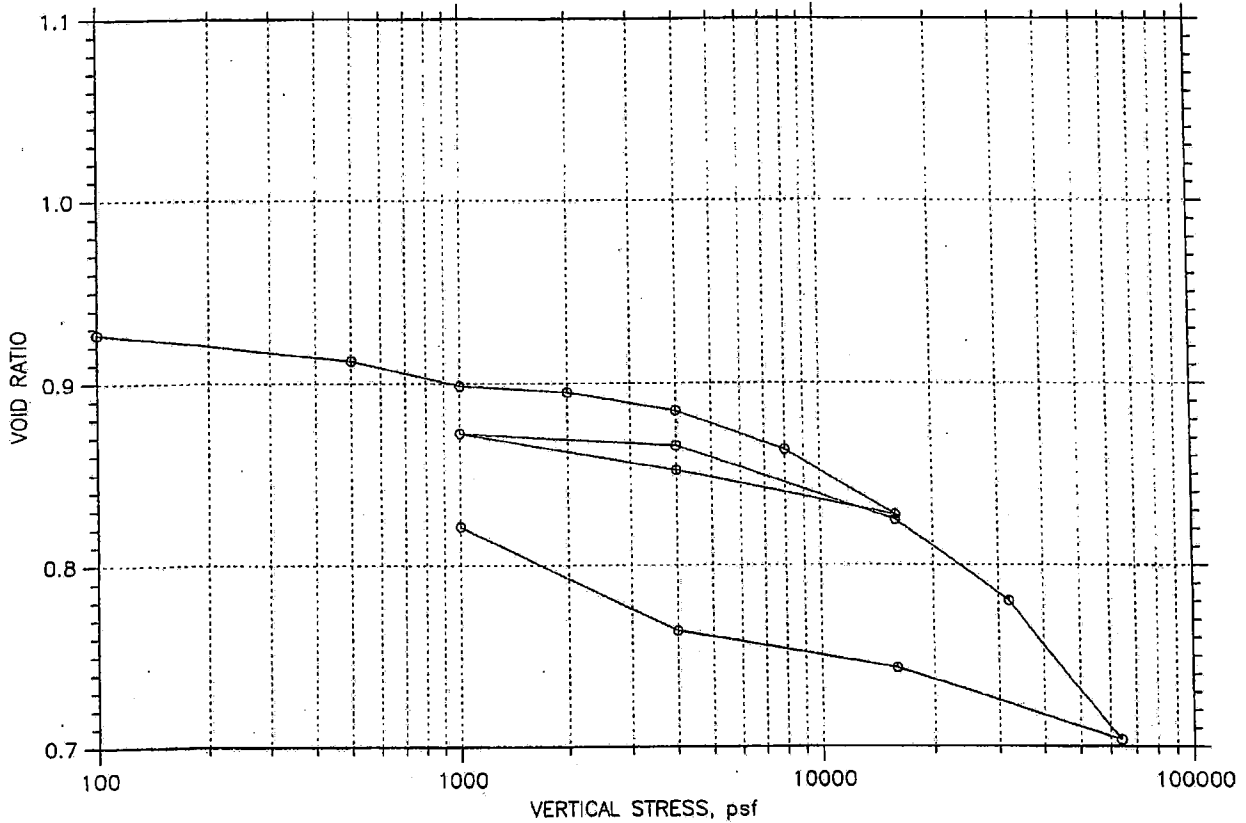
## CONSOLIDATION TEST DATA SUMMARY REPORT



		Before Test	After Test
Overburden Pressure: 7400 psf		32.60	29.98
Preconsolidation Pressure: 1.71e+004 psf		89.24	94.61
Compression Index: 0.252		96.67	100.76
Diameter: 2.498 in	Height: 0.998 in	0.93	0.82
LL: 79	PL: 33		
PI: 46	GS: 2.76		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-4	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-4	Test Date: 2/1/08	Depth: 67-68.7'
	Test No.: 8314	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Yellowish Brown Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
			Cr=0.039

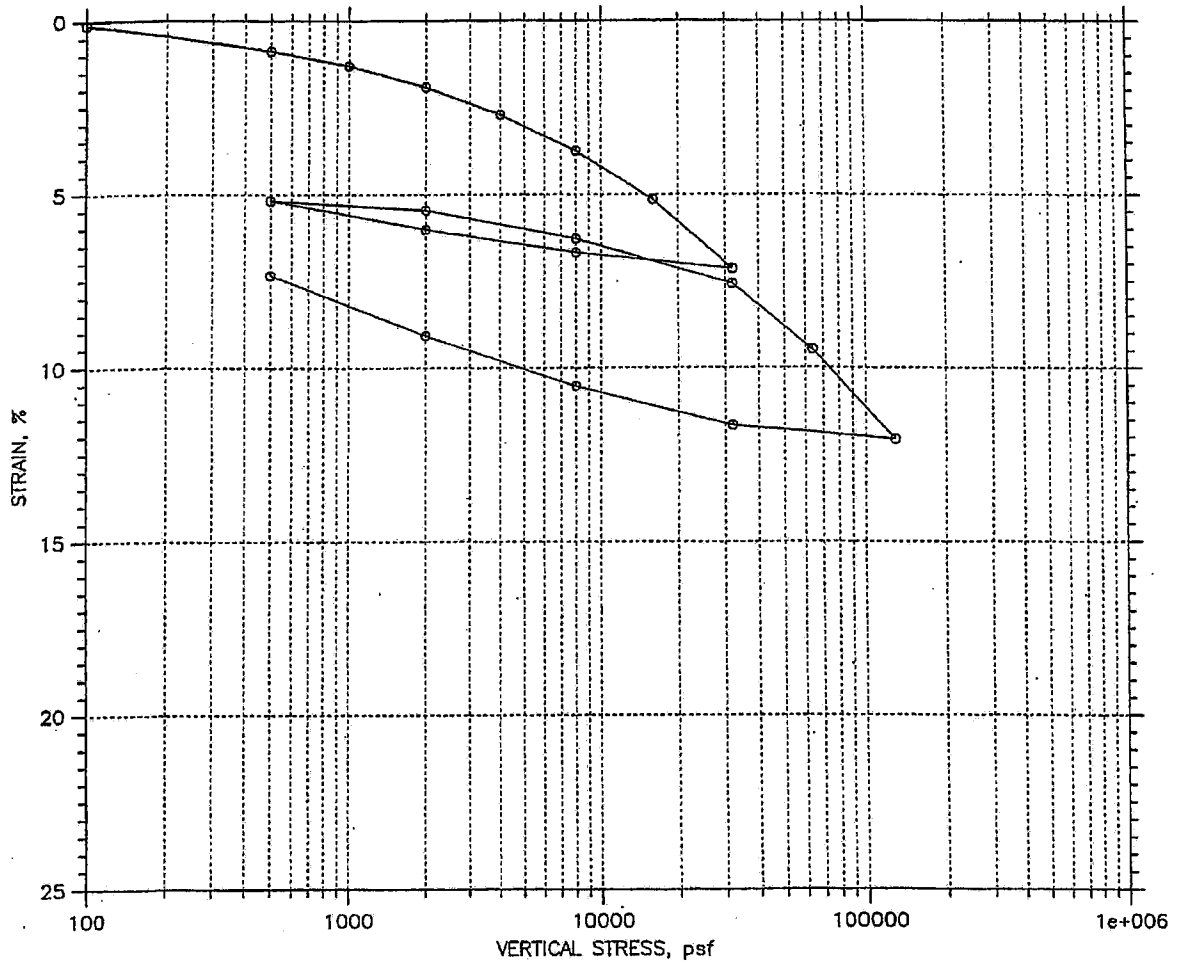
## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-4	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW	
	Sample No.: UD-4	Test Date: 2/1/08	Depth: 67-68.7'	
	Test No.: 8314	Sample Type: Undisturbed	Elevation: N/A	
	Description: Light Yellowish Brown Fat CLAY (CH)			3/14/08
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr=0.039



## CONSOLIDATION TEST DATA SUMMARY REPORT



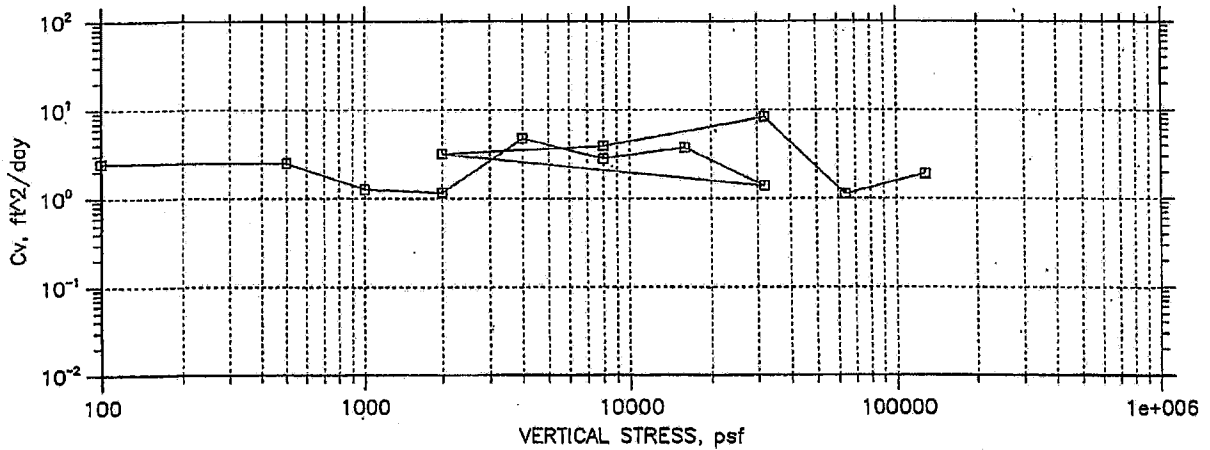
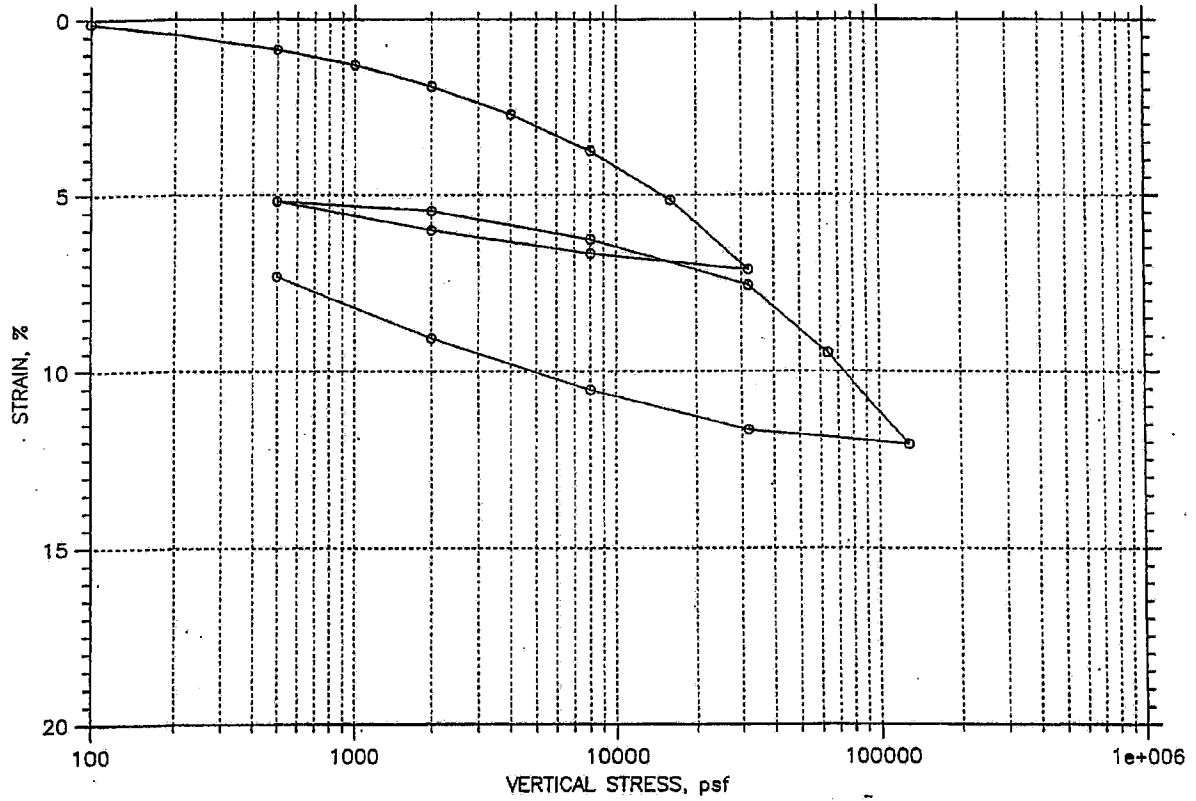
				Before Test	After Test	
Overburden Pressure: 1.82e+004 psf				Water Content, %	17.14	14.48
Preconsolidation Pressure: 4.08e+004 psf				Dry Unit Weight, pcf	112.9	121.8
Compression Index: 0.126				Saturation, %	93.76	101.81
Diameter: 2.499 in		Height: 0.9968 in		Void Ratio	0.49	0.38
LL: 32	PL: 15	PI: 17	GS: 2.70			

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: B-2274UD	Project No.: 6468071777
	Boring No.: B-2274UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-13		Test Date: 3/14/08	Depth: 240-242.5'
	Test No.: 8446		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)			Cr= 0.014
Remarks: ASTM D 2435-04			Calculated Saturation Result Not Considered Reliable	

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4-2-08

## CONSOLIDATION TEST DATA SUMMARY REPORT

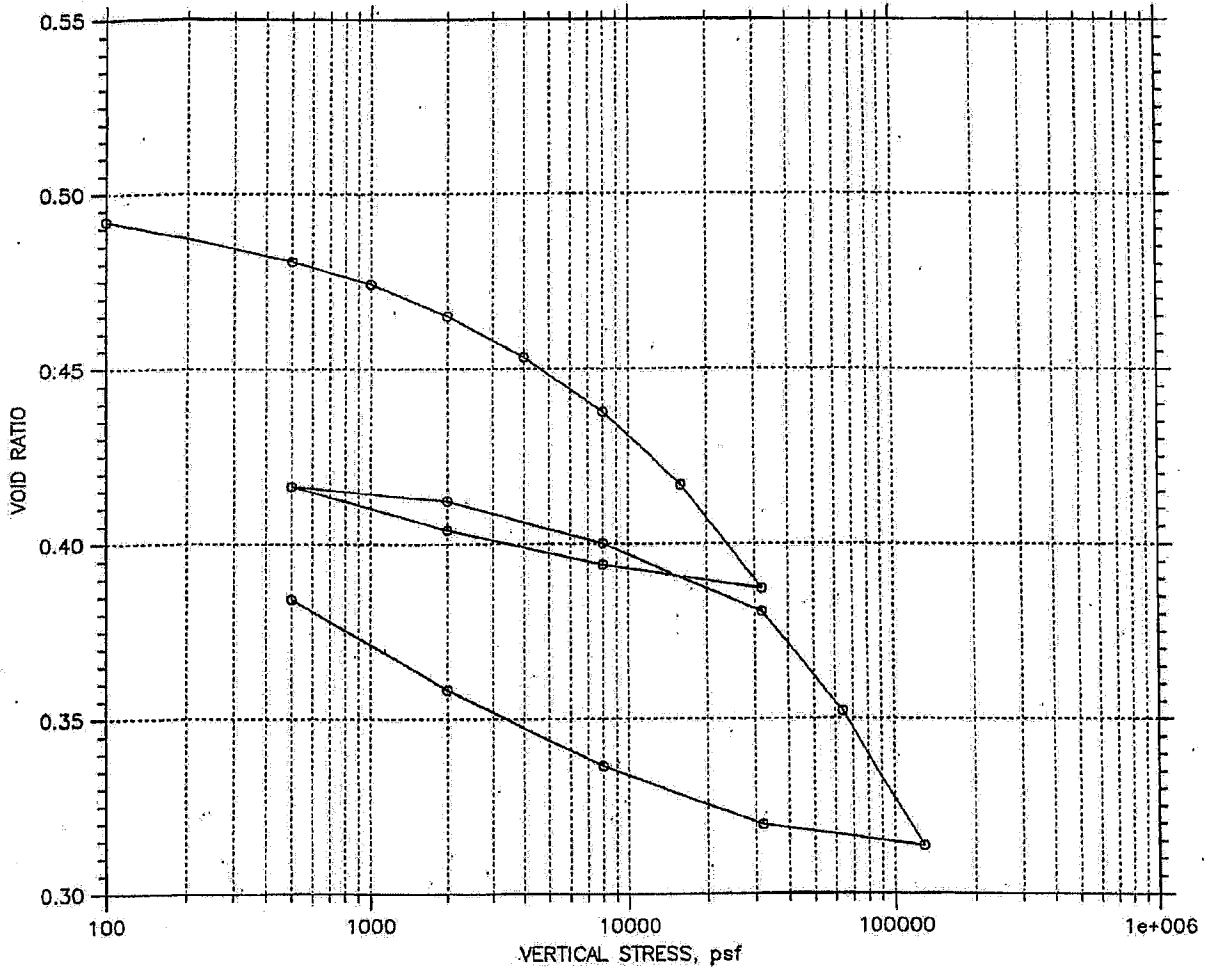


<b>MACTEC</b>	Project: Exalon Texas COL Victoria	Location: B-2274UD	Project No.: 6468071777
	Boring No.: B-2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-13	Test Date: 3/14/08	Depth: 240-242.5'
	Test No.: 8446	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)	Cr= 0.014	
Remarks: ASTM D 2435-04	Calculated Saturation Result Not Considered Reliable		

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4-2-08

# CONSOLIDATION TEST DATA SUMMARY REPORT



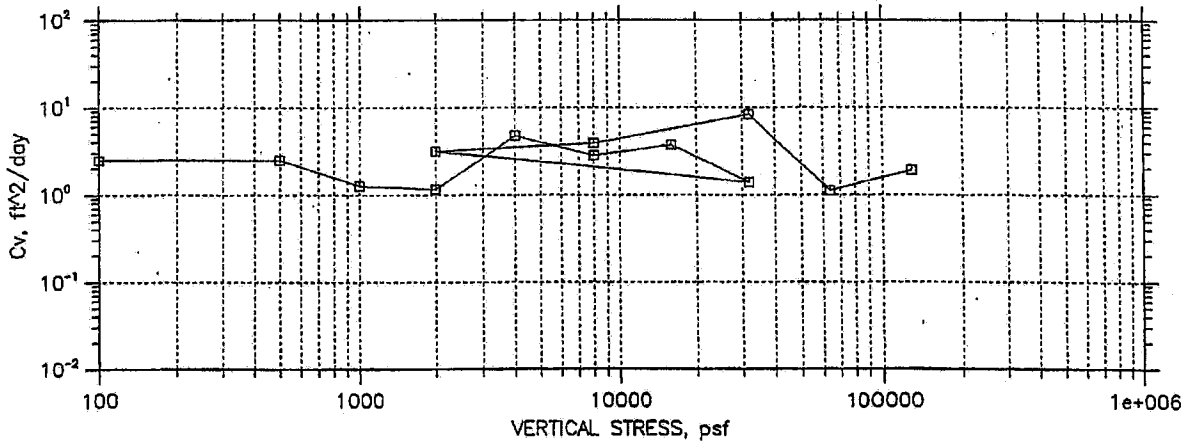
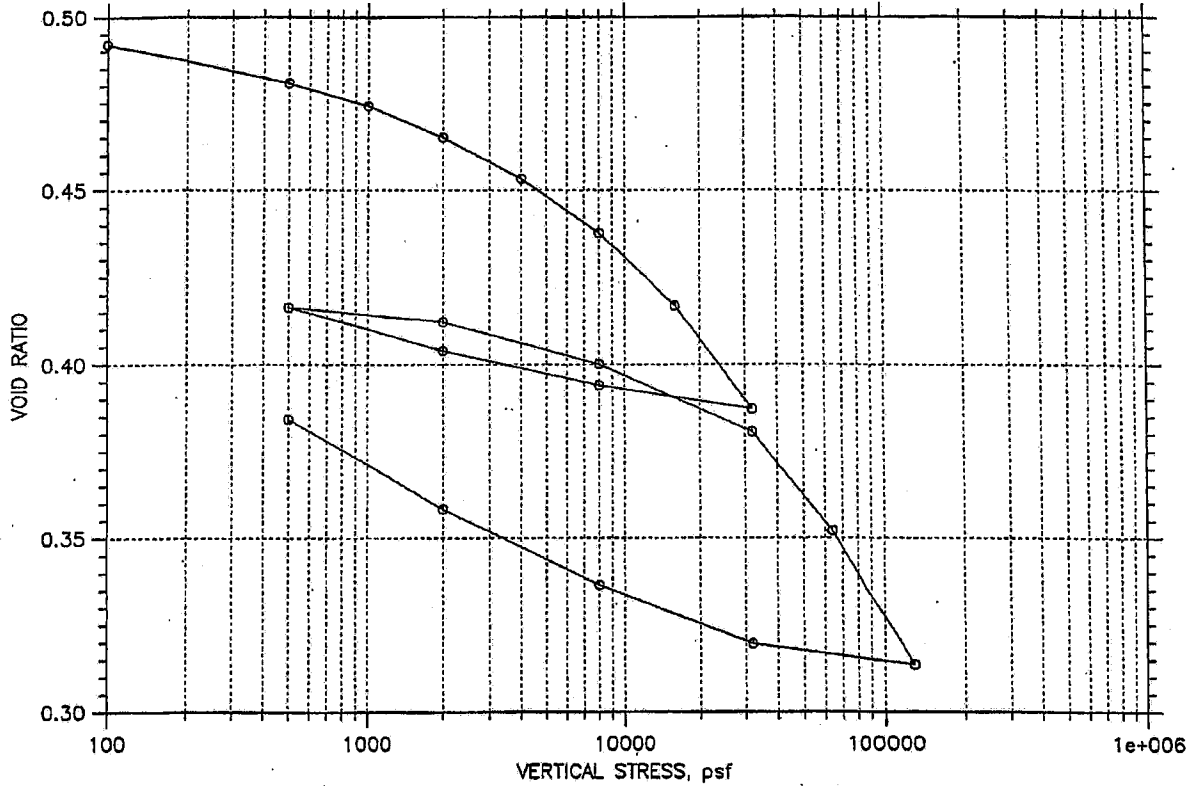
				Before Test	After Test
Overburden Pressure: 1.82e+004 psf				17.14	14.48
Preconsolidation Pressure: 4.08e+004 psf				112.9	121.8
Compression Index: 0.126				93.76	101.81
Diameter: 2.499 in		Height: 0.9968 in		0.49	0.38
LL: 32	PL: 15	PI: 17	GS: 2.70		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: B-2274UD	Project No.: 6468071777
	Boring No.: B-2274UD		Tested By: HJ	Checked By: JW <i>JW</i>
	Sample No.: UD-13		Test Date: 3/14/08	Depth: 240-242.5' <i>4/28/08</i>
	Test No.: 8446		Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)			Cr= 0.014
Remarks: ASTM D 2435-04				Calculated Saturation Result Not Considered Reliable

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**CONSOLIDATION TEST DATA  
SUMMARY REPORT**

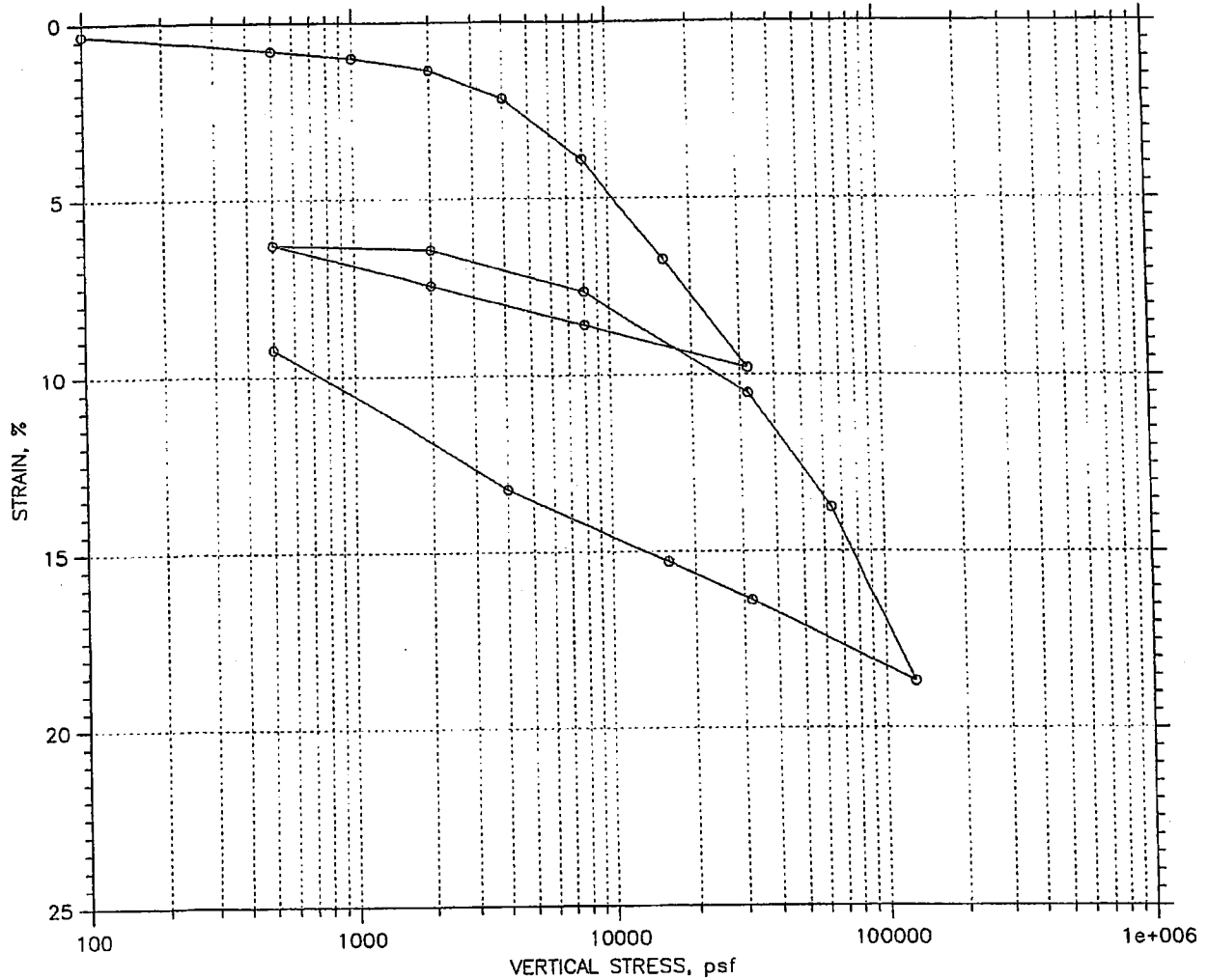


<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: B-2274UD	Project No.: 6468071777
	Boring No.: B-2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-13	Test Date: 3/14/08	Depth: 240-242.5'
	Test No.: 8446	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)		Cr = 0.014
	Remarks: ASTM D 2435-04		Calculated Saturation Result Not Considered Reliable

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4-2-08

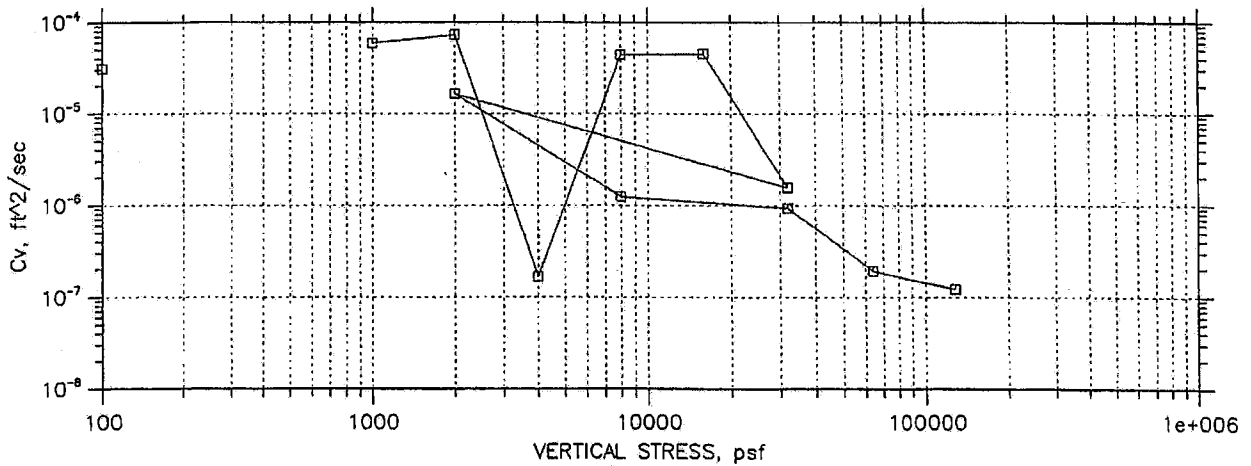
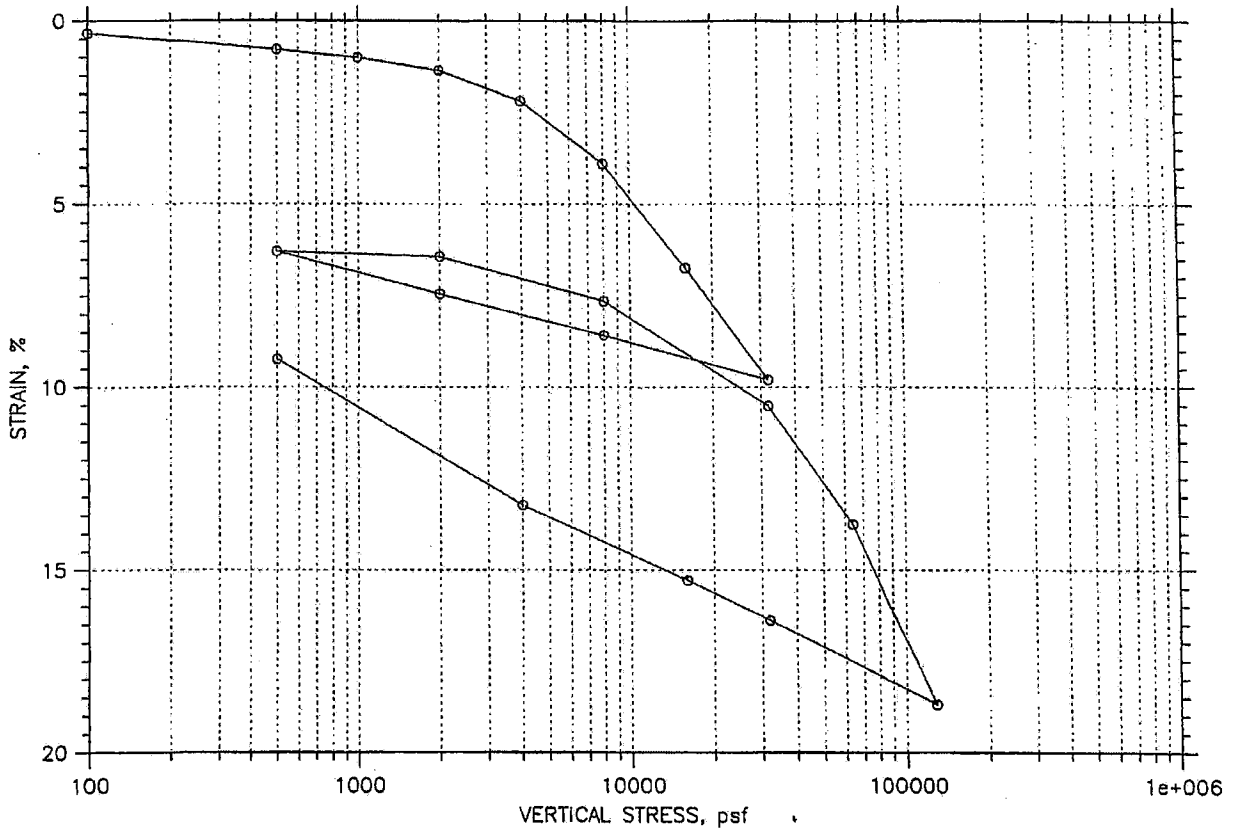
## CONSOLIDATION TEST DATA SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: 2.2e+004 psf				26.75	25.96
Preconsolidation Pressure: 4.3e+004 psf				90.89	100.1
Compression Index: 0.309				82.43	99.42
Diameter: 2.499 in		Height: 0.9915 in		0.90	0.72
LL: 58	PL: 27	PI: 31	GS: 2.76		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: 2274UD UD-16	Project No.: 6468071777
	Boring No.: 2274UD		Tested By: HJ	Checked By: JW
	Sample No.: UD-16		Test Date: 2/1/08	Depth: 300-301.8' <i>JLJ</i>
	Test No.: 8316		Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Pale Yellow Fat CLAY (CH)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04 <span style="float: right;">Cr=0.037</span>			

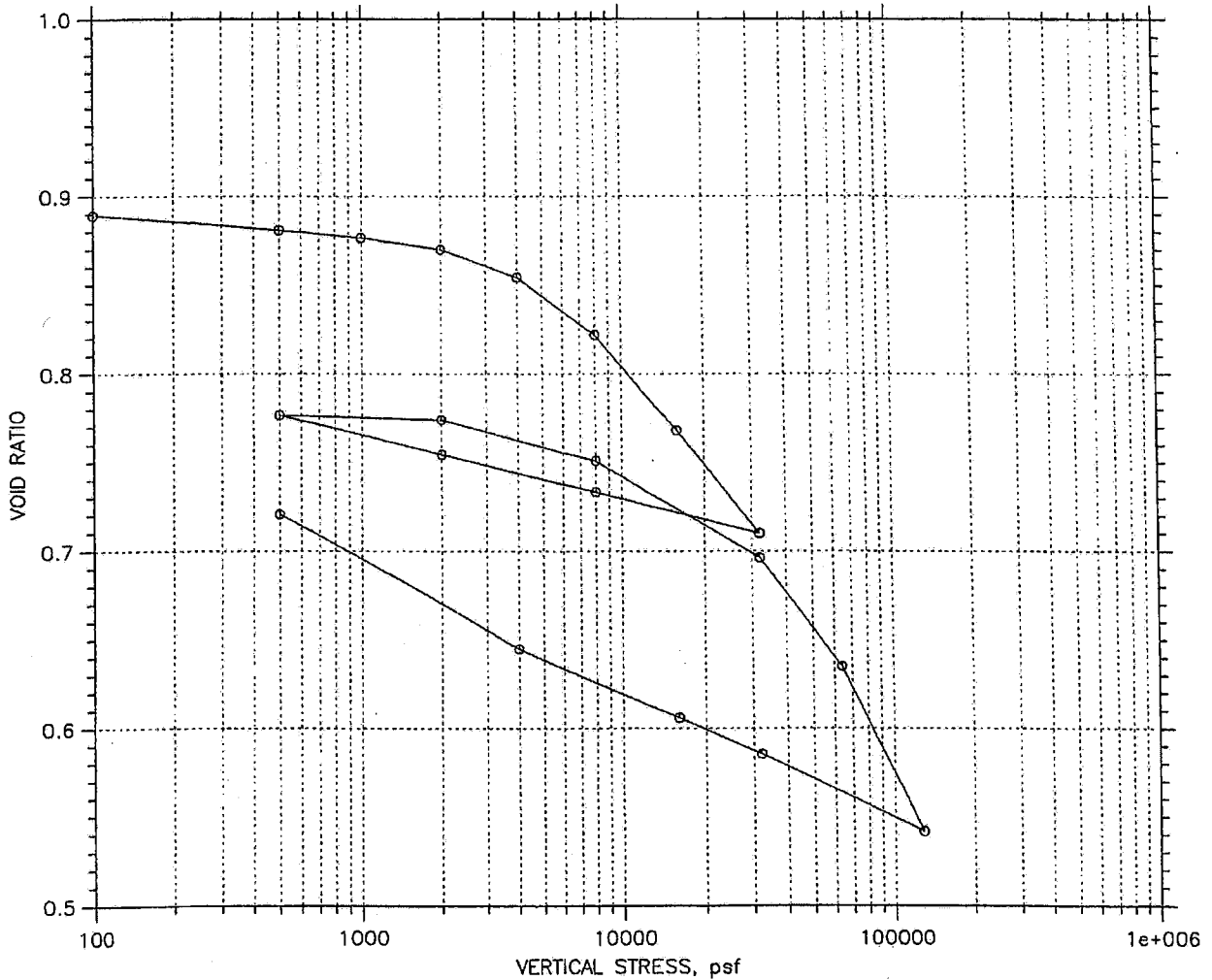
## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-16	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-16	Test Date: 2/1/08	Depth: 300-301.8'
	Test No.: 8316	Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
			Cr=0.037

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3-14-08

# CONSOLIDATION TEST DATA SUMMARY REPORT

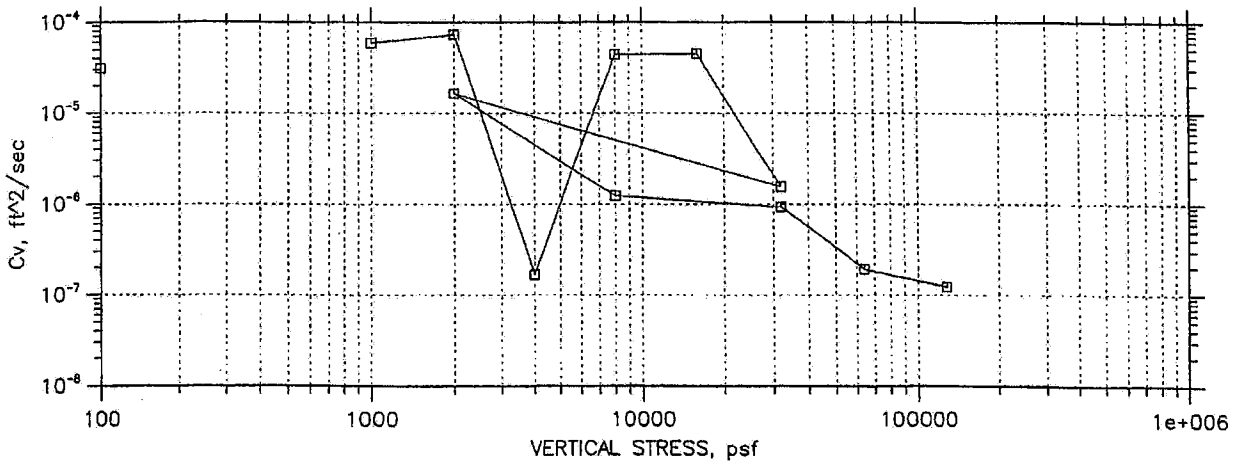
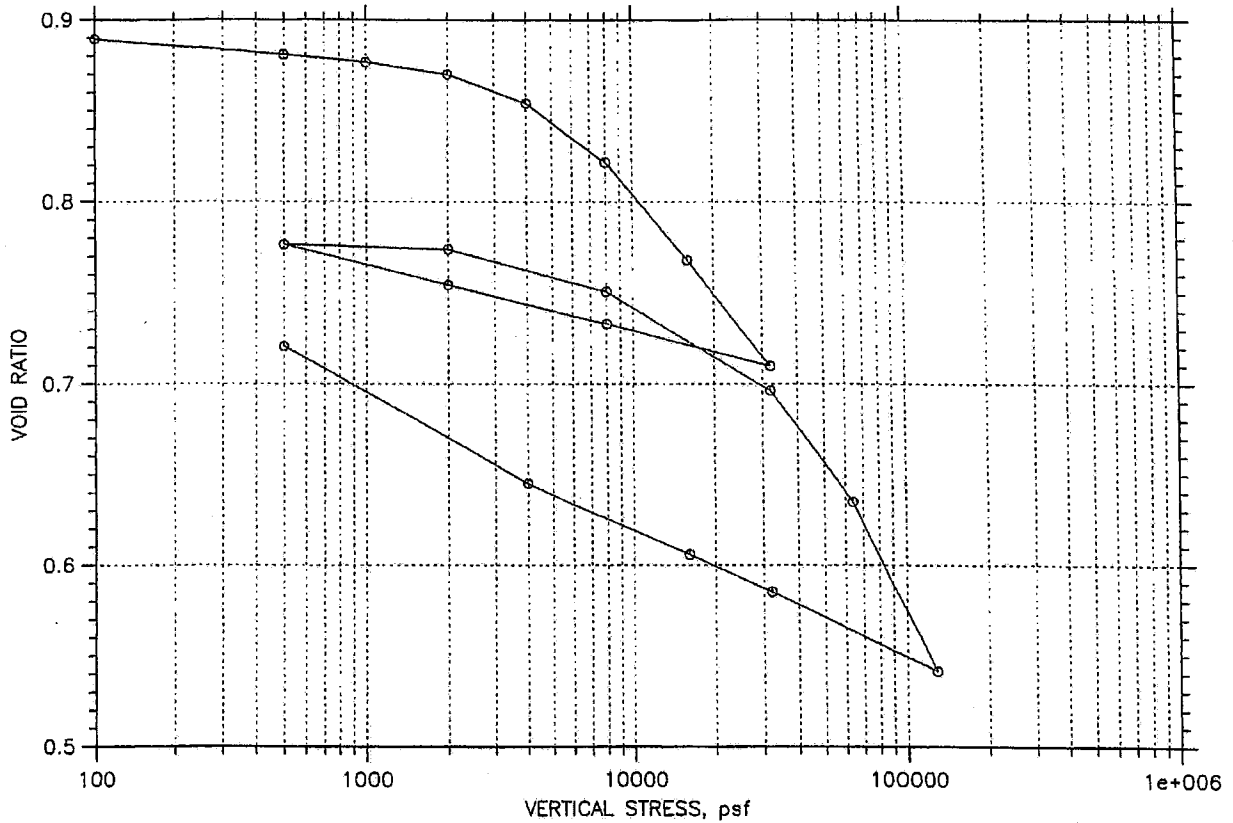


				Before Test	After Test
Overburden Pressure: 2.2e+004 psf		Water Content, %		26.75	25.96
Preconsolidation Pressure: 4.3e+004 psf		Dry Unit Weight, pcf		90.89	100.1
Compression Index: 0.309		Saturation, %		82.43	99.42
Diameter: 2.499 in	Height: 0.9915 in	Void Ratio		0.90	0.72
LL: 58	PL: 27	PI: 31	GS: 2.76		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-16	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW <i>JW</i>	
	Sample No.: UD-16	Test Date: 2/1/08	Depth: 300-301.8' <i>300</i>	
	Test No.: 8316	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>	
	Description: Pale Yellow Fat CLAY (CH)			
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr=0.037

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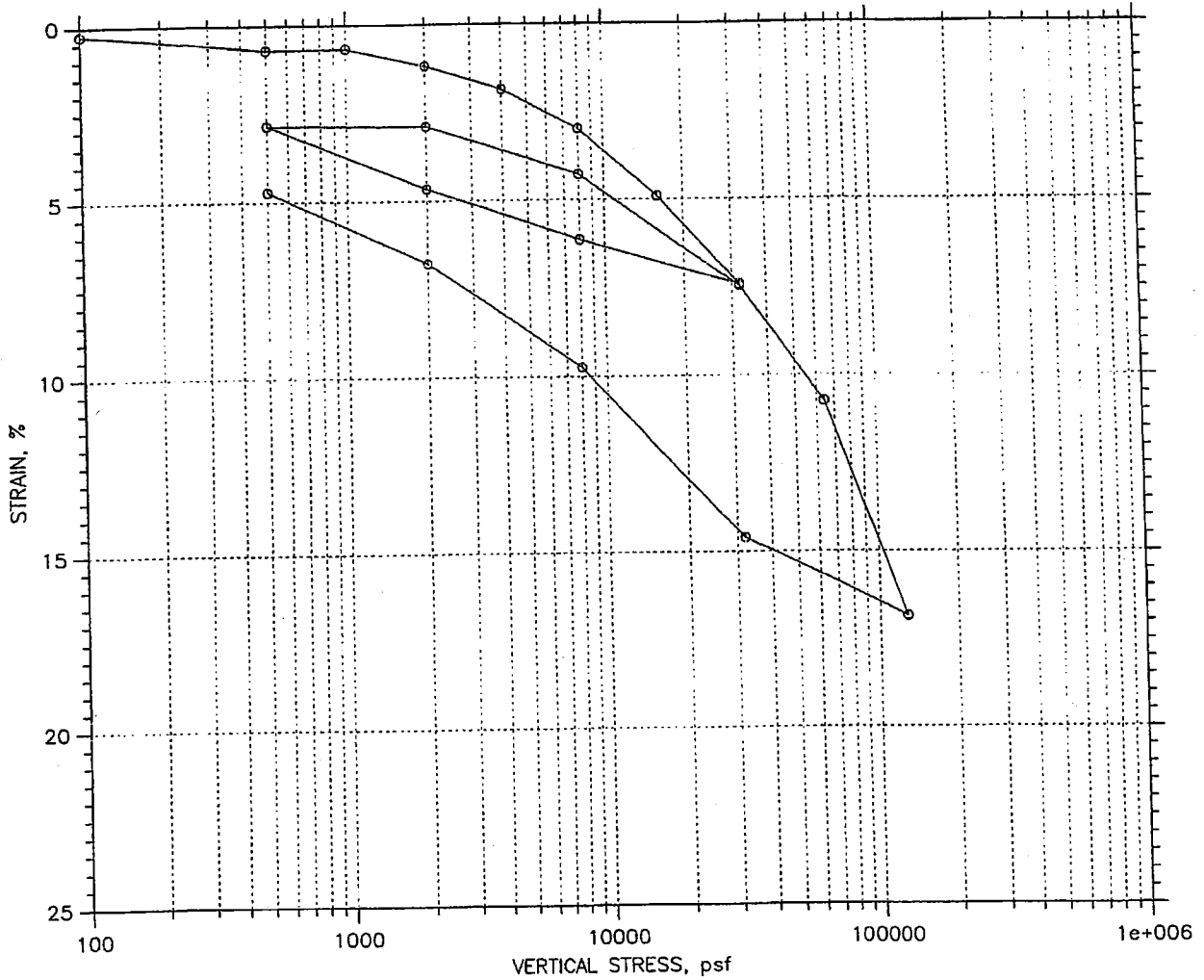
## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-16	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: HJ	Checked By: JW
	Sample No.: UD-16	Test Date: 2/1/08	Depth: 300-301.8'
	Test No.: 8316	Sample Type: Undisturbed	Elevation: N/A
	Description: Pale Yellow Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
	Cr=0.037		



# CONSOLIDATION TEST DATA SUMMARY REPORT

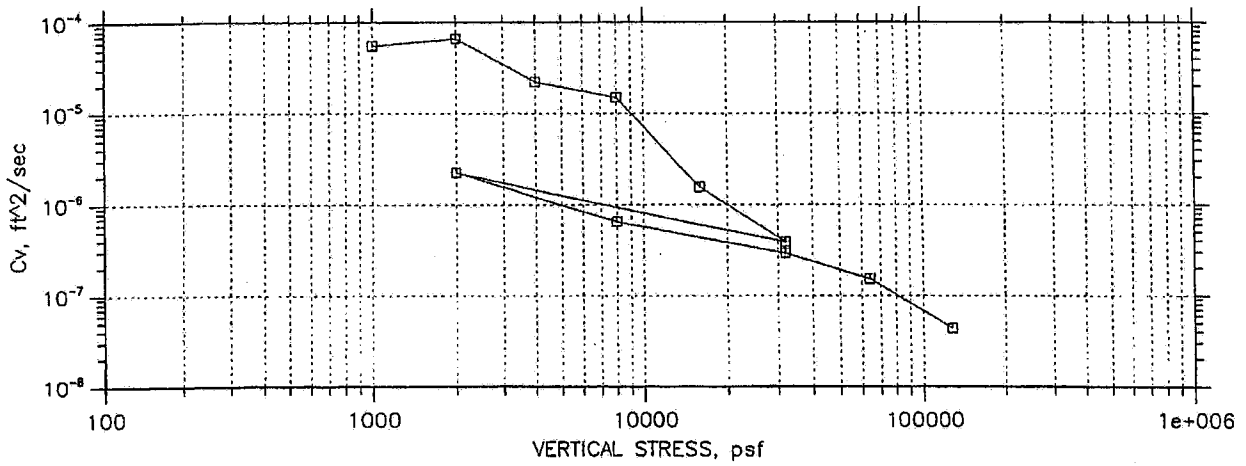
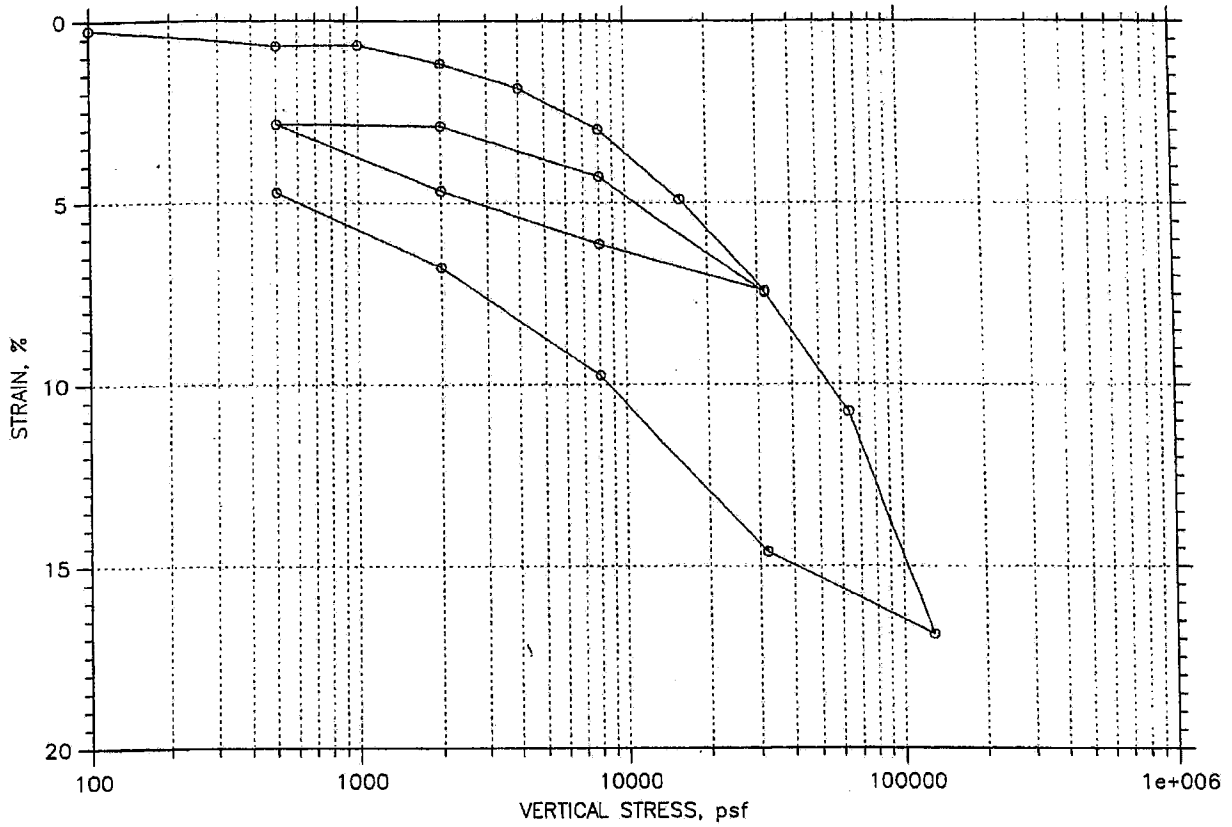


		Before Test	After Test
Overburden Pressure: 2.7e+004 psf		34.92	33.25
Preconsolidation Pressure: 4.81e+004 psf		85.96	90.22
Compression Index: 0.409		95.98	100.87
Diameter: 2.499 in	Height: 1.003 in	1.00	0.91
LL: 70	PL: 35	PI: 35	GS: 2.76

<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-20	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: JW	Checked By: HJ
	Sample No.: UD-20	Test Date: 2/5/08	Depth: 380-381.8'
	Test No.: 8318	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Elastic SILT (MH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.050

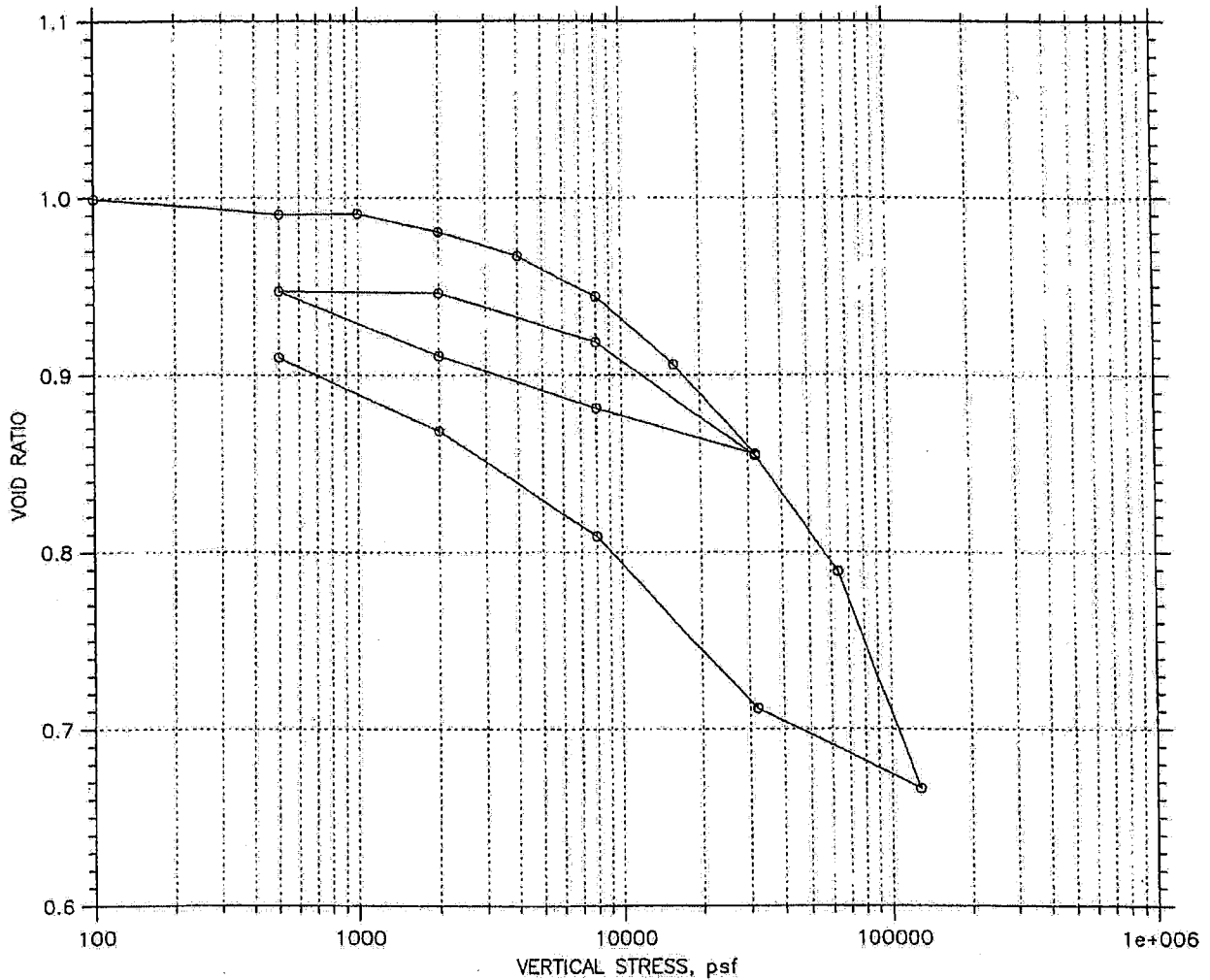
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## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-20	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: JW	Checked By: HJ
	Sample No.: UD-20	Test Date: 2/5/08	Depth: 380-381.8'
	Test No.: 8318	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Elastic SILT (MH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.050

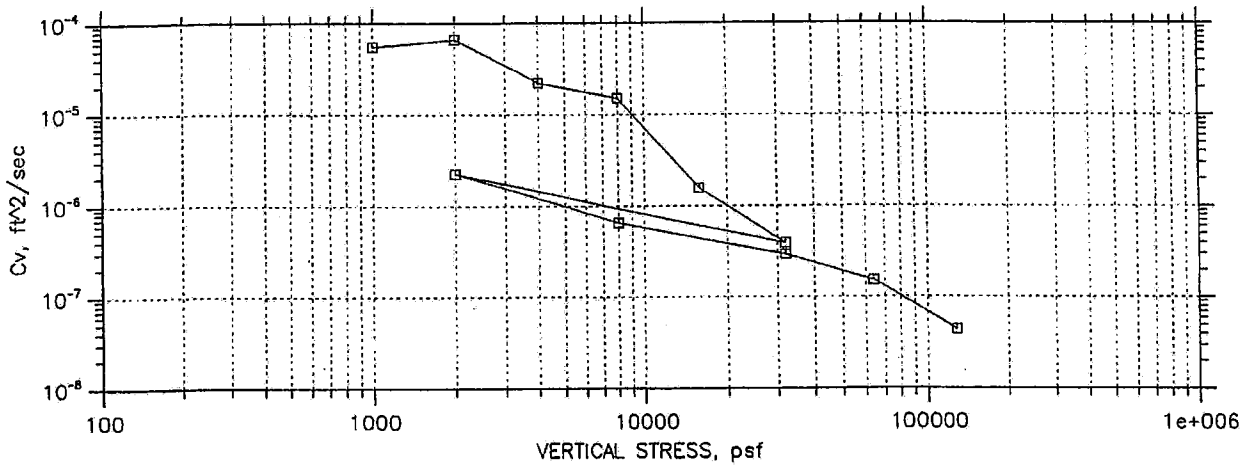
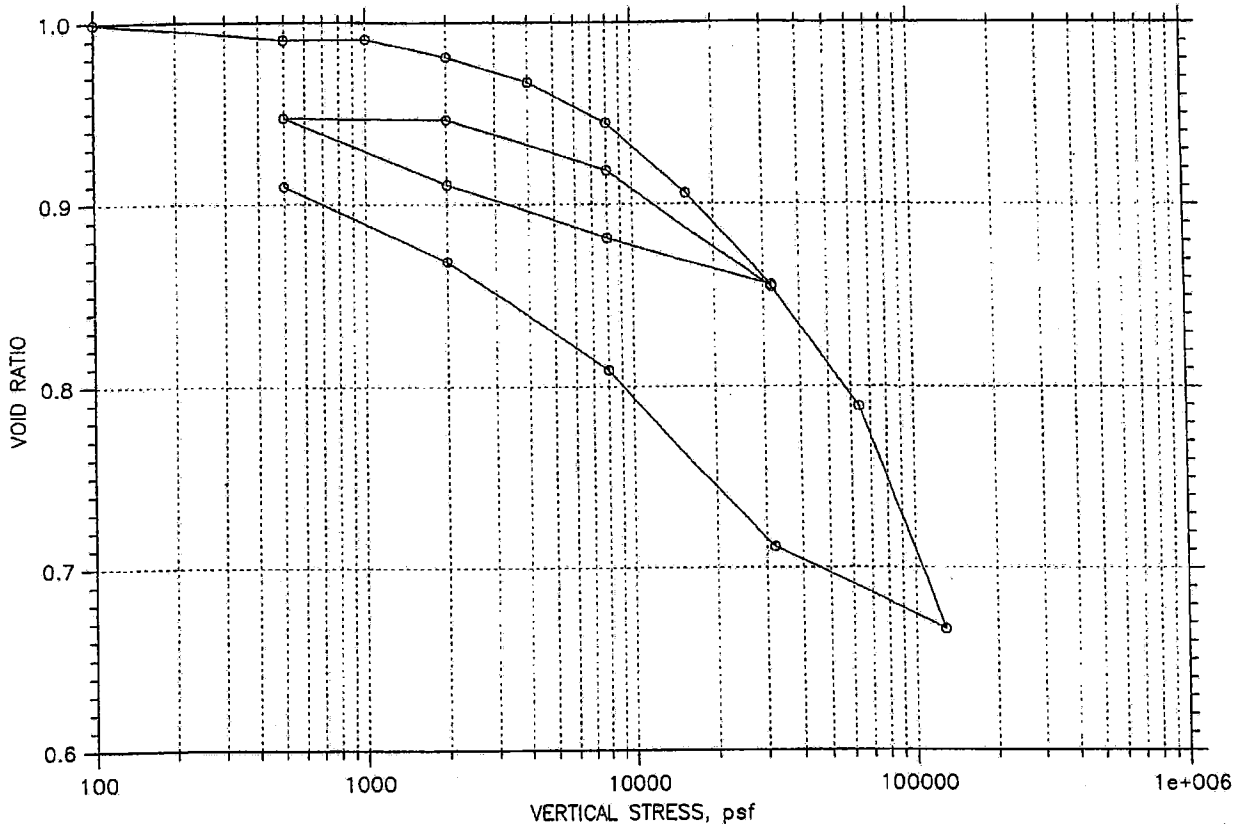
## CONSOLIDATION TEST DATA SUMMARY REPORT



				Before Test	After Test
Overburden Pressure: 2.7e+004 psf		Water Content, %		34.92	33.25
Preconsolidation Pressure: 4.81e+004 psf		Dry Unit Weight, pcf		85.96	90.22
Compression Index: 0.409		Saturation, %		95.98	100.87
Diameter: 2.499 in	Height: 1.003 in	Void Ratio		1.00	0.91
LL: 70	PL: 35	PI: 35	GS: 2.76		

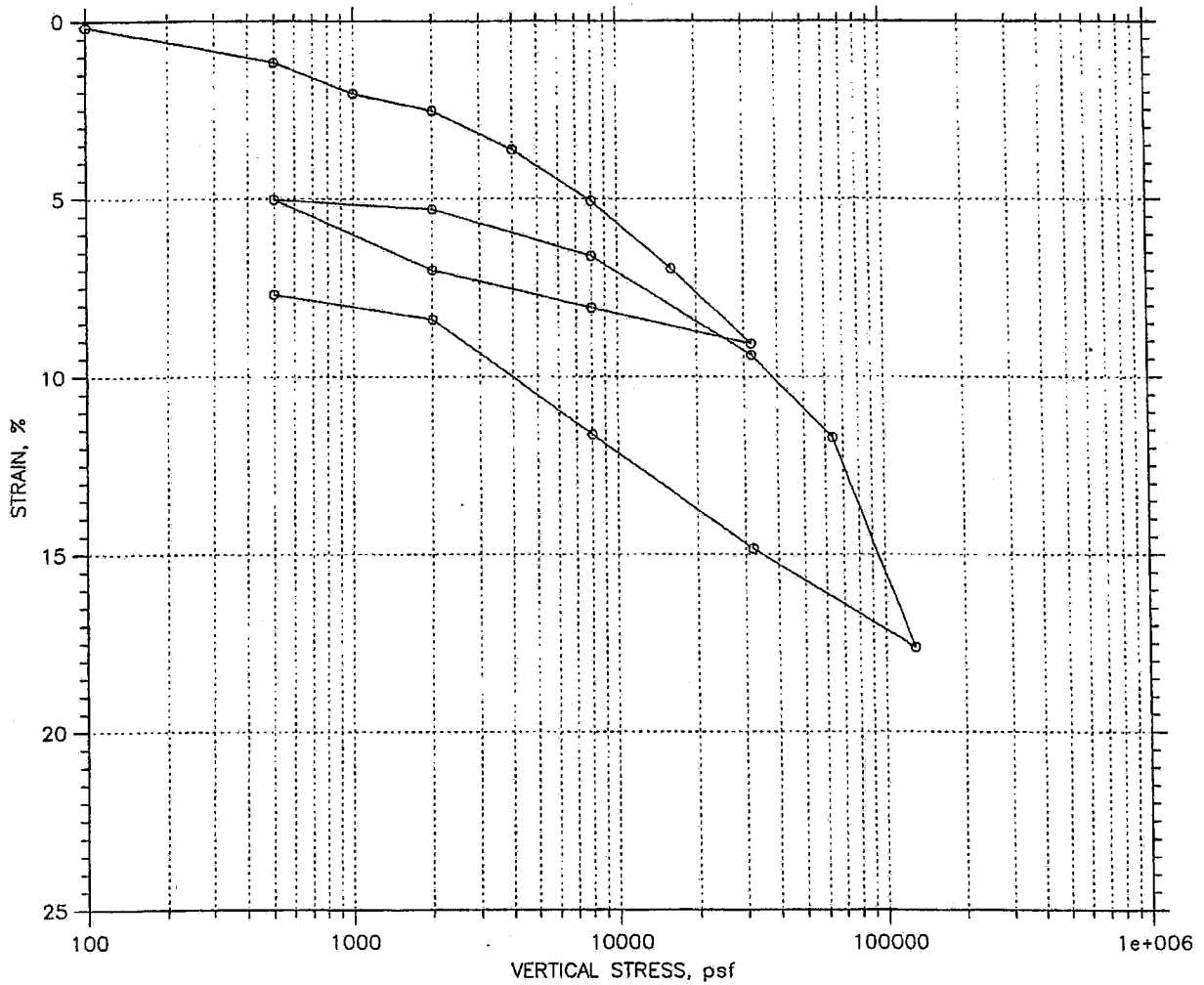
<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-20	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: JW	Checked By: HJ
	Sample No.: UD-20	Test Date: 2/5/08	Depth: 380-381.8' <i>HJ</i>
	Test No.: 8318	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Light Gray Elastic SILT (MH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-20	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: JW	Checked By: HJ	
	Sample No.: UD-20	Test Date: 2/5/08	Depth: 380-381.8'	
	Test No.: 8318	Sample Type: Undisturbed	Elevation: N/A	
	Description: Light Gray Elastic SILT (MH)			3/14/08
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr=0.050

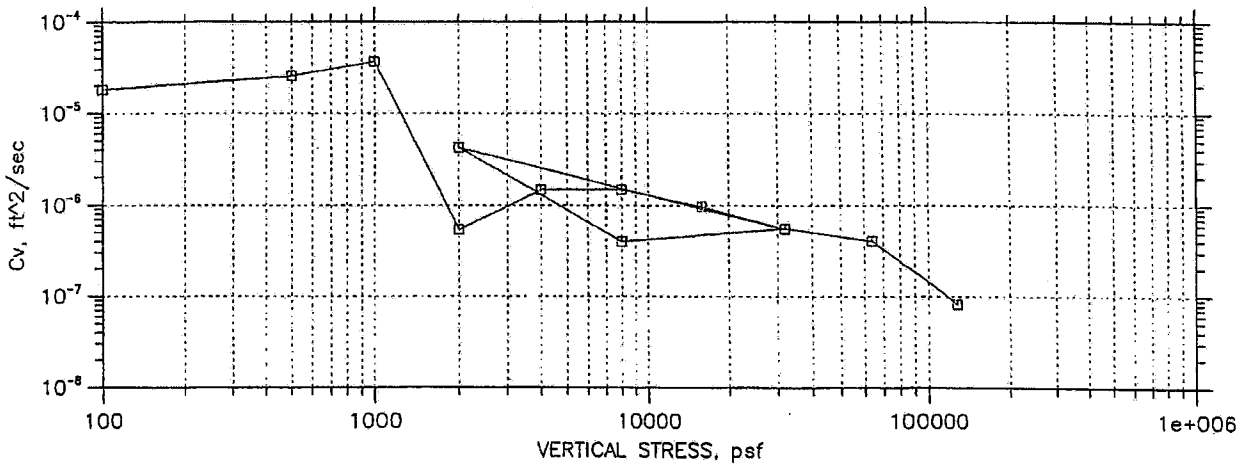
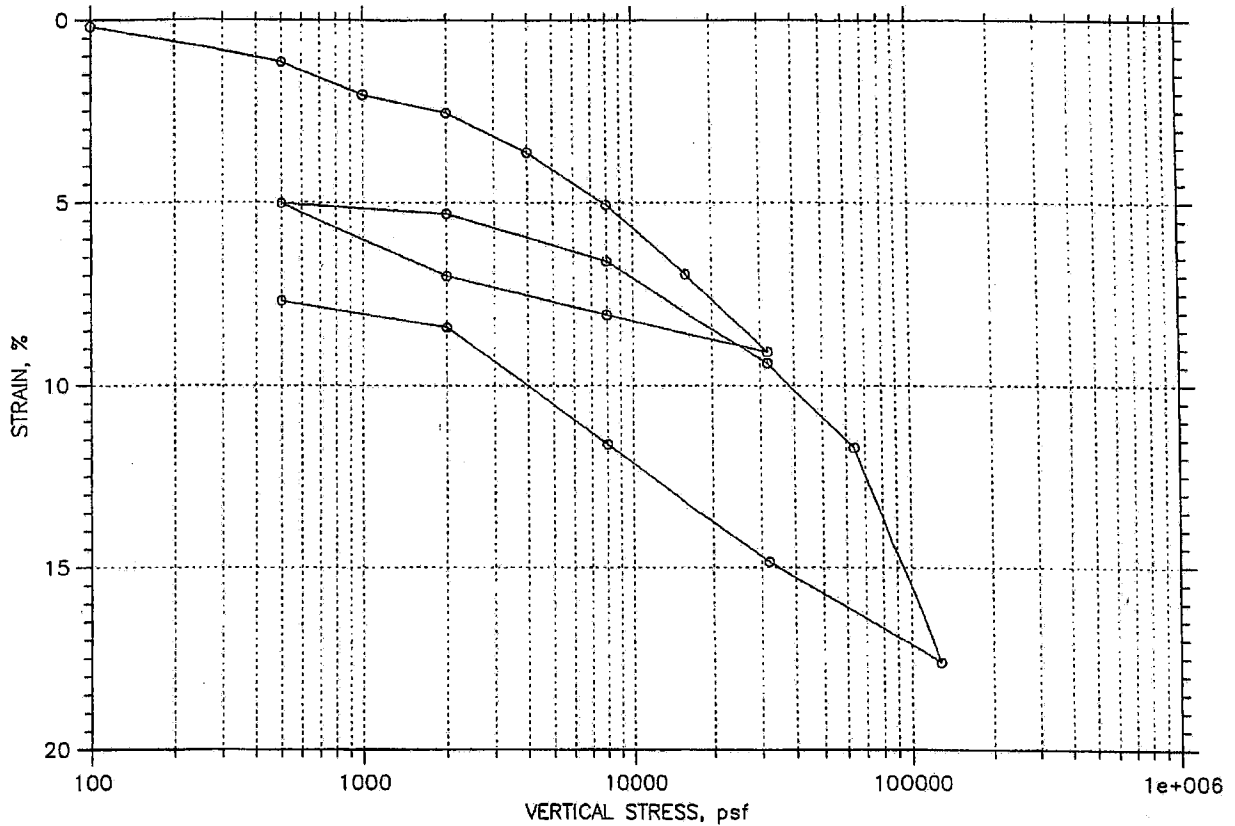
## CONSOLIDATION TEST DATA SUMMARY REPORT



		Before Test	After Test
Overburden Pressure: 2.76e+004 psf		36.74	32.74
Preconsolidation Pressure: 4.79e+004 psf		83.58	90.54
Compression Index: 0.402		95.85	100.46
Diameter: 2.498 in	Height: 1.006 in	1.05	0.90
LL: 73	PL: 34	PI: 39	GS: 2.75

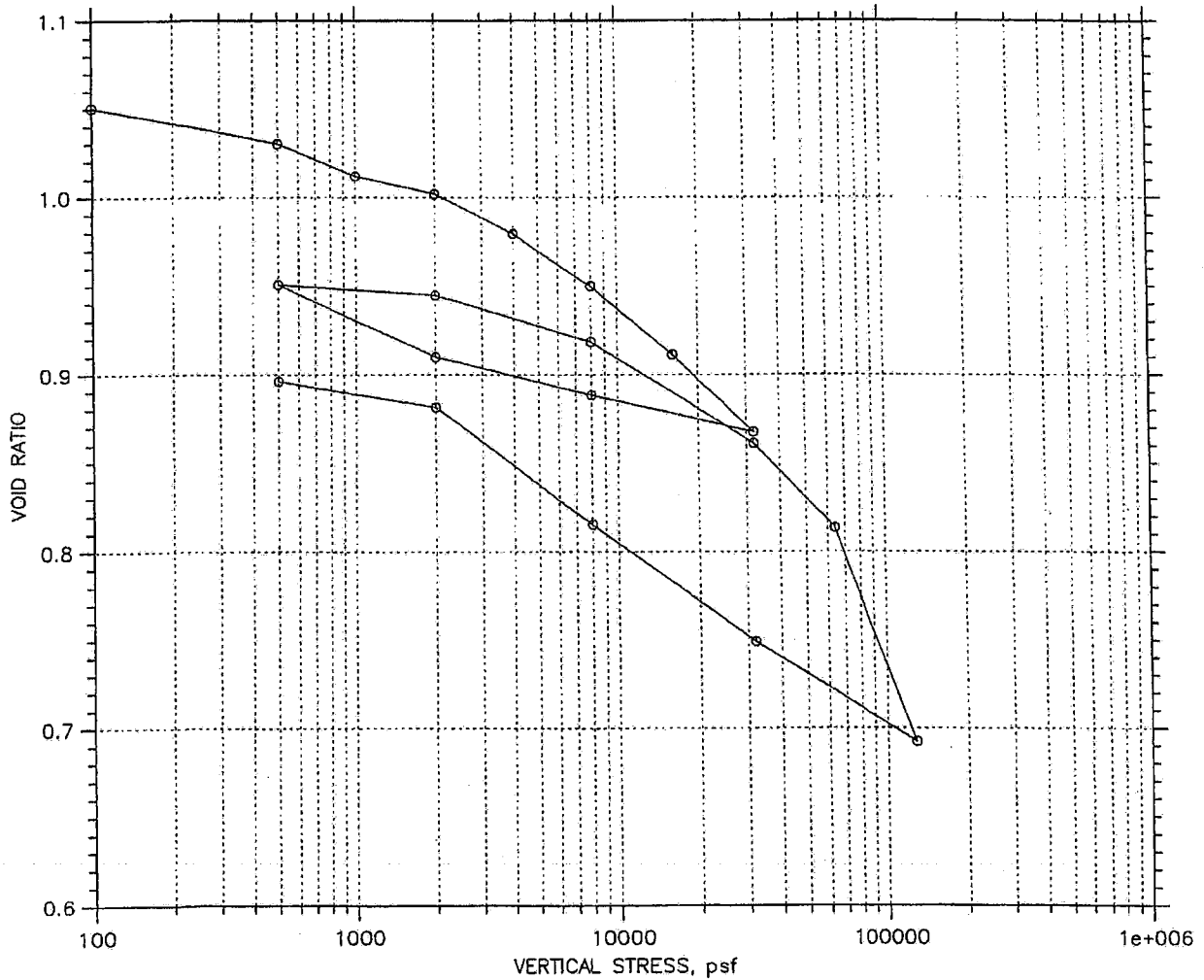
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	Boring No.: 2274UD	Tested By: BM	Checked By: JW
	Sample No.: UD-21	Test Date: 2/8/08	Depth: 390-391.8'
	Test No.: 8319	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		
			Cr=0.047

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD..UD-21	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: BM	Checked By: JW	
	Sample No.: UD-21	Test Date: 2/8/08	Depth: 390-391.8'	
	Test No.: 8319	Sample Type: Undisturbed	Elevation: N/A	
	Description: Light Gray Fat CLAY (CH)			3/14/08
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04			Cr=0.047

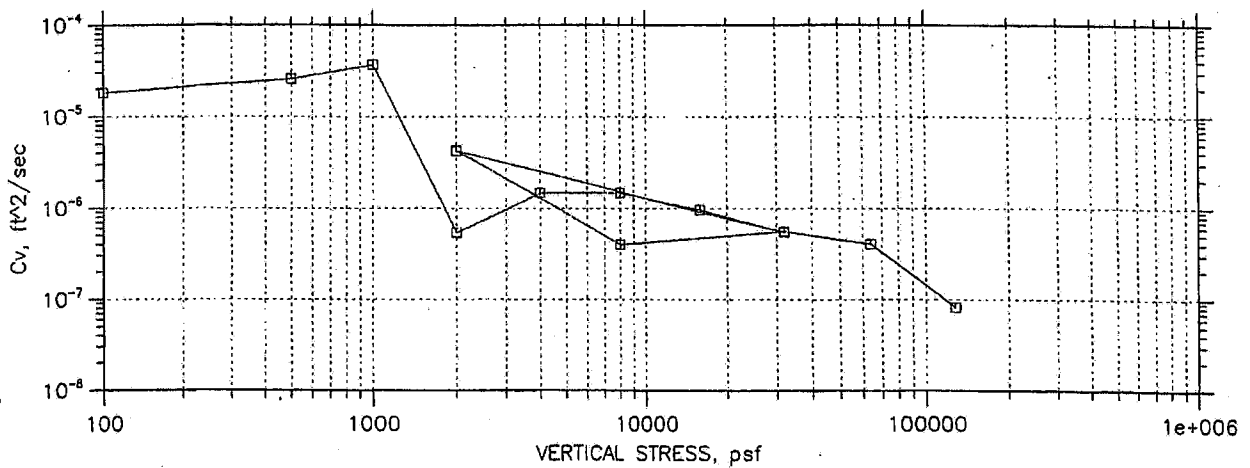
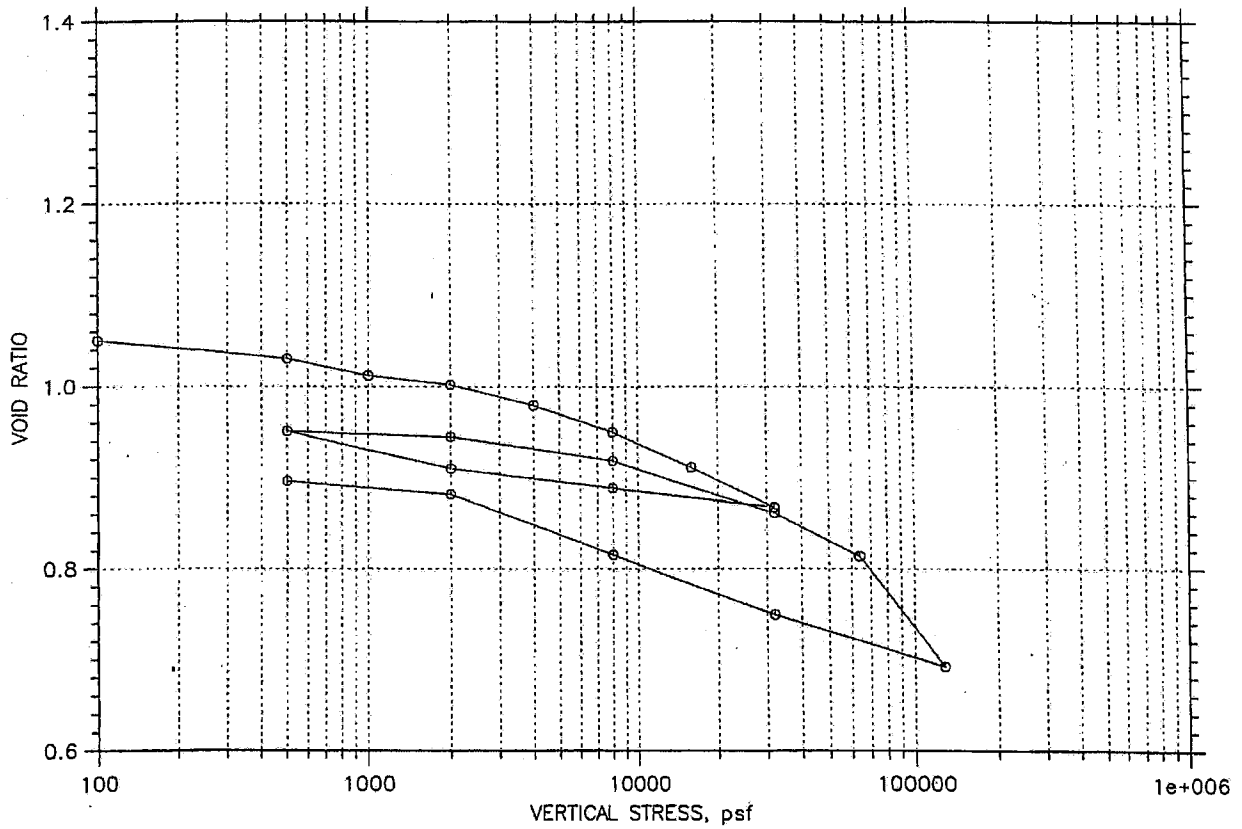
# CONSOLIDATION TEST DATA SUMMARY REPORT



		Before Test	After Test
Overburden Pressure: 2.76e+004 psf		36.74	32.74
Preconsolidation Pressure: 4.79e+004 psf		83.58	90.54
Compression Index: 0.402		95.85	100.46
Diameter: 2.498 in	Height: 1.006 in	1.05	0.90
LL: 73	PL: 34		
PI: 39	GS: 2.75		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-21	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: BM	Checked By: JW
	Sample No.: UD-21	Test Date: 2/8/08	Depth: 390-391.8' <i>JW</i>
	Test No.: 8319	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Light Gray Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.047

## CONSOLIDATION TEST DATA SUMMARY REPORT

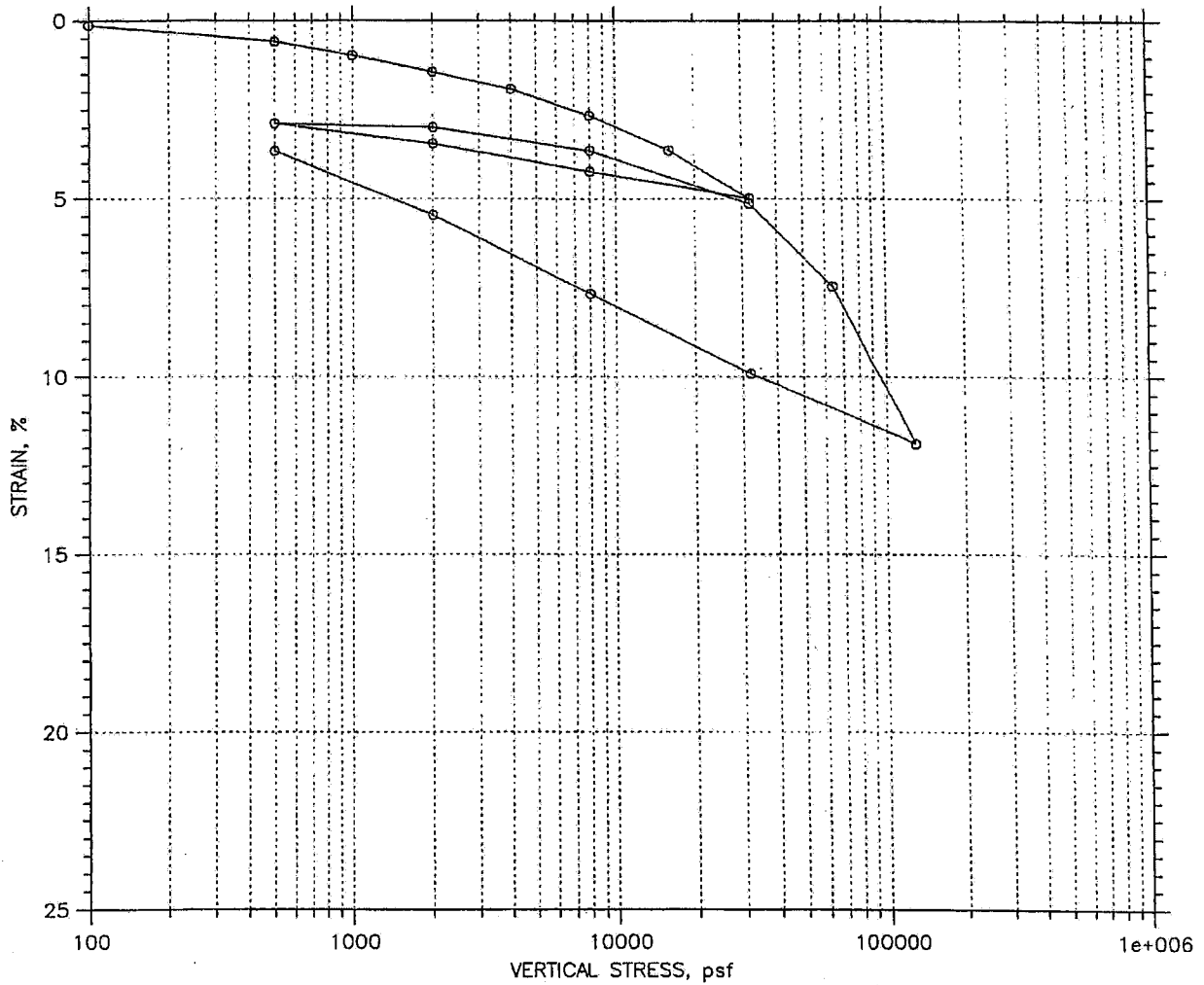


<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-21	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: BM	Checked By: JW
	Sample No.: UD-21	Test Date: 2/8/08	Depth: 390-391.8' <i>JW</i>
	Test No.: 8319	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Light Gray Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.047

*DSC*  
*2-19-08*



## CONSOLIDATION TEST DATA SUMMARY REPORT

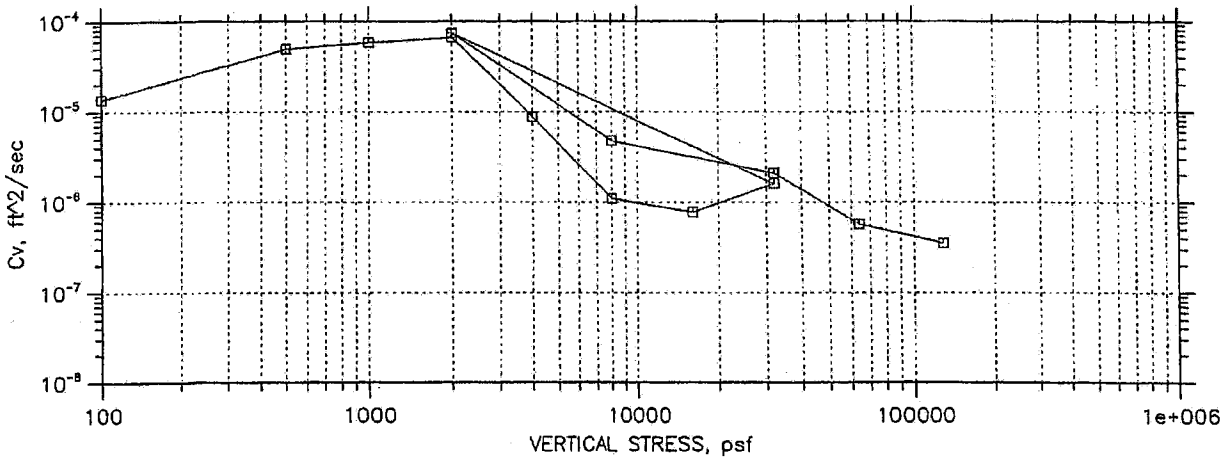
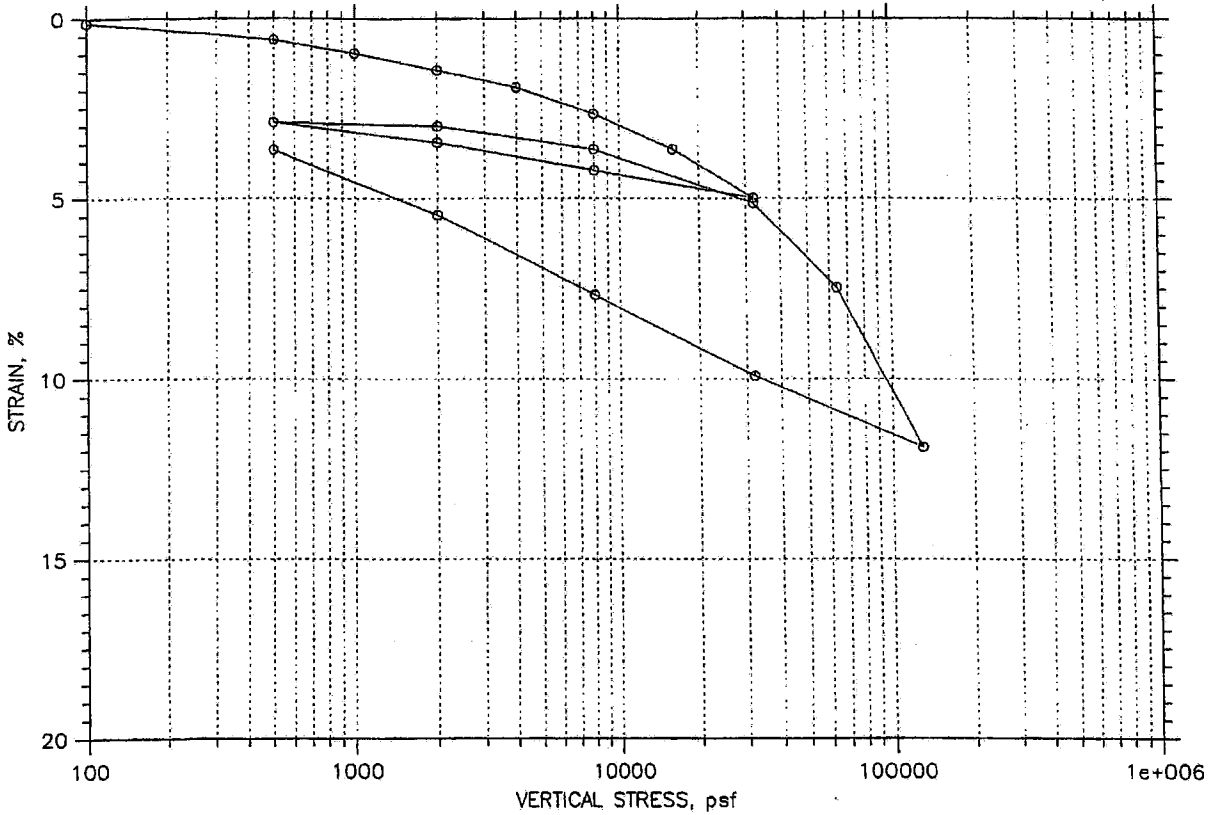


				Before Test	After Test
Overburden Pressure: 2.82e+004 psf		Water Content, %		26.27	24.61
Preconsolidation Pressure: 4.96e+004 psf		Dry Unit Weight, pcf		98.23	102.
Compression Index: 0.252		Saturation, %		98.05	100.61
Diameter: 2.499 in	Height: 1 in	Void Ratio		0.73	0.67
LL: 56	PL: 25	PI: 31	GS: 2.72		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria Location: 2274UD UD-22		Project No.: 6468071777
	Boring No.: 2274UD		Tested By: JW
	Sample No.: UD-22		Checked By: HJ
	Test No.: 8320		Test Date: 2/5/08
	Description: Light Gray Fat CLAY (CH)		Depth: 400-401.3' <i>H</i>
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Elevation: N/A <i>3/14/08</i>
			Cr=0.020

*DSC*  
*3-14-08*

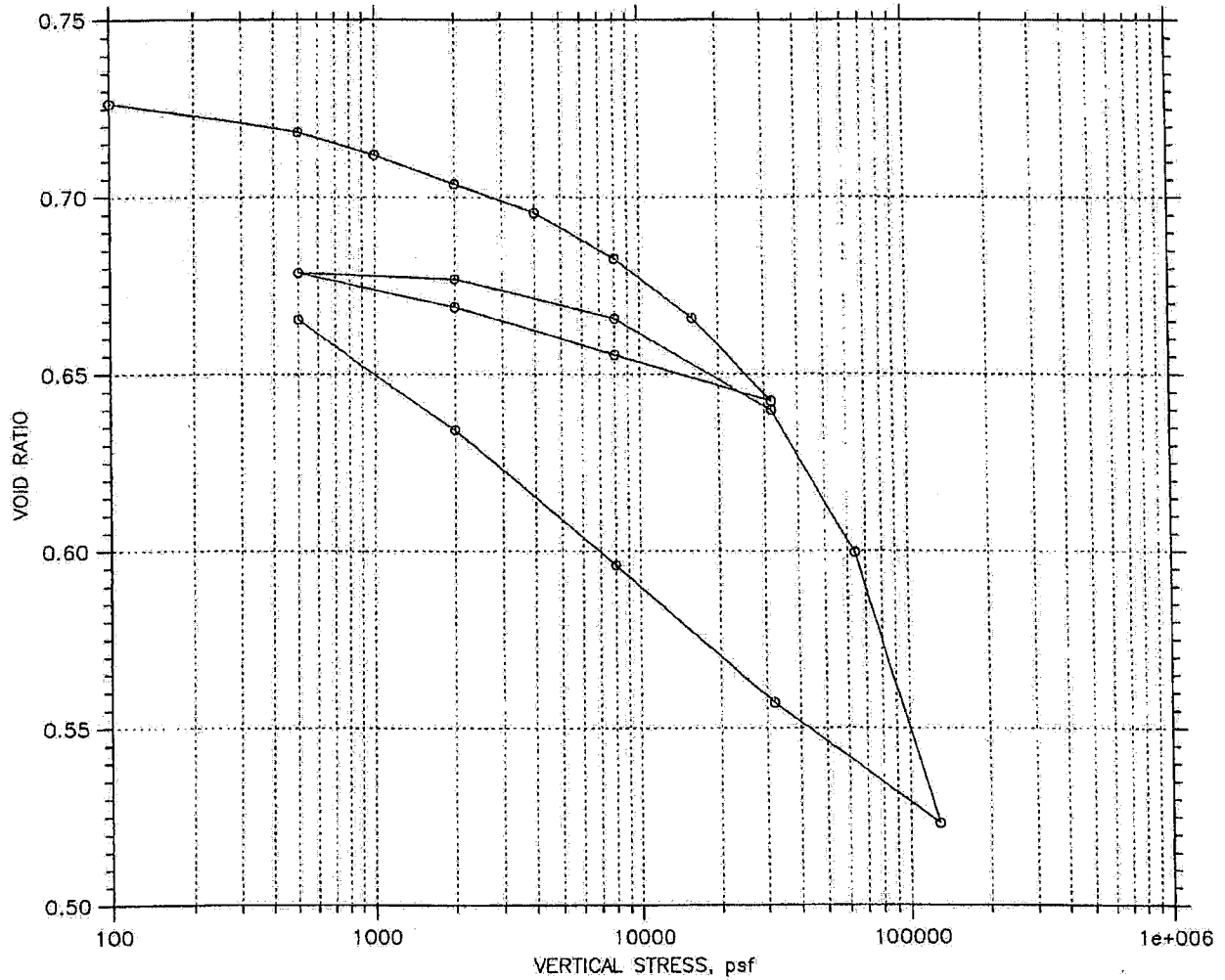
**CONSOLIDATION TEST DATA  
SUMMARY REPORT**



<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-22	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: JW	Checked By: HJ
	Sample No.: UD-22	Test Date: 2/5/08	Depth: 400-401.3' <i>HJ</i>
	Test No.: 8320	Sample Type: Undisturbed	Elevation: N/A <i>3/14/08</i>
	Description: Light Gray Fat CLAY (CH)		
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.020

*DSC*  
*3-14-08*

## CONSOLIDATION TEST DATA SUMMARY REPORT

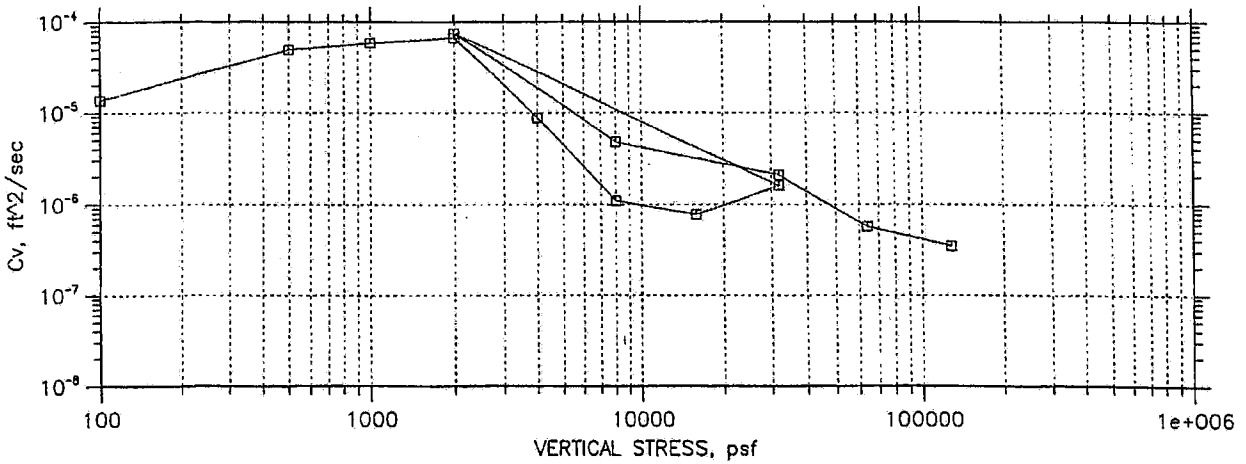
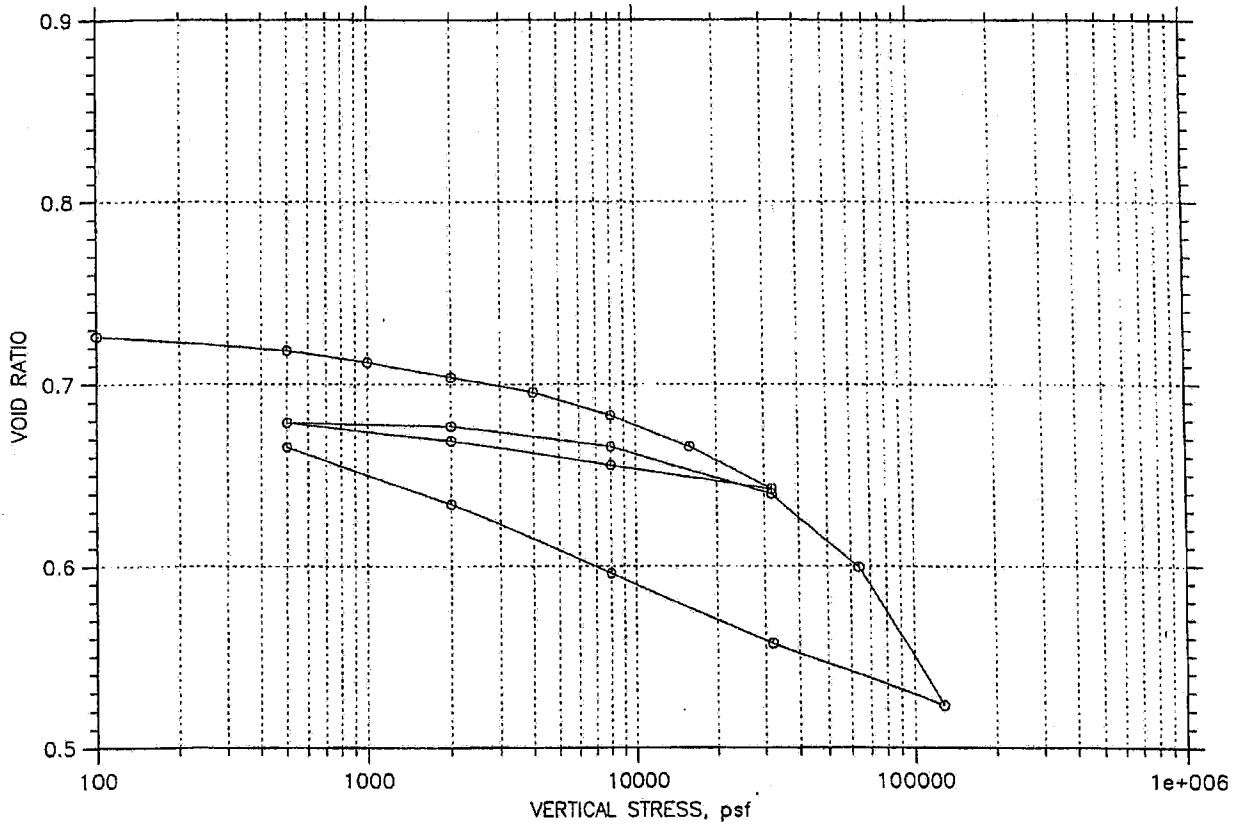


				Before Test	After Test
Overburden Pressure: 2.82e+004 psf				26.27	24.61
Preconsolidation Pressure: 4.96e+004 psf				98.23	102.
Compression Index: 0.252				98.05	100.61
Diameter: 2.499 in		Height: 1 in		0.73	0.67
LL: 56	PL: 25	PI: 31	GS: 2.72		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: 2274UD UD-22		Project No.: 6468071777	
	Boring No.: 2274UD		Tested By: JW		Checked By: HJ	
	Sample No.: UD-22		Test Date: 2/5/08		Depth: 400-401.3' <i>HJ</i>	
	Test No.: 8320		Sample Type: Undisturbed		Elevation: N/A <i>3/14/08</i>	
	Description: Light Gray Fat CLAY (CH)					
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04				Cr=0.020	

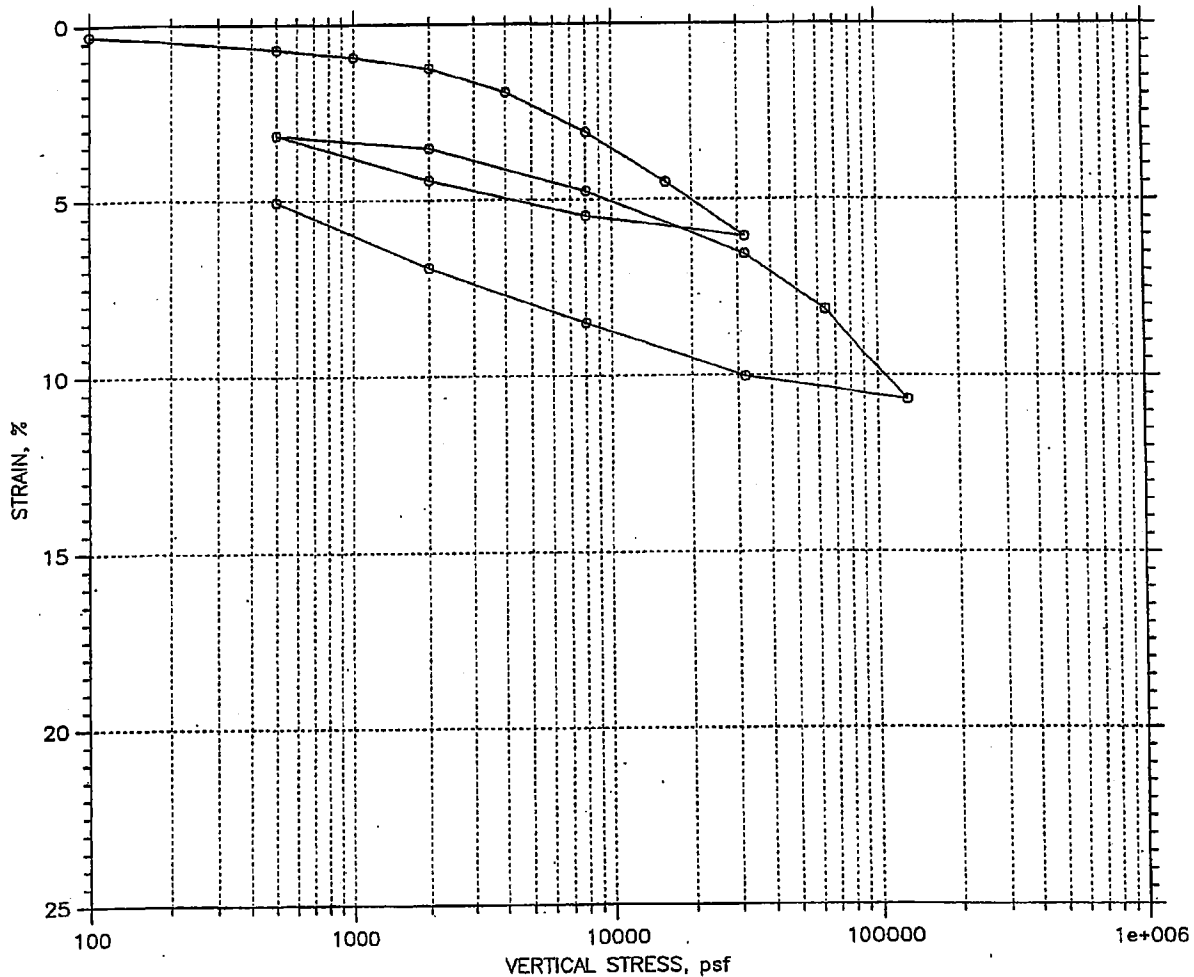
*DSC*  
*2-14-08*

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MACTEC</b>	Project: Exelon Texas COL Victoria Location: 2274UD UD-22		Project No.: 6468071777
	Boring No.: 2274UD		Tested By: JW
	Sample No.: UD-22		Checked By: HJ
	Test No.: 8320		Depth: 400-401.3' <i>H</i>
	Description: Light Gray Fat CLAY (CH)		Elevation: N/A <i>3/14/08</i>
	Remarks: CONSOLIDATION TEST REPORT By ASTM D 2435-04		Cr=0.020

## CONSOLIDATION TEST DATA SUMMARY REPORT



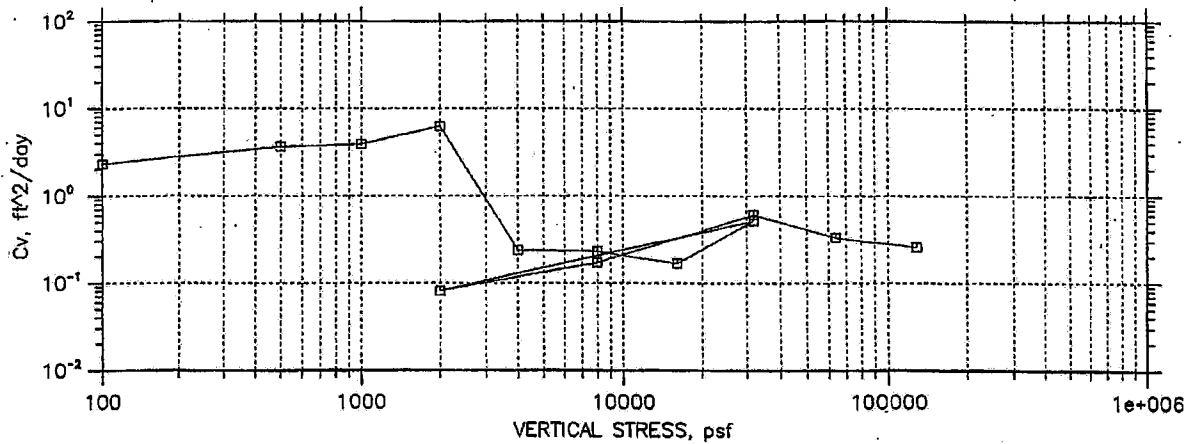
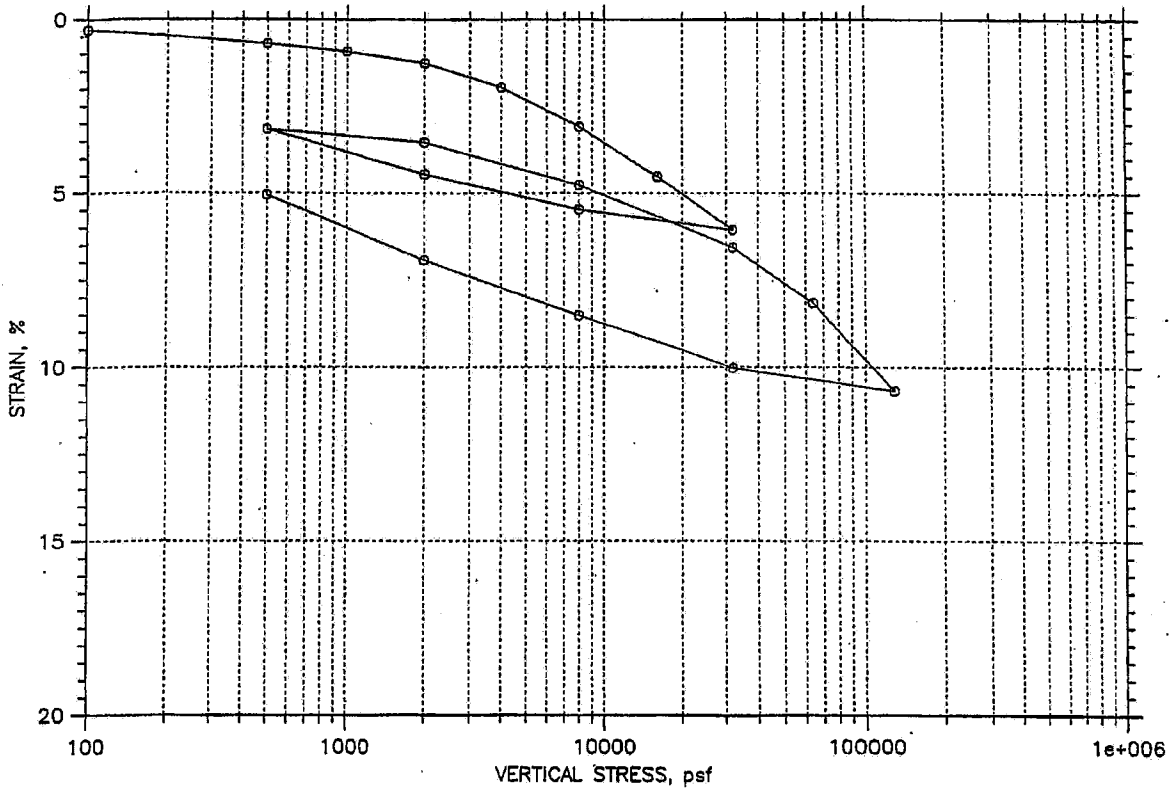
				Before Test	After Test
Overburden Pressure: 3.95e+004 psf				17.75	16.48
Preconsolidation Pressure: 5.07e+004 psf				111.	116.9
Compression Index: 0.126				92.57	100.88
Diameter: 2.499 in		Height: 0.9998 in		0.52	0.44
LL: 37	PL: 15	PI: 22	GS: 2.70		

<b>MACTEC</b>	Project: Exelon Texas COL Victoria		Location: 2274UD UD-26		Project No.: 6468071777	
	Boring No.: 2274UD		Tested By: BM		Checked By: JW	
	Sample No.: UD-26		Test Date: 3/11/08		Depth: 580-582.5' <i>JW</i>	
	Test No.: 8450		Sample Type: Undisturbed		Elevation: N/A <i>4/2/08</i>	
	Description: Light Gray Sandy Lean CLAY (CL)				Cr= 0.020	
Remarks: ASTM D 2435-04				Calculated Saturation Result Not Considered Reliable		

Wed, 02-APR-2008 14:49:00

*DSC*  
*4-2-08*

**CONSOLIDATION TEST DATA  
SUMMARY REPORT**

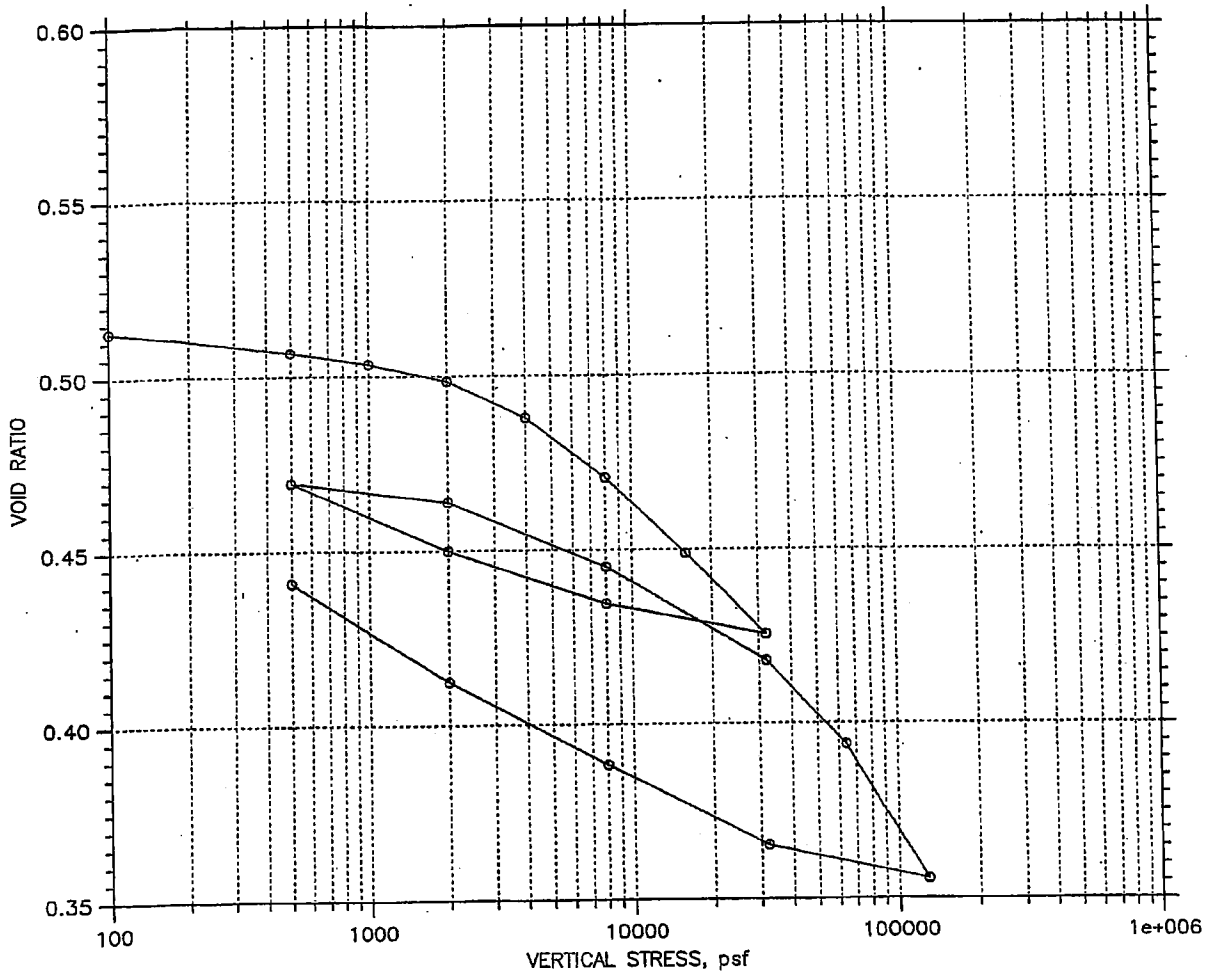


<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-26	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: BM	Checked By: JW
	Sample No.: UD-26	Test Date: 3/11/08	Depth: 580-582.5'
	Test No.: 8450	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)	Cr= 0.020	
	Remarks: ASTM D 2435-04	Calculated Saturation Result Not Considered Reliable	

Wed, 02-APR-2008 14:49:00

DSC  
4-2-08

## CONSOLIDATION TEST DATA SUMMARY REPORT



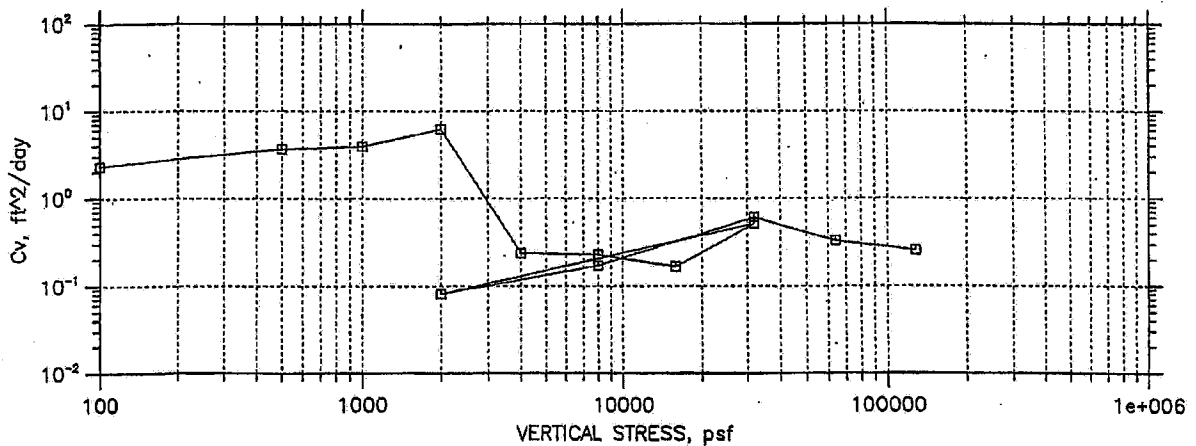
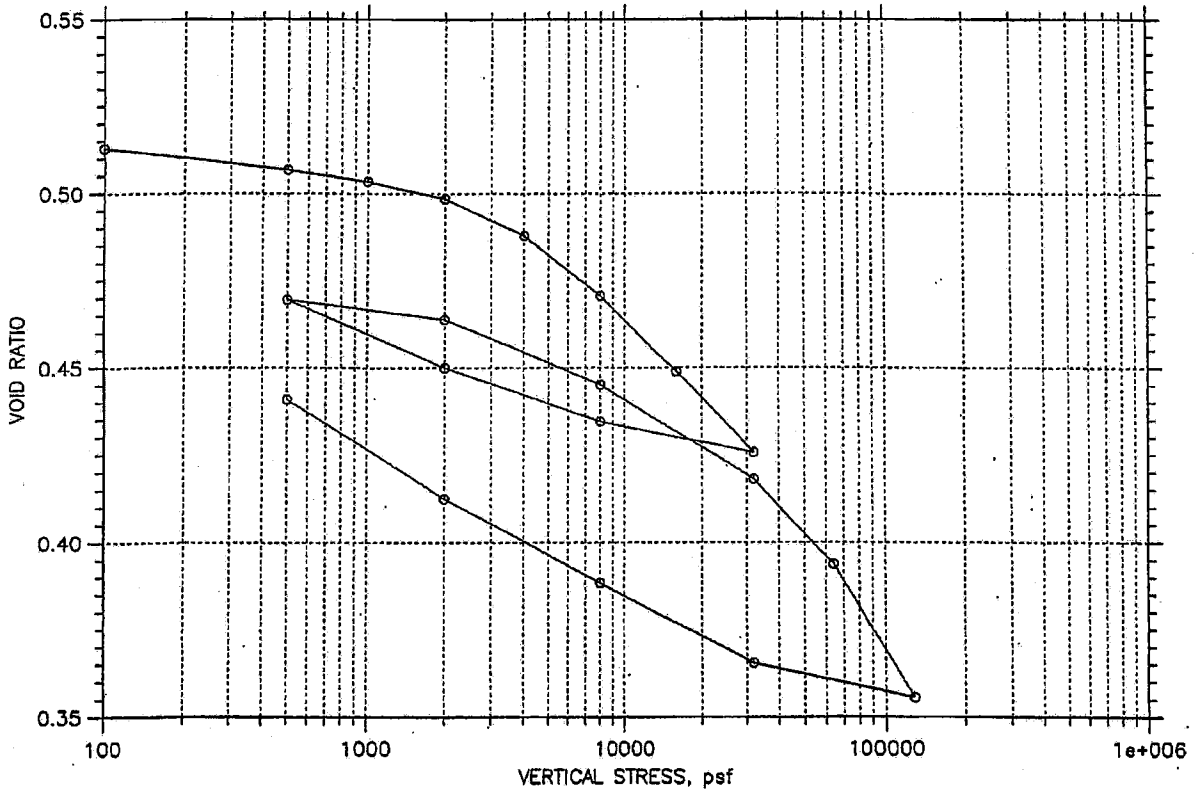
		Before Test	After Test
Overburden Pressure: 3.95e+004 psf		17.75	16.48
Preconsolidation Pressure: 5.07e+004 psf		111.	116.9
Compression Index: 0.126		92.57	100.88
Diameter: 2.499 in		Void Ratio	
Height: 0.9998 in			
LL: 37		0.52	0.44
PL: 15			
PI: 22			
GS: 2.70			

<b>MACTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-26	Project No.: 6468071777	
	Boring No.: 2274UD	Tested By: BM	Checked By: JW	
	Sample No.: UD-26	Test Date: 3/11/08	Depth: 580-582.5'	
	Test No.: 8450	Sample Type: Undisturbed	Elevation: N/A	
	Description: Light Gray Sandy Lean CLAY (CL)		Cr= 0.020	
	Remarks: ASTM D 2435-04		Calculated Saturation Result Not Considered Reliable	

Wed, 02-APR-2008 14:49:10

DSC  
4-2-08

## CONSOLIDATION TEST DATA SUMMARY REPORT



<b>MAGTEC</b>	Project: Exelon Texas COL Victoria	Location: 2274UD UD-26	Project No.: 6468071777
	Boring No.: 2274UD	Tested By: BM	Checked By: JW <i>JW</i>
	Sample No.: UD-26	Test Date: 3/11/08	Depth: 580-582.5' <i>4/2/08</i>
	Test No.: 8450	Sample Type: Undisturbed	Elevation: N/A
	Description: Light Gray Sandy Lean CLAY (CL)		Cr = 0.020
	Remarks: ASTM D 2435-04		Calculated Saturation Result Not Considered Reliable

Wed, 02-APR-2008 14:49:10

*DSC  
4-2-08*



# Soil Chemical Tests



**ANALYTICAL REPORT**

REVISED

PROJECT NO. 6468-07-1777

EXELON TEXAS COL PROJECT-VICTO

Lot #: F8D040131

Kathryn White

MACTEC ENGINEERING & CONSULTIN  
1540 N. 107TH EAST AVENUE  
TULSA, OK 74116

TESTAMERICA LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "Ivan Vania", is written over a horizontal dotted line.

Ivan Vania  
Project Manager

April 14, 2008

**Case Narrative**  
LOT NUMBER: F8D040131 – Revision 1

This report contains the analytical results for the 59 samples received under chain of custody by TestAmerica St. Louis on April 4, 2008. These samples are associated with your EXELON TEXAS COL PROJECT-VICTO project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Method 9045C is listed on the results report due to a limitation of the laboratory's data reporting system. However, method 9045D was used for the analysis of pH. This can be verified by observation of the lab bench worksheets in the raw data package.

This revision contains corrections for a sample ID.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

**Anions (MCAWW 300.0A)**

The MS recoveries for Sulfate in batch 8101311, Chloride in batch 8101313, and Chloride in batch 8101315 are outside the established QC limits. Matrix interference is physically evident in the soil sample. Method performance is demonstrated by acceptable LCS recovery.

**Affected Samples:**

F8D040131 (1): B-2160 SS-19  
F8D040131 (2): B-2160 SS-20  
F8D040131 (3): B-2160 SS-22  
F8D040131 (4): B-2160 SS-24  
F8D040131 (5): B-2160 SS-26  
F8D040131 (6): B-2160 SS-28  
F8D040131 (7): B-2160 SS-29  
F8D040131 (8): B-2265 SS-2  
F8D040131 (9): B-2265 SS-4  
F8D040131 (10): B-2265 SS-6  
F8D040131 (11): B-2265 SS-16  
F8D040131 (12): B-2265 SS-18  
F8D040131 (13): B-2265 SS-21  
F8D040131 (14): B-2265 SS-22

(narrative continued on next page)

F8D040131 (15): B-2265 SS-23B  
F8D040131 (16): B-2265 SS-26  
F8D040131 (17): B-2265 SS-8  
F8D040131 (18): B-2265 SS-12  
F8D040131 (19): B-2265 SS-14  
F8D040131 (20): B-2160 SS-2  
F8D040131 (21): B-2160 SS-4  
F8D040131 (22): B-2160 SS-8  
F8D040131 (23): B-2265 SS-10  
F8D040131 (24): B-2160 SS-12  
F8D040131 (25): B-2160 SS-14  
F8D040131 (26): B-2160 SS-18  
F8D040131 (27): B-2160 SS-6  
F8D040131 (28): B-2151 SS-1  
F8D040131 (29): B-2151 SS-3  
F8D040131 (30): B-2151 SS-5  
F8D040131 (31): B-2151 SS-7  
F8D040131 (32): B-2151 SS-9  
F8D040131 (33): B-2151 SS-11  
F8D040131 (34): B-2151 SS-13  
F8D040131 (35): B-2151 SS-15  
F8D040131 (36): B-2151 SS-17  
F8D040131 (37): B-2151 SS-19  
F8D040131 (38): B-2151 SS-21  
F8D040131 (39): B-2151 SS-23  
F8D040131 (40): B-2151 SS-25  
F8D040131 (41): B-2151 SS-28  
F8D040131 (42): B-2251 SS-1  
F8D040131 (43): B-2251 SS-3  
F8D040131 (44): B-2251 SS-5  
F8D040131 (45): B-2251 SS-7  
F8D040131 (46): B-2251 SS-9  
F8D040131 (47): B-2251 SS-11  
F8D040131 (48): B-2251 SS-13  
F8D040131 (49): B-2251 SS-15  
F8D040131 (50): B-2251 SS-17  
F8D040131 (51): B-2251 SS-19  
F8D040131 (52): B-2251 SS-21  
F8D040131 (53): B-2251 SS-23  
F8D040131 (54): B-2251 SS-25  
F8D040131 (55): B-2251 SS-27  
F8D040131 (56): B-2251 SS-28  
F8D040131 (57): B-2151 SS-26  
F8D040131 (58): B-2160 SS-11  
F8D040131 (59): B-2160 SS-15

There were no other nonconformances or observations noted with any analysis on this lot.

**METHODS SUMMARY**

F8D040131

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Chloride	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Soil and Waste pH	SW846 9045C	SW846 DI-LEACHA
Sulfate	MCAWW 300.0A	MCAWW 300.0A

**References:**

- MCAWW "Methods for Chemical Analysis of Water and Wastes",  
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

## SAMPLE SUMMARY

F8D040131

WO #	SAMPLE#	CLIENT	SAMPLE ID	SAMPLED DATE	SAMP TIME
KKPRF	001	B-2160	SS-19		
KKPR4	002	B-2160	SS-20	01/29/08	
KKPR5	003	B-2160	SS-22	01/29/08	
KKPR7	004	B-2160	SS-24	01/29/08	
KKPR8	005	B-2160	SS-26	01/29/08	
KKPTC	006	B-2160	SS-28	01/29/08	
KKPTD	007	B-2160	SS-29	01/29/08	
KKPTF	008	B-2265	SS-2	01/29/08	
KKPTK	009	B-2265	SS-4	01/29/08	
KKPTL	010	B-2265	SS-6	01/29/08	
KKPTN	011	B-2265	SS-16	01/29/08	
KKPTP	012	B-2265	SS-18	01/29/08	
KKPTT	013	B-2265	SS-21	01/29/08	
KKPTW	014	B-2265	SS-22	01/29/08	
KKPT0	015	B-2265	SS-23B	01/29/08	
KKPT1	016	B-2265	SS-26	01/29/08	
KKPT2	017	B-2265	SS-8	01/29/08	
KKPT4	018	B-2265	SS-12	01/29/08	
KKPT5	019	B-2265	SS-14	01/29/08	
KKPT6	020	B-2160	SS-2	01/29/08	
KKPVR	021	B-2160	SS-4	01/29/08	
KKPVX	022	B-2160	SS-8	01/29/08	
KKPV0	023	B-2265	SS-10	01/29/08	
KKPV1	024	B-2160	SS-12	01/29/08	
KKPV2	025	B-2160	SS-14	01/29/08	
KKPV4	026	B-2160	SS-18	01/29/08	
KKPV6	027	B-2160	SS-6	01/29/08	
KKPWH	028	B-2151	SS-1	01/29/08	
KKPWK	029	B-2151	SS-3	01/29/08	
KKPWL	030	B-2151	SS-5	01/29/08	
KKPWM	031	B-2151	SS-7	01/29/08	
KKPWN	032	B-2151	SS-9	01/29/08	
KKPWP	033	B-2151	SS-11	01/29/08	
KKPWX	034	B-2151	SS-13	01/29/08	
KKPWO	035	B-2151	SS-15	01/29/08	
KKPW1	036	B-2151	SS-17	01/29/08	

(Continued on next page)

## SAMPLE SUMMARY

F8D040131

WO #	SAMPLE#	CLIENT	SAMPLE ID	SAMPLED DATE	SAMP TIME
KKPW3	037	B-2151	SS-19	01/29/08	
KKPW4	038	B-2151	SS-21	01/29/08	
KKPW5	039	B-2151	SS-23	01/29/08	
KKPW6	040	B-2151	SS-25	01/29/08	
KKPW8	041	B-2151	SS-28	01/29/08	
KKPXA	042	B-2251	SS-1	01/29/08	
KKPXC	043	B-2251	SS-3	01/29/08	
KKPXE	044	B-2251	SS-5	01/29/08	
KKPXF	045	B-2251	SS-7	01/29/08	
KKPXG	046	B-2251	SS-9	01/29/08	
KKPXH	047	B-2251	SS-11	01/29/08	
KKPXJ	048	B-2251	SS-13	01/29/08	
KKPXK	049	B-2251	SS-15	01/29/08	
KKPXL	050	B-2251	SS-17	01/29/08	
KKPXM	051	B-2251	SS-19	01/29/08	
KKPXN	052	B-2251	SS-21	01/29/08	
KKPXQ	053	B-2251	SS-23	01/29/08	
KKPXR	054	B-2251	SS-25	01/29/08	
KKPXW	055	B-2251	SS-27	01/29/08	
KKPXX	056	B-2251	SS-28	01/29/08	
KKPX3	057	B-2151	SS-26	02/01/08	
KKPX5	058	B-2160	SS-11	02/01/08	
KKPX6	059	B-2160	SS-15	02/01/08	

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

LOT# F8D040131-Rev 1

6 of 110

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-19

General Chemistry

Lot-Sample #...: F8D040131-001    Work Order #...: KKPRF    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	30.1	11.9	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 5    Analysis Time...: 01:23		
Percent Moisture	16.0	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	42.5	29.8	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 5    Analysis Time...: 01:23		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-20

General Chemistry

Lot-Sample #...: F8D040131-002    Work Order #...: KKPR4    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	34.0	2.5	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 01:35		
Percent Moisture	19.2	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	78.0	6.2	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 01:35		

**NOTE(S) :**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-22

General Chemistry

Lot-Sample #...: F8D040131-003    Work Order #...: KKPR5    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	28.3	11.8	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 5    Analysis Time...: 01:48		
Percent Moisture	15.4	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	47.2	29.6	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 5    Analysis Time...: 01:48		

**NOTE (S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-24

General Chemistry

Lot-Sample #...: F8D040131-004    Work Order #...: KKPR7    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	36.2	2.6	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:00	04/10/08	8101310
Percent Moisture	22.2	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	44.0	6.4	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:00	04/10/08	8101311

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-26

General Chemistry

Lot-Sample #....: F8D040131-005    Work Order #....: KKPR8    Matrix.....: SOLID  
 Date Sampled....: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	38.1	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:12	04/10/08	8101310
Percent Moisture	13.1	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	22.1	5.8	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:12	04/10/08	8101311

**NOTE(S) :**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-28

General Chemistry

Lot-Sample #...: F8D040131-006    Work Order #...: KKPTC    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	14.6	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 02:25		
Percent Moisture	12.5	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	11.9	5.7	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 02:25		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-29

General Chemistry

Lot-Sample #...: F8D040131-007    Work Order #...: KKPTD    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	25.7	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 02:37		
Percent Moisture	12.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	24.2	5.7	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 02:37		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-2

General Chemistry

Lot-Sample #...: F8D040131-008    Work Order #...: KKPTF    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	14.0	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 02:49		
Percent Moisture	14.6	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	7.4	5.9	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 02:49		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-4

General Chemistry

Lot-Sample #...: F8D040131-009    Work Order #...: KKPTK    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	4.4	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:00	04/10/08	8101310
Percent Moisture	13.1	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	4.5 B	5.8	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:00	04/10/08	8101311

**NOTE(S) :**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.  
 B Estimated result. Result is less than RL.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-6

General Chemistry

Lot-Sample #....: F8D040131-010    Work Order #....: KKPTL    Matrix.....: SOLID  
 Date Sampled....: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.2	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	5.5	2.4	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:12	04/10/08	8101310
Percent Moisture	17.3	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	5.8 B	6.0	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:12	04/10/08	8101311

NOTE(S) :

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-16

General Chemistry

Lot-Sample #...: F8D040131-011    Work Order #...: KKPTN    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	7.0	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 03:46		
Percent Moisture	11.3	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	19.7	5.6	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 03:46		

**NOTE (S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-18

General Chemistry

Lot-Sample #...: F8D040131-012    Work Order #...: KKPTP    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 11

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	8.6	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	17.1	2.2	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:57	04/10/08	8101310
Percent Moisture	10.6	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	44.2	5.6	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:57	04/10/08	8101311

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-21

General Chemistry

Lot-Sample #...: F8D040131-013    Work Order #...: KKPTT    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	16.6	2.4	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:09	04/10/08	8101310
Percent Moisture	16.5	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	19.5	6.0	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:09	04/10/08	8101311

NOTE(S) :

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-22

General Chemistry

Lot-Sample #....: F8D040131-014    Work Order #....: KKPTW    Matrix.....: SOLID  
 Date Sampled....: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	40.7	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:20	04/10/08	8101310
Percent Moisture	14.0	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	22.5	5.8	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:20	04/10/08	8101311

**NOTE (S) :**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-23B

General Chemistry

Lot-Sample #...: F8D040131-015    Work Order #...: KKPT0    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 8.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	18.6	2.2	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:31	04/10/08	8101310
Percent Moisture	8.5	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	18.7	5.5	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:31	04/10/08	8101311

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-26

General Chemistry

Lot-Sample #...: F8D040131-016    Work Order #...: KKPT1    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098286
Chloride	34.7	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:43	04/10/08	8101310
Percent Moisture	13.1	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098036
Sulfate	23.8	5.8	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:43	04/10/08	8101311

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-8

General Chemistry

Lot-Sample #...: F8D040131-017    Work Order #...: KKPT2    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	5.1	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 04:54		
Percent Moisture	11.3	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	3.9 B	5.6	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 04:54		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- B Estimated result. Result is less than RL.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-12

General Chemistry

Lot-Sample #...: F8D040131-018    Work Order #...: KKPT4    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	8.1	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 1    Analysis Time...: 05:06		
Percent Moisture	13.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	3.6 B	5.8	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 05:06		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.  
 B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-14

General Chemistry

Lot-Sample #...: F8D040131-019    Work Order #...: KKPT5    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received..: 04/04/08  
 % Moisture.....: 9.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	21.7	11.0	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 5    Analysis Time...: 06:03		
Percent Moisture	9.4	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	54.8	5.5	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 05:17		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-2

General Chemistry

Lot-Sample #...: F8D040131-020    Work Order #...: KKPT6    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	04/08/08	8098286
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	18.0	12.8	mg/kg	MCAWW 300.0A	04/10/08	8101310
				Dilution Factor: 5    Analysis Time...: 06:37		
Percent Moisture	21.6	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098036
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	69.2	6.4	mg/kg	MCAWW 300.0A	04/10/08	8101311
				Dilution Factor: 1    Analysis Time...: 05:29		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-4

General Chemistry

Lot-Sample #...: F8D040131-021    Work Order #...: KKPVR    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	7.7	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	196 J	22.5	mg/kg	MCAWW 300.0A	04/10/08	8101313
				Dilution Factor: 10    Analysis Time...: 07:46		
Percent Moisture	11.2	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	452	56.3	mg/kg	MCAWW 300.0A	04/10/08	8101314
				Dilution Factor: 10    Analysis Time...: 07:46		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-8

General Chemistry

Lot-Sample #...: F8D040131-022    Work Order #...: KKPVX    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	282 J	24.4	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
				Dilution Factor: 10    Analysis Time...: 04:54		
Percent Moisture	18.2	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	724	61.1	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101314
				Dilution Factor: 10    Analysis Time...: 04:54		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2265 SS-10

General Chemistry

Lot-Sample #...: F8D040131-023    Work Order #...: KKPVO    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	5.4 J	2.2	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
				Dilution Factor: 1    Analysis Time...: 05:06		
Percent Moisture	10.4	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	3.8 B	5.6	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101314
				Dilution Factor: 1    Analysis Time...: 05:06		

NOTE(S):

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- B Estimated result. Result is less than RL.
- y

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-12

General Chemistry

Lot-Sample #....: F8D040131-024    Work Order #....: KKPV1    Matrix.....: SOLID  
 Date Sampled....: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	157 J	23.8	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10	Analysis Time...: 08:20		
Percent Moisture	16.1	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	382	59.6	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10	Analysis Time...: 08:20		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-14

General Chemistry

Lot-Sample #...: F8D040131-025    Work Order #...: KKPV2    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	50.3 J	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 1	Analysis Time...: 08:31		
Percent Moisture	12.1	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	184	5.7	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 1	Analysis Time...: 08:31		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-18

General Chemistry

Lot-Sample #...: F8D040131-026    Work Order #...: KKPV4    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	61.4 J	23.9	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10	Analysis Time...: 08:43		
Percent Moisture	16.4	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	135	59.8	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10	Analysis Time...: 08:43		

NOTE(S):

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-6

General Chemistry

Lot-Sample #...: F8D040131-027    Work Order #...: KKPV6    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	7.7	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	141 J	23.5	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10	Analysis Time...: 08:54		
Percent Moisture	14.9	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	4290	294	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101314
			Dilution Factor: 50	Analysis Time...: 05:17		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-1

General Chemistry

Lot-Sample #...: F8D040131-028    Work Order #...: KKPWH    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SWB46 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	108 J	23.4	mg/kg	MCAWW 300.0A	04/10/08	8101313
				Dilution Factor: 10    Analysis Time...: 09:17		
Percent Moisture	14.5	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	49.1	5.8	mg/kg	MCAWW 300.0A	04/10/08	8101314
				Dilution Factor: 1    Analysis Time...: 09:06		

**NOTE(S) :**

RL: Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-3

General Chemistry

Lot-Sample #...: F8D040131-029    Work Order #...: KKPWK    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	541 J	23.5	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10	Analysis Time...: 09:28		
Percent Moisture	14.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	397	58.7	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10	Analysis Time...: 09:28		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-5

General Chemistry

Lot-Sample #...: F8D040131-030    Work Order #...: KKPWL    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	293 J	22.8	mg/kg	MCAWW 300.0A	04/10/08	8101313
				Dilution Factor: 10    Analysis Time...: 10:03		
Percent Moisture	12.1	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	1420	56.9	mg/kg	MCAWW 300.0A	04/10/08	8101314
				Dilution Factor: 10    Analysis Time...: 10:03		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-7

General Chemistry

Lot-Sample #...: F8D040131-031    Work Order #...: KKPWM    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	683 J	47.7	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
			Dilution Factor: 20	Analysis Time...: 05:51		
Percent Moisture	16.2	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	613	59.7	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10	Analysis Time...: 10:14		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-9

General Chemistry

Lot-Sample #...: F8D040131-032    Work Order #...: KKPWN    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.2	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	630 J	48.9	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 20	Analysis Time...: 10:26		
Percent Moisture	18.3	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	477	122	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 20	Analysis Time...: 10:26		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-11

General Chemistry

Lot-Sample #...: F8D040131-033    Work Order #...: KKPWP    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	573 J	25.9	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10	Analysis Time...: 10:37		
Percent Moisture	22.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	573	64.8	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10	Analysis Time...: 10:37		

**NOTE(S) :**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-13

General Chemistry

Lot-Sample #...: F8D040131-034    Work Order #...: KKPWX    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time..: 00:00		
Chloride	58.1 J	2.4	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 1	Analysis Time..: 10:48		
Percent Moisture	15.5	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time..: 00:00		
Sulfate	63.4	5.9	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 1	Analysis Time..: 10:48		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-15

General Chemistry

Lot-Sample #....: F8D040131-035    Work Order #....: KKPW0    Matrix.....: SOLID  
 Date Sampled....: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	21.6 J	2.3	mg/kg	MCAWW 300.0A	04/10/08	8101313
				Dilution Factor: 1    Analysis Time...: 11:00		
Percent Moisture	14.5	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	43.8	5.8	mg/kg	MCAWW 300.0A	04/10/08	8101314
				Dilution Factor: 1    Analysis Time...: 11:00		

**NOTE(S):**

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-17

General Chemistry

Lot-Sample #...: F8D040131-036    Work Order #...: KKPW1    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	43.2 J	2.5	mg/kg	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 1	Analysis Time...: 11:11		
Percent Moisture	21.0	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	121	6.3	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 1	Analysis Time...: 11:11		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-19

General Chemistry

Lot-Sample #...: F8D040131-037    Work Order #...: KKPW3    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	66.6 J	4.6	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
				Dilution Factor: 2    Analysis Time...: 06:03		
Percent Moisture	12.7	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	55.2	5.7	mg/kg	MCAWW 300.0A	04/10/08	8101314
				Dilution Factor: 1    Analysis Time...: 11:23		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-21

General Chemistry

Lot-Sample #...: F8D040131-038    Work Order #...: KKPW4    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	56.9 J	4.5	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
			Dilution Factor: 2	Analysis Time...: 06:14		
Percent Moisture	12.0	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	37.4	5.7	mg/kg	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 1	Analysis Time...: 11:34		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-23

General Chemistry

Lot-Sample #...: F8D040131-039    Work Order #...: KKPW5    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 9.6

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	04/08/08	8098288
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	74.7 J	4.4	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
			Dilution Factor: 2	Analysis Time...: 06:26		
Percent Moisture	9.6	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	108	5.5	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101314
			Dilution Factor: 1	Analysis Time...: 12:31		

NOTE(S):

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-25

General Chemistry

Lot-Sample #...: F8D040131-040    Work Order #...: KKPW6    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	04/08/08	8098288
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	77.7 J	24.0	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101313
				Dilution Factor: 10    Analysis Time...: 12:54		
Percent Moisture	16.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098037
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	24.0	6.0	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101314
				Dilution Factor: 1    Analysis Time...: 12:43		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight:

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-28

General Chemistry

Lot-Sample #...: F8D040131-041    Work Order #...: KKPW8    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	93.4	11.5	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 5    Analysis Time...: 10:37		
Percent Moisture	12.7	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	22.9	5.7	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 1    Analysis Time...: 10:26		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-1

General Chemistry

Lot-Sample #...: F8D040131-042    Work Order #...: KKPXA    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	7.2	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	15.6	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 10:49	04/10-04/11/08	8101315
Percent Moisture	14.8	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	96.3	5.9	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 10:49	04/10-04/11/08	8101316

**NOTE(S) :**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-3

General Chemistry

Lot-Sample #...: F8D040131-043    Work Order #...: KKPXC    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.2	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	321	23.3	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 10    Analysis Time...: 11:00		
Percent Moisture	14.2	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	196	58.3	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 10    Analysis Time...: 11:00		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-5

General Chemistry

Lot-Sample #...: F8D040131-044    Work Order #...: KKPXE    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098289
			Dilution Factor: 1	Analysis Time...: 00:00		
Chloride	198	23.7	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
			Dilution Factor: 10	Analysis Time...: 11:46		
Percent Moisture	15.6	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
			Dilution Factor: 1	Analysis Time...: 00:00		
Sulfate	35.5	5.9	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
			Dilution Factor: 1	Analysis Time...: 11:34		

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-7

General Chemistry

Lot-Sample #...: F8D040131-045    Work Order #...: KKPF    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 22

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	8.3	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	241	25.6	mg/kg	MCAWW 300.0A Dilution Factor: 10 Analysis Time...: 11:57	04/10-04/11/08	8101315
Percent Moisture	21.9	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	250	64.0	mg/kg	MCAWW 300.0A Dilution Factor: 10 Analysis Time...: 11:57	04/10-04/11/08	8101316

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-9

General Chemistry

Lot-Sample #...: F8D040131-046    Work Order #...: KKPXG    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	8.5	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	173	23.5	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 10    Analysis Time...: 12:09		
Percent Moisture	14.9	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	220	58.8	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 10    Analysis Time...: 12:09		

**NOTE (S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-11

General Chemistry

Lot-Sample #...: F8D040131-047    Work Order #...: KKPXH    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	32.7	2.3	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 1    Analysis Time...: 01:17		
Percent Moisture	12.3	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	59.2	5.7	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 1    Analysis Time...: 01:17		

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-13

General Chemistry

Lot-Sample #...: F8D040131-048    Work Order #...: KKPXJ    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	39.0	2.4	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 01:29	04/10-04/11/08	8101315
Percent Moisture	16.4	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	15.8	6.0	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 01:29	04/10-04/11/08	8101316

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-15

General Chemistry

Lot-Sample #...: F8D040131-049 Work Order #...: KKPXK Matrix.....: SOLID
Date Sampled...: 01/29/08 Date Received...: 04/04/08
% Moisture.....: 12

Table with 8 columns: PARAMETER, RESULT, RL, UNITS, METHOD, PREPARATION-ANALYSIS DATE, PREP BATCH #. Rows include pH (solid), Chloride, Percent Moisture, and Sulfate with their respective values and analysis details.

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-17

General Chemistry

Lot-Sample #...: F8D040131-050    Work Order #...: KKPXL    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	50.1	2.6	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:03	04/10-04/11/08	8101315
Percent Moisture	23.2	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	124	6.5	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:03	04/10-04/11/08	8101316

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-19

General Chemistry

Lot-Sample #...: F8D040131-051    Work Order #...: KKEFXM    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 15

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	30.8	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:14	04/10-04/11/08	8101315
Percent Moisture	14.5	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	29.9	5.9	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:14	04/10-04/11/08	8101316

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-21

General Chemistry

Lot-Sample #...: F8D040131-052    Work Order #...: KKPXN    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	97.1	11.4	mg/kg	MCAWW 300.0A Dilution Factor: 5 Analysis Time...: 02:37	04/10-04/11/08	8101315
Percent Moisture	12.6	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	23.2	5.7	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:26	04/10-04/11/08	8101316

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-23

General Chemistry

Lot-Sample #...: F8D040131-053    Work Order #...: KKPXQ    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	455	25.6	mg/kg	MCAWW 300.0A Dilution Factor: 10 Analysis Time...: 03:00	04/10-04/11/08	8101315
Percent Moisture	21.8	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	25.2	6.4	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:49	04/10-04/11/08	8101316

NOTE(S) :

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-25

General Chemistry

Lot-Sample #...: F8D040131-054    Work Order #...: KKPXR    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	42.0	2.5	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:34	04/10-04/11/08	8101315
Percent Moisture	19.0	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	29.6	6.2	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:34	04/10-04/11/08	8101316

**NOTE (S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-27

General Chemistry

Lot-Sample #...: F8D040131-055    Work Order #...: KKPXW    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	42.3	2.3	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 1    Analysis Time...: 03:46		
Percent Moisture	12.0	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	17.0	5.7	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 1    Analysis Time...: 03:46		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2251 SS-28

General Chemistry

Lot-Sample #...: F8D040131-056    Work Order #...: KKPXX    Matrix.....: SOLID  
 Date Sampled...: 01/29/08    Date Received...: 04/04/08  
 % Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	59.2	2.4	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 1    Analysis Time...: 03:57		
Percent Moisture	16.0	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	17.2	6.0	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 1    Analysis Time...: 03:57		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2151 SS-26

General Chemistry

Lot-Sample #...: F8D040131-057    Work Order #...: KKPX3    Matrix.....: SOLID  
 Date Sampled...: 02/01/08    Date Received...: 04/04/08  
 % Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	04/08/08	8098289
Chloride	80.3	12.1	mg/kg	MCAWW 300.0A Dilution Factor: 5 Analysis Time...: 04:20	04/10-04/11/08	8101315
Percent Moisture	17.5	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	04/07-04/08/08	8098038
Sulfate	36.5	6.1	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 04:09	04/10-04/11/08	8101316

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.



MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-11

General Chemistry

Lot-Sample #...: F8D040131-058    Work Order #...: KKPX5    Matrix.....: SOLID  
 Date Sampled...: 02/01/08    Date Received...: 04/04/08  
 % Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	280	25.6	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 10    Analysis Time...: 04:31		
Percent Moisture	21.8	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	556	64.0	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 10    Analysis Time...: 04:31		

**NOTE(S):**

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: B-2160 SS-15

General Chemistry

Lot-Sample #...: F8D040131-059    Work Order #...: KKPX6    Matrix.....: SOLID  
 Date Sampled...: 02/01/08    Date Received...: 04/04/08  
 % Moisture.....: 16

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	9.0	0.10	No Units	SW846 9045C	04/08/08	8098289
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	36.4	2.4	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101315
				Dilution Factor: 1    Analysis Time...: 04:43		
Percent Moisture	16.3	0.10	%	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	117	6.0	mg/kg	MCAWW 300.0A	04/10-04/11/08	8101316
				Dilution Factor: 1    Analysis Time...: 04:43		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight:

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F8D040131

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	ND	Work Order #: KK7EF1AA 2.0	mg/kg	MB Lot-Sample #: F8D100000-310 MCAWW 300.0A	04/10/08	8101310
		Dilution Factor: 1 Analysis Time...: 12:58				
Chloride	0.58 B	Work Order #: KK7EJ1AA 2.0	mg/kg	MB Lot-Sample #: F8D100000-313 MCAWW 300.0A	04/10/08	8101313
		Dilution Factor: 1 Analysis Time...: 07:34				
Chloride	ND	Work Order #: KK7EMLAA 2.0	mg/kg	MB Lot-Sample #: F8D100000-315 MCAWW 300.0A	04/10-04/11/08	8101315
		Dilution Factor: 1 Analysis Time...: 10:01				
Sulfate	ND	Work Order #: KK7EG1AA 5.0	mg/kg	MB Lot-Sample #: F8D100000-311 MCAWW 300.0A	04/10/08	8101311
		Dilution Factor: 1 Analysis Time...: 12:58				
Sulfate	ND	Work Order #: KK7EL1AA 5.0	mg/kg	MB Lot-Sample #: F8D100000-314 MCAWW 300.0A	04/10/08	8101314
		Dilution Factor: 1 Analysis Time...: 07:34				
Sulfate	ND	Work Order #: KK7EP1AA 5.0	mg/kg	MB Lot-Sample #: F8D100000-316 MCAWW 300.0A	04/10-04/11/08	8101316
		Dilution Factor: 1 Analysis Time...: 10:01				

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	100	Work Order #: KKVKK1AA (99 - 101)	LCS Lot-Sample#: F8D070000-286 SW846 9045C	04/08/08	8098286
		Dilution Factor: 1		Analysis Time...: 00:00	
pH (solid)	100	Work Order #: KKVKL1AA (99 - 101)	LCS Lot-Sample#: F8D070000-288 SW846 9045C	04/08/08	8098288
		Dilution Factor: 1		Analysis Time...: 00:00	
pH (solid)	100	Work Order #: KVKML1AA (99 - 101)	LCS Lot-Sample#: F8D070000-289 SW846 9045C	04/08/08	8098289
		Dilution Factor: 1		Analysis Time...: 00:00	
Chloride	105	Work Order #: KK7EF1AC (90 - 110)	LCS Lot-Sample#: F8D100000-310 MCAWW 300.0A	04/10/08	8101310
		Dilution Factor: 1		Analysis Time...: 01:10	
Chloride	105	Work Order #: KK7BJ1AC (90 - 110)	LCS Lot-Sample#: F8D100000-313 MCAWW 300.0A	04/10/08	8101313
		Dilution Factor: 1		Analysis Time...: 07:23	
Chloride	106	Work Order #: KK7EM1AC (90 - 110)	LCS Lot-Sample#: F8D100000-315 MCAWW 300.0A	04/10-04/11/08	8101315
		Dilution Factor: 1		Analysis Time...: 09:50	
Sulfate	105	Work Order #: KK7EG1AC (90 - 110)	LCS Lot-Sample#: F8D100000-311 MCAWW 300.0A	04/10/08	8101311
		Dilution Factor: 1		Analysis Time...: 01:10	
Sulfate	108	Work Order #: KK7EL1AC (90 - 110)	LCS Lot-Sample#: F8D100000-314 MCAWW 300.0A	04/10/08	8101314
		Dilution Factor: 1		Analysis Time...: 07:23	
Sulfate	107	Work Order #: KK7EP1AC (90 - 110)	LCS Lot-Sample#: F8D100000-316 MCAWW 300.0A	04/10-04/11/08	8101316
		Dilution Factor: 1		Analysis Time...: 09:50	

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F8D040131

Matrix.....: SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	7.00	7.02	No Units	100	SW846 9045C	F8D070000-286 04/08/08	8098286
Work Order #: KKVKK1AA LCS Lot-Sample#: F8D070000-286 Dilution Factor: 1 Analysis Time...: 00:00							
pH (solid)	7.00	7.03	No Units	100	SW846 9045C	F8D070000-288 04/08/08	8098288
Work Order #: KKVKL1AA LCS Lot-Sample#: F8D070000-288 Dilution Factor: 1 Analysis Time...: 00:00							
pH (solid)	7.00	7.01	No Units	100	SW846 9045C	F8D070000-289 04/08/08	8098289
Work Order #: KVKM1AA LCS Lot-Sample#: F8D070000-289 Dilution Factor: 1 Analysis Time...: 00:00							
Chloride	20.0	21.1	mg/kg	105	MCAWW 300.0A	F8D100000-310 04/10/08	8101310
Work Order #: KK7EF1AC LCS Lot-Sample#: F8D100000-310 Dilution Factor: 1 Analysis Time...: 01:10							
Chloride	20.0	21.0	mg/kg	105	MCAWW 300.0A	F8D100000-313 04/10/08	8101313
Work Order #: KK7EJ1AC LCS Lot-Sample#: F8D100000-313 Dilution Factor: 1 Analysis Time...: 07:23							
Chloride	20.0	21.1	mg/kg	106	MCAWW 300.0A	F8D100000-315 04/10-04/11/08	8101315
Work Order #: KK7EM1AC LCS Lot-Sample#: F8D100000-315 Dilution Factor: 1 Analysis Time...: 09:50							
Sulfate	80.0	83.8	mg/kg	105	MCAWW 300.0A	F8D100000-311 04/10/08	8101311
Work Order #: KK7EG1AC LCS Lot-Sample#: F8D100000-311 Dilution Factor: 1 Analysis Time...: 01:10							
Sulfate	80.0	86.5	mg/kg	108	MCAWW 300.0A	F8D100000-314 04/10/08	8101314
Work Order #: KK7EL1AC LCS Lot-Sample#: F8D100000-314 Dilution Factor: 1 Analysis Time...: 07:23							
Sulfate	80.0	85.3	mg/kg	107	MCAWW 300.0A	F8D100000-316 04/10-04/11/08	8101316
Work Order #: KK7EP1AC LCS Lot-Sample#: F8D100000-316 Dilution Factor: 1 Analysis Time...: 09:50							

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131  
 Date Sampled...: 01/29/08

Date Received...: 04/04/08

Matrix.....: SOLID

Percent Moisture: 0.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	110	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-020 04/10/08	8101310
			Dilution Factor: 5	Analysis Time...: 06:37	
Chloride	111 N	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-033 04/10-04/11/08	8101313
			Dilution Factor: 10	Analysis Time...: 10:37	
Chloride	117 N	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-043 04/10-04/11/08	8101315
			Dilution Factor: 10	Analysis Time...: 11:00	
Sulfate	82 N	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-020 04/10/08	8101311
			Dilution Factor: 1	Analysis Time...: 05:29	
Sulfate	107	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-033 04/10-04/11/08	8101314
			Dilution Factor: 10	Analysis Time...: 10:37	
Sulfate	109	(90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8D040131-043 04/10-04/11/08	8101316
			Dilution Factor: 10	Analysis Time...: 11:00	

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Results and reporting limits have been adjusted for dry weight.  
 N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131      Work Order #...: KKPW6-SMP      Matrix.....: SOLID

KKPW6-DUP

Date Sampled...: 01/29/08      Date Received...: 04/04/08

% Moisture.....: 17

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Percent Moisture	16.8	17.0	%	1.1	(0-30)	MCAWW 160.3 MOD	04/07-04/08/08	8098037

SD Lot-Sample #: F8D040131-040  
Dilution Factor: 1      Analysis Time...: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #....: F8D040131      Work Order #....: KKPX6-SMP      Matrix.....: SOLID

KKPX6-DUP

Date Sampled....: 02/01/08      Date Received...: 04/04/08

% Moisture.....: 16

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Percent Moisture	16.3	14.3	%	13	(0-30)	MCAWW 160.3 MOD	04/07-04/08/08	8098038
				Dilution Factor: 1	Analysis Time...: 00:00			
						SD Lot-Sample #: F8D040131-059		



SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131

Work Order #...: KKPRF-SMP  
KKPRF-DUP

Matrix.....: SOLID

Date Sampled...: 01/29/08

Date Received...: 04/04/08

% Moisture.....: 16

<u>PARAM</u>	<u>RESULT</u>	<u>DUPLICATE</u>	<u>UNITS</u>	<u>RPD</u>	<u>LIMIT</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>PREP</u>
		<u>RESULT</u>					<u>ANALYSIS DATE</u>	<u>BATCH #</u>
pH (solid)	8.5	8.6	No Units	1.5	(0-0.0)	SW846 9045C	04/08/08	8098286
			Dilution Factor: 1			Analysis Time...: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #....: F8D040131

Work Order #....: KKPVR-SMP  
KKPVR-DUP

Matrix.....: SOLID

Date Sampled...: 01/29/08

Date Received...: 04/04/08

% Moisture.....: 11

PARAM	RESULT	DUPLICATE	UNITS	RPD	RPD	LIMIT	METHOD	PREPARATION-	PREP
		RESULT						ANALYSIS DATE	BATCH #
pH (solid)	7.7	7.7	No Units	0.65	(0-0.0)	SW846 9045C	SD Lot-Sample #: F8D040131-021	04/08/08	8098288
			Dilution Factor: 1			Analysis Time...: 00:00			

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131      Work Order #...: KKPW8-SMP      Matrix.....: SOLID  
Date Sampled...: 01/29/08      KKPW8-DUP  
% Moisture.....: 13      Date Received...: 04/04/08

<u>PARAM</u>	<u>RESULT</u>	<u>DUPLICATE</u>	<u>UNITS</u>	<u>RED</u>	<u>RPD</u>	<u>LIMIT</u>	<u>METHOD</u>	<u>PREPARATION-</u>	<u>PREP</u>
		<u>RESULT</u>						<u>ANALYSIS DATE</u>	<u>BATCH #</u>
pH (solid)	8.6	8.4	No Units	1.4	(0-0.0)	SW846	9045C	04/08/08	8098289
			Dilution Factor: 1				Analysis Time...: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131      Work Order #...: KKPT6-SMP      Matrix.....: SOLID  
 Date Sampled...: 01/29/08      KKPT6-DUP  
 Date Received...: 04/04/08  
 % Moisture.....: 22

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	18.0	18.2	mg/kg	0.91	(0-20)	MCAWW 300.0A	SD Lot-Sample #: F8D040131-020 04/10/08	8101310
			Dilution Factor: 5			Analysis Time...: 06:37		
Sulfate	69.2	71.1	mg/kg	2.7	(0-20)	MCAWW 300.0A	SD Lot-Sample #: F8D040131-020 04/10/08	8101311
			Dilution Factor: 1			Analysis Time...: 05:29		
Percent Moisture	21.6	21.3	%	1.5	(0-30)	MCAWW 160.3 MOD	SD Lot-Sample #: F8D040131-020 04/07-04/08/08 8098036	
			Dilution Factor: 1			Analysis Time...: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F8D040131      Work Order #...: KKPWP-SMP      Matrix.....: SOLID  
 Date Sampled...: 01/29/08      Date Received...: 04/04/08  
 % Moisture.....: 23

PARAM RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride							
573 J	567	mg/kg	1.1	(0-20)	MCAWW 300.0A	04/10/08	8101313
			Dilution Factor: 10		Analysis Time..: 10:37		
Sulfate							
573	573	mg/kg	0.090	(0-20)	MCAWW 300.0A	04/10/08	8101314
			Dilution Factor: 10		Analysis Time..: 10:37		

NOTE(S) :

- Calculations are performed before rounding to avoid round-off errors in calculated results.
- Results and reporting limits have been adjusted for dry weight.
- J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

**SAMPLE DUPLICATE EVALUATION REPORT**

**General Chemistry**

Client Lot #...: F8D040131      Work Order #...: KKPXC-SMP      Matrix.....: SOLID  
 Date Sampled...: 01/29/08      KKPXC-DUP  
 % Moisture.....: 14      Date Received...: 04/04/08

PARAM RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	321	mg/kg	7.1	(0-20)	MCAWW 300.0A	04/10-04/11/08	8101315
		Dilution Factor: 10			Analysis Time...: 11:00	SD Lot-Sample #: F8D040131-043	
Sulfate	196	mg/kg	5.4	(0-20)	MCAWW 300.0A	04/10-04/11/08	8101316
		Dilution Factor: 10			Analysis Time...: 11:00	SD Lot-Sample #: F8D040131-043	

**NOTE (S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Results and reporting limits have been adjusted for dry weight.

F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373686 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	B-2160 SS-19			2008-01-29 / 0	KKPRF	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	88	SOLID, 160.3 MOD, Percent Moisture NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z WRK LOC 06
X XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	B-2160 SS-20			2008-01-29 / 0	KKPR4	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	88	SOLID, 160.3 MOD, Percent Moisture NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
3	B-2160 SS-22			2008-01-29 / 0	KKPR5	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	88	SOLID, 160.3 MOD, Percent Moisture NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	B-2160 SS-24			2008-01-29 / 0	KKPR7	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	88	SOLID, 160.3 MOD, Percent Moisture NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
5	B-2160 SS-26			2008-01-29 / 0	KKPR8	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	88	SOLID, 160.3 MOD, Percent Moisture NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z WRK LOC 06

F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
6	B-2160 SS-28			2008-01-29 / 0	KKPTC	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX WM	MCAW 160.3 MOD W	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
7	B-2160 SS-29			2008-01-29 / 0	KKPTD	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX WM	MCAW 160.3 MOD W	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
8	B-2265 SS-2			2008-01-29 / 0	KKPTF	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX WM	MCAW 160.3 MOD W	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
9	B-2265 SS-4			2008-01-29 / 0	KKPTK	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX WM	MCAW 160.3 MOD W	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
10	B-2265 SS-6			2008-01-29 / 0	KKPTL	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B	WRK LOC 06
XX WM	MCAW 160.3 MOD W	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
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F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXÁS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

11	B-2265 SS-16	2008-01-29 / 0	KKPTN	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

12	B-2265 SS-18	2008-01-29 / 0	KKPTP	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

13	B-2265 SS-21	2008-01-29 / 0	KKPTT	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

14	B-2265 SS-22	2008-01-29 / 0	KKPTW	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

15	B-2265 SS-23B	2008-01-29 / 0	KKPTO	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

16	B-2265 SS-26	2008-01-29 / 0	KKPT1	SOLID
<b>SAMPLE COMMENTS:</b>				

TestAmerica - St. Louis Logged in by: VANIAI 2008-04-14 8:16:55 printed on: Monday, April 14, 2008 09:54 AM Page 3 of 12

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F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS In LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

**SAMPLE # CLIENT SAMPLE ID Site ID Client Matrix DATE/TIME SAMPLED WORKORDER A**  
 17 B-2265 SS-8 2008-01-29 / 0 KKPT2 SOLID

**SAMPLE COMMENTS:**

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

**SAMPLE # CLIENT SAMPLE ID Site ID Client Matrix DATE/TIME SAMPLED WORKORDER A**  
 18 B-2265 SS-12 2008-01-29 / 0 KKPT4 SOLID

**SAMPLE COMMENTS:**

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

**SAMPLE # CLIENT SAMPLE ID Site ID Client Matrix DATE/TIME SAMPLED WORKORDER A**  
 19 B-2265 SS-14 2008-01-29 / 0 KKPT5 SOLID

**SAMPLE COMMENTS:**

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

**SAMPLE # CLIENT SAMPLE ID Site ID Client Matrix DATE/TIME SAMPLED WORKORDER A**  
 20 B-2160 SS-2 2008-01-29 / 0 KKPT6 SOLID

**SAMPLE COMMENTS:**

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06
S XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
S XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
X XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
X XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06

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**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS In LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

X	XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z	WRK 06	LOC
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SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
21	B-2160 SS-4			2008-01-29 / 0	KKPVR	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK 06	LOC
X	XX	OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
22	B-2160 SS-8			2008-01-29 / 0	KKPVX	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK 06	LOC

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
23	B-2265 SS-10			2008-01-29 / 0	KKPV0	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK 06	LOC

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
24	B-2160 SS-12			2008-01-29 / 0	KKPV1	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK 06	LOC

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
25	B-2160 SS-14			2008-01-29 / 0	KKPV2	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK 06	LOC

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**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quots #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS In LOT: 59

Caition Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD	Moisture		PERFORMED / DIRECT				LOC	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
26	B-2160 SS-18			2008-01-29 / 0	KKPV4	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)
						01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION
		W	MOD	Moisture		PERFORMED / DIRECT
						01 STANDARD TEST SET
						PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
27	B-2160 SS-6			2008-01-29 / 0	KKPV6	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)
						01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION
		W	MOD	Moisture		PERFORMED / DIRECT
						01 STANDARD TEST SET
						PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
28	B-2151 SS-1			2008-01-29 / 0	KKPWH	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)
						01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION
		W	MOD	Moisture		PERFORMED / DIRECT
						01 STANDARD TEST SET
						PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
29	B-2151 SS-3			2008-01-29 / 0	KKPWK	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)
						01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION
		W	MOD	Moisture		PERFORMED / DIRECT
						01 STANDARD TEST SET
						PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
30	B-2151 SS-5			2008-01-29 / 0	KKPWL	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)
		W				01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)
						01 STANDARD TEST SET
						PROT: B WRK LOC 06
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent	88	NO SAMPLE PREPARATION
		W	MOD	Moisture		PERFORMED / DIRECT
						01 STANDARD TEST SET
						PROT: Z WRK LOC 06

F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG;  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
31	B-2151 SS-7			2008-01-29 / 0	KKPWM	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88 NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
32	B-2151 SS-9			2008-01-29 / 0	KKPWN	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88 NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
33	B-2151 SS-11			2008-01-29 / 0	KKPWP	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88 NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z WRK LOC	06
S XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
S XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
X XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
X XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
34	B-2151 SS-13			2008-01-29 / 0	KKPWX	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88 NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT: Z WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
35	B-2151 SS-15			2008-01-29 / 0	KKPWO	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT: B WRK LOC	06

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**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A			
36	B-2151 SS-17			2008-01-29 / 0	KKPW1	SOLID			
<b>SAMPLE COMMENTS:</b>									
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A			
37	B-2151 SS-19			2008-01-29 / 0	KKPW3	SOLID			
<b>SAMPLE COMMENTS:</b>									
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A			
38	B-2151 SS-21			2008-01-29 / 0	KKPW4	SOLID			
<b>SAMPLE COMMENTS:</b>									
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A			
39	B-2151 SS-23			2008-01-29 / 0	KKPW5	SOLID			
<b>SAMPLE COMMENTS:</b>									
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A			
40	B-2151 SS-25			2008-01-29 / 0	KKPW6	SOLID			
<b>SAMPLE COMMENTS:</b>									
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06

F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX WM	MCAW 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z	WRK LOC	06
X XX WM	MCAW 180.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
41	B-2151 SS-28			2008-01-29 / 0	KKPWB	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z WRK LOC 06
X XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
42	B-2251 SS-1			2008-01-29 / 0	KKPXA	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
43	B-2251 SS-3			2008-01-29 / 0	KKPXC	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z WRK LOC 06
S XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
S XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
X XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
X XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
44	B-2251 SS-5			2008-01-29 / 0	KKPXE	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT:B WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT:Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
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LOT# F8D040131-Rev 1

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F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

45	B-2251 SS-7	2008-01-29 / 0	KKPXF	SOLID
<b>SAMPLE COMMENTS:</b>				
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
46	B-2251 SS-9			2008-01-29 / 0	KKPXG	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
47	B-2251 SS-11			2008-01-29 / 0	KKPXH	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
48	B-2251 SS-13			2008-01-29 / 0	KKPXJ	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
49	B-2251 SS-15			2008-01-29 / 0	KKPXK	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine) 01 STANDARD TEST SET PROT: B WRK LOC 06		
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT 01 STANDARD TEST SET PROT: Z WRK LOC 06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
50	B-2251 SS-17			2008-01-29 / 0	KKPXL	SOLID
<b>SAMPLE COMMENTS:</b>						

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F8D040131

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283  
 Date Received: 2008-04-04  
 Analytical Due Date: 2008-04-11  
 Report Due Date: 2008-04-11  
 Report Type: X  
 EDD Code: 00

Project Manager: IV Quote #: 71966 SDG:  
 Project: 6468-07-1777 EXELON TEXAS COL PROJECT-VI  
 PO#: 2008086614 Report to: KATHRYN WHITE  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS in LOT: 59

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
51	B-2251 SS-19			2008-01-29 / 0	KKPXM	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
52	B-2251 SS-21			2008-01-29 / 0	KKPXN	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
53	B-2251 SS-23			2008-01-29 / 0	KKPXQ	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
54	B-2251 SS-25			2008-01-29 / 0	KKPXR	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06
XX WM	MCAW 160.3 MOD W	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET PROT: Z WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
55	B-2251 SS-27			2008-01-29 / 0	KKPXW	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET PROT: B WRK LOC 06

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**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-281-283

Project Manager: IV

Quote #: 71966 SDG:

Date Received: 2008-04-04

Project: 6468-07-1777

EXELON TEXAS COL PROJECT-VI

Analytical Due Date: 2008-04-11

PO#: 2008086614

Report to: KATHRYN WHITE

**RUSH**

Report Due Date: 2008-04-11

Client: 373886 MACTEC Engineering and Consulting Inc

#SMPS in LOT: 59

Report Type: X

EDD Code: 00

Caution Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
										LOC	
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
56	B-2251 SS-28			2008-01-29 / 0	KKPXX	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
										LOC	
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
57	B-2151 SS-26			2008-02-01 / 0	KKPX3	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
										LOC	
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
58	B-2160 SS-11			2008-02-01 / 0	KKPX5	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
										LOC	
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
59	B-2160 SS-15			2008-02-01 / 0	KKPX6	SOLID

**SAMPLE COMMENTS:**

XX	CX	MCAW	300.0A	SOLID, 300.0A, Chloride	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	CY	MCAW	300.0A	SOLID, 300.0A, Sulfate	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
		W								LOC	
XX	OZ	SW846	9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK	06
										LOC	
XX	WM	MCAW	160.3	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	
X	XX	WM	MCAW	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: Z	WRK	06
		W	MOD							LOC	

3

CHAIN OF CUSTODY RECORD  
EXELON CO. VICTORIA SITE; GEOLOGIC/GEO TECHNICAL EXPLORATION  
MACTEC JOB NO. 6468-07-1777

No. \_\_\_\_\_

LOT# F8D040131-Rev 1

Volume 3, Rev. 0 - 7/10/08

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Cooler #1

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS
B-2160 33-19	JAK	CS	1/29/08	CHEMICAL TESTING	SDOg
B-2160 35-20					
B-2160 35-22					
B-2160 35-24					
B-2160 35-26					
B-2160 35-28					
B-2160 35-29					
Relinquished by:	Date/Time	Received by:	Relinquished by:	Received by:	Date/Time
<i>E. Senkowsky</i>	1/29/08	<i>[Signature]</i>	(signature)	(signature)	
(signature)	1:30 PM		Received at Laboratory	(signature)	Date/Time
Relinquished by:	Date/Time	Received by:	(signature)	(signature)	(signature)
(signature)		(signature)	(signature)	(signature)	(signature)

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

*Fed. Ex Tracking # 7924 9601-3258*

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

ORIGINAL

DCN No. \_\_\_\_\_

90 OF 110

DCN# EXE805

TestAmerica St. Louis

*2*

*cooler #2*

CHAIN OF CUSTODY RECORD  
EXELON COL VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
MACTEC JOB NO. 6468-07-1777

No. \_\_\_\_\_

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE		REMARKS
B-2265 SS-2	JAR	CS	1/29/08	CHEMICAL TESTING		500g
B-2265 SS-4	JAR	CO	1/29/08			mt 1300g
B-2265 SS-6						
B-2265 SS-16						
B-2265 SS-18						
B-2265 SS-21						
B-2265 SS-22						
B-2265 SS-23B						
B-2265 SS-26						
Relinquished by: <i>Chane Awonapoli</i> (signature)		Date/Time 1/29/08 1:30 PM	Received by: <i>[Signature]</i> (signature)	Relinquished by: (signature)	Received by: (signature)	Date/Time
Relinquished by: (signature)		Date/Time	Received by: (signature)	Relinquished by: (signature)	Received at Laboratory (signature)	Date/Time

Remarks: If relinquishing to a common carrier, or Fed Ex - write freight bill or tracking number here.

*Fed Exp. Tracking # 7926-3926-9255*

**ORIGINAL**

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

DCN No. \_\_\_\_\_

LOT# F8D040131-Rev 1

Case # 23

CHAIN OF CUSTODY RECORD  
EXELON COL VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
MACTEC JOB NO. 6468-07-1777

No. \_\_\_\_\_

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS	
B-2265 SS-8	JAR	CS	1/29/08	CHEMICAL TESTING	500g	
B-2265 SS-12						
B-2265 SS-14						
B-2160 SS-2						
B-2160 SS-4						
B-2160 SS-6						
B-2160 SS-8						
B-2160 SS-10						
B-2160 SS-12						
B-2160 SS-14						
B-2160 SS-18						
Relinquished by:		Date/Time	Received by:	Relinquished by:	Received by:	Date/Time
<i>(Signature)</i>		1/29/08 1:30 PM	<i>(Signature)</i> 1-29-08 0915	(signature)	(signature)	
Relinquished by:		Date/Time	Received by:	Relinquished by:	Received at Laboratory	Date/Time
<i>(Signature)</i>			(signature)	(signature)	(signature)	

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

Fed Exp. Tracking # 7918-4034 9729

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers. ORIGINAL

\* sample not received. Sample B-2265 SS-10 rec. Logged w/ 1-29-08 sample date

DCN No. \_\_\_\_\_

### GEOTECHNICAL LABORATORY TEST ASSIGNMENT

1/11/2008

Job Name: Escalon Texas COL (Victoria)

Job No.

25352

Requested By

D. Gerken

Lot # 8 Victoria

Date	Sample Type	SAMPLE LOCATION				PHYSICAL PROPERTIES							STRENGTH TESTS					COMPACTION		CONSOLIDATION  NOTE: Stress increments and rebound cycles, etc.					
		Depth (ft)	Sample/Cora Run Number	Field Classification	Recovery (ft)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Unconsolidated- Undrained Triaxial (3-stage w/ pore-pressure meas.)	Unconsolidated Compression (Soil)	Comping Pressures (psi)	Direct Shear	Triax	Unconfined (Soil)	Unconfined (Fib)	Unconfined (Fib)		Compressive (psi) @ Vertical Stress	Compressive (psi) @ Horizontal Stress	Standard Proctor (lb)	Modified (A, B, C, D)	
										Sieve Only	Sieve + Hydrometer														Chemical Analysis (Cl-, chloride, sulfate)
		88.5	SS-21	CH	1.20	X		X		X															
		92.5	SS-22	SP-SO	0.90		X			X															
		99.5	SS-23	CH	0.60	X		X		X															
		108.5	SS-24	CH	1.55	X		X	X	X															
		118.5	SS-25	CH	1.58	X		X		X															
		128.5	SS-26	SP-SO	0.75		X			X															
		138.5	SS-27	SP-SO	0.20					X															
		148.5	SS-28	CH	1.50	X		X	X	X															
		158.5	SS-29	CH	1.56	X		X	X	X															
		168.5	SS-30	SP	1.15		X	X		X															
		178.5	SS-31	SP	1.07					X															
		188.5	SS-32	SO	0.65	X		X	X	X															
		198.5	SS-33	SP	1.00					X															

Contact John Davie of Bechtel if there are any questions; Phone (301) 228-7847; e-mail JDAVIE@BECHTEL.COM.

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Job Name Exelon-Texas COE (Victoria) Job No. 25352 Requested By D. Gerken

Boring No.	Sample Type (Use Sample Label)	Top of Sample Core, Depth, Ft.	LOCATION		PHYSICAL PROPERTIES										STRENGTH TESTS							COMPACTION		CONSOLIDATION NOTE: Stress increments and rebound cycles, ksf.												
			Sample Run Number	Field Classification	Recovery (ft)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (ppt, chlorides, sulfate)	Organic Content	Unconsolidated Undrained Triaxial	Consolidated Undrained Triaxial (3-stage w/ pore pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psf)	Direct Shear	TSFC	Unconfined Compression (rock)	Unconfined Compression (rock) w/ stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)		CBR											
										Slave Only	Slave + Hydrometer															Unconfined	Compression (rock)									
B-2265	Jar	11.0	SS-6	CH	1.10	X		X	X			X	X																							
B-2265	Jar	13.5	SS-6	CH	1.40	X		X	X			X	X																							
B-2265	Jar	18.5	SS-7	CH	1.50	X		X	X			X	X																							
B-2265	Jar	23.5	SS-8	CH	1.40	X		X	X			X	X																							
B-2265	Jar	28.5	SS-9	CH	1.60	X		X	X			X	X																							
B-2265	Jar	33.5	SS-10	CH	1.40	X		X	X			X	X																							
B-2265	Jar	38.5	SS-11	CH	1.00	X		X	X			X	X																							
B-2265	Jar	43.5	SS-12	SM	1.20	X		X	X			X	X																							
B-2265	Jar	48.5	SS-13	SM	1.58	X		X	X			X	X																							
B-2265	Jar	53.5	SS-14	SC	1.00	X		X	X			X	X																							
B-2265	Jar	58.5	SS-15	SM	1.80	X		X	X			X	X																							
B-2265	Jar	63.5	SS-16	CH	0.70	X		X	X			X	X																							
B-2265	Jar	68.5	SS-17	CM	0.60	X		X	X			X	X																							
B-2265	Jar	73.5	SS-18	CH	1.40	X		X	X			X	X																							
B-2265	Jar	78.5	SS-19	CH	1.40	X		X	X			X	X																							
B-2265	Jar	83.5	SS-20	SC	1.20	X		X	X			X	X																							
B-2265	Jar	88.5	SS-21	SC	1.50	X		X	X			X	X																							
B-2265	Jar	93.5	SS-22	SP	1.20	X		X	X			X	X																							
B-2265	Jar	98.5	SS-23	SP	0.40	X		X	X			X	X																							
B-2265	Jar	99.0	SS-24	CH	0.70	X		X	X			X	X																							

Contact John Davis of Bechtel if there are any questions: Phone (901) 226-7647; e-mail JDAVIE@BECHTEL.COM.

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TestAmerica St. Louis

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

1/11/2008

Job Name: Exelon Texas COL (Victoria)

Job No: \_\_\_\_\_

25952

Requested By \_\_\_\_\_

D: Gerkan

1/11/2008  
Exelon Texas COL (Victoria)

SAMPLE LOCATION	PHYSICAL PROPERTIES										STRENGTH TESTS										COMPF. FACTOR	CONSOLIDATION		
	Sample No.	Soil Description	Moisture Content (%)	Shrinkage (%)	Specific Gravity	Atterberg Limits	Grain Size Analysis	Grain Size Analysis	Chemical Analysis	Organic Content	Unconsolidated - Undrained Triaxial	Consolidated - Undrained Triaxial	Unconfined Compression	Combing Pressures	Plate Load	Penetration	Blow Count	California Bearing Ratio	Stress Strain Measurements	Standard (A, B, C, D)			Modified (A, B, C, D)	Case
74	Jan	578.7	SS-53	CH	1.50	X	X	X	X	X														
2-174A	Jan	600.7	SS-54	CH	0.30	X	X	X	X	X														

Contact John Davie of Bechtel if there are any questions: Phone (901) 225-5000



# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Job Name Exelon Texas COL (Victoria) Job No. 25352 Requested By D. Gerken

SAMPLE LOCATION							PHYSICAL PROPERTIES						STRENGTH TESTS							COMPACTION	CONSOLIDATION					
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft.	Sample/Run Number	Field Classification	Recovery (%)	Moisture Content (%)	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (Fe, chloride, sulphate)	Organic Content	Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (9-steps w/pore-pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psf)	Direct Shear	TSFC	Unconfined Compression (rock)	Unconfined Compression (rock) w/stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, ksf.	
										Sieve Only	Sieve + Hydrometer															
B-2160	Jar	0.0	SS-1	CH	0.65	X			X	X	X	X														
B-2160	Jar	3.5	SS-2	CH	1.28	X	X	X	X	X	X	X														
B-2160	Jar	6.0	SS-3	CH	1.21	X			X	X	X	X														
B-2160	Jar	8.5	SS-4	CH	1.50	X			X	X	X	X														
B-2160	Jar	11.0	SS-5	CH	1.11	X			X	X	X	X														
B-2160	Jar	13.5	SS-6	CH	1.50	X	X	X	X	X	X	X														
B-2160	Jar	16.0	SS-7	OH	1.50	X			X	X	X	X														
B-2160	Jar	23.5	SS-8	CH	1.56	X			X	X	X	X														
B-2160	Jar	28.5	SS-9	CH	1.28	X	X	X	X	X	X	X														
B-2160	Jar	33.5	SS-10	CH	1.20	X			X	X	X	X														
B-2160	Jar	38.5	SS-11	CH	1.65	X			X	X	X	X														
B-2160	Jar	43.5	SS-12	CH	1.40	X			X	X	X	X														
B-2160	Jar	48.5	SS-13	CH	1.28	X			X	X	X	X														
B-2160	Jar	53.5	SS-14	CH	1.08	X	X	X	X	X	X	X														
B-2160	Jar	58.5	SS-15	CH	1.10	X			X	X	X	X														
B-2160	Jar	63.5	SS-16	CH	1.50	X			X	X	X	X														
B-2160	Jar	68.5	SS-17	SC	0.70	X	X	X	X	X	X	X														
B-2160	Jar	73.5	SS-18	CH	1.58	X	X	X	X	X	X	X														
B-2160	Jar	78.5	SS-19	SC	1.10	X	X	X	X	X	X	X														
B-2160	Jar	83.5	SS-20	CH	1.40	X	X	X	X	X	X	X														

Contact John Davie of Bechtel if there are any questions: Phone (301) 228-7647; e-mail JDAVIE@BECHTEL.COM.

Not received - see coc.

*Don't forget to check for moisture content testing*

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# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Job Name Exxon Texas CGL (Victoria) Job No. 25352 Requested By D. Garken

SAMPLE LOCATION							PHYSICAL PROPERTIES						STRENGTH TESTS							COM-PACTION		CONSOLIDATION				
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Sample/Run Number	Field Classification	Recovery (%)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated-Unconfined Triaxial	Consolidated-Unconfined Triaxial (3-stage w/ pore pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psi)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) w/ stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, kcal.	
										Sieve Only	Sieve + Hydrometer															
B-2160	Jar	88.5	SS-21	CH	1.20	X			X		X															
B-2160	Jar	93.5	SP-22	SP-SC	0.80			X																		
B-2160	Jar	98.5	SS-23	CH	0.60	X		X	X																	
B-2160	Jar	108.5	SS-24	CH	1.65	X		X	X																	
B-2160	Jar	118.5	SS-25	CH	1.58	X		X	X																	
B-2160	Jar	128.5	SP-26	SP-GC	0.75			X																		
B-2160	Jar	138.5	SS-27	SP-SC	1.20																					
B-2160	Jar	148.5	SS-28	CH	1.50	X		X	X																	
B-2160	Jar	158.5	SS-29	CH	1.56	X		X	X																	
B-2160	Jar	168.5	SS-30	SP	1.15			X		X																
B-2160	Jar	178.5	SS-31	SP	1.07					X																
B-2160	Jar	193.5	SS-33	SC	0.85	X		X	X		X															
B-2160	Jar	198.5	SS-34	SP	1.00			X		X																
B-2265	Jar	0.0	SS-1	CH	1.50	X			X		X															
B-2265	Jar	3.5	SS-2	CH	1.30	X		X	X		X															
B-2265	Jar	6.0	SS-3	CH	1.20	X			X		X															
B-2285	Jar	8.5	SS-4	CH	1.50	X			X		X															

Contact John Davis of Bechtel if there are any questions: Phone (301) 228-7647; e-mail JDAVIE@BECHTEL.COM.

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date: 1/11/2008 Job Name: Exelon Texas CCL (Victoria) Job No.: 25352 Requested By: D. Gerken  
 Lab Assignment: 6 Victoria

SAMPLE LOCATION							PHYSICAL PROPERTIES							STRENGTH TESTS							COMPACTION		CONSOLIDATION			
Boring No.	Sample Type (Tube, Sample Length)	Top of Sample/Cone Run Depth, Ft	Sample/Run Number	Field Classification	Recovery (ft)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage w/pore pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psf)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) w/ stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, ksi.	
										Sieve Only	Sieve + Hydrometer															
B-2160	Jar	88.5	SS-21	CH	1.20	X		X		X																
B-2160	Jar	93.5	SS-22	SP-SC	0.90		X			X																
B-2160	Jar	98.5	SS-23	CH	0.60	X		X		X																
B-2160	Jar	108.5	SS-24	CH	1.55	X	X	X		X		X														
B-2160	Jar	118.5	SS-25	CH	1.56	X		X		X																
B-2160	Jar	128.5	SS-26	SP-SC	0.76		X			X																
B-2160	Jar	138.5	SS-27	SP-SC	0.20					X																
B-2160	Jar	148.5	SS-28	CH	1.50	X	X	X		X		X														
B-2160	Jar	158.5	SS-29	CH	1.58	X		X		X																
B-2160	Jar	168.5	SS-30	SP	1.15		X			X																
B-2160	Jar	178.5	SS-31	SP	1.07					X																
B-2160	Jar	183.5	SS-32	SC	0.65	X	X	X		X																
B-2160	Jar	188.5	SS-34	SP	1.00		X			X																
B-2160	Jar	0.0	SS-1	CH	1.50	X		X		X		X														
B-2160	Jar	0.0	SS-2	CH	1.30	X	X	X		X		X														
B-2160	Jar	0.0	SS-3	CH	1.30	X		X		X		X														
B-2160	Jar	0.5	SS-4	CH	1.50	X		X		X		X														

Contact John Davis of Bechtel if there are any questions: Phone (801) 228-7647; e-mail JDAVIE@BECHTEL.COM.

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# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Job Name Exelon Texas COL (Victoria) Job No. 25352 Requested By D. Gerken

Binding No.		SAMPLE LOCATION				PHYSICAL PROPERTIES							STRENGTH TESTS						COM-PACTION		CONSOLIDATION  NOTE: Stress increments and rebound cycles, ksf.				
						Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage w/ pore-pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (cell)	Direct Shear	TSRC	Unconfined Compression (rock)		Unconfined Compression (rock) w/ stress-strain measurements	Standard (A, B, C, D)	Modified (A <sub>v</sub> , B, C, D)	CBR
										Sieve Only	Sieve + Hydrometer														
B-2265	Jar	11.0	SS-5	CH	1.10	X		X		X															
B-2265	Jar	14.5	SS-6	CH	1.40	X	X	X		X															
B-2265	Jar	18.5	SS-7	CH	1.50	X		X		X															
B-2265	Jar	23.5	SS-8	CH	1.40	X		X		X															
B-2265	Jar	28.5	SS-9	CH	1.50	X		X		X															
B-2265	Jar	33.5	SS-10	CH	1.40	X	X	X		X															
B-2265	Jar	38.5	SS-11	CH	1.00	X		X		X															
B-2265	Jar	43.5	SS-12	SM	1.20	X	X	X		X															
B-2265	Jar	48.5	SS-13	SM	1.50	X		X		X															
B-2265	Jar	53.5	SS-14	SC	1.00	X		X		X															
B-2265	Jar	58.5	SS-15	SM	1.30	X		X		X															
B-2265	Jar	63.5	SS-16	CH	0.70	X		X		X															
B-2265	Jar	68.5	SS-17	CH	0.50	X		X		X															
B-2265	Jar	73.5	SS-18	CH	1.40	X	X	X		X															
B-2265	Jar	78.5	SS-19	GH	1.40	X		X		X															
B-2265	Jar	83.5	SP	SP	1.20		X	X		X															
B-2265	Jar	88.5	CH	CH	1.50	X	X	X		X															
B-2265	Jar	93.5	SP	SP	1.20		X			X															
B-2265	Jar	98.5	SP	SP	0.40			X		X															
B-2265	Jar	103.5	CH	CH	0.70	X	X	X		X															

Contact John Davis of Bechtel if there are any questions: Phone (301) 228-7647; e-mail JDAVIE@BECHTEL.COM.

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# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

1/11/2008

Job Name Exelon Texas COE (Victoria)

Job No. 25352

Requested By

D. Gerke

25352-Submittal 8 Victoria

SAMPLE LOCATION					PHYSICAL PROPERTIES							STRENGTH TESTS							COMPACTION	CONSOLIDATION			
No.	Date	Elevation (ft)	Soil Sample Number	Field Classification	Moisture (%)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulfates)	Organic Content	Unconfined Compression (Soil)	Confined Compression (rock)	Direct Shear	TSRP	Unconfined Compression (rock)	Unconfined Compression (rock) w/stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	OBR	NOTE: Stress increments and rebound cycles, etc.
										Slieve Only	Slieve + Hydrometer												
B-2174A	Jan	578.7	SS-53	CH	1.50	X	X	X		X													
B-2174A	Jan	600.7	SS-54	CH	0.80	X	X	X		X													

Contact John Davis of Bechtel if there are any questions: Phone (301) 223-7070 or email JDAVIS@BECHTEL.COM

CO# 1029

CHAIN OF CUSTODY RECORD  
EXELON COLE VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
MACTEC JOB NO. 6468-07-1777

No. \_\_\_\_\_

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS	
B-2151 SS-26	JAR	CS	2/11/08	CHEMICAL TESTING	78.109R	
B-2160 SS-11	JAR	CS	2/11/08		64.909R	
B-2160 SS-15	JAR	CS	2/11/08			
Replacement Samples for Chemical Testing						
Relinquished by: <i>E. Swanson</i> (signature)		Date/Time 2/11/08 11:50 AM	Received by: <i>[Signature]</i> (signature)	Relinquished by: (signature)	Received by: (signature)	Date/Time
Relinquished by: (signature)		Date/Time	Received by: (signature)	Relinquished by: (signature)	Received at Laboratory (signature)	Date/Time

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

7918 4283 4388

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

ORIGINAL

DCN No. \_\_\_\_\_

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Cooler #4

SAMPLE LOCATION										PHYSICAL PROPERTIES										STRENGTH TESTS										COMPACTION		CONSOLIDATION
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, FT	Field Classification	Sample/Run Number	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis			Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage rupture pressure mode)	Unconfined Compression (Su)	Combing Pressures (psi)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, test.									
									Sieve Only	Sieve + Hydrometer	Chemical Analysis (pH, chlorides, sulphates)													Organic Content								
B-2151	Jar	0	CH	SS1	X	X	X		X	X																						
B-2151	Jar	3.5	CH	SS2	X		X		X	X																						
B-2151	Jar	6	CH	SS3	X		X		X	X	X																					
B-2151	Jar	8.5	CH	SS4	X		X		X	X	X																					
B-2151	Jar	11	CH	SS5	X		X		X	X	X																					
B-2151	Jar	13.5	CH	SS6	X		X		X	X	X																					
B-2151	Jar	19	CH	SS7	X	X	X		X	X	X																					
B-2151	Jar	24.6	CH	SS8	X		X		X	X	X																					
B-2151	Jar	29.5	CH	SS9	X		X		X	X	X																					
B-2151	Jar	34.5	CH	SS10	X		X		X	X	X																					
B-2151	Jar	38.6	CH	SS11	X	X	X		X	X	X																					
B-2151	Jar	44.5	CH	SS12	X		X		X	X	X																					
B-2151	Jar	49.5	CH	SS13	X		X		X	X	X																					
B-2151	Jar	54.5	CH	SS14	X		X		X	X	X																					
B-2151	Jar	59.6	CH	SS15	X	X	X		X	X	X																					
B-2151	Jar	64.5	SP	SS16			X		X	X	X																					
B-2151	Jar	69.6	CH	SS17	X	X	X		X	X	X																					
B-2151	Jar	74.5	CH	SS18	X		X		X	X	X																					
B-2151	Jar	79.5	SP-SC	SS19			X		X	X	X																					
B-2151	Jar	84.5	SP	SS20					X	X	X																					
B-2151	Jar	89.5	CH	SS21	X	X	X		X	X	X																					
B-2151	Jar	94.5	SC	SS22					X	X	X																					
B-2151	Jar	99.5	SP-SC	SS23			X		X	X	X																					
B-2151	Jar	109.5	CH	SS24	X		X		X	X	X																					
B-2151	Jar	119.5	CH	SS25	X	X	X		X	X	X																					
B-2151	Jar	129.5	SP	SS26					X	X	X																					
B-2151	Jar	139.6	SP	SS27		X			X	X	X																					

ORIGINAL COPY

Contact Donald Gerken of Bechtel if there are any questions: Phone (415) 766-0074; e-mail DEGERKEN@BECHTEL.COM.

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# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date: 12/20/2007 Job Name: Exelon Texas COL (Victoria) Job No. 25352 Requested By: D. Gerken  
 Lab Assignment: S-Victoria

SAMPLE LOCATION				PHYSICAL PROPERTIES										STRENGTH TESTS						COM-PACTION	CONSOLIDATION				
Boring No.	Sample Type (tube Sample Length)	Top of Sample/Core Run Depth, Ft.	Field Classification	Sample/Run Number	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated/Undrained Triaxial	Consolidated/Undrained Triaxial (3-stage w/ pore pressure meas.)	Unconfined Compression (Su)	Combing Pressure (psf)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (soil) w/ stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, ksi:	
B-2151	Jar	149.6	CH	SS28	X																				
B-2151	Jar	159.6	EP	SS29	INSUFFICIENT SAMPLE FOR TESTING																				
B-2151	Jar	169.6	SW	SS30																					
B-2151	Jar	179.6	SW	SS31																					
B-2151	Jar	189.6	SP	SS32	INSUFFICIENT SAMPLE FOR TESTING																				
B-2151	Jar	199.6	SP	SS33	INSUFFICIENT SAMPLE FOR TESTING																				
B-2251	Jar	0	CH	SS1	X	X	X		X	X	X														
B-2251	Jar	3.5	CH	SS2	X				X		X														
B-2251	Jar	6	CH	SS3	X				X		X														
B-2251	Jar	8.5	CH	SS4	X				X		X														
B-2251	Jar	11	CH	SS5	X				X		X														
B-2251	Jar	13.5	CH	SS6	X				X		X														
B-2251	Jar	16.5	CH	SS7	X	X	X		X		X														
B-2251	Jar	23.5	CH	SS8	X				X		X														
B-2251	Jar	28.5	CH	SS9	X				X		X														
B-2251	Jar	33.5	CH	SS10	X				X		X														
B-2251	Jar	38.5	CH	SS11	X	X	X		X		X														
B-2251	Jar	43.5	SP	SS12					X																
B-2251	Jar	48.5	SP	SS13					X		X														
B-2251	Jar	53.5	SP-SC	SS14					X		X														
B-2251	Jar	68.6	SP-SC	SS15		X			X		X														
B-2251	Jar	63.5	CH	SS16	X				X		X														
B-2251	Jar	68.5	CH	SS17	X				X		X														
B-2251	Jar	73.5	CH	SS18	X				X		X														
B-2251	Jar	78.5	CH	SS19	X	X	X		X		X														

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Contact Donald Gerken of Bechtel if there are any questions: Phone (415) 768-0074; e-mail DEGERKEN@BECHTEL.COM.

LOT# F8D040131-REV 1

Volume 3, Rev. 0 - 7/10/08

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DCN# EXE805

103 OF 110

TestAmerica St. Louis



# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

SAMPLE LOCATION				PHYSICAL PROPERTIES										STRENGTH TESTS							COMPACTION		CONSOLIDATION	
Batch No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Field Classification	Sample Run Number	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Sieve Only	Sieve + Hygroscopic	Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated Undrained Triaxial	Consolidated-Undrained Triaxial (shear rupture pressure stress)	Unconfined Compression (Soil)	Confining Pressure (psi)	Direct Shear	TSRC	Unconfined Compression (rock)	Unconfined Compression (rock) stress-strain measurements	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR	NOTE: Stress increments and rebound cycles, ksf.
B-2251	Jar	83.5	SP	SS20					X															
B-2251	Jar	88.6	SP	SS21				X			X													
B-2251	Jar	93.5	SP	SS22					X															
B-2251	Jar	98.5	OH	SS23	X	X	X			X	X	X												
B-2251	Jar	108.5	SP	SS24				X																
B-2251	Jar	118.5	CH	SS25	X	X	X			X	X	X												
B-2251	Jar	128.9	SP-SC	SS26	INSUFFICIENT SAMPLE FOR TESTING																			
B-2251	Jar	138.9	SP	SS27				X	X		X													
B-2251	Jar	148.5	CH	SS28	X	X	X			X	X	X												
B-2251	Jar	158.5	SP	SS29				X		X														
B-2251	Jar	168.5	SP	SS30						X														
B-2251	Jar	178.5	SP	SS31				X		X														
B-2251	Jar	188.5	SP	SS32						X														
B-2251	Jar	198.5	SP	SS33	INSUFFICIENT SAMPLE FOR TESTING																			
B-2251	Jar	208.5	SP	S34				X		X														

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Contact Donald Gerken of Bechtel if there are any questions: Phone (415) 788-0074; e-mail DEGERKEN@BECHTEL.COM.

cooler #9

CHAIN OF CUSTODY RECORD  
 EXELON COL VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
 MACTEC JOB NO. 6468-07-1777

No. 1073

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS
B-2151 35-1x	JAR	JS	11/29/08	chemical Lab test	500g
B-2151 35-3			11/29/08		
B-2151 35-5			11/29/08		
B-2151 35-7					
B-2151 35-9					
B-2151 35-11					
B-2151 35-13					
B-2151 35-15					
B-2151 35-17					
B-2151 35-19					
B-2151 35-21					
B-2151 35-23					
B-2151 35-25					
B-2151 35-27					
Relinquished by: <i>(Signature)</i>	Date/Time: 11/29/08 1:30PM X	Received by: <i>(Signature)</i>	Relinquished by: <i>(Signature)</i>	Received by: <i>(Signature)</i>	Date/Time
Relinquished by: <i>(Signature)</i>	Date/Time	Received by: <i>(Signature)</i>	Relinquished by: <i>(Signature)</i>	Received at Laboratory <i>(Signature)</i>	Date/Time

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

Fed Exp. Tracking # 7997-9264-7433

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

ORIGINAL

DCN No. \_\_\_\_\_

LOT# F8D040131-Rev 1

4

CHAIN OF CUSTODY RECORD  
 EXELON COL VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
 MACTEC JOB NO. 6468-07-1777

No. 2013

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS	
B-1151 SS-1	JAR	(Signature)	11/29/08	EMERICK TESTING	500g	
B-2251 SS-3					M.H. 1-30-08	
B-2251 SS-5						
B-2251 SS-7						
B-2251 SS-9						
B-2251 SS-11						
B-2251 SS-13						
B-2251 SS-15						
B-2251 SS-17						
B-2251 SS-19						
B-2251 SS-21						
B-2251 SS-23						
B-2251 SS-25						
B-2251 SS-27						
Relinquished by: (Signature) Chana Awana	Date/Time 11/29/08 7:30 PM	Received by: (Signature) M.H.	Date/Time 1-30-08 0915	Relinquished by: (signature)	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)		Relinquished by: (signature)	Received at Laboratory (signature)	Date/Time

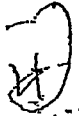
Remarks: If relinquishing to a common carrier or Fed Ex -- write freight bill or tracking number here.

Tracking # 7997-9264-7433

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

ORIGINAL

DCN No. \_\_\_\_\_



**CHAIN OF CUSTODY RECORD**  
**EXELON COL VICTORIA SITE; GEOLOGIC/GEO TECHNICAL EXPLORATION**  
**MACTEC JOB NO. 6468-07-1777**

No. 31 of 3

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS
B-225/SS-28	JAR	CD	1/29/08	CHEMICAL TESTING	100g 1-30-08 OHS
Relinquished by: <i>Chana Dawson</i> (signature)	Date/Time 1/29/08 1:30PM	Received by: <i>[Signature]</i> (signature)	Relinquished by: (signature)	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Received at Laboratory (signature)	Date/Time

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

Fed Exp Tracking # 7997-9264-7433

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

ORIGINAL DCN No. \_\_\_\_\_



Lot # (s): F8A300197  
2016

Client: Nectech COC/RFA No: N/A Condition Upon Receipt Form Date: 7-30-08  
 Quote No: 719610 Initiated By: [Signature] Time: 0915

Shipping Information  
 Shipper Name: FE Multiple Packages  N  
 Shipping # (s):  
 1. 7997 9264 783 6. \_\_\_\_\_ Sample Temperature (s):\*\*  
 2. 7924 9601 2258 7. \_\_\_\_\_ 1. Ambient 6. \_\_\_\_\_  
 3. 7926 9601 9255 8. \_\_\_\_\_ 2. \_\_\_\_\_ 7. \_\_\_\_\_  
 4. 7418 4031 9727 9. \_\_\_\_\_ 3. \_\_\_\_\_ 8. \_\_\_\_\_  
 5. \_\_\_\_\_ 10. \_\_\_\_\_ 4. ✓ 9. \_\_\_\_\_  
 10. \_\_\_\_\_ 5. \_\_\_\_\_ 10. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines  
 \*\*Sample must be received at 4°C±2°C. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable)

1. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are there custody seals present on the cooler?	8. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are there custody seals present on bottles?
2. <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Do custody seals on cooler appear to be tampered with?	9. <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Do custody seals on bottles appear to be tampered with?
3. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Were contents of cooler frisked after opening, but before unpacking?	10. <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Was sample received with proper pH? (If not, make note below)
4. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sample received with Chain of Custody?	11. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> If N/A- Was pH taken by original TestAmerica lab?
5. <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Does the Chain of Custody match sample ID's on the container(s)?	12. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sample received in proper containers?
6. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Was sample received broken?	13. <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is sample volume sufficient for analysis?	14. <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Was Internal COC/Workshare received?

\* For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: All coolers out of temp  
All sample dates do not match  
Received sample B-2265 SS-10 not on chain  
Didn't receive sample B-2160 SS-10  
Log per COC per Ivan  
Log sample B-2265 SS-10 as sample B-2160 SS-10 per Ivan

- Follow up: Sample B-2265 SS-10 will be logged as rec. 4-14-8.

Corrective Action:  
 Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_ If released, notify: \_\_\_\_\_  
 Project Management Review Date: \_\_\_\_\_

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.  
 ADMIN-004, REVISED 08/06/07 (S:\VRO\NOA\FORMS\ST-LOUIS\ADMIN\ADMIN004 rev1).doc



Lot # (s): F8A300197  
1805 2009

Condition Upon Receipt Form

Client: Naltech COC/RFA No: N/A Date: 1-30-08  
 Quote No: 719610 Initiated By: [Signature] Time: 0915

Shipping Information

Shipper Name: FE Multiple Packages  Y  N  
 Shipping # (s):\* Sample Temperature (s):\*\*  
 1. 7997 9264 783 6. \_\_\_\_\_ 1. Ambient 6. \_\_\_\_\_  
 2. 7924 9601 3258 7. \_\_\_\_\_ 2. \_\_\_\_\_ 7. \_\_\_\_\_  
 3. 7926 9601 9265 8. \_\_\_\_\_ 3. \_\_\_\_\_ 8. \_\_\_\_\_  
 4. 7418 4081 9727 9. \_\_\_\_\_ 4. ✓ 9. \_\_\_\_\_  
 5. \_\_\_\_\_ 10. \_\_\_\_\_ 5. \_\_\_\_\_ 10. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines \*\*Sample must be received at 4°C±2°C. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8.	<input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on bottles?
2.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below)
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11.	<input type="radio"/> Y <input type="radio"/> N	If N/A- Was pH taken by original TestAmerica lab?
5.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6.	<input type="radio"/> Y <input checked="" type="radio"/> N	Was sample received broken?	13.	<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14.	<input type="radio"/> Y <input type="radio"/> N	Was Internal COC/Workshare received?

<sup>1</sup> For DOE-AL (Paintex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: All coolers out of temp  
All sample dates do not match  
Received sample B2265 SS-10 not on chain  
Didn't receive sample B2160 SS-10  
Log per COC per Ivan  
Log Sample: B2265 SS-10 as sample B2160 SS-10 per Ivan  
Follow up: Sample B2265 SS-10 will be logged as rec. 1/9/08

Corrective Action:  
 Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_ If released, notify: \_\_\_\_\_

Project Management Review Date: 2-6-08  
 THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.  
 ADMIN-0004, REVISED 08/06/07/MS/RS/VOA/FORMS/ST-LOUIS/ADMIN/ADMIN004.rsv11.dbb



Lot # (s): F8B050278

Client: Geologic COC/RFA No: LA 08-07-177 Date: 2-4-08  
Quote No: 71910 Initiated By: AB Time: 12:45

Shipping Information

Shipper Name: FE Multiple Packages Y N  
Shipping # (s):\* 718 4293 4388 Sample Temperature (s):\*\*  
1. Ambient 6. \_\_\_\_\_  
2. \_\_\_\_\_ 7. \_\_\_\_\_  
3. \_\_\_\_\_ 8. \_\_\_\_\_  
4. \_\_\_\_\_ 9. \_\_\_\_\_  
5. \_\_\_\_\_ 10. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines \*\*Sample must be received at 4°C ± 2°C. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y <u>N</u>	Are there custody seals present on the cooler?	8.	Y <u>N</u>	Are there custody seals present on bottles?
2.	Y <u>N</u> <u>N/A</u>	Do custody seals on cooler appear to be tampered with?	9.	Y <u>N</u> <u>N/A</u>	Do custody seals on bottles appear to be tampered with?
3.	<u>Y</u> <u>N</u>	Were contents of cooler fished after opening, but before unpacking?	10.	Y <u>N</u> <u>N/A</u>	Was sample received with proper pH? (If not, make note below)
4.	<u>Y</u> <u>N</u>	Sample received with Chain of Custody?	11.	Y <u>N</u>	If N/A- Was pH taken by original TestAmerica lab?
5.	<u>Y</u> <u>N</u> <u>N/A</u>	Does the Chain of Custody match sample ID's on the container(s)?	12.	<u>Y</u> <u>N</u>	Sample received in proper containers?
6.	Y <u>N</u>	Was sample received broken?	13.	Y <u>N</u> <u>N/A</u>	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	<u>Y</u> <u>N</u>	Is sample volume sufficient for analysis?	14.	Y <u>N</u>	Was Internal COC/Workshare received?

For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: No. list on COC. Log chloride, sulfate & ph per CV.

Corrective Action:

Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_ If released, notify: \_\_\_\_\_

Project Management Review: \_\_\_\_\_ Date: \_\_\_\_\_  
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004, REVISED 08/07/05 (v11) NOA FORM 6181-LOUISIANA ADMIN 004 rev 11.d66



## ANALYTICAL REPORT

PROJECT NO. 6468071777

EXELON Victoria COL PROJECT

Lot #: F8G110112

Kathryn A. White

MACTEC Engineering & Consultin  
1540 North 107 East Avenue  
Tulsa, OK 74116

TESTAMERICA LABORATORIES, INC.

Ivan Vania  
Project Manager

July 11, 2008

*Went to site  
for Kathryn A. White  
with permission*

*with  
7-11-08*



**Case Narrative**  
**LOT NUMBER: F8G110112**

This report contains the analytical results for the seven samples received under chain of custody by TestAmerica St. Louis on July 11, 2008. These samples are associated with your EXELON Victoria COL PROJECT.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Method 9045C is listed on the results report due to a limitation of the laboratory's data reporting system. However, method 9045D was used for the analysis of pH. This can be verified by observation of the lab bench worksheets in the raw data package.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There were no nonconformances or observations noted with any analysis on this lot.

## METHODS SUMMARY

F8G110112

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Chloride	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Soil and Waste pH	SW846 9045C	SW846 DI-LEACHA
Sulfate	MCAWW 300.0A	MCAWW 300.0A

**References:**

- MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

**SAMPLE SUMMARY**

F8G110112

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
KRDCK	001	TP-2102	07/10/08	
KRDG7	002	TP-2103	07/10/08	
KRDG8	003	TP-2104	07/10/08	
KRDG9	004	TP-2201	07/10/08	
KRDHA	005	TP-2202	07/10/08	
KRDHE	006	TP-2203	07/10/08	
KRDHF	007	TP-2204	07/10/08	

**NOTE(S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2102

General Chemistry

Lot-Sample #...: F8G110112-001    Work Order #...: KRDCX    Matrix.....: SOLID  
 Date Sampled...: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C	07/11/08	8193262
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	670	45.6	mg/kg	MCAWW 300.0A	07/11/08	8193282
				Dilution Factor: 20    Analysis Time...: 12:33		
Percent Moisture	12.4	0.10	%	MCAWW 160.3 MOD	07/11/08	8193259
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	1380	114	mg/kg	MCAWW 300.0A	07/11/08	8193283
				Dilution Factor: 20    Analysis Time...: 12:33		

**NOTE (S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2103

General Chemistry

Lot-Sample #...: F8G110112-002    Work Order #...: KRDG7    Matrix.....: SOLID  
 Date Sampled...: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	07/11/08	8193262
				Dilution Factor: 1    Analysis Time..: 00:00		
Chloride	325	45.4	mg/kg	MCAWW 300.0A	07/11/08	8193282
				Dilution Factor: 20    Analysis Time..: 01:16		
Percent Moisture	12.0	0.10	%	MCAWW 160.3 MOD	07/11/08	8193259
				Dilution Factor: 1    Analysis Time..: 00:00		
Sulfate	55.7	5.7	mg/kg	MCAWW 300.0A	07/11/08	8193283
				Dilution Factor: 1    Analysis Time..: 02:48		

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2104

General Chemistry

Lot-Sample #...: F8G110112-003    Work Order #...: KR088    Matrix.....: SOLID  
 Date Sampled...: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193262
Chloride	501	45.1	mg/kg	MCAWW 300.0A Dilution Factor: 20 Analysis Time...: 01:27	07/11/08	8193282
Percent Moisture	11.3	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193259
Sulfate	59.0	5.6	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 02:59	07/11/08	8193283

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2201

General Chemistry

Lot-Sample #...: F8G110112-004      Work Order #...: KRDG9      Matrix.....: SOLID  
 Date Sampled...: 07/10/08      Date Received...: 07/11/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C	07/11/08	8193262
				Dilution Factor: 1 Analysis Time...: 00:00		
Chloride	3.9	2.3	mg/kg	MCAWW 300.0A	07/11/08	8193282
				Dilution Factor: 1 Analysis Time...: 03:10		
Percent Moisture	13.0	0.10	%	MCAWW 160.3 MOD	07/11/08	8193259
				Dilution Factor: 1 Analysis Time...: 00:00		
Sulfate	11.8	5.7	mg/kg	MCAWW 300.0A	07/11/08	8193283
				Dilution Factor: 1 Analysis Time...: 03:10		

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2202

General Chemistry

Lot-Sample #....: F8G110112-005    Work Order #....: KRCHA    Matrix.....: SOLID  
 Date Sampled....: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193262
Chloride	547	48.0	mg/kg	MCAWW 300.0A Dilution Factor: 20 Analysis Time...: 01:49	07/11/08	8193282
Percent Moisture	16.7	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193259
Sulfate	43.7	6.0	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:21	07/11/08	8193283

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.



MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2203

General Chemistry

Lot-Sample #...: F8G110112-006    Work Order #...: KRDE    Matrix.....: SOLID  
 Date Sampled...: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193262
Chloride	399	46.5	mg/kg	MCAWW 300.0A Dilution Factor: 20 Analysis Time...: 02:00	07/11/08	8193282
Percent Moisture	14.0	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193259
Sulfate	.176	5.8	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:32	07/11/08	8193283

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: TP-2204

General Chemistry

Lot-Sample #....: F8G110112-007    Work Order #....: KRDFH    Matrix.....: SOLID  
 Date Sampled....: 07/10/08    Date Received...: 07/11/08  
 % Moisture.....: 13

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193262
Chloride	9.5	2.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:43	07/11/08	8193282
Percent Moisture	12.6	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	07/11/08	8193259
Sulfate	15.0	5.7	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 03:43	07/11/08	8193283

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F8G110112

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	ND	2.0	mg/kg	Work Order #: KRE1R1AA MCAWW 300.0A	MB Lot-Sample #: F8G110000-282 07/11/08	8193282
Dilution Factor: 1 Analysis Time...: 12:07						
Sulfate	ND	5.0	mg/kg	Work Order #: KRE1W1AA MCAWW 300.0A	MB Lot-Sample #: F8G110000-283 07/11/08	8193283
Dilution Factor: 1 Analysis Time...: 12:07						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8G110112

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	100	(99 - 101)	SW846 9045C	07/11/08	8193262
			Dilution Factor: 1	Analysis Time...: 00:00	
Chloride	101	(90 - 110)	MCAWW 300.0A	07/11/08	8193282
			Dilution Factor: 1	Analysis Time...: 11:56	
Sulfate	98	(90 - 110)	MCAWW 300.0A	07/11/08	8193283
			Dilution Factor: 1	Analysis Time...: 11:56	

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8G110112  
Date Sampled...: 07/10/08

Date Received...: 07/11/08

Matrix.....: SOLID

Percent Moisture: 0.0

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Chloride	98	Work Order #...: KRDCX1AF (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8G110112-001 07/11/08	8193282
		Dilution Factor: 20		Analysis Time..: 12:33	
Sulfate	107	Work Order #...: KRDCX1AH (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8G110112-001 07/11/08	8193283
		Dilution Factor: 20		Analysis Time..: 12:33	

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
Results and reporting limits have been adjusted for dry weight.



SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #....: F8G110112      Work Order #....: KRDCX-SMP      Matrix.....: SOLID  
 KRDCX-DUP  
 Date Sampled....: 07/10/08      Date Received...: 07/11/08  
 % Moisture.....: 12

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #: F8G110112-001		
670	665		mg/kg	0.86	(0-20)	MCAWW 300.0A	07/11/08	8193282
			Dilution Factor: 20			Analysis Time...: 12:33		
Sulfate						SD Lot-Sample #: F8G110112-001		
1380	1420		mg/kg	2.9	(0-20)	MCAWW 300.0A	07/11/08	8193283
			Dilution Factor: 20			Analysis Time...: 12:33		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Results and reporting limits have been adjusted for dry weight.

Analyst: SOB

Batch No.: 8193262

Analysis Date: 7-11-8

Lab ID	Sample Alliquot (nom. 20 g)	DI Water Added (nom. 20ml)	Soil Preparation Time	Analysis Time (min. 1 hour after Preparation Time)	Temp (°C)	pH Reading	Comments
pH 4 Standard	-	-	10:45	1200	22.3	4.02	
pH 7 Standard	-	-			22.3	7.02	
pH 10 Standard	-	-			22.3	10.03	
LCS/ICV	-	-			22.1	7.01	
KRDCX	20.0	20.0			21.9	8.04	
KRDG7					21.9	8.62	
KRDG8					21.9	8.65	
KRDG9					21.4	9.05	
KRDHA					21.4	8.26	
KRDHE					21.4	8.51	
KRDHF					21.3	9.00	
KRDHFX	20.0	20.0			21.4	9.01	
CCV					22.1	7.01	

Control Limits (Water): LCS =99 - 101

SOP  
 STL-WC-0011

Rev  
 9

Date  
 10/18/2007



F8G110112

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-131

Project Manager: IV  
 Project: 6468071777  
 PO#: 2008086614  
 Client: 373886 MACTEC Engineering and Consulting Inc

Quote #: 78576 SDG:  
 EXELON Victoria COL 200803591  
 Report to: Kathryn White

**RUSH**

Date Received: 2008-07-11  
 Analytical Due Date: 2008-07-11  
 Report Due Date: 2008-07-11  
 Report Type: W  
 EDD Code: 00

#SMPS in LOT: 7

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	TP-2102			2008-07-10 / 0	KRDCX	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX WM	MCAW 180.3 W MOD	88	SOLID, 180.3 MOD, Percent Moisture	01	NO SAMPLE PREPARATION PERFORMED / DIRECT	PROT: A WRK LOC 06
S XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
S XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
X XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
X XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	TP-2103			2008-07-10 / 0	KRDG7	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX WM	MCAW 180.3 W MOD	88	SOLID, 180.3 MOD, Percent Moisture	01	NO SAMPLE PREPARATION PERFORMED / DIRECT	PROT: A WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
3	TP-2104			2008-07-10 / 0	KRDG8	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX WM	MCAW 180.3 W MOD	88	SOLID, 180.3 MOD, Percent Moisture	01	NO SAMPLE PREPARATION PERFORMED / DIRECT	PROT: A WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	TP-2201			2008-07-10 / 0	KRDG9	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX CY	MCAW 300.0A W	82	SOLID, 300.0A, Sulfate (300.0A, Ion Chro)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX OZ	SW846 9045C	82	SOLID, 9045C, pH (9045C) - Non-Aqueous	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06
XX WM	MCAW 180.3 W MOD	88	SOLID, 180.3 MOD, Percent Moisture	01	NO SAMPLE PREPARATION PERFORMED / DIRECT	PROT: A WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
5	TP-2202			2008-07-10 / 0	KRDHA	SOLID
<b>SAMPLE COMMENTS:</b>						
XX CX	MCAW 300.0A W	82	SOLID, 300.0A, Chloride (300.0A, Ion Chr)	01	STANDARD TEST SET (Routine)	PROT: B WRK LOC 06

F8G110112

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 2-131  
 Date Received: 2008-07-11  
 Analytical Due Date: 2008-07-11  
 Report Due Date: 2008-07-11  
 Report Type: W  
 EDD Code: 00

Project Manager: IV  
 Project: 6468071777  
 PO#: 2008086614  
 Client: 373886 MACTEC Engineering and Consulting Inc

Quote #: 78576  
 SDG:  
 EXELON Victoria COL 200803591  
 Report to: Kathryn White

**RUSH**

#SMPS In LOT: 7

XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate (300.0A, Ion Chro	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01	STANDARD TEST SET	PROT: B	WRK LOC	06
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
6	TP-2203			2008-07-10 / 0	KRDHE	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride (300.0A, Ion Chr	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate (300.0A, Ion Chro	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET PROT: A WRK 06 LOC

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
7	TP-2204			2008-07-10 / 0	KRDHF	SOLID
<b>SAMPLE COMMENTS:</b>						
XX	CX	MCAW 300.0A W	SOLID, 300.0A, Chloride (300.0A, Ion Chr	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate (300.0A, Ion Chro	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	OZ	SW846 9045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
XX	WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET PROT: A WRK 06 LOC
X	XX	OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET PROT: B WRK 06 LOC
X	XX	WM	MCAW 160.3 W MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET PROT: A WRK 06 LOC

CW 4603

CHAIN OF CUSTODY RECORD  
EXELON COL PROJECT (VICTORIA COUNTY SITE)  
MACTEC JOB NO. 6468-07-1777

COC No. V-28

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE	REMARKS
TP- 2102	JAR	LBJ	7/10/08	Chemical Test by test america	JBS
TP- 2103	↓	↓	7/9 7/10/08		
TP- 2104	↓	↓	↓		
TP- 2201	↓	↓	↓		
TP- 2202	↓	↓	↓		
TP- 2203	↓	↓	↓		
TP- 2204	↓	↓	↓		
1. Relinquished by: <i>[Signature]</i> (name) (signature)		1. Date/Time 7/10/08 5pm	1. Received by: Fed Ex # 7989 715 4280 (name) (signature)	1. Date/Time	
2. Relinquished by: (name) (signature)		2. Date/Time	2. Received by: <i>[Signature]</i> (name) (signature)	2. Date/Time 7-11-08 09:13	

Remarks: If relinquishing to a common carrier or Fed Ex – Record tracking number

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

 ORIGINAL



Lot #(s): F8G110112  
- 4003 -

Client: Mactel COC/RFA No: V-26 Date: 7/11/08  
Quote No: 78576 Initiated By: ltd Time: 0713

Shipping Information

Shipper Name: FE Multiple Packages Y (N)  
Shipping # (s):\* Sample Temperature (s):\*\*  
1. 7989 7715 428d 6. \_\_\_\_\_ 1. Revised 6. \_\_\_\_\_  
2. \_\_\_\_\_ 7. \_\_\_\_\_ 2. \_\_\_\_\_ 7. \_\_\_\_\_  
3. \_\_\_\_\_ 8. \_\_\_\_\_ 3. \_\_\_\_\_ 8. \_\_\_\_\_  
4. \_\_\_\_\_ 9. \_\_\_\_\_ 4. \_\_\_\_\_ 9. \_\_\_\_\_  
5. \_\_\_\_\_ 10. \_\_\_\_\_ 5. \_\_\_\_\_ 10. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines

\*\*Sample must be received at 4°C ± 2°C. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests-Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y <u>(N)</u>	Are there custody seals present on the cooler?	8.	Y <u>(N)</u>	Are there custody seals present on bottles?
2.	Y N <u>(N/A)</u>	Do custody seals on cooler appear to be tampered with?	9.	Y N <u>(N/A)</u>	Do custody seals on bottles appear to be tampered with?
3.	<u>(Y)</u> N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N <u>(N/A)</u>	Was sample received with proper pH? (If not, make note below)
4.	<u>(Y)</u> N	Sample received with Chain of Custody?	11.	Y N	If N/A- Was pH taken by original TestAmerica lab?
5.	<u>(Y)</u> N <u>(N/A)</u>	Does the Chain of Custody match sample ID's on the container(s)?	12.	<u>(Y)</u> N	Sample received in proper containers?
6.	Y <u>(N)</u>	Was sample received broken?	13.	Y N <u>(N/A)</u>	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	<u>(Y)</u> N	Is sample volume sufficient for analysis?	14.	Y N	Was Internal COC/Workshare received?

<sup>1</sup> For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action:

Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_ If released, notify: \_\_\_\_\_  
Project Management Review: \_\_\_\_\_ Date: 7-11-08

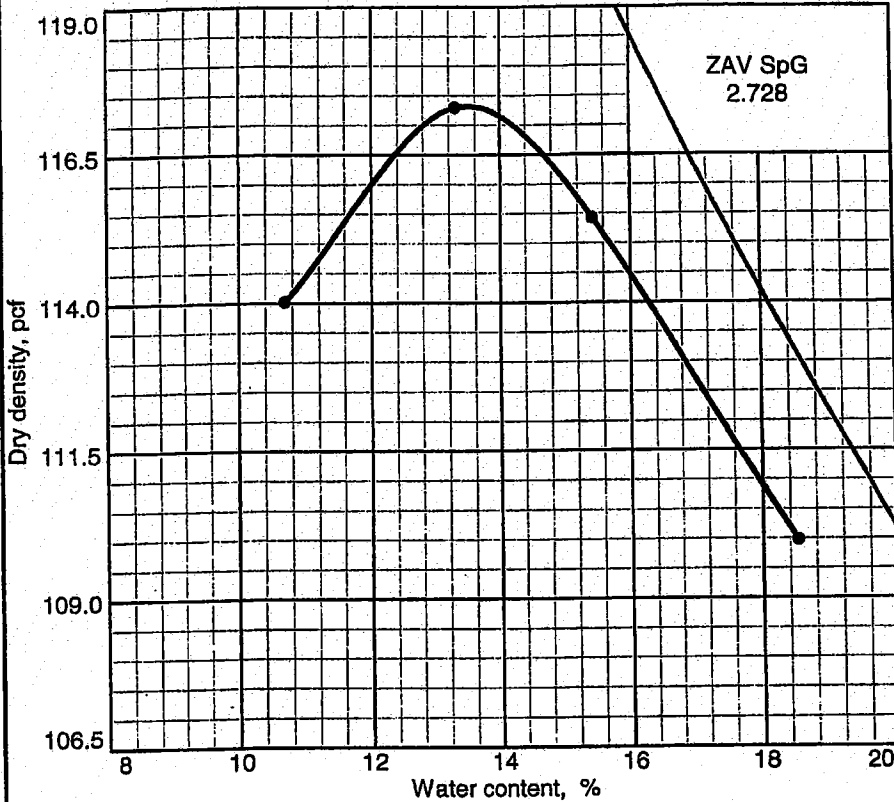
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

LOT# F8G110112

ADMIN-0004, REVISED 08/06/07\NS\svr01\QA\FORMS\IST-LOUIS\ADMIN\ADMIN0042.rtf

# **Modified Proctor Compaction Test – Test Pits**

# COMPACTION TEST REPORT/ ASTM D-1557-02



**Curve No.**  
**TP 2101 BULK 1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

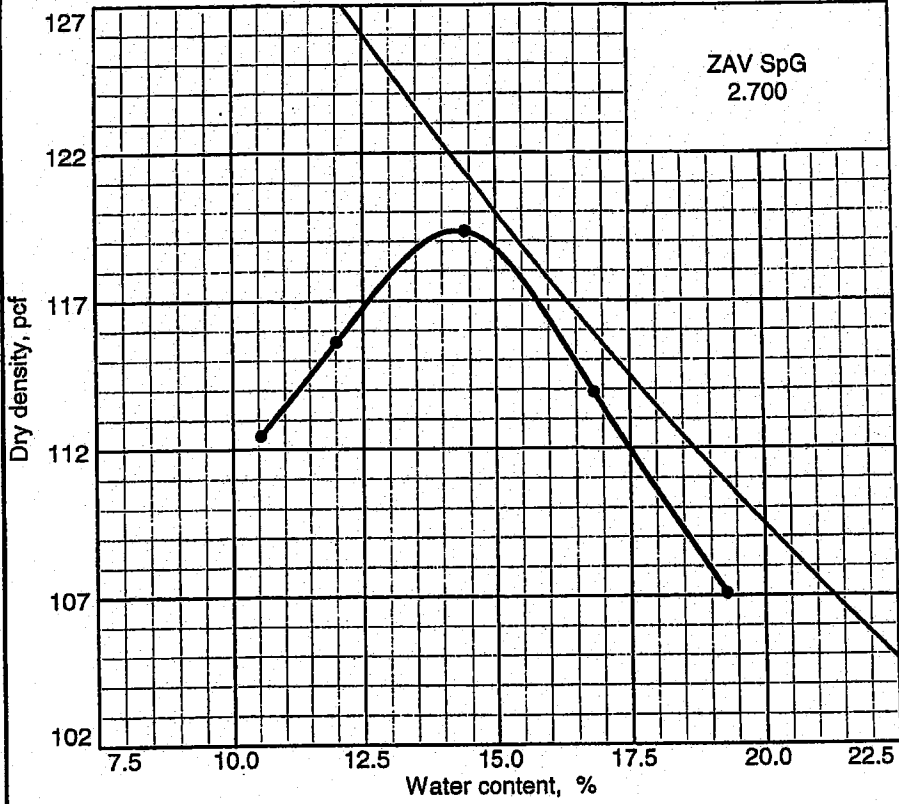
**Preparation Method** DRY  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.  
**Test Performed on Material**  
**Passing** No.4 **Sieve**  
**NM** 17.5 **LL** 54 **PI** 37  
**Sp.G. (ASTM D 854)** 2.728  
**%>No.4** 0.0 **%<No.200** 83.7  
**USCS** CH **AASHTO** A-7-6(32)  
**Date Sampled** 1/17/08  
**Date Tested** 3/11/08  
**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
WM + WS	6112.8	6213.5	6218.5	6175.0		
WM	4214.0	4214.0	4214.0	4214.0		
WW + T #1	555.80	516.30	738.70	564.70		
WD + T #1	502.80	456.50	640.90	477.50		
TARE #1	6.80	6.80	6.80	6.50		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	10.7	13.3	15.4	18.5		
DRY DENSITY	114.0	117.3	115.4	110.0		

TEST RESULTS	Material Description
Maximum dry density = 117.5 pcf Optimum moisture = 13.5 %	Light Yellowish Brown Fat CLAY with sand
<b>Project No.</b> 6468071777 <b>Client:</b> Bechtel <b>Project:</b> Exelon Texas COL (Victoria)	<b>Remarks:</b> Natural Moisture obtained from Sample J-2, 8'
● <b>Source:</b> TP-2101 <b>Sample No.:</b> 2101,B1 <b>Elev./Depth:</b> 8 <b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	<b>Checked by:</b> LBJ <b>Title:</b> LAB MANAGER <b>KAW 7-10-08</b> <b>Figure</b> N/A

# COMPACTION TEST REPORT/ ASTM D-1557-02



**Curve No.**  
**TP 2102 BULK 1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method**           Dry          

**Hammer Wt.**           10 lb.          

**Hammer Drop**           18 in.(mechanical)          

**Number of Layers**           five          

**Blows per Layer**           25          

**Mold Size**           .03317 cu.ft.          

**Test Performed on Material**

**Passing**           No.4           **Sieve**

**NM**           15.7           **LL**           50           **PI**           34          

**Sp.G. (ASTM D 854)**           2.700          

**%>No.4**           0.0           **%<No.200**           84.7          

**USCS**           CH           **AASHTO**           A-7-6(29)          

**Date Sampled**           1/17/08          

**Date Tested**           3/11/08          

**Tested By**           AWH          

### TESTING DATA

	1	2	3	4	5	6
<b>WM + WS</b>	6162.2	6268.3	6216.1	6135.8	6084.1	
<b>WM</b>	4214.0	4214.0	4214.0	4214.0	4214.0	
<b>WW + T #1</b>	588.00	558.40	656.70	729.30	514.60	
<b>WD + T #1</b>	525.70	488.90	563.10	612.50	466.20	
<b>TARE #1</b>	6.80	6.80	6.80	7.00	6.80	
<b>WW + T #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>WD + T #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>TARE #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>MOISTURE</b>	12.0	14.4	16.8	19.3	10.5	
<b>DRY DENSITY</b>	115.6	119.3	113.9	107.1	112.4	

TEST RESULTS	Material Description
Maximum dry density = 119.5 pcf	Light Olive Brown Fat CLAY with sand
Optimum moisture = 14.5 %	
<b>Project No.</b> 6468071777 <b>Client:</b> Bechtel	<b>Remarks:</b> Natural Moisture obtained from Sample J-4, 8'
<b>Project:</b> Exelon Texas COL (Victoria)	
● <b>Source:</b> TP-2102 <b>Sample No.:</b> 2102,B1 <b>Elev./Depth:</b> 8'	
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	<b>Checked by:</b> LBJ <b>Title:</b> LAB MANAGER  <b>KAW 7-10-08      Figure NA</b>

# COMPACTION TEST REPORT/ ASTM D-1557-02

**Curve No.**  
**TP 2103 B1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

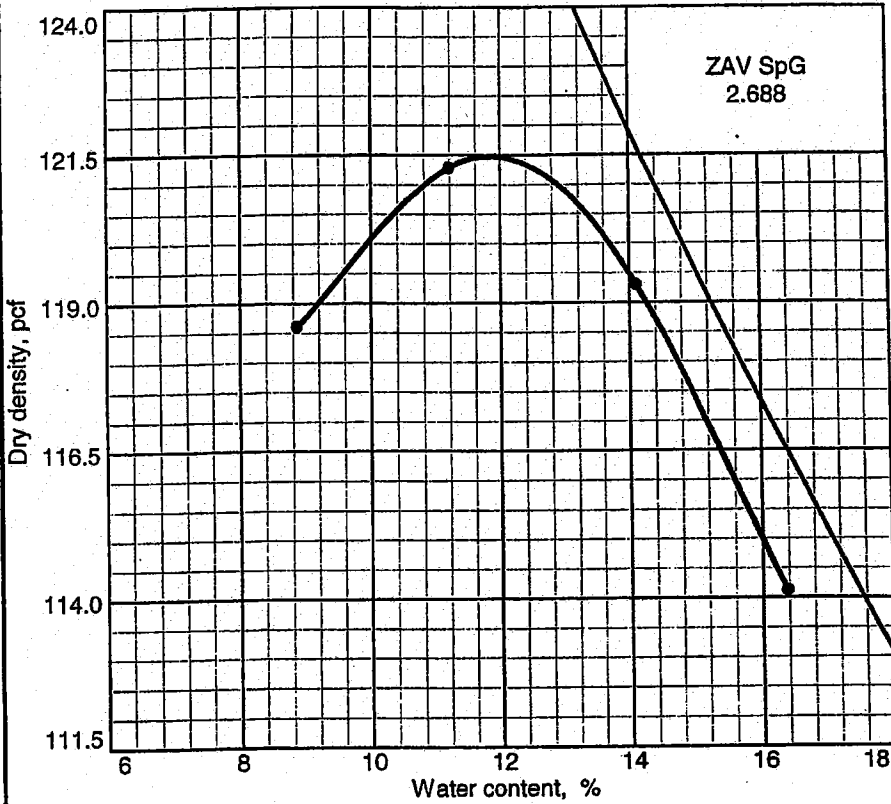
Preparation Method DRY  
 Hammer Wt. 10 lb.  
 Hammer Drop 18 in.(mechanical)  
 Number of Layers five  
 Blows per Layer 25  
 Mold Size .03317 cu.ft.

Test Performed on Material  
 Passing No.4 Sieve  
 NM 26.9 LL 49 PI 34  
 Sp.G. (ASTM D 854) 2.688

%>No.4 0.2 %<No.200 78.6  
 USCS CL AASHTO A-7-6(26)

Date Sampled 1/17/08  
 Date Tested 3/11/08

Tested By AWH



### TESTING DATA

	1	2	3	4	5	6
WM + WS	6156.5	6242.9	6262.0	6212.2		
WM	4214.0	4214.0	4214.0	4214.0		
WW + T #1	532.70	512.80	634.50	683.40		
WD + T #1	489.90	461.90	556.90	588.20		
TARE #1	6.70	6.80	6.70	6.80		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	8.9	11.2	14.1	16.4		
DRY DENSITY	118.6	121.3	119.3	114.1		

### TEST RESULTS

Maximum dry density = 121.5 pcf  
 Optimum moisture = 12.0 %

Project No. 6468071777 Client: Bechtel  
 Project: Exelon Texas COL (Victoria)

● Source: TP-2103 Sample No.: 2103,B1 Elev./Depth: 8'

**MACTEC, Inc.**  
**Raleigh, North Carolina**

### Material Description

Pale Brown Lean CLAY with sand

**Remarks:**

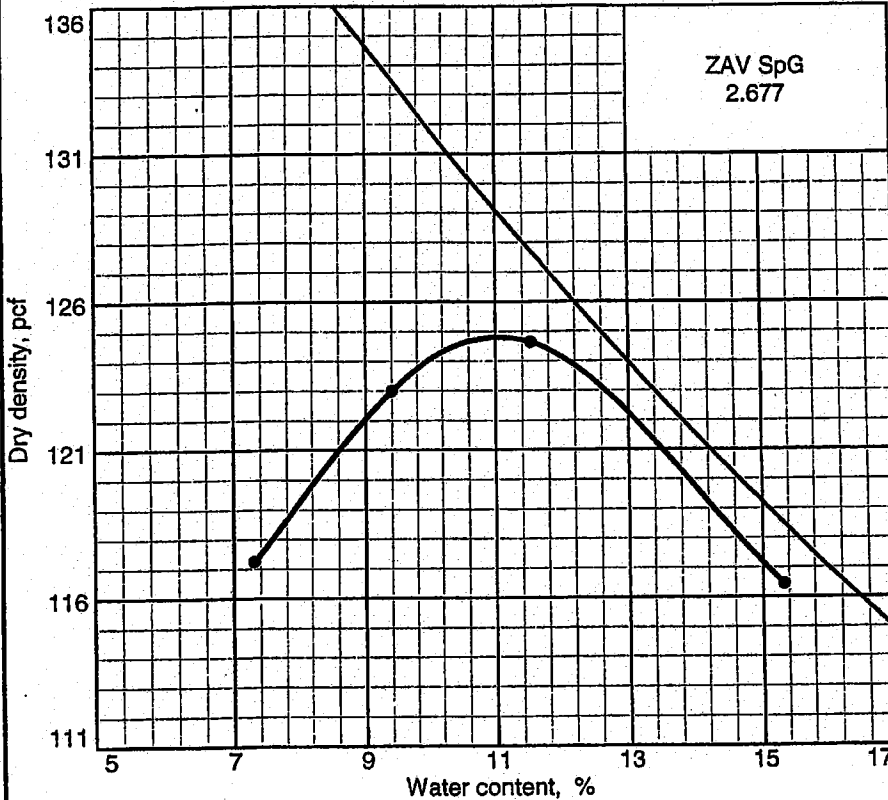
Natural Moisture obtained from Sample J-4, 8'

Checked by: LBJ  
 Title: LAB MANAGER

KAW 7-10-08 Figure N/A



# COMPACTION TEST REPORT/ ASTM D-1557-02



**Curve No.**  
**TP 2104 BULK 1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method** Dry  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.

**Test Performed on Material**  
**Passing** No.4 **Sieve**

**NM** 11.1 **LL** 38 **PI** 25

**Sp.G. (ASTM D 854)** 2.677

**%>No.4** 0.0 **%<No.200** 75.7

**USCS** CL **AASHTO** A-6(17)

**Date Sampled** 1/18/08

**Date Tested** 3/11/08

**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
<b>WM + WS</b>	6106.9	6238.4	6305.3	6234.4		
<b>WM</b>	4214.0	4214.0	4214.0	4214.0		
<b>WW + T #1</b>	565.10	543.30	857.50	718.80		
<b>WD + T #1</b>	527.10	497.20	769.60	624.20		
<b>TARE #1</b>	6.80	6.80	6.80	6.90		
<b>WW + T #2</b>	N/A	N/A	N/A	N/A		
<b>WD + T #2</b>	N/A	N/A	N/A	N/A		
<b>TARE #2</b>	N/A	N/A	N/A	N/A		
<b>MOISTURE</b>	7.3	9.4	11.5	15.3		
<b>DRY DENSITY</b>	117.2	123.0	124.6	116.4		

### TEST RESULTS

Maximum dry density = 125.0 pcf

Optimum moisture = 11.0 %

**Project No.** 6468071777 **Client:** Bechtel

**Project:** Exelon Texas COL (Victoria)

● **Source:** TP-2104 **Sample No.:** 2104,B1 **Elev./Depth:** 8'

**MACTEC, Inc.**

**Raleigh, North Carolina**

### Material Description

Pale Brown Lean CLAY with sand

**Remarks:**

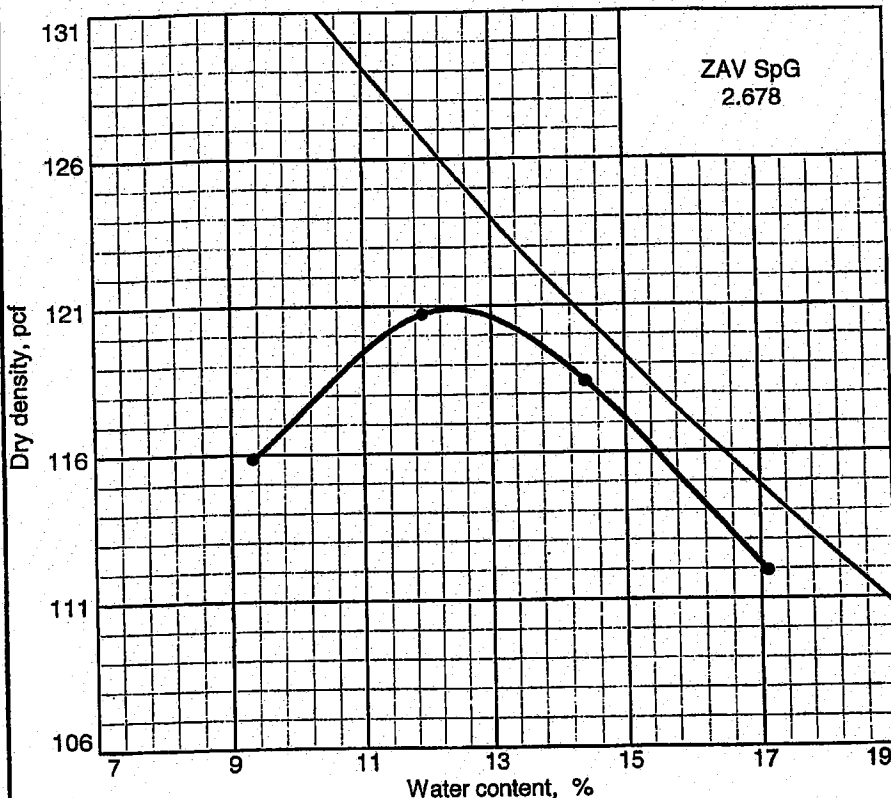
Natural Moisture obtained from Sample J-4, 8'

**Checked by:** LBJ

**Title:** LAB MANAGER

**KAW 7-10-08** **Figure** N/A

# COMPACTION TEST REPORT/ ASTM D-1557-02



**Curve No.**  
**TP 2201 B1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method**           Dry            
**Hammer Wt.**           10 lb.            
**Hammer Drop**           18 in.(mechanical)            
**Number of Layers**           five            
**Blows per Layer**           25            
**Mold Size**           .03317 cu.ft.          

**Test Performed on Material**  
**Passing**           No.4           **Sieve**  
**NM**           18.1           **LL**           47           **PI**           32            
**Sp.G. (ASTM D 854)**           2.678            
**%>No.4**           0.0           **%<No.200**           70.6          

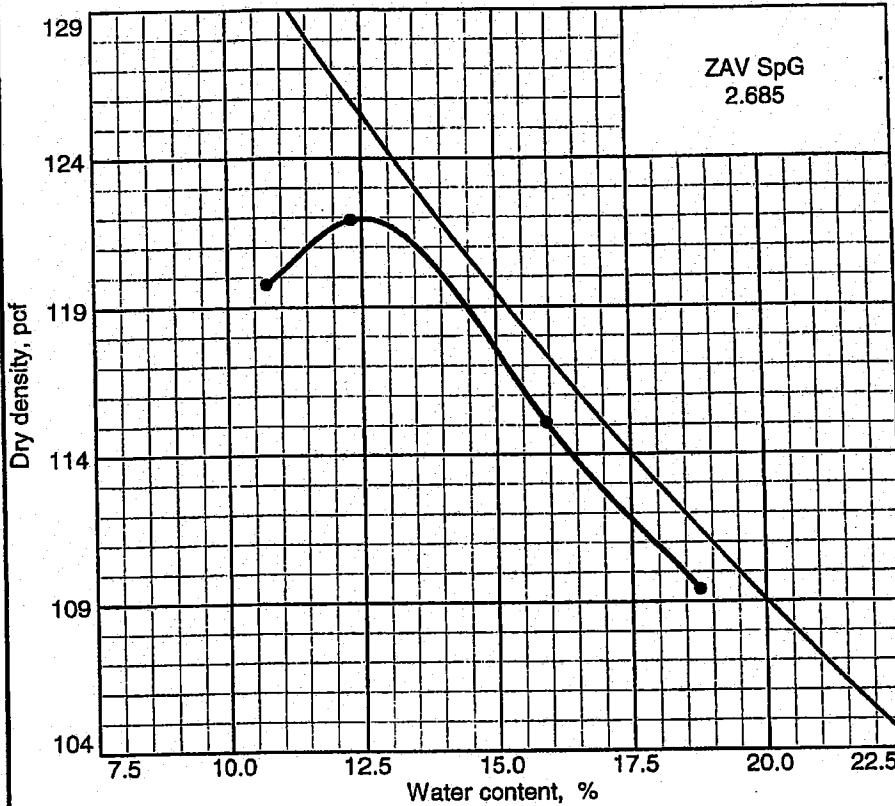
**USCS**           CL           **AASHTO**           A-7-6(21)            
**Date Sampled**           1/17/08            
**Date Tested**           3/11/08            
**Tested By**           AWH          

### TESTING DATA

	1	2	3	4	5	6
<b>WM + WS</b>	6119.4	6246.8	6252.5	6186.2		
<b>WM</b>	4214.0	4214.0	4214.0	4214.0		
<b>WW + T #1</b>	591.00	534.10	565.40	660.40		
<b>WD + T #1</b>	541.20	478.00	495.00	564.90		
<b>TARE #1</b>	6.80	6.90	6.60	6.70		
<b>WW + T #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>WD + T #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>TARE #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>MOISTURE</b>	9.3	11.9	14.4	17.1		
<b>DRY DENSITY</b>	115.8	120.7	118.4	111.9		

TEST RESULTS	Material Description
Maximum dry density = 121.0 pcf	Pale Yellow Lean CLAY with sand
Optimum moisture = 12.5 %	
Project No. 6468071777 Client: Bechtel Project: Exelon Texas COL (Victoria)	<b>Remarks:</b> Natural moisture obtained from Sample B1-J, 5'
● Source: TP-2201 Sample No.: 2201,B1 Elev./Depth: 5-10'	<b>Checked by:</b> LBJ <b>Title:</b> LAB MANAGER
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	<b>KAW 7-10-08 Figure N/A</b>

# COMPACTION TEST REPORT/ ASTM D-1557-02e1



**Curve No.**  
**TP 2202 BULK 1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

Preparation Method           Dry            
 Hammer Wt.           10 lb.            
 Hammer Drop           18 in.(mechanical)            
 Number of Layers           five            
 Blows per Layer           25            
 Mold Size           .03317 cu.ft.          

Test Performed on Material  
 Passing           No.4           Sieve  
 NM           19.6           LL           50           PI           33            
 Sp.G. (ASTM D 854)           2.685          

%>No.4           0.0           %<No.200           78.0            
 USCS           CH           AASHTO           A-7-6(25)          

Date Sampled           1/17/08          

Date Tested           3/11/08          

Tested By           AWH          

### TESTING DATA

	1	2	3	4	5	6
WM + WS	6208.9	6274.3	6221.3	6169.0		
WM	4214.0	4214.0	4214.0	4214.0		
WW + T #1	522.30	671.60	626.10	727.00		
WD + T #1	472.40	598.70	541.00	613.20		
TARE #1	6.70	6.90	6.80	6.80		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	10.7	12.3	15.9	18.8		
DRY DENSITY	119.8	121.9	115.1	109.4		

### TEST RESULTS

Maximum dry density = 122.0 pcf

Optimum moisture = 12.5 %

Project No. 6468071777 Client: Bechtel

Project: Exelon Texas COL (Victoria)

● Source: TP-2202 Sample No.: 2202,B1 Elev./Depth: 8'

**MACTEC, Inc.**

Raleigh, North Carolina

### Material Description

Pale Yellow Fat CLAY with sand

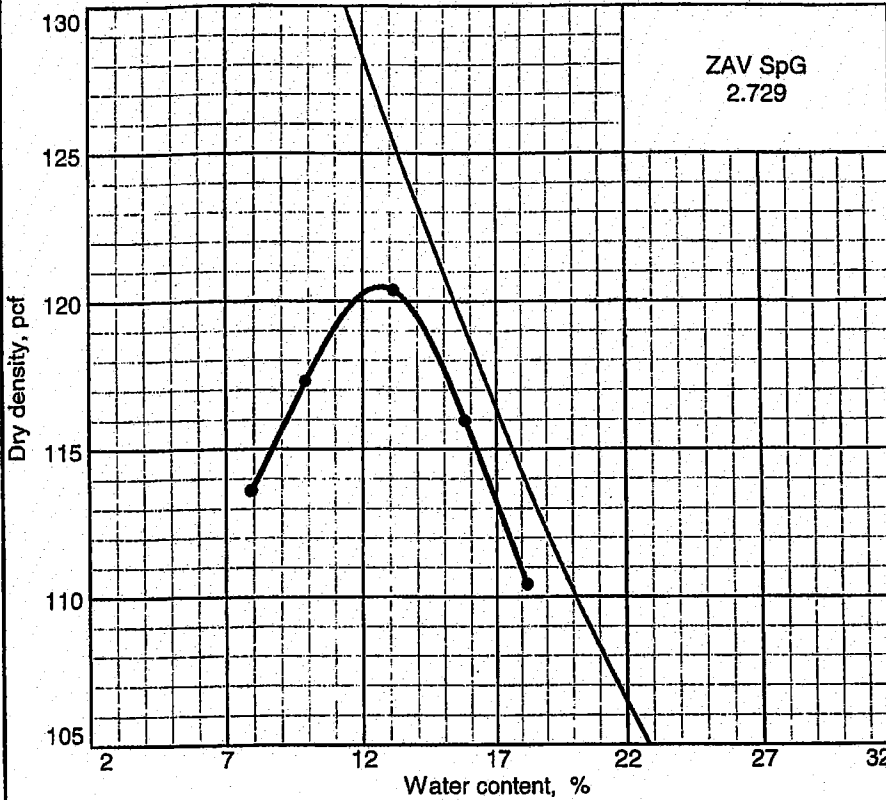
**Remarks:**

Natural Moisture obtained from Sample B1-J,5-10'

Checked by: LBJ  
 Title: LAB MANAGER

KAW 7-10-08 Figure N/A

# COMPACTION TEST REPORT/ ASTM D-1557-02e1



**Curve No.**  
**TP 2203 B1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method** Dry  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.  
**Test Performed on Material**  
**Passing** No.4 **Sieve**  
**NM** 17.7 **LL** 48 **PI** 33  
**Sp.G. (ASTM D 854)** 2.729  
**%>No.4** 0.0 **%<No.200** 83.4  
**USCS** CL **AASHTO** A-7-6(27)  
**Date Sampled** 1/18/08  
**Date Tested** 3/11/08  
**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
WM + WS	6152.9	6262.7	6233.9	6177.9	6058.0	
WM	4214.0	4214.0	4214.0	4214.0	4214.0	
WW + T #1	552.50	660.00	665.00	510.00	515.00	
WD + T #1	503.50	584.20	575.30	432.50	477.80	
TARE #1	6.80	6.70	6.80	7.00	6.80	
WW + T #2	N/A	N/A	N/A	N/A	N/A	
WD + T #2	N/A	N/A	N/A	N/A	N/A	
TARE #2	N/A	N/A	N/A	N/A	N/A	
MOISTURE	9.9	13.1	15.8	18.2	7.9	
DRY DENSITY	117.3	120.4	116.0	110.4	113.6	

### TEST RESULTS

Maximum dry density = 120.5 pcf  
 Optimum moisture = 12.5 %

**Project No.** 6468071777 **Client:** Bechtel  
**Project:** Exelon Texas COL (Victoria)

● **Source:** TP-2203 **Sample No.:** 2203,B1 **Elev./Depth:** 8'

**MACTEC, Inc.**  
**Raleigh, North Carolina**

### Material Description

Pale Brown Lean CLAY with sand

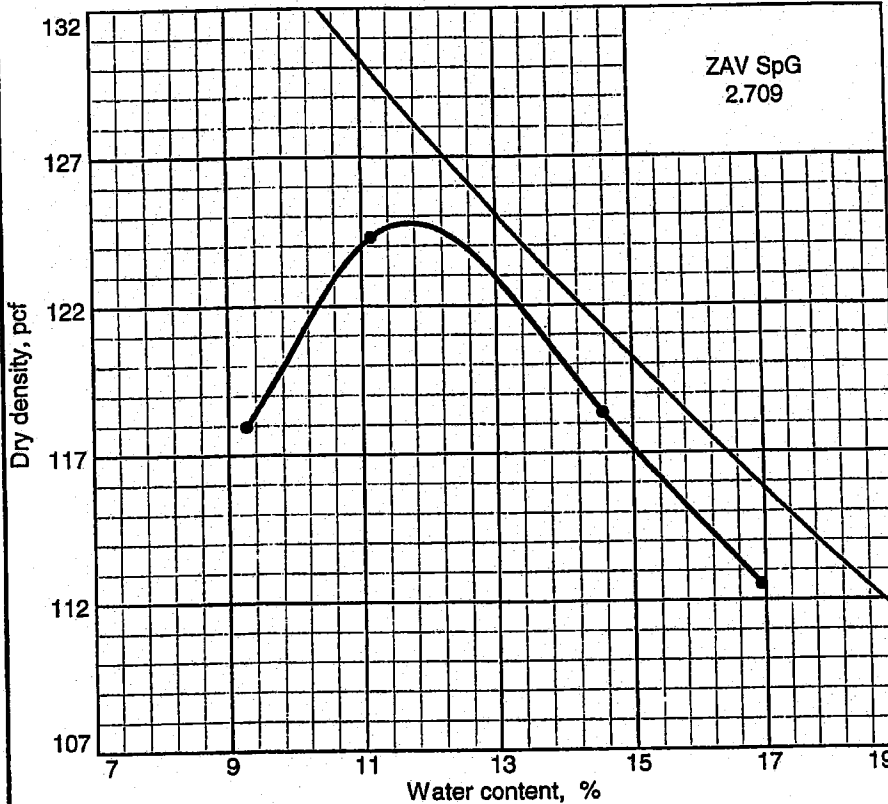
**Remarks:**

Natural Moisture obtained from Sample J-4, 8'

**Checked by:** LBJ  
**Title:** LAB MANAGER

**KAW 7-10-08** **Figure** *NA*

# COMPACTION TEST REPORT/ ASTM D-1557-02e1



**Curve No.**  
**TP 2204 B1**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method**           Dry          

**Hammer Wt.**           10 lb.          

**Hammer Drop**           18 in.(mechanical)          

**Number of Layers**           five          

**Blows per Layer**           25          

**Mold Size**           .03317 cu.ft.          

**Test Performed on Material**

**Passing**           No.4           **Sieve**

**NM**           17.2           **LL**           43           **PI**           29          

**Sp.G. (ASTM D 854)**           2.709          

**%>No.4**           0.0           **%<No.200**           84.4          

**USCS**           CL           **AASHTO**           A-7-6(24)          

**Date Sampled**           1/17/08          

**Date Tested**           3/11/08          

**Tested By**           AWH          

### TESTING DATA

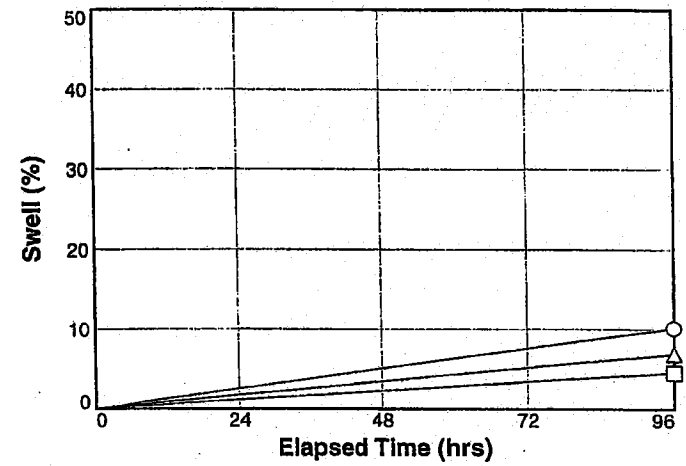
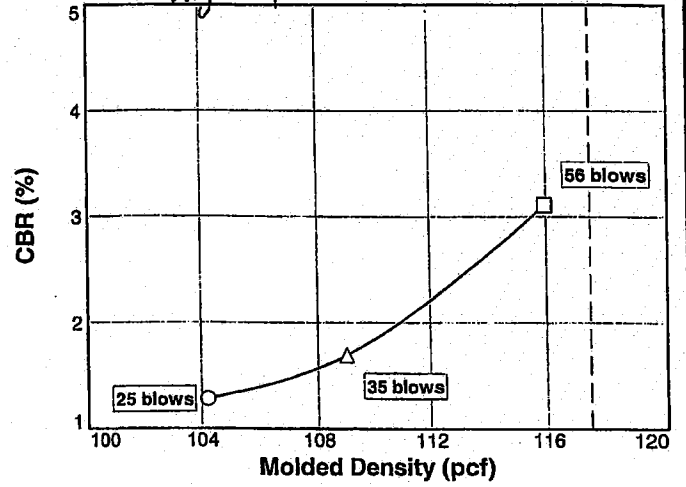
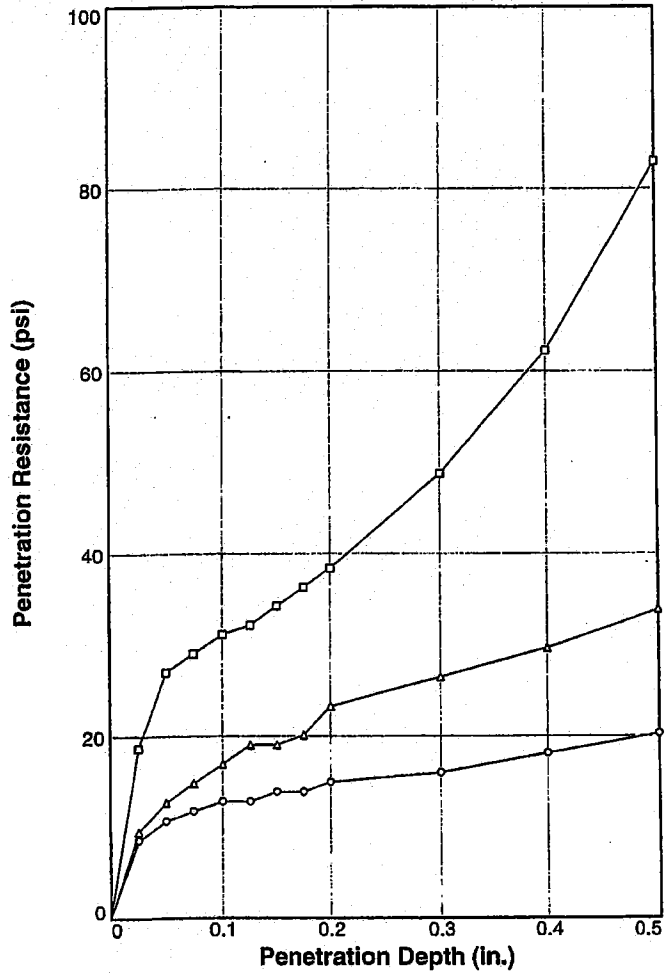
	1	2	3	4	5	6
<b>WM + WS</b>	6153.0	6292.4	6254.1	6194.0		
<b>WM</b>	4214.0	4214.0	4214.0	4214.0		
<b>WW + T #1</b>	578.00	648.20	544.40	513.40		
<b>WD + T #1</b>	529.60	583.90	476.10	440.00		
<b>TARE #1</b>	6.80	6.80	7.00	6.70		
<b>WW + T #2</b>	N/A	N/A	N/A	N/A		
<b>WD + T #2</b>	N/A	N/A	N/A	N/A		
<b>TARE #2</b>	N/A	N/A	N/A	N/A		
<b>MOISTURE</b>	9.3	11.1	14.6	16.9		
<b>DRY DENSITY</b>	118.0	124.3	118.4	112.5		

TEST RESULTS	Material Description
Maximum dry density = 125.0 pcf	Pale Brown Lean CLAY with sand
Optimum moisture = 11.5 %	<b>Remarks:</b>
<b>Project No.</b> 6468071777 <b>Client:</b> Bechtel	Natural moisture obtained from Sample B1-J, 5-10'
<b>Project:</b> Exelon Texas COL (Victoria)	
● <b>Source:</b> TP-2204 <b>Sample No.:</b> 2204,B1 <b>Elev./Depth:</b> 5-10'	<b>Checked by:</b> LBJ
<b>MACTEC, Inc.</b>	<b>Title:</b> LAB MANAGER
<b>Raleigh, North Carolina</b>	<b>KAW 7.10.08</b> <b>Figure</b> <i>N/A</i>

# **California Bearing Ratio Tests**

# BEARING RATIO TEST REPORT

ASTM D 1883-99 <sup>05</sup>  
*26) 4/10/08*



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	104.0	88.5	13.4	94.5	80.6	22.8	1.3	1.0	0.000	10.02	10.1
2 △	109.0	92.8	13.9	102.0	86.8	20.5	1.7	1.6	0.000	10.005	6.9
3 □	116.0	98.7	13.2	111.0	94.4	18.0	3.1	2.6	0.000	10.019	4.5

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
	Light Yellowish Brown Fat CLAY with sand	CH	117.5	13.5	54

**Project No:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Source of Sample:** TP-2101                      **Depth:** 8  
**Sample Number:** 2101,B1  
**Date:** 1/17/08  
  
 BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture is average of top, middle, and bottom.

Figure NA

**BEARING RATIO TESTING RESULTS**  
(ASTM D 1883-99) 05 May 2008

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2101  
**Depth:** 8 **Sample Number:** 2101,B1  
**Material Description:** Light Yellowish Brown Fat CLAY with sand  
**USCS Classification:** CH  
**Liquid Limit:** 54 **Plasticity Index:** 37

**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 117.5 **Optimum Moisture Content:** 13.5  
**Testing Remarks:** Soaked moisture is average of top, middle, and bottom.

**Sample 1 (25 Blows; Surcharge: 10.02 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 312.5    Wt. Soil+Tare, gms. 276.5    Wt. Tare, gms. 6.90    **Moisture, % 13.4**

**Unit Weight**

Wt. Mold+Soil, gms. 12274.4    Wt. Mold, gms. 8255.9    Ht. Soil, in. 4.583    **Density, pcf 104.0**

**Swell Data**

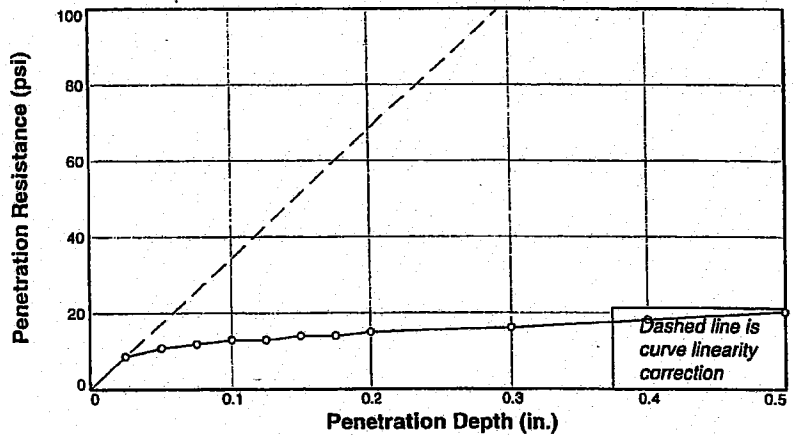
Elapsed Time, hrs.	Dial Reading In. x 1,000	Swell %
0	0	0.0
96	462	10.1

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	505.3	385.4	6.90	31.7
Middle	554.9	469.8	6.90	18.4
Bottom	554.9	469.8	6.90	18.4

**Penetration Test Data**

Pen. In.	Dial Reading In. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	8	8.5	
0.05	10	10.7	
0.075	11	11.7	
0.1	12	12.8	13.8
0.125	12	12.8	
0.15	13	13.8	
0.175	13	13.8	
0.2	14	14.9	10.8
0.3	15	16.0	0.8
0.4	17	18.1	0.8
0.5	19	20.2	0.8



MACTEC, Inc.



**Sample 2 (35 Blows; Surcharge: 10.005 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 232.1    Wt. Soil+Tare, gms. 204.6    Wt. Tare, gms. 6.90    **Moisture, % 13.9**

**Unit Weight**

Wt. Mold+Soil, gms. 12443.0    Wt. Mold, gms. 8218.8    Ht. Soil, in. 4.583    **Density, pcf 109.0**

**Swell Data**

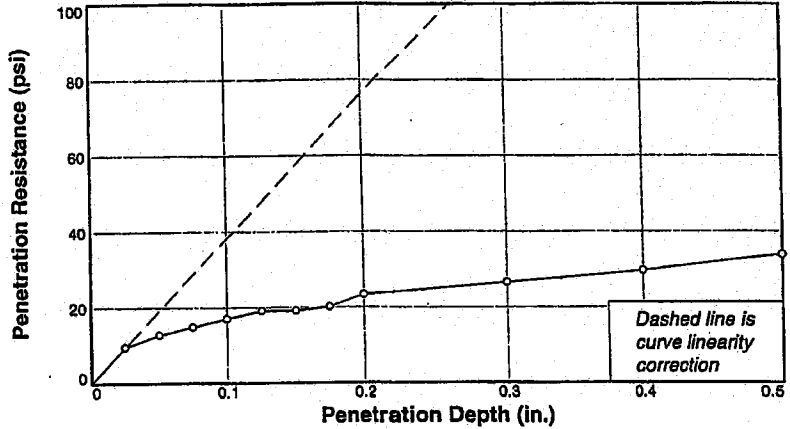
Elapsed Time, hrs.	Dial Reading In. x 1,000	Swell %
0	0	0.0
96	314	6.9

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	641.7	496.2	6.60	29.7
Middle	510.2	441.3	6.80	15.9
Bottom	510.2	441.3	6.80	15.9

**Penetration Test Data**

Pen. in.	Dial Reading In. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	9	9.5	
0.05	12	12.7	
0.075	14	14.8	
0.1	16	16.9	
0.125	18	19.0	
0.15	18	19.0	
0.175	19	20.1	
0.2	22	23.3	1.6
0.3	25	26.4	1.4
0.4	28	29.6	1.3
0.5	32	33.8	1.3



**Sample 3 (56 Blows; Surcharge: 10.019 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 277.6    Wt. Soil+Tare, gms. 245.9    Wt. Tare, gms. 6.60    **Moisture, % 13.2**

**Unit Weight**

Wt. Mold+Soil, gms. 12672.3    Wt. Mold, gms. 8204.8    Ht. Soil, in. 4.584    **Density, pcf 116.0**

**Swell Data**

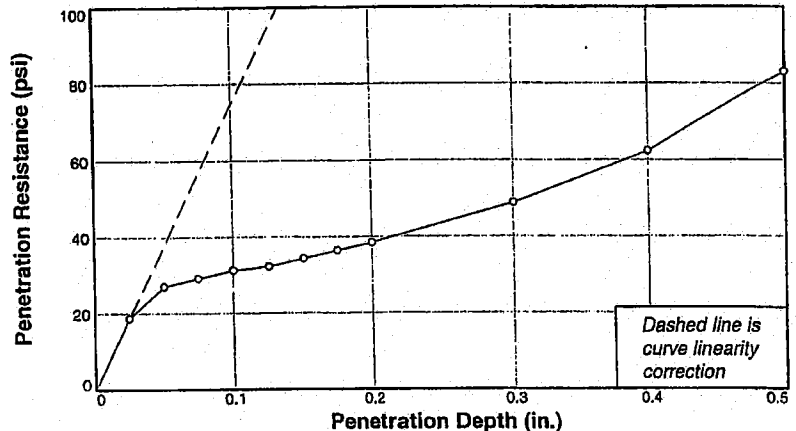
Elapsed Time, hrs.	Dial Reading In. x 1,000	Swell %
0	0	0.0
96	207	4.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	505.2	400.7	6.80	26.5
Middle	804.4	708.3	6.90	13.7
Bottom	804.4	708.3	6.90	13.7

**Penetration Test Data**

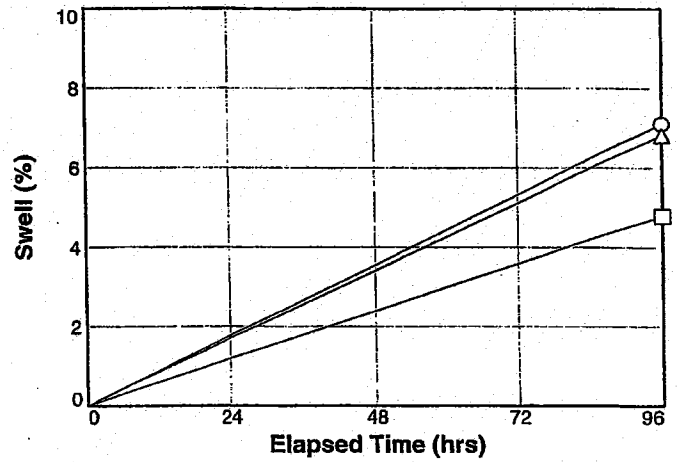
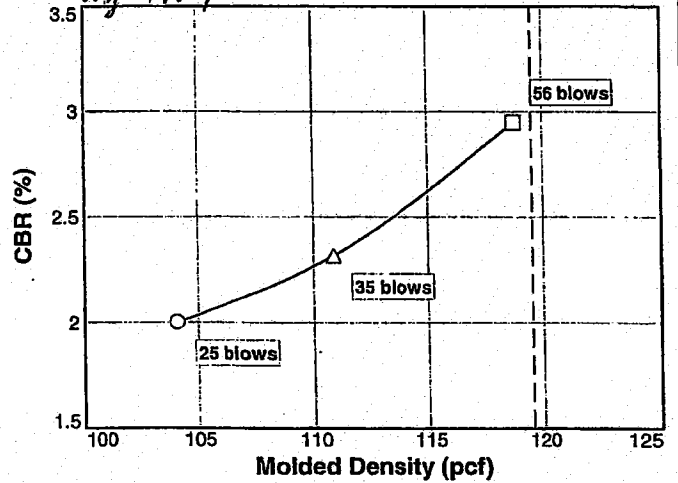
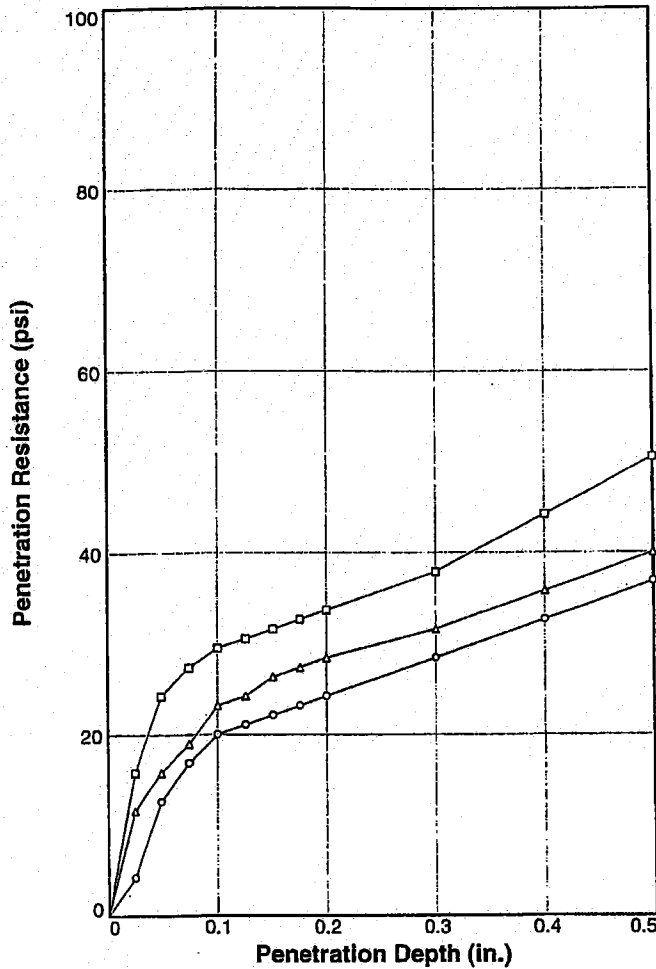
Pen. in.	Dial Reading In. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	18	18.7	
0.05	26	27.0	
0.075	28	29.0	
0.1	30	31.1	3.1
0.125	31	32.1	
0.15	33	34.2	
0.175	35	36.3	
0.2	37	38.4	2.6
0.3	47	48.7	2.6
0.4	60	62.2	2.7
0.5	80	83.0	3.2



**MACTEC, Inc.**

# BEARING RATIO TEST REPORT

ASTM D 1883-99 <sup>05</sup>  
*7/10/08* 4/10/08



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	104.0	87	14.1	97.0	81.3	22.0	2.0	1.6	0.000	10.01	7.1
2 △	111.0	92.9	14.1	104.0	86.8	19.1	2.3	1.9	0.000	10.01	6.8
3 □	118.5	99.2	14.1	113.5	94.8	18.5	2.9	2.2	0.000	10.04	4.8
Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Light Olive Brown Fat CLAY with sand							CH	119.5	14.5	50	34

Project No: 6468071777  
 Project: Exelon Texas COL (Victoria)  
 Source of Sample: TP-2102                      Depth: 8'  
 Sample Number: 2102,B1  
 Date: 1/17/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D-1557-02  
 Soaked moisture is average of top, middle, and bottom.

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure *NA*

### BEARING RATIO TESTING RESULTS

(ASTM D 1883-99) 05 4/16/08

L12J

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2102  
**Depth:** 8' **Sample Number:** 2102,B1  
**Material Description:** Light Olive Brown Fat CLAY with sand  
**USCS Classification:** CH  
**Liquid Limit:** 50 **Plasticity Index:** 34

**Test Description:** Prepared in accordance with ASTM D-1557-02  
**Maximum Dry Density:** 119.5 **Optimum Moisture Content:** 14.5  
**Testing Remarks:** Soaked moisture is average of top, middle, and bottom.

**Sample 1 (25 Blows; Surcharge: 10.01 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 279.6    Wt. Soil+Tare, gms. 245.8    Wt. Tare, gms. 6.70

Moisture, % 14.1

**Unit Weight**

Wt. Mold+Soil, gms. 12296.9    Wt. Mold, gms. 8251.7    Ht. Soil, in. 4.588

Density, pcf 104.0

**Swell Data**

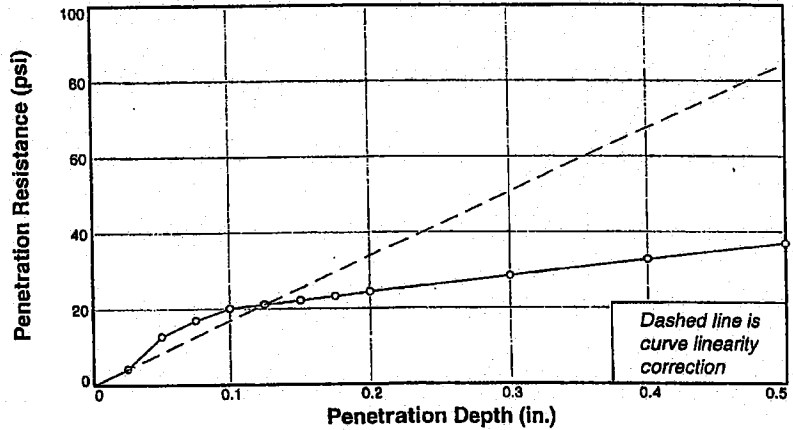
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	325	7.1

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	531.9	416.1	6.90	28.3
Middle	606.4	511.5	6.90	18.8
Bottom	606.4	511.5	6.90	18.8

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psl	CBR %
0.0	0	0.0	
0.025	4	4.2	
0.05	12	12.6	
0.075	16	16.8	
0.1	19	20.0	2.0
0.125	20	21.1	
0.15	21	22.1	
0.175	22	23.2	
0.2	23	24.2	1.6
0.3	27	28.4	1.5
0.4	31	32.6	1.4
0.5	35	36.8	1.4



MACTEC, Inc.

**Sample 2 (35 Blows; Surcharge: 10.01 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 350.7    Wt. Soil+Tare, gms. 308.3    Wt. Tare, gms. 6.70

Moisture, % 14.1

**Unit Weight**

Wt. Mold+Soil, gms. 12533.5    Wt. Mold, gms. 8230.5    Ht. Soil, in. 4.586

Density, pcf 111.0

**Swell Data**

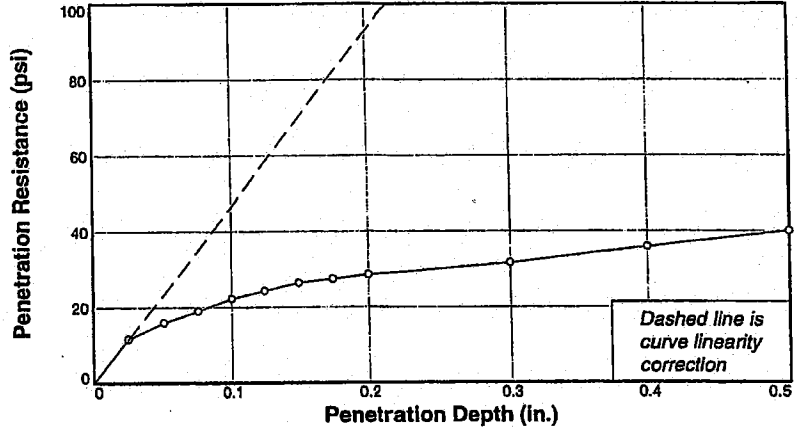
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	312	6.8

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	526.5	416.2	6.90	26.9
Middle	580.3	505.0	6.80	15.1
Bottom	580.3	505.0	6.80	15.1

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	11	11.6	
0.05	15	15.8	
0.075	18	18.9	
0.1	21	22.1	2.2
0.125	23	24.2	
0.15	25	26.3	
0.175	26	27.4	
0.2	27	28.4	1.9
0.3	30	31.6	1.7
0.4	34	35.8	1.6
0.5	38	40.0	1.5



**Sample 3 (56 Blows; Surcharge: 10.04 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 271.8    Wt. Soil+Tare, gms. 239.0    Wt. Tare, gms. 6.80

Moisture, % 14.1

**Unit Weight**

Wt. Mold+Soil, gms. 12867.2    Wt. Mold, gms. 8254.4    Ht. Soil, in. 4.587

Density, pcf 113.5

**Swell Data**

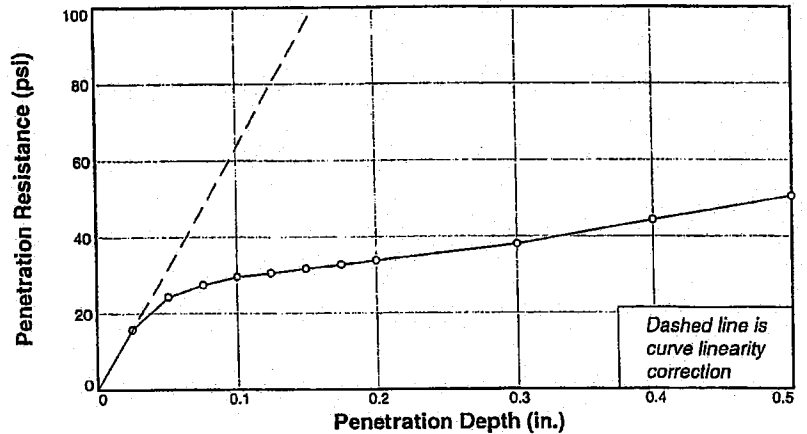
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	219	4.8

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	526.9	418.1	6.90	26.5
Middle	731.0	639.1	6.70	14.5
Bottom	731.0	639.1	6.70	14.5

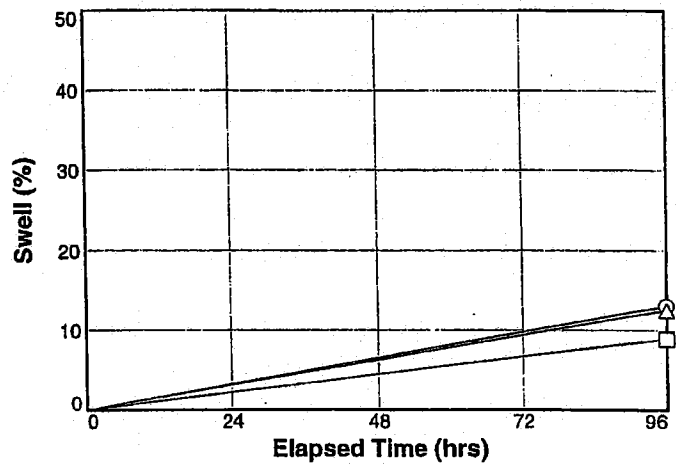
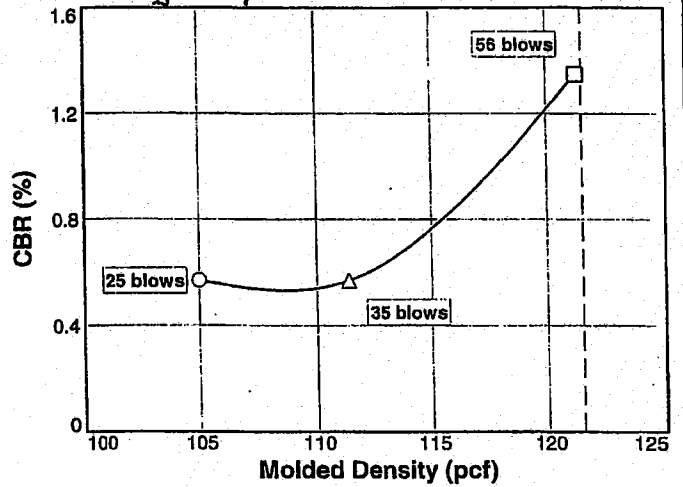
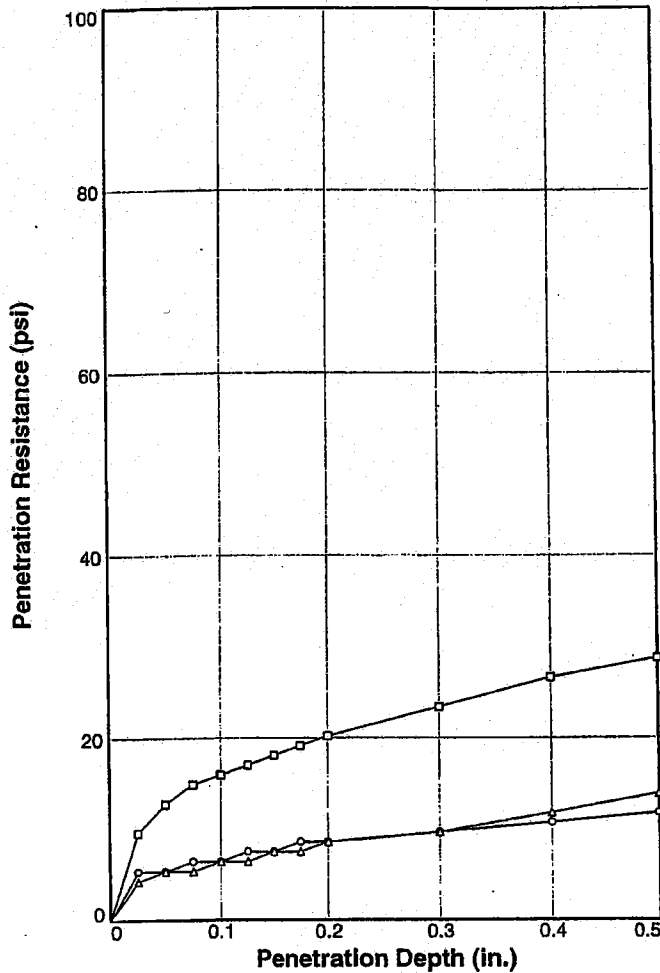
**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	15	15.8	
0.05	23	24.2	
0.075	26	27.4	
0.1	28	29.5	2.9
0.125	29	30.5	
0.15	30	31.6	
0.175	31	32.6	
0.2	32	33.7	2.2
0.3	36	37.9	2.0
0.4	42	44.2	1.9
0.5	48	50.5	1.9



# BEARING RATIO TEST REPORT

ASTM D 1883-99 *05*  
*2103 4/10/08*



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	105.0	86.4	11.5	93.0	76.5	25.3	0.6	0.6	0.000	9.999	13
2 △	111.5	91.8	11.5	99.0	81.5	22.6	0.6	0.6	0.000	9.99	12.5
3 □	121.5	100	11.5	111.5	91.7	18.9	1.6	1.3	0.000	10.02	8.9
Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Brown Lean CLAY with sand											

Project No: 6468071777  
 Project: Exelon Texas COL (Victoria)  
 Source of Sample: TP-2103                      Depth: 8'  
 Sample Number: 2103,B1  
 Date: 1/17/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture is average of top, middle, and bottom

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure *NA*

### BEARING RATIO TESTING RESULTS

(ASTM D 1883-99) 05 4/10/08 *CLJ*

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2103  
**Depth:** 8' **Sample Number:** 2103,B1  
**Material Description:** Pale Brown Lean CLAY with sand  
**USCS Classification:** CL  
**Liquid Limit:** 49 **Plasticity Index:** 34  
  
**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 121.5 **Optimum Moisture Content:** 12.0  
**Testing Remarks:** Soaked moisture is average of top,middle, and bottom

**Sample 1 (25 Blows; Surcharge: 9.999 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 269.0    Wt. Soil+Tare, gms. 241.9    Wt. Tare, gms. 6.60    Moisture, % 11.5

**Unit Weight**

Wt. Mold+Soil, gms. 11045.0    Wt. Mold, gms. 7055.1    Ht. Soil, in. 4.591    Density, pcf. 105.0

**Swell Data**

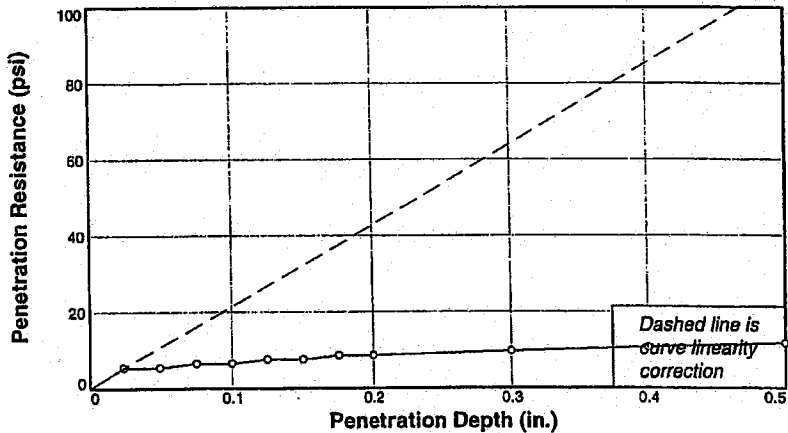
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	597	13.0

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	513.7	392.3	6.80	<span style="border: 1px solid black; padding: 2px;">31.5</span>
Middle	538.2	441.4	6.90	<span style="border: 1px solid black; padding: 2px;">22.3</span>
Bottom	538.2	441.4	6.90	<span style="border: 1px solid black; padding: 2px;">22.3</span>

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	5	5.3	
0.05	5	5.3	
0.075	6	6.4	
0.1	6	6.4	0.6
0.125	7	7.5	
0.15	7	7.5	
0.175	8	8.5	
0.2	8	8.5	0.6
0.3	9	9.6	0.5
0.4	10	10.7	0.5
0.5	11	11.7	0.5



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**Sample 2 (35 Blows; Surcharge: 9.99 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 235.4    Wt. Soil+Tare, gms. 211.8    Wt. Tare, gms. 7.0

Moisture % 11.5

**Unit Weight**

Wt. Mold+Soil, gms. 11397.9    Wt. Mold, gms. 7145.8    Ht. Soil, in. 4.613

Density, pcf 111.5

**Swell Data**

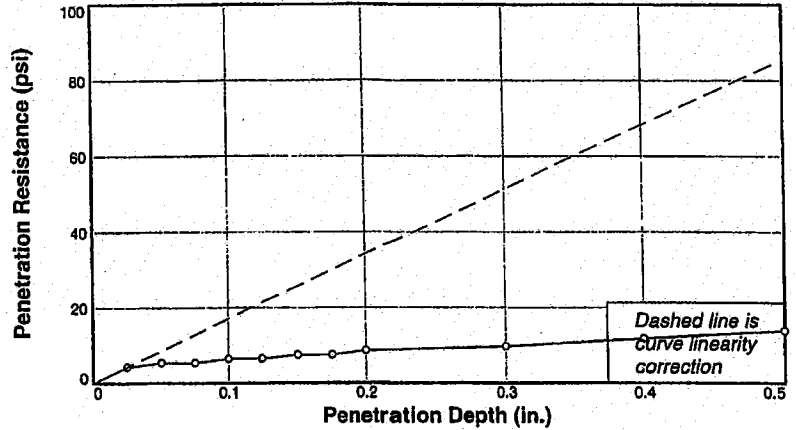
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	575	12.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture %
Top	524.0	407.5	6.90	29.1
Middle	538.9	452.9	7.00	19.3
Bottom	538.9	452.9	7.00	19.3

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	4	4.3	
0.05	5	5.3	
0.075	5	5.3	
0.1	6	6.4	0.6
0.125	6	6.4	
0.15	7	7.5	
0.175	7	7.5	
0.2	8	8.5	0.6
0.3	9	9.6	0.5
0.4	11	11.7	0.5
0.5	13	13.8	0.5



**Sample 3 (56 Blows; Surcharge: 10.02 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 291.4    Wt. Soil+Tare, gms. 262.0    Wt. Tare, gms. 6.80

Moisture % 11.5

**Unit Weight**

Wt. Mold+Soil, gms. 11602.0    Wt. Mold, gms. 6990.0    Ht. Soil, in. 4.595

Density, pcf 121.5

**Swell Data**

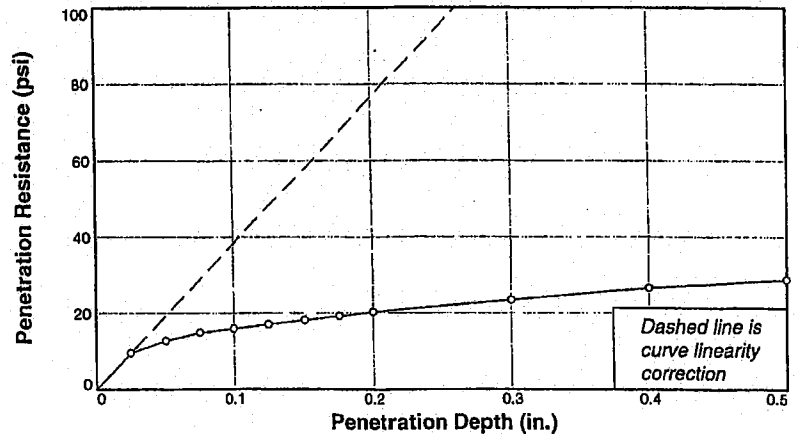
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	408	8.9

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture %
Top	585.0	464.9	6.70	26.2
Middle	763.4	663.5	7.00	15.2
Bottom	762.3	662.4	7.0	15.2

**Penetration Test Data**

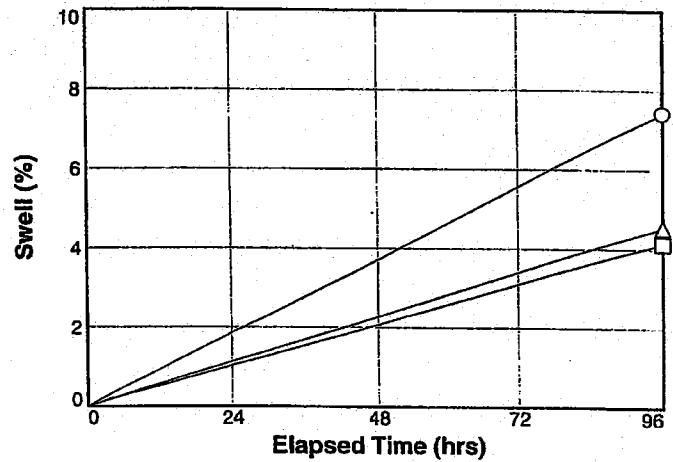
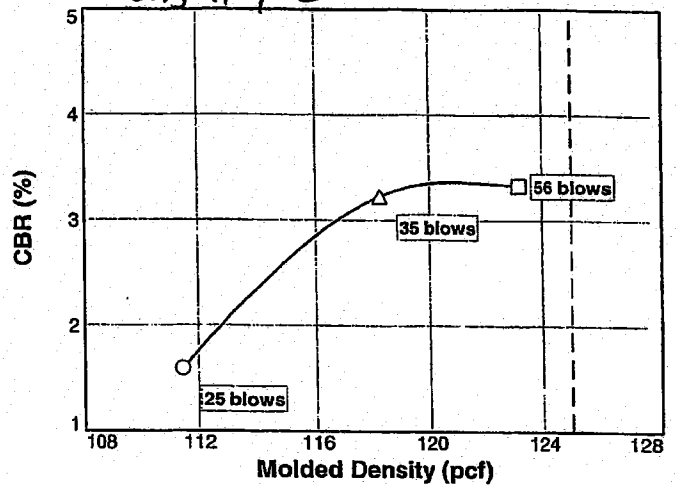
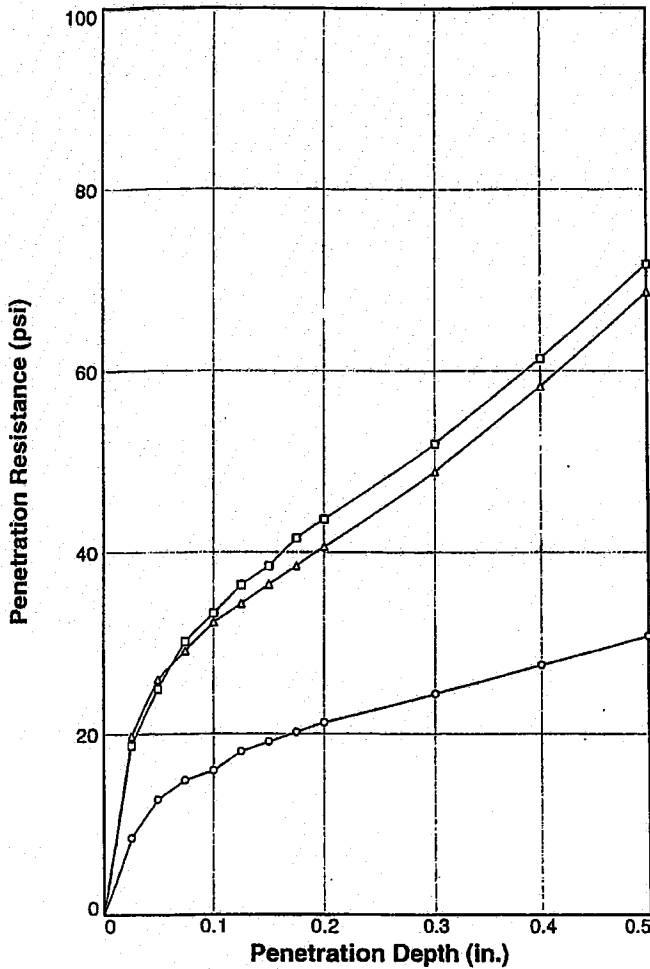
Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	9	9.6	
0.05	12	12.8	
0.075	14	14.9	
0.1	15	15.9	1.6
0.125	16	17.0	
0.15	17	18.1	
0.175	18	19.1	
0.2	19	20.2	1.3
0.3	22	23.4	1.2
0.4	25	26.6	1.2
0.5	27	28.7	1.1



MACTEC, Inc.

# BEARING RATIO TEST REPORT

ASTM D 1883-99 <sup>05</sup>  
*LAJ 4/16/08*



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	111.5	89.2	10.5	104.0	83	20.6	1.6	1.4	0.000	10.03	7.4
2 △	118.0	94.4	10.7	113.0	90.5	15.5	3.2	2.7	0.000	10.01	4.5
3 □	123.0	98.4	10.6	118.5	94.6	13.8	3.3	2.9	0.000	10.00	4.1
<b>Material Description</b>							<b>USCS</b>	<b>Max. Dens. (pcf)</b>	<b>Optimum Moisture (%)</b>	<b>LL</b>	<b>PI</b>
Pale Brown Lean CLAY with sand							CL	125.0	11.0	38	25

Project No: 6468071777  
 Project: Exelon Texas COL (Victoria)  
 Source of Sample: TP-2104                      Depth: 8'  
 Sample Number: 2104,B1  
 Date: 1/18/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked Moisture is average of top, middle, and bottom

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure *NA*



**BEARING RATIO TESTING RESULTS**  
 (ASTM D 1883-99) *DS M/J 4/10/08*

**Date:** 1/18/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2104  
**Depth:** 8' **Sample Number:** 2104,B1  
**Material Description:** Pale Brown Lean CLAY with sand  
**USCS Classification:** CL  
**Liquid Limit:** 38 **Plasticity Index:** 25

**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 125.0 **Optimum Moisture Content:** 11.0  
**Testing Remarks:** Soaked Moisture is average of top, middle, and bottom

**Sample 1 (25 Blows; Surcharge: 10.03 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 373.9    Wt. Soil+Tare, gms. 339.0    Wt. Tare, gms. 6.8    **Moisture, %: 10.5**

**Unit Weight**

Wt. Mold+Soil, gms. 11221.1    Wt. Mold, gms. 7026.4    Ht. Soil, in. 4.589    **Density, pcf: 111.5**

**Swell Data**

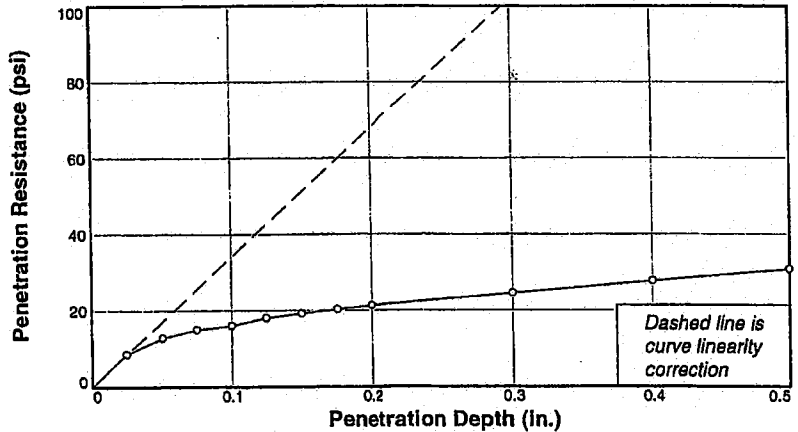
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	340	7.4

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	521.9	418.9	6.80	25.0
Middle	541.5	458.1	6.70	18.5
Bottom	541.5	458.1	6.70	18.5

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	8	8.5	
0.05	12	12.7	
0.075	14	14.8	
0.1	15	15.9	1.6
0.125	17	18.0	
0.15	18	19.1	
0.175	19	20.1	
0.2	20	21.2	1.4
0.3	23	24.4	1.3
0.4	26	27.6	1.2
0.5	29	30.7	1.2



MACTEC, Inc.

**Sample 2 (35 Blows; Surcharge: 10.01 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 388.0    Wt. Soil+Tare, gms. 351.3    Wt. Tare, gms. 6.8

Moisture, % 10.7

**Unit Weight**

Wt. Mold+Soil, gms. 11446.7    Wt. Mold, gms. 6993.2    Ht. Soil, in. 4.588

Density, pcf 118.0

**Swell Data**

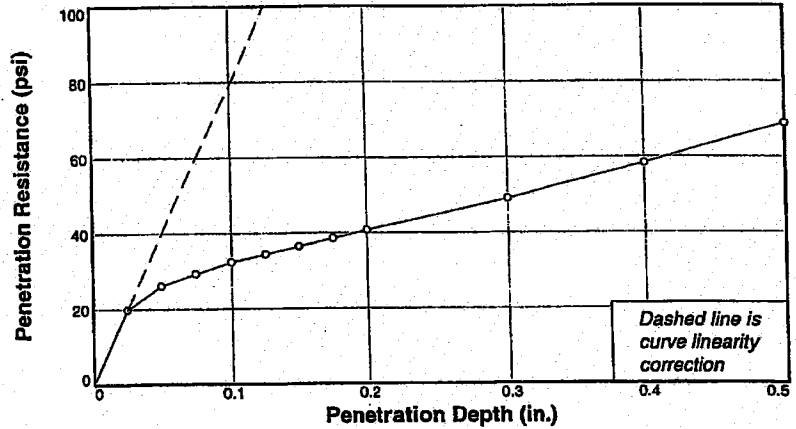
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	208	4.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	524.3	434.1	6.90	21.1
Middle	534.1	475.0	6.90	12.6
Bottom	534.1	475.0	6.90	12.6

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	19	19.8	
0.05	25	26.0	
0.075	28	29.1	
0.1	31	32.3	3.2
0.125	33	34.3	
0.15	35	36.4	
0.175	37	38.5	
0.2	39	40.6	2.7
0.3	47	48.9	2.6
0.4	56	58.3	2.5
0.5	66	68.7	2.6



**Sample 3 (56 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 369.7    Wt. Soil+Tare, gms. 334.8    Wt. Tare, gms. 6.70

Moisture, % 10.6

**Unit Weight**

Wt. Mold+Soil, gms. 11673.1    Wt. Mold, gms. 7028.4    Ht. Soil, in. 4.593

Density, pcf 123.0

**Swell Data**

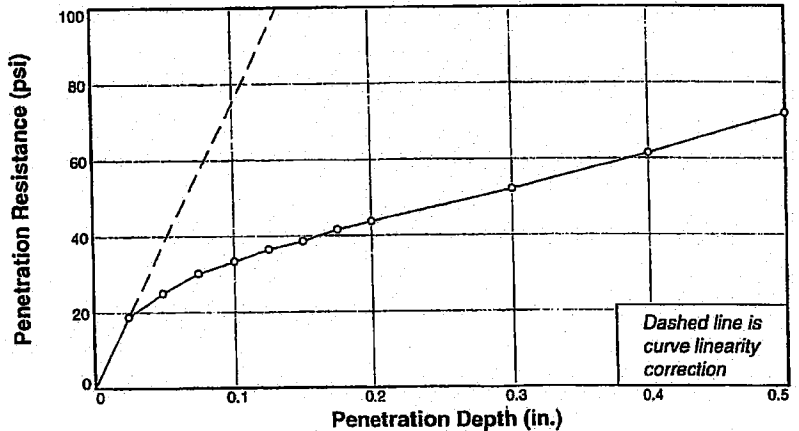
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	190	4.1

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	553.0	464.7	6.80	19.3
Middle	576.6	519.6	6.70	11.1
Bottom	576.6	519.6	6.70	11.1

**Penetration Test Data**

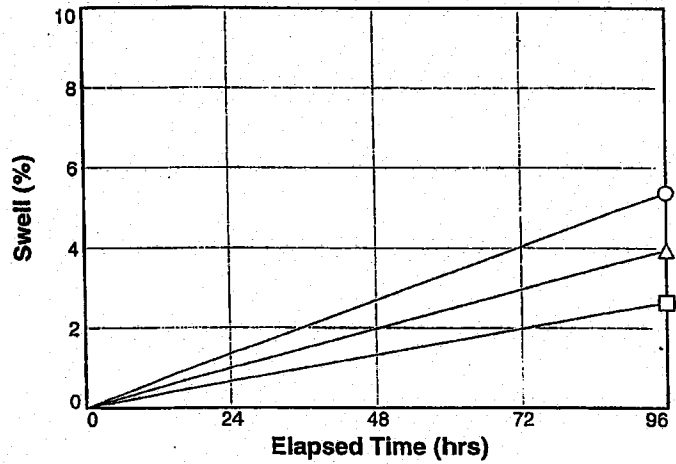
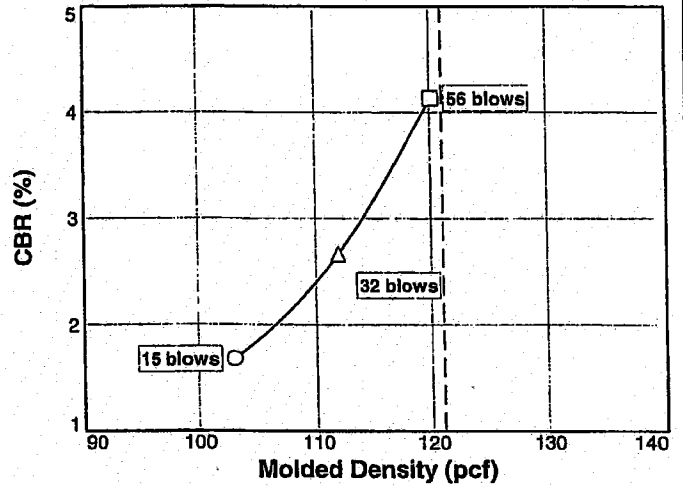
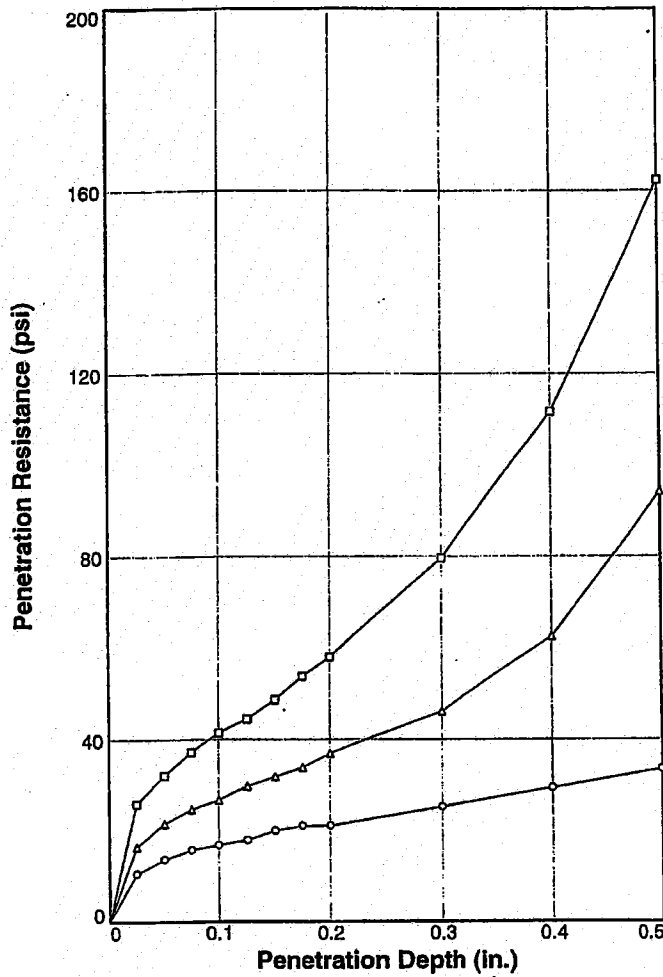
Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	18	18.7	
0.05	24	24.9	
0.075	29	30.1	
0.1	32	33.3	3.3
0.125	35	36.4	
0.15	37	38.5	
0.175	40	41.6	
0.2	42	43.7	2.9
0.3	50	52.0	2.7
0.4	59	61.3	2.7
0.5	69	71.7	2.8



MACTEC, Inc.

# BEARING RATIO TEST REPORT

ASTM D 1883-99 *05 LAB 4/10/08*



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.0	85.1	12.9	98.0	80.8	20.0	1.7	1.4	0.000	10.00	5.4
2 △	112.0	92.6	12.3	107.5	89	16.1	2.7	2.5	0.000	10.00	3.9
3 □	120.0	99.2	12.0	117.0	96.7	17.4	4.1	3.9	0.000	10.00	2.6
Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Yellow Lean CLAY with sand											

**Project No:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Source of Sample:** TP-2201      **Depth:** 5-10'  
**Sample Number:** 2201,B1  
**Date:** 1/17/08

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture is average of top, middle, and bottom.

Figure *NA*

### BEARING RATIO TESTING RESULTS

(ASTM D 1883-99) *05 LKJ 4/10/08*

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2201  
**Depth:** 5-10' **Sample Number:** 2201,B1  
**Material Description:** Pale Yellow Lean CLAY with sand  
**USCS Classification:** CL  
**Liquid Limit:** 47 **Plasticity Index:** 32  
**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 121.0 **Optimum Moisture Content:** 12.5  
**Testing Remarks:** Soaked moisture is average of top, middle, and bottom.

#### Sample 1 (15 Blows; Surcharge: 10.00 lbs.)

**Water Content**

Wt. Wet Soil+Tare, gms. 390.1    Wt. Soil+Tare, gms. 346.2    Wt. Tare, gms. 6.50    **Moisture, %: 12.9**

**Unit Weight**

Wt. Mold+Soil, gms. 10993.4    Wt. Mold, gms. 7027.5    Ht. Soil, in. 4.593    **Density, pcf: 103.0**

**Swell Data**

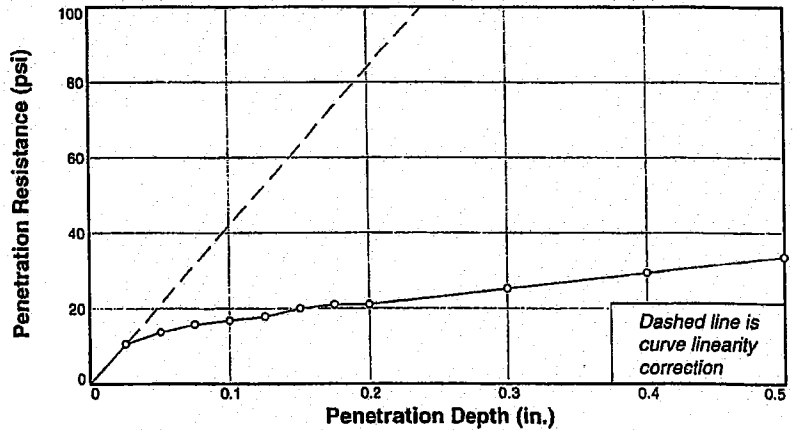
Elapsed Time, hrs.	Dial Reading In. x 1,000	Swell %
0	0	0.0
96	247	5.4

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	525.2	413.6	6.80	27.4
Middle	530.2	457.1	6.80	16.2
Bottom	530.2	457.1	6.80	16.2

**Penetration Test Data**

Pen. in.	Dial Reading In. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	10	10.5	
0.05	13	13.6	
0.075	15	15.7	
0.1	16	16.7	1.7
0.125	17	17.8	
0.15	19	19.9	
0.175	20	20.9	
0.2	20	20.9	1.4
0.3	24	25.1	1.3
0.4	28	29.3	1.3
0.5	32	33.5	1.3



MACTEC, Inc.

**Sample 2 (32 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 388.2    Wt. Soil+Tare, gms. 346.4    Wt. Tare, gms. 6.60

Moisture, % 12.3

**Unit Weight**

Wt. Mold+Soil, gms. 11308.6    Wt. Mold, gms. 7026.1    Ht. Soil, in. 4.589

Density, pcf. 112.0

**Swell Data**

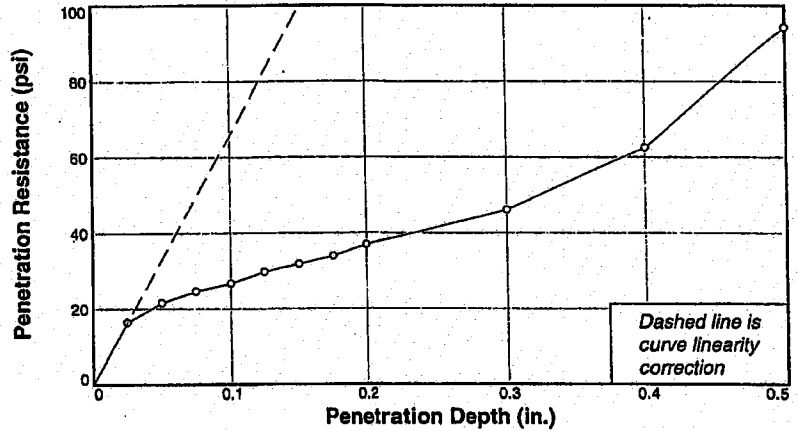
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	181	3.9

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	501.4	411.5	6.80	22.2
Middle	660.6	584.8	6.80	12.3
Bottom	660.6	584.8	6.80	12.3

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	16	16.4	
0.05	21	21.5	
0.075	24	24.6	
0.1	26	26.6	2.7
0.125	29	29.7	
0.15	31	31.7	
0.175	33	33.8	
0.2	36	36.8	2.5
0.3	45	46.1	2.4
0.4	61	62.5	2.7
0.5	92	94.2	3.6



**Sample 3 (56 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 459.2    Wt. Soil+Tare, gms. 410.8    Wt. Tare, gms. 6.50

Moisture, % 12.0

**Unit Weight**

Wt. Mold+Soil, gms. 11571.6    Wt. Mold, gms. 6992.3    Ht. Soil, in. 4.588

Density, pcf. 120.0

**Swell Data**

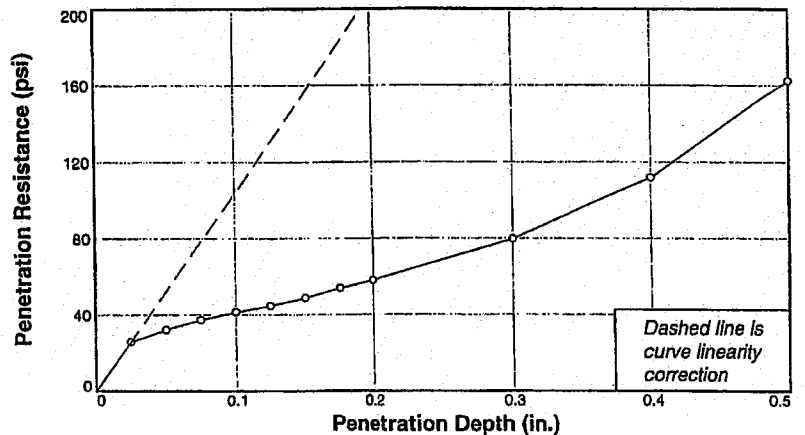
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	121	2.6

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	438.8	348.4	6.90	26.5
Middle	632	560.9	6.90	12.3
Bottom	632.0	560.9	6.90	12.3

**Penetration Test Data**

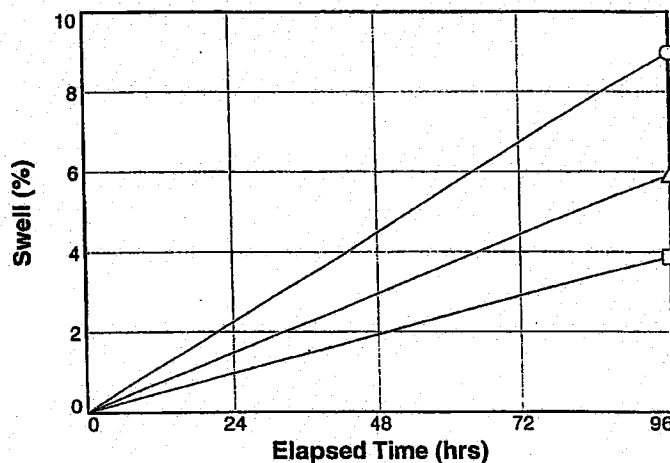
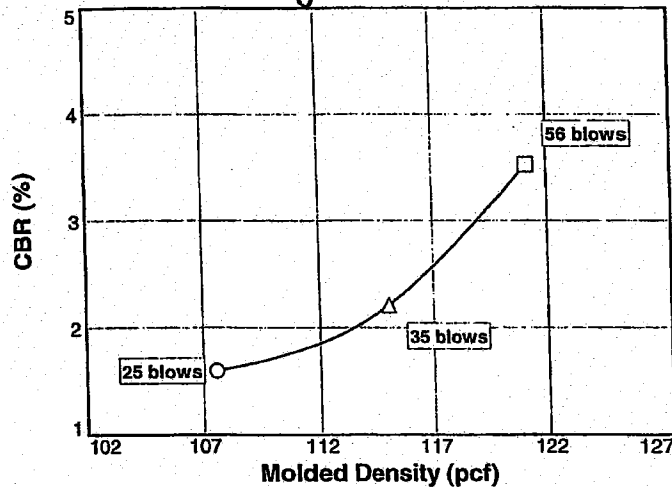
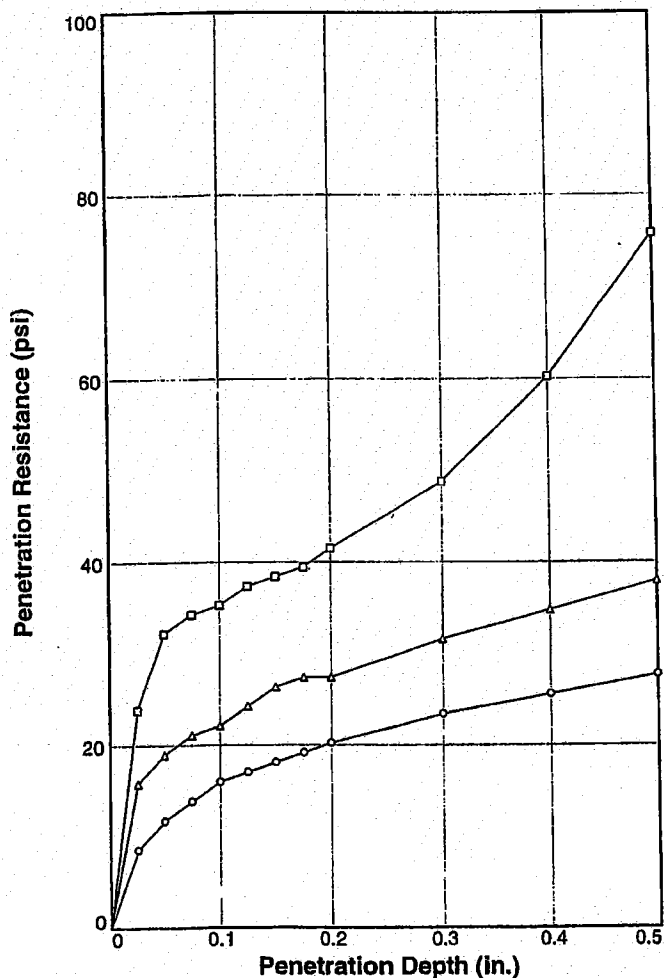
Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	25	25.8	
0.05	31	32.0	
0.075	36	37.2	
0.1	40	41.3	4.1
0.125	43	44.4	
0.15	47	48.6	
0.175	52	53.8	
0.2	56	57.9	3.9
0.3	77	79.6	4.2
0.4	108	111.6	4.9
0.5	157	162.3	6.2



**MACTEC, Inc.**

# BEARING RATIO TEST REPORT

ASTM D 1883-98 05 *4/10/08*  
*WJ*



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	107.5	88.1	12.6	98.5	80.9	20.9	1.6	1.3	0.000	9.999	9
2 △	115.0	94.3	12.9	108.5	89	16.7	2.2	1.8	0.000	9.99	5.9
3 □	121.0	99.2	12.8	116.5	95.6	16.3	3.5	2.8	0.000	10.016	3.9
Material Description							USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Pale Yellow Fat CLAY with sand							CH	122.0	12.5	50	33

Project No: 6468071777  
 Project: Exelon Texas COL (Victoria)  
 Source of Sample: TP-2202                      Depth: 8'  
 Sample Number: 2202,B1  
 Date: 1/17/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture is average of top, middle, and bottom.

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure *NA*

## BEARING RATIO TESTING RESULTS

(ASTM D 1883-90) 05 4/10/08  
L.S.

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2202  
**Depth:** 8' **Sample Number:** 2202,B1  
**Material Description:** Pale Yellow Fat CLAY with sand  
**USCS Classification:** CH  
**Liquid Limit:** 50 **Plasticity Index:** 33  
  
**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 122.0 **Optimum Moisture Content:** 12.5  
**Testing Remarks:** Soaked moisture is average of top,middle, and bottom.

### Sample 1 (25 Blows; Surcharge: 9.999 lbs.)

#### Water Content

Wt. Wet Soil+Tare, gms. 393.0    Wt. Soil+Tare, gms. 349.9    Wt. Tare, gms. 6.8    **Moisture, % 12.6**

#### Unit Weight

Wt. Mold+Soil, gms. 11179.7    Wt. Mold, gms. 7053.2    Ht. Soil, in. 4.591    **Density, pcf 107.5**

#### Swell Data

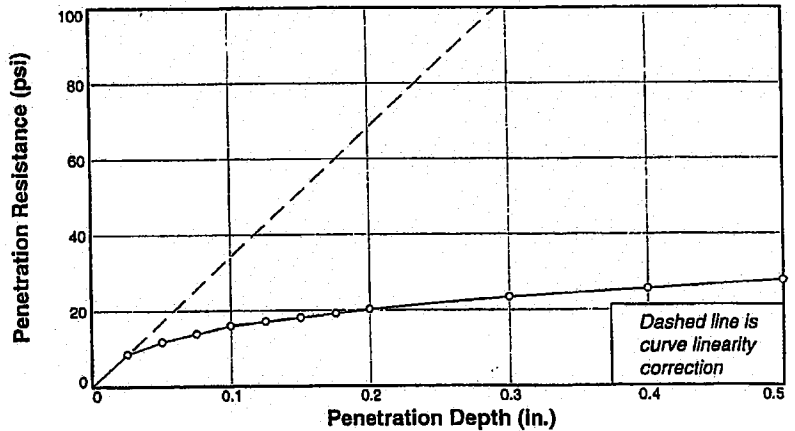
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	412	9.0

#### Final Water Content

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	526.8	409.1	6.80	29.3
Middle	553.4	475.0	6.70	16.7
Bottom	553.4	475.0	6.70	16.7

#### Penetration Test Data

Pen. in.	Dial Reading in. x 1,000	Stress psi.	CBR %
0.0	0	0.0	
0.025	8	8.5	
0.05	11	11.7	
0.075	13	13.8	
0.1	15	16.0	1.6
0.125	16	17.0	
0.15	17	18.1	
0.175	18	19.2	
0.2	19	20.2	1.5
0.3	22	23.4	1.2
0.4	24	25.5	1.1
0.5	26	27.7	1.1



MACTEC, Inc.

**Sample 2 (35 Blows; Surcharge: 9.99 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 347.5    Wt. Soil+Tare, gms. 308.6    Wt. Tare, gms. 6.60

Moisture, % 12.9

**Unit Weight**

Wt. Mold+Soil, gms. 11593.9    Wt. Mold, gms. 7147.9    Ht. Soil, in. 4.613

Density, pcf 115.0

**Swell Data**

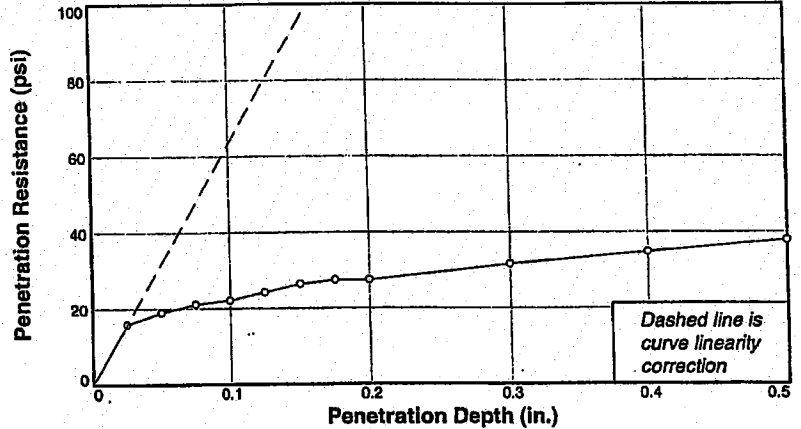
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	273	5.9

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	527.8	426.2	6.90	24.2
Middle	767.9	680.6	6.70	13.0
Bottom	767.9	680.6	6.70	13.0

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	15	15.8	
0.05	18	19.0	
0.075	20	21.1	
0.1	21	22.1	2.2
0.125	23	24.2	
0.15	25	26.3	
0.175	26	27.4	
0.2	26	27.4	1.8
0.3	30	31.6	1.7
0.4	33	34.8	1.5
0.5	36	37.9	1.5



**Sample 3 (56 Blows; Surcharge: 10.016 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 388.9    Wt. Soil+Tare, gms. 345.4    Wt. Tare, gms. 6.80

Moisture, % 12.8

**Unit Weight**

Wt. Mold+Soil, gms. 11652.3    Wt. Mold, gms. 6991.2    Ht. Soil, in. 4.595

Density, pcf 121.0

**Swell Data**

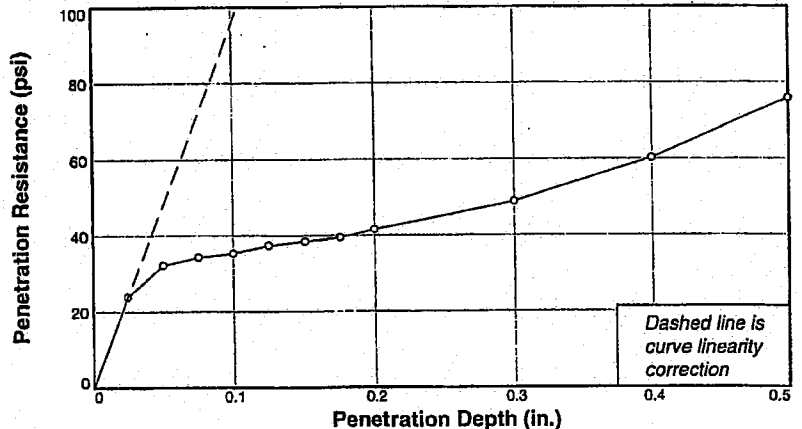
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	178	3.9

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	524.5	426.5	6.80	23.4
Middle	522.7	464.0	6.80	12.8
Bottom	522.7	464.0	6.80	12.8

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	23	23.9	
0.05	31	32.2	
0.075	33	34.3	
0.1	34	35.3	3.5
0.125	36	37.4	
0.15	37	38.4	
0.175	38	39.5	
0.2	40	41.5	2.8
0.3	47	48.8	2.6
0.4	58	60.2	2.6
0.5	73	75.8	2.9

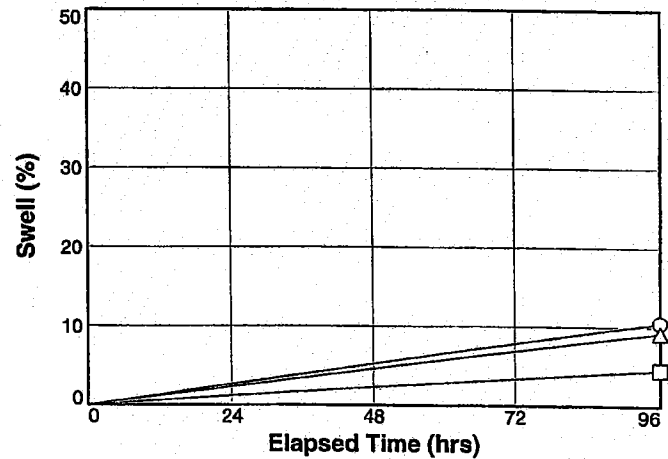
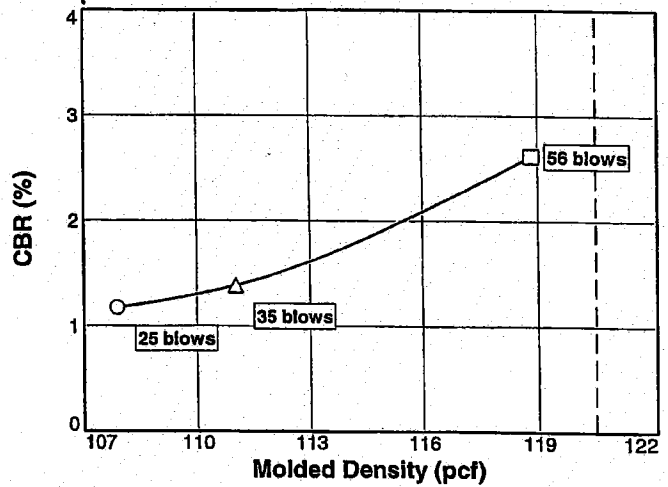
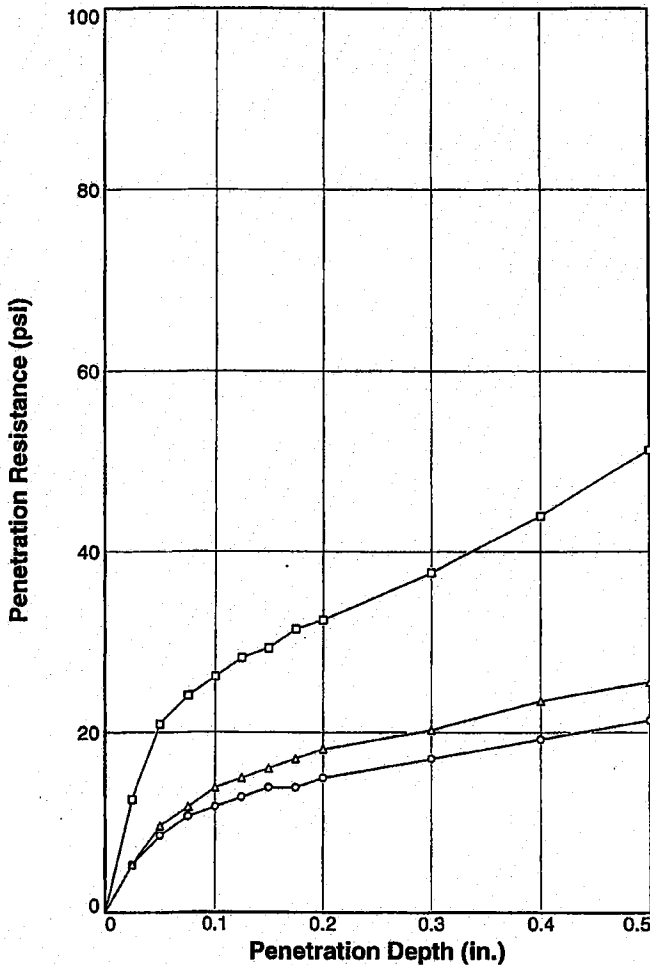


**MACTEC, Inc.**



# BEARING RATIO TEST REPORT

ASTM D 1883-99 05 4/4/08 LRS



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	108.0	89.6	13.1	97.5	81	24.0	1.2	1.0	0.000	10.00	10.5
2 △	111.0	92.1	12.9	101.5	84.4	21.2	1.4	1.2	0.000	10.01	9.2
3 □	119.0	98.8	12.9	113.5	94.4	15.2	2.6	2.2	0.000	10.02	4.5
<b>Material Description</b>							<b>USCS</b>	<b>Max. Dens. (pcf)</b>	<b>Optimum Moisture (%)</b>	<b>LL</b>	<b>PI</b>
Pale Brown Lean CLAY with sand											

**Project No:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Source of Sample:** TP-2203      **Depth:** 8'  
**Sample Number:** 2203,B1  
**Date:** 1/18/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture content is average of top, middle, and bottom.

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure *NA*

### BEARING RATIO TESTING RESULTS

(ASTM D 1883-96) *05*  
*4/11/08 CBS*

**Date:** 1/18/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2203  
**Depth:** 8' **Sample Number:** 2203,B1  
**Material Description:** Pale Brown Lean CLAY with sand  
**USCS Classification:** CL  
**Liquid Limit:** 48 **Plasticity Index:** 33

**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 120.5 **Optimum Moisture Content:** 12.5  
**Testing Remarks:** Soaked moisture content is average of top, middle, and bottom.

**Sample 1 (25 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 266.2    Wt. Soil+Tare, gms. 236.2    Wt. Tare, gms. 6.90    Moisture, % 13.1

**Unit Weight**

Wt. Mold+Soil, gms. 11146.6    Wt. Mold, gms. 6992.0    Ht. Soil, in. 4.588    Density, pcf 108.0

**Swell Data**

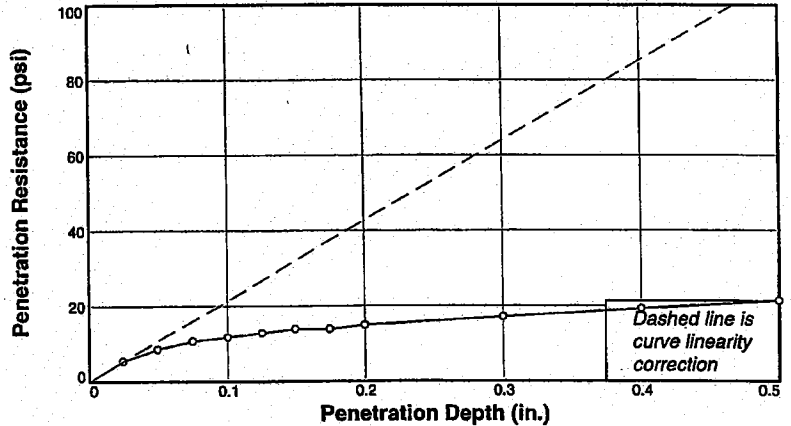
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	481	10.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	652.4	506.7	6.90	29.2
Middle	512.8	423.5	7.00	21.4
Bottom	512.8	423.5	7.00	21.4

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	5	5.3	
0.05	8	8.5	
0.075	10	10.7	
0.1	11	11.7	1.2
0.125	12	12.8	
0.15	13	13.8	
0.175	13	13.8	
0.2	14	14.9	1.0
0.3	16	17.0	0.9
0.4	18	19.2	0.8
0.5	20	21.3	0.8



MACTEC, Inc.

**Sample 2 (35 Blows; Surcharge: 10.01 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 257.4    Wt. Soil+Tare, gms. 228.8    Wt. Tare, gms. 6.80    Moisture, % 12.9

**Unit Weight**

Wt. Mold+Soil, gms. 11293.7    Wt. Mold, gms. 7024.7    Ht. Soil, in. 4.589    Density, pcf 111.0

**Swell Data**

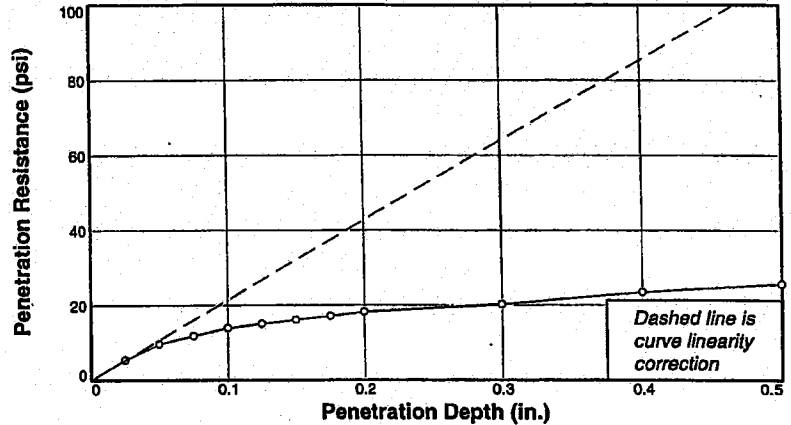
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	422	9.2

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	570.5	450.0	6.80	27.2
Middle	576.4	488.9	6.80	18.1
Bottom	576.4	488.9	6.80	18.1

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	5	5.3	
0.05	9	9.6	
0.075	11	11.7	
0.1	13	13.8	1.4
0.125	14	14.9	
0.15	15	16.0	
0.175	16	17.0	
0.2	17	18.1	1.2
0.3	19	20.2	1.1
0.4	22	23.4	1.0
0.5	24	25.6	1.0



**Sample 3 (56 Blows; Surcharge: 10.02 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 269.3    Wt. Soil+Tare, gms. 239.3    Wt. Tare, gms. 6.70    Moisture, % 12.9

**Unit Weight**

Wt. Mold+Soil, gms. 11601.1    Wt. Mold, gms. 7027.0    Ht. Soil, in. 4.593    Density, pcf 119.0

**Swell Data**

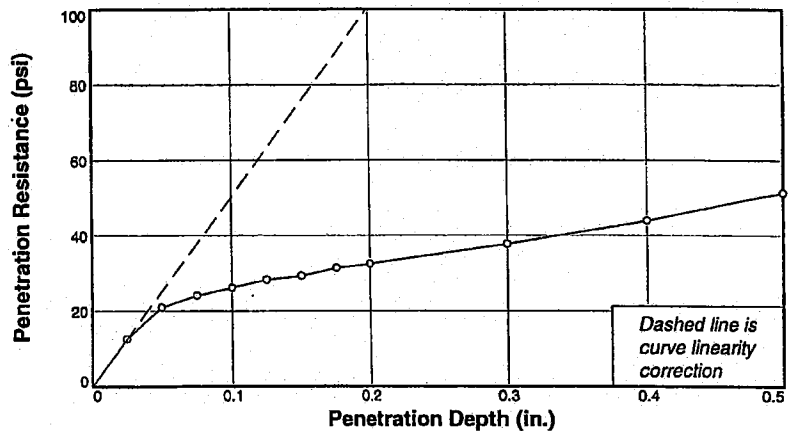
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	208	4.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	511.5	428.6	6.70	19.6
Middle	732.4	649.0	6.80	13.0
Bottom	732.4	649.0	6.80	13.0

**Penetration Test Data**

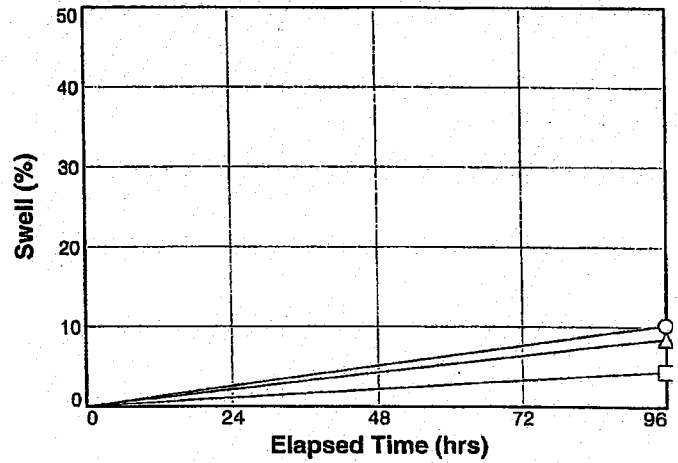
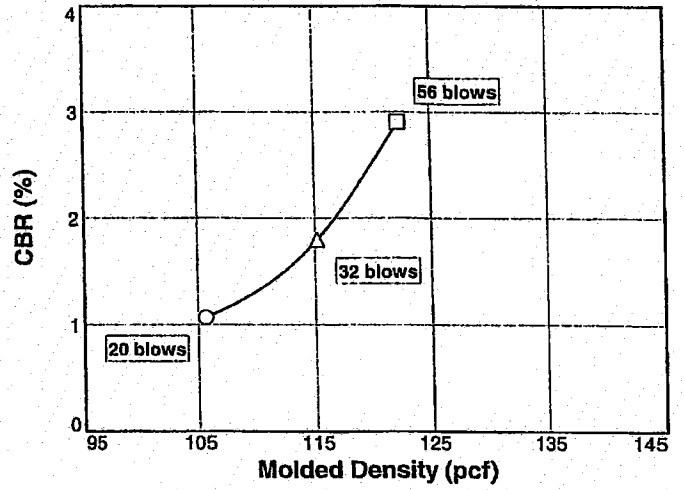
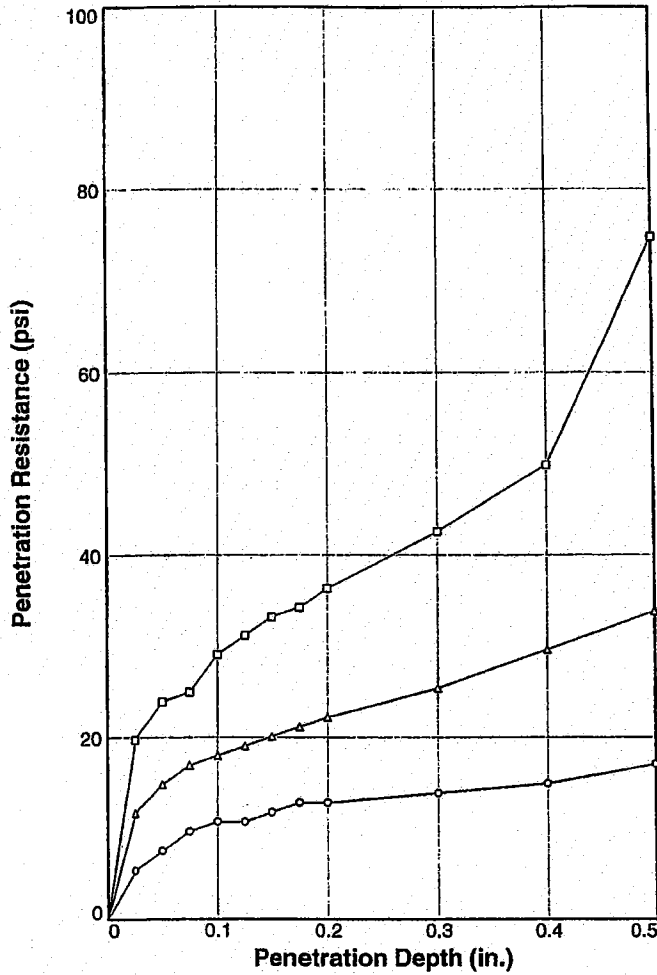
Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	12	12.6	
0.05	20	20.9	
0.075	23	24.1	
0.1	25	26.2	2.6
0.125	27	28.3	
0.15	28	29.3	
0.175	30	31.4	
0.2	31	32.4	2.2
0.3	36	37.7	2.0
0.4	42	44.0	1.9
0.5	49	51.3	2.0



MACTEC, Inc.

# BEARING RATIO TEST REPORT

ASTM D 1883-99 05 4/10/08 LAJ



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	105.5	84.4	11.2	96.0	76.7	26.5	1.1	0.9	0.000	10.01	10.2
2 △	115.0	92	11.4	106.0	84.9	21.2	1.8	1.5	0.000	10.00	8.5
3 □	122.0	97.6	11.5	117.0	93.7	15.3	2.9	2.4	0.000	10.00	4.4
<b>Material Description</b>							<b>USCS</b>	<b>Max. Dens. (pcf)</b>	<b>Optimum Moisture (%)</b>	<b>LL</b>	<b>PI</b>
Pale Brown Lean CLAY with sand							CL	125.0	11.5	43	29

Project No: 6468071777  
 Project: Exelon Texas COL (Victoria)  
 Source of Sample: TP-2204                      Depth: 5-10'  
 Sample Number: 2204,B1  
 Date: 1/17/08

**Test Description/Remarks:**  
 Prepared in accordance with ASTM D 1557-02  
 Soaked moisture is average of top, middle, and bottom.

BEARING RATIO TEST REPORT  
**MACTEC, Inc.**

Figure NA

**BEARING RATIO TESTING RESULTS**  
(ASTM D 1883-95) 05 4/10/08 LB

**Date:** 1/17/08  
**Project No.:** 6468071777  
**Project:** Exelon Texas COL (Victoria)  
**Location:** TP-2204  
**Depth:** 5-10' **Sample Number:** 2204,B1  
**Material Description:** Pale Brown Lean CLAY with sand  
**USCS Classification:** CL  
**Liquid Limit:** 43 **Plasticity Index:** 29

**Test Description:** Prepared in accordance with ASTM D 1557-02  
**Maximum Dry Density:** 125.0 **Optimum Moisture Content:** 11.5  
**Testing Remarks:** Soaked moisture is average of top, middle, and bottom.

**Sample 1 (20 Blows; Surcharge: 10.01 lbs.)**

**Water Content**  
 Wt. Wet Soil+Tare, gms. 432.1    Wt. Soil+Tare, gms. 389.2    Wt. Tare, gms. 6.90    **Moisture, %: 12.2**

**Unit Weight**  
 Wt. Mold+Soil, gms. 10999.5    Wt. Mold, gms. 6991.4    Ht. Soil, in. 4.595    **Density, pcf: 105.5**

**Swell Data**

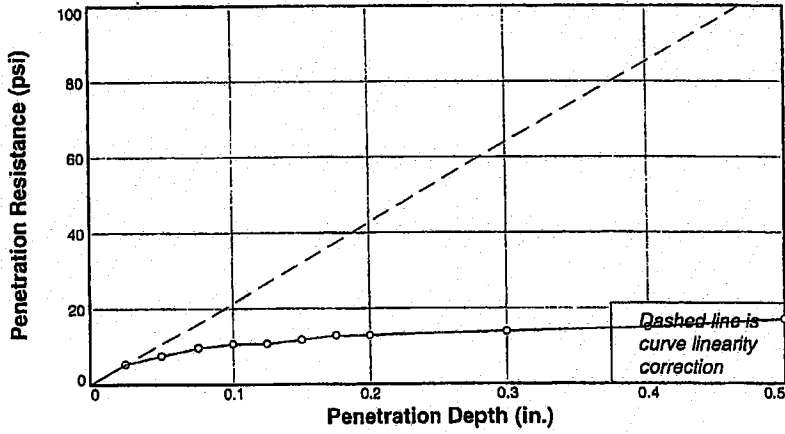
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	468	10.2

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture, %
Top	516.1	397.0	6.90	30.5
Middle	530.5	427.6	6.80	24.5
Bottom	530.5	427.6	6.80	24.5

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psl	CBR %
0.0	0	0.0	
0.025	5	5.3	
0.05	7	7.5	
0.075	9	9.6	
0.1	10	10.7	1.1
0.125	10	10.7	
0.15	11	11.7	
0.175	12	12.8	
0.2	12	12.8	0.9
0.3	13	13.8	0.7
0.4	14	14.9	0.6
0.5	16	17.0	0.7



MACTEC, Inc.

**Sample 2 (32 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 374.6    Wt. Soil+Tare, gms. 337.0    Wt. Tare, gms. 6.70

Moisture % 11.5

**Unit Weight**

Wt. Mold+Soil, gms. 11540.5    Wt. Mold, gms. 7147.8    Ht. Soil, in. 4.613

Density pcf 115.0

**Swell Data**

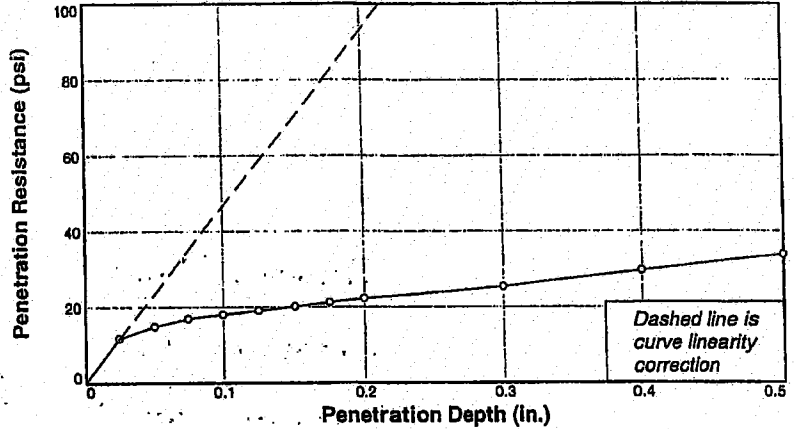
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	392	8.5

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture %
Top	549.0	441.0	6.70	24.9
Middle	559.8	470.2	6.80	19.3
Bottom	559.8	470.2	6.80	21.9

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	11	11.6	
0.05	14	14.8	
0.075	16	16.9	
0.1	17	18.0	
0.125	18	19.0	
0.15	19	20.1	
0.175	20	21.1	
0.2	21	22.2	
0.3	24	25.4	1.3
0.4	28	29.6	1.3
0.5	32	33.8	1.3



**Sample 3 (56 Blows; Surcharge: 10.00 lbs.)**

**Water Content**

Wt. Wet Soil+Tare, gms. 386.9    Wt. Soil+Tare, gms. 347.8    Wt. Tare, gms. 6.80

Moisture % 11.5

**Unit Weight**

Wt. Mold+Soil, gms. 11697.3    Wt. Mold, gms. 7054.7    Ht. Soil, in. 4.591

Density pcf 122.0

**Swell Data**

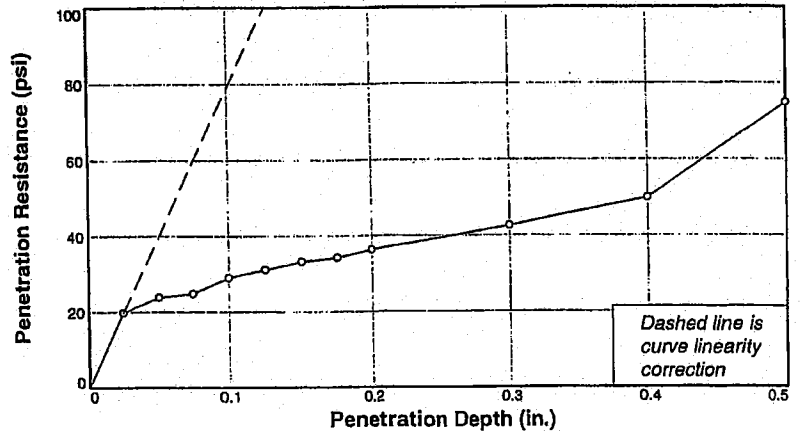
Elapsed Time, hrs.	Dial Reading in. x 1,000	Swell %
0	0	0.0
96	200	4.4

**Final Water Content**

	Wt. Wet Soil+Tare, gms.	Dry Soil+Tare	Tare	Moisture %
Top	523.9	427.4	6.80	22.1
Middle	574.2	515.9	6.80	11.5
Bottom	574.2	515.9	6.8	11.5

**Penetration Test Data**

Pen. in.	Dial Reading in. x 1,000	Stress psi	CBR %
0.0	0	0.0	
0.025	19	19.7	
0.05	23	23.9	
0.075	24	24.9	
0.1	28	29.1	2.9
0.125	30	31.2	
0.15	32	33.2	
0.175	33	34.3	
0.2	35	36.4	2.7
0.3	41	42.6	2.2
0.4	48	49.9	2.2
0.5	72	74.8	2.9



MACTEC, Inc.

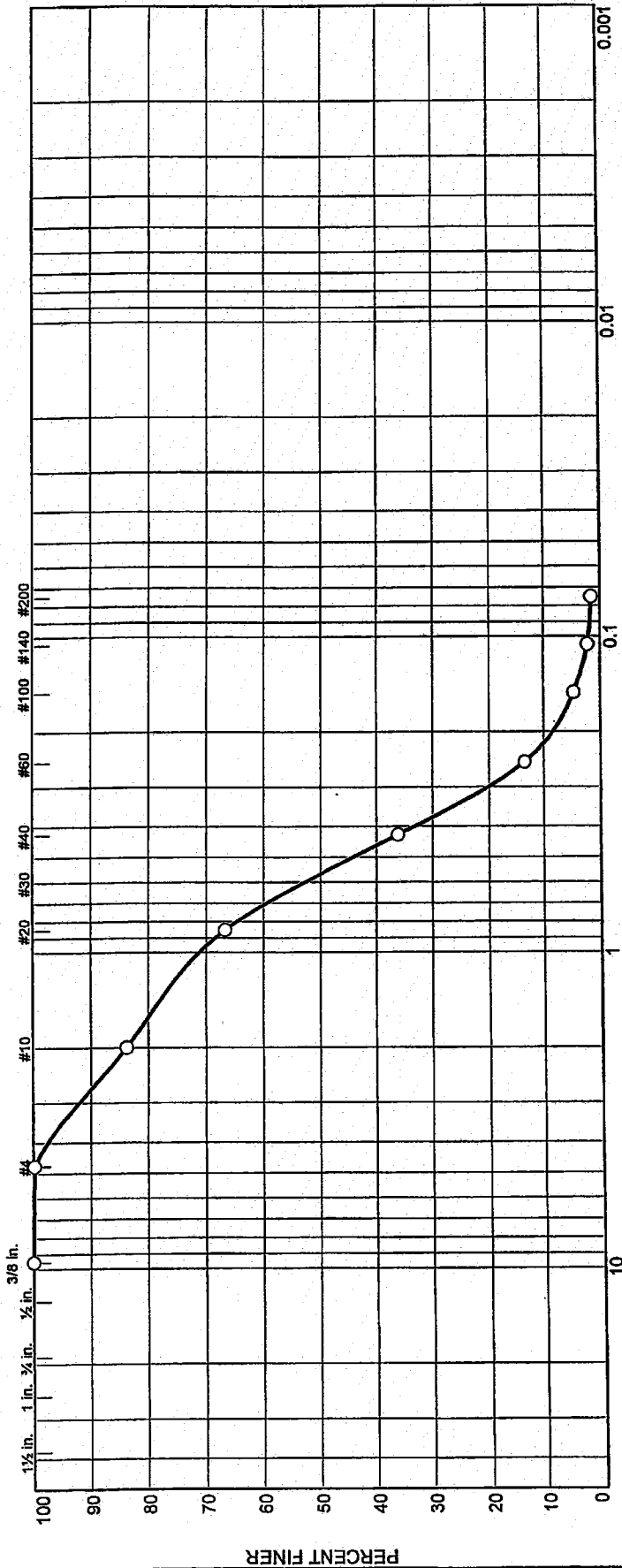
# **Index Testing for Borrow Soils**

# Particle Size Distribution Report / ASTM D 6913-04e1

HYDROMETER

U.S. STANDARD SIEVE NUMBERS

U.S. SIEVE OPENING IN INCHES



GRAIN SIZE - mm.		% Sand		% Fines	
Coarse	Fine	Medium	Fine	Silt	Clay
0	0	48	35	1	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
FORDYCE	C-33	NA	4/28/08	SP	Brown Poorly Graded SAND (Concrete Sand)	4.2	NV	NP

Client: Bechtel  
 Project: Exelon Texas COL (Victoria)  
 Project No. 6468071777      Figure NA

**MACTEC, Inc.**  
 Raleigh, North Carolina

SIEVE ANALYSIS ONLY  
 ND = Not Determined  
 Apparent Specific Gravity = 2.658 (ASTM C128-07)  
 Bulk Specific Gravity = 2.607

Tested By: CS

Checked By: LBJ

RAW 6/13/08



**GRAIN SIZE DISTRIBUTION TEST DATA**

5/19/2008

**Client:** Bechtel

**Project:** Exelon Texas COL (Victoria)

**Project Number:** 6468071777

**Location:** Fordyce Murphy Pit

**Depth:** NA

**Sample Number:** C-33

**Material Description:** Brown Poorly Graded SAND (Concrete Sand)

**Date:** 4/28/08

**Natural Moisture:** 4.2

**Liquid Limit:** NV

**Plastic Limit:** NP

**USCS Class.:** SP

**Testing Remarks:** SIEVE ANALYSIS ONLY

ND = Not Determined

Apparent Specific Gravity = 2.658 (ASTM C128-07)

Bulk Specific Gravity = 2.607

**Tested by:** CS

**Checked by:** LBJ

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
696.31	0.00	0.00	3/8"	0.00	100
			#4	1.12	100
			#10	113.67	84
102.03	0.00	0.00	#20	20.74	67
			#40	57.94	36
			#60	85.52	14
			#100	96.46	5
			#140	99.40	2
			#200	100.23	1

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	16	48	35	99			1

D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.2181	0.2618	0.2995	0.3746	0.5645	0.7081	1.6058	2.1436	2.7188	3.4560

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.61	3.25	0.91

MACTEC, Inc.

# MACTEC ENGINEERING CONSULTING, INC.

## RALEIGH, NORTH CAROLINA

### REPORT OF STANDARD TEST METHOD FOR SPECIFIC GRAVITY AND ABSORPTION OF FINE AGGREGATE

Performed in General Accordance with ASTM C 128-07

PROJECT NAME: Exelon Texas COL (Victoria)

MACTEC PROJECT NUMBER: 6468-07-1777

DATE: 5-16-08

<b>SAMPLE IDENTIFICATION:</b>	Fordyce Murphy Pit C-33
-------------------------------	-------------------------

(A) WEIGHT OF OVEN-DRY TEST SAMPLE IN AIR (grams):	497.1
(S) WEIGHT OF SATURATED-SURFACE-DRY TEST SAMPLE IN AIR (grams):	500.8
(B) WEIGHT OF FLASK & WATER FILLED TO CALIBRATION MARK (grams):	656.5
(C) WEIGHT OF FLASK, SOIL & WATER FILLED TO CALIBRATION MARK (grams):	966.6
<b>BULK SPECIFIC GRAVITY:</b>	2.607
<b>BULK SPECIFIC GRAVITY (SATURATED-SURFACE-DRY BASIS):</b>	2.626
<b>APPARENT SPECIFIC GRAVITY:</b>	2.658
<b>PERCENTAGE OF ABSORPTION:</b>	0.73

#### CALCULATIONS:

BULK:  $A / (B+S-C)$

BULK (SSD BASIS):  $S / (B+S-C)$

APPARENT:  $A / (B+A-C)$

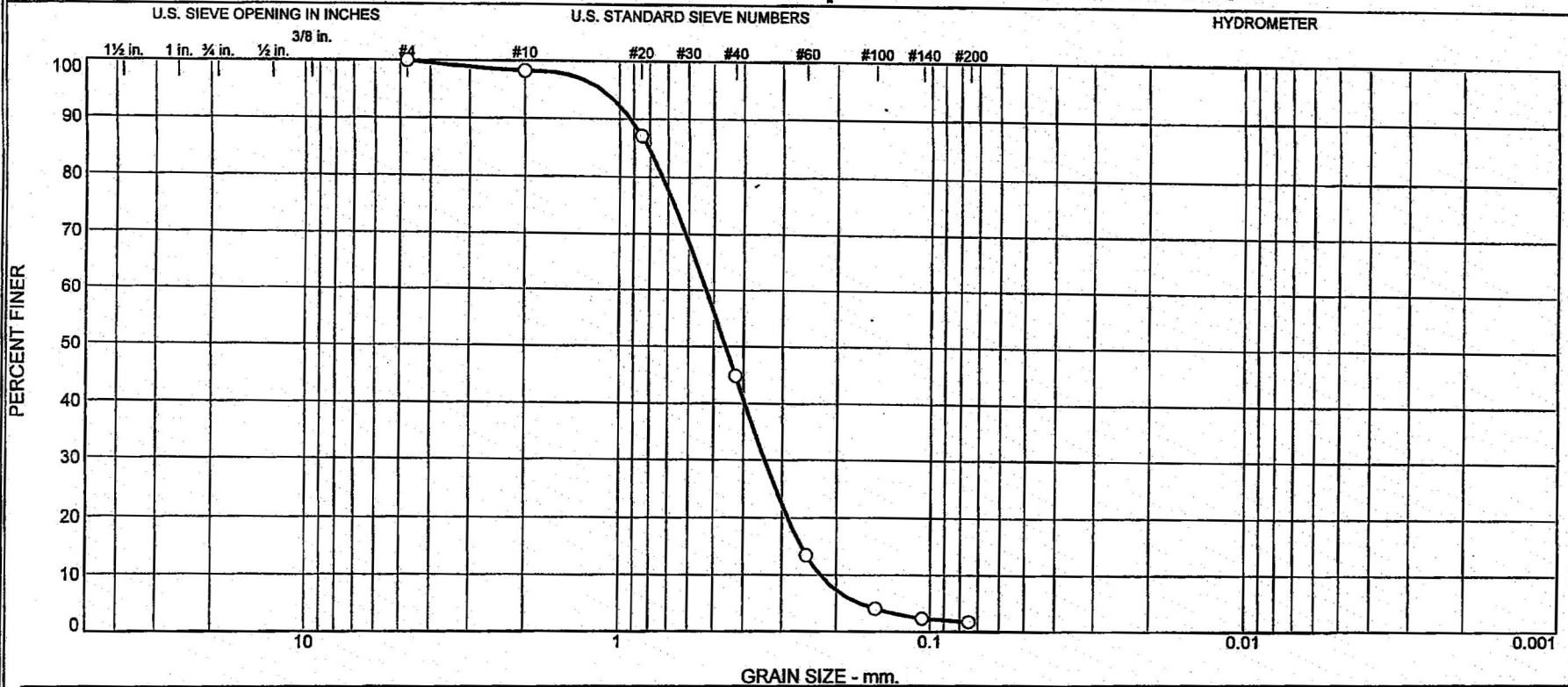
ABSORPTION (%):  $[(S-A) / A] \times 100$

REMARKS:

REVIEWED BY: 

KAW 6/13/08

# Particle Size Distribution Report / ASTM D 6913-04e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	53	43	2	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
FORDYCE	C-144	NA	4/28/08	SP	Brown Poorly Graded SAND (Mortar sand)	5.1	ND	ND

Client Bechtel	
Project Exelon Texas COL (Victoria)	
Project No. 6468071777	Figure NA

**MACTEC, Inc.**  
**Raleigh, North Carolina**

○ SIEVE ANALYSIS ONLY  
 ND = NOT DETERMINED  
 Apparent Specific Gravity = 2.661 (ASTM C128-07)  
 Bulk Specific Gravity = 2.611

Tested By: CS Checked By: LBJ

KAW 6/13/08

**GRAIN SIZE DISTRIBUTION TEST DATA**

5/19/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: FORDYCE

Depth: NA

Sample Number: C-144

Material Description: Brown Poorly Graded SAND (Mortar sand)

Date: 4/28/08

Natural Moisture: 5.1

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP

Testing Remarks: SIEVE ANALYSIS ONLY

ND = NOT DETERMINED

Apparent Specific Gravity = 2.661 (ASTM C128-07)

Bulk Specific Gravity = 2.611

Tested by: CS

Checked by: LBJ

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
599.77	0.00	0.00	#4	0.00	100
			#10	10.06	98
103.89	0.00	0.00	#20	11.90	87
			#40	56.46	45
			#60	89.59	14
			#100	99.50	4
			#140	101.31	2
			#200	101.95	2

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	2	53	43	98			2

D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.2245	0.2592	0.2879	0.3413	0.4570	0.5277	0.7299	0.8093	0.9225	1.1331

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
2.11	2.35	0.98

MACTEC, Inc.

# MACTEC ENGINEERING CONSULTING, INC.

RALEIGH, NORTH CAROLINA

## REPORT OF STANDARD TEST METHOD FOR SPECIFIC GRAVITY AND ABSORPTION OF FINE AGGREGATE

Performed in General Accordance with ASTM C 128-07

PROJECT NAME: Exelon Texas COL (Victoria)

MACTEC PROJECT NUMBER: 6468-07-1777

DATE: 5-16-08

SAMPLE IDENTIFICATION:	Murphy Pit C-144
------------------------	------------------

(A) WEIGHT OF OVEN-DRY TEST SAMPLE IN AIR (grams):	498.0
(S) WEIGHT OF SATURATED-SURFACE-DRY TEST SAMPLE IN AIR (grams):	501.6
(B) WEIGHT OF FLASK & WATER FILLED TO CALIBRATION MARK (grams):	656.4
(C) WEIGHT OF FLASK, SOIL & WATER FILLED TO CALIBRATION MARK (grams):	967.2
BULK SPECIFIC GRAVITY:	2.611
BULK SPECIFIC GRAVITY (SATURATED-SURFACE-DRY BASIS):	2.630
APPARENT SPECIFIC GRAVITY:	2.661
PERCENTAGE OF ABSORPTION:	0.72

### CALCULATIONS:

BULK:  $A / (B+S-C)$

BULK (SSD BASIS):  $S / (B+S-C)$

APPARENT:  $A / (B+A-C)$

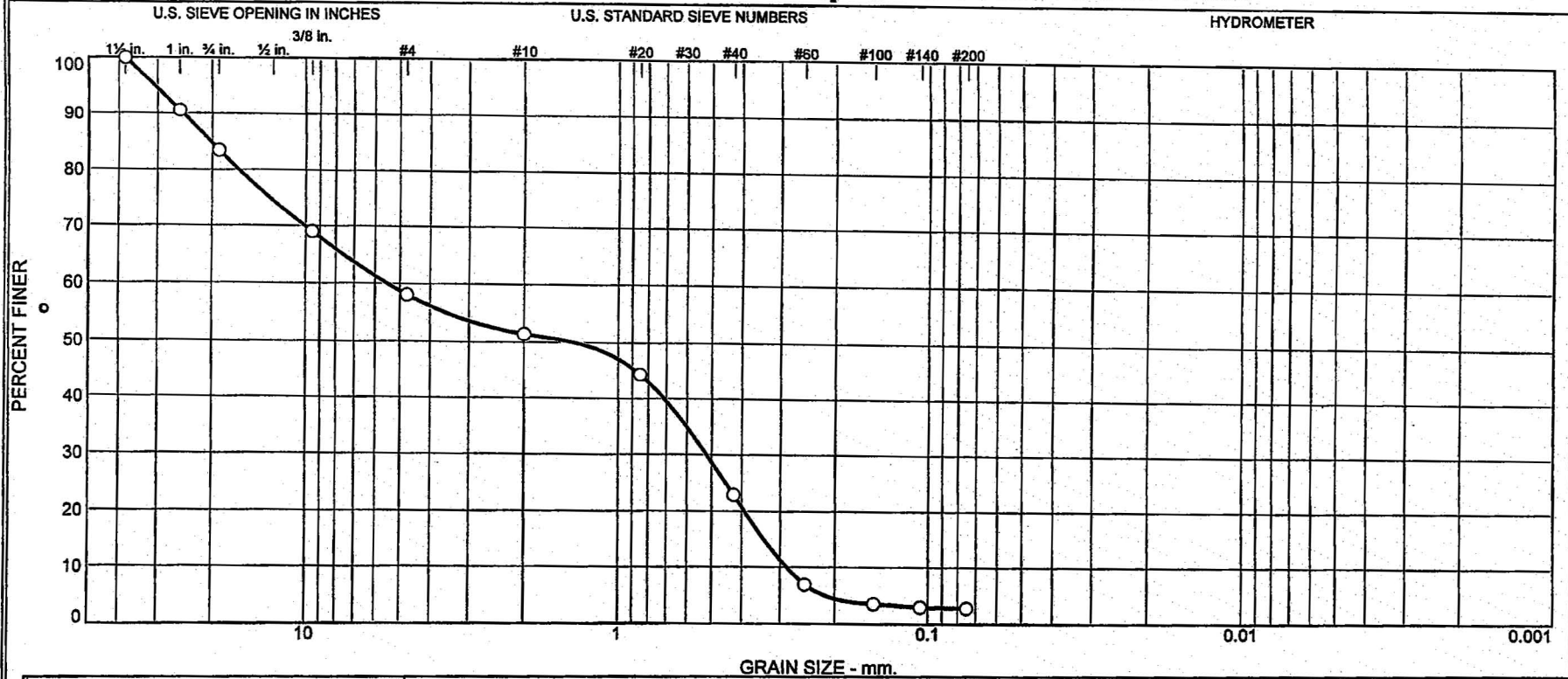
ABSORPTION (%):  $[(S-A) / A] \times 100$

REMARKS:

REVIEWED BY: 

KAW 6/13/08

# Particle Size Distribution Report/ ASTM D 6913-04e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
17	25	7	28	20	3	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Fordyce Briggs Pit	RAW	NA	4-28-2008	SW	Pale Brown Well Graded SAND with Gravel (Visual)	7.1	ND	ND

Client **BECHTEL**  
 Project **Exelon Texas COL (Victoria)**  
 Project No. **6468071777**      Figure **NA**

**MACTEC, Inc.**  
**Raleigh, North Carolina**

○ SIEVE ANALYSIS ONLY  
 Specific Gravity = 2.697 (ASTM 854-06)  
 ND = Not Determined  
 Sample obtained from Fordyce Briggs Pit

**KAW 6/13/08**

Tested By: AWH      Checked By: LBJ

**GRAIN SIZE DISTRIBUTION TEST DATA**

5/19/2008

Client: BECHTEL

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Fordyce Briggs Pit

Depth: NA

Sample Number: RAW

Material Description: Pale Brown Well Graded SAND with Gravel (Visual)

Date: 4-28-2008

Natural Moisture: 7.1

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SW

Testing Remarks: SIEVE ANALYSIS ONLY

Specific Gravity = 2.697 (ASTM 854-06)

ND = Not Determined

Sample obtained from Fordyce Briggs Pit

Tested by: AWH

Checked by: LBJ

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
600.74	0.00	0.00	1.5	0.00	100
			1	56.68	91
			.75	99.65	83
			.375	186.20	69
			#4	251.67	58
			#10	291.71	51
99.97	0.00	0.00	#20	13.85	44
			#40	55.45	23
			#60	86.45	7
			#100	93.18	3
			#140	94.28	3
			#200	94.62	3

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	25	42	7	28	20	55			3

D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.2866	0.3390	0.3920	0.5184	1.3858	5.4884	16.4557	20.3258	24.8243	30.6032

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
4.39	19.15	0.17

MACTEC, Inc.

**MACTEC ENGINEERING AND CONSULTING, INC.  
RALEIGH, NORTH CAROLINA**

**REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS  
Performed in General Accordance with ASTM D 854-06 (Method B)**

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 5/16/08

SAMPLE IDENTIFICATION: Fordyce Briggs Pit Raw Material

(A) Mass of oven-dried soil, grams:	73.52
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.62
(C) Mass of pycnometer, water and soil, grams:	701.89
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.4
(G) Specific Gravity at observed temperature:	A / [ B - ( C - A ) ]
(F)	<b>Correction factor:</b>
(G x F)	<b>SPECIFIC GRAVITY @ 20°C:</b>

MATERIAL TESTED:  - # 4       - # 10

PREPARATION METHOD:  DRY       WET (dispersed)

REMARKS: % Passing # 4 : 58  
Well-Graded SAND with Gravel (SW)

EQUIPMENT USED  
SCALES : 3.1.99  
OVEN : 5.1.16  
THERMOMETER : 5.1.01  
PYCNOMETER : P-3

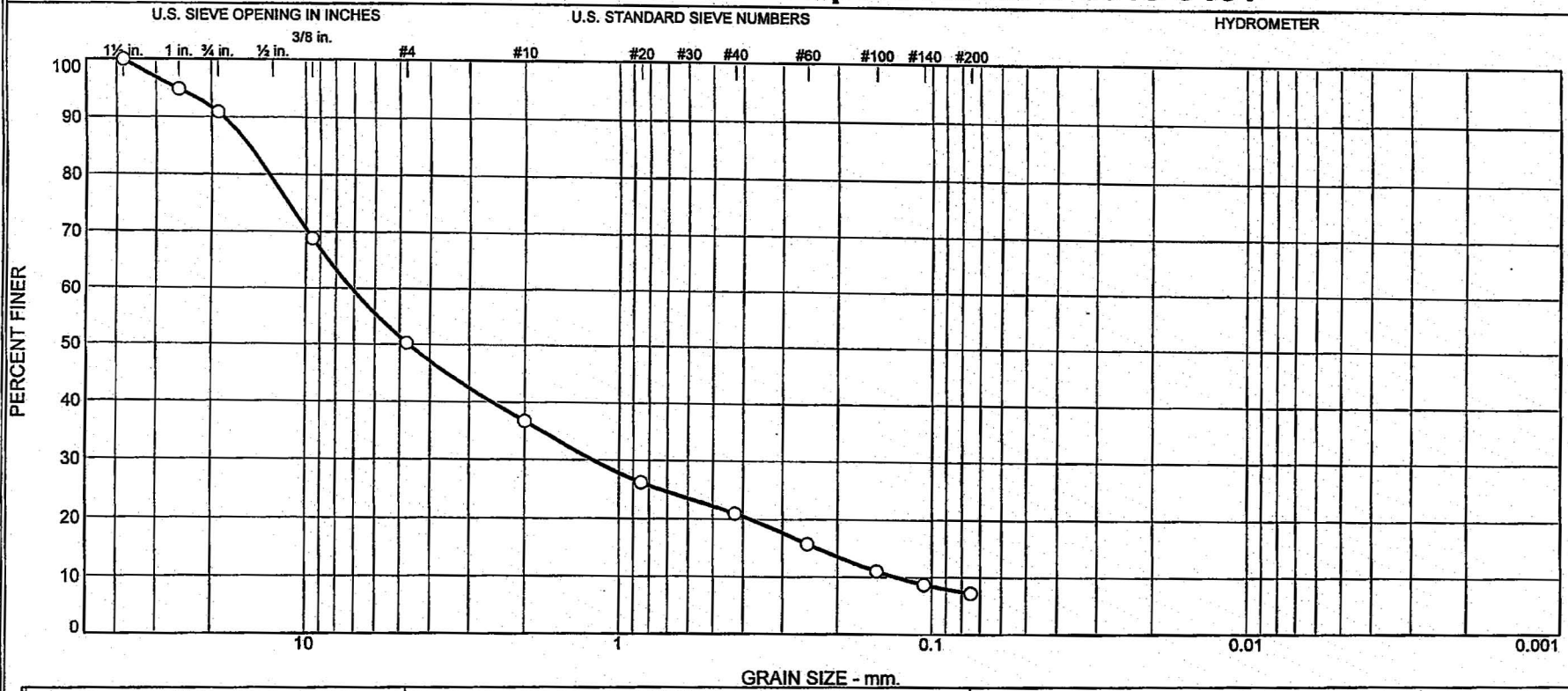
TESTED BY: CS

REVIEWED BY: Brian Johnson

KAW 6/13/08



# Particle Size Distribution Report/ ASTM D 6913-04e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
9	41	13	16	14	7	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
CWA	CWA#4	NA	4-28-2008	GW-GC	Red Well Graded GRAVEL with Clay (Visual)	3.4	ND	ND

Client BECHTEL	<b>MACTEC, Inc.</b>	○ ND=Not Determined Specific Gravity = 2.669 (ASTM D 854-06)
Project EXELON TEXAS COL (Victoria)		
Project No. 6468071777      Figure NA		
<b>Raleigh, North Carolina</b>		

KAW 6/13/08

Tested By: CS      Checked By: LBJ

**GRAIN SIZE DISTRIBUTION TEST DATA**

5/19/2008

Client: BECHTEL

Project: EXELON TEXAS COL (Victoria)

Project Number: 6468071777

Location: CWA

Depth: NA

Sample Number: CWA#4

Material Description: Red Well Graded GRAVEL with Clay (Visual)

Date: 4-28-2008

Natural Moisture: 3.4

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GW-GC

Testing Remarks: ND=Not Determined

Specific Gravity = 2.669 (ASTM D 854-06)

Tested by: CS

Checked by: LBJ

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
692.72	0.00	0.00	1.5	0.00	100
			1	35.11	95
			.75	62.95	91
			.375	215.99	69
			#4	344.36	50
100.84	0.00	0.00	#10	438.74	37
			#20	28.84	26
			#40	43.11	21
			#60	57.41	16
			#100	70.40	11
			#140	76.70	9
			#200	80.82	7

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	41	50	13	16	14	43			7

D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
0.1297	0.2312	0.3799	1.2104	4.6823	7.1454	13.0542	15.1716	18.2443	25.5505

Fineness Modulus	C <sub>u</sub>	C <sub>c</sub>
4.69	55.08	1.58

MACTEC, Inc.

**MACTEC ENGINEERING AND CONSULTING, INC.  
RALEIGH, NORTH CAROLINA**

**REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS  
Performed in General Accordance with ASTM D 854-06 (Method B)**

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 5/16/08

SAMPLE IDENTIFICATION: CWA Grade 4

(A) Mass of oven-dried soil, grams:	76.57
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.47
(C) Mass of pycnometer, water and soil, grams:	704.36
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.9
(G) Specific Gravity at observed temperature:	$A / [ B - ( C - A ) ]$ 2.670
(F) <i>Correction factor:</i>	0.99959
(G x F)	<b>SPECIFIC GRAVITY @ 20°C: 2.669</b>

MATERIAL TESTED:  - # 4       - # 10

PREPARATION METHOD:  DRY       WET (dispersed)

REMARKS: % Passing # 4 : 50  
Well - Graded GRAVEL with clay (GW-GC)

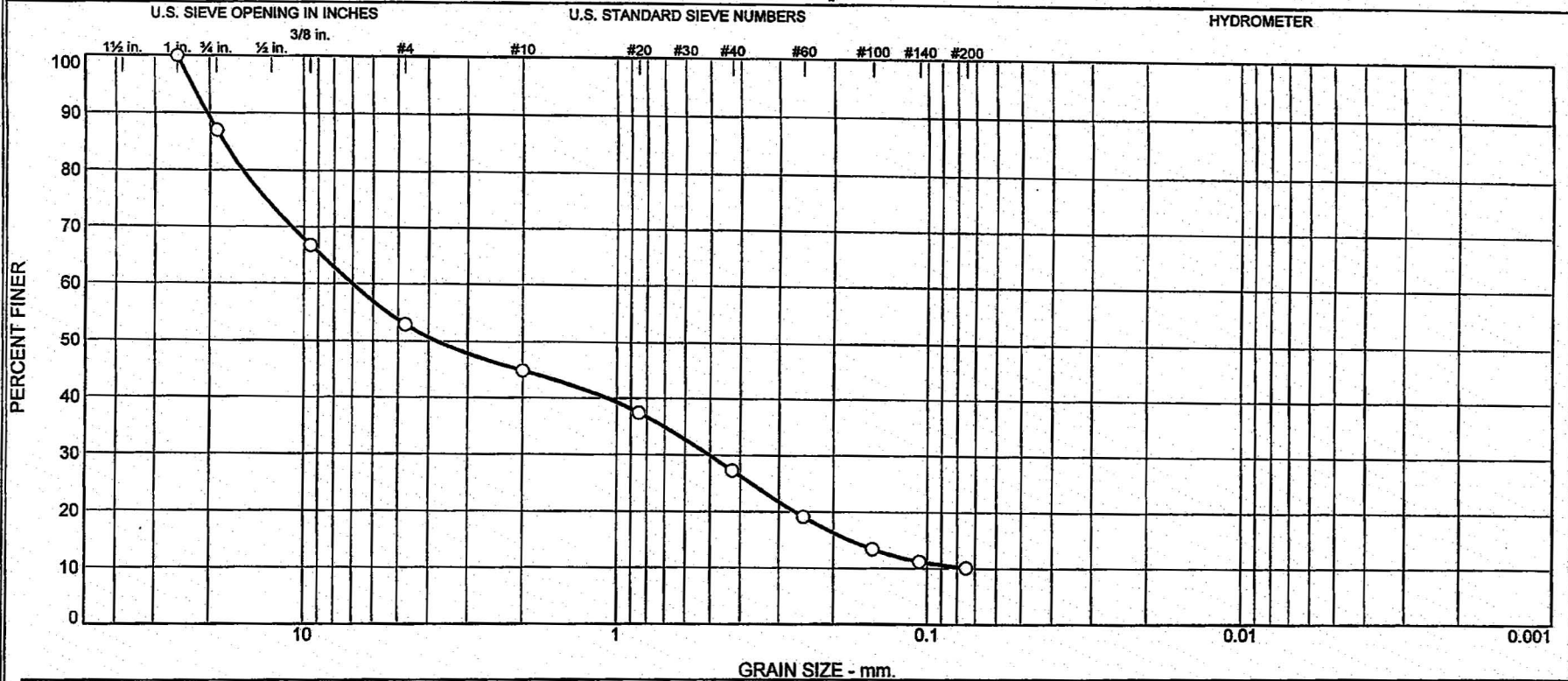
EQUIPMENT USED  
SCALES : 3.1.99  
OVEN : 5.1.16  
THERMOMETER : 5.1.01  
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

KAW 6/13/08

# Particle Size Distribution Report/ ASTM D 6913-04e1



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
13	34	8	18	17	10	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
CWA	CWA#6	ND	5-13-2008	GP-GC	Red Well-Graded Gravel With CLay (Visual)	4.6	ND	ND

Client <b>BECHTEL</b>	<b>MACTEC, Inc.</b>	○ ND=Not Determined Specific Gravity = 2.659 (ASTM D-854-06)
Project <b>EXELON TEXAS COL (Victoria)</b>		
Project No. <b>6468071777</b>		

**KAW 6/13/08**

Tested By: CS                      Checked By: LBJ

**GRAIN SIZE DISTRIBUTION TEST DATA**

5/19/2008

Client: BECHTEL

Project: EXELON TEXAS COL (Victoria)

Project Number: 6468071777

Location: CWA

Depth: ND

Sample Number: CWA#6

Material Description: Red Well-Graded Gravel With CLay (Visual)

Date: 5-13-2008

Natural Moisture: 4.6

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: GP-GC

Testing Remarks: ND=Not Determined

Specific Gravity = 2.659 (ASTM D-854-06)

Tested by: CS

Checked by: LBJ

**Sieve Test Data**

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
684.29	0.00	0.00	1	0.00	100
			.75	89.00	87
			.375	227.30	67
			#4	321.75	53
97.88	0.00	0.00	#10	377.59	45
			#20	16.01	37
			#40	38.21	27
			#60	56.09	19
			#100	68.61	13
			#140	73.39	11
			#200	75.75	10

**Fractional Components**

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	34	47	8	18	17	43			10

D <sub>10</sub>	D <sub>15</sub>	D <sub>20</sub>	D <sub>30</sub>	D <sub>50</sub>	D <sub>60</sub>	D <sub>80</sub>	D <sub>85</sub>	D <sub>90</sub>	D <sub>95</sub>
	0.1779	0.2658	0.5023	3.7716	6.9956	15.7205	18.1107	20.4572	22.8468

<b>Fineness Modulus</b>
4.38

MACTEC, Inc.

**MACTEC ENGINEERING AND CONSULTING, INC.  
RALEIGH, NORTH CAROLINA**

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS  
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 5/16/08

SAMPLE IDENTIFICATION: CWA Grade 6

(A) Mass of oven-dried soil, grams:		76.29
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.68
(C) Mass of pycnometer, water and soil, grams:		703.29
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.9
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$	2.660
(F)	<b>Correction factor:</b>	0.99959
(G x F)	<b>SPECIFIC GRAVITY @ 20°C:</b>	2.659

MATERIAL TESTED:

- # 4

- # 10

PREPARATION METHOD:

DRY

WET (dispersed)

REMARKS: % Passing # 4 : 53

Well-Graded GRAVEL with Clay (GW-GC)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

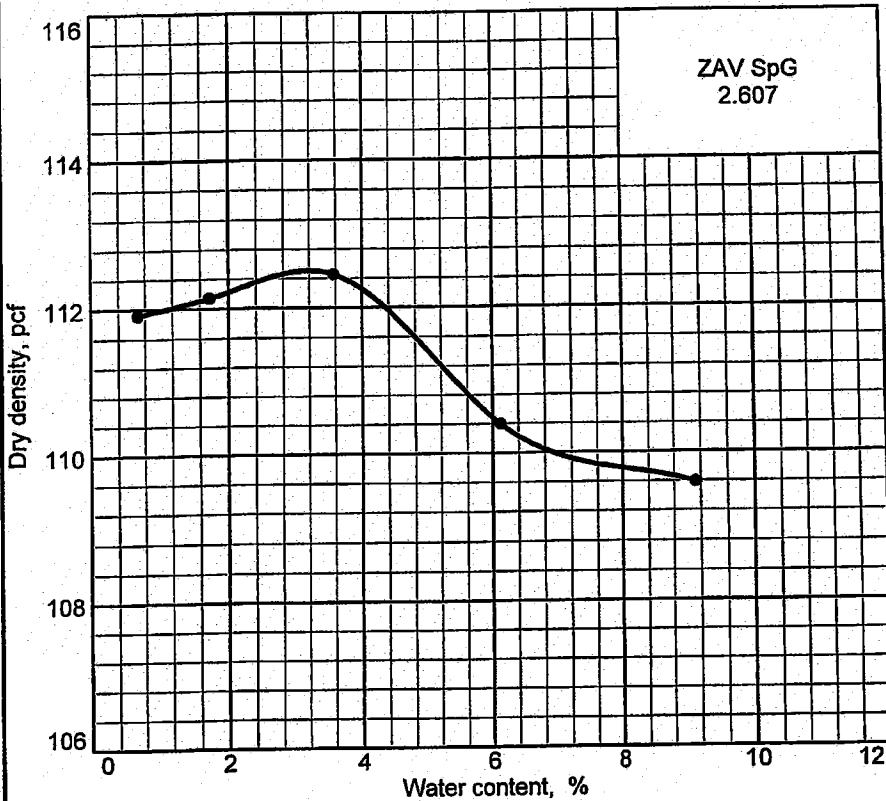
TESTED BY: CS

REVIEWED BY: Brian Johnson

KAW 6/13/08

# **Modified Proctor Test for Borrow Soils**

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**Murphy C-33**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method** Dry  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.

**Test Performed on Material**  
**Passing** No.4 **Sieve**  
**NM** 4.2 **LL** ND **PI** ND  
**Sp.G. (ASTM D 854)** 2.607  
**%>No.4** 0.0 **%<No.200** 1  
**USCS** SP **AASHTO** A-1-b  
**Date Sampled** 4/28/08  
**Date Tested** 5/6/08  
**Tested By** AWH

### TESTING DATA

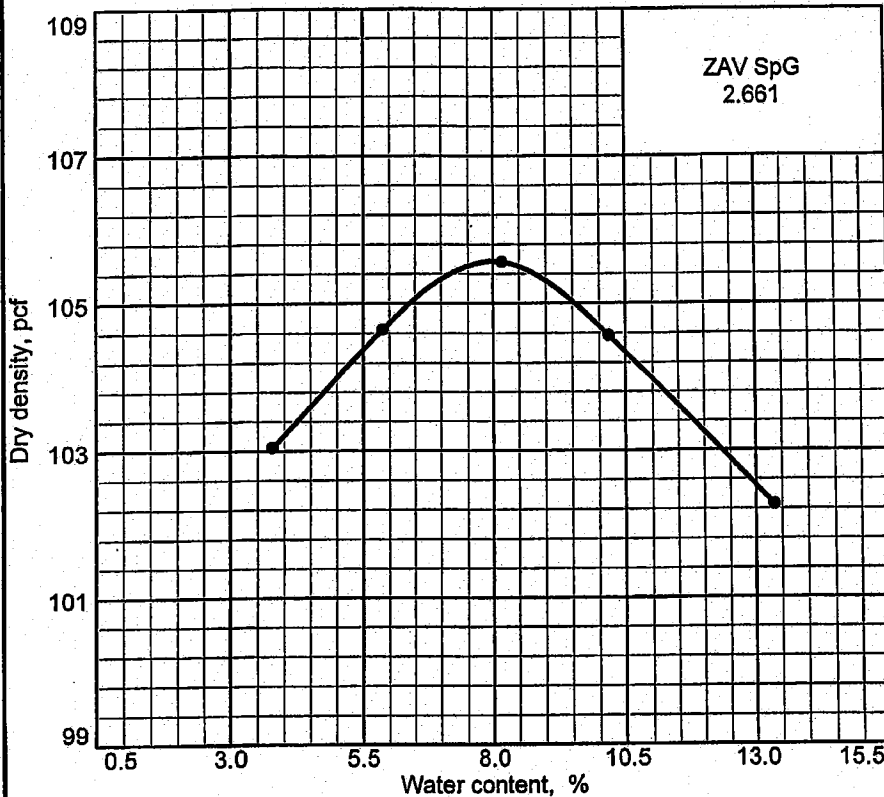
	1	2	3	4	5	6
WM + WS	5928.1	5964.0	5974.3	6011.0	5907.1	
WM	4211.6	4211.6	4211.6	4211.6	4211.6	
WW + T #1	558.50	551.40	544.10	512.30	559.00	
WD + T #1	549.10	532.60	513.10	470.00	555.20	
TARE #1	6.90	6.80	6.90	6.70	6.90	
WW + T #2	N/A	N/A	N/A	N/A	N/A	
WD + T #2	N/A	N/A	N/A	N/A	N/A	
TARE #2	N/A	N/A	N/A	N/A	N/A	
MOISTURE	1.7	3.6	6.1	9.1	0.7	
DRY DENSITY	112.1	112.5	110.4	109.6	111.9	

TEST RESULTS	Material Description
Maximum dry density = 112.5 pcf Optimum moisture = 3.0 % <b>Project No.</b> 6468071777 <b>Client:</b> Bechtel <b>Project:</b> Exelon Texas COL (Victoria) ● <b>Location:</b> Fordyce Murphy Pit <div style="text-align: center;"><b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b></div>	Brown Poorly Graded SAND (Concrete Sand) <b>Remarks:</b> ND = Not Determined Specific Gravity Determined by ASTM C-128-07 <b>Checked by:</b> LBJ <b>Title:</b> LAB MANAGER <div style="text-align: right;"><b>Figure</b> NA</div>

KAW 6/13/08



# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**C-144**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method** DRY  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.

**Test Performed on Material**  
**Passing** No.4 **Sieve**

**NM** 5.1 **LL** ND **PI** ND

**Sp.G. (ASTM D 854)** 2.661

**%>No.4** 0.0 **%<No.200** 2

**USCS** SP **AASHTO** ND

**Date Sampled** 4/28/08

**Date Tested** 5/6/08

**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
<b>WM + WS</b>	5929.5	5945.1	5955.6	5820.5	5878.7	
<b>WM</b>	4211.6	4211.6	4211.6	4211.6	4211.6	
<b>WW + T #1</b>	515.60	571.40	518.70	515.10	507.70	
<b>WD + T #1</b>	477.20	519.20	458.40	496.60	479.90	
<b>TARE #1</b>	6.60	6.60	6.90	6.80	6.80	
<b>WW + T #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>WD + T #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>TARE #2</b>	N/A	N/A	N/A	N/A	N/A	
<b>MOISTURE</b>	8.2	10.2	13.4	3.8	5.9	
<b>DRY DENSITY</b>	105.6	104.6	102.3	103.0	104.7	

### TEST RESULTS

Maximum dry density = 105.5 pcf

Optimum moisture = 8.0 %

**Project No.** 6468071777 **Client:** Bechtel

**Project:** Exelon Texas COL (Victoria)

● **Source:** FORDYCE **Sample No.:** C-144 **Elev./Depth:** NA

**MACTEC, Inc.**

Raleigh, North Carolina

### Material Description

Brown Poorly Graded SAND (Mortar sand)

**Remarks:**

ND = Not Determined  
 Apparent Specific Gravity Determined By  
 ASTM C-128-07

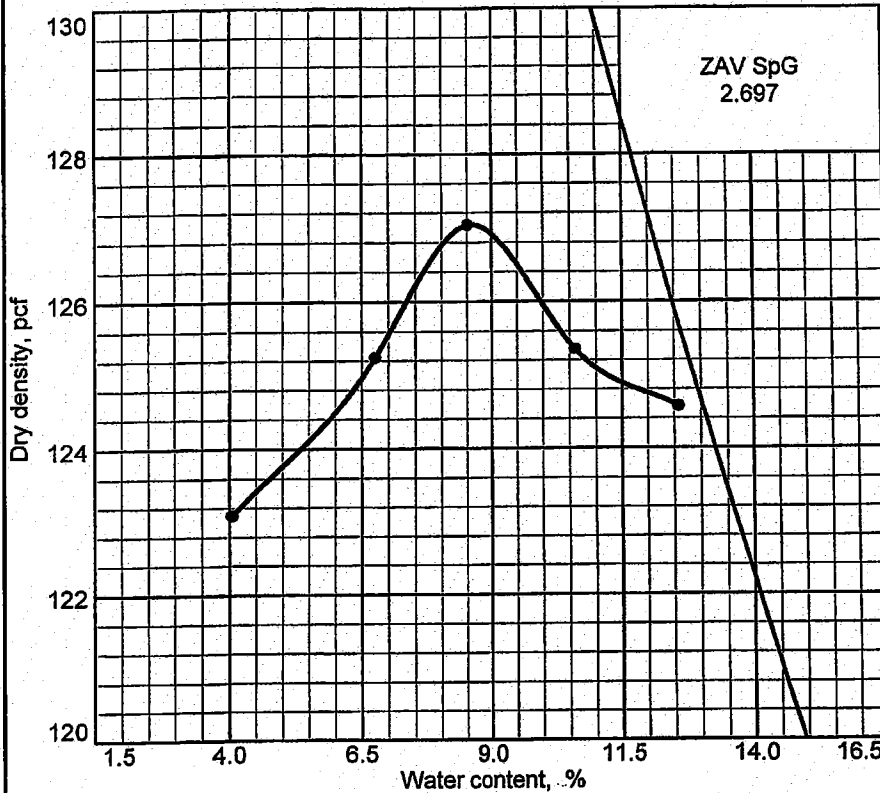
**Checked by:** LBJ

**Title:** LAB MANAGER

Figure NA

KAW 6/13/08

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**RAW-3/4**

**Test Specification:**  
ASTM D 1557-02 Method C Modified

**Preparation Method** DRY  
**Hammer Wt.** 10  
**Hammer Drop** 18 mechanical  
**Number of Layers** 5  
**Blows per Layer** 56  
**Mold Size** .07499 cu.ft.  
**Test Performed on Material**  
**Passing** 3/4 in. **Sieve**  
**NM** 7.1 **LL** ND **PI** ND  
**Sp.G. (ASTM D 854)** 2.697  
**%>3/4 in.** 17.0 **%<No.200** 3  
**USCS** SW **AASHTO** ND  
**Date Sampled** 4-28-2008  
**Date Tested** 5-9-2008  
**Tested By** AWH

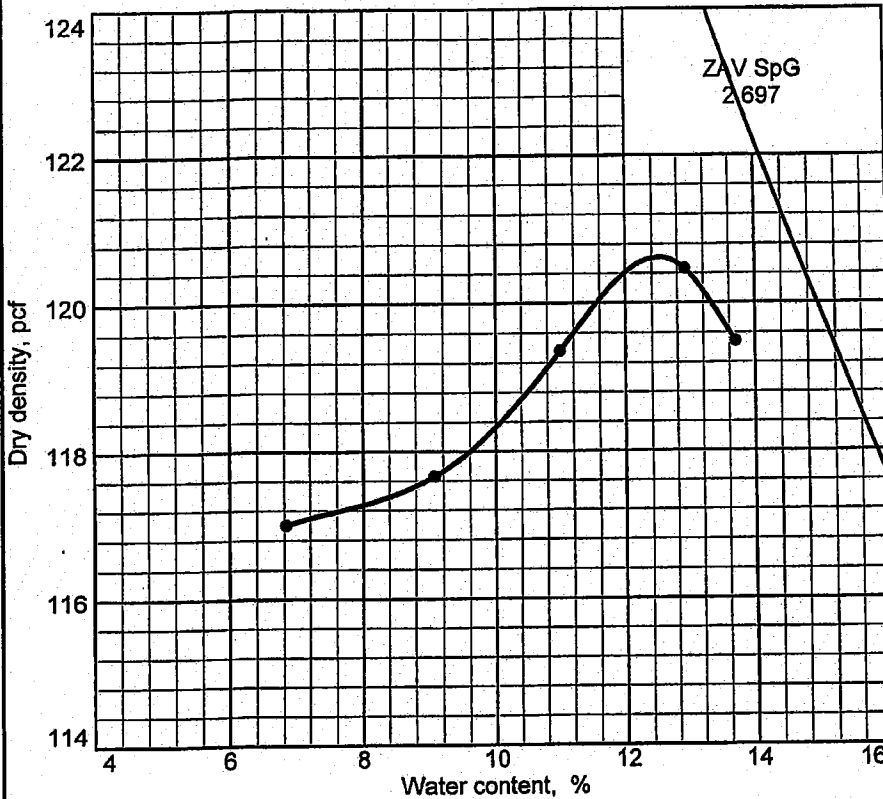
### TESTING DATA

	1	2	3	4	5	6
WM + WS	10086.6	10277.9	10418.9	10446.4	10500.6	
WM	5729.7	5729.7	5729.7	5729.7	5729.7	
WW + T #1	631.90	669.60	722.50	676.50	1050.40	
WD + T #1	607.60	627.70	666.40	612.30	933.80	
TARE #1	6.70	6.80	6.80	6.90	6.90	
WW + T #2	N/A	N/A	N/A	N/A	N/A	
WD + T #2	N/A	N/A	N/A	N/A	N/A	
TARE #2	N/A	N/A	N/A	N/A	N/A	
MOISTURE	4.0	6.7	8.5	10.6	12.6	
DRY DENSITY	123.1	125.2	127.0	125.4	124.6	

TEST RESULTS	Material Description
Maximum dry density = 127.0 pcf	Pale Brown Well Graded SAND with Gravel (Visual)
Optimum moisture = 8.5 %	
Project No. 6468071777 Client: BECHTEL Project: Exelon Texas COL (Victoria)	Remarks: ND = Not Determined
● Location: Fordyce Briggs Pit	Checked by: LBJ Title: LAB MANAGER
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	Figure NA

[RAW 6/13/08]

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**Raw 3/8**

**Test Specification:**  
ASTM D 1557-02 Method B Modified

Preparation Method DRY  
 Hammer Wt. 10 lb.  
 Hammer Drop 18 in.  
 Number of Layers five  
 Blows per Layer 25  
 Mold Size .03333 cu.ft.

Test Performed on Material  
 Passing 3/8 in. Sieve

NM 7.1 LL ND PI ND  
 Sp.G. (ASTM D 854) 2.697  
 %>3/8 in. 21.0 %<No.200 3  
 USCS SW AASHTO ND  
 Date Sampled 4/28/08  
 Date Tested 5/16/08  
 Tested By AWH

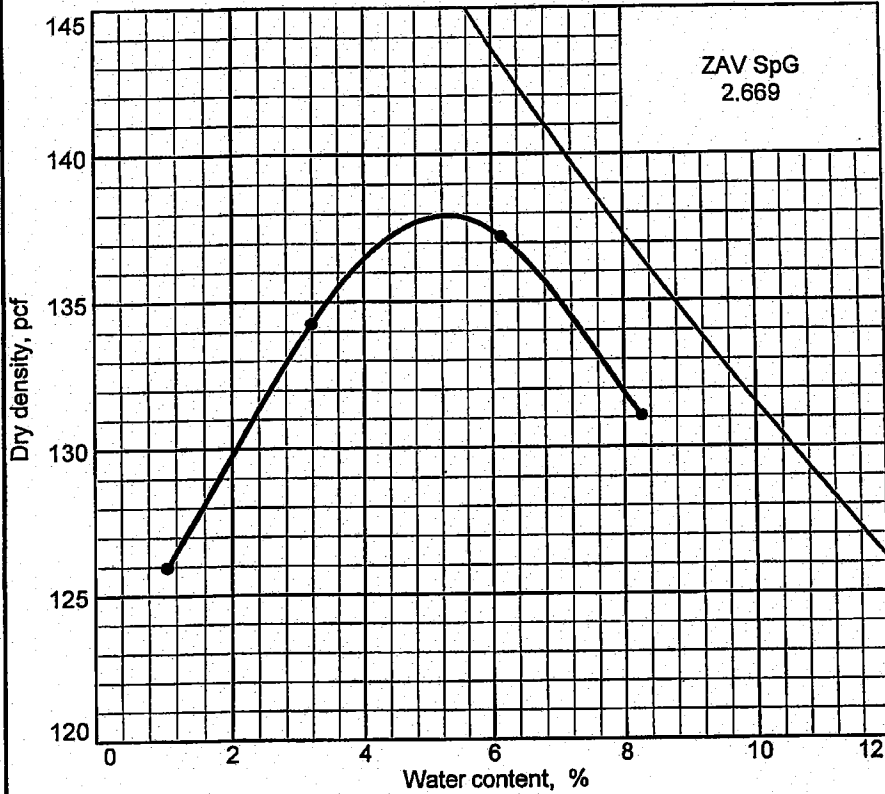
### TESTING DATA

	1	2	3	4	5	6
WM + WS	6100.9	6151.5	6214.1	6267.7	6265.2	
WM	4211.2	4211.2	4211.2	4211.2	4211.2	
WW + T #1	632.40	600.20	589.10	700.90	704.50	
WD + T #1	592.40	550.80	531.40	621.50	620.40	
TARE #1	6.80	6.70	6.60	6.80	6.80	
WW + T #2	N/A	N/A	N/A	N/A	N/A	
WD + T #2	N/A	N/A	N/A	N/A	N/A	
TARE #2	N/A	N/A	N/A	N/A	N/A	
MOISTURE	6.8	9.1	11.0	12.9	13.7	
DRY DENSITY	117.0	117.7	119.4	120.5	119.5	

TEST RESULTS	Material Description
Maximum dry density = 120.5 pcf	Pale Brown Well Graded SAND with Gravel (Visual)
Optimum moisture = 12.5 %	
Project No. 6468071777 Client: BECHTEL Project: Exelon Texas COL (Victoria)	Remarks: ND = Not Determined
● Source: Fordyce Briggs Pit Sample No.: RAW-3/8 Elev./Depth: NA	Checked by: LBJ Title: LAB MANAGER
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	Figure NA

KAW 6/13/08

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**CWA#4 3/4**

**Test Specification:**  
ASTM D 1557-02 Method C Modified

**Preparation Method** DRY  
**Hammer Wt.** 10  
**Hammer Drop** 18 mechanical  
**Number of Layers** 5  
**Blows per Layer** 56  
**Mold Size** .07499 cu.ft.

**Test Performed on Material**  
**Passing** 3/4 in. **Sieve**

**NM** 3.4 **LL** ND **PI** ND  
**Sp.G. (ASTM D 854)** 2.669  
**%>3/4 in.** 9.0 **%<No.200** 7  
**USCS** GW-GC **AASHTO** ND  
**Date Sampled** 4-28-2008  
**Date Tested** 5-13-2008  
**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
WM + WS	10060.6	10442.7	10684.0	10557.2		
WM	5729.7	5729.7	5729.7	5729.7		
WW + T #1	651.80	592.60	578.60	724.70		
WD + T #1	645.00	574.50	545.50	669.90		
TARE #1	6.80	6.80	6.80	7.00		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	1.1	3.2	6.1	8.3		
DRY DENSITY	126.0	134.3	137.2	131.1		

### TEST RESULTS

Maximum dry density = 138.0 pcf

Optimum moisture = 5.5 %

**Project No.** 6468071777 **Client:** BECHTEL  
**Project:** EXELON TEXAS COL (Victoria)

● **Source:** CWA **Sample No.:** CWA#4 **Elev./Depth:** NA

**MACTEC, Inc.**  
**Raleigh, North Carolina**

### Material Description

Red Well Graded GRAVEL with Clay  
(Visual)

**Remarks:**

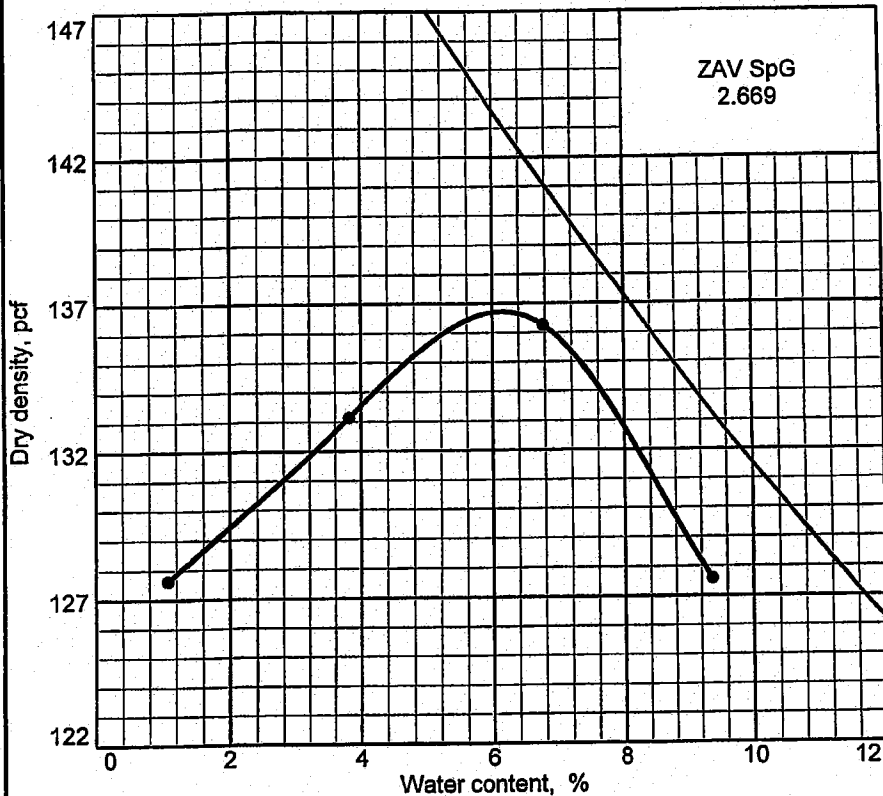
ND = Not Determined

**Checked by:** LBJ  
**Title:** LAB MANAGER

Figure NA

Kaw 6/13/08

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**CWA#4-3/8**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method** DRY  
**Hammer Wt.** 10 lb.  
**Hammer Drop** 18 in.(mechanical)  
**Number of Layers** five  
**Blows per Layer** 25  
**Mold Size** .03317 cu.ft.

**Test Performed on Material**  
**Passing** 3/8 in. **Sieve**

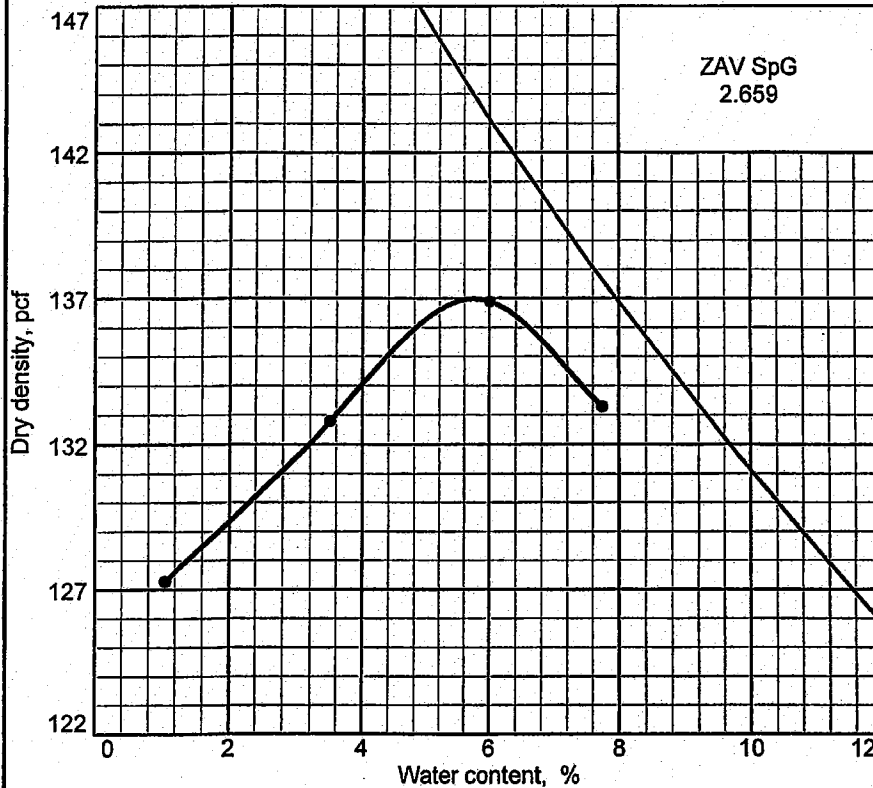
**NM** 3.4 **LL** ND **PI** ND  
**Sp.G. (ASTM D 854)** 2.669  
**%>3/8 in.** 9.0 **%<No.200** 7.0  
**USCS** GW-GC **AASHTO** ND  
**Date Sampled** 4-28-08  
**Date Tested** 5-16-08  
**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
<b>WM + WS</b>	6151.9	6291.0	6400.0	6310.6		
<b>WM</b>	4211.2	4211.2	4211.2	4211.2		
<b>WW + T #1</b>	599.10	585.60	590.60	672.20		
<b>WD + T #1</b>	592.80	564.30	553.60	615.20		
<b>TARE #1</b>	6.90	7.00	7.00	7.00		
<b>WW + T #2</b>	N/A	N/A	N/A	N/A		
<b>WD + T #2</b>	N/A	N/A	N/A	N/A		
<b>TARE #2</b>	N/A	N/A	N/A	N/A		
<b>MOISTURE</b>	1.1	3.8	6.8	9.4		
<b>DRY DENSITY</b>	127.6	133.1	136.3	127.6		

TEST RESULTS	Material Description
Maximum dry density = 136.5 pcf Optimum moisture = 6.0 %	Red Well Graded GRAVEL with Clay (Visual)
<b>Project No.</b> 6468071777 <b>Client:</b> BECHTEL <b>Project:</b> EXELON TEXAS COL (Victoria)	<b>Remarks:</b> ND = Not Determined
● <b>Source:</b> CWA <span style="float: right;"><b>Sample No.:</b> CWA#4 3/8</span>	<b>Checked by:</b> LBJ <b>Title:</b> LAB MANAGER
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	<b>Figure NA</b> KAW 6/13/08

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**CWA#6 3/4**

**Test Specification:**  
ASTM D 1557-02 Method C Modified

**Preparation Method** DRY  
**Hammer Wt.** 10  
**Hammer Drop** 18 mechanical  
**Number of Layers** 5  
**Blows per Layer** 56  
**Mold Size** .07499 cu.ft.

**Test Performed on Material**  
**Passing** 3/4 in. **Sieve**

**NM** 4.6 **LL** ND **PI** ND

**Sp.G. (ASTM D 854)** 2.659

**%>3/4 in.** 13.0 **%<No.200** 10

**USCS** GP-GC **AASHTO** ND

**Date Sampled** 5-13-2008

**Date Tested** 5-13-2008

**Tested By** AWH

### TESTING DATA

	1	2	3	4	5	6
WM + WS	10105.0	10405.4	10666.6	10615.5		
WM	5729.7	5729.7	5729.7	5729.7		
WW + T #1	679.30	547.10	648.80	650.60		
WD + T #1	672.30	528.80	612.40	604.30		
TARE #1	6.90	6.70	6.70	6.70		
WW + T #2	N/A	N/A	N/A	N/A		
WD + T #2	N/A	N/A	N/A	N/A		
TARE #2	N/A	N/A	N/A	N/A		
MOISTURE	1.1	3.5	6.0	7.7		
DRY DENSITY	127.3	132.8	136.9	133.3		

### TEST RESULTS

Maximum dry density = 137.0 pcf

Optimum moisture = 6.0 %

**Project No.** 6468071777 **Client:** BECHTEL

**Project:** EXELON TEXAS COL (Victoria)

● **Source:** CWA

**Sample No.:** CWA#6

**Elev./Depth:** ND

**MACTEC, Inc.**

**Raleigh, North Carolina**

### Material Description

Red Well-Graded Gravel With CLay (Visual)

**Remarks:**

ND = Not Determined

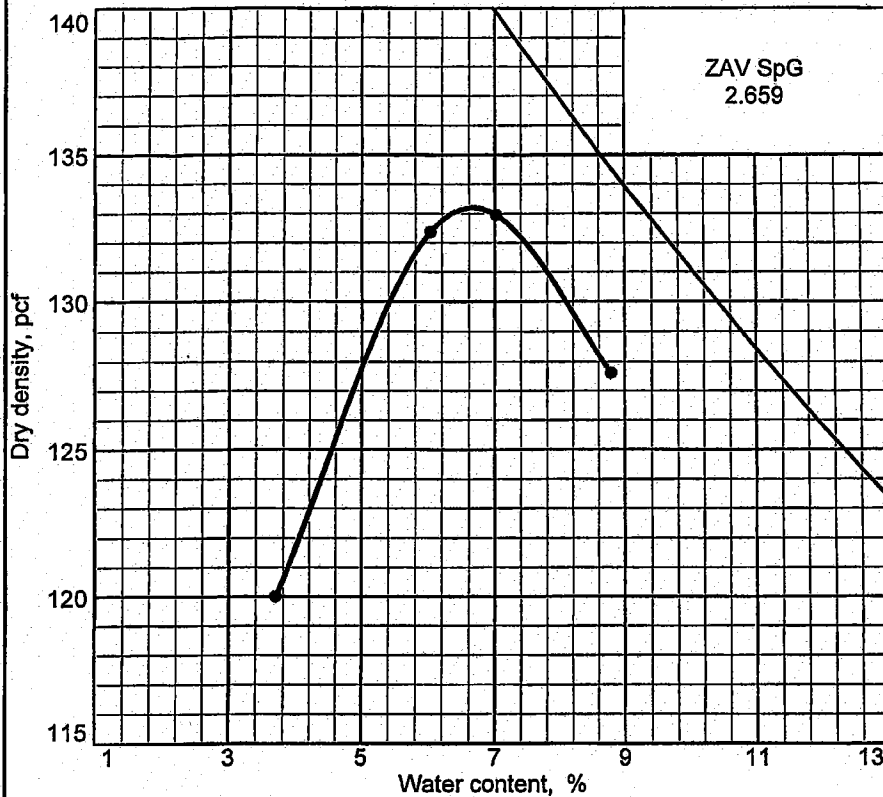
**Checked by:** LBJ

**Title:** LAB MANAGER

**Figure** NA

**KAW 6/13/08**

# COMPACTION TEST REPORT/ ASTM D 1557-02



**Curve No.**  
**CWA #6 3/8**

**Test Specification:**  
ASTM D 1557-02 Method A Modified

**Preparation Method**           Dry            
**Hammer Wt.**           10 lb.            
**Hammer Drop**           18 in.(mechanical)            
**Number of Layers**           five            
**Blows per Layer**           25            
**Mold Size**           .03317 cu.ft.          

**Test Performed on Material**  
**Passing**           3/8 in.           **Sieve**

**NM**           4.6           **LL**           ND           **PI**           ND            
**Sp.G. (ASTM D 854)**           2.659            
**%>3/8 in.**           50.0           **%<No.200**           10            
**USCS**           GW-GC           **AASHTO**           ND            
**Date Sampled**           4-28-08            
**Date Tested**           5-16-08            
**Tested By**           AWH          

### TESTING DATA

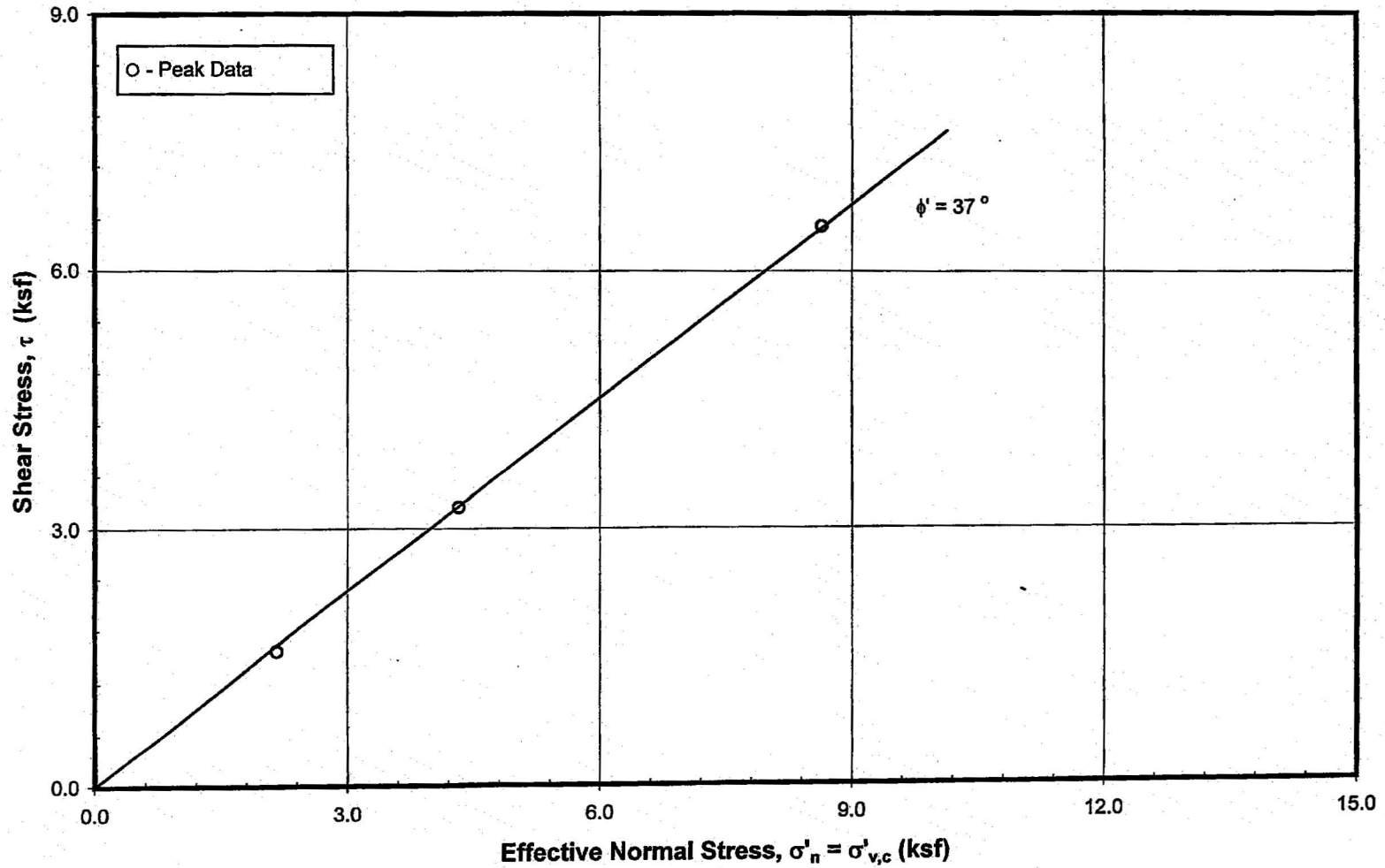
	1	2	3	4	5	6
<b>WM + WS</b>	9962.7	10503.6	10569.7	10452.6		
<b>WM</b>	5729.3	5729.3	5729.3	5729.3		
<b>WW + T #1</b>	590.80	583.70	607.60	635.60		
<b>WD + T #1</b>	570.00	550.90	568.20	584.80		
<b>TARE #1</b>	6.70	6.70	6.90	6.90		
<b>WW + T #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>WD + T #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>TARE #2</b>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>		
<b>MOISTURE</b>	3.7	6.0	7.0	8.8		
<b>DRY DENSITY</b>	120.0	132.4	133.0	127.6		

TEST RESULTS	Material Description
Maximum dry density = 133.0 pcf Optimum moisture = 6.5 %	Red Well Graded GRAVEL with Clay (Visual)
<b>Project No.</b> 6468071777 <b>Client:</b> BECHTEL <b>Project:</b> EXELON TEXAS COL (Victoria)	<b>Remarks:</b> ND = Not Determined
• <b>Source:</b> CWA <span style="float: right;"><b>Sample No.:</b> CWA#6 3/8</span>	<b>Checked by:</b> LBJ <b>Title:</b> Lab Manager
<b>MACTEC, Inc.</b> <b>Raleigh, North Carolina</b>	<b>Figure</b> NA

**KAW. 6/13/08**

# **Direct Shear Test Borrow Soil**





**DRAINED DIRECT SHEAR TEST: Test Series - (Peak)**  
Soil - Soil Interface & OCR = Unkown  
Source: Fordyce Murphy Pit, Sample No. Murphy C-33  
Exelon (Victoria)

### DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: Fordyce\_C33D  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.16      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.16 ; NA ; & NA      Shear Box:  Circular     Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.607     Assumed;  
 Multistage:  No;     Yes      Residual/Multishearing:  No;     Yes    Precut Failure Plane  No;     Yes     Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tamping	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Impact/Rammer	Rammer Wgt. (lb) = <u>NA</u>	Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>C33</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{nl}$ (%) = <u>95</u>	Drop (in.) = <u>NA</u>	Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>D</u>		Ref. Effort = _____		
Spec. Selection by <input checked="" type="checkbox"/> X - Ray; <input type="checkbox"/> Geomarine Sample				No. Layers = <u>3</u>	% Comp = <u>± Opt. = 0.5</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	
	Top (W1)	Bottom (W2)	Sides (W3)		Initial	Final
Container No.	<u>4005</u>			<u>5</u>	Mass Moist Soil + Trimming Ring	<u>5600.00</u>
Mass Moist Soil + Container (g)	<u>132.47</u>			<u>635.00</u>	Mass Trimming Ring, etc.	<u>5145.00</u>
Mass Dry Soil + Container (g)	<u>129.41</u>			<u>565.00</u>	Mass Moist Soil	<u>455.00</u>
Mass Container (g)	<u>30.35</u>			<u>130.00</u>	Excess Dry Soil (soil not included in final water content)	
WATER CONTENT (%)	<u>3.09</u>			<u>16.09</u>	Container No.	
Avg. Initial WC, $W_4$ (%)	<u>3.09</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)	
See attached data sheet(s) for additional water contents					Mass Container (g)	
					Mass Excess Dry Soil (g)	<u>0.00</u>

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :    Yes; <input checked="" type="checkbox"/> No	

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight		
Total, $\gamma_{t,o}$ (pcf) =	<u>110.28</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>106.97</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

<b>Apparatus Information:</b>	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal;    Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;     No

Final Visual Description: Brown Poorly Graded SAND (Concrete Sand)

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;     Other  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);     #10 (2.0 mm);     #20 (0.85 mm) or;     #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm;    Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN    Set up By: HC    Prelim. Cal. By: HC    Taken Down By: HC  
 Date: 6/17/2008    Date: 6/17/2008    Final Cal. By: HC    Date: 6/17/2008  
 Reviewed By: HP WF

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686      Boring/Exploration No.: Fordyce      Type Test: DS  
 Task Number: N/A      Sample No.: C33      Specific Gravity,  $G_s$ : 2.61  
 Project Name: Exelon (Victoria)      Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{do,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	3.09	441.37	15.5
" Bottom, W2			
" Sides, W3			
" Average, W4	3.09	441.37	15.5
" Assumed, W	3.09	441.37	15.5
Final (After Test/Shear)	16.09		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,c}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04745
Final Selected	0.04745

Soil Height: Final by Dial Change During Test (mm)		For Multistage Testing	
		2nd Stage	3rd Stage
Initial Height, $H_o$	31.81		
Change in Height During Consol. (not corrected for apparatus flexibility)	0.44	NA	NA
Height after Consolidation, $H_c$	31.37	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.23	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	31.13	NA	NA

Summary of Specimen Physical Properties: Initial Conditions								
Area, $A_{sb}$	80.977 $cm^2$							
Specific Gravity, $G_s$	2.607		Assumed	<input checked="" type="checkbox"/> Measured				
Mass Dry Soil, $M_d$ (g)	441.37		<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )	
Initial:	3.1	110.27	106.97	0.519	15.5	31.81	257.59	

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	2.16	NA	NA	$\epsilon_{a,c}$ (%)	1.40	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box

NA - Not Applicable

Calculated by: HP      Reviewed by: HP *HP*  
 Date: 6/17/2008

### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: <u>0411-08-1686</u>	App. No.: <u>6 DS</u>	Boring No.: <u>Fordyce</u>
Task No.: <u>N/A</u>	Consol. Stress, $\sigma'_{v,c}$ : <u>2.16</u> (ksf)	Sample No.: <u>C33</u>
Project Name: <u>Exelon (Victoria)</u>	Induced OCR: <u>NA</u>	Specimen No.: <u>D</u>
File Name: <u>Fordyce_C33D</u>	$\sigma'_{v,max}$ : <u>NA</u> (ksf)	Depth (ft): <u>N/A</u>
Shear Box Dia./Width: <u>101.6</u> (mm)	Specimen Ht.: <u>31.37</u> (mm)	
Shear Box: <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Square	Vert. Strain During Consol.: <u>1.40</u> (%)	

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

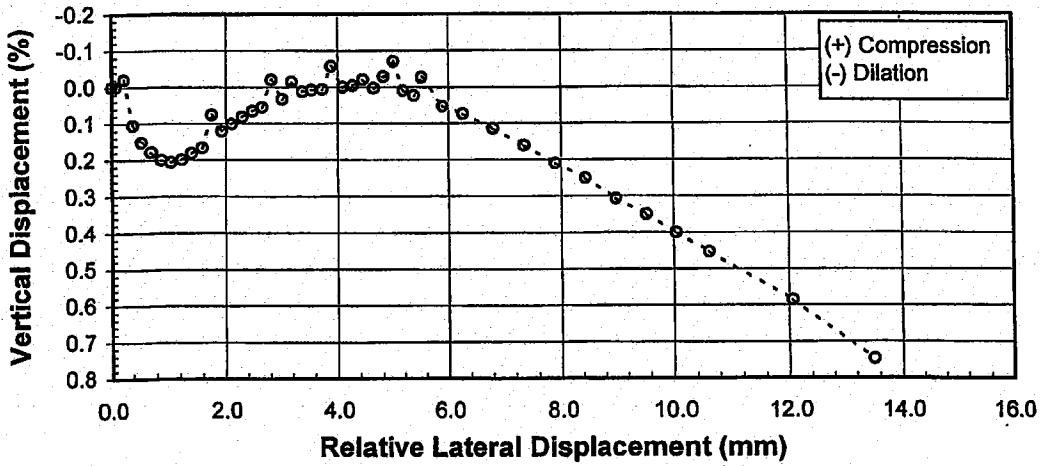
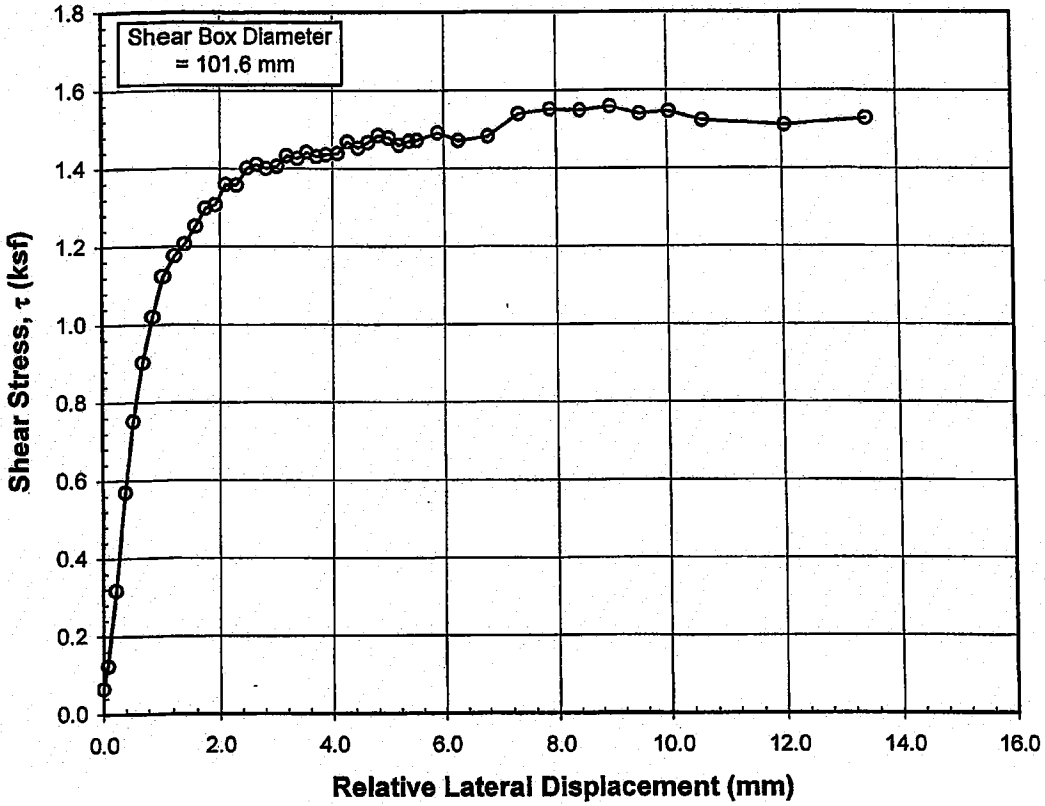
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_n$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
3.1	110.27	106.97	0.519	15.5

Peak Shear Stress,  $\tau$  (ksf): 1.56

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00592  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	5.77	0.00	0.07
0.48	0.0798	10.76	0.00	0.12
0.98	0.2291	27.66	-0.02	0.32
1.48	0.3952	49.69	0.11	0.57
1.98	0.5442	65.54	0.15	0.75
2.48	0.7107	78.71	0.18	0.90
2.98	0.8840	88.97	0.20	1.02
3.48	1.0454	97.96	0.21	1.12
3.98	1.2315	102.56	0.20	1.18
4.48	1.3999	105.19	0.18	1.21
4.98	1.5864	109.16	0.17	1.25
5.48	1.7554	113.13	0.08	1.30
5.98	1.9294	113.97	0.12	1.31
6.48	2.1094	118.48	0.10	1.36
6.98	2.2992	118.37	0.08	1.36
7.48	2.4805	122.12	0.07	1.40
7.98	2.6536	122.99	0.06	1.41
8.48	2.8187	122.08	-0.02	1.40
8.98	3.0144	122.55	0.03	1.41
9.48	3.1871	124.91	-0.01	1.43
9.98	3.3797	124.34	0.01	1.43
10.48	3.5420	125.68	0.01	1.44
10.98	3.7265	124.69	0.01	1.43
11.48	3.8888	125.15	-0.06	1.44
11.98	4.0923	125.41	0.00	1.44
12.48	4.2738	127.98	0.00	1.47
12.98	4.4566	126.63	-0.02	1.45
13.48	4.6403	127.86	0.00	1.47
13.98	4.8149	129.38	-0.03	1.48
14.48	4.9954	128.85	-0.07	1.48
14.98	5.1751	127.22	0.01	1.46
15.48	5.3727	128.11	0.02	1.47
15.98	5.5130	128.28	-0.03	1.47
16.98	5.8962	129.90	0.05	1.49
17.98	6.2629	128.22	0.07	1.47
19.48	6.8058	129.21	0.11	1.48
20.98	7.3425	134.18	0.16	1.54
22.48	7.8971	135.25	0.21	1.55
23.98	8.4396	135.00	0.25	1.55
25.48	8.9938	135.78	0.31	1.56
26.98	9.5312	134.16	0.35	1.54
28.48	10.0432	134.75	0.40	1.55
29.98	10.6169	132.74	0.45	1.52
33.98	12.0672	131.71	0.59	1.51
37.98	13.4971	133.19	0.75	1.53

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 1st Test in Test Series**

Soil - Soil Interface                       $\sigma'_{v,c} = 2.16$     ksf  
 Source: Fordyce Murphy Pit, Sample No. Murphy C-33  
 Exelon (Victoria)

Reviewed By: HP

## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: Fordyce\_C33B  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 4.32      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 4.32 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.607      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer/Wgt. (lbf) = <u>NA</u> Tamper: Force (lbf) = <u>4.5</u>
Sample No.: <u>C33</u>	Composite No.: <u>N/A</u>			Inpact/Rammer	Drop (in.) = <u>NA</u> Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>B</u>			Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_n$ (%) = <u>95</u> Ref. Effort = _____
<input type="checkbox"/> Spec. Selection by X-Ray;	<input type="checkbox"/> Geomarine Sample				No. Layers = <u>3</u> % Comp = <u>± Opt. = 0.5</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	
	Top (W1)	Bottom (W2)	Sides (W3)		Initial	Final
Container No.	<u>S1</u>			<u>2T</u>	Mass Moist Soil+Trimming Ring	<u>5620.00</u> <u>NA</u>
Mass Moist Soil + Container (g)	<u>131.82</u>			<u>630.00</u>	Mass Trimming Ring, etc.	<u>5165.00</u> <u>NA</u>
Mass Dry Soil + Container (g)	<u>128.84</u>			<u>555.00</u>	Mass Moist Soil	<u>455.00</u> <u>NA</u>
Mass Container (g)	<u>30.17</u>			<u>140.00</u>	Excess Dry Soil (soil not included in final water content)	
WATER CONTENT (%)	<u>3.02</u>			<u>18.07</u>	Container No.	
Avg. Initial WC, $W_4$ (%)	<u>3.02</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)	
See attached data sheet(s) for additional water contents					Mass Container (g)	
					Mass Excess Dry Soil (g)	
					<u>0.00</u>	

Soil Height: Measurements <sup>(1)</sup>		
Initial (mm)		
with Spec., $H_{soil}$	without Spec., $H_{app}$	
<u>31.81</u>		
Block Used <sup>(2)</sup> :	Yes;	<input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight		
Total, $\gamma_{t,o}$ (pcf) =	<u>110.28</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>107.04</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

<b>Apparatus Information:</b>	Wgt. of Top Shear Ring, $M_{sb}$ (lbf) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lbf) = <u>2.64</u>	
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No: Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No:		
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No:	
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:		
	Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No  
 Final Visual Description: Brown Poorly Graded SAND (Concrete Sand)

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/13/2008      Date: 6/13/2008      Final Cal. By: HC      Date: 6/13/2008  
 Reviewed By: HP

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686      Boring/Exploration No.: Fordyce      Type Test: DS  
 Task Number: N/A      Sample No.: C33      Specific Gravity,  $G_s$ : 2.61  
 Project Name: Exelon (Victoria)      Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	3.02	441.66	15.2
" Bottom, W2			
" Sides, W3			
" Average, W4	3.02	441.66	15.2
" Assumed, W	3.02	441.66	15.2
Final (After Test/Shear)	18.07		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04745
Final Selected	0.04745

Soil Height: Final by Dial Change During Test (mm)		For Multistage Testing	
		2nd Stage	3rd Stage
Initial Height, $H_o$	31.81		
Change in Height During Consol. (not corrected for apparatus flexibility)	0.83	NA	NA
Height after Consolidation, $H_c$	30.98	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.46	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	30.52	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	$\text{cm}^2$					
Specific Gravity, $G_s$	2.607	Assumed	<input checked="" type="checkbox"/>	Measured			
Mass Dry Soil, $M_d$ (g)	441.66	<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $\text{cm}^3$ )
Initial:	3.0	110.27	107.04	0.518	15.2	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	4.32	NA	NA	$\epsilon_{s,c}$ (%)	2.62	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{s,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP      Reviewed by: HP *HP*  
 Date: 6/17/2008

### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: <u>0411-08-1686</u>	App. No.: <u>6 DS</u>	Boring No.: <u>Fordyce</u>
Task No.: <u>N/A</u>	Consol. Stress, $\sigma'_{v,c}$ : <u>4.32</u> (ksf)	Sample No.: <u>C33</u>
Project Name: <u>Exelon (Victoria)</u>	Induced OCR: <u>NA</u>	Specimen No.: <u>B</u>
File Name: <u>Fordyce_C33B</u>	$\sigma'_{v,max}$ : <u>NA</u> (ksf)	Depth (ft): <u>N/A</u>
Shear Box Dia./Width: <u>101.6</u> (mm)	Specimen Ht.: <u>30.98</u> (mm)	
Shear Box: <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Square	Vert. Strain During Consol.: <u>2.62</u> (%)	

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
3.0	110.27	107.04	0.518	15.2

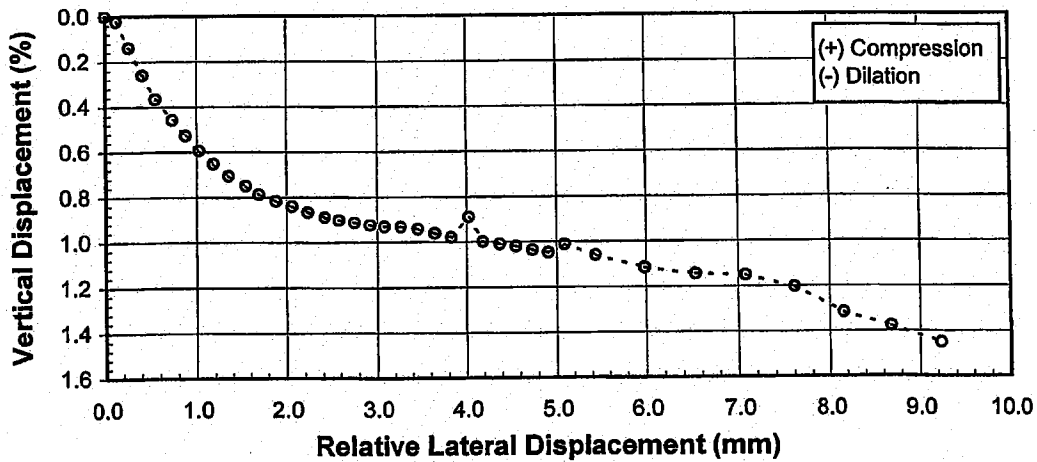
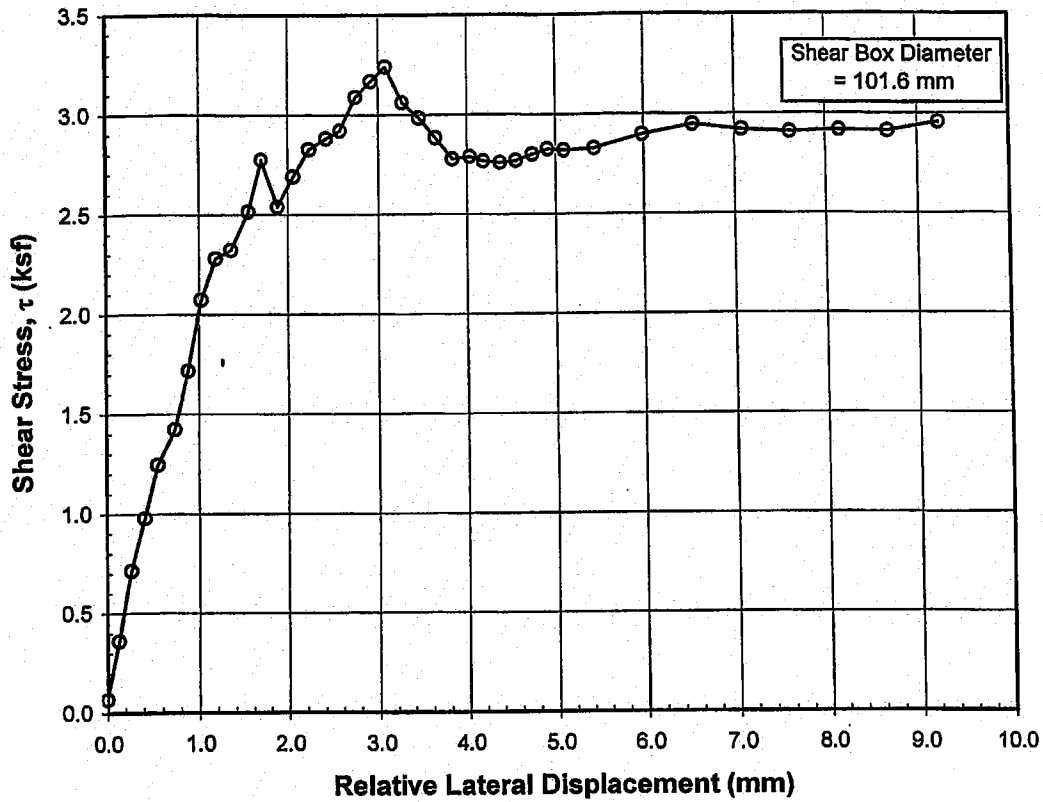
Peak Shear Stress,  $\tau_f$  (ksf): **3.24**

Shearing  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00581  
 Intact - Before Repeated Shearing (Peak Data)  
 For:  After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	5.93	0.00	0.07
0.50	0.1274	31.60	0.02	0.36
1.00	0.2680	62.25	0.14	0.71
1.50	0.4141	85.35	0.26	0.98
2.00	0.5513	108.62	0.37	1.25
2.50	0.7340	124.08	0.46	1.42
3.00	0.8807	149.65	0.53	1.72
3.50	1.0273	180.88	0.59	2.08
4.00	1.1847	198.77	0.65	2.28
4.50	1.3529	202.38	0.71	2.32
5.00	1.5481	219.23	0.75	2.52
5.50	1.6984	242.02	0.79	2.78
6.00	1.8863	221.35	0.82	2.54
6.50	2.0592	234.47	0.84	2.69
7.00	2.2315	246.46	0.87	2.83
7.50	2.4211	251.21	0.89	2.88
8.00	2.5793	254.58	0.90	2.92
8.50	2.7531	269.16	0.91	3.09
9.00	2.9229	276.18	0.92	3.17
9.50	3.0799	282.51	0.93	3.24
10.00	3.2687	266.76	0.93	3.06
10.50	3.4624	260.18	0.94	2.98
11.00	3.6488	251.42	0.96	2.88
11.50	3.8320	242.22	0.98	2.78
12.00	4.0295	243.18	0.89	2.79
12.50	4.1865	241.15	1.00	2.77
13.00	4.3765	240.47	1.01	2.76
13.50	4.5574	241.28	1.02	2.77
14.00	4.7397	244.05	1.04	2.80
14.50	4.9115	246.28	1.05	2.83
15.00	5.0930	245.83	1.01	2.82
16.00	5.4422	246.55	1.06	2.83
17.50	5.9861	252.46	1.12	2.90
19.00	6.5336	256.88	1.14	2.95
20.50	7.0774	254.52	1.15	2.92
22.00	7.6036	253.47	1.20	2.91
23.50	8.1597	254.14	1.32	2.92
25.00	8.6871	253.85	1.38	2.91
26.50	9.2335	257.61	1.45	2.96

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilaton or Backwards





**DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 4.32$  ksf  
 Source: Fordyce Murphy Pit, Sample No. Murphy C-33  
 Exelon (Victoria)

Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: Fordyce\_C33C  
 Task Number: N/A Assign. Units:  ksf, or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 8.64 , \_\_\_\_\_ Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " \_\_\_\_\_ & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 8.64 ; NA ; & NA Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA Specific Gravity: 2.607  Assumed;  
 Multistage:  No;  Yes Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

Tube <input type="checkbox"/> Field Extruded <input type="checkbox"/> Liner <input checked="" type="checkbox"/> Recompacted <input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u> <input type="checkbox"/> Reconstituted	Rammer/Wgt.(lbf)= <u>NA</u> Tamper: Force (lbf)= <u>4.5</u>
Sample No.: <u>C33</u> Composite No.: <u>N/A</u>	Drop(in.)= <u>NA</u> Dia.(in.)= <u>1.5</u>
Depth (ft): <u>N/A</u> Specimen No.: <u>C</u>	<input checked="" type="checkbox"/> Undercompaction: $U_{all}$ (%) = <u>95</u> Ref.Effort= _____
Spec. Selection by X-Ray; <input type="checkbox"/> Geomarine Sample	No. Layers = <u>3</u> % Comp= _____ ± Opt= <u>0.5</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)				
Container No.	<u>5081</u>			<u>7A</u>	Mass Moist Soil+Trimming Ring	<u>5615.00</u>	<u>NA</u>
Mass Moist Soil + Container (g)	<u>139.20</u>			<u>645.00</u>	Mass Trimming Ring, etc.	<u>5160.00</u>	<u>NA</u>
Mass Dry Soil + Container (g)	<u>136.00</u>			<u>575.00</u>	Mass Moist Soil	<u>455.00</u>	<u>NA</u>
Mass Container (g)	<u>30.63</u>			<u>140.00</u>	Excess Dry Soil (soil not included in final water content)		
WATER CONTENT (%)	<u>3.04</u>			<u>16.09</u>	Container No.		
Avg. Initial WC, $W_4$ (%)	<u>3.04</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)		
See attached data sheet(s) for additional water contents					Mass Container (g)		
					Mass Excess Dry Soil (g) <u>0.00</u>		

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)	Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>	<u>NA</u>
Reading on Gauge Block, $R_{gb}$	<u>NA</u>
Avg. Reading on Soil, $H_{soil}$	<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$	<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$	<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )	<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf)= <u>110.28</u>	Dry, $\gamma_{d,o}$ (pcf)= <u>107.03</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lbf) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lbf) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No  
 Final Visual Description: Brown Poorly Graded SAND (Concrete Sand)

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;  Other  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/13/2008 Date: 6/13/2008 Final Cal. By: HC Date: 6/13/2008  
 Reviewed By: HP HP

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686    Boring/Exploration No.: Fordyce    Type Test: DS  
 Task Number: N/A    Sample No.: C33    Specific Gravity,  $G_s$ : 2.61  
 Project Name: Exelon (Victoria)    Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	3.04	441.59	15.3
" Bottom, W2			
" Sides, W3			
" Average, W4	3.04	441.59	15.3
" Assumed, W	3.04	441.59	15.3
Final (After Test/Shear)	16.09		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04745
Final Selected	0.04745

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing		
	Initial Height, $H_o$	2nd Stage	3rd Stage
Change in Height During Consol. (not corrected for apparatus flexibility)	0.94	NA	NA
Height after Consolidation, $H_c$	30.87	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.78	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	30.10	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 cm <sup>2</sup>		Assumed <input checked="" type="checkbox"/> Measured		Value based on one of the above values		
Specific Gravity, $G_s$	2.607		Based on average water content		Height, H	Volume, V	
Mass Dry Soil, $M_d$ (g)	441.59		X		(mm)	(cm <sup>3</sup> )	
	Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)		
Initial:	3.0	110.27	107.02	0.518	15.3	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	8.64	NA	NA	$\epsilon_{a,c}$ (%)	2.94	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP    Reviewed by: HP HP  
 Date: 6/17/2008

### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: <u>0411-08-1686</u>	App. No.: <u>6 DS</u>	Boring No.: <u>Fordyce</u>
Task No.: <u>N/A</u>	Consol. Stress, $\sigma'_{vc}$ : <u>8.64</u> (ksf)	Sample No.: <u>C33</u>
Project Name: <u>Exelon (Victoria)</u>	Induced OCR: <u>NA</u>	Specimen No.: <u>C</u>
File Name: <u>Fordyce_C33C</u>	$\sigma'_{v,max}$ : <u>NA</u> (ksf)	Depth (ft): <u>N/A</u>
Shear Box Dia./Width: <u>101.6</u> (mm)	Specimen Ht.: <u>30.87</u> (mm)	
Shear Box: <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Square	Vert. Strain During Consol.: <u>2.94</u> (%)	

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

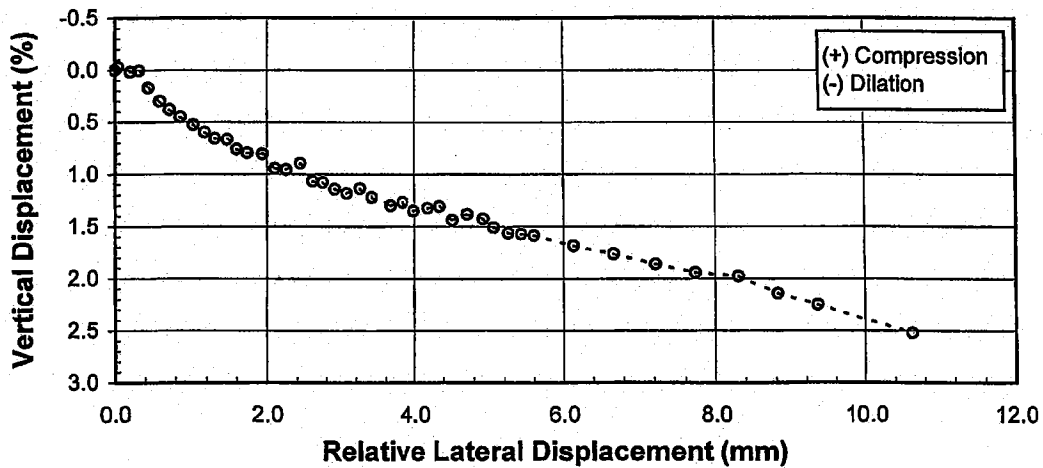
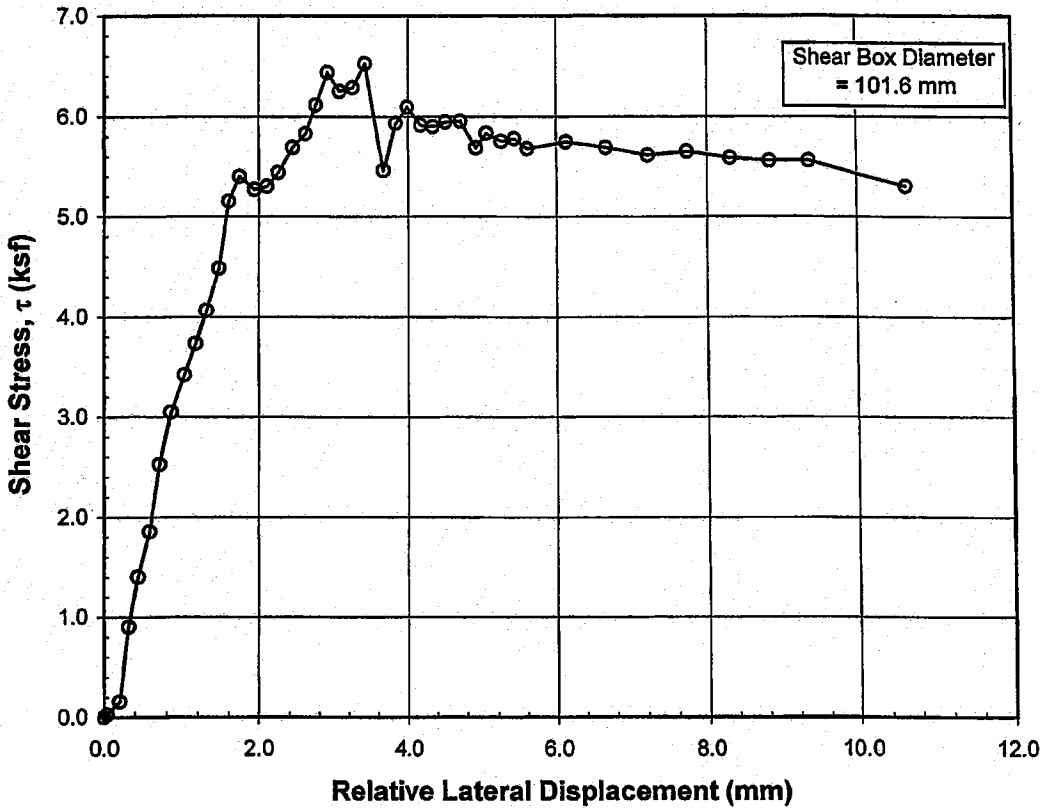
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
3.0	110.27	107.02	0.518	15.3

Peak Shear Stress,  $\tau$  (ksf): **6.52**

Shearing Data For:	<input checked="" type="checkbox"/>	Intact - Without Repeated Shearing (Peak Data)	Avg. Lat. Displacement Rate (mm/h): <b>0.00553</b>
	<input type="checkbox"/>	Intact - Before Repeated Shearing (Peak Data)	
	<input type="checkbox"/>	After Rapid Repeated Shearing (Residual Data)	
	<input type="checkbox"/>	Continuous Shearing: Forwards & Backwards (Peak & Residual Data)	

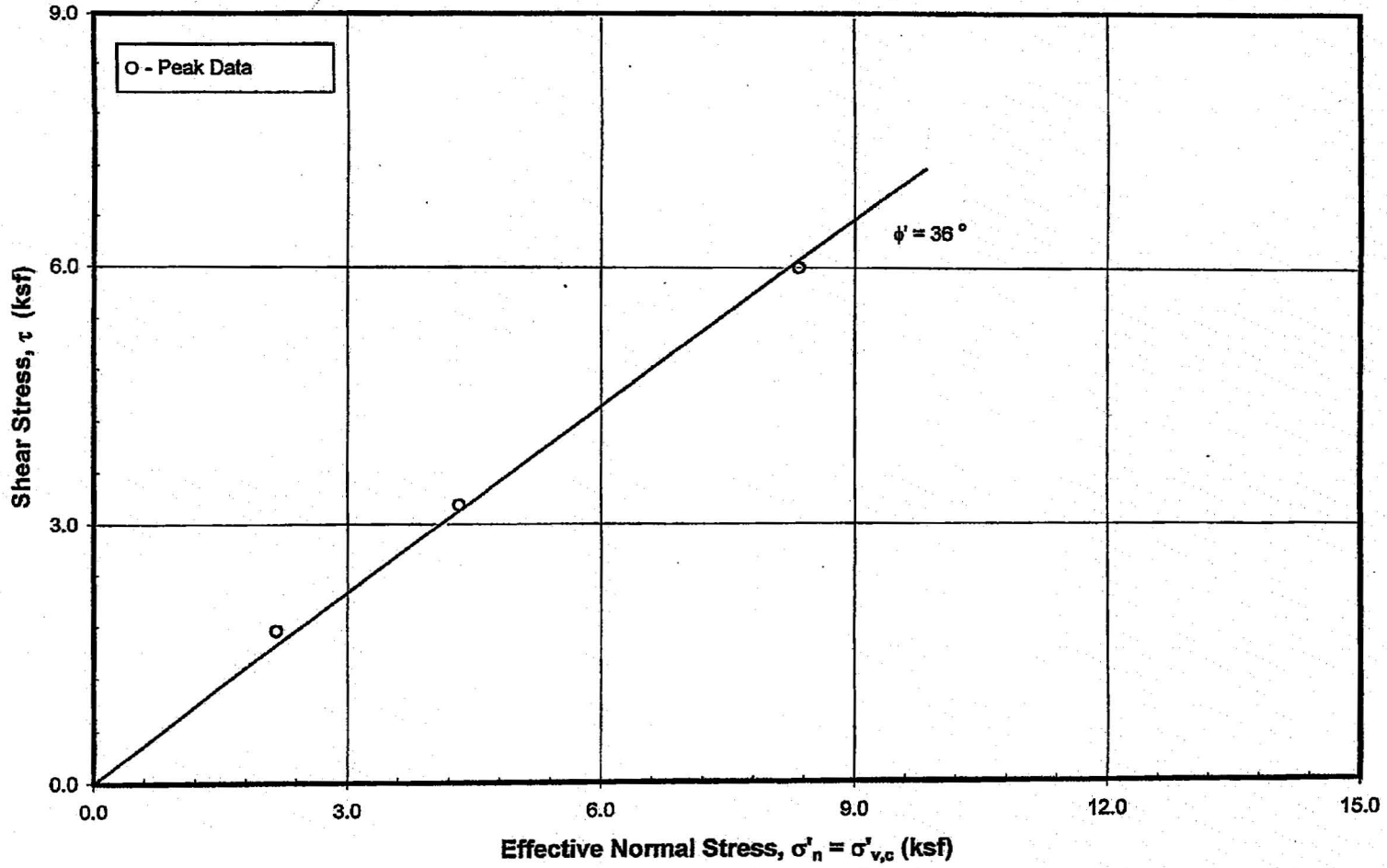
Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-0.09	0.00	0.00
1.00	0.0440	2.37	-0.03	0.03
1.50	0.2062	13.72	0.02	0.16
2.00	0.3196	78.52	0.01	0.90
2.50	0.4393	122.31	0.17	1.40
3.00	0.5876	161.68	0.30	1.85
3.50	0.7142	220.04	0.38	2.52
4.00	0.8560	265.71	0.45	3.05
4.50	1.0246	298.00	0.53	3.42
5.00	1.1695	325.55	0.60	3.73
5.50	1.3075	354.43	0.66	4.07
6.00	1.4716	390.98	0.67	4.49
6.50	1.6011	449.29	0.76	5.15
7.00	1.7431	470.77	0.79	5.40
7.50	1.9440	459.62	0.81	5.27
8.00	2.1067	462.13	0.95	5.30
8.50	2.2560	474.22	0.96	5.44
9.00	2.4438	495.98	0.90	5.69
9.50	2.6148	507.98	1.07	5.83
10.00	2.7532	532.97	1.08	6.11
10.50	2.9137	560.87	1.14	6.43
11.00	3.0739	545.06	1.18	6.25
11.50	3.2542	548.05	1.14	6.29
12.00	3.4194	568.53	1.22	6.52
12.50	3.6664	476.19	1.30	5.46
13.00	3.8314	517.01	1.27	5.93
13.50	3.9879	531.01	1.35	6.09
14.00	4.1784	515.38	1.32	5.91
14.50	4.3424	514.11	1.31	5.90
15.00	4.5169	518.07	1.44	5.94
15.50	4.7148	519.03	1.38	5.95
16.00	4.9216	495.86	1.43	5.69
16.50	5.0604	508.50	1.51	5.83
17.00	5.2532	501.53	1.56	5.75
17.50	5.4272	504.01	1.57	5.78
18.00	5.6025	495.32	1.59	5.68
19.50	6.1329	501.09	1.68	5.75
21.00	6.6711	496.13	1.76	5.69
22.50	7.2187	489.38	1.86	5.61
24.00	7.7332	492.71	1.94	5.65
25.50	8.3109	487.14	1.98	5.59
27.00	8.8304	484.64	2.14	5.56
28.50	9.3544	484.70	2.25	5.56
32.00	10.6265	462.40	2.52	5.30

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 8.64$  ksf  
 Source: Fordyce Murphy Pit, Sample No. Murphy C-33  
 Exelon (Victoria)



**DRAINED DIRECT SHEAR TEST: Test Series - (Peak)**  
Soil - Soil Interface & OCR = Unkown  
Source:FORDYCE, Sample No. C-144  
Exelon (Victoria)

**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: Fordyce\_C144A  
 Task Number: N/A Assign. Units:  ksf; or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma_{v,c}$  or  $\sigma_{n,c}$ : 2.16 , \_\_\_\_\_ Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma_{v,c}$  or  $\sigma_{n,c}$ : 2.16 ; NA ; & NA Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma_{v,max}$ : NA Specific Gravity: 2.661 Assumed;  
 Multistage:  No;  Yes Residual/Multistage:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Impact/Rammer	Rammer Wgt. (lbf) = <u>NA</u>	Tamper: Force (lbf) = <u>4.5</u>
Sample No.: <u>C-144</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_n$ (%) = <u>95</u>	Drop (In.) = <u>NA</u>	Dia. (In.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>A</u>	No. Layers = <u>3</u>		% Comp = <u>± Opt = 0.5</u>	
Spec. Selection by X-Ray: <input type="checkbox"/>		<input type="checkbox"/> Geomarine Sample			

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	
	Top (W1)	Bottom (W2)	Sides (W3)		Initial	Final
Container No. <u>532</u>				<u>21</u>	Mass Moist Soil + Trimming Ring <u>5585.00</u>	<u>NA</u>
Mass Moist Soil + Container (g) <u>132.58</u>				<u>615.00</u>	Mass Trimming Ring, etc. <u>5140.00</u>	<u>NA</u>
Mass Dry Soil + Container (g) <u>124.95</u>				<u>540.00</u>	Mass Moist Soil <u>445.00</u>	<u>NA</u>
Mass Container (g) <u>31.40</u>				<u>140.00</u>	Excess Dry Soil (soil not included in final water content)	
WATER CONTENT (%) <u>8.16</u>				<u>18.75</u>	Container No. _____	
Avg. Initial WC, $W_1$ (%) <u>8.16</u>				Final $W_{at}$ : Soil with free water trimmed away	Mass Dry Soil + Cont. (g) _____	
See attached data sheet(s) for additional water contents					Mass Container (g) _____	
					Mass Excess Dry Soil (g) <u>0.00</u>	

Initial (mm)	
with Spec., $H_{sp}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

	Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>	<u>NA</u>
Reading on Gauge Block, $R_{gb}$	<u>NA</u>
Avg. Reading on Soil, $H_{soil}$	<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$	<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$	<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )	<u>257.59</u>

Total, $\gamma_{to}$ (pcf) = <u>107.85</u>	Dry, $\gamma_{do}$ (pcf) = <u>99.72</u>
--	---

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sp}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No  
 Final Visual Description: Brown Poorly Graded SAND (Mortar Sand)

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;  Other  
 For soils containing sand, ~100% passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.60 to 0.85 mm; Sands, 1 mm to sieve size (mm) for 100% passing

Trim./Recon. By: DBN Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/16/2008 Date: 6/16/2008 Final Cal. By: HC Date: 6/16/2008  
 Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686    Boring/Exploration No.: Fordyce    Type Test: DS  
 Task Number: N/A    Sample No.: C-144    Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria)    Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{e,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	8.16	411.44	32.7
" Bottom, W2			
" Sides, W3			
" Average, W4	8.16	411.44	32.7
" Assumed, W	8.16	411.44	32.7
Final (After Test/Shear)	18.75		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04649
Final Selected	0.04649

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.34	NA
Height after Consolidation, $H_c$	31.47	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.01	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	31.47	NA

Summary of Specimen Physical Properties: Initial Conditions								
Area, $A_{sb}$	80.977	, cm <sup>2</sup>						
Specific Gravity, $G_s$	2.661	Assumed	<input checked="" type="checkbox"/> Measured					
Mass Dry Soil, $M_d$ (g)	411.44	<input checked="" type="checkbox"/> Based on average water content	Value based on one of the above values					
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ (cm <sup>3</sup> )	
Initial:	8.2	107.85	99.72	0.663	32.7	31.81	257.59	

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{vc}$ or $\sigma'_{ve}$	2.16	NA	NA	$\epsilon_{s,c}$ (%)	1.08	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{s,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP    Reviewed by: HP HP  
 Date: 6/17/2008



### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: 0411-08-1686      App. No.: 6 DS      Boring No.: Fordyce  
 Task No.: N/A      Consol. Stress,  $\sigma'_{vc}$ : 2.16 (ksf)      Sample No.: C-144  
 Project Name: Exelon (Victoria)      Induced OCR: NA      Specimen No.: A  
 File Name: Fordyce\_C144A       $\sigma'_{v,max}$ : NA (ksf)      Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm)      Specimen Ht.: 31.47 (mm)  
 Shear Box:  Circular     Square    Vert. Strain During Consol.: 1.08 (%)

Part of Test Series:  No;     Yes    If yes, Test: NA of NA  
 Multistage:  No;     Yes    If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;     Yes    Precut Failure Plane  No;     Yes

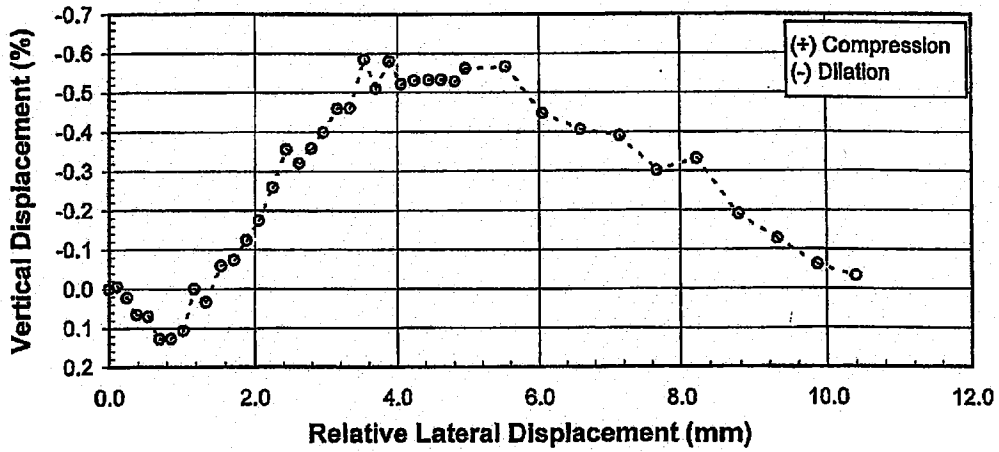
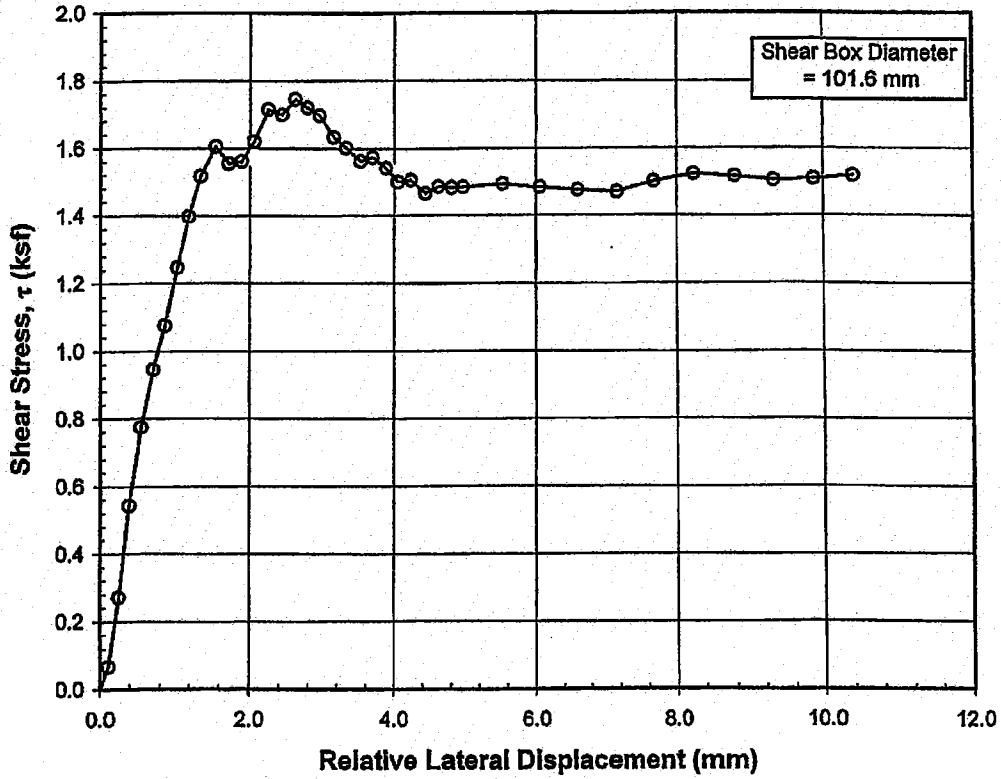
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
8.2	107.85	99.72	0.663	32.7

Peak Shear Stress,  $\tau$  (ksf): 1.75

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data)      Avg. Lat. Displacement Rate (mm/h): 0.00587  
     Intact - Before Repeated Shearing (Peak Data)  
     After Rapid Repeated Shearing (Residual Data)  
     Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-0.29	0.00	0.00
0.50	0.1117	5.87	-0.01	0.07
1.00	0.2489	23.67	0.02	0.27
1.50	0.3834	47.33	0.07	0.54
2.00	0.5397	67.53	0.07	0.77
2.50	0.7018	82.41	0.13	0.95
3.00	0.8604	93.74	0.13	1.08
3.50	1.0278	108.76	0.11	1.25
4.00	1.1831	121.82	0.00	1.40
4.50	1.3447	132.27	0.03	1.52
5.00	1.5435	139.97	-0.06	1.61
5.50	1.7179	135.54	-0.07	1.56
6.00	1.8901	136.10	-0.12	1.56
6.50	2.0589	141.28	-0.18	1.62
7.00	2.2517	149.57	-0.26	1.72
7.50	2.4380	148.16	-0.36	1.70
8.00	2.6172	152.14	-0.32	1.75
8.50	2.7882	150.01	-0.36	1.72
9.00	2.9560	148.04	-0.40	1.70
9.50	3.1548	142.40	-0.46	1.63
10.00	3.3276	139.61	-0.46	1.60
10.50	3.5299	136.18	-0.59	1.56
11.00	3.6976	137.17	-0.51	1.57
11.50	3.8906	134.36	-0.58	1.54
12.00	4.0555	130.77	-0.52	1.50
12.50	4.2393	131.20	-0.53	1.51
13.00	4.4414	127.76	-0.53	1.47
13.50	4.6216	129.50	-0.53	1.49
14.00	4.8085	129.27	-0.53	1.48
14.50	4.9662	129.40	-0.56	1.48
16.00	5.5357	130.24	-0.57	1.49
17.50	6.0551	129.36	-0.45	1.48
19.00	6.6006	128.64	-0.41	1.48
20.50	7.1543	128.10	-0.39	1.47
22.00	7.6764	130.81	-0.30	1.50
23.50	8.2341	132.77	-0.33	1.52
25.00	8.7844	132.16	-0.19	1.52
26.50	9.3183	131.13	-0.13	1.50
28.00	9.8660	131.53	-0.06	1.51
29.50	10.3930	132.45	-0.03	1.52

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 1st Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 2.16$  ksf  
 Source: FORDYCE, Sample No. C-144  
 Exelon (Victoria)

Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: Fordyce\_C144B  
 Task Number: N/A Assign. Units:  ksf; or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 4.32 , \_\_\_\_\_ Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 4.32 ; NA ; & NA Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA Specific Gravity: 2.681 Assumed;  
 Multistage:  No;  Yes Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: _____	Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Inpac/Rammer	<input type="checkbox"/> Pluviated:	Rammer Wgt. (lb) = <u>NA</u>	Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>C-144</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Drop (in.) = <u>NA</u>	<input type="checkbox"/> Dia. (in.) = <u>1.5</u>	<input checked="" type="checkbox"/> Undercompaction: $U_w$ (%) = <u>95</u>	Ref. Effort = _____	
Depth (ft): <u>N/A</u>	Specimen No.: <u>B</u>	No. Layers = <u>3</u>		% Comp = <u>± Opt = 0.5</u>		
Spec. Selection by X-Ray; <input type="checkbox"/> Geomarine Sample						

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>6071</u>			<u>7</u>	Mass Moist Soil	<u>5615.00</u>	<u>NA</u>	
Mass Moist Soil + Container (g)	<u>131.59</u>			<u>630.00</u>	Mass Moist Soil	<u>5170.00</u>	<u>NA</u>	
Mass Dry Soil + Container (g)	<u>124.14</u>			<u>545.00</u>	Excess Dry Soil (soil not included in final water content)			
Mass Container (g)	<u>31.57</u>			<u>140.00</u>	Container No. _____			
WATER CONTENT (%)	<u>8.05</u>			<u>20.99</u>	Mass Dry Soil + Cont. (g) _____			
Avg. Initial WC, $W_4$ (%)	<u>8.05</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Container (g) _____			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g) <u>0.00</u>			

Initial (mm)	
with Spec., $H_{gs}$	without Spec., $H_{ss}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

	Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>	<u>NA</u>
Reading on Gauge Block, $R_{gb}$	<u>NA</u>
Avg. Reading on Soil, $H_{soil}$	<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$	<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$	<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )	<u>257.59</u>

Total, $\gamma_{to}$ (pcf) = <u>107.85</u>	Dry, $\gamma_{d,e}$ (pcf) = <u>99.82</u>
--	--

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $R_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other.	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No  
 Final Visual Description: Brown Poorly Graded SAND (Mortar Sand)

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;  Other  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/16/2008 Date: 6/16/2008 Final Cal. By: HC Date: 6/16/2008  
 Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686 Boring/Exploration No.: Fordyce Type Test: DS  
 Task Number: N/A Sample No.: C-144 Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	8.05	411.85	32.4
" Bottom, W2			
" Sides, W3			
" Average, W4	8.05	411.85	32.4
" Assumed, W	8.05	411.85	32.4
Final (After Test/Shear)	20.99		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_v \times A_{sb}$	
Estimated	0.04649
Final Selected	0.04649

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.55	NA
Height after Consolidation, $H_c$	31.26	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.33	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{af}$	30.93	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	$\text{cm}^2$					
Specific Gravity, $G_s$	2.661		Assumed	<input checked="" type="checkbox"/> Measured			
Mass Dry Soil, $M_d$ (g)	411.85		<input checked="" type="checkbox"/> Based on average water content	Value based on one of the above values			
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $\text{cm}^3$ )
Initial:	8.0	107.85	99.82	0.661	32.4	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{v,e}$ or $\sigma'_{v,c}$	4.32	NA	NA	$\epsilon_{a,c}$ (%)	1.74	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/17/2008

**DRAINED DIRECT SHEAR TEST: Test Results**

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: Fordyce  
 Task No.: N/A Consol. Stress,  $\sigma'_{v,c}$ : 4.32 (ksf) Sample No.: C-144  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: B  
 File Name: Fordyce\_C144B  $\sigma'_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 31.26 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 1.74 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

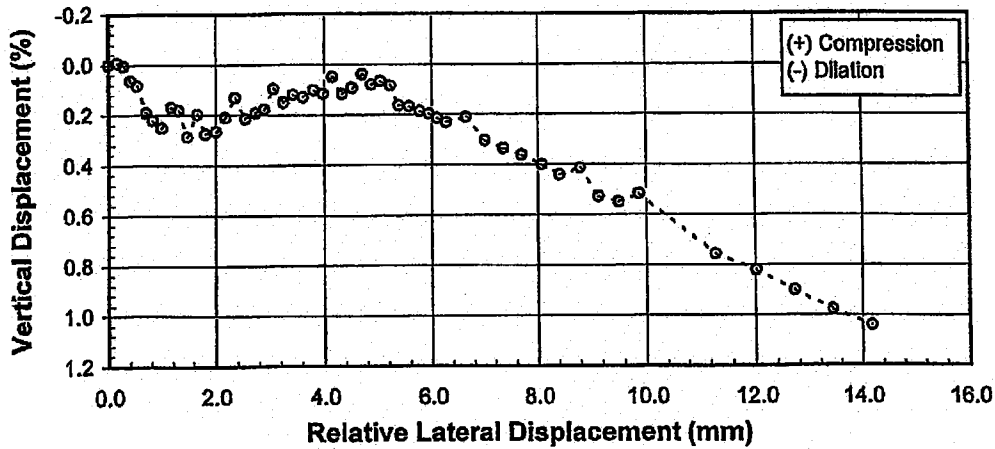
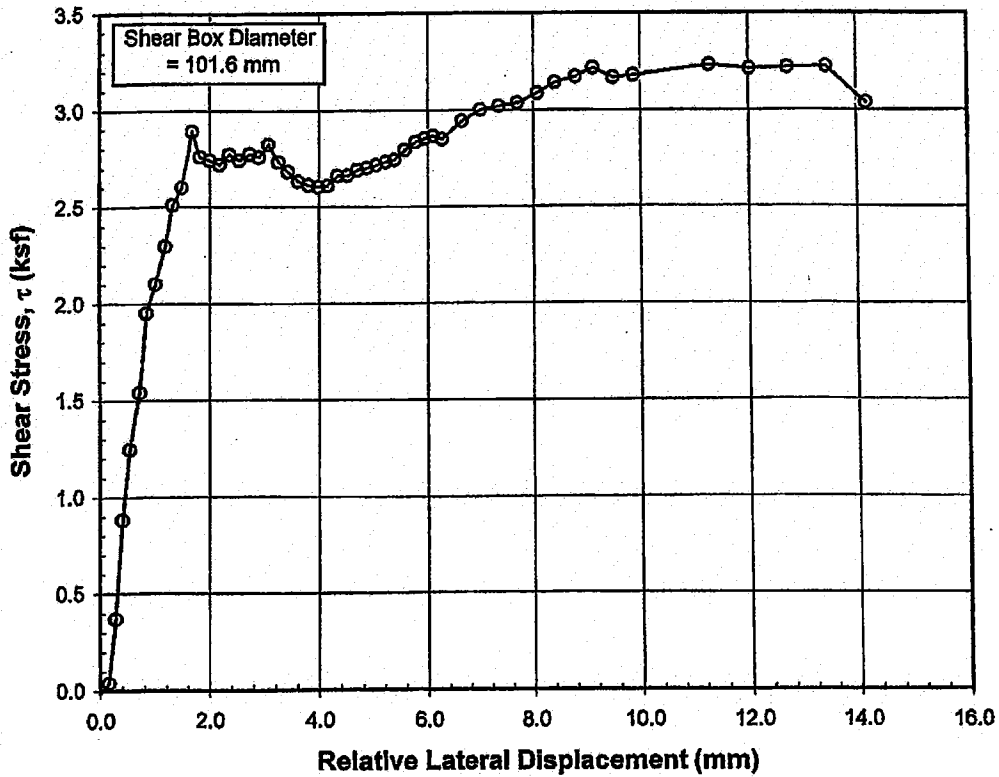
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
8.0	107.85	99.82	0.681	32.4

Peak Shear Stress,  $\tau_f$  (ksf): 3.23

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00583  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lb)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-1.09	0.00	-0.01
0.50	0.1600	3.44	-0.01	0.04
1.00	0.2789	32.21	0.01	0.37
1.50	0.4030	76.93	0.06	0.68
2.00	0.5268	108.66	0.08	1.25
2.50	0.7012	134.24	0.19	1.54
3.00	0.8258	170.10	0.22	1.95
3.50	0.9890	183.24	0.25	2.10
4.00	1.1860	200.28	0.17	2.30
4.50	1.3053	218.85	0.18	2.51
5.00	1.4765	228.72	0.29	2.80
5.50	1.6679	252.08	0.20	2.89
6.00	1.8185	240.64	0.28	2.76
6.50	2.0046	238.93	0.27	2.74
7.00	2.1786	237.09	0.21	2.72
7.50	2.3559	241.63	0.13	2.77
8.00	2.5421	238.90	0.21	2.74
8.50	2.7320	241.81	0.19	2.77
9.00	2.8958	240.44	0.18	2.76
9.50	3.0681	246.10	0.10	2.82
10.00	3.2643	238.10	0.15	2.73
10.50	3.4308	233.70	0.12	2.68
11.00	3.6171	229.42	0.13	2.63
11.50	3.8070	227.65	0.10	2.81
12.00	3.9829	226.90	0.12	2.60
12.50	4.1511	227.39	0.05	2.61
13.00	4.3368	231.90	0.12	2.66
13.50	4.5194	232.04	0.09	2.66
14.00	4.7022	234.51	0.04	2.69
14.50	4.8781	235.51	0.08	2.70
15.00	5.0436	236.75	0.07	2.72
15.50	5.2217	238.20	0.08	2.73
16.00	5.3828	239.15	0.16	2.74
16.50	5.5718	243.51	0.17	2.79
17.00	5.7748	247.09	0.19	2.83
17.50	5.9449	248.58	0.20	2.85
18.00	6.1036	249.94	0.22	2.87
18.50	6.2739	248.40	0.23	2.85
19.00	6.6429	256.62	0.21	2.94
20.50	6.9988	261.58	0.30	3.00
21.50	7.3523	263.14	0.34	3.02
22.50	7.7011	264.61	0.38	3.04
23.50	8.0747	269.09	0.40	3.09
24.50	8.4110	273.84	0.44	3.14
25.50	8.8031	278.48	0.41	3.17
26.50	9.1353	280.42	0.53	3.22
27.50	9.5003	275.99	0.65	3.17
28.50	9.8711	277.03	0.52	3.18
32.50	11.2967	281.62	0.76	3.23
34.50	12.0219	280.01	0.82	3.21
36.50	12.7180	280.43	0.90	3.22
38.50	13.4523	280.85	0.98	3.22
40.50	14.1744	284.68	1.04	3.04

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 4.32$  ksf  
 Source: FORDYCE, Sample No. C-144  
 Exelon (Victoria)

Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: Fordyce\_C144C  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{vc}$  or  $\sigma'_{nc}$ : 8.64      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{vc}$  or  $\sigma'_{nc}$ : 8.64 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.881      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampering	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>Fordyce</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Impact/Rammer	Rammer Wgt. (lb) = <u>NA</u>	Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>C-144</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{at}$ (%) = <u>95</u>	Drop (in.) = <u>NA</u>	Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>C</u>		Ref. Effort = _____		
<input type="checkbox"/> Spec. Selection by X-Ray	<input type="checkbox"/> Geomarine Sample		No. Layers = <u>3</u>	% Comp = _____	$\pm$ Opt = <u>0.5</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>155</u>			<u>7a</u>	Mass Moist Soil	<u>5815.00</u>	<u>NA</u>	
Mass Moist Soil + Container (g)	<u>137.15</u>			<u>625.00</u>	Mass Moist Soil	<u>5170.00</u>	<u>NA</u>	
Mass Dry Soil + Container (g)	<u>129.44</u>			<u>545.00</u>	Excess Dry Soil (soil not included in final water content)			
Mass Container (g)	<u>29.95</u>			<u>140.00</u>	Container No.			
WATER CONTENT (%)	<u>7.75</u>			<u>19.75</u>	Mass Dry Soil + Cont. (g)			
Avg. Initial WC, $W_4$ (%)	<u>7.75</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Container (g)			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g)	<u>0.00</u>		

Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input type="checkbox"/> No

Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>	<u>NA</u>
Reading on Gauge Block, $R_{gb}$	<u>NA</u>
Avg. Reading on Soil, $H_{soil}$	<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$	<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$	<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )	<u>257.59</u>

Total, $\gamma_{to}$ (pcf) =	<u>107.85</u>	Dry, $\gamma_{do}$ (pcf) =	<u>100.10</u>
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(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $R_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
Information:	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate;	Waffle Stone; <input type="checkbox"/> Other:
	Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Brown Poorly Graded SAND (Mortar Sand)

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/16/2008      Date: 6/16/2008      Final Cal. By: HC      Date: 6/16/2008  
 Reviewed By: HP

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686 Boring/Exploration No.: Fordyce Type Test: DS  
 Task Number: N/A Sample No.: C-144 Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$           ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	7.75	412.99	31.4
" Bottom, W2			
" Sides, W3			
" Average, W4	7.75	412.99	31.4
" Assumed, W	7.75	412.99	31.4
Final (After Test/Shear)	19.75		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04649
Final Selected	0.04649

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing		
	Initial Height, $H_o$	2nd Stage	3rd Stage
Change in Height During Consol. (not corrected for apparatus flexibility)	0.86	NA	NA
Height after Consolidation, $H_c$	30.95	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.14	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	30.81	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 $\text{cm}^2$						
Specific Gravity, $G_s$	2.661						
Mass Dry Soil, $M_d$ (g)	412.99						
	X Based on average water content			Value based on one of the above values			
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $\text{cm}^3$ )
Initial:	7.7	107.85	100.09	0.857	31.4	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	8.64	NA	NA	$\epsilon_{a,o}$ (%)	2.72	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box

NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/17/2008



**DRAINED DIRECT SHEAR TEST: Test Results**

1 of 1

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: Fordyce  
 Task No.: N/A Consol. Stress,  $\sigma'_{v,c}$ : 8.64 (ksf) Sample No.: C-144  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: C  
 File Name: Fordyce\_C144C  $\sigma'_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 30.95 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 2.72 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

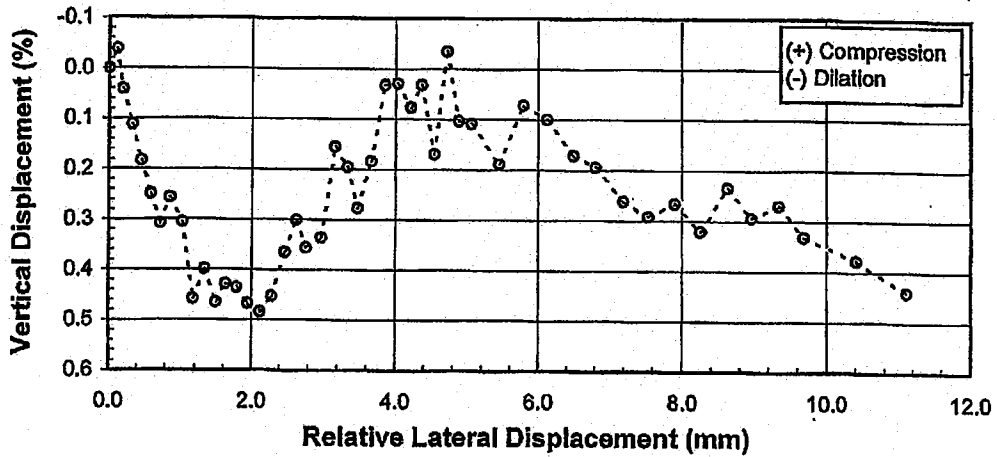
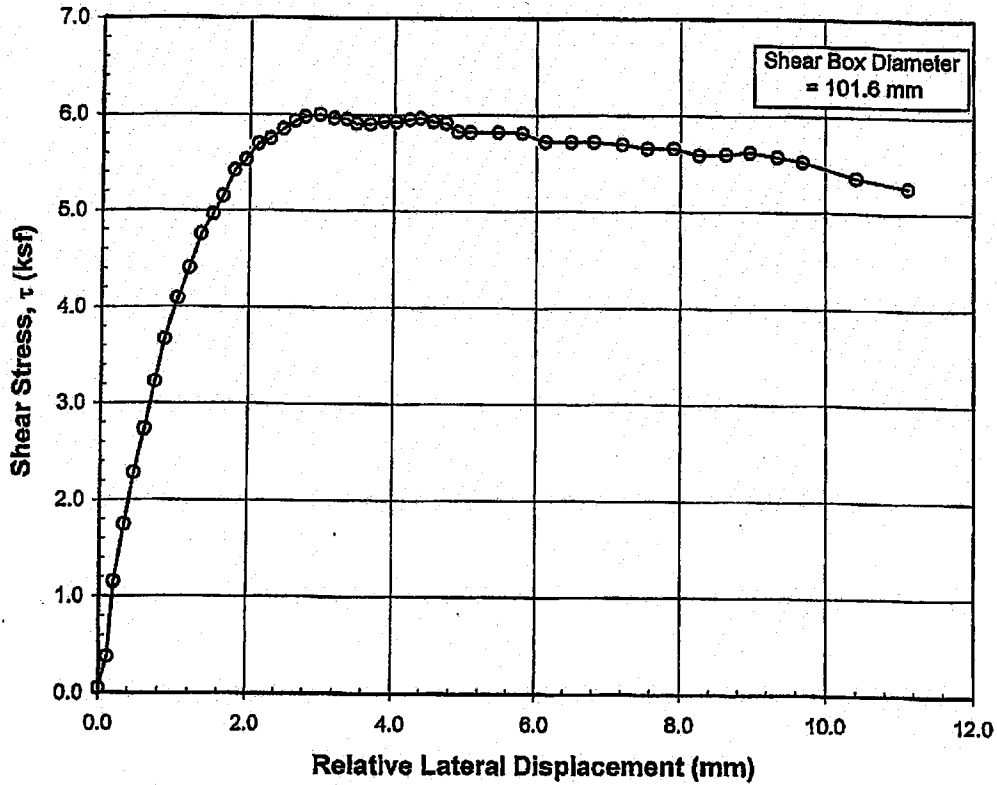
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
7.7	107.85	100.09	0.657	31.4

Peak Shear Stress,  $\tau_f$  (ksf): 6.00

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00561  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	4.74	0.00	0.05
0.50	0.1149	33.17	-0.04	0.38
1.00	0.1963	100.56	0.04	1.15
1.50	0.3328	152.25	0.11	1.75
2.00	0.4554	198.79	0.18	2.28
2.50	0.5910	238.31	0.25	2.73
3.00	0.7256	281.40	0.31	3.23
3.50	0.8561	319.70	0.26	3.67
4.00	1.0202	356.52	0.31	4.09
4.50	1.1729	384.18	0.46	4.41
5.00	1.3329	414.76	0.40	4.76
5.50	1.4925	432.63	0.47	4.98
6.00	1.6292	449.05	0.43	5.15
6.50	1.7880	472.35	0.44	5.42
7.00	1.9507	482.02	0.47	5.53
7.50	2.1233	496.55	0.48	5.70
8.00	2.2928	501.21	0.45	5.75
8.50	2.4755	509.88	0.37	5.85
9.00	2.6348	517.00	0.30	5.93
9.50	2.7674	521.05	0.36	5.98
10.00	2.9760	523.10	0.34	6.00
10.50	3.1637	519.87	0.16	5.96
11.00	3.3387	519.14	0.20	5.96
11.50	3.4795	514.96	0.28	5.91
12.00	3.6591	514.37	0.18	5.90
12.50	3.8499	517.19	0.03	5.93
13.00	4.0249	516.61	0.03	5.93
13.50	4.2151	518.85	0.08	5.95
14.00	4.3673	519.94	0.03	5.97
14.50	4.5396	517.17	0.17	5.93
15.00	4.7166	515.50	-0.03	5.91
15.50	4.8834	507.98	0.10	5.83
16.00	5.0536	507.29	0.11	5.82
17.00	5.4454	507.51	0.19	5.82
18.00	5.7903	506.73	0.07	5.81
19.00	6.1258	498.92	0.10	5.72
20.00	6.4947	498.86	0.17	5.72
21.00	6.8119	498.86	0.19	5.72
22.00	7.1982	496.79	0.26	5.70
23.00	7.5458	493.27	0.29	5.66
24.00	7.9057	493.39	0.27	5.66
25.00	8.2590	487.33	0.32	5.59
26.00	8.6373	488.20	0.23	5.60
27.00	8.9686	490.11	0.29	5.62
28.00	9.3519	486.12	0.27	5.58
29.00	9.6935	481.73	0.33	5.53
31.00	10.4102	467.74	0.38	5.37
33.00	11.1138	458.73	0.44	5.26

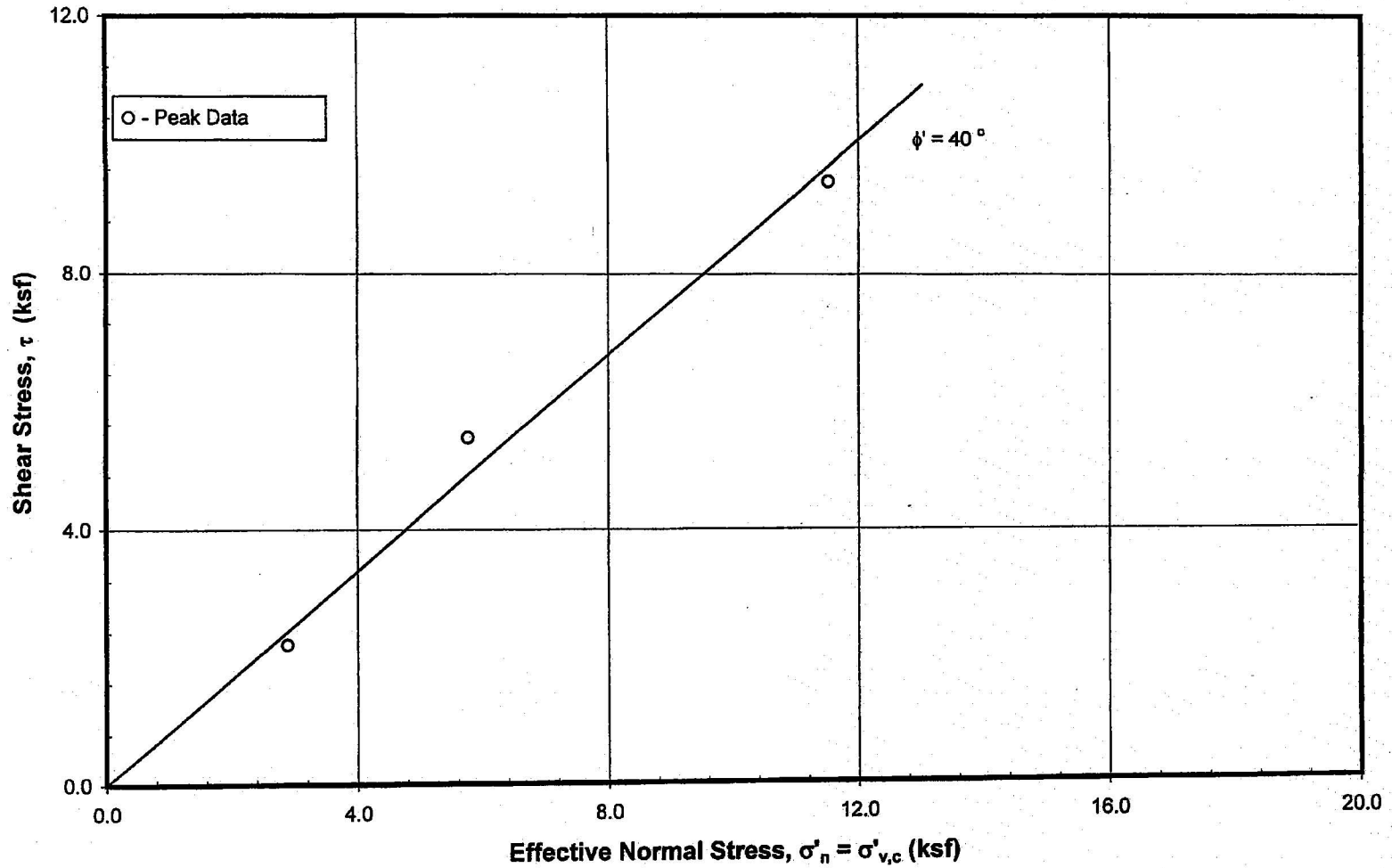
Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 8.64$  ksf  
 Source: FORDYCE, Sample No. C-144  
 Exelon (Victoria)

Reviewed By: NP



**DRAINED DIRECT SHEAR TEST: Test Series - (Peak)**  
Soil - Soil Interface & OCR = Unkown  
Source: Fordyce Briggs, Sample No. RAW-3/8  
Exelon (Victoria)

## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: B-1\_Fordyced  
 Task Number: N/A      Assign. Units:  ksf, or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      &      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.697       Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes       Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>	
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer Wgt. (lbf) = <u>NA</u>	Tamper: Force (lbf) = <u>4.5</u>
Sample No.: <u>RAW-3/8</u>	Composited No.: <u>N/A</u>			Incap/Rammer	Drop (in.) = <u>NA</u>	Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>d</u>			Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{at}$ (%) = <u>95</u>	Ref. Effort = _____
Spec. Selection by <input checked="" type="checkbox"/> X - Ray; <input type="checkbox"/> Geomarine Sample				No. Layers = <u>3</u>		% Comp = <u>± Opt. = 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	
	Top (W1)	Bottom (W2)	Sides (W3)		Initial	Final
Container No.	<u>3053</u>			<u>1</u>	Mass Moist Soil + Trimming Ring	<u>5685.00</u> <u>NA</u>
Mass Moist Soil + Container (g)	<u>147.98</u>			<u>1044.75</u>	Mass Trimming Ring, etc.	<u>5155.00</u> <u>NA</u>
Mass Dry Soil + Container (g)	<u>138.14</u>			<u>988.85</u>	Mass Moist Soil	<u>530.00</u> <u>NA</u>
Mass Container (g)	<u>58.84</u>			<u>547.97</u>	Excess Dry Soil (soil not included in final water content)	
WATER CONTENT (%)	<u>12.41</u>			<u>12.68</u>	Container No. _____	
Avg. Initial WC, $W_4$ (%)	<u>12.41</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g) _____	
See attached data sheet(s) for additional water contents					Mass Container (g) _____	
					Mass Excess Dry Soil (g) <u>0.00</u>	

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{sb}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	<input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf) = <u>128.45</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>114.27</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
Information:	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
	Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Pale Brown Well Graded SAND with gravel (visual)

Trimming/Etc. Remarks: RAW-3/8 Passing 3/8-inch Sieve

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/11/2008      Date: 6/11/2008      Final Cal. By: HC      Date: 6/11/2008  
 Reviewed By: HP

**KAW 6/13/08**

### DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686      Boring/Exploration No.: N/A      Type Test: DS  
 Task Number: N/A      Sample No.: RAW-3/8      Specific Gravity,  $G_s$ : 2.70  
 Project Name: Exelon (Victoria)      Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	12.41	471.49	71.1
" Bottom, W2			
" Sides, W3			
" Average, W4	12.41	471.49	71.1
" Assumed, W	12.41	471.49	71.1
Final (After Test/Shear)	12.68		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times p_w \times A_{sb}$	
Estimated	0.04587
Final Selected	0.04587

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.04	NA
Height after Consolidation, $H_c$	31.77	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.32	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.09	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 , cm <sup>2</sup>						
Specific Gravity, $G_s$	2.697		Assumed	<input checked="" type="checkbox"/> Measured			
Mass Dry Soil, $M_d$ (g)	471.49		<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values	
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ (cm <sup>3</sup> )
Initial:	12.4	128.45	114.27	0.471	71.1	31.81	257.59

Consolidation Summary:	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	2.88	NA	NA	$\epsilon_{a,c}$ (%)	0.11	NA	NA
Stress Units = (ksf)	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP      Reviewed by: HP #P  
 Date: 6/12/2008

## DRAINED DIRECT SHEAR TEST: Test Results

1 of 1

Project Number: 0411-08-1686      App. No.: 6 DS      Boring No.: N/A  
 Task No.: N/A      Consol. Stress,  $\sigma_{v,c}$ : 2.88 (ksf)      Sample No.: RAW-3/8  
 Project Name: Exelon (Victoria)      Induced OCR: NA      Specimen No.: d  
 File Name: B-1\_Fordycyd       $\sigma_{v,max}$ : NA (ksf)      Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm)      Specimen Ht.: 31.77 (mm)  
 Shear Box:  Circular     Square    Vert. Strain During Consol.: 0.11 (%)

Part of Test Series:  No;     Yes    If yes, Test: NA of NA  
 Multistage:  No;     Yes    If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;     Yes    Precut Failure Plane  No;     Yes

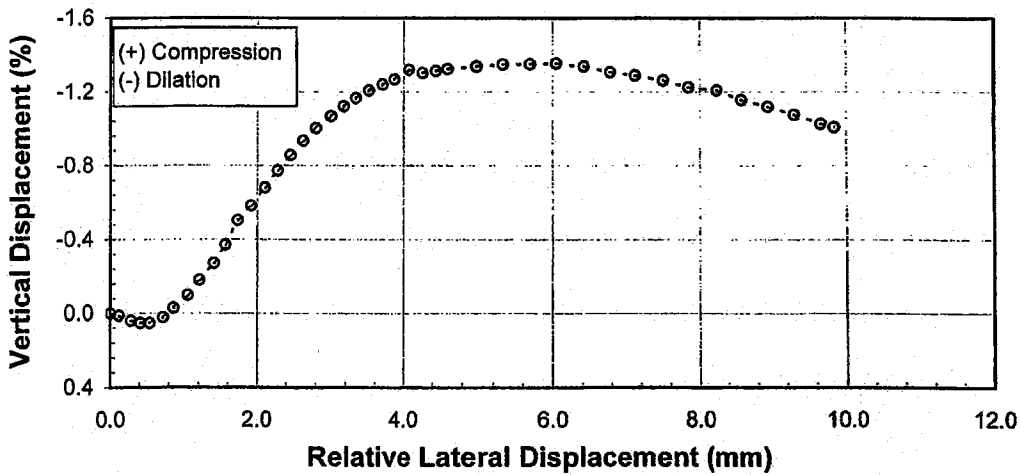
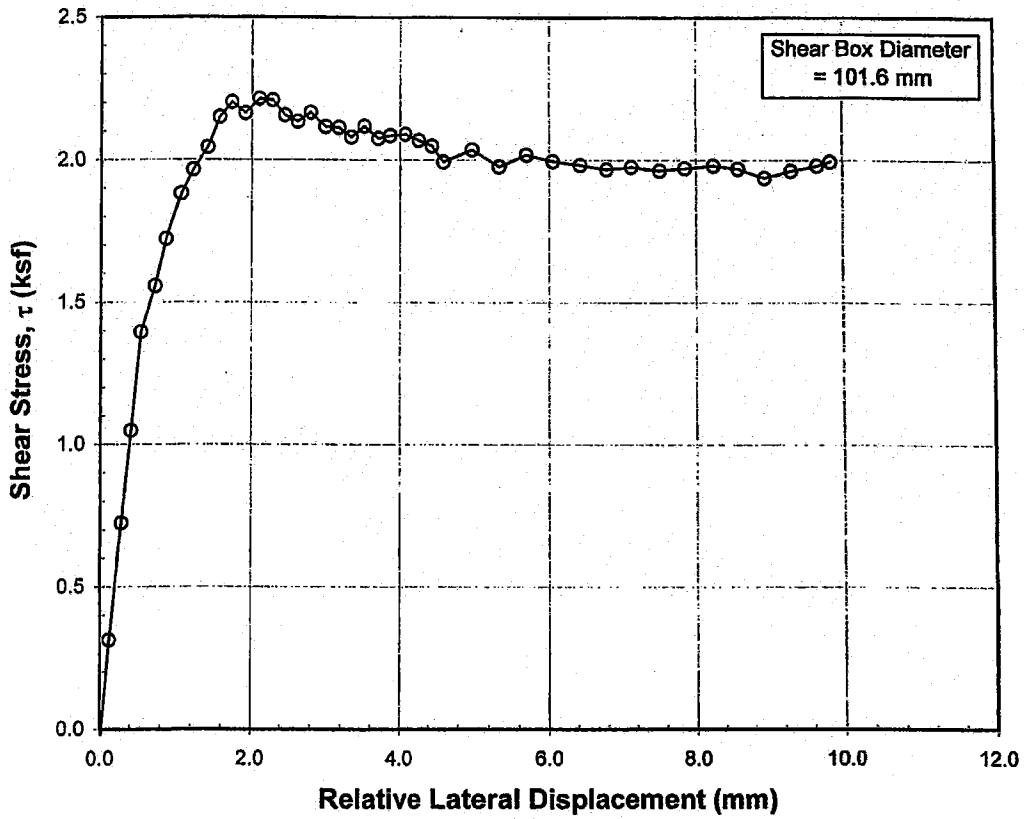
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
12.4	128.45	114.27	0.471	71.1

Peak Shear Stress,  $\tau_f$  (ksf): 2.21

Shearing Data:  Intact - Without Repeated Shearing (Peak Data)      Avg. Lat. Displacement Rate (mm/h): 0.00586  
                           Intact - Before Repeated Shearing (Peak Data)  
 For:                     After Rapid Repeated Shearing (Residual Data)  
                           Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-4.42	0.00	-0.05
0.50	0.1194	27.34	0.01	0.31
1.00	0.2817	63.13	0.04	0.72
1.50	0.4129	91.38	0.05	1.05
2.00	0.5410	121.59	0.05	1.39
2.50	0.7233	135.68	0.02	1.56
3.00	0.8658	150.07	-0.03	1.72
3.50	1.0573	163.99	-0.10	1.88
4.00	1.2130	171.27	-0.18	1.96
4.50	1.4099	178.17	-0.27	2.04
5.00	1.5668	187.39	-0.37	2.15
5.50	1.7348	191.98	-0.50	2.20
6.00	1.9173	188.54	-0.58	2.16
6.50	2.1068	193.02	-0.68	2.21
7.00	2.2857	192.58	-0.77	2.21
7.50	2.4562	187.91	-0.86	2.16
8.00	2.6288	185.99	-0.93	2.13
8.50	2.8007	188.81	-1.00	2.17
9.00	2.9992	184.50	-1.07	2.12
9.50	3.1695	184.21	-1.12	2.11
10.00	3.3371	181.28	-1.17	2.08
10.50	3.5142	184.67	-1.21	2.12
11.00	3.7050	180.91	-1.24	2.08
11.50	3.8653	181.77	-1.27	2.09
12.00	4.0779	182.21	-1.32	2.09
12.50	4.2677	180.25	-1.30	2.07
13.00	4.4485	178.61	-1.31	2.05
13.50	4.6055	173.70	-1.32	1.99
14.50	4.9802	177.46	-1.34	2.04
15.50	5.3321	172.28	-1.35	1.98
16.50	5.6953	175.92	-1.35	2.02
17.50	6.0486	173.93	-1.35	2.00
18.50	6.4218	172.85	-1.34	1.98
19.50	6.7819	171.46	-1.31	1.97
20.50	7.1234	172.24	-1.29	1.98
21.50	7.5064	171.08	-1.26	1.96
22.50	7.8478	171.83	-1.22	1.97
23.50	8.2378	172.67	-1.21	1.98
24.50	8.5818	171.70	-1.16	1.97
25.50	8.9460	168.84	-1.12	1.94
26.50	9.3068	170.99	-1.08	1.96
27.50	9.6613	172.60	-1.03	1.98
28.00	9.8366	173.86	-1.01	1.99

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 1st Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 2.88$  ksf  
 Source: Fordyce Briggs, Sample No. RAW-3/8  
 Exelon (Victoria)

Reviewed By: HP

### DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: B-1\_Fordycee  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      "      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76 ; NA ; & NA      Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.697      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>	
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			<input type="checkbox"/> Kneading	Rammer Wgt. (lb) = <u>NA</u>	Tamper Force (lb) = <u>4.5</u>
Sample No.: <u>RAW-3/8</u>	Composite No.: <u>N/A</u>			<input type="checkbox"/> Impact/Rammer	Drop (in.) = <u>NA</u>	Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>e</u>			<input type="checkbox"/> Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{pl}$ (%) = <u>95</u>	Ref. Effort = _____
Spec. Selection by X - Ray; <input type="checkbox"/>				<input type="checkbox"/> Geomarine Sample		No. Layers = <u>3</u> % Comp = <u>±</u> Opt. = <u>1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)	
	Top (W1)	Bottom (W2)	Sides (W3)		Initial	Final
Container No.	<u>3047</u>			<u>1</u>	Mass Moist Soil + Trimming Ring	<u>5695.00</u> <u>NA</u>
Mass Moist Soil + Container (g)	<u>170.89</u>			<u>1068.66</u>	Mass Trimming Ring, etc.	<u>5165.00</u> <u>NA</u>
Mass Dry Soil + Container (g)	<u>157.51</u>			<u>1006.94</u>	Mass Moist Soil	<u>530.00</u> <u>NA</u>
Mass Container (g)	<u>49.42</u>			<u>547.97</u>	Excess Dry Soil (soil not included in final water content)	
WATER CONTENT (%)	<u>12.38</u>			<u>13.45</u>	Container No.	
Avg. Initial WC, $W_4$ (%)	<u>12.38</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)	
See attached data sheet(s) for additional water contents					Mass Container (g)	
					Mass Excess Dry Soil (g)	
					<u>0.00</u>	

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{1.0}$ (pcf) =	<u>128.45</u> Dry, $\gamma_{d.0}$ (pcf) = <u>114.30</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus	Wgt. of Top Shear Ring, $M_{sp}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
Information:	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input checked="" type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
	Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Pale Brown Well Graded SAND with gravel (visual)

Trimming/Etc. Remarks: RAW-3/8 Passing 3/8-inch Sieve

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;  Other  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/11/2008      Date: 6/11/2008      Final Cal. By: HC      Date: 6/11/2008  
 Reviewed By: HP HP

**KAW 6/13/08**



## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686    Boring/Exploration No.: N/A    Type Test: DS  
 Task Number: N/A    Sample No.: RAW-3/8    Specific Gravity,  $G_s$ : 2.70  
 Project Name: Exelon (Victoria)    Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	12.38	471.62	71.0
" Bottom, W2			
" Sides, W3			
" Average, W4	12.38	471.62	71.0
" Assumed, W	12.38	471.62	71.0
Final (After Test/Shear)	13.45		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04587
Final Selected	0.04587

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.05	NA
Height after Consolidation, $H_c$	31.76	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.37	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.12	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 , $cm^2$						
Specific Gravity, $G_s$	2.697		Assumed	<input checked="" type="checkbox"/> Measured			
Mass Dry Soil, $M_d$ (g)	471.62		<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values	
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	12.4	128.45	114.30	0.470	71.0	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	5.76	NA	NA	$\epsilon_{a,c}$ (%)	0.17	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP    Reviewed by: HP HP  
 Date: 6/11/2008

## DRAINED DIRECT SHEAR TEST: Test Results

1 of 1

Project Number: 0411-08-1686	App. No.: 6 DS	Boring No.: N/A
Task No.: N/A	Consol. Stress, $\sigma'_{v,c}$ : 5.76 (ksf)	Sample No.: RAW-3/8
Project Name: Exelon (Victoria)	Induced OCR: NA	Specimen No.: e
File Name: B-1_Fordycee	$\sigma'_{v,max}$ : NA (ksf)	Depth (ft): N/A
Shear Box Dia./Width: 101.6 (mm)	Specimen Ht.: 31.76 (mm)	
Shear Box: <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Square	Vert. Strain During Consol.: 0.17 (%)	

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

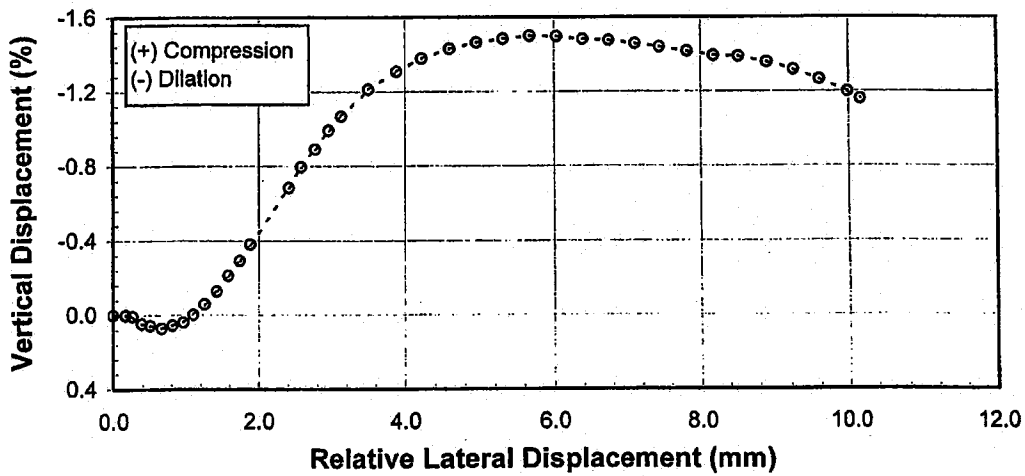
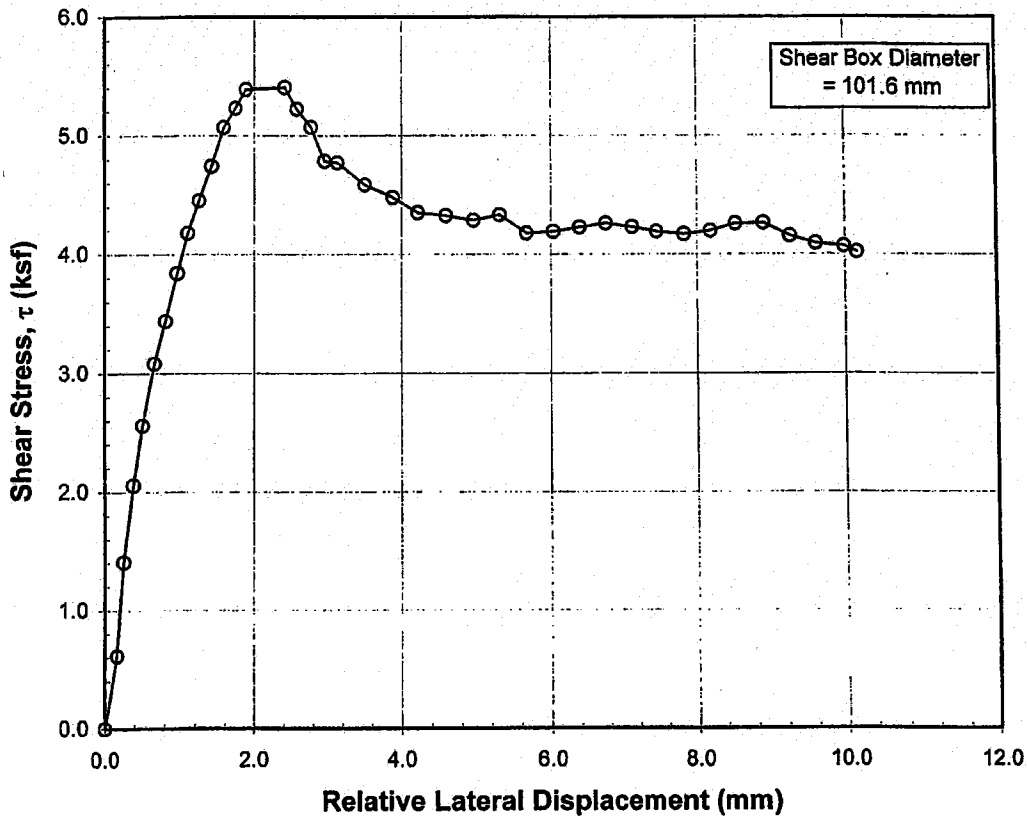
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
12.4	128.45	114.30	0.470	71.0

Peak Shear Stress,  $\tau_f$  (ksf): 5.41

Shearing Data For:	<input checked="" type="checkbox"/>	Intact - Without Repeated Shearing (Peak Data)	Avg. Lat. Displacement Rate (mm/h): 0.00565
	<input type="checkbox"/>	Intact - Before Repeated Shearing (Peak Data)	
	<input type="checkbox"/>	After Rapid Repeated Shearing (Residual Data)	
	<input type="checkbox"/>	Continuous Shearing: Forwards & Backwards (Peak & Residual Data)	

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	0.04	0.00	0.00
0.98	0.1679	53.56	0.00	0.81
1.48	0.2616	122.64	0.01	1.41
1.98	0.3886	179.26	0.05	2.08
2.48	0.5063	223.25	0.06	2.56
2.98	0.6654	268.73	0.07	3.08
3.48	0.8114	299.94	0.06	3.44
3.98	0.9613	334.82	0.04	3.84
4.48	1.0973	364.18	0.00	4.18
4.98	1.2471	388.00	-0.06	4.45
5.48	1.4143	413.47	-0.13	4.74
5.98	1.5768	441.84	-0.21	5.07
6.48	1.7408	456.04	-0.29	5.23
6.98	1.8862	469.63	-0.38	5.39
8.48	2.4092	471.24	-0.68	5.41
8.98	2.5753	455.42	-0.80	5.22
9.48	2.7677	442.17	-0.89	5.07
9.98	2.9540	417.25	-0.99	4.79
10.48	3.1284	416.01	-1.07	4.77
11.48	3.5016	399.72	-1.21	4.59
12.48	3.8847	390.39	-1.31	4.48
13.48	4.2208	379.15	-1.38	4.35
14.48	4.5929	377.09	-1.43	4.33
15.48	4.9557	373.67	-1.46	4.29
16.48	5.3151	377.63	-1.48	4.33
17.48	5.6744	364.10	-1.50	4.18
18.48	6.0325	365.38	-1.50	4.19
19.48	6.3862	368.53	-1.48	4.23
20.48	6.7440	371.33	-1.47	4.26
21.48	7.1108	368.78	-1.46	4.23
22.48	7.4483	365.33	-1.44	4.19
23.48	7.8236	363.44	-1.41	4.17
24.48	8.1812	365.88	-1.39	4.20
25.48	8.5248	371.08	-1.39	4.26
26.48	8.9040	371.64	-1.36	4.26
27.48	9.2550	362.11	-1.32	4.15
28.48	9.6019	356.78	-1.26	4.09
29.48	9.9880	354.48	-1.20	4.07
29.98	10.1610	350.16	-1.16	4.02

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 5.76$  ksf  
 Source: Fordyce Briggs, Sample No. RAW-3/8  
 Exelon (Victoria)

Reviewed By: HP

## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: B-1\_Fordycef  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52 , \_\_\_\_\_      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.7      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes       Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer Wgt. (lb) = <u>NA</u> Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>RAW-3/8</u>	Composite No.: <u>N/A</u>			Inpact/Rammer	Drop (in.) = <u>NA</u> Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>f</u>			Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{nl}$ (%) = <u>95</u> Ref. Effort = _____
Spec. Selection by X-Ray; <input type="checkbox"/> Geomarine Sample				No. Layers = <u>3</u>	% Comp = <u>± Opt. = 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Moist Soil		
Container No.	<u>3046</u>			<u>1</u>	Mass Trimming Ring, etc.	<u>5165.00</u>	<u>NA</u>	<u>NA</u>
Mass Moist Soil + Container (g)	<u>169.38</u>			<u>1068.97</u>	Mass Moist Soil	<u>530.00</u>	<u>NA</u>	<u>NA</u>
Mass Dry Soil + Container (g)	<u>157.12</u>			<u>1006.86</u>	Excess Dry Soil (soil not included in final water content)			
Mass Container (g)	<u>58.84</u>			<u>547.96</u>	Container No. _____			
WATER CONTENT (%)	<u>12.47</u>			<u>13.53</u>	Mass Dry Soil + Cont. (g) _____			
Avg. Initial WC, $W_4$ (%)	<u>12.47</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Container (g) _____			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g) <u>0.00</u>			

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf) = <u>128.45</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>114.21</u>

- (1) Measured in trimming ring, not shear box.
- (2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.
- (3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

<b>Apparatus Information:</b>	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Pale Brown Well Graded SAND with gravel (visual)

Trimming/Etc. Remarks: RAW-3/8 Passing 3/8-inch Sieve

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;  Other

For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)

Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.85 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC

Date: 6/11/2008      Date: 6/11/2008      Final Cal. By: HC      Date: 6/11/2008

Reviewed By: HP #P

**KAW 6/13/08**

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686 Boring/Exploration No.: N/A Type Test: DS  
 Task Number: N/A Sample No.: RAW-3/8 Specific Gravity,  $G_s$ : 2.70  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	12.47	471.22	71.2
" Bottom, W2			
" Sides, W3			
" Average, W4	12.47	471.22	71.2
" Assumed, W	12.47	471.22	71.2
Final (After Test/Shear)	13.53		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass Dry Soil, $M_{d,o}$			$G_s$
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04582
Final Selected	0.04582

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing		
	Initial Height, $H_o$	2nd Stage	3rd Stage
Change in Height During Consol. (not corrected for apparatus flexibility)	0.07	NA	NA
Height after Consolidation, $H_c$	31.74	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	0.10	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{st}$	31.64	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	$cm^2$					
Specific Gravity, $G_s$	2.700		Assumed	<input checked="" type="checkbox"/>	Measured		
Mass Dry Soil, $M_d$ (g)	471.22		<input checked="" type="checkbox"/>	Based on average water content	Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	12.5	128.45	114.20	0.473	71.2	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	11.52	NA	NA	$\epsilon_{s,c}$ (%)	0.23	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{s,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/11/2008

**DRAINED DIRECT SHEAR TEST: Test Results**

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: N/A  
 Task No.: N/A Consol. Stress,  $\sigma_{vc}$ : 11.52 (ksf) Sample No.: RAW-3/8  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: f  
 File Name: B-1\_Fordycef  $\sigma_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 31.74 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 0.23 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

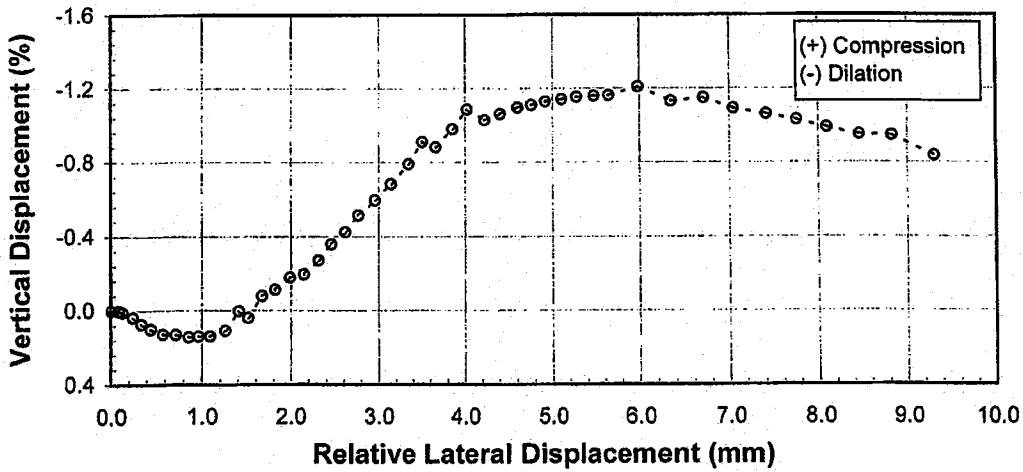
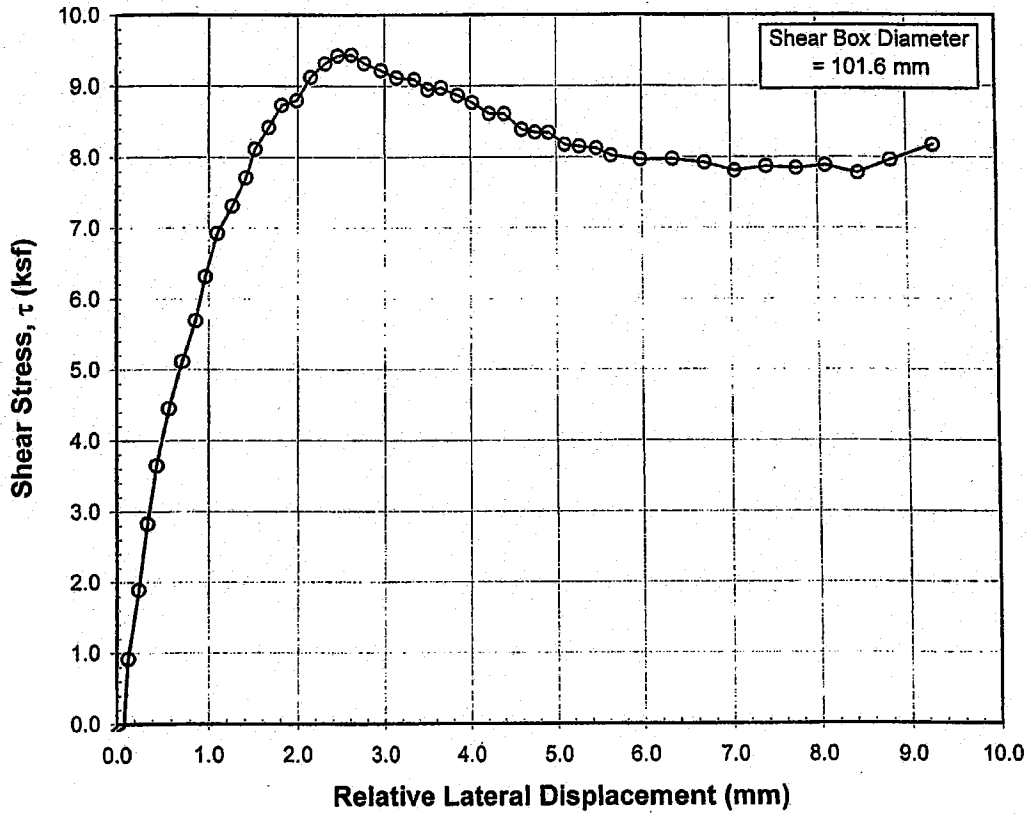
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
12.5	128.45	114.20	0.473	71.2

Peak Shear Stress,  $\tau_f$  (ksf): 9.44

Shearing  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00517  
 Data  Intact - Before Repeated Shearing (Peak Data)  
 For:  After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-2.37	0.00	-0.03
0.48	-0.1775	-20.15	0.00	-0.23
0.98	-0.0663	-12.45	0.01	-0.14
1.48	0.0868	-3.83	0.00	-0.04
1.98	0.1299	80.00	0.01	0.92
2.48	0.2489	165.00	0.04	1.89
2.98	0.3443	248.46	0.07	2.83
3.48	0.4468	318.03	0.10	3.65
3.98	0.5778	387.79	0.13	4.45
4.48	0.7170	445.50	0.13	5.11
4.98	0.8569	496.04	0.14	5.69
5.48	0.9641	549.85	0.14	6.31
5.98	1.0918	603.41	0.14	6.92
6.48	1.2588	637.07	0.11	7.31
6.98	1.4109	672.11	0.00	7.71
7.48	1.5167	707.26	0.04	8.11
7.98	1.6716	733.75	-0.08	8.42
8.48	1.8190	761.02	-0.11	8.73
8.98	1.9878	766.94	-0.18	8.80
9.48	2.1475	795.10	-0.20	9.12
9.98	2.3132	811.65	-0.27	9.31
10.48	2.4577	821.40	-0.36	9.42
10.98	2.6168	822.59	-0.42	9.44
11.48	2.7643	812.08	-0.51	9.32
11.98	2.9578	803.40	-0.60	9.22
12.48	3.1424	794.27	-0.68	9.11
12.98	3.3478	792.29	-0.79	9.09
13.48	3.5098	779.61	-0.91	8.94
13.98	3.6627	781.95	-0.88	8.97
14.48	3.8549	773.07	-0.98	8.87
14.98	4.0231	764.15	-1.09	8.77
15.48	4.2252	750.57	-1.03	8.61
15.98	4.4044	750.18	-1.06	8.61
16.48	4.6047	731.03	-1.10	8.39
16.98	4.7599	727.51	-1.11	8.35
17.48	4.9165	727.13	-1.13	8.34
17.98	5.1057	712.58	-1.14	8.18
18.48	5.2768	710.16	-1.15	8.15
18.98	5.4774	707.91	-1.16	8.12
19.48	5.6476	699.11	-1.16	8.02
20.48	5.9850	694.35	-1.21	7.97
21.48	6.3498	694.98	-1.13	7.97
22.48	6.7097	690.33	-1.15	7.92
23.48	7.0481	680.44	-1.09	7.81
24.48	7.4167	685.86	-1.06	7.87
25.48	7.7590	683.60	-1.03	7.84
26.48	8.0973	687.01	-0.99	7.88
27.48	8.4663	677.73	-0.95	7.78
28.48	8.8275	694.16	-0.95	7.96
29.98	9.3054	712.56	-0.83	8.18

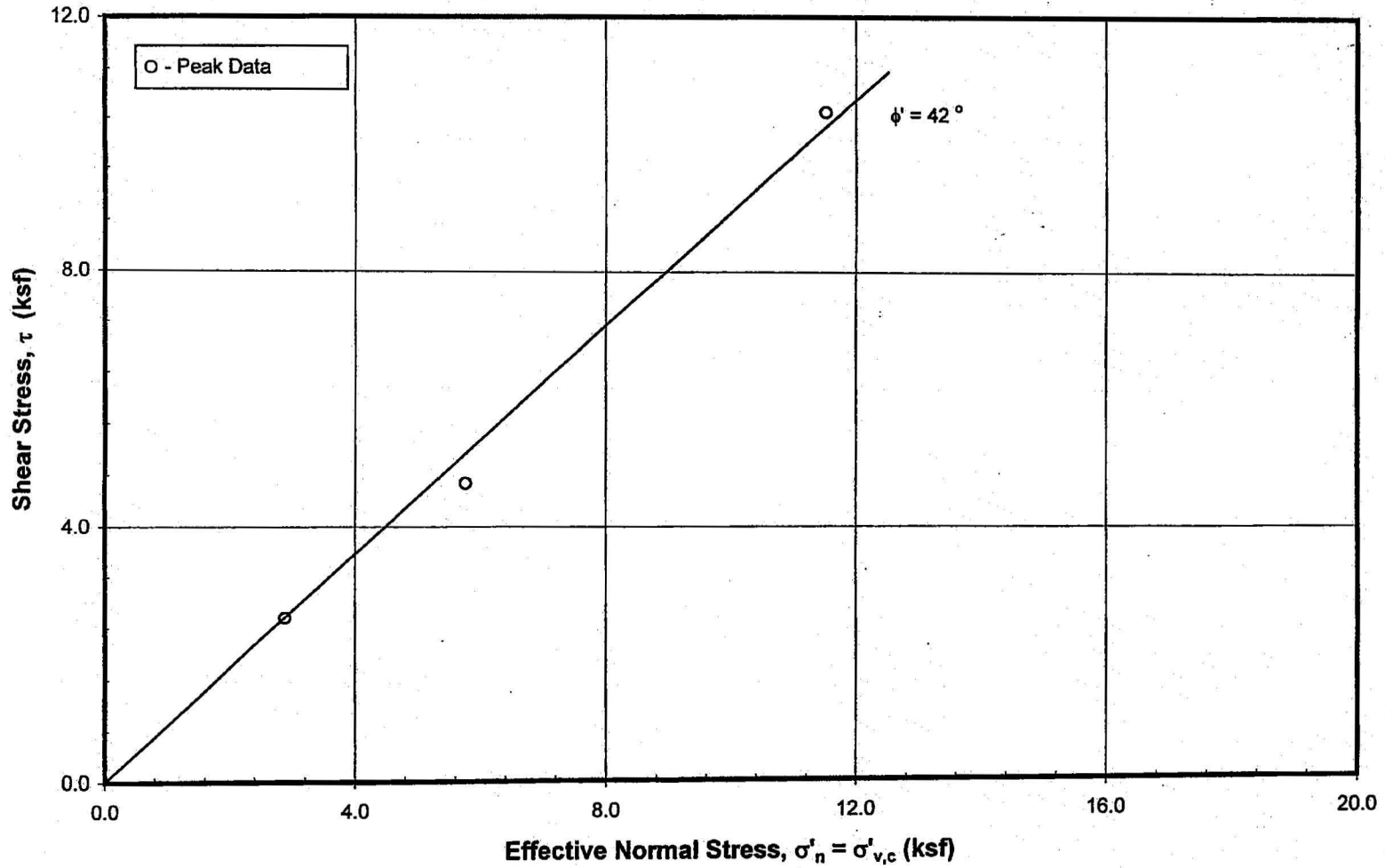
Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 11.52$  ksf  
 Source: Fordyce Briggs, Sample No. RAW-3/8  
 Exelon (Victoria)

Reviewed By: HP



**DRAINED DIRECT SHEAR TEST: Test Series - (Peak)**

Soil - Soil Interface & OCR = Unknown  
Source: CW&A, Sample No. CW&A #4 3/8  
Exelon (Victoria)



**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: CW&A Grade 4d  
 Task Number: N/A Assign. Units:  ksf; or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88 Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " " & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88; NA; & NA Shear Box:  Circular  Square  
 Induced OCR: NA; Max.  $\sigma'_{v,max}$ : NA Specific Gravity: 2.669 Assumed;  
 Multistage:  No;  Yes Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Impact/Rammer	Rammer Wgt. (lb) = <u>NA</u>	Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>CW&amp;A #4 3/8</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{nl}$ (%) = <u>95</u>	Drop (in.) = <u>NA</u>	Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>d</u>	No. Layers = <u>3</u>		% Comp = <u>± Opt. = 1</u>	
<input type="checkbox"/> Spec. Selection by X-Ray;	<input type="checkbox"/> Geomarine Sample				

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>764</u>				Mass Moist Soil	<u>5705.00</u>	<u>NA</u>	
Mass Moist Soil + Container (g)	<u>129.39</u>				Mass Trimming Ring, etc.	<u>5135.00</u>	<u>NA</u>	
Mass Dry Soil + Container (g)	<u>124.05</u>				Mass Moist Soil	<u>570.00</u>	<u>NA</u>	
Mass Container (g)	<u>31.65</u>				Excess Dry Soil (soil not included in final water content)			
WATER CONTENT (%)	<u>5.78</u>				Container No.			
Avg. Initial WC, $W_4$ (%)	<u>5.78</u>			Final $W_{at}$ : Soil with free water trimmed away	Mass Dry Soil + Cont. (g)			
See attached data sheet(s) for additional water contents					Mass Container (g)			
					Mass Excess Dry Soil (g)			<u>0.00</u>

Soil Height: Measurements <sup>(1)</sup>		
Initial (mm)		
with Spec., $H_{sp}$	without Spec., $H_{app}$	
<u>31.81</u>		
Block Used <sup>(2)</sup> :	<input type="checkbox"/> Yes;	<input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight		
Total, $\gamma_{t,o}$ (pcf) =	<u>138.15</u>	Dry, $\gamma_{d,o}$ (pcf) = <u>130.60</u>

(1) Measured in trimming ring, not shear box.

- (2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.  
 (3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Red Well Graded GRAVEL with clay (visual)

Trimming/Etc. Remarks: CW&A TxDOT Grade 4 Passing 3/8-inch Sieve

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/10/2008 Date: 6/10/2008 Final Cal. By: HC Date: 6/10/2008  
 Reviewed By: HP

**KAW 6/13/08**

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686 Boring/Exploration No.: N/A Type Test: DS  
 Task Number: N/A Sample No.: CW&A #4 3/8 Specific Gravity,  $G_s$ : 2.67  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	5.78	538.86	56.4
" Bottom, W2			
" Sides, W3			
" Average, W4	5.78	538.86	56.4
" Assumed, W	5.78	538.86	56.4
Final (After Test/Shear)			

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04635
Final Selected	0.04635

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.06	NA
Height after Consolidation, $H_c$	31.75	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.86	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.61	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	, $cm^2$					
Specific Gravity, $G_s$	2.669	Assumed	<input checked="" type="checkbox"/>	Measured			
Mass Dry Soil, $M_d$ (g)	538.86	<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	5.8	138.14	130.60	0.274	56.4	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	2.88	NA	NA	$\epsilon_{a,c}$ (%)	0.18	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box

NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/11/2008

**DRAINED DIRECT SHEAR TEST: Test Results**

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: N/A  
 Task No.: N/A Consol. Stress,  $\sigma_{v,c}$ : 2.88 (ksf) Sample No.: CW&A #4 3/8  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: d  
 File Name: 3-1\_CW&A Grade 4d  $\sigma_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 31.75 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 0.18 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane:  No;  Yes

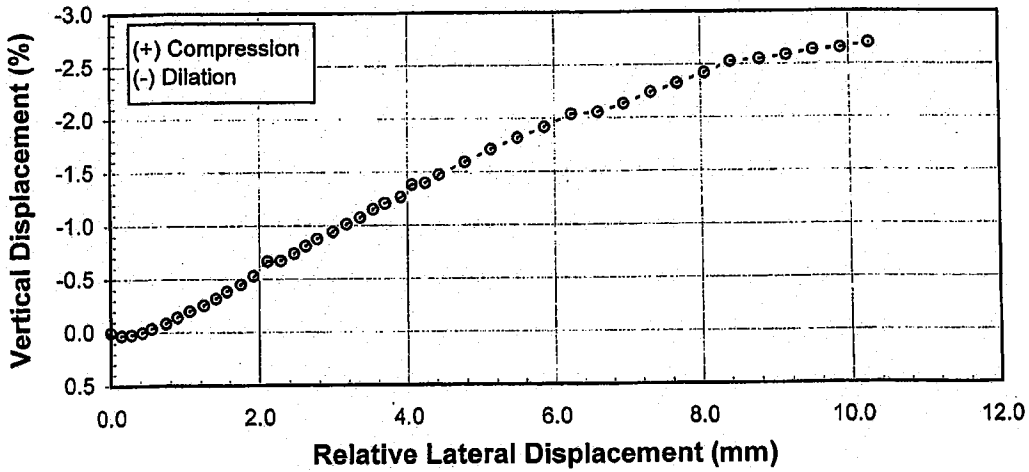
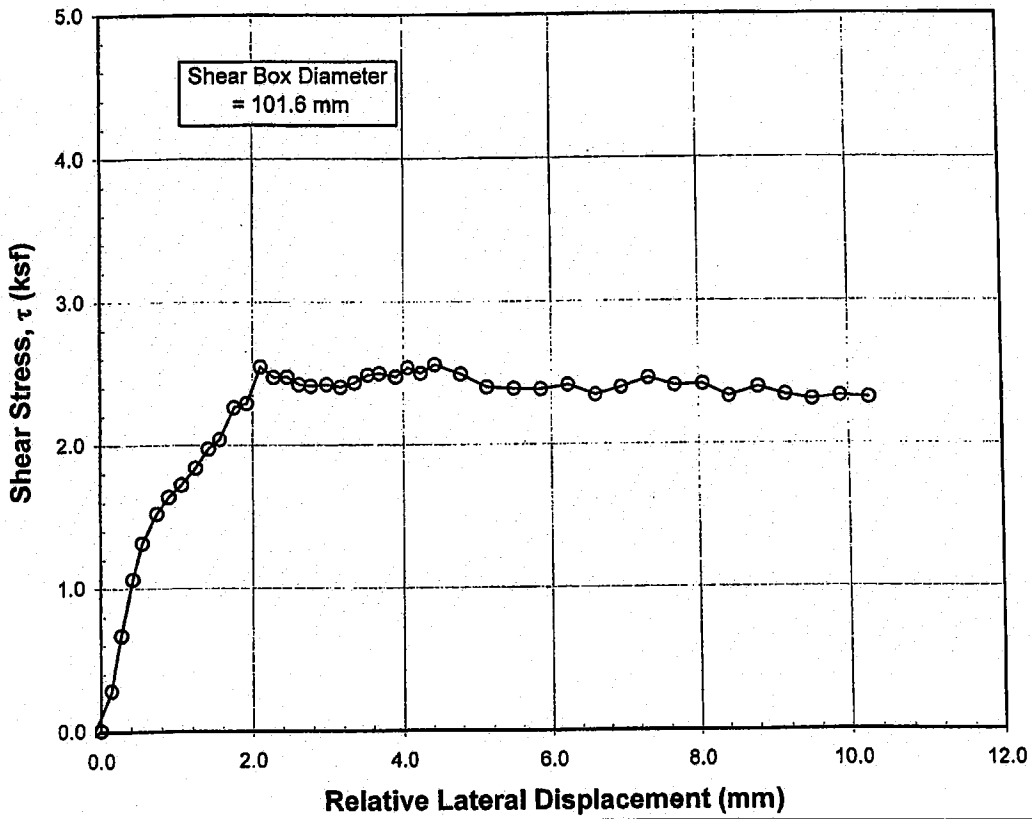
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
5.8	138.14	130.60	0.274	56.4

Peak Shear Stress,  $\tau_1$  (ksf): 2.56

Shearing:  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00571  
 Data Intact - Before Repeated Shearing (Peak Data)  
 For: After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	0.65	0.00	0.01
0.50	-0.1317	-4.23	0.01	-0.05
1.00	-0.0047	8.12	0.02	0.09
1.50	0.1435	24.92	0.03	0.29
2.00	0.2785	58.43	0.02	0.67
2.50	0.4272	92.70	0.00	1.06
3.00	0.5519	114.84	-0.04	1.32
3.50	0.7444	132.80	-0.08	1.52
4.00	0.8955	142.97	-0.14	1.64
4.50	1.0611	150.15	-0.20	1.72
5.00	1.2449	160.38	-0.25	1.84
5.50	1.4105	171.96	-0.32	1.97
6.00	1.5586	177.74	-0.38	2.04
6.50	1.7513	197.16	-0.45	2.26
7.00	1.9252	199.59	-0.53	2.29
7.50	2.1091	221.87	-0.67	2.55
8.00	2.2835	215.51	-0.67	2.47
8.50	2.4609	215.66	-0.74	2.47
9.00	2.6154	211.08	-0.81	2.42
9.50	2.7705	210.07	-0.88	2.41
10.00	2.9820	211.12	-0.94	2.42
10.50	3.1657	209.49	-1.01	2.40
11.00	3.3511	212.12	-1.07	2.43
11.50	3.5289	216.76	-1.15	2.49
12.00	3.6845	217.69	-1.21	2.50
12.50	3.9028	215.62	-1.26	2.47
13.00	4.0604	221.26	-1.38	2.54
13.50	4.2429	217.76	-1.40	2.50
14.00	4.4337	223.01	-1.47	2.56
15.00	4.7803	217.23	-1.59	2.49
16.00	5.1287	209.16	-1.71	2.40
17.00	5.4949	208.20	-1.82	2.39
18.00	5.8627	207.74	-1.92	2.38
19.00	6.2309	210.41	-2.04	2.41
20.00	6.6041	204.29	-2.05	2.34
21.00	6.9613	208.79	-2.13	2.40
22.00	7.3304	214.49	-2.24	2.46
23.00	7.6843	209.88	-2.32	2.41
24.00	8.0584	210.53	-2.42	2.42
25.00	8.4203	203.07	-2.53	2.33
26.00	8.8109	208.72	-2.55	2.39
27.00	9.1620	204.03	-2.58	2.34
28.00	9.5201	201.13	-2.63	2.31
29.00	9.8922	203.17	-2.65	2.33
30.00	10.2701	201.98	-2.70	2.32

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 1st Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 2.88$  ksf  
Source: CW&A, Sample No. CW&A #4 3/8  
Exelon (Victoria)

Reviewed By: HP

### DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: CW&A Grade 4e  
 Task Number: N/A      Assign. Units:  ksf; or    Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76 ; NA ; & NA      Shear Box:  Circular     Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.669     Assumed;  
 Multistage:  No;     Yes    Residual/Multishearing:  No;     Yes    Precut Failure Plane  No;     Yes     Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading	<input type="checkbox"/> Impact/Rammer	<input type="checkbox"/> Pluviated:	Rammer Wgt (lbf) = <u>NA</u> Tamper Force (lbf) = <u>4.5</u>
Sample No.: <u>CW&amp;A #4 3/8</u>	Composite No.: <u>N/A</u>				Drop (in.) = <u>NA</u> Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>e</u>				<input checked="" type="checkbox"/> Undercompaction: $U_{nl}$ (%) = <u>95</u> Ref. Effort = _____
Spec. Selection by X-Ray: <input type="checkbox"/>	<input type="checkbox"/> Geomarine Sample				No. Layers = <u>3</u> % Comp = <u>± Opt = 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil + Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>4159</u>			<u>77A</u>	<u>5735.00</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mass Moist Soil + Container (g)	<u>115.87</u>			<u>720.00</u>	<u>5165.00</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mass Dry Soil + Container (g)	<u>111.25</u>			<u>665.00</u>	<u>570.00</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Mass Container (g)	<u>30.47</u>			<u>135.00</u>	Excess Dry Soil (soil not included in final water content)			
WATER CONTENT (%)	<u>5.72</u>			<u>10.38</u>	Container No.			
Avg. Initial WC, $W_4$ (%)	<u>5.72</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)			
See attached data sheet(s) for additional water contents					Mass Container (g)			
					Mass Excess Dry Soil (g)			<u>0.00</u>

Soil Height: Measurements <sup>(1)</sup>		
Initial (mm)		
with Spec., $H_{soil}$	without Spec., $H_{app}$	
<u>31.81</u>		
Block Used <sup>(2)</sup> :	Yes; <input type="checkbox"/>	No; <input checked="" type="checkbox"/>

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{1.0}$ (pcf) =	<u>138.15</u>
Dry, $\gamma_{d,0}$ (pcf) =	<u>130.67</u>

(1) Measured in trimming ring, not shear box.

- (2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.  
 (3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lbf) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lbf) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No  
 Final Visual Description: Red Well Graded GRAVEL with clay (visual)  
 Trimming/Etc. Remarks: CW&A TxDOT Grade 4 Passing 3/8-inch Sieve

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;  Other  
 For soils containing sand, ~100% passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100% passing

Trim./Recon. By: DBN    Set up By: HC    Prelim. Cal. By: HC    Taken Down By: HC  
 Date: 6/10/2008    Date: 6/10/2008    Final Cal. By: HC    Date: 6/10/2008  
 Reviewed By: HP

**KAW 6/13/08**

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686    Boring/Exploration No.: N/A    Type Test: DS  
 Task Number: N/A    Sample No.: CW&A #4 3/8    Specific Gravity,  $G_s$ : 2.67  
 Project Name: Exelon (Victoria)    Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	5.72	539.16	55.9
" Bottom, W2			
" Sides, W3			
" Average, W4	5.72	539.16	55.9
" Assumed, W	5.72	539.16	55.9
Final (After Test/Shear)	10.38		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04635
Final Selected	0.04635

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.05	NA
Height after Consolidation, $H_c$	31.76	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.27	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.03	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	$\text{cm}^2$					
Specific Gravity, $G_s$	2.669		Assumed	<input checked="" type="checkbox"/>	Measured		
Mass Dry Soil, $M_d$ (g)	539.16		<input checked="" type="checkbox"/>	Based on average water content	Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $\text{cm}^3$ )
Initial:	5.7	138.14	130.67	0.273	55.9	31.81	257.59

Consolidation Summary:	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	5.76	NA	NA		$\epsilon_{a,c}$ (%)	0.14	NA
Stress Units = (ksf)	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP    Reviewed by: HP HP  
 Date: 6/11/2008

# DRAINED DIRECT SHEAR TEST: Test Results

Project Number: 0411-08-1686	App. No.: 6 DS	Boring No.: N/A
Task No.: N/A	Consol. Stress, $\sigma_{v,c}$ : 5.76 (ksf)	Sample No.: CW&A #4 3/8
Project Name: Exelon (Victoria)	Induced OCR: NA	Specimen No.: e
File Name: 3-1_CW&A Grade 4e	$\sigma'_{v,max}$ : NA (ksf)	Depth (ft): N/A
Shear Box Dia./Width: 101.6 (mm)	Specimen Ht.: 31.76 (mm)	
Shear Box: <input checked="" type="checkbox"/> Circular <input type="checkbox"/> Square	Vert. Strain During Consol.: 0.14 (%)	

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

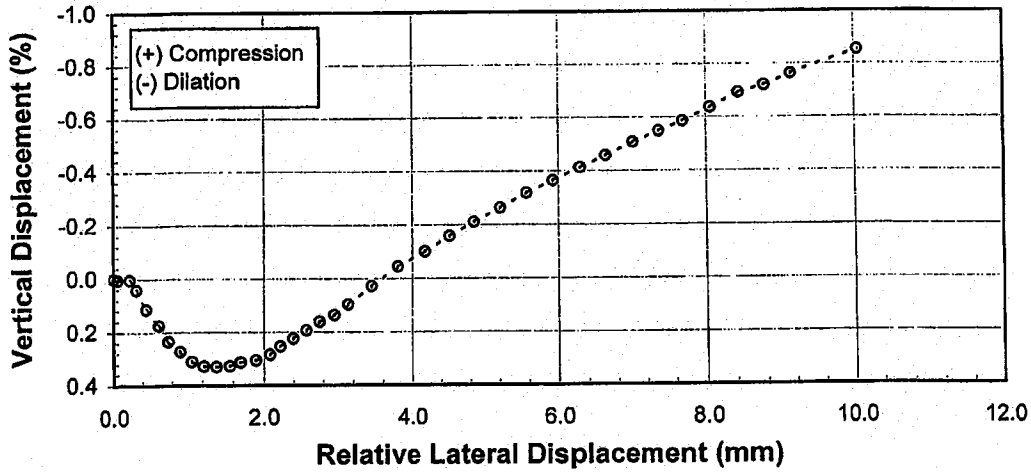
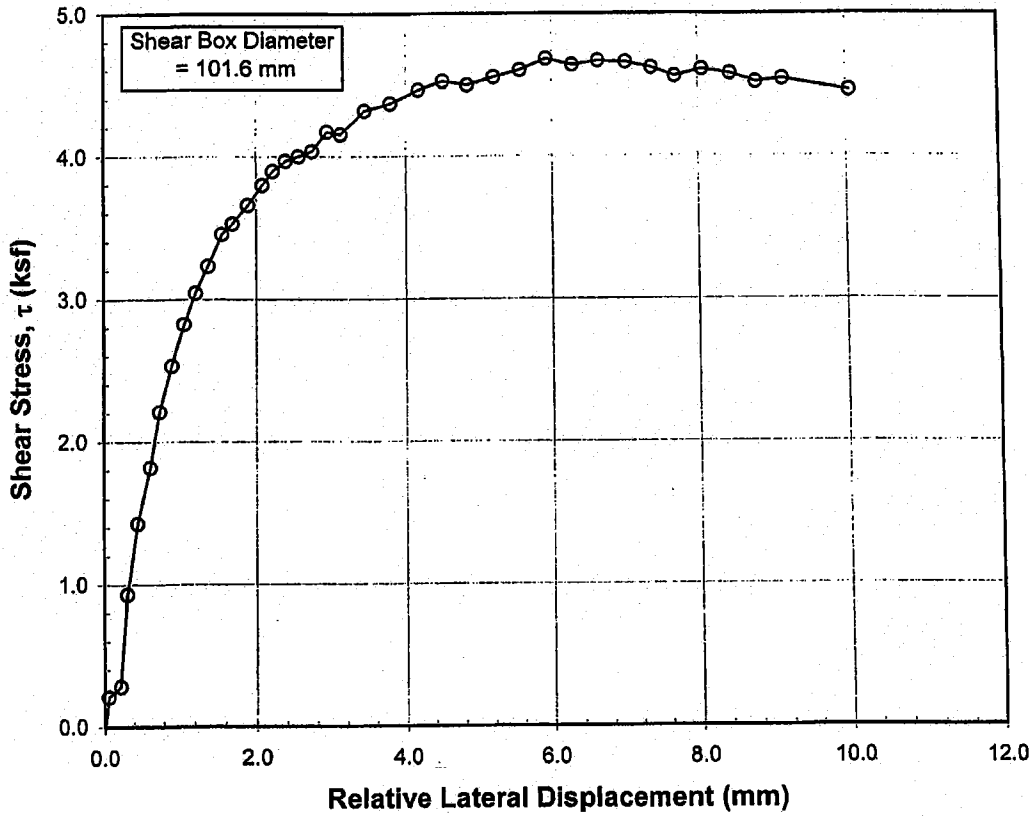
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
5.7	138.14	130.67	0.273	55.9

Peak Shear Stress,  $\tau_f$  (ksf): 4.68

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data)      Avg. Lat. Displacement Rate (mm/h): 0.00568  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-4.56	0.00	-0.05
0.50	0.0561	18.33	0.00	0.21
1.00	0.2201	24.62	0.00	0.28
1.50	0.3120	81.14	0.04	0.93
2.00	0.4494	124.32	0.11	1.43
2.50	0.6237	158.45	0.17	1.82
3.00	0.7508	192.49	0.23	2.21
3.50	0.9105	220.62	0.27	2.53
4.00	1.0659	246.19	0.31	2.82
4.50	1.2177	265.33	0.33	3.04
5.00	1.3807	281.59	0.33	3.23
5.50	1.5579	301.08	0.33	3.45
6.00	1.6961	307.46	0.31	3.53
6.50	1.8969	318.83	0.31	3.66
7.00	2.0823	331.05	0.28	3.80
7.50	2.2189	339.54	0.25	3.90
8.00	2.3924	345.74	0.22	3.97
8.50	2.5676	348.55	0.19	4.00
9.00	2.7473	351.63	0.16	4.03
9.50	2.9456	363.61	0.14	4.17
10.00	3.1300	362.18	0.10	4.16
11.00	3.4496	376.52	0.03	4.32
12.00	3.8004	380.87	-0.04	4.37
13.00	4.1786	389.11	-0.10	4.46
14.00	4.5143	394.30	-0.16	4.52
15.00	4.8461	392.05	-0.21	4.50
16.00	5.2053	396.79	-0.26	4.55
17.00	5.5675	401.06	-0.32	4.60
18.00	5.9265	407.85	-0.36	4.68
19.00	6.2872	404.09	-0.41	4.64
20.00	6.6306	406.66	-0.46	4.67
21.00	7.0094	405.82	-0.51	4.66
22.00	7.3682	402.40	-0.55	4.62
23.00	7.6939	397.08	-0.59	4.56
24.00	8.0585	401.35	-0.64	4.60
25.00	8.4344	398.73	-0.69	4.57
26.00	8.7779	393.64	-0.72	4.52
27.00	9.1351	395.56	-0.76	4.54
29.50	10.0494	388.58	-0.85	4.46

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 5.76$  ksf  
 Source: CW&A, Sample No. CW&A #4 3/8  
 Exelon (Victoria)

Reviewed By: WP



## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: CW&A Grade 4f  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52 , \_\_\_\_\_      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      " & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.669      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes       Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tamping	Constant Effort: Blows/Tamps per Layer = <u>20</u>	
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer/Wgt.(lbf)= <u>NA</u>	Tamper: Force (lbf)= <u>4.5</u>
Sample No.: <u>CW&amp;A #4 3/8</u>	Compostite No.: <u>N/A</u>			Inpact/Rammer	Drop(in.)= <u>NA</u>	Dia.(in.)= <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>f</u>			Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{nl}$ (%) = <u>95</u>	Ref.Effort= _____
Spec. Selection by X-Ray: <input type="checkbox"/>		<input type="checkbox"/> Geomarine Sample		No. Layers = <u>3</u>		% Comp= <u>± Opt.= 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>981</u>			<u>7A</u>	<u>5735.00</u>	<u>NA</u>		
Mass Moist Soil + Container (g)	<u>137.88</u>			<u>725.00</u>	<u>5165.00</u>	<u>NA</u>		
Mass Dry Soil + Container (g)	<u>132.18</u>			<u>670.00</u>	<u>570.00</u>	<u>NA</u>		
Mass Container (g)	<u>32.22</u>			<u>145.00</u>	Excess Dry Soil (soil not included in final water content)			
WATER CONTENT (%)	<u>5.70</u>			<u>10.48</u>	Container No.			
Avg. Initial WC, $W_4$ (%)	<u>5.70</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)			
See attached data sheet(s) for additional water contents					Mass Container (g)			
					Mass Excess Dry Soil (g)			<u>0.00</u>

Soil Height: Measurements <sup>(1)</sup>		
Initial (mm)		
with Spec., $H_{soil}$	without Spec., $H_{app}$	
<u>31.81</u>		
Block Used <sup>(2)</sup> :		Yes; <input type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight		
Total, $\gamma_{1.0}$ (pcf)=	<u>138.15</u>	Dry, $\gamma_{d,0}$ (pcf)= <u>130.69</u>

(1) Measured in trimming ring, not shear box.

- (2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.  
 (3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

<b>Apparatus Information:</b>	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Red Well Graded GRAVEL with clay (visual)

Trimming/Etc. Remarks: CW&A TxDOT Grade 4 Passing 3/8-inch Sieve

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;  Other  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/10/2008      Date: 6/10/2008      Final Cal. By: HC      Date: 6/10/2008  
 Reviewed By: HP HP

**KAW 6/13/08**

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686      Boring/Exploration No.: N/A      Type Test: DS  
 Task Number: N/A      Sample No.: CW&A #4 3/8      Specific Gravity,  $G_s$ : 2.67  
 Project Name: Exelon (Victoria)      Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	5.70	539.25	55.8
" Bottom, W2			
" Sides, W3			
" Average, W4	5.70	539.25	55.8
" Assumed, W	5.70	539.25	55.8
Final (After Test/Shear)	10.48		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass Dry Soil, $M_{d,o}$			$G_s$
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04635
Final Selected	0.04635

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.88	NA
Height after Consolidation, $H_c$	30.93	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.60	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	31.53	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977, $cm^2$						
Specific Gravity, $G_s$	2.669	Assumed	<input checked="" type="checkbox"/>	Measured			
Mass Dry Soil, $M_d$ (g)	539.25	<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values		
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	5.7	138.14	130.69	0.273	55.8	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	11.52	NA	NA	$\epsilon_{a,c}$ (%)	2.78	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP      Reviewed by: HP *HP*  
 Date: 6/11/2008

**DRAINED DIRECT SHEAR TEST: Test Results**

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: N/A  
 Task No.: N/A Consol. Stress,  $\sigma'_{vc}$ : 11.52 (ksf) Sample No.: CW&A #4 3/8  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: f  
 File Name: B-1\_CW&A Grade 4f  $\sigma'_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 30.93 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 2.78 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

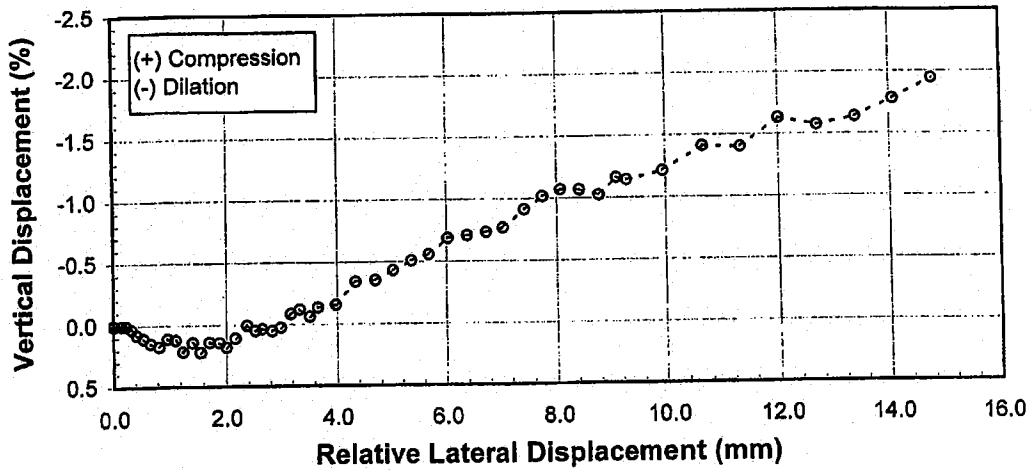
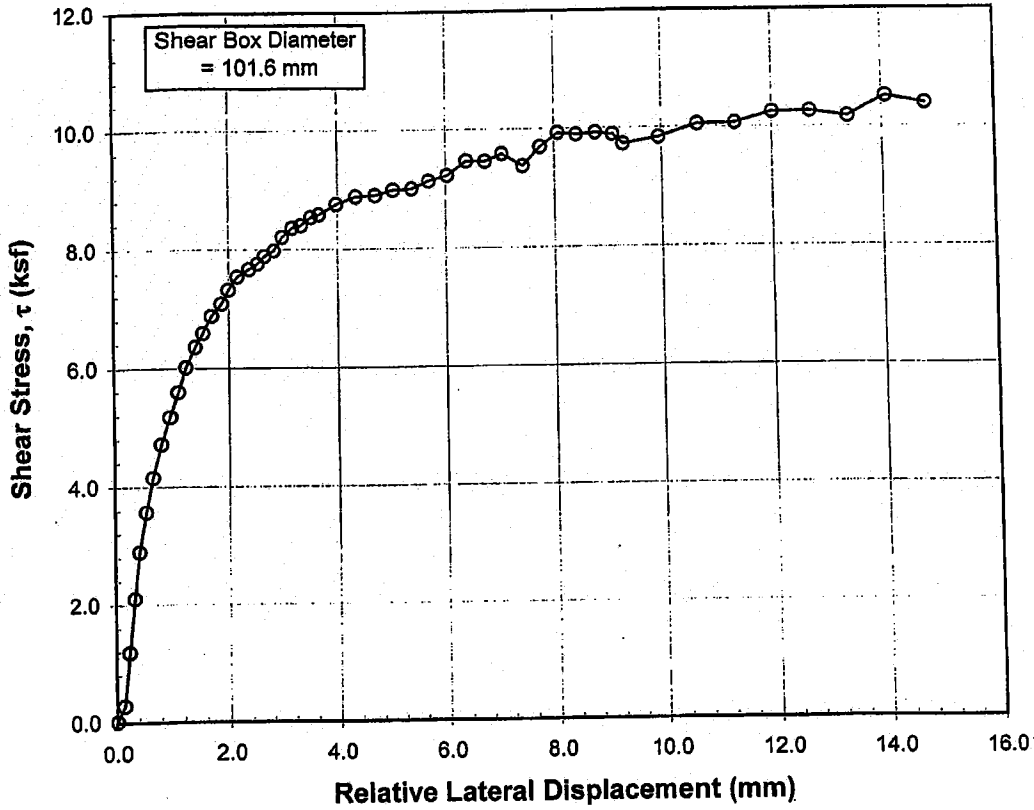
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
5.7	138.14	130.69	0.273	55.8

Peak Shear Stress,  $\tau_1$  (ksf): 10.51

Shearing  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00535  
 Data  Intact - Before Repeated Shearing (Peak Data)  
 For:  After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-0.56	0.00	-0.01
0.48	-0.0365	-10.41	0.01	-0.12
0.98	0.0136	1.24	0.01	0.01
1.48	0.1358	24.23	0.00	0.28
1.98	0.2278	103.58	0.01	1.19
2.48	0.3254	183.65	0.03	2.11
2.98	0.4168	252.51	0.08	2.90
3.48	0.5438	311.54	0.11	3.57
3.98	0.6704	362.39	0.15	4.16
4.48	0.8201	411.78	0.17	4.72
4.98	0.9715	451.57	0.11	5.18
5.48	1.1119	487.91	0.12	5.60
5.98	1.2452	524.38	0.22	6.02
6.48	1.4176	553.85	0.14	6.35
6.98	1.5544	573.97	0.22	6.59
7.48	1.7077	599.46	0.14	6.88
7.98	1.8792	617.61	0.14	7.09
8.48	1.9997	638.09	0.18	7.32
8.98	2.1591	657.35	0.11	7.54
9.48	2.3700	668.27	0.01	7.67
9.98	2.5228	676.15	0.05	7.76
10.48	2.6485	687.20	0.04	7.88
10.98	2.8316	695.42	0.05	7.98
11.48	2.9855	715.46	0.03	8.21
11.98	3.1692	728.74	-0.08	8.36
12.48	3.3293	732.27	-0.12	8.40
12.98	3.5143	744.18	-0.06	8.54
13.48	3.6612	748.17	-0.13	8.58
14.48	3.9810	763.40	-0.16	8.76
15.48	4.3401	774.46	-0.34	8.89
16.48	4.6974	776.17	-0.35	8.90
17.48	5.0192	783.65	-0.43	8.99
18.48	5.3625	785.08	-0.51	9.01
19.48	5.6876	798.36	-0.56	9.14
20.48	6.0269	804.09	-0.69	9.23
21.48	6.3765	825.50	-0.71	9.47
22.48	6.7206	824.47	-0.73	9.46
23.48	7.0368	835.35	-0.77	9.58
24.48	7.4234	817.30	-0.91	9.38
25.48	7.7500	844.94	-1.02	9.69
26.48	8.0706	865.06	-1.07	9.92
27.48	8.4162	862.35	-1.07	9.89
28.48	8.7709	864.88	-1.02	9.92
29.48	9.0919	862.19	-1.16	9.89
29.98	9.2831	848.24	-1.14	9.73
31.98	9.9502	857.35	-1.21	9.84
33.98	10.6506	876.05	-1.41	10.05
35.98	11.3275	877.58	-1.40	10.07
37.98	12.0091	893.37	-1.63	10.25
39.98	12.7049	894.32	-1.57	10.26
41.98	13.3900	886.25	-1.63	10.17
43.98	14.0677	916.35	-1.78	10.51
45.98	14.7627	905.80	-1.94	10.39

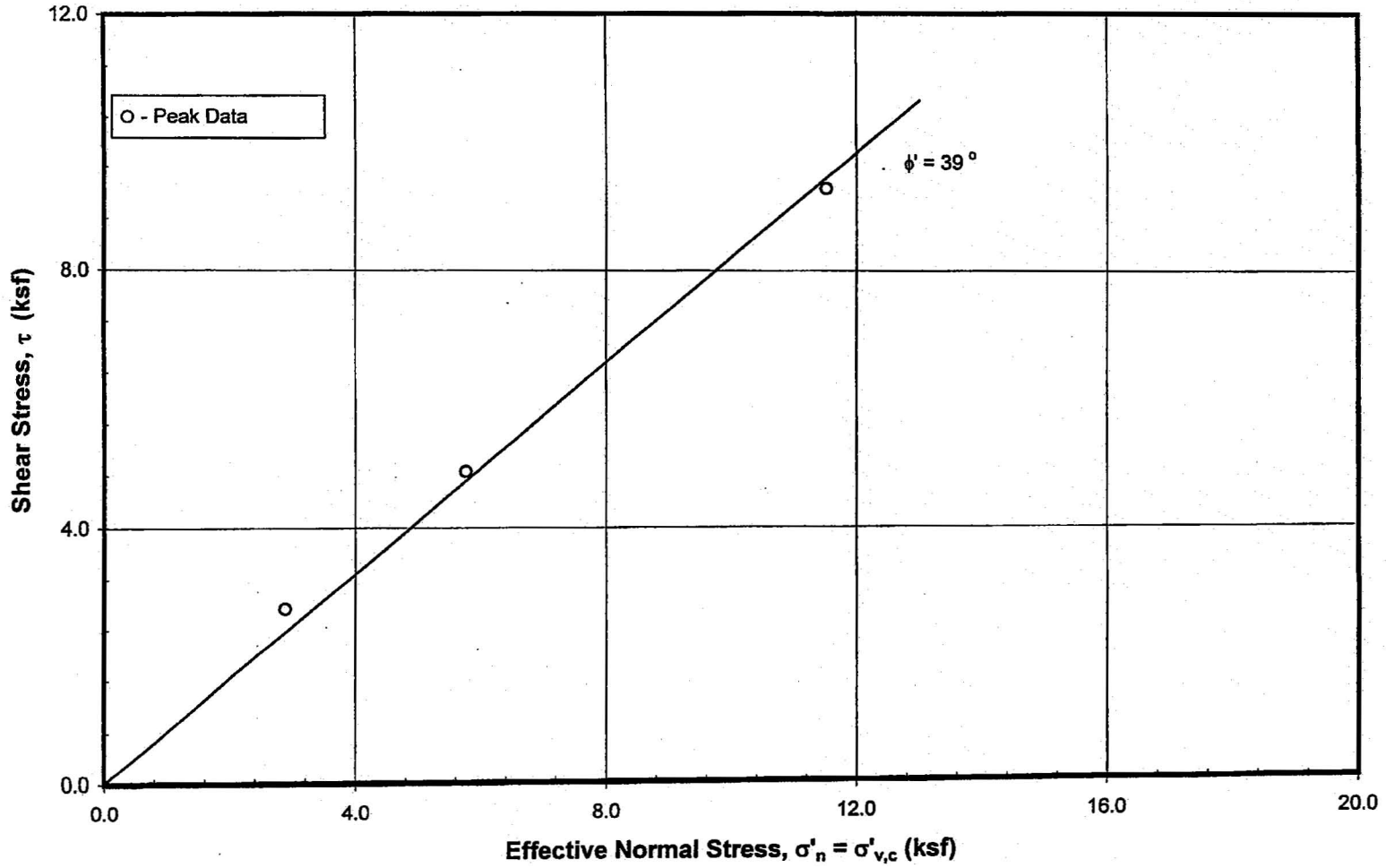
Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilation or Backwards



**DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 11.52$  ksf  
Source: CW&A, Sample No. CW&A #4 3/8  
Exelon (Victoria)

Reviewed By: HP



**DRAINED DIRECT SHEAR TEST: Test Series - (Peak)**  
Soil - Soil Interface & OCR = Unkown  
Source: CW&A, Sample No. CW&A #6 3/8  
Exelon (Victoria)

**DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down**

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: CW&A Grade 6d  
 Task Number: N/A Assign. Units:  ksf; or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88 , \_\_\_\_\_ Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " \_\_\_\_\_ & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 2.88 ; NA ; & NA Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA Specific Gravity: 2.659 Assumed;  
 Multistage:  No;  Yes Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tamping	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer Wgt. (lb) = <u>NA</u> Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>CW&amp;A #8 3/8</u>	Compostite No.: <u>N/A</u>			Inpact/Rammer	Drop (in.) = <u>NA</u> Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>d</u>			Pluviated: <input checked="" type="checkbox"/>	Undercompaction: $U_{rel}$ (%) = <u>95</u> Ref. Effort = _____
<input type="checkbox"/> Spec. Selection by X-Ray; <input type="checkbox"/> Geomarine Sample					No. Layers = <u>3</u> % Comp = <u>± Opt = 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Trimming Ring, etc.		
Container No.	<u>5000</u>			<u>7</u>	Mass Moist Soil	<u>5720.00</u>	<u>NA</u>	
Mass Moist Soil + Container (g)	<u>132.69</u>			<u>710.00</u>	Mass Moist Soil	<u>5165.00</u>	<u>NA</u>	
Mass Dry Soil + Container (g)	<u>126.79</u>			<u>655.00</u>	Mass Moist Soil	<u>555.00</u>	<u>NA</u>	
Mass Container (g)	<u>30.76</u>			<u>140.00</u>	Excess Dry Soil (soil not included in final water content)			
WATER CONTENT (%)	<u>6.14</u>			<u>10.68</u>	Container No.			
Avg. Initial WC, $W_4$ (%)	<u>6.14</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Dry Soil + Cont. (g)			
See attached data sheet(s) for additional water contents					Mass Container (g)			
					Mass Excess Dry Soil (g)	<u>0.00</u>		

Soil Height: Measurements <sup>(1)</sup>		
Initial (mm)		
with Spec., $H_{soil}$	without Spec., $H_{app}$	
<u>31.81</u>		
Block Used <sup>(2)</sup> :	Yes; <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,0}$ (pcf) =	<u>134.51</u>
Dry, $\gamma_{d,0}$ (pcf) =	<u>126.73</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No

Final Visual Description: Red Well Graded GRAVEL with clay (visual)

Trimming/Etc. Remarks: CW&A TxDOT Grade 6 Passing 3/8-inch Sieve

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;  Other  
 For soils containig sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: DBN Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/10/2008 Date: 6/10/2008 Final Cal. By: HC Date: 6/10/2008  
 Reviewed By: HP

**KAW 6/13/08**

## DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY

Project Number: 0411-08-1686 Boring/Exploration No.: N/A Type Test: DS  
 Task Number: N/A Sample No.: CW&A #6 3/8 Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	6.14	522.88	53.1
" Bottom, W2			
" Sides, W3			
" Average, W4	6.14	522.88	53.1
" Assumed, W	6.14	522.88	53.1
Final (After Test/Shear)	10.68		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04653
Final Selected	0.04653

Soil Height: Final by Dial Change During Test (mm)		For Multistage Testing	
	Initial Height, $H_o$	2nd Stage	3rd Stage
	31.81		
Change in Height During Consol. (not corrected for apparatus flexibility)	0.10	NA	NA
Height after Consolidation, $H_c$	31.71	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.57	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.27	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 , $cm^2$						
Specific Gravity, $G_s$	2.659		Assumed	<input checked="" type="checkbox"/> Measured			
Mass Dry Soil, $M_d$ (g)	522.88		<input checked="" type="checkbox"/> Based on average water content	Value based on one of the above values			
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	6.1	134.51	126.72	0.308	53.1	31.81	257.59

Consolidation Summary:	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	2.88	NA	NA		$\epsilon_{a,c}$ (%)	0.33	NA
Stress Units = (ksf)	$\sigma'_{v,max}$	NA	NA	NA		$\epsilon_{a,max}$ (%)	NA	NA
	OCR	NA	NA	NA		$t_c$ (days)	0.01	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP Reviewed by: HP  
 Date: 6/11/2008

**DRAINED DIRECT SHEAR TEST: Test Results**

Project Number: 0411-08-1686 App. No.: 6 DS Boring No.: N/A  
 Task No.: N/A Consol. Stress,  $\sigma'_{v,c}$ : 2.88 (ksf) Sample No.: CW&A #6 3/8  
 Project Name: Exelon (Victoria) Induced OCR: NA Specimen No.: d  
 File Name: 3-1\_CW&A Grade 6d  $\sigma'_{v,max}$ : NA (ksf) Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm) Specimen Ht.: 31.71 (mm)  
 Shear Box:  Circular  Square Vert. Strain During Consol.: 0.33 (%)

Part of Test Series:  No;  Yes If yes, Test: NA of NA  
 Multistage:  No;  Yes If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes

Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
6.1	134.51	126.72	0.308	53.1

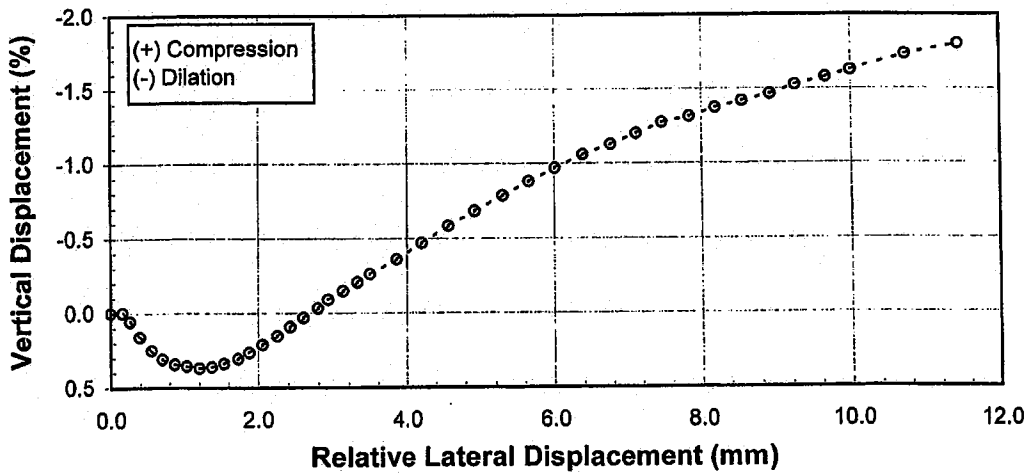
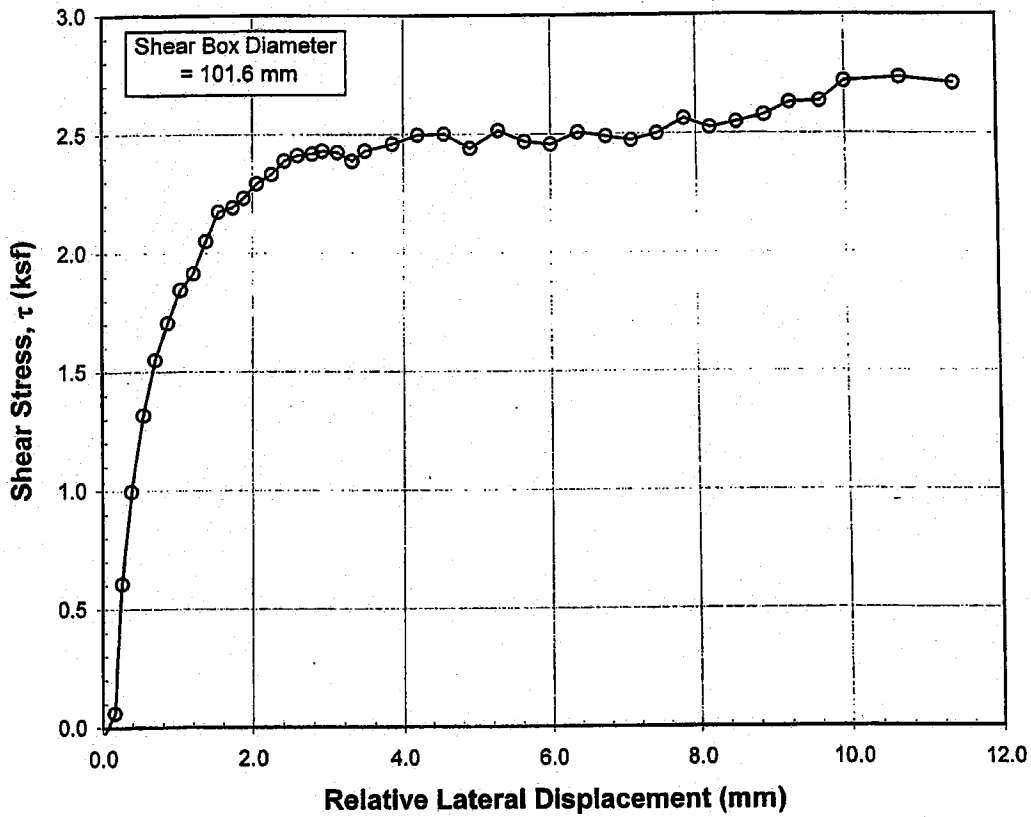
Peak Shear Stress,  $\tau$  (ksf): 2.73

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data) Avg. Lat. Displacement Rate (mm/h): 0.00586  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-3.81	0.00	-0.04
0.50	0.1622	5.29	0.00	0.06
1.00	0.2611	52.86	0.06	0.61
1.50	0.3906	86.78	0.16	1.00
2.00	0.5479	114.79	0.25	1.32
2.50	0.6987	135.12	0.31	1.55
3.00	0.8644	148.72	0.34	1.71
3.50	1.0290	160.89	0.36	1.85
4.00	1.2007	166.85	0.37	1.91
4.50	1.3680	178.75	0.36	2.05
5.00	1.5370	189.60	0.34	2.18
5.50	1.7324	191.21	0.31	2.19
6.00	1.8812	194.63	0.27	2.23
6.50	2.0586	199.97	0.21	2.29
7.00	2.2539	203.34	0.15	2.33
7.50	2.4235	208.30	0.09	2.39
8.00	2.5996	210.25	0.03	2.41
8.50	2.7921	210.80	-0.03	2.42
9.00	2.9247	211.92	-0.09	2.43
9.50	3.1231	211.46	-0.15	2.43
10.00	3.3159	208.20	-0.21	2.39
10.50	3.4865	211.94	-0.26	2.43
11.50	3.8515	214.50	-0.36	2.46
12.50	4.2040	217.76	-0.47	2.50
13.50	4.5676	218.10	-0.58	2.50
14.50	4.9184	212.84	-0.68	2.44
15.50	5.2921	219.21	-0.78	2.51
16.50	5.6489	215.26	-0.88	2.47
17.50	6.0067	214.18	-0.97	2.46
18.50	6.3832	218.45	-1.06	2.51
19.50	6.7654	217.05	-1.13	2.49
20.50	7.1138	215.50	-1.20	2.47
21.50	7.4628	218.00	-1.27	2.50
22.50	7.8347	223.43	-1.31	2.56
23.50	8.1878	220.09	-1.37	2.53
24.50	8.5523	222.03	-1.42	2.55
25.50	8.9152	224.61	-1.46	2.58
26.50	9.2494	229.18	-1.53	2.63
27.50	9.6600	229.73	-1.58	2.64
28.50	9.9971	236.80	-1.62	2.72
30.50	10.7129	238.27	-1.73	2.73
32.50	11.4244	236.18	-1.80	2.71

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards





**DRAINED DIRECT SHEAR TEST: 1st Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 2.88$  ksf  
 Source: CW&A, Sample No. CW&A #6 3/8  
 Exelon (Victoria)

Reviewed By: HP

## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686 Apparatus No.: 6 DS File Name: CW&A Grade 6e  
 Task Number: N/A Assign. Units:  ksf; or Other: \_\_\_\_\_ Ring No.: 1  
 Project Name: Exelon (Victoria) Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76 , \_\_\_\_\_ Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 " & \_\_\_\_\_ Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 5.76 ; NA ; & NA Shear Box:  Circular  Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA Specific Gravity: 2.659 Assumed;  
 Multistage:  No;  Yes Residual/Multishearing:  No;  Yes Precut Failure Plane  No;  Yes  Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted	<input type="checkbox"/> Kneading		Rammer/Wgt.(lbf)= <u>NA</u>	Tamper: Force (lbf)= <u>4.5</u>
Sample No.: <u>CW&amp;A #8 3/8</u>	Composite No.: <u>N/A</u>	<input type="checkbox"/> Impact/Rammer		Drop(in.)= <u>NA</u>	Dia.(in.)= <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>e</u>	<input type="checkbox"/> Pluviated:		<input checked="" type="checkbox"/> Undercompaction: $U_{at}$ (%) = <u>95</u>	Ref.Effort= _____
Spec. Selection by X-Ray: <input type="checkbox"/>	<input type="checkbox"/> Geomarine Sample			No. Layers = <u>3</u>	% Comp= <u>± Opt= 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Moist Soil		
Container No.	<u>6042</u>			<u>22</u>	Mass Trimming Ring, etc.	<u>5165.00</u>	<u>NA</u>	
Mass Moist Soil + Container (g)	<u>143.43</u>			<u>730.00</u>	Mass Moist Soil	<u>555.00</u>	<u>NA</u>	
Mass Dry Soil + Container (g)	<u>136.95</u>			<u>675.00</u>	Excess Dry Soil (soil not included in final water content)			
Mass Container (g)	<u>31.72</u>			<u>160.00</u>	Container No.			
WATER CONTENT (%)	<u>6.16</u>			<u>10.68</u>	Mass Dry Soil + Cont. (g)			
Avg. Initial WC, $W_4$ (%)	<u>6.16</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Container (g)			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g)			
					<u>0.00</u>			

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{spb}$	without Spec., $H_{spp}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)	Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>	<u>NA</u>
Reading on Gauge Block, $R_{gb}$	<u>NA</u>
Avg. Reading on Soil, $H_{soil}$	<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{spp}$	<u>0.00</u>
Soil Height, $H = H_{soil} - H_{spp} + H_{gb} - R_{gb}$	<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )	<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,0}$ (pcf)=	<u>134.51</u>
Dry, $\gamma_{d,0}$ (pcf)=	<u>126.71</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

<b>Apparatus Information:</b>	Wgt. of Top Shear Ring, $M_{sb}$ (lbf) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lbf) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes ; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes ; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes ; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes ; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes ;  No

Final Visual Description: Red Well Graded GRAVEL with clay (visual)

Trimming/Etc. Remarks: CW&A TxDOT Grade 6 Passing 3/8-inch Sieve

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: YR Set up By: HC Prelim. Cal. By: HC Taken Down By: HC  
 Date: 6/10/2008 Date: 6/10/2008 Final Cal. By: HC Date: 6/10/2008  
 Reviewed By: HP HP

**KAW 6/13/08**

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686 Boring/Exploration No.: N/A Type Test: DS  
 Task Number: N/A Sample No.: CW&A #6 3/8 Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ : \_\_\_\_\_ ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	6.16	522.81	53.2
" Bottom, W2			
" Sides, W3			
" Average, W4	6.16	522.81	53.2
" Assumed, W	6.16	522.81	53.2
Final (After Test/Shear)	10.68		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04653
Final Selected	0.04653

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing		
	Initial Height, $H_o$	2nd Stage	3rd Stage
Change in Height During Consol.(not corrected for apparatus flexibility)	0.16	NA	NA
Height after Consolidation, $H_c$	31.65	NA	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.42	NA	NA
Change in Height During Repeated/Residual Shear	NA	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA	NA
Final Soil Height (After Test/Shear), $H_{at}$	32.07	NA	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977 , $cm^2$						
Specific Gravity, $G_s$	2.659		Assumed	<input checked="" type="checkbox"/> Measured			
Mass Dry Soil, $M_d$ (g)	522.81		<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values	
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $cm^3$ )
Initial:	6.2	134.51	126.71	0.308	53.2	31.81	257.59

Consolidation Summary: Stress Units = (ksf)	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{n,c}$ or $\sigma'_{v,c}$	5.76	NA	NA	$\epsilon_{a,c}$ (%)	0.50	NA	NA
	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box

NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/11/2008

### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: 0411-08-1686      App. No.: 6 DS      Boring No.: N/A  
 Task No.: N/A      Consol. Stress,  $\sigma'_{v,c}$ : 5.76 (ksf)      Sample No.: CW&A #6 3/8  
 Project Name: Exelon (Victoria)      Induced OCR: NA      Specimen No.: e  
 File Name: 3-1\_CW&A Grade 6e       $\sigma'_{v,max}$ : NA (ksf)      Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm)      Specimen Ht.: 31.65 (mm)  
 Shear Box:  Circular  Square      Vert. Strain During Consol.: 0.50 (%)

Part of Test Series:  No;  Yes      If yes, Test: NA of NA  
 Multistage:  No;  Yes      If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes

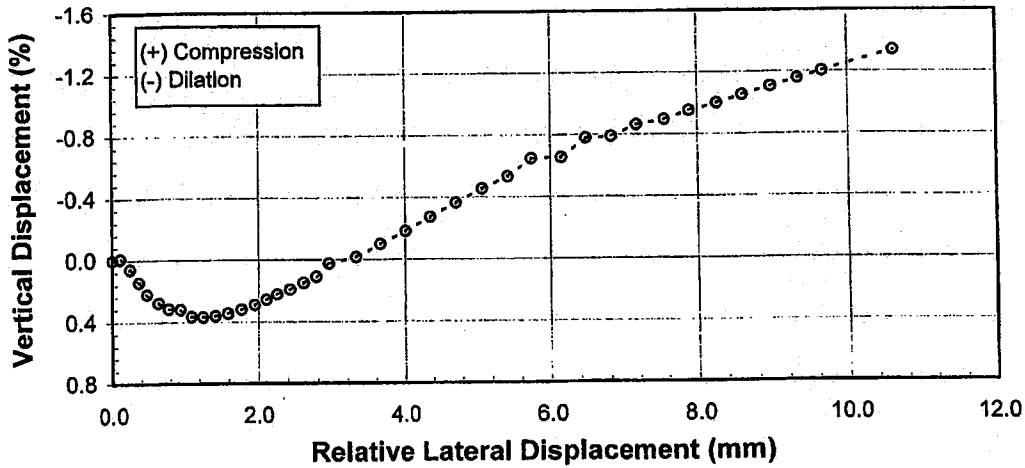
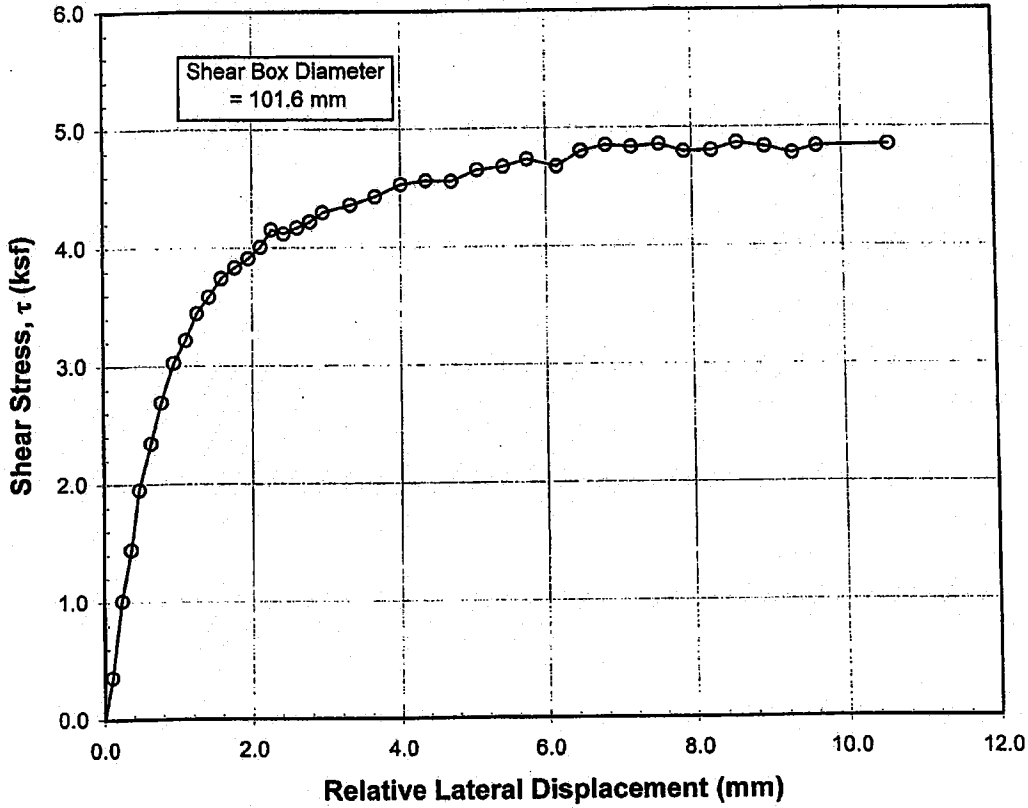
Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
6.2	134.51	126.71	0.308	53.2

Peak Shear Stress,  $\tau_f$  (ksf): 4.87

Shearing Data For:  Intact - Without Repeated Shearing (Peak Data)      Avg. Lat. Displacement Rate (mm/h): 0.00571  
 Intact - Before Repeated Shearing (Peak Data)  
 After Rapid Repeated Shearing (Residual Data)  
 Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-0.53	0.00	-0.01
0.50	0.1048	31.20	-0.01	0.36
1.00	0.2406	88.20	0.06	1.01
1.50	0.3655	125.93	0.14	1.44
2.00	0.4787	169.99	0.22	1.95
2.50	0.6405	204.49	0.28	2.35
3.00	0.7776	234.59	0.32	2.69
3.50	0.9393	263.71	0.32	3.03
4.00	1.0968	280.34	0.37	3.22
4.50	1.2529	300.33	0.37	3.45
5.00	1.4193	312.45	0.36	3.58
5.50	1.5865	326.06	0.35	3.74
6.00	1.7700	333.99	0.32	3.83
6.50	1.9508	340.53	0.29	3.91
7.00	2.1130	349.11	0.26	4.01
7.50	2.2605	361.92	0.22	4.15
8.00	2.4323	358.88	0.19	4.12
8.50	2.6111	363.29	0.15	4.17
9.00	2.7812	367.52	0.11	4.22
9.50	2.9525	374.37	0.03	4.30
10.50	3.3218	380.00	-0.02	4.36
11.50	3.6579	385.99	-0.10	4.43
12.50	4.0074	394.85	-0.18	4.53
13.50	4.3580	397.60	-0.27	4.56
14.50	4.7122	397.03	-0.37	4.56
15.50	5.0638	405.55	-0.45	4.65
16.50	5.4170	407.67	-0.53	4.68
17.50	5.7442	413.01	-0.65	4.74
18.50	6.1471	407.74	-0.65	4.68
19.50	6.4771	418.76	-0.78	4.80
20.50	6.8179	423.02	-0.79	4.85
21.50	7.1653	421.48	-0.86	4.84
22.50	7.5576	423.34	-0.89	4.86
23.50	7.8940	417.91	-0.95	4.79
24.50	8.2597	418.62	-1.00	4.80
25.50	8.6027	424.31	-1.05	4.87
26.50	8.9734	421.38	-1.10	4.83
27.50	9.3386	416.44	-1.16	4.78
28.50	9.6708	421.48	-1.20	4.84
31.00	10.6138	422.85	-1.34	4.85

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards



**DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 5.76$  ksf  
 Source: CW&A, Sample No. CW&A #6 3/8  
 Exelon (Victoria)

Reviewed By: HP

## DIRECT SHEAR TEST (ASTM D 3080-04): Setup / Take Down

Project Number: 0411-08-1686      Apparatus No.: 6 DS      File Name: CW&A Grade 6f  
 Task Number: N/A      Assign. Units:  ksf; or Other: \_\_\_\_\_      Ring No.: 1  
 Project Name: Exelon (Victoria)      Series  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52      Area - Shear Box,  $A_{sb}$  (cm<sup>2</sup>): 80.977  
 "      "      & \_\_\_\_\_      Height - Shear Box,  $H_{sb}$  (mm): \_\_\_\_\_  
 This Test  $\sigma'_{v,c}$  or  $\sigma'_{n,c}$ : 11.52 ; NA ; & NA      Shear Box:  Circular       Square  
 Induced OCR: NA ; Max.  $\sigma'_{v,max}$ : NA      Specific Gravity: 2.659      Assumed;  
 Multistage:  No;  Yes      Residual/Multishearing:  No;  Yes      Precut Failure Plane  No;  Yes       Measured  
 Assign. Remarks: \_\_\_\_\_

<input type="checkbox"/> Tube	<input type="checkbox"/> Field Extruded	<input type="checkbox"/> Liner	<input checked="" type="checkbox"/> Recompacted	<input checked="" type="checkbox"/> Tampling	Constant Effort: Blows/Tamps per Layer = <u>20</u>
Boring No.: <u>N/A</u>	<input type="checkbox"/> Reconstituted			Kneading	Rammer Wgt. (lb) = <u>NA</u> Tamper: Force (lb) = <u>4.5</u>
Sample No.: <u>CW&amp;A #6 3/8</u>	Composite No.: <u>N/A</u>			Inpact/Rammer	Drop (in.) = <u>NA</u> Dia. (in.) = <u>1.5</u>
Depth (ft): <u>N/A</u>	Specimen No.: <u>f</u>			Pluviated:	<input checked="" type="checkbox"/> Undercompaction: $U_{ri}$ (%) = <u>95</u> Ref. Effort = _____
Spec. Selection by X-Ray: <input type="checkbox"/>				Geomarine Sample: <input type="checkbox"/>	
				No. Layers = <u>3</u>	% Comp = <u>± Opt. = 1</u>

Water Content (WC);	Initial - Trimming Location			Final, $W_{at}$ (see below)	Soil and Ring Masses (g)		Initial	Final
	Top (W1)	Bottom (W2)	Sides (W3)		Mass Moist Soil+Trimming Ring	Mass Moist Soil		
Container No.	<u>4087</u>			<u>3003</u>	Mass Trimming Ring, etc.	<u>5165.00</u>	<u>NA</u>	<u>NA</u>
Mass Moist Soil + Container (g)	<u>135.74</u>			<u>705.00</u>	Mass Moist Soil	<u>555.00</u>	<u>NA</u>	<u>NA</u>
Mass Dry Soil + Container (g)	<u>129.48</u>			<u>655.00</u>	Excess Dry Soil (soil not included in final water content)			
Mass Container (g)	<u>31.01</u>			<u>135.00</u>	Container No.			
WATER CONTENT (%)	<u>6.36</u>			<u>9.62</u>	Mass Dry Soil + Cont. (g)			
Avg. Initial WC, $W_4$ (%)	<u>6.36</u>	Final $W_{at}$ : Soil with free water trimmed away			Mass Container (g)			
See attached data sheet(s) for additional water contents					Mass Excess Dry Soil (g) <u>0.00</u>			

Soil Height: Measurements <sup>(1)</sup>	
Initial (mm)	
with Spec., $H_{soil}$	without Spec., $H_{app}$
<u>31.81</u>	
Block Used <sup>(2)</sup> :	Yes; <input checked="" type="checkbox"/> No

Soil Height/Volume: Calc., (mm)		Initial
Height of Gauge Block, $H_{gb}$ <sup>(2)</sup>		<u>NA</u>
Reading on Gauge Block, $R_{gb}$		<u>NA</u>
Avg. Reading on Soil, $H_{soil}$		<u>31.81</u>
Avg. Reading on Apparatus without Specimen, $H_{app}$		<u>0.00</u>
Soil Height, $H = H_{soil} - H_{app} + H_{gb} - R_{gb}$		<u>31.81</u>
Initial Soil Volume, $V_o$ (cm <sup>3</sup> )		<u>257.59</u>

Estimated Initial Unit Weight	
Total, $\gamma_{t,o}$ (pcf) =	<u>134.51</u>
Dry, $\gamma_{d,o}$ (pcf) =	<u>126.47</u>

(1) Measured in trimming ring, not shear box.

(2) Req. block ht. to set bench comparator so the initial soil ht. can be determined directly by the diff. between the reading with and without spec. Enter value for  $H_{gb}$  and  $d_{gb}$  only when these values have to be included in the determination of the soil height.

(3) Equals wgt. top cap, loading hanger and Bellofram piston (if used). (4) Reduced value if soil will dilate during shear.

Apparatus Information:	Wgt. of Top Shear Ring, $M_{sb}$ (lb) = <u>4.99</u>	Dead Wgt. of Loading System <sup>(3)</sup> (lb) = <u>2.64</u>
	Top Shear Ring Supported by Counter Force: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No	Shear Ring Free to Move Up & Down: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No
	Porous Inserts: <input checked="" type="checkbox"/> Stone; <input type="checkbox"/> Metal; Do not use filter paper over porous inserts.	Free to Rotate: <input type="checkbox"/> Yes; <input checked="" type="checkbox"/> No
	Porous Inserts with Additional Shear Transfer Features: <input checked="" type="checkbox"/> None; <input type="checkbox"/> Pins; <input type="checkbox"/> Grid Plate; <input type="checkbox"/> Waffle Stone; <input type="checkbox"/> Other:	
Apparatus deformation under consolidation load determined: <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No		

Photo taken of Sliced Test Specimen:  Yes;  No

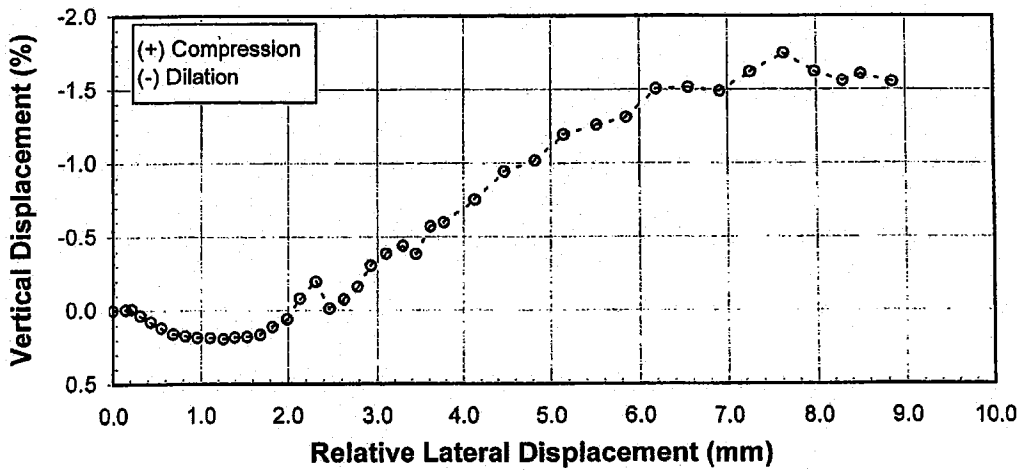
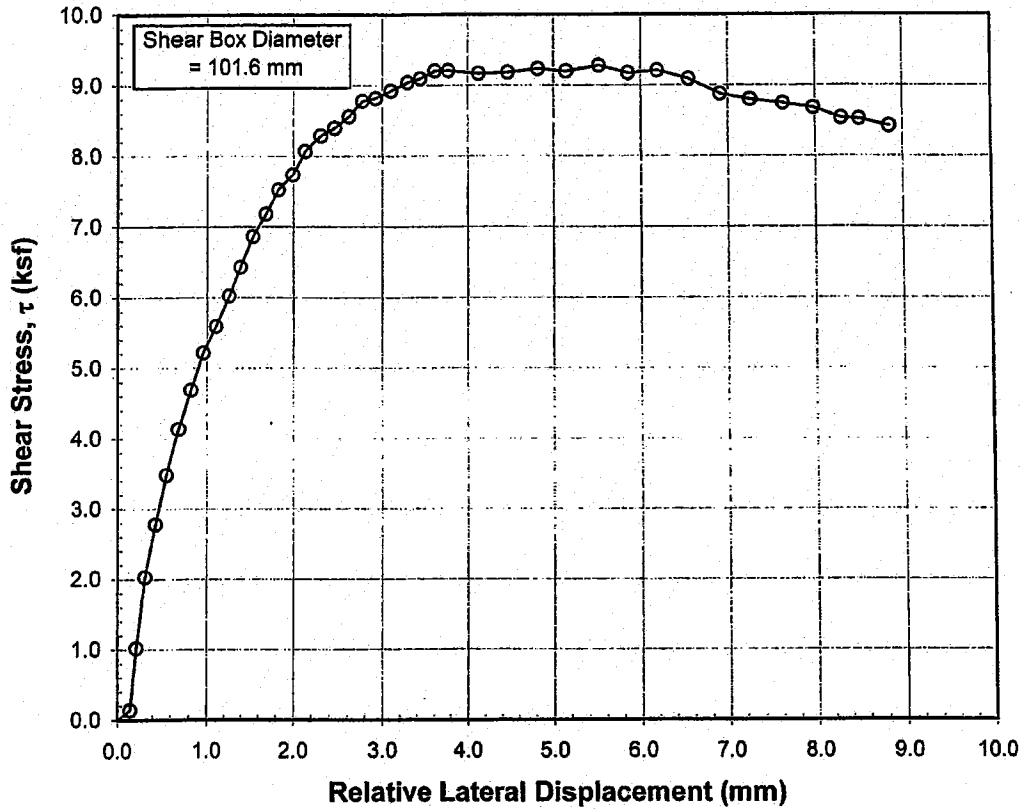
Final Visual Description: Red Well Graded GRAVEL with clay (visual)

Trimming/Etc. Remarks: CW&A TxDOT Grade 6 Passing 3/8-inch Sieve

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;  Other \_\_\_\_\_  
 For soils containing sand, ~100 % passes sieve size:  #4 (4.75 mm);  #10 (2.0 mm);  #20 (0.85 mm) or;  #40 (0.425 mm)  
 Shear Box Gap Setting<sup>(4)</sup>: Clays, 0.50 to 0.65 mm; Sands, 1 mm to sieve size (mm) for 100 % passing

Trim./Recon. By: YR      Set up By: HC      Prelim. Cal. By: HC      Taken Down By: HC  
 Date: 6/10/2008      Date: 6/10/2008      Final Cal. By: HC      Date: 6/10/2008  
 Reviewed By: HP HP

**KAW 6/13/08**



**DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series**

Soil - Soil Interface  $\sigma'_{v,c} = 11.52$  ksf  
 Source: CW&A, Sample No. CW&A #6 3/8  
 Exelon (Victoria)

Reviewed By: VP

**DIRECT SHEAR TEST (ASTM D 3080-04): SPECIMEN CALCULATIONS & SUMMARY**

Project Number: 0411-08-1686 Boring/Exploration No.: N/A Type Test: DS  
 Task Number: N/A Sample No.: CW&A #6 3/8 Specific Gravity,  $G_s$ : 2.66  
 Project Name: Exelon (Victoria) Penetration/Depth (ft): N/A  
 Calculations Corrected for Salt (dissolved solids):  No or,  Yes, with salinity,  $S_{ppt}$ :          ppt

Water Content Copied/Derived From:	Water Content, $W_{o,n}$ (%)	Mass Dry Soil, $M_{d,o,n}$ (g)	Degree of Sat., $S_{o,n}$ (%)
Initial, Top, W1	6.36	521.83	54.5
" Bottom, W2			
" Sides, W3			
" Average, W4	6.36	521.83	54.5
" Assumed, W	6.36	521.83	54.5
Final (After Test/Shear)	9.62		

Back-calculated Data		Input Data for Back Calculation	
Item	Value	$S_{o,n}$ (%)	
Initial Mass			$G_s$
Dry Soil, $M_{d,o}$			
Specific Gravity, $G_s$			$M_{d,o}$ (g)

Calculation Constant:	
= (unit conversion) / $G_s \times \rho_w \times A_{sb}$	
Estimated	0.04653
Final Selected	0.04653

Soil Height: Final by Dial Change During Test (mm)	For Multistage Testing	
	2nd Stage	3rd Stage
Initial Height, $H_o$	31.81	
Change in Height During Consol. (not corrected for apparatus flexibility)	0.09	NA
Height after Consolidation, $H_c$	31.72	NA
Change in Height During Initial Shear (+ compression, - dilation)	-0.49	NA
Change in Height During Repeated/Residual Shear	NA	NA
Change in Height During Consol. to Max. Consol. Stress	NA	NA
Final Soil Height (After Test/Shear), $H_{af}$	32.21	NA

Summary of Specimen Physical Properties: Initial Conditions							
Area, $A_{sb}$	80.977	$\text{cm}^2$					
Specific Gravity, $G_s$	2.659		Assumed	<input checked="" type="checkbox"/>	Measured		
Mass Dry Soil, $M_d$ (g)	521.83		<input checked="" type="checkbox"/>	Based on average water content		Value based on one of the above values	
	Water Content, $w$ (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, $e$	Degree of Saturation, $S$ (%)	Height, $H$ (mm)	Volume, $V$ ( $\text{cm}^3$ )
Initial:	6.4	134.51	126.47	0.310	54.5	31.81	257.59

Consolidation Summary:	Stage:	1st	2nd	3rd		1st	2nd	3rd
	$\sigma'_{h,c}$ or $\sigma'_{v,c}$		11.52	NA	NA	$\epsilon_{a,c}$ (%)	0.28	NA
Stress Units = (ksf)	$\sigma'_{v,max}$	NA	NA	NA	$\epsilon_{a,max}$ (%)	NA	NA	NA
	OCR	NA	NA	NA	$t_c$ (days)	0.01	NA	NA

Remarks: Gapping was about 0.7 mm between Top and Bottom Shear Box  
 NA - Not Applicable

Calculated by: HP Reviewed by: HP HP  
 Date: 6/11/2008



### DRAINED DIRECT SHEAR TEST: Test Results

Project Number: 0411-08-1686      App. No.: 6 DS      Boring No.: N/A  
 Task No.: N/A      Consol. Stress,  $\sigma'_{v,c}$ : 11.52 (ksf)      Sample No.: CW&A #6 3/8  
 Project Name: Exelon (Victoria)      Induced OCR: NA      Specimen No.: f  
 File Name: B-1\_CW&A Grade 6f       $\sigma'_{v,max}$ : NA (ksf)      Depth (ft): N/A  
 Shear Box Dia./Width: 101.6 (mm)      Specimen Ht.: 31.72 (mm)  
 Shear Box:  Circular     Square    Vert. Strain During Consol.: 0.28 (%)

Part of Test Series:  No;     Yes    If yes, Test: NA of NA  
 Multistage:  No;     Yes    If yes, Test Stage No.: NA  
 Residual/Multishearing:  No;     Yes    Precut Failure Plane  No;     Yes

Initial Test Conditions:				
Water Content, w (%)	Total Unit Weight, $\gamma_t$ (pcf)	Dry Unit Weight, $\gamma_d$ (pcf)	Void Ratio, e	Degree of Saturation, S (%)
6.4	134.51	126.47	0.310	54.5

Peak Shear Stress,  $\tau_f$  (ksf): 9.28

Shearing  Intact - Without Repeated Shearing (Peak Data)    Avg. Lat. Displacement Rate (mm/h): 0.00537  
 Data  Intact - Before Repeated Shearing (Peak Data)  
 For:  After Rapid Repeated Shearing (Residual Data)  
        Continuous Shearing: Forwards & Backwards (Peak & Residual Data)

Elapsed Time (min)	Rel. Lateral Displacement (mm)	Horiz. Force (lbf)	Vert. Displacement (%)	Shear Stress, $\tau$ (kips/ft <sup>2</sup> )
0.00	0.0000	-0.17	0.00	0.00
0.50	0.1486	12.10	-0.01	0.14
1.00	0.2184	88.80	-0.01	1.02
1.50	0.3167	176.72	0.04	2.03
2.00	0.4331	242.13	0.08	2.78
2.50	0.5540	303.36	0.12	3.48
3.00	0.6848	360.48	0.16	4.14
3.50	0.8182	408.74	0.17	4.69
4.00	0.9568	454.64	0.18	5.22
4.50	1.1047	487.32	0.18	5.59
5.00	1.2578	524.97	0.19	6.02
5.50	1.3914	560.22	0.18	6.43
6.00	1.5349	598.19	0.18	6.86
6.50	1.6839	625.97	0.16	7.18
7.00	1.8279	655.58	0.11	7.52
7.50	1.9907	674.22	0.08	7.74
8.00	2.1318	703.37	-0.08	8.07
8.50	2.3074	722.54	-0.20	8.29
9.00	2.4612	731.81	-0.01	8.40
9.50	2.6239	745.92	-0.07	8.56
10.00	2.7779	765.05	-0.16	8.78
10.50	2.9262	768.31	-0.30	8.81
11.00	3.0989	777.72	-0.39	8.92
11.50	3.2929	787.98	-0.44	9.04
12.00	3.4448	792.50	-0.38	9.09
12.50	3.6161	802.07	-0.57	9.20
13.00	3.7746	802.28	-0.60	9.20
14.00	4.1288	798.86	-0.75	9.17
15.00	4.4748	800.06	-0.94	9.18
16.00	4.8249	804.48	-1.02	9.23
17.00	5.1459	801.55	-1.19	9.20
18.00	5.5169	808.60	-1.26	9.28
19.00	5.8526	799.34	-1.31	9.17
20.00	6.1924	802.55	-1.50	9.21
21.00	6.5538	792.15	-1.51	9.09
22.00	6.9134	773.79	-1.49	8.88
23.00	7.2589	766.82	-1.62	8.80
24.00	7.6264	762.10	-1.75	8.74
25.00	7.9811	756.49	-1.82	8.68
26.00	8.3057	743.64	-1.56	8.53
26.50	8.5139	742.64	-1.60	8.52
27.50	8.8551	734.08	-1.55	8.42

Sign Convention:  
 (+) Compression or Forwards  
 (-) Dilatation or Backwards

# **Soil Chemical Tests – Borrow Soils**

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

**ANALYTICAL REPORT**

REVISED

PROJECT NO. 6468-07-1777

TEXAS COL PROJECT-Victoria

Lot #: F8E100185

Kathryn White

MACTEC ENGINEERING & CONSULTING  
1540 N. 107TH EAST AVENUE  
TULSA, OK 74116

TESTAMERICA LABORATORIES, INC.



Ivan Vania  
Project Manager

May 19, 2008

KAW 6/13/08

Case Narrative

LOT NUMBER: F8E100185 - Revision 1

This report contains the analytical results for the five samples received under chain of custody by TestAmerica St. Louis on May 10, 2008. These samples are associated with your TEXAS COL PROJECT project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Method 9045C is listed on the results report due to a limitation of the laboratory's data reporting system. However, method 9045D was used for the analysis of pH. This can be verified by observation of the lab bench worksheets in the raw data package.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There were no nonconformances or observations noted with any analysis on this lot.

**METHODS SUMMARY**

F8E100185

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Chloride	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Soil and Waste pH	SW846 9045C	SW846 DI-LEACHA
Sulfate	MCAWW 300.0A	MCAWW 300.0A

**References:**

- MCAWW "Methods for Chemical Analysis of Water and Wastes",  
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

**SAMPLE SUMMARY**

F8E100185

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
KM1E1	001	MURPHY PIT C-33	05/08/08	
KM1E2	002	MURPHY PIT C-144	05/08/08	
KM1E3	003	BRIGGS RAW MATERIAL	05/08/08	
KM1E4	004	CW&A TEXAS DOT GRADE 4	05/08/08	
KM1E5	005	CW&A TEXAS DOT GRADE 6	05/08/08	

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: MORPHY PIT C-33

General Chemistry

Lot-Sample #....: F8E100185-001    Work Order #....: KM1E1    Matrix.....: SOLID  
 Date Sampled....: 05/08/08    Date Received...: 05/10/08  
 % Moisture.....: 3.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.3	0.10	No Units	SW846 9045C	05/12/08	8133304
				Dilution Factor: 1 Analysis Time...: 00:00		
Chloride	0.84 B	2.1	mg/kg	MCAWW 300.0A	05/14/08	8136223
				Dilution Factor: 1 Analysis Time...: 06:27		
Percent Moisture	3.8	0.10	%	MCAWW 160.3 MOD	05/12-05/14/08	8133235
				Dilution Factor: 1 Analysis Time...: 00:00		
Sulfate	5.6	5.2	mg/kg	MCAWW 300.0A	05/14/08	8136224
				Dilution Factor: 1 Analysis Time...: 06:27		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.  
 B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: MURPHY PIT C-144

General Chemistry

Lot-Sample #...: F8E100185-002    Work Order #...: KM1E2    Matrix.....: SOLID  
 Date Sampled...: 05/08/08    Date Received...: 05/10/08  
 % Moisture.....: 4.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.4	0.10	No Units	SW846 9045C	05/12/08	8133304
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	4.4	2.1	mg/kg	MCAWW 300.0A	05/14/08	8136223
				Dilution Factor: 1    Analysis Time...: 06:39		
Percent Moisture	4.4	0.10	%	MCAWW 160.3 MOD	05/12-05/14/08	8133235
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	4.7 B	5.2	mg/kg	MCAWW 300.0A	05/14/08	8136224
				Dilution Factor: 1    Analysis Time...: 06:39		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.  
 B Estimated result. Result is less than RL.



MACTEC Engineering and Consulting Inc

Client Sample ID: BRIGGS RAW MATERIAL

General Chemistry

Lot-Sample #...: F8E100185-003    Work Order #...: KM1E3    Matrix.....: SOLID  
 Date Sampled...: 05/08/08    Date Received...: 05/10/08  
 % Moisture.....: 5.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	9.4	0.10	No Units	SW846 9045C Dilution Factor: 1 Analysis Time...: 00:00	05/12/08	8133304
Chloride	7.9	2.1	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 06:51	05/14/08	8136223
Percent Moisture	5.7	0.10	%	MCAWW 160.3 MOD Dilution Factor: 1 Analysis Time...: 00:00	05/12-05/14/08	8133235
Sulfate	10.2	5.3	mg/kg	MCAWW 300.0A Dilution Factor: 1 Analysis Time...: 06:51	05/14/08	8136224

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: CW&A TEXAS DOT GRADE 4

General Chemistry

Lot-Sample #...: F8E100185-004    Work Order #...: KM1E4    Matrix.....: SOLID  
 Date Sampled...: 05/08/08    Date Received...: 05/10/08  
 % Moisture.....: 3.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	5.7	0.10	No Units	SW846 9045C	05/12/08	8133304
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	1.4 B	2.1	mg/kg	MCAWW 300.0A	05/14/08	8136223
				Dilution Factor: 1    Analysis Time...: 07:03		
Percent Moisture	3.4	0.10	%	MCAWW 160.3 MOD	05/12-05/14/08	8133235
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	5.6	5.2	mg/kg	MCAWW 300.0A	05/14/08	8136224
				Dilution Factor: 1    Analysis Time...: 07:03		

NOTE(S):

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.  
 B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: CW&A TEXAS DOT GRADE 6

General Chemistry

Lot-Sample #...: F8E100185-005    Work Order #...: KM1E5    Matrix.....: SOLID  
 Date Sampled...: 05/08/08    Date Received...: 05/10/08  
 % Moisture.....: 4.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	05/12/08	8133304
				Dilution Factor: 1    Analysis Time...: 00:00		
Chloride	2.3	2.1	mg/kg	MCAWW 300.0A	05/14/08	8136223
				Dilution Factor: 1    Analysis Time...: 07:16		
Percent Moisture	4.5	0.10	%	MCAWW 160.3 MOD	05/12-05/14/08	8133235
				Dilution Factor: 1    Analysis Time...: 00:00		
Sulfate	11.8	5.2	mg/kg	MCAWW 300.0A	05/14/08	8136224
				Dilution Factor: 1    Analysis Time...: 07:16		

**NOTE(S):**

RL Reporting Limit  
 Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F8E100185

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Chloride	ND	Work Order #: KM9HD1AA		MB Lot-Sample #: F8E150000-223	F8E150000-223	8136223
		2.0	mg/kg			
		Dilution Factor: 1				
		Analysis Time...: 06:10				
Sulfate	ND	Work Order #: KM9HE1AA		MB Lot-Sample #: F8E150000-224	F8E150000-224	8136224
		5.0	mg/kg			
		Dilution Factor: 1				
		Analysis Time...: 06:10				

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8E100185

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
pH (solid)	100	(99 - 101)	SW846 9045C	05/12/08	8133304
			Dilution Factor: 1	Analysis Time...: 00:00	
Chloride	97	(90 - 110)	MCAWW 300.0A	05/14/08	8136223
			Dilution Factor: 1	Analysis Time...: 05:58	
Sulfate	97	(90 - 110)	MCAWW 300.0A	05/14/08	8136224
			Dilution Factor: 1	Analysis Time...: 05:58	

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F8E100185  
 Date Sampled...: 05/08/08

Date Received...: 05/10/08

Matrix.....: SOLID

Percent Moisture: 28

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	106	Work Order #...: KM1E11AG (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8E100185-001 05/14/08	8136223
		Dilution Factor: 1		Analysis Time...: 06:27	
Sulfate	99	Work Order #...: KM1E11AJ (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F8E100185-001 05/14/08	8136224
		Dilution Factor: 1		Analysis Time...: 06:27	

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Results and reporting limits have been adjusted for dry weight.









F8E100185

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 3-115

Project Manager: IV  
 Project: 6468-07-1777  
 PO#: 2008086614  
 Client: 373886 MACTEC Engineering and Consulting Inc

Quote #: 71966  
 SDG:  
 TEXAS COL PROJECT  
 Report to: Kathryn White

**RUSH**

Date Received: 2008-05-10  
 Analytical Due Date: 2008-05-15  
 Report Due Date: 2008-05-15  
 Report Type: W  
 EDD Code: 00

#SMPS in LOT: 5

Cation Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	MURPHY PIT C-33			2008-05-08 / 0	KM1E1	SOLID
<b>SAMPLE COMMENTS:</b>						
XX ZV	RAD SCREEN		RA IN-HOUSE RAD SCREEN	01 STANDARD TEST SET	PROT:A	WRK LOC 06
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT:Z	WRK LOC 06
S XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
S XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
X XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
X XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	MURPHY PIT C-144			2008-05-08 / 0	KM1E2	SOLID
<b>SAMPLE COMMENTS:</b>						
XX ZV	RAD SCREEN		RA IN-HOUSE RAD SCREEN	01 STANDARD TEST SET	PROT:A	WRK LOC 06
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT:Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
3	BRIGGS RAW MATERIAL			2008-05-08 / 0	KM1E3	SOLID
<b>SAMPLE COMMENTS:</b>						
XX ZV	RAD SCREEN		RA IN-HOUSE RAD SCREEN	01 STANDARD TEST SET	PROT:A	WRK LOC 06
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT:Z	WRK LOC 06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	CW&A TEXAS DOT GRADE 4			2008-05-08 / 0	KM1E4	SOLID
<b>SAMPLE COMMENTS:</b>						
XX ZV	RAD SCREEN		RA IN-HOUSE RAD SCREEN	01 STANDARD TEST SET	PROT:A	WRK LOC 06
XX CX	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX CY	MCAW 300.0A W	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX OZ	SW846 9045C	82	LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX WM	MCAW 160.3 MOD	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT:Z	WRK LOC 06

**F8E100185**

**CLIENT ANALYSIS SUMMARY**

Storage Loc: 3-115  
 Date Received: 2008-05-10  
 Analytical Due Date: 2008-05-15  
 Report Due Date: 2008-05-15  
 Report Type: W  
 EDD Code: 00

Project Manager: IV Quote #: 71986 SDG:  
 Project: 6488-07-1777 TEXAS COL PROJECT  
 PO#: 2008086614 Report to: Kathryn White  
 Client: 373886 MACTEC Engineering and Consulting Inc

**RUSH**

#SMPS In LOT: 5

Caflon Exchange capacity - Run B, Ca, Mg, Na, K, Bicarbonate and Carbonate alkalinity, Chloride and Sulfate.

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
5	CW&A TEXAS DOT GRADE 6			2008-05-08 / 0	KM1E5	SOLID
<b>SAMPLE COMMENTS:</b>						
XX ZV	RAD SCREEN	SOLID, RAD SCREEN, RAD SCREEN, Special L	RA IN-HOUSE RAD SCREEN	01 STANDARD TEST SET	PROT:A	WRK LOC 06
XX CX	MCAW 300.0A W	SOLID, 300.0A, Chloride	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX CY	MCAW 300.0A W	SOLID, 300.0A, Sulfate	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX OZ	SW846 0045C	SOLID, 9045C, pH (9045C) - Non-Aqueous	82 LEACHATE, DI (Routine)	01 STANDARD TEST SET	PROT:B	WRK LOC 06
XX WM	MCAW 160.3 W MOD	SOLID, 160.3 MOD, Percent Moisture	88 NO SAMPLE PREPARATION PERFORMED / DIRECT	01 STANDARD TEST SET	PROT:Z	WRK LOC 06

CWL 3201

CHAIN OF CUSTODY RECORD  
EXELON COL VICTORIA SITE; GEOLOGIC/GEOTECHNICAL EXPLORATION  
MACTEC JOB NO. 6468-07-1777

No. V23

SAMPLE DESIGNATION	SAMPLE TYPE	TAKEN BY	DATE TAKEN	INTENDED USE		REMARKS
MURPHY PIT C-33	FINE AGGREGATE	C.S.	5/8/08	120g	CHEMICAL ANALYSIS	199.89g
MURPHY PIT C-144	MORTAR SAND					177.19g
BRIGGS RAW-MATERIAL						221.08g
CWTA (TEXAS DOT GRADE 4) SOIL						206.75
CWTA (TEXAS DOT GRADE 6) SOIL						197.95
Relinquished by: C. Sawanapudi (signature)	Date/Time 5/8/08 11:00 AM	Received by: CWL (signature)	5/10/08 DPL (signature)	Relinquished by: (signature)	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)		Relinquished by: (signature)	Received at Laboratory (signature)	Date/Time

Remarks: If relinquishing to a common carrier or Fed Ex - write freight bill or tracking number here.

TAKEN SAMPLES FROM BULK SAMPLES TRK # 79189855927Z  
TOTAL 5 JARS

Receiving Laboratory: Please return original form after signing for receipt of samples; keep copy for your records. Retain all portions of unused samples in labeled containers.

DCN No. EXE 751

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date 4/21/2008 Job Name Exelon Texas COL (Victoria) Job No. 26352 Requested By D. Gerken  
 Lab Assignment 18 Victoria (POWER BLOCK STRUCTURAL FILL/ COOLING BASIN EMBANKMENT DRAINAGE MATERIALS)

SAMPLE LOCATION				PHYSICAL PROPERTIES							STRENGTH & PERMEABILITY TESTS							COMPACTION			CONSOLIDATION  NOTE: Stress Increments and rebound cycles, ksf.							
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Sample/Run Number	Field Classification	Recovery (ft)	Moisture Content	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis Slieve Only	Grain Size Analysis Slieve + Hydrometer	Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (3-stage w/ pore-pressure meas.)	Unconfined Compression (Soil)	Confining Pressures (psf)	Direct Shear (DS)	DS Normal Stress (psf)	Direct Sample Shear (DSS)		DSS Normal Stress (psf)	TSRC	Standard (A, B, C, D)	Modified (A, B, C, D)	CBR		
.....																												
24	CW&A Bulk*	N/A	TBA	TBA	N/A	X	X	X		X	X																	
	(Texas DOT Recompacted**	N/A	TBA	TBA	N/A														X	20								
	Grade 4) Recompacted**	N/A	TBA	TBA	N/A													X	40									
	Recompacted**	N/A	TBA	TBA	N/A													X	80									
.....																												
25	CW&A Bulk*	N/A	TBA	TBA	N/A	X	X	X		X	X																	
	(Texas DOT Recompacted**	N/A	TBA	TBA	N/A													X	20									
	Grade 6) Recompacted**	N/A	TBA	TBA	N/A													X	40									
	Recompacted**	N/A	TBA	TBA	N/A													X	80									
.....																												
27	Fordyce Bulk*	N/A	TBA	TBA	N/A	X	X	X		X	X																	
	(Flaw Material Recompacted**	N/A	TBA	TBA	N/A													X	20									
	at Conveyor Recompacted**	N/A	TBA	TBA	N/A													X	40									
	Briggs Recompacted**	N/A	TBA	TBA	N/A													X	80									
.....																												
	Fordyce Bulk*	N/A	TBA	TBA	N/A	X	X	X		X	X																	

Contact Donald Gerken of Bechtel if there are any questions; Mobile Phone (415) 999-7073; E-mail DEGERKEN@BECHTEL.COM.

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DCN# EXE805

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TestAmerica St. Louis

# GEOTECHNICAL LABORATORY TEST ASSIGNMENT

Date 4/21/2006 Job Name Exelon Texas COL (Victoria) Job No. 26352 Requested By D. Gerken  
 Lab Assignment 16 Victoria (POWER BLOCK STRUCTURAL FILL/ COOL BASIN EMBANKMENT DRAINAGE MATERIALS)

SAMPLE LOCATION						PHYSICAL PROPERTIES						STRENGTH & PERMEABILITY TESTS						COMPACTION			CONSOLIDATION					
Boring No.	Sample Type (Tube Sample Length)	Top of Sample/Core Run Depth, Ft	Sample/Run Number	Field Classification	Recovery (%)	Unit Weight	Specific Gravity	Atterberg Limits	Grain Size Analysis		Chemical Analysis (pH, chloride, sulphate)	Organic Content	Unconsolidated-Undrained Triaxial	Consolidated-Undrained Triaxial (8-stage wipeout-pressure means)	Unconfined Compression (80t)	Confining Pressures (psf)	Direct Shear (DS)	DS Normal Stress (psf)	Direct Sample Shear (DSS)	DSS Normal Stress (psf)	TSFC	Standard (A, B, C, D)	Modified (A, B, C, D)	CBF	NOTE: Stress Increments and rebound cycles, kaf.	
									Sieve Only	Sieve + Hydrometer																
31W	(ASTM C33) Recompacted**	N/A	TBA	TBA	N/A												X	15								
31W	Ripe Aggregate Recompacted**	N/A	TBA	TBA	N/A												X	30		15						
31W	Recompacted**	N/A	TBA	TBA	N/A												X	60								
31W	Fordyce Bulk	N/A	TBA	TBA	N/A	X	X	X	X	X												X				
31W	(ASTM C144) Recompacted**	N/A	TBA	TBA	N/A												X	15								
31W	Mortar Sand Recompacted**	N/A	TBA	TBA	N/A												X	30		15						
31W	Recompacted**	N/A	TBA	TBA	N/A												X	60								

FORDYCE, LTD., 120 MAIN PLACE, VICTORIA, TEXAS 77901 (TEL. 361-4309)  
 CW&A, INC., 2204 SOUTHWEST MOODY STREET, VICTORIA, TEXAS 77901 (TEL. 361-573-3238)

Contact Donald Gerken of Bechtel if there are any questions: Mobile Phone (415) 899-7073; E-mail DEGERKEN@BECHTEL.COM.

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Lot #(s): F8E100185 80 5/10  
- 3201 - 185

Client: Alacker COC/RFA No: 103 Date: 5/10/06  
Quote No: 28576-71966 Initiated By: BD Time: 0900  
NO 5/10

Condition Upon Receipt Form

Shipper Name: FE  
Shipping # (s):\*  
1. 7918 9855 9272  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_

Shipping Information

Multiple Packages Y  N   
Sample Temperature (s):\*\*  
1. ambient  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_

\*Numbered shipping lines correspond to Numbered Sample Temp lines

\*\*Sample must be received at 4°C ± 2°C. If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y <input checked="" type="radio"/> N <input type="radio"/>	Are there custody seals present on the cooler?	8.	Y <input checked="" type="radio"/> N <input type="radio"/>	Are there custody seals present on bottles?
2.	Y <input type="radio"/> N <input type="radio"/> N/A <input checked="" type="radio"/>	Do custody seals on cooler appear to be tampered with?	9.	Y <input type="radio"/> N <input type="radio"/> N/A <input checked="" type="radio"/>	Do custody seals on bottles appear to be tampered with?
3.	Y <input checked="" type="radio"/> N <input type="radio"/>	Were contents of cooler frisked after opening, but before unpacking?	10.	Y <input type="radio"/> N <input type="radio"/> N/A <input checked="" type="radio"/>	Was sample received with proper pH? (If not, make note below)
4.	Y <input checked="" type="radio"/> N <input type="radio"/>	Sample received with Chain of Custody?	11.	Y <input type="radio"/> N <input type="radio"/>	If N/A- Was pH taken by original TestAmerica lab?
5.	Y <input checked="" type="radio"/> N <input type="radio"/> N/A <input type="radio"/>	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y <input checked="" type="radio"/> N <input type="radio"/>	Sample received in proper containers?
6.	Y <input checked="" type="radio"/> N <input type="radio"/>	Was sample received broken?	13.	Y <input type="radio"/> N <input type="radio"/> N/A <input checked="" type="radio"/>	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	Y <input checked="" type="radio"/> N <input type="radio"/>	Is sample volume sufficient for analysis?	14.	Y <input type="radio"/> N <input type="radio"/>	Was Internal COC/Workshare received?

<sup>1</sup> For DOB/AL (Partex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

Corrective Action:

Client Contact Name: \_\_\_\_\_ Informed by: \_\_\_\_\_  
 Sample(s) processed "as is"  
 Sample(s) on hold until: \_\_\_\_\_  
Project Management Review: \_\_\_\_\_ Date: 5-14-06

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

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