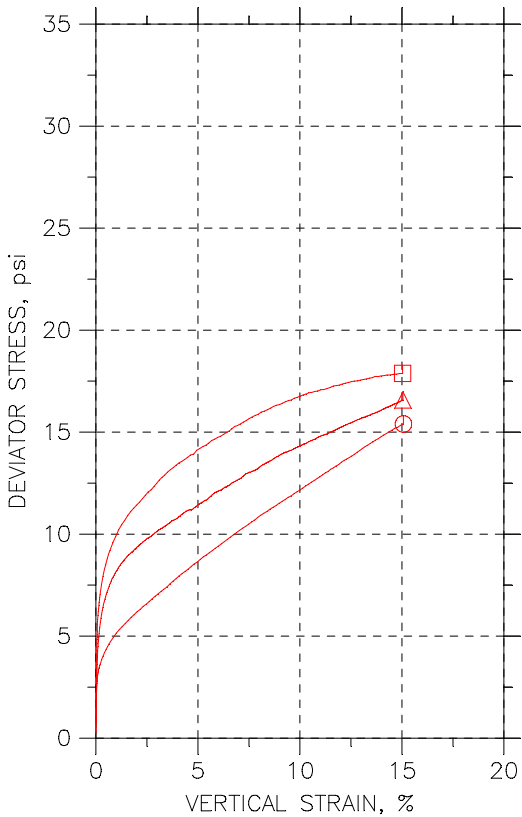
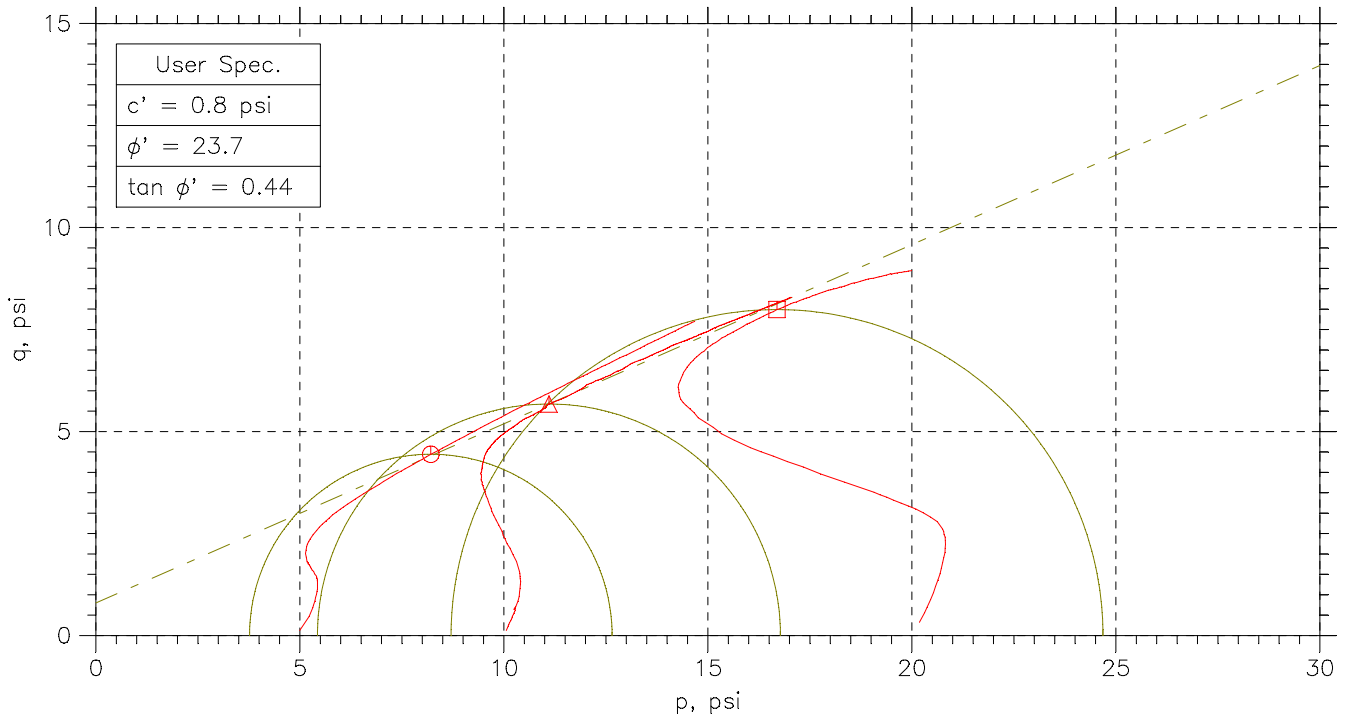


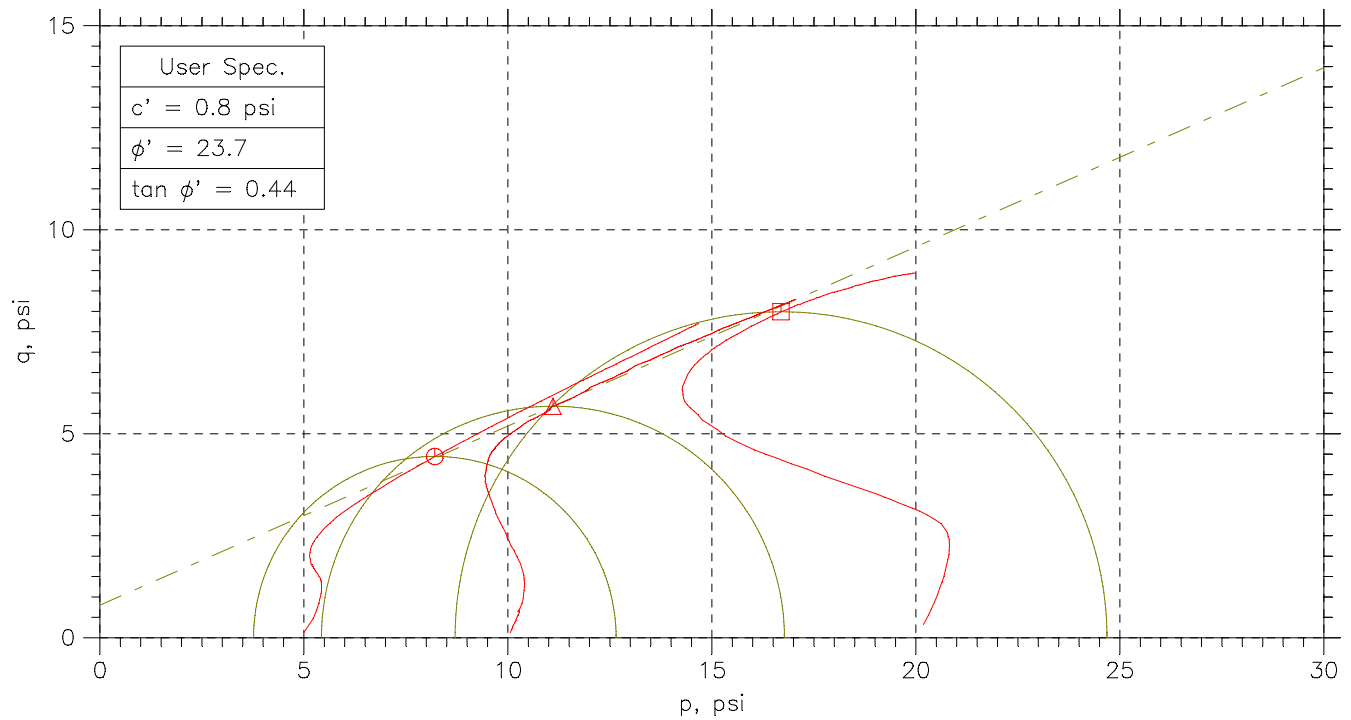
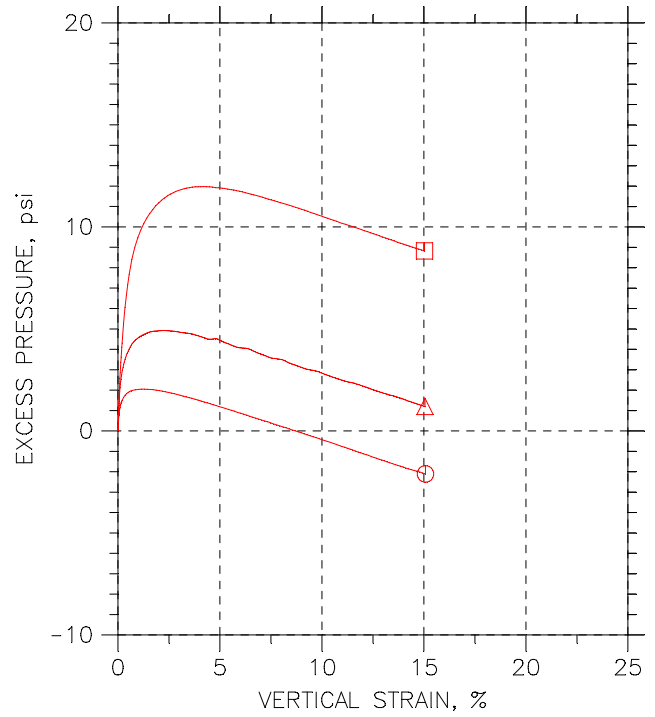
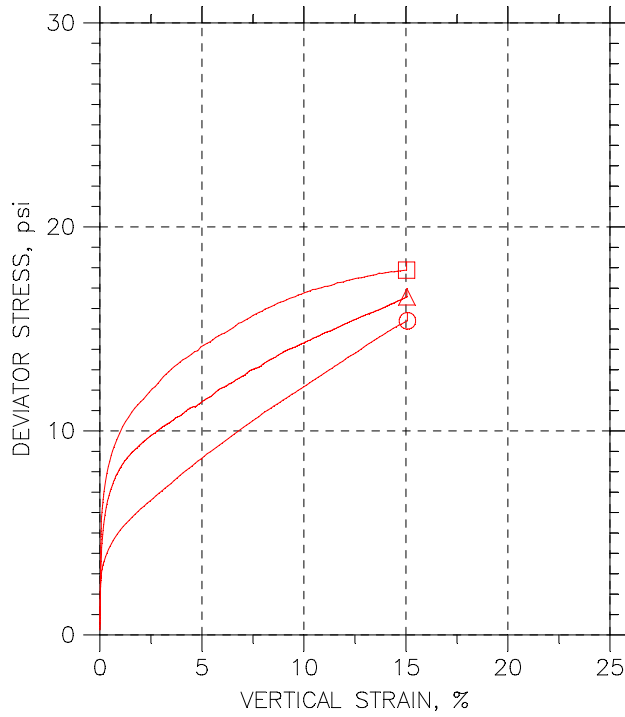
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙	△	□	
Sample No.	BA-Soil 1	BA Soil 1	BA-Soil 1	
Test No.	BA1-1.1	BA-1.2a	BA1-1.3	
Depth	-----	-----	-----	
Initial	Diameter, in	2.832	2.841	2.843
	Height, in	6.019	6.138	6.021
	Water Content, %	21.7	21.2	21.9
	Dry Density, pcf	101.1	101.	101.4
	Saturation, %	87.8	85.4	89.4
Before Shear	Void Ratio	0.668	0.669	0.662
	Water Content, %	25.0	24.1	23.1
	Dry Density, pcf	100.6	102.2	103.8
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.675	0.649	0.624
	Back Press., psi	146.6	119.3	131.1
	Ver. Eff. Cons. Stress, psi	4.872	9.935	19.86
	Shear Strength, psi	7.699	8.288	8.94
	Strain at Failure, %	15.1	15.1	15
	Strain Rate, %/min	0.07	0.016	0.07
	B-Value	0.96	0.96	0.95
	Estimated Specific Gravity	2.7	2.7	2.7
	Liquid Limit	47	47	47
	Plastic Limit	21	21	21

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: BA-1				
	Sample Type: Remolded				
	Description: Brown Lean clay				
Remarks: 2054					

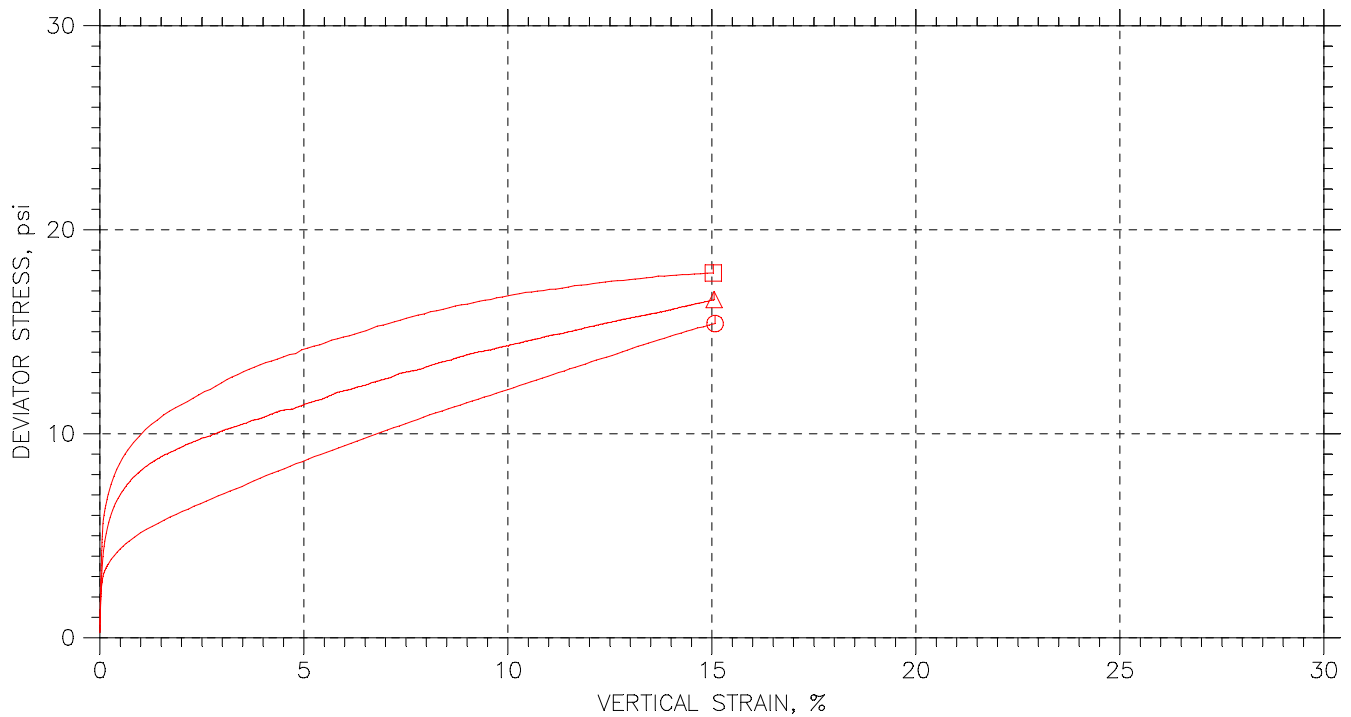
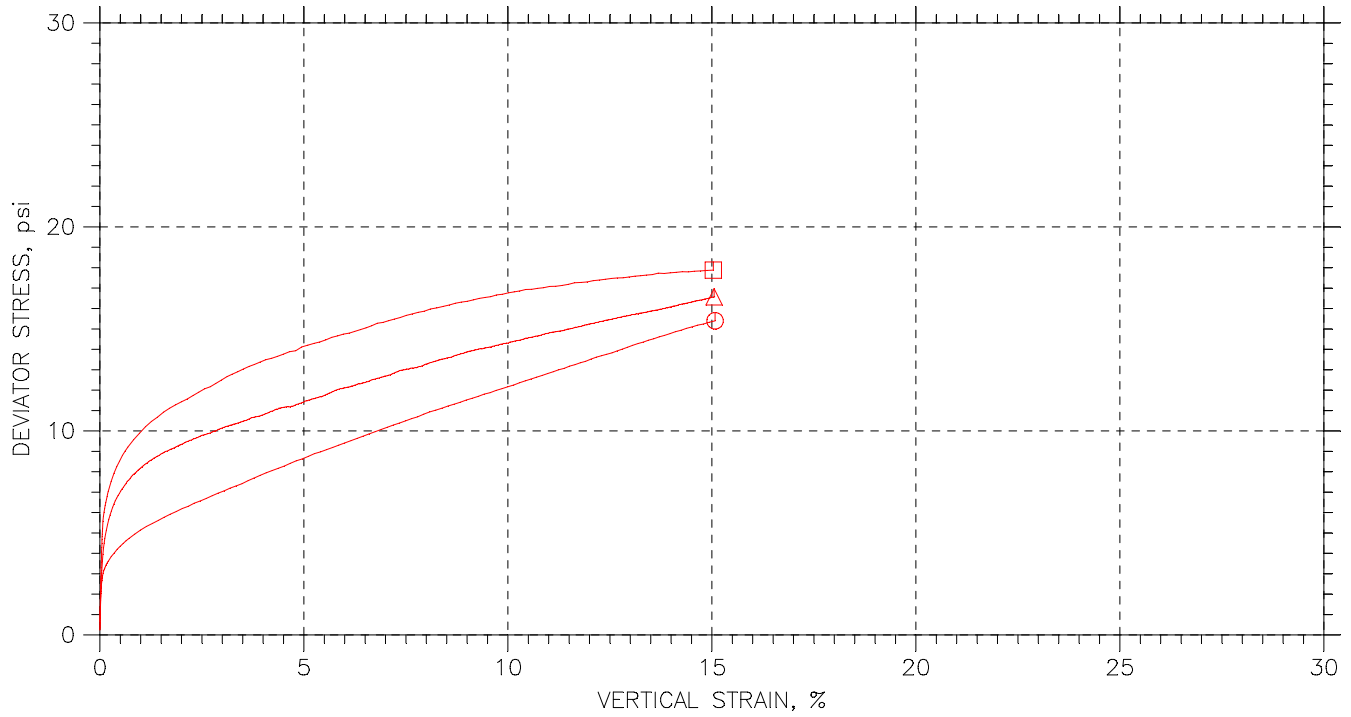
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	BA-Soil 1	BA1-1.1	-----	MM	9/25/09	GT		1490-BA1-1.1.dat
△	BA Soil 1	BA-1.2a	-----	JM	10/13/09	MM		1490-BA1-1.2a.dat
□	BA-Soil 1	BA1-1.3	-----	MM	9/25/09	GT		1490-BA1-1.3.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier		Location: ---		Project No.: GTX-1490	
	Boring No.: BA-1		Sample Type: Remolded			
	Description: Brown Lean clay					
	Remarks: 2054					

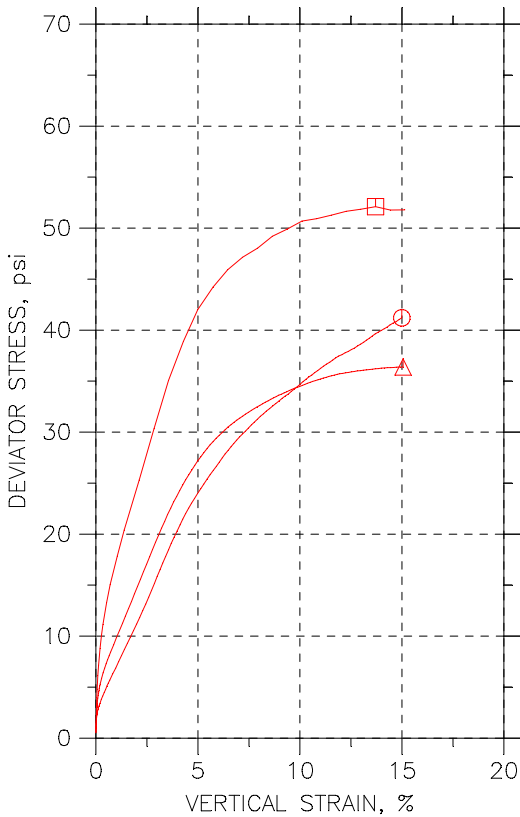
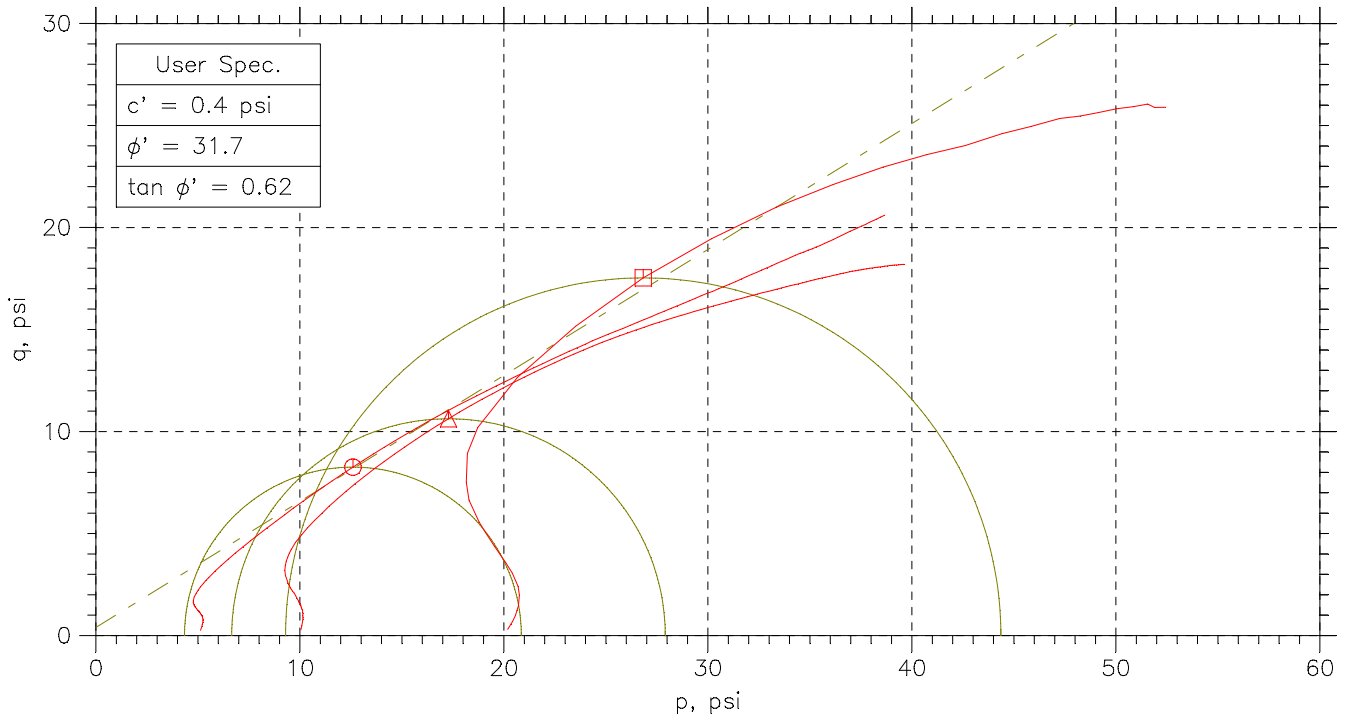
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	BA-Soil 1	BA1-1.1	-----	MM	9/25/09	GT		1490-BA1-1.1.dat
△	BA Soil 1	BA-1.2a	-----	JM	10/13/09	MM		1490-BA1-1.2a.dat
□	BA-Soil 1	BA1-1.3	----	MM	9/25/09	GT		1490-BA1-1.3.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier		Location: ---		Project No.: GTX-1490	
	Boring No.: BA-1		Sample Type: Remolded			
	Description: Brown Lean clay					
	Remarks: 2054					

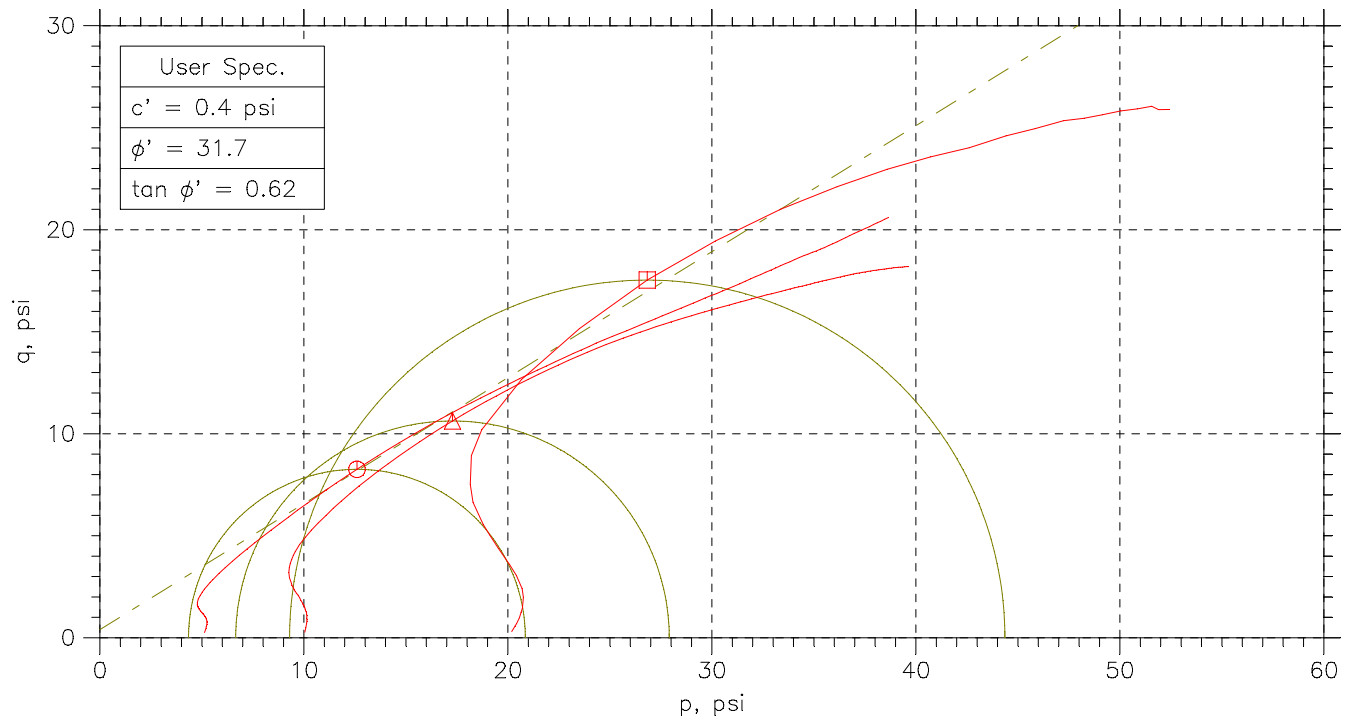
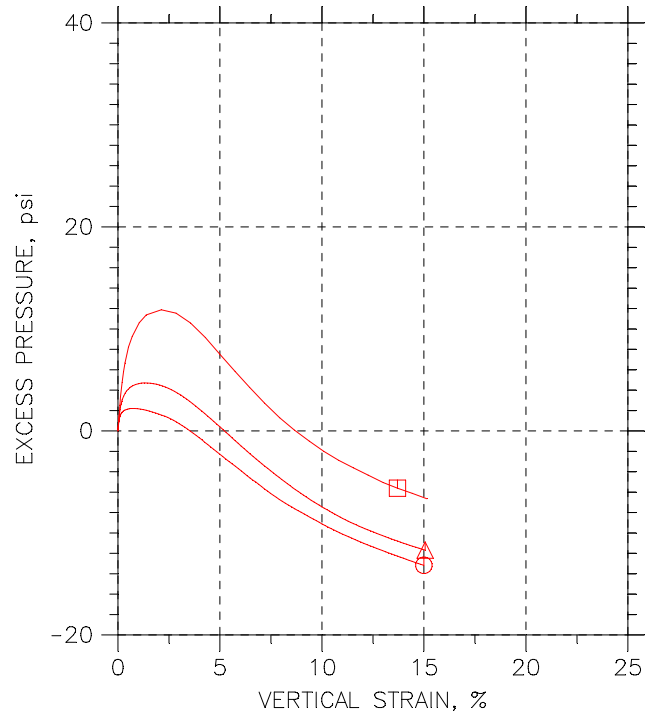
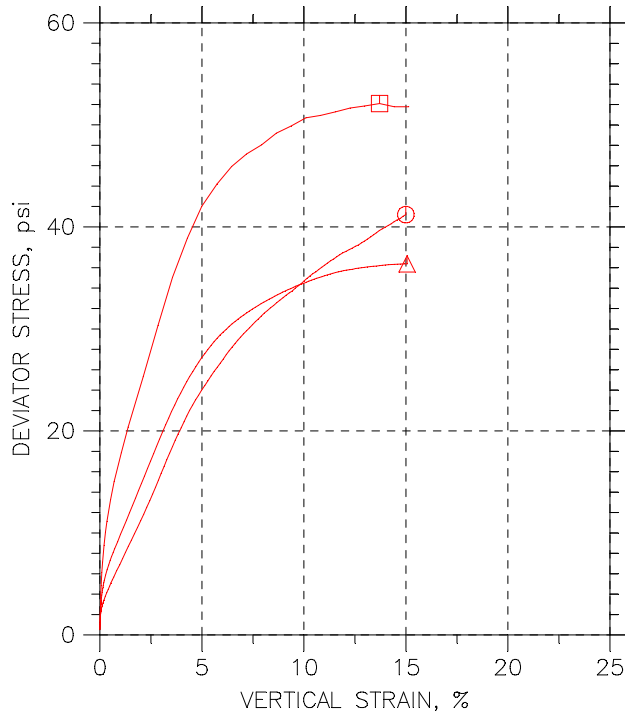
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙	△	□	
Sample No.	BA2-Soil	BA Soil 2	BA Soil 2	
Test No.	BA2-1.1	BA-1.2	BA2-1.3	
Depth	25.7-30'	25.7-30'	25.7-30'	
Initial	Diameter, in	2.859	2.863	2.851
	Height, in	5.853	5.854	5.85
	Water Content, %	21.4	21.3	21.3
	Dry Density, pcf	99.07	99.38	99.96
	Saturation, %	82.6	82.6	83.8
Before Shear	Void Ratio	0.701	0.696	0.686
	Water Content, %	26.6	25.9	26.0
	Dry Density, pcf	98.14	99.13	99.03
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.718	0.7	0.702
	Back Press., psi	146.1	140.2	131.1
	Ver. Eff. Cons. Stress, psi	4.879	9.774	19.89
	Shear Strength, psi	20.6	18.19	26.05
	Strain at Failure, %	15	15.1	13.7
	Strain Rate, %/min	0.07	0.07	0.07
	B-Value	0.95	0.96	0.95
	Estimated Specific Gravity	2.7	2.7	2.7
	Liquid Limit	47	47	47
	Plastic Limit	22	22	22

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: -----				
	Sample Type: Remolded				
	Description: moist, brown lean clay				
Remarks: System 1057					

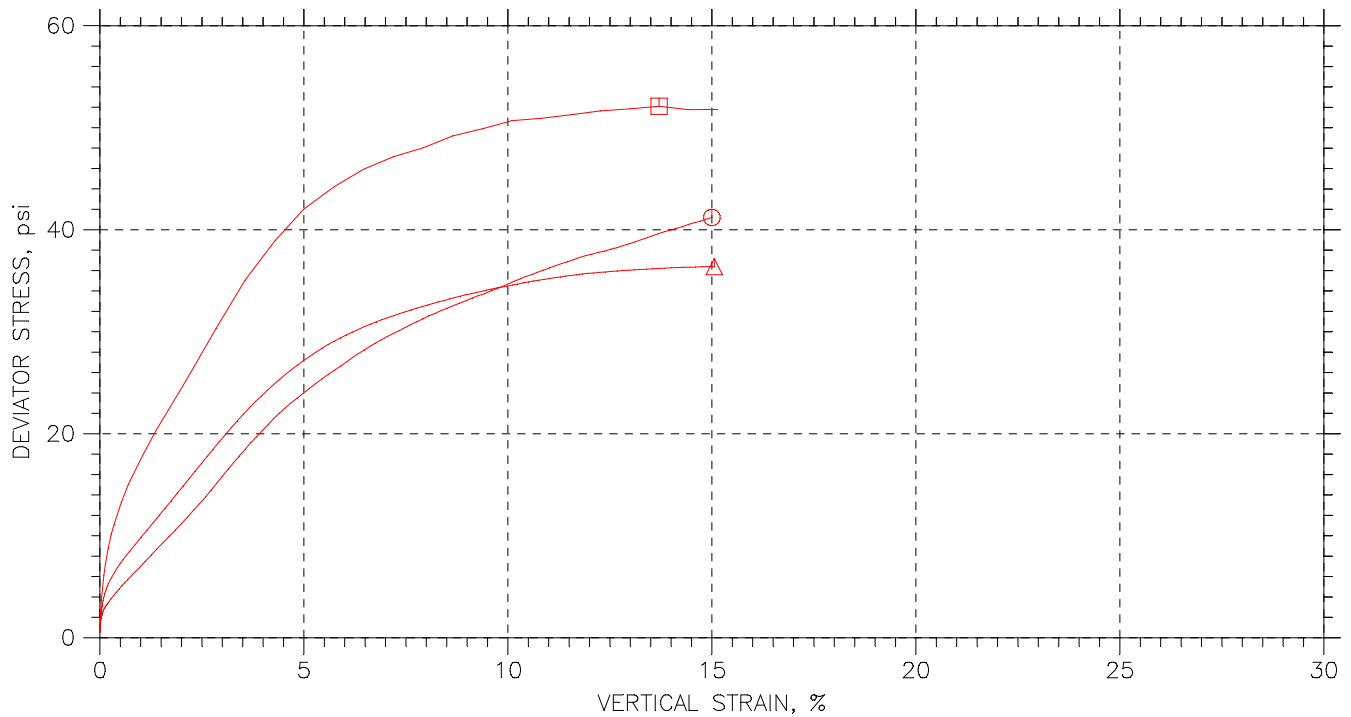
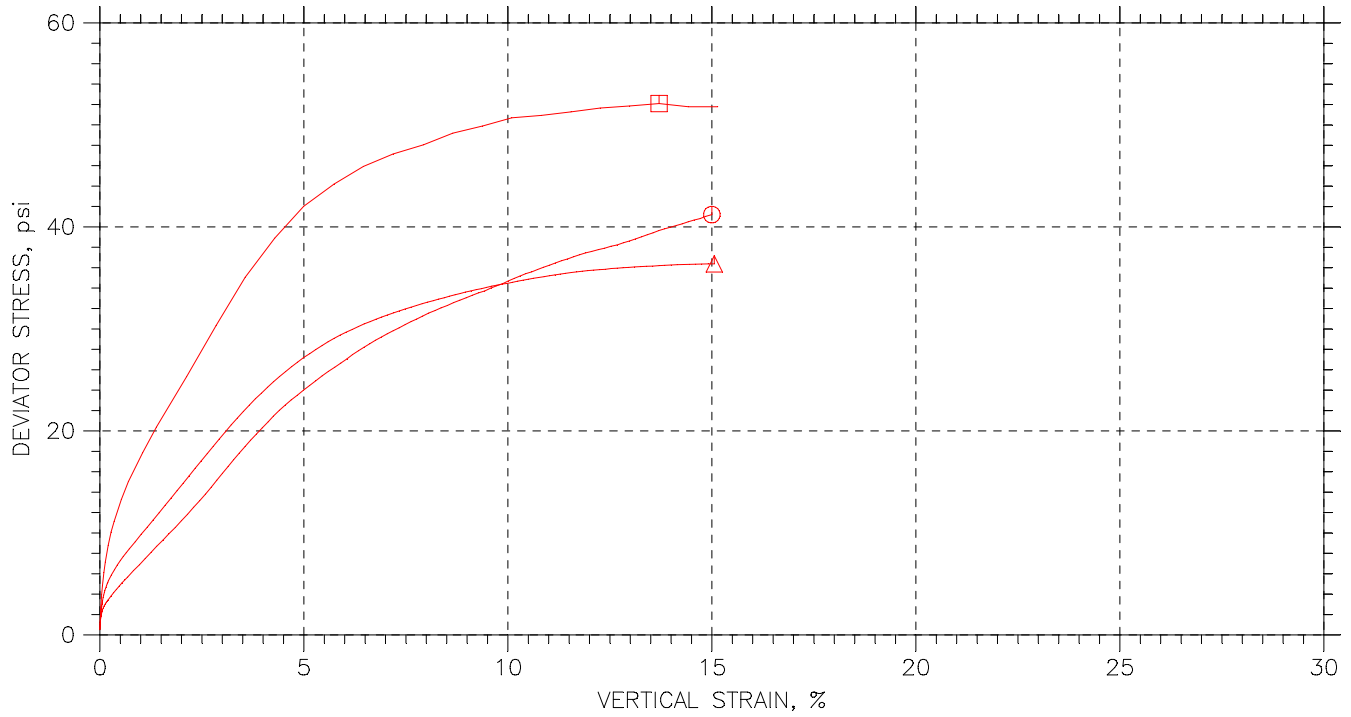
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	BA2-Soil	BA2-1.1	25.7-30'	MM	9/21/09	GT		1490-BA2-1.1.dat
△	BA Soil 2	BA-1.2	25.7-30'	MM	9/21/09	GT		1490-BA2-1.2.dat
□	BA Soil 2	BA2-1.3	25.7-30'	MM	9/21/09	GT		1490-BA2-1.3.dat

<p style="font-size: small; margin-top: 5px;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: -----		Sample Type: Remolded			
	Description: moist, brown lean clay					
	Remarks: System 1057					

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	BA2-Soil	BA2-1.1	25.7-30'	MM	9/21/09	GT		1490-BA2-1.1.dat
△	BA Soil 2	BA-1.2	25.7-30'	MM	9/21/09	GT		1490-BA2-1.2.dat
□	BA Soil 2	BA2-1.3	25.7-30'	MM	9/21/09	GT		1490-BA2-1.3.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: -----		Sample Type: Remolded			
	Description: moist, brown lean clay					
	Remarks: System 1057					



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04 COE Output

Project Name John Siever Fossil Plant

Project Number 175569038

Test ID _____

Request ID 20090526_2

Over-Ride _____

Set Number 351

Test Type - Select 1

Undisturbed _____

Remolded _____ rare

Source _____

Compacted _____

Sample ID _____

If Compacted or Remolded:

Test A

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test B

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test C

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

If Uniform for all

Visual Description: Lean Clay (CL), brown

LL 35

PL 18

PI 17

GS 2.64

ASTM D854 Method: A

Assumed _____

Estimated _____

Gs Method Test ASTM D854 Method A

Test Number (ie 19A) 351A

Normal Load (psi) 20

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-11-09	11:21:00	1.17
0.1	6-11-09	11:21:06	1.53
0.25	6-11-09	11:21:15	1.55
0.5	6-11-09	11:21:30	1.57
1	6-11-09	11:22:00	1.65
2	6-11-09	11:23:00	1.71
3	6-11-09	11:24:00	1.79
4	6-11-09	11:25:00	1.85
6	6-11-09	11:27:00	1.93
8	6-11-09	11:29:00	2.03
10	6-11-09	11:31:00	2.09
12	6-11-09	11:33:00	2.16
16	6-11-09	11:37:00	2.29
22	6-11-09	11:43:00	2.43
46	6-11-09	12:07:00	2.94
92	6-11-09	12:53:00	3.61
150	6-11-09	13:51:00	4.26
269	6-11-09	15:50:00	5.29
1234	6-12-09	7:55:00	9.04
1646	6-12-09	14:47:00	9.49
2649	6-13-09	7:30:00	9.83
3159	6-13-09	16:00:00	9.85

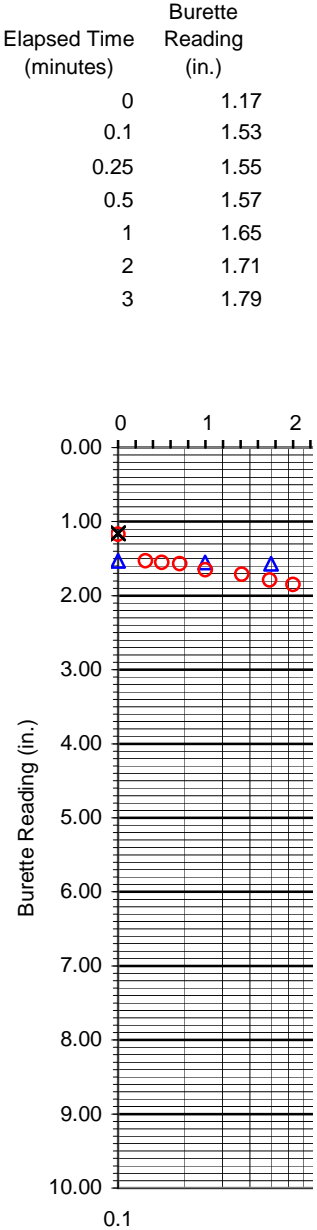


x o11:c32 y c11:c32
 sqtr plot range

e12:e32 c12:c32
 log plot range

Project Name Jo
 Source JS
 Start Date 6-11-09
 End Date 6-13-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.17	0	0.10	0	0.10	0	0	1.17
not	0.1	1.53	0.3162278	0.13	1	0.25	0	0.1	1.53
erase!	0.25	1.55	0.5	0.16	2	0.63	0	0.25	1.55
	0.5	1.57	0.7071068	0.19	3	1.58	0	0.5	1.57
	1	1.65	1	0.25	4	3.98	0	1	1.65
	2	1.71	1.4142136	0.37	5	10.00	0	2	1.71
	3	1.79	1.7320508	0.49	6	25.12	0	3	1.79
	4	1.85	2	0.63	7	63.10	0		
	6	1.93	2.4494897	0.95	8	158.49	0		
	8	2.03	2.8284271	1.35	9	398.11	0		
	10	2.09	3.1622777	1.84	10	1000.00	0		
	12	2.16	3.4641016	2.43	11	2511.89	0		
	16	2.29	4	3.98	0.2	0.12	0		
	22	2.43	4.6904158	7.52	0.4	0.14	0		
	46	2.94	6.78233	51.63	0.6	0.17	0		
	92	3.61	9.591663	686.54	0.8	0.21	0		
	150	4.26	12.247449	7924.64	1.2	0.30	0		
	269	5.29	16.401219	363486.08	1.4	0.36	0		
	1234	9.04	35.128336	#####	1.6	0.44	0		
	1646	9.49	40.570926	#####	1.8	0.52	0		
	2649	9.83	51.468437	#####	2.2	0.76	0		
	3159	9.85	56.204982	#####	2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		



Square Roo

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root
8.6	275.42	0	plot point - x
8.8	331.13	0	
9.2	478.63	0	d ₀ = 0.10
9.4	575.44	0	d ₉₀ = 0.10
9.6	691.83	0	d ₁₀₀ = 0.10
9.8	831.76	0	
10.2	1202.26	0	d ₀ = 0.10
10.4	1445.44	0	d ₀ line 0.10
10.6	1737.80	0	
10.8	2089.30	0	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

Inhn Siever Fossil Plant
 12, 28.5' - 46.5'

Project No. 175569038

Test Number 351A

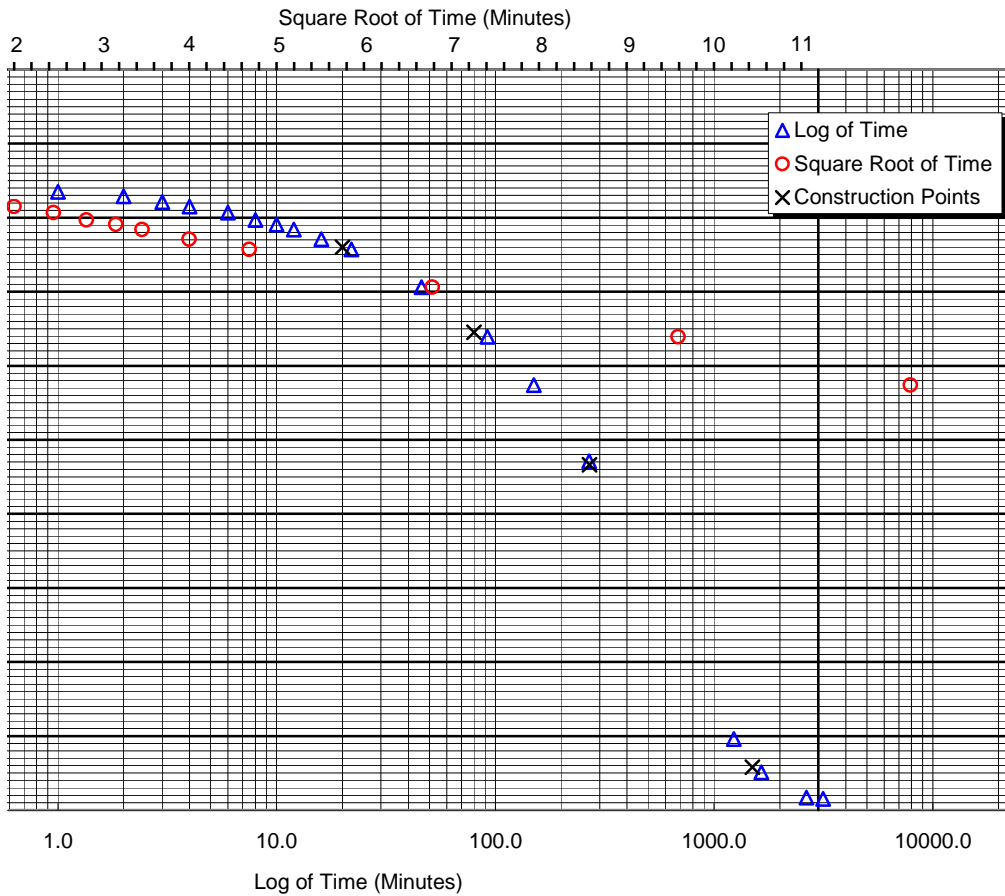
Start Time 11:21 AM

Load (tsf) 20

End Time 4:00 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	1.85	46	2.94	3159	9.85	8:24 PM
6	1.93	92	3.61			
8	2.03	150	4.26			
10	2.09	269	5.29			
12	2.16	1234	9.04			
16	2.29	1646	9.49			
22	2.43	2649	9.83			

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$	9.42	$t_{100} (m) =$	1500
$t_{100} (m) =$	$d_{t1} =$	2.4	$t_1 (m) =$	20
$t_{50} (m) =$	$d_{t2 (t1*4)} =$	3.55	$t_{50} (m) =$	270
	$d_{50} =$	5.335		

t of Time

y	time
1.16	0
1.159	0
1.158	0
1.16	0
1.159	0

log of time

	time - x	plot point - y
d ₁₀₀	1500	9.42
d _{t1}	20	2.4
d _{t1*4}	80	3.55
d ₅₀	270	5.335

line @ 3000 m

3000	10
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	9.85 maximum scale	9.9	10	10	2	10
min. dial reading	1.17 mimimum scale	1.1	1	1	0	0
diference	8.68	8.8	9	9	2	10

0.5	1	2	3	4	5	10	20
						10	20
						1	2
						0.1	0.2
						10	20
						0	0
						1	2
						10	20
						0	0
						10	20
						1	2
						0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	10
min_y	0
total scale	10
Major unit	1
Minor unit	0.1

Test Number (ie 19A) 351B

Normal Load (psi) 30

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-11-09	11:33:00	0.86
0.1	6-11-09	11:33:06	1.24
0.5	6-11-09	11:33:30	1.34
1	6-11-09	11:34:00	1.41
2	6-11-09	11:35:00	1.49
3	6-11-09	11:36:00	1.55
4	6-11-09	11:37:00	1.59
6	6-11-09	11:39:00	1.69
8	6-11-09	11:41:00	1.73
10	6-11-09	11:43:00	1.78
13	6-11-09	11:46:00	1.86
64	6-11-09	12:37:00	2.19
80	6-11-09	12:53:00	2.56
138	6-11-09	13:51:00	2.87
257	6-11-09	15:50:00	3.24
1222	6-12-09	7:55:00	3.84
1707	6-12-09	16:00:00	3.86



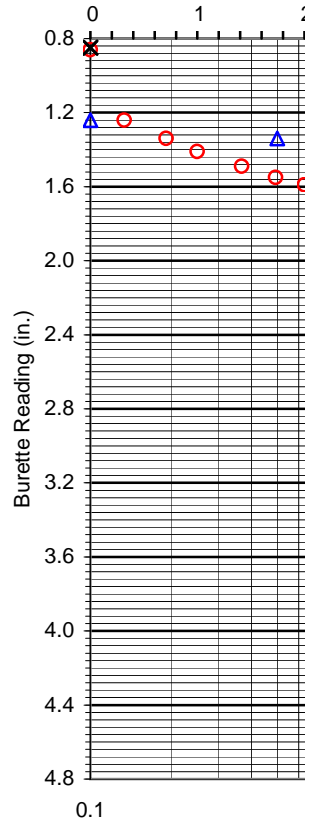
x y
 sqtr plot range o11:o27 c11:c27
 log plot range e12:e27 c12:c27

Project Name Jo
 Source JS
 Start Date 6-11-09
 End Date 6-12-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	0.86	0	0.10	0	0.10	0.8	0	0.86
not	0.1	1.24	0.3162278	0.13	1	0.25	0.8	0.1	1.24
erase!	0.5	1.34	0.7071068	0.19	2	0.63	0.8	0.5	1.34
	1	1.41	1	0.25	3	1.58	0.8	1	1.41
	2	1.49	1.4142136	0.37	4	3.98	0.8	2	1.49
	3	1.55	1.7320508	0.49	5	10.00	0.8	3	1.55
	4	1.59	2	0.63	6	25.12	0.8	4	1.59
	6	1.69	2.4494897	0.95	7	63.10	0.8		
	8	1.73	2.8284271	1.35	8	158.49	0.8		
	10	1.78	3.1622777	1.84	9	398.11	0.8		
	13	1.86	3.6055513	2.77	10	1000.00	0.8		
	64	2.19	8	158.49	11	2511.89	0.8		
	80	2.56	8.9442719	378.19	0.2	0.12	0.8		
	138	2.87	11.74734	4999.61	0.4	0.14	0.8		
	257	3.24	16.03122	258516.23	0.6	0.17	0.8		
	1222	3.84	34.957117	#####	0.8	0.21	0.8		
	1707	3.86	41.315857	#####	1.2	0.30	0.8		
					1.4	0.36	0.8		
					1.6	0.44	0.8		
					1.8	0.52	0.8		
					2.2	0.76	0.8		
					2.4	0.91	0.8		
					2.6	1.10	0.8		
					2.8	1.32	0.8		
					3.2	1.91	0.8		
					3.4	2.29	0.8		
					3.6	2.75	0.8		
					3.8	3.31	0.8		
					4.2	4.79	0.8		
					4.4	5.75	0.8		
					4.6	6.92	0.8		
					4.8	8.32	0.8		
					5.2	12.02	0.8		
					5.4	14.45	0.8		
					5.6	17.38	0.8		
					5.8	20.89	0.8		
					6.2	30.20	0.8		
					6.4	36.31	0.8		
					6.6	43.65	0.8		
					6.8	52.48	0.8		
					7.2	75.86	0.8		
					7.4	91.20	0.8		
					7.6	109.65	0.8		
					7.8	131.83	0.8		
					8.2	190.55	0.8		
					8.4	229.09	0.8		

Elapsed Time (minutes)

Burette Reading (in.)



Square Roo

d₀ =

d₉₀ =

d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root	
8.6	275.42	0.8		plot point - x
8.8	331.13	0.8		
9.2	478.63	0.8	$d_0 =$	0.10
9.4	575.44	0.8	$d_{90} =$	0.10
9.6	691.83	0.8	$d_{100} =$	0.10
9.8	831.76	0.8		
10.2	1202.26	0.8	$d_0 =$	0.10
10.4	1445.44	0.8	d_0 line	0.10
10.6	1737.80	0.8		
10.8	2089.30	0.8		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

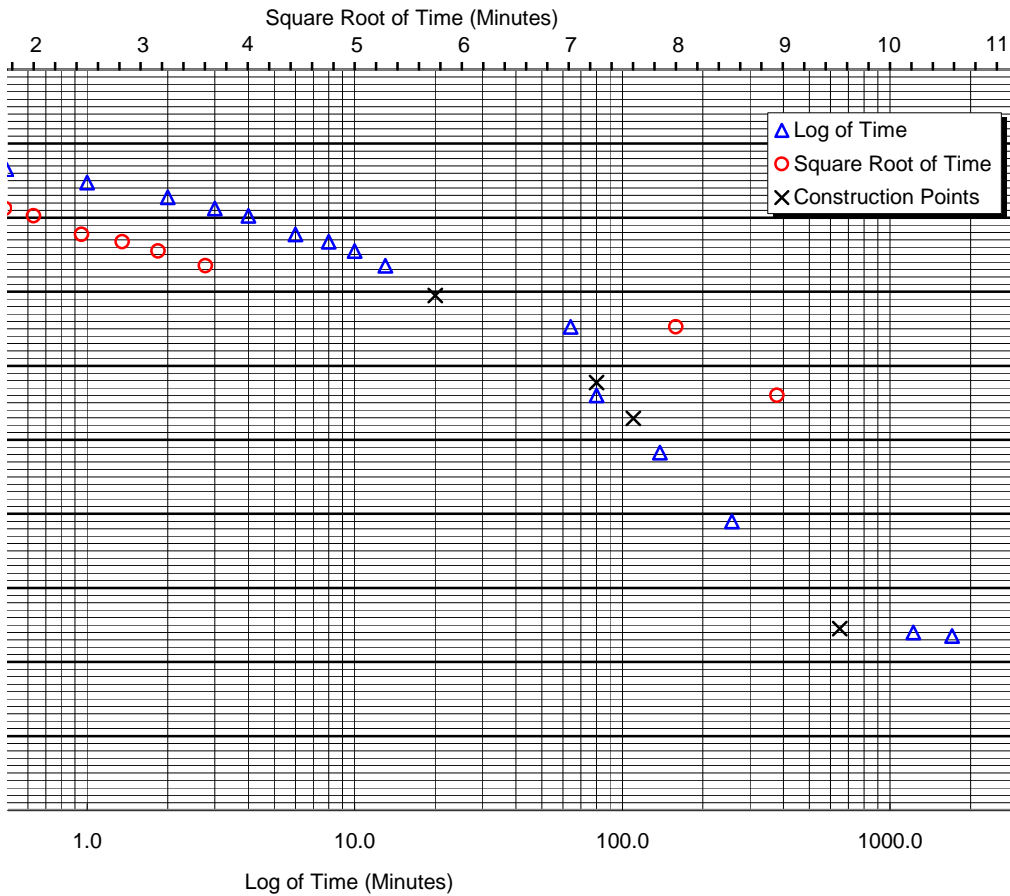
John Siever Fossil Plant
 12, 28.5' - 46.5'

Project No. 175569038
 Test Number 351B
 Load (tsf) 30

Start Time 11:33 AM
 End Time 4:00 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
6	1.69	257	3.24			8:38 PM
8	1.73	1222	3.84			
10	1.78	1707	3.86			
13	1.86					
64	2.19					
80	2.56					
138	2.87					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} = 3.82$	$t_{100} (m) = 650$
$t_{100} (m) =$	$d_{t1} = 2.02$	$t_1 (m) = 20$
$t_{50} (m) =$	$d_{t2 (t1*4)} = 2.49$	$t_{50} (m) = 110$
	$d_{50} = 2.685$	

t of Time

y	time
0.85	0
0.849	0
0.848	0
0.85	0
0.849	0

log of time

	time - x	plot point - y
d ₁₀₀	650	3.82
d _{t1}	20	2.02
d _{t1*4}	80	2.49
d ₅₀	110	2.685

line @ 3000 m

3000	4.8
3000	0.8

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	3.86 maximum scale	3.9	4	4	2	10
min. dial reading	0.86 minimum scale	0.8	0.8	0.5	0	0
diference	3	3.1	3.2	3.5	2	10

0.5	1	2	3	4	5	10	20
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2
				4.8	5.5	10	20
				0.8	0.5	0	0
				1	2	2	2
				4.8	5.5	10	20
				0.8	0.5	0	0
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	4.8
min_y	0.8
total scale	4
Major unit	0.4
Minor unit	0.04

Test Number (ie 19A) 351C

Normal Load (psi) 40

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-17-09	11:17:00	1.33
0.1	6-17-09	11:17:06	1.89
0.25	6-17-09	11:17:15	1.91
0.5	6-17-09	11:17:30	1.99
1	6-17-09	11:18:00	2.01
2	6-17-09	11:19:00	2.09
3	6-17-09	11:20:00	2.14
4	6-17-09	11:21:00	2.19
6	6-17-09	11:23:00	2.28
8	6-17-09	11:25:00	2.36
10	6-17-09	11:27:00	2.41
12	6-17-09	11:29:00	2.48
33	6-17-09	11:50:00	2.87
89	6-17-09	12:46:00	3.56
128	6-17-09	13:25:00	3.91
150	6-17-09	13:47:00	4.08
1243	6-18-09	8:00:00	8.1
1723	6-18-09	16:00:00	8.16

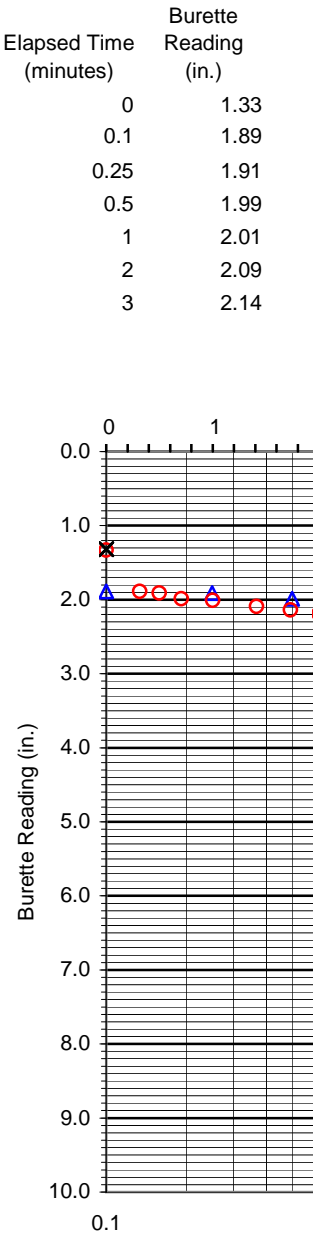


x o11:c28 y c11:c28
 sqtr plot range

e12:e28 c12:c28
 log plot range

Project Name JS
 Source JS
 Start Date 6-17-09
 End Date 6-18-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.33	0	0.10	0	0.10	0	0	1.33
not	0.1	1.89	0.3162278	0.13	1	0.25	0	0.1	1.89
erase!	0.25	1.91	0.5	0.16	2	0.63	0	0.25	1.91
	0.5	1.99	0.7071068	0.19	3	1.58	0	0.5	1.99
	1	2.01	1	0.25	4	3.98	0	1	2.01
	2	2.09	1.4142136	0.37	5	10.00	0	2	2.09
	3	2.14	1.7320508	0.49	6	25.12	0	3	2.14
	4	2.19	2	0.63	7	63.10	0		
	6	2.28	2.4494897	0.95	8	158.49	0		
	8	2.36	2.8284271	1.35	9	398.11	0		
	10	2.41	3.1622777	1.84	10	1000.00	0		
	12	2.48	3.4641016	2.43	11	2511.89	0		
	33	2.87	5.7445626	19.85	0.2	0.12	0		
	89	3.56	9.4339811	593.73	0.4	0.14	0		
	128	3.91	11.313708	3353.38	0.6	0.17	0		
	150	4.08	12.247449	7924.64	0.8	0.21	0		
	1243	8.1	35.256205	#####	1.2	0.30	0		
	1723	8.16	41.509035	#####	1.4	0.36	0		
					1.6	0.44	0		
					1.8	0.52	0		
					2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		



Square Root

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root
8.6	275.42	0	plot point - x
8.8	331.13	0	
9.2	478.63	0	d ₀ = 0.10
9.4	575.44	0	d ₉₀ = 0.10
9.6	691.83	0	d ₁₀₀ = 0.10
9.8	831.76	0	
10.2	1202.26	0	d ₀ = 0.10
10.4	1445.44	0	d ₀ line 0.10
10.6	1737.80	0	
10.8	2089.30	0	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

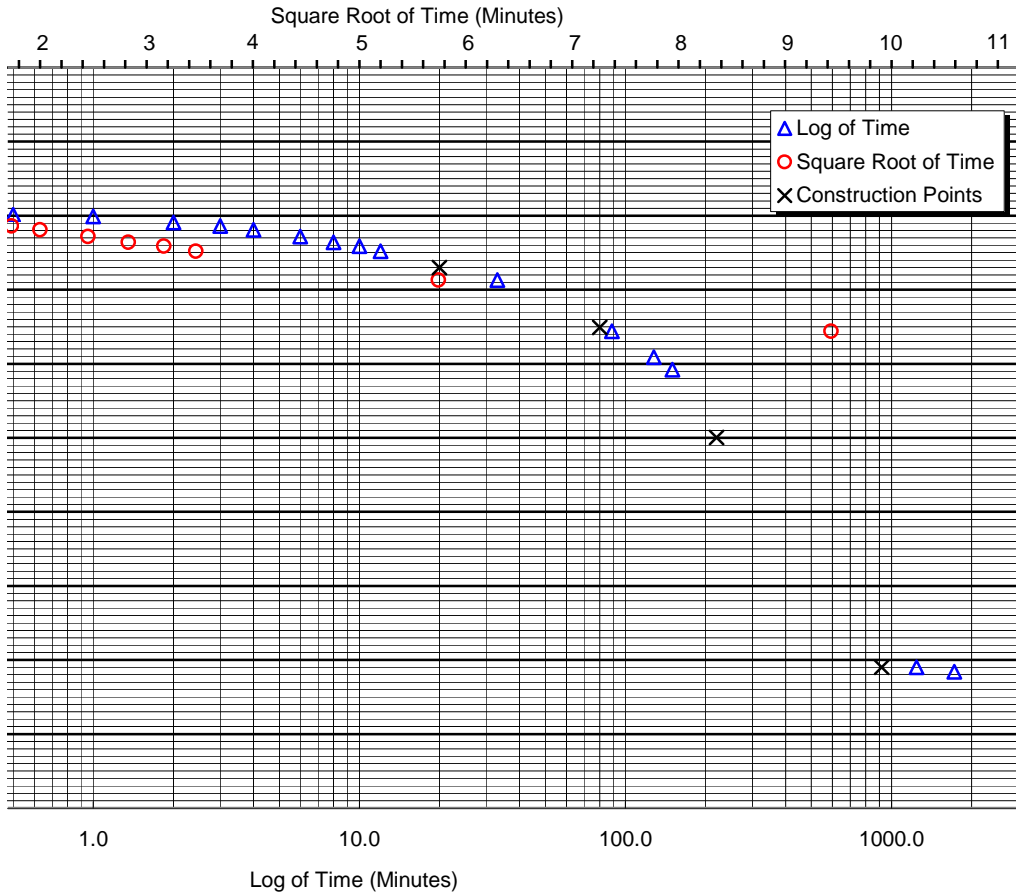
John Siever Fossil Plant
 12-18.5' - 46.5'

Project No. 175569038
 Test Number 351C
 Load (tsf) 40

Start Time 11:17 AM
 End Time 4:00 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	2.19	128	3.91			3:50 AM
6	2.28	150	4.08			
8	2.36	1243	8.1			
10	2.41	1723	8.16			
12	2.48					
33	2.87					
89	3.56					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$ 8.1	$t_{100} (m) =$ 920
$t_{100} (m) =$	$d_{t1} =$ 2.7	$t_1 (m) =$ 20
$t_{50} (m) =$	$d_{t2 (t1*4)} =$ 3.51	$t_{50} (m) =$ 220
	$d_{50} =$ 4.995	

t of Time

y	time
1.32	0
1.319	0
1.318	0
1.32	0
1.319	0

	log of time	
	time - x	plot point - y
d ₁₀₀	920	8.1
d _{t1}	20	2.7
d _{t1*4}	80	3.51
d ₅₀	220	4.995

line @ 3000 m		
3000		10
3000		0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	8.16 maximum scale	8.2	8.2	8.5	2	10
min. dial reading	1.33 minimum scale	1.3	1.2	1	0	0
diference	6.83	6.9	7	7.5	2	10

0.5	1	2	3	4	5	10	20
						10	20
						1	2
						0.1	0.2
						10	20
						0	0
						1	2
						10	20
						0	0
						10	20
						1	2
						0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1	
max_y	10
min_y	0
total scale	10
Major unit	1
Minor unit	0.1



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-12, 28.5' - 46.5'		Test Number	CU-351A
Visual Description	Lean Clay (CL), brown		Prepared By	KDG
	Need!		Date	6-10-2009
			Set No.	351
Specific Gravity	2.64	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 70 (psi)	Lateral	20 (psi)

Initial Specimen Data

Specimen Diameter (in)			Specimen Height (in)			Specimen		Trimmings			
Top	1	2.8	2	1	6	2	6	Wet Wt (g)	1228.9	Tare Id.	514
Middle	3	2.8	4	3	6	4	6	Dry Wt (g)		Wet Wt (g)	399.83
Bottom	5	2.8	6					mc %		Dry Wt (g)	329.91
								from final	24.6	986.27	X
								from trimmings	24.5	987.25	

Setup and Saturation

Panel No.	B	Burette S/L	L	Set Up By	KDG	Date	6-10-09
Specimen Diam.+ Membrane (in)			System Height (in)			Initial Sample + System Height	
Top	1	2	1	2	1	2	
Middle	3	4	3	4	3	4	
Bottom	5	6					
					Average Area (in ²)		Avg. Height (in)

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Values	
Initial Height	0.235	Initial	14.51	Initial	10.08	B1	
Final Height	0.2475	Final	13.06	Final	1.82	B2	
Comments:						B3	
						B4	0.96

Consolidation

Physical Height Readings (in)		Burette Readings			Panel No.		
Initial	0.2475	Back Pressure		Chamber	B	Burettes L/S	L
@ 15 Min		Initial	1.17	Initial	16.81	Tested By	KDG
Final	0.431	Final	9.85	Final	9.46		
Comments:							

Test

Data File ID	CU-351A	Press No.	1	Area (A _c)		t ₅₀	270	Start Time	
Tested By	KDG	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-16-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)			Moisture from Sample		
	1	2.93	2	2.93	Tare Id.	Bob
	3	3.233	4	3.233	Wet Wt (g)	1330.69
	5	3.108	6	3.108	Dry Wt (g)	1136.76
				3.233 avg. max.	Tare Wt (g)	224.63
	Membrane Thickness (in.)	0.012	Final Wet Weight	1195.96 g	Final Dry Weight	986.27
					Final MC %	21.3

Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-12, 28.5' - 46.5'		Test Number	CU-351B
Visual Description	Lean Clay (CL), brown		Prepared By	KDG
	Need!		Date	6-10-2009
			Set No.	351
Specific Gravity	2.64	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 60 (psi)	Lateral	30 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimming		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1228.9	Tare Id.	514
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	399.83
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	329.91
			from final	24.7	985.16	X	Tare Wt (g)	44.26
			from trimmings	24.5	987.25			

Setup and Saturation

Panel No.	C	Burette S/L	L	Set Up By	KDG	Date	6-10-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1	2	1	2	1	2	
Middle	3	4	3	4	3	4	
Bottom	5	6					
			Average Area (in ²)		Avg. Height (in)		

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2371	Initial	11.69	Initial	11.12	B1	
Final Height	0.32	Final	12.89	Final	12.85	B2	
Comments:						B3	
						B4	0.99

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.32	Back Pressure		C	
@ 15 Min		Initial	0.86	Burettes L/S	
Final	0.43	Final	3.86	L	
Comments:		Initial	17.43	Tested By	
		Final	8.11	KDG	

Test

Data File ID	CU-351B	Press No.	1	Area (A _c)		t ₅₀	1100	Start Time	
Tested By	KDG	Panel No.	C	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-17-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	2.961	2	2.961	Tare Id.	Pan B
	3	3.219	4	3.219	Wet Wt (g)	1406.78
	5	3.154	6	3.154	Dry Wt (g)	1215.22
	Membrane Thickness (in.)	0.012	3.219		Tare Wt (g)	229.93
Final Wet Weight	1176.7 g	Final Dry Weight	985.16	Final MC %	19.4	

Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-12-18.5' - 46.5'		Test Number	CU-351C
Visual Description	Lean Clay (CL), brown		Prepared By	KDG
			Date	6-10-2009
			Set No.	351
Specific Gravity	2.64	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 50 (psi)	Lateral	40 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1228.9	Tare Id.	514
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	399.83
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	329.91
			from final	24.9	983.73	X	Tare Wt (g)	44.26
			from trimmings	24.5	987.25			

Setup and Saturation

Panel No.	B	Burette S/L	L	Set Up By	KDG	Date	6-10-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2453	Initial	13.81	Initial	10.06	B1	
Final Height	0.2828	Final	14.91	Final	1.31	B2	
Comments:						B3	
						B4	0.96

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2449	Back Pressure	Chamber	B	
@ 15 Min		Initial	17.42	Burettes L/S	L
Final	0.3126	Final	10.5	Tested By	KDG
Comments:					

Test

Data File ID	CU-351C	Press No.	1	Area (A _c)		t ₅₀	220	Start Time	
Tested By	KDG	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-18-09					Strain Rate (in/mn)			

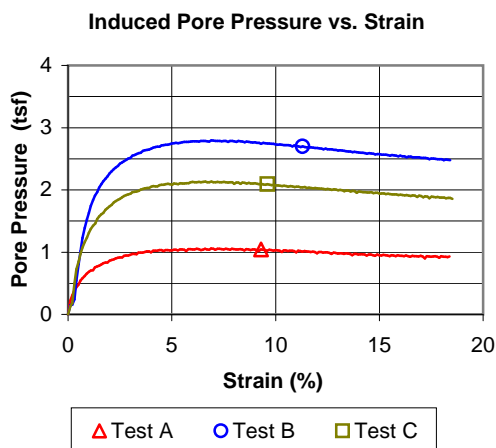
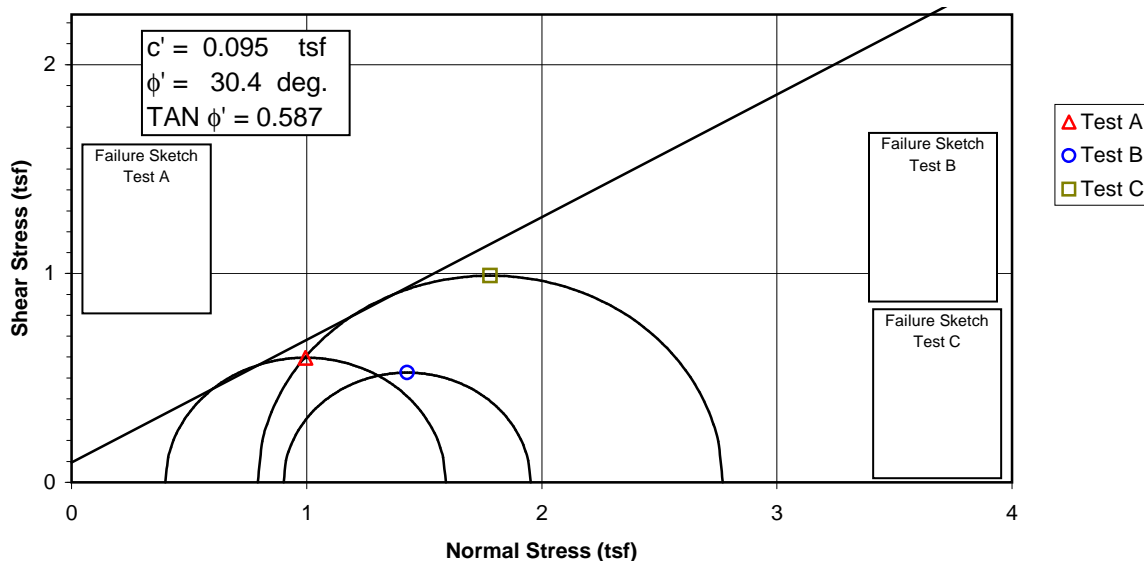
After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.04	2	3.04	Tare Id.	DOG
	3	3.269	4	3.269	Wet Wt (g)	1402.34
	5	3.178	6	3.178	Dry Wt (g)	1205.6
	Membrane Thickness (in.)	0.012		3.269	Tare Wt (g)	222.29
Final Wet Weight	1180.55 g	Final Dry Weight	983.73	Final MC %	20.0	

Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

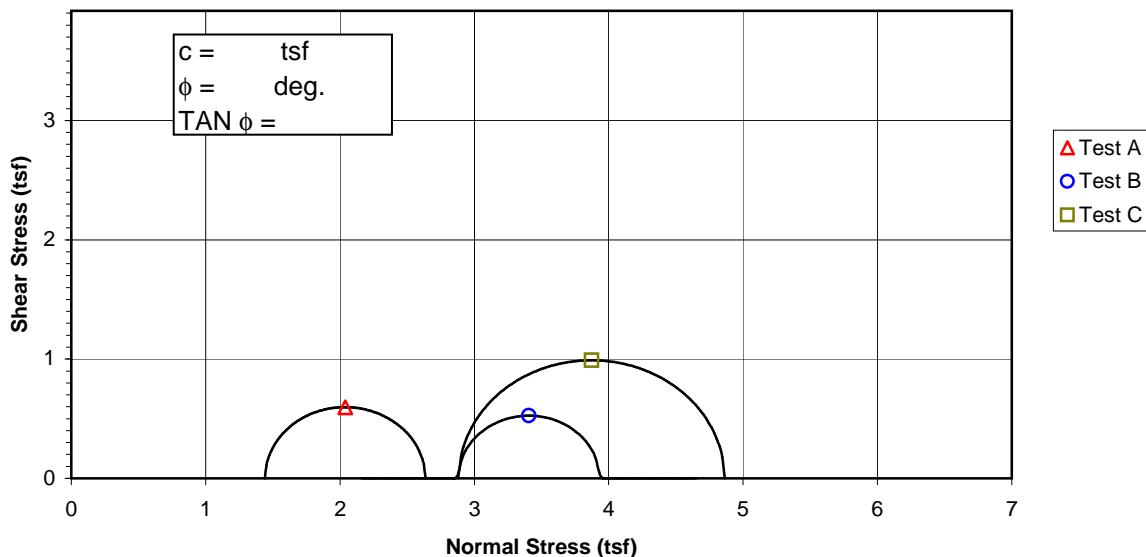


Specimen No.		A	B	C
Initial Data	Water content %	W_o 24.6	24.7	24.9
	Dry Density PCF	γ_{d_o} 101.7	101.6	101.4
	Saturation %	S_o 104.7	104.9	105.3
	Void Ratio	e_o 0.621	0.622	0.625
After Shear	Water content %	W_f 21.3	19.4	20.0
	Dry Density PCF	γ_{d_f} 105.6	108.9	107.8
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.561	0.513	0.528
Final Back Pressure TSF		u_c 5.04	4.32	3.60
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.40	0.90	0.79
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 1.20	2.49	1.98
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 274.9	339.8	288.8
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 6.000	6.000	6.000

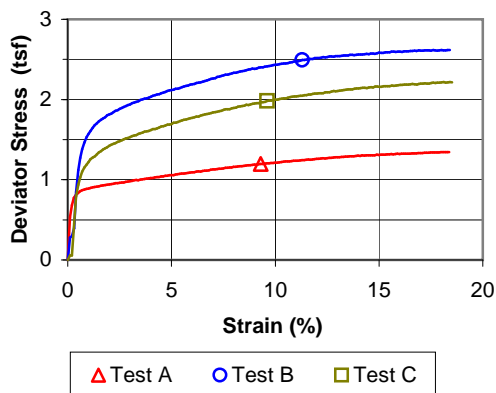
Controlled - Strain Test			
Description of Specimens		Lean Clay (CL), brown	
		Type of Specimen	Undisturbed
		Type of test \bar{R}	
LL 35	PL 18	PI 17	Gs 2.64
Project		John Siever Fossil Plant	
Remarks: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.		Boring No.	JS-12
		Sample No.	351
		Depth Elev.	28.5' - 46.5'
		Laboratory	Stantec
		Date	6-22-09
TRIAXIAL COMPRESSION TEST REPORT			

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



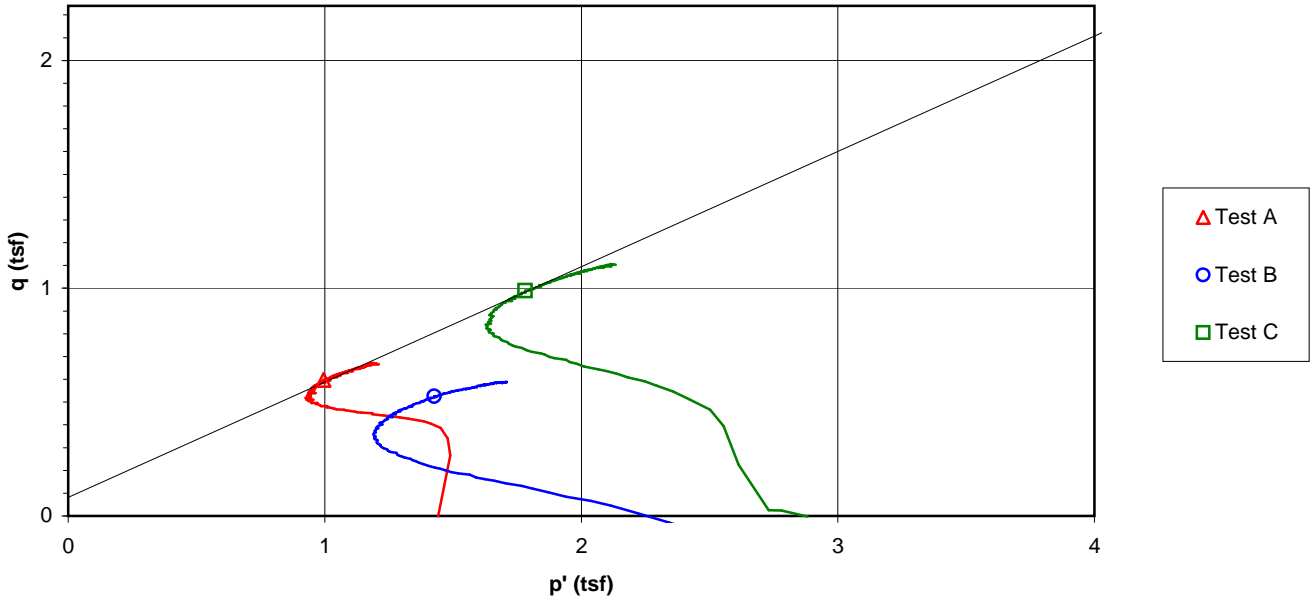
Specimen No.		A	B	C		
Initial Data	Water content %	W_o	24.6	24.7	24.9	
	Dry Density PCF	γ_{d_o}	101.7	101.6	101.4	
	Saturation %	S_o	104.7	104.9	105.3	
	Void Ratio	e_o	0.621	0.622	0.625	
After Shear	Water content %	W_f	21.3	19.4	20.0	
	Dry Density PCF	γ_{d_f}	105.6	108.9	107.8	
	Saturation %	S_f	100.0	100.0	100.0	
	Void Ratio	e_f	0.561	0.513	0.528	
Final Back Pressure TSF		u_c	5.04	4.32	3.60	
Minor Principal Stress TSF		σ_3	1.44	2.16	2.88	
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$	1.20	2.49	1.98	
Time to $(\sigma_1 - \sigma_3)_{Max}$ min.		t_f	274.9	339.8	288.8	
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$	n/a	n/a	n/a	
Initial Diameter, in.		D_o	2.800	2.800	2.800	
Initial Height, in.		H_o	6.000	6.000	6.000	
Controlled - Strain Test						
Description of Specimens Lean Clay (CL), brown						
		Type of Specimen	Undisturbed	Type of test	\bar{R}	
LL	35	PL	18	PI	17	
		Gs	2.64	Project		John Siever Fossil Plant
Remarks: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.						
		Boring No.	JS-12	Sample No.	351	
		Depth Elev.	28.5' - 46.5'			
		Laboratory	Stantec	Date	6-22-09	
TRIAXIAL COMPRESSION TEST REPORT						

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

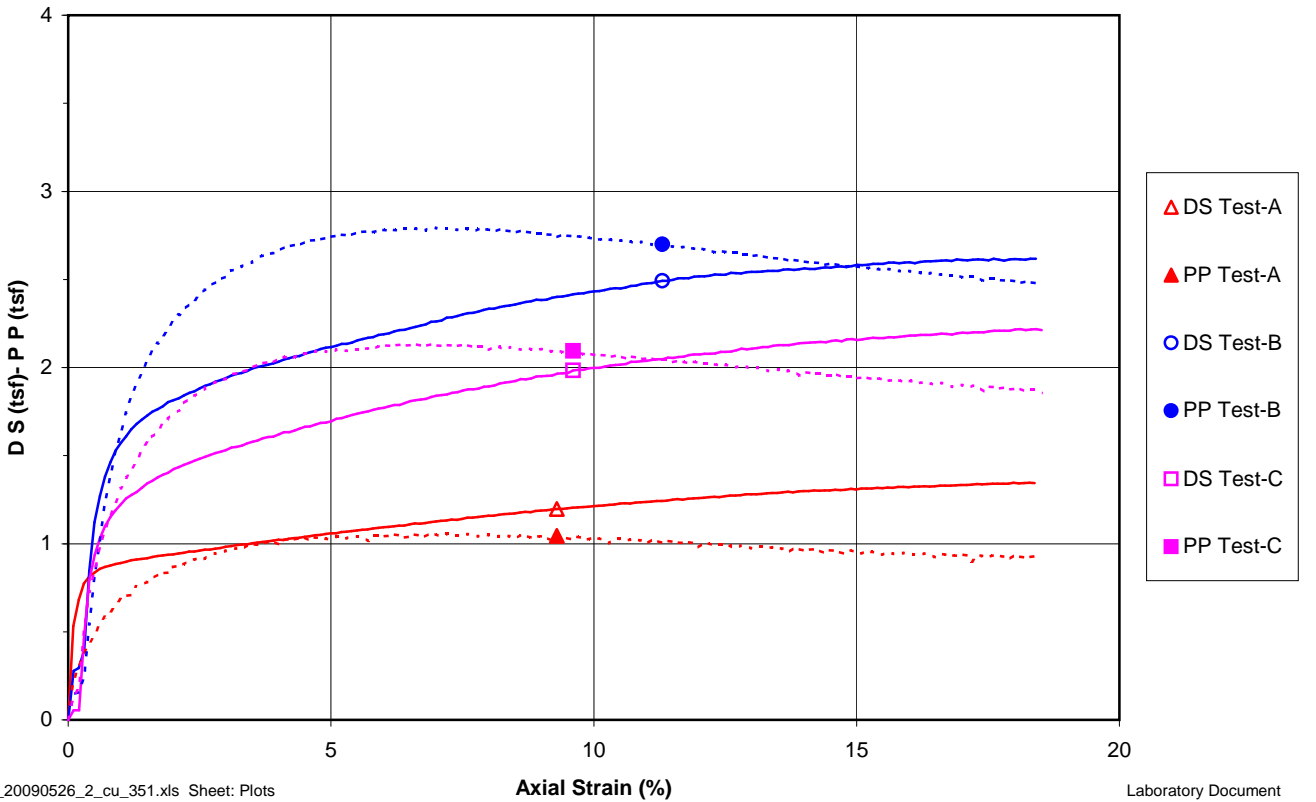
Project John Siever Fossil Plant
 Sample ID JS-12, 28.5' - 46.5'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 30.4 \text{ deg.}$

Project No. 175569038
 Test Number 351
 $c' = 0.10 \text{ tsf}$

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name John Siever Fossil Plant
 Sample Identification JS-12, 28.5' - 46.5'
 Visual Description Lean Clay (CL), brown

Project Number 175569038
 Test Number CU-351A
 Prepared By KDG
 Date 6-10-2009

Specific Gravity 2.64 ASTM D854 Method A Liquid Limit 35 Plastic Limit 18 Plasticity Index 17

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1228.90</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.7962</u> (V _{S_o})	Dry Weight (g) <u>986.27</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>14.8054</u> (V _{W_o})	Wet Unit Weight (pcf) <u>126.7</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>14.1489</u> (V _{V_o})	Dry Unit Weight (pcf) <u>101.7</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>104.6</u> (S _o)	
Moisture Content (%) <u>24.6</u>	Final Trimmings	Void Ratio <u>0.621</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 70 (psi) Final Pore Pressure Parameter B 0.96 Date 6-10-09
 Panel Board Number B

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9875</u> (H _s)
Initial <u>0.235</u>	Initial <u>14.51</u> (in.)	Initial <u>10.08</u> (in.)	Area (in ²) Method A <u>6.1318</u> (A _s)
Final <u>0.2475</u>	Final <u>13.06</u> (in.)	Final <u>1.82</u> (in.)	Specimen Volume (in ³) <u>36.71</u> (V _s)
Change <u>-0.0125</u> (ΔH _c)	Change <u>-1.45</u> (in.)	Change <u>-8.26</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2475</u>	Initial <u>1.17</u> (in.)	Initial <u>16.81</u> (in.)	Chamber <u>90</u>
Final <u>0.431</u>	Final <u>9.85</u> (in.)	Final <u>9.46</u> (in.)	Back <u>70</u>
Change <u>-0.1835</u> (ΔH _c)	Change <u>-8.68</u> (in.)	Change <u>-7.35</u> (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>5.8040</u> (H _c)		Volume (in ³) <u>35.5917</u> (V _c)	t ₅₀ (min.) <u>270</u>
Area (in ²) Method B <u>6.1323</u> (A _c)		Volume - Water (in ³) <u>12.7954</u> (V _{W_c})	
Diameter (in.) <u>2.7943</u> (D _c)		Water Content (%) <u>21.3</u>	
Dry Density (pcf) <u>105.6</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	Void Ratio <u>0.561</u>

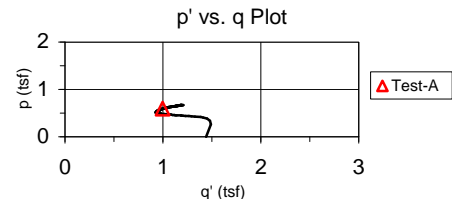
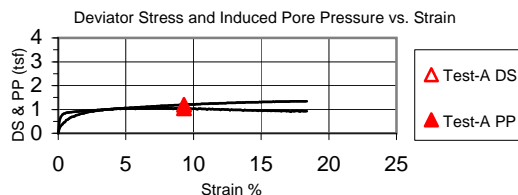
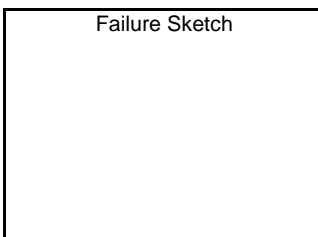
After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.233</u> (in.)	Wet Weight (g) <u>1195.96</u>	Corrected Deviator <u>1.20</u> σ _d (tsf)
Wet weight (g) <u>1195.96</u> (WW _f)	Dry Weight (g) <u>986.27</u>	Major Principal <u>1.59</u> σ _{1'_f} (tsf)
Corrected Diameter <u>3.209</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.40</u> σ _{3'_f} (tsf)

Youngs Modulus for Membrane (psi) 200
 Membrane Thickness (in.) 0.012

Rate of Strain (% / min.) 0.034
 Axial Strain at Failure (%) 9.29

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Project Name John Siever Fossil Plant
 Sample Identification JS-12, 28.5' - 46.5'
 Visual Description Lean Clay (CL), brown

Project Number 175569038
 Test Number CU-351B
 Prepared By KDG
 Date 6-10-2009

Specific Gravity 2.64 ASTM D854 Method A Liquid Limit 35 Plastic Limit 18 Plasticity Index 17

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in3)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V_o)	Wet Weight (g) <u>1228.90</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.7707</u> (V_{S_o})	Dry Weight (g) <u>985.16</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>14.8727</u> (V_{W_o})	Wet Unit Weight (pcf) <u>126.7</u>
Avg. <u>2.8000</u> (D_o)	4 <u>6.000</u>	Voids <u>14.1744</u> (V_{V_o})	Dry Unit Weight (pcf) <u>101.6</u>
Area (in ²) <u>6.1575</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>104.9</u> (S_o)	
Moisture Content (%) <u>24.7</u>	Final Trimmings	Void Ratio <u>0.622</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 60 (psi) Final Pore Pressure Parameter B 0.99 Date 6-10-09
 Panel Board Number C

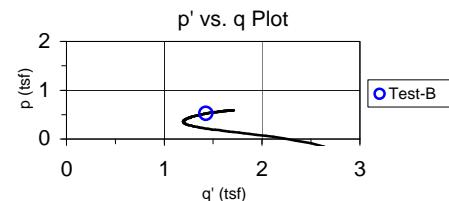
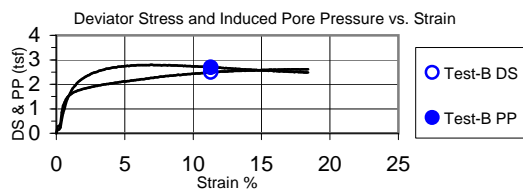
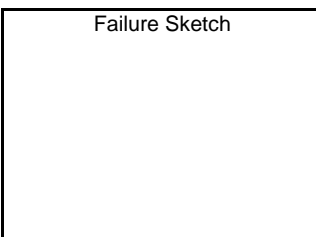
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9171</u> (H_s)
Initial <u>0.2371</u>	Initial <u>11.69</u> (in.)	Initial <u>11.12</u> (in.)	Area (in ²) Method A <u>5.9850</u> (A_s)
Final <u>0.32</u>	Final <u>12.89</u> (in.)	Final <u>12.85</u> (in.)	Specimen Volume (in ³) <u>35.41</u> (V_s)
Change <u>-0.0829</u> (ΔH_o)	Change <u>1.20</u> (in.)	Change <u>1.73</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.32</u>	Initial <u>0.86</u> (in.)	Initial <u>17.43</u> (in.)	Chamber <u>90</u>
Final <u>0.43</u>	Final <u>3.86</u> (in.)	Final <u>8.11</u> (in.)	Back <u>60</u>
Change <u>-0.1100</u> (ΔH_c)	Change <u>-3.00</u> (in.)	Change <u>-9.32</u> (in.)	Lateral <u>30</u> (σ_3)
Height (in.) <u>5.8071</u> (H_c)		Volume (in ³) <u>34.4582</u> (V_c)	D_{50} (min.) <u>1100</u>
Area (in ³) Method B <u>5.9338</u> (A_c)		Volume - Water (in ³) <u>11.6875</u> (V_{Wc})	Void Ratio <u>0.513</u>
Diameter (in.) <u>2.7487</u> (D_c)		Water Content (%) <u>19.4</u>	
Dry Density (pcf) <u>108.9</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.219</u> (in.)	Wet Weight (g) <u>1176.70</u>	Corrected Deviator <u>2.49</u> σ_d (tsf)
Wet weight (g) <u>1176.7</u> (WWf)	Dry Weight (g) <u>985.16</u>	Major Principal <u>1.95</u> σ_{1f} (tsf)
Corrected Diameter <u>3.195</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.90</u> σ_{3f} (tsf)
		Rate of Strain (% / min.) <u>0.033</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>11.31</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Project Name John Siever Fossil Plant
 Sample Identification JS-12-18.5' - 46.5'
 Visual Description Lean Clay (CL), brown

Project Number 175569038
 Test Number CU-351C
 Prepared By KDG
 Date 6-10-2009

Specific Gravity 2.64 ASTM D854 Method A Liquid Limit 35 Plastic Limit 18 Plasticity Index 17

Initial Specimen Data

Specimen Diameter (in.)		Specimen Height (in.)		Volumes (in ³)		Specimen	
Top	<u>2.800</u>	1	<u>6.000</u>	Sample	<u>36.9451</u> (V _o)	Wet Weight (g)	<u>1228.9</u>
Middle	<u>2.800</u>	2	<u>6.000</u>	Solids	<u>22.7375</u> (V _{S_o})	Dry Weight (g)	<u>983.73</u>
Bottom	<u>2.800</u>	3	<u>6.000</u>	Water	<u>14.9605</u> (V _{w_o})	Wet Unit Weight (pcf)	<u>126.7</u>
Avg.	<u>2.8000</u> (D _o)	4	<u>6.000</u>	Voids	<u>14.2076</u> (V _{v_o})	Dry Unit Weight (pcf)	<u>101.4</u>
Area (in ²)	<u>6.1575</u> (A _o)	Avg. (H _o)	<u>6.0000</u>	Degree of Saturation (%)	<u>105.3</u> (S _o)		
Moisture Content (%)	<u>24.9</u>	Final Trimmings		Void Ratio	<u>0.625</u>		

Saturation

Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 50 (psi) Final Pore Pressure Parameter B 0.96
 Set up By KDG
 Date 6-10-09
 Panel Board Number B

Height Readings (in.)		Back Pressure Burette		Chamber Burette		Specimen	
Initial	<u>0.2453</u>	Initial	<u>13.81</u> (in.)	Initial	<u>10.06</u> (in.)	Specimen Height (in.)	<u>5.9625</u> (H _s)
Final	<u>0.2828</u>	Final	<u>14.91</u> (in.)	Final	<u>1.31</u> (in.)	Area (in ²) Method A	<u>6.0801</u> (A _s)
Change	<u>-0.0375</u> (ΔH _c)	Change	<u>1.10</u> (in.)	Change	<u>-8.75</u> (in.)	Specimen Volume (in ³)	<u>36.25</u> (V _s)

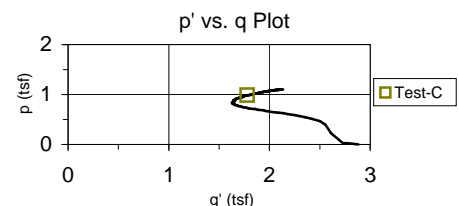
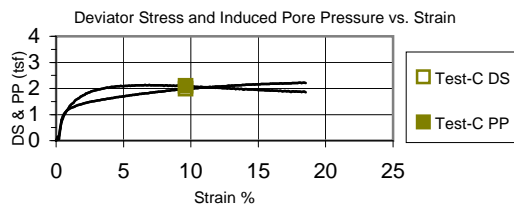
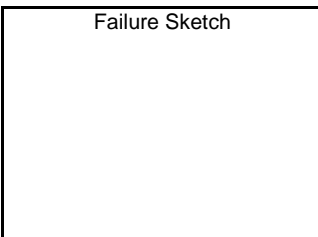
Consolidation

Height Readings (in.)		Back Pressure Burette Readings		Chamber Burette Readings		Pressures (psi)	
Initial	<u>0.2449</u>	Initial	<u>1.33</u> (in.)	Initial	<u>17.42</u> (in.)	Chamber	<u>90</u>
Final	<u>0.3126</u>	Final	<u>8.21</u> (in.)	Final	<u>10.5</u> (in.)	Back	<u>50</u>
Change	<u>-0.0677</u> (ΔH _c)	Change	<u>-6.88</u> (in.)	Change	<u>-6.92</u> (in.)	Lateral	<u>40</u> (σ ₃)
Height (in.)	<u>5.8948</u> (H _c)			Volume (in ³)	<u>34.7477</u> (V _c)	D ₅₀ (min.)	<u>220</u>
Area (in ³) Method B	<u>5.8946</u> (A _c)			Volume - Water (in ³)	<u>12.0102</u> (V _{Wc})	Void Ratio	<u>0.528</u>
Diameter (in.)	<u>2.7396</u> (D _c)			Water Content (%)	<u>20.0</u>		
Dry Density (pcf)	<u>107.8</u>			Degree of Saturation (%)	<u>100.0</u> (S _c)		

After Test

Final Measurements		Final Moisture Content		Stresses (membrane corrected) at Failure (psi)	
Maximum Diameter	<u>3.269</u> (in.)	Wet Weight (g)	<u>1180.55</u>	Corrected Deviator	<u>1.98</u> σ _d (tsf)
Wet weight (g)	<u>1180.55</u> (WWf)	Dry Weight (g)	<u>983.73</u>	Major Principal	<u>2.77</u> σ _{1f} (tsf)
Corrected Diameter	<u>3.245</u> (in.)	Tare Weight (g)	<u>0.00</u>	Minor Principal	<u>0.79</u> σ _{3f} (tsf)
Youngs Modulus for Membrane (psi)	<u>200</u>			Rate of Strain (% / min.)	<u>0.033</u>
Membrane Thickness (in.)	<u>0.012</u>			Axial Strain at Failure (%)	<u>9.61</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-10-09
 Boring No. Need! Sample No. JS-12, 28.5' - 46.5'

Type of Test	<u>Consolidated Undrained</u>		Confining Pressure	<u>1.44</u>		tons/ft ²																																																																						
Test No.	<u>CU-351A</u>		Classification	<u>Lean Clay (CL), brown</u>																																																																								
<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="3">Before Test</th> <th colspan="2">After Test</th> </tr> <tr> <th colspan="2"></th> <th>Specimen</th> <th colspan="2">Trimmings</th> <th colspan="2">Specimen</th> </tr> </thead> <tbody> <tr> <td>Tare No.</td> <td></td> <td>n/a</td> <td></td> <td>514</td> <td></td> <td>n/a</td> </tr> <tr> <td>Tare plus wet weight</td> <td></td> <td>1228.9</td> <td></td> <td>399.83</td> <td></td> <td>1195.96</td> </tr> <tr> <td>Tare plus dry weight</td> <td></td> <td>986.27</td> <td></td> <td>329.91</td> <td></td> <td>986.27</td> </tr> <tr> <td>Water</td> <td>W_w</td> <td>242.63</td> <td>W_{wo}</td> <td>69.92</td> <td>W_{wf}</td> <td>209.69</td> </tr> <tr> <td>Tare</td> <td></td> <td>0</td> <td></td> <td>44.26</td> <td></td> <td>0.00</td> </tr> <tr> <td>Wet Soil</td> <td>W</td> <td>1228.90</td> <td></td> <td>355.57</td> <td></td> <td>1195.96</td> </tr> <tr> <td>Dry Soil</td> <td>W_s</td> <td>986.27</td> <td></td> <td>285.65</td> <td></td> <td>986.27</td> </tr> <tr> <td>Water content</td> <td>w</td> <td>24.6</td> <td>% W_o</td> <td>24.5</td> <td>W_f</td> <td>21.3 %</td> </tr> </tbody> </table>									Before Test			After Test				Specimen	Trimmings		Specimen		Tare No.		n/a		514		n/a	Tare plus wet weight		1228.9		399.83		1195.96	Tare plus dry weight		986.27		329.91		986.27	Water	W _w	242.63	W _{wo}	69.92	W _{wf}	209.69	Tare		0		44.26		0.00	Wet Soil	W	1228.90		355.57		1195.96	Dry Soil	W _s	986.27		285.65		986.27	Water content	w	24.6	% W _o	24.5	W _f	21.3 %
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Water content	w	24.6	% W _o	24.5	W _f	21.3 %																																																																						
Initial Condition of Specimen																																																																												
Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112																																																																			
Height, cm	H _o		15.240	Volume of solids, cc		V _s		373.59																																																																				
Area, sq cm = 0.7854 * D _o ²	A _o		39.726	Void Ratio = (V _o -V _s)/V _s		e _o		0.621																																																																				
Volume, cc = H _o *A _o	V _o		605.42	Saturation, %		S _o		104.7																																																																				
Specific gravity of solids	G _s		2.64	Dry density, lb/cu ft		g _d		101.7																																																																				
Condition of Specimen After Consolidation (R and S Tests)																																																																												
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.196	Volume, cc = H _c *A _c		V _c		583.28																																																																				
Height, cm = H _o - 2.54*ΔH _o	H _c		14.742	Void Ratio = (V _c -V _s)/V _s		e _c		0.561																																																																				
Area, sq cm	A _c		39.565	Saturation, %		S _c		100.0																																																																				
Condition of Specimen After Test (R and S Test)																																																																												
Diameter, cm	D _f	Top	7.442	Center	8.212	Bottom	7.894	Avg	7.940																																																																			
Change of height during Shear Test, in	ΔH		1.067	Volume, cc = H _f *A _f		V _f		583.28																																																																				
Height, cm = H _c - 2.54*ΔH	H _f		12.031	Void Ratio = (V _f -V _s)/V _s		e _f		0.561																																																																				
Area, cm ² from test data	A _f		48.479	Saturation, %		S _f		100.0																																																																				
Remarks																																																																												
<u>Compacted bulk clay sample. Sample was compacted +- 10% of LL.</u>																																																																												
Technician	<u>KDG KDG KDG KDG</u>			Computed By	<u>KDG</u>		Checked By																																																																					

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-10-09
 Boring No. Need! Sample No. JS-12, 28.5' - 46.5'

Type of Test	Consolidated Undrained		Confining Pressure		2.16	tons/ft ²																																																																					
Test No.	CU-351B		Classification		Lean Clay (CL), brown																																																																						
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	Before Test			After Test																																																																							
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Water content	w	24.7	% W _o	24.5	W _f	19.4 %																																																																					
Initial Condition of Specimen																																																																											
Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112																																																																		
Height, cm	H _o		15.240	Volume of solids, cc		V _s		373.17																																																																			
Area, sq cm = 0.7854*D _o ²	A _o		39.726	Void Ratio = (V _o -V _s)/V _s		e _o		0.622																																																																			
Volume, cc = H _o *A _o	V _o		605.42	Saturation, %		S _o		104.9																																																																			
Specific gravity of solids	G _s		2.64	Dry density, lb/cu ft		G _d		101.6																																																																			
Condition of Specimen After Consolidation (R and S Tests)																																																																											
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.193	Volume, cc = H _c *A _c		V _c		564.70																																																																			
Height, cm = H _o - 2.54*ΔH _o	H _c		14.750	Void Ratio = (V _c -V _s)/V _s		e _c		0.513																																																																			
Area, sq cm	A _c		38.285	Saturation, %		S _c		100.0																																																																			
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	7.521	Center	8.176	Bottom	8.011	Avg	7.971																																																																		
Change of height during Shear Test, in	ΔH		1.069	Volume, cc = H _f *A _f		V _f		564.70																																																																			
Height, cm = H _c - 2.54*ΔH	H _f		12.035	Void Ratio = (V _f -V _s)/V _s		e _f		0.513																																																																			
Area, cm ² from test data	A _f		46.923	Saturation, %		S _f		100.0																																																																			
Remarks																																																																											
Compacted bulk clay sample. Sample was compacted +/- 10% of LL.																																																																											
Technician	KDG KDG KDG KDG			Computed By	KDG		Checked By																																																																				

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-10-09
 Boring No. _____ Sample No. JS-12-18.5' - 46.5'

Type of Test	Consolidated Undrained		Confining Pressure		2.88	tons/ft ²																																																																					
Test No.	CU-351C		Classification		Lean Clay (CL), brown																																																																						
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	Before Test			After Test																																																																							
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Diameter, cm	D _o	Top	7.112	Center	7.112	Avg																																																																					
Height, cm	H _o		15.240	Volume of solids, cc	V _s	372.62																																																																					
Area, sq cm = 0.7854*D _o ²	A _o		39.726	Void Ratio = (V _o -V _s)/V _s	e _o	0.625																																																																					
Volume, cc = H _o *A _o	V _o		605.42	Saturation, %	S _o	105.3																																																																					
Specific gravity of solids	G _s		2.64	Dry density, lb/cu ft	G _d	101.4																																																																					
Condition of Specimen After Consolidation (R and S Tests)																																																																											
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.105	Volume, cc = H _c *A _c	V _c	569.45																																																																					
Height, cm = H _o - 2.54*ΔH _o	H _c		14.973	Void Ratio = (V _c -V _s)/V _s	e _c	0.528																																																																					
Area, sq cm	A _c		38.032	Saturation, %	S _c	100.0																																																																					
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	7.722	Center	8.303	Avg																																																																					
Change of height during Shear Test, in	ΔH		1.092	Volume, cc = H _f *A _f	V _f	569.45																																																																					
Height, cm = H _c - 2.54*ΔH	H _f		12.200	Void Ratio = (V _f -V _s)/V _s	e _f	0.528																																																																					
Area, cm ² from test data	A _f		46.675	Saturation, %	S _f	100.0																																																																					
Remarks <u>Compacted bulk clay sample. Sample was compacted +/- 10% of LL.</u>																																																																											
Technician	<u>KDG KDG KDG KDG</u>		Computed By	<u>KDG</u>	Checked By																																																																						

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.804 (in.)	14.742 (cm)
Diameter	2.794 (in)	7.098 (cm)
Area	6.133 (in ²)	39.565 (cm ²)

Final Values	
Height	4.737 (in.)
Dia. avg.	3.126 (in)
Area avg.	7.675 (in ²)

Tested By	KDG
Date	6-16-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-351A
Data File ID	CU-351A
Lateral Pressure (psi)	20.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1 + \sigma_3) / 2$) (tsf)	q ($(\sigma_1 - \sigma_3) / 2$) (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
8:48:59	144.3	1.025	82.9	4.760	17.99	48.2431	144.2	1.390	1.346	2.786	1.851	0.509	1.180	0.671	3.640
8:51:46	144.2	1.031	82.8	4.754	18.09	48.3024	144.1	1.387	1.343	2.783	1.855	0.516	1.185	0.670	3.599
8:54:34	144.6	1.037	82.8	4.748	18.19	48.3614	144.5	1.389	1.344	2.784	1.861	0.520	1.191	0.671	3.580
8:57:23	144.9	1.043	82.8	4.743	18.29	48.4205	144.8	1.390	1.345	2.785	1.862	0.520	1.191	0.671	3.581
9:00:11	144.9	1.048	82.9	4.737	18.39	48.4795	144.8	1.389	1.344	2.784	1.856	0.515	1.185	0.670	3.606

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.807 (in.)	14.750 (cm)
Diameter	2.749 (in)	6.982 (cm)
Area	5.934 (in ²)	38.285 (cm ²)

Final Values	
Height	4.738 (in.)
Dia. avg.	3.138 (in)
Area avg.	7.735 (in ²)

Tested By	KDG
Date	6-17-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	CU-351B
Data File ID	CU-351B
Lateral Pressure (psi)	30.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
9:04:28	277.4	1.024	74.6	4.761	18.01	46.6942	267.2	2.661	2.616	4.776	2.284	1.110	1.697	0.587	2.059
9:07:35	277.5	1.030	74.4	4.755	18.11	46.7517	267.3	2.659	2.613	4.773	2.294	1.122	1.708	0.586	2.045
9:10:45	277.8	1.036	74.5	4.750	18.21	46.8086	267.6	2.658	2.613	4.773	2.286	1.115	1.701	0.586	2.051
9:13:55	278.8	1.042	74.5	4.744	18.31	46.8663	268.6	2.665	2.618	4.778	2.294	1.116	1.705	0.589	2.055
9:17:03	279.0	1.047	74.4	4.738	18.41	46.9235	268.8	2.664	2.617	4.777	2.299	1.122	1.711	0.588	2.048

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.895 (in.)	14.973 (cm)
Diameter	2.740 (in)	6.959 (cm)
Area	5.895 (in ²)	38.032 (cm ²)

Final Values	
Height	4.803 (in.)
Dia. avg.	3.189 (in)
Area avg.	7.987 (in ²)

Tested By	KDG
Date	6-18-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-351C
Data File ID	CU-351C
Lateral Pressure (psi)	40.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
9:05:18	238.8	1.037	76.0	4.833	18.02	46.3903	225.5	2.261	2.215	5.095	3.218	1.008	2.113	1.105	3.192
9:08:30	239.3	1.043	76.0	4.827	18.12	46.4473	226.0	2.263	2.217	5.097	3.219	1.008	2.113	1.106	3.195
9:11:31	239.1	1.049	75.8	4.821	18.22	46.5036	225.8	2.258	2.212	5.092	3.225	1.019	2.122	1.103	3.164
9:14:41	239.8	1.055	75.9	4.815	18.32	46.5610	226.5	2.262	2.216	5.096	3.223	1.013	2.118	1.105	3.181
9:17:53	240.2	1.060	75.9	4.809	18.42	46.6173	226.9	2.264	2.217	5.097	3.225	1.014	2.119	1.106	3.181
9:21:02	240.1	1.066	75.7	4.803	18.52	46.6752	226.8	2.259	2.212	5.092	3.238	1.031	2.135	1.103	3.140

0:00:00	0.100138	-1.88E-02	69.96074
0:05:16	45.52306	-1.29E-02	73.0061
0:08:14	58.26774	-7.15E-03	74.16152
0:11:20	66.26515	-1.34E-03	75.1969
0:14:30	69.7267	4.49E-03	76.02997
0:17:26	71.64415	1.03E-02	76.55789
0:20:17	73.55418	1.61E-02	77.52076
0:23:14	74.63592	2.19E-02	78.0652
0:26:17	75.39004	2.77E-02	78.5193
0:29:05	76.20474	3.35E-02	79.02495
0:32:01	76.87974	3.93E-02	79.44611
0:34:55	77.47315	4.51E-02	79.74293
0:37:52	78.36573	5.09E-02	79.798
0:40:36	78.88126	5.66E-02	80.4578
0:43:33	79.30159	6.25E-02	80.66193
0:46:25	79.72934	6.84E-02	80.83912
0:49:09	80.34871	0.074088	81.12071
0:52:01	81.00393	7.99E-02	81.38343
0:54:50	81.33648	8.57E-02	81.52898
0:57:47	81.79267	0.091482	81.55385
1:00:44	82.14253	9.73E-02	81.98373
1:03:41	82.69514	0.103086	82.10962
1:06:42	83.05366	0.108908	82.21182
1:09:35	83.86712	0.114698	82.46634
1:12:23	83.93141	0.120448	82.60004
1:15:16	84.51616	0.126325	82.69156
1:18:17	85.13182	0.132137	82.66201
1:21:14	85.26163	0.137908	83.00011
1:24:09	85.84762	0.143666	83.08772
1:27:13	86.28155	0.149518	83.13108
1:30:08	87.00477	0.155268	83.27559
1:33:07	87.3534	0.161115	83.42296
1:36:09	87.99378	0.166895	83.47634
1:39:09	88.41164	0.172663	83.39601
1:42:06	88.50312	0.178472	83.72578
1:45:09	89.28197	0.184315	83.77642
1:48:09	89.63307	0.19008	83.76509
1:51:12	90.16096	0.19588	83.86325
1:54:05	90.51948	0.201683	84.00073
1:57:05	91.00904	0.207487	84.00047
2:00:07	91.54681	0.213257	83.80233
2:03:02	91.65561	0.219082	84.16646
2:05:59	92.41591	0.224879	84.18104
2:09:01	92.79915	0.230665	84.16373
2:12:01	93.11811	0.236451	84.2999
2:14:54	93.71399	0.242251	84.34755
2:17:56	94.13061	0.248093	84.08145
2:20:54	94.70053	0.253855	84.33649
2:23:51	94.93913	0.259678	84.29131
2:26:51	95.6265	0.265527	84.2516
2:29:43	96.0357	0.271332	84.21867
2:32:34	96.12595	0.27705	84.38726

2:35:22	96.95054	0.28288	84.37593
2:38:09	97.16936	0.28866	84.25929
2:41:04	97.70342	0.294475	84.44845
2:43:49	98.21277	0.300294	84.44129
2:46:39	98.60837	0.306071	84.36786
2:49:27	98.91002	0.311847	84.10059
2:52:12	99.48365	0.31767	84.52851
2:55:01	100.0227	0.323494	84.51263
2:57:53	100.4195	0.329265	84.44767
3:00:44	100.6396	0.33511	84.46134
3:03:36	101.2317	0.340855	84.58072
3:06:30	101.6904	0.346651	84.52995
3:09:24	101.7831	0.352446	84.33857
3:12:17	102.6225	0.358247	84.39403
3:15:16	103.1306	0.364083	84.57629
3:18:06	103.1591	0.369888	84.4836
3:20:56	103.6177	0.375663	84.40497
3:23:52	104.336	0.381515	84.63514
3:26:46	104.7909	0.387286	84.59048
3:29:38	105.147	0.393082	84.41291
3:32:38	105.5636	0.398853	84.61288
3:35:33	106.1212	0.404693	84.62902
3:38:28	106.1768	0.410457	84.50091
3:41:26	106.7158	0.416297	84.47514
3:44:24	107.6047	0.422066	84.62056
3:47:23	107.6554	0.427877	84.53646
3:50:17	108.1845	0.433744	84.41929
3:53:24	108.564	0.439494	84.57239
3:56:21	109.1055	0.445255	84.53867
3:59:14	109.2885	0.451045	84.42957
4:02:14	109.9301	0.456886	84.43608
4:05:12	110.4444	0.462668	84.52617
4:08:09	110.6607	0.468501	84.43218
4:11:09	111.0316	0.47428	84.20929
4:14:11	111.7066	0.480054	84.51719
4:17:13	112.1999	0.485867	84.46264
4:20:08	112.1715	0.491716	84.34196
4:23:00	112.9726	0.497493	84.42671
4:26:06	113.3249	0.503287	84.44376
4:29:07	113.5808	0.509104	84.33284
4:32:02	114.0555	0.514889	84.08653
4:34:54	114.4722	0.520659	84.46199
4:37:42	114.7478	0.526449	84.37932
4:40:27	115.2498	0.532262	84.28988
4:43:20	115.7121	0.538122	84.18404
4:46:09	116.0447	0.543853	84.38075
4:48:54	116.4081	0.549655	84.30121
4:51:43	116.6764	0.555474	84.18091
4:54:31	117.213	0.561293	84.31123
4:57:19	117.4083	0.567142	84.26879
5:00:10	117.7581	0.572885	84.19901
5:03:05	118.3862	0.578696	83.8889

5:05:51	118.6594	0.584458	84.27035
5:08:42	119.3146	0.590268	84.23585
5:11:40	119.5965	0.596128	84.10957
5:14:31	119.6546	0.601855	84.17466
5:17:25	120.2158	0.607731	84.18872
5:20:21	120.651	0.613509	84.10762
5:23:14	120.9341	0.619302	83.83227
5:26:05	121.258	0.625057	84.14889
5:29:05	121.7154	0.630928	84.08093
5:32:00	122.0307	0.63668	83.9346
5:34:56	122.2915	0.642535	84.08379
5:37:52	122.9665	0.648294	84.01557
5:40:54	123.4759	0.654088	83.93707
5:43:49	123.3523	0.659878	83.92028
5:46:47	123.9259	0.665647	83.97652
5:49:50	124.3957	0.671488	83.88955
5:52:46	124.7023	0.677274	83.58921
5:55:43	124.9409	0.683113	83.91754
5:58:45	125.4861	0.688883	83.85271
6:01:43	125.9459	0.694676	83.74778
6:04:40	125.9274	0.700476	83.79569
6:07:39	126.5826	0.706328	83.79699
6:10:39	127.0054	0.712069	83.70078
6:13:36	127.2959	0.717965	83.42309
6:16:32	127.6693	0.72368	83.71757
6:19:36	128.2775	0.729455	83.6586
6:22:41	128.5619	0.735337	83.49417
6:25:43	128.6212	0.741184	83.61967
6:28:35	129.0539	0.746908	83.62879
6:31:30	129.4594	0.752665	83.48258
6:34:29	129.8958	0.758469	83.57241
6:37:25	130.064	0.764245	83.52984
6:40:21	130.6265	0.770074	83.46696
6:43:11	131.0406	0.775874	83.14475
6:45:57	130.9627	0.7817	83.48376
6:48:48	131.6822	0.787485	83.44118
6:51:35	132.0741	0.793299	83.32792
6:54:25	132.1619	0.799059	83.37882
6:57:10	132.7751	0.8049	83.40994
6:59:52	132.7887	0.810648	83.30787
7:02:40	133.1385	0.816451	83.11415
7:05:29	133.298	0.822361	83.32844
7:08:21	133.7245	0.828101	83.3024
7:11:08	133.7221	0.833886	83.18849
7:13:56	134.1721	0.839717	83.02823
7:16:55	134.8557	0.845486	83.33586
7:19:46	134.7383	0.85125	83.19799
7:22:39	135.4429	0.857084	83.07822
7:25:32	135.6853	0.86289	83.22598
7:28:27	135.841	0.868645	83.20398
7:31:20	136.2972	0.874465	83.13264
7:34:18	136.3973	0.880317	82.98852

7:37:22	136.9549	0.886084	83.17742
7:40:17	136.9067	0.89187	83.0734
7:43:14	137.6002	0.897689	82.98878
7:46:18	137.8772	0.903449	83.13798
7:49:16	137.803	0.90927	83.05453
7:52:17	138.4458	0.915064	83.00766
7:55:17	138.6263	0.92085	82.98501
7:58:20	138.9997	0.926703	83.09111
8:01:18	138.9935	0.93245	82.98735
8:04:19	139.357	0.93827	82.78504
8:07:20	139.8552	0.94407	83.05622
8:10:18	140.0468	0.949913	82.97785
8:13:14	140.3855	0.955686	82.92278
8:16:19	140.6143	0.961449	82.90728
8:19:18	141.0544	0.96725	83.0018
8:22:19	141.2744	0.973049	82.9164
8:25:22	141.7257	0.978853	82.4528
8:28:20	142.1485	0.984657	82.97602
8:31:25	142.1584	0.990447	82.87343
8:34:21	142.6726	0.996275	82.80756
8:37:22	143.025	1.002047	82.92095
8:40:19	143.2042	1.007886	82.9272
8:43:11	143.3254	1.013697	82.83724
8:46:07	143.6221	1.01958	82.59965
8:48:59	144.3107	1.025245	82.93723
8:51:46	144.2056	1.031089	82.84024
8:54:34	144.5592	1.036886	82.77879
8:57:23	144.8856	1.042685	82.77644
9:00:11	144.9375	1.04845	82.85313
9:00:11	144.9375	1.04845	82.85313

0:00:00	10.20168	-2.16E-02	39.98655
0:03:46	33.19254	-1.57E-02	42.0237
0:06:45	34.5957	-0.009916	42.15358
0:09:58	42.74393	-3.98E-03	43.30718
0:13:34	80.23373	1.69E-03	47.5518
0:16:55	102.9946	7.52E-03	51.185
0:20:00	115.5737	1.33E-02	54.09149
0:23:11	124.842	1.91E-02	57.02959
0:26:20	131.7626	2.50E-02	59.29036
0:29:26	137.6089	0.030923	61.22998
0:32:31	141.178	3.66E-02	62.60609
0:35:34	144.3775	4.24E-02	64.20863
0:38:44	147.8847	4.82E-02	65.45768
0:41:44	150.6391	0.053986	66.48986
0:44:42	152.7952	0.059876	67.27465
0:47:48	154.8499	6.56E-02	68.29617
0:50:49	156.8934	0.071402	69.06172
0:53:41	158.2916	0.077295	69.68564
0:56:42	159.7702	8.30E-02	70.25539
0:59:39	161.9436	8.89E-02	70.76977
1:02:33	163.1403	0.09468	71.48435
1:05:27	164.1219	0.100582	71.929
1:08:23	165.6994	0.106364	72.37415
1:11:17	167.2163	0.112235	72.7867
1:14:04	168.0989	0.117956	73.0891
1:16:51	169.6665	0.123675	73.59245
1:19:46	171.04	0.12964	73.92352
1:22:33	172.081	0.135382	74.22273
1:25:23	173.5076	0.141286	74.50087
1:28:13	174.4756	0.147094	74.73698
1:31:02	175.5709	0.152851	74.91857
1:33:51	176.9914	0.15855	75.37474
1:36:47	177.8506	0.164422	75.57029
1:39:41	178.58	0.170193	75.74232
1:42:39	179.731	0.176081	75.94462
1:45:34	181.0526	0.181765	76.06322
1:48:31	182.0638	0.187676	76.4547
1:51:32	182.7673	0.193388	76.58764
1:54:36	183.6104	0.19928	76.70576
1:57:44	184.482	0.205071	76.78528
2:00:43	185.4673	0.210822	77.00975
2:03:41	186.6479	0.216658	77.22209
2:06:42	187.5677	0.222451	77.32379
2:09:46	188.4763	0.228307	77.42819
2:12:49	189.0821	0.234083	77.42549
2:15:49	190.2974	0.239877	77.69064
2:18:58	191.4026	0.245726	77.78634
2:21:56	192.1394	0.251563	77.81746
2:24:56	193.3398	0.257326	77.86255
2:28:00	194.1669	0.263111	77.98569
2:31:07	194.7405	0.268987	78.08849
2:34:09	195.5342	0.274737	78.15527

2:37:14	196.7433	0.280548	78.2403
2:40:23	196.9893	0.28638	78.18431
2:43:23	197.7953	0.292189	78.23883
2:46:29	199.0872	0.297999	78.42275
2:49:29	200.0157	0.303809	78.47188
2:52:29	200.8093	0.309605	78.48879
2:55:33	201.4213	0.315433	78.4426
2:58:33	202.6304	0.321208	78.57211
3:01:35	203.2547	0.327084	78.60495
3:04:34	203.9705	0.33287	78.59122
3:07:27	205.182	0.338693	78.6221
3:10:24	205.9745	0.344493	78.57052
3:13:17	206.4368	0.350313	78.70199
3:16:07	207.3714	0.356083	78.70199
3:19:03	208.269	0.361877	78.70554
3:21:54	209.19	0.367688	78.65016
3:24:44	210.0937	0.373554	78.57554
3:27:39	211.5426	0.379433	78.82758
3:30:27	212.068	0.385152	78.75774
3:33:14	212.7492	0.390956	78.69292
3:36:14	214.3539	0.39677	78.69868
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3:42:04	215.7311	0.408432	78.61107
3:45:02	216.7053	0.414186	78.72331
3:47:58	217.6362	0.419988	78.68778
3:51:01	217.9984	0.425883	78.47115
3:53:53	219.0282	0.431594	78.69856
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4:00:00	220.8319	0.44322	78.62112
4:03:01	221.2176	0.449063	78.46931
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4:15:15	224.3775	0.472277	78.3904
4:18:21	225.2701	0.478091	78.54099
4:21:23	226.0712	0.483913	78.497
4:24:25	226.6856	0.489733	78.40535
4:27:31	227.8638	0.495506	78.35107
4:30:36	227.8613	0.501371	78.37276
4:33:38	228.3571	0.507135	78.25121
4:36:45	229.5525	0.513002	78.23491
4:39:52	230.2968	0.518742	78.04058
4:43:04	230.7765	0.52466	78.24141
4:46:09	231.5293	0.530432	78.15821
4:49:11	232.3725	0.53619	78.10087
4:52:20	232.9758	0.542004	78.11728
4:55:26	233.4394	0.547854	78.07048
4:58:28	234.5124	0.553719	78.01461
5:01:31	235.0787	0.559416	77.8998
5:04:39	235.5126	0.565222	77.85287
5:07:40	236.2445	0.571031	77.90458
5:10:40	237.1284	0.576859	77.85238

5:13:41	237.7131	0.582659	77.74933
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5:19:30	238.7677	0.59429	77.74002
5:22:25	239.7851	0.600084	77.71245
5:25:21	240.182	0.605905	77.50734
5:28:17	241.4553	0.611739	77.67018
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5:34:04	242.3652	0.623377	77.47499
5:36:56	243.4123	0.629166	77.3309
5:39:46	244.1417	0.634959	77.47168
5:42:42	244.5052	0.640751	77.35099
5:45:39	245.2581	0.646566	77.29439
5:48:39	246.3435	0.652379	77.23533
5:51:43	246.6538	0.658206	77.28801
5:54:47	247.0123	0.663996	77.19489
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6:00:52	248.5639	0.675649	77.14833
6:03:51	248.91	0.681427	77.06759
6:06:50	249.5492	0.687242	76.98035
6:09:57	250.5246	0.693061	76.83772
6:12:58	250.668	0.698861	76.95364
6:16:08	251.0191	0.704668	76.86395
6:19:13	252.3098	0.710497	76.82523
6:22:19	252.4643	0.716295	76.83319
6:25:24	252.4816	0.7221	76.70515
6:28:35	253.431	0.727954	76.68493
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6:37:49	254.8206	0.745408	76.54439
6:40:57	255.4758	0.751162	76.44098
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6:47:06	256.0247	0.762828	76.35913
6:50:13	257.0681	0.768622	76.3307
6:53:23	257.5589	0.774416	76.18012
6:56:30	257.528	0.780232	76.23905
6:59:36	258.1734	0.786053	76.18502
7:02:44	258.9609	0.791876	76.10954
7:05:51	259.0054	0.797668	76.07682
7:08:58	259.2576	0.803516	76.0397
7:12:02	260.1662	0.809261	75.98456
7:15:11	260.7312	0.815088	75.86791
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7:21:11	261.6807	0.826671	75.90222
7:24:10	262.2753	0.832507	75.81939
7:27:08	262.1888	0.838323	75.72541
7:30:10	263.0257	0.84416	75.7694
7:33:06	264.1285	0.849922	75.74894
7:36:05	264.2855	0.855723	75.62666
7:38:57	264.6774	0.861558	75.60485
7:41:55	265.675	0.867425	75.64479
7:44:47	265.9248	0.873215	75.54738
7:47:35	266.2066	0.878963	75.43637

7:50:33	267.2228	0.884855	75.53831
7:53:31	267.5665	0.890628	75.49163
7:56:26	267.5505	0.896425	75.37939
7:59:25	268.2996	0.902207	75.29755
8:02:35	268.715	0.908068	75.39496
8:05:36	268.6569	0.91385	75.29142
8:08:37	269.6706	0.919652	75.24952
8:11:36	270.311	0.925483	75.0531
8:14:38	270.6461	0.931356	75.22378
8:17:33	271.2197	0.937115	75.15909
8:20:38	271.6104	0.942928	75.07026
8:23:44	272.2396	0.948707	75.05494
8:26:56	272.2433	0.95452	75.03938
8:29:58	273.4376	0.960305	75.01647
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8:36:11	273.5055	0.97203	74.91636
8:39:22	274.345	0.9778	74.89627
8:42:35	274.7196	0.983634	74.83231
8:45:40	274.9458	0.989369	74.61347
8:48:44	274.9817	0.995193	74.78697
8:51:54	276.1227	1.001	74.78146
8:55:00	276.0102	1.006854	74.66616
8:58:11	275.8903	1.01262	74.61654
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9:04:28	277.4023	1.02423	74.58762
9:07:35	277.5073	1.030082	74.4189
9:10:45	277.809	1.035861	74.51631
9:13:55	278.7523	1.041712	74.4994
9:17:03	278.9909	1.047492	74.41179
9:17:03	278.9909	1.047492	74.41179

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0:18:26	98.13241	1.04E-02	63.47699
0:21:23	104.0195	1.61E-02	64.85164
0:24:32	108.3477	0.022063	66.0883
0:27:25	111.677	2.80E-02	67.02552
0:30:20	114.4993	3.38E-02	68.15165
0:33:20	117.4491	3.97E-02	69.0131
0:36:26	119.3035	4.57E-02	69.71325
0:39:28	120.7388	5.17E-02	70.23062
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0:45:30	125.0497	6.34E-02	71.77283
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0:51:39	128.2528	7.51E-02	72.57882
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0:57:45	130.6635	8.69E-02	73.65118
1:00:48	132.5736	9.31E-02	74.06869
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1:07:05	134.7927	0.10456	74.92338
1:10:03	135.8348	0.110486	75.22281
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1:16:06	138.0886	0.122268	75.67599
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1:25:02	141.3127	0.140027	76.56453
1:27:57	142.0595	0.14586	76.69615
1:30:48	143.0138	0.151811	76.81331
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1:36:36	144.9672	0.163691	77.25192
1:39:20	145.6026	0.169469	77.36258
1:42:18	146.9538	0.175438	77.5063
1:45:11	147.8118	0.181299	77.734
1:48:05	148.6352	0.187186	77.9328
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1:53:45	150.5959	0.199049	78.13589
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2:02:38	153.4875	0.216674	78.53336
2:05:38	153.621	0.22263	78.50745
2:08:33	154.5111	0.22852	78.48428
2:11:27	155.6745	0.234365	78.79295
2:14:33	156.7574	0.240257	78.84321
2:17:33	157.1357	0.246171	78.83071
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2:23:36	159.2374	0.257961	79.07442
2:26:37	159.518	0.263942	78.96428
2:29:34	160.3611	0.269789	78.8505
2:32:35	161.7965	0.275685	79.11335

2:35:39	162.1982	0.281596	79.06622
2:38:46	163.1094	0.287503	79.01557
2:41:47	164.1565	0.293359	79.16256
2:44:50	165.0083	0.299345	79.13587
2:47:55	165.7575	0.305162	79.15891
2:50:56	166.4399	0.311112	79.20994
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3:00:13	168.7715	0.328801	79.46772
3:03:17	169.6517	0.334674	79.42606
3:06:28	170.5418	0.340562	79.43934
3:09:31	170.7594	0.346486	79.48048
3:12:38	171.8139	0.352394	79.43166
3:15:40	172.9538	0.358282	79.45821
3:18:49	173.7351	0.364276	79.52747
3:21:53	174.1888	0.370093	79.43166
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3:27:59	175.8578	0.381911	79.5414
3:31:00	176.6354	0.387777	79.43934
3:33:51	177.1286	0.393688	79.42449
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3:48:30	181.1564	0.423219	79.42983
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3:54:11	181.8759	0.43496	79.39039
3:57:06	183.0738	0.440923	79.38661
3:59:59	183.4163	0.44679	79.08275
4:02:56	184.0184	0.452723	79.3413
4:05:52	185.246	0.458598	79.34104
4:08:58	185.9544	0.464475	79.05229
4:12:02	186.4625	0.470395	79.30563
4:15:06	187.2351	0.476308	79.23377
4:18:07	188.3045	0.482158	79.11985
4:21:07	188.3997	0.488067	79.23728
4:24:10	189.071	0.494028	79.12662
4:27:25	190.2665	0.499885	79.11738
4:30:27	190.7461	0.505777	79.16204
4:33:27	191.0898	0.511675	79.04916
4:36:31	191.4693	0.517558	78.9799
4:39:35	192.6636	0.523481	79.06387
4:42:38	193.032	0.529402	78.91064
4:45:39	193.456	0.535274	78.85766
4:48:47	195.0298	0.541218	79.00672
4:51:53	195.439	0.547083	78.83474
4:54:57	195.6726	0.552963	78.76744
4:58:03	196.7371	0.558875	78.80792
5:01:10	197.129	0.564832	78.68373
5:04:16	197.422	0.570687	78.6901
5:07:24	198.2589	0.576571	78.65339
5:10:28	199.0637	0.582492	78.54299

5:13:35	199.6139	0.58836	78.62709
5:16:45	199.9946	0.594263	78.5676
5:19:47	200.6301	0.60022	78.39497
5:22:53	201.9158	0.606107	78.56903
5:26:03	202.2261	0.611995	78.49053
5:29:13	202.7849	0.617929	78.36724
5:32:11	203.162	0.623785	78.39666
5:35:14	203.9074	0.629662	78.40135
5:38:23	204.5293	0.635575	78.2752
5:41:17	204.6813	0.641499	78.30436
5:44:12	205.7247	0.647398	78.30605
5:47:14	205.883	0.653277	78.13433
5:50:12	206.6903	0.659161	78.21908
5:53:08	207.0908	0.665092	78.15334
5:56:12	208.0934	0.671021	78.04411
5:59:06	208.6238	0.676898	78.14943
6:01:57	208.9996	0.682797	78.07666
6:04:56	209.5893	0.688681	77.99308
6:07:52	209.6894	0.694614	77.99685
6:10:46	210.2161	0.700457	77.94335
6:13:45	211.3547	0.706404	77.87344
6:16:47	211.5562	0.712342	77.88997
6:19:42	211.984	0.718205	77.83295
6:22:41	212.8036	0.724057	77.71695
6:25:42	213.9261	0.729977	77.83099
6:28:40	213.9162	0.735879	77.74168
6:31:42	214.564	0.741885	77.59262
6:34:47	215.0993	0.747657	77.67581
6:37:54	215.8646	0.753597	77.65511
6:40:59	216.1638	0.759482	77.42676
6:44:01	217.0316	0.765408	77.55825
6:47:10	217.7178	0.77126	77.53456
6:50:14	217.8958	0.777182	77.31792
6:53:15	218.2654	0.783067	77.45788
6:56:23	219.0319	0.78902	77.38914
6:59:32	219.6711	0.794945	77.06926
7:02:38	220.1347	0.800865	77.33315
7:05:41	220.6811	0.806741	77.27783
7:08:53	221.1422	0.812594	77.20687
7:12:00	221.429	0.818476	77.21182
7:15:06	221.6751	0.824443	77.1022
7:18:12	222.5602	0.830259	77.10494
7:21:24	223.2389	0.836214	77.17107
7:24:30	222.9929	0.842061	76.96915
7:27:39	224.3244	0.84796	77.02878
7:30:43	224.7039	0.853866	77.02526
7:33:52	224.4888	0.859799	76.8538
7:37:02	225.0167	0.865669	76.92098
7:40:01	225.929	0.871593	76.89716
7:43:10	226.4174	0.877525	76.7697
7:46:12	226.6102	0.883386	76.84873
7:49:08	226.8266	0.889291	76.75746

7:52:03	227.687	0.895162	76.66529
7:55:04	227.6932	0.901058	76.71515
7:58:06	228.4078	0.90699	76.67831
8:01:01	229.1335	0.912905	76.57077
8:04:00	229.6725	0.918837	76.64967
8:06:52	229.8913	0.924728	76.58028
8:09:42	230.6689	0.930599	76.49696
8:12:40	230.8951	0.936481	76.53003
8:15:44	231.1201	0.942437	76.44462
8:18:47	231.8854	0.948321	76.34737
8:21:51	232.4615	0.954186	76.47821
8:24:51	232.5703	0.960084	76.4027
8:27:56	232.5863	0.966034	76.16094
8:30:58	233.4431	0.97193	76.38044
8:33:55	234.0674	0.977758	76.31105
8:36:58	234.3344	0.983688	76.08856
8:40:02	234.9501	0.989586	76.29191
8:43:11	235.2196	0.995569	76.19609
8:46:16	235.4162	1.001373	75.83482
8:49:28	236.2791	1.007299	76.18594
8:52:37	236.9751	1.013223	76.15508
8:55:43	237.21	1.019085	76.04677
8:58:54	237.6575	1.025046	76.09832
9:02:05	237.9184	1.030954	75.97048
9:05:18	238.8307	1.036827	75.99873
9:08:30	239.3228	1.042759	76.00511
9:11:31	239.0669	1.048604	75.84107
9:14:41	239.7616	1.054539	75.92908
9:17:53	240.2129	1.060357	75.9197
9:21:02	240.0509	1.066326	75.67716
9:21:02	240.0509	1.066326	75.67716



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04 COE Output

Project Name John Sevier Fossil Plant

Project Number 175569038

Test ID _____

Request ID _____

Over-Ride _____

Set Number 1752

Test Type - Select 1

Undisturbed _____

Remolded _____ rare

Source _____

Compacted _____

Sample ID _____

If Compacted or Remolded:

Test A

Test B

Test C

Source _____

Source _____

Source _____

Over-Ride _____

Over-Ride _____

Over-Ride _____

Lab ID _____

Lab ID _____

Lab ID _____

Over-Ride _____

Over-Ride _____

Over-Ride _____

LL _____

LL _____

LL _____

PL _____

PL _____

PL _____

PI _____

PI _____

PI _____

Gs _____

Gs _____

Gs _____

If Uniform for all

Visual Description: Sandy Lean Clay (CL), light brown

LL 33

PL 18

PI 15

GS 2.66

ASTM D854 Method: A Assumed _____ Estimated _____

Gs Method Test ASTM D854 Method A

Test Number (ie 19A) 1752A

Normal Load (psi) 5

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-4-09	14:30:00	0.98
0.1	6-4-09	14:30:06	1.09
0.25	6-4-09	14:30:15	1.13
0.5	6-4-09	14:30:30	1.14
1	6-4-09	14:31:00	1.16
2	6-4-09	14:32:00	1.18
3	6-4-09	14:33:00	1.19
6	6-4-09	14:36:00	1.25
8	6-4-09	14:38:00	1.28
10	6-4-09	14:40:00	1.29
12	6-4-09	14:42:00	1.31
16	6-4-09	14:46:00	1.36
32	6-4-09	15:02:00	1.48
48	6-4-09	15:18:00	1.63
82	6-4-09	15:52:00	1.81
1153	6-5-09	9:43:00	3.23
1493	6-5-09	15:23:00	3.26



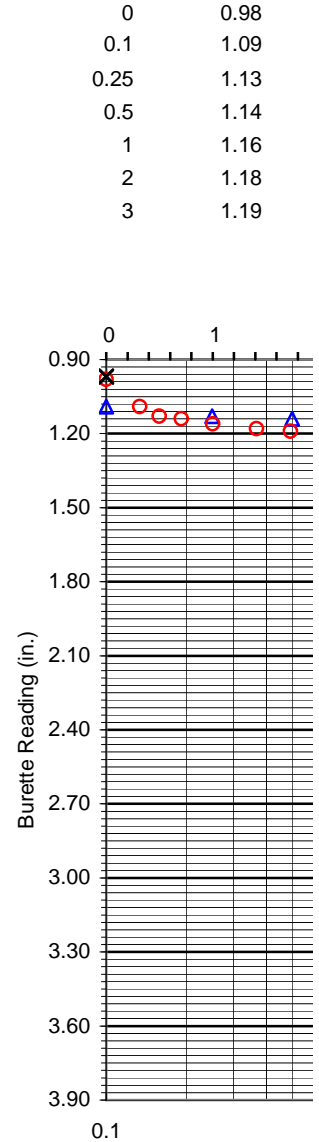
sqrt plot range o11:o27 c11:c27

log plot range e12:e27 c12:c27

Project Name Jo
 Source JS
 Start Date 6-4-09
 End Date 6-5-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	0.98	0	0.10	0	0.10	0.9	0	0.98
not	0.1	1.09	0.3162278	0.13	1	0.25	0.9	0.1	1.09
erase!	0.25	1.13	0.5	0.16	2	0.63	0.9	0.25	1.13
	0.5	1.14	0.7071068	0.19	3	1.58	0.9	0.5	1.14
	1	1.16	1	0.25	4	3.98	0.9	1	1.16
	2	1.18	1.4142136	0.37	5	10.00	0.9	2	1.18
	3	1.19	1.7320508	0.49	6	25.12	0.9	3	1.19
	6	1.25	2.4494897	0.95	7	63.10	0.9		
	8	1.28	2.8284271	1.35	8	158.49	0.9		
	10	1.29	3.1622777	1.84	9	398.11	0.9		
	12	1.31	3.4641016	2.43	10	1000.00	0.9		
	16	1.36	4	3.98	11	2511.89	0.9		
	32	1.48	5.6568542	18.31	0.2	0.12	0.9		
	48	1.63	6.9282032	59.06	0.4	0.14	0.9		
	82	1.81	9.0553851	418.94	0.6	0.17	0.9		
	1153	3.23	33.955854	#####	0.8	0.21	0.9		
	1493	3.26	38.639358	#####	1.2	0.30	0.9		
					1.4	0.36	0.9		
					1.6	0.44	0.9		
					1.8	0.52	0.9		
					2.2	0.76	0.9		
					2.4	0.91	0.9		
					2.6	1.10	0.9		
					2.8	1.32	0.9		
					3.2	1.91	0.9		
					3.4	2.29	0.9		
					3.6	2.75	0.9		
					3.8	3.31	0.9		
					4.2	4.79	0.9		
					4.4	5.75	0.9		
					4.6	6.92	0.9		
					4.8	8.32	0.9		
					5.2	12.02	0.9		
					5.4	14.45	0.9		
					5.6	17.38	0.9		
					5.8	20.89	0.9		
					6.2	30.20	0.9		
					6.4	36.31	0.9		
					6.6	43.65	0.9		
					6.8	52.48	0.9		
					7.2	75.86	0.9		
					7.4	91.20	0.9		
					7.6	109.65	0.9		
					7.8	131.83	0.9		
					8.2	190.55	0.9		
					8.4	229.09	0.9		

Burette Reading (in.)



Square Roo

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root	
8.6	275.42	0.9		plot point - x
8.8	331.13	0.9		
9.2	478.63	0.9	d ₀ =	0.10
9.4	575.44	0.9	d ₉₀ =	0.10
9.6	691.83	0.9	d ₁₀₀ =	0.10
9.8	831.76	0.9		
10.2	1202.26	0.9	d ₀ =	0.10
10.4	1445.44	0.9	d ₀ line	0.10
10.6	1737.80	0.9		
10.8	2089.30	0.9		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

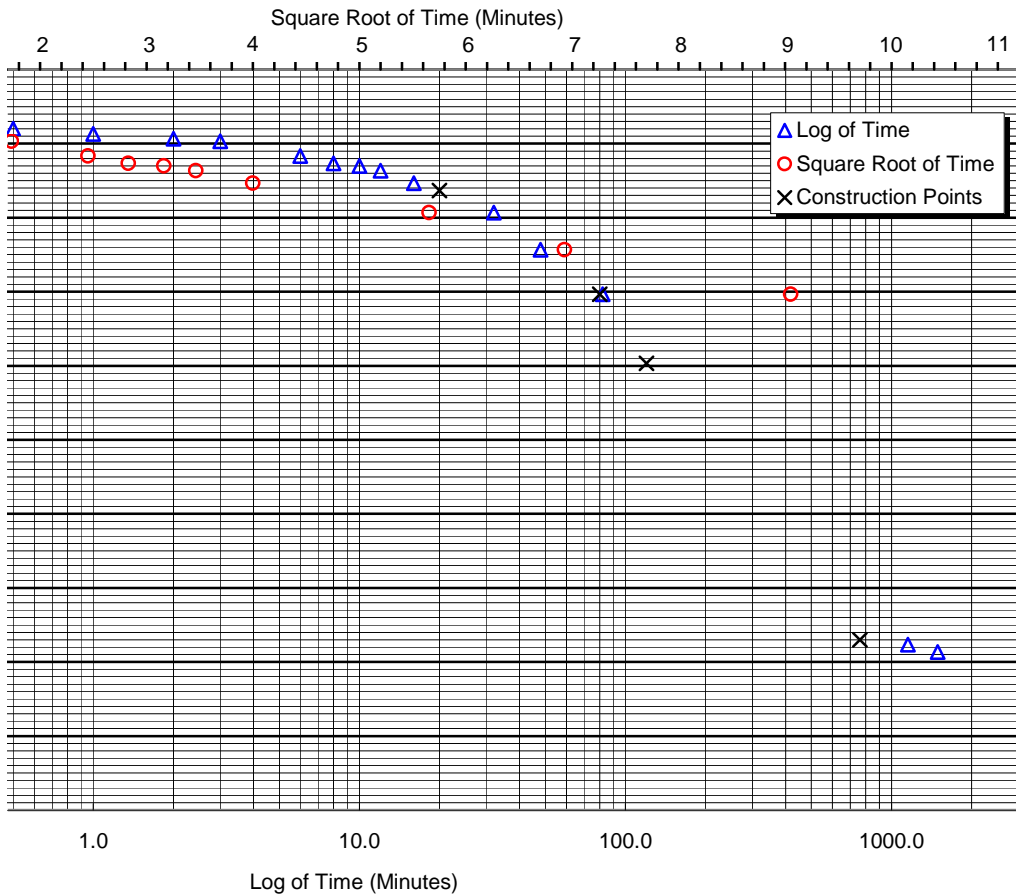
John Sevier Fossil Plant
 36B, 18.0' - 27.0'

Project No. 175569038
 Test Number 1752A
 Load (tsf) 5

Start Time 2:30 PM
 End Time 3:23 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
6	1.25	82	1.81			6:14 AM
8	1.28	1153	3.23			
10	1.29	1493	3.26			
12	1.31					
16	1.36					
32	1.48					
48	1.63					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$	3.21	$t_{100} (m) =$	760
$t_{100} (m) =$	$d_{t1} =$	1.39	$t_1 (m) =$	20
$t_{50} (m) =$	$d_{t2 (t1*4)} =$	1.81	$t_{50} (m) =$	120
	$d_{50} =$	2.090		

t of Time

y	time
0.97	0
0.969	0
0.968	0
0.97	0
0.969	0

log of time

	time - x	plot point - y
d ₁₀₀	760	3.21
d _{t1}	20	1.39
d _{t1*4}	80	1.81
d ₅₀	120	2.09

line @ 3000 m

3000	3.9
3000	0.9

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	3.26 maximum scale	3.3	3.4	3.5	2	10
min. dial reading	0.98 mimimum scale	0.9	0.8	0.5	0	0
diference	2.28	2.4	2.6	3	2	10

0.5	1	2	3	4	5	10	20
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2
			3.9	4.8	5.5	10	20
			0.9	0.8	0.5	0	0
			1	2	2	2	2
			3.9	4.8	5.5	10	20
			0.9	0.8	0.5	0	0
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	3.9
min_y	0.9
total scale	3
Major unit	0.3
Minor unit	0.03

Test Number (ie 19A) 1752B

Normal Load (psi) 10

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-4-09	14:38:00	1.06
0.1	6-4-09	14:38:06	1.24
0.25	6-4-09	14:38:15	1.31
0.5	6-4-09	14:38:30	1.36
1	6-4-09	14:39:00	1.45
2	6-4-09	14:40:00	1.54
3	6-4-09	14:41:00	1.59
4	6-4-09	14:42:00	1.65
6	6-4-09	14:44:00	2.06
8	6-4-09	14:46:00	2.43
10	6-4-09	14:48:00	2.74
24	6-4-09	15:02:00	4.02
40	6-4-09	15:18:00	4.83
74	6-4-09	15:52:00	5.98
1012	6-5-09	7:30:00	18
1485	6-5-09	15:23:00	18.56
5362	6-8-09	8:00:00	33.18
5662	6-8-09	13:00:00	33.22

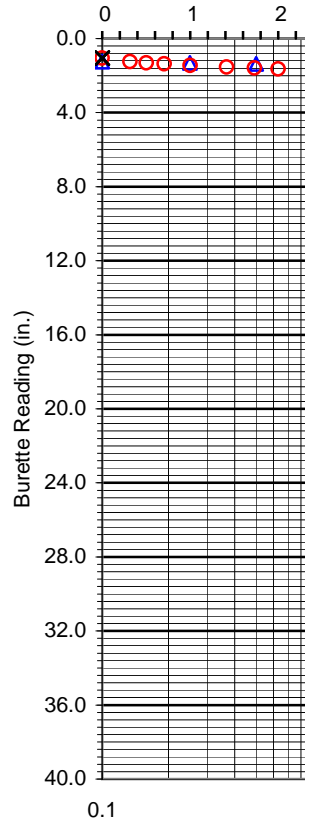


x o11:o28 y c11:c28
 sqrt plot range
 log plot range e12:e28 c12:c28

Project Name Jo
 Source JS
 Start Date 6-4-09
 End Date 6-8-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.06	0	0.10	0	0.10	0	0	1.06
not	0.1	1.24	0.3162278	0.13	1	0.25	0	0.1	1.24
erase!	0.25	1.31	0.5	0.16	2	0.63	0	0.25	1.31
	0.5	1.36	0.7071068	0.19	3	1.58	0	0.5	1.36
	1	1.45	1	0.25	4	3.98	0	1	1.45
	2	1.54	1.4142136	0.37	5	10.00	0	2	1.54
	3	1.59	1.7320508	0.49	6	25.12	0	3	1.59
	4	1.65	2	0.63	7	63.10	0		
	6	2.06	2.4494897	0.95	8	158.49	0		
	8	2.43	2.8284271	1.35	9	398.11	0		
	10	2.74	3.1622777	1.84	10	1000.00	0		
	24	4.02	4.8989795	9.11	11	2511.89	0		
	40	4.83	6.3245553	33.87	0.2	0.12	0		
	74	5.98	8.6023253	276.01	0.4	0.14	0		
	1012	18	31.811947	530614332346.15	0.6	0.17	0		
	1485	18.56	38.535698	#####	0.8	0.21	0		
	5362	33.18	73.225679	#####	1.2	0.30	0		
	5662	33.22	75.246262	#####	1.4	0.36	0		
					1.6	0.44	0		
					1.8	0.52	0		
					2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		

Elapsed Time (minutes)
 Burette Reading (in.)



Square Roo

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root
8.6	275.42	0	plot point - x
8.8	331.13	0	
9.2	478.63	0	$d_0 = 0.10$
9.4	575.44	0	$d_{90} = 0.10$
9.6	691.83	0	$d_{100} = 0.10$
9.8	831.76	0	
10.2	1202.26	0	$d_0 = 0.10$
10.4	1445.44	0	d_0 line 0.10
10.6	1737.80	0	
10.8	2089.30	0	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

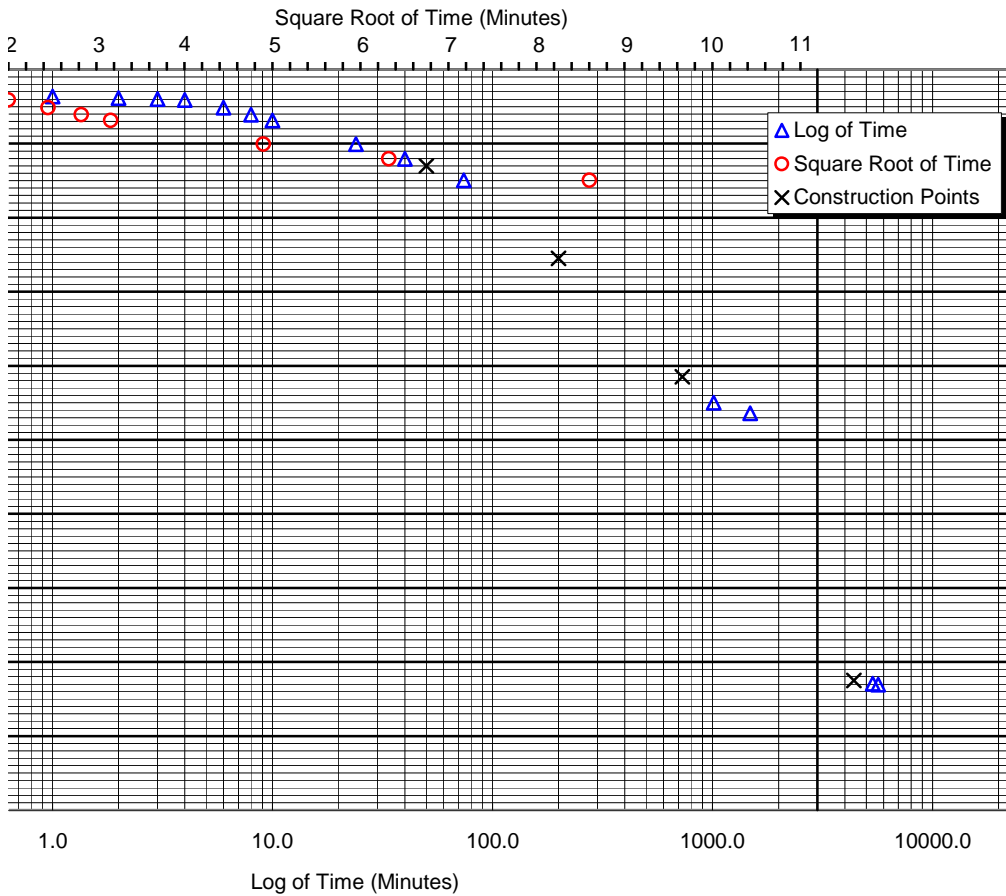
Inh Sevier Fossil Plant
 36B, 18.0' - 27.0'

Project No. 175569038
 Test Number 1752B
 Load (tsf) 10

Start Time 2:38 PM
 End Time 1:00 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	1.65	1012	18			5:16 AM
6	2.06	1485	18.56			
8	2.43	5362	33.18			
10	2.74	5662	33.22			
24	4.02					
40	4.83					
74	5.98					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$	33	$t_{100} (m) =$	4400
$t_{100} (m) =$	$d_{t_1} =$	5.2	$t_1 (m) =$	50
$t_{50} (m) =$	$d_{t_2 (t_1 \cdot 4)} =$	10.2	$t_{50} (m) =$	730
	$d_{50} =$	16.600		

t of Time

y	time
1.05	0
1.049	0
1.048	0
1.05	0
1.049	0

log of time

	time - x	plot point - y
d ₁₀₀	4400	33
d _{t1}	50	5.2
d _{t1*4}	200	10.2
d ₅₀	730	16.6

line @ 3000 m

3000	40
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	33.22 maximum scale	33.3	33.4	33.5	2	40
min. dial reading	1.06 mimimum scale	1.0	1	1	0	0
diference	32.16	32.3	32.4	32.5	2	40

0.5 1 2 3 4 5 10 20

30	40	50
	40	50
	4	5
	0.4	0.5
	40	50
	0	0

1	2
40	50
0	0
40	50
4	5
0.4	0.5

test: use 1	
max_y	40
min_y	0
total scale	40
Major unit	4
Minor unit	0.4

Test Number (ie 19A) 1752C

Normal Load (psi) 20

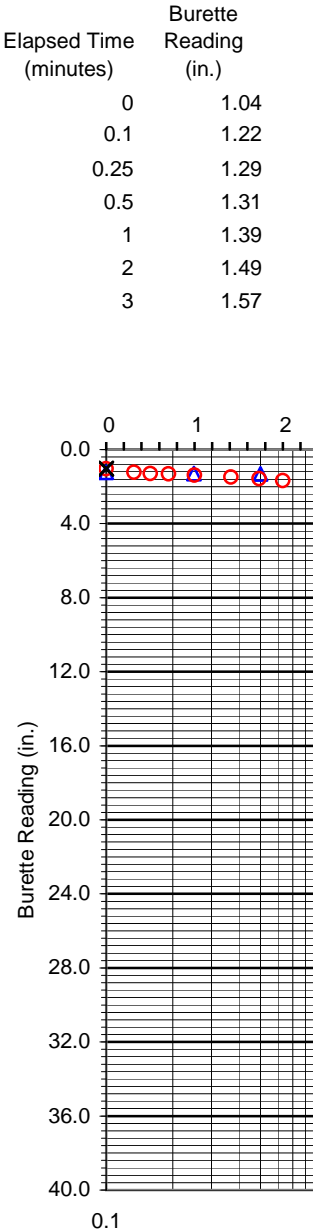
Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-4-09	14:21:00	1.04
0.1	6-4-09	14:21:06	1.22
0.25	6-4-09	14:21:15	1.29
0.5	6-4-09	14:21:30	1.31
1	6-4-09	14:22:00	1.39
2	6-4-09	14:23:00	1.49
3	6-4-09	14:24:00	1.57
4	6-4-09	14:25:00	1.68
6	6-4-09	14:27:00	1.92
8	6-4-09	14:29:00	2.09
10	6-4-09	14:31:00	2.22
12	6-4-09	14:33:00	2.31
16	6-4-09	14:37:00	2.49
22	6-4-09	14:43:00	2.78
41	6-4-09	15:02:00	3.39
57	6-4-09	15:18:00	3.81
91	6-4-09	15:52:00	4.56
1029	6-5-09	7:30:00	18
1501	6-5-09	15:22:00	25.36
5379	6-8-09	8:00:00	35.1
5829	6-8-09	15:30:00	35.21



x o11:c31 y c11:c31
 sqrt plot range
 log plot range e12:e31 c12:c31

Project Name JS
 Source JS
 Start Date 6-4-09
 End Date 6-8-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.04	0	0.10	0	0.10	0	0	1.04
not	0.1	1.22	0.3162278	0.13	1	0.25	0	0.1	1.22
erase!	0.25	1.29	0.5	0.16	2	0.63	0	0.25	1.29
	0.5	1.31	0.7071068	0.19	3	1.58	0	0.5	1.31
	1	1.39	1	0.25	4	3.98	0	1	1.39
	2	1.49	1.4142136	0.37	5	10.00	0	2	1.49
	3	1.57	1.7320508	0.49	6	25.12	0	3	1.57
	4	1.68	2	0.63	7	63.10	0		
	6	1.92	2.4494897	0.95	8	158.49	0		
	8	2.09	2.8284271	1.35	9	398.11	0		
	10	2.22	3.1622777	1.84	10	1000.00	0		
	12	2.31	3.4641016	2.43	11	2511.89	0		
	16	2.49	4	3.98	0.2	0.12	0		
	22	2.78	4.6904158	7.52	0.4	0.14	0		
	41	3.39	6.4031242	36.41	0.6	0.17	0		
	57	3.81	7.5498344	104.70	0.8	0.21	0		
	91	4.56	9.539392	654.27	1.2	0.30	0		
	1029	18	32.07803	677972293242.65	1.4	0.36	0		
	1501	25.36	38.742741	#####	1.6	0.44	0		
	5379	35.1	73.341666	#####	1.8	0.52	0		
	5829	35.21	76.347888	#####	2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		



Square Root

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared BY: MW
 Approved BY: TLK

			Square Root
8.6	275.42	0	plot point - x
8.8	331.13	0	
9.2	478.63	0	d ₀ = 0.10
9.4	575.44	0	d ₉₀ = 0.10
9.6	691.83	0	d ₁₀₀ = 0.10
9.8	831.76	0	
10.2	1202.26	0	d ₀ = 0.10
10.4	1445.44	0	d ₀ line 0.10
10.6	1737.80	0	
10.8	2089.30	0	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

John Sevier Fossil Plant

Project No. 175569038

36B, 18.0' - 27.0'

Test Number 1752C

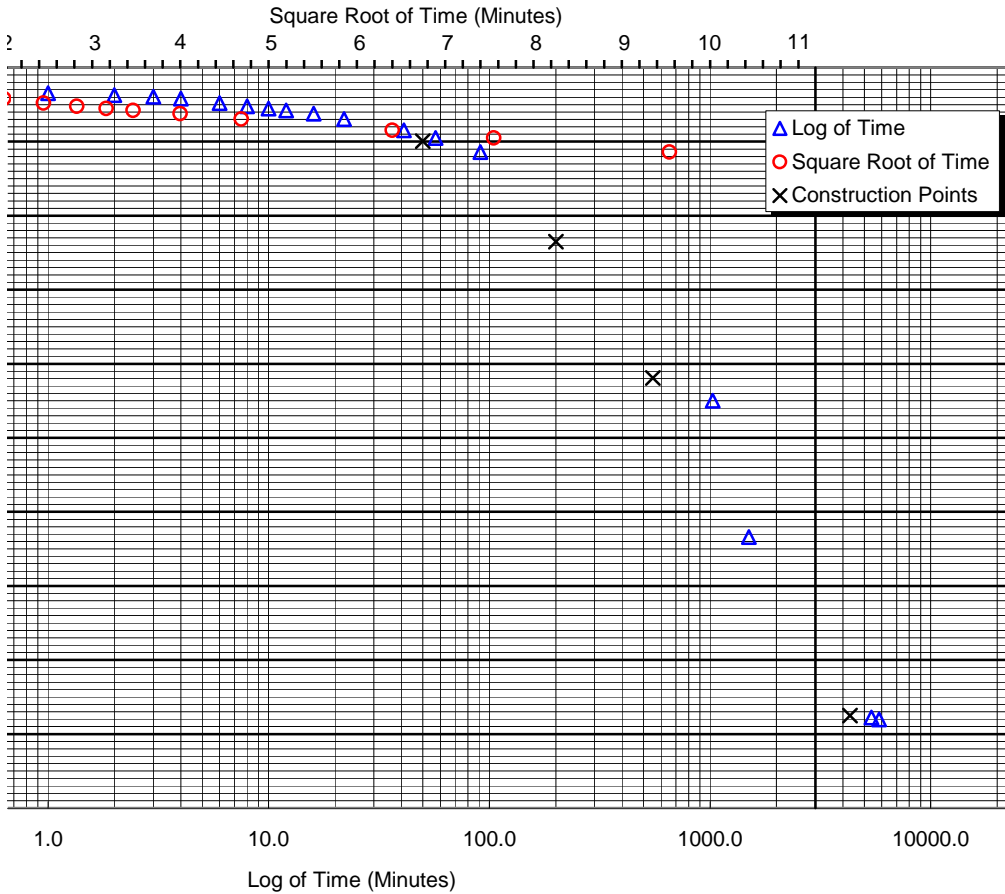
Start Time 2:21 PM

Load (tsf) 20

End Time 3:30 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	1.68	41	3.39			5:02 AM
6	1.92	57	3.81			
8	2.09	91	4.56			
10	2.22	1029	18			
12	2.31	1501	25.36			
16	2.49	5379	35.1			
22	2.78	5829	35.21			

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$	35	$t_{100} (m) =$	4300
$t_{100} (m) =$	$d_{t1} =$	3.97	$t_1 (m) =$	50
$t_{50} (m) =$	$d_{t2 (t1*4)} =$	9.4	$t_{50} (m) =$	550
	$d_{50} =$	16.770		

t of Time

y	time
1.03	0
1.029	0
1.028	0
1.03	0
1.029	0

log of time

	time - x	plot point - y
d_{100}	4300	35
d_{t1}	50	3.97
d_{t1*4}	200	9.4
d_{50}	550	16.77

line @ 3000 m

3000	40
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	35.21 maximum scale	35.3	35.4	35.5	2	40
min. dial reading	1.04 minimum scale	1.0	1	1	0	0
diference	34.17	34.3	34.4	34.5	2	40

0.5 1 2 3 4 5 10 20

30	40	50
	40	50
	4	5
	0.4	0.5
	40	50
	0	0

1	2
40	50
0	0
40	50
4	5
0.4	0.5

test: use 1	
max_y	40
min_y	0
total scale	40
Major unit	4
Minor unit	0.4



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant		Project No.	175569038
Sample Identification	JS-36B, 18.0' - 27.0'		Test Number	CU-1752A
Visual Description	Sandy Lean Clay (CL), light brown		Prepared By	KDG
	Need!		Date	6-4-2009
			Set No.	1752
Specific Gravity	2.66	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 85 (psi)	Lateral	5 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings	
Top	1 2.8 2	1 5.8 2 5.8	Wet Wt (g)	1181	Tare Id.	377	
Middle	3 2.8 4	3 5.8 4 5.8	Dry Wt (g)		Wet Wt (g)	542.07	
Bottom	5 2.8 6		mc %		Dry Wt (g)	442.45	
			from final	27.0	Dry Weight Use		
			from trimmings	26.8	929.85 X	Tare Wt (g)	70.91
					931.29		

Setup and Saturation

Panel No.	E	Burette S/L	L	Set Up By	KDG	Date	6-4-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2		1 2			
Middle	3 4	3 4		3 4			
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Values	
Initial Height	0.2809	Initial	14.64	Initial	11.53	B1	
Final Height	0.2988	Final	13.93	Final	6.63	B2	
Comments:						B3	
						B4	0.97

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2988	Back Pressure	Chamber	Panel No.	E
@ 15 Min		Initial	0.98	Burettes L/S	L
Final	0.357	Final	3.26	Tested By	KDG
Comments:					

Test

Data File ID	CU-1752A	Press No.	1	Area (A _c)		t ₅₀	120	Start Time	
Tested By	KDG	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-8-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample		
	1	3.195 2	3.195	Tare Id.	Tigger
	3	3.303 4	3.303	Wet Wt (g)	1287.22
	5	3.203 6	3.203	Dry Wt (g)	1073.01
	Membrane Thickness (in.)	0.012	3.303 avg. max.	Tare Wt (g)	224.53
Final Wet Weight	1164.6 g	Final Dry Weight	929.85	Final MC %	25.2

Comments:



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant			Project No.	175569038
Sample Identification	JS-36B, 18.0' - 27.0'			Test Number	CU-1752B
Visual Description	Sandy Lean Clay (CL), light brown			Prepared By	KDG
	Need!			Date	6-4-2009
				Set No.	1752
Specific Gravity	2.66	ASTM D854 Method A		Input By	KDG
Chamber	90 (psi)	Back	80 (psi)	Lateral	10 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 5.8	2 5.8	Wet Wt (g)	1181	Tare Id.	377
Middle	3 2.8	4	3 5.8	4 5.8	Dry Wt (g)		Wet Wt (g)	542.07
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	442.45
			from final	28.9	916.19	X	Tare Wt (g)	70.91
			from trimmings	26.8	931.29			

Setup and Saturation

Panel No.	F	Burette S/L	L	Set Up By	KDG	Date	6-4-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	
Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2648	Initial	15.84	Initial	11.35	B1	
Final Height	0.2689	Final	11.88	Final	3.8	B2	
Comments:						B3	
						B4	0.98

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	F
Initial	0.2689	Back Pressure		Burettes L/S	L
@ 15 Min		Initial	0	Initial	32.51
Final	0.3163	Final	32.12	Final	0
Comments:				Tested By	KDG

Test

Data File ID	CU-1752B	Press No.	2	Area (A _c)		t ₅₀	730	Start Time	
Tested By	KDG	Panel No.	F	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-8-09					Strain Rate (in/mn)			

After Test

<p>Failure Sketch</p>	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.231	2	3.231	Tare Id.	dog
	3	3.405	4	3.405	Wet Wt (g)	1374.62
	5	3.519	6	3.519	Dry Wt (g)	1139.35
	Membrane Thickness (in.)	0.024	3.519		Tare Wt (g)	223.66
	Final Wet Weight	1151.59 g	Final Dry Weight	916.19	Final MC %	25.7
Comments:						



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant			Project No.	175569038
Sample Identification	JS-36B, 18.0' - 27.0'			Test Number	CU-1752C
Visual Description	Sandy Lean Clay (CL), light brown			Prepared By	KDG
	Need!			Date	6-4-2009
				Set No.	1752
Specific Gravity	2.66	ASTM D854 Method A		Input By	KDG
Chamber	90 (psi)	Back	70 (psi)	Lateral	20 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1221.8	Tare Id.	377
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	542.07
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	442.45
			from final	27.8	955.83	X	Tare Wt (g)	70.91
			from trimmings	26.8	963.47			

Setup and Saturation

Panel No.	C	Burette S/L	L	Set Up By	KDG	Date	6-4-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2771	Initial	14.26	Initial	1.24	B1	
Final Height	0.333	Final	13.28	Final	3.01	B2	
Comments:						B3	
						B4	0.98

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	C
Initial	0.333	Back Pressure	Chamber	Burettes L/S	L
@ 15 Min		Initial	0	Initial	34.49
Final	0.373	Final	34.17	Final	0
Comments:				Tested By	KDG

Test

Data File ID	CU-1752C	Press No.	1	Area (A _c)		t ₅₀	550	Start Time	
Tested By	KDG	Panel No.	C	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-9-09					Strain Rate (in/mn)			

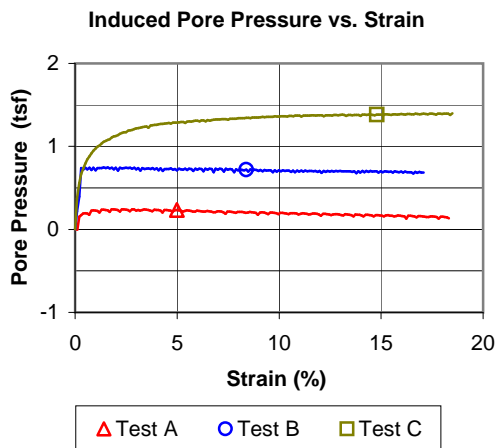
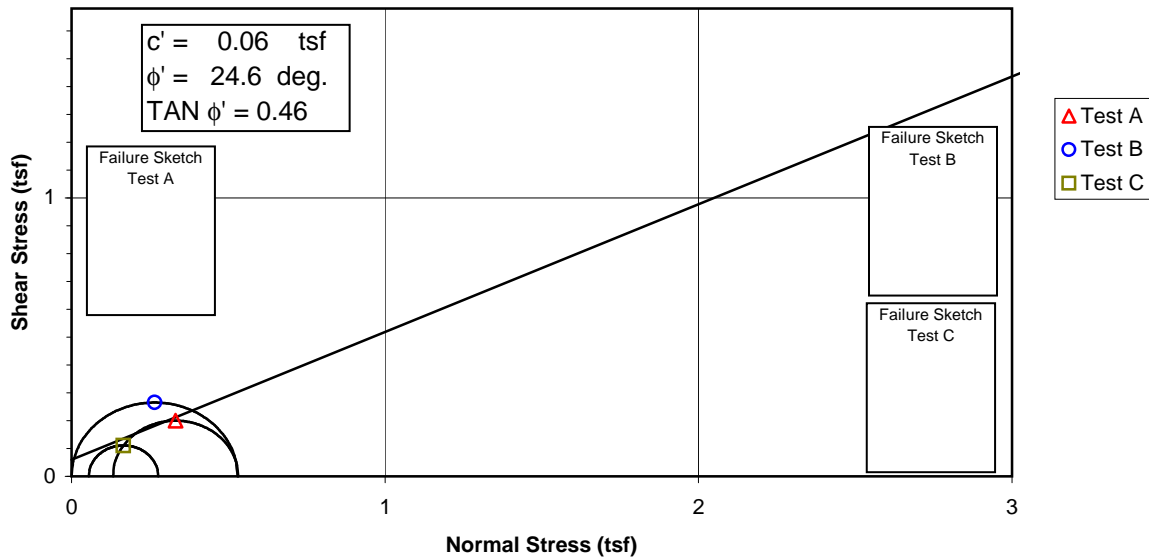
After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample		
	1	2.9	2	2.9	
	3	3.48	4	3.48	
	5	3.56	6	3.56	
	Membrane Thickness (in.)	0.012		3.56	
	Final Wet Weight	1215.82 g	Final Dry Weight	955.83	
				Tare Id.	WSP
				Wet Wt (g)	1423.94
				Dry Wt (g)	1164.04
				Tare Wt (g)	208.54
				Final MC %	27.2

Comments:

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

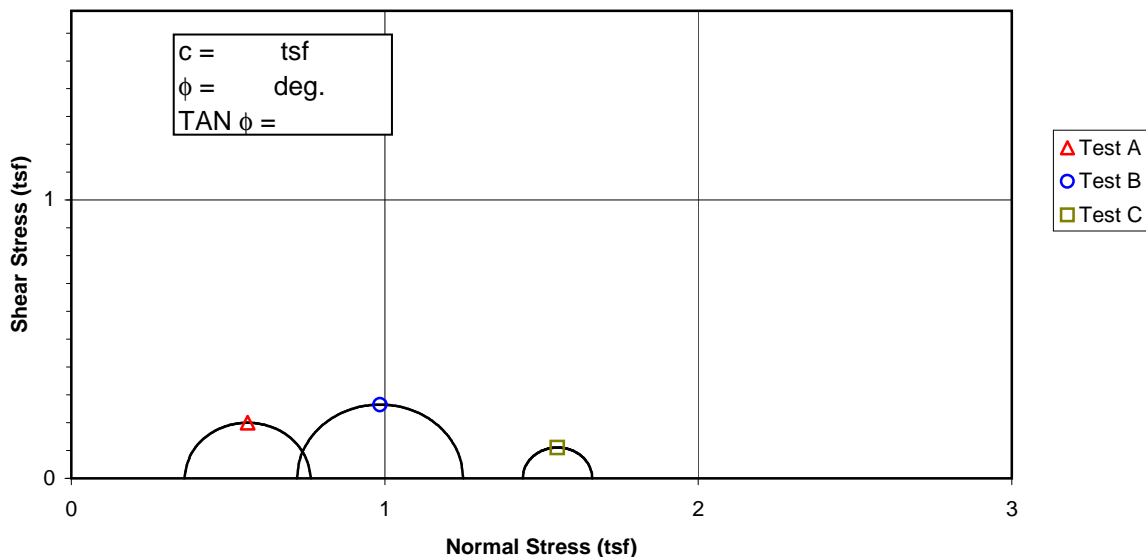


Specimen No.		A	B	C
Initial Data	Water content %	W_o 27.0	28.9	27.8
	Dry Density PCF	γ_{d_o} 99.2	97.7	98.6
	Saturation %	S_o 106.6	110.0	108.1
	Void Ratio	e_o 0.674	0.699	0.685
After Shear	Water content %	W_f 25.2	25.7	27.2
	Dry Density PCF	γ_{d_f} 99.3	98.6	96.3
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.672	0.683	0.724
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.13	0.00	0.06
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 0.40	0.53	0.22
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 94.4	401.0	364.3
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	0.36	0.22
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 5.800	5.800	6.000

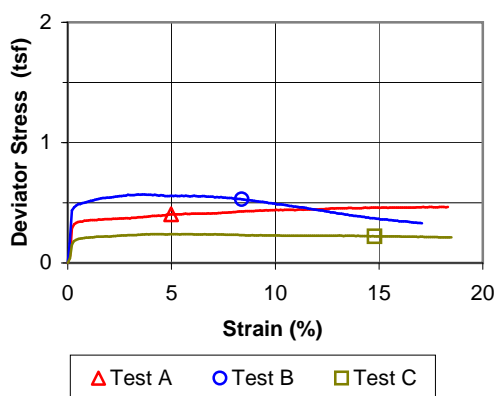
Controlled - Strain Test		Initial Height, in.		H_o 5.800	5.800	6.000
Description of Specimens Sandy Lean Clay (CL), light brown						
				Type of Specimen Undisturbed	Type of test \bar{R}	
LL 33	PL 18	PI 15	Gs 2.66	Project John Sevier Fossil Plant		
Remarks: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.						
				Boring No. JS-36B	Sample No. 1752	
				Depth Elev. 18.0' - 27.0'		
				Laboratory Stantec	Date 6-15-09	
TRIAXIAL COMPRESSION TEST REPORT						

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



Specimen No.		A	B	C	
Initial Data	Water content %	W_o	27.0	28.9	27.8
	Dry Density PCF	γ_{d_o}	99.2	97.7	98.6
	Saturation %	S_o	106.6	110.0	108.1
	Void Ratio	e_o	0.674	0.699	0.685
After Shear	Water content %	W_f	25.2	25.7	27.2
	Dry Density PCF	γ_{d_f}	99.3	98.6	96.3
	Saturation %	S_f	100.0	100.0	100.0
	Void Ratio	e_f	0.672	0.683	0.724
Final Back Pressure TSF		u_c	6.12	5.76	5.04
Minor Principal Stress TSF		σ_3	0.36	0.72	1.44
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$	0.40	0.53	0.22
Time to $(\sigma_1 - \sigma_3)_{Max}$ min.		t_f	94.4	401.0	364.3
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$	n/a	0.36	0.22
Initial Diameter, in.		D_o	2.800	2.800	2.800
Initial Height, in.		H_o	5.800	5.800	6.000

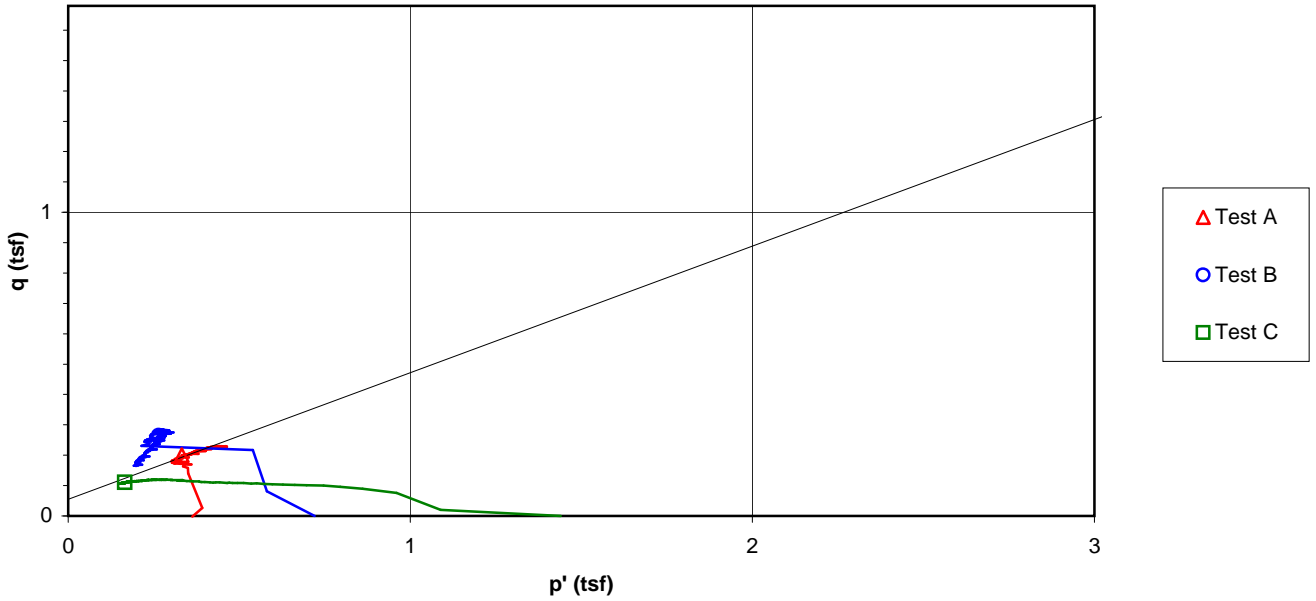
Controlled - Strain Test		Sandy Lean Clay (CL), light brown		
Description of Specimens		Sandy Lean Clay (CL), light brown		
Type of Specimen		Undisturbed		Type of test \bar{R}
LL 33	PL 18	PI 15	Gs 2.66	Project John Sevier Fossil Plant
Remarks: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.		Boring No. JS-36B	Sample No. 1752	
		Depth Elev. 18.0' - 27.0'		
		Laboratory Stantec	Date 6-15-09	
TRIAXIAL COMPRESSION TEST REPORT				

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

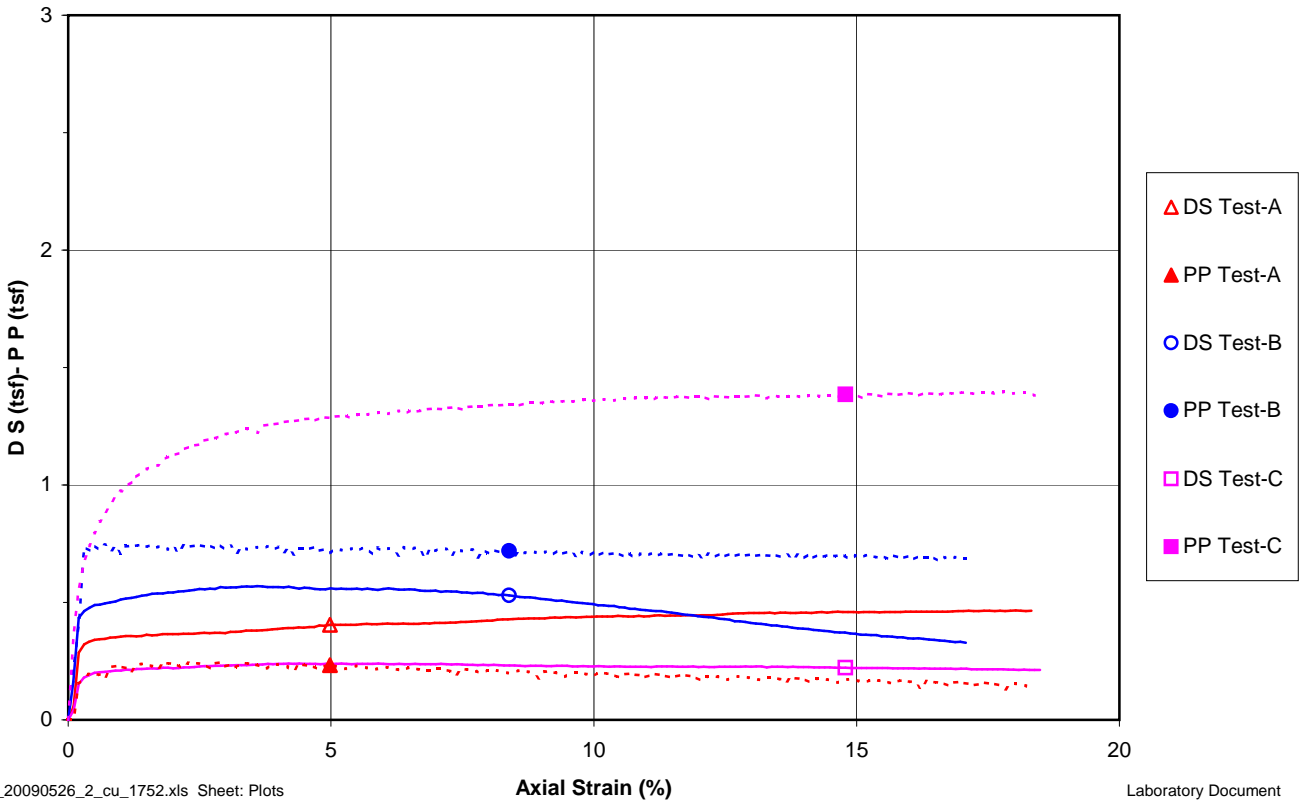
Project John Sevier Fossil Plant
 Sample ID JS-36B, 18.0' - 27.0'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 24.6$ deg.

Project No. 175569038
 Test Number 1752
 $c' = 0.06$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 18.0' - 27.0'
 Visual Description Sandy Lean Clay (CL), light brown

 Project Number 175569038
 Test Number CU-1752A
 Prepared By KDG
 Date 6-4-2009

 Specific Gravity 2.66 ASTM D854 Method A Liquid Limit 33 Plastic Limit 18 Plasticity Index 15
Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>5.800</u>	Sample <u>35.7136</u> (V _o)	Wet Weight (g) <u>1181.00</u>
Middle <u>2.800</u>	2 <u>5.800</u>	Solids <u>21.3306</u> (V _S)	Dry Weight (g) <u>929.85</u>
Bottom <u>2.800</u>	3 <u>5.800</u>	Water <u>15.3253</u> (V _w)	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000</u> (D _o)	4 <u>5.800</u>	Voids <u>14.3831</u> (V _v)	Dry Unit Weight (pcf) <u>99.2</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>5.8000</u>	Degree of Saturation (%) <u>106.6</u> (S _o)	
Moisture Content (%) <u>27.0</u>	Final Trimmings	Void Ratio <u>0.674</u>	

Saturation

 Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 85 (psi) Final Pore Pressure Parameter B 0.97 Date 6-4-09
 Panel Board Number E

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.7821</u> (H _s)
Initial <u>0.2809</u>	Initial <u>14.64</u> (in.)	Initial <u>11.53</u> (in.)	Area (in ²) Method A <u>6.1194</u> (A _s)
Final <u>0.2988</u>	Final <u>13.93</u> (in.)	Final <u>6.63</u> (in.)	Specimen Volume (in ³) <u>35.38</u> (V _s)
Change <u>-0.0179</u> (ΔH _o)	Change <u>-0.71</u> (in.)	Change <u>-4.90</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2988</u>	Initial <u>0.98</u> (in.)	Initial <u>17.31</u> (in.)	Chamber <u>90</u>
Final <u>0.357</u>	Final <u>3.26</u> (in.)	Final <u>13.04</u> (in.)	Back <u>85</u>
Change <u>-0.0582</u> (ΔH _c)	Change <u>-2.28</u> (in.)	Change <u>-4.27</u> (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>5.7239</u> (H _c)		Volume (in ³) <u>35.6552</u> (V _c)	t ₅₀ (min.) <u>120</u>
Area (in ²) Method B <u>6.2292</u> (A _c)		Volume - Water (in ³) <u>14.3246</u> (V _{wc})	
Diameter (in.) <u>2.8162</u> (D _c)		Water Content (%) <u>25.2</u>	
Dry Density (pcf) <u>99.3</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	Void Ratio <u>0.672</u>

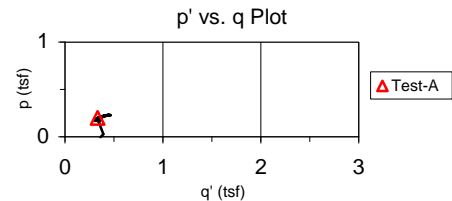
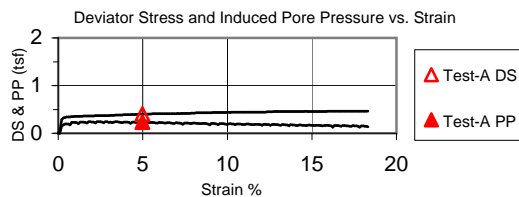
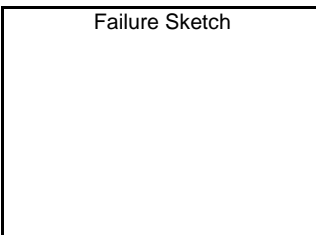
After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.303</u> (in.)	Wet Weight (g) <u>1164.60</u>	Corrected Deviator <u>0.40</u> σ _d (tsf)
Wet weight (g) <u>1164.6</u> (WW _f)	Dry Weight (g) <u>929.85</u>	Major Principal <u>0.53</u> σ _{1'f} (tsf)
Corrected Diameter <u>3.279</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.13</u> σ _{3'f} (tsf)

 Youngs Modulus for Membrane (psi) 200
 Membrane Thickness (in.) 0.012

 Rate of Strain (% / min.) 0.053
 Axial Strain at Failure (%) 4.98

Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.

Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 18.0' - 27.0'
 Visual Description Sandy Lean Clay (CL), light brown

 Project Number 175569038
 Test Number CU-1752B
 Prepared By KDG
 Date 6-4-2009

 Specific Gravity 2.66 ASTM D854 Method A Liquid Limit 33 Plastic Limit 18 Plasticity Index 15
Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>5.800</u>	Sample <u>35.7136</u> (V _o)	Wet Weight (g) <u>1181.00</u>
Middle <u>2.800</u>	2 <u>5.800</u>	Solids <u>21.0173</u> (V _{S_o})	Dry Weight (g) <u>916.19</u>
Bottom <u>2.800</u>	3 <u>5.800</u>	Water <u>16.1586</u> (V _{w_o})	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000</u> (D _o)	4 <u>5.800</u>	Voids <u>14.6963</u> (V _{v_o})	Dry Unit Weight (pcf) <u>97.7</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>5.8000</u>	Degree of Saturation (%) <u>110.0</u> (S _o)	
Moisture Content (%) <u>28.9</u>	Final Trimmings	Void Ratio <u>0.699</u>	

Saturation

 Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 80 (psi) Final Pore Pressure Parameter B 0.98 Date 6-4-09
 Panel Board Number F

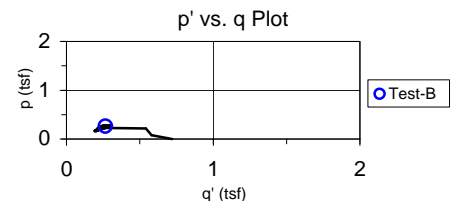
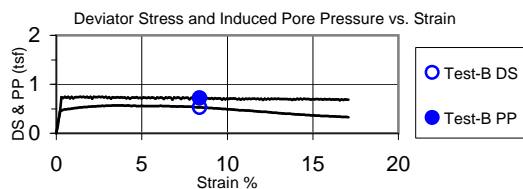
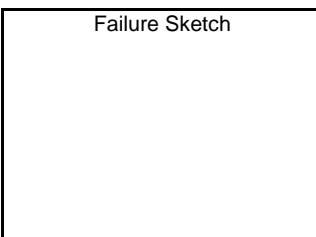
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.7959</u> (H _s)
Initial <u>0.2648</u>	Initial <u>15.84</u> (in.)	Initial <u>11.35</u> (in.)	Area (in ²) Method A <u>6.1488</u> (A _s)
Final <u>0.2689</u>	Final <u>11.88</u> (in.)	Final <u>3.8</u> (in.)	Specimen Volume (in ³) <u>35.64</u> (V _s)
Change <u>-0.0041</u> (ΔH _o)	Change <u>-3.96</u> (in.)	Change <u>-7.55</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2689</u>	Initial <u>0.00</u> (in.)	Initial <u>32.51</u> (in.)	Chamber <u>90</u>
Final <u>0.3163</u>	Final <u>32.12</u> (in.)	Final <u>0</u> (in.)	Back <u>80</u>
Change <u>-0.0474</u> (ΔH _c)	Change <u>-32.12</u> (in.)	Change <u>-32.51</u> (in.)	Lateral <u>10</u> (σ ₃)
Height (in.) <u>5.7485</u> (H _c)		Volume (in ³) <u>35.3813</u> (V _c)	D ₅₀ (min.) <u>730</u>
Area (in ²) Method B <u>6.1549</u> (A _c)		Volume - Water (in ³) <u>14.3640</u> (V _{wc})	Void Ratio <u>0.683</u>
Diameter (in.) <u>2.7994</u> (D _c)		Water Content (%) <u>25.7</u>	
Dry Density (pcf) <u>98.6</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.519</u> (in.)	Wet Weight (g) <u>1151.59</u>	Corrected Deviator <u>0.53</u> σ _d ' (tsf)
Wet weight (g) <u>1151.59</u> (WW _f)	Dry Weight (g) <u>916.19</u>	Major Principal <u>0.53</u> σ _{1f} ' (tsf)
Corrected Diameter <u>3.471</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} ' (tsf)
		Rate of Strain (% / min.) <u>0.022</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>8.39</u>
Membrane Thickness (in.) <u>0.024</u>		Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.

Project Name	<u>John Sevier Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36B, 18.0' - 27.0'</u>	Test Number	<u>CU-1752C</u>
Visual Description	<u>Sandy Lean Clay (CL), light brown</u>	Prepared By	<u>KDG</u>
		Date	<u>6-4-2009</u>

Specific Gravity	<u>2.66</u>	ASTM D854 Method A	Liquid Limit	<u>33</u>	Plastic Limit	<u>18</u>	Plasticity Index	<u>15</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V_o)	Wet Weight (g) <u>1221.8</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>21.9266</u> (V_{S_o})	Dry Weight (g) <u>955.83</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>16.2295</u> (V_{W_o})	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000</u> (D_o)	4 <u>6.000</u>	Voids <u>15.0185</u> (V_{V_o})	Dry Unit Weight (pcf) <u>98.6</u>
Area (in ²) <u>6.1575</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>108.1</u> (S_o)	
Moisture Content (%) <u>27.8</u>	Final Trimmings	Void Ratio <u>0.685</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By <u>KDG</u>
Back Pressure Saturated to:	<u>70</u> (psi)	Final Pore Pressure Parameter B <u>0.98</u>	Date <u>6-4-09</u>
			Panel Board Number <u>C</u>

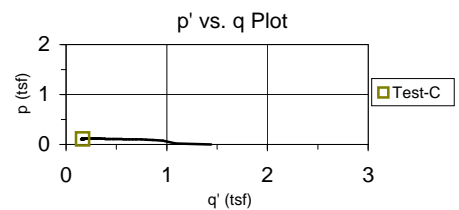
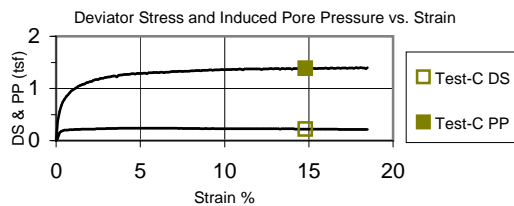
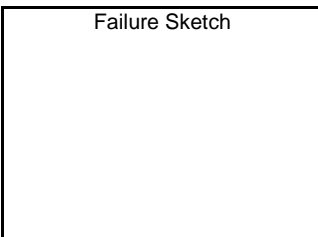
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9441</u> (H_s)
Initial <u>0.2771</u>	Initial <u>14.26</u> (in.)	Initial <u>1.24</u> (in.)	Area (in ²) Method A <u>6.0417</u> (A_s)
Final <u>0.333</u>	Final <u>13.28</u> (in.)	Final <u>3.01</u> (in.)	Specimen Volume (in ³) <u>35.91</u> (V_s)
Change <u>-0.0559</u> (ΔH_o)	Change <u>-0.98</u> (in.)	Change <u>1.77</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.333</u>	Initial <u>0.00</u> (in.)	Initial <u>34.49</u> (in.)	Chamber <u>90</u>
Final <u>0.373</u>	Final <u>34.17</u> (in.)	Final <u>0</u> (in.)	Back <u>70</u>
Change <u>-0.0400</u> (ΔH_c)	Change <u>-34.17</u> (in.)	Change <u>-34.49</u> (in.)	Lateral <u>20</u> (σ_3)
Height (in.) <u>5.9041</u> (H_c)		Volume (in ³) <u>37.7912</u> (V_c)	D_{50} (min.) <u>550</u>
Area (in ²) Method B <u>6.4008</u> (A_c)		Volume - Water (in ³) <u>15.8646</u> (V_{Wc})	
Diameter (in.) <u>2.8548</u> (D_c)		Water Content (%) <u>27.2</u>	
Dry Density (pcf) <u>96.4</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	Void Ratio <u>0.724</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.56</u> (in.)	Wet Weight (g) <u>1215.82</u>	Corrected Deviator <u>0.22</u> σ_d (tsf)
Wet weight (g) <u>1215.82</u> (WWf)	Dry Weight (g) <u>955.83</u>	Major Principal <u>0.28</u> σ_1^i (tsf)
Corrected Diameter <u>3.536</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.06</u> σ_3^i (tsf)
		Rate of Strain (% / min.) <u>0.040</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>14.79</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted bulk clay sample. Sample was compacted +- 5% of LL.

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-4-09
 Boring No. Need! Sample No. JS-36B, 18.0' - 27.0'

Type of Test		Consolidated Undrained		Confining Pressure		0.36		tons/ft ²	
Test No.		CU-1752A		Classification		Sandy Lean Clay (CL), light brown			
		Before Test				After Test			
		Specimen		Trimmings		Specimen			
Tare No.		n/a				377		n/a	
Tare plus wet weight		1181				542.07		1164.60	
Tare plus dry weight		929.85				442.45		929.85	
Water		W _w	251.15	W _{wo}		99.62	W _{wE}		234.75
Tare		0				70.91		0.00	
Wet Soil		W	1181.00			471.16		1164.60	
Dry Soil		W _s	929.85			371.54		929.85	
Water content		w	27.0	% W _o		26.8	W _f		25.2
Initial Condition of Specimen									
Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112
Height, cm		H _o	14.732	Volume of solids, cc		V _s		349.57	
Area, sq cm = 0.7854 * D _o ²		A _o	39.726	Void Ratio = (V _o - V _s) / V _s		e _o		0.674	
Volume, cc = H _o * A _o		V _o	585.24	Saturation, %		S _o		106.6	
Specific gravity of solids		G _s	2.66	Dry density, lb/cu ft		g _d		99.2	
Condition of Specimen After Consolidation (R and S Tests)									
ΔH during Saturation & Consolidation, in.		ΔH _o	-0.076	Volume, cc = H _c * A _c		V _c		584.32	
Height, cm = H _o - 2.54 * ΔH _o		H _c	14.539	Void Ratio = (V _c - V _s) / V _s		e _c		0.672	
Area, sq cm		A _c	40.191	Saturation, %		S _c		100.0	
Condition of Specimen After Test (R and S Test)									
Diameter, cm	D _f	Top	8.115	Center	8.390	Bottom	8.136	Avg	8.258
Change of height during Shear Test, in		ΔH	1.049	Volume, cc = H _f * A _f		V _f		584.32	
Height, cm = H _c - 2.54 * ΔH		H _f	11.875	Void Ratio = (V _f - V _s) / V _s		e _f		0.672	
Area, cm ² from test data		A _f	49.207	Saturation, %		S _f		100.0	
Remarks									
Technician		KDG KDG KDG KDG		Computed By		KDG		Checked By	

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-4-09
 Boring No. Need! Sample No. JS-36B, 18.0' - 27.0'

Type of Test	Consolidated Undrained		Confining Pressure		0.72		tons/ft ²		
Test No.	CU-1752B		Classification		Sandy Lean Clay (CL), light brown				
			Before Test		After Test				
			Specimen		Trimmings		Specimen		
Tare No.	n/a				377		n/a		
Tare plus wet weight	1181.00				542.07		1151.59		
Tare plus dry weight	916.19				442.45		916.19		
Water	W _w	264.81	W _{wo}		99.62	W _{wf}	235.40		
Tare	0.00				70.91		0.00		
Wet Soil	W	1181.00			471.16		1151.59		
Dry Soil	W _s	916.19			371.54		916.19		
Water content	w	28.9	% W _o		26.8	W _f	25.7 %		
Initial Condition of Specimen									
Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112
Height, cm	H _o	14.732		Volume of solids, cc		V _s	344.43		
Area, sq cm = 0.7854*D _o ²	A _o	39.726		Void Ratio = (V _o -V _s)+V _s		e _o	0.699		
Volume, cc = H _o *A _o	V _o	585.24		Saturation, %		S _o	110.0		
Specific gravity of solids	G _s	2.66		Dry density, lb/cu ft		G _d	97.7		
Condition of Specimen After Consolidation (R and S Tests)									
ΔH during Saturation & Consolidation, in.	ΔH _o	-0.052		Volume, cc = H _c *A _c		V _c	579.83		
Height, cm = H _o - 2.54*ΔH _o	H _c	14.601		Void Ratio = (V _c -V _s)+V _s		e _c	0.683		
Area, sq cm	A _c	39.711		Saturation, %		S _c	100.0		
Condition of Specimen After Test (R and S Test)									
Diameter, cm	D _f	Top	8.207	Center	8.649	Bottom	8.938	Avg	8.611
Change of height during Shear Test, in	ΔH	0.982		Volume, cc = H _f *A _f		V _f	579.83		
Height, cm = H _c - 2.54*ΔH	H _f	12.108		Void Ratio = (V _f -V _s)+V _s		e _f	0.683		
Area, cm ² from test data	A _f	47.888		Saturation, %		S _f	100.0		
Remarks									
Technician	<u>KDG KDG KDG KDG</u>			Computed By	<u>KDG</u>		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-4-09
 Boring No. Need! Sample No. JS-36B, 18.0' - 27.0'

Type of Test	Consolidated Undrained		Confining Pressure		1.44	tons/ft ²																																																																					
Test No.	CU-1752C		Classification Sandy Lean Clay (CL), light brown																																																																								
<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Before Test</th> <th colspan="3">After Test</th> </tr> <tr> <th>Specimen</th> <th colspan="2">Trimmings</th> <th colspan="3">Specimen</th> </tr> </thead> <tbody> <tr> <td>Tare No.</td> <td>n/a</td> <td></td> <td>377</td> <td></td> <td colspan="2">n/a</td> </tr> <tr> <td>Tare plus wet weight</td> <td>1221.8</td> <td></td> <td>542.07</td> <td></td> <td colspan="2">1215.82</td> </tr> <tr> <td>Tare plus dry weight</td> <td>955.83</td> <td></td> <td>442.45</td> <td></td> <td colspan="2">955.83</td> </tr> <tr> <td>Water</td> <td>W_w 265.97</td> <td>W_{wo}</td> <td>99.62</td> <td>W_{wf}</td> <td colspan="2">259.99</td> </tr> <tr> <td>Tare</td> <td>0</td> <td></td> <td>70.91</td> <td></td> <td colspan="2">0.00</td> </tr> <tr> <td>Wet Soil</td> <td>W 1221.80</td> <td></td> <td>471.16</td> <td></td> <td colspan="2">1215.82</td> </tr> <tr> <td>Dry Soil</td> <td>W_s 955.83</td> <td></td> <td>371.54</td> <td></td> <td colspan="2">955.83</td> </tr> <tr> <td>Water content</td> <td>w 27.8</td> <td>% W_o</td> <td>26.8</td> <td>W_f</td> <td colspan="2">27.2 %</td> </tr> </tbody> </table>								Before Test			After Test			Specimen	Trimmings		Specimen			Tare No.	n/a		377		n/a		Tare plus wet weight	1221.8		542.07		1215.82		Tare plus dry weight	955.83		442.45		955.83		Water	W _w 265.97	W _{wo}	99.62	W _{wf}	259.99		Tare	0		70.91		0.00		Wet Soil	W 1221.80		471.16		1215.82		Dry Soil	W _s 955.83		371.54		955.83		Water content	w 27.8	% W _o	26.8	W _f	27.2 %	
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Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112																																																																		
Height, cm	H _o		15.240	Volume of solids, cc		V _s			359.33																																																																		
Area, sq cm = 0.7854*D _o ²	A _o		39.726	Void Ratio = (V _o -V _s)/V _s		e _o			0.685																																																																		
Volume, cc = H _o *A _o	V _o		605.42	Saturation, %		S _o			108.1																																																																		
Specific gravity of solids	G _s		2.66	Dry density, lb/cu ft		G _d			98.6																																																																		
Condition of Specimen After Consolidation (R and S Tests)																																																																											
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.096	Volume, cc = H _c *A _c		V _c			619.32																																																																		
Height, cm = H _o - 2.54*ΔH _o	H _c		14.996	Void Ratio = (V _c -V _s)/V _s		e _c			0.724																																																																		
Area, sq cm	A _c		41.298	Saturation, %		S _c			100.0																																																																		
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	7.366	Center	8.839	Bottom	9.042	Avg	8.522																																																																		
Change of height during Shear Test, in	ΔH		1.092	Volume, cc = H _f *A _f		V _f			619.32																																																																		
Height, cm = H _c - 2.54*ΔH	H _f		12.224	Void Ratio = (V _f -V _s)/V _s		e _f			0.724																																																																		
Area, cm ² from test data	A _f		50.665	Saturation, %		S _f			100.0																																																																		
Remarks																																																																											
Technician <u>KDG KDG KDG KDG</u> Computed By <u>KDG</u> Checked By _____																																																																											

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.724 (in.)	14.539 (cm)
Diameter	2.816 (in)	7.153 (cm)
Area	6.230 (in ²)	40.191 (cm ²)

Final Values	
Height	4.675 (in.)
Dia. avg.	3.251 (in)
Area avg.	8.301 (in ²)

Tested By	KDG
Date	6-8-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-1752A
Data File ID	CU-1752A
Lateral Pressure (psi)	5.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1 + \sigma_3$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
5:35:16	66.2	1.005	87.1	4.698	17.92	48.9681	53.5	0.508	0.464	0.824	0.670	0.211	0.441	0.230	3.178
5:37:08	66.5	1.011	87.1	4.692	18.03	49.0279	53.7	0.510	0.465	0.825	0.672	0.211	0.441	0.230	3.180
5:39:00	66.5	1.016	87.0	4.686	18.12	49.0872	53.8	0.509	0.465	0.825	0.674	0.215	0.445	0.230	3.141
5:40:56	66.4	1.022	87.0	4.681	18.22	49.1473	53.7	0.508	0.463	0.823	0.677	0.219	0.448	0.229	3.089
5:42:46	66.6	1.028	86.8	4.675	18.32	49.2074	53.9	0.509	0.464	0.824	0.690	0.231	0.461	0.230	2.988

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

Consolidation Values		
Height	5.749 (in.)	14.601 (cm)
Diameter	2.799 (in)	7.111 (cm)
Area	6.155 (in ²)	39.711 (cm ²)

Final Values		
Height	4.767 (in.)	
Dia. avg.	3.390 (in)	
Area avg.	9.026 (in ²)	

Tested By	KDG
Date	6-8-09
Press No.	2
Panel No.	F

Project Number	175569038
Test Number	CU-1752B
Data File ID	CU-1752B
Lateral Pressure (psi)	10.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	$p' \quad (\sigma_1' + \sigma_3')/2$ (tsf)	$q \quad (\sigma_1 - \sigma_3)/2$ (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
9:15:47	60.9	0.687	89.8	5.060	11.98	45.1176	48.5	0.500	0.441	1.161	0.457	0.016	0.236	0.220	28.449
9:20:19	60.8	0.693	89.5	5.054	12.08	45.1687	48.5	0.499	0.439	1.159	0.479	0.040	0.259	0.220	12.110
9:24:44	60.7	0.699	89.8	5.048	12.18	45.2201	48.3	0.497	0.437	1.157	0.452	0.015	0.233	0.218	30.783
9:29:08	60.7	0.705	89.6	5.042	12.28	45.2716	48.3	0.496	0.435	1.155	0.464	0.029	0.247	0.218	16.082
9:33:26	60.3	0.710	89.8	5.037	12.38	45.3231	48.0	0.492	0.431	1.151	0.445	0.014	0.230	0.215	31.533
9:37:48	60.2	0.716	89.7	5.031	12.48	45.3749	47.9	0.490	0.429	1.149	0.453	0.024	0.239	0.214	18.781
9:42:22	60.1	0.722	89.8	5.025	12.58	45.4268	47.7	0.488	0.426	1.146	0.440	0.014	0.227	0.213	31.600
9:47:02	59.6	0.728	89.7	5.019	12.68	45.4791	47.2	0.482	0.420	1.140	0.442	0.023	0.232	0.210	19.534
9:51:39	59.6	0.733	89.8	5.014	12.78	45.5309	47.2	0.482	0.419	1.139	0.434	0.015	0.224	0.210	29.532
9:56:16	59.5	0.739	89.7	5.008	12.88	45.5828	47.1	0.480	0.417	1.137	0.437	0.020	0.229	0.208	21.513
10:00:55	59.1	0.745	89.8	5.002	12.98	45.6351	46.7	0.476	0.412	1.132	0.428	0.016	0.222	0.206	26.452
10:05:34	59.0	0.750	89.7	4.997	13.08	45.6879	46.6	0.474	0.410	1.130	0.431	0.021	0.226	0.205	20.391
10:10:15	59.0	0.756	89.7	4.991	13.18	45.7402	46.6	0.474	0.408	1.128	0.427	0.018	0.222	0.204	23.488
10:15:02	58.8	0.762	89.7	4.985	13.28	45.7928	46.4	0.472	0.406	1.126	0.426	0.020	0.223	0.203	21.112
10:19:45	58.5	0.768	89.7	4.979	13.38	45.8457	46.1	0.467	0.401	1.121	0.422	0.020	0.221	0.201	20.627
10:24:18	58.6	0.773	89.7	4.974	13.48	45.8988	46.2	0.468	0.402	1.122	0.422	0.020	0.221	0.201	21.275
10:28:46	58.3	0.779	89.6	4.968	13.58	45.9516	45.9	0.464	0.397	1.117	0.426	0.028	0.227	0.199	14.994
10:33:17	58.2	0.785	89.7	4.962	13.68	46.0046	45.8	0.463	0.396	1.116	0.414	0.019	0.217	0.198	22.281
10:37:50	57.9	0.791	89.4	4.956	13.78	46.0583	45.6	0.460	0.392	1.112	0.434	0.042	0.238	0.196	10.321
10:42:13	57.9	0.796	89.8	4.951	13.88	46.1113	45.5	0.459	0.390	1.110	0.408	0.018	0.213	0.195	22.995
10:46:48	57.8	0.802	89.5	4.945	13.98	46.1652	45.4	0.458	0.389	1.109	0.422	0.033	0.227	0.194	12.774
10:51:19	57.8	0.808	89.8	4.939	14.08	46.2187	45.4	0.457	0.387	1.107	0.403	0.016	0.210	0.194	25.127
10:55:52	57.4	0.814	89.6	4.933	14.18	46.2725	45.0	0.453	0.383	1.103	0.412	0.030	0.221	0.191	13.886
11:00:27	57.5	0.819	89.8	4.928	14.28	46.3267	45.1	0.453	0.382	1.102	0.399	0.017	0.208	0.191	24.092
11:04:51	57.3	0.825	89.6	4.922	14.38	46.3803	44.9	0.450	0.379	1.099	0.404	0.025	0.215	0.189	15.940
11:09:14	57.2	0.831	89.8	4.916	14.48	46.4346	44.8	0.449	0.377	1.097	0.394	0.017	0.205	0.189	23.494
11:13:37	56.9	0.837	89.7	4.910	14.58	46.4891	44.5	0.445	0.374	1.094	0.396	0.022	0.209	0.187	17.629
11:18:00	56.9	0.842	89.7	4.905	14.68	46.5430	44.5	0.445	0.373	1.093	0.392	0.019	0.206	0.186	20.227
11:22:23	57.0	0.848	89.7	4.899	14.78	46.5978	44.6	0.445	0.372	1.092	0.392	0.020	0.206	0.186	19.786
11:26:37	56.6	0.854	89.5	4.893	14.88	46.6522	44.2	0.441	0.367	1.087	0.404	0.037	0.220	0.184	10.990
11:30:41	56.6	0.860	89.7	4.887	14.98	46.7076	44.2	0.441	0.367	1.087	0.385	0.019	0.202	0.183	20.614
11:34:39	56.4	0.865	89.6	4.882	15.08	46.7624	44.0	0.437	0.363	1.083	0.393	0.030	0.212	0.182	12.952
11:38:38	56.4	0.871	89.8	4.876	15.18	46.8173	44.0	0.437	0.362	1.082	0.380	0.018	0.199	0.181	21.185
11:42:37	56.4	0.877	89.7	4.870	15.28	46.8721	44.0	0.436	0.361	1.081	0.385	0.024	0.204	0.181	16.184
11:46:31	56.5	0.882	89.6	4.865	15.38	46.9275	44.1	0.437	0.361	1.081	0.388	0.027	0.208	0.180	14.232
11:50:28	56.1	0.888	89.7	4.859	15.48	46.9828	43.7	0.433	0.356	1.076	0.378	0.021	0.199	0.178	17.613
11:54:19	56.1	0.894	89.5	4.853	15.58	47.0386	43.7	0.432	0.355	1.075	0.388	0.033	0.211	0.178	11.738
11:58:11	56.1	0.900	89.7	4.847	15.68	47.0948	43.7	0.432	0.354	1.074	0.373	0.019	0.196	0.177	19.767
12:02:00	56.0	0.905	89.6	4.842	15.78	47.1504	43.6	0.430	0.352	1.072	0.378	0.026	0.202	0.176	14.279
12:05:49	56.0	0.911	89.6	4.836	15.88	47.2060	43.6	0.430	0.351	1.071	0.381	0.030	0.206	0.176	12.615
12:09:43	55.7	0.917	89.7	4.830	15.98	47.2626	43.3	0.426	0.347	1.067	0.371	0.024	0.197	0.173	15.625
12:13:34	55.6	0.923	89.5	4.824	16.08	47.3184	43.3	0.425	0.346	1.066	0.382	0.036	0.209	0.173	10.531
12:17:31	55.9	0.928	89.7	4.819	16.18	47.3749	43.5	0.427	0.347	1.067	0.371	0.024	0.197	0.174	15.489
12:21:32	55.8	0.934	89.6	4.813	16.28	47.4313	43.4	0.425	0.345	1.065	0.376	0.031	0.203	0.172	12.112
12:25:33	55.6	0.940	89.6	4.807	16.38	47.4881	43.2	0.423	0.342	1.062	0.373	0.030	0.201	0.171	12.358
12:29:37	55.6	0.946	89.6	4.801	16.48	47.5446	43.2	0.422	0.341	1.061	0.370	0.029	0.200	0.170	12.663
12:33:43	55.3	0.951	89.3	4.796	16.58	47.6015	43.0	0.420	0.338	1.058	0.385	0.047	0.216	0.169	8.191
12:37:59	55.3	0.957	89.6	4.790	16.68	47.6589	42.9	0.418	0.336	1.056	0.363	0.027	0.195	0.168	13.388
12:42:12	55.1	0.963	89.5	4.784	16.78	47.7162	42.8	0.417	0.334	1.054	0.372	0.038	0.205	0.167	9.863
12:46:16	55.0	0.969	89.6	4.778	16.88	47.7731	42.6	0.414	0.331	1.051	0.357	0.026	0.191	0.166	13.783
12:50:20	55.2	0.974	89.5	4.773	16.97	47.8305	42.8	0.417	0.333	1.053	0.366	0.033	0.199	0.166	11.043
12:54:21	54.9	0.980	89.5	4.767	17.07	47.8881	42.6	0.413	0.329	1.049	0.363	0.034	0.198	0.164	10.681

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.904 (in.)	14.996 (cm)
Diameter	2.855 (in)	7.251 (cm)
Area	6.401 (in ²)	41.298 (cm ²)

Final Values	
Height	4.813 (in.)
Dia. avg.	3.355 (in)
Area avg.	8.840 (in ²)

Tested By	KDG
Date	6-9-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	CU-1752C
Data File ID	CU-1752C
Lateral Pressure (psi)	20.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio
															σ_1' / σ_3'
7:24:08	42.4	1.034	89.3	4.842	17.99	50.3560	27.9	0.258	0.214	1.654	0.264	0.050	0.157	0.107	5.303
7:26:42	42.3	1.040	89.4	4.836	18.09	50.4180	27.8	0.257	0.213	1.653	0.257	0.044	0.151	0.106	5.809
7:29:18	42.4	1.046	89.4	4.830	18.19	50.4795	27.9	0.257	0.213	1.653	0.258	0.045	0.151	0.107	5.777
7:31:53	42.4	1.052	89.4	4.824	18.29	50.5408	27.9	0.256	0.212	1.652	0.259	0.046	0.153	0.106	5.561
7:34:28	42.4	1.058	89.2	4.818	18.39	50.6032	27.9	0.257	0.212	1.652	0.272	0.060	0.166	0.106	4.560
7:37:06	42.5	1.064	89.4	4.813	18.49	50.6654	28.0	0.257	0.213	1.653	0.255	0.043	0.149	0.106	6.000

0:00:00	12.70883	-2.10E-02	84.93054
0:02:35	17.72807	-1.51E-02	84.92338
0:04:32	37.55161	-9.44E-03	87.07812
0:06:34	40.6497	-3.62E-03	87.33654
0:08:24	41.59297	1.85E-03	87.60889
0:10:12	42.3644	7.63E-03	87.62478
0:12:03	42.69943	1.33E-02	87.59692
0:13:54	42.82553	1.90E-02	87.35932
0:15:46	43.39792	2.49E-02	88.05947
0:17:39	43.50918	3.05E-02	88.10764
0:19:31	43.79105	3.61E-02	88.0708
0:21:20	44.12361	4.18E-02	88.00401
0:23:18	44.18419	4.75E-02	87.75561
0:25:18	44.14957	5.32E-02	88.21049
0:27:15	44.34366	5.91E-02	88.2338
0:29:08	44.81592	6.46E-02	88.19292
0:31:02	44.65768	7.04E-02	88.11155
0:32:58	44.83817	7.60E-02	87.87057
0:34:49	45.1732	8.17E-02	88.26843
0:36:47	45.25356	8.74E-02	88.28392
0:38:47	45.36977	0.09313	88.23536
0:40:43	45.39573	9.88E-02	88.15907
0:42:40	45.62196	0.104477	87.93085
0:44:34	45.60466	0.110238	88.28821
0:46:25	45.71468	0.115861	88.30188
0:48:20	45.93845	0.121704	88.25892
0:50:13	46.12389	0.127306	88.18211
0:52:07	46.13254	0.132957	87.97902
0:53:55	46.31922	0.138676	88.26882
0:55:44	46.38103	0.144363	88.31334
0:57:41	46.31551	0.150106	88.08252
0:59:28	46.76428	0.155808	88.20424
1:01:21	46.84216	0.161545	88.04737
1:03:08	46.99793	0.167171	88.20437
1:04:55	47.45782	0.172946	88.27519
1:06:47	47.532	0.178651	88.25345
1:08:39	47.61483	0.184311	88.18615
1:10:25	47.79532	0.190091	88.08603
1:12:16	47.99312	0.195684	87.97667
1:14:07	48.27994	0.201352	88.23744
1:15:56	48.45425	0.207075	88.20476
1:17:49	48.76826	0.212809	88.15685
1:19:41	48.88818	0.218518	88.07991
1:21:30	48.94134	0.224254	87.77605
1:23:18	49.24175	0.229854	88.19812
1:25:06	49.19725	0.235572	88.17899
1:26:54	49.56195	0.24129	88.12834
1:28:48	49.63241	0.247003	88.06468
1:30:41	50.20728	0.252698	87.90468
1:32:29	50.18379	0.258395	88.1122
1:34:21	50.61154	0.264128	88.16375
1:36:14	50.64245	0.26975	88.10699

1:38:02	50.74011	0.275487	88.04906
1:39:53	50.82912	0.281215	87.93632
1:41:48	50.82418	0.286905	88.02536
1:43:41	50.93915	0.292573	88.12118
1:45:34	51.28036	0.298272	88.07588
1:47:34	51.47198	0.30402	88.02068
1:49:27	51.39657	0.309694	87.89947
1:51:17	51.41882	0.315356	87.93046
1:53:17	51.61291	0.321103	88.07041
1:55:11	51.84781	0.326746	88.04047
1:57:04	51.76621	0.332466	87.97524
1:59:02	51.82679	0.338221	87.88541
2:00:59	52.03448	0.343882	87.91067
2:02:56	51.98009	0.349642	88.01547
2:04:50	51.98379	0.355281	87.9811
2:06:47	52.08022	0.360953	87.92343
2:08:42	52.44987	0.366705	87.82878
2:10:34	52.38558	0.372362	87.81758
2:12:28	52.59822	0.378162	87.966
2:14:20	52.7713	0.383796	87.95376
2:16:08	52.77006	0.389476	87.89908
2:17:57	53.03833	0.395195	87.81615
2:19:44	53.05687	0.400891	87.55473
2:21:35	53.41539	0.40659	87.92017
2:23:20	53.4908	0.41227	87.92382
2:25:14	53.57734	0.417971	87.87422
2:27:00	53.76402	0.4237	87.80417
2:28:48	53.99149	0.429386	87.68037
2:30:38	54.24245	0.435078	87.86732
2:32:27	54.22144	0.440774	87.88502
2:34:16	54.71471	0.446462	87.84336
2:36:04	54.95084	0.452176	87.7935
2:37:55	54.98545	0.457898	87.6969
2:39:47	55.19809	0.463601	87.73687
2:41:38	55.42927	0.469253	87.84375
2:43:27	55.41814	0.475021	87.81094
2:45:13	55.65674	0.480666	87.76369
2:47:04	55.70001	0.486446	87.67268
2:48:54	55.81499	0.49205	87.37273
2:50:44	55.90153	0.497797	87.77644
2:52:37	56.14754	0.503505	87.79168
2:54:30	56.37131	0.509238	87.737
2:56:16	56.31197	0.514923	87.66136
2:58:12	56.66307	0.520581	87.47923
3:00:02	56.79411	0.526304	87.74364
3:01:52	56.71375	0.531974	87.72854
3:03:45	56.91897	0.537723	87.69391
3:05:40	57.06238	0.543446	87.63688
3:07:33	57.19095	0.549077	87.49927
3:09:28	57.3801	0.554768	87.6736
3:11:22	57.39494	0.560527	87.71981
3:13:15	57.55071	0.566176	87.65719

3:15:10	57.547	0.571863	87.60017
3:17:07	57.88821	0.577645	87.47454
3:18:59	57.83257	0.583267	87.62478
3:20:53	57.82639	0.588958	87.65042
3:22:47	57.94384	0.59468	87.61918
3:24:44	58.16637	0.600364	87.57908
3:26:39	58.03532	0.606128	87.43587
3:28:31	58.2665	0.61182	87.56033
3:30:26	58.52736	0.617481	87.64079
3:32:20	58.76719	0.623175	87.59431
3:34:10	58.56939	0.628852	87.53755
3:36:01	58.78574	0.634584	87.43952
3:37:49	58.85868	0.640251	87.47923
3:39:38	58.91431	0.645978	87.57674
3:41:22	59.22214	0.651658	87.56463
3:43:13	59.18876	0.657415	87.51021
3:45:01	59.18011	0.663077	87.43184
3:46:47	59.36925	0.668751	87.23864
3:48:34	59.47434	0.674457	87.52414
3:50:20	59.56582	0.680165	87.52987
3:52:14	59.79824	0.685948	87.47988
3:54:00	60.02077	0.691565	87.43939
3:55:45	60.26308	0.697326	87.30191
3:57:34	60.58203	0.702968	87.44134
3:59:26	60.74769	0.708691	87.50487
4:01:16	60.80456	0.714374	87.46725
4:03:03	61.09632	0.720167	87.42038
4:04:52	61.17668	0.725767	87.33602
4:06:39	61.17544	0.731541	87.29462
4:08:25	61.31638	0.73716	87.45735
4:10:16	61.46473	0.742958	87.44434
4:12:06	61.32997	0.748557	87.38406
4:13:58	61.66747	0.754299	87.32886
4:15:51	61.72063	0.759979	87.0953
4:17:43	61.7503	0.76565	87.40554
4:19:36	61.72682	0.771353	87.38744
4:21:27	61.95182	0.777047	87.3601
4:23:17	62.01981	0.782771	87.29241
4:25:08	62.0025	0.788469	87.13227
4:27:02	62.41913	0.794192	87.3726
4:28:58	62.60086	0.799876	87.36401
4:30:52	62.43149	0.805604	87.30621
4:32:45	62.71336	0.811301	87.26767
4:34:39	62.96803	0.816988	87.13071
4:36:30	62.96803	0.822676	87.30373
4:38:23	62.99152	0.828358	87.32743
4:40:18	63.05333	0.834117	87.29175
4:42:08	63.08176	0.839765	87.2376
4:44:04	63.2363	0.84546	87.12655
4:46:01	63.32407	0.851224	87.25231
4:47:54	63.45512	0.856895	87.29683
4:49:49	63.32407	0.862604	87.2359

4:51:42	63.57627	0.868263	87.21234
4:53:37	63.6455	0.874006	87.10441
4:55:26	63.76913	0.879651	87.1742
4:57:12	63.85443	0.885361	87.24892
4:59:04	64.01391	0.891049	87.22015
5:00:52	64.09179	0.896758	87.17979
5:02:38	64.19317	0.902514	87.08918
5:04:27	64.33658	0.908169	86.71515
5:06:15	64.48987	0.913926	87.20153
5:08:02	64.48122	0.91961	87.18982
5:09:48	64.57023	0.925281	87.14191
5:11:38	64.6135	0.931065	87.09882
5:13:26	64.79647	0.936693	86.96576
5:15:15	65.00169	0.942369	87.13904
5:17:04	65.1624	0.948086	87.15935
5:18:51	65.3738	0.953859	87.11496
5:20:42	65.5407	0.959524	87.07369
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5:24:19	65.63218	0.970869	87.02617
5:26:08	65.76446	0.976546	87.12733
5:27:58	65.87573	0.982284	87.09504
5:29:44	65.81886	0.988108	87.05651
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5:35:16	66.24537	1.005054	87.06991
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0:23:05	54.56899	0.027566	90.30503
0:28:15	54.78828	3.30E-02	90.03118
0:33:37	55.38644	3.88E-02	90.32512
0:38:55	55.72207	4.45E-02	89.93801
0:44:19	56.21242	5.02E-02	90.30823
0:49:46	56.97201	0.055943	89.87985
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1:23:07	59.64122	9.04E-02	90.35933
1:28:41	59.92325	9.62E-02	90.19
1:34:24	60.01096	0.101989	90.31904
1:39:48	60.41421	0.107572	90.06465
1:45:24	60.52324	0.113419	90.32671
1:51:02	60.9539	0.119047	89.83593
1:56:28	61.1811	0.124843	90.30847
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2:07:45	61.8481	0.136402	90.28876
2:13:09	62.25196	0.142066	90.32917
2:18:35	62.28302	0.147781	90.24472
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2:29:37	62.55226	0.159256	90.13731
2:34:53	63.36423	0.165107	90.32358
2:40:34	63.23144	0.17095	90.02534
2:45:50	63.44585	0.176467	90.27365
2:51:23	63.50189	0.182415	89.82556
2:56:50	63.87773	0.188088	90.23987
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9:42:22	60.09868	0.72177	89.80652
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0:23:32	33.89103	4.33E-02	84.04997
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3:59:46	39.33678	0.556422	88.9049
4:02:21	39.39489	0.56236	88.86655
4:04:59	39.46535	0.568272	88.94129
4:07:37	39.48143	0.574195	88.95808
4:10:12	39.32071	0.580022	88.92953

4:12:49	39.52222	0.586033	88.89081
4:15:25	39.57044	0.591853	89.00427
4:18:01	39.57538	0.597728	88.98859
4:20:34	39.59269	0.603648	88.94926
4:23:06	39.67428	0.609603	89.03711
4:25:33	39.62483	0.615433	89.0485
4:28:03	39.71632	0.62132	89.03245
4:30:32	39.68046	0.627274	88.87194
4:32:57	39.90176	0.633218	89.07166
4:35:19	39.96233	0.639019	89.07142
4:37:47	40.03651	0.644971	89.04789
4:40:17	40.08596	0.650828	89.0539
4:42:44	40.10327	0.656813	89.12018
4:45:12	40.12428	0.66263	89.11528
4:47:47	40.19352	0.66858	89.05377
4:50:21	40.27511	0.67443	89.11516
4:52:49	40.16261	0.680328	89.11393
4:55:26	40.29118	0.686218	89.09997
4:57:55	40.25657	0.692141	88.9321
5:00:27	40.2714	0.698059	89.12129
5:02:54	40.4519	0.703973	89.11161
5:05:18	40.58418	0.709838	89.09825
5:07:43	40.5508	0.715726	89.0735
5:10:11	40.67319	0.721629	89.15743
5:12:39	40.72882	0.727529	89.14432
5:15:07	40.83761	0.733416	89.11957
5:17:41	40.81907	0.739328	89.148
5:20:16	41.05643	0.745226	89.18623
5:22:48	40.98596	0.751181	89.15118
5:25:21	40.71893	0.757024	88.99864
5:27:54	41.03912	0.762939	89.17287
5:30:27	41.04283	0.768846	89.15302
5:33:06	41.18747	0.774727	89.10144
5:35:45	41.07374	0.780674	89.1442
5:38:24	41.24929	0.786529	89.17189
5:40:58	41.13679	0.792415	89.14334
5:43:36	41.2703	0.798368	88.99128
5:46:10	41.253	0.804239	89.18855
5:48:44	41.22827	0.810129	89.18316
5:51:22	41.21591	0.816044	89.14996
5:53:58	41.25671	0.821952	89.18647
5:56:36	41.32099	0.827895	89.21539
5:59:12	41.22951	0.833733	89.17765
6:01:46	41.34572	0.839634	89.1018
6:04:20	41.32841	0.845525	89.23548
6:06:54	41.29256	0.851432	89.22164
6:09:24	41.41	0.857443	89.20228
6:11:52	41.43596	0.863297	89.04177
6:14:15	41.44091	0.869177	89.26146
6:16:43	41.48912	0.875105	89.24859
6:19:06	41.54105	0.880967	89.21355
6:21:26	41.60039	0.886925	89.13746

6:23:48	41.64242	0.892729	89.28756
6:26:16	41.65478	0.898617	89.26881
6:28:42	41.69558	0.904516	89.21906
6:31:10	41.77841	0.910485	89.26844
6:33:41	41.83899	0.916343	89.31182
6:36:11	41.77965	0.922231	89.26746
6:38:42	41.74874	0.928117	89.18635
6:41:18	41.90945	0.934071	89.31133
6:43:47	41.92676	0.939933	89.30875
6:46:14	41.94036	0.945813	89.27065
6:48:46	42.01577	0.951816	89.24149
6:51:11	42.08748	0.957657	89.34698
6:53:36	42.07264	0.963567	89.31623
6:56:01	42.0133	0.969456	89.27812
6:58:32	42.19503	0.975344	89.33853
7:00:58	42.21976	0.981277	89.35139
7:03:29	42.09613	0.98715	89.32456
7:06:04	42.10602	0.993034	89.241
7:08:34	42.21976	0.998972	89.36573
7:11:04	42.19874	1.004879	89.3683
7:13:42	42.28157	1.010833	89.33044
7:16:12	42.34091	1.016657	89.22237
7:18:45	42.35575	1.022537	89.39158
7:21:26	42.32237	1.028428	89.371
7:24:08	42.38665	1.034322	89.30937
7:26:42	42.31742	1.040274	89.38546
7:29:18	42.42498	1.046168	89.38007
7:31:53	42.36069	1.052027	89.35421
7:34:28	42.44723	1.057968	89.17165
7:37:06	42.54613	1.063886	89.40923
7:37:06	42.54613	1.063886	89.40923



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04 COE Output

Project Name John Sevier Fossil Plant

Project Number 175568038

Test ID _____

Request ID _____

Over-Ride _____

Set Number 1754

Test Type - Select 1

Undisturbed _____

Remolded _____ rare

Source _____

Compacted _____

Sample ID _____

If Compacted or Remolded:

Test A

Test B

Test C

Source _____

Source _____

Source _____

Over-Ride _____

Over-Ride _____

Over-Ride _____

Lab ID _____

Lab ID _____

Lab ID _____

Over-Ride _____

Over-Ride _____

Over-Ride _____

LL _____

LL _____

LL _____

PL _____

PL _____

PL _____

PI _____

PI _____

PI _____

Gs _____

Gs _____

Gs _____

If Uniform for all

Visual Description: Silt (ML), gray, (fly ash)

LL NP

PL NP

PI NP

GS 2.32 ASTM D854 Method: A Assumed _____ Estimated _____

Gs Method Test ASTM D854 Method A

Test Number (ie 19A) CU-1574A

Normal Load (psi) 20

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-3-09	14:15:00	1.47
0.1	6-3-09	14:15:06	2.09
0.25	6-3-09	14:15:15	2.37
0.5	6-3-09	14:15:30	2.62
1	6-3-09	14:16:00	3.09
2	6-3-09	14:17:00	3.71
3	6-3-09	14:18:00	4.23
4	6-3-09	14:19:00	4.7
6	6-3-09	14:21:00	5.41
8	6-3-09	14:23:00	5.99
10	6-3-09	14:25:00	6.31
12	6-3-09	14:27:00	6.53
16	6-3-09	14:31:00	6.8
22	6-3-09	14:37:00	6.91
30	6-3-09	14:45:00	6.91

x o11:o25 y c11:c25
 sqtr plot range

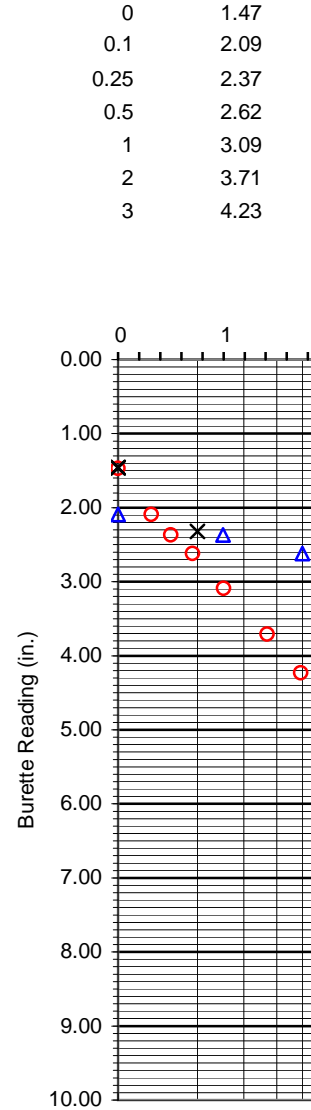
e12:e25 c12:c25
 log plot range



Project Name Jo
 Source JS
 Start Date 6-3-09
 End Date 6-3-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.47	0	0.10	0	0.10	0	0	1.47
not	0.1	2.09	0.3162278	0.13	1	0.25	0	0.1	2.09
erase!	0.25	2.37	0.5	0.16	2	0.63	0	0.25	2.37
	0.5	2.62	0.7071068	0.19	3	1.58	0	0.5	2.62
	1	3.09	1	0.25	4	3.98	0	1	3.09
	2	3.71	1.4142136	0.37	5	10.00	0	2	3.71
	3	4.23	1.7320508	0.49	6	25.12	0	3	4.23
	4	4.7	2	0.63	7	63.10	0		
	6	5.41	2.4494897	0.95	8	158.49	0		
	8	5.99	2.8284271	1.35	9	398.11	0		
	10	6.31	3.1622777	1.84	10	1000.00	0		
	12	6.53	3.4641016	2.43	11	2511.89	0		
	16	6.8	4	3.98	0.2	0.12	0		
	22	6.91	4.6904158	7.52	0.4	0.14	0		
	30	6.91	5.4772256	15.52	0.6	0.17	0		
					0.8	0.21	0		
					1.2	0.30	0		
					1.4	0.36	0		
					1.6	0.44	0		
					1.8	0.52	0		
					2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		

Burette Reading (in.)



Square Roo

d₀ =
 d₉₀ =
 d₁₀₀ =

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

8.6	275.42	0		Square Root
8.8	331.13	0		plot point - x
9.2	478.63	0	d ₀ =	0.10
9.4	575.44	0	d ₉₀ =	0.10
9.6	691.83	0	d ₁₀₀ =	0.10
9.8	831.76	0		
10.2	1202.26	0	d ₀ =	0.10
10.4	1445.44	0	d ₀ line	0.10
10.6	1737.80	0		
10.8	2089.30	0		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

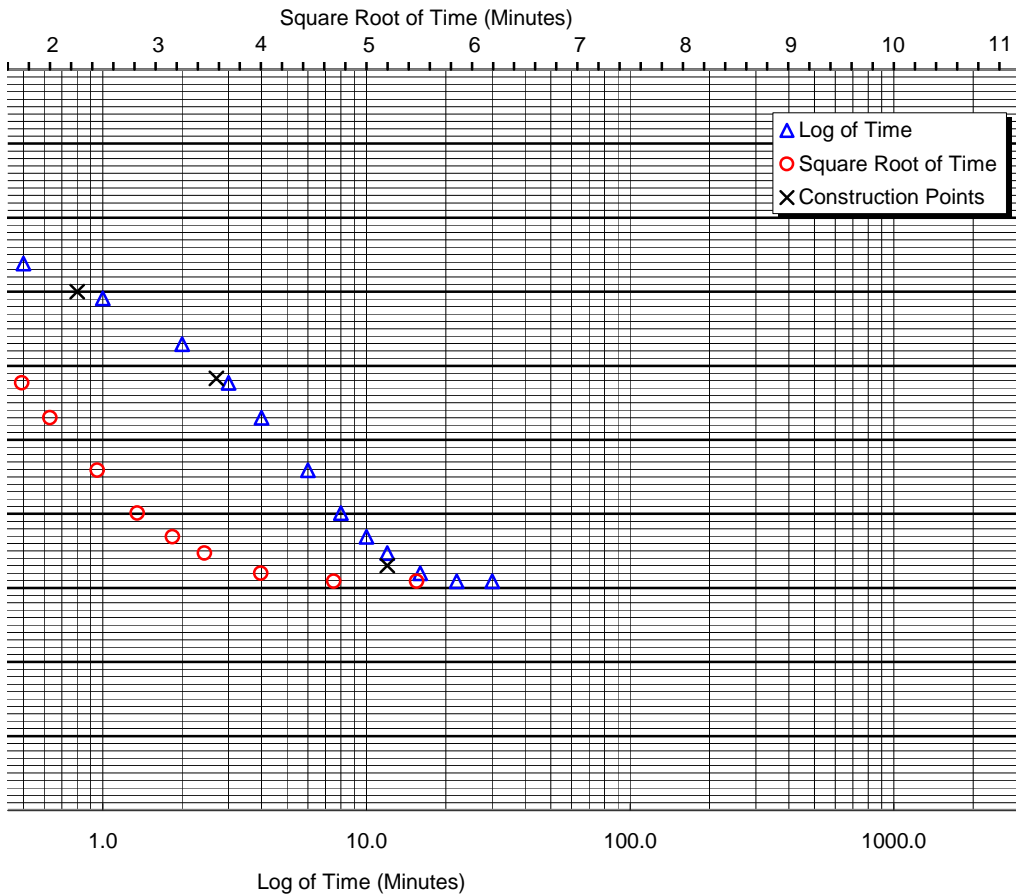
In Sevier Fossil Plant
 36B, 27.0' - 36.0'

Project No. 175568038
 Test Number CU-1574A
 Load (tsf) 20

Start Time 2:15 PM
 End Time 2:45 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	4.7	30	6.91			9:50 PM
6	5.41					
8	5.99					
10	6.31					
12	6.53					
16	6.8					
22	6.91					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$ <u>6.7</u>	$t_{100} (m) =$ <u>12</u>
$t_{100} (m) =$	$d_{t1} =$ <u>2.32</u>	$t_1 (m) =$ <u>0.2</u>
$t_{50} (m) =$	$d_{t2 (t1*4)} =$ <u>3</u>	
	$d_{50} =$ <u>4.170</u>	$t_{50} (m) =$ <u>2.7</u>

t of Time

y	time
1.46	0
1.459	0
1.458	0
1.46	0
1.459	0

log of time

	time - x	plot point - y
d_{100}	12	6.7
d_{t1}	0.2	2.32
d_{t1*4}	0.8	3
d_{50}	2.7	4.17

line @ 3000 m

3000	10
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	6.91 maximum scale	7.0	7	7	2	10
min. dial reading	1.47 minimum scale	1.4	1.4	1	0	0
diference	5.44	5.6	5.6	6	2	10

0.5	1	2	3	4	5	10	20
						10	20
						1	2
						0.1	0.2
						10	20
						0	0
						1	2
						10	20
						0	0
						10	20
						1	2
						0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	10
min_y	0
total scale	10
Major unit	1
Minor unit	0.1

Test Number (ie 19A) CU-1754B

Normal Load (psi) 30

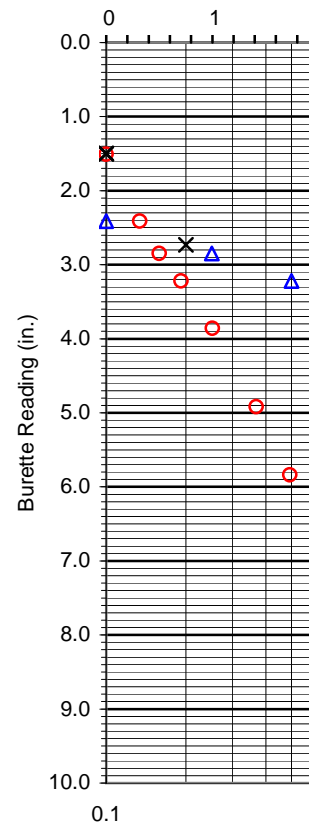
Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-3-09	14:07:00	1.51
0.1	6-3-09	14:07:06	2.41
0.25	6-3-09	14:07:15	2.85
0.5	6-3-09	14:07:30	3.22
1	6-3-09	14:08:00	3.86
2	6-3-09	14:09:00	4.92
3	6-3-09	14:10:00	5.84
4	6-3-09	14:11:00	6.65
6	6-3-09	14:13:00	7.65
8	6-3-09	14:15:00	8.29
10	6-3-09	14:17:00	8.59
22	6-3-09	14:29:00	8.98
36	6-3-09	14:43:00	9.05



x o11:o23
y c11:c23
sqrt plot range
log plot range e12:e23 c12:c23

Project Name JS
Source JS
Start Date 6-3-09
End Date 6-3-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.51	0	0.10	0	0.10	0	0	1.51
not	0.1	2.41	0.3162278	0.13	1	0.25	0	0.1	2.41
erase!	0.25	2.85	0.5	0.16	2	0.63	0	0.25	2.85
	0.5	3.22	0.7071068	0.19	3	1.58	0	0.5	3.22
	1	3.86	1	0.25	4	3.98	0	1	3.86
	2	4.92	1.4142136	0.37	5	10.00	0	2	4.92
	3	5.84	1.7320508	0.49	6	25.12	0	3	5.84
	4	6.65	2	0.63	7	63.10	0		
	6	7.65	2.4494897	0.95	8	158.49	0		
	8	8.29	2.8284271	1.35	9	398.11	0		
	10	8.59	3.1622777	1.84	10	1000.00	0		
	22	8.98	4.6904158	7.52	11	2511.89	0		
	36	9.05	6	25.12	0.2	0.12	0		
					0.4	0.14	0		
					0.6	0.17	0		
					0.8	0.21	0		
					1.2	0.30	0		
					1.4	0.36	0		
					1.6	0.44	0		
					1.8	0.52	0		
					2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		



Square Roo

d₀ =
d₉₀ =
d₁₀₀ =

Comments:

Laboratory Document
Prepared By: MW
Approved BY: TLK

8.6	275.42	0		Square Root
8.8	331.13	0		plot point - x
9.2	478.63	0	$d_0 =$	0.10
9.4	575.44	0	$d_{90} =$	0.10
9.6	691.83	0	$d_{100} =$	0.10
9.8	831.76	0		
10.2	1202.26	0	$d_0 =$	0.10
10.4	1445.44	0	d_0 line	0.10
10.6	1737.80	0		
10.8	2089.30	0		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

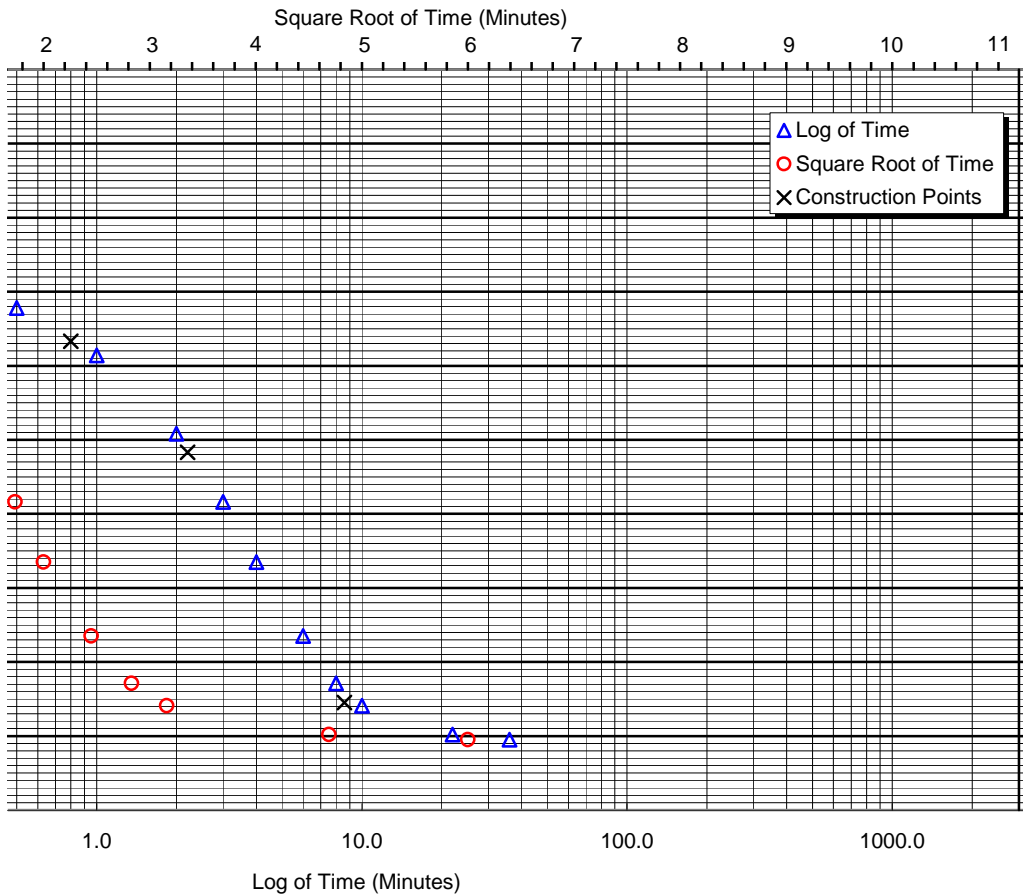
Inhn Sevier Fossil Plant
 -36B, 27.0' - 36.0'

Project No. 175568038
 Test Number CU-1754B
 Load (tsf) 30

Start Time 2:07 PM
 End Time 2:43 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	6.65					1:12 AM
6	7.65					
8	8.29					
10	8.59					
22	8.98					
36	9.05					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$	8.55	$t_{100} (m) =$	8.6
$t_{100} (m) =$	$d_{t_1} =$	2.73	$t_1 (m) =$	0.2
$t_{50} (m) =$	$d_{t_2 (t_1^*4)} =$	3.67	$t_{50} (m) =$	2.2
	$d_{50} =$	5.170		

t of Time

y	time
1.5	0
1.499	0
1.498	0
1.5	0
1.499	0

log of time

	time - x	plot point - y
d ₁₀₀	8.6	8.55
d _{t1}	0.2	2.73
d _{t1*4}	0.8	3.67
d ₅₀	2.2	5.17

line @ 3000 m

3000	10
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	9.05 maximum scale	9.1	9.2	9.5	2	10
min. dial reading	1.51 minimum scale	1.5	1.4	1.5	0	0
diference	7.54	7.6	7.8	8	2	10

0.5	1	2	3	4	5	10	20
						10	20
						1	2
						0.1	0.2
						10	20
						0	0
						1	2
						10	20
						0	0
						10	20
						1	2
						0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	10
min_y	0
total scale	10
Major unit	1
Minor unit	0.1

Test Number (ie 19A) 1754C

Normal Load (psi) 40

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-3-09	13:10:00	1.68
0.1	6-3-09	13:10:06	2.78
0.25	6-3-09	13:10:15	3.35
0.5	6-3-09	13:10:30	3.92
1	6-3-09	13:11:00	4.82
2	6-3-09	13:12:00	6.33
3	6-3-09	13:13:00	7.39
4	6-3-09	13:14:00	8.41
6	6-3-09	13:16:00	10
8	6-3-09	13:18:00	10.92
10	6-3-09	13:20:00	11.4
12	6-3-09	13:22:00	11.5
16	6-3-09	13:26:00	11.78
27	6-3-09	13:37:00	11.84
32	6-3-09	13:42:00	11.84
45	6-3-09	13:55:00	11.84

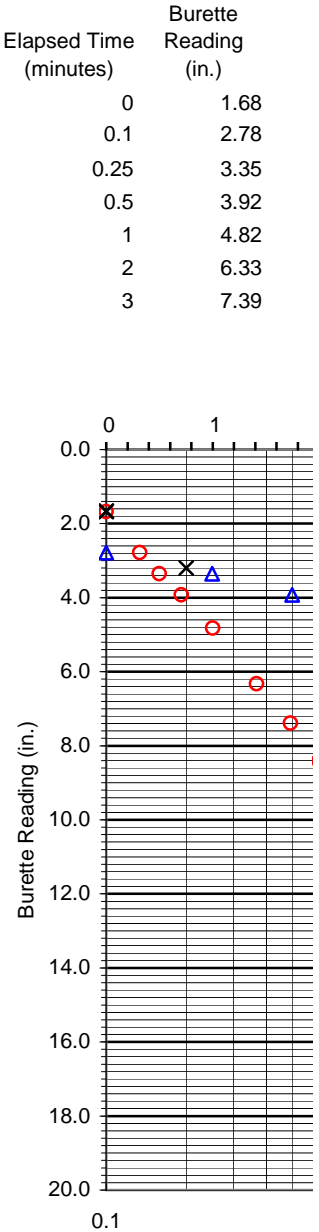


x o11:o26 y c11:c26
 sqtr plot range

e12:e26 c12:c26
 log plot range

Project Name JS
 Source JS
 Start Date 6-3-09
 End Date 6-3-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.68	0	0.10	0	0.10	0	0	1.68
not	0.1	2.78	0.3162278	0.13	1	0.25	0	0.1	2.78
erase!	0.25	3.35	0.5	0.16	2	0.63	0	0.25	3.35
	0.5	3.92	0.7071068	0.19	3	1.58	0	0.5	3.92
	1	4.82	1	0.25	4	3.98	0	1	4.82
	2	6.33	1.4142136	0.37	5	10.00	0	2	6.33
	3	7.39	1.7320508	0.49	6	25.12	0	3	7.39
	4	8.41	2	0.63	7	63.10	0		
	6	10	2.4494897	0.95	8	158.49	0		
	8	10.92	2.8284271	1.35	9	398.11	0		
	10	11.4	3.1622777	1.84	10	1000.00	0		
	12	11.5	3.4641016	2.43	11	2511.89	0		
	16	11.78	4	3.98	0.2	0.12	0		
	27	11.84	5.1961524	11.98	0.4	0.14	0		
	32	11.84	5.6568542	18.31	0.6	0.17	0		
	45	11.84	6.7082039	48.23	0.8	0.21	0		
					1.2	0.30	0		
					1.4	0.36	0		
					1.6	0.44	0		
					1.8	0.52	0		
					2.2	0.76	0		
					2.4	0.91	0		
					2.6	1.10	0		
					2.8	1.32	0		
					3.2	1.91	0		
					3.4	2.29	0		
					3.6	2.75	0		
					3.8	3.31	0		
					4.2	4.79	0		
					4.4	5.75	0		
					4.6	6.92	0		
					4.8	8.32	0		
					5.2	12.02	0		
					5.4	14.45	0		
					5.6	17.38	0		
					5.8	20.89	0		
					6.2	30.20	0		
					6.4	36.31	0		
					6.6	43.65	0		
					6.8	52.48	0		
					7.2	75.86	0		
					7.4	91.20	0		
					7.6	109.65	0		
					7.8	131.83	0		
					8.2	190.55	0		
					8.4	229.09	0		



Square Root

$d_0 =$

$d_{90} =$

$d_{100} =$

Comments:

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

			Square Root
8.6	275.42	0	plot point - x
8.8	331.13	0	
9.2	478.63	0	d ₀ = 0.10
9.4	575.44	0	d ₉₀ = 0.10
9.6	691.83	0	d ₁₀₀ = 0.10
9.8	831.76	0	
10.2	1202.26	0	d ₀ = 0.10
10.4	1445.44	0	d ₀ line 0.10
10.6	1737.80	0	
10.8	2089.30	0	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale

0 0
10 0

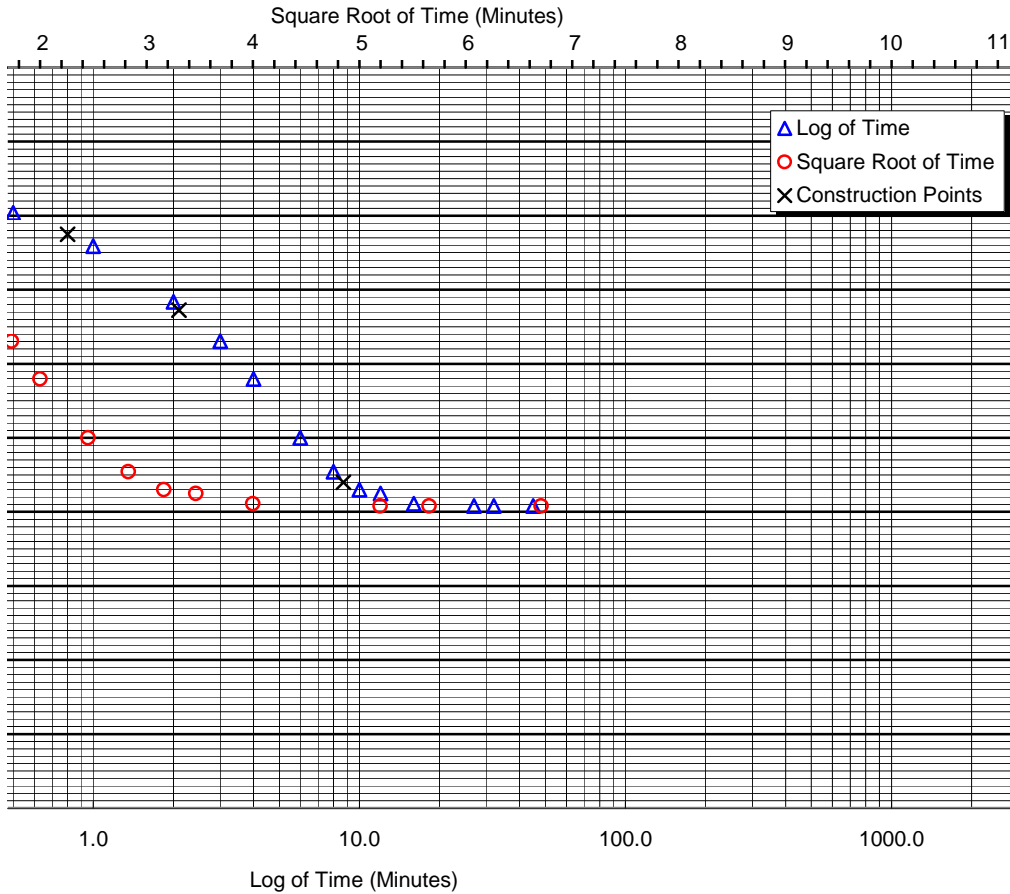
John Sevier Fossil Plant
36B, 27.0' - 36.0'

Project No. 175568038
Test Number 1754C
Load (tsf) 40

Start Time 1:10 PM
End Time 1:55 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	8.41	32	11.84			8:09 PM
6	10	45	11.84			
8	10.92					
10	11.4					
12	11.5					
16	11.78					
27	11.84					

Consolidation



t of Time

Log of time

$t_{90} (m) =$	$d_{100} =$ 11.2	$t_{100} (m) =$ 8.7
$t_{100} (m) =$	$d_{t1} =$ 3.2	$t_1 (m) =$ 0.2
$t_{50} (m) =$	$d_{t2 (t1^*4)} =$ 4.5	$t_{50} (m) =$ 2.1
	$d_{50} =$ 6.550	

t of Time

y	time
1.67	0
1.669	0
1.668	0
1.67	0
1.669	0

log of time

	time - x	plot point - y
d ₁₀₀	8.7	11.2
d _{t1}	0.2	3.2
d _{t1*4}	0.8	4.5
d ₅₀	2.1	6.55

line @ 3000 m

3000	20
3000	0

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	11.84 maximum scale	11.9	12	12	2	20
min. dial reading	1.68 mimimum scale	1.6	1.6	1.5	0	0
diference	10.16	10.3	10.4	10.5	2	20

0.5	1	2	3	4	5	10	20
							20
							2
							0.2
							20
							0
							1
							20
							0
							20
							2
							0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	20
min_y	0
total scale	20
Major unit	2
Minor unit	0.2



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant		Project No.	175568038
Sample Identification	JS-36B, 27.0' - 36.0'		Test Number	CU-1754A
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	KDG
	Need!		Date	6-3-2009
			Set No.	1754
Specific Gravity	2.32	ASTM D854 Method A	Input By	RC
Chamber	90 (psi)	Back 70 (psi)	Lateral	20 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8 2	1 6 2 6	Wet Wt (g)	1014.72	Tare Id.	372		
Middle	3 2.8 4	3 6 4 6	Dry Wt (g)		Wet Wt (g)	623.02		
Bottom	5 2.8 6		mc %		Dry Wt (g)	479		
			from final	39.4	728.01	X	Tare Wt (g)	69.94
			from trimmings	35.2	750.49			

Setup and Saturation

Panel No.	A	Burette S/L	L	Set Up By	KDG	Date	6-3-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2		1 2			
Middle	3 4	3 4		3 4			
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Values	
Initial Height	0.2243	Initial	16.82	Initial	12.71	B1	
Final Height	0.2215	Final	17.09	Final	0.89	B2	
Comments:						B3	
						B4	0.96

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2215	Back Pressure	Chamber	Panel No.	A
@ 15 Min		Initial	1.47	Burettes L/S	L
Final	0.2299	Final	6.91	Tested By	RC
Comments:					

Test

Data File ID	CU-1754A	Press No.	2	Area (A _c)		t ₅₀	2.7	Start Time	
Tested By	KDG	Panel No.	D	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-4-09					Strain Rate (in/mn)			

After Test

Failure Sketch		Final Diam.+ Membrane (in)		Moisture from Sample			
		1 2.88 2		2.88	Tare Id.	Otto	
		3 3.021 4		3.021	Wet Wt (g)	1176.63	
		5 3.011 6		3.011	Dry Wt (g)	949.82	
		Membrane Thickness (in.)	0.024	3.021 avg. max.	Tare Wt (g)	221.8	
		Final Wet Weight	954.82 g	Final Dry Weight	728.01	Final MC %	31.2

Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant		Project No.	175568038
Sample Identification	JS-36B, 27.0' - 36.0'		Test Number	CU-1754B
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	KDG
	Need!		Date	6-3-2009
			Set No.	1754
Specific Gravity	2.32	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 60 (psi)	Lateral	30 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimming		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1014.72	Tare Id.	372
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	623.02
Bottom	5 2.8	6			mc %		Dry Wt (g)	479
			from final	39.8	725.90	X	Tare Wt (g)	69.04
			from trimmings	35.1	750.92			

Setup and Saturation

Panel No.	D	Burette S/L	L	Set Up By	KDG	Date	6-3-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	
Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2623	Initial	15.65	Initial	11.76	B1	
Final Height	0.2588	Final	17.02	Final	3.09	B2	
Comments:						B3	
						B4	0.99

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	D
Initial	0.2588	Back Pressure		Burettes L/S	L
@ 15 Min		Initial	1.31	Initial	17.42
Final	0.271	Final	9.05	Final	10.58
Comments:				Tested By	RC

Test

Data File ID	CU-1754B	Press No.	2	Area (A _c)		t ₅₀	2.2	Start Time	
Tested By	KDG	Panel No.	D	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-4-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.161	2	3.161	Tare Id.	PIG
	3	3.581	4	3.581	Wet Wt (g)	1085.11
	5	3.505	6	3.505	Dry Wt (g)	886.03
	Membrane Thickness (in.)	0.012	3.581		Tare Wt (g)	207.4
	Final Wet Weight	938.85 g	Final Dry Weight	725.90	Final MC %	29.3

Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Sevier Fossil Plant		Project No.	175568038
Sample Identification	JS-36B, 27.0' - 36.0'		Test Number	CU-1754C
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	KDG
	Need!		Date	6-3-2009
			Set No.	1754
Specific Gravity	2.32	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 50 (psi)	Lateral	40 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1014.72	Tare Id.	372
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	623.02
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	479
			from final	39.0	730.26	X	Tare Wt (g)	69.94
			from trimmings	35.2	750.49			

Setup and Saturation

Panel No.	B	Burette S/L	L	Set Up By	KDG/RC	Date	6-3-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2475	Initial	14.53	Initial	11.41	B1	
Final Height	0.2571	Final	14.58	Final	5.93	B2	
Comments:						B3	
						B4	0.99

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2571	Back Pressure	Chamber	B	
@ 15 Min		Initial	15.93	Burettes L/S	L
Final	0.2597	Final	4.98	Tested By	RC
Comments:					

Test

Data File ID	CU-1754C	Press No.	1	Area (A _c)		t ₅₀	2.1	Start Time	
Tested By	KDG	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-4-09					Strain Rate (in/mn)			

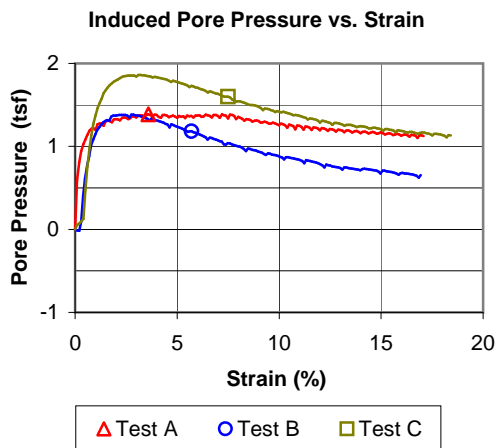
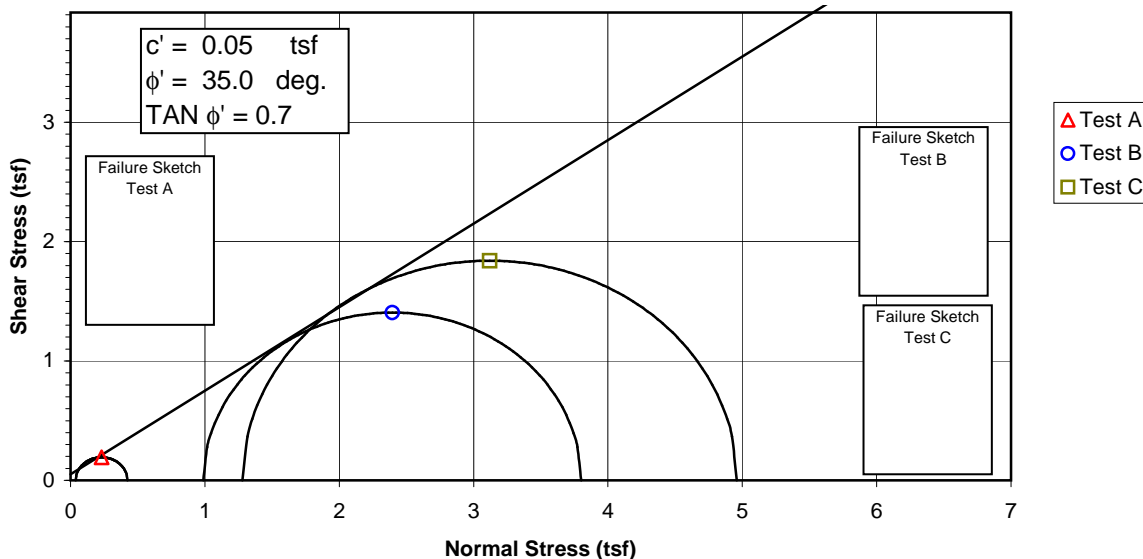
After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.385	2	3.385	Tare Id.	Jack
	3	3.407	4	3.407	Wet Wt (g)	1157.74
	5	3.325	6	3.325	Dry Wt (g)	942.88
		Membrane Thickness (in.)	0.012	3.407	Tare Wt (g)	212.7
	Final Wet Weight	945.15 g	Final Dry Weight	730.26	Final MC %	29.4

Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

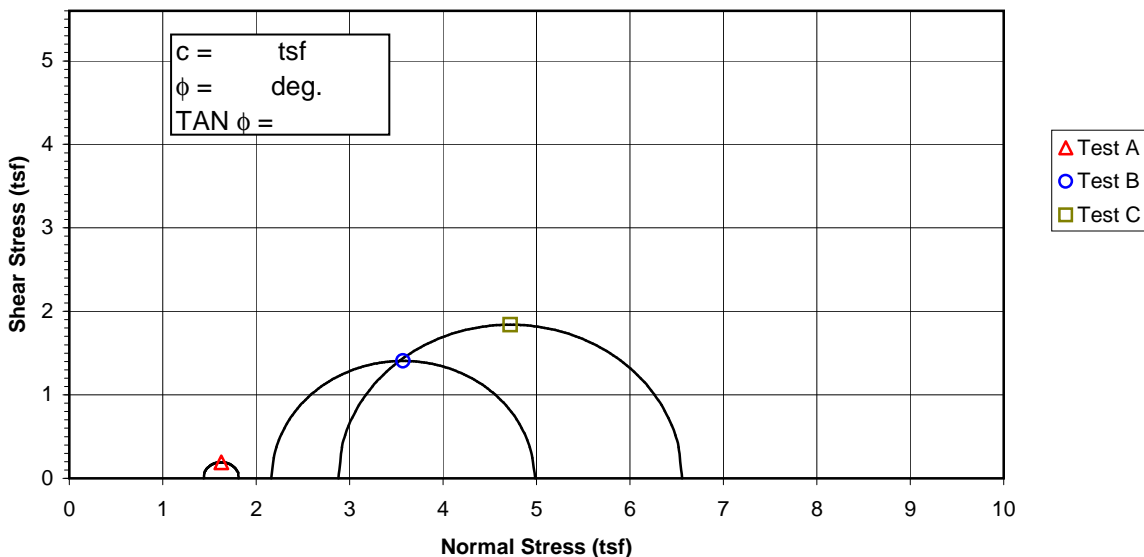


Specimen No.		A	B	C
Initial Data	Water content %	W_o 39.4	39.8	39.0
	Dry Density PCF	γ_{d_o} 75.1	74.8	75.3
	Saturation %	S_o 98.3	98.7	97.9
	Void Ratio	e_o 0.929	0.935	0.923
After Shear	Water content %	W_f 31.2	29.3	29.4
	Dry Density PCF	γ_{d_f} 84.1	86.2	86.1
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.723	0.681	0.683
Final Back Pressure TSF		u_c 5.04	4.32	3.60
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.04	0.99	1.28
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 0.37	2.83	3.68
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 81.8	76.5	110.6
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 6.000	6.000	6.000

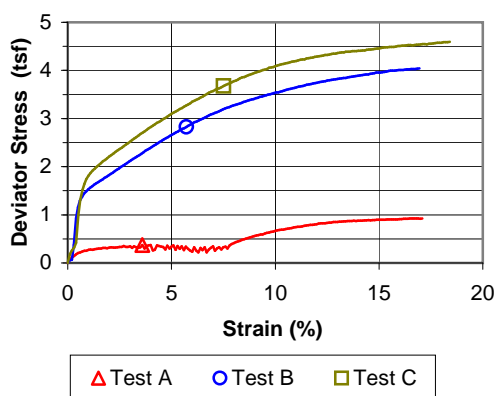
Controlled - Strain Test			
Description of Specimens		Silt (ML), gray, (fly ash)	
		Type of Specimen	Undisturbed
		Type of test \bar{R}	
LL	NP	PL	NP
		PI	NP
		Gs	2.32
Remarks:		Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.	
		Boring No.	JS-36B
		Sample No.	1754
		Depth Elev.	27.0' - 36.0'
		Laboratory	Stantec
		Date	6-15-09
TRIAXIAL COMPRESSION TEST REPORT			

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



Specimen No.		A	B	C	
Initial Data	Water content %	W_o	39.4	39.8	39.0
	Dry Density PCF	γ_{d_o}	75.1	74.8	75.3
	Saturation %	S_o	98.3	98.7	97.9
	Void Ratio	e_o	0.929	0.935	0.923
After Shear	Water content %	W_f	31.2	29.3	29.4
	Dry Density PCF	γ_{d_f}	84.1	86.2	86.1
	Saturation %	S_f	100.0	100.0	100.0
	Void Ratio	e_f	0.723	0.681	0.683
Final Back Pressure TSF		u_c	5.04	4.32	3.60
Minor Principal Stress TSF		σ_3	1.44	2.16	2.88
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$	0.37	2.83	3.68
Time to $(\sigma_1 - \sigma_3)_{max}$ min.		t_f	81.8	76.5	110.6
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$	n/a	n/a	n/a
Initial Diameter, in.		D_o	2.800	2.800	2.800
Initial Height, in.		H_o	6.000	6.000	6.000

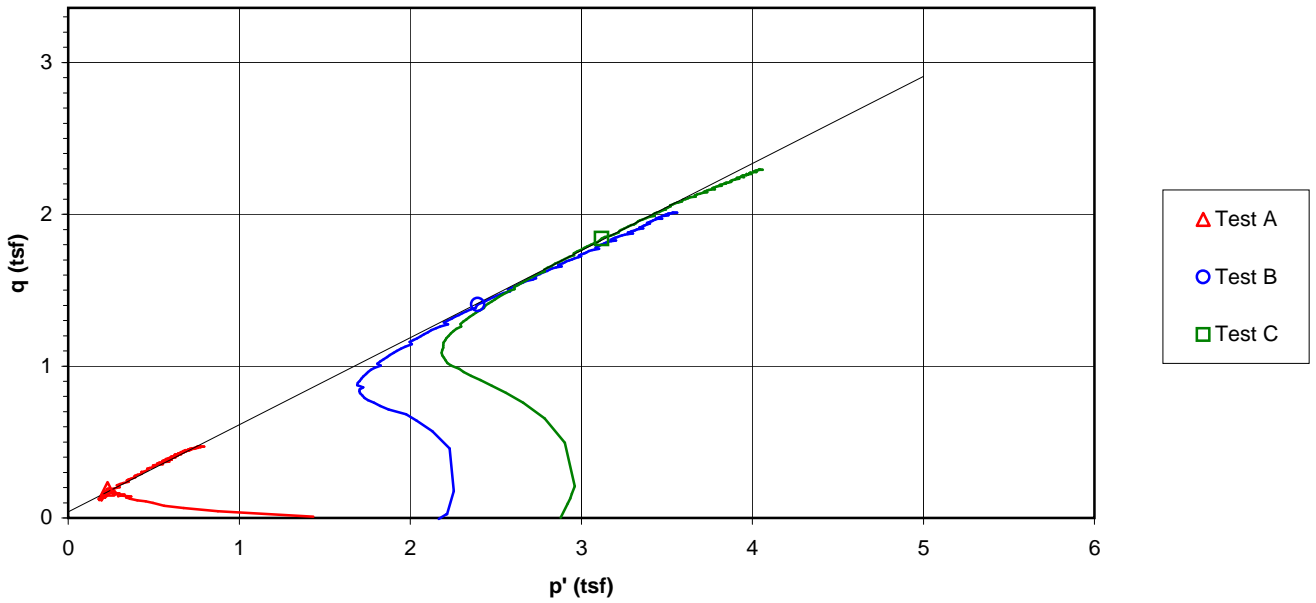
Controlled - Strain Test			
Description of Specimens Silt (ML), gray, (fly ash)			
		Type of Specimen Undisturbed	Type of test \bar{R}
LL	NP	PL	NP
PI	NP	Gs	2.32
Project		John Sevier Fossil Plant	
Remarks: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.			
Boring No.		JS-36B	Sample No. 1754
Depth Elev.		27.0' - 36.0'	
Laboratory		Stantec	Date 6-15-09
TRIAXIAL COMPRESSION TEST REPORT			

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

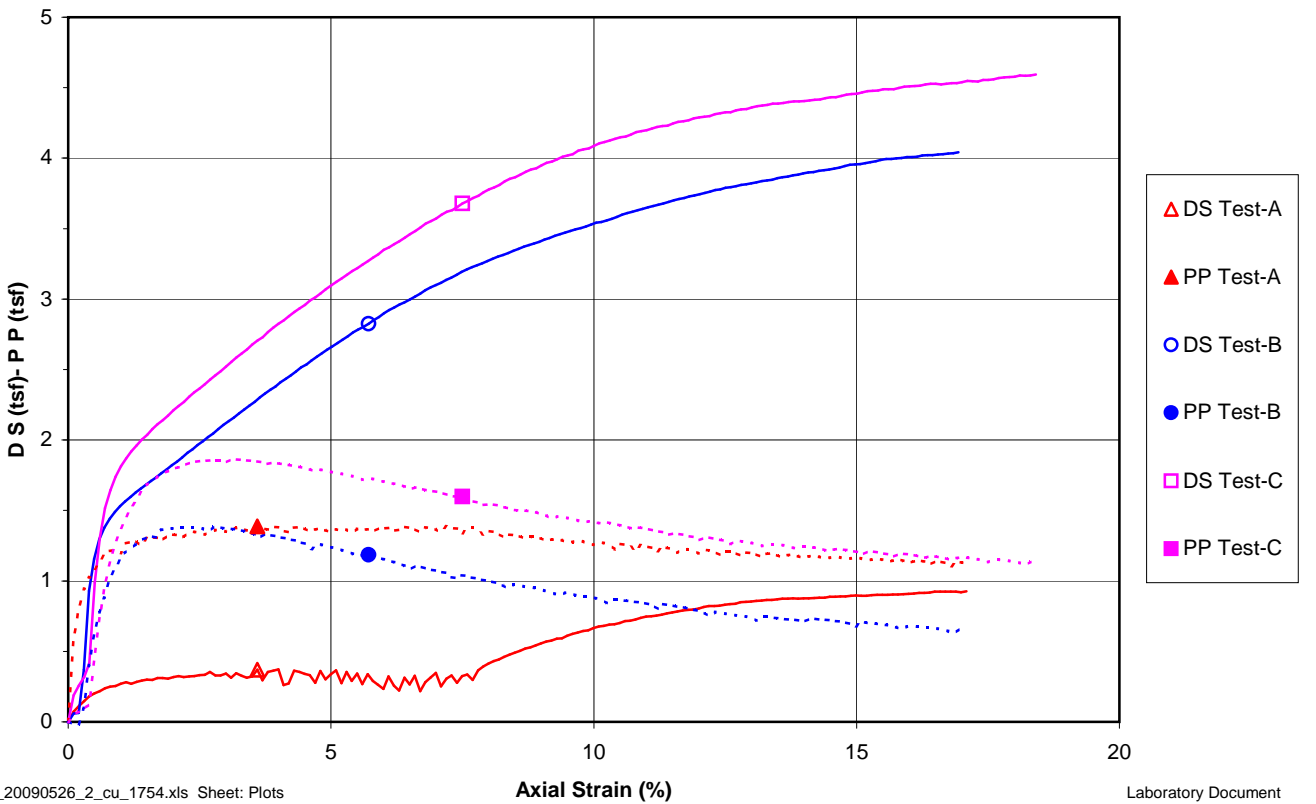
Project John Sevier Fossil Plant
 Sample ID JS-36B, 27.0' - 36.0'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 35.0$ deg.

Project No. 175568038
 Test Number 1754
 $c' = 0.05$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 27.0' - 36.0'
 Visual Description Silt (ML), gray, (fly ash)

 Project Number 175568038
 Test Number CU-1754A
 Prepared By KDG
 Date 6-3-2009

 Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP
Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.1480</u> (V _{S_o})	Dry Weight (g) <u>728.01</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>17.4949</u> (V _{w_o})	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>17.7971</u> (V _{v_o})	Dry Unit Weight (pcf) <u>75.1</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>98.3</u> (S _o)	
Moisture Content (%) <u>39.4</u>	Final Trimmings	Void Ratio <u>0.929</u>	

Saturation

 Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 70 (psi) Final Pore Pressure Parameter B 0.96
 Set up By KDG
 Date 6-3-09
 Panel Board Number A

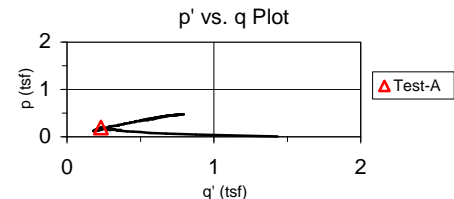
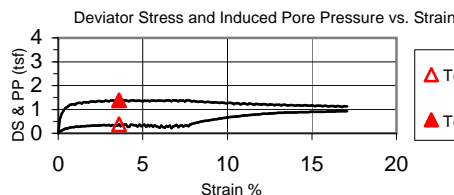
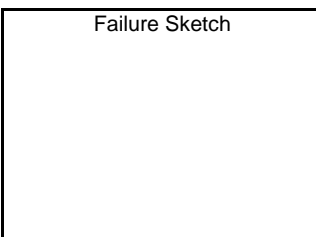
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial <u>0.2243</u>	Initial <u>16.82</u> (in.)	Initial <u>12.71</u> (in.)	Specimen Height (in.) <u>6.0028</u> (H _s)
Final <u>0.2215</u>	Final <u>17.09</u> (in.)	Final <u>0.89</u> (in.)	Area (in ²) Method A <u>6.1633</u> (A _s)
Change <u>0.0028</u> (ΔH _c)	Change <u>0.27</u> (in.)	Change <u>-11.82</u> (in.)	Specimen Volume (in ³) <u>37.00</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2215</u>	Initial <u>1.47</u> (in.)	Initial <u>17.31</u> (in.)	Chamber <u>90</u>
Final <u>0.2299</u>	Final <u>6.91</u> (in.)	Final <u>11.78</u> (in.)	Back <u>70</u>
Change <u>-0.0084</u> (ΔH _c)	Change <u>-5.44</u> (in.)	Change <u>-5.53</u> (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>5.9944</u> (H _c)		Volume (in ³) <u>32.9878</u> (V _c)	t ₅₀ (min.) <u>2.7</u>
Area (in ³) Method B <u>5.5031</u> (A _c)		Volume - Water (in ³) <u>13.8398</u> (V _{wc})	
Diameter (in.) <u>2.6470</u> (D _c)		Water Content (%) <u>31.2</u>	
Dry Density (pcf) <u>84.1</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	Void Ratio <u>0.723</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.021</u> (in.)	Wet Weight (g) <u>954.82</u>	Corrected Deviator <u>0.37</u> σ _d (tsf)
Wet weight (g) <u>954.82</u> (WW _f)	Dry Weight (g) <u>728.01</u>	Major Principal <u>0.42</u> σ _{1'f} (tsf)
Corrected Diameter <u>2.973</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.04</u> σ _{3'f} (tsf)
		Rate of Strain (% / min.) <u>0.042</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>3.60</u>
Membrane Thickness (in.) <u>0.024</u>		Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.

Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 27.0' - 36.0'
 Visual Description Silt (ML), gray, (fly ash)

 Project Number 175568038
 Test Number CU-1754B
 Prepared By KDG
 Date 6-3-2009

 Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP
Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V_o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.0925</u> (V_{S_o})	Dry Weight (g) <u>725.90</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>17.6237</u> (V_{W_o})	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D_o)	4 <u>6.000</u>	Voids <u>17.8526</u> (V_{V_o})	Dry Unit Weight (pcf) <u>74.8</u>
Area (in ²) <u>6.1575</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>98.7</u> (S_o)	
Moisture Content (%) <u>39.8</u>	Final Trimmings	Void Ratio <u>0.935</u>	

Saturation

 Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 60 (psi) Final Pore Pressure Parameter B 0.99 Date 6-3-09
 Panel Board Number D

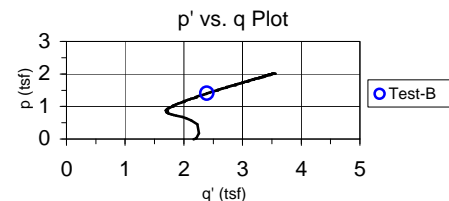
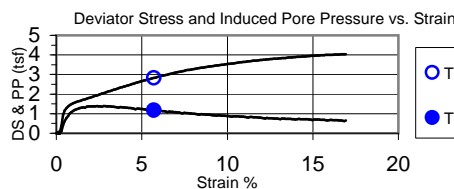
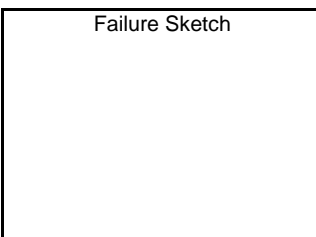
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>6.0035</u> (H_s)
Initial <u>0.2623</u>	Initial <u>15.65</u> (in.)	Initial <u>11.76</u> (in.)	Area (in ²) Method A <u>6.1647</u> (A_s)
Final <u>0.2588</u>	Final <u>17.02</u> (in.)	Final <u>3.09</u> (in.)	Specimen Volume (in ³) <u>37.01</u> (V_s)
Change <u>0.0035</u> (ΔH_o)	Change <u>1.37</u> (in.)	Change <u>-8.67</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2588</u>	Initial <u>1.31</u> (in.)	Initial <u>17.42</u> (in.)	Chamber <u>90</u>
Final <u>0.271</u>	Final <u>9.05</u> (in.)	Final <u>10.58</u> (in.)	Back <u>60</u>
Change <u>-0.0122</u> (ΔH_c)	Change <u>-7.74</u> (in.)	Change <u>-6.84</u> (in.)	Lateral <u>30</u> (σ_3)
Height (in.) <u>5.9913</u> (H_c)		Volume (in ³) <u>32.0865</u> (V_c)	D_{50} (min.) <u>2.2</u>
Area (in ²) Method B <u>5.3555</u> (A_c)		Volume - Water (in ³) <u>12.9941</u> (V_{Wc})	Void Ratio <u>0.681</u>
Diameter (in.) <u>2.6113</u> (D_c)		Water Content (%) <u>29.3</u>	
Dry Density (pcf) <u>86.2</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.581</u> (in.)	Wet Weight (g) <u>938.85</u>	Corrected Deviator <u>2.83</u> σ_d (tsf)
Wet weight (g) <u>938.85</u> (WWf)	Dry Weight (g) <u>725.90</u>	Major Principal <u>3.80</u> σ_{1f} (tsf)
Corrected Diameter <u>3.557</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.99</u> σ_{3f} (tsf)
		Rate of Strain (% / min.) <u>0.074</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>5.72</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.

Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 27.0' - 36.0'
 Visual Description Silt (ML), gray, (fly ash)

Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP

Project Number 175568038
 Test Number CU-1754C
 Prepared By KDG
 Date 6-3-2009

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.2072</u> (V _{S_o})	Dry Weight (g) <u>730.26</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>17.3574</u> (V _{w_o})	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>17.7379</u> (V _{v_o})	Dry Unit Weight (pcf) <u>75.3</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>97.9</u> (S _o)	
Moisture Content (%) <u>39.0</u>	Final Trimmings	Void Ratio <u>0.924</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 50 (psi) Final Pore Pressure Parameter B 0.99
 Set up By KDG/RC
 Date 6-3-09
 Panel Board Number B

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9904</u> (H _s)
Initial <u>0.2475</u>	Initial <u>14.53</u> (in.)	Initial <u>11.41</u> (in.)	Area (in ²) Method A <u>6.1378</u> (A _s)
Final <u>0.2571</u>	Final <u>14.58</u> (in.)	Final <u>5.93</u> (in.)	Specimen Volume (in ³) <u>36.77</u> (V _s)
Change <u>-0.0096</u> (ΔH _c)	Change <u>0.05</u> (in.)	Change <u>-5.48</u> (in.)	

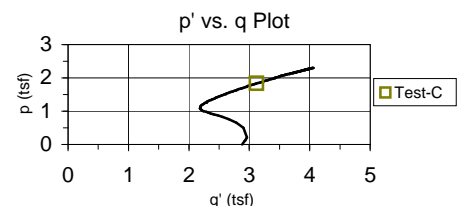
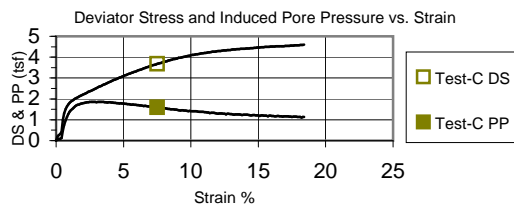
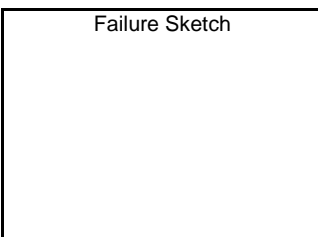
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2571</u>	Initial <u>1.68</u> (in.)	Initial <u>15.93</u> (in.)	Chamber <u>90</u>
Final <u>0.2597</u>	Final <u>11.84</u> (in.)	Final <u>4.98</u> (in.)	Back <u>50</u>
Change <u>-0.0026</u> (ΔH _c)	Change <u>-10.16</u> (in.)	Change <u>-10.95</u> (in.)	Lateral <u>40</u> (σ ₃)
Height (in.) <u>5.9878</u> (H _c)		Volume (in ³) <u>32.3195</u> (V _c)	D ₅₀ (min.) <u>2.1</u>
Area (in ³) Method B <u>5.3976</u> (A _c)		Volume - Water (in ³) <u>13.1123</u> (V _{WC})	Void Ratio <u>0.683</u>
Diameter (in.) <u>2.6215</u> (D _c)		Water Content (%) <u>29.4</u>	
Dry Density (pcf) <u>86.1</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.407</u> (in.)	Wet Weight (g) <u>945.15</u>	Corrected Deviator <u>3.68</u> σ _d (tsf)
Wet weight (g) <u>945.15</u> (WW _f)	Dry Weight (g) <u>730.26</u>	Major Principal <u>4.96</u> σ _{1f} (tsf)
Corrected Diameter <u>3.383</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>1.28</u> σ _{3f} (tsf)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.068</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>7.50</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-3-09
 Boring No. Need! Sample No. JS-36B, 27.0' - 36.0'

Type of Test	Consolidated Undrained		Confining Pressure		1.44 tons/ft ²				
Test No.	CU-1754A		Classification Silt (ML), gray, (fly ash)						
			Before Test		After Test				
			Specimen	Trimmings	Specimen				
Tare No.	n/a			372	n/a				
Tare plus wet weight	1014.72			623.02	954.82				
Tare plus dry weight	728.01			479.00	728.01				
Water	W _w	286.71	W _{wo}	144.02	W _{wE}	226.81			
Tare	0			69.94	0.00				
Wet Soil	W	1014.72		553.08	954.82				
Dry Soil	W _s	728.01		409.06	728.01				
Water content	w	39.4	% W _o	35.2	W _f	31.2 %			
Initial Condition of Specimen									
Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112
Height, cm	H _o	15.240		Volume of solids, cc		V _s	313.80		
Area, sq cm = 0.7854 * D _o ²	A _o	39.726		Void Ratio = (V _o -V _s)+V _s		e _o	0.929		
Volume, cc = H _o *A _o	V _o	605.42		Saturation, %		S _o	98.3		
Specific gravity of solids	G _s	2.32		Dry density, lb/cu ft		g _d	75.1		
Condition of Specimen After Consolidation (R and S Tests)									
ΔH during Saturation & Consolidation, in.	ΔH _o	-0.006		Volume, cc = H _c *A _c		V _c	540.61		
Height, cm = H _o - 2.54*ΔH _o	H _c	15.226		Void Ratio = (V _c -V _s)+V _s		e _c	0.723		
Area, sq cm	A _c	35.506		Saturation, %		S _c	100.0		
Condition of Specimen After Test (R and S Test)									
Diameter, cm	D _f	Top	7.315	Center	7.673	Bottom	7.648	Avg	7.577
Change of height during Shear Test, in	ΔH	1.024		Volume, cc = H _f *A _f		V _f	540.61		
Height, cm = H _c - 2.54*ΔH	H _f	12.624		Void Ratio = (V _f -V _s)+V _s		e _f	0.723		
Area, cm ² from test data	A _f	42.824		Saturation, %		S _f	100.0		
Remarks									
Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.									
Technician	KDG KDG RC KDG		Computed By		RC		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-3-09
 Boring No. Need! Sample No. JS-36B, 27.0' - 36.0'

Type of Test		Consolidated Undrained		Confining Pressure		2.16		tons/ft ²		
Test No.		CU-1754B		Classification		silt (ML), gray, (fly ash)				
		Before Test				After Test				
		Specimen		Trimmings		Specimen				
Tare No.		n/a				372		n/a		
Tare plus wet weight		1014.72				623.02		938.85		
Tare plus dry weight		725.90				479.00		725.90		
Water		W _w 288.82		W _{wo}		144.02		W _{wf} 212.95		
Tare		0.00				69.04		0.00		
Wet Soil		W 1014.72				553.98		938.85		
Dry Soil		W _s 725.90				409.96		725.90		
Water content		w 39.8		% W _o		35.1		W _f 29.3 %		
Initial Condition of Specimen										
Diameter, cm		D _o		Top 7.112		Center 7.112		Bottom 7.112		Avg 7.112
Height, cm		H _o		15.240		Volume of solids, cc		V _s		312.89
Area, sq cm = 0.7854*D _o ²		A _o		39.726		Void Ratio = (V _o -V _s)+V _s		e _o		0.935
Volume, cc = H _o *A _o		V _o		605.42		Saturation, %		S _o		98.7
Specific gravity of solids		G _s		2.32		Dry density, lb/cu ft		G _d		74.8
Condition of Specimen After Consolidation (R and S Tests)										
ΔH during Saturation & Consolidation, in.		ΔH _o		-0.009		Volume, cc = H _c *A _c		V _c		525.84
Height, cm = H _o - 2.54*ΔH _o		H _c		15.218		Void Ratio = (V _c -V _s)+V _s		e _c		0.681
Area, sq cm		A _c		34.554		Saturation, %		S _c		100.0
Condition of Specimen After Test (R and S Test)										
Diameter, cm		D _f		Top 8.029		Center 9.096		Bottom 8.903		Avg 8.781
Change of height during Shear Test, in		ΔH		1.015		Volume, cc = H _f *A _f		V _f		525.84
Height, cm = H _c - 2.54*ΔH		H _f		12.640		Void Ratio = (V _f -V _s)+V _s		e _f		0.681
Area, cm ² from test data		A _f		41.601		Saturation, %		S _f		100.0
Remarks										
Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.										
Technician		KDG KDG RC KDG		Computed By		KDG		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Sevier Fossil Plant Date 6-3-09
 Boring No. Need! Sample No. JS-36B, 27.0' - 36.0'

Type of Test		Consolidated Undrained		Confining Pressure		2.88		tons/ft ²		
Test No.		CU-1754C		Classification		silt (ML), gray, (fly ash)				
		Before Test				After Test				
		Specimen		Trimmings		Specimen				
Tare No.		n/a				372		n/a		
Tare plus wet weight		1014.72				623.02		945.15		
Tare plus dry weight		730.26				479.00		730.26		
Water		W _w 284.46		W _{wo}		144.02		W _{wf} 214.89		
Tare		0				69.94		0.00		
Wet Soil		W 1014.72				553.08		945.15		
Dry Soil		W _s 730.26				409.06		730.26		
Water content		w 39.0		% W _o		35.2		W _f 29.4 %		
Initial Condition of Specimen										
Diameter, cm		D _o		Top 7.112		Center 7.112		Bottom 7.112		Avg 7.112
Height, cm		H _o		15.240		Volume of solids, cc		V _s		314.77
Area, sq cm = 0.7854*D _o ²		A _o		39.726		Void Ratio = (V _o -V _s)+V _s		e _o		0.923
Volume, cc = H _o *A _o		V _o		605.42		Saturation, %		S _o		97.9
Specific gravity of solids		G _s		2.32		Dry density, lb/cu ft		G _d		75.3
Condition of Specimen After Consolidation (R and S Tests)										
ΔH during Saturation & Consolidation, in.		ΔH _o		-0.012		Volume, cc = H _c *A _c		V _c		529.65
Height, cm = H _o - 2.54*ΔH _o		H _c		15.209		Void Ratio = (V _c -V _s)+V _s		e _c		0.683
Area, sq cm		A _c		34.825		Saturation, %		S _c		100.0
Condition of Specimen After Test (R and S Test)										
Diameter, cm		D _f		Top 8.598		Center 8.654		Bottom 8.446		Avg 8.588
Change of height during Shear Test, in		ΔH		1.102		Volume, cc = H _f *A _f		V _f		529.65
Height, cm = H _c - 2.54*ΔH		H _f		12.409		Void Ratio = (V _f -V _s)+V _s		e _f		0.683
Area, cm ² from test data		A _f		42.682		Saturation, %		S _f		100.0
Remarks <u>Compacted samples at as received moisture content. Bulk sample taken from soft fly ash.</u>										
Technician		<u>KDG KDG/RC RC KDG</u>		Computed By		<u>KDG</u>		Checked By		

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values			Final Values			Tested By		Project Number	
Height	5.994 (in.)	15.226 (cm)	Height	4.970 (in.)		KDG	175568038		
Diameter	2.647 (in.)	6.724 (cm)	Dia. avg.	2.983 (in.)		6-4-09	Test Number	CU-1754A	
Area	5.503 (in ²)	35.506 (cm ²)	Area avg.	6.990 (in ²)		2	Data File ID	CU-1754A	
						D	Lateral Pressure (psi)	20.0	
							Chamber Pressure - σ_3 (psi)	90	

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1' + \sigma_3'$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
0:00:00	15.7	0.000	70.2	5.994	0.00	35.5060	0.0	0.000	0.000	1.440	1.440	1.425	1.433	0.007	1.010
0:02:07	21.4	0.006	78.5	5.988	0.10	35.5419	5.6	0.074	0.073	1.513	0.920	0.831	0.876	0.044	1.106
0:03:54	24.6	0.012	81.5	5.982	0.20	35.5788	8.8	0.115	0.114	1.554	0.741	0.612	0.676	0.065	1.211
0:05:46	27.1	0.018	83.3	5.976	0.30	35.6145	11.4	0.149	0.147	1.587	0.642	0.480	0.561	0.081	1.337
0:07:36	29.9	0.024	84.5	5.970	0.40	35.6492	14.1	0.184	0.182	1.622	0.595	0.398	0.497	0.099	1.495
0:09:40	31.5	0.030	85.2	5.964	0.50	35.6848	15.8	0.206	0.203	1.643	0.561	0.343	0.452	0.109	1.635
0:11:52	32.7	0.036	86.0	5.958	0.60	35.7204	17.0	0.221	0.218	1.658	0.521	0.288	0.405	0.116	1.807
0:14:11	34.3	0.042	86.8	5.952	0.70	35.7571	18.6	0.242	0.238	1.678	0.487	0.234	0.360	0.127	2.083
0:16:30	35.3	0.048	87.0	5.946	0.80	35.7922	19.6	0.254	0.250	1.690	0.478	0.213	0.346	0.133	2.244
0:18:41	35.6	0.054	87.2	5.940	0.90	35.8287	19.9	0.258	0.254	1.694	0.472	0.204	0.338	0.134	2.319
0:21:00	36.9	0.060	86.9	5.934	1.00	35.8646	21.2	0.275	0.269	1.709	0.511	0.226	0.368	0.142	2.256
0:23:17	37.9	0.066	87.8	5.928	1.10	35.9016	22.2	0.287	0.282	1.722	0.455	0.159	0.307	0.148	2.867
0:25:31	37.1	0.072	87.9	5.922	1.20	35.9371	21.4	0.276	0.270	1.710	0.434	0.149	0.292	0.142	2.908
0:27:57	38.2	0.078	88.0	5.916	1.30	35.9737	22.5	0.291	0.284	1.724	0.444	0.145	0.294	0.149	3.065
0:30:16	39.0	0.084	87.6	5.911	1.40	36.0099	23.3	0.301	0.294	1.734	0.484	0.176	0.330	0.154	2.758
0:32:33	39.5	0.090	88.3	5.905	1.50	36.0465	23.8	0.307	0.299	1.739	0.435	0.121	0.278	0.157	3.602
0:34:49	39.4	0.096	88.4	5.898	1.60	36.0835	23.7	0.305	0.297	1.737	0.429	0.117	0.273	0.156	3.677
0:37:08	40.6	0.102	88.3	5.892	1.70	36.1200	24.8	0.320	0.311	1.751	0.445	0.119	0.282	0.163	3.735
0:39:22	40.6	0.108	88.1	5.887	1.80	36.1564	24.9	0.320	0.311	1.751	0.462	0.136	0.299	0.163	3.390
0:41:44	40.3	0.114	88.6	5.881	1.90	36.1936	24.6	0.316	0.306	1.746	0.421	0.101	0.261	0.160	4.183
0:44:02	41.2	0.120	88.7	5.874	2.00	36.2307	25.5	0.327	0.317	1.757	0.428	0.096	0.262	0.166	4.462
0:46:24	41.9	0.126	88.6	5.868	2.10	36.2680	26.1	0.335	0.324	1.764	0.438	0.099	0.269	0.170	4.422
0:48:38	41.5	0.132	88.4	5.863	2.20	36.3046	25.8	0.330	0.319	1.759	0.446	0.113	0.279	0.167	3.964
0:50:59	41.8	0.138	88.9	5.857	2.30	36.3417	26.1	0.334	0.322	1.762	0.419	0.082	0.250	0.168	5.099
0:53:23	42.2	0.144	89.0	5.851	2.40	36.3789	26.5	0.338	0.326	1.766	0.416	0.076	0.246	0.170	5.512
0:55:42	42.7	0.150	88.9	5.845	2.50	36.4160	26.9	0.344	0.331	1.771	0.426	0.081	0.254	0.173	5.292
0:58:03	43.0	0.156	88.7	5.839	2.60	36.4537	27.3	0.348	0.334	1.774	0.446	0.097	0.271	0.174	4.610
1:00:22	44.6	0.162	88.8	5.833	2.70	36.4905	28.9	0.368	0.354	1.794	0.452	0.083	0.267	0.184	5.442
1:02:48	42.8	0.168	89.1	5.827	2.80	36.5289	27.1	0.345	0.330	1.770	0.408	0.063	0.235	0.173	6.516
1:05:09	42.9	0.174	89.1	5.821	2.90	36.5662	27.2	0.346	0.330	1.770	0.412	0.067	0.239	0.173	6.166
1:07:32	44.0	0.180	88.9	5.815	3.00	36.6041	28.2	0.359	0.343	1.783	0.435	0.077	0.256	0.179	5.629
1:09:51	41.8	0.186	89.2	5.809	3.10	36.6415	26.0	0.330	0.314	1.754	0.384	0.055	0.219	0.165	7.009
1:12:17	44.3	0.192	89.3	5.803	3.20	36.6792	28.6	0.363	0.346	1.786	0.409	0.048	0.229	0.180	8.448
1:14:34	42.9	0.197	89.3	5.797	3.30	36.7168	27.2	0.344	0.327	1.767	0.395	0.054	0.224	0.171	7.376
1:16:57	42.0	0.203	89.1	5.791	3.40	36.7548	26.2	0.332	0.314	1.754	0.397	0.068	0.232	0.165	5.873
1:19:23	42.7	0.210	89.3	5.785	3.50	36.7935	27.0	0.341	0.323	1.763	0.384	0.047	0.216	0.169	8.208
1:21:47	46.6	0.215	89.5	5.779	3.60	36.8310	30.8	0.389	0.371	1.811	0.424	0.038	0.231	0.193	11.106
1:24:08	40.7	0.221	89.3	5.773	3.70	36.8695	25.0	0.315	0.296	1.736	0.361	0.050	0.206	0.155	7.185
1:26:34	45.5	0.227	89.2	5.767	3.80	36.9075	29.7	0.375	0.355	1.795	0.430	0.060	0.245	0.185	7.154
1:28:58	46.1	0.234	89.4	5.761	3.90	36.9469	30.4	0.383	0.362	1.802	0.418	0.041	0.229	0.189	10.267
1:31:19	47.1	0.239	89.4	5.755	4.00	36.9846	31.4	0.394	0.373	1.813	0.434	0.046	0.240	0.194	9.532
1:33:43	38.3	0.245	89.0	5.749	4.10	37.0233	22.6	0.284	0.262	1.702	0.347	0.070	0.208	0.139	4.983
1:36:06	39.2	0.251	88.9	5.743	4.20	37.0618	23.4	0.294	0.272	1.712	0.367	0.080	0.224	0.143	4.579
1:38:30	46.6	0.257	89.4	5.737	4.30	37.1005	30.9	0.387	0.364	1.804	0.425	0.046	0.236	0.190	9.206
1:40:53	45.9	0.264	89.4	5.731	4.40	37.1401	30.2	0.377	0.355	1.795	0.415	0.046	0.230	0.185	9.099
1:43:17	44.9	0.270	89.2	5.725	4.50	37.1787	29.2	0.365	0.341	1.781	0.410	0.054	0.232	0.178	7.557
1:45:41	44.3	0.275	89.0	5.719	4.60	37.2175	28.5	0.357	0.333	1.773	0.420	0.073	0.247	0.174	5.765
1:48:07	39.9	0.281	89.1	5.713	4.70	37.2567	24.2	0.302	0.277	1.717	0.354	0.062	0.208	0.146	5.751
1:50:28	46.7	0.287	89.3	5.707	4.80	37.2954	30.9	0.386	0.361	1.801	0.428	0.053	0.240	0.188	8.121
1:52:54	42.0	0.293	89.1	5.701	4.90	37.3346	26.2	0.327	0.301	1.741	0.380	0.064	0.222	0.158	5.932
1:55:15	45.0	0.299	88.9	5.695	5.00	37.3733	29.3	0.364	0.338	1.778	0.432	0.080	0.256	0.176	5.438
1:57:36	47.3	0.305	89.2	5.689	5.10	37.4127	31.6	0.393	0.366	1.806	0.440	0.059	0.250	0.191	7.464
2:00:00	40.0	0.311	89.1	5.683	5.20	37.4522	24.3	0.302	0.275	1.715	0.357	0.068	0.212	0.145	5.273
2:02:23	46.6	0.317	89.2	5.677	5.30	37.4917	30.8	0.383	0.355	1.795	0.431	0.061	0.246	0.185	7.046
2:04:47	41.5	0.323	88.8	5.671	5.40	37.5315	25.7	0.319	0.291	1.731	0.390	0.084	0.237	0.153	4.626
2:07:06	45.7	0.329	89.3	5.665	5.50	37.5710	30.0	0.371	0.343	1.783	0.411	0.054	0.232	0.179	7.680
2:09:29	39.7	0.335	89.1	5.659	5.60	37.6109	24.0	0.297	0.268	1.708	0.344	0.062	0.203	0.141	5.567
2:11:53	45.5	0.341	89.2	5.653	5.70	37.6508	29.8	0.368	0.338	1.778	0.412	0.059	0.235	0.176	7.012
2:14:14	41.8	0.347	88.9	5.647	5.80	37.6911	26.0	0.321	0.291	1.731	0.382	0.076	0.229	0.153	5.035
2:16:35	39.5	0.353	89.3	5.641	5.90	37.7307	23.8	0.293	0.262	1.702	0.330	0.053	0.191	0.139	6.259

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values			Final Values			Tested By		Project Number	
Height	5.994 (in.)	15.226 (cm)	Height	4.970 (in.)		KDG	175568038		
Diameter	2.647 (in.)	6.724 (cm)	Dia. avg.	2.983 (in.)		6-4-09	Test Number	CU-1754A	
Area	5.503 (in ²)	35.506 (cm ²)	Area avg.	6.990 (in ²)		2	Data File ID	CU-1754A	
						D	Lateral Pressure (psi)	20.0	
							Chamber Pressure - σ_3 (psi)	90	

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1 + \sigma_3$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
4:41:01	90.9	0.719	86.8	5.276	11.99	40.3442	75.1	0.866	0.803	2.243	1.049	0.231	0.640	0.409	4.543
4:43:28	92.0	0.725	87.1	5.270	12.09	40.3902	76.3	0.878	0.815	2.255	1.035	0.205	0.620	0.415	5.043
4:45:54	92.8	0.731	87.1	5.264	12.19	40.4355	77.0	0.886	0.822	2.262	1.045	0.208	0.626	0.419	5.027
4:48:22	92.9	0.737	87.0	5.258	12.29	40.4823	77.2	0.886	0.822	2.262	1.055	0.218	0.637	0.418	4.835
4:50:46	93.2	0.743	86.7	5.252	12.39	40.5285	77.5	0.889	0.825	2.265	1.080	0.240	0.660	0.420	4.493
4:53:12	93.9	0.749	87.0	5.246	12.49	40.5742	78.1	0.895	0.830	2.270	1.062	0.217	0.639	0.423	4.900
4:55:36	94.5	0.755	87.0	5.240	12.59	40.6204	78.8	0.902	0.836	2.276	1.070	0.218	0.644	0.426	4.900
4:58:02	94.8	0.761	86.9	5.234	12.69	40.6676	79.0	0.904	0.837	2.277	1.079	0.227	0.653	0.426	4.760
5:00:25	96.0	0.767	86.6	5.228	12.79	40.7139	80.3	0.917	0.850	2.290	1.110	0.245	0.677	0.432	4.530
5:02:51	96.2	0.773	86.9	5.222	12.89	40.7612	80.4	0.918	0.850	2.290	1.090	0.225	0.657	0.433	4.848
5:05:13	96.6	0.779	86.9	5.216	12.99	40.8076	80.9	0.922	0.854	2.294	1.095	0.227	0.661	0.434	4.830
5:07:36	97.2	0.785	86.7	5.210	13.09	40.8540	81.4	0.927	0.858	2.298	1.108	0.234	0.671	0.437	4.728
5:10:02	97.5	0.791	86.5	5.204	13.19	40.9013	81.8	0.930	0.861	2.301	1.128	0.252	0.690	0.438	4.470
5:12:28	98.0	0.797	86.8	5.198	13.29	40.9489	82.3	0.934	0.865	2.305	1.113	0.233	0.673	0.440	4.771
5:14:50	98.2	0.802	86.8	5.192	13.39	40.9954	82.5	0.936	0.866	2.306	1.112	0.231	0.671	0.440	4.812
5:17:16	98.8	0.809	86.6	5.186	13.49	41.0433	83.1	0.941	0.871	2.311	1.128	0.242	0.685	0.443	4.661
5:19:40	99.2	0.814	86.4	5.180	13.59	41.0904	83.4	0.944	0.873	2.313	1.146	0.258	0.702	0.444	4.445
5:22:08	99.4	0.821	86.6	5.174	13.69	41.1388	83.7	0.946	0.874	2.314	1.131	0.242	0.687	0.445	4.673
5:24:32	99.8	0.826	86.7	5.168	13.79	41.1859	84.1	0.949	0.877	2.317	1.130	0.239	0.684	0.446	4.739
5:26:56	99.7	0.832	86.5	5.162	13.89	41.2334	84.0	0.947	0.874	2.314	1.138	0.249	0.693	0.445	4.574
5:29:22	100.0	0.838	86.3	5.156	13.99	41.2817	84.2	0.949	0.876	2.316	1.155	0.265	0.710	0.445	4.367
5:31:43	100.2	0.844	86.5	5.150	14.09	41.3291	84.5	0.950	0.877	2.317	1.143	0.251	0.697	0.446	4.548
5:34:09	100.6	0.850	86.6	5.144	14.19	41.3780	84.9	0.954	0.879	2.319	1.141	0.247	0.694	0.447	4.619
5:36:33	100.9	0.856	86.5	5.138	14.29	41.4259	85.2	0.956	0.882	2.322	1.150	0.254	0.702	0.448	4.533
5:38:56	101.1	0.862	86.3	5.132	14.39	41.4749	85.4	0.957	0.882	2.322	1.165	0.268	0.716	0.448	4.348
5:41:18	101.8	0.868	86.4	5.126	14.49	41.5227	86.1	0.964	0.888	2.328	1.163	0.260	0.711	0.452	4.478
5:43:44	101.9	0.874	86.5	5.120	14.59	41.5716	86.1	0.963	0.887	2.327	1.152	0.250	0.701	0.451	4.604
5:46:07	102.2	0.880	86.4	5.114	14.69	41.6197	86.5	0.966	0.890	2.330	1.163	0.259	0.711	0.452	4.498
5:48:33	102.5	0.886	86.2	5.108	14.79	41.6688	86.7	0.968	0.891	2.331	1.177	0.272	0.724	0.453	4.333
5:51:02	102.9	0.892	86.3	5.102	14.89	41.7180	87.2	0.972	0.894	2.334	1.174	0.265	0.720	0.455	4.432
5:53:28	103.2	0.898	86.4	5.096	14.99	41.7668	87.5	0.974	0.896	2.336	1.167	0.256	0.711	0.455	4.560
5:55:54	103.3	0.904	86.3	5.090	15.09	41.8159	87.6	0.974	0.895	2.335	1.176	0.265	0.721	0.455	4.430
5:58:20	103.5	0.910	86.1	5.084	15.19	41.8650	87.8	0.975	0.896	2.336	1.192	0.281	0.736	0.455	4.239
6:00:49	104.0	0.916	86.2	5.078	15.29	41.9145	88.3	0.979	0.899	2.339	1.189	0.275	0.732	0.457	4.329
6:03:15	104.4	0.922	86.3	5.072	15.39	41.9637	88.6	0.982	0.902	2.342	1.183	0.266	0.724	0.458	4.444
6:05:43	104.6	0.928	86.2	5.066	15.49	42.0136	88.8	0.983	0.902	2.342	1.191	0.274	0.733	0.459	4.348
6:08:12	104.7	0.934	86.0	5.060	15.59	42.0633	89.0	0.984	0.902	2.342	1.207	0.290	0.748	0.459	4.168
6:10:40	104.9	0.940	86.1	5.054	15.69	42.1135	89.2	0.985	0.903	2.343	1.199	0.281	0.740	0.459	4.266
6:13:06	105.2	0.946	86.2	5.048	15.79	42.1631	89.5	0.987	0.904	2.344	1.191	0.272	0.732	0.460	4.377
6:15:37	105.6	0.952	86.1	5.042	15.89	42.2137	89.8	0.990	0.907	2.347	1.205	0.283	0.744	0.461	4.256
6:18:06	105.9	0.958	85.9	5.036	15.99	42.2632	90.2	0.992	0.909	2.349	1.221	0.297	0.759	0.462	4.109
6:20:37	106.2	0.964	86.1	5.030	16.09	42.3135	90.5	0.995	0.911	2.351	1.210	0.284	0.747	0.463	4.255
6:23:10	106.7	0.970	86.1	5.024	16.19	42.3644	91.0	0.999	0.914	2.354	1.208	0.279	0.744	0.465	4.327
6:25:44	107.0	0.976	86.0	5.018	16.29	42.4148	91.3	1.001	0.916	2.356	1.219	0.288	0.753	0.465	4.229
6:28:19	107.2	0.982	85.7	5.012	16.39	42.4661	91.5	1.002	0.917	2.357	1.241	0.309	0.775	0.466	4.010
6:30:53	108.1	0.988	86.0	5.006	16.49	42.5164	92.4	1.010	0.924	2.364	1.226	0.287	0.756	0.469	4.275
6:33:29	108.3	0.994	86.0	5.000	16.59	42.5676	92.5	1.011	0.924	2.364	1.227	0.288	0.757	0.470	4.263
6:36:02	108.5	1.000	85.9	4.994	16.69	42.6182	92.8	1.012	0.925	2.365	1.238	0.298	0.768	0.470	4.152
6:38:38	108.6	1.006	85.5	4.988	16.79	42.6696	92.9	1.012	0.925	2.365	1.264	0.325	0.795	0.470	3.892
6:41:09	108.7	1.012	86.0	4.982	16.89	42.7205	92.9	1.011	0.923	2.363	1.226	0.287	0.756	0.469	4.265
6:43:42	108.6	1.018	86.0	4.976	16.99	42.7721	92.8	1.009	0.920	2.360	1.226	0.291	0.759	0.468	4.213
6:46:18	109.3	1.024	85.8	4.970	17.09	42.8242	93.6	1.016	0.927	2.367	1.243	0.301	0.772	0.471	4.126

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.988 (in.)	15.209 (cm)
Diameter	2.622 (in)	6.659 (cm)
Area	5.398 (in ²)	34.825 (cm ²)

Final Values	
Height	4.886 (in.)
Dia. avg.	3.381 (in)
Area avg.	8.978 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	B

Project Number	175568038
Test Number	CU-1754C
Data File ID	CU-1754C
Lateral Pressure (psi)	40.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective
															Principal Stress Ratio σ_1' / σ_3'
4:25:51	433.7	1.059	65.8	4.909	18.01	42.4739	422.4	4.625	4.577	7.457	6.320	1.740	4.030	2.290	3.632
4:27:17	435.0	1.065	65.7	4.904	18.11	42.5251	423.7	4.633	4.586	7.466	6.336	1.748	4.042	2.294	3.624
4:28:43	435.5	1.071	65.5	4.898	18.21	42.5775	424.2	4.633	4.585	7.465	6.354	1.767	4.060	2.294	3.597
4:30:09	436.3	1.077	65.8	4.891	18.31	42.6303	425.0	4.636	4.588	7.468	6.333	1.743	4.038	2.295	3.633
4:31:36	437.4	1.083	65.8	4.886	18.41	42.6823	426.1	4.643	4.594	7.474	6.341	1.744	4.043	2.298	3.635

0:00:00	15.7308	-1.95E-04	70.20665
0:02:07	21.37623	5.87E-03	78.45262
0:03:54	24.5565	1.21E-02	81.50515
0:05:46	27.1246	1.81E-02	83.32773
0:07:36	29.87117	2.39E-02	84.47127
0:09:40	31.50425	2.98E-02	85.2363
0:11:52	32.70911	3.58E-02	85.99337
0:14:11	34.33122	4.19E-02	86.75267
0:16:30	35.3168	4.77E-02	87.03872
0:18:41	35.64573	5.38E-02	87.17095
0:21:00	36.9115	5.97E-02	86.85733
0:23:17	37.92449	6.59E-02	87.79388
0:25:31	37.08571	7.17E-02	87.92537
0:27:57	38.23027	7.77E-02	87.98927
0:30:16	39.03371	8.37E-02	87.56223
0:32:33	39.52102	8.97E-02	88.32411
0:34:49	39.43574	9.57E-02	88.38128
0:37:08	40.55045	0.101712	88.34681
0:39:22	40.60466	0.107633	88.10874
0:41:44	40.29218	0.113686	88.60153
0:44:02	41.2473	0.119709	88.6682
0:46:24	41.87775	0.12576	88.62367
0:48:38	41.51227	0.131664	88.43692
0:50:59	41.79978	0.13766	88.86007
0:53:23	42.2012	0.143645	88.95123
0:55:42	42.67449	0.14961	88.88074
0:58:03	42.98697	0.155652	88.65735
1:00:22	44.59934	0.161541	88.84731
1:02:48	42.81703	0.16767	89.13114
1:05:09	42.90109	0.173611	89.07181
1:07:32	43.97194	0.17964	88.92594
1:09:51	41.76262	0.185566	89.23951
1:12:17	44.34838	0.191541	89.32684
1:14:34	42.89865	0.197486	89.2556
1:16:57	41.97764	0.203471	89.06182
1:19:23	42.71165	0.209575	89.34954
1:21:47	46.57902	0.215461	89.47011
1:24:08	40.73441	0.221487	89.3018
1:26:34	45.45822	0.227431	89.16593
1:28:58	46.14775	0.233587	89.43446
1:31:19	47.09556	0.239459	89.36785
1:33:43	38.31311	0.245474	89.03369
1:36:06	39.15676	0.251441	88.88672
1:38:30	46.58633	0.257439	89.35829
1:40:53	45.88156	0.26355	89.3665
1:43:17	44.8899	0.269502	89.24573
1:45:41	44.26615	0.275473	88.98744
1:48:07	39.91878	0.281492	89.14563
1:50:28	46.65821	0.287412	89.26775
1:52:54	41.96242	0.293403	89.11011
1:55:15	44.9965	0.299317	88.8956
1:57:36	47.34713	0.305301	89.18091

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2:02:23	46.57354	0.317293	89.15057
2:04:47	41.46841	0.323316	88.82961
2:07:06	45.74146	0.329272	89.25653
2:09:29	39.73178	0.335283	89.14119
2:11:53	45.50999	0.341283	89.18468
2:14:14	41.76932	0.347322	88.94722
2:16:35	39.51432	0.353254	89.26788
2:18:57	37.34825	0.359268	89.26183
2:21:18	44.59325	0.365219	89.30599
2:23:39	39.16529	0.371269	89.03308
2:26:02	36.51496	0.377273	89.11794
2:28:24	43.99996	0.383209	89.43718
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2:33:06	45.27426	0.395219	89.18992
2:35:27	36.44613	0.401178	88.9207
2:37:46	41.65846	0.407144	89.37347
2:40:05	44.47691	0.41312	89.34651
2:42:28	47.30998	0.419174	89.19954
2:44:47	39.51797	0.425112	88.85884
2:47:08	43.99813	0.431172	89.44643
2:49:27	45.9772	0.437146	89.30994
2:51:48	41.70841	0.443134	89.24536
2:54:09	45.76766	0.449162	88.75541
2:56:28	46.76419	0.455053	89.41158
2:58:49	43.72463	0.461049	89.38426
3:01:13	49.41087	0.467134	89.17789
3:03:32	51.63602	0.473076	88.64994
3:05:53	53.5493	0.479145	89.02463
3:08:14	55.11964	0.485075	88.8935
3:10:33	56.12897	0.490986	88.71914
3:12:54	57.73525	0.497002	88.39343
3:15:16	59.15331	0.503043	88.66277
3:17:39	60.36426	0.509049	88.62577
3:20:01	61.53927	0.515031	88.48607
3:22:20	63.02738	0.520959	88.26194
3:24:43	63.90209	0.527024	88.41952
3:27:05	65.08746	0.533028	88.44771
3:29:23	66.33618	0.538943	88.31825
3:31:47	67.50327	0.544956	88.08092
3:34:08	68.22997	0.550887	88.15247
3:36:32	69.49087	0.55692	88.24664
3:38:56	69.88863	0.562969	88.1109
3:41:19	71.54059	0.568885	87.92858
3:43:43	72.65043	0.574919	87.94203
3:46:04	73.54524	0.580876	88.08838
3:48:28	74.56858	0.586882	87.98101
3:50:52	75.18015	0.592824	87.7829
3:53:15	76.60612	0.598841	87.65338
3:55:41	77.60875	0.60491	87.91193
3:58:05	78.24469	0.610875	87.82453
4:00:29	78.97869	0.616871	87.6429

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4:05:11	80.33583	0.628851	87.77038
4:07:35	81.45481	0.634828	87.65795
4:09:56	81.87632	0.640776	87.5069
4:12:20	82.73703	0.646784	86.93813
4:14:43	83.76585	0.652833	87.58998
4:17:07	84.65579	0.658783	87.51696
4:19:31	85.15467	0.664778	87.37418
4:21:52	85.59933	0.670729	86.91833
4:24:16	86.24562	0.676714	87.45244
4:26:37	87.27566	0.682708	87.35518
4:29:03	87.84032	0.688745	87.24564
4:31:24	88.63159	0.694675	86.84987
4:33:48	89.4265	0.70064	87.26735
4:36:14	89.76152	0.706665	87.23275
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4:41:01	90.86161	0.718679	86.79257
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4:45:54	92.75845	0.730587	87.11298
4:48:22	92.88332	0.736676	86.96872
4:50:46	93.24941	0.742665	86.66194
4:53:12	93.86707	0.748583	86.99055
4:55:36	94.53711	0.754551	86.96878
4:58:02	94.75579	0.760625	86.8524
5:00:25	95.99598	0.766584	86.59724
5:02:51	96.17567	0.77265	86.87731
5:05:13	96.60267	0.778581	86.85024
5:07:36	97.15942	0.784505	86.7465
5:10:02	97.52368	0.790535	86.49449
5:12:28	97.98966	0.796575	86.76031
5:14:50	98.23088	0.802474	86.79109
5:17:16	98.8059	0.808535	86.64011
5:19:40	99.17747	0.814482	86.41851
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5:24:32	99.78294	0.82649	86.68729
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5:31:43	100.185	0.8444	86.50997
5:34:09	100.584	0.850476	86.56782
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5:46:07	102.2304	0.880347	86.40814
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5:53:28	103.2312	0.898357	86.44718
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6:00:49	103.9963	0.916316	86.18611
6:03:15	104.3618	0.922277	86.3036
6:05:43	104.5719	0.928295	86.19499

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6:10:40	104.9325	0.940313	86.09612
6:13:06	105.2097	0.946259	86.21917
6:15:37	105.5758	0.952315	86.06942
6:18:06	105.9242	0.958219	85.87329
6:20:37	106.244	0.964208	86.05122
6:23:10	106.7325	0.970241	86.12123
6:25:44	107.0164	0.976214	85.99757
6:28:19	107.2491	0.982272	85.70208
6:30:53	108.0939	0.988201	86.01823
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6:36:02	108.4996	1.000169	85.85799
6:38:38	108.6245	1.006181	85.48831
6:41:09	108.6574	1.012123	86.00904
6:43:42	108.5587	1.018132	85.95711
6:46:18	109.286	1.024184	85.81704
6:46:18	109.286	1.024184	85.81704

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0:02:12	18.86235	5.84E-05	59.61855
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0:04:40	41.99531	1.16E-02	61.15261
0:06:14	83.72077	1.75E-02	65.37804
0:07:34	100.7965	2.34E-02	68.36297
0:08:56	111.2389	2.94E-02	70.5909
0:10:08	117.7206	3.52E-02	72.0322
0:11:25	122.6333	0.041269	73.92331
0:12:37	126.2107	4.70E-02	74.89761
0:13:56	129.5292	5.29E-02	75.70883
0:15:11	132.0596	5.88E-02	76.42298
0:16:28	134.6398	6.49E-02	76.9344
0:17:45	137.1976	7.07E-02	77.33856
0:19:01	139.4672	7.65E-02	77.70985
0:20:18	141.6211	0.082433	77.93287
0:21:33	143.7786	8.83E-02	78.09304
0:22:52	145.7595	9.43E-02	77.97469
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0:25:26	150.4285	0.106019	78.82939
0:26:46	152.7566	0.112052	78.86301
0:28:05	154.9647	0.117772	78.93023
0:29:21	157.3409	0.123657	78.97162
0:30:41	160.0918	0.129727	78.97113
0:32:00	162.1823	0.135647	78.9892
0:33:13	164.5336	0.14137	78.94979
0:34:36	166.8355	0.147334	78.85826
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0:37:12	171.298	0.159165	79.01547
0:38:30	173.8392	0.164955	79.00147
0:39:48	176.2624	0.170924	78.90199
0:41:09	178.6392	0.176843	78.83303
0:42:27	180.7285	0.182777	78.77894
0:43:48	183.2381	0.188691	78.68772
0:45:03	185.4267	0.194504	78.59743
0:46:24	187.7134	0.200471	78.45274
0:47:42	189.9989	0.206382	78.3033
0:49:00	192.6705	0.212349	77.98221
0:50:18	195.0784	0.218085	78.3617
0:51:39	197.2652	0.224307	78.22922
0:52:57	199.3539	0.230126	78.11
0:54:13	201.7368	0.235851	77.99991
0:55:33	203.9669	0.241885	77.914
0:56:47	206.0885	0.247619	77.77942
0:58:08	208.4275	0.253576	77.675
0:59:26	210.8604	0.259423	77.48393
1:00:42	212.7785	0.26544	77.33597
1:01:59	215.1341	0.271171	76.86285
1:03:19	217.4079	0.277157	77.39277
1:04:38	219.6313	0.283061	77.25881
1:05:55	221.8065	0.288858	77.08495
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1:08:34	225.9955	0.300808	76.84528
1:09:51	228.0434	0.306552	76.71169
1:11:11	230.2253	0.312521	76.54251
1:12:33	232.5826	0.318485	76.3679
1:13:49	234.5513	0.324277	76.13286
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1:16:31	238.2463	0.336279	76.25541
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1:19:12	242.5188	0.347994	75.95036
1:20:32	244.8353	0.353849	75.83687
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1:32:32	261.9275	0.406983	74.83458
1:33:51	263.4838	0.41287	74.73978
1:35:09	265.1297	0.418731	74.59046
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1:39:09	270.565	0.436529	73.95736
1:40:27	272.3321	0.442246	74.2423
1:41:47	274.2204	0.44827	74.17335
1:43:05	275.8004	0.454197	74.01879
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1:47:00	280.1783	0.471776	73.72496
1:48:18	281.8217	0.477693	73.63596
1:49:38	283.2532	0.483655	73.49861
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1:52:14	285.9279	0.495479	72.92996
1:53:33	287.6438	0.501374	73.33597
1:54:51	288.9851	0.507166	73.29058
1:56:11	290.5231	0.513213	73.13904
1:57:29	291.7822	0.518993	73.05282
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2:18:50	312.5712	0.61354	71.8769
2:20:11	313.9375	0.619416	71.89837
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2:24:13	318.1405	0.637106	71.67146
2:25:35	319.3527	0.643021	71.59473
2:26:55	320.5021	0.648781	71.5317
2:28:16	321.7387	0.654815	71.41427
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2:32:17	325.1175	0.672444	71.40323
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3:01:35	348.7682	0.802285	70.01842
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3:23:03	364.1957	0.896679	69.66471
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0:42:53	203.8295	0.154045	75.78913
0:44:20	206.4158	0.160096	75.61415
0:45:49	209.3062	0.16606	75.89614
0:47:20	211.9963	0.172048	75.89028
0:48:46	214.2834	0.178003	75.8438
0:50:19	216.955	0.184001	75.80332
0:51:50	219.7502	0.190068	75.73887
0:53:20	222.2759	0.196027	75.69018
0:54:51	224.3849	0.202059	75.59801
0:56:20	227.3532	0.207958	75.45884
0:57:54	230.1521	0.214063	75.55986
0:59:26	232.4578	0.220003	75.52341
1:00:56	234.6707	0.225918	75.41926
1:02:25	237.2261	0.231905	75.34388
1:03:55	239.8581	0.237994	75.24676
1:05:20	242.0969	0.243954	75.16409
1:06:46	244.3086	0.249915	75.05487
1:08:12	246.9196	0.255947	74.91635
1:09:36	249.1189	0.261987	74.70088
1:11:01	251.4221	0.267898	74.89538
1:12:28	253.9762	0.273872	74.79657
1:13:54	256.4438	0.279904	74.67628
1:15:18	258.815	0.285822	74.58879

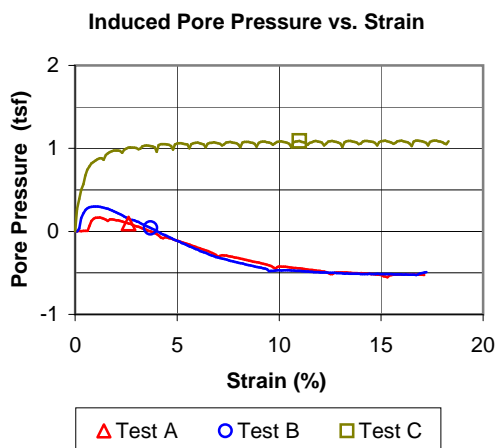
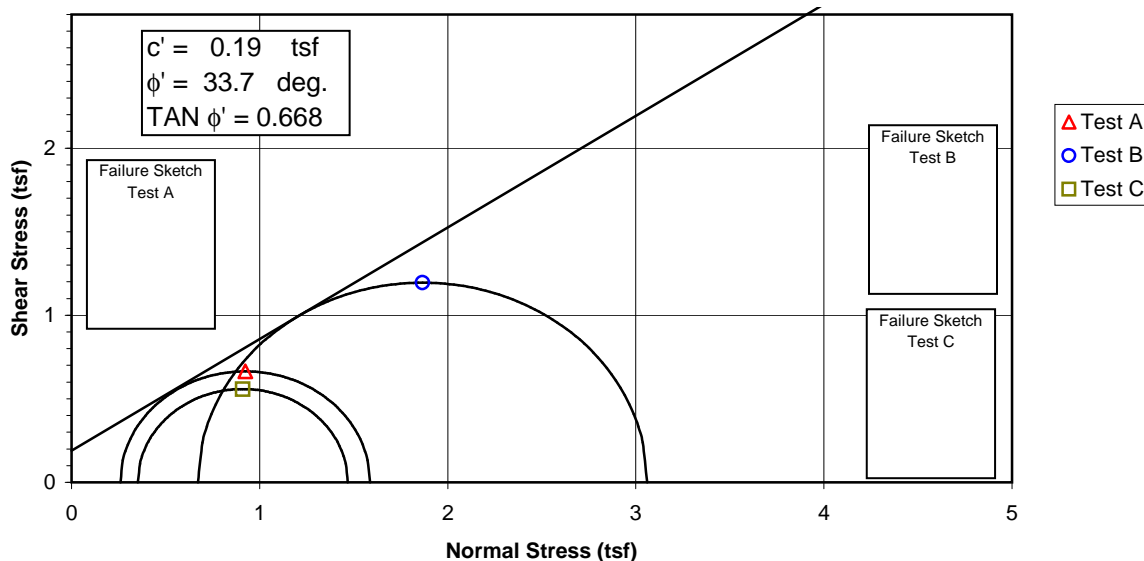
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1:18:05	263.3261	0.297797	74.36721
1:19:33	265.6243	0.303867	74.2503
1:20:58	267.5665	0.309786	74.11647
1:22:23	269.9389	0.31578	73.86742
1:23:48	272.2137	0.321781	74.04942
1:25:16	274.3969	0.327804	73.95269
1:26:45	276.5369	0.333729	73.80662
1:28:14	279.3222	0.339768	73.71575
1:29:43	281.1927	0.345795	73.59663
1:31:10	283.183	0.351736	73.48076
1:32:37	285.166	0.357741	73.35839
1:34:09	287.6002	0.363773	73.19617
1:35:39	289.7538	0.369671	72.94829
1:37:11	291.9457	0.375782	73.14709
1:38:40	294.354	0.381719	73.03513
1:40:09	296.7474	0.387703	72.86627
1:41:41	298.7056	0.393741	72.78855
1:43:10	300.492	0.399649	72.70002
1:44:35	302.993	0.40561	72.5658
1:46:03	304.8647	0.411665	72.4101
1:47:33	306.1949	0.417647	72.25387
1:49:03	308.3547	0.423639	72.22992
1:50:33	310.7234	0.429592	72.23265
1:52:06	312.6074	0.435572	72.10337
1:53:40	314.6003	0.441558	71.77947
1:55:10	316.1951	0.447571	71.62493
1:56:43	318.5823	0.453606	71.42262
1:58:15	320.6024	0.459572	71.47834
1:59:45	322.0624	0.465537	71.45413
2:01:17	323.8612	0.471598	71.34841
2:02:49	326.2707	0.477504	71.20273
2:04:19	328.1436	0.483501	71.06538
2:05:48	329.4689	0.489547	70.90252
2:07:14	331.2701	0.495524	70.87062
2:08:40	333.4311	0.501548	70.85565
2:10:05	334.9641	0.507544	70.79863
2:11:31	336.1905	0.513506	70.67482
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2:14:24	340.039	0.525487	70.36003
2:15:50	341.295	0.531471	70.00045
2:17:13	342.8527	0.537401	70.27658
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2:20:01	345.9595	0.549407	70.13402
2:21:26	347.1846	0.555378	70.0011
2:22:51	349.5459	0.561441	69.85958
2:24:17	350.7574	0.567421	69.68201
2:25:44	351.7328	0.573382	69.80816
2:27:10	353.6255	0.579333	69.70362
2:28:38	355.5405	0.585336	69.60975
2:30:08	356.7273	0.591407	69.71586
2:31:36	358.0675	0.59741	69.62095

2:33:02	359.394	0.603386	69.52891
2:34:32	360.7464	0.609377	69.38778
2:36:02	361.5278	0.615309	69.30498
2:37:33	363.1868	0.62126	69.11296
2:39:03	365.0252	0.627303	69.17896
2:40:36	365.9944	0.633343	69.14316
2:42:07	367.0489	0.639321	69.04643
2:43:33	368.3643	0.645215	68.92509
2:45:04	369.8095	0.65123	68.83657
2:46:36	370.7713	0.657271	68.72239
2:48:03	371.4599	0.663195	68.44704
2:49:34	373.1598	0.669274	68.6116
2:51:05	374.516	0.675258	68.55367
2:52:37	375.4222	0.681182	68.49326
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2:55:42	378.0208	0.693179	68.21908
2:57:13	379.1285	0.699161	67.92004
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3:00:18	380.7307	0.711172	68.18094
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3:03:20	383.3417	0.723112	67.97798
3:04:51	384.2738	0.729157	67.86523
3:06:20	384.8673	0.73508	67.53143
3:07:46	386.4497	0.741055	67.84935
3:09:12	387.409	0.747047	67.85638
3:10:36	388.0469	0.753124	67.79233
3:12:04	389.6281	0.759106	67.67308
3:13:32	390.7642	0.765023	67.58754
3:14:59	391.6816	0.771055	67.33849
3:16:26	392.4307	0.777021	67.54067
3:17:52	393.6596	0.783071	67.54471
3:19:17	394.2777	0.789013	67.5093
3:20:42	395.0454	0.794981	67.4291
3:22:08	396.2075	0.801023	67.3135
3:23:34	396.8961	0.806946	67.16834
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3:26:26	398.2202	0.818962	67.28811
3:27:55	399.0992	0.824953	67.26962
3:29:22	399.878	0.830917	67.185
3:30:49	400.5802	0.83699	67.08163
3:32:16	401.7856	0.842959	66.93621
3:33:44	402.8314	0.848903	66.92111
3:35:13	403.4669	0.854997	67.04778
3:36:41	404.7501	0.860905	67.02773
3:38:13	406.0049	0.866882	66.95066
3:39:44	406.9173	0.872892	66.86474
3:41:13	407.4687	0.878863	66.78689
3:42:46	408.7359	0.884827	66.5368
3:44:17	410.0154	0.890891	66.81136
3:45:44	410.8437	0.896809	66.80824
3:47:15	411.5261	0.902892	66.73442
3:48:46	412.7228	0.908801	66.65409

3:50:16	413.3892	0.914831	66.54695
3:51:48	413.812	0.920819	66.31808
3:53:19	415.0297	0.926745	66.59121
3:54:52	416.3896	0.932737	66.57598
3:56:25	417.1289	0.938776	66.51831
3:57:59	417.857	0.944793	66.45165
3:59:29	418.5877	0.950749	66.31261
4:01:02	419.7869	0.956811	66.21718
4:02:34	420.8167	0.962808	66.3712
4:04:05	421.2691	0.9688	66.34451
4:05:34	421.3643	0.974669	66.21588
4:07:06	422.3781	0.980803	66.13881
4:08:35	423.1965	0.986759	65.99925
4:10:02	423.7812	0.992737	66.16576
4:11:27	424.9779	0.998661	66.23255
4:12:56	426.2105	1.004609	66.22408
4:14:23	426.5727	1.010637	66.14975
4:15:49	426.9251	1.016594	66.06486
4:17:16	428.3764	1.022612	65.96892
4:18:42	428.9637	1.028583	65.75306
4:20:07	429.949	1.03463	65.99925
4:21:33	431.3324	1.040577	66.01305
4:23:00	432.3127	1.046553	65.95394
4:24:25	432.942	1.052589	65.89445
4:25:51	433.7233	1.058628	65.82948
4:27:17	435.0115	1.064536	65.71648
4:28:43	435.5097	1.070568	65.46209
4:30:09	436.3009	1.076632	65.79225
4:31:36	437.4271	1.082599	65.7709

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

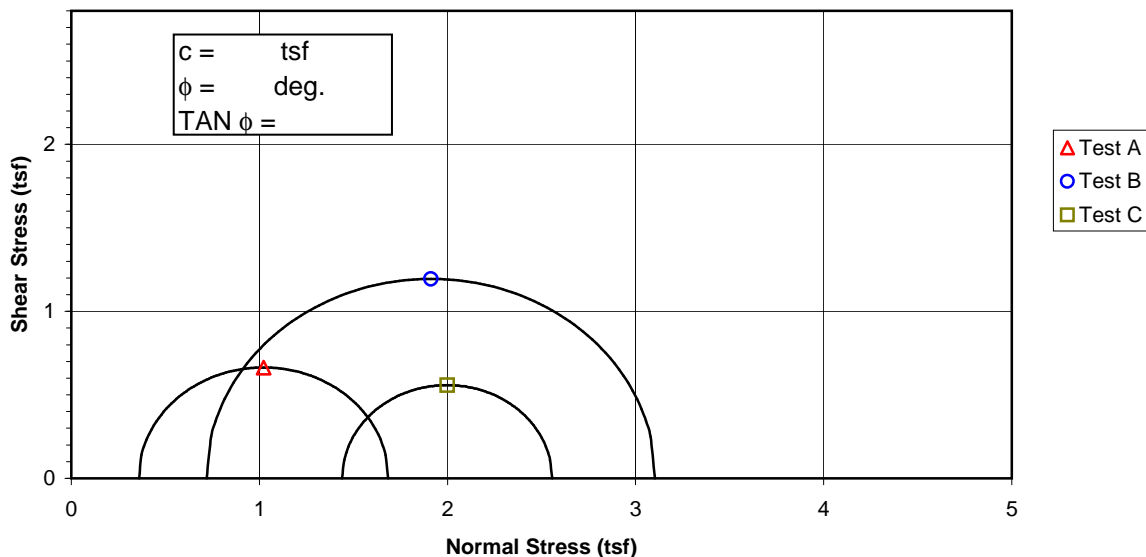


Specimen No.		A	B	C
Initial Data	Water content %	W_o 69.2	60.7	33.5
	Dry Density PCF	γ_{d_o} 55.4	59.0	87.5
	Saturation %	S_o 103.2	101.0	130.4
	Void Ratio	e_o 1.468	1.316	0.563
After Shear	Water content %	W_f 57.7	56.1	28.9
	Dry Density PCF	γ_{d_f} 60.4	61.3	83.8
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 1.264	1.229	0.632
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.26	0.67	0.35
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 1.32	2.38	1.12
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 8.6	5.9	115.3
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	1.09
Initial Diameter, in.		D_o 2.855	2.860	2.877
Initial Height, in.		H_o 5.959	5.969	5.994

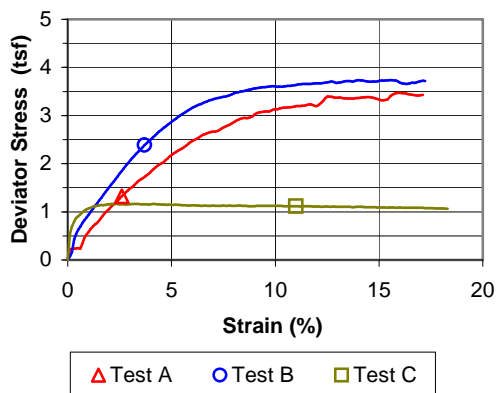
Controlled - Strain Test		Silt (ML), (fly ash), gray, moist, firm		
Description of Specimens		Silt (ML), (fly ash), gray, moist, firm		
		Type of Specimen	Undisturbed	Type of test
LL	PL	PI	Gs 2.19	\bar{R}
Project		John Siever Fossil Plant		
Boring No.		JS-36-SV, JS-36A-SV		
Sample No.		3		
Depth Elev.		19.1'-19.6', 29.0'-29.5', 40.4'-40.9'		
Laboratory		Stantec	Date	7-7-09
TRIAXIAL COMPRESSION TEST REPORT				

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



Specimen No.		A	B	C
Initial Data	Water content %	W_o 69.2	60.7	33.5
	Dry Density PCF	γ_{d_o} 55.4	59.0	87.5
	Saturation %	S_o 103.2	101.0	130.4
	Void Ratio	e_o 1.468	1.316	0.563
After Shear	Water content %	W_f 57.7	56.1	28.9
	Dry Density PCF	γ_{d_f} 60.4	61.3	83.8
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 1.264	1.229	0.632
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF		σ_3 0.36	0.72	1.44
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$ 1.32	2.38	1.12
Time to $(\sigma_1 - \sigma_3)_{Max}$ min.		t_f 8.6	5.9	115.3
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$ n/a	n/a	1.09
Initial Diameter, in.		D_o 2.855	2.860	2.877
Initial Height, in.		H_o 5.959	5.969	5.994

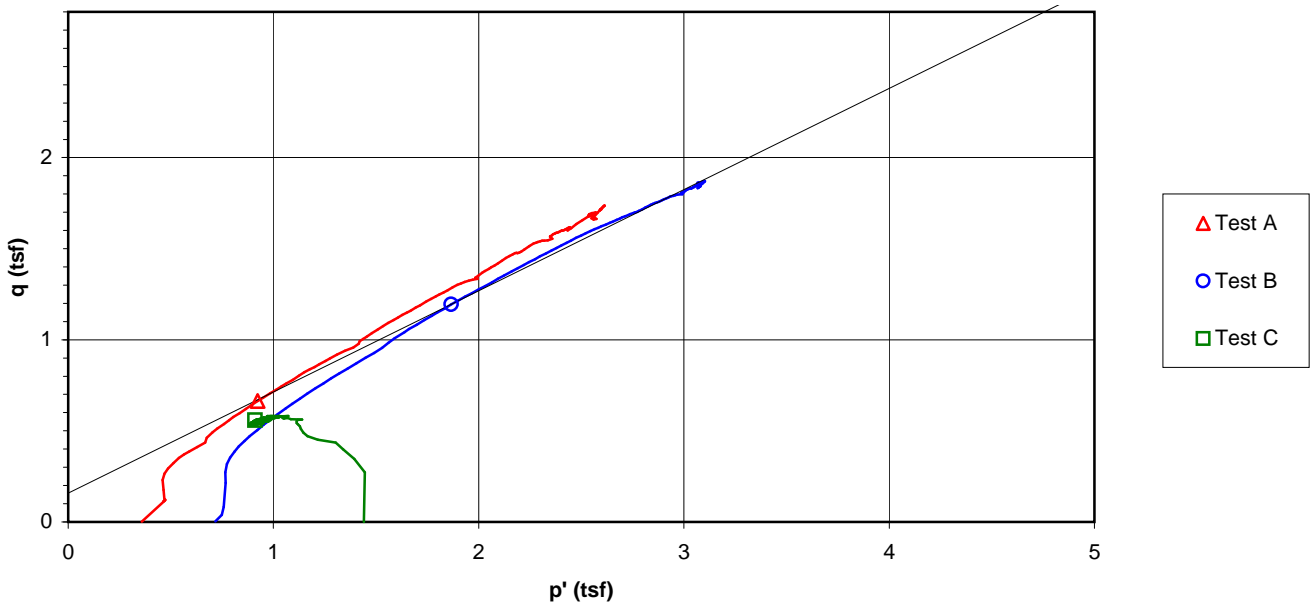
Controlled - Strain Test		Silt (ML), (fly ash), gray, moist, firm		
Description of Specimens		Silt (ML), (fly ash), gray, moist, firm		
		Type of Specimen	Undisturbed	Type of test
LL	PL	PI	Gs 2.19	\bar{R}
Remarks:		Project John Siever Fossil Plant		
		Boring No. JS-36-SV, JS-36A-SV		
		Sample No. 3		
		Depth Elev. 19.1'-19.6', 29.0'-29.5', 40.4'-40.9'		
		Laboratory	Stantec	Date 7-7-09
TRIAXIAL COMPRESSION TEST REPORT				

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

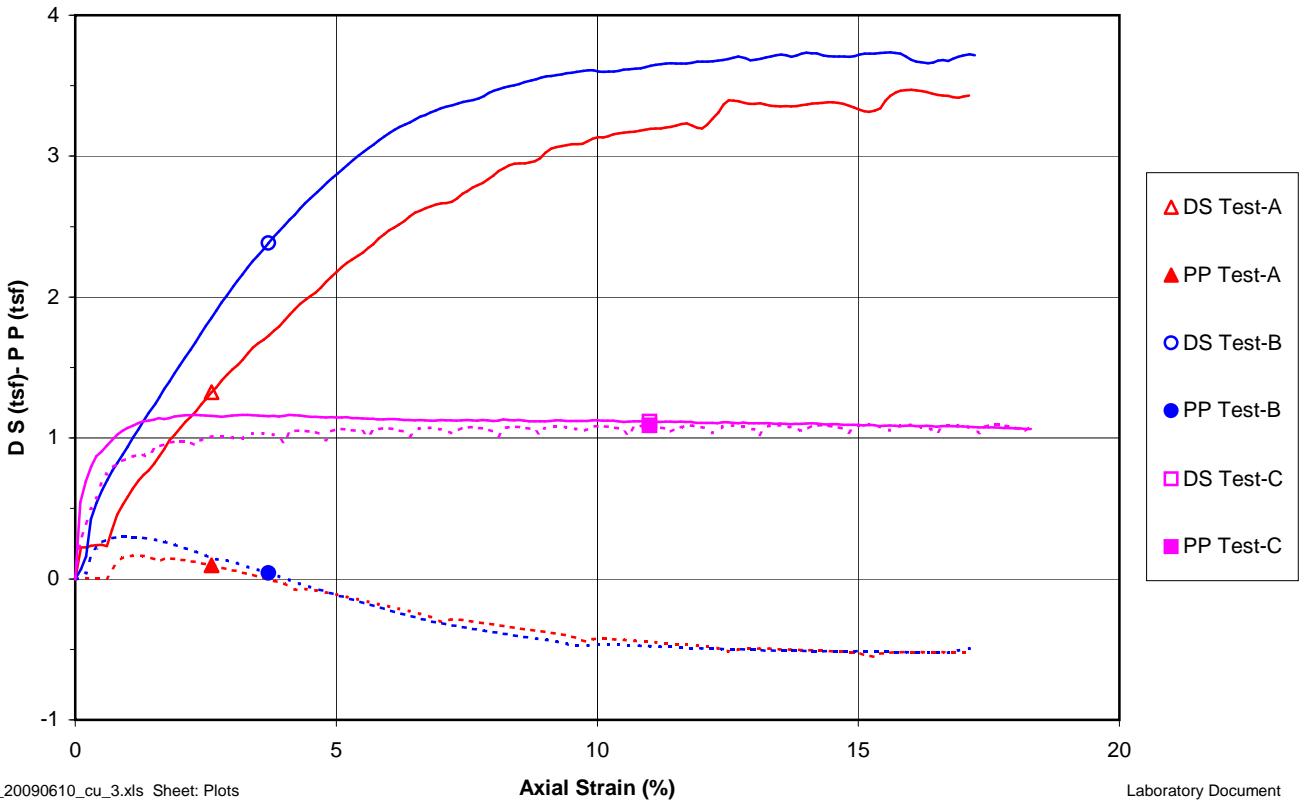
Project John Siever Fossil Plant
 Sample ID JS-36-SV, 19.1'-19.6' & JS-36-SV, 29.0'-29.5' & JS-36A-SV, 40.4'-40.9'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 33.7$ deg.

Project No. 175569038
 Test Number 3
 $c' = 0.19$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-36-SV, 19.1'-19.6'</u>			Test Number	<u>CU-3A</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>CM</u>
Undisturbed	Source	<u>JS-36-SV, 18.5' - 20.5'</u>		Date	<u>6-16-2009</u>
Specific Gravity	<u>2.19</u> ASTM D854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
		Plasticity Index	<u>N/A</u>		

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.852</u>	1 <u>5.950</u>	Sample <u>38.1297</u> (V _o)	Wet Weight (g) <u>938.20</u>
Middle <u>2.855</u>	2 <u>6.005</u>	Solids <u>15.4504</u> (V _{S_o})	Dry Weight (g) <u>554.51</u>
Bottom <u>2.856</u>	3 <u>5.932</u>	Water <u>23.4126</u> (V _{w_o})	Wet Unit Weight (pcf) <u>93.7</u>
Avg. <u>2.8543</u> (D _o)	4 <u>5.950</u>	Voids <u>22.6793</u> (V _{v_o})	Dry Unit Weight (pcf) <u>55.4</u>
Area (in ²) <u>6.3988</u> (A _o)	Avg. (H _o) <u>5.9589</u>	Degree of Saturation (%) <u>103.2</u> (S _o)	
Moisture Content (%) <u>69.2</u>	Final Trimmings	Void Ratio <u>1.468</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>85</u> (psi)	Final Pore Pressure Parameter B	<u>0.96</u>	Date <u>6-29-09</u>
			Panel Board Number	<u>F</u>

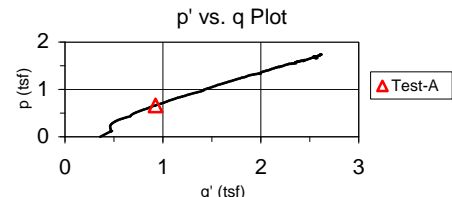
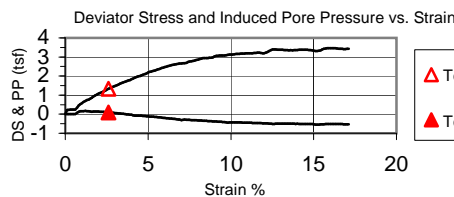
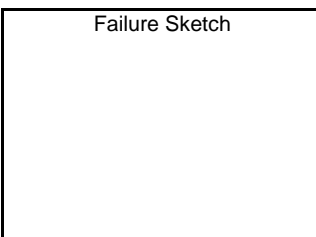
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>5.9559</u> (H _s)
Initial <u>0.149</u>	Initial <u>15.5</u> (in.)	Initial <u>12.5</u> (in.)	Area (in ²) Method A	<u>6.3924</u> (A _s)
Final <u>0.152</u>	Final <u>6.92</u> (in.)	Final <u>8.47</u> (in.)	Specimen Volume (in ³)	<u>38.07</u> (V _s)
Change <u>-0.0030</u> (ΔH _o)	Change <u>-8.58</u> (in.)	Change <u>-4.03</u> (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.152</u>	Initial <u>1.11</u> (in.)	Initial <u>17.35</u> (in.)	Chamber <u>90</u>
Final <u>0.201</u>	Final <u>2.98</u> (in.)	Final <u>15.73</u> (in.)	Back <u>85</u>
Change <u>-0.0490</u> (ΔH _c)	Change <u>-1.87</u> (in.)	Change <u>-1.62</u> (in.)	Lateral <u>5</u> (σ ₃)
Height (in.)	<u>5.9069</u> (H _c)	Volume (in ³)	<u>34.9797</u> (V _c)
Area (in ³) Method B	<u>5.9219</u> (A _c)	Volume - Water (in ³)	<u>19.5292</u> (V _{wc})
Diameter (in.)	<u>2.7459</u> (D _c)	Water Content (%)	<u>57.7</u>
Dry Density (pcf)	<u>60.4</u>	Degree of Saturation (%)	<u>100.0</u> (S _c)
			t ₅₀ (min.) <u>0.157</u>
			Void Ratio <u>1.264</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.324</u> (in.)	Wet Weight (g) <u>874.56</u>	Corrected Deviator <u>1.32</u> σ _d (tsf)
Wet weight (g) <u>874.56</u> (WW _f)	Dry Weight (g) <u>554.51</u>	Major Principal <u>1.59</u> σ _{1'_f} (tsf)
Corrected Diameter <u>3.300</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.26</u> σ _{3'_f} (tsf)
		Rate of Strain (% / min.) <u>0.310</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>2.61</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-36-SV, 29.0'-29.5'</u>			Test Number	<u>CU-3B</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-36-SV, 28.5' - 30.5'</u>		Date	<u>6-29-2009</u>
Specific Gravity	<u>2.19</u> ASTM D854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
		Plasticity Index	<u>N/A</u>		

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.855</u>	1 <u>5.965</u>	Sample <u>38.3350</u> (V _o)	Wet Weight (g) <u>954.80</u>
Middle <u>2.861</u>	2 <u>5.971</u>	Solids <u>16.5573</u> (V _{S_o})	Dry Weight (g) <u>594.24</u>
Bottom <u>2.863</u>	3 <u>5.975</u>	Water <u>22.0014</u> (V _{w_o})	Wet Unit Weight (pcf) <u>94.9</u>
Avg. <u>2.8597</u> (D _o)	4 <u>5.965</u>	Voids <u>21.7777</u> (V _{v_o})	Dry Unit Weight (pcf) <u>59.1</u>
Area (in ²) <u>6.4227</u> (A _o)	Avg. (H _o) <u>5.9686</u>	Degree of Saturation (%) <u>101.0</u> (S _o)	
Moisture Content (%) <u>60.7</u>	Final Trimmings	Void Ratio <u>1.315</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>80</u> (psi)	Final Pore Pressure Parameter B	<u>0.97</u>	Date <u>6-29-09</u>
			Panel Board Number	<u>F</u>

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>5.9700</u> (H _s)
Initial <u>0.1435</u>	Initial <u>15.86</u> (in.)	Initial <u>8.96</u> (in.)	Area (in ²) Method A	<u>6.4258</u> (A _s)
Final <u>0.1421</u>	Final <u>13.41</u> (in.)	Final <u>5.54</u> (in.)	Specimen Volume (in ³)	<u>38.36</u> (V _s)
Change <u>0.0014</u> (ΔH _o)	Change <u>-2.45</u> (in.)	Change <u>-3.42</u> (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.1421</u>	Initial <u>1.29</u> (in.)	Initial <u>16.95</u> (in.)	Chamber <u>90</u>
Final <u>0.153</u>	Final <u>3.20</u> (in.)	Final <u>15.16</u> (in.)	Back <u>80</u>
Change <u>-0.0109</u> (ΔH _c)	Change <u>-1.91</u> (in.)	Change <u>-1.79</u> (in.)	Lateral <u>10</u> (σ ₃)
Height (in.)	<u>5.9591</u> (H _c)	Volume (in ³)	<u>36.9100</u> (V _c)
Area (in ³) Method B	<u>6.1939</u> (A _c)	Volume - Water (in ³)	<u>20.3527</u> (V _{Wc})
Diameter (in.)	<u>2.8082</u> (D _c)	Water Content (%)	<u>56.1</u>
Dry Density (pcf)	<u>61.3</u>	Degree of Saturation (%)	<u>100.0</u> (S _c)
			D ₅₀ (min.) <u>0.1</u>
			Void Ratio <u>1.229</u>

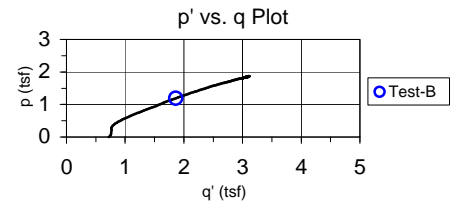
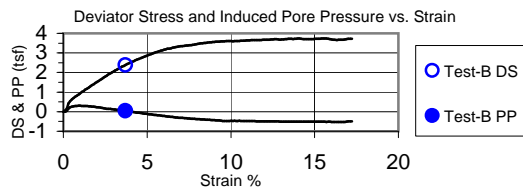
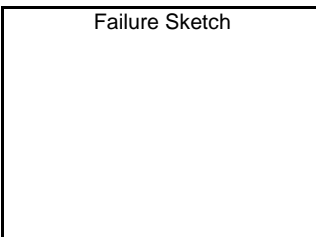
After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.318</u> (in.)	Wet Weight (g) <u>927.78</u>	Corrected Deviator <u>2.38</u> σ _d (tsf)
Wet weight (g) <u>927.78</u> (WW _f)	Dry Weight (g) <u>594.24</u>	Major Principal <u>3.06</u> σ _{1f} (tsf)
Corrected Diameter <u>3.294</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.67</u> σ _{3f} (tsf)

Youngs Modulus for Membrane (psi) 200
 Membrane Thickness (in.) 0.012

Rate of Strain (% / min.) 0.756
 Axial Strain at Failure (%) 3.70

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-36A-SV, 40.4'-40.9'</u>			Test Number	<u>CU-3C</u>
Visual Description	<u>Silt (ML), (fly ash), dark gray, moist, firm</u>			Prepared By	<u>CM</u>
Undisturbed	Source	<u>JS-36A-SV, 39.5' - 41.5'</u>		Date	<u>6-17-2009</u>
Specific Gravity	<u>2.19</u> ASTM D854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
		Plasticity Index	<u>N/A</u>		

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.876</u>	1 <u>5.960</u>	Sample <u>38.9718</u> (V _o)	Wet Weight (g) <u>1194.8</u>
Middle <u>2.877</u>	2 <u>6.031</u>	Solids <u>24.9382</u> (V _{S_o})	Dry Weight (g) <u>895.03</u>
Bottom <u>2.879</u>	3 <u>6.024</u>	Water <u>18.2920</u> (V _{w_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8773</u> (D _o)	4 <u>5.960</u>	Voids <u>14.0336</u> (V _{v_o})	Dry Unit Weight (pcf) <u>87.5</u>
Area (in ²) <u>6.5023</u> (A _o)	Avg. (H _o) <u>5.9935</u>	Degree of Saturation (%) <u>130.3</u> (S _o)	
Moisture Content (%) <u>33.5</u>	Final Trimmings	Void Ratio <u>0.563</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>70</u> (psi)	Final Pore Pressure Parameter B	<u>0.97</u>	Date <u>7-1-09</u>
			Panel Board Number	<u>A</u>

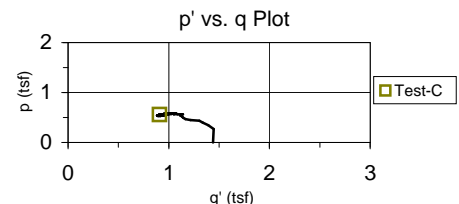
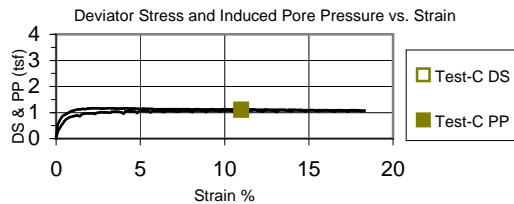
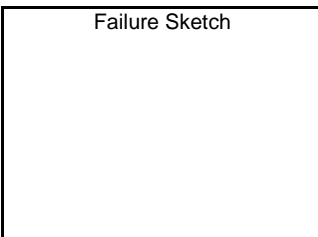
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>5.9912</u> (H _s)
Initial <u>0.1227</u>	Initial <u>15.33</u> (in.)	Initial <u>14.14</u> (in.)	Area (in ²) Method A	<u>6.4974</u> (A _s)
Final <u>0.125</u>	Final <u>14.32</u> (in.)	Final <u>8.81</u> (in.)	Specimen Volume (in ³)	<u>38.93</u> (V _s)
Change <u>-0.0023</u> (ΔH _c)	Change <u>-1.01</u> (in.)	Change <u>-5.33</u> (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.125</u>	Initial <u>1.24</u> (in.)	Initial <u>17.19</u> (in.)	Chamber <u>90</u>
Final <u>0.1261</u>	Final <u>8.91</u> (in.)	Final <u>8.18</u> (in.)	Back <u>70</u>
Change <u>-0.0011</u> (ΔH _c)	Change <u>-7.67</u> (in.)	Change <u>-9.01</u> (in.)	Lateral <u>20</u> (σ ₃)
Height (in.)	<u>5.9901</u> (H _c)	Volume (in ³)	<u>40.6967</u> (V _c)
Area (in ³) Method B	<u>6.7940</u> (A _c)	Volume - Water (in ³)	<u>15.7585</u> (V _{Wc})
Diameter (in.)	<u>2.9412</u> (D _c)	Water Content (%)	<u>28.9</u>
Dry Density (pcf)	<u>83.8</u>	Degree of Saturation (%)	<u>100.0</u> (S _c)
		D ₅₀ (min.)	<u>2.8</u>
		Void Ratio	<u>0.632</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.292</u> (in.)	Wet Weight (g) <u>1153.28</u>	Corrected Deviator <u>1.12</u> σ _d (tsf)
Wet weight (g) <u>1153.28</u> (WWf)	Dry Weight (g) <u>895.03</u>	Major Principal <u>1.47</u> σ _{1f} (tsf)
Corrected Diameter <u>3.268</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.35</u> σ _{3f} (tsf)
		Rate of Strain (% / min.) <u>0.095</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>11.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-16-09
 Boring No. JS-36-SV, 18.5' - 20.5' Sample No. JS-36-SV, 19.1'-19.6'

Type of Test	<u>Consolidated Undrained</u>		Confining Pressure	<u>0.36 tons/ft²</u>					
Test No.	<u>CU-3A</u>		Classification	<u>Silt (ML), (fly ash), gray, moist,</u>					
			Before Test	After Test					
			Specimen	Trimmings		Specimen			
Tare No.	n/a			344	n/a				
Tare plus wet weight	938.2			250.68	874.56				
Tare plus dry weight	554.51			184.25	554.51				
Water	W _w	383.69	W _{wo}	66.43	W _{wE}	320.05			
Tare	0			72.85	0.00				
Wet Soil	W	938.20		177.83	874.56				
Dry Soil	W _s	554.51		111.40	554.51				
Water content	w	69.2	% W _o	59.6	W _f	57.7 %			
Initial Condition of Specimen									
Diameter, cm	D _o	Top	7.244	Center	7.252	Bottom	7.254	Avg	7.250
Height, cm	H _o	15.136		Volume of solids, cc		V _s	253.20		
Area, sq cm = 0.7854 * D _o ²	A _o	41.287		Void Ratio = (V _o -V _s)+V _s		e _o	1.468		
Volume, cc = H _o *A _o	V _o	624.91		Saturation, %		S _o	103.2		
Specific gravity of solids	G _s	2.19		Dry density, lb/cu ft		g _d	55.4		
Condition of Specimen After Consolidation (R and S Tests)									
ΔH during Saturation & Consolidation, in.		ΔH _o	-0.052		Volume, cc = H _c *A _c		V _c	573.25	
Height, cm = H _o - 2.54*ΔH _o		H _c	15.003		Void Ratio = (V _c -V _s)+V _s		e _c	1.264	
Area, sq cm		A _c	38.208		Saturation, %		S _c	100.0	
Condition of Specimen After Test (R and S Test)									
Diameter, cm	D _f	Top	7.940	Center	8.313	Bottom	8.443	Avg	8.252
Change of height during Shear Test, in		ΔH	1.011		Volume, cc = H _f *A _f		V _f	573.25	
Height, cm = H _c - 2.54*ΔH		H _f	12.435		Void Ratio = (V _f -V _s)+V _s		e _f	1.264	
Area, cm ² from test data		A _f	46.100		Saturation, %		S _f	100.0	
Remarks									
Technician	<u>CM KDG KDG KDG</u>			Computed By	<u>KDG</u>		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-29-09
 Boring No. JS-36-SV, 28.5' - 30.5' Sample No. JS-36-SV, 29.0'-29.5'

Type of Test		Consolidated Undrained		Confining Pressure		0.72		tons/ft ²		
Test No.		CU-3B		Classification		silt (ML), (fly ash), gray, moist,				
		Before Test			After Test					
		Specimen		Trimmings		Specimen				
Tare No.		n/a				408		n/a		
Tare plus wet weight		954.80				174.16		927.78		
Tare plus dry weight		594.24				138.49		594.24		
Water		W _w	360.56	W _{wo}		35.67	W _{wf}	333.54		
Tare		0.00				68.61		0.00		
Wet Soil		W	954.80			105.55		927.78		
Dry Soil		W _s	594.24			69.88		594.24		
Water content		w	60.7	% W _o		51.0	W _f	56.1 %		
Initial Condition of Specimen										
Diameter, cm	D _o	Top	7.252	Center	7.267	Bottom	7.272	Avg	7.264	
Height, cm		H _o	15.160		Volume of solids, cc			V _s	271.34	
Area, sq cm = 0.7854*D _o ²		A _o	41.447		Void Ratio = (V _o -V _s)/V _s			e _o	1.316	
Volume, cc = H _o *A _o		V _o	628.35		Saturation, %			S _o	101.0	
Specific gravity of solids		G _s	2.19		Dry density, lb/cu ft			G _d	59.0	
Condition of Specimen After Consolidation (R and S Tests)										
ΔH during Saturation & Consolidation, in.		ΔH _o	-0.010		Volume, cc = H _c *A _c			V _c	604.88	
Height, cm = H _o - 2.54*ΔH _o		H _c	15.136		Void Ratio = (V _c -V _s)/V _s			e _c	1.229	
Area, sq cm		A _c	39.963		Saturation, %			S _c	100.0	
Condition of Specimen After Test (R and S Test)										
Diameter, cm	D _f	Top	7.389	Center	8.428	Bottom	7.993	Avg	8.059	
Change of height during Shear Test, in		ΔH	1.027		Volume, cc = H _f *A _f			V _f	604.88	
Height, cm = H _c - 2.54*ΔH		H _f	12.528		Void Ratio = (V _f -V _s)/V _s			e _f	1.229	
Area, cm ² from test data		A _f	48.281		Saturation, %			S _f	100.0	
Remarks										
Technician		<u>KDG KDG RC RC</u>		Computed By		<u>KDG</u>		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-17-09
 Boring No. JS-36A-SV, 39.5' - 41.5' Sample No. JS-36A-SV, 40.4'-40.9'

Type of Test	Consolidated Undrained		Confining Pressure		1.44	tons/ft ²			
Test No.	CU-3C		Classification						
silt (ML), (fly ash), dark gray, mo									
			Before Test		After Test				
			Specimen		Specimen				
			Trimmings						
Tare No.	n/a				n/a				
Tare plus wet weight	1194.8		394		1153.28				
Tare plus dry weight	895.03		228.81		895.03				
Water	W _w	299.77	W _{wo}	37.15	W _{wf}	258.25			
Tare	0		70.36		0.00				
Wet Soil	W	1194.80	158.45		1153.28				
Dry Soil	W _s	895.03	121.30		895.03				
Water content	w	33.5	% W _o	30.6	W _f	28.9			
Initial Condition of Specimen									
Diameter, cm	D _o	Top	7.305	Center	7.308	Bottom	7.313	Avg	7.308
Height, cm	H _o	15.223		Volume of solids, cc		V _s	408.69		
Area, sq cm = 0.7854*D _o ²	A _o	41.948		Void Ratio = (V _o -V _s)+V _s		e _o	0.563		
Volume, cc = H _o *A _o	V _o	638.60		Saturation, %		S _o	130.4		
Specific gravity of solids	G _s	2.19		Dry density, lb/cu ft		G _d	87.5		
Condition of Specimen After Consolidation (R and S Tests)									
ΔH during Saturation & Consolidation, in.		ΔH _o	-0.003		Volume, cc = H _c *A _c		V _c	666.94	
Height, cm = H _o - 2.54*ΔH _o		H _c	15.215		Void Ratio = (V _c -V _s)+V _s		e _c	0.632	
Area, sq cm		A _c	43.835		Saturation, %		S _c	100.0	
Condition of Specimen After Test (R and S Test)									
Diameter, cm	D _f	Top	7.744	Center	8.362	Bottom	7.412	Avg	7.970
Change of height during Shear Test, in		ΔH	1.096		Volume, cc = H _f *A _f		V _f	666.94	
Height, cm = H _c - 2.54*ΔH		H _f	12.430		Void Ratio = (V _f -V _s)+V _s		e _f	0.632	
Area, cm ² from test data		A _f	53.654		Saturation, %		S _f	100.0	
Remarks									
Technician	CM RC RC RC			Computed By	RC		Checked By		

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.990 (in.)	15.215 (cm)
Diameter	2.941 (in.)	7.471 (cm)
Area	6.794 (in ²)	43.835 (cm ²)

Final Values	
Height	4.894 (in.)
Dia. avg.	3.138 (in.)
Area avg.	7.733 (in ²)

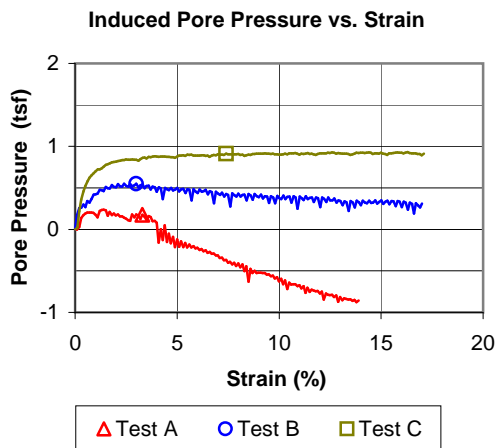
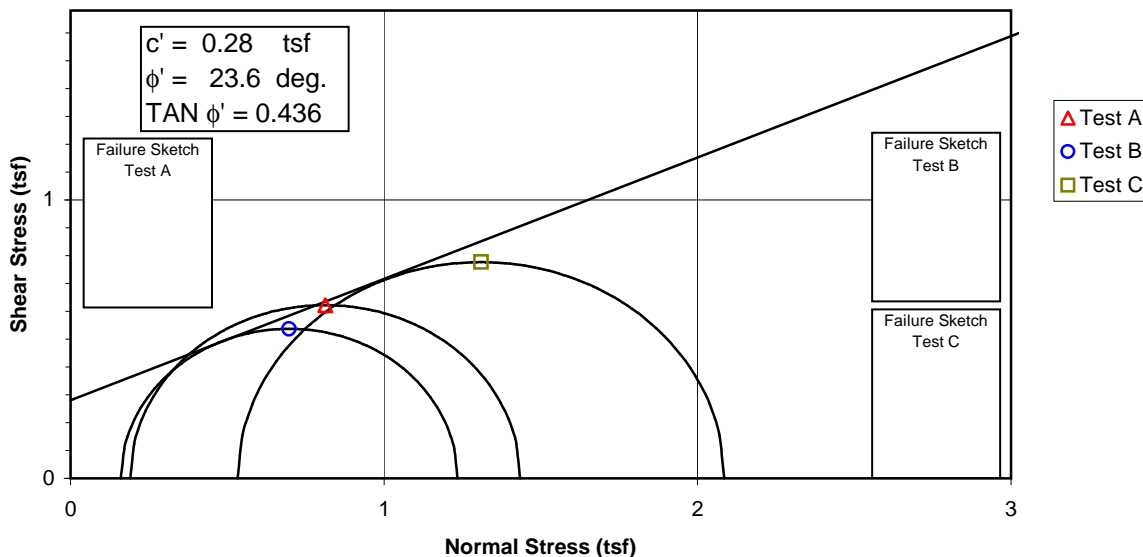
Tested By	RC
Date	7-6-09
Press No.	1
Panel No.	A

Project Number	175569038
Test Number	CU-3C
Data File ID	3C
Lateral Pressure (psi)	20.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
3:09:11	135.9	1.061	84.9	4.912	18.00	53.4576	127.6	1.110	1.067	2.507	1.433	0.366	0.899	0.534	3.916
3:10:12	136.2	1.067	84.7	4.906	18.10	53.5222	127.9	1.111	1.069	2.509	1.450	0.382	0.916	0.534	3.797
3:11:17	135.8	1.073	84.6	4.900	18.20	53.5880	127.6	1.107	1.064	2.504	1.453	0.389	0.921	0.532	3.732
3:12:20	136.0	1.079	85.1	4.894	18.30	53.6539	127.7	1.107	1.064	2.504	1.418	0.355	0.886	0.532	3.999

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

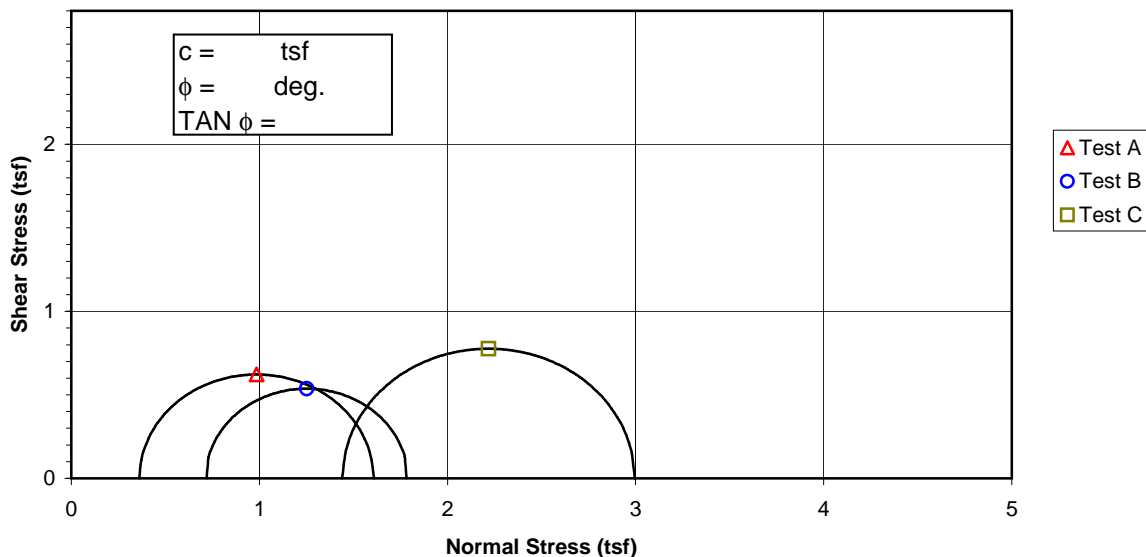


Specimen No.		A	B	C
Initial Data	Water content %	W_o 17.2	28.0	29.6
	Dry Density PCF	γ_{d_o} 112.8	94.6	89.9
	Saturation %	S_o 94.9	97.3	91.8
	Void Ratio	e_o 0.489	0.775	0.868
After Shear	Water content %	W_f 18.2	25.6	27.9
	Dry Density PCF	γ_{d_f} 112.8	99.4	96.0
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.489	0.689	0.750
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.19	0.16	0.53
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 1.25	1.06	1.56
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 90.6	92.6	38.1
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	1.47
Initial Diameter, in.		D_o 2.880	2.868	2.865
Initial Height, in.		H_o 6.067	6.000	6.087

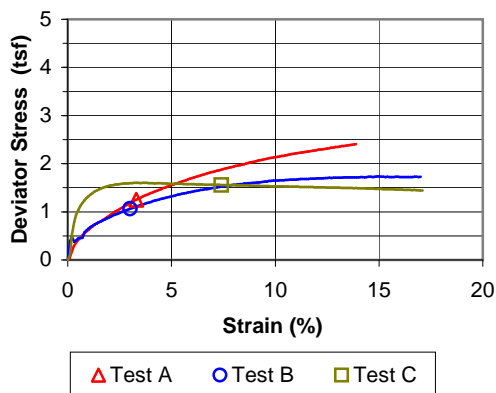
Controlled - Strain Test						
Description of Specimens		Lean Clay (CL), brown, moist, firm				
		Type of Specimen	Undisturbed	Type of test	\bar{R}	
LL	PL	PI	Gs	2.69	Project	John Siever Fossil Plant
Remarks:		Boring No.			JS-37-SV, JS-36-SV	
		Sample No.			1015	
		Depth Elev.			35.0'-35.5', 40.5'-41.0', 41.0'-41.5'	
		Laboratory			Stantec	
		Date			7-7-09	
TRIAXIAL COMPRESSION TEST REPORT						

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



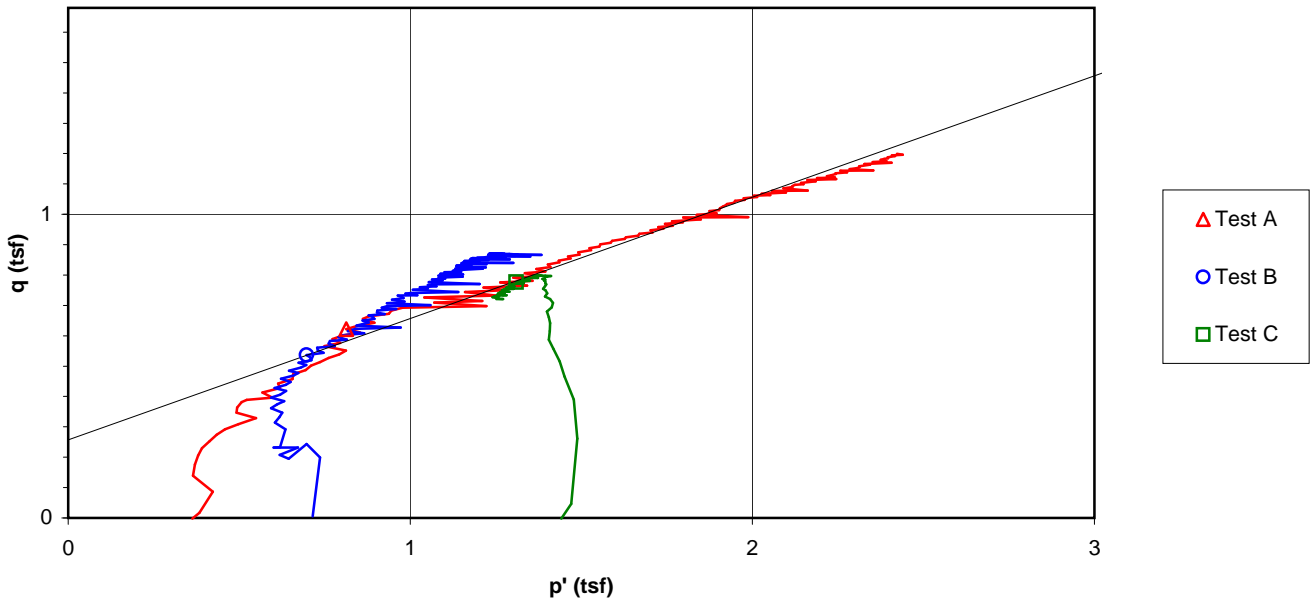
Specimen No.		A	B	C	
Initial Data	Water content %	W_o	17.2	28.0	29.6
	Dry Density PCF	γ_{d_o}	112.8	94.6	89.9
	Saturation %	S_o	94.9	97.3	91.8
	Void Ratio	e_o	0.489	0.775	0.868
After Shear	Water content %	W_f	18.2	25.6	27.9
	Dry Density PCF	γ_{d_f}	112.8	99.4	96.0
	Saturation %	S_f	100.0	100.0	100.0
	Void Ratio	e_f	0.489	0.689	0.750
Final Back Pressure TSF		u_c	6.12	5.76	5.04
Minor Principal Stress TSF		σ_3	0.36	0.72	1.44
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$	1.25	1.06	1.56
Time to $(\sigma_1 - \sigma_3)_{Max}$ min.		t_f	90.6	92.6	38.1
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$	n/a	n/a	1.47
Initial Diameter, in.		D_o	2.880	2.868	2.865
Initial Height, in.		H_o	6.067	6.000	6.087
Controlled - Strain Test					
Description of Specimens Lean Clay (CL), brown, moist, firm					
		Type of Specimen Undisturbed	Type of test \bar{R}		
LL	PL	PI	Gs 2.69	Project John Siever Fossil Plant	
Remarks:		Boring No. JS-37-SV, JS-36-SV			
			Sample No.	1015	
		Depth Elev. 35.0'-35.5', 40.5'-41.0', 41.0'-41.5'			
		Laboratory Stantec	Date 7-7-09		
TRIAXIAL COMPRESSION TEST REPORT					

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

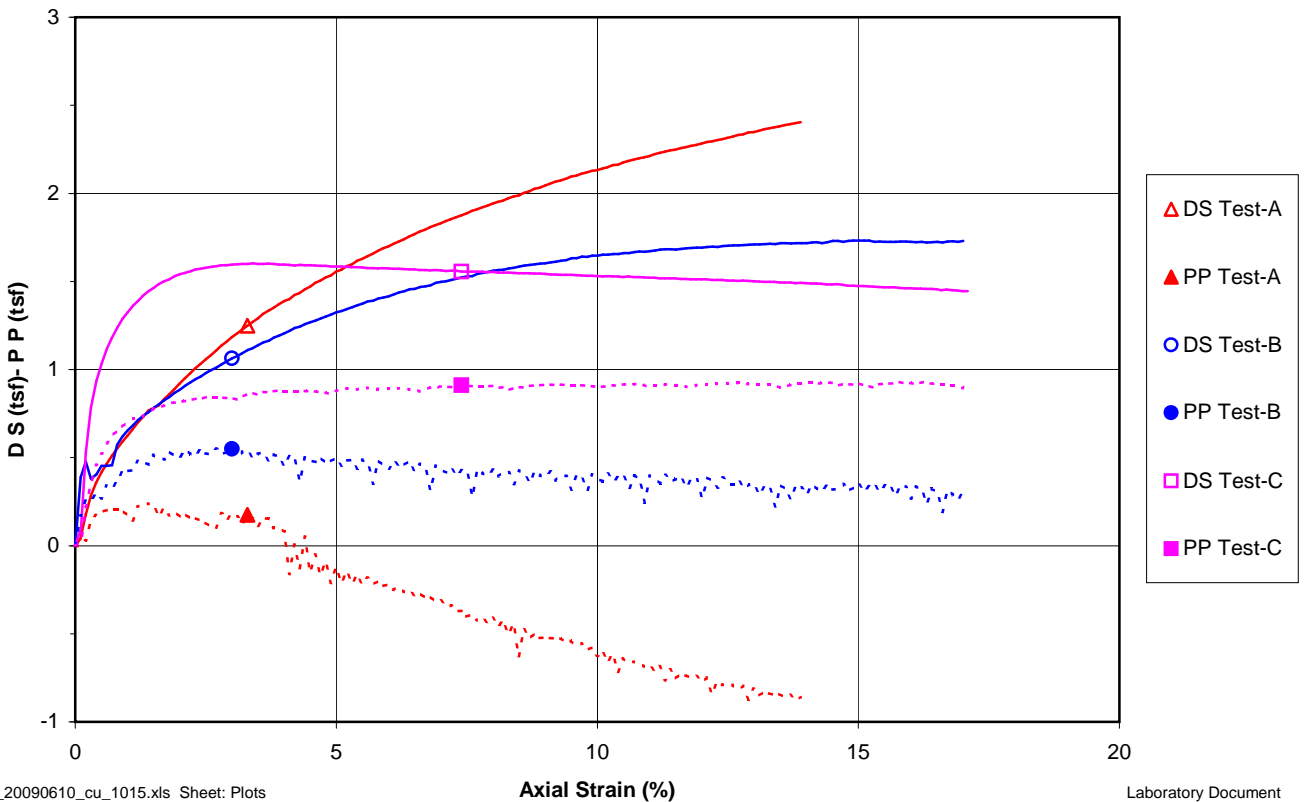
Project John Siever Fossil Plant
 Sample ID JS-37-SV, 35.0'-35.5', JS-37-SV, 40.5'-41.0', 41.0'-41.5'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 23.6$ deg.

Project No. 175569038
 Test Number 1015
 $c' = 0.28$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-37-SV, 35.0' - 35.5'</u>			Test Number	<u>CU-1015A</u>
Visual Description	<u>Lean Clay (CL), brown, moist, firm</u>			Prepared By	<u>CM</u>
Undisturbed	Source	<u>JS-37-SV, 35.0' - 37.0'</u>		Date	<u>6-16-2009</u>
Specific Gravity	<u>2.69</u> ASTM D854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
		Plasticity Index	<u>N/A</u>		

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.878</u>	1 <u>6.072</u>	Sample <u>39.5146</u> (V _o)	Wet Weight (g) <u>1372.30</u>
Middle <u>2.882</u>	2 <u>6.047</u>	Solids <u>26.5505</u> (V _S)	Dry Weight (g) <u>1170.45</u>
Bottom <u>2.879</u>	3 <u>6.078</u>	Water <u>12.3168</u> (V _w)	Wet Unit Weight (pcf) <u>132.3</u>
Avg. <u>2.8797</u> (D _o)	4 <u>6.072</u>	Voids <u>12.9640</u> (V _v)	Dry Unit Weight (pcf) <u>112.8</u>
Area (in ²) <u>6.5129</u> (A _o)	Avg. (H _o) <u>6.0671</u>	Degree of Saturation (%) <u>95.0</u> (S _o)	
Moisture Content (%) <u>17.2</u>	Final Trimmings	Void Ratio <u>0.488</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>85</u> (psi)	Final Pore Pressure Parameter B	<u>0.97</u>	Date <u>6-26-09</u>
			Panel Board Number	<u>C</u>

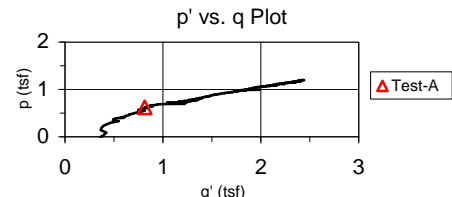
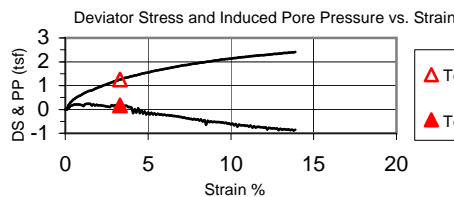
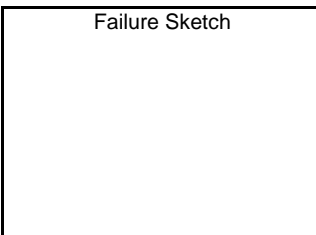
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>6.0811</u> (H _s)
Initial <u>0.1275</u>	Initial <u>16.38</u> (in.)	Initial <u>13.08</u> (in.)	Area (in ²) Method A	<u>6.5429</u> (A _s)
Final <u>0.1135</u>	Final <u>9.57</u> (in.)	Final <u>9.21</u> (in.)	Specimen Volume (in ³)	<u>39.79</u> (V _s)
Change <u>0.0140</u> (ΔH _o)	Change <u>-6.81</u> (in.)	Change <u>-3.87</u> (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.1135</u>	Initial <u>1.03</u> (in.)	Initial <u>17.76</u> (in.)	Chamber <u>90</u>
Final <u>0.1216</u>	Final <u>2.56</u> (in.)	Final <u>12.71</u> (in.)	Back <u>85</u>
Change <u>-0.0081</u> (ΔH _c)	Change <u>-1.53</u> (in.)	Change <u>-5.05</u> (in.)	Lateral <u>5</u> (σ ₃)
Height (in.)	<u>6.0730</u> (H _c)	Volume (in ³)	<u>39.5404</u> (V _c)
Area (in ³) Method B	<u>6.5108</u> (A _c)	Volume - Water (in ³)	<u>12.9899</u> (V _{Wc})
Diameter (in.)	<u>2.8792</u> (D _c)	Water Content (%)	<u>18.2</u>
Dry Density (pcf)	<u>112.8</u>	Degree of Saturation (%)	<u>100.0</u> (S _c)
		t ₅₀ (min.)	<u>11</u>
		Void Ratio	<u>0.489</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.624</u> (in.)	Wet Weight (g) <u>1383.33</u>	Corrected Deviator <u>1.25</u> σ _d (tsf)
Wet weight (g) <u>1383.33</u> (WW _f)	Dry Weight (g) <u>1170.45</u>	Major Principal <u>1.43</u> σ _{1f} (tsf)
Corrected Diameter <u>3.600</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.19</u> σ _{3f} (tsf)
		Rate of Strain (% / min.) <u>0.024</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>3.30</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Project Name John Siever Fossil Plant
 Sample Identification JS-36-SV, 40.5' - 41.0'
 Visual Description Lean Clay (CL), brown, moist, firm
 Undisturbed Source JS-36-SV, 40.0' - 42.0'
 Specific Gravity 2.69 ASTM D854 Method A Liquid Limit N/A Plastic Limit N/A Plasticity Index N/A

Project Number 175569038
 Test Number CU-1015B
 Prepared By CM
 Date 6-16-2009

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.865</u>	1 <u>6.003</u>	Sample <u>38.7524</u> (V_o)	Wet Weight (g) <u>1232.40</u>
Middle <u>2.868</u>	2 <u>5.985</u>	Solids <u>21.8380</u> (V_{S_o})	Dry Weight (g) <u>962.70</u>
Bottom <u>2.870</u>	3 <u>6.010</u>	Water <u>16.4569</u> (V_{W_o})	Wet Unit Weight (pcf) <u>121.1</u>
Avg. <u>2.8677</u> (D_o)	4 <u>6.003</u>	Voids <u>16.9144</u> (V_{V_o})	Dry Unit Weight (pcf) <u>94.6</u>
Area (in ²) <u>6.4587</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>97.3</u> (S_o)	
Moisture Content (%) <u>28.0</u>	Final Trimmings	Void Ratio <u>0.775</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 80 (psi) Final Pore Pressure Parameter B 0.97
 Set up By KDG
 Date 6-26-09
 Panel Board Number D

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9879</u> (H_s)
Initial <u>0.1264</u>	Initial <u>16.09</u> (in.)	Initial <u>10.85</u> (in.)	Area (in ²) Method A <u>6.4326</u> (A_s)
Final <u>0.1385</u>	Final <u>14.14</u> (in.)	Final <u>8.12</u> (in.)	Specimen Volume (in ³) <u>38.52</u> (V_s)
Change <u>-0.0121</u> (ΔH_o)	Change <u>-1.95</u> (in.)	Change <u>-2.73</u> (in.)	

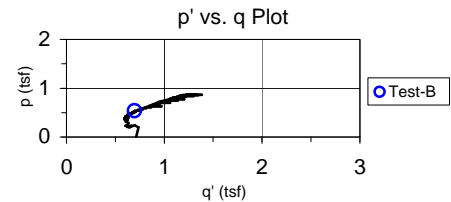
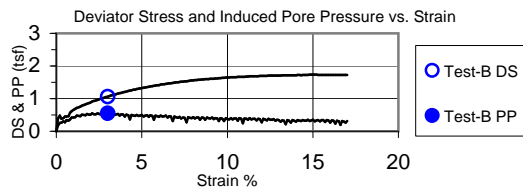
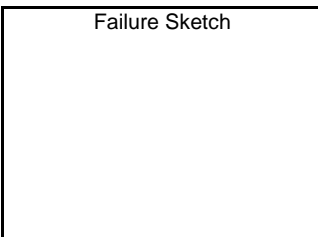
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.1385</u>	Initial <u>1.55</u> (in.)	Initial <u>17.53</u> (in.)	Chamber <u>90</u>
Final <u>0.14</u>	Final <u>8.26</u> (in.)	Final <u>11.23</u> (in.)	Back <u>80</u>
Change <u>-0.0015</u> (ΔH_c)	Change <u>-6.71</u> (in.)	Change <u>-6.30</u> (in.)	Lateral <u>10</u> (σ_3)
Height (in.) <u>5.9864</u> (H_c)		Volume (in ³) <u>36.8804</u> (V_c)	D_{50} (min.) <u>10</u>
Area (in ²) Method B <u>6.1607</u> (A_c)		Volume - Water (in ³) <u>15.0425</u> (V_{Wc})	Void Ratio <u>0.689</u>
Diameter (in.) <u>2.8007</u> (D_c)		Water Content (%) <u>25.6</u>	
Dry Density (pcf) <u>99.4</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.18</u> (in.)	Wet Weight (g) <u>1209.22</u>	Corrected Deviator <u>1.06</u> σ'_d (tsf)
Wet weight (g) <u>1209.22</u> (WW _f)	Dry Weight (g) <u>962.70</u>	Major Principal <u>1.23</u> σ'_{1f} (tsf)
Corrected Diameter <u>3.156</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.16</u> σ'_{3f} (tsf)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.032</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>3.00</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-36-SV, 41.0' - 41.5'</u>			Test Number	<u>CJ-1015C</u>
Visual Description	<u>Lean Clay (CL), brown, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-36-SV, 40.0' - 42.0'</u>		Date	<u>6-29-2009</u>
Specific Gravity	<u>2.69</u> ASTM D854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
		Plasticity Index	<u>N/A</u>		

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.862</u>	1 <u>6.091</u>	Sample <u>39.2436</u> (V _o)	Wet Weight (g) <u>1200.4</u>
Middle <u>2.865</u>	2 <u>6.114</u>	Solids <u>21.0050</u> (V _{S_o})	Dry Weight (g) <u>925.98</u>
Bottom <u>2.868</u>	3 <u>6.054</u>	Water <u>16.7449</u> (V _{w_o})	Wet Unit Weight (pcf) <u>116.5</u>
Avg. <u>2.8650</u> (D _o)	4 <u>6.091</u>	Voids <u>18.2386</u> (V _{v_o})	Dry Unit Weight (pcf) <u>89.9</u>
Area (in ²) <u>6.4467</u> (A _o)	Avg. (H _o) <u>6.0874</u>	Degree of Saturation (%) <u>91.8</u> (S _o)	
Moisture Content (%) <u>29.6</u>	Final Trimmings	Void Ratio <u>0.868</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____

Back Pressure Saturated to: 70 (psi) Final Pore Pressure Parameter B 0.97

Set up By KDG
Date 6-29-09
Panel Board Number E

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>6.0805</u> (H _s)
Initial <u>0.1697</u>	Initial <u>15.55</u> (in.)	Initial <u>10.37</u> (in.)	Area (in ²) Method A <u>6.4321</u> (A _s)
Final <u>0.1766</u>	Final <u>11.73</u> (in.)	Final <u>8.63</u> (in.)	Specimen Volume (in ³) <u>39.11</u> (V _s)
Change <u>-0.0069</u> (ΔH _c)	Change <u>-3.82</u> (in.)	Change <u>-1.74</u> (in.)	

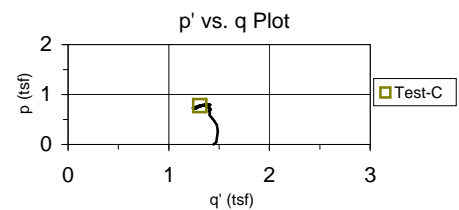
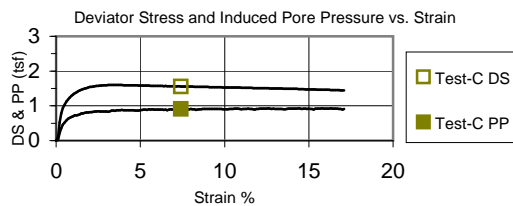
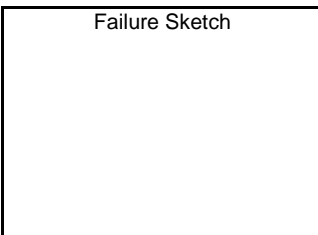
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.1766</u>	Initial <u>1.16</u> (in.)	Initial <u>17.68</u> (in.)	Chamber <u>90</u>
Final <u>0.2125</u>	Final <u>8.02</u> (in.)	Final <u>10.93</u> (in.)	Back <u>70</u>
Change <u>-0.0359</u> (ΔH _c)	Change <u>-6.86</u> (in.)	Change <u>-6.75</u> (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>6.0446</u> (H _c)		Volume (in ³) <u>36.7541</u> (V _c)	D ₅₀ (min.) <u>0.879</u>
Area (in ²) Method B <u>6.0805</u> (A _c)		Volume - Water (in ³) <u>15.7491</u> (V _{wc})	Void Ratio <u>0.750</u>
Diameter (in.) <u>2.7824</u> (D _c)		Water Content (%) <u>27.9</u>	
Dry Density (pcf) <u>96.0</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.234</u> (in.)	Wet Weight (g) <u>1184.08</u>	Corrected Deviator <u>1.56</u> σ _d (tsf)
Wet weight (g) <u>1184.08</u> (WWf)	Dry Weight (g) <u>925.98</u>	Major Principal <u>2.09</u> σ _{1f} (tsf)
Corrected Diameter <u>3.210</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.53</u> σ _{3f} (tsf)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.194</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>7.40</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: _____

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-16-09
 Boring No. JS-37-SV, 35.0' - 37.0' Sample No. JS-37-SV, 35.0' - 35.5'

Type of Test		<u>Consolidated Undrained</u>		Confining Pressure		<u>0.36</u>		tons/ft ²		
Test No.		<u>CU-1015A</u>		Classification		<u>Lean Clay (CL), brown, moist, firm</u>				
		Before Test				After Test				
		Specimen		Trimmings		Specimen				
Tare No.		n/a				355		n/a		
Tare plus wet weight		1372.3				240.01		1383.33		
Tare plus dry weight		1170.45				216.91		1170.45		
Water		W_w	201.85	W_{wo}		23.10	W_{we}	212.88		
Tare		0				68.89		0.00		
Wet Soil		W	1372.30			171.12		1383.33		
Dry Soil		W_s	1170.45			148.02		1170.45		
Water content		w	17.2	$\% W_o$		15.6	W_e	18.2		
Initial Condition of Specimen										
Diameter, cm		D_o	Top	7.310	Center	7.320	Bottom	7.313	Avg	7.316
Height, cm		H_o	15.410		Volume of solids, cc			V_s	435.11	
Area, sq cm = $0.7854 * D_o^2$		A_o	42.036		Void Ratio = $(V_o - V_s) / V_s$			e_o	0.489	
Volume, cc = $H_o * A_o$		V_o	647.79		Saturation, %			S_o	94.9	
Specific gravity of solids		G_s	2.69		Dry density, lb/cu ft			g_d	112.8	
Condition of Specimen After Consolidation (R and S Tests)										
ΔH during Saturation & Consolidation, in.		ΔH_o	0.006		Volume, cc = $H_c * A_c$			V_c	647.99	
Height, cm = $H_o - 2.54 * \Delta H_o$		H_c	15.425		Void Ratio = $(V_c - V_s) / V_s$			e_c	0.489	
Area, sq cm		A_c	42.008		Saturation, %			S_c	100.0	
Condition of Specimen After Test (R and S Test)										
Diameter, cm		D_f	Top	8.072	Center	9.205	Bottom	7.943	Avg	8.606
Change of height during Shear Test, in		ΔH	0.844		Volume, cc = $H_f * A_f$			V_f	647.99	
Height, cm = $H_c - 2.54 * \Delta H$		H_f	13.282		Void Ratio = $(V_f - V_s) / V_s$			e_f	0.489	
Area, cm ² from test data		A_f	48.786		Saturation, %			S_f	100.0	
Remarks										
Technician		<u>CM KDG KDG RC</u>		Computed By		<u>KDG</u>		Checked By		

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-16-09
 Boring No. JS-36-SV, 40.0' - 42.0' Sample No. JS-36-SV, 40.5' - 41.0'

Type of Test	Consolidated Undrained		Confining Pressure		0.72	tons/ft ²
Test No.	CU-1015B		Classification		Lean Clay (CL), brown, moist, firm	
	Before Test			After Test		
	Specimen		Trimmings		Specimen	
Tare No.	n/a		391		n/a	
Tare plus wet weight	1232.40		250.07		1209.22	
Tare plus dry weight	962.70		207.32		962.70	
Water	W _w	269.70	W _{wo}	42.75	W _{wf}	246.52
Tare	0.00		70.80		0.00	
Wet Soil	W	1232.40	179.27		1209.22	
Dry Soil	W _s	962.70	136.52		962.70	
Water content	w	28.0	% W _o	31.3	W _f	25.6
Initial Condition of Specimen						
Diameter, cm	D _o	Top	7.277	Center	7.285	Bottom
					7.290	Avg
						7.284
Height, cm	H _o	15.240		Volume of solids, cc		V _s
						357.88
Area, sq cm = 0.7854*D _o ²	A _o	41.672		Void Ratio = (V _o -V _s)+V _s		e _o
						0.775
Volume, cc = H _o *A _o	V _o	635.08		Saturation, %		S _o
						97.3
Specific gravity of solids	G _s	2.69		Dry density, lb/cu ft		G _d
						94.6
Condition of Specimen After Consolidation (R and S Tests)						
ΔH during Saturation & Consolidation, in.	ΔH _o	-0.014		Volume, cc = H _c *A _c		V _c
						604.40
Height, cm = H _o - 2.54*ΔH _o	H _c	15.205		Void Ratio = (V _c -V _s)+V _s		e _c
						0.689
Area, sq cm	A _c	39.749		Saturation, %		S _c
						100.0
Condition of Specimen After Test (R and S Test)						
Diameter, cm	D _f	Top	7.668	Center	8.077	Bottom
					7.864	Avg
						7.922
Change of height during Shear Test, in	ΔH	1.018		Volume, cc = H _f *A _f		V _f
						604.40
Height, cm = H _c - 2.54*ΔH	H _f	12.619		Void Ratio = (V _f -V _s)+V _s		e _f
						0.689
Area, cm ² from test data	A _f	47.897		Saturation, %		S _f
						100.0
Remarks						
Technician	CM KDG KDG KDG		Computed By	KDG		Checked By

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-29-09
 Boring No. JS-36-SV, 40.0' - 42.0' Sample No. JS-36-SV, 41.0' - 41.5'

Type of Test	Consolidated Undrained		Confining Pressure		1.44 tons/ft ²																																																																						
Test No.	CU-1015C		Classification Lean Clay (CL), brown, moist, firm																																																																								
<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Before Test</th> <th colspan="3">After Test</th> </tr> <tr> <th>Specimen</th> <th colspan="2">Trimmings</th> <th colspan="3">Specimen</th> </tr> </thead> <tbody> <tr> <td>Tare No.</td> <td>n/a</td> <td></td> <td>372</td> <td></td> <td colspan="2">n/a</td> </tr> <tr> <td>Tare plus wet weight</td> <td>1200.4</td> <td></td> <td>293.87</td> <td></td> <td colspan="2">1184.08</td> </tr> <tr> <td>Tare plus dry weight</td> <td>925.98</td> <td></td> <td>244.16</td> <td></td> <td colspan="2">925.98</td> </tr> <tr> <td>Water</td> <td>W_w 274.42</td> <td>W_{wo}</td> <td>49.71</td> <td>W_{wf}</td> <td colspan="2">258.10</td> </tr> <tr> <td>Tare</td> <td>0</td> <td></td> <td>70.72</td> <td></td> <td colspan="2">0.00</td> </tr> <tr> <td>Wet Soil</td> <td>W 1200.40</td> <td></td> <td>223.15</td> <td></td> <td colspan="2">1184.08</td> </tr> <tr> <td>Dry Soil</td> <td>W_s 925.98</td> <td></td> <td>173.44</td> <td></td> <td colspan="2">925.98</td> </tr> <tr> <td>Water content</td> <td>w 29.6</td> <td>% W_o</td> <td>28.7</td> <td>W_f</td> <td colspan="2">27.9 %</td> </tr> </tbody> </table>								Before Test			After Test			Specimen	Trimmings		Specimen			Tare No.	n/a		372		n/a		Tare plus wet weight	1200.4		293.87		1184.08		Tare plus dry weight	925.98		244.16		925.98		Water	W _w 274.42	W _{wo}	49.71	W _{wf}	258.10		Tare	0		70.72		0.00		Wet Soil	W 1200.40		223.15		1184.08		Dry Soil	W _s 925.98		173.44		925.98		Water content	w 29.6	% W _o	28.7	W _f	27.9 %	
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Initial Condition of Specimen																																																																											
Diameter, cm	D _o	Top	7.269	Center	7.277	Bottom	7.285	Avg	7.277																																																																		
Height, cm	H _o		15.462	Volume of solids, cc		V _s			344.23																																																																		
Area, sq cm = 0.7854*D _o ²	A _o		41.592	Void Ratio = (V _o -V _s)+V _s		e _o			0.868																																																																		
Volume, cc = H _o *A _o	V _o		643.09	Saturation, %		S _o			91.8																																																																		
Specific gravity of solids	G _s		2.69	Dry density, lb/cu ft		G _d			89.9																																																																		
Condition of Specimen After Consolidation (R and S Tests)																																																																											
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.043	Volume, cc = H _c *A _c		V _c			602.33																																																																		
Height, cm = H _o - 2.54*ΔH _o	H _c		15.353	Void Ratio = (V _c -V _s)+V _s		e _c			0.750																																																																		
Area, sq cm	A _c		39.231	Saturation, %		S _c			100.0																																																																		
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	7.803	Center	8.214	Bottom	7.551	Avg	7.946																																																																		
Change of height during Shear Test, in	ΔH		1.033	Volume, cc = H _f *A _f		V _f			602.33																																																																		
Height, cm = H _c - 2.54*ΔH	H _f		12.728	Void Ratio = (V _f -V _s)+V _s		e _f			0.750																																																																		
Area, cm ² from test data	A _f		47.321	Saturation, %		S _f			100.0																																																																		
Remarks																																																																											
Technician	KDG KDG KDG KDG			Computed By	KDG		Checked By																																																																				

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values				Final Values				Tested By <u>RC</u>		Project Number <u>175569038</u>		
Height	<u>6.073</u> (in.)	<u>15.425</u> (cm)	Height	<u>5.229</u> (in.)	Date	<u>7-1-09</u>		Date	<u>7-1-09</u>		Test Number	<u>CU-1015A</u>
Diameter	<u>2.879</u> (in.)	<u>7.313</u> (cm)	Dia. avg.	<u>3.388</u> (in.)	Press No.	<u>2</u>		Press No.	<u>2</u>		Data File ID	<u>1015A</u>
Area	<u>6.511</u> (in ²)	<u>42.008</u> (cm ²)	Area avg.	<u>9.017</u> (in ²)	Panel No.	<u>D</u>		Panel No.	<u>D</u>		Lateral Pressure (psi)	<u>5.0</u>
Chamber Pressure - σ_3 (psi)												<u>90</u>

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1 + \sigma_3$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
0:00:00	13.8	-0.009	84.9	6.073	0.00	42.0078	0.0	0.000	0.000	0.360	0.360	0.365	0.362	-0.002	0.986
0:01:06	17.3	-0.003	84.9	6.067	0.10	42.0499	3.5	0.039	0.038	0.398	0.400	0.367	0.384	0.017	1.091
0:02:07	29.9	0.004	85.3	6.061	0.20	42.0927	16.1	0.178	0.177	0.537	0.509	0.337	0.423	0.086	1.512
0:03:05	39.6	0.010	86.9	6.055	0.30	42.1344	25.8	0.285	0.284	0.644	0.504	0.226	0.365	0.139	2.236
0:04:04	46.4	0.016	87.3	6.049	0.40	42.1767	32.5	0.359	0.358	0.718	0.547	0.194	0.370	0.176	2.817
0:05:05	51.8	0.022	87.6	6.043	0.50	42.2196	38.0	0.418	0.417	0.777	0.586	0.174	0.380	0.206	3.366
0:06:04	56.2	0.028	87.8	6.037	0.60	42.2618	42.4	0.466	0.465	0.825	0.621	0.162	0.391	0.230	3.844
0:07:05	60.4	0.034	87.8	6.030	0.70	42.3054	46.6	0.512	0.511	0.871	0.666	0.161	0.413	0.253	4.149
0:08:03	64.3	0.040	87.8	6.024	0.80	42.3481	50.5	0.554	0.552	0.912	0.708	0.161	0.434	0.274	4.404
0:09:02	67.8	0.046	87.7	6.018	0.90	42.3894	54.0	0.592	0.590	0.950	0.750	0.166	0.458	0.292	4.533
0:10:03	70.9	0.052	87.4	6.012	1.00	42.4327	57.1	0.626	0.623	0.983	0.807	0.189	0.498	0.309	4.275
0:11:02	74.6	0.058	86.9	6.006	1.10	42.4753	60.8	0.665	0.663	1.023	0.878	0.221	0.549	0.329	3.981
0:12:03	78.1	0.064	88.0	6.000	1.20	42.5194	64.2	0.702	0.699	1.059	0.839	0.144	0.492	0.347	5.807
0:12:59	81.1	0.070	88.2	5.994	1.30	42.5609	67.2	0.734	0.731	1.091	0.857	0.131	0.494	0.363	6.554
0:14:00	84.5	0.076	88.3	5.988	1.40	42.6048	70.7	0.771	0.768	1.128	0.888	0.126	0.507	0.381	7.078
0:15:03	85.9	0.082	88.2	5.982	1.50	42.6472	72.1	0.786	0.782	1.142	0.910	0.133	0.522	0.389	6.840
0:19:02	87.3	0.089	87.2	5.976	1.60	42.6908	73.5	0.801	0.797	1.157	0.993	0.201	0.597	0.396	4.942
0:22:54	90.7	0.095	87.9	5.970	1.70	42.7347	76.8	0.836	0.832	1.192	0.981	0.154	0.567	0.413	6.369
0:27:05	93.4	0.101	87.3	5.964	1.80	42.7781	79.6	0.865	0.861	1.221	1.047	0.191	0.619	0.428	5.477
0:31:04	96.2	0.107	87.6	5.958	1.90	42.8215	82.4	0.894	0.890	1.250	1.056	0.172	0.614	0.442	6.155
0:35:15	99.1	0.113	87.2	5.952	2.00	42.8649	85.3	0.925	0.920	1.280	1.114	0.198	0.656	0.458	5.619
0:39:23	102.0	0.119	87.4	5.945	2.10	42.9089	88.2	0.956	0.951	1.311	1.131	0.185	0.658	0.473	6.112
0:43:32	104.7	0.125	87.1	5.939	2.20	42.9524	90.8	0.983	0.978	1.338	1.181	0.208	0.694	0.486	5.683
0:47:38	107.6	0.131	87.1	5.933	2.30	42.9971	93.7	1.014	1.008	1.368	1.211	0.208	0.710	0.502	5.821
0:51:52	109.9	0.137	86.9	5.927	2.40	43.0410	96.1	1.038	1.032	1.392	1.249	0.222	0.736	0.513	5.618
0:56:00	112.4	0.143	86.7	5.921	2.50	43.0848	98.6	1.064	1.058	1.418	1.288	0.235	0.762	0.526	5.477
1:00:21	114.7	0.149	86.5	5.915	2.60	43.1287	100.9	1.088	1.082	1.442	1.331	0.254	0.793	0.538	5.232
1:04:42	117.2	0.155	86.4	5.909	2.70	43.1730	103.3	1.113	1.106	1.466	1.363	0.262	0.812	0.551	5.211
1:08:55	120.1	0.161	87.5	5.903	2.80	43.2175	106.3	1.143	1.137	1.497	1.315	0.183	0.749	0.566	7.178
1:13:14	122.3	0.167	87.0	5.897	2.90	43.2619	108.5	1.166	1.159	1.519	1.372	0.219	0.795	0.577	6.280
1:17:32	124.7	0.174	87.5	5.891	3.00	43.3067	110.9	1.190	1.183	1.543	1.362	0.183	0.772	0.589	7.427
1:21:58	126.9	0.180	87.2	5.885	3.10	43.3515	113.1	1.213	1.205	1.565	1.401	0.201	0.801	0.600	6.973
1:26:14	129.1	0.186	86.7	5.879	3.20	43.3959	115.3	1.235	1.228	1.588	1.463	0.241	0.852	0.611	6.082
1:30:35	131.2	0.192	87.4	5.873	3.30	43.4408	117.4	1.257	1.249	1.609	1.434	0.191	0.812	0.622	7.527
1:34:48	133.4	0.198	87.1	5.867	3.40	43.4859	119.6	1.279	1.271	1.631	1.478	0.212	0.845	0.633	6.964
1:39:07	135.5	0.204	86.5	5.861	3.50	43.5307	121.7	1.300	1.291	1.651	1.539	0.252	0.896	0.643	6.098
1:43:23	138.1	0.210	87.2	5.854	3.60	43.5769	124.2	1.326	1.317	1.677	1.517	0.205	0.861	0.656	7.393
1:47:43	139.8	0.216	87.0	5.848	3.70	43.6216	125.9	1.342	1.333	1.693	1.542	0.214	0.878	0.664	7.207
1:51:52	141.5	0.222	86.3	5.842	3.80	43.6666	127.7	1.360	1.351	1.711	1.610	0.265	0.938	0.673	6.079
1:56:08	143.5	0.228	86.4	5.836	3.90	43.7119	129.7	1.379	1.370	1.730	1.627	0.262	0.945	0.683	6.202
2:00:31	145.5	0.234	86.0	5.830	4.00	43.7580	131.7	1.399	1.389	1.749	1.670	0.285	0.977	0.692	5.857
2:04:50	146.7	0.240	82.7	5.824	4.10	43.8030	132.8	1.410	1.400	1.760	1.920	0.525	1.223	0.698	3.657
2:09:06	149.1	0.246	85.0	5.818	4.20	43.8488	135.2	1.434	1.424	1.784	1.780	0.361	1.070	0.709	4.934
2:13:27	150.3	0.252	83.1	5.812	4.30	43.8945	136.4	1.445	1.435	1.795	1.925	0.495	1.210	0.715	3.888
2:17:40	152.5	0.259	85.6	5.806	4.40	43.9407	138.6	1.467	1.456	1.816	1.767	0.316	1.042	0.726	5.594
2:21:59	153.9	0.265	82.8	5.800	4.50	43.9863	140.1	1.481	1.470	1.830	1.982	0.517	1.250	0.733	3.834
2:26:15	156.2	0.271	84.2	5.794	4.60	44.0326	142.4	1.504	1.493	1.853	1.904	0.416	1.160	0.744	4.577
2:30:39	157.6	0.277	82.6	5.788	4.70	44.0785	143.8	1.517	1.506	1.866	2.033	0.533	1.283	0.750	3.818
2:35:04	159.4	0.283	83.7	5.782	4.80	44.1248	145.6	1.534	1.523	1.883	1.973	0.456	1.214	0.759	4.331
2:39:25	160.7	0.289	82.0	5.776	4.90	44.1712	146.9	1.546	1.534	1.894	2.107	0.577	1.342	0.765	3.649
2:43:43	163.0	0.295	83.2	5.769	5.00	44.2180	149.1	1.568	1.556	1.916	2.038	0.487	1.263	0.776	4.183
2:48:07	164.2	0.301	82.0	5.763	5.10	44.2644	150.3	1.579	1.567	1.927	2.138	0.576	1.357	0.781	3.711
2:52:25	166.3	0.307	82.9	5.757	5.20	44.3111	152.4	1.600	1.587	1.947	2.092	0.510	1.301	0.791	4.101
2:56:46	167.5	0.313	82.0	5.751	5.30	44.3584	153.6	1.611	1.598	1.958	2.172	0.579	1.376	0.796	3.749
3:01:02	169.5	0.319	82.7	5.745	5.40	44.4046	155.6	1.630	1.617	1.977	2.141	0.529	1.335	0.806	4.047
3:05:18	170.8	0.325	81.9	5.739	5.50	44.4515	156.9	1.642	1.628	1.988	2.207	0.583	1.395	0.812	3.783
3:09:31	172.4	0.331	82.4	5.733	5.60	44.4990	158.6	1.657	1.644	2.004	2.188	0.549	1.368	0.819	3.986
3:13:42	173.9	0.337	81.9	5.727	5.70	44.5462	160.1	1.671	1.658	2.018	2.236	0.583	1.410	0.826	3.834
3:17:55	175.7	0.343	82.1	5.721	5.80	44.5933	161.8	1.688	1.674	2.034	2.237	0.568	1.402	0.834	3.937
3:22:11	177.4	0.350	81.8	5.715	5.90	44.6407	163.5	1.703	1.689	2.049	2.278	0.594	1.436	0.842	3.837

Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X

Consolidation Values				Final Values				Tested By <u>RC</u>			Project Number <u>175569038</u>	
Height	<u>6.073 (in.)</u>	<u>15.425 (cm)</u>		Height	<u>5.229 (in.)</u>		Date	<u>7-1-09</u>	Test Number	<u>CU-1015A</u>		
Diameter	<u>2.879 (in)</u>	<u>7.313 (cm)</u>		Dia. avg.	<u>3.388 (in)</u>		Press No.	<u>2</u>	Data File ID	<u>1015A</u>		
Area	<u>6.511 (in²)</u>	<u>42.008 (cm²)</u>		Area avg.	<u>9.017 (in²)</u>		Panel No.	<u>D</u>	Lateral Pressure (psi)	<u>5.0</u>		
									Chamber Pressure - σ_3 (psi)	<u>90</u>		

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1 + \sigma_3)'/2$) (tsf)	q ($(\sigma_1 - \sigma_3)'/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
3:26:47	178.6	0.356	81.9	5.709	6.00	44.6883	164.7	1.714	1.700	2.060	2.281	0.586	1.434	0.847	3.890
3:31:05	180.1	0.362	81.5	5.703	6.10	44.7359	166.3	1.728	1.714	2.074	2.323	0.614	1.468	0.854	3.783
3:35:23	181.6	0.368	81.7	5.697	6.20	44.7832	167.8	1.742	1.727	2.087	2.322	0.600	1.461	0.861	3.872
3:39:44	183.0	0.374	81.3	5.691	6.30	44.8308	169.2	1.755	1.740	2.100	2.362	0.627	1.495	0.868	3.766
3:44:08	184.8	0.380	81.4	5.684	6.40	44.8790	170.9	1.771	1.756	2.116	2.366	0.616	1.491	0.875	3.843
3:48:29	186.3	0.386	81.0	5.678	6.50	44.9267	172.4	1.785	1.769	2.129	2.410	0.646	1.528	0.882	3.730
3:52:57	187.8	0.392	81.2	5.672	6.60	44.9748	173.9	1.798	1.782	2.142	2.412	0.635	1.524	0.889	3.800
3:57:25	189.0	0.398	80.9	5.666	6.70	45.0235	175.2	1.809	1.793	2.153	2.447	0.659	1.553	0.894	3.714
4:01:46	190.6	0.404	80.9	5.660	6.80	45.0711	176.8	1.824	1.808	2.168	2.457	0.654	1.556	0.901	3.756
4:06:16	191.9	0.410	80.6	5.654	6.90	45.1200	178.1	1.835	1.819	2.179	2.493	0.679	1.586	0.907	3.670
4:10:40	193.3	0.416	80.6	5.648	7.00	45.1683	179.4	1.847	1.830	2.190	2.503	0.678	1.590	0.913	3.694
4:15:08	194.6	0.422	80.2	5.642	7.10	45.2170	180.8	1.859	1.842	2.202	2.546	0.708	1.627	0.919	3.594
4:19:41	196.0	0.428	80.2	5.636	7.20	45.2655	182.2	1.871	1.854	2.214	2.555	0.706	1.631	0.924	3.618
4:24:09	197.2	0.434	79.8	5.630	7.30	45.3143	183.4	1.882	1.865	2.225	2.596	0.737	1.667	0.930	3.524
4:28:40	198.6	0.441	79.8	5.624	7.40	45.3634	184.7	1.894	1.876	2.236	2.605	0.734	1.670	0.935	3.548
4:33:10	199.7	0.447	79.3	5.618	7.50	45.4123	185.9	1.904	1.886	2.246	2.648	0.768	1.708	0.940	3.450
4:37:48	201.5	0.453	79.5	5.612	7.60	45.4617	187.6	1.919	1.901	2.261	2.651	0.755	1.703	0.948	3.512
4:42:16	202.6	0.459	79.1	5.606	7.70	45.5107	188.8	1.929	1.910	2.270	2.693	0.788	1.740	0.953	3.419
4:46:42	203.9	0.465	79.3	5.600	7.80	45.5600	190.1	1.940	1.921	2.281	2.684	0.767	1.725	0.958	3.498
4:51:17	204.9	0.471	78.8	5.593	7.90	45.6096	191.1	1.948	1.929	2.289	2.729	0.805	1.767	0.962	3.391
4:55:52	206.5	0.477	79.2	5.587	8.00	45.6591	192.6	1.962	1.943	2.303	2.714	0.776	1.745	0.969	3.497
5:00:28	207.7	0.483	78.6	5.581	8.10	45.7084	193.9	1.972	1.953	2.313	2.771	0.823	1.797	0.974	3.367
5:05:08	208.6	0.489	79.1	5.575	8.20	45.7584	194.8	1.979	1.960	2.320	2.743	0.788	1.766	0.977	3.480
5:09:44	210.0	0.495	78.0	5.569	8.30	45.8080	196.1	1.991	1.971	2.331	2.833	0.867	1.850	0.983	3.269
5:14:24	211.4	0.501	78.8	5.563	8.40	45.8586	197.6	2.004	1.983	2.343	2.787	0.808	1.798	0.989	3.448
5:19:07	212.1	0.507	76.2	5.557	8.50	45.9084	198.2	2.008	1.987	2.347	2.979	0.997	1.988	0.991	2.989
5:23:43	213.7	0.513	78.3	5.551	8.60	45.9583	199.9	2.023	2.002	2.362	2.836	0.839	1.837	0.998	3.381
5:28:24	215.0	0.519	77.6	5.545	8.70	46.0086	201.2	2.034	2.013	2.373	2.899	0.891	1.895	1.004	3.253
5:33:09	216.6	0.526	78.0	5.539	8.80	46.0598	202.7	2.047	2.025	2.385	2.885	0.864	1.875	1.010	3.338
5:37:52	217.5	0.532	77.7	5.533	8.90	46.1096	203.6	2.053	2.032	2.392	2.916	0.889	1.903	1.014	3.280
5:42:27	218.9	0.538	77.7	5.527	9.00	46.1603	205.1	2.066	2.044	2.404	2.925	0.886	1.905	1.020	3.303
5:47:03	220.2	0.544	77.7	5.521	9.10	46.2114	206.4	2.077	2.055	2.415	2.939	0.889	1.914	1.025	3.307
5:51:38	221.6	0.550	77.6	5.515	9.20	46.2619	207.8	2.089	2.067	2.427	2.954	0.892	1.923	1.031	3.310
5:56:14	222.6	0.556	77.6	5.509	9.30	46.3128	208.7	2.096	2.073	2.433	2.960	0.892	1.926	1.034	3.319
6:00:47	223.7	0.562	77.4	5.502	9.40	46.3639	209.8	2.104	2.082	2.442	2.985	0.908	1.947	1.038	3.286
6:05:23	225.2	0.568	77.4	5.496	9.50	46.4154	211.4	2.118	2.095	2.455	2.994	0.904	1.949	1.045	3.311
6:09:58	226.1	0.574	77.1	5.490	9.60	46.4666	212.3	2.124	2.101	2.461	3.025	0.929	1.977	1.048	3.256
6:14:36	227.4	0.580	77.2	5.484	9.70	46.5182	213.5	2.135	2.111	2.471	3.027	0.921	1.974	1.053	3.286
6:19:14	228.4	0.586	76.7	5.478	9.80	46.5698	214.6	2.143	2.119	2.479	3.071	0.957	2.014	1.057	3.250
6:23:50	229.6	0.592	76.9	5.472	9.90	46.6214	215.8	2.152	2.129	2.489	3.066	0.942	2.004	1.062	3.213
6:28:33	230.2	0.598	76.3	5.466	10.00	46.6729	216.3	2.155	2.131	2.491	3.116	0.989	2.053	1.063	3.149
6:33:13	231.4	0.604	76.7	5.460	10.10	46.7248	217.6	2.165	2.141	2.501	3.095	0.959	2.027	1.068	3.227
6:37:56	232.4	0.611	75.7	5.454	10.20	46.7770	218.6	2.173	2.149	2.509	3.171	1.027	2.099	1.072	3.088
6:42:39	233.8	0.617	76.4	5.448	10.30	46.8290	220.0	2.185	2.160	2.520	3.135	0.980	2.057	1.077	3.199
6:47:26	234.3	0.623	75.0	5.442	10.39	46.8811	220.5	2.187	2.162	2.522	3.240	1.083	2.162	1.079	2.992
6:52:14	236.0	0.629	76.0	5.436	10.50	46.9340	222.1	2.201	2.175	2.535	3.176	1.006	2.091	1.085	3.158
6:57:01	237.1	0.635	75.7	5.430	10.59	46.9859	223.2	2.209	2.184	2.544	3.206	1.028	2.117	1.089	3.120
7:01:49	238.2	0.641	75.8	5.424	10.70	47.0387	224.3	2.217	2.192	2.552	3.211	1.024	2.117	1.093	3.136
7:06:39	239.1	0.647	75.7	5.417	10.79	47.0912	225.3	2.224	2.198	2.558	3.221	1.028	2.124	1.097	3.135
7:11:25	240.0	0.653	75.4	5.411	10.89	47.1441	226.1	2.231	2.204	2.564	3.250	1.050	2.150	1.100	3.094
7:16:17	241.0	0.659	75.6	5.405	10.99	47.1969	227.2	2.238	2.212	2.572	3.245	1.038	2.142	1.103	3.125
7:21:07	242.3	0.665	75.0	5.399	11.09	47.2501	228.5	2.248	2.222	2.582	3.294	1.077	2.185	1.108	3.058
7:25:57	243.4	0.671	75.4	5.393	11.19	47.3032	229.6	2.257	2.230	2.590	3.274	1.049	2.161	1.112	3.122
7:30:48	244.4	0.677	74.3	5.387	11.30	47.3571	230.5	2.263	2.236	2.596	3.361	1.130	2.245	1.116	2.975
7:35:40	245.4	0.683	75.2	5.381	11.39	47.4101	231.6	2.271	2.244	2.604	3.308	1.069	2.188	1.119	3.094
7:40:38	246.2	0.689	74.5	5.375	11.49	47.4636	232.4	2.276	2.249	2.609	3.363	1.119	2.241	1.122	3.004
7:45:25	247.3	0.696	74.8	5.369	11.60	47.5176	233.4	2.284	2.256	2.616	3.344	1.092	2.218	1.126	3.061
7:50:13	248.1	0.702	74.7	5.363	11.69	47.5709	234.3	2.290	2.262	2.622	3.359	1.102	2.231	1.129	3.048
7:55:08	249.2	0.708	74.6	5.357	11.79	47.6249	235.4	2.298	2.270	2.630	3.377	1.112	2.245	1.132	3.037
8:00:01	250.1	0.714	74.6	5.351	11.89	47.6791	236.3	2.305	2.276	2.636	3.379	1.107	2.243	1.136	3.051

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	6.073 (in.)	15.425 (cm)
Diameter	2.879 (in)	7.313 (cm)
Area	6.511 (in ²)	42.008 (cm ²)

Final Values	
Height	5.229 (in.)
Dia. avg.	3.388 (in)
Area avg.	9.017 (in ²)

Tested By	RC
Date	7-1-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	CU-1015A
Data File ID	1015A
Lateral Pressure (psi)	5.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1 + \sigma_3$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
8:05:03	251.0	0.720	74.2	5.345	11.99	47.7331	237.2	2.311	2.282	2.642	3.415	1.138	2.277	1.138	3.001
8:09:58	252.3	0.726	74.5	5.339	12.09	47.7872	238.5	2.321	2.292	2.652	3.401	1.114	2.257	1.143	3.052
8:15:05	252.9	0.732	73.2	5.332	12.19	47.8422	239.1	2.324	2.294	2.654	3.498	1.209	2.354	1.145	2.894
8:20:05	253.9	0.738	74.2	5.326	12.29	47.8964	240.1	2.331	2.302	2.662	3.433	1.136	2.285	1.148	3.021
8:25:07	254.9	0.744	74.0	5.320	12.39	47.9508	241.1	2.338	2.308	2.668	3.457	1.154	2.305	1.152	2.996
8:30:12	255.9	0.750	73.9	5.314	12.49	48.0057	242.1	2.345	2.315	2.675	3.468	1.159	2.313	1.155	2.993
8:35:14	257.0	0.756	74.0	5.308	12.59	48.0607	243.2	2.353	2.322	2.682	3.471	1.153	2.312	1.159	3.009
8:40:14	258.2	0.762	73.6	5.302	12.69	48.1155	244.4	2.362	2.332	2.692	3.507	1.181	2.344	1.163	2.971
8:45:07	259.0	0.768	73.9	5.296	12.79	48.1708	245.1	2.366	2.335	2.695	3.493	1.162	2.328	1.165	3.005
8:50:09	260.3	0.774	72.8	5.290	12.89	48.2262	246.5	2.376	2.346	2.706	3.577	1.237	2.407	1.170	2.892
8:54:57	260.9	0.780	73.6	5.284	12.99	48.2813	247.1	2.380	2.349	2.709	3.523	1.180	2.352	1.172	2.987
8:59:47	262.0	0.787	73.1	5.278	13.09	48.3373	248.2	2.387	2.356	2.716	3.568	1.217	2.392	1.175	2.932
9:04:37	263.2	0.793	73.4	5.272	13.19	48.3929	249.3	2.396	2.364	2.724	3.554	1.195	2.375	1.180	2.974
9:09:24	264.1	0.799	73.3	5.266	13.29	48.4485	250.2	2.402	2.370	2.730	3.568	1.203	2.386	1.182	2.965
9:14:10	264.9	0.805	73.2	5.260	13.39	48.5045	251.0	2.406	2.374	2.734	3.581	1.212	2.396	1.185	2.955
9:18:57	265.8	0.811	73.2	5.254	13.49	48.5603	252.0	2.413	2.381	2.741	3.583	1.208	2.396	1.188	2.967
9:23:40	267.0	0.817	73.0	5.247	13.59	48.6169	253.1	2.421	2.389	2.749	3.609	1.225	2.417	1.192	2.945
9:28:25	267.7	0.823	73.1	5.241	13.69	48.6731	253.9	2.426	2.393	2.753	3.602	1.214	2.408	1.194	2.967
9:33:06	268.6	0.829	72.7	5.235	13.79	48.7293	254.8	2.431	2.398	2.758	3.636	1.243	2.440	1.197	2.925
9:37:46	269.6	0.835	73.0	5.229	13.89	48.7860	255.8	2.438	2.405	2.765	3.623	1.223	2.423	1.200	2.962

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

Consolidation Values				Final Values				Tested By <u>KDG</u>			Project Number <u>175569038</u>	
Height	<u>5.986 (in.)</u>	<u>15.205 (cm)</u>		Height	<u>4.968 (in.)</u>		Date	<u>6-30-09</u>	Test Number	<u>CU-1015B</u>		
Diameter	<u>2.801 (in)</u>	<u>7.114 (cm)</u>		Dia. avg.	<u>3.119 (in)</u>		Press No.	<u>2</u>	Data File ID	<u>1015B</u>		
Area	<u>6.161 (in²)</u>	<u>39.749 (cm²)</u>		Area avg.	<u>7.639 (in²)</u>		Panel No.	<u>D</u>	Lateral Pressure (psi)	<u>10.0</u>		
									Chamber Pressure - σ_3 (psi)	<u>90</u>		

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	$p' (\sigma_1' + \sigma_3')/2$ (tsf)	$q (\sigma_1 - \sigma_3)/2$ (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
0:00:00	0.7	0.000	80.1	5.986	0.00	39.7488	0.0	0.000	0.000	0.720	0.720	0.710	0.715	0.005	1.015
0:04:16	33.9	0.006	82.5	5.980	0.10	39.7892	33.2	0.387	0.387	1.107	0.935	0.538	0.736	0.199	1.740
0:07:21	41.5	0.012	83.7	5.974	0.20	39.8287	40.8	0.476	0.476	1.196	0.940	0.454	0.697	0.243	2.072
0:10:41	33.3	0.018	83.8	5.968	0.30	39.8693	32.6	0.381	0.380	1.100	0.839	0.449	0.644	0.195	1.869
0:13:59	35.5	0.024	84.3	5.962	0.40	39.9099	34.8	0.406	0.405	1.125	0.826	0.410	0.618	0.208	2.011
0:17:21	39.7	0.030	83.9	5.956	0.50	39.9494	39.0	0.454	0.453	1.173	0.903	0.440	0.671	0.232	2.054
0:20:48	39.8	0.036	84.9	5.950	0.60	39.9899	39.1	0.454	0.453	1.173	0.832	0.369	0.601	0.232	2.255
0:24:06	40.1	0.042	84.6	5.944	0.70	40.0309	39.4	0.458	0.456	1.176	0.853	0.386	0.620	0.233	2.207
0:27:01	50.3	0.048	85.2	5.938	0.80	40.0698	49.6	0.575	0.573	1.293	0.926	0.343	0.635	0.292	2.701
0:29:52	54.3	0.054	86.0	5.932	0.90	40.1108	53.5	0.621	0.619	1.339	0.918	0.289	0.604	0.314	3.173
0:32:52	57.4	0.060	86.0	5.926	1.00	40.1516	56.7	0.657	0.654	1.374	0.950	0.285	0.617	0.332	3.333
0:35:48	60.0	0.066	86.1	5.920	1.10	40.1915	59.2	0.685	0.683	1.403	0.972	0.279	0.626	0.347	3.482
0:38:48	62.7	0.072	86.8	5.914	1.20	40.2328	62.0	0.716	0.713	1.433	0.954	0.231	0.593	0.362	4.132
0:41:46	64.8	0.078	86.7	5.909	1.30	40.2729	64.1	0.740	0.737	1.457	0.984	0.237	0.610	0.374	4.157
0:44:42	66.8	0.084	86.6	5.902	1.40	40.3146	66.1	0.763	0.759	1.479	1.016	0.247	0.632	0.385	4.115
0:47:42	68.9	0.090	87.3	5.896	1.50	40.3555	68.2	0.786	0.782	1.502	0.990	0.197	0.593	0.396	5.026
0:50:33	70.7	0.096	87.0	5.891	1.60	40.3956	70.0	0.806	0.802	1.522	1.025	0.213	0.619	0.406	4.814
0:53:34	72.9	0.102	87.0	5.885	1.70	40.4368	72.2	0.830	0.826	1.546	1.055	0.219	0.637	0.418	4.822
0:56:34	74.6	0.108	87.6	5.879	1.80	40.4782	73.9	0.849	0.845	1.565	1.031	0.176	0.604	0.427	5.856
0:59:37	76.6	0.114	87.2	5.873	1.90	40.5194	75.9	0.871	0.867	1.587	1.075	0.198	0.637	0.438	5.428
1:02:30	78.4	0.120	87.2	5.867	2.00	40.5606	77.7	0.891	0.886	1.606	1.098	0.202	0.650	0.448	5.427
1:05:31	80.4	0.126	87.7	5.861	2.10	40.6023	79.7	0.912	0.907	1.627	1.081	0.164	0.622	0.459	6.610
1:08:36	82.3	0.132	87.4	5.854	2.20	40.6445	81.6	0.933	0.928	1.648	1.127	0.189	0.658	0.469	5.952
1:11:24	83.9	0.138	87.3	5.849	2.30	40.6856	83.1	0.950	0.945	1.665	1.150	0.195	0.672	0.477	5.903
1:14:32	85.3	0.144	87.8	5.842	2.40	40.7282	84.6	0.966	0.960	1.680	1.130	0.160	0.645	0.485	7.071
1:17:27	87.1	0.150	87.4	5.837	2.50	40.7695	86.4	0.986	0.980	1.700	1.175	0.185	0.680	0.495	6.356
1:20:30	88.8	0.156	87.3	5.831	2.60	40.8107	88.1	1.003	0.997	1.717	1.200	0.193	0.696	0.504	6.230
1:23:34	90.2	0.162	87.7	5.825	2.70	40.8530	89.5	1.018	1.012	1.732	1.185	0.162	0.674	0.511	7.290
1:26:34	91.9	0.168	87.4	5.819	2.80	40.8947	91.2	1.037	1.030	1.750	1.231	0.191	0.711	0.520	6.455
1:29:34	93.5	0.174	87.5	5.813	2.90	40.9375	92.8	1.054	1.047	1.767	1.236	0.179	0.707	0.529	6.916
1:32:37	95.1	0.180	87.8	5.807	3.00	40.9796	94.4	1.071	1.063	1.783	1.234	0.161	0.697	0.537	7.686
1:35:40	96.4	0.186	87.2	5.801	3.10	41.0216	95.7	1.084	1.077	1.797	1.290	0.203	0.746	0.544	6.368
1:38:38	98.0	0.192	87.5	5.795	3.20	41.0639	97.3	1.101	1.094	1.814	1.281	0.177	0.729	0.552	7.226
1:41:38	99.6	0.198	87.7	5.789	3.30	41.1068	98.9	1.119	1.110	1.830	1.288	0.168	0.728	0.560	7.682
1:44:36	100.7	0.204	87.0	5.783	3.40	41.1491	100.0	1.130	1.122	1.842	1.345	0.213	0.779	0.566	6.317
1:47:37	102.3	0.210	87.4	5.777	3.50	41.1914	101.6	1.147	1.139	1.859	1.336	0.187	0.761	0.574	7.144
1:50:35	103.9	0.216	87.5	5.771	3.60	41.2348	103.2	1.164	1.155	1.875	1.348	0.183	0.765	0.583	7.385
1:53:42	104.9	0.222	86.8	5.764	3.71	41.2791	104.1	1.173	1.164	1.884	1.402	0.228	0.815	0.587	6.160
1:56:40	106.5	0.228	87.3	5.759	3.80	41.3204	105.8	1.190	1.181	1.901	1.386	0.195	0.790	0.596	7.118
1:59:38	107.7	0.234	87.2	5.753	3.90	41.3637	107.0	1.203	1.193	1.913	1.404	0.200	0.802	0.602	7.004
2:02:48	108.9	0.240	86.4	5.747	4.00	41.4068	108.2	1.215	1.205	1.925	1.473	0.258	0.865	0.608	5.716
2:05:51	110.4	0.246	87.2	5.741	4.10	41.4499	109.7	1.231	1.220	1.940	1.433	0.203	0.818	0.615	7.074
2:08:59	111.9	0.252	87.0	5.735	4.20	41.4928	111.2	1.246	1.236	1.956	1.464	0.217	0.840	0.623	6.737
2:12:07	112.7	0.258	85.2	5.729	4.31	41.5372	112.0	1.254	1.243	1.963	1.599	0.345	0.972	0.627	4.632
2:15:09	114.1	0.264	87.1	5.723	4.40	41.5797	113.4	1.268	1.257	1.977	1.477	0.209	0.843	0.634	7.063
2:18:17	115.4	0.270	86.9	5.717	4.50	41.6235	114.6	1.281	1.270	1.990	1.505	0.225	0.865	0.640	6.685
2:21:22	116.2	0.276	86.7	5.711	4.60	41.6667	115.5	1.289	1.278	1.998	1.523	0.235	0.879	0.644	6.486
2:24:25	117.5	0.282	87.1	5.705	4.70	41.7111	116.8	1.302	1.290	2.010	1.511	0.211	0.861	0.650	7.176
2:27:28	118.6	0.288	86.7	5.699	4.80	41.7545	117.9	1.313	1.301	2.021	1.551	0.239	0.895	0.656	6.484
2:30:31	119.8	0.293	86.8	5.693	4.90	41.7983	119.1	1.325	1.313	2.033	1.552	0.229	0.890	0.662	6.788
2:33:36	121.0	0.300	87.1	5.687	5.00	41.8427	120.3	1.337	1.324	2.044	1.546	0.211	0.879	0.667	7.319
2:36:42	121.9	0.305	86.5	5.681	5.10	41.8866	121.2	1.345	1.332	2.052	1.597	0.254	0.925	0.671	6.288
2:39:42	123.0	0.311	86.9	5.675	5.20	41.9308	122.3	1.356	1.344	2.064	1.580	0.226	0.903	0.677	6.986
2:42:50	124.2	0.318	86.9	5.669	5.31	41.9757	123.5	1.368	1.355	2.075	1.586	0.221	0.904	0.683	7.171
2:45:58	125.3	0.323	86.2	5.663	5.40	42.0197	124.6	1.379	1.365	2.085	1.647	0.271	0.959	0.688	6.074
2:49:05	126.3	0.330	86.9	5.657	5.51	42.0649	125.6	1.388	1.375	2.095	1.609	0.224	0.917	0.693	7.178
2:52:18	127.5	0.335	86.7	5.651	5.60	42.1085	126.8	1.400	1.386	2.106	1.631	0.234	0.933	0.698	6.958
2:55:23	128.0	0.341	85.0	5.645	5.71	42.1537	127.3	1.405	1.390	2.110	1.759	0.358	1.059	0.700	4.908
2:58:29	129.4	0.347	86.9	5.639	5.80	42.1979	128.7	1.418	1.403	2.123	1.639	0.225	0.932	0.707	7.281
3:01:39	129.9	0.353	86.5	5.633	5.91	42.2435	129.2	1.423	1.408	2.128	1.670	0.252	0.961	0.709	6.634

Consolidated Undrained Triaxial Test

EM 1110-2-1906 Appendix X

Consolidation Values			Final Values			Tested By	<u>KDG</u>	Project Number	<u>175569038</u>
Height	<u>5.986</u> (in.)	<u>15.205</u> (cm)	Height	<u>4.968</u> (in.)	<u>3.119</u> (in.)	Date	<u>6-30-09</u>	Test Number	<u>CU-1015B</u>
Diameter	<u>2.801</u> (in.)	<u>7.114</u> (cm)	Dia. avg.	<u>3.119</u> (in.)	<u>7.639</u> (in ²)	Press No.	<u>2</u>	Data File ID	<u>1015B</u>
Area	<u>6.161</u> (in ²)	<u>39.749</u> (cm ²)	Area avg.	<u>7.639</u> (in ²)	<u>7.639</u> (in ²)	Panel No.	<u>D</u>	Lateral Pressure (psi)	<u>10.0</u>
								Chamber Pressure - σ_3 (psi)	<u>90</u>

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected			Corrected			σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1' + \sigma_3'$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
				Hieght (in.)	Strain (%)	Corrected Area (cm ²)	Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)						
3:04:47	130.8	0.359	86.2	5.627	6.00	42.2881	130.1	1.430	1.415	2.135	1.696	0.270	0.983	0.713	6.274
3:07:57	132.0	0.365	86.8	5.621	6.10	42.3327	131.3	1.443	1.427	2.147	1.665	0.227	0.946	0.719	7.324
3:11:10	133.1	0.371	86.4	5.615	6.21	42.3784	132.4	1.452	1.437	2.157	1.704	0.257	0.980	0.724	6.640
3:14:20	133.9	0.377	86.5	5.609	6.31	42.4236	133.2	1.460	1.444	2.164	1.704	0.249	0.976	0.727	6.843
3:17:26	135.1	0.383	86.8	5.603	6.40	42.4686	134.4	1.471	1.455	2.175	1.697	0.231	0.964	0.733	7.348
3:20:43	135.4	0.389	86.0	5.597	6.51	42.5148	134.7	1.473	1.457	2.177	1.755	0.287	1.021	0.734	6.114
3:23:53	136.6	0.395	86.6	5.591	6.60	42.5598	135.9	1.485	1.468	2.188	1.726	0.247	0.986	0.739	6.984
3:27:08	137.1	0.401	86.4	5.585	6.70	42.6054	136.4	1.489	1.472	2.192	1.744	0.261	1.003	0.741	6.673
3:30:23	137.9	0.407	84.5	5.579	6.80	42.6509	137.2	1.495	1.479	2.199	1.884	0.395	1.140	0.744	4.765
3:33:41	139.3	0.413	86.4	5.573	6.91	42.6973	138.5	1.509	1.492	2.212	1.758	0.256	1.007	0.751	6.860
3:36:53	139.9	0.419	86.1	5.567	7.00	42.7429	139.2	1.515	1.497	2.217	1.788	0.281	1.035	0.754	6.368
3:40:13	140.5	0.425	85.9	5.561	7.11	42.7890	139.8	1.519	1.502	2.222	1.807	0.295	1.051	0.756	6.123
3:43:28	141.3	0.431	86.3	5.555	7.20	42.8350	140.6	1.527	1.509	2.229	1.788	0.269	1.028	0.760	6.655
3:46:46	142.1	0.437	85.6	5.549	7.31	42.8817	141.4	1.533	1.515	2.235	1.840	0.314	1.077	0.763	5.852
3:50:03	143.0	0.443	86.1	5.543	7.40	42.9274	142.3	1.542	1.524	2.244	1.818	0.284	1.051	0.767	6.394
3:53:23	143.6	0.449	85.9	5.537	7.51	42.9743	142.9	1.547	1.528	2.248	1.832	0.294	1.063	0.769	6.233
3:56:41	144.1	0.455	84.0	5.531	7.61	43.0207	143.4	1.550	1.531	2.251	1.974	0.432	1.203	0.771	4.566
3:59:51	145.4	0.461	86.2	5.525	7.70	43.0671	144.7	1.563	1.544	2.264	1.831	0.277	1.054	0.777	6.614
4:03:06	146.0	0.467	85.9	5.519	7.81	43.1142	145.3	1.567	1.548	2.268	1.856	0.298	1.077	0.779	6.228
4:06:16	146.7	0.473	85.7	5.513	7.90	43.1606	146.0	1.573	1.554	2.274	1.876	0.312	1.094	0.782	6.013
4:09:32	147.6	0.479	86.1	5.507	8.01	43.2076	146.9	1.581	1.561	2.281	1.850	0.278	1.064	0.786	6.643
4:12:49	148.2	0.485	85.6	5.501	8.11	43.2553	147.5	1.585	1.565	2.285	1.890	0.314	1.102	0.788	6.018
4:16:02	148.5	0.491	85.9	5.495	8.21	43.3019	147.8	1.588	1.567	2.287	1.870	0.293	1.082	0.789	6.390
4:19:17	149.3	0.497	85.9	5.489	8.31	43.3492	148.6	1.594	1.574	2.294	1.876	0.292	1.084	0.792	6.421
4:22:32	149.9	0.503	85.0	5.483	8.41	43.3964	149.2	1.599	1.578	2.298	1.948	0.359	1.153	0.794	5.422
4:25:44	150.8	0.509	86.0	5.477	8.51	43.4442	150.1	1.607	1.586	2.306	1.881	0.285	1.083	0.798	6.610
4:28:57	151.4	0.515	85.8	5.471	8.61	43.4916	150.7	1.611	1.590	2.310	1.901	0.301	1.101	0.800	6.321
4:32:12	152.0	0.521	85.1	5.465	8.71	43.5398	151.2	1.615	1.594	2.314	1.956	0.352	1.154	0.802	5.557
4:35:22	152.5	0.527	86.1	5.459	8.81	43.5869	151.8	1.620	1.598	2.318	1.892	0.283	1.088	0.804	6.678
4:38:34	153.0	0.533	85.7	5.453	8.91	43.6349	152.3	1.623	1.601	2.321	1.923	0.311	1.117	0.806	6.176
4:41:45	153.4	0.539	85.5	5.447	9.01	43.6828	152.7	1.625	1.603	2.323	1.935	0.322	1.129	0.807	6.014
4:44:57	154.1	0.545	86.0	5.441	9.11	43.7314	153.4	1.631	1.609	2.329	1.910	0.291	1.101	0.810	6.566
4:48:08	154.6	0.551	85.3	5.435	9.21	43.7796	153.9	1.634	1.611	2.331	1.959	0.338	1.149	0.811	5.803
4:51:18	155.3	0.557	85.7	5.429	9.31	43.8274	154.6	1.640	1.617	2.337	1.938	0.311	1.124	0.814	6.236
4:54:28	155.8	0.563	85.6	5.423	9.41	43.8758	155.1	1.644	1.621	2.341	1.945	0.314	1.129	0.815	6.196
4:57:45	157.0	0.569	84.6	5.417	9.51	43.9247	156.3	1.655	1.631	2.351	2.033	0.391	1.212	0.821	5.195
5:00:58	157.3	0.575	85.7	5.411	9.61	43.9734	156.6	1.656	1.632	2.352	1.953	0.311	1.132	0.821	6.286
5:04:08	158.3	0.581	85.5	5.405	9.71	44.0218	157.6	1.665	1.641	2.361	1.978	0.326	1.152	0.826	6.060
5:07:20	158.5	0.587	84.5	5.399	9.81	44.0712	157.7	1.664	1.640	2.360	2.046	0.396	1.221	0.825	5.171
5:10:28	159.3	0.593	85.8	5.393	9.91	44.1195	158.6	1.671	1.647	2.367	1.963	0.306	1.134	0.829	6.418
5:13:41	159.5	0.599	85.4	5.387	10.01	44.1691	158.8	1.671	1.647	2.367	1.990	0.333	1.162	0.829	5.975
5:16:48	160.1	0.605	85.2	5.381	10.11	44.2176	159.4	1.676	1.651	2.371	2.005	0.344	1.175	0.831	5.833
5:20:03	160.5	0.611	85.8	5.375	10.21	44.2675	159.8	1.678	1.653	2.373	1.967	0.304	1.135	0.832	6.477
5:23:18	160.9	0.617	85.2	5.369	10.31	44.3172	160.2	1.681	1.655	2.375	2.011	0.346	1.178	0.833	5.819
5:26:26	161.2	0.623	85.6	5.363	10.41	44.3661	160.5	1.682	1.657	2.377	1.983	0.316	1.149	0.833	6.279
5:29:41	161.9	0.629	85.6	5.357	10.51	44.4152	161.2	1.688	1.662	2.382	1.987	0.315	1.151	0.836	6.300
5:32:56	162.1	0.635	84.6	5.351	10.61	44.4655	161.4	1.688	1.662	2.382	2.059	0.386	1.222	0.836	5.331
5:36:11	162.8	0.641	85.7	5.345	10.71	44.5153	162.1	1.693	1.667	2.387	1.988	0.311	1.149	0.838	6.395
5:39:21	163.4	0.647	85.5	5.339	10.81	44.5648	162.7	1.697	1.671	2.391	2.006	0.325	1.165	0.840	6.172
5:42:36	163.4	0.653	83.6	5.333	10.91	44.6156	162.7	1.696	1.669	2.389	2.141	0.462	1.301	0.839	4.635
5:45:46	163.9	0.659	85.7	5.327	11.01	44.6653	163.1	1.699	1.671	2.391	1.995	0.313	1.154	0.841	6.373
5:48:58	164.4	0.665	85.4	5.321	11.11	44.7157	163.7	1.703	1.675	2.395	2.018	0.332	1.175	0.843	6.075
5:52:08	165.2	0.671	85.1	5.315	11.21	44.7660	164.4	1.708	1.680	2.400	2.047	0.356	1.202	0.845	5.747
5:55:19	165.6	0.677	85.7	5.310	11.31	44.8162	164.9	1.711	1.683	2.403	2.005	0.312	1.158	0.847	6.431
5:58:29	165.7	0.683	85.2	5.304	11.41	44.8669	165.0	1.710	1.682	2.402	2.038	0.346	1.192	0.846	5.894
6:01:41	165.9	0.689	85.4	5.298	11.51	44.9178	165.2	1.710	1.682	2.402	2.023	0.330	1.176	0.846	6.122
6:04:51	166.4	0.695	85.5	5.291	11.61	44.9690	165.7	1.714	1.685	2.405	2.021	0.326	1.173	0.848	6.208
6:08:01	166.9	0.701	84.7	5.286	11.71	45.0198	166.2	1.717	1.688	2.408	2.077	0.379	1.228	0.849	5.487
6:11:14	167.4	0.707	85.5	5.279	11.81	45.0714	166.7	1.719	1.690	2.410	2.025	0.325	1.175	0.850	6.235
6:14:22	167.7	0.713	85.4	5.274	11.91	45.1218	167.0	1.721	1.692	2.412	2.037	0.335	1.186	0.851	6.085

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.986 (in.)	15.205 (cm)
Diameter	2.801 (in)	7.114 (cm)
Area	6.161 (in ²)	39.749 (cm ²)

Final Values	
Height	4.968 (in.)
Dia. avg.	3.119 (in)
Area avg.	7.639 (in ²)

Tested By	KDG
Date	6-30-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	CU-1015B
Data File ID	1015B
Lateral Pressure (psi)	10.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	$p' (\sigma_1' + \sigma_3')/2$ (tsf)	$q (\sigma_1 - \sigma_3)/2$ (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
6:17:34	168.0	0.719	83.9	5.268	12.01	45.1732	167.3	1.722	1.692	2.412	2.142	0.439	1.291	0.851	4.874
6:20:44	168.6	0.725	85.5	5.262	12.11	45.2251	167.9	1.726	1.696	2.416	2.030	0.324	1.177	0.853	6.271
6:23:50	168.9	0.731	85.2	5.256	12.21	45.2759	168.2	1.727	1.697	2.417	2.050	0.343	1.196	0.854	5.984
6:26:57	169.0	0.737	84.8	5.250	12.31	45.3280	168.3	1.726	1.696	2.416	2.084	0.377	1.230	0.853	5.520
6:30:05	169.7	0.743	85.5	5.244	12.41	45.3793	169.0	1.732	1.701	2.421	2.037	0.326	1.182	0.856	6.251
6:33:15	170.0	0.749	85.0	5.238	12.51	45.4316	169.3	1.733	1.702	2.422	2.072	0.360	1.216	0.856	5.762
6:36:23	170.6	0.755	85.0	5.232	12.61	45.4836	169.9	1.737	1.706	2.426	2.076	0.360	1.218	0.858	5.768
6:39:33	170.6	0.761	85.3	5.226	12.71	45.5359	169.9	1.735	1.704	2.424	2.053	0.339	1.196	0.857	6.064
6:42:43	171.1	0.767	84.6	5.220	12.81	45.5878	170.4	1.738	1.706	2.426	2.102	0.386	1.244	0.858	5.445
6:45:54	171.5	0.773	85.0	5.214	12.91	45.6401	170.8	1.740	1.708	2.428	2.080	0.361	1.220	0.859	5.760
6:49:04	171.9	0.779	84.9	5.208	13.01	45.6929	171.2	1.742	1.710	2.430	2.086	0.366	1.226	0.860	5.696
6:52:09	172.1	0.785	84.2	5.202	13.11	45.7451	171.4	1.742	1.710	2.430	2.139	0.419	1.279	0.860	5.102
6:55:18	172.5	0.791	84.8	5.196	13.21	45.7978	171.8	1.744	1.712	2.432	2.095	0.373	1.234	0.861	5.616
6:58:26	172.9	0.797	84.7	5.190	13.31	45.8515	172.2	1.746	1.713	2.433	2.107	0.384	1.245	0.862	5.494
7:01:31	173.1	0.803	83.2	5.184	13.41	45.9042	172.3	1.746	1.713	2.433	2.212	0.489	1.351	0.862	4.522
7:04:37	173.7	0.809	84.9	5.178	13.51	45.9574	173.0	1.750	1.717	2.437	2.095	0.368	1.231	0.864	5.694
7:07:40	173.9	0.815	84.6	5.172	13.61	46.0101	173.2	1.751	1.717	2.437	2.114	0.387	1.251	0.864	5.464
7:10:46	173.9	0.821	83.8	5.166	13.71	46.0639	173.2	1.749	1.715	2.435	2.171	0.445	1.308	0.863	4.875
7:13:44	174.4	0.827	84.9	5.160	13.81	46.1171	173.7	1.752	1.718	2.438	2.092	0.364	1.228	0.864	5.742
7:16:47	174.7	0.833	84.7	5.154	13.91	46.1710	174.0	1.752	1.718	2.438	2.111	0.382	1.246	0.864	5.521
7:19:47	174.9	0.839	84.2	5.148	14.01	46.2248	174.2	1.753	1.718	2.438	2.146	0.418	1.282	0.864	5.138
7:22:46	175.5	0.845	85.0	5.142	14.11	46.2780	174.7	1.756	1.721	2.441	2.094	0.363	1.228	0.866	5.776
7:25:49	175.9	0.851	84.6	5.136	14.21	46.3329	175.2	1.758	1.723	2.443	2.120	0.387	1.253	0.867	5.482
7:28:47	175.6	0.857	84.5	5.130	14.31	46.3861	174.9	1.753	1.718	2.438	2.125	0.396	1.260	0.864	5.364
7:31:48	176.3	0.863	85.0	5.124	14.41	46.4409	175.6	1.758	1.723	2.443	2.097	0.364	1.230	0.867	5.768
7:34:49	177.2	0.869	84.6	5.118	14.51	46.4953	176.5	1.765	1.729	2.449	2.131	0.391	1.261	0.870	5.451
7:37:52	177.5	0.875	84.6	5.112	14.61	46.5496	176.8	1.766	1.730	2.450	2.127	0.386	1.257	0.870	5.504
7:40:52	177.2	0.881	85.0	5.106	14.71	46.6040	176.5	1.761	1.724	2.444	2.096	0.361	1.228	0.867	5.806
7:43:55	178.0	0.887	84.5	5.100	14.81	46.6590	177.3	1.767	1.731	2.451	2.138	0.397	1.268	0.871	5.383
7:46:55	178.5	0.892	84.7	5.094	14.91	46.7134	177.7	1.769	1.733	2.453	2.123	0.380	1.252	0.871	5.586
7:49:56	178.7	0.898	85.0	5.088	15.01	46.7685	178.0	1.769	1.732	2.452	2.103	0.360	1.232	0.871	5.838
7:52:56	178.8	0.904	84.4	5.082	15.11	46.8235	178.1	1.769	1.731	2.451	2.146	0.404	1.275	0.871	5.309
7:55:56	179.0	0.910	84.8	5.076	15.21	46.8788	178.3	1.769	1.731	2.451	2.116	0.374	1.245	0.871	5.652
7:58:59	178.7	0.916	84.9	5.070	15.31	46.9343	178.0	1.763	1.725	2.445	2.100	0.364	1.232	0.868	5.769
8:02:02	179.0	0.922	84.4	5.064	15.41	46.9899	178.3	1.764	1.726	2.446	2.142	0.405	1.274	0.868	5.283
8:05:03	179.1	0.928	84.9	5.058	15.51	47.0458	178.4	1.763	1.725	2.445	2.104	0.369	1.237	0.868	5.702
8:08:08	179.3	0.934	84.8	5.052	15.61	47.1013	178.6	1.764	1.725	2.445	2.106	0.371	1.239	0.868	5.677
8:11:13	179.6	0.940	84.1	5.046	15.71	47.1576	178.9	1.764	1.725	2.445	2.163	0.428	1.295	0.868	5.057
8:14:13	180.0	0.946	84.9	5.040	15.81	47.2132	179.3	1.766	1.727	2.447	2.105	0.368	1.237	0.869	5.722
8:17:16	180.1	0.952	84.8	5.034	15.91	47.2699	179.4	1.765	1.726	2.446	2.112	0.376	1.244	0.868	5.623
8:20:19	180.2	0.958	83.9	5.028	16.01	47.3260	179.5	1.764	1.724	2.444	2.175	0.441	1.308	0.867	4.934
8:23:22	180.4	0.964	84.8	5.022	16.11	47.3823	179.7	1.763	1.723	2.443	2.108	0.375	1.241	0.867	5.629
8:26:22	180.8	0.970	84.6	5.016	16.21	47.4385	180.1	1.765	1.725	2.445	2.121	0.386	1.253	0.868	5.499
8:29:32	180.6	0.976	83.4	5.010	16.31	47.4954	179.9	1.761	1.721	2.441	2.204	0.472	1.338	0.866	4.667
8:32:38	181.1	0.982	84.6	5.004	16.41	47.5521	180.4	1.764	1.723	2.443	2.120	0.387	1.254	0.867	5.482
8:35:45	181.4	0.988	84.4	4.998	16.51	47.6098	180.7	1.765	1.724	2.444	2.138	0.404	1.271	0.867	5.298
8:38:51	181.4	0.994	82.8	4.992	16.61	47.6665	180.7	1.763	1.722	2.442	2.250	0.517	1.384	0.866	4.348
8:41:58	182.2	1.000	84.5	4.986	16.71	47.7236	181.5	1.768	1.727	2.447	2.131	0.394	1.263	0.869	5.406
8:45:04	182.5	1.006	84.2	4.980	16.81	47.7809	181.8	1.769	1.728	2.448	2.158	0.420	1.289	0.869	5.140
8:48:11	182.5	1.012	83.8	4.974	16.91	47.8388	181.8	1.767	1.725	2.445	2.182	0.446	1.314	0.868	4.888
8:51:17	183.2	1.018	84.5	4.968	17.01	47.8966	182.5	1.772	1.730	2.450	2.139	0.399	1.269	0.870	5.364

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

	<u>Consolidation Values</u>				<u>Final Values</u>				Tested By <u>KDG</u>			Project Number <u>175569038</u>	
Height	6.045 (in.)		15.353 (cm)		Height	5.011 (in.)			Date	7-1-09		Test Number	CU-1015C
Diameter	2.783 (in)		7.068 (cm)		Dia. avg.	3.128 (in)			Press No.	2		Data File ID	1015C
Area	6.081 (in ²)		39.231 (cm ²)		Area avg.	7.686 (in ²)			Panel No.	E		Lateral Pressure (psi)	20.0
												Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ'_1 (tsf)	σ_3 (tsf)	p' ($(\sigma_1 + \sigma_3)/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ'_1 / σ_3
0:00:00	12.5	-0.002	69.9	6.045	0.00	39.2314	0.0	0.000	0.000	1.440	1.440	1.444	1.442	-0.002	0.997
0:00:39	20.7	0.005	70.2	6.038	0.11	39.2753	8.2	0.097	0.097	1.537	1.517	1.424	1.471	0.047	1.066
0:01:11	57.0	0.011	73.0	6.032	0.20	39.3118	44.5	0.526	0.526	1.966	1.749	1.227	1.488	0.261	1.425
0:01:43	78.8	0.016	74.9	6.026	0.30	39.3505	66.3	0.784	0.783	2.223	1.867	1.088	1.478	0.390	1.716
0:02:17	91.8	0.023	76.3	6.020	0.41	39.3918	79.3	0.936	0.935	2.375	1.917	0.985	1.451	0.466	1.945
0:02:49	100.4	0.029	77.2	6.014	0.51	39.4311	87.9	1.037	1.036	2.476	1.953	0.921	1.437	0.516	2.120
0:03:20	107.5	0.035	78.0	6.008	0.61	39.4703	95.1	1.120	1.118	2.558	1.976	0.861	1.419	0.557	2.294
0:03:50	112.7	0.041	78.6	6.002	0.70	39.5085	100.2	1.179	1.177	2.617	1.992	0.819	1.405	0.587	2.434
0:04:21	117.7	0.047	79.0	5.996	0.80	39.5491	105.2	1.237	1.235	2.675	2.024	0.792	1.408	0.616	2.554
0:04:54	122.4	0.053	79.4	5.990	0.91	39.5909	109.9	1.291	1.289	2.729	2.051	0.766	1.409	0.642	2.677
0:05:23	125.6	0.059	79.7	5.984	1.00	39.6290	113.1	1.328	1.325	2.765	2.065	0.744	1.405	0.661	2.776
0:05:56	129.0	0.065	80.0	5.978	1.11	39.6712	116.5	1.366	1.363	2.803	2.079	0.720	1.399	0.679	2.888
0:06:26	131.5	0.071	80.0	5.972	1.21	39.7109	119.0	1.393	1.390	2.830	2.106	0.720	1.413	0.693	2.926
0:06:55	134.2	0.077	80.2	5.966	1.30	39.7480	121.7	1.424	1.420	2.860	2.126	0.709	1.417	0.708	2.998
0:07:28	136.4	0.083	80.4	5.960	1.40	39.7896	124.0	1.449	1.445	2.885	2.130	0.688	1.409	0.721	3.095
0:07:58	138.1	0.089	80.8	5.954	1.50	39.8302	125.6	1.466	1.463	2.903	2.123	0.664	1.394	0.729	3.196
0:08:28	140.1	0.095	80.8	5.948	1.60	39.8691	127.6	1.489	1.485	2.925	2.141	0.660	1.400	0.740	3.245
0:09:00	141.8	0.101	81.0	5.942	1.70	39.9115	129.3	1.506	1.502	2.942	2.145	0.647	1.396	0.749	3.316
0:09:30	142.8	0.107	81.2	5.936	1.80	39.9511	130.4	1.517	1.513	2.953	2.143	0.634	1.388	0.755	3.381
0:09:59	144.5	0.113	81.2	5.930	1.90	39.9926	132.0	1.535	1.530	2.970	2.157	0.631	1.394	0.763	3.419
0:10:32	145.7	0.119	81.3	5.923	2.00	40.0340	133.2	1.547	1.542	2.982	2.167	0.629	1.398	0.769	3.446
0:11:02	146.4	0.125	81.4	5.917	2.10	40.0745	134.0	1.555	1.549	2.989	2.167	0.622	1.394	0.773	3.486
0:11:34	147.4	0.132	81.4	5.911	2.21	40.1170	134.9	1.564	1.559	2.999	2.172	0.617	1.394	0.777	3.520
0:12:04	148.4	0.137	81.5	5.905	2.30	40.1568	135.9	1.573	1.568	3.008	2.173	0.609	1.391	0.782	3.569
0:12:33	148.9	0.143	81.5	5.900	2.40	40.1960	136.4	1.578	1.572	3.012	2.179	0.610	1.394	0.784	3.571
0:13:03	149.5	0.149	81.7	5.894	2.50	40.2369	137.1	1.584	1.578	3.018	2.173	0.599	1.386	0.787	3.626
0:13:36	150.2	0.156	81.6	5.887	2.61	40.2821	137.7	1.590	1.583	3.023	2.182	0.603	1.392	0.790	3.620
0:14:06	150.6	0.162	81.6	5.881	2.70	40.3208	138.1	1.593	1.586	3.026	2.185	0.603	1.394	0.791	3.623
0:14:36	151.3	0.168	81.6	5.875	2.80	40.3628	138.8	1.599	1.592	3.032	2.191	0.602	1.396	0.794	3.638
0:15:06	151.5	0.173	81.6	5.869	2.90	40.4029	139.0	1.600	1.592	3.032	2.195	0.606	1.401	0.794	3.620
0:15:38	151.9	0.180	81.6	5.863	3.00	40.4464	139.5	1.603	1.596	3.036	2.198	0.606	1.402	0.796	3.629
0:16:08	152.2	0.186	81.5	5.857	3.10	40.4873	139.7	1.605	1.597	3.037	2.208	0.615	1.412	0.797	3.590
0:16:40	152.6	0.192	81.7	5.851	3.20	40.5304	140.1	1.607	1.599	3.039	2.193	0.597	1.395	0.798	3.671
0:17:10	152.8	0.198	81.9	5.845	3.30	40.5717	140.3	1.608	1.600	3.040	2.178	0.582	1.380	0.798	3.742
0:17:40	153.3	0.204	82.0	5.839	3.40	40.6123	140.8	1.612	1.604	3.044	2.176	0.576	1.376	0.800	3.777
0:18:10	153.0	0.210	81.8	5.833	3.50	40.6538	140.5	1.608	1.599	3.039	2.182	0.587	1.385	0.798	3.716
0:18:42	153.2	0.216	82.1	5.827	3.60	40.6972	140.8	1.609	1.600	3.040	2.166	0.570	1.368	0.798	3.798
0:19:12	153.5	0.222	82.0	5.821	3.70	40.7394	141.0	1.610	1.601	3.041	2.170	0.573	1.371	0.798	3.787
0:19:44	153.6	0.228	82.1	5.815	3.81	40.7833	141.1	1.609	1.600	3.040	2.164	0.568	1.366	0.798	3.811
0:20:14	153.5	0.234	82.2	5.809	3.90	40.8234	141.0	1.606	1.597	3.037	2.154	0.562	1.358	0.796	3.836
0:20:46	153.6	0.240	82.1	5.803	4.00	40.8667	141.1	1.606	1.596	3.036	2.160	0.568	1.364	0.796	3.804
0:21:15	153.6	0.246	82.1	5.797	4.10	40.9092	141.1	1.604	1.594	3.034	2.158	0.568	1.363	0.795	3.799
0:21:45	153.5	0.252	82.1	5.791	4.20	40.9506	141.0	1.601	1.591	3.031	2.154	0.567	1.361	0.793	3.796
0:22:18	153.9	0.258	82.1	5.784	4.30	40.9958	141.4	1.604	1.593	3.033	2.156	0.567	1.362	0.795	3.803
0:22:48	154.0	0.264	82.1	5.779	4.40	41.0370	141.5	1.603	1.593	3.033	2.155	0.566	1.361	0.794	3.805
0:23:20	154.2	0.271	82.1	5.772	4.51	41.0823	141.7	1.604	1.593	3.033	2.157	0.568	1.362	0.794	3.798
0:23:50	154.1	0.276	82.1	5.767	4.60	41.1229	141.7	1.602	1.590	3.030	2.155	0.568	1.361	0.793	3.793
0:24:19	154.1	0.282	82.0	5.761	4.70	41.1655	141.7	1.600	1.589	3.029	2.159	0.575	1.367	0.792	3.758
0:24:51	154.3	0.288	82.0	5.754	4.80	41.2104	141.8	1.600	1.588	3.028	2.159	0.575	1.367	0.792	3.757
0:25:21	154.1	0.294	81.9	5.748	4.90	41.2522	141.7	1.597	1.585	3.025	2.164	0.583	1.373	0.790	3.712
0:25:51	154.3	0.300	82.1	5.743	5.00	41.2949	141.8	1.597	1.584	3.024	2.147	0.566	1.357	0.790	3.791
0:26:23	154.4	0.307	82.3	5.736	5.10	41.3407	142.0	1.597	1.584	3.024	2.136	0.556	1.346	0.790	3.843
0:26:53	154.5	0.312	82.3	5.730	5.20	41.3829	142.0	1.596	1.583	3.023	2.133	0.554	1.343	0.790	3.853
0:27:23	154.5	0.318	82.4	5.724	5.30	41.4257	142.0	1.594	1.581	3.021	2.127	0.550	1.338	0.788	3.868
0:27:55	154.6	0.325	82.2	5.718	5.40	41.4713	142.2	1.594	1.581	3.021	2.136	0.559	1.347	0.788	3.821
0:28:25	154.7	0.331	82.4	5.712	5.50	41.5144	142.2	1.593	1.579	3.019	2.120	0.544	1.332	0.788	3.896
0:28:54	154.6	0.336	82.4	5.706	5.60	41.5572	142.1	1.590	1.576	3.016	2.121	0.548	1.335	0.786	3.868
0:29:26	154.8	0.343	82.4	5.700	5.70	41.6032	142.3	1.590	1.576	3.016	2.117	0.544	1.330	0.786	3.889
0:29:56	154.8	0.349	82.3	5.694	5.80	41.6469	142.3	1.589	1.574	3.014	2.126	0.555	1.341	0.785	3.827
0:30:26	155.0	0.355	82.3	5.688	5.90	41.6900	142.5	1.590	1.575	3.015	2.124	0.553	1.339	0.786	3.841

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values				Final Values				Tested By <u> KDG </u>		Project Number <u> 175569038 </u>	
Height	<u>6.045 (in.)</u>	<u>15.353 (cm)</u>		Height	<u>5.011 (in.)</u>		Date	<u>7-1-09</u>	Test Number <u> CU-1015C </u>		
Diameter	<u>2.783 (in)</u>	<u>7.068 (cm)</u>		Dia. avg.	<u>3.128 (in)</u>		Press No.	<u>2</u>	Data File ID <u> 1015C </u>		
Area	<u>6.081 (in²)</u>	<u>39.231 (cm²)</u>		Area avg.	<u>7.686 (in²)</u>		Panel No.	<u>E</u>	Lateral Pressure (psi) <u> 20.0 </u>		
									Chamber Pressure - σ_3 (psi) <u> 90 </u>		

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
1:01:59	160.2	0.723	82.7	5.319	12.00	44.5795	147.8	1.541	1.512	2.952	2.036	0.529	1.283	0.754	3.852
1:02:29	160.4	0.729	82.7	5.313	12.10	44.6296	148.0	1.542	1.512	2.952	2.036	0.528	1.282	0.754	3.857
1:03:01	160.4	0.736	82.7	5.307	12.20	44.6820	147.9	1.539	1.509	2.949	2.032	0.527	1.279	0.752	3.857
1:03:31	160.6	0.741	82.7	5.301	12.29	44.7306	148.1	1.540	1.509	2.949	2.031	0.525	1.278	0.753	3.865
1:04:01	160.6	0.747	82.8	5.296	12.39	44.7802	148.2	1.539	1.508	2.948	2.026	0.522	1.274	0.752	3.884
1:04:33	160.6	0.753	82.8	5.289	12.49	44.8328	148.2	1.537	1.506	2.946	2.023	0.522	1.273	0.751	3.879
1:05:05	160.8	0.760	82.8	5.283	12.60	44.8852	148.3	1.536	1.505	2.945	2.019	0.518	1.268	0.751	3.901
1:05:35	160.8	0.765	82.8	5.277	12.69	44.9347	148.3	1.535	1.503	2.943	2.020	0.521	1.270	0.750	3.880
1:06:07	161.1	0.772	82.6	5.271	12.79	44.9875	148.6	1.536	1.504	2.944	2.030	0.530	1.280	0.750	3.833
1:06:36	161.2	0.777	82.7	5.265	12.89	45.0368	148.8	1.536	1.504	2.944	2.025	0.525	1.275	0.750	3.857
1:07:09	161.1	0.784	82.7	5.259	12.99	45.0903	148.7	1.533	1.501	2.941	2.026	0.528	1.277	0.749	3.833
1:07:41	161.2	0.790	82.6	5.253	13.10	45.1440	148.7	1.532	1.499	2.939	2.025	0.530	1.278	0.748	3.823
1:08:11	161.2	0.796	82.6	5.247	13.19	45.1947	148.8	1.531	1.498	2.938	2.024	0.530	1.277	0.747	3.818
1:08:43	161.4	0.802	82.6	5.241	13.30	45.2482	148.9	1.531	1.498	2.938	2.024	0.530	1.277	0.747	3.816
1:09:13	161.6	0.808	82.6	5.235	13.39	45.2984	149.1	1.531	1.497	2.937	2.028	0.534	1.281	0.747	3.795
1:09:45	161.5	0.814	82.4	5.229	13.50	45.3527	149.1	1.528	1.495	2.935	2.036	0.545	1.290	0.745	3.736
1:10:15	161.7	0.820	82.5	5.223	13.59	45.4027	149.2	1.528	1.495	2.935	2.030	0.539	1.285	0.745	3.763
1:10:47	161.8	0.826	82.6	5.217	13.70	45.4575	149.4	1.528	1.494	2.934	2.020	0.530	1.275	0.745	3.810
1:11:17	161.8	0.832	82.8	5.211	13.79	45.5078	149.3	1.525	1.491	2.931	2.008	0.521	1.265	0.744	3.854
1:11:49	162.1	0.838	82.8	5.205	13.90	45.5630	149.7	1.527	1.493	2.933	2.011	0.522	1.266	0.745	3.854
1:12:19	162.2	0.844	82.8	5.199	13.99	45.6132	149.7	1.526	1.491	2.931	2.007	0.519	1.263	0.744	3.864
1:12:51	162.0	0.850	82.8	5.193	14.10	45.6688	149.6	1.523	1.488	2.928	2.004	0.520	1.262	0.742	3.852
1:13:21	162.2	0.856	82.7	5.187	14.19	45.7214	149.8	1.523	1.488	2.928	2.009	0.525	1.267	0.742	3.827
1:13:51	162.4	0.862	82.8	5.181	14.29	45.7722	149.9	1.523	1.487	2.927	2.004	0.521	1.263	0.742	3.849
1:14:23	162.3	0.868	82.8	5.174	14.39	45.8284	149.8	1.520	1.484	2.924	1.997	0.517	1.257	0.740	3.865
1:14:53	162.4	0.874	82.8	5.169	14.49	45.8807	149.9	1.520	1.484	2.924	2.001	0.521	1.261	0.740	3.840
1:15:23	162.7	0.880	82.6	5.163	14.59	45.9333	150.2	1.520	1.484	2.924	2.016	0.536	1.276	0.740	3.764
1:15:55	162.6	0.886	82.7	5.156	14.70	45.9898	150.1	1.518	1.481	2.921	2.005	0.528	1.266	0.739	3.800
1:16:25	162.3	0.892	82.7	5.150	14.79	46.0431	149.9	1.513	1.477	2.917	1.999	0.526	1.263	0.736	3.800
1:16:54	162.5	0.898	82.6	5.144	14.89	46.0968	150.0	1.513	1.476	2.916	2.002	0.530	1.266	0.736	3.779
1:17:24	162.5	0.904	82.8	5.139	14.99	46.1489	150.1	1.512	1.475	2.915	1.990	0.519	1.255	0.736	3.833
1:17:54	162.7	0.910	82.6	5.133	15.09	46.2030	150.3	1.512	1.475	2.915	2.003	0.532	1.268	0.736	3.763
1:18:26	162.7	0.917	82.5	5.126	15.19	46.2603	150.2	1.510	1.472	2.912	2.005	0.537	1.271	0.734	3.734
1:18:56	162.7	0.923	82.4	5.120	15.29	46.3139	150.2	1.509	1.471	2.911	2.015	0.548	1.282	0.733	3.676
1:19:25	162.8	0.928	82.7	5.114	15.39	46.3670	150.3	1.508	1.469	2.909	1.994	0.528	1.261	0.733	3.776
1:19:57	162.8	0.935	82.7	5.108	15.49	46.4248	150.3	1.506	1.467	2.907	1.990	0.526	1.258	0.732	3.780
1:20:27	162.9	0.941	82.7	5.102	15.59	46.4785	150.4	1.505	1.466	2.906	1.985	0.523	1.254	0.731	3.796
1:20:59	163.1	0.947	82.8	5.096	15.70	46.5355	150.6	1.505	1.466	2.906	1.982	0.520	1.251	0.731	3.813
1:21:29	163.0	0.953	82.8	5.090	15.79	46.5889	150.6	1.503	1.464	2.904	1.975	0.515	1.245	0.730	3.832
1:21:59	163.1	0.959	82.8	5.084	15.89	46.6430	150.6	1.502	1.462	2.902	1.980	0.521	1.251	0.729	3.797
1:22:31	163.3	0.965	82.8	5.078	15.99	46.7012	150.8	1.502	1.462	2.902	1.979	0.521	1.250	0.729	3.801
1:23:01	163.3	0.971	82.7	5.072	16.09	46.7560	150.8	1.500	1.460	2.900	1.982	0.526	1.254	0.728	3.770
1:23:30	163.4	0.977	82.8	5.066	16.19	46.8110	150.9	1.499	1.459	2.899	1.976	0.520	1.248	0.728	3.797
1:24:01	163.5	0.983	82.9	5.060	16.29	46.8670	151.0	1.499	1.458	2.898	1.968	0.513	1.241	0.727	3.832
1:24:30	163.6	0.989	82.8	5.054	16.39	46.9210	151.2	1.498	1.457	2.897	1.975	0.522	1.249	0.727	3.785
1:25:02	163.6	0.995	82.7	5.048	16.49	46.9805	151.2	1.496	1.455	2.895	1.978	0.527	1.252	0.726	3.755
1:25:31	163.4	1.001	82.7	5.042	16.59	47.0332	151.0	1.492	1.451	2.891	1.974	0.527	1.250	0.724	3.748
1:26:03	163.9	1.007	82.7	5.036	16.69	47.0906	151.4	1.495	1.453	2.893	1.977	0.528	1.252	0.725	3.747
1:26:34	163.8	1.013	82.6	5.030	16.79	47.1484	151.3	1.492	1.450	2.890	1.982	0.536	1.259	0.723	3.701
1:27:06	163.8	1.019	82.6	5.024	16.89	47.2055	151.3	1.490	1.448	2.888	1.981	0.536	1.258	0.722	3.695
1:27:38	163.7	1.025	82.4	5.017	16.99	47.2633	151.2	1.488	1.446	2.886	1.992	0.550	1.271	0.721	3.620
1:28:09	163.9	1.032	82.6	5.011	17.10	47.3215	151.4	1.488	1.445	2.885	1.972	0.531	1.252	0.721	3.714



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04 COE Output

Project Name John Siever Fossil Plant

Project Number 175569038

Test ID _____

Request ID 20090526

Over-Ride _____

Set Number 1

Test Type - Select 1

Undisturbed _____

Remolded _____ rare

Source _____

Compacted _____

Sample ID _____

If Compacted or Remolded:

Test A

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test B

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test C

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

If Uniform for all

Visual Description: _____

LL NP _____

PL NP _____

PI NP _____

GS 2.26 ASTM D854 Method: A Assumed _____ Estimated _____

Gs Method Test ASTM D854 Method A

Test Number (ie 19A) CU-1A

Normal Load (psi) 5

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-1-09	9:00:00	1.29
0.1	6-1-09	9:00:06	1.73
0.25	6-1-09	9:00:15	2.01
0.5	6-1-09	9:00:30	2.24
1	6-1-09	9:01:00	2.52
2	6-1-09	9:02:00	2.65
3	6-1-09	9:03:00	2.67
4	6-1-09	9:04:00	2.68
6	6-1-09	9:06:00	2.68
8	6-1-09	9:08:00	2.68
10	6-1-09	9:10:00	2.68

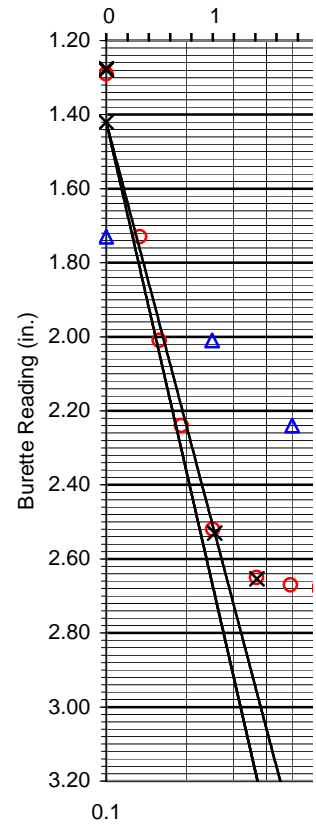


x o11:o22 y c11:c22
 sqtr plot range

e12:e22 c12:c22
 log plot range

Project Name Jo
 Source JS
 Start Date 6-1-09
 End Date 6-1-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)	
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value			
do	0	1.29	0	0.10	0	0.10	1.2	0	1.29	
not	0.1	1.73	0.3162278	0.13	1	0.25	1.2	0.1	1.73	
erase!	0.25	2.01	0.5	0.16	2	0.63	1.2	0.25	2.01	
	0.5	2.24	0.7071068	0.19	3	1.58	1.2	0.5	2.24	
	1	2.52	1	0.25	4	3.98	1.2	1	2.52	
	2	2.65	1.4142136	0.37	5	10.00	1.2	2	2.65	
	3	2.67	1.7320508	0.49	6	25.12	1.2	3	2.67	
	4	2.68	2	0.63	7	63.10	1.2			
	6	2.68	2.4494897	0.95	8	158.49	1.2			
	8	2.68	2.8284271	1.35	9	398.11	1.2			
	10	2.68	3.1622777	1.84	10	1000.00	1.2			
	0	0	0	0.10	11	2511.89	1.2			



Square Root

$d_0 = 1.42$
 $d_{90} = 2.53$
 $d_{100} = 2.653$

Comments: _____

			Square Root	
8.6	275.42	1.2		plot point - x
8.8	331.13	1.2		
9.2	478.63	1.2	$d_0 =$	0.10
9.4	575.44	1.2	$d_{90} =$	0.26
9.6	691.83	1.2	$d_{100} =$	0.37
9.8	831.76	1.2		
10.2	1202.26	1.2	$d_0 =$	0.10
10.4	1445.44	1.2	d_0 line	0.23
10.6	1737.80	1.2		
10.8	2089.30	1.2		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

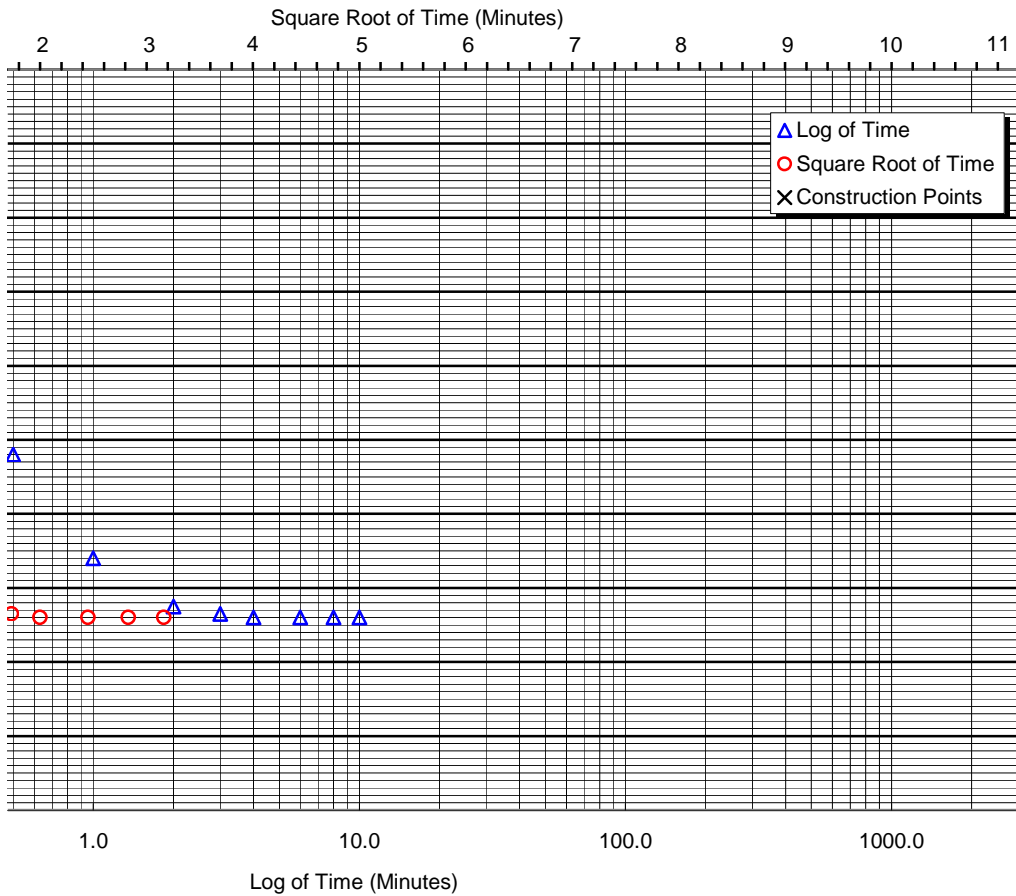
John Siever Fossil Plant
 49, 12.0' - 18.0'

Project No. 175569038
 Test Number CU-1A
 Load (tsf) 5

Start Time 9:00 AM
 End Time 9:10 AM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	2.68					4:19 PM
6	2.68					
8	2.68					
10	2.68					

Consolidation



t of Time

Log of time

$t_{90} (m) = 1.04$	$d_{100} =$	$t_{100} (m) =$
$t_{100} (m) = 2.01$	$d_{t_1} =$	$t_1 (m) =$
$t_{50} (m) = 0.243$	$d_{t_2 (t_1^*4)} =$	$t_{50} (m) =$
	$d_{50} =$	

t of Time

y	time
1.42	0
2.53	1.04
2.65333333	2.01
1.42	0
2.53	0.78638941

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.279
d _{t1}	0.1	1.278
d _{t1*4}	0.1	1.277
d ₅₀	0.1	1.276

line @ 3000 m

3000	3.2
3000	1.2

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	2.68 maximum scale	2.7	2.8	3	2	10
min. dial reading	1.29 minimum scale	1.2	1.2	1	0	0
diference	1.39	1.5	1.6	2	2	10

0.5	1	2	3	4	5	10	20
		2	3	4	5	10	20
		0.2	0.3	0.4	0.5	1	2
		0.02	0.03	0.04	0.05	0.1	0.2
		3.2	4.2	5.2	6	10	20
		1.2	1.2	1.2	1	0	0
		1	2	2	2	2	2
		3.2	4.2	5.2	6	10	20
		1.2	1.2	1.2	1	0	0
		2	3	4	5	10	20
		0.2	0.3	0.4	0.5	1	2
		0.02	0.03	0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	3.2
min_y	1.2
total scale	2
Major unit	0.2
Minor unit	0.02

Test Number (ie 19A) CU-1B

Normal Load (psi) 10

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-1-09	9:15:00	1.47
0.1	6-1-09	9:15:06	2.36
0.25	6-1-09	9:15:15	3.04
0.5	6-1-09	9:15:30	3.81
1	6-1-09	9:16:00	4.77
2	6-1-09	9:17:00	5.21
3	6-1-09	9:18:00	5.26
4	6-1-09	9:19:00	5.27
6	6-1-09	9:21:00	5.28
8	6-1-09	9:23:00	5.3
10	6-1-09	9:25:00	5.32
12	6-1-09	9:27:00	5.33
16	6-1-09	9:31:00	5.33
22	6-1-09	9:37:00	5.33



x o11:o24
y c11:c24

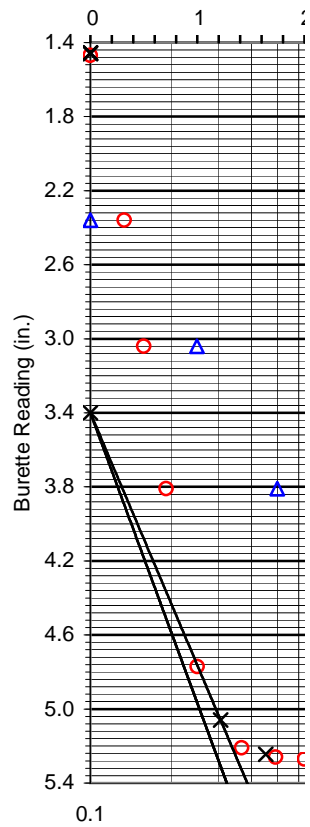
log plot range e12:e24 c12:c24

Project Name Jo
Source JS
Start Date 6-1-09
End Date 6-1-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.47	0	0.10	0	0.10	1.4	0	1.47
not	0.1	2.36	0.3162278	0.13	1	0.25	1.4	0.1	2.36
erase!	0.25	3.04	0.5	0.16	2	0.63	1.4	0.25	3.04
	0.5	3.81	0.7071068	0.19	3	1.58	1.4	0.5	3.81
	1	4.77	1	0.25	4	3.98	1.4	1	4.77
	2	5.21	1.4142136	0.37	5	10.00	1.4	2	5.21
	3	5.26	1.7320508	0.49	6	25.12	1.4	3	5.26
	4	5.27	2	0.63	7	63.10	1.4		
	6	5.28	2.4494897	0.95	8	158.49	1.4		
	8	5.3	2.8284271	1.35	9	398.11	1.4		
	10	5.32	3.1622777	1.84	10	1000.00	1.4		
	12	5.33	3.4641016	2.43	11	2511.89	1.4		
	16	5.33	4	3.98	0.2	0.12	1.4		
	22	5.33	4.6904158	7.52	0.4	0.14	1.4		
					0.6	0.17	1.4		
					0.8	0.21	1.4		
					1.2	0.30	1.4		
					1.4	0.36	1.4		
					1.6	0.44	1.4		
					1.8	0.52	1.4		
					2.2	0.76	1.4		
					2.4	0.91	1.4		
					2.6	1.10	1.4		
					2.8	1.32	1.4		
					3.2	1.91	1.4		
					3.4	2.29	1.4		
					3.6	2.75	1.4		
					3.8	3.31	1.4		
					4.2	4.79	1.4		
					4.4	5.75	1.4		
					4.6	6.92	1.4		
					4.8	8.32	1.4		
					5.2	12.02	1.4		
					5.4	14.45	1.4		
					5.6	17.38	1.4		
					5.8	20.89	1.4		
					6.2	30.20	1.4		
					6.4	36.31	1.4		
					6.6	43.65	1.4		
					6.8	52.48	1.4		
					7.2	75.86	1.4		
					7.4	91.20	1.4		
					7.6	109.65	1.4		
					7.8	131.83	1.4		
					8.2	190.55	1.4		
					8.4	229.09	1.4		

Elapsed Time (minutes)

Burette Reading (in.)



Square Root

$d_0 = 3.4$

$d_{90} = 5.06$

$d_{100} = 5.244$

Comments: _____

Laboratory Document
Prepared By: MW
Approved BY: TLK

			Square Root
8.6	275.42	1.4	plot point - x
8.8	331.13	1.4	
9.2	478.63	1.4	$d_0 = 0.10$
9.4	575.44	1.4	$d_{90} = 0.31$
9.6	691.83	1.4	$d_{100} = 0.45$
9.8	831.76	1.4	
10.2	1202.26	1.4	$d_0 = 0.10$
10.4	1445.44	1.4	d_0 line 0.26
10.6	1737.80	1.4	
10.8	2089.30	1.4	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

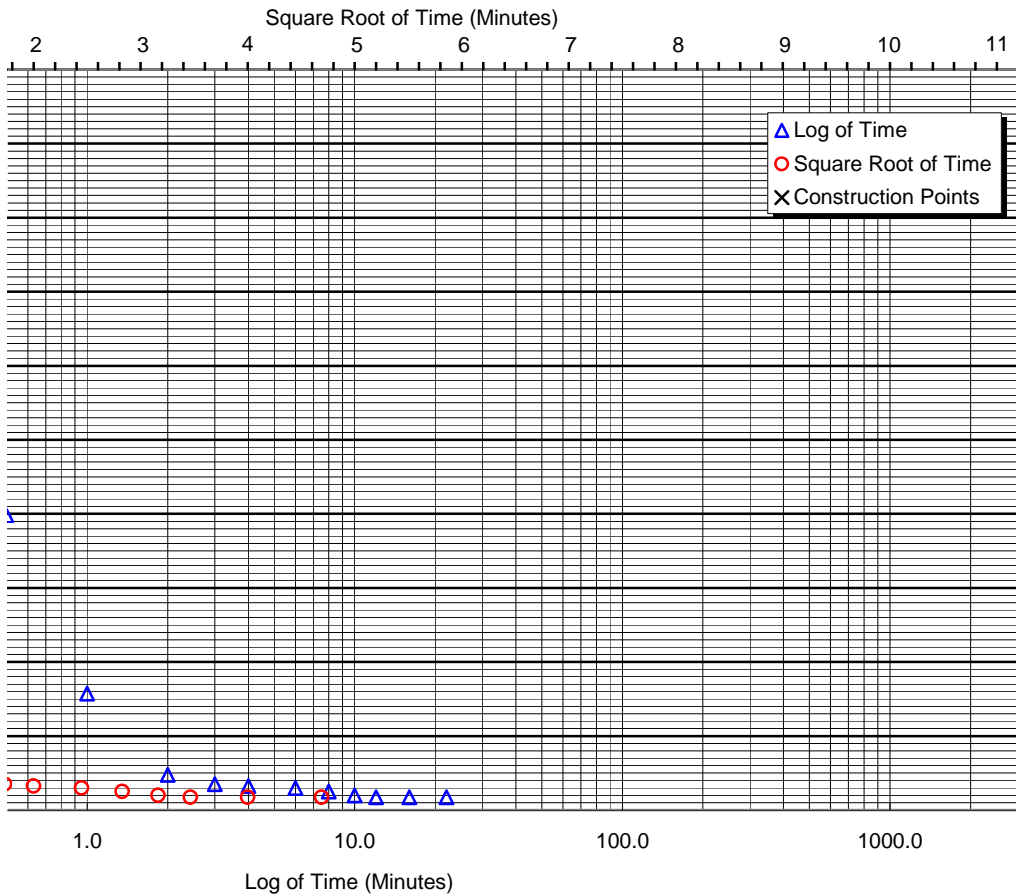
John Siever Fossil Plant
 49, 12.0' - 18.0'

Project No. 175569038
 Test Number CU-1B
 Load (tsf) 10

Start Time 9:15 AM
 End Time 9:37 AM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	5.27					7:55 AM
6	5.28					
8	5.3					
10	5.32					
12	5.33					
16	5.33					
22	5.33					

Consolidation



t of Time

Log of time

$t_{90} (m) = 1.48$

$t_{100} (m) = 2.68$

$t_{50} (m) = 0.346$

$d_{100} =$ _____

$d_{t1} =$ _____

$d_{t2 (t1^*4)} =$ _____

$d_{50} =$ _____

$t_{100} (m) =$ _____

$t_1 (m) =$ _____

$t_{50} (m) =$ _____

t of Time

y	time
3.4	0
5.06	1.48
5.24444444	2.68
3.4	0
5.06	1.11909263

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.459
d _{t1}	0.1	1.458
d _{t1*4}	0.1	1.457
d ₅₀	0.1	1.456

line @ 3000 m

3000	5.4
3000	1.4

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	5.33 maximum scale	5.4	5.4	5.5	2	10
min. dial reading	1.47 minimum scale	1.4	1.4	1	0	0
diference	3.86	4	4	4.5	2	10

0.5	1	2	3	4	5	10	20
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2
				5.4	6	10	20
				1.4	1	0	0
				1	2	2	2
				5.4	6	10	20
				1.4	1	0	0
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	5.4
min_y	1.4
total scale	4
Major unit	0.4
Minor unit	0.04

Test Number (ie 19A) CU-1C

Normal Load (psi) 20

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-1-09	9:30:00	1.69
0.1	6-1-09	9:30:06	2.78
0.25	6-1-09	9:30:15	3.5
0.5	6-1-09	9:30:30	4.11
1	6-1-09	9:31:00	4.36
2	6-1-09	9:32:00	4.41
3	6-1-09	9:33:00	4.44
4	6-1-09	9:34:00	4.47
6	6-1-09	9:36:00	4.48
8	6-1-09	9:38:00	4.49
10	6-1-09	9:40:00	4.49
12	6-1-09	9:42:00	4.49

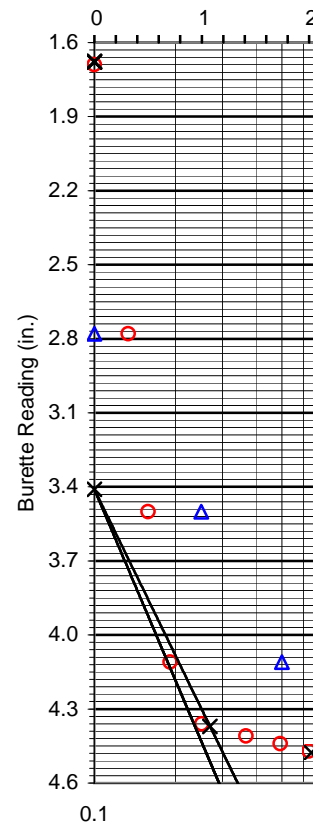
sqrt plot range o11:o22 c11:c22

log plot range e12:e22 c12:c22



Project Name Jo
 Source JS
 Start Date 6-1-09
 End Date 6-1-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)	
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value			
do	0	1.69	0	0.10	0	0.10	1.6	0	1.69	
not	0.1	2.78	0.3162278	0.13	1	0.25	1.6	0.1	2.78	
erase!	0.25	3.5	0.5	0.16	2	0.63	1.6	0.25	3.5	
	0.5	4.11	0.7071068	0.19	3	1.58	1.6	0.5	4.11	
	1	4.36	1	0.25	4	3.98	1.6	1	4.36	
	2	4.41	1.4142136	0.37	5	10.00	1.6	2	4.41	
	3	4.44	1.7320508	0.49	6	25.12	1.6	3	4.44	
	4	4.47	2	0.63	7	63.10	1.6			
	6	4.48	2.4494897	0.95	8	158.49	1.6			
	8	4.49	2.8284271	1.35	9	398.11	1.6			
	10	4.49	3.1622777	1.84	10	1000.00	1.6			
	12	4.49	3.4641016	2.43	11	2511.89	1.6			



Square Root

$d_0 = 3.41$
 $d_{90} = 4.37$
 $d_{100} = 4.477$

Comments: _____

			Square Root	
8.6	275.42	1.6		plot point - x
8.8	331.13	1.6		
9.2	478.63	1.6	$d_0 =$	0.10
9.4	575.44	1.6	$d_{90} =$	0.27
9.6	691.83	1.6	$d_{100} =$	0.64
9.8	831.76	1.6		
10.2	1202.26	1.6	$d_0 =$	0.10
10.4	1445.44	1.6	d_0 line	0.24
10.6	1737.80	1.6		
10.8	2089.30	1.6		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

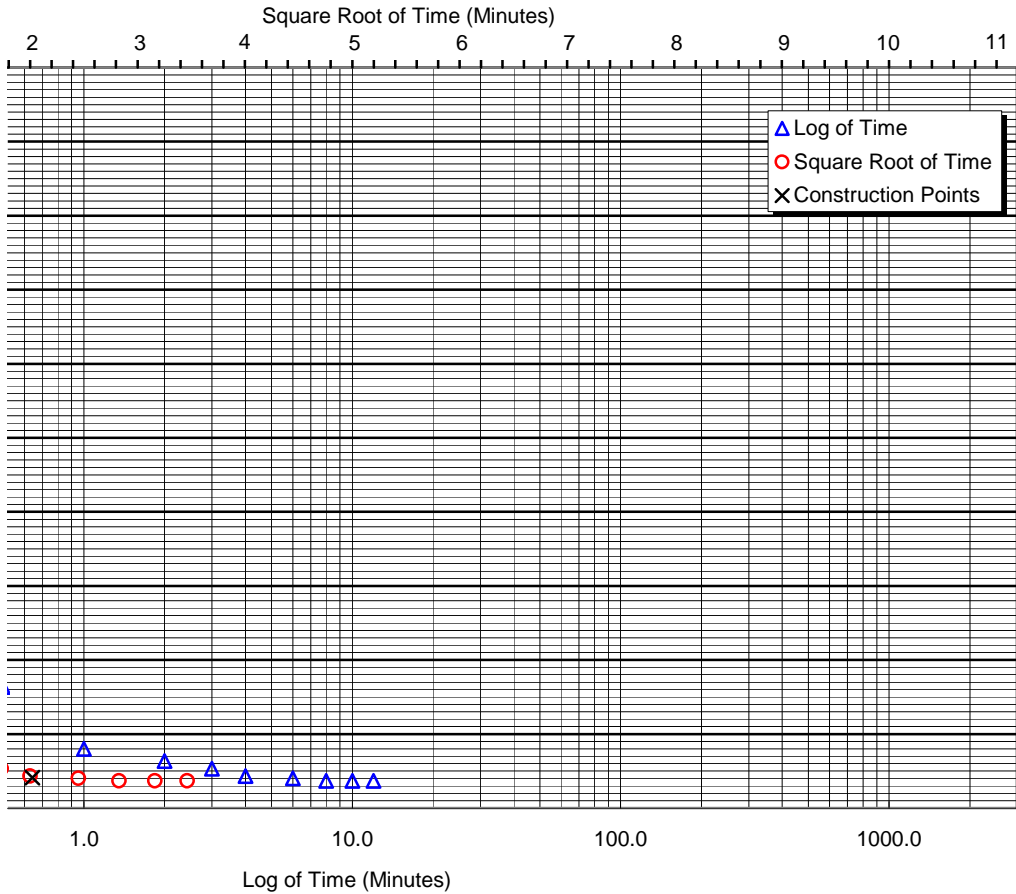
John Siever Fossil Plant
 49, 12.0' - 18.0'

Project No. 175569038
 Test Number CU-1C
 Load (tsf) 20

Start Time 9:30 AM
 End Time 9:42 AM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	4.47					11:45 AM
6	4.48					
8	4.49					
10	4.49					
12	4.49					

Consolidation



t of Time

Log of time

$t_{90} (m) = 1.16$	$d_{100} =$	$t_{100} (m) =$
$t_{100} (m) = 4.08$	$d_{t_1} =$	$t_1 (m) =$
$t_{50} (m) = 0.271$	$d_{t_2 (t_1^*4)} =$	$t_{50} (m) =$
	$d_{50} =$	

t of Time

y	time
3.41	0
4.37	1.16
4.47666667	4.08
3.41	0
4.37	0.87712665

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.679
d _{t1}	0.1	1.678
d _{t1*4}	0.1	1.677
d ₅₀	0.1	1.676

line @ 3000 m

3000	4.6
3000	1.6

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	4.49 maximum scale	4.5	4.6	4.5	2	10
min. dial reading	1.69 mimimum scale	1.6	1.6	1.5	0	0
diference	2.8	2.9	3	3	2	10

0.5	1	2	3	4	5	10	20
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2
			4.6	5.6	6.5	10	20
			1.6	1.6	1.5	0	0
			1	2	2	2	2
			4.6	5.6	6.5	10	20
			1.6	1.6	1.5	0	0
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	4.6
min_y	1.6
total scale	3
Major unit	0.3
Minor unit	0.03



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 12.0' - 18.0'		Test Number	CU-1A
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	RC/KG
	Need!		Date	5-28-2009
			Set No.	1
Specific Gravity	2.26	ASTM D854 Method A	Input By	RC
Chamber	90 (psi)	Back 85 (psi)	Lateral	5 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	863	Tare Id.	P-418
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	405.81
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	318.68
			from final	48.9	579.70	X	Tare Wt (g)	75.71
			from trimmings	35.9	635.21			

Setup and Saturation

Panel No.	A	Burette S/L	L	Set Up By	RC/KG	Date	5-28-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1 2	2		
Middle	3 4	3 4	4	3 4	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Values	
Initial Height	0.2017	Initial	15.46	Initial	5.46	B1	
Final Height	0.4149	Final	16.81	Final	0.5	B2	
Comments:						B3	
						B4	0.97

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.4149	Back Pressure	Chamber	Panel No.	A
@ 15 Min		Initial	1.29	Burettes L/S	L
Final	0.4153	Final	2.68	Tested By	RC
Comments:					

Test

Data File ID	CU-1A	Press No.	1	Area (A _c)		t ₅₀	0.243	Start Time	
Tested By	RC	Panel No.	A	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-1-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample		
	1	2.749	2	Tare Id.	Scooby
	3	3.401	4	Wet Wt (g)	963.8
	5	3.023	6	Dry Wt (g)	799.65
	Membrane Thickness (in.)	0.024	3.401 avg. max.	Tare Wt (g)	219.95
Final Wet Weight	743.85 g	Final Dry Weight	579.70	Final MC %	28.3

Comments:



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 12.0' - 18.0'		Test Number	CU-1B
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	RC/KG
	Need!		Date	5-28-2009
			Set No.	1
Specific Gravity	2.26	ASTM D854 Method A	Input By	RC/KG
Chamber	90 (psi)	Back 80 (psi)	Lateral	10 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimming	
Top	1 2.8 2	1 6 2 6	Wet Wt (g)	1064	Tare Id.	P-418	
Middle	3 2.8 4	3 6 4 6	Dry Wt (g)		Wet Wt (g)	405.81	
Bottom	5 2.8 6		mc %		Dry Wt (g)	318.68	
			from final	50.7	Dry Weight Use		
			from trimmings	35.9		Tare Wt (g) 75.71	
				706.04 X			
				783.16			

Setup and Saturation

Panel No.	B	Burette S/L	L	Set Up By	RC	Date	5-28-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2		1 2			
Middle	3 4	3 4		3 4			
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	
Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.229	Initial	0	Initial	18.61	B1	
Final Height	0.6707	Final	3.61	Final	0	B2	
Comments:						B3	
						B4	

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	B		
Initial	0.6707	Back Pressure		Burettes L/S	L		
@ 15 Min		Initial	1.47	Initial	17.28	Tested By	RC
Final	0.6719	Final	5.33	Final	13.56		
Comments:							

Test

Data File ID	CU-1B	Press No.	1	Area (A _c)		t ₅₀	0.346	Start Time	
Tested By	RC	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-1-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample		
	1	3.178 2	3.178	Tare Id.	Snoopy
	3	3.325 4	3.325	Wet Wt (g)	1123.34
	5	3.248 6	3.248	Dry Wt (g)	924.05
	Membrane Thickness (in.)	0.024	3.325	Tare Wt (g)	217.98
	Final Wet Weight	905.32 g	Final Dry Weight	706.04	Final MC %
Comments:					



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 12.0' - 18.0'		Test Number	CU-1C
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	RC/KG
	Need!		Date	5-28-2009
			Set No.	1
Specific Gravity	2.26	ASTM D854 Method A	Input By	RC
Chamber	90 (psi)	Back 70 (psi)	Lateral	20 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings						
Top	1	2.8	2	1	6	2	6	Wet Wt (g)	1064	Tare Id.	P-418	
Middle	3	2.8	4	3	6	4	6	Dry Wt (g)		Wet Wt (g)	405.81	
Bottom	5	2.8	6					mc %		Dry Wt (g)	318.68	
								from final	56.5	Dry Weight Use		
								from trimmings	35.9		Tare Wt (g)	75.71
									679.86	X		
									783.16			

Setup and Saturation

Panel No.	D	Burette S/L	L	Set Up By	RC/KG	Date	5-28-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1	2	1	2	1	2	
Middle	3	4	3	4	3	4	
Bottom	5	6					
					Average Area (in ²)		Avg. Height (in)

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2409	Initial	17.47	Initial	14.91	B1	
Final Height	0.2944	Final	16.06	Final	13.41	B2	
Comments:						B3	
						B4	0.98

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	D
Initial	0.2944	Back Pressure		Burettes L/S	L
@ 15 Min		Initial	1.69	Initial	17.28
Final	0.3041	Final	4.49	Final	14.2
Comments:				Tested By	RC

Test

Data File ID	CU-1C	Press No.	2	Area (A _c)		t ₅₀	0.271	Start Time	
Tested By	RC	Panel No.	D	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-1-09					Strain Rate (in/mn)			

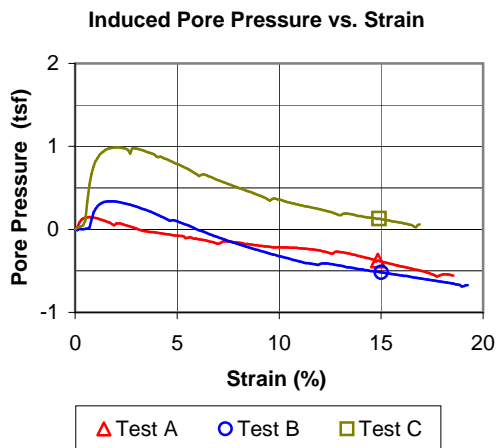
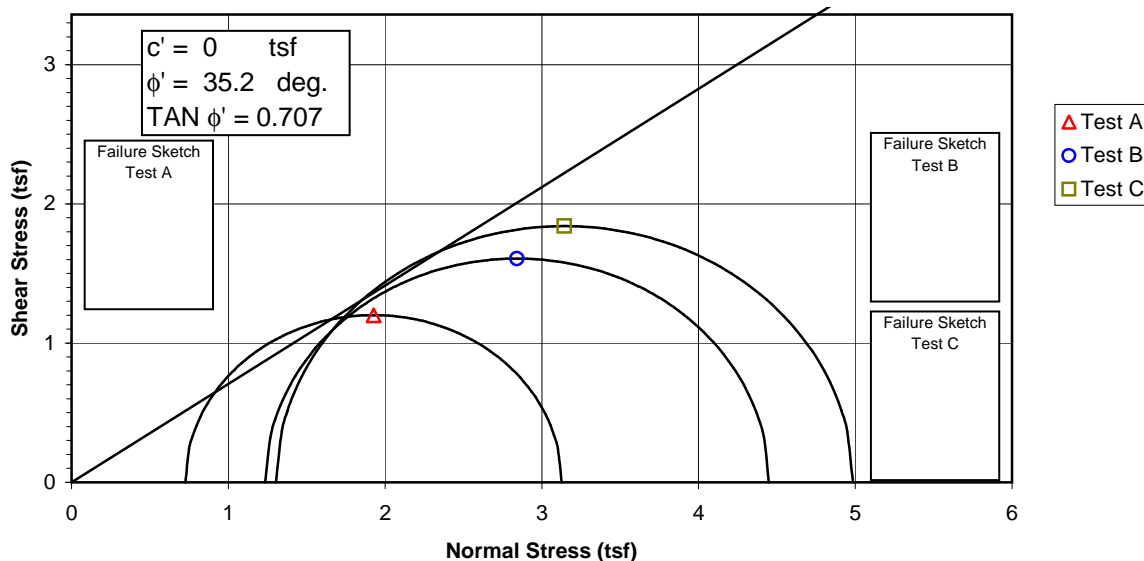
After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.701	2	3.701	Tare Id.	Bambi
	3	3.608	4	3.608	Wet Wt (g)	1077.03
	5	3.324	6	3.324	Dry Wt (g)	883.53
	Membrane Thickness (in.)	0.024	3.701		Tare Wt (g)	203.67
	Final Wet Weight	873.36 g	Final Dry Weight	679.86	Final MC %	28.5

Comments:

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope

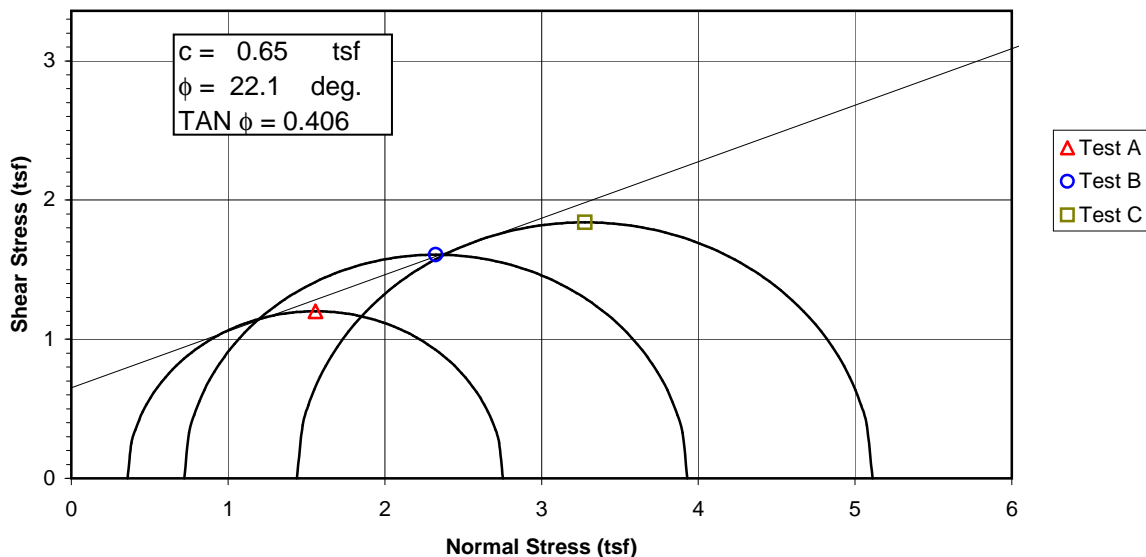


Specimen No.		A	B	C
Initial Data	Water content %	W_o 48.9	50.7	56.5
	Dry Density PCF	γ_{d_o} 59.8	72.8	70.1
	Saturation %	S_o 81.2	122.2	126.1
	Void Ratio	e_o 1.360	0.938	1.013
After Shear	Water content %	W_f 28.3	28.2	28.5
	Dry Density PCF	γ_{d_f} 86.0	86.1	85.9
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.640	0.638	0.643
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.73	1.23	1.30
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 2.39	3.21	3.67
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 36.0	35.7	56.2
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 6.000	6.000	6.000

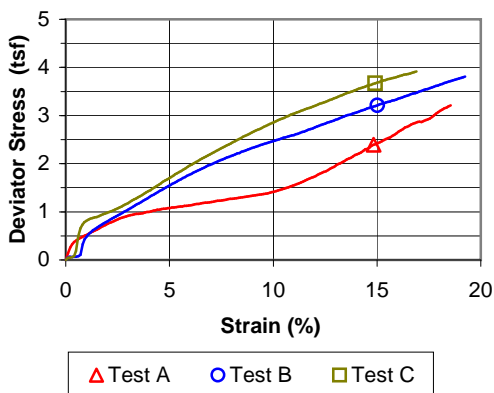
Controlled - Strain Test			
Description of Specimens		Silt (ML), gray, (fly ash)	
		Type of Specimen	Compacted
		Type of test \bar{R}	
LL	NP	PL	NP
		PI	NP
		Gs	2.26
Remarks:		Compacted samples at as received moisture content. Bulk sample taken from low blow count material.	
		Boring No.	JS-49
		Sample No.	1
		Depth Elev.	12.0'-18.0'
		Laboratory	Stantec
		Date	6-2-09
TRIAXIAL COMPRESSION TEST REPORT			

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



Specimen No.		A	B	C
Initial Data	Water content %	W_o 48.9	50.7	56.5
	Dry Density PCF	γ_{d_o} 59.8	72.8	70.1
	Saturation %	S_o 81.2	122.2	126.1
	Void Ratio	e_o 1.360	0.938	1.013
After Shear	Water content %	W_f 28.3	28.2	28.5
	Dry Density PCF	γ_{d_f} 86.0	86.1	85.9
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.640	0.638	0.643
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF		σ_3 0.36	0.72	1.44
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$ 2.39	3.21	3.67
Time to $(\sigma_1 - \sigma_3)_{max}$ min.		t_f 36.0	35.7	56.2
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 6.000	6.000	6.000

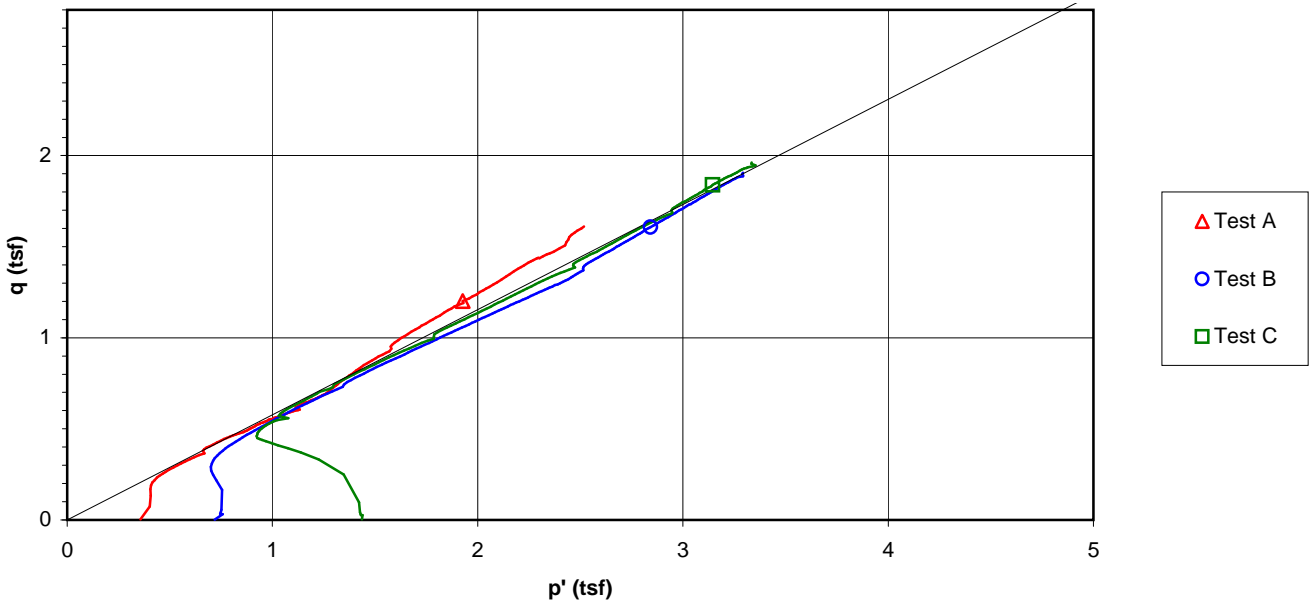
Controlled - Strain Test		Initial Height, in.		H_o	6.000	6.000	6.000
Description of Specimens Silt (ML), gray, (fly ash)							
				Type of Specimen	Compacted	Type of test \bar{R}	
LL	NP	PL	NP	PI	NP	Gs	2.26
Project				John Siever Fossil Plant			
Remarks: Compacted samples at as received moisture content. Bulk sample taken from low blow count material.							
Boring No.				JS-49	Sample No. 1		
Depth Elev.				12.0'-18.0'			
Laboratory				Stantec	Date 6-2-09		
TRIAXIAL COMPRESSION TEST REPORT							

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

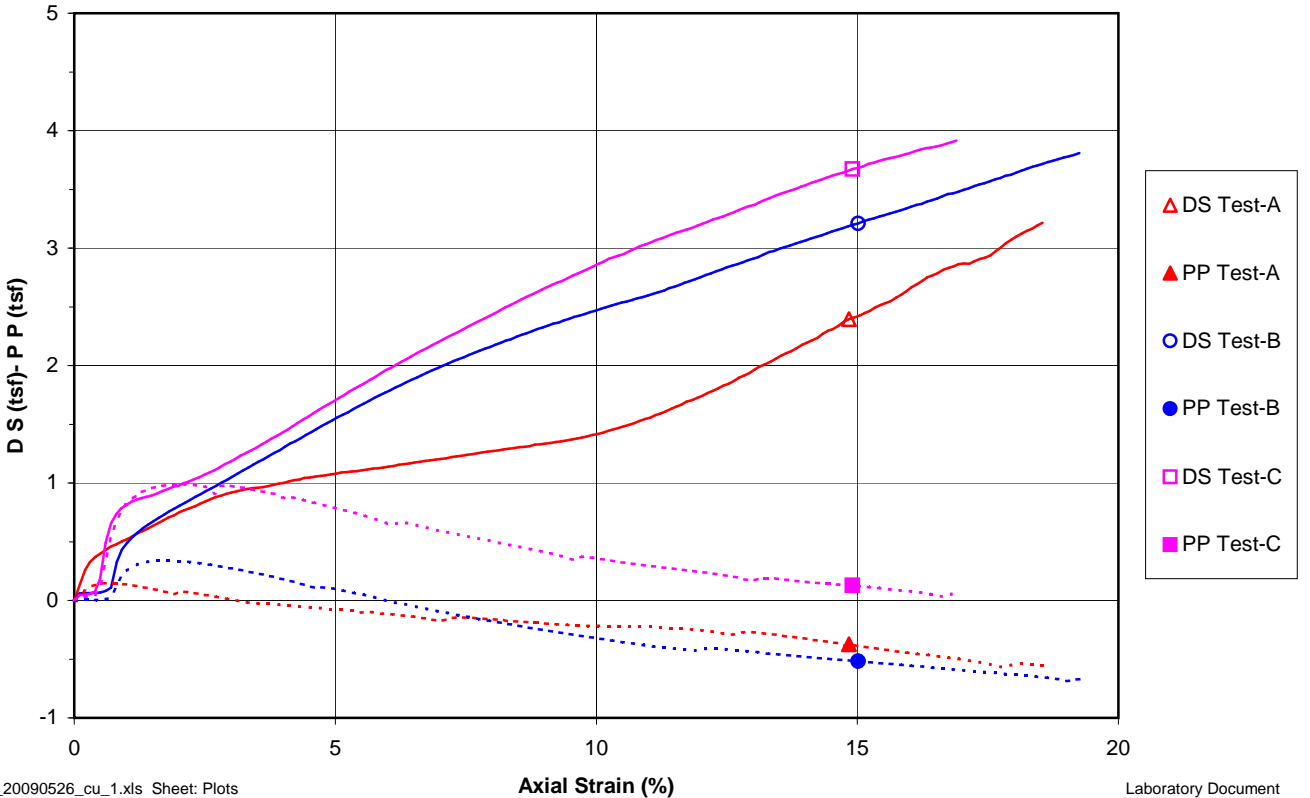
Project John Siever Fossil Plant
 Sample ID JS-49, 12.0' - 18.0'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 35.2 \text{ deg.}$

Project No. 175569038
 Test Number 1
 $c' = 0.00 \text{ tsf}$

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name John Siever Fossil Plant
 Sample Identification JS-49, 12.0' - 18.0'
 Visual Description Silt (ML), gray, (fly ash)

Project Number 175569038
 Test Number CU-1A
 Prepared By RC/KG
 Date 5-28-2009

Specific Gravity 2.26 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>863.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>15.6519</u> (V _{S_o})	Dry Weight (g) <u>579.70</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>17.2870</u> (V _{w_o})	Wet Unit Weight (pcf) <u>89.0</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>21.2932</u> (V _{v_o})	Dry Unit Weight (pcf) <u>59.8</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>81.2</u> (S _o)	
Moisture Content (%) <u>48.9</u>	Final Trimmings	Void Ratio <u>1.360</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By RC/KG
 Back Pressure Saturated to: 85 (psi) Final Pore Pressure Parameter B 0.97 Date 5-28-09
 Panel Board Number A

Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial <u>0.2017</u>	Initial <u>15.46</u> (in.)	Initial <u>5.46</u> (in.)	<u>5.7868</u> (H _s)
Final <u>0.4149</u>	Final <u>16.81</u> (in.)	Final <u>0.5</u> (in.)	Area (in ²) Method A <u>5.7038</u> (A _s)
Change <u>-0.2132</u> (ΔH _c)	Change <u>1.35</u> (in.)	Change <u>-4.96</u> (in.)	Specimen Volume (in ³) <u>33.01</u> (V _s)

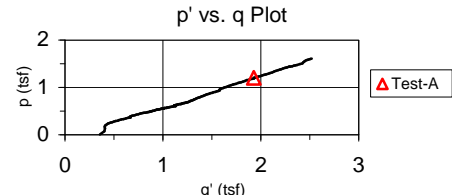
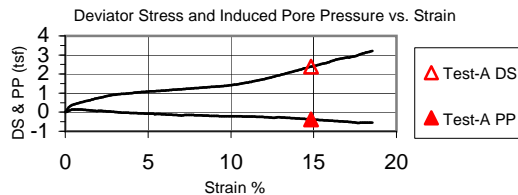
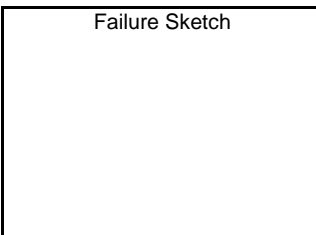
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.4149</u>	Initial <u>1.29</u> (in.)	Initial <u>17.14</u> (in.)	Chamber <u>90</u>
Final <u>0.4153</u>	Final <u>2.68</u> (in.)	Final <u>15.02</u> (in.)	Back <u>85</u>
Change <u>-0.0004</u> (ΔH _c)	Change <u>-1.39</u> (in.)	Change <u>-2.12</u> (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>5.7864</u> (H _c)		Volume (in ³) <u>25.6683</u> (V _c)	t ₅₀ (min.) <u>0.243</u>
Area (in ³) Method B <u>4.4360</u> (A _c)		Volume - Water (in ³) <u>10.0164</u> (V _{Wc})	
Diameter (in.) <u>2.3766</u> (D _c)		Water Content (%) <u>28.3</u>	
Dry Density (pcf) <u>86.0</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	Void Ratio <u>0.640</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.401</u> (in.)	Wet Weight (g) <u>743.85</u>	Corrected Deviator <u>2.39</u> σ _d (tsf)
Wet weight (g) <u>743.85</u> (WW _f)	Dry Weight (g) <u>579.70</u>	Major Principal <u>3.13</u> σ _{1'_f} (tsf)
Corrected Diameter <u>3.353</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.73</u> σ _{3'_f} (tsf)
		Rate of Strain (% / min.) <u>0.412</u>
		Axial Strain at Failure (%) <u>14.84</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name John Siever Fossil Plant
 Sample Identification JS-49, 12.0' - 18.0'
 Visual Description Silt (ML), gray, (fly ash)

Project Number 175569038
 Test Number CU-1B
 Prepared By RC/KG
 Date 5-28-2009

Specific Gravity 2.26 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V_o)	Wet Weight (g) <u>1064.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.0630</u> (V_{S_o})	Dry Weight (g) <u>706.04</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>21.8428</u> (V_{W_o})	Wet Unit Weight (pcf) <u>109.7</u>
Avg. <u>2.8000</u> (D_o)	4 <u>6.000</u>	Voids <u>17.8821</u> (V_{V_o})	Dry Unit Weight (pcf) <u>72.8</u>
Area (in ²) <u>6.1575</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>122.1</u> (S_o)	
Moisture Content (%) <u>50.7</u>	Final Trimmings	Void Ratio <u>0.938</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 80 (psi) Final Pore Pressure Parameter B _____
 Set up By RC
 Date 5-28-09
 Panel Board Number B

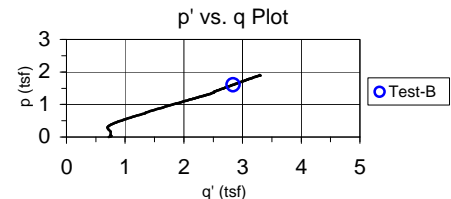
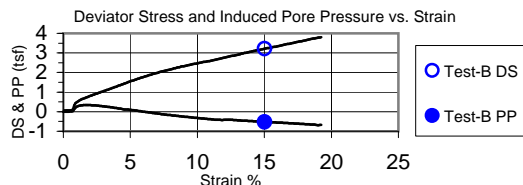
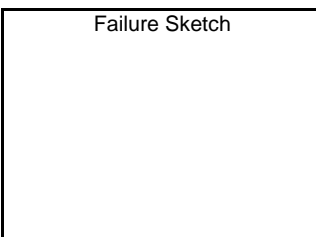
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.5583</u> (H_s)
Initial <u>0.229</u>	Initial <u>0</u> (in.)	Initial <u>18.61</u> (in.)	Area (in ²) Method A <u>5.1789</u> (A_s)
Final <u>0.6707</u>	Final <u>3.61</u> (in.)	Final <u>0</u> (in.)	Specimen Volume (in ³) <u>28.79</u> (V_s)
Change <u>-0.4417</u> (ΔH_o)	Change <u>3.61</u> (in.)	Change <u>-18.61</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.6707</u>	Initial <u>1.47</u> (in.)	Initial <u>17.28</u> (in.)	Chamber <u>90</u>
Final <u>0.6719</u>	Final <u>5.33</u> (in.)	Final <u>13.56</u> (in.)	Back <u>80</u>
Change <u>-0.0012</u> (ΔH_c)	Change <u>-3.86</u> (in.)	Change <u>-3.72</u> (in.)	Lateral <u>10</u> (σ_3)
Height (in.) <u>5.5571</u> (H_c)		Volume (in ³) <u>31.2232</u> (V_c)	D_{50} (min.) <u>0.346</u>
Area (in ³) Method B <u>5.6186</u> (A_c)		Volume - Water (in ³) <u>12.1601</u> (V_{Wc})	Void Ratio <u>0.638</u>
Diameter (in.) <u>2.6747</u> (D_c)		Water Content (%) <u>28.2</u>	
Dry Density (pcf) <u>86.1</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.325</u> (in.)	Wet Weight (g) <u>905.32</u>	Corrected Deviator <u>3.21</u> σ_d (tsf)
Wet weight (g) <u>905.32</u> (WWf)	Dry Weight (g) <u>706.04</u>	Major Principal <u>4.45</u> σ_{1f} (tsf)
Corrected Diameter <u>3.277</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>1.23</u> σ_{3f} (tsf)
		Rate of Strain (% / min.) <u>0.422</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>15.02</u>
Membrane Thickness (in.) <u>0.024</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Compacted samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name John Siever Fossil Plant
 Sample Identification JS-49, 12.0' - 18.0'
 Visual Description Silt (ML), gray, (fly ash)

 Project Number 175569038
 Test Number CU-1C
 Prepared By RC/KG
 Date 5-28-2009

 Specific Gravity 2.26 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP
Initial Specimen Data

Specimen Diameter (in.)		Specimen Height (in.)		Volumes (in ³)		Specimen	
Top	<u>2.800</u>	1	<u>6.000</u>	Sample	<u>36.9451</u> (V _o)	Wet Weight (g)	<u>1064</u>
Middle	<u>2.800</u>	2	<u>6.000</u>	Solids	<u>18.3562</u> (V _{S_o})	Dry Weight (g)	<u>679.86</u>
Bottom	<u>2.800</u>	3	<u>6.000</u>	Water	<u>23.4402</u> (V _{w_o})	Wet Unit Weight (pcf)	<u>109.7</u>
Avg.	<u>2.8000</u> (D _o)	4	<u>6.000</u>	Voids	<u>18.5889</u> (V _{v_o})	Dry Unit Weight (pcf)	<u>70.1</u>
Area (in ²)	<u>6.1575</u> (A _o)	Avg. (H _o)	<u>6.0000</u>	Degree of Saturation (%)	<u>126.1</u> (S _o)		
Moisture Content (%)	<u>56.5</u>	Final Trimmings		Void Ratio	<u>1.013</u>		

Saturation

 Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 70 (psi) Final Pore Pressure Parameter B 0.98
 Set up By RC/KG
 Date 5-28-09
 Panel Board Number D

Height Readings (in.)		Back Pressure Burette		Chamber Burette		Specimen	
Initial	<u>0.2409</u>	Initial	<u>17.47</u> (in.)	Initial	<u>14.91</u> (in.)	Specimen Height (in.)	<u>5.9465</u> (H _s)
Final	<u>0.2944</u>	Final	<u>16.06</u> (in.)	Final	<u>13.41</u> (in.)	Area (in ²) Method A	<u>6.0467</u> (A _s)
Change	<u>-0.0535</u> (ΔH _o)	Change	<u>-1.41</u> (in.)	Change	<u>-1.50</u> (in.)	Specimen Volume (in ³)	<u>35.96</u> (V _s)

Consolidation

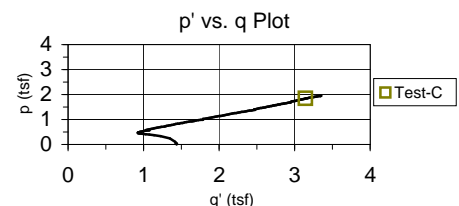
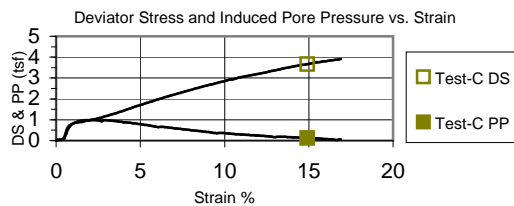
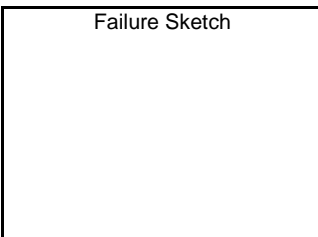
Height Readings (in.)		Back Pressure Burette Readings		Chamber Burette Readings		Pressures (psi)	
Initial	<u>0.2944</u>	Initial	<u>1.69</u> (in.)	Initial	<u>17.28</u> (in.)	Chamber	<u>90</u>
Final	<u>0.3041</u>	Final	<u>4.49</u> (in.)	Final	<u>14.2</u> (in.)	Back	<u>70</u>
Change	<u>-0.0097</u> (ΔH _c)	Change	<u>-2.80</u> (in.)	Change	<u>-3.08</u> (in.)	Lateral	<u>20</u> (σ ₃)
Height (in.)	<u>5.9368</u> (H _c)			Volume (in ³)	<u>30.1636</u> (V _c)	D ₅₀ (min.)	<u>0.271</u>
Area (in ³) Method B	<u>5.0808</u> (A _c)			Volume - Water (in ³)	<u>11.8074</u> (V _{wc})		
Diameter (in.)	<u>2.5434</u> (D _c)			Water Content (%)	<u>28.5</u>		
Dry Density (pcf)	<u>85.9</u>			Degree of Saturation (%)	<u>100.0</u> (S _c)		

After Test

Final Measurements		Final Moisture Content		Stresses (membrane corrected) at Failure (psi)	
Maximum Diameter	<u>3.701</u> (in.)	Wet Weight (g)	<u>873.36</u>	Corrected Deviator	<u>3.67</u> σ _d (tsf)
Wet weight (g)	<u>873.36</u> (WWf)	Dry Weight (g)	<u>679.86</u>	Major Principal	<u>4.98</u> σ _{1f} (tsf)
Corrected Diameter	<u>3.653</u> (in.)	Tare Weight (g)	<u>0.00</u>	Minor Principal	<u>1.30</u> σ _{3f} (tsf)
				Rate of Strain (% / min.)	<u>0.266</u>
				Axial Strain at Failure (%)	<u>14.91</u>

Youngs Modulus for Membrane (psi) 200
 Membrane Thickness (in.) 0.024

Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Compacted samples at as received moisture content. Bulk sample taken from low blow count material.

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 5-28-09
 Boring No. Need! Sample No. JS-49, 12.0' - 18.0'

Type of Test	<u>Consolidated Undrained</u>		Confining Pressure	<u>0.36 tons/ft²</u>	
Test No.	<u>CU-1A</u>		Classification	<u>Silt (ML), gray, (fly ash)</u>	
			Before Test		After Test
			Specimen		Specimen
Tare No.	n/a			P-418	n/a
Tare plus wet weight	863			405.81	743.85
Tare plus dry weight	579.70			318.68	579.70
Water	W _w	283.30	W _{wo}	87.13	W _{wE} 164.15
Tare	0			75.71	0.00
Wet Soil	W	863.00		330.10	743.85
Dry Soil	W _s	579.70		242.97	579.70
Water content	w	48.9	% W _o	35.9	W _E 28.3 %
Initial Condition of Specimen					
Diameter, cm	D _o	Top	7.112	Center	7.112
				Bottom	7.112
				Avg	7.112
Height, cm	H _o	15.240	Volume of solids, cc		V _s 256.50
Area, sq cm = 0.7854 * D _o ²	A _o	39.726	Void Ratio = (V _o -V _s)/V _s		e _o 1.360
Volume, cc = H _o *A _o	V _o	605.42	Saturation, %		S _o 81.2
Specific gravity of solids	G _s	2.26	Dry density, lb/cu ft		g _d 59.8
Condition of Specimen After Consolidation (R and S Tests)					
ΔH during Saturation & Consolidation, in.	ΔH _o	-0.214	Volume, cc = H _c *A _c		V _c 420.65
Height, cm = H _o - 2.54*ΔH _o	H _c	14.697	Void Ratio = (V _c -V _s)/V _s		e _c 0.640
Area, sq cm	A _c	28.621	Saturation, %		S _c 100.0
Condition of Specimen After Test (R and S Test)					
Diameter, cm	D _f	Top	6.982	Center	8.639
				Bottom	7.678
				Avg	7.984
Change of height during Shear Test, in	ΔH	1.073	Volume, cc = H _f *A _f		V _f 420.65
Height, cm = H _c - 2.54*ΔH	H _f	11.972	Void Ratio = (V _f -V _s)/V _s		e _f 0.640
Area, cm ² from test data	A _f	35.138	Saturation, %		S _f 100.0
Remarks					
Technician	<u>RC/KG RC/KG RC RC</u>		Computed By	<u>RC</u>	Checked By

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 5-28-09
 Boring No. Need! Sample No. JS-49, 12.0' - 18.0'

Type of Test	Consolidated Undrained		Confining Pressure		0.72	tons/ft ²																																																																					
Test No.	CU-1B		Classification silt (ML), gray, (fly ash)																																																																								
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ΔH during Saturation & Consolidation, in.	ΔH _o		-0.443	Volume, cc = H _c *A _c		V _c			511.69																																																																		
Height, cm = H _o - 2.54*ΔH _o	H _c		14.115	Void Ratio = (V _c -V _s)+V _s		e _c			0.638																																																																		
Area, sq cm	A _c		36.251	Saturation, %		S _c			100.0																																																																		
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	8.072	Center	8.446	Bottom	8.250	Avg	8.303																																																																		
Change of height during Shear Test, in	ΔH		1.070	Volume, cc = H _f *A _f		V _f			511.69																																																																		
Height, cm = H _c - 2.54*ΔH	H _f		11.398	Void Ratio = (V _f -V _s)+V _s		e _f			0.638																																																																		
Area, cm ² from test data	A _f		44.894	Saturation, %		S _f			100.0																																																																		
Remarks																																																																											
Technician <u>RC/KG RC RC RC</u> Computed By <u>RC/KG</u> Checked By _____																																																																											

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 5-28-09
 Boring No. Need! Sample No. JS-49, 12.0' - 18.0'

Type of Test	Consolidated Undrained		Confining Pressure		1.44	tons/ft ²																																																																						
Test No.	CU-1C		Classification		silt (ML), gray, (fly ash)																																																																							
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ΔH during Saturation & Consolidation, in.	ΔH _o	-0.063		Volume, cc = H _c *A _c		V _c	494.32																																																																					
Height, cm = H _o - 2.54*ΔH _o	H _c	15.079		Void Ratio = (V _c -V _s)+V _s		e _c	0.643																																																																					
Area, sq cm	A _c	32.781		Saturation, %		S _c	100.0																																																																					
Condition of Specimen After Test (R and S Test)																																																																												
Diameter, cm	D _f	Top	9.401	Center	9.164	Bottom	8.443	Avg	9.043																																																																			
Change of height during Shear Test, in	ΔH	1.003		Volume, cc = H _f *A _f		V _f	494.32																																																																					
Height, cm = H _c - 2.54*ΔH	H _f	12.532		Void Ratio = (V _f -V _s)+V _s		e _f	0.643																																																																					
Area, cm ² from test data	A _f	39.446		Saturation, %		S _f	100.0																																																																					
Remarks																																																																												
Technician	RC/KG RC/KG RC RC			Computed By	RC		Checked By																																																																					

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.786 (in.)	14.697 (cm)
Diameter	2.377 (in)	6.037 (cm)
Area	4.436 (in ²)	28.621 (cm ²)

Final Values	
Height	4.713 (in.)
Dia. avg.	3.144 (in)
Area avg.	7.761 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	A

Project Number	175569038
Test Number	CU-1A
Data File ID	CU-1A
Lateral Pressure (psi)	5.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1 + \sigma_3)/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
0:43:47	254.4	1.016	77.6	4.742	18.05	34.9232	240.6	3.204	3.099	3.459	3.999	0.893	2.446	1.553	4.479
0:44:02	256.5	1.022	77.6	4.736	18.14	34.9651	242.7	3.228	3.122	3.482	4.022	0.892	2.457	1.565	4.510
0:44:18	258.8	1.028	77.6	4.730	18.25	35.0101	245.0	3.255	3.148	3.508	4.051	0.895	2.473	1.578	4.527
0:44:33	260.6	1.034	77.5	4.725	18.35	35.0533	246.8	3.274	3.168	3.528	4.073	0.898	2.486	1.588	4.534
0:44:47	262.9	1.040	77.4	4.719	18.45	35.0962	249.1	3.300	3.193	3.553	4.105	0.905	2.505	1.600	4.537
0:45:02	264.8	1.045	77.4	4.713	18.55	35.1378	251.1	3.323	3.215	3.575	4.130	0.907	2.518	1.611	4.551

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.557 (in.)	14.115 (cm)
Diameter	2.675 (in)	6.794 (cm)
Area	5.619 (in ²)	36.251 (cm ²)

Final Values	
Height	4.487 (in.)
Dia. avg.	3.269 (in)
Area avg.	8.393 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-1B
Data File ID	CU-1B
Lateral Pressure (psi)	10.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected		Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
							Load (lbf)	Deviator Stress (tsf)							
0:42:58	371.1	0.950	71.2	4.549	18.14	44.2859	357.5	3.754	3.660	4.380	5.018	1.354	3.186	1.832	3.706
0:43:13	373.1	0.956	71.1	4.543	18.25	44.3414	359.5	3.770	3.676	4.396	5.037	1.358	3.198	1.840	3.709
0:43:27	375.0	0.961	71.1	4.537	18.35	44.3977	361.4	3.786	3.691	4.411	5.057	1.362	3.209	1.847	3.712
0:43:41	376.8	0.967	71.0	4.532	18.44	44.4494	363.2	3.800	3.704	4.424	5.074	1.367	3.220	1.854	3.713
0:43:56	378.6	0.972	71.0	4.526	18.55	44.5062	365.0	3.814	3.718	4.438	5.093	1.371	3.232	1.861	3.714
0:44:11	380.5	0.978	70.9	4.521	18.65	44.5621	367.0	3.829	3.733	4.453	5.113	1.376	3.244	1.868	3.715
0:44:24	382.0	0.983	70.8	4.515	18.75	44.6152	368.4	3.840	3.743	4.463	5.128	1.381	3.255	1.873	3.713
0:44:39	384.0	0.989	70.7	4.510	18.85	44.6714	370.4	3.856	3.758	4.478	5.148	1.386	3.267	1.881	3.714
0:44:54	385.7	0.995	70.5	4.504	18.95	44.7272	372.1	3.868	3.771	4.491	5.179	1.405	3.292	1.887	3.686
0:45:09	387.2	1.001	70.5	4.498	19.05	44.7847	373.6	3.879	3.781	4.501	5.186	1.401	3.293	1.892	3.701
0:45:22	388.9	1.006	70.7	4.493	19.15	44.8369	375.4	3.893	3.794	4.514	5.187	1.389	3.288	1.899	3.733
0:45:37	390.9	1.012	70.7	4.487	19.25	44.8939	377.3	3.908	3.808	4.528	5.199	1.387	3.293	1.906	3.749

0:00:00	13.76954	-0.027844	85.10398
0:00:21	22.4333	-2.16E-02	85.44633
0:00:37	29.79651	-1.58E-02	86.18845
0:00:51	34.14693	-1.04E-02	86.7051
0:01:05	36.79502	-4.59E-03	86.94514
0:01:23	38.95354	1.83E-03	87.105
0:01:36	40.60767	7.31E-03	87.13389
0:01:52	42.53624	0.013054	87.16109
0:02:06	43.69462	1.88E-02	87.13882
0:02:21	45.31661	0.024523	87.07755
0:02:35	46.53309	3.04E-02	87.01423
0:02:50	47.9684	3.61E-02	86.93442
0:03:05	49.64354	0.04176	86.81212
0:03:21	51.17404	0.047901	86.69391
0:03:35	52.33984	5.34E-02	86.59628
0:03:49	53.96677	5.93E-02	86.46905
0:04:04	55.69012	6.54E-02	86.31833
0:04:18	57.11678	7.08E-02	86.18568
0:04:33	58.67571	0.076597	86.0198
0:04:46	59.91321	8.27E-02	85.79301
0:05:01	61.68107	8.88E-02	86.09359
0:05:15	62.87036	9.41E-02	86.11887
0:05:28	64.05347	9.98E-02	86.08155
0:05:42	65.15498	0.105714	85.98128
0:05:55	66.55073	0.111481	85.87679
0:06:09	67.90691	0.117285	85.76219
0:06:24	69.18892	0.123049	85.65951
0:06:37	70.4289	0.128867	85.55695
0:06:51	71.29305	0.134633	85.45728
0:07:07	72.3513	0.140731	85.34124
0:07:20	73.23523	0.146253	85.23037
0:07:35	74.02891	0.152293	85.09952
0:07:50	74.77809	0.158219	84.98516
0:08:03	75.39622	0.163754	84.89416
0:08:17	75.95254	0.169393	84.81254
0:08:32	76.29622	0.175304	84.755
0:08:45	76.70296	0.181013	84.72611
0:09:00	77.32233	0.186774	84.66905
0:09:15	78.21862	0.192817	84.63234
0:09:30	78.91835	0.198816	84.59454
0:09:43	79.38318	0.204206	84.55277
0:09:58	80.30791	0.210014	84.49547
0:10:14	81.1189	0.216248	84.44552
0:10:29	81.69253	0.22206	84.40555
0:10:42	82.54803	0.227522	84.35523
0:10:57	82.90902	0.233372	84.27566
0:11:12	83.61369	0.239073	84.29661
0:11:28	84.08223	0.245309	84.19561
0:11:43	84.52482	0.250866	84.13482
0:11:58	85.13924	0.256708	84.08342
0:12:12	85.55339	0.262417	84.05345
0:12:27	86.34584	0.268287	83.99218

0:12:42	86.64502	0.273996	84.00361
0:12:57	87.21493	0.279861	83.9533
0:13:12	87.49928	0.285436	83.62936
0:13:28	88.04571	0.291573	83.69894
0:13:42	88.50312	0.297055	83.79596
0:13:58	89.16082	0.303115	83.70869
0:14:13	89.49832	0.308878	83.53282
0:14:28	90.06329	0.314467	83.56508
0:14:44	90.59118	0.320593	83.47925
0:14:58	91.21426	0.325965	83.43351
0:15:12	91.93995	0.331868	83.35177
0:15:27	92.41344	0.337649	83.30326
0:15:42	92.89805	0.3437	83.2509
0:15:56	93.54833	0.349192	83.16338
0:16:10	94.15534	0.355171	83.07707
0:16:25	94.70795	0.361149	82.98559
0:16:39	95.17649	0.366862	82.88074
0:16:53	95.69449	0.372619	82.77348
0:17:07	96.11482	0.378177	82.66816
0:17:22	96.77128	0.384318	82.81706
0:17:37	97.5526	0.390216	83.02519
0:17:51	98.0706	0.395633	83.10789
0:18:06	98.48598	0.401639	83.10849
0:18:21	99.11401	0.407505	83.0666
0:18:34	99.75439	0.412971	83.05854
0:18:49	100.3255	0.419046	82.99401
0:19:03	100.9585	0.424789	82.96308
0:19:18	101.6113	0.430852	82.92745
0:19:32	101.9809	0.436311	82.8728
0:19:47	102.5545	0.442361	82.82464
0:20:02	103.2444	0.448232	82.77938
0:20:15	103.7327	0.453658	82.61615
0:20:30	104.1765	0.459571	82.65118
0:20:45	104.9047	0.465415	82.60484
0:21:00	105.299	0.471404	82.56668
0:21:14	105.7973	0.476866	82.50432
0:21:29	106.7319	0.482802	82.46424
0:21:44	107.1089	0.488492	82.44125
0:21:59	107.6442	0.494354	82.37058
0:22:14	108.255	0.500178	82.34121
0:22:29	108.8706	0.505909	82.29703
0:22:44	109.4517	0.511623	82.25262
0:23:01	110.0142	0.517839	82.22372
0:23:16	110.7485	0.523686	82.17124
0:23:31	111.405	0.529495	82.12165
0:23:46	112.1245	0.535085	82.10732
0:24:01	113.1555	0.541015	82.09456
0:24:15	114.011	0.546425	82.11635
0:24:30	114.7763	0.552237	82.09408
0:24:45	115.6404	0.558201	82.10046
0:25:00	116.847	0.564148	82.08938
0:25:15	117.9102	0.570021	82.08084

0:25:29	118.8968	0.575687	82.06579
0:25:42	119.9488	0.58129	82.05243
0:25:57	121.1233	0.587356	82.05496
0:26:10	122.1481	0.592765	82.03257
0:26:24	123.6601	0.598999	82.02077
0:26:38	124.8753	0.604965	81.96154
0:26:50	125.9002	0.610387	81.94578
0:27:04	127.4369	0.616341	81.91929
0:27:16	128.6027	0.621888	81.88005
0:27:30	130.0405	0.627772	81.85465
0:27:45	131.7984	0.63394	81.82179
0:27:59	133.2894	0.639583	81.78182
0:28:13	134.6431	0.645152	81.75666
0:28:27	136.4678	0.650758	81.73536
0:28:42	137.7115	0.656981	81.65458
0:28:55	139.1307	0.662531	81.60499
0:29:11	140.6291	0.668653	81.54011
0:29:24	142.4427	0.674152	81.45356
0:29:39	144.0189	0.680153	81.38602
0:29:53	145.589	0.686046	81.26637
0:30:07	147.279	0.691535	81.16309
0:30:21	148.676	0.697295	81.05968
0:30:36	150.7244	0.703458	81.09507
0:30:50	152.8434	0.708796	81.32921
0:31:05	154.2775	0.714785	81.36929
0:31:20	156.075	0.720871	81.36147
0:31:34	158.3918	0.726431	81.30561
0:31:47	160.3785	0.731974	81.27732
0:32:02	161.836	0.737866	81.18223
0:32:18	163.6224	0.743775	81.10579
0:32:33	165.6351	0.749577	81.058
0:32:48	167.7738	0.755657	80.97819
0:33:03	169.6245	0.761494	80.83903
0:33:16	170.9794	0.766816	80.8353
0:33:31	172.9352	0.77257	80.7077
0:33:48	175.3163	0.778879	80.62753
0:34:02	176.6354	0.784158	80.55567
0:34:17	178.4168	0.790076	80.45828
0:34:32	180.1501	0.795843	80.36102
0:34:47	182.7697	0.801791	80.30083
0:35:02	185.0803	0.807721	80.20633
0:35:16	186.1967	0.813226	80.11244
0:35:31	188.3849	0.819066	80.07368
0:35:47	191.3358	0.825189	79.71881
0:36:02	193.0443	0.8309	79.91659
0:36:16	194.3041	0.836455	79.80524
0:36:31	195.7913	0.842464	79.68944
0:36:45	197.6433	0.848027	79.61528
0:37:00	199.3481	0.854105	79.49719
0:37:14	201.5857	0.859693	79.45518
0:37:29	203.3919	0.865695	79.34925
0:37:42	204.8717	0.871348	79.28292

0:37:56	206.3688	0.876973	79.19132
0:38:11	208.7078	0.883017	79.10188
0:38:25	210.7254	0.88863	79.02472
0:38:39	213.2301	0.894386	78.9307
0:38:54	216.0896	0.90047	78.86907
0:39:08	218.2246	0.90614	78.80033
0:39:23	220.7268	0.912298	78.72823
0:39:36	223.2068	0.91784	78.65877
0:39:52	224.7237	0.923871	78.57848
0:40:05	226.4062	0.92952	78.50601
0:40:19	228.8207	0.935109	78.41164
0:40:34	230.2337	0.941205	78.33183
0:40:48	231.5194	0.946835	78.25888
0:41:02	233.3232	0.952357	78.18268
0:41:17	233.9883	0.958223	78.10576
0:41:32	234.1638	0.964106	78.00693
0:41:47	235.9638	0.969999	77.89763
0:42:02	237.8467	0.975745	77.78749
0:42:17	238.9605	0.981616	77.66494
0:42:32	240.6592	0.987632	77.53686
0:42:47	243.7053	0.993389	77.38687
0:43:02	246.4746	0.999153	77.22954
0:43:16	249.4218	1.004672	77.39349
0:43:32	251.9797	1.01074	77.4656
0:43:47	254.4028	1.016376	77.59886
0:44:02	256.4871	1.022057	77.61499
0:44:18	258.8076	1.028148	77.57334
0:44:33	260.5952	1.033979	77.52278
0:44:47	262.8638	1.03976	77.4337
0:45:02	264.8356	1.045348	77.39674

0:00:00	13.56927	-5.83E-02	80.04914
0:00:23	18.31406	-5.26E-02	79.92689
0:00:38	18.63302	-0.046843	80.11436
0:00:53	18.53041	-4.10E-02	80.10681
0:01:06	18.71708	-3.57E-02	80.10447
0:01:21	19.04346	-3.02E-02	80.12738
0:01:36	20.27478	-2.44E-02	80.21291
0:01:50	22.41352	-1.90E-02	80.34727
0:02:07	39.55807	-1.29E-02	81.80329
0:02:23	47.97953	-7.42E-03	82.93371
0:02:38	52.78242	-1.92E-03	83.57801
0:02:53	56.45166	3.56E-03	84.01896
0:03:07	59.72777	9.27E-03	84.31982
0:03:22	62.72077	1.48E-02	84.50131
0:03:37	65.25636	2.05E-02	84.63813
0:03:51	67.52367	2.57E-02	84.71078
0:04:05	69.83673	3.15E-02	84.75244
0:04:20	72.18811	0.03742	84.76754
0:04:33	74.3763	4.26E-02	84.75686
0:04:47	76.50021	4.84E-02	84.73031
0:05:01	78.55736	5.39E-02	84.69789
0:05:15	80.58607	0.059503	84.64503
0:05:28	82.64322	6.50E-02	84.57343
0:05:43	84.97729	7.09E-02	84.49102
0:05:57	86.82304	7.62E-02	84.44025
0:06:11	89.11013	8.20E-02	84.34222
0:06:25	90.97813	8.74E-02	84.24028
0:06:40	93.09215	9.33E-02	84.14173
0:06:53	95.17649	9.85E-02	84.03406
0:07:08	97.26455	0.10437	83.92431
0:07:22	99.39464	0.109777	83.81613
0:07:37	101.6484	0.11552	83.70521
0:07:51	103.9602	0.121344	83.58921
0:08:05	106.1422	0.126874	83.46618
0:08:18	108.318	0.132205	83.33729
0:08:32	110.3554	0.137709	83.22026
0:08:47	112.4459	0.143689	83.08681
0:09:00	114.5785	0.148962	82.96105
0:09:15	116.9113	0.154655	82.81706
0:09:30	118.9709	0.16031	82.6598
0:09:45	121.572	0.165978	82.50748
0:09:58	123.9086	0.171445	82.34708
0:10:13	125.9336	0.177366	82.19346
0:10:27	128.0587	0.182764	82.02721
0:10:42	130.3137	0.18834	81.85458
0:10:56	132.5946	0.194038	81.6787
0:11:10	134.6641	0.199356	81.50151
0:11:25	137.0452	0.205103	81.60293
0:11:40	139.3792	0.210837	81.56622
0:11:54	141.3943	0.216539	81.47196
0:12:08	143.5516	0.221738	81.36391
0:12:23	145.636	0.227471	81.21692

0:12:38	147.7067	0.233196	81.09233
0:12:52	150.0049	0.238832	80.9559
0:13:07	152.1981	0.244408	80.80943
0:13:22	154.2095	0.250086	80.72026
0:13:37	156.4521	0.255667	80.54112
0:13:52	158.6353	0.261311	80.40937
0:14:06	160.5911	0.26657	80.25405
0:14:20	162.7422	0.272289	80.06827
0:14:35	164.7796	0.278121	79.92598
0:14:49	166.7823	0.283408	79.79931
0:15:04	168.8481	0.289331	79.71586
0:15:17	170.8113	0.29469	79.58398
0:15:32	172.7053	0.300508	79.4478
0:15:46	174.6487	0.305996	79.28936
0:15:59	176.555	0.311522	79.17284
0:16:14	178.7593	0.31747	79.02169
0:16:26	180.4431	0.322531	78.91546
0:16:41	182.2925	0.328582	78.77355
0:16:55	184.1951	0.333893	78.66159
0:17:08	185.916	0.339396	78.55887
0:17:23	187.9534	0.345175	78.41879
0:17:37	189.7583	0.350624	78.29824
0:17:51	191.3556	0.356525	78.17807
0:18:05	193.1556	0.36182	78.07353
0:18:20	194.8654	0.36767	77.95571
0:18:33	196.6196	0.373087	77.83112
0:18:48	198.4481	0.378958	77.70732
0:19:02	199.9699	0.38442	77.6292
0:19:15	201.6092	0.389887	77.51737
0:19:30	203.4129	0.39572	77.39304
0:19:45	205.1659	0.401363	77.29019
0:19:59	206.3948	0.406745	77.20049
0:20:13	208.489	0.412407	77.08293
0:20:28	210.2804	0.418044	76.96498
0:20:42	211.618	0.423388	76.88336
0:20:56	213.4304	0.429316	76.77087
0:21:10	215.0536	0.434537	76.6705
0:21:25	216.5631	0.440202	76.58301
0:21:40	218.305	0.446047	76.46493
0:21:54	219.8614	0.451763	76.37289
0:22:08	221.0272	0.457018	76.26965
0:22:23	222.8977	0.462733	76.18034
0:22:38	224.2724	0.468473	76.07671
0:22:51	225.9575	0.473749	75.9818
0:23:06	227.1666	0.479587	75.88065
0:23:21	228.7564	0.48531	75.78704
0:23:36	230.3462	0.49093	75.69877
0:23:49	231.5541	0.496145	75.60868
0:24:04	233.3887	0.501918	75.50753
0:24:19	234.7931	0.507549	75.41861
0:24:34	236.1431	0.513285	75.32878
0:24:47	237.6909	0.518601	75.23921

0:25:02	239.3092	0.524463	75.1443
0:25:16	240.2784	0.529785	75.07374
0:25:30	241.7458	0.535759	74.96074
0:25:44	243.3147	0.540982	74.89382
0:25:59	244.5423	0.546908	74.779
0:26:12	245.8861	0.552344	74.68813
0:26:26	247.4661	0.557841	74.6022
0:26:39	248.8853	0.563333	74.51914
0:26:54	250.558	0.569356	74.43192
0:27:08	252.7103	0.574875	74.39507
0:27:21	253.9082	0.580254	74.35667
0:27:36	255.8418	0.586231	74.30264
0:27:50	257.7221	0.59152	74.24991
0:28:03	259.1982	0.597027	74.18742
0:28:18	261.0576	0.60295	74.10072
0:28:32	262.9552	0.608244	74.23572
0:28:47	264.8727	0.614006	74.34677
0:29:00	266.4823	0.61951	74.36682
0:29:15	268.3923	0.625393	74.36096
0:29:28	270.0304	0.630628	74.33636
0:29:42	271.9281	0.636265	74.27348
0:29:57	273.6242	0.641993	74.22505
0:30:12	275.1671	0.647699	74.16503
0:30:25	276.7643	0.652967	74.09473
0:30:40	278.7028	0.658714	74.0381
0:30:55	280.3112	0.66442	73.98941
0:31:10	282.0679	0.670032	73.92132
0:31:23	284.1857	0.675462	73.81209
0:31:38	286.5358	0.681364	73.73072
0:31:52	287.688	0.686564	73.68776
0:32:06	289.8688	0.692341	73.64897
0:32:20	291.424	0.697732	73.58752
0:32:35	292.9755	0.703601	73.53844
0:32:50	294.9301	0.709306	73.46371
0:33:03	296.5001	0.71457	73.41163
0:33:18	298.0269	0.720281	73.37648
0:33:32	299.8183	0.72574	73.31178
0:33:46	301.5935	0.731511	73.24994
0:34:01	303.2477	0.73727	73.20893
0:34:16	305.1602	0.742952	73.1493
0:34:30	306.9664	0.748229	73.09423
0:34:44	308.6551	0.753959	73.05023
0:34:58	310.1844	0.75938	73.00297
0:35:13	312.1055	0.765171	72.9673
0:35:28	313.7732	0.770904	72.90195
0:35:41	315.2419	0.776314	72.84818
0:35:55	317.2472	0.781711	72.77983
0:36:09	319.0842	0.787541	72.73452
0:36:23	320.4169	0.79298	72.69638
0:36:38	322.3381	0.798871	72.62608
0:36:51	323.8031	0.804248	72.58494
0:37:05	325.2767	0.809751	72.54484

0:37:20	327.1867	0.815719	72.48795
0:37:33	328.7333	0.821244	72.43067
0:37:47	330.3701	0.826742	72.37924
0:38:00	332.2802	0.832197	72.32131
0:38:15	334.2891	0.838061	72.26546
0:38:29	335.6774	0.843555	72.24163
0:38:42	337.8322	0.849045	72.18539
0:38:57	339.5	0.854992	72.11262
0:39:11	341.1887	0.860455	72.05885
0:39:24	343.4857	0.865815	71.9974
0:39:39	345.6232	0.871689	71.95821
0:39:53	346.5714	0.877174	71.89507
0:40:06	348.4444	0.882652	71.84104
0:40:20	350.4249	0.888116	71.78038
0:40:35	352.1334	0.8939	71.73859
0:40:49	354.4007	0.899811	71.68729
0:41:03	356.0486	0.905143	71.63496
0:41:18	357.5569	0.910816	71.58731
0:41:33	359.6301	0.916553	71.53666
0:41:47	361.5352	0.922117	71.48719
0:42:01	363.2202	0.927548	71.41937
0:42:15	365.3713	0.93301	71.35258
0:42:29	366.798	0.938714	71.29868
0:42:44	368.9614	0.944488	71.26314
0:42:58	371.0829	0.949909	71.19648
0:43:13	373.0881	0.955603	71.13829
0:43:27	375.0142	0.961371	71.07957
0:43:41	376.7685	0.966644	71.01969
0:43:56	378.5969	0.972427	70.95668
0:44:11	380.5304	0.978109	70.88559
0:44:24	382.0189	0.98349	70.81803
0:44:39	383.9623	0.989166	70.74707
0:44:54	385.6684	0.9948	70.48396
0:45:09	387.2013	1.000581	70.54073
0:45:22	388.9432	1.005815	70.70242
0:45:37	390.8644	1.011515	70.73874

0:00:00	15.75395	-2.03E-02	70.09545
0:00:27	19.11757	-1.42E-02	70.39433
0:00:51	19.18153	-8.17E-03	70.49739
0:01:13	19.96487	-2.21E-03	70.58849
0:01:38	21.32872	3.39E-03	70.76945
0:02:02	29.09209	9.28E-03	71.59282
0:02:29	50.84415	1.54E-02	74.75754
0:02:53	62.74474	0.021584	77.60408
0:03:15	68.22448	0.027208	79.33279
0:03:37	71.67947	3.30E-02	80.53245
0:03:59	74.01427	3.87E-02	81.42663
0:04:21	75.9105	4.46E-02	82.02594
0:04:46	77.36084	5.06E-02	82.55241
0:05:08	78.55412	5.66E-02	82.90741
0:05:30	79.41178	6.24E-02	83.16836
0:05:52	80.23776	6.82E-02	83.38947
0:06:16	81.70577	7.46E-02	83.56426
0:06:36	83.15245	8.00E-02	83.6577
0:07:00	84.48889	8.63E-02	83.75385
0:07:22	85.92704	9.20E-02	83.7945
0:07:44	86.77678	9.78E-02	83.80665
0:08:06	88.4659	0.103718	83.81676
0:08:28	89.52214	0.109479	83.79364
0:08:52	91.08395	0.115961	83.74343
0:09:14	92.45084	0.121828	83.66134
0:09:36	94.16493	0.127866	83.56112
0:09:58	95.70177	0.133605	83.42487
0:10:20	97.19657	0.139419	82.78542
0:10:42	99.15249	0.145262	83.61225
0:11:04	101.0652	0.151094	83.6799
0:11:26	102.6172	0.156841	83.64956
0:11:48	104.5153	0.16264	83.56735
0:12:10	106.6911	0.168536	83.46934
0:12:35	108.541	0.175081	83.36807
0:12:56	110.3611	0.180943	83.23442
0:13:18	112.1501	0.186615	83.10878
0:13:41	114.1115	0.192502	83.00579
0:14:03	116.0827	0.198358	82.88478
0:14:25	118.2475	0.204217	82.75785
0:14:47	120.0073	0.209906	82.67335
0:15:11	122.2343	0.21609	82.26419
0:15:33	124.072	0.221998	82.16021
0:15:55	126.4574	0.227687	82.29041
0:16:20	128.8001	0.234052	82.11296
0:16:42	130.943	0.239757	81.97845
0:17:03	132.9087	0.245641	81.83635
0:17:25	135.1801	0.251299	81.68937
0:17:47	137.5704	0.257192	81.54326
0:18:12	139.7608	0.263559	81.37008
0:18:31	141.5626	0.268771	81.24389
0:18:56	143.7604	0.275247	81.07533
0:19:18	145.8223	0.281077	80.92897

0:19:40	147.9926	0.286918	80.78237
0:20:02	150.2671	0.292752	80.63521
0:20:24	152.2425	0.298596	80.46116
0:20:46	154.2764	0.304458	80.30006
0:21:08	156.1525	0.310159	80.1207
0:21:30	158.3064	0.315977	79.93747
0:21:54	160.5377	0.32248	79.72592
0:22:16	163.0174	0.328278	79.51122
0:22:38	165.2146	0.334095	79.27661
0:23:00	166.8543	0.33998	79.00252
0:23:22	169.0716	0.346028	79.18076
0:23:45	171.1292	0.351947	79.3204
0:24:05	173.0382	0.357303	79.24262
0:24:27	175.1032	0.363332	79.12322
0:24:50	177.2967	0.369301	78.99419
0:25:12	179.118	0.375206	78.84352
0:25:34	181.1476	0.381099	78.69667
0:25:56	183.2296	0.386997	78.56302
0:26:18	184.9474	0.392816	78.39538
0:26:40	187.0641	0.398731	78.28338
0:27:02	188.9774	0.404495	78.1546
0:27:26	191.1514	0.410963	77.98622
0:27:48	192.8319	0.416744	77.88026
0:28:10	194.9548	0.422561	77.74001
0:28:32	196.8827	0.428357	77.61839
0:28:54	198.8593	0.434085	77.50657
0:29:16	200.6678	0.439913	77.38722
0:29:41	202.7114	0.446321	77.24568
0:30:03	204.5882	0.452085	77.15699
0:30:25	206.5392	0.457788	77.01242
0:30:47	208.6291	0.463545	76.88333
0:31:11	210.9189	0.469914	76.7622
0:31:33	212.731	0.475637	76.63416
0:31:55	214.556	0.481349	76.5192
0:32:17	216.5698	0.487103	76.4001
0:32:41	218.7078	0.493431	76.27823
0:33:03	220.4311	0.4992	76.15222
0:33:25	222.1622	0.504925	76.03979
0:33:50	224.3118	0.511259	75.88566
0:34:12	226.308	0.51701	75.75959
0:34:34	227.994	0.522831	75.6207
0:34:56	229.7477	0.528601	75.46268
0:35:18	231.2577	0.534378	75.3027
0:35:40	233.0425	0.540179	75.12094
0:36:04	235.3797	0.546599	74.89897
0:36:26	237.1578	0.552414	75.15745
0:36:48	238.9127	0.558162	75.27272
0:37:10	240.6987	0.563995	75.21388
0:37:32	242.6491	0.569788	75.13599
0:37:57	244.6489	0.576147	75.03237
0:38:19	246.4617	0.581902	74.94676
0:38:41	248.5839	0.587661	74.85049

0:39:03	250.0671	0.593518	74.73084
0:39:25	251.4072	0.599343	74.61698
0:39:47	252.8295	0.6051	74.56857
0:40:11	255.1198	0.611459	74.45848
0:40:33	256.812	0.617208	74.3976
0:40:55	258.855	0.622957	74.3189
0:41:17	260.2219	0.628825	74.23626
0:41:39	261.9421	0.634601	74.16644
0:42:04	263.8907	0.641055	74.09095
0:42:26	265.3094	0.646877	74.01169
0:42:48	266.9406	0.652688	73.94508
0:43:10	268.6097	0.658455	73.89889
0:43:32	270.1313	0.664226	73.80675
0:43:54	271.5566	0.670144	73.7336
0:44:16	273.0216	0.676031	73.66526
0:44:38	274.4744	0.681788	73.59587
0:45:02	276.2756	0.688213	73.51878
0:45:24	277.9482	0.694006	73.4362
0:45:46	279.6246	0.699738	73.3694
0:46:08	281.5342	0.705452	73.27275
0:46:33	282.9937	0.711871	73.19042
0:46:55	284.4355	0.717553	73.08933
0:47:17	286.0862	0.723254	72.99934
0:47:41	288.0257	0.729608	72.89363
0:48:03	289.9396	0.735311	72.77466
0:48:25	291.5513	0.741036	72.64841
0:48:47	293.1893	0.74674	72.47356
0:49:11	294.5428	0.753123	72.48441
0:49:33	296.5943	0.758887	72.70256
0:49:55	298.6063	0.764746	72.75412
0:50:17	300.2808	0.770482	72.75005
0:50:39	302.0662	0.776311	72.69096
0:51:02	303.8649	0.782117	72.63157
0:51:26	305.5766	0.788539	72.57174
0:51:48	306.9752	0.794412	72.49206
0:52:10	308.6149	0.800225	72.4001
0:52:32	310.4137	0.806032	72.34311
0:52:54	312.0772	0.811941	72.30857
0:53:16	313.8918	0.817745	72.22093
0:53:38	315.5115	0.823585	72.16986
0:54:00	316.8522	0.829435	72.1241
0:54:22	318.6199	0.835347	72.06372
0:54:44	320.426	0.841233	72.07161
0:55:06	321.9318	0.84711	72.0063
0:55:28	323.2402	0.852978	71.94431
0:55:50	324.922	0.858935	71.86574
0:56:12	326.7567	0.864713	71.87555
0:56:34	328.1668	0.870696	71.80647
0:56:56	329.4697	0.876574	71.74245
0:57:18	331.5554	0.882425	71.68805
0:57:42	333.046	0.888944	71.6228
0:58:02	334.4007	0.894192	71.5705

0:58:26	336.1452	0.900734	71.48705
0:58:48	337.3884	0.906581	71.43469
0:59:10	338.5549	0.912486	71.35105
0:59:32	339.9261	0.918322	71.32052
0:59:54	341.4172	0.924177	71.24176
1:00:16	342.8329	0.93003	71.18687
1:00:38	344.5634	0.935867	71.12162
1:01:00	346.0838	0.941648	71.0473
1:01:22	347.4074	0.947458	70.97514
1:01:44	348.4862	0.953295	70.86807
1:02:06	349.5461	0.959118	70.81274
1:02:30	350.9453	0.965493	70.57862
1:02:52	352.4279	0.971336	70.4689
1:03:14	354.092	0.977034	70.84845
1:03:36	355.808	0.982802	70.93616

1:03:56	391.9069	0.9886	71.03749
1:43:07	504.1934	1.321254	67.46713



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04 COE Output

Project Name John Siever Fossil Plant

Project Number 175569038

Test ID _____

Request ID 20090526_2

Over-Ride _____

Set Number 510

Test Type - Select 1

Undisturbed _____

Remolded _____ rare

Source JS-49, 2.6' - 10.5'

Compacted _____

Sample ID JS-49, 2.6' - 10.5'

If Compacted or Remolded:

Test A

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test B

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

Test C

Source _____

Over-Ride _____

Lab ID _____

Over-Ride _____

LL _____

PL _____

PI _____

Gs _____

If Uniform for all

Visual Description: Silt (ML), gray, (fly ash)

LL NP

PL NP

PI NP

GS 2.32 ASTM D854 Method: A Assumed _____ Estimated _____

Gs Method Test ASTM D854 Method A

Test Number (ie 19A) CU-510A

Normal Load (psi) 5

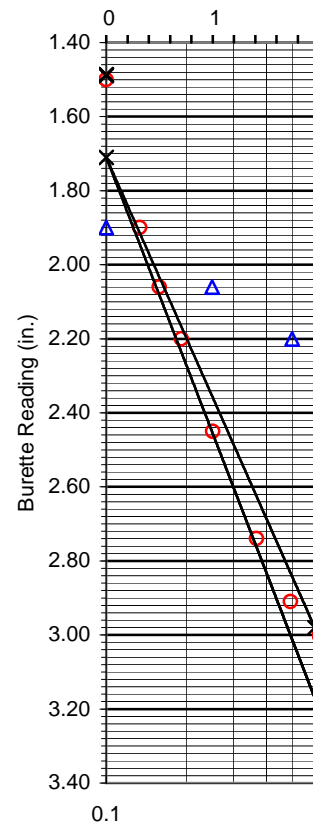
Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-2-09	13:20:00	1.5
0.1	6-2-09	13:20:06	1.9
0.25	6-2-09	13:20:15	2.06
0.5	6-2-09	13:20:30	2.2
1	6-2-09	13:21:00	2.45
2	6-2-09	13:22:00	2.74
3	6-2-09	13:23:00	2.91
4	6-2-09	13:24:00	3
6	6-2-09	13:26:00	3.08
8	6-2-09	13:28:00	3.1
10	6-2-09	13:30:00	3.14
12	6-2-09	13:32:00	3.17
16	6-2-09	13:36:00	3.17
22	6-2-09	13:42:00	3.17



Project Name Jo
 Source JS
 Start Date 6-2-09
 End Date 6-2-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.5	0	0.10	0	0.10	1.4	0	1.5
not	0.1	1.9	0.3162278	0.13	1	0.25	1.4	0.1	1.9
erase!	0.25	2.06	0.5	0.16	2	0.63	1.4	0.25	2.06
	0.5	2.2	0.7071068	0.19	3	1.58	1.4	0.5	2.2
	1	2.45	1	0.25	4	3.98	1.4	1	2.45
	2	2.74	1.4142136	0.37	5	10.00	1.4	2	2.74
	3	2.91	1.7320508	0.49	6	25.12	1.4	3	2.91
	4	3	2	0.63	7	63.10	1.4		
	6	3.08	2.4494897	0.95	8	158.49	1.4		
	8	3.1	2.8284271	1.35	9	398.11	1.4		
	10	3.14	3.1622777	1.84	10	1000.00	1.4		
	12	3.17	3.4641016	2.43	11	2511.89	1.4		
	16	3.17	4	3.98	0.2	0.12	1.4		
	22	3.17	4.6904158	7.52	0.4	0.14	1.4		
					0.6	0.17	1.4		
					0.8	0.21	1.4		
					1.2	0.30	1.4		
					1.4	0.36	1.4		
					1.6	0.44	1.4		
					1.8	0.52	1.4		
					2.2	0.76	1.4		
					2.4	0.91	1.4		
					2.6	1.10	1.4		
					2.8	1.32	1.4		
					3.2	1.91	1.4		
					3.4	2.29	1.4		
					3.6	2.75	1.4		
					3.8	3.31	1.4		
					4.2	4.79	1.4		
					4.4	5.75	1.4		
					4.6	6.92	1.4		
					4.8	8.32	1.4		
					5.2	12.02	1.4		
					5.4	14.45	1.4		
					5.6	17.38	1.4		
					5.8	20.89	1.4		
					6.2	30.20	1.4		
					6.4	36.31	1.4		
					6.6	43.65	1.4		
					6.8	52.48	1.4		
					7.2	75.86	1.4		
					7.4	91.20	1.4		
					7.6	109.65	1.4		
					7.8	131.83	1.4		
					8.2	190.55	1.4		
					8.4	229.09	1.4		

Burette Reading (in.)



Square Root

$d_0 = 1.71$

$d_{90} = 2.98$

$d_{100} = 3.121$

Comments: _____

			Square Root
8.6	275.42	1.4	plot point - x
8.8	331.13	1.4	
9.2	478.63	1.4	$d_0 =$ 0.10
9.4	575.44	1.4	$d_{90} =$ 0.61
9.6	691.83	1.4	$d_{100} =$ 1.32
9.8	831.76	1.4	
10.2	1202.26	1.4	$d_0 =$ 0.10
10.4	1445.44	1.4	d_0 line 0.48
10.6	1737.80	1.4	
10.8	2089.30	1.4	



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale

0 0
10 0

John Siever Fossil Plant

Project No. 175569038

3-49, 2.6' - 10.5'

Test Number CU-510A

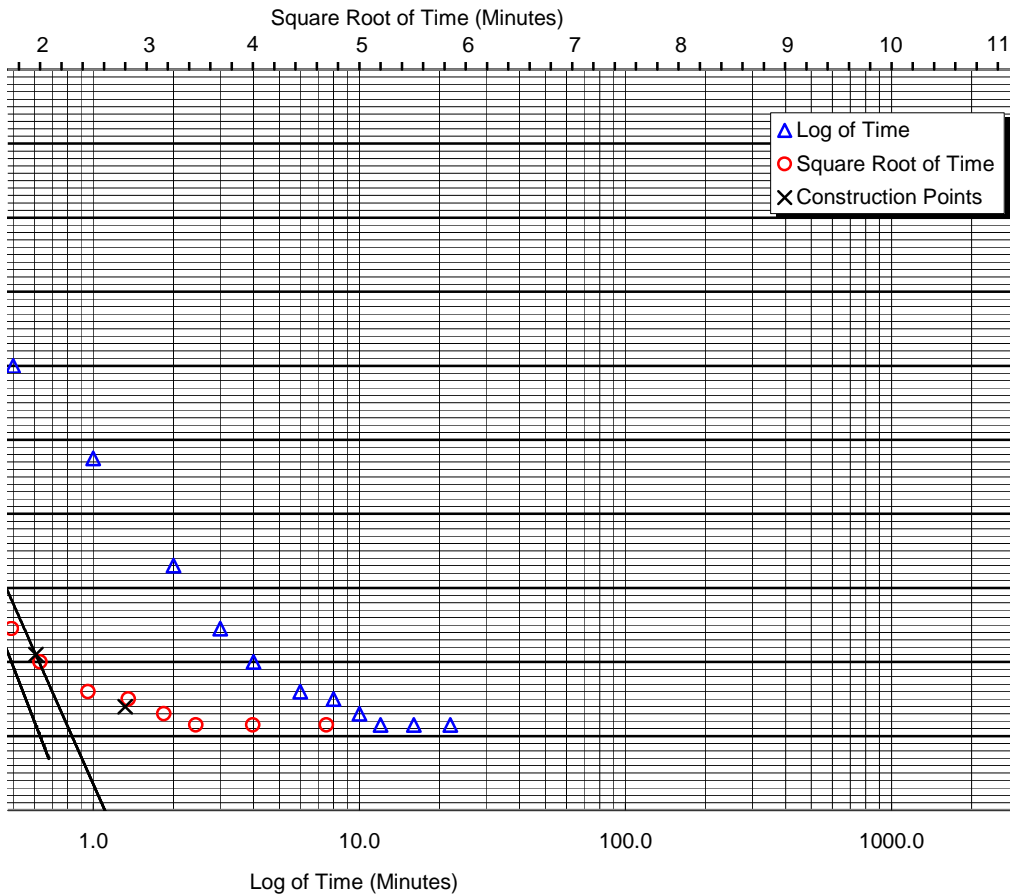
Start Time 1:20 PM

Load (tsf) 5

End Time 1:42 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	3					4:04 AM
6	3.08					
8	3.1					
10	3.14					
12	3.17					
16	3.17					
22	3.17					

Consolidation



t of Time

Log of time

$t_{90} (m) = 3.84$

$d_{100} =$

$t_{100} (m) =$

$t_{100} (m) = 7.84$

$d_{t_1} =$

$t_1 (m) =$

$t_{50} (m) = 0.897$

$d_{t_2 (t_1^*4)} =$

$t_{50} (m) =$

$d_{50} =$

t of Time

y	time
1.71	0
2.98	3.84
3.12111111	7.84
1.71	0
2.98	2.90359168

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.489
d _{t1}	0.1	1.488
d _{t1*4}	0.1	1.487
d ₅₀	0.1	1.486

line @ 3000 m

3000	3.4
3000	1.4

		rounded	round even	.2 round .5	round 2	round 10
max. dial reading	3.17 maximum scale	3.2	3.2	3.5	2	10
min. dial reading	1.50 mimimum scale	1.5	1.4	1.5	0	0
diference	1.67	1.7	1.8	2	2	10

0.5	1	2	3	4	5	10	20
		2	3	4	5	10	20
		0.2	0.3	0.4	0.5	1	2
		0.02	0.03	0.04	0.05	0.1	0.2
		3.4	4.5	5.4	6.5	10	20
		1.4	1.5	1.4	1.5	0	0
		1	2	2	2	2	2
		3.4	4.5	5.4	6.5	10	20
		1.4	1.5	1.4	1.5	0	0
		2	3	4	5	10	20
		0.2	0.3	0.4	0.5	1	2
		0.02	0.03	0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	3.4
min_y	1.4
total scale	2
Major unit	0.2
Minor unit	0.02

Test Number (ie 19A) CU-510B

Normal Load (psi) 10

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-2-09	14:05:00	1.45
0.1	6-2-09	14:05:06	2.22
0.25	6-2-09	14:05:15	2.53
0.5	6-2-09	14:05:30	2.87
1	6-2-09	14:06:00	3.24
2	6-2-09	14:07:00	3.7
3	6-2-09	14:08:00	3.86
4	6-2-09	14:09:00	3.91
6	6-2-09	14:11:00	3.96
8	6-2-09	14:13:00	4
10	6-2-09	14:15:00	4.01
12	6-2-09	14:17:00	4.02
16	6-2-09	14:21:00	4.03
22	6-2-09	14:27:00	4.04
30	6-2-09	14:35:00	4.05
45	6-2-09	14:50:00	4.05
60	6-2-09	15:05:00	4.05

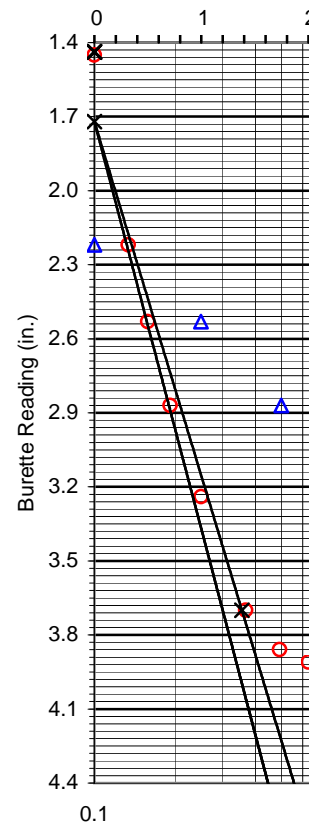


x o11:c27 y c11:c27
 sqtr plot range

e12:e27 c12:c27
 log plot range

Project Name JS
 Source JS
 Start Date 6-2-09
 End Date 6-2-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.45	0	0.10	0	0.10	1.4	0	1.45
not	0.1	2.22	0.3162278	0.13	1	0.25	1.4	0.1	2.22
erase!	0.25	2.53	0.5	0.16	2	0.63	1.4	0.25	2.53
	0.5	2.87	0.7071068	0.19	3	1.58	1.4	0.5	2.87
	1	3.24	1	0.25	4	3.98	1.4	1	3.24
	2	3.7	1.4142136	0.37	5	10.00	1.4	2	3.7
	3	3.86	1.7320508	0.49	6	25.12	1.4	3	3.86
	4	3.91	2	0.63	7	63.10	1.4		
	6	3.96	2.4494897	0.95	8	158.49	1.4		
	8	4	2.8284271	1.35	9	398.11	1.4		
	10	4.01	3.1622777	1.84	10	1000.00	1.4		
	12	4.02	3.4641016	2.43	11	2511.89	1.4		
	16	4.03	4	3.98	0.2	0.12	1.4		
	22	4.04	4.6904158	7.52	0.4	0.14	1.4		
	30	4.05	5.4772256	15.52	0.6	0.17	1.4		
	45	4.05	6.7082039	48.23	0.8	0.21	1.4		
	60	4.05	7.7459667	125.43	1.2	0.30	1.4		
					1.4	0.36	1.4		
					1.6	0.44	1.4		
					1.8	0.52	1.4		
					2.2	0.76	1.4		
					2.4	0.91	1.4		
					2.6	1.10	1.4		
					2.8	1.32	1.4		
					3.2	1.91	1.4		
					3.4	2.29	1.4		
					3.6	2.75	1.4		
					3.8	3.31	1.4		
					4.2	4.79	1.4		
					4.4	5.75	1.4		
					4.6	6.92	1.4		
					4.8	8.32	1.4		
					5.2	12.02	1.4		
					5.4	14.45	1.4		
					5.6	17.38	1.4		
					5.8	20.89	1.4		
					6.2	30.20	1.4		
					6.4	36.31	1.4		
					6.6	43.65	1.4		
					6.8	52.48	1.4		
					7.2	75.86	1.4		
					7.4	91.20	1.4		
					7.6	109.65	1.4		
					7.8	131.83	1.4		
					8.2	190.55	1.4		
					8.4	229.09	1.4		



Square Roo

$d_0 = 1.72$

$d_{90} = 3.7$

$d_{100} = 3.920$

Comments: _____

Laboratory Document
 Prepared By: MW
 Approved BY: TLK

8.6	275.42	1.4		Square Root
8.8	331.13	1.4		plot point - x
9.2	478.63	1.4	$d_0 =$	0.10
9.4	575.44	1.4	$d_{90} =$	0.36
9.6	691.83	1.4	$d_{100} =$	0.74
9.8	831.76	1.4		
10.2	1202.26	1.4	$d_0 =$	0.10
10.4	1445.44	1.4	d_0 line	0.30
10.6	1737.80	1.4		
10.8	2089.30	1.4		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

John Siever Fossil Plant

Project No. 175569038

49, 2.6' - 10.5'

Test Number CU-510B

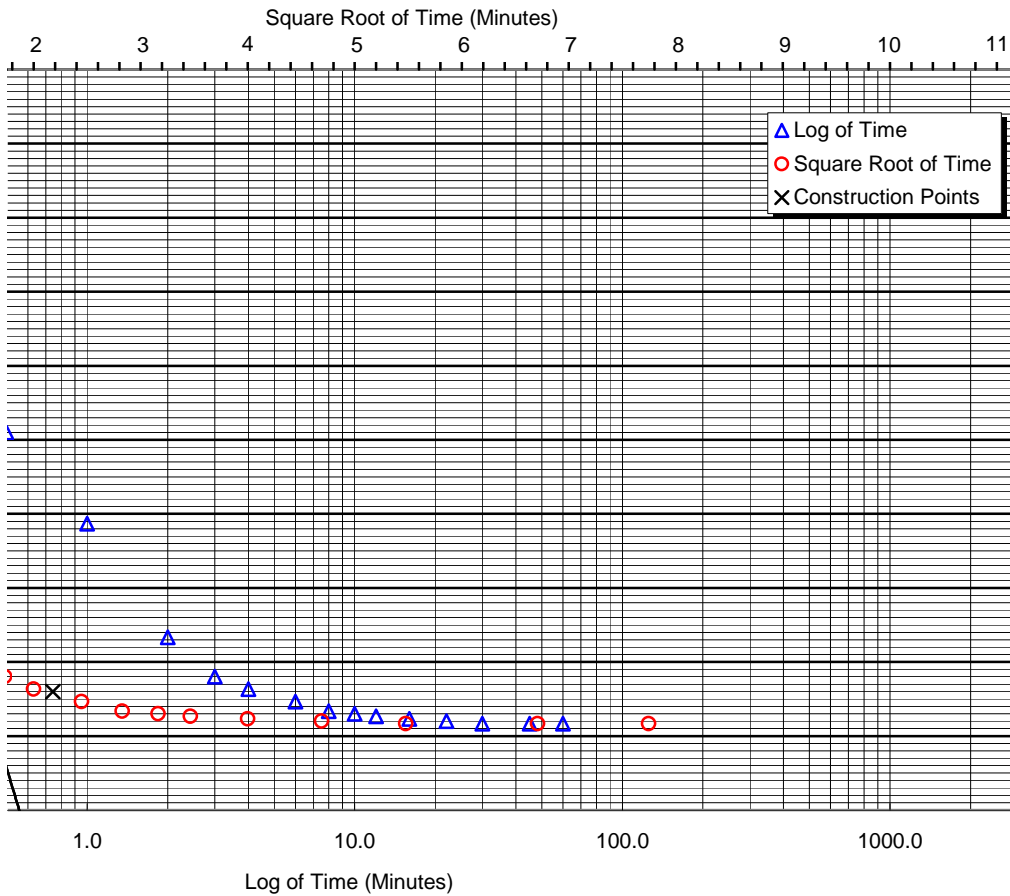
Start Time 2:05 PM

Load (tsf) 10

End Time 3:05 PM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	3.91	30	4.05			1:12 AM
6	3.96	45	4.05			
8	4.00	60	4.05			
10	4.01					
12	4.02					
16	4.03					
22	4.04					

Consolidation



t of Time

Log of time

$t_{90} (m) = 1.9$

$t_{100} (m) = 4.75$

$t_{50} (m) = 0.444$

$d_{100} =$

$d_{t1} =$

$d_{t2 (t1*4)} =$

$d_{50} =$

$t_{100} (m) =$

$t_1 (m) =$

$t_{50} (m) =$

t of Time

y	time
1.72	0
3.7	1.9
3.92	4.75
1.72	0
3.7	1.43667297

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.439
d _{t1}	0.1	1.438
d _{t1*4}	0.1	1.437
d ₅₀	0.1	1.436

line @ 3000 m

3000	4.4
3000	1.4

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	4.05 maximum scale	4.1	4.2	4.5	2	10
min. dial reading	1.45 minimum scale	1.4	1.4	1	0	0
diference	2.6	2.7	2.8	3.5	2	10

0.5	1	2	3	4	5	10	20
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2
			4.4	5.4	6	10	20
			1.4	1.4	1	0	0
			1	2	2	2	2
			4.4	5.4	6	10	20
			1.4	1.4	1	0	0
			3	4	5	10	20
			0.3	0.4	0.5	1	2
			0.03	0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	4.4
min_y	1.4
total scale	3
Major unit	0.3
Minor unit	0.03

Test Number (ie 19A) 510C

Normal Load (psi) 20

Test Time (min.)	Date	Time	Dial Reading (in.)
0	6-2-09	14:55:00	1.26
0.1	6-2-09	14:55:06	2.07
0.25	6-2-09	14:55:15	2.39
0.5	6-2-09	14:55:30	2.71
1	6-2-09	14:56:00	3
2	6-2-09	14:57:00	3.2
3	6-2-09	14:58:00	3.29
4	6-2-09	14:59:00	3.31
6	6-2-09	15:01:00	3.34
8	6-2-09	15:03:00	3.37
10	6-2-09	15:05:00	3.38
12	6-2-09	15:07:00	3.4
16	6-2-09	15:11:00	3.42
22	6-2-09	15:17:00	3.45
30	6-2-09	15:25:00	3.48
45	6-2-09	15:40:00	3.51
60	6-2-09	15:55:00	3.59
85	6-2-09	16:20:00	3.66
105	6-2-09	16:40:00	3.71
1018	6-3-09	7:53:00	4.48

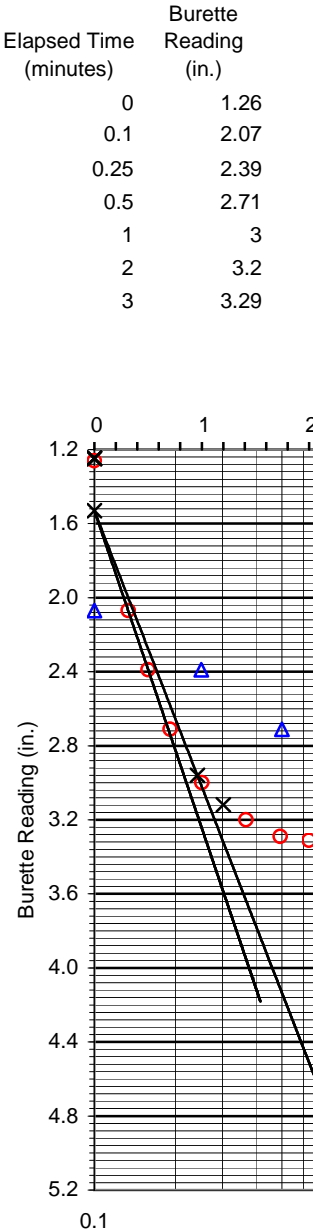


x o11:c30 y c11:c30
 sqtr plot range

e12:e30 c12:c30
 log plot range

Project Name JS
 Source JS
 Start Date 6-2-09
 End Date 6-3-09

	Log plot points		Square Root time plot points		Sq Rt time scale			Elapsed Time (minutes)	Burette Reading (in.)
	time (min.)	Dial reading	sqrt Time	Plot Time Value	sqrt Time	Plot Time Value X	max Y value		
do	0	1.26	0	0.10	0	0.10	1.2	0	1.26
not	0.1	2.07	0.3162278	0.13	1	0.25	1.2	0.1	2.07
erase!	0.25	2.39	0.5	0.16	2	0.63	1.2	0.25	2.39
	0.5	2.71	0.7071068	0.19	3	1.58	1.2	0.5	2.71
	1	3	1	0.25	4	3.98	1.2	1	3
	2	3.2	1.4142136	0.37	5	10.00	1.2	2	3.2
	3	3.29	1.7320508	0.49	6	25.12	1.2	3	3.29
	4	3.31	2	0.63	7	63.10	1.2		
	6	3.34	2.4494897	0.95	8	158.49	1.2		
	8	3.37	2.8284271	1.35	9	398.11	1.2		
	10	3.38	3.1622777	1.84	10	1000.00	1.2		
	12	3.4	3.4641016	2.43	11	2511.89	1.2		
	16	3.42	4	3.98	0.2	0.12	1.2		
	22	3.45	4.6904158	7.52	0.4	0.14	1.2		
	30	3.48	5.4772256	15.52	0.6	0.17	1.2		
	45	3.51	6.7082039	48.23	0.8	0.21	1.2		
	60	3.59	7.7459667	125.43	1.2	0.30	1.2		
	85	3.66	9.2195445	487.32	1.4	0.36	1.2		
	105	3.71	10.246951	1255.39	1.6	0.44	1.2		
	1018	4.48	31.906112	578688573169.71	1.8	0.52	1.2		
					2.2	0.76	1.2		
					2.4	0.91	1.2		
					2.6	1.10	1.2		
					2.8	1.32	1.2		
					3.2	1.91	1.2		
					3.4	2.29	1.2		
					3.6	2.75	1.2		
					3.8	3.31	1.2		
					4.2	4.79	1.2		
					4.4	5.75	1.2		
					4.6	6.92	1.2		
					4.8	8.32	1.2		
					5.2	12.02	1.2		
					5.4	14.45	1.2		
					5.6	17.38	1.2		
					5.8	20.89	1.2		
					6.2	30.20	1.2		
					6.4	36.31	1.2		
					6.6	43.65	1.2		
					6.8	52.48	1.2		
					7.2	75.86	1.2		
					7.4	91.20	1.2		
					7.6	109.65	1.2		
					7.8	131.83	1.2		
					8.2	190.55	1.2		
					8.4	229.09	1.2		



Square Root
 $d_0 = 1.53$
 $d_{90} = 2.96$
 $d_{100} = 3.119$

Comments: _____

			Square Root	
8.6	275.42	1.2		plot point - x
8.8	331.13	1.2		
9.2	478.63	1.2	d ₀ =	0.10
9.4	575.44	1.2	d ₉₀ =	0.24
9.6	691.83	1.2	d ₁₀₀ =	0.30
9.8	831.76	1.2		
10.2	1202.26	1.2	d ₀ =	0.10
10.4	1445.44	1.2	d ₀ line	0.22
10.6	1737.80	1.2		
10.8	2089.30	1.2		



Consolidation of Soils

ASTM D2435-04

Sq. Rt. Time Scale	
0	0
10	0

John Siever Fossil Plant

Project No. 175569038

49, 2.6' - 10.5'

Test Number 510C

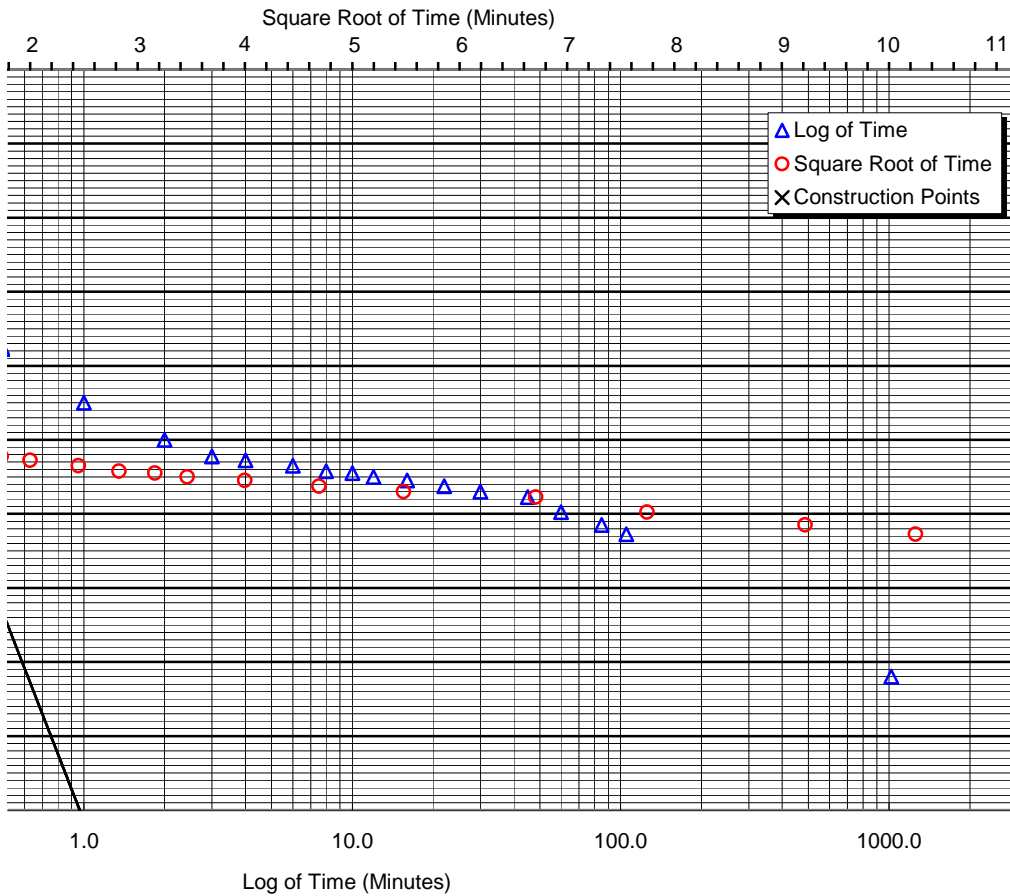
Start Time 2:55 PM

Load (tsf) 20

End Time 7:53 AM

Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Elapsed Time (minutes)	Burette Reading (in.)	Final Burette Reading (in.)
4	3.31	30	3.48			11:31 AM
6	3.34	45	3.51			
8	3.37	60	3.59			
10	3.38	85	3.66			
12	3.4	105	3.71			
16	3.42	1018	4.48			
22	3.45					

Consolidation



t of Time

Log of time

$t_{90} (m) = 0.92$

$t_{100} (m) = 1.44$

$t_{50} (m) = 0.215$

$d_{100} =$ _____

$d_{t1} =$ _____

$d_{t2 (t1^4)} =$ _____

$d_{50} =$ _____

$t_{100} (m) =$ _____

$t_1 (m) =$ _____

$t_{50} (m) =$ _____

t of Time

y	time
1.53	0
2.96	0.92
3.11888889	1.44
1.53	0
2.96	0.69565217

log of time

	time - x	plot point - y
d ₁₀₀	0.1	1.249
d _{t1}	0.1	1.248
d _{t1*4}	0.1	1.247
d ₅₀	0.1	1.246

line @ 3000 m

3000	5.2
3000	1.2

		rounded	round even .2	round .5	round 2	round 10
max. dial reading	4.48 maximum scale	4.5	4.6	4.5	2	10
min. dial reading	1.26 mimimum scale	1.2	1.2	1	0	0
diference	3.22	3.3	3.4	3.5	2	10

0.5	1	2	3	4	5	10	20
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2
				5.2	6	10	20
				1.2	1	0	0
				1	2	2	2
				5.2	6	10	20
				1.2	1	0	0
				4	5	10	20
				0.4	0.5	1	2
				0.04	0.05	0.1	0.2

30	40	50
30	40	50
3	4	5
0.3	0.4	0.5
30	40	50
0	0	0

2	2	2
30	40	50
0	0	0
30	40	50
3	4	5
0.3	0.4	0.5

test: use 1

max_y	5.2
min_y	1.2
total scale	4
Major unit	0.4
Minor unit	0.04



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 2.6' - 10.5'		Test Number	CU-510A
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	RC
	Need!		Date	6-2-2009
			Set No.	510
Specific Gravity	2.32	ASTM D854 Method A	Input By	RC
Chamber	90 (psi)	Back 85 (psi)	Lateral	5 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1133	Tare Id.	438
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	412.3
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	335.46
			from final	29.7	873.87	X	Tare Wt (g)	44.76
			from trimmings	26.4	896.13			

Setup and Saturation

Panel No.	A	Burette S/L	L	Set Up By	RC	Date	6-2-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2	2	1	2		
Middle	3 4	3 4	4	3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Values	
Initial Height	0.2285	Initial	16.02	Initial	10.6	B1	
Final Height	0.2589	Final	15.01	Final	2.31	B2	
Comments:						B3	
						B4	0.98

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2589	Back Pressure	Chamber	Panel No.	A
@ 15 Min		Initial	17.45	Burettes L/S	L
Final	0.2726	Final	15.06	Tested By	RC
Comments:					

Test

Data File ID	CU-510A	Press No.	1	Area (A _c)		t ₅₀	0.444	Start Time	
Tested By	KDG	Panel No.	A	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-3-09					Strain Rate (in/mn)			

After Test

Failure Sketch	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	2.912	2	2.912	Tare Id.	Disco
	3	3.327	4	3.327	Wet Wt (g)	1302.25
	5	3.308	6	3.308	Dry Wt (g)	1087.18
	Membrane Thickness (in.)	0.024	3.327 avg. max.		Tare Wt (g)	209.46
Final Wet Weight	1088 g	Final Dry Weight	873.87	Final MC %	24.5	

Comments:



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 2.6' - 10.5'		Test Number	CU-510B
Visual Description	Silt (ML), gray, (fly ash)		Prepared By	RC
	Need!		Date	6-2-2009
			Set No.	510
Specific Gravity	2.32	ASTM D854 Method A	Input By	RC
Chamber	90 (psi)	Back 80 (psi)	Lateral	10 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings		
Top	1 2.8	2	1 6	2 6	Wet Wt (g)	1133	Tare Id.	438
Middle	3 2.8	4	3 6	4 6	Dry Wt (g)		Wet Wt (g)	412.3
Bottom	5 2.8	6	mc %		Dry Weight	Use	Dry Wt (g)	335.46
			from final	29.9	871.99	X	Tare Wt (g)	44.76
			from trimmings	26.4	896.13			

Setup and Saturation

Panel No.	B	Burette S/L	L	Set Up By	RC	Date	6-2-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1	2	1	2	1	2	
Middle	3	4	3	4	3	4	
Bottom	5	6					
			Average Area (in ²)		Avg. Height (in)		
Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2435	Initial	15.62	Initial	12.52	B1	
Final Height	0.2551	Final	14.12	Final	5.57	B2	
Comments:						B3	
						B4	0.96

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	B
Initial	0.2551	Back Pressure		Burettes L/S	L
@ 15 Min		Initial	1.45	Initial	17.44
Final	0.275	Final	3.98	Final	14.74
Comments:				Tested By	RC

Test

Data File ID	CU-510B	Press No.	1	Area (A _c)		t ₅₀	0.897	Start Time	
Tested By	RC	Panel No.	B	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-3-09					Strain Rate (in/mn)			

After Test

<p>Failure Sketch</p>	Final Diam.+ Membrane (in)		Moisture from Sample			
	1	3.001	2	3.001	Tare Id.	A
	3	3.403	4	3.403	Wet Wt (g)	1298.56
	5	3.011	6	3.011	Dry Wt (g)	1087.68
	Membrane Thickness (in.)		0.024	3.403	Tare Wt (g)	224.39
	Final Wet Weight		1085 g	Final Dry Weight	871.99	Final MC %
Comments:						



CONSOLIDATED UNDRAINED TRIAXIAL TEST

ASTM D4767-04

Project	John Siever Fossil Plant		Project No.	175569038
Sample Identification	JS-49, 2.6' - 10.5'		Test Number	CU-510C
Visual Description	Silt (ML), gray		Prepared By	RC
	Need!		Date	6-2-2009
			Set No.	510
Specific Gravity	2.32	ASTM D854 Method A	Input By	KDG
Chamber	90 (psi)	Back 70 (psi)	Lateral	20 (psi)

Initial Specimen Data

Specimen Diameter (in)		Specimen Height (in)		Specimen		Trimmings	
Top	1 2.8 2	1 6 2 6	Wet Wt (g)	1133	Tare Id.	438	
Middle	3 2.8 4	3 6 4 6	Dry Wt (g)		Wet Wt (g)	412.3	
Bottom	5 2.8 6		mc %		Dry Wt (g)	335.46	
		from final	27.8	886.42	Use	Tare Wt (g)	
		from trimmings	26.4	896.13	X	44.76	

Setup and Saturation

Panel No.	D	Burette S/L	L	Set Up By	RC	Date	6-2-09
Specimen Diam.+ Membrane (in)		System Height (in)		Initial Sample + System Height			
Top	1 2	1 2		1	2		
Middle	3 4	3 4		3	4		
Bottom	5 6						
				Average Area (in ²)		Avg. Height (in)	

Physical Height Readings (in)		Back Pressure Burette		Chamber Burette		"B" Value/Pressure	
Initial Height	0.2562	Initial	16.1	Initial	11.91	B1	
Final Height	0.2558	Final	15.8	Final	2.2	B2	
Comments:						B3	
						B4	0.96

Consolidation

Physical Height Readings (in)		Burette Readings		Panel No.	
Initial	0.2558	Back Pressure		Panel No.	D
@ 15 Min		Initial	1.26	Burettes L/S	L
Final	0.2612	Final	4.48	Tested By	RC
Comments:					
		Initial	17.58		
		Final	14.04		

Test

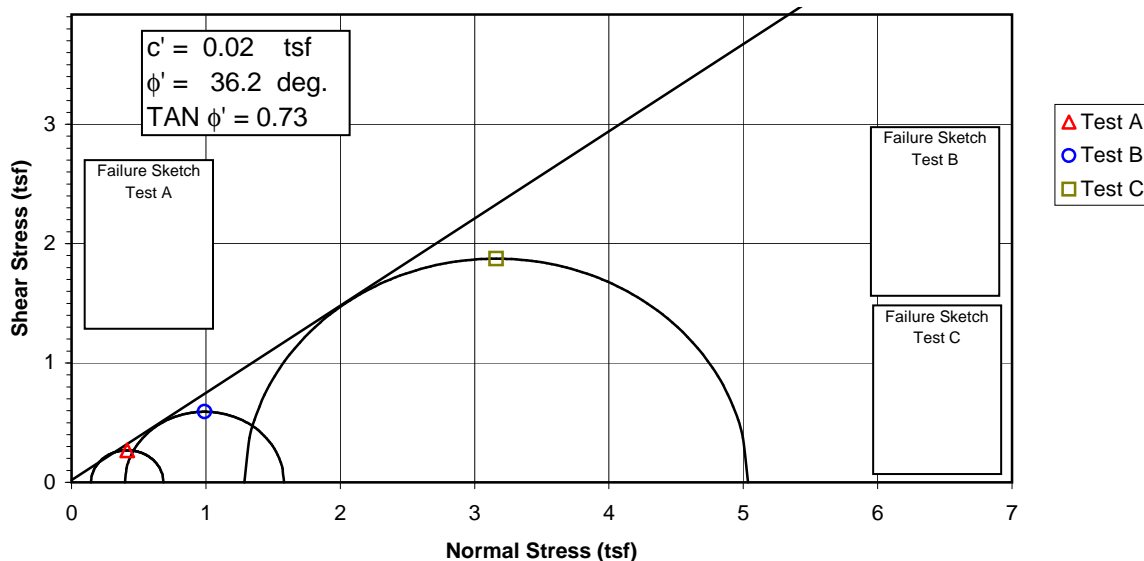
Data File ID	CU-510C	Press No.	2	Area (A _c)		t ₅₀	0.215	Start Time	
Tested By	RC	Panel No.	D	Height (H _c)		Estimated Fail (%)		Deflec. Gauge	
Date	6-3-09					Strain Rate (in/mn)			

After Test

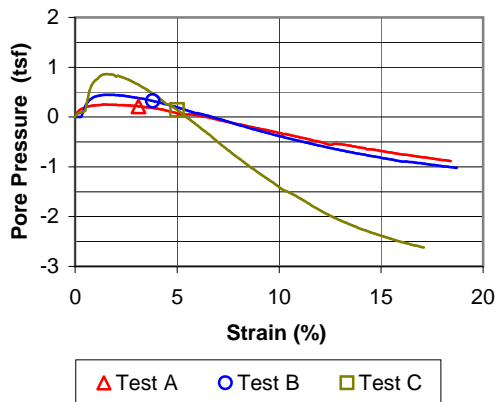
Failure Sketch		Final Diam.+ Membrane (in)		Moisture from Sample			
		1	3.048 2	3.048	Tare Id.	HH	
		3	3.479 4	3.479	Wet Wt (g)	1276.74	
		5	3.43 6	3.43	Dry Wt (g)	1073.92	
		Membrane Thickness (in.)	0.024	3.479	Tare Wt (g)	211.99	
		Final Wet Weight	1095 g	Final Dry Weight	886.42	Final MC %	23.5
Comments:							

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Induced Pore Pressure vs. Strain

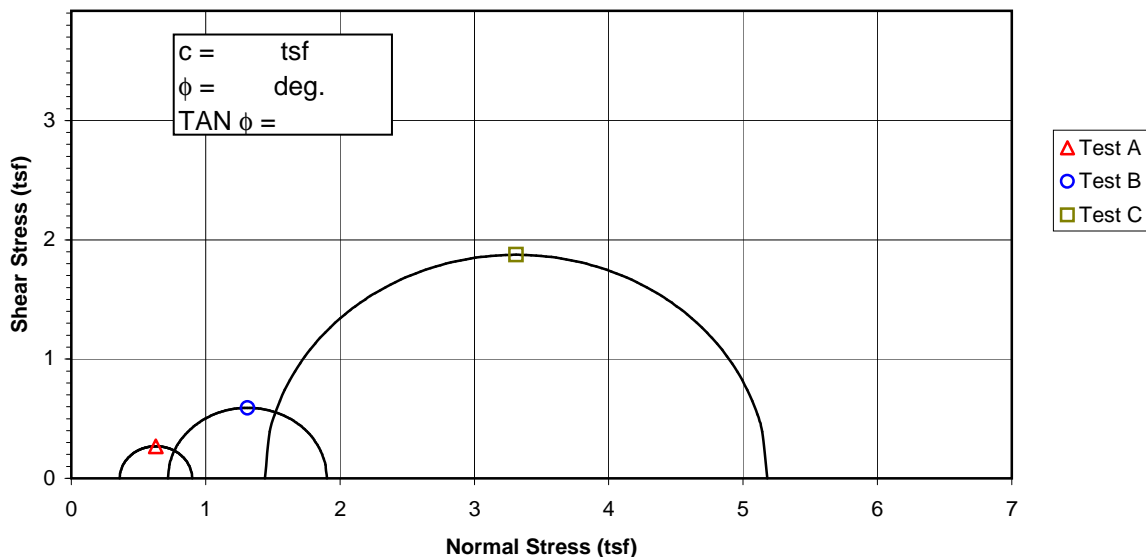


Specimen No.		A	B	C
Initial Data	Water content %	W_o 29.7	29.9	27.8
	Dry Density PCF	γ_{d_o} 90.1	89.9	91.4
	Saturation %	S_o 113.3	113.7	110.4
	Void Ratio	e_o 0.607	0.611	0.585
After Shear	Water content %	W_f 24.5	24.4	23.5
	Dry Density PCF	γ_{d_f} 92.3	92.4	93.7
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.568	0.567	0.546
Final Back Pressure TSF		u_c 6.12	5.76	5.04
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.15	0.40	1.29
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 0.54	1.18	3.74
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 6.2	6.9	18.9
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.800	2.800	2.800
Initial Height, in.		H_o 6.000	6.000	6.000

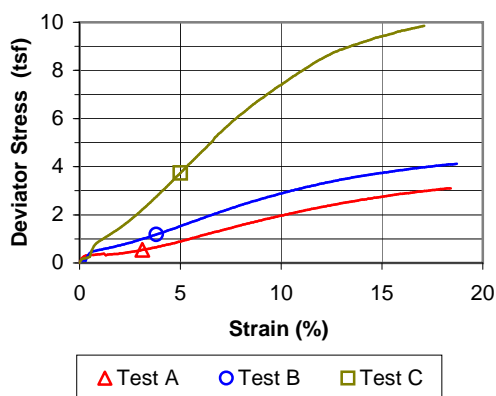
Controlled - Strain Test			
Description of Specimens Silt (ML), gray, (fly ash)			
		Type of Specimen Undisturbed	Type of test \bar{R}
LL NP	PL NP	PI NP	Gs 2.32
Project John Siever Fossil Plant		Remarks: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.	
Boring No. JS-49		Sample No. 510	
Depth Elev. 2.6' - 10.5'			
Laboratory Stantec		Date 6-15-09	
TRIAXIAL COMPRESSION TEST REPORT			

Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Deviator Stress vs. Strain



Specimen No.		A	B	C	
Initial Data	Water content %	W_o	29.7	29.9	27.8
	Dry Density PCF	γ_{d_o}	90.1	89.9	91.4
	Saturation %	S_o	113.3	113.7	110.4
	Void Ratio	e_o	0.607	0.611	0.585
After Shear	Water content %	W_f	24.5	24.4	23.5
	Dry Density PCF	γ_{d_f}	92.3	92.4	93.7
	Saturation %	S_f	100.0	100.0	100.0
	Void Ratio	e_f	0.568	0.567	0.546
Final Back Pressure TSF		u_c	6.12	5.76	5.04
Minor Principal Stress TSF		σ_3	0.36	0.72	1.44
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$	0.54	1.18	3.74
Time to $(\sigma_1 - \sigma_3)_{Max}$ min.		t_f	6.2	6.9	18.9
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$	n/a	n/a	n/a
Initial Diameter, in.		D_o	2.800	2.800	2.800
Initial Height, in.		H_o	6.000	6.000	6.000

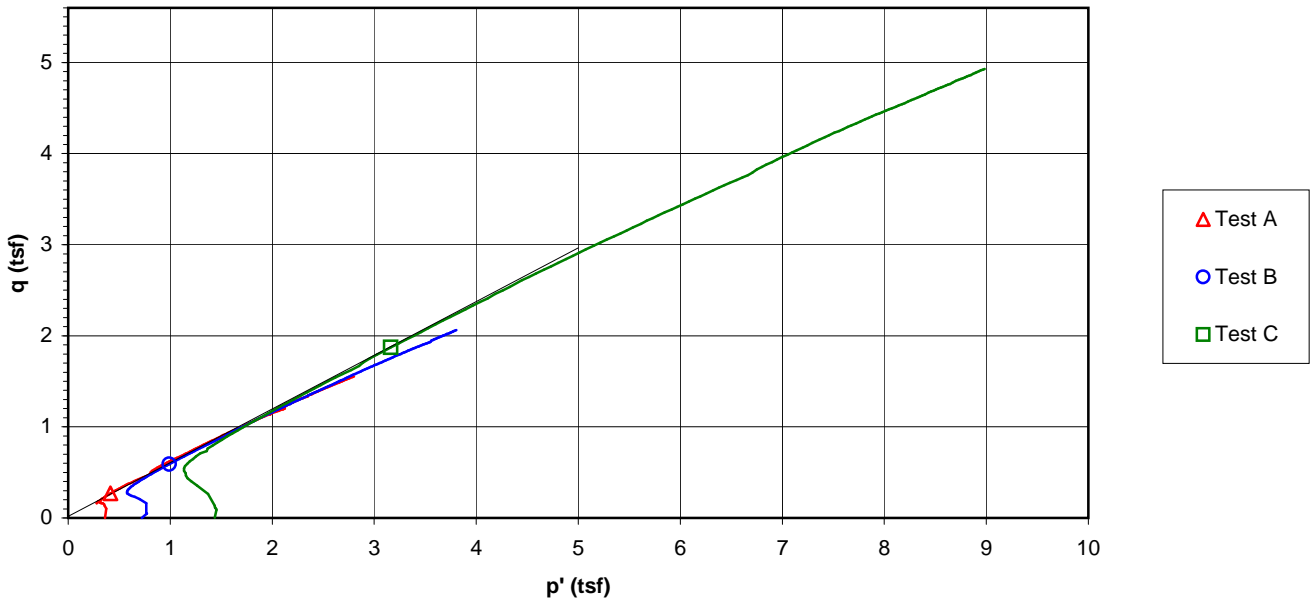
Controlled - Strain Test			
Description of Specimens Silt (ML), gray, (fly ash)			
		Type of Specimen Undisturbed	Type of test \bar{R}
LL	NP	PL	NP
PI	NP	Gs	2.32
Remarks: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.		Project John Siever Fossil Plant	
		Boring No. JS-49	Sample No. 510
		Depth Elev. 2.6' - 10.5'	
		Laboratory Stantec	Date 6-15-09
TRIAXIAL COMPRESSION TEST REPORT			

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

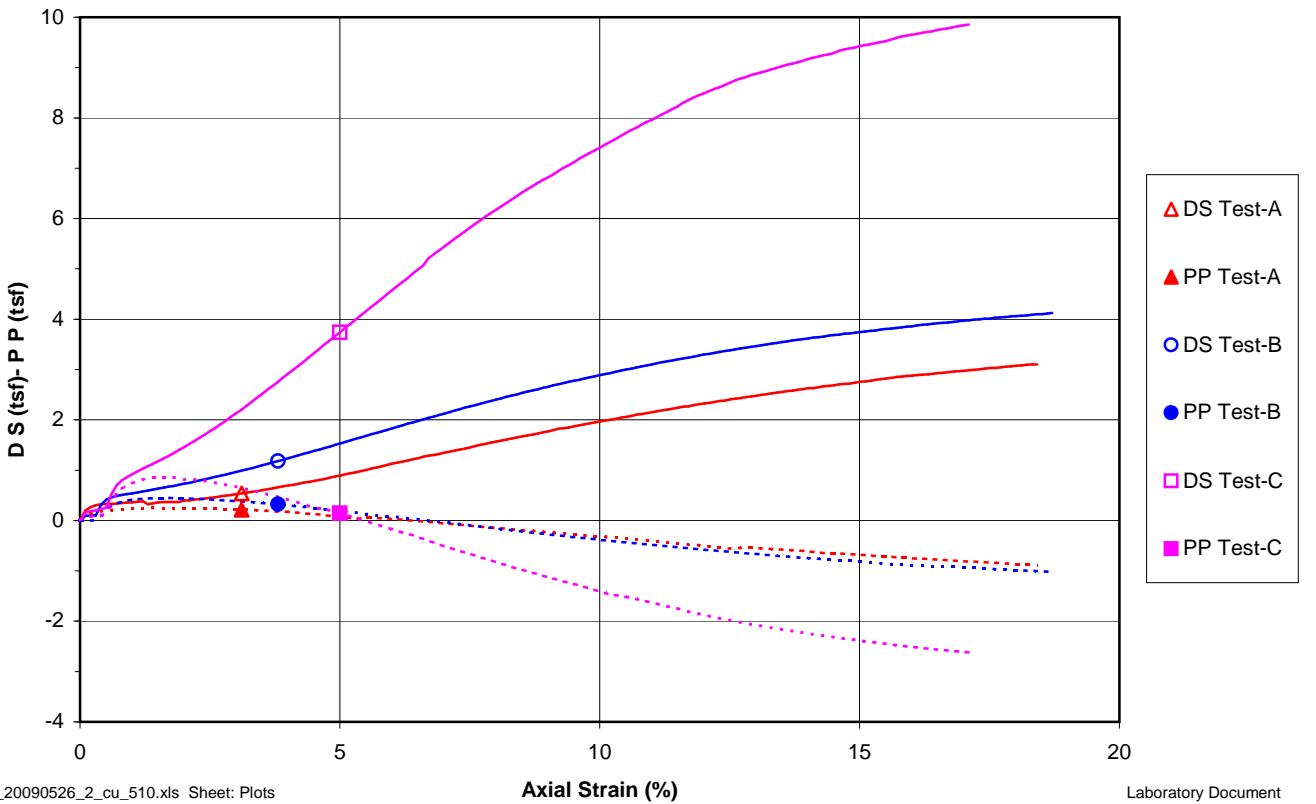
Project John Siever Fossil Plant
 Sample ID JS-49, 2.6' - 10.5'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 36.2$ deg.

Project No. 175569038
 Test Number 510
 $c' = 0.02$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



Project Name John Siever Fossil Plant
 Sample Identification JS-49, 2.6' - 10.5'
 Visual Description Silt (ML), gray, (fly ash)

Project Number 175569038
 Test Number CU-510A
 Prepared By RC
 Date 6-2-2009

Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1133.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.9844</u> (V _{S_o})	Dry Weight (g) <u>873.87</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.8119</u> (V _{w_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>13.9608</u> (V _{v_o})	Dry Unit Weight (pcf) <u>90.1</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>113.3</u> (S _o)	
Moisture Content (%) <u>29.7</u>	Final Trimmings	Void Ratio <u>0.607</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By RC
 Back Pressure Saturated to: 85 (psi) Final Pore Pressure Parameter B 0.98 Date 6-2-09
 Panel Board Number A

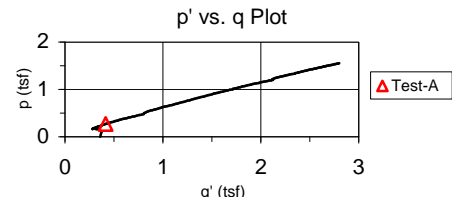
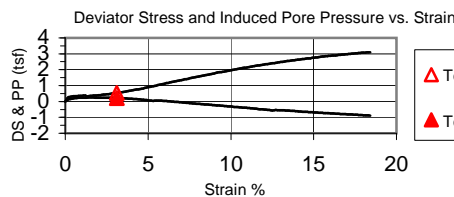
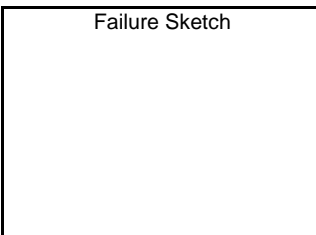
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9696</u> (H _s)
Initial <u>0.2285</u>	Initial <u>16.02</u> (in.)	Initial <u>10.6</u> (in.)	Area (in ²) Method A <u>6.0948</u> (A _s)
Final <u>0.2589</u>	Final <u>15.01</u> (in.)	Final <u>2.31</u> (in.)	Specimen Volume (in ³) <u>36.38</u> (V _s)
Change <u>-0.0304</u> (ΔH _o)	Change <u>-1.01</u> (in.)	Change <u>-8.29</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2589</u>	Initial <u>1.50</u> (in.)	Initial <u>17.45</u> (in.)	Chamber <u>90</u>
Final <u>0.2726</u>	Final <u>2.51</u> (in.)	Final <u>15.06</u> (in.)	Back <u>85</u>
Change <u>-0.0137</u> (ΔH _c)	Change <u>-1.01</u> (in.)	Change <u>-2.39</u> (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>5.9559</u> (H _c)		Volume (in ³) <u>36.0504</u> (V _c)	t ₅₀ (min.) <u>0.444</u>
Area (in ²) Method B <u>6.0529</u> (A _c)		Volume - Water (in ³) <u>13.0660</u> (V _{Wc})	
Diameter (in.) <u>2.7761</u> (D _c)		Water Content (%) <u>24.5</u>	
Dry Density (pcf) <u>92.3</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	Void Ratio <u>0.568</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.327</u> (in.)	Wet Weight (g) <u>1088.00</u>	Corrected Deviator <u>0.54</u> σ _d (tsf)
Wet weight (g) <u>1088</u> (WW _f)	Dry Weight (g) <u>873.87</u>	Major Principal <u>0.68</u> σ _{1'_f} (tsf)
Corrected Diameter <u>3.279</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.15</u> σ _{3'_f} (tsf)
		Rate of Strain (% / min.) <u>0.551</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>3.11</u>
Membrane Thickness (in.) <u>0.024</u>		Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name John Siever Fossil Plant
 Sample Identification JS-49, 2.6' - 10.5'
 Visual Description Silt (ML), gray, (fly ash)

 Project Number 175569038
 Test Number CU-510B
 Prepared By RC
 Date 6-2-2009

 Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP
Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V_o)	Wet Weight (g) <u>1133.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.9349</u> (V_{S_o})	Dry Weight (g) <u>871.99</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.9266</u> (V_{W_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000</u> (D_o)	4 <u>6.000</u>	Voids <u>14.0102</u> (V_{V_o})	Dry Unit Weight (pcf) <u>89.9</u>
Area (in ²) <u>6.1575</u> (A_o)	Avg. (H_o) <u>6.0000</u>	Degree of Saturation (%) <u>113.7</u> (S_o)	
Moisture Content (%) <u>29.9</u>	Final Trimmings	Void Ratio <u>0.611</u>	

Saturation

 Set Up & Saturated: Wet xx Dry _____ Set up By RC
 Back Pressure Saturated to: 80 (psi) Final Pore Pressure Parameter B 0.96 Date 6-2-09
 Panel Board Number B

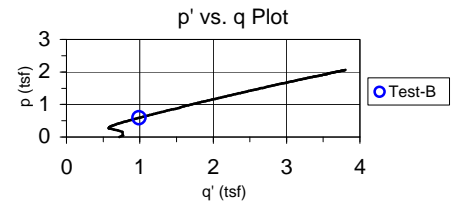
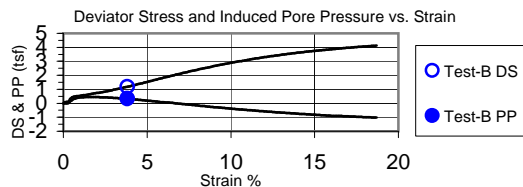
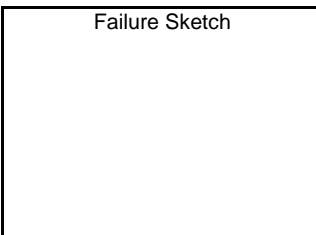
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.) <u>5.9884</u> (H_s)
Initial <u>0.2435</u>	Initial <u>15.62</u> (in.)	Initial <u>12.52</u> (in.)	Area (in ²) Method A <u>6.1337</u> (A_s)
Final <u>0.2551</u>	Final <u>14.12</u> (in.)	Final <u>5.57</u> (in.)	Specimen Volume (in ³) <u>36.73</u> (V_s)
Change <u>-0.0116</u> (ΔH_o)	Change <u>-1.50</u> (in.)	Change <u>-6.95</u> (in.)	

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2551</u>	Initial <u>1.45</u> (in.)	Initial <u>17.44</u> (in.)	Chamber <u>90</u>
Final <u>0.275</u>	Final <u>3.98</u> (in.)	Final <u>14.74</u> (in.)	Back <u>80</u>
Change <u>-0.0199</u> (ΔH_c)	Change <u>-2.53</u> (in.)	Change <u>-2.70</u> (in.)	Lateral <u>10</u> (σ_3)
Height (in.) <u>5.9685</u> (H_c)		Volume (in ³) <u>35.9326</u> (V_c)	D_{50} (min.) <u>0.897</u>
Area (in ²) Method B <u>6.0204</u> (A_c)		Volume - Water (in ³) <u>12.9976</u> (V_{Wc})	Void Ratio <u>0.567</u>
Diameter (in.) <u>2.7686</u> (D_c)		Water Content (%) <u>24.4</u>	
Dry Density (pcf) <u>92.4</u>		Degree of Saturation (%) <u>100.0</u> (S_c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.403</u> (in.)	Wet Weight (g) <u>1085.00</u>	Corrected Deviator <u>1.18</u> σ_d (tsf)
Wet weight (g) <u>1085</u> (WWf)	Dry Weight (g) <u>871.99</u>	Major Principal <u>1.58</u> σ_{1f} (tsf)
Corrected Diameter <u>3.355</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.40</u> σ_{3f} (tsf)
		Rate of Strain (% / min.) <u>0.559</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>3.81</u>
Membrane Thickness (in.) <u>0.024</u>		Failure Criterion: Maximum Effective Principal Stress Ratio


 Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name John Siever Fossil Plant
 Sample Identification JS-49, 2.6' - 10.5'
 Visual Description Silt (ML), gray, (fly ash)

Specific Gravity 2.32 ASTM D854 Method A Liquid Limit NP Plastic Limit NP Plasticity Index NP

Project Number 175569038
 Test Number CU-510C
 Prepared By RC
 Date 6-2-2009

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1133</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>23.3143</u> (V _{S_o})	Dry Weight (g) <u>886.42</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.0464</u> (V _{w_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>13.6308</u> (V _{v_o})	Dry Unit Weight (pcf) <u>91.4</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>110.4</u> (S _o)	
Moisture Content (%) <u>27.8</u>	Final Trimmings	Void Ratio <u>0.585</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____
 Back Pressure Saturated to: 70 (psi) Final Pore Pressure Parameter B 0.96
 Set up By RC
 Date 6-2-09
 Panel Board Number D

Height Readings (in.) Back Pressure Burette Chamber Burette

Initial <u>0.2562</u>	Initial <u>16.1</u> (in.)	Initial <u>11.91</u> (in.)	Specimen Height (in.) <u>6.0004</u> (H _s)
Final <u>0.2558</u>	Final <u>15.8</u> (in.)	Final <u>2.2</u> (in.)	Area (in ²) Method A <u>6.1583</u> (A _s)
Change <u>0.0004</u> (ΔH _o)	Change <u>-0.30</u> (in.)	Change <u>-9.71</u> (in.)	Specimen Volume (in ³) <u>36.95</u> (V _s)

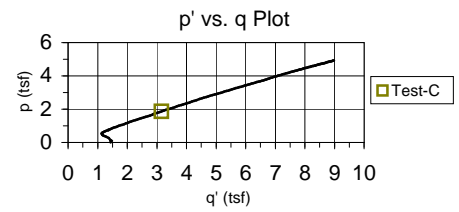
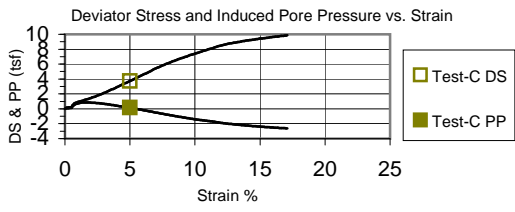
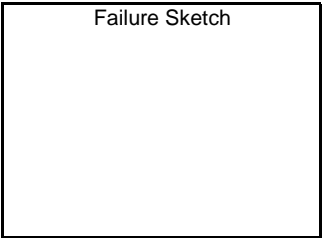
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial <u>0.2558</u>	Initial <u>1.26</u> (in.)	Initial <u>17.58</u> (in.)	Chamber <u>90</u>
Final <u>0.2612</u>	Final <u>4.48</u> (in.)	Final <u>14.04</u> (in.)	Back <u>70</u>
Change <u>-0.0054</u> (ΔH _c)	Change <u>-3.22</u> (in.)	Change <u>-3.54</u> (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>5.9950</u> (H _c)		Volume (in ³) <u>36.0420</u> (V _c)	D ₅₀ (min.) <u>0.215</u>
Area (in ³) Method B <u>6.0120</u> (A _c)		Volume - Water (in ³) <u>12.7277</u> (V _{wc})	Void Ratio <u>0.546</u>
Diameter (in.) <u>2.7667</u> (D _c)		Water Content (%) <u>23.5</u>	
Dry Density (pcf) <u>93.7</u>		Degree of Saturation (%) <u>100.0</u> (S _c)	

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.479</u> (in.)	Wet Weight (g) <u>1095.00</u>	Corrected Deviator <u>3.74</u> σ _d (tsf)
Wet weight (g) <u>1095</u> (WWf)	Dry Weight (g) <u>886.42</u>	Major Principal <u>5.04</u> σ _{1f} (tsf)
Corrected Diameter <u>3.431</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>1.29</u> σ _{3f} (tsf)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.372</u>
Membrane Thickness (in.) <u>0.024</u>		Axial Strain at Failure (%) <u>5.00</u>

Failure Criterion: Maximum Effective Principal Stress Ratio



Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-2-09
 Boring No. Need! Sample No. JS-49, 2.6' - 10.5'

Type of Test		<u>Consolidated Undrained</u>		Confining Pressure		<u>0.36</u>		tons/ft ²		
Test No.		<u>CU-510A</u>		Classification		<u>Silt (ML), gray, (fly ash)</u>				
		Before Test				After Test				
		Specimen		Trimmings		Specimen				
Tare No.		n/a				438		n/a		
Tare plus wet weight		1133				412.30		1088.00		
Tare plus dry weight		873.87				335.46		873.87		
Water		W_w	259.13	W_{wo}		76.84	W_{we}	214.13		
Tare		0				44.76		0.00		
Wet Soil		W	1133.00			367.54		1088.00		
Dry Soil		W_s	873.87			290.70		873.87		
Water content		w	29.7	$\% W_o$		26.4	W_e	24.5 %		
Initial Condition of Specimen										
Diameter, cm		D_o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112
Height, cm		H_o	15.240		Volume of solids, cc			V_s	376.67	
Area, sq cm = $0.7854 * D_o^2$		A_o	39.726		Void Ratio = $(V_o - V_s) / V_s$			e_o	0.607	
Volume, cc = $H_o * A_o$		V_o	605.42		Saturation, %			S_o	113.3	
Specific gravity of solids		G_s	2.32		Dry density, lb/cu ft			g_d	90.1	
Condition of Specimen After Consolidation (R and S Tests)										
ΔH during Saturation & Consolidation, in.		ΔH_o	-0.044		Volume, cc = $H_c * A_c$			V_c	590.80	
Height, cm = $H_o - 2.54 * \Delta H_o$		H_c	15.128		Void Ratio = $(V_c - V_s) / V_s$			e_c	0.568	
Area, sq cm		A_c	39.053		Saturation, %			S_c	100.0	
Condition of Specimen After Test (R and S Test)										
Diameter, cm		D_f	Top	7.396	Center	8.451	Bottom	8.402	Avg	8.175
Change of height during Shear Test, in		ΔH	1.097		Volume, cc = $H_f * A_f$			V_f	590.80	
Height, cm = $H_c - 2.54 * \Delta H$		H_f	12.342		Void Ratio = $(V_f - V_s) / V_s$			e_f	0.568	
Area, cm ² from test data		A_f	47.871		Saturation, %			S_f	100.0	
Remarks										
Technician		<u>RC RC RC KDG</u>			Computed By		<u>RC</u>		Checked By	

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-2-09
 Boring No. Need! Sample No. JS-49, 2.6' - 10.5'

Type of Test	Consolidated Undrained		Confining Pressure		0.72	tons/ft ²																																																																					
Test No.	CU-510B		Classification <u>silt (ML), gray, (fly ash)</u>																																																																								
<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Before Test</th> <th colspan="3">After Test</th> </tr> <tr> <th>Specimen</th> <th colspan="2">Trimmings</th> <th colspan="3">Specimen</th> </tr> </thead> <tbody> <tr> <td>Tare No.</td> <td>n/a</td> <td></td> <td>438</td> <td></td> <td colspan="2">n/a</td> </tr> <tr> <td>Tare plus wet weight</td> <td>1133.00</td> <td></td> <td>412.30</td> <td></td> <td colspan="2">1085.00</td> </tr> <tr> <td>Tare plus dry weight</td> <td>871.99</td> <td></td> <td>335.46</td> <td></td> <td colspan="2">871.99</td> </tr> <tr> <td>Water</td> <td>W_w 261.01</td> <td>W_{wo}</td> <td>76.84</td> <td>W_{wf}</td> <td colspan="2">213.01</td> </tr> <tr> <td>Tare</td> <td>0.00</td> <td></td> <td>44.76</td> <td></td> <td colspan="2">0.00</td> </tr> <tr> <td>Wet Soil</td> <td>W 1133.00</td> <td></td> <td>367.54</td> <td></td> <td colspan="2">1085.00</td> </tr> <tr> <td>Dry Soil</td> <td>W_s 871.99</td> <td></td> <td>290.70</td> <td></td> <td colspan="2">871.99</td> </tr> <tr> <td>Water content</td> <td>w 29.9</td> <td>% W_o</td> <td>26.4</td> <td>W_f</td> <td colspan="2">24.4 %</td> </tr> </tbody> </table>								Before Test			After Test			Specimen	Trimmings		Specimen			Tare No.	n/a		438		n/a		Tare plus wet weight	1133.00		412.30		1085.00		Tare plus dry weight	871.99		335.46		871.99		Water	W _w 261.01	W _{wo}	76.84	W _{wf}	213.01		Tare	0.00		44.76		0.00		Wet Soil	W 1133.00		367.54		1085.00		Dry Soil	W _s 871.99		290.70		871.99		Water content	w 29.9	% W _o	26.4	W _f	24.4 %	
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Diameter, cm	D _o	Top	7.112	Center	7.112	Bottom	7.112	Avg	7.112																																																																		
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Volume, cc = H _o *A _o	V _o		605.42	Saturation, %		S _o			113.7																																																																		
Specific gravity of solids	G _s		2.32	Dry density, lb/cu ft		G _d			89.9																																																																		
Condition of Specimen After Consolidation (R and S Tests)																																																																											
ΔH during Saturation & Consolidation, in.	ΔH _o		-0.032	Volume, cc = H _c *A _c		V _c			588.87																																																																		
Height, cm = H _o - 2.54*ΔH _o	H _c		15.160	Void Ratio = (V _c -V _s)/V _s		e _c			0.567																																																																		
Area, sq cm	A _c		38.843	Saturation, %		S _c			100.0																																																																		
Condition of Specimen After Test (R and S Test)																																																																											
Diameter, cm	D _f	Top	7.623	Center	8.644	Bottom	7.648	Avg	8.139																																																																		
Change of height during Shear Test, in	ΔH		1.117	Volume, cc = H _f *A _f		V _f			588.87																																																																		
Height, cm = H _c - 2.54*ΔH	H _f		12.324	Void Ratio = (V _f -V _s)/V _s		e _f			0.567																																																																		
Area, cm ² from test data	A _f		47.783	Saturation, %		S _f			100.0																																																																		
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Technician <u>RC RC RC RC</u> Computed By <u>RC</u> Checked By _____																																																																											

Triaxial Compression Test

(Specimen Data)

Project John Siever Fossil Plant Date 6-2-09
 Boring No. Need! Sample No. JS-49, 2.6' - 10.5'

Type of Test	Consolidated Undrained		Confining Pressure		1.44	tons/ft ²																																																																					
Test No.	CU-510C		Classification		silt (ML), gray																																																																						
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Height, cm = H _o - 2.54*ΔH _o	H _c		15.227	Void Ratio = (V _c -V _s)+V _s		e _c			0.546																																																																		
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Diameter, cm	D _f	Top	7.742	Center	8.837	Bottom	8.712	Avg	8.532																																																																		
Change of height during Shear Test, in	ΔH		1.025	Volume, cc = H _f *A _f		V _f			590.66																																																																		
Height, cm = H _c - 2.54*ΔH	H _f		12.624	Void Ratio = (V _f -V _s)+V _s		e _f			0.546																																																																		
Area, cm ² from test data	A _f		46.790	Saturation, %		S _f			100.0																																																																		
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Technician <u>RC RC RC RC</u> Computed By <u>KDG</u> Checked By _____																																																																											

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.956 (in.)	15.128 (cm)
Diameter	2.776 (in)	7.052 (cm)
Area	6.053 (in ²)	39.053 (cm ²)

Final Values	
Height	4.859 (in.)
Dia. avg.	3.219 (in)
Area avg.	8.136 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	A

Project Number	175569038
Test Number	CU-510A
Data File ID	CU-510A
Lateral Pressure (psi)	5.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1 + \sigma_3) / 2$) (tsf)	q ($(\sigma_1 - \sigma_3) / 2$) (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
0:32:41	331.8	1.050	73.0	4.883	18.02	47.6369	324.2	3.165	3.075	3.435	4.298	1.225	2.762	1.537	3.509
0:32:52	333.1	1.056	72.9	4.877	18.12	47.6953	325.5	3.173	3.083	3.443	4.311	1.230	2.770	1.541	3.506
0:33:03	334.9	1.062	72.8	4.871	18.22	47.7551	327.2	3.186	3.095	3.455	4.331	1.237	2.784	1.547	3.501
0:33:15	336.0	1.068	72.7	4.864	18.33	47.8164	328.3	3.193	3.102	3.462	4.343	1.243	2.793	1.550	3.495
0:33:25	336.6	1.074	72.7	4.859	18.42	47.8706	329.0	3.196	3.104	3.464	4.351	1.249	2.800	1.551	3.484

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.969 (in.)	15.160 (cm)
Diameter	2.769 (in.)	7.033 (cm)
Area	6.021 (in ²)	38.843 (cm ²)

Final Values		
Height	4.852 (in.)	
Dia. avg.	3.205 (in.)	
Area avg.	8.065 (in ²)	

Tested By	RC
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-510B
Data File ID	CU-510B
Lateral Pressure (psi)	10.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1' + \sigma_3'$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
0:00:00	12.4	-0.040	80.0	5.969	0.00	38.8434	0.0	0.000	0.000	0.720	0.720	0.720	0.720	0.000	0.999
0:00:17	20.1	-0.034	80.0	5.962	0.10	38.8837	7.7	0.092	0.092	0.812	0.813	0.722	0.767	0.046	1.126
0:00:30	20.9	-0.028	80.0	5.956	0.21	38.9266	8.5	0.101	0.100	0.820	0.820	0.720	0.770	0.050	1.139
0:00:39	20.7	-0.022	80.0	5.951	0.30	38.9608	8.3	0.099	0.098	0.818	0.815	0.718	0.767	0.049	1.136
0:00:52	39.5	-0.016	81.6	5.944	0.41	39.0033	27.1	0.323	0.321	1.041	0.924	0.604	0.764	0.160	1.531
0:01:03	47.6	-0.010	83.2	5.938	0.51	39.0433	35.3	0.420	0.417	1.137	0.908	0.491	0.699	0.208	1.849
0:01:14	51.4	-0.004	84.1	5.932	0.61	39.0813	39.0	0.464	0.461	1.181	0.882	0.421	0.652	0.230	2.093
0:01:24	53.6	0.001	84.7	5.927	0.70	39.1184	41.2	0.490	0.486	1.206	0.865	0.379	0.622	0.243	2.281
0:01:34	55.3	0.007	85.1	5.921	0.80	39.1579	42.9	0.510	0.506	1.226	0.855	0.350	0.602	0.253	2.444
0:01:45	57.2	0.014	85.5	5.914	0.91	39.1995	44.8	0.531	0.527	1.247	0.849	0.322	0.586	0.263	2.633
0:01:55	58.4	0.020	85.7	5.909	1.01	39.2378	46.0	0.545	0.540	1.260	0.847	0.307	0.577	0.270	2.760
0:02:06	60.2	0.026	85.9	5.902	1.11	39.2787	47.8	0.566	0.561	1.281	0.857	0.296	0.576	0.280	2.891
0:02:16	61.8	0.031	86.0	5.897	1.21	39.3172	49.4	0.586	0.579	1.299	0.867	0.289	0.578	0.289	3.001
0:02:27	63.3	0.038	86.1	5.890	1.31	39.3585	51.0	0.602	0.596	1.316	0.878	0.283	0.580	0.298	3.105
0:02:38	65.2	0.044	86.1	5.884	1.41	39.3984	52.8	0.624	0.617	1.337	0.894	0.278	0.586	0.308	3.216
0:02:49	66.7	0.049	86.2	5.879	1.50	39.4369	54.3	0.641	0.633	1.353	0.909	0.276	0.593	0.316	3.289
0:03:00	68.6	0.056	86.2	5.872	1.61	39.4792	56.2	0.662	0.654	1.374	0.928	0.275	0.602	0.327	3.375
0:03:10	70.1	0.061	86.2	5.867	1.70	39.5155	57.8	0.680	0.671	1.391	0.944	0.273	0.608	0.335	3.458
0:03:20	71.7	0.067	86.2	5.861	1.80	39.5558	59.3	0.697	0.688	1.408	0.962	0.274	0.618	0.344	3.509
0:03:31	73.9	0.073	86.2	5.855	1.91	39.5986	61.5	0.723	0.713	1.433	0.989	0.276	0.633	0.356	3.579
0:03:42	75.9	0.080	86.1	5.848	2.01	39.6414	63.5	0.745	0.735	1.455	1.014	0.279	0.646	0.367	3.629
0:03:52	77.5	0.086	86.1	5.842	2.11	39.6811	65.1	0.765	0.752	1.472	1.034	0.283	0.659	0.376	3.658
0:04:02	79.6	0.091	86.0	5.837	2.20	39.7180	67.2	0.786	0.775	1.495	1.061	0.286	0.674	0.387	3.706
0:04:13	81.6	0.097	86.0	5.831	2.31	39.7608	69.2	0.809	0.798	1.518	1.087	0.290	0.689	0.399	3.746
0:04:24	83.6	0.103	85.9	5.825	2.41	39.8019	71.2	0.832	0.819	1.539	1.115	0.296	0.706	0.410	3.766
0:04:35	85.6	0.109	85.8	5.819	2.51	39.8421	73.2	0.854	0.842	1.562	1.141	0.300	0.721	0.421	3.806
0:04:46	87.9	0.115	85.7	5.813	2.61	39.8855	75.5	0.880	0.867	1.587	1.173	0.307	0.740	0.433	3.828
0:04:56	89.8	0.121	85.7	5.807	2.70	39.9232	77.4	0.901	0.888	1.608	1.199	0.312	0.756	0.444	3.844
0:05:07	92.3	0.127	85.6	5.801	2.81	39.9653	79.9	0.929	0.915	1.635	1.233	0.318	0.776	0.457	3.877
0:05:17	94.4	0.133	85.5	5.795	2.90	40.0052	82.1	0.954	0.939	1.659	1.264	0.325	0.794	0.469	3.892
0:05:28	96.8	0.139	85.4	5.789	3.00	40.0467	84.4	0.980	0.965	1.685	1.297	0.332	0.814	0.482	3.904
0:05:39	99.2	0.145	85.3	5.783	3.11	40.0882	86.8	1.007	0.991	1.711	1.330	0.339	0.834	0.495	3.922
0:05:50	101.6	0.151	85.2	5.777	3.21	40.1305	89.2	1.034	1.018	1.738	1.364	0.346	0.855	0.509	3.939
0:06:01	103.9	0.157	85.1	5.771	3.31	40.1740	91.6	1.060	1.043	1.763	1.397	0.354	0.876	0.521	3.942
0:06:11	106.3	0.163	85.0	5.765	3.40	40.2119	93.9	1.086	1.069	1.789	1.431	0.362	0.897	0.534	3.951
0:06:22	108.9	0.169	84.8	5.759	3.51	40.2548	96.5	1.115	1.097	1.817	1.468	0.371	0.919	0.548	3.958
0:06:33	111.4	0.175	84.7	5.753	3.61	40.2964	99.0	1.143	1.125	1.845	1.504	0.380	0.942	0.562	3.962
0:06:45	114.1	0.181	84.6	5.747	3.71	40.3400	101.7	1.172	1.154	1.874	1.543	0.390	0.966	0.577	3.961
0:06:56	116.8	0.187	84.5	5.741	3.81	40.3824	104.4	1.203	1.184	1.904	1.581	0.398	0.990	0.592	3.970
0:07:07	119.2	0.193	84.3	5.735	3.91	40.4246	106.9	1.229	1.210	1.930	1.618	0.408	1.013	0.605	3.960
0:07:18	121.7	0.199	84.2	5.729	4.01	40.4662	109.3	1.257	1.237	1.957	1.655	0.419	1.037	0.618	3.950
0:07:28	124.3	0.204	84.0	5.724	4.10	40.5048	112.0	1.285	1.265	1.985	1.693	0.429	1.061	0.632	3.948
0:07:39	127.0	0.210	83.9	5.718	4.20	40.5470	114.6	1.314	1.293	2.013	1.731	0.438	1.084	0.647	3.952
0:07:51	130.0	0.217	83.7	5.711	4.31	40.5940	117.6	1.347	1.326	2.046	1.775	0.450	1.113	0.663	3.944
0:08:01	132.4	0.222	83.6	5.706	4.40	40.6326	120.0	1.374	1.352	2.072	1.811	0.459	1.135	0.676	3.942
0:08:12	135.4	0.229	83.5	5.700	4.51	40.6767	123.1	1.407	1.384	2.104	1.855	0.471	1.163	0.692	3.939
0:08:24	138.2	0.235	83.3	5.693	4.61	40.7205	125.8	1.437	1.414	2.134	1.895	0.482	1.188	0.707	3.933
0:08:35	140.9	0.241	83.2	5.687	4.71	40.7648	128.5	1.466	1.442	2.162	1.935	0.493	1.214	0.721	3.925
0:08:45	143.4	0.246	83.0	5.682	4.81	40.8045	131.0	1.493	1.469	2.189	1.972	0.504	1.238	0.734	3.914
0:08:56	146.6	0.253	82.8	5.675	4.91	40.8496	134.3	1.528	1.504	2.224	2.019	0.515	1.267	0.752	3.917
0:09:06	149.4	0.258	82.7	5.670	5.01	40.8900	137.0	1.558	1.533	2.253	2.059	0.526	1.293	0.766	3.911
0:09:17	152.3	0.265	82.5	5.663	5.11	40.9355	139.9	1.589	1.564	2.284	2.103	0.539	1.321	0.782	3.898
0:09:27	155.1	0.270	82.3	5.658	5.21	40.9779	142.7	1.619	1.593	2.313	2.145	0.552	1.348	0.796	3.886
0:09:38	158.0	0.277	82.2	5.651	5.31	41.0224	145.6	1.650	1.624	2.344	2.188	0.564	1.376	0.812	3.877
0:09:48	160.5	0.282	82.0	5.646	5.40	41.0627	148.1	1.677	1.650	2.370	2.226	0.576	1.401	0.825	3.864
0:09:59	163.6	0.288	81.8	5.640	5.51	41.1090	151.3	1.711	1.683	2.403	2.274	0.591	1.433	0.841	3.846
0:10:09	166.5	0.294	81.6	5.634	5.60	41.1487	154.1	1.742	1.714	2.434	2.316	0.603	1.459	0.857	3.843
0:10:20	169.1	0.300	81.4	5.628	5.71	41.1943	156.8	1.770	1.741	2.461	2.358	0.617	1.487	0.870	3.820
0:10:31	172.1	0.306	81.2	5.622	5.81	41.2401	159.7	1.801	1.772	2.492	2.402	0.630	1.516	0.886	3.810
0:10:41	174.8	0.312	81.1	5.616	5.90	41.2797	162.4	1.829	1.800	2.520	2.438	0.639	1.539	0.900	3.814

Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X

Consolidation Values			Final Values			Tested By RC			Project Number 175569038		
Height	5.969 (in.)	15.160 (cm)	Height	4.852 (in.)		Date	6-3-09	Test Number	CU-510B		
Diameter	2.769 (in.)	7.033 (cm)	Dia. avg.	3.205 (in.)		Press No.	1	Data File ID	CU-510B		
Area	6.021 (in ²)	38.843 (cm ²)	Area avg.	8.065 (in ²)		Panel No.	B	Lateral Pressure (psi)	10.0		
								Chamber Pressure - σ_3 (psi)	90		

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected		Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1' - \sigma_3')/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
							Load (lbf)	Deviator Stress (tsf)							
0:10:52	177.9	0.318	81.1	5.610	6.00	41.3246	165.5	1.862	1.832	2.552	2.473	0.641	1.557	0.916	3.857
0:11:03	181.0	0.324	80.9	5.604	6.11	41.3701	168.6	1.895	1.864	2.584	2.516	0.652	1.584	0.932	3.860
0:11:14	183.6	0.330	80.8	5.598	6.21	41.4162	171.3	1.923	1.892	2.612	2.553	0.662	1.607	0.946	3.858
0:11:24	186.6	0.336	80.7	5.592	6.31	41.4576	174.2	1.954	1.923	2.643	2.594	0.672	1.633	0.961	3.859
0:11:35	189.5	0.342	80.5	5.586	6.41	41.5036	177.1	1.985	1.953	2.673	2.637	0.684	1.660	0.976	3.853
0:11:47	192.6	0.348	80.3	5.580	6.51	41.5491	180.2	2.016	1.984	2.704	2.679	0.696	1.687	0.992	3.851
0:11:56	194.8	0.354	80.2	5.574	6.60	41.5899	182.4	2.039	2.006	2.726	2.713	0.708	1.711	1.003	3.833
0:12:08	198.2	0.360	80.0	5.568	6.71	41.6358	185.8	2.075	2.041	2.761	2.760	0.719	1.740	1.020	3.837
0:12:19	200.8	0.366	79.8	5.562	6.81	41.6809	188.4	2.101	2.067	2.787	2.798	0.731	1.765	1.034	3.826
0:12:30	203.9	0.372	79.7	5.556	6.91	41.7275	191.5	2.134	2.100	2.820	2.843	0.744	1.794	1.050	3.822
0:12:40	206.4	0.378	79.5	5.550	7.01	41.7696	194.0	2.160	2.125	2.845	2.881	0.756	1.818	1.062	3.810
0:12:51	209.6	0.384	79.3	5.544	7.11	41.8164	197.2	2.193	2.157	2.877	2.924	0.767	1.846	1.078	3.811
0:13:02	212.5	0.390	79.2	5.538	7.21	41.8616	200.1	2.223	2.187	2.907	2.964	0.778	1.871	1.093	3.810
0:13:12	215.1	0.396	79.0	5.532	7.31	41.9054	202.7	2.249	2.213	2.933	3.003	0.791	1.897	1.106	3.797
0:13:22	217.8	0.401	78.8	5.527	7.40	41.9490	205.4	2.277	2.240	2.960	3.044	0.804	1.924	1.120	3.786
0:13:34	220.6	0.408	78.7	5.520	7.51	41.9962	208.2	2.305	2.268	2.988	3.084	0.816	1.950	1.134	3.777
0:13:45	223.5	0.414	78.5	5.514	7.61	42.0434	211.1	2.335	2.297	3.017	3.126	0.830	1.978	1.148	3.766
0:13:55	225.9	0.419	78.3	5.509	7.70	42.0851	213.5	2.359	2.320	3.040	3.161	0.841	2.001	1.160	3.758
0:14:07	229.0	0.426	78.1	5.502	7.81	42.1330	216.6	2.390	2.351	3.071	3.205	0.854	2.030	1.175	3.751
0:14:18	231.8	0.432	77.9	5.496	7.91	42.1807	219.4	2.419	2.379	3.099	3.247	0.868	2.057	1.189	3.742
0:14:28	234.0	0.437	77.8	5.491	8.00	42.2220	221.7	2.441	2.401	3.121	3.279	0.878	2.078	1.200	3.734
0:14:39	236.8	0.443	77.6	5.485	8.10	42.2686	224.4	2.469	2.428	3.148	3.318	0.891	2.104	1.214	3.726
0:14:50	240.0	0.449	77.5	5.479	8.21	42.3167	227.6	2.501	2.460	3.180	3.362	0.902	2.132	1.230	3.726
0:15:02	242.5	0.456	77.3	5.473	8.31	42.3638	230.1	2.526	2.485	3.205	3.397	0.913	2.155	1.242	3.721
0:15:12	244.6	0.461	77.2	5.467	8.40	42.4065	232.2	2.546	2.504	3.224	3.428	0.924	2.176	1.252	3.709
0:15:23	247.6	0.467	77.0	5.461	8.50	42.4539	235.2	2.577	2.534	3.254	3.470	0.937	2.204	1.267	3.705
0:15:34	250.5	0.473	76.8	5.455	8.61	42.5023	238.1	2.605	2.562	3.282	3.511	0.950	2.231	1.281	3.697
0:15:46	252.9	0.480	76.7	5.449	8.71	42.5505	240.6	2.629	2.585	3.305	3.545	0.960	2.253	1.292	3.692
0:15:56	255.2	0.485	76.5	5.443	8.81	42.5942	242.8	2.651	2.607	3.327	3.579	0.972	2.275	1.303	3.682
0:16:07	258.3	0.491	76.3	5.437	8.91	42.6441	245.9	2.681	2.637	3.357	3.621	0.985	2.303	1.318	3.677
0:16:17	260.7	0.497	76.2	5.431	9.01	42.6878	248.3	2.705	2.660	3.380	3.654	0.995	2.324	1.330	3.673
0:16:28	263.5	0.503	76.0	5.425	9.11	42.7364	251.1	2.732	2.686	3.406	3.691	1.005	2.348	1.343	3.672
0:16:39	265.5	0.509	75.9	5.419	9.21	42.7822	253.1	2.751	2.705	3.425	3.720	1.016	2.368	1.352	3.662
0:16:50	268.4	0.515	75.7	5.413	9.31	42.8320	256.0	2.779	2.733	3.453	3.761	1.029	2.395	1.366	3.657
0:17:00	270.8	0.521	75.6	5.407	9.41	42.8770	258.4	2.803	2.756	3.476	3.794	1.039	2.416	1.378	3.653
0:17:10	272.9	0.527	75.4	5.401	9.51	42.9234	260.5	2.822	2.775	3.495	3.823	1.049	2.436	1.387	3.644
0:17:21	275.4	0.533	75.3	5.395	9.61	42.9743	263.0	2.846	2.798	3.518	3.859	1.061	2.460	1.399	3.635
0:17:31	278.1	0.539	75.1	5.389	9.71	43.0194	265.7	2.872	2.824	3.544	3.895	1.072	2.483	1.412	3.635
0:17:43	280.8	0.545	75.0	5.383	9.81	43.0697	268.4	2.898	2.849	3.569	3.931	1.083	2.507	1.424	3.631
0:17:53	282.7	0.551	74.8	5.377	9.91	43.1160	270.3	2.916	2.866	3.586	3.958	1.092	2.525	1.433	3.623
0:18:04	285.2	0.557	74.7	5.371	10.01	43.1661	272.8	2.939	2.889	3.609	3.993	1.104	2.548	1.444	3.617
0:18:14	287.6	0.563	74.5	5.365	10.11	43.2101	275.2	2.962	2.911	3.631	4.024	1.113	2.568	1.455	3.615
0:18:25	290.0	0.569	74.4	5.359	10.21	43.2607	277.6	2.984	2.933	3.653	4.057	1.124	2.590	1.466	3.609
0:18:35	292.2	0.575	74.2	5.353	10.31	43.3066	279.9	3.005	2.953	3.673	4.088	1.135	2.611	1.476	3.602
0:18:47	295.2	0.581	74.1	5.347	10.41	43.3574	282.9	3.034	2.982	3.702	4.126	1.145	2.636	1.491	3.604
0:18:57	297.4	0.587	74.0	5.341	10.51	43.4033	285.0	3.053	3.001	3.721	4.154	1.154	2.654	1.500	3.600
0:19:08	299.4	0.593	73.8	5.335	10.61	43.4554	287.1	3.072	3.019	3.739	4.183	1.165	2.674	1.509	3.591
0:19:18	301.7	0.598	73.7	5.330	10.70	43.4997	289.3	3.093	3.039	3.759	4.213	1.174	2.694	1.519	3.588
0:19:29	304.4	0.605	73.6	5.323	10.81	43.5507	292.0	3.118	3.064	3.784	4.248	1.184	2.716	1.532	3.588
0:19:41	306.8	0.611	73.4	5.317	10.91	43.6015	294.4	3.139	3.085	3.805	4.279	1.194	2.737	1.542	3.582
0:19:51	308.5	0.616	73.3	5.312	11.00	43.6466	296.1	3.155	3.100	3.820	4.302	1.202	2.752	1.550	3.578
0:20:02	311.3	0.623	73.2	5.306	11.11	43.6973	298.9	3.181	3.126	3.846	4.338	1.213	2.775	1.563	3.577
0:20:12	313.5	0.628	73.0	5.300	11.20	43.7442	301.2	3.201	3.145	3.865	4.367	1.222	2.794	1.572	3.574
0:20:23	315.6	0.634	72.9	5.294	11.31	43.7961	303.2	3.219	3.162	3.882	4.394	1.232	2.813	1.581	3.566
0:20:35	317.9	0.641	72.7	5.287	11.41	43.8485	305.5	3.240	3.183	3.903	4.425	1.242	2.833	1.591	3.562
0:20:45	320.4	0.646	72.6	5.282	11.51	43.8947	308.0	3.262	3.205	3.925	4.457	1.252	2.854	1.602	3.559
0:20:56	322.3	0.653	72.5	5.276	11.61	43.9457	309.9	3.280	3.222	3.942	4.482	1.261	2.871	1.611	3.555
0:21:06	324.2	0.658	72.4	5.270	11.70	43.9925	311.8	3.295	3.237	3.957	4.505	1.269	2.887	1.618	3.551
0:21:17	326.5	0.664	72.2	5.264	11.81	44.0437	314.1	3.316	3.257	3.977	4.537	1.280	2.909	1.628	3.544
0:21:29	329.2	0.671	72.1	5.258	11.91	44.0964	316.9	3.341	3.282	4.002	4.571	1.290	2.930	1.641	3.544

Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X

Consolidation Values			
Height	5.969 (in.)	15.160 (cm)	
Diameter	2.769 (in.)	7.033 (cm)	
Area	6.021 (in ²)	38.843 (cm ²)	

Final Values			
Height	4.852 (in.)		
Dia. avg.	3.205 (in.)		
Area avg.	8.065 (in ²)		

Tested By		RC
Date	6-3-09	
Press No.	1	
Panel No.	B	

Project Number		175569038
Test Number	CU-510B	
Data File ID	CU-510B	
Lateral Pressure (psi)	10.0	
Chamber Pressure - σ_3 (psi)	90	

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)		Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1' + \sigma_3'$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
						Area										
0:21:39	331.1	0.676	72.0	5.252	12.00	44.1421		318.7	3.357	3.297	4.017	4.594	1.297	2.946	1.648	3.541
0:21:50	333.1	0.682	71.9	5.246	12.11	44.1954		320.7	3.375	3.314	4.034	4.620	1.307	2.963	1.657	3.536
0:22:00	335.3	0.688	71.7	5.240	12.20	44.2426		322.9	3.394	3.333	4.053	4.648	1.316	2.982	1.666	3.533
0:22:11	337.4	0.694	71.6	5.234	12.31	44.2940		325.0	3.412	3.351	4.071	4.674	1.324	2.999	1.675	3.530
0:22:23	339.5	0.700	71.5	5.228	12.41	44.3471		327.1	3.430	3.368	4.088	4.701	1.333	3.017	1.684	3.525
0:22:33	341.0	0.706	71.4	5.222	12.50	44.3947		328.7	3.442	3.380	4.100	4.722	1.343	3.032	1.690	3.517
0:22:44	343.6	0.712	71.2	5.216	12.61	44.4468		331.2	3.465	3.402	4.122	4.754	1.352	3.053	1.701	3.516
0:22:55	345.6	0.718	71.1	5.210	12.71	44.4989		333.2	3.482	3.419	4.139	4.779	1.361	3.070	1.709	3.511
0:23:05	347.3	0.724	71.0	5.204	12.80	44.5475		334.9	3.496	3.432	4.152	4.799	1.367	3.083	1.716	3.509
0:23:17	349.7	0.730	70.9	5.198	12.91	44.6013		337.3	3.517	3.452	4.172	4.828	1.376	3.102	1.726	3.509
0:23:27	351.5	0.736	70.8	5.192	13.01	44.6506		339.1	3.532	3.467	4.187	4.852	1.385	3.119	1.733	3.502
0:23:38	353.6	0.742	70.6	5.186	13.11	44.7038		341.2	3.549	3.484	4.204	4.877	1.394	3.136	1.742	3.499
0:23:48	355.1	0.748	70.5	5.180	13.20	44.7530		342.7	3.561	3.495	4.215	4.896	1.401	3.148	1.747	3.494
0:23:59	357.5	0.754	70.4	5.174	13.31	44.8070		345.2	3.582	3.516	4.236	4.927	1.412	3.169	1.758	3.490
0:24:09	359.4	0.760	70.3	5.168	13.40	44.8563		347.0	3.597	3.530	4.250	4.947	1.418	3.183	1.765	3.489
0:24:20	361.3	0.766	70.2	5.162	13.51	44.9123		349.0	3.613	3.545	4.265	4.971	1.426	3.198	1.772	3.486
0:24:30	363.1	0.772	70.1	5.156	13.61	44.9626		350.7	3.627	3.559	4.279	4.994	1.435	3.214	1.779	3.481
0:24:40	365.3	0.778	70.0	5.150	13.71	45.0134		352.9	3.645	3.577	4.297	5.019	1.443	3.231	1.788	3.479
0:24:51	367.1	0.784	69.9	5.144	13.81	45.0693		354.7	3.659	3.590	4.310	5.040	1.450	3.245	1.795	3.475
0:25:01	368.6	0.790	69.8	5.138	13.91	45.1188		356.2	3.671	3.601	4.321	5.059	1.458	3.258	1.800	3.470
0:25:11	370.7	0.795	69.6	5.133	14.01	45.1699		358.4	3.689	3.619	4.339	5.085	1.466	3.276	1.809	3.468
0:25:22	372.6	0.802	69.5	5.126	14.11	45.2255		360.2	3.704	3.633	4.353	5.105	1.474	3.290	1.816	3.465
0:25:32	373.7	0.807	69.5	5.121	14.20	45.2746		361.3	3.711	3.640	4.360	5.119	1.479	3.299	1.820	3.460
0:25:43	375.9	0.814	69.3	5.114	14.31	45.3325		363.5	3.729	3.657	4.377	5.145	1.488	3.317	1.828	3.457
0:25:53	377.8	0.820	69.2	5.108	14.41	45.3828		365.4	3.744	3.672	4.392	5.166	1.495	3.330	1.836	3.457
0:26:04	379.5	0.826	69.1	5.102	14.51	45.4388		367.2	3.757	3.685	4.405	5.186	1.502	3.344	1.842	3.453
0:26:14	381.0	0.832	69.0	5.096	14.61	45.4902		368.6	3.768	3.695	4.415	5.205	1.511	3.358	1.847	3.446
0:26:24	382.9	0.837	68.9	5.091	14.71	45.5408		370.5	3.783	3.710	4.430	5.227	1.517	3.372	1.855	3.445
0:26:35	384.5	0.843	68.8	5.085	14.81	45.5960		372.1	3.795	3.721	4.441	5.244	1.524	3.384	1.860	3.442
0:26:46	386.0	0.850	68.7	5.078	14.91	45.6513		373.6	3.806	3.731	4.451	5.263	1.532	3.397	1.865	3.436
0:26:56	387.6	0.855	68.6	5.073	15.01	45.7030		375.2	3.818	3.743	4.463	5.282	1.539	3.411	1.871	3.431
0:27:08	389.8	0.862	68.5	5.066	15.11	45.7591		377.4	3.835	3.760	4.480	5.306	1.547	3.427	1.880	3.430
0:27:19	391.0	0.868	68.4	5.060	15.21	45.8136		378.6	3.843	3.767	4.487	5.320	1.554	3.437	1.883	3.424
0:27:29	392.6	0.873	68.3	5.055	15.31	45.8653		380.2	3.855	3.778	4.498	5.339	1.561	3.450	1.889	3.419
0:27:39	394.8	0.879	68.2	5.049	15.40	45.9165		382.4	3.873	3.796	4.516	5.365	1.570	3.468	1.898	3.418
0:27:50	396.3	0.885	68.1	5.043	15.51	45.9733		383.9	3.883	3.806	4.526	5.382	1.577	3.479	1.903	3.413
0:28:01	397.9	0.891	68.0	5.037	15.61	46.0293		385.5	3.894	3.816	4.536	5.399	1.583	3.491	1.908	3.410
0:28:11	399.4	0.897	67.9	5.031	15.71	46.0806		387.1	3.906	3.827	4.547	5.419	1.592	3.506	1.913	3.404
0:28:22	401.1	0.903	67.8	5.025	15.81	46.1378		388.8	3.918	3.839	4.559	5.439	1.600	3.519	1.919	3.399
0:28:33	403.0	0.909	67.7	5.019	15.91	46.1932		390.6	3.932	3.852	4.572	5.459	1.607	3.533	1.926	3.397
0:28:43	404.2	0.915	67.6	5.013	16.00	46.2447		391.8	3.939	3.859	4.579	5.474	1.615	3.545	1.929	3.389
0:28:54	406.2	0.921	67.5	5.007	16.11	46.3026		393.8	3.955	3.875	4.595	5.491	1.616	3.554	1.937	3.397
0:29:05	408.1	0.927	67.6	5.001	16.21	46.3585		395.7	3.969	3.888	4.608	5.501	1.613	3.557	1.944	3.410
0:29:15	409.5	0.933	67.6	4.995	16.30	46.4103		397.1	3.979	3.898	4.618	5.513	1.616	3.565	1.949	3.411
0:29:26	411.0	0.939	67.5	4.989	16.41	46.4682		398.6	3.989	3.907	4.627	5.529	1.623	3.576	1.953	3.407
0:29:38	413.1	0.945	67.4	4.983	16.51	46.5266		400.7	4.004	3.922	4.642	5.546	1.625	3.586	1.961	3.413
0:29:47	414.4	0.951	67.4	4.977	16.61	46.5777		402.0	4.014	3.931	4.651	5.561	1.630	3.595	1.965	3.411
0:29:59	415.6	0.957	67.3	4.971	16.71	46.6347		403.2	4.020	3.937	4.657	5.572	1.636	3.604	1.968	3.407
0:30:10	417.3	0.963	67.2	4.965	16.81	46.6925		405.0	4.033	3.949	4.669	5.590	1.642	3.616	1.974	3.405
0:30:20	419.3	0.968	67.1	4.960	16.90	46.7454		406.9	4.048	3.963	4.683	5.610	1.647	3.629	1.981	3.406
0:30:31	420.6	0.975	67.0	4.953	17.01	46.8041		408.2	4.056	3.971	4.691	5.623	1.652	3.638	1.985	3.403
0:30:42	421.7	0.981	67.0	4.947	17.11	46.8635		409.3	4.062	3.976	4.696	5.634	1.659	3.646	1.988	3.397
0:30:52	423.9	0.986	66.9	4.942	17.21	46.9159		411.5	4.078	3.992	4.712	5.656	1.664	3.660	1.996	3.398
0:31:03	425.3	0.993	66.8	4.935	17.31	46.9763		412.9	4.087	4.001	4.721	5.671	1.670	3.670	2.000	3.395
0:31:13	426.6	0.999	66.8	4.929	17.41	47.0306		414.2	4.095	4.008	4.728	5.682	1.674	3.678	2.004	3.394
0:31:24	427.6	1.005	66.7	4.923	17.52	47.0918		415.3	4.100	4.013	4.733	5.693	1.680	3.686	2.006	3.388
0:31:34	429.8	1.011	66.6	4.917	17.61	47.1471		417.4	4.116	4.029	4.749	5.714	1.686	3.700	2.014	3.389
0:31:44	431.2	1.016	66.5	4.912	17.71	47.2009		418.8	4.126	4.037	4.757	5.728	1.691	3.710	2.018	3.387
0:31:55	432.1	1.023	66.4	4.905	17.81	47.2607		419.7	4.129	4.040	4.760	5.738	1.698	3.718	2.020	3.379
0:32:05	434.2	1.028	66.3	4.900	17.91	47.3169		421.8	4.146	4.056	4.776	5.761	1.705	3.733	2.028	3.379

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.969 (in.)	15.160 (cm)
Diameter	2.769 (in)	7.033 (cm)
Area	6.021 (in ²)	38.843 (cm ²)

Final Values	
Height	4.852 (in.)
Dia. avg.	3.205 (in)
Area avg.	8.065 (in ²)

Tested By	RC
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	CU-510B
Data File ID	CU-510B
Lateral Pressure (psi)	10.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
0:32:16	435.7	1.035	66.3	4.893	18.01	47.3782	423.3	4.155	4.065	4.785	5.774	1.710	3.742	2.032	3.377
0:32:26	436.3	1.040	66.2	4.888	18.11	47.4322	423.9	4.156	4.065	4.785	5.779	1.714	3.747	2.032	3.371
0:32:37	438.0	1.047	66.1	4.882	18.21	47.4928	425.6	4.167	4.077	4.797	5.794	1.718	3.756	2.038	3.372
0:32:47	439.9	1.052	66.1	4.876	18.31	47.5493	427.5	4.181	4.090	4.810	5.811	1.722	3.766	2.045	3.375
0:32:58	441.3	1.059	66.0	4.869	18.41	47.6102	428.9	4.189	4.097	4.817	5.823	1.726	3.774	2.048	3.374
0:33:08	442.2	1.064	66.0	4.864	18.51	47.6659	429.9	4.193	4.101	4.821	5.831	1.731	3.781	2.050	3.370
0:33:19	444.3	1.071	65.9	4.857	18.61	47.7278	431.9	4.208	4.115	4.835	5.852	1.738	3.795	2.057	3.367
0:33:29	445.8	1.076	65.8	4.852	18.71	47.7831	433.4	4.218	4.124	4.844	5.866	1.743	3.804	2.062	3.366

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values			
Height	5.995 (in.)	15.227 (cm)	
Diameter	2.767 (in.)	7.028 (cm)	
Area	6.012 (in ²)	38.789 (cm ²)	

Final Values	
Height	4.970 (in.)
Dia. avg.	3.359 (in)
Area avg.	8.862 (in ²)

Tested By	
Date	6-3-09
Press No.	2
Panel No.	D

Project Number		
		175569038
Test Number		
		CU-510C
Data File ID		
		CU-510C
Lateral Pressure (psi)		
		20.0
Chamber Pressure - σ_3 (psi)		
		90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected			σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1'+\sigma_3'$)/2 (tsf)	q ($\sigma_1-\sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
							Load (lbf)	Deviator Stress (tsf)	Deviator Stress* (tsf)						
0:00:00	10.8	-0.004	70.1	5.995	0.00	38.7895	0.0	0.000	0.000	1.440	1.440	1.432	1.436	0.004	1.005
0:00:29	24.4	0.002	71.0	5.988	0.11	38.8332	13.5	0.162	0.161	1.601	1.536	1.367	1.452	0.085	1.124
0:00:51	26.1	0.008	71.2	5.983	0.20	38.8680	15.2	0.182	0.181	1.621	1.546	1.357	1.451	0.095	1.139
0:01:13	27.7	0.014	71.4	5.977	0.30	38.9064	16.9	0.202	0.200	1.640	1.550	1.343	1.447	0.104	1.155
0:01:35	29.5	0.020	71.6	5.971	0.41	38.9477	18.6	0.222	0.220	1.660	1.555	1.327	1.441	0.114	1.172
0:01:57	32.6	0.026	71.9	5.965	0.51	38.9870	21.8	0.260	0.257	1.697	1.570	1.305	1.437	0.133	1.203
0:02:19	54.7	0.032	74.6	5.959	0.60	39.0242	43.9	0.523	0.520	1.960	1.633	1.106	1.369	0.264	1.477
0:02:44	70.3	0.038	77.4	5.952	0.71	39.0665	59.4	0.708	0.704	2.144	1.619	0.907	1.263	0.356	1.785
0:03:06	78.3	0.044	78.9	5.947	0.81	39.1050	67.5	0.802	0.798	2.238	1.608	0.802	1.205	0.403	2.005
0:03:28	84.2	0.050	79.8	5.941	0.91	39.1443	73.3	0.871	0.867	2.307	1.608	0.734	1.171	0.437	2.192
0:03:50	88.9	0.056	80.4	5.935	1.01	39.1838	78.0	0.926	0.921	2.361	1.617	0.689	1.153	0.464	2.348
0:04:12	93.6	0.062	80.8	5.929	1.11	39.2242	82.8	0.982	0.976	2.416	1.644	0.660	1.152	0.492	2.491
0:04:34	98.1	0.068	81.4	5.923	1.21	39.2637	87.2	1.033	1.027	2.467	1.652	0.618	1.135	0.517	2.676
0:04:56	102.6	0.074	81.8	5.917	1.31	39.3028	91.8	1.086	1.079	2.519	1.678	0.591	1.135	0.544	2.839
0:05:18	107.0	0.080	82.0	5.911	1.41	39.3432	96.2	1.137	1.129	2.569	1.714	0.577	1.146	0.569	2.971
0:05:40	111.6	0.086	82.1	5.905	1.51	39.3829	100.7	1.189	1.182	2.622	1.760	0.571	1.166	0.595	3.084
0:06:02	116.2	0.092	82.1	5.899	1.60	39.4221	105.4	1.243	1.235	2.675	1.813	0.571	1.192	0.621	3.178
0:06:24	120.7	0.098	82.0	5.893	1.70	39.4616	109.9	1.295	1.286	2.726	1.869	0.575	1.222	0.647	3.251
0:06:45	125.6	0.104	82.0	5.887	1.80	39.5020	114.8	1.351	1.342	2.782	1.928	0.577	1.252	0.675	3.339
0:07:10	131.5	0.110	81.9	5.880	1.92	39.5472	120.6	1.418	1.409	2.849	2.003	0.586	1.294	0.708	3.417
0:07:32	136.3	0.116	81.3	5.875	2.01	39.5843	125.5	1.474	1.464	2.904	2.095	0.623	1.359	0.736	3.363
0:07:52	141.1	0.121	81.6	5.869	2.10	39.6210	130.3	1.529	1.519	2.959	2.130	0.603	1.366	0.763	3.532
0:08:16	146.6	0.128	81.4	5.863	2.21	39.6644	135.8	1.592	1.581	3.021	2.209	0.620	1.415	0.794	3.563
0:08:38	152.2	0.134	81.2	5.857	2.30	39.7042	141.4	1.656	1.645	3.085	2.286	0.633	1.459	0.826	3.610
0:09:00	157.8	0.139	81.0	5.851	2.40	39.7436	147.0	1.720	1.708	3.148	2.363	0.648	1.505	0.858	3.649
0:09:24	164.3	0.146	80.8	5.845	2.51	39.7862	153.5	1.794	1.781	3.221	2.453	0.664	1.559	0.894	3.694
0:09:46	170.0	0.152	80.5	5.839	2.60	39.8258	159.1	1.858	1.845	3.285	2.534	0.682	1.608	0.926	3.718
0:10:08	175.8	0.157	80.3	5.833	2.70	39.8660	165.0	1.924	1.911	3.351	2.619	0.701	1.660	0.959	3.738
0:10:30	181.7	0.163	80.0	5.827	2.80	39.9060	170.9	1.991	1.977	3.417	2.704	0.719	1.712	0.993	3.761
0:10:55	188.7	0.170	79.7	5.821	2.90	39.9487	177.9	2.071	2.056	3.496	2.804	0.740	1.772	1.032	3.789
0:11:17	195.0	0.175	79.4	5.815	3.00	39.9891	184.2	2.141	2.126	3.566	2.895	0.761	1.828	1.067	3.805
0:11:41	201.7	0.182	79.1	5.809	3.10	40.0315	190.8	2.217	2.201	3.641	2.993	0.784	1.888	1.105	3.818
0:12:05	209.1	0.188	78.8	5.803	3.21	40.0749	198.2	2.300	2.284	3.724	3.100	0.808	1.954	1.146	3.836
0:12:27	215.6	0.193	78.5	5.797	3.30	40.1132	204.8	2.374	2.357	3.797	3.196	0.831	2.014	1.183	3.845
0:12:52	223.2	0.200	78.1	5.791	3.41	40.1576	212.3	2.459	2.442	3.882	3.304	0.855	2.080	1.225	3.864
0:13:14	229.7	0.206	77.8	5.785	3.50	40.1972	218.9	2.532	2.514	3.954	3.403	0.881	2.142	1.261	3.863
0:13:36	236.9	0.211	77.4	5.779	3.60	40.2375	226.0	2.612	2.594	4.034	3.508	0.907	2.207	1.301	3.870
0:14:00	244.3	0.218	77.0	5.773	3.71	40.2822	233.4	2.695	2.676	4.116	3.618	0.934	2.276	1.342	3.873
0:14:22	251.3	0.224	76.7	5.767	3.80	40.3230	240.5	2.773	2.754	4.194	3.723	0.961	2.342	1.381	3.874
0:14:44	258.4	0.229	76.3	5.761	3.90	40.3640	247.5	2.852	2.832	4.272	3.828	0.988	2.408	1.420	3.876
0:15:06	265.5	0.235	75.9	5.755	4.00	40.4049	254.6	2.930	2.910	4.350	3.933	1.015	2.474	1.459	3.876
0:15:31	273.5	0.242	75.5	5.749	4.11	40.4505	262.7	3.020	2.999	4.439	4.053	1.046	2.550	1.504	3.874
0:15:53	280.6	0.248	75.1	5.743	4.20	40.4913	269.7	3.098	3.077	4.517	4.161	1.076	2.619	1.542	3.866
0:16:15	287.4	0.253	74.6	5.737	4.30	40.5318	276.6	3.173	3.152	4.592	4.271	1.111	2.691	1.580	3.844
0:16:39	295.6	0.260	74.1	5.731	4.40	40.5768	284.7	3.263	3.241	4.681	4.397	1.148	2.773	1.624	3.830
0:17:01	303.4	0.266	73.6	5.725	4.50	40.6186	292.6	3.349	3.327	4.767	4.518	1.184	2.851	1.667	3.817
0:17:23	310.9	0.271	73.6	5.719	4.60	40.6599	300.1	3.432	3.409	4.849	4.600	1.183	2.891	1.709	3.889
0:17:45	318.6	0.277	73.3	5.713	4.70	40.7029	307.8	3.516	3.493	4.933	4.705	1.205	2.955	1.750	3.906
0:18:07	325.9	0.283	72.9	5.707	4.80	40.7451	315.1	3.596	3.572	5.012	4.813	1.233	3.023	1.790	3.904
0:18:29	333.7	0.289	72.5	5.701	4.90	40.7874	322.8	3.681	3.656	5.096	4.924	1.260	3.092	1.832	3.908
0:18:51	341.5	0.295	72.1	5.695	5.00	40.8300	330.6	3.765	3.740	5.180	5.036	1.287	3.161	1.874	3.912
0:19:16	349.8	0.302	71.6	5.689	5.11	40.8768	339.0	3.856	3.831	5.271	5.163	1.324	3.243	1.919	3.899
0:19:38	357.0	0.308	71.2	5.683	5.21	40.9193	346.2	3.934	3.908	5.348	5.269	1.353	3.311	1.958	3.894
0:20:00	364.9	0.314	70.8	5.677	5.30	40.9621	354.1	4.019	3.993	5.433	5.387	1.386	3.386	2.000	3.887
0:20:22	372.6	0.319	70.3	5.671	5.40	41.0046	361.8	4.103	4.076	5.516	5.501	1.417	3.459	2.042	3.883
0:20:44	380.2	0.325	69.9	5.665	5.50	41.0475	369.3	4.184	4.156	5.596	5.612	1.448	3.530	2.082	3.876
0:21:06	388.0	0.331	69.5	5.659	5.60	41.0904	377.2	4.269	4.241	5.681	5.725	1.477	3.601	2.124	3.877
0:21:29	395.9	0.337	69.1	5.653	5.70	41.1339	385.1	4.353	4.325	5.765	5.841	1.508	3.674	2.166	3.873
0:21:51	403.1	0.343	68.6	5.647	5.80	41.1765	392.3	4.430	4.401	5.841	5.949	1.540	3.745	2.205	3.863
0:22:16	412.0	0.350	68.1	5.641	5.90	41.2234	401.1	4.525	4.495	5.935	6.077	1.574	3.826	2.251	3.860

Consolidated Undrained Triaxial Test EM 1110-2-1906 Appendix X

Consolidation Values		
Height	5.995 (in.)	15.227 (cm)
Diameter	2.767 (in.)	7.028 (cm)
Area	6.012 (in ²)	38.789 (cm ²)

Final Values	
Height	4.970 (in.)
Dia. avg.	3.359 (in.)
Area avg.	8.862 (in ²)

Tested By	
Date	6-3-09
Press No.	2
Panel No.	D

Project Number	
Test Number	175569038
Data File ID	CU-510C
Lateral Pressure (psi)	20.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Hieight (in.)	Strain (%)	Corrected Area (cm ²)	Corrected			σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($\sigma_1' + \sigma_3'$)/2 (tsf)	q ($\sigma_1 - \sigma_3$)/2 (tsf)	Effective Principal Stress Ratio σ_1' / σ_3'
							Load (lbf)	Deviator Stress (tsf)	Deviator Stress* (tsf)						
0:22:38	419.6	0.356	67.7	5.635	6.00	41.2672	408.8	4.606	4.576	6.016	6.189	1.604	3.896	2.292	3.857
0:23:00	427.3	0.361	67.3	5.629	6.10	41.3099	416.5	4.688	4.658	6.098	6.300	1.634	3.967	2.333	3.855
0:23:23	434.6	0.367	66.9	5.623	6.20	41.3529	423.8	4.765	4.734	6.174	6.408	1.666	4.037	2.371	3.846
0:23:45	442.2	0.373	66.4	5.618	6.30	41.3959	431.4	4.846	4.814	6.254	6.522	1.700	4.111	2.411	3.836
0:24:10	451.3	0.380	66.0	5.611	6.40	41.4437	440.5	4.942	4.910	6.350	6.644	1.726	4.185	2.459	3.849
0:24:33	458.9	0.385	65.5	5.605	6.50	41.4866	448.0	5.022	4.989	6.429	6.759	1.762	4.261	2.499	3.836
0:24:55	466.2	0.391	65.1	5.599	6.60	41.5303	455.3	5.098	5.065	6.505	6.867	1.794	4.330	2.537	3.829
0:25:15	479.7	0.398	64.5	5.593	6.71	41.5785	468.8	5.243	5.210	6.650	7.055	1.838	4.447	2.609	3.839
0:25:28	487.0	0.403	64.0	5.587	6.80	41.6207	476.1	5.320	5.286	6.726	7.163	1.869	4.516	2.647	3.832
0:25:40	494.3	0.409	63.6	5.582	6.90	41.6628	483.4	5.395	5.361	6.801	7.270	1.901	4.586	2.684	3.824
0:25:55	502.3	0.416	63.1	5.575	7.01	41.7134	491.5	5.479	5.444	6.884	7.391	1.939	4.665	2.726	3.812
0:26:07	509.5	0.421	62.7	5.569	7.10	41.7558	498.7	5.554	5.518	6.958	7.495	1.969	4.732	2.763	3.806
0:26:20	516.8	0.427	62.2	5.563	7.20	41.7985	506.0	5.629	5.593	7.033	7.604	2.003	4.803	2.801	3.797
0:26:35	524.9	0.434	61.7	5.557	7.31	41.8497	514.0	5.712	5.675	7.115	7.721	2.038	4.879	2.841	3.789
0:26:48	532.1	0.440	61.3	5.551	7.41	41.8932	521.3	5.786	5.749	7.189	7.826	2.070	4.948	2.878	3.781
0:27:00	538.9	0.445	60.9	5.545	7.50	41.9347	528.1	5.856	5.818	7.258	7.923	2.097	5.010	2.913	3.778
0:27:12	545.6	0.451	60.5	5.540	7.59	41.9774	534.8	5.924	5.886	7.326	8.020	2.126	5.073	2.947	3.772
0:27:27	553.9	0.458	60.0	5.533	7.71	42.0291	543.0	6.008	5.970	7.410	8.141	2.164	5.152	2.989	3.763
0:27:40	560.9	0.463	59.5	5.527	7.80	42.0720	550.1	6.080	6.041	7.481	8.243	2.194	5.218	3.024	3.757
0:27:52	567.2	0.469	59.1	5.522	7.90	42.1152	556.4	6.143	6.104	7.544	8.335	2.224	5.280	3.056	3.748
0:28:07	574.8	0.476	58.6	5.515	8.01	42.1675	563.9	6.219	6.179	7.619	8.445	2.259	5.352	3.093	3.739
0:28:20	581.1	0.482	58.2	5.509	8.11	42.2113	570.3	6.282	6.242	7.682	8.538	2.288	5.413	3.125	3.731
0:28:32	587.4	0.487	57.8	5.503	8.20	42.2548	576.6	6.345	6.304	7.744	8.630	2.318	5.474	3.156	3.723
0:28:45	594.2	0.493	57.4	5.498	8.30	42.2983	583.4	6.413	6.372	7.812	8.725	2.346	5.536	3.190	3.720
0:29:00	602.4	0.500	56.9	5.491	8.41	42.3509	591.5	6.495	6.453	7.893	8.844	2.384	5.614	3.230	3.710
0:29:12	608.9	0.505	56.6	5.485	8.50	42.3950	598.0	6.559	6.517	7.957	8.933	2.408	5.670	3.262	3.710
0:29:24	615.1	0.511	56.1	5.479	8.60	42.4394	604.2	6.620	6.577	8.017	9.023	2.437	5.730	3.293	3.702
0:29:37	621.2	0.517	55.8	5.474	8.70	42.4839	610.4	6.681	6.638	8.078	9.111	2.465	5.788	3.323	3.696
0:29:49	627.6	0.523	55.4	5.468	8.79	42.5292	616.7	6.743	6.699	8.139	9.200	2.493	5.847	3.354	3.690
0:30:04	634.6	0.530	54.9	5.461	8.91	42.5839	623.8	6.812	6.767	8.207	9.303	2.528	5.916	3.387	3.679
0:30:17	640.3	0.536	54.5	5.455	9.01	42.6292	629.5	6.866	6.821	8.261	9.384	2.555	5.970	3.415	3.672
0:30:29	646.3	0.541	54.1	5.449	9.10	42.6747	635.5	6.924	6.879	8.319	9.470	2.583	6.027	3.443	3.666
0:30:42	652.6	0.547	53.7	5.443	9.20	42.7204	641.7	6.985	6.939	8.379	9.558	2.611	6.085	3.474	3.660
0:30:54	659.1	0.553	53.4	5.438	9.30	42.7660	648.3	7.049	7.002	8.442	9.649	2.638	6.144	3.505	3.657
0:31:07	664.8	0.559	53.0	5.432	9.40	42.8125	654.0	7.103	7.056	8.496	9.729	2.665	6.197	3.532	3.650
0:31:19	670.6	0.565	52.6	5.426	9.49	42.8580	659.8	7.158	7.111	8.551	9.812	2.693	6.252	3.559	3.644
0:31:34	678.5	0.572	52.1	5.419	9.61	42.9121	667.7	7.235	7.187	8.627	9.920	2.725	6.323	3.598	3.640
0:31:47	684.7	0.577	51.8	5.413	9.70	42.9579	673.8	7.294	7.246	8.686	10.005	2.751	6.378	3.627	3.636
0:31:59	690.6	0.583	51.4	5.408	9.80	43.0034	679.7	7.350	7.301	8.741	10.087	2.778	6.433	3.654	3.631
0:32:12	695.7	0.589	51.0	5.402	9.90	43.0495	684.8	7.397	7.348	8.788	10.161	2.806	6.484	3.678	3.622
0:32:27	702.6	0.596	50.5	5.395	10.01	43.1038	691.8	7.463	7.413	8.853	10.263	2.842	6.552	3.710	3.611
0:32:39	708.5	0.601	50.1	5.389	10.10	43.1491	697.7	7.519	7.468	8.908	10.346	2.870	6.608	3.738	3.605
0:32:51	714.1	0.607	49.7	5.384	10.20	43.1943	703.2	7.570	7.520	8.960	10.427	2.899	6.663	3.764	3.596
0:33:04	719.8	0.613	49.5	5.378	10.29	43.2397	708.9	7.624	7.572	9.012	10.496	2.916	6.706	3.790	3.600
0:33:19	727.4	0.619	49.4	5.371	10.41	43.2948	716.6	7.696	7.644	9.084	10.578	2.925	6.752	3.826	3.616
0:33:31	733.3	0.625	49.1	5.366	10.50	43.3404	722.5	7.752	7.699	9.139	10.653	2.946	6.799	3.854	3.616
0:33:44	738.6	0.631	48.8	5.360	10.59	43.3856	727.7	7.800	7.747	9.187	10.720	2.965	6.843	3.877	3.615
0:33:59	745.3	0.637	48.4	5.353	10.71	43.4404	734.5	7.862	7.808	9.248	10.808	2.992	6.900	3.908	3.612
0:34:11	751.1	0.643	48.1	5.347	10.80	43.4865	740.2	7.915	7.861	9.301	10.882	3.013	6.948	3.935	3.611
0:34:24	757.0	0.649	47.8	5.342	10.89	43.5323	746.1	7.970	7.916	9.356	10.960	3.036	6.998	3.962	3.610
0:34:39	762.9	0.655	47.4	5.335	11.01	43.5873	752.1	8.023	7.968	9.408	11.040	3.064	7.052	3.988	3.603
0:34:51	768.3	0.661	47.2	5.329	11.10	43.6335	757.5	8.073	8.017	9.457	11.109	3.084	7.097	4.012	3.602
0:35:04	773.8	0.667	46.9	5.324	11.19	43.6791	763.0	8.123	8.067	9.507	11.181	3.106	7.144	4.037	3.599
0:35:19	780.0	0.673	46.5	5.317	11.31	43.7347	769.2	8.178	8.121	9.561	11.263	3.134	7.198	4.065	3.594
0:35:31	785.7	0.679	46.2	5.312	11.40	43.7802	774.9	8.230	8.173	9.613	11.338	3.157	7.247	4.091	3.592
0:35:44	791.6	0.685	45.9	5.306	11.50	43.8283	780.8	8.284	8.226	9.666	11.412	3.177	7.295	4.117	3.591
0:35:56	799.3	0.691	45.4	5.300	11.60	43.8779	788.4	8.356	8.298	9.738	11.515	3.209	7.362	4.153	3.588
0:36:08	805.3	0.697	45.0	5.293	11.71	43.9323	794.5	8.409	8.350	9.790	11.596	3.238	7.417	4.179	3.581
0:36:18	810.3	0.703	44.7	5.288	11.79	43.9754	799.5	8.454	8.395	9.835	11.661	3.259	7.460	4.201	3.579
0:36:30	816.4	0.709	44.4	5.282	11.90	44.0289	805.6	8.508	8.448	9.888	11.739	3.283	7.511	4.228	3.576

**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

Consolidation Values	
Height	<u>5.995 (in.)</u> <u>15.227 (cm)</u>
Diameter	<u>2.767 (in)</u> <u>7.028 (cm)</u>
Area	<u>6.012 (in²)</u> <u>38.789 (cm²)</u>

Final Values	
Height	<u>4.970 (in.)</u>
Dia. avg.	<u>3.359 (in)</u>
Area avg.	<u>8.862 (in²)</u>

Tested By	RC
Date	6-3-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	CU-510C
Data File ID	CU-510C
Lateral Pressure (psi)	20.0
Chamber Pressure - σ_3 (psi)	90

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Pore Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (tsf)	Corrected Deviator Stress* (tsf)	σ_1 (tsf)	σ_1' (tsf)	σ_3' (tsf)	p' ($(\sigma_1' + \sigma_3')/2$) (tsf)	q ($(\sigma_1 - \sigma_3)/2$) (tsf)	Effective Principal
															Stress Ratio σ_1' / σ_3'
0:36:43	821.3	0.716	44.1	5.275	12.01	44.0839	810.5	8.549	8.489	9.929	11.805	3.307	7.556	4.249	3.569
0:36:52	826.1	0.721	43.8	5.270	12.10	44.1285	815.3	8.591	8.530	9.970	11.866	3.328	7.597	4.269	3.566
0:37:05	831.5	0.727	43.5	5.263	12.21	44.1835	820.7	8.637	8.576	10.016	11.934	3.350	7.642	4.292	3.562
0:37:14	835.7	0.733	43.2	5.258	12.30	44.2284	824.8	8.672	8.611	10.051	11.988	3.369	7.679	4.309	3.558
0:37:27	841.0	0.739	42.9	5.251	12.41	44.2842	830.1	8.717	8.655	10.095	12.056	3.394	7.725	4.331	3.552
0:37:36	846.0	0.745	42.6	5.246	12.50	44.3299	835.1	8.760	8.698	10.138	12.119	3.414	7.766	4.353	3.550
0:37:49	852.0	0.752	42.3	5.239	12.61	44.3868	841.2	8.812	8.749	10.189	12.192	3.436	7.814	4.378	3.549
0:37:58	855.6	0.757	42.0	5.234	12.70	44.4330	844.7	8.840	8.777	10.217	12.238	3.453	7.846	4.392	3.544
0:38:08	859.4	0.763	41.8	5.228	12.79	44.4804	848.6	8.871	8.807	10.247	12.286	3.471	7.879	4.408	3.539
0:38:20	864.8	0.769	41.5	5.221	12.91	44.5383	854.0	8.916	8.852	10.292	12.351	3.492	7.921	4.430	3.537
0:38:30	868.1	0.775	41.3	5.216	13.00	44.5854	857.3	8.941	8.876	10.316	12.393	3.509	7.951	4.442	3.532
0:38:40	871.4	0.780	41.0	5.210	13.09	44.6327	860.6	8.966	8.901	10.341	12.435	3.527	7.981	4.454	3.526
0:38:52	875.9	0.787	40.7	5.203	13.21	44.6920	865.1	9.001	8.935	10.375	12.489	3.546	8.018	4.471	3.522
0:39:02	879.5	0.793	40.5	5.198	13.30	44.7391	868.7	9.029	8.962	10.402	12.531	3.561	8.046	4.485	3.519
0:39:12	882.9	0.798	40.3	5.192	13.39	44.7865	872.1	9.054	8.988	10.428	12.572	3.577	8.075	4.498	3.515
0:39:24	887.7	0.805	40.0	5.185	13.50	44.8459	876.8	9.092	9.024	10.464	12.629	3.597	8.113	4.516	3.511
0:39:34	891.1	0.811	39.9	5.180	13.59	44.8926	880.3	9.118	9.050	10.490	12.668	3.610	8.139	4.529	3.509
0:39:46	895.2	0.817	39.6	5.173	13.71	44.9516	884.3	9.148	9.079	10.519	12.717	3.630	8.173	4.544	3.504
0:39:56	898.2	0.823	39.4	5.168	13.80	44.9990	887.4	9.170	9.101	10.541	12.754	3.645	8.199	4.555	3.499
0:40:05	902.1	0.828	39.2	5.162	13.89	45.0465	891.3	9.200	9.131	10.571	12.799	3.660	8.229	4.569	3.497
0:40:18	906.8	0.835	38.9	5.155	14.00	45.1061	895.9	9.236	9.166	10.606	12.852	3.678	8.265	4.587	3.495
0:40:27	910.0	0.840	38.7	5.150	14.09	45.1534	899.2	9.260	9.189	10.629	12.888	3.691	8.290	4.599	3.492
0:40:40	914.0	0.847	38.5	5.143	14.21	45.2130	903.2	9.289	9.218	10.658	12.934	3.708	8.321	4.613	3.488
0:40:49	917.3	0.853	38.3	5.138	14.30	45.2601	906.4	9.313	9.241	10.681	12.969	3.721	8.345	4.624	3.486
0:41:02	920.7	0.859	38.1	5.131	14.41	45.3195	909.9	9.336	9.264	10.704	13.008	3.736	8.372	4.636	3.481
0:41:11	924.2	0.865	37.9	5.126	14.50	45.3669	913.3	9.361	9.289	10.729	13.045	3.749	8.397	4.648	3.480
0:41:24	929.4	0.871	37.7	5.119	14.61	45.4256	918.6	9.403	9.330	10.770	13.102	3.764	8.433	4.669	3.481
0:41:33	933.3	0.877	37.5	5.114	14.70	45.4735	922.4	9.433	9.359	10.799	13.143	3.777	8.460	4.683	3.480
0:41:43	935.9	0.882	37.4	5.108	14.79	45.5216	925.0	9.449	9.375	10.815	13.172	3.789	8.480	4.692	3.477
0:41:55	939.3	0.889	37.2	5.102	14.90	45.5808	928.4	9.472	9.397	10.837	13.209	3.804	8.506	4.702	3.472
0:42:05	942.6	0.894	37.0	5.096	14.99	45.6291	931.8	9.495	9.421	10.861	13.244	3.815	8.529	4.714	3.471
0:42:17	946.3	0.901	36.8	5.090	15.10	45.6887	935.4	9.520	9.445	10.885	13.281	3.828	8.555	4.726	3.469
0:42:27	948.7	0.906	36.7	5.084	15.19	45.7368	937.8	9.535	9.459	10.899	13.306	3.839	8.573	4.733	3.466
0:42:39	952.5	0.913	36.5	5.078	15.30	45.7962	941.6	9.561	9.485	10.925	13.347	3.855	8.601	4.746	3.462
0:42:49	955.3	0.918	36.3	5.072	15.39	45.8444	944.5	9.580	9.503	10.943	13.378	3.867	8.623	4.755	3.459
0:43:01	958.5	0.925	36.1	5.066	15.50	45.9045	947.7	9.600	9.522	10.962	13.411	3.881	8.646	4.765	3.456
0:43:11	961.9	0.930	36.0	5.061	15.59	45.9525	951.1	9.624	9.546	10.986	13.445	3.891	8.668	4.777	3.455
0:43:23	967.3	0.937	35.8	5.054	15.70	46.0132	956.4	9.665	9.587	11.027	13.500	3.905	8.702	4.797	3.457
0:43:33	970.7	0.942	35.6	5.049	15.79	46.0617	959.9	9.690	9.611	11.051	13.537	3.918	8.727	4.810	3.455
0:43:45	974.3	0.949	35.4	5.042	15.90	46.1234	963.5	9.714	9.634	11.074	13.572	3.930	8.751	4.821	3.453
0:43:55	976.8	0.954	35.3	5.036	15.99	46.1726	966.0	9.729	9.649	11.089	13.598	3.941	8.770	4.828	3.450
0:44:07	980.4	0.961	35.1	5.030	16.10	46.2350	969.6	9.751	9.671	11.111	13.631	3.952	8.791	4.839	3.449
0:44:17	983.1	0.966	35.0	5.024	16.19	46.2849	972.3	9.768	9.687	11.127	13.658	3.963	8.810	4.848	3.447
0:44:29	986.2	0.973	34.8	5.017	16.31	46.3472	975.4	9.786	9.705	11.145	13.687	3.974	8.831	4.856	3.444
0:44:39	988.9	0.979	34.7	5.012	16.40	46.3973	978.0	9.802	9.720	11.160	13.713	3.985	8.849	4.864	3.441
0:44:49	992.4	0.984	34.5	5.007	16.49	46.4473	981.6	9.827	9.745	11.185	13.747	3.994	8.871	4.876	3.442
0:45:01	995.7	0.991	34.4	5.000	16.60	46.5101	984.9	9.847	9.764	11.204	13.777	4.006	8.891	4.886	3.440
0:45:11	998.2	0.996	34.3	4.994	16.69	46.5606	987.4	9.861	9.777	11.217	13.798	4.013	8.906	4.893	3.438
0:45:23	1001.9	1.003	34.1	4.988	16.80	46.6240	991.0	9.884	9.800	11.240	13.831	4.023	8.927	4.904	3.438
0:45:33	1004.9	1.008	34.0	4.982	16.89	46.6751	994.1	9.904	9.819	11.259	13.860	4.033	8.947	4.914	3.437
0:45:45	1008.3	1.015	33.8	4.975	17.01	46.7388	997.5	9.924	9.839	11.279	13.892	4.045	8.968	4.923	3.434
0:45:55	1010.9	1.021	33.7	4.970	17.10	46.7904	1000.0	9.938	9.853	11.293	13.915	4.054	8.985	4.930	3.432

0:00:00	7.637658	-2.34E-02	84.97614
0:00:15	24.74141	-1.71E-02	86.21096
0:00:26	30.27494	-1.13E-02	86.88531
0:00:37	33.43855	-5.45E-03	87.23946
0:00:50	34.9913	9.09E-04	87.51885
0:01:01	35.43141	6.62E-03	87.7253
0:01:12	35.8876	1.27E-02	87.88203
0:01:23	36.57002	1.86E-02	88.01709
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0:01:46	38.2909	3.03E-02	88.17803
0:01:59	38.88925	0.036544	88.23641
0:02:11	39.99448	4.24E-02	88.30527
0:02:23	40.70657	4.87E-02	88.31538
0:02:34	35.75284	5.42E-02	88.35005
0:02:47	37.25615	6.02E-02	88.45369
0:02:59	38.99928	6.62E-02	88.43841
0:03:11	39.48884	7.23E-02	88.41638
0:03:24	39.74475	7.83E-02	88.41
0:03:36	39.88569	8.41E-02	88.36088
0:03:48	39.95739	8.99E-02	88.37244
0:04:01	42.50039	9.60E-02	88.3592
0:04:13	42.94421	0.101872	88.32224
0:04:27	44.31647	0.108234	88.29901
0:04:38	45.39944	0.113763	88.29323
0:04:50	46.53062	0.11974	88.26892
0:05:04	47.58639	0.125944	88.244
0:05:15	48.91785	0.131753	88.20608
0:05:26	50.232	0.13813	88.19488
0:05:38	51.42006	0.143965	88.14397
0:05:49	52.88256	0.149906	88.08631
0:06:00	54.35743	0.155811	88.02756
0:06:11	55.77666	0.16191	87.97568
0:06:21	56.98326	0.167333	87.92319
0:06:32	58.47791	0.173422	87.85915
0:06:43	60.05786	0.179612	87.7785
0:06:53	61.69715	0.185219	87.71266
0:07:04	63.36981	0.19143	87.63778
0:07:15	65.12408	0.197647	87.55532
0:07:25	66.75224	0.203391	87.47551
0:07:35	68.4892	0.209116	87.39294
0:07:46	70.38192	0.215695	87.30578
0:07:56	71.80363	0.221443	87.20563
0:08:06	73.56407	0.227038	87.12233
0:08:17	75.63111	0.23348	87.01074
0:08:27	77.0454	0.239073	86.84739
0:08:38	78.93689	0.24523	86.71714
0:08:48	80.8086	0.250773	86.6153
0:08:59	82.67413	0.257022	86.46568
0:09:09	84.80916	0.262799	86.31412
0:09:20	86.93183	0.269182	86.16269
0:09:31	88.84681	0.275197	86.01414
0:09:41	91.14255	0.281107	85.83924

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0:10:02	95.21976	0.292797	85.49628
0:10:13	97.17554	0.298918	85.59054
0:10:23	99.41689	0.304511	85.7498
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0:11:40	115.12	0.346373	85.21003
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0:12:46	128.3134	0.382201	84.4868
0:12:57	130.0949	0.387871	84.35391
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0:14:36	150.2213	0.442143	83.18409
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0:15:06	156.8032	0.459573	82.81538
0:15:16	158.5834	0.465457	82.73557
0:15:27	160.8754	0.471993	82.59063
0:15:37	162.7917	0.477472	82.46364
0:15:47	164.9428	0.483206	82.34819
0:15:58	167.1396	0.489473	82.2289
0:16:09	168.9705	0.495688	82.10973
0:16:19	171.0981	0.501552	81.9861
0:16:29	173.3036	0.507106	81.8821
0:16:40	175.5747	0.513389	81.75474
0:16:50	178.1992	0.519254	81.63219
0:17:00	180.291	0.524927	81.5265
0:17:12	181.9859	0.531549	81.38855
0:17:21	183.5189	0.536903	81.29165
0:17:33	185.8456	0.543104	81.18981
0:17:44	188.0449	0.549206	81.05884
0:17:55	189.966	0.555092	80.90861
0:18:06	191.9799	0.561192	80.75874
0:18:16	193.906	0.566796	80.65076
0:18:28	195.9051	0.572781	80.55181
0:18:39	197.9165	0.578798	80.41627
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0:19:00	201.8713	0.59079	80.21897

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0:19:55	212.1855	0.620517	79.58074
0:20:07	214.1919	0.626606	79.45964
0:20:18	216.0513	0.632588	79.32482
0:20:29	218.2605	0.638476	79.19216
0:20:41	220.2731	0.644379	79.08165
0:20:52	221.9359	0.650314	78.95285
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0:21:13	225.9031	0.662049	78.67514
0:21:25	228.0938	0.66821	78.56452
0:21:35	229.2583	0.674068	78.25539
0:21:45	231.5293	0.679892	78.30595
0:21:56	233.6396	0.68655	78.13935
0:22:06	235.1986	0.692288	77.98972
0:22:16	236.9825	0.698313	77.83576
0:22:26	239.0829	0.704311	77.67253
0:22:36	240.967	0.709907	77.51351
0:22:46	242.3318	0.715905	77.33969
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0:23:07	246.2038	0.728004	77.35028
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0:23:27	249.8558	0.739612	77.452
0:23:39	251.8944	0.746198	77.42058
0:23:49	253.5201	0.751929	77.36894
0:23:59	255.3584	0.75772	77.29394
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0:25:02	265.4537	0.793194	76.74972
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0:25:24	269.3566	0.805527	76.55014
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0:25:57	274.1101	0.823509	76.23066
0:26:07	276.0176	0.829053	75.9367
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0:27:23	287.3913	0.870937	75.48709
0:27:35	288.8662	0.876831	75.41005
0:27:46	290.5623	0.882776	75.3046
0:27:57	292.4835	0.888646	75.19879
0:28:09	294.2106	0.894637	75.10032
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0:28:31	297.7117	0.906554	74.94985
0:28:42	299.508	0.912829	74.83657
0:28:52	300.7677	0.918612	74.74689
0:29:02	302.2352	0.924335	74.67828
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0:30:35	314.9044	0.97845	73.92532
0:30:45	316.2445	0.984241	73.86237
0:30:55	317.3028	0.990224	73.76619
0:31:05	318.8988	0.995844	73.70371
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0:31:27	321.4678	1.00801	73.56949
0:31:37	323.3148	1.013913	73.49173
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0:01:45	57.18848	1.38E-02	85.52302
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0:03:52	77.46573	8.55E-02	86.07254
0:04:02	79.55502	9.10E-02	86.02242
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0:04:35	85.59666	0.109145	85.83482
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0:05:07	92.27127	0.127072	85.58317
0:05:17	94.44833	0.132857	85.49047
0:05:28	96.77993	0.138873	85.38763
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0:06:01	103.9466	0.157209	85.07739
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0:06:22	108.8954	0.168797	84.8493
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0:08:01	132.4252	0.222347	83.62006
0:08:12	135.438	0.228527	83.45993
0:08:24	138.1875	0.234665	83.308
0:08:35	140.8702	0.240848	83.1536
0:08:45	143.381	0.246386	83.00115
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0:09:06	149.3782	0.258262	82.68831
0:09:17	152.2933	0.264559	82.50722

0:09:27	155.0848	0.270419	82.33368
0:09:38	157.985	0.276566	82.16222
0:09:48	160.4934	0.282104	82.00013
0:09:59	163.6447	0.288468	81.78754
0:10:09	166.5116	0.293911	81.63014
0:10:20	169.1461	0.300148	81.42796
0:10:31	172.0995	0.306387	81.24504
0:10:41	174.7513	0.311781	81.11954
0:10:52	177.8927	0.317883	81.0935
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0:12:08	198.1674	0.359825	80.008
0:12:19	200.7525	0.365843	79.84292
0:12:30	203.9012	0.372061	79.66756
0:12:40	206.4034	0.37766	79.49779
0:12:51	209.5609	0.383873	79.34404
0:13:02	212.471	0.389851	79.19562
0:13:12	215.0956	0.395643	79.01466
0:13:22	217.834	0.4014	78.83201
0:13:34	220.5711	0.407606	78.66081
0:13:45	223.4862	0.413803	78.46983
0:13:55	225.8598	0.419269	78.31907
0:14:07	228.9616	0.425536	78.13355
0:14:18	231.8063	0.431755	77.9492
0:14:28	234.0414	0.437131	77.80418
0:14:39	236.7822	0.44318	77.63024
0:14:50	240.0151	0.449416	77.46894
0:15:02	242.5321	0.455513	77.31896
0:15:12	244.5868	0.461021	77.16209
0:15:23	247.6218	0.467116	76.98985
0:15:34	250.4788	0.473344	76.80707
0:15:46	252.9402	0.479518	76.66334
0:15:56	255.2335	0.485114	76.50021
0:16:07	258.2933	0.491484	76.32146
0:16:17	260.6682	0.497044	76.18503
0:16:28	263.4708	0.503222	76.03883
0:16:39	265.4612	0.509025	75.89041
0:16:50	268.4097	0.515334	75.71479
0:17:00	270.813	0.521008	75.57379
0:17:10	272.8911	0.526848	75.42837
0:17:21	275.3847	0.533255	75.25809
0:17:31	278.1193	0.538911	75.11801
0:17:43	280.823	0.545199	74.96295
0:17:53	282.7318	0.550979	74.82782
0:18:04	285.2204	0.557218	74.66717
0:18:14	287.6101	0.562693	74.54166
0:18:25	289.9998	0.568972	74.38934
0:18:35	292.2375	0.57464	74.24015

0:18:47	295.2354	0.580921	74.09746
0:18:57	297.3779	0.586568	73.97183
0:19:08	299.4474	0.592979	73.82238
0:19:18	301.685	0.598411	73.69063
0:19:29	304.4246	0.604656	73.55809
0:19:41	306.7537	0.610854	73.41163
0:19:51	308.5216	0.616346	73.30097
0:20:02	311.3341	0.622511	73.15803
0:20:12	313.5384	0.628195	73.02862
0:20:23	315.5596	0.634475	72.88606
0:20:35	317.8838	0.640804	72.74533
0:20:45	320.3514	0.646369	72.60863
0:20:56	322.327	0.652505	72.49016
0:21:06	324.1517	0.658117	72.3795
0:21:17	326.4833	0.664235	72.22015
0:21:29	329.2439	0.670528	72.08801
0:21:39	331.0674	0.675973	71.98035
0:21:50	333.1208	0.682303	71.85302
0:22:00	335.309	0.687906	71.72492
0:22:11	337.402	0.693982	71.61009
0:22:23	339.4925	0.700254	71.4799
0:22:33	341.049	0.705861	71.35401
0:22:44	343.5945	0.711975	71.22291
0:22:55	345.6096	0.718083	71.09364
0:23:05	347.2748	0.723769	71.00953
0:23:17	349.7189	0.730046	70.88742
0:23:27	351.5004	0.735788	70.75723
0:23:38	353.5848	0.741967	70.63824
0:23:48	355.072	0.74767	70.53721
0:23:59	357.5396	0.753903	70.39479
0:24:09	359.3643	0.75959	70.30782
0:24:20	361.3423	0.766044	70.19638
0:24:30	363.1226	0.771813	70.07439
0:24:40	365.2539	0.777639	69.96022
0:24:51	367.0588	0.784017	69.85724
0:25:01	368.5522	0.78967	69.75361
0:25:11	370.7355	0.795484	69.6354
0:25:22	372.5936	0.80179	69.5306
0:25:32	373.7025	0.807348	69.45249
0:25:43	375.892	0.81389	69.33024
0:25:53	377.7736	0.819551	69.24301
0:26:04	379.5389	0.825848	69.13938
0:26:14	380.9891	0.831618	69.01935
0:26:24	382.914	0.837279	68.92653
0:26:35	384.51	0.843442	68.83735
0:26:46	386.0182	0.849606	68.72617
0:26:56	387.6142	0.855345	68.61928
0:27:08	389.7777	0.861568	68.5137
0:27:19	391.009	0.867595	68.42075
0:27:29	392.5779	0.873295	68.31438
0:27:39	394.8044	0.878936	68.19656
0:27:50	396.2854	0.885169	68.10022

0:28:01	397.8703	0.891311	68.01052
0:28:11	399.4428	0.896915	67.88671
0:28:22	401.1452	0.903149	67.77775
0:28:33	402.9501	0.909182	67.67828
0:28:43	404.1505	0.914765	67.56762
0:28:54	406.2151	0.92104	67.54901
0:29:05	408.0782	0.927076	67.59744
0:29:15	409.5159	0.932656	67.5533
0:29:26	410.9883	0.93888	67.46243
0:29:38	413.0504	0.945138	67.43184
0:29:47	414.419	0.950607	67.35724
0:29:59	415.5934	0.956691	67.28381
0:30:10	417.3415	0.962842	67.19594
0:30:20	419.2812	0.968465	67.12121
0:30:31	420.6263	0.974686	67.04987
0:30:42	421.7278	0.980966	66.96368
0:30:52	423.8678	0.986492	66.88362
0:31:03	425.3191	0.992838	66.80355
0:31:13	426.5641	0.998535	66.75226
0:31:24	427.6433	1.004942	66.66568
0:31:34	429.7623	1.010722	66.5778
0:31:44	431.1741	1.016326	66.50854
0:31:55	432.0617	1.022541	66.41676
0:32:05	434.2277	1.028372	66.31756
0:32:16	435.7112	1.034702	66.25572
0:32:26	436.2935	1.040275	66.18932
0:32:37	438.0255	1.046512	66.1353
0:32:47	439.912	1.05232	66.08752
0:32:58	441.3004	1.058552	66.02854
0:33:08	442.2486	1.064244	65.96449
0:33:19	444.2872	1.070552	65.86151
0:33:29	445.7843	1.076169	65.79707

0:00:00	10.83583	-4.44E-03	70.10884
0:00:29	24.35244	2.30E-03	71.00998
0:00:51	26.07019	7.67E-03	71.15838
0:01:13	27.70388	1.36E-02	71.3534
0:01:35	29.46731	1.99E-02	71.56704
0:01:57	32.62627	2.59E-02	71.8814
0:02:19	54.71092	3.16E-02	74.64511
0:02:44	70.28396	3.81E-02	77.40314
0:03:06	78.31961	4.39E-02	78.86128
0:03:28	84.18188	4.99E-02	79.81152
0:03:50	88.85514	5.59E-02	80.43402
0:04:12	93.63377	6.20E-02	80.83288
0:04:34	98.06459	6.80E-02	81.42195
0:04:56	102.6111	7.39E-02	81.78768
0:05:18	106.9963	7.99E-02	81.98505
0:05:40	111.5587	8.59E-02	82.07152
0:06:02	116.2063	9.18E-02	82.07596
0:06:24	120.7157	9.77E-02	82.01644
0:06:45	125.6338	0.103694	81.98104
0:07:10	131.4669	0.110425	81.86089
0:07:32	136.3119	0.11594	81.34787
0:07:52	141.1399	0.121373	81.62671
0:08:16	146.6428	0.127803	81.38821
0:08:38	152.2358	0.13368	81.20589
0:09:00	157.8106	0.13949	81.00489
0:09:24	164.2929	0.145744	80.77669
0:09:46	169.9621	0.151566	80.53208
0:10:08	175.8019	0.157451	80.26854
0:10:30	181.7391	0.163301	80.01339
0:10:55	188.727	0.169525	79.72172
0:11:17	194.9901	0.175398	79.43222
0:11:41	201.6668	0.181557	79.11335
0:12:05	209.0598	0.187853	78.77586
0:12:27	215.5994	0.193394	78.45403
0:12:52	223.1551	0.199803	78.12314
0:13:14	229.7014	0.205514	77.76585
0:13:36	236.8642	0.211304	77.40967
0:14:00	244.2797	0.217718	77.02229
0:14:22	251.2963	0.223558	76.65544
0:14:44	258.3763	0.229413	76.28464
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0:15:31	273.5223	0.241729	75.4691
0:15:53	280.576	0.247524	75.05057
0:16:15	287.4385	0.253262	74.57147
0:16:39	295.5838	0.259631	74.05289
0:17:01	303.3886	0.265528	73.5585
0:17:23	310.9479	0.27134	73.57182
0:17:45	318.6455	0.277387	73.27053
0:18:07	325.9459	0.283298	72.87809
0:18:29	333.6788	0.289216	72.49971
0:18:51	341.4666	0.295162	72.12163
0:19:16	349.8415	0.301688	71.60966

0:19:38	357.0079	0.3076	71.21012
0:20:00	364.9108	0.313542	70.75027
0:20:22	372.6474	0.319417	70.32273
0:20:44	380.1574	0.325349	69.89174
0:21:06	388.0316	0.331263	69.49029
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0:21:51	403.1478	0.343093	68.61159
0:22:16	411.957	0.349518	68.13409
0:22:38	419.6412	0.355512	67.71722
0:23:00	427.3425	0.361326	67.30147
0:23:23	434.596	0.367185	66.86036
0:23:45	442.2028	0.373029	66.38465
0:24:10	451.3002	0.379506	66.02767
0:24:33	458.8839	0.385303	65.52674
0:24:55	466.1727	0.391208	65.08976
0:25:15	479.6546	0.397701	64.47313
0:25:28	486.9843	0.403368	64.03492
0:25:40	494.253	0.409015	63.59276
0:25:55	502.3484	0.415786	63.06753
0:26:07	509.5422	0.421449	62.65072
0:26:20	516.8494	0.427139	62.18464
0:26:35	524.871	0.433942	61.69653
0:26:48	532.0892	0.439716	61.2553
0:27:00	538.9096	0.445197	60.87439
0:27:12	545.629	0.450847	60.46801
0:27:27	553.8796	0.457658	59.95123
0:27:40	560.9218	0.463299	59.52739
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0:28:07	574.7594	0.475824	58.62531
0:28:20	581.1005	0.481546	58.21899
0:28:32	587.4227	0.487209	57.80169
0:28:45	594.1925	0.492868	57.41961
0:29:00	602.3537	0.499701	56.89234
0:29:12	608.8568	0.505411	56.55639
0:29:24	615.0595	0.511146	56.14847
0:29:37	621.2398	0.516889	55.75935
0:29:49	627.5638	0.522714	55.37351
0:30:04	634.6333	0.529747	54.88201
0:30:17	640.3001	0.535545	54.50801
0:30:29	646.3079	0.541363	54.11846
0:30:42	652.5747	0.547196	53.73354
0:30:54	659.1094	0.552992	53.35442
0:31:07	664.7987	0.558902	52.98486
0:31:19	670.6013	0.564673	52.59846
0:31:34	678.5486	0.571508	52.14933
0:31:47	684.6808	0.577288	51.78625
0:31:59	690.5656	0.583016	51.41477
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0:32:27	702.6093	0.595605	50.52935
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0:32:51	714.0671	0.606917	49.73404
0:33:04	719.7734	0.612569	49.49973

0:33:19	727.4192	0.619404	49.36935
0:33:31	733.3497	0.625055	49.08755
0:33:44	738.584	0.630654	48.81741
0:33:59	745.2862	0.637409	48.44328
0:34:11	751.0693	0.64309	48.14822
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0:34:39	762.8938	0.655457	47.44851
0:34:51	768.3357	0.661108	47.16363
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0:35:44	791.6106	0.684791	45.86862
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0:36:08	805.2935	0.697356	45.02921
0:36:18	810.339	0.702539	44.74272
0:36:30	816.4071	0.708966	44.40874
0:36:43	821.3484	0.715559	44.06391
0:36:52	826.1057	0.720889	43.77922
0:37:05	831.5038	0.727449	43.47256
0:37:14	835.6825	0.732782	43.20316
0:37:27	840.9563	0.73941	42.86333
0:37:36	845.9719	0.744827	42.58986
0:37:49	851.9895	0.75155	42.28351
0:37:58	855.5511	0.757004	42.03564
0:38:08	859.4258	0.762575	41.78807
0:38:20	864.8239	0.769369	41.50658
0:38:30	868.1022	0.774885	41.26407
0:38:40	871.4311	0.780411	41.01773
0:38:52	875.9113	0.787332	40.74667
0:39:02	879.5314	0.792803	40.54758
0:39:12	882.9169	0.798306	40.32184
0:39:24	887.6608	0.80518	40.03826
0:39:34	891.1335	0.810576	39.85779
0:39:46	895.1732	0.81738	39.58919
0:39:56	898.2481	0.822822	39.37974
0:40:05	902.1003	0.828272	39.16659
0:40:18	906.7747	0.835097	38.92297
0:40:27	910.0013	0.840495	38.7348
0:40:40	914.0258	0.847281	38.50481
0:40:49	917.2609	0.852642	38.32595
0:41:02	920.6952	0.859378	38.10619
0:41:11	924.1666	0.864728	37.9372
0:41:24	929.4381	0.871354	37.72325
0:41:33	933.2628	0.876744	37.5484
0:41:43	935.8845	0.882152	37.37749
0:41:55	939.2682	0.888791	37.16897
0:42:05	942.5965	0.894186	37.01058
0:42:17	946.2738	0.900836	36.83061
0:42:27	948.6744	0.906185	36.67648
0:42:39	952.4626	0.912781	36.45803
0:42:49	955.3237	0.918119	36.28657
0:43:01	958.5088	0.924759	36.09636

0:43:11	961.906	0.930054	35.95259
0:43:23	967.2633	0.93673	35.76645
0:43:33	970.7268	0.942052	35.58741
0:43:45	974.3249	0.948811	35.41638
0:43:55	976.8449	0.954182	35.25972
0:44:07	980.3943	0.960978	35.10948
0:44:17	983.1348	0.966397	34.96436
0:44:29	986.2279	0.973153	34.80091
0:44:39	988.8515	0.978572	34.6545
0:44:49	992.4423	0.98396	34.52387
0:45:01	995.7401	0.990728	34.36746
0:45:11	998.1925	0.99615	34.26106
0:45:23	1001.859	1.00294	34.12599
0:45:33	1004.935	1.008404	33.9863
0:45:45	1008.34	1.015188	33.82187
0:45:55	1010.876	1.020674	33.68809



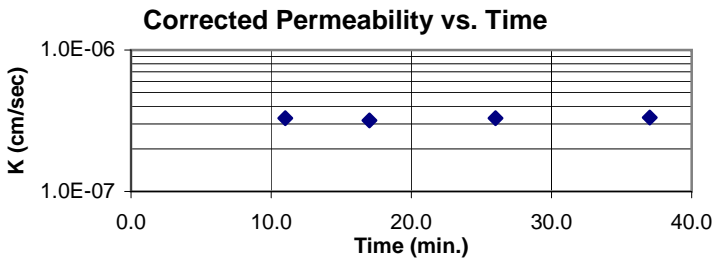
Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

Project Name John Siever Fossil Plant Project No. 175569038
 Source JS-36-SV, 41.5'-42.0' Test ID 1012
 Visual Classification Lean Clay (CL), gray, moist, soft Prepared By KDG
 Undisturbed XX Specific Gravity 2.69 ASTM D854-A Date 7-7-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____
 Permeant: De-aired tap water
 Selection and Preparation Comments: _____

Specimens (if compacted) were compacted in a Proctor Mold as follows: The Maximum Dry Density was converted to Wet Density, this mass was divided by 4 (layers) and 3 of the 4 layers were compacted into the mold using a Proctor Hammer using 19 blows per layer. The density was varied by reducing the height of the drop by the amount listed beside "Compacted". The specimen was trimmed from the bottom two layers.

	Initial Specimen Data	After Consolidation Data	After Test Data	Final Pressures (psi)	
Height (in.)	1.3935	1.3227	1.3225	Chamber	75
Diameter (in.)	2.7763		2.7751	Influent	70
Moisture Content (%)	32.0		28.8	Effluent	65
Dry Unit Weight (pcf)	90.1		95.0	Applied Head Difference (psi)	5
Void Ratio	0.864		0.768	Back Pressure Saturated to (psi)	65
Degree of Saturation (%)	99.6		101.0	Maximum Effective Consolidation Stress (psi)	10
Trimmings MC (%)	31.3			Minimum Effective Consolidation Stress (psi)	5

Date	Clock (24H:M)	Temp. °F	Bottom Head	Top Head	Test Time (sec)	Hydraulic Conductivity			
						k (m/s)	k (cm/s)	k @ 20°C (m/s)	k @ 20°C (cm/s)
7-9-09	11:23	73.0	17.28	7.95	0	---	---	---	---
7-9-09	11:34	73.0	16.98	8.24	6.60E+02	3.5E-09	3.5E-07	3.3E-09	3.3E-07
7-9-09	11:40	73.0	16.82	8.39	3.60E+02	3.4E-09	3.4E-07	3.2E-09	3.2E-07
7-9-09	11:49	73.0	16.59	8.64	5.40E+02	3.5E-09	3.5E-07	3.3E-09	3.3E-07
7-9-09	12:00	73.0	16.31	8.95	6.60E+02	3.6E-09	3.6E-07	3.3E-09	3.3E-07



A gradient of approximately 99 was used for this test. This gradient exceeds ASTM guidelines for maximum gradient, but was used to achieve the requestors desired test duration. Examination of the sample shows no signs of material loss or clogging that may affect test results.

Average Hydraulic Conductivity @ 20°C (last 4 determinations) m/s 3.27E-09 cm/s 3.27E-07
 Average Hydraulic Conductivity @ 20°C (last run) m/s 3.27E-09 cm/s 3.27E-07

Reviewed by: _____



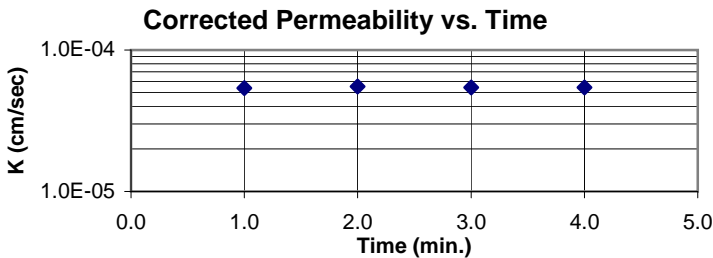
Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

Project Name John Siever Fossil Plant Project No. 175569038
 Source JS-45-SV, 30.6'-31.5' Test ID 1020
 Visual Classification Silt (ML), (fly ash), gray, wet, very soft Prepared By KDG
 Undisturbed XX Specific Gravity 2.32 ASTM D854-A Date 7-7-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____
 Permeant: De-aired tap water
 Selection and Preparation Comments: _____

Specimens (if compacted) were compacted in a Proctor Mold as follows: The Maximum Dry Density was converted to Wet Density, this mass was divided by 4 (layers) and 3 of the 4 layers were compacted into the mold using a Proctor Hammer using 19 blows per layer. The density was varied by reducing the height of the drop by the amount listed beside "Compacted". The specimen was trimmed from the bottom two layers.

	Initial Specimen Data	After Consolidation Data	After Test Data	Final Pressures (psi)
Height (in.)	1.3771	1.1830	1.1832	Chamber <u>71</u>
Diameter (in.)	2.8013		2.8345	Influent <u>66</u>
Moisture Content (%)	60.0		51.5	Effluent <u>65</u> Applied Head Difference (psi) <u>1</u>
Dry Unit Weight (pcf)	57.5		65.4	Back Pressure Saturated to (psi) <u>65</u>
Void Ratio	1.519		1.216	Maximum Effective Consolidation Stress (psi) <u>6</u>
Degree of Saturation (%)	91.6		98.3	Minimum Effective Consolidation Stress (psi) <u>5</u>
Trimmings MC (%)	53.0			

Date	Clock (24H:M)	Temp. °F	Bottom Head	Top Head	Test Time (sec)	Hydraulic Conductivity			
						k (m/s)	k (cm/s)	k @ 20°C (m/s)	k @ 20°C (cm/s)
7-9-09	8:22	73.0	15.32	10.12	0	---	---	---	---
7-9-09	8:23	73.0	14.30	11.08	6.00E+01	5.8E-07	5.8E-05	5.4E-07	5.4E-05
7-9-09	8:24	73.0	13.39	12.05	6.00E+01	5.9E-07	5.9E-05	5.5E-07	5.5E-05
7-9-09	8:25	73.0	12.54	12.92	6.00E+01	5.8E-07	5.8E-05	5.4E-07	5.4E-05
7-9-09	8:26	73.0	11.68	13.65	6.00E+01	5.8E-07	5.8E-05	5.4E-07	5.4E-05

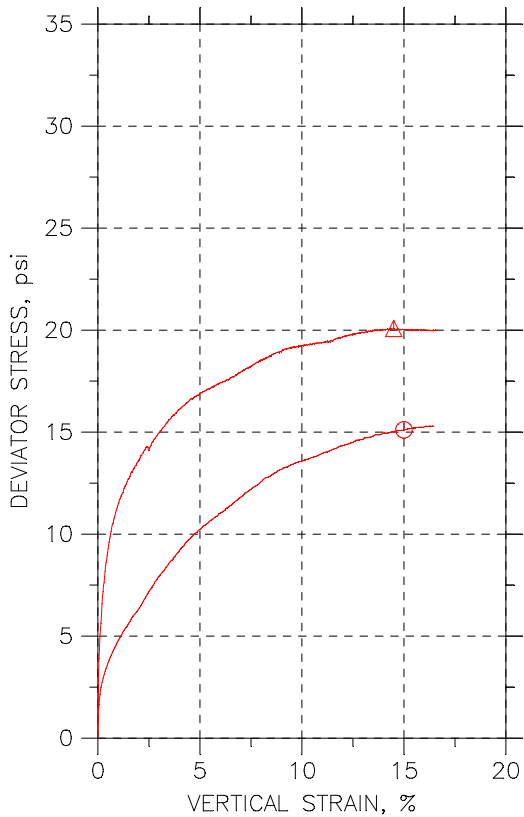
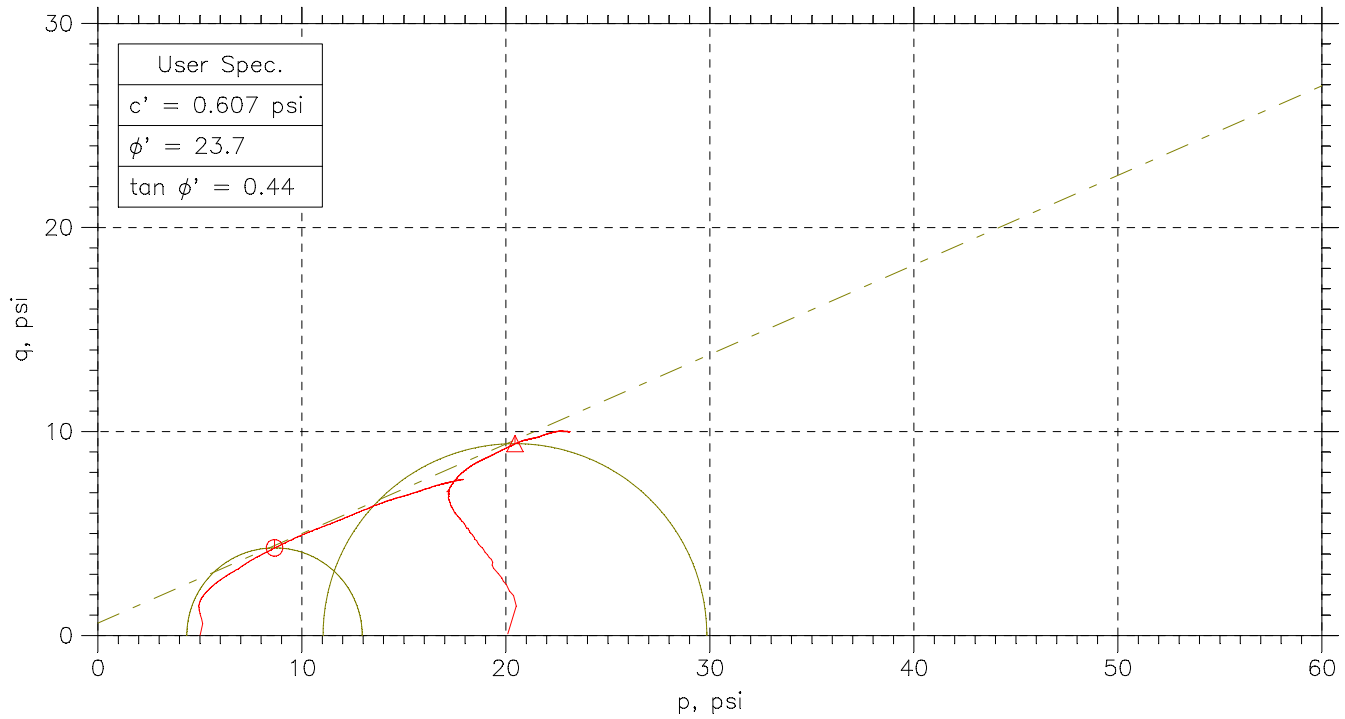


A gradient of approximately 100.2 was used for this test. This gradient exceeds ASTM guidelines for maximum gradient, but was used to achieve the requestors desired test duration. Examination of the sample shows no signs of material loss or clogging that may affect test results.


Average Hydraulic Conductivity @ 20°C (last 4 determinations) m/s 5.44E-07 cm/s 5.44E-05
 Average Hydraulic Conductivity @ 20°C (last run) m/s 5.44E-07 cm/s 5.44E-05

Reviewed by: _____

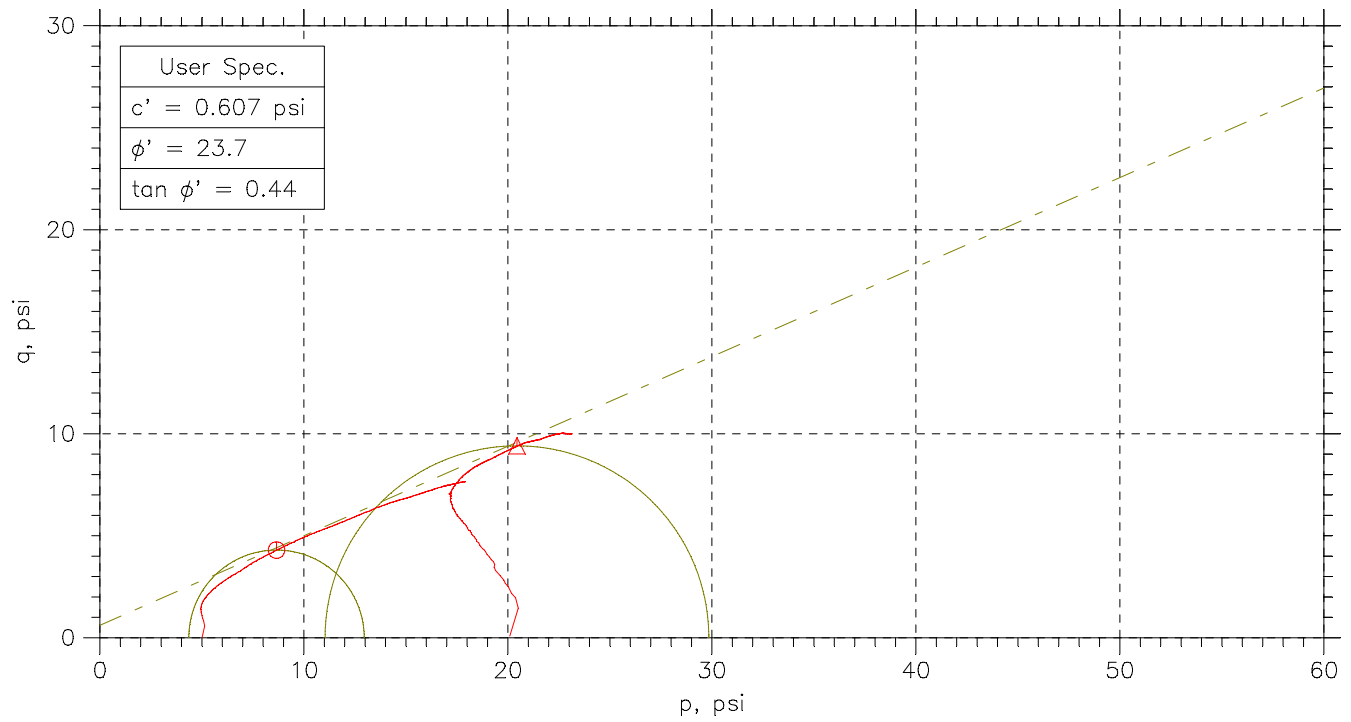
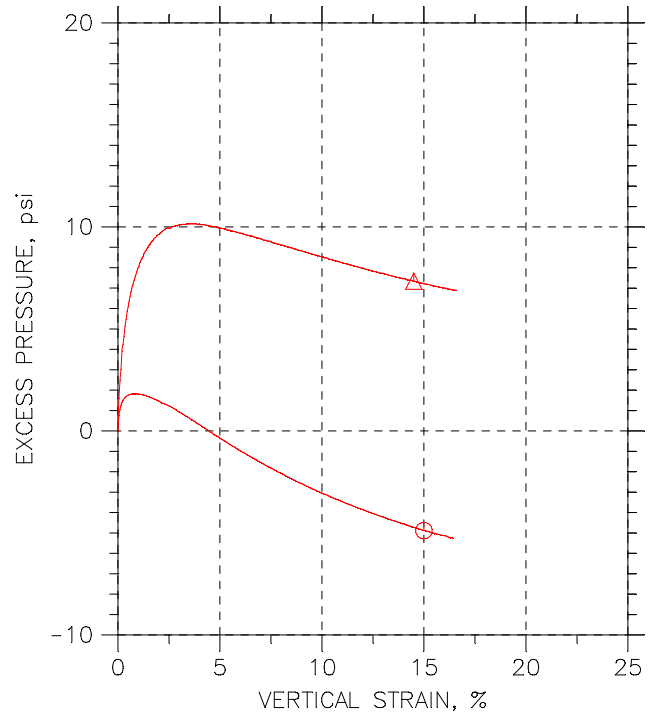
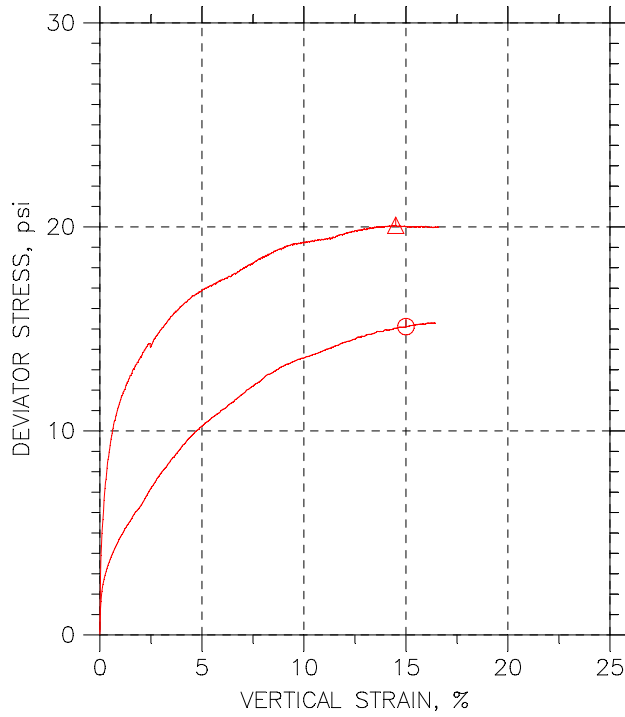
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙	△		
Sample No.	JP 4A	JP 4A		
Test No.	CU-3-1	CU-3-3		
Depth	10.1-10.7	20-20.6		
Initial	Diameter, in	2.01	2	
	Height, in	4.1	4.11	
	Water Content, %	15.2	24.0	
	Dry Density, pcf	111.6	96.5	
	Saturation, %	80.4	86.8	
Before Shear	Void Ratio	0.511	0.747	
	Water Content, %	21.7	25.6	
	Dry Density, pcf	106.3	99.69	
	Saturation*, %	100.0	100.0	
	Void Ratio	0.585	0.691	
	Back Press., psi	137	113	
	Ver. Eff. Cons. Stress, psi	4.994	20.01	
	Shear Strength, psi	7.556	10.04	
	Strain at Failure, %	15	14.5	
	Strain Rate, %/min	0.016	0.016	
	B-Value	0.95	0.95	
	Estimated Specific Gravity	2.7	2.7	
	Liquid Limit	---	---	
	Plastic Limit	---	---	

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: ---				
	Sample Type: UD				
	Description: Moist, yellow and brown clay with sand and gravel				
Remarks: System B					

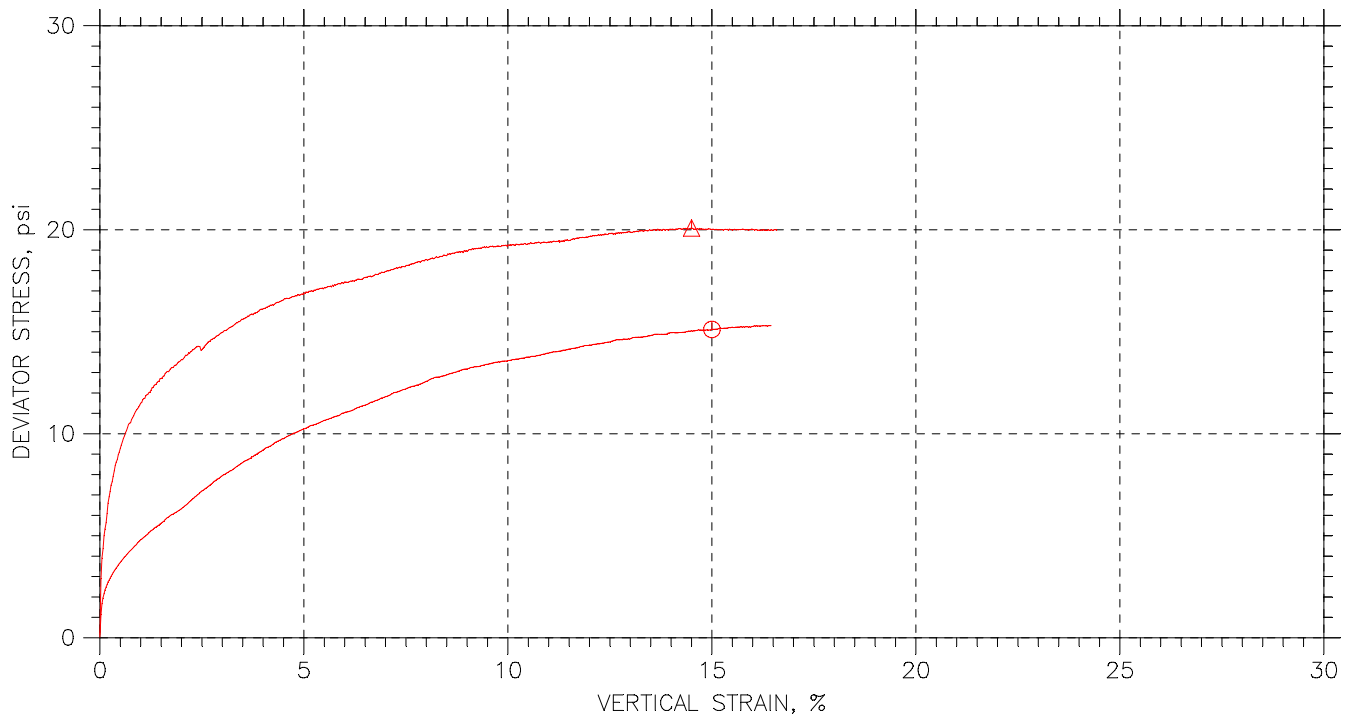
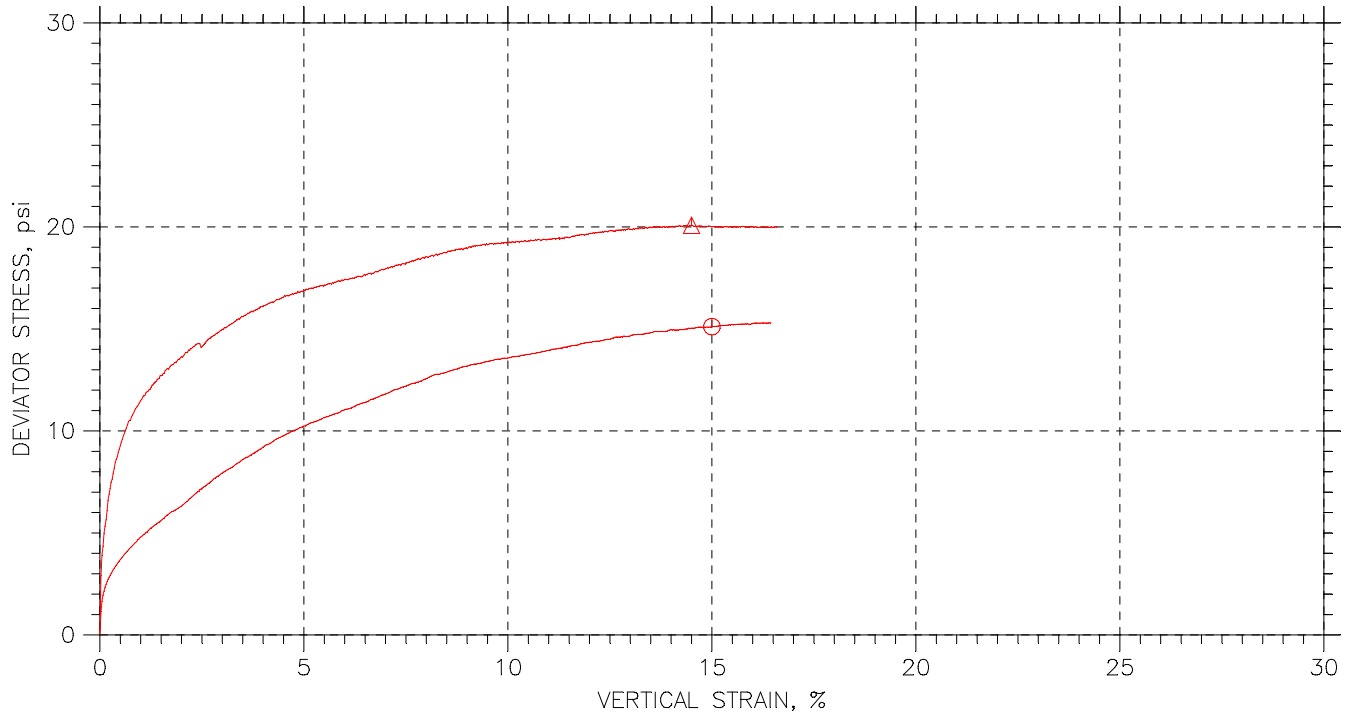
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JP 4A	CU-3-1	10.1-10.7	md	09/20/09	jdt		9326-CU-3-1n.dat
△	JP 4A	CU-3-3	20-20.6	md	09/20/09	jdt		9326-CU-3-3n.dat

<p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: UD			
	Description: Moist, yellow and brown clay with sand and gravel					
	Remarks: System B					

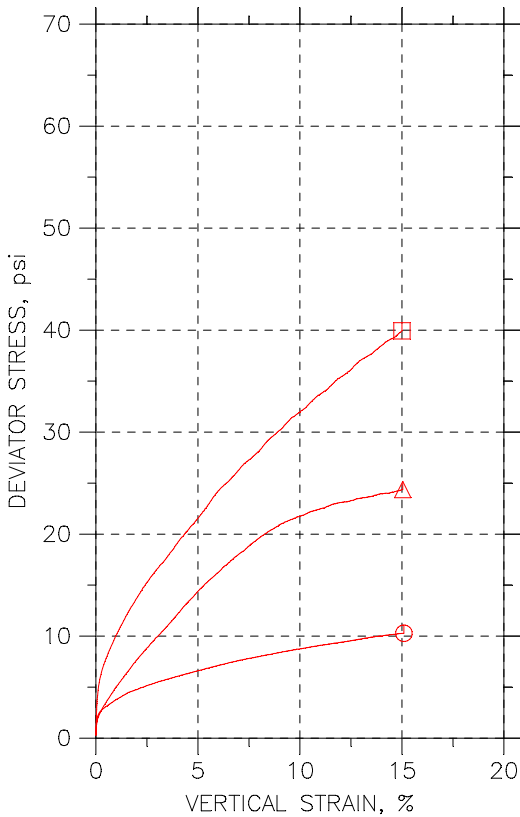
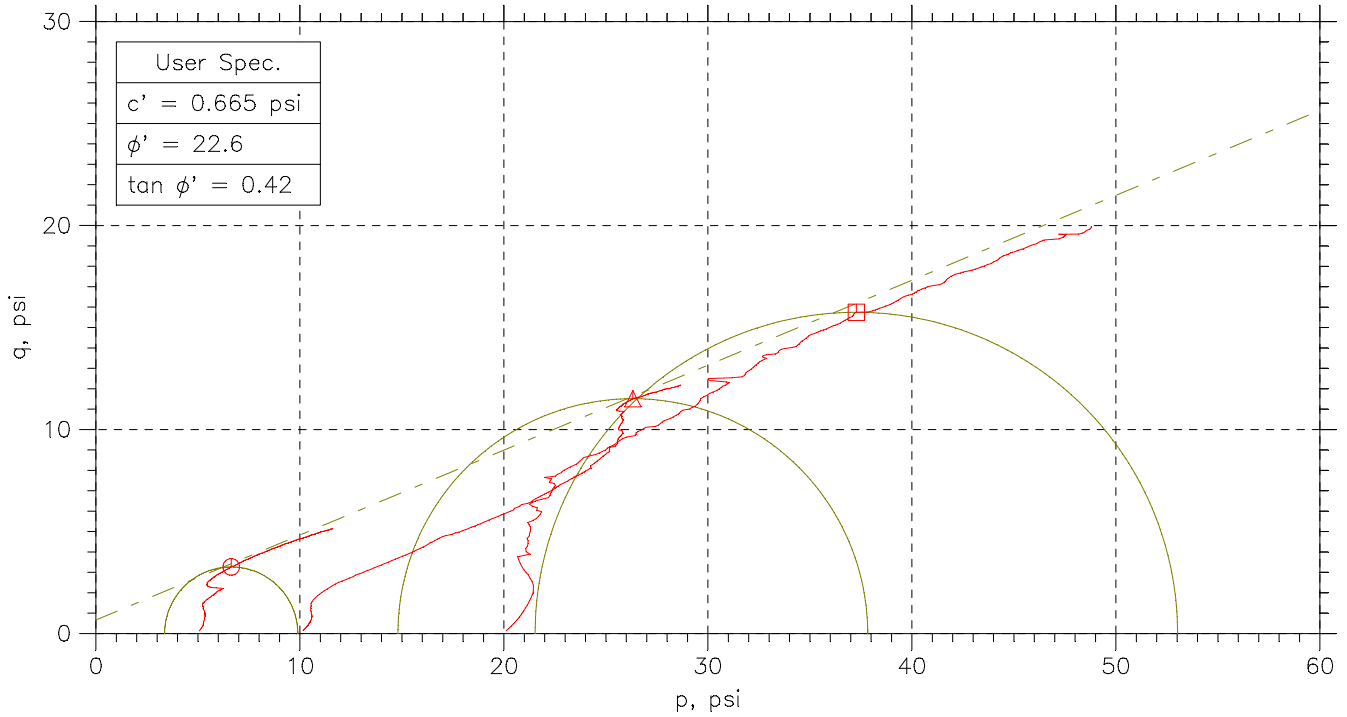
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JP 4A	CU-3-1	10.1-10.7	md	09/20/09	jdt		9326-CU-3-1n.dat
△	JP 4A	CU-3-3	20-20.6	md	09/20/09	jdt		9326-CU-3-3n.dat

 <p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: UD			
	Description: Moist, yellow and brown clay with sand and gravel					
	Remarks: System B					

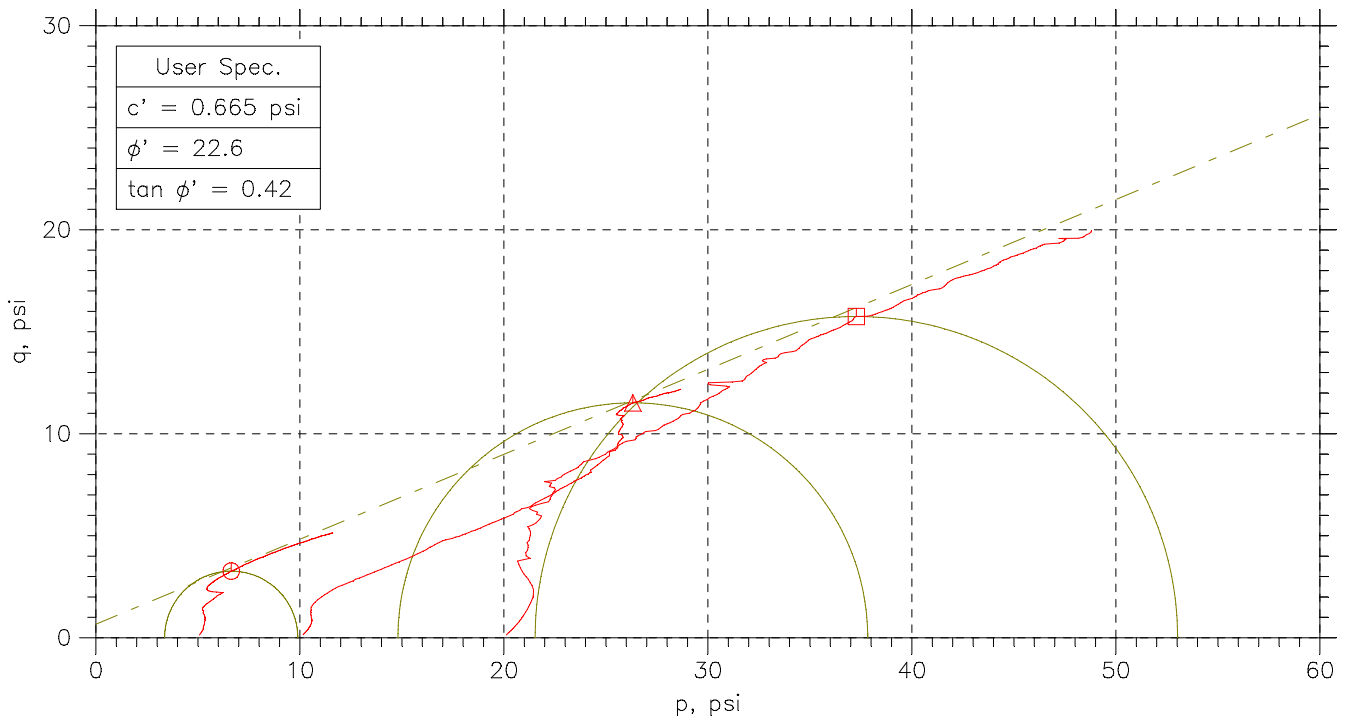
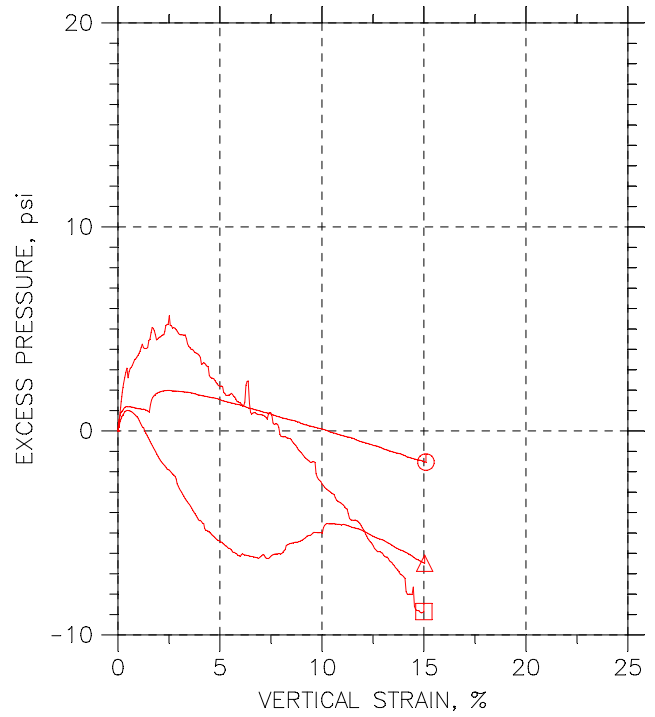
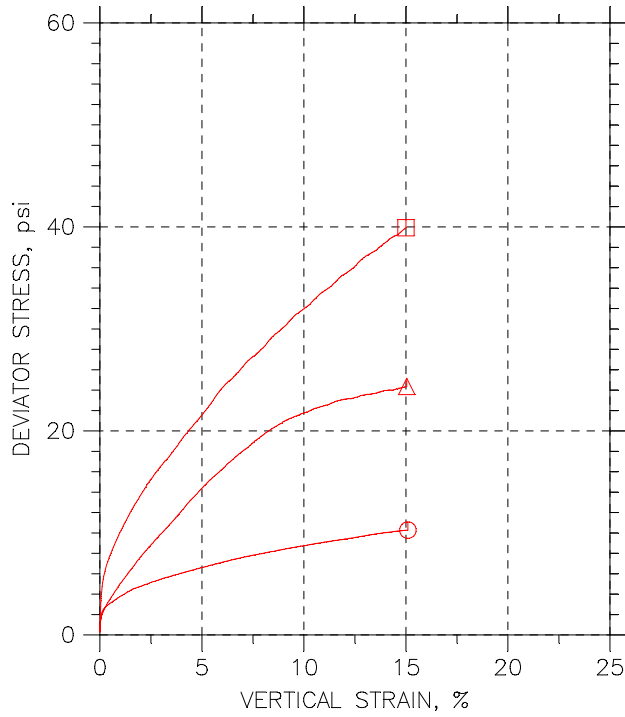
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	⊙	△	□	
Sample No.	JP-4	JP-4	JP-4	
Test No.	JP4-1.1	JP4-1.2	JP4-1.3	
Depth	---	25.7-30'	25.7-30'	
Initial	Diameter, in	2.834	2.881	2.845
	Height, in	6.176	6.09	6.011
	Water Content, %	18.9	18.7	18.8
	Dry Density, pcf	106.4	106.4	106.7
	Saturation, %	87.2	86.3	87.3
Before Shear	Void Ratio	0.584	0.584	0.58
	Water Content, %	21.8	20.2	19.7
	Dry Density, pcf	106.1	109.	110.1
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.588	0.546	0.531
	Back Press., psi	146.7	139.6	131
Ver. Eff. Cons. Stress, psi	4.95	10.01	19.98	
Shear Strength, psi	5.139	12.18	19.96	
Strain at Failure, %	15.1	15	15	
Strain Rate, %/min	0.027	0.027	0.027	
B-Value	0.97	0.97	0.95	
Estimated Specific Gravity	2.7	2.7	2.7	
Liquid Limit	43	43	43	
Plastic Limit	19	19	19	

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: JP-4				
	Sample Type: Remolded				
	Description: Brown lean Clay				
Remarks: 2054					

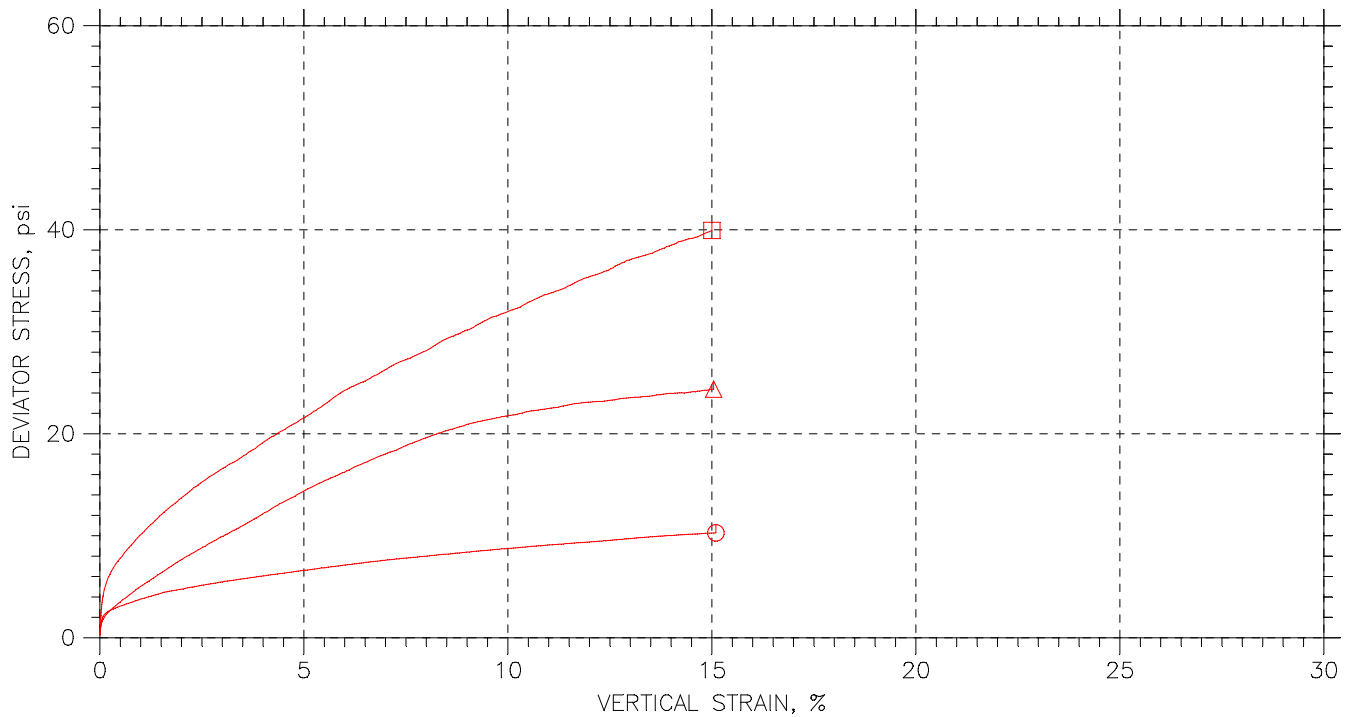
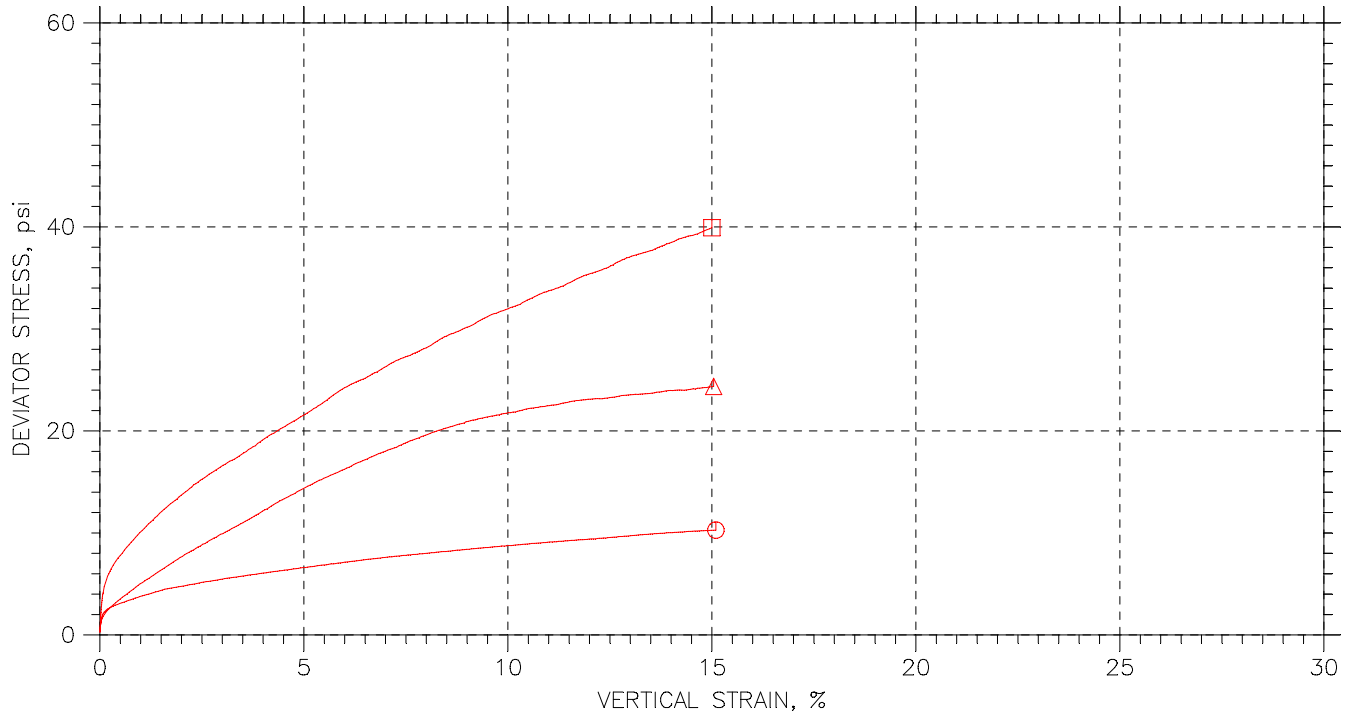
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	JP-4	JP4-1.1	---	MM	9/22/09	GT		1490-JP4-1.1.dat
△	JP-4	JP4-1.2	25.7-30'	MM	9/23/09	CA		1490-JP4-1.2.dat
□	JP-4	JP4-1.3	25.7-30'	MM	9/23/09	GT		1490-JP4-1.3.dat

 <p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JP-4		Sample Type: Remolded			
	Description: Brown lean Clay					
	Remarks: 2054					

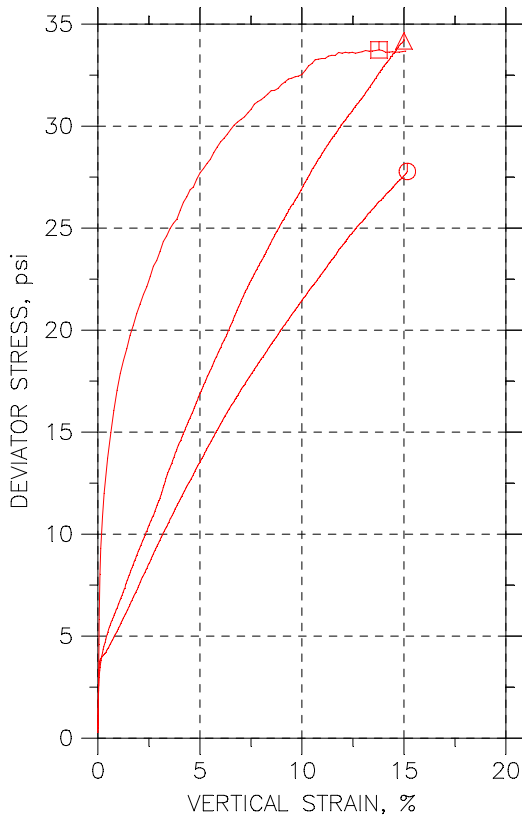
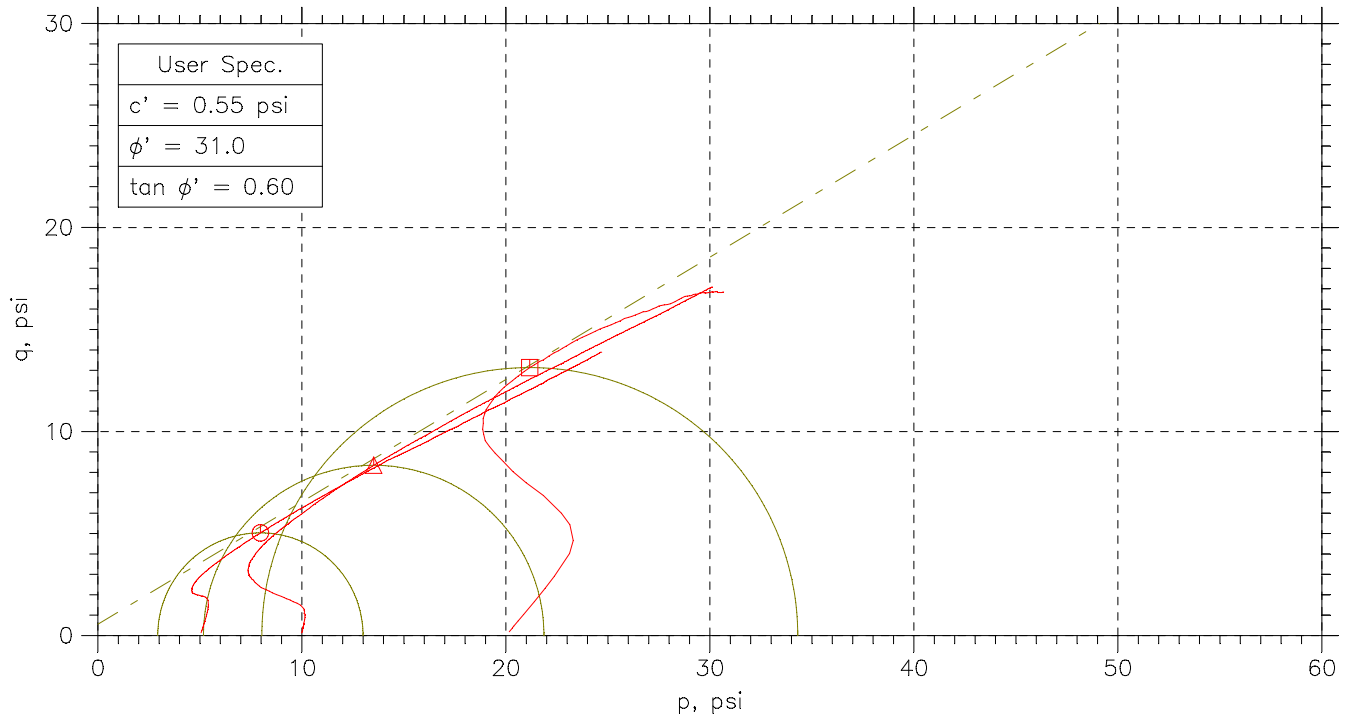
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JP-4	JP4-1.1	---	MM	9/22/09	GT		1490-JP4-1.1.dat
△	JP-4	JP4-1.2	25.7-30'	MM	9/23/09	CA		1490-JP4-1.2.dat
□	JP-4	JP4-1.3	25.7-30'	MM	9/23/09	GT		1490-JP4-1.3.dat

 <p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JP-4		Sample Type: Remolded			
	Description: Brown lean Clay					
	Remarks: 2054					

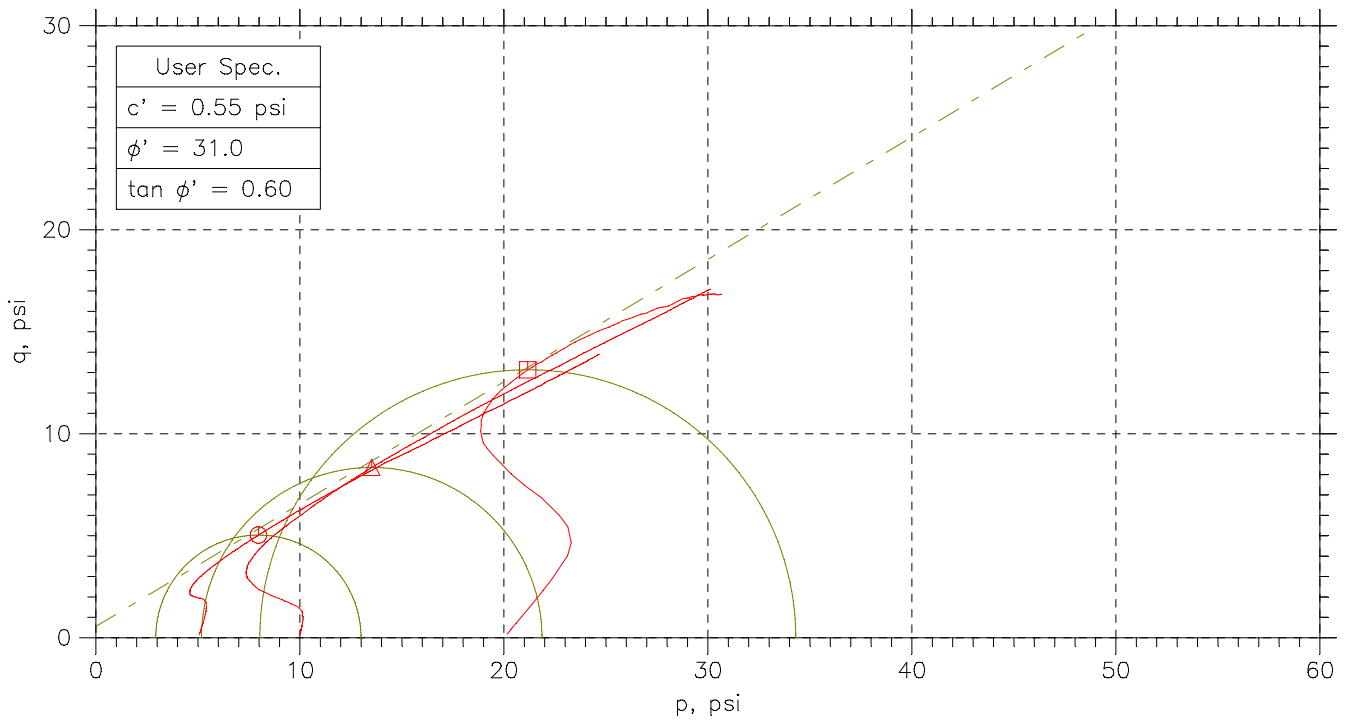
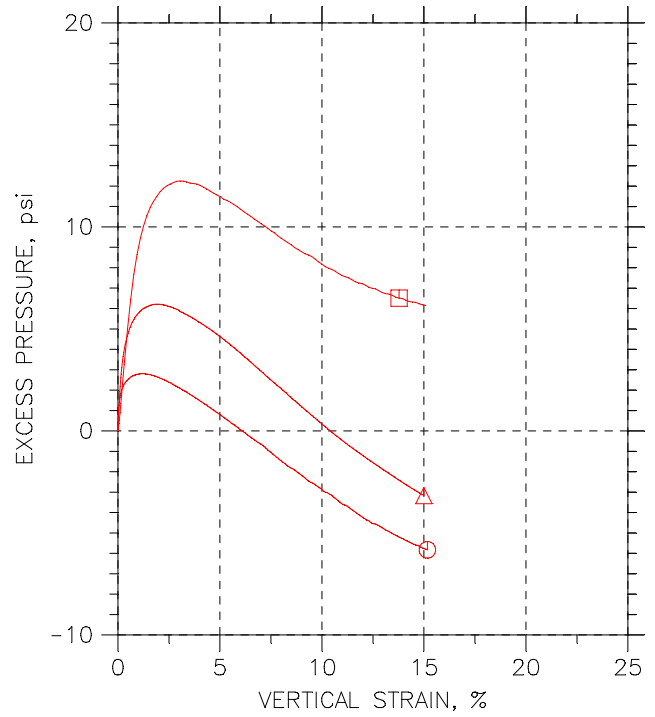
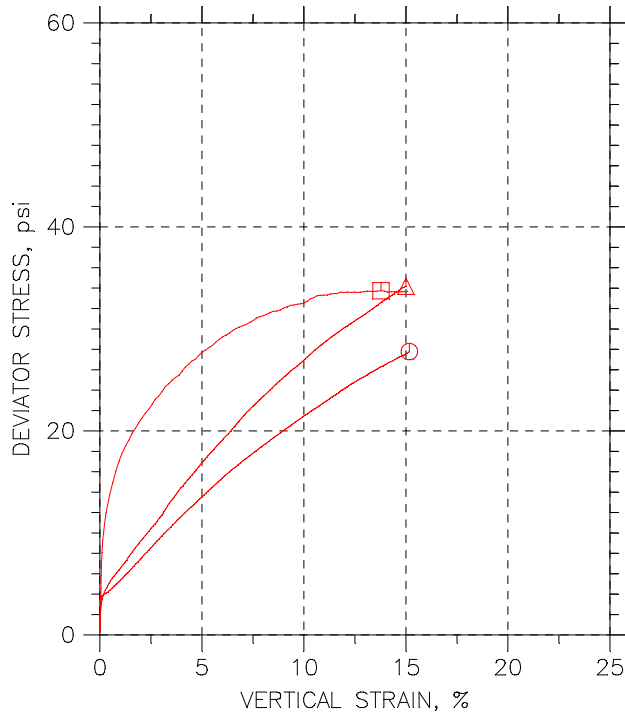
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	⊙	△	□	
Sample No.	JS-60A	JS-60A	JS-60A	
Test No.	JS60A-1.1	JS60A-1.2	JS60A-1.3	
Depth	13.5-21'	13.5-21'	13.5-21'	
Initial	Diameter, in	2.842	2.846	2.855
	Height, in	5.982	5.953	6.048
	Water Content, %	17.7	17.6	17.7
	Dry Density, pcf	109.2	109.2	109.3
	Saturation, %	87.9	87.6	88.4
Before Shear	Void Ratio	0.543	0.544	0.542
	Water Content, %	18.4	18.3	18.0
	Dry Density, pcf	112.5	112.8	113.3
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.498	0.494	0.487
	Back Press., psi	146.5	133.9	35.01
	Ver. Eff. Cons. Stress, psi	4.927	9.868	19.98
	Shear Strength, psi	13.89	17.09	16.87
	Strain at Failure, %	15.2	15	13.8
	Strain Rate, %/min	0.016	0.016	0.016
	B-Value	0.95	0.95	0.95
	Estimated Specific Gravity	2.7	2.7	2.7
	Liquid Limit	34	34	34
	Plastic Limit	17	17	17

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: JS-60A				
	Sample Type: Remolded				
	Description: Brown Lean clay with sand				
Remarks: Remold to 95% maximum density + 2 water optimum					

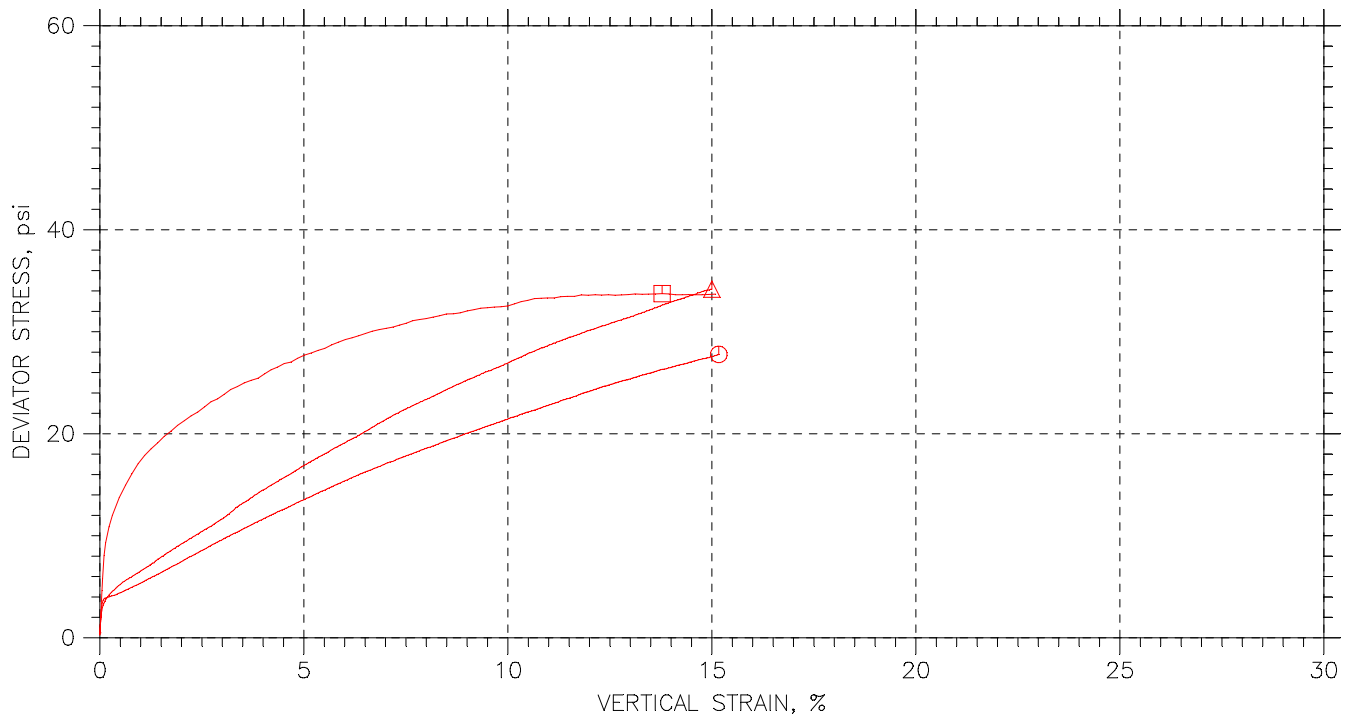
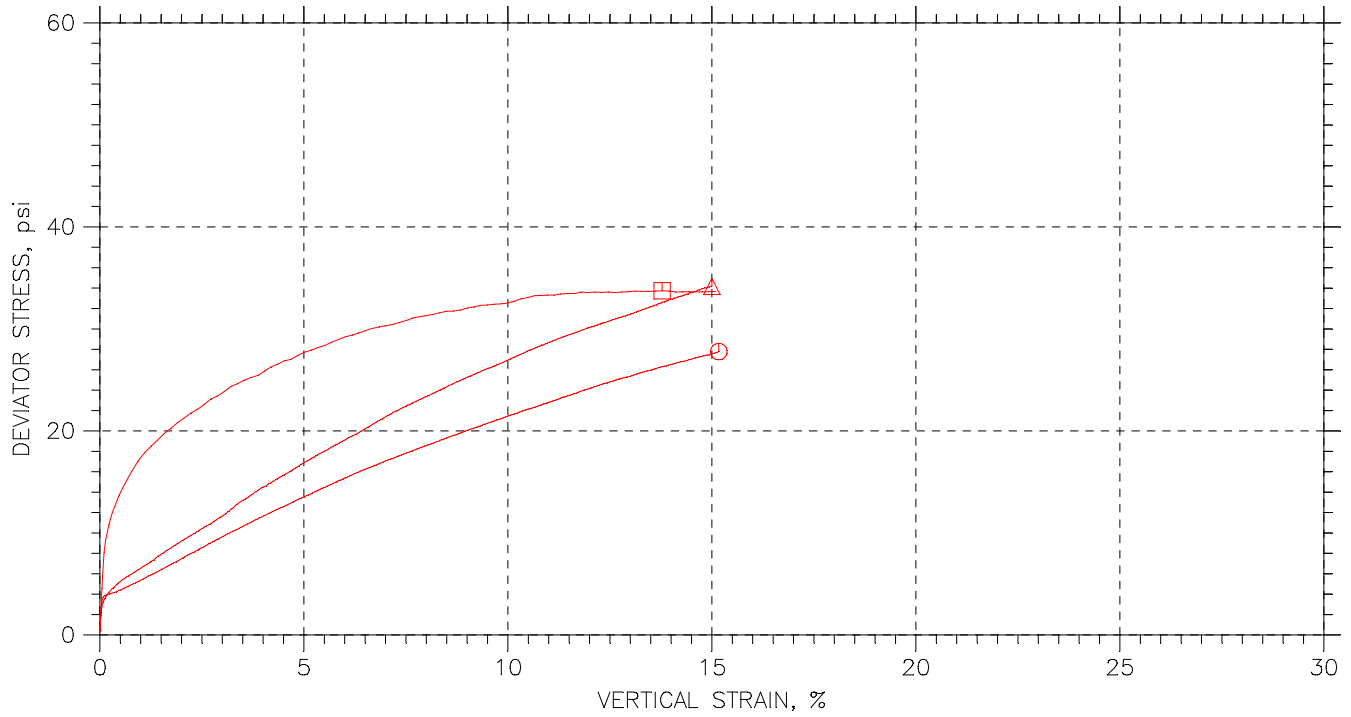
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	JS-60A	JS60A-1.1	13.5-21'	MM	9/22/09	GT		1490-JS60A-1.1.dat
△	JS-60A	JS60A-1.2	13.5-21'	MM	9/22/09	GT		1490-JS60A-1.2.dat
□	JS-60A	JS60A-1.3	13.5-21'	MM	9/22/09	GT		1490-JS-60A-1.3.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-60A		Sample Type: Remolded			
	Description: Brown Lean clay with sand					
	Remarks: Remold to 95% maximum density + 2 water optimum					

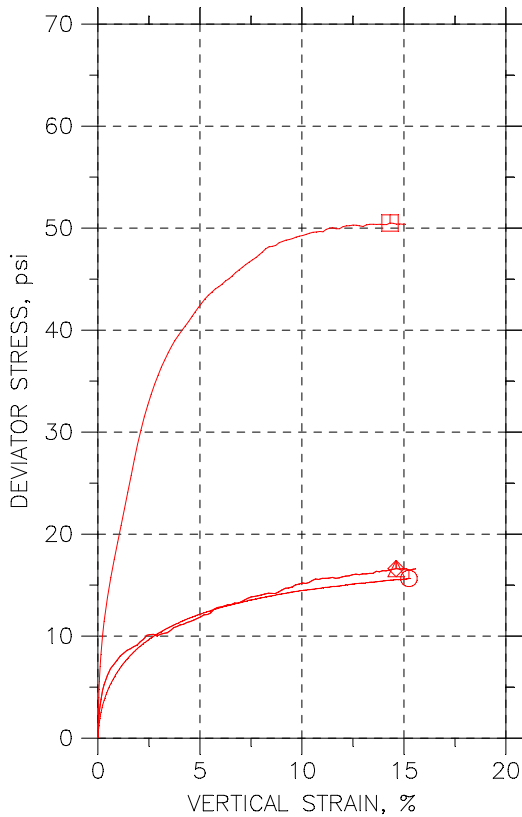
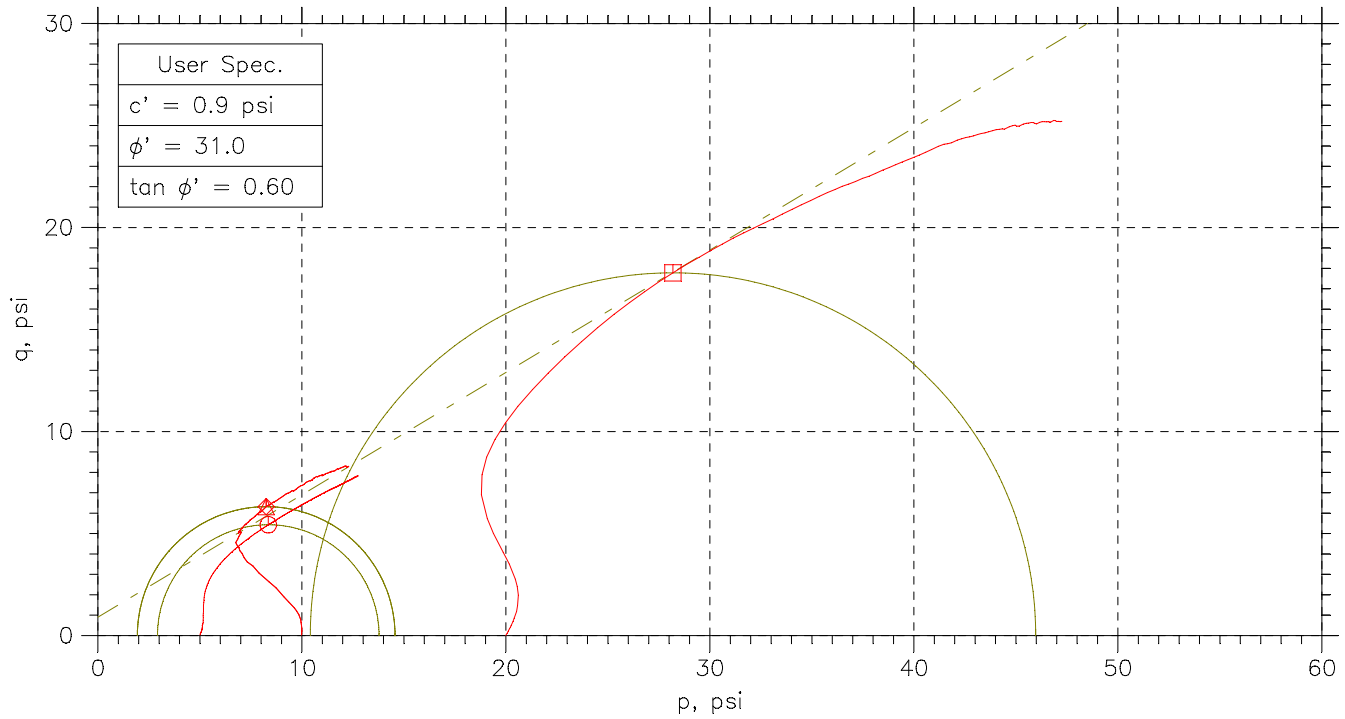
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JS-60A	JS60A-1.1	13.5-21'	MM	9/22/09	GT		1490-JS60A-1.1.dat
△	JS-60A	JS60A-1.2	13.5-21'	MM	9/22/09	GT		1490-JS60A-1.2.dat
□	JS-60A	JS60A-1.3	13.5-21'	MM	9/22/09	GT		1490-JS-60A-1.3.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-60A		Sample Type: Remolded			
	Description: Brown Lean clay with sand					
	Remarks: Remold to 95% maximum density + 2 water optimum					

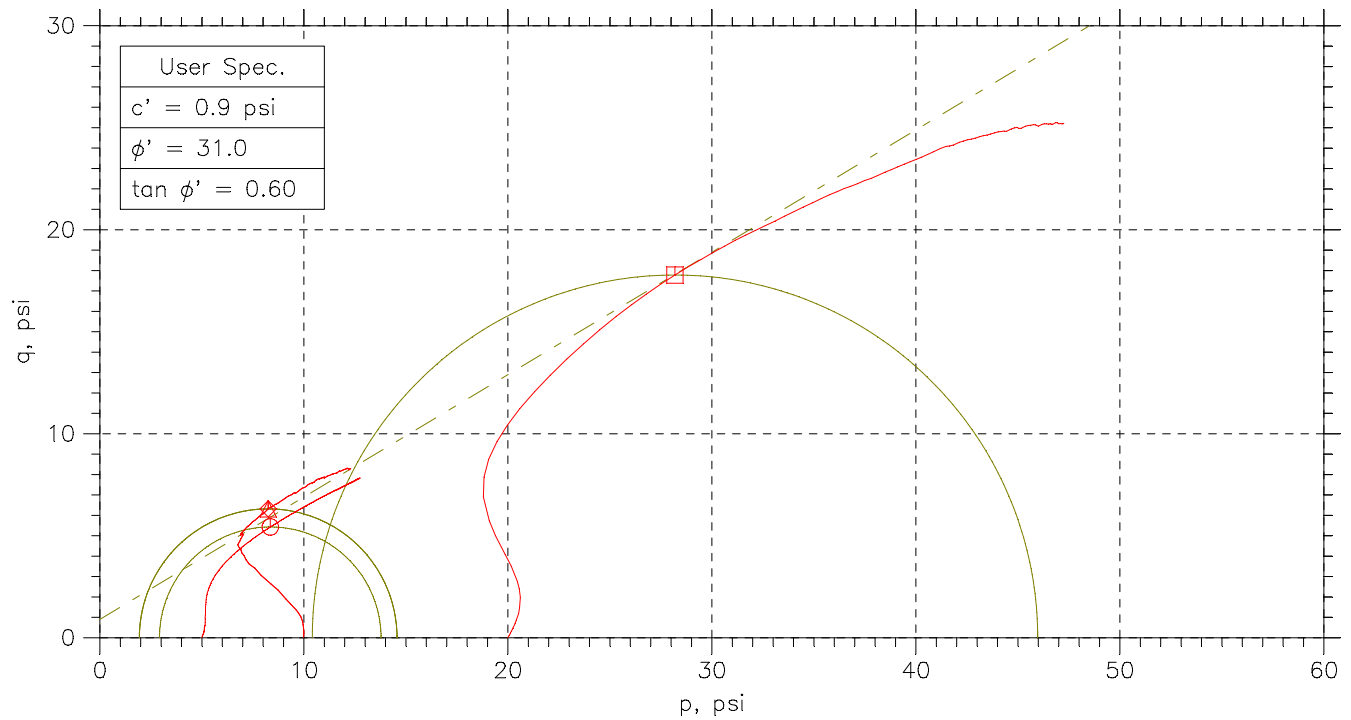
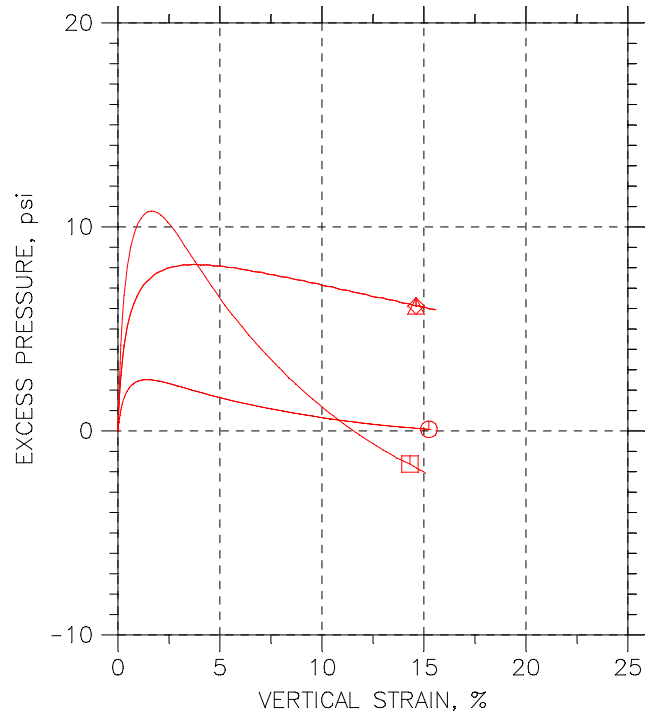
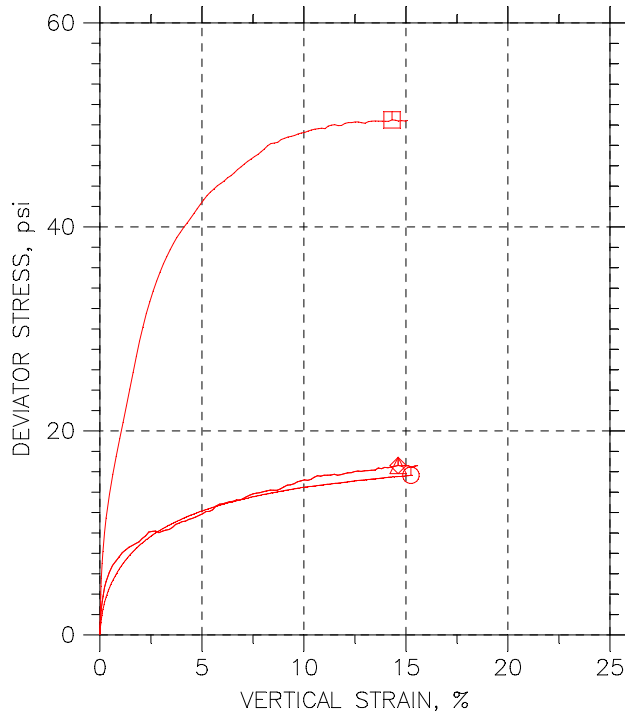
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙	△	□	◇	
Sample No.	ST-5	ST-1	ST-1	ST-1	
Test No.	28.1	28.4	28.3	28.4	
Depth	23.8-24.4'	29.8-30.4'	28.6-29.2'	29.8-30.4'	
Initial	Diameter, in	2.842	2.872	2.845	2.872
	Height, in	6.287	5.933	6.332	5.933
	Water Content, %	31.6	24.7	22.3	24.7
	Dry Density, pcf	89.42	100.	105.1	100.
	Saturation, %	96.5	97.2	100.0	97.2
Before Shear	Void Ratio	0.885	0.685	0.603	0.685
	Water Content, %	31.8	23.1	22.2	23.1
	Dry Density, pcf	90.66	103.8	105.4	103.8
	Saturation*, %	100.0	100.0	100.0	100.0
Void Ratio	0.859	0.623	0.599	0.623	
Back Press., psi	50.22	139.9	131	139.9	
Ver. Eff. Cons. Stress, psi	4.972	9.942	19.99	9.942	
Shear Strength, psi	7.828	8.306	25.25	8.306	
Strain at Failure, %	15.2	14.6	14.3	14.6	
Strain Rate, %/min	0.016	0.016	0.016	0.016	
B-Value	0.96	0.95	0.95	0.95	
Estimated Specific Gravity	2.7	2.7	2.7	2.7	
Liquid Limit	---	---	---	---	
Plastic Limit	---	---	---	---	

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: JS-62B				
	Sample Type: UD				
	Description: Gray Silty lean clay				
Remarks: 2054					

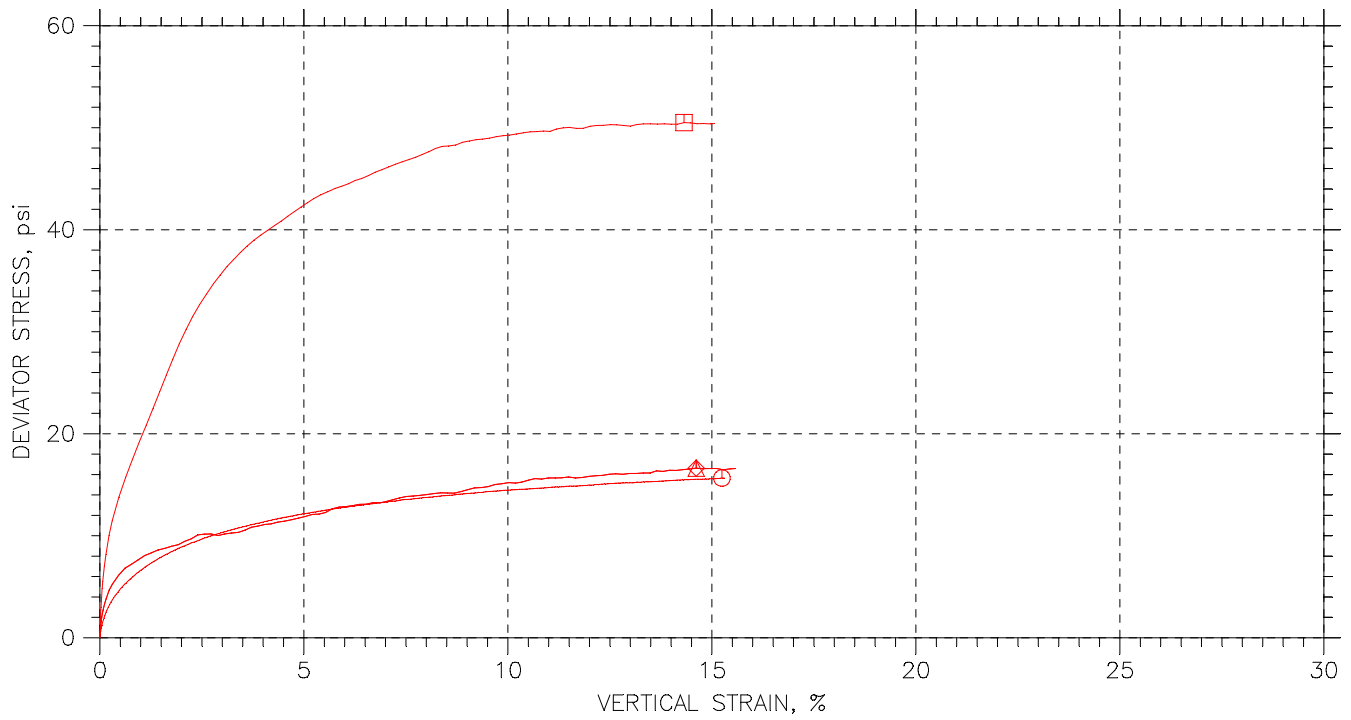
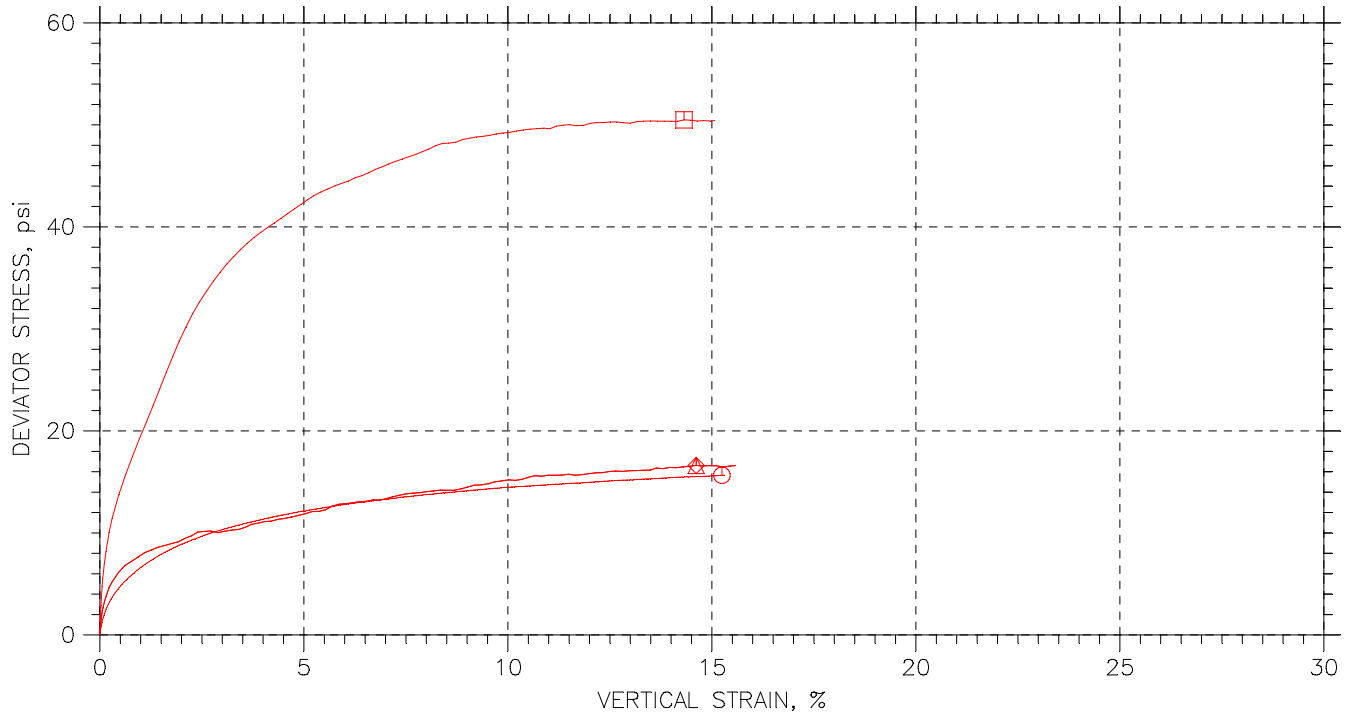
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	ST-5	28.1	23.8-24.4	JM	9/16/09	MM		1490-28.1.dat
△	ST-1	28.4	29.8-30.4'	MM	9/24/09	CA		1490-28.4.dat
□	ST-1	28.3	28.6-29.2'	MM	9/16/09	CA		1490-28.3.dat
◇	ST-1	28.4	29.8-30.4'	MM	9/24/09	CA		1490-28.4.dat

<p style="font-size: small; margin-top: 5px;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-62B		Sample Type: UD			
	Description: Gray Silty lean clay					
	Remarks: 2054					

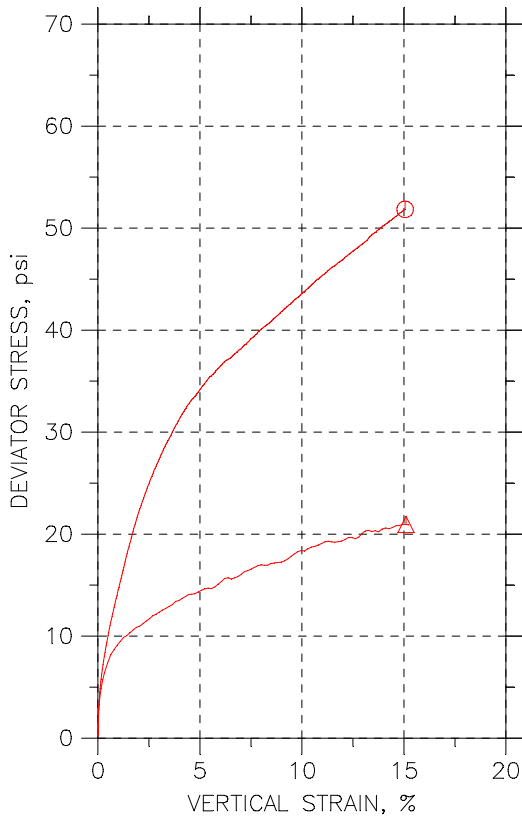
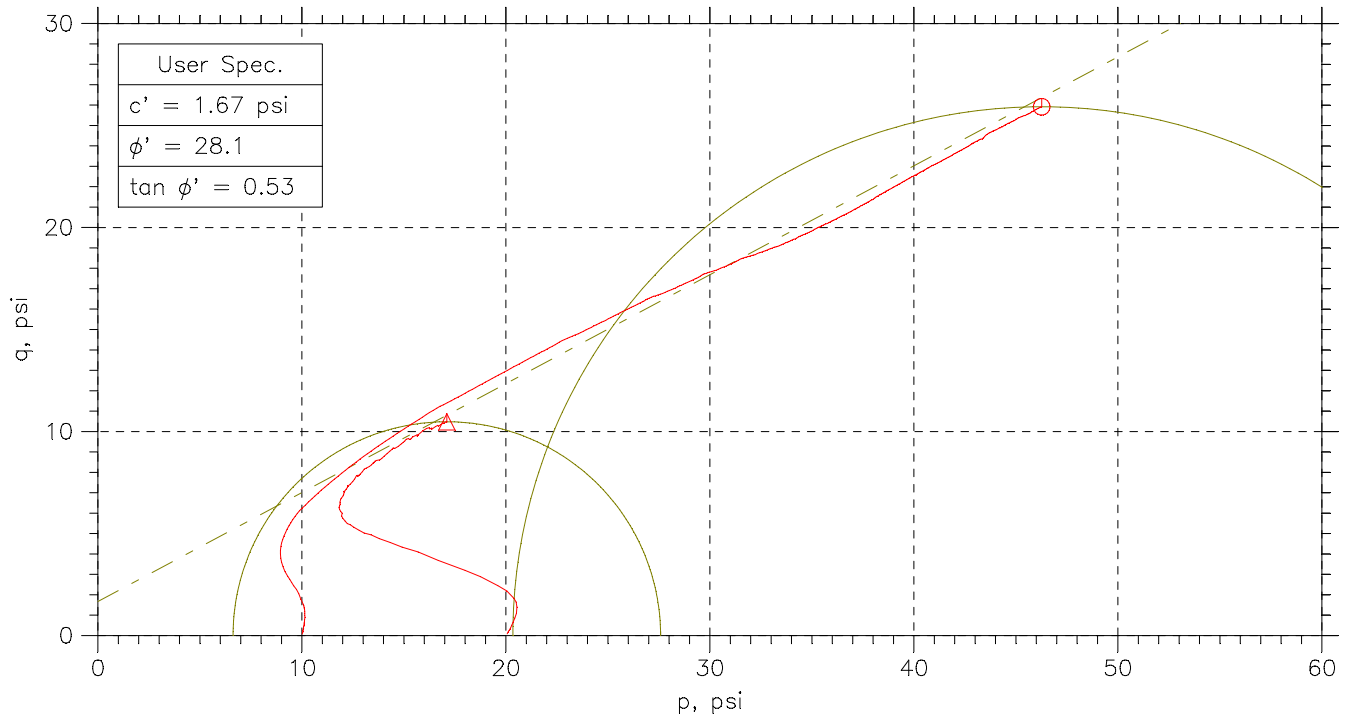
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	ST-5	28.1	23.8-24.4	JM	9/16/09	MM		1490-28.1.dat
△	ST-1	28.4	29.8-30.4'	MM	9/24/09	CA		1490-28.4.dat
□	ST-1	28.3	28.6-29.2'	MM	9/16/09	CA		1490-28.3.dat
◇	ST-1	28.4	29.8-30.4'	MM	9/24/09	CA		1490-28.4.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-62B		Sample Type: UD			
	Description: Gray Silty lean clay					
	Remarks: 2054					

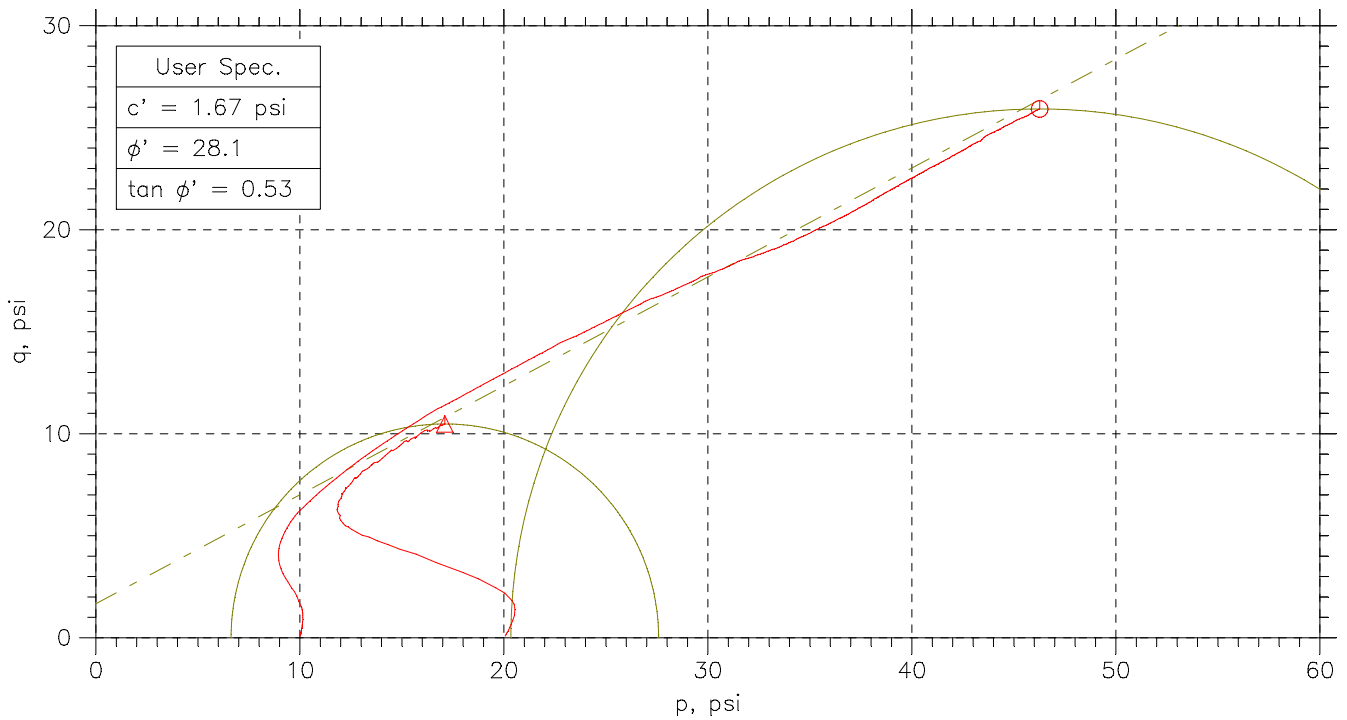
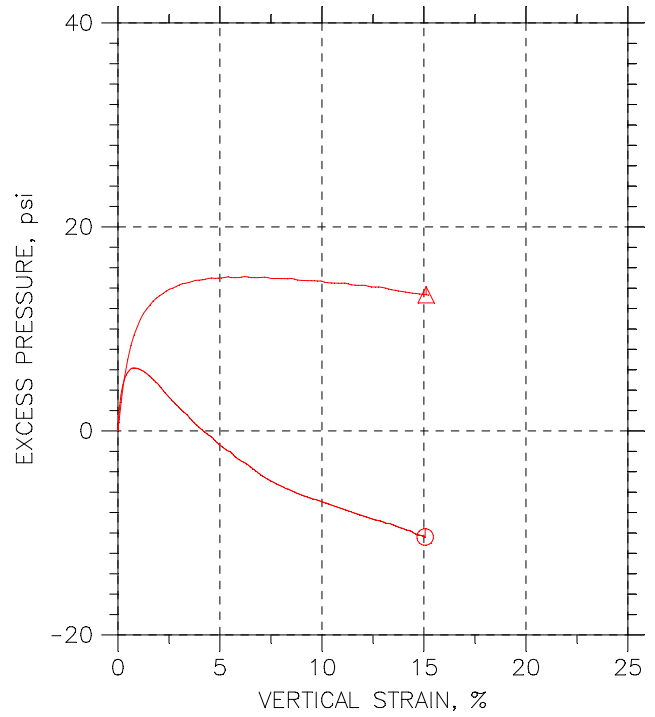
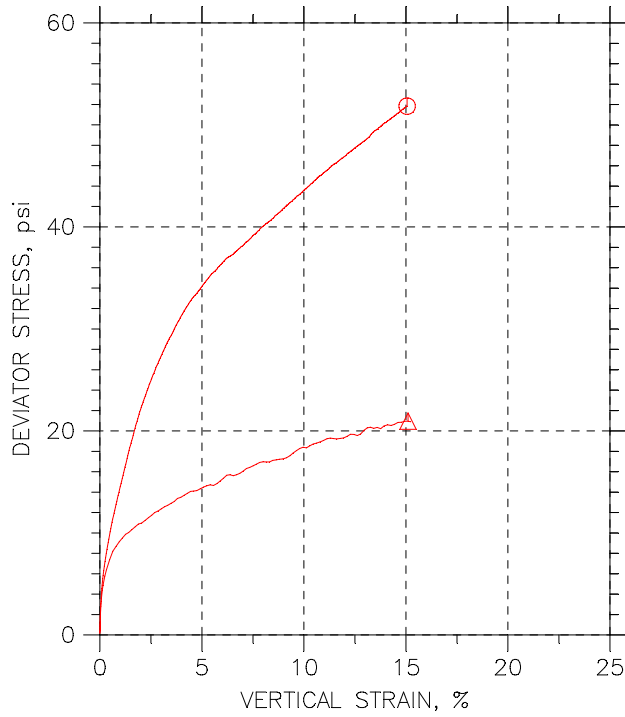
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	⊙	△		
Sample No.	---	---		
Test No.	27.1	27.2		
Depth	7.7-8.2'	10.2-10.8'		
Initial	Diameter, in	2.841	2.841	
	Height, in	5.683	5.679	
	Water Content, %	19.7	20.6	
	Dry Density, pcf	109.6	99.99	
	Saturation, %	99.0	81.1	
	Void Ratio	0.538	0.686	
Before Shear	Water Content, %	20.8	21.0	
	Dry Density, pcf	108.	107.5	
	Saturation*, %	100.0	100.0	
	Void Ratio	0.561	0.568	
Back Press., psi	140.1	131		
Ver. Eff. Cons. Stress, psi	9.94	19.98		
Shear Strength, psi	25.92	10.48		
Strain at Failure, %	15.1	15.1		
Strain Rate, %/min	0.016	0.016		
B-Value	0.95	0.95		
Estimated Specific Gravity	2.7	2.7		
Liquid Limit	---	---		
Plastic Limit	---	---		

<p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: JS-62A				
	Sample Type: UD				
	Description: moist, gray brown clay with sand				
Remarks: System 1057					

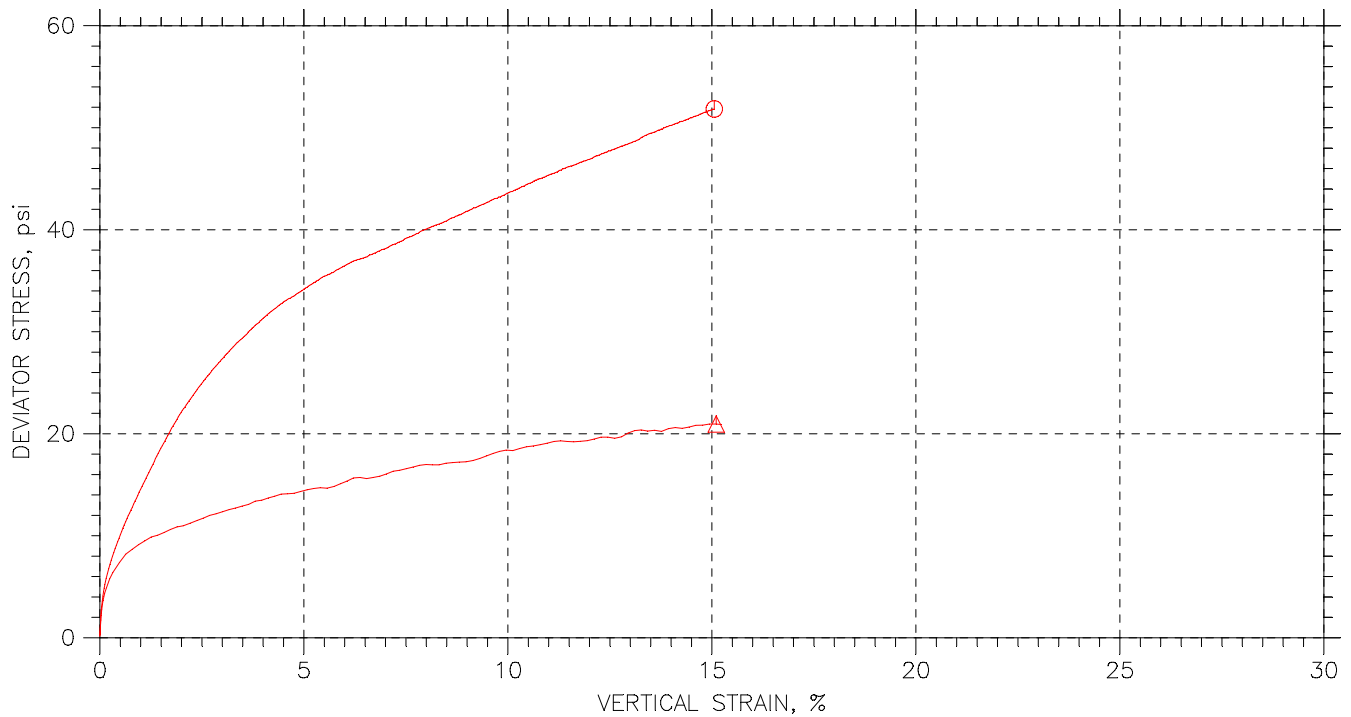
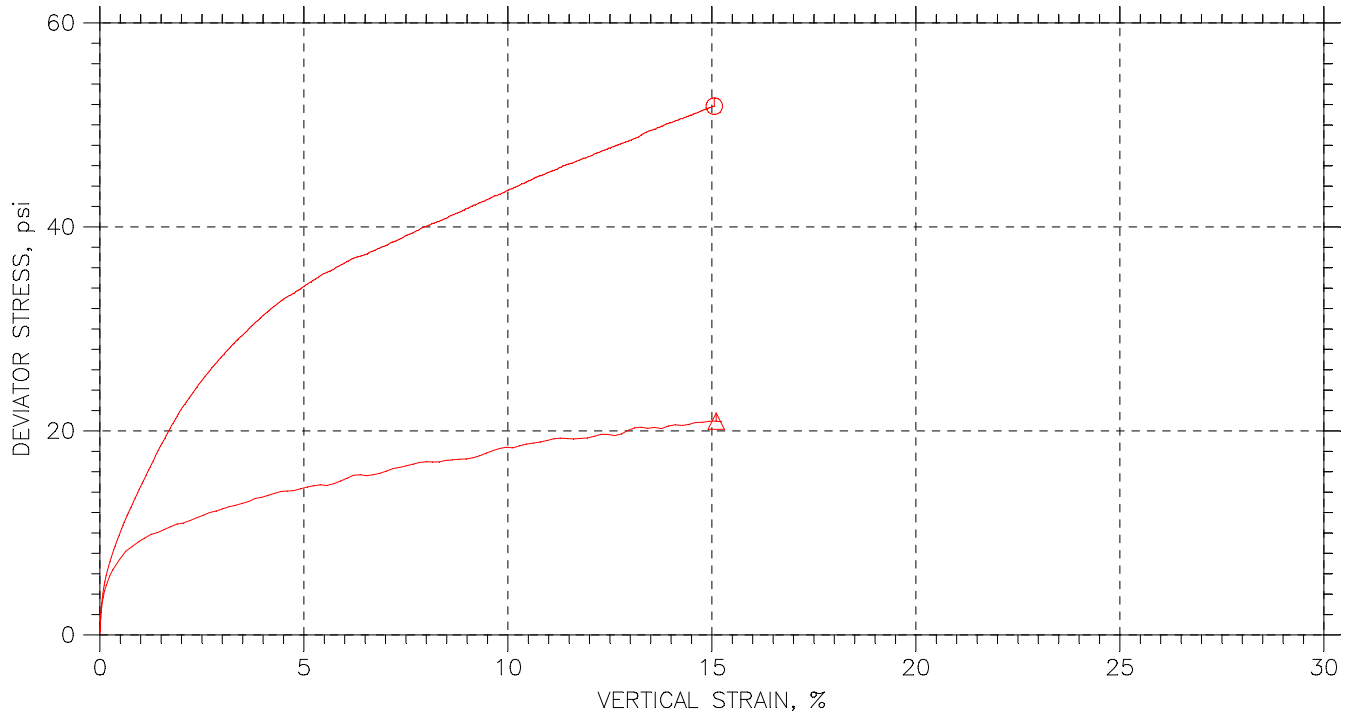
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	---	27.1	7.7-8.2'	MM	9/15/09	CA		1490-27.1.dat
△	---	27.2	10.2-10.8'	MM	9/15/09	CA		1490-27.2.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-62A		Sample Type: UD			
	Description: moist, gray brown clay with sand					
	Remarks: System 1057					

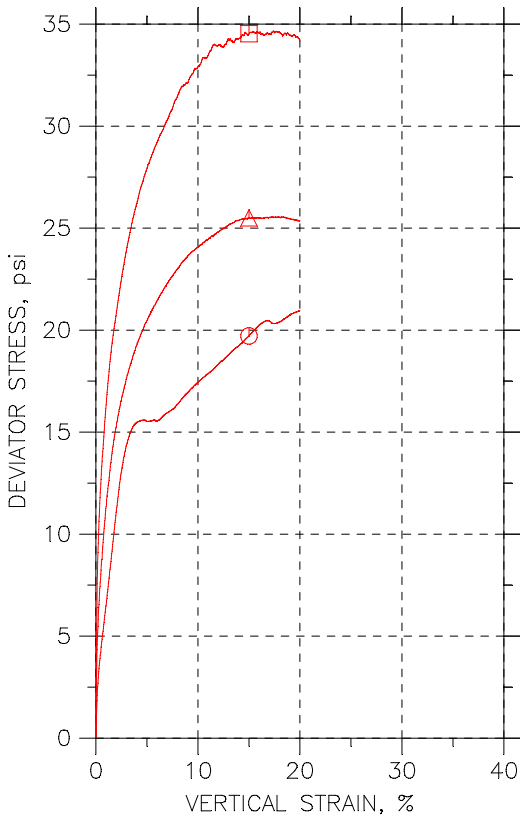
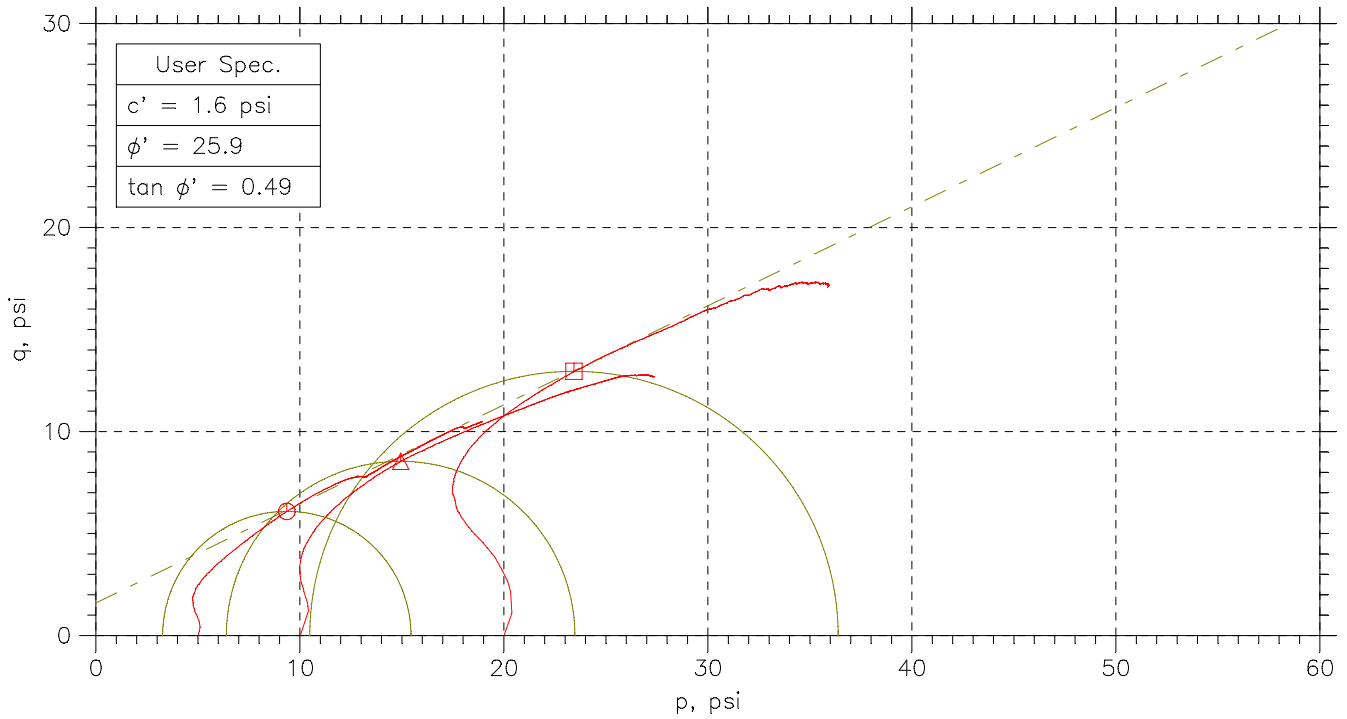
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	---	27.1	7.7-8.2'	MM	9/15/09	CA		1490-27.1.dat
△	---	27.2	10.2-10.8'	MM	9/15/09	CA		1490-27.2.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: JS-62A		Sample Type: UD			
	Description: moist, gray brown clay with sand					
	Remarks: System 1057					

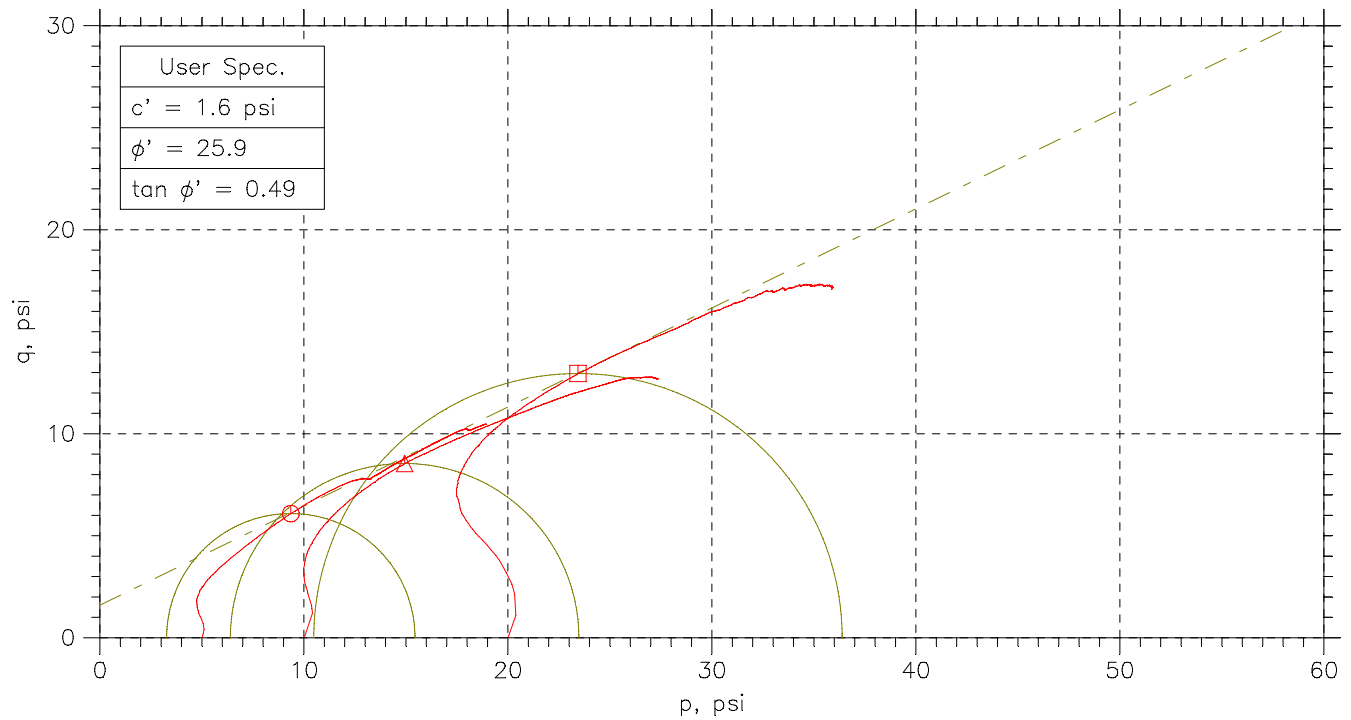
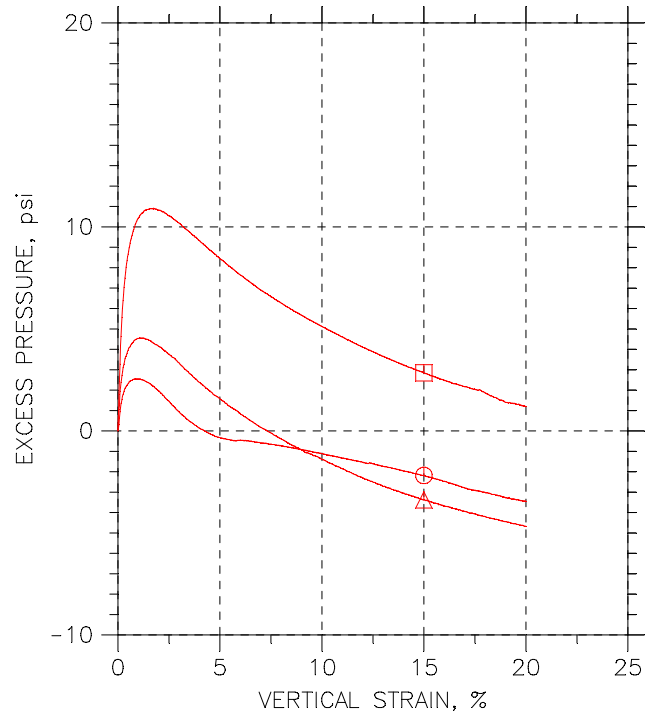
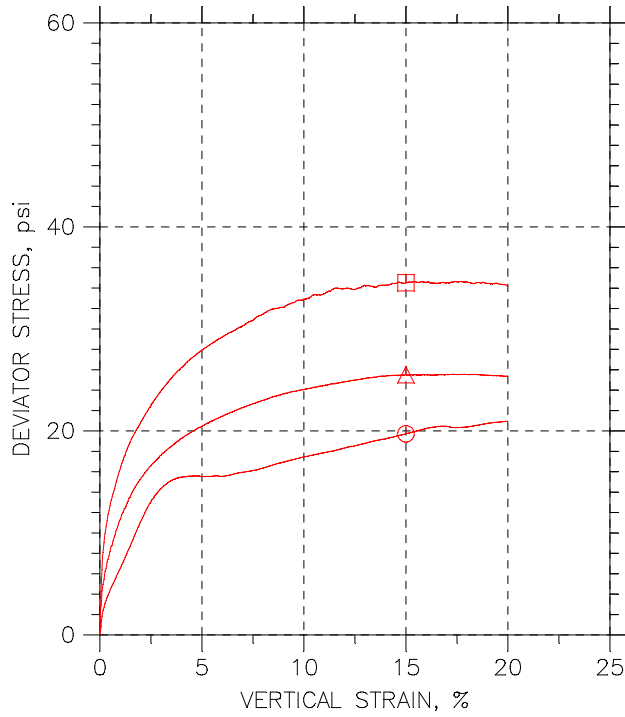
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	⊙	△	□	
Sample No.	JS 63B	JS 65B	JS 63B	
Test No.	CU-2-1	CU-2-2	CU-2-3	
Depth	1.2-1.7	5.7-6.3	6.5-7.0	
Initial	Diameter, in	2.86	2	2.87
	Height, in	5.8	4.1	5.85
	Water Content, %	17.4	20.7	18.9
	Dry Density, pcf	106.6	104.7	108.5
	Saturation, %	80.7	91.7	92.3
Before Shear	Void Ratio	0.581	0.61	0.553
	Water Content, %	19.0	19.8	19.3
	Dry Density, pcf	111.3	109.8	110.8
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.514	0.535	0.521
	Back Press., psi	117	85	77
	Ver. Eff. Cons. Stress, psi	4.99	9.995	19.99
	Shear Strength, psi	9.857	12.75	17.26
	Strain at Failure, %	15	15	15
	Strain Rate, %/min	0.016	0.016	0.016
	B-Value	0.97	0.96	0.96
	Estimated Specific Gravity	2.7	2.7	2.7
	Liquid Limit	---	---	---
	Plastic Limit	---	---	---

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: ---				
	Sample Type: core				
	Description: Moist, yellow and brown sandy clay				
Remarks: System T					

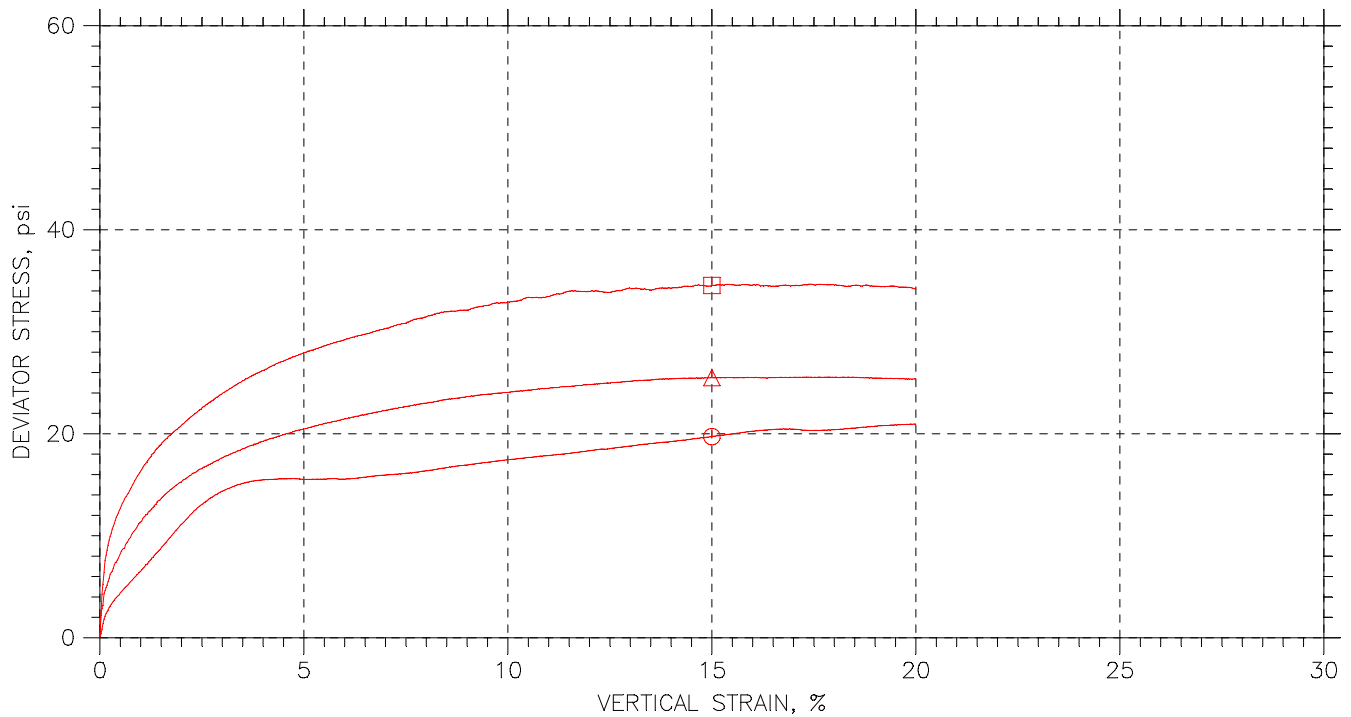
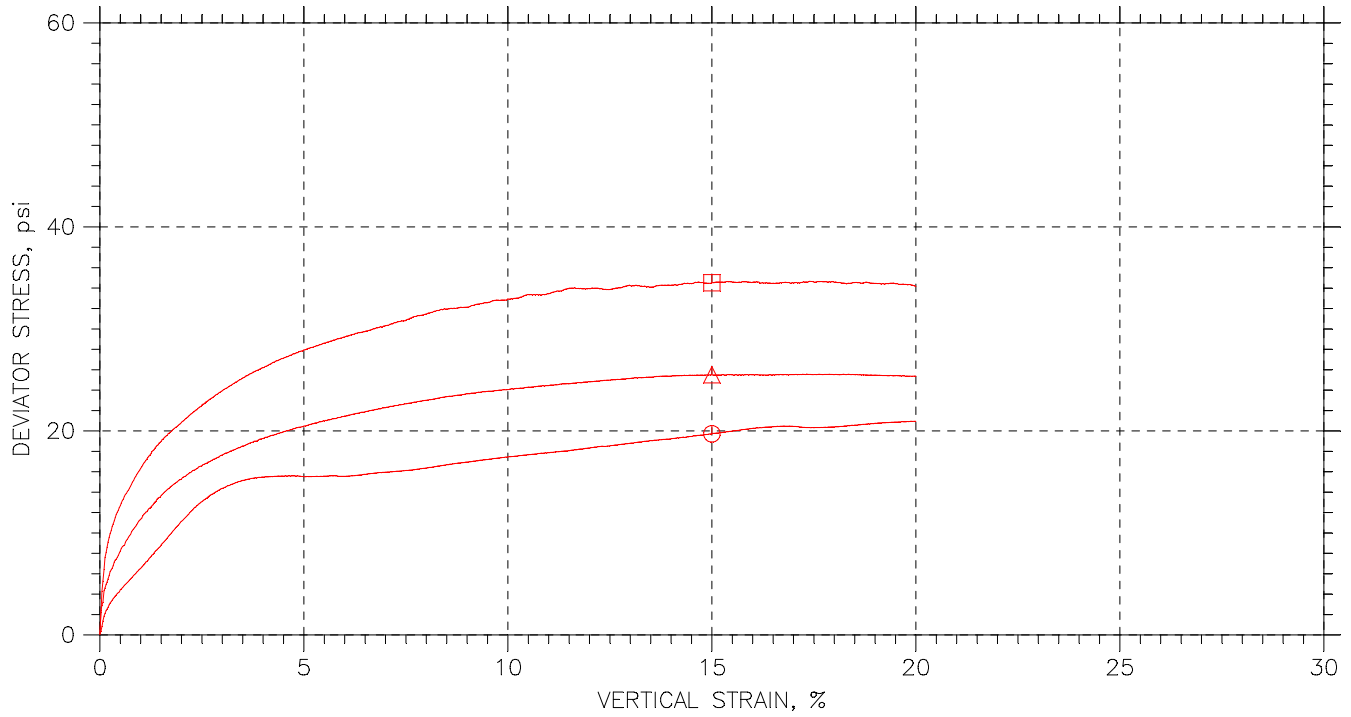
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	JS 63B	CU-2-1	1.2-1.7	md	09/20/09	jdt		9326-CU-2-1n.dat
△	JS 65B	CU-2-2	5.7-6.3	md	09/20/09	jdt		9326-CU-2-2n.dat
□	JS 63B	CU-2-3	6.5-7.0	md	09/17/09	jdt		9326-CU-2-3n.dat

<p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: core			
	Description: Moist, yellow and brown sandy clay					
	Remarks: System T					

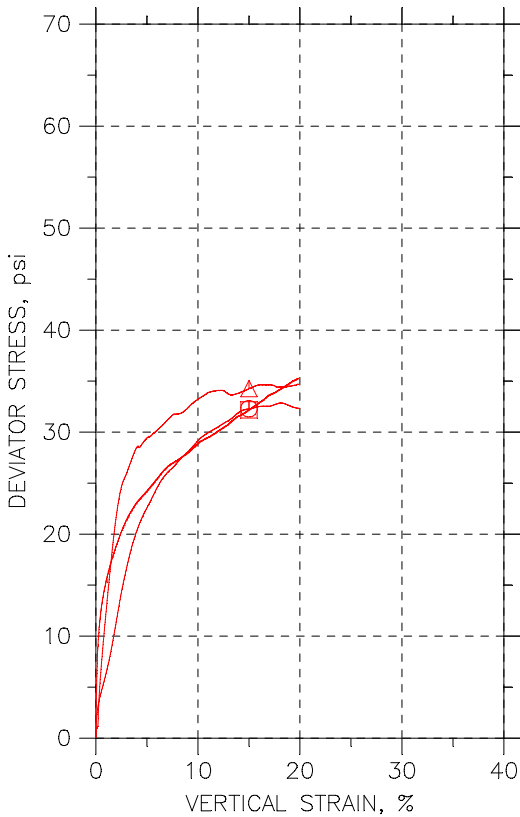
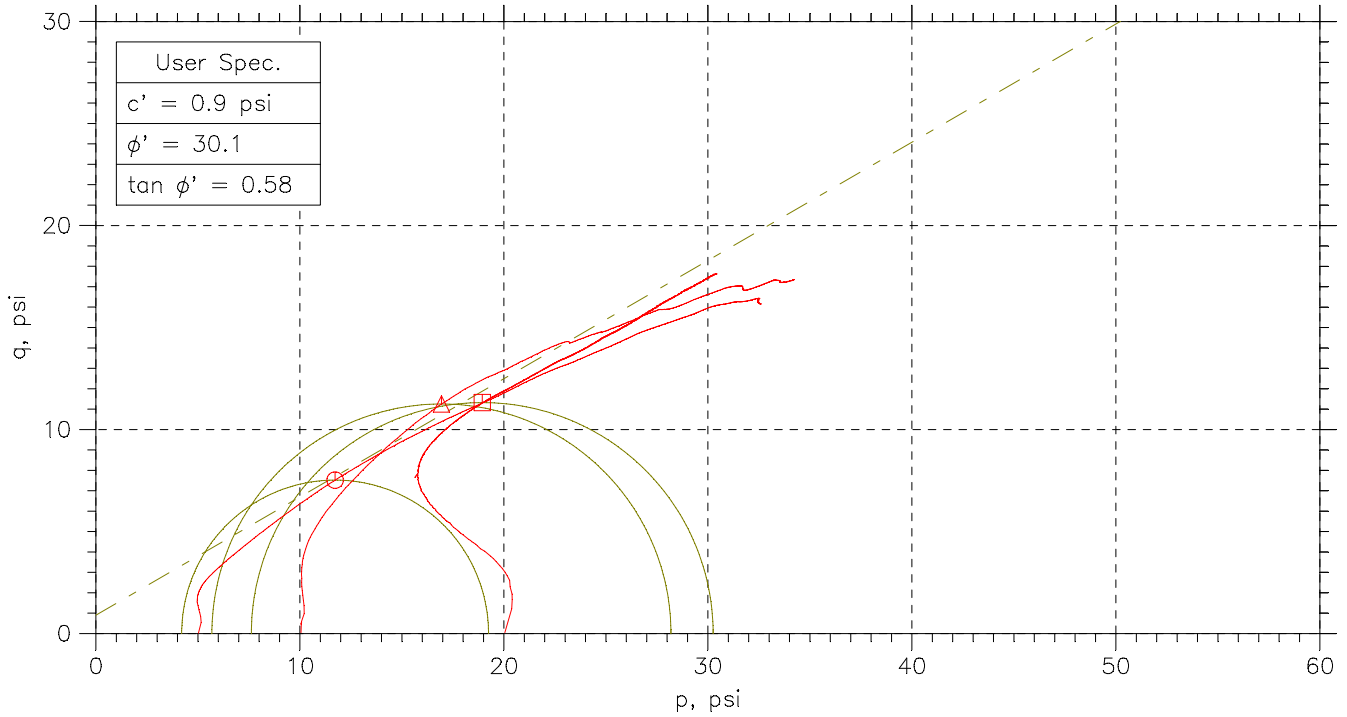
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JS 63B	CU-2-1	1.2-1.7	md	09/20/09	jdt		9326-CU-2-1n.dat
△	JS 65B	CU-2-2	5.7-6.3	md	09/20/09	jdt		9326-CU-2-2n.dat
□	JS 63B	CU-2-3	6.5-7.0	md	09/17/09	jdt		9326-CU-2-3n.dat

 <p style="font-size: small;">a subsidiary of Geocomp Corporation</p>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: core			
	Description: Moist, yellow and brown sandy clay					
	Remarks: System T					

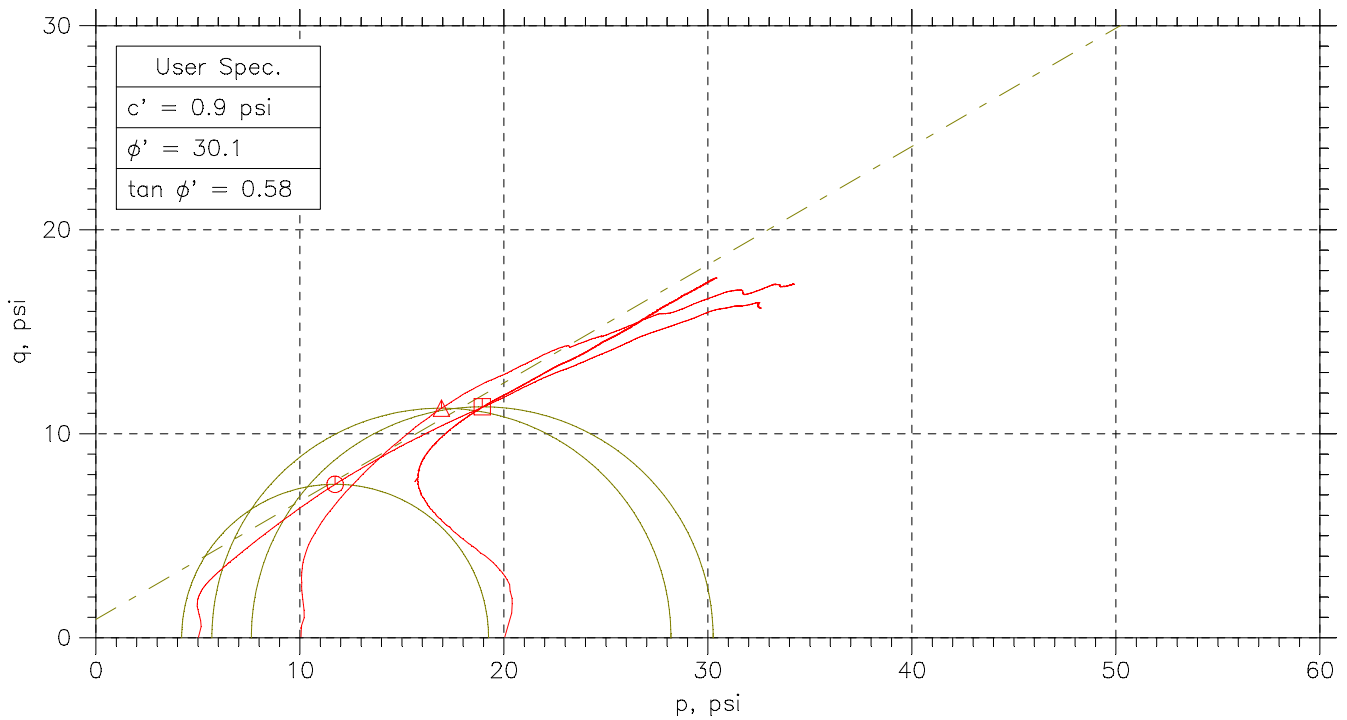
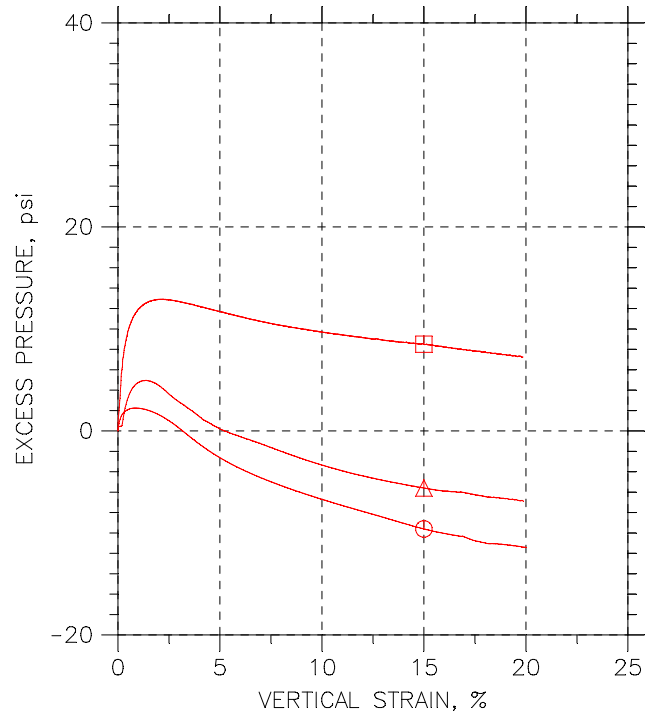
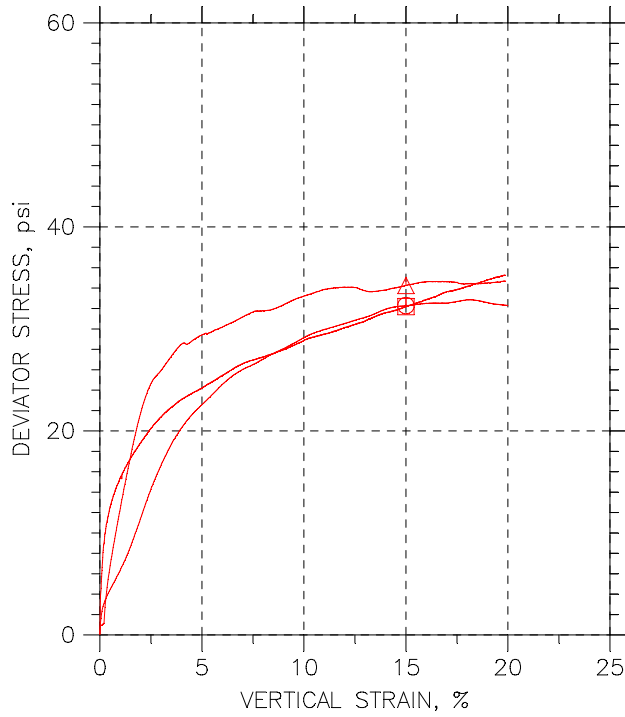
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	⊙	△	□	
Sample No.	JS 63B	JS 63B	JS 65B	
Test No.	CU-1-1	CU-1-2	CU-1-3	
Depth	8.8-9.4	11.3-11.8	15.1-15.8	
Initial	Diameter, in	2.86	2	2.86
	Height, in	5.95	4.05	6.1
	Water Content, %	20.8	21.3	18.7
	Dry Density, pcf	105.7	102.	107.1
	Saturation, %	94.7	88.1	88.1
Before Shear	Void Ratio	0.594	0.653	0.574
	Water Content, %	22.5	23.2	19.3
	Dry Density, pcf	104.9	103.6	110.9
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.607	0.626	0.52
	Back Press., psi	51	98.98	159
	Ver. Eff. Cons. Stress, psi	5.006	10.01	20
	Shear Strength, psi	16.14	17.13	16.09
	Strain at Failure, %	15	15	15
	Strain Rate, %/min	0.016	0.016	0.016
	B-Value	0.95	0.95	0.95
	Estimated Specific Gravity	2.7	2.7	2.7
	Liquid Limit	---	---	---
	Plastic Limit	---	---	---

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant				
	Location: ---				
	Project No.: GTX-1490				
	Boring No.: ---				
	Sample Type: core				
	Description: Moist, yellow and brown clay				
Remarks: System B					

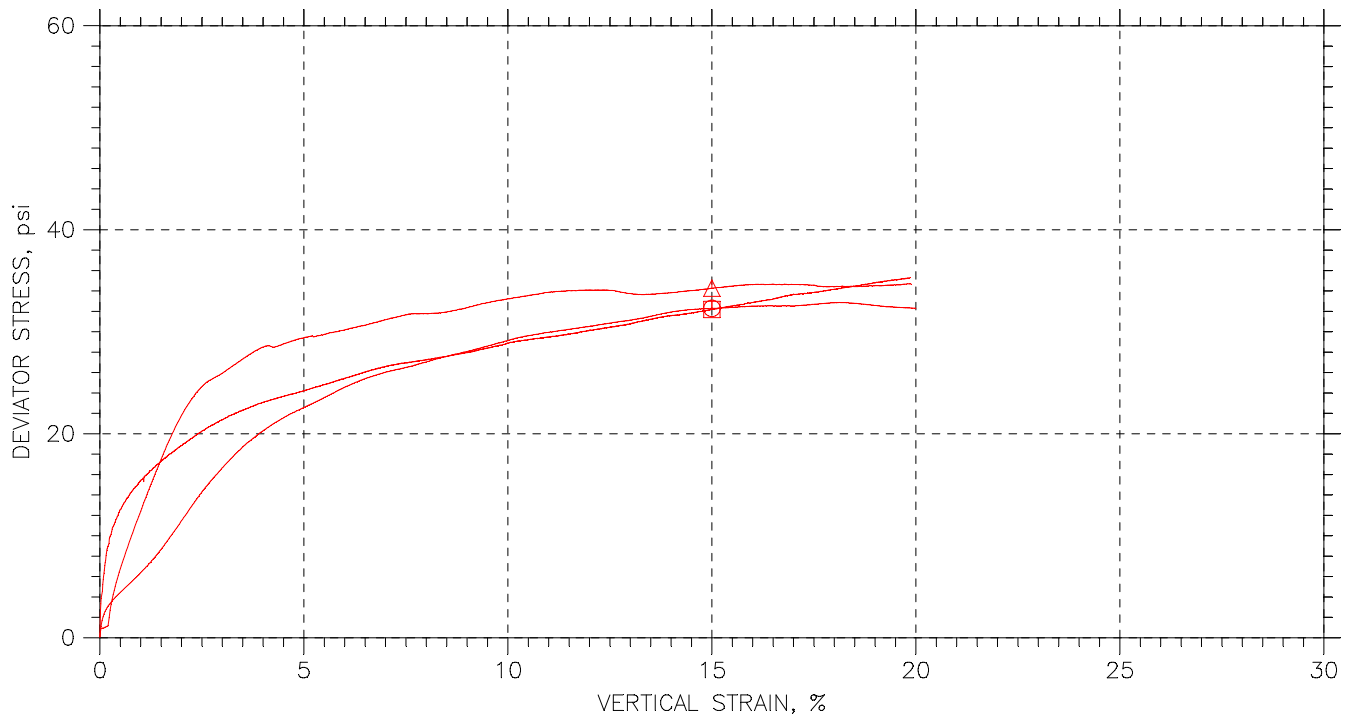
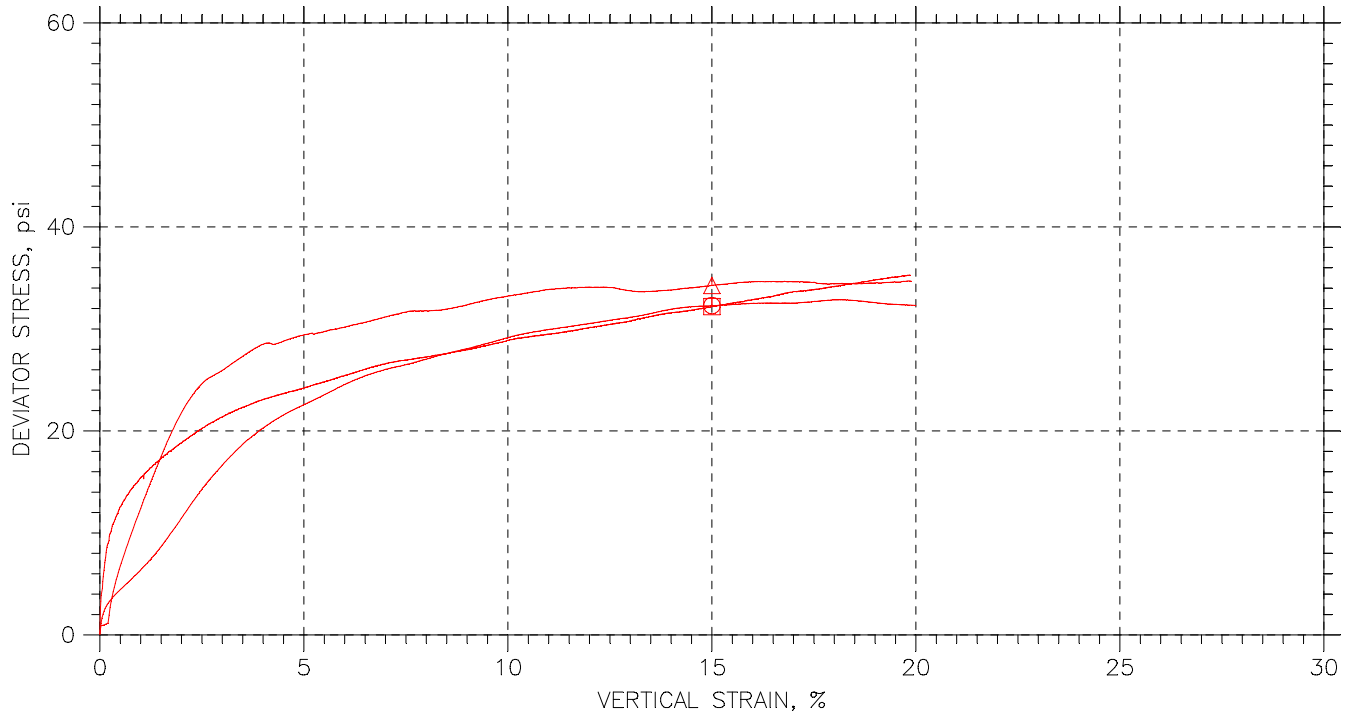
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	JS 63B	CU-1-1	8.8-9.4	njh	09/17/09	jdt		9326-CU-1-1n.dat
△	JS 63B	CU-1-2	11.3-11.8	md	09/17/09	jdt		9326-CU-1-2n.dat
□	JS 65B	CU-1-3	15.1-15.8	md	09/16/09	jdt		9326-CU-1-3n.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: core			
	Description: Moist, yellow and brown clay					
	Remarks: System B					

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	JS 63B	CU-1-1	8.8-9.4	njh	09/17/09	jdt		9326-CU-1-1n.dat
△	JS 63B	CU-1-2	11.3-11.8	md	09/17/09	jdt		9326-CU-1-2n.dat
□	JS 65B	CU-1-3	15.1-15.8	md	09/16/09	jdt		9326-CU-1-3n.dat

 <small>a subsidiary of Geocomp Corporation</small>	Project: John Sevier Fossil Plant		Location: ---		Project No.: GTX-1490	
	Boring No.: ---		Sample Type: core			
	Description: Moist, yellow and brown clay					
	Remarks: System B					



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-1, 0.0'-1.5'	848	4/27/09	Hom	No. 4			No	48.05	157.00	144.72	12.7
BA-1, 1.5'-3.0'	849	4/27/09	Hom	No. 4			Yes	42.82	205.78	187.02	13.0
BA-1, 3.0'-4.5'	850	4/27/09	Hom	No. 4			Yes	45.95	234.31	209.17	15.4
BA-1, 4.5'-6.0'	851	4/27/09	Len	No. 4			Yes	44.00	213.04	184.26	20.5
BA-1, 6.0'-7.5'	852	4/27/09	Len	3/8"			No	45.95	185.78	163.32	19.1
BA-1, 7.5'-9.0'	NO RECOVERY	853	4/27/09								
BA-1, 9.0'-10.5'	854	4/27/09	Hom	3/8"			No	46.82	221.12	188.08	23.4
BA-1, 10.5'-12.0'	855	4/27/09	Lam	1 1/2"			No	43.76	150.19	134.97	16.7
BA-1, 12.0'-13.5'	856	4/27/09	Hom	3/8"			No	48.39	229.29	193.04	25.1
BA-1, 13.5'-15.0'	857	4/27/09	Len	3/4"			No	43.87	242.72	205.34	23.1
BA-1, 15.0'-16.5'	858	4/27/09	Len	No. 4			Yes	46.42	232.95	203.75	18.6
BA-1, 16.5'-18.0'	859	4/27/09	Hom	3/8"			No	43.76	280.21	241.00	19.9
BA-1, 18.0'-19.5'	860	4/27/09	Len	No. 4			Yes	43.93	225.35	192.55	22.1
BA-1, 19.5'-21.0'	861	4/27/09	Hom	3/8"			No	44.03	236.20	192.34	29.6
BA-1, 21.0'-22.5'	862	4/27/09	Hom	3/8"			No	43.65	217.65	182.19	25.6
BA-1, 22.5'-24.0'	863	4/27/09	Hom	3/8"			No	46.76	194.60	165.50	24.5
BA-1, 24.0'-25.5'	864	4/27/09	Hom	3/8"			No	46.57	237.04	195.84	27.6
BA-1, 25.5'-27.0'	865	4/27/09	Hom	3/4"			No	46.00	213.43	181.78	23.3
BA-1, 27.0'-28.5'	866	4/27/09	Hom	No. 10			Yes	48.14	277.77	219.78	33.8
BA-1, 28.5'-30.0'	867	4/27/09	Len	No. 10			Yes	48.69	250.41	200.20	33.1
BA-1, 0.1'-31.5'	868	4/27/09	Hom	No. 10			Yes	43.74	235.50	186.00	34.8
BA-1, 31.5'-33.0'	869	4/27/09	Hom	No. 10			Yes	44.46	267.69	214.34	31.4
BA-1, 33.0'-34.5'	870	4/27/09	Hom	No. 4			Yes	43.49	252.54	203.89	30.3
BA-1, 34.5'-36.0'	871	4/27/09	Hom	No. 10			Yes	44.15	260.50	203.81	35.5
BA-1, 36.0'-37.5'	872	4/27/09	Hom	No. 10			Yes	43.83	319.06	248.39	34.5
BA-1, 37.5'-39.0'	873	4/27/09	Hom	No. 4			Yes	43.73	291.38	230.58	32.5
BA-1, 39.0'-40.5'	874	4/27/09	Hom	No. 4			Yes	43.47	270.49	223.58	26.0
BA-2, 0.0'-1.5'	875	4/27/09	Hom	3/4"			No	49.10	219.11	199.80	12.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-2, 1.5'-3.0'	876	4/27/09	Len	No. 10			Yes	19.51	90.39	80.71	15.8
BA-2, 3.0'-4.5'	877	4/27/09	Len	1 1/2"			No	19.43	89.89	81.58	13.4
BA-2, 4.5'-6.0'	878	4/27/09	Len	1 1/2"			No	18.61	76.41	68.97	14.8
BA-2, 6.0'-7.5'	879	4/27/09	Len	No. 4			No	22.45	97.06	84.94	19.4
BA-2, 7.5'-9.0'	880	4/27/09	Len	3/8"			No	20.97	89.43	80.12	15.7
BA-2, 9.0'-10.5'	881	4/27/09	Hom	3/4"			No	22.20	93.94	79.85	24.4
BA-2, 10.5'-12.0'	882	4/27/09	Hom	3/8"			No	21.95	86.59	76.54	18.4
BA-2, 12.0'-13.5'	883	4/27/09	Hom	No. 4			No	21.85	93.32	79.54	23.9
BA-2, 13.5'-15.0'	884	4/27/09	Str	3/8"			No	21.13	110.08	98.49	15.0
BA-2, 15.0'-16.5'	885	4/27/09	Hom	3/8"			No	22.02	103.97	89.60	21.3
BA-2, 16.5'-18.0'	886	4/27/09	Hom	3/8"			No	21.28	97.48	82.39	24.7
BA-2, 18.0'-19.5'	887	4/27/09	Hom	3/8"			No	21.86	98.05	84.91	20.8
BA-2, 19.5'-21.0'	888	4/27/09	Hom	3/4"			No	21.56	100.07	83.16	27.5
BA-2, 21.0'-22.5'	889	4/27/09	Hom	3/8"			No	21.42	96.96	81.75	25.2
BA-2, 22.5'-24.0'	890	4/27/09	Hom	3/8"			No	20.88	96.81	80.75	26.8
BA-2, 24.0'-25.5'	891	4/27/09	Hom	3/8"			No	21.71	85.36	71.35	28.2
BA-2, 25.5'-27.0'	892	4/27/09	Str	3/8"			No	19.72	88.40	71.57	32.5
BA-2, 27.0'-28.5'	893	4/27/09	Hom	3/8"			No	19.44	90.36	74.48	28.9
BA-2, 28.5'-30.0'	894	4/27/09	Str	No. 4			No	15.25	82.26	67.62	28.0
BA-2, 30.0'-31.5'	895	4/27/09	Lam	3/8"			No	29.43	122.50	101.46	29.2
BA-2, 31.5'-33.0'	896	4/27/09	Lam	3/8"			No	20.82	91.33	78.90	21.4
BA-2, 33.0'-34.5'	897	4/27/09	Hom	3/8"			No	22.09	110.37	95.16	20.8
BA-2, 34.5'-36.0'	898	4/27/09	Hom	No. 4			No	20.86	113.78	95.69	24.2
BA-2, 36.0'-37.5'	899	4/27/09	Hom	3/4"			No	22.79	122.97	101.62	27.1
BA-2, 37.5'-39.0'	900	4/27/09	Hom	No. 4			No	20.93	97.41	80.39	28.6
BA-2, 39.0'-40.5'	901	4/27/09	Hom	1 1/2"			No	21.79	123.25	97.43	34.1
BA-2, 40.5'-42.0'	902	4/27/09	Hom	3/8"			No	21.49	106.02	87.42	28.2
BA-2, 42.0'-43.5'	903	4/27/09	Hom	3/8"			No	19.33	90.27	76.71	23.6
BA-2, 43.5'-45.0'	904	4/27/09	Hom	3/8"			No	21.31	123.14	102.32	25.7
BA-2, 45.0'-46.5'	905	4/27/09	Hom	3/4"			No	20.07	101.87	86.36	23.4



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-2, 50.0'-51.0'	906	4/27/09	Hom	3/4"			No	19.41	106.00	103.97	2.4
BA-3, 0.0'-1.5'	907	4/29/09	Hom	3/8"			No	44.00	190.35	166.25	19.7
BA-3, 1.5'-3.0'	908	4/29/09	Hom	3/4"			No	44.06	226.30	201.26	15.9
BA-3, 3.0'-4.5'	909	4/29/09	Hom	No. 4			Yes	44.08	227.73	199.54	18.1
BA-3, 4.5'-6.0'	910	4/29/09	Len	No. 4			Yes	44.10	186.49	163.10	19.7
BA-3, 6.0'-7.5'	911	4/29/09	Len	No. 4			Yes	72.36	263.82	236.49	16.7
BA-3, 7.5'-9.0'	912	4/29/09	Len	3/8"			No	70.48	211.94	185.82	22.6
BA-3, 9.0'-10.5'	913	4/29/09	Len	3/8"			No	69.34	246.55	222.77	15.5
BA-3, 10.5'-12.0'	914	4/29/09	Len	3/4"			No	69.72	250.62	227.51	14.6
BA-3, 12.0'-13.5'	915	4/29/09	Len	3/4"			No	73.09	168.54	150.42	23.4
BA-3, 13.5'-15.0'	916	4/29/09	Hom	No. 4			Yes	74.62	202.14	177.61	23.8
BA-3, 15.0'-16.5'	917	4/29/09	Hom	3/8"			No	74.47	331.20	286.86	20.9
BA-3, 16.5'-18.0'	918	4/29/09	Hom	3/4"			No	69.77	225.76	192.15	27.5
BA-3, 18.0'-19.5'	919	4/29/09	Hom	3/4"			No	72.86	130.91	121.63	19.0
BA-3, 19.5'-21.0'	920	4/29/09	Hom	No. 10			Yes	69.64	322.28	257.94	34.2
BA-3, 21.0'-22.5'	921	4/29/09	Str	No. 10			Yes	69.89	302.80	247.68	31.0
BA-3, 22.5'-24.0'	922	4/29/09	Str	No. 10			Yes	74.28	281.74	233.35	30.4
BA-3, 24.0'-25.5'	923	4/29/09	Hom	No. 4			Yes	70.54	313.04	261.61	26.9
BA-3, 25.5'-27.0'	924	4/29/09	Hom	No. 10			Yes	68.68	234.53	197.10	29.1
BA-3, 27.0'-28.5'	925	4/29/09	Hom	No. 10			Yes	74.19	330.24	276.12	26.8
BA-3, 28.5'-30.0'	926	4/29/09	Hom	No. 10			Yes	68.93	318.68	264.34	27.8
BA-3, 30.0'-31.5'	927	4/29/09	Hom	3/8"			No	75.69	227.35	196.16	25.9
BA-3, 31.5'-33.0'	928	4/29/09	Hom	3/4"			No	70.98	384.60	314.47	28.8
BA-3, 33.0'-34.5'	929	4/29/09	Hom	No. 10			Yes	74.76	275.74	224.99	33.8
BA-3, 34.5'-36.0'	930	4/29/09	Hom	No. 10			Yes	75.10	301.92	251.00	28.9
BA-3, 36.0'-37.5'	931	4/29/09	Hom	No. 4			Yes	72.77	365.60	301.08	28.3
BA-4, 0.0'-1.5'	932	4/29/09	Hom	3/8"			No	71.30	327.71	294.43	14.9
BA-4, 1.5'-3.0'	933	4/29/09	Hom	3/8"			No	70.30	173.13	151.53	26.6
BA-4, 3.0'-4.5'	934	4/29/09	Len	No. 4			No	69.38	147.56	130.79	27.3
BA-4, 4.5'-6.0'	935	4/29/09	Len	No. 4			Yes	72.32	246.34	205.95	30.2



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-4, 6.0'-7.5'	936	4/29/09	Hom	3/8"			No	73.66	258.66	216.51	29.5
BA-4, 7.5'-9.0'	937	4/29/09	Hom	3/8"			No	47.52	262.34	216.24	27.3
BA-4, 9.0'-10.5'	938	4/29/09	Hom	3/8"			No	73.82	254.53	215.61	27.4
BA-4, 10.5'-12.0'	939	4/29/09	Hom	3/8"			No	75.57	278.49	241.74	22.1
BA-4, 12.0'-13.5'	940	4/29/09	Len	3/8"			No	72.69	286.31	241.96	26.2
BA-4, 13.5'-15.0'	941	4/29/09	Hom	3/4"			No	74.40	215.32	186.87	25.3
BA-4, 15.0'-16.5'	942	4/29/09	Hom	3/8"			No	75.00	266.35	222.81	29.5
BA-4, 16.5'-18.0'	943	4/29/09	Hom	3/8"			No	70.81	195.48	162.74	35.6
BA-4, 18.0'-19.5'	944	4/29/09	Hom	3/4"			No	69.45	288.01	247.50	22.8
BA-4, 19.5'-21.0'	945	4/29/09	Hom	3/8"			No	44.05	227.76	189.90	26.0
BA-4, 21.0'-22.5'	946	4/29/09	Hom	No. 10			Yes	47.29	132.66	112.34	31.2
BA-4, 22.5'-24.0'	947	4/29/09	Hom	No. 10			Yes	34.55	244.21	195.57	30.2
BA-4, 24.0'-25.5'	948	4/29/09	Hom	No. 10			Yes	43.97	280.71	226.17	29.9
BA-4, 25.5'-27.0'	949	4/29/09	Hom	No. 10			Yes	47.08	266.77	216.99	29.3
BA-4, 27.0'-28.5'	950	4/29/09	Hom	No. 10			Yes	47.46	279.91	226.03	30.2
BA-4, 28.5'-30.0'	951	4/29/09	Hom	3/8"			No	48.28	273.70	218.21	32.7
BA-4, 0.1'-31.5'	952	4/29/09	Hom	No. 10			Yes	48.31	243.47	194.24	33.7
BA-4, 31.5'-33.0'	953	4/29/09	Hom	No. 10			Yes	70.10	321.94	258.50	33.7
BA-4, 33.0'-34.5'	954	4/29/09	Hom	No. 10			Yes	70.24	282.52	229.66	33.2
BA-4, 34.5'-36.0'	955	4/29/09	Hom	No. 10			Yes	68.86	257.65	210.64	33.2
BA-4, 36.0'-37.5'	956	4/29/09	Lam	No. 10			Yes	69.73	289.61	242.72	27.1
BA-4, 37.5'-39.0'	957	4/29/09	Hom	No. 10			Yes	71.53	318.28	265.59	27.2
BA-4, 39.0'-40.5'	958	4/29/09	Hom	No. 10			Yes	69.71	282.22	243.78	22.1
BA-4, 40.5'-42.0'	959	4/29/09	Hom	No. 10			Yes	70.71	384.47	344.09	14.8
BA-4, 42.0'-43.5'	960	4/29/09	Hom	No. 10			Yes	69.97	231.13	203.96	20.3
BA-5, 0.0'-1.5'	961	4/29/09	Str	No. 10			Yes	70.17	115.10	107.16	21.5
BA-5, 1.5'-3.0'	962	4/29/09	Hom	No. 10			Yes	74.87	140.55	127.34	25.2
BA-5, 3.0'-4.5'	963	4/29/09	Hom	3/8"			No	69.36	302.52	246.66	31.5
BA-5, 4.5'-6.0'	964	4/29/09	Hom	No. 10			Yes	75.65	255.95	219.92	25.0
BA-5, 6.0'-7.5'	965	4/29/09	Len	3/8"			No	74.77	271.90	233.17	24.5



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-5, 7.5'-9.0'	966	4/29/09	Hom	No. 10			Yes	74.08	262.60	224.49	25.3
BA-5, 9.0'-10.5'	967	4/29/09	Len	No. 10			Yes	71.05	180.54	159.11	24.3
BA-5, 10.5'-12.0'	968	4/29/09	Hom	No. 10			Yes	69.29	303.73	253.52	27.3
BA-5, 12.0'-13.5'	969	4/29/09	Hom	No. 10			Yes	73.82	243.06	207.72	26.4
BA-5, 13.5'-15.0'	970	4/29/09	Hom	3/8"			No	71.90	174.35	153.29	25.9
BA-5, 15.0'-16.5'	971	4/29/09	Hom	3/8"			No	73.19	208.86	180.40	26.5
BA-5, 16.5'-18.0'	972	4/29/09	Hom	1 1/2"			No	72.06	182.93	162.45	22.7
BA-5, 18.0'-19.5'	973	4/29/09	Hom	No. 4			Yes	70.12	228.70	195.43	26.6
BA-5, 19.5'-21.0'	974	4/29/09	Hom	No. 4			Yes	73.73	203.78	176.64	26.4
BA-5, 21.0'-22.5'	975	4/29/09	Hom	3/4"			No	68.98	284.18	236.94	28.1
BA-5, 22.5'-24.0'	976	4/29/09	Hom	3/4"			No	69.06	198.85	171.02	27.3
BA-5, 24.0'-25.5'	977	4/29/09	Hom	No. 10			Yes	70.51	235.91	193.75	34.2
BA-5, 25.5'-27.0'	978	4/29/09	Hom	No. 10			Yes	70.17	184.50	155.55	33.9
BA-5, 27.0'-28.5' No Sample	979	4/29/09									
BA-5, 28.5'-30.0' No Sample	980	4/29/09									
BA-5, 30.0'-31.5'	981	4/29/09	Str	No. 10			Yes	73.62	308.22	254.51	29.7
BA-5, 31.5'-33.0' No Sample	982	4/29/09									
BA-5, 33.0'-34.5' No Sample	983	4/29/09									
BA-5, 34.5'-36.0' No Sample	984	4/29/09									
BA-5, 35.0'-36.5'	985	4/29/09	Hom	No. 4			Yes	68.55	268.83	226.94	26.4
BA-5, 37.5'-39.0' No Sample	986	4/29/09									
BA-5, 39.0'-40.5' No Sample	987	4/29/09									
BA-5, 40.0'-41.5'	988	4/29/09	Hom	No. 4			Yes	77.67	279.98	237.24	26.8
BA-5, 42.0'-43.5' No Sample	989	4/29/09									
BA-5, 43.5'-45.0' No Sample	990	4/29/09									
BA-5, 45.0'-46.5'	991	4/29/09	Hom	3/4"			No	75.61	310.43	261.75	26.2
BA-5, 50.0'-51.5'	992	4/29/09	Hom	3/8"			No	72.27	248.76	212.89	25.5
BA-5, 55.0'-56.5'	993	4/29/09	Hom	1 1/2"			No	73.15	219.09	193.96	20.8
BA-6, 0.0'-1.5'	994	4/29/09	Len	3/8"			No	73.40	240.99	217.25	16.5
BA-6, 1.5'-3.0'	995	4/29/09	Len	3/4"			No	72.59	241.33	213.39	19.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-6, 3.0'-4.5'	996	4/29/09	Len	3/8"			No	74.92	257.03	229.13	18.1
BA-6, 4.5'-6.0'	997	4/29/09	Len	No. 4			Yes	70.81	289.48	256.84	17.5
BA-6, 6.0'-7.5'	998	4/29/09	Len	No. 4			Yes	68.93	285.35	246.00	22.2
BA-6, 7.5'-9.0'	999	4/29/09	Len	No. 4			Yes	69.92	311.60	270.07	20.7
BA-6, 9.0'-10.5'	1000	4/29/09	Len	No. 4			Yes	71.35	273.48	235.13	23.4
BA-6, 10.5'-12.0'	1001	4/29/09	Len	3/8"			No	72.40	313.06	268.13	23.0
BA-6, 12.0'-13.5'	1002	4/29/09	Len	No. 4			Yes	72.63	297.41	255.07	23.2
BA-6, 13.5'-15.0'	1003	4/29/09	Hom	No. 10			Yes	18.94	102.81	85.24	26.5
BA-6, 15.0'-16.5'	1004	4/29/09	Hom	3/4"			No	22.06	113.08	97.89	20.0
BA-6, 16.5'-18.0'	1005	4/29/09	Len	No. 4			No	20.80	118.78	100.29	23.3
BA-6, 18.0'-19.5'	1006	4/29/09	Len	3/8"			No	21.70	121.11	103.90	20.9
BA-6, 19.5'-21.0'	1007	4/29/09	Hom	No. 10			Yes	20.92	82.70	70.93	23.5
BA-6, 21.0'-22.5'	1008	4/29/09	Len	3/8"			No	21.87	98.12	83.08	24.6
BA-6, 22.5'-24.0'	1009	4/29/09	Len	No. 10			Yes	21.43	110.21	92.27	25.3
BA-6, 24.0'-25.5'	1010	4/29/09	Len	No. 10			Yes	21.65	112.22	91.24	30.1
BA-6, 25.5'-27.0'	1011	4/29/09	Hom	No. 10			Yes	21.23	79.30	64.47	34.3
BA-6, 27.0'-28.5'	1012	4/29/09	Hom	No. 10			Yes	21.26	83.89	67.84	34.5
BA-6, 28.5'-30.0'	1013	4/29/09	Hom	No. 10			Yes	21.13	116.07	91.60	34.7
BA-6, 30.0'-31.5'	1014	4/29/09	Lam	No. 10			Yes	29.51	139.14	112.34	32.4
BA-6, 35.0'-36.5'	1015	4/29/09	Hom	No. 10			Yes	21.61	111.66	90.45	30.8
BA-6, 40.0'-41.5'	1016	4/29/09	Hom	No. 10			Yes	19.40	106.42	87.20	28.3
BA-6, 45.0'-46.5'	1017	4/29/09	Hom	No. 10			Yes	21.44	128.91	103.64	30.7
BA-6, 48.5'-48.9'	1018	4/29/09	Hom	No. 10			Yes	20.97	109.45	101.41	10.0
BA-7, 0.0'-1.5'	1019	4/29/09	Len	3/4"			No	20.95	112.44	97.69	19.2
BA-7, 1.5'-3.0'	1020	4/29/09	Len	No. 10			Yes	19.51	81.61	69.33	24.6
BA-7, 3.0'-4.5'	1021	4/29/09	Len	3/8"			No	21.61	101.75	88.51	19.8
BA-7, 4.5'-6.0'	1022	4/29/09	Len	3/8"			No	21.89	102.37	87.44	22.8
BA-7, 6.0'-7.5'	1023	4/29/09	Len	No. 4			No	21.35	102.90	85.61	26.9
BA-7, 7.5'-9.0'	1024	4/29/09	Len	No. 10			Yes	21.18	121.60	102.64	23.3
BA-7, 9.0'-10.5'	1025	4/29/09	Len	3/8"			No	21.96	96.15	84.21	19.2



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-7, 10.5'-12.0'	1026	4/29/09	Len	No. 4			No	21.08	93.60	82.62	17.8
BA-7, 12.0'-13.5'	1027	4/29/09	Hom	No. 10			Yes	22.08	52.38	46.45	24.3
BA-7, 13.5'-15.0'	1028	4/29/09	Len	No. 4			No	21.44	99.19	87.48	17.7
BA-7, 15.0'-16.5'	1029	4/29/09	Len	No. 4			No	21.80	115.49	98.19	22.6
BA-7, 16.5'-18.0'	1030	4/29/09	Hom	No. 10			Yes	20.88	101.60	87.37	21.4
BA-7, 18.0'-19.5'	1031	4/29/09	Hom	No. 10			Yes	21.50	130.30	96.21	45.6
BA-7, 19.5'-21.0'	1032	4/29/09	Hom	No. 10			Yes	22.21	116.75	85.92	48.4
BA-7, 21.0'-22.5'	1033	4/29/09	Hom	No. 10			Yes	20.06	111.55	83.76	43.6
BA-7, 22.5'-24.0'	1034	4/29/09	Hom	3/4"			No	21.32	87.69	70.80	34.1
BA-7, 24.0'-25.5'	1035	4/29/09	Hom	3/4"			No	20.94	118.21	90.58	39.7
BA-7, 25.5'-27.0'	1036	4/29/09	Hom	3/4"			No	22.40	127.33	103.19	29.9
BA-7, 27.0'-28.5'	1037	4/29/09	Hom	No. 10			Yes	22.02	121.23	99.47	28.1
BA-7, 28.5'-30.0'	1038	4/29/09	Hom	3/4"			No	22.81	111.30	92.14	27.6
BA-7, 35.0'-36.5'	1039	4/29/09	Hom	1 1/2"			No	19.33	99.86	84.09	24.4
BA-7, 39.3'-39.6'	1040	4/29/09	Hom	1 1/2"			No	19.06	81.94	78.56	5.7
BA-8, 0.0'-1.5'	1041	4/30/09	Hom	No. 10			Yes	47.22	187.90	162.10	22.5
BA-8, 1.5'-3.0'	1042	4/30/09	Len	No. 10			Yes	38.05	205.63	177.09	20.5
BA-8, 3.0'-4.5'	1043	4/30/09	Hom	3/8"			No	46.57	203.86	169.29	28.2
BA-8, 4.5'-6.0'	1044	4/30/09	Hom	3/8"			No	45.80	210.42	176.96	25.5
BA-8, 6.0'-7.5'	1045	4/30/09	Hom	No. 4			Yes	43.40	239.82	200.64	24.9
BA-8, 7.5'-9.0'	1046	4/30/09	Len	3/4"			No	45.01	235.74	198.83	24.0
BA-8, 9.0'-10.5'	1047	4/30/09	Len	3/8"			No	42.99	282.92	244.90	18.8
BA-8, 10.5'-12.0'	1048	4/30/09	Len	3/8"			No	47.29	243.15	205.07	24.1
BA-8, 12.0'-13.5'	1049	4/30/09	Hom	No. 4			Yes	44.65	268.92	227.40	22.7
BA-8, 13.5'-15.0'	1050	4/30/09	Hom	No. 10			Yes	44.31	291.12	240.02	26.1
BA-8, 15.0'-16.5'	1051	4/30/09	Hom	3/8"			No	45.49	226.95	193.48	22.6
BA-8, 16.5'-18.0'	1052	4/30/09	Hom	No. 4			Yes	49.40	182.36	158.19	22.2
BA-8, 18.0'-19.5'	1053	4/30/09	Hom	3/4"			No	43.95	346.18	324.06	7.9
BA-8, 19.5'-21.0'	1054	4/30/09	Hom	3/4"			No	39.29	237.95	210.87	15.8
BA-8, 21.0'-22.5'	1055	4/30/09	Hom	No. 10			Yes	43.90	310.98	234.45	40.2



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-8, 22.5'-24.0'	1056	4/30/09	Hom	No. 10			Yes	38.29	212.95	170.86	31.7
BA-8, 24.0'-25.5'	1057	4/30/09	Hom	No. 10			Yes	43.58	343.27	271.86	31.3
BA-8, 25.5'-27.0'	1058	4/30/09	Hom	No. 10			Yes	47.71	326.24	263.15	29.3
BA-8, 27.0'-28.5'	1059	4/30/09	Hom	3/8"			No	49.31	334.37	276.10	25.7
BA-8, 28.5'-30.0'	1060	4/30/09	Hom	No. 10			Yes	47.07	303.35	247.42	27.9
BA-8, 0.1'-31.5'	1061	4/30/09	Hom	No. 10			Yes	47.45	327.91	268.09	27.1
BA-8, 35.0'-36.5'	1062	4/30/09	Hom	3/8"			No	46.86	329.30	270.13	26.5
BA-8, 40.0'-40.2'	1063	4/30/09	Hom	3/4"			No	43.63	153.81	148.76	4.8
BA-9, 0.0'-1.5'	1064	4/30/09	Hom	No. 10			Yes	48.53	238.68	208.87	18.6
BA-9, 1.5'-3.0'	1065	4/30/09	Len	3/8"			No	49.66	257.40	218.05	23.4
BA-9, 3.0'-4.5'	1066	4/30/09	Len	3/8"			No	44.06	238.92	206.80	19.7
BA-9, 4.5'-6.0'	1067	4/30/09	Len	1 1/2"			No	38.36	145.34	128.07	19.3
BA-9, 6.0'-7.5'	1068	4/30/09	Len	3/4"			No	48.08	248.09	217.63	18.0
BA-9, 7.5'-9.0'	1069	4/30/09	Len	No. 10			Yes	38.52	234.43	196.82	23.8
BA-9, 9.0'-10.5'	1070	4/30/09	Len	3/8"			No	44.15	203.70	175.78	21.2
BA-9, 10.5'-12.0'	1071	4/30/09	Len	1 1/2"			No	43.51	265.05	223.43	23.1
BA-9, 12.0'-13.5'	1072	4/30/09	Len	No. 10			Yes	39.19	198.75	169.99	22.0
BA-9, 13.5'-15.0'	1073	4/30/09	Hom	1 1/2"			No	44.78	143.98	123.07	26.7
BA-9, 15.0'-16.5'	1074	4/30/09	Lam	3/8"			No	43.73	189.18	158.11	27.2
BA-9, 16.5'-18.0'	1075	4/30/09	Len	No. 4			Yes	39.30	207.70	171.50	27.4
BA-9, 18.0'-19.5'	1076	4/30/09	Hom	No. 10			Yes	38.30	230.38	188.88	27.6
BA-9, 19.5'-21.0'	1077	4/30/09	Hom	No. 10			Yes	44.13	310.26	251.70	28.2
BA-9, 21.0'-22.5'	1078	4/30/09	Hom	3/8"			No	43.47	256.99	214.79	24.6
BA-9, 22.5'-24.0'	1079	4/30/09	Len	3/8"			No	43.71	270.00	222.35	26.7
BA-9, 24.0'-25.5'	1080	4/30/09	Len	3/4"			No	46.81	319.63	264.61	25.3
BA-9, 25.5'-27.0'	1081	4/30/09	Hom	3/8"			No	43.59	292.78	239.51	27.2
BA-9, 27.0'-28.5'	1082	4/30/09	Hom	No. 4			Yes	43.76	247.24	202.17	28.5
BA-9, 28.5'-30.0'	1083	4/30/09	Hom	3/8"			No	43.88	280.58	225.42	30.4
BA-9, 0.1'-31.5'	1084	4/30/09	Hom	3/8"			No	43.76	252.53	228.99	12.7
BA-9, 31.5'-33.0'	1085	4/30/09	Hom	3/8"			No	43.77	287.51	231.00	30.2



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
BA-9, 33.0'-34.5'	1086	4/30/09	Hom	1 1/2"			No	43.27	240.46	196.54	28.7
BA-9, 34.5'-36.0'	1087	4/30/09	Len	3/8"			No	43.86	258.43	221.94	20.5
BA-9, 36.0'-37.5'	1088	4/30/09	Str	3/4"			No	43.89	236.16	195.36	26.9
BA-9, 37.5'-39.0'	1089	4/30/09	Hom	3/4"			No	44.51	321.77	261.36	27.9
BA-9, 39.0'-40.5'	1090	4/30/09	Hom	3/8"			No	43.73	283.87	235.11	25.5
BA-9, 40.5'-41.2'	1091	4/30/09	Hom	3/4"			No	43.73	274.62	236.32	19.9
JS-59, 0.0'-1.5'	1092	4/30/09	Len	3/8"			No	44.43	303.65	255.68	22.7
JS-59, 1.5'-3.0'	1093	4/30/09	Len	3/8"			No	45.30	216.75	188.83	19.5
JS-59, 3.0'-4.5'	1094	4/30/09	Len	3/8"			No	48.32	332.71	279.14	23.2
JS-59, 4.5'-6.0'	1095	4/30/09	Len	3/8"			No	43.75	381.17	328.63	18.4
JS-59, 6.0'-7.5'	1096	4/30/09	Len	No. 4			Yes	49.14	287.27	249.01	19.1
JS-59, 7.5'-9.0'	1097	4/30/09	Len	3/4"			No	43.79	293.47	252.14	19.8
JS-59, 9.0'-10.5'	1098	4/30/09	Len	3/4"			No	47.96	223.03	199.54	15.5
JS-59, 10.5'-12.0'	1099	4/30/09	Len	3/4"			No	44.23	354.78	312.30	15.8
JS-59, 12.0'-13.5'	1100	4/30/09	Len	No. 10			Yes	43.59	328.89	288.28	16.6
JS-59, 13.5'-15.0'	1101	4/30/09	Hom	No. 10			Yes	48.07	328.97	284.06	19.0
JS-59, 15.0'-16.5'	1102	4/30/09	Hom	3/8"			No	43.79	351.72	296.83	21.7
JS-59, 16.5'-18.0'	1103	4/30/09	Hom	No. 10			Yes	43.84	349.98	294.90	21.9
JS-59, 18.0'-19.5'	1104	4/30/09	Hom	No. 10			Yes	46.46	300.65	257.21	20.6
JS-59, 19.5'-21.0'	1105	4/30/09	Hom	No. 10			Yes	46.04	344.19	292.39	21.0
JS-59, 21.0'-22.5'	1106	4/30/09	Hom	No. 10			Yes	48.77	270.32	250.96	9.6
JS-59, 22.5'-24.0'	1107	4/30/09	Hom	No. 10			Yes	46.82	384.10	326.52	20.6
JS-59, 24.0'-25.5'	1108	4/30/09	Hom	No. 10			Yes	48.27	164.07	135.08	33.4
JS-59, 25.5'-27.0'	1109	4/30/09	Hom	3/8"			No	46.80	67.40	64.20	18.4
JS-59, 27.0'-28.5'	1110	4/30/09	Hom	1 1/2"			No	46.58	203.35	186.93	11.7
JS-59, 28.5'-28.9'	1111	4/30/09	Hom	1 1/2"			No	42.87	222.56	200.73	13.8
JS-48, 0.0'-1.5'	1112	5/1/09	Len	3/8"			No	43.75	238.22	212.18	15.5
JS-48, 1.5'-3.0'	1113	5/1/09	Len	No. 4			Yes	45.98	276.60	240.40	18.6
JS-48, 3.0'-4.5'	1114	5/1/09	Lam	3/8"			No	44.04	228.59	200.68	17.8
JS-48, 4.5'-6.0'	1115	5/1/09	Len	3/4"			No	45.82	285.34	249.87	17.4



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-48, 6.0'-7.5'	1116	5/1/09	Lam	3/8"			No	48.42	312.41	270.42	18.9
JS-48, 7.5'-9.0'	1117	5/5/09	Hom	No. 10			Yes	44.18	205.60	171.43	26.9
JS-48, 7.5'-9.0'	1117A	5/5/09	Hom	3/8"			No	43.69	231.67	211.81	11.8
JS-48, 9.0'-10.5'	1118	5/1/09	Hom	No. 10			Yes	43.89	284.00	232.77	27.1
JS-48, 10.5'-12.0'	1119	5/1/09	Hom	No. 10			Yes	44.09	275.19	225.76	27.2
JS-48, 12.0'-13.5'	1120	5/5/09	Hom	No. 10			Yes	47.63	89.65	82.01	22.2
JS-48, 12.0'-13.5' Wood	1120A	5/5/09	Hom					38.49	77.51	58.80	92.1
JS-48, 13.5'-15.0'	1121	5/1/09	Hom	No. 10			Yes	44.23	282.76	218.04	37.2
JS-48, 15.0'-16.5'	1122	5/1/09	Hom	No. 10			Yes	43.66	115.89	99.68	28.9
JS-48, 16.5'-18.0'	1123	5/1/09	Hom	No. 10			Yes	43.37	140.25	113.12	38.9
JS-48, 18.0'-19.5'	1124	5/1/09	Hom	No. 10			Yes	44.14	324.71	278.92	19.5
JS-48, 19.5'-21.0'	1125	5/1/09	Hom	No. 4			Yes	43.62	311.21	271.13	17.6
JS-48, 21.0'-22.5'	1126	5/1/09	Hom	3/8"			No	39.35	297.03	254.25	19.9
JS-48, 22.5'-24.0'	1127	5/5/09	Hom	No. 10			Yes	38.24	246.75	207.41	23.3
JS-48, 22.5'-24.0'	1127A	5/5/09	Hom	3/4"				39.22	223.41	184.83	26.5
JS-48, 24.0'-25.5'	1128	5/1/09	Hom	No. 10			Yes	46.71	191.46	164.58	22.8
JS-48, 25.5'-27.0'	1129	5/1/09	Hom	1 1/2"			No	44.29	387.97	353.55	11.1
JS-48, 27.0'-28.5'	1130	5/1/09	Hom	3/4"			No	45.96	387.41	353.84	10.9
JS-48, 28.5'-30.0'	1131	5/1/09	Hom	No. 4			Yes	46.36	303.63	252.98	24.5
JS-44, 0.0'-1.5'	1132	5/1/09	Len	3/4"			No	46.90	256.75	231.02	14.0
JS-44, 1.5'-3.0'	1133	5/1/09	Lam	3/8"			No	44.48	305.23	268.91	16.2
JS-44, 3.0'-4.5'	1134	5/1/09	Hom	1 1/2"			No	43.73	84.16	81.77	6.3
JS-44, 4.5'-6.0' NO RECOVERY	1135	5/1/09									
JS-44, 6.0'-7.5'	1136	5/1/09	Hom	3/8"			No	44.14	82.07	76.69	16.5
JS-44, 7.5'-9.0'	1137	5/1/09	Hom	No. 10			Yes	43.71	312.07	267.86	19.7
JS-44, 9.0'-10.5'	1138	5/1/09	Hom	3/8"			No	46.89	235.52	207.71	17.3
JS-44, 10.5'-12.0'	1139	5/1/09	Hom	3/4"			No	43.79	284.61	245.26	19.5
JS-44, 12.0'-13.5'	1140	5/1/09	Hom	1 1/2"			No	44.24	73.04	68.65	18.0
JS-44, 13.5'-15.0'	1141	5/1/09	Hom	3/4"			No	47.04	207.73	182.46	18.7
JS-44, 15.0'-16.5'	1142	5/1/09	Hom	3/4"			No	44.89	366.04	319.50	16.9



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-44, 16.5'-18.0'	1143	5/1/09	Len	3/8"			No	44.15	259.57	223.39	20.2
JS-44, 18.0'-19.5'	1144	5/1/09	Hom	1 1/2"			No	44.36	308.07	264.41	19.8
JS-44, 19.5'-21.0'	1145	5/1/09	Len	1 1/2"			No	47.06	317.21	278.12	16.9
JS-44, 21.0'-22.5'	1146	5/1/09	Len	3/8"			No	44.86	332.01	289.69	17.3
JS-44, 22.5'-24.0'	1147	5/1/09	Len	3/4"			No	43.72	323.67	277.90	19.5
JS-44, 24.0'-25.5'	1148	5/1/09	Len	3/8"			No	43.46	354.54	304.54	19.2
JS-44, 25.5'-27.0'	1149	5/1/09	Len	3/4"			No	44.20	365.80	304.38	23.6
JS-44, 27.0'-28.5'	1150	5/1/09	Hom	No. 10			Yes	44.41	361.90	255.35	50.5
JS-44, 28.5'-30.0'	1151	5/1/09	Hom	No. 10			Yes	44.33	340.41	250.43	43.7
JS-44, 30.0'-31.5'	1152	5/5/09	Hom	No. 10			Yes	43.40	92.62	73.24	64.9
JS-44, 30.0'-31.5'	1152A	5/5/09	Hom	No. 10			Yes	44.09	166.64	140.36	27.3
JS-44, 31.5'-33.0'	1153	5/1/09	Hom	No. 10			Yes	47.10	388.11	315.59	27.0
JS-44, 33.0'-34.5'	1154	5/1/09									
JS-44, 34.5'-36.0'	1155	5/1/09	Hom	No. 10			Yes	48.35	295.95	246.06	25.2
JS-44, 36.0'-37.5'	1156	5/1/09	Hom	No. 10			Yes	29.36	302.14	250.07	23.6
JS-44, 37.5'-39.0'	1157	5/1/09	Hom	No. 10			Yes	27.96	269.22	219.53	25.9
JS-44, 39.0'-40.5'	1158	5/1/09	Hom	No. 10			Yes	44.11	347.73	284.03	26.6
JS-44, 40.5'-42.0'	1159	5/1/09	Hom	No. 10			Yes	43.48	384.16	321.03	22.7
JS-44, 42.0'-43.5'	1160	5/1/09	Len	3/8"			No	43.91	397.51	333.35	22.2
JS-44, 43.5'-43.9'	1161	5/1/09	Len	3/8"			No	48.00	292.64	248.74	21.9
JS-41, 0.0'-1.5'	1163	5/4/09	Hom	No. 10			Yes	43.43	264.45	226.35	20.8
JS-41, 1.5'-3.0'	1164	5/4/09	Hom	No. 10			Yes	46.10	284.37	244.90	19.9
JS-41, 3.0'-4.5'	1165	5/4/09	Hom	No. 10			Yes	39.69	239.71	205.64	20.5
JS-41, 4.5'-6.0'	1166	5/4/09	Hom	No. 10			Yes	44.52	294.46	251.46	20.8
JS-41, 6.0'-7.5'	1167	5/4/09	Hom	No. 10			Yes	43.33	274.54	233.92	21.3
JS-41, 7.5'-9.0'	1168	5/4/09	Hom	No. 10			Yes	43.82	279.37	236.44	22.3
JS-41, 9.0'-10.5'	1169	5/4/09	Hom	No. 10			Yes	43.57	241.83	205.29	22.6
JS-41, 10.5'-12.0'	1170	5/4/09	Hom	No. 10			Yes	38.14	231.74	196.07	22.6
JS-41, 12.0'-13.5'	1171	5/4/09	Hom	No. 10			Yes	47.81	279.37	232.63	25.3
JS-41, 13.5'-15.0'	1172	5/4/09	Hom	No. 10			Yes	43.74	311.49	255.91	26.2



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-41, 15.0'-16.5'	1173	5/4/09	Hom	No. 10			Yes	44.66	332.70	267.98	29.0
JS-41, 16.5'-18.0'	1174	5/5/09	Hom	No. 10			Yes	43.33	226.69	190.44	24.6
JS-41, 16.5'-18.0'	1174A	5/5/09	Hom	3/4"			No	46.88	179.36	158.02	19.2
JS-41, 18.0'-19.5'	1175	5/4/09	Hom	No. 10			Yes	43.24	279.68	247.49	15.8
JS-41, 19.5'-21.0'	1176	5/4/09	Hom	No. 10			Yes	43.73	279.82	248.22	15.5
JS-41, 21.0'-22.5'	1177	5/4/09	Hom	No. 10			Yes	43.42	288.59	255.48	15.6
JS-41, 22.5'-24.0'	1178	5/4/09	Hom	No. 10			Yes	46.87	286.55	252.03	16.8
JS-41, 24.0'-25.5'	1179	5/4/09	Hom	No. 10			Yes	27.55	223.43	191.04	19.8
JS-41, 25.5'-27.0'	1180	5/5/09	Hom	No. 10			Yes	43.68	169.37	154.48	13.4
JS-41, 25.5'-27.0'	1180A	5/5/09	Hom	No. 10			Yes	43.95	112.41	99.48	23.3
JS-41, 27.0'-28.5'	1181	5/4/09	Hom	3/8"			No	38.40	199.25	180.38	13.3
JS-41, 28.5'-30.0'	1182	5/4/09	Hom	3/4"			No	44.44	263.06	234.26	15.2
JS-41, 0.1'-31.5'	1183	5/4/09	Hom	3/8"			No	43.72	277.27	247.79	14.4
JS-41, 31.5'-33.0'	1184	5/4/09	Hom	No. 4			Yes	46.97	274.13	245.31	14.5
JS-41, 33.0'-34.5'	1185	5/4/09	Hom	No. 4			Yes	38.43	202.35	184.82	12.0
JS-41, 34.5'-36.0'	1186	5/4/09	Hom	3/8"			No	43.99	286.95	259.61	12.7
JS-41, 36.0'-37.5'	1187	5/4/09	Hom	No. 4			Yes	44.07	243.24	216.05	15.8
JS-41, 37.5'-39.0'	1188	5/4/09	Hom	No. 4			Yes	47.48	243.88	218.74	14.7
JS-41, 39.0'-40.5'	1189	5/4/09	Hom	No. 10			Yes	44.14	289.73	254.37	16.8
JS-41, 40.5'-42.0'	1190	5/4/09	Hom	No. 10			Yes	43.57	311.85	273.32	16.8
JS-41, 42.0'-43.5'	1191	5/4/09	Hom	3/8"			No	44.02	287.85	248.12	19.5
JS-41, 43.5'-45.0'	1192	5/4/09	Hom	No. 4			Yes	49.06	318.23	275.77	18.7
JS-41, 45.0'-46.5'	1193	5/4/09	Hom	No. 4			Yes	43.48	298.84	250.56	23.3
JS-41, 46.5'-48.0'	1194	5/4/09	Hom	No. 10			Yes	38.56	263.74	214.83	27.7
JS-41, 48.0'-49.5'	1195	5/4/09	Hom	No. 10			Yes	44.07	324.61	261.54	29.0
JS-41, 49.5'-51.0'	1196	5/4/09	Hom	No. 10			Yes	43.93	330.48	262.34	31.2
JS-41, 51.0'-52.5'	1197	5/4/09	Hom	No. 10			Yes	48.58	356.53	274.07	36.6
JS-41, 52.5'-54.0'	1198	5/4/09	Hom	No. 10			Yes	38.88	245.04	163.27	65.7
JS-41, 54.0'-55.5'	1199	5/4/09	Hom	No. 10			Yes	43.99	312.48	227.74	46.1
JS-41, 55.5'-57.0'	1200	5/4/09	Hom	No. 10			Yes	39.47	251.79	192.48	38.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-41, 57.0'-58.5'	1201	5/4/09	Hom	No. 10			Yes	43.76	270.47	206.15	39.6
JS-41, 58.5'-60.0'	1202	5/4/09	Hom	No. 10			Yes	46.87	292.76	218.11	43.6
JS-41, 60.0'-61.5'	1203	5/4/09	Hom	1 1/2"			No	43.69	293.01	234.37	30.8
JS-41, 61.5'-63.0'	1204	5/4/09	Hom	1 1/2"			No	48.29	344.41	319.19	9.3
JS-41, 63.0'-64.5'	1205	5/4/09	Hom	1 1/2"			No	43.57	391.98	362.52	9.2
JS-41, 64.5'-66.0'	1206	5/4/09	Hom	No. 10			Yes	48.29	270.02	209.32	37.7
JS-41, 66.0'-67.5'	1207	5/4/09	Hom	3/4"			No	34.59	223.82	176.41	33.4
JS-41, 70.0'-71.5'	1208	5/4/09	Hom	No. 4			Yes	45.53	341.07	277.63	27.3
JS-41, 75.0'-75.2'	1209	5/4/09	Hom	3/8"			No	47.36	123.56	120.71	3.9
JS-40, 0.0'-1.5' Fly Ash	1211	5/4/09	Hom	3/8"			No	70.23	179.43	154.53	29.5
JS-40, 1.5'-3.0'	1212	5/4/09	Hom	No. 10			Yes	43.16	304.69	253.68	24.2
JS-40, 3.0'-4.5'	1213	5/4/09	Hom	No. 10			Yes	69.74	384.07	325.48	22.9
JS-40, 4.5'-6.0'	1214	5/4/09	Hom	No. 10			Yes	69.35	378.24	319.69	23.4
JS-40, 6.0'-7.5'	1215	5/4/09	Hom	No. 10			Yes	75.06	362.72	305.55	24.8
JS-40, 7.5'-9.0'	1216	5/4/09	Hom	No. 10			Yes	74.10	350.90	294.04	25.9
JS-40, 9.0'-10.5' Fly Ash	1217	5/4/09	Hom	No. 10			Yes	74.20	268.04	226.46	27.3
JS-40, 10.5'-12.0' Fly Ash	1218	5/4/09	Hom	3/8"			No	68.64	288.60	245.38	24.5
JS-40, 12.0'-13.5'	1219	5/4/09	Hom	1 1/2"			No	74.79	344.98	285.50	28.2
JS-40, 13.5'-15.0'	1220	5/4/09	Hom	3/8"			No	75.66	353.08	296.95	25.4
JS-40, 15.0'-16.5'	1221	5/4/09	Str	3/8"			No	73.15	362.37	302.46	26.1
JS-40, 16.5'-18.0'	1222	5/4/09	Hom	3/8"			No	69.00	296.88	262.47	17.8
JS-40, 18.0'-19.5'	1223	5/4/09	Hom	3/8"			No	69.58	289.21	261.65	14.3
JS-40, 19.5'-21.0'	1224	5/4/09	Hom	3/8"			No	68.90	293.76	265.44	14.4
JS-40, 21.0'-22.5'	1225	5/4/09	Hom	3/8"			No	69.11	303.36	279.27	11.5
JS-40, 22.5'-24.0'	1226	5/4/09	Hom	3/8"			No	71.91	317.73	291.79	11.8
JS-40, 24.0'-25.5'	1227	5/4/09	Hom	No. 4			Yes	73.73	326.31	299.37	11.9
JS-40, 25.5'-27.0'	1228	5/4/09	Hom	3/8"			No	70.08	352.54	323.61	11.4
JS-40, 27.0'-28.5'	1229	5/4/09	Hom	3/8"			No	73.58	349.41	322.88	10.6
JS-40, 28.5'-30.0'	1230	5/4/09	Hom	3/8"			No	77.65	324.39	296.78	12.6
JS-40, 0.1'-31.5'	1231	5/4/09	Hom	No. 4			Yes	69.24	320.99	289.14	14.5



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-40, 31.5'-33.0'	1232	5/4/09	Hom	3/8"			No	69.85	343.04	312.34	12.7
JS-40, 33.0'-34.5'	1233	5/4/09	Hom	3/8"			No	68.57	294.12	269.45	12.3
JS-40, 34.5'-36.0'	1234	5/4/09	Hom	No. 4			Yes	72.05	339.60	310.37	12.3
JS-40, 36.0'-37.5'	1235	5/4/09	Hom	3/4"			No	70.05	388.33	356.61	11.1
JS-40, 37.5'-39.0'	1236	5/4/09	Hom	3/8"			No	74.85	394.29	351.35	15.5
JS-40, 39.0'-40.5'	1237	5/4/09	Hom	No. 4			Yes	73.81	350.00	313.89	15.0
JS-40, 40.5'-42.0'	1238	5/4/09	Hom	No. 4			Yes	70.55	263.00	241.89	12.3
JS-40, 42.0'-43.5'	1239	5/4/09	Hom	No. 4			Yes	70.21	321.08	289.95	14.2
JS-40, 43.5'-45.0'	1240	5/4/09	Hom	3/8"			No	73.77	390.61	360.45	10.5
JS-40, 45.0'-46.5'	1241	5/5/09	Hom	3/8"			No	47.38	292.82	253.17	19.3
JS-40, 46.5'-48.0'	1242	5/5/09	Hom	3/8"			No	48.23	244.95	214.24	18.5
JS-40, 48.0'-49.5'	1243	5/5/09	Hom	3/8"			No	44.12	277.76	237.04	21.1
JS-40, 49.5'-51.0'	1244	5/5/09	Hom	3/8"			No	46.89	258.95	232.54	14.2
JS-40, 51.0'-52.5'	1245	5/5/09	Hom	No. 4			Yes	43.68	283.45	246.31	18.3
JS-40, 52.5'-54.0'	1246	5/5/09	Hom	3/8"			No	49.16	274.97	245.39	15.1
JS-40, 54.0'-55.5'	1247	5/5/09	Hom	No. 4			Yes	43.83	266.19	226.44	21.8
JS-40, 55.5'-57.0'	1248	5/5/09	Hom	3/8"			No	43.64	263.48	224.45	21.6
JS-40, 57.0'-58.5'	1249	5/5/09	Hom	3/8"			No	43.72	276.90	233.16	23.1
JS-40, 58.5'-60.0'	1250	5/5/09	Hom	3/8"			No	43.27	279.59	234.29	23.7
JS-40, 60.0'-61.5'	1251	5/5/09	Hom	No. 4			Yes	44.21	301.72	252.91	23.4
JS-40, 61.5'-63.0'	1252	5/5/09	Hom	No. 4			Yes	43.64	311.28	254.13	27.2
JS-40, 63.0'-64.5'	1253	5/5/09	Hom	No. 4			Yes	49.12	318.08	261.55	26.6
JS-40, 64.5'-66.0'	1254	5/5/09	Hom	No. 10			Yes	43.82	325.22	264.97	27.2
JS-40, 66.0'-67.5'	1255	5/5/09	Hom	No. 10			Yes	47.93	343.22	290.34	21.8
JS-40, 67.5'-69.0' Clay	1256	5/5/09	Len	3/4"			No	43.69	296.68	255.36	19.5
JS-40, 67.5'-69.0' Fly Ash	1256A	5/5/09	Hom	No. 10			Yes	46.43	219.27	168.53	41.6
JS-40, 69.0'-70.5'	1257	5/5/09	Hom	No. 10			Yes	46.78	317.22	243.31	37.6
JS-40, 70.5'-72.0'	1258	5/5/09	Hom	3/4"			No	43.88	291.56	229.63	33.3
JS-40, 72.0'-73.5'	1259	5/5/09	Hom	No. 10			Yes	44.35	346.78	263.02	38.3
JS-40, 73.5'-75.0'	1260	5/5/09	Hom	No. 10			Yes	48.26	295.75	225.68	39.5



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-40, 75.0'-76.5'	1261	5/5/09	Hom	No. 10			Yes	48.76	339.74	254.67	41.3
JS-40, 76.5'-78.0'	1262	5/5/09	Hom	No. 10			Yes	43.75	297.16	231.07	35.3
JS-40, 78.0'-79.5'	1263	5/5/09	Hom	No. 10			Yes	46.06	359.57	280.53	33.7
JS-40, 79.5'-81.0' Fly Ash	1264	5/5/09	Hom	No. 10			Yes	42.81	391.18	258.25	61.7
JS-40, 79.5'-81.0' Sandy Clay	1264A	5/5/09	Hom	No. 10			Yes	46.86	151.60	132.02	23.0
JS-40, 81.0'-82.5' Fly Ash	1265	5/5/09	Hom	No. 10			Yes	43.79	303.59	234.53	36.2
JS-40, 81.0'-82.5' Sand	1265A	5/5/09	Hom	3/4"			No	48.08	275.74	240.87	18.1
JS-40, 82.5'-84.0'	1266	5/5/09	Hom	3/4"			No	39.45	297.55	269.56	12.2
JS-40, 84.0'-85.5'	1267	5/5/09	Hom	3/8"			No	45.53	231.45	183.87	34.4
JS-40, 85.5'-87.0'	1268	5/5/09	Hom	3/8"			No	46.63	281.34	224.06	32.3
JS-40, 90.0'-91.5'	1269	5/5/09	Hom	3/8"			No	47.22	111.23	100.11	21.0
JS-36, 0.0'-1.5'	1270	5/6/09	Len	3/4"			No	43.77	205.35	184.82	14.6
JS-36, 1.5'-3.0'	1271	5/6/09	Len	3/4"			No	46.91	247.78	220.35	15.8
JS-36, 3.0'-4.5'	1272	5/6/09	Len	1 1/2"			No	43.67	284.77	252.62	15.4
JS-36, 4.5'-6.0'	1273	5/6/09	Len	3/4"			No	43.90	315.51	274.49	17.8
JS-36, 6.0'-7.5'	1274	5/6/09	Hom	No. 10			Yes	44.33	110.75	99.95	19.4
JS-36, 7.5'-9.0'	1275	5/6/09	Hom	1 1/2"			No	44.70	74.16	70.80	12.9
JS-36, 9.0'-10.5'	1276	5/6/09	Hom	No. 10			Yes	44.89	230.88	182.57	35.1
JS-36, 10.5'-12.0'	1277	5/6/09	Hom	3/8"			No	47.05	180.62	156.83	21.7
JS-36, 12.0'-13.5'	1278	5/6/09	Hom	No. 10			Yes	44.20	288.41	221.03	38.1
JS-36, 13.5'-15.0'	1279	5/6/09	Hom	No. 10			Yes	46.88	293.61	216.85	45.2
JS-36, 15.0'-16.5'	1280	5/6/09	Hom	No. 10			Yes	44.85	302.99	226.44	42.2
JS-36, 16.5'-18.0'	1281	5/6/09	Hom	No. 10			Yes	43.70	294.27	208.96	51.6
JS-36, 18.0'-19.5'	1282	5/6/09	Hom	No. 10			Yes	44.90	315.98	228.71	47.5
JS-36, 19.5'-21.0'	1283	5/6/09	Hom	No. 10			Yes	43.59	305.73	215.89	52.1
JS-36, 21.0'-22.5'	1284	5/6/09	Hom	No. 10			Yes	43.45	276.40	185.99	63.4
JS-36, 22.5'-24.0'	1285	5/6/09	Hom	No. 10			Yes	44.20	314.96	208.79	64.5
JS-36, 24.0'-25.5'	1286	5/6/09	Hom	No. 10			Yes	45.17	282.93	191.22	62.8
JS-36, 24.0'-25.5'	1286A	5/6/09	Hom	No. 10			Yes	27.85	78.61	56.80	75.3
JS-36, 25.5'-27.0'	1287	5/6/09	Hom	No. 10			Yes	46.66	261.03	200.28	39.5



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-36, 27.0'-28.5'	1288	5/6/09	Hom	No. 10			Yes	43.78	278.98	203.04	47.7
JS-36, 28.5'-30.0'	1289	5/6/09	Hom	No. 10			Yes	44.63	314.82	222.71	51.7
JS-36, 0.1'-31.5'	1290	5/6/09	Hom	No. 10			Yes	43.80	282.36	202.75	50.1
JS-36, 31.5'-33.0'	1291	5/6/09	Hom	No. 10			Yes	48.35	243.86	171.59	58.6
JS-36, 33.0'-34.5'	1292	5/6/09	Hom	No. 10			Yes	45.27	299.59	200.12	64.2
JS-36, 34.5'-36.0'	1293	5/6/09	Hom	No. 10			Yes	43.88	295.36	212.50	49.1
JS-36, 36.0'-37.5'	1294	5/6/09	Hom	No. 10			Yes	43.80	319.56	229.51	48.5
JS-36, 37.5'-39.0'	1295	5/6/09	Hom	No. 10			Yes	43.76	305.85	234.29	37.6
JS-36, 37.5'-39.0'	1295A	5/6/09	Hom	No. 10			Yes	43.93	340.35	272.45	29.7
JS-36, 39.0'-40.5'	1296	5/6/09	Hom	No. 10			Yes	43.59	374.34	296.91	30.6
JS-36, 40.5'-42.0'	1297	5/6/09	Hom	3/8"			No	47.03	302.45	243.95	29.7
JS-36, 42.0'-43.5'	1298	5/6/09	Hom	3/8"			No	38.35	308.09	241.40	32.8
JS-36, 43.5'-45.0'	1299	5/6/09	Str	No. 10			Yes	43.64	368.72	287.74	33.2
JS-36, 45.0'-46.5'	1300	5/6/09	Hom	No. 10			Yes	47.91	330.84	258.89	34.1
JS-36, 46.5'-47.9'	1301	5/6/09	Hom	3/8"			No	44.23	398.14	324.97	26.1
JS-34, 0.0'-1.5'	1303	5/6/09	Hom	No. 10			Yes	45.50	255.35	218.71	21.2
JS-34, 1.5'-3.0'	1304	5/6/09	Hom	No. 10			Yes	49.37	274.32	233.05	22.5
JS-34, 3.0'-4.5'	1305	5/6/09	Hom	No. 10			Yes	44.72	297.59	249.46	23.5
JS-34, 4.5'-6.0'	1306	5/6/09	Hom	No. 10			Yes	43.91	279.81	234.86	23.5
JS-34, 6.0'-7.5'	1307	5/6/09	Hom	3/8"			No	49.36	257.12	219.98	21.8
JS-34, 7.5'-9.0'	1308	5/6/09	Hom	No. 10			Yes	47.47	263.72	228.06	19.7
JS-34, 9.0'-10.5'	1309	5/6/09	Hom	No. 10			Yes	27.95	225.10	189.77	21.8
JS-34, 10.5'-12.0'	1310	5/6/09	Hom	No. 10			Yes	29.35	275.70	232.42	21.3
JS-34, 12.0'-13.5'	1311	5/6/09	Hom	No. 10			Yes	44.19	279.85	240.52	20.0
JS-34, 13.5'-15.0'	1312	5/6/09	Hom	No. 10			Yes	47.40	281.91	243.71	19.5
JS-34, 15.0'-16.5'	1313	5/6/09	Hom	No. 10			Yes	44.61	306.03	259.07	21.9
JS-34, 16.5'-18.0'	1314	5/6/09	Hom	No. 10			Yes	44.15	283.41	234.76	25.5
JS-34, 18.0'-19.5'	1315	5/6/09	Hom	3/8"			No	43.76	277.03	236.03	21.3
JS-34, 19.5'-21.0'	1316	5/6/09	Hom	No. 10			Yes	44.01	289.31	243.45	23.0
JS-34, 21.0'-22.5'	1317	5/6/09	Hom	No. 10			Yes	43.53	288.16	240.87	24.0



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-34, 22.5'-24.0'	1318	5/6/09	Hom	No. 10			Yes	43.72	276.72	237.10	20.5
JS-34, 24.0'-25.5'	1319	5/6/09	Hom	No. 10			Yes	39.80	222.22	189.77	21.6
JS-34, 25.5'-27.0'	1320	5/6/09	Hom	No. 10			Yes	43.57	292.80	244.88	23.8
JS-34, 27.0'-28.5'	1321	5/6/09	Hom	No. 10			Yes	46.03	285.59	243.37	21.4
JS-34, 28.5'-30.0'	1322	5/6/09	Hom	No. 10			Yes	43.94	296.63	252.48	21.2
JS-34, 30.1'-31.5'	1323	5/6/09	Hom	No. 10			Yes	48.08	292.32	245.88	23.5
JS-34, 31.5'-33.0'	1324	5/7/09	Hom	No. 10			Yes	44.83	280.75	232.33	25.8
JS-34, 33.0'-34.5'	1325	5/7/09	Hom	No. 10			Yes	43.70	282.25	233.08	26.0
JS-34, 34.5'-36.0'	1326	5/7/09	Hom	No. 10			Yes	49.07	279.99	226.56	30.1
JS-34, 36.0'-37.5'	1327	5/7/09	Hom	No. 10			Yes	49.14	317.87	253.07	31.8
JS-34, 37.5'-39.0'	1328	5/7/09	Hom	No. 10			Yes	44.08	304.22	253.86	24.0
JS-34, 39.0'-40.5'	1329	5/7/09	Hom	No. 10			Yes	45.49	313.27	248.61	31.8
JS-34, 40.5'-42.0'	1330	5/7/09	Hom	No. 10			Yes	49.72	334.14	264.49	32.4
JS-34, 42.0'-43.5'	1331	5/7/09	Hom	No. 10			Yes	43.61	309.76	246.11	31.4
JS-34, 43.5'-45.0'	1332	5/7/09	Hom	No. 10			Yes	44.42	188.64	156.24	29.0
JS-34, 43.5'-45.0'	1332A	5/7/09	Hom	No. 10			Yes	44.96	241.46	214.07	16.2
JS-34, 45.0'-46.5'	1333	5/7/09	Hom	3/8"			No	48.38	206.82	181.76	18.8
JS-34, 46.5'-48.0'	1334	5/7/09	Hom	3/8"			No	49.31	195.53	160.03	32.1
JS-34, 48.0'-49.5'	1335	5/7/09	Hom	3/8"			No	48.02	285.24	220.14	37.8
JS-34, 49.5'-51.0'	1336	5/7/09	Hom	No. 10			Yes	43.79	320.48	244.04	38.2
JS-34, 51.0'-52.5'	1337	5/7/09	Hom	No. 10			Yes	39.30	240.77	175.84	47.6
JS-34, 52.5'-54.0'	1338	5/7/09	Hom	No. 10			Yes	47.32	332.33	243.53	45.3
JS-34, 54.0'-55.5'	1339	5/7/09	Hom	No. 10			Yes	45.52	295.51	224.97	39.3
JS-34, 55.5'-57.0'	1340	5/7/09	Hom	No. 10			Yes	43.66	334.03	250.89	40.1
JS-34, 57.0'-58.5'	1341	5/7/09	Hom	No. 10			Yes	43.30	266.90	205.90	37.5
JS-34, 58.5'-60.0'	1342	5/7/09	Hom	No. 10			Yes	44.48	368.34	283.08	35.7
JS-34, 60.0'-61.5'	1343	5/7/09	Hom	3/8"			No	38.34	282.34	226.67	29.6
JS-34, 61.5'-63.0'	1344	5/7/09	Len	No. 4			Yes	43.96	391.33	325.10	23.6
JS-34, 63.0'-64.5'	1345	5/7/09	Len	No. 4			Yes	48.36	302.52	250.71	25.6
JS-34, 64.5'-66.0'	1346	5/7/09	Len	No. 10			Yes	43.88	368.25	305.38	24.0



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-34, 66.0'-67.5'	1347	5/7/09	Len	1 1/2"			No	43.27	342.16	300.31	16.3
JS-34, 67.5'-69.0'	1348	5/7/09	Len	3/8"			No	38.64	120.80	105.33	23.2
JS-34, 67.5'-69.0'	1348A	5/7/09	Hom	1 1/2"			No	44.93	363.39	326.38	13.1
JS-34, 69.0'-70.5'	1349	5/7/09	Hom	3/8"			No	43.73	333.33	305.54	10.6
JS-34, 70.5'-72.0'	1350	5/7/09	Hom	1 1/2"			No	44.26	379.45	347.38	10.6
JS-34, 72.0'-72.8'	1351	5/7/09	Hom	1 1/2"			No	43.83	319.29	274.23	19.6
JS-34, 73.1'-74.6'	1352	5/7/09	Hom	3/4"			No	40.31	264.91	217.32	26.9
JS-34B, 0.0'-1.5'	1354	5/7/09	Hom	No. 10			Yes	47.06	305.69	242.68	32.2
JS-34B, 1.5'-3.0'	1355	5/7/09	Hom	No. 10			Yes	44.85	298.63	239.74	30.2
JS-34B, 3.0'-4.5'	1356	5/7/09	Len	No. 10			Yes	43.83	290.57	246.93	21.5
JS-34B, 4.5'-6.0'	1357	5/7/09	Hom	No. 10			Yes	46.34	281.16	234.02	25.1
JS-34B, 6.0'-7.5'	1358	5/7/09	Hom	No. 10			Yes	43.61	295.50	244.77	25.2
JS-34B, 7.5'-9.0'	1359	5/7/09	Hom	No. 10			Yes	43.81	296.65	246.62	24.7
JS-34B, 9.0'-10.5'	1360	5/7/09	Hom	No. 10			Yes	43.40	286.76	233.82	27.8
JS-34B, 10.5'-12.0'	1361	5/7/09	Hom	No. 10			Yes	43.47	270.67	219.63	29.0
JS-34B, 12.0'-13.5'	1362	5/7/09	Hom	No. 10			Yes	44.21	222.08	193.33	19.3
JS-34B, 13.5'-15.0'	1363	5/7/09	Hom	No. 10			Yes	44.53	254.04	213.32	24.1
JS-34B, 15.0'-16.5'	1364	5/7/09	Hom	No. 10			Yes	44.07	276.51	232.28	23.5
JS-34B, 16.5'-18.0'	1365	5/7/09	Hom	3/8"			No	47.23	249.93	216.09	20.0
JS-34B, 18.0'-19.5'	1366	5/7/09	Hom	No. 10			Yes	40.10	234.29	194.66	25.6
JS-34B, 19.5'-21.0'	1367	5/7/09	Hom	No. 10			Yes	44.12	299.52	249.47	24.4
JS-34B, 21.0'-22.5'	1368	5/7/09	Len	No. 4			Yes	48.84	275.16	234.16	22.1
JS-34B, 22.5'-24.0'	1369	5/7/09	Hom	No. 10			Yes	40.31	227.41	196.23	20.0
JS-34B, 24.0'-25.5'	1370	5/7/09	Hom	3/8"			No	39.46	226.03	194.10	20.6
JS-34B, 25.5'-27.0'	1371	5/7/09	Hom	No. 4			Yes	44.05	260.94	222.86	21.3
JS-34B, 27.0'-28.5'	1372	5/7/09	Hom	No. 10			Yes	43.62	259.59	219.52	22.8
JS-34B, 28.5'-30.0'	1373	5/7/09	Hom	No. 10			Yes	43.55	312.05	259.57	24.3
JS-34B, 30.2'-31.5'	1375	5/7/09	Hom	No. 10			Yes	49.22	304.56	253.68	24.9
JS-34B, 31.5'-33.0'	1376	5/7/09	Hom	No. 10			Yes	47.51	337.60	268.92	31.0
JS-34B, 33.0'-34.5'	1377	5/7/09	Hom	No. 10			Yes	44.19	309.81	249.15	29.6



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-34B, 34.5'-36.0'	1378	5/7/09	Hom	No. 10			Yes	44.06	308.44	246.64	30.5
JS-34B, 36.0'-37.5'	1379	5/7/09	Hom	No. 10			Yes	44.05	309.17	243.43	33.0
JS-34B, 37.5'-39.0'	1380	5/7/09	Hom	No. 10			Yes	44.13	305.94	236.23	36.3
JS-34B, 39.0'-40.5'	1381	5/7/09	Hom	3/8"			No	46.99	260.40	228.58	17.5
JS-34B, 42.5'-44.0'	1383	5/7/09	Len	3/8"			No	38.51	233.85	207.61	15.5
JS-34B, 44.0'-45.5'	1384	5/7/09	Len	3/4"			No	69.30	281.69	248.96	18.2
JS-34B, 45.5'-47.0'	1385	5/7/09	Hom	No. 4			No	70.67	126.74	118.88	16.3
JS-34B, 47.0'-48.5'	1386	5/7/09	Len	3/8"			No	75.56	244.30	212.58	23.1
JS-34B, 48.5'-50.0'	1387	5/7/09	Hom	No. 10			Yes	69.28	330.68	270.82	29.7
JS-34B, 50.0'-51.5'	1388	5/7/09	Hom	No. 10			Yes	69.90	360.01	290.89	31.3
JS-34B, 51.5'-53.0'	1389	5/7/09	Hom	No. 10			Yes	69.28	381.31	303.84	33.0
JS-34B, 55.0'-56.5'	1391	5/7/09	Hom	No. 10			Yes	74.86	362.72	292.10	32.5
JS-34B, 56.5'-58.0'	1392	5/7/09	Hom	No. 10			Yes	70.72	351.23	282.88	32.2
JS-34B, 58.0'-59.5'	1393	5/7/09	Hom	No. 10			Yes	74.05	358.65	272.24	43.6
JS-34B, 59.5'-61.0'	1394	5/7/09	Hom	3/8"			No	74.20	241.77	201.58	31.6
JS-34B, 59.5'-61.0'	1394A	5/7/09	Len	No. 10			Yes	71.04	279.54	241.24	22.5
JS-34B, 61.0'-62.5'	1395	5/7/09	Hom	No. 4			Yes	74.76	327.61	273.67	27.1
JS-34B, 62.5'-64.0'	1396	5/8/09	Str	1 1/2"			No	75.59	278.76	241.76	22.3
JS-34B, 64.0'-65.5'	1397	5/8/09	Str	No. 10			Yes	69.32	309.21	262.56	24.1
JS-34B, 64.0'-65.5'	1397A	5/8/09	Len	No. 10			Yes	70.12	270.27	231.95	23.7
JS-34B, 65.5'-67.0'	1398	5/8/09	Len	3/8"			No	69.46	365.11	314.60	20.6
JS-34B, 67.0'-68.5'	1399	5/8/09	Len	3/8"			No	71.52	375.62	324.21	20.3
JS-34B, 68.5'-70.0'	1400	5/8/09	Len	1 1/2"			No	68.85	329.44	285.24	20.4
JS-34B, 70.0'-71.5'	1401	5/8/09	Len	3/8"			No	69.71	181.47	162.29	20.7
JS-34B, 70.0'-71.5'	1401A	5/8/09	Hom	3/4"			No	70.37	150.71	140.60	14.4
JS-34B, 71.5'-72.3'	1402	5/8/09	Len	3/4"			No	74.46	118.64	113.61	12.8
JS-34B, 71.5'-72.3'	1402A	5/8/09	Hom	3/4"			No	69.70	166.58	149.30	21.7
JS-33, 0.0'-1.5'	1405	5/8/09	Hom	No. 10			Yes	69.39	320.51	278.31	20.2
JS-33, 1.5'-3.0'	1406	5/8/09	Hom	No. 10			Yes	74.03	288.46	253.84	19.3
JS-33, 3.0'-4.5'	1407	5/8/09	Hom	No. 10			Yes	46.17	257.90	225.70	17.9



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-33, 4.5'-6.0'	1408	5/8/09	Hom	No. 10			Yes	48.47	254.79	223.62	17.8
JS-33, 6.0'-7.5'	1409	5/8/09	Hom	No. 10			Yes	45.84	291.32	250.77	19.8
JS-33, 7.5'-9.0'	1410	5/8/09	Hom	No. 10			Yes	44.34	285.72	246.38	19.5
JS-33, 9.0'-10.5'	1411	5/8/09	Hom	No. 10			Yes	43.65	262.02	223.29	21.6
JS-33, 10.5'-12.0'	1412	5/8/09	Hom	No. 10			Yes	38.25	215.44	183.63	21.9
JS-33, 12.0'-13.5'	1413	5/8/09	Hom	No. 10			Yes	44.01	258.50	216.39	24.4
JS-33, 13.5'-15.0'	1414	5/8/09	Hom	No. 10			Yes	43.92	285.50	242.73	21.5
JS-33, 15.0'-16.5'	1415	5/8/09	Hom	No. 10			Yes	43.79	272.52	227.07	24.8
JS-33, 16.5'-18.0'	1416	5/8/09	Hom	No. 10			Yes	44.31	284.33	241.00	22.0
JS-33, 18.0'-19.5'	1417	5/8/09	Hom	No. 10			Yes	44.48	285.22	244.84	20.2
JS-33, 19.5'-21.0'	1418	5/8/09	Hom	No. 10			Yes	47.25	269.62	232.19	20.2
JS-33, 21.0'-22.5'	1419	5/8/09	Hom	No. 10			Yes	45.83	270.13	232.28	20.3
JS-33, 22.5'-24.0'	1420	5/8/09	Hom	No. 10			Yes	44.17	268.91	230.24	20.8
JS-33, 24.0'-25.5'	1421	5/8/09	Hom	No. 10			Yes	45.98	270.07	231.04	21.1
JS-33, 25.5'-27.0'	1422	5/8/09	Hom	No. 10			Yes	46.71	277.09	237.76	20.6
JS-33, 27.0'-28.5'	1423	5/8/09	Hom	3/8"			No	39.77	231.74	197.76	21.5
JS-33, 28.5'-30.0'	1424	5/8/09	Hom	No. 10			Yes	44.37	271.07	226.17	24.7
JS-33, 0.1'-31.5'	1425	5/8/09	Hom	No. 10			Yes	43.79	262.31	217.75	25.6
JS-33, 31.5'-33.0'	1426	5/8/09	Hom	No. 10			Yes	44.00	266.32	220.69	25.8
JS-33, 33.0'-34.5'	1427	5/8/09	Hom	No. 10			Yes	38.83	250.03	212.98	21.3
JS-33, 34.5'-36.0'	1428	5/8/09	Hom	3/8"			No	46.70	323.56	268.88	24.6
JS-33, 36.0'-37.5'	1429	5/8/09	Hom	No. 10			Yes	47.42	312.60	254.81	27.9
JS-33, 37.5'-39.0'	1430	5/8/09	Hom	No. 10			Yes	39.47	242.69	200.09	26.5
JS-33, 39.0'-40.5'	1431	5/8/09	Hom	No. 10			Yes	46.64	309.59	253.51	27.1
JS-33, 40.5'-42.0'	1432	5/8/09	Hom	3/8"			No	38.09	224.87	200.06	15.3
JS-33, 42.0'-43.5'	1433	5/8/09	Hom	3/8"			No	45.38	245.10	214.04	18.4
JS-33, 43.5'-45.0'	1434	5/8/09	Hom	3/8"			No	46.49	209.39	191.04	12.7
JS-33, 45.0'-46.5'	1435	5/8/09	Hom	3/4"			No	43.22	209.63	184.84	17.5
JS-33, 46.5'-48.0'	1436	5/8/09	Hom	3/8"			No	44.59	169.55	158.00	10.2
JS-33, 48.0'-49.5'	1437	5/8/09	Hom	3/8"			No	43.37	211.59	186.08	17.9



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-33, 49.5'-51.0'	1438	5/8/09	Hom	3/4"			No	42.99	213.58	185.80	19.5
JS-33, 51.0'-52.5'	1439	5/8/09	Hom	No. 10			Yes	43.68	300.67	219.84	45.9
JS-33, 52.5'-54.0'	1440	5/8/09	Hom	No. 10			Yes	48.71	339.38	256.31	40.0
JS-33, 54.0'-55.5'	1441	5/8/09	Hom	No. 10			Yes	49.23	320.73	253.25	33.1
JS-33, 55.5'-57.0'	1442	5/8/09	Hom	No. 10			Yes	44.08	316.89	228.41	48.0
JS-33, 57.0'-58.5'	1443	5/8/09	Hom	No. 4			Yes	43.47	296.13	211.22	50.6
JS-33, 58.5'-60.0'	1444	5/8/09	Hom	No. 10			Yes	44.20	283.12	193.38	60.2
JS-33, 60.0'-61.5'	1445	5/8/09	Hom	3/8"			No	43.58	306.66	298.55	3.2
JS-33, 61.5'-63.0'	1446	5/8/09	Hom	No. 10			Yes	46.74	301.10	201.37	64.5
JS-33, 63.0'-64.5'	1447	5/8/09	Hom	1 1/2"			No	46.85	293.92	217.24	45.0
JS-33, 64.5'-66.0'	1448	5/8/09	Hom	1 1/2"			No	43.83	263.03	238.92	12.4
JS-33, 66.0'-67.5'	1449	5/8/09	Hom	3/4"			No	44.90	281.43	255.00	12.6
JS-33, 67.5'-69.0'	1450	5/8/09	Hom	1 1/2"			No	44.40	302.28	275.84	11.4
JS-33, 69.0'-70.5'	1451	5/8/09	Hom	3/4"			No	43.99	320.79	281.60	16.5
JS-33, 70.5'-72.0'	1452	5/8/09	Hom	1 1/2"			No	48.04	230.68	217.35	7.9
JS-33, 70.5'-72.0'	1452A	5/8/09	Hom	3/4"			No	44.14	276.21	232.44	23.2
JS-33, 72.0'-72.1'	1453	5/8/09	Hom	No. 4			No	44.36	121.35	117.61	5.1
JS-33B, 0.0'-1.5'	1455	5/8/09	Hom	No. 4			Yes	48.11	258.64	219.10	23.1
JS-33B, 1.5'-3.0'	1456	5/8/09	Hom	No. 10			Yes	49.42	293.74	238.67	29.1
JS-33B, 3.0'-4.5'	1457	5/8/09	Hom	No. 10			Yes	43.98	309.18	253.73	26.4
JS-33B, 4.5'-6.0'	1458	5/8/09	Hom	No. 10			Yes	38.07	218.54	184.97	22.9
JS-33B, 4.5'-6.0'	1458A	5/8/09	Hom	No. 10			Yes	43.78	150.81	133.75	19.0
JS-33B, 6.0'-7.5'	1459	5/8/09	Hom	No. 10			Yes	43.96	299.94	250.66	23.8
JS-33B, 7.5'-9.0'	1460	5/8/09	Hom	No. 10			Yes	43.87	312.48	253.08	28.4
JS-33B, 9.0'-10.5'	1461	5/8/09	Hom	No. 10			Yes	43.74	306.36	252.71	25.7
JS-33B, 10.5'-12.0'	1462	5/8/09	Hom	No. 10			Yes	43.82	309.45	249.36	29.2
JS-33B, 12.0'-13.5'	1463	5/8/09	Hom	No. 4			Yes	44.65	296.16	240.58	28.4
JS-33B, 13.5'-15.0'	1464	5/8/09	Hom	No. 10			Yes	49.22	276.39	235.24	22.1
JS-33B, 15.0'-16.5'	1465	5/8/09	Hom	3/8"			No	46.31	298.70	263.03	16.5
JS-33B, 16.5'-18.0'	1466	5/8/09	Hom	No. 10			Yes	44.24	265.62	229.02	19.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-33B, 18.0'-19.5'	1467	5/8/09	Hom	1 1/2"			No	43.66	260.57	228.97	17.1
JS-33B, 19.5'-21.0'	1468	5/8/09	Hom	No. 10			Yes	48.32	281.27	241.69	20.5
JS-33B, 21.0'-22.5'	1469	5/8/09	Hom	No. 10			Yes	34.57	256.34	223.38	17.5
JS-33B, 22.5'-24.0'	1470	5/8/09	Hom	No. 10			Yes	27.97	227.36	194.79	19.5
JS-33B, 24.0'-25.5'	1471	5/8/09	Hom	No. 10			Yes	48.36	258.95	221.72	21.5
JS-33B, 25.5'-27.0'	1472	5/8/09	Hom	No. 10			Yes	43.57	286.29	250.96	17.0
JS-33B, 27.0'-28.5'	1473	5/8/09	Hom	No. 10			Yes	47.97	258.71	224.74	19.2
JS-33B, 28.5'-30.0'	1474	5/8/09	Hom	No. 10			Yes	43.73	280.14	240.93	19.9
JS-33B, 0.1'-31.5'	1475	5/11/09	Hom	No. 10			Yes	44.07	263.96	229.20	18.8
JS-33B, 31.5'-33.0'	1476	5/11/09	Hom	3/8"			No	43.76	274.39	238.79	18.3
JS-33B, 33.0'-34.5'	1477	5/11/09	Hom	No. 4			Yes	69.64	259.42	227.87	19.9
JS-33B, 34.5'-36.0'	1478	5/11/09	Hom	No. 10			Yes	74.31	285.51	243.41	24.9
JS-33B, 36.0'-37.5'	1479	5/11/09	Hom	3/8"			No	39.29	216.03	186.29	20.2
JS-33B, 37.5'-39.0'	1480	5/11/09	Hom	3/8"			No	38.21	233.84	197.80	22.6
JS-33B, 39.0'-40.5'	1481	5/11/09	Hom	No. 10			Yes	46.98	271.01	229.45	22.8
JS-33B, 40.5'-42.0'	1482	5/11/09	Hom	No. 10			Yes	70.15	322.82	272.22	25.0
JS-33B, 42.0'-43.5'	1483	5/11/09	Hom	No. 10			Yes	47.63	304.85	244.76	30.5
JS-33B, 43.5'-45.0'	1484	5/11/09	Hom	No. 10			Yes	47.59	295.00	245.62	24.9
JS-33B, 45.0'-46.5'	1485	5/11/09	Hom	No. 10			Yes	43.40	332.54	273.64	25.6
JS-33B, 46.5'-48.0'	1486	5/11/09	Hom	No. 10			Yes	74.53	344.46	284.51	28.6
JS-33B, 48.0'-49.5'	1487	5/11/09	Hom	No. 10			Yes	46.87	308.91	246.25	31.4
JS-33B, 49.5'-51.0'	1488	5/11/09	Hom	No. 10			Yes	38.52	233.88	188.95	29.9
JS-33B, 51.0'-52.5'	1489	5/11/09	Hom	No. 4			Yes	44.40	251.13	184.27	47.8
JS-33B, 52.5'-54.0'	1490	5/11/09	Hom	No. 10			Yes	43.90	333.02	264.10	31.3
JS-33B, 54.0'-55.5'	1491	5/11/09	Hom	No. 10			Yes	72.32	305.28	251.14	30.3
JS-33B, 55.5'-57.0'	1492	5/11/09	Hom	No. 10			Yes	48.14	332.29	265.55	30.7
JS-33B, 57.0'-58.5'	1493	5/11/09	Hom	No. 10			Yes	43.74	222.78	180.03	31.4
JS-33B, 57.0'-58.5'	1493A	5/11/09	Hom	No. 10			Yes	43.80	227.33	181.45	33.3
JS-33B, 58.5'-60.0'	1494	5/11/09	Hom	No. 10			Yes	43.98	294.73	238.09	29.2
JS-33B, 60.0'-61.5'	1495	5/11/09	Hom	No. 10			Yes	43.85	295.06	231.59	33.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-33B, 61.5'-63.0'	1496	5/11/09	Hom	No. 10			Yes	44.02	283.31	217.00	38.3
JS-33B, 63.0'-64.5'	1497	5/11/09	Hom	No. 10			Yes	47.15	311.93	222.13	51.3
JS-33B, 64.5'-66.0'	1498	5/11/09	Len	3/4"			No	49.36	357.90	300.95	22.6
JS-33B, 66.0'-67.5'	1499	5/11/09	Len	No. 10			Yes	45.99	341.23	292.32	19.9
JS-33B, 67.5'-69.0'	1500	5/11/09	Len	3/8"			No	43.62	353.49	299.70	21.0
JS-33B, 69.0'-70.5'	1501	5/11/09	Len	1 1/2"			No	44.61	375.50	314.95	22.4
JS-33B, 70.5'-72.0'	1502	5/11/09	Hom	1 1/2"			No	47.48	318.29	275.08	19.0
JS-33B, 70.5'-72.0'	1502A	5/11/09	Hom	No. 4			No	43.72	97.14	86.91	23.7
JS-33B, 72.0'-72.8'	1503	5/11/09	Len	3/8"			No	40.03	275.68	211.76	37.2
JS-29, 0.0'-1.5'	1504	5/11/09	Len	3/4"			No	43.79	278.54	238.65	20.5
JS-29, 1.5'-3.0'	1505	5/11/09	Len	1 1/2"			No	44.24	158.06	137.20	22.4
JS-29, 3.0'-4.5'	1506	5/11/09	Len	3/4"			No	28.07	235.41	204.09	17.8
JS-29, 4.5'-6.0'	1507	5/11/09	Len	3/8"			No	29.47	85.54	76.16	20.1
JS-29, 6.0'-7.5'	1508	5/11/09	Len	1 1/2"			No	44.09	145.02	127.60	20.9
JS-29, 7.5'-9.0'	1509	5/11/09	Hom	No. 4			No	44.20	141.06	122.58	23.6
JS-29, 7.5'-9.0'	1509A	5/11/09	Len	3/8"			No	43.70	279.61	229.87	26.7
JS-29, 9.0'-10.5'	1510	5/11/09	Len	3/8"			No	46.86	293.42	255.51	18.2
JS-29, 9.0'-10.5'	1510A	5/11/09	Len	No. 4			No	47.87	166.06	145.08	21.6
JS-29, 10.5'-12.0'	1511	5/11/09	Len	3/8"			No	43.89	335.31	291.11	17.9
JS-29, 12.0'-13.5'	1512	5/11/09	Hom	No. 10			Yes	43.79	269.86	223.54	25.8
JS-29, 13.5'-15.0'	1513	5/11/09	Hom	No. 10			Yes	43.61	241.72	198.13	28.2
JS-29, 15.0'-16.5'	1514	5/11/09	Hom	No. 10			Yes	43.68	311.78	248.97	30.6
JS-29, 16.5'-18.0'	1515	5/11/09	Len	3/4"			No	47.16	334.47	294.53	16.1
JS-29, 18.0'-19.5'	1516	5/11/09	Len	3/8"			No	38.41	221.67	192.08	19.3
JS-29, 19.5'-21.0'	1517	5/11/09	Len	3/8"			No	43.77	212.33	185.25	19.1
JS-29, 19.5'-21.0'	1517A	5/11/09	Hom	No. 10			Yes	43.50	243.68	190.82	35.9
JS-29, 21.0'-22.5'	1518	5/11/09	Hom	No. 10			Yes	43.76	321.34	243.99	38.6
JS-29, 22.5'-24.0'	1519	5/11/09	Hom	No. 10			Yes	43.98	335.72	261.27	34.3
JS-29, 24.0'-25.5'	1520	5/11/09	Len	No. 10			Yes	45.28	397.25	321.18	27.6
JS-29, 25.5'-27.0'	1521	5/11/09	Len	3/8"			No	43.80	338.34	270.73	29.8



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-29, 27.0'-28.5'	1522	5/11/09	Len	No. 10			Yes	44.41	370.25	298.85	28.1
JS-29, 28.5'-30.0'	1523	5/11/09	Hom	No. 10			Yes	43.81	173.86	145.79	27.5
JS-29, 0.1'-31.5'	1524	5/11/09	Len	No. 4			Yes	48.50	379.80	309.32	27.0
JS-29, 31.5'-33.0'	1525	5/11/09	Hom	No. 4			Yes	44.89	325.37	243.03	41.6
JS-29, 33.0'-34.5'	1526	5/11/09	Hom	No. 10			Yes	44.87	304.82	225.61	43.8
JS-29, 34.5'-36.0'	1527	5/11/09	Hom	No. 10			Yes	43.72	312.82	242.90	35.1
JS-29, 36.0'-36.3'	1528	5/11/09	Hom	No. 10			Yes	45.70	129.27	106.54	37.4
JS-29, 36.3'-37.5'	1528A	5/11/09	Str	3/8"			No	47.10	378.17	322.40	20.3
JS-29, 37.5'-39.0'	1529	5/11/09	Str	3/4"			No	44.25	357.79	305.98	19.8
JS-29, 39.0'-40.5'	1530	5/11/09	Hom	No. 10			Yes	49.45	396.62	340.67	19.2
JS-29, 40.5'-42.0'	1531	5/11/09	Lam	No. 4			Yes	44.22	372.39	316.48	20.5
JS-29, 42.0'-43.5'	1532	5/11/09	Hom	3/8"			No	46.78	362.98	308.54	20.8
JS-29, 43.5'-45.0'	1533	5/11/09	Hom	No. 10			Yes	44.83	377.39	322.37	19.8
JS-29, 45.0'-46.5'	1534	5/11/09	Hom	3/4"			No	46.64	271.04	234.94	19.2
JS-29, 46.5'-47.2'	1535	5/11/09	Hom	No. 10			Yes	44.26	283.42	246.24	18.4
JS-29, 47.2'-48.0'	1535A	5/11/09	Hom	1 1/2"			No	43.62	310.49	283.10	11.4
JS-29, 48.0'-49.5'	1536	5/11/09	Hom	1 1/2"			No	45.12	233.04	210.74	13.5
JS-29, 49.5'-50.3'	1537	5/11/09	Hom	3/8"			No	43.52	226.66	201.42	16.0
JS-29, 50.3'-51.0'	1537A	5/11/09	Hom	3/4"			No	44.14	281.00	217.54	36.6
JS-29, 51.0'-51.5'	1538	5/11/09	Hom	No. 10			Yes	27.92	213.48	177.33	24.2
JS-24, 0.0'-1.5'	1539	5/12/09	Len	1 1/2"			No	71.71	288.79	256.38	17.6
JS-24, 1.5'-3.0'	1540	5/12/09	Len	No. 4			Yes	70.40	289.84	252.77	20.3
JS-24, 3.0'-4.5'	1541	5/12/09	Len	3/4"			No	69.73	291.39	244.76	26.6
JS-24, 4.5'-6.0'	1542	5/12/09	Len	3/4"			No	70.08	202.44	178.10	22.5
JS-24, 5.0'-6.0' Fly Ash	1542A	5/11/09	Hom	3/8"			No	72.79	307.31	277.45	14.6
JS-24, 6.0'-7.5'	1543	5/12/09	Hom	3/8"			No	69.44	361.38	309.99	21.4
JS-24, 7.5'-9.0'	1544	5/12/09	Hom	No. 4			Yes	73.30	336.06	284.67	24.3
JS-24, 9.0'-10.5' Fly Ash	1545	5/12/09	Hom	No. 10			Yes	71.75	319.67	258.30	32.9
JS-24, 10.2'-10.5' Clay	1545A	5/11/09	Len	No. 10			Yes	70.82	180.96	163.95	18.3
JS-24, 10.5'-12.0'	1546	5/12/09	Hom	No. 10			Yes	70.37	210.63	189.78	17.5



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-24, 12.0'-13.5'	1547	5/12/09	Hom	3/8"			No	73.37	351.92	299.79	23.0
JS-24, 13.5'-15.0'	1548	5/12/09	Hom	No. 4			Yes	69.96	355.91	299.72	24.5
JS-24, 15.0'-16.5'	1549	5/12/09	Hom	No. 4			Yes	73.81	364.99	305.17	25.9
JS-24, 16.5'-18.0'	1550	5/12/09	Hom	No. 10			Yes	72.72	336.99	278.99	28.1
JS-24, 18.0'-19.5'	1551	5/12/09	Hom	3/8"			No	73.64	358.72	295.23	28.7
JS-24, 19.5'-21.0'	1552	5/12/09	Hom	No. 10			Yes	73.83	389.23	312.97	31.9
JS-24, 21.0'-22.5'	1553	5/12/09	Hom	3/4"			No	76.67	346.90	270.22	39.6
JS-24, 22.5'-24.0'	1554	5/12/09	Hom	No. 10			Yes	73.85	325.64	249.12	43.7
JS-24, 24.0'-25.5'	1555	5/12/09	Hom	No. 10			Yes	76.43	369.06	273.86	48.2
JS-24, 25.5'-27.0'	1556	5/12/09	Hom	No. 10			Yes	71.92	337.80	252.60	47.2
JS-24, 27.0'-28.5'	1557	5/12/09	Hom	No. 10			Yes	75.75	328.25	248.71	46.0
JS-24, 28.5'-30.0'	1558	5/12/09	Hom	No. 4			Yes	73.26	342.17	258.21	45.4
JS-24, 30.1'-31.5'	1559	5/12/09	Hom	No. 4			Yes	71.50	365.16	273.38	45.5
JS-24, 31.5'-33.0'	1560	5/12/09	Hom	No. 4			Yes	75.30	343.37	266.23	40.4
JS-24, 33.0'-34.5'	1561	5/12/09	Hom	No. 4			Yes	47.00	296.68	229.79	36.6
JS-24, 34.5'-36.0'	1562	5/12/09	Hom	3/8"			No	38.47	262.93	204.14	35.5
JS-24, 36.0'-37.5'	1563	5/12/09	Hom	No. 4			Yes	43.73	295.20	222.67	40.5
JS-24, 37.5'-39.0' Fly Ash	1564	5/12/09	Hom	No. 4			No	47.27	139.45	111.11	44.4
JS-24, 37.8'-39.0' Clay	1564A	5/11/09	Hom	No. 10			Yes	44.39	348.42	294.99	21.3
JS-24, 39.0'-40.5'	1565	5/12/09	Len	No. 10			Yes	44.28	357.31	300.96	22.0
JS-24, 40.5'-42.0'	1566	5/12/09	Hom	No. 10			Yes	40.69	289.31	244.75	21.8
JS-24, 42.0'-43.5'	1567	5/12/09	Lam	No. 10			Yes	44.09	279.41	236.74	22.1
JS-24, 43.5'-45.0'	1568	5/12/09	Len	No. 10			Yes	44.89	376.52	315.85	22.4
JS-24, 44.7'-45.2' Sand	1568A	5/11/09	Hom	3/4"			No	44.05	118.38	114.43	5.6
JS-24, 45.0'-46.5'	1569	5/12/09	Hom	3/4"			No	48.82	238.20	206.68	20.0
JS-24, 46.5'-48.0'	1570	5/12/09	Hom	1 1/2"			No	44.19	382.44	323.80	21.0
JS-24, 48.0'-49.5'	1571	5/12/09	Hom	3/4"			No	48.03	258.81	221.79	21.3
JS-24, 49.5'-51.0'	1572	5/12/09	Hom	1 1/2"			No	44.19	346.32	299.31	18.4
JS-24, 51.0'-52.5'	1573	5/12/09	Hom	3/4"			No	44.19	347.80	305.20	16.3
JS-24, 52.4'-52.5'	1573A	5/11/09	Hom	3/8"			No	44.49	67.48	62.88	25.0



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-24, 52.5'-53.9'	1574	5/12/09	Hom	3/8"			No	44.41	298.49	258.74	18.5



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-12, 0.0'-1.5'	314	6/1/09	Hom	No. 10			Yes	20.20	75.08	66.23	19.2
JS-12, 1.5'-3.0' 60°C	315	6/1/09	Hom	No. 10			Yes	21.73	65.90	58.91	18.8
JS-12, 3.0'-4.5' 60°C	316	6/1/09	Hom	No. 10			Yes	17.44	66.62	57.90	21.6
JS-12, 4.5'-6.0' 60°C	317	6/1/09	Hom	No. 10			Yes	16.46	81.22	69.48	22.1
JS-12, 6.0'-7.5' 60°C	318	6/1/09	Hom	No. 10			Yes	17.46	84.68	72.59	21.9
JS-12, 7.5'-9.0' 60°C	319	6/1/09	Hom	No. 10			Yes	22.03	86.30	75.63	19.9
JS-12, 9.0'-10.5' 60°C	320	6/1/09	Hom	No. 10			Yes	20.75	58.23	53.81	13.4
JS-12, 10.5'-12.0' 60°C	321	6/1/09	Hom	No. 10			Yes	17.45	76.04	62.72	29.4
JS-12, 12.0'-13.5' 60°C	322	6/1/09	Hom	No. 10			Yes	20.80	64.20	54.08	30.4
JS-12, 13.5'-15.0' 60°C	323	6/1/09	Hom	No. 10			Yes	21.19	80.45	68.14	26.2
JS-12, 15.0'-16.5' 60°C	324	6/1/09	Hom	No. 10			Yes	20.27	65.68	55.72	28.1
JS-12, 16.5'-18.0' 60°C	325	6/1/09	Hom	No. 10			Yes	20.67	72.42	58.83	35.6
JS-12, 18.0'-19.5' 60°C	326	6/1/09	Hom	No. 10			Yes	21.27	62.84	54.34	25.7
JS-12, 19.5'-21.0' 60°C	327	6/1/09	Hom	No. 10			Yes	20.82	53.07	48.73	15.5
JS-12, 21.0'-22.5' 60°C	328	6/1/09	Hom	No. 10			Yes	22.03	64.08	55.31	26.4
JS-12, 22.5'-24.0' 60°C	329	6/1/09	Hom	No. 10			Yes	21.86	84.30	67.31	37.4
JS-12, 24.0'-25.5'	330	6/1/09	Hom	No. 10			Yes	22.18	87.81	76.12	21.7
JS-12, 25.5'-27.0' 60°C	331	6/1/09	Lam	No. 10			Yes	21.87	96.21	82.98	21.6
JS-12, 27.0'-28.5' 60°C	332	6/1/09	Lam	No. 10			Yes	21.64	105.37	94.19	15.4
JS-12, 28.5'-30.0'	333	6/1/09	Hom	No. 10			Yes	21.36	106.36	91.43	21.3
JS-12, 30.0'-31.5'	334	6/1/09	Hom	No. 10			Yes	20.00	95.20	82.89	19.6
JS-12, 31.5'-33.0'	335	6/1/09	Hom	No. 10			Yes	22.24	99.87	85.05	23.6
JS-12, 33.0'-34.5'	336	6/1/09	Hom	No. 10			Yes	20.89	80.04	69.55	21.6
JS-12, 34.5'-36.0'	337	6/1/09	Hom	No. 10			Yes	17.33	98.84	86.74	17.4
JS-12, 36.0'-37.5'	338	6/1/09	Hom	No. 10			Yes	22.14	99.73	87.54	18.6
JS-12, 37.5'-39.0' No Recovery	339	6/1/09									
JS-12, 39.0'-40.5'	340	6/1/09	Hom	No. 10			Yes	17.33	114.47	99.66	18.0
JS-12, 40.5'-42.0'	341	6/1/09	Hom	No. 10			Yes	20.36	87.38	77.05	18.2



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-12, 42.0'-43.5'	342	6/1/09	Hom	No. 10			Yes	21.71	90.35	77.40	23.3
JS-12, 43.5'-45.0'	343	6/1/09	Hom	No. 10			Yes	21.71	89.69	77.99	20.8
JS-12, 45.0'-46.5'	344	6/1/09	Hom	No. 10			Yes	21.18	95.11	81.98	21.6
JS-12, 46.5'-48.0'	345	6/1/09	Hom	No. 10			Yes	17.36	96.69	83.32	20.3
JS-12, 48.0'-49.5'	346	6/1/09	Hom	3/4"	2	3/4"	No	17.36	64.86	59.32	13.2
JS-12, 49.5'-51.0'	347	6/1/09	Hom	No. 10			Yes	20.09	78.28	67.43	22.9
JS-12, 51.0'-52.5'	348	6/1/09	Hom	No. 10			Yes	21.66	88.33	74.13	27.1
JS-17, 0.0'-1.5'	352	6/1/09	Hom	No. 10			Yes	17.30	89.60	78.83	17.5
JS-17, 1.5'-3.0'	353	6/1/09	Hom	No. 10			Yes	21.70	91.17	77.71	24.0
JS-17, 3.0'-4.5' 60°C	354	6/1/09	Hom	No. 10			Yes	17.46	64.43	56.31	20.9
JS-17, 4.5'-6.0' 60°C	355	6/1/09	Hom	No. 10			Yes	21.23	75.11	65.28	22.3
JS-17, 6.0'-7.5' 60°C	356	6/1/09	Hom	No. 10			Yes	17.78	81.38	69.02	24.1
JS-17, 7.5'-9.0' 60°C	357	6/1/09	Hom	No. 10			Yes	22.02	77.60	66.90	23.8
JS-17, 9.0'-10.5' 60°C	358	6/1/09	Hom	No. 10			Yes	20.66	70.34	60.46	24.8
JS-17, 10.5'-12.0' 60°C	359	6/1/09	Hom	No. 10			Yes	17.50	77.74	65.68	25.0
JS-17, 12.0'-13.5' 60°C	360	6/1/09	Hom	No. 10			Yes	22.20	82.74	69.53	27.9
JS-17, 13.5'-15.0' 60°C	361	6/1/09	Hom	No. 10			Yes	22.20	74.49	64.34	24.1
JS-17, 15.0'-16.5' 60°C	362	6/1/09	Hom	No. 10			Yes	19.91	73.01	60.06	32.3
JS-17, 16.5'-18.0' 60°C	363	6/1/09	Hom	No. 10			Yes	17.45	61.95	52.04	28.6
JS-17, 18.0'-19.5' 60°C	364	6/1/09	Hom	No. 10			Yes	17.44	61.87	51.61	30.0
JS-17, 19.5'-21.0' 60°C	365	6/1/09	Hom	No. 10			Yes	22.12	61.68	51.41	35.1
JS-17, 21.0'-22.5' 60°C	366	6/1/09	Hom	No. 10			Yes	17.25	72.87	57.66	37.6
JS-17, 22.5'-24.0' 60°C	367	6/1/09	Hom	No. 10			Yes	20.21	59.59	51.61	25.4
JS-17, 24.0'-25.5' 60°C	368	6/1/09	Hom	No. 10			Yes	17.51	60.52	50.02	32.3
JS-17, 25.5'-27.0' 60°C	369	6/1/09	Hom	No. 10			Yes	20.89	77.07	64.15	29.9
JS-17, 27.0'-28.5' 60°C	370	6/1/09	Hom	No. 10			Yes	17.34	75.83	59.57	38.5
JS-17, 28.5'-30.0' 60°C	371	6/1/09	Hom	No. 10			Yes	17.45	82.28	65.52	34.9
JS-17, 30.0'-31.5' 60°C	372	6/1/09	Hom	No. 10			Yes	22.19	81.35	66.44	33.7
JS-17, 31.5'-33.0' 60°C	373	6/1/09	Hom	No. 10			Yes	21.66	118.61	93.71	34.6
JS-17, 33.0'-34.5'	374	6/1/09	Hom	No. 10			Yes	17.44	122.97	103.42	22.7



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-17, 34.5'-36.0'	375	6/1/09	Hom	No. 10			Yes	21.91	118.46	103.27	18.7
JS-17, 36.0'-37.5'	376	6/1/09	Hom	No. 10			Yes	22.29	112.99	99.13	18.0
JS-17, 37.5'-39.0'	377	6/1/09	Hom	No. 10			Yes	21.22	103.82	92.20	16.4
JS-17, 39.0'-40.5'	378	6/1/09	Hom	No. 10			Yes	17.28	99.93	85.65	20.9
JS-17, 40.5'-42.0'	379	6/1/09	Hom	No. 10			Yes	22.16	85.43	74.51	20.9
JS-17, 42.0'-43.5'	380	6/1/09	Hom	No. 10			Yes	20.48	88.31	76.79	20.5
JS-17, 43.5'-45.0'	381	6/1/09	Hom	No. 10			Yes	16.41	104.22	89.64	19.9
JS-17, 45.0'-46.5'	382	6/1/09	Hom	3/4"	4	3/4"	No	20.37	128.31	116.64	12.1
JS-17, 46.5'-48.0'	383	6/1/09	Hom	3/4"	2	3/4"	No	17.42	130.46	115.60	15.1
JS-17, 48.0'-49.5'	384	6/1/09	Hom	3/4"	1	3/4"	No	17.30	93.15	77.81	25.4
JS-17, 49.5'-51.0'	385	6/1/09	Hom	3/4"	2	3/4"	No	17.30	123.07	109.31	15.0
JS-17, 51.0'-52.5'	386	6/1/09	Hom	3/4"	3	3/4"	No	17.41	164.31	147.76	12.7
JS-17, 52.5'-54.0'	387	6/1/09	Hom	1 1/2"	1	1 1/2"	No	25.38	111.11	89.46	33.8
JS-17, 54.0'-54.5'	388	6/1/09	Hom	3/4"	1	3/4"	No	17.33	128.22	112.94	16.0
JS-21, 0.0'-1.5'	391	6/1/09	Hom	No. 10			Yes	17.45	97.79	82.42	23.7
JS-21, 1.5'-3.0'	392	6/1/09	Hom	No. 10			Yes	20.67	101.86	84.06	28.1
JS-21, 1.5'-3.0' 60°C	392B	6/1/09	Hom	No. 10			Yes	20.61	76.08	67.14	19.2
JS-21, 3.0'-4.5' 60°C	393	6/1/09	Hom	No. 10			Yes	21.09	74.21	65.43	19.8
JS-21, 4.5'-6.0' 60°C	394	6/1/09	Hom	No. 10			Yes	20.27	67.65	59.14	21.9
JS-21, 6.0'-7.5' 60°C	395	6/1/09	Hom	No. 10			Yes	17.47	72.98	62.07	24.5
JS-21, 7.5'-9.0' 60°C	396	6/1/09	Hom	No. 10			Yes	20.10	82.64	69.59	26.4
JS-21, 9.0'-10.5' 60°C	397	6/1/09	Hom	No. 10			Yes	21.69	80.23	70.00	21.2
JS-21, 10.5'-12.0' 60°C	398	6/1/09	Hom	No. 10			Yes	17.49	73.71	63.26	22.8
JS-21, 12.0'-13.5' 60°C	399	6/1/09	Hom	No. 10			Yes	21.20	78.59	70.21	17.1
JS-21, 13.5'-15.0' 60°C	400	6/1/09	Hom	No. 10			Yes	22.03	64.53	53.93	33.2
JS-21, 15.0'-16.5' 60°C	401	6/1/09	Hom	No. 10			Yes	21.26	64.21	54.29	30.0
JS-21, 16.5'-18.0' 60°C	402	6/1/09	Hom	No. 10			Yes	20.84	67.77	56.07	33.2
JS-21, 18.0'-19.5' 60°C	403	6/1/09	Hom	No. 10			Yes	16.46	58.55	49.18	28.6
JS-21, 19.5'-21.0' 60°C	404	6/1/09	Hom	No. 10			Yes	22.14	67.31	61.15	15.8
JS-21, 21.0'-22.5' 60°C	405	6/1/09	Hom	No. 10			Yes	20.68	63.37	56.58	18.9



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-21, 22.5'-24.0' 60°C	406	6/1/09	Hom	No. 10			Yes	20.77	70.12	63.81	14.7
JS-21, 24.0'-25.5'	407	6/8/09	Hom	No. 10			Yes	21.86	65.48	57.04	24.0
JS-21, 25.5'-27.0'	408	6/8/09	Hom	No. 10			Yes	17.47	69.72	55.03	39.1
JS-21, 27.0'-28.5'	409	6/8/09	Hom	No. 10			Yes	17.43	66.13	51.06	44.8
JS-21, 28.5'-30.0'	410	6/8/09	Hom	No. 10			Yes	22.02	74.02	58.16	43.9
JS-21, 30.0'-31.5'	411	6/8/09	Hom	No. 10			Yes	22.18	67.11	53.19	44.9
JS-21, 31.5'-33.0'	412	6/8/09	Hom	No. 10			Yes	21.24	66.42	48.59	65.2
JS-21, 33.0'-34.5'	413	6/8/09	Hom	No. 10			Yes	17.41	55.96	42.87	51.4
JS-21, 34.5'-36.0'	414	6/8/09	Hom	No. 10			Yes	21.18	84.56	70.18	29.3
JS-21, 36.0'-37.5'	415	6/8/09	Hom	No. 10			Yes	21.68	86.39	73.90	23.9
JS-21, 37.5'-39.0'	416	6/8/09	Hom	No. 10			Yes	17.28	75.88	64.52	24.0
JS-21, 39.0'-40.5'	417	6/8/09	Hom	No. 10			Yes	17.44	93.28	81.10	19.1
JS-21, 40.5'-42.0'	418	6/8/09	Hom	No. 10			Yes	22.17	80.22	68.56	25.1
JS-21, 42.0'-43.5'	419	6/8/09	Hom	No. 10			Yes	22.14	78.09	69.15	19.0
JS-21, 43.5'-45.0'	420	6/8/09	Hom	No. 10			Yes	21.70	88.00	77.61	18.6
JS-21, 45.0'-46.5'	421	6/8/09	Hom	3/4"	2	3/4"	No	17.29	96.72	88.81	11.1
JS-21, 46.5'-48.0' No Recovery	422	6/8/09									
JS-21, 48.0'-49.5' No Recovery	423	6/8/09									
JS-21, 49.5'-51.0'	424	6/8/09	Hom	No. 10			Yes	21.63	91.42	77.55	24.8
JS-21, 51.0'-51.8'	425	6/8/09	Hom	No. 10			Yes	17.41	72.40	62.57	21.8
JP-1, 0.0'-1.5'	427	6/9/09	Hom	3/8"	2	3/8"	No	28.16	154.42	136.82	16.2
JP-1, 1.5'-3.0'	428	6/9/09	Hom	No. 10			Yes	29.08	150.34	134.36	15.2
JP-1, 3.0'-4.5'	429	6/9/09	Hom	No. 10			Yes	28.87	159.44	144.26	13.2
JP-1, 4.5'-6.0'	430	6/9/09	Hom	No. 10			Yes	29.26	145.09	130.19	14.8
JP-1, 6.0'-7.5'	431	6/9/09	Hom	No. 10			Yes	28.61	134.51	122.98	12.2
JP-1, 7.5'-9.0'	432	6/9/09	Hom	No. 10			Yes	29.42	139.40	127.67	11.9
JP-1, 9.0'-10.5'	433	6/9/09	Hom	No. 10			Yes	28.88	176.20	158.80	13.4
JP-1, 10.5'-12.0'	434	6/9/09	Hom	No. 10			Yes	29.53	106.00	91.13	24.1
JP-1, 12.0'-13.5'	435	6/9/09	Hom	No. 10			Yes	31.89	170.53	148.31	19.1
JP-1, 13.5'-15.0'	436	6/9/09	Hom	No. 10			Yes	29.86	154.03	137.25	15.6



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JP-1, 15.0'-16.5'	437	6/9/09	Hom	3/4"	1	3/4"	No	29.34	145.65	129.29	16.4
JP-1, 16.5'-18.0' No Recovery	438	6/9/09									
JP-1, 18.0'-19.5'	439	6/9/09	Hom	No. 10			Yes	29.82	122.32	112.98	11.2
JP-1, 19.5'-21.0'	440	6/9/09	Hom	No. 10			Yes	28.94	149.02	132.40	16.1
JP-1, 21.0'-22.5'	441	6/9/09	Hom	No. 10			Yes	28.88	187.75	160.28	20.9
JP-1, 22.5'-24.0'	442	6/9/09	Hom	No. 10			Yes	29.00	154.11	135.40	17.6
JP-1, 24.0'-25.5'	443	6/9/09	Hom	No. 10			Yes	28.45	166.25	146.55	16.7
JP-1, 25.5'-27.0'	444	6/9/09	Hom	No. 10			Yes	28.97	155.63	135.66	18.7
JP-1, 27.0'-28.5'	445	6/9/09	Hom	No. 10			Yes	29.82	173.95	152.40	17.6
JP-1, 28.5'-30.0'	446	6/9/09	Hom	No. 10			Yes	28.28	129.30	111.97	20.7
JP-1, 30.0'-31.5'	447	6/9/09	Hom	No. 10			Yes	33.19	107.39	104.64	3.8
JP-1, 31.5'-33.0'	448	6/9/09	Hom	No. 10			Yes	31.57	144.04	135.00	8.7
JP-1, 33.0'-34.5'	449	6/9/09	Hom	No. 10			Yes	32.37	181.60	146.87	30.3
JP-1, 34.5'-36.0'	450	6/9/09	Hom	No. 10			Yes	30.64	176.15	148.14	23.8
JS-11, 0.0'-1.5'	453	6/8/09	Hom	No. 10			Yes	17.31	73.55	63.85	20.8
JS-11, 1.5'-3.0'	454	6/8/09	Hom	3/4"	1	3/4"	No	21.69	79.54	69.83	20.2
JS-11, 3.0'-4.5'	455	6/8/09	Hom	No. 10			Yes	22.22	74.93	64.02	26.1
JS-11, 4.5'-6.0'	456	6/8/09	Hom	No. 10			Yes	17.41	62.58	55.35	19.1
JS-11, 6.0'-7.5'	457	6/8/09	Hom	No. 10			Yes	17.51	81.80	72.74	16.4
JS-11, 7.5'-9.0'	458	6/8/09	Hom	3/4"	1	3/4"	No	22.16	86.66	76.92	17.8
JS-11, 9.0'-10.5'	459	6/8/09	Hom	No. 10			Yes	20.87	77.17	68.88	17.3
JS-11, 10.5'-12.0' 60°C	460	6/8/09	Hom	No. 10			Yes	21.35	81.30	73.14	15.8
JS-11, 12.0'-13.5'	461	6/8/09	Hom	No. 10			Yes	17.27	79.34	70.59	16.4
JS-11, 13.5'-15.0' 60°C	462	6/8/09	Hom	No. 10			Yes	21.70	79.08	71.02	16.3
JS-11, 15.0'-16.5' 60°C	463	6/8/09	Hom	No. 10			Yes	17.47	79.71	71.26	15.7
JS-11, 16.5'-18.0' 60°C	464	6/8/09	Hom	No. 10			Yes	17.37	74.06	66.62	15.1
JS-11, 18.0'-19.5' 60°C	465	6/8/09	Hom	No. 10			Yes	22.22	84.67	74.79	18.8
JS-11, 19.5'-21.0' 60°C	466	6/8/09	Hom	No. 10			Yes	21.10	73.92	65.15	19.9
JS-11, 21.0'-22.5' 60°C	467	6/8/09	Hom	No. 10			Yes	20.97	64.25	58.77	14.5
JS-11, 22.5'-24.0' 60°C	468	6/8/09	Hom	No. 10			Yes	17.54	62.26	55.99	16.3



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-11, 24.0'-25.5' 60°C	469	6/8/09	Hom	No. 10			Yes	17.43	75.12	63.65	24.8
JS-11, 25.5'-27.0' 60°C	470	6/8/09	Hom	No. 10			Yes	20.71	83.22	68.99	29.5
JS-11, 27.0'-28.5' 60°C	471	6/8/09	Hom	No. 10			Yes	19.94	74.70	58.75	41.1
JS-11, 28.5'-30.0' 60°C	472	6/8/09	Hom	No. 10			Yes	17.49	78.91	59.03	47.9
JS-11, 30.0'-31.5'	473	6/8/09	Hom	No. 10			Yes	22.20	72.76	63.99	21.0
JS-11, 31.5'-33.0'	474	6/8/09	Hom	No. 10			Yes	20.24	91.61	79.75	19.9
JS-11, 33.0'-34.5'	475	6/8/09	Hom	3/8"	3	3/8"	No	20.70	82.41	71.87	20.6
JS-11, 34.5'-36.0'	476	6/8/09	Hom	No. 10			Yes	21.86	93.47	81.61	19.8
JS-11, 36.0'-37.5'	477	6/8/09	Hom	No. 10			Yes	21.72	82.57	72.55	19.7
JS-11, 37.5'-39.0'	478	6/8/09	Hom	No. 10			Yes	17.50	80.07	69.73	19.8
JS-11, 39.0'-40.5'	479	6/8/09	Hom	No. 10			Yes	20.62	83.84	73.33	19.9
JS-11, 40.5'-42.0'	480	6/8/09	Hom	No. 10			Yes	21.97	82.82	72.53	20.4
JS-11, 42.0'-43.5'	481	6/8/09	Hom	No. 10			Yes	22.30	94.05	82.12	19.9
JS-11, 43.5'-45.0'	482	6/8/09	Hom	No. 10			Yes	21.24	87.65	76.50	20.2
JS-11, 45.0'-46.5'	483	6/8/09	Hom	No. 10			Yes	20.36	71.52	62.53	21.3
JS-11, 46.5'-48.0'	484	6/8/09	Hom	No. 10			Yes	19.97	94.29	81.80	20.2
JS-11, 48.0'-49.5'	485	6/8/09	Hom	No. 10			Yes	17.31	92.72	79.96	20.4
JS-11, 49.5'-51.0'	486	6/8/09	Hom	1 1/2"	4	1 1/2"	No	17.33	84.74	78.51	10.2
JS-11, 51.0'-52.5' 60°C	487	6/8/09	Hom	3/8"	4	3/8"	No	16.45	66.94	58.62	19.7
JS-11, 52.5'-53.4' 60°C	488	6/8/09	Hom	3/4"	3	3/4"	No	17.31	81.37	74.89	11.3
JS-49, 0.0'-1.5'	491	6/8/09	Hom	No. 10			Yes	20.66	87.43	74.78	23.4
JS-49, 1.5'-3.0'	492	6/8/09	Hom	No. 10			Yes	17.40	85.12	73.55	20.6
JS-49, 3.0'-4.5' 60°C	493	6/8/09	Hom	No. 10			Yes	25.23	109.70	93.20	24.3
JS-49, 4.5'-6.0' 60°C	494	6/8/09	Hom	No. 10			Yes	25.07	111.51	91.99	29.2
JS-49, 6.0'-7.5' 60°C	495	6/9/09	Hom	No. 10			Yes	22.16	93.38	77.32	29.1
JS-49, 7.5'-9.0' 60°C	496	6/9/09	Hom	No. 10			Yes	20.85	90.69	76.52	25.5
JS-49, 9.0'-10.5' 60°C	497	6/9/09	Hom	No. 10			Yes	22.14	106.57	86.57	31.0
JS-49, 10.5'-12.0' 60°C	498	6/9/09	Hom	No. 10			Yes	21.62	92.60	71.66	41.8
JS-49, 12.0'-13.5' 60°C	499	6/9/09	Hom	No. 10			Yes	21.24	77.32	64.84	28.6
JS-49, 13.5'-15.0' 60°C	500	6/9/09	Hom	No. 10			Yes	17.31	103.78	83.30	31.0



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-49, 15.0'-16.5' 60°C	501	6/9/09	Hom	No. 10			Yes	17.42	101.93	81.90	31.1
JS-49, 16.5'-18.0' 60°C	502	6/9/09	Hom	No. 10			Yes	22.22	89.33	73.53	30.8
JS-49, 18.0'-19.5'	503	6/9/09	Hom	No. 10			Yes	22.29	120.08	102.97	21.2
JS-49, 19.5'-21.0'	504	6/9/09	Hom	No. 10			Yes	17.39	110.62	93.90	21.9
JS-49, 21.0'-22.5'	505	6/9/09	Hom	1 1/2"	1	1 1/2"	No	21.68	94.78	87.86	10.5
JS-49, 22.5'-24.0'	506	6/9/09	Hom	1 1/2"	3	1 1/2"	No	19.96	111.51	102.39	11.1
JS-49, 24.0'-25.5'	507	6/9/09	Hom	3/4"	3	3/4"	No	21.24	115.19	106.42	10.3
JS-49, 25.5'-27.0'	508	6/9/09	Hom	No. 10			Yes	17.40	114.62	93.17	28.3
JS-49, 27.0'-27.1'	509	6/9/09	Hom	3/4"	2	3/4"	No	17.40	74.45	69.65	9.2
JS-30, 0.0'-1.5'	511	6/9/09	Hom	No. 10			Yes	21.96	98.65	84.45	22.7
JS-30, 1.5'-3.0'	512	6/9/09	Hom	No. 10			Yes	17.44	59.32	53.83	15.1
JS-30, 3.0'-4.5' 60°C	513	6/9/09	Hom	No. 10			Yes	20.36	63.74	57.38	17.2
JS-30, 4.5'-6.0'	514	6/9/09	Hom	No. 10			Yes	21.68	69.81	59.06	28.8
JS-30, 6.0'-7.5' 60°C	515	6/9/09	Hom	No. 10			Yes	22.06	75.42	61.83	34.2
JS-30, 7.5'-9.0' 60°C	516	6/9/09	Hom	No. 10			Yes	21.89	63.68	54.74	27.2
JS-30, 9.0'-10.5' 60°C	517	6/9/09	Hom	No. 10			Yes	17.35	80.74	66.59	28.7
JS-30, 10.5'-12.0' 60°C	518	6/9/09	Hom	No. 10			Yes	17.25	67.85	55.74	31.5
JS-30, 12.0'-13.5' 60°C	519	6/9/09	Hom	No. 10			Yes	17.46	81.42	68.76	24.7
JS-30, 13.5'-15.0' 60°C	520	6/9/09	Hom	No. 10			Yes	17.37	76.24	63.59	27.4
JS-30, 15.0'-16.5' 60°C	521	6/9/09	Hom	No. 10			Yes	21.96	81.85	68.99	27.3
JS-30, 16.5'-18.0' 60°C	522	6/9/09	Hom	No. 10			Yes	20.66	72.38	58.12	38.1
JS-30, 18.0'-19.5' 60°C	523	6/9/09	Hom	No. 10			Yes	21.84	89.45	71.72	35.5
JS-30, 19.5'-21.0' 60°C	524	6/9/09	Hom	No. 10			Yes	20.65	100.31	80.21	33.7
JS-30, 21.0'-22.5' 60°C	525	6/9/09	Hom	No. 10			Yes	20.21	61.54	51.25	33.2
JS-30, 22.5'-24.0' 60°C	526	6/9/09	Hom	No. 10			Yes	17.27	81.96	66.26	32.0
JS-30, 24.0'-25.5' 60°C	527	6/9/09	Hom	No. 10			Yes	17.40	87.51	69.89	33.6
JS-30, 25.5'-27.0'	528	6/9/09	Hom	No. 10			Yes	21.22	108.33	91.99	23.1
JS-30, 27.0'-28.5'	529	6/9/09	Hom	3/4"	1	3/4"	No	17.19	100.56	86.81	19.8
JS-30, 28.5'-30.0'	530	6/9/09	Hom	No. 10			Yes	20.72	105.79	92.60	18.4
JS-30, 30.0'-31.5'	531	6/9/09	Hom	No. 10			Yes	17.41	82.30	71.87	19.2



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-30, 31.5'-33.0'	532	6/9/09	Hom	No. 10			Yes	22.04	94.39	81.82	21.0
JS-30, 33.0'-34.5'	533	6/8/09	Hom	No. 10			Yes	20.62	94.94	82.33	20.4
JS-30, 34.5'-36.0'	534	6/8/09	Hom	No. 10			Yes	22.15	104.56	90.35	20.8
JS-30, 36.0'-37.5'	535	6/8/09	Hom	No. 10			Yes	17.31	114.26	95.75	23.6
JS-30, 37.5'-39.0'	536	6/8/09	Hom	No. 10			Yes	17.27	98.00	85.61	18.1
JS-30, 39.0'-40.5'	537	6/8/09	Hom	1 1/2"	1	1 1/2"	No	17.39	88.26	79.71	13.7
JS-30, 40.5'-42.0'	538	6/8/09	Hom	1 1/2"	2	1 1/2"	No	28.58	160.97	136.45	22.7
JS-30, 42.0'-43.5'	539	6/8/09	Hom	1 1/2"	2	1 1/2"	No	29.45	147.41	136.45	10.2
JS-30, 43.5'-45.0'	540	6/8/09	Hom	3/4"	2	3/4"	No	29.47	168.97	159.38	7.4
JS-30, 45.0'-46.5'	541	6/8/09	Hom	No. 10			Yes	29.50	122.87	106.35	21.5
JS-30, 46.5'-48.0'	542	6/8/09	Hom	No. 10			Yes	27.30	112.29	96.65	22.6
JS-30, 48.0'-49.2'	543	6/8/09	Hom	No. 10			Yes	28.52	210.08	174.54	24.3
JS-25, 0.0'-1.5'	546	6/8/09	Hom	No. 10			Yes	33.17	156.61	136.53	19.4
JS-25, 1.5'-3.0' 60°C	547	6/8/09	Hom	No. 10			Yes	28.65	81.37	75.21	13.2
JS-25, 3.0'-4.5' 60°C	548	6/10/09	Hom	No. 10			Yes	22.06	77.61	69.08	18.1
JS-25, 4.5'-6.0' 60°C	549	6/10/09	Hom	No. 10			Yes	22.30	75.63	68.53	15.4
JS-25, 6.0'-7.5' 60°C	550	6/10/09	Hom	No. 10			Yes	20.26	77.95	68.90	18.6
JS-25, 7.5'-9.0' 60°C	551	6/10/09	Hom	No. 10			Yes	22.15	64.82	57.60	20.4
JS-25, 9.0'-10.5' 60°C	552	6/10/09	Hom	No. 10			Yes	17.43	84.06	68.95	29.3
JS-25, 10.5'-12.0' 60°C	553	6/10/09	Hom	No. 10			Yes	17.38	72.07	60.29	27.5
JS-25, 12.0'-13.5' No Recovery	554	6/16/09									
JS-25, 13.5'-15.0' 60°C	555	6/10/09	Hom	No. 10			Yes	21.69	65.09	56.43	24.9
JS-25, 15.0'-16.5' 60°C	556	6/10/09	Hom	No. 10			Yes	21.69	62.50	52.28	33.4
JS-25, 16.5'-18.0' 60°C	557	6/10/09	Hom	No. 10			Yes	20.01	70.22	57.09	35.4
JS-25, 18.0'-19.5' 60°C	558	6/10/09	Hom	No. 10			Yes	21.27	80.94	64.63	37.6
JS-25, 19.5'-21.0' 60°C	559	6/10/09	Hom	No. 10			Yes	21.28	72.44	57.37	41.8
JS-25, 21.0'-22.5' 60°C	560	6/10/09	Hom	No. 10			Yes	20.12	68.92	52.88	49.0
JS-25, 22.5'-24.0' 60°C	561	6/10/09	Hom	No. 10			Yes	17.50	94.15	71.68	41.5
JS-25, 24.0'-25.5' 60°C	562	6/10/09	Hom	No. 10			Yes	17.22	74.55	57.67	41.7
JS-25, 25.5'-27.0' 60°C	563	6/10/09	Hom	No. 10			Yes	21.69	84.72	65.81	42.9



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-25, 27.0'-28.5' 60°C	564	6/10/09	Hom	No. 10			Yes	21.23	100.81	76.11	45.0
JS-25, 28.5'-30.0' 60°C	565	6/10/09	Hom	No. 10			Yes	22.16	89.97	72.10	35.8
JS-25, 30.0'-31.5' 60°C	566	6/10/09	Hom	No. 10			Yes	21.29	85.01	73.15	22.9
JS-25, 31.5'-33.0'	567	6/10/09	Hom	No. 10			Yes	22.19	82.33	71.34	22.4
JS-25, 33.0'-34.5'	568	6/10/09	Hom	No. 10			Yes	21.28	96.68	85.70	17.0
JS-25, 34.5'-36.0'	569	6/10/09	Hom	No. 10			Yes	17.34	101.43	84.61	25.0
JS-25, 36.0'-37.5'	570	6/10/09	Hom	1 1/2"	2	1 1/2"	No	17.43	107.96	93.49	19.0
JS-25, 37.5'-39.0'	571	6/10/09	Hom	3/4"	2	3/4"	No	20.63	158.58	135.11	20.5
JS-25, 39.0'-40.5'	572	6/10/09	Hom	No. 10			Yes	16.46	113.82	97.14	20.7
JS-25, 40.5'-42.0'	573	6/10/09	Hom	No. 10			Yes	20.80	135.33	115.27	21.2
JS-25, 42.0'-43.5'	574	6/10/09	Hom	No. 10			Yes	17.49	119.70	101.27	22.0
JS-25, 43.5'-45.0' Predominantly Gravel	575	6/10/09	Hom	1 1/2"			No	22.06	59.37	58.07	3.6
JS-25, 45.0'-46.5'	576	6/10/09	Hom	No. 10			Yes	20.85	114.25	108.56	6.5
JS-25, 46.5'-48.0'	577	6/10/09	Hom	No. 10			Yes	20.70	102.21	81.36	34.4
JS-25, 48.0'-48.5'	578	6/10/09	Hom	No. 10			Yes	20.74	81.77	74.49	13.5
JS-55, 0.0'-1.5'	581	6/10/09	Hom	3/4"	2	3/4"	No	17.42	84.50	73.45	19.7
JS-55, 1.5'-3.0'	582	6/10/09	Hom	No. 10			Yes	17.39	78.46	64.97	28.4
JS-55, 3.0'-4.5' 60°C	583	6/10/09	Hom	No. 10			Yes	17.58	68.98	59.62	22.3
JS-55, 4.5'-6.0' 60°C	584	6/10/09	Hom	No. 10			Yes	17.42	79.39	67.69	23.3
JS-55, 6.0'-7.5' 60°C	585	6/10/09	Hom	No. 10			Yes	17.50	81.77	69.65	23.2
JS-55, 7.5'-9.0' 60°C	586	6/10/09	Hom	No. 10			Yes	21.89	105.43	88.79	24.9
JS-55, 9.0'-10.5' 60°C	587	6/10/09	Hom	No. 10			Yes	17.49	151.05	124.64	24.6
JS-55, 10.5'-12.0' 60°C	588	6/10/09	Hom	No. 10			Yes	22.06	109.61	90.11	28.7
JS-55, 12.0'-13.5' 60°C	589	6/10/09	Hom	No. 10			Yes	21.70	115.13	95.47	26.7
JS-55, 13.5'-15.0' 60°C	590	6/11/09	Hom	No. 10			Yes	22.05	113.62	92.00	30.9
JS-55, 15.0'-16.5' 60°C	591	6/11/09	Hom	No. 10			Yes	17.62	70.01	58.74	27.4
JS-55, 16.5'-18.0' 60°C	592	6/11/09	Hom	No. 10			Yes	20.83	117.24	98.01	24.9
JS-55, 18.0'-19.5' 60°C	593	6/11/09	Hom	No. 10			Yes	20.71	103.38	85.62	27.4
JS-55, 19.5'-21.0'	594	6/11/09	Hom	No. 10			Yes	20.63	106.93	87.75	28.6
JS-55, 21.0'-22.5'	595	6/11/09	Hom	No. 10			Yes	17.35	131.80	111.00	22.2



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-55, 22.5'-24.0'	596	6/11/09	Hom	3/4"	4	3/4"	No	20.92	98.50	89.53	13.1
JS-55, 24.0'-25.5'	597	6/11/09	Hom	No. 10			Yes	21.67	126.30	104.39	26.5
JS-55, 25.5'-27.0'	598	6/11/09	Hom	No. 10			Yes	20.72	85.88	72.12	26.8
JS-55, 27.0'-27.5'	599	6/11/09	Hom	No. 10			Yes	20.69	81.01	74.44	12.2
JS-54, 0.0'-1.5'	601	6/11/09	Hom	No. 10			Yes	20.87	111.58	98.82	16.4
JS-54, 1.5'-3.0'	602	6/11/09	Hom	No. 10			Yes	16.45	101.87	90.13	15.9
JS-54, 3.0'-4.5'	603	6/11/09	Hom	3/4"	3	3/4"	No	20.71	101.47	93.18	11.4
JS-54, 4.5'-6.0'	604	6/11/09	Hom	No. 10			Yes	17.51	92.45	80.97	18.1
JS-54, 6.0'-7.5' No Recovery	605	6/16/09									
JS-54, 7.5'-9.0'	606	6/11/09	Hom	No. 10			Yes	17.37	91.35	77.48	23.1
JS-54, 9.0'-10.5'	607	6/11/09	Hom	No. 10			Yes	17.33	96.43	84.97	16.9
JS-54, 10.5'-12.0'	608	6/11/09	Hom	No. 10			Yes	17.40	84.69	74.58	17.7
JS-54, 12.0'-13.5'	609	6/11/09	Hom	No. 10			Yes	22.19	82.88	74.12	16.9
JS-54, 13.5'-15.0'	610	6/11/09	Hom	No. 10			Yes	22.26	90.75	80.12	18.4
JS-54, 15.0'-16.5'	611	6/11/09	Hom	No. 10			Yes	22.18	91.00	80.15	18.7
JS-54, 16.5'-18.0'	612	6/11/09	Hom	No. 10			Yes	17.36	83.11	71.66	21.1
JS-54, 18.0'-19.5'	613	6/11/09	Hom	No. 10			Yes	17.38	95.17	81.88	20.6
JS-54, 19.5'-21.0'	614	6/11/09	Hom	No. 10			Yes	17.46	90.02	79.57	16.8
JS-54, 21.0'-22.5'	615	6/11/09	Hom	3/8"	2	3/8"	No	20.89	80.87	74.66	11.5
JS-54, 22.5'-24.0'	616	6/11/09	Hom	No. 10			Yes	22.21	108.59	94.84	18.9
JS-54, 24.0'-25.5'	617	6/11/09	Hom	1 1/2"	5	1 1/2"	No	19.98	99.93	93.99	8.0
JS-54, 25.5'-27.0'	618	6/11/09	Hom	1 1/2"	5	1 1/2"	No	17.35	92.61	89.37	4.5
JS-54, 27.0'-27.3' Predominantly Gravel	619	6/11/09	Hom	1 1/2"			No	21.92	107.66	105.56	2.5
JS-54, 27.3'-28.0'	620	6/11/09	Hom	1 1/2"	1	1 1/2"	No	20.34	161.80	141.63	16.6



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JP-2, 0.0'-1.5'	2	5/28/09	Hom	3/4"			No	22.30	108.88	99.13	12.7
JP-2, 1.5'-3.0'	3	5/28/09	Len	3/4"	1	3/8"	No	21.64	95.05	85.38	15.2
JP-2, 3.0'-4.5'	4	5/28/09	Hom	1 1/2"			No	21.62	104.41	91.35	18.7
JP-2, 4.5'-6.0'	5	5/28/09	Hom	3/8"			No	21.81	103.27	90.93	17.9
JP-2, 6.0'-7.5'	6	5/28/09	Hom	1 1/2"			No	22.65	70.85	66.20	10.7
JP-2, 7.5'-9.0'	7	5/28/09	Hom	1 1/2"	1	3/4"	No	20.56	82.10	73.39	16.5
JP-2, 9.0'-10.5'	8	5/28/09	Hom	1 1/2"	1	3/4"	No	20.63	83.23	73.83	17.7
JP-2, 10.5'-12.0'	9	5/28/09	Hom	1 1/2"	2	3/4"	No	21.06	97.68	86.03	17.9
JP-2, 12.0'-13.5'	10	5/28/09	Hom	No. 4			No	20.92	98.36	85.49	19.9
JP-2, 13.5'-15.0'	11	5/28/09	Hom	No. 4			No	22.01	96.78	82.97	22.7
JP-2, 15.0'-16.5'	12	5/28/09	Hom	No. 4			No	21.35	68.36	60.54	20.0
JP-2, 16.5'-18.0'	13	5/28/09	Hom	No. 10			Yes	21.29	98.10	86.06	18.6
JP-2, 18.0'-19.5'	14	5/28/09	Str	1 1/2"			No	22.43	103.58	91.05	18.3
JP-2, 19.5'-21.0'	15	5/28/09	Str	1 1/2"	1	3/4"	No	22.18	100.41	89.94	15.5
JP-2, 21.0'-22.5'	16	5/28/09	Str	No. 10			Yes	22.57	93.51	82.05	19.3
JP-2, 22.5'-24.0'	17	5/28/09	Hom	3/4"			No	21.13	93.59	82.47	18.1
JP-2, 24.0'-25.5'	18	5/28/09	Hom	3/4"			No	21.51	100.09	89.95	14.8
JP-2, 25.5'-27.0'	19	5/28/09	Hom	No. 10			Yes	21.63	86.31	76.80	17.2
JP-2, 27.0'-28.5'	20	5/28/09	Hom	3/8"			No	22.78	100.68	93.29	10.5
JP-2, 28.5'-30.0'	21	5/28/09	Str	No. 10			Yes	19.14	84.61	76.34	14.5
JP-2, 30.0'-31.5'	22	5/28/09	Str	3/8"			No	20.64	88.47	81.00	12.4
JP-2, 31.5'-33.0'	23	5/29/09	Hom	1 1/2"			No	20.65	100.88	97.14	4.9
JP-2, 33.0'-34.5'	24	5/29/09	Hom	3/4"			No	21.74	128.25	105.28	27.5
JP-2, 34.5'-36.0'	25	5/29/09	Hom	3/8"			No	22.47	115.59	99.22	21.3
JP-3, 0.0'-1.5'	28	5/29/09	Hom	1 1/2"			No	19.10	85.37	74.47	19.7
JP-3, 5.0'-6.5'	29	5/29/09	Hom	3/4"			No	18.78	114.73	98.64	20.1
JP-3, 10.0'-11.5'	30	5/29/09	Hom	3/8"			No	19.54	99.25	83.03	25.5
JP-3, 15.0'-16.5'	31	5/29/09	Hom	No. 4			No	22.97	100.49	89.91	15.8



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JP-3, 20.0'-21.5'	32	5/29/09	Hom	No. 4			No	18.77	93.88	82.22	18.4
JP-3, 25.0'-26.5'	33	5/29/09	Hom	1 1/2"			No	22.68	84.54	75.36	17.4
JP-3, 30.0'-31.5'	34	5/29/09	Hom	No. 4			No	18.97	83.22	73.65	17.5
JP-3, 31.5'-33.0'	35	5/29/09	Hom	No. 4			No	21.30	93.68	83.79	15.8
JP-3, 33.0'-34.5'	36	5/29/09	Hom	3/4"			No	23.98	131.95	122.40	9.7
JP-3, 34.5'-35.4'	37	5/29/09	Hom	No. 4			No	19.14	90.90	82.48	13.3
JP-4, 0.0'-1.5'	40	6/1/09	Hom	1 1/2"			No	20.94	96.48	85.22	17.5
JP-4, 5.0'-6.5'	41	6/1/09	Hom	3/8"			No	19.85	89.63	80.51	15.0
JP-4, 10.0'-11.5'	42	6/1/09	Hom	3/4"			No	21.38	105.89	93.95	16.5
JP-4, 15.0'-16.5'	43	6/1/09	Hom	3/8"			No	20.85	94.75	81.79	21.3
JP-4, 20.0'-21.5'	44	6/1/09	Hom	3/8"			No	18.64	96.05	85.07	16.5
JP-4, 25.0'-26.5'	45	6/1/09	Hom	No. 4			No	22.32	105.83	93.88	16.7
JP-4, 30.0'-31.5'	46	6/1/09	Hom	No. 4			No	20.62	86.57	75.29	20.6
JP-4, 31.5'-33.0'	47	6/1/09	Hom	No. 4			No	20.47	92.43	79.82	21.2
JP-4, 33.0'-34.5'	48	6/1/09	Hom	No. 4			No	26.42	142.38	123.85	19.0
JP-4, 34.5'-36.0'	49	6/1/09	Hom	No. 4			No	20.25	92.58	80.63	19.8
JP-4, 36.0'-37.5'	50	6/1/09	Hom	No. 4			No	23.92	143.49	121.56	22.5
JP-4, 37.5'-39.0'	51	6/1/09	Hom	No. 4			No	21.75	135.68	113.27	24.5
JP-4, 39.0'-40.5'	52	6/1/09	Hom	No. 4			No	20.83	111.73	94.25	23.8
JP-4, 40.5'-42.0'	53	6/1/09	Hom	No. 4			No	21.57	116.27	97.68	24.4
JP-4, 42.0'-43.5'	54	6/1/09	Hom	3/8"			No	21.64	101.90	86.82	23.1
JP-4, 43.5'-45.0'	55	6/1/09	Hom	No. 4			No	21.98	132.44	112.81	21.6
JP-4, 45.0'-46.5'	56	6/1/09	Hom	No. 4			Yes	21.57	146.54	124.64	21.2
JP-4, 46.5'-47.7'	57	6/1/09	Hom	3/8"			No	21.21	131.40	113.87	18.9
JP-5, 0.0'-1.5'	62	6/1/09	Hom	3/4"			No	21.78	114.20	97.95	21.3
JP-5, 5.0'-6.5'	63	6/1/09	Hom	3/4"			No	21.82	96.95	85.83	17.4
JP-5, 10.0'-11.5'	64	6/1/09	Hom	No. 4			No	19.26	86.47	76.43	17.6
JP-5, 15.0'-16.5'	65	6/1/09	Hom	3/4"			No	20.52	81.89	72.46	18.2
JP-5, 20.0'-21.5'	66	6/1/09	Hom	3/4"			No	26.46	147.38	125.57	22.0
JP-5, 25.0'-26.5'	67	6/1/09	Hom	1 1/2"			No	29.19	141.58	121.55	21.7



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JP-5, 30.0'-31.5'	68	6/1/09	Hom	3/8"			No	21.27	112.38	96.06	21.8
JP-5, 35.0'-36.5'	69	6/1/09	Hom	No. 4			No	19.26	98.95	83.86	23.4
JP-5, 40.0'-41.5'	70	6/1/09	Hom	No. 4			No	21.75	120.54	105.57	17.9
JP-5, 45.0'-45.7'	71	6/1/09	Hom	3/4"			No	15.68	86.83	78.74	12.8
JP-6, 0.0'-1.5'	75	6/1/09	Hom	1 1/2"			No	29.66	145.84	131.79	13.8
JP-6, 5.0'-6.5'	76	6/1/09	Hom	3/8"			No	22.22	104.69	91.80	18.5
JP-6, 10.0'-11.5'	77	6/1/09	Hom	1 1/2"			No	27.43	134.39	118.05	18.0
JP-6, 15.0'-16.5'	78	6/1/09	Hom	3/8"			No	21.34	98.02	82.93	24.5
JP-6, 20.0'-21.5'	79	6/1/09	Hom	3/8"			No	20.27	86.46	72.84	25.9
JP-6, 25.0'-26.5'	80	6/1/09	Hom	3/8"			No	18.96	92.96	79.17	22.9
JP-6, 30.0'-31.5'	81	6/1/09	Hom	3/8"			No	22.60	120.67	102.83	22.2
JP-6, 31.5'-33.0'	82	6/1/09	Hom	3/8"			No	19.27	104.97	89.81	21.5
JP-6, 33.0'-34.5'	83	6/1/09	Hom	No. 4			Yes	29.20	149.53	130.42	18.9
JP-6, 34.5'-36.0'	84	6/1/09	Hom	No. 4			No	22.44	118.51	102.85	19.5
JP-6, 36.0'-37.5'	85	6/1/09	Hom	No. 4			No	24.39	125.48	107.34	21.9
JP-6, 37.5'-39.0'	86	6/1/09	Hom	No. 4			No	22.66	131.51	114.81	18.1
JP-6, 39.0'-40.5'	87	6/1/09	Hom	3/4"			No	19.84	118.24	100.18	22.5
JP-6, 40.5'-42.0'	88	6/1/09	Hom	No. 4			No	17.59	124.56	100.14	29.6
JS-46, 0.0'-1.5'	91	6/1/09	Hom	3/4"			No	19.77	98.04	85.70	18.7
JS-46, 1.5'-3.0'	92	6/1/09	Hom	1 1/2"			No	22.73	100.17	84.01	26.4
JS-46, 3.0'-4.5'	93	6/1/09	Hom	No. 4			No	21.84	109.43	92.07	24.7
JS-46, 4.5'-6.0'	94	6/1/09	Hom	3/8"			No	22.79	120.44	101.22	24.5
JS-46, 6.0'-7.5'	95	6/1/09	Hom	3/8"			No	19.76	88.42	79.19	15.5
JS-46, 7.5'-9.0'	96	6/1/09	Hom	3/4"			No	22.10	100.62	91.57	13.0
JS-46, 9.0'-10.5'	97	6/1/09	Hom	3/8"			No	19.13	84.47	76.04	14.8
JS-46, 10.5'-12.0'	98	6/1/09	Hom	3/8"			No	19.19	86.90	78.12	14.9
JS-46, 12.0'-13.5'	99	6/1/09	Hom	3/8"			No	21.84	99.77	90.90	12.8
JS-46, 13.5'-15.0'	100	6/1/09	Hom	3/8"			No	20.21	87.74	79.64	13.6
JS-46, 15.0'-16.5'	101	6/1/09	Hom	3/8"			No	22.38	102.40	93.13	13.1
JS-46, 16.5'-18.0'	102	6/1/09	Hom	3/4"			No	20.99	98.99	88.21	16.0



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-46, 18.0'-19.5'	103	6/1/09	Hom	3/4"			No	21.35	94.65	85.21	14.8
JS-46, 19.5'-21.0'	104	6/1/09	Hom	3/4"			No	22.96	101.81	91.16	15.6
JS-46, 21.0'-22.5'	105	6/1/09	Hom	3/8"			No	20.84	94.14	82.66	18.6
JS-46, 22.5'-24.0'	106	6/1/09	Hom	3/8"			No	21.22	101.00	88.25	19.0
JS-46, 24.0'-25.5'	107	6/1/09	Hom	3/4"			No	19.15	97.60	85.67	17.9
JS-46, 25.5'-27.0'	108	6/1/09	Hom	3/8"			No	19.47	98.25	87.05	16.6
JS-46, 27.0'-28.5'	109	6/1/09	Hom	3/8"			No	19.41	98.43	77.10	37.0
JS-46, 28.5'-30.0'	110	6/1/09	Hom	3/8"			No	22.08	110.15	96.96	17.6
JS-46, 30.0'-31.5'	111	6/1/09	Hom	3/4"			No	15.48	103.02	89.75	17.9
JS-46, 31.5'-33.0'	112	6/1/09	Hom	3/4"			No	19.09	104.93	91.78	18.1
JS-46, 33.0'-34.5'	113	6/1/09	Hom	3/8"			No	19.55	100.95	88.88	17.4
JS-46, 34.5'-36.0'	114	6/1/09	Hom	3/8"			No	21.64	118.35	101.01	21.8
JS-46, 36.0'-37.5'	115	6/1/09	Hom	3/8"			No	20.80	102.23	90.99	16.0
JS-46, 37.5'-39.0'	116	6/1/09	Hom	3/8"			No	19.18	99.23	86.16	19.5
JS-46, 39.0'-40.5'	117	6/1/09	Hom	No. 4			No	19.57	104.43	90.81	19.1
JS-46, 40.5'-42.0'	118	6/1/09	Hom	No. 4			No	22.57	109.42	92.18	24.8
JS-46, 42.0'-43.5'	119	6/1/09	Hom	3/4"			No	27.05	164.92	135.82	26.8
JS-46, 43.5'-45.0'	120	6/1/09	Hom	3/8"			No	21.80	106.87	91.42	22.2
JS-46, 45.0'-46.5'	121	6/1/09	Hom	3/8"			No	22.86	99.94	86.74	20.7
JS-46, 46.5'-48.0'	122	6/1/09	Hom	3/8"			No	20.64	98.45	84.50	21.8
JS-46, 48.0'-49.5'	123	6/1/09	Hom	1 1/2"			No	21.63	126.83	107.85	22.0
JS-46, 49.5'-51.0'	124	6/1/09	Hom	No. 4			No	21.61	131.78	108.35	27.0
JS-46, 51.0'-52.5'	125	6/1/09	Hom	No. 4			No	20.87	97.36	82.25	24.6
JS-46, 52.5'-54.0'	126	6/1/09	Hom	No. 4			No	22.83	111.98	87.12	38.7
JS-46, 54.0'-55.5'	127	6/1/09	Hom	No. 4			No	21.05	99.53	72.70	51.9
JS-46, 55.5'-57.0'	128	6/1/09	Hom	No. 4			No	29.58	131.52	98.39	48.1
JS-46, 57.0'-58.5'	129	6/1/09	Hom	No. 4			No	19.59	97.20	73.83	43.1
JS-46, 58.5'-60.0'	130	6/1/09	Hom	No. 4			No	15.36	111.15	89.12	29.9
JS-46, 60.0'-61.5'	131	6/1/09	Hom	3/8"			No	18.93	117.55	100.82	20.4
JS-46, 61.5'-63.0'	132	6/2/09	Hom	No. 4			No	18.84	110.78	94.60	21.4



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-46, 63.0'-64.5'	133	6/2/09	Hom	No. 4			No	21.37	123.30	105.75	20.8
JS-46, 64.5'-66.0'	134	6/2/09	Hom	No. 4			No	22.43	114.62	97.09	23.5
JS-46, 66.0'-67.5'	135	6/2/09	Hom	1 1/2"			No	21.81	123.04	103.57	23.8
JS-46, 67.5'-69.0'	136	6/2/09	Hom	3/4"			No	22.20	136.64	117.94	19.5
JS-46, 69.0'-70.5'	137	6/2/09	Hom	3/4"			No	22.11	128.95	112.05	18.8
JS-46, 70.5'-72.0'	138	6/2/09	Hom	3/4"			No	21.07	107.73	88.11	29.3
JS-46, 72.0'-73.5'	139	6/2/09	Hom	3/4"			No	20.98	115.95	88.42	40.8
JS-46, 73.5'-75.0'	140	6/2/09	Hom	3/4"			No	21.11	103.69	87.49	24.4
JS-46, 75.0'-75.7'	141	6/2/09	Hom	3/4"			No	21.55	126.37	104.39	26.5
JS-38, 0.0'-1.5'	143	6/2/09	Hom	3/4"			No	23.34	105.11	91.27	20.4
JS-38, 1.5'-3.0'	144	6/2/09	Hom	No. 4			No	21.75	90.71	77.51	23.7
JS-38, 3.0'-4.5'	145	6/2/09	Hom	No. 4			No	18.91	74.28	62.80	26.2
JS-38, 4.5'-6.0'	146	6/2/09	Hom	No. 4			No	21.66	94.36	78.01	29.0
JS-38, 6.0'-7.5'	147	6/2/09	Hom	3/4"			No	22.06	100.47	83.85	26.9
JS-38, 7.5'-9.0'	148	6/2/09	Hom	3/8"			No	19.68	91.78	77.13	25.5
JS-38, 9.0'-10.5'	149	6/2/09	Hom	3/4"			No	22.05	101.85	86.67	23.5
JS-38, 10.5'-12.0'	150	6/2/09	Hom	No. 4			No	19.07	97.90	81.49	26.3
JS-38, 12.0'-13.5'	151	6/2/09	Hom	No. 4			No	21.05	104.54	85.84	28.9
JS-38, 13.5'-15.0'	152	6/2/09	Hom	3/4"			No	20.96	94.94	81.28	22.6
JS-38, 15.0'-16.5'	153	6/2/09	Hom	No. 4			No	21.93	94.74	83.43	18.4
JS-38, 16.5'-18.0'	154	6/2/09	Hom	3/4"			No	22.16	101.71	88.35	20.2
JS-38, 18.0'-19.5'	155	6/2/09	Hom	No. 4			No	19.11	80.36	69.81	20.8
JS-38, 19.5'-21.0'	156	6/2/09	Hom	No. 4			No	21.68	103.01	86.77	25.0
JS-38, 21.0'-22.5'	157	6/2/09	Hom	No. 4			No	21.95	101.95	84.71	27.5
JS-38, 22.5'-24.0'	158	6/2/09	Hom	No. 4			No	21.19	102.98	86.18	25.9
JS-38, 24.0'-25.5'	159	6/2/09	Hom	No. 4			No	22.67	111.55	93.78	25.0
JS-38, 25.5'-27.0'	160	6/2/09	Hom	3/8"			No	21.34	91.60	76.95	26.3
JS-38, 27.0'-28.5'	161	6/2/09	Hom	3/4"			No	22.48	105.37	91.58	20.0
JS-38, 28.5'-30.0'	162	6/2/09	Hom	3/4"			No	22.37	110.09	96.03	19.1
JS-38, 30.0'-31.5'	163	6/2/09	Hom	1 1/2"			No	22.19	97.32	85.73	18.2



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-38, 31.5'-33.0'	164	6/2/09	Hom	3/4"			No	20.29	93.07	82.02	17.9
JS-38, 33.0'-34.5'	165	6/2/09	Hom	3/4"			No	21.56	96.82	87.55	14.0
JS-38, 34.5'-36.0'	166	6/2/09	Hom	3/4"			No	22.90	100.45	89.39	16.6
JS-38, 36.0'-37.5'	167	6/2/09	Hom	3/4"			No	21.95	101.52	91.96	13.7
JS-38, 37.5'-39.0'	168	6/2/09	Hom	3/4"			No	21.21	96.53	85.10	17.9
JS-38, 39.0'-40.5'	169	6/2/09	Hom	3/4"			No	16.22	76.44	68.31	15.6
JS-38, 40.5'-42.0'	170	6/2/09	Hom	3/8"			No	19.18	91.03	81.28	15.7
JS-38, 42.0'-43.5'	171	6/2/09	Hom	3/8"			No	22.99	102.90	89.01	21.0
JS-38, 43.5'-45.0'	172	6/2/09	Hom	3/4"			No	22.27	101.75	87.62	21.6
JS-38, 45.0'-46.5'	173	6/2/09	Hom	3/8"			No	19.89	103.96	88.93	21.8
JS-38, 46.5'-48.0'	174	6/2/09	Hom	3/8"			No	21.96	116.65	98.86	23.1
JS-38, 48.0'-49.5'	175	6/2/09	Hom	3/4"			No	20.77	94.60	81.15	22.3
JS-38, 49.5'-51.0'	176	6/2/09	Hom	1 1/2"			No	21.84	92.94	83.99	14.4
JS-38, 51.0'-52.5'	177	6/2/09	Hom	No. 4			No	20.73	108.43	91.12	24.6
JS-38, 52.5'-54.0'	178	6/2/09	Hom	No. 4			No	23.29	112.27	88.00	37.5
JS-38, 54.0'-55.5'	179	6/2/09	Hom	No. 4			No	19.54	86.69	68.37	37.5
JS-38, 55.5'-57.0'	180	6/2/09	Hom	No. 4			No	19.23	102.93	80.91	35.7
JS-38, 57.0'-58.5'	181	6/2/09	Hom	No. 4			No	21.97	103.83	78.92	43.7
JS-38, 58.5'-60.0'	182	6/2/09	Hom	No. 4			No	21.34	106.39	80.10	44.7
JS-38, 60.0'-61.5'	183	6/2/09	Hom	No. 4			No	22.54	101.00	75.58	47.9
JS-38, 61.5'-63.0'	184	6/2/09	Hom	No. 4			No	19.25	101.46	72.54	54.3
JS-38, 63.0'-64.5'	185	6/2/09	Hom	No. 4			No	18.82	96.21	68.54	55.7
JS-38, 64.5'-66.0'	186	6/2/09	Hom	No. 4			No	20.66	97.11	69.18	57.6
JS-38, 66.0'-67.5'	187	6/2/09	Hom	No. 4			No	20.57	105.96	75.16	56.4
JS-38, 67.5'-69.0'	188	6/2/09	Hom	No. 4			No	21.97	115.76	78.79	65.1
JS-38, 69.0'-70.5'	189	6/2/09	Hom	No. 4			No	22.02	116.19	74.23	80.4
JS-38, 70.5'-72.0'	190	6/2/09	Hom	No. 4			No	21.53	112.89	83.28	48.0
JS-38, 72.0'-73.5'	191	6/2/09	Hom	No. 4			No	21.94	118.93	87.78	47.3
JS-38, 73.5'-75.0'	192	6/2/09	Hom	No. 4			No	21.97	105.28	78.02	48.6
JS-38, 75.0'-76.5'	193	6/2/09	Hom	No. 4			No	22.87	109.04	78.61	54.6



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-38, 76.5'-78.0'	194	6/2/09	Hom	3/8"			No	21.51	99.04	73.32	49.6
JS-38, 78.0'-79.5'	195	6/2/09	Hom	No. 4			No	19.66	98.41	68.87	60.0
JS-38, 79.5'-81.0'	196	6/2/09	Hom	No. 4			No	19.78	86.18	66.19	43.1
JS-38, 81.0'-82.5'	197	6/2/09	Hom	No. 4			No	18.98	97.90	75.46	39.7
JS-38, 82.5'-84.0'	198	6/2/09	Hom	1 1/2"			No	20.85	104.07	85.90	27.9
JS-38, 84.0'-85.5'	199	6/2/09	Lam	3/8"			No	19.14	106.57	91.60	20.7
JS-38, 85.5'-87.0'	200	6/2/09	Hom	3/4"			No	21.82	121.65	105.29	19.6
JS-31, 0.0'-1.5'	203	6/2/09	Hom	3/4"			No	21.34	117.18	101.21	20.0
JS-31, 1.5'-3.0'	204	6/2/09	Hom	1 1/2"			No	21.26	98.91	86.23	19.5
JS-31, 3.0'-4.5'	205	6/2/09	Hom	1 1/2"			No	19.38	88.44	77.16	19.5
JS-31, 4.5'-6.0'	206	6/2/09	Hom	3/8"			No	20.16	107.98	93.33	20.0
JS-31, 6.0'-7.5'	207	6/2/09	Hom	3/4"			No	21.57	99.55	87.82	17.7
JS-31, 7.5'-9.0'	208	6/2/09	Hom	3/8"			No	20.86	120.92	104.93	19.0
JS-31, 9.0'-10.5'	209	6/2/09	Hom	No. 4			No	22.76	101.83	89.65	18.2
JS-31, 10.5'-12.0'	210	6/2/09	Hom	No. 4			No	22.51	118.50	98.51	26.3
JS-31, 12.0'-13.5'	211	6/2/09	Hom	No. 4			No	18.97	98.67	80.59	29.3
JS-31, 13.5'-15.0'	212	6/2/09	Hom	3/8"			No	21.85	105.49	93.78	16.3
JS-31, 15.0'-16.5'	213	6/2/09	Hom	1 1/2"			No	26.61	148.12	127.78	20.1
JS-31, 16.5'-18.0'	214	6/2/09	Hom	3/8"			No	19.21	90.19	81.04	14.8
JS-31, 18.0'-19.5'	215	6/2/09	Hom	3/4"			No	21.10	35.48	33.86	12.7
JS-31, 19.5'-21.0'	216	6/2/09	Hom	3/8"			No	20.99	97.53	88.11	14.0
JS-31, 21.0'-22.5'	217	6/2/09	Hom	3/8"			No	22.06	123.55	102.63	26.0
JS-31, 22.5'-24.0'	218	6/2/09	Hom	No. 4			No	21.59	94.96	83.31	18.9
JS-31, 24.0'-25.5'	219	6/2/09	Hom	No. 4			No	19.75	88.22	76.72	20.2
JS-31, 25.5'-27.0'	220	6/2/09	Hom	3/8"			No	21.99	102.35	89.45	19.1
JS-31, 27.0'-28.5'	221	6/2/09	Hom	No. 4			No	21.46	104.31	91.69	18.0
JS-31, 28.5'-30.0'	222	6/2/09	Hom	3/8"			No	22.60	100.02	93.09	9.8
JS-31, 30.0'-31.5'	223	6/2/09	Hom	3/4"			No	20.58	93.08	81.52	19.0
JS-31, 31.5'-33.0'	224	6/3/09	Hom	No. 4			No	50.08	155.69	138.04	20.1
JS-31, 33.0'-34.5'	225	6/3/09	Hom	3/4"			No	44.44	220.19	195.52	16.3



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-31, 34.5'-36.0' 60°C	226	6/3/09	Hom	3/8"			No	44.85	194.60	171.47	18.3
JS-31, 36.0'-36.7' 60°C	227	6/3/09	Hom	3/4"			No	44.64	186.05	164.22	18.3
JS-31, 37.5'-39.0' 60°C	228	6/3/09	Hom	3/8"			No	46.10	201.83	178.21	17.9
JS-31, 39.0'-40.5' 60°C	229	6/3/09	Hom	3/8"			No	47.14	190.44	165.31	21.3
JS-31, 40.5'-42.0' 60°C	230	6/3/09	Hom	3/8"			No	43.86	209.44	181.31	20.5
JS-31, 42.0'-42.8' 60°C	231	6/3/09	Hom	3/8"			No	43.59	169.59	152.65	15.5
JS-31, 43.5'-45.0' 60°C	232	6/3/09	Hom	3/8"			No	46.25	217.03	190.20	18.6
JS-31, 45.0'-46.5' 60°C	233	6/3/09	Hom	3/8"			No	45.22	186.58	157.20	26.2
JS-31, 46.5'-48.0' 60°C	234	6/3/09	Hom	3/4"			No	43.74	181.98	151.66	28.1
JS-31, 48.0'-49.5' 60°C	235	6/3/09	Hom	3/8"			No	44.02	184.64	153.76	28.1
JS-31, 49.5'-51.0' 60°C	236	6/3/09	Hom	3/4"			No	43.84	187.10	159.24	24.1
JS-31, 51.0'-52.5' 60°C	237	6/3/09	Hom	3/8"			No	43.82	201.63	171.31	23.8
JS-31, 52.5'-54.0' 60°C	238	6/3/09	Hom	3/8"			No	43.64	183.74	154.63	26.2
JS-31, 54.0'-55.5' 60°C	239	6/3/09	Hom	No. 4			Yes	44.64	180.64	144.70	35.9
JS-31, 55.5'-57.0' 60°C	240	6/3/09	Hom	No. 4			No	22.07	89.96	70.18	41.1
JS-31, 57.0'-58.5' 60°C	241	6/3/09	Hom	No. 4			No	20.99	85.71	69.06	34.6
JS-31, 58.5'-60.0' 60°C	242	6/3/09	Hom	No. 4			No	19.17	108.90	83.57	39.3
JS-31, 60.0'-61.5' 60°C	243	6/3/09	Hom	No. 4			No	22.65	93.78	70.24	49.5
JS-31, 61.5'-63.0' 60°C	244	6/3/09	Hom	No. 4			No	21.40	98.89	74.49	46.0
JS-31, 63.0'-64.5' 60°C	245	6/3/09	Hom	No. 4			No	19.65	97.30	73.69	43.7
JS-31, 64.5'-66.0' 60°C	246	6/3/09	Hom	No. 4			No	22.36	109.61	84.67	40.0
JS-31, 66.0'-67.5' 60°C	247	6/3/09	Hom	No. 4			No	19.14	97.87	76.13	38.1
JS-31, 67.5'-69.0' 60°C	248	6/3/09	Hom	No. 4			No	22.97	122.08	93.76	40.0
JS-31, 69.0'-70.5' 60°C	249	6/3/09	Hom	No. 4			No	19.44	88.42	68.92	39.4
JS-31, 70.5'-72.0' 60°C	250	6/3/09	Hom	No. 4			No	19.65	98.39	72.40	49.3
JS-31, 72.0'-73.5' 60°C	251	6/3/09	Hom	No. 4			No	20.92	108.93	86.89	33.4
JS-31, 73.5'-75.0' 60°C	252	6/3/09	Hom	No. 4			No	18.95	109.08	92.83	22.0
JS-31, 75.0'-76.5' 60°C	253	6/3/09	Len	No. 4			No	18.74	107.89	92.62	20.7
JS-31, 76.5'-78.0' 60°C	254	6/3/09	Hom	No. 4			No	21.90	117.06	100.36	21.3
JS-31, 78.0'-79.5' 60°C	255	6/3/09	Len	No. 4			No	21.38	135.96	115.37	21.9



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-31, 79.5'-81.0'	256	6/3/09	Hom	No. 4			No	20.87	134.07	113.23	22.6
JS-31, 81.0'-82.5'	257	6/3/09	Hom	No. 4			No	19.14	109.39	91.70	24.4
JS-31, 82.5'-84.0'	258	6/3/09	Hom	No. 4			No	21.74	144.15	121.32	22.9
JS-31, 84.0'-85.5'	259	6/3/09	Hom	No. 4			No	15.40	125.42	102.93	25.7
JS-31, 85.5'-87.0'	260	6/3/09	Hom	No. 4			No	19.06	127.86	106.65	24.2
JS-31, 87.0'-88.5'	261	6/3/09	Hom	1 1/2"			No	19.69	124.46	112.58	12.8
JS-31, 88.5'-90.0'	262	6/3/09	Hom	1 1/2"			No	22.97	101.34	92.46	12.8
JS-31, 90.0'-90.5'	263	6/3/09	Hom	3/4"			No	19.19	106.10	96.24	12.8
JS-13, 0.0'-1.5' 60°C	266	6/3/09	Hom	3/4"			No	15.52	94.26	80.94	20.4
JS-13, 1.5'-3.0'	267	6/3/09	Hom	1 1/2"			No	19.50	98.88	84.84	21.5
JS-13, 3.0'-4.5' 60°C	268	6/3/09	Hom	3/8"			No	27.71	116.41	102.11	19.2
JS-13, 4.5'-6.0' 60°C	269	6/3/09	Hom	No. 4			No	22.49	111.20	96.55	19.8
JS-13, 6.0'-7.5' 60°C	270	6/3/09	Hom	No. 4			No	18.66	90.62	78.66	19.9
JS-13, 7.5'-9.0' 60°C	271	6/3/09	Hom	3/8"			No	19.78	82.57	72.73	18.6
JS-13, 9.0'-10.5' 60°C	272	6/3/09	Hom	3/8"			No	21.95	110.04	97.31	16.9
JS-13, 10.5'-12.0' 60°C	273	6/3/09	Hom	No. 4			No	22.17	111.23	98.61	16.5
JS-13, 12.0'-13.5' 60°C	274	6/3/09	Hom	No. 10			Yes	21.64	105.53	93.83	16.2
JS-13, 13.5'-15.0' 60°C	275	6/3/09	Hom	No. 10			Yes	21.84	102.87	90.99	17.2
JS-13, 15.0'-16.5' 60°C	276	6/3/09	Hom	3/8"			No	22.94	102.26	90.06	18.2
JS-13, 16.5'-18.0' 60°C	277	6/3/09	Hom	No. 10			Yes	19.53	85.63	74.83	19.5
JS-13, 18.0'-19.5' 60°C	278	6/3/09	Hom	3/8"			No	19.75	90.03	77.70	21.3
JS-13, 19.5'-21.0' 60°C	279	6/3/09	Hom	3/8"			No	20.25	99.76	87.22	18.7
JS-13, 21.0'-22.5' 60°C	280	6/3/09	Hom	No. 4			No	19.36	95.64	81.77	22.2
JS-13, 22.5'-24.0' 60°C	281	6/3/09	Hom	No. 10			Yes	20.84	100.44	86.54	21.2
JS-13, 24.0'-25.5' 60°C	282	6/3/09	Hom	1 1/2"			No	22.86	104.50	92.37	17.5
JS-13, 25.5'-27.0' 60°C	283	6/3/09	Hom	3/8"			No	30.04	135.26	121.88	14.6
JS-13, 27.0'-28.5' 60°C	284	6/3/09	Hom	No. 4			No	19.27	94.61	83.85	16.7
JS-13, 28.5'-30.0' 60°C	285	6/3/09	Hom	1 1/2"			No	22.80	108.30	95.02	18.4
JS-13, 30.0'-31.5' 60°C	286	6/3/09	Hom	3/4"			No	22.41	108.62	95.45	18.0
JS-13, 31.5'-33.0' 60°C	287	6/3/09	Hom	3/8"			No	21.27	110.32	92.17	25.6



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-13, 33.0'-34.5' 60°C	288	6/3/09	Hom	No. 4			No	19.24	97.84	76.98	36.1
JS-13, 34.5'-36.0' 60°C	289	6/3/09	Hom	No. 4			No	20.63	103.51	80.78	37.8
JS-13, 36.0'-37.5' 60°C	290	6/3/09	Hom	No. 4			No	21.14	101.61	77.72	42.2
JS-13, 37.5'-39.0' 60°C	291	6/3/09	Hom	No. 4			No	22.71	98.02	84.59	21.7
JS-13, 39.0'-40.5' 60°C	292	6/3/09	Hom	3/8"			No	21.46	107.82	90.15	25.7
JS-13, 40.5'-42.0' 60°C	293	6/3/09	Hom	No. 4			No	19.27	91.17	75.59	27.7
JS-13, 42.0'-43.5' 60°C	294	6/3/09	Hom	No. 4			No	21.25	91.05	72.41	36.4
JS-13, 43.5'-45.0' 60°C	295	6/3/09	Hom	No. 4			No	22.22	102.73	83.43	31.5
JS-13, 45.0'-46.5' 60°C	296	6/3/09	Hom	No. 10			Yes	19.11	82.43	65.85	35.5
JS-13, 46.5'-48.0' 60°C	297	6/3/09	Hom	No. 10			Yes	18.63	91.08	70.98	38.4
JS-13, 48.0'-49.5' 60°C	298	6/3/09	Hom	No. 4			No	19.46	99.60	75.63	42.7
JS-13, 49.5'-51.0' 60°C	299	6/3/09	Hom	No. 4			No	20.45	92.76	71.77	40.9
JS-13, 51.0'-52.5' 60°C	300	6/3/09	Hom	No. 4			No	21.70	113.20	87.41	39.2
JS-13, 52.5'-54.0' 60°C	301	6/3/09	Hom	No. 4			No	18.90	109.41	89.12	28.9
JS-13, 54.0'-55.5'	302	6/4/09	Hom	No. 4			No	20.61	110.35	93.18	23.7
JS-13, 55.5'-57.0'	303	6/4/09	Hom	No. 4			No	18.73	111.77	95.25	21.6
JS-13, 57.0'-58.5'	304	6/4/09	Hom	1 1/2"			No	18.75	111.60	95.02	21.7
JS-13, 58.5'-60.0'	305	6/4/09	Len	3/8"			No	21.26	115.85	99.97	20.2
JS-13, 60.0'-61.5'	306	6/4/09	Hom	3/4"			No	22.63	153.53	129.61	22.4
JS-13, 61.5'-63.0'	307	6/4/09	Hom	3/4"			No	23.83	150.39	132.13	16.9
JS-13, 63.0'-64.5'	308	6/4/09	Hom	No. 4			Yes	23.97	156.11	131.36	23.0
JS-13, 64.5'-66.0'	309	6/4/09	Hom	3/4"			No	22.51	179.18	152.72	20.3
JS-13, 66.0'-67.5'	310	6/4/09	Hom	3/4"			No	18.86	108.25	93.61	19.6
JS-13, 67.5'-69.0'	311	6/4/09	Hom	1 1/2"			No	22.55	151.10	131.62	17.9



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-26, 0.0'-1.5'	621	6/15/09	Hom	No. 10			Yes	22.13	94.91	75.14	37.3
JS-26, 0.0'-1.5' 60°C	621B	6/15/09	Hom	No. 10			Yes	20.33	65.80	57.51	22.3
JS-26, 1.5'-3.0' 60°C	622	6/15/09	Hom	No. 10			Yes	17.47	70.54	60.13	24.4
JS-26, 3.0'-4.5'	623	6/15/09	Hom	No. 10			Yes	17.52	76.65	65.84	22.4
JS-26, 3.0'-4.5'	623B	6/15/09	Hom	No. 10			Yes	17.28	65.23	55.45	25.6
JS-26, 4.5'-6.0'	624	6/15/09	Hom	No. 10			Yes	22.09	100.71	87.55	20.1
JS-26, 4.5'-6.0' 60°C	624B	6/15/09	Hom	No. 10			Yes	25.23	102.46	94.78	11.0
JS-26, 6.0'-7.5'	625	6/15/09	Hom	3/8"	3	3/8"	No	17.36	70.08	61.89	18.4
JS-26, 6.0'-7.5' 60°C	625B	6/15/09	Hom	No. 10			Yes	20.19	54.20	49.74	15.1
JS-26, 7.5'-9.0' 60°C	626	6/15/09	Hom	No. 10			Yes	21.27	75.63	69.35	13.1
JS-26, 9.0'-10.5' 60°C	627	6/15/09	Hom	No. 10			Yes	21.69	79.82	71.27	17.2
JS-26, 10.5'-12.0' 60°C	628	6/15/09	Hom	No. 10			Yes	17.31	79.00	70.20	16.6
JS-26, 12.0'-13.5' 60°C	629	6/15/09	Hom	No. 10			Yes	20.64	73.85	66.59	15.8
JS-26, 13.5'-15.0' 60°C	630	6/15/09	Hom	No. 10			Yes	16.44	65.68	59.72	13.8
JS-26, 15.0'-16.5' 60°C	631	6/15/09	Hom	No. 10			Yes	20.71	76.66	68.33	17.5
JS-26, 16.5'-18.0' 60°C	632	6/15/09	Hom	No. 10			Yes	20.90	84.52	72.67	22.9
JS-26, 18.0'-19.5' 60°C	633	6/15/09	Hom	No. 10			Yes	21.65	80.22	70.97	18.8
JS-26, 19.5'-21.0' 60°C	634	6/15/09	Hom	No. 10			Yes	21.85	77.07	66.26	24.3
JS-26, 21.0'-22.5' 60°C	635	6/15/09	Hom	No. 10			Yes	22.16	67.70	60.10	20.0
JS-26, 22.5'-24.0' 60°C	636	6/15/09	Hom	No. 10			Yes	22.23	91.50	80.13	19.6
JS-26, 24.0'-25.5' 60°C	637	6/15/09	Hom	No. 10			Yes	17.67	77.71	68.80	17.4
JS-26, 25.5'-27.0' 60°C	638	6/15/09	Hom	No. 10			Yes	17.52	101.85	87.27	20.9
JS-26, 27.0'-28.5' 60°C	639	6/15/09	Hom	No. 10			Yes	22.08	74.51	66.23	18.8
JS-26, 28.5'-30.0' 60°C	640	6/15/09	Hom	No. 10			Yes	22.14	76.44	68.46	17.2
JS-26, 30.0'-31.5' 60°C	641	6/16/09	Hom	No. 10			Yes	21.23	58.89	53.80	15.6
JS-26, 31.5'-33.0' 60°C	642	6/16/09	Hom	3/8"	2	3/8"	No	21.38	86.96	76.54	18.9
JS-26, 33.0'-34.5' 60°C	643	6/16/09	Hom	No. 10			Yes	22.19	84.93	77.28	13.9
JS-26, 34.5'-36.0' 60°C	644	6/16/09	Hom	No. 10			Yes	17.40	67.16	60.56	15.3



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-26, 36.0'-37.5' 60°C	645	6/16/09	Hom	No. 10			Yes	17.48	60.43	53.61	18.9
JS-26, 37.5'-39.0' 60°C	646	6/16/09	Hom	No. 10			Yes	22.22	67.17	58.91	22.5
JS-26, 39.0'-40.5' 60°C	647	6/16/09	Hom	No. 10			Yes	22.15	69.80	61.54	21.0
JS-26, 40.5'-42.0' 60°C	648	6/16/09	Hom	No. 10			Yes	17.44	71.70	60.49	26.0
JS-26, 42.0'-43.5' 60°C	649	6/16/09	Hom	No. 10			Yes	17.44	79.32	63.90	33.2
JS-26, 43.5'-45.0' 60°C	650	6/16/09	Hom	No. 10			Yes	21.13	79.50	65.48	31.6
JS-26, 45.0'-46.5' 60°C	651	6/16/09	Hom	No. 10			Yes	20.73	67.71	55.92	33.5
JS-26, 46.5'-48.0' 60°C	652	6/16/09	Hom	No. 10			Yes	17.43	69.58	54.74	39.8
JS-26, 48.0'-49.5' 60°C	653	6/16/09	Hom	No. 10			Yes	20.71	76.60	61.28	37.8
JS-26, 49.5'-51.0' 60°C	654	6/16/09	Hom	No. 10			Yes	20.25	88.22	68.25	41.6
JS-26, 51.0'-52.5' 60°C	655	6/16/09	Hom	No. 10			Yes	21.75	90.35	70.37	41.1
JS-26, 52.5'-54.0' 60°C	656	6/16/09	Hom	No. 10			Yes	25.33	115.51	89.35	40.9
JS-26, 54.0'-55.5' 60°C	657	6/16/09	Hom	No. 10			Yes	21.99	102.23	79.71	39.0
JS-26, 55.5'-57.0' 60°C	658	6/16/09	Hom	No. 10			Yes	22.29	84.73	65.60	44.2
JS-26, 57.0'-58.5' 60°C	659	6/16/09	Hom	No. 10			Yes	19.96	89.01	65.24	52.5
JS-26, 58.5'-60.0' 60°C	660	6/16/09	Hom	No. 10			Yes	17.57	108.51	93.45	19.8
JS-26, 60.0'-61.5' 60°C	661	6/16/09	Hom	No. 10			Yes	20.16	91.27	78.17	22.6
JS-26, 61.5'-63.0' 60°C	662	6/16/09	Hom	No. 10			Yes	17.30	92.98	79.16	22.3
JS-26, 63.0'-64.5' 60°C	663	6/16/09	Hom	No. 10			Yes	25.25	122.64	105.88	20.8
JS-26, 64.5'-66.0' 60°C	664	6/16/09	Hom	No. 10			Yes	20.87	87.70	78.24	16.5
JS-26, 66.0'-67.5' 60°C	665	6/16/09	Hom	No. 10			Yes	25.09	114.57	100.48	18.7
JS-26, 67.5'-69.0' 60°C	666	6/16/09	Hom	No. 10			Yes	25.19	130.82	111.53	22.3
JS-26, 69.0'-70.5' 60°C	667	6/16/09	Hom	No. 10			Yes	28.94	140.58	119.50	23.3
JS-26, 70.5'-72.0' 60°C	668	6/16/09	Hom	No. 10			Yes	28.84	196.10	163.51	24.2
JS-26, 72.0'-73.5' 60°C	669	6/16/09	Hom	No. 10			Yes	20.68	157.26	130.11	24.8
JS-26, 73.5'-75.0' 60°C	670	6/16/09	Hom	No. 10			Yes	17.40	102.81	87.24	22.3
JS-26, 75.0'-76.5' 60°C	671	6/16/09	Hom	No. 10			Yes	20.01	142.57	118.23	24.8
JS-26, 76.5'-78.0' 60°C	672	6/16/09	Hom	3/4"	2	3/8"	No	21.71	109.35	94.91	19.7
JS-26, 78.0'-79.5' 60°C	673	6/16/09	Hom	3/4"	2	3/4"	No	17.48	106.56	91.01	21.1
JS-26, 79.5'-81.0' 60°C	674	6/16/09	Hom	3/4"	4	3/4"	No	17.48	103.28	95.25	10.3



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-26, 79.5'-81.0'	674B	6/20/09	Hom	No. 10			Yes	32.51	123.84	107.93	21.1
JS-22, 0.0'-1.5'	675	6/16/09	Hom	No. 10			Yes	17.51	92.13	81.16	17.2
JS-22, 0.0'-1.5' 60°C	675B	6/16/09	Hom	3/4"	2	3/4"	No	25.29	138.68	124.14	14.7
JS-22, 1.5'-3.0' 60°C	676	6/16/09	Hom	No. 10			Yes	17.45	70.15	63.85	13.6
JS-22, 3.0'-4.5' 60°C	677	6/16/09	Hom	No. 10			Yes	21.91	83.73	76.28	13.7
JS-22, 4.5'-6.0' 60°C	678	6/16/09	Hom	No. 10			Yes	21.28	79.10	73.03	11.7
JS-22, 6.0'-7.5' 60°C	679	6/16/09	Hom	No. 10			Yes	21.71	65.39	59.41	15.9
JS-22, 7.5'-9.0' 60°C	680	6/16/09	Hom	No. 10			Yes	17.45	86.51	75.01	20.0
JS-22, 9.0'-10.5' 60°C	681	6/16/09	Hom	No. 10			Yes	17.37	61.90	56.82	12.9
JS-22, 10.5'-12.0' 60°C	682	6/16/09	Hom	No. 10			Yes	17.41	102.11	88.74	18.7
JS-22, 12.0'-13.5' 60°C	683	6/16/09	Hom	No. 10			Yes	20.71	94.21	80.61	22.7
JS-22, 13.5'-15.0' 60°C	684	6/16/09	Hom	No. 10			Yes	21.69	82.10	74.05	15.4
JS-22, 15.0'-16.5' 60°C	685	6/16/09	Hom	No. 10			Yes	25.26	131.16	111.67	22.6
JS-22, 16.5'-18.0' 60°C	686	6/16/09	Hom	No. 10			Yes	17.44	94.75	83.25	17.5
JS-22, 18.0'-19.5' 60°C	687	6/16/09	Hom	No. 10			Yes	20.11	77.22	67.90	19.5
JS-22, 19.5'-21.0' 60°C	688	6/16/09	Hom	No. 10			Yes	17.34	103.53	89.76	19.0
JS-22, 21.0'-22.5' 60°C	689	6/16/09	Hom	No. 10			Yes	20.49	87.65	76.62	19.7
JS-22, 22.5'-24.0' 60°C	690	6/16/09	Hom	No. 10			Yes	21.90	110.91	95.63	20.7
JS-22, 24.0'-25.5' 60°C	691	6/16/09	Hom	No. 10			Yes	17.36	83.78	73.22	18.9
JS-22, 25.5'-27.0' 60°C	692	6/16/09	Hom	No. 10			Yes	17.30	79.34	69.39	19.1
JS-22, 27.0'-28.5' 60°C	693	6/16/09	Hom	No. 10			Yes	20.87	72.40	63.13	21.9
JS-22, 28.5'-30.0' 60°C	694	6/16/09	Hom	No. 10			Yes	21.71	80.35	71.31	18.2
JS-22, 30.0'-31.5' 60°C	695	6/16/09	Hom	No. 10			Yes	22.19	73.73	65.05	20.3
JS-22, 31.5'-33.0' 60°C	696	6/16/09	Hom	No. 10			Yes	16.46	77.23	67.16	19.9
JS-22, 33.0'-34.5' 60°C	697	6/17/09	Hom	No. 10			Yes	21.88	73.27	61.88	28.5
JS-22, 34.5'-36.0' 60°C	698	6/17/09	Hom	No. 10			Yes	20.92	76.89	65.07	26.8
JS-22, 36.0'-37.5' 60°C	699	6/17/09	Hom	No. 10			Yes	22.24	83.39	67.19	36.0
JS-22, 37.5'-39.0' 60°C	700	6/17/09	Hom	No. 10			Yes	17.51	72.32	59.26	31.3
JS-22, 39.0'-40.5' 60°C	701	6/17/09	Hom	No. 10			Yes	17.49	80.99	67.77	26.3
JS-22, 40.5'-42.0' 60°C	702	6/17/09	Hom	No. 10			Yes	17.67	71.23	60.88	24.0



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-22, 42.0'-43.5' 60°C	703	6/17/09	Hom	No. 10			Yes	22.06	87.84	72.17	31.3
JS-22, 43.5'-45.0' 60°C	704	6/17/09	Hom	No. 10			Yes	20.74	78.01	63.04	35.4
JS-22, 45.0'-46.5' 60°C	705	6/17/09	Hom	No. 10			Yes	17.46	90.68	72.51	33.0
JS-22, 45.0'-46.5' 60°C	705B	6/17/09	Hom	No. 10			Yes	20.64	62.12	57.95	11.2
JS-22, 46.5'-48.0' 60°C	706	6/17/09	Hom	No. 10			Yes	22.17	78.30	68.53	21.1
JS-22, 48.0'-49.5' 60°C	707	6/17/09	Hom	No. 10			Yes	21.65	93.70	75.16	34.6
JS-22, 49.5'-51.0' 60°C	708	6/17/09	Hom	No. 10			Yes	17.33	93.53	73.08	36.7
JS-22, 51.0'-52.5' 60°C	709	6/17/09	Hom	No. 10			Yes	20.81	87.12	67.03	43.5
JS-22, 52.5'-54.0' 60°C	710	6/17/09	Hom	No. 10			Yes	16.44	78.66	67.53	21.8
JS-22, 54.0'-55.5'	711	6/17/09	Hom	No. 10			Yes	21.22	98.94	86.48	19.1
JS-22, 55.5'-57.0'	712	6/17/09	Hom	3/4"	1	3/4"	No	17.27	99.89	86.61	19.2
JS-22, 57.0'-58.5'	713	6/17/09	Hom	No. 10			Yes	20.02	106.79	93.56	18.0
JS-22, 58.5'-60.0' No Recovery	714	6/17/09									
JS-22, 60.0'-61.5'	715	6/17/09	Hom	No. 10			Yes	17.49	95.90	83.56	18.7
JS-22, 61.5'-63.0'	716	6/17/09	Hom	No. 10			Yes	22.18	100.96	87.77	20.1
JS-22, 63.0'-64.5'	717	6/17/09	Hom	No. 10			Yes	17.40	107.43	92.69	19.6
JS-22, 64.5'-66.0'	718	6/17/09	Hom	No. 10			Yes	17.48	160.60	137.05	19.7
JS-22, 66.0'-67.5'	719	6/17/09	Hom	3/4"	2	3/4"	No	21.69	116.59	103.04	16.7
JS-22, 67.5'-69.0'	720	6/17/09	Hom	No. 10			Yes	17.47	89.02	78.90	16.5
JS-22, 69.0'-70.5'	721	6/17/09	Hom	3/8"	2	3/8"	No	17.36	133.67	116.32	17.5
JS-22, 70.5'-72.0'	722	6/17/09	Hom	3/8"	1	3/8"	No	22.13	122.82	105.33	21.0
JS-22, 72.0'-73.5' Predominantly Gravel	723	6/17/09	Hom	1 1/2"	1	1 1/2"	No	17.52	114.90	105.20	11.1
JS-22, 73.5'-74.7' Predominantly Gravel	724	6/17/09	Hom	1 1/2"	1	1 1/2"	No	22.09	79.83	69.37	22.1
JS-18, 0.0'-1.5'	725	6/18/09	Hom	No. 10			Yes	20.20	103.82	88.29	22.8
JS-18, 1.5'-3.0' 60°C	726	6/18/09	Hom	No. 10			Yes	20.01	78.84	69.18	19.6
JS-18, 3.0'-4.5' 60°C	727	6/18/09	Hom	No. 10			Yes	20.48	73.92	64.68	20.9
JS-18, 4.5'-6.0' 60°C	728	6/18/09	Hom	No. 10			Yes	20.09	83.77	72.47	21.6
JS-18, 6.0'-7.5' 60°C	729	6/18/09	Hom	No. 10			Yes	20.30	73.12	68.07	10.6
JS-18, 7.5'-9.0' 60°C	730	6/18/09	Hom	No. 10			Yes	19.97	79.15	69.99	18.3
JS-18, 9.0'-10.5' 60°C	731	6/18/09	Hom	No. 10			Yes	21.20	66.54	59.69	17.8



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-18, 10.5'-12.0' 60°C	732	6/18/09	Hom	No. 10			Yes	21.25	64.34	58.00	17.3
JS-18, 12.0'-13.5' 60°C	733	6/18/09	Hom	No. 10			Yes	20.69	85.87	74.62	20.9
JS-18, 13.5'-15.0' 60°C	734	6/18/09	Hom	No. 10			Yes	20.71	76.22	68.83	15.4
JS-18, 15.0'-16.5' 60°C	735	6/18/09	Hom	No. 10			Yes	20.85	80.03	71.77	16.2
JS-18, 16.5'-18.0' 60°C	736	6/18/09	Hom	No. 10			Yes	21.78	74.67	66.93	17.1
JS-18, 18.0'-19.5' 60°C	737	6/18/09	Hom	No. 10			Yes	22.35	95.96	83.37	20.6
JS-18, 19.5'-21.0' 60°C	738	6/18/09	Hom	No. 10			Yes	21.69	81.28	71.53	19.6
JS-18, 21.0'-22.5' 60°C	739	6/18/09	Hom	No. 10			Yes	21.97	68.50	60.31	21.4
JS-18, 22.5'-24.0' 60°C	740	6/18/09	Hom	No. 10			Yes	22.19	70.11	63.44	16.2
JS-18, 24.0'-25.5' 60°C	741	6/18/09	Hom	No. 10			Yes	21.68	104.29	88.10	24.4
JS-18, 25.5'-27.0' 60°C	742	6/18/09	Hom	No. 10			Yes	21.92	88.67	75.77	24.0
JS-18, 27.0'-28.5' 60°C	743	6/18/09	Hom	No. 10			Yes	17.49	71.40	61.79	21.7
JS-18, 28.5'-30.0' 60°C	744	6/18/09	Hom	No. 10			Yes	17.44	93.26	80.09	21.0
JS-18, 30.0'-31.5' 60°C	745	6/18/09	Hom	No. 10			Yes	17.40	85.67	70.79	27.9
JS-18, 31.5'-33.0' 60°C	746	6/18/09	Hom	No. 10			Yes	17.40	63.49	58.11	13.2
JS-18, 33.0'-34.5' 60°C	747	6/18/09	Hom	No. 10			Yes	17.31	83.05	69.21	26.7
JS-18, 34.5'-36.0' 60°C	748	6/18/09	Hom	No. 10			Yes	17.36	83.86	67.02	33.9
JS-18, 36.0'-37.5' 60°C	749	6/18/09	Hom	No. 10			Yes	17.26	86.31	67.32	37.9
JS-18, 37.5'-39.0' 60°C	750	6/18/09	Hom	No. 10			Yes	17.46	82.71	80.56	3.4
JS-18, 39.0'-40.5' 60°C	751	6/18/09	Hom	No. 10			Yes	17.40	98.31	75.15	40.1
JS-18, 40.5'-42.0' 60°C	752	6/18/09	Hom	No. 10			Yes	17.44	108.95	85.12	35.2
JS-18, 42.0'-43.5' 60°C	753	6/18/09	Hom	No. 10			Yes	17.26	69.71	62.38	16.2
JS-18, 43.5'-45.0' 60°C	754	6/18/09	Hom	No. 10			Yes	17.47	59.90	52.07	22.6
JS-18, 45.0'-46.5' 60°C	755	6/18/09	Hom	No. 10			Yes	20.35	58.50	49.36	31.5
JS-18, 46.5'-48.0' 60°C	756	6/18/09	Hom	No. 10			Yes	21.24	69.36	57.36	33.2
JS-18, 48.0'-49.5' 60°C	757	6/18/09	Hom	No. 10			Yes	21.71	72.58	61.36	28.3
JS-18, 49.5'-51.0' 60°C	758	6/18/09	Hom	No. 10			Yes	20.17	57.30	47.86	34.1
JS-18, 51.0'-52.5' 60°C	759	6/18/09	Hom	No. 10			Yes	21.40	56.14	45.74	42.7
JS-18, 52.5'-54.0' 60°C	760	6/18/09	Hom	No. 10			Yes	20.84	89.48	69.50	41.1
JS-18, 54.0'-55.5' 60°C	761	6/18/09	Hom	No. 10			Yes	22.20	67.03	53.78	42.0



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-18, 55.5'-57.0' 60°C	762	6/18/09	Hom	No. 10			Yes	21.70	79.97	61.58	46.1
JS-18, 57.0'-58.5' 60°C	763	6/18/09	Hom	No. 10			Yes	22.07	67.56	52.73	48.4
JS-18, 58.5'-60.0' 60°C	764	6/18/09	Hom	No. 10			Yes	21.68	86.23	66.64	43.6
JS-18, 60.0'-61.5' 60°C	765	6/18/09	Hom	No. 10			Yes	22.09	101.14	79.55	37.6
JS-18, 61.5'-63.0' 60°C	766	6/18/09	Hom	No. 10			Yes	22.15	83.26	66.52	37.7
JS-18, 63.0'-64.5'	767	6/18/09	Hom	No. 10			Yes	22.19	129.00	111.30	19.9
JS-18, 64.5'-66.0'	768	6/18/09	Hom	No. 10			Yes	22.18	118.78	100.93	22.7
JS-18, 66.0'-67.5'	769	6/18/09	Hom	No. 10			Yes	21.88	129.46	112.22	19.1
JS-18, 67.5'-69.0'	770	6/18/09	Hom	3/8"	2	3/8"	No	17.48	94.29	85.75	12.5
JS-18, 69.0'-70.5' No Recovery	771	6/18/09									
JS-18, 70.5'-72.0'	772	6/18/09	Hom	3/4"	4	3/4"	No	17.36	148.88	134.40	12.4
JS-18, 72.0'-73.5'	773	6/18/09	Hom	3/8"	6	3/8"	No	17.30	143.23	126.69	15.1
JS-18, 73.5'-75.0'	774	6/18/09	Hom	3/4"	3	3/4"	No	17.42	136.33	124.75	10.8
JS-18, 75.0'-76.5'	775	6/18/09	Hom	No. 10			Yes	16.48	89.16	73.50	27.5
JS-57, 0.0'-1.5'	776	6/18/09	Hom	No. 10			Yes	17.39	96.13	86.43	14.0
JS-57, 1.5'-3.0' 60°C	777	6/18/09	Hom	No. 10			Yes	25.25	101.49	91.93	14.3
JS-57, 3.0'-4.5' 60°C	778	6/18/09	Hom	No. 10			Yes	25.31	102.88	91.68	16.9
JS-57, 4.5'-6.0' 60°C	779	6/18/09	Hom	No. 10			Yes	25.10	87.19	78.20	16.9
JS-57, 6.0'-7.5' 60°C	780	6/18/09	Hom	No. 10			Yes	25.25	96.89	85.90	18.1
JS-57, 7.5'-9.0' 60°C	781	6/18/09	Hom	No. 10			Yes	25.25	98.75	88.12	16.9
JS-57, 9.0'-10.5' 60°C	782	6/18/09	Hom	No. 10			Yes	17.37	71.26	62.99	18.1
JS-57, 10.5'-12.0' 60°C	783	6/18/09	Hom	No. 10			Yes	25.18	98.38	86.16	20.0
JS-57, 12.0'-13.5' 60°C	784	6/18/09	Hom	No. 10			Yes	20.37	63.28	56.53	18.7
JS-57, 12.0'-13.5'	784B	6/18/09	Hom	No. 10			Yes	29.11	128.52	112.37	19.4
JS-57, 13.5'-15.0' 60°C	785	6/18/09	Hom	No. 10			Yes	28.71	113.03	98.85	20.2
JS-57, 13.5'-15.0'	785B	6/18/09	Hom	No. 10			Yes	28.35	124.55	110.55	17.0
JS-57, 15.0'-16.5' 60°C	786	6/18/09	Hom	No. 10			Yes	30.93	143.60	125.42	19.2
JS-57, 16.5'-18.0' 60°C	787	6/18/09	Hom	No. 10			Yes	32.56	117.94	104.39	18.9
JS-57, 16.5'-18.0'	787B	6/18/09	Hom	No. 10			Yes	33.12	162.03	140.69	19.8
JS-57, 18.0'-19.5' 60°C	788	6/18/09	Hom	No. 10			Yes	29.26	135.15	119.40	17.5



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-57, 19.5'-21.0' 60°C	789	6/18/09	Hom	No. 10			Yes	29.74	117.53	104.59	17.3
JS-57, 21.0'-22.5' 60°C	790	6/18/09	Hom	No. 10			Yes	29.39	99.95	88.81	18.7
JS-57, 22.5'-24.0' 60°C	791	6/18/09	Hom	No. 10			Yes	28.35	101.54	89.37	19.9
JS-57, 24.0'-25.5' 60°C	792	6/18/09	Hom	No. 10			Yes	29.36	119.65	103.72	21.4
JS-57, 25.5'-27.0' 60°C	793	6/18/09	Hom	No. 10			Yes	29.13	119.03	101.51	24.2
JS-57, 27.0'-28.5' 60°C	794	6/18/09	Hom	No. 10			Yes	26.98	120.99	103.82	22.3
JS-57, 28.5'-30.0' 60°C	795	6/19/09	Hom	No. 10			Yes	21.89	94.41	80.04	24.7
JS-57, 30.0'-31.5' 60°C	796	6/19/09	Hom	No. 10			Yes	17.47	90.05	78.01	19.9
JS-57, 31.5'-33.0' 60°C	797	6/19/09	Hom	No. 10			Yes	21.41	74.64	63.93	25.2
JS-57, 33.0'-34.5' 60°C	798	6/19/09	Hom	No. 10			Yes	17.28	88.70	73.44	27.2
JS-57, 34.5'-36.0' 60°C	799	6/19/09	Hom	No. 10			Yes	17.38	89.82	75.36	24.9
JS-57, 36.0'-37.5' 60°C	800	6/19/09	Hom	No. 10			Yes	16.46	89.05	74.27	25.6
JS-57, 37.5'-39.0' 60°C	801	6/19/09	Hom	No. 10			Yes	22.34	111.97	93.72	25.6
JS-57, 39.0'-40.5' 60°C	802	6/19/09	Hom	No. 10			Yes	22.17	100.64	83.31	28.3
JS-57, 40.5'-42.0' 60°C	803	6/19/09	Hom	No. 10			Yes	16.53	113.46	91.83	28.7
JS-57, 42.0'-43.5' 60°C	804	6/19/09	Hom	No. 10			Yes	17.52	89.01	73.63	27.4
JS-57, 43.5'-45.0' 60°C	805	6/19/09	Hom	No. 10			Yes	17.53	124.96	99.43	31.2
JS-57, 45.0'-46.5' 60°C	806	6/19/09	Hom	No. 10			Yes	17.31	127.84	102.77	29.3
JS-57, 46.5'-48.0' 60°C	807	6/19/09	Hom	No. 10			Yes	22.19	112.63	90.94	31.5
JS-57, 48.0'-49.5' 60°C	808	6/19/09	Hom	No. 10			Yes	21.69	101.89	91.75	14.5
JS-57, 49.5'-51.0' 60°C	809	6/19/09	Hom	No. 10			Yes	17.40	119.05	101.79	20.5
JS-57, 51.0'-52.5' 60°C	810	6/19/09	Hom	No. 10			Yes	17.41	146.63	127.85	17.0
JS-57, 52.5'-54.0' 60°C	811	6/19/09	Hom	No. 10			Yes	17.53	104.68	87.28	24.9
JS-57, 54.0'-54.9' 60°C	812	6/19/09	Hom	3/8"	1	3/8"	No	21.87	104.73	91.10	19.7
JS-52, 0.0'-1.5' 60°C	814	6/19/09	Hom	No. 10			Yes	20.80	79.10	72.84	12.0
JS-52, 1.5'-3.0' 60°C	815	6/19/09	Hom	No. 10			Yes	17.52	67.38	59.94	17.5
JS-52, 3.0'-4.5' 60°C	816	6/19/09	Hom	No. 10			Yes	22.04	80.57	71.68	17.9
JS-52, 4.5'-6.0' 60°C	817	6/19/09	Hom	No. 10			Yes	20.88	72.97	64.18	20.3
JS-52, 6.0'-7.5' 60°C	818	6/19/09	Hom	No. 10			Yes	20.64	71.29	63.09	19.3
JS-52, 7.5'-9.0' 60°C	819	6/19/09	Hom	No. 10			Yes	17.37	62.82	55.71	18.5



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-52, 9.0'-10.5' 60°C	820	6/19/09	Hom	No. 10			Yes	25.40	96.32	84.55	19.9
JS-52, 10.5'-12.0' 60°C	821	6/19/09	Hom	No. 10			Yes	25.34	88.44	77.77	20.4
JS-52, 12.0'-13.5' 60°C	822	6/19/09	Hom	No. 10			Yes	22.24	87.36	74.37	24.9
JS-52, 13.5'-15.0' 60°C	823	6/19/09	Hom	No. 10			Yes	17.33	87.23	74.57	22.1
JS-52, 15.0'-16.5' 60°C	824	6/19/09	Hom	No. 10			Yes	20.63	87.24	75.06	22.4
JS-52, 16.5'-18.0' 60°C	825	6/19/09	Hom	No. 10			Yes	25.03	116.87	98.19	25.5
JS-52, 18.0'-19.5' 60°C	826	6/19/09	Hom	No. 10			Yes	25.21	119.77	99.98	26.5
JS-52, 19.5'-21.0' 60°C	827	6/19/09	Hom	No. 10			Yes	25.18	96.93	83.27	23.5
JS-52, 21.0'-22.5' 60°C	828	6/19/09	Hom	No. 10			Yes	31.66	147.57	124.24	25.2
JS-52, 22.5'-24.0' 60°C	829	6/19/09	Hom	No. 10			Yes	31.43	182.70	145.84	32.2
JS-52, 24.0'-25.5' 60°C	830	6/19/09	Hom	No. 10			Yes	29.22	150.32	121.53	31.2
JS-52, 25.5'-27.0' 60°C	831	6/19/09	Hom	No. 10			Yes	28.39	154.81	126.27	29.2
JS-52, 27.0'-28.5' 60°C	832	6/19/09	Hom	No. 10			Yes	28.50	147.50	126.01	22.0
JS-52, 28.5'-30.0'	833	6/19/09	Hom	1 1/2"	1	1 1/2"	No	33.17	169.75	146.19	20.8
JS-52, 30.0'-31.5'	834	6/19/09	Hom	3/4"	2	3/4"	No	31.88	137.48	122.80	16.1
JS-52, 31.5'-33.0' 60°C	835	6/19/09	Hom	No. 10			Yes	29.33	131.86	112.46	23.3
JS-52, 33.0'-34.5' 60°C	836	6/19/09	Hom	No. 10			Yes	29.08	139.68	114.43	29.6
JS-52, 34.5'-36.0' 60°C	837	6/19/09	Hom	No. 10			Yes	28.61	152.13	123.24	30.5
JS-52, 36.0'-37.5' 60°C	838	6/19/09	Hom	No. 10			Yes	29.55	132.15	109.50	28.3
JS-52, 37.5'-39.0' 60°C	839	6/19/09	Hom	No. 10			Yes	28.91	137.74	114.12	27.7
JS-52, 39.0'-40.5' 60°C	840	6/19/09	Hom	No. 10			Yes	28.60	141.58	116.89	28.0
JS-52, 40.5'-42.0' 60°C	841	6/19/09	Hom	No. 10			Yes	28.86	161.90	133.38	27.3
JS-52, 42.0'-43.5'	842	6/19/09	Hom	No. 10			Yes	28.77	114.15	96.69	25.7
JS-52, 43.5'-45.0'	843	6/19/09	Hom	No. 10			Yes	33.04	146.77	117.85	34.1
JS-52, 45.0'-46.5'	844	6/19/09	Hom	No. 10			Yes	32.98	146.79	119.04	32.2
JS-52, 50.0'-51.5'	845	6/19/09	Hom	No. 10			Yes	31.64	158.72	127.03	33.2
JS-52, 51.5'-53.0'	846	6/19/09	Hom	No. 10			Yes	28.94	149.47	119.89	32.5
JS-52, 53.0'-54.1'	847	6/19/09	Hom	3/8"	3	3/8"	No	30.23	147.10	124.41	24.1
JS-34C, 0.0'-1.5' 60°C	850	6/19/09	Hom	No. 10			Yes	29.47	172.94	145.30	23.9
JS-34C, 1.5'-3.0' 60°C	851	6/19/09	Hom	No. 10			Yes	28.48	119.14	102.14	23.1



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-34C, 3.0'-4.5' 60°C	852	6/19/09	Hom	No. 10			Yes	28.67	137.63	117.69	22.4
JS-34C, 4.5'-6.0' 60°C	853	6/19/09	Hom	No. 10			Yes	29.10	143.50	123.34	21.4
JS-34C, 6.0'-7.5'	854	6/19/09	Hom	No. 10			Yes	30.21	161.54	143.10	16.3
JS-34C, 7.5'-9.0'	855	6/19/09	Hom	No. 10			Yes	33.14	167.14	143.60	21.3
JS-34C, 9.0'-10.5'	856	6/19/09	Hom	No. 10			Yes	28.41	121.92	104.61	22.7
JS-34C, 10.5'-12.0'	857	6/19/09	Hom	No. 10			Yes	17.44	100.74	85.69	22.1
JS-34C, 12.0'-13.5'	858	6/19/09	Hom	No. 10			Yes	31.43	216.12	181.56	23.0
JS-34C, 13.5'-15.0'	859	6/19/09	Hom	No. 10			Yes	30.59	153.60	129.49	24.4
JS-34C, 15.0'-16.5'	860	6/19/09	Hom	No. 10			Yes	31.33	158.72	134.60	23.4
JS-34C, 16.5'-18.0'	861	6/19/09	Hom	No. 10			Yes	32.83	227.32	187.18	26.0
JS-34C, 18.0'-19.5' 60°C	862	6/19/09	Hom	No. 10			Yes	33.11	124.49	106.77	24.1
JS-34C, 19.5'-21.0' 60°C	863	6/19/09	Hom	No. 10			Yes	33.06	107.05	91.03	27.6
JS-34C, 21.0'-22.5' 60°C	864	6/19/09	Hom	No. 10			Yes	31.69	131.91	115.43	19.7
JS-34C, 22.5'-24.0'	865	6/19/09	Hom	No. 10			Yes	29.37	112.92	99.41	19.3
JS-34C, 24.0'-25.5'	866	6/19/09	Hom	No. 10			Yes	32.57	119.51	103.51	22.6
JS-34C, 25.5'-27.0' 60°C	867	6/19/09	Hom	No. 10			Yes	31.96	166.25	132.07	34.1
JS-34C, 27.0'-28.5' 60°C	868	6/19/09	Hom	No. 10			Yes	31.58	158.05	127.28	32.2
JS-34C, 28.5'-30.0'	869	6/19/09	Hom	No. 10			Yes	30.97	104.71	90.04	24.8
JS-34C, 30.0'-31.5'	870	6/19/09	Hom	No. 10			Yes	33.11	145.84	126.06	21.3
JS-34C, 31.5'-33.0'	871	6/19/09	Hom	3/8"	4	3/8"	No	32.21	283.49	252.24	14.2
JS-34C, 33.0'-34.5'	872	6/19/09	Hom	3/8"	3	3/8"	No	32.48	206.23	189.28	10.8
JS-34C, 34.5'-36.0'	873	6/19/09	Hom	3/8"	1	3/8"	No	31.47	127.14	115.28	14.2
JS-34C, 36.0'-36.9'	874	6/19/09	Hom	No. 10			Yes	28.54	76.15	69.56	16.1
JS-27, 0.0'-1.5'	876	6/19/09	Hom	No. 10			Yes	29.66	139.05	121.24	19.4
JS-27, 1.5'-3.0'	877	6/19/09	Hom	No. 10			Yes	29.36	148.76	131.68	16.7
JS-27, 3.0'-4.5'	878	6/19/09	Hom	No. 10			Yes	29.85	106.72	95.27	17.5
JS-27, 4.5'-6.0'	879	6/19/09	Hom	No. 10			Yes	31.83	151.98	133.47	18.2
JS-27, 6.0'-7.5'	880	6/19/09	Hom	No. 10			Yes	29.29	110.72	97.09	20.1
JS-27, 7.5'-9.0'	881	6/19/09	Hom	No. 10			Yes	32.45	170.43	147.33	20.1
JS-27, 9.0'-10.5'	882	6/19/09	Hom	No. 10			Yes	33.48	146.26	127.06	20.5



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-27, 10.5'-12.0'	883	6/19/09	Hom	No. 10			Yes	29.01	116.69	102.27	19.7
JS-27, 12.0'-13.5'	884	6/19/09	Hom	No. 10			Yes	30.44	123.26	106.28	22.4
JS-27, 13.5'-15.0' 60°C	885	6/19/09	Hom	No. 10			Yes	32.31	148.22	128.05	21.1
JS-27, 15.0'-16.5' 60°C	886	6/22/09	Hom	No. 10			Yes	17.30	67.68	58.63	21.9
JS-27, 16.5'-18.0' 60°C	887	6/22/09	Hom	No. 10			Yes	21.44	81.94	68.91	27.4
JS-27, 18.0'-19.5' 60°C	888	6/22/09	Hom	No. 10			Yes	21.92	72.28	64.59	18.0
JS-27, 19.5'-21.0' 60°C	889	6/22/09	Hom	No. 10			Yes	21.43	59.51	55.28	12.5
JS-27, 21.0'-22.5' 60°C	890	6/22/09	Hom	No. 10			Yes	22.29	80.38	75.36	9.5
JS-27, 22.5'-24.0' 60°C	891	6/22/09	Hom	No. 10			Yes	17.38	79.41	72.11	13.3
JS-27, 24.0'-25.5' 60°C	892	6/22/09	Hom	No. 10			Yes	17.40	51.40	46.78	15.7
JS-27, 25.5'-27.0' 60°C	893	6/22/09	Hom	No. 10			Yes	17.46	64.16	57.68	16.1
JS-27, 27.0'-28.5' 60°C	894	6/22/09	Hom	No. 10			Yes	22.29	81.25	73.69	14.7
JS-27, 28.5'-30.0' 60°C	895	6/22/09	Hom	No. 10			Yes	17.41	91.16	78.83	20.1
JS-27, 30.0'-31.5' 60°C	896	6/22/09	Hom	No. 10			Yes	17.59	74.61	65.91	18.0
JS-27, 31.5'-33.0' 60°C	897	6/22/09	Hom	No. 10			Yes	16.45	66.03	60.21	13.3
JS-27, 33.0'-34.5' 60°C	898	6/22/09	Hom	No. 10			Yes	17.45	53.77	49.74	12.5
JS-27, 34.5'-36.0' 60°C	899	6/22/09	Hom	No. 10			Yes	17.44	60.74	55.33	14.3
JS-27, 36.0'-37.5' 60°C	900	6/22/09	Hom	No. 10			Yes	22.53	81.24	74.74	12.4
JS-27, 37.5'-39.0' 60°C	901	6/22/09	Hom	No. 10			Yes	17.61	80.47	71.88	15.8
JS-27, 39.0'-40.5' 60°C	902	6/22/09	Hom	No. 10			Yes	17.52	81.74	74.03	13.6
JS-27, 40.5'-42.0' 60°C	903	6/22/09	Hom	No. 10			Yes	17.67	89.73	80.62	14.5
JS-27, 42.0'-43.5' 60°C	904	6/22/09	Hom	No. 10			Yes	21.69	77.57	68.99	18.1
JS-27, 43.5'-45.0' 60°C	905	6/22/09	Hom	No. 10			Yes	16.54	78.83	70.01	16.5
JS-27, 45.0'-46.5' 60°C	906	6/22/09	Hom	No. 10			Yes	17.33	70.10	63.34	14.7
JS-27, 46.5'-48.0' 60°C	907	6/22/09	Hom	No. 10			Yes	20.87	85.27	80.00	8.9
JS-27, 48.0'-49.5' 60°C	908	6/22/09	Hom	No. 10			Yes	20.79	71.99	65.13	15.5
JS-27, 49.5'-51.0' 60°C	909	6/22/09	Hom	No. 10			Yes	21.88	83.93	76.80	13.0
JS-27, 51.0'-52.5' 60°C	910	6/22/09	Hom	No. 10			Yes	22.25	73.41	64.38	21.4
JS-27, 52.5'-54.0' 60°C	911	6/22/09	Hom	No. 10			Yes	17.33	71.53	64.21	15.6
JS-27, 54.0'-55.5' 60°C	912	6/22/09	Hom	No. 10			Yes	20.66	82.26	73.90	15.7



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-27, 55.5'-57.0' 60°C	913	6/22/09	Hom	No. 10			Yes	22.05	90.68	79.41	19.6
JS-27, 57.0'-58.5' 60°C	914	6/22/09	Hom	No. 10			Yes	20.50	76.10	65.29	24.1
JS-27, 58.5'-60.0' 60°C	915	6/22/09	Hom	No. 10			Yes	17.44	88.56	70.36	34.4
JS-27, 60.0'-61.5' 60°C	916	6/22/09	Hom	No. 10			Yes	20.70	85.90	66.90	41.1
JS-27, 61.5'-63.0' 60°C	917	6/22/09	Hom	No. 10			Yes	21.21	87.81	71.18	33.3
JS-27, 63.0'-64.5' 60°C	918	6/22/09	Hom	No. 10			Yes	20.71	73.62	59.43	36.6
JS-27, 64.5'-66.0' 60°C	919	6/22/09	Hom	No. 10			Yes	20.27	79.15	65.42	30.4
JS-27, 66.0'-67.5' 60°C	920	6/22/09	Hom	No. 10			Yes	21.63	87.54	70.39	35.2
JS-27, 67.5'-69.0' 60°C	921	6/22/09	Hom	No. 10			Yes	17.45	64.95	49.03	50.4
JS-27, 69.0'-70.5' 60°C	922	6/22/09	Hom	No. 10			Yes	19.92	65.17	49.04	55.4
JS-27, 70.5'-72.0' 60°C	923	6/22/09	Hom	No. 10			Yes	17.29	80.05	63.04	37.2
JS-27, 72.0'-73.5' 60°C	924	6/22/09	Hom	No. 10			Yes	17.41	87.68	66.26	43.8
JS-27, 73.5'-75.0' 60°C	925	6/22/09	Hom	No. 10			Yes	21.79	99.08	76.06	42.4
JS-27, 75.0'-76.5' 60°C	926	6/22/09	Hom	No. 10			Yes	20.08	114.58	83.96	47.9
JS-27, 76.5'-78.0' 60°C	927	6/22/09	Hom	No. 10			Yes	21.26	87.89	71.03	33.9
JS-27, 78.0'-79.5' 60°C	928	6/22/09	Hom	No. 10			Yes	20.04	80.62	70.68	19.6
JS-27, 79.5'-81.0' 60°C	929	6/22/09	Hom	No. 10			Yes	17.38	94.62	81.65	20.2
JS-27, 81.0'-82.5' 60°C	930	6/22/09	Hom	No. 10			Yes	17.45	80.57	70.69	18.6
JS-27, 82.5'-84.0' 60°C	931	6/22/09	Hom	No. 10			Yes	17.30	102.62	88.98	19.0
JS-27, 84.0'-85.5' 60°C	932	6/22/09	Hom	3/8"	1	3/8"	No	21.19	101.18	87.91	19.9
JS-27, 85.5'-87.0' 60°C	933	6/22/09	Hom	No. 10			Yes	22.35	100.47	86.85	21.1
JS-27, 87.0'-88.5' 60°C	934	6/22/09	Hom	No. 10			Yes	21.67	91.76	78.89	22.5
JS-27, 88.5'-90.0' 60°C	935	6/22/09	Hom	No. 10			Yes	22.24	118.96	101.44	22.1
JS-27, 90.0'-91.5' 60°C	936	6/22/09	Hom	3/4"	2	3/4"	No	21.70	79.01	71.17	15.8
JS-27, 91.5'-93.0' 60°C	937	6/22/09									
JS-27, 93.0'-94.5' 60°C	938	6/22/09	Hom	1 1/2"	2	1 1/2"	No	21.90	94.88	83.73	18.0
JS-27, 94.5'-96.0' 60°C	939	6/22/09	Hom	No. 10			Yes	20.89	80.81	69.71	22.7
JS-27, 96.0'-97.5' 60°C	940	6/22/09	Hom	No. 10			Yes	21.73	166.48	87.25	120.9
JS-39, 0.0'-1.5' 60°C	941	6/22/09	Hom	No. 10			Yes	17.48	79.08	68.69	20.3
JS-39, 1.5'-3.0' 60°C	942	6/22/09	Hom	No. 10			Yes	20.86	73.17	64.83	19.0



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-39, 3.0'-4.5' 60°C	943	6/22/09	Hom	No. 10			Yes	22.08	88.67	76.17	23.1
JS-39, 4.5'-6.0' 60°C	944	6/22/09	Hom	No. 10			Yes	22.08	63.99	55.91	23.9
JS-39, 6.0'-7.5' 60°C	945	6/22/09	Hom	No. 10			Yes	20.23	77.54	66.74	23.2
JS-39, 7.5'-9.0' 60°C	946	6/22/09	Hom	No. 10			Yes	20.36	72.84	63.97	20.3
JS-39, 9.0'-10.5' 60°C	947	6/22/09	Hom	No. 10			Yes	20.72	77.21	66.75	22.7
JS-39, 10.5'-12.0' 60°C	948	6/22/09	Hom	No. 10			Yes	21.99	63.73	56.02	22.7
JS-39, 12.0'-13.5' 60°C	949	6/22/09	Hom	No. 10			Yes	17.46	71.90	62.05	22.1
JS-39, 13.5'-15.0' 60°C	950	6/22/09	Hom	No. 10			Yes	17.42	82.99	71.26	21.8
JS-39, 15.0'-16.5' 60°C	951	6/22/09	Hom	No. 10			Yes	17.46	68.81	58.68	24.6
JS-39, 16.5'-18.0' 60°C	952	6/22/09	Hom	No. 10			Yes	22.13	82.58	70.47	25.1
JS-39, 18.0'-19.5' 60°C	953	6/22/09	Hom	No. 10			Yes	20.60	78.76	67.05	25.2
JS-39, 19.5'-21.0' 60°C	954	6/22/09	Hom	No. 10			Yes	21.68	77.30	65.89	25.8
JS-39, 21.0'-22.5' 60°C	955	6/22/09	Hom	No. 10			Yes	17.38	67.04	57.78	22.9
JS-39, 22.5'-24.0' 60°C	956	6/22/09	Hom	No. 10			Yes	17.45	72.48	61.11	26.0
JS-39, 24.0'-25.5' 60°C	957	6/22/09	Hom	No. 10			Yes	20.88	64.61	56.72	22.0
JS-39, 25.5'-27.0' 60°C	958	6/22/09	Hom	No. 10			Yes	20.20	63.89	55.20	24.8
JS-39, 27.0'-28.5' 60°C	959	6/22/09	Hom	No. 10			Yes	20.33	86.67	72.27	27.7
JS-39, 28.5'-30.0' 60°C	960	6/22/09	Hom	No. 10			Yes	21.11	83.40	69.14	29.7
JS-39, 30.0'-31.5' 60°C	961	6/22/09	Hom	No. 10			Yes	22.17	74.64	62.13	31.3
JS-39, 31.5'-33.0' 60°C	962	6/22/09	Hom	No. 10			Yes	17.35	74.71	60.69	32.3
JS-39, 33.0'-34.5' 60°C	963	6/22/09	Hom	No. 10			Yes	25.20	126.08	102.93	29.8
JS-39, 34.5'-36.0' 60°C	964	6/22/09	Hom	No. 10			Yes	25.27	92.79	76.30	32.3
JS-39, 36.0'-37.5' 60°C	965	6/22/09	Hom	No. 10			Yes	25.24	94.38	79.81	26.7
JS-39, 37.5'-39.0' 60°C	966	6/22/09	Hom	No. 10			Yes	25.05	107.91	93.16	21.7
JS-39, 39.0'-40.5' 60°C	967	6/22/09	Hom	No. 10			Yes	25.30	96.94	82.00	26.3
JS-39, 40.5'-42.0' No Recovery	968	6/22/09									
JS-39, 42.0'-43.5' No Recovery	969	6/22/09									
JS-39, 43.5'-45.0' 60°C	970	6/22/09	Hom	No. 10			Yes	25.25	103.92	93.32	15.6
JS-39, 43.5'-45.0' 60°C	970B	6/22/09	Hom	1 1/2"	2	1 1/2"	No	25.14	84.82	78.15	12.6
JS-39, 45.0'-46.5' 60°C	971	6/22/09	Hom	No. 10			Yes	25.28	112.35	102.91	12.2



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-39, 46.5'-48.0' 60°C	972	6/22/09	Hom	No. 10			Yes	25.35	100.05	91.16	13.5
JS-39, 48.0'-49.5' 60°C	973	6/22/09	Hom	No. 10			Yes	25.38	109.67	99.31	14.0
JS-39, 49.5'-51.0' 60°C	974	6/22/09	Hom	No. 10			Yes	29.90	102.28	95.45	10.4
JS-39, 51.0'-52.5' 60°C	975	6/22/09	Hom	No. 10			Yes	28.94	105.36	97.59	11.3
JS-39, 52.5'-54.0' 60°C	976	6/22/09	Hom	No. 10			Yes	29.25	108.24	101.48	9.4
JS-39, 54.0'-55.5' 60°C	977	6/23/09	Hom	No. 10			Yes	29.84	143.38	127.36	16.4
JS-39, 55.5'-57.0' 60°C	978	6/23/09	Hom	No. 10			Yes	29.38	138.03	122.90	16.2
JS-39, 57.0'-58.5' 60°C	979	6/23/09	Hom	No. 10			Yes	29.58	126.59	111.70	18.1
JS-39, 58.5'-60.0' 60°C	980	6/23/09	Hom	No. 10			Yes	29.30	156.85	139.01	16.3
JS-39, 60.0'-61.5' 60°C	981	6/23/09	Hom	No. 10			Yes	29.74	136.79	121.38	16.8
JS-39, 61.5'-63.0' 60°C	982	6/23/09	Hom	No. 10			Yes	29.43	158.94	138.77	18.4
JS-39, 63.0'-64.5' 60°C	983	6/23/09	Hom	No. 10			Yes	28.85	137.10	122.15	16.0
JS-39, 64.5'-66.0' 60°C	984	6/23/09	Hom	No. 10			Yes	28.61	121.69	105.87	20.5
JS-39, 66.0'-67.5' 60°C	985	6/23/09	Hom	No. 10			Yes	30.23	134.74	120.27	16.1
JS-39, 67.5'-69.0' 60°C	986	6/23/09	Hom	No. 10			Yes	28.91	142.57	124.08	19.4
JS-39, 69.0'-70.5' 60°C	987	6/23/09	Hom	No. 10			Yes	28.65	154.30	133.10	20.3
JS-39, 70.5'-72.0' 60°C	988	6/23/09	Hom	No. 10			Yes	29.05	179.62	153.82	20.7
JS-39, 72.0'-73.5' 60°C	989	6/23/09	Hom	No. 10			Yes	29.39	152.02	131.66	19.9
JS-39, 73.5'-75.0' 60°C	990	6/23/09	Hom	No. 10			Yes	29.41	128.06	107.60	26.2
JS-39, 75.0'-76.5' 60°C	991	6/23/09	Hom	No. 10			Yes	28.49	178.81	144.47	29.6
JS-39, 76.5'-78.0' 60°C	992	6/23/09	Hom	No. 10			Yes	28.64	136.15	116.92	21.8
JS-39, 78.0'-79.5' 60°C	993	6/23/09	Hom	No. 10			Yes	28.77	128.88	107.39	27.3
JS-39, 79.5'-81.0' 60°C	994	6/23/09	Hom	No. 10			Yes	29.61	113.87	90.72	37.9
JS-39, 81.0'-82.5' 60°C	995	6/23/09	Hom	No. 10			Yes	33.03	187.56	141.10	43.0
JS-39, 82.5'-84.0' 60°C	996	6/23/09	Hom	No. 10			Yes	33.05	153.58	106.47	64.2
JS-39, 84.0'-85.5' 60°C	997	6/23/09	Hom	No. 10			Yes	31.67	157.75	123.14	37.8
JS-39, 85.5'-87.0' 60°C	998	6/23/09	Hom	No. 10			Yes	33.18	165.52	127.07	41.0
JS-39, 87.0'-88.5' 60°C	999	6/23/09	Hom	No. 10			Yes	33.59	167.71	128.55	41.2
JS-39, 88.5'-90.0' No Recovery	1000	6/23/09									
JS-39, 90.0'-91.5' 60°C	1001	6/23/09	Hom	No. 10			Yes	30.59	188.02	131.79	55.6



Moisture Content of Soil
AASHTO T 265

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-39, 95.0'-96.5'	1002	6/23/09	Hom	No. 10			Yes	31.81	184.39	157.05	21.8
JS-39, 96.5'-98.0'	1003	6/23/09	Hom	No. 10			Yes	32.59	189.35	160.91	22.2
JS-39, 98.0'-99.5'	1004	6/23/09	Hom	No. 10			Yes	32.37	184.36	156.89	22.1
JS-39, 99.5'-101.0'	1005	6/23/09	Hom	3/4"	1	3/4"	No	30.28	168.43	141.46	24.3
JS-39, 101.0'-102.5'	1006	6/23/09	Hom	3/4"	1	3/4"	No	31.44	171.56	144.81	23.6
JS-39, 102.5'-104.0'	1007	6/23/09	Hom	3/8"	3	3/8"	No	32.84	152.31	125.73	28.6
JS-39, 104.0'-105.5'	1008	6/23/09	Hom	No. 10			Yes	31.66	198.51	164.03	26.0



Moisture Content of Soil
AASHTO T 265

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-40, 0.0'-1.5'	2078	5/4/09	Hom	No. 10			Yes	72.27	144.15	124.53	37.5
JS-40, 9.0'-10.5'	2079	5/4/09	Hom	No. 10			Yes	70.21	294.05	267.07	13.7
JS-40, 10.5'-12.0'	2080	5/4/09	Hom	3/4"			No	70.66	213.85	186.71	23.4



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-58, 0.0'-1.5'	1606	5/12/09	Len	3/4"			No	44.91	208.62	174.39	26.4
JS-58, 1.5'-3.0'	1607	5/12/09	Len	3/4"			No	44.12	197.44	167.29	24.5
JS-58, 3.0'-4.5'	1608	5/12/09	Hom	No. 10			Yes	44.55	315.80	257.57	27.3
JS-58, 4.5'-6.0'	1609	5/12/09	Hom	No. 10			Yes	44.55	189.19	158.59	26.8
JS-58, 6.0'-7.5'	1610	5/12/09	Hom	No. 10			Yes	45.57	332.57	273.77	25.8
JS-58, 7.5'-9.0'	1611	5/12/09	Hom	No. 10			Yes	48.40	271.08	226.99	24.7
JS-58, 9.0'-10.5'	1612	5/12/09	Hom	No. 10			Yes	39.79	252.20	204.85	28.7
JS-58, 10.5'-12.0'	1613	5/12/09	Hom	No. 10			Yes	43.85	157.33	134.60	25.0
JS-58, 12.0'-13.5'	1614	5/12/09	Hom	No. 10			Yes	44.48	347.96	286.83	25.2
JS-58, 13.5'-15.0'	1615	5/12/09	Hom	No. 10			Yes	50.53	330.45	270.04	27.5
JS-58, 15.0'-16.5'	1616	5/12/09	Hom	No. 10			Yes	49.36	314.59	257.53	27.4
JS-58, 16.5'-18.0'	1617	5/12/09	Hom	No. 10			Yes	47.84	338.27	272.27	29.4
JS-58, 18.0'-19.5'	1618	5/12/09	Hom	No. 10			Yes	49.39	311.87	254.63	27.9
JS-58, 19.5'-21.0'	1619	5/12/09	Hom	No. 10			Yes	43.73	336.13	275.41	26.2
JS-58, 21.0'-22.5'	1620	5/12/09	Hom	No. 10			Yes	48.52	364.14	304.09	23.5
JS-58, 22.5'-24.0'	1621	5/12/09	Hom	1 1/2"			No	45.97	383.18	318.66	23.7
JS-58, 24.0'-25.5'	1622	5/12/09	Hom	1 1/2"			No	49.48	332.68	278.30	23.8
JS-45, 0.0'-1.5'	1624	5/12/09	Len	1 1/2"			No	43.98	249.78	208.06	25.4
JS-45, 1.5'-3.0'	1625	5/12/09	Len	3/8"			No	43.55	278.50	235.53	22.4
JS-45, 3.0'-4.5'	1626	5/12/09	Len	3/8"			No	45.04	349.65	293.79	22.5
JS-45, 4.5'-6.0'	1627	5/12/09	Hom	No. 4			Yes	44.95	266.58	223.81	23.9
JS-45, 6.0'-7.5'	1628	5/12/09	Hom	3/8"			No	43.98	309.89	245.87	31.7
JS-45, 7.5'-9.0'	1629	5/12/09	Hom	3/4"			No	44.04	321.51	257.46	30.0
JS-45, 9.0'-10.5'	1630	5/12/09	Hom	3/4"			No	44.49	313.82	255.31	27.8
JS-45, 10.5'-12.0'	1631	5/12/09	Hom	No. 10			Yes	38.45	281.54	220.09	33.8
JS-45, 12.0'-13.5'	1632	5/12/09	Hom	No. 10			Yes	43.27	325.93	248.73	37.6
JS-45, 13.5'-15.0'	1633	5/12/09	Hom	No. 10			Yes	40.02	239.93	185.42	37.5
JS-45, 15.0'-16.5'	1634	5/12/09	Hom	No. 10			Yes	43.87	298.94	223.22	42.2



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-45, 16.5'-18.0'	1635	5/12/09	Hom	3/8"			No	43.83	259.44	196.76	41.0
JS-45, 18.0'-19.5'	1636	5/12/09	Hom	No. 10			Yes	38.52	260.14	199.82	37.4
JS-45, 19.5'-21.0'	1637	5/12/09	Hom	No. 10			Yes	47.48	316.06	232.70	45.0
JS-45, 21.0'-22.5'	1638	5/12/09	Hom	No. 10			Yes	43.95	314.59	225.22	49.3
JS-45, 22.5'-24.0'	1639	5/12/09	Hom	No. 10			Yes	48.18	182.69	131.91	60.6
JS-45, 24.0'-25.5'	1640	5/12/09	Hom	No. 10			Yes	43.76	258.76	186.37	50.8
JS-45, 25.5'-27.0' No Recovery	1641	5/12/09									
JS-45, 27.0'-28.5'	1642	5/12/09	Hom	No. 10			Yes	46.90	122.69	97.92	48.5
JS-45, 28.5'-30.0'	1643	5/12/09	Hom	No. 10			Yes	43.50	294.65	192.48	68.6
JS-45, 30.0'-31.5'	1644	5/12/09	Hom	No. 10			Yes	44.23	224.39	173.47	39.4
JS-45, 31.5'-33.0'	1645	5/12/09	Hom	No. 10			Yes	40.68	178.06	138.00	41.2
JS-45, 33.0'-34.5'	1646	5/12/09	Hom	No. 10			Yes	39.64	290.84	205.98	51.0
JS-45, 34.5'-36.0'	1647	5/12/09	Hom	No. 10			Yes	45.19	272.33	206.22	41.1
JS-45, 36.0'-37.5'	1648	5/12/09	Hom	No. 10			Yes	43.75	315.80	227.04	48.4
JS-45, 37.5'-39.0'	1649	5/12/09	Hom	No. 10			Yes	49.68	290.25	238.36	27.5
JS-45, 39.0'-40.5'	1650	5/12/09	Hom	No. 10			Yes	49.34	347.31	290.20	23.7
JS-45, 40.5'-41.4'	1651	5/12/09	Hom	1 1/2"			No	48.32	307.43	265.45	19.3
JS-37, 0.0'-1.5'	1654	5/13/09	Len	1 1/2"			No	72.65	341.72	296.51	20.2
JS-37, 1.5'-3.0'	1655	5/13/09	Len	3/4"			No	69.92	355.90	305.23	21.5
JS-37, 3.0'-4.5'	1656	5/13/09	Len	3/4"			No	68.97	244.11	226.85	10.9
JS-37, 4.5'-6.0'	1657	5/13/09	Hom	3/8"			No	72.41	367.82	310.84	23.9
JS-37, 6.0'-7.5'	1658	5/13/09	Hom	3/4"			No	71.28	373.58	307.72	27.9
JS-37, 7.5'-9.0'	1659	5/13/09	Hom	3/8"			No	70.79	388.28	321.40	26.7
JS-37, 9.0'-10.5'	1660	5/13/09	Hom	3/8"			No	69.03	354.00	293.12	27.2
JS-37, 10.5'-12.0'	1661	5/13/09	Hom	No. 10			Yes	69.74	359.40	303.87	23.7
JS-37, 12.0'-13.5'	1662	5/13/09	Hom	No. 10			Yes	70.66	380.12	309.31	29.7
JS-37, 13.5'-15.0'	1663	5/13/09	Hom	No. 10			Yes	70.37	334.38	250.93	46.2
JS-37, 15.0'-16.5'	1664	5/13/09	Hom	No. 10			Yes	71.26	225.92	179.71	42.6
JS-37, 16.5'-18.0'	1665	5/13/09	Hom	No. 10			Yes	74.86	360.09	266.85	48.6
JS-37, 18.0'-19.5'	1666	5/13/09	Hom	No. 10			Yes	69.95	339.68	245.51	53.6



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-37, 19.5'-21.0'	1667	5/13/09	Hom	No. 10			Yes	70.17	371.96	235.37	82.7
JS-37, 21.0'-22.5'	1668	5/13/09	Hom	No. 10			Yes	69.41	357.88	264.48	47.9
JS-37, 22.5'-24.0'	1669	5/13/09	Hom	No. 10			Yes	77.70	366.87	265.23	54.2
JS-37, 24.0'-25.5'	1670	5/13/09	Hom	No. 10			Yes	75.60	382.21	284.59	46.7
JS-37, 25.5'-27.0'	1671	5/13/09	Hom	No. 10			Yes	74.93	324.56	251.26	41.6
JS-37, 27.0'-28.5'	1672	5/13/09	Hom	3/8"			No	73.69	377.11	276.18	49.8
JS-37, 28.5'-30.0'	1673	5/13/09	Hom	No. 10			Yes	68.73	362.94	259.50	54.2
JS-37, 30.0'-31.5'	1674	5/13/09	Hom	No. 10			Yes	73.90	349.24	250.85	55.6
JS-37, 31.5'-33.0'	1675	5/13/09	Hom	No. 10			Yes	70.08	304.98	224.66	52.0
JS-37, 33.0'-34.5'	1676	5/13/09	Hom	No. 10			Yes	72.12	363.92	276.99	42.4
JS-37, 34.5'-36.0'	1677	5/13/09	Hom	No. 10			Yes	75.33	347.15	263.15	44.7
JS-37, 36.0'-37.5'	1678	5/13/09	Hom	No. 10			Yes	73.05	373.00	294.55	35.4
JS-37, 37.5'-39.0'	1679	5/13/09	Len	1 1/2"			No	72.85	376.11	324.13	20.7
JS-37, 39.0'-40.5'	1680	5/13/09	Len	1 1/2"			No	72.33	317.27	282.47	16.6
JS-37, 40.5'-42.0'	1681	5/13/09	Len	1 1/2"			No	70.48	241.69	217.26	16.6
JS-37, 42.0'-43.2'	1682	5/13/09	Len	1 1/2"			No	69.69	343.73	294.76	21.8
JS-36A, 0.0'-1.5'	1684	5/7/09	Len	3/4"			No	43.83	179.71	164.84	12.3
JS-36A, 1.5'-3.0'	1685	5/7/09	Len	3/4"			No	46.51	285.81	257.03	13.7
JS-36A, 3.0'-4.5'	1686	5/7/09	Len	1 1/2"			No	43.38	231.35	202.10	18.4
JS-36A, 4.5'-6.0'	1687	5/7/09	Len	3/4"			No	44.26	282.66	240.97	21.2
JS-36A, 6.0'-7.5' Fly Ash	1688	5/7/09	Hom	3/8"			No	42.97	275.57	234.41	21.5
JS-36A, 6.0'-7.5' Clay	1688A	5/7/09	Len	No. 4			No	38.09	132.46	114.77	23.1
JS-36A, 7.5'-9.0' Fly Ash	1689	5/7/09	Len	3/4"			No	43.25	278.17	230.94	25.2
JS-36A, 7.5'-9.0' Clay	1689A	5/7/09	Len	3/8"			No	43.96	193.96	163.07	25.9
JS-36A, 9.0'-10.5' Fly Ash	1690	5/7/09	Hom	No. 10			Yes	47.30	296.65	236.36	31.9
JS-36A, 9.0'-10.5' Clay	1690A	5/7/09	Hom	No. 10			Yes	44.68	160.42	141.40	19.7
JS-36A, 10.5'-12.0'	1691	5/7/09	Len	No. 10			Yes	43.61	261.71	226.20	19.4
JS-36A, 12.0'-13.5'	1692	5/7/09	Hom	No. 10			Yes	38.15	250.20	210.20	23.2
JS-36A, 13.5'-15.0'	1693	5/7/09	Hom	No. 10			Yes	43.77	248.28	212.22	21.4
JS-36A, 15.0'-16.5'	1694	5/7/09	Hom	No. 4			Yes	44.36	283.18	241.90	20.9



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-36A, 16.5'-18.0'	1695	5/5/09	Len	3/8"			No	46.74	306.80	269.24	16.9
JS-36A, 18.0'-19.5'	1696	5/5/09	Len	3/8"			No	38.84	240.40	213.24	15.6
JS-36A, 19.5'-21.0'	1697	5/5/09	Hom	No. 10			Yes	43.77	166.65	146.77	19.3
JS-36A, 21.0'-22.5'	1698	5/5/09	Hom	3/8"			No	45.98	220.94	195.86	16.7
JS-36A, 22.5'-24.0'	1699	5/5/09	Hom	3/8"			No	44.01	368.36	353.55	4.8
JS-36A, 22.5'-24.0'	1699B	5/5/09	Len	3/8"			No	44.04	133.98	120.91	17.0
JS-36A, 24.0'-25.5'	1700	5/5/09	Hom	3/4"			No	48.51	347.11	334.05	4.6
JS-36A, 25.5'-27.0'	1701	5/5/09	Hom	3/8"			No	45.82	379.66	357.68	7.0
JS-36A, 27.0'-28.5'	1702	5/5/09	Hom	3/4"			No	44.40	343.22	323.60	7.0
JS-36A, 28.5'-30.0'	1703	5/5/09	Hom	No. 10			Yes	43.70	298.44	211.43	51.9
JS-36A, 30.0'-31.5'	1704	5/5/09	Hom	No. 10			Yes	39.35	184.31	138.44	46.3
JS-36A, 31.5'-33.0'	1705	5/5/09	Hom	No. 10			Yes	43.64	215.25	160.78	46.5
JS-36A, 33.0'-34.5'	1706	5/5/09	Hom	No. 10			Yes	44.13	397.50	323.18	26.6
JS-36A, 34.5'-36.0'	1707	5/5/09	Hom	No. 10			Yes	44.07	398.41	320.70	28.1
JS-36A, 36.0'-37.5' No Recovery	1708	5/5/09									
JS-36A, 37.5'-39.0'	1709	5/5/09	Hom	3/4"			No	43.54	399.09	313.78	31.6
JS-36A, 39.0'-40.5'	1710	5/5/09	Hom	No. 10			Yes	46.41	395.47	312.51	31.2
JS-36A, 40.5'-42.0'	1711	5/5/09	Hom	No. 10			Yes	46.16	259.16	198.05	40.2
JS-36A, 42.0'-43.5'	1712	5/5/09	Hom	No. 10			Yes	45.77	352.95	275.47	33.7
JS-36A, 43.5'-45.0'	1713	5/5/09	Hom	1 1/2"			No	38.25	262.85	220.22	23.4
JS-36A, 45.0'-46.2'	1714	5/5/09	Hom	3/8"			No	44.51	284.65	236.50	25.1
JS-36B, 0.0'-1.5'	1717	5/13/09	Hom	3/8"			No	22.41	56.20	52.74	11.4
JS-36B, 1.5'-3.0'	1718	5/13/09	Len	1 1/2"			No	20.90	82.51	72.40	19.6
JS-36B, 3.0'-4.5'	1719	5/13/09	Len	3/8"			No	19.01	89.78	78.84	18.3
JS-36B, 4.5'-6.0'	1720	5/13/09	Len	1 1/2"			No	21.26	90.52	77.41	23.3
JS-36B, 6.0'-7.5'	1721	5/13/09	Hom	No. 4			No	20.59	90.98	77.39	23.9
JS-36B, 7.5'-9.0'	1722	5/13/09	Len	3/8"			No	21.65	83.07	72.59	20.6
JS-36B, 9.0'-10.5' No Recovery	1723	5/13/09									
JS-36B, 10.5'-12.0' No Recovery	1724	5/13/09									
JS-36B, 12.0'-13.5'	1725	5/13/09	Hom	No. 4			No	22.44	95.18	80.78	24.7



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-36B, 13.5'-15.0'	1726	5/13/09	Hom	3/4"			No	21.31	95.82	85.87	15.4
JS-36B, 15.0'-16.5'	1727	5/13/09	Hom	No. 4			No	22.57	91.29	81.84	15.9
JS-36B, 16.5'-18.0'	1728	5/13/09	Hom	3/8"			No	21.15	97.27	85.81	17.7
JS-36B, 18.0'-19.5'	1729	5/13/09	Len	No. 4			No	22.97	92.82	79.19	24.2
JS-36B, 19.5'-21.0'	1730	5/13/09	Hom	3/8"			No	22.22	112.37	94.65	24.5
JS-36B, 21.0'-22.5'	1731	5/13/09	Hom	3/4"			No	20.81	85.22	71.13	28.0
JS-36B, 22.5'-24.0'	1732	5/13/09	Hom	3/4"			No	18.64	89.21	74.70	25.9
JS-36B, 24.0'-25.5'	1733	5/13/09	Len	No. 4			No	22.79	110.56	94.35	22.7
JS-36B, 25.5'-27.0'	1734	5/13/09	Len	3/8"			No	19.28	92.23	78.61	23.0
JS-36B, 27.0'-28.5'	1735	5/13/09	Len	No. 4			No	21.61	95.90	77.46	33.0
JS-36B, 28.5'-30.0' No Recovery	1736	5/13/09									
JS-36B, 30.0'-31.5'	1737	5/13/09	Hom	No. 4			No	21.73	98.20	78.39	35.0
JS-36B, 31.5'-33.0'	1738	5/13/09	Hom	No. 4			No	21.84	102.42	82.30	33.3
JS-36B, 33.0'-34.5'	1739	5/13/09	Hom	3/8"			No	21.54	92.45	71.14	43.0
JS-36B, 34.5'-36.0'	1740	5/13/09	Len	3/8"			No	20.67	92.70	75.44	31.5
JS-36B, 36.0'-37.5'	1741	5/13/09	Hom	3/8"			No	21.75	111.25	96.20	20.2
JS-36B, 37.5'-39.0'	1742	5/13/09	Hom	No. 4			No	18.80	105.09	90.16	20.9
JS-36B, 39.0'-40.5'	1743	5/13/09	Hom	No. 4			No	23.82	125.09	106.02	23.2
JS-36B, 40.5'-42.0'	1744	5/13/09	Hom	No. 4			No	19.28	99.45	83.90	24.1
JS-36B, 42.0'-43.5'	1745	5/13/09	Hom					21.71	125.70	105.66	23.9
JS-36B, 43.5'-45.0'	1746	5/13/09	Hom	3/4"			No	22.15	112.26	101.07	14.2
JS-36B, 45.0'-46.5'	1747	5/13/09	Hom	3/4"			No	22.01	117.30	102.75	18.0
JS-36B, 46.5'-48.0'	1748	5/13/09	Hom	3/4"			No	20.59	98.02	88.33	14.3
JS-36B, 48.0'-49.5'	1749	5/13/09	Hom	3/8"			No	18.57	88.92	77.36	19.7
JS-36B, 49.5'-50.7'	1750	5/13/09	Hom	3/8"			No	19.85	84.01	71.91	23.2
JS-20, 0.0'-1.5'	1755	5/13/09	Len	3/8"			No	72.74	307.71	261.99	24.2
JS-20, 1.5'-3.0'	1756	5/13/09	Len	No. 4			No	70.52	106.98	100.22	22.8
JS-20, 3.0'-4.5'	1757	5/13/09	Len	3/8"			No	75.03	366.53	317.02	20.5
JS-20, 4.5'-6.0'	1758	5/13/09	Hom	No. 10			Yes	73.52	381.21	318.63	25.5
JS-20, 6.0'-7.5'	1759	5/13/09	Hom	No. 4			Yes	71.30	303.39	259.41	23.4



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-20, 7.5'-9.0'	1760	5/13/09	Hom	3/8"			No	47.51	308.65	262.64	21.4
JS-20, 9.0'-10.5'	1761	5/13/09	Hom	No. 4			Yes	75.38	329.25	278.92	24.7
JS-20, 10.5'-12.0'	1762	5/13/09	Hom	3/4"			No	73.87	297.60	257.86	21.6
JS-20, 12.0'-13.5'	1763	5/13/09	Hom	No. 4			No	69.08	157.24	142.11	20.7
JS-20, 13.5'-15.0'	1764	5/13/09	Hom	3/8"			No	71.34	354.34	304.85	21.2
JS-20, 15.0'-16.5'	1765	5/13/09	Hom	No. 4			Yes	71.55	311.61	266.40	23.2
JS-20, 16.5'-18.0'	1766	5/13/09	Hom	No. 4			Yes	69.96	319.89	277.18	20.6
JS-20, 18.0'-19.5'	1767	5/13/09	Hom	3/8"			No	69.02	222.61	195.59	21.3
JS-20, 19.5'-21.0'	1768	5/13/09	Hom	3/8"			No	69.91	293.51	250.92	23.5
JS-20, 21.0'-22.5'	1769	5/13/09	Hom	No. 4			Yes	69.72	382.82	327.42	21.5
JS-20, 22.5'-24.0'	1770	5/13/09	Len	3/8"			No	69.18	351.89	303.07	20.9
JS-20, 24.0'-25.5'	1771	5/13/09	Hom	3/8"			No	72.20	398.02	336.84	23.1
JS-20, 25.5'-27.0'	1772	5/13/09	Hom	3/8"			No	71.18	360.63	306.55	23.0
JS-20, 27.0'-28.5'	1773	5/13/09	Hom	3/8"			No	68.43	391.34	331.34	22.8
JS-20, 28.5'-30.0'	1774	5/13/09	Hom	3/8"			No	43.78	302.89	247.95	26.9
JS-20, 30.0'-31.5'	1775	5/13/09	Len	No. 4			Yes	43.74	341.73	283.13	24.5
JS-20, 31.5'-33.0'	1776	5/13/09	Len	3/8"			No	43.87	372.70	300.23	28.3
JS-20, 33.0'-34.5'	1777	5/13/09	Hom	3/8"			No	43.81	266.08	209.81	33.9
JS-20, 34.5'-36.0'	1778	5/13/09	Hom	No. 10			Yes	46.71	314.90	233.01	44.0
JS-20, 36.0'-37.5'	1779	5/13/09	Hom	No. 10			Yes	43.56	353.49	271.16	36.2
JS-20, 37.5'-39.0'	1780	5/13/09	Hom	1 1/2"			No	44.55	357.84	287.39	29.0
JS-20, 39.0'-40.5'	1781	5/13/09	Hom	No. 10			Yes	46.19	319.75	266.53	24.2
JS-20, 40.5'-42.0'	1782	5/13/09	Hom	No. 10			Yes	45.22	282.55	237.45	23.5
JS-20, 42.0'-43.5'	1783	5/13/09	Hom	No. 10			Yes	43.64	310.25	264.29	20.8
JS-20, 43.5'-45.0'	1784	5/13/09	Hom	No. 10			Yes	38.03	252.99	209.79	25.2
JS-20, 45.0'-46.5'	1785	5/13/09	Hom	No. 10			Yes	47.22	389.04	325.79	22.7
JS-20, 46.5'-48.0'	1786	5/13/09	Hom	No. 10			Yes	46.75	363.10	301.08	24.4
JS-20, 48.0'-49.5'	1787	5/13/09	Hom	No. 10			Yes	38.15	381.77	320.91	21.5
JS-20, 49.5'-51.0'	1788	5/13/09	Hom	No. 4			Yes	39.81	306.38	261.14	20.4
JS-20, 51.0'-52.5'	1789	5/13/09	Hom	1 1/2"			No	49.08	378.75	333.49	15.9



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-20, 52.5'-54.0'	1790	5/13/09	Hom	3/4"			No	43.01	387.23	331.64	19.3
JS-20, 54.0'-54.2' No Recovery	1791	5/13/09									
JS-20, 55.5'-55.8'	1792	5/13/09	Hom	1 1/2"			No	46.37	106.36	98.51	15.1
JS-16, 0.0'-1.5'	1794	5/13/09	Hom	1 1/2"			No	19.75	95.69	82.32	21.4
JS-16, 1.5'-3.0'	1795	5/13/09	Hom	3/8"			No	21.21	92.43	82.63	16.0
JS-16, 3.0'-4.5'	1796	5/13/09	Len	No. 4			No	21.61	101.71	88.05	20.6
JS-16, 4.5'-6.0'	1797	5/13/09	Len	3/8"			No	20.50	94.56	83.79	17.0
JS-16, 6.0'-7.5'	1798	5/13/09	Len	1 1/2"			No	20.52	99.34	88.35	16.2
JS-16, 7.5'-9.0'	1799	5/13/09	Hom	3/8"			No	20.94	91.31	78.96	21.3
JS-16, 9.0'-10.5'	1800	5/13/09	Len	3/8"			No	20.65	83.00	74.33	16.2
JS-16, 10.5'-12.0'	1801	5/13/09	Hom	No. 4			No	18.73	80.24	69.60	20.9
JS-16, 12.0'-13.5'	1802	5/13/09	Len	3/8"			No	22.37	100.43	90.48	14.6
JS-16, 13.5'-15.0'	1803	5/13/09	Len	3/8"			No	20.44	85.29	74.68	19.6
JS-16, 15.0'-16.5'	1804	5/13/09	Hom	1 1/2"			No	20.65	93.87	81.53	20.3
JS-16, 16.5'-18.0'	1805	5/13/09	Hom	No. 10			Yes	20.28	71.41	64.27	16.2
JS-16, 18.0'-19.5'	1806	5/13/09	Hom	No. 10			Yes	19.13	70.46	62.67	17.9
JS-16, 19.5'-21.0'	1807	5/13/09	Hom	No. 4			No	18.99	86.93	74.87	21.6
JS-16, 21.0'-22.5'	1808	5/13/09	Hom	No. 4			No	21.64	96.87	84.20	20.3
JS-16, 22.5'-24.0'	1809	5/13/09	Hom	3/8"			No	22.49	101.90	88.41	20.5
JS-16, 24.0'-25.5'	1810	5/13/09	Hom	3/8"			No	19.44	81.98	71.16	20.9
JS-16, 25.5'-27.0'	1811	5/14/09	Hom	No. 4			No	19.59	73.96	62.00	28.2
JS-16, 27.0'-28.5'	1812	5/14/09	Hom	No. 4			No	18.52	75.01	60.99	33.0
JS-16, 28.5'-30.0'	1813	5/14/09	Hom	No. 4			No	22.57	104.24	82.48	36.3
JS-16, 30.0'-31.5'	1814	5/14/09	Hom	No. 4			No	19.33	83.75	65.57	39.3
JS-16, 31.5'-33.0'	1815	5/14/09	Hom	No. 4			No	20.55	82.37	62.62	46.9
JS-16, 33.0'-34.5'	1816	5/14/09	Hom	No. 4			No	21.41	105.73	81.53	40.3
JS-16, 34.5'-36.0'	1817	5/14/09	Hom	No. 4			No	19.12	105.53	83.59	34.0
JS-16, 36.0'-37.5'	1818	5/14/09	Hom	3/4"			No	19.36	93.38	86.47	10.3
JS-16, 37.5'-39.0'	1819	5/14/09	Hom	No. 4			Yes	23.86	146.96	132.14	13.7
JS-16, 39.0'-40.5'	1820	5/14/09	Hom	3/4"			No	29.16	144.04	123.19	22.2



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-16, 40.5'-42.0'	1821	5/14/09	Hom	3/8"			No	24.11	128.97	110.90	20.8
JS-16, 42.0'-43.5'	1822	5/14/09	Hom	No. 4			No	26.44	120.39	103.66	21.7
JS-16, 43.5'-45.0'	1823	5/14/09	Hom	No. 4			No	18.80	97.79	84.19	20.8
JS-16, 45.0'-46.5'	1824	5/14/09	Hom	No. 4			No	19.65	105.25	90.32	21.1
JS-16, 46.5'-48.0'	1825	5/14/09	Hom	No. 4			No	21.23	123.35	104.14	23.2
JS-16, 48.0'-49.5'	1826	5/14/09	Hom	3/4"			No	21.98	122.61	104.50	21.9
JS-16, 49.5'-51.0'	1827	5/14/09	Hom	1 1/2"			No	22.06	146.86	128.88	16.8
JS-16, 51.0'-52.5'	1828	5/14/09	Hom	1 1/2"			No	21.52	128.09	115.27	13.7
JS-16, 52.5'-54.0'	1829	5/14/09	Hom	1 1/2"			No	22.06	112.79	103.87	10.9
JS-16, 54.0'-55.5'	1830	5/14/09	Hom	3/4"			No	20.83	110.84	93.64	23.6
JS-16, 55.5'-55.8'	1831	5/14/09	Hom	3/4"			No	21.59	110.22	98.95	14.6
JS-53, 0.0'-1.5'	1833	5/14/09	Hom	3/8"			No	43.30	291.00	244.02	23.4
JS-53, 1.5'-3.0'	1834	5/14/09	Len	1 1/2"			No	48.07	313.66	268.96	20.2
JS-53, 3.0'-4.5'	1835	5/14/09	Len	3/4"			No	43.71	321.97	281.11	17.2
JS-53, 4.5'-6.0'	1836	5/14/09	Len	No. 4			Yes	44.27	236.74	204.52	20.1
JS-53, 6.0'-7.5'	1837	5/14/09	Len	3/8"			No	43.81	353.05	302.32	19.6
JS-53, 7.5'-9.0'	1838	5/14/09	Len	No. 10			Yes	44.62	314.15	265.90	21.8
JS-53, 9.0'-10.5'	1839	5/14/09	Len	3/4"			No	44.01	168.13	148.45	18.8
JS-53, 10.5'-12.0'	1840	5/14/09	Len	1 1/2"			No	47.24	303.97	252.98	24.8
JS-53, 12.0'-13.5'	1841	5/14/09	Len	1 1/2"			No	43.88	319.76	255.95	30.1
JS-53, 13.5'-13.9'	1842	5/14/09	Hom	3/4"			No	46.05	113.47	104.62	15.1
JS-47, 0.0'-1.5'	1843	5/14/09	Hom	3/8"			No	43.75	346.31	294.02	20.9
JS-47, 1.5'-3.0'	1844	5/14/09	Hom	3/8"			No	43.96	318.27	280.89	15.8
JS-47, 3.0'-4.5'	1845	5/14/09	Hom	3/8"			No	49.40	328.96	290.21	16.1
JS-47, 4.5'-6.0'	1846	5/14/09	Hom	No. 10			Yes	45.80	386.50	327.41	21.0
JS-47, 6.0'-7.5'	1847	5/14/09	Hom	3/8"			No	43.58	370.95	312.42	21.8
JS-47, 7.5'-9.0'	1848	5/14/09	Hom	No. 10			Yes	43.87	379.74	322.73	20.4
JS-47, 9.0'-10.5'	1849	5/14/09	Hom	No. 10			Yes	48.54	374.07	315.22	22.1
JS-47, 10.5'-12.0'	1850	5/14/09	Hom	3/4"			No	46.84	381.27	320.23	22.3
JS-47, 12.0'-13.5'	1851	5/14/09	Hom	3/4"			No	44.11	385.87	328.06	20.4



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-47, 13.5'-15.0'	1852	5/14/09	Hom	3/4"			No	44.30	263.94	224.42	21.9
JS-47, 15.0'-16.5'	1853	5/14/09	Hom	1 1/2"			No	39.01	174.30	161.69	10.3
JS-47, 16.5'-18.0'	1854	5/14/09	Hom	3/4"			No	44.39	300.15	256.98	20.3
JS-43, 0.0'-1.5'	1855	5/14/09	Len	3/8"			No	44.04	270.78	235.43	18.5
JS-43, 1.5'-3.0'	1856	5/14/09	Len	No. 4			Yes	46.39	291.80	256.33	16.9
JS-43, 3.0'-4.5'	1857	5/14/09	Hom	No. 10			Yes	38.69	85.71	78.40	18.4
JS-43, 4.5'-6.0'	1858	5/14/09	Len	3/8"			No	44.87	345.20	300.39	17.5
JS-43, 6.0'-7.5'	1859	5/14/09	Len	3/8"			No	45.03	252.54	216.87	20.8
JS-43, 7.5'-9.0'	1860	5/14/09	Len	3/8"			No	44.09	315.36	273.76	18.1
JS-43, 9.0'-10.5'	1861	5/14/09	Len	No. 10			Yes	44.13	346.02	294.85	20.4
JS-43, 10.5'-12.0'	1862	5/14/09	Len	3/8"			No	46.27	323.30	278.37	19.4
JS-43, 12.0'-13.5'	1863	5/14/09	Len	1 1/2"			No	47.86	371.81	314.15	21.7
JS-43, 13.5'-15.0'	1864	5/14/09	Len	3/4"			No	44.52	270.06	234.80	18.5
JS-43, 15.0'-16.5'	1865	5/14/09	Len	No. 10			Yes	44.49	321.81	280.88	17.3
JS-43, 16.5'-18.0'	1866	5/14/09	Len	3/8"			No	48.68	306.07	267.99	17.4
JS-43, 18.0'-19.5'	1867	5/14/09	Len	3/8"			No	44.12	333.90	288.84	18.4
JS-43, 19.5'-21.0'	1868	5/14/09	Len	3/8"			No	49.26	350.08	307.89	16.3
JS-43, 21.0'-22.5'	1869	5/14/09	Len	3/4"			No	44.02	288.22	249.72	18.7
JS-43, 22.5'-23.8'	1870	5/14/09	Len	3/4"			No	48.40	306.00	276.40	13.0
JS-35, 0.0'-1.5'	1871	5/14/09	Hom	1 1/2"			No	22.85	142.38	121.30	21.4
JS-35, 1.5'-3.0'	1872	5/14/09	Len	3/8"			No	21.54	102.33	90.17	17.7
JS-35, 3.0'-4.5'	1873	5/14/09	Hom	No. 4			No	20.90	63.31	57.50	15.9
JS-35, 4.5'-6.0'	1874	5/14/09	Hom	3/8"			No	20.91	137.45	117.22	21.0
JS-35, 6.0'-7.5'	1875	5/14/09	Hom	No. 4			No	21.71	113.84	97.82	21.0
JS-35, 7.5'-9.0'	1876	5/14/09	Hom	No. 4			No	21.07	117.12	100.49	20.9
JS-35, 9.0'-10.5'	1877	5/14/09	Hom	3/4"			No	19.31	106.77	92.69	19.2
JS-35, 10.5'-12.0'	1878	5/14/09	Hom	3/4"			No	22.06	151.61	130.70	19.2
JS-35, 12.0'-13.5'	1879	5/14/09	Hom	No. 4			Yes	21.01	153.35	131.13	20.2
JS-35, 13.5'-15.0'	1880	5/14/09	Hom	No. 4			No	19.52	118.78	103.46	18.3
JS-35, 15.0'-16.5'	1881	5/14/09	Hom	1 1/2"			No	19.16	99.16	94.84	5.7



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-35, 16.5'-18.0'	1882	5/14/09	Hom	3/4"			No	21.79	122.85	103.79	23.2
JS-35, 18.0'-19.5'	1883	5/14/09	Hom	No. 4			No	21.92	109.64	90.62	27.7
JS-35, 19.5'-21.0'	1884	5/14/09	Hom	3/4"			No	21.44	109.19	90.08	27.8
JS-35, 21.0'-22.3'	1885	5/14/09	Hom	3/4"			No	22.25	127.73	115.62	13.0
JS-28, 0.0'-1.5'	1886	5/14/09	Hom	3/4"			No	21.21	99.03	87.07	18.2
JS-28, 1.5'-3.0'	1887	5/14/09	Hom	No. 4			No	19.52	102.42	85.59	25.5
JS-28, 3.0'-4.5'	1888	5/14/09	Hom	No. 4			No	21.35	122.06	102.87	23.5
JS-28, 4.5'-6.0'	1889	5/14/09	Hom	3/4"			No	23.08	123.76	105.89	21.6
JS-28, 6.0'-7.5'	1890	5/14/09	Hom	No. 4			No	21.82	121.66	104.19	21.2
JS-28, 7.5'-9.0'	1891	5/14/09	Hom	3/8"			No	21.62	126.56	109.61	19.3
JS-28, 9.0'-10.5'	1892	5/14/09	Hom	3/4"			No	22.47	145.15	124.69	20.0
JS-28, 10.5'-12.0'	1893	5/14/09	Hom	No. 4			No	21.27	126.33	108.05	21.1
JS-28, 12.0'-13.5'	1894	5/14/09	Hom	1 1/2"			No	22.50	161.42	138.71	19.5
JS-28, 13.5'-15.0'	1895	5/14/09	Hom	1 1/2"			No	20.69	150.84	127.55	21.8
JS-28, 15.0'-16.5'	1896	5/14/09	Hom	3/4"			No	22.56	140.61	118.08	23.6
JS-28, 16.5'-18.0'	1897	5/14/09	Hom	1 1/2"			No	21.62	120.06	95.91	32.5
JS-28, 18.0'-18.3'	1898	5/14/09	Hom	3/4"			No	21.40	100.00	93.97	8.3
JS-23, 0.0'-1.5'	1899	5/15/09	Hom	3/8"			No	39.21	242.84	201.07	25.8
JS-23, 1.5'-3.0'	1900	5/15/09	Hom	No. 10			Yes	45.11	265.24	224.19	22.9
JS-23, 3.0'-4.5'	1901	5/15/09	Len	3/8"			No	44.19	287.15	243.04	22.2
JS-23, 4.5'-6.0'	1902	5/15/09	Hom	No. 10			Yes	47.98	320.87	272.59	21.5
JS-23, 6.0'-7.5'	1903	5/15/09	Hom	No. 10			Yes	43.80	359.52	301.70	22.4
JS-23, 7.5'-9.0'	1904	5/15/09	Hom	No. 10			Yes	38.77	323.59	268.16	24.2
JS-23, 9.0'-10.5'	1905	5/15/09	Hom	No. 10			Yes	47.12	392.38	324.61	24.4
JS-23, 10.5'-12.0'	1906	5/15/09	Hom	No. 10			Yes	47.18	371.50	308.50	24.1
JS-23, 12.0'-13.5'	1907	5/15/09	Hom	No. 10			Yes	40.23	339.80	286.24	21.8
JS-23, 13.5'-15.0'	1908	5/15/09	Len	1 1/2"			No	48.05	316.64	277.84	16.9
JS-23, 15.0'-16.5'	1909	5/15/09	Hom	1 1/2"			No	43.82	337.86	281.37	23.8
JS-23, 16.5'-17.1'	1910	5/15/09	Hom	3/8"			No	44.16	176.96	154.22	20.7
JS-19, 0.0'-1.5'	1911	5/14/09	Hom	3/4"			No	19.53	93.53	80.10	22.2



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-19, 1.5'-3.0'	1912	5/14/09	Hom	3/4"			No	20.68	92.36	78.61	23.7
JS-19, 3.0'-4.5'	1913	5/14/09	Hom	3/4"			No	18.90	91.67	75.89	27.7
JS-19, 4.5'-6.0'	1914	5/14/09	Hom	No. 4			No	22.36	100.82	85.50	24.3
JS-19, 6.0'-7.5'	1915	5/14/09	Hom	No. 4			No	20.95	105.88	90.68	21.8
JS-19, 7.5'-9.0'	1916	5/14/09	Hom	No. 4			No	21.08	107.92	90.35	25.4
JS-19, 9.0'-10.5'	1917	5/14/09	Hom	No. 4			No	21.73	93.47	80.03	23.1
JS-19, 10.5'-12.0'	1918	5/14/09	Hom	No. 4			No	21.26	108.44	92.30	22.7
JS-19, 12.0'-13.5'	1919	5/14/09	Hom	No. 4			No	21.64	102.48	87.58	22.6
JS-19, 13.5'-15.0'	1920	5/14/09	Hom	No. 4			No	20.58	119.81	101.48	22.7
JS-19, 15.0'-16.5'	1921	5/14/09	Hom	No. 4			No	21.63	111.96	96.08	21.3
JS-19, 16.5'-18.0'	1922	5/14/09	Hom	3/4"			No	19.25	123.36	107.49	18.0
JS-19, 18.0'-19.5'	1923	5/14/09	Hom	3/8"			No	18.96	101.37	86.19	22.6
JS-19, 19.5'-20.0'	1924	5/14/09	Hom	3/8"			No	22.26	105.23	96.67	11.5
JS-15, 0.0'-1.5'	1925	5/15/09	Hom	3/4"			No	22.61	92.79	82.48	17.2
JS-15, 1.5'-3.0'	1926	5/15/09	Hom	1 1/2"			No	20.87	52.57	48.56	14.5
JS-15, 3.0'-4.5'	1927	5/15/09	Hom	3/4"			No	28.88	115.58	106.96	11.0
JS-15, 4.5'-6.0'	1928	5/15/09	Hom	1 1/2"			No	19.71	82.87	71.76	21.3
JS-15, 6.0'-7.5'	1929	5/15/09	Hom	1 1/2"			No	19.06	82.90	71.27	22.3
JS-15, 7.5'-9.0' No Recovery	1930	5/15/09									
JS-15, 9.0'-10.5'	1931	5/15/09	Hom	1 1/2"			No	29.58	91.68	81.26	20.2
JS-15, 10.5'-12.0'	1932	5/15/09	Hom	No. 4			No	29.57	121.12	104.30	22.5
JS-15, 12.0'-13.5'	1933	5/15/09	Hom	No. 4			No	21.70	89.85	78.06	20.9
JS-15, 13.5'-15.0'	1934	5/15/09	Hom	No. 4			No	21.16	100.98	87.66	20.0
JS-15, 15.0'-16.5'	1935	5/15/09	Hom	3/8"			No	20.33	93.85	80.61	22.0
JS-15, 16.5'-18.0'	1936	5/15/09	Hom	No. 4			No	19.07	120.60	101.83	22.7
JS-15, 18.0'-19.5'	1937	5/15/09	Hom	No. 4			No	21.32	127.41	107.10	23.7
JS-15, 19.5'-21.0'	1938	5/15/09	Hom	No. 4			No	26.30	140.67	117.98	24.7
JS-15, 21.0'-22.5'	1939	5/15/09	Hom	No. 4			Yes	28.04	167.33	142.46	21.7
JS-15, 22.5'-24.0'	1940	5/15/09	Hom	3/4"			No	21.15	129.41	112.72	18.2
JS-15, 24.0'-25.5'	1941	5/15/09	Hom	1 1/2"			No	21.76	122.05	105.33	20.0



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-10, 0.0'-1.5'	1942	5/15/09	Hom	3/8"			No	71.34	291.22	252.54	21.3
JS-10, 1.5'-3.0'	1943	5/15/09	Len	1 1/2"			No	74.44	269.99	245.70	14.2
JS-10, 3.0'-4.5'	1944	5/15/09	Hom	3/4"			No	74.74	315.98	274.11	21.0
JS-10, 4.5'-6.0'	1945	5/15/09	Len	3/4"			No	72.61	392.80	338.14	20.6
JS-10, 6.0'-7.5'	1946	5/15/09	Len	3/4"			No	44.02	319.05	273.51	19.8
JS-10, 7.5'-9.0'	1947	5/15/09	Len	No. 10			Yes	43.68	310.43	265.96	20.0
JS-10, 9.0'-10.5'	1948	5/15/09	Hom	No. 10			Yes	47.88	385.97	326.77	21.2
JS-10, 10.5'-12.0'	1949	5/15/09	Len	No. 10			Yes	43.46	387.58	324.66	22.4
JS-10, 12.0'-13.5'	1950	5/15/09	Lam	No. 10			Yes	43.83	305.56	260.47	20.8
JS-10, 13.5'-15.0'	1951	5/15/09	Len	No. 10			Yes	43.86	379.73	317.10	22.9
JS-10, 15.0'-16.5'	1952	5/15/09	Hom	No. 10			Yes	46.86	346.81	287.76	24.5
JS-10, 16.5'-18.0'	1953	5/15/09	Len	No. 10			Yes	44.19	375.19	312.70	23.3
JS-10, 18.0'-19.5'	1954	5/15/09	Len	1 1/2"			No	38.41	311.08	266.43	19.6
JS-10, 19.5'-21.0'	1955	5/15/09	Len	No. 10			Yes	47.10	169.92	147.52	22.3
JS-10, 21.0'-22.5'	1956	5/15/09	Hom	3/8"			No	43.76	169.35	142.79	26.8
JS-10, 22.5'-23.2'	1957	5/15/09	Hom	1 1/2"			No	43.60	165.35	154.03	10.3
JS-42, 0.0'-1.5'	1958	5/15/09	Hom	3/8"			No	21.16	88.74	75.22	25.0
JS-42, 1.5'-3.0'	1959	5/15/09	Hom	No. 10			Yes	19.37	89.46	78.98	17.6
JS-42, 3.0'-4.5'	1960	5/15/09	Hom	No. 10			Yes	21.10	91.11	80.90	17.1
JS-42, 4.5'-6.0'	1961	5/15/09	Hom	No. 10			Yes	21.96	112.82	100.10	16.3
JS-42, 6.0'-7.5'	1962	5/15/09	Hom	No. 10			Yes	22.44	99.62	87.74	18.2
JS-42, 7.5'-9.0'	1963	5/15/09	Hom	No. 10			Yes	20.61	90.69	79.58	18.8
JS-42, 9.0'-10.5'	1964	5/15/09	Hom	No. 10			Yes	22.37	98.35	86.15	19.1
JS-42, 10.5'-12.0'	1965	5/15/09	Hom	No. 10			Yes	19.10	77.77	67.86	20.3
JS-42, 12.0'-13.5'	1966	5/15/09	Hom	No. 10			Yes	21.16	107.99	91.71	23.1
JS-42, 13.5'-15.0'	1967	5/15/09	Hom	No. 10			Yes	53.20	319.00	269.72	22.8
JS-42, 15.0'-16.5'	1968	5/15/09	Hom	No. 10			Yes	21.64	98.84	85.04	21.8
JS-42, 16.5'-18.0'	1969	5/15/09	Hom	No. 10			Yes	21.69	104.95	89.91	22.0
JS-42, 18.0'-19.5'	1970	5/15/09	Hom	No. 10			Yes	21.57	100.97	86.34	22.6
JS-42, 19.5'-21.0'	1971	5/15/09	Hom	No. 10			Yes	27.00	135.71	115.57	22.7



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-42, 21.0'-22.5'	1972	5/15/09	Hom	No. 10			Yes	21.42	103.49	87.52	24.2
JS-42, 22.5'-24.0'	1973	5/15/09	Hom	No. 4			No	20.80	86.33	72.90	25.8
JS-42, 24.0'-25.5'	1974	5/15/09	Hom	3/8"			No	21.05	109.64	95.89	18.4
JS-42, 25.5'-27.0'	1975	5/15/09	Hom	No. 10			Yes	19.48	82.92	72.04	20.7
JS-42, 27.0'-28.5'	1976	5/15/09	Hom	No. 4			No	21.68	92.73	81.19	19.4
JS-42, 28.5'-30.0'	1977	5/15/09	Hom	3/8"			No	22.42	110.06	93.86	22.7
JS-42, 30.0'-31.5'	1978	5/15/09	Hom	3/4"			No	21.67	113.18	96.17	22.8
JS-42, 31.5'-33.0'	1979	5/15/09	Hom	3/8"			No	22.42	115.15	98.34	22.1
JS-42, 33.0'-34.5'	1980	5/15/09	Hom	3/4"			No	18.92	89.76	75.57	25.0
JS-42, 34.5'-36.0'	1981	5/15/09	Hom	3/4"			No	20.05	75.14	64.71	23.4
JS-42, 36.0'-37.5'	1982	5/15/09	Hom	3/4"			No	15.35	95.36	82.04	20.0
JS-42, 37.5'-39.0'	1983	5/15/09	Hom	3/8"			No	20.79	105.39	87.59	26.6
JS-42, 39.0'-40.5'	1984	5/15/09	Hom	No. 4			No	21.04	96.72	80.88	26.5
JS-42, 40.5'-42.0'	1985	5/15/09	Hom	No. 4			No	20.77	112.03	93.99	24.6
JS-42, 42.0'-43.5'	1986	5/15/09	Hom	3/8"			No	22.84	131.38	116.81	15.5
JS-42, 43.5'-45.0'	1987	5/15/09	Hom	1 1/2"			No	20.86	115.42	99.35	20.5
JS-42, 45.0'-46.5'	1988	5/15/09	Hom	3/8"			No	21.33	112.50	89.35	34.0
JS-42, 46.5'-48.0'	1989	5/15/09	Hom	3/8"			No	22.28	119.41	98.97	26.7
JS-42, 48.0'-49.5'	1990	5/15/09	Hom	3/8"			No	22.19	100.59	89.81	15.9
JS-50, 0.0'-1.5'	1992	5/15/09	Len	3/8"			No	45.36	286.99	244.13	21.6
JS-50, 1.5'-3.0'	1993	5/15/09	Hom	No. 10			Yes	43.97	295.88	255.88	18.9
JS-50, 3.0'-4.5'	1994	5/15/09	Len	3/8"			No	43.72	364.73	315.86	18.0
JS-50, 4.5'-6.0'	1995	5/15/09	Hom	No. 10			Yes	43.72	294.28	245.19	24.4
JS-50, 6.0'-7.5'	1996	5/15/09	Hom	3/8"			No	48.57	301.72	259.24	20.2
JS-50, 7.5'-9.0'	1997	5/15/09	Hom	3/8"			No	43.71	272.12	239.83	16.5
JS-50, 9.0'-10.5'	1998	5/15/09	Hom	3/8"			No	44.71	285.63	247.28	18.9
JS-50, 10.5'-12.0'	1999	5/15/09	Hom	No. 4			Yes	43.84	260.77	230.58	16.2
JS-50, 12.0'-13.5'	2000	5/15/09	Hom	No. 4			Yes	29.44	308.90	261.30	20.5
JS-50, 13.5'-15.0'	2001	5/15/09	Hom	No. 4			Yes	43.65	308.04	263.95	20.0
JS-50, 15.0'-16.5'	2002	5/15/09	Hom	No. 4			Yes	45.83	302.40	258.44	20.7



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-50, 16.5'-18.0'	2003	5/15/09	Hom	No. 4			Yes	44.52	279.55	238.88	20.9
JS-50, 18.0'-19.5'	2004	5/15/09	Hom	No. 10			Yes	44.68	310.24	263.15	21.6
JS-50, 19.5'-21.0'	2005	5/15/09	Hom	No. 4			Yes	28.12	216.85	183.96	21.1
JS-50, 21.0'-22.5'	2006	5/15/09	Hom	No. 4			Yes	47.57	324.88	282.27	18.2
JS-50, 22.5'-24.0'	2007	5/15/09	Hom	3/4"			No	49.44	319.12	278.77	17.6
JS-50, 24.0'-25.5'	2008	5/15/09	Len	3/8"			No	44.14	345.20	296.53	19.3
JS-50, 25.5'-27.0'	2009	5/15/09	Hom	3/8"			No	44.35	318.20	272.51	20.0
JS-50, 27.0'-28.5'	2010	5/15/09	Hom	No. 4			Yes	47.34	308.25	259.69	22.9
JS-50, 28.5'-30.0'	2011	5/15/09	Str	3/8"			No	44.13	325.89	277.47	20.8
JS-50, 30.0'-31.5'	2012	5/15/09	Hom	No. 10			Yes	43.68	339.74	292.73	18.9
JS-50, 31.5'-33.0'	2013	5/15/09	Hom	3/8"			No	43.58	278.85	238.34	20.8
JS-50, 33.0'-34.5'	2014	5/15/09	Hom	No. 4			Yes	44.34	267.50	230.02	20.2
JS-50, 34.5'-36.0'	2015	5/15/09	Hom					43.77	332.07	275.50	24.4
JS-50, 36.0'-37.5'	2016	5/15/09	Hom	No. 10			Yes	40.22	235.98	200.07	22.5
JS-50, 37.5'-39.0'	2017	5/15/09	Hom	No. 10			Yes	43.90	310.93	262.37	22.2
JS-50, 39.0'-40.5'	2018	5/15/09	Hom	No. 10			Yes	48.57	298.17	249.75	24.1
JS-50, 40.5'-42.0'	2019	5/15/09	Hom	No. 10			Yes	72.77	362.86	306.50	24.1
JS-50, 42.0'-43.5'	2020	5/15/09	Hom	No. 4			Yes	43.72	294.63	253.53	19.6
JS-50, 43.5'-45.0'	2021	5/15/09	Hom	3/8"			No	43.97	320.55	272.47	21.0
JS-50, 45.0'-46.5'	2022	5/15/09	Hom	3/8"			No	44.49	317.90	265.09	23.9
JS-50, 46.5'-48.0'	2023	5/15/09	Len	1 1/2"			No	41.13	289.76	244.89	22.0
JS-50, 48.0'-49.5'	2024	5/15/09	Len	No. 4			Yes	48.32	373.41	305.36	26.5
JS-50, 49.5'-51.0'	2025	5/15/09	Hom	3/4"			No	44.51	330.32	266.58	28.7
JS-50, 51.0'-52.5'	2026	5/15/09	Hom	1 1/2"			No	44.21	334.16	272.99	26.7
JS-50, 52.5'-54.0'	2027	5/15/09	Hom	No. 10			Yes	40.79	256.27	199.64	35.6
JS-50, 54.0'-54.2'	2028	5/15/09	Hom	1 1/2"			No	43.66	387.86	303.53	32.5
JS-50, 55.5'-57.0'	2029	5/15/09	Hom	3/4"			No	46.53	318.32	249.23	34.1
JS-50, 57.0'-58.5'	2030	5/15/09	Len	3/8"			No	44.37	382.52	314.19	25.3
JS-50, 58.5'-60.0'	2031	5/15/09	Hom	1 1/2"			No	38.89	291.14	252.30	18.2
JS-50, 60.0'-61.5'	2032	5/15/09	Hom	3/8"			No	38.73	347.82	297.61	19.4



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-50, 61.5'-63.0'	2033	5/15/09	Hom	3/4"			No	43.48	378.71	337.12	14.2
JS-50, 63.0'-64.5'	2034	5/15/09	Hom	1 1/2"			No	47.08	358.40	316.86	15.4
JS-50, 64.5'-66.0'	2035	5/15/09	Hom	1 1/2"			No	44.30	313.96	265.93	21.7
JS-50, 66..0'-66.3'	2036	5/15/09	Hom	No. 4			Yes	43.32	189.78	171.67	14.1
JS-56, 0.0'-1.5'	2038	5/15/09	Len	3/8"			No	43.48	221.96	192.60	19.7
JS-56, 1.5'-3.0'	2039	5/15/09	Hom	No. 10			Yes	43.62	270.91	240.02	15.7
JS-56, 3.0'-4.5'	2040	5/15/09	Hom	No. 10			Yes	39.83	209.50	189.42	13.4
JS-56, 4.5'-6.0'	2041	5/15/09	Hom	No. 10			Yes	44.26	285.09	250.45	16.8
JS-56, 6.0'-7.5'	2042	5/15/09	Hom	No. 10			Yes	43.84	274.27	240.73	17.0
JS-56, 7.5'-9.0'	2043	5/15/09	Hom	No. 10			Yes	45.53	298.91	263.26	16.4
JS-56, 9.0'-10.5'	2044	5/15/09	Hom	No. 10			Yes	43.66	287.28	256.09	14.7
JS-56, 10.5'-12.0'	2045	5/15/09	Hom	No. 10			Yes	44.83	290.96	258.55	15.2
JS-56, 12.0'-13.5'	2046	5/15/09	Hom	No. 10			Yes	46.48	308.31	270.90	16.7
JS-56, 13.5'-15.0'	2047	5/15/09	Hom	No. 10			Yes	44.23	309.98	272.81	16.3
JS-56, 15.0'-16.5'	2048	5/15/09	Hom	No. 10			Yes	44.22	292.47	254.20	18.2
JS-56, 16.5'-18.0'	2049	5/15/09	Hom	No. 10			Yes	43.60	294.60	255.75	18.3
JS-56, 18.0'-19.5'	2050	5/15/09	Hom	3/8"			No	47.12	267.05	234.86	17.1
JS-56, 19.5'-21.0'	2051	5/15/09	Hom	No. 10			Yes	44.09	283.84	251.61	15.5
JS-56, 21.0'-22.5' No Sample	2052	5/15/09									
JS-56, 22.5'-24.0'	2053	5/15/09	Hom	No. 10			Yes	44.60	290.14	255.32	16.5
JS-56, 24.0'-25.5'	2054	5/15/09	Hom	No. 10			Yes	48.39	293.75	255.77	18.3
JS-56, 25.5'-27.0'	2055	5/15/09	Hom	No. 10			Yes	49.23	279.14	243.12	18.6
JS-56, 27.0'-28.5'	2056	5/15/09	Hom	No. 10			Yes	43.61	234.12	204.29	18.6
JS-56, 28.5'-30.0'	2057	5/15/09	Hom	No. 10			Yes	44.62	270.19	229.65	21.9
JS-56, 30.0'-31.5'	2058	5/15/09	Hom	No. 10			Yes	46.84	293.54	247.74	22.8
JS-56, 31.5'-33.0'	2059	5/15/09	Hom	No. 10			Yes	43.53	323.54	270.53	23.4
JS-56, 33.0'-34.5'	2060	5/15/09	Hom	No. 10			Yes	48.34	299.31	251.82	23.3
JS-56, 34.5'-36.0'	2061	5/15/09	Hom	No. 10			Yes	46.59	351.52	290.85	24.8
JS-56, 36.0'-37.5'	2062	5/15/09	Hom	No. 10			Yes	43.70	356.62	288.51	27.8
JS-56, 37.5'-39.0'	2063	5/15/09	Hom	No. 10			Yes	47.56	317.24	264.02	24.6



Moisture Content of Soil
AASHTO T 265

Project Name JSF Phase 2 - Ash Disposal Area

Project Number 171468118

Tested By _____

Test Method COE

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-56, 39.0'-40.5'	2064	5/15/09	Hom	No. 10			Yes	43.77	287.85	239.23	24.9
JS-56, 40.5'-42.0'	2065	5/15/09	Hom	No. 10			Yes	43.92	345.99	281.80	27.0
JS-56, 42.0'-43.5'	2066	5/15/09	Hom	No. 10			Yes	49.38	358.21	292.60	27.0
JS-56, 43.5'-45.0'	2067	5/15/09	Hom	No. 10			Yes	39.45	349.65	281.95	27.9
JS-56, 45.0'-46.5'	2068	5/15/09	Hom	No. 10			Yes	44.00	326.00	265.85	27.1
JS-56, 46.5'-48.0'	2069	5/15/09	Hom	No. 10			Yes	44.95	369.66	301.66	26.5
JS-56, 48.0'-49.5'	2070	5/15/09	Hom	No. 10			Yes	44.53	327.17	271.51	24.5
JS-56, 49.5'-51.0'	2071	5/15/09	Hom	No. 10			Yes	43.53	378.06	309.81	25.6
JS-56, 51.0'-52.5'	2072	5/15/09	Hom	3/4"			No	43.19	355.58	321.39	12.3
JS-56, 52.5'-54.0'	2073	5/15/09	Hom	1 1/2"			No	46.22	378.93	344.56	11.5
JS-56, 54.0'-54.2'	2074	5/15/09	Hom	1 1/2"			No	49.48	397.86	364.46	10.6
JS-56, 55.5'-57.0'	2075	5/15/09	Hom	1 1/2"			No	43.81	346.49	317.46	10.6
JS-56, 57.0'-58.0'	2076	5/15/09	Hom	1 1/2"			No	44.75	346.93	314.05	12.2



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-60A, 0.0'-1.5'	1021	10/12/09	Hom	3/8"			No	21.10	85.12	74.22	20.5
JS-60A, 1.5'-3.0'	1022	10/12/09	Hom	No. 10			Yes	26.25	116.58	103.66	16.7
JS-60A, 3.0'-4.5'	1023	10/12/09	Hom	No. 10			Yes	21.58	107.72	93.99	19.0
JS-60A, 4.5'-6.0'	1024	10/12/09	Hom	3/8"			No	20.23	104.68	90.84	19.6
JS-60A, 6.0'-7.5'	1025	10/12/09	Hom	No. 10			Yes	21.45	107.68	93.61	19.5
JS-60A, 7.5'-9.0'	1026	10/12/09	Hom	No. 10			Yes	21.68	136.91	117.90	19.8
JS-60A, 9.0'-10.5'	1027	10/12/09	Hom	3/4"			No	20.76	101.90	92.86	12.5
JS-60A, 10.5'-12.0'	1028	10/12/09	Hom	1 1/2"			No	22.14	48.07	45.59	10.6
JS-60A, 12.0'-13.5'	1029	10/12/09	Hom	1 1/2"			No	22.65	99.77	89.28	15.7
JS-60A, 13.5'-15.0'	1030	10/12/09	Hom	3/4"			No	48.89	261.22	230.39	17.0
JS-60A, 15.0'-16.5' No Sample	1031	10/12/09									
JS-60A, 16.5'-18.0'	1032	10/12/09	Hom	No. 10			Yes	43.88	257.86	220.34	21.3
JS-60A, 18.0'-19.5'	1033	10/12/09	Hom	No. 10			Yes	69.30	358.62	310.89	19.8
JS-60A, 19.5'-21.0' No Sample	1034	10/12/09									
JS-60A, 21.0'-22.5'	1035	10/12/09	Hom	No. 10			Yes	70.25	358.07	301.24	24.6
JS-60A, 22.5'-24.0'	1036	10/12/09	Hom	No. 10			Yes	70.50	273.98	235.05	23.7
JS-60A, 24.0'-25.5'	1037	10/12/09	Hom	3/4"			No	71.14	337.69	294.74	19.2
JS-60A, 25.5'-27.0'	1038	10/12/09	Hom	No. 4			Yes	49.77	322.69	272.81	22.4
JS-60A, 27.0'-28.5'	1039	10/12/09	Hom	1 1/2"			No	71.71	332.17	292.25	18.1
JS-61A, 0.0'-1.5'	1040	10/13/09	Hom	3/4"			No	44.94	147.68	131.65	18.5
JS-61A, 1.5'-3.0'	1041	10/13/09	Hom	3/8"			No	43.88	145.60	128.97	19.5
JS-61A, 3.0'-4.5'	1042	10/13/09	Hom	3/8"			No	43.56	199.51	176.60	17.2
JS-61A, 4.5'-6.0'	1043	10/13/09	Hom	3/8"			No	44.35	230.36	200.33	19.3
JS-61A, 6.0'-7.5' (1 of 2)	1044	10/13/09	Hom	1 1/2"			No	44.51	200.49	178.07	16.8
JS-61A, 6.0'-7.5' (2 of 2)	1045	10/13/09	Hom	1 1/2"			No	47.35	174.38	161.82	11.0
JS-61A, 9.0'-10.5'	1046	10/13/09	Hom	1 1/2"			No	48.80	240.00	211.77	17.3
JS-61A, 10.5'-12.0'	1047	10/13/09	Hom	3/4"			No	43.58	203.72	183.35	14.6
JS-61A, 12.0'-13.5'	1048	10/13/09	Hom	No. 10			Yes	44.12	157.69	135.26	24.6



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-61A, 13.5'-15.0'	1049	10/13/09	Hom	No. 10			Yes	44.02	131.04	115.04	22.5
JS-61A, 15.0'-16.5'	1050	10/13/09	Hom	3/4"			No	43.79	249.56	214.40	20.6
JS-61A, 16.5'-18.0'	1051	10/13/09	Hom	No. 10			Yes	43.27	168.65	147.69	20.1
JS-61A, 18.0'-19.5'	1052	10/13/09	Hom	1 1/2"			No	47.26	232.80	205.33	17.4
JS-61A, 19.5'-21.0'	1053	10/13/09	Hom	1 1/2"			No	43.66	147.53	133.45	15.7
JS-61A, 21.0'-22.5'	1054	10/13/09	Hom	3/8"			No	43.99	189.92	167.29	18.4
JS-61A, 22.5'-24.0'	1055	10/13/09	Hom	No. 4			Yes	47.39	215.65	185.96	21.4
JS-61A, 24.0'-25.5'	1056	10/13/09	Hom	3/8"			No	44.29	148.33	127.08	25.7
JS-61A, 25.5'-27.0'	1057	10/13/09	Hom	No. 4			Yes	29.79	156.79	133.88	22.0
JS-61A, 27.0'-28.5'	1058	10/13/09	Hom	1 1/2"			No	49.07	243.62	217.28	15.7
JS-61A, 28.5'-30.0'	1059	10/13/09	Hom	No. 10			Yes	44.44	175.31	147.60	26.9
JS-62A, 0.0'-1.5'	1060	10/13/09	Hom	1 1/2"			No	23.72	95.79	86.86	14.1
JS-62A, 1.5'-3.0'	1061	10/13/09	Hom	3/4"			No	21.97	90.80	82.05	14.6
JS-62A, 3.0'-4.5'	1062	10/13/09	Hom	3/8"			No	20.53	89.54	80.45	15.2
JS-62A, 4.5'-6.0'	1063	10/13/09	Hom	No. 4			No	19.37	77.85	69.08	17.6
JS-62A, 6.0'-7.5'	1064	10/13/09	Hom	3/4"			No	21.61	102.95	89.61	19.6
JS-62A, 7.5'-9.0'	1065	10/13/09	Hom	3/4"			No	19.15	116.92	102.54	17.2
JS-62A, 9.0'-10.5'	1066	10/13/09	Hom	3/4"			No	21.50	115.22	101.73	16.8
JS-62A, 10.5'-12.0'	1067	10/13/09	Hom	3/4"			No	22.18	105.68	90.52	22.2
JS-62A, 12.0'-13.5'	1068	10/13/09	Hom	3/8"			No	19.32	100.18	87.66	18.3
JS-62A, 13.5'-15.0'	1069	10/13/09	Hom	3/4"			No	21.69	106.32	91.69	20.9
JS-62A, 15.0'-16.5'	1070	10/13/09	Hom	3/4"			No	20.24	99.63	88.23	16.8
JS-62A, 16.5'-18.0'	No Sample	1071	10/13/09								
JS-62A, 18.0'-19.5'	1072	10/13/09	Hom	No. 4			No	21.72	114.33	100.07	18.2
JS-62A, 19.5'-21.0'	1073	10/13/09	Hom	3/4"			No	19.61	84.85	74.79	18.2
JS-62A, 21.0'-22.5'	1074	10/13/09	Str	3/8"			No	22.89	109.55	93.62	22.5
JS-62A, 22.5'-24.0'	1075	10/13/09	Hom	No. 10			Yes	21.99	108.12	87.21	32.1
JS-62A, 24.0'-25.5'	1076	10/13/09	Hom	No. 10			Yes	20.41	91.33	73.99	32.4
JS-62A, 25.5'-27.0'	1077	10/13/09	Hom	No. 10			Yes	19.49	89.25	73.11	30.1
JS-62A, 27.0'-28.5'	1078	10/13/09	Hom	No. 4			No	21.80	117.29	100.69	21.0



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-62A, 28.5'-30.0'	1079	10/13/09	Hom	No. 4			No	21.64	100.46	83.44	27.5
JS-62C, 0.0'-1.5'	1080	10/13/09	Hom	3/4"			No	21.88	95.32	84.64	17.0
JS-62C, 1.5'-3.0'	1081	10/13/09	Hom	No. 4			No	21.50	104.21	92.80	16.0
JS-62C, 3.0'-4.5'	1082	10/13/09	Hom	1 1/2"			No	21.97	97.82	87.51	15.7
JS-62C, 4.5'-6.0'	1083	10/13/09	Hom	3/4"			No	21.66	118.74	103.17	19.1
JS-62C, 6.0'-7.5'	1084	10/13/09	Hom	3/4"			No	20.81	97.29	86.21	16.9
JS-62C, 7.5'-9.0'	1085	10/13/09	Hom	No. 4			No	22.02	115.92	99.77	20.8
JS-62C, 9.0'-10.5'	1086	10/13/09	Hom	1 1/2"			No	22.78	116.49	101.13	19.6
JS-62C, 10.5'-12.0'	1087	10/13/09	Hom	3/4"			No	19.01	84.33	74.30	18.1
JS-62C, 12.0'-13.5'	1088	10/13/09	Hom	No. 4			No	21.16	118.94	101.21	22.1
JS-62C, 13.5'-15.0'	1089	10/13/09	Str	No. 10			Yes	21.01	105.27	91.28	19.9
JS-62C, 15.0'-16.5'	1090	10/13/09	Hom	3/4"			No	21.23	121.16	104.30	20.3
JS-62C, 16.5'-18.0'	1091	10/13/09	Hom	No. 10			Yes	22.60	129.39	108.11	24.9
JS-62C, 18.0'-19.5'	1092	10/13/09	Hom	No. 10			Yes	21.91	120.87	100.96	25.2
JS-62C, 19.5'-21.0'	1093	10/13/09	Hom	No. 10			Yes	21.70	96.94	81.57	25.7
JS-62C, 21.0'-22.5'	1094	10/13/09	Hom	No. 10			Yes	21.09	84.33	71.62	25.2
JS-62C, 22.5'-24.0'	1095	10/13/09	Hom	No. 10			Yes	21.83	93.07	75.49	32.8
JS-62C, 24.0'-25.5'	1096	10/13/09	Hom	No. 10			Yes	18.80	81.39	65.83	33.1
JS-62C, 25.5'-27.0'	1097	10/13/09	Hom	No. 10			Yes	21.90	102.09	81.13	35.4
JS-62C, 27.0'-28.5'	1098	10/13/09	Hom	1 1/2"			No	22.83	72.22	62.33	25.0
JS-63A, 0.0'-1.5'	1099	10/13/09	Str	No. 4			No	21.55	99.03	84.36	23.4
JS-63A, 1.5'-3.0'	1100	10/13/09	Hom	No. 10			Yes	21.34	105.89	94.23	16.0
JS-63A, 3.0'-4.5'	1101	10/13/09	Hom	No. 4			No	22.40	80.56	72.01	17.2
JS-63A, 4.5'-6.0'	1102	10/13/09	Hom	No. 10			Yes	22.93	101.32	89.53	17.7
JS-63A, 6.0'-7.5'	1103	10/13/09	Hom	No. 10			Yes	20.98	84.90	74.40	19.7
JS-63A, 7.5'-9.0'	1104	10/13/09	Hom	3/8"			No	18.81	81.84	71.74	19.1
JS-63A, 9.0'-10.5'	1105	10/13/09	Hom	No. 10			Yes	22.44	83.63	74.74	17.0
JS-63A, 10.5'-12.0'	1106	10/13/09	Hom	No. 10			Yes	21.42	93.95	81.21	21.3
JS-63A, 12.0'-13.5'	1107	10/13/09	Hom	3/4"			No	22.61	99.72	87.01	19.7
JS-63A, 13.5'-15.0'	1108	10/13/09	Hom	3/4"			No	22.10	92.61	80.99	19.7



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
JS-63A, 15.0'-16.5'	1109	10/13/09	Hom	3/4"			No	21.46	103.39	90.48	18.7
JS-63A, 16.5'-18.0'	1110	10/13/09	Hom	3/4"			No	21.98	98.84	86.89	18.4
JS-63A, 18.0'-19.5' Used 1 of 2	1111	10/13/09	Hom	3/4"			No	21.44	105.42	90.27	22.0
JS-63A, 19.5'-21.0'	1112	10/13/09	Hom	1 1/2"			No	29.60	87.63	80.41	14.2
JS-63A, 21.0'-22.5'	1113	10/13/09	Hom	1 1/2"			No	22.29	66.67	59.70	18.6
JS-63A, 22.5'-24.0' No Sample	1114	10/13/09									
JS-63A, 24.0'-25.5' No Sample	1115	10/13/09									
JS-63A, 25.5'-27.0' Used 1 of 2	1116	10/13/09	Hom	3/4"			No	20.59	82.46	70.41	24.2
JS-64, 0.0'-1.5'	1117	10/13/09	Hom	No. 10			Yes	22.35	101.67	89.41	18.3
JS-64, 1.5'-3.0'	1118	10/13/09	Hom	No. 4			No	21.02	83.78	74.44	17.5
JS-64, 3.0'-4.5'	1119	10/13/09	Hom	3/4"			No	19.01	85.32	74.08	20.4
JS-64, 4.5'-6.0'	1120	10/13/09	Hom	3/4"			No	23.91	110.61	96.49	19.5
JS-64, 6.0'-7.5' Used 1 of 2 and 2 of 2	1121	10/13/09	Hom	3/8"			No	22.99	118.47	102.07	20.7
JS-64, 7.5'-9.0'	1122	10/13/09	Hom	3/4"			No	19.19	97.22	84.25	19.9
JS-64, 9.0'-10.5' Uses 1 of 2 and 2 of 2	1123	10/13/09	Hom	3/4"			No	21.86	116.00	99.71	20.9
JS-64, 10.5'-12.0'	1124	10/13/09	Hom	No. 10			Yes	20.65	87.93	73.89	26.4
JS-64, 12.0'-13.5'	1125	10/13/09	Hom	No. 10			Yes	19.77	100.80	83.74	26.7
JS-64, 13.5'-15.0'	1126	10/13/09	Hom	No. 10			Yes	18.76	102.45	84.19	27.9
JS-64, 15.0'-16.5'	1127	10/13/09	Hom	No. 10			Yes	21.68	110.74	88.61	33.1
JS-64, 16.5'-18.0'	1128	10/13/09	Hom	No. 10			Yes	21.10	85.98	70.15	32.3
JS-64, 18.0'-19.5'	1129	10/13/09	Hom	No. 10			Yes	23.16	85.28	67.76	39.3
JS-64, 19.5'-21.0' 1 of 2 same	1130	10/13/09	Hom	1 1/2"			No	18.96	80.81	72.54	15.4
JS-64, 21.0'-22.5' Used 2 of 2	1131	10/13/09	Hom	1 1/2"			No	21.46	66.30	57.36	24.9
JS-65A, 0.0'-1.5'	1132	10/13/09	Hom	No. 10			Yes	22.73	96.77	87.70	14.0
JS-65A, 1.5'-3.0'	1133	10/13/09	Hom	No. 10			Yes	21.52	92.98	82.60	17.0
JS-65A, 3.0'-4.5'	1134	10/13/09	Hom	3/4"			No	22.61	92.10	82.35	16.3
JS-65A, 4.5'-6.0'	1135	10/13/09	Hom	3/4"			No	21.46	97.37	84.39	20.6
JS-65A, 6.0'-7.5' 1 of 2 same	1136	10/13/09	Hom	3/4"			No	21.44	102.41	90.26	17.7
JS-65A, 7.5'-9.0' Used 2 of 2	1137	10/13/09	Hom	No. 10			Yes	22.40	110.88	98.91	15.6
JS-65A, 9.0'-10.5' 1 of 2 same	1138	10/13/09	Hom	3/4"			No	44.08	221.92	192.12	20.1



Moisture Content of Soil
ASTM D 2216

Project Name John Siever Fossil Plant

Project Number 175569038

Tested By _____

Test Method ASTM

Maximum Particle Size in Sample	No. 10	No. 4	3/8"	3/4"	1 1/2"	3"
Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Material Excluded Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
JS-65A, 10.5'-12.0' Used 2 of 2	1139	10/13/09	Hom	1 1/2"			No	43.99	237.29	205.93	19.4
JS-65A, 12.0'-13.5'	1140	10/13/09	Hom	1 1/2"			No	47.00	231.44	209.03	13.8
JS-65A, 13.5'-15.0'	1141	10/13/09	Hom	1 1/2"			No	44.34	243.57	214.49	17.1
JS-65A, 15.0'-16.5'	1142	10/13/09	Hom	3/4"			No	50.09	252.33	220.71	18.5
JS-65A, 16.5'-18.0'	1143	10/13/09	Hom	3/8"			No	47.32	244.54	211.82	19.9
JS-65A, 18.0'-19.5' Mixed 1of 2 and 2 of 2	1144	10/13/09	Hom	3/4"			No	44.33	308.58	261.54	21.7
JS-65A, 19.5'-21.0' Mixed 1of 2 and 2 of 2	1145	10/13/09	Hom	3/4"			No	45.45	316.04	268.91	21.1
JS-65A, 21.0'-22.5'	1146	10/13/09	Hom	No. 10			Yes	46.52	265.33	218.93	26.9
JS-65A, 22.5'-24.0'	1147	10/13/09	Hom	No. 10			Yes	21.59	116.07	96.62	25.9
JS-65A, 24.0'-25.5'	1148	10/13/09	Hom	3/8"			No	21.39	111.42	92.87	26.0
JS-65A, 25.5'-27.0'	1149	10/13/09	Hom	No. 10			Yes	22.10	104.79	88.03	25.4
JS-65A, 27.0'-28.5'	1150	10/13/09	Hom	No. 10			Yes	21.60	104.41	88.69	23.4
JS-65A, 30.5'-32.0'	1151	10/13/09	Hom	No. 10			Yes	23.11	111.79	92.88	27.1
JS-65A, 32.0'-33.5'	1152	10/13/09	Hom	No. 10			Yes	19.35	88.54	74.61	25.2
JS-65A, 33.5'-35.0'	1153	10/13/09	Hom	3/4"			No	18.98	65.28	57.73	19.5
JS-65A, 35.0'-36.5' Used 1 of 2	1154	10/13/09	Hom	No. 10			Yes	19.61	98.47	81.31	27.8



Moisture-Density Data Sheet

Project: John Siever Fossil Plant

Project No.: 175569038

Source: JS-12, 28.5'-46.5'

Sample No.: 351

Sample Description: Lean Clay with Sand (CL), brown

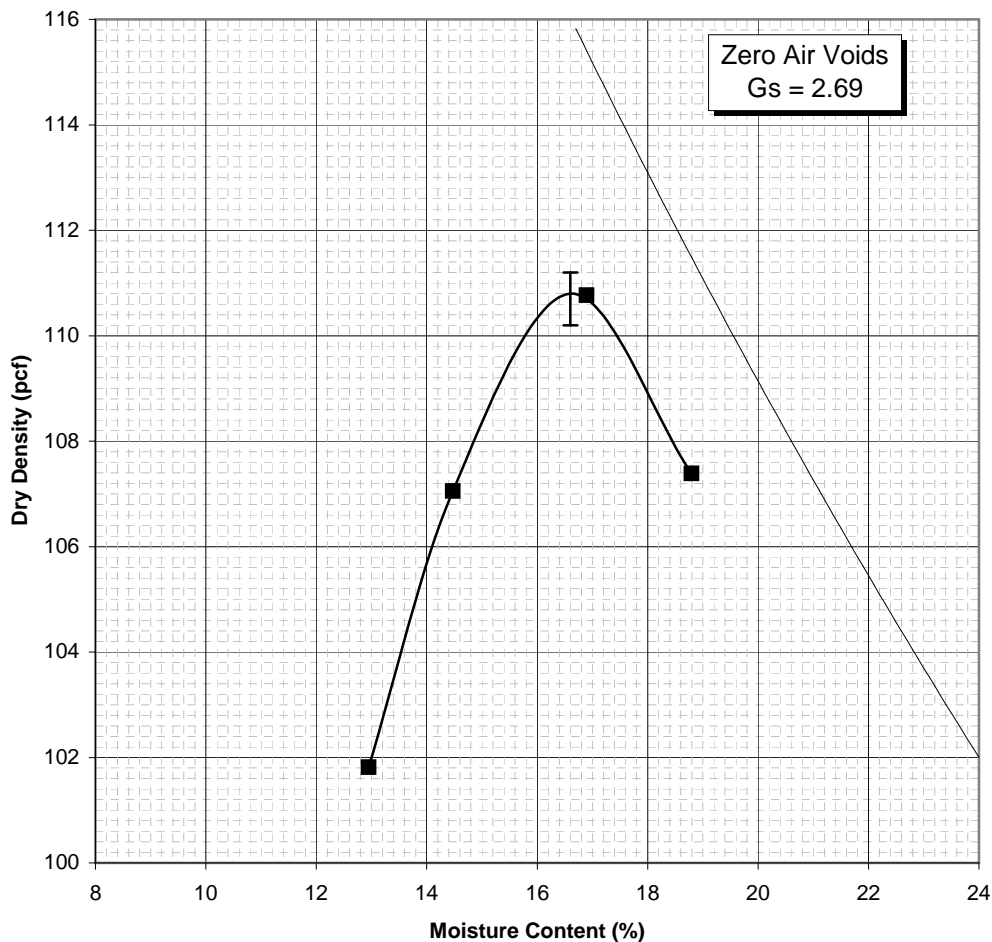
Visual Notes:

Test Method: ASTM D 698 - Method A

Prepared: Moist Oversized Fraction: < 5 % Rammer: Mechanical

Gs - Fines: ASTM D 854

Mold Weight 4215 grams		Moisture Determination				
Wet Weight plus Mold (grams)	Wet Weight minus Mold (grams)	Wet Soil and Can Weight (grams)	Dry Soil and Can Weight (grams)	Can Weight (grams)	Water Content (%)	Dry Density (pcf)
5952	1737	672.75	603.83	71.66	13.0	101.8
6066	1851	583.63	518.49	68.42	14.5	107.1
6171	1956	537.99	470.23	69.14	16.9	110.8
6142	1927	664.56	570.66	71.05	18.8	107.4



Maximum Dry Density 110.7 PCF
Optimum Moisture Content 16.6 %



Moisture-Density Data Sheet

Project: John Sevier Fossil Plant

Project No.: 171468118

Source: JS-36B, 18.0'-27.0'

Sample No.: 1752

Sample Description: Sandy Lean Clay (CL), brown, moist

Visual Notes:

Test Method: ASTM D 698 - Method A

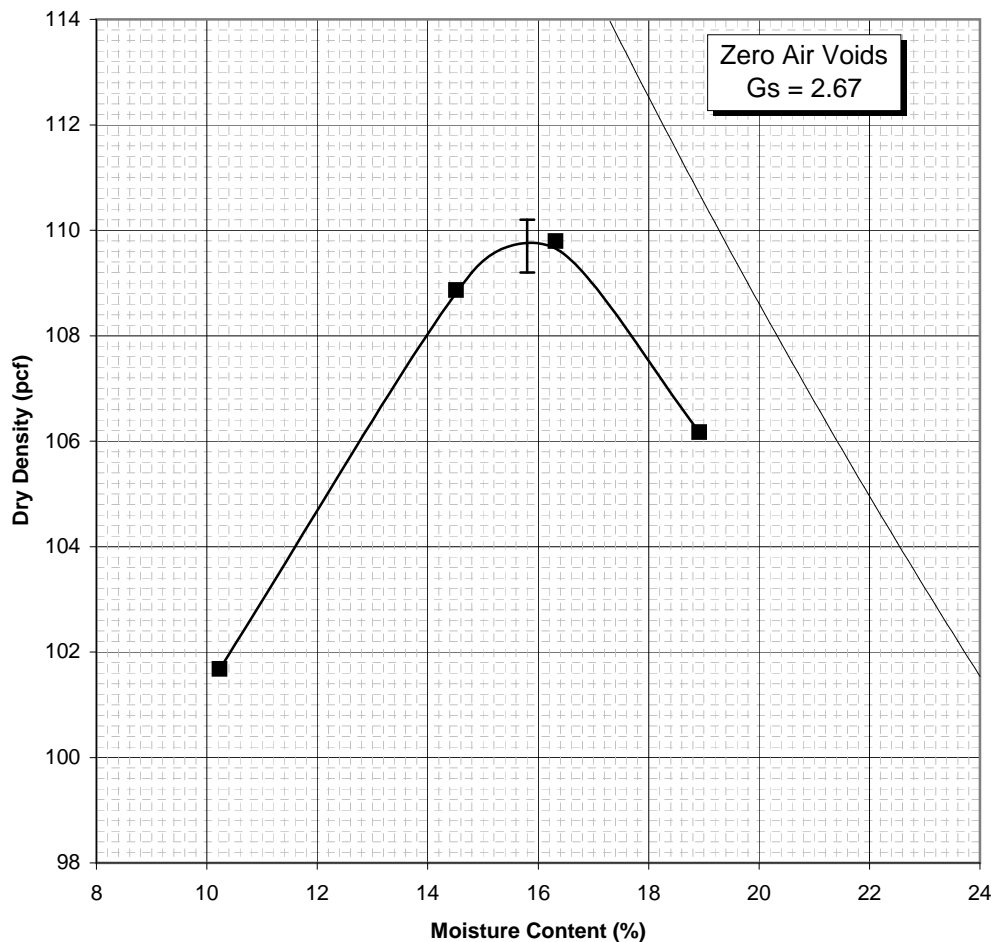
Prepared: Moist

Oversized Fraction: < 5 %

Rammer: Mechanical

Gs - Fines: ASTM D 854

Mold Weight 4215 grams		Moisture Determination				
Wet Weight plus Mold (grams)	Wet Weight minus Mold (grams)	Wet Soil and Can Weight (grams)	Dry Soil and Can Weight (grams)	Can Weight (grams)	Water Content (%)	Dry Density (pcf)
6098	1883	296.97	264.84	43.48	14.5	108.9
6144	1929	298.33	262.62	43.79	16.3	109.8
6122	1907	331.90	286.14	44.27	18.9	106.2
5908	1693	255.49	235.83	43.70	10.2	101.7



Maximum Dry Density 109.7 PCF
Optimum Moisture Content 15.8 %



Moisture-Density Data Sheet

Project: John Siever Fossil Plant

Project No.: 175569038

Source: JS-49, 12.0'-18.0'

Sample No.: 1

Sample Description: Silt (ML), black, moist

Visual Notes:

Test Method: ASTM D 698 - Method A

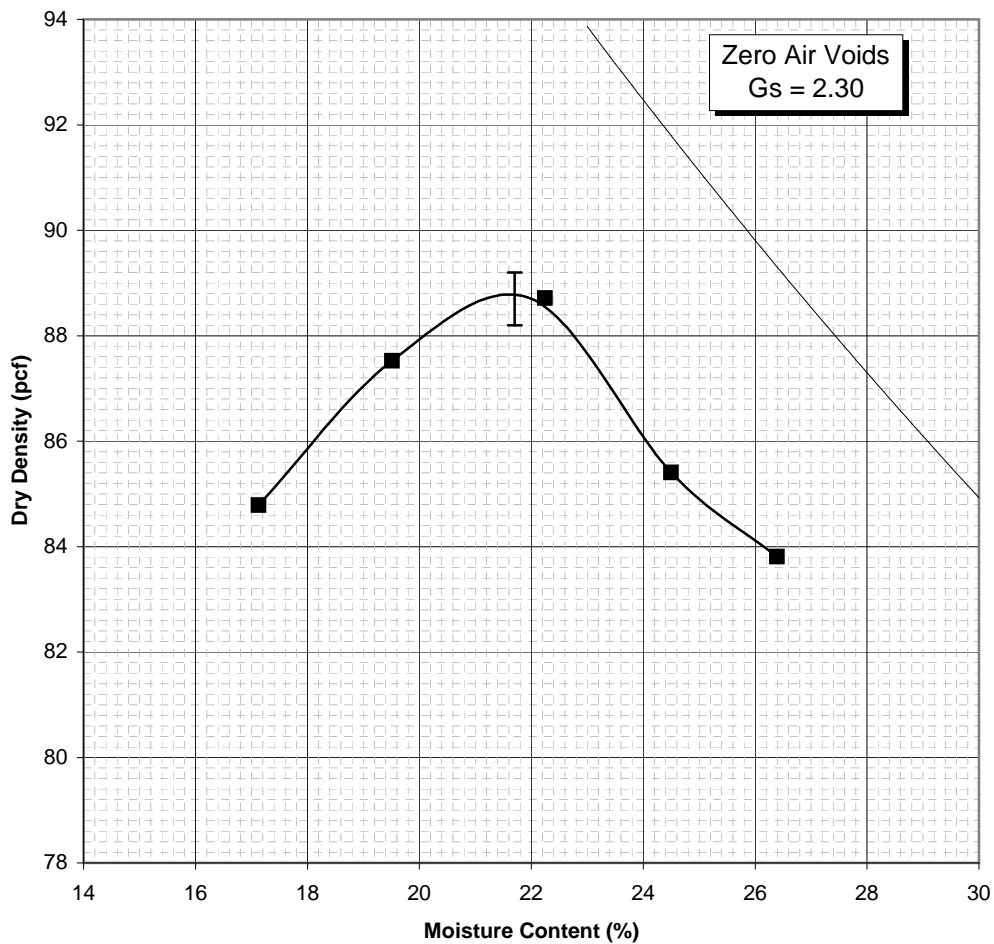
Prepared: Moist

Oversized Fraction: < 5 %

Rammer: Mechanical

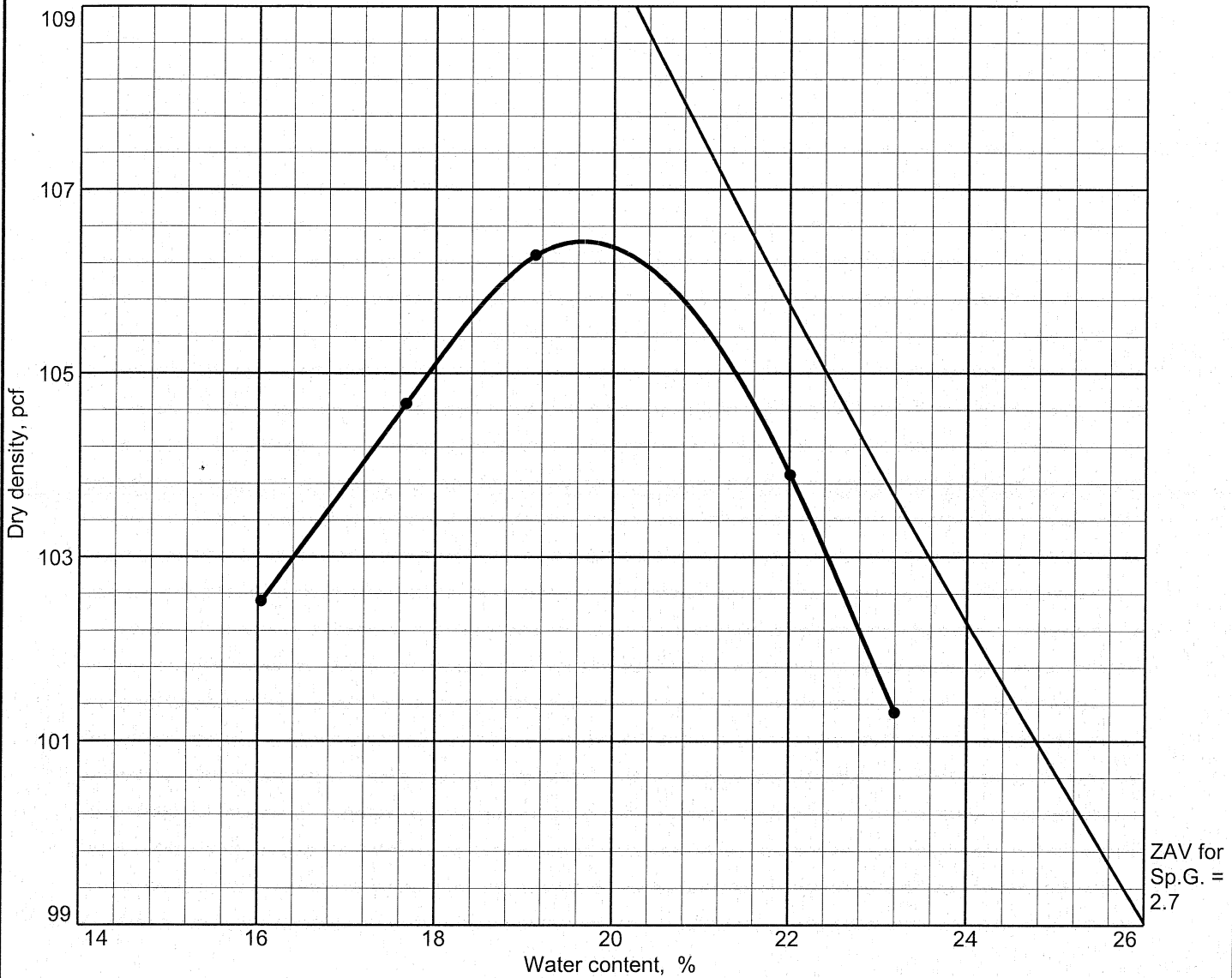
Gs - Fines: Assumed

Mold Weight 4215 grams		Moisture Determination				
Wet Weight plus Mold (grams)	Wet Weight minus Mold (grams)	Wet Soil and Can Weight (grams)	Dry Soil and Can Weight (grams)	Can Weight (grams)	Water Content (%)	Dry Density (pcf)
5821	1606	239.70	201.69	46.54	24.5	85.4
5815	1600	264.38	218.26	43.50	26.4	83.8
5715	1500	228.39	202.15	48.95	17.1	84.8
5853	1638	226.03	192.91	44.02	22.2	88.7
5795	1580	276.32	238.36	43.83	19.5	87.5



Maximum Dry Density 88.7 PCF
Optimum Moisture Content 21.7 %

COMPACTION TEST REPORT

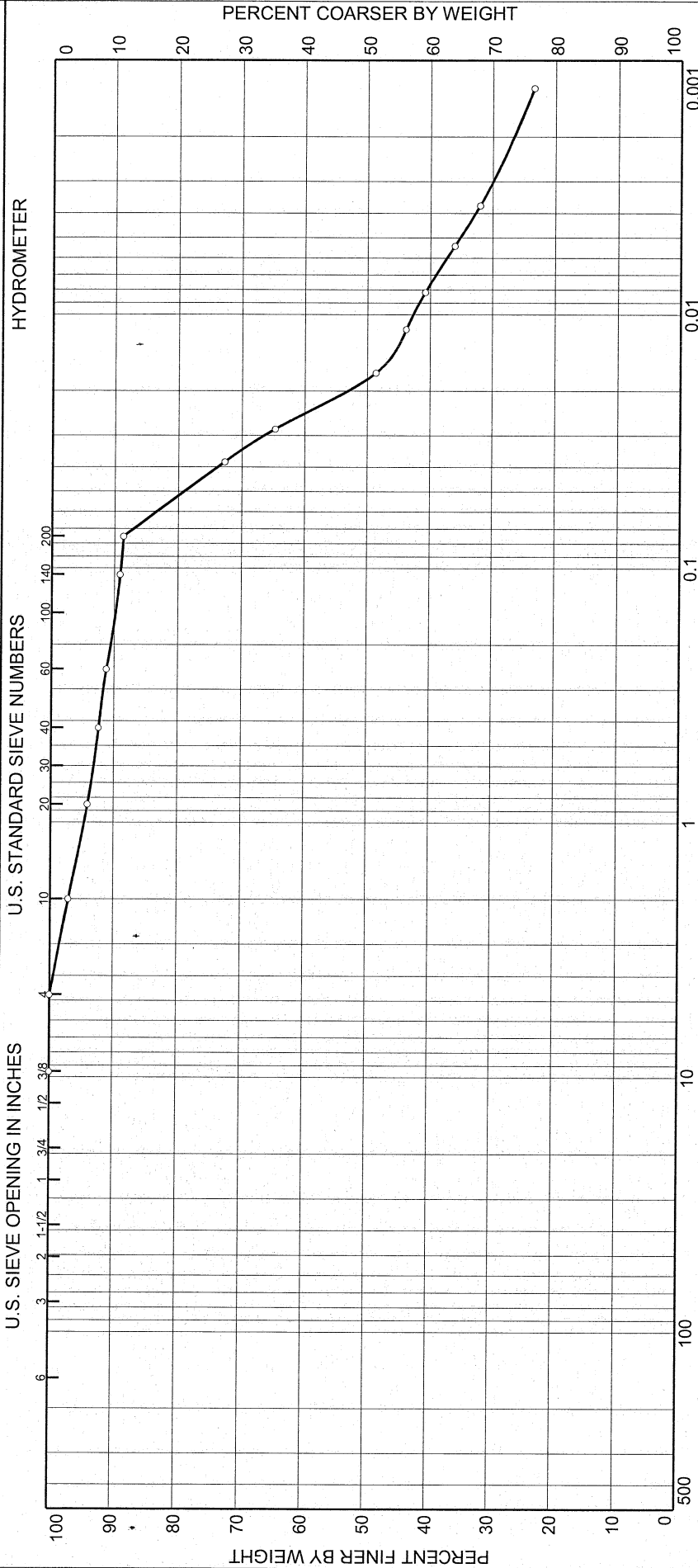


Test specification: ASTM D 698-78 Method A Standard

Elev/Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
Fill	CL	A-7-6(25)		2.7	47	26	0.0	88.6

TEST RESULTS		MATERIAL DESCRIPTION
Maximum dry density = 106.4 pcf Optimum moisture = 19.7 %		Brown lean clay
Project No. GTX-1490 Client: STANTEC Project: John Sevier Source: Sample No.: BA-Soil 1 Elev./Depth: Fill		Remarks:
COMPACTION TEST REPORT GeoTesting Express Inc.		Lab no.

Particle Size Distribution Report ASTM D422



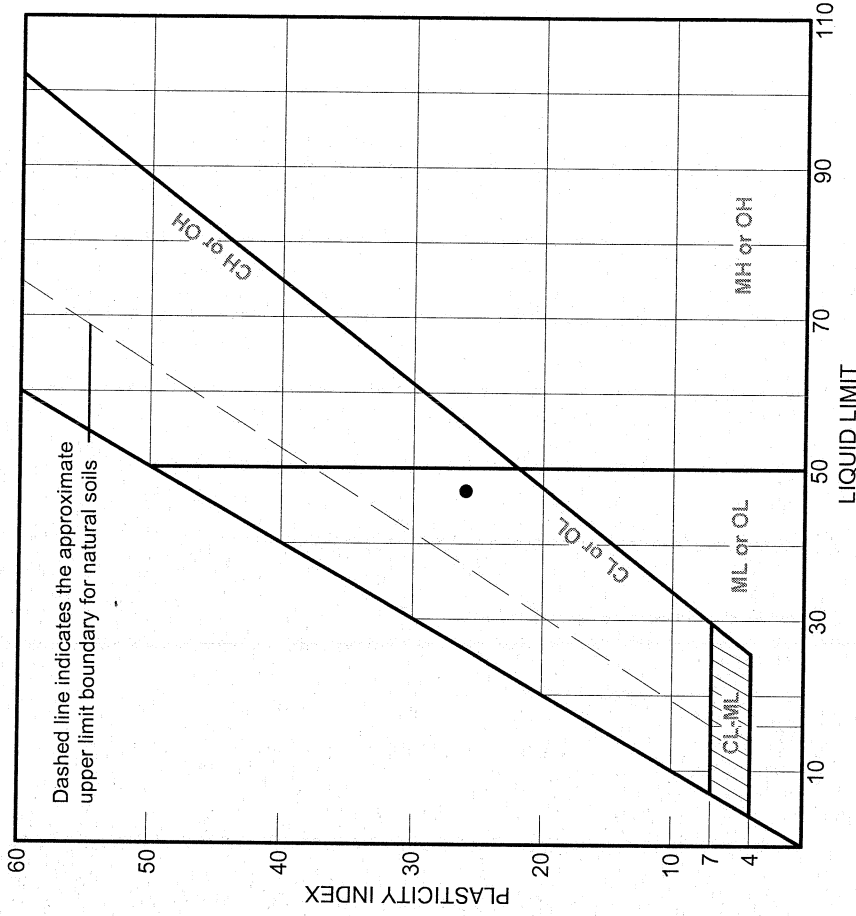
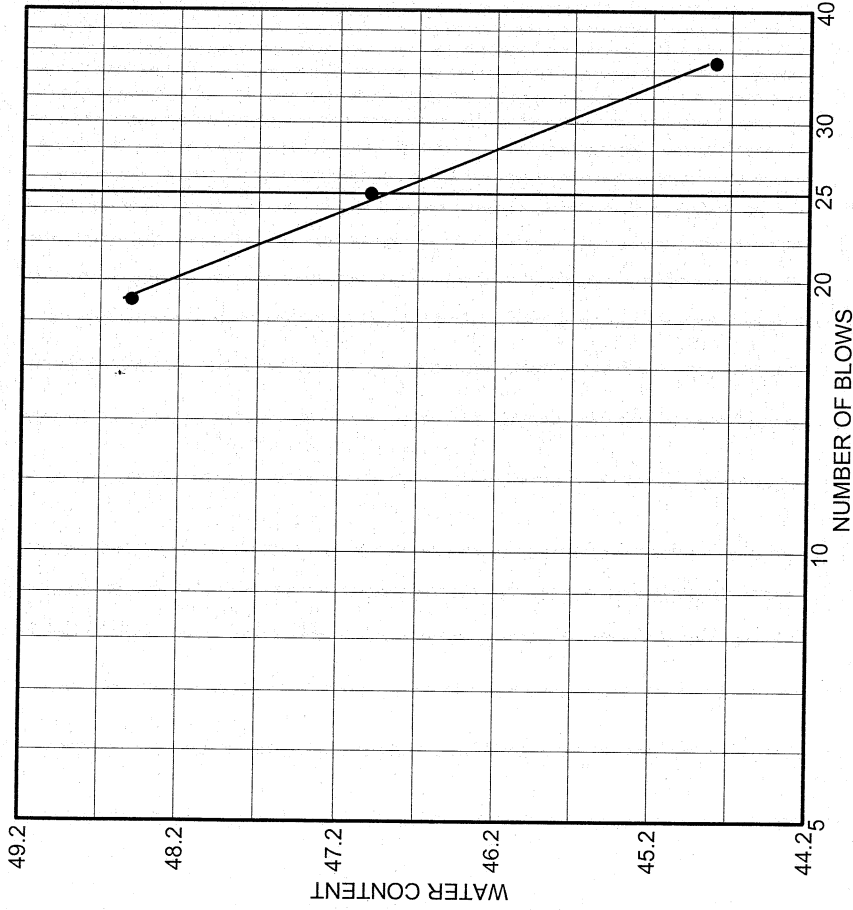
% COBBLES	0.0	% GRAVEL	0.0	% SAND	11.4	% SILT	53.5	% CLAY	35.1
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SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION
	BA-Soil 1	Fill	9/29/09	CL	Brown lean clay

Client STANTEC	
Project John Sevier	
Project No. GTX-1490	Lab no.

GeoTesting Express Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
●	BA-Soil 1	Fill	9/29/09	CL	Brown lean clay		47	26

Client STANTEC
Project John Sevier

**GeoTesting
Express Inc.**

Lab no.

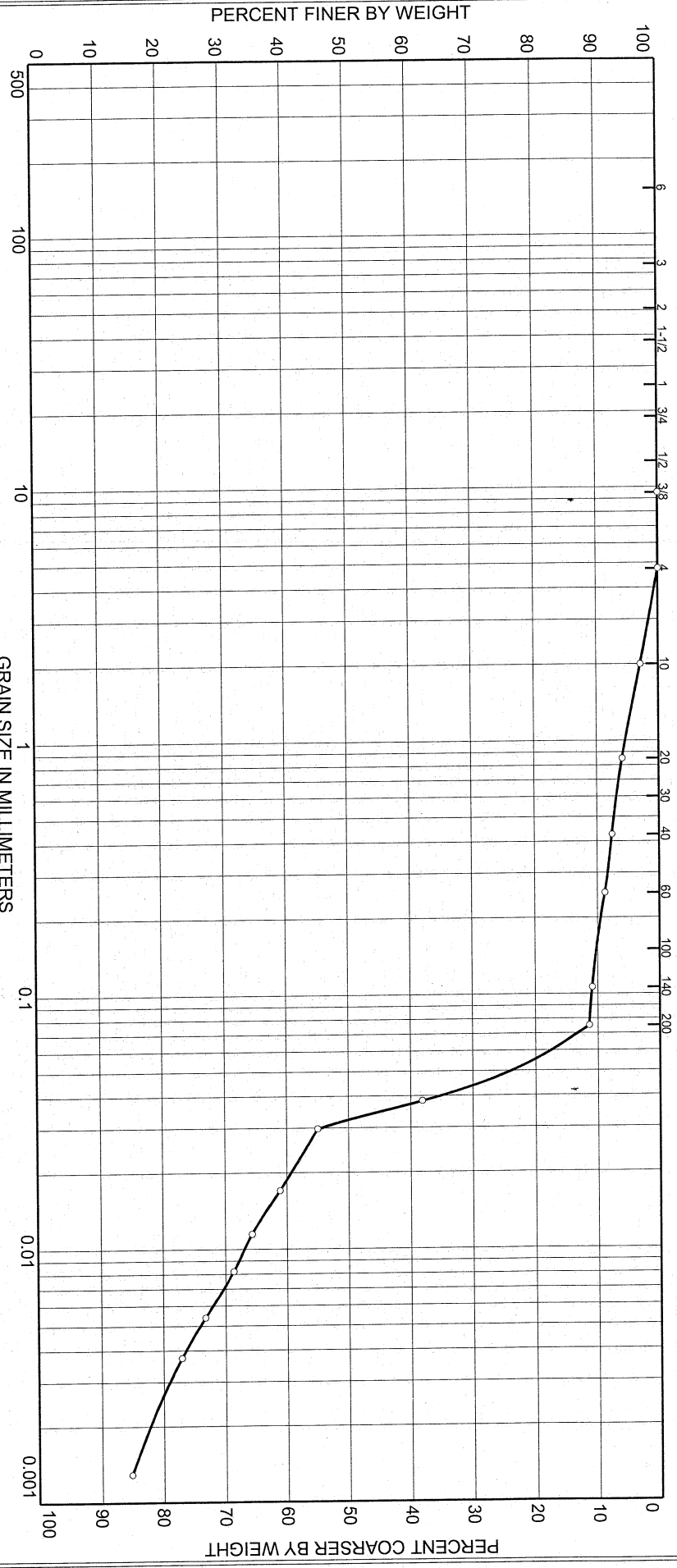
Project No. GTX-1490

Particle Size Distribution Report ASTM D422

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	11.4	62.7	25.9

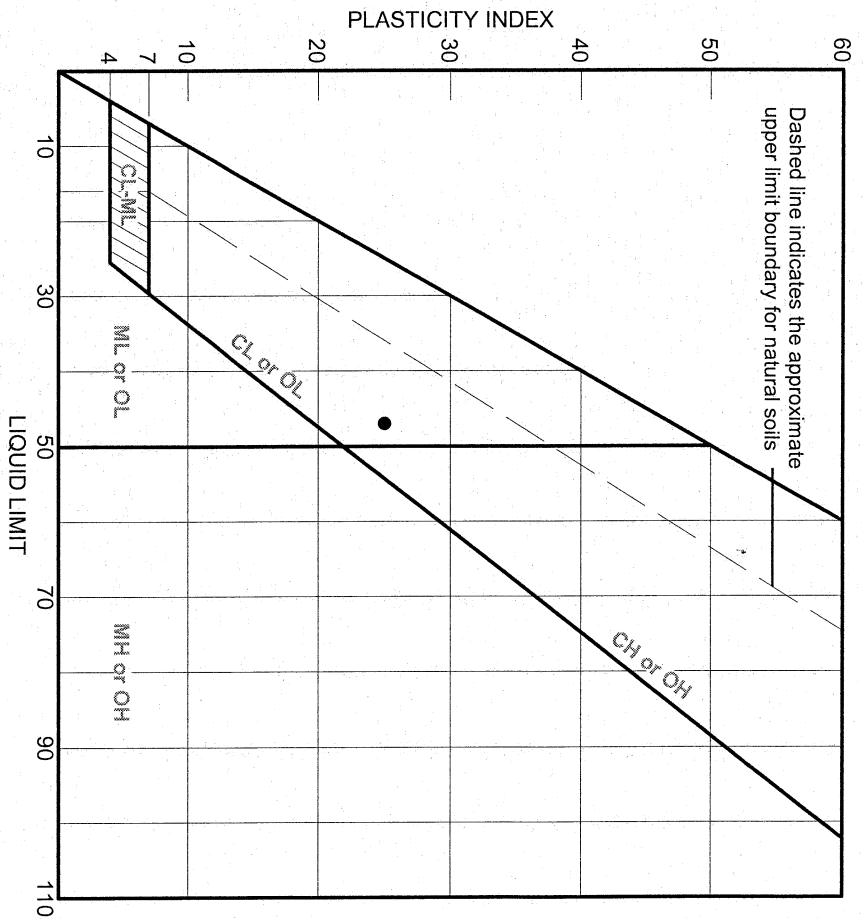
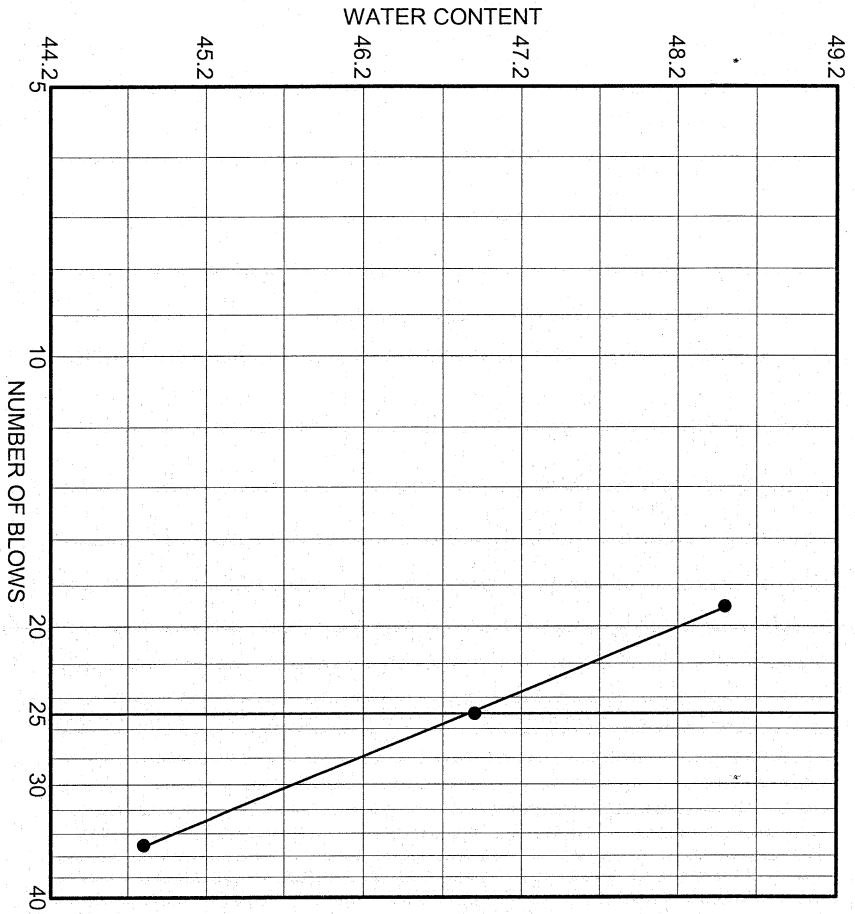
SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	BA Soil 2	Native	9/30/09	CL	Brown lean clay		47	22

Client STANTEC
Project John Sevier

Project No. GTX-1490 Lab no.

GeoTesting Express Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
	BA Soil 2	Native	9/30/09	CL	Brown lean clay		47	25

Client STANTEC
Project John Sevier

Project No. GTX-1490

Lab no.

Geo Testing
Express Inc.

Geotesting Express Inc.

COMPACTION TEST REPORT

● Source: Sample No.: BA Soil 2 Elev./Depth: Native

Project: John Sevier

Project No. GTX-1490 Client: STANTEC

Remarks:

Optimum moisture = 20.5 %

Maximum dry density = 101.5 pcf

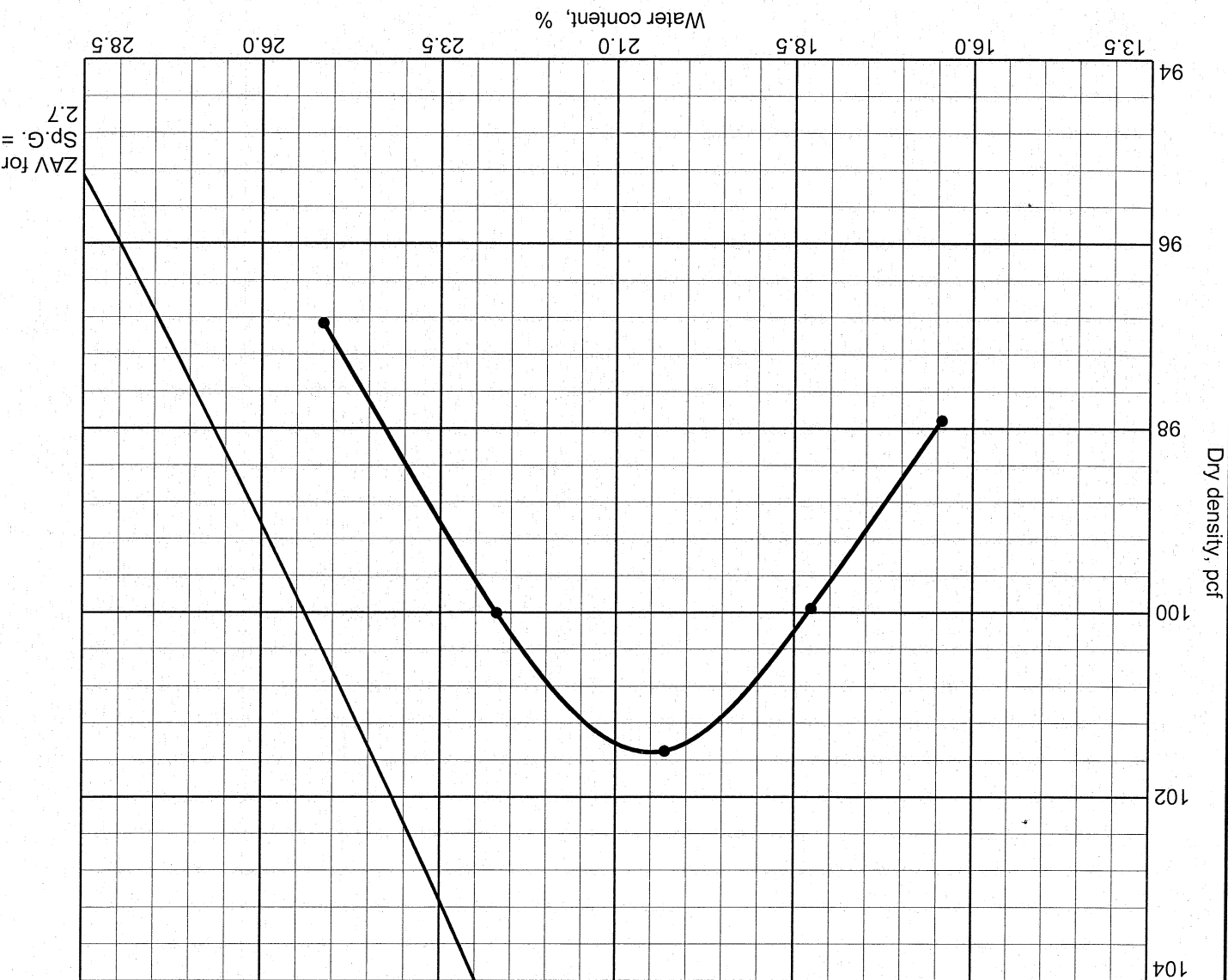
Brown lean clay

MATERIAL DESCRIPTION

TEST RESULTS

Elev/	Depth	Classification		Moist.	Nat.	Sp.G.	LL	PI	No.4	No.200
		USCS	AASHTO							
Native		CL	A-7-6(24)			2.7	47	25	0.0	88.6

Test specification: ASTM D 698-78 Method A Standard



COMPACTION TEST REPORT

Lab no.



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-1, 1.5'-7.5' Lab ID 451
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.7
No. 4	4.75	94.1
No. 10	2	88.5
No. 40	0.425	80.6
No. 200	0.075	69.7
	0.02	56.0
	0.005	37.2
	0.002	26.5
estimated	0.001	21.9

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	5.9	11.5
Coarse Sand	5.6	7.9
Medium Sand	7.9	---
Fine Sand	10.9	10.9
Silt	32.5	43.2
Clay	37.2	26.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 45
 Plastic Limit: 17
 Plasticity Index: 28
 Activity Index: 1.08

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.73

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-7-6 (18)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-1, 1.5'-7.5'

 Project Number 175569038
 Lab ID 451
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: AR
 Test Date: 06-04-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.7
No. 4	94.1
No. 10	88.5

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

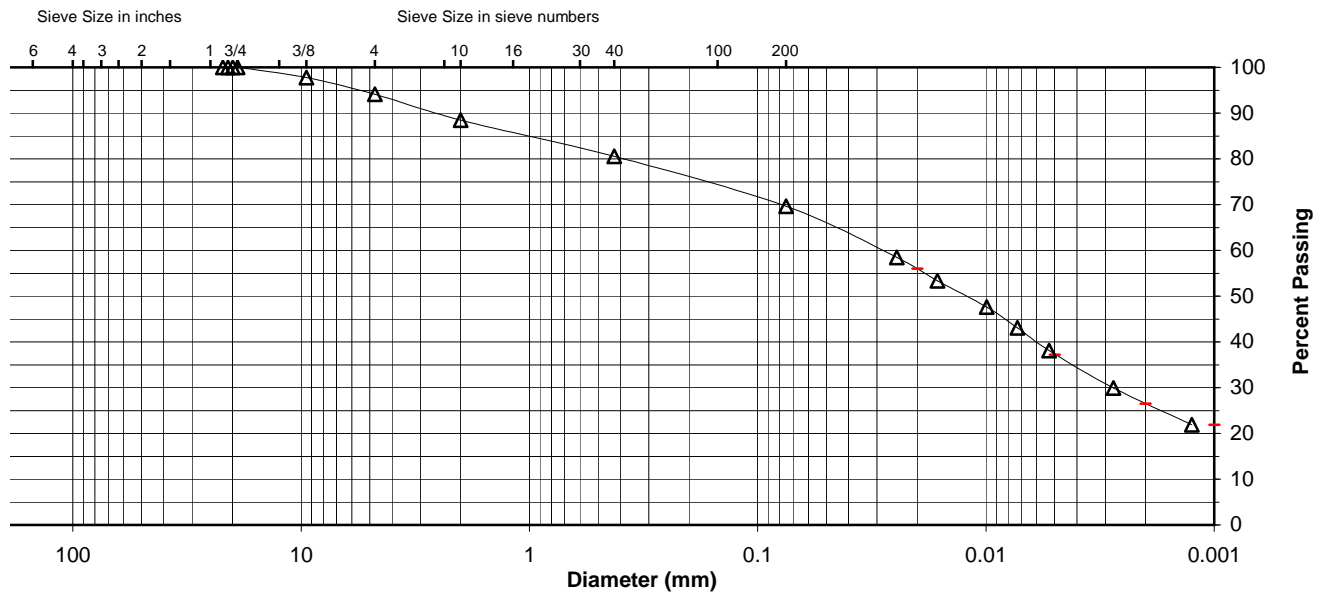
 Specific Gravity 2.73

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	80.6
No. 200	69.7
0.02 mm	56.0
0.005 mm	37.2
0.002 mm	26.5
0.001 mm	21.9

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	5.9	5.6	7.9	10.9	32.5	37.2	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	11.5		7.9		10.9	43.2		26.5



Comments _____

Reviewed By _____

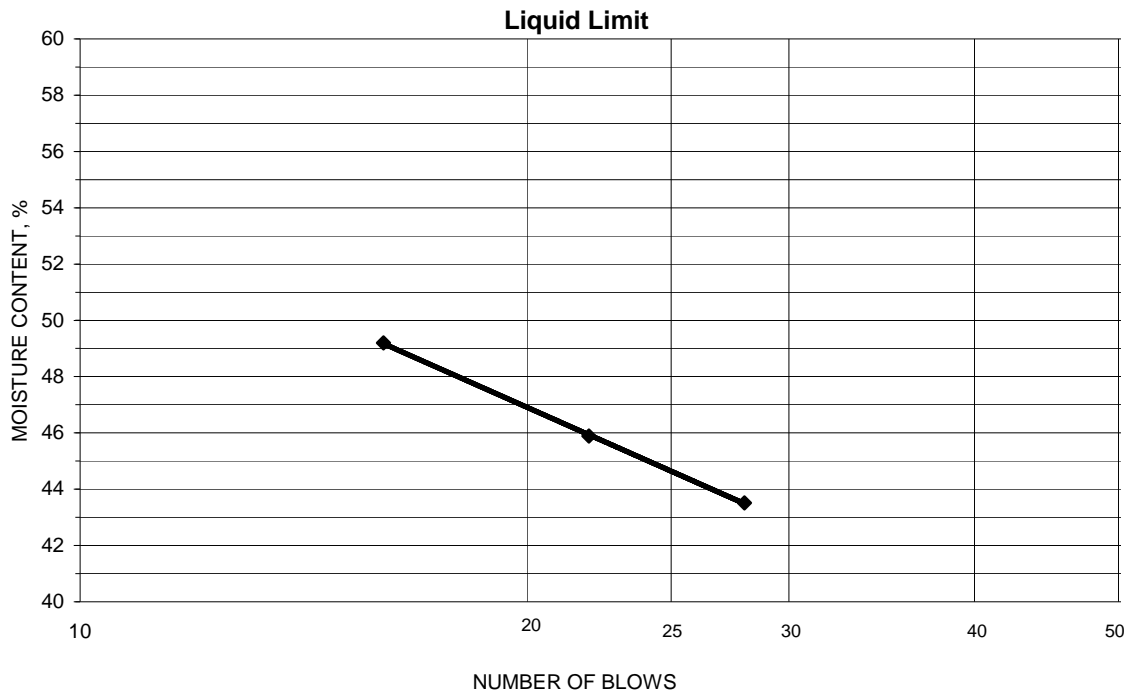


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-1, 1.5'-7.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 451
 % + No. 40 19
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
15.16	11.87	4.31	28	43.5	45
13.56	10.66	4.34	22	45.9	
14.57	11.20	4.35	16	49.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
9.26	8.55	4.36	16.9	17	28
10.73	9.79	4.34	17.2		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-1, 19.5'-28.5' Lab ID 452
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	99.9
No. 40	0.425	98.3
No. 200	0.075	82.1
	0.02	60.7
	0.005	43.7
	0.002	34.9
estimated	0.001	30.2

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.1
Coarse Sand	0.1	1.6
Medium Sand	1.6	---
Fine Sand	16.2	16.2
Silt	38.4	47.2
Clay	43.7	34.9

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 38
 Plastic Limit: 12
 Plasticity Index: 26
 Activity Index: 0.74

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.69

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-6 (20)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-1, 19.5'-28.5'

Project Number 175569038
 Lab ID 452

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: RHB
 Test Date: 06-04-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	99.9

Maximum Particle size: No. 4 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

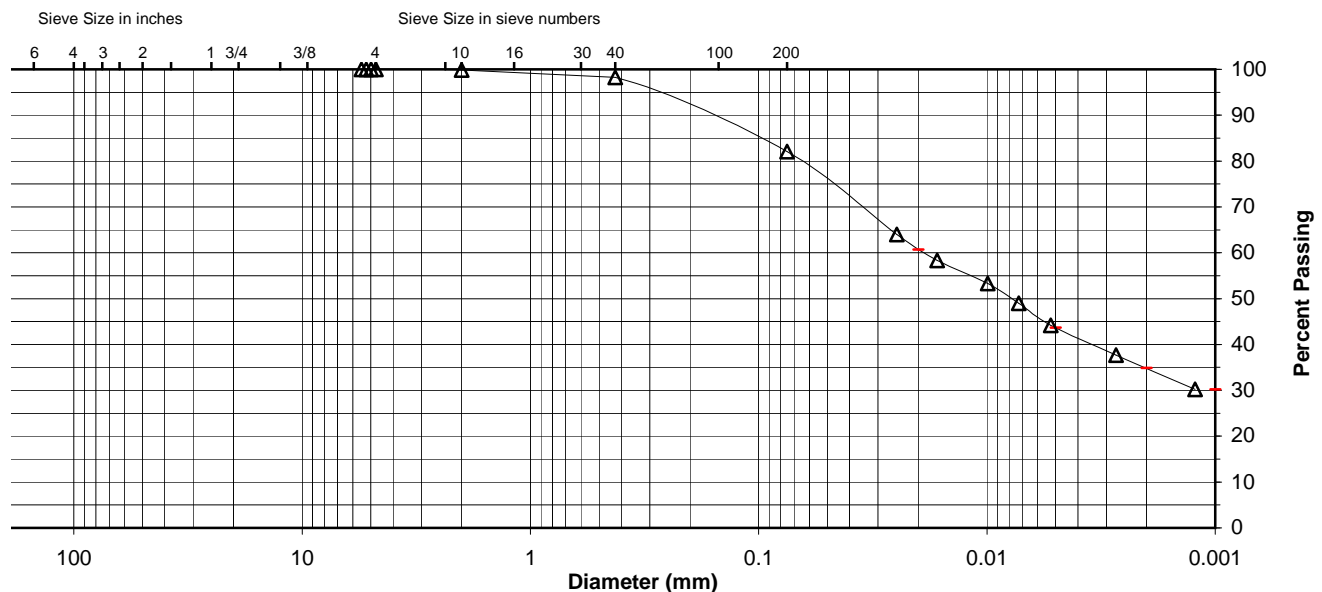
Specific Gravity 2.69

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	98.3
No. 200	82.1
0.02 mm	60.7
0.005 mm	43.7
0.002 mm	34.9
0.001 mm	30.2

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.1	1.6	16.2	38.4	43.7
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	0.1		1.6	16.2	47.2		34.9



Comments _____

Reviewed By _____

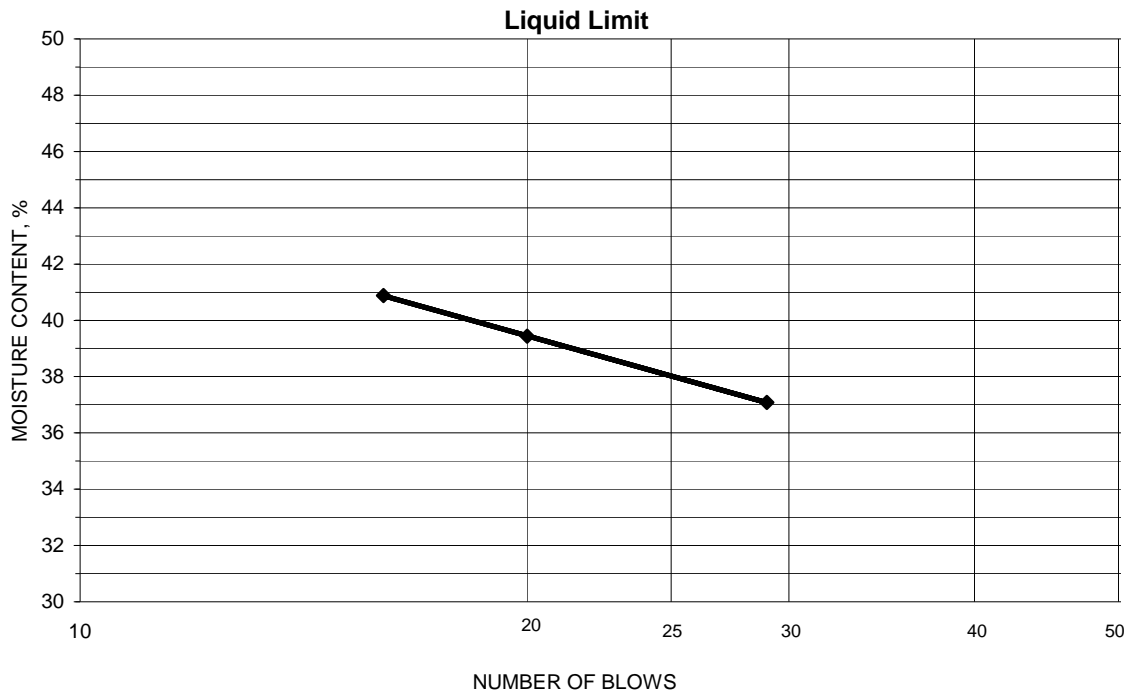


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-1, 19.5'-28.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 452
 % + No. 40 2
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
14.11	11.47	4.35	29	37.1	38
13.24	10.72	4.33	20	39.4	
13.92	11.14	4.34	16	40.9	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
11.38	10.65	4.36	11.6	12	26
9.55	8.96	4.37	12.9		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-2, 0.0'-9.0' Lab ID 26
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.3
No. 4	4.75	95.7
No. 10	2	93.0
No. 40	0.425	81.8
No. 200	0.075	72.4
	0.02	62.8
	0.005	44.2
	0.002	31.5
estimated	0.001	25.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.3	7.0
Coarse Sand	2.7	11.2
Medium Sand	11.2	---
Fine Sand	9.4	9.4
Silt	28.2	40.9
Clay	44.2	31.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 51
 Plastic Limit: 25
 Plasticity Index: 26
 Activity Index: 0.81

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.77

Classification

Unified Group Symbol: CH/CL
 Group Name: Fat clay with sand
 AASHTO Classification: A-7-6 (19)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-2, 0.0'-9.0'

 Project Number 175569038
 Lab ID 26
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.3
No. 4	95.7
No. 10	93.0

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

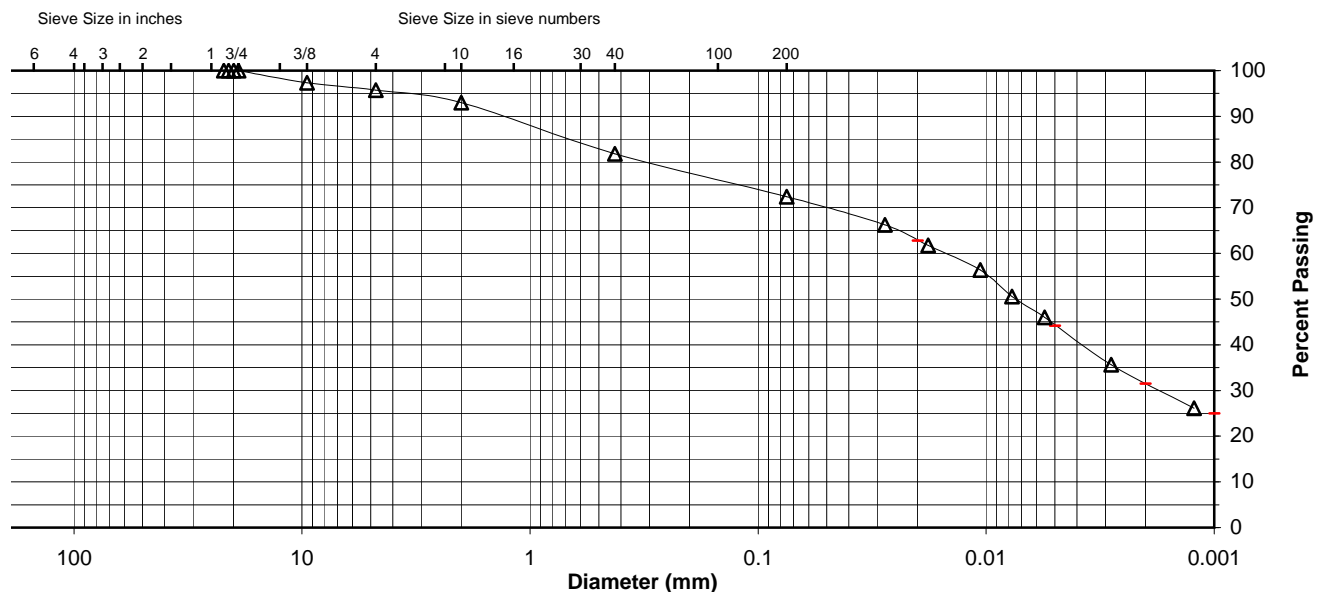
 Specific Gravity 2.77

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	81.8
No. 200	72.4
0.02 mm	62.8
0.005 mm	44.2
0.002 mm	31.5
0.001 mm	25.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	4.3	2.7	11.2	9.4	28.2	44.2
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	7.0		11.2		9.4	40.9	31.5



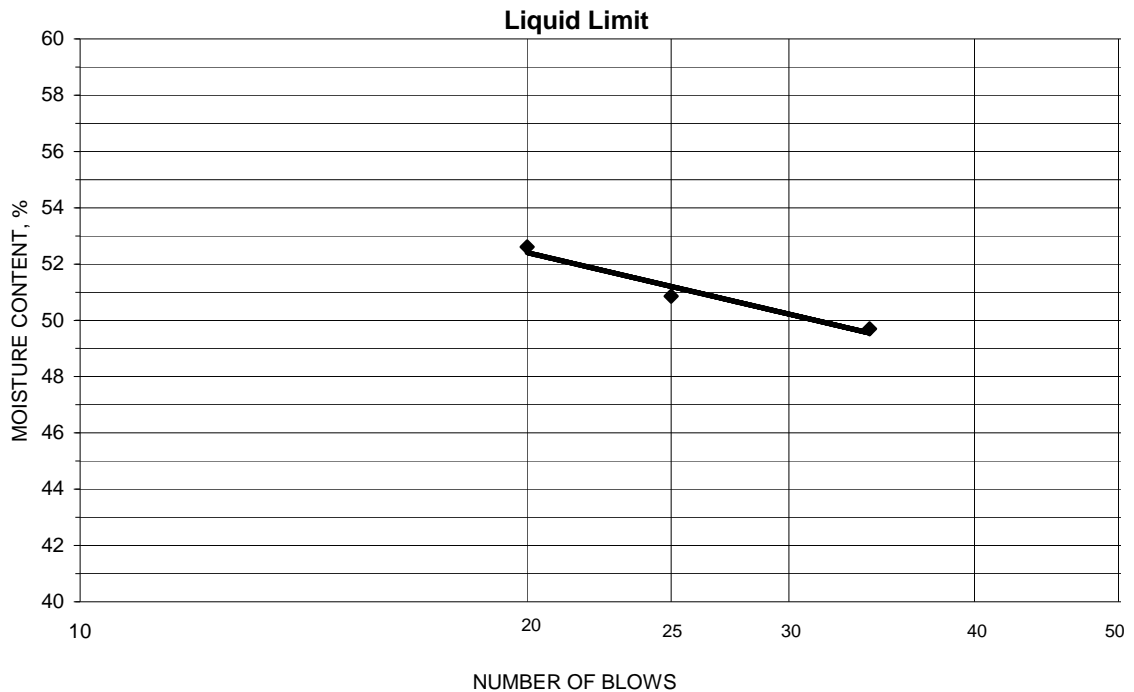
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JP-2, 0.0'-9.0'
 Tested By DRB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 26
 % + No. 40 18
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
21.77	18.24	11.53	20	52.6	51
22.14	18.57	11.55	25	50.9	
21.38	18.12	11.56	34	49.7	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
17.65	16.38	11.40	25.5	25	26
17.93	16.67	11.68	25.3		

Remarks: _____

Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-2, 22.5'-24.0' Lab ID 27
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.4
No. 4	4.75	97.4
No. 10	2	96.7
No. 40	0.425	93.2
No. 200	0.075	78.4
	0.02	64.1
	0.005	46.7
	0.002	37.7
estimated	0.001	33.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.6	3.3
Coarse Sand	0.7	3.5
Medium Sand	3.5	---
Fine Sand	14.8	14.8
Silt	31.7	40.7
Clay	46.7	37.7

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 43
 Plastic Limit: 19
 Plasticity Index: 24
 Activity Index: 0.63

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.70

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-7-6 (18)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-2, 22.5'-24.0'

 Project Number 175569038
 Lab ID 27
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.4
No. 4	97.4
No. 10	96.7

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

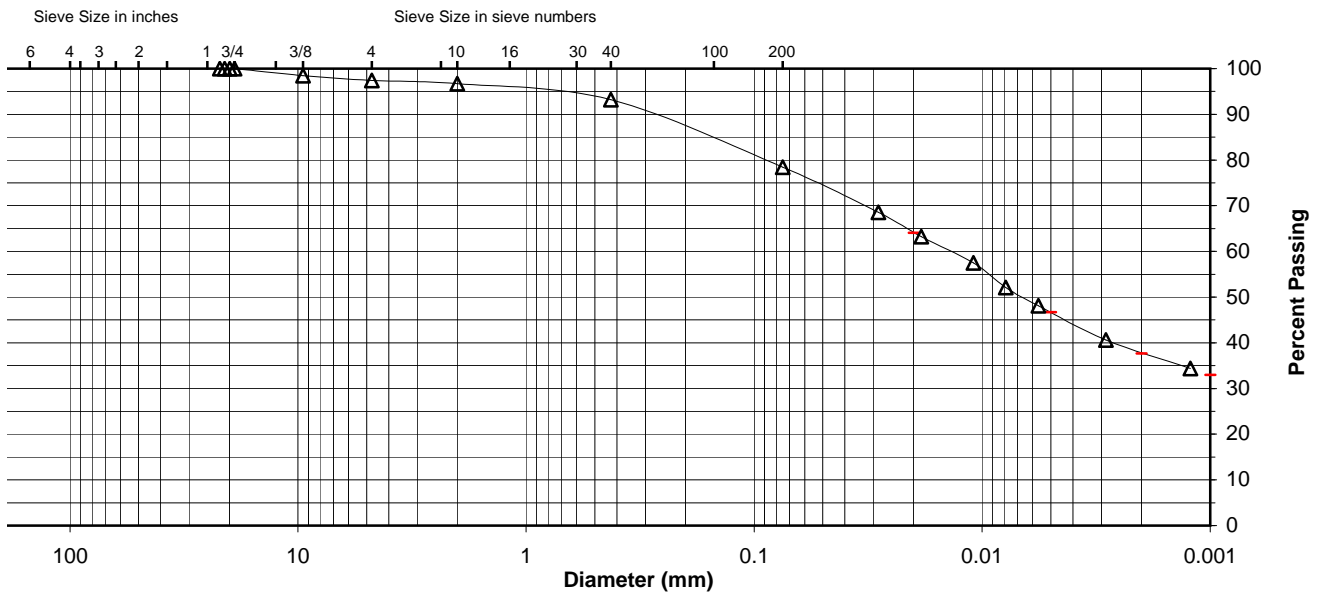
 Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.2
No. 200	78.4
0.02 mm	64.1
0.005 mm	46.7
0.002 mm	37.7
0.001 mm	33.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.6	0.7	3.5	14.8	31.7	46.7
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	3.3			3.5	14.8	40.7	37.7



Comments _____

Reviewed By _____

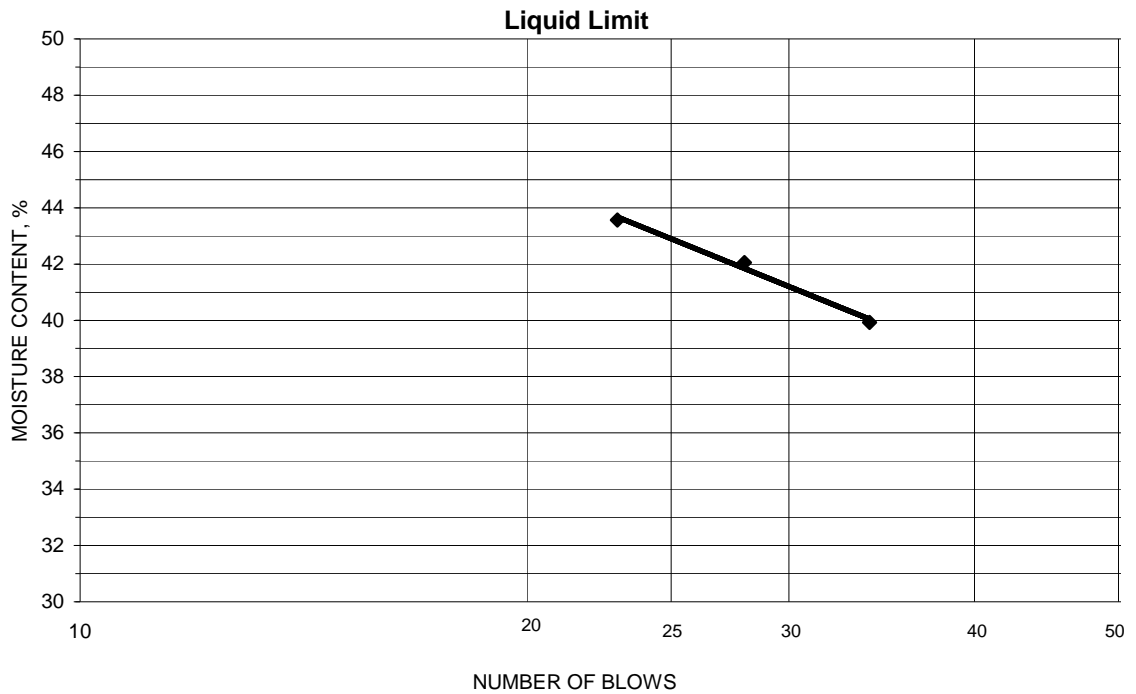


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-2, 22.5'-24.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 27
 % + No. 40 7
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
23.89	20.42	11.73	34	39.9	43
23.69	20.17	11.80	28	42.1	
24.47	20.61	11.75	23	43.6	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.26	20.55	11.67	19.3	19	24
20.89	19.39	11.50	19.0		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-3, 26.5'-30.0' Lab ID 39
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.8
No. 4	4.75	98.2
No. 10	2	96.8
No. 40	0.425	93.3
No. 200	0.075	72.3
	0.02	59.2
	0.005	41.8
	0.002	34.9
estimated	0.001	31.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.8	3.2
Coarse Sand	1.4	3.5
Medium Sand	3.5	---
Fine Sand	21.0	21.0
Silt	30.5	37.4
Clay	41.8	34.9

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 37
 Plastic Limit: 16
 Plasticity Index: 21
 Activity Index: 0.60

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.67

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-6 (13)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-3, 26.5'-30.0'

 Project Number 175569038
 Lab ID 39
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.8
No. 4	98.2
No. 10	96.8

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

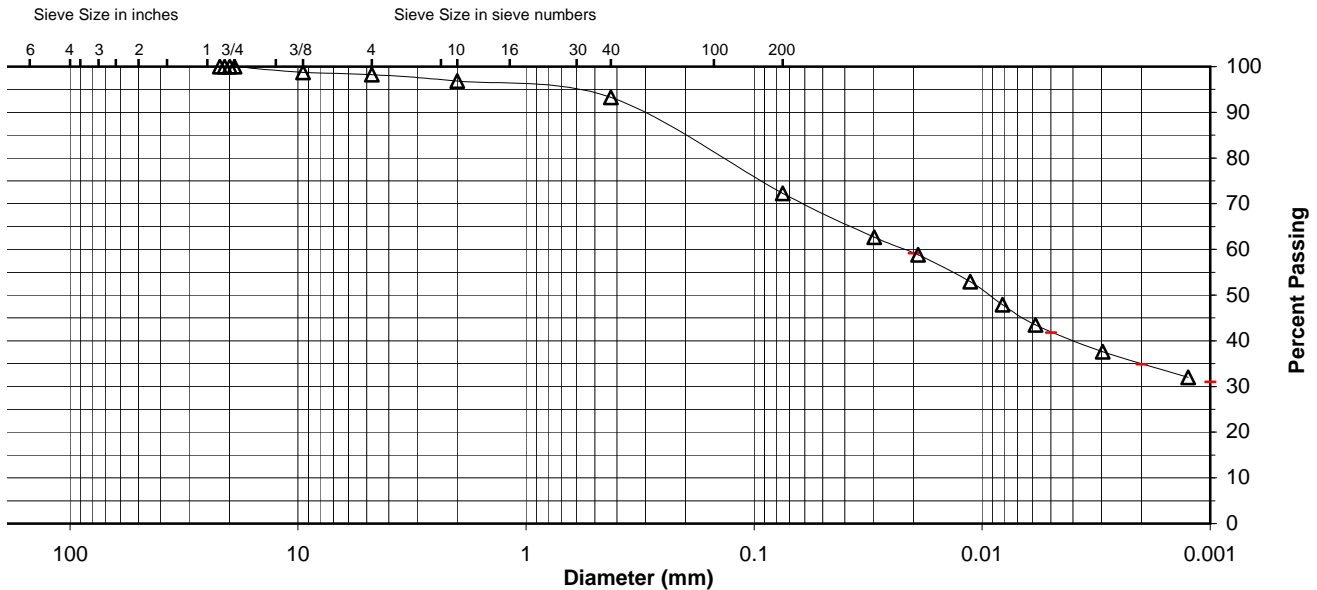
 Specific Gravity 2.67

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.3
No. 200	72.3
0.02 mm	59.2
0.005 mm	41.8
0.002 mm	34.9
0.001 mm	31.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.8	1.4	3.5	21.0	30.5	41.8
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	3.2			3.5	21.0	37.4	34.9



Comments _____

Reviewed By _____

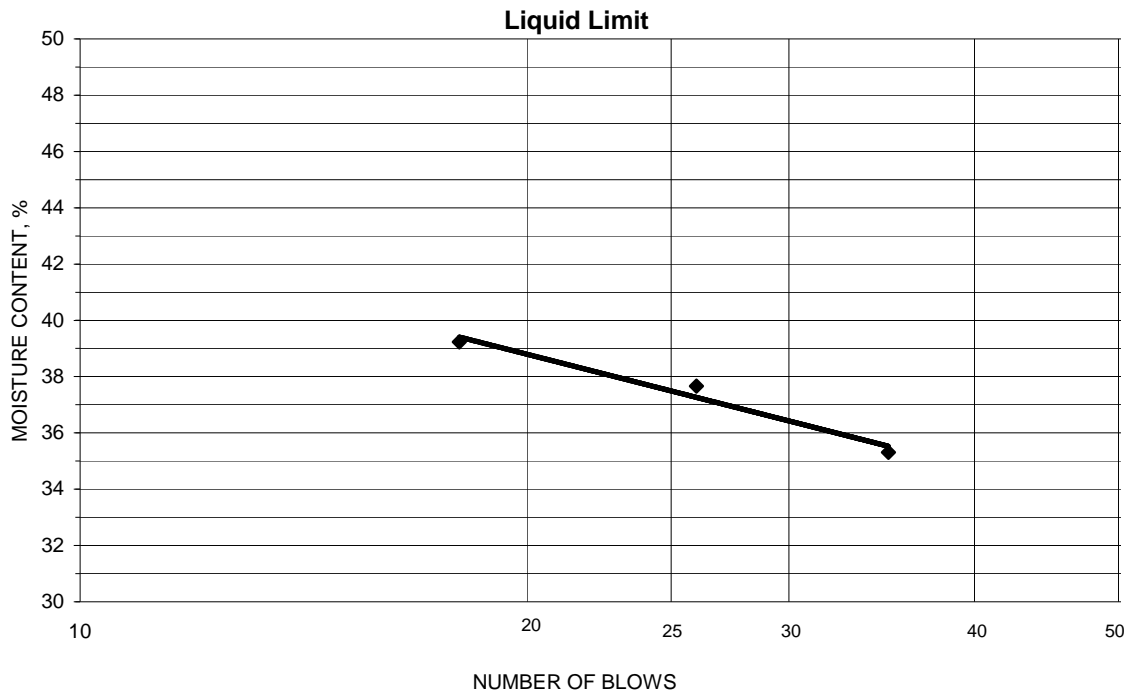


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-3, 26.5'-30.0'
 Tested By DRB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 39
 % + No. 40 7
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
21.38	18.63	11.62	18	39.2	37
21.39	18.75	11.74	26	37.7	
23.51	20.35	11.40	35	35.3	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
19.70	18.59	11.50	15.7	16	21
18.04	17.17	11.67	15.8		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-3, 6.5'-11.5' Lab ID 38
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.2
No. 10	2	98.1
No. 40	0.425	93.9
No. 200	0.075	78.9
	0.02	60.6
	0.005	38.1
	0.002	27.5
estimated	0.001	21.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.8	1.9
Coarse Sand	1.1	4.2
Medium Sand	4.2	---
Fine Sand	15.0	15.0
Silt	40.8	51.4
Clay	38.1	27.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 33
 Plastic Limit: 15
 Plasticity Index: 18
 Activity Index: 0.64

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.70

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-6 (12)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-3, 6.5'-11.5'

Project Number 175569038
 Lab ID 38

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.2
No. 10	98.1

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

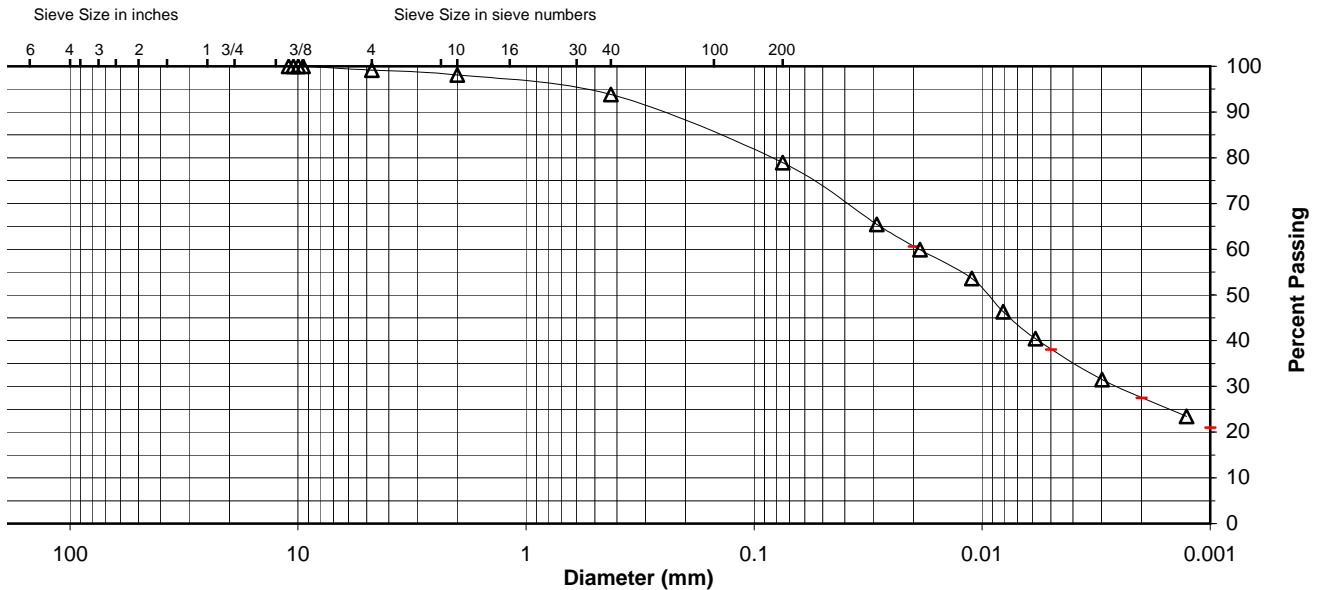
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.9
No. 200	78.9
0.02 mm	60.6
0.005 mm	38.1
0.002 mm	27.5
0.001 mm	21.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.8	1.1	4.2	15.0	40.8	38.1
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	1.9			4.2	15.0	51.4	27.5



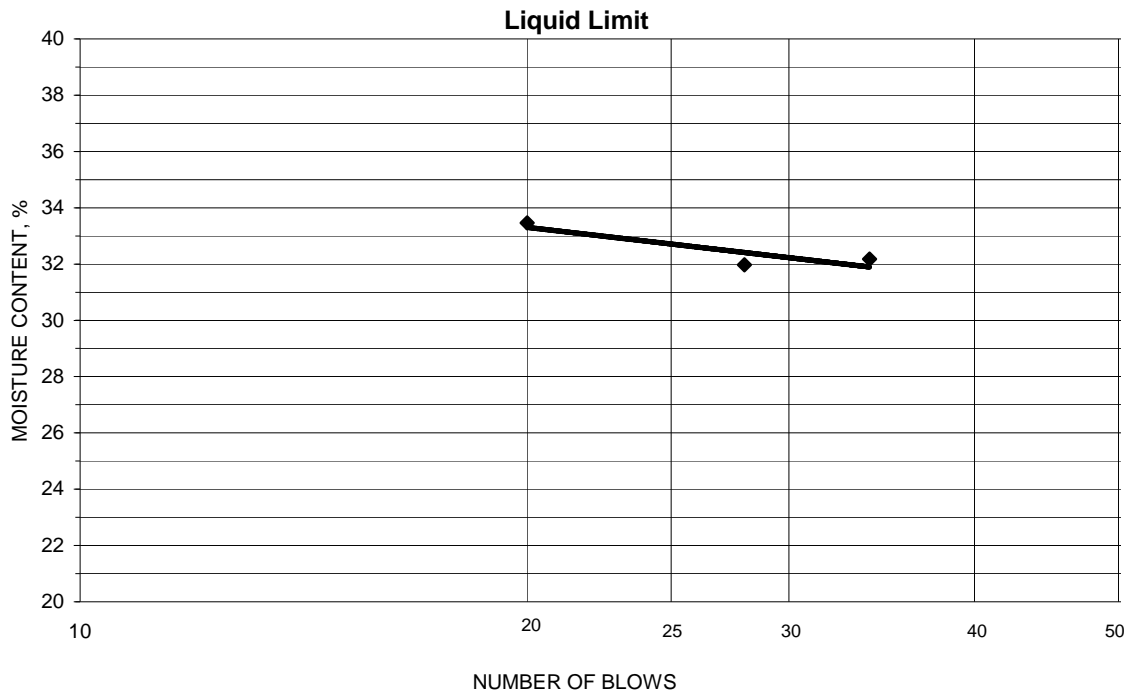
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JP-3, 6.5'-11.5'
 Tested By DRB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 38
 % + No. 40 6
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
21.83	19.26	11.58	20	33.5	33
22.71	19.81	10.74	28	32.0	
22.59	19.91	11.58	34	32.2	

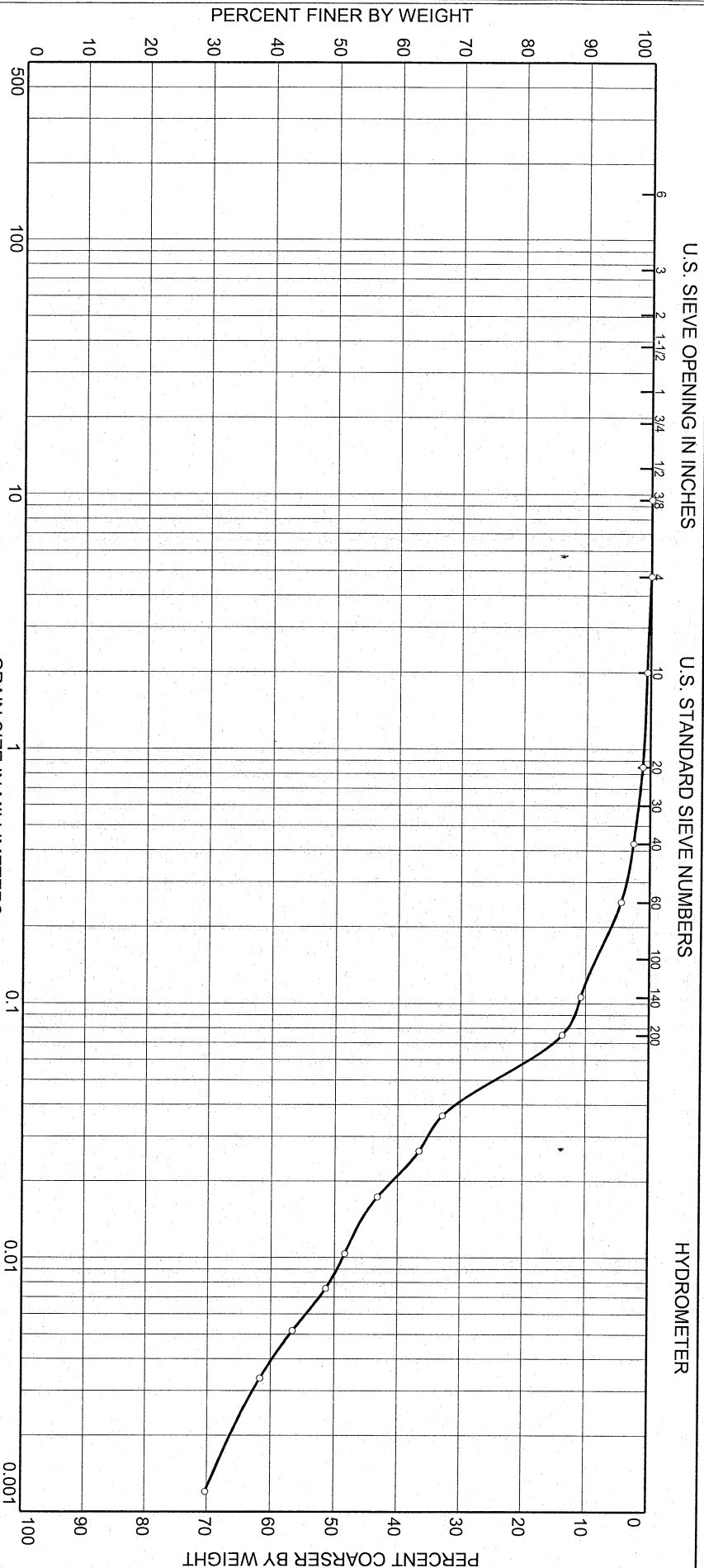


PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
17.52	16.68	11.19	15.3	15	18
17.78	16.85	10.88	15.6		

Remarks: _____
 _____ Reviewed By _____

Particle Size Distribution Report ASTM D422



% COBBLES	0.0	% GRAVEL	0.0
% SAND	13.7	% SILT	43.3
% CLAY	43.0		

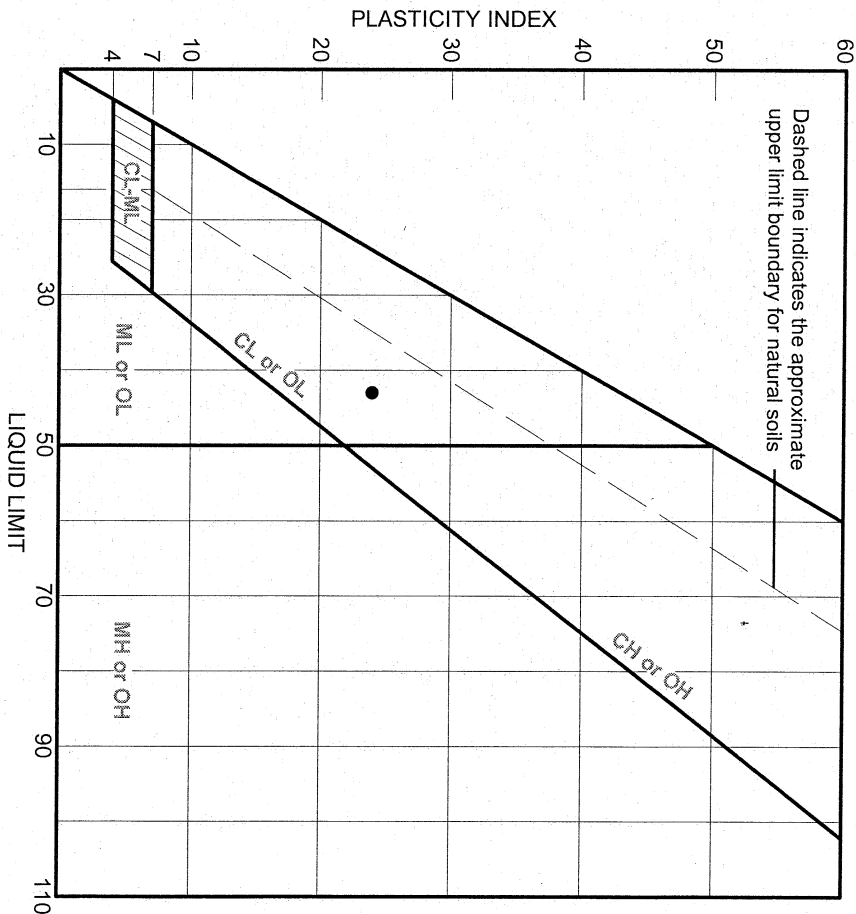
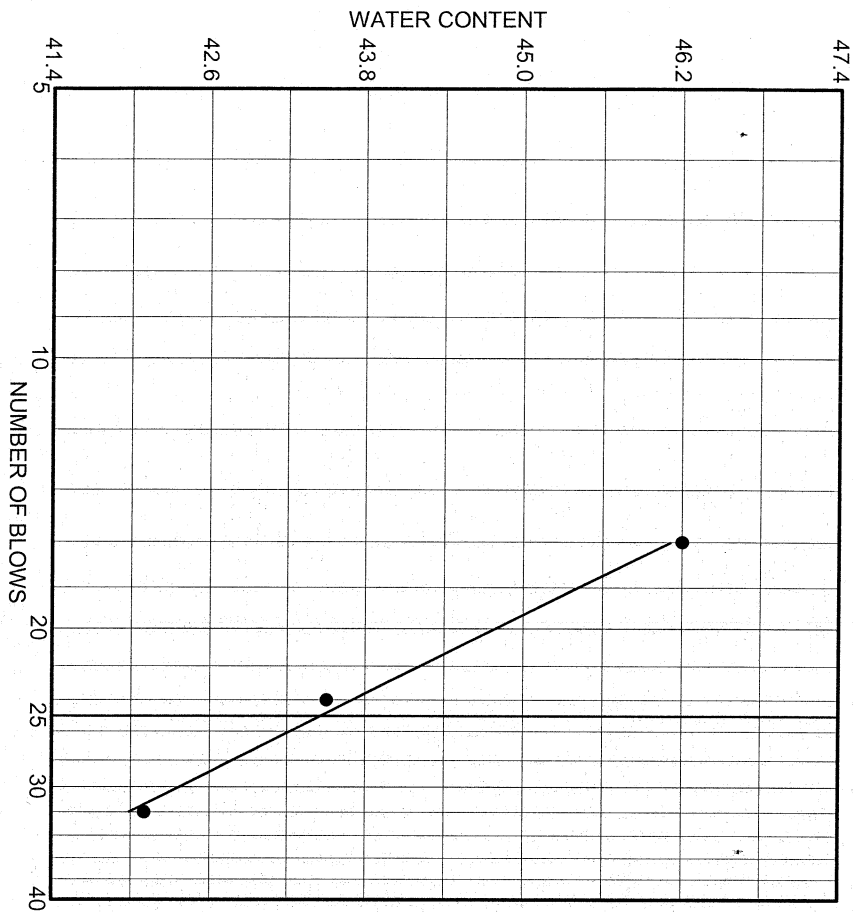
SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	JP-4	25.7-30 ft	9/30/09	CL	Brown lean clay		43	19

Client STANTEC
 Project John Sevier
 Project No. GTX-1490 Lab no. _____

Geo Testing

Express Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
	JP-4	25.7-30 ft	9/30/09	CL	Brown lean clay		43	24

Client STANTEC
 Project John Sevier
 Project No. GTX-1490 Lab no.

**GeoTesting
 Express Inc.**

•

Geotesting Express Inc.

COMPACTION TEST REPORT

● Source:

Sample No.: JP-4

Elev./Depth: 25.7-30 ft

Project: John Sevier

Project No. GTX-1490 Client: STANTEC

Remarks:

Optimum moisture = 16.8 %

Maximum dry density = 111.7 pcf

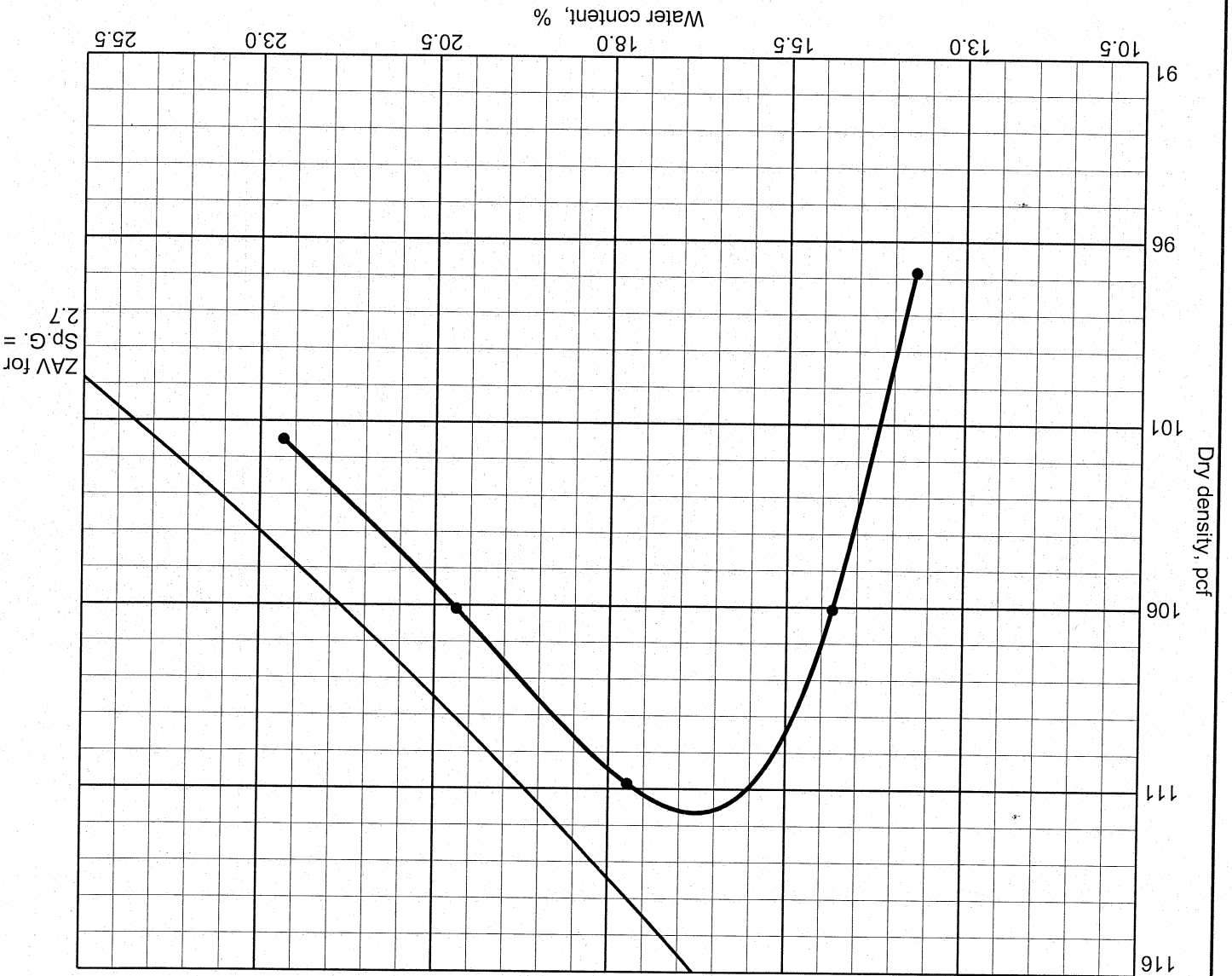
Brown lean clay

MATERIAL DESCRIPTION

TEST RESULTS

Elev./Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	No.4 % >	No.200 % >
	USCS	AASHTO						
25.7-30 ft	CL	A-7-6(21)		2.7	43	24		86.3

Test specification: ASTM D 698-78 Method A Standard



COMPACTION TEST REPORT

Lab no.



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-4, 0.0'-11.5' Lab ID 58
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.0
No. 4	4.75	96.1
No. 10	2	89.7
No. 40	0.425	81.4
No. 200	0.075	70.0
	0.02	56.6
	0.005	40.2
	0.002	30.0
estimated	0.001	23.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	3.9	10.3
Coarse Sand	6.4	8.3
Medium Sand	8.3	---
Fine Sand	11.4	11.4
Silt	29.8	40.0
Clay	40.2	30.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 42
 Plastic Limit: 21
 Plasticity Index: 21
 Activity Index: 0.70

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.72

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-7-6 (13)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-4, 0.0'-11.5'

 Project Number 175569038
 Lab ID 58
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.0
No. 4	96.1
No. 10	89.7

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

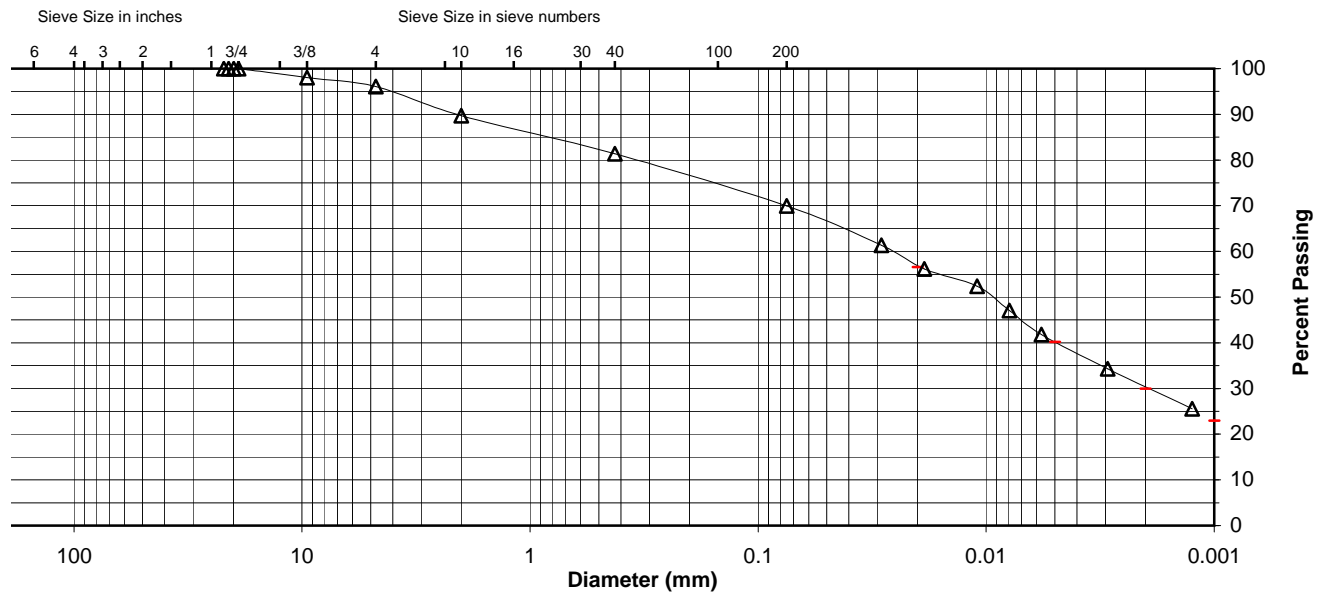
 Specific Gravity 2.72

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	81.4
No. 200	70.0
0.02 mm	56.6
0.005 mm	40.2
0.002 mm	30.0
0.001 mm	23.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	3.9	6.4	8.3	11.4	29.8	40.2	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	10.3			8.3	11.4	40.0		30.0



Comments _____

Reviewed By _____

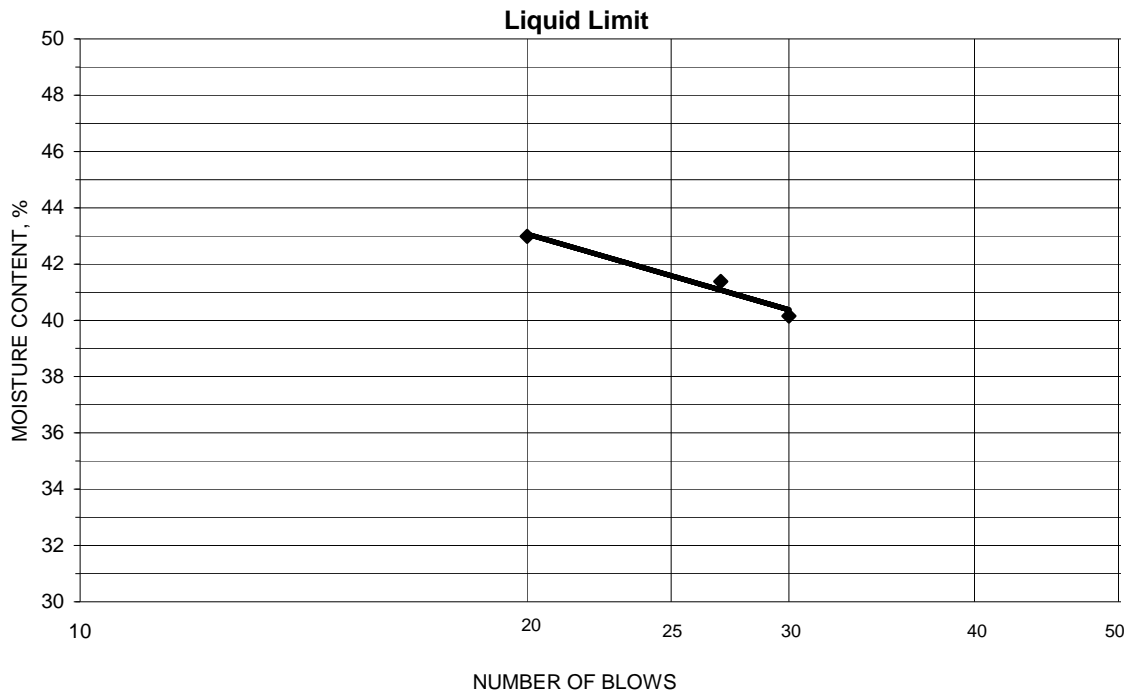


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-4, 0.0'-11.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 58
 % + No. 40 19
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
24.75	20.98	11.59	30	40.1	42
25.66	21.51	11.48	27	41.4	
25.82	21.50	11.45	20	43.0	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
21.61	19.88	11.54	20.7	21	21
21.08	19.44	11.49	20.6		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-4, 20.0'-25.0' Lab ID 59
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.5
No. 4	4.75	96.1
No. 10	2	93.4
No. 40	0.425	87.9
No. 200	0.075	72.0
	0.02	60.7
	0.005	45.6
	0.002	36.2
estimated	0.001	30.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	3.9	6.6
Coarse Sand	2.7	5.5
Medium Sand	5.5	---
Fine Sand	15.9	15.9
Silt	26.4	35.8
Clay	45.6	36.2

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 46
 Plastic Limit: 20
 Plasticity Index: 26
 Activity Index: 0.72

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.72

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-7-6 (18)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-4, 20.0'-25.0'

Project Number 175569038
 Lab ID 59

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.5
No. 4	96.1
No. 10	93.4

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

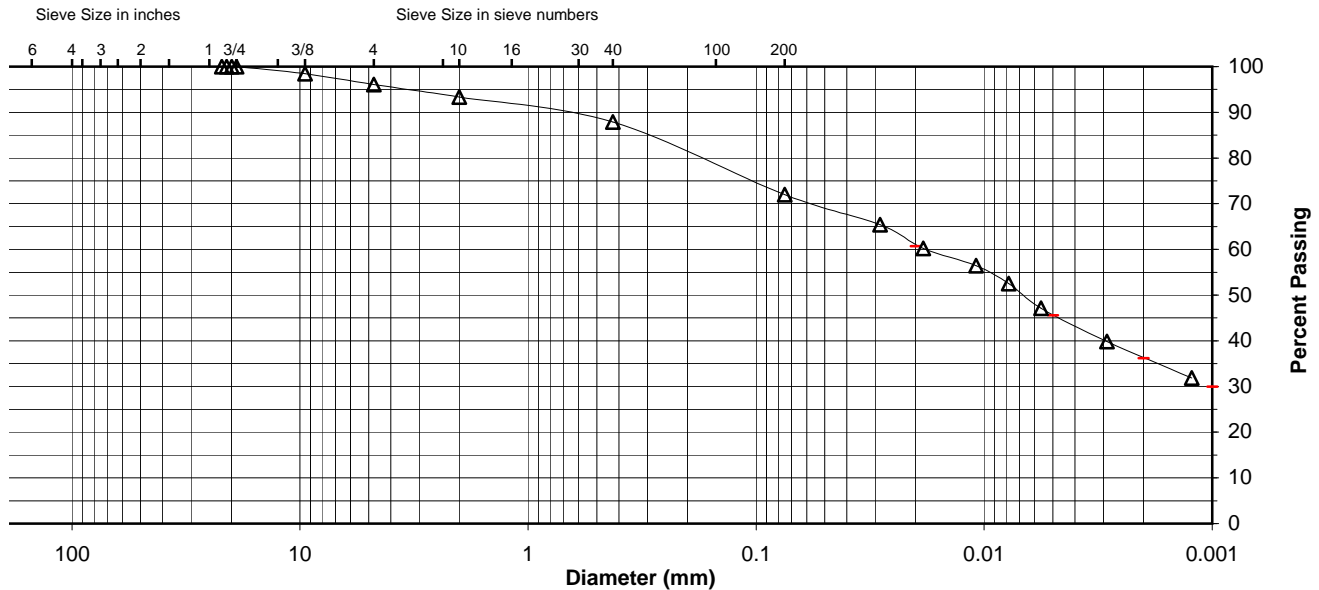
Analysis Based on: Total Sample
 Specific Gravity 2.72

No. 40	87.9
No. 200	72.0
0.02 mm	60.7
0.005 mm	45.6
0.002 mm	36.2
0.001 mm	30.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	3.9	2.7	5.5	15.9	26.4	45.6	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	6.6		5.5		15.9	35.8		36.2



Comments _____

Reviewed By _____

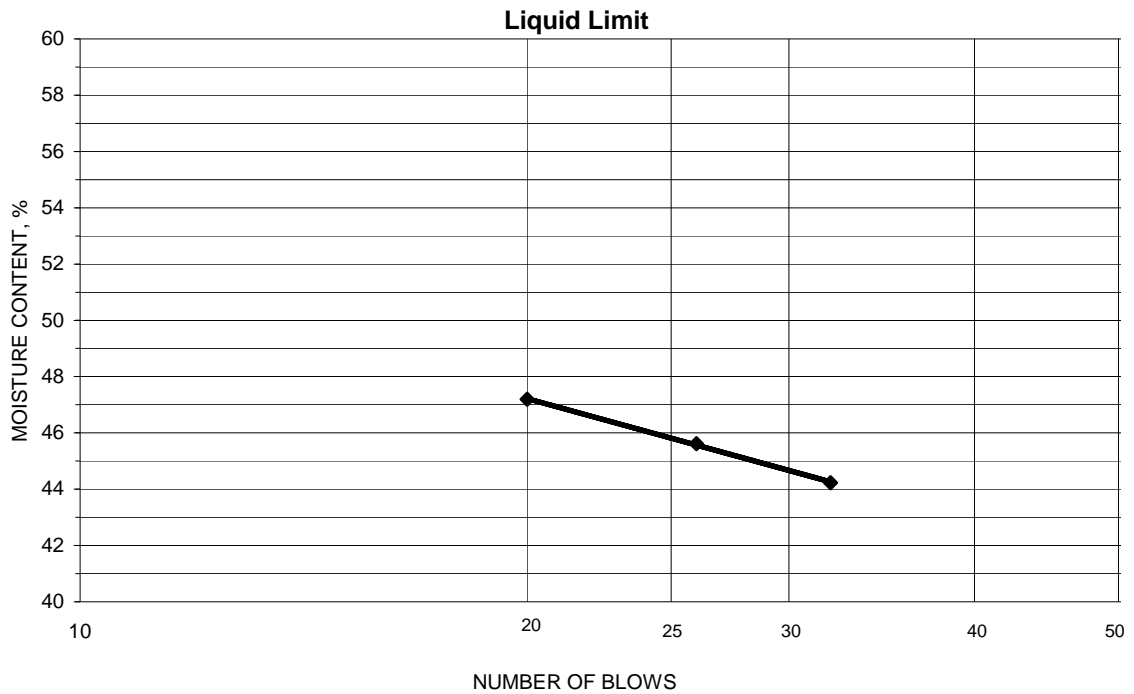


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-4, 20.0'-25.0'
 Tested By DRB Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 59
 % + No. 40 12
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
21.70	18.42	11.47	20	47.2	46
20.67	17.65	11.03	26	45.6	
21.28	18.29	11.53	32	44.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
18.77	17.62	11.78	19.7	20	26
18.13	16.97	10.97	19.3		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-4, 25.7'-30.0' Lab ID 60
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.7
No. 4	4.75	98.5
No. 10	2	96.4
No. 40	0.425	94.5
No. 200	0.075	83.2
	0.02	65.0
	0.005	47.0
	0.002	37.4
estimated	0.001	31.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.5	3.6
Coarse Sand	2.1	1.9
Medium Sand	1.9	---
Fine Sand	11.3	11.3
Silt	36.2	45.8
Clay	47.0	37.4

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 42
 Plastic Limit: 20
 Plasticity Index: 22
 Activity Index: 0.59

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.69

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-7-6 (18)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-4, 25.7'-30.0'

Project Number 175569038
 Lab ID 60

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-01-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.7
No. 4	98.5
No. 10	96.4

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

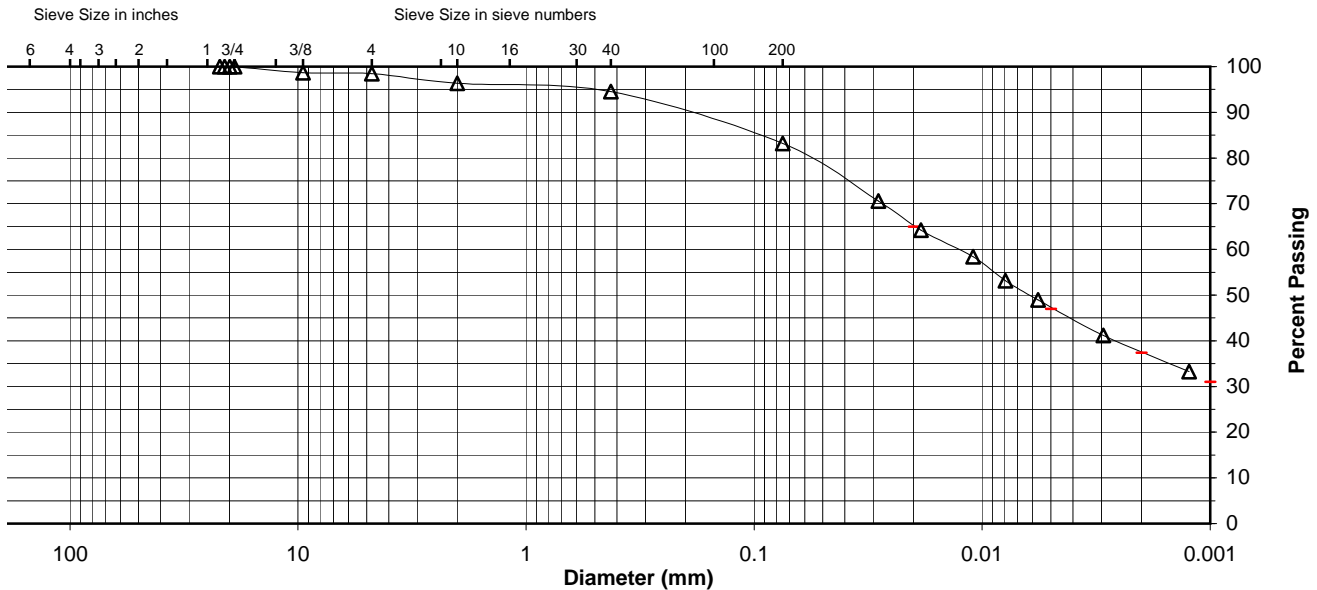
Specific Gravity 2.69

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	94.5
No. 200	83.2
0.02 mm	65.0
0.005 mm	47.0
0.002 mm	37.4
0.001 mm	31.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.5	2.1	1.9	11.3	36.2	47.0
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	3.6			1.9	11.3	45.8	37.4



Comments _____

Reviewed By _____

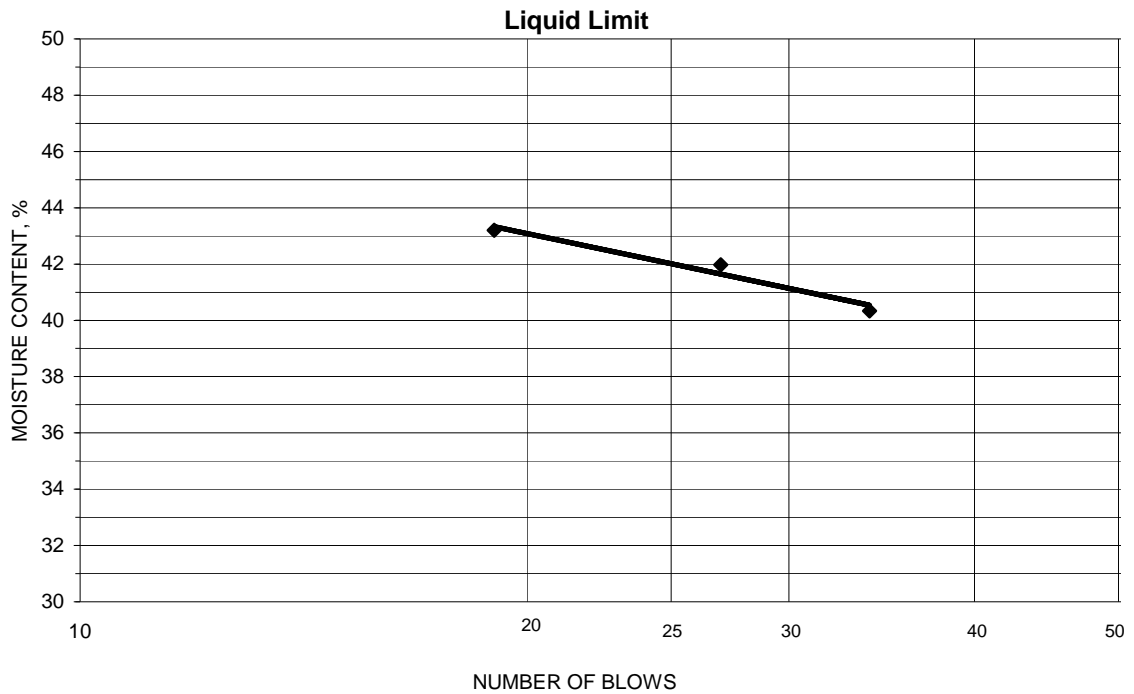


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-4, 25.7'-30.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 60
 % + No. 40 5
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
25.72	21.63	11.49	34	40.3	42
24.49	20.67	11.57	27	42.0	
26.15	21.77	11.63	19	43.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.37	20.58	11.80	20.4	20	22
22.36	20.58	11.56	19.7		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-4, 37.5'-45.0' Lab ID 61
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	100.0
No. 40	0.425	99.6
No. 200	0.075	76.2
	0.02	52.8
	0.005	38.3
	0.002	31.0
estimated	0.001	25.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.0
Coarse Sand	0.0	0.4
Medium Sand	0.4	---
Fine Sand	23.4	23.4
Silt	37.9	45.2
Clay	38.3	31.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 34
 Plastic Limit: 18
 Plasticity Index: 16
 Activity Index: 0.52

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.68

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-6 (11)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-4, 37.5'-45.0'

Project Number 175569038
 Lab ID 61

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	100.0

Maximum Particle size: No. 4 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

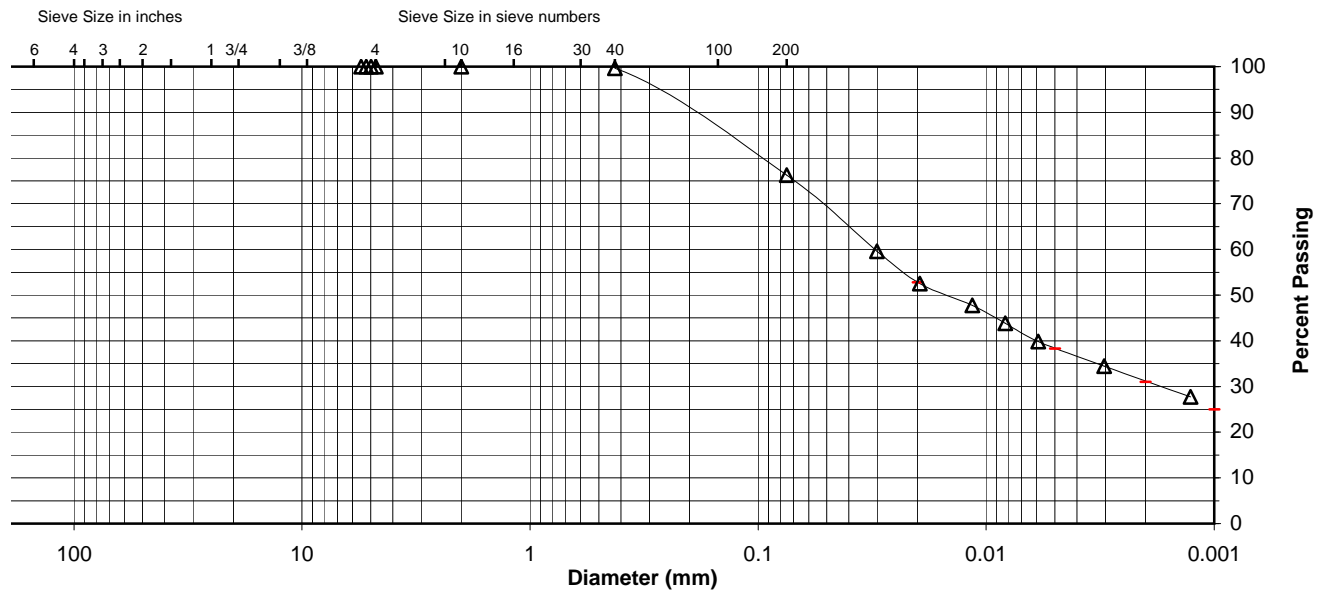
Specific Gravity 2.68

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.6
No. 200	76.2
0.02 mm	52.8
0.005 mm	38.3
0.002 mm	31.0
0.001 mm	25.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.0	0.4	23.4	37.9	38.3
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.0			0.4	23.4	45.2	31.0



Comments _____

Reviewed By _____

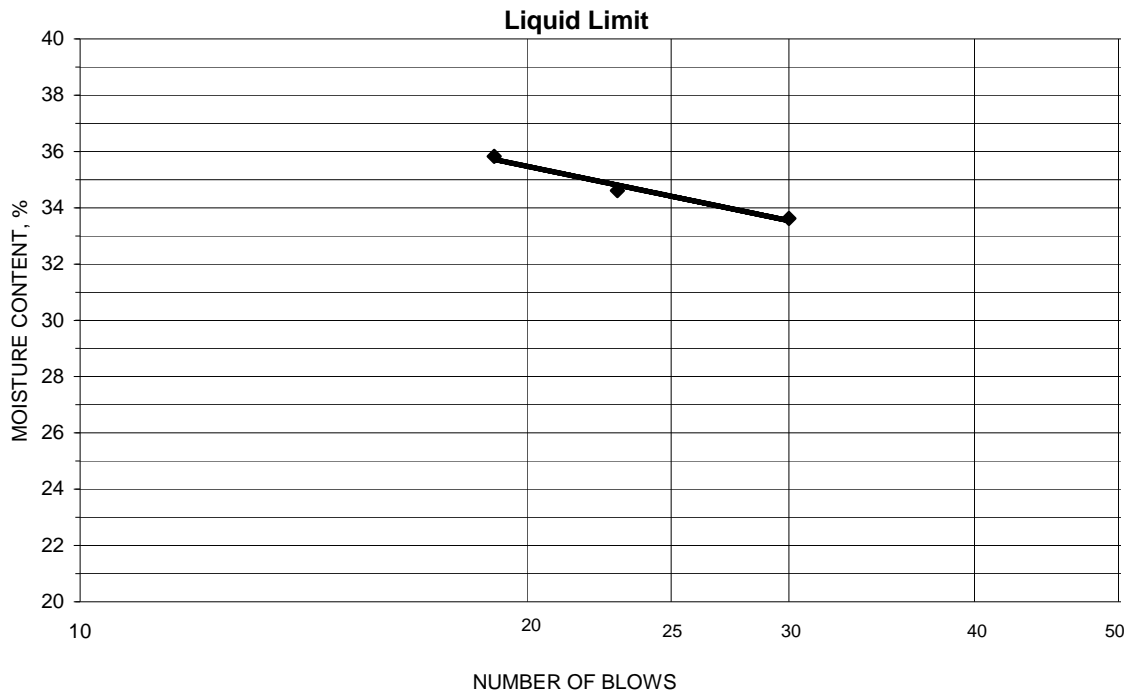


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-4, 37.5'-45.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 61
 % + No. 40 0
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
26.27	22.42	10.97	30	33.6	34
24.30	20.81	11.07	19	35.8	
26.38	22.49	11.25	23	34.6	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
20.97	19.44	10.84	17.8	18	16
21.79	20.18	11.17	17.9		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-5, 26.5'-32.0' Lab ID 73
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	100.0
3/4"	19	98.5
3/8"	9.5	96.5
No. 4	4.75	95.2
No. 10	2	75.8
No. 40	0.425	69.9
No. 200	0.075	57.1
	0.02	51.2
	0.005	37.8
	0.002	30.4
estimated	0.001	26.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.8	24.2
Coarse Sand	19.4	5.9
Medium Sand	5.9	---
Fine Sand	12.8	12.8
Silt	19.3	26.7
Clay	37.8	30.4

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 55
 Plastic Limit: 22
 Plasticity Index: 33
 Activity Index: 1.10

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.73

Classification

Unified Group Symbol: CH
 Group Name: Sandy fat clay
 AASHTO Classification: A-7-6 (16)

Comments: _____

Project Name John Siever Fossil Plant
 Source JP-5, 26.5'-32.0'

 Project Number 175569038
 Lab ID 73
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Rounded
 Particle Hardness: Hard and Durable

 Tested By: CP
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Maximum Particle size: 1" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	100.0
3/4"	98.5
3/8"	96.5
No. 4	95.2
No. 10	75.8

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

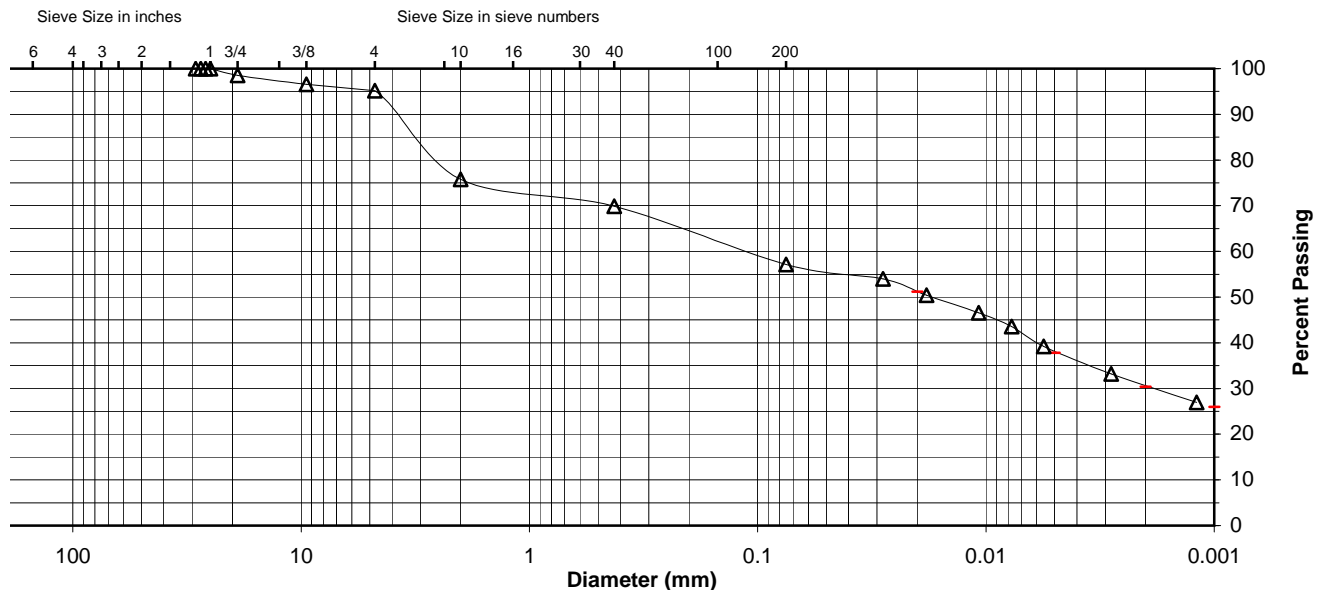
 Specific Gravity 2.73

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	69.9
No. 200	57.1
0.02 mm	51.2
0.005 mm	37.8
0.002 mm	30.4
0.001 mm	26.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	1.5	3.3	19.4	5.9	12.8	19.3	37.8
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	24.2			5.9	12.8	26.7	30.4



Comments _____

Reviewed By _____

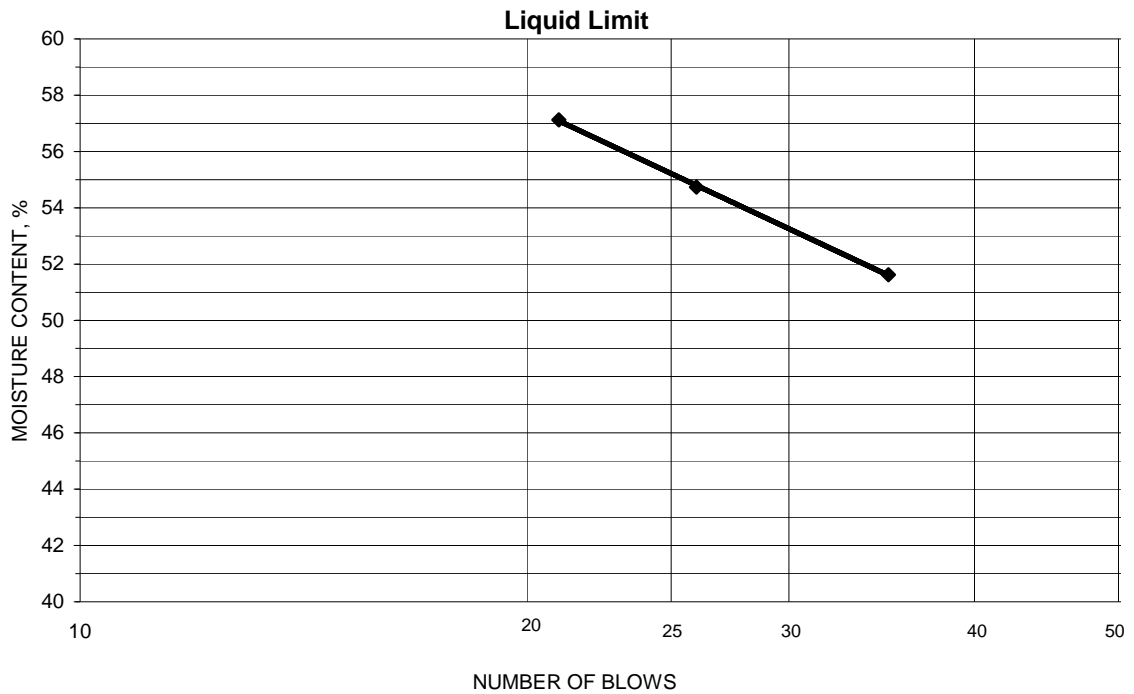


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-5, 26.5'-32.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 73
 % + No. 40 30
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
23.89	19.60	11.29	35	51.6	55
24.06	19.55	11.31	26	54.7	
23.96	19.39	11.39	21	57.1	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
21.79	19.93	11.54	22.2	22	33
21.76	19.80	11.08	22.5		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-5, 36.5'-40.0' Lab ID 74
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	98.9
No. 10	2	74.1
No. 40	0.425	72.5
No. 200	0.075	63.0
	0.02	52.0
	0.005	37.5
	0.002	30.5
estimated	0.001	26.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.1	25.9
Coarse Sand	24.8	1.6
Medium Sand	1.6	---
Fine Sand	9.5	9.5
Silt	25.5	32.5
Clay	37.5	30.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 45
 Plastic Limit: 20
 Plasticity Index: 25
 Activity Index: 0.83

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.68

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-7-6 (14)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-5, 36.5'-40.0'

Project Number 175569038
 Lab ID 74

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: CP
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	98.9
No. 10	74.1

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

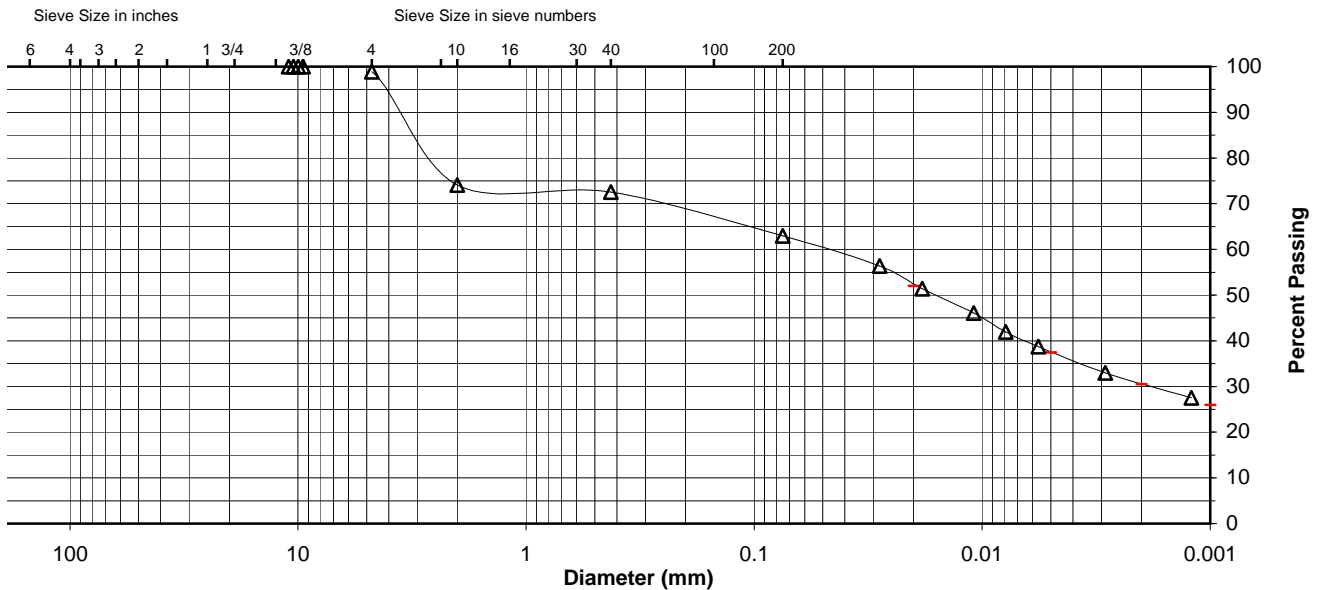
Analysis Based on: Total Sample
 Specific Gravity 2.68

No. 40	72.5
No. 200	63.0
0.02 mm	52.0
0.005 mm	37.5
0.002 mm	30.5
0.001 mm	26.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.1	24.8	1.6	9.5	25.5	37.5
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	25.9		1.6	9.5	32.5		30.5



Comments _____

Reviewed By _____

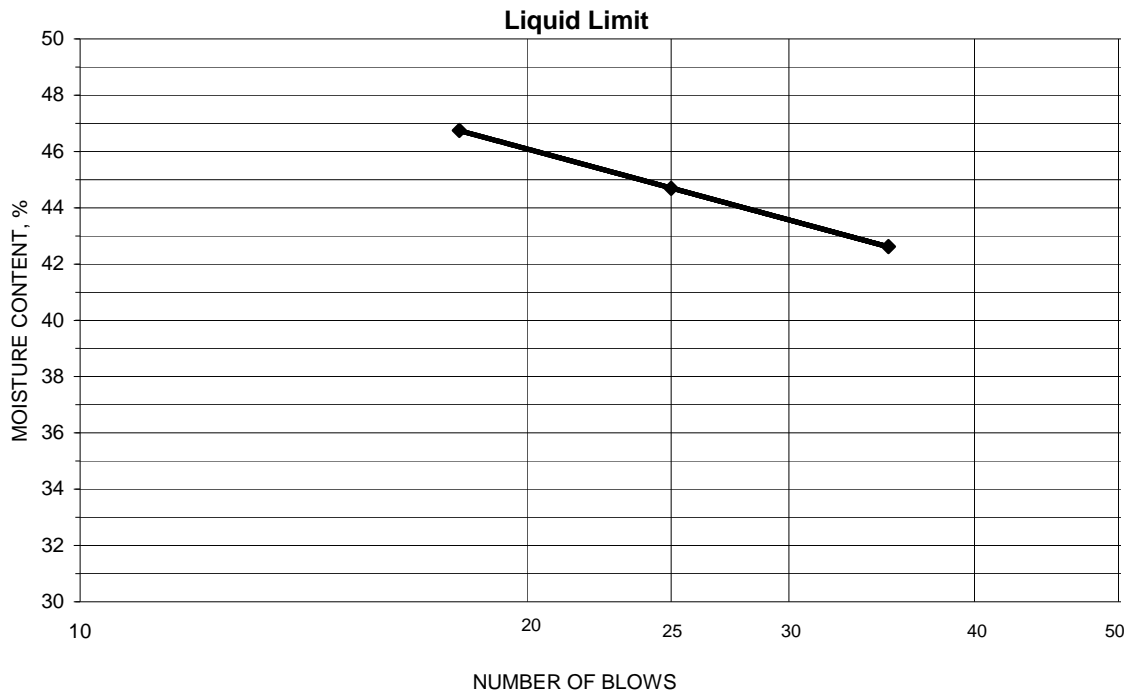


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-5, 36.5'-40.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 74
 % + No. 40 27
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
24.73	20.56	11.23	25	44.7	45
24.85	20.81	11.33	35	42.6	
24.44	20.20	11.13	18	46.7	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
21.03	19.36	11.23	20.5	20	25
21.56	19.81	11.22	20.4		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-5, 6.5'-16.5' Lab ID 72
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	96.5
No. 4	4.75	95.0
No. 10	2	93.5
No. 40	0.425	88.2
No. 200	0.075	65.9
	0.02	56.8
	0.005	41.8
	0.002	33.2
estimated	0.001	28.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	5.0	6.5
Coarse Sand	1.5	5.3
Medium Sand	5.3	---
Fine Sand	22.3	22.3
Silt	24.1	32.7
Clay	41.8	33.2

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 43
 Plastic Limit: 18
 Plasticity Index: 25
 Activity Index: 0.76

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.73

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-7-6 (14)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-5, 6.5'-16.5'

Project Number 175569038
 Lab ID 72

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	96.5
No. 4	95.0
No. 10	93.5

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

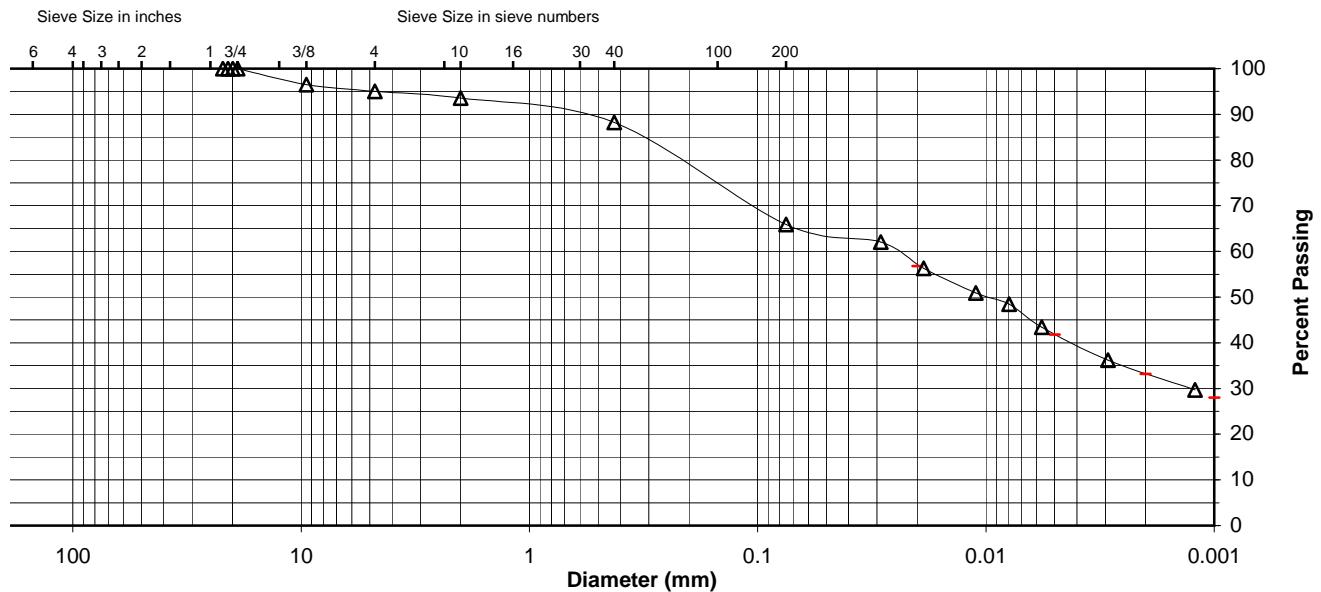
Analysis Based on: Total Sample
 Specific Gravity 2.73

No. 40	88.2
No. 200	65.9
0.02 mm	56.8
0.005 mm	41.8
0.002 mm	33.2
0.001 mm	28.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	5.0	1.5	5.3	22.3	24.1	41.8
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	6.5		5.3	22.3	32.7		33.2



Comments _____

Reviewed By _____

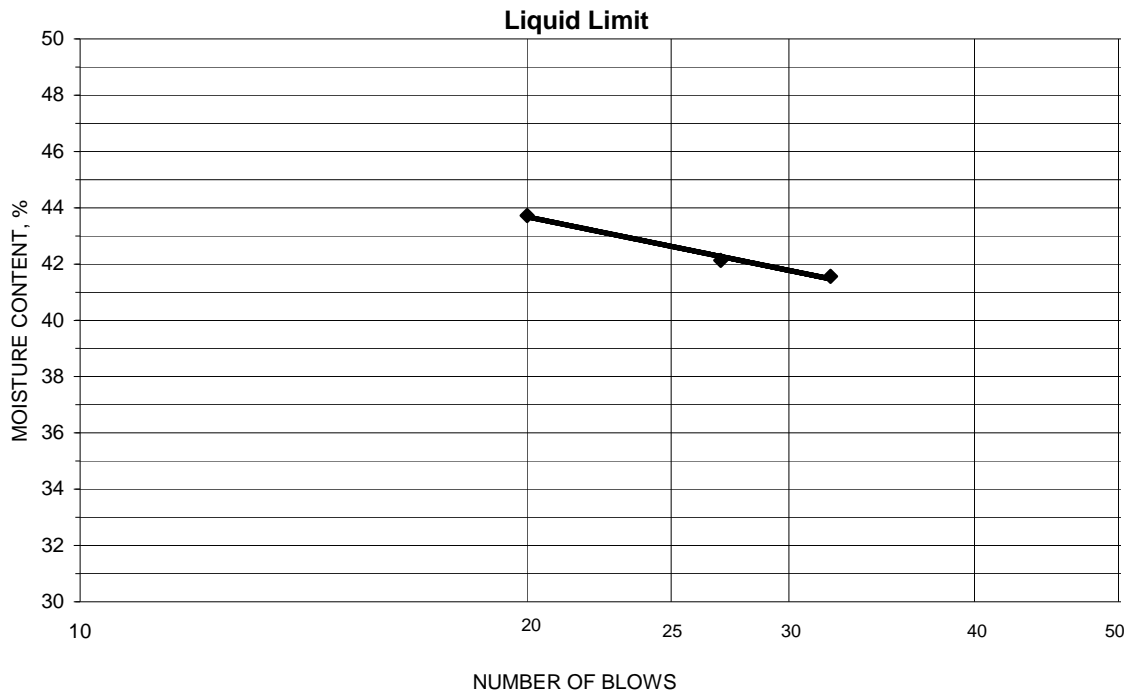


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-5, 6.5'-16.5'
 Tested By drb Test Method ASTM D 4318 Method A
 Test Date 06-05-2009 Prepared Dry

Project No. 175569038
 Lab ID 72
 % + No. 40 12
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
21.79	18.48	10.91	20	43.7	43
22.44	19.20	11.51	27	42.1	
22.18	18.98	11.28	32	41.6	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
18.72	17.56	10.94	17.5	18	25
19.01	17.82	11.24	18.1		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-6, 26.5'-34.5' Lab ID 90
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.3
No. 4	4.75	98.2
No. 10	2	96.9
No. 40	0.425	93.0
No. 200	0.075	75.9
	0.02	68.5
	0.005	48.5
	0.002	37.5
estimated	0.001	31.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.8	3.1
Coarse Sand	1.3	3.9
Medium Sand	3.9	---
Fine Sand	17.1	17.1
Silt	27.4	38.4
Clay	48.5	37.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 47
 Plastic Limit: 21
 Plasticity Index: 26
 Activity Index: 0.68

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.78

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-7-6 (19)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-6, 26.5'-34.5'

Project Number 175569038
 Lab ID 90

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.3
No. 4	98.2
No. 10	96.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

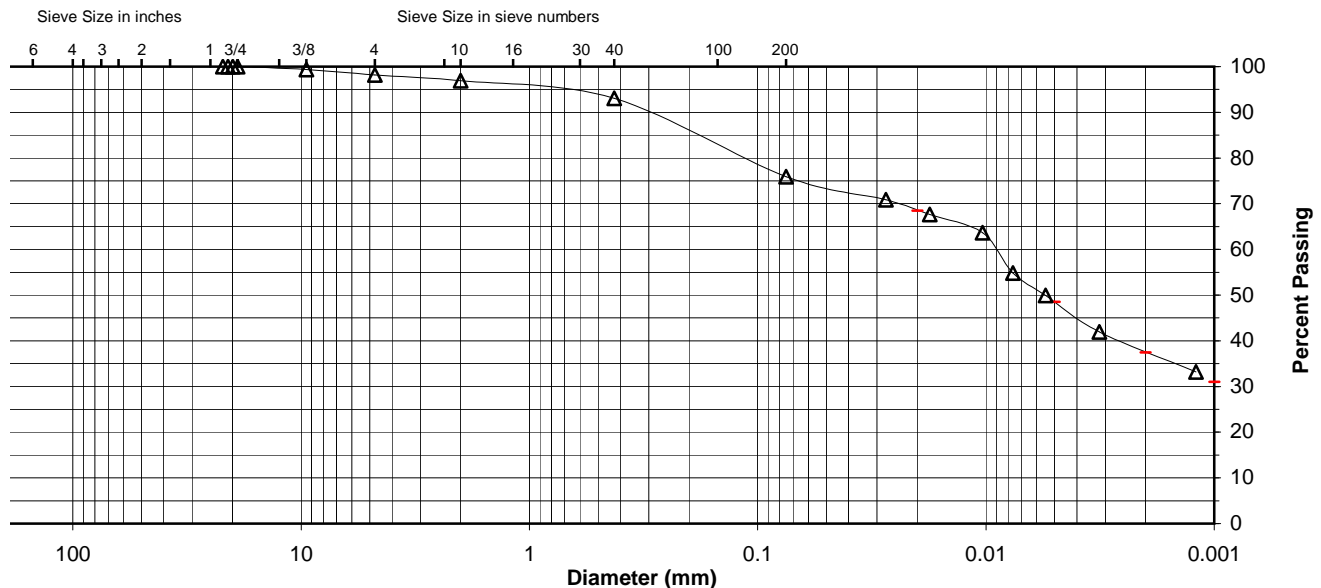
Specific Gravity 2.78

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.0
No. 200	75.9
0.02 mm	68.5
0.005 mm	48.5
0.002 mm	37.5
0.001 mm	31.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.8	1.3	3.9	17.1	27.4	48.5
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	3.1			3.9	17.1	38.4	37.5



Comments _____

Reviewed By _____

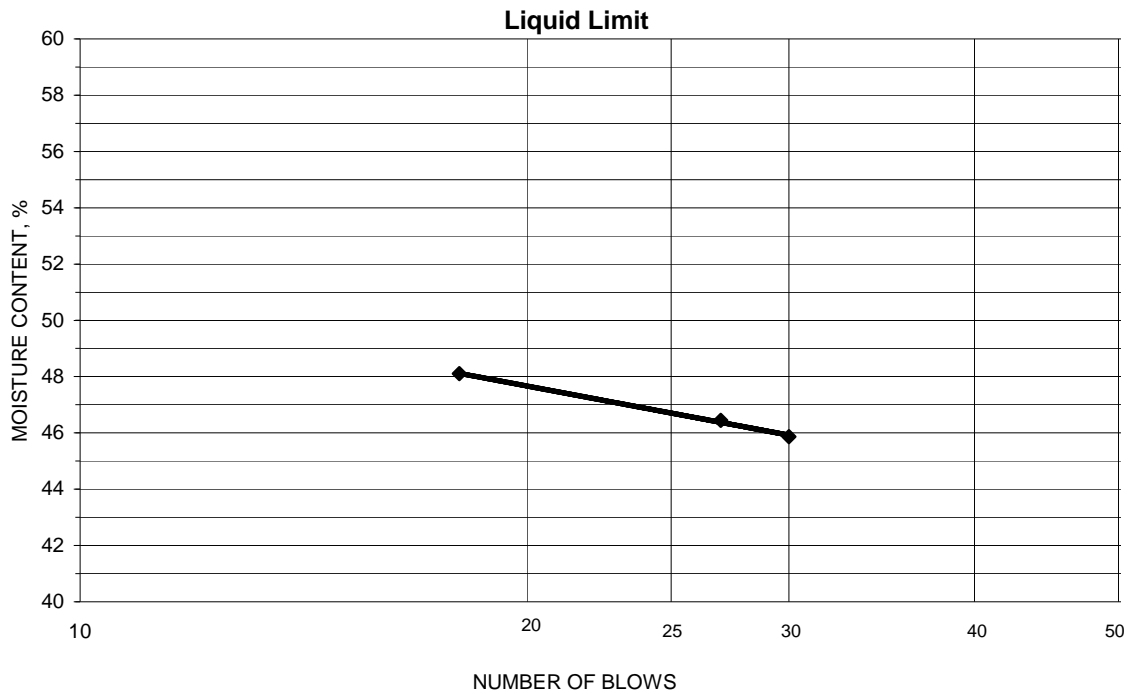


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-6, 26.5'-34.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-12-2009 Prepared Dry

Project No. 175569038
 Lab ID 90
 % + No. 40 7
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
24.43	20.31	11.44	27	46.4	47
24.97	20.66	11.70	18	48.1	
25.97	21.26	10.99	30	45.9	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
20.80	19.11	11.08	21.0	21	26
20.68	19.04	11.20	20.9		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JP-6, 6.5'-15.0' Lab ID 89
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.0
No. 4	4.75	96.0
No. 10	2	77.0
No. 40	0.425	70.6
No. 200	0.075	61.5
	0.02	53.4
	0.005	38.5
	0.002	28.9
estimated	0.001	23.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.0	23.0
Coarse Sand	19.0	6.4
Medium Sand	6.4	---
Fine Sand	9.1	9.1
Silt	23.0	32.6
Clay	38.5	28.9

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 52
 Plastic Limit: 23
 Plasticity Index: 29
 Activity Index: 1.00

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.76

Classification

Unified Group Symbol: CH
 Group Name: Sandy fat clay
 AASHTO Classification: A-7-6 (16)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JP-6, 6.5'-15.0'

Project Number 175569038
 Lab ID 89

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: CP
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.0
No. 4	96.0
No. 10	77.0

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

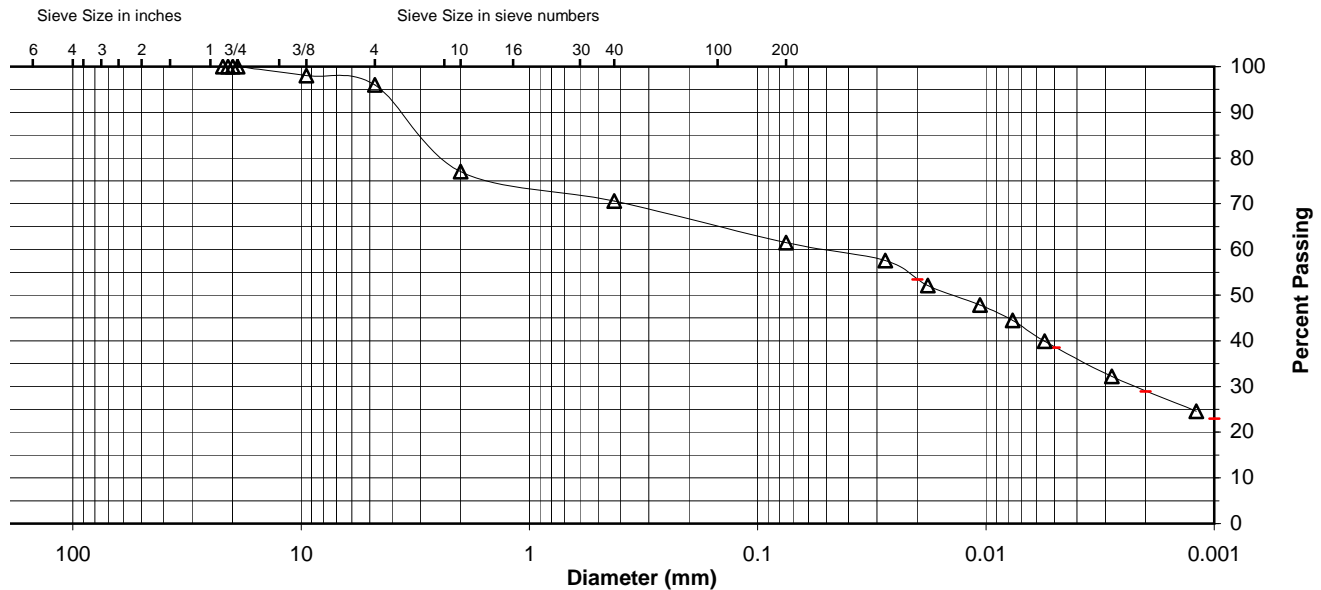
Specific Gravity 2.76

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	70.6
No. 200	61.5
0.02 mm	53.4
0.005 mm	38.5
0.002 mm	28.9
0.001 mm	23.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	4.0	19.0	6.4	9.1	23.0	38.5
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	23.0			6.4	9.1	32.6	28.9



Comments _____

Reviewed By _____

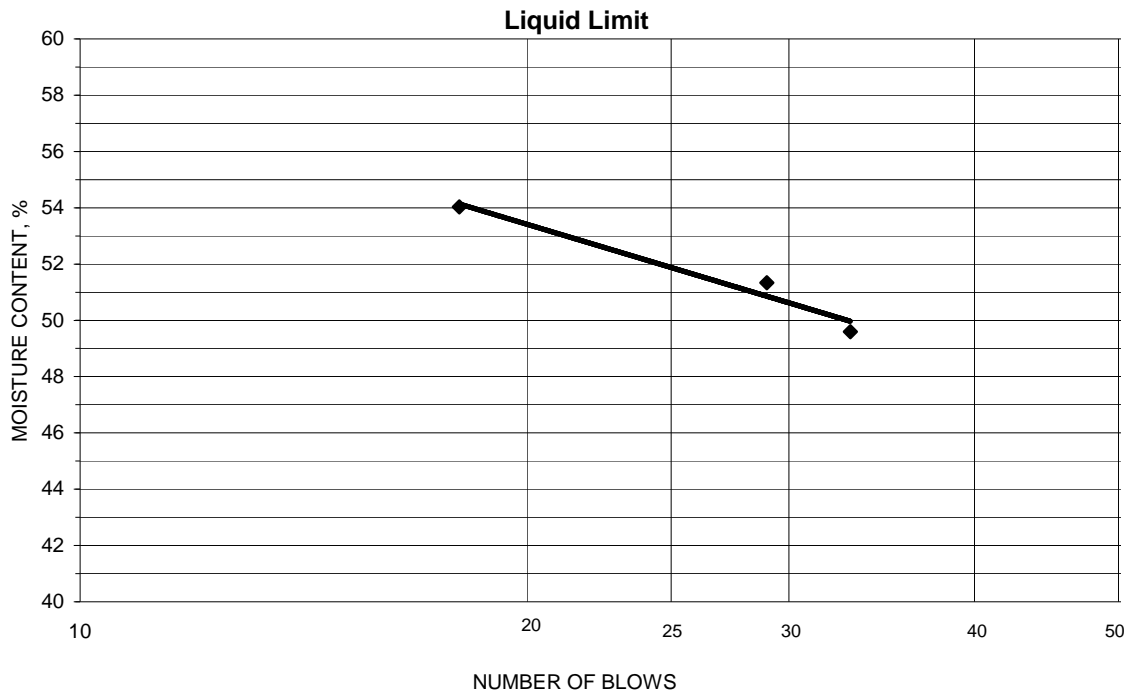


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JP-6, 6.5'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 89
 % + No. 40 29
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
24.36	20.08	11.45	33	49.6	52
23.69	19.64	11.75	29	51.3	
23.01	18.79	10.98	18	54.0	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
20.68	18.86	11.11	23.5	23	29
22.10	20.07	11.22	22.9		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-11, 13.5'-31.5' Lab ID 489
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.9
No. 10	2	98.3
No. 40	0.425	95.3
No. 200	0.075	77.8
	0.02	48.8
	0.005	12.3
	0.002	7.5
estimated	0.001	7.1

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.1	1.7
Coarse Sand	1.6	3.0
Medium Sand	3.0	---
Fine Sand	17.5	17.5
Silt	65.5	70.3
Clay	12.3	7.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.36

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-11, 13.5'-31.5'

 Project Number 175569038
 Lab ID 489
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable

 Tested By: RSB
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/8" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.9
No. 10	98.3

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

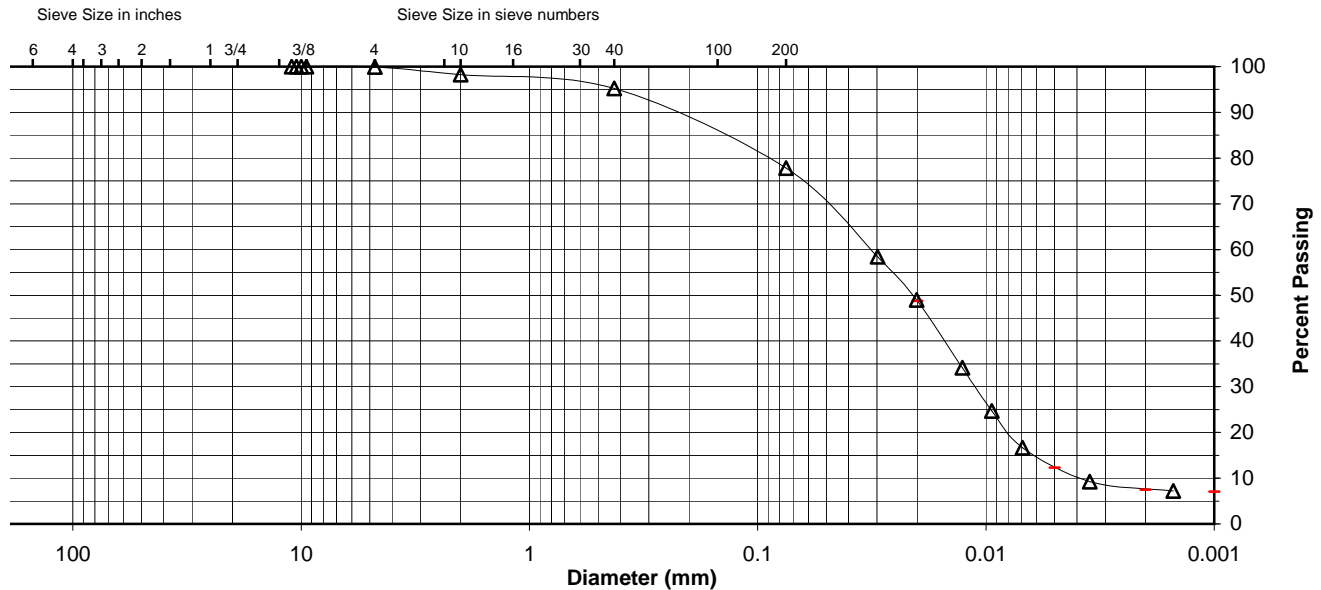
 Specific Gravity 2.36

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	95.3
No. 200	77.8
0.02 mm	48.8
0.005 mm	12.3
0.002 mm	7.5
0.001 mm	7.1

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.1	1.6	3.0	17.5	65.5	12.3
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	1.7			3.0	17.5	70.3	7.5



Comments _____

Reviewed By _____

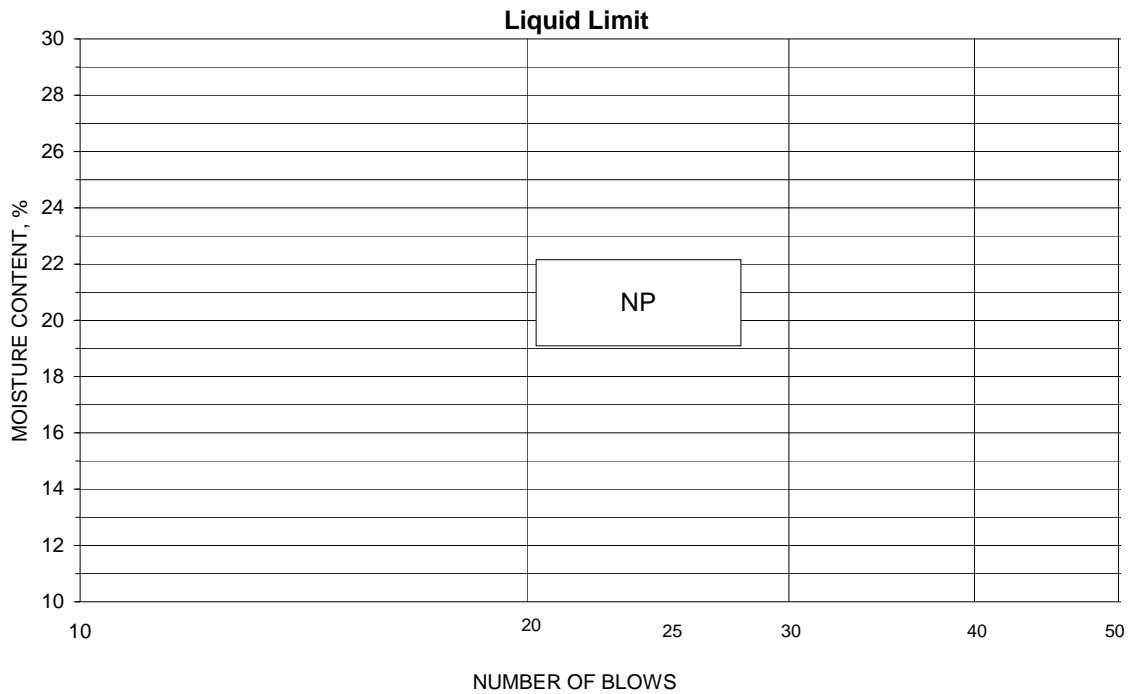


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-11, 13.5'-31.5'
 Tested By AR Test Method ASTM D 4318 Method A
 Test Date 06-03-2009 Prepared Dry

Project No. 175569038
 Lab ID 489
 % + No. 40 5
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-11, 31.5'-43.5' Lab ID 490
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	100.0
3/4"	19	94.0
3/8"	9.5	88.0
No. 4	4.75	87.4
No. 10	2	85.8
No. 40	0.425	81.3
No. 200	0.075	61.4
	0.02	49.0
	0.005	32.6
	0.002	26.1
estimated	0.001	23.7

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	12.6	14.2
Coarse Sand	1.6	4.5
Medium Sand	4.5	---
Fine Sand	19.9	19.9
Silt	28.8	35.3
Clay	32.6	26.1

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 35
 Plastic Limit: 15
 Plasticity Index: 20
 Activity Index: 0.77

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.66

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-6 (9)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-11, 31.5'-43.5'

Project Number 175569038
 Lab ID 490

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: RSB
 Test Date: 06-05-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	100.0
3/4"	94.0
3/8"	88.0
No. 4	87.4
No. 10	85.8

Maximum Particle size: 1" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

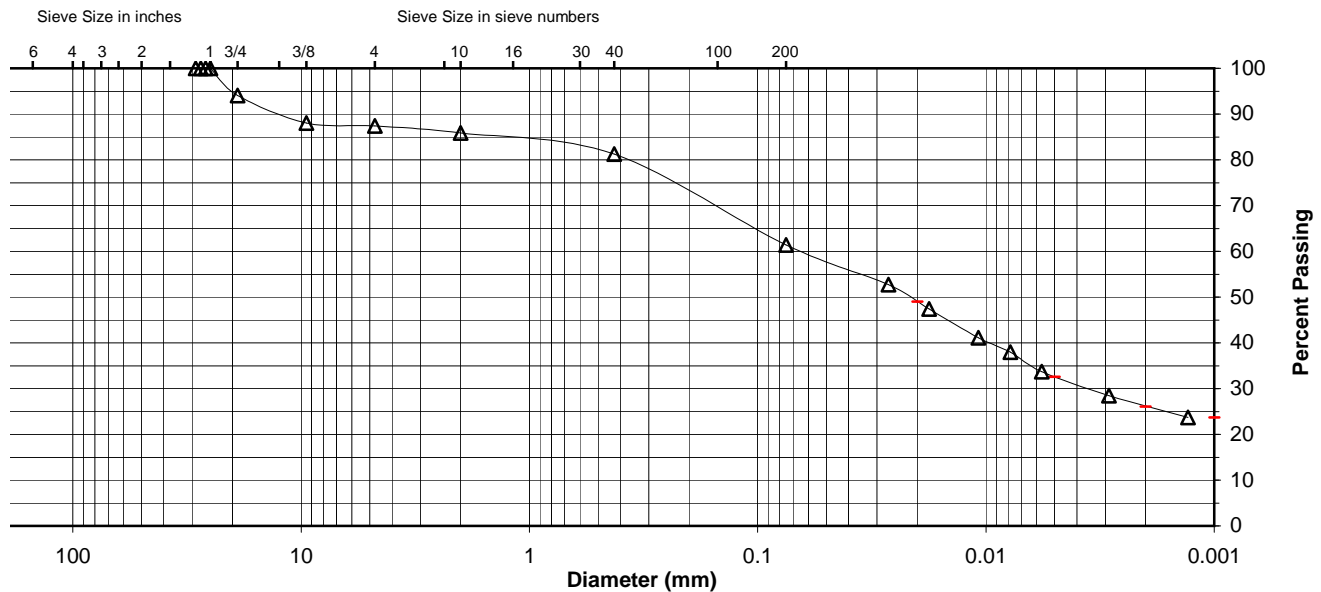
Specific Gravity 2.66

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	81.3
No. 200	61.4
0.02 mm	49.0
0.005 mm	32.6
0.002 mm	26.1
0.001 mm	23.7

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	6.0	6.6	1.6	4.5	19.9	28.8	32.6	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	14.2			4.5	19.9	35.3		26.1



Comments _____

Reviewed By _____

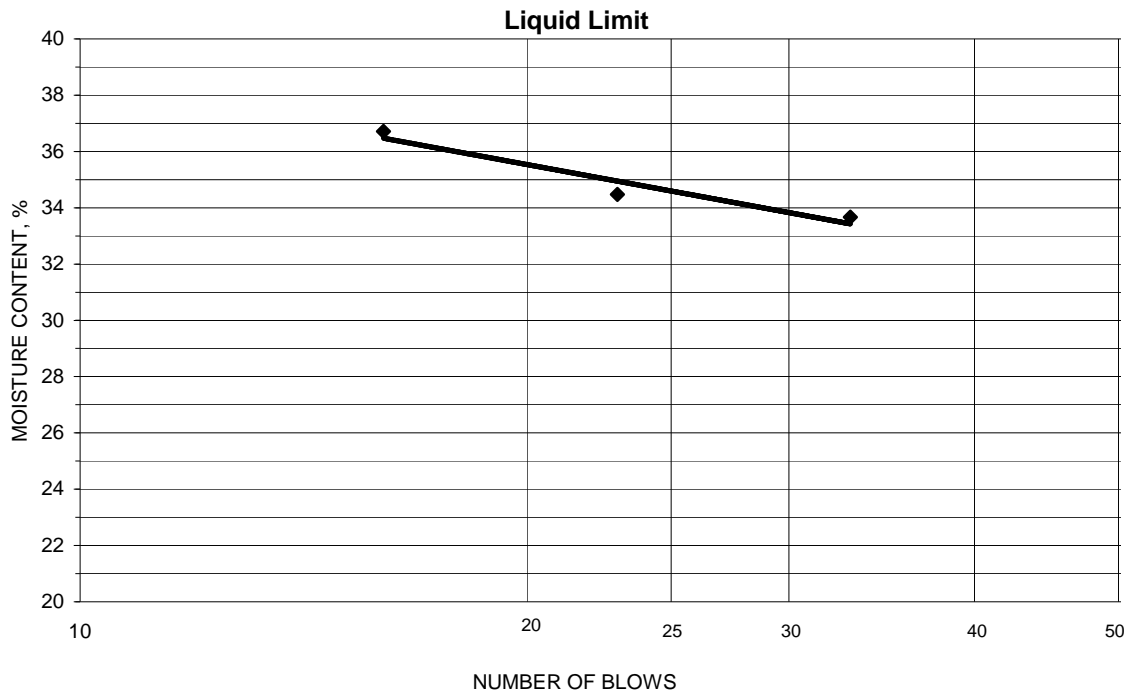


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-11, 31.5'-43.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-07-2009 Prepared Dry

Project No. 175569038
 Lab ID 490
 % + No. 40 19
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
12.38	10.36	4.36	33	33.7	35
12.22	10.20	4.34	23	34.5	
12.95	10.63	4.31	16	36.7	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
7.56	7.13	4.36	15.5	15	20
7.29	6.90	4.33	15.2		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-12, 13.5'-18.0' Lab ID 350
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.6
No. 4	4.75	99.5
No. 10	2	99.1
No. 40	0.425	97.9
No. 200	0.075	83.1
	0.02	41.6
	0.005	2.4
	0.002	0.4
estimated	0.001	0.2

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.5	0.9
Coarse Sand	0.4	1.2
Medium Sand	1.2	---
Fine Sand	14.8	14.8
Silt	80.7	82.7
Clay	2.4	0.4

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.25

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-12, 13.5'-18.0'

 Project Number 175569038
 Lab ID 350
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: RHB
 Test Date: 06-04-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.6
No. 4	99.5
No. 10	99.1

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

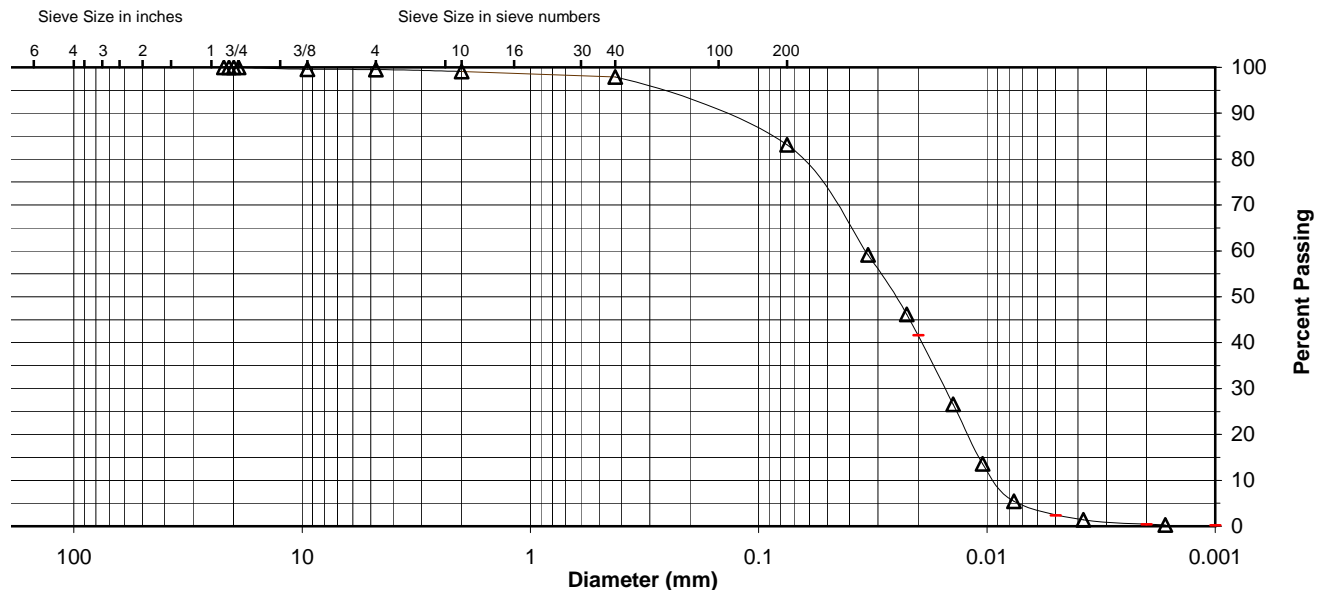
 Specific Gravity 2.25

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.9
No. 200	83.1
0.02 mm	41.6
0.005 mm	2.4
0.002 mm	0.4
0.001 mm	0.2

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.5	0.4	1.2	14.8	80.7	2.4
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.9		1.2		14.8	82.7	0.4



Comments _____

Reviewed By _____

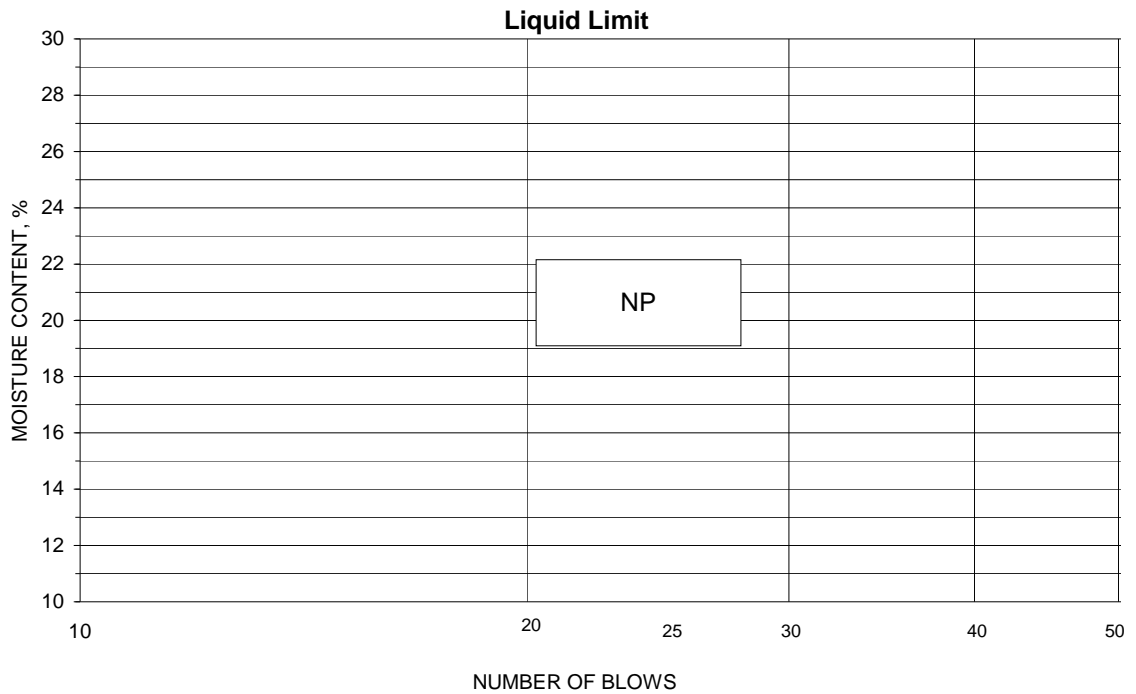


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-12, 13.5'-18.0'
 Tested By RHB Test Method ASTM D 4318 Method A
 Test Date 06-04-2009 Prepared Dry

Project No. 175569038
 Lab ID 350
 % + No. 40 2
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-12, 2.8'-7.5' Lab ID 349
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-19-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	98.8
No. 10	2	96.9
No. 40	0.425	93.7
No. 200	0.075	78.2
	0.02	43.6
	0.005	11.1
	0.002	3.5
estimated	0.001	2.9

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.2	3.1
Coarse Sand	1.9	3.2
Medium Sand	3.2	---
Fine Sand	15.5	15.5
Silt	67.1	74.7
Clay	11.1	3.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.43

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-12, 2.8'-7.5'

Project Number 175569038
 Lab ID 349

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: RHB
 Test Date: 06-04-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	98.8
No. 10	96.9

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

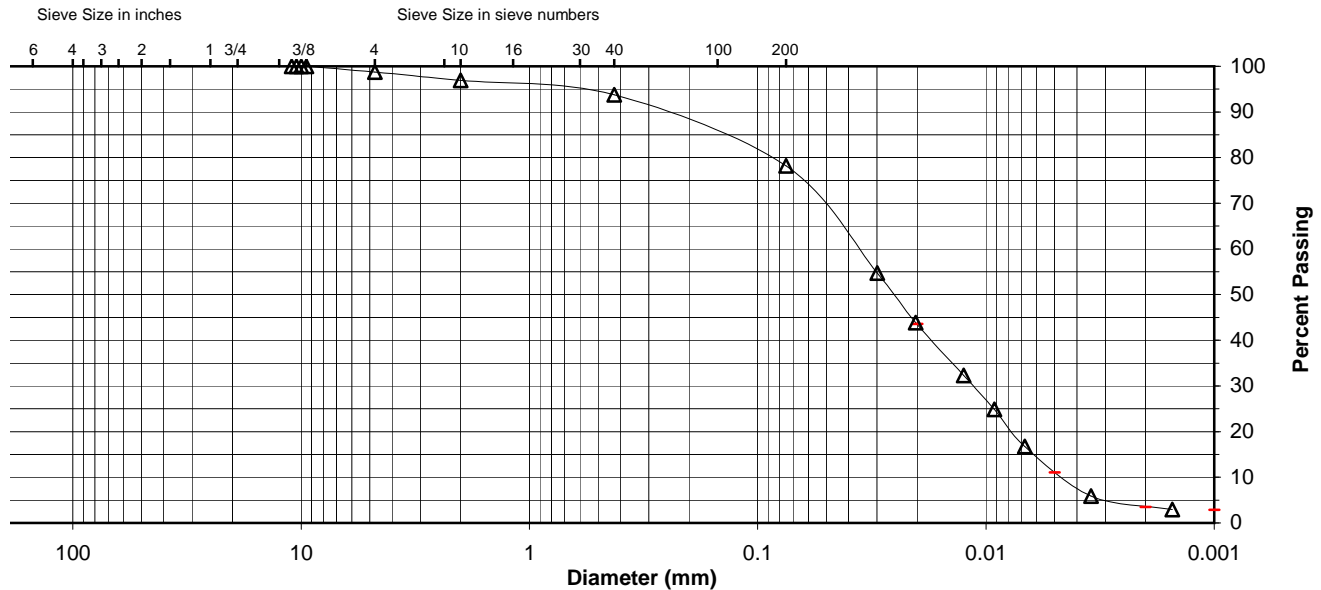
Specific Gravity 2.43

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.7
No. 200	78.2
0.02 mm	43.6
0.005 mm	11.1
0.002 mm	3.5
0.001 mm	2.9

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.2	1.9	3.2	15.5	67.1	11.1
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	3.1		3.2		15.5	74.7	3.5



Comments _____

Reviewed By _____

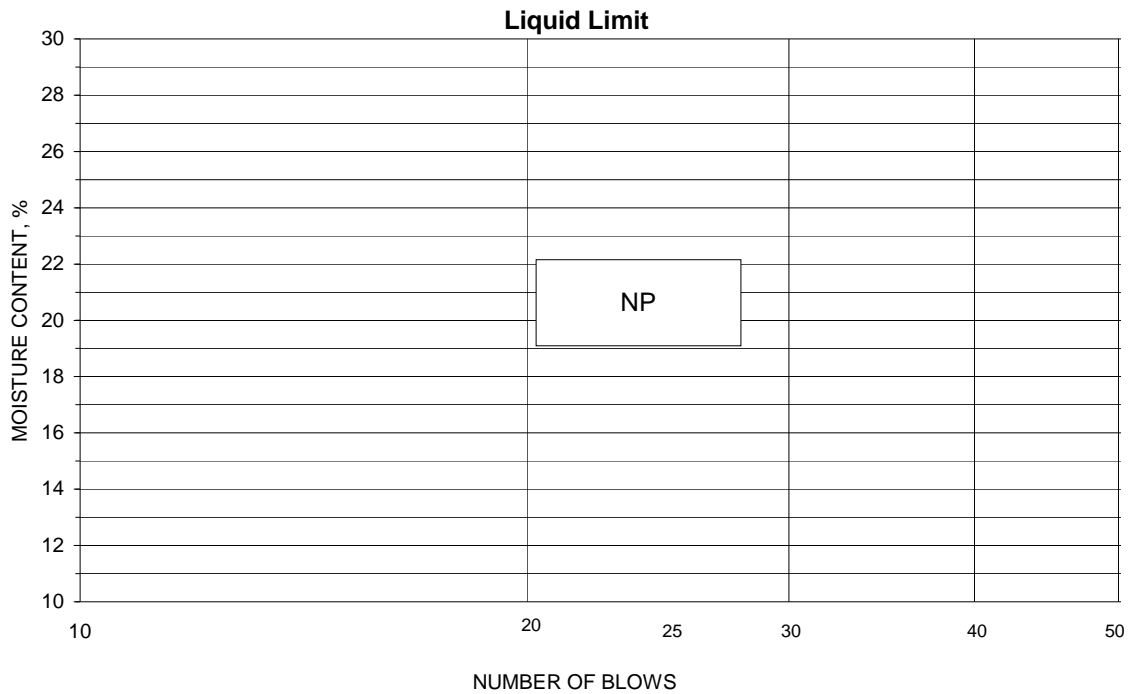


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-12, 2.8'-7.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 349
 % + No. 40 6
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-12, 28.5'-46.5' Lab ID 351
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-15-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 35
 Plastic Limit: 18
 Plasticity Index: 17
 Activity Index: 0.61

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	100.0
No. 10	2	99.7
No. 40	0.425	97.2
No. 200	0.075	74.8
	0.02	49.4
	0.005	35.0
	0.002	27.5
estimated	0.001	21.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.3
Coarse Sand	0.3	2.5
Medium Sand	2.5	---
Fine Sand	22.4	22.4
Silt	39.8	47.3
Clay	35.0	27.5

Moisture-Density Relationship

Test Method: ASTM D 698 Method A
 Maximum Dry Density (lb/ft³): 110.7
 Maximum Dry Density (kg/m³): 1773
 Optimum Moisture Content (%): 16.6
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.69

Classification

Unified Group Symbol: CL
 Group Name: Lean clay with sand
 AASHTO Classification: A-6 (11)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-12, 28.5'-46.5'

 Project Number 175569038
 Lab ID 351
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: BWt
 Test Date: 06-05-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/8" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	100.0
No. 10	99.7

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

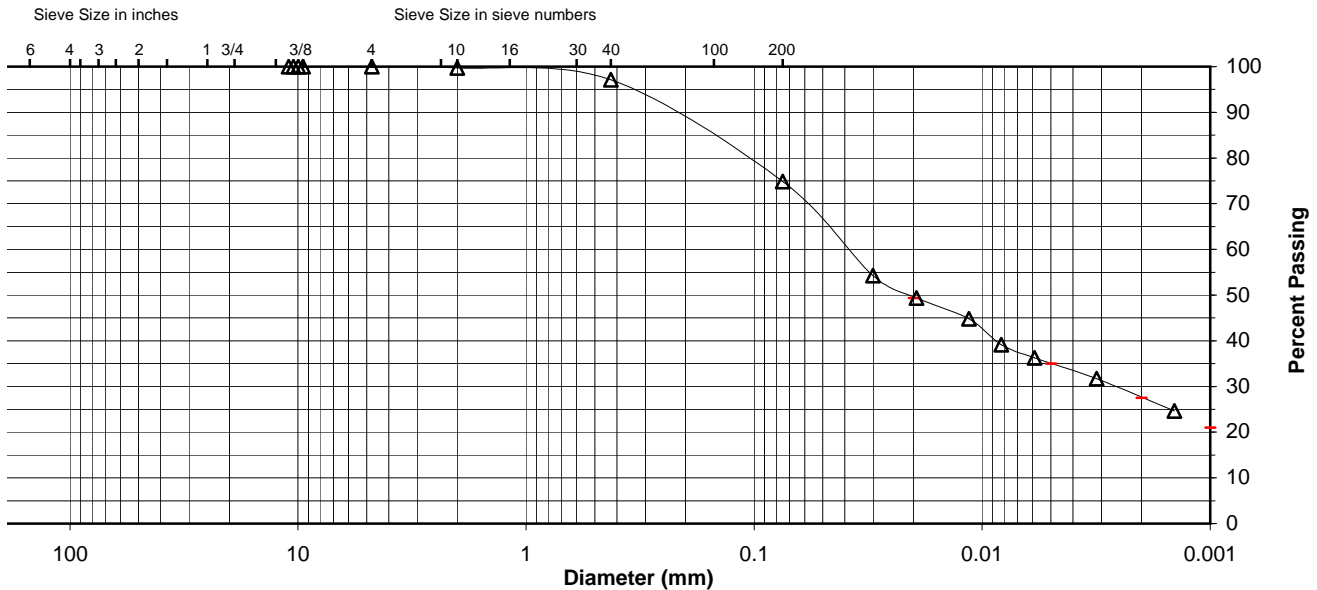
 Specific Gravity 2.69

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.2
No. 200	74.8
0.02 mm	49.4
0.005 mm	35.0
0.002 mm	27.5
0.001 mm	21.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.3	2.5	22.4	39.8	35.0
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.3			2.5	22.4	47.3	27.5



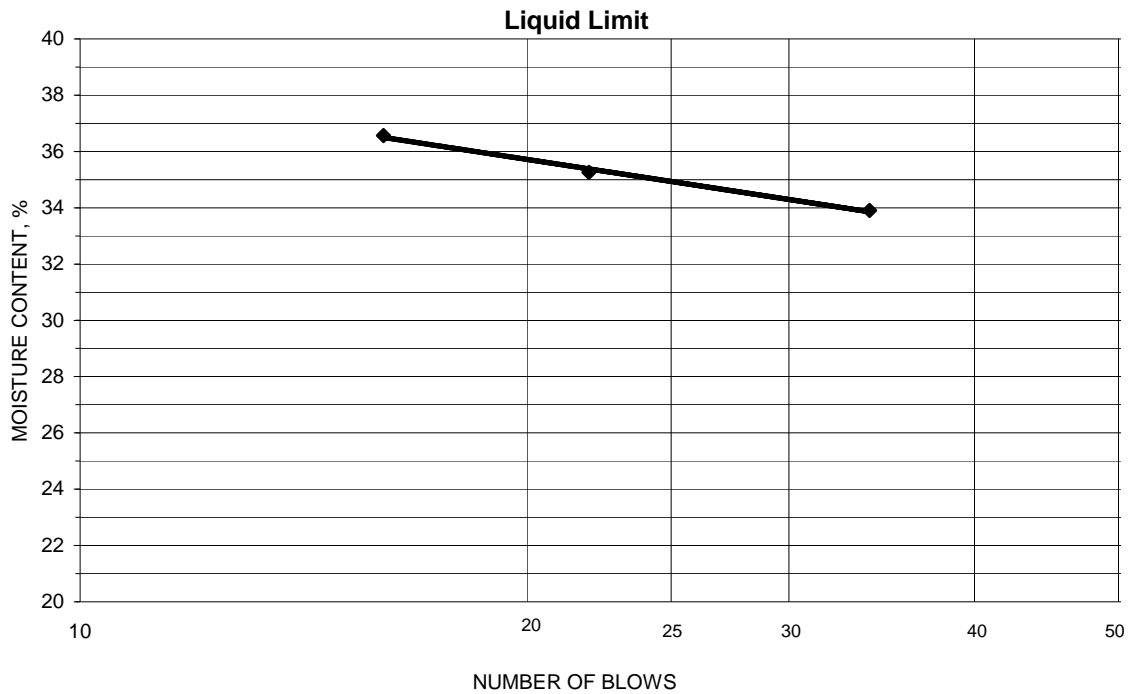
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JS-12, 28.5'-46.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-09-2009 Prepared Dry

Project No. 175569038
 Lab ID 351
 % + No. 40 3
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
26.04	22.14	11.08	22	35.3	35
25.73	21.85	11.24	16	36.6	
25.20	21.66	11.22	34	33.9	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
21.43	19.90	11.20	17.6	18	17
22.13	20.46	11.01	17.7		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-13, 18.0'-21.0' Lab ID 313
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.0
No. 4	4.75	97.8
No. 10	2	95.5
No. 40	0.425	89.5
No. 200	0.075	74.7
	0.02	38.5
	0.005	7.4
	0.002	1.7
estimated	0.001	0.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.2	4.5
Coarse Sand	2.3	6.0
Medium Sand	6.0	---
Fine Sand	14.8	14.8
Silt	67.3	73.0
Clay	7.4	1.7

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.32

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-13, 18.0'-21.0'

 Project Number 175569038
 Lab ID 313
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.0
No. 4	97.8
No. 10	95.5

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

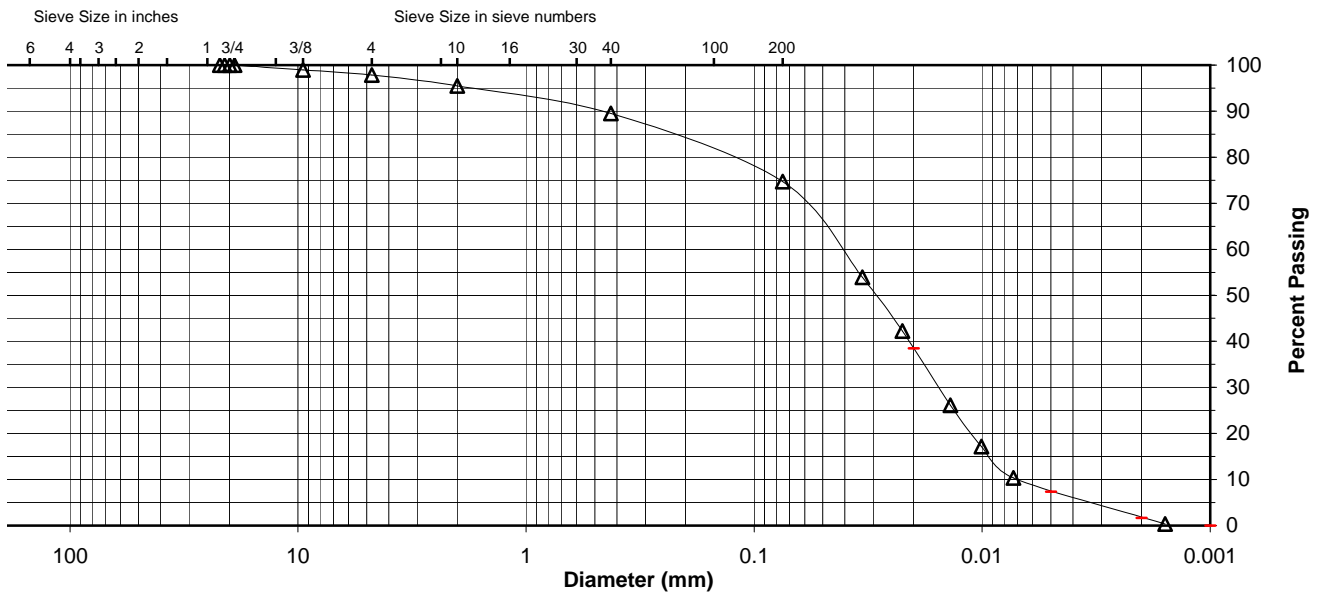
 Specific Gravity 2.32

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	89.5
No. 200	74.7
0.02 mm	38.5
0.005 mm	7.4
0.002 mm	1.7
0.001 mm	0.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	2.2	2.3	6.0	14.8	67.3	7.4	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	4.5			6.0	14.8	73.0		1.7



Comments _____

Reviewed By _____

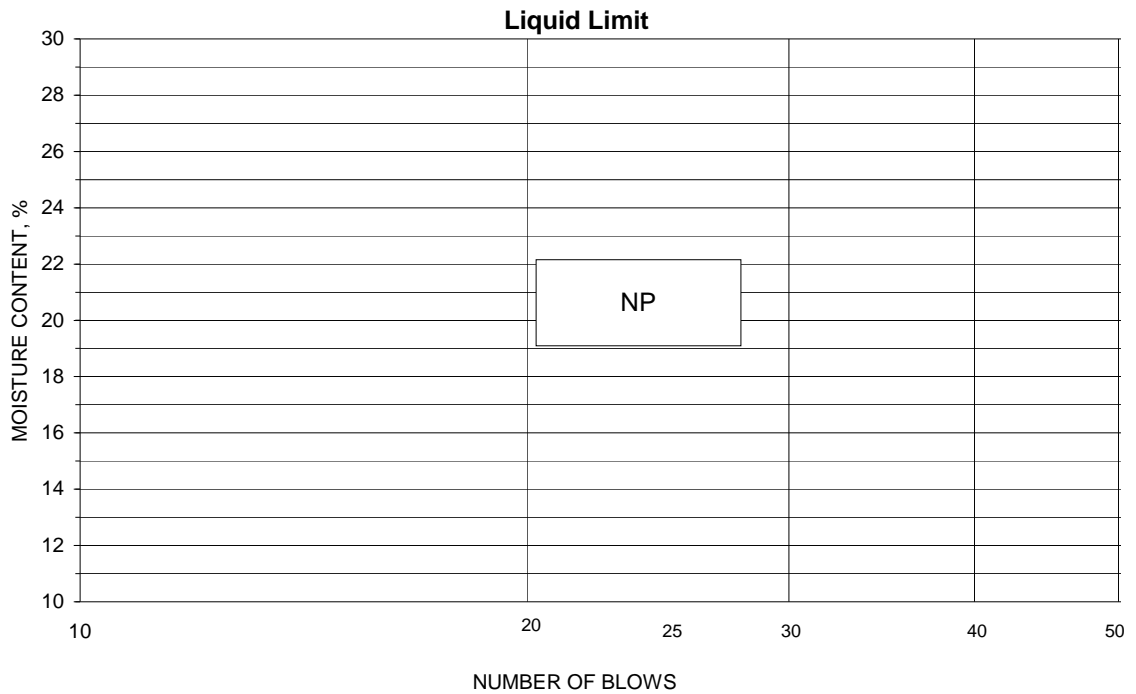


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-13, 18.0'-21.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 313
 % + No. 40 10
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-13, 3.0'-9.0' Lab ID 312
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.7
No. 4	4.75	99.5
No. 10	2	99.2
No. 40	0.425	98.2
No. 200	0.075	90.3
	0.02	59.7
	0.005	19.4
	0.002	6.8
estimated	0.001	1.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.5	0.8
Coarse Sand	0.3	1.0
Medium Sand	1.0	---
Fine Sand	7.9	7.9
Silt	70.9	83.5
Clay	19.4	6.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.38

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-13, 3.0'-9.0'

 Project Number 175569038
 Lab ID 312
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.7
No. 4	99.5
No. 10	99.2

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

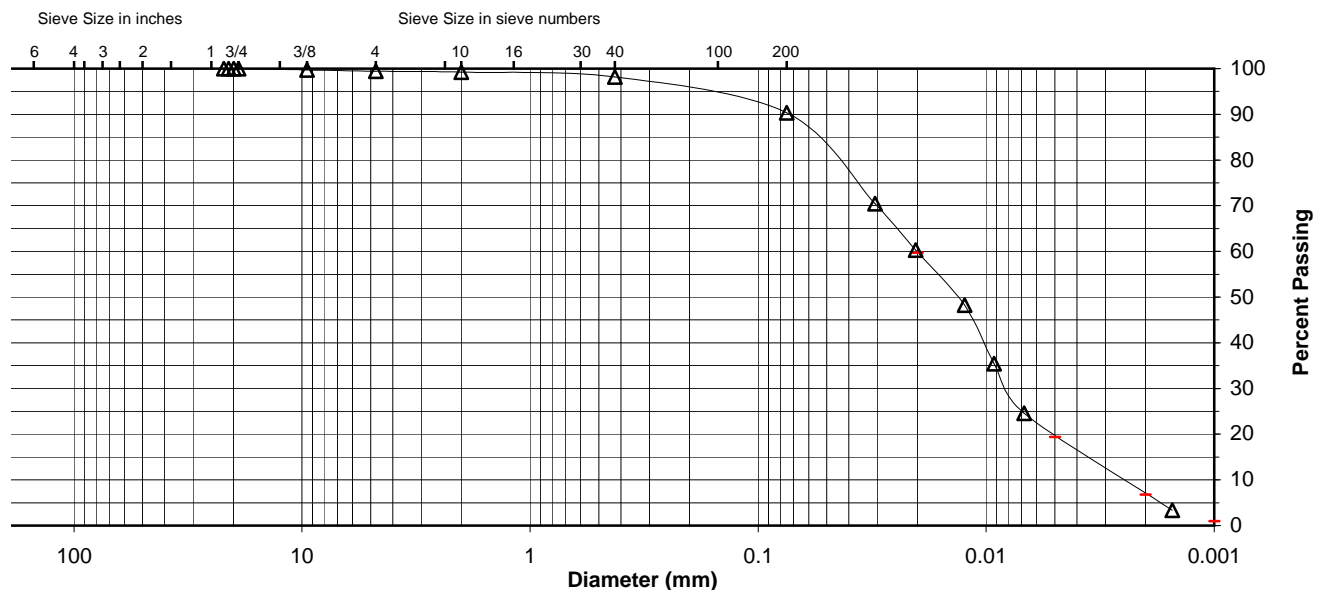
 Specific Gravity 2.38

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	98.2
No. 200	90.3
0.02 mm	59.7
0.005 mm	19.4
0.002 mm	6.8
0.001 mm	1.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	0.5	0.3	1.0	7.9	70.9
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.8			1.0	7.9	83.5	6.8



Comments _____

Reviewed By _____

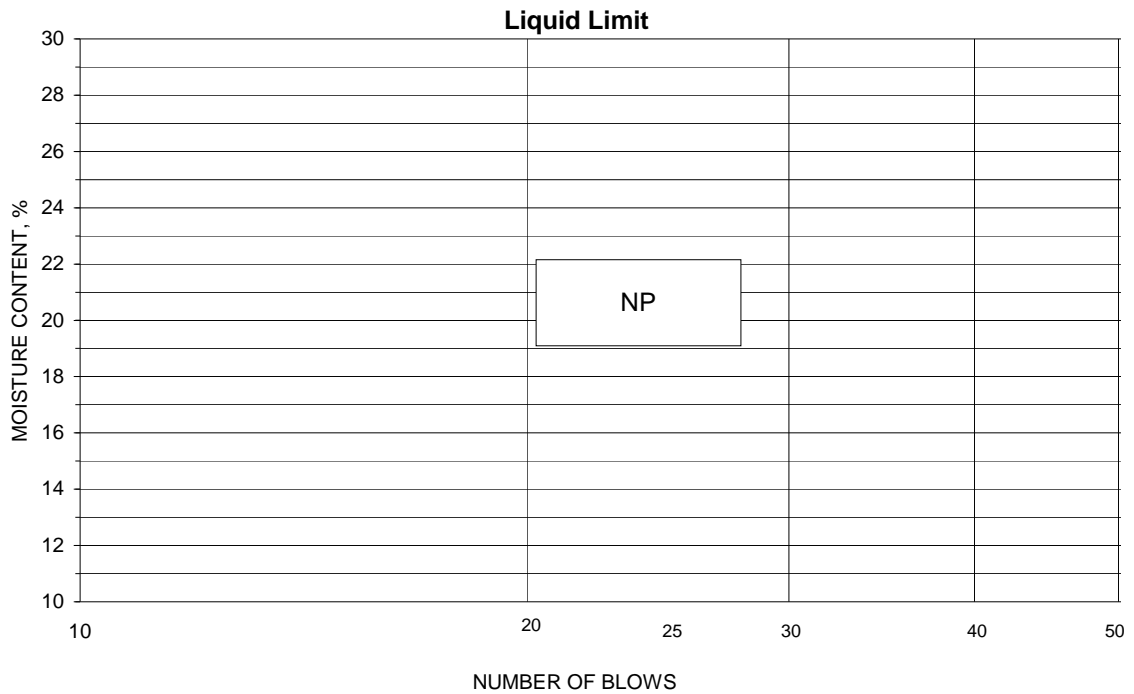


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-13, 3.0'-9.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 312
 % + No. 40 2
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-16, 16.5'-22.5' Lab ID 1832
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	98.4
No. 40	0.425	96.0
No. 200	0.075	84.6
	0.02	49.0
	0.005	11.9
	0.002	7.4
estimated	0.001	6.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	1.6
Coarse Sand	1.6	2.4
Medium Sand	2.4	---
Fine Sand	11.4	11.4
Silt	72.7	77.2
Clay	11.9	7.4

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.32

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-16, 16.5'-22.5'

 Project Number 171468118
 Lab ID 1832
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Soft

 Tested By: DG
 Test Date: 05-14-2009
 Date Received 04-28-2009

Maximum Particle size: No. 4 Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	98.4

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

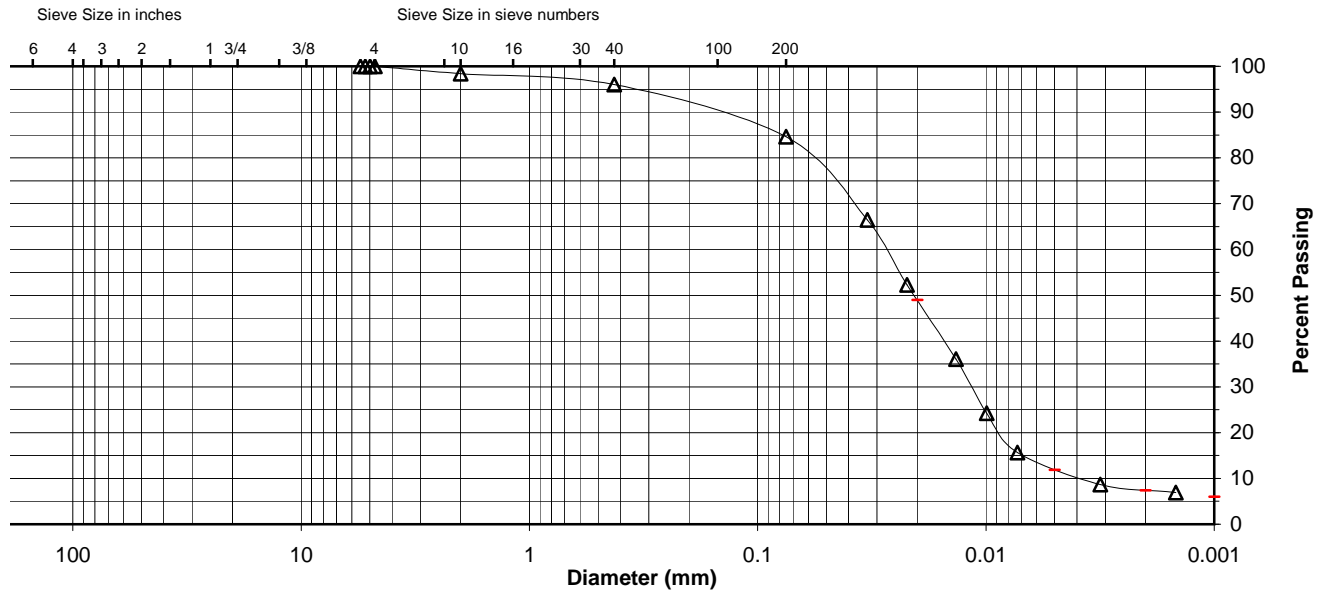
 Specific Gravity 2.32

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	96.0
No. 200	84.6
0.02 mm	49.0
0.005 mm	11.9
0.002 mm	7.4
0.001 mm	6.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	1.6	2.4	11.4	72.7	11.9
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	1.6		2.4	11.4	77.2		7.4



Comments _____

Reviewed By _____

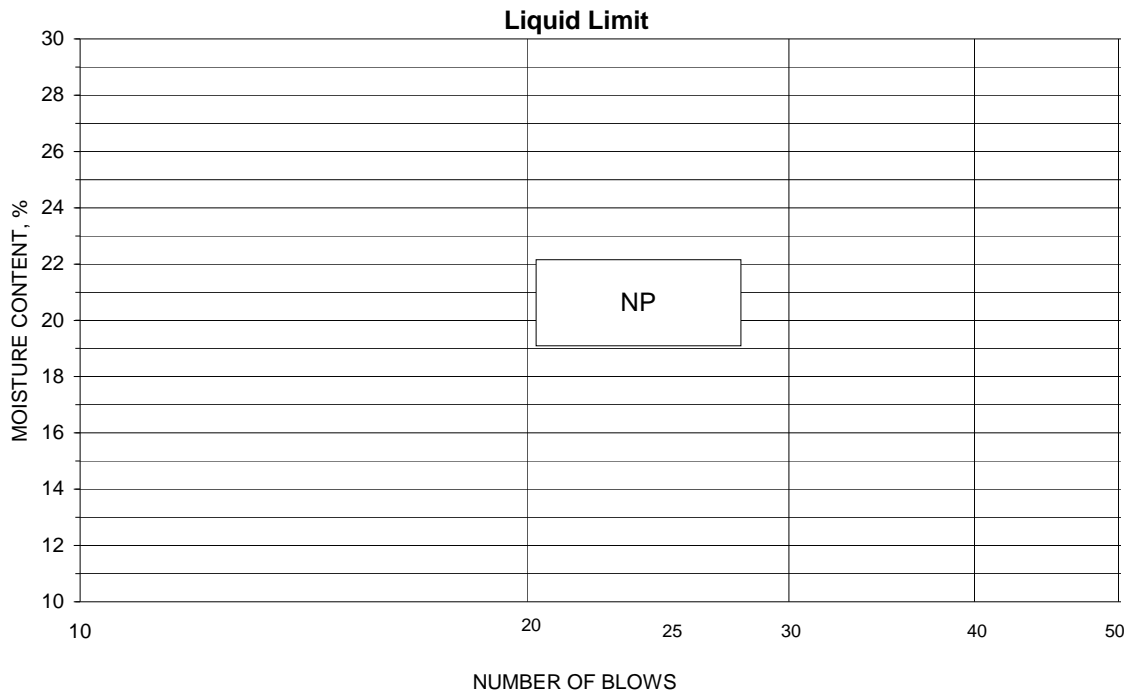


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-16, 16.5'-22.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-14-2009 Prepared Dry

Project No. 171468118
 Lab ID 1832
 % + No. 40 4
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-17, 18.0'-22.5' Lab ID 390
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	99.8
No. 40	0.425	99.0
No. 200	0.075	88.5
	0.02	51.3
	0.005	5.4
	0.002	2.7
estimated	0.001	2.6

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.2
Coarse Sand	0.2	0.8
Medium Sand	0.8	---
Fine Sand	10.5	10.5
Silt	83.1	85.8
Clay	5.4	2.7

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.25

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-17, 18.0'-22.5'

Project Number 175569038
 Lab ID 390

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded
 Particle Hardness: Soft
 Tested By: RSB
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	99.8

Maximum Particle size: No. 4 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

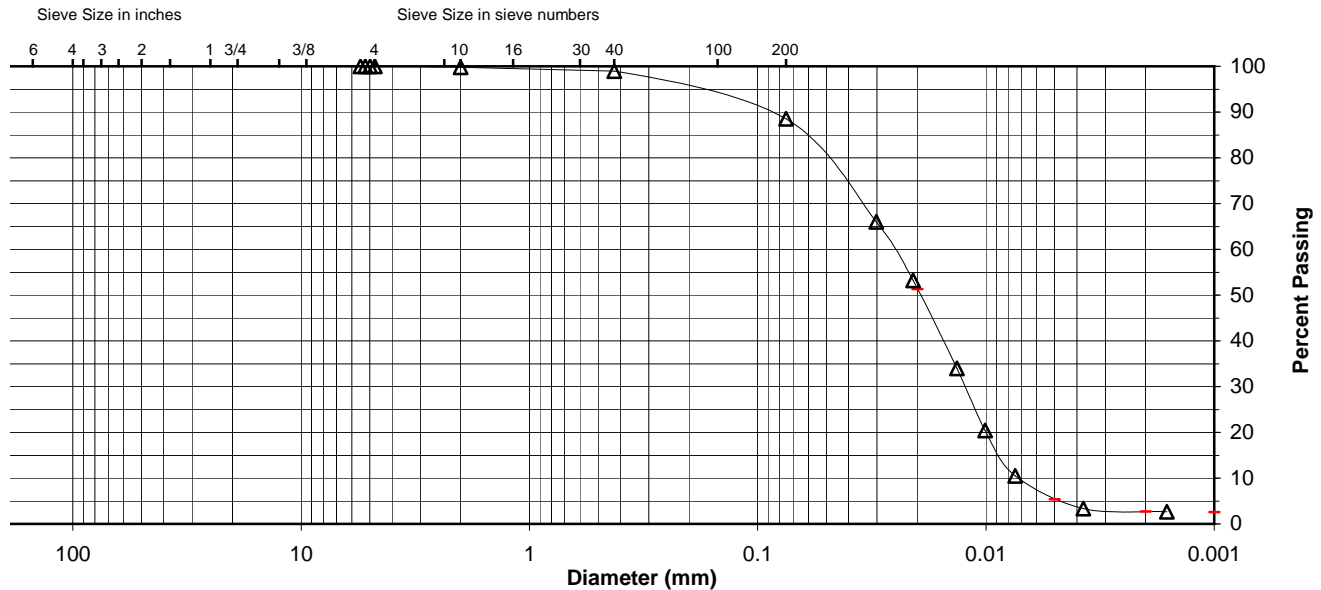
Specific Gravity 2.25

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.0
No. 200	88.5
0.02 mm	51.3
0.005 mm	5.4
0.002 mm	2.7
0.001 mm	2.6

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.2	0.8	10.5	83.1	5.4
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.2		0.8		10.5	85.8	2.7



Comments _____

Reviewed By _____

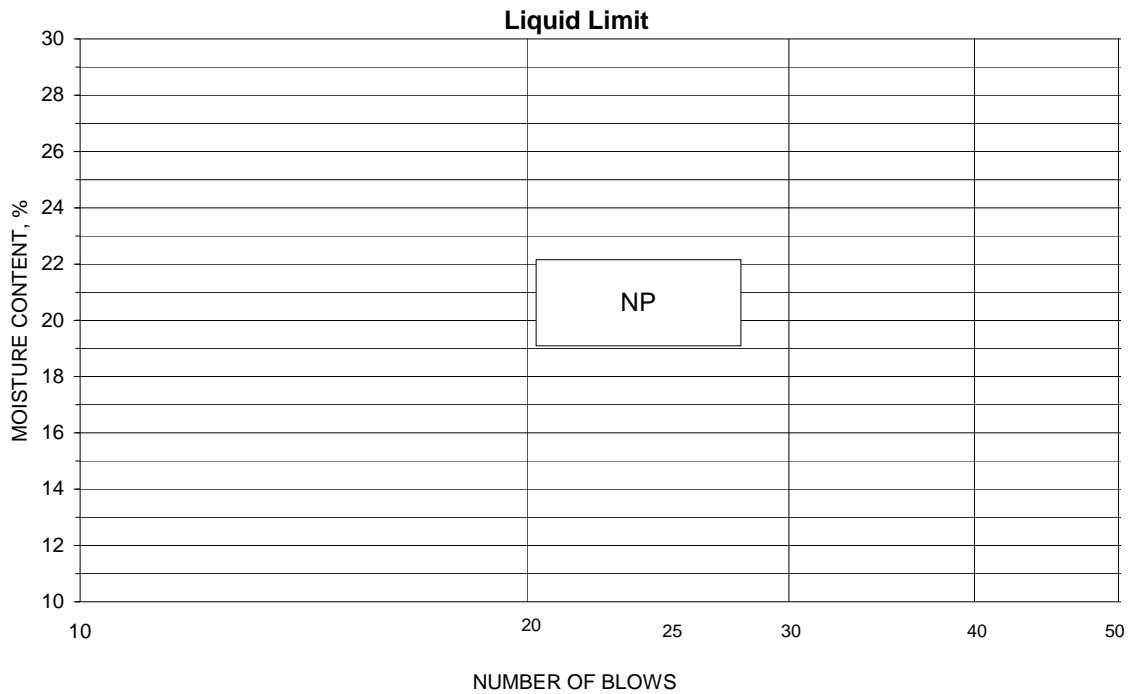


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-17, 18.0'-22.5'
 Tested By RHB Test Method ASTM D 4318 Method A
 Test Date 06-04-2009 Prepared Dry

Project No. 175569038
 Lab ID 390
 % + No. 40 1
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-17, 4.0'-13.5' Lab ID 389
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	97.8
No. 10	2	95.8
No. 40	0.425	93.5
No. 200	0.075	81.3
	0.02	49.1
	0.005	12.5
	0.002	3.0
estimated	0.001	1.6

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.2	4.2
Coarse Sand	2.0	2.3
Medium Sand	2.3	---
Fine Sand	12.2	12.2
Silt	68.8	78.3
Clay	12.5	3.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.37

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-17, 4.0'-13.5'

 Project Number 175569038
 Lab ID 389
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: RSB
 Test Date: 06-05-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	97.8
No. 10	95.8

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

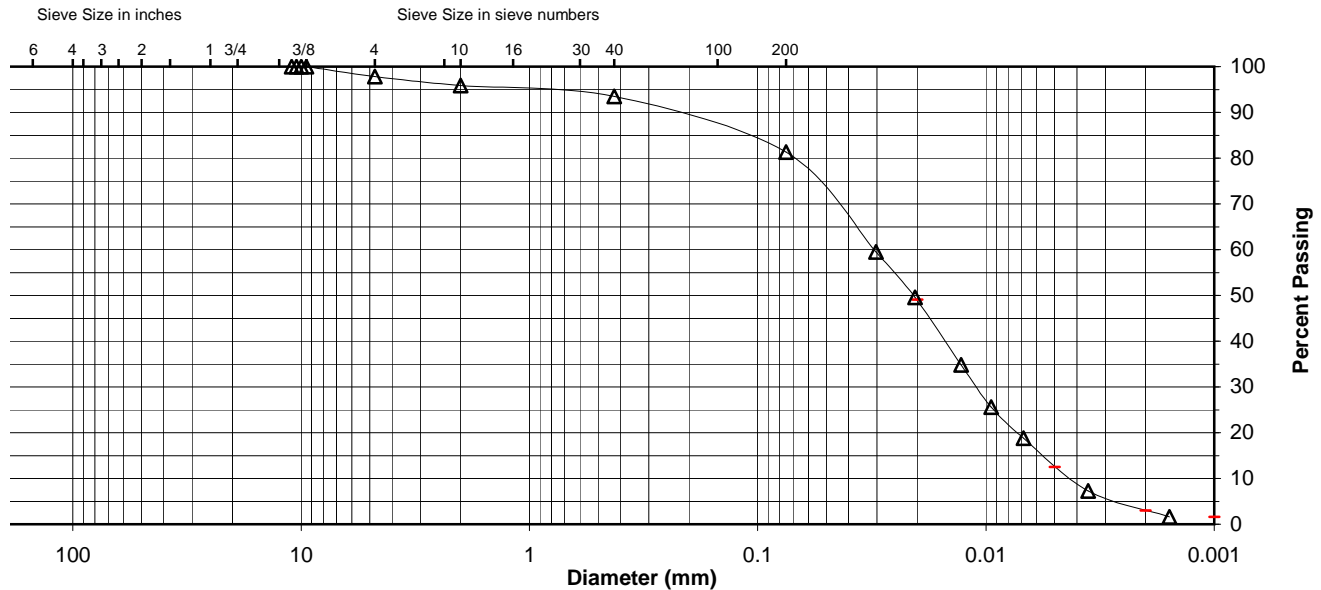
 Specific Gravity 2.37

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.5
No. 200	81.3
0.02 mm	49.1
0.005 mm	12.5
0.002 mm	3.0
0.001 mm	1.6

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.2	2.0	2.3	12.2	68.8	12.5
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	4.2		2.3		12.2	78.3	3.0



Comments _____

Reviewed By _____

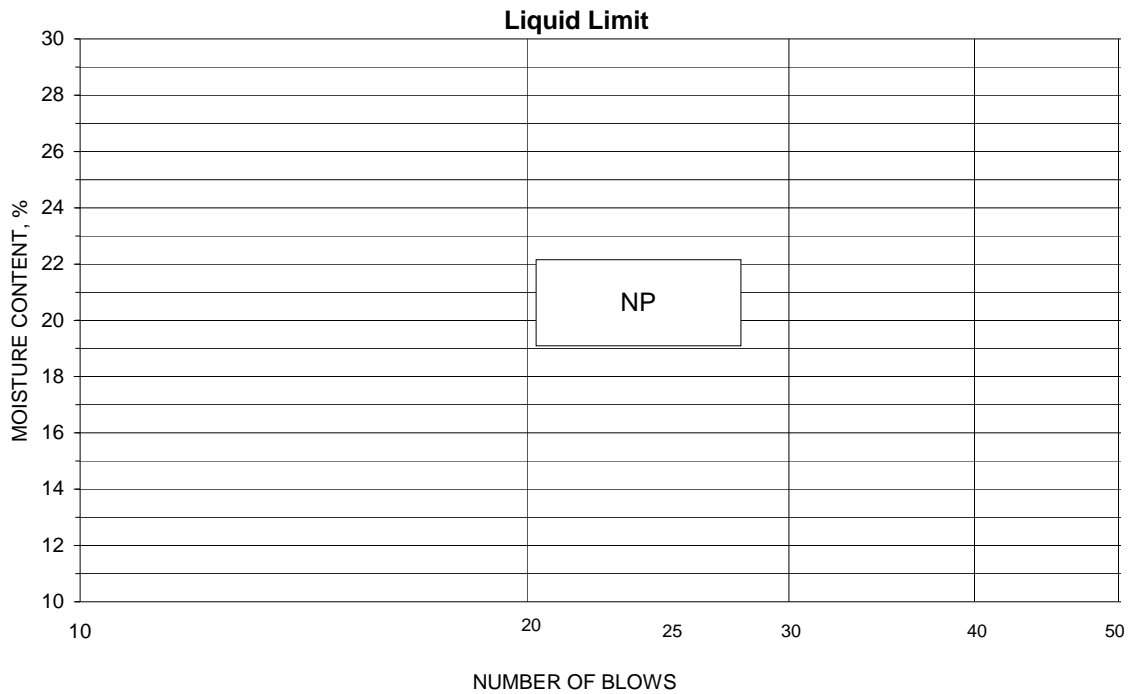


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-17, 4.0'-13.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 389
 % + No. 40 7
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-20, 7.5'-22.0' Lab ID 1793
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.6
No. 4	4.75	98.9
No. 10	2	97.8
No. 40	0.425	93.6
No. 200	0.075	75.8
	0.02	46.6
	0.005	16.7
	0.002	11.4
estimated	0.001	8.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.1	2.2
Coarse Sand	1.1	4.2
Medium Sand	4.2	---
Fine Sand	17.8	17.8
Silt	59.1	64.4
Clay	16.7	11.4

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.37

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-20, 7.5'-22.0'

 Project Number 171468118
 Lab ID 1793
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: BWT
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.6
No. 4	98.9
No. 10	97.8

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

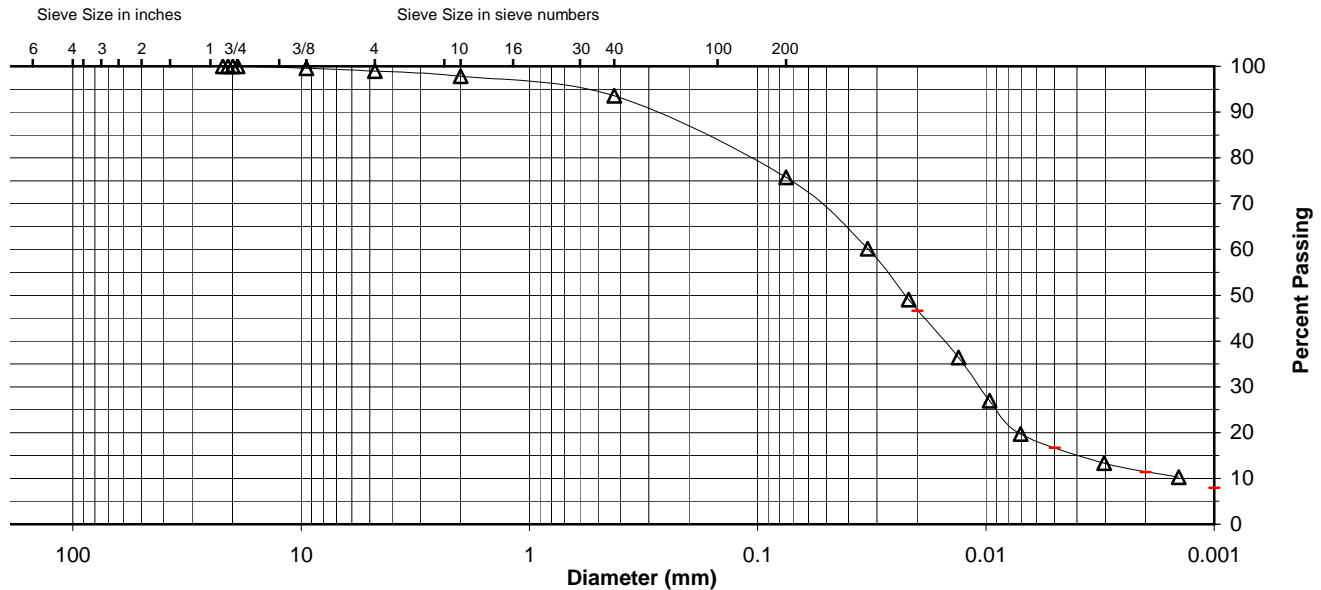
 Specific Gravity 2.37

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.6
No. 200	75.8
0.02 mm	46.6
0.005 mm	16.7
0.002 mm	11.4
0.001 mm	8.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	1.1	1.1	4.2	17.8	59.1	16.7	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	2.2			4.2	17.8	64.4		11.4



Comments _____

Reviewed By _____

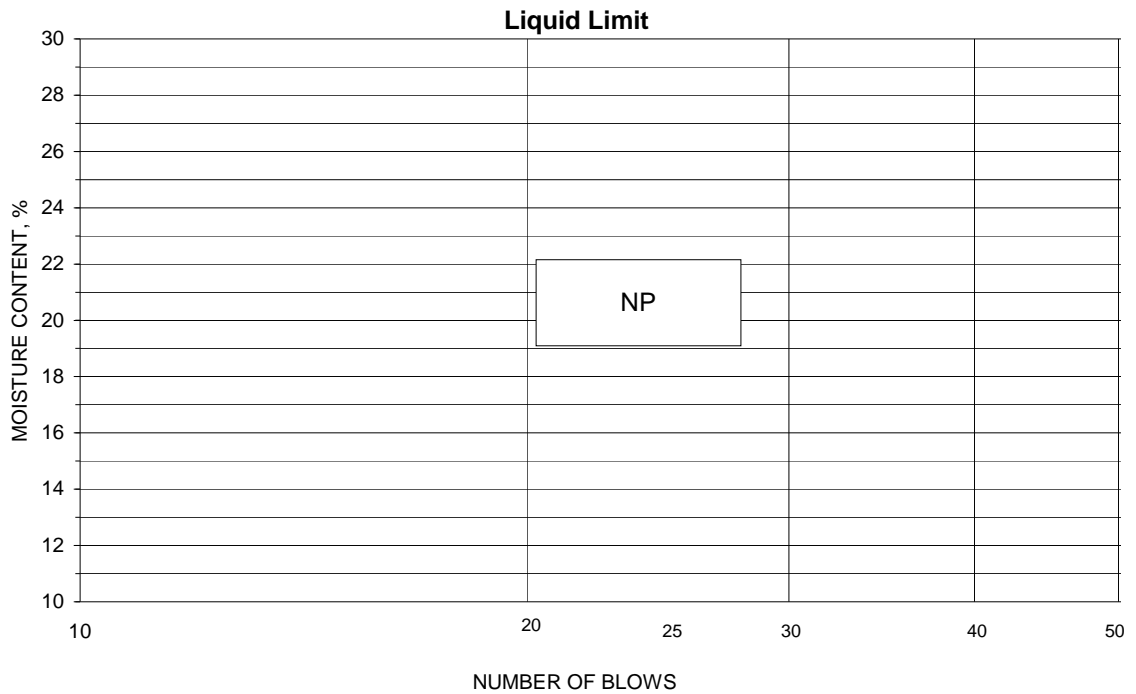


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-20, 7.5'-22.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1793
 % + No. 40 6
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-21, 2.5'-7.5' Lab ID 426
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.3
No. 4	4.75	96.3
No. 10	2	94.9
No. 40	0.425	93.2
No. 200	0.075	81.6
	0.02	52.8
	0.005	13.7
	0.002	4.8
estimated	0.001	3.5

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	3.7	5.1
Coarse Sand	1.4	1.7
Medium Sand	1.7	---
Fine Sand	11.6	11.6
Silt	67.9	76.8
Clay	13.7	4.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.33

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-21, 2.5'-7.5'

Project Number 175569038
 Lab ID 426

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: RSB
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.3
No. 4	96.3
No. 10	94.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

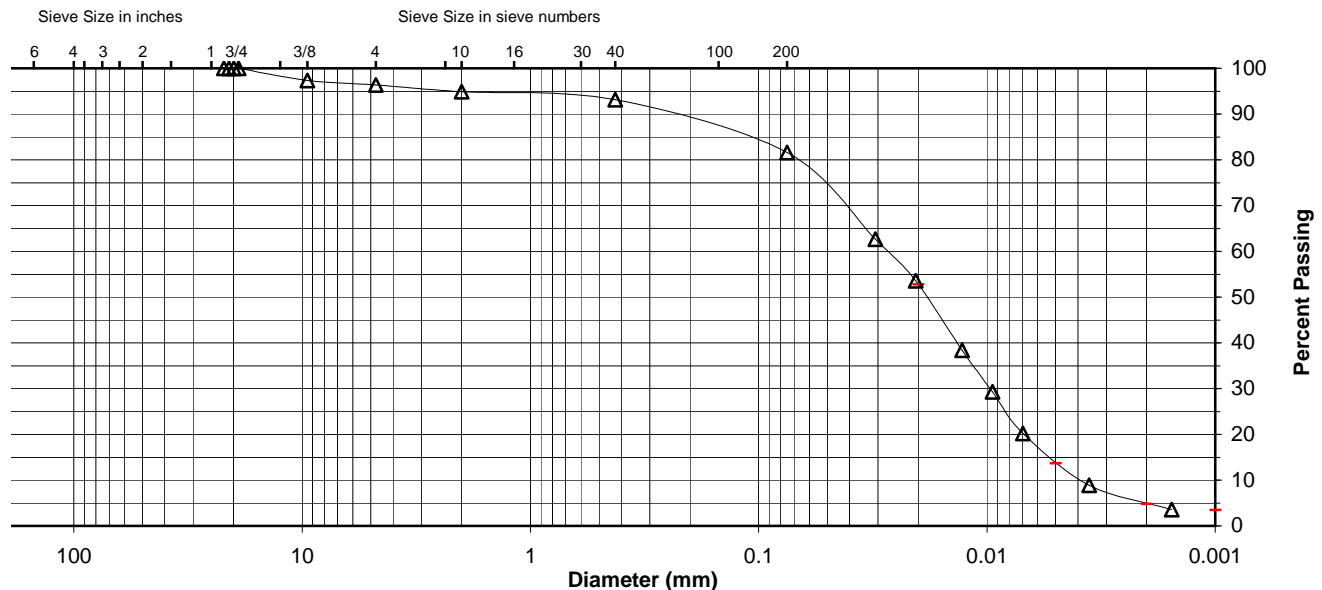
Specific Gravity 2.33

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.2
No. 200	81.6
0.02 mm	52.8
0.005 mm	13.7
0.002 mm	4.8
0.001 mm	3.5

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	3.7	1.4	1.7	11.6	67.9	13.7
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	5.1		1.7		11.6	76.8	4.8



Comments _____

Reviewed By _____

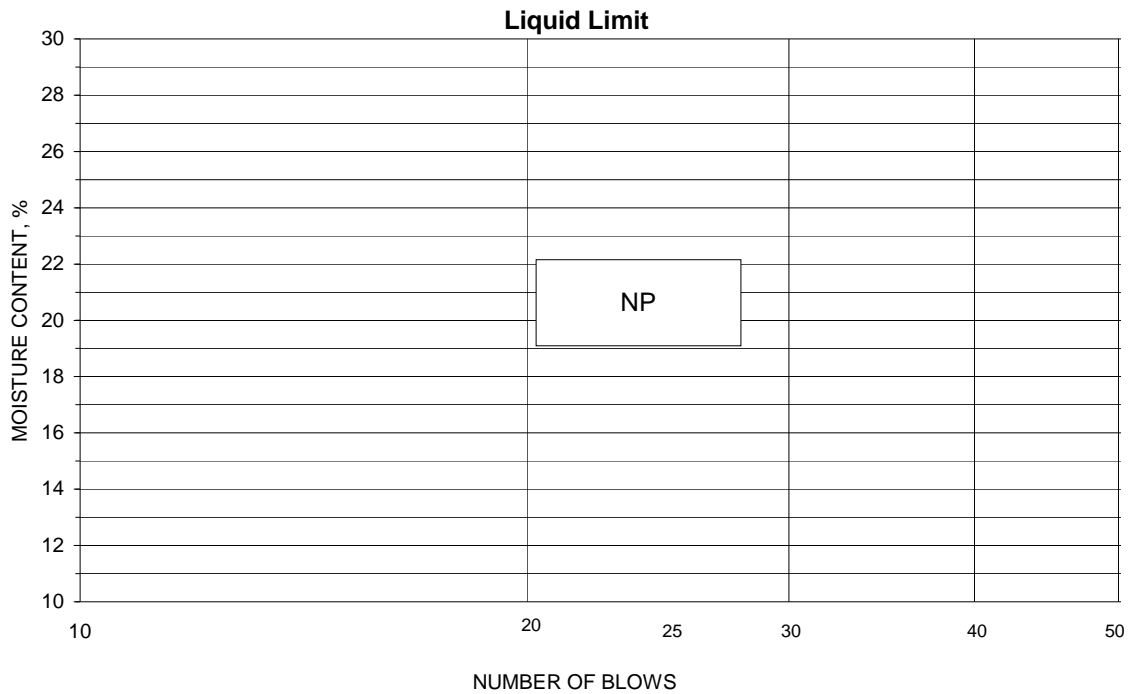


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-21, 2.5'-7.5'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-15-2009 Prepared Dry

Project No. 175569038
 Lab ID 426
 % + No. 40 7
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-25, 11.7'-21.0' Lab ID 580
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.4
No. 10	2	98.5
No. 40	0.425	97.0
No. 200	0.075	85.9
	0.02	48.3
	0.005	6.5
	0.002	3.0
estimated	0.001	2.8

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.6	1.5
Coarse Sand	0.9	1.5
Medium Sand	1.5	---
Fine Sand	11.1	11.1
Silt	79.4	82.9
Clay	6.5	3.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.30

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-25, 11.7'-21.0'

Project Number 175569038
 Lab ID 580

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: RSB
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.4
No. 10	98.5

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

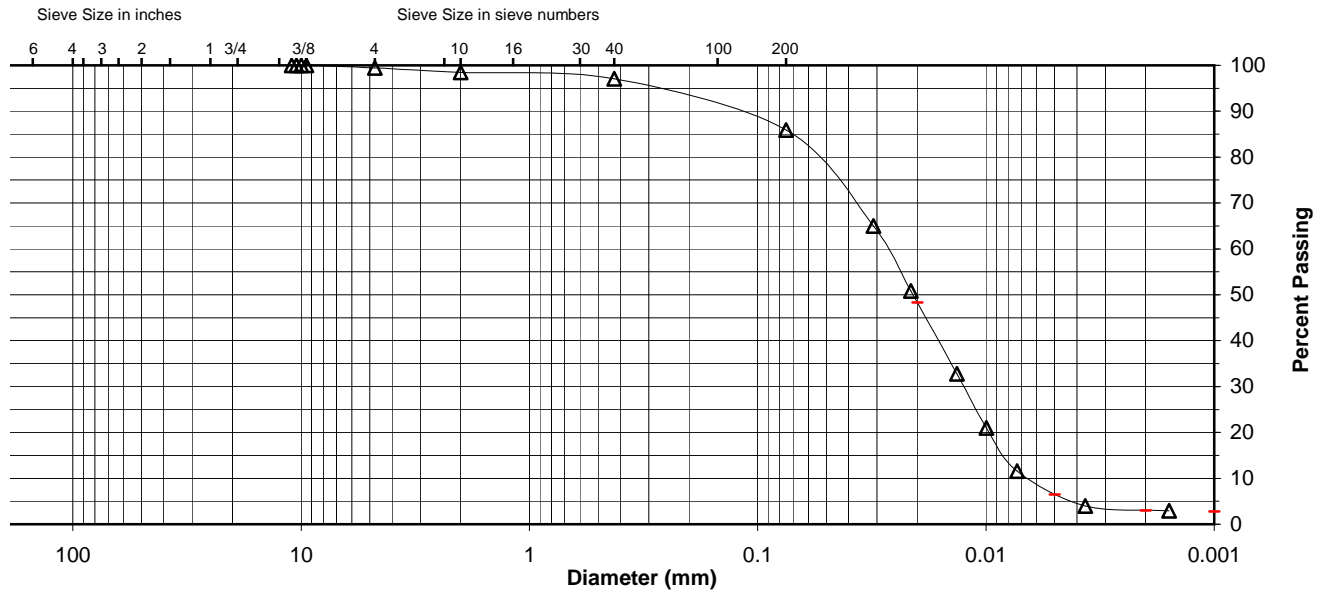
Specific Gravity 2.3

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.0
No. 200	85.9
0.02 mm	48.3
0.005 mm	6.5
0.002 mm	3.0
0.001 mm	2.8

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.6	0.9	1.5	11.1	79.4	6.5
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	1.5		1.5		11.1	82.9	3.0



Comments _____

Reviewed By _____

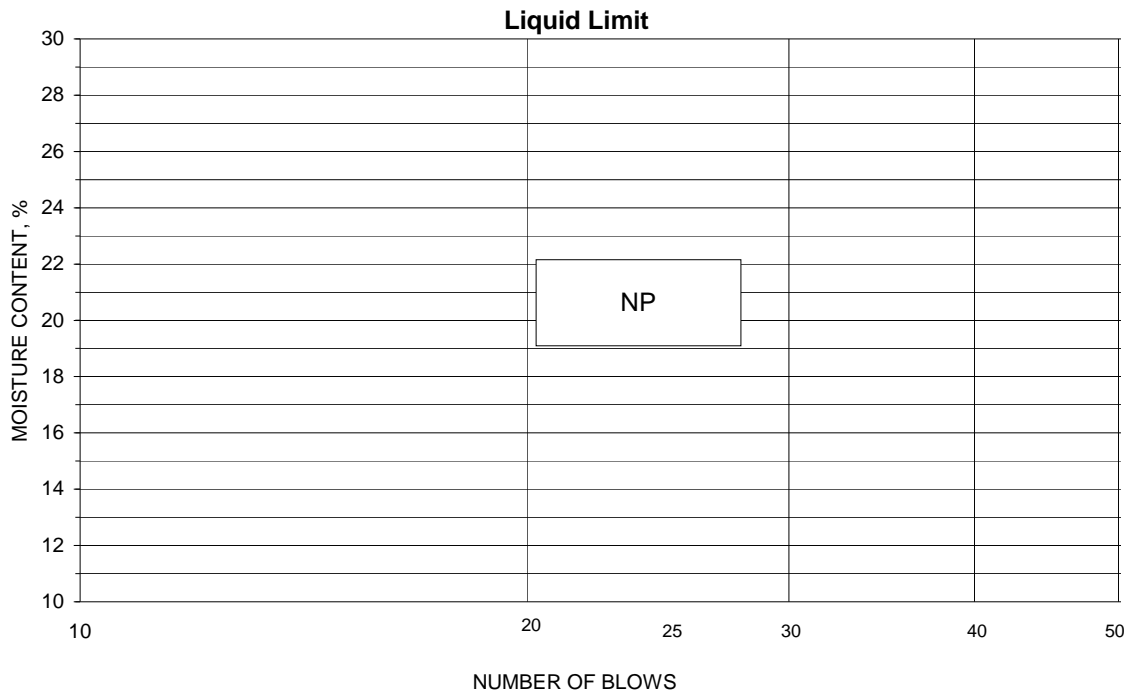


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-25, 11.7'-21.0'
 Tested By RHB Test Method ASTM D 4318 Method A
 Test Date 06-04-2009 Prepared Dry

Project No. 175569038
 Lab ID 580
 % + No. 40 3
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-25, 2.6'-11.7' Lab ID 579
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	95.1
No. 4	4.75	88.5
No. 10	2	78.6
No. 40	0.425	67.9
No. 200	0.075	51.7
	0.02	27.9
	0.005	6.9
	0.002	2.3
estimated	0.001	1.5

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	11.5	21.4
Coarse Sand	9.9	10.7
Medium Sand	10.7	---
Fine Sand	16.2	16.2
Silt	44.8	49.4
Clay	6.9	2.3

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.43

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-25, 2.6'-11.7'

 Project Number 175569038
 Lab ID 579
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: RSB
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	95.1
No. 4	88.5
No. 10	78.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

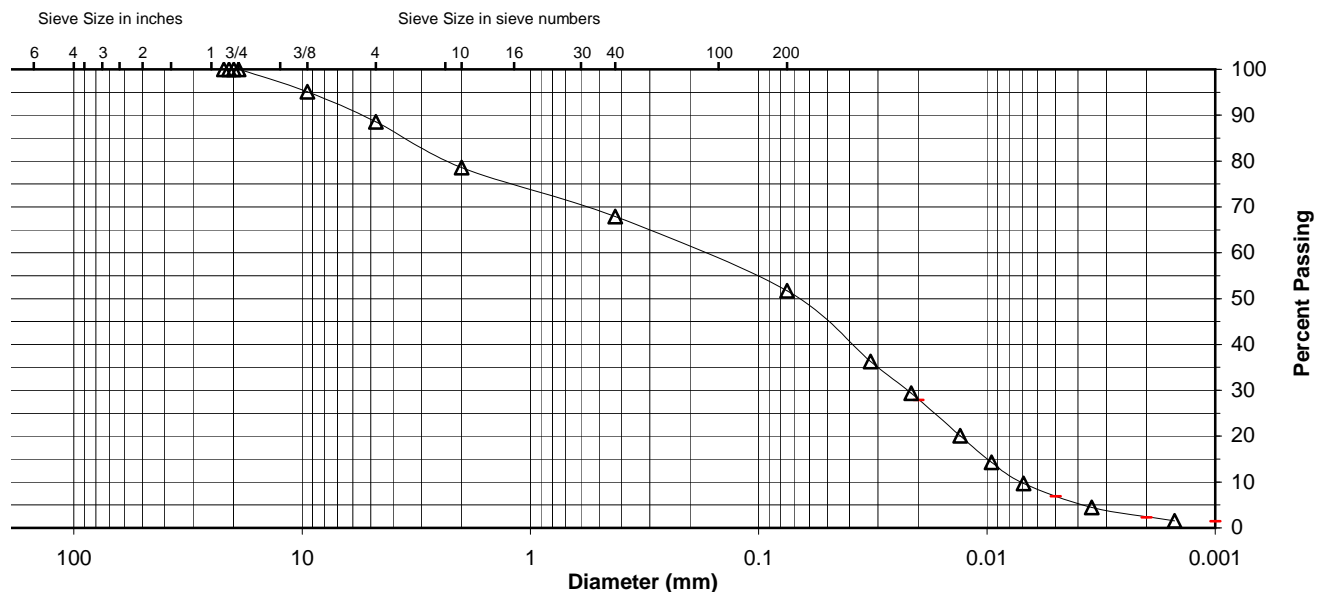
 Specific Gravity 2.43

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	67.9
No. 200	51.7
0.02 mm	27.9
0.005 mm	6.9
0.002 mm	2.3
0.001 mm	1.5

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	11.5	9.9	10.7	16.2	44.8	6.9
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	21.4		10.7		16.2	49.4	2.3



Comments _____

Reviewed By _____

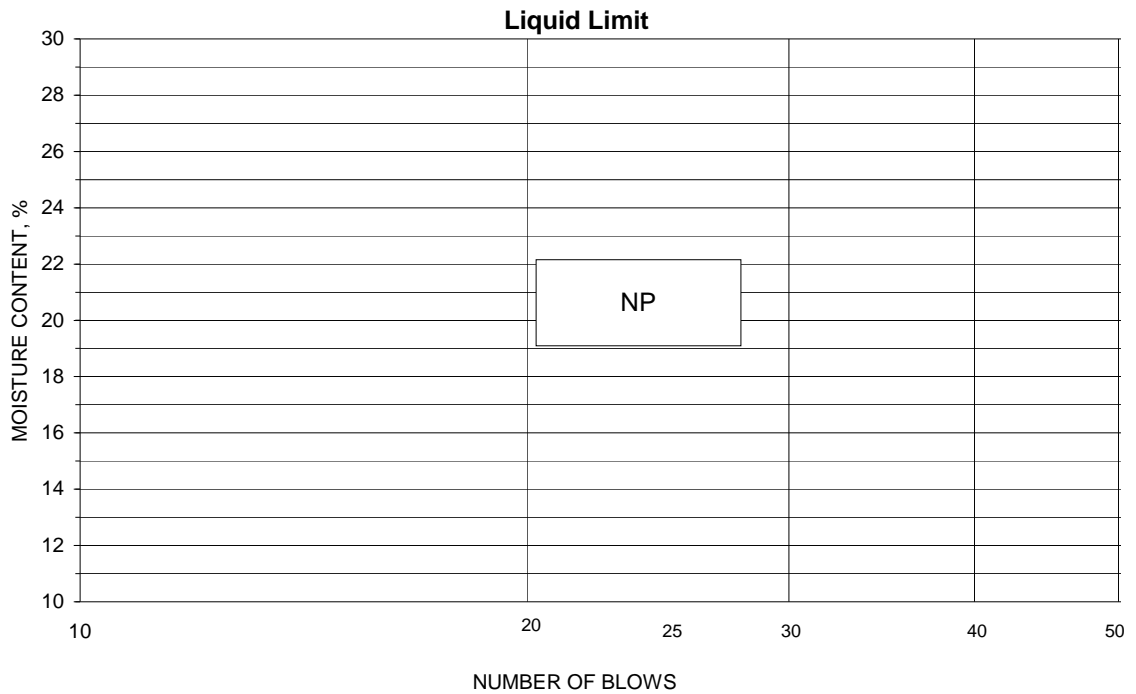


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-25, 2.6'-11.7'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-15-2009 Prepared Dry

Project No. 175569038
 Lab ID 579
 % + No. 40 32
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-30, 19.5'-24.0' Lab ID 545
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	99.3
No. 40	0.425	97.7
No. 200	0.075	88.8
	0.02	47.1
	0.005	2.1
	0.002	0.2
estimated	0.001	0.2

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.7
Coarse Sand	0.7	1.6
Medium Sand	1.6	---
Fine Sand	8.9	8.9
Silt	86.7	88.6
Clay	2.1	0.2

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.23

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-30, 19.5'-24.0'

 Project Number 175569038
 Lab ID 545
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Weathered and Friable

 Tested By: RSB
 Test Date: 06-05-2009
 Date Received: 05-26-2009

Maximum Particle size: No. 4 Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	99.3

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

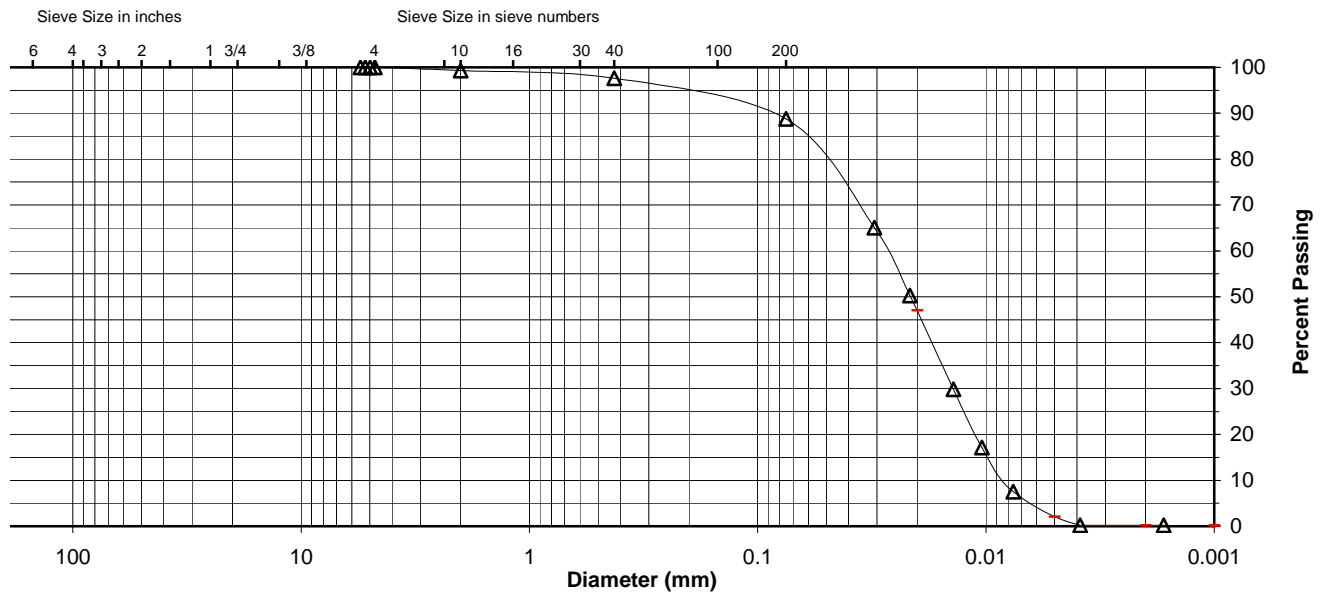
 Specific Gravity 2.23

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.7
No. 200	88.8
0.02 mm	47.1
0.005 mm	2.1
0.002 mm	0.2
0.001 mm	0.2

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.7	1.6	8.9	86.7	2.1
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	0.7		1.6	8.9	88.6		0.2



Comments _____

Reviewed By _____

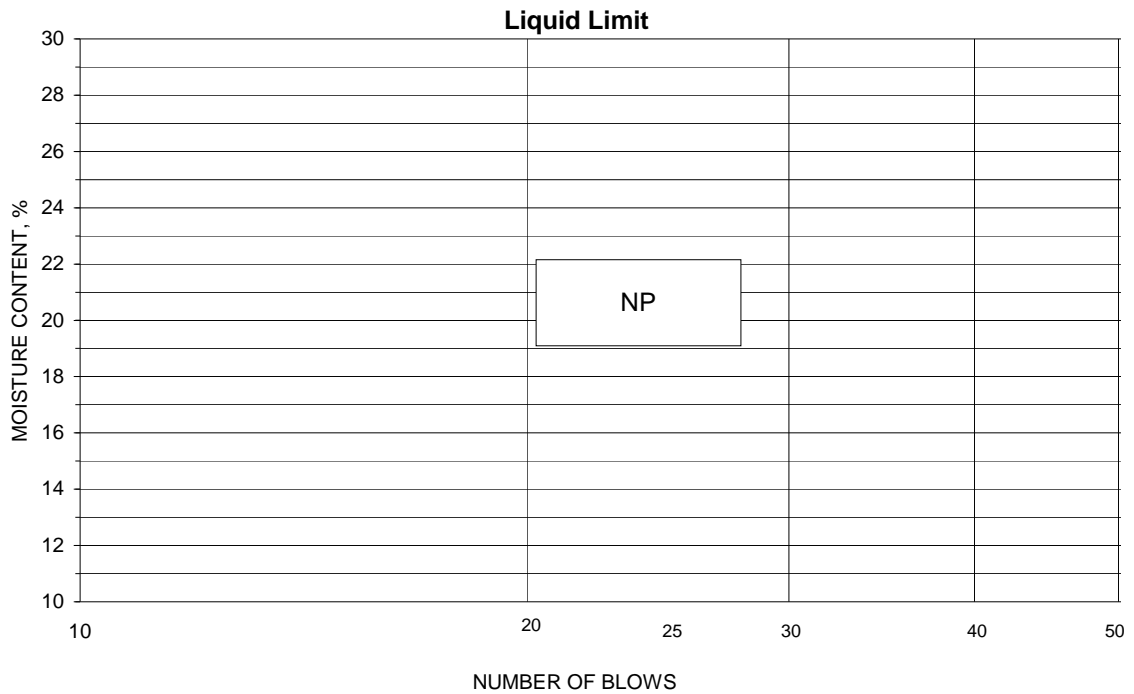


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-30, 19.5'-24.0'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-15-2009 Prepared Dry

Project No. 175569038
 Lab ID 545
 % + No. 40 2
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-30, 3.0'-7.5' Lab ID 544
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	96.9
No. 4	4.75	92.4
No. 10	2	84.9
No. 40	0.425	76.1
No. 200	0.075	58.7
	0.02	30.9
	0.005	6.0
	0.002	0.8
estimated	0.001	0.1

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	7.6	15.1
Coarse Sand	7.5	8.8
Medium Sand	8.8	---
Fine Sand	17.4	17.4
Silt	52.7	57.9
Clay	6.0	0.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.41

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____



Project Name John Siever Fossil Plant
 Source JS-30, 3.0'-7.5'

Project Number 175569038
 Lab ID 544

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: AR
 Test Date: 06-02-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	96.9
No. 4	92.4
No. 10	84.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

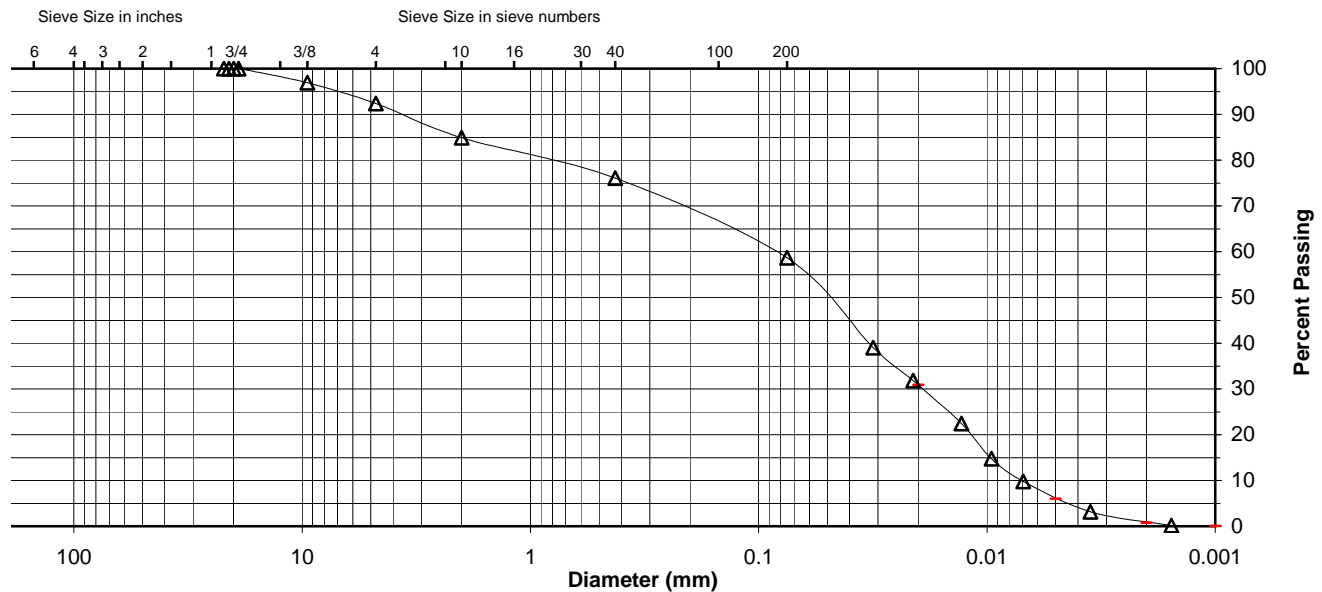
Specific Gravity 2.41

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	76.1
No. 200	58.7
0.02 mm	30.9
0.005 mm	6.0
0.002 mm	0.8
0.001 mm	0.1

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	7.6	7.5	8.8	17.4	52.7	6.0
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	15.1			8.8	17.4	57.9	0.8



Comments _____

Reviewed By _____

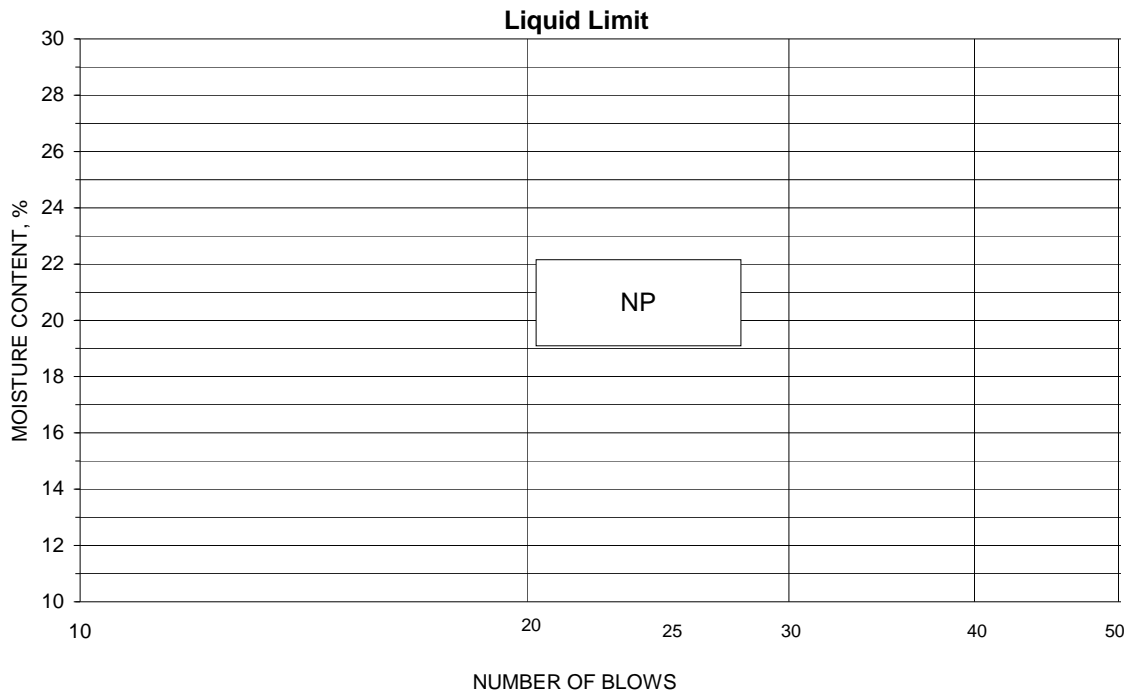


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-30, 3.0'-7.5'
 Tested By AR Test Method ASTM D 4318 Method A
 Test Date 06-02-2009 Prepared Dry

Project No. 175569038
 Lab ID 544
 % + No. 40 24
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-31, 13.5'-18.0' Lab ID 264
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.8
No. 4	4.75	94.6
No. 10	2	89.5
No. 40	0.425	82.6
No. 200	0.075	70.7
	0.02	44.3
	0.005	18.5
	0.002	10.6
estimated	0.001	7.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	5.4	10.5
Coarse Sand	5.1	6.9
Medium Sand	6.9	---
Fine Sand	11.9	11.9
Silt	52.2	60.1
Clay	18.5	10.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.44

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-31, 13.5'-18.0'

 Project Number 175569038
 Lab ID 264
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.8
No. 4	94.6
No. 10	89.5

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

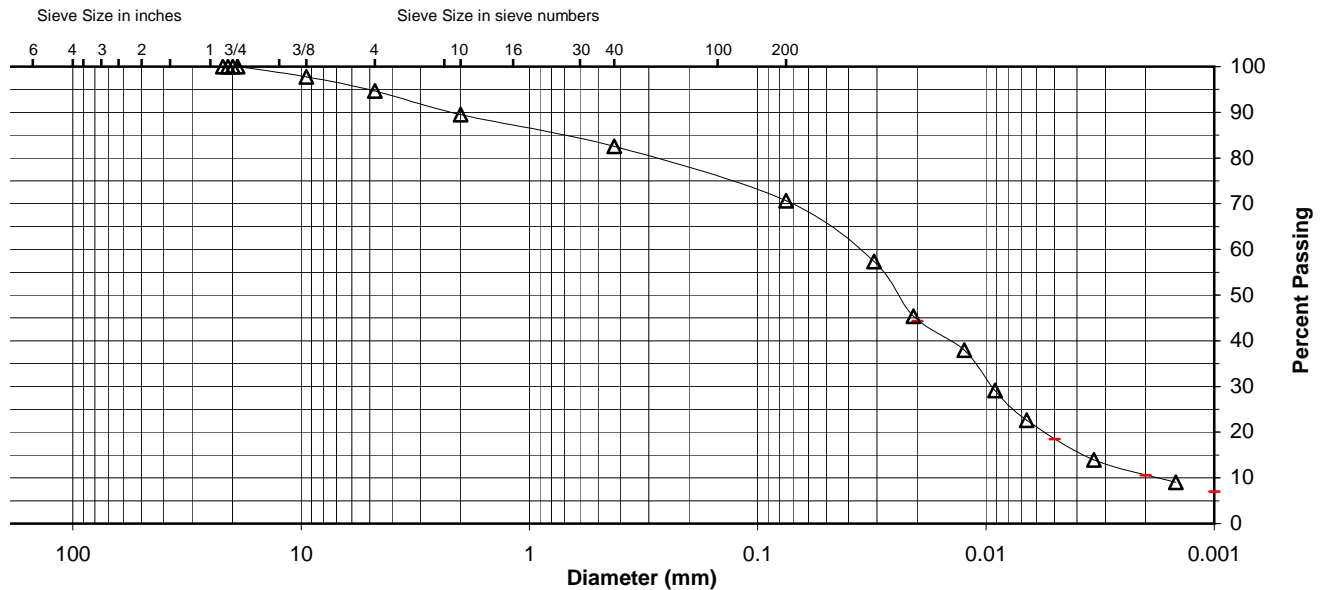
 Specific Gravity 2.44

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	82.6
No. 200	70.7
0.02 mm	44.3
0.005 mm	18.5
0.002 mm	10.6
0.001 mm	7.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	5.4	5.1	6.9	11.9	52.2	18.5
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	10.5		6.9	11.9	60.1		10.6



Comments _____

Reviewed By _____

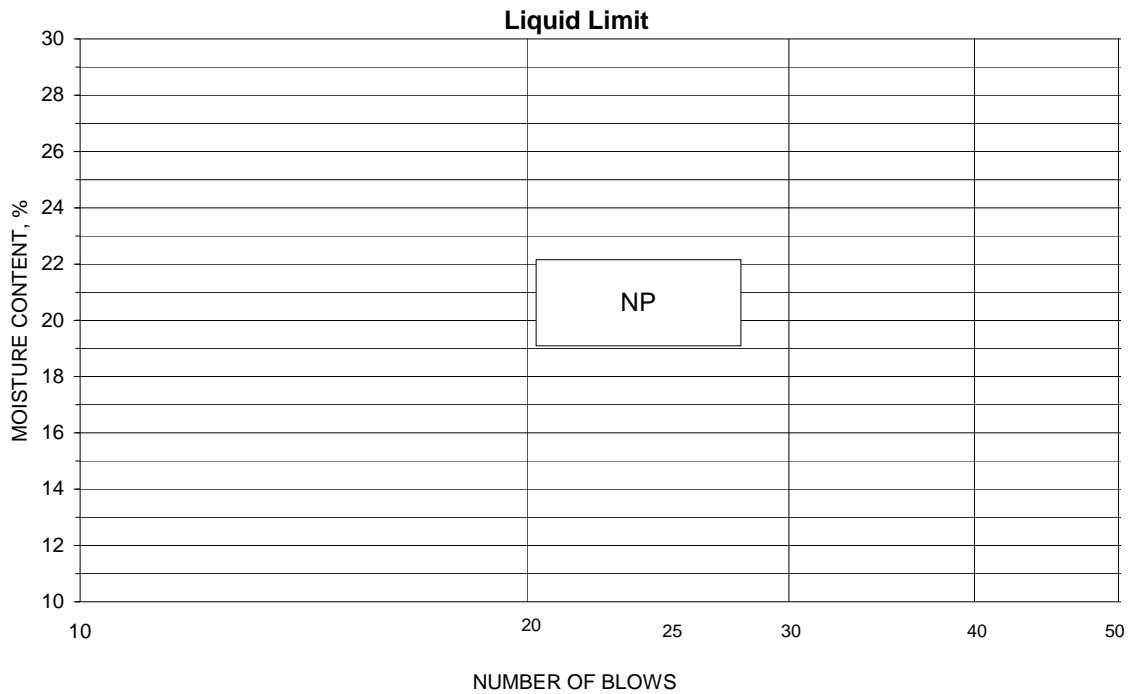


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-31, 13.5'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-11-2009 Prepared Dry

Project No. 175569038
 Lab ID 264
 % + No. 40 17
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-31, 48.0'-51.0' Lab ID 265
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.0
No. 4	4.75	93.8
No. 10	2	87.6
No. 40	0.425	78.7
No. 200	0.075	63.4
	0.02	37.0
	0.005	8.9
	0.002	5.5
estimated	0.001	4.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	6.2	12.4
Coarse Sand	6.2	8.9
Medium Sand	8.9	---
Fine Sand	15.3	15.3
Silt	54.5	57.9
Clay	8.9	5.5

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.37

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-31, 48.0'-51.0'

Project Number 175569038
 Lab ID 265

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.0
No. 4	93.8
No. 10	87.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

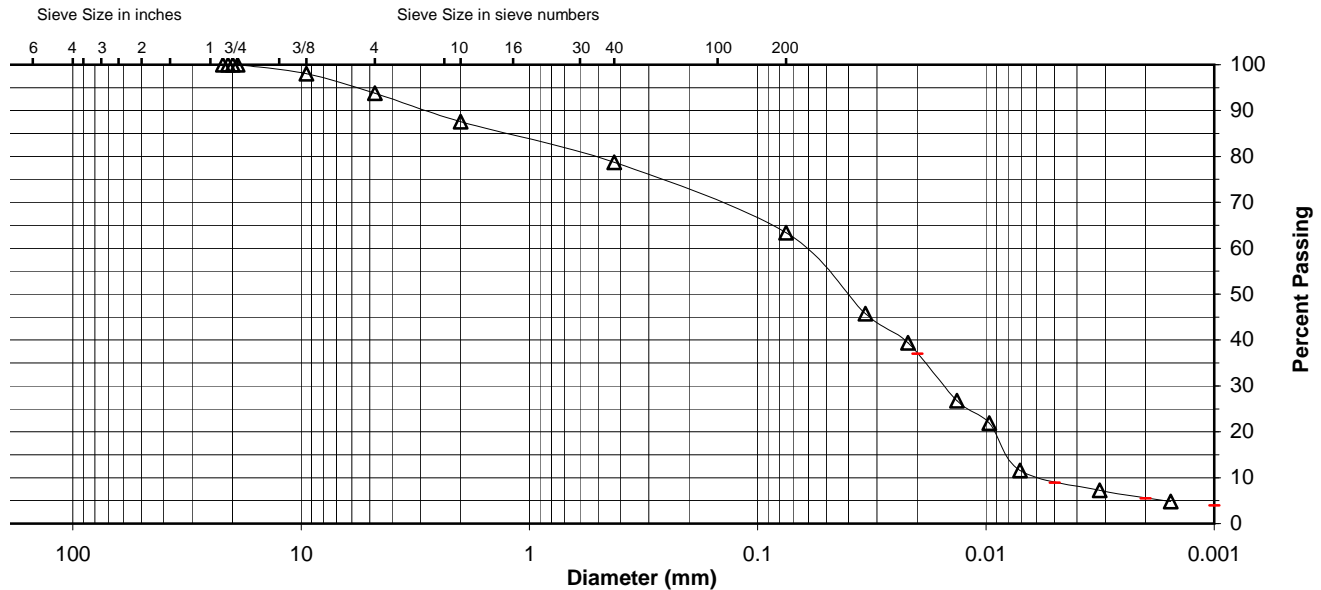
Specific Gravity 2.37

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	78.7
No. 200	63.4
0.02 mm	37.0
0.005 mm	8.9
0.002 mm	5.5
0.001 mm	4.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	6.2	6.2	8.9	15.3	54.5	8.9	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	12.4		8.9		15.3	57.9		5.5



Comments _____

Reviewed By _____

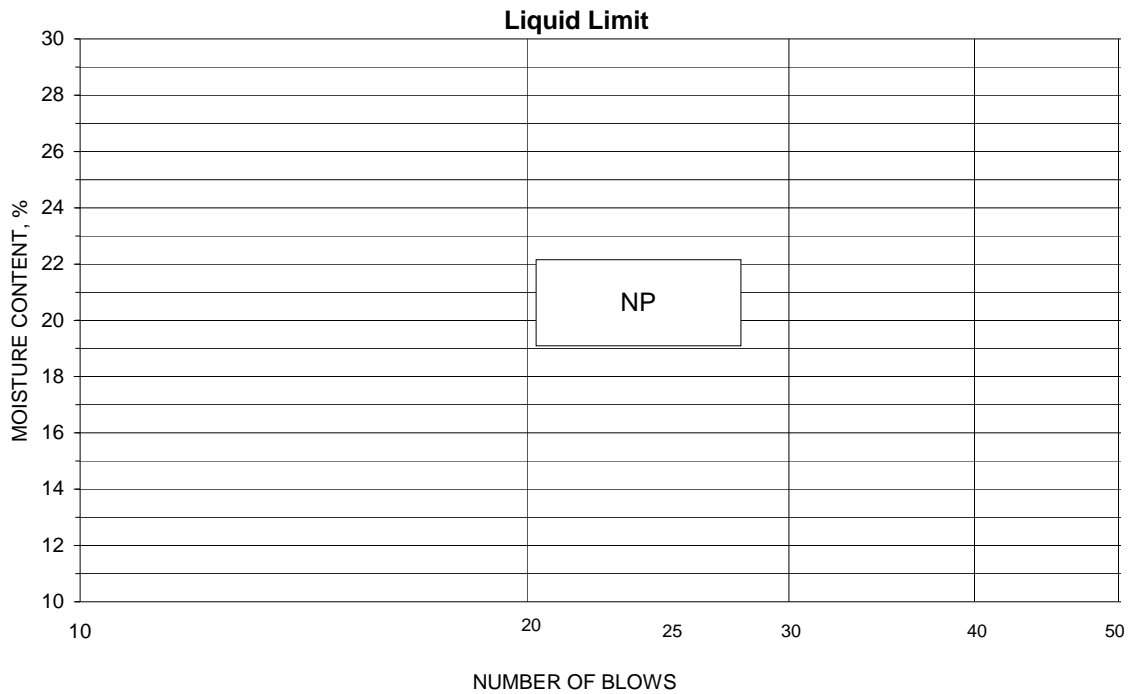


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-31, 48.0'-51.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 265
 % + No. 40 21
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-33, 0.0'-15.0' Lab ID 1403
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.5
No. 10	2	99.4
No. 40	0.425	98.8
No. 200	0.075	88.1
	0.02	63.3
	0.005	12.5
	0.002	5.0
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.5	0.6
Coarse Sand	0.1	0.6
Medium Sand	0.6	---
Fine Sand	10.7	10.7
Silt	75.6	83.1
Clay	12.5	5.0

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.22

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33, 0.0'-15.0'

Project Number 171468118
 Lab ID 1403

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: DG
 Test Date: 05-12-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.5
No. 10	99.4

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

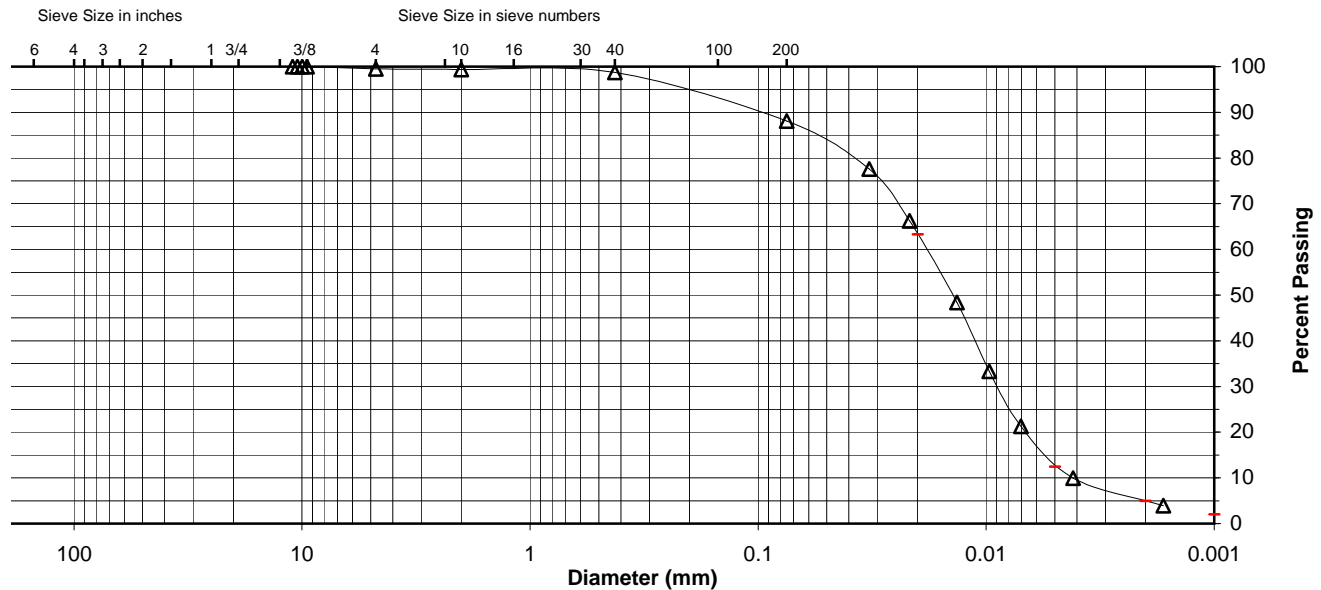
Specific Gravity 2.22

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	98.8
No. 200	88.1
0.02 mm	63.3
0.005 mm	12.5
0.002 mm	5.0
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.5	0.1	0.6	10.7	75.6	12.5
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	0.6		0.6	10.7	83.1		5.0



Comments _____

Reviewed By _____

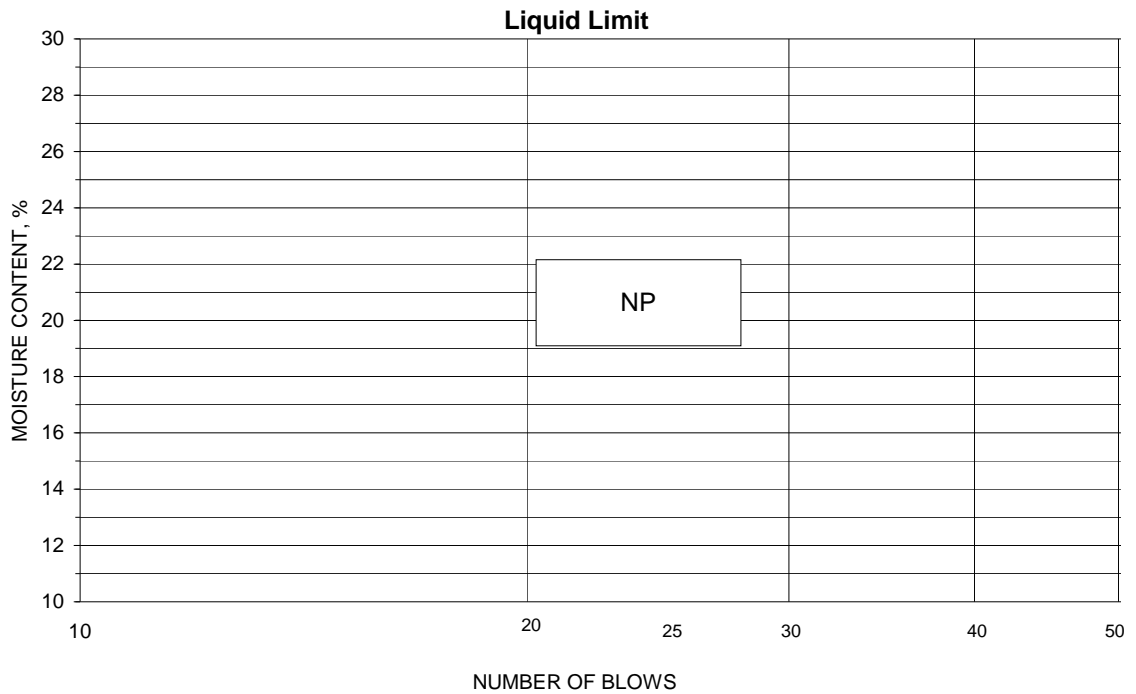


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33, 0.0'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-13-2009 Prepared Dry

Project No. 171468118
 Lab ID 1403
 % + No. 40 1
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-33, 40.5'-46.5' Lab ID 1404
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	93.9
No. 4	4.75	86.7
No. 10	2	77.0
No. 40	0.425	62.2
No. 200	0.075	47.3
	0.02	31.8
	0.005	7.3
	0.002	3.1
estimated	0.001	1.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	13.3	23.0
Coarse Sand	9.7	14.8
Medium Sand	14.8	---
Fine Sand	14.9	14.9
Silt	40.0	44.2
Clay	7.3	3.1

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.21

Classification

Unified Group Symbol: SM
 Group Name: Silty sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33, 40.5'-46.5'

Project Number 171468118
 Lab ID 1404

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-12-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	93.9
No. 4	86.7
No. 10	77.0

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

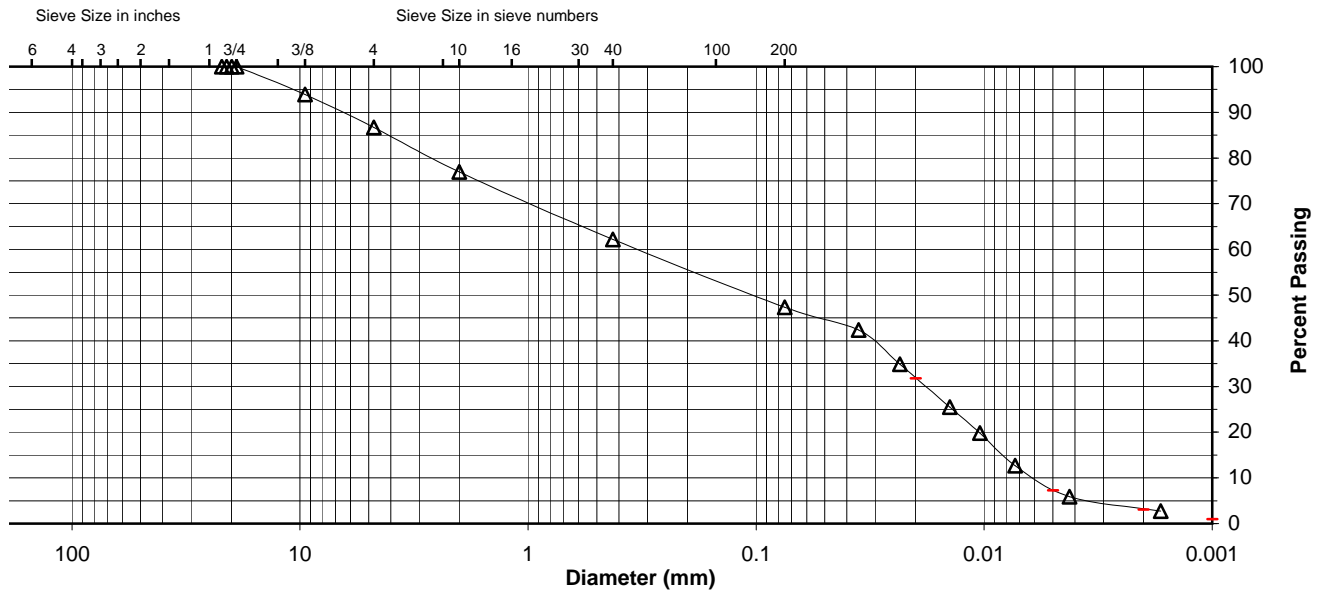
Specific Gravity 2.21

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	62.2
No. 200	47.3
0.02 mm	31.8
0.005 mm	7.3
0.002 mm	3.1
0.001 mm	1.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	13.3	9.7	14.8	14.9	40.0	7.3
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	23.0		14.8		14.9	44.2	3.1



Comments _____

Reviewed By _____

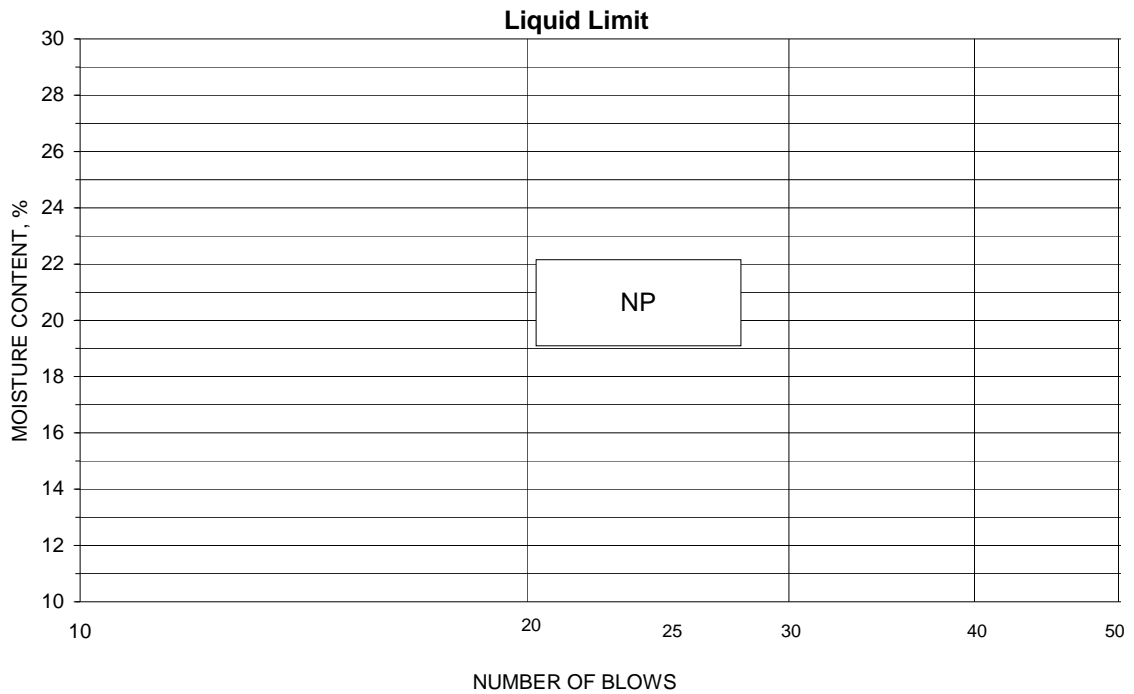


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33, 40.5'-46.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-13-2009 Prepared Dry

Project No. 171468118
 Lab ID 1404
 % + No. 40 38
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-33B, 0.0'-15.0' Lab ID 1454
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.8
No. 4	4.75	99.6
No. 10	2	99.4
No. 40	0.425	97.9
No. 200	0.075	86.7
	0.02	60.6
	0.005	16.7
	0.002	7.0
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.4	0.6
Coarse Sand	0.2	1.5
Medium Sand	1.5	---
Fine Sand	11.2	11.2
Silt	70.0	79.7
Clay	16.7	7.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.28

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33B, 0.0'-15.0'

Project Number 171468118
 Lab ID 1454

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-12-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.8
No. 4	99.6
No. 10	99.4

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

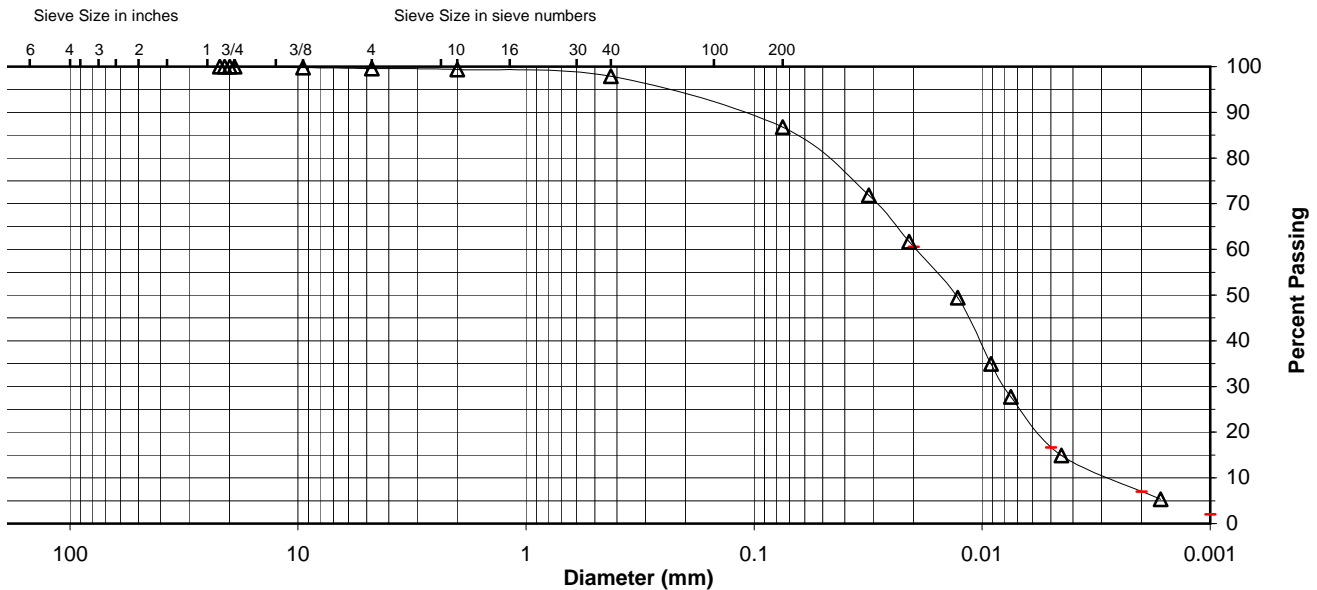
Specific Gravity 2.28

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.9
No. 200	86.7
0.02 mm	60.6
0.005 mm	16.7
0.002 mm	7.0
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.4	0.2	1.5	11.2	70.0	16.7
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	0.6		1.5	11.2	79.7		7.0



Comments _____

Reviewed By _____

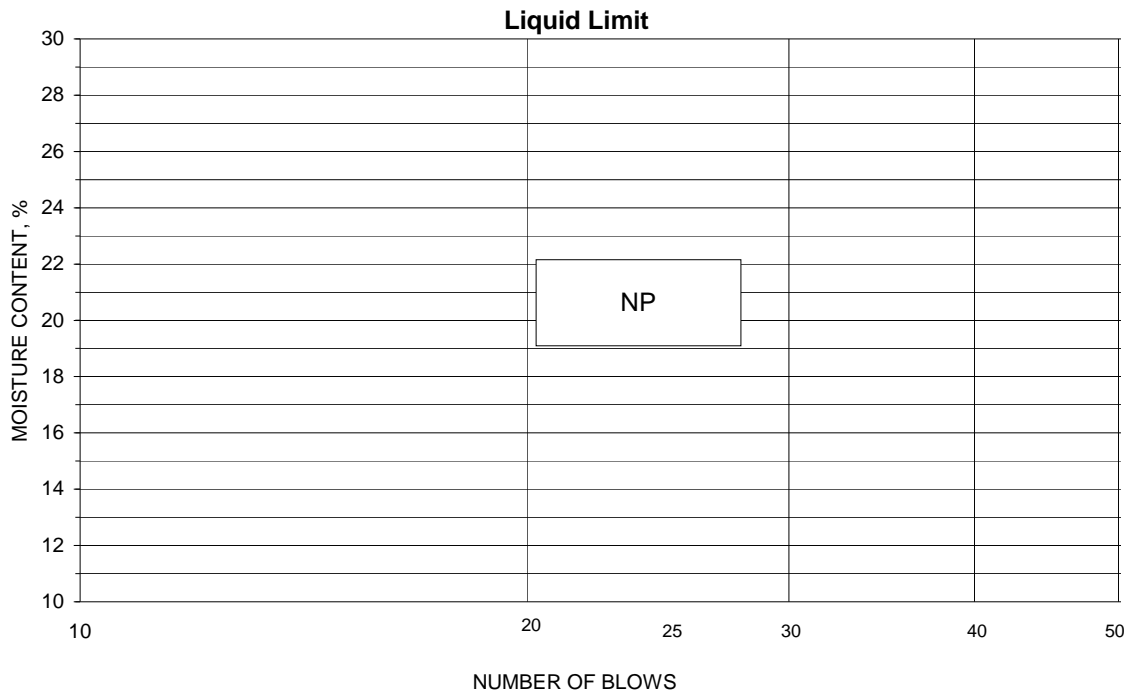


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-33B, 0.0'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-13-2009 Prepared Dry

Project No. 171468118
 Lab ID 1454
 % + No. 40 2
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-34, 0.0'-15.0' Lab ID 1302
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.1
No. 4	4.75	97.7
No. 10	2	96.6
No. 40	0.425	94.4
No. 200	0.075	81.9
	0.02	55.3
	0.005	8.9
	0.002	3.8
estimated	0.001	1.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.3	3.4
Coarse Sand	1.1	2.2
Medium Sand	2.2	---
Fine Sand	12.5	12.5
Silt	73.0	78.1
Clay	8.9	3.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.27

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-34, 0.0'-15.0'

Project Number 171468118
 Lab ID 1302

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-11-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.1
No. 4	97.7
No. 10	96.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

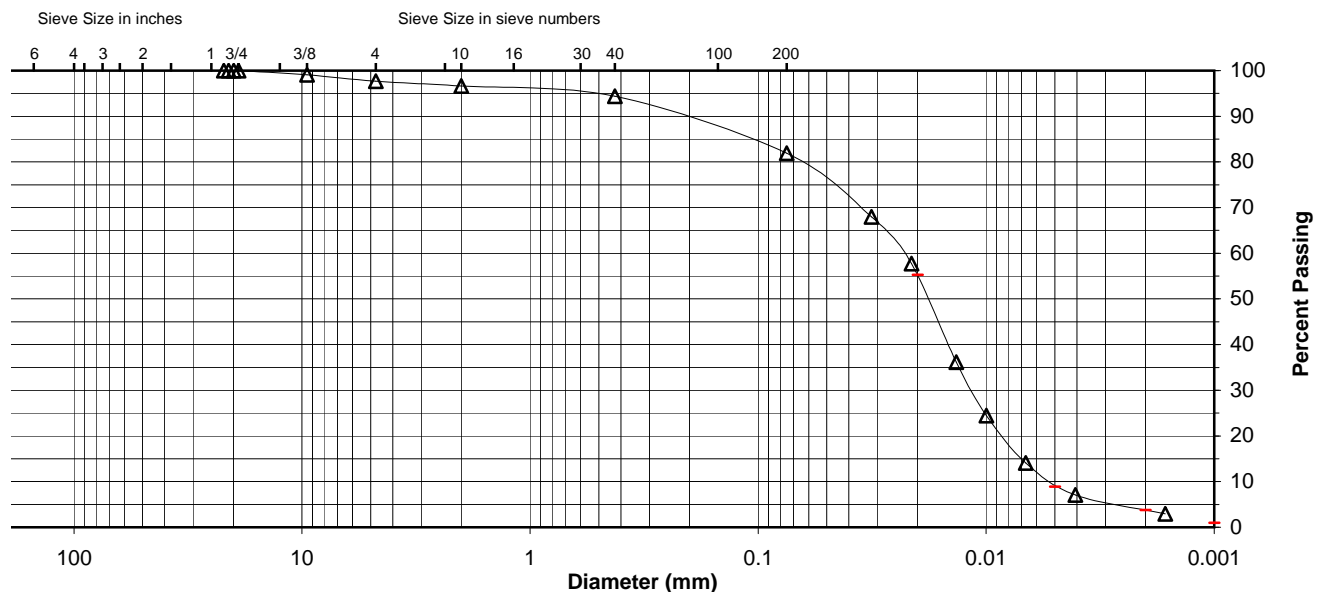
Specific Gravity 2.27

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	94.4
No. 200	81.9
0.02 mm	55.3
0.005 mm	8.9
0.002 mm	3.8
0.001 mm	1.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.3	1.1	2.2	12.5	73.0	8.9
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	3.4		2.2		12.5	78.1	3.8



Comments _____

Reviewed By _____

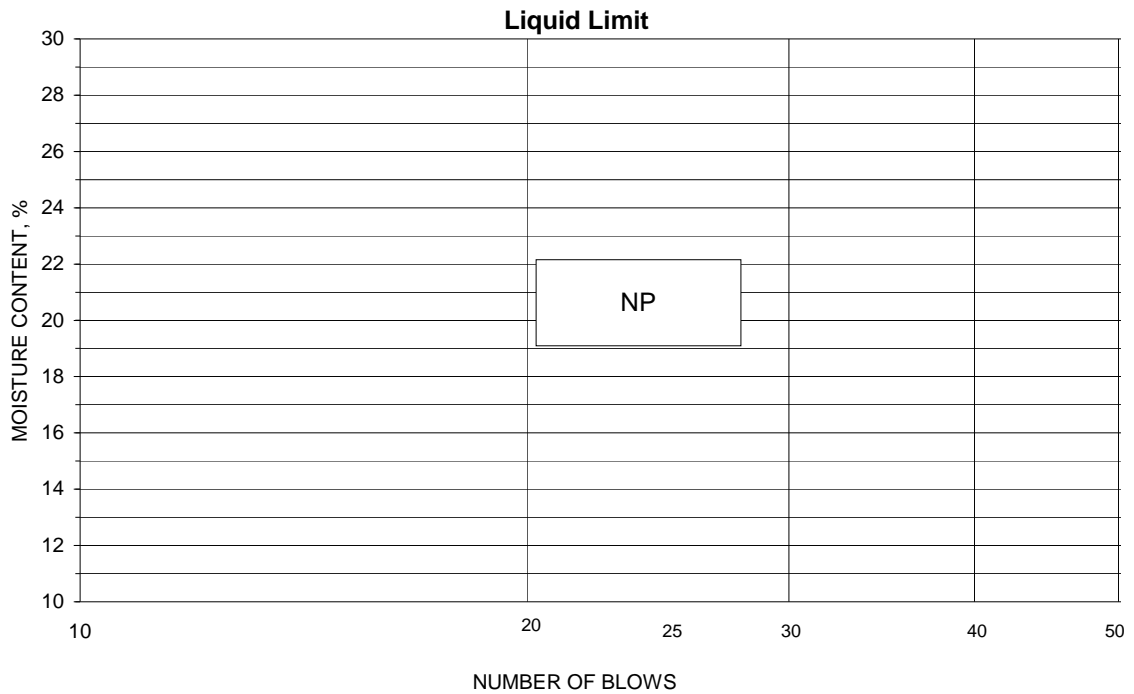


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-34, 0.0'-15.0'
 Tested By KWS Test Method ASTM D 4318 Method A
 Test Date 05-11-2009 Prepared Dry

Project No. 171468118
 Lab ID 1302
 % + No. 40 6
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-34B, 0.0'-15.0' Lab ID 1353
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.8
No. 4	4.75	99.3
No. 10	2	98.6
No. 40	0.425	94.4
No. 200	0.075	77.3
	0.02	55.9
	0.005	12.8
	0.002	5.0
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.7	1.4
Coarse Sand	0.7	4.2
Medium Sand	4.2	---
Fine Sand	17.1	17.1
Silt	64.5	72.3
Clay	12.8	5.0

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.25

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-34B, 0.0'-15.0'

Project Number 171468118
 Lab ID 1353

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-12-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.8
No. 4	99.3
No. 10	98.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

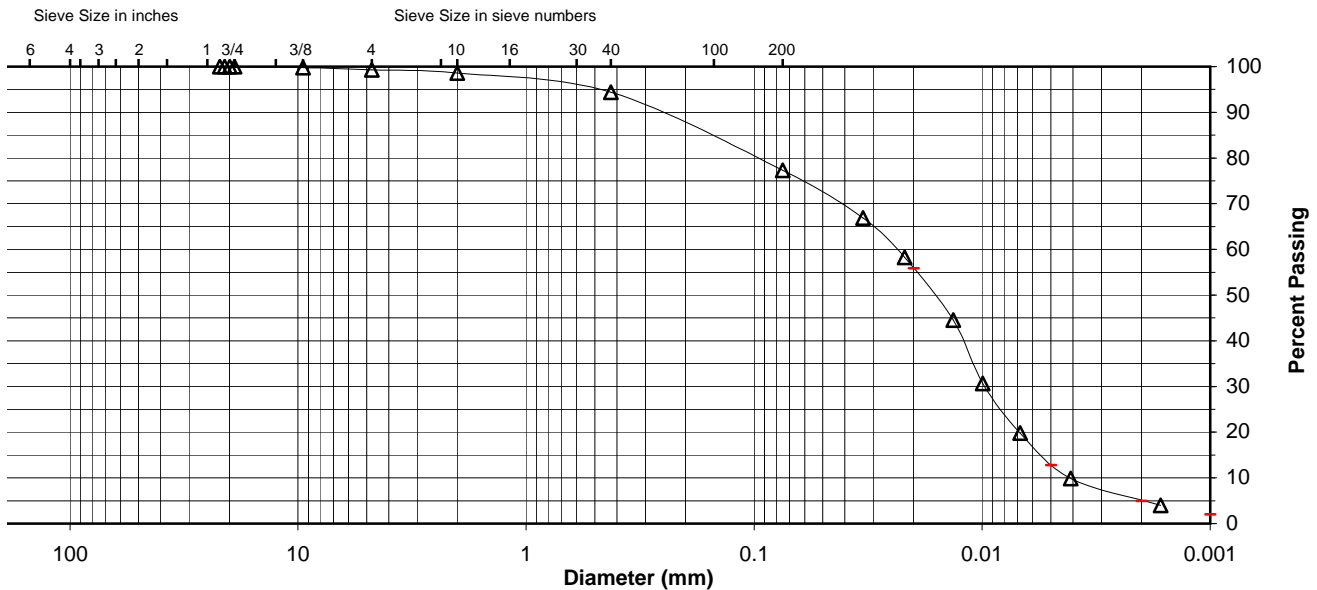
Specific Gravity 2.25

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	94.4
No. 200	77.3
0.02 mm	55.9
0.005 mm	12.8
0.002 mm	5.0
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.7	0.7	4.2	17.1	64.5	12.8
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	1.4			4.2	17.1	72.3	5.0



Comments _____

Reviewed By _____

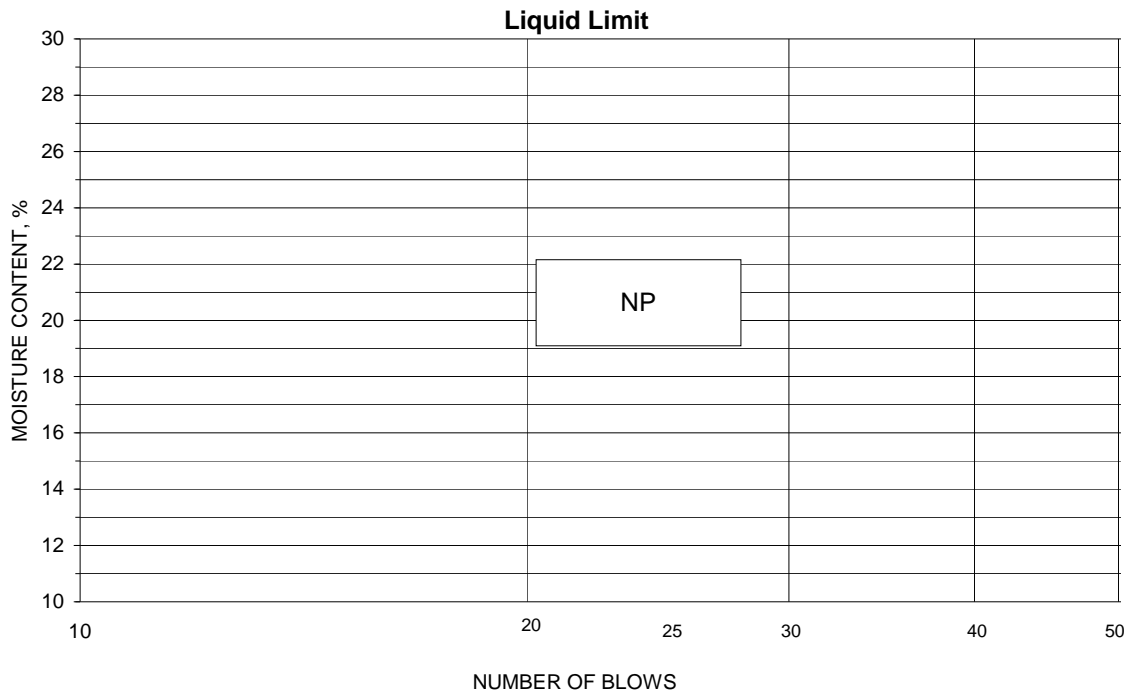


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-34B, 0.0'-15.0'
 Tested By KWS Test Method ASTM D 4318 Method A
 Test Date 05-12-2009 Prepared Dry

Project No. 171468118
 Lab ID 1353
 % + No. 40 6
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-34C, 7.5'-13.5' Lab ID 875
 County Hawkins, TN Date Received 6-10-09
 Sample Type Bag Date Reported 7-7-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		%
Sieve Size	(mm)	Passing
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.5
No. 4	4.75	99.0
No. 10	2	97.9
No. 40	0.425	93.8
No. 200	0.075	84.0
	0.02	62.7
	0.005	25.8
	0.002	8.1
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.0	2.1
Coarse Sand	1.1	4.1
Medium Sand	4.1	---
Fine Sand	9.8	9.8
Silt	58.2	75.9
Clay	25.8	8.1

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.38

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-34C, 7.5'-13.5'

Project Number 175569038
 Lab ID 875

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 06-18-2009
 Date Received: 06-10-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.5
No. 4	99.0
No. 10	97.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

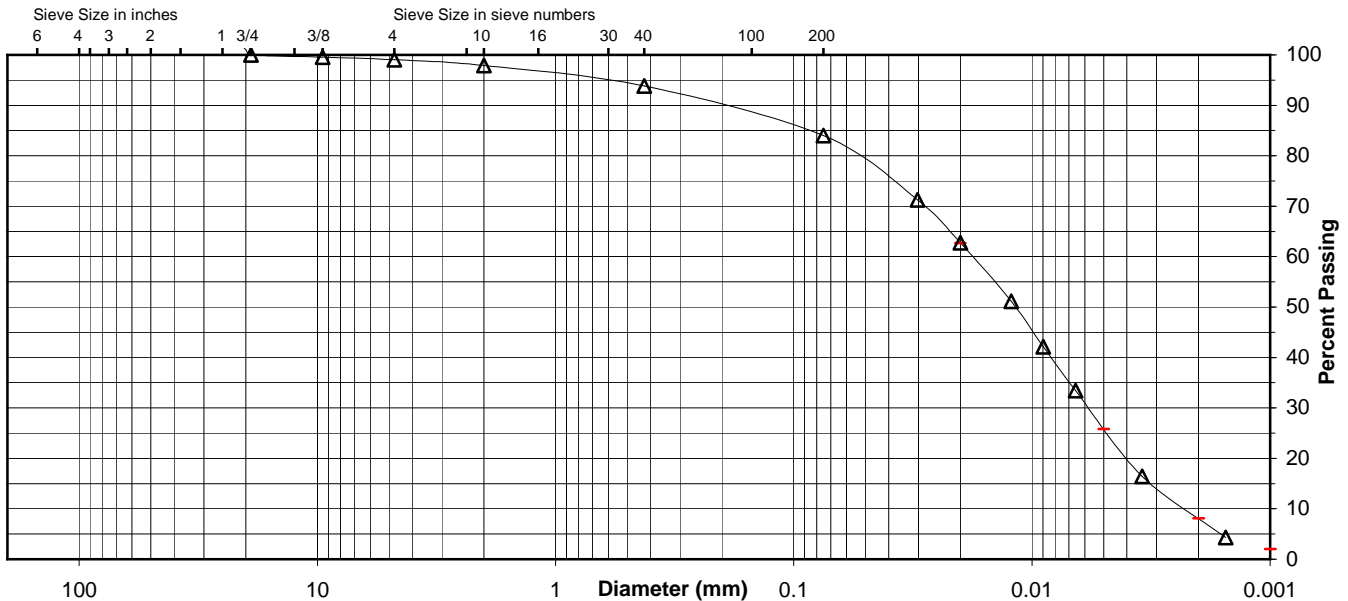
Analysis Based on: Total Sample
 Specific Gravity 2.38

No. 40	93.8
No. 200	84.0
0.02 mm	62.7
0.005 mm	25.8
0.002 mm	8.1
0.001 mm	2.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.0	1.1	4.1	9.8	58.2	25.8
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	2.1		4.1		9.8	75.9	8.1



Comments _____

Reviewed By _____

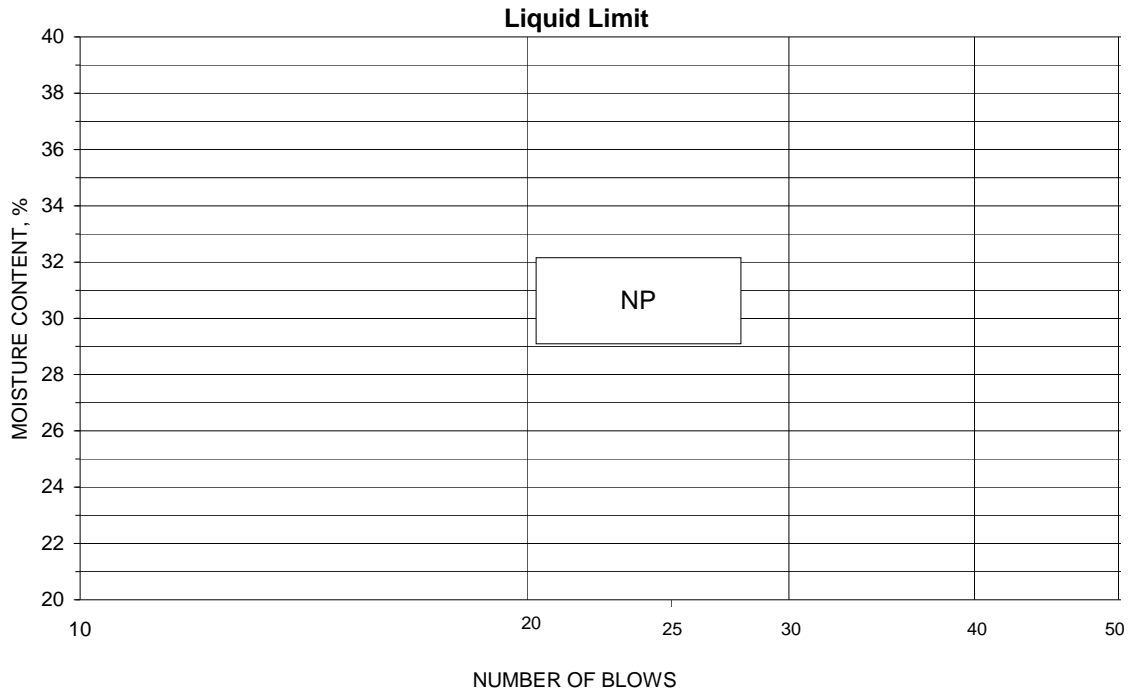


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-34C, 7.5'-13.5'
 Tested By DB Test Method ASTM D 4318 Method A
 Test Date 06-24-2009 Prepared Dry

Project No. 175569038
 Lab ID 875
 % + No. 40 6
 Date Received 06-10-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36A, 10.5'-18.0' Lab ID 1715
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 32
 Plastic Limit: 17
 Plasticity Index: 15
 Activity Index: 0.50

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.3
No. 4	4.75	98.5
No. 10	2	98.0
No. 40	0.425	94.8
No. 200	0.075	60.1
	0.02	50.2
	0.005	36.2
	0.002	29.9
estimated	0.001	26.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.5	2.0
Coarse Sand	0.5	3.2
Medium Sand	3.2	---
Fine Sand	34.7	34.7
Silt	23.9	30.2
Clay	36.2	29.9

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.68

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-6 (6)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-36A, 10.5'-18.0'

Project Number 171468118
 Lab ID 1715

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-12-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.3
No. 4	98.5
No. 10	98.0

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

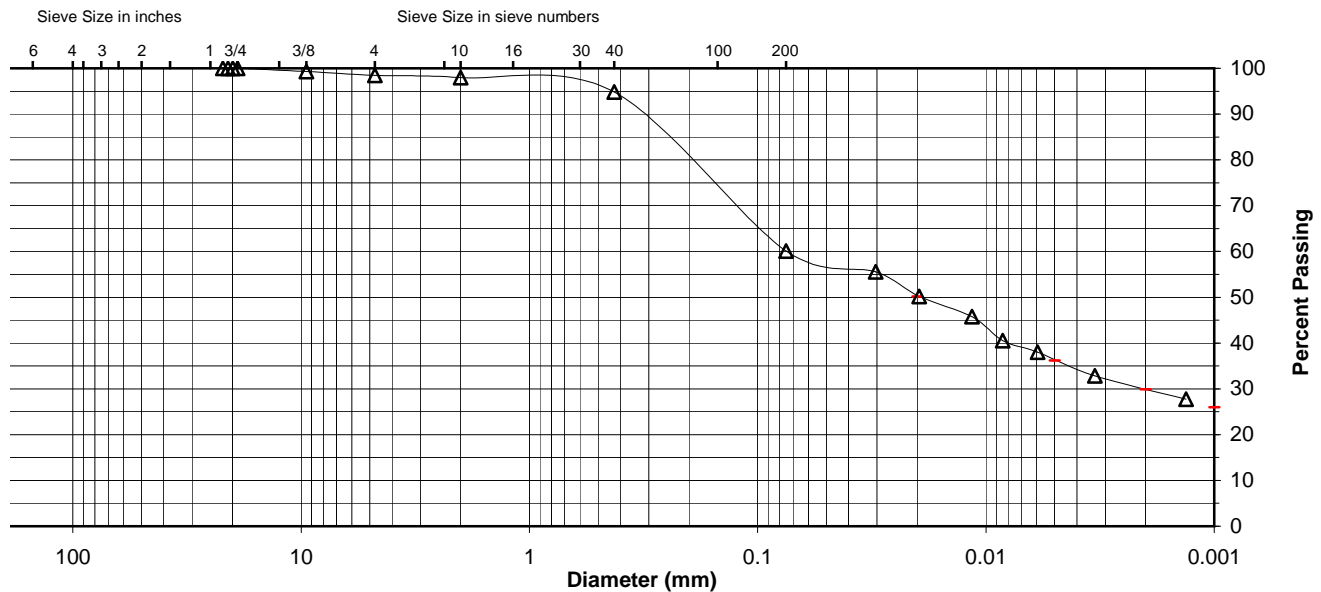
Specific Gravity 2.68

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	94.8
No. 200	60.1
0.02 mm	50.2
0.005 mm	36.2
0.002 mm	29.9
0.001 mm	26.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.5	0.5	3.2	34.7	23.9	36.2
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	2.0			3.2	34.7	30.2	29.9



Comments _____

Reviewed By _____

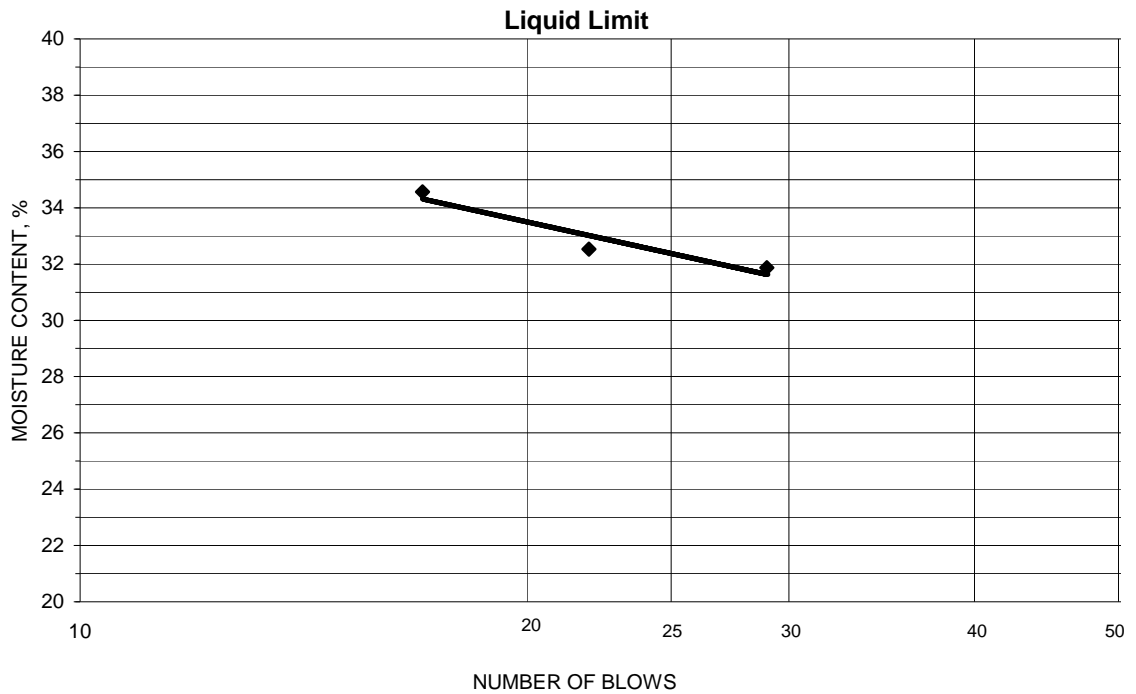


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36A, 10.5'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-13-2009 Prepared Dry

Project No. 171468118
 Lab ID 1715
 % + No. 40 5
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
22.90	19.82	10.91	17	34.6	32
24.27	21.05	11.15	22	32.5	
24.70	21.44	11.21	29	31.9	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.06	20.49	11.32	17.1	17	15
21.22	19.75	11.07	16.9		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36A, 6.3'-7.5' Lab ID 1716
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.9
No. 4	4.75	96.0
No. 10	2	93.3
No. 40	0.425	85.9
No. 200	0.075	60.2
	0.02	48.3
	0.005	24.4
	0.002	17.6
estimated	0.001	15.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.0	6.7
Coarse Sand	2.7	7.4
Medium Sand	7.4	---
Fine Sand	25.7	25.7
Silt	35.8	42.6
Clay	24.4	17.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 29
 Plastic Limit: 23
 Plasticity Index: 6
 Activity Index: 0.33

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.52

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (2)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-36A, 6.3'-7.5'

Project Number 171468118
 Lab ID 1716

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-08-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.9
No. 4	96.0
No. 10	93.3

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

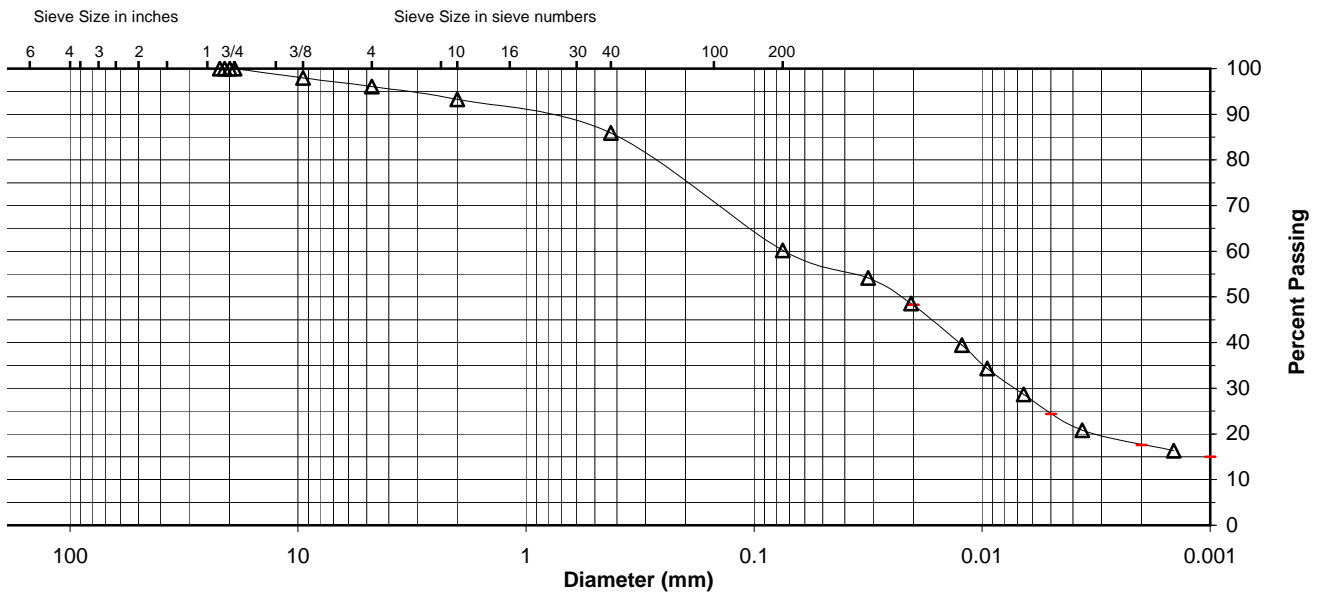
Specific Gravity 2.52

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	85.9
No. 200	60.2
0.02 mm	48.3
0.005 mm	24.4
0.002 mm	17.6
0.001 mm	15.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	4.0	2.7	7.4	25.7	35.8
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	6.7			7.4	25.7	42.6	17.6



Comments _____

Reviewed By _____

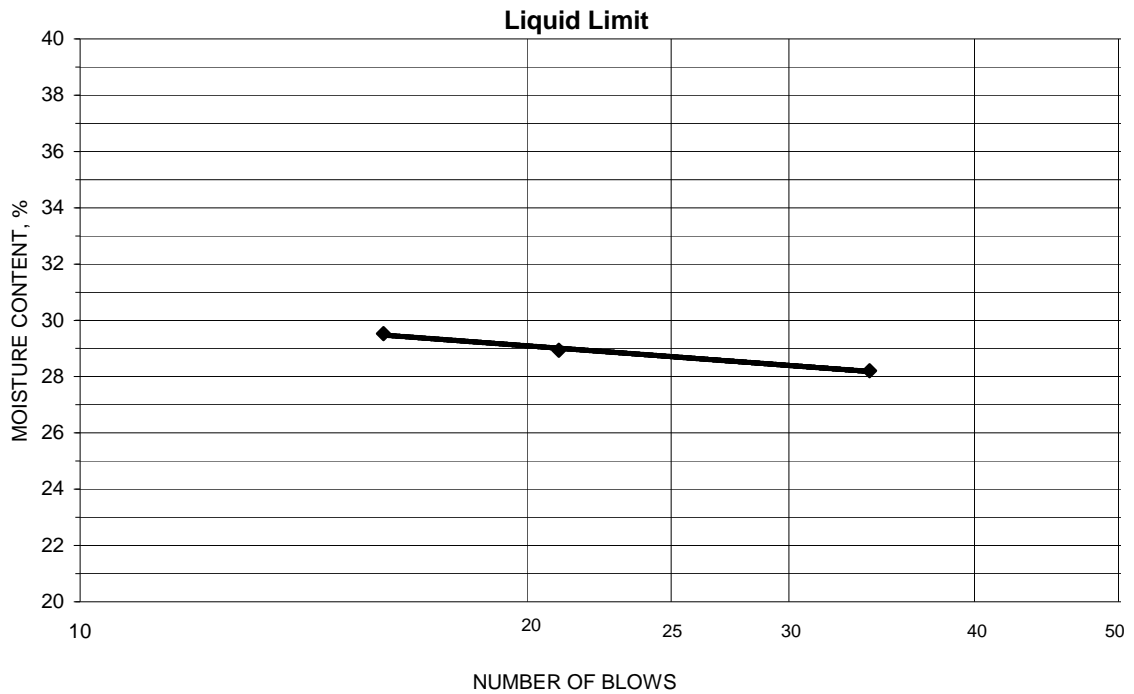


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36A, 6.3'-7.5'
 Tested By KWS Test Method ASTM D 4318 Method A
 Test Date 05-11-2009 Prepared Dry

Project No. 171468118
 Lab ID 1716
 % + No. 40 14
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
22.20	19.77	11.54	16	29.5	29
21.32	19.04	11.16	21	28.9	
21.66	19.31	10.98	34	28.2	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
18.80	17.38	11.30	23.4	23	6
17.98	16.71	11.15	22.8		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36B, 13.5'-15.0' Lab ID 1751
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	95.4
No. 4	4.75	87.2
No. 10	2	74.6
No. 40	0.425	63.5
No. 200	0.075	44.9
	0.02	27.7
	0.005	14.2
	0.002	10.6
estimated	0.001	9.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	12.8	25.4
Coarse Sand	12.6	11.1
Medium Sand	11.1	---
Fine Sand	18.6	18.6
Silt	30.7	34.3
Clay	14.2	10.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.52

Classification

Unified Group Symbol: SM
 Group Name: Silty sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-36B, 13.5'-15.0'

Project Number 171468118
 Lab ID 1751

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: DG
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	95.4
No. 4	87.2
No. 10	74.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

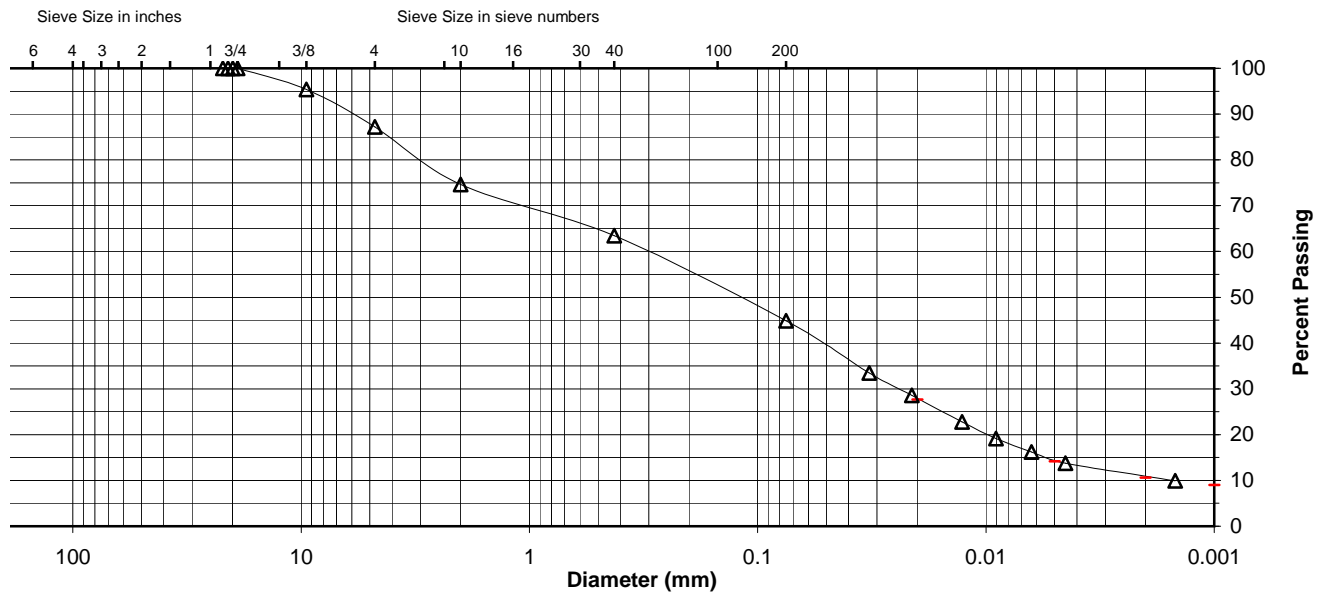
Analysis Based on: Total Sample
 Specific Gravity 2.52

No. 40	63.5
No. 200	44.9
0.02 mm	27.7
0.005 mm	14.2
0.002 mm	10.6
0.001 mm	9.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	12.8	12.6	11.1	18.6	30.7	14.2
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	25.4			11.1	18.6	34.3	10.6



Comments _____

Reviewed By _____

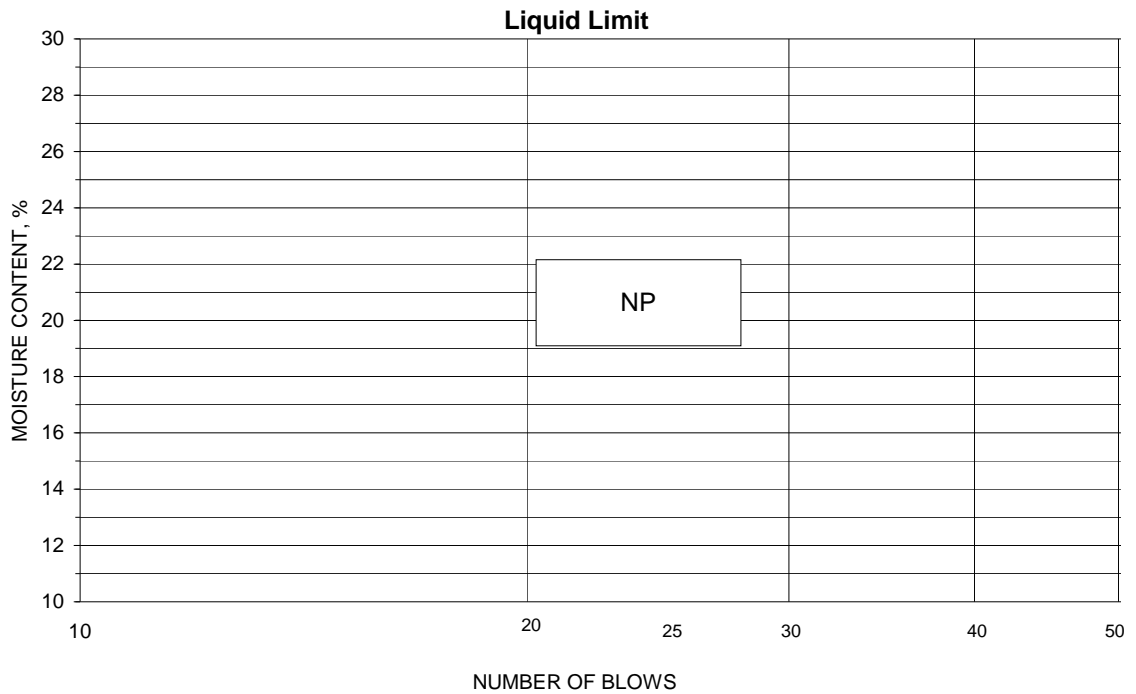


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36B, 13.5'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1751
 % + No. 40 37
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36B, 18.0'-27.0' Lab ID 1752
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.7
No. 4	4.75	97.1
No. 10	2	95.4
No. 40	0.425	90.1
No. 200	0.075	68.7
	0.02	50.6
	0.005	33.7
	0.002	27.0
estimated	0.001	22.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.9	4.6
Coarse Sand	1.7	5.3
Medium Sand	5.3	---
Fine Sand	21.4	21.4
Silt	35.0	41.7
Clay	33.7	27.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 33
 Plastic Limit: 18
 Plasticity Index: 15
 Activity Index: 0.56

Moisture-Density Relationship

Test Method: ASTM D 698 Method A
 Maximum Dry Density (lb/ft³): 109.7
 Maximum Dry Density (kg/m³): 1757
 Optimum Moisture Content (%): 15.8
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.67

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-6 (8)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-36B, 18.0'-27.0'

 Project Number 171468118
 Lab ID 1752
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable

 Tested By: BWT
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.7
No. 4	97.1
No. 10	95.4

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

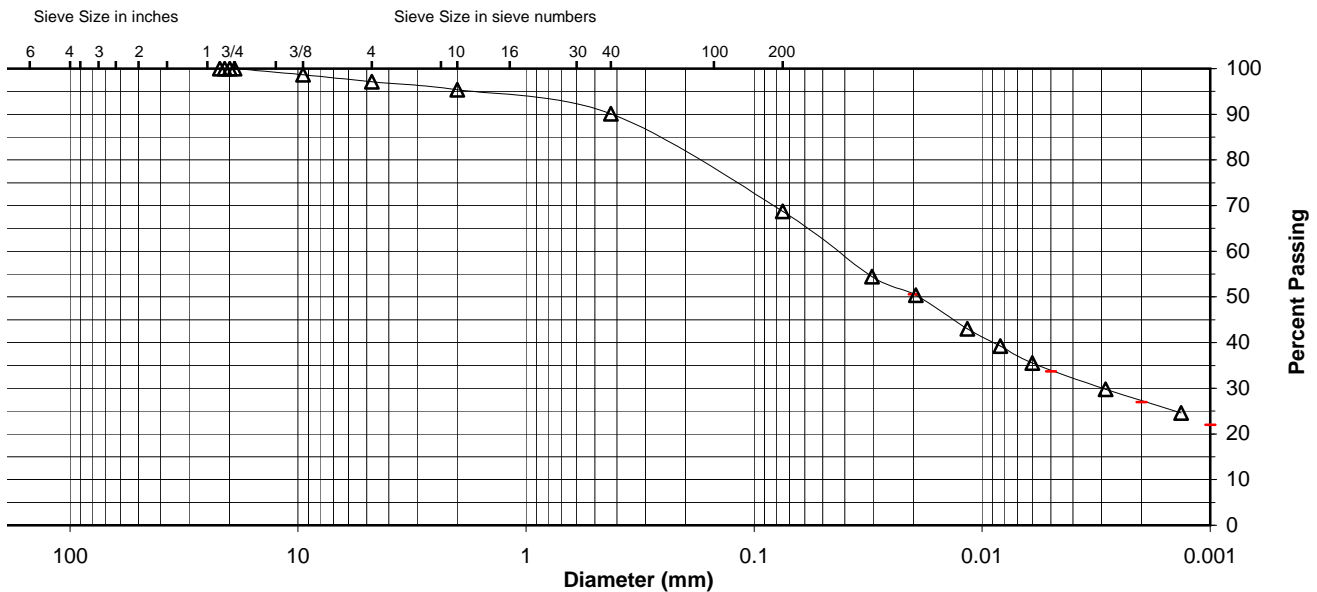
 Specific Gravity 2.67

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	90.1
No. 200	68.7
0.02 mm	50.6
0.005 mm	33.7
0.002 mm	27.0
0.001 mm	22.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	2.9	1.7	5.3	21.4	35.0
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	4.6			5.3	21.4	41.7	27.0



Comments _____

Reviewed By _____

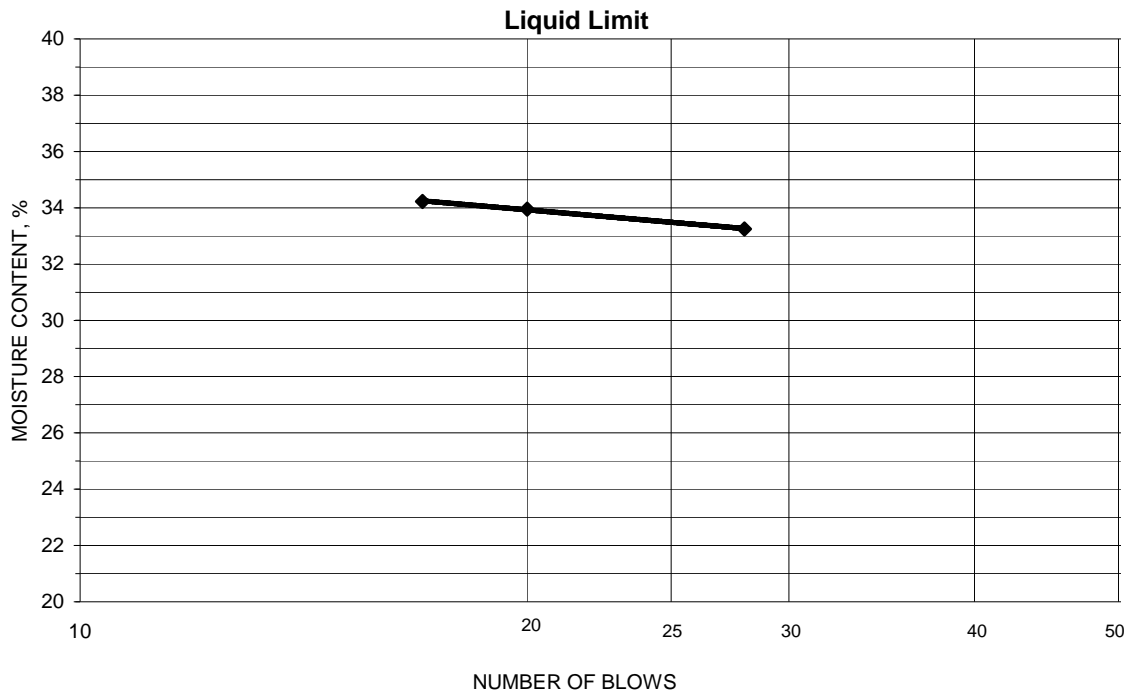


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36B, 18.0'-27.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1752
 % + No. 40 10
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
27.31	23.26	11.08	28	33.3	33
26.71	22.75	11.18	17	34.2	
28.22	23.86	11.02	20	34.0	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
22.16	20.53	11.23	17.5	18	15
21.58	20.03	11.31	17.8		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36B, 27.0'-36.0' Lab ID 1754
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	100.0
No. 10	2	99.9
No. 40	0.425	97.8
No. 200	0.075	79.3
	0.02	53.6
	0.005	17.0
	0.002	12.6
estimated	0.001	10.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.1
Coarse Sand	0.1	2.1
Medium Sand	2.1	---
Fine Sand	18.5	18.5
Silt	62.3	66.7
Clay	17.0	12.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.04

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-36B, 27.0'-36.0'

Project Number 171468118
 Lab ID 1754

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-14-2009
 Date Received 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	99.9

Maximum Particle size: No. 4 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

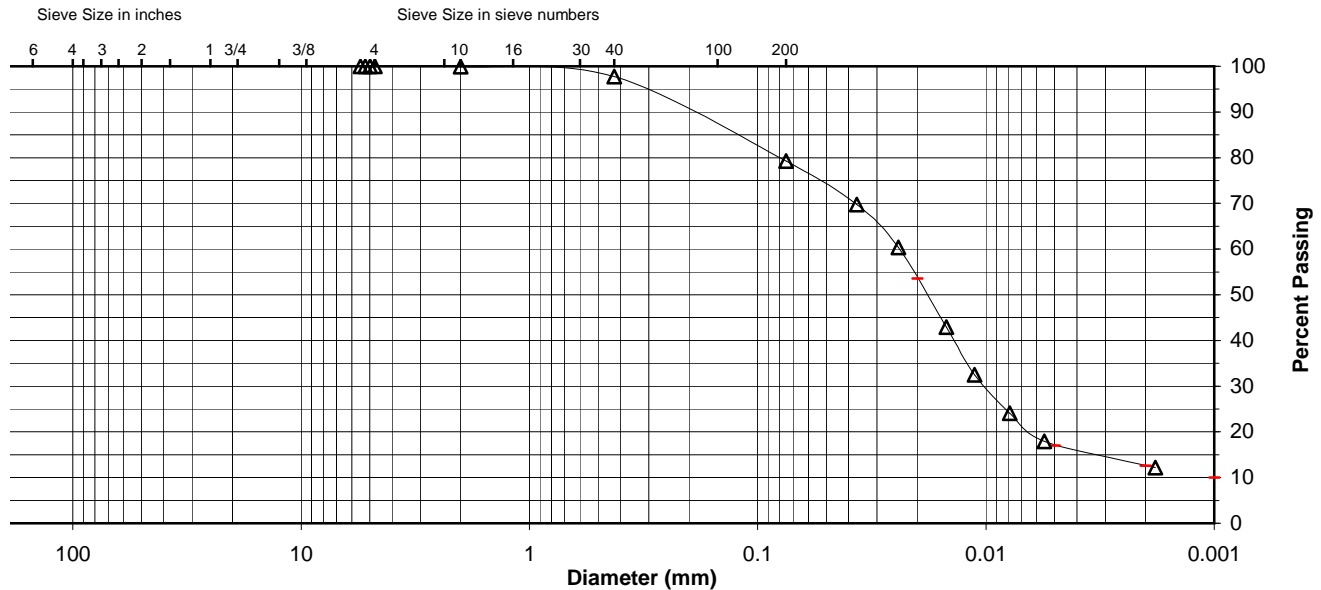
Specific Gravity 2.04

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.8
No. 200	79.3
0.02 mm	53.6
0.005 mm	17.0
0.002 mm	12.6
0.001 mm	10.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.1	2.1	18.5	62.3	17.0
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.1			2.1	18.5	66.7	12.6



Comments _____

Reviewed By _____

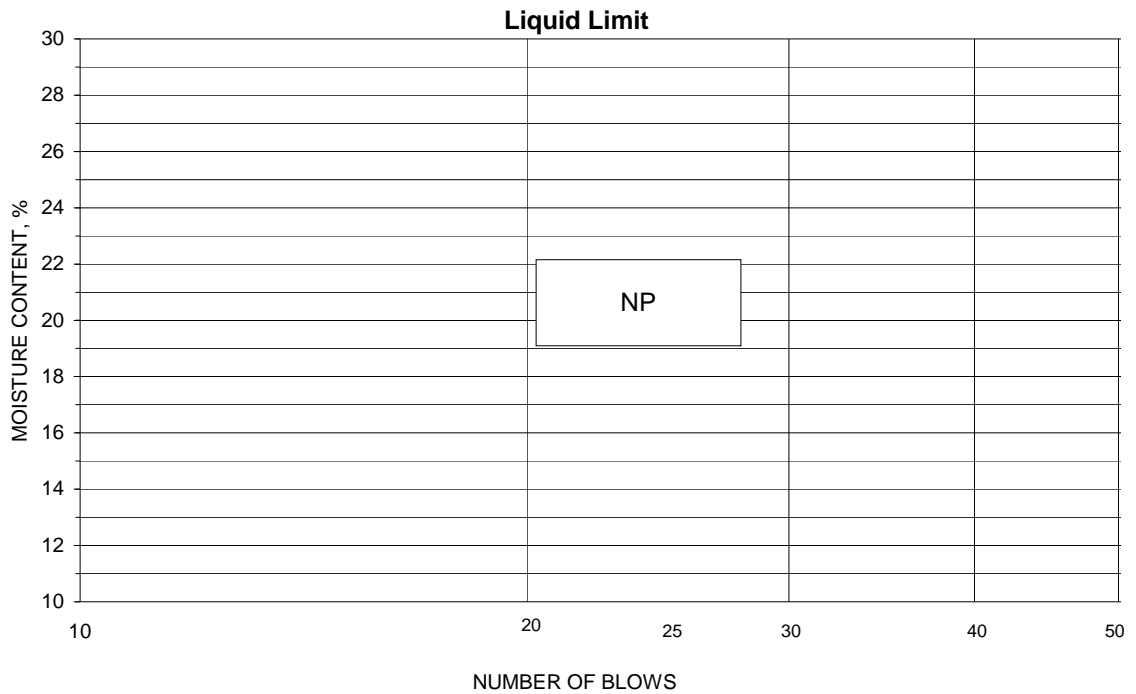


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36B, 27.0'-36.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1754
 % + No. 40 2
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-36B, 4.7'-7.5' Lab ID 1753
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	97.7
No. 4	4.75	95.8
No. 10	2	92.0
No. 40	0.425	84.3
No. 200	0.075	68.8
	0.02	50.2
	0.005	28.6
	0.002	19.8
estimated	0.001	16.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.2	8.0
Coarse Sand	3.8	7.7
Medium Sand	7.7	---
Fine Sand	15.5	15.5
Silt	40.2	49.0
Clay	28.6	19.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 31
 Plastic Limit: 20
 Plasticity Index: 11
 Activity Index: 0.55

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.58

Classification

Unified Group Symbol: CL
 Group Name: Sandy lean clay
 AASHTO Classification: A-6 (6)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-36B, 4.7'-7.5'

 Project Number 171468118
 Lab ID 1753
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: DG
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.7
No. 4	95.8
No. 10	92.0

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

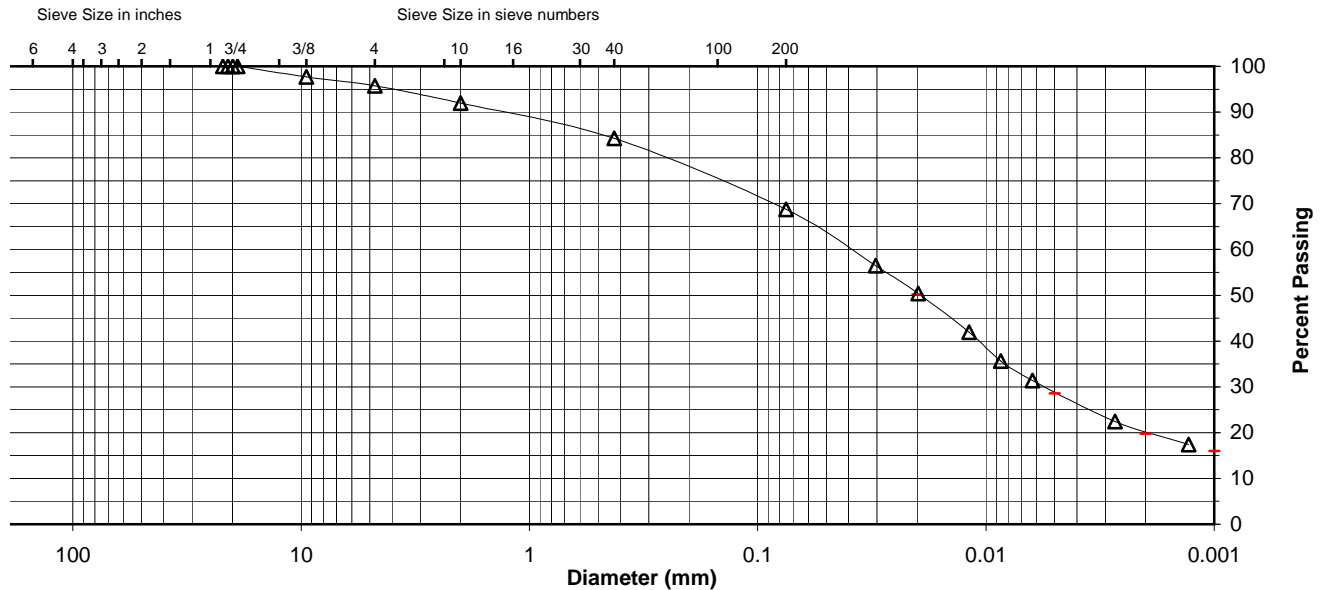
 Specific Gravity 2.58

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	84.3
No. 200	68.8
0.02 mm	50.2
0.005 mm	28.6
0.002 mm	19.8
0.001 mm	16.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	4.2	3.8	7.7	15.5	40.2	28.6	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	8.0		7.7		15.5	49.0		19.8



Comments _____

Reviewed By _____

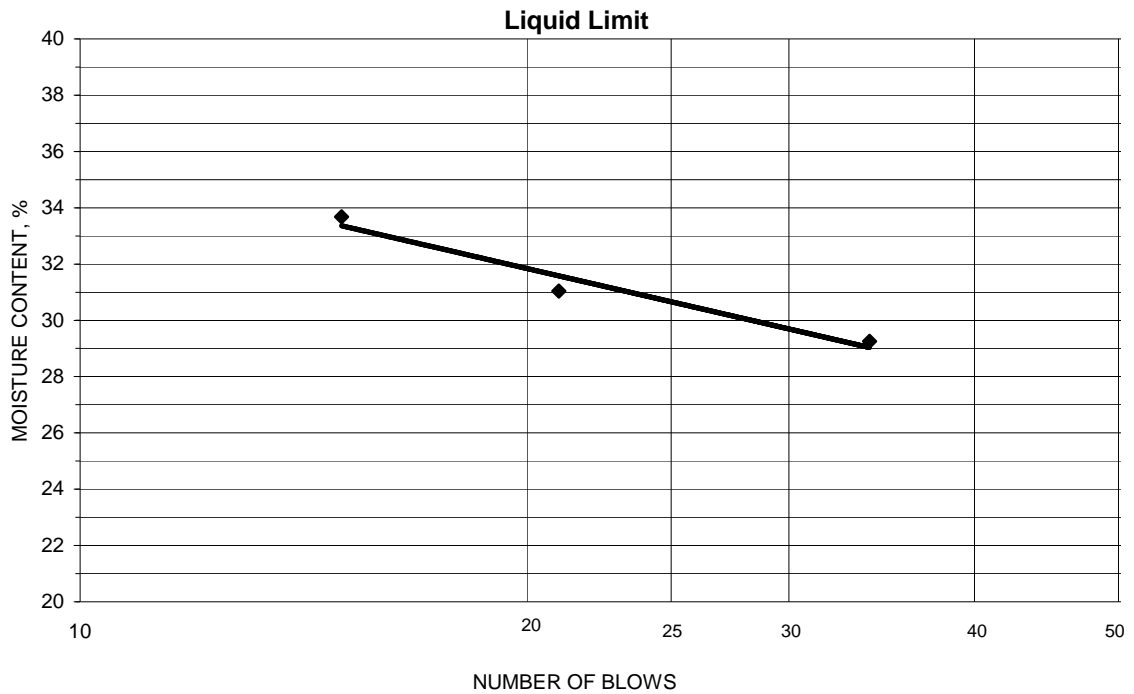


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-36B, 4.7'-7.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1753
 % + No. 40 16
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
26.14	22.79	11.34	34	29.3	31
27.30	23.56	11.51	21	31.0	
27.89	23.68	11.18	15	33.7	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
20.24	18.73	11.08	19.7	20	11
20.47	18.93	11.12	19.7		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-37, 4.5'-10.0' Lab ID 1683
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.3
No. 4	4.75	98.0
No. 10	2	95.9
No. 40	0.425	91.8
No. 200	0.075	73.8
	0.02	43.5
	0.005	12.3
	0.002	6.7
estimated	0.001	5.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.0	4.1
Coarse Sand	2.1	4.1
Medium Sand	4.1	---
Fine Sand	18.0	18.0
Silt	61.5	67.1
Clay	12.3	6.7

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.36

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-37, 4.5'-10.0'

 Project Number 171468118
 Lab ID 1683
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: DG
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.3
No. 4	98.0
No. 10	95.9

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

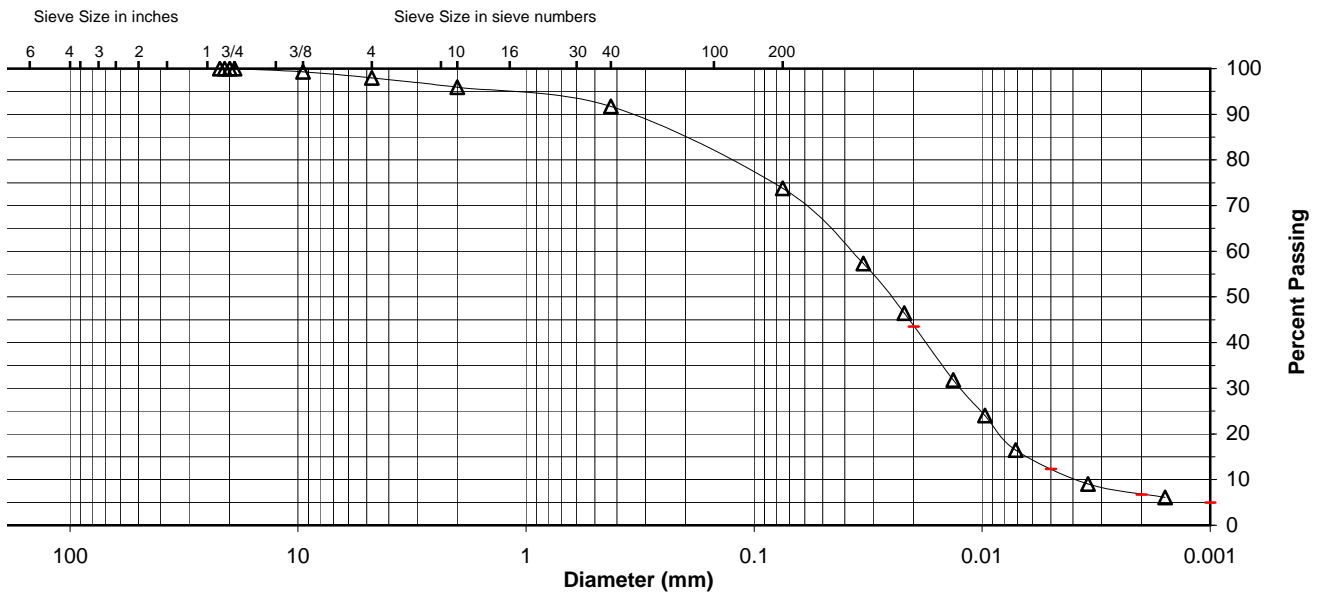
 Specific Gravity 2.36

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	91.8
No. 200	73.8
0.02 mm	43.5
0.005 mm	12.3
0.002 mm	6.7
0.001 mm	5.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.0	2.1	4.1	18.0	61.5	12.3
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	4.1			4.1	18.0	67.1	6.7



Comments _____

Reviewed By _____

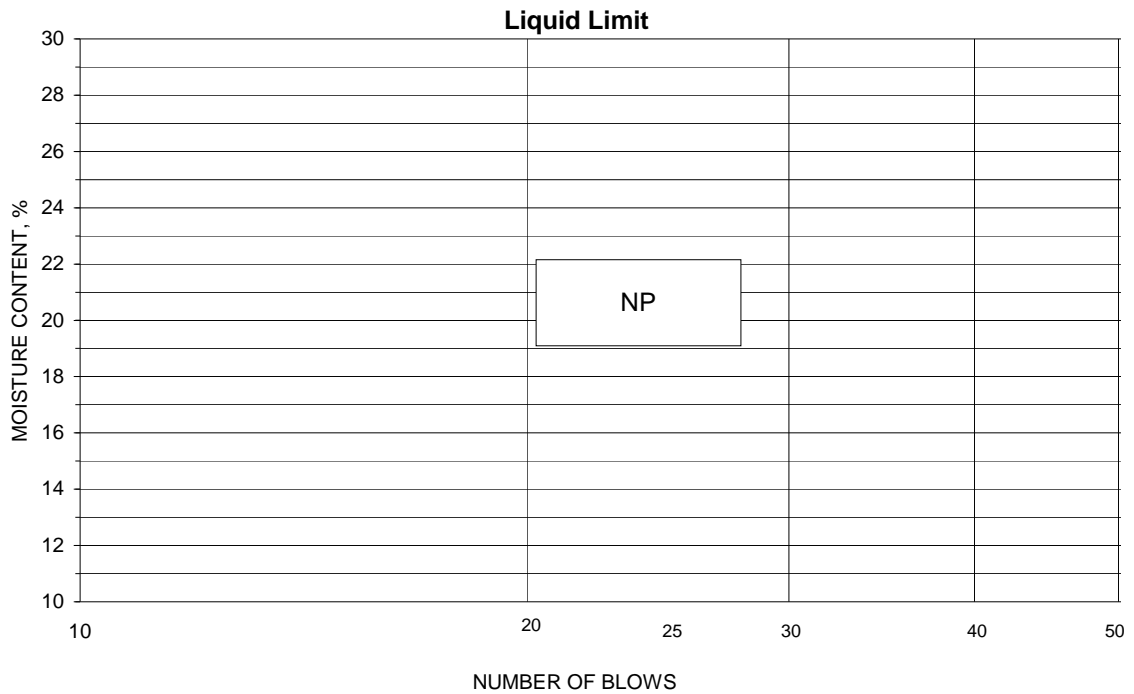


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-37, 4.5'-10.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1683
 % + No. 40 8
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-38, 45.0'-48.0' Lab ID 202
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-19-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.7
No. 4	4.75	97.7
No. 10	2	93.9
No. 40	0.425	85.3
No. 200	0.075	66.5
	0.02	37.5
	0.005	11.1
	0.002	4.1
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.3	6.1
Coarse Sand	3.8	8.6
Medium Sand	8.6	---
Fine Sand	18.8	18.8
Silt	55.4	62.4
Clay	11.1	4.1

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.33

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-38, 45.0'-48.0'

Project Number 175569038
 Lab ID 202

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.7
No. 4	97.7
No. 10	93.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

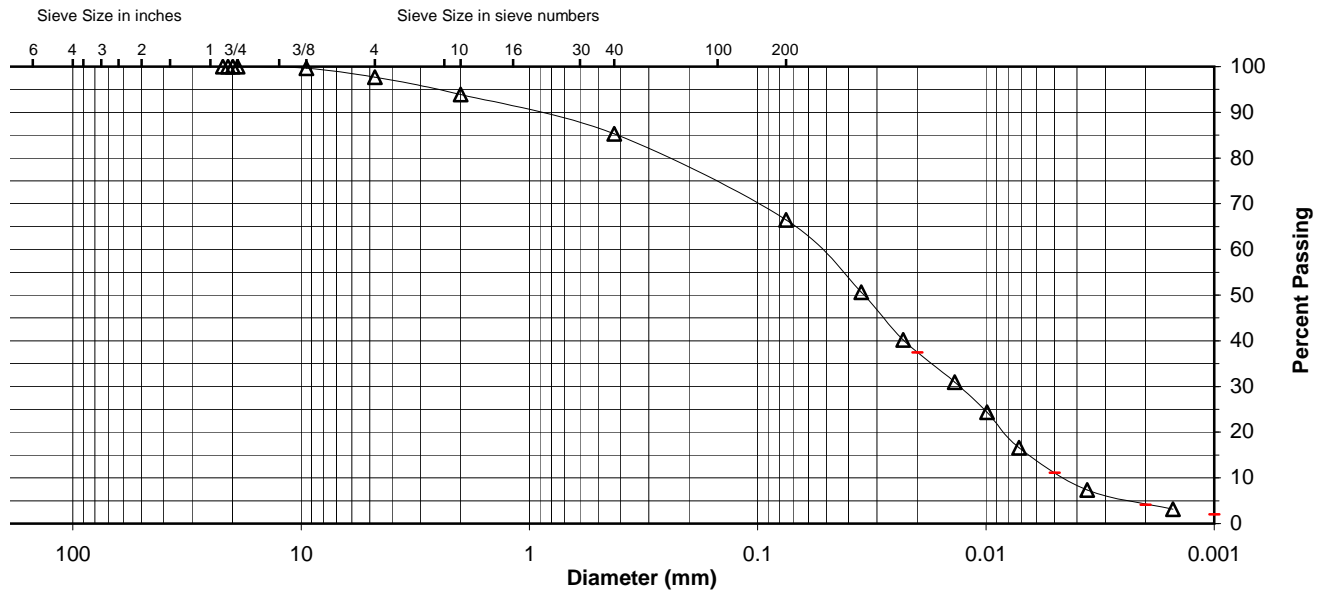
Specific Gravity 2.33

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	85.3
No. 200	66.5
0.02 mm	37.5
0.005 mm	11.1
0.002 mm	4.1
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.3	3.8	8.6	18.8	55.4	11.1
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	6.1			8.6	18.8	62.4	4.1



Comments _____

Reviewed By _____

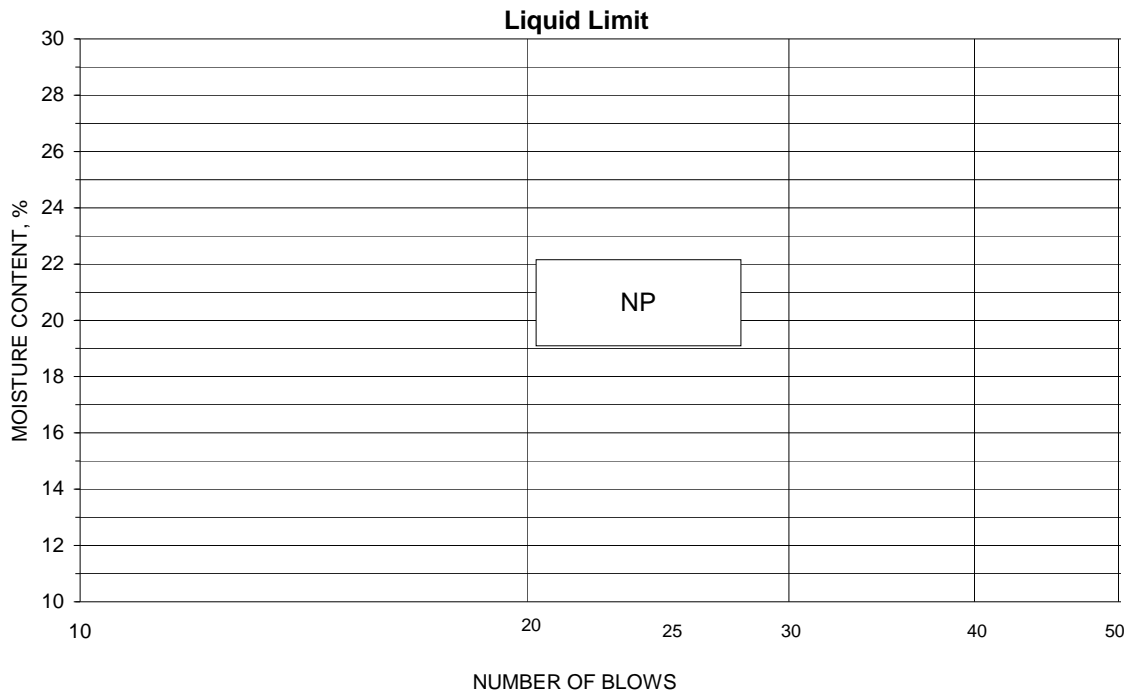


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-38, 45.0'-48.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 202
 % + No. 40 15
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-38, 7.5'-13.8' Lab ID 201
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.6
No. 10	2	99.2
No. 40	0.425	97.4
No. 200	0.075	85.3
	0.02	63.1
	0.005	16.3
	0.002	6.0
estimated	0.001	4.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.4	0.8
Coarse Sand	0.4	1.8
Medium Sand	1.8	---
Fine Sand	12.1	12.1
Silt	69.0	79.3
Clay	16.3	6.0

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.30

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-38, 7.5'-13.8'

 Project Number 175569038
 Lab ID 201
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: bwt
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.6
No. 10	99.2

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

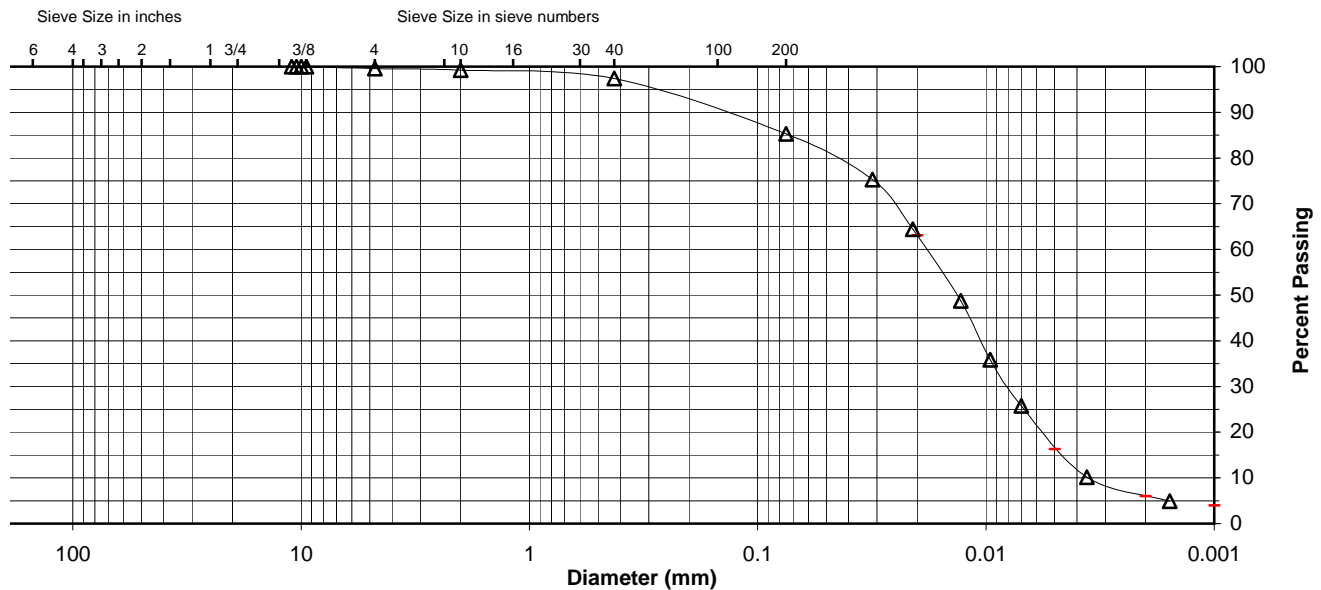
 Specific Gravity 2.3

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.4
No. 200	85.3
0.02 mm	63.1
0.005 mm	16.3
0.002 mm	6.0
0.001 mm	4.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.4	0.4	1.8	12.1	69.0	16.3
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.8			1.8	12.1	79.3	6.0



Comments _____

Reviewed By _____

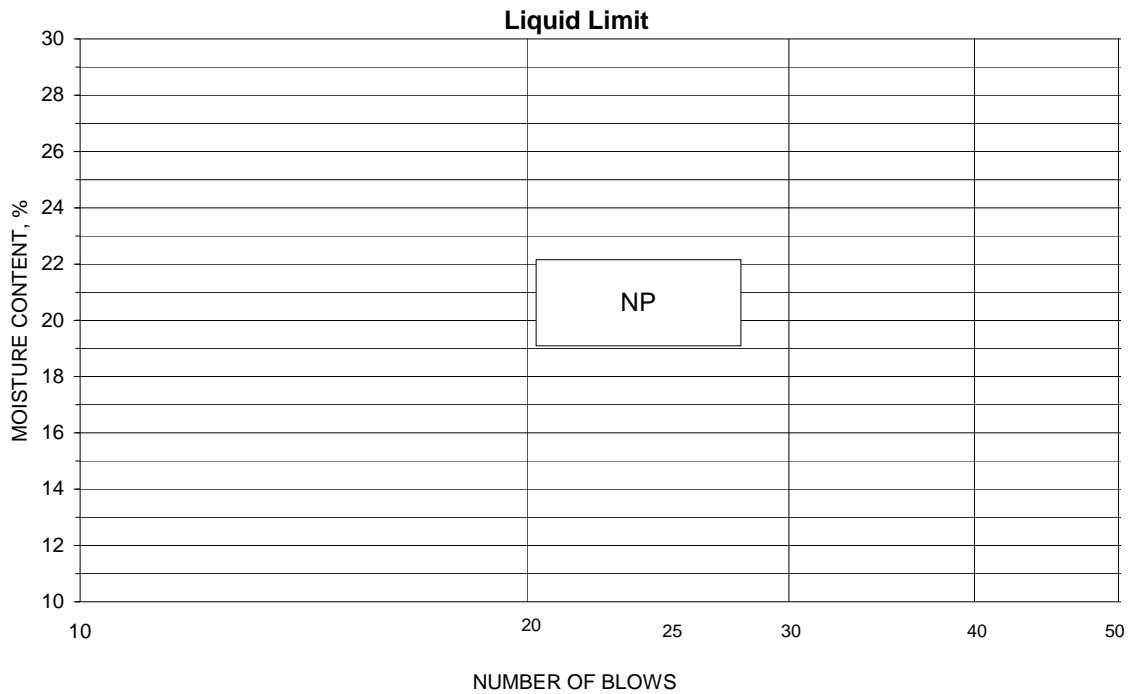


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-38, 7.5'-13.8'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 201
 % + No. 40 3
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-39, 22.5'-30.0' Lab ID 1009
 County Hawkins, TN Date Received 6-10-09
 Sample Type Bag Date Reported 6-26-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		%
Sieve Size	(mm)	Passing
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.6
No. 10	2	99.1
No. 40	0.425	97.7
No. 200	0.075	85.0
	0.02	56.3
	0.005	12.9
	0.002	3.7
estimated	0.001	2.9

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.4	0.9
Coarse Sand	0.5	1.4
Medium Sand	1.4	---
Fine Sand	12.7	12.7
Silt	72.1	81.3
Clay	12.9	3.7

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.34

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-39, 22.5'-30.0'

 Project Number 175569038
 Lab ID 1009
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: AR
 Test Date: 06-16-2009
 Date Received 06-10-2009

Maximum Particle size: 3/8" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.6
No. 10	99.1

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

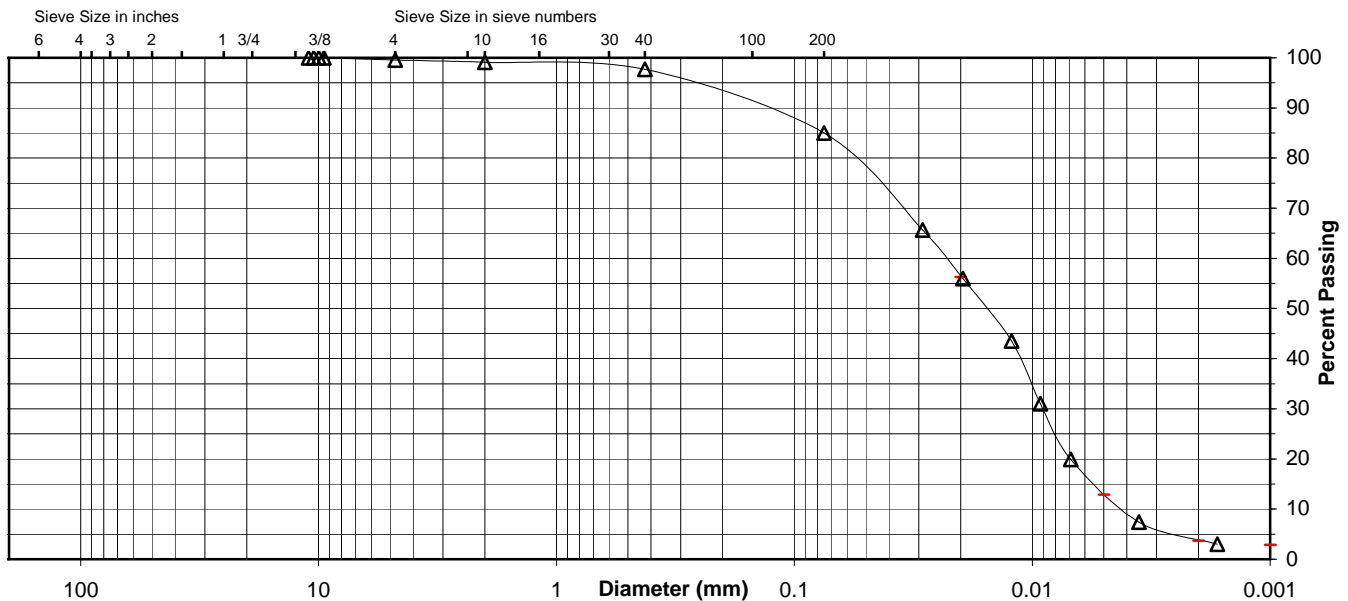
 Specific Gravity 2.34

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.7
No. 200	85.0
0.02 mm	56.3
0.005 mm	12.9
0.002 mm	3.7
0.001 mm	2.9

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.4	0.5	1.4	12.7	72.1	12.9
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.9		1.4		12.7	81.3	3.7



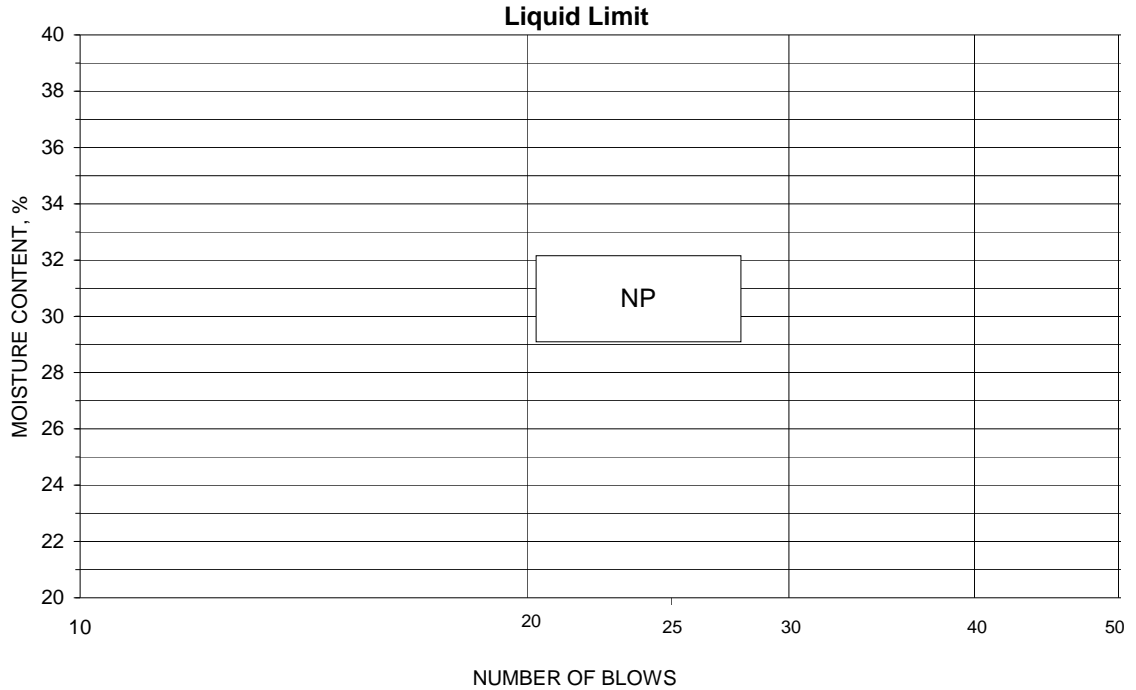
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JS-39, 22.5'-30.0'
 Tested By AR Test Method ASTM D 4318 Method A
 Test Date 06-16-2009 Prepared Dry

Project No. 175569038
 Lab ID 1009
 % + No. 40 2
 Date Received 06-10-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-40, 0.0'-15.0' Lab ID 1210
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.5
No. 4	4.75	99.4
No. 10	2	98.8
No. 40	0.425	95.5
No. 200	0.075	75.4
	0.02	54.5
	0.005	23.1
	0.002	13.8
estimated	0.001	8.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.6	1.2
Coarse Sand	0.6	3.3
Medium Sand	3.3	---
Fine Sand	20.1	20.1
Silt	52.3	61.6
Clay	23.1	13.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: 21
 Plastic Limit: 20
 Plasticity Index: 1
 Activity Index: 0.07

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.51

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-40, 0.0'-15.0'

Project Number 171468118
 Lab ID 1210

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-06-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.5
No. 4	99.4
No. 10	98.8

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

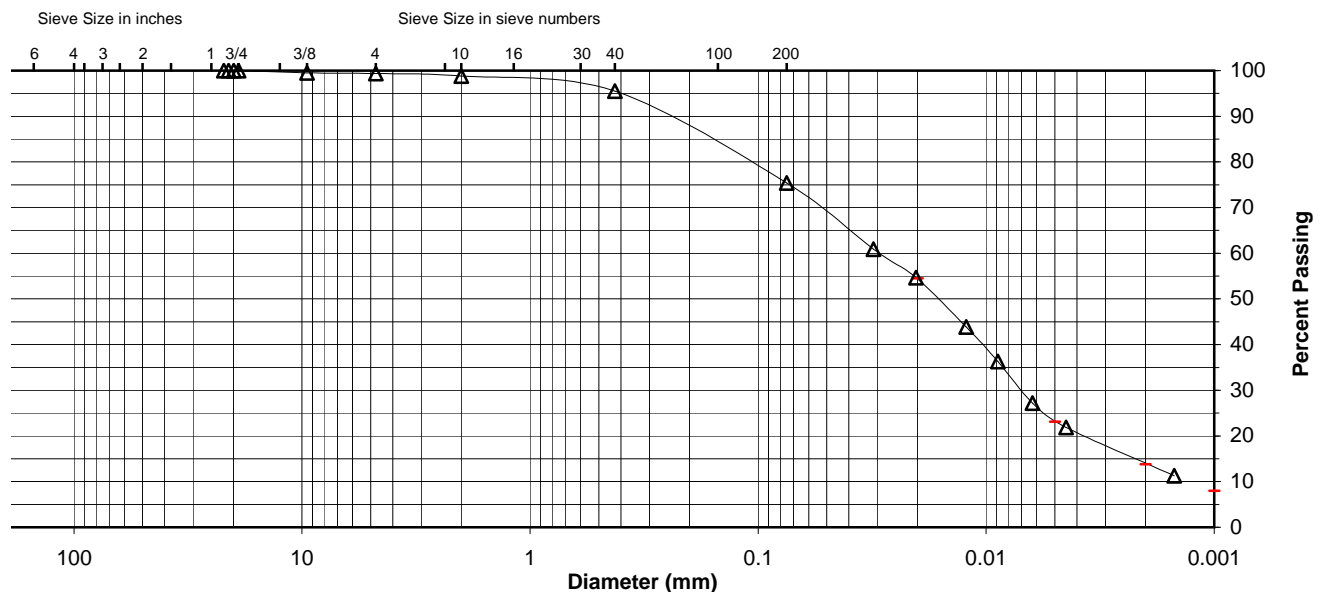
Specific Gravity 2.51

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	95.5
No. 200	75.4
0.02 mm	54.5
0.005 mm	23.1
0.002 mm	13.8
0.001 mm	8.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	0.6	0.6	3.3	20.1	52.3
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	1.2			3.3	20.1	61.6	13.8



Comments _____

Reviewed By _____

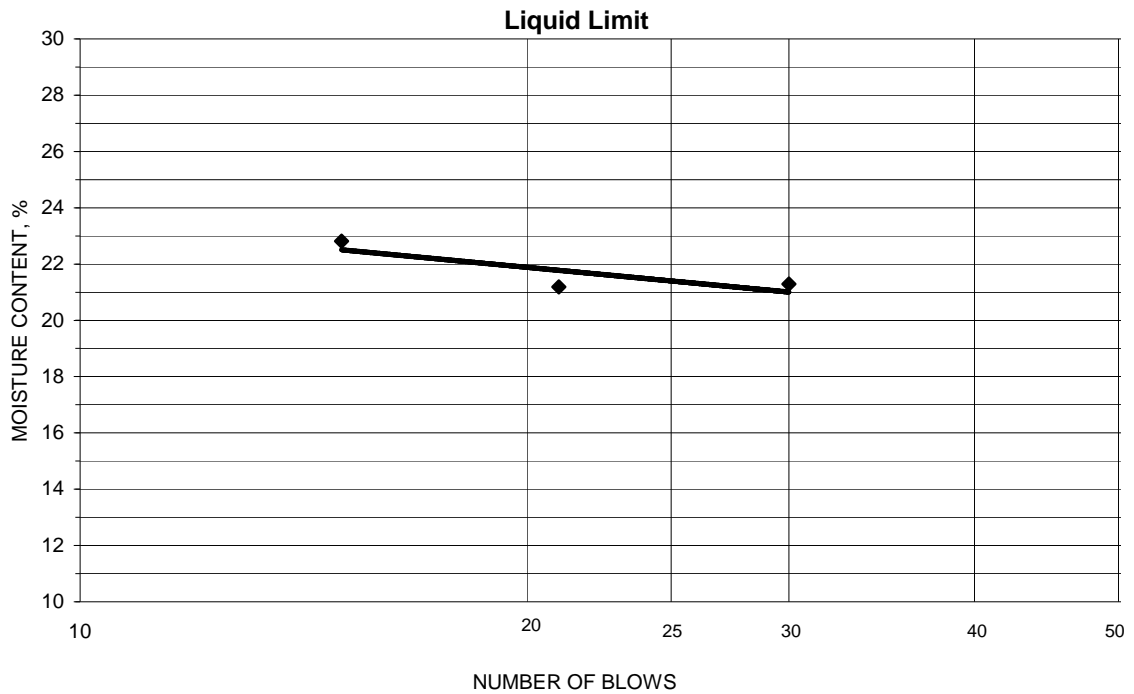


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-40, 0.0'-15.0'
 Tested By KWS Test Method ASTM D 4318 Method A
 Test Date 05-07-2009 Prepared Dry

Project No. 171468118
 Lab ID 1210
 % + No. 40 5
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit
19.71	18.07	10.88	15	22.8	21
20.15	18.65	11.57	21	21.2	
21.32	19.54	11.18	30	21.3	



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index
19.36	18.09	11.56	19.4	20	1
17.41	16.31	10.75	19.8		

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas Project Number 171468118
 Source JS-41, 0.0'-15.0' Lab ID 1162
 County Muhlenberg Date Received 4-20-09
 Sample Type BULK Date Reported 5-28-09

Test Results

Natural Moisture Content
 Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits
 Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis
 Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	98.3
No. 4	4.75	98.0
No. 10	2	97.9
No. 40	0.425	97.2
No. 200	0.075	88.0
	0.02	63.9
	0.005	16.9
	0.002	6.2
estimated	0.001	4.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.0	2.1
Coarse Sand	0.1	0.7
Medium Sand	0.7	---
Fine Sand	9.2	9.2
Silt	71.1	81.8
Clay	16.9	6.2

Moisture-Density Relationship
 Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio
 Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity
 Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.29

Classification
 Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-41, 0.0'-15.0'

 Project Number 171468118
 Lab ID 1162
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-05-2009
 Date Received: 04-20-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	98.3
No. 4	98.0
No. 10	97.9

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

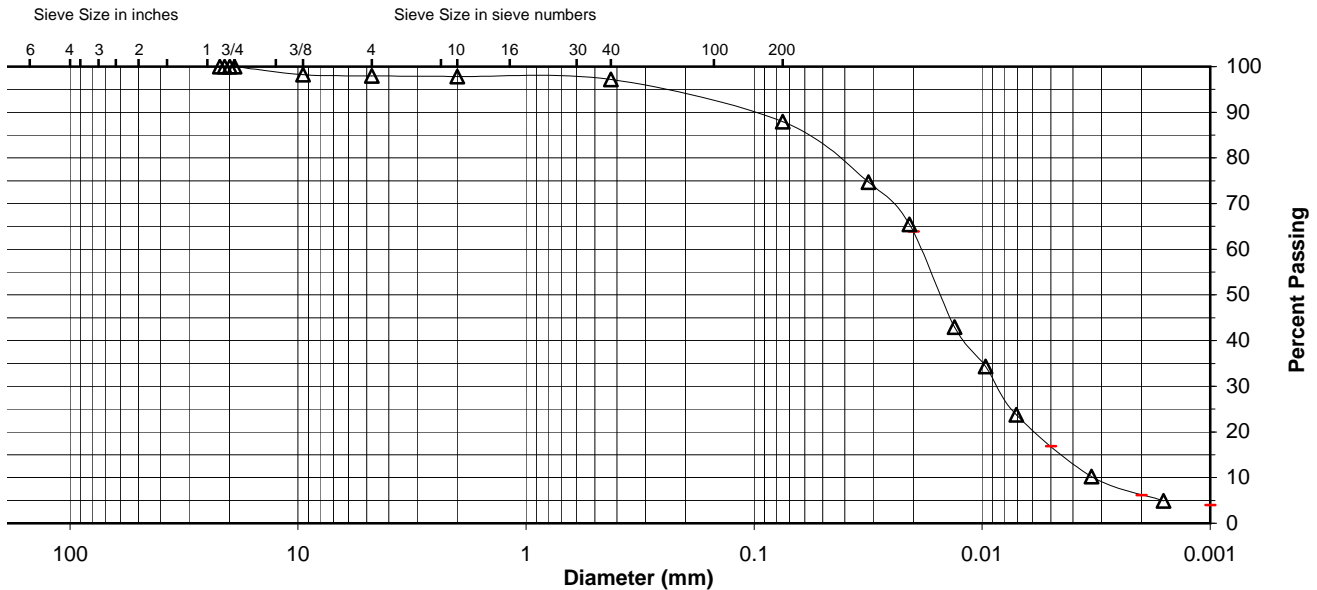
 Specific Gravity 2.29

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.2
No. 200	88.0
0.02 mm	63.9
0.005 mm	16.9
0.002 mm	6.2
0.001 mm	4.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	2.0	0.1	0.7	9.2	71.1
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	2.1			0.7	9.2	81.8	6.2



Comments _____

Reviewed By _____

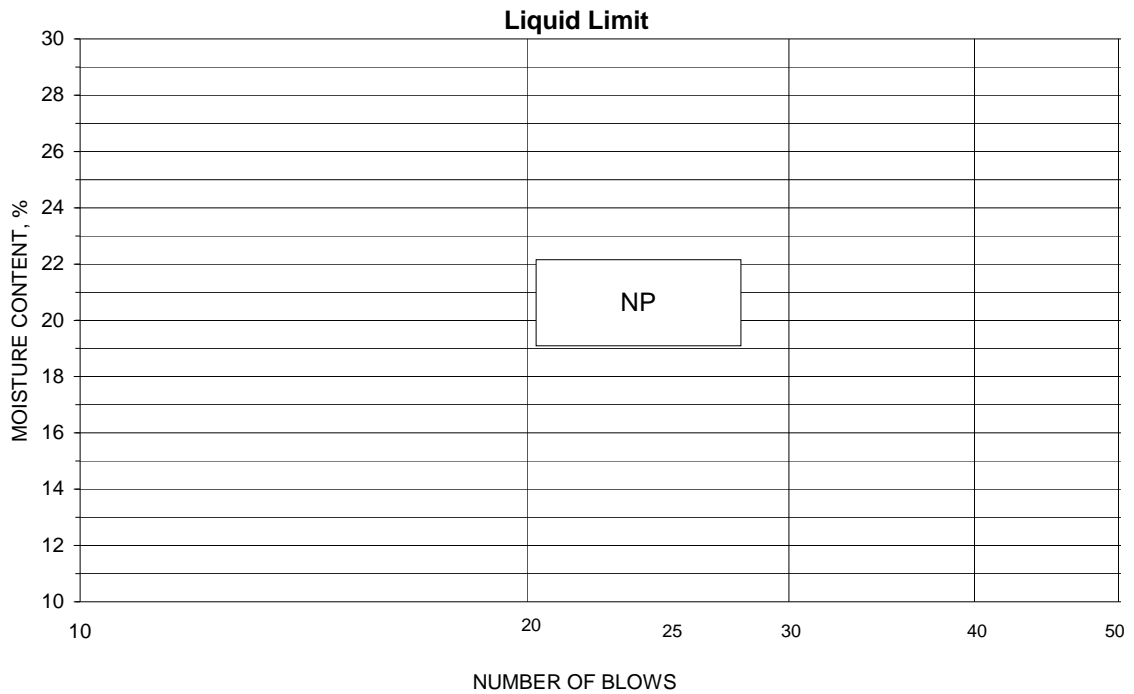


ATTERBERG LIMITS

Project John Sevier Fossil Plant Phase 2 - Ash Disposal Areas
 Source JS-41, 0.0'-15.0'
 Tested By KWS Test Method ASTM D 4318 Method A
 Test Date 05-06-2009 Prepared Dry

Project No. 171468118
 Lab ID 1162
 % + No. 40 3
 Date Received 04-20-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-42, 0.0'-15.0' Lab ID 1991
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.8
No. 10	2	99.1
No. 40	0.425	97.8
No. 200	0.075	88.2
	0.02	55.3
	0.005	17.2
	0.002	7.2
estimated	0.001	4.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.2	0.9
Coarse Sand	0.7	1.3
Medium Sand	1.3	---
Fine Sand	9.6	9.6
Silt	71.0	81.0
Clay	17.2	7.2

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.43

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-42, 0.0'-15.0'

 Project Number 171468118
 Lab ID 1991
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-14-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.8
No. 10	99.1

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

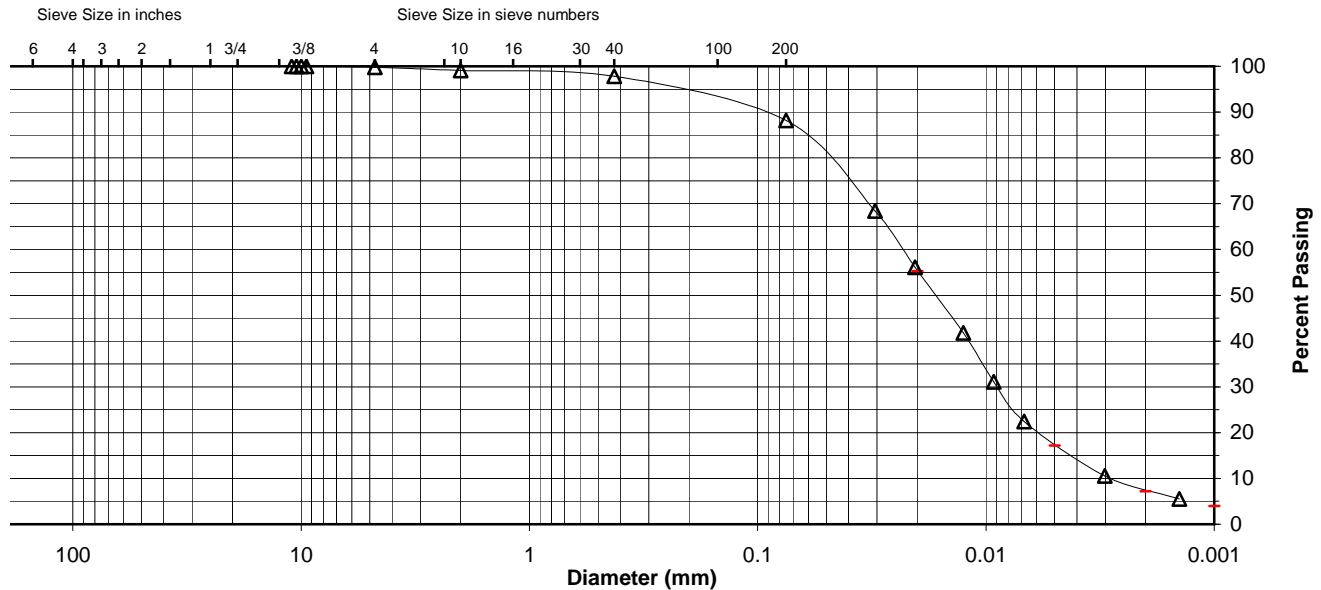
 Specific Gravity 2.43

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.8
No. 200	88.2
0.02 mm	55.3
0.005 mm	17.2
0.002 mm	7.2
0.001 mm	4.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.2	0.7	1.3	9.6	71.0	17.2
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	0.9		1.3	9.6	81.0		7.2



Comments _____

Reviewed By _____

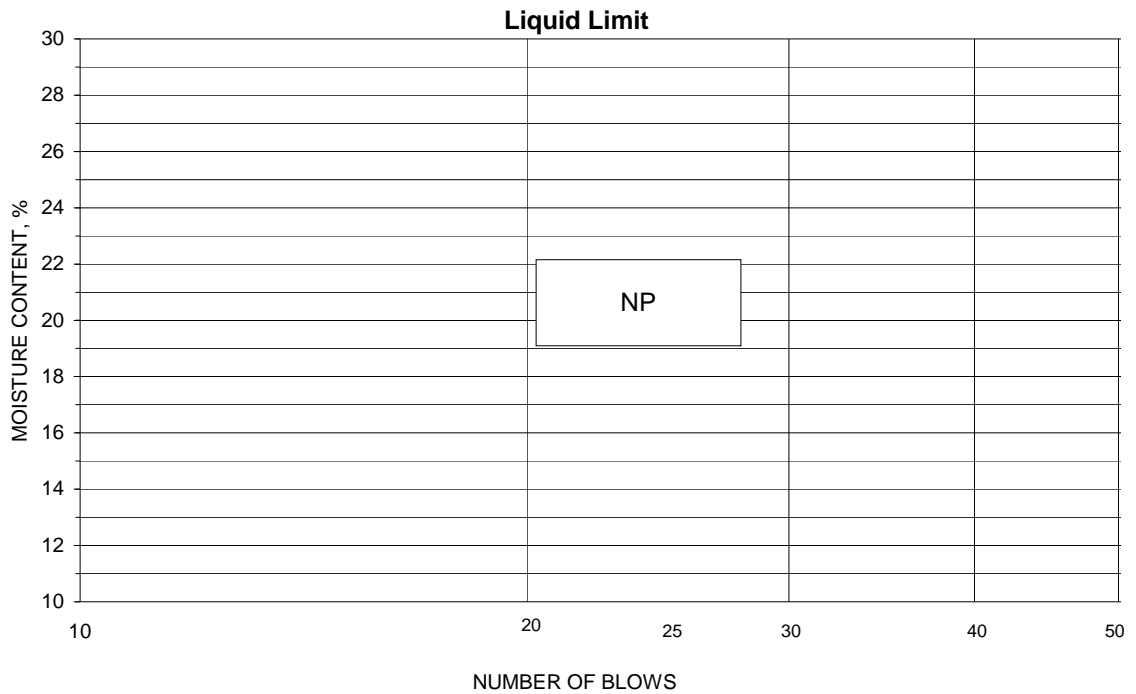


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-42, 0.0'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1991
 % + No. 40 2
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-45, 3.6'-15.0' Lab ID 1653
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	99.5
No. 10	2	96.2
No. 40	0.425	93.3
No. 200	0.075	80.1
	0.02	51.3
	0.005	10.9
	0.002	5.9
estimated	0.001	2.7

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.5	3.8
Coarse Sand	3.3	2.9
Medium Sand	2.9	---
Fine Sand	13.2	13.2
Silt	69.2	74.2
Clay	10.9	5.9

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.31

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-45, 3.6'-15.0'

 Project Number 171468118
 Lab ID 1653
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable
 Tested By: CSM
 Test Date: 05-13-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.5
No. 10	96.2

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

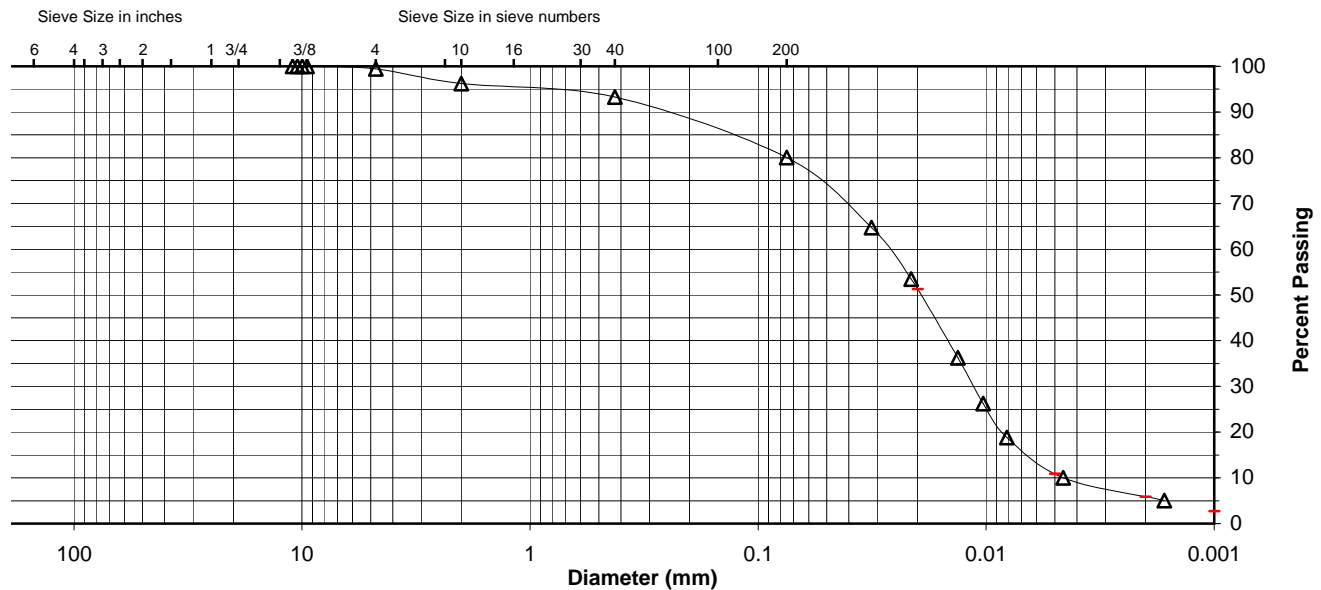
 Specific Gravity 2.31

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.3
No. 200	80.1
0.02 mm	51.3
0.005 mm	10.9
0.002 mm	5.9
0.001 mm	2.7

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
		0.0	0.5	3.3	2.9	13.2	69.2
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	3.8			2.9	13.2	74.2	5.9



Comments _____

Reviewed By _____

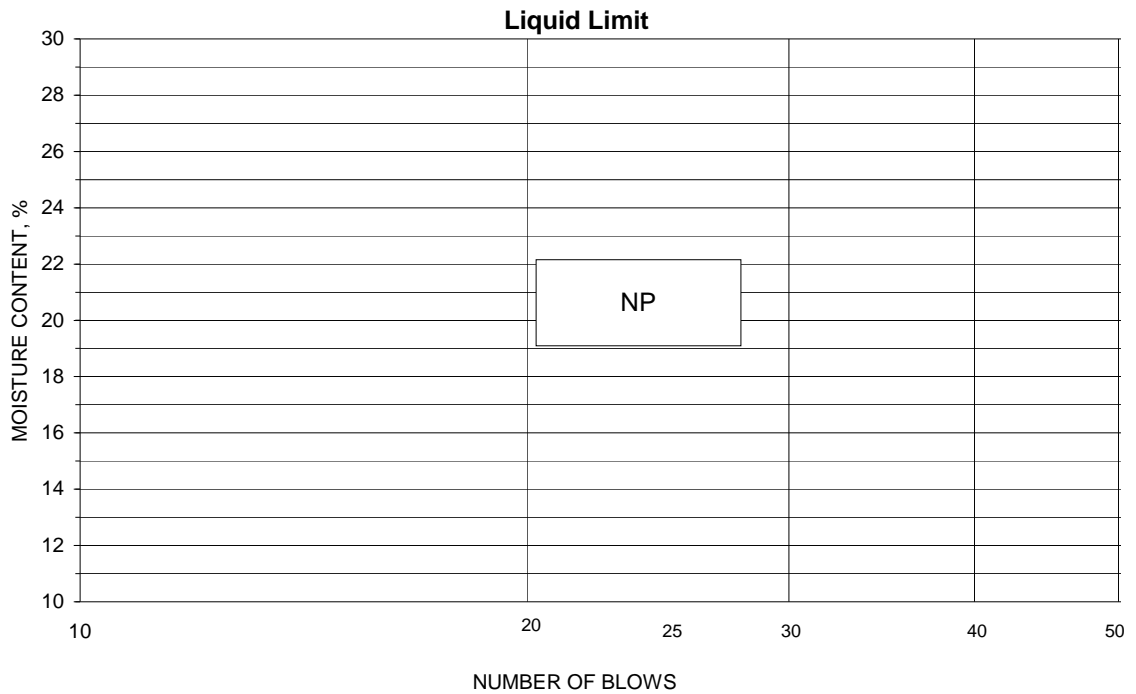


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-45, 3.6'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-13-2009 Prepared Dry

Project No. 171468118
 Lab ID 1653
 % + No. 40 7
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-45, 3.6'-7.0' Lab ID 1652
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	100.0
1"	25	---
3/4"	19	97.7
3/8"	9.5	95.5
No. 4	4.75	92.2
No. 10	2	85.7
No. 40	0.425	78.7
No. 200	0.075	64.6
	0.02	40.3
	0.005	13.8
	0.002	8.6
estimated	0.001	7.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	7.8	14.3
Coarse Sand	6.5	7.0
Medium Sand	7.0	---
Fine Sand	14.1	14.1
Silt	50.8	56.0
Clay	13.8	8.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.39

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-45, 3.6'-7.0'

Project Number 171468118
 Lab ID 1652

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: DG
 Test Date: 05-14-2009
 Date Received 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	100.0
1"	---
3/4"	97.7
3/8"	95.5
No. 4	92.2
No. 10	85.7

Maximum Particle size: 1 1/2" Sieve

Analysis for the portion Finer than the No. 10 Sieve

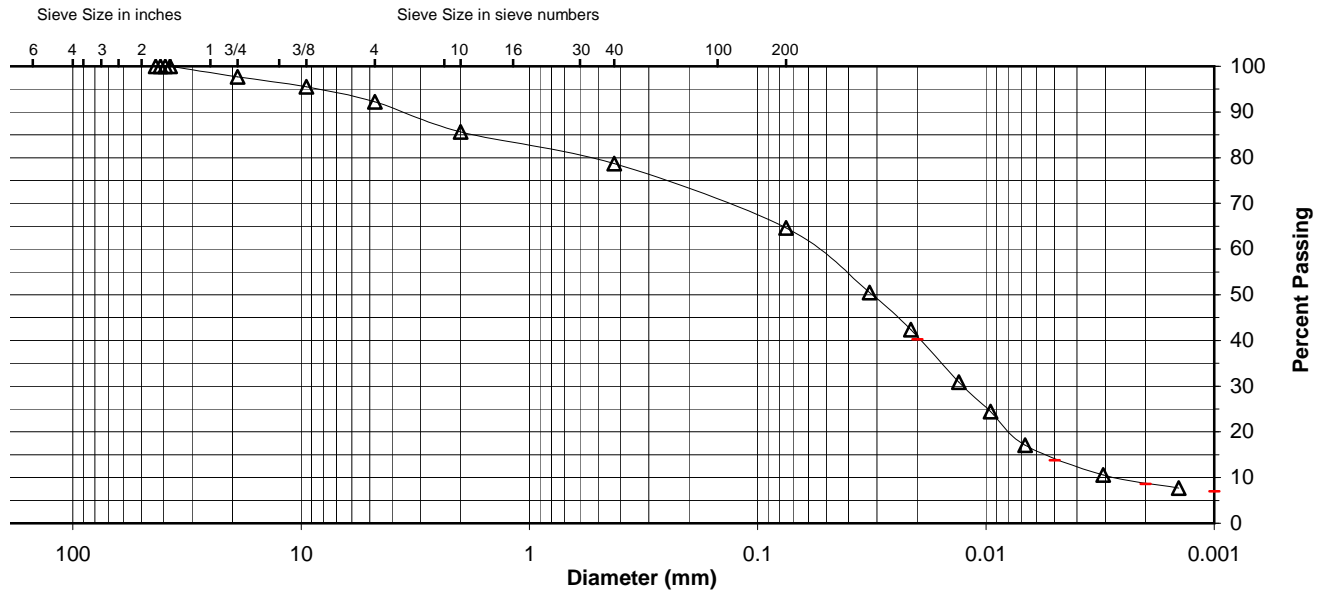
Analysis Based on: Total Sample
 Specific Gravity 2.39

No. 40	78.7
No. 200	64.6
0.02 mm	40.3
0.005 mm	13.8
0.002 mm	8.6
0.001 mm	7.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	2.3	5.5	6.5	7.0	14.1	50.8	13.8	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	14.3			7.0	14.1	56.0		8.6



Comments _____

Reviewed By _____

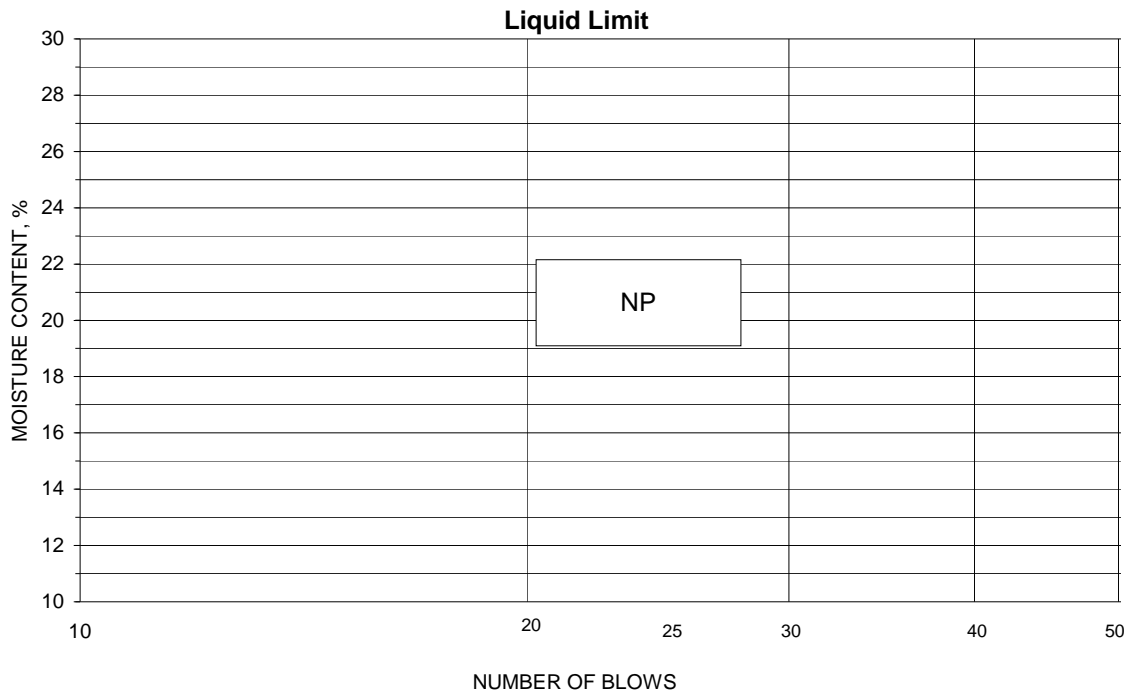


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-45, 3.6'-7.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-14-2009 Prepared Dry

Project No. 171468118
 Lab ID 1652
 % + No. 40 21
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-46, 12.0'-18.0' Lab ID 142
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-18-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	95.2
No. 4	4.75	90.7
No. 10	2	83.1
No. 40	0.425	73.5
No. 200	0.075	59.0
	0.02	37.8
	0.005	10.8
	0.002	4.8
estimated	0.001	2.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	9.3	16.9
Coarse Sand	7.6	9.6
Medium Sand	9.6	---
Fine Sand	14.5	14.5
Silt	48.2	54.2
Clay	10.8	4.8

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.41

Classification

Unified Group Symbol: ML
 Group Name: Sandy silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-46, 12.0'-18.0'

 Project Number 175569038
 Lab ID 142
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: Rounded and Angular
 Particle Hardness: Hard and Durable

 Tested By: BWT
 Test Date: 06-03-2009
 Date Received: 05-26-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	95.2
No. 4	90.7
No. 10	83.1

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

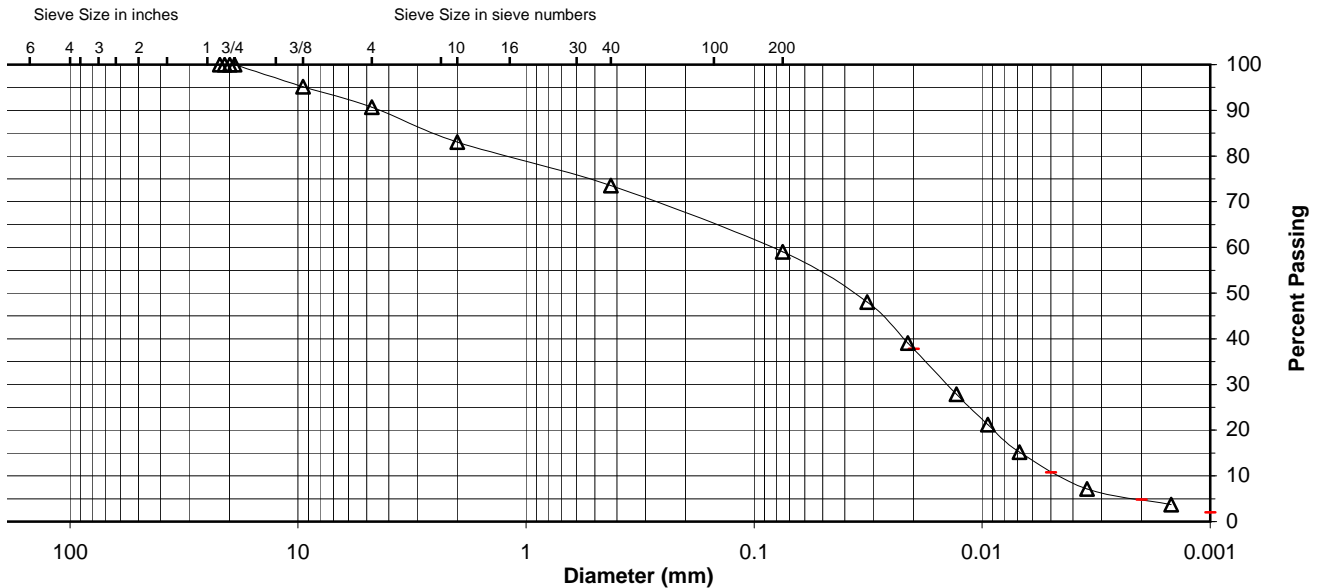
 Specific Gravity 2.41

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	73.5
No. 200	59.0
0.02 mm	37.8
0.005 mm	10.8
0.002 mm	4.8
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	9.3	7.6	9.6	14.5	48.2	10.8	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	16.9			9.6	14.5	54.2		4.8



Comments _____

Reviewed By _____

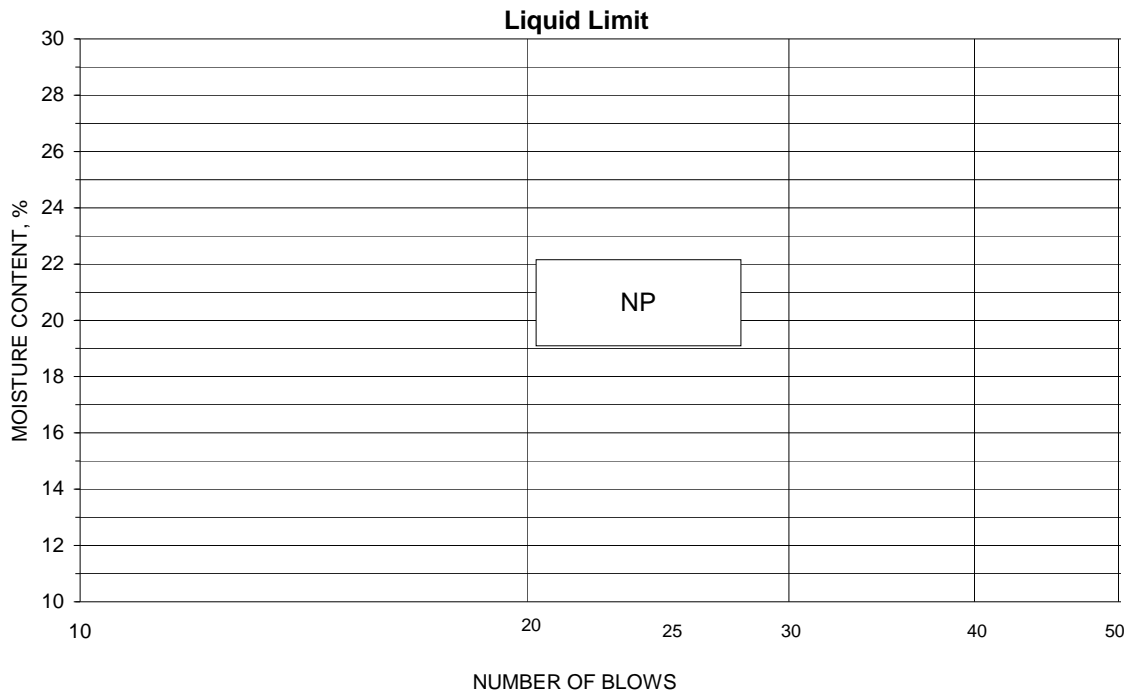


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-46, 12.0'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 142
 % + No. 40 26
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-49, 12.0'-18.0' Lab ID 1
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-25-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.8
No. 4	4.75	99.6
No. 10	2	98.7
No. 40	0.425	97.1
No. 200	0.075	86.6
	0.02	55.7
	0.005	12.1
	0.002	4.7
estimated	0.001	2.9

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.4	1.3
Coarse Sand	0.9	1.6
Medium Sand	1.6	---
Fine Sand	10.5	10.5
Silt	74.5	81.9
Clay	12.1	4.7

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.30

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-49, 12.0'-18.0'

 Project Number 175569038
 Lab ID 1
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded
 Particle Hardness: Hard and Durable
 Tested By: CM
 Test Date: 05-28-2009
 Date Received: 05-26-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.8
No. 4	99.6
No. 10	98.7

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

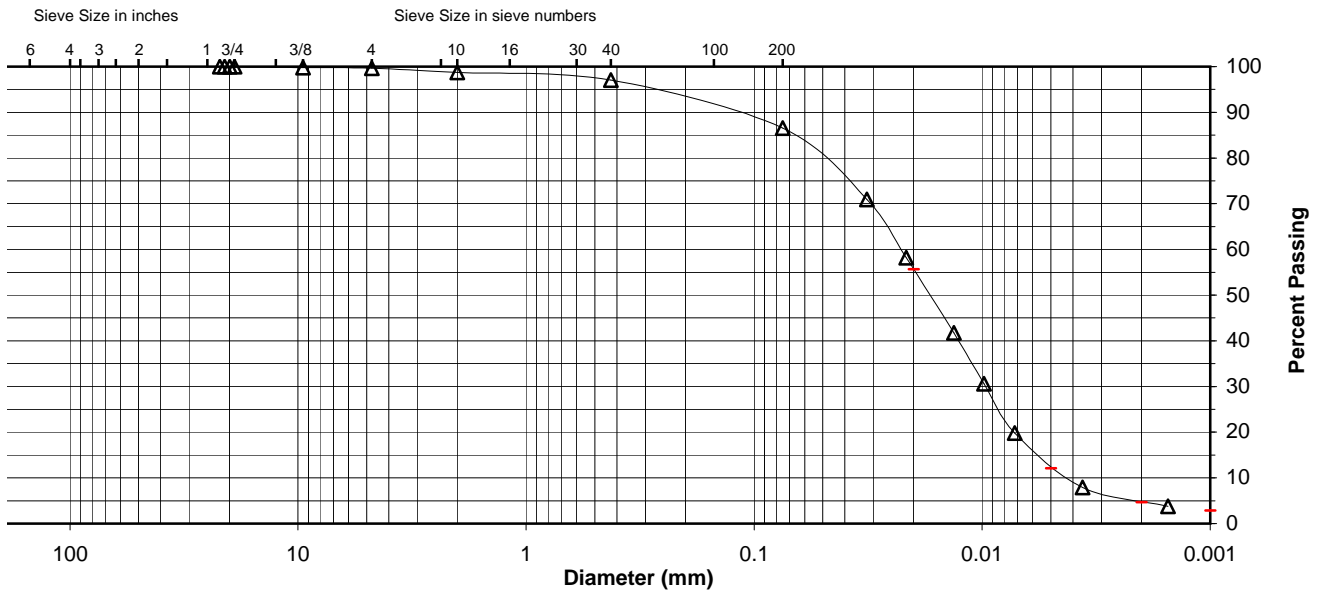
 Specific Gravity 2.3

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.1
No. 200	86.6
0.02 mm	55.7
0.005 mm	12.1
0.002 mm	4.7
0.001 mm	2.9

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.4	0.9	1.6	10.5	74.5	12.1
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	1.3		1.6		10.5	81.9	4.7



Comments _____

Reviewed By _____

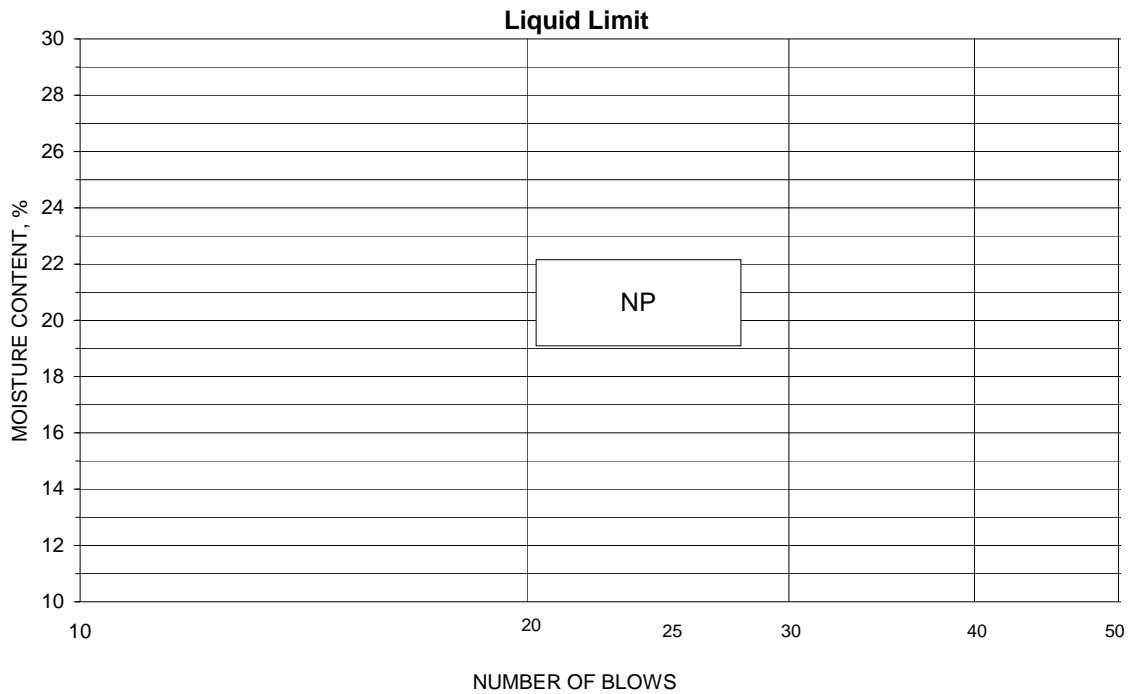


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-49, 12.0'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-10-2009 Prepared Dry

Project No. 175569038
 Lab ID 1
 % + No. 40 3
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-50, 0.0'-24.0' Lab ID 2037
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.3
No. 4	4.75	97.1
No. 10	2	94.6
No. 40	0.425	89.9
No. 200	0.075	78.2
	0.02	50.3
	0.005	16.7
	0.002	7.6
estimated	0.001	5.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	2.9	5.4
Coarse Sand	2.5	4.7
Medium Sand	4.7	---
Fine Sand	11.7	11.7
Silt	61.5	70.6
Clay	16.7	7.6

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: 0
 Specific Gravity at 20° Celsius: 2.37

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-50, 0.0'-24.0'

Project Number 171468118
 Lab ID 2037

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-15-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.3
No. 4	97.1
No. 10	94.6

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

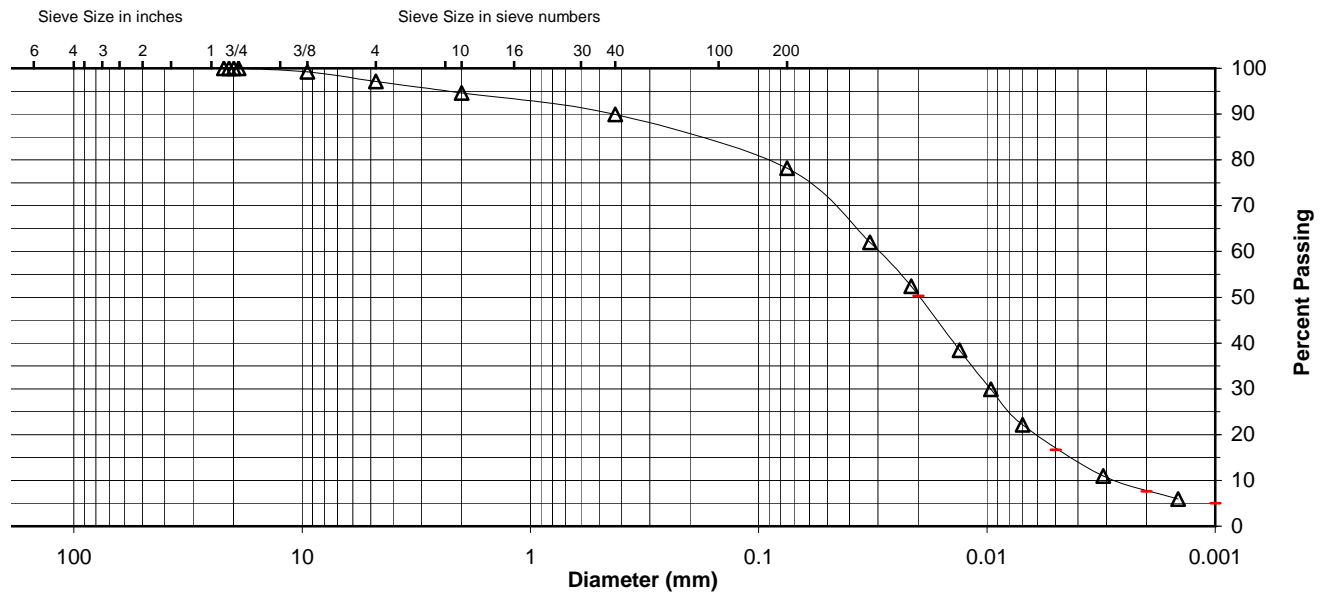
Specific Gravity 2.37

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	89.9
No. 200	78.2
0.02 mm	50.3
0.005 mm	16.7
0.002 mm	7.6
0.001 mm	5.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	2.9	2.5	4.7	11.7	61.5	16.7
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	5.4			4.7	11.7	70.6	7.6



Comments _____

Reviewed By _____

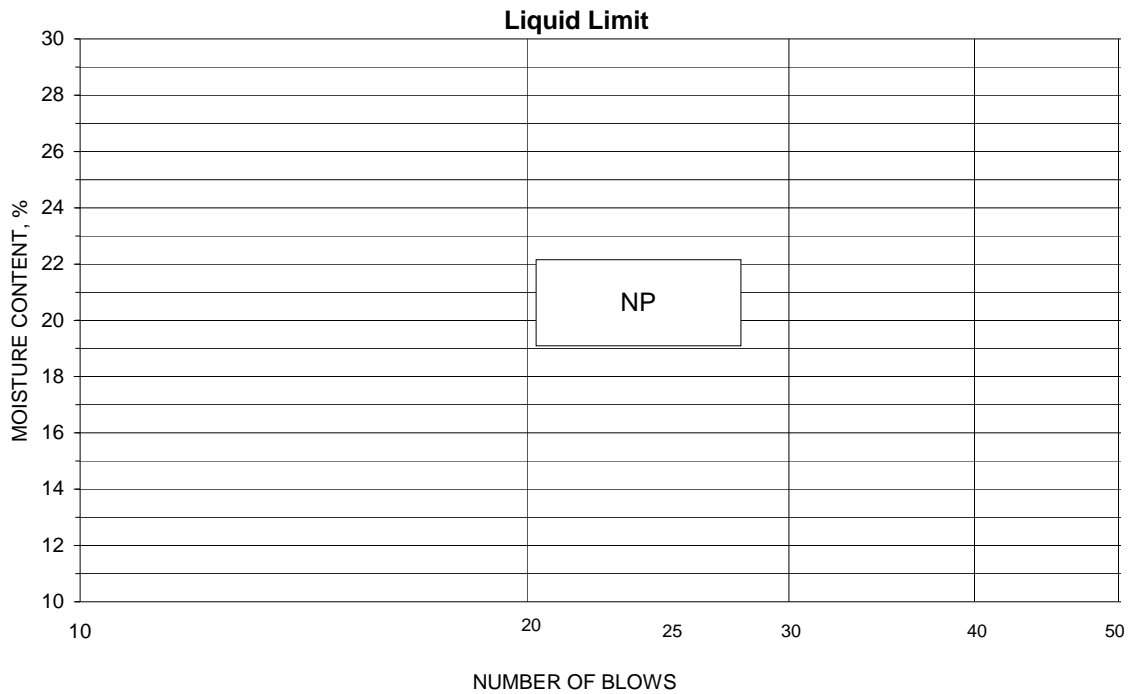


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-50, 0.0'-24.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 2037
 % + No. 40 10
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-52, 31.5'-40.5' Lab ID 849
 County Hawkins, TN Date Received 6-10-09
 Sample Type Bag Date Reported 7-7-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		%
Sieve Size	(mm)	Passing
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	100.0
3/8"	9.5	99.9
No. 4	4.75	98.9
No. 10	2	96.1
No. 40	0.425	91.8
No. 200	0.075	78.8
	0.02	48.3
	0.005	14.2
	0.002	8.2
estimated	0.001	5.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	1.1	3.9
Coarse Sand	2.8	4.3
Medium Sand	4.3	---
Fine Sand	13.0	13.0
Silt	64.6	70.6
Clay	14.2	8.2

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.34

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Siever Fossil Plant
 Source JS-52, 31.5'-40.5'

Project Number 175569038
 Lab ID 849

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: CM
 Test Date: 06-22-2009
 Date Received: 06-10-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	99.9
No. 4	98.9
No. 10	96.1

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

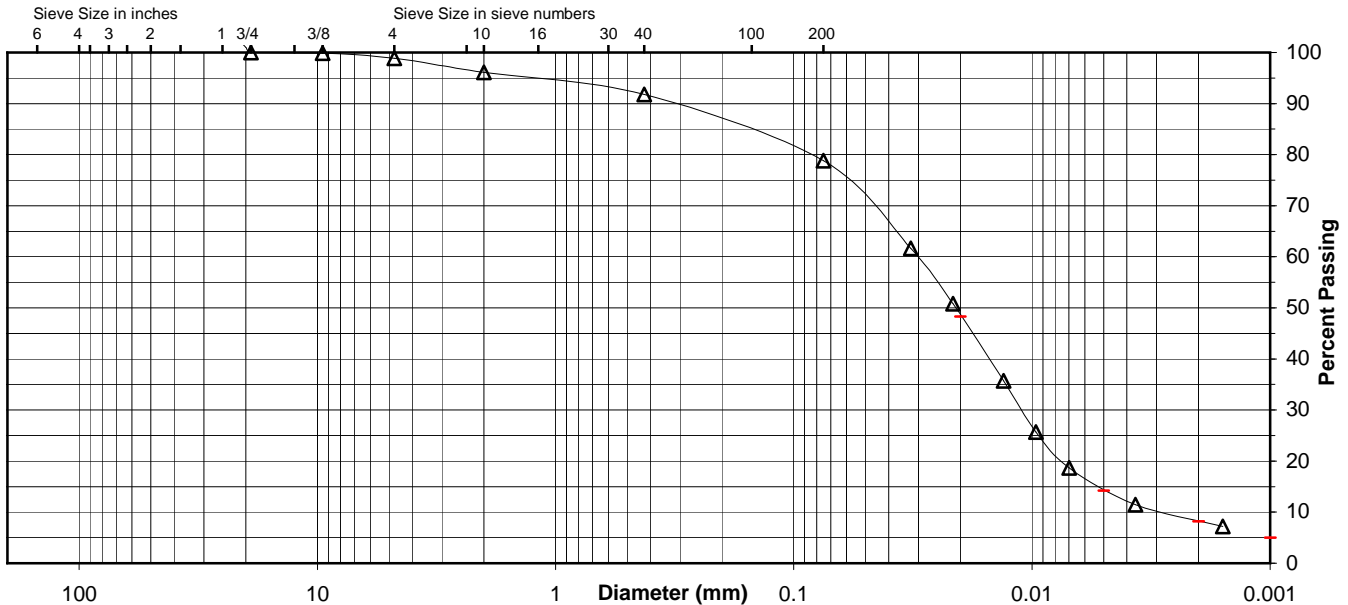
Analysis Based on: Total Sample
 Specific Gravity 2.34

No. 40	91.8
No. 200	78.8
0.02 mm	48.3
0.005 mm	14.2
0.002 mm	8.2
0.001 mm	5.0

Dispersed using: Apparatus A - Mechanical, for 1 minute

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	1.1	2.8	4.3	13.0	64.6	14.2
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	3.9		4.3	13.0	70.6		8.2



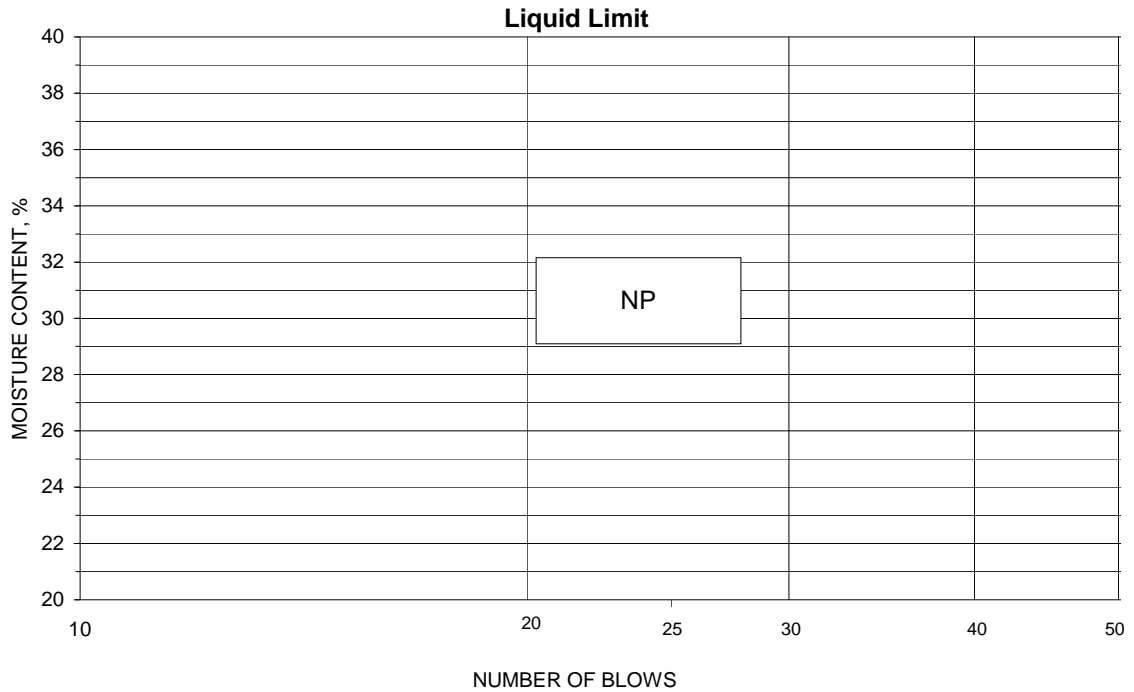
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JS-52, 31.5'-40.5'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-23-2009 Prepared Dry

Project No. 175569038
 Lab ID 849
 % + No. 40 8
 Date Received 06-10-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-52, 6.0'-18.0' Lab ID 848
 County Hawkins, TN Date Received 6-10-09
 Sample Type Bag Date Reported 7-7-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		%
Sieve Size	(mm)	Passing
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	
No. 10	2	100.0
No. 40	0.425	99.6
No. 200	0.075	88.1
	0.02	50.5
	0.005	16.4
	0.002	6.1
estimated	0.001	1.2

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.0
Coarse Sand	0.0	0.4
Medium Sand	0.4	---
Fine Sand	11.5	11.5
Silt	71.7	82.0
Clay	16.4	6.1

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: 0
 Specific Gravity at 20° Celsius: 2.71

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

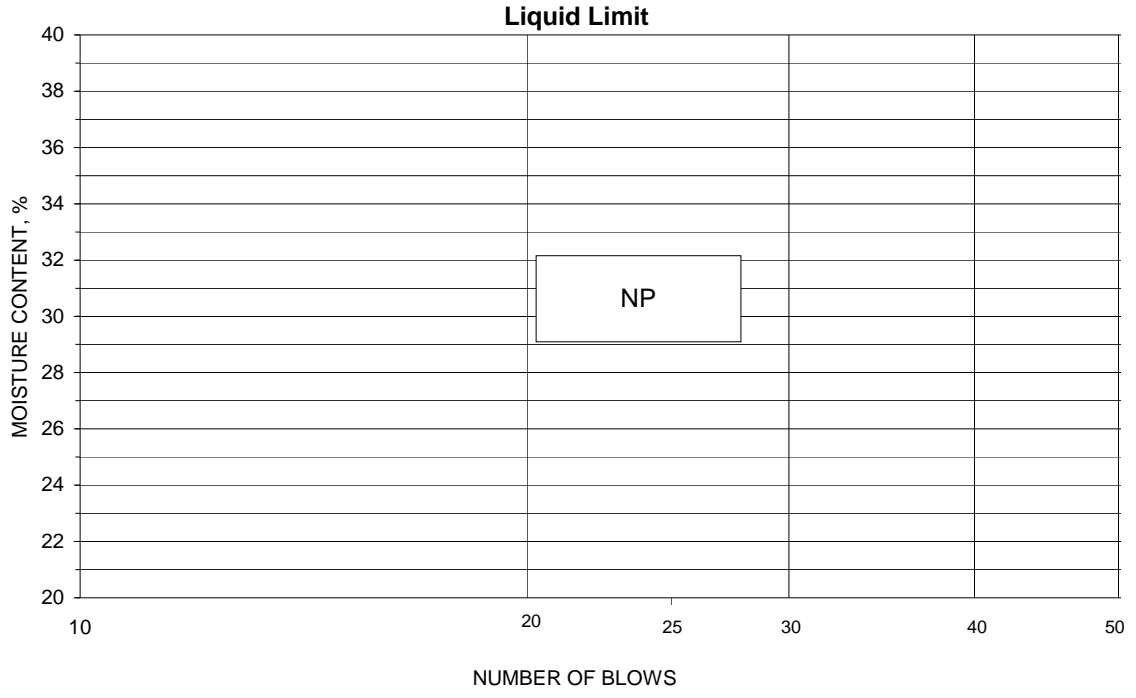


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-52, 6.0'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-24-2009 Prepared Dry

Project No. 175569038
 Lab ID 848
 % + No. 40 0
 Date Received 06-10-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-55, 3.0'-18.0' Lab ID 600
 County Hawkins, TN Date Received 5-26-09
 Sample Type BULK Date Reported 6-22-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	
No. 4	4.75	
No. 10	2	100.0
No. 40	0.425	99.9
No. 200	0.075	98.5
	0.02	85.1
	0.005	33.8
	0.002	7.1
estimated	0.001	1.6

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.0
Coarse Sand	0.0	0.1
Medium Sand	0.1	---
Fine Sand	1.4	1.4
Silt	64.7	91.4
Clay	33.8	7.1

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.47

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-55, 3.0'-18.0'

 Project Number 175569038
 Lab ID 600
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421

 Particle Shape: N/A
 Particle Hardness: N/A

 Tested By: RSB
 Test Date: 06-05-2009
 Date Received 05-26-2009

Maximum Particle size: No. 10 Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	
No. 10	100.0

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

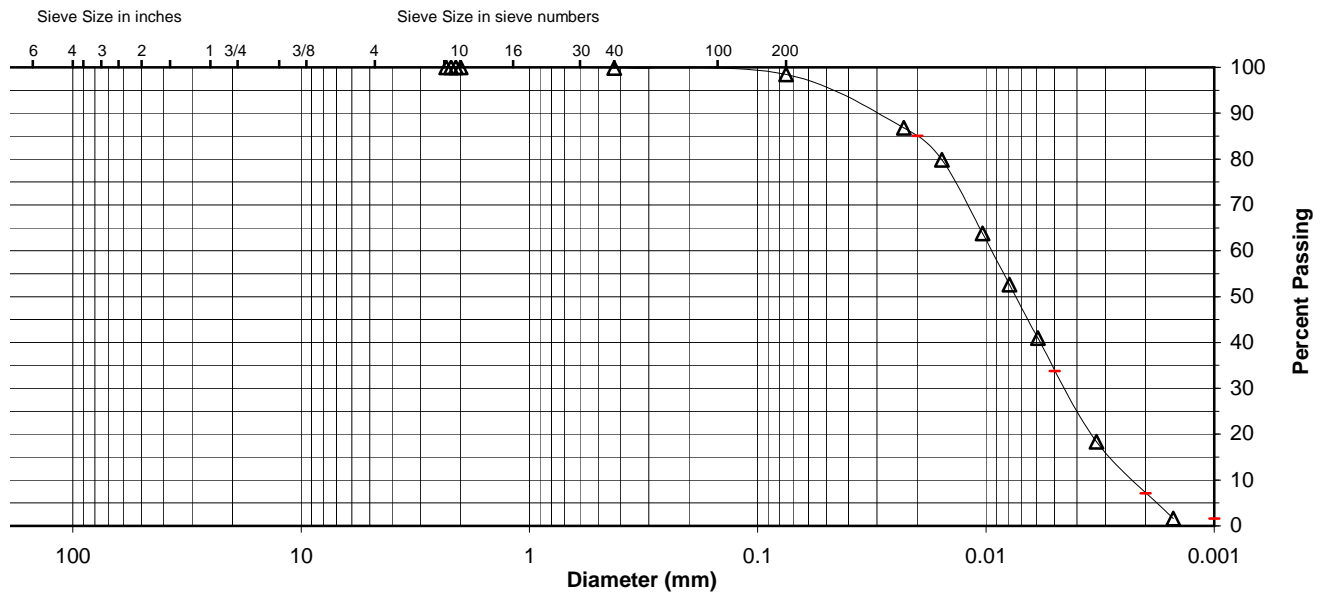
 Specific Gravity 2.47

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.9
No. 200	98.5
0.02 mm	85.1
0.005 mm	33.8
0.002 mm	7.1
0.001 mm	1.6

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.0	0.1	1.4	64.7	33.8
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.0		0.1		1.4	91.4	7.1



Comments _____

Reviewed By _____

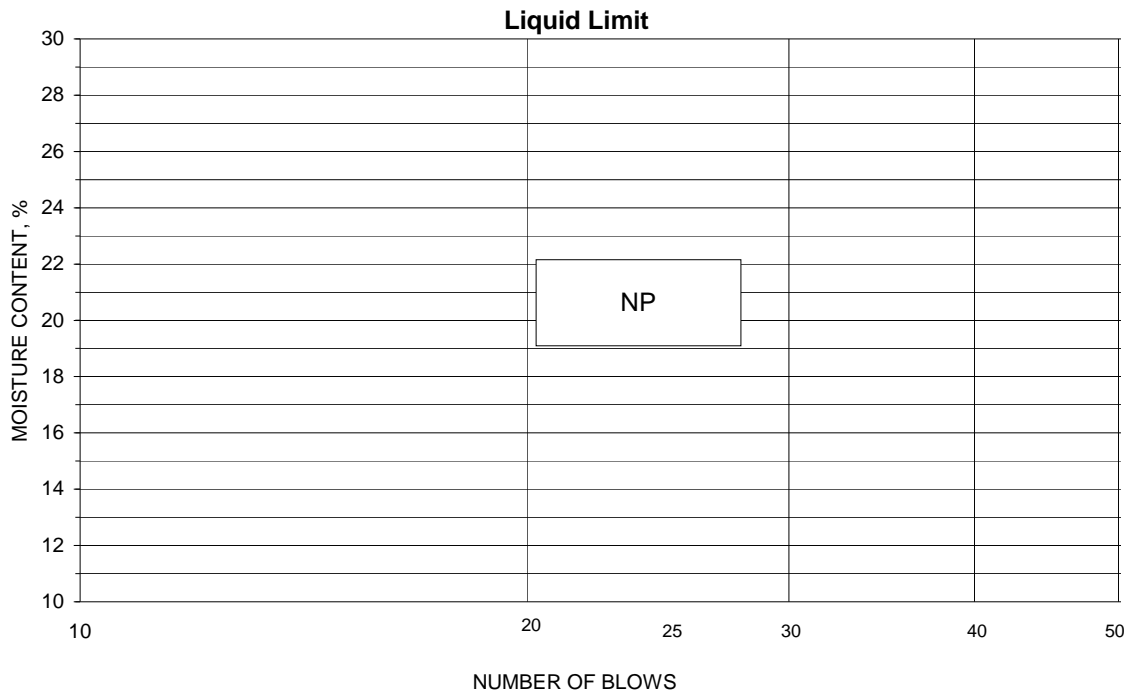


ATTERBERG LIMITS

Project John Siever Fossil Plant
 Source JS-55, 3.0'-18.0'
 Tested By RSB Test Method ASTM D 4318 Method A
 Test Date 06-08-2009 Prepared Dry

Project No. 175569038
 Lab ID 600
 % + No. 40 0
 Date Received 05-26-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-56, 0.0'-18.0' Lab ID 2077
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	100.0
No. 10	2	99.8
No. 40	0.425	99.1
No. 200	0.075	88.9
	0.02	52.6
	0.005	11.3
	0.002	4.2
estimated	0.001	3.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.2
Coarse Sand	0.2	0.7
Medium Sand	0.7	---
Fine Sand	10.2	10.2
Silt	77.6	84.7
Clay	11.3	4.2

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: 0
 Specific Gravity at 20° Celsius: 2.41

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Sevier Fossil Plant
 Source JS-56, 0.0'-18.0'

 Project Number 171468118
 Lab ID 2077
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Angular
 Particle Hardness: Hard and Durable
 Tested By: BWT
 Test Date: 05-15-2009
 Date Received: 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	100.0
No. 10	99.8

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

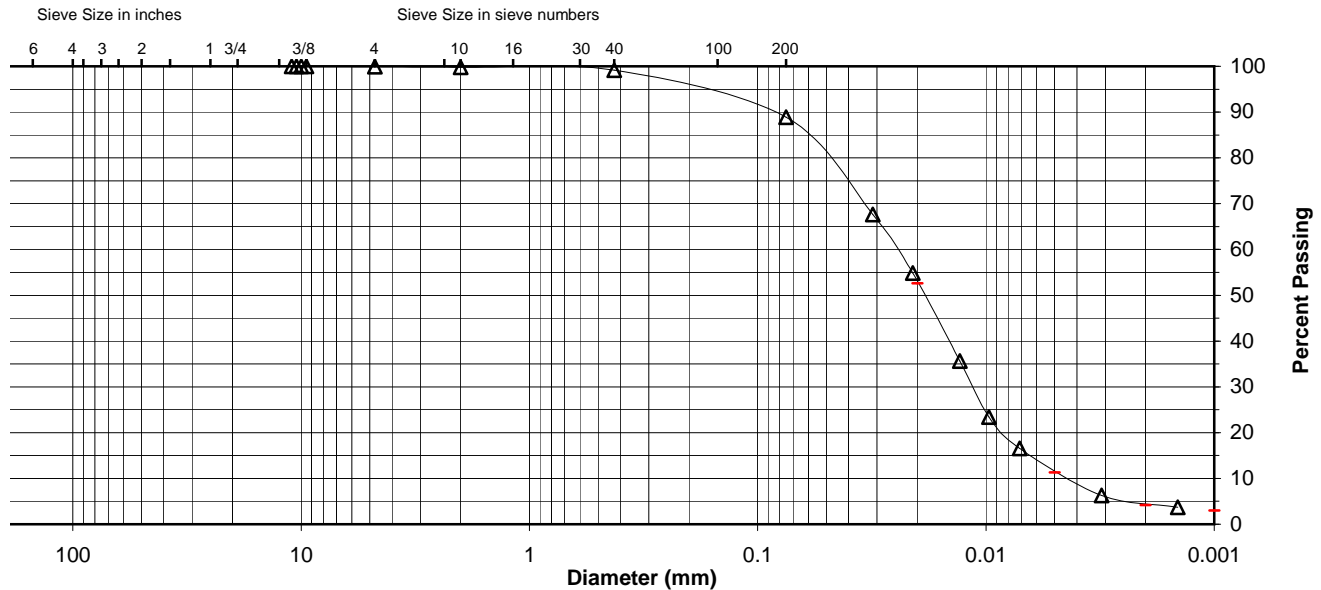
 Specific Gravity 2.41

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.1
No. 200	88.9
0.02 mm	52.6
0.005 mm	11.3
0.002 mm	4.2
0.001 mm	3.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.2	0.7	10.2	77.6	11.3
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.2		0.7		10.2	84.7	4.2



Comments _____

Reviewed By _____

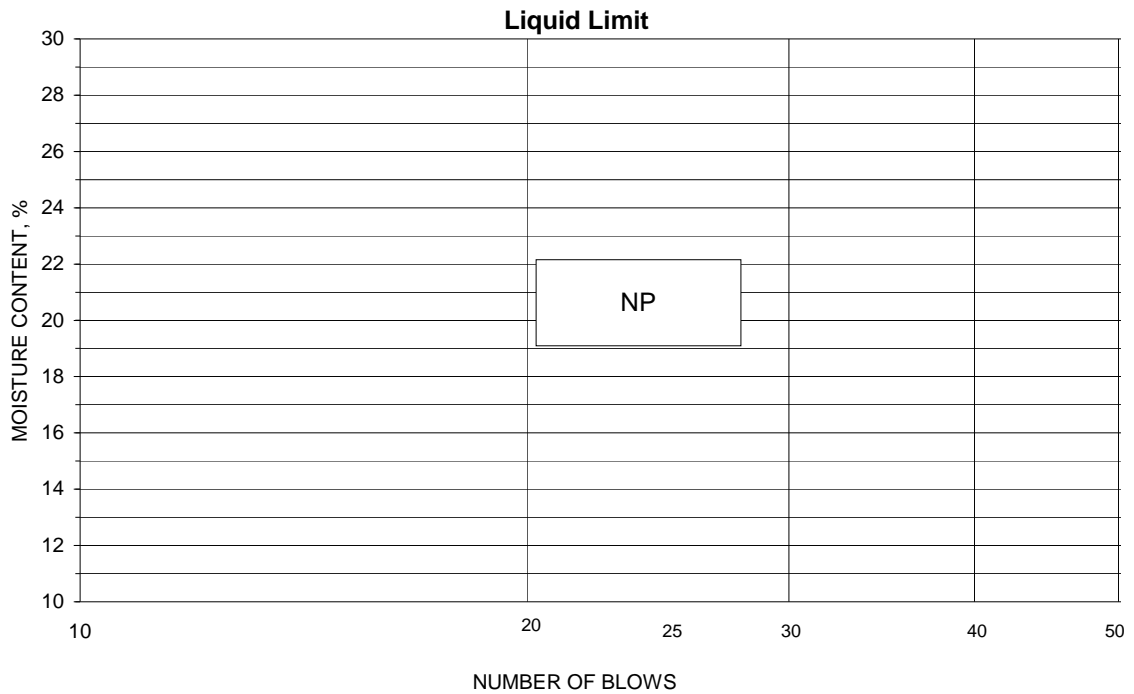


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-56, 0.0'-18.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 2077
 % + No. 40 1
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-57, 6.0'-13.2' Lab ID 813
 County Hawkins, TN Date Received 6-10-09
 Sample Type Bag Date Reported 7-7-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		%
Sieve Size	(mm)	Passing
3"	75	
2"	50	
1 1/2"	37.5	100.0
1"	25	97.3
3/4"	19	97.3
3/8"	9.5	96.5
No. 4	4.75	95.8
No. 10	2	94.2
No. 40	0.425	93.4
No. 200	0.075	80.5
	0.02	39.9
	0.005	7.7
	0.002	1.7
estimated	0.001	1.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	4.2	5.8
Coarse Sand	1.6	0.8
Medium Sand	0.8	---
Fine Sand	12.9	12.9
Silt	72.8	78.8
Clay	7.7	1.7

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No. 10
 Specific Gravity at 20° Celsius: 2.31

Classification

Unified Group Symbol: ML
 Group Name: Silt with sand
 AASHTO Classification: A-4 (0)

Comments: _____

Project Name John Siever Fossil Plant
 Source JS-57, 6.0'-13.2'

Project Number 175569038
 Lab ID 813

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded
 Particle Hardness: Hard and Durable
 Tested By: CP
 Test Date: 06-18-2009
 Date Received: 06-10-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	100.0
1"	97.3
3/4"	97.3
3/8"	96.5
No. 4	95.8
No. 10	94.2

Maximum Particle size: 1 1/2" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

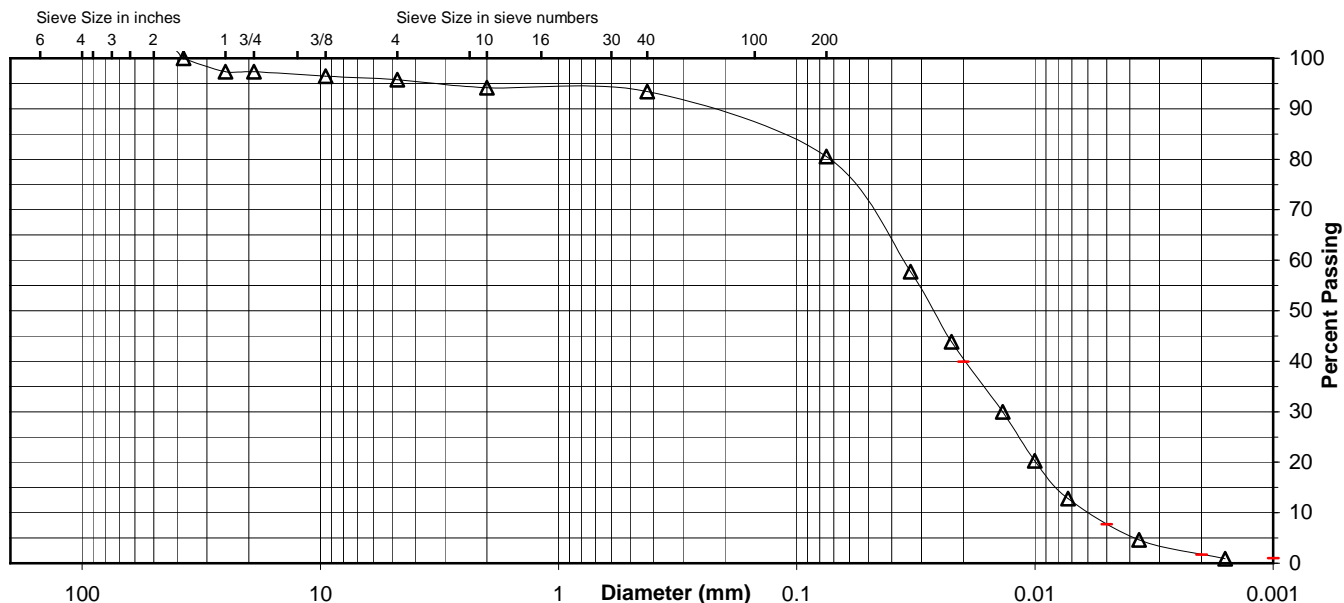
Specific Gravity 2.31

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	93.4
No. 200	80.5
0.02 mm	39.9
0.005 mm	7.7
0.002 mm	1.7
0.001 mm	1.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	2.7	1.5	1.6	0.8	12.9	72.8	7.7
AASHTO	Gravel		Coarse Sand	Fine Sand	Silt		Clay
	5.8		0.8	12.9	78.8		1.7



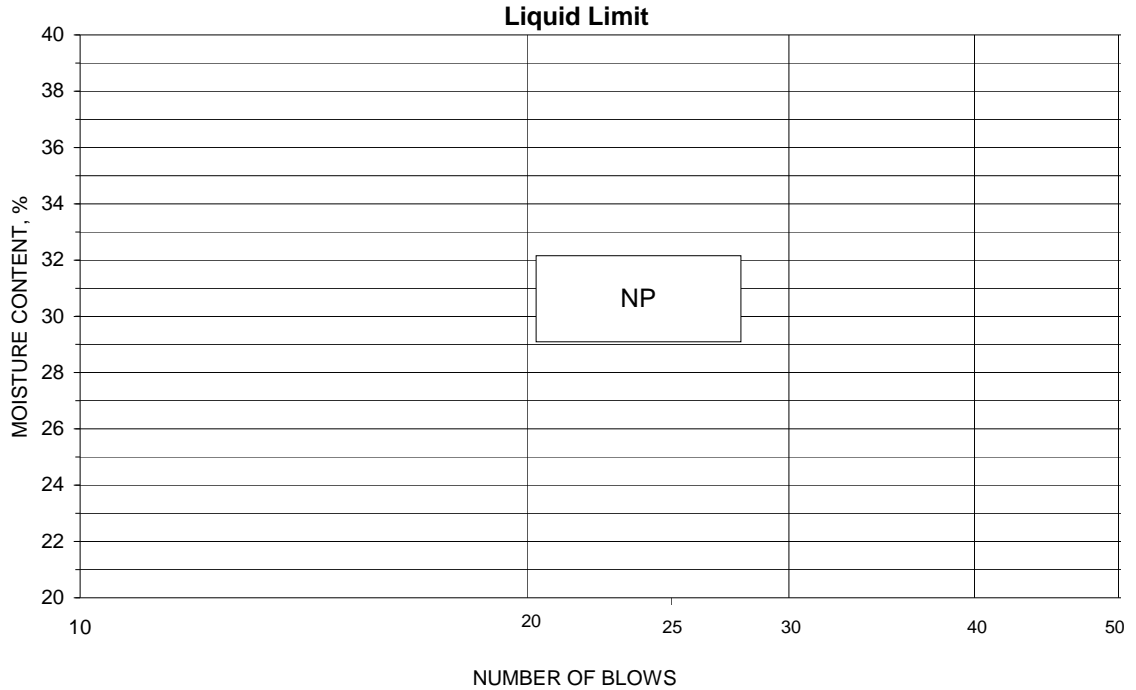
Comments _____

Reviewed By _____

Project John Siever Fossil Plant
 Source JS-57, 6.0'-13.2'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 06-23-2009 Prepared Dry

Project No. 175569038
 Lab ID 813
 % + No. 40 7
 Date Received 06-10-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit



PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____



Summary of Soil Tests

Project Name John Sevier Fossil Plant Project Number 171468118
 Source JS-58, 4.0'-15.0' Lab ID 1623
 County Muhlenberg Date Received 4-28-09
 Sample Type BULK Date Reported 6-3-09

Test Results

Natural Moisture Content

Test Not Performed
 Moisture Content (%): N/A

Particle Size Analysis

Preparation Method: ASTM D 421
 Gradation Method: ASTM D 422
 Hydrometer Method: ASTM D 422

Particle Size		% Passing
Sieve Size	(mm)	
3"	75	
2"	50	
1 1/2"	37.5	
1"	25	
3/4"	19	
3/8"	9.5	100.0
No. 4	4.75	100.0
No. 10	2	99.8
No. 40	0.425	99.4
No. 200	0.075	91.9
	0.02	73.1
	0.005	29.4
	0.002	10.1
estimated	0.001	0.0

Plus 3 in. material, not included: 0 (%)

Range	ASTM (%)	AASHTO (%)
Gravel	0.0	0.2
Coarse Sand	0.2	0.4
Medium Sand	0.4	---
Fine Sand	7.5	7.5
Silt	62.5	81.8
Clay	29.4	10.1

Atterberg Limits

Test Method: ASTM D 4318 Method A
 Prepared: Dry
 Liquid Limit: ---
 Plastic Limit: Non Plastic
 Plasticity Index: ---
 Activity Index: N/A

Moisture-Density Relationship

Test Not Performed
 Maximum Dry Density (lb/ft³): N/A
 Maximum Dry Density (kg/m³): N/A
 Optimum Moisture Content (%): N/A
 Over Size Correction %: N/A

California Bearing Ratio

Test Not Performed
 Bearing Ratio (%): N/A
 Compacted Dry Density (lb/ft³): N/A
 Compacted Moisture Content (%): N/A

Specific Gravity

Test Method: ASTM D 854
 Prepared: Dry
 Particle Size: No.10
 Specific Gravity at 20° Celsius: 2.36

Classification

Unified Group Symbol: ML
 Group Name: Silt
 AASHTO Classification: A-4 (0)

Comments: _____



Particle-Size Analysis of Soils

ASTM D 422

Project Name John Sevier Fossil Plant
 Source JS-58, 4.0'-15.0'

Project Number 171468118
 Lab ID 1623

Sieve analysis for the Portion Coarser than the No. 10 Sieve

Test Method: ASTM D 422
 Prepared using: ASTM D 421
 Particle Shape: Rounded
 Particle Hardness: Hard and Durable
 Tested By: CSM
 Test Date: 05-13-2009
 Date Received 04-28-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	100.0
No. 10	99.8

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

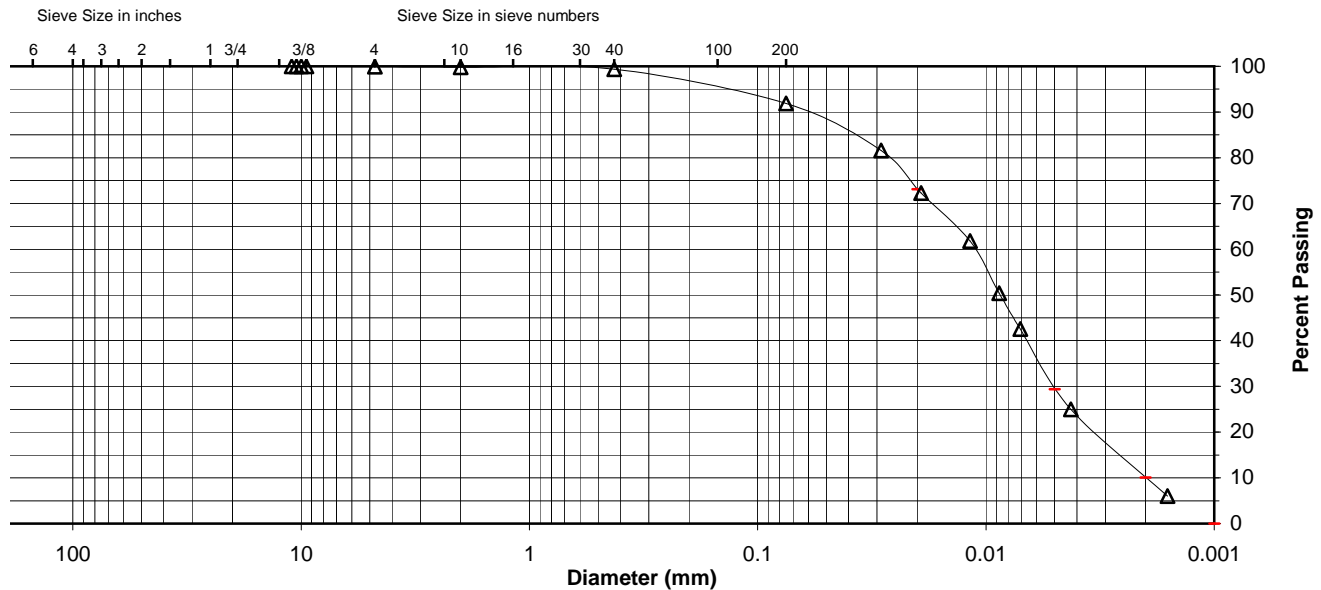
Specific Gravity 2.36

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.4
No. 200	91.9
0.02 mm	73.1
0.005 mm	29.4
0.002 mm	10.1
0.001 mm	0.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	0.0	0.2	0.4	7.5	62.5	29.4	
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt		Clay
	0.2			0.4	7.5	81.8		10.1



Comments _____

Reviewed By _____

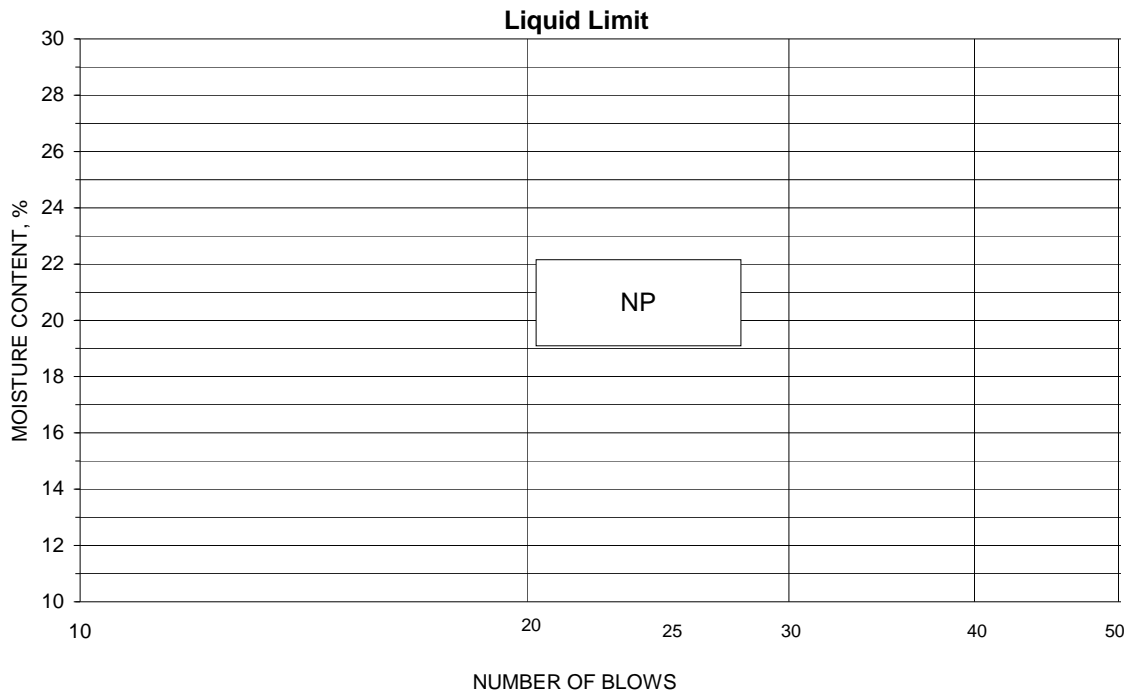


ATTERBERG LIMITS

Project John Sevier Fossil Plant
 Source JS-58, 4.0'-15.0'
 Tested By CSM Test Method ASTM D 4318 Method A
 Test Date 05-15-2009 Prepared Dry

Project No. 171468118
 Lab ID 1623
 % + No. 40 1
 Date Received 04-28-2009

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Number of Blows	Water Content (%)	Liquid Limit

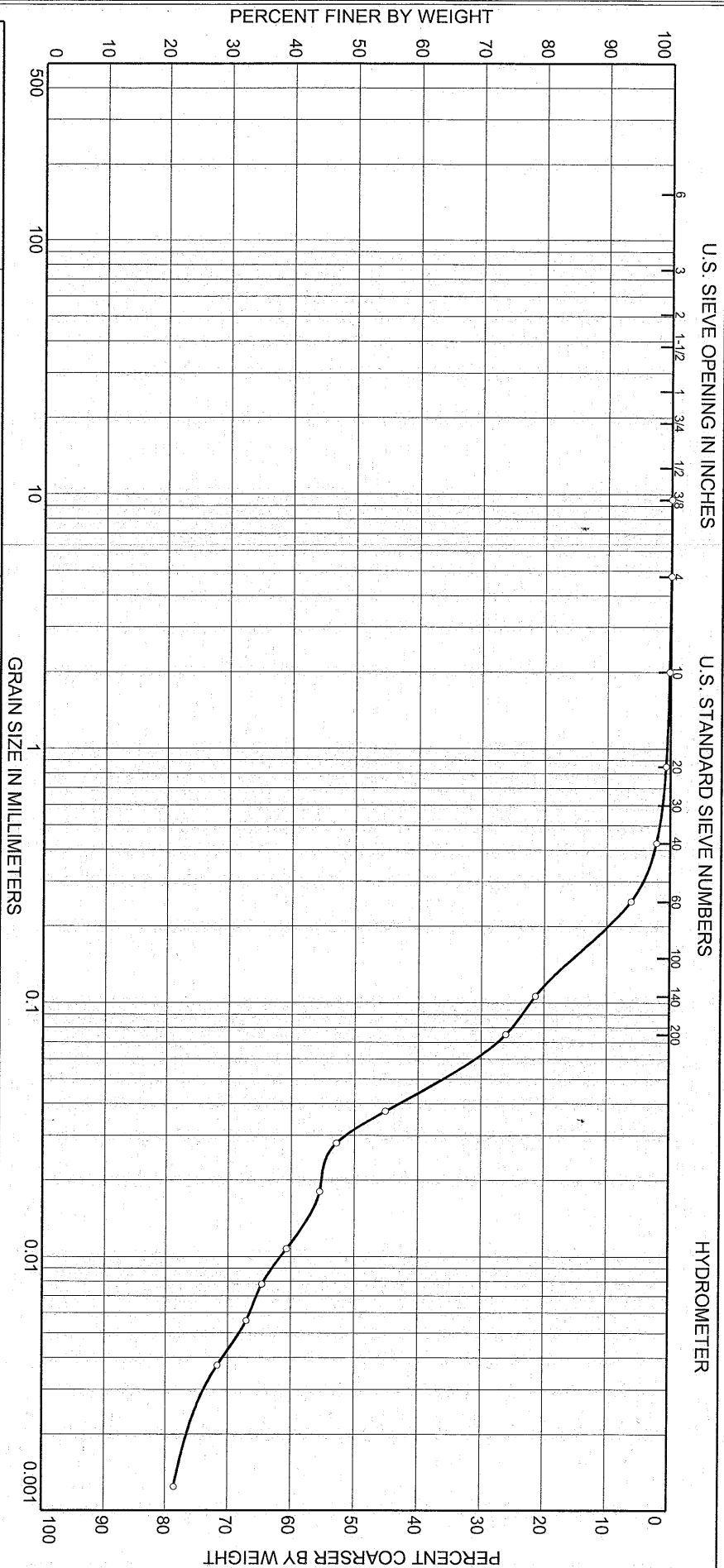


PLASTIC LIMIT AND PLASTICITY INDEX

Wet Soil and Tare Mass (g)	Dry Soil and Tare Mass (g)	Tare Mass (g)	Water Content (%)	Plastic Limit	Plasticity Index

Remarks: _____
 _____ Reviewed By _____

Particle Size Distribution Report ASTM D422



% COBBLES	0.0	0.0
% GRAVEL	0.0	26.1
% SAND	26.1	42.1
% SILT	42.1	31.8
% CLAY	31.8	

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	JS-60A	13.5-21 ft	9/	CL	Brown lean clay with sand		34	17

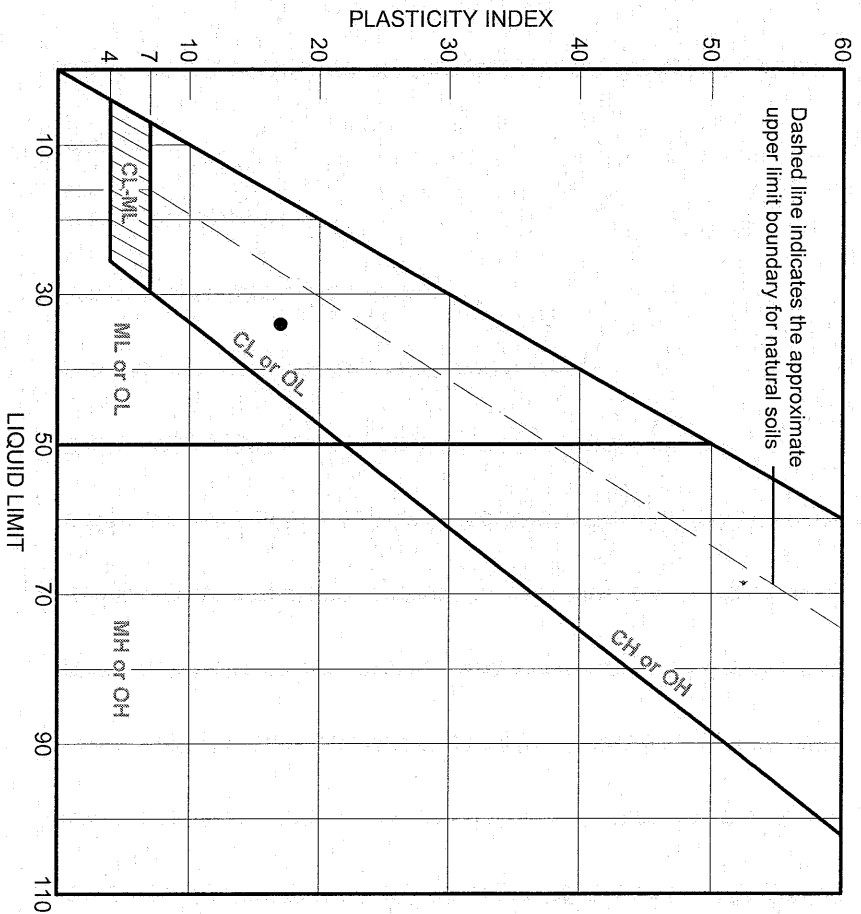
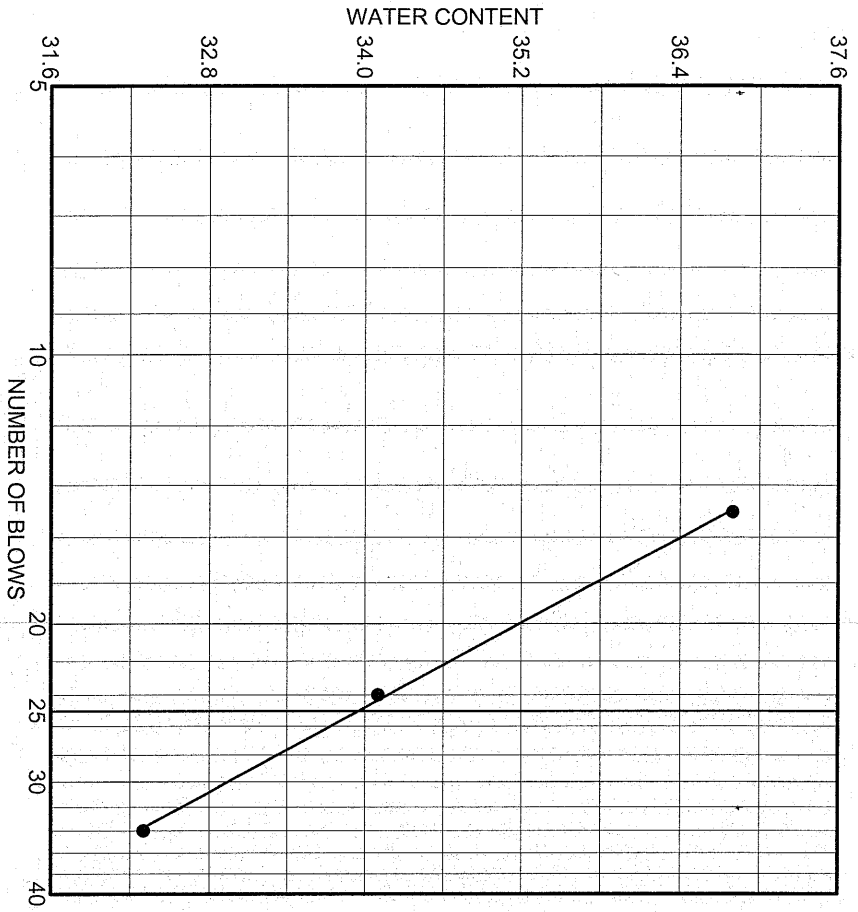
Client STANTEC
 Project John Sevier

Project No. GTX-1490 Lab no. _____

Geo Testing

Express Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT



SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
●	JS-60A	13.5-21 ft	9/	CL	Brown lean clay with sand		34	17

Client STANTEC
Project John Sevier

Project No. GTX-1490

Lab no.

**GeoTesting
Express Inc.**

Geotesting Express Inc.

COMPACTION TEST REPORT

● Source: Sample No.: JS-60A Elev./Depth: 13.5-21 ft

Project: John Sevier

Project No. GTX-1490 Client: STANTEC

Remarks:

Optimum moisture = 15.5 %

Maximum dry density = 115.1 pcf

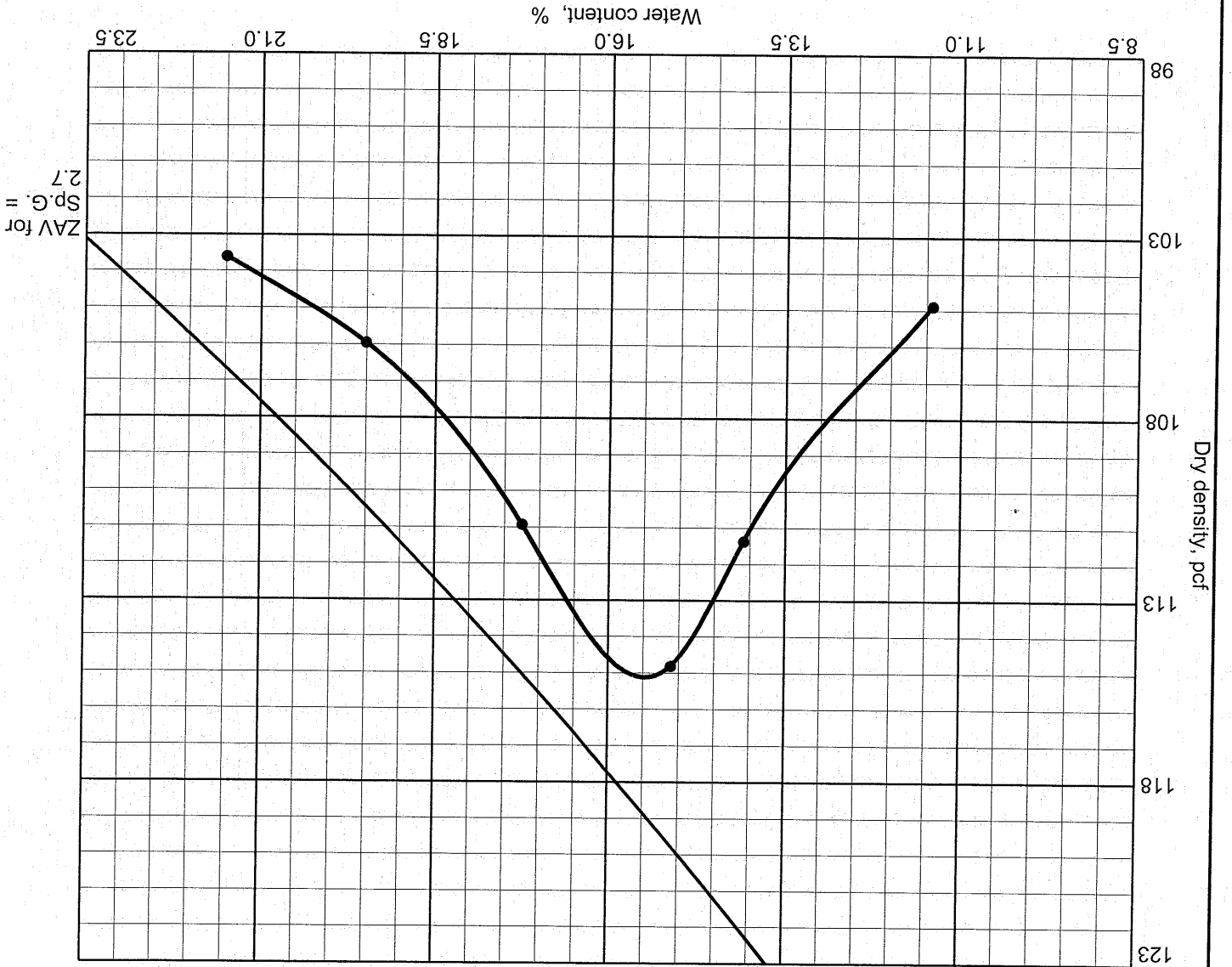
Brown lean clay with sand

MATERIAL DESCRIPTION

TEST RESULTS

Elev/	Depth	USCS	AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > No.4	% > No.200
13.5-21 ft		CL	A-6(11)		2.7	34	17	0.0	

Test specification: ASTM D 698-78 Method A Standard



COMPACTION TEST REPORT

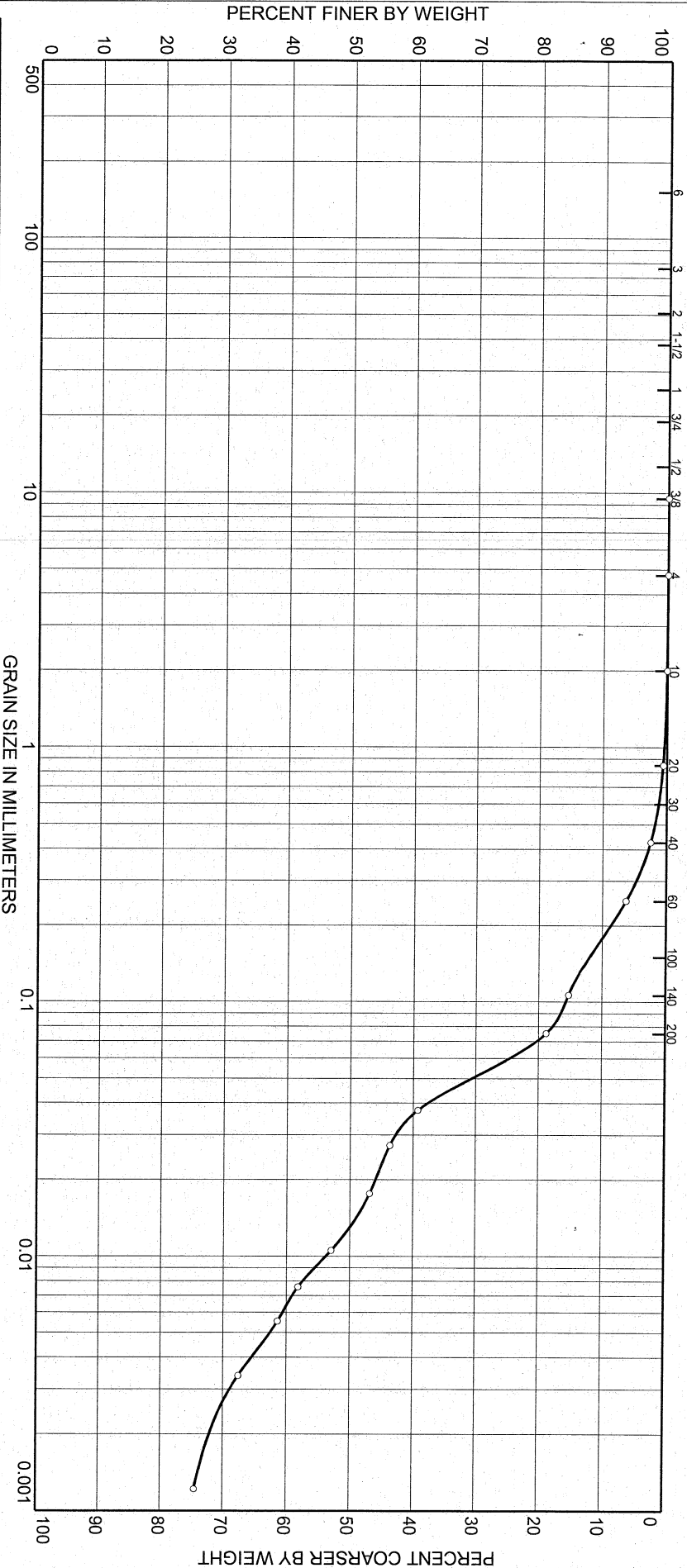
Lab no.

Particle Size Distribution Report ASTM D422

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER



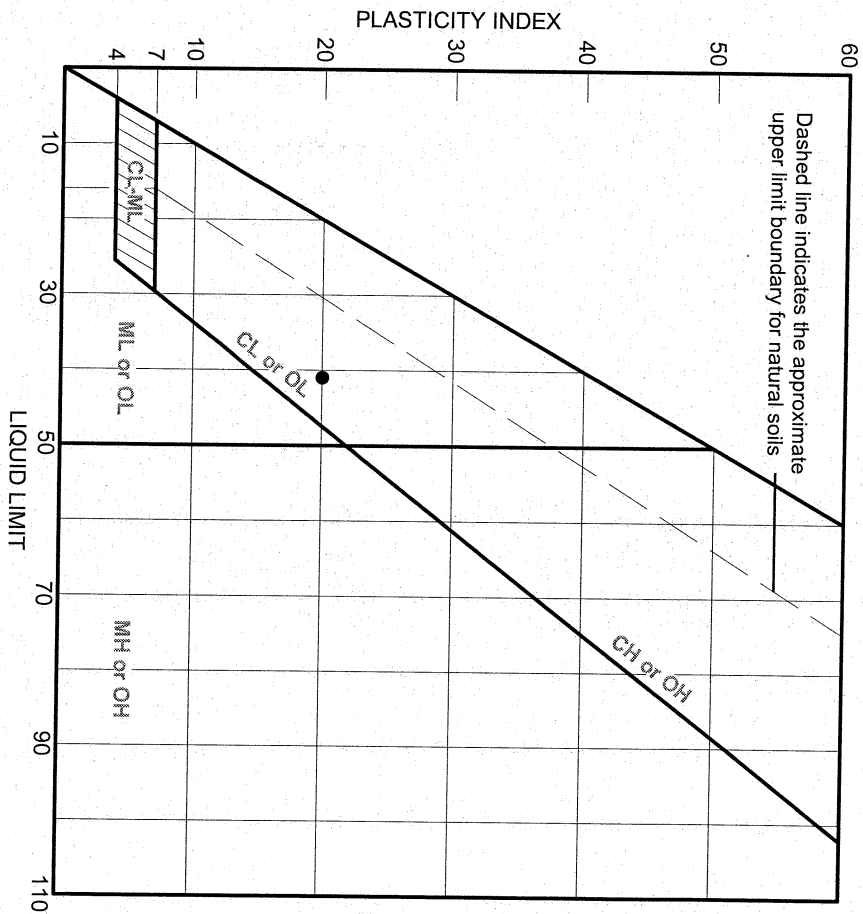
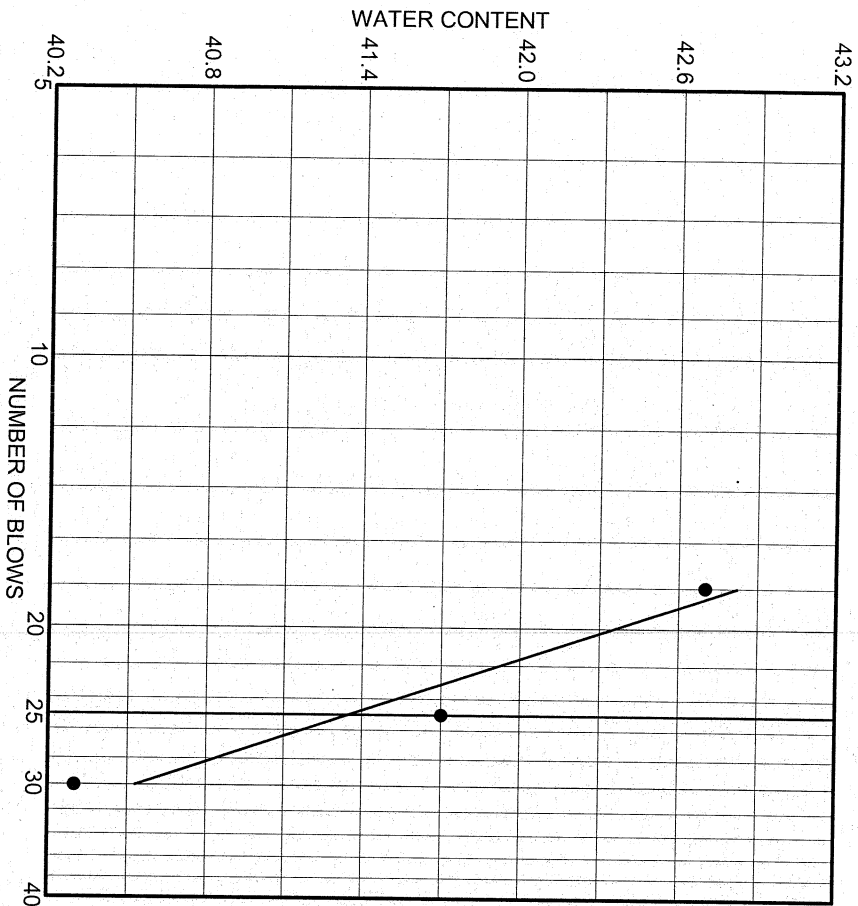
% COBBLES	0.0	% GRAVEL	0.0	% SAND	18.8	% SILT	43.7	% CLAY	37.5
-----------	-----	----------	-----	--------	------	--------	------	--------	------

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	JS-63A	9-15 ft	9/30/09	CL	Lean clay with sand		41	21

Client STANTEC
 Project John Sevier

Project No. GTX-1490 Lab no. **Geo Testing Express Inc.**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
	JS-63A	9-15 ft	9/30/09	CL	Lean clay with sand		41	20

Client STANTEC

Project John Sevier

Project No. GTX-1490

Lab no.

**GeoTesting
Express Inc.**

GeoTesting Express Inc.

COMPACTION TEST REPORT

● Source: Sample No.: JS-63A Elev./Depth: 9-15 ft

Project: John Sevier

Project No. GTX-1490 Client: STANTEC

Remarks:

Maximum dry density = 106.3 pcf
Optimum moisture = 18.7%

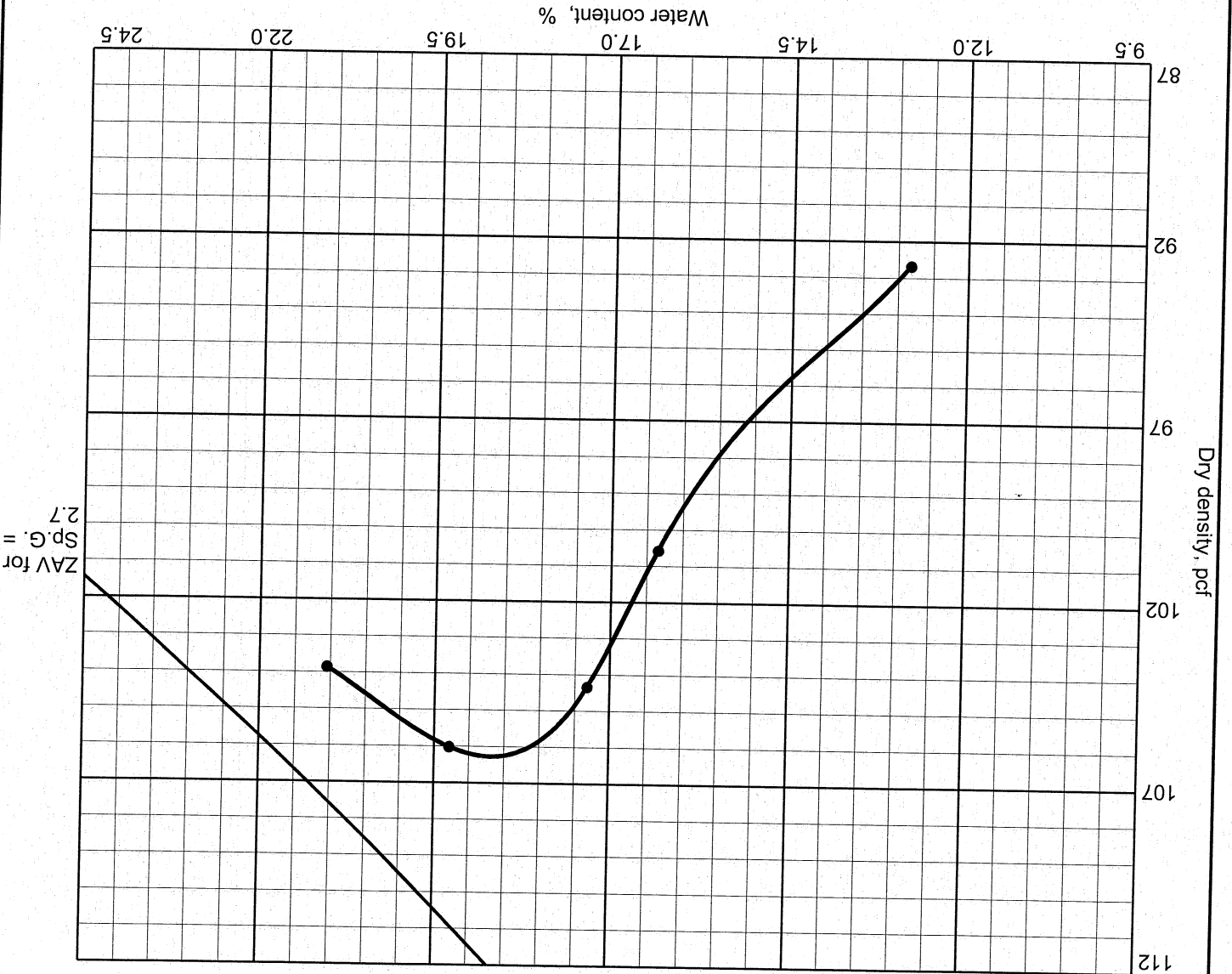
Lean clay with sand

MATERIAL DESCRIPTION

TEST RESULTS

Elev/Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
9-15 ft	CL	A-7-6(16)		2.7	41	20	0.0	81.2

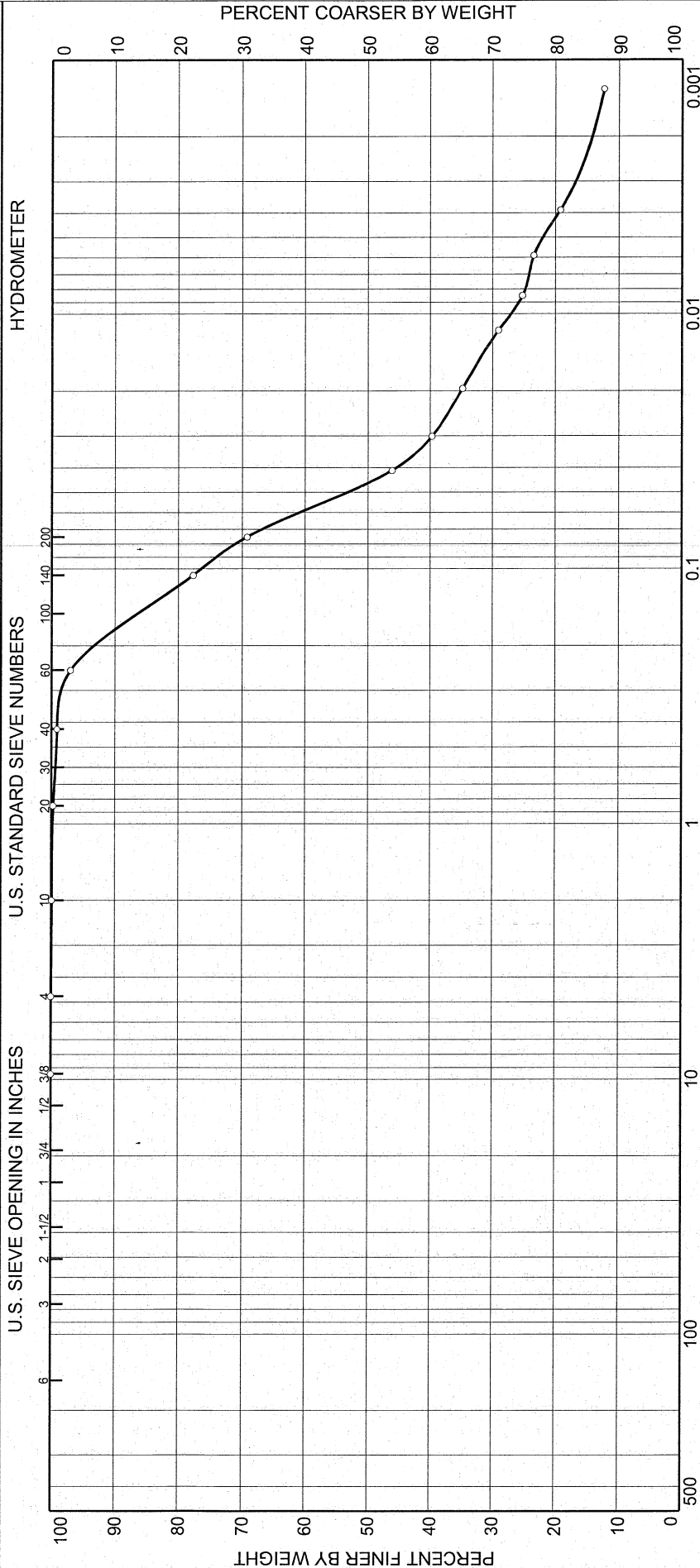
Test specification: ASTM D 698-78 Method A Standard



COMPACTION TEST REPORT

Lab no.

Particle Size Distribution Report ASTM D422

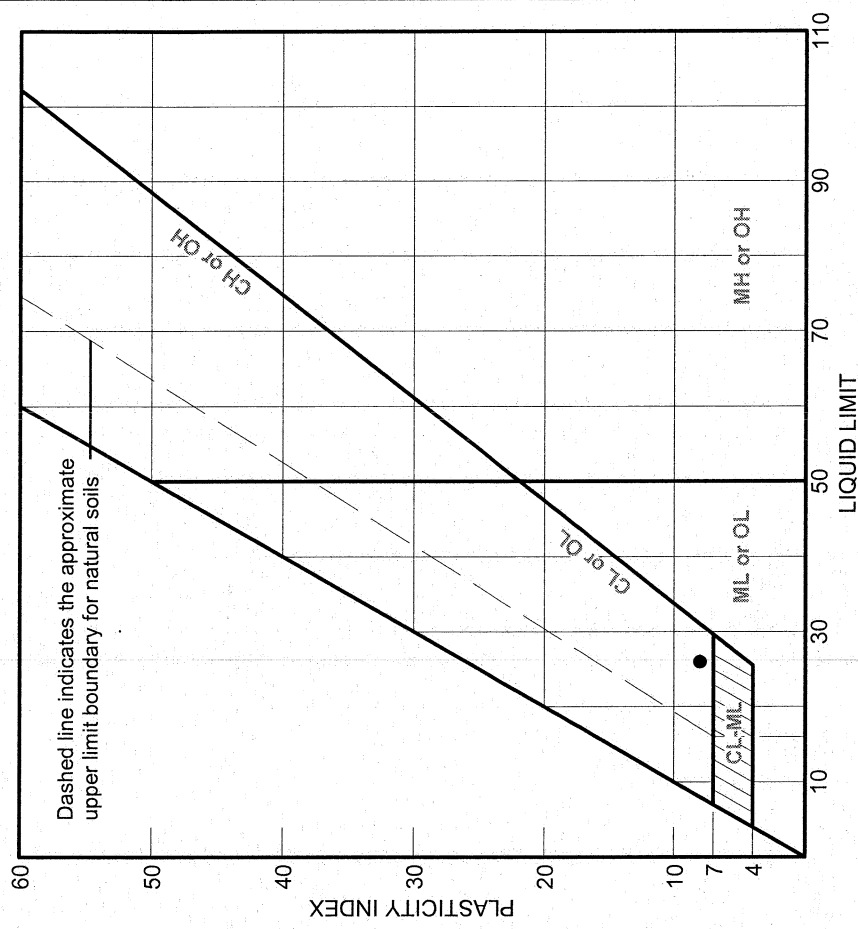
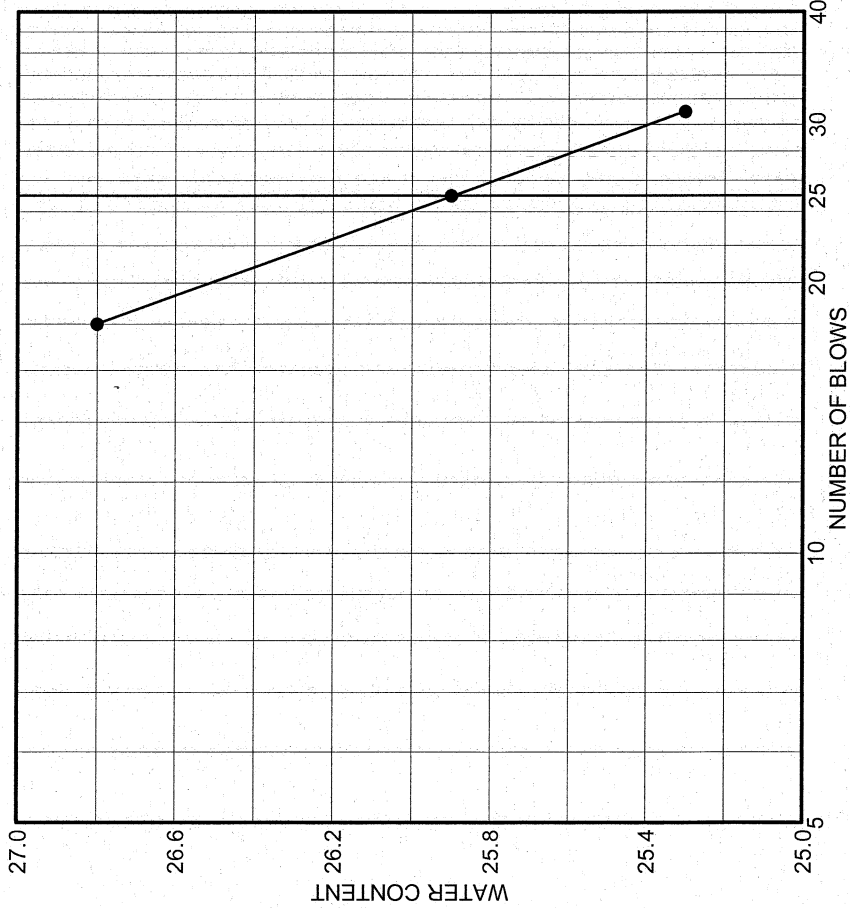


	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
	0.0	0.0	30.8	47.2	22.0

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	JS-64	11-15 ft	9/30/09	CL	Brown Sandy lean clay		26	18

Client STANTEC Project John Sevier	<h2 style="margin: 0;">GeoTesting Express Inc.</h2>
Project No. GTX-1490	Lab no.

LIQUID AND PLASTIC LIMITS TEST REPORT

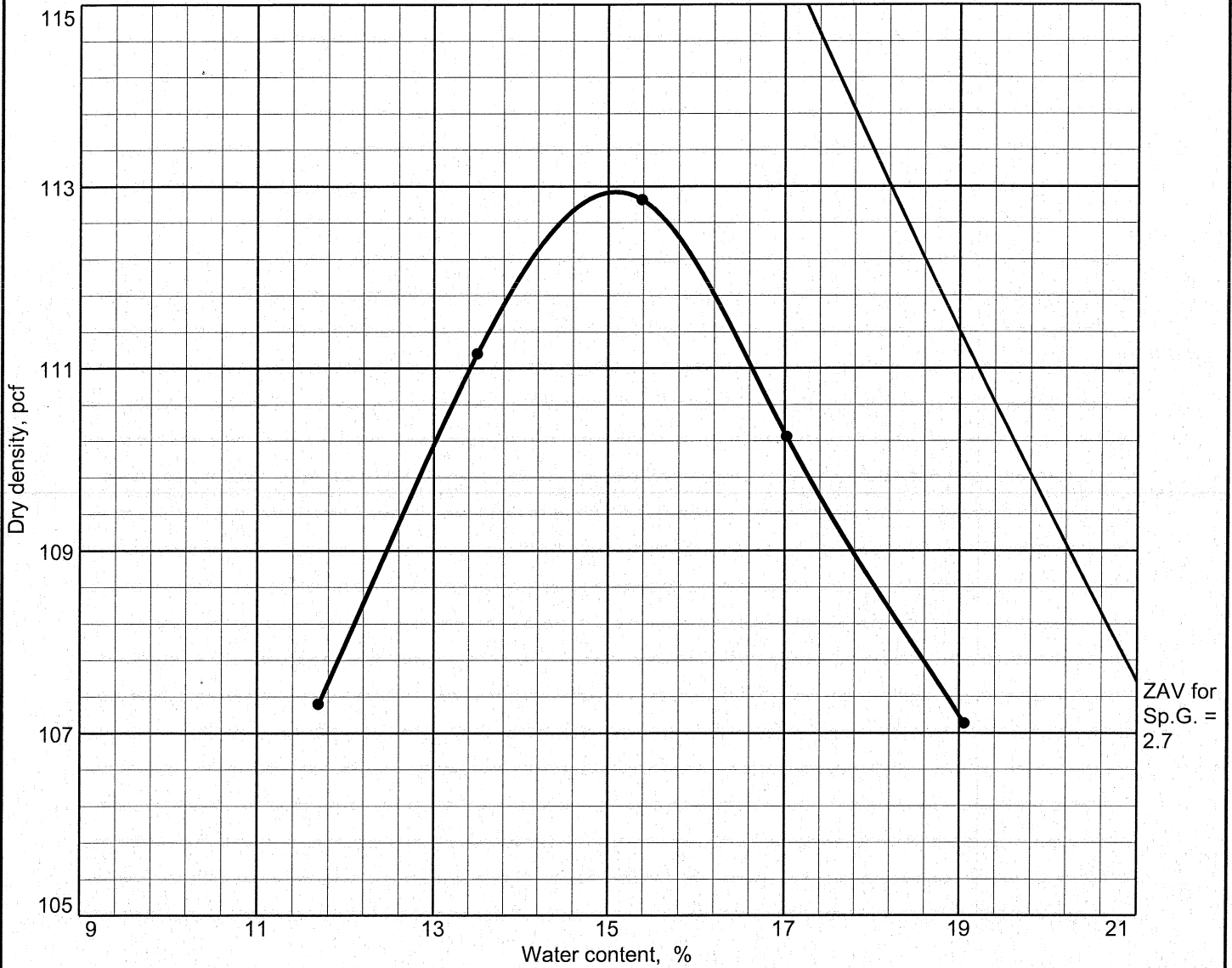


SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PI
●	JS-64	11-15 ft	9/30/09	CL	Brown Sandy lean clay		26	8

Client STANTEC
 Project John Sevier
 Project No. GTX-1490 Lab no. ●

GeoTesting Express Inc.

COMPACTION TEST REPORT



Test specification: ASTM D 698-78 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
11-15 ft	CL	A-4(3)		2.7	26	8	0.0	69.2

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 112.9 pcf Optimum moisture = 15.1 %	Brown Sandy lean clay

Project No. GTX-1490 **Client:** STANTEC
Project: John Sevier
Source: **Sample No.:** JS-64 **Elev./Depth:** 11-15 ft

Remarks:

COMPACTION TEST REPORT
GeoTesting Express Inc.

Lab no.



Unconfined Compressive Strength of Cohesive Soil

ASTM D 2166

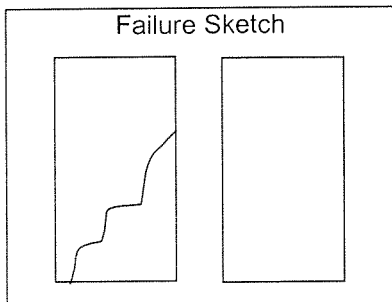
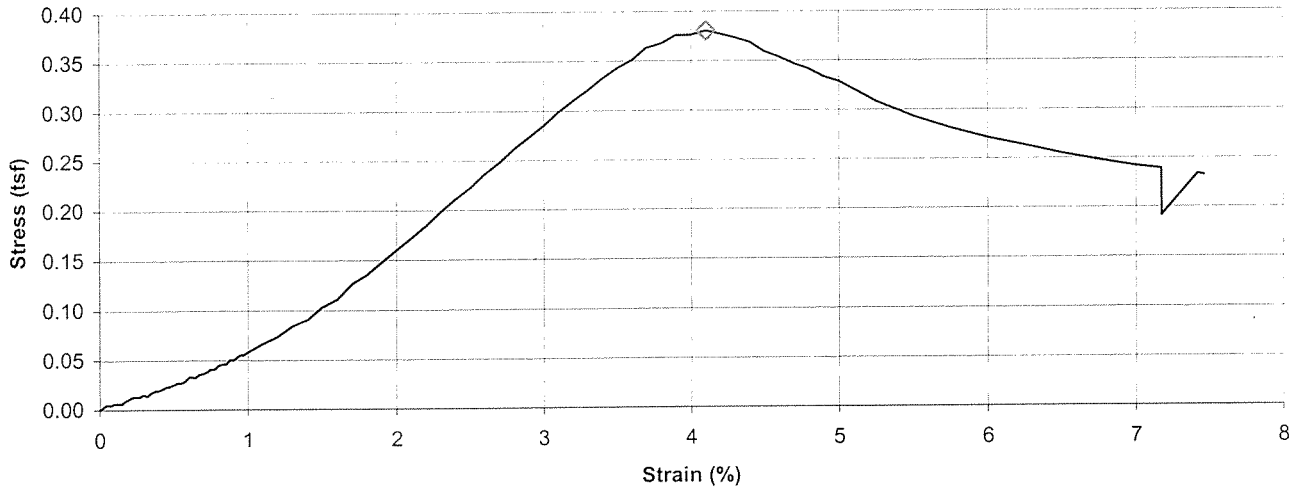
Project Name John Siever Fossil Plant Project Number 175569038
 Source JS-36A-SV, 34.5'-36.5' Lab ID 1016A
 Visual Description Lean Clay with Sand (CL), brown, moist, firm

Recovered 1.4'
 Test Interval 34.5' - 35.0'

Specimen Type: Undisturbed LL N/A PL N/A PI N/A Date Extruded 06/17/2009

Initial Wet Density (pcf) <u>124.0</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	Date Tested <u>N/A</u>
Initial Moisture Content (%) <u>19.3</u>	At Test MC Taken <u>After Test, From Center of Specimen</u>	
Initial Dry Density (pcf) <u>103.9</u>		
At Test Moisture Content (%) <u>28.4</u>		
At Test Dry Density (pcf) <u>96.6</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>0.38</u>	
Average Height (in) <u>5.993</u>	Undrained Shear Strength (tsf) <u>0.19</u>	
Average Diameter (in) <u>2.888</u>	Strain at Maximum Stress (%) <u>4.1</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>1.00</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments _____

Reviewed By [Signature]

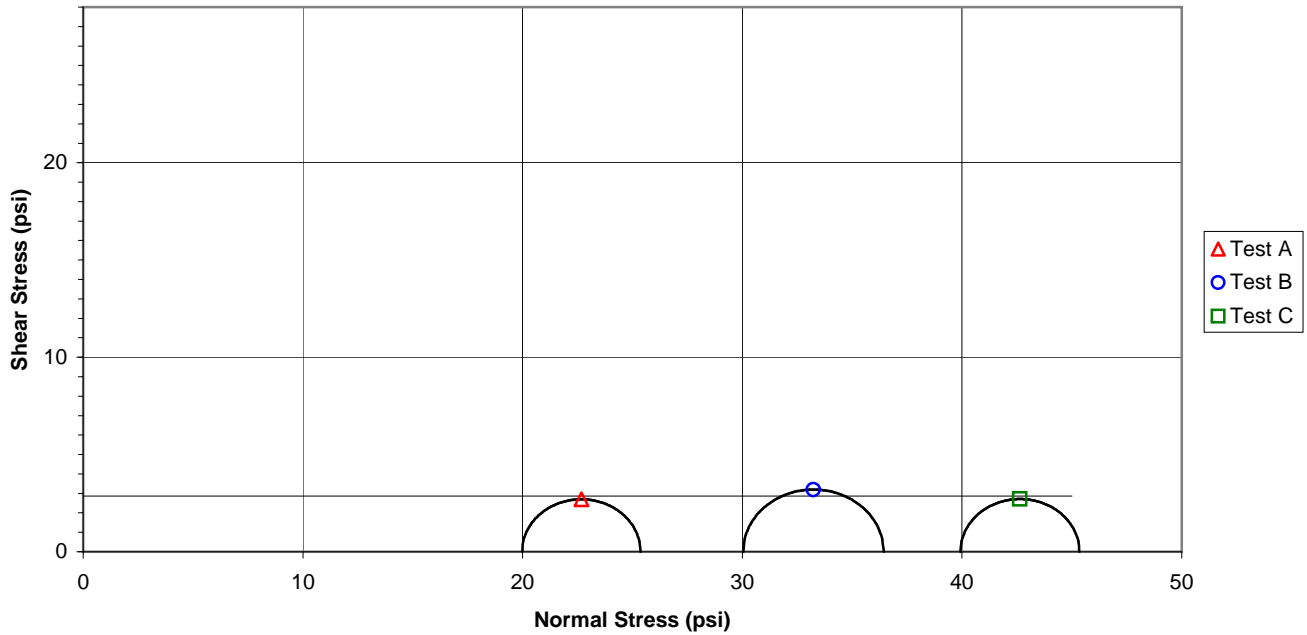
Project John Siever Fossil Plant
 Sample ID JS-12, 28.5' - 46.5'

Project No. 175569038
 Test Number 351

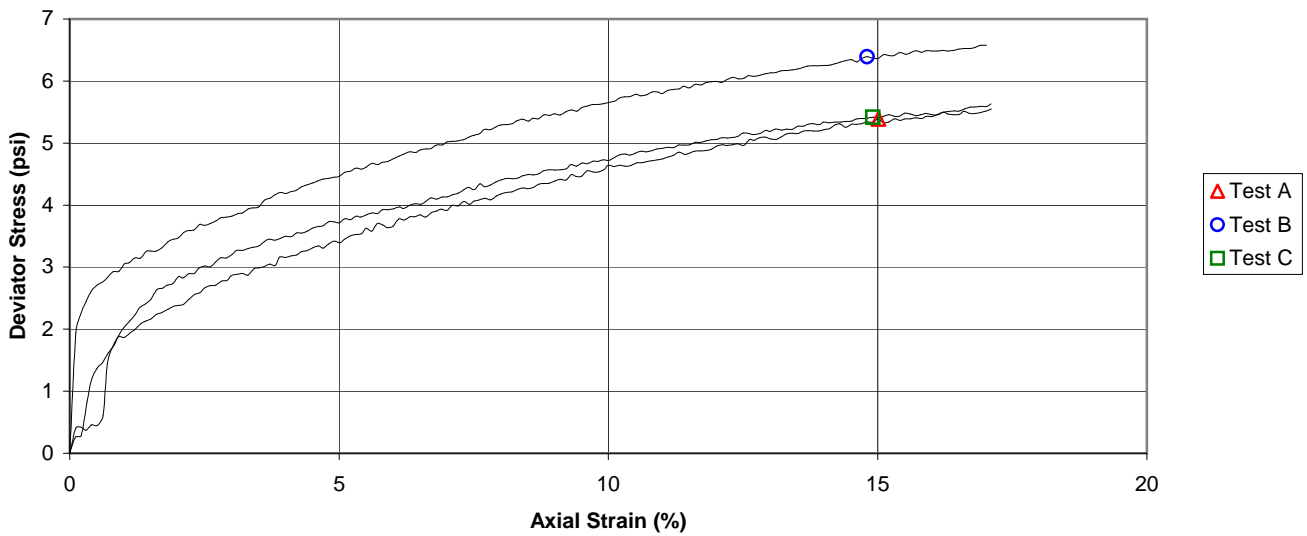
Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

$c = 2.9 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name John Siever Fossil Plant
 Sample Identification JS-12, 28.5' - 46.5'
 Visual Description Lean Clay with Sand (CL), brown, wet, soft

Project Number 175569038
 Test Number JU-351A
 Prepared By KDG
 Date 6-11-09

Specific Gravity 2.71 Liquid Limit 35 Plastic Limit 18 Plasticity Index 17

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>5.600</u>	Sample <u>34.4821 (V_o)</u>	Wet Weight (g) <u>1162.90</u>
Middle <u>2.800</u>	2 <u>5.600</u>	Solids <u>21.1035 (VS_o)</u>	Dry Weight (g) <u>937.24</u>
Bottom <u>2.800</u>	3 <u>5.600</u>	Water <u>13.7696 (Vw_o)</u>	Wet Unit Weight (pcf) <u>128.5</u>
Avg. <u>2.8000 (D_o)</u>	4 <u>5.600</u>	Voids <u>13.3786 (Vv_o)</u>	Dry Unit Weight (pcf) <u>103.5</u>
Area (in ²) <u>6.1575 (A_o)</u>	Avg. (H _o) <u>5.6000</u>	Degree of Saturation (%) <u>102.9 (S_o)</u>	
Moisture Content (%) <u>24.1</u>	Final Trimmings	Void Ratio <u>0.634</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 0 (psi) Final Pore Pressure Parameter B _____ Date 6-11-09
 Panel Board Number E

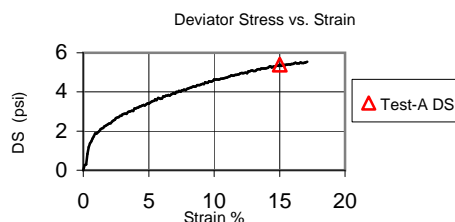
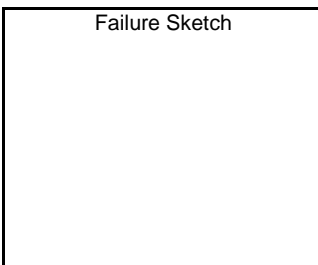
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>5.6000 (H_s)</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575 (A_s)</u>
Change <u>0.0000 (ΔH_o)</u>	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>34.4821 (V_s)</u>

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>20</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000 (ΔH_c)</u>	Change _____ (in.)	Change _____ (in.)	Lateral <u>20 (σ₃)</u>
Height (in.) <u>5.6000 (H_c)</u>		Volume (in ³) <u>34.4821 (V_c)</u>	
Area (in ³) Method A <u>6.1575 (A_c)</u>		Volume - Water (in ³) <u>13.7696 (VW_c)</u>	t ₅₀ (min.) _____
Diameter (in.) <u>2.8000 (D_c)</u>		Water Content (%) <u>24.1</u>	
Dry Density (pcf) <u>103.5</u>		Degree of Saturation (%) <u>102.9 (S_c)</u>	Void Ratio <u>0.634</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.229 (in.)</u>	Wet Weight (g) <u>1162.90</u>	Corrected Deviator <u>5.39 σ_d (psi)</u>
Wet weight (g) <u>1162.9 (WW_f)</u>	Dry Weight (g) <u>937.24</u>	Major Principal <u>25.37 σ₁₁ (psi)</u>
Average Diameter <u>3.181 (in.)</u>	Tare Weight (g) <u>0.00</u>	Minor Principal <u>19.98 σ₃₁ (psi)</u>
		Rate of Strain (% / min.) <u>0.223</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>15.02</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-12, 28.5' - 46.5'</u>			Test Number	<u>UU-351B</u>
Visual Description	<u>Lean Clay with Sand (CL), light brown, wet, soft</u>			Prepared By	<u>KDG</u>
				Date	<u>6-11-09</u>
Specific Gravity	<u>2.71</u>	Liquid Limit	<u>35</u>	Plastic Limit	<u>18</u>
				Plasticity Index	<u>17</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)		Specimen
Top <u>2.800</u>	1 <u>5.600</u>	Sample	<u>34.4821</u> (V _o)	Wet Weight (g) <u>1162.9</u>
Middle <u>2.800</u>	2 <u>5.600</u>	Solids	<u>21.1510</u> (V _{S_o})	Dry Weight (g) <u>939.35</u>
Bottom <u>2.800</u>	3 <u>5.600</u>	Water	<u>13.6409</u> (V _{W_o})	Wet Unit Weight (pcf) <u>128.5</u>
Avg. <u>2.8000</u> (D _o)	4 <u>5.600</u>	Voids	<u>13.3311</u> (V _{V_o})	Dry Unit Weight (pcf) <u>103.8</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>5.6000</u>	Degree of Saturation (%)	<u>102.3</u> (S _o)	
Moisture Content (%) <u>23.8</u>	Final Trimmings	Void Ratio	<u>0.630</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-11-09</u>
			Panel Board Number	<u>E</u>

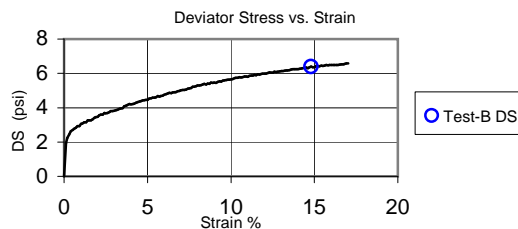
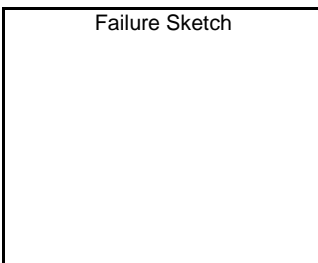
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>5.6000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>34.4821</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>30</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>30</u> (σ ₃)
Height (in.) <u>5.6000</u> (H _c)		Volume (in ³) <u>34.4821</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>13.6409</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>23.8</u>	
Dry Density (pcf) <u>103.8</u>		Degree of Saturation (%) <u>102.3</u> (S _c)	Void Ratio <u>0.630</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.256</u> (in.)	Wet Weight (g) <u>1162.90</u>	Corrected Deviator <u>6.39</u> σ _d (psi)
Wet weight (g) <u>1162.9</u> (WW _f)	Dry Weight (g) <u>939.35</u>	Major Principal <u>36.43</u> σ _{1f} (psi)
Average Diameter <u>3.201</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>30.04</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.226</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>14.80</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-12, 28.5' - 46.5'</u>	Test Number	<u>UU-351C</u>
Visual Description	<u>Lean Clay with Sand (CL), brown, wet, soft</u>	Prepared By	<u>KDG</u>
		Date	<u>6-11-09</u>

Specific Gravity	<u>2.71</u>	Liquid Limit	<u>35</u>	Plastic Limit	<u>18</u>	Plasticity Index	<u>17</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>5.600</u>	Sample <u>34.4821</u> (V _o)	Wet Weight (g) <u>1162.9</u>
Middle <u>2.800</u>	2 <u>5.600</u>	Solids <u>21.0766</u> (V _{S_o})	Dry Weight (g) <u>936.05</u>
Bottom <u>2.800</u>	3 <u>5.600</u>	Water <u>13.8427</u> (V _{W_o})	Wet Unit Weight (pcf) <u>128.5</u>
Avg. <u>2.8000</u> (D _o)	4 <u>5.600</u>	Voids <u>13.4056</u> (V _{V_o})	Dry Unit Weight (pcf) <u>103.4</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>5.6000</u>	Degree of Saturation (%) <u>103.3</u> (S _o)	
Moisture Content (%) <u>24.2</u>	Final Trimmings	Void Ratio <u>0.636</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-11-09</u>
			Panel Board Number	<u>E</u>

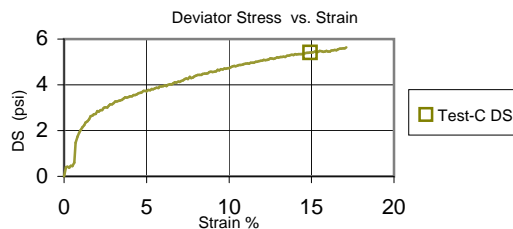
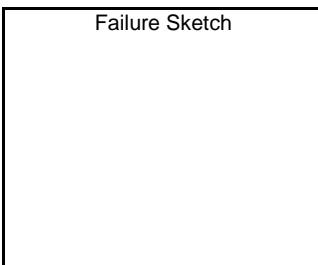
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>5.6000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>34.4821</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>40</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>40</u> (σ ₃)
Height (in.) <u>5.6000</u> (H _c)		Volume (in ³) <u>34.4821</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>13.8427</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>24.2</u>	
Dry Density (pcf) <u>103.4</u>		Degree of Saturation (%) <u>103.3</u> (S _c)	Void Ratio <u>0.636</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.253</u> (in.)	Wet Weight (g) <u>1162.90</u>	Corrected Deviator <u>5.42</u> σ _d (psi)
Wet weight (g) <u>1162.9</u> (WW _f)	Dry Weight (g) <u>936.05</u>	Major Principal <u>45.34</u> σ _{1f} (psi)
Average Diameter <u>3.188</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>39.93</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.226</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>14.91</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 10% of LL.

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6419 (in.)
Dia. avg.	3.181 (in.)
Area avg.	7.9473 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351A
Data File ID	UU-351A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	2.4	-0.002	20.1	5.600	0.00	6.1575	0.0	0.000	0.000	20.143	20.143	20.14	0.00	1.000	0.0
0:00:12	4.1	0.004	20.1	5.594	0.11	6.1642	1.6	0.266	0.262	20.375	20.113	20.24	0.13	1.013	0.2
0:00:24	4.2	0.010	20.0	5.588	0.21	6.1707	1.8	0.294	0.287	20.265	19.978	20.12	0.14	1.014	0.4
0:00:37	7.6	0.016	20.1	5.582	0.32	6.1773	5.2	0.841	0.830	20.898	20.067	20.48	0.42	1.041	0.6
0:00:46	9.8	0.021	20.0	5.577	0.40	6.1825	7.4	1.196	1.182	21.209	20.027	20.62	0.59	1.059	0.8
0:00:59	11.0	0.026	19.9	5.572	0.51	6.1888	8.6	1.384	1.367	21.255	19.888	20.57	0.68	1.069	1.0
0:01:11	11.6	0.032	20.0	5.566	0.61	6.1953	9.2	1.486	1.465	21.494	20.028	20.76	0.73	1.073	1.2
0:01:23	12.6	0.038	20.0	5.560	0.72	6.2019	10.2	1.640	1.616	21.612	19.996	20.80	0.81	1.081	1.4
0:01:35	13.4	0.044	19.9	5.554	0.82	6.2083	11.0	1.764	1.736	21.616	19.880	20.75	0.87	1.087	1.6
0:01:45	14.3	0.049	20.0	5.550	0.90	6.2135	11.9	1.908	1.878	21.896	20.019	20.96	0.94	1.094	1.8
0:01:57	14.3	0.055	20.2	5.544	1.01	6.2202	11.8	1.904	1.869	22.034	20.164	21.10	0.93	1.093	2.0
0:02:09	14.7	0.060	20.1	5.538	1.11	6.2267	12.3	1.975	1.937	22.006	20.069	21.04	0.97	1.097	2.2
0:02:22	15.1	0.066	20.0	5.532	1.21	6.2332	12.7	2.038	1.996	22.003	20.007	21.00	1.00	1.100	2.4
0:02:34	15.7	0.072	20.1	5.526	1.32	6.2397	13.3	2.136	2.091	22.164	20.073	21.12	1.05	1.104	2.6
0:02:43	16.0	0.077	20.0	5.521	1.41	6.2453	13.6	2.180	2.131	22.154	20.023	21.09	1.07	1.106	2.7
0:02:56	16.3	0.083	20.1	5.515	1.51	6.2519	13.9	2.217	2.165	22.254	20.089	21.17	1.08	1.108	2.9
0:03:08	16.8	0.088	20.0	5.510	1.61	6.2584	14.3	2.293	2.237	22.269	20.031	21.15	1.12	1.112	3.1
0:03:20	17.0	0.094	20.1	5.504	1.71	6.2649	14.6	2.327	2.269	22.324	20.055	21.19	1.13	1.113	3.3
0:03:32	17.4	0.100	20.1	5.498	1.82	6.2718	14.9	2.383	2.321	22.394	20.073	21.23	1.16	1.116	3.5
0:03:44	17.7	0.106	20.0	5.492	1.92	6.2783	15.3	2.435	2.369	22.334	19.964	21.15	1.18	1.119	3.7
0:03:54	17.8	0.110	20.1	5.488	2.00	6.2835	15.4	2.450	2.381	22.467	20.086	21.28	1.19	1.119	3.9
0:04:06	17.9	0.116	20.1	5.482	2.11	6.2902	15.5	2.468	2.396	22.462	20.066	21.26	1.20	1.119	4.1
0:04:19	18.5	0.122	20.0	5.476	2.21	6.2967	16.1	2.558	2.482	22.474	19.992	21.23	1.24	1.124	4.3
0:04:31	19.0	0.128	20.1	5.470	2.32	6.3035	16.6	2.637	2.558	22.609	20.052	21.33	1.28	1.128	4.5
0:04:43	19.3	0.134	20.1	5.464	2.42	6.3102	16.9	2.674	2.591	22.691	20.101	21.40	1.30	1.129	4.7
0:04:53	19.8	0.138	20.0	5.460	2.51	6.3157	17.4	2.753	2.668	22.660	19.992	21.33	1.33	1.133	4.9
0:05:05	20.1	0.144	20.1	5.454	2.61	6.3223	17.7	2.792	2.703	22.770	20.068	21.42	1.35	1.135	5.1
0:05:17	20.2	0.150	20.1	5.448	2.71	6.3289	17.7	2.804	2.711	22.800	20.089	21.44	1.36	1.135	5.3
0:05:29	20.6	0.156	20.1	5.442	2.82	6.3359	18.2	2.870	2.773	22.882	20.109	21.50	1.39	1.138	5.5
0:05:41	20.7	0.162	20.0	5.437	2.92	6.3427	18.3	2.887	2.787	22.750	19.962	21.36	1.39	1.140	5.7
0:05:51	21.2	0.166	20.0	5.432	3.00	6.3482	18.8	2.964	2.861	22.818	19.957	21.39	1.43	1.143	5.9
0:06:03	21.4	0.172	20.2	5.426	3.11	6.3550	19.0	2.989	2.883	23.086	20.204	21.64	1.44	1.143	6.1
0:06:16	21.6	0.178	20.1	5.420	3.21	6.3617	19.1	3.009	2.899	22.978	20.079	21.53	1.45	1.144	6.3
0:06:28	21.4	0.184	20.0	5.415	3.31	6.3684	19.0	2.988	2.875	22.914	20.039	21.48	1.44	1.143	6.5
0:06:40	22.1	0.190	19.9	5.408	3.42	6.3756	19.7	3.091	2.974	22.913	19.939	21.43	1.49	1.149	6.7
0:06:50	22.2	0.194	20.1	5.404	3.50	6.3811	19.8	3.104	2.984	23.063	20.079	21.57	1.49	1.149	6.8
0:07:02	22.4	0.200	20.1	5.398	3.61	6.3879	20.0	3.130	3.007	23.094	20.087	21.59	1.50	1.150	7.0
0:07:14	22.7	0.206	19.9	5.392	3.71	6.3949	20.3	3.175	3.048	22.928	19.880	21.40	1.52	1.153	7.2
0:07:26	22.6	0.212	19.9	5.386	3.82	6.4019	20.2	3.158	3.027	22.964	19.937	21.45	1.51	1.152	7.4
0:07:36	23.5	0.216	20.1	5.382	3.90	6.4074	21.1	3.295	3.161	23.241	20.080	21.66	1.58	1.157	7.6
0:07:48	23.5	0.222	20.1	5.376	4.01	6.4145	21.1	3.294	3.156	23.296	20.139	21.72	1.58	1.157	7.8
0:08:00	23.8	0.228	20.0	5.370	4.11	6.4215	21.3	3.323	3.182	23.215	20.033	21.62	1.59	1.159	8.0
0:08:13	23.9	0.234	20.1	5.364	4.22	6.4286	21.5	3.341	3.196	23.299	20.103	21.70	1.60	1.159	8.2
0:08:22	24.3	0.239	20.2	5.359	4.30	6.4344	21.9	3.397	3.249	23.448	20.198	21.82	1.62	1.161	8.4
0:08:35	24.4	0.245	20.1	5.353	4.41	6.4413	22.0	3.418	3.267	23.371	20.104	21.74	1.63	1.162	8.6
0:08:47	24.8	0.251	20.2	5.347	4.51	6.4484	22.3	3.465	3.310	23.488	20.178	21.83	1.65	1.164	8.8
0:08:59	25.0	0.257	20.1	5.341	4.62	6.4557	22.6	3.500	3.342	23.434	20.093	21.76	1.67	1.166	9.0
0:09:09	24.8	0.261	20.0	5.337	4.70	6.4614	22.4	3.470	3.309	23.335	20.026	21.68	1.65	1.165	9.2
0:09:21	25.3	0.267	20.1	5.331	4.81	6.4685	22.9	3.539	3.374	23.456	20.082	21.77	1.69	1.168	9.4
0:09:33	25.6	0.273	20.2	5.325	4.91	6.4758	23.2	3.586	3.418	23.630	20.212	21.92	1.71	1.169	9.6
0:09:45	25.6	0.279	20.1	5.319	5.02	6.4830	23.1	3.569	3.397	23.450	20.053	21.75	1.70	1.169	9.8
0:09:55	26.0	0.284	20.2	5.314	5.10	6.4887	23.5	3.628	3.453	23.651	20.198	21.92	1.73	1.171	9.9
0:10:07	26.3	0.290	20.1	5.308	5.21	6.4958	23.9	3.681	3.503	23.617	20.114	21.87	1.75	1.174	10.1
0:10:19	26.6	0.296	20.2	5.302	5.31	6.5030	24.1	3.713	3.531	23.717	20.186	21.95	1.77	1.175	10.3
0:10:32	26.7	0.302	20.1	5.297	5.42	6.5103	24.3	3.726	3.541	23.630	20.090	21.86	1.77	1.176	10.5
0:10:41	27.3	0.306	20.0	5.292	5.50	6.5161	24.9	3.814	3.625	23.633	20.008	21.82	1.81	1.181	10.7

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/Dc

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.6419 (in.)
Dia. avg.	3.181 (in)
Area avg.	7.9473 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351A
Data File ID	UU-351A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:53	27.0	0.312	20.1	5.286	5.61	6.5233	24.6	3.770	3.578	23.647	20.069	21.86	1.79	1.178	10.9
0:11:06	27.9	0.318	20.0	5.280	5.71	6.5305	25.5	3.898	3.702	23.742	20.040	21.89	1.85	1.185	11.1
0:11:18	27.8	0.324	20.1	5.274	5.82	6.5378	25.3	3.876	3.676	23.726	20.050	21.89	1.84	1.183	11.3
0:11:28	27.5	0.329	20.0	5.270	5.90	6.5437	25.1	3.841	3.639	23.664	20.025	21.84	1.82	1.182	11.5
0:11:40	27.8	0.334	20.2	5.264	6.00	6.5509	25.3	3.868	3.662	23.871	20.210	22.04	1.83	1.181	11.7
0:11:52	28.6	0.340	20.1	5.258	6.11	6.5581	26.1	3.987	3.777	23.921	20.144	22.03	1.89	1.188	11.9
0:12:04	28.5	0.346	20.1	5.252	6.21	6.5655	26.1	3.974	3.761	23.817	20.057	21.94	1.88	1.188	12.1
0:12:16	28.9	0.352	20.2	5.246	6.32	6.5728	26.5	4.028	3.812	24.012	20.200	22.11	1.91	1.189	12.3
0:12:26	28.9	0.357	20.0	5.242	6.40	6.5786	26.5	4.034	3.814	23.817	20.003	21.91	1.91	1.191	12.4
0:12:38	29.2	0.362	20.0	5.236	6.50	6.5859	26.8	4.065	3.842	23.824	19.982	21.90	1.92	1.192	12.6
0:12:50	29.0	0.368	20.1	5.230	6.61	6.5932	26.6	4.035	3.808	23.939	20.131	22.03	1.90	1.189	12.8
0:13:03	29.5	0.374	20.0	5.224	6.71	6.6006	27.1	4.110	3.879	23.861	19.981	21.92	1.94	1.194	13.1
0:13:15	29.8	0.380	20.2	5.218	6.82	6.6080	27.4	4.139	3.906	24.101	20.196	22.15	1.95	1.193	13.3
0:13:25	30.0	0.384	20.1	5.214	6.90	6.6139	27.6	4.171	3.934	24.000	20.066	22.03	1.97	1.196	13.4
0:13:37	29.9	0.390	20.0	5.208	7.00	6.6213	27.5	4.155	3.914	23.884	19.970	21.93	1.96	1.196	13.6
0:13:49	30.5	0.396	20.1	5.202	7.11	6.6287	28.1	4.241	3.998	24.108	20.110	22.11	2.00	1.199	13.8
0:14:01	30.5	0.402	20.1	5.196	7.21	6.6362	28.1	4.235	3.987	24.132	20.144	22.14	1.99	1.198	14.0
0:14:13	31.1	0.408	20.1	5.190	7.32	6.6436	28.6	4.311	4.060	24.125	20.065	22.09	2.03	1.202	14.2
0:14:26	30.8	0.414	20.0	5.184	7.42	6.6511	28.4	4.266	4.012	24.031	20.019	22.02	2.01	1.200	14.4
0:14:35	31.2	0.418	20.1	5.180	7.50	6.6571	28.8	4.324	4.067	24.119	20.052	22.09	2.03	1.203	14.6
0:14:48	31.4	0.424	19.9	5.174	7.61	6.6647	29.0	4.344	4.083	24.026	19.943	21.98	2.04	1.205	14.8
0:15:00	31.6	0.430	20.2	5.168	7.71	6.6721	29.2	4.377	4.113	24.303	20.190	22.25	2.06	1.204	15.0
0:15:12	31.5	0.436	20.0	5.162	7.82	6.6796	29.1	4.354	4.086	24.104	20.018	22.06	2.04	1.204	15.2
0:15:24	32.0	0.442	20.1	5.156	7.92	6.6871	29.6	4.419	4.148	24.268	20.121	22.19	2.07	1.206	15.4
0:15:34	32.2	0.446	19.9	5.152	8.00	6.6933	29.8	4.450	4.176	24.094	19.918	22.01	2.09	1.210	15.6
0:15:46	32.5	0.452	20.1	5.146	8.11	6.7008	30.0	4.484	4.206	24.302	20.097	22.20	2.10	1.209	15.8
0:15:58	32.6	0.458	20.0	5.140	8.21	6.7085	30.2	4.496	4.215	24.219	20.004	22.11	2.11	1.211	16.0
0:16:11	32.9	0.464	20.0	5.134	8.32	6.7161	30.5	4.540	4.255	24.290	20.036	22.16	2.13	1.212	16.2
0:16:23	33.1	0.470	20.0	5.128	8.42	6.7237	30.7	4.566	4.277	24.292	20.015	22.15	2.14	1.214	16.4
0:16:32	33.1	0.474	20.0	5.124	8.50	6.7298	30.7	4.560	4.269	24.295	20.027	22.16	2.13	1.213	16.5
0:16:45	33.3	0.480	19.9	5.118	8.61	6.7375	30.9	4.580	4.285	24.197	19.913	22.06	2.14	1.215	16.8
0:16:57	33.7	0.486	20.0	5.112	8.71	6.7452	31.3	4.639	4.341	24.390	20.050	22.22	2.17	1.216	17.0
0:17:09	33.8	0.492	20.2	5.106	8.82	6.7529	31.4	4.651	4.349	24.567	20.218	22.39	2.17	1.215	17.2
0:17:19	33.9	0.497	20.0	5.102	8.90	6.7592	31.5	4.660	4.355	24.375	20.021	22.20	2.18	1.217	17.3
0:17:31	34.2	0.502	20.1	5.096	9.00	6.7669	31.8	4.697	4.389	24.452	20.064	22.26	2.19	1.219	17.5
0:17:43	34.5	0.508	20.2	5.090	9.11	6.7747	32.0	4.730	4.418	24.585	20.168	22.38	2.21	1.219	17.7
0:17:55	34.4	0.514	20.2	5.084	9.21	6.7825	32.0	4.720	4.404	24.563	20.159	22.36	2.20	1.218	17.9
0:18:08	35.1	0.520	20.2	5.078	9.32	6.7903	32.7	4.812	4.493	24.648	20.155	22.40	2.25	1.223	18.1
0:18:17	34.9	0.525	20.2	5.073	9.40	6.7965	32.5	4.784	4.462	24.666	20.204	22.43	2.23	1.221	18.3
0:18:29	35.0	0.530	20.1	5.068	9.50	6.8042	32.6	4.792	4.466	24.581	20.115	22.35	2.23	1.222	18.5
0:18:42	35.7	0.536	20.2	5.062	9.61	6.8120	33.3	4.882	4.553	24.790	20.237	22.51	2.28	1.225	18.7
0:18:54	35.6	0.542	20.1	5.056	9.71	6.8199	33.2	4.866	4.533	24.648	20.115	22.38	2.27	1.225	18.9
0:19:06	35.7	0.548	20.0	5.050	9.82	6.8277	33.3	4.873	4.536	24.560	20.024	22.29	2.27	1.227	19.1
0:19:18	36.0	0.554	20.1	5.045	9.92	6.8356	33.6	4.912	4.572	24.715	20.143	22.43	2.29	1.227	19.3
0:19:28	36.5	0.558	20.2	5.040	10.00	6.8417	34.1	4.983	4.641	24.835	20.194	22.51	2.32	1.230	19.5
0:19:40	36.4	0.564	20.0	5.034	10.10	6.8496	34.0	4.969	4.622	24.656	20.034	22.35	2.31	1.231	19.7
0:19:52	36.7	0.570	20.1	5.028	10.21	6.8575	34.2	4.994	4.644	24.733	20.089	22.41	2.32	1.231	19.9
0:20:05	36.6	0.575	20.0	5.023	10.31	6.8654	34.2	4.979	4.626	24.659	20.034	22.35	2.31	1.231	20.1
0:20:17	36.7	0.581	20.0	5.017	10.41	6.8733	34.3	4.993	4.636	24.659	20.022	22.34	2.32	1.232	20.3
0:20:29	37.1	0.587	20.2	5.011	10.52	6.8812	34.7	5.037	4.676	24.840	20.164	22.50	2.34	1.232	20.5
0:20:41	37.2	0.593	20.2	5.005	10.62	6.8891	34.8	5.048	4.683	24.928	20.244	22.59	2.34	1.231	20.7
0:20:51	37.3	0.597	20.2	5.001	10.70	6.8955	34.9	5.064	4.697	24.879	20.182	22.53	2.35	1.233	20.9
0:21:03	37.5	0.603	20.3	4.995	10.81	6.9035	35.1	5.086	4.715	24.972	20.256	22.61	2.36	1.233	21.1
0:21:15	37.7	0.609	20.2	4.989	10.91	6.9113	35.3	5.102	4.728	24.884	20.156	22.52	2.36	1.235	21.3
0:21:27	37.9	0.615	20.2	4.983	11.01	6.9193	35.5	5.125	4.747	24.903	20.155	22.53	2.37	1.236	21.5
0:21:40	38.1	0.620	20.1	4.978	11.11	6.9273	35.7	5.156	4.775	24.895	20.120	22.51	2.39	1.237	21.7

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/Dc

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6419 (in.)
Dia. avg.	3.181 (in)
Area avg.	7.9473 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351A
Data File ID	UU-351A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:21:52	38.4	0.626	20.1	4.972	11.21	6.9352	36.0	5.185	4.801	24.861	20.060	22.46	2.40	1.239	21.9
0:22:04	38.8	0.632	20.1	4.966	11.32	6.9432	36.4	5.240	4.852	24.987	20.135	22.56	2.43	1.241	22.1
0:22:16	38.6	0.637	20.2	4.961	11.42	6.9512	36.2	5.210	4.818	25.052	20.234	22.64	2.41	1.238	22.3
0:22:28	38.9	0.643	20.1	4.955	11.52	6.9594	36.5	5.238	4.843	24.907	20.064	22.49	2.42	1.241	22.5
0:22:38	39.1	0.648	20.2	4.950	11.60	6.9659	36.7	5.268	4.870	25.054	20.184	22.62	2.44	1.241	22.6
0:22:50	39.2	0.654	20.2	4.944	11.71	6.9740	36.8	5.278	4.877	25.124	20.247	22.69	2.44	1.241	22.8
0:23:02	39.3	0.659	20.1	4.939	11.81	6.9819	36.9	5.285	4.881	24.933	20.052	22.49	2.44	1.243	23.0
0:23:15	39.5	0.665	20.1	4.933	11.91	6.9902	37.1	5.309	4.901	25.043	20.143	22.59	2.45	1.243	23.3
0:23:27	40.0	0.671	20.1	4.927	12.02	6.9985	37.5	5.364	4.952	25.023	20.071	22.55	2.48	1.247	23.5
0:23:39	40.2	0.677	20.1	4.921	12.12	7.0067	37.7	5.386	4.971	25.061	20.090	22.58	2.49	1.247	23.7
0:23:49	40.1	0.681	20.0	4.917	12.20	7.0133	37.7	5.380	4.962	24.986	20.024	22.51	2.48	1.248	23.8
0:24:01	40.3	0.687	20.2	4.911	12.31	7.0216	37.9	5.395	4.973	25.131	20.158	22.64	2.49	1.247	24.0
0:24:13	40.5	0.693	20.1	4.905	12.41	7.0299	38.1	5.415	4.989	25.116	20.127	22.62	2.49	1.248	24.2
0:24:25	40.4	0.699	20.1	4.899	12.51	7.0383	37.9	5.391	4.962	25.063	20.101	22.58	2.48	1.247	24.4
0:24:38	41.1	0.705	20.1	4.893	12.62	7.0468	38.7	5.488	5.055	25.204	20.149	22.68	2.53	1.251	24.6
0:24:47	41.1	0.709	20.2	4.889	12.70	7.0535	38.7	5.482	5.046	25.226	20.180	22.70	2.52	1.250	24.8
0:25:00	41.4	0.715	20.1	4.883	12.81	7.0619	39.0	5.523	5.084	25.194	20.110	22.65	2.54	1.253	25.0
0:25:12	41.6	0.721	20.1	4.877	12.91	7.0705	39.2	5.541	5.098	25.196	20.097	22.65	2.55	1.254	25.2
0:25:24	41.4	0.727	20.1	4.871	13.02	7.0790	39.0	5.509	5.063	25.124	20.061	22.59	2.53	1.252	25.4
0:25:36	41.5	0.733	20.1	4.865	13.12	7.0874	39.1	5.512	5.062	25.158	20.096	22.63	2.53	1.252	25.6
0:25:46	41.8	0.738	20.1	4.861	13.20	7.0943	39.4	5.551	5.098	25.223	20.125	22.67	2.55	1.253	25.8
0:25:58	42.2	0.743	20.1	4.855	13.31	7.1029	39.8	5.605	5.149	25.202	20.053	22.63	2.57	1.257	26.0
0:26:10	42.4	0.749	20.0	4.849	13.41	7.1115	40.0	5.620	5.160	25.205	20.045	22.62	2.58	1.257	26.2
0:26:22	42.4	0.755	20.0	4.843	13.52	7.1202	40.0	5.618	5.154	25.121	19.966	22.54	2.58	1.258	26.4
0:26:32	42.7	0.760	20.0	4.838	13.61	7.1272	40.3	5.658	5.192	25.145	19.953	22.55	2.60	1.260	26.5
0:26:44	42.9	0.766	20.1	4.832	13.71	7.1359	40.4	5.667	5.197	25.336	20.138	22.74	2.60	1.258	26.7
0:26:57	42.9	0.772	20.1	4.826	13.82	7.1447	40.5	5.668	5.194	25.310	20.116	22.71	2.60	1.258	27.0
0:27:06	43.0	0.777	20.0	4.822	13.90	7.1517	40.6	5.673	5.196	25.226	20.030	22.63	2.60	1.259	27.1
0:27:18	43.2	0.782	20.1	4.816	14.01	7.1605	40.8	5.694	5.214	25.322	20.109	22.72	2.61	1.259	27.3
0:27:31	43.4	0.788	20.1	4.810	14.11	7.1694	41.0	5.721	5.237	25.379	20.142	22.76	2.62	1.260	27.5
0:27:43	43.9	0.794	20.2	4.804	14.22	7.1782	41.5	5.784	5.296	25.451	20.155	22.80	2.65	1.263	27.7
0:27:53	44.1	0.799	20.1	4.799	14.30	7.1852	41.6	5.796	5.305	25.399	20.094	22.75	2.65	1.264	27.9
0:28:05	43.8	0.805	20.0	4.793	14.41	7.1940	41.4	5.749	5.255	25.281	20.026	22.65	2.63	1.262	28.1
0:28:17	44.2	0.811	20.3	4.787	14.51	7.2029	41.8	5.799	5.302	25.566	20.264	22.92	2.65	1.262	28.3
0:28:29	44.3	0.817	20.0	4.781	14.62	7.2117	41.9	5.806	5.305	25.337	20.032	22.68	2.65	1.265	28.5
0:28:39	44.4	0.821	20.2	4.777	14.70	7.2189	42.0	5.820	5.316	25.559	20.243	22.90	2.66	1.263	28.7
0:28:51	44.7	0.827	20.1	4.771	14.81	7.2278	42.3	5.846	5.338	25.479	20.141	22.81	2.67	1.265	28.9
0:29:03	44.7	0.833	20.1	4.765	14.91	7.2366	42.3	5.849	5.337	25.458	20.121	22.79	2.67	1.265	29.1
0:29:15	45.2	0.839	20.0	4.759	15.02	7.2455	42.8	5.906	5.391	25.368	19.977	22.67	2.70	1.270	29.3
0:29:25	44.9	0.844	20.1	4.754	15.10	7.2527	42.4	5.852	5.334	25.451	20.117	22.78	2.67	1.265	29.4
0:29:37	45.0	0.850	20.1	4.749	15.21	7.2617	42.6	5.862	5.341	25.423	20.082	22.75	2.67	1.266	29.6
0:29:50	45.4	0.855	20.1	4.743	15.31	7.2707	43.0	5.916	5.391	25.528	20.136	22.83	2.70	1.268	29.8
0:30:02	45.3	0.861	20.2	4.737	15.42	7.2798	42.9	5.891	5.363	25.565	20.202	22.88	2.68	1.265	30.0
0:30:12	45.6	0.866	20.1	4.732	15.50	7.2870	43.1	5.920	5.388	25.457	20.069	22.76	2.69	1.268	30.2
0:30:24	45.6	0.872	20.0	4.726	15.61	7.2962	43.2	5.924	5.389	25.379	19.990	22.68	2.69	1.270	30.4
0:30:36	45.8	0.878	20.1	4.720	15.71	7.3054	43.4	5.943	5.404	25.534	20.130	22.83	2.70	1.268	30.6
0:30:48	45.8	0.884	20.2	4.714	15.82	7.3146	43.4	5.936	5.393	25.576	20.182	22.88	2.70	1.267	30.8
0:30:58	46.2	0.889	19.9	4.709	15.90	7.3220	43.8	5.975	5.430	25.350	19.920	22.64	2.72	1.273	31.0
0:31:10	46.2	0.895	20.1	4.704	16.01	7.3311	43.8	5.974	5.426	25.543	20.118	22.83	2.71	1.270	31.2
0:31:22	46.6	0.901	20.1	4.698	16.11	7.3404	44.2	6.017	5.464	25.517	20.053	22.78	2.73	1.272	31.4
0:31:34	46.9	0.906	20.1	4.692	16.22	7.3496	44.5	6.057	5.500	25.624	20.124	22.87	2.75	1.273	31.6
0:31:44	46.8	0.911	20.2	4.687	16.30	7.3571	44.3	6.027	5.468	25.648	20.179	22.91	2.73	1.271	31.7
0:31:56	46.8	0.917	20.1	4.681	16.41	7.3662	44.4	6.022	5.460	25.585	20.126	22.86	2.73	1.271	31.9
0:32:09	46.9	0.923	20.1	4.675	16.52	7.3756	44.5	6.030	5.464	25.559	20.095	22.83	2.73	1.272	32.2
0:32:18	47.3	0.928	20.1	4.670	16.60	7.3831	44.9	6.083	5.514	25.660	20.146	22.90	2.76	1.274	32.3
0:32:30	47.2	0.934	20.1	4.664	16.71	7.3925	44.7	6.052	5.479	25.556	20.077	22.82	2.74	1.273	32.5

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= $(4(EM)(Thickness)(Strain))/D_c$

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6419 (in.)
Dia. avg.	3.181 (in.)
Area avg.	7.9473 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351A
Data File ID	UU-351A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:32:43	47.2	0.940	20.2	4.659	16.81	7.4019	44.8	6.054	5.477	25.643	20.166	22.90	2.74	1.272	32.7
0:32:55	47.4	0.945	20.2	4.653	16.92	7.4114	45.0	6.073	5.493	25.669	20.176	22.92	2.75	1.272	32.9
0:33:05	47.6	0.950	20.1	4.648	17.00	7.4189	45.2	6.097	5.514	25.607	20.093	22.85	2.76	1.274	33.1
0:33:17	48.0	0.956	20.2	4.642	17.11	7.4285	45.6	6.135	5.549	25.699	20.151	22.93	2.77	1.275	33.3

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6469 (in.)
Dia. avg.	3.201 (in.)
Area avg.	8.0492 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	F

Project Number	175569038
Test Number	UU-351B
Data File ID	UU-351B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.3	0.000	30.0	5.600	0.00	6.1575	0.0	0.000	0.000	30.006	30.006	30.01	0.00	1.000	0.0
0:00:22	13.3	0.006	30.0	5.594	0.11	6.1644	12.0	1.944	1.940	31.936	29.996	30.97	0.97	1.065	0.4
0:00:32	15.2	0.011	30.0	5.589	0.20	6.1699	13.9	2.247	2.240	32.232	29.992	31.11	1.12	1.075	0.5
0:00:44	16.5	0.017	30.0	5.583	0.30	6.1761	15.2	2.457	2.446	32.443	29.997	31.22	1.22	1.082	0.7
0:00:56	17.6	0.023	30.0	5.577	0.41	6.1827	16.3	2.636	2.622	32.619	29.997	31.31	1.31	1.087	0.9
0:01:08	18.2	0.029	30.0	5.571	0.51	6.1892	16.9	2.729	2.711	32.707	29.996	31.35	1.36	1.090	1.1
0:01:21	18.6	0.035	30.0	5.565	0.62	6.1960	17.3	2.793	2.772	32.800	30.029	31.41	1.39	1.092	1.4
0:01:30	19.0	0.039	30.0	5.561	0.70	6.2010	17.7	2.860	2.836	32.848	30.012	31.43	1.42	1.094	1.5
0:01:43	19.6	0.045	30.0	5.555	0.80	6.2073	18.3	2.953	2.925	32.927	30.002	31.46	1.46	1.098	1.7
0:01:55	19.8	0.051	30.0	5.549	0.91	6.2143	18.4	2.968	2.937	32.929	29.992	31.46	1.47	1.098	1.9
0:02:07	20.5	0.057	30.0	5.543	1.02	6.2207	19.2	3.089	3.054	33.088	30.034	31.56	1.53	1.102	2.1
0:02:17	20.7	0.062	30.0	5.538	1.10	6.2260	19.4	3.109	3.072	33.084	30.013	31.55	1.54	1.102	2.3
0:02:29	21.2	0.067	30.0	5.533	1.20	6.2326	19.9	3.188	3.147	33.190	30.043	31.62	1.57	1.105	2.5
0:02:41	21.2	0.074	30.0	5.526	1.31	6.2395	19.9	3.192	3.147	33.162	30.015	31.59	1.57	1.105	2.7
0:02:53	21.9	0.080	30.0	5.520	1.42	6.2463	20.6	3.304	3.255	33.259	30.004	31.63	1.63	1.108	2.9
0:03:03	22.0	0.084	30.0	5.516	1.50	6.2516	20.7	3.310	3.258	33.294	30.036	31.66	1.63	1.108	3.1
0:03:15	22.1	0.090	30.0	5.510	1.61	6.2583	20.8	3.317	3.262	33.300	30.038	31.67	1.63	1.109	3.3
0:03:27	22.4	0.096	30.0	5.504	1.71	6.2645	21.1	3.370	3.312	33.344	30.032	31.69	1.66	1.110	3.5
0:03:40	23.0	0.102	30.0	5.498	1.82	6.2717	21.7	3.467	3.404	33.432	30.028	31.73	1.70	1.113	3.7
0:03:49	23.3	0.107	30.0	5.493	1.91	6.2771	22.0	3.510	3.445	33.466	30.021	31.74	1.72	1.115	3.8
0:04:02	23.6	0.113	30.0	5.487	2.02	6.2842	22.2	3.540	3.471	33.468	29.997	31.73	1.74	1.116	4.0
0:04:14	24.1	0.118	30.0	5.482	2.11	6.2904	22.8	3.629	3.557	33.573	30.017	31.79	1.78	1.118	4.2
0:04:23	24.4	0.123	30.0	5.477	2.20	6.2963	23.1	3.668	3.592	33.615	30.023	31.82	1.80	1.120	4.4
0:04:36	24.5	0.129	30.0	5.471	2.31	6.3032	23.2	3.678	3.599	33.636	30.037	31.84	1.80	1.120	4.6
0:04:48	25.1	0.135	30.0	5.465	2.41	6.3099	23.8	3.769	3.686	33.713	30.026	31.87	1.84	1.123	4.8
0:04:58	25.0	0.140	30.0	5.460	2.50	6.3154	23.7	3.758	3.673	33.687	30.015	31.85	1.84	1.122	5.0
0:05:10	25.3	0.146	30.0	5.454	2.61	6.3225	24.0	3.791	3.701	33.706	30.004	31.86	1.85	1.123	5.2
0:05:22	25.6	0.152	30.0	5.448	2.72	6.3296	24.3	3.839	3.745	33.763	30.018	31.89	1.87	1.125	5.4
0:05:32	26.0	0.157	30.0	5.443	2.80	6.3350	24.7	3.893	3.797	33.809	30.012	31.91	1.90	1.127	5.5
0:05:44	26.1	0.163	30.0	5.437	2.91	6.3421	24.8	3.908	3.808	33.806	29.997	31.90	1.90	1.127	5.7
0:05:56	26.2	0.169	30.0	5.431	3.01	6.3488	24.9	3.925	3.822	33.825	30.003	31.91	1.91	1.127	5.9
0:06:08	26.6	0.175	30.0	5.425	3.12	6.3559	25.2	3.972	3.865	33.878	30.013	31.95	1.93	1.129	6.1
0:06:18	26.7	0.180	30.0	5.420	3.21	6.3617	25.3	3.984	3.874	33.896	30.022	31.96	1.94	1.129	6.3
0:06:30	27.1	0.186	30.0	5.414	3.31	6.3686	25.8	4.056	3.942	33.948	30.006	31.98	1.97	1.131	6.5
0:06:40	27.3	0.191	30.0	5.409	3.40	6.3744	26.0	4.075	3.958	33.980	30.022	32.00	1.98	1.132	6.7
0:06:52	27.4	0.197	30.0	5.403	3.51	6.3815	26.1	4.094	3.974	33.994	30.020	32.01	1.99	1.132	6.9
0:07:04	28.2	0.202	30.0	5.398	3.61	6.3884	26.9	4.205	4.081	34.062	29.980	32.02	2.04	1.136	7.1
0:07:17	28.4	0.208	30.0	5.392	3.72	6.3954	27.1	4.241	4.113	34.112	29.998	32.05	2.06	1.137	7.3
0:07:26	28.8	0.213	30.0	5.387	3.81	6.4011	27.5	4.294	4.164	34.159	29.996	32.08	2.08	1.139	7.4
0:07:39	29.1	0.219	30.0	5.381	3.91	6.4079	27.8	4.339	4.206	34.218	30.013	32.12	2.10	1.140	7.7
0:07:51	29.1	0.225	30.0	5.375	4.01	6.4150	27.8	4.328	4.190	34.235	30.045	32.14	2.09	1.139	7.9
0:08:03	29.3	0.231	30.0	5.369	4.12	6.4220	28.0	4.363	4.221	34.209	29.988	32.10	2.11	1.141	8.1
0:08:13	29.5	0.235	30.0	5.365	4.20	6.4276	28.2	4.381	4.237	34.231	29.993	32.11	2.12	1.141	8.2
0:08:25	29.9	0.241	30.0	5.359	4.31	6.4347	28.6	4.442	4.295	34.289	29.995	32.14	2.15	1.143	8.4
0:08:37	30.2	0.247	30.0	5.353	4.41	6.4416	28.9	4.481	4.329	34.335	30.006	32.17	2.16	1.144	8.6
0:08:49	30.4	0.253	30.0	5.347	4.52	6.4488	29.1	4.513	4.358	34.340	29.982	32.16	2.18	1.145	8.8
0:08:59	30.7	0.258	30.0	5.342	4.60	6.4546	29.3	4.546	4.388	34.346	29.958	32.15	2.19	1.146	9.0
0:09:11	30.9	0.264	30.0	5.337	4.70	6.4615	29.6	4.585	4.423	34.410	29.987	32.20	2.21	1.148	9.2
0:09:23	31.0	0.269	30.0	5.331	4.81	6.4685	29.7	4.595	4.430	34.404	29.975	32.19	2.21	1.148	9.4
0:09:36	31.2	0.275	30.0	5.325	4.91	6.4756	29.9	4.619	4.451	34.483	30.032	32.26	2.23	1.148	9.6
0:09:45	31.4	0.280	30.0	5.320	5.00	6.4816	30.0	4.636	4.464	34.474	30.009	32.24	2.23	1.149	9.8
0:09:58	31.8	0.286	30.0	5.314	5.10	6.4887	30.5	4.706	4.531	34.542	30.012	32.28	2.27	1.151	10.0
0:10:10	32.0	0.292	30.0	5.308	5.21	6.4958	30.7	4.726	4.547	34.584	30.037	32.31	2.27	1.151	10.2
0:10:22	32.4	0.298	30.0	5.302	5.31	6.5030	31.1	4.776	4.594	34.604	30.010	32.31	2.30	1.153	10.4
0:10:34	32.3	0.304	30.0	5.296	5.42	6.5104	31.0	4.764	4.579	34.596	30.018	32.31	2.29	1.153	10.6
0:10:44	32.6	0.308	30.0	5.292	5.50	6.5162	31.3	4.799	4.611	34.635	30.024	32.33	2.31	1.154	10.7

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6469 (in.)
Dia. avg.	3.201 (in.)
Area avg.	8.0492 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	F

Project Number	175569038
Test Number	UU-351B
Data File ID	UU-351B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:56	33.1	0.315	30.0	5.286	5.62	6.5239	31.8	4.867	4.674	34.697	30.022	32.36	2.34	1.156	10.9
0:11:08	33.0	0.320	30.0	5.280	5.72	6.5309	31.7	4.847	4.651	34.674	30.024	32.35	2.33	1.155	11.1
0:11:18	33.2	0.325	30.0	5.275	5.80	6.5367	31.9	4.886	4.687	34.684	29.997	32.34	2.34	1.156	11.3
0:11:30	33.4	0.331	30.0	5.269	5.91	6.5441	32.1	4.908	4.706	34.717	30.011	32.36	2.35	1.157	11.5
0:11:42	33.8	0.337	30.0	5.263	6.01	6.5513	32.5	4.959	4.753	34.787	30.034	32.41	2.38	1.158	11.7
0:11:55	34.1	0.343	30.0	5.257	6.12	6.5588	32.8	5.002	4.792	34.832	30.040	32.44	2.40	1.160	11.9
0:12:04	34.4	0.348	30.0	5.253	6.21	6.5649	33.1	5.035	4.822	34.822	30.000	32.41	2.41	1.161	12.1
0:12:16	34.7	0.354	30.0	5.247	6.31	6.5724	33.4	5.076	4.859	34.880	30.021	32.45	2.43	1.162	12.3
0:12:29	34.7	0.360	30.0	5.240	6.42	6.5801	33.4	5.071	4.851	34.858	30.007	32.43	2.43	1.162	12.5
0:12:38	35.0	0.365	30.0	5.236	6.51	6.5862	33.7	5.111	4.888	34.903	30.015	32.46	2.44	1.163	12.6
0:12:51	35.1	0.371	30.1	5.229	6.62	6.5938	33.8	5.132	4.905	34.971	30.065	32.52	2.45	1.163	12.9
0:13:00	35.2	0.375	30.0	5.225	6.70	6.5998	33.9	5.139	4.909	34.915	30.006	32.46	2.45	1.164	13.0
0:13:13	35.7	0.381	30.1	5.219	6.81	6.6076	34.4	5.200	4.967	35.049	30.083	32.57	2.48	1.165	13.2
0:13:25	35.8	0.388	30.0	5.213	6.92	6.6153	34.5	5.211	4.974	34.950	29.976	32.46	2.49	1.166	13.4
0:13:34	36.1	0.392	30.0	5.208	7.01	6.6214	34.8	5.257	5.017	35.011	29.995	32.50	2.51	1.167	13.6
0:13:47	36.2	0.398	30.0	5.202	7.12	6.6292	34.9	5.271	5.027	35.058	30.031	32.54	2.51	1.167	13.8
0:13:56	36.4	0.403	30.0	5.197	7.20	6.6355	35.1	5.284	5.037	35.065	30.028	32.55	2.52	1.168	13.9
0:14:09	36.6	0.410	30.0	5.191	7.31	6.6433	35.2	5.306	5.055	35.036	29.982	32.51	2.53	1.169	14.2
0:14:21	36.9	0.416	30.0	5.184	7.42	6.6510	35.6	5.358	5.103	35.090	29.986	32.54	2.55	1.170	14.4
0:14:31	37.2	0.420	30.0	5.180	7.51	6.6574	35.8	5.385	5.127	35.142	30.015	32.58	2.56	1.171	14.5
0:14:43	37.4	0.426	30.0	5.174	7.61	6.6650	36.1	5.416	5.155	35.175	30.020	32.60	2.58	1.172	14.7
0:14:52	37.9	0.431	30.0	5.169	7.70	6.6712	36.6	5.486	5.222	35.217	29.995	32.61	2.61	1.174	14.9
0:15:05	37.9	0.437	30.0	5.163	7.81	6.6791	36.6	5.483	5.216	35.236	30.021	32.63	2.61	1.174	15.1
0:15:17	38.3	0.443	30.0	5.157	7.92	6.6869	37.0	5.534	5.263	35.283	30.020	32.65	2.63	1.175	15.3
0:15:27	38.6	0.448	30.0	5.152	8.00	6.6933	37.3	5.566	5.292	35.289	29.997	32.64	2.65	1.176	15.5
0:15:39	38.7	0.454	30.0	5.146	8.11	6.7010	37.4	5.576	5.298	35.311	30.012	32.66	2.65	1.177	15.7
0:15:51	38.8	0.460	30.0	5.140	8.22	6.7087	37.5	5.595	5.313	35.320	30.007	32.66	2.66	1.177	15.9
0:16:01	39.2	0.465	30.0	5.135	8.30	6.7150	37.9	5.644	5.360	35.350	29.991	32.67	2.68	1.179	16.0
0:16:13	39.5	0.471	30.0	5.129	8.41	6.7227	38.2	5.675	5.387	35.379	29.992	32.69	2.69	1.180	16.2
0:16:25	39.3	0.477	30.0	5.123	8.51	6.7306	38.0	5.649	5.357	35.384	30.028	32.71	2.68	1.178	16.4
0:16:35	39.7	0.482	30.0	5.118	8.60	6.7369	38.4	5.696	5.401	35.406	30.006	32.71	2.70	1.180	16.6
0:16:47	39.7	0.488	30.0	5.113	8.71	6.7447	38.4	5.690	5.392	35.397	30.005	32.70	2.70	1.180	16.8
0:16:59	40.2	0.493	30.0	5.107	8.81	6.7525	38.9	5.761	5.459	35.411	29.953	32.68	2.73	1.182	17.0
0:17:11	40.2	0.499	30.0	5.101	8.92	6.7603	38.9	5.752	5.447	35.453	30.006	32.73	2.72	1.182	17.2
0:17:21	40.4	0.504	30.0	5.096	9.00	6.7666	39.1	5.781	5.472	35.458	29.985	32.72	2.74	1.183	17.4
0:17:33	40.4	0.510	30.0	5.090	9.11	6.7743	39.1	5.765	5.453	35.460	30.008	32.73	2.73	1.182	17.6
0:17:46	40.8	0.516	30.0	5.084	9.21	6.7823	39.5	5.820	5.505	35.508	30.003	32.76	2.75	1.183	17.8
0:17:58	41.1	0.522	30.0	5.078	9.32	6.7900	39.8	5.856	5.536	35.524	29.988	32.76	2.77	1.185	18.0
0:18:10	41.0	0.527	30.0	5.073	9.42	6.7978	39.7	5.836	5.513	35.487	29.974	32.73	2.76	1.184	18.2
0:18:20	41.4	0.532	30.0	5.068	9.50	6.8041	40.1	5.898	5.572	35.542	29.970	32.76	2.79	1.186	18.3
0:18:32	41.7	0.538	30.0	5.062	9.61	6.8120	40.4	5.924	5.595	35.619	30.025	32.82	2.80	1.186	18.5
0:18:44	41.9	0.544	30.0	5.056	9.71	6.8200	40.6	5.954	5.621	35.612	29.991	32.80	2.81	1.187	18.7
0:18:56	42.0	0.550	30.0	5.050	9.82	6.8278	40.7	5.959	5.623	35.666	30.043	32.85	2.81	1.187	18.9
0:19:06	42.1	0.555	30.0	5.046	9.90	6.8342	40.8	5.971	5.632	35.622	29.990	32.81	2.82	1.188	19.1
0:19:18	42.3	0.560	30.0	5.040	10.01	6.8422	41.0	5.995	5.651	35.686	30.034	32.86	2.83	1.188	19.3
0:19:30	42.5	0.566	30.0	5.034	10.11	6.8504	41.2	6.019	5.672	35.677	30.005	32.84	2.84	1.189	19.5
0:19:43	43.0	0.572	30.0	5.028	10.22	6.8584	41.7	6.083	5.733	35.699	29.966	32.83	2.87	1.191	19.7
0:19:52	43.2	0.577	30.0	5.023	10.30	6.8648	41.9	6.102	5.748	35.791	30.043	32.92	2.87	1.191	19.9
0:20:05	43.3	0.583	30.0	5.017	10.41	6.8730	42.0	6.109	5.752	35.745	29.993	32.87	2.88	1.192	20.1
0:20:17	43.6	0.589	30.0	5.011	10.51	6.8811	42.3	6.148	5.787	35.786	29.999	32.89	2.89	1.193	20.3
0:20:26	43.5	0.594	30.0	5.006	10.60	6.8876	42.2	6.123	5.760	35.763	30.003	32.88	2.88	1.192	20.4
0:20:39	43.7	0.600	30.1	5.000	10.71	6.8958	42.4	6.143	5.776	35.836	30.060	32.95	2.89	1.192	20.7
0:20:51	44.1	0.605	30.0	4.995	10.81	6.9040	42.8	6.194	5.823	35.858	30.035	32.95	2.91	1.194	20.9
0:21:03	44.2	0.611	30.0	4.989	10.92	6.9120	42.8	6.198	5.824	35.814	29.990	32.90	2.91	1.194	21.1
0:21:13	44.0	0.616	30.0	4.984	11.00	6.9187	42.7	6.178	5.801	35.827	30.027	32.93	2.90	1.193	21.2
0:21:25	44.5	0.622	30.0	4.978	11.11	6.9268	43.2	6.230	5.849	35.861	30.013	32.94	2.92	1.195	21.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6469 (in.)
Dia. avg.	3.201 (in.)
Area avg.	8.0492 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	F

Project Number	175569038
Test Number	UU-351B
Data File ID	UU-351B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:21:37	44.7	0.628	30.0	4.972	11.21	6.9351	43.3	6.250	5.866	35.872	30.006	32.94	2.93	1.195	21.6
0:21:49	44.8	0.634	30.0	4.966	11.32	6.9433	43.5	6.264	5.876	35.886	30.010	32.95	2.94	1.196	21.8
0:21:59	45.2	0.639	30.0	4.961	11.40	6.9500	43.9	6.310	5.919	35.934	30.015	32.97	2.96	1.197	22.0
0:22:11	45.1	0.645	30.0	4.955	11.51	6.9584	43.7	6.287	5.893	35.939	30.046	32.99	2.95	1.196	22.2
0:22:23	45.5	0.650	30.0	4.950	11.61	6.9667	44.2	6.347	5.949	35.965	30.016	32.99	2.97	1.198	22.4
0:22:36	45.5	0.656	30.0	4.944	11.72	6.9750	44.2	6.338	5.936	35.967	30.031	33.00	2.97	1.198	22.6
0:22:45	45.8	0.661	30.0	4.939	11.80	6.9816	44.5	6.376	5.971	35.991	30.020	33.01	2.99	1.199	22.8
0:22:58	46.0	0.667	30.0	4.933	11.91	6.9901	44.7	6.397	5.988	35.990	30.001	33.00	2.99	1.200	23.0
0:23:10	46.1	0.673	30.0	4.927	12.02	6.9986	44.8	6.407	5.995	35.989	29.994	32.99	3.00	1.200	23.2
0:23:20	46.1	0.678	30.0	4.922	12.10	7.0053	44.8	6.393	5.978	35.981	30.003	32.99	2.99	1.199	23.3
0:23:32	46.5	0.684	30.0	4.916	12.21	7.0138	45.2	6.441	6.023	36.002	29.979	32.99	3.01	1.201	23.5
0:23:44	46.8	0.690	30.0	4.910	12.31	7.0222	45.5	6.484	6.062	36.089	30.027	33.06	3.03	1.202	23.7
0:23:56	46.7	0.695	29.9	4.905	12.42	7.0304	45.4	6.461	6.035	35.985	29.949	32.97	3.02	1.202	23.9
0:24:08	46.9	0.701	30.0	4.899	12.52	7.0388	45.6	6.472	6.043	36.020	29.977	33.00	3.02	1.202	24.1
0:24:18	47.3	0.706	30.0	4.894	12.60	7.0455	45.9	6.521	6.089	36.135	30.046	33.09	3.04	1.203	24.3
0:24:30	47.2	0.712	30.0	4.888	12.71	7.0537	45.9	6.512	6.077	36.064	29.988	33.03	3.04	1.203	24.5
0:24:42	47.4	0.717	30.0	4.883	12.81	7.0623	46.1	6.529	6.090	36.117	30.027	33.07	3.04	1.203	24.7
0:24:55	47.7	0.723	30.0	4.877	12.92	7.0708	46.4	6.562	6.119	36.166	30.047	33.11	3.06	1.204	24.9
0:25:07	47.9	0.729	30.0	4.871	13.02	7.0791	46.6	6.581	6.135	36.160	30.025	33.09	3.07	1.204	25.1
0:25:19	48.0	0.735	30.0	4.865	13.12	7.0875	46.7	6.586	6.136	36.186	30.050	33.12	3.07	1.204	25.3
0:25:29	48.2	0.739	30.0	4.861	13.20	7.0942	46.9	6.616	6.163	36.174	30.011	33.09	3.08	1.205	25.5
0:25:41	48.4	0.745	30.0	4.855	13.31	7.1027	47.1	6.625	6.169	36.202	30.033	33.12	3.08	1.205	25.7
0:25:53	48.5	0.751	30.0	4.849	13.41	7.1113	47.2	6.640	6.180	36.196	30.016	33.11	3.09	1.206	25.9
0:26:05	48.7	0.757	30.0	4.843	13.52	7.1199	47.4	6.661	6.197	36.231	30.034	33.13	3.10	1.206	26.1
0:26:18	49.0	0.763	30.0	4.837	13.62	7.1283	47.7	6.689	6.222	36.195	29.973	33.08	3.11	1.208	26.3
0:26:27	49.2	0.767	30.0	4.833	13.70	7.1352	47.9	6.712	6.242	36.260	30.018	33.14	3.12	1.208	26.5
0:26:39	49.3	0.773	30.0	4.827	13.81	7.1438	48.0	6.722	6.249	36.216	29.968	33.09	3.12	1.209	26.7
0:26:52	49.4	0.779	30.0	4.821	13.91	7.1524	48.1	6.725	6.248	36.256	30.009	33.13	3.12	1.208	26.9
0:27:04	49.5	0.785	30.0	4.815	14.01	7.1610	48.2	6.732	6.251	36.260	30.008	33.13	3.13	1.208	27.1
0:27:16	49.6	0.791	30.0	4.809	14.12	7.1696	48.3	6.742	6.258	36.234	29.977	33.11	3.13	1.209	27.3
0:27:26	49.9	0.795	30.0	4.805	14.20	7.1766	48.6	6.766	6.280	36.280	30.000	33.14	3.14	1.209	27.4
0:27:38	50.1	0.801	30.0	4.799	14.30	7.1853	48.8	6.794	6.304	36.328	30.025	33.18	3.15	1.210	27.6
0:27:50	50.4	0.807	30.0	4.793	14.41	7.1940	49.1	6.821	6.327	36.374	30.046	33.21	3.16	1.211	27.8
0:28:02	50.6	0.813	30.0	4.787	14.51	7.2028	49.3	6.840	6.343	36.381	30.038	33.21	3.17	1.211	28.0
0:28:15	50.4	0.819	30.0	4.781	14.62	7.2116	49.1	6.809	6.307	36.320	30.013	33.17	3.15	1.210	28.3
0:28:24	50.9	0.823	30.0	4.777	14.70	7.2187	49.6	6.871	6.367	36.396	30.029	33.21	3.18	1.212	28.4
0:28:36	51.2	0.829	30.0	4.771	14.80	7.2276	49.9	6.900	6.392	36.433	30.041	33.24	3.20	1.213	28.6
0:28:49	51.1	0.835	30.0	4.765	14.91	7.2362	49.8	6.879	6.368	36.371	30.002	33.19	3.18	1.212	28.8
0:29:01	51.2	0.841	30.0	4.759	15.01	7.2451	49.9	6.882	6.368	36.356	29.989	33.17	3.18	1.212	29.0
0:29:13	51.7	0.847	30.0	4.753	15.12	7.2542	50.4	6.945	6.427	36.432	30.005	33.22	3.21	1.214	29.2
0:29:23	51.7	0.851	30.0	4.749	15.20	7.2614	50.3	6.933	6.412	36.397	29.985	33.19	3.21	1.214	29.4
0:29:35	51.8	0.857	30.1	4.743	15.31	7.2705	50.4	6.939	6.414	36.471	30.057	33.26	3.21	1.213	29.6
0:29:47	52.2	0.863	30.0	4.737	15.41	7.2797	50.9	6.988	6.459	36.498	30.039	33.27	3.23	1.215	29.8
0:29:59	52.1	0.869	30.1	4.731	15.52	7.2888	50.8	6.964	6.432	36.489	30.056	33.27	3.22	1.214	30.0
0:30:09	52.3	0.874	30.0	4.726	15.61	7.2961	51.0	6.987	6.452	36.497	30.045	33.27	3.23	1.215	30.2
0:30:21	52.7	0.880	30.0	4.720	15.71	7.3053	51.4	7.030	6.491	36.526	30.034	33.28	3.25	1.216	30.4
0:30:33	52.6	0.886	30.0	4.714	15.82	7.3146	51.2	7.006	6.464	36.497	30.033	33.26	3.23	1.215	30.6
0:30:43	52.8	0.891	30.1	4.709	15.90	7.3219	51.5	7.032	6.487	36.540	30.053	33.30	3.24	1.216	30.7
0:30:55	52.9	0.897	30.1	4.703	16.01	7.3314	51.5	7.031	6.482	36.544	30.062	33.30	3.24	1.216	30.9
0:31:08	53.0	0.903	30.1	4.697	16.12	7.3407	51.7	7.038	6.485	36.548	30.063	33.31	3.24	1.216	31.1
0:31:17	53.1	0.907	30.0	4.693	16.20	7.3482	51.8	7.049	6.493	36.526	30.033	33.28	3.25	1.216	31.3
0:31:30	53.1	0.914	30.1	4.686	16.31	7.3578	51.8	7.044	6.484	36.546	30.062	33.30	3.24	1.216	31.5
0:31:42	53.3	0.920	30.0	4.681	16.42	7.3672	52.0	7.060	6.497	36.493	29.996	33.24	3.25	1.217	31.7
0:31:51	53.5	0.924	30.0	4.676	16.51	7.3748	52.2	7.079	6.513	36.540	30.026	33.28	3.26	1.217	31.9
0:32:04	53.7	0.930	30.0	4.670	16.61	7.3844	52.4	7.096	6.526	36.554	30.028	33.29	3.26	1.217	32.1
0:32:16	53.8	0.936	30.0	4.664	16.72	7.3938	52.5	7.098	6.524	36.545	30.021	33.28	3.26	1.217	32.3

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6469 (in.)
Dia. avg.	3.201 (in.)
Area avg.	8.0492 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	F

Project Number	175569038
Test Number	UU-351B
Data File ID	UU-351B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected		Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
				Corrected Height (in.)	Strain (%)										
0:32:26	54.0	0.941	30.1	4.659	16.81	7.4014	52.7	7.118	6.541	36.609	30.067	33.34	3.27	1.218	32.4
0:32:38	54.4	0.947	30.0	4.653	16.91	7.4110	53.0	7.157	6.578	36.622	30.044	33.33	3.29	1.219	32.6
0:32:50	54.5	0.953	30.0	4.647	17.02	7.4205	53.1	7.162	6.578	36.615	30.037	33.33	3.29	1.219	32.8

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.6421 (in.)
Dia. avg.	3.188 (in)
Area avg.	7.9806 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351C
Data File ID	UU-351C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	6.7	-0.002	40.0	5.600	0.00	6.1575	0.0	0.000	0.000	40.030	40.030	40.03	0.00	1.000	0.0
0:00:15	9.2	0.004	40.1	5.594	0.11	6.1646	2.5	0.413	0.409	40.537	40.128	40.33	0.20	1.010	0.3
0:00:27	9.3	0.010	40.0	5.588	0.22	6.1709	2.6	0.426	0.419	40.461	40.042	40.25	0.21	1.010	0.5
0:00:37	9.1	0.015	40.0	5.583	0.30	6.1761	2.4	0.384	0.374	40.384	40.010	40.20	0.19	1.009	0.6
0:00:49	9.6	0.021	40.0	5.577	0.41	6.1826	2.9	0.473	0.459	40.471	40.012	40.24	0.23	1.011	0.8
0:01:01	9.6	0.027	39.9	5.571	0.51	6.1891	2.9	0.464	0.447	40.392	39.945	40.17	0.22	1.011	1.0
0:01:13	10.5	0.032	40.0	5.566	0.62	6.1957	3.9	0.623	0.602	40.625	40.023	40.32	0.30	1.015	1.2
0:01:23	15.9	0.037	40.1	5.561	0.70	6.2010	9.2	1.486	1.462	41.545	40.083	40.81	0.73	1.036	1.4
0:01:35	17.6	0.043	40.1	5.555	0.81	6.2075	10.9	1.763	1.736	41.844	40.108	40.98	0.87	1.043	1.6
0:01:47	18.7	0.049	40.1	5.549	0.91	6.2140	12.0	1.930	1.899	41.993	40.094	41.04	0.95	1.047	1.8
0:01:59	19.6	0.055	40.1	5.543	1.01	6.2204	12.9	2.069	2.035	42.123	40.089	41.11	1.02	1.051	2.0
0:02:12	20.2	0.060	40.0	5.538	1.11	6.2269	13.5	2.174	2.136	42.162	40.026	41.09	1.07	1.053	2.2
0:02:24	20.9	0.066	40.0	5.532	1.22	6.2336	14.2	2.280	2.238	42.272	40.034	41.15	1.12	1.056	2.4
0:02:34	21.6	0.071	40.0	5.527	1.30	6.2389	14.9	2.395	2.351	42.364	40.013	41.19	1.18	1.059	2.6
0:02:46	22.0	0.077	40.0	5.521	1.41	6.2454	15.4	2.458	2.410	42.444	40.034	41.24	1.20	1.060	2.8
0:02:58	22.6	0.083	40.0	5.515	1.51	6.2522	15.9	2.542	2.490	42.468	39.978	41.22	1.25	1.062	3.0
0:03:10	23.5	0.089	40.0	5.509	1.62	6.2587	16.8	2.690	2.634	42.651	40.016	41.33	1.32	1.066	3.2
0:03:22	23.7	0.094	40.0	5.504	1.72	6.2655	17.0	2.719	2.660	42.691	40.031	41.36	1.33	1.066	3.4
0:03:32	24.0	0.099	40.2	5.499	1.81	6.2708	17.4	2.769	2.707	42.872	40.165	41.52	1.35	1.067	3.5
0:03:44	24.3	0.105	40.0	5.493	1.91	6.2777	17.6	2.799	2.733	42.758	40.025	41.39	1.37	1.068	3.7
0:03:57	25.0	0.111	40.2	5.487	2.02	6.2843	18.3	2.916	2.847	43.050	40.203	41.63	1.42	1.071	4.0
0:04:06	24.9	0.116	40.1	5.482	2.10	6.2898	18.2	2.901	2.829	42.880	40.051	41.47	1.41	1.071	4.1
0:04:18	25.4	0.122	40.0	5.476	2.21	6.2967	18.7	2.969	2.893	42.932	40.039	41.49	1.45	1.072	4.3
0:04:31	25.5	0.127	40.1	5.470	2.31	6.3033	18.8	2.981	2.902	43.024	40.122	41.57	1.45	1.072	4.5
0:04:40	26.0	0.132	39.9	5.466	2.40	6.3090	19.4	3.070	2.988	42.900	39.912	41.41	1.49	1.075	4.7
0:04:53	26.3	0.138	40.1	5.460	2.51	6.3159	19.6	3.106	3.020	43.142	40.123	41.63	1.51	1.075	4.9
0:05:05	26.3	0.144	40.1	5.454	2.61	6.3227	19.6	3.098	3.008	43.092	40.083	41.59	1.50	1.075	5.1
0:05:17	26.8	0.150	40.1	5.448	2.72	6.3295	20.2	3.185	3.091	43.185	40.094	41.64	1.55	1.077	5.3
0:05:27	27.3	0.155	40.0	5.443	2.80	6.3351	20.6	3.247	3.151	43.156	40.005	41.58	1.58	1.079	5.5
0:05:39	27.3	0.161	40.1	5.437	2.91	6.3419	20.6	3.245	3.145	43.223	40.078	41.65	1.57	1.078	5.7
0:05:51	27.7	0.167	40.1	5.431	3.01	6.3489	21.0	3.306	3.202	43.311	40.109	41.71	1.60	1.080	5.9
0:06:01	28.1	0.172	39.9	5.426	3.10	6.3546	21.5	3.377	3.271	43.210	39.939	41.57	1.64	1.082	6.0
0:06:13	28.2	0.178	40.0	5.420	3.21	6.3616	21.5	3.382	3.272	43.257	39.985	41.62	1.64	1.082	6.2
0:06:25	28.4	0.184	40.0	5.414	3.32	6.3688	21.8	3.417	3.303	43.298	39.995	41.65	1.65	1.083	6.4
0:06:35	28.6	0.188	40.2	5.409	3.40	6.3744	21.9	3.437	3.320	43.489	40.169	41.83	1.66	1.083	6.6
0:06:47	28.8	0.195	40.1	5.403	3.51	6.3816	22.1	3.465	3.345	43.431	40.086	41.76	1.67	1.083	6.8
0:06:59	29.3	0.201	40.1	5.397	3.62	6.3887	22.6	3.536	3.412	43.476	40.063	41.77	1.71	1.085	7.0
0:07:09	29.6	0.205	40.1	5.393	3.70	6.3944	22.9	3.579	3.452	43.562	40.110	41.84	1.73	1.086	7.2
0:07:21	29.5	0.211	40.1	5.387	3.81	6.4013	22.8	3.567	3.436	43.490	40.054	41.77	1.72	1.086	7.4
0:07:34	29.8	0.217	40.1	5.381	3.92	6.4086	23.1	3.602	3.468	43.518	40.050	41.78	1.73	1.087	7.6
0:07:43	30.0	0.222	40.0	5.376	4.00	6.4143	23.3	3.636	3.498	43.469	39.971	41.72	1.75	1.088	7.7
0:07:55	30.0	0.228	40.0	5.370	4.11	6.4214	23.3	3.634	3.493	43.519	40.027	41.77	1.75	1.087	7.9
0:08:08	30.5	0.234	40.2	5.364	4.22	6.4287	23.8	3.698	3.554	43.711	40.157	41.93	1.78	1.088	8.1
0:08:17	30.5	0.239	40.0	5.359	4.30	6.4343	23.8	3.696	3.549	43.546	39.997	41.77	1.77	1.089	8.3
0:08:30	30.7	0.245	40.0	5.353	4.41	6.4415	24.0	3.733	3.582	43.606	40.024	41.82	1.79	1.089	8.5
0:08:42	31.1	0.251	40.0	5.347	4.52	6.4487	24.4	3.787	3.633	43.647	40.015	41.83	1.82	1.091	8.7
0:08:54	31.3	0.257	40.1	5.341	4.62	6.4558	24.6	3.815	3.656	43.776	40.120	41.95	1.83	1.091	8.9
0:09:04	31.4	0.261	40.0	5.337	4.70	6.4614	24.7	3.829	3.668	43.648	39.980	41.81	1.83	1.092	9.1
0:09:16	31.9	0.267	40.1	5.331	4.81	6.4687	25.2	3.901	3.736	43.819	40.083	41.95	1.87	1.093	9.3
0:09:28	31.9	0.273	40.0	5.325	4.92	6.4759	25.2	3.896	3.727	43.764	40.037	41.90	1.86	1.093	9.5
0:09:38	31.9	0.278	40.1	5.320	5.00	6.4817	25.2	3.887	3.716	43.835	40.119	41.98	1.86	1.093	9.6
0:09:50	32.3	0.284	40.0	5.314	5.11	6.4889	25.7	3.955	3.780	43.817	40.037	41.93	1.89	1.094	9.8
0:10:02	32.3	0.290	40.1	5.308	5.21	6.4962	25.6	3.946	3.768	43.826	40.058	41.94	1.88	1.094	10.0
0:10:14	32.7	0.296	40.0	5.302	5.32	6.5034	26.1	4.006	3.824	43.821	39.997	41.91	1.91	1.096	10.2
0:10:24	32.7	0.300	40.1	5.297	5.40	6.5091	26.0	3.994	3.808	43.865	40.056	41.96	1.90	1.095	10.4
0:10:36	33.0	0.306	40.1	5.292	5.51	6.5164	26.3	4.034	3.845	43.917	40.072	41.99	1.92	1.096	10.6

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6421 (in.)
Dia. avg.	3.188 (in.)
Area avg.	7.9806 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351C
Data File ID	UU-351C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:49	33.2	0.312	40.0	5.286	5.61	6.5237	26.5	4.069	3.876	43.877	40.001	41.94	1.94	1.097	10.8
0:11:01	33.2	0.318	40.0	5.280	5.72	6.5310	26.5	4.058	3.862	43.862	40.000	41.93	1.93	1.097	11.0
0:11:10	33.6	0.323	40.1	5.275	5.80	6.5369	26.9	4.122	3.923	44.003	40.079	42.04	1.96	1.098	11.2
0:11:23	33.7	0.329	40.0	5.269	5.91	6.5441	27.0	4.126	3.924	43.915	39.991	41.95	1.96	1.098	11.4
0:11:35	33.8	0.335	40.0	5.263	6.01	6.5515	27.2	4.147	3.941	43.984	40.043	42.01	1.97	1.098	11.6
0:11:47	34.1	0.341	40.0	5.257	6.12	6.5588	27.4	4.182	3.972	43.961	39.990	41.98	1.99	1.099	11.8
0:11:57	34.0	0.345	40.0	5.253	6.20	6.5647	27.3	4.159	3.947	43.903	39.956	41.93	1.97	1.099	12.0
0:12:09	34.4	0.351	40.1	5.247	6.31	6.5721	27.7	4.216	3.999	44.074	40.075	42.07	2.00	1.100	12.2
0:12:21	34.6	0.357	40.0	5.241	6.41	6.5794	27.9	4.245	4.025	44.012	39.987	42.00	2.01	1.101	12.4
0:12:33	34.6	0.363	40.0	5.235	6.52	6.5868	27.9	4.236	4.013	44.062	40.049	42.06	2.01	1.100	12.6
0:12:43	34.9	0.368	40.0	5.230	6.60	6.5928	28.2	4.283	4.057	44.091	40.034	42.06	2.03	1.101	12.7
0:12:55	35.4	0.374	40.0	5.224	6.71	6.6002	28.7	4.345	4.115	44.163	40.047	42.10	2.06	1.103	12.9
0:13:07	35.3	0.379	40.2	5.219	6.81	6.6076	28.6	4.329	4.095	44.262	40.167	42.21	2.05	1.102	13.1
0:13:20	35.6	0.385	40.1	5.213	6.92	6.6152	28.9	4.371	4.134	44.227	40.093	42.16	2.07	1.103	13.3
0:13:29	35.6	0.390	40.1	5.208	7.00	6.6212	28.9	4.372	4.132	44.258	40.126	42.19	2.07	1.103	13.5
0:13:42	35.9	0.396	40.0	5.202	7.11	6.6287	29.2	4.410	4.166	44.208	40.042	42.13	2.08	1.104	13.7
0:13:54	36.1	0.402	40.0	5.196	7.22	6.6364	29.5	4.439	4.192	44.171	39.979	42.08	2.10	1.105	13.9
0:14:06	36.6	0.408	40.0	5.190	7.32	6.6439	29.9	4.503	4.252	44.243	39.991	42.12	2.13	1.106	14.1
0:14:16	36.9	0.413	40.0	5.185	7.41	6.6500	30.2	4.539	4.285	44.325	40.040	42.18	2.14	1.107	14.3
0:14:28	36.7	0.419	40.1	5.179	7.51	6.6576	30.0	4.506	4.248	44.372	40.124	42.25	2.12	1.106	14.5
0:14:40	37.4	0.425	40.1	5.173	7.62	6.6653	30.7	4.606	4.345	44.417	40.072	42.24	2.17	1.108	14.7
0:14:50	37.1	0.429	39.9	5.169	7.70	6.6714	30.4	4.562	4.298	44.234	39.936	42.09	2.15	1.108	14.8
0:15:02	37.3	0.435	40.0	5.163	7.81	6.6791	30.7	4.590	4.323	44.344	40.021	42.18	2.16	1.108	15.0
0:15:14	37.7	0.441	40.0	5.157	7.92	6.6868	31.0	4.643	4.372	44.394	40.022	42.21	2.19	1.109	15.2
0:15:26	38.0	0.447	40.1	5.151	8.02	6.6945	31.4	4.685	4.410	44.485	40.075	42.28	2.20	1.110	15.4
0:15:36	38.2	0.452	40.1	5.146	8.11	6.7007	31.6	4.710	4.432	44.497	40.065	42.28	2.22	1.111	15.6
0:15:48	38.3	0.458	40.0	5.140	8.21	6.7085	31.6	4.708	4.427	44.416	39.990	42.20	2.21	1.111	15.8
0:16:01	38.4	0.464	39.9	5.134	8.32	6.7161	31.7	4.722	4.437	44.365	39.928	42.15	2.22	1.111	16.0
0:16:10	38.7	0.468	40.0	5.129	8.40	6.7223	32.0	4.759	4.471	44.514	40.044	42.28	2.24	1.112	16.2
0:16:22	38.9	0.474	40.1	5.124	8.51	6.7300	32.2	4.782	4.491	44.565	40.074	42.32	2.25	1.112	16.4
0:16:35	38.9	0.480	40.1	5.118	8.61	6.7377	32.2	4.781	4.486	44.629	40.143	42.39	2.24	1.112	16.6
0:16:47	39.1	0.486	40.0	5.112	8.72	6.7455	32.4	4.806	4.507	44.516	40.008	42.26	2.25	1.113	16.8
0:16:57	39.5	0.491	40.0	5.107	8.80	6.7517	32.8	4.856	4.554	44.515	39.961	42.24	2.28	1.114	17.0
0:17:09	39.6	0.497	40.1	5.101	8.91	6.7595	33.0	4.875	4.570	44.651	40.081	42.37	2.28	1.114	17.2
0:17:21	39.7	0.502	40.1	5.095	9.01	6.7672	33.0	4.872	4.563	44.638	40.075	42.36	2.28	1.114	17.4
0:17:33	39.8	0.508	40.1	5.090	9.11	6.7750	33.1	4.883	4.570	44.644	40.074	42.36	2.29	1.114	17.6
0:17:45	39.9	0.514	40.1	5.084	9.22	6.7829	33.2	4.900	4.584	44.732	40.148	42.44	2.29	1.114	17.8
0:17:55	40.4	0.519	40.0	5.079	9.30	6.7891	33.7	4.969	4.651	44.699	40.049	42.37	2.33	1.116	17.9
0:18:07	40.3	0.525	40.1	5.073	9.41	6.7969	33.7	4.951	4.629	44.701	40.072	42.39	2.31	1.116	18.1
0:18:20	40.7	0.531	40.0	5.067	9.51	6.8047	34.1	5.005	4.679	44.724	40.046	42.38	2.34	1.117	18.3
0:18:32	40.7	0.536	40.1	5.062	9.61	6.8125	34.1	5.000	4.670	44.748	40.078	42.41	2.34	1.117	18.5
0:18:44	41.1	0.542	40.0	5.056	9.72	6.8204	34.4	5.041	4.708	44.716	40.008	42.36	2.35	1.118	18.7
0:18:54	41.1	0.547	39.9	5.051	9.80	6.8267	34.4	5.042	4.706	44.617	39.911	42.26	2.35	1.118	18.9
0:19:06	41.3	0.553	40.1	5.045	9.91	6.8345	34.6	5.068	4.729	44.816	40.087	42.45	2.36	1.118	19.1
0:19:18	41.3	0.558	40.1	5.040	10.01	6.8424	34.6	5.064	4.721	44.865	40.145	42.51	2.36	1.118	19.3
0:19:30	41.7	0.564	40.1	5.034	10.11	6.8501	35.0	5.111	4.764	44.834	40.070	42.45	2.38	1.119	19.5
0:19:42	42.1	0.570	40.0	5.028	10.21	6.8581	35.4	5.161	4.810	44.856	40.046	42.45	2.41	1.120	19.7
0:19:55	42.2	0.576	40.0	5.022	10.32	6.8660	35.5	5.176	4.822	44.872	40.050	42.46	2.41	1.120	19.9
0:20:04	42.2	0.580	39.9	5.018	10.40	6.8723	35.5	5.163	4.807	44.737	39.930	42.33	2.40	1.120	20.1
0:20:17	42.4	0.586	39.9	5.012	10.51	6.8803	35.8	5.199	4.838	44.788	39.950	42.37	2.42	1.121	20.3
0:20:29	42.7	0.592	40.1	5.006	10.61	6.8884	36.0	5.232	4.868	44.930	40.062	42.50	2.43	1.122	20.5
0:20:41	42.7	0.598	40.0	5.000	10.71	6.8964	36.1	5.229	4.862	44.856	39.995	42.43	2.43	1.122	20.7
0:20:53	43.0	0.604	39.8	4.994	10.82	6.9044	36.3	5.253	4.882	44.707	39.825	42.27	2.44	1.123	20.9
0:21:03	43.2	0.609	40.0	4.989	10.90	6.9110	36.5	5.278	4.904	44.891	39.986	42.44	2.45	1.123	21.1
0:21:15	43.3	0.614	40.0	4.984	11.01	6.9192	36.6	5.296	4.918	44.879	39.961	42.42	2.46	1.123	21.3
0:21:27	43.5	0.620	40.0	4.978	11.11	6.9273	36.8	5.311	4.930	44.958	40.027	42.49	2.47	1.123	21.5

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.6421 (in.)
Dia. avg.	3.188 (in.)
Area avg.	7.9806 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351C
Data File ID	UU-351C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:21:39	43.5	0.626	40.0	4.972	11.22	6.9355	36.9	5.313	4.929	44.886	39.958	42.42	2.46	1.123	21.7
0:21:49	43.9	0.631	40.1	4.967	11.30	6.9421	37.2	5.357	4.969	45.035	40.066	42.55	2.48	1.124	21.8
0:22:01	43.9	0.637	40.0	4.961	11.41	6.9503	37.3	5.360	4.969	45.001	40.031	42.52	2.48	1.124	22.0
0:22:14	44.0	0.643	40.2	4.955	11.51	6.9586	37.3	5.366	4.971	45.131	40.160	42.65	2.49	1.124	22.2
0:22:26	44.4	0.649	40.0	4.949	11.62	6.9669	37.7	5.410	5.012	45.047	40.035	42.54	2.51	1.125	22.4
0:22:36	44.4	0.653	40.0	4.945	11.70	6.9735	37.7	5.409	5.008	45.000	39.992	42.50	2.50	1.125	22.6
0:22:48	44.6	0.659	40.0	4.939	11.81	6.9820	38.0	5.438	5.033	45.063	40.030	42.55	2.52	1.126	22.8
0:23:00	44.9	0.665	40.1	4.933	11.91	6.9903	38.2	5.463	5.054	45.159	40.105	42.63	2.53	1.126	23.0
0:23:12	45.0	0.671	40.1	4.927	12.02	6.9987	38.3	5.470	5.058	45.129	40.072	42.60	2.53	1.126	23.2
0:23:22	45.2	0.676	40.1	4.922	12.10	7.0055	38.5	5.503	5.088	45.145	40.057	42.60	2.54	1.127	23.4
0:23:34	45.3	0.682	40.1	4.916	12.21	7.0140	38.6	5.500	5.081	45.149	40.068	42.61	2.54	1.127	23.6
0:23:46	45.4	0.688	40.0	4.910	12.32	7.0225	38.7	5.514	5.092	45.130	40.038	42.58	2.55	1.127	23.8
0:23:56	45.6	0.693	40.1	4.905	12.40	7.0294	38.9	5.530	5.105	45.199	40.094	42.65	2.55	1.127	23.9
0:24:08	46.0	0.699	40.0	4.899	12.51	7.0380	39.4	5.592	5.163	45.168	40.005	42.59	2.58	1.129	24.1
0:24:20	46.0	0.705	40.1	4.893	12.62	7.0466	39.4	5.585	5.152	45.260	40.107	42.68	2.58	1.128	24.3
0:24:30	46.0	0.709	40.0	4.889	12.70	7.0536	39.3	5.572	5.136	45.127	39.991	42.56	2.57	1.128	24.5
0:24:42	46.2	0.715	40.1	4.883	12.81	7.0622	39.5	5.595	5.156	45.232	40.076	42.65	2.58	1.129	24.7
0:24:54	46.6	0.721	39.9	4.877	12.92	7.0709	39.9	5.646	5.203	45.120	39.917	42.52	2.60	1.130	24.9
0:25:04	46.6	0.726	40.1	4.872	13.00	7.0779	39.9	5.633	5.187	45.289	40.102	42.70	2.59	1.129	25.1
0:25:16	46.9	0.732	40.1	4.866	13.11	7.0865	40.2	5.673	5.223	45.320	40.097	42.71	2.61	1.130	25.3
0:25:29	46.9	0.738	40.0	4.860	13.22	7.0952	40.2	5.664	5.211	45.229	40.018	42.62	2.61	1.130	25.5
0:25:38	47.0	0.743	40.1	4.855	13.30	7.1022	40.4	5.683	5.227	45.326	40.099	42.71	2.61	1.130	25.6
0:25:51	47.1	0.749	40.0	4.849	13.41	7.1109	40.4	5.679	5.219	45.255	40.036	42.65	2.61	1.130	25.9
0:26:03	47.5	0.755	40.0	4.843	13.51	7.1197	40.8	5.735	5.272	45.277	40.005	42.64	2.64	1.132	26.1
0:26:15	47.6	0.761	40.0	4.837	13.62	7.1284	40.9	5.741	5.274	45.282	40.007	42.64	2.64	1.132	26.3
0:26:25	47.9	0.765	40.0	4.832	13.71	7.1355	41.2	5.772	5.302	45.348	40.046	42.70	2.65	1.132	26.4
0:26:37	48.0	0.771	40.0	4.827	13.81	7.1441	41.4	5.788	5.315	45.313	39.999	42.66	2.66	1.133	26.6
0:26:49	48.0	0.777	40.1	4.821	13.92	7.1529	41.3	5.774	5.297	45.365	40.068	42.72	2.65	1.132	26.8
0:26:59	48.3	0.782	40.0	4.816	14.00	7.1600	41.7	5.819	5.339	45.356	40.017	42.69	2.67	1.133	27.0
0:27:11	48.4	0.788	39.9	4.810	14.11	7.1688	41.7	5.814	5.330	45.226	39.896	42.56	2.67	1.134	27.2
0:27:23	48.5	0.794	40.1	4.804	14.21	7.1777	41.8	5.829	5.342	45.427	40.086	42.76	2.67	1.133	27.4
0:27:35	48.6	0.800	40.0	4.798	14.32	7.1865	41.9	5.832	5.341	45.377	40.035	42.71	2.67	1.133	27.6
0:27:45	48.7	0.805	40.0	4.793	14.40	7.1936	42.0	5.842	5.348	45.397	40.049	42.72	2.67	1.134	27.8
0:27:57	48.8	0.810	40.0	4.787	14.51	7.2025	42.2	5.853	5.356	45.371	40.016	42.69	2.68	1.134	28.0
0:28:09	49.2	0.816	40.1	4.782	14.61	7.2114	42.5	5.890	5.389	45.455	40.066	42.76	2.69	1.135	28.2
0:28:22	49.3	0.822	39.9	4.776	14.72	7.2204	42.6	5.900	5.395	45.333	39.938	42.64	2.70	1.135	28.4
0:28:31	49.4	0.827	40.0	4.771	14.81	7.2277	42.7	5.908	5.400	45.386	39.986	42.69	2.70	1.135	28.5
0:28:44	49.6	0.833	39.9	4.765	14.91	7.2367	42.9	5.928	5.417	45.344	39.927	42.64	2.71	1.136	28.7
0:28:56	49.6	0.839	40.0	4.759	15.02	7.2458	42.9	5.924	5.409	45.435	40.026	42.73	2.70	1.135	28.9
0:29:06	49.8	0.844	40.1	4.754	15.10	7.2529	43.1	5.945	5.427	45.535	40.108	42.82	2.71	1.135	29.1
0:29:18	50.1	0.850	40.1	4.748	15.21	7.2621	43.4	5.978	5.456	45.512	40.056	42.78	2.73	1.136	29.3
0:29:30	50.0	0.856	40.0	4.742	15.32	7.2711	43.3	5.954	5.429	45.399	39.970	42.68	2.71	1.136	29.5
0:29:40	50.1	0.860	40.0	4.738	15.40	7.2784	43.4	5.962	5.434	45.434	39.999	42.72	2.72	1.136	29.7
0:29:52	50.5	0.866	39.9	4.732	15.51	7.2876	43.8	6.015	5.484	45.433	39.949	42.69	2.74	1.137	29.9
0:30:04	50.5	0.872	40.0	4.726	15.61	7.2965	43.8	6.003	5.467	45.484	40.016	42.75	2.73	1.137	30.1
0:30:16	50.4	0.878	40.0	4.720	15.72	7.3057	43.7	5.980	5.442	45.459	40.017	42.74	2.72	1.136	30.3
0:30:26	50.6	0.883	40.0	4.715	15.80	7.3130	43.9	6.001	5.459	45.411	39.951	42.68	2.73	1.137	30.4
0:30:38	50.8	0.889	40.1	4.709	15.91	7.3222	44.1	6.025	5.479	45.547	40.068	42.81	2.74	1.137	30.6
0:30:50	50.7	0.895	39.9	4.703	16.01	7.3314	44.0	6.008	5.459	45.408	39.948	42.68	2.73	1.137	30.8
0:31:03	50.8	0.901	40.0	4.697	16.12	7.3408	44.1	6.009	5.457	45.474	40.018	42.75	2.73	1.136	31.1
0:31:12	51.1	0.905	40.0	4.693	16.20	7.3483	44.5	6.050	5.495	45.462	39.967	42.71	2.75	1.137	31.2
0:31:24	51.3	0.911	40.1	4.686	16.31	7.3578	44.6	6.066	5.507	45.615	40.108	42.86	2.75	1.137	31.4
0:31:37	51.5	0.918	40.1	4.680	16.42	7.3672	44.8	6.085	5.522	45.573	40.052	42.81	2.76	1.138	31.6
0:31:46	51.5	0.922	40.1	4.676	16.51	7.3748	44.9	6.083	5.517	45.570	40.053	42.81	2.76	1.138	31.8
0:31:59	51.9	0.928	40.1	4.670	16.61	7.3843	45.2	6.122	5.552	45.637	40.085	42.86	2.78	1.139	32.0
0:32:11	52.2	0.934	40.1	4.664	16.72	7.3938	45.5	6.155	5.582	45.681	40.100	42.89	2.79	1.139	32.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.600 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.6421 (in.)
Dia. avg.	3.188 (in)
Area avg.	7.9806 (in ²)

Tested By	KDG
Date	6-11-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-351C
Data File ID	UU-351C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:32:21	52.3	0.939	40.1	4.659	16.81	7.4013	45.6	6.159	5.583	45.656	40.073	42.86	2.79	1.139	32.4
0:32:33	52.4	0.945	40.1	4.653	16.91	7.4109	45.8	6.174	5.594	45.720	40.126	42.92	2.80	1.139	32.6
0:32:45	52.5	0.951	40.1	4.647	17.02	7.4206	45.8	6.174	5.590	45.730	40.140	42.94	2.80	1.139	32.8
0:32:55	52.9	0.956	40.1	4.642	17.11	7.4281	46.2	6.218	5.631	45.685	40.054	42.87	2.82	1.141	32.9

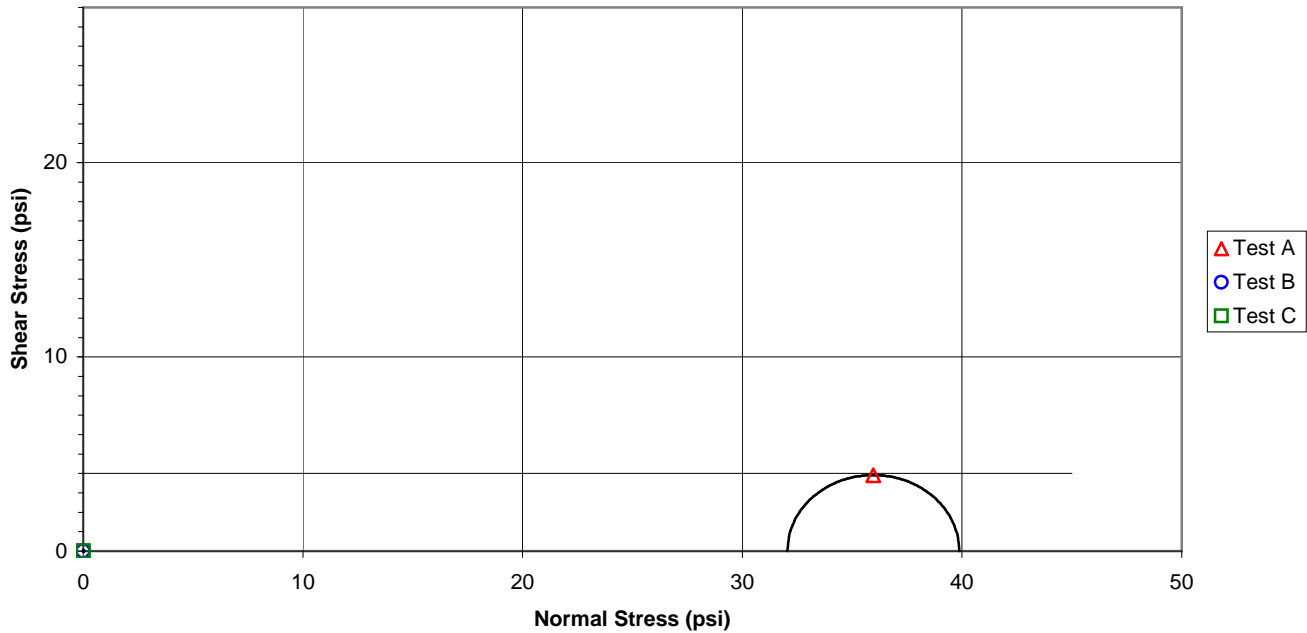
Project John Siever Fossil Plant
 Sample ID JS-36A-SV, 39.7' - 40.2'

Project No. 175569038
 Test Number 1017A

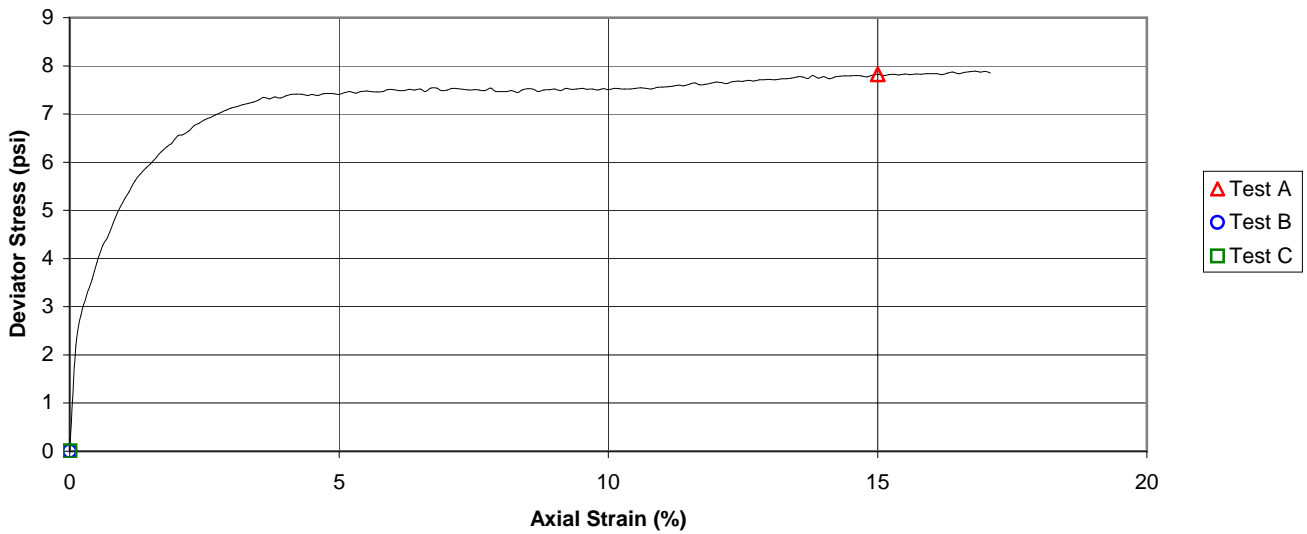
Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

$c = 4.0 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-36A-SV, 39.7' - 40.2'</u>			Test Number	<u>UU-1017A</u>
Visual Description	<u>Silt (ML), (fly ash), dark gray, moist, firm</u>			Prepared By	<u>CM</u>
Undisturbed	Source	<u>JS-36A-SV, 39.5' - 41.5'</u>		Date	<u>6-17-09</u>
Specific Gravity	<u>2.68</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.860</u>	1 <u>6.069</u>	Sample <u>39.1223</u> (V _o)	Wet Weight (g) <u>1183.70</u>
Middle <u>2.864</u>	2 <u>6.064</u>	Solids <u>19.8049</u> (VS _o)	Dry Weight (g) <u>869.83</u>
Bottom <u>2.869</u>	3 <u>6.085</u>	Water <u>19.1521</u> (Vw _o)	Wet Unit Weight (pcf) <u>115.3</u>
Avg. <u>2.8643</u> (D _o)	4 <u>6.069</u>	Voids <u>19.3173</u> (Vv _o)	Dry Unit Weight (pcf) <u>84.7</u>
Area (in ²) <u>6.4437</u> (A _o)	Avg. (H _o) <u>6.0714</u>	Degree of Saturation (%) <u>99.1</u> (S _o)	
Moisture Content (%) <u>36.1</u>	Final Trimmings	Void Ratio <u>0.975</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-25-09</u>
			Panel Board Number	<u>E</u>

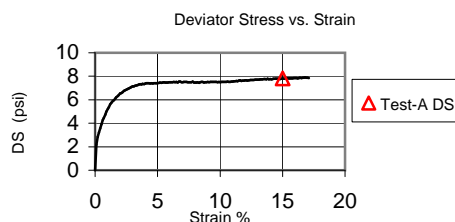
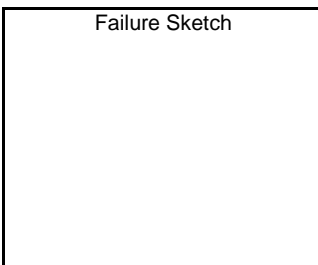
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0714</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4437</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>39.1223</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>32</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>32</u> (σ ₃)
Height (in.) <u>6.0714</u> (H _c)		Volume (in ³) <u>39.1223</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.4437</u> (A _c)		Volume - Water (in ³) <u>19.1521</u> (VW _c)	
Diameter (in.) <u>2.8643</u> (D _c)		Water Content (%) <u>36.1</u>	
Dry Density (pcf) <u>84.7</u>		Degree of Saturation (%) <u>99.1</u> (S _c)	Void Ratio <u>0.975</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.31</u> (in.)	Wet Weight (g) <u>1183.70</u>	Corrected Deviator <u>7.83</u> σ _d (psi)
Wet weight (g) <u>1183.7</u> (WW _f)	Dry Weight (g) <u>869.83</u>	Major Principal <u>39.88</u> σ _{1f} (psi)
Average Diameter <u>3.147</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>32.05</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.169</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.00</u>
		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1017AB</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.68</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

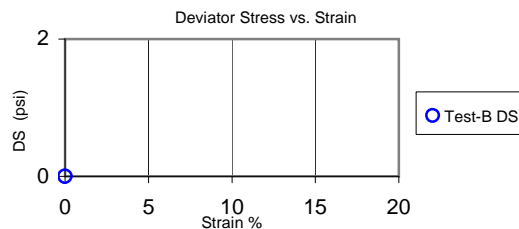
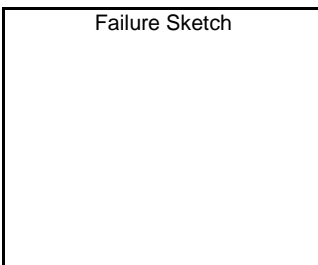
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name John Siever Fossil Plant Project Number 175569038
 Sample Identification _____ Test Number UU-1017AC
 Visual Description _____ Prepared By _____
 Undisturbed Source 0 Date _____
 Specific Gravity 2.68 #REF! Liquid Limit N/A Plastic Limit N/A Plasticity Index N/A

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By _____
 Back Pressure Saturated to: _____ (psi) Final Pore Pressure Parameter B _____ Date _____
 Panel Board Number _____

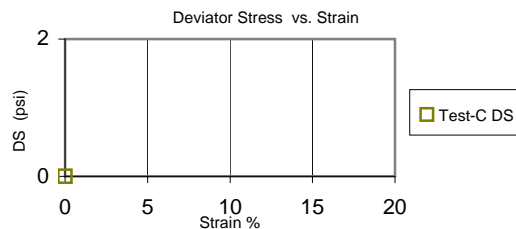
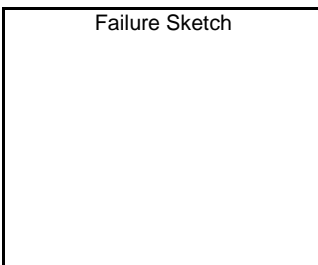
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	6.071 (in.)
Diameter	2.864 (in.)
Area	6.444 (in ²)

Final Values	
Height	5.0334 (in.)
Dia. avg.	3.147 (in)
Area avg.	7.7783 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-1017AA
Data File ID	UU-1017A
Back Pressure (psi)	0
Lateral Pressure (psi)	32

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	13.0	-0.002	32.1	6.071	0.00	6.4437	0.0	0.000	0.000	32.071	32.071	32.07	0.00	1.000	0.0
0:00:22	27.2	0.004	32.1	6.064	0.11	6.4511	14.1	2.192	2.189	34.294	32.105	33.20	1.09	1.068	0.4
0:00:37	31.3	0.010	32.0	6.059	0.21	6.4571	18.3	2.833	2.826	34.785	31.959	33.37	1.41	1.088	0.6
0:00:54	33.9	0.016	32.0	6.053	0.31	6.4637	20.9	3.235	3.224	35.273	32.049	33.66	1.61	1.101	0.9
0:01:11	36.2	0.023	32.0	6.046	0.41	6.4705	23.2	3.580	3.567	35.610	32.043	33.83	1.78	1.111	1.2
0:01:25	38.5	0.028	31.9	6.041	0.50	6.4763	25.5	3.935	3.918	35.777	31.859	33.82	1.96	1.123	1.4
0:01:43	40.9	0.035	32.1	6.034	0.61	6.4833	27.8	4.295	4.274	36.326	32.052	34.19	2.14	1.133	1.7
0:01:57	42.0	0.040	32.1	6.029	0.70	6.4892	28.9	4.460	4.436	36.585	32.148	34.37	2.22	1.138	2.0
0:02:14	44.0	0.047	32.0	6.022	0.81	6.4964	31.0	4.767	4.740	36.738	31.998	34.37	2.37	1.148	2.2
0:02:29	45.7	0.052	32.0	6.017	0.90	6.5025	32.7	5.028	4.998	37.000	32.002	34.50	2.50	1.156	2.5
0:02:46	47.3	0.059	32.0	6.010	1.02	6.5098	34.3	5.265	5.231	37.192	31.961	34.58	2.62	1.164	2.8
0:03:01	48.3	0.064	31.9	6.004	1.10	6.5155	35.3	5.416	5.379	37.235	31.855	34.54	2.69	1.169	3.0
0:03:18	49.9	0.071	32.0	5.998	1.21	6.5227	36.9	5.651	5.611	37.588	31.978	34.78	2.81	1.175	3.3
0:03:32	50.8	0.077	32.0	5.992	1.30	6.5288	37.8	5.786	5.742	37.781	32.039	34.91	2.87	1.179	3.5
0:03:50	51.8	0.083	32.1	5.985	1.41	6.5362	38.7	5.927	5.880	37.940	32.060	35.00	2.94	1.183	3.8
0:04:04	52.4	0.089	32.0	5.980	1.50	6.5420	39.4	6.021	5.971	37.949	31.978	34.96	2.99	1.187	4.1
0:04:21	53.4	0.095	31.9	5.974	1.61	6.5490	40.3	6.159	6.105	38.049	31.944	35.00	3.05	1.191	4.4
0:04:36	54.2	0.101	32.1	5.968	1.70	6.5552	41.1	6.277	6.220	38.310	32.090	35.20	3.11	1.194	4.6
0:04:53	54.9	0.107	32.1	5.962	1.81	6.5623	41.9	6.381	6.320	38.416	32.096	35.26	3.16	1.197	4.9
0:05:08	55.5	0.113	32.1	5.956	1.90	6.5687	42.5	6.469	6.405	38.509	32.103	35.31	3.20	1.200	5.1
0:05:25	56.5	0.119	32.1	5.949	2.01	6.5758	43.5	6.613	6.546	38.624	32.078	35.35	3.27	1.204	5.4
0:05:40	56.7	0.125	32.0	5.944	2.10	6.5819	43.7	6.640	6.570	38.586	32.017	35.30	3.28	1.205	5.7
0:05:57	57.3	0.131	32.0	5.937	2.21	6.5890	44.3	6.718	6.644	38.655	32.011	35.33	3.32	1.208	6.0
0:06:14	58.1	0.138	32.1	5.931	2.31	6.5962	45.1	6.837	6.759	38.830	32.071	35.45	3.38	1.211	6.2
0:06:28	58.5	0.143	32.1	5.926	2.40	6.6022	45.5	6.890	6.809	38.911	32.102	35.51	3.40	1.212	6.5
0:06:46	59.0	0.150	32.2	5.919	2.51	6.6096	46.0	6.962	6.878	39.035	32.157	35.60	3.44	1.214	6.8
0:07:03	59.5	0.156	32.0	5.913	2.61	6.6167	46.4	7.017	6.930	38.976	32.046	35.51	3.46	1.216	7.1
0:07:17	59.9	0.162	32.0	5.907	2.71	6.6229	46.8	7.072	6.981	38.964	31.983	35.47	3.49	1.218	7.3
0:07:34	60.3	0.168	32.0	5.901	2.81	6.6300	47.3	7.129	7.035	39.027	31.992	35.51	3.52	1.220	7.6
0:07:49	60.7	0.174	32.1	5.895	2.90	6.6364	47.6	7.179	7.082	39.210	32.128	35.67	3.54	1.220	7.8
0:08:06	61.0	0.180	32.0	5.889	3.01	6.6436	48.0	7.228	7.128	39.120	31.992	35.56	3.56	1.223	8.1
0:08:21	61.3	0.186	32.0	5.883	3.10	6.6498	48.3	7.256	7.152	39.164	32.012	35.59	3.58	1.223	8.4
0:08:38	61.6	0.192	32.1	5.877	3.21	6.6572	48.6	7.303	7.196	39.258	32.062	35.66	3.60	1.224	8.6
0:08:55	61.9	0.199	32.1	5.870	3.31	6.6645	48.9	7.331	7.220	39.272	32.052	35.66	3.61	1.225	8.9
0:09:10	62.1	0.204	32.1	5.865	3.40	6.6708	49.1	7.360	7.246	39.296	32.050	35.67	3.62	1.226	9.2
0:09:27	62.5	0.211	32.0	5.858	3.51	6.6783	49.5	7.411	7.293	39.300	32.007	35.65	3.65	1.228	9.5
0:09:41	62.9	0.216	32.0	5.853	3.60	6.6845	49.9	7.464	7.343	39.377	32.034	35.71	3.67	1.229	9.7
0:09:58	62.8	0.223	32.1	5.846	3.71	6.6920	49.8	7.440	7.316	39.417	32.102	35.76	3.66	1.228	10.0
0:10:13	63.1	0.228	32.0	5.841	3.80	6.6983	50.1	7.482	7.355	39.338	31.984	35.66	3.68	1.230	10.2
0:10:30	63.1	0.235	32.0	5.834	3.91	6.7057	50.0	7.464	7.333	39.337	32.004	35.67	3.67	1.229	10.5
0:10:47	63.5	0.241	31.9	5.828	4.01	6.7132	50.5	7.516	7.382	39.330	31.948	35.64	3.69	1.231	10.8
0:11:02	63.7	0.247	32.1	5.822	4.11	6.7196	50.7	7.543	7.405	39.534	32.129	35.83	3.70	1.230	11.0
0:11:19	63.8	0.253	32.0	5.816	4.21	6.7271	50.8	7.554	7.413	39.383	31.971	35.68	3.71	1.232	11.3
0:11:34	63.9	0.259	32.1	5.810	4.30	6.7335	50.9	7.554	7.410	39.483	32.073	35.78	3.71	1.231	11.6
0:11:51	63.8	0.265	31.9	5.804	4.41	6.7410	50.8	7.535	7.387	39.328	31.941	35.63	3.69	1.231	11.9
0:12:05	64.0	0.271	32.0	5.798	4.50	6.7474	51.0	7.556	7.405	39.382	31.977	35.68	3.70	1.232	12.1
0:12:22	63.9	0.277	32.0	5.792	4.61	6.7550	50.9	7.538	7.383	39.417	32.034	35.73	3.69	1.230	12.4
0:12:37	64.2	0.283	32.0	5.786	4.70	6.7614	51.2	7.576	7.418	39.464	32.046	35.76	3.71	1.231	12.6
0:12:54	64.4	0.289	31.9	5.780	4.81	6.7691	51.3	7.585	7.424	39.313	31.889	35.60	3.71	1.233	12.9
0:13:11	64.4	0.296	32.2	5.773	4.91	6.7767	51.4	7.587	7.422	39.602	32.180	35.89	3.71	1.231	13.2
0:13:26	64.4	0.301	32.0	5.768	5.00	6.7832	51.4	7.577	7.409	39.380	31.971	35.68	3.70	1.232	13.4
0:13:43	64.7	0.308	32.0	5.761	5.11	6.7909	51.7	7.616	7.445	39.457	32.012	35.73	3.72	1.233	13.7
0:13:58	64.9	0.314	32.1	5.755	5.20	6.7975	51.9	7.637	7.463	39.611	32.148	35.88	3.73	1.232	14.0
0:14:15	64.8	0.320	32.0	5.749	5.31	6.8051	51.8	7.613	7.435	39.461	32.026	35.74	3.72	1.232	14.3
0:14:29	65.1	0.325	32.0	5.744	5.40	6.8115	52.1	7.644	7.463	39.470	32.007	35.74	3.73	1.233	14.5
0:14:46	65.3	0.332	32.0	5.737	5.51	6.8193	52.3	7.666	7.481	39.505	32.024	35.76	3.74	1.234	14.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.071 (in.)
Diameter	2.864 (in.)
Area	6.444 (in ²)

Final Values	
Height	5.0334 (in.)
Dia. avg.	3.147 (in.)
Area avg.	7.7783 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-1017AA
Data File ID	UU-1017A
Back Pressure (psi)	0
Lateral Pressure (psi)	32

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:01	65.3	0.337	32.1	5.731	5.60	6.8259	52.2	7.652	7.464	39.585	32.121	35.85	3.73	1.232	15.0
0:15:18	65.3	0.344	32.0	5.725	5.71	6.8336	52.3	7.650	7.459	39.500	32.042	35.77	3.73	1.233	15.3
0:15:35	65.4	0.350	32.0	5.719	5.81	6.8413	52.4	7.658	7.463	39.488	32.025	35.76	3.73	1.233	15.6
0:15:50	65.8	0.356	32.1	5.713	5.90	6.8480	52.7	7.701	7.503	39.560	32.057	35.81	3.75	1.234	15.8
0:16:07	65.9	0.362	32.0	5.707	6.01	6.8557	52.8	7.708	7.507	39.539	32.033	35.79	3.75	1.234	16.1
0:16:21	65.8	0.368	32.0	5.701	6.10	6.8625	52.8	7.693	7.489	39.488	32.000	35.74	3.74	1.234	16.4
0:16:39	65.9	0.374	32.1	5.694	6.21	6.8703	52.8	7.691	7.483	39.587	32.104	35.85	3.74	1.233	16.7
0:16:53	66.2	0.380	32.0	5.689	6.30	6.8770	53.1	7.726	7.515	39.538	32.023	35.78	3.76	1.235	16.9
0:17:10	66.1	0.386	32.2	5.682	6.41	6.8848	53.1	7.712	7.497	39.654	32.157	35.91	3.75	1.233	17.2
0:17:27	66.4	0.393	32.2	5.676	6.51	6.8925	53.3	7.739	7.521	39.709	32.188	35.95	3.76	1.234	17.5
0:17:42	66.1	0.398	32.0	5.670	6.60	6.8993	53.0	7.688	7.467	39.441	31.974	35.71	3.73	1.234	17.7
0:17:59	66.7	0.405	32.1	5.664	6.71	6.9071	53.6	7.765	7.540	39.643	32.103	35.87	3.77	1.235	18.0
0:18:16	66.7	0.411	32.1	5.658	6.81	6.9149	53.7	7.766	7.538	39.616	32.078	35.85	3.77	1.235	18.3
0:18:31	66.4	0.417	32.1	5.652	6.90	6.9217	53.4	7.715	7.483	39.598	32.114	35.86	3.74	1.233	18.5
0:18:48	66.6	0.423	32.1	5.646	7.01	6.9295	53.6	7.731	7.496	39.558	32.062	35.81	3.75	1.234	18.8
0:19:02	66.9	0.429	32.1	5.640	7.10	6.9362	53.9	7.771	7.533	39.648	32.115	35.88	3.77	1.235	19.0
0:19:20	66.9	0.435	32.0	5.634	7.21	6.9441	53.9	7.766	7.524	39.513	31.988	35.75	3.76	1.235	19.3
0:19:37	67.0	0.441	32.0	5.627	7.31	6.9520	54.0	7.760	7.515	39.494	31.979	35.74	3.76	1.235	19.6
0:19:51	66.9	0.447	32.0	5.622	7.40	6.9588	53.9	7.748	7.500	39.488	31.988	35.74	3.75	1.234	19.9
0:20:08	67.0	0.453	32.1	5.616	7.51	6.9668	54.0	7.754	7.502	39.621	32.119	35.87	3.75	1.234	20.1
0:20:23	67.1	0.459	32.1	5.610	7.60	6.9736	54.1	7.752	7.498	39.584	32.087	35.84	3.75	1.234	20.4
0:20:40	67.1	0.465	32.0	5.604	7.71	6.9817	54.1	7.746	7.488	39.527	32.039	35.78	3.74	1.234	20.7
0:20:57	67.5	0.472	31.9	5.597	7.81	6.9897	54.5	7.800	7.539	39.473	31.935	35.70	3.77	1.236	21.0
0:21:12	67.2	0.477	32.1	5.592	7.90	6.9965	54.1	7.737	7.472	39.595	32.123	35.86	3.74	1.233	21.2
0:21:29	67.2	0.484	32.2	5.585	8.01	7.0046	54.2	7.737	7.469	39.639	32.170	35.90	3.73	1.232	21.5
0:21:46	67.3	0.490	32.0	5.579	8.11	7.0127	54.3	7.737	7.465	39.496	32.031	35.76	3.73	1.233	21.8
0:22:01	67.5	0.496	32.0	5.573	8.20	7.0196	54.5	7.760	7.485	39.515	32.029	35.77	3.74	1.234	22.0
0:22:18	67.3	0.502	32.1	5.567	8.31	7.0277	54.3	7.724	7.446	39.580	32.134	35.86	3.72	1.232	22.3
0:22:32	67.8	0.508	32.1	5.561	8.40	7.0347	54.7	7.780	7.499	39.596	32.097	35.85	3.75	1.234	22.5
0:22:49	68.1	0.514	32.0	5.555	8.51	7.0429	55.0	7.813	7.528	39.540	32.012	35.78	3.76	1.235	22.8
0:23:06	68.0	0.520	32.1	5.548	8.61	7.0510	55.0	7.798	7.509	39.581	32.072	35.83	3.75	1.234	23.1
0:23:21	67.8	0.526	32.2	5.543	8.70	7.0579	54.8	7.758	7.467	39.697	32.230	35.96	3.73	1.232	23.4
0:23:38	68.1	0.532	32.1	5.537	8.81	7.0660	55.1	7.792	7.497	39.636	32.139	35.89	3.75	1.233	23.6
0:23:55	68.2	0.539	32.0	5.530	8.91	7.0742	55.2	7.801	7.503	39.516	32.014	35.77	3.75	1.234	23.9
0:24:10	68.4	0.544	32.1	5.525	9.00	7.0812	55.4	7.822	7.520	39.604	32.084	35.84	3.76	1.234	24.2
0:24:27	68.3	0.550	32.0	5.518	9.11	7.0894	55.2	7.792	7.487	39.531	32.044	35.79	3.74	1.234	24.5
0:24:44	68.7	0.557	32.0	5.512	9.21	7.0975	55.6	7.838	7.529	39.544	32.015	35.78	3.76	1.235	24.7
0:24:59	68.6	0.562	32.0	5.507	9.30	7.1046	55.6	7.822	7.510	39.499	31.989	35.74	3.76	1.235	25.0
0:25:16	68.7	0.569	32.2	5.500	9.41	7.1128	55.7	7.832	7.517	39.739	32.222	35.98	3.76	1.233	25.3
0:25:33	68.9	0.575	32.0	5.494	9.51	7.1211	55.9	7.848	7.529	39.548	32.018	35.78	3.76	1.235	25.6
0:25:47	68.9	0.581	32.1	5.488	9.60	7.1282	55.8	7.834	7.512	39.608	32.096	35.85	3.76	1.234	25.8
0:26:04	69.0	0.587	32.1	5.482	9.71	7.1365	56.0	7.842	7.516	39.579	32.063	35.82	3.76	1.234	26.1
0:26:22	68.9	0.593	32.1	5.476	9.81	7.1448	55.9	7.828	7.499	39.594	32.095	35.84	3.75	1.234	26.4
0:26:36	69.2	0.599	32.1	5.470	9.90	7.1518	56.2	7.856	7.524	39.627	32.103	35.87	3.76	1.234	26.6
0:26:53	69.2	0.605	32.0	5.464	10.01	7.1602	56.2	7.842	7.507	39.513	32.006	35.76	3.75	1.235	26.9
0:27:10	69.4	0.611	32.0	5.458	10.11	7.1685	56.4	7.868	7.529	39.553	32.023	35.79	3.76	1.235	27.2
0:27:25	69.5	0.617	32.0	5.452	10.20	7.1757	56.4	7.867	7.525	39.523	31.998	35.76	3.76	1.235	27.4
0:27:42	69.5	0.623	32.0	5.446	10.30	7.1840	56.5	7.862	7.516	39.532	32.015	35.77	3.76	1.235	27.7
0:27:59	69.6	0.629	32.0	5.440	10.41	7.1922	56.6	7.871	7.522	39.539	32.017	35.78	3.76	1.235	28.0
0:28:14	69.8	0.635	32.0	5.434	10.50	7.1996	56.8	7.885	7.533	39.583	32.050	35.82	3.77	1.235	28.2
0:28:31	70.0	0.641	32.2	5.428	10.60	7.2080	57.0	7.903	7.547	39.731	32.184	35.96	3.77	1.235	28.5
0:28:48	70.0	0.648	31.9	5.421	10.71	7.2165	56.9	7.891	7.533	39.442	31.909	35.68	3.77	1.236	28.8
0:29:03	70.0	0.653	32.1	5.416	10.80	7.2238	56.9	7.881	7.519	39.575	32.055	35.82	3.76	1.235	29.1
0:29:20	70.3	0.659	32.1	5.409	10.90	7.2322	57.3	7.917	7.551	39.618	32.067	35.84	3.78	1.235	29.3
0:29:37	70.4	0.666	31.9	5.403	11.01	7.2407	57.4	7.927	7.558	39.506	31.948	35.73	3.78	1.237	29.6
0:29:52	70.6	0.671	31.9	5.398	11.10	7.2481	57.5	7.939	7.567	39.481	31.914	35.70	3.78	1.237	29.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= 4(EM)(Thickness)(Strain)/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.071 (in.)
Diameter	2.864 (in.)
Area	6.444 (in ²)

Final Values	
Height	5.0334 (in.)
Dia. avg.	3.147 (in.)
Area avg.	7.7783 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	UU-1017AA
Data File ID	UU-1017A
Back Pressure (psi)	0
Lateral Pressure (psi)	32

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:09	70.8	0.678	32.1	5.391	11.20	7.2566	57.7	7.956	7.580	39.707	32.126	35.92	3.79	1.236	30.2
0:30:26	71.0	0.684	32.1	5.385	11.31	7.2653	58.0	7.976	7.597	39.742	32.145	35.94	3.80	1.236	30.4
0:30:40	70.9	0.690	32.1	5.379	11.40	7.2727	57.9	7.964	7.582	39.648	32.065	35.86	3.79	1.236	30.7
0:30:58	71.3	0.696	32.1	5.373	11.50	7.2814	58.3	8.002	7.616	39.685	32.069	35.88	3.81	1.238	31.0
0:31:15	71.6	0.702	32.2	5.366	11.61	7.2901	58.6	8.034	7.645	39.821	32.177	36.00	3.82	1.238	31.3
0:31:29	71.4	0.708	32.0	5.361	11.70	7.2977	58.4	7.998	7.606	39.653	32.048	35.85	3.80	1.237	31.5
0:31:46	71.6	0.714	32.0	5.354	11.81	7.3065	58.5	8.013	7.617	39.659	32.042	35.85	3.81	1.238	31.8
0:32:01	71.8	0.720	32.1	5.349	11.90	7.3141	58.8	8.037	7.638	39.766	32.128	35.95	3.82	1.238	32.0
0:32:18	72.1	0.726	32.2	5.343	12.00	7.3228	59.1	8.064	7.662	39.820	32.158	35.99	3.83	1.238	32.3
0:32:35	72.1	0.733	32.2	5.336	12.11	7.3315	59.1	8.056	7.650	39.837	32.186	36.01	3.83	1.238	32.6
0:32:50	72.0	0.738	32.0	5.331	12.20	7.3391	59.0	8.042	7.634	39.640	32.006	35.82	3.82	1.239	32.8
0:33:07	72.4	0.745	32.0	5.324	12.31	7.3480	59.4	8.082	7.670	39.687	32.017	35.85	3.83	1.240	33.1
0:33:24	72.6	0.751	32.0	5.318	12.41	7.3569	59.6	8.100	7.684	39.661	31.977	35.82	3.84	1.240	33.4
0:33:39	72.7	0.757	32.0	5.312	12.50	7.3646	59.6	8.098	7.679	39.710	32.031	35.87	3.84	1.240	33.7
0:33:56	72.9	0.763	32.1	5.306	12.61	7.3735	59.9	8.120	7.698	39.840	32.143	35.99	3.85	1.239	33.9
0:34:10	72.9	0.769	32.1	5.300	12.70	7.3813	59.9	8.112	7.686	39.813	32.126	35.97	3.84	1.239	34.2
0:34:27	73.2	0.775	32.2	5.294	12.81	7.3902	60.1	8.138	7.708	39.870	32.162	36.02	3.85	1.240	34.5
0:34:42	73.3	0.781	32.1	5.288	12.90	7.3981	60.3	8.144	7.712	39.794	32.082	35.94	3.86	1.240	34.7
0:34:59	73.4	0.787	32.1	5.282	13.01	7.4072	60.4	8.152	7.716	39.771	32.055	35.91	3.86	1.241	35.0
0:35:14	73.5	0.793	32.1	5.276	13.10	7.4151	60.5	8.154	7.715	39.809	32.094	35.95	3.86	1.240	35.2
0:35:31	73.7	0.799	32.0	5.270	13.21	7.4241	60.7	8.172	7.730	39.765	32.035	35.90	3.86	1.241	35.5
0:35:45	73.8	0.805	32.1	5.264	13.30	7.4320	60.8	8.178	7.732	39.868	32.136	36.00	3.87	1.241	35.8
0:36:03	74.0	0.811	32.1	5.258	13.40	7.4412	61.0	8.195	7.746	39.804	32.058	35.93	3.87	1.242	36.1
0:36:20	74.3	0.818	32.1	5.251	13.51	7.4503	61.3	8.227	7.774	39.830	32.057	35.94	3.89	1.243	36.3
0:36:34	74.4	0.823	32.0	5.246	13.60	7.4582	61.4	8.227	7.771	39.798	32.027	35.91	3.89	1.243	36.6
0:36:51	74.2	0.830	32.1	5.239	13.71	7.4674	61.2	8.197	7.738	39.850	32.112	35.98	3.87	1.241	36.9
0:37:06	74.7	0.835	32.1	5.234	13.80	7.4752	61.7	8.257	7.795	39.914	32.119	36.02	3.90	1.243	37.1
0:37:23	74.5	0.842	32.0	5.227	13.91	7.4844	61.5	8.211	7.745	39.746	32.001	35.87	3.87	1.242	37.4
0:37:38	74.8	0.847	32.2	5.222	14.00	7.4924	61.8	8.248	7.779	39.933	32.154	36.04	3.89	1.242	37.6
0:37:55	74.6	0.854	32.2	5.215	14.10	7.5017	61.6	8.207	7.734	39.922	32.188	36.05	3.87	1.240	37.9
0:38:12	75.0	0.860	32.1	5.209	14.21	7.5110	61.9	8.245	7.769	39.869	32.100	35.98	3.88	1.242	38.2
0:38:27	75.1	0.866	32.1	5.203	14.30	7.5191	62.1	8.261	7.781	39.857	32.076	35.97	3.89	1.243	38.5
0:38:44	75.3	0.872	32.1	5.197	14.41	7.5284	62.3	8.273	7.790	39.875	32.084	35.98	3.90	1.243	38.7
0:38:58	75.4	0.878	32.1	5.191	14.50	7.5364	62.4	8.278	7.792	39.936	32.144	36.04	3.90	1.242	39.0
0:39:15	75.5	0.884	32.1	5.185	14.61	7.5459	62.5	8.285	7.796	39.929	32.133	36.03	3.90	1.243	39.3
0:39:30	75.6	0.890	31.9	5.179	14.70	7.5540	62.6	8.281	7.789	39.734	31.946	35.84	3.89	1.244	39.5
0:39:47	75.6	0.896	32.0	5.172	14.81	7.5636	62.5	8.269	7.773	39.755	31.982	35.87	3.89	1.243	39.8
0:40:02	75.9	0.902	32.1	5.167	14.90	7.5717	62.9	8.305	7.805	39.864	32.058	35.96	3.90	1.243	40.0
0:40:19	76.2	0.909	32.0	5.160	15.00	7.5813	63.2	8.330	7.827	39.876	32.049	35.96	3.91	1.244	40.3
0:40:36	76.1	0.915	32.1	5.154	15.11	7.5908	63.0	8.306	7.799	39.906	32.107	36.01	3.90	1.243	40.6
0:40:50	76.3	0.921	32.0	5.148	15.20	7.5991	63.3	8.324	7.814	39.797	31.983	35.89	3.91	1.244	40.8
0:41:08	76.5	0.927	32.0	5.142	15.31	7.6087	63.4	8.338	7.825	39.847	32.023	35.93	3.91	1.244	41.1
0:41:22	76.5	0.933	32.0	5.136	15.40	7.6169	63.5	8.330	7.814	39.795	31.981	35.89	3.91	1.244	41.4
0:41:39	76.7	0.939	32.1	5.130	15.51	7.6265	63.7	8.352	7.832	39.928	32.096	36.01	3.92	1.244	41.7
0:41:54	76.7	0.945	32.0	5.124	15.60	7.6349	63.7	8.338	7.815	39.785	31.970	35.88	3.91	1.244	41.9
0:42:11	76.9	0.951	32.1	5.118	15.71	7.6446	63.9	8.357	7.831	39.894	32.063	35.98	3.92	1.244	42.2
0:42:26	77.0	0.957	32.1	5.112	15.80	7.6530	63.9	8.355	7.826	39.930	32.104	36.02	3.91	1.244	42.4
0:42:43	77.1	0.963	31.9	5.106	15.91	7.6627	64.1	8.369	7.835	39.779	31.944	35.86	3.92	1.245	42.7
0:42:57	77.2	0.969	32.1	5.100	16.00	7.6710	64.2	8.372	7.836	39.921	32.086	36.00	3.92	1.244	43.0
0:43:14	77.4	0.975	32.0	5.093	16.11	7.6809	64.3	8.378	7.838	39.882	32.044	35.96	3.92	1.245	43.2
0:43:29	77.3	0.981	32.0	5.088	16.20	7.6894	64.3	8.363	7.820	39.790	31.969	35.88	3.91	1.245	43.5
0:43:46	77.7	0.988	32.2	5.081	16.31	7.6992	64.7	8.400	7.853	40.024	32.171	36.10	3.93	1.244	43.8
0:44:01	77.9	0.993	32.2	5.076	16.40	7.7076	64.9	8.421	7.871	40.037	32.166	36.10	3.94	1.245	44.0
0:44:18	77.8	1.000	32.1	5.069	16.50	7.7175	64.8	8.392	7.839	39.889	32.050	35.97	3.92	1.245	44.3
0:44:35	78.1	1.006	32.0	5.063	16.61	7.7273	65.1	8.422	7.866	39.835	31.969	35.90	3.93	1.246	44.6
0:44:50	78.3	1.012	32.1	5.057	16.70	7.7358	65.3	8.438	7.878	39.943	32.065	36.00	3.94	1.246	44.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height 6.071 (in.)
 Diameter 2.864 (in.)
 Area 6.444 (in²)

Final Values
 Height 5.0334 (in.)
 Dia. avg. 3.147 (in.)
 Area avg. 7.7783 (in²)

Tested By KDG
 Date 6-25-09
 Press No. 2
 Panel No. E

Project Number 175569038
 Test Number UU-1017AA
 Data File ID UU-1017A
 Back Pressure (psi) 0
 Lateral Pressure (psi) 32

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:45:07	78.5	1.018	32.0	5.051	16.81	7.7457	65.5	8.452	7.889	39.939	32.049	35.99	3.94	1.246	45.1
0:45:21	78.4	1.024	32.0	5.045	16.90	7.7542	65.4	8.437	7.871	39.840	31.969	35.90	3.94	1.246	45.4
0:45:38	78.7	1.030	32.0	5.039	17.01	7.7640	65.6	8.454	7.884	39.902	32.017	35.96	3.94	1.246	45.6
0:45:53	78.5	1.035	32.0	5.033	17.10	7.7725	65.5	8.421	7.848	39.848	32.000	35.92	3.92	1.245	45.9

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1017AB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 = (4(EM)(Thickness)(Strain))/D_c
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1017AC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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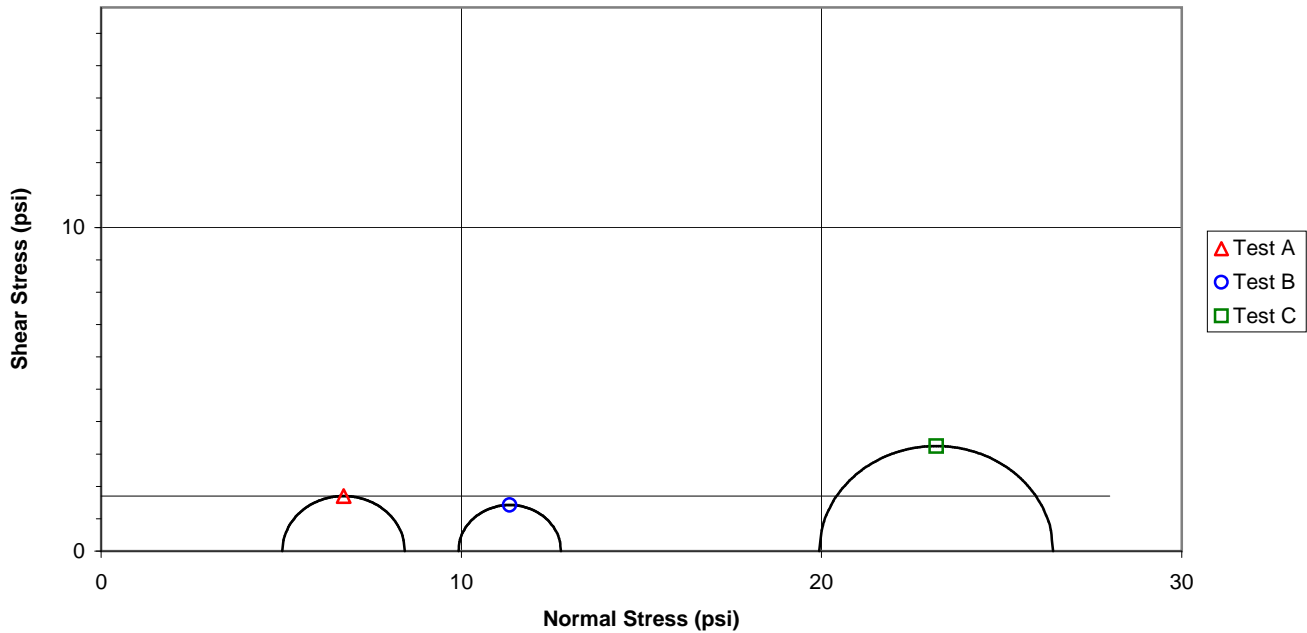
Project John Sevier Fossil Plant
 Sample ID JS-36B, 18.0' - 27.0'

Project No. 175569038
 Test Number 1752

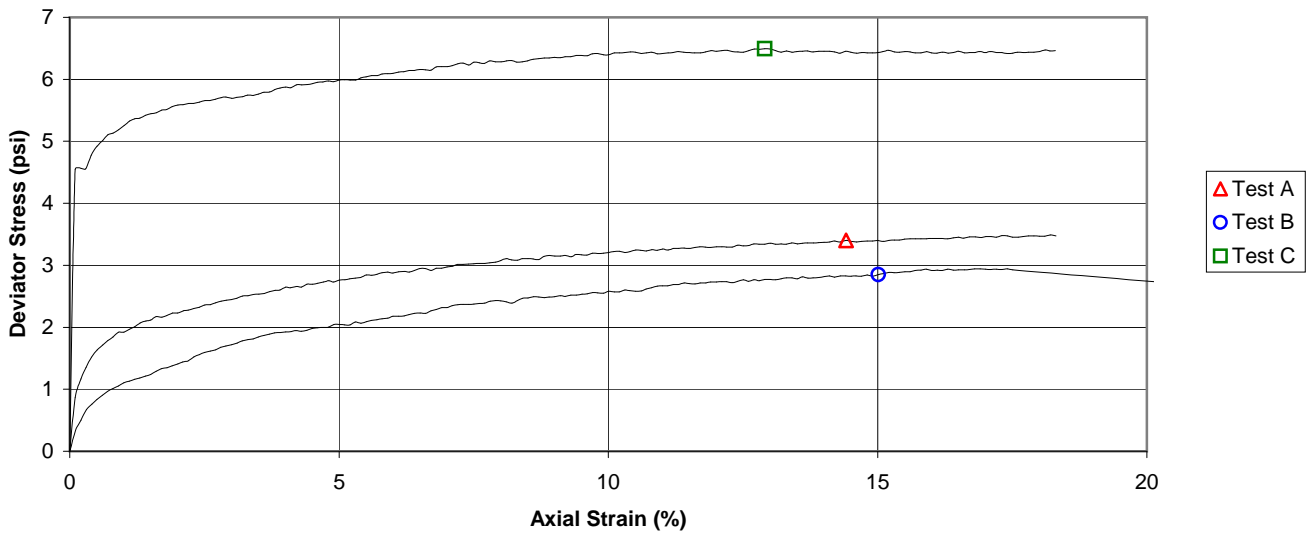
Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

$c = 1.7 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 18.0' - 27.0'
 Visual Description Sandy Lean Clay (CL), light brown

Project Number 175569038
 Test Number UU-1752A
 Prepared By KDG
 Date 6-3-09

Specific Gravity 2.66 Liquid Limit 33 Plastic Limit 18 Plasticity Index 15

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1221.80</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.1925</u> (VS _o)	Dry Weight (g) <u>967.42</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.5221</u> (Vw _o)	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>14.7526</u> (Vv _o)	Dry Unit Weight (pcf) <u>99.8</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>105.2</u> (S _o)	
Moisture Content (%) <u>26.3</u>	Final Trimmings	Void Ratio <u>0.665</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 0 (psi) Final Pore Pressure Parameter B _____ Date 6-3-09
 Panel Board Number C

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

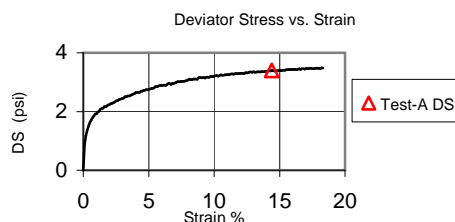
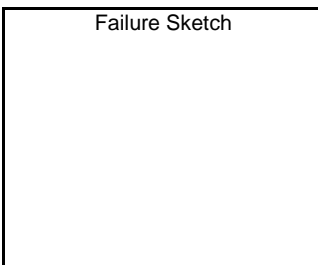
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>5</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>15.5221</u> (VW _c)	t ₅₀ (min.) _____
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>26.3</u>	
Dry Density (pcf) <u>99.8</u>		Degree of Saturation (%) <u>105.2</u> (S _c)	Void Ratio <u>0.665</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.408</u> (in.)	Wet Weight (g) <u>1221.80</u>	Corrected Deviator <u>3.40</u> σ _d (psi)
Wet weight (g) <u>1221.8</u> (WW _f)	Dry Weight (g) <u>967.42</u>	Major Principal <u>8.43</u> σ _{1f} (psi)
Average Diameter <u>3.271</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>5.03</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.230</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>14.41</u>

Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.

Project Name	<u>John Sevier Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36B, 18.0' - 27.0'</u>	Test Number	<u>UU-1752B</u>
Visual Description	<u>Sandy Lean Clay (CL), light brown</u>	Prepared By	<u>KDG</u>
		Date	<u>6-4-09</u>

Specific Gravity	<u>2.66</u>	Liquid Limit	<u>33</u>	Plastic Limit	<u>18</u>	Plasticity Index	<u>15</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1221.8</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.1366</u> (V _{S_o})	Dry Weight (g) <u>964.99</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.6708</u> (V _{W_o})	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>14.8085</u> (V _{V_o})	Dry Unit Weight (pcf) <u>99.5</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>105.8</u> (S _o)	
Moisture Content (%) <u>26.6</u>	Final Trimmings	Void Ratio <u>0.669</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-4-09</u>
			Panel Board Number	<u>C</u>

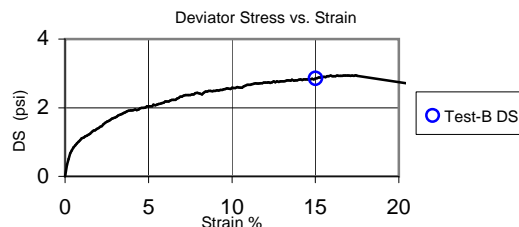
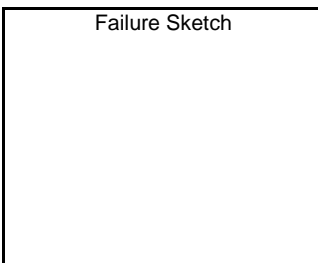
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>10</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>10</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>15.6708</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>26.6</u>	
Dry Density (pcf) <u>99.5</u>		Degree of Saturation (%) <u>105.8</u> (S _c)	Void Ratio <u>0.669</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.252</u> (in.)	Wet Weight (g) <u>1221.80</u>	Corrected Deviator <u>2.85</u> σ _d (psi)
Wet weight (g) <u>1221.8</u> (WW _f)	Dry Weight (g) <u>964.99</u>	Major Principal <u>12.77</u> σ _{1f} (psi)
Average Diameter <u>3.222</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>9.92</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.258</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.

Project Name	<u>John Sevier Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36B, 18.0' - 27.0'</u>	Test Number	<u>UU-1752C</u>
Visual Description	<u>Sandy Lean Clay (CL), light brown</u>	Prepared By	<u>KDG</u>
		Date	<u>6-4-09</u>

Specific Gravity	<u>2.66</u>	Liquid Limit	<u>33</u>	Plastic Limit	<u>18</u>	Plasticity Index	<u>15</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451 (V_o)</u>	Wet Weight (g) <u>1221.8</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>22.1601 (V_{S_o})</u>	Dry Weight (g) <u>966.01</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.6084 (V_{w_o})</u>	Wet Unit Weight (pcf) <u>126.0</u>
Avg. <u>2.8000 (D_o)</u>	4 <u>6.000</u>	Voids <u>14.7851 (V_{v_o})</u>	Dry Unit Weight (pcf) <u>99.6</u>
Area (in ²) <u>6.1575 (A_o)</u>	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>105.6 (S_o)</u>	
Moisture Content (%) <u>26.5</u>	Final Trimmings	Void Ratio <u>0.667</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-4-09</u>
			Panel Board Number	<u>C</u>

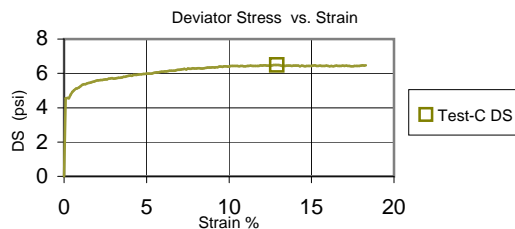
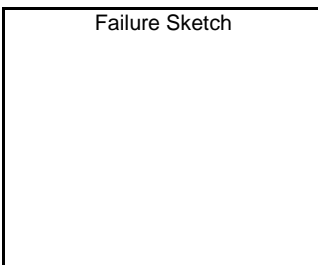
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000 (H_s)</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575 (A_s)</u>
Change <u>0.0000 (ΔH_o)</u>	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451 (V_s)</u>

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>20</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000 (ΔH_c)</u>	Change _____ (in.)	Change _____ (in.)	Lateral <u>20 (σ₃)</u>
Height (in.) <u>6.0000 (H_c)</u>		Volume (in ³) <u>36.9451 (V_c)</u>	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575 (A_c)</u>		Volume - Water (in ³) <u>15.6084 (V_{wc})</u>	
Diameter (in.) <u>2.8000 (D_c)</u>		Water Content (%) <u>26.5</u>	
Dry Density (pcf) <u>99.6</u>		Degree of Saturation (%) <u>105.6 (S_c)</u>	Void Ratio <u>0.667</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.291 (in.)</u>	Wet Weight (g) <u>1221.80</u>	Corrected Deviator <u>6.49 σ_d (psi)</u>
Wet weight (g) <u>1221.8 (WW_f)</u>	Dry Weight (g) <u>966.01</u>	Major Principal <u>26.43 σ_{1f} (psi)</u>
Average Diameter <u>3.226 (in.)</u>	Tare Weight (g) <u>0.00</u>	Minor Principal <u>19.94 σ_{3f} (psi)</u>
		Rate of Strain (% / min.) <u>0.228</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>12.90</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: Compacted bulk clay sample. Sample was compacted +/- 5% of LL.

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9013 (in.)
Dia. avg.	3.271 (in.)
Area avg.	8.4050 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1752A
Data File ID	UU-1752A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.2	-0.015	5.0	6.000	0.00	6.1575	0.0	0.000	0.000	5.020	5.020	5.02	0.00	1.000	0.0
0:00:13	6.5	-0.008	5.0	5.994	0.10	6.1639	5.4	0.873	0.869	5.889	5.020	5.45	0.43	1.173	0.2
0:00:25	8.4	-0.002	5.0	5.988	0.21	6.1703	7.2	1.174	1.167	6.197	5.030	5.61	0.58	1.232	0.4
0:00:34	9.6	0.003	5.0	5.982	0.30	6.1761	8.4	1.363	1.353	6.377	5.024	5.70	0.68	1.269	0.6
0:00:46	10.6	0.010	5.0	5.976	0.40	6.1825	9.5	1.529	1.515	6.536	5.021	5.78	0.76	1.302	0.8
0:00:57	11.4	0.016	5.0	5.969	0.51	6.1892	10.2	1.652	1.635	6.652	5.017	5.83	0.82	1.326	1.0
0:01:08	11.9	0.022	5.0	5.963	0.61	6.1956	10.8	1.737	1.716	6.731	5.015	5.87	0.86	1.342	1.1
0:01:18	12.4	0.028	5.0	5.957	0.71	6.2014	11.2	1.813	1.788	6.810	5.022	5.92	0.89	1.356	1.3
0:01:28	12.7	0.033	5.0	5.952	0.80	6.2072	11.6	1.868	1.841	6.867	5.026	5.95	0.92	1.366	1.5
0:01:39	13.3	0.039	5.0	5.946	0.90	6.2135	12.1	1.953	1.922	6.941	5.019	5.98	0.96	1.383	1.7
0:01:50	13.3	0.046	5.0	5.940	1.01	6.2201	12.2	1.956	1.922	6.942	5.021	5.98	0.96	1.383	1.8
0:02:01	13.6	0.052	5.0	5.934	1.10	6.2263	12.5	2.006	1.969	6.993	5.025	6.01	0.98	1.392	2.0
0:02:12	13.9	0.058	5.0	5.928	1.20	6.2326	12.8	2.051	2.010	7.033	5.023	6.03	1.00	1.400	2.2
0:02:23	14.4	0.064	5.0	5.922	1.30	6.2389	13.2	2.117	2.072	7.094	5.022	6.06	1.04	1.413	2.4
0:02:34	14.6	0.070	5.0	5.915	1.41	6.2457	13.4	2.150	2.102	7.129	5.028	6.08	1.05	1.418	2.6
0:02:44	14.7	0.076	5.0	5.910	1.51	6.2516	13.5	2.167	2.115	7.131	5.016	6.07	1.06	1.422	2.7
0:02:54	15.1	0.081	5.0	5.904	1.60	6.2578	13.9	2.228	2.173	7.199	5.027	6.11	1.09	1.432	2.9
0:03:05	15.1	0.088	5.0	5.897	1.71	6.2646	13.9	2.220	2.161	7.181	5.020	6.10	1.08	1.431	3.1
0:03:15	15.3	0.094	5.0	5.892	1.80	6.2705	14.1	2.252	2.191	7.213	5.023	6.12	1.10	1.436	3.3
0:03:26	15.6	0.100	5.0	5.886	1.91	6.2773	14.4	2.294	2.228	7.247	5.019	6.13	1.11	1.444	3.4
0:03:36	15.6	0.105	5.0	5.880	2.00	6.2832	14.4	2.298	2.229	7.252	5.023	6.14	1.11	1.444	3.6
0:03:47	15.9	0.112	5.0	5.873	2.11	6.2902	14.7	2.340	2.267	7.286	5.018	6.15	1.13	1.452	3.8
0:03:57	16.0	0.117	5.0	5.868	2.20	6.2961	14.8	2.352	2.277	7.296	5.019	6.16	1.14	1.454	4.0
0:04:08	16.2	0.123	5.0	5.862	2.30	6.3026	15.0	2.381	2.302	7.325	5.023	6.17	1.15	1.458	4.1
0:04:19	16.3	0.130	5.0	5.856	2.41	6.3094	15.2	2.406	2.324	7.345	5.021	6.18	1.16	1.463	4.3
0:04:30	16.6	0.136	5.0	5.849	2.51	6.3160	15.5	2.447	2.361	7.386	5.025	6.21	1.18	1.470	4.5
0:04:41	16.7	0.142	5.0	5.844	2.61	6.3224	15.5	2.454	2.365	7.387	5.022	6.20	1.18	1.471	4.7
0:04:52	16.9	0.148	5.0	5.838	2.71	6.3289	15.7	2.486	2.393	7.417	5.024	6.22	1.20	1.476	4.9
0:05:03	17.1	0.154	5.0	5.831	2.81	6.3356	16.0	2.519	2.423	7.440	5.017	6.23	1.21	1.483	5.1
0:05:14	17.2	0.160	5.0	5.826	2.90	6.3417	16.1	2.535	2.435	7.454	5.019	6.24	1.22	1.485	5.2
0:05:26	17.3	0.165	5.0	5.820	3.00	6.3480	16.2	2.548	2.445	7.473	5.028	6.25	1.22	1.486	5.4
0:05:37	17.5	0.172	5.0	5.814	3.10	6.3547	16.4	2.574	2.468	7.494	5.026	6.26	1.23	1.491	5.6
0:05:48	17.8	0.178	5.0	5.808	3.21	6.3615	16.6	2.612	2.502	7.518	5.016	6.27	1.25	1.499	5.8
0:05:59	17.9	0.184	5.0	5.802	3.31	6.3681	16.7	2.624	2.511	7.532	5.021	6.28	1.26	1.500	6.0
0:06:10	18.0	0.190	5.0	5.795	3.41	6.3748	16.9	2.646	2.529	7.546	5.017	6.28	1.26	1.504	6.2
0:06:21	18.1	0.196	5.0	5.789	3.51	6.3814	16.9	2.653	2.532	7.555	5.022	6.29	1.27	1.504	6.4
0:06:32	18.2	0.202	5.0	5.783	3.61	6.3883	17.1	2.669	2.546	7.576	5.031	6.30	1.27	1.506	6.5
0:06:43	18.4	0.208	5.0	5.777	3.71	6.3949	17.3	2.701	2.574	7.593	5.019	6.31	1.29	1.513	6.7
0:06:54	18.6	0.214	5.0	5.771	3.81	6.4016	17.5	2.727	2.596	7.616	5.019	6.32	1.30	1.517	6.9
0:07:04	18.7	0.220	5.0	5.766	3.90	6.4077	17.5	2.736	2.602	7.628	5.026	6.33	1.30	1.518	7.1
0:07:15	19.0	0.226	5.0	5.759	4.01	6.4147	17.9	2.787	2.649	7.669	5.020	6.34	1.32	1.528	7.3
0:07:25	19.0	0.231	5.0	5.754	4.10	6.4208	17.9	2.780	2.640	7.656	5.016	6.34	1.32	1.526	7.4
0:07:36	19.2	0.238	5.0	5.748	4.21	6.4279	18.0	2.801	2.657	7.677	5.020	6.35	1.33	1.529	7.6
0:07:46	19.2	0.243	5.0	5.742	4.30	6.4343	18.0	2.798	2.651	7.663	5.012	6.34	1.33	1.529	7.8
0:07:57	19.5	0.250	5.0	5.736	4.41	6.4413	18.3	2.846	2.695	7.717	5.022	6.37	1.35	1.537	8.0
0:08:08	19.5	0.256	5.0	5.729	4.51	6.4483	18.4	2.849	2.695	7.709	5.015	6.36	1.35	1.537	8.1
0:08:18	19.7	0.262	5.0	5.724	4.61	6.4548	18.5	2.869	2.711	7.733	5.022	6.38	1.36	1.540	8.3
0:08:29	19.8	0.268	5.0	5.717	4.71	6.4618	18.7	2.891	2.729	7.754	5.025	6.39	1.36	1.543	8.5
0:08:40	20.0	0.274	5.0	5.711	4.81	6.4688	18.9	2.915	2.750	7.776	5.026	6.40	1.38	1.547	8.7
0:08:50	19.9	0.280	5.0	5.706	4.90	6.4751	18.8	2.902	2.733	7.751	5.017	6.38	1.37	1.545	8.8
0:09:01	20.2	0.286	5.0	5.699	5.01	6.4823	19.0	2.933	2.761	7.782	5.021	6.40	1.38	1.550	9.0
0:09:12	20.3	0.292	5.0	5.693	5.11	6.4892	19.1	2.943	2.768	7.781	5.013	6.40	1.38	1.552	9.2
0:09:22	20.4	0.297	5.0	5.688	5.20	6.4954	19.2	2.960	2.781	7.796	5.015	6.41	1.39	1.555	9.4
0:09:33	20.5	0.304	5.0	5.682	5.30	6.5023	19.3	2.974	2.793	7.807	5.014	6.41	1.40	1.557	9.6
0:09:45	20.6	0.310	5.0	5.676	5.40	6.5092	19.5	2.991	2.805	7.823	5.018	6.42	1.40	1.559	9.8
0:09:56	20.9	0.316	5.0	5.670	5.51	6.5163	19.8	3.035	2.846	7.859	5.013	6.44	1.42	1.568	9.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9013 (in.)
Dia. avg.	3.271 (in.)
Area avg.	8.4050 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1752A
Data File ID	UU-1752A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:07	20.9	0.322	5.0	5.663	5.61	6.5235	19.8	3.032	2.840	7.857	5.017	6.44	1.42	1.566	10.1
0:10:17	21.1	0.328	5.0	5.658	5.71	6.5301	19.9	3.051	2.855	7.870	5.015	6.44	1.43	1.569	10.3
0:10:26	21.3	0.333	5.0	5.652	5.80	6.5367	20.1	3.078	2.880	7.892	5.012	6.45	1.44	1.574	10.4
0:10:38	21.4	0.340	5.0	5.646	5.91	6.5440	20.2	3.093	2.890	7.899	5.009	6.45	1.45	1.577	10.6
0:10:47	21.4	0.345	5.0	5.640	6.00	6.5506	20.2	3.083	2.877	7.895	5.018	6.46	1.44	1.573	10.8
0:10:59	21.5	0.352	5.0	5.634	6.11	6.5580	20.4	3.107	2.898	7.911	5.013	6.46	1.45	1.578	11.0
0:11:10	21.6	0.358	5.0	5.627	6.21	6.5653	20.4	3.113	2.900	7.906	5.006	6.46	1.45	1.579	11.2
0:11:19	21.6	0.364	5.0	5.622	6.30	6.5719	20.4	3.108	2.892	7.901	5.010	6.46	1.45	1.577	11.3
0:11:29	21.8	0.369	5.0	5.616	6.40	6.5786	20.6	3.137	2.918	7.914	4.996	6.46	1.46	1.584	11.5
0:11:40	22.0	0.375	5.0	5.610	6.50	6.5857	20.9	3.171	2.948	7.960	5.012	6.49	1.47	1.588	11.7
0:11:52	22.1	0.382	5.0	5.604	6.60	6.5929	20.9	3.175	2.949	7.953	5.004	6.48	1.47	1.589	11.9
0:12:03	21.9	0.388	5.0	5.598	6.71	6.6002	20.8	3.149	2.919	7.919	5.000	6.46	1.46	1.584	12.1
0:12:14	22.2	0.394	5.0	5.592	6.81	6.6071	21.1	3.188	2.955	7.948	4.993	6.47	1.48	1.592	12.2
0:12:25	22.3	0.400	5.0	5.586	6.90	6.6142	21.1	3.192	2.955	7.969	5.014	6.49	1.48	1.589	12.4
0:12:36	22.4	0.406	5.0	5.580	7.01	6.6215	21.3	3.214	2.974	7.995	5.021	6.51	1.49	1.592	12.6
0:12:47	22.5	0.411	5.0	5.574	7.10	6.6282	21.4	3.225	2.982	8.000	5.018	6.51	1.49	1.594	12.8
0:12:58	22.8	0.417	5.0	5.568	7.20	6.6354	21.7	3.264	3.017	8.043	5.026	6.53	1.51	1.600	13.0
0:13:09	22.8	0.424	5.0	5.562	7.30	6.6427	21.7	3.263	3.013	8.043	5.030	6.54	1.51	1.599	13.2
0:13:20	22.9	0.430	5.0	5.556	7.40	6.6497	21.8	3.272	3.018	8.043	5.024	6.53	1.51	1.601	13.3
0:13:31	23.0	0.436	5.0	5.550	7.51	6.6572	21.8	3.281	3.024	8.050	5.026	6.54	1.51	1.602	13.5
0:13:43	23.1	0.442	5.0	5.543	7.61	6.6647	21.9	3.293	3.032	8.062	5.030	6.55	1.52	1.603	13.7
0:13:54	23.1	0.448	5.0	5.538	7.71	6.6716	22.0	3.292	3.028	8.055	5.027	6.54	1.51	1.602	13.9
0:14:05	23.2	0.454	5.0	5.532	7.80	6.6787	22.1	3.307	3.039	8.066	5.027	6.55	1.52	1.605	14.1
0:14:16	23.4	0.460	5.0	5.526	7.91	6.6861	22.2	3.321	3.050	8.079	5.029	6.55	1.53	1.607	14.3
0:14:27	23.6	0.466	5.0	5.520	8.01	6.6934	22.4	3.352	3.077	8.099	5.022	6.56	1.54	1.613	14.5
0:14:38	23.8	0.472	5.0	5.514	8.11	6.7007	22.7	3.384	3.106	8.126	5.020	6.57	1.55	1.619	14.6
0:14:49	23.7	0.478	5.0	5.508	8.21	6.7079	22.6	3.368	3.086	8.117	5.031	6.57	1.54	1.613	14.8
0:15:00	23.8	0.484	5.0	5.501	8.31	6.7156	22.6	3.369	3.084	8.112	5.028	6.57	1.54	1.613	15.0
0:15:10	24.0	0.489	5.0	5.496	8.40	6.7223	22.8	3.394	3.106	8.130	5.025	6.58	1.55	1.618	15.2
0:15:21	24.0	0.496	5.0	5.490	8.51	6.7300	22.9	3.400	3.108	8.127	5.018	6.57	1.55	1.619	15.4
0:15:31	24.0	0.501	5.0	5.484	8.60	6.7370	22.9	3.398	3.103	8.122	5.019	6.57	1.55	1.618	15.5
0:15:42	24.0	0.508	5.0	5.478	8.71	6.7449	22.9	3.390	3.092	8.114	5.022	6.57	1.55	1.616	15.7
0:15:52	24.4	0.514	5.0	5.472	8.80	6.7519	23.3	3.447	3.146	8.169	5.023	6.60	1.57	1.626	15.9
0:16:03	24.6	0.520	5.0	5.466	8.91	6.7597	23.4	3.463	3.158	8.179	5.022	6.60	1.58	1.629	16.1
0:16:13	24.5	0.526	5.0	5.460	9.01	6.7669	23.4	3.455	3.147	8.168	5.021	6.59	1.57	1.627	16.2
0:16:24	24.6	0.532	5.0	5.453	9.11	6.7747	23.5	3.462	3.149	8.174	5.025	6.60	1.57	1.627	16.4
0:16:34	24.7	0.538	5.0	5.448	9.20	6.7817	23.6	3.477	3.161	8.181	5.020	6.60	1.58	1.630	16.6
0:16:45	24.6	0.544	5.0	5.442	9.31	6.7895	23.5	3.460	3.141	8.169	5.028	6.60	1.57	1.625	16.8
0:16:55	24.9	0.549	5.0	5.436	9.40	6.7964	23.8	3.496	3.173	8.200	5.027	6.61	1.59	1.631	16.9
0:17:06	24.9	0.555	5.0	5.430	9.50	6.8039	23.8	3.497	3.171	8.192	5.021	6.61	1.59	1.632	17.1
0:17:17	24.9	0.562	5.0	5.424	9.60	6.8117	23.8	3.493	3.164	8.187	5.023	6.61	1.58	1.630	17.3
0:17:28	25.2	0.568	5.0	5.417	9.71	6.8196	24.1	3.529	3.196	8.215	5.019	6.62	1.60	1.637	17.5
0:17:38	25.2	0.574	5.0	5.412	9.80	6.8268	24.1	3.527	3.191	8.219	5.028	6.62	1.60	1.635	17.6
0:17:49	25.3	0.580	5.0	5.405	9.91	6.8350	24.1	3.533	3.193	8.214	5.021	6.62	1.60	1.636	17.8
0:17:59	25.4	0.586	5.0	5.400	10.01	6.8421	24.3	3.548	3.205	8.230	5.025	6.63	1.60	1.638	18.0
0:18:09	25.6	0.591	5.0	5.394	10.10	6.8494	24.4	3.565	3.219	8.241	5.022	6.63	1.61	1.641	18.2
0:18:20	25.7	0.598	5.0	5.388	10.21	6.8575	24.5	3.579	3.229	8.257	5.028	6.64	1.61	1.642	18.3
0:18:31	25.6	0.604	5.0	5.381	10.31	6.8652	24.4	3.557	3.203	8.231	5.028	6.63	1.60	1.637	18.5
0:18:41	25.7	0.610	5.0	5.376	10.41	6.8727	24.6	3.578	3.222	8.238	5.017	6.63	1.61	1.642	18.7
0:18:52	26.0	0.616	5.0	5.369	10.51	6.8807	24.8	3.606	3.246	8.274	5.028	6.65	1.62	1.645	18.9
0:19:02	26.0	0.621	5.0	5.364	10.60	6.8877	24.8	3.603	3.240	8.269	5.029	6.65	1.62	1.644	19.0
0:19:13	26.0	0.628	5.0	5.358	10.70	6.8957	24.8	3.601	3.234	8.260	5.026	6.64	1.62	1.643	19.2
0:19:24	26.2	0.634	5.0	5.351	10.81	6.9038	25.0	3.623	3.252	8.277	5.025	6.65	1.63	1.647	19.4
0:19:35	26.2	0.640	5.0	5.345	10.91	6.9116	25.0	3.617	3.243	8.268	5.025	6.65	1.62	1.645	19.6
0:19:46	26.3	0.646	5.0	5.340	11.01	6.9192	25.2	3.640	3.263	8.289	5.026	6.66	1.63	1.649	19.8
0:19:57	26.3	0.652	5.0	5.333	11.11	6.9272	25.1	3.628	3.247	8.267	5.020	6.64	1.62	1.647	20.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= 4(EM)(Thickness)(Strain)/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values

Height	4.9013 (in.)
Dia. avg.	3.271 (in.)
Area avg.	8.4050 (in ²)

Tested By KDGDate 6-3-09Press No. 2Panel No. DProject Number 175569038Test Number UU-1752AData File ID UU-1752ABack Pressure (psi) 0Lateral Pressure (psi) 5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:20:08	26.5	0.658	5.0	5.327	11.21	6.9349	25.4	3.658	3.274	8.304	5.030	6.67	1.64	1.651	20.1
0:20:19	26.6	0.664	5.0	5.322	11.31	6.9426	25.4	3.663	3.275	8.307	5.032	6.67	1.64	1.651	20.3
0:20:31	26.7	0.670	5.0	5.316	11.41	6.9503	25.5	3.668	3.277	8.308	5.030	6.67	1.64	1.652	20.5
0:20:40	26.7	0.675	5.0	5.310	11.50	6.9577	25.5	3.666	3.272	8.300	5.028	6.66	1.64	1.651	20.7
0:20:53	26.8	0.682	5.0	5.303	11.61	6.9665	25.7	3.688	3.290	8.322	5.032	6.68	1.65	1.654	20.9
0:21:03	26.9	0.687	5.0	5.298	11.70	6.9735	25.8	3.698	3.297	8.327	5.030	6.68	1.65	1.655	21.1
0:21:14	27.0	0.694	5.0	5.292	11.80	6.9815	25.8	3.698	3.293	8.323	5.030	6.68	1.65	1.655	21.2
0:21:25	27.0	0.699	5.0	5.286	11.90	6.9893	25.8	3.697	3.289	8.311	5.022	6.67	1.64	1.655	21.4
0:21:37	27.1	0.706	5.0	5.279	12.01	6.9980	26.0	3.711	3.299	8.327	5.029	6.68	1.65	1.656	21.6
0:21:48	27.2	0.712	5.0	5.274	12.11	7.0057	26.0	3.713	3.298	8.322	5.024	6.67	1.65	1.656	21.8
0:21:59	27.2	0.717	5.0	5.268	12.20	7.0132	26.0	3.713	3.295	8.313	5.018	6.67	1.65	1.657	22.0
0:22:10	27.2	0.724	5.0	5.262	12.30	7.0213	26.1	3.713	3.291	8.317	5.025	6.67	1.65	1.655	22.2
0:22:21	27.5	0.730	5.0	5.256	12.41	7.0297	26.4	3.751	3.326	8.349	5.023	6.69	1.66	1.662	22.4
0:22:33	27.5	0.736	5.0	5.249	12.51	7.0382	26.3	3.741	3.312	8.335	5.023	6.68	1.66	1.659	22.6
0:22:42	27.6	0.742	5.0	5.244	12.61	7.0459	26.4	3.753	3.320	8.347	5.026	6.69	1.66	1.661	22.7
0:22:52	27.8	0.748	5.0	5.238	12.71	7.0537	26.7	3.783	3.347	8.370	5.023	6.70	1.67	1.666	22.9
0:23:02	27.8	0.753	5.0	5.232	12.80	7.0614	26.7	3.780	3.341	8.367	5.026	6.70	1.67	1.665	23.0
0:23:13	27.9	0.760	5.0	5.225	12.91	7.0702	26.7	3.783	3.340	8.361	5.021	6.69	1.67	1.665	23.2
0:23:23	28.0	0.766	5.0	5.220	13.01	7.0781	26.9	3.799	3.353	8.378	5.025	6.70	1.68	1.667	23.4
0:23:33	28.0	0.771	5.0	5.214	13.10	7.0859	26.8	3.789	3.339	8.355	5.015	6.69	1.67	1.666	23.6
0:23:44	28.1	0.778	5.0	5.208	13.21	7.0946	26.9	3.799	3.346	8.363	5.018	6.69	1.67	1.667	23.7
0:23:54	28.1	0.783	5.0	5.202	13.30	7.1022	27.0	3.799	3.342	8.358	5.015	6.69	1.67	1.666	23.9
0:24:05	28.3	0.790	5.0	5.196	13.41	7.1108	27.2	3.819	3.359	8.380	5.021	6.70	1.68	1.669	24.1
0:24:16	28.3	0.796	5.0	5.189	13.51	7.1193	27.1	3.808	3.345	8.358	5.013	6.69	1.67	1.667	24.3
0:24:27	28.4	0.802	5.0	5.183	13.61	7.1275	27.2	3.822	3.356	8.358	5.003	6.68	1.68	1.671	24.5
0:24:37	28.5	0.808	5.0	5.178	13.70	7.1353	27.3	3.832	3.362	8.361	4.999	6.68	1.68	1.672	24.6
0:24:48	28.5	0.814	5.0	5.171	13.81	7.1442	27.4	3.832	3.359	8.368	5.009	6.69	1.68	1.671	24.8
0:24:58	28.6	0.820	5.0	5.166	13.90	7.1519	27.5	3.840	3.363	8.372	5.009	6.69	1.68	1.671	25.0
0:25:08	28.7	0.826	5.0	5.160	14.00	7.1601	27.6	3.852	3.372	8.388	5.016	6.70	1.69	1.672	25.1
0:25:19	28.8	0.832	5.0	5.153	14.11	7.1693	27.7	3.858	3.374	8.401	5.027	6.71	1.69	1.671	25.3
0:25:29	29.0	0.838	5.0	5.148	14.21	7.1773	27.8	3.879	3.392	8.425	5.033	6.73	1.70	1.674	25.5
0:25:39	28.9	0.844	5.0	5.142	14.31	7.1855	27.8	3.864	3.374	8.400	5.026	6.71	1.69	1.671	25.7
0:25:50	29.2	0.850	5.0	5.135	14.41	7.1944	28.0	3.896	3.402	8.433	5.031	6.73	1.70	1.676	25.8
0:26:00	29.1	0.856	5.0	5.130	14.50	7.2021	28.0	3.884	3.387	8.423	5.036	6.73	1.69	1.673	26.0
0:26:11	29.1	0.862	5.0	5.123	14.61	7.2109	28.0	3.879	3.378	8.414	5.037	6.73	1.69	1.671	26.2
0:26:21	29.3	0.868	5.0	5.118	14.70	7.2189	28.1	3.892	3.388	8.425	5.037	6.73	1.69	1.673	26.4
0:26:32	29.3	0.874	5.0	5.112	14.81	7.2277	28.2	3.899	3.391	8.431	5.039	6.74	1.70	1.673	26.5
0:26:43	29.4	0.880	5.0	5.106	14.91	7.2363	28.2	3.902	3.391	8.421	5.030	6.73	1.70	1.674	26.7
0:26:53	29.5	0.885	5.0	5.100	15.00	7.2442	28.4	3.914	3.400	8.435	5.035	6.74	1.70	1.675	26.9
0:27:04	29.5	0.891	5.0	5.094	15.10	7.2528	28.3	3.905	3.387	8.422	5.035	6.73	1.69	1.673	27.1
0:27:16	29.7	0.898	5.0	5.087	15.21	7.2621	28.5	3.925	3.404	8.441	5.037	6.74	1.70	1.676	27.3
0:27:27	29.8	0.904	5.0	5.081	15.31	7.2707	28.6	3.934	3.409	8.451	5.042	6.75	1.70	1.676	27.5
0:27:37	29.8	0.909	5.0	5.076	15.40	7.2786	28.6	3.934	3.406	8.443	5.037	6.74	1.70	1.676	27.6
0:27:48	30.0	0.915	5.0	5.070	15.50	7.2870	28.8	3.956	3.424	8.465	5.040	6.75	1.71	1.679	27.8
0:27:59	30.1	0.922	5.0	5.064	15.60	7.2958	28.9	3.962	3.427	8.459	5.032	6.75	1.71	1.681	28.0
0:28:10	30.1	0.928	5.0	5.058	15.70	7.3045	29.0	3.968	3.430	8.454	5.025	6.74	1.71	1.683	28.2
0:28:21	30.2	0.934	5.0	5.052	15.80	7.3133	29.0	3.968	3.426	8.463	5.037	6.75	1.71	1.680	28.4
0:28:32	30.2	0.940	5.0	5.046	15.90	7.3220	29.1	3.974	3.428	8.463	5.035	6.75	1.71	1.681	28.5
0:28:44	30.3	0.945	5.0	5.040	16.00	7.3305	29.2	3.981	3.433	8.468	5.035	6.75	1.72	1.682	28.7
0:28:56	30.4	0.952	5.0	5.034	16.11	7.3397	29.2	3.985	3.433	8.466	5.034	6.75	1.72	1.682	28.9
0:29:07	30.5	0.958	5.0	5.028	16.20	7.3483	29.3	3.990	3.434	8.472	5.038	6.76	1.72	1.682	29.1
0:29:18	30.5	0.964	5.0	5.022	16.30	7.3571	29.3	3.986	3.426	8.465	5.039	6.75	1.71	1.680	29.3
0:29:29	30.7	0.970	5.0	5.016	16.41	7.3660	29.5	4.007	3.445	8.481	5.036	6.76	1.72	1.684	29.5
0:29:40	30.8	0.976	5.0	5.010	16.51	7.3750	29.7	4.021	3.455	8.483	5.028	6.76	1.73	1.687	29.7
0:29:50	30.7	0.981	5.0	5.004	16.60	7.3833	29.6	4.007	3.438	8.471	5.033	6.75	1.72	1.683	29.8
0:30:01	31.0	0.988	5.0	4.998	16.71	7.3927	29.8	4.031	3.458	8.495	5.037	6.77	1.73	1.687	30.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= $(4(EM)(Thickness)(Strain))/D_c$

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values

Height	4.9013 (in.)
Dia. avg.	3.271 (in.)
Area avg.	8.4050 (in ²)

Tested By KDGDate 6-3-09Press No. 2Panel No. DProject Number 175569038Test Number UU-1752AData File ID UU-1752ABack Pressure (psi) 0Lateral Pressure (psi) 5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:12	31.0	0.994	5.0	4.991	16.81	7.4020	29.9	4.033	3.457	8.494	5.037	6.77	1.73	1.686	30.2
0:30:22	31.0	1.000	5.0	4.985	16.91	7.4108	29.9	4.028	3.448	8.484	5.036	6.76	1.72	1.685	30.4
0:30:32	31.2	1.006	5.0	4.979	17.01	7.4196	30.0	4.045	3.462	8.501	5.039	6.77	1.73	1.687	30.5
0:30:42	31.2	1.012	5.0	4.974	17.10	7.4281	30.1	4.050	3.464	8.493	5.029	6.76	1.73	1.689	30.7
0:30:53	31.2	1.018	5.0	4.967	17.21	7.4374	30.1	4.041	3.451	8.492	5.040	6.77	1.73	1.685	30.9
0:31:03	31.5	1.024	5.0	4.961	17.31	7.4464	30.3	4.072	3.479	8.520	5.041	6.78	1.74	1.690	31.1
0:31:14	31.5	1.030	5.0	4.955	17.41	7.4557	30.3	4.069	3.472	8.508	5.036	6.77	1.74	1.690	31.2
0:31:24	31.4	1.036	5.0	4.950	17.50	7.4640	30.2	4.052	3.452	8.485	5.033	6.76	1.73	1.686	31.4
0:31:35	31.5	1.042	5.0	4.943	17.61	7.4735	30.3	4.058	3.454	8.489	5.035	6.76	1.73	1.686	31.6
0:31:45	31.6	1.047	5.0	4.938	17.70	7.4819	30.4	4.069	3.462	8.493	5.031	6.76	1.73	1.688	31.8
0:31:56	31.8	1.053	5.0	4.932	17.80	7.4910	30.6	4.086	3.476	8.514	5.038	6.78	1.74	1.690	31.9
0:32:07	31.8	1.060	5.0	4.926	17.90	7.5004	30.6	4.086	3.473	8.517	5.044	6.78	1.74	1.688	32.1
0:32:17	31.8	1.066	5.0	4.920	18.00	7.5094	30.7	4.088	3.470	8.505	5.035	6.77	1.74	1.689	32.3
0:32:28	31.9	1.072	5.0	4.914	18.11	7.5190	30.8	4.091	3.470	8.512	5.041	6.78	1.74	1.688	32.5
0:32:38	32.1	1.078	5.0	4.908	18.20	7.5278	31.0	4.113	3.489	8.532	5.044	6.79	1.74	1.692	32.6
0:32:49	32.1	1.084	5.0	4.901	18.31	7.5379	30.9	4.103	3.475	8.515	5.040	6.78	1.74	1.690	32.8

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.5227 (in.)
Dia. avg.	3.222 (in)
Area avg.	8.1551 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752B
Data File ID	UU-1752B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	0.7	-0.012	10.0	6.000	0.00	6.1575	0.0	0.000	0.000	9.971	9.971	9.97	0.00	1.000	0.0
0:00:24	2.8	-0.006	10.0	5.993	0.11	6.1643	2.1	0.338	0.334	10.299	9.965	10.13	0.17	1.034	0.4
0:00:35	3.8	0.000	10.0	5.988	0.21	6.1702	3.1	0.506	0.499	10.461	9.962	10.21	0.25	1.050	0.6
0:00:46	4.9	0.006	10.0	5.981	0.31	6.1767	4.2	0.681	0.670	10.624	9.953	10.29	0.34	1.067	0.8
0:00:57	5.5	0.012	10.0	5.976	0.41	6.1827	4.8	0.773	0.759	10.711	9.952	10.33	0.38	1.076	1.0
0:01:08	6.0	0.018	9.9	5.970	0.51	6.1889	5.3	0.855	0.838	10.783	9.945	10.36	0.42	1.084	1.1
0:01:19	6.4	0.024	9.9	5.964	0.61	6.1950	5.7	0.925	0.904	10.852	9.948	10.40	0.45	1.091	1.3
0:01:30	6.8	0.030	10.0	5.958	0.70	6.2011	6.1	0.988	0.964	10.926	9.962	10.44	0.48	1.097	1.5
0:01:41	7.2	0.036	10.0	5.952	0.80	6.2074	6.4	1.038	1.011	10.980	9.969	10.47	0.51	1.101	1.7
0:01:52	7.4	0.042	10.0	5.946	0.90	6.2137	6.7	1.084	1.053	11.025	9.972	10.50	0.53	1.106	1.9
0:02:03	7.8	0.048	10.0	5.940	1.00	6.2199	7.1	1.142	1.107	11.079	9.972	10.53	0.55	1.111	2.1
0:02:15	8.0	0.054	10.0	5.934	1.11	6.2263	7.3	1.167	1.129	11.102	9.973	10.54	0.56	1.113	2.3
0:02:26	8.2	0.060	10.0	5.927	1.21	6.2328	7.5	1.205	1.164	11.137	9.973	10.55	0.58	1.117	2.4
0:02:36	8.4	0.066	10.0	5.922	1.30	6.2389	7.7	1.227	1.182	11.147	9.964	10.56	0.59	1.119	2.6
0:02:47	8.6	0.072	10.0	5.915	1.41	6.2455	7.9	1.264	1.215	11.190	9.975	10.58	0.61	1.122	2.8
0:02:57	8.8	0.078	10.0	5.910	1.50	6.2514	8.1	1.289	1.238	11.201	9.963	10.58	0.62	1.124	3.0
0:03:08	9.1	0.084	10.0	5.904	1.61	6.2580	8.4	1.347	1.292	11.257	9.965	10.61	0.65	1.130	3.1
0:03:18	9.4	0.090	10.0	5.898	1.70	6.2641	8.7	1.392	1.333	11.307	9.973	10.64	0.67	1.134	3.3
0:03:29	9.5	0.096	10.0	5.892	1.81	6.2709	8.8	1.409	1.347	11.317	9.969	10.64	0.67	1.135	3.5
0:03:39	9.8	0.102	10.0	5.886	1.90	6.2768	9.1	1.442	1.377	11.352	9.975	10.66	0.69	1.138	3.7
0:03:51	10.0	0.108	10.0	5.879	2.01	6.2838	9.3	1.476	1.407	11.370	9.963	10.67	0.70	1.141	3.9
0:04:01	10.2	0.114	10.0	5.874	2.10	6.2896	9.5	1.515	1.443	11.421	9.979	10.70	0.72	1.145	4.0
0:04:12	10.4	0.120	10.0	5.868	2.21	6.2964	9.7	1.537	1.462	11.427	9.965	10.70	0.73	1.147	4.2
0:04:22	10.8	0.126	10.0	5.862	2.30	6.3027	10.1	1.600	1.521	11.485	9.964	10.72	0.76	1.153	4.4
0:04:33	11.1	0.132	10.0	5.856	2.41	6.3093	10.3	1.640	1.557	11.526	9.969	10.75	0.78	1.156	4.6
0:04:44	11.3	0.138	10.0	5.850	2.51	6.3159	10.6	1.681	1.595	11.561	9.966	10.76	0.80	1.160	4.7
0:04:56	11.5	0.144	10.0	5.843	2.61	6.3225	10.8	1.705	1.615	11.579	9.963	10.77	0.81	1.162	4.9
0:05:06	11.7	0.150	10.0	5.837	2.71	6.3290	11.0	1.731	1.639	11.608	9.969	10.79	0.82	1.164	5.1
0:05:16	11.9	0.156	10.0	5.832	2.81	6.3352	11.2	1.772	1.676	11.640	9.964	10.80	0.84	1.168	5.3
0:05:26	12.1	0.162	10.0	5.826	2.90	6.3414	11.4	1.796	1.696	11.666	9.970	10.82	0.85	1.170	5.4
0:05:37	12.3	0.168	10.0	5.819	3.01	6.3486	11.6	1.821	1.718	11.677	9.959	10.82	0.86	1.173	5.6
0:05:47	12.5	0.174	10.0	5.814	3.11	6.3549	11.8	1.849	1.743	11.699	9.956	10.83	0.87	1.175	5.8
0:05:57	12.7	0.180	10.0	5.808	3.20	6.3611	12.0	1.889	1.780	11.746	9.967	10.86	0.89	1.179	6.0
0:06:08	12.9	0.186	10.0	5.801	3.31	6.3683	12.2	1.913	1.799	11.767	9.968	10.87	0.90	1.180	6.1
0:06:18	13.0	0.192	10.0	5.796	3.40	6.3745	12.3	1.931	1.815	11.771	9.956	10.86	0.91	1.182	6.3
0:06:28	13.2	0.198	10.0	5.790	3.50	6.3809	12.5	1.962	1.842	11.802	9.959	10.88	0.92	1.185	6.5
0:06:39	13.4	0.204	10.0	5.784	3.60	6.3877	12.7	1.991	1.868	11.833	9.966	10.90	0.93	1.187	6.7
0:06:51	13.6	0.210	10.0	5.777	3.71	6.3947	12.9	2.018	1.890	11.850	9.960	10.91	0.95	1.190	6.9
0:07:01	13.8	0.216	10.0	5.772	3.80	6.4008	13.0	2.038	1.908	11.869	9.962	10.92	0.95	1.191	7.0
0:07:13	13.9	0.222	10.0	5.765	3.91	6.4081	13.1	2.051	1.917	11.881	9.964	10.92	0.96	1.192	7.2
0:07:24	13.9	0.228	10.0	5.759	4.01	6.4148	13.2	2.062	1.924	11.887	9.963	10.92	0.96	1.193	7.4
0:07:36	14.0	0.234	10.0	5.753	4.11	6.4215	13.3	2.072	1.931	11.892	9.961	10.93	0.97	1.194	7.6
0:07:46	14.1	0.240	10.0	5.748	4.20	6.4276	13.4	2.090	1.946	11.909	9.963	10.94	0.97	1.195	7.8
0:07:57	14.1	0.246	10.0	5.742	4.30	6.4342	13.4	2.081	1.934	11.892	9.958	10.92	0.97	1.194	8.0
0:08:08	14.2	0.252	10.0	5.736	4.40	6.4410	13.5	2.100	1.949	11.907	9.957	10.93	0.97	1.196	8.1
0:08:19	14.5	0.258	10.0	5.730	4.50	6.4479	13.8	2.137	1.982	11.939	9.957	10.95	0.99	1.199	8.3
0:08:31	14.6	0.264	9.9	5.724	4.61	6.4549	13.9	2.151	1.993	11.938	9.945	10.94	1.00	1.200	8.5
0:08:42	14.7	0.270	10.0	5.717	4.71	6.4618	13.9	2.158	1.996	11.952	9.955	10.95	1.00	1.201	8.7
0:08:53	14.7	0.276	10.0	5.711	4.81	6.4686	14.0	2.167	2.002	11.955	9.953	10.95	1.00	1.201	8.9
0:09:03	15.0	0.282	10.0	5.706	4.90	6.4748	14.3	2.212	2.044	11.996	9.953	10.97	1.02	1.205	9.1
0:09:16	15.1	0.288	10.0	5.699	5.01	6.4825	14.4	2.215	2.044	11.995	9.952	10.97	1.02	1.205	9.3
0:09:26	15.1	0.294	10.0	5.694	5.10	6.4888	14.4	2.215	2.040	11.994	9.954	10.97	1.02	1.205	9.4
0:09:37	15.1	0.300	9.9	5.688	5.21	6.4958	14.4	2.217	2.038	11.987	9.949	10.97	1.02	1.205	9.6
0:09:47	15.4	0.306	9.9	5.682	5.30	6.5022	14.7	2.266	2.085	12.033	9.949	10.99	1.04	1.210	9.8
0:09:58	15.4	0.312	10.0	5.676	5.40	6.5093	14.7	2.252	2.067	12.026	9.959	10.99	1.03	1.208	10.0
0:10:09	15.6	0.318	10.0	5.669	5.51	6.5166	14.9	2.280	2.091	12.044	9.952	11.00	1.05	1.210	10.2

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.5227 (in.)
Dia. avg.	3.222 (in.)
Area avg.	8.1551 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752B
Data File ID	UU-1752B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:19	15.7	0.324	10.0	5.664	5.60	6.5230	15.0	2.301	2.109	12.067	9.957	11.01	1.05	1.212	10.3
0:10:30	15.8	0.330	10.0	5.658	5.71	6.5302	15.1	2.316	2.120	12.072	9.952	11.01	1.06	1.213	10.5
0:10:40	16.0	0.336	9.9	5.652	5.80	6.5367	15.3	2.336	2.137	12.081	9.944	11.01	1.07	1.215	10.7
0:10:51	16.1	0.342	10.0	5.646	5.91	6.5440	15.4	2.350	2.147	12.102	9.955	11.03	1.07	1.216	10.9
0:11:01	16.3	0.348	10.0	5.640	6.00	6.5507	15.6	2.385	2.180	12.139	9.959	11.05	1.09	1.219	11.0
0:11:12	16.4	0.354	10.0	5.634	6.11	6.5580	15.7	2.387	2.177	12.128	9.951	11.04	1.09	1.219	11.2
0:11:23	16.4	0.360	10.0	5.627	6.21	6.5651	15.7	2.394	2.181	12.141	9.960	11.05	1.09	1.219	11.4
0:11:33	16.6	0.366	10.0	5.622	6.30	6.5716	15.9	2.422	2.206	12.158	9.952	11.06	1.10	1.222	11.6
0:11:44	16.8	0.372	10.0	5.616	6.40	6.5787	16.1	2.445	2.226	12.177	9.951	11.06	1.11	1.224	11.7
0:11:55	16.9	0.378	9.9	5.610	6.51	6.5860	16.2	2.452	2.229	12.177	9.947	11.06	1.11	1.224	11.9
0:12:06	16.9	0.384	9.9	5.604	6.61	6.5932	16.2	2.451	2.225	12.172	9.947	11.06	1.11	1.224	12.1
0:12:17	17.2	0.390	10.0	5.597	6.71	6.6005	16.5	2.497	2.267	12.224	9.957	11.09	1.13	1.228	12.3
0:12:27	17.4	0.396	9.9	5.592	6.80	6.6070	16.7	2.520	2.287	12.226	9.939	11.08	1.14	1.230	12.5
0:12:38	17.6	0.402	9.9	5.586	6.91	6.6144	16.9	2.554	2.318	12.267	9.950	11.11	1.16	1.233	12.6
0:12:48	17.7	0.408	9.9	5.580	7.01	6.6214	16.9	2.559	2.319	12.265	9.946	11.11	1.16	1.233	12.8
0:12:58	17.9	0.414	9.9	5.574	7.10	6.6282	17.2	2.593	2.350	12.291	9.941	11.12	1.17	1.236	13.0
0:13:09	18.1	0.420	9.9	5.568	7.21	6.6358	17.3	2.613	2.366	12.308	9.942	11.13	1.18	1.238	13.2
0:13:19	18.1	0.426	9.9	5.562	7.30	6.6426	17.4	2.619	2.368	12.300	9.932	11.12	1.18	1.238	13.3
0:13:30	18.1	0.432	9.9	5.555	7.41	6.6503	17.4	2.622	2.368	12.309	9.941	11.12	1.18	1.238	13.5
0:13:40	18.2	0.438	9.9	5.550	7.50	6.6571	17.5	2.630	2.372	12.297	9.925	11.11	1.19	1.239	13.7
0:13:51	18.3	0.444	9.9	5.543	7.61	6.6648	17.6	2.647	2.386	12.317	9.932	11.12	1.19	1.240	13.9
0:14:01	18.4	0.450	9.9	5.538	7.71	6.6716	17.7	2.655	2.391	12.319	9.928	11.12	1.20	1.241	14.0
0:14:12	18.7	0.456	9.9	5.531	7.81	6.6791	18.0	2.690	2.422	12.365	9.943	11.15	1.21	1.244	14.2
0:14:23	18.8	0.462	10.0	5.525	7.91	6.6864	18.1	2.700	2.429	12.381	9.952	11.17	1.21	1.244	14.4
0:14:33	18.8	0.468	9.9	5.520	8.00	6.6930	18.1	2.701	2.427	12.374	9.946	11.16	1.21	1.244	14.6
0:14:44	18.7	0.474	10.0	5.514	8.10	6.7004	18.0	2.687	2.409	12.363	9.954	11.16	1.20	1.242	14.7
0:14:57	18.6	0.480	10.0	5.507	8.21	6.7085	17.9	2.673	2.391	12.349	9.958	11.15	1.20	1.240	15.0
0:15:08	19.0	0.486	10.0	5.501	8.31	6.7157	18.2	2.716	2.431	12.386	9.955	11.17	1.22	1.244	15.1
0:15:19	19.2	0.492	10.0	5.495	8.41	6.7229	18.5	2.755	2.467	12.425	9.958	11.19	1.23	1.248	15.3
0:15:30	19.3	0.498	10.0	5.489	8.51	6.7303	18.6	2.762	2.470	12.427	9.957	11.19	1.24	1.248	15.5
0:15:41	19.5	0.504	10.0	5.483	8.61	6.7376	18.8	2.789	2.493	12.450	9.957	11.20	1.25	1.250	15.7
0:15:52	19.5	0.510	10.0	5.477	8.71	6.7449	18.8	2.786	2.487	12.450	9.962	11.21	1.24	1.250	15.9
0:16:03	19.5	0.516	10.0	5.471	8.81	6.7525	18.8	2.779	2.477	12.448	9.971	11.21	1.24	1.248	16.1
0:16:13	19.6	0.522	10.0	5.466	8.90	6.7593	18.9	2.794	2.489	12.441	9.952	11.20	1.24	1.250	16.2
0:16:24	19.7	0.528	10.0	5.460	9.00	6.7665	19.0	2.801	2.493	12.450	9.957	11.20	1.25	1.250	16.4
0:16:36	19.8	0.534	10.0	5.453	9.11	6.7748	19.1	2.819	2.507	12.463	9.957	11.21	1.25	1.252	16.6
0:16:46	19.8	0.540	10.0	5.448	9.20	6.7816	19.1	2.814	2.498	12.459	9.961	11.21	1.25	1.251	16.8
0:16:57	20.0	0.546	9.9	5.442	9.30	6.7892	19.3	2.838	2.519	12.467	9.948	11.21	1.26	1.253	17.0
0:17:09	20.0	0.552	10.0	5.436	9.41	6.7968	19.3	2.840	2.518	12.470	9.952	11.21	1.26	1.253	17.2
0:17:20	20.2	0.558	10.0	5.429	9.51	6.8046	19.5	2.861	2.535	12.494	9.958	11.23	1.27	1.255	17.3
0:17:30	20.3	0.564	10.0	5.424	9.61	6.8118	19.6	2.871	2.542	12.495	9.953	11.22	1.27	1.255	17.5
0:17:41	20.4	0.570	10.0	5.418	9.71	6.8195	19.7	2.893	2.560	12.511	9.951	11.23	1.28	1.257	17.7
0:17:51	20.5	0.576	10.0	5.412	9.80	6.8267	19.7	2.892	2.556	12.517	9.961	11.24	1.28	1.257	17.9
0:18:02	20.5	0.582	10.0	5.405	9.91	6.8348	19.7	2.889	2.550	12.501	9.952	11.23	1.27	1.256	18.0
0:18:12	20.7	0.588	10.0	5.400	10.01	6.8421	20.0	2.926	2.583	12.536	9.953	11.24	1.29	1.260	18.2
0:18:23	20.7	0.594	10.0	5.393	10.11	6.8501	20.0	2.919	2.572	12.527	9.955	11.24	1.29	1.258	18.4
0:18:32	20.7	0.600	10.0	5.388	10.20	6.8570	20.0	2.921	2.571	12.525	9.954	11.24	1.29	1.258	18.5
0:18:44	21.0	0.606	10.0	5.381	10.31	6.8653	20.3	2.955	2.602	12.554	9.952	11.25	1.30	1.261	18.7
0:18:53	21.0	0.612	10.0	5.376	10.40	6.8723	20.3	2.948	2.591	12.546	9.955	11.25	1.30	1.260	18.9
0:19:05	20.9	0.618	9.9	5.370	10.51	6.8804	20.2	2.940	2.580	12.529	9.949	11.24	1.29	1.259	19.1
0:19:16	21.0	0.624	10.0	5.363	10.61	6.8884	20.3	2.949	2.585	12.540	9.955	11.25	1.29	1.260	19.3
0:19:26	21.3	0.630	10.0	5.358	10.70	6.8955	20.6	2.982	2.616	12.571	9.955	11.26	1.31	1.263	19.4
0:19:37	21.5	0.636	10.0	5.352	10.80	6.9033	20.8	3.010	2.640	12.595	9.955	11.28	1.32	1.265	19.6
0:19:48	21.7	0.642	9.9	5.346	10.91	6.9113	21.0	3.039	2.665	12.610	9.945	11.28	1.33	1.268	19.8
0:19:58	21.8	0.648	9.9	5.340	11.00	6.9187	21.1	3.048	2.671	12.619	9.948	11.28	1.34	1.269	20.0
0:20:09	21.8	0.654	9.9	5.334	11.11	6.9269	21.1	3.050	2.669	12.607	9.938	11.27	1.33	1.269	20.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.5227 (in.)
Dia. avg.	3.222 (in)
Area avg.	8.1551 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752B
Data File ID	UU-1752B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:20:19	22.0	0.660	9.9	5.328	11.20	6.9345	21.3	3.073	2.689	12.637	9.948	11.29	1.34	1.270	20.3
0:20:28	22.1	0.666	10.0	5.322	11.30	6.9421	21.4	3.079	2.692	12.644	9.952	11.30	1.35	1.270	20.5
0:20:40	22.3	0.672	10.0	5.316	11.41	6.9504	21.6	3.106	2.715	12.668	9.953	11.31	1.36	1.273	20.7
0:20:49	22.3	0.678	9.9	5.310	11.50	6.9578	21.6	3.101	2.707	12.656	9.949	11.30	1.35	1.272	20.8
0:21:01	22.3	0.684	10.0	5.304	11.61	6.9661	21.6	3.100	2.702	12.653	9.951	11.30	1.35	1.272	21.0
0:21:10	22.4	0.690	9.9	5.298	11.70	6.9736	21.7	3.117	2.715	12.663	9.948	11.31	1.36	1.273	21.2
0:21:22	22.5	0.696	10.0	5.291	11.81	6.9821	21.8	3.122	2.717	12.669	9.952	11.31	1.36	1.273	21.4
0:21:31	22.7	0.702	10.0	5.286	11.90	6.9895	21.9	3.140	2.732	12.684	9.953	11.32	1.37	1.274	21.5
0:21:42	22.7	0.708	10.0	5.280	12.01	6.9977	22.0	3.142	2.730	12.684	9.954	11.32	1.37	1.274	21.7
0:21:54	22.8	0.714	9.9	5.273	12.11	7.0060	22.1	3.151	2.735	12.680	9.945	11.31	1.37	1.275	21.9
0:22:03	22.8	0.720	9.9	5.268	12.20	7.0132	22.1	3.156	2.737	12.687	9.950	11.32	1.37	1.275	22.1
0:22:15	22.8	0.726	9.9	5.262	12.30	7.0212	22.1	3.145	2.723	12.672	9.949	11.31	1.36	1.274	22.3
0:22:26	23.0	0.732	10.0	5.256	12.40	7.0292	22.2	3.165	2.740	12.692	9.952	11.32	1.37	1.275	22.4
0:22:37	23.2	0.738	9.9	5.250	12.51	7.0376	22.5	3.194	2.765	12.715	9.950	11.33	1.38	1.278	22.6
0:22:48	23.1	0.744	10.0	5.244	12.60	7.0453	22.3	3.172	2.740	12.692	9.953	11.32	1.37	1.275	22.8
0:22:59	23.3	0.750	10.0	5.238	12.70	7.0534	22.6	3.205	2.769	12.722	9.953	11.34	1.38	1.278	23.0
0:23:10	23.2	0.756	10.0	5.232	12.80	7.0617	22.5	3.190	2.751	12.703	9.952	11.33	1.38	1.276	23.2
0:23:21	23.4	0.762	10.0	5.226	12.91	7.0699	22.7	3.215	2.773	12.723	9.951	11.34	1.39	1.279	23.4
0:23:32	23.5	0.768	9.9	5.220	13.01	7.0782	22.8	3.219	2.773	12.716	9.943	11.33	1.39	1.279	23.5
0:23:43	23.5	0.774	9.9	5.213	13.11	7.0865	22.8	3.216	2.767	12.716	9.949	11.33	1.38	1.278	23.7
0:23:54	23.6	0.780	9.9	5.208	13.21	7.0946	22.9	3.233	2.780	12.725	9.945	11.34	1.39	1.280	23.9
0:24:06	23.8	0.786	9.9	5.202	13.31	7.1027	23.1	3.256	2.800	12.749	9.949	11.35	1.40	1.281	24.1
0:24:17	23.9	0.792	9.9	5.195	13.41	7.1111	23.2	3.260	2.800	12.744	9.944	11.34	1.40	1.282	24.3
0:24:28	23.8	0.798	9.9	5.189	13.51	7.1194	23.1	3.248	2.784	12.720	9.936	11.33	1.39	1.280	24.5
0:24:38	24.1	0.804	9.9	5.184	13.60	7.1270	23.4	3.278	2.811	12.752	9.941	11.35	1.41	1.283	24.6
0:24:49	24.0	0.810	9.9	5.178	13.71	7.1357	23.3	3.262	2.792	12.741	9.949	11.34	1.40	1.281	24.8
0:24:59	24.1	0.816	9.9	5.172	13.80	7.1433	23.4	3.271	2.798	12.743	9.945	11.34	1.40	1.281	25.0
0:25:10	24.2	0.822	9.9	5.166	13.91	7.1521	23.4	3.279	2.802	12.741	9.939	11.34	1.40	1.282	25.2
0:25:21	24.3	0.828	9.9	5.159	14.01	7.1608	23.6	3.299	2.819	12.763	9.945	11.35	1.41	1.283	25.4
0:25:31	24.4	0.834	9.9	5.154	14.11	7.1688	23.7	3.310	2.827	12.766	9.940	11.35	1.41	1.284	25.5
0:25:41	24.4	0.840	9.9	5.148	14.20	7.1767	23.7	3.297	2.810	12.749	9.938	11.34	1.41	1.283	25.7
0:25:52	24.6	0.846	9.9	5.142	14.31	7.1856	23.8	3.319	2.828	12.764	9.936	11.35	1.41	1.285	25.9
0:26:03	24.6	0.852	9.9	5.135	14.41	7.1943	23.9	3.324	2.830	12.764	9.935	11.35	1.41	1.285	26.1
0:26:13	24.6	0.858	9.9	5.130	14.51	7.2024	23.9	3.322	2.825	12.762	9.937	11.35	1.41	1.284	26.2
0:26:23	24.7	0.864	9.9	5.124	14.60	7.2102	24.0	3.328	2.827	12.757	9.930	11.34	1.41	1.285	26.4
0:26:34	24.8	0.870	9.9	5.118	14.70	7.2189	24.0	3.330	2.826	12.754	9.928	11.34	1.41	1.285	26.6
0:26:45	24.9	0.876	9.9	5.112	14.81	7.2278	24.2	3.353	2.845	12.771	9.926	11.35	1.42	1.287	26.8
0:26:56	24.9	0.882	9.9	5.106	14.91	7.2363	24.1	3.337	2.826	12.751	9.925	11.34	1.41	1.285	26.9
0:27:07	25.1	0.888	9.9	5.099	15.01	7.2452	24.4	3.364	2.849	12.769	9.920	11.34	1.42	1.287	27.1
0:27:17	25.3	0.894	9.9	5.094	15.11	7.2532	24.5	3.384	2.866	12.809	9.943	11.38	1.43	1.288	27.3
0:27:28	25.4	0.900	9.9	5.087	15.21	7.2620	24.7	3.405	2.884	12.831	9.947	11.39	1.44	1.290	27.5
0:27:38	25.5	0.906	10.0	5.082	15.31	7.2703	24.8	3.407	2.882	12.839	9.957	11.40	1.44	1.289	27.6
0:27:48	25.6	0.912	10.0	5.076	15.40	7.2786	24.9	3.416	2.888	12.842	9.954	11.40	1.44	1.290	27.8
0:27:59	25.7	0.918	10.0	5.069	15.51	7.2878	25.0	3.430	2.898	12.850	9.951	11.40	1.45	1.291	28.0
0:28:09	25.7	0.924	10.0	5.064	15.61	7.2961	25.0	3.429	2.894	12.850	9.955	11.40	1.45	1.291	28.2
0:28:19	25.9	0.930	10.0	5.058	15.70	7.3043	25.2	3.454	2.915	12.871	9.956	11.41	1.46	1.293	28.3
0:28:30	26.0	0.936	10.0	5.052	15.81	7.3134	25.3	3.463	2.921	12.877	9.956	11.42	1.46	1.293	28.5
0:28:41	26.2	0.942	10.0	5.046	15.91	7.3224	25.5	3.481	2.935	12.891	9.956	11.42	1.47	1.295	28.7
0:28:51	26.1	0.948	10.0	5.040	16.00	7.3307	25.4	3.464	2.916	12.866	9.950	11.41	1.46	1.293	28.9
0:29:02	26.2	0.954	10.0	5.034	16.11	7.3398	25.5	3.472	2.920	12.874	9.954	11.41	1.46	1.293	29.0
0:29:13	26.2	0.960	10.0	5.028	16.21	7.3484	25.5	3.473	2.917	12.868	9.951	11.41	1.46	1.293	29.2
0:29:23	26.4	0.966	10.0	5.022	16.30	7.3567	25.7	3.494	2.935	12.891	9.955	11.42	1.47	1.295	29.4
0:29:34	26.4	0.972	9.9	5.016	16.40	7.3658	25.7	3.486	2.923	12.869	9.945	11.41	1.46	1.294	29.6
0:29:45	26.4	0.978	10.0	5.010	16.50	7.3745	25.7	3.490	2.924	12.877	9.953	11.41	1.46	1.294	29.8
0:29:57	26.5	0.984	10.0	5.003	16.61	7.3841	25.8	3.495	2.926	12.876	9.950	11.41	1.46	1.294	30.0
0:30:07	26.6	0.990	10.0	4.998	16.70	7.3920	25.9	3.505	2.933	12.889	9.957	11.42	1.47	1.295	30.1

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.5227 (in.)
Dia. avg.	3.222 (in)
Area avg.	8.1551 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752B
Data File ID	UU-1752B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected		Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
				Corrected Height (in.)	Strain (%)										
0:30:18	26.7	0.996	9.9	4.992	16.80	7.4012	26.0	3.518	2.942	12.883	9.942	11.41	1.47	1.296	30.3
0:30:29	26.8	1.002	10.0	4.986	16.90	7.4101	26.1	3.521	2.941	12.898	9.957	11.43	1.47	1.295	30.5
0:30:40	26.8	1.008	9.9	4.980	17.00	7.4189	26.1	3.521	2.938	12.883	9.945	11.41	1.47	1.295	30.7
0:30:52	26.8	1.014	10.0	4.974	17.11	7.4282	26.1	3.517	2.931	12.882	9.951	11.42	1.47	1.295	30.9
0:31:03	26.9	1.020	10.0	4.967	17.21	7.4375	26.2	3.527	2.937	12.893	9.956	11.42	1.47	1.295	31.1
0:31:14	27.0	1.026	9.9	4.962	17.31	7.4463	26.2	3.524	2.931	12.872	9.941	11.41	1.47	1.295	31.2
0:31:25	27.1	1.032	9.9	4.956	17.41	7.4554	26.4	3.540	2.944	12.892	9.949	11.42	1.47	1.296	31.4
0:31:36	27.0	1.038	10.0	4.949	17.51	7.4646	26.3	3.526	2.926	12.880	9.954	11.42	1.46	1.294	31.6
0:31:42	27.3	1.465	10.0	4.523	24.62	8.1689	26.6	3.252	2.407	12.359	9.951	11.15	1.20	1.242	31.7

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.226 (in.)
Area avg.	8.1737 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752C
Data File ID	UU-1752C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	0.7	-0.013	20.0	6.000	0.00	6.1575	0.0	0.000	0.000	19.982	19.982	19.98	0.00	1.000	0.0
0:00:33	28.7	-0.007	20.0	5.994	0.10	6.1638	28.1	4.554	4.550	24.529	19.978	22.25	2.28	1.228	0.6
0:00:46	28.9	0.000	20.0	5.987	0.21	6.1707	28.2	4.569	4.562	24.532	19.970	22.25	2.28	1.228	0.8
0:00:56	28.9	0.005	20.0	5.982	0.30	6.1761	28.2	4.568	4.558	24.526	19.969	22.25	2.28	1.228	0.9
0:01:07	30.3	0.011	20.0	5.976	0.40	6.1823	29.6	4.789	4.775	24.734	19.959	22.35	2.39	1.239	1.1
0:01:18	31.2	0.017	20.0	5.970	0.50	6.1886	30.6	4.937	4.920	24.880	19.960	22.42	2.46	1.246	1.3
0:01:29	31.8	0.024	20.0	5.963	0.61	6.1953	31.2	5.031	5.010	24.968	19.957	22.46	2.51	1.251	1.5
0:01:40	32.5	0.030	20.0	5.957	0.71	6.2015	31.8	5.131	5.107	25.074	19.967	22.52	2.55	1.256	1.7
0:01:51	32.7	0.035	20.0	5.952	0.80	6.2074	32.0	5.159	5.131	25.108	19.977	22.54	2.57	1.257	1.9
0:02:02	33.1	0.041	20.0	5.946	0.91	6.2139	32.4	5.222	5.191	25.172	19.982	22.58	2.60	1.260	2.0
0:02:13	33.6	0.048	20.0	5.939	1.01	6.2203	32.9	5.290	5.256	25.230	19.975	22.60	2.63	1.263	2.2
0:02:24	34.1	0.054	20.0	5.933	1.11	6.2266	33.4	5.366	5.328	25.304	19.976	22.64	2.66	1.267	2.4
0:02:36	34.3	0.060	20.0	5.927	1.21	6.2329	33.7	5.404	5.362	25.339	19.977	22.66	2.68	1.268	2.6
0:02:45	34.5	0.065	20.0	5.922	1.30	6.2388	33.8	5.419	5.375	25.352	19.977	22.66	2.69	1.269	2.8
0:02:57	34.8	0.071	20.0	5.916	1.41	6.2454	34.1	5.468	5.420	25.399	19.979	22.69	2.71	1.271	3.0
0:03:08	35.0	0.077	20.0	5.910	1.51	6.2517	34.4	5.499	5.447	25.424	19.977	22.70	2.72	1.273	3.1
0:03:19	35.2	0.084	20.0	5.903	1.61	6.2584	34.5	5.519	5.464	25.439	19.975	22.71	2.73	1.274	3.3
0:03:29	35.5	0.089	20.0	5.898	1.71	6.2644	34.8	5.559	5.501	25.476	19.975	22.73	2.75	1.275	3.5
0:03:39	35.6	0.095	20.0	5.892	1.80	6.2704	35.0	5.575	5.514	25.488	19.974	22.73	2.76	1.276	3.7
0:03:50	36.0	0.101	20.0	5.886	1.90	6.2770	35.3	5.627	5.562	25.534	19.972	22.75	2.78	1.278	3.8
0:04:01	36.2	0.108	20.0	5.879	2.01	6.2838	35.5	5.656	5.588	25.563	19.975	22.77	2.79	1.280	4.0
0:04:11	36.3	0.113	20.0	5.874	2.10	6.2899	35.6	5.660	5.588	25.565	19.977	22.77	2.79	1.280	4.2
0:04:22	36.5	0.120	20.0	5.867	2.21	6.2966	35.8	5.689	5.613	25.584	19.970	22.78	2.81	1.281	4.4
0:04:32	36.5	0.125	20.0	5.862	2.30	6.3026	35.9	5.689	5.610	25.580	19.970	22.78	2.81	1.281	4.5
0:04:43	36.7	0.131	20.0	5.856	2.41	6.3094	36.0	5.713	5.630	25.600	19.970	22.79	2.82	1.282	4.7
0:04:54	37.0	0.138	20.0	5.849	2.51	6.3161	36.3	5.745	5.659	25.627	19.968	22.80	2.83	1.283	4.9
0:05:04	37.0	0.143	20.0	5.844	2.60	6.3219	36.3	5.746	5.656	25.632	19.975	22.80	2.83	1.283	5.1
0:05:15	37.2	0.149	20.0	5.838	2.70	6.3286	36.5	5.773	5.680	25.648	19.968	22.81	2.84	1.284	5.3
0:05:26	37.4	0.156	20.0	5.831	2.81	6.3355	36.7	5.800	5.703	25.670	19.967	22.82	2.85	1.286	5.4
0:05:36	37.5	0.161	20.0	5.826	2.90	6.3414	36.9	5.816	5.717	25.684	19.968	22.83	2.86	1.286	5.6
0:05:47	37.5	0.167	20.0	5.820	3.01	6.3484	36.8	5.798	5.695	25.655	19.960	22.81	2.85	1.285	5.8
0:05:57	37.6	0.173	20.0	5.814	3.10	6.3548	37.0	5.815	5.709	25.678	19.969	22.82	2.85	1.286	6.0
0:06:08	37.7	0.179	20.0	5.808	3.21	6.3616	37.1	5.829	5.719	25.686	19.967	22.83	2.86	1.286	6.1
0:06:18	38.0	0.185	20.0	5.802	3.30	6.3678	37.3	5.858	5.745	25.715	19.971	22.84	2.87	1.288	6.3
0:06:29	38.0	0.192	20.0	5.795	3.41	6.3750	37.3	5.857	5.740	25.700	19.960	22.83	2.87	1.288	6.5
0:06:39	38.2	0.197	20.0	5.790	3.50	6.3810	37.5	5.883	5.763	25.726	19.962	22.84	2.88	1.289	6.7
0:06:50	38.5	0.203	20.0	5.784	3.61	6.3878	37.8	5.917	5.793	25.757	19.964	22.86	2.90	1.290	6.8
0:07:01	38.6	0.210	20.0	5.777	3.71	6.3949	37.9	5.926	5.798	25.757	19.958	22.86	2.90	1.291	7.0
0:07:11	38.8	0.215	20.0	5.772	3.80	6.4010	38.2	5.963	5.832	25.788	19.955	22.87	2.92	1.292	7.2
0:07:22	39.1	0.221	20.0	5.766	3.90	6.4077	38.4	5.991	5.857	25.816	19.960	22.89	2.93	1.293	7.4
0:07:33	39.2	0.227	20.0	5.760	4.01	6.4145	38.6	6.014	5.877	25.832	19.956	22.89	2.94	1.294	7.6
0:07:44	39.2	0.233	20.0	5.754	4.11	6.4212	38.5	6.003	5.862	25.819	19.957	22.89	2.93	1.294	7.7
0:07:55	39.6	0.239	20.0	5.748	4.21	6.4280	38.9	6.056	5.912	25.867	19.956	22.91	2.96	1.296	7.9
0:08:06	39.6	0.245	20.0	5.742	4.30	6.4345	39.0	6.058	5.911	25.868	19.957	22.91	2.96	1.296	8.1
0:08:18	39.7	0.251	20.0	5.736	4.41	6.4414	39.1	6.067	5.916	25.874	19.958	22.92	2.96	1.296	8.3
0:08:29	39.9	0.257	20.0	5.730	4.51	6.4482	39.3	6.087	5.933	25.892	19.959	22.93	2.97	1.297	8.5
0:08:39	40.1	0.263	19.9	5.724	4.60	6.4545	39.5	6.112	5.954	25.904	19.950	22.93	2.98	1.298	8.7
0:08:50	40.2	0.269	19.9	5.718	4.70	6.4613	39.5	6.118	5.957	25.903	19.947	22.92	2.98	1.299	8.8
0:09:01	40.4	0.275	20.0	5.712	4.80	6.4682	39.7	6.136	5.972	25.924	19.952	22.94	2.99	1.299	9.0
0:09:12	40.3	0.281	20.0	5.706	4.90	6.4750	39.7	6.129	5.961	25.914	19.953	22.93	2.98	1.299	9.2
0:09:23	40.6	0.287	20.0	5.700	5.00	6.4819	39.9	6.158	5.986	25.941	19.955	22.95	2.99	1.300	9.4
0:09:34	40.7	0.293	19.9	5.694	5.10	6.4887	40.0	6.167	5.992	25.937	19.945	22.94	3.00	1.300	9.6
0:09:45	40.7	0.299	20.0	5.688	5.20	6.4956	40.0	6.165	5.987	25.944	19.958	22.95	2.99	1.300	9.8
0:09:56	40.8	0.305	20.0	5.682	5.31	6.5026	40.1	6.169	5.987	25.940	19.953	22.95	2.99	1.300	9.9
0:10:07	41.1	0.312	19.9	5.675	5.41	6.5097	40.4	6.211	6.026	25.974	19.948	22.96	3.01	1.302	10.1
0:10:17	41.3	0.317	19.9	5.670	5.50	6.5159	40.6	6.229	6.041	25.987	19.947	22.97	3.02	1.303	10.3

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.226 (in)
Area avg.	8.1737 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752C
Data File ID	UU-1752C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	ρ ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:10:28	41.5	0.323	19.9	5.664	5.61	6.5231	40.8	6.253	6.060	26.007	19.947	22.98	3.03	1.304	10.5
0:10:39	41.5	0.330	19.9	5.657	5.71	6.5305	40.9	6.256	6.060	26.004	19.944	22.97	3.03	1.304	10.7
0:10:49	41.7	0.335	19.9	5.652	5.80	6.5367	41.1	6.283	6.084	26.034	19.949	22.99	3.04	1.305	10.8
0:11:00	41.9	0.341	19.9	5.646	5.91	6.5440	41.2	6.296	6.094	26.037	19.943	22.99	3.05	1.306	11.0
0:11:10	41.9	0.347	19.9	5.640	6.00	6.5507	41.3	6.301	6.095	26.037	19.942	22.99	3.05	1.306	11.2
0:11:21	42.2	0.353	19.9	5.634	6.11	6.5580	41.5	6.327	6.118	26.066	19.948	23.01	3.06	1.307	11.4
0:11:31	42.3	0.359	19.9	5.628	6.20	6.5646	41.6	6.337	6.125	26.066	19.941	23.00	3.06	1.307	11.5
0:11:42	42.5	0.365	19.9	5.622	6.31	6.5720	41.8	6.360	6.144	26.088	19.945	23.02	3.07	1.308	11.7
0:11:52	42.5	0.371	19.9	5.616	6.40	6.5786	41.9	6.365	6.145	26.090	19.945	23.02	3.07	1.308	11.9
0:12:03	42.7	0.377	20.0	5.610	6.50	6.5858	42.0	6.380	6.157	26.108	19.951	23.03	3.08	1.309	12.1
0:12:15	42.7	0.383	19.9	5.604	6.61	6.5931	42.1	6.381	6.154	26.092	19.938	23.01	3.08	1.309	12.3
0:12:26	42.8	0.390	19.9	5.597	6.71	6.6004	42.1	6.380	6.150	26.092	19.941	23.02	3.08	1.308	12.4
0:12:36	43.2	0.395	19.9	5.592	6.80	6.6070	42.5	6.432	6.199	26.139	19.940	23.04	3.10	1.311	12.6
0:12:47	43.3	0.401	19.9	5.586	6.91	6.6143	42.6	6.443	6.206	26.148	19.942	23.04	3.10	1.311	12.8
0:12:58	43.4	0.408	19.9	5.579	7.01	6.6216	42.7	6.448	6.207	26.149	19.942	23.05	3.10	1.311	13.0
0:13:08	43.5	0.413	19.9	5.574	7.10	6.6284	42.8	6.464	6.220	26.153	19.933	23.04	3.11	1.312	13.1
0:13:19	43.8	0.420	19.9	5.567	7.21	6.6359	43.1	6.498	6.251	26.174	19.923	23.05	3.13	1.314	13.3
0:13:29	43.9	0.425	19.9	5.562	7.30	6.6427	43.3	6.513	6.263	26.190	19.927	23.06	3.13	1.314	13.5
0:13:40	43.8	0.432	19.9	5.555	7.41	6.6503	43.1	6.485	6.231	26.158	19.928	23.04	3.12	1.313	13.7
0:13:50	44.2	0.437	19.9	5.550	7.50	6.6571	43.5	6.533	6.276	26.194	19.918	23.06	3.14	1.315	13.8
0:14:01	44.2	0.443	19.9	5.544	7.61	6.6646	43.5	6.530	6.269	26.191	19.922	23.06	3.13	1.315	14.0
0:14:11	44.2	0.449	19.9	5.538	7.70	6.6713	43.5	6.521	6.257	26.172	19.915	23.04	3.13	1.314	14.2
0:14:21	44.5	0.455	19.9	5.532	7.80	6.6785	43.9	6.566	6.299	26.232	19.933	23.08	3.15	1.316	14.4
0:14:32	44.5	0.461	19.9	5.526	7.90	6.6859	43.8	6.555	6.284	26.227	19.942	23.08	3.14	1.315	14.5
0:14:43	44.6	0.467	19.9	5.520	8.01	6.6935	43.9	6.557	6.283	26.221	19.938	23.08	3.14	1.315	14.7
0:14:54	44.7	0.474	19.9	5.513	8.11	6.7010	44.1	6.577	6.299	26.241	19.942	23.09	3.15	1.316	14.9
0:15:04	44.8	0.479	19.9	5.508	8.20	6.7078	44.2	6.585	6.303	26.250	19.947	23.10	3.15	1.316	15.1
0:15:15	44.7	0.485	19.9	5.502	8.30	6.7150	44.1	6.561	6.276	26.222	19.946	23.08	3.14	1.315	15.3
0:15:26	44.8	0.491	20.0	5.496	8.40	6.7223	44.2	6.569	6.281	26.231	19.950	23.09	3.14	1.315	15.4
0:15:37	45.0	0.497	19.9	5.490	8.51	6.7299	44.3	6.589	6.298	26.247	19.949	23.10	3.15	1.316	15.6
0:15:49	45.3	0.503	19.9	5.484	8.61	6.7374	44.6	6.618	6.323	26.270	19.947	23.11	3.16	1.317	15.8
0:16:00	45.4	0.509	20.0	5.478	8.71	6.7449	44.7	6.632	6.334	26.284	19.951	23.12	3.17	1.317	16.0
0:16:11	45.6	0.516	19.9	5.471	8.81	6.7524	44.9	6.648	6.345	26.289	19.944	23.12	3.17	1.318	16.2
0:16:21	45.6	0.521	20.0	5.466	8.90	6.7591	44.9	6.650	6.345	26.297	19.952	23.12	3.17	1.318	16.4
0:16:32	45.7	0.527	19.9	5.460	9.00	6.7666	45.1	6.663	6.354	26.303	19.949	23.13	3.18	1.319	16.5
0:16:44	45.8	0.534	19.9	5.453	9.11	6.7747	45.1	6.661	6.349	26.295	19.946	23.12	3.17	1.318	16.7
0:16:54	46.0	0.539	19.9	5.448	9.20	6.7814	45.3	6.680	6.364	26.311	19.947	23.13	3.18	1.319	16.9
0:17:05	46.0	0.545	19.9	5.442	9.30	6.7892	45.4	6.685	6.366	26.311	19.945	23.13	3.18	1.319	17.1
0:17:16	46.3	0.551	20.0	5.436	9.40	6.7967	45.6	6.710	6.387	26.338	19.950	23.14	3.19	1.320	17.3
0:17:27	46.3	0.557	19.9	5.430	9.50	6.8041	45.7	6.713	6.387	26.335	19.948	23.14	3.19	1.320	17.5
0:17:38	46.4	0.563	19.9	5.424	9.61	6.8119	45.7	6.709	6.379	26.321	19.941	23.13	3.19	1.320	17.6
0:17:48	46.6	0.569	20.0	5.418	9.70	6.8190	46.0	6.744	6.411	26.366	19.955	23.16	3.21	1.321	17.8
0:17:59	46.8	0.575	19.9	5.412	9.80	6.8269	46.1	6.751	6.415	26.357	19.943	23.15	3.21	1.321	18.0
0:18:10	46.7	0.582	19.9	5.405	9.91	6.8349	46.1	6.738	6.398	26.338	19.940	23.14	3.20	1.321	18.2
0:18:20	46.8	0.587	19.9	5.400	10.00	6.8420	46.1	6.740	6.397	26.342	19.945	23.14	3.20	1.321	18.3
0:18:31	47.1	0.594	19.9	5.393	10.11	6.8502	46.4	6.772	6.425	26.374	19.949	23.16	3.21	1.322	18.5
0:18:41	47.1	0.599	19.9	5.388	10.21	6.8574	46.5	6.777	6.427	26.371	19.945	23.16	3.21	1.322	18.7
0:18:51	47.2	0.605	19.9	5.382	10.30	6.8648	46.6	6.783	6.430	26.368	19.939	23.15	3.21	1.322	18.9
0:19:02	47.4	0.612	19.9	5.375	10.41	6.8729	46.7	6.798	6.441	26.385	19.944	23.16	3.22	1.323	19.0
0:19:12	47.4	0.617	19.9	5.370	10.50	6.8803	46.8	6.799	6.439	26.387	19.949	23.17	3.22	1.323	19.2
0:19:23	47.4	0.624	19.9	5.363	10.61	6.8884	46.7	6.781	6.417	26.356	19.939	23.15	3.21	1.322	19.4
0:19:33	47.5	0.629	19.9	5.358	10.70	6.8957	46.8	6.792	6.425	26.368	19.944	23.16	3.21	1.322	19.6
0:19:44	47.7	0.635	19.9	5.352	10.81	6.9037	47.0	6.808	6.438	26.378	19.940	23.16	3.22	1.323	19.7
0:19:55	47.6	0.642	20.0	5.345	10.91	6.9116	46.9	6.785	6.411	26.361	19.950	23.16	3.21	1.321	19.9
0:20:05	47.7	0.647	19.9	5.340	11.00	6.9188	47.0	6.793	6.415	26.353	19.938	23.15	3.21	1.322	20.1
0:20:16	47.8	0.654	19.9	5.333	11.11	6.9272	47.1	6.806	6.425	26.363	19.938	23.15	3.21	1.322	20.3

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values

Height	4.9019 (in.)
Dia. avg.	3.226 (in)
Area avg.	8.1737 (in ²)

Tested By KDG

Date	6-4-09
Press No.	1
Panel No.	C

Project Number 175569038

Test Number	UU-1752C
Data File ID	UU-1752C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:20:26	47.9	0.659	19.9	5.328	11.20	6.9342	47.3	6.814	6.430	26.369	19.939	23.15	3.22	1.322	20.4
0:20:37	48.1	0.665	19.9	5.322	11.31	6.9425	47.4	6.834	6.446	26.383	19.936	23.16	3.22	1.323	20.6
0:20:47	48.1	0.671	19.9	5.316	11.40	6.9502	47.5	6.828	6.437	26.378	19.941	23.16	3.22	1.323	20.8
0:20:58	48.2	0.678	19.9	5.309	11.51	6.9585	47.5	6.827	6.433	26.377	19.944	23.16	3.22	1.323	21.0
0:21:08	48.2	0.683	19.9	5.304	11.60	6.9658	47.5	6.825	6.427	26.370	19.942	23.16	3.21	1.322	21.1
0:21:19	48.3	0.690	19.9	5.297	11.71	6.9742	47.6	6.829	6.428	26.366	19.938	23.15	3.21	1.322	21.3
0:21:29	48.5	0.695	19.9	5.292	11.81	6.9818	47.8	6.848	6.443	26.377	19.934	23.16	3.22	1.323	21.5
0:21:40	48.7	0.701	19.9	5.286	11.91	6.9898	48.0	6.872	6.464	26.411	19.947	23.18	3.23	1.324	21.7
0:21:51	48.7	0.708	19.9	5.279	12.01	6.9982	48.0	6.863	6.451	26.394	19.942	23.17	3.23	1.323	21.9
0:22:01	48.9	0.713	19.9	5.274	12.11	7.0058	48.2	6.879	6.464	26.403	19.939	23.17	3.23	1.324	22.0
0:22:12	49.0	0.720	19.9	5.267	12.21	7.0139	48.3	6.887	6.468	26.408	19.940	23.17	3.23	1.324	22.2
0:22:22	48.9	0.725	19.9	5.262	12.30	7.0213	48.2	6.867	6.445	26.383	19.938	23.16	3.22	1.323	22.4
0:22:33	48.9	0.731	19.9	5.256	12.41	7.0296	48.3	6.868	6.443	26.384	19.941	23.16	3.22	1.323	22.6
0:22:44	49.0	0.738	19.9	5.249	12.51	7.0379	48.3	6.865	6.437	26.384	19.948	23.17	3.22	1.323	22.7
0:22:56	49.3	0.743	19.9	5.244	12.61	7.0458	48.6	6.898	6.466	26.401	19.935	23.17	3.23	1.324	22.9
0:23:07	49.5	0.750	19.9	5.237	12.71	7.0542	48.9	6.927	6.491	26.422	19.930	23.18	3.25	1.326	23.1
0:23:17	49.5	0.755	19.9	5.232	12.80	7.0617	48.9	6.920	6.481	26.416	19.934	23.17	3.24	1.325	23.3
0:23:28	49.7	0.761	19.9	5.226	12.90	7.0699	49.0	6.936	6.493	26.431	19.938	23.18	3.25	1.326	23.5
0:23:39	49.7	0.767	19.9	5.220	13.01	7.0782	49.1	6.935	6.489	26.426	19.938	23.18	3.24	1.325	23.7
0:23:50	49.7	0.774	19.9	5.213	13.11	7.0866	49.0	6.915	6.466	26.396	19.931	23.16	3.23	1.324	23.8
0:24:01	49.6	0.780	19.9	5.207	13.21	7.0947	48.9	6.893	6.440	26.369	19.929	23.15	3.22	1.323	24.0
0:24:12	49.8	0.786	19.9	5.201	13.31	7.1030	49.1	6.915	6.458	26.395	19.936	23.17	3.23	1.324	24.2
0:24:23	49.7	0.792	19.9	5.195	13.41	7.1112	49.0	6.897	6.438	26.370	19.932	23.15	3.22	1.323	24.4
0:24:33	49.8	0.797	19.9	5.190	13.50	7.1187	49.2	6.909	6.446	26.376	19.930	23.15	3.22	1.323	24.6
0:24:44	50.0	0.803	19.9	5.184	13.60	7.1272	49.3	6.919	6.452	26.386	19.934	23.16	3.23	1.324	24.7
0:24:55	50.1	0.809	19.9	5.178	13.70	7.1353	49.4	6.927	6.457	26.386	19.929	23.16	3.23	1.324	24.9
0:25:06	50.1	0.815	19.9	5.172	13.80	7.1436	49.4	6.915	6.442	26.367	19.925	23.15	3.22	1.323	25.1
0:25:17	50.2	0.822	19.9	5.165	13.91	7.1523	49.6	6.931	6.454	26.382	19.928	23.16	3.23	1.324	25.3
0:25:27	50.3	0.827	19.9	5.160	14.01	7.1603	49.6	6.933	6.453	26.382	19.930	23.16	3.23	1.324	25.5
0:25:38	50.4	0.834	19.9	5.153	14.11	7.1690	49.7	6.938	6.454	26.379	19.925	23.15	3.23	1.324	25.6
0:25:48	50.4	0.839	19.9	5.148	14.20	7.1767	49.7	6.930	6.443	26.368	19.925	23.15	3.22	1.323	25.8
0:25:58	50.3	0.845	19.9	5.142	14.30	7.1851	49.7	6.913	6.423	26.349	19.926	23.14	3.21	1.322	26.0
0:26:09	50.6	0.851	19.9	5.135	14.41	7.1941	50.0	6.948	6.454	26.374	19.920	23.15	3.23	1.324	26.2
0:26:19	50.6	0.857	19.9	5.130	14.50	7.2020	50.0	6.936	6.439	26.366	19.927	23.15	3.22	1.323	26.3
0:26:30	50.6	0.864	19.9	5.123	14.61	7.2111	49.9	6.923	6.422	26.346	19.923	23.13	3.21	1.322	26.5
0:26:40	50.8	0.869	19.9	5.118	14.71	7.2192	50.1	6.939	6.434	26.348	19.913	23.13	3.22	1.323	26.7
0:26:51	50.8	0.876	19.9	5.111	14.81	7.2280	50.1	6.937	6.429	26.342	19.913	23.13	3.21	1.323	26.9
0:27:01	50.9	0.881	19.9	5.106	14.90	7.2359	50.2	6.938	6.427	26.342	19.915	23.13	3.21	1.323	27.0
0:27:12	51.0	0.888	19.9	5.099	15.01	7.2450	50.3	6.948	6.433	26.371	19.938	23.15	3.22	1.323	27.2
0:27:22	51.2	0.893	19.9	5.094	15.10	7.2527	50.5	6.967	6.450	26.383	19.934	23.16	3.22	1.324	27.4
0:27:33	51.4	0.899	19.9	5.088	15.20	7.2614	50.7	6.987	6.466	26.393	19.927	23.16	3.23	1.325	27.6
0:27:44	51.3	0.906	19.9	5.081	15.31	7.2706	50.7	6.968	6.443	26.380	19.938	23.16	3.22	1.323	27.7
0:27:54	51.4	0.911	19.9	5.076	15.40	7.2788	50.7	6.967	6.439	26.373	19.935	23.15	3.22	1.323	27.9
0:28:05	51.5	0.918	19.9	5.069	15.51	7.2878	50.8	6.977	6.445	26.377	19.932	23.15	3.22	1.323	28.1
0:28:15	51.6	0.923	19.9	5.064	15.61	7.2961	50.9	6.976	6.441	26.384	19.944	23.16	3.22	1.323	28.3
0:28:25	51.5	0.929	19.9	5.058	15.70	7.3044	50.9	6.964	6.426	26.373	19.947	23.16	3.21	1.322	28.4
0:28:36	51.6	0.935	19.9	5.052	15.80	7.3133	51.0	6.969	6.427	26.372	19.944	23.16	3.21	1.322	28.6
0:28:47	51.9	0.942	19.9	5.045	15.91	7.3227	51.2	6.994	6.448	26.387	19.939	23.16	3.22	1.323	28.8
0:28:57	51.8	0.947	19.9	5.040	16.00	7.3307	51.1	6.976	6.427	26.368	19.941	23.15	3.21	1.322	29.0
0:29:08	51.8	0.953	19.9	5.034	16.10	7.3394	51.2	6.971	6.419	26.353	19.934	23.14	3.21	1.322	29.1
0:29:19	52.1	0.959	19.9	5.028	16.21	7.3485	51.4	6.994	6.438	26.373	19.935	23.15	3.22	1.323	29.3
0:29:30	52.0	0.966	19.9	5.021	16.31	7.3575	51.4	6.982	6.423	26.367	19.945	23.16	3.21	1.322	29.5
0:29:40	52.2	0.971	19.9	5.016	16.41	7.3660	51.5	6.993	6.431	26.372	19.941	23.16	3.22	1.322	29.7
0:29:51	52.4	0.978	19.9	5.009	16.51	7.3751	51.8	7.018	6.452	26.388	19.936	23.16	3.23	1.324	29.9
0:30:02	52.3	0.984	19.9	5.003	16.61	7.3840	51.7	6.999	6.429	26.367	19.938	23.15	3.21	1.322	30.0
0:30:13	52.4	0.989	19.9	4.998	16.71	7.3926	51.8	7.005	6.432	26.374	19.942	23.16	3.22	1.323	30.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.226 (in)
Area avg.	8.1737 (in ²)

Tested By	KDG
Date	6-4-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1752C
Data File ID	UU-1752C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:25	52.6	0.995	19.9	4.992	16.81	7.4015	51.9	7.011	6.435	26.378	19.944	23.16	3.22	1.323	30.4
0:30:34	52.7	1.001	19.9	4.986	16.90	7.4099	52.1	7.025	6.446	26.381	19.935	23.16	3.22	1.323	30.6
0:30:46	52.7	1.007	19.9	4.980	17.00	7.4188	52.0	7.014	6.431	26.367	19.936	23.15	3.22	1.323	30.8
0:30:57	52.9	1.013	19.9	4.974	17.10	7.4278	52.3	7.036	6.450	26.387	19.938	23.16	3.22	1.323	31.0
0:31:08	52.9	1.020	19.9	4.967	17.21	7.4375	52.2	7.022	6.432	26.368	19.936	23.15	3.22	1.323	31.1
0:31:19	53.0	1.025	19.9	4.962	17.31	7.4463	52.3	7.023	6.430	26.360	19.930	23.14	3.21	1.323	31.3
0:31:30	53.0	1.032	19.9	4.955	17.41	7.4555	52.3	7.014	6.417	26.353	19.936	23.14	3.21	1.322	31.5
0:31:41	53.1	1.038	19.9	4.949	17.51	7.4645	52.4	7.023	6.422	26.354	19.932	23.14	3.21	1.322	31.7
0:31:51	53.3	1.043	19.9	4.944	17.60	7.4728	52.6	7.039	6.435	26.373	19.937	23.15	3.22	1.323	31.9
0:32:02	53.3	1.049	19.9	4.938	17.70	7.4820	52.7	7.038	6.431	26.367	19.936	23.15	3.22	1.323	32.0
0:32:13	53.5	1.055	19.9	4.932	17.80	7.4912	52.8	7.050	6.440	26.374	19.934	23.15	3.22	1.323	32.2
0:32:24	53.5	1.061	19.9	4.926	17.90	7.5001	52.9	7.051	6.437	26.366	19.929	23.15	3.22	1.323	32.4
0:32:35	53.7	1.067	19.9	4.920	18.00	7.5094	53.1	7.067	6.449	26.380	19.930	23.16	3.22	1.324	32.6
0:32:46	54.0	1.073	19.9	4.913	18.11	7.5191	53.3	7.094	6.473	26.405	19.932	23.17	3.24	1.325	32.8
0:32:56	54.0	1.079	19.9	4.908	18.20	7.5278	53.3	7.084	6.460	26.392	19.932	23.16	3.23	1.324	32.9
0:33:06	54.1	1.085	19.9	4.902	18.30	7.5369	53.5	7.093	6.465	26.396	19.930	23.16	3.23	1.324	33.1

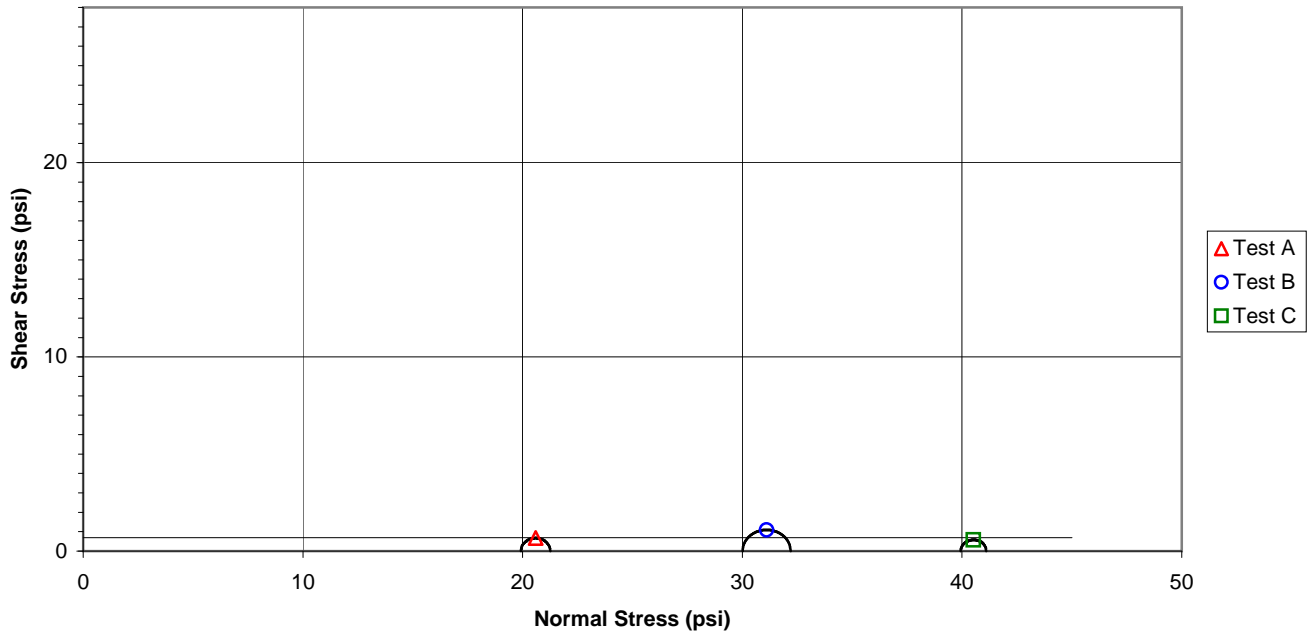
Project John Sevier Fossil Plant
 Sample ID JS-36B, 27.0' - 36.0'

Project No. 175569038
 Test Number 1754

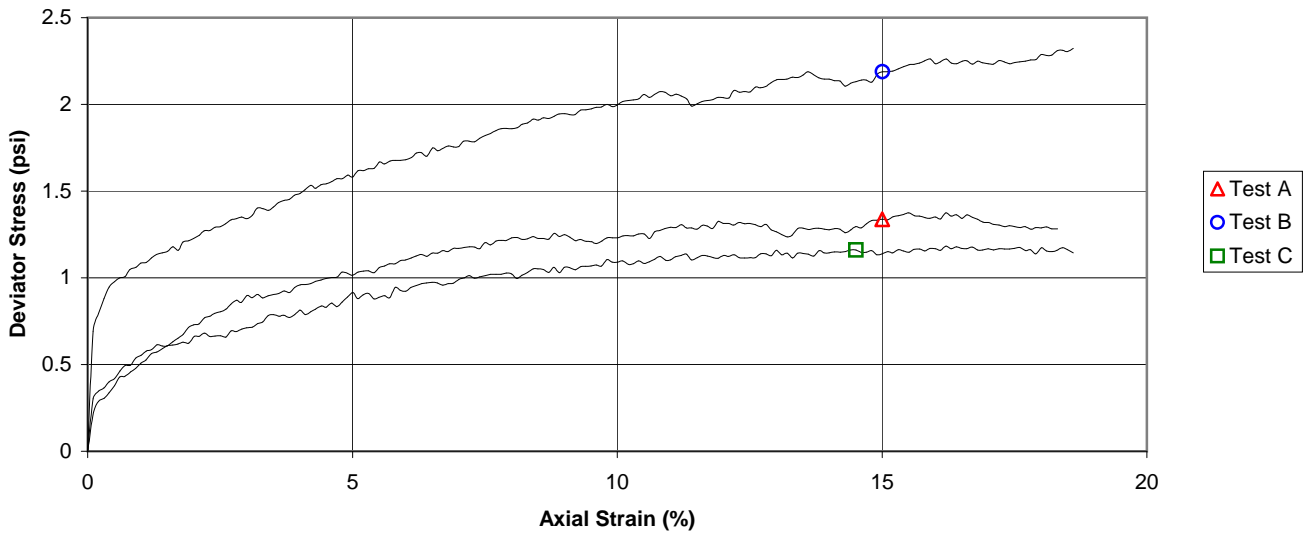
Failure Criterion: $\phi = 0.0$ deg. Maximum Deviator Stress

$c = 0.7$ psi

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name John Sevier Fossil Plant
 Sample Identification JS-36B, 27.0' - 36.0'
 Visual Description Silt (ML), gray, (fly ash)

Project Number 175569038
 Test Number UU-1754A
 Prepared By KDG
 Date 6-3-09

Specific Gravity 2.32 Liquid Limit NP Plastic Limit NP Plasticity Index NP

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.7399</u> (VS _o)	Dry Weight (g) <u>750.52</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>16.1216</u> (Vw _o)	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>17.2052</u> (Vv _o)	Dry Unit Weight (pcf) <u>77.4</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>93.7</u> (S _o)	
Moisture Content (%) <u>35.2</u>	Final Trimmings	Void Ratio <u>0.872</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By KDG
 Back Pressure Saturated to: 0 (psi) Final Pore Pressure Parameter B _____ Date 6-3-09
 Panel Board Number C

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

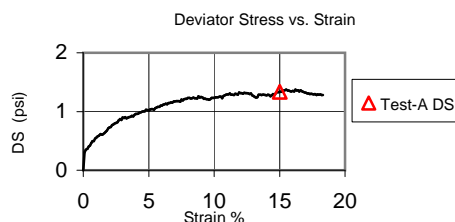
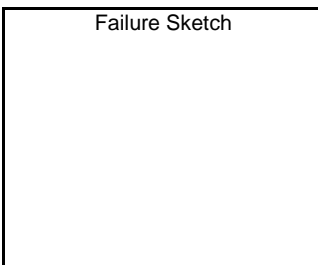
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>20</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>16.1216</u> (VW _c)	t ₅₀ (min.) _____
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>35.2</u>	
Dry Density (pcf) <u>77.4</u>		Degree of Saturation (%) <u>93.7</u> (S _c)	Void Ratio <u>0.872</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.347</u> (in.)	Wet Weight (g) <u>1014.72</u>	Corrected Deviator <u>1.34</u> σ _d (psi)
Wet weight (g) <u>1014.72</u> (WW _f)	Dry Weight (g) <u>750.52</u>	Major Principal <u>21.26</u> σ _{1f} (psi)
Average Diameter <u>3.263</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>19.92</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.231</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>

Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk samples taken from soft fly ash.

Project Name	<u>John Sevier Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36B, 27.0' - 36.0'</u>	Test Number	<u>UU-1754B</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>KDG</u>
		Date	<u>6-3-09</u>

Specific Gravity	<u>2.32</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.8843</u> (V _{S_o})	Dry Weight (g) <u>756.01</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.7866</u> (V _{w_o})	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>17.0608</u> (V _{v_o})	Dry Unit Weight (pcf) <u>78.0</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>92.5</u> (S _o)	
Moisture Content (%) <u>34.2</u>	Final Trimmings	Void Ratio <u>0.858</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-3-09</u>
			Panel Board Number	<u>B</u>

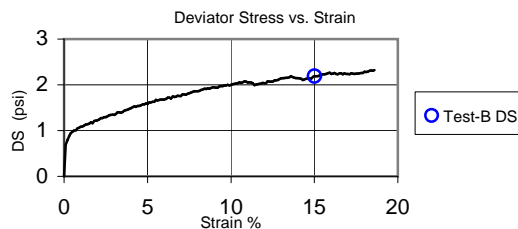
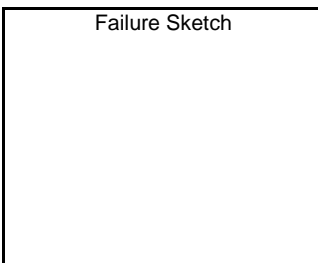
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>6.0000</u> (H _s)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Area (in ²) Method A	<u>6.1575</u> (A _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Specimen Volume (in ³)	<u>36.9451</u> (V _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>30</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>30</u> (σ ₃)
Height (in.)	<u>6.0000</u> (H _c)	Volume (in ³)	<u>36.9451</u> (V _c)
Area (in ³) Method A	<u>6.1575</u> (A _c)	Volume - Water (in ³)	<u>15.7866</u> (V _{Wc})
Diameter (in.)	<u>2.8000</u> (D _c)	Water Content (%)	<u>34.2</u>
Dry Density (pcf)	<u>78.0</u>	Degree of Saturation (%)	<u>92.5</u> (S _c)
		t ₅₀ (min.)	_____
		Void Ratio	<u>0.858</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.379</u> (in.)	Wet Weight (g) <u>1014.72</u>	Corrected Deviator <u>2.19</u> σ _d (psi)
Wet weight (g) <u>1014.72</u> (WW _f)	Dry Weight (g) <u>756.01</u>	Major Principal <u>32.20</u> σ _{1f} (psi)
Average Diameter <u>3.195</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>30.01</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.227</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk samples taken from soft fly ash.

Project Name	<u>John Sevier Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36B, 27.0' - 36.0'</u>	Test Number	<u>UU-1754C</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>KDG</u>
		Date	<u>6-3-09</u>

Specific Gravity	<u>2.32</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1014.72</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>19.8174</u> (V _{S_o})	Dry Weight (g) <u>753.46</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.9419</u> (V _{W_o})	Wet Unit Weight (pcf) <u>104.6</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>17.1278</u> (V _{V_o})	Dry Unit Weight (pcf) <u>77.7</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>93.1</u> (S _o)	
Moisture Content (%) <u>34.7</u>	Final Trimmings	Void Ratio <u>0.864</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG/RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-3-09</u>
			Panel Board Number	<u>C</u>

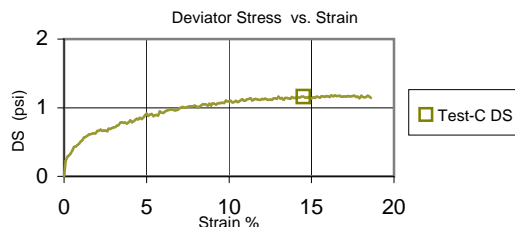
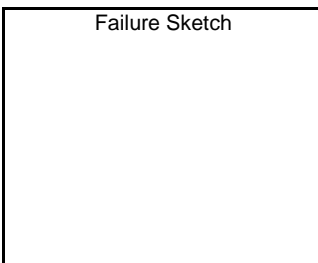
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>40</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>40</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>15.9419</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>34.7</u>	
Dry Density (pcf) <u>77.7</u>		Degree of Saturation (%) <u>93.1</u> (S _c)	Void Ratio <u>0.864</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.376</u> (in.)	Wet Weight (g) <u>1014.72</u>	Corrected Deviator <u>1.16</u> σ _d (psi)
Wet weight (g) <u>1014.72</u> (WW _f)	Dry Weight (g) <u>753.46</u>	Major Principal <u>41.10</u> σ _{1f} (psi)
Average Diameter <u>3.251</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>39.94</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.228</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>14.50</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk samples taken from soft fly ash.

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9013 (in.)
Dia. avg.	3.263 (in)
Area avg.	8.3640 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1754A
Data File ID	UU-1754A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	2.0	-0.017	19.9	6.000	0.00	6.1575	0.0	0.000	0.000	19.925	19.925	19.93	0.00	1.000	0.0
0:00:16	3.9	-0.011	19.9	5.994	0.10	6.1639	1.9	0.307	0.303	20.233	19.929	20.08	0.15	1.015	0.3
0:00:27	4.2	-0.005	19.9	5.988	0.21	6.1703	2.2	0.354	0.347	20.270	19.923	20.10	0.17	1.017	0.5
0:00:38	4.4	0.001	19.9	5.982	0.31	6.1765	2.3	0.375	0.365	20.293	19.928	20.11	0.18	1.018	0.6
0:00:49	4.6	0.007	19.9	5.976	0.41	6.1826	2.6	0.415	0.401	20.331	19.931	20.13	0.20	1.020	0.8
0:01:00	4.7	0.013	19.9	5.970	0.51	6.1889	2.7	0.436	0.418	20.341	19.923	20.13	0.21	1.021	1.0
0:01:11	5.0	0.019	19.9	5.963	0.61	6.1953	3.0	0.484	0.463	20.391	19.928	20.16	0.23	1.023	1.2
0:01:21	5.2	0.025	19.9	5.958	0.71	6.2013	3.2	0.518	0.494	20.423	19.929	20.18	0.25	1.025	1.4
0:01:32	5.3	0.031	19.9	5.951	0.81	6.2079	3.3	0.524	0.496	20.426	19.930	20.18	0.25	1.025	1.5
0:01:42	5.6	0.037	19.9	5.946	0.90	6.2137	3.5	0.568	0.537	20.460	19.923	20.19	0.27	1.027	1.7
0:01:53	5.7	0.043	19.9	5.939	1.01	6.2202	3.7	0.588	0.554	20.477	19.923	20.20	0.28	1.028	1.9
0:02:03	5.9	0.049	19.9	5.934	1.10	6.2263	3.8	0.615	0.577	20.496	19.919	20.21	0.29	1.029	2.1
0:02:14	5.9	0.055	19.9	5.928	1.21	6.2328	3.9	0.628	0.586	20.508	19.922	20.22	0.29	1.029	2.2
0:02:26	6.1	0.061	19.9	5.921	1.31	6.2393	4.1	0.659	0.614	20.537	19.923	20.23	0.31	1.031	2.4
0:02:35	6.1	0.067	19.9	5.915	1.41	6.2455	4.1	0.655	0.606	20.534	19.928	20.23	0.30	1.030	2.6
0:02:45	6.2	0.073	19.9	5.910	1.50	6.2513	4.1	0.659	0.608	20.530	19.922	20.23	0.30	1.031	2.8
0:02:56	6.3	0.079	19.9	5.904	1.61	6.2581	4.3	0.686	0.631	20.557	19.926	20.24	0.32	1.032	2.9
0:03:06	6.5	0.085	19.9	5.898	1.70	6.2642	4.4	0.710	0.652	20.570	19.918	20.24	0.33	1.033	3.1
0:03:17	6.7	0.091	19.9	5.892	1.81	6.2708	4.6	0.738	0.676	20.600	19.923	20.26	0.34	1.034	3.3
0:03:27	6.9	0.097	19.9	5.886	1.90	6.2768	4.9	0.779	0.714	20.639	19.926	20.28	0.36	1.036	3.5
0:03:38	7.0	0.103	19.9	5.880	2.00	6.2832	5.0	0.798	0.729	20.646	19.917	20.28	0.36	1.037	3.6
0:03:49	7.1	0.109	19.9	5.874	2.10	6.2899	5.1	0.806	0.734	20.650	19.916	20.28	0.37	1.037	3.8
0:04:00	7.4	0.115	19.9	5.868	2.21	6.2964	5.3	0.845	0.770	20.692	19.922	20.31	0.38	1.039	4.0
0:04:12	7.4	0.121	19.9	5.862	2.31	6.3029	5.4	0.857	0.778	20.700	19.923	20.31	0.39	1.039	4.2
0:04:21	7.6	0.127	19.9	5.856	2.40	6.3090	5.5	0.877	0.795	20.716	19.921	20.32	0.40	1.040	4.4
0:04:33	7.7	0.133	19.9	5.849	2.51	6.3161	5.6	0.891	0.805	20.729	19.924	20.33	0.40	1.040	4.6
0:04:42	7.8	0.139	19.9	5.844	2.61	6.3224	5.7	0.908	0.818	20.740	19.922	20.33	0.41	1.041	4.7
0:04:52	8.0	0.145	19.9	5.838	2.70	6.3285	5.9	0.940	0.847	20.766	19.919	20.34	0.42	1.043	4.9
0:05:03	8.2	0.151	19.9	5.832	2.81	6.3354	6.1	0.967	0.871	20.788	19.917	20.35	0.44	1.044	5.1
0:05:13	8.1	0.157	19.9	5.826	2.90	6.3415	6.1	0.958	0.858	20.781	19.922	20.35	0.43	1.043	5.2
0:05:24	8.4	0.163	19.9	5.820	3.01	6.3485	6.4	1.001	0.898	20.820	19.922	20.37	0.45	1.045	5.4
0:05:34	8.3	0.169	19.9	5.814	3.11	6.3549	6.3	0.992	0.886	20.806	19.920	20.36	0.44	1.044	5.6
0:05:45	8.5	0.175	19.9	5.807	3.21	6.3617	6.4	1.013	0.903	20.828	19.924	20.38	0.45	1.045	5.8
0:05:55	8.4	0.181	19.9	5.802	3.30	6.3678	6.3	0.996	0.883	20.801	19.918	20.36	0.44	1.044	5.9
0:06:06	8.5	0.187	19.9	5.796	3.41	6.3746	6.5	1.013	0.896	20.816	19.920	20.37	0.45	1.045	6.1
0:06:17	8.6	0.193	19.9	5.790	3.51	6.3814	6.5	1.024	0.904	20.816	19.912	20.36	0.45	1.045	6.3
0:06:28	8.6	0.199	19.9	5.783	3.61	6.3880	6.6	1.033	0.909	20.831	19.922	20.38	0.45	1.046	6.5
0:06:40	8.8	0.205	19.9	5.778	3.71	6.3946	6.7	1.051	0.924	20.842	19.918	20.38	0.46	1.046	6.7
0:06:51	8.7	0.211	19.9	5.771	3.81	6.4014	6.7	1.045	0.914	20.830	19.916	20.37	0.46	1.046	6.9
0:07:02	8.9	0.217	19.9	5.765	3.91	6.4081	6.9	1.079	0.945	20.864	19.920	20.39	0.47	1.047	7.0
0:07:13	9.1	0.223	19.9	5.759	4.01	6.4148	7.0	1.097	0.959	20.874	19.915	20.39	0.48	1.048	7.2
0:07:24	9.1	0.229	19.9	5.753	4.11	6.4214	7.1	1.101	0.960	20.874	19.914	20.39	0.48	1.048	7.4
0:07:35	9.2	0.235	19.9	5.747	4.21	6.4282	7.1	1.111	0.967	20.877	19.910	20.39	0.48	1.049	7.6
0:07:45	9.3	0.241	19.9	5.742	4.30	6.4344	7.3	1.127	0.979	20.894	19.914	20.40	0.49	1.049	7.8
0:07:56	9.4	0.247	19.9	5.736	4.40	6.4412	7.3	1.138	0.987	20.899	19.912	20.41	0.49	1.050	7.9
0:08:07	9.5	0.253	19.9	5.730	4.50	6.4478	7.4	1.151	0.997	20.909	19.912	20.41	0.50	1.050	8.1
0:08:18	9.5	0.259	19.9	5.724	4.60	6.4547	7.5	1.159	1.001	20.913	19.912	20.41	0.50	1.050	8.3
0:08:29	9.6	0.265	19.9	5.718	4.70	6.4615	7.5	1.165	1.004	20.908	19.904	20.41	0.50	1.050	8.5
0:08:40	9.8	0.271	19.9	5.712	4.80	6.4682	7.7	1.197	1.032	20.943	19.911	20.43	0.52	1.052	8.7
0:08:52	9.8	0.277	19.9	5.706	4.91	6.4753	7.7	1.193	1.025	20.930	19.905	20.42	0.51	1.051	8.9
0:09:01	9.7	0.283	19.9	5.700	5.00	6.4816	7.7	1.187	1.015	20.922	19.906	20.41	0.51	1.051	9.0
0:09:13	9.9	0.289	19.9	5.694	5.11	6.4888	7.8	1.208	1.033	20.935	19.902	20.42	0.52	1.052	9.2
0:09:24	9.9	0.295	19.9	5.687	5.21	6.4959	7.9	1.217	1.039	20.938	19.899	20.42	0.52	1.052	9.4
0:09:34	10.0	0.301	19.9	5.682	5.30	6.5023	7.9	1.222	1.040	20.949	19.909	20.43	0.52	1.052	9.6
0:09:45	9.9	0.307	19.9	5.675	5.41	6.5096	7.9	1.215	1.030	20.932	19.902	20.42	0.51	1.052	9.8
0:09:54	10.2	0.313	19.9	5.670	5.50	6.5160	8.1	1.247	1.059	20.956	19.898	20.43	0.53	1.053	9.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= 4(EM)(Thickness)(Strain)/Dc

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values			Final Values				Tested By <u>KDG</u>		Project Number <u>175569038</u>	
Height	<u>6.000</u>	(in.)	Height	<u>4.9013</u>	(in.)	Date	<u>6-3-09</u>	Test Number	<u>UU-1754A</u>	
Diameter	<u>2.800</u>	(in)	Dia. avg.	<u>3.263</u>	(in)	Press No.	<u>1</u>	Data File ID	<u>UU-1754A</u>	
Area	<u>6.158</u>	(in ²)	Area avg.	<u>8.3640</u>	(in ²)	Panel No.	<u>C</u>	Back Pressure (psi)	<u>0</u>	
								Lateral Pressure (psi)	<u>20</u>	

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:06	10.3	0.319	19.9	5.664	5.61	6.5232	8.2	1.261	1.068	20.968	19.900	20.43	0.53	1.054	10.1
0:10:15	10.4	0.325	19.9	5.658	5.70	6.5298	8.3	1.276	1.081	20.977	19.896	20.44	0.54	1.054	10.3
0:10:27	10.4	0.331	19.9	5.651	5.81	6.5372	8.4	1.281	1.082	20.980	19.898	20.44	0.54	1.054	10.5
0:10:38	10.6	0.338	19.9	5.645	5.91	6.5444	8.5	1.302	1.099	20.973	19.875	20.42	0.55	1.055	10.6
0:10:47	10.6	0.343	19.9	5.640	6.01	6.5510	8.6	1.309	1.103	21.012	19.909	20.46	0.55	1.055	10.8
0:10:59	10.7	0.349	19.9	5.633	6.11	6.5581	8.7	1.324	1.115	21.032	19.917	20.47	0.56	1.056	11.0
0:11:08	10.8	0.355	19.9	5.628	6.20	6.5646	8.8	1.338	1.125	21.035	19.910	20.47	0.56	1.057	11.1
0:11:20	10.9	0.361	19.9	5.622	6.30	6.5717	8.9	1.350	1.134	21.054	19.920	20.49	0.57	1.057	11.3
0:11:31	10.9	0.367	19.9	5.616	6.41	6.5791	8.8	1.344	1.124	21.041	19.917	20.48	0.56	1.056	11.5
0:11:41	11.0	0.373	19.9	5.610	6.50	6.5857	9.0	1.365	1.142	21.058	19.916	20.49	0.57	1.057	11.7
0:11:52	11.1	0.379	19.9	5.603	6.61	6.5933	9.0	1.369	1.142	21.065	19.923	20.49	0.57	1.057	11.9
0:12:02	11.2	0.385	19.9	5.598	6.70	6.6000	9.1	1.386	1.156	21.075	19.919	20.50	0.58	1.058	12.0
0:12:11	11.2	0.391	19.9	5.592	6.80	6.6071	9.2	1.385	1.152	21.079	19.927	20.50	0.58	1.058	12.2
0:12:22	11.3	0.397	19.9	5.585	6.91	6.6145	9.3	1.406	1.170	21.092	19.922	20.51	0.58	1.059	12.4
0:12:32	11.4	0.403	19.9	5.580	7.00	6.6211	9.3	1.409	1.169	21.086	19.917	20.50	0.58	1.059	12.5
0:12:43	11.4	0.409	19.9	5.573	7.11	6.6288	9.4	1.419	1.175	21.105	19.929	20.52	0.59	1.059	12.7
0:12:53	11.5	0.415	19.9	5.568	7.21	6.6358	9.5	1.427	1.180	21.099	19.919	20.51	0.59	1.059	12.9
0:13:04	11.5	0.421	19.9	5.561	7.31	6.6432	9.5	1.427	1.177	21.096	19.920	20.51	0.59	1.059	13.1
0:13:14	11.5	0.427	19.9	5.556	7.40	6.6498	9.4	1.421	1.167	21.086	19.919	20.50	0.58	1.059	13.2
0:13:25	11.8	0.433	19.9	5.550	7.51	6.6572	9.7	1.461	1.204	21.122	19.918	20.52	0.60	1.060	13.4
0:13:36	11.7	0.439	19.9	5.544	7.61	6.6645	9.7	1.452	1.191	21.107	19.917	20.51	0.60	1.060	13.6
0:13:48	11.9	0.445	19.9	5.537	7.71	6.6718	9.9	1.477	1.213	21.131	19.918	20.52	0.61	1.061	13.8
0:13:59	11.9	0.451	19.9	5.532	7.81	6.6790	9.9	1.483	1.216	21.138	19.923	20.53	0.61	1.061	14.0
0:14:10	12.0	0.457	19.9	5.525	7.91	6.6864	9.9	1.486	1.215	21.134	19.919	20.53	0.61	1.061	14.2
0:14:21	12.1	0.463	19.9	5.520	8.01	6.6934	10.1	1.504	1.230	21.148	19.918	20.53	0.61	1.062	14.4
0:14:32	12.2	0.469	19.9	5.514	8.11	6.7007	10.1	1.511	1.233	21.151	19.918	20.53	0.62	1.062	14.5
0:14:43	12.1	0.475	19.9	5.508	8.21	6.7080	10.1	1.503	1.221	21.135	19.914	20.52	0.61	1.061	14.7
0:14:54	12.2	0.481	19.9	5.502	8.31	6.7154	10.1	1.510	1.225	21.148	19.922	20.53	0.61	1.061	14.9
0:15:05	12.3	0.487	19.9	5.495	8.41	6.7228	10.3	1.526	1.237	21.151	19.914	20.53	0.62	1.062	15.1
0:15:16	12.3	0.493	19.9	5.490	8.51	6.7300	10.2	1.518	1.226	21.148	19.921	20.53	0.61	1.062	15.3
0:15:27	12.3	0.499	19.9	5.484	8.61	6.7375	10.3	1.522	1.227	21.147	19.919	20.53	0.61	1.062	15.5
0:15:39	12.3	0.505	19.9	5.477	8.71	6.7450	10.3	1.522	1.223	21.142	19.919	20.53	0.61	1.061	15.7
0:15:50	12.6	0.511	19.9	5.471	8.81	6.7524	10.5	1.558	1.256	21.179	19.922	20.55	0.63	1.063	15.8
0:16:01	12.5	0.517	19.9	5.465	8.91	6.7597	10.4	1.544	1.238	21.160	19.921	20.54	0.62	1.062	16.0
0:16:11	12.6	0.523	19.9	5.460	9.00	6.7667	10.5	1.557	1.248	21.166	19.918	20.54	0.62	1.063	16.2
0:16:22	12.5	0.529	19.9	5.454	9.11	6.7746	10.5	1.547	1.234	21.147	19.913	20.53	0.62	1.062	16.4
0:16:33	12.4	0.535	19.9	5.447	9.21	6.7821	10.4	1.530	1.215	21.131	19.916	20.52	0.61	1.061	16.6
0:16:43	12.5	0.541	19.9	5.442	9.30	6.7890	10.5	1.540	1.221	21.132	19.910	20.52	0.61	1.061	16.7
0:16:54	12.5	0.547	19.9	5.435	9.41	6.7973	10.4	1.534	1.211	21.128	19.917	20.52	0.61	1.061	16.9
0:17:04	12.5	0.553	19.9	5.430	9.51	6.8045	10.4	1.535	1.209	21.123	19.915	20.52	0.60	1.061	17.1
0:17:13	12.4	0.559	19.9	5.424	9.60	6.8116	10.4	1.527	1.198	21.123	19.925	20.52	0.60	1.060	17.2
0:17:24	12.6	0.565	19.9	5.417	9.71	6.8199	10.5	1.545	1.212	21.133	19.921	20.53	0.61	1.061	17.4
0:17:34	12.7	0.571	19.9	5.412	9.80	6.8268	10.7	1.566	1.230	21.148	19.918	20.53	0.62	1.062	17.6
0:17:45	12.8	0.578	19.9	5.405	9.91	6.8350	10.7	1.570	1.230	21.149	19.919	20.53	0.61	1.062	17.8
0:17:55	12.8	0.583	19.9	5.400	10.00	6.8421	10.8	1.573	1.230	21.150	19.920	20.54	0.62	1.062	17.9
0:18:06	12.9	0.589	19.9	5.393	10.11	6.8501	10.9	1.588	1.241	21.157	19.915	20.54	0.62	1.062	18.1
0:18:16	13.0	0.595	19.9	5.388	10.20	6.8571	10.9	1.594	1.244	21.160	19.916	20.54	0.62	1.062	18.3
0:18:27	13.0	0.601	19.9	5.382	10.30	6.8646	10.9	1.594	1.241	21.154	19.913	20.53	0.62	1.062	18.5
0:18:38	13.1	0.607	19.9	5.376	10.40	6.8726	11.1	1.610	1.253	21.164	19.911	20.54	0.63	1.063	18.6
0:18:50	13.1	0.613	19.9	5.370	10.51	6.8805	11.1	1.614	1.253	21.167	19.914	20.54	0.63	1.063	18.8
0:19:01	13.0	0.619	19.9	5.363	10.61	6.8884	11.0	1.590	1.226	21.142	19.916	20.53	0.61	1.062	19.0
0:19:11	13.3	0.625	19.9	5.358	10.70	6.8957	11.3	1.632	1.265	21.180	19.915	20.55	0.63	1.064	19.2
0:19:20	13.4	0.631	19.9	5.352	10.80	6.9033	11.3	1.643	1.273	21.184	19.912	20.55	0.64	1.064	19.3
0:19:30	13.5	0.637	19.9	5.346	10.90	6.9109	11.5	1.658	1.284	21.208	19.924	20.57	0.64	1.064	19.5
0:19:41	13.6	0.643	19.9	5.340	11.01	6.9190	11.5	1.669	1.292	21.210	19.918	20.56	0.65	1.065	19.7
0:19:51	13.6	0.649	19.9	5.334	11.10	6.9266	11.6	1.671	1.290	21.204	19.914	20.56	0.65	1.065	19.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9013 (in.)
Dia. avg.	3.263 (in.)
Area avg.	8.3640 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1754A
Data File ID	UU-1754A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:20:02	13.8	0.655	19.9	5.328	11.21	6.9347	11.7	1.691	1.307	21.223	19.916	20.57	0.65	1.066	20.0
0:20:12	13.7	0.661	19.9	5.322	11.30	6.9422	11.6	1.676	1.289	21.209	19.921	20.57	0.64	1.065	20.2
0:20:22	13.7	0.667	19.9	5.316	11.40	6.9499	11.7	1.678	1.287	21.205	19.918	20.56	0.64	1.065	20.4
0:20:33	13.7	0.673	19.9	5.310	11.51	6.9581	11.7	1.675	1.280	21.197	19.917	20.56	0.64	1.064	20.6
0:20:44	13.9	0.679	19.9	5.304	11.61	6.9662	11.9	1.701	1.303	21.216	19.913	20.56	0.65	1.065	20.7
0:20:54	13.9	0.685	19.9	5.298	11.70	6.9734	11.9	1.701	1.300	21.213	19.914	20.56	0.65	1.065	20.9
0:21:05	13.8	0.691	19.9	5.292	11.80	6.9815	11.8	1.689	1.284	21.202	19.918	20.56	0.64	1.064	21.1
0:21:16	14.2	0.697	19.9	5.286	11.90	6.9894	12.1	1.734	1.325	21.244	19.918	20.58	0.66	1.067	21.3
0:21:27	14.1	0.703	19.9	5.280	12.00	6.9974	12.1	1.726	1.314	21.229	19.915	20.57	0.66	1.066	21.5
0:21:39	14.1	0.709	19.9	5.274	12.10	7.0053	12.1	1.728	1.313	21.228	19.915	20.57	0.66	1.066	21.7
0:21:50	14.1	0.715	19.9	5.268	12.20	7.0132	12.1	1.722	1.304	21.219	19.915	20.57	0.65	1.065	21.8
0:22:01	14.3	0.721	19.9	5.262	12.30	7.0214	12.2	1.742	1.320	21.240	19.920	20.58	0.66	1.066	22.0
0:22:12	14.2	0.727	19.9	5.256	12.40	7.0293	12.2	1.737	1.312	21.223	19.911	20.57	0.66	1.066	22.2
0:22:23	14.3	0.733	19.9	5.250	12.50	7.0374	12.3	1.743	1.314	21.230	19.916	20.57	0.66	1.066	22.4
0:22:34	14.3	0.739	19.9	5.244	12.61	7.0458	12.2	1.738	1.306	21.216	19.910	20.56	0.65	1.066	22.6
0:22:45	14.2	0.745	19.9	5.237	12.71	7.0541	12.2	1.731	1.295	21.210	19.915	20.56	0.65	1.065	22.8
0:22:56	14.4	0.751	19.9	5.232	12.81	7.0620	12.3	1.747	1.308	21.229	19.921	20.57	0.65	1.066	22.9
0:23:07	14.2	0.757	19.9	5.225	12.91	7.0702	12.2	1.720	1.277	21.192	19.915	20.55	0.64	1.064	23.1
0:23:17	14.1	0.763	19.9	5.220	13.00	7.0777	12.1	1.711	1.265	21.178	19.913	20.55	0.63	1.064	23.3
0:23:28	14.1	0.769	19.9	5.214	13.10	7.0861	12.0	1.698	1.248	21.169	19.921	20.54	0.62	1.063	23.5
0:23:39	14.0	0.775	19.9	5.207	13.21	7.0947	12.0	1.688	1.235	21.145	19.909	20.53	0.62	1.062	23.7
0:23:49	14.1	0.781	19.9	5.202	13.30	7.1022	12.1	1.701	1.245	21.163	19.918	20.54	0.62	1.062	23.8
0:24:00	14.4	0.787	19.9	5.196	13.41	7.1107	12.4	1.743	1.284	21.198	19.915	20.56	0.64	1.064	24.0
0:24:11	14.5	0.793	19.9	5.189	13.51	7.1193	12.5	1.750	1.287	21.198	19.912	20.55	0.64	1.065	24.2
0:24:21	14.5	0.799	19.9	5.184	13.61	7.1273	12.4	1.746	1.279	21.193	19.913	20.55	0.64	1.064	24.4
0:24:31	14.6	0.805	19.9	5.178	13.71	7.1355	12.5	1.755	1.285	21.196	19.912	20.55	0.64	1.065	24.5
0:24:41	14.6	0.811	19.9	5.172	13.80	7.1433	12.6	1.759	1.286	21.202	19.916	20.56	0.64	1.065	24.7
0:24:52	14.6	0.817	19.9	5.166	13.91	7.1522	12.6	1.757	1.280	21.204	19.924	20.56	0.64	1.064	24.9
0:25:02	14.6	0.823	19.9	5.160	14.00	7.1602	12.6	1.757	1.277	21.191	19.915	20.55	0.64	1.064	25.0
0:25:13	14.7	0.829	19.9	5.153	14.11	7.1692	12.7	1.767	1.284	21.199	19.915	20.56	0.64	1.064	25.2
0:25:23	14.7	0.835	19.9	5.148	14.20	7.1769	12.7	1.767	1.280	21.195	19.915	20.55	0.64	1.064	25.4
0:25:34	14.6	0.841	19.9	5.142	14.31	7.1856	12.6	1.751	1.261	21.175	19.914	20.54	0.63	1.063	25.6
0:25:45	14.8	0.848	19.9	5.135	14.41	7.1944	12.7	1.770	1.276	21.196	19.920	20.56	0.64	1.064	25.8
0:25:55	14.9	0.853	19.9	5.130	14.50	7.2018	12.9	1.792	1.295	21.208	19.912	20.56	0.65	1.065	25.9
0:26:06	14.9	0.859	19.9	5.124	14.60	7.2105	12.9	1.788	1.287	21.205	19.917	20.56	0.64	1.065	26.1
0:26:17	15.2	0.865	19.9	5.117	14.71	7.2194	13.1	1.817	1.313	21.232	19.920	20.58	0.66	1.066	26.3
0:26:27	15.3	0.871	19.9	5.112	14.80	7.2272	13.3	1.838	1.331	21.249	19.918	20.58	0.67	1.067	26.5
0:26:38	15.4	0.877	19.9	5.106	14.91	7.2362	13.3	1.842	1.331	21.242	19.910	20.58	0.67	1.067	26.6
0:26:48	15.5	0.883	19.9	5.100	15.01	7.2446	13.4	1.852	1.338	21.259	19.922	20.59	0.67	1.067	26.8
0:26:58	15.5	0.889	19.9	5.094	15.10	7.2530	13.4	1.852	1.334	21.255	19.921	20.59	0.67	1.067	27.0
0:27:09	15.6	0.895	19.9	5.087	15.21	7.2620	13.6	1.874	1.352	21.274	19.921	20.60	0.68	1.068	27.2
0:27:19	15.7	0.901	19.9	5.082	15.30	7.2701	13.7	1.882	1.358	21.273	19.915	20.59	0.68	1.068	27.3
0:27:30	15.8	0.907	19.9	5.075	15.41	7.2792	13.8	1.893	1.364	21.286	19.921	20.60	0.68	1.068	27.5
0:27:40	15.9	0.913	19.9	5.070	15.51	7.2875	13.9	1.906	1.375	21.299	19.924	20.61	0.69	1.069	27.7
0:27:51	15.8	0.920	19.9	5.063	15.61	7.2968	13.8	1.893	1.357	21.277	19.920	20.60	0.68	1.068	27.9
0:28:01	15.9	0.925	19.9	5.058	15.71	7.3048	13.8	1.895	1.356	21.279	19.922	20.60	0.68	1.068	28.0
0:28:12	15.9	0.931	19.9	5.051	15.81	7.3139	13.8	1.889	1.347	21.267	19.920	20.59	0.67	1.068	28.2
0:28:22	15.9	0.937	19.9	5.046	15.90	7.3217	13.8	1.888	1.342	21.261	19.919	20.59	0.67	1.067	28.4
0:28:33	16.0	0.943	19.9	5.040	16.00	7.3307	13.9	1.899	1.351	21.272	19.921	20.60	0.68	1.068	28.6
0:28:44	15.9	0.949	19.9	5.034	16.10	7.3394	13.9	1.892	1.340	21.255	19.915	20.58	0.67	1.067	28.7
0:28:55	16.2	0.955	19.9	5.028	16.21	7.3484	14.2	1.930	1.375	21.298	19.924	20.61	0.69	1.069	28.9
0:29:06	16.1	0.961	19.9	5.022	16.30	7.3569	14.1	1.916	1.357	21.271	19.914	20.59	0.68	1.068	29.1
0:29:17	16.2	0.967	19.9	5.016	16.40	7.3658	14.2	1.926	1.363	21.280	19.916	20.60	0.68	1.068	29.3
0:29:28	16.1	0.973	19.9	5.010	16.50	7.3747	14.1	1.909	1.343	21.260	19.917	20.59	0.67	1.067	29.5
0:29:39	16.3	0.979	19.9	5.004	16.61	7.3836	14.3	1.933	1.363	21.288	19.924	20.61	0.68	1.068	29.7
0:29:51	16.2	0.985	19.9	4.998	16.71	7.3926	14.2	1.921	1.348	21.264	19.916	20.59	0.67	1.068	29.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9013 (in.)
Dia. avg.	3.263 (in)
Area avg.	8.3640 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1754A
Data File ID	UU-1754A
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:30:02	16.2	0.991	19.9	4.992	16.81	7.4015	14.2	1.913	1.337	21.252	19.915	20.58	0.67	1.067	30.0
0:30:13	16.1	0.997	19.9	4.985	16.91	7.4105	14.1	1.902	1.322	21.226	19.904	20.57	0.66	1.066	30.2
0:30:24	16.1	1.003	19.9	4.979	17.01	7.4195	14.1	1.902	1.318	21.235	19.916	20.58	0.66	1.066	30.4
0:30:35	16.1	1.009	19.9	4.974	17.11	7.4283	14.1	1.894	1.307	21.219	19.912	20.57	0.65	1.066	30.6
0:30:46	16.1	1.015	19.9	4.968	17.21	7.4371	14.1	1.895	1.305	21.215	19.910	20.56	0.65	1.066	30.8
0:30:57	16.1	1.021	19.9	4.961	17.31	7.4464	14.1	1.889	1.295	21.206	19.911	20.56	0.65	1.065	31.0
0:31:07	16.2	1.027	19.9	4.956	17.40	7.4547	14.1	1.898	1.301	21.216	19.914	20.57	0.65	1.065	31.1
0:31:18	16.2	1.033	19.9	4.950	17.51	7.4642	14.2	1.896	1.296	21.203	19.907	20.56	0.65	1.065	31.3
0:31:29	16.2	1.039	19.9	4.943	17.61	7.4738	14.2	1.893	1.290	21.191	19.902	20.55	0.64	1.065	31.5
0:31:39	16.3	1.045	19.9	4.938	17.71	7.4824	14.2	1.902	1.295	21.196	19.902	20.55	0.65	1.065	31.7
0:31:50	16.2	1.051	19.9	4.931	17.81	7.4920	14.2	1.890	1.280	21.184	19.905	20.54	0.64	1.064	31.8
0:32:00	16.3	1.057	19.9	4.926	17.91	7.5005	14.3	1.904	1.290	21.209	19.920	20.56	0.64	1.065	32.0
0:32:10	16.3	1.063	19.9	4.920	18.00	7.5095	14.3	1.905	1.288	21.222	19.934	20.58	0.64	1.065	32.2
0:32:21	16.4	1.069	19.9	4.914	18.11	7.5191	14.4	1.914	1.293	21.228	19.934	20.58	0.65	1.065	32.4
0:32:31	16.4	1.075	19.9	4.908	18.21	7.5281	14.4	1.907	1.282	21.213	19.930	20.57	0.64	1.064	32.5
0:32:42	16.4	1.081	19.9	4.901	18.31	7.5378	14.4	1.909	1.281	21.229	19.947	20.59	0.64	1.064	32.7

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8835 (in.)
Dia. avg.	3.195 (in.)
Area avg.	8.0157 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1754B
Data File ID	UU-1754B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	3.1	-0.032	30.0	6.000	0.00	6.1575	0.0	0.000	0.000	29.983	29.983	29.98	0.00	1.000	0.0
0:00:24	7.4	-0.025	30.0	5.994	0.10	6.1639	4.3	0.696	0.693	30.679	29.986	30.33	0.35	1.023	0.4
0:00:35	8.0	-0.019	30.0	5.988	0.21	6.1703	5.0	0.803	0.795	30.790	29.994	30.39	0.40	1.027	0.6
0:00:46	8.6	-0.013	30.0	5.982	0.31	6.1765	5.5	0.890	0.880	30.864	29.984	30.42	0.44	1.029	0.8
0:00:56	9.0	-0.007	30.0	5.976	0.40	6.1824	5.9	0.960	0.946	30.936	29.990	30.46	0.47	1.032	0.9
0:01:08	9.2	-0.001	30.0	5.969	0.51	6.1891	6.2	0.996	0.978	30.962	29.984	30.47	0.49	1.033	1.1
0:01:18	9.4	0.004	30.0	5.964	0.60	6.1948	6.3	1.021	1.001	30.983	29.983	30.48	0.50	1.033	1.3
0:01:29	9.5	0.011	30.0	5.958	0.70	6.2012	6.4	1.032	1.008	30.980	29.973	30.48	0.50	1.034	1.5
0:01:40	9.7	0.016	30.0	5.952	0.80	6.2072	6.7	1.075	1.048	31.018	29.970	30.49	0.52	1.035	1.7
0:01:51	9.9	0.023	30.0	5.945	0.91	6.2141	6.8	1.092	1.060	31.034	29.973	30.50	0.53	1.035	1.9
0:02:01	10.0	0.028	30.0	5.940	1.00	6.2198	7.0	1.119	1.084	31.059	29.975	30.52	0.54	1.036	2.0
0:02:12	10.1	0.035	30.0	5.934	1.10	6.2262	7.0	1.127	1.089	31.062	29.973	30.52	0.54	1.036	2.2
0:02:23	10.3	0.040	30.0	5.928	1.20	6.2323	7.2	1.156	1.115	31.090	29.975	30.53	0.56	1.037	2.4
0:02:34	10.4	0.046	30.0	5.922	1.30	6.2387	7.4	1.180	1.135	31.111	29.976	30.54	0.57	1.038	2.6
0:02:45	10.5	0.053	30.0	5.915	1.41	6.2456	7.4	1.192	1.143	31.113	29.970	30.54	0.57	1.038	2.8
0:02:56	10.6	0.059	30.0	5.909	1.51	6.2521	7.5	1.204	1.152	31.141	29.989	30.57	0.58	1.038	2.9
0:03:06	10.8	0.065	30.0	5.904	1.61	6.2580	7.7	1.235	1.180	31.175	29.996	30.59	0.59	1.039	3.1
0:03:17	10.7	0.071	30.0	5.897	1.71	6.2647	7.6	1.216	1.158	31.142	29.984	30.56	0.58	1.039	3.3
0:03:27	11.0	0.077	30.0	5.892	1.80	6.2705	8.0	1.268	1.206	31.189	29.983	30.59	0.60	1.040	3.5
0:03:38	11.1	0.083	30.0	5.886	1.91	6.2773	8.0	1.280	1.214	31.196	29.982	30.59	0.61	1.041	3.6
0:03:48	11.2	0.088	30.0	5.880	2.00	6.2832	8.1	1.296	1.227	31.220	29.993	30.61	0.61	1.041	3.8
0:03:59	11.4	0.095	30.0	5.873	2.11	6.2901	8.3	1.317	1.245	31.236	29.992	30.61	0.62	1.041	4.0
0:04:09	11.5	0.101	30.0	5.868	2.20	6.2962	8.5	1.347	1.271	31.259	29.987	30.62	0.64	1.042	4.2
0:04:20	11.6	0.107	30.0	5.862	2.31	6.3030	8.5	1.353	1.274	31.256	29.982	30.62	0.64	1.042	4.3
0:04:30	11.7	0.113	30.0	5.856	2.40	6.3092	8.7	1.374	1.292	31.271	29.980	30.63	0.65	1.043	4.5
0:04:41	11.8	0.119	30.0	5.849	2.51	6.3160	8.7	1.382	1.295	31.274	29.979	30.63	0.65	1.043	4.7
0:04:51	11.9	0.124	30.0	5.844	2.60	6.3220	8.9	1.401	1.312	31.299	29.987	30.64	0.66	1.044	4.9
0:05:02	12.1	0.131	30.0	5.838	2.70	6.3287	9.0	1.427	1.334	31.314	29.979	30.65	0.67	1.044	5.0
0:05:13	12.2	0.137	30.0	5.831	2.81	6.3355	9.1	1.438	1.341	31.328	29.986	30.66	0.67	1.045	5.2
0:05:24	12.3	0.143	30.0	5.826	2.91	6.3418	9.2	1.450	1.351	31.340	29.989	30.66	0.68	1.045	5.4
0:05:35	12.2	0.149	30.0	5.820	3.01	6.3484	9.2	1.444	1.341	31.332	29.991	30.66	0.67	1.045	5.6
0:05:47	12.4	0.155	30.0	5.813	3.11	6.3552	9.3	1.468	1.361	31.346	29.985	30.67	0.68	1.045	5.8
0:05:56	12.7	0.161	30.0	5.808	3.20	6.3614	9.6	1.512	1.402	31.383	29.981	30.68	0.70	1.047	5.9
0:06:07	12.7	0.167	30.0	5.801	3.31	6.3685	9.6	1.513	1.399	31.391	29.992	30.69	0.70	1.047	6.1
0:06:17	12.7	0.173	30.0	5.795	3.41	6.3750	9.6	1.506	1.389	31.366	29.977	30.67	0.69	1.046	6.3
0:06:27	12.8	0.179	30.0	5.790	3.51	6.3813	9.7	1.527	1.407	31.391	29.984	30.69	0.70	1.047	6.5
0:06:37	13.0	0.185	30.0	5.784	3.60	6.3876	9.9	1.556	1.433	31.420	29.987	30.70	0.72	1.048	6.6
0:06:48	13.1	0.191	30.0	5.777	3.71	6.3947	10.1	1.574	1.447	31.448	30.001	30.72	0.72	1.048	6.8
0:06:58	13.2	0.197	30.0	5.772	3.81	6.4011	10.1	1.583	1.453	31.441	29.989	30.72	0.73	1.048	7.0
0:07:08	13.4	0.203	30.0	5.766	3.90	6.4077	10.3	1.611	1.477	31.459	29.982	30.72	0.74	1.049	7.1
0:07:19	13.5	0.209	30.0	5.759	4.01	6.4148	10.4	1.625	1.488	31.468	29.981	30.72	0.74	1.050	7.3
0:07:29	13.6	0.215	30.0	5.754	4.11	6.4212	10.6	1.648	1.507	31.504	29.997	30.75	0.75	1.050	7.5
0:07:40	13.8	0.221	30.0	5.747	4.21	6.4282	10.8	1.677	1.532	31.516	29.983	30.75	0.77	1.051	7.7
0:07:50	13.8	0.226	30.0	5.742	4.30	6.4343	10.7	1.664	1.516	31.494	29.977	30.74	0.76	1.051	7.8
0:08:01	13.9	0.233	30.0	5.736	4.41	6.4413	10.9	1.688	1.537	31.520	29.983	30.75	0.77	1.051	8.0
0:08:12	14.0	0.239	30.0	5.730	4.51	6.4481	10.9	1.696	1.542	31.522	29.981	30.75	0.77	1.051	8.2
0:08:23	14.1	0.245	30.0	5.723	4.61	6.4551	11.1	1.714	1.556	31.535	29.980	30.76	0.78	1.052	8.4
0:08:34	14.3	0.251	30.0	5.717	4.71	6.4618	11.2	1.733	1.571	31.557	29.986	30.77	0.79	1.052	8.6
0:08:45	14.3	0.257	30.0	5.711	4.81	6.4686	11.2	1.737	1.572	31.555	29.983	30.77	0.79	1.052	8.8
0:08:56	14.5	0.263	30.0	5.705	4.91	6.4756	11.4	1.760	1.592	31.581	29.989	30.79	0.80	1.053	8.9
0:09:06	14.4	0.269	30.0	5.700	5.00	6.4818	11.4	1.752	1.580	31.565	29.984	30.77	0.79	1.053	9.1
0:09:17	14.7	0.275	30.0	5.694	5.10	6.4886	11.6	1.793	1.618	31.602	29.984	30.79	0.81	1.054	9.3
0:09:29	14.7	0.281	30.0	5.688	5.21	6.4957	11.7	1.796	1.618	31.607	29.989	30.80	0.81	1.054	9.5
0:09:40	14.8	0.287	30.0	5.682	5.31	6.5027	11.8	1.810	1.628	31.609	29.980	30.79	0.81	1.054	9.7
0:09:51	14.9	0.293	30.0	5.675	5.41	6.5096	11.8	1.816	1.631	31.624	29.994	30.81	0.82	1.054	9.9
0:10:02	15.2	0.299	30.0	5.669	5.51	6.5166	12.1	1.858	1.669	31.661	29.993	30.83	0.83	1.056	10.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8835 (in.)
Dia. avg.	3.195 (in)
Area avg.	8.0157 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1754B
Data File ID	UU-1754B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:12	15.1	0.305	30.0	5.664	5.60	6.5230	12.1	1.850	1.658	31.655	29.998	30.83	0.83	1.055	10.2
0:10:23	15.3	0.311	30.0	5.658	5.71	6.5302	12.2	1.869	1.673	31.670	29.997	30.83	0.84	1.056	10.4
0:10:34	15.3	0.317	30.0	5.651	5.81	6.5373	12.3	1.876	1.677	31.661	29.983	30.82	0.84	1.056	10.6
0:10:44	15.4	0.322	30.0	5.646	5.90	6.5437	12.3	1.880	1.678	31.660	29.982	30.82	0.84	1.056	10.7
0:10:55	15.4	0.329	30.0	5.640	6.00	6.5508	12.4	1.887	1.681	31.669	29.988	30.83	0.84	1.056	10.9
0:11:06	15.6	0.335	30.0	5.633	6.11	6.5584	12.5	1.904	1.694	31.678	29.984	30.83	0.85	1.057	11.1
0:11:16	15.7	0.341	30.0	5.628	6.20	6.5648	12.7	1.931	1.719	31.701	29.982	30.84	0.86	1.057	11.3
0:11:26	15.8	0.346	30.0	5.622	6.30	6.5716	12.7	1.938	1.722	31.722	30.000	30.86	0.86	1.057	11.4
0:11:37	15.7	0.353	30.0	5.616	6.41	6.5790	12.6	1.921	1.702	31.685	29.983	30.83	0.85	1.057	11.6
0:11:48	16.1	0.359	30.0	5.609	6.51	6.5864	13.0	1.972	1.749	31.733	29.984	30.86	0.87	1.058	11.8
0:11:58	16.0	0.365	30.0	5.604	6.61	6.5932	12.9	1.959	1.733	31.715	29.982	30.85	0.87	1.058	12.0
0:12:08	16.1	0.371	30.0	5.598	6.70	6.5999	13.0	1.974	1.745	31.732	29.988	30.86	0.87	1.058	12.1
0:12:19	16.2	0.377	30.0	5.592	6.81	6.6073	13.2	1.993	1.760	31.737	29.977	30.86	0.88	1.059	12.3
0:12:30	16.2	0.383	30.0	5.586	6.91	6.6144	13.2	1.991	1.754	31.743	29.989	30.87	0.88	1.059	12.5
0:12:40	16.3	0.388	30.0	5.580	7.00	6.6210	13.2	1.997	1.757	31.733	29.975	30.85	0.88	1.059	12.7
0:12:51	16.5	0.394	30.0	5.574	7.10	6.6282	13.5	2.032	1.788	31.772	29.984	30.88	0.89	1.060	12.9
0:13:02	16.6	0.400	30.0	5.568	7.20	6.6354	13.5	2.034	1.787	31.763	29.976	30.87	0.89	1.060	13.0
0:13:13	16.6	0.407	30.0	5.562	7.31	6.6428	13.5	2.035	1.784	31.760	29.976	30.87	0.89	1.060	13.2
0:13:23	16.8	0.412	30.0	5.556	7.40	6.6496	13.7	2.059	1.805	31.782	29.977	30.88	0.90	1.060	13.4
0:13:34	16.9	0.419	30.0	5.549	7.51	6.6575	13.8	2.079	1.821	31.789	29.968	30.88	0.91	1.061	13.6
0:13:44	17.0	0.425	30.0	5.544	7.61	6.6644	13.9	2.093	1.832	31.810	29.978	30.89	0.92	1.061	13.7
0:13:55	17.2	0.431	30.0	5.537	7.71	6.6721	14.1	2.112	1.848	31.819	29.971	30.89	0.92	1.062	13.9
0:14:05	17.3	0.437	30.0	5.532	7.81	6.6790	14.2	2.127	1.860	31.831	29.971	30.90	0.93	1.062	14.1
0:14:15	17.3	0.443	30.0	5.526	7.90	6.6860	14.3	2.132	1.861	31.838	29.976	30.91	0.93	1.062	14.3
0:14:26	17.4	0.449	30.0	5.519	8.01	6.6938	14.3	2.134	1.859	31.829	29.969	30.90	0.93	1.062	14.4
0:14:36	17.4	0.455	30.0	5.513	8.11	6.7009	14.4	2.143	1.865	31.833	29.968	30.90	0.93	1.062	14.6
0:14:45	17.6	0.461	30.0	5.508	8.20	6.7078	14.5	2.168	1.886	31.855	29.969	30.91	0.94	1.063	14.8
0:14:57	17.7	0.467	30.0	5.502	8.31	6.7153	14.6	2.178	1.894	31.863	29.969	30.92	0.95	1.063	15.0
0:15:08	17.9	0.473	30.0	5.495	8.41	6.7230	14.8	2.204	1.916	31.878	29.962	30.92	0.96	1.064	15.1
0:15:18	17.9	0.479	30.0	5.490	8.51	6.7300	14.8	2.200	1.909	31.874	29.965	30.92	0.95	1.064	15.3
0:15:29	18.0	0.485	30.0	5.484	8.61	6.7374	14.9	2.218	1.923	31.881	29.958	30.92	0.96	1.064	15.5
0:15:40	18.0	0.491	30.0	5.478	8.71	6.7447	15.0	2.218	1.919	31.878	29.958	30.92	0.96	1.064	15.7
0:15:51	18.2	0.497	30.0	5.471	8.81	6.7524	15.1	2.234	1.932	31.892	29.960	30.93	0.97	1.064	15.9
0:16:01	18.3	0.502	30.0	5.466	8.90	6.7591	15.2	2.250	1.945	31.909	29.963	30.94	0.97	1.065	16.0
0:16:13	18.3	0.509	29.9	5.459	9.01	6.7673	15.3	2.256	1.947	31.837	29.890	30.86	0.97	1.065	16.2
0:16:23	18.3	0.514	29.9	5.454	9.10	6.7740	15.3	2.252	1.940	31.876	29.936	30.91	0.97	1.065	16.4
0:16:34	18.4	0.521	29.9	5.448	9.20	6.7817	15.3	2.256	1.940	31.866	29.926	30.90	0.97	1.065	16.6
0:16:45	18.6	0.527	29.9	5.442	9.31	6.7894	15.5	2.285	1.966	31.886	29.920	30.90	0.98	1.066	16.8
0:16:56	18.6	0.533	29.9	5.435	9.41	6.7970	15.6	2.292	1.970	31.887	29.917	30.90	0.98	1.066	16.9
0:17:07	18.7	0.539	29.9	5.429	9.51	6.8045	15.7	2.300	1.974	31.877	29.903	30.89	0.99	1.066	17.1
0:17:18	18.8	0.545	29.9	5.423	9.61	6.8121	15.8	2.313	1.984	31.891	29.907	30.90	0.99	1.066	17.3
0:17:28	18.9	0.551	29.9	5.418	9.70	6.8192	15.8	2.318	1.985	31.870	29.885	30.88	0.99	1.066	17.5
0:17:39	19.0	0.557	30.0	5.412	9.81	6.8270	16.0	2.336	2.000	31.975	29.975	30.98	1.00	1.067	17.7
0:17:50	19.0	0.563	30.0	5.406	9.91	6.8347	15.9	2.328	1.988	31.995	30.007	31.00	0.99	1.066	17.8
0:18:00	19.1	0.569	30.0	5.400	10.00	6.8419	16.0	2.340	1.997	32.010	30.013	31.01	1.00	1.067	18.0
0:18:11	19.3	0.575	30.0	5.394	10.10	6.8495	16.2	2.364	2.017	32.041	30.024	31.03	1.01	1.067	18.2
0:18:22	19.3	0.581	30.0	5.388	10.21	6.8574	16.3	2.371	2.022	32.049	30.027	31.04	1.01	1.067	18.4
0:18:32	19.4	0.587	30.0	5.382	10.30	6.8647	16.3	2.378	2.025	32.054	30.029	31.04	1.01	1.067	18.5
0:18:43	19.5	0.593	30.0	5.376	10.41	6.8729	16.4	2.391	2.034	32.061	30.028	31.04	1.02	1.068	18.7
0:18:53	19.7	0.599	30.0	5.370	10.50	6.8802	16.6	2.418	2.058	32.082	30.024	31.05	1.03	1.069	18.9
0:19:04	19.6	0.605	30.0	5.363	10.61	6.8883	16.6	2.404	2.041	32.066	30.025	31.05	1.02	1.068	19.1
0:19:14	19.8	0.611	30.0	5.358	10.70	6.8955	16.7	2.424	2.057	32.084	30.027	31.06	1.03	1.069	19.2
0:19:25	19.9	0.617	30.0	5.351	10.81	6.9037	16.9	2.445	2.074	32.096	30.022	31.06	1.04	1.069	19.4
0:19:35	20.0	0.622	30.0	5.346	10.90	6.9109	16.9	2.444	2.070	32.100	30.030	31.06	1.03	1.069	19.6
0:19:46	19.9	0.629	30.0	5.340	11.01	6.9191	16.8	2.427	2.050	32.083	30.033	31.06	1.03	1.068	19.8
0:19:57	20.0	0.635	30.0	5.333	11.11	6.9270	16.9	2.440	2.059	32.092	30.033	31.06	1.03	1.069	20.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8835 (in.)
Dia. avg.	3.195 (in)
Area avg.	8.0157 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1754B
Data File ID	UU-1754B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:20:08	19.9	0.641	30.0	5.327	11.21	6.9349	16.9	2.432	2.047	32.070	30.023	31.05	1.02	1.068	20.1
0:20:20	19.9	0.647	30.0	5.321	11.31	6.9429	16.8	2.419	2.032	32.058	30.027	31.04	1.02	1.068	20.3
0:20:29	19.6	0.653	30.0	5.316	11.40	6.9501	16.6	2.382	1.991	32.010	30.020	31.02	1.00	1.066	20.5
0:20:40	19.8	0.659	30.0	5.310	11.51	6.9583	16.7	2.399	2.004	32.016	30.012	31.01	1.00	1.067	20.7
0:20:50	19.9	0.665	30.0	5.304	11.60	6.9657	16.8	2.414	2.016	32.030	30.014	31.02	1.01	1.067	20.8
0:21:00	20.0	0.670	30.0	5.298	11.70	6.9735	16.9	2.424	2.022	32.042	30.020	31.03	1.01	1.067	21.0
0:21:11	20.1	0.677	30.0	5.292	11.81	6.9819	17.0	2.433	2.028	32.042	30.014	31.03	1.01	1.068	21.2
0:21:21	20.2	0.683	30.0	5.286	11.90	6.9895	17.1	2.449	2.041	32.056	30.015	31.04	1.02	1.068	21.4
0:21:32	20.2	0.689	30.0	5.279	12.01	6.9979	17.1	2.450	2.038	32.057	30.019	31.04	1.02	1.068	21.5
0:21:42	20.3	0.695	30.0	5.274	12.11	7.0057	17.2	2.453	2.038	32.053	30.016	31.03	1.02	1.068	21.7
0:21:52	20.6	0.700	30.0	5.268	12.20	7.0132	17.5	2.498	2.080	32.095	30.015	31.05	1.04	1.069	21.9
0:22:03	20.6	0.707	30.0	5.262	12.31	7.0218	17.5	2.493	2.071	32.086	30.015	31.05	1.04	1.069	22.1
0:22:13	20.6	0.713	30.0	5.256	12.40	7.0295	17.6	2.499	2.073	32.078	30.005	31.04	1.04	1.069	22.2
0:22:24	20.7	0.719	30.0	5.250	12.51	7.0377	17.6	2.501	2.072	32.082	30.010	31.05	1.04	1.069	22.4
0:22:35	20.9	0.725	30.0	5.243	12.61	7.0461	17.8	2.532	2.100	32.114	30.015	31.06	1.05	1.070	22.6
0:22:45	20.9	0.731	30.0	5.238	12.70	7.0535	17.9	2.532	2.096	32.114	30.018	31.07	1.05	1.070	22.8
0:22:56	21.0	0.737	30.0	5.232	12.80	7.0618	18.0	2.543	2.104	32.120	30.017	31.07	1.05	1.070	22.9
0:23:07	21.2	0.743	30.0	5.226	12.91	7.0699	18.2	2.569	2.126	32.148	30.022	31.08	1.06	1.071	23.1
0:23:18	21.4	0.749	30.0	5.220	13.01	7.0781	18.3	2.588	2.142	32.155	30.013	31.08	1.07	1.071	23.3
0:23:30	21.5	0.755	30.0	5.213	13.11	7.0865	18.4	2.594	2.145	32.157	30.012	31.08	1.07	1.071	23.5
0:23:39	21.5	0.760	30.0	5.208	13.20	7.0940	18.4	2.598	2.146	32.154	30.008	31.08	1.07	1.072	23.7
0:23:50	21.6	0.767	30.0	5.202	13.30	7.1024	18.6	2.613	2.157	32.169	30.011	31.09	1.08	1.072	23.8
0:24:02	21.7	0.773	30.0	5.196	13.41	7.1107	18.6	2.615	2.156	32.158	30.002	31.08	1.08	1.072	24.0
0:24:13	21.8	0.779	30.0	5.189	13.51	7.1193	18.7	2.633	2.170	32.181	30.011	31.10	1.09	1.072	24.2
0:24:23	22.0	0.785	30.0	5.184	13.60	7.1270	18.9	2.654	2.187	32.199	30.011	31.11	1.09	1.073	24.4
0:24:34	21.9	0.791	30.0	5.178	13.71	7.1354	18.8	2.641	2.171	32.188	30.017	31.10	1.09	1.072	24.6
0:24:45	21.8	0.797	30.0	5.172	13.80	7.1437	18.8	2.626	2.153	32.161	30.008	31.08	1.08	1.072	24.8
0:24:56	21.8	0.803	30.0	5.165	13.91	7.1524	18.8	2.623	2.146	32.154	30.008	31.08	1.07	1.072	24.9
0:25:06	21.9	0.808	30.0	5.160	14.00	7.1601	18.8	2.625	2.145	32.148	30.003	31.08	1.07	1.071	25.1
0:25:17	21.8	0.815	30.0	5.154	14.10	7.1686	18.8	2.620	2.136	32.140	30.004	31.07	1.07	1.071	25.3
0:25:28	21.9	0.821	30.0	5.148	14.21	7.1772	18.8	2.623	2.136	32.148	30.012	31.08	1.07	1.071	25.5
0:25:38	21.7	0.826	30.0	5.142	14.30	7.1850	18.6	2.595	2.105	32.117	30.012	31.06	1.05	1.070	25.6
0:25:49	21.9	0.833	30.0	5.136	14.41	7.1938	18.8	2.615	2.121	32.126	30.005	31.07	1.06	1.071	25.8
0:26:00	22.0	0.839	30.0	5.129	14.51	7.2026	18.9	2.629	2.132	32.145	30.013	31.08	1.07	1.071	26.0
0:26:10	22.1	0.845	30.0	5.124	14.61	7.2108	19.0	2.640	2.140	32.155	30.015	31.09	1.07	1.071	26.2
0:26:20	22.2	0.851	30.0	5.118	14.70	7.2189	19.1	2.645	2.140	32.155	30.014	31.08	1.07	1.071	26.3
0:26:31	22.1	0.857	30.0	5.112	14.81	7.2278	19.1	2.638	2.130	32.149	30.019	31.08	1.06	1.071	26.5
0:26:42	22.5	0.863	30.0	5.105	14.91	7.2366	19.4	2.687	2.175	32.197	30.022	31.11	1.09	1.072	26.7
0:26:52	22.6	0.869	30.0	5.100	15.01	7.2448	19.6	2.703	2.188	32.199	30.010	31.10	1.09	1.073	26.9
0:27:02	22.7	0.874	30.0	5.094	15.10	7.2527	19.6	2.707	2.189	32.195	30.006	31.10	1.09	1.073	27.0
0:27:13	22.8	0.881	30.0	5.088	15.20	7.2616	19.7	2.714	2.192	32.206	30.014	31.11	1.10	1.073	27.2
0:27:24	22.9	0.887	30.0	5.082	15.31	7.2704	19.8	2.729	2.204	32.217	30.013	31.11	1.10	1.073	27.4
0:27:35	23.0	0.893	30.0	5.076	15.41	7.2791	20.0	2.745	2.217	32.214	29.997	31.11	1.11	1.074	27.6
0:27:46	23.2	0.899	30.0	5.069	15.51	7.2878	20.1	2.760	2.229	32.230	30.001	31.12	1.11	1.074	27.8
0:27:56	23.2	0.904	30.0	5.064	15.60	7.2957	20.2	2.765	2.230	32.237	30.006	31.12	1.12	1.074	27.9
0:28:07	23.3	0.911	30.0	5.058	15.71	7.3049	20.3	2.776	2.237	32.255	30.018	31.14	1.12	1.075	28.1
0:28:17	23.5	0.916	30.0	5.052	15.80	7.3131	20.4	2.793	2.251	32.263	30.012	31.14	1.13	1.075	28.3
0:28:28	23.6	0.923	30.0	5.045	15.91	7.3225	20.6	2.808	2.263	32.276	30.013	31.14	1.13	1.075	28.5
0:28:38	23.5	0.929	30.0	5.040	16.01	7.3311	20.4	2.783	2.234	32.244	30.010	31.13	1.12	1.074	28.6
0:28:47	23.6	0.935	30.0	5.034	16.10	7.3394	20.5	2.797	2.245	32.256	30.011	31.13	1.12	1.075	28.8
0:28:59	23.8	0.941	30.0	5.027	16.21	7.3489	20.7	2.817	2.261	32.273	30.011	31.14	1.13	1.075	29.0
0:29:08	23.6	0.947	30.0	5.022	16.31	7.3573	20.6	2.798	2.238	32.254	30.015	31.13	1.12	1.075	29.1
0:29:18	23.7	0.953	30.0	5.016	16.40	7.3658	20.6	2.797	2.234	32.250	30.016	31.13	1.12	1.074	29.3
0:29:29	23.8	0.959	30.0	5.009	16.51	7.3753	20.8	2.814	2.248	32.258	30.010	31.13	1.12	1.075	29.5
0:29:39	23.9	0.965	30.0	5.004	16.60	7.3834	20.8	2.821	2.251	32.264	30.013	31.14	1.13	1.075	29.7
0:29:50	23.8	0.971	30.0	4.997	16.71	7.3928	20.7	2.805	2.232	32.243	30.011	31.13	1.12	1.074	29.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8835 (in.)
Dia. avg.	3.195 (in)
Area avg.	8.0157 (in ²)

Tested By	KDG
Date	6-3-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1754B
Data File ID	UU-1754B
Back Pressure (psi)	0
Lateral Pressure (psi)	30

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:00	24.0	0.976	30.0	4.992	16.80	7.4010	20.9	2.824	2.248	32.259	30.011	31.14	1.12	1.075	30.0
0:30:11	24.0	0.983	30.0	4.986	16.90	7.4100	20.9	2.819	2.239	32.257	30.018	31.14	1.12	1.075	30.2
0:30:22	24.0	0.989	30.0	4.980	17.00	7.4189	20.9	2.818	2.235	32.252	30.017	31.13	1.12	1.074	30.4
0:30:33	24.0	0.995	30.0	4.974	17.10	7.4280	20.9	2.819	2.233	32.242	30.009	31.13	1.12	1.074	30.6
0:30:45	24.2	1.001	30.0	4.968	17.21	7.4372	21.1	2.842	2.252	32.259	30.007	31.13	1.13	1.075	30.8
0:30:56	24.2	1.007	30.0	4.962	17.30	7.4461	21.1	2.838	2.245	32.260	30.016	31.14	1.12	1.075	30.9
0:31:07	24.2	1.013	30.0	4.956	17.41	7.4552	21.1	2.831	2.235	32.246	30.012	31.13	1.12	1.074	31.1
0:31:18	24.3	1.019	30.0	4.950	17.51	7.4644	21.2	2.842	2.242	32.262	30.020	31.14	1.12	1.075	31.3
0:31:28	24.4	1.024	30.0	4.944	17.60	7.4729	21.3	2.849	2.245	32.266	30.021	31.14	1.12	1.075	31.5
0:31:39	24.4	1.031	30.0	4.938	17.70	7.4822	21.4	2.856	2.249	32.267	30.018	31.14	1.12	1.075	31.7
0:31:50	24.5	1.037	30.0	4.932	17.81	7.4916	21.5	2.867	2.257	32.281	30.025	31.15	1.13	1.075	31.8
0:32:01	24.6	1.043	30.0	4.926	17.91	7.5006	21.5	2.872	2.258	32.276	30.017	31.15	1.13	1.075	32.0
0:32:12	24.9	1.049	30.0	4.920	18.01	7.5098	21.8	2.906	2.289	32.302	30.013	31.16	1.14	1.076	32.2
0:32:22	24.9	1.054	30.0	4.914	18.10	7.5184	21.8	2.904	2.283	32.302	30.018	31.16	1.14	1.076	32.4
0:32:33	25.0	1.061	30.0	4.908	18.20	7.5279	21.9	2.908	2.284	32.297	30.013	31.16	1.14	1.076	32.6
0:32:44	25.2	1.067	30.0	4.902	18.31	7.5374	22.1	2.938	2.310	32.331	30.021	31.18	1.16	1.077	32.7
0:32:55	25.3	1.073	30.0	4.896	18.41	7.5467	22.2	2.943	2.312	32.326	30.014	31.17	1.16	1.077	32.9
0:33:05	25.3	1.079	30.0	4.890	18.50	7.5556	22.2	2.939	2.304	32.317	30.013	31.16	1.15	1.077	33.1
0:33:16	25.5	1.085	30.0	4.883	18.61	7.5654	22.4	2.960	2.322	32.339	30.017	31.18	1.16	1.077	33.3

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values

Height	4.8834 (in.)
Dia. avg.	3.251 (in.)
Area avg.	8.3009 (in ²)

Tested By RC

Date	6-3-09
Press No.	1
Panel No.	C

Project Number 175569038

Test Number	UU-1754C
Data File ID	UU-1754C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	6.5	-0.032	40.1	6.000	0.00	6.1575	0.0	0.000	0.000	40.058	40.058	40.06	0.00	1.000	0.0
0:00:16	7.9	-0.026	40.1	5.994	0.11	6.1640	1.4	0.226	0.222	40.275	40.052	40.16	0.11	1.006	0.3
0:00:27	8.3	-0.020	40.1	5.988	0.21	6.1703	1.8	0.294	0.287	40.341	40.054	40.20	0.14	1.007	0.5
0:00:38	8.5	-0.013	40.1	5.981	0.31	6.1769	2.0	0.317	0.306	40.357	40.051	40.20	0.15	1.008	0.6
0:00:48	8.7	-0.008	40.0	5.976	0.41	6.1826	2.2	0.351	0.337	40.381	40.043	40.21	0.17	1.008	0.8
0:00:59	9.0	-0.001	40.0	5.969	0.51	6.1890	2.5	0.397	0.379	40.423	40.044	40.23	0.19	1.009	1.0
0:01:10	9.3	0.004	40.0	5.964	0.61	6.1951	2.8	0.449	0.428	40.465	40.038	40.25	0.21	1.011	1.2
0:01:20	9.4	0.010	40.0	5.958	0.70	6.2009	2.8	0.456	0.432	40.473	40.041	40.26	0.22	1.011	1.3
0:01:33	9.5	0.017	40.0	5.951	0.81	6.2079	3.0	0.485	0.457	40.504	40.047	40.28	0.23	1.011	1.6
0:01:42	9.7	0.022	40.0	5.946	0.90	6.2137	3.2	0.508	0.477	40.516	40.039	40.28	0.24	1.012	1.7
0:01:54	9.9	0.028	40.0	5.940	1.01	6.2200	3.4	0.541	0.507	40.552	40.045	40.30	0.25	1.013	1.9
0:02:03	10.0	0.034	40.0	5.934	1.10	6.2261	3.5	0.564	0.527	40.558	40.032	40.29	0.26	1.013	2.1
0:02:15	10.3	0.040	40.0	5.928	1.20	6.2323	3.8	0.604	0.563	40.600	40.038	40.32	0.28	1.014	2.3
0:02:26	10.4	0.046	40.0	5.922	1.30	6.2388	3.8	0.616	0.572	40.607	40.036	40.32	0.29	1.014	2.4
0:02:37	10.5	0.053	40.0	5.915	1.41	6.2457	4.0	0.640	0.592	40.626	40.034	40.33	0.30	1.015	2.6
0:02:47	10.7	0.058	40.0	5.910	1.50	6.2516	4.1	0.660	0.609	40.643	40.034	40.34	0.30	1.015	2.8
0:02:58	10.7	0.064	40.0	5.904	1.61	6.2581	4.2	0.668	0.613	40.650	40.037	40.34	0.31	1.015	3.0
0:03:08	10.8	0.070	40.0	5.898	1.71	6.2644	4.2	0.677	0.619	40.657	40.038	40.35	0.31	1.015	3.1
0:03:17	10.9	0.076	40.0	5.892	1.80	6.2705	4.3	0.692	0.630	40.668	40.038	40.35	0.32	1.016	3.3
0:03:29	10.9	0.082	40.0	5.886	1.91	6.2772	4.3	0.690	0.624	40.660	40.035	40.35	0.31	1.016	3.5
0:03:40	11.1	0.089	40.0	5.879	2.01	6.2838	4.6	0.730	0.662	40.691	40.029	40.36	0.33	1.017	3.7
0:03:49	11.1	0.094	40.0	5.874	2.10	6.2898	4.6	0.734	0.662	40.688	40.027	40.36	0.33	1.017	3.8
0:04:01	11.3	0.100	40.0	5.868	2.20	6.2963	4.8	0.756	0.680	40.707	40.027	40.37	0.34	1.017	4.0
0:04:12	11.2	0.106	40.0	5.862	2.30	6.3028	4.7	0.741	0.662	40.688	40.026	40.36	0.33	1.017	4.2
0:04:23	11.2	0.112	40.0	5.856	2.41	6.3094	4.7	0.748	0.665	40.689	40.024	40.36	0.33	1.017	4.4
0:04:34	11.3	0.119	40.0	5.849	2.51	6.3160	4.8	0.753	0.667	40.692	40.025	40.36	0.33	1.017	4.6
0:04:45	11.3	0.125	40.0	5.843	2.61	6.3227	4.7	0.749	0.659	40.679	40.020	40.35	0.33	1.016	4.8
0:04:55	11.5	0.130	40.0	5.838	2.71	6.3288	5.0	0.786	0.693	40.720	40.026	40.37	0.35	1.017	4.9
0:05:05	11.5	0.136	40.0	5.832	2.80	6.3351	5.0	0.785	0.689	40.705	40.016	40.36	0.34	1.017	5.1
0:05:16	11.6	0.143	40.0	5.825	2.91	6.3423	5.1	0.804	0.704	40.727	40.023	40.37	0.35	1.018	5.3
0:05:26	11.7	0.148	40.0	5.820	3.00	6.3482	5.2	0.816	0.713	40.730	40.017	40.37	0.36	1.018	5.4
0:05:37	11.8	0.155	40.0	5.813	3.11	6.3553	5.2	0.823	0.716	40.733	40.017	40.38	0.36	1.018	5.6
0:05:47	11.9	0.161	40.0	5.807	3.21	6.3616	5.4	0.846	0.736	40.750	40.014	40.38	0.37	1.018	5.8
0:05:56	12.0	0.166	40.0	5.802	3.30	6.3678	5.5	0.858	0.745	40.765	40.020	40.39	0.37	1.019	5.9
0:06:08	12.3	0.173	40.0	5.795	3.41	6.3749	5.7	0.899	0.782	40.797	40.014	40.41	0.39	1.020	6.1
0:06:17	12.3	0.179	40.0	5.790	3.51	6.3814	5.8	0.908	0.788	40.808	40.020	40.41	0.39	1.020	6.3
0:06:29	12.3	0.185	40.0	5.783	3.61	6.3882	5.8	0.903	0.779	40.802	40.023	40.41	0.39	1.019	6.5
0:06:38	12.4	0.190	40.0	5.778	3.70	6.3943	5.8	0.911	0.784	40.795	40.011	40.40	0.39	1.020	6.6
0:06:49	12.3	0.196	40.0	5.772	3.80	6.4010	5.8	0.901	0.771	40.779	40.008	40.39	0.39	1.019	6.8
0:07:01	12.4	0.203	40.0	5.765	3.91	6.4081	5.9	0.921	0.787	40.807	40.020	40.41	0.39	1.020	7.0
0:07:12	12.6	0.209	40.0	5.759	4.01	6.4147	6.1	0.951	0.814	40.828	40.014	40.42	0.41	1.020	7.2
0:07:23	12.5	0.214	40.0	5.754	4.11	6.4213	6.0	0.930	0.789	40.797	40.009	40.40	0.39	1.020	7.4
0:07:34	12.6	0.221	40.0	5.747	4.21	6.4280	6.1	0.948	0.804	40.818	40.015	40.42	0.40	1.020	7.6
0:07:44	12.7	0.226	40.0	5.742	4.30	6.4342	6.2	0.966	0.819	40.828	40.009	40.42	0.41	1.020	7.7
0:07:56	12.9	0.233	40.0	5.735	4.41	6.4416	6.4	0.989	0.838	40.844	40.005	40.42	0.42	1.021	7.9
0:08:06	12.9	0.238	40.0	5.730	4.50	6.4478	6.4	0.985	0.831	40.839	40.008	40.42	0.42	1.021	8.1
0:08:17	13.1	0.244	40.0	5.724	4.61	6.4548	6.5	1.012	0.854	40.861	40.007	40.43	0.43	1.021	8.3
0:08:28	13.0	0.250	40.0	5.718	4.71	6.4617	6.4	0.996	0.835	40.835	40.001	40.42	0.42	1.021	8.5
0:08:39	13.2	0.256	40.0	5.712	4.81	6.4684	6.6	1.025	0.860	40.863	40.003	40.43	0.43	1.021	8.7
0:08:50	13.4	0.262	40.0	5.706	4.91	6.4753	6.9	1.058	0.890	40.889	39.999	40.44	0.45	1.022	8.8
0:09:01	13.6	0.269	40.0	5.699	5.01	6.4824	7.0	1.087	0.915	40.914	39.999	40.46	0.46	1.023	9.0
0:09:11	13.4	0.274	40.0	5.694	5.10	6.4885	6.8	1.054	0.880	40.876	39.997	40.44	0.44	1.022	9.2
0:09:22	13.5	0.280	40.0	5.688	5.20	6.4955	7.0	1.080	0.902	40.899	39.997	40.45	0.45	1.023	9.4
0:09:33	13.6	0.287	40.0	5.682	5.31	6.5027	7.1	1.092	0.910	40.906	39.996	40.45	0.46	1.023	9.6
0:09:45	13.5	0.293	40.0	5.675	5.41	6.5096	6.9	1.063	0.878	40.865	39.987	40.43	0.44	1.022	9.8
0:09:54	13.5	0.298	40.0	5.670	5.50	6.5160	7.0	1.077	0.888	40.873	39.985	40.43	0.44	1.022	9.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= 4(EM)(Thickness)(Strain)/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8834 (in.)
Dia. avg.	3.251 (in)
Area avg.	8.3009 (in ²)

Tested By	RC
Date	6-3-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1754C
Data File ID	UU-1754C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:05	13.6	0.304	40.0	5.664	5.61	6.5233	7.1	1.089	0.897	40.884	39.988	40.44	0.45	1.022	10.1
0:10:15	13.6	0.310	40.0	5.658	5.70	6.5299	7.1	1.081	0.886	40.870	39.984	40.43	0.44	1.022	10.3
0:10:26	14.0	0.316	40.0	5.652	5.80	6.5370	7.5	1.144	0.945	40.948	40.003	40.48	0.47	1.024	10.4
0:10:36	13.9	0.322	40.0	5.646	5.90	6.5436	7.4	1.130	0.927	40.938	40.010	40.47	0.46	1.023	10.6
0:10:47	13.9	0.329	40.0	5.639	6.01	6.5512	7.4	1.129	0.923	40.931	40.008	40.47	0.46	1.023	10.8
0:10:57	14.1	0.334	40.0	5.634	6.10	6.5578	7.6	1.153	0.944	40.952	40.009	40.48	0.47	1.024	11.0
0:11:08	14.2	0.340	40.0	5.628	6.21	6.5649	7.7	1.168	0.956	40.955	40.000	40.48	0.48	1.024	11.1
0:11:19	14.3	0.347	40.0	5.621	6.31	6.5723	7.8	1.184	0.967	40.972	40.005	40.49	0.48	1.024	11.3
0:11:29	14.4	0.352	40.0	5.616	6.40	6.5786	7.8	1.190	0.971	40.974	40.003	40.49	0.49	1.024	11.5
0:11:40	14.4	0.358	40.0	5.610	6.50	6.5858	7.9	1.197	0.974	40.978	40.005	40.49	0.49	1.024	11.7
0:11:51	14.4	0.364	40.0	5.604	6.61	6.5930	7.9	1.196	0.970	40.971	40.001	40.49	0.48	1.024	11.9
0:12:03	14.4	0.370	40.0	5.598	6.71	6.6001	7.8	1.188	0.958	40.962	40.004	40.48	0.48	1.024	12.1
0:12:14	14.5	0.377	40.0	5.591	6.81	6.6075	7.9	1.200	0.967	40.966	40.000	40.48	0.48	1.024	12.2
0:12:24	14.5	0.382	40.0	5.586	6.90	6.6141	8.0	1.205	0.969	40.971	40.003	40.49	0.48	1.024	12.4
0:12:35	14.7	0.389	40.0	5.579	7.01	6.6217	8.2	1.232	0.992	40.994	40.003	40.50	0.50	1.025	12.6
0:12:45	14.8	0.395	40.0	5.573	7.11	6.6288	8.2	1.244	1.001	41.001	40.001	40.50	0.50	1.025	12.8
0:12:54	14.9	0.400	40.0	5.568	7.20	6.6355	8.4	1.260	1.013	41.018	40.004	40.51	0.51	1.025	12.9
0:13:05	14.8	0.406	40.0	5.562	7.31	6.6429	8.3	1.249	0.999	40.995	39.996	40.50	0.50	1.025	13.1
0:13:15	14.9	0.412	40.0	5.556	7.40	6.6499	8.4	1.259	1.005	41.001	39.995	40.50	0.50	1.025	13.3
0:13:26	15.0	0.419	40.0	5.549	7.51	6.6576	8.5	1.270	1.012	41.015	40.002	40.51	0.51	1.025	13.4
0:13:36	15.1	0.424	40.0	5.544	7.60	6.6643	8.5	1.282	1.021	41.022	40.001	40.51	0.51	1.026	13.6
0:13:47	15.1	0.431	40.0	5.537	7.71	6.6720	8.6	1.285	1.020	41.013	39.992	40.50	0.51	1.026	13.8
0:13:57	15.1	0.436	40.0	5.532	7.81	6.6788	8.6	1.288	1.020	41.019	39.999	40.51	0.51	1.025	14.0
0:14:08	15.2	0.442	40.0	5.526	7.91	6.6861	8.7	1.299	1.028	41.030	40.002	40.52	0.51	1.026	14.1
0:14:19	15.2	0.448	40.0	5.520	8.01	6.6935	8.7	1.296	1.021	41.009	39.987	40.50	0.51	1.026	14.3
0:14:29	15.1	0.454	40.0	5.514	8.10	6.7004	8.5	1.273	0.996	40.991	39.996	40.49	0.50	1.025	14.5
0:14:40	15.2	0.460	40.0	5.508	8.20	6.7076	8.7	1.296	1.015	41.010	39.995	40.50	0.51	1.025	14.7
0:14:53	15.4	0.467	40.0	5.501	8.31	6.7156	8.8	1.317	1.032	41.025	39.993	40.51	0.52	1.026	14.9
0:15:04	15.5	0.473	40.0	5.495	8.41	6.7229	9.0	1.340	1.052	41.040	39.988	40.51	0.53	1.026	15.1
0:15:14	15.6	0.478	40.0	5.490	8.50	6.7296	9.0	1.342	1.051	41.044	39.994	40.52	0.53	1.026	15.2
0:15:25	15.6	0.484	40.0	5.484	8.60	6.7370	9.0	1.342	1.047	41.034	39.987	40.51	0.52	1.026	15.4
0:15:36	15.5	0.490	40.0	5.478	8.71	6.7446	9.0	1.329	1.031	41.024	39.994	40.51	0.52	1.026	15.6
0:15:47	15.7	0.496	40.0	5.472	8.81	6.7521	9.2	1.362	1.060	41.050	39.989	40.52	0.53	1.027	15.8
0:15:58	15.5	0.503	40.0	5.465	8.91	6.7597	9.0	1.334	1.029	41.018	39.989	40.50	0.51	1.026	16.0
0:16:08	15.8	0.508	40.0	5.460	9.00	6.7666	9.3	1.370	1.061	41.051	39.990	40.52	0.53	1.027	16.1
0:16:19	15.8	0.514	40.0	5.454	9.10	6.7741	9.3	1.370	1.058	41.048	39.990	40.52	0.53	1.026	16.3
0:16:30	15.8	0.520	40.0	5.448	9.21	6.7818	9.2	1.362	1.046	41.029	39.983	40.51	0.52	1.026	16.5
0:16:41	15.9	0.527	40.0	5.441	9.31	6.7896	9.4	1.384	1.065	41.051	39.985	40.52	0.53	1.027	16.7
0:16:51	16.0	0.532	40.0	5.436	9.40	6.7966	9.4	1.388	1.066	41.060	39.994	40.53	0.53	1.027	16.9
0:17:02	16.0	0.538	40.0	5.430	9.50	6.8042	9.5	1.394	1.068	41.051	39.983	40.52	0.53	1.027	17.0
0:17:13	16.1	0.544	40.0	5.424	9.61	6.8120	9.6	1.403	1.073	41.054	39.981	40.52	0.54	1.027	17.2
0:17:23	16.1	0.550	40.0	5.418	9.70	6.8192	9.5	1.400	1.068	41.055	39.987	40.52	0.53	1.027	17.4
0:17:34	16.4	0.557	40.0	5.411	9.81	6.8272	9.8	1.442	1.105	41.089	39.983	40.54	0.55	1.028	17.6
0:17:44	16.3	0.562	40.0	5.406	9.90	6.8342	9.8	1.430	1.090	41.075	39.985	40.53	0.55	1.027	17.7
0:17:55	16.3	0.569	40.0	5.400	10.01	6.8423	9.8	1.434	1.091	41.076	39.985	40.53	0.55	1.027	17.9
0:18:05	16.4	0.574	40.0	5.394	10.11	6.8497	9.9	1.445	1.099	41.082	39.983	40.53	0.55	1.027	18.1
0:18:16	16.3	0.581	40.0	5.387	10.21	6.8576	9.8	1.427	1.077	41.059	39.983	40.52	0.54	1.027	18.3
0:18:26	16.4	0.586	40.0	5.382	10.30	6.8649	9.9	1.435	1.082	41.059	39.977	40.52	0.54	1.027	18.4
0:18:37	16.5	0.592	40.0	5.376	10.41	6.8728	10.0	1.455	1.098	41.077	39.979	40.53	0.55	1.027	18.6
0:18:48	16.5	0.598	40.0	5.370	10.51	6.8805	9.9	1.443	1.082	41.066	39.984	40.53	0.54	1.027	18.8
0:18:59	16.6	0.604	40.0	5.364	10.61	6.8881	10.0	1.456	1.093	41.066	39.974	40.52	0.55	1.027	19.0
0:19:10	16.7	0.611	40.0	5.357	10.71	6.8960	10.2	1.475	1.108	41.085	39.977	40.53	0.55	1.028	19.2
0:19:21	16.9	0.617	40.0	5.351	10.81	6.9038	10.3	1.495	1.124	41.106	39.982	40.54	0.56	1.028	19.4
0:19:32	16.7	0.623	40.0	5.345	10.91	6.9116	10.2	1.476	1.102	41.082	39.980	40.53	0.55	1.028	19.5
0:19:42	16.8	0.628	40.0	5.340	11.00	6.9188	10.2	1.481	1.104	41.081	39.978	40.53	0.55	1.028	19.7
0:19:52	16.9	0.634	40.0	5.334	11.10	6.9264	10.4	1.502	1.121	41.102	39.980	40.54	0.56	1.028	19.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values

Height	4.8834 (in.)
Dia. avg.	3.251 (in)
Area avg.	8.3009 (in ²)

Tested By RC

Date	6-3-09
Press No.	1
Panel No.	C

Project Number 175569038

Test Number	UU-1754C
Data File ID	UU-1754C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:20:03	17.0	0.641	40.0	5.327	11.21	6.9350	10.5	1.513	1.128	41.109	39.981	40.54	0.56	1.028	20.1
0:20:13	17.1	0.646	40.0	5.322	11.31	6.9426	10.6	1.524	1.137	41.116	39.979	40.55	0.57	1.028	20.2
0:20:23	16.9	0.652	40.0	5.316	11.40	6.9500	10.4	1.495	1.104	41.082	39.979	40.53	0.55	1.028	20.4
0:20:34	17.0	0.659	40.0	5.309	11.51	6.9584	10.5	1.511	1.117	41.097	39.981	40.54	0.56	1.028	20.6
0:20:44	17.2	0.664	40.0	5.304	11.61	6.9660	10.6	1.527	1.129	41.101	39.972	40.54	0.56	1.028	20.7
0:20:54	17.2	0.670	40.0	5.298	11.70	6.9737	10.6	1.527	1.125	41.110	39.985	40.55	0.56	1.028	20.9
0:21:05	17.1	0.677	40.0	5.291	11.81	6.9821	10.6	1.521	1.116	41.099	39.983	40.54	0.56	1.028	21.1
0:21:15	17.2	0.682	40.0	5.286	11.90	6.9895	10.6	1.520	1.112	41.087	39.974	40.53	0.56	1.028	21.3
0:21:26	17.3	0.688	40.0	5.280	12.01	6.9977	10.8	1.541	1.129	41.107	39.978	40.54	0.56	1.028	21.4
0:21:36	17.3	0.694	40.0	5.274	12.10	7.0052	10.8	1.539	1.124	41.108	39.984	40.55	0.56	1.028	21.6
0:21:47	17.4	0.700	40.0	5.268	12.20	7.0134	10.9	1.552	1.134	41.105	39.972	40.54	0.57	1.028	21.8
0:21:58	17.3	0.706	40.0	5.262	12.30	7.0215	10.8	1.539	1.117	41.079	39.962	40.52	0.56	1.028	22.0
0:22:09	17.3	0.712	40.0	5.256	12.40	7.0294	10.8	1.539	1.114	41.091	39.977	40.53	0.56	1.028	22.2
0:22:20	17.4	0.718	40.0	5.250	12.51	7.0376	10.9	1.546	1.117	41.081	39.964	40.52	0.56	1.028	22.3
0:22:31	17.4	0.724	40.0	5.244	12.61	7.0458	10.9	1.548	1.116	41.088	39.972	40.53	0.56	1.028	22.5
0:22:42	17.6	0.730	40.0	5.238	12.71	7.0537	11.1	1.573	1.138	41.107	39.969	40.54	0.57	1.028	22.7
0:22:53	17.7	0.737	40.0	5.231	12.81	7.0622	11.1	1.577	1.138	41.113	39.975	40.54	0.57	1.028	22.9
0:23:03	17.6	0.742	40.0	5.226	12.90	7.0698	11.1	1.570	1.127	41.100	39.973	40.54	0.56	1.028	23.1
0:23:14	17.9	0.748	40.0	5.220	13.00	7.0780	11.4	1.604	1.159	41.129	39.970	40.55	0.58	1.029	23.2
0:23:25	17.7	0.754	40.0	5.214	13.11	7.0862	11.2	1.582	1.133	41.103	39.970	40.54	0.57	1.028	23.4
0:23:36	17.8	0.760	40.0	5.208	13.21	7.0944	11.3	1.595	1.143	41.109	39.967	40.54	0.57	1.029	23.6
0:23:47	17.7	0.767	40.0	5.201	13.31	7.1029	11.2	1.570	1.114	41.078	39.964	40.52	0.56	1.028	23.8
0:23:59	17.9	0.773	40.0	5.195	13.41	7.1110	11.4	1.603	1.143	41.108	39.965	40.54	0.57	1.029	24.0
0:24:10	17.9	0.779	40.0	5.189	13.51	7.1195	11.4	1.603	1.140	41.102	39.962	40.53	0.57	1.029	24.2
0:24:20	18.0	0.784	40.0	5.184	13.61	7.1272	11.4	1.603	1.137	41.107	39.970	40.54	0.57	1.028	24.3
0:24:31	17.9	0.790	40.0	5.178	13.71	7.1356	11.4	1.596	1.126	41.084	39.958	40.52	0.56	1.028	24.5
0:24:42	18.2	0.797	40.0	5.171	13.81	7.1442	11.6	1.630	1.157	41.115	39.958	40.54	0.58	1.029	24.7
0:24:52	18.1	0.802	40.0	5.166	13.90	7.1520	11.6	1.620	1.143	41.097	39.954	40.53	0.57	1.029	24.9
0:25:01	18.2	0.808	40.0	5.160	14.00	7.1600	11.6	1.624	1.144	41.104	39.960	40.53	0.57	1.029	25.0
0:25:13	18.2	0.814	40.0	5.154	14.11	7.1687	11.7	1.633	1.149	41.102	39.953	40.53	0.57	1.029	25.2
0:25:24	18.3	0.821	39.9	5.147	14.21	7.1775	11.7	1.635	1.148	41.094	39.946	40.52	0.57	1.029	25.4
0:25:33	18.3	0.827	39.9	5.141	14.31	7.1857	11.8	1.642	1.152	41.101	39.950	40.53	0.58	1.029	25.6
0:25:43	18.4	0.832	39.9	5.136	14.40	7.1936	11.9	1.654	1.160	41.109	39.949	40.53	0.58	1.029	25.7
0:25:54	18.5	0.838	39.9	5.130	14.50	7.2022	11.9	1.658	1.160	41.103	39.943	40.52	0.58	1.029	25.9
0:26:06	18.4	0.844	39.9	5.124	14.61	7.2108	11.9	1.647	1.147	41.092	39.945	40.52	0.57	1.029	26.1
0:26:15	18.5	0.850	39.9	5.118	14.70	7.2189	11.9	1.652	1.148	41.094	39.946	40.52	0.57	1.029	26.3
0:26:26	18.6	0.856	40.0	5.112	14.80	7.2272	12.0	1.664	1.157	41.122	39.965	40.54	0.58	1.029	26.4
0:26:38	18.4	0.862	40.0	5.106	14.90	7.2358	11.9	1.643	1.132	41.101	39.969	40.54	0.57	1.028	26.6
0:26:49	18.5	0.868	40.0	5.100	15.01	7.2446	12.0	1.654	1.139	41.115	39.976	40.55	0.57	1.028	26.8
0:27:00	18.6	0.875	40.0	5.093	15.11	7.2534	12.1	1.669	1.151	41.128	39.977	40.55	0.58	1.029	27.0
0:27:10	18.6	0.880	40.0	5.088	15.20	7.2616	12.1	1.666	1.144	41.128	39.983	40.56	0.57	1.029	27.2
0:27:19	18.8	0.886	40.0	5.082	15.30	7.2701	12.3	1.687	1.162	41.137	39.975	40.56	0.58	1.029	27.3
0:27:29	18.8	0.892	40.0	5.076	15.40	7.2786	12.3	1.683	1.155	41.132	39.977	40.55	0.58	1.029	27.5
0:27:40	18.8	0.899	40.0	5.069	15.51	7.2879	12.2	1.679	1.147	41.118	39.972	40.55	0.57	1.029	27.7
0:27:50	18.9	0.904	40.0	5.064	15.60	7.2958	12.4	1.698	1.163	41.137	39.974	40.56	0.58	1.029	27.8
0:28:01	19.0	0.911	40.0	5.057	15.71	7.3053	12.5	1.705	1.166	41.134	39.968	40.55	0.58	1.029	28.0
0:28:11	18.9	0.917	40.0	5.051	15.81	7.3137	12.4	1.697	1.155	41.129	39.975	40.55	0.58	1.029	28.2
0:28:21	19.1	0.922	40.0	5.046	15.90	7.3217	12.6	1.714	1.169	41.141	39.972	40.56	0.58	1.029	28.4
0:28:32	19.1	0.928	40.0	5.040	16.01	7.3310	12.6	1.716	1.167	41.141	39.974	40.56	0.58	1.029	28.5
0:28:42	19.1	0.934	40.0	5.034	16.10	7.3393	12.5	1.710	1.158	41.132	39.975	40.55	0.58	1.029	28.7
0:28:53	19.3	0.940	40.0	5.028	16.21	7.3484	12.8	1.737	1.182	41.148	39.966	40.56	0.59	1.030	28.9
0:29:04	19.2	0.947	40.0	5.021	16.31	7.3574	12.7	1.727	1.167	41.141	39.973	40.56	0.58	1.029	29.1
0:29:14	19.4	0.952	40.0	5.016	16.40	7.3656	12.8	1.741	1.179	41.152	39.973	40.56	0.59	1.029	29.2
0:29:25	19.3	0.958	40.0	5.010	16.50	7.3745	12.8	1.735	1.169	41.143	39.974	40.56	0.58	1.029	29.4
0:29:36	19.4	0.964	40.0	5.004	16.60	7.3832	12.8	1.737	1.168	41.142	39.974	40.56	0.58	1.029	29.6
0:29:47	19.5	0.970	40.0	4.998	16.70	7.3921	12.9	1.749	1.177	41.144	39.967	40.56	0.59	1.029	29.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8834 (in.)
Dia. avg.	3.251 (in)
Area avg.	8.3009 (in ²)

Tested By	RC
Date	6-3-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1754C
Data File ID	UU-1754C
Back Pressure (psi)	0
Lateral Pressure (psi)	40

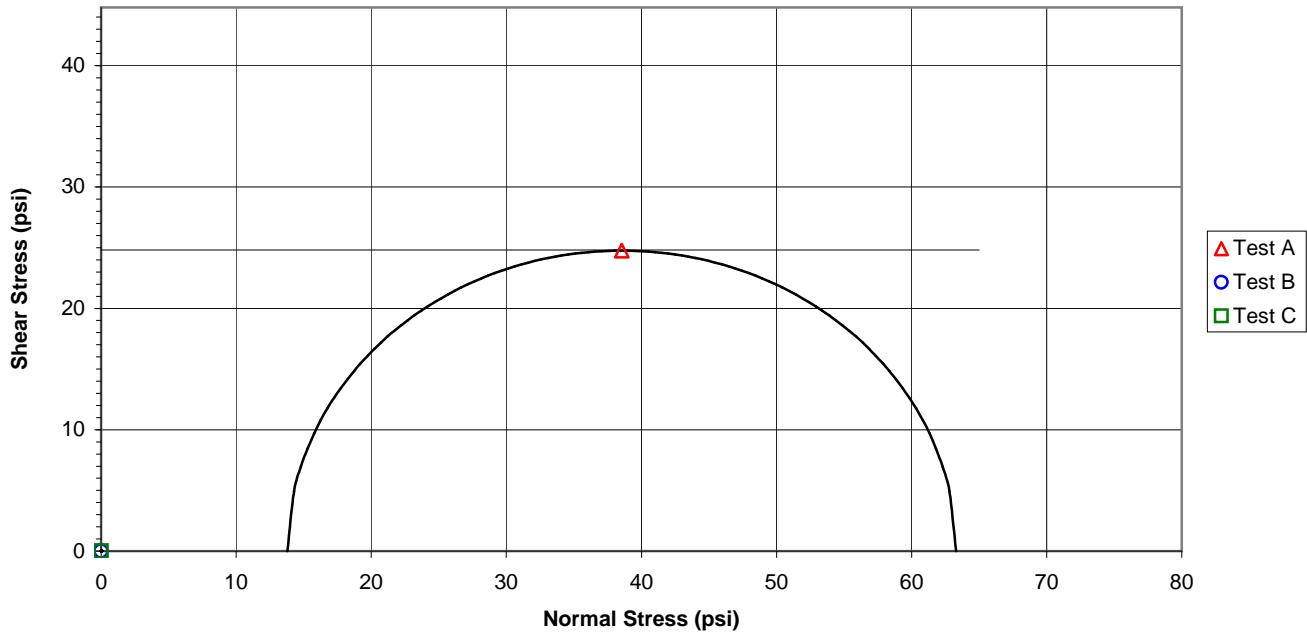
Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:29:58	19.4	0.976	40.0	4.992	16.80	7.4010	12.8	1.736	1.160	41.124	39.964	40.54	0.58	1.029	30.0
0:30:10	19.4	0.982	40.0	4.986	16.90	7.4100	12.9	1.741	1.161	41.131	39.969	40.55	0.58	1.029	30.2
0:30:21	19.5	0.988	40.0	4.980	17.00	7.4189	13.0	1.750	1.167	41.134	39.966	40.55	0.58	1.029	30.4
0:30:32	19.5	0.994	40.0	4.974	17.11	7.4282	13.0	1.747	1.161	41.127	39.966	40.55	0.58	1.029	30.5
0:30:43	19.6	1.000	40.0	4.968	17.21	7.4372	13.1	1.758	1.168	41.134	39.965	40.55	0.58	1.029	30.7
0:30:54	19.6	1.007	40.0	4.961	17.31	7.4466	13.1	1.760	1.167	41.143	39.976	40.56	0.58	1.029	30.9
0:31:05	19.7	1.013	40.0	4.955	17.41	7.4554	13.1	1.763	1.166	41.128	39.962	40.55	0.58	1.029	31.1
0:31:15	19.7	1.018	40.0	4.950	17.50	7.4638	13.2	1.769	1.169	41.140	39.970	40.56	0.58	1.029	31.3
0:31:26	19.8	1.024	40.0	4.944	17.60	7.4731	13.3	1.778	1.175	41.145	39.970	40.56	0.59	1.029	31.4
0:31:37	19.7	1.031	40.0	4.938	17.71	7.4825	13.2	1.764	1.157	41.129	39.972	40.55	0.58	1.029	31.6
0:31:47	19.8	1.036	40.0	4.932	17.80	7.4909	13.3	1.773	1.163	41.128	39.965	40.55	0.58	1.029	31.8
0:31:58	19.7	1.042	40.0	4.926	17.90	7.5005	13.1	1.752	1.138	41.098	39.960	40.53	0.57	1.028	32.0
0:32:09	20.0	1.049	40.0	4.919	18.01	7.5103	13.4	1.791	1.173	41.140	39.967	40.55	0.59	1.029	32.2
0:32:19	19.9	1.054	40.0	4.914	18.10	7.5187	13.4	1.776	1.155	41.116	39.961	40.54	0.58	1.029	32.3
0:32:30	19.9	1.061	40.0	4.907	18.21	7.5285	13.4	1.775	1.151	41.118	39.967	40.54	0.58	1.029	32.5
0:32:40	20.0	1.066	40.0	4.902	18.30	7.5372	13.5	1.786	1.158	41.124	39.966	40.55	0.58	1.029	32.7
0:32:51	20.2	1.073	40.0	4.896	18.41	7.5467	13.6	1.805	1.174	41.138	39.964	40.55	0.59	1.029	32.9
0:33:01	20.1	1.078	40.0	4.890	18.50	7.5556	13.6	1.797	1.162	41.131	39.969	40.55	0.58	1.029	33.0
0:33:12	20.0	1.085	40.0	4.883	18.61	7.5655	13.5	1.782	1.144	41.117	39.972	40.54	0.57	1.029	33.2

Project John Siever Fossil Plant
 Sample ID JS-36-SV, 18.5' - 19.0'

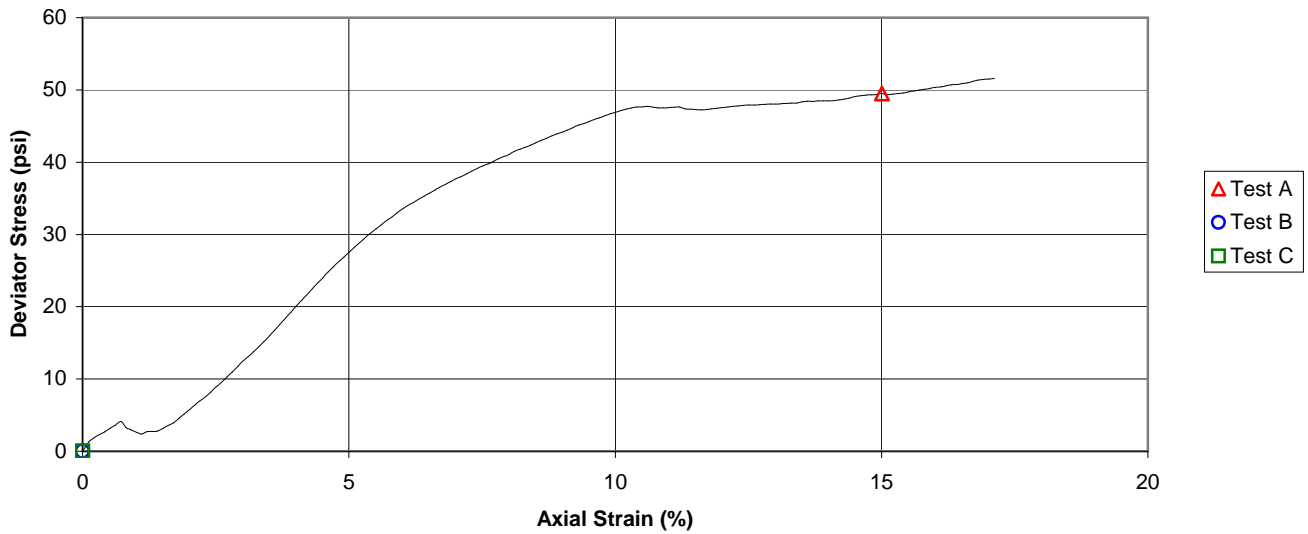
Project No. 175569038
 Test Number 1010A
 $c = 24.8$ psi

$\phi = 0.0$ deg.
 Failure Criterion: Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36-SV, 18.5' - 19.0'</u>	Test Number	<u>UU-1010A</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>	Prepared By	<u>CM</u>
Undisturbed	Source <u>JS-36-SV, 18.5' - 20.5'</u>	Date	<u>6-25-09</u>

Specific Gravity	<u>2.27</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.830</u>	1 <u>5.908</u>	Sample <u>37.3956</u> (V _o)	Wet Weight (g) <u>1030.50</u>
Middle <u>2.840</u>	2 <u>5.886</u>	Solids <u>19.8737</u> (VS _o)	Dry Weight (g) <u>739.32</u>
Bottom <u>2.853</u>	3 <u>5.896</u>	Water <u>17.7677</u> (Vw _o)	Wet Unit Weight (pcf) <u>105.0</u>
Avg. <u>2.8410</u> (D _o)	4 <u>5.908</u>	Voids <u>17.5218</u> (Vv _o)	Dry Unit Weight (pcf) <u>75.3</u>
Area (in ²) <u>6.3392</u> (A _o)	Avg. (H _o) <u>5.8991</u>	Degree of Saturation (%) <u>101.4</u> (S _o)	
Moisture Content (%) <u>39.4</u>	Final Trimmings	Void Ratio <u>0.882</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-25-09</u>
			Panel Board Number	<u>D</u>

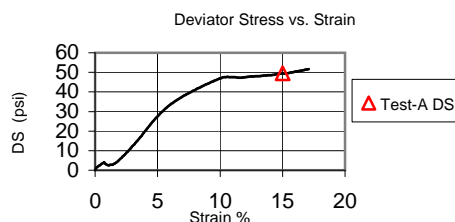
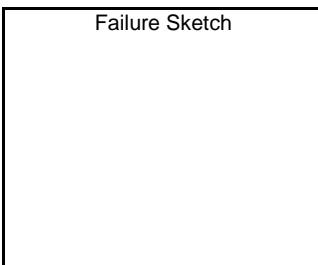
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>5.8991</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.3392</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>37.3956</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>13.7</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>13.7</u> (σ ₃)
Height (in.) <u>5.8991</u> (H _c)		Volume (in ³) <u>37.3956</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.3392</u> (A _c)		Volume - Water (in ³) <u>17.7677</u> (VW _c)	
Diameter (in.) <u>2.8410</u> (D _c)		Water Content (%) <u>39.4</u>	
Dry Density (pcf) <u>75.3</u>		Degree of Saturation (%) <u>101.4</u> (S _c)	Void Ratio <u>0.882</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.28</u> (in.)	Wet Weight (g) <u>1030.50</u>	Corrected Deviator <u>49.52</u> σ _d (psi)
Wet weight (g) <u>1030.5</u> (WW _f)	Dry Weight (g) <u>739.32</u>	Major Principal <u>63.30</u> σ ₁₁ (psi)
Average Diameter <u>3.140</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>13.79</u> σ ₃₁ (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.169</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>
		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1010AB</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.27</u> #REF!	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

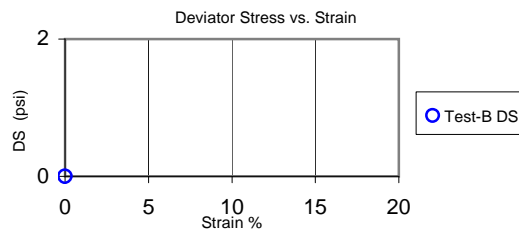
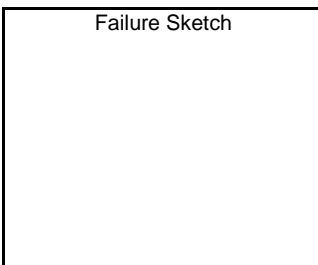
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1010AC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.27</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

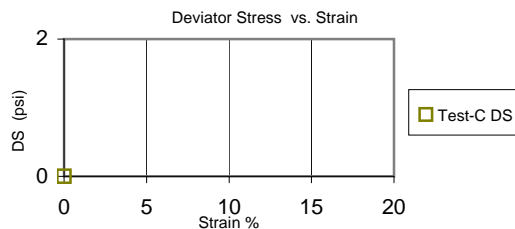
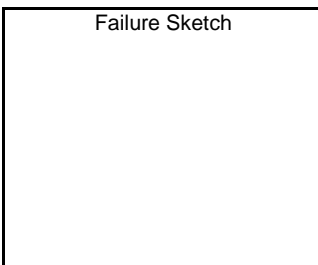
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.899 (in.)
Diameter	2.841 (in.)
Area	6.339 (in ²)

Final Values	
Height	4.8894 (in.)
Dia. avg.	3.140 (in.)
Area avg.	7.7437 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010A
Back Pressure (psi)	0
Lateral Pressure (psi)	13.7

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	3.7	-0.001	13.7	5.899	0.00	6.3392	0.0	0.000	0.000	13.721	13.721	13.72	0.00	1.000	0.0
0:00:20	11.7	0.005	13.7	5.892	0.11	6.3463	8.1	1.276	1.272	14.996	13.724	14.36	0.64	1.093	0.3
0:00:34	15.3	0.011	13.7	5.887	0.20	6.3521	11.6	1.830	1.823	15.542	13.719	14.63	0.91	1.133	0.6
0:00:51	18.3	0.017	13.7	5.881	0.31	6.3590	14.6	2.297	2.286	16.008	13.722	14.87	1.14	1.167	0.9
0:01:06	20.7	0.023	13.7	5.875	0.41	6.3652	17.1	2.684	2.670	16.386	13.715	15.05	1.34	1.195	1.1
0:01:23	24.1	0.029	13.7	5.869	0.52	6.3720	20.5	3.210	3.192	16.911	13.719	15.32	1.60	1.233	1.4
0:01:38	26.8	0.035	13.7	5.863	0.61	6.3781	23.1	3.624	3.603	17.323	13.719	15.52	1.80	1.263	1.6
0:01:55	30.1	0.041	13.7	5.857	0.72	6.3851	26.5	4.149	4.125	17.844	13.719	15.78	2.06	1.301	1.9
0:02:10	24.7	0.047	13.7	5.851	0.82	6.3913	21.1	3.296	3.269	16.984	13.715	15.35	1.63	1.238	2.2
0:02:24	22.8	0.052	13.7	5.846	0.91	6.3971	19.1	2.993	2.962	16.682	13.720	15.20	1.48	1.216	2.4
0:02:41	20.7	0.058	13.7	5.839	1.01	6.4041	17.1	2.663	2.629	16.345	13.716	15.03	1.31	1.192	2.7
0:02:56	19.3	0.064	13.7	5.834	1.11	6.4103	15.7	2.448	2.411	16.124	13.713	14.92	1.21	1.176	2.9
0:03:11	21.3	0.070	13.7	5.828	1.20	6.4164	17.7	2.752	2.711	16.432	13.721	15.08	1.36	1.198	3.2
0:03:28	21.7	0.076	13.7	5.822	1.31	6.4236	18.0	2.807	2.763	16.481	13.718	15.10	1.38	1.201	3.5
0:03:42	22.0	0.082	13.7	5.816	1.40	6.4295	18.4	2.859	2.811	16.525	13.713	15.12	1.41	1.205	3.7
0:04:00	24.6	0.088	13.7	5.810	1.52	6.4367	20.9	3.247	3.196	16.917	13.721	15.32	1.60	1.233	4.0
0:04:14	27.0	0.093	13.7	5.804	1.61	6.4427	23.4	3.630	3.576	17.294	13.718	15.51	1.79	1.261	4.2
0:04:29	29.1	0.099	13.7	5.799	1.70	6.4488	25.5	3.952	3.894	17.611	13.717	15.66	1.95	1.284	4.5
0:04:46	33.5	0.105	13.7	5.792	1.81	6.4559	29.9	4.626	4.565	18.285	13.720	16.00	2.28	1.333	4.8
0:05:00	37.2	0.111	13.7	5.787	1.90	6.4621	33.5	5.188	5.124	18.837	13.713	16.27	2.56	1.374	5.0
0:05:18	41.3	0.117	13.7	5.781	2.01	6.4689	37.6	5.817	5.749	19.461	13.712	16.59	2.87	1.419	5.3
0:05:35	45.6	0.123	13.7	5.774	2.12	6.4761	41.9	6.472	6.401	20.115	13.714	16.91	3.20	1.467	5.6
0:05:49	49.4	0.129	13.7	5.769	2.21	6.4821	45.7	7.053	6.979	20.698	13.719	17.21	3.49	1.509	5.8
0:06:06	53.4	0.135	13.7	5.763	2.32	6.4895	49.7	7.666	7.587	21.299	13.711	17.50	3.79	1.553	6.1
0:06:21	57.5	0.141	13.7	5.757	2.41	6.4955	53.9	8.292	8.211	21.930	13.720	17.82	4.11	1.598	6.4
0:06:38	62.3	0.147	13.7	5.751	2.51	6.5026	58.6	9.018	8.934	22.649	13.715	18.18	4.47	1.651	6.6
0:06:53	66.2	0.152	13.7	5.745	2.61	6.5087	62.6	9.614	9.526	23.245	13.720	18.48	4.76	1.694	6.9
0:07:10	71.5	0.159	13.7	5.739	2.71	6.5160	67.8	10.406	10.314	24.030	13.716	18.87	5.16	1.752	7.2
0:07:25	75.7	0.164	13.7	5.734	2.80	6.5221	72.0	11.047	10.952	24.677	13.725	19.20	5.48	1.798	7.4
0:07:42	81.0	0.171	13.7	5.727	2.91	6.5294	77.4	11.853	11.755	25.472	13.717	19.59	5.88	1.857	7.7
0:07:56	85.6	0.176	13.7	5.722	3.01	6.5357	82.0	12.544	12.443	26.160	13.717	19.94	6.22	1.907	7.9
0:08:14	90.3	0.183	13.7	5.715	3.12	6.5431	86.7	13.249	13.144	26.858	13.714	20.29	6.57	1.958	8.2
0:08:28	94.5	0.188	13.7	5.710	3.21	6.5491	90.9	13.872	13.764	27.479	13.716	20.60	6.88	2.004	8.5
0:08:45	99.7	0.194	13.7	5.704	3.32	6.5565	96.1	14.652	14.540	28.254	13.714	20.98	7.27	2.060	8.8
0:09:00	104.2	0.200	13.7	5.698	3.41	6.5628	100.5	15.318	15.203	28.914	13.710	21.31	7.60	2.109	9.0
0:09:17	109.8	0.206	13.7	5.692	3.52	6.5703	106.2	16.157	16.038	29.748	13.710	21.73	8.02	2.170	9.3
0:09:32	114.9	0.212	13.7	5.686	3.61	6.5765	111.3	16.918	16.796	30.510	13.714	22.11	8.40	2.225	9.5
0:09:46	120.0	0.217	13.7	5.681	3.70	6.5828	116.4	17.680	17.555	31.264	13.709	22.49	8.78	2.281	9.8
0:10:04	126.0	0.223	13.7	5.674	3.81	6.5902	122.3	18.565	18.437	32.145	13.708	22.93	9.22	2.345	10.1
0:10:18	131.0	0.229	13.7	5.669	3.90	6.5966	127.3	19.300	19.168	32.871	13.703	23.29	9.58	2.399	10.3
0:10:35	137.0	0.235	13.7	5.663	4.01	6.6040	133.3	20.191	20.056	33.767	13.711	23.74	10.03	2.463	10.6
0:10:52	142.9	0.241	13.7	5.656	4.12	6.6113	139.2	21.056	20.917	34.628	13.710	24.17	10.46	2.526	10.9
0:11:07	147.6	0.247	13.7	5.651	4.21	6.6176	144.0	21.754	21.611	35.312	13.700	24.51	10.81	2.577	11.1
0:11:24	153.8	0.253	13.7	5.644	4.32	6.6251	150.1	22.661	22.515	36.222	13.707	24.96	11.26	2.643	11.4
0:11:39	158.8	0.259	13.7	5.639	4.41	6.6315	155.1	23.394	23.245	36.939	13.693	25.32	11.62	2.698	11.7
0:11:54	163.7	0.264	13.7	5.633	4.50	6.6381	160.0	24.109	23.956	37.664	13.708	25.69	11.98	2.748	11.9
0:12:11	169.5	0.271	13.7	5.627	4.61	6.6456	165.8	24.950	24.794	38.494	13.700	26.10	12.40	2.810	12.2
0:12:25	174.3	0.276	13.7	5.622	4.70	6.6521	170.6	25.647	25.488	39.186	13.698	26.44	12.74	2.861	12.4
0:12:42	179.6	0.283	13.7	5.615	4.81	6.6597	175.9	26.417	26.255	39.954	13.700	26.83	13.13	2.916	12.7
0:12:57	184.0	0.288	13.7	5.610	4.91	6.6663	180.4	27.060	26.894	40.586	13.691	27.14	13.45	2.964	13.0
0:13:14	189.3	0.295	13.7	5.603	5.02	6.6740	185.6	27.813	27.643	41.339	13.695	27.52	13.82	3.018	13.2
0:13:29	193.6	0.300	13.7	5.598	5.11	6.6805	189.9	28.429	28.257	41.952	13.696	27.82	14.13	3.063	13.5
0:13:44	197.9	0.305	13.7	5.592	5.20	6.6870	194.3	29.054	28.878	42.560	13.682	28.12	14.44	3.111	13.7
0:14:01	202.8	0.312	13.7	5.586	5.31	6.6946	199.2	29.754	29.574	43.238	13.664	28.45	14.79	3.164	14.0
0:14:15	207.0	0.317	13.7	5.581	5.40	6.7011	203.3	30.341	30.159	43.820	13.661	28.74	15.08	3.208	14.3
0:14:32	211.5	0.324	13.7	5.574	5.51	6.7086	207.8	30.979	30.793	44.450	13.657	29.05	15.40	3.255	14.5

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	5.899 (in.)
Diameter	2.841 (in.)
Area	6.339 (in ²)

Final Values	
Height	4.8894 (in.)
Dia. avg.	3.140 (in)
Area avg.	7.7437 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010A
Back Pressure (psi)	0
Lateral Pressure (psi)	13.7

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:14:49	215.8	0.330	13.7	5.568	5.61	6.7163	212.2	31.594	31.404	45.124	13.720	29.42	15.70	3.289	14.8
0:15:04	219.5	0.335	13.7	5.562	5.71	6.7228	215.9	32.113	31.920	45.656	13.736	29.70	15.96	3.324	15.1
0:15:21	223.5	0.342	13.8	5.556	5.81	6.7304	219.8	32.662	32.465	46.219	13.754	29.99	16.23	3.360	15.4
0:15:36	227.2	0.347	13.8	5.551	5.91	6.7370	223.5	33.180	32.980	46.745	13.765	30.26	16.49	3.396	15.6
0:15:53	231.5	0.353	13.8	5.544	6.01	6.7448	227.8	33.775	33.572	47.334	13.762	30.55	16.79	3.439	15.9
0:16:08	234.5	0.359	13.8	5.539	6.11	6.7514	230.9	34.199	33.992	47.764	13.772	30.77	17.00	3.468	16.1
0:16:25	237.6	0.365	13.8	5.533	6.21	6.7591	233.9	34.611	34.401	48.175	13.774	30.97	17.20	3.498	16.4
0:16:39	240.8	0.371	13.8	5.527	6.30	6.7657	237.2	35.053	34.840	48.611	13.771	31.19	17.42	3.530	16.7
0:16:57	244.2	0.377	13.8	5.521	6.41	6.7736	240.6	35.519	35.302	49.076	13.774	31.43	17.65	3.563	17.0
0:17:11	247.1	0.382	13.8	5.515	6.50	6.7802	243.4	35.905	35.685	49.454	13.768	31.61	17.84	3.592	17.2
0:17:28	250.3	0.389	13.8	5.509	6.61	6.7880	246.6	36.335	36.111	49.882	13.770	31.83	18.06	3.622	17.5
0:17:43	253.3	0.394	13.8	5.504	6.70	6.7947	249.6	36.741	36.515	50.281	13.766	32.02	18.26	3.652	17.7
0:18:00	256.5	0.401	13.8	5.497	6.81	6.8026	252.9	37.171	36.940	50.712	13.771	32.24	18.47	3.682	18.0
0:18:15	259.2	0.406	13.8	5.492	6.90	6.8093	255.6	37.535	37.302	51.073	13.771	32.42	18.65	3.709	18.3
0:18:32	262.4	0.412	13.8	5.485	7.01	6.8172	258.7	37.949	37.712	51.484	13.772	32.63	18.86	3.738	18.5
0:18:47	264.7	0.418	13.8	5.480	7.10	6.8239	261.0	38.252	38.012	51.786	13.774	32.78	19.01	3.760	18.8
0:19:04	267.6	0.424	13.8	5.474	7.21	6.8318	263.9	38.635	38.391	52.158	13.766	32.96	19.20	3.789	19.1
0:19:18	270.2	0.429	13.8	5.468	7.30	6.8386	266.6	38.981	38.734	52.499	13.765	33.13	19.37	3.814	19.3
0:19:35	273.3	0.436	13.8	5.462	7.41	6.8466	269.6	39.381	39.131	52.896	13.765	33.33	19.57	3.843	19.6
0:19:50	275.6	0.441	13.8	5.457	7.50	6.8534	272.0	39.687	39.434	53.200	13.766	33.48	19.72	3.865	19.8
0:20:07	278.2	0.448	13.8	5.450	7.61	6.8614	274.5	40.014	39.757	53.526	13.770	33.65	19.88	3.887	20.1
0:20:22	280.7	0.453	13.8	5.445	7.70	6.8683	277.0	40.330	40.070	53.838	13.769	33.80	20.03	3.910	20.4
0:20:39	283.7	0.459	13.8	5.438	7.81	6.8763	280.1	40.733	40.469	54.242	13.773	34.01	20.23	3.938	20.7
0:20:54	286.1	0.465	13.8	5.433	7.91	6.8833	282.4	41.032	40.764	54.541	13.776	34.16	20.38	3.959	20.9
0:21:11	288.8	0.471	13.8	5.426	8.01	6.8914	285.2	41.382	41.111	54.885	13.774	34.33	20.56	3.985	21.2
0:21:25	291.6	0.477	13.8	5.421	8.11	6.8984	288.0	41.743	41.469	55.239	13.770	34.50	20.73	4.012	21.4
0:21:43	294.1	0.483	13.8	5.415	8.21	6.9065	290.5	42.056	41.779	55.548	13.769	34.66	20.89	4.034	21.7
0:21:57	296.5	0.489	13.8	5.409	8.31	6.9135	292.8	42.357	42.076	55.853	13.777	34.82	21.04	4.054	22.0
0:22:14	299.1	0.495	13.8	5.403	8.42	6.9216	295.4	42.681	42.396	56.166	13.770	34.97	21.20	4.079	22.2
0:22:29	301.4	0.501	13.8	5.397	8.51	6.9287	297.7	42.968	42.680	56.446	13.765	35.11	21.34	4.101	22.5
0:22:46	304.2	0.507	13.8	5.391	8.61	6.9368	300.5	43.327	43.036	56.802	13.766	35.28	21.52	4.126	22.8
0:23:01	306.4	0.512	13.8	5.385	8.71	6.9439	302.7	43.597	43.303	57.073	13.770	35.42	21.65	4.145	23.0
0:23:18	309.2	0.519	13.8	5.379	8.82	6.9521	305.5	43.949	43.651	57.421	13.771	35.60	21.83	4.170	23.3
0:23:32	311.4	0.524	13.8	5.374	8.91	6.9591	307.8	44.228	43.927	57.699	13.772	35.74	21.96	4.190	23.5
0:23:50	313.8	0.530	13.8	5.367	9.02	6.9673	310.1	44.512	44.208	57.973	13.765	35.87	22.10	4.212	23.8
0:24:04	316.0	0.536	13.8	5.362	9.11	6.9743	312.4	44.786	44.478	58.244	13.766	36.01	22.24	4.231	24.1
0:24:21	318.8	0.542	13.8	5.356	9.21	6.9826	315.2	45.140	44.829	58.602	13.773	36.19	22.41	4.255	24.4
0:24:36	321.1	0.548	13.8	5.350	9.31	6.9896	317.5	45.419	45.104	58.869	13.764	36.32	22.55	4.277	24.6
0:24:53	323.3	0.554	13.8	5.344	9.41	6.9979	319.6	45.675	45.357	59.123	13.766	36.44	22.68	4.295	24.9
0:25:08	325.5	0.559	13.8	5.338	9.50	7.0049	321.9	45.952	45.631	59.396	13.765	36.58	22.82	4.315	25.1
0:25:25	328.0	0.566	13.8	5.332	9.61	7.0132	324.4	46.255	45.931	59.697	13.767	36.73	22.97	4.336	25.4
0:25:40	330.0	0.571	13.8	5.327	9.70	7.0202	326.3	46.484	46.156	59.915	13.759	36.84	23.08	4.354	25.7
0:25:57	332.3	0.577	13.8	5.320	9.81	7.0286	328.7	46.765	46.434	60.199	13.765	36.98	23.22	4.373	26.0
0:26:14	334.7	0.584	13.8	5.314	9.91	7.0368	331.0	47.040	46.705	60.467	13.762	37.11	23.35	4.394	26.2
0:26:28	336.3	0.589	13.8	5.309	10.01	7.0439	332.6	47.223	46.885	60.651	13.766	37.21	23.44	4.406	26.5
0:26:45	338.6	0.595	13.8	5.303	10.11	7.0522	334.9	47.491	47.149	60.907	13.758	37.33	23.57	4.427	26.8
0:27:00	340.3	0.601	13.8	5.297	10.20	7.0594	336.7	47.694	47.349	61.101	13.752	37.43	23.67	4.443	27.0
0:27:17	342.1	0.607	13.7	5.291	10.31	7.0677	338.4	47.880	47.532	61.281	13.750	37.52	23.77	4.457	27.3
0:27:34	343.3	0.613	13.7	5.285	10.41	7.0761	339.7	48.003	47.652	61.401	13.749	37.57	23.83	4.466	27.6
0:27:49	343.6	0.618	13.7	5.279	10.50	7.0833	339.9	47.992	47.637	61.381	13.744	37.56	23.82	4.466	27.8
0:28:06	344.6	0.625	13.7	5.273	10.61	7.0916	341.0	48.082	47.724	61.464	13.740	37.60	23.86	4.473	28.1
0:28:23	344.2	0.631	13.7	5.267	10.72	7.1000	340.5	47.964	47.602	61.343	13.741	37.54	23.80	4.464	28.4
0:28:38	343.9	0.636	13.7	5.262	10.81	7.1072	340.2	47.870	47.504	61.245	13.741	37.49	23.75	4.457	28.6
0:28:55	344.4	0.642	13.7	5.255	10.91	7.1157	340.8	47.889	47.520	61.263	13.743	37.50	23.76	4.458	28.9
0:29:10	345.2	0.648	13.7	5.250	11.00	7.1229	341.5	47.946	47.575	61.312	13.738	37.52	23.79	4.463	29.2
0:29:27	345.9	0.654	13.7	5.244	11.11	7.1315	342.3	47.996	47.620	61.358	13.738	37.55	23.81	4.466	29.5

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= 4(EM)(Thickness)(Strain)/Dc

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.899 (in.)
Diameter	2.841 (in)
Area	6.339 (in ²)

Final Values	
Height	4.8894 (in.)
Dia. avg.	3.140 (in)
Area avg.	7.7437 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010A
Back Pressure (psi)	0
Lateral Pressure (psi)	13.7

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:29:41	346.5	0.659	13.7	5.238	11.20	7.1389	342.8	48.022	47.644	61.383	13.739	37.56	23.82	4.468	29.7
0:29:58	344.9	0.666	13.7	5.232	11.31	7.1476	341.3	47.750	47.367	61.095	13.728	37.41	23.68	4.450	30.0
0:30:15	345.1	0.672	13.7	5.226	11.42	7.1561	341.4	47.711	47.325	61.026	13.700	37.36	23.66	4.454	30.3
0:30:30	345.2	0.677	13.7	5.220	11.51	7.1634	341.6	47.680	47.291	60.993	13.701	37.35	23.65	4.452	30.5
0:30:47	345.4	0.684	13.7	5.214	11.61	7.1719	341.8	47.657	47.264	60.964	13.700	37.33	23.63	4.450	30.8
0:31:04	346.2	0.690	13.7	5.208	11.72	7.1805	342.5	47.705	47.309	61.003	13.694	37.35	23.65	4.455	31.1
0:31:19	347.1	0.695	13.7	5.203	11.81	7.1879	343.4	47.777	47.378	61.063	13.685	37.37	23.69	4.462	31.3
0:31:36	348.2	0.702	13.7	5.196	11.92	7.1967	344.5	47.871	47.468	61.201	13.733	37.47	23.73	4.456	31.6
0:31:51	349.1	0.707	13.8	5.191	12.01	7.2043	345.4	47.948	47.543	61.299	13.756	37.53	23.77	4.456	31.9
0:32:08	350.3	0.713	13.8	5.184	12.12	7.2132	346.7	48.063	47.654	61.433	13.779	37.61	23.83	4.458	32.1
0:32:22	351.2	0.719	13.8	5.179	12.21	7.2208	347.5	48.127	47.714	61.499	13.785	37.64	23.86	4.461	32.4
0:32:37	351.9	0.724	13.8	5.173	12.30	7.2286	348.2	48.175	47.760	61.557	13.798	37.68	23.88	4.461	32.6
0:32:54	353.0	0.731	13.8	5.167	12.41	7.2376	349.3	48.265	47.845	61.633	13.788	37.71	23.92	4.470	32.9
0:33:09	353.7	0.736	13.8	5.161	12.51	7.2453	350.1	48.316	47.894	61.690	13.796	37.74	23.95	4.472	33.2
0:33:26	354.3	0.743	13.8	5.155	12.62	7.2544	350.6	48.335	47.909	61.708	13.799	37.75	23.95	4.472	33.4
0:33:40	355.1	0.748	13.8	5.149	12.71	7.2621	351.4	48.390	47.961	61.760	13.799	37.78	23.98	4.476	33.7
0:33:58	355.8	0.755	13.8	5.143	12.82	7.2711	352.1	48.425	47.992	61.795	13.802	37.80	24.00	4.477	34.0
0:34:12	356.5	0.760	13.8	5.138	12.91	7.2789	352.9	48.476	48.040	61.837	13.797	37.82	24.02	4.482	34.2
0:34:27	357.0	0.766	13.8	5.132	13.01	7.2868	353.4	48.492	48.053	61.846	13.793	37.82	24.03	4.484	34.5
0:34:44	357.7	0.772	13.8	5.126	13.11	7.2959	354.0	48.525	48.082	61.871	13.789	37.83	24.04	4.487	34.7
0:34:59	358.4	0.778	13.8	5.120	13.21	7.3038	354.8	48.574	48.128	61.916	13.789	37.85	24.06	4.490	35.0
0:35:13	359.1	0.783	13.8	5.114	13.30	7.3118	355.4	48.607	48.158	61.955	13.797	37.88	24.08	4.490	35.2
0:35:30	359.7	0.790	13.8	5.108	13.41	7.3211	356.0	48.633	48.180	61.968	13.789	37.88	24.09	4.494	35.5
0:35:45	361.4	0.795	13.8	5.102	13.51	7.3290	357.8	48.813	48.357	62.144	13.787	37.97	24.18	4.508	35.8
0:36:02	362.5	0.802	13.8	5.096	13.61	7.3381	358.8	48.897	48.437	62.228	13.791	38.01	24.22	4.512	36.0
0:36:17	362.7	0.807	13.8	5.091	13.71	7.3461	359.1	48.878	48.415	62.205	13.790	38.00	24.21	4.511	36.3
0:36:34	363.7	0.813	13.8	5.084	13.81	7.3551	360.0	48.949	48.482	62.266	13.784	38.02	24.24	4.517	36.6
0:36:51	364.2	0.820	13.8	5.078	13.92	7.3640	360.5	48.956	48.485	62.275	13.789	38.03	24.24	4.516	36.9
0:37:06	364.7	0.825	13.8	5.073	14.01	7.3717	361.0	48.976	48.502	62.289	13.787	38.04	24.25	4.518	37.1
0:37:23	365.4	0.831	13.8	5.067	14.11	7.3807	361.7	49.009	48.533	62.323	13.790	38.06	24.27	4.519	37.4
0:37:37	366.6	0.837	13.8	5.061	14.20	7.3886	362.9	49.118	48.638	62.423	13.785	38.10	24.32	4.528	37.6
0:37:55	367.9	0.843	13.8	5.055	14.31	7.3979	364.2	49.233	48.749	62.538	13.789	38.16	24.37	4.535	37.9
0:38:09	369.2	0.848	13.8	5.049	14.40	7.4059	365.6	49.361	48.874	62.659	13.785	38.22	24.44	4.546	38.2
0:38:26	371.4	0.855	13.8	5.043	14.51	7.4153	367.8	49.595	49.105	62.886	13.781	38.33	24.55	4.563	38.4
0:38:41	372.4	0.860	13.8	5.038	14.61	7.4234	368.8	49.680	49.187	62.974	13.787	38.38	24.59	4.568	38.7
0:38:58	373.6	0.867	13.8	5.031	14.71	7.4328	370.0	49.773	49.276	63.065	13.789	38.43	24.64	4.573	39.0
0:39:13	374.3	0.872	13.8	5.026	14.81	7.4410	370.6	49.807	49.307	63.092	13.785	38.44	24.65	4.577	39.2
0:39:30	375.3	0.879	13.8	5.019	14.92	7.4505	371.7	49.887	49.383	63.169	13.786	38.48	24.69	4.582	39.5
0:39:44	376.8	0.884	13.8	5.014	15.01	7.4586	373.1	50.025	49.517	63.303	13.785	38.54	24.76	4.592	39.7
0:39:59	375.9	0.890	13.8	5.008	15.10	7.4668	372.3	49.855	49.345	63.126	13.781	38.45	24.67	4.581	40.0
0:40:16	376.9	0.896	13.8	5.002	15.21	7.4764	373.3	49.930	49.416	63.202	13.786	38.49	24.71	4.584	40.3
0:40:31	378.1	0.901	13.8	4.996	15.30	7.4846	374.5	50.034	49.517	63.300	13.783	38.54	24.76	4.593	40.5
0:40:48	379.4	0.908	13.8	4.990	15.41	7.4944	375.7	50.137	49.616	63.401	13.785	38.59	24.81	4.599	40.8
0:41:03	380.8	0.914	13.8	4.984	15.51	7.5027	377.1	50.268	49.744	63.526	13.783	38.65	24.87	4.609	41.1
0:41:20	382.2	0.920	13.8	4.978	15.62	7.5124	378.6	50.392	49.865	63.652	13.787	38.72	24.93	4.617	41.3
0:41:34	383.8	0.925	13.8	4.972	15.71	7.5207	380.1	50.541	50.010	63.793	13.783	38.79	25.01	4.629	41.6
0:41:49	384.7	0.931	13.8	4.967	15.80	7.5290	381.0	50.606	50.072	63.851	13.779	38.82	25.04	4.634	41.8
0:42:06	386.3	0.937	13.8	4.960	15.91	7.5388	382.7	50.758	50.220	64.007	13.786	38.90	25.11	4.643	42.1
0:42:21	387.7	0.943	13.8	4.955	16.01	7.5472	384.0	50.882	50.341	64.129	13.788	38.96	25.17	4.651	42.4
0:42:38	389.0	0.949	13.8	4.948	16.12	7.5571	385.4	50.996	50.452	64.235	13.783	39.01	25.23	4.660	42.6
0:42:53	390.5	0.955	13.8	4.943	16.21	7.5656	386.8	51.129	50.581	64.365	13.784	39.07	25.29	4.670	42.9
0:43:07	391.9	0.960	13.8	4.937	16.30	7.5741	388.2	51.255	50.704	64.483	13.779	39.13	25.35	4.680	43.1
0:43:24	392.9	0.967	13.8	4.931	16.41	7.5840	389.2	51.320	50.765	64.545	13.780	39.16	25.38	4.684	43.4
0:43:39	394.1	0.973	13.8	4.925	16.51	7.5926	390.5	51.428	50.870	64.647	13.777	39.21	25.44	4.692	43.7
0:43:54	395.5	0.978	13.8	4.920	16.60	7.6012	391.8	51.548	50.987	64.757	13.770	39.26	25.49	4.703	43.9
0:44:11	397.5	0.985	13.8	4.913	16.71	7.6113	393.8	51.744	51.180	64.957	13.778	39.37	25.59	4.715	44.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	5.899 (in.)
Diameter	2.841 (in.)
Area	6.339 (in ²)

Final Values

Height	4.8894 (in.)
Dia. avg.	3.140 (in.)
Area avg.	7.7437 (in ²)

Tested By KDGDate 6-25-09Press No. 2Panel No. DProject Number 175569038Test Number JU-UU-1010AData File ID UU-1010ABack Pressure (psi) 0Lateral Pressure (psi) 13.7

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:44:25	399.3	0.990	13.8	4.908	16.81	7.6199	395.6	51.920	51.352	65.126	13.774	39.45	25.68	4.728	44.4
0:44:42	400.5	0.997	13.8	4.901	16.92	7.6299	396.8	52.006	51.434	65.211	13.777	39.49	25.72	4.733	44.7
0:44:57	401.3	1.002	13.8	4.896	17.01	7.6384	397.6	52.055	51.480	65.252	13.772	39.51	25.74	4.738	45.0
0:45:14	402.6	1.008	13.8	4.889	17.12	7.6484	398.9	52.160	51.581	65.352	13.771	39.56	25.79	4.746	45.2

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1010AB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 $= (4(EM)(Thickness)(Strain))/D_c$
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1010AC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

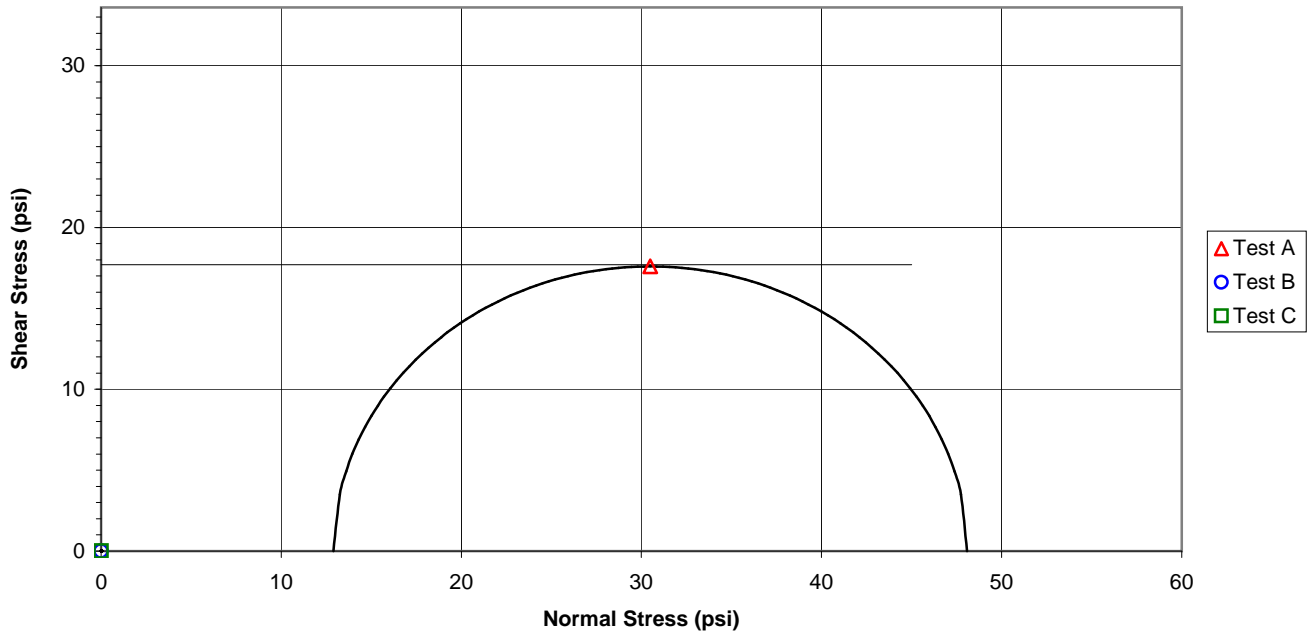
Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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Project John Siever Fossil Plant
 Sample ID JS-36-SV, 19.9' - 20.4'

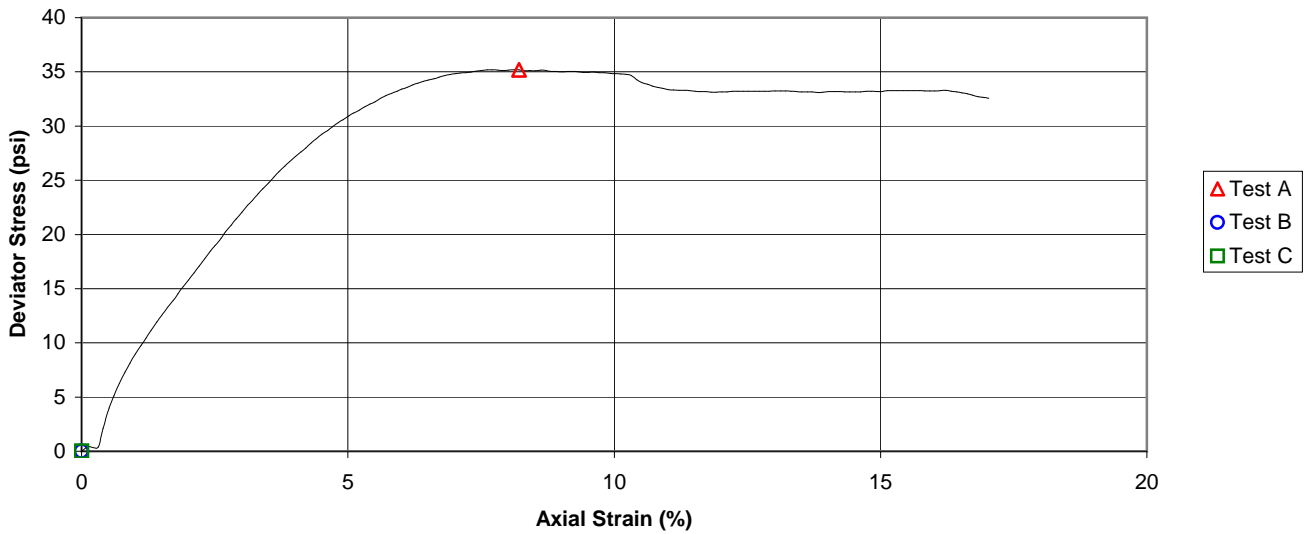
Project No. 175569038
 Test Number 1010

Failure Criterion: $\phi = 0.0$ deg. $c = 17.7$ psi
 Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-36-SV, 19.9' - 20.4'</u>	Test Number	<u>UU-1010C</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>	Prepared By	<u>KDG</u>
Undisturbed	Source <u>JS-36-SV, 18.5' - 20.5'</u>	Date	<u>6-25-09</u>

Specific Gravity	<u>2.23</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.866</u>	1 <u>6.035</u>	Sample <u>39.0767 (V_o)</u>	Wet Weight (g) <u>951.50</u>
Middle <u>2.875</u>	2 <u>6.053</u>	Solids <u>16.5479 (VS_o)</u>	Dry Weight (g) <u>604.75</u>
Bottom <u>2.874</u>	3 <u>6.012</u>	Water <u>21.1586 (Vw_o)</u>	Wet Unit Weight (pcf) <u>92.8</u>
Avg. <u>2.8717 (D_o)</u>	4 <u>6.035</u>	Voids <u>22.5288 (Vv_o)</u>	Dry Unit Weight (pcf) <u>59.0</u>
Area (in ²) <u>6.4768 (A_o)</u>	Avg. (H _o) <u>6.0334</u>	Degree of Saturation (%) <u>93.9 (S_o)</u>	
Moisture Content (%) <u>57.3</u>	Final Trimmings	Void Ratio <u>1.361</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-25-09</u>
			Panel Board Number	<u>E</u>

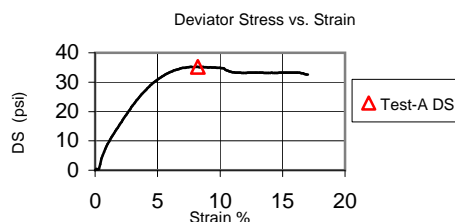
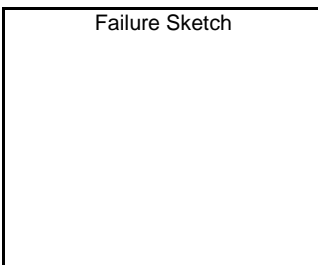
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0334 (H_s)</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4768 (A_s)</u>
Change <u>0.0000 (ΔH_o)</u>	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>39.0767 (V_s)</u>

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>13</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000 (ΔH_c)</u>	Change _____ (in.)	Change _____ (in.)	Lateral <u>13 (σ₃)</u>
Height (in.) <u>6.0334 (H_c)</u>		Volume (in ³) <u>39.0767 (V_c)</u>	
Area (in ³) Method A <u>6.4768 (A_c)</u>		Volume - Water (in ³) <u>21.1586 (VW_c)</u>	t ₅₀ (min.) _____
Diameter (in.) <u>2.8717 (D_c)</u>		Water Content (%) <u>57.3</u>	
Dry Density (pcf) <u>59.0</u>		Degree of Saturation (%) <u>93.9 (S_c)</u>	Void Ratio <u>1.361</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.221 (in.)</u>	Wet Weight (g) <u>951.50</u>	Corrected Deviator <u>35.19 σ_d (psi)</u>
Wet weight (g) <u>951.5 (WW_f)</u>	Dry Weight (g) <u>604.75</u>	Major Principal <u>48.09 σ₁₁ (psi)</u>
Average Diameter <u>3.097 (in.)</u>	Tare Weight (g) <u>0.00</u>	Minor Principal <u>12.90 σ₃₁ (psi)</u>
		Rate of Strain (% / min.) <u>0.171</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>8.21</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1010B</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.23</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

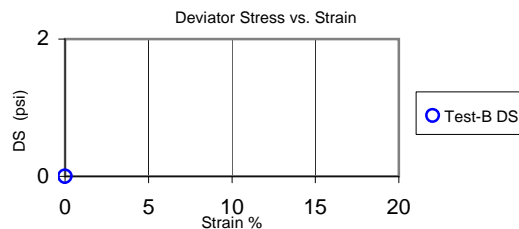
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1010C</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.23</u> #REF!	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

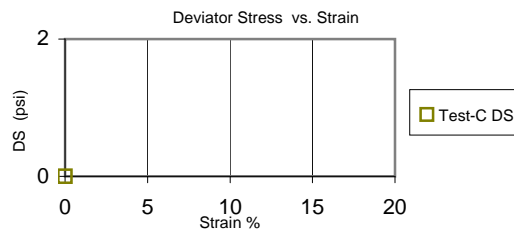
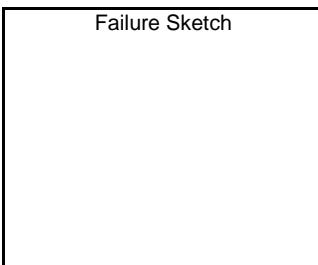
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.872 (in)
Area	6.477 (in ²)

Final Values	
Height	5.0058 (in.)
Dia. avg.	3.097 (in)
Area avg.	7.5315 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010C
Back Pressure (psi)	0
Lateral Pressure (psi)	13

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	-0.2	0.000	13.0	6.033	0.00	6.4768	0.0	0.000	0.000	13.000	13.000	13.00	0.00	1.000	0.0
0:00:24	2.5	0.007	13.0	6.027	0.11	6.4840	2.7	0.416	0.412	13.400	12.989	13.19	0.21	1.032	0.4
0:00:39	2.2	0.013	13.0	6.021	0.20	6.4901	2.3	0.361	0.354	13.368	13.014	13.19	0.18	1.027	0.7
0:00:56	2.4	0.019	13.0	6.015	0.31	6.4970	2.6	0.400	0.389	13.388	12.999	13.19	0.19	1.030	0.9
0:01:11	13.5	0.024	13.0	6.009	0.40	6.5028	13.6	2.098	2.085	15.098	13.013	14.06	1.04	1.160	1.2
0:01:30	25.9	0.031	13.0	6.002	0.52	6.5104	26.0	4.000	3.982	16.952	12.970	14.96	1.99	1.307	1.5
0:01:45	33.3	0.037	13.0	5.997	0.61	6.5162	33.5	5.139	5.119	18.124	13.005	15.56	2.56	1.394	1.8
0:02:02	40.8	0.043	13.1	5.991	0.71	6.5230	41.0	6.288	6.265	19.349	13.084	16.22	3.13	1.479	2.0
0:02:19	47.8	0.050	13.0	5.984	0.82	6.5301	48.0	7.349	7.321	20.283	12.961	16.62	3.66	1.565	2.3
0:02:34	53.0	0.055	12.9	5.979	0.90	6.5359	53.2	8.141	8.111	20.994	12.883	16.94	4.06	1.630	2.6
0:02:51	58.7	0.061	12.9	5.972	1.01	6.5428	58.9	8.998	8.964	21.913	12.949	17.43	4.48	1.692	2.9
0:03:08	64.1	0.068	12.9	5.966	1.12	6.5500	64.2	9.806	9.769	22.694	12.925	17.81	4.88	1.756	3.1
0:03:23	68.4	0.073	12.9	5.961	1.21	6.5558	68.6	10.460	10.420	23.306	12.886	18.10	5.21	1.809	3.4
0:03:40	73.5	0.079	12.8	5.954	1.31	6.5628	73.7	11.230	11.186	24.015	12.829	18.42	5.59	1.872	3.7
0:03:57	78.5	0.085	12.8	5.948	1.41	6.5695	78.7	11.975	11.928	24.751	12.823	18.79	5.96	1.930	4.0
0:04:12	82.4	0.091	13.0	5.943	1.50	6.5757	82.6	12.565	12.514	25.554	13.039	19.30	6.26	1.960	4.2
0:04:29	87.4	0.098	13.0	5.936	1.61	6.5829	87.6	13.307	13.254	26.239	12.986	19.61	6.63	2.021	4.5
0:04:46	91.9	0.104	13.0	5.930	1.72	6.5899	92.0	13.964	13.907	26.903	12.996	19.95	6.95	2.070	4.8
0:05:00	96.1	0.109	13.0	5.924	1.81	6.5959	96.2	14.589	14.529	27.519	12.990	20.25	7.26	2.118	5.0
0:05:18	100.7	0.116	13.0	5.918	1.91	6.6031	100.8	15.270	15.206	28.245	13.039	20.64	7.60	2.166	5.3
0:05:32	104.7	0.121	12.9	5.912	2.01	6.6093	104.9	15.873	15.806	28.733	12.927	20.83	7.90	2.223	5.5
0:05:49	109.4	0.128	13.1	5.906	2.11	6.6166	109.6	16.557	16.487	29.542	13.055	21.30	8.24	2.263	5.8
0:06:04	113.4	0.133	12.9	5.900	2.21	6.6229	113.5	17.141	17.068	29.968	12.901	21.43	8.53	2.323	6.1
0:06:21	118.2	0.140	13.0	5.894	2.31	6.6301	118.4	17.851	17.773	30.788	13.015	21.90	8.89	2.366	6.4
0:06:38	122.9	0.146	12.8	5.888	2.42	6.6371	123.0	18.537	18.456	31.280	12.824	22.05	9.23	2.439	6.6
0:06:53	126.5	0.152	12.8	5.882	2.51	6.6434	126.7	19.074	18.990	31.798	12.808	22.30	9.49	2.483	6.9
0:07:10	131.2	0.158	13.0	5.875	2.62	6.6508	131.4	19.750	19.663	32.687	13.024	22.86	9.83	2.510	7.2
0:07:25	135.1	0.164	12.9	5.870	2.71	6.6569	135.3	20.328	20.237	33.159	12.922	23.04	10.12	2.566	7.4
0:07:42	139.5	0.170	12.9	5.864	2.81	6.6642	139.7	20.963	20.869	33.767	12.898	23.33	10.43	2.618	7.7
0:07:56	143.5	0.176	12.9	5.858	2.90	6.6705	143.7	21.544	21.446	34.386	12.940	23.66	10.72	2.657	7.9
0:08:13	147.7	0.182	12.9	5.852	3.01	6.6776	147.9	22.145	22.045	34.946	12.901	23.92	11.02	2.709	8.2
0:08:31	152.1	0.188	13.0	5.845	3.11	6.6850	152.3	22.778	22.674	35.651	12.977	24.31	11.34	2.747	8.5
0:08:45	155.5	0.194	13.0	5.840	3.21	6.6913	155.7	23.265	23.158	36.137	12.979	24.56	11.58	2.784	8.8
0:09:02	159.7	0.200	13.0	5.833	3.31	6.6988	159.9	23.864	23.754	36.748	12.995	24.87	11.88	2.828	9.0
0:09:17	163.1	0.206	13.1	5.828	3.40	6.7051	163.3	24.349	24.236	37.314	13.079	25.20	12.12	2.853	9.3
0:09:34	166.8	0.212	13.0	5.821	3.51	6.7125	167.0	24.881	24.763	37.723	12.960	25.34	12.38	2.911	9.6
0:09:51	170.8	0.219	12.9	5.815	3.62	6.7199	171.0	25.448	25.327	38.225	12.899	25.56	12.66	2.964	9.9
0:10:06	174.3	0.224	13.0	5.810	3.71	6.7261	174.4	25.936	25.812	38.789	12.978	25.88	12.91	2.989	10.1
0:10:23	177.7	0.230	13.0	5.803	3.82	6.7337	177.9	26.419	26.291	39.338	13.047	26.19	13.15	3.015	10.4
0:10:38	180.8	0.236	13.1	5.798	3.91	6.7401	180.9	26.844	26.713	39.861	13.148	26.50	13.36	3.032	10.6
0:10:55	184.1	0.242	13.0	5.791	4.01	6.7474	184.3	27.313	27.179	40.195	13.016	26.61	13.59	3.088	10.9
0:11:12	187.3	0.249	12.8	5.785	4.12	6.7549	187.5	27.751	27.613	40.371	12.758	26.56	13.81	3.164	11.2
0:11:26	190.0	0.254	13.0	5.779	4.21	6.7613	190.1	28.122	27.981	40.962	12.981	26.97	13.99	3.156	11.4
0:11:44	193.4	0.261	12.9	5.773	4.32	6.7689	193.6	28.604	28.460	41.348	12.888	27.12	14.23	3.208	11.7
0:11:58	196.2	0.266	13.1	5.767	4.41	6.7754	196.3	28.978	28.831	41.910	13.079	27.49	14.42	3.204	12.0
0:12:15	199.2	0.272	12.9	5.761	4.51	6.7828	199.4	29.396	29.245	42.190	12.945	27.57	14.62	3.259	12.3
0:12:32	201.8	0.279	12.9	5.755	4.62	6.7906	202.0	29.748	29.593	42.489	12.896	27.69	14.80	3.295	12.5
0:12:47	204.4	0.284	12.9	5.749	4.71	6.7969	204.6	30.098	29.940	42.829	12.889	27.86	14.97	3.323	12.8
0:13:04	207.1	0.291	13.1	5.743	4.82	6.8046	207.3	30.468	30.306	43.383	13.077	28.23	15.15	3.318	13.1
0:13:19	209.3	0.296	12.9	5.737	4.91	6.8111	209.5	30.753	30.589	43.514	12.925	28.22	15.29	3.367	13.3
0:13:36	211.8	0.303	12.9	5.731	5.02	6.8187	212.0	31.091	30.924	43.810	12.886	28.35	15.46	3.400	13.6
0:13:51	214.0	0.308	12.8	5.725	5.11	6.8254	214.1	31.374	31.203	44.030	12.826	28.43	15.60	3.433	13.9
0:14:08	216.1	0.315	13.0	5.719	5.21	6.8331	216.3	31.652	31.478	44.435	12.957	28.70	15.74	3.429	14.1
0:14:25	218.5	0.321	12.9	5.712	5.32	6.8408	218.6	31.960	31.782	44.699	12.916	28.81	15.89	3.461	14.4
0:14:39	220.4	0.327	12.9	5.707	5.41	6.8476	220.6	32.209	32.028	44.949	12.921	28.94	16.01	3.479	14.7
0:14:54	222.1	0.333	12.8	5.701	5.51	6.8542	222.3	32.428	32.244	45.084	12.841	28.96	16.12	3.511	14.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.872 (in.)
Area	6.477 (in ²)

Final Values	
Height	5.0058 (in.)
Dia. avg.	3.097 (in.)
Area avg.	7.5315 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010C
Back Pressure (psi)	0
Lateral Pressure (psi)	13

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:11	224.6	0.339	12.7	5.695	5.61	6.8620	224.8	32.759	32.571	45.304	12.733	29.02	16.29	3.558	15.2
0:15:26	226.3	0.345	12.8	5.689	5.71	6.8688	226.5	32.974	32.783	45.629	12.846	29.24	16.39	3.552	15.4
0:15:43	228.0	0.351	13.0	5.683	5.82	6.8767	228.2	33.185	32.991	46.036	13.046	29.54	16.50	3.529	15.7
0:16:00	229.8	0.358	12.9	5.676	5.92	6.8846	230.0	33.406	33.208	46.061	12.854	29.46	16.60	3.584	16.0
0:16:15	231.5	0.363	13.1	5.670	6.02	6.8913	231.6	33.612	33.411	46.472	13.062	29.77	16.71	3.558	16.3
0:16:29	232.7	0.369	12.9	5.665	6.11	6.8982	232.9	33.761	33.556	46.495	12.938	29.72	16.78	3.594	16.5
0:16:46	234.8	0.375	13.0	5.658	6.22	6.9061	234.9	34.018	33.810	46.781	12.971	29.88	16.91	3.607	16.8
0:17:01	236.0	0.381	13.0	5.653	6.31	6.9128	236.2	34.163	33.952	46.938	12.987	29.96	16.98	3.614	17.0
0:17:18	237.4	0.387	13.0	5.646	6.42	6.9208	237.6	34.335	34.120	47.095	12.975	30.04	17.06	3.630	17.3
0:17:33	238.6	0.393	13.1	5.641	6.51	6.9277	238.7	34.462	34.245	47.324	13.079	30.20	17.12	3.618	17.6
0:17:50	239.8	0.399	12.9	5.634	6.62	6.9356	239.9	34.593	34.372	47.242	12.870	30.06	17.19	3.671	17.8
0:18:05	240.9	0.405	13.1	5.629	6.71	6.9425	241.0	34.719	34.495	47.561	13.066	30.31	17.25	3.640	18.1
0:18:22	242.3	0.412	12.9	5.622	6.82	6.9505	242.5	34.886	34.658	47.549	12.890	30.22	17.33	3.689	18.4
0:18:36	243.2	0.417	13.0	5.616	6.91	6.9575	243.4	34.978	34.747	47.746	12.999	30.37	17.37	3.673	18.6
0:18:53	244.1	0.424	12.9	5.610	7.02	6.9656	244.3	35.072	34.838	47.726	12.888	30.31	17.42	3.703	18.9
0:19:08	244.8	0.429	13.1	5.604	7.11	6.9725	245.0	35.139	34.901	47.960	13.058	30.51	17.45	3.673	19.1
0:19:25	245.2	0.436	13.0	5.598	7.22	6.9806	245.4	35.157	34.916	47.910	12.995	30.45	17.46	3.687	19.4
0:19:40	246.0	0.441	12.8	5.592	7.31	6.9876	246.2	35.232	34.988	47.822	12.834	30.33	17.49	3.726	19.7
0:19:57	246.9	0.448	13.2	5.586	7.42	6.9957	247.1	35.318	35.070	48.259	13.190	30.72	17.53	3.659	20.0
0:20:12	247.5	0.453	13.1	5.580	7.51	7.0026	247.7	35.374	35.123	48.185	13.062	30.62	17.56	3.689	20.2
0:20:29	248.2	0.460	13.1	5.574	7.62	7.0108	248.4	35.432	35.177	48.265	13.088	30.68	17.59	3.688	20.5
0:20:43	248.6	0.465	12.8	5.568	7.71	7.0177	248.7	35.446	35.188	48.030	12.842	30.44	17.59	3.740	20.7
0:21:00	248.6	0.472	13.1	5.562	7.82	7.0260	248.8	35.408	35.147	48.245	13.098	30.67	17.57	3.683	21.0
0:21:15	248.7	0.477	13.1	5.556	7.91	7.0330	248.9	35.384	35.120	48.212	13.092	30.65	17.56	3.683	21.3
0:21:32	249.2	0.484	13.0	5.550	8.02	7.0412	249.4	35.420	35.152	48.131	12.979	30.56	17.58	3.708	21.5
0:21:49	249.8	0.490	13.0	5.543	8.12	7.0493	250.0	35.458	35.187	48.215	13.028	30.62	17.59	3.701	21.8
0:22:04	250.1	0.496	12.9	5.538	8.21	7.0563	250.2	35.463	35.189	48.086	12.898	30.49	17.59	3.728	22.1
0:22:21	249.9	0.502	13.1	5.531	8.32	7.0645	250.0	35.392	35.114	48.172	13.058	30.61	17.56	3.689	22.4
0:22:35	250.3	0.508	13.1	5.526	8.41	7.0716	250.4	35.413	35.131	48.183	13.052	30.62	17.57	3.692	22.6
0:22:53	250.4	0.514	13.0	5.519	8.52	7.0798	250.6	35.397	35.112	48.098	12.986	30.54	17.56	3.704	22.9
0:23:10	251.1	0.521	12.9	5.513	8.62	7.0880	251.3	35.451	35.162	48.090	12.927	30.51	17.58	3.720	23.2
0:23:24	251.1	0.526	13.0	5.508	8.72	7.0952	251.3	35.415	35.123	48.110	12.987	30.55	17.56	3.705	23.4
0:23:41	250.9	0.533	13.0	5.501	8.82	7.1034	251.0	35.339	35.044	48.031	12.987	30.51	17.52	3.698	23.7
0:23:56	251.2	0.538	12.9	5.496	8.91	7.1105	251.3	35.349	35.051	47.964	12.914	30.44	17.53	3.714	23.9
0:24:13	251.1	0.544	13.1	5.489	9.02	7.1188	251.3	35.300	34.998	48.055	13.057	30.56	17.50	3.681	24.2
0:24:30	251.7	0.551	13.0	5.483	9.13	7.1271	251.8	35.337	35.032	48.078	13.046	30.56	17.52	3.685	24.5
0:24:45	252.0	0.556	12.9	5.477	9.22	7.1342	252.2	35.354	35.046	47.971	12.925	30.45	17.52	3.711	24.8
0:25:02	252.0	0.563	12.8	5.471	9.32	7.1425	252.2	35.308	34.997	47.837	12.840	30.34	17.50	3.725	25.0
0:25:17	252.0	0.568	13.1	5.466	9.41	7.1497	252.2	35.273	34.958	48.035	13.077	30.56	17.48	3.673	25.3
0:25:34	252.3	0.575	12.9	5.459	9.52	7.1581	252.5	35.269	34.951	47.867	12.916	30.39	17.48	3.706	25.6
0:25:51	252.7	0.581	12.8	5.453	9.62	7.1664	252.9	35.291	34.969	47.808	12.839	30.32	17.48	3.724	25.9
0:26:05	252.7	0.586	13.0	5.447	9.71	7.1736	252.8	35.246	34.921	47.911	12.990	30.45	17.46	3.688	26.1
0:26:22	252.9	0.593	13.0	5.441	9.82	7.1820	253.1	35.238	34.910	47.863	12.953	30.41	17.45	3.695	26.4
0:26:39	252.9	0.599	13.0	5.435	9.93	7.1904	253.0	35.191	34.859	47.842	12.983	30.41	17.43	3.685	26.7
0:26:54	253.1	0.605	13.0	5.429	10.02	7.1977	253.2	35.183	34.849	47.882	13.033	30.46	17.42	3.674	26.9
0:27:11	253.2	0.611	12.9	5.423	10.12	7.2061	253.3	35.154	34.816	47.725	12.910	30.32	17.41	3.697	27.2
0:27:26	253.1	0.616	13.0	5.417	10.21	7.2134	253.2	35.108	34.767	47.788	13.021	30.40	17.38	3.670	27.4
0:27:43	252.6	0.623	13.1	5.411	10.32	7.2220	252.8	35.003	34.658	47.739	13.081	30.41	17.33	3.649	27.7
0:28:00	250.1	0.629	12.9	5.404	10.43	7.2306	250.3	34.619	34.271	47.208	12.937	30.07	17.14	3.649	28.0
0:28:15	248.5	0.635	12.9	5.399	10.52	7.2381	248.7	34.357	34.005	46.892	12.887	29.89	17.00	3.639	28.3
0:28:32	247.8	0.641	13.0	5.392	10.63	7.2467	247.9	34.214	33.859	46.908	13.049	29.98	16.93	3.595	28.5
0:28:46	246.8	0.647	12.9	5.387	10.72	7.2542	247.0	34.047	33.689	46.616	12.928	29.77	16.84	3.606	28.8
0:29:03	246.2	0.653	13.0	5.380	10.82	7.2628	246.3	33.918	33.556	46.565	13.009	29.79	16.78	3.579	29.1
0:29:18	245.9	0.659	12.9	5.375	10.92	7.2703	246.1	33.846	33.482	46.406	12.924	29.67	16.74	3.591	29.3
0:29:35	245.3	0.665	13.0	5.368	11.02	7.2790	245.5	33.727	33.358	46.389	13.031	29.71	16.68	3.560	29.6
0:29:50	245.4	0.671	13.0	5.363	11.11	7.2865	245.6	33.705	33.333	46.345	13.012	29.68	16.67	3.562	29.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.872 (in.)
Area	6.477 (in ²)

Final Values	
Height	5.0058 (in.)
Dia. avg.	3.097 (in.)
Area avg.	7.5315 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	E

Project Number	175569038
Test Number	JU-UU-1010A
Data File ID	UU-1010C
Back Pressure (psi)	0
Lateral Pressure (psi)	13

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:30:07	245.4	0.677	13.0	5.356	11.22	7.2952	245.6	33.662	33.287	46.323	13.036	29.68	16.64	3.553	30.1
0:30:24	245.7	0.684	13.0	5.350	11.32	7.3039	245.9	33.667	33.288	46.306	13.018	29.66	16.64	3.557	30.4
0:30:38	245.8	0.689	13.0	5.345	11.42	7.3114	246.0	33.646	33.264	46.276	13.012	29.64	16.63	3.556	30.6
0:30:56	245.9	0.696	12.8	5.338	11.52	7.3203	246.0	33.609	33.224	46.024	12.800	29.41	16.61	3.596	30.9
0:31:10	245.9	0.701	13.2	5.333	11.61	7.3278	246.1	33.578	33.190	46.344	13.154	29.75	16.59	3.523	31.2
0:31:27	246.1	0.707	12.8	5.326	11.72	7.3366	246.3	33.568	33.176	46.025	12.849	29.44	16.59	3.582	31.5
0:31:44	246.1	0.714	12.9	5.320	11.83	7.3455	246.3	33.530	33.135	46.079	12.944	29.51	16.57	3.560	31.7
0:31:59	246.3	0.719	12.9	5.314	11.92	7.3531	246.5	33.524	33.126	46.047	12.921	29.48	16.56	3.564	32.0
0:32:16	246.8	0.726	12.9	5.308	12.02	7.3620	247.0	33.552	33.150	46.061	12.911	29.49	16.57	3.567	32.3
0:32:31	247.1	0.731	13.0	5.302	12.12	7.3696	247.3	33.559	33.154	46.156	13.002	29.58	16.58	3.550	32.5
0:32:48	247.8	0.738	12.9	5.296	12.22	7.3783	248.0	33.611	33.203	46.116	12.914	29.52	16.60	3.571	32.8
0:33:05	248.1	0.744	12.9	5.290	12.32	7.3872	248.3	33.608	33.196	46.138	12.943	29.54	16.60	3.565	33.1
0:33:19	248.5	0.749	12.8	5.284	12.42	7.3949	248.7	33.632	33.217	46.053	12.836	29.44	16.61	3.588	33.3
0:33:36	248.8	0.756	13.1	5.278	12.52	7.4038	249.0	33.629	33.211	46.265	13.055	29.66	16.61	3.544	33.6
0:33:54	249.2	0.762	13.0	5.272	12.63	7.4128	249.3	33.637	33.215	46.243	13.028	29.64	16.61	3.549	33.9
0:34:08	249.3	0.768	13.0	5.266	12.72	7.4205	249.5	33.625	33.200	46.250	13.050	29.65	16.60	3.544	34.1
0:34:25	249.7	0.774	13.1	5.260	12.82	7.4295	249.9	33.632	33.203	46.259	13.056	29.66	16.60	3.543	34.4
0:34:40	250.1	0.779	13.1	5.254	12.91	7.4372	250.2	33.648	33.216	46.292	13.076	29.68	16.61	3.540	34.7
0:34:57	250.6	0.786	13.1	5.248	13.02	7.4461	250.8	33.677	33.241	46.374	13.133	29.75	16.62	3.531	35.0
0:35:14	250.9	0.792	13.0	5.242	13.12	7.4553	251.1	33.676	33.237	46.261	13.024	29.64	16.62	3.552	35.2
0:35:29	251.2	0.798	13.0	5.236	13.22	7.4631	251.3	33.677	33.235	46.239	13.004	29.62	16.62	3.556	35.5
0:35:46	251.3	0.804	13.1	5.230	13.32	7.4722	251.5	33.652	33.207	46.267	13.061	29.66	16.60	3.543	35.8
0:36:03	251.5	0.810	13.0	5.223	13.43	7.4813	251.7	33.644	33.195	46.233	13.038	29.64	16.60	3.546	36.1
0:36:17	251.5	0.816	12.9	5.218	13.52	7.4892	251.7	33.604	33.152	46.065	12.913	29.49	16.58	3.567	36.3
0:36:34	251.9	0.822	13.2	5.211	13.63	7.4985	252.1	33.621	33.165	46.319	13.154	29.74	16.58	3.521	36.6
0:36:49	252.2	0.828	13.0	5.206	13.72	7.5064	252.3	33.615	33.156	46.126	12.970	29.55	16.58	3.556	36.8
0:37:06	252.0	0.834	13.0	5.199	13.82	7.5157	252.2	33.558	33.096	46.121	13.026	29.57	16.55	3.541	37.1
0:37:21	252.5	0.840	13.0	5.194	13.92	7.5238	252.7	33.584	33.118	46.131	13.013	29.57	16.56	3.545	37.4
0:37:38	253.3	0.846	12.8	5.187	14.02	7.5330	253.5	33.652	33.184	46.026	12.842	29.43	16.59	3.584	37.6
0:37:55	253.7	0.853	13.0	5.181	14.13	7.5425	253.9	33.664	33.191	46.188	12.996	29.59	16.60	3.554	37.9
0:38:10	254.0	0.858	13.2	5.175	14.22	7.5506	254.2	33.660	33.185	46.379	13.195	29.79	16.59	3.515	38.2
0:38:27	254.1	0.865	13.0	5.169	14.33	7.5600	254.2	33.631	33.152	46.137	12.985	29.56	16.58	3.553	38.5
0:38:41	254.4	0.870	12.9	5.163	14.42	7.5682	254.6	33.642	33.159	46.040	12.881	29.46	16.58	3.574	38.7
0:38:58	254.7	0.877	13.0	5.157	14.53	7.5777	254.9	33.638	33.153	46.130	12.977	29.55	16.58	3.555	39.0
0:39:13	255.0	0.882	13.0	5.151	14.62	7.5860	255.2	33.636	33.147	46.107	12.960	29.53	16.57	3.558	39.2
0:39:30	255.8	0.889	12.9	5.145	14.73	7.5955	255.9	33.696	33.203	46.129	12.926	29.53	16.60	3.569	39.5
0:39:45	256.0	0.894	12.8	5.139	14.82	7.6037	256.2	33.695	33.199	46.041	12.842	29.44	16.60	3.585	39.8
0:40:02	256.3	0.901	13.0	5.133	14.93	7.6134	256.5	33.687	33.188	46.180	12.992	29.59	16.59	3.555	40.0
0:40:17	256.6	0.907	13.0	5.127	15.02	7.6217	256.8	33.696	33.193	46.170	12.977	29.57	16.60	3.558	40.3
0:40:34	257.5	0.913	13.0	5.120	15.13	7.6316	257.7	33.766	33.260	46.233	12.973	29.60	16.63	3.564	40.6
0:40:48	257.8	0.919	13.0	5.115	15.22	7.6399	258.0	33.772	33.263	46.286	13.023	29.65	16.63	3.554	40.8
0:41:03	258.2	0.924	13.0	5.109	15.32	7.6483	258.4	33.782	33.269	46.300	13.030	29.67	16.63	3.553	41.1
0:41:20	258.6	0.931	12.8	5.103	15.43	7.6581	258.8	33.795	33.279	46.048	12.769	29.41	16.64	3.606	41.3
0:41:35	258.9	0.937	13.0	5.097	15.52	7.6665	259.1	33.791	33.272	46.280	13.008	29.64	16.64	3.558	41.6
0:41:52	259.2	0.943	12.9	5.091	15.63	7.6763	259.4	33.790	33.268	46.159	12.891	29.52	16.63	3.581	41.9
0:42:07	259.4	0.949	12.9	5.085	15.72	7.6851	259.6	33.782	33.257	46.174	12.918	29.55	16.63	3.575	42.1
0:42:24	259.7	0.955	13.0	5.078	15.83	7.6950	259.9	33.769	33.239	46.260	13.021	29.64	16.62	3.553	42.4
0:42:38	260.0	0.961	13.0	5.073	15.92	7.7034	260.2	33.780	33.247	46.291	13.044	29.67	16.62	3.549	42.6
0:42:53	260.4	0.967	13.1	5.067	16.02	7.7121	260.6	33.789	33.254	46.331	13.077	29.70	16.63	3.543	42.9
0:43:10	261.0	0.973	13.1	5.060	16.13	7.7220	261.1	33.818	33.279	46.355	13.075	29.71	16.64	3.545	43.2
0:43:25	261.3	0.979	13.0	5.055	16.22	7.7307	261.5	33.828	33.285	46.330	13.044	29.69	16.64	3.552	43.4
0:43:42	261.0	0.985	12.9	5.048	16.33	7.7405	261.2	33.743	33.197	46.084	12.887	29.49	16.60	3.576	43.7
0:43:59	261.0	0.992	13.1	5.042	16.43	7.7505	261.2	33.701	33.151	46.247	13.096	29.67	16.58	3.531	44.0
0:44:14	260.7	0.997	13.1	5.036	16.53	7.7589	260.9	33.628	33.075	46.180	13.105	29.64	16.54	3.524	44.2
0:44:31	260.4	1.004	12.9	5.030	16.63	7.7689	260.6	33.543	32.987	45.935	12.948	29.44	16.49	3.548	44.5
0:44:45	259.7	1.009	13.0	5.024	16.73	7.7776	259.9	33.412	32.853	45.849	12.996	29.42	16.43	3.528	44.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height 6.033 (in.)
 Diameter 2.872 (in.)
 Area 6.477 (in²)

Final Values
 Height 5.0058 (in.)
 Dia. avg. 3.097 (in.)
 Area avg. 7.5315 (in²)

Tested By KDG
 Date 6-25-09
 Press No. 2
 Panel No. E

Project Number 175569038
 Test Number JU-UU-1010A
 Data File ID UU-1010C
 Back Pressure (psi) 0
 Lateral Pressure (psi) 13

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:45:02	258.9	1.016	13.1	5.018	16.83	7.7876	259.1	33.266	32.704	45.801	13.097	29.45	16.35	3.497	45.0
0:45:17	258.7	1.021	13.1	5.012	16.92	7.7962	258.9	33.202	32.637	45.689	13.053	29.37	16.32	3.500	45.3
0:45:34	258.5	1.028	13.1	5.006	17.03	7.8062	258.7	33.142	32.572	45.625	13.052	29.34	16.29	3.496	45.6

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1010B
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 $= (4(EM)(Thickness)(Strain))/D_c$
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1010C
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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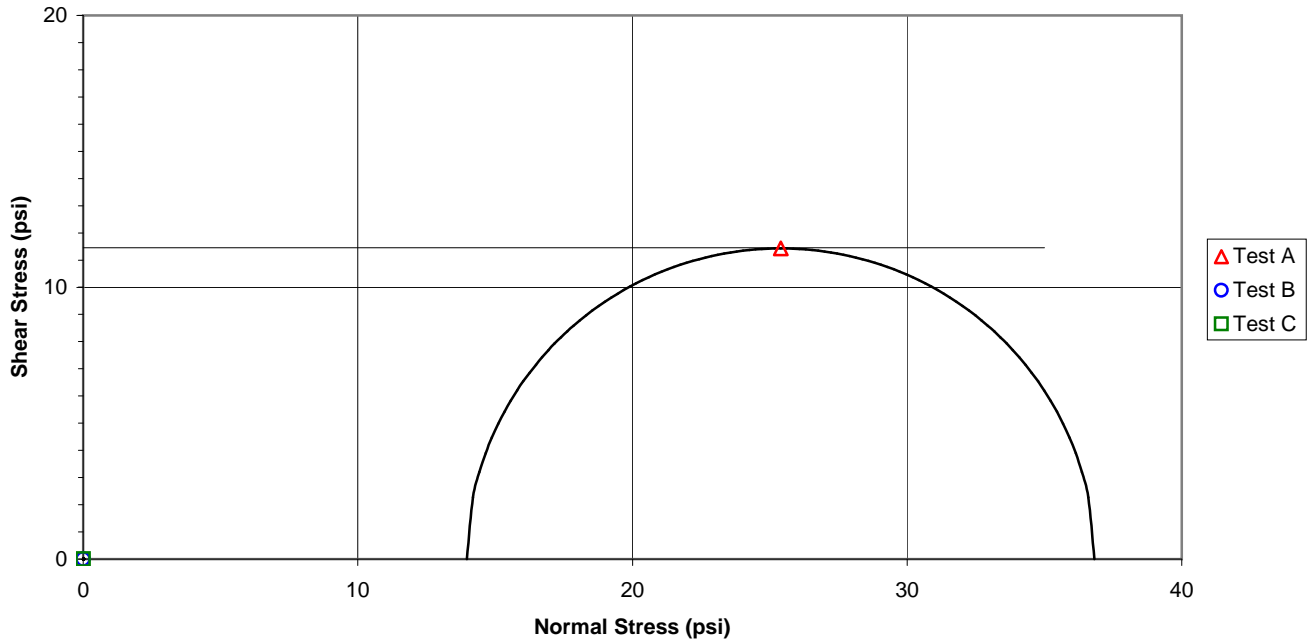
Project John Siever Fossil Plant
 Sample ID JS-45-SV, 18.5' - 19.0'

Project No. 175569038
 Test Number 1018

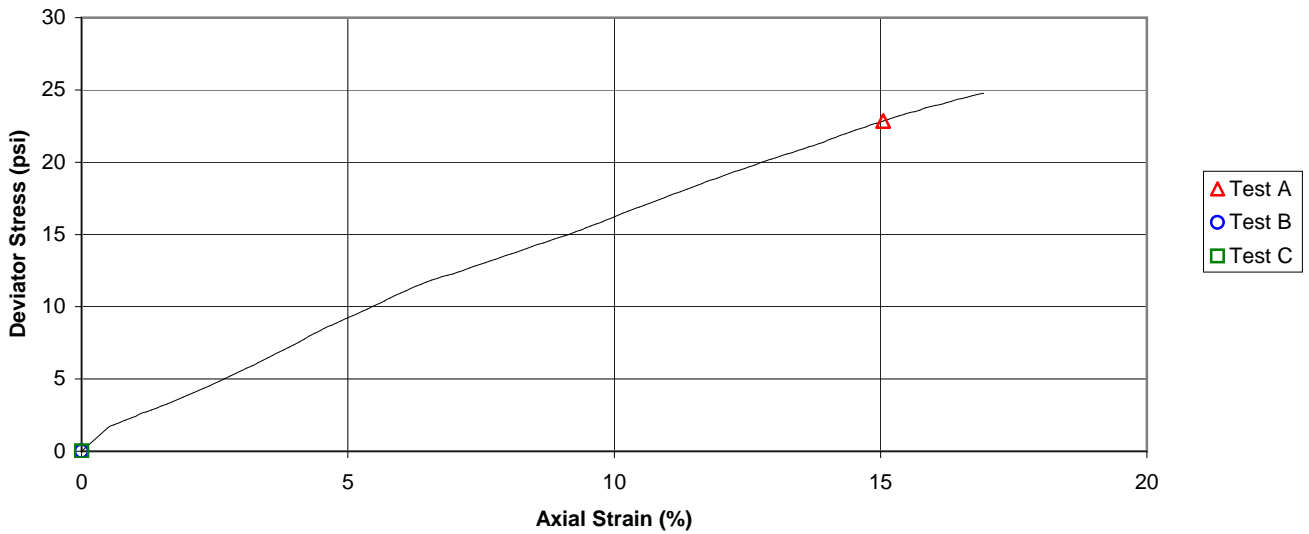
$\phi = 0.0 \text{ deg.}$
 Failure Criterion: Maximum Deviator Stress

$c = 11.5 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 18.5' - 19.0'</u>			Test Number	<u>UU-1018</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>CM</u>
Undisturbed	Source	<u>JS-45-SV, 18.5' - 20.5'</u>		Date	<u>6-17-09</u>
Specific Gravity	<u>2.28</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.858</u>	1 <u>5.842</u>	Sample <u>37.4930</u> (V _o)	Wet Weight (g) <u>1043.60</u>
Middle <u>2.865</u>	2 <u>5.783</u>	Solids <u>19.9798</u> (VS _o)	Dry Weight (g) <u>746.54</u>
Bottom <u>2.862</u>	3 <u>5.852</u>	Water <u>18.1265</u> (Vw _o)	Wet Unit Weight (pcf) <u>106.0</u>
Avg. <u>2.8617</u> (D _o)	4 <u>5.842</u>	Voids <u>17.5132</u> (Vv _o)	Dry Unit Weight (pcf) <u>75.9</u>
Area (in ²) <u>6.4317</u> (A _o)	Avg. (H _o) <u>5.8294</u>	Degree of Saturation (%) <u>103.5</u> (S _o)	
Moisture Content (%) <u>39.8</u>	Final Trimmings	Void Ratio <u>0.877</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-25-09</u>
			Panel Board Number	<u>D</u>

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>5.8294</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4317</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>37.493</u> (V _s)

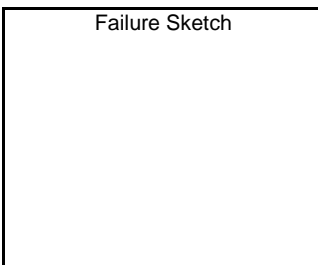
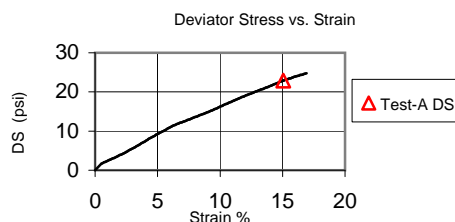
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>13.8</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>13.8</u> (σ ₃)
Height (in.) <u>5.8294</u> (H _c)		Volume (in ³) <u>37.4930</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.4317</u> (A _c)		Volume - Water (in ³) <u>18.1265</u> (VW _c)	
Diameter (in.) <u>2.8617</u> (D _c)		Water Content (%) <u>39.8</u>	
Dry Density (pcf) <u>75.9</u>		Degree of Saturation (%) <u>103.5</u> (S _c)	Void Ratio <u>0.877</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.271</u> (in.)	Wet Weight (g) <u>1043.60</u>	Corrected Deviator <u>22.85</u> σ _d (psi)
Wet weight (g) <u>1043.6</u> (WW _f)	Dry Weight (g) <u>746.54</u>	Major Principal <u>36.82</u> σ ₁₁ (psi)
Average Diameter <u>3.117</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>13.97</u> σ ₃₁ (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.008</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.05</u>
		Failure Criterion: Maximum Deviator Stress

Failure Sketch

Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1018B</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.28</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

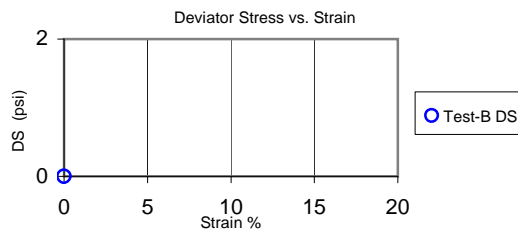
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1018C</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.28</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

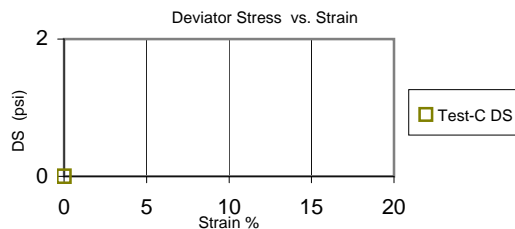
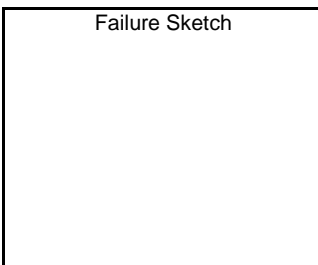
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.829 (in.)
Diameter	2.862 (in.)
Area	6.432 (in ²)

Final Values	
Height	4.8420 (in.)
Dia. avg.	3.117 (in.)
Area avg.	7.6323 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1018A
Data File ID	UU-1018
Back Pressure (psi)	0
Lateral Pressure (psi)	13.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	0.9	0.000	13.9	5.829	0.00	6.4317	0.0	0.000	0.000	13.853	13.853	13.85	0.00	1.000	0.0
16:04:02	11.6	0.029	13.9	5.800	0.50	6.4639	10.7	1.649	1.633	15.497	13.865	14.68	0.82	1.118	964.0
16:04:17	12.8	0.035	13.9	5.795	0.60	6.4704	11.8	1.828	1.808	15.665	13.858	14.76	0.90	1.130	964.3
16:04:29	14.1	0.042	13.9	5.787	0.72	6.4784	13.1	2.028	2.003	15.870	13.867	14.87	1.00	1.144	964.5
16:04:39	15.0	0.048	13.9	5.782	0.82	6.4847	14.0	2.166	2.139	16.006	13.867	14.94	1.07	1.154	964.7
16:04:48	16.0	0.053	13.9	5.776	0.91	6.4911	15.1	2.320	2.289	16.160	13.871	15.02	1.14	1.165	964.8
16:04:58	16.9	0.059	13.9	5.770	1.01	6.4976	15.9	2.450	2.416	16.286	13.870	15.08	1.21	1.174	965.0
16:05:08	18.1	0.065	13.9	5.764	1.11	6.5042	17.2	2.644	2.607	16.480	13.873	15.18	1.30	1.188	965.1
16:05:18	18.9	0.071	13.9	5.759	1.21	6.5106	18.0	2.757	2.717	16.589	13.872	15.23	1.36	1.196	965.3
16:05:27	19.9	0.076	13.9	5.753	1.31	6.5172	18.9	2.903	2.859	16.732	13.873	15.30	1.43	1.206	965.5
16:05:37	20.8	0.082	13.9	5.747	1.41	6.5238	19.8	3.042	2.994	16.873	13.878	15.38	1.50	1.216	965.6
16:05:47	21.8	0.088	13.9	5.741	1.51	6.5302	20.8	3.191	3.140	17.016	13.876	15.45	1.57	1.226	965.8
16:05:57	22.8	0.094	13.9	5.735	1.61	6.5370	21.8	3.336	3.281	17.159	13.878	15.52	1.64	1.236	966.0
16:06:06	23.7	0.099	13.9	5.730	1.71	6.5434	22.8	3.480	3.423	17.302	13.880	15.59	1.71	1.247	966.1
16:06:16	24.8	0.105	13.9	5.724	1.81	6.5501	23.9	3.646	3.585	17.472	13.887	15.68	1.79	1.258	966.3
16:06:26	25.9	0.111	13.9	5.718	1.90	6.5566	24.9	3.803	3.740	17.621	13.882	15.75	1.87	1.269	966.4
16:06:36	26.9	0.117	13.9	5.713	2.00	6.5631	26.0	3.960	3.893	17.771	13.878	15.82	1.95	1.281	966.6
16:06:45	28.0	0.122	13.9	5.707	2.10	6.5698	27.0	4.112	4.041	17.929	13.888	15.91	2.02	1.291	966.8
16:06:55	29.1	0.128	13.9	5.701	2.20	6.5765	28.2	4.282	4.209	18.094	13.885	15.99	2.10	1.303	966.9
16:07:05	30.2	0.134	13.9	5.695	2.30	6.5830	29.3	4.447	4.370	18.256	13.886	16.07	2.18	1.315	967.1
16:07:15	31.3	0.140	13.9	5.690	2.40	6.5896	30.3	4.600	4.520	18.403	13.883	16.14	2.26	1.326	967.3
16:07:24	32.5	0.145	13.9	5.684	2.49	6.5961	31.5	4.779	4.695	18.579	13.884	16.23	2.35	1.338	967.4
16:07:34	33.6	0.151	13.9	5.678	2.59	6.6028	32.6	4.944	4.857	18.744	13.887	16.32	2.43	1.350	967.6
16:07:44	34.8	0.157	13.9	5.673	2.69	6.6095	33.8	5.118	5.028	18.917	13.889	16.40	2.51	1.362	967.7
16:07:54	36.0	0.163	13.9	5.667	2.79	6.6162	35.1	5.300	5.207	19.096	13.889	16.49	2.60	1.375	967.9
16:08:03	37.2	0.168	13.9	5.661	2.89	6.6229	36.2	5.469	5.372	19.270	13.898	16.58	2.69	1.387	968.1
16:08:16	38.6	0.175	13.9	5.654	3.01	6.6311	37.6	5.673	5.572	19.459	13.887	16.67	2.79	1.401	968.3
16:08:25	39.9	0.181	13.9	5.648	3.10	6.6377	38.9	5.862	5.758	19.656	13.898	16.78	2.88	1.414	968.4
16:08:35	41.0	0.187	13.9	5.643	3.20	6.6444	40.0	6.026	5.919	19.818	13.899	16.86	2.96	1.426	968.6
16:08:45	42.3	0.192	13.9	5.637	3.30	6.6513	41.3	6.214	6.104	19.998	13.895	16.95	3.05	1.439	968.8
16:08:55	43.6	0.198	13.9	5.631	3.40	6.6580	42.7	6.411	6.297	20.192	13.895	17.04	3.15	1.453	968.9
16:09:04	44.8	0.204	13.9	5.625	3.50	6.6649	43.9	6.587	6.469	20.366	13.897	17.13	3.23	1.466	969.1
16:09:14	46.1	0.210	13.9	5.620	3.60	6.6716	45.2	6.770	6.649	20.547	13.898	17.22	3.32	1.478	969.2
16:09:24	47.5	0.215	13.9	5.614	3.69	6.6784	46.5	6.968	6.844	20.737	13.894	17.32	3.42	1.493	969.4
16:09:34	48.7	0.221	13.9	5.608	3.80	6.6855	47.7	7.141	7.014	20.906	13.892	17.40	3.51	1.505	969.6
16:09:43	50.0	0.227	13.9	5.603	3.89	6.6922	49.0	7.323	7.192	21.088	13.896	17.49	3.60	1.518	969.7
16:09:53	51.3	0.233	13.9	5.597	3.99	6.6990	50.4	7.517	7.383	21.278	13.895	17.59	3.69	1.531	969.9
16:10:03	52.6	0.238	13.9	5.591	4.09	6.7059	51.7	7.704	7.567	21.466	13.899	17.68	3.78	1.544	970.1
16:10:13	54.0	0.244	13.9	5.585	4.19	6.7128	53.1	7.905	7.765	21.657	13.892	17.77	3.88	1.559	970.2
16:10:22	55.6	0.250	13.9	5.580	4.29	6.7197	54.6	8.130	7.986	21.880	13.894	17.89	3.99	1.575	970.4
16:10:32	56.8	0.255	13.9	5.574	4.38	6.7265	55.9	8.307	8.160	22.051	13.891	17.97	4.08	1.587	970.5
16:10:42	58.1	0.261	13.9	5.568	4.48	6.7335	57.2	8.495	8.344	22.237	13.893	18.06	4.17	1.601	970.7
16:10:51	59.6	0.267	13.9	5.562	4.58	6.7404	58.6	8.695	8.541	22.433	13.892	18.16	4.27	1.615	970.9
16:11:01	60.7	0.273	13.9	5.557	4.68	6.7474	59.8	8.858	8.701	22.596	13.895	18.25	4.35	1.626	971.0
16:11:11	61.8	0.278	13.9	5.551	4.78	6.7543	60.9	9.016	8.856	22.744	13.888	18.32	4.43	1.638	971.2
16:11:21	63.2	0.284	13.9	5.545	4.88	6.7614	62.2	9.206	9.043	22.929	13.887	18.41	4.52	1.651	971.4
16:11:33	64.6	0.291	13.9	5.538	5.00	6.7701	63.6	9.397	9.230	23.112	13.882	18.50	4.61	1.665	971.6
16:11:43	65.7	0.297	13.9	5.532	5.10	6.7771	64.7	9.551	9.380	23.261	13.880	18.57	4.69	1.676	971.7
16:11:51	66.7	0.302	13.9	5.528	5.18	6.7828	65.8	9.700	9.527	23.407	13.881	18.64	4.76	1.686	971.9
16:12:00	67.9	0.307	13.9	5.522	5.27	6.7899	67.0	9.866	9.689	23.570	13.880	18.73	4.84	1.698	972.0
16:12:10	69.1	0.313	13.9	5.516	5.37	6.7970	68.2	10.031	9.851	23.727	13.876	18.80	4.93	1.710	972.2
16:12:22	70.8	0.320	13.9	5.509	5.50	6.8058	69.8	10.263	10.079	23.953	13.874	18.91	5.04	1.726	972.4
16:12:32	72.0	0.326	13.9	5.503	5.59	6.8127	71.0	10.426	10.239	24.097	13.858	18.98	5.12	1.739	972.5
16:12:42	73.3	0.332	13.9	5.498	5.69	6.8198	72.3	10.604	10.413	24.288	13.874	19.08	5.21	1.751	972.7
16:12:52	74.7	0.338	13.9	5.492	5.79	6.8270	73.7	10.796	10.602	24.514	13.912	19.21	5.30	1.762	972.9
16:13:01	76.0	0.343	13.9	5.486	5.89	6.8341	75.0	10.982	10.784	24.710	13.926	19.32	5.39	1.774	973.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.829 (in.)
Diameter	2.862 (in.)
Area	6.432 (in ²)

Final Values	
Height	4.8420 (in.)
Dia. avg.	3.117 (in.)
Area avg.	7.6323 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1018A
Data File ID	UU-1018
Back Pressure (psi)	0
Lateral Pressure (psi)	13.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
16:13:11	77.1	0.349	13.9	5.480	5.99	6.8412	76.1	11.130	10.929	24.868	13.939	19.40	5.46	1.784	973.2
16:13:21	78.3	0.355	13.9	5.475	6.08	6.8484	77.4	11.301	11.096	25.046	13.949	19.50	5.55	1.795	973.4
16:13:31	79.6	0.360	14.0	5.469	6.18	6.8555	78.6	11.467	11.259	25.219	13.959	19.59	5.63	1.807	973.5
16:13:40	80.7	0.366	14.0	5.463	6.28	6.8627	79.8	11.627	11.417	25.384	13.967	19.68	5.71	1.817	973.7
16:13:50	81.9	0.372	14.0	5.458	6.38	6.8699	80.9	11.778	11.564	25.530	13.967	19.75	5.78	1.828	973.8
16:14:00	83.0	0.377	14.0	5.452	6.48	6.8771	82.1	11.936	11.719	25.691	13.972	19.83	5.86	1.839	974.0
16:14:10	83.9	0.383	14.0	5.446	6.57	6.8843	83.0	12.056	11.835	25.810	13.974	19.89	5.92	1.847	974.2
16:14:19	84.9	0.389	14.0	5.440	6.67	6.8916	84.0	12.184	11.961	25.936	13.975	19.96	5.98	1.856	974.3
16:14:29	85.9	0.395	14.0	5.435	6.77	6.8989	84.9	12.310	12.083	26.062	13.979	20.02	6.04	1.864	974.5
16:14:39	86.6	0.400	14.0	5.429	6.87	6.9062	85.7	12.403	12.173	26.157	13.984	20.07	6.09	1.870	974.7
16:14:49	87.4	0.406	14.0	5.423	6.97	6.9135	86.5	12.506	12.272	26.251	13.979	20.12	6.14	1.878	974.8
16:14:59	88.4	0.412	14.0	5.417	7.07	6.9208	87.4	12.633	12.396	26.374	13.978	20.18	6.20	1.887	975.0
16:15:08	89.3	0.418	14.0	5.412	7.16	6.9281	88.3	12.752	12.511	26.494	13.982	20.24	6.26	1.895	975.1
16:15:21	90.6	0.425	14.0	5.405	7.29	6.9372	89.6	12.920	12.676	26.662	13.986	20.32	6.34	1.906	975.4
16:15:30	91.6	0.430	14.0	5.399	7.38	6.9444	90.7	13.060	12.812	26.792	13.980	20.39	6.41	1.916	975.5
16:15:40	92.6	0.436	14.0	5.393	7.48	6.9518	91.6	13.177	12.926	26.905	13.979	20.44	6.46	1.925	975.7
16:15:50	93.4	0.442	14.0	5.388	7.58	6.9591	92.4	13.285	13.031	27.009	13.979	20.49	6.52	1.932	975.8
16:16:00	94.5	0.447	14.0	5.382	7.67	6.9664	93.5	13.426	13.169	27.144	13.975	20.56	6.58	1.942	976.0
16:16:09	95.4	0.453	14.0	5.376	7.77	6.9738	94.5	13.547	13.287	27.267	13.980	20.62	6.64	1.950	976.2
16:16:19	96.5	0.459	14.0	5.371	7.87	6.9812	95.5	13.685	13.421	27.405	13.984	20.69	6.71	1.960	976.3
16:16:29	97.4	0.465	14.0	5.365	7.97	6.9887	96.5	13.807	13.539	27.519	13.980	20.75	6.77	1.969	976.5
16:16:39	98.4	0.470	14.0	5.359	8.07	6.9962	97.4	13.926	13.656	27.640	13.984	20.81	6.83	1.977	976.7
16:16:48	99.3	0.476	14.0	5.353	8.17	7.0036	98.3	14.040	13.766	27.754	13.987	20.87	6.88	1.984	976.8
16:16:58	100.4	0.482	14.0	5.348	8.26	7.0111	99.4	14.181	13.903	27.886	13.983	20.93	6.95	1.994	977.0
16:17:08	101.4	0.487	14.0	5.342	8.36	7.0185	100.4	14.307	14.026	28.006	13.980	20.99	7.01	2.003	977.1
16:17:18	102.5	0.493	14.0	5.336	8.46	7.0260	101.5	14.448	14.164	28.145	13.980	21.06	7.08	2.013	977.3
16:17:30	103.7	0.500	14.0	5.329	8.58	7.0353	102.8	14.608	14.320	28.305	13.985	21.14	7.16	2.024	977.5
16:17:40	104.6	0.506	14.0	5.324	8.68	7.0428	103.6	14.715	14.424	28.406	13.981	21.19	7.21	2.032	977.7
16:17:49	105.6	0.511	14.0	5.318	8.77	7.0502	104.7	14.845	14.551	28.534	13.984	21.26	7.28	2.041	977.8
16:17:59	106.6	0.517	14.0	5.312	8.87	7.0576	105.6	14.969	14.671	28.655	13.984	21.32	7.34	2.049	978.0
16:18:09	107.6	0.523	14.0	5.307	8.96	7.0650	106.6	15.092	14.791	28.779	13.988	21.38	7.40	2.057	978.2
16:18:19	108.4	0.528	14.0	5.301	9.06	7.0725	107.5	15.198	14.895	28.876	13.981	21.43	7.45	2.065	978.3
16:18:28	109.4	0.534	14.0	5.296	9.16	7.0799	108.4	15.312	15.005	28.988	13.983	21.49	7.50	2.073	978.5
16:18:41	110.8	0.541	14.0	5.289	9.27	7.0892	109.9	15.501	15.189	29.169	13.980	21.57	7.59	2.087	978.7
16:18:50	111.8	0.546	14.0	5.283	9.37	7.0967	110.8	15.620	15.305	29.289	13.983	21.64	7.65	2.095	978.8
16:19:00	113.0	0.552	14.0	5.278	9.46	7.1041	112.0	15.770	15.452	29.440	13.988	21.71	7.73	2.105	979.0
16:19:10	114.0	0.557	14.0	5.272	9.56	7.1115	113.1	15.897	15.576	29.559	13.982	21.77	7.79	2.114	979.2
16:19:20	115.1	0.563	14.0	5.267	9.65	7.1191	114.2	16.035	15.711	29.695	13.984	21.84	7.86	2.124	979.3
16:19:32	116.5	0.570	14.0	5.260	9.77	7.1285	115.5	16.207	15.879	29.870	13.990	21.93	7.94	2.135	979.5
16:19:42	117.7	0.575	14.0	5.254	9.87	7.1360	116.8	16.363	16.032	30.019	13.987	22.00	8.02	2.146	979.7
16:19:51	118.9	0.581	14.0	5.248	9.97	7.1437	117.9	16.507	16.173	30.169	13.997	22.08	8.09	2.155	979.9
16:20:01	120.1	0.587	14.0	5.243	10.06	7.1514	119.1	16.656	16.319	30.308	13.989	22.15	8.16	2.167	980.0
16:20:11	121.3	0.592	14.0	5.237	10.16	7.1589	120.3	16.806	16.465	30.452	13.987	22.22	8.23	2.177	980.2
16:20:21	122.4	0.598	14.0	5.232	10.25	7.1665	121.4	16.942	16.598	30.590	13.992	22.29	8.30	2.186	980.4
16:20:30	123.5	0.603	14.0	5.226	10.35	7.1743	122.6	17.083	16.736	30.719	13.983	22.35	8.37	2.197	980.5
16:20:43	124.9	0.610	14.0	5.219	10.47	7.1839	123.9	17.250	16.899	30.891	13.992	22.44	8.45	2.208	980.7
16:20:52	126.0	0.616	14.0	5.213	10.57	7.1916	125.0	17.387	17.033	31.014	13.981	22.50	8.52	2.218	980.9
16:21:02	127.1	0.622	14.0	5.208	10.66	7.1994	126.2	17.523	17.165	31.158	13.993	22.58	8.58	2.227	981.0
16:21:12	128.2	0.627	14.0	5.202	10.76	7.2072	127.3	17.657	17.296	31.284	13.988	22.64	8.65	2.237	981.2
16:21:22	129.4	0.633	14.0	5.197	10.86	7.2150	128.4	17.798	17.433	31.423	13.990	22.71	8.72	2.246	981.4
16:21:32	130.4	0.638	14.0	5.191	10.95	7.2228	129.5	17.929	17.561	31.547	13.986	22.77	8.78	2.256	981.5
16:21:41	131.7	0.644	14.0	5.185	11.05	7.2308	130.8	18.085	17.715	31.707	13.992	22.85	8.86	2.266	981.7
16:21:51	132.8	0.650	14.0	5.180	11.15	7.2385	131.9	18.221	17.847	31.836	13.988	22.91	8.92	2.276	981.9
16:22:01	133.8	0.655	14.0	5.174	11.24	7.2465	132.9	18.336	17.958	31.947	13.988	22.97	8.98	2.284	982.0
16:22:13	135.3	0.662	14.0	5.167	11.36	7.2564	134.4	18.521	18.140	32.131	13.991	23.06	9.07	2.297	982.2
16:22:23	136.5	0.668	14.0	5.161	11.46	7.2644	135.5	18.655	18.270	32.254	13.983	23.12	9.14	2.307	982.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	5.829 (in.)
Diameter	2.862 (in.)
Area	6.432 (in ²)

Final Values	
Height	4.8420 (in.)
Dia. avg.	3.117 (in.)
Area avg.	7.6323 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1018A
Data File ID	UU-1018
Back Pressure (psi)	0
Lateral Pressure (psi)	13.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected		Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
				Height (in.)	Area (in ²)											
16:22:33	137.5	0.674	14.0	5.156	11.56	7.2721	136.6	18.780	18.392	32.378	13.986	23.18	9.20	2.315	982.6	
16:22:42	138.7	0.679	14.0	5.150	11.65	7.2800	137.7	18.915	18.524	32.517	13.993	23.26	9.26	2.324	982.7	
16:22:52	140.0	0.685	14.0	5.144	11.75	7.2880	139.1	19.084	18.690	32.684	13.994	23.34	9.35	2.336	982.9	
16:23:02	141.0	0.691	14.0	5.139	11.85	7.2960	140.0	19.193	18.795	32.788	13.992	23.39	9.40	2.343	983.0	
16:23:12	142.0	0.696	14.0	5.133	11.94	7.3040	141.1	19.312	18.911	32.901	13.990	23.45	9.46	2.352	983.2	
16:23:24	143.5	0.703	14.0	5.126	12.06	7.3141	142.6	19.494	19.089	33.077	13.988	23.53	9.54	2.365	983.4	
16:23:34	144.7	0.709	14.0	5.120	12.16	7.3221	143.8	19.634	19.226	33.219	13.993	23.61	9.61	2.374	983.6	
16:23:43	145.8	0.715	14.0	5.115	12.26	7.3302	144.8	19.756	19.345	33.334	13.989	23.66	9.67	2.383	983.7	
16:23:53	146.6	0.720	14.0	5.109	12.35	7.3384	145.6	19.846	19.432	33.418	13.986	23.70	9.72	2.389	983.9	
16:24:03	147.8	0.726	14.0	5.103	12.45	7.3465	146.8	19.983	19.566	33.558	13.992	23.78	9.78	2.398	984.1	
16:24:13	149.0	0.731	14.0	5.098	12.55	7.3546	148.0	20.129	19.708	33.692	13.984	23.84	9.85	2.409	984.2	
16:24:22	149.9	0.737	14.0	5.092	12.64	7.3627	149.0	20.234	19.810	33.798	13.988	23.89	9.90	2.416	984.4	
16:24:32	151.3	0.743	14.0	5.087	12.74	7.3708	150.3	20.398	19.971	33.964	13.993	23.98	9.99	2.427	984.5	
16:24:44	152.5	0.750	14.0	5.080	12.86	7.3808	151.6	20.538	20.107	34.102	13.995	24.05	10.05	2.437	984.7	
16:24:54	153.4	0.755	14.0	5.074	12.95	7.3889	152.5	20.638	20.204	34.187	13.984	24.09	10.10	2.445	984.9	
16:25:04	154.5	0.761	14.0	5.069	13.05	7.3970	153.6	20.759	20.322	34.303	13.982	24.14	10.16	2.453	985.1	
16:25:14	155.7	0.766	14.0	5.063	13.15	7.4052	154.8	20.902	20.461	34.448	13.987	24.22	10.23	2.463	985.2	
16:25:23	156.7	0.772	14.0	5.057	13.24	7.4134	155.8	21.011	20.567	34.558	13.991	24.27	10.28	2.470	985.4	
16:25:33	157.6	0.778	14.0	5.052	13.34	7.4216	156.7	21.108	20.661	34.650	13.989	24.32	10.33	2.477	985.6	
16:25:43	158.8	0.783	14.0	5.046	13.43	7.4298	157.9	21.250	20.800	34.784	13.984	24.38	10.40	2.487	985.7	
16:25:55	160.1	0.790	14.0	5.039	13.55	7.4400	159.1	21.386	20.932	34.915	13.983	24.45	10.47	2.497	985.9	
16:26:05	161.2	0.795	14.0	5.034	13.64	7.4480	160.2	21.509	21.052	35.031	13.979	24.50	10.53	2.506	986.1	
16:26:15	162.1	0.801	14.0	5.028	13.74	7.4563	161.1	21.607	21.146	35.131	13.986	24.56	10.57	2.512	986.3	
16:26:24	163.2	0.807	14.0	5.023	13.84	7.4646	162.2	21.734	21.270	35.246	13.976	24.61	10.63	2.522	986.4	
16:26:34	164.3	0.812	14.0	5.017	13.93	7.4728	163.3	21.855	21.387	35.369	13.982	24.68	10.69	2.530	986.6	
16:26:46	165.9	0.819	14.0	5.010	14.05	7.4832	165.0	22.048	21.576	35.559	13.982	24.77	10.79	2.543	986.8	
16:26:56	167.1	0.825	14.0	5.005	14.15	7.4916	166.1	22.174	21.700	35.687	13.987	24.84	10.85	2.551	986.9	
16:27:06	168.5	0.830	14.0	4.999	14.24	7.5000	167.5	22.335	21.857	35.836	13.979	24.91	10.93	2.564	987.1	
16:27:16	169.5	0.836	14.0	4.993	14.34	7.5085	168.6	22.448	21.967	35.940	13.972	24.96	10.98	2.572	987.3	
16:27:25	170.6	0.842	14.0	4.988	14.44	7.5171	169.7	22.573	22.089	36.057	13.968	25.01	11.04	2.581	987.4	
16:27:35	171.9	0.847	14.0	4.982	14.53	7.5256	170.9	22.715	22.228	36.198	13.970	25.08	11.11	2.591	987.6	
16:27:45	172.9	0.853	14.0	4.976	14.63	7.5340	171.9	22.821	22.330	36.303	13.973	25.14	11.16	2.598	987.8	
16:27:55	174.0	0.859	14.0	4.971	14.73	7.5427	173.0	22.941	22.447	36.419	13.972	25.20	11.22	2.607	987.9	
16:28:04	175.4	0.864	14.0	4.965	14.83	7.5514	174.5	23.104	22.607	36.570	13.963	25.27	11.30	2.619	988.1	
16:28:14	176.3	0.870	14.0	4.959	14.93	7.5601	175.3	23.192	22.692	36.671	13.979	25.32	11.35	2.623	988.2	
16:28:26	177.8	0.877	14.0	4.952	15.05	7.5710	176.9	23.360	22.855	36.823	13.969	25.40	11.43	2.636	988.4	
16:28:36	178.8	0.883	14.0	4.946	15.15	7.5798	177.8	23.463	22.954	36.918	13.963	25.44	11.48	2.644	988.6	
16:28:46	180.1	0.889	14.0	4.941	15.25	7.5887	179.2	23.608	23.097	37.065	13.968	25.52	11.55	2.654	988.8	
16:28:56	181.1	0.895	13.9	4.935	15.35	7.5976	180.2	23.714	23.199	37.137	13.937	25.54	11.60	2.665	988.9	
16:29:05	182.3	0.900	14.0	4.929	15.44	7.6065	181.3	23.839	23.320	37.276	13.955	25.62	11.66	2.671	989.1	
16:29:15	183.3	0.906	14.0	4.923	15.54	7.6154	182.3	23.942	23.421	37.376	13.955	25.67	11.71	2.678	989.3	
16:29:25	184.1	0.912	14.0	4.918	15.64	7.6243	183.2	24.024	23.499	37.449	13.950	25.70	11.75	2.684	989.4	
16:29:35	185.2	0.918	13.9	4.912	15.74	7.6332	184.3	24.141	23.613	37.558	13.946	25.75	11.81	2.693	989.6	
16:29:45	186.5	0.923	13.9	4.906	15.84	7.6421	185.5	24.278	23.746	37.688	13.941	25.81	11.87	2.703	989.8	
16:29:54	187.5	0.929	13.9	4.900	15.93	7.6509	186.5	24.380	23.846	37.779	13.933	25.86	11.92	2.712	989.9	
16:30:04	188.4	0.935	13.9	4.895	16.03	7.6598	187.4	24.470	23.933	37.870	13.938	25.90	11.97	2.717	990.1	
16:30:14	189.2	0.940	13.9	4.889	16.13	7.6687	188.2	24.543	24.002	37.930	13.928	25.93	12.00	2.723	990.2	
16:30:24	190.3	0.946	13.9	4.883	16.23	7.6776	189.3	24.657	24.112	38.038	13.926	25.98	12.06	2.731	990.4	
16:30:33	191.2	0.952	13.9	4.878	16.33	7.6866	190.3	24.757	24.210	38.123	13.913	26.02	12.10	2.740	990.6	
16:30:43	192.4	0.957	13.9	4.872	16.42	7.6956	191.5	24.878	24.327	38.246	13.919	26.08	12.16	2.748	990.7	
16:30:53	193.2	0.963	13.9	4.866	16.52	7.7045	192.2	24.948	24.394	38.299	13.905	26.10	12.20	2.754	990.9	
16:31:03	194.1	0.969	13.9	4.861	16.62	7.7137	193.1	25.035	24.477	38.422	13.945	26.18	12.24	2.755	991.1	
16:31:12	195.2	0.974	14.0	4.855	16.72	7.7228	194.2	25.151	24.590	38.561	13.971	26.27	12.29	2.760	991.2	
16:31:22	196.1	0.980	14.0	4.849	16.82	7.7319	195.2	25.244	24.680	38.671	13.990	26.33	12.34	2.764	991.4	
16:31:34	197.2	0.987	14.0	4.842	16.94	7.7432	196.3	25.350	24.782	38.777	13.995	26.39	12.39	2.771	991.6	

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/Dc

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1018B
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 $= (4(EM)(Thickness)(Strain))/D_c$
 Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1018C
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain	Corrected Area	Corrected Load	Deviator Stress	Corrected Deviator Stress*	σ_1	σ_3	p ($\sigma_1 + \sigma_3$)/2	q ($\sigma_1 - \sigma_3$)/2	Principal Stress Ratio σ_1 / σ_3	Test Time
(min.)	(lbf)	(in.)	(psi)	(in.)	(%)	(cm ²)	(lbf)	(psi)	(tsf)	(psi)	(psi)	(psi)	(psi)		(min.)

* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 = (4(EM)(Thickness)(Strain))/D_c
 Where: EM = 200 psi and Thickness = .012"

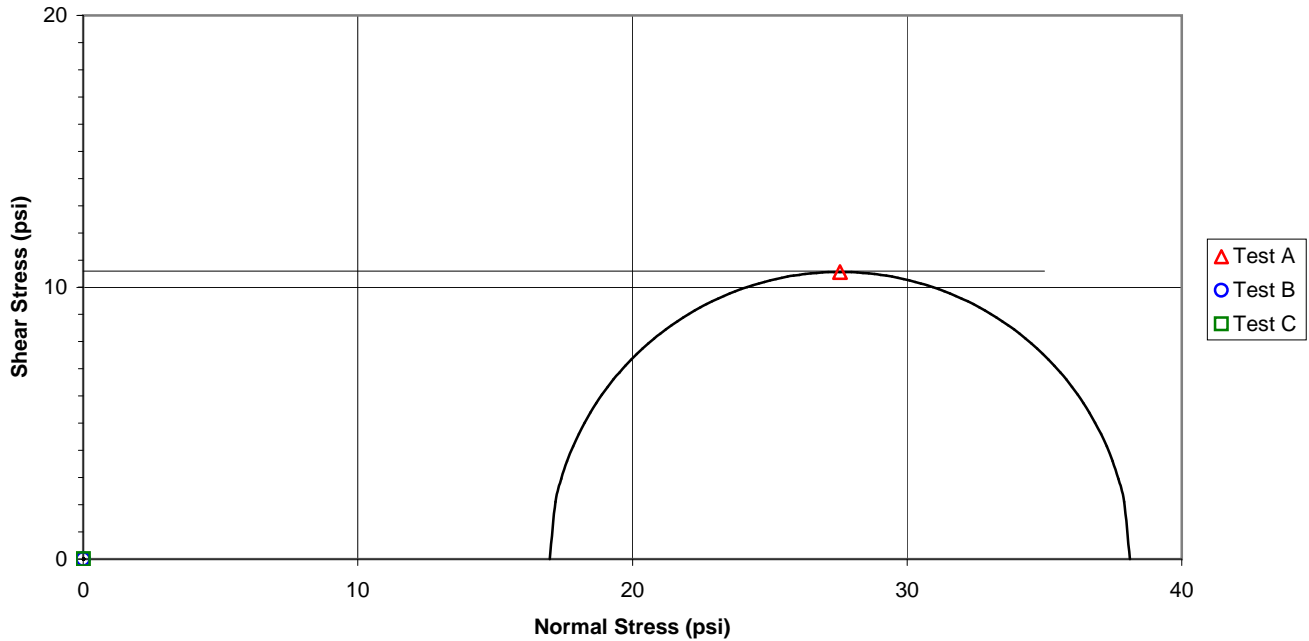
Project John Siever Fossil Plant
 Sample ID JS-45-SV, 24.5' - 25.0'

Project No. 175569038
 Test Number 1019A

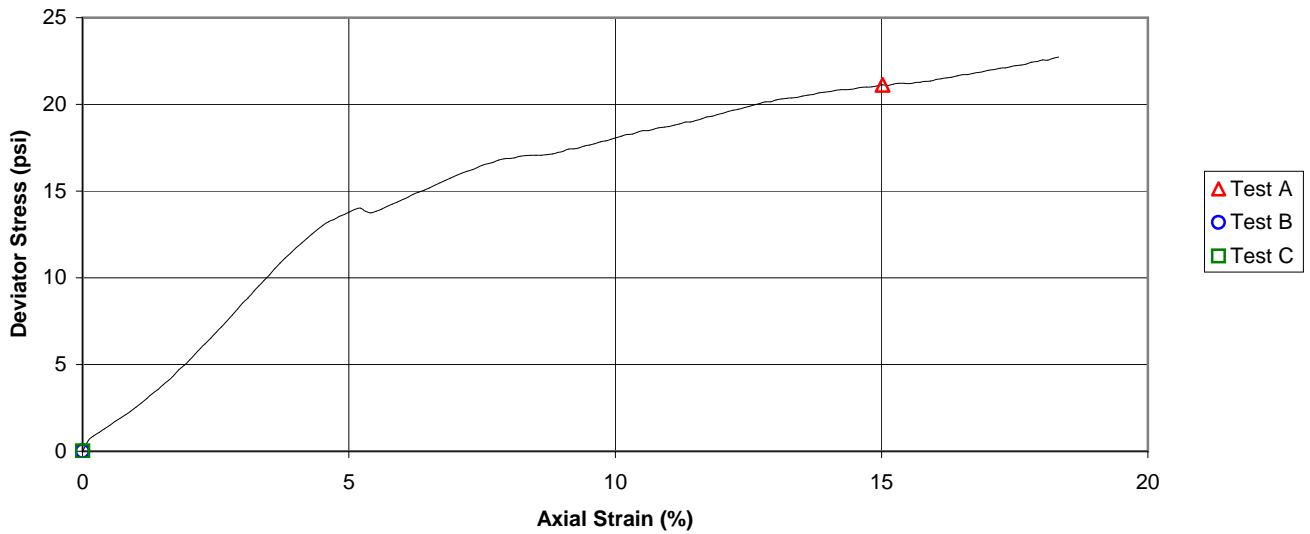
$\phi = 0.0 \text{ deg.}$
 Failure Criterion: Maximum Deviator Stress

$c = 10.6 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 24.5' - 25.0'</u>			Test Number	<u>UU-1019A</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-45-SV, 24.5' - 26.5'</u>		Date	<u>6-25-09</u>
Specific Gravity	<u>2.29</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.816</u>	1 <u>6.050</u>	Sample <u>38.5482</u> (V _o)	Wet Weight (g) <u>992.47</u>
Middle <u>2.877</u>	2 <u>6.097</u>	Solids <u>18.2545</u> (VS _o)	Dry Weight (g) <u>685.07</u>
Bottom <u>2.842</u>	3 <u>6.059</u>	Water <u>18.7577</u> (Vw _o)	Wet Unit Weight (pcf) <u>98.1</u>
Avg. <u>2.8450</u> (D _o)	4 <u>6.050</u>	Voids <u>20.2937</u> (Vv _o)	Dry Unit Weight (pcf) <u>67.7</u>
Area (in ²) <u>6.3570</u> (A _o)	Avg. (H _o) <u>6.0639</u>	Degree of Saturation (%) <u>92.4</u> (S _o)	
Moisture Content (%) <u>44.9</u>	Final Trimmings	Void Ratio <u>1.112</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-26-09</u>
			Panel Board Number	<u>C</u>

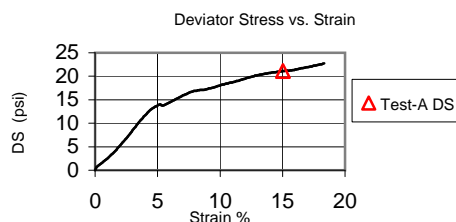
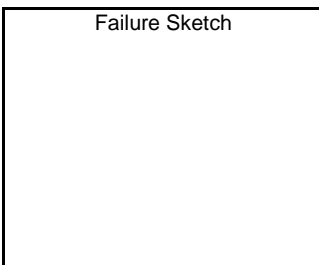
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0639</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.3570</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>38.5482</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>16.8</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>16.8</u> (σ ₃)
Height (in.) <u>6.0639</u> (H _c)		Volume (in ³) <u>38.5482</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.3570</u> (A _c)		Volume - Water (in ³) <u>18.7577</u> (VW _c)	
Diameter (in.) <u>2.8450</u> (D _c)		Water Content (%) <u>44.9</u>	
Dry Density (pcf) <u>67.7</u>		Degree of Saturation (%) <u>92.4</u> (S _c)	Void Ratio <u>1.112</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.321</u> (in.)	Wet Weight (g) <u>992.47</u>	Corrected Deviator <u>21.13</u> σ _d (psi)
Wet weight (g) <u>992.47</u> (WW _f)	Dry Weight (g) <u>685.07</u>	Major Principal <u>38.11</u> σ _{1f} (psi)
Average Diameter <u>3.144</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>16.99</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.227</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.02</u>
		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name John Siever Fossil Plant Project Number 175569038
 Sample Identification _____ Test Number UU-1019AB
 Visual Description _____ Prepared By _____
 Undisturbed Source 0 Date _____
 Specific Gravity 2.29 #REF! Liquid Limit N/A Plastic Limit N/A Plasticity Index N/A

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By _____
 Back Pressure Saturated to: _____ (psi) Final Pore Pressure Parameter B _____ Date _____
 Panel Board Number _____

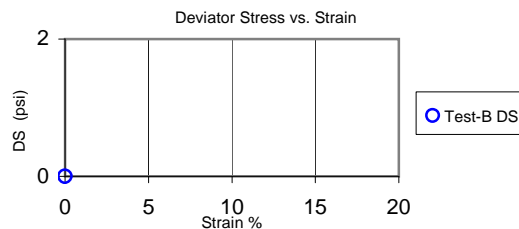
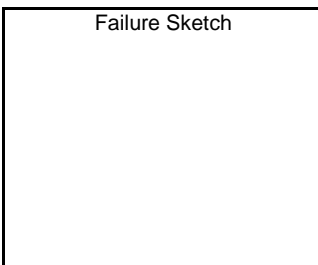
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1019AC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u> #REF!	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

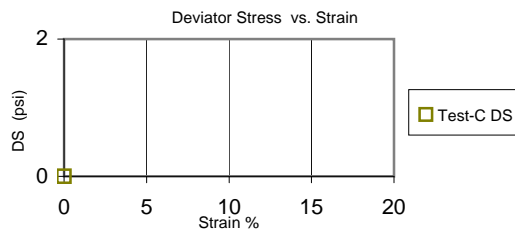
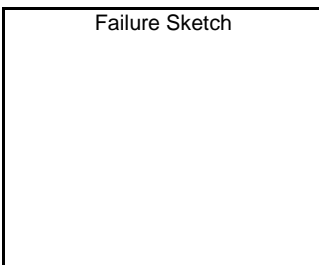
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.064 (in.)
Diameter	2.845 (in.)
Area	6.357 (in ²)

Final Values	
Height	4.9528 (in.)
Dia. avg.	3.144 (in.)
Area avg.	7.7651 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1019AA
Data File ID	UU-1019A
Back Pressure (psi)	0
Lateral Pressure (psi)	16.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	2.2	-0.018	16.8	6.064	0.00	6.3570	0.0	0.000	0.000	16.765	16.765	16.77	0.00	1.000	0.0
0:00:19	6.2	-0.011	16.8	6.057	0.11	6.3637	4.1	0.637	0.633	17.402	16.768	17.09	0.32	1.038	0.3
0:00:30	7.8	-0.005	16.8	6.052	0.20	6.3699	5.6	0.884	0.877	17.651	16.774	17.21	0.44	1.052	0.5
0:00:42	9.2	0.001	16.8	6.045	0.31	6.3770	7.1	1.106	1.095	17.865	16.770	17.32	0.55	1.065	0.7
0:00:53	10.5	0.007	16.8	6.039	0.41	6.3830	8.3	1.305	1.291	18.066	16.774	17.42	0.65	1.077	0.9
0:01:04	11.9	0.013	16.8	6.033	0.51	6.3895	9.7	1.517	1.500	18.268	16.768	17.52	0.75	1.089	1.1
0:01:16	13.2	0.019	16.8	6.027	0.61	6.3960	11.1	1.733	1.713	18.486	16.773	17.63	0.86	1.102	1.3
0:01:27	14.5	0.025	16.8	6.021	0.70	6.4020	12.3	1.925	1.901	18.681	16.780	17.73	0.95	1.113	1.5
0:01:38	15.8	0.031	16.8	6.015	0.80	6.4085	13.6	2.121	2.094	18.859	16.764	17.81	1.05	1.125	1.6
0:01:50	17.2	0.037	16.7	6.009	0.90	6.4150	15.0	2.345	2.315	19.063	16.749	17.91	1.16	1.138	1.8
0:02:01	18.7	0.043	16.8	6.003	1.00	6.4216	16.6	2.578	2.544	19.328	16.784	18.06	1.27	1.152	2.0
0:02:12	20.3	0.049	16.8	5.997	1.10	6.4280	18.1	2.823	2.786	19.572	16.786	18.18	1.39	1.166	2.2
0:02:23	22.0	0.055	16.8	5.991	1.21	6.4346	19.9	3.086	3.045	19.853	16.807	18.33	1.52	1.181	2.4
0:02:35	23.9	0.062	16.8	5.985	1.31	6.4412	21.7	3.368	3.324	20.130	16.807	18.47	1.66	1.198	2.6
0:02:46	25.4	0.068	16.8	5.978	1.41	6.4483	23.2	3.604	3.556	20.365	16.808	18.59	1.78	1.212	2.8
0:02:57	27.3	0.074	16.8	5.972	1.51	6.4546	25.1	3.894	3.843	20.651	16.808	18.73	1.92	1.229	3.0
0:03:07	28.9	0.080	16.8	5.966	1.61	6.4609	26.7	4.137	4.082	20.895	16.813	18.85	2.04	1.243	3.1
0:03:18	30.7	0.086	16.8	5.960	1.71	6.4675	28.5	4.412	4.354	21.176	16.822	19.00	2.18	1.259	3.3
0:03:29	32.8	0.092	16.8	5.954	1.80	6.4738	30.7	4.740	4.680	21.494	16.814	19.15	2.34	1.278	3.5
0:03:40	34.6	0.098	16.8	5.948	1.91	6.4805	32.4	5.005	4.941	21.759	16.818	19.29	2.47	1.294	3.7
0:03:51	36.8	0.104	16.8	5.942	2.01	6.4872	34.6	5.335	5.267	22.090	16.823	19.46	2.63	1.313	3.9
0:04:02	38.8	0.110	16.8	5.936	2.10	6.4937	36.6	5.641	5.570	22.390	16.821	19.61	2.78	1.331	4.0
0:04:15	41.1	0.116	16.8	5.930	2.21	6.5008	39.0	5.997	5.922	22.755	16.833	19.79	2.96	1.352	4.3
0:04:25	43.0	0.122	16.8	5.924	2.30	6.5068	40.8	6.276	6.198	23.033	16.834	19.93	3.10	1.368	4.4
0:04:37	45.2	0.129	16.8	5.918	2.41	6.5141	43.0	6.605	6.523	23.358	16.834	20.10	3.26	1.388	4.6
0:04:48	47.3	0.134	16.8	5.912	2.51	6.5205	45.2	6.925	6.840	23.674	16.834	20.25	3.42	1.406	4.8
0:04:59	49.5	0.140	16.8	5.906	2.60	6.5270	47.4	7.256	7.169	24.009	16.840	20.42	3.58	1.426	5.0
0:05:10	51.7	0.146	16.8	5.900	2.70	6.5337	49.5	7.579	7.488	24.328	16.840	20.58	3.74	1.445	5.2
0:05:23	54.2	0.153	16.8	5.893	2.81	6.5410	52.0	7.955	7.860	24.707	16.847	20.78	3.93	1.467	5.4
0:05:33	56.5	0.159	16.8	5.887	2.91	6.5475	54.3	8.299	8.201	25.042	16.842	20.94	4.10	1.487	5.6
0:05:45	58.8	0.165	16.8	5.882	3.01	6.5540	56.6	8.639	8.537	25.384	16.846	21.11	4.27	1.507	5.8
0:05:56	60.8	0.171	16.9	5.876	3.11	6.5608	58.7	8.943	8.838	25.689	16.851	21.27	4.42	1.524	5.9
0:06:08	63.4	0.177	16.9	5.869	3.21	6.5681	61.3	9.331	9.222	26.078	16.856	21.47	4.61	1.547	6.1
0:06:19	65.6	0.183	16.9	5.863	3.31	6.5746	63.5	9.652	9.541	26.402	16.861	21.63	4.77	1.566	6.3
0:06:30	67.8	0.189	16.9	5.857	3.40	6.5811	65.6	9.971	9.856	26.710	16.854	21.78	4.93	1.585	6.5
0:06:43	70.0	0.195	16.9	5.851	3.51	6.5884	67.9	10.303	10.184	27.045	16.861	21.95	5.09	1.604	6.7
0:06:54	72.4	0.201	16.9	5.845	3.61	6.5952	70.2	10.651	10.530	27.398	16.869	22.13	5.26	1.624	6.9
0:07:05	74.6	0.207	16.9	5.839	3.71	6.6017	72.5	10.981	10.856	27.728	16.872	22.30	5.43	1.643	7.1
0:07:16	76.6	0.213	16.9	5.833	3.81	6.6085	74.5	11.266	11.138	28.011	16.874	22.44	5.57	1.660	7.3
0:07:27	78.6	0.219	16.9	5.827	3.90	6.6153	76.4	11.548	11.416	28.288	16.872	22.58	5.71	1.677	7.5
0:07:40	80.8	0.226	16.9	5.820	4.01	6.6229	78.7	11.879	11.744	28.617	16.873	22.75	5.87	1.696	7.7
0:07:51	82.8	0.232	16.9	5.814	4.11	6.6297	80.6	12.157	12.018	28.893	16.875	22.88	6.01	1.712	7.9
0:08:02	84.5	0.238	16.9	5.809	4.21	6.6364	82.3	12.403	12.261	29.148	16.887	23.02	6.13	1.726	8.0
0:08:13	86.3	0.244	16.9	5.803	4.31	6.6434	84.2	12.672	12.526	29.418	16.892	23.16	6.26	1.742	8.2
0:08:24	88.2	0.250	16.9	5.797	4.41	6.6502	86.1	12.939	12.791	29.695	16.904	23.30	6.40	1.757	8.4
0:08:35	89.9	0.256	16.9	5.790	4.51	6.6574	87.8	13.186	13.033	29.947	16.913	23.43	6.52	1.771	8.6
0:08:47	91.4	0.262	16.9	5.784	4.61	6.6645	89.2	13.387	13.231	30.144	16.912	23.53	6.62	1.782	8.8
0:08:58	92.4	0.268	16.9	5.778	4.71	6.6716	90.2	13.526	13.367	30.278	16.911	23.59	6.68	1.790	9.0
0:09:09	93.7	0.274	16.9	5.772	4.82	6.6787	91.5	13.702	13.539	30.446	16.907	23.68	6.77	1.801	9.2
0:09:20	94.5	0.280	16.9	5.766	4.91	6.6855	92.3	13.813	13.647	30.559	16.912	23.74	6.82	1.807	9.3
0:09:31	95.6	0.286	16.9	5.760	5.01	6.6923	93.5	13.964	13.795	30.705	16.910	23.81	6.90	1.816	9.5
0:09:42	96.7	0.292	16.9	5.754	5.11	6.6997	94.6	14.118	13.945	30.862	16.916	23.89	6.97	1.824	9.7
0:09:53	97.3	0.298	16.9	5.748	5.21	6.7067	95.2	14.191	14.015	30.936	16.921	23.93	7.01	1.828	9.9
0:10:04	96.3	0.304	16.9	5.742	5.31	6.7137	94.1	14.019	13.840	30.759	16.920	23.84	6.92	1.818	10.1
0:10:15	95.8	0.311	16.9	5.735	5.42	6.7210	93.7	13.936	13.753	30.671	16.918	23.79	6.88	1.813	10.3
0:10:25	96.4	0.316	16.9	5.730	5.51	6.7275	94.3	14.016	13.830	30.748	16.918	23.83	6.91	1.817	10.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.064 (in.)
Diameter	2.845 (in.)
Area	6.357 (in ²)

Final Values	
Height	4.9528 (in.)
Dia. avg.	3.144 (in.)
Area avg.	7.7651 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1019AA
Data File ID	UU-1019A
Back Pressure (psi)	0
Lateral Pressure (psi)	16.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:38	97.6	0.323	16.9	5.723	5.62	6.7353	95.4	14.163	13.974	30.890	16.916	23.90	6.99	1.826	10.6
0:10:49	98.7	0.329	16.9	5.717	5.72	6.7424	96.5	14.312	14.119	31.043	16.923	23.98	7.06	1.834	10.8
0:10:59	99.6	0.334	16.9	5.712	5.81	6.7489	97.4	14.437	14.241	31.167	16.927	24.05	7.12	1.841	11.0
0:11:11	100.6	0.341	16.9	5.705	5.91	6.7566	98.5	14.577	14.377	31.303	16.926	24.11	7.19	1.849	11.2
0:11:22	101.8	0.347	16.9	5.699	6.01	6.7637	99.6	14.730	14.527	31.460	16.932	24.20	7.26	1.858	11.4
0:11:33	102.8	0.353	16.9	5.693	6.11	6.7706	100.6	14.863	14.657	31.595	16.938	24.27	7.33	1.865	11.6
0:11:44	104.0	0.359	16.9	5.687	6.21	6.7778	101.8	15.020	14.810	31.738	16.927	24.33	7.41	1.875	11.7
0:11:57	105.0	0.365	16.9	5.681	6.32	6.7856	102.9	15.159	14.946	31.884	16.938	24.41	7.47	1.882	12.0
0:12:08	105.9	0.371	16.9	5.675	6.41	6.7928	103.8	15.274	15.058	32.000	16.942	24.47	7.53	1.889	12.1
0:12:19	106.9	0.377	16.9	5.669	6.51	6.7999	104.7	15.404	15.184	32.124	16.940	24.53	7.59	1.896	12.3
0:12:30	108.1	0.383	16.9	5.663	6.61	6.8071	105.9	15.558	15.335	32.266	16.931	24.60	7.67	1.906	12.5
0:12:41	109.2	0.389	16.9	5.657	6.71	6.8143	107.1	15.711	15.484	32.407	16.923	24.66	7.74	1.915	12.7
0:12:52	110.2	0.395	16.9	5.651	6.81	6.8214	108.0	15.839	15.609	32.531	16.922	24.73	7.80	1.922	12.9
0:13:03	111.3	0.401	16.9	5.645	6.91	6.8287	109.2	15.990	15.757	32.681	16.924	24.80	7.88	1.931	13.1
0:13:16	112.5	0.408	16.9	5.638	7.02	6.8369	110.4	16.144	15.907	32.841	16.934	24.89	7.95	1.939	13.3
0:13:27	113.5	0.414	16.9	5.632	7.12	6.8441	111.4	16.274	16.034	32.969	16.935	24.95	8.02	1.947	13.5
0:13:38	114.5	0.420	16.9	5.626	7.21	6.8512	112.3	16.391	16.148	33.086	16.938	25.01	8.07	1.953	13.6
0:13:50	115.2	0.426	16.9	5.620	7.32	6.8589	113.1	16.485	16.238	33.177	16.939	25.06	8.12	1.959	13.8
0:14:01	116.2	0.432	16.9	5.614	7.41	6.8660	114.1	16.614	16.364	33.301	16.936	25.12	8.18	1.966	14.0
0:14:12	117.2	0.438	16.9	5.608	7.51	6.8733	115.1	16.741	16.487	33.431	16.944	25.19	8.24	1.973	14.2
0:14:24	118.1	0.444	16.9	5.602	7.62	6.8812	115.9	16.845	16.588	33.535	16.946	25.24	8.29	1.979	14.4
0:14:35	118.7	0.450	16.9	5.596	7.71	6.8884	116.6	16.923	16.662	33.602	16.940	25.27	8.33	1.984	14.6
0:14:46	119.7	0.456	16.9	5.590	7.81	6.8957	117.6	17.048	16.785	33.717	16.932	25.32	8.39	1.991	14.8
0:14:57	120.4	0.462	16.9	5.584	7.91	6.9031	118.3	17.134	16.867	33.805	16.938	25.37	8.43	1.996	15.0
0:15:10	120.7	0.469	16.9	5.578	8.02	6.9112	118.6	17.159	16.888	33.833	16.945	25.39	8.44	1.997	15.2
0:15:21	121.2	0.474	16.9	5.572	8.11	6.9184	119.0	17.200	16.926	33.874	16.948	25.41	8.46	1.999	15.4
0:15:32	121.9	0.481	16.9	5.566	8.22	6.9260	119.8	17.292	17.015	33.959	16.944	25.45	8.51	2.004	15.5
0:15:43	122.4	0.487	16.9	5.560	8.32	6.9336	120.2	17.335	17.055	34.004	16.949	25.48	8.53	2.006	15.7
0:15:54	122.6	0.492	16.9	5.554	8.41	6.9408	120.4	17.353	17.070	34.017	16.948	25.48	8.53	2.007	15.9
0:16:05	122.8	0.499	16.9	5.548	8.51	6.9486	120.6	17.360	17.073	34.020	16.947	25.48	8.54	2.007	16.1
0:16:16	122.9	0.505	17.0	5.541	8.62	6.9565	120.8	17.362	17.071	34.024	16.953	25.49	8.54	2.007	16.3
0:16:27	123.3	0.511	17.0	5.535	8.72	6.9641	121.1	17.391	17.097	34.054	16.958	25.51	8.55	2.008	16.5
0:16:38	123.8	0.517	17.0	5.529	8.82	6.9719	121.6	17.443	17.146	34.102	16.957	25.53	8.57	2.011	16.6
0:16:49	124.5	0.523	17.0	5.523	8.92	6.9796	122.3	17.527	17.226	34.181	16.955	25.57	8.61	2.016	16.8
0:17:01	125.1	0.529	17.0	5.517	9.02	6.9871	122.9	17.590	17.286	34.240	16.954	25.60	8.64	2.020	17.0
0:17:12	126.1	0.535	17.0	5.511	9.12	6.9949	123.9	17.719	17.412	34.365	16.953	25.66	8.71	2.027	17.2
0:17:23	126.4	0.541	17.0	5.505	9.22	7.0026	124.2	17.738	17.427	34.386	16.959	25.67	8.71	2.028	17.4
0:17:34	127.0	0.547	16.9	5.499	9.32	7.0103	124.8	17.804	17.490	34.437	16.947	25.69	8.74	2.032	17.6
0:17:45	127.9	0.554	16.9	5.493	9.42	7.0182	125.8	17.920	17.602	34.552	16.949	25.75	8.80	2.039	17.8
0:17:56	128.5	0.560	16.9	5.487	9.52	7.0259	126.3	17.982	17.661	34.609	16.948	25.78	8.83	2.042	17.9
0:18:06	129.2	0.565	16.9	5.481	9.61	7.0332	127.0	18.058	17.733	34.680	16.947	25.81	8.87	2.046	18.1
0:18:18	130.1	0.572	16.9	5.474	9.72	7.0415	128.0	18.175	17.847	34.792	16.944	25.87	8.92	2.053	18.3
0:18:29	130.7	0.578	16.9	5.468	9.82	7.0493	128.5	18.235	17.904	34.836	16.932	25.88	8.95	2.057	18.5
0:18:40	131.4	0.584	17.0	5.462	9.92	7.0571	129.3	18.320	17.985	34.936	16.951	25.94	8.99	2.061	18.7
0:18:51	132.3	0.590	16.9	5.456	10.02	7.0650	130.1	18.414	18.076	35.019	16.942	25.98	9.04	2.067	18.9
0:19:02	133.1	0.596	17.0	5.450	10.12	7.0728	130.9	18.506	18.165	35.132	16.967	26.05	9.08	2.071	19.0
0:19:13	133.9	0.602	17.0	5.444	10.22	7.0806	131.7	18.603	18.258	35.215	16.957	26.09	9.13	2.077	19.2
0:19:24	134.2	0.608	17.0	5.438	10.32	7.0885	132.1	18.632	18.284	35.252	16.968	26.11	9.14	2.078	19.4
0:19:36	135.2	0.614	17.0	5.432	10.42	7.0964	133.0	18.745	18.394	35.361	16.967	26.16	9.20	2.084	19.6
0:19:47	136.0	0.620	17.0	5.426	10.52	7.1043	133.8	18.835	18.480	35.456	16.976	26.22	9.24	2.089	19.8
0:19:58	136.2	0.626	17.0	5.420	10.62	7.1123	134.0	18.845	18.487	35.478	16.991	26.23	9.24	2.088	20.0
0:20:09	136.9	0.632	17.0	5.414	10.72	7.1204	134.8	18.930	18.568	35.541	16.973	26.26	9.28	2.094	20.2
0:20:20	137.7	0.638	17.0	5.408	10.82	7.1284	135.5	19.014	18.648	35.631	16.983	26.31	9.32	2.098	20.3
0:20:31	138.2	0.645	17.0	5.402	10.92	7.1366	136.0	19.061	18.692	35.667	16.974	26.32	9.35	2.101	20.5
0:20:42	138.6	0.651	17.0	5.396	11.02	7.1444	136.5	19.100	18.728	35.705	16.977	26.34	9.36	2.103	20.7
0:20:52	139.4	0.656	17.0	5.390	11.11	7.1517	137.2	19.184	18.809	35.796	16.987	26.39	9.40	2.107	20.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.064 (in.)
Diameter	2.845 (in.)
Area	6.357 (in ²)

Final Values	
Height	4.9528 (in.)
Dia. avg.	3.144 (in.)
Area avg.	7.7651 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1019AA
Data File ID	UU-1019A
Back Pressure (psi)	0
Lateral Pressure (psi)	16.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:21:03	140.0	0.662	17.0	5.384	11.21	7.1598	137.9	19.256	18.877	35.870	16.993	26.43	9.44	2.111	21.1
0:21:16	141.0	0.669	17.0	5.377	11.32	7.1686	138.8	19.362	18.980	35.965	16.984	26.47	9.49	2.118	21.3
0:21:27	141.2	0.675	17.0	5.372	11.42	7.1764	139.0	19.369	18.984	35.970	16.986	26.48	9.49	2.118	21.5
0:21:38	142.0	0.681	17.0	5.366	11.52	7.1844	139.8	19.465	19.076	36.068	16.992	26.53	9.54	2.123	21.6
0:21:50	142.9	0.687	17.0	5.359	11.62	7.1930	140.8	19.570	19.178	36.163	16.985	26.57	9.59	2.129	21.8
0:22:01	143.8	0.693	17.0	5.353	11.72	7.2011	141.7	19.671	19.275	36.261	16.986	26.62	9.64	2.135	22.0
0:22:12	144.3	0.699	17.0	5.347	11.82	7.2090	142.1	19.716	19.317	36.285	16.968	26.63	9.66	2.138	22.2
0:22:23	145.1	0.705	17.0	5.341	11.91	7.2168	143.0	19.811	19.409	36.389	16.980	26.68	9.70	2.143	22.4
0:22:35	145.9	0.711	17.0	5.335	12.01	7.2250	143.7	19.893	19.487	36.465	16.978	26.72	9.74	2.148	22.6
0:22:47	146.9	0.718	17.0	5.329	12.12	7.2341	144.7	20.005	19.596	36.583	16.987	26.79	9.80	2.154	22.8
0:22:57	147.6	0.723	17.0	5.323	12.21	7.2415	145.4	20.078	19.666	36.654	16.988	26.82	9.83	2.158	23.0
0:23:09	148.2	0.729	17.0	5.317	12.32	7.2500	146.0	20.142	19.726	36.704	16.978	26.84	9.86	2.162	23.2
0:23:20	149.1	0.736	17.0	5.311	12.42	7.2587	146.9	20.241	19.821	36.811	16.990	26.90	9.91	2.167	23.3
0:23:31	149.8	0.742	17.0	5.305	12.52	7.2669	147.6	20.318	19.896	36.890	16.995	26.94	9.95	2.171	23.5
0:23:43	150.6	0.748	17.0	5.299	12.62	7.2753	148.5	20.406	19.980	36.977	16.996	26.99	9.99	2.176	23.7
0:23:53	151.3	0.753	17.0	5.293	12.72	7.2832	149.2	20.480	20.051	37.040	16.989	27.01	10.03	2.180	23.9
0:24:03	152.3	0.759	17.0	5.287	12.82	7.2915	150.1	20.589	20.157	37.155	16.999	27.08	10.08	2.186	24.1
0:24:15	152.5	0.766	17.0	5.281	12.92	7.3000	150.3	20.589	20.153	37.132	16.979	27.06	10.08	2.187	24.3
0:24:26	153.4	0.772	17.0	5.274	13.02	7.3087	151.2	20.689	20.250	37.225	16.975	27.10	10.12	2.193	24.4
0:24:37	154.0	0.778	17.0	5.268	13.12	7.3174	151.9	20.753	20.310	37.296	16.985	27.14	10.16	2.196	24.6
0:24:48	154.6	0.784	17.0	5.262	13.22	7.3258	152.4	20.805	20.359	37.342	16.983	27.16	10.18	2.199	24.8
0:24:58	154.8	0.790	17.0	5.257	13.31	7.3334	152.6	20.812	20.363	37.352	16.989	27.17	10.18	2.199	25.0
0:25:10	155.3	0.796	17.0	5.250	13.42	7.3423	153.2	20.864	20.411	37.399	16.988	27.19	10.21	2.201	25.2
0:25:20	156.1	0.802	17.0	5.244	13.52	7.3505	153.9	20.937	20.481	37.474	16.994	27.23	10.24	2.205	25.3
0:25:32	156.7	0.808	17.0	5.238	13.62	7.3592	154.5	21.000	20.541	37.531	16.990	27.26	10.27	2.209	25.5
0:25:43	157.2	0.814	17.0	5.232	13.72	7.3679	155.0	21.044	20.581	37.572	16.991	27.28	10.29	2.211	25.7
0:25:54	158.0	0.821	17.0	5.226	13.82	7.3767	155.9	21.130	20.663	37.660	16.996	27.33	10.33	2.216	25.9
0:26:06	158.5	0.827	17.0	5.220	13.92	7.3853	156.3	21.169	20.699	37.695	16.996	27.35	10.35	2.218	26.1
0:26:17	159.0	0.833	17.0	5.213	14.03	7.3941	156.8	21.213	20.739	37.735	16.995	27.36	10.37	2.220	26.3
0:26:27	159.6	0.838	17.0	5.208	14.12	7.4018	157.4	21.271	20.795	37.777	16.982	27.38	10.40	2.224	26.5
0:26:39	160.2	0.845	17.0	5.201	14.23	7.4114	158.0	21.321	20.841	37.823	16.983	27.40	10.42	2.227	26.7
0:26:49	160.4	0.850	17.0	5.196	14.32	7.4192	158.3	21.331	20.848	37.824	16.977	27.40	10.42	2.228	26.8
0:27:01	160.8	0.857	17.0	5.189	14.42	7.4282	158.6	21.354	20.867	37.851	16.984	27.42	10.43	2.229	27.0
0:27:12	161.5	0.863	17.0	5.183	14.52	7.4371	159.3	21.421	20.931	37.916	16.985	27.45	10.47	2.232	27.2
0:27:22	162.1	0.869	17.0	5.178	14.62	7.4452	159.9	21.477	20.984	37.971	16.987	27.48	10.49	2.235	27.4
0:27:33	162.4	0.875	17.0	5.171	14.72	7.4542	160.2	21.490	20.994	37.988	16.994	27.49	10.50	2.235	27.6
0:27:45	162.7	0.881	17.0	5.165	14.82	7.4632	160.6	21.517	21.017	38.005	16.988	27.50	10.51	2.237	27.8
0:27:55	163.3	0.887	17.0	5.159	14.92	7.4716	161.2	21.571	21.067	38.058	16.991	27.52	10.53	2.240	27.9
0:28:06	164.0	0.893	17.0	5.153	15.02	7.4807	161.8	21.633	21.126	38.115	16.989	27.55	10.56	2.244	28.1
0:28:17	164.0	0.899	17.0	5.147	15.12	7.4897	161.8	21.605	21.095	38.074	16.978	27.53	10.55	2.242	28.3
0:28:27	164.7	0.905	17.0	5.141	15.22	7.4981	162.5	21.676	21.163	38.147	16.985	27.57	10.58	2.246	28.5
0:28:38	165.3	0.911	17.0	5.135	15.32	7.5073	163.2	21.737	21.220	38.210	16.989	27.60	10.61	2.249	28.6
0:28:50	165.5	0.918	17.0	5.129	15.42	7.5163	163.3	21.732	21.212	38.198	16.986	27.59	10.61	2.249	28.8
0:29:01	165.7	0.924	17.0	5.122	15.53	7.5254	163.5	21.726	21.202	38.190	16.988	27.59	10.60	2.248	29.0
0:29:12	166.3	0.930	17.0	5.116	15.63	7.5344	164.2	21.789	21.262	38.263	17.001	27.63	10.63	2.251	29.2
0:29:24	166.7	0.936	17.0	5.111	15.72	7.5429	164.5	21.812	21.282	38.242	16.960	27.60	10.64	2.255	29.4
0:29:35	167.2	0.942	17.0	5.105	15.82	7.5517	165.1	21.857	21.323	38.304	16.981	27.64	10.66	2.256	29.6
0:29:46	167.7	0.948	17.0	5.098	15.92	7.5609	165.5	21.890	21.353	38.342	16.989	27.67	10.68	2.257	29.8
0:29:57	168.5	0.954	17.0	5.092	16.02	7.5698	166.3	21.973	21.433	38.420	16.987	27.70	10.72	2.262	30.0
0:30:09	169.0	0.960	17.0	5.087	16.12	7.5785	166.8	22.016	21.472	38.464	16.992	27.73	10.74	2.264	30.2
0:30:21	169.7	0.966	17.0	5.080	16.23	7.5884	167.5	22.078	21.530	38.529	16.999	27.76	10.77	2.267	30.4
0:30:31	170.2	0.972	17.0	5.074	16.32	7.5966	168.0	22.116	21.566	38.558	16.992	27.77	10.78	2.269	30.5
0:30:43	171.0	0.978	17.0	5.068	16.42	7.6058	168.8	22.193	21.639	38.639	17.001	27.82	10.82	2.273	30.7
0:30:54	171.8	0.984	17.0	5.062	16.52	7.6149	169.6	22.272	21.715	38.721	17.006	27.86	10.86	2.277	30.9
0:31:05	172.0	0.990	17.0	5.056	16.62	7.6242	169.9	22.279	21.718	38.718	17.000	27.86	10.86	2.278	31.1
0:31:16	172.8	0.996	17.0	5.050	16.72	7.6335	170.7	22.359	21.795	38.767	16.972	27.87	10.90	2.284	31.3

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.064 (in.)
Diameter	2.845 (in)
Area	6.357 (in ²)

Final Values

Height	4.9528 (in.)
Dia. avg.	3.144 (in)
Area avg.	7.7651 (in ²)

Tested By KDGDate 6-26-09Press No. 1Panel No. CProject Number 175569038Test Number UU-1019AAData File ID UU-1019ABack Pressure (psi) 0Lateral Pressure (psi) 16.8

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:31:28	173.5	1.003	17.0	5.044	16.83	7.6430	171.3	22.416	21.849	38.815	16.967	27.89	10.92	2.288	31.5
0:31:38	174.1	1.008	17.0	5.038	16.92	7.6514	172.0	22.474	21.903	38.874	16.971	27.92	10.95	2.291	31.6
0:31:49	174.9	1.014	17.0	5.032	17.02	7.6610	172.7	22.543	21.968	38.933	16.965	27.95	10.98	2.295	31.8
0:32:00	175.4	1.021	17.0	5.026	17.12	7.6703	173.2	22.581	22.003	38.965	16.962	27.96	11.00	2.297	32.0
0:32:11	176.2	1.027	17.0	5.019	17.23	7.6799	174.1	22.667	22.086	39.056	16.970	28.01	11.04	2.301	32.2
0:32:23	176.6	1.033	17.0	5.013	17.33	7.6895	174.4	22.679	22.095	39.068	16.973	28.02	11.05	2.302	32.4
0:32:34	177.4	1.039	17.0	5.007	17.43	7.6987	175.2	22.762	22.173	39.142	16.969	28.06	11.09	2.307	32.6
0:32:44	178.1	1.045	17.0	5.002	17.52	7.7073	176.0	22.833	22.242	39.211	16.969	28.09	11.12	2.311	32.7
0:32:55	178.7	1.051	17.0	4.995	17.62	7.7166	176.5	22.873	22.278	39.246	16.968	28.11	11.14	2.313	32.9
0:33:07	179.2	1.057	17.0	4.989	17.72	7.7259	177.1	22.921	22.323	39.292	16.969	28.13	11.16	2.316	33.1
0:33:18	180.4	1.063	17.0	4.983	17.82	7.7356	178.3	23.044	22.442	39.405	16.962	28.18	11.22	2.323	33.3
0:33:29	180.9	1.069	17.0	4.977	17.92	7.7450	178.7	23.074	22.469	39.429	16.959	28.19	11.23	2.325	33.5
0:33:40	181.8	1.075	17.0	4.971	18.02	7.7544	179.6	23.167	22.559	39.524	16.965	28.24	11.28	2.330	33.7
0:33:52	181.9	1.081	17.0	4.965	18.12	7.7639	179.7	23.150	22.539	39.498	16.959	28.23	11.27	2.329	33.9
0:34:03	183.1	1.087	17.0	4.959	18.22	7.7735	180.9	23.277	22.662	39.620	16.958	28.29	11.33	2.336	34.1
0:34:14	183.8	1.093	17.0	4.953	18.32	7.7832	181.7	23.342	22.724	39.686	16.963	28.32	11.36	2.340	34.2

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019AB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 $= (4(EM)(Thickness)(Strain))/D_c$
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019AC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

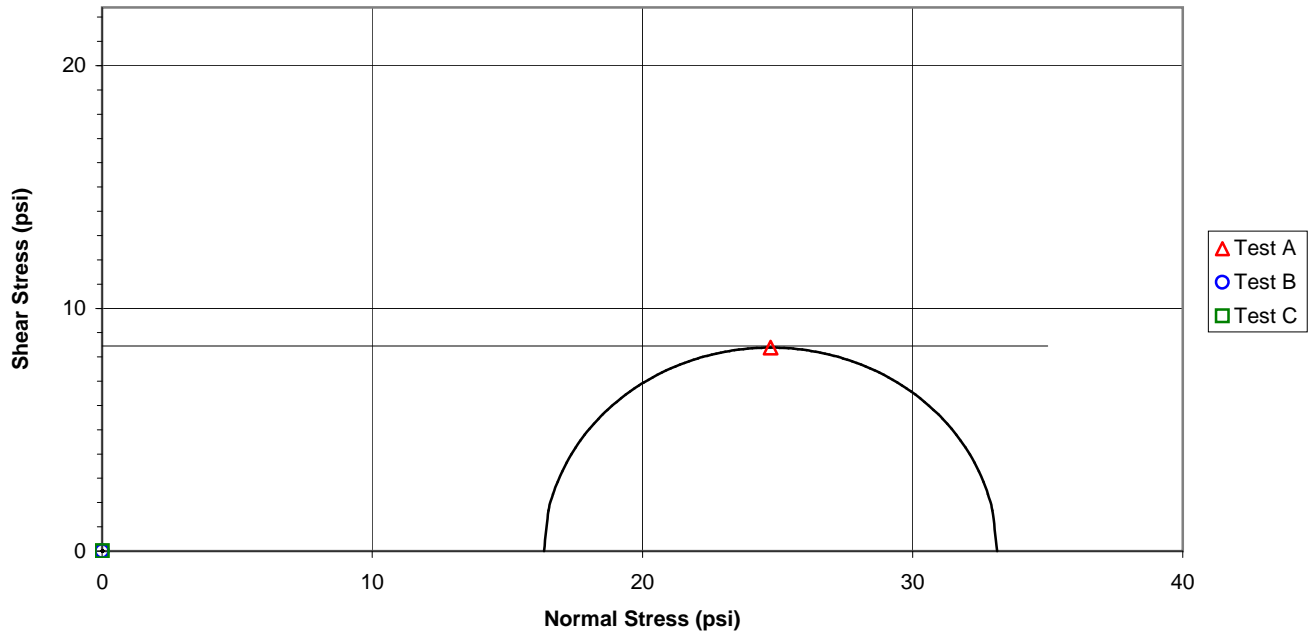
Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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Project John Siever Fossil Plant
 Sample ID JS-45-SV, 25.2' - 25.7'

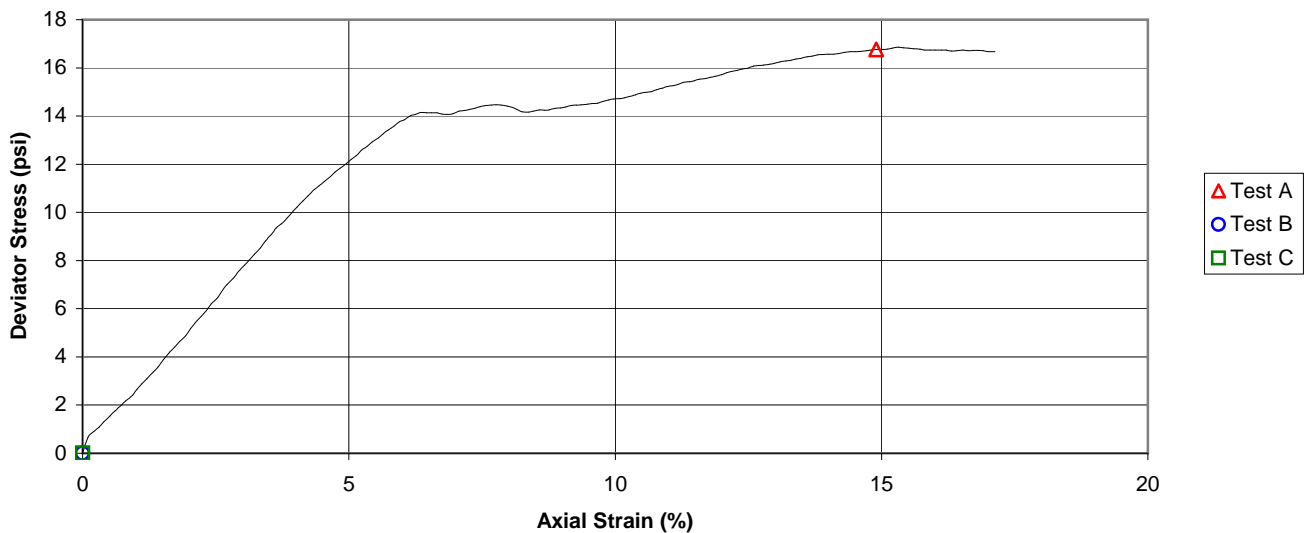
Project No. 175569038
 Test Number 1019B

Failure Criterion: $\phi = 0.0$ deg. $c = 8.5$ psi
 Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 25.2' - 25.7'</u>			Test Number	<u>UU-1019B</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-45-SV, 24.5' - 26.5'</u>		Date	<u>6-25-09</u>
Specific Gravity	<u>2.29</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.884</u>	1 <u>6.042</u>	Sample <u>39.0811</u> (V _o)	Wet Weight (g) <u>944.64</u>
Middle <u>2.867</u>	2 <u>5.943</u>	Solids <u>15.7971</u> (VS _o)	Dry Weight (g) <u>592.84</u>
Bottom <u>2.866</u>	3 <u>6.100</u>	Water <u>21.4666</u> (Vw _o)	Wet Unit Weight (pcf) <u>92.1</u>
Avg. <u>2.8723</u> (D _o)	4 <u>6.042</u>	Voids <u>23.2840</u> (Vv _o)	Dry Unit Weight (pcf) <u>57.8</u>
Area (in ²) <u>6.4798</u> (A _o)	Avg. (H _o) <u>6.0313</u>	Degree of Saturation (%) <u>92.2</u> (S _o)	
Moisture Content (%) <u>59.3</u>	Final Trimmings	Void Ratio <u>1.474</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-26-09</u>
			Panel Board Number	<u>D</u>

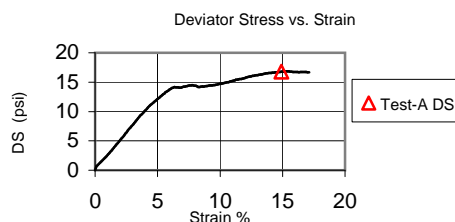
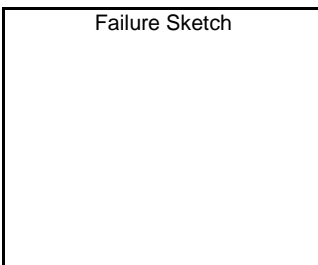
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0313</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4798</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>39.0811</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>16.3</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>16.3</u> (σ ₃)
Height (in.) <u>6.0313</u> (H _c)		Volume (in ³) <u>39.0811</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.4798</u> (A _c)		Volume - Water (in ³) <u>21.4666</u> (VW _c)	
Diameter (in.) <u>2.8723</u> (D _c)		Water Content (%) <u>59.3</u>	
Dry Density (pcf) <u>57.8</u>		Degree of Saturation (%) <u>92.2</u> (S _c)	Void Ratio <u>1.474</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.25</u> (in.)	Wet Weight (g) <u>944.64</u>	Corrected Deviator <u>16.77</u> σ _d (psi)
Wet weight (g) <u>944.64</u> (WW _f)	Dry Weight (g) <u>592.84</u>	Major Principal <u>33.13</u> σ ₁₁ (psi)
Average Diameter <u>3.179</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>16.36</u> σ ₃₁ (psi)
		Rate of Strain (% / min.) <u>0.260</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>14.90</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>	
Sample Identification	_____			Test Number	<u>UU-1019BB</u>	
Visual Description	_____			Prepared By	_____	
Undisturbed	Source	<u>0</u>	_____	Date	_____	
Specific Gravity	<u>2.29</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
					Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	_____
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	_____

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

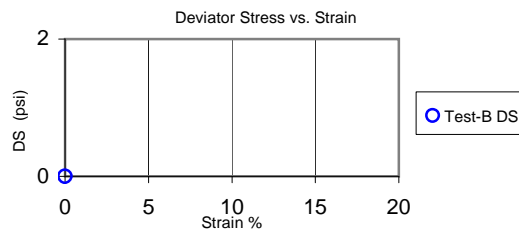
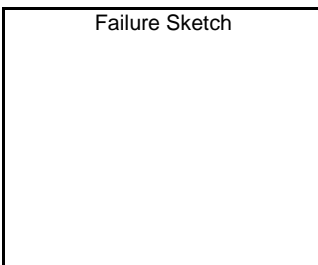
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1019BC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

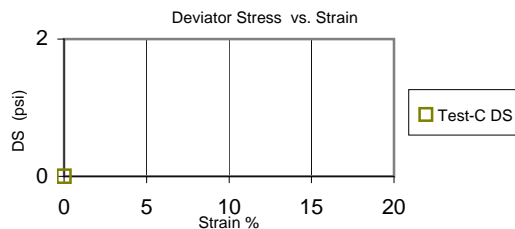
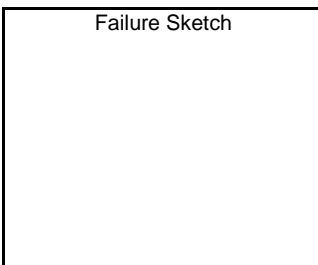
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	6.031 (in.)
Diameter	2.872 (in.)
Area	6.480 (in ²)

Final Values	
Height	4.9982 (in.)
Dia. avg.	3.179 (in.)
Area avg.	7.9373 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1019BA
Data File ID	UU-1019B
Back Pressure (psi)	0
Lateral Pressure (psi)	16.3

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.8	0.000	16.4	6.031	0.00	6.4798	0.0	0.000	0.000	16.366	16.366	16.37	0.00	1.000	0.0
0:00:12	6.1	0.006	16.4	6.025	0.10	6.4864	4.3	0.664	0.660	17.017	16.357	16.69	0.33	1.040	0.2
0:00:24	7.7	0.012	16.4	6.019	0.21	6.4935	5.9	0.905	0.898	17.252	16.354	16.80	0.45	1.055	0.4
0:00:35	8.9	0.018	16.4	6.013	0.31	6.4998	7.0	1.083	1.073	17.430	16.358	16.89	0.54	1.066	0.6
0:00:45	10.4	0.024	16.4	6.007	0.40	6.5060	8.6	1.328	1.314	17.676	16.362	17.02	0.66	1.080	0.8
0:00:57	12.0	0.031	16.4	6.000	0.52	6.5135	10.2	1.565	1.548	17.903	16.355	17.13	0.77	1.095	1.0
0:01:07	13.3	0.036	16.4	5.995	0.61	6.5195	11.5	1.768	1.748	18.106	16.358	17.23	0.87	1.107	1.1
0:01:19	14.9	0.043	16.4	5.988	0.72	6.5267	13.1	2.000	1.976	18.344	16.368	17.36	0.99	1.121	1.3
0:01:29	16.2	0.049	16.4	5.982	0.81	6.5328	14.4	2.208	2.181	18.540	16.359	17.45	1.09	1.133	1.5
0:01:41	17.7	0.056	16.4	5.975	0.93	6.5409	15.9	2.436	2.405	18.764	16.359	17.56	1.20	1.147	1.7
0:01:51	19.4	0.061	16.4	5.970	1.02	6.5467	17.6	2.691	2.657	19.023	16.366	17.69	1.33	1.162	1.9
0:02:00	21.0	0.067	16.4	5.964	1.11	6.5528	19.1	2.922	2.885	19.244	16.360	17.80	1.44	1.176	2.0
0:02:10	22.4	0.073	16.4	5.958	1.21	6.5590	20.5	3.133	3.092	19.453	16.360	17.91	1.55	1.189	2.2
0:02:22	24.2	0.079	16.4	5.952	1.32	6.5665	22.3	3.404	3.359	19.719	16.360	18.04	1.68	1.205	2.4
0:02:33	25.7	0.085	16.4	5.946	1.42	6.5730	23.9	3.630	3.583	19.946	16.363	18.15	1.79	1.219	2.6
0:02:43	27.7	0.091	16.4	5.940	1.52	6.5797	25.9	3.937	3.886	20.252	16.365	18.31	1.94	1.237	2.7
0:02:55	29.8	0.098	16.4	5.933	1.63	6.5874	28.0	4.247	4.192	20.553	16.361	18.46	2.10	1.256	2.9
0:03:05	31.2	0.104	16.4	5.927	1.72	6.5933	29.4	4.460	4.402	20.764	16.362	18.56	2.20	1.269	3.1
0:03:15	32.8	0.109	16.4	5.922	1.82	6.5998	31.0	4.693	4.632	20.999	16.367	18.68	2.32	1.283	3.3
0:03:27	34.5	0.116	16.4	5.915	1.93	6.6075	32.7	4.946	4.882	21.248	16.366	18.81	2.44	1.298	3.5
0:03:37	36.4	0.122	16.4	5.909	2.02	6.6137	34.6	5.234	5.167	21.527	16.360	18.94	2.58	1.316	3.6
0:03:46	38.2	0.127	16.4	5.904	2.12	6.6200	36.4	5.500	5.429	21.789	16.360	19.07	2.71	1.332	3.8
0:03:59	40.0	0.134	16.4	5.897	2.23	6.6276	38.2	5.766	5.691	22.061	16.370	19.22	2.85	1.348	4.0
0:04:08	41.6	0.140	16.4	5.891	2.32	6.6340	39.8	5.996	5.919	22.275	16.356	19.32	2.96	1.362	4.1
0:04:18	43.5	0.145	16.4	5.886	2.42	6.6402	41.7	6.283	6.202	22.566	16.364	19.47	3.10	1.379	4.3
0:04:30	45.3	0.153	16.4	5.878	2.54	6.6484	43.5	6.546	6.461	22.830	16.369	19.60	3.23	1.395	4.5
0:04:40	47.4	0.158	16.4	5.873	2.62	6.6544	45.6	6.852	6.765	23.129	16.365	19.75	3.38	1.413	4.7
0:04:50	49.1	0.164	16.4	5.867	2.72	6.6608	47.3	7.104	7.013	23.381	16.369	19.88	3.51	1.428	4.8
0:05:02	51.0	0.171	16.4	5.860	2.84	6.6688	49.2	7.378	7.283	23.646	16.363	20.00	3.64	1.445	5.0
0:05:12	52.8	0.176	16.4	5.855	2.92	6.6750	51.0	7.638	7.540	23.902	16.362	20.13	3.77	1.461	5.2
0:05:24	54.7	0.183	16.4	5.848	3.04	6.6828	52.9	7.912	7.810	24.164	16.354	20.26	3.91	1.478	5.4
0:05:34	56.1	0.189	16.3	5.842	3.13	6.6891	54.3	8.122	8.017	24.366	16.348	20.36	4.01	1.490	5.6
0:05:44	57.9	0.194	16.4	5.837	3.22	6.6957	56.1	8.373	8.265	24.637	16.372	20.50	4.13	1.505	5.7
0:05:56	59.7	0.201	16.4	5.830	3.34	6.7036	57.9	8.641	8.529	24.899	16.370	20.63	4.26	1.521	5.9
0:06:06	61.6	0.207	16.4	5.824	3.43	6.7100	59.8	8.917	8.802	25.171	16.368	20.77	4.40	1.538	6.1
0:06:18	63.6	0.213	16.4	5.818	3.54	6.7178	61.8	9.199	9.081	25.447	16.366	20.91	4.54	1.555	6.3
0:06:28	65.5	0.219	16.4	5.812	3.64	6.7243	63.7	9.471	9.349	25.712	16.363	21.04	4.67	1.571	6.5
0:06:38	66.7	0.225	16.4	5.806	3.73	6.7308	64.9	9.647	9.522	25.883	16.361	21.12	4.76	1.582	6.6
0:06:50	68.6	0.232	16.4	5.799	3.84	6.7388	66.8	9.909	9.781	26.148	16.367	21.26	4.89	1.598	6.8
0:07:00	70.2	0.237	16.4	5.794	3.93	6.7450	68.4	10.134	10.003	26.372	16.369	21.37	5.00	1.611	7.0
0:07:09	71.7	0.243	16.4	5.788	4.03	6.7516	69.9	10.350	10.215	26.575	16.359	21.47	5.11	1.624	7.2
0:07:22	73.6	0.250	16.4	5.781	4.14	6.7597	71.8	10.618	10.480	26.832	16.353	21.59	5.24	1.641	7.4
0:07:31	75.1	0.255	16.4	5.776	4.23	6.7662	73.3	10.834	10.692	27.052	16.360	21.71	5.35	1.654	7.5
0:07:44	77.0	0.262	16.4	5.769	4.35	6.7744	75.1	11.092	10.947	27.306	16.359	21.83	5.47	1.669	7.7
0:07:53	78.1	0.268	16.4	5.763	4.44	6.7810	76.3	11.253	11.105	27.467	16.362	21.91	5.55	1.679	7.9
0:08:03	79.4	0.273	16.4	5.758	4.54	6.7876	77.6	11.427	11.276	27.632	16.356	21.99	5.64	1.689	8.1
0:08:15	81.0	0.280	16.4	5.751	4.65	6.7960	79.2	11.650	11.495	27.849	16.355	22.10	5.75	1.703	8.3
0:08:25	82.3	0.286	16.3	5.745	4.74	6.8023	80.5	11.835	11.676	28.022	16.345	22.18	5.84	1.714	8.4
0:08:35	83.5	0.291	16.4	5.740	4.84	6.8091	81.7	11.997	11.836	28.188	16.353	22.27	5.92	1.724	8.6
0:08:47	84.9	0.298	16.3	5.733	4.95	6.8173	83.1	12.190	12.024	28.373	16.348	22.36	6.01	1.735	8.8
0:08:57	86.2	0.304	16.4	5.727	5.04	6.8239	84.3	12.360	12.192	28.542	16.350	22.45	6.10	1.746	9.0
0:09:07	87.4	0.309	16.3	5.722	5.13	6.8305	85.6	12.530	12.359	28.708	16.349	22.53	6.18	1.756	9.1
0:09:19	89.2	0.316	16.3	5.715	5.25	6.8387	87.4	12.776	12.601	28.946	16.346	22.65	6.30	1.771	9.3
0:09:29	90.2	0.322	16.4	5.709	5.34	6.8455	88.4	12.913	12.735	29.087	16.352	22.72	6.37	1.779	9.5
0:09:39	91.6	0.328	16.3	5.703	5.44	6.8522	89.8	13.107	12.926	29.271	16.345	22.81	6.46	1.791	9.7
0:09:51	92.9	0.335	16.3	5.696	5.55	6.8606	91.0	13.271	13.085	29.427	16.342	22.88	6.54	1.801	9.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.031 (in.)
Diameter	2.872 (in.)
Area	6.480 (in ²)

Final Values

Height	4.9982 (in.)
Dia. avg.	3.179 (in.)
Area avg.	7.9373 (in ²)

Tested By KDG

Date	6-26-09
Press No.	2
Panel No.	D

Project Number 175569038

Test Number	UU-1019BA
Data File ID	UU-1019B
Back Pressure (psi)	0
Lateral Pressure (psi)	16.3

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:01	94.3	0.340	16.3	5.691	5.65	6.8674	92.5	13.466	13.277	29.619	16.342	22.98	6.64	1.812	10.0
0:10:10	95.4	0.346	16.3	5.685	5.74	6.8741	93.5	13.608	13.416	29.751	16.335	23.04	6.71	1.821	10.2
0:10:23	96.7	0.353	16.3	5.678	5.85	6.8827	94.9	13.786	13.590	29.924	16.334	23.13	6.80	1.832	10.4
0:10:32	98.0	0.359	16.3	5.672	5.95	6.8896	96.1	13.956	13.757	30.083	16.326	23.20	6.88	1.843	10.5
0:10:42	98.6	0.364	16.3	5.667	6.04	6.8962	96.8	14.040	13.838	30.149	16.311	23.23	6.92	1.848	10.7
0:10:54	100.0	0.371	16.3	5.660	6.16	6.9050	98.2	14.220	14.014	30.319	16.305	23.31	7.01	1.860	10.9
0:11:04	100.5	0.377	16.3	5.654	6.25	6.9118	98.7	14.282	14.073	30.378	16.305	23.34	7.04	1.863	11.1
0:11:14	101.2	0.382	16.3	5.649	6.34	6.9186	99.4	14.364	14.152	30.476	16.324	23.40	7.08	1.867	11.2
0:11:26	101.2	0.389	16.4	5.642	6.46	6.9271	99.4	14.346	14.130	30.494	16.364	23.43	7.06	1.863	11.4
0:11:36	101.4	0.395	16.4	5.636	6.55	6.9339	99.6	14.360	14.141	30.517	16.376	23.45	7.07	1.864	11.6
0:11:48	101.4	0.401	16.4	5.630	6.66	6.9421	99.6	14.350	14.128	30.520	16.392	23.46	7.06	1.862	11.8
0:11:58	101.2	0.407	16.4	5.624	6.75	6.9486	99.4	14.301	14.075	30.475	16.400	23.44	7.04	1.858	12.0
0:12:10	101.3	0.413	16.4	5.618	6.86	6.9569	99.5	14.301	14.071	30.477	16.406	23.44	7.04	1.858	12.2
0:12:20	101.6	0.419	16.4	5.612	6.95	6.9636	99.7	14.324	14.091	30.499	16.408	23.45	7.05	1.859	12.3
0:12:32	102.5	0.426	16.4	5.605	7.06	6.9724	100.7	14.438	14.202	30.618	16.416	23.52	7.10	1.865	12.5
0:12:42	102.7	0.431	16.4	5.600	7.16	6.9793	100.9	14.461	14.222	30.642	16.419	23.53	7.11	1.866	12.7
0:12:52	103.2	0.437	16.4	5.594	7.25	6.9863	101.4	14.511	14.269	30.685	16.417	23.55	7.13	1.869	12.9
0:13:04	103.7	0.444	16.4	5.587	7.37	6.9951	101.9	14.566	14.320	30.739	16.419	23.58	7.16	1.872	13.1
0:13:14	104.3	0.450	16.4	5.581	7.46	7.0022	102.5	14.635	14.385	30.799	16.414	23.61	7.19	1.876	13.2
0:13:24	104.7	0.455	16.4	5.576	7.55	7.0092	102.8	14.673	14.420	30.837	16.417	23.63	7.21	1.878	13.4
0:13:36	105.0	0.462	16.4	5.569	7.67	7.0181	103.2	14.710	14.454	30.870	16.416	23.64	7.23	1.880	13.6
0:13:46	105.3	0.468	16.4	5.563	7.76	7.0252	103.5	14.730	14.470	30.883	16.413	23.65	7.24	1.882	13.8
0:13:55	105.3	0.474	16.4	5.557	7.86	7.0323	103.4	14.710	14.447	30.852	16.405	23.63	7.22	1.881	13.9
0:14:08	105.1	0.481	16.4	5.550	7.97	7.0412	103.3	14.676	14.409	30.819	16.410	23.61	7.20	1.878	14.1
0:14:17	105.0	0.486	16.4	5.545	8.07	7.0483	103.1	14.634	14.365	30.774	16.409	23.59	7.18	1.875	14.3
0:14:27	104.4	0.492	16.4	5.539	8.16	7.0555	102.6	14.537	14.265	30.674	16.409	23.54	7.13	1.869	14.5
0:14:37	103.9	0.498	16.4	5.533	8.25	7.0627	102.1	14.452	14.176	30.586	16.410	23.50	7.09	1.864	14.6
0:14:49	103.9	0.504	16.4	5.527	8.37	7.0716	102.1	14.440	14.160	30.569	16.409	23.49	7.08	1.863	14.8
0:14:59	104.3	0.510	16.4	5.521	8.46	7.0786	102.5	14.483	14.200	30.607	16.407	23.51	7.10	1.865	15.0
0:15:11	104.9	0.517	16.4	5.514	8.58	7.0876	103.1	14.540	14.254	30.656	16.402	23.53	7.13	1.869	15.2
0:15:21	104.9	0.523	16.4	5.508	8.67	7.0948	103.1	14.535	14.245	30.651	16.406	23.53	7.12	1.868	15.4
0:15:31	105.1	0.528	16.4	5.503	8.76	7.1019	103.3	14.550	14.257	30.657	16.400	23.53	7.13	1.869	15.5
0:15:43	105.7	0.535	16.4	5.496	8.88	7.1110	103.9	14.613	14.316	30.725	16.409	23.57	7.16	1.872	15.7
0:15:53	106.0	0.541	16.4	5.490	8.97	7.1183	104.2	14.633	14.333	30.740	16.406	23.57	7.17	1.874	15.9
0:16:02	106.4	0.546	16.4	5.485	9.06	7.1255	104.6	14.682	14.379	30.781	16.401	23.59	7.19	1.877	16.0
0:16:15	107.0	0.553	16.4	5.478	9.18	7.1346	105.2	14.747	14.441	30.843	16.403	23.62	7.22	1.880	16.3
0:16:24	107.3	0.559	16.4	5.472	9.27	7.1419	105.5	14.767	14.457	30.853	16.396	23.62	7.23	1.882	16.4
0:16:34	107.5	0.564	16.4	5.467	9.36	7.1491	105.7	14.781	14.468	30.877	16.409	23.64	7.23	1.882	16.6
0:16:46	107.8	0.571	16.4	5.460	9.48	7.1583	106.0	14.805	14.489	30.887	16.399	23.64	7.24	1.884	16.8
0:16:56	108.1	0.577	16.4	5.454	9.57	7.1656	106.3	14.840	14.520	30.923	16.403	23.66	7.26	1.885	16.9
0:17:06	108.4	0.583	16.4	5.448	9.67	7.1731	106.6	14.858	14.535	30.936	16.401	23.67	7.27	1.886	17.1
0:17:18	109.1	0.590	16.4	5.441	9.78	7.1823	107.3	14.940	14.613	31.014	16.402	23.71	7.31	1.891	17.3
0:17:28	109.6	0.595	16.4	5.436	9.87	7.1897	107.8	14.994	14.664	31.072	16.408	23.74	7.33	1.894	17.5
0:17:38	110.0	0.601	16.4	5.430	9.97	7.1972	108.2	15.035	14.702	31.093	16.391	23.74	7.35	1.897	17.6
0:17:50	110.3	0.608	16.4	5.423	10.08	7.2064	108.5	15.055	14.718	31.125	16.407	23.77	7.36	1.897	17.8
0:18:00	110.7	0.613	16.4	5.418	10.17	7.2137	108.9	15.095	14.755	31.164	16.409	23.79	7.38	1.899	18.0
0:18:09	111.3	0.619	16.4	5.412	10.27	7.2211	109.5	15.159	14.816	31.224	16.408	23.82	7.41	1.903	18.2
0:18:22	111.9	0.626	16.4	5.405	10.38	7.2304	110.1	15.223	14.876	31.274	16.398	23.84	7.44	1.907	18.4
0:18:31	112.5	0.631	16.4	5.400	10.47	7.2378	110.7	15.291	14.941	31.347	16.405	23.88	7.47	1.911	18.5
0:18:44	113.0	0.638	16.4	5.393	10.59	7.2471	111.2	15.338	14.984	31.383	16.400	23.89	7.49	1.914	18.7
0:18:53	113.3	0.644	16.4	5.387	10.68	7.2546	111.5	15.370	15.013	31.405	16.392	23.90	7.51	1.916	18.9
0:19:03	114.1	0.649	16.4	5.382	10.77	7.2621	112.2	15.456	15.096	31.491	16.395	23.94	7.55	1.921	19.1
0:19:15	114.7	0.656	16.4	5.375	10.89	7.2714	112.9	15.522	15.158	31.565	16.407	23.99	7.58	1.924	19.3
0:19:25	115.3	0.662	16.4	5.369	10.98	7.2788	113.5	15.590	15.223	31.629	16.406	24.02	7.61	1.928	19.4
0:19:37	115.8	0.669	16.4	5.362	11.09	7.2883	114.0	15.639	15.268	31.667	16.399	24.03	7.63	1.931	19.6
0:19:47	116.3	0.674	16.4	5.357	11.18	7.2958	114.5	15.693	15.319	31.735	16.415	24.07	7.66	1.933	19.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.031 (in.)
Diameter	2.872 (in.)
Area	6.480 (in ²)

Final Values	
Height	4.9982 (in.)
Dia. avg.	3.179 (in.)
Area avg.	7.9373 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1019BA
Data File ID	UU-1019B
Back Pressure (psi)	0
Lateral Pressure (psi)	16.3

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:19:57	117.0	0.680	16.4	5.351	11.28	7.3033	115.2	15.775	15.399	31.803	16.404	24.10	7.70	1.939	20.0
0:20:09	117.4	0.687	16.4	5.344	11.39	7.3127	115.6	15.804	15.423	31.826	16.403	24.11	7.71	1.940	20.2
0:20:19	117.8	0.692	16.4	5.339	11.48	7.3203	116.0	15.848	15.464	31.858	16.395	24.13	7.73	1.943	20.3
0:20:29	118.5	0.698	16.4	5.333	11.58	7.3285	116.6	15.916	15.529	31.924	16.395	24.16	7.76	1.947	20.5
0:20:42	118.8	0.705	16.4	5.326	11.70	7.3380	117.0	15.946	15.555	31.954	16.399	24.18	7.78	1.949	20.7
0:20:51	119.4	0.711	16.4	5.320	11.79	7.3456	117.6	16.006	15.612	32.010	16.398	24.20	7.81	1.952	20.9
0:21:01	119.8	0.716	16.4	5.315	11.88	7.3533	118.0	16.048	15.651	32.043	16.392	24.22	7.83	1.955	21.0
0:21:13	120.5	0.723	16.4	5.308	12.00	7.3630	118.7	16.115	15.714	32.104	16.390	24.25	7.86	1.959	21.2
0:21:23	121.2	0.729	16.4	5.302	12.09	7.3707	119.4	16.196	15.792	32.181	16.390	24.29	7.90	1.964	21.4
0:21:33	121.7	0.734	16.4	5.297	12.18	7.3785	119.9	16.253	15.846	32.244	16.398	24.32	7.92	1.966	21.6
0:21:45	122.3	0.741	16.4	5.290	12.30	7.3882	120.5	16.307	15.896	32.285	16.389	24.34	7.95	1.970	21.8
0:21:55	122.9	0.747	16.4	5.284	12.39	7.3961	121.0	16.366	15.952	32.333	16.381	24.36	7.98	1.974	21.9
0:22:05	123.2	0.753	16.4	5.278	12.48	7.4040	121.4	16.400	15.983	32.374	16.391	24.38	7.99	1.975	22.1
0:22:17	124.1	0.760	16.4	5.271	12.60	7.4138	122.2	16.489	16.068	32.457	16.389	24.42	8.03	1.980	22.3
0:22:27	124.4	0.765	16.4	5.266	12.69	7.4218	122.6	16.521	16.097	32.480	16.384	24.43	8.05	1.982	22.5
0:22:37	124.7	0.771	16.4	5.260	12.79	7.4297	122.9	16.536	16.108	32.495	16.387	24.44	8.05	1.983	22.6
0:22:49	125.2	0.778	16.4	5.253	12.90	7.4397	123.4	16.590	16.159	32.546	16.387	24.47	8.08	1.986	22.8
0:22:59	125.7	0.784	16.4	5.247	13.00	7.4477	123.8	16.629	16.194	32.576	16.381	24.48	8.10	1.989	23.0
0:23:08	126.2	0.789	16.4	5.242	13.09	7.4557	124.4	16.681	16.244	32.632	16.388	24.51	8.12	1.991	23.1
0:23:21	126.7	0.796	16.4	5.235	13.21	7.4657	124.9	16.728	16.287	32.671	16.384	24.53	8.14	1.994	23.4
0:23:30	127.1	0.802	16.4	5.229	13.30	7.4738	125.3	16.759	16.315	32.701	16.386	24.54	8.16	1.996	23.5
0:23:40	127.6	0.808	16.4	5.223	13.39	7.4818	125.8	16.813	16.366	32.747	16.381	24.56	8.18	1.999	23.7
0:23:50	127.9	0.813	16.4	5.218	13.49	7.4899	126.1	16.839	16.389	32.767	16.379	24.57	8.19	2.001	23.8
0:24:02	128.6	0.820	16.4	5.211	13.60	7.5000	126.8	16.911	16.457	32.835	16.378	24.61	8.23	2.005	24.0
0:24:12	129.1	0.826	16.4	5.205	13.70	7.5082	127.3	16.949	16.491	32.868	16.377	24.62	8.25	2.007	24.2
0:24:22	129.6	0.832	16.4	5.199	13.79	7.5164	127.8	17.000	16.539	32.910	16.371	24.64	8.27	2.010	24.4
0:24:34	129.9	0.839	16.4	5.192	13.91	7.5267	128.1	17.019	16.554	32.922	16.368	24.64	8.28	2.011	24.6
0:24:44	130.1	0.844	16.4	5.187	14.00	7.5350	128.3	17.031	16.563	32.932	16.369	24.65	8.28	2.012	24.7
0:24:53	130.3	0.850	16.4	5.181	14.10	7.5433	128.5	17.037	16.566	32.936	16.371	24.65	8.28	2.012	24.9
0:25:03	130.7	0.856	16.4	5.175	14.19	7.5515	128.9	17.069	16.595	32.968	16.373	24.67	8.30	2.014	25.1
0:25:15	131.3	0.863	16.4	5.168	14.31	7.5619	129.4	17.118	16.640	33.006	16.367	24.69	8.32	2.017	25.3
0:25:26	131.6	0.869	16.4	5.162	14.41	7.5705	129.8	17.149	16.667	33.031	16.364	24.70	8.33	2.019	25.4
0:25:36	131.8	0.874	16.4	5.157	14.50	7.5788	130.0	17.152	16.668	33.035	16.367	24.70	8.33	2.018	25.6
0:25:45	132.1	0.880	16.4	5.151	14.59	7.5871	130.3	17.171	16.683	33.051	16.368	24.71	8.34	2.019	25.8
0:25:58	132.5	0.887	16.4	5.144	14.71	7.5975	130.7	17.207	16.715	33.071	16.356	24.71	8.36	2.022	26.0
0:26:07	132.9	0.893	16.4	5.138	14.80	7.6058	131.0	17.229	16.734	33.089	16.354	24.72	8.37	2.023	26.1
0:26:17	133.3	0.898	16.4	5.133	14.90	7.6142	131.5	17.264	16.766	33.125	16.359	24.74	8.38	2.025	26.3
0:26:29	133.4	0.905	16.3	5.126	15.02	7.6247	131.6	17.260	16.758	33.107	16.349	24.73	8.38	2.025	26.5
0:26:39	133.7	0.911	16.3	5.120	15.11	7.6330	131.9	17.283	16.778	33.122	16.344	24.73	8.39	2.027	26.7
0:26:49	134.3	0.917	16.3	5.114	15.20	7.6415	132.4	17.332	16.824	33.167	16.343	24.75	8.41	2.029	26.8
0:27:01	134.8	0.924	16.3	5.107	15.32	7.6520	133.0	17.375	16.863	33.191	16.328	24.76	8.43	2.033	27.0
0:27:11	134.7	0.929	16.3	5.102	15.41	7.6606	132.9	17.348	16.833	33.150	16.316	24.73	8.42	2.032	27.2
0:27:21	134.8	0.935	16.3	5.096	15.51	7.6690	133.0	17.338	16.820	33.136	16.316	24.73	8.41	2.031	27.4
0:27:30	134.7	0.941	16.3	5.090	15.60	7.6776	132.9	17.315	16.793	33.106	16.313	24.71	8.40	2.029	27.5
0:27:43	134.8	0.948	16.3	5.083	15.72	7.6884	133.0	17.299	16.773	33.079	16.305	24.69	8.39	2.029	27.7
0:27:52	134.7	0.954	16.3	5.077	15.81	7.6970	132.9	17.270	16.741	33.067	16.326	24.70	8.37	2.025	27.9
0:28:02	134.9	0.959	16.4	5.072	15.91	7.7057	133.1	17.274	16.742	33.109	16.367	24.74	8.37	2.023	28.0
0:28:12	135.1	0.965	16.4	5.066	16.00	7.7144	133.2	17.273	16.738	33.118	16.380	24.75	8.37	2.022	28.2
0:28:24	135.3	0.972	16.4	5.059	16.12	7.7253	133.5	17.280	16.741	33.130	16.388	24.76	8.37	2.022	28.4
0:28:34	135.4	0.978	16.4	5.053	16.22	7.7341	133.6	17.274	16.732	33.138	16.406	24.77	8.37	2.020	28.6
0:28:44	135.4	0.984	16.4	5.047	16.31	7.7428	133.5	17.248	16.703	33.113	16.411	24.76	8.35	2.018	28.7
0:28:53	135.6	0.989	16.4	5.042	16.41	7.7517	133.8	17.260	16.712	33.129	16.417	24.77	8.36	2.018	28.9
0:29:06	136.0	0.997	16.4	5.034	16.53	7.7628	134.2	17.287	16.735	33.134	16.400	24.77	8.37	2.020	29.1
0:29:15	136.1	1.002	16.4	5.029	16.62	7.7716	134.2	17.273	16.718	33.127	16.409	24.77	8.36	2.019	29.3
0:29:25	136.3	1.008	16.4	5.023	16.72	7.7805	134.4	17.279	16.720	33.141	16.421	24.78	8.36	2.018	29.4
0:29:35	136.4	1.014	16.4	5.017	16.81	7.7894	134.6	17.282	16.720	33.146	16.425	24.79	8.36	2.018	29.6

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/Dc

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height 6.031 (in.)
 Diameter 2.872 (in.)
 Area 6.480 (in²)

Final Values
 Height 4.9982 (in.)
 Dia. avg. 3.179 (in.)
 Area avg. 7.9373 (in²)

Tested By KDG
 Date 6-26-09
 Press No. 2
 Panel No. D

Project Number 175569038
 Test Number UU-1019BA
 Data File ID UU-1019B
 Back Pressure (psi) 0
 Lateral Pressure (psi) 16.3

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:29:45	136.6	1.020	16.4	5.011	16.91	7.7988	134.8	17.278	16.713	33.131	16.418	24.77	8.36	2.018	29.8
0:29:55	136.4	1.026	16.4	5.005	17.01	7.8078	134.6	17.235	16.666	33.084	16.418	24.75	8.33	2.015	29.9
0:30:07	136.7	1.033	16.4	4.998	17.13	7.8191	134.9	17.248	16.676	33.104	16.428	24.77	8.34	2.015	30.1

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019BB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 = (4(EM)(Thickness)(Strain))/D_c
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019BC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

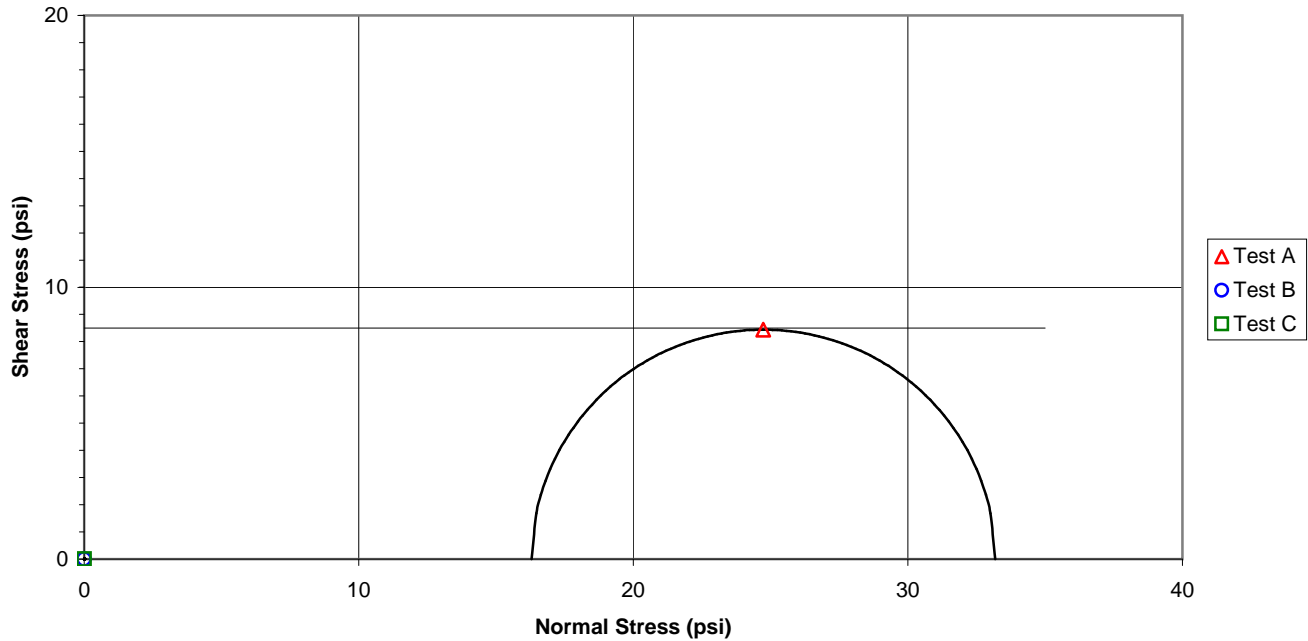
Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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Project John Siever Fossil Plant
 Sample ID JS-45-SV, 25.8' - 26.3'

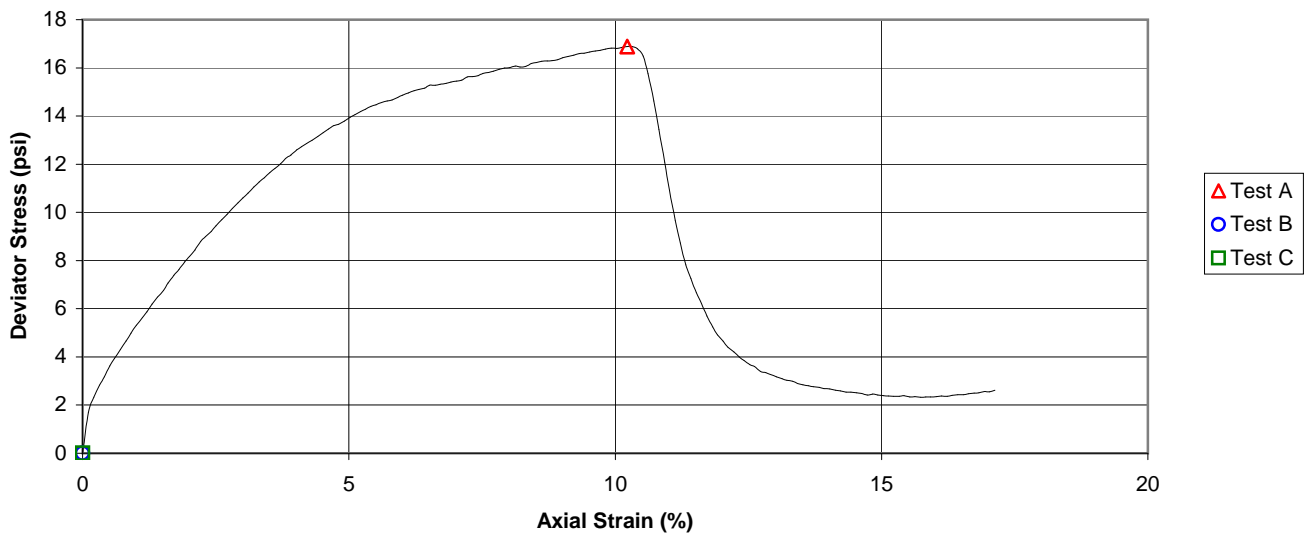
Project No. 175569038
 Test Number 1019C

Failure Criterion: $\phi = 0.0 \text{ deg.}$ $c = 8.5 \text{ psi}$
 Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 25.8' - 26.3'</u>			Test Number	<u>UU-1019C</u>
Visual Description	<u>Poorly Graded Sand (SP), gray, moist, firm, bottom ash</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-45-SV, 24.5' - 26.5'</u>		Date	<u>6-25-09</u>
Specific Gravity	<u>2.29</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.863</u>	1 <u>6.097</u>	Sample <u>38.7877</u> (V _o)	Wet Weight (g) <u>908.16</u>
Middle <u>2.838</u>	2 <u>6.019</u>	Solids <u>14.1900</u> (VS _o)	Dry Weight (g) <u>532.53</u>
Bottom <u>2.855</u>	3 <u>6.075</u>	Water <u>22.9209</u> (Vw _o)	Wet Unit Weight (pcf) <u>89.2</u>
Avg. <u>2.8520</u> (D _o)	4 <u>6.097</u>	Voids <u>24.5977</u> (Vv _o)	Dry Unit Weight (pcf) <u>52.3</u>
Area (in ²) <u>6.3884</u> (A _o)	Avg. (H _o) <u>6.0716</u>	Degree of Saturation (%) <u>93.2</u> (S _o)	
Moisture Content (%) <u>70.5</u>	Final Trimmings	Void Ratio <u>1.733</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-25-09</u>
			Panel Board Number	<u>D</u>

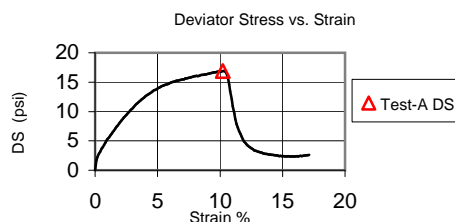
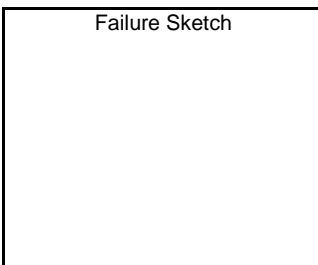
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0716</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.3884</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>38.7877</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>16.2</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>16.2</u> (σ ₃)
Height (in.) <u>6.0716</u> (H _c)		Volume (in ³) <u>38.7877</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.3884</u> (A _c)		Volume - Water (in ³) <u>22.9209</u> (VW _c)	
Diameter (in.) <u>2.8520</u> (D _c)		Water Content (%) <u>70.5</u>	
Dry Density (pcf) <u>52.3</u>		Degree of Saturation (%) <u>93.2</u> (S _c)	Void Ratio <u>1.733</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.181</u> (in.)	Wet Weight (g) <u>908.16</u>	Corrected Deviator <u>16.88</u> σ _d (psi)
Wet weight (g) <u>908.16</u> (WW _f)	Dry Weight (g) <u>532.53</u>	Major Principal <u>33.18</u> σ _{1f} (psi)
Average Diameter <u>3.137</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>16.30</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.168</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>10.22</u>
		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1019CB</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in3)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

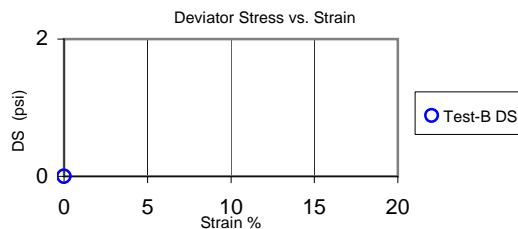
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1019CC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By _____

Back Pressure Saturated to: _____ (psi) Final Pore Pressure Parameter B _____ Date _____

Panel Board Number _____

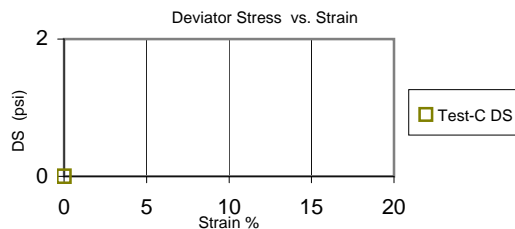
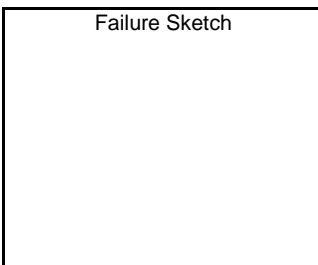
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.072 (in.)
Diameter	2.852 (in.)
Area	6.388 (in ²)

Final Values

Height	5.0315 (in.)
Dia. avg.	3.137 (in.)
Area avg.	7.7273 (in ²)

Tested By KDGDate 6-25-09Press No. 2Panel No. DProject Number 175569038Test Number UU-1019CAData File ID UU-1019CBack Pressure (psi) 0Lateral Pressure (psi) 16.2

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected		Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
				Corrected Height (in.)	Corrected Area (in ²)											
0:00:00	-0.1	0.000	16.2	6.072	0.00	6.3884	0.0	0.000	0.000	16.213	16.213	16.21	0.00	1.000	0.0	
0:00:20	10.7	0.006	16.2	6.065	0.11	6.3951	10.8	1.688	1.684	17.898	16.213	17.06	0.84	1.104	0.3	
0:00:37	14.8	0.013	16.2	6.059	0.21	6.4019	15.0	2.337	2.330	18.497	16.167	17.33	1.16	1.144	0.6	
0:00:54	18.0	0.019	16.1	6.052	0.32	6.4088	18.2	2.834	2.823	18.972	16.149	17.56	1.41	1.175	0.9	
0:01:08	20.3	0.025	16.2	6.047	0.41	6.4144	20.4	3.186	3.172	19.346	16.174	17.76	1.59	1.196	1.1	
0:01:26	23.3	0.031	16.2	6.040	0.51	6.4213	23.4	3.642	3.625	19.785	16.160	17.97	1.81	1.224	1.4	
0:01:40	25.3	0.037	16.2	6.035	0.60	6.4271	25.5	3.960	3.940	20.125	16.185	18.15	1.97	1.243	1.7	
0:01:57	27.7	0.043	16.2	6.029	0.71	6.4340	27.9	4.329	4.305	20.522	16.217	18.37	2.15	1.265	2.0	
0:02:14	30.1	0.049	16.2	6.022	0.82	6.4409	30.2	4.690	4.662	20.906	16.244	18.58	2.33	1.287	2.2	
0:02:29	32.2	0.055	16.2	6.017	0.91	6.4467	32.3	5.017	4.987	21.234	16.247	18.74	2.49	1.307	2.5	
0:02:46	34.4	0.061	16.3	6.010	1.01	6.4536	34.6	5.354	5.320	21.573	16.253	18.91	2.66	1.327	2.8	
0:03:03	36.5	0.068	16.3	6.004	1.12	6.4608	36.6	5.664	5.626	21.883	16.257	19.07	2.81	1.346	3.1	
0:03:18	38.1	0.073	16.3	5.998	1.21	6.4665	38.2	5.908	5.867	22.128	16.261	19.19	2.93	1.361	3.3	
0:03:33	40.2	0.079	16.3	5.993	1.30	6.4726	40.3	6.228	6.184	22.453	16.269	19.36	3.09	1.380	3.6	
0:03:50	42.2	0.085	16.3	5.986	1.41	6.4796	42.3	6.530	6.483	22.748	16.265	19.51	3.24	1.399	3.8	
0:04:07	44.1	0.092	16.3	5.979	1.52	6.4868	44.2	6.817	6.766	23.035	16.269	19.65	3.38	1.416	4.1	
0:04:22	46.1	0.097	16.3	5.974	1.61	6.4926	46.2	7.120	7.066	23.322	16.257	19.79	3.53	1.435	4.4	
0:04:39	48.2	0.104	16.3	5.968	1.71	6.4995	48.4	7.443	7.386	23.648	16.262	19.95	3.69	1.454	4.7	
0:04:53	49.9	0.110	16.3	5.962	1.81	6.5059	50.0	7.686	7.625	23.892	16.267	20.08	3.81	1.469	4.9	
0:05:10	52.0	0.116	16.3	5.955	1.91	6.5130	52.2	8.007	7.943	24.197	16.254	20.23	3.97	1.489	5.2	
0:05:25	53.5	0.122	16.3	5.950	2.01	6.5191	53.7	8.233	8.166	24.433	16.267	20.35	4.08	1.502	5.4	
0:05:42	55.4	0.128	16.3	5.944	2.11	6.5261	55.5	8.511	8.440	24.699	16.259	20.48	4.22	1.519	5.7	
0:05:59	57.8	0.135	16.3	5.937	2.22	6.5332	57.9	8.864	8.789	25.061	16.271	20.67	4.39	1.540	6.0	
0:06:14	59.2	0.140	16.3	5.932	2.31	6.5393	59.4	9.076	8.998	25.259	16.261	20.76	4.50	1.553	6.2	
0:06:31	60.7	0.146	16.3	5.925	2.41	6.5464	60.8	9.285	9.204	25.470	16.266	20.87	4.60	1.566	6.5	
0:06:46	62.3	0.152	16.3	5.919	2.51	6.5526	62.4	9.529	9.444	25.711	16.266	20.99	4.72	1.581	6.8	
0:07:03	64.1	0.159	16.3	5.913	2.62	6.5599	64.2	9.785	9.697	25.965	16.268	21.12	4.85	1.596	7.1	
0:07:17	65.5	0.164	16.3	5.907	2.71	6.5662	65.6	9.996	9.905	26.165	16.260	21.21	4.95	1.609	7.3	
0:07:35	67.3	0.171	16.3	5.901	2.81	6.5733	67.4	10.258	10.164	26.431	16.267	21.35	5.08	1.625	7.6	
0:07:52	69.0	0.177	16.3	5.894	2.92	6.5806	69.1	10.505	10.407	26.673	16.266	21.47	5.20	1.640	7.9	
0:08:06	70.3	0.183	16.3	5.889	3.01	6.5866	70.4	10.696	10.594	26.867	16.273	21.57	5.30	1.651	8.1	
0:08:21	71.7	0.188	16.3	5.883	3.10	6.5931	71.9	10.902	10.797	27.067	16.270	21.67	5.40	1.664	8.4	
0:08:38	73.5	0.195	16.3	5.877	3.21	6.6004	73.7	11.159	11.050	27.318	16.268	21.79	5.53	1.679	8.6	
0:08:55	75.0	0.201	16.3	5.870	3.32	6.6074	75.2	11.377	11.266	27.541	16.275	21.91	5.63	1.692	8.9	
0:09:10	76.2	0.207	16.3	5.865	3.41	6.6139	76.4	11.547	11.433	27.706	16.273	21.99	5.72	1.703	9.2	
0:09:27	77.8	0.213	16.3	5.858	3.52	6.6212	77.9	11.768	11.650	27.925	16.275	22.10	5.82	1.716	9.5	
0:09:42	79.0	0.219	16.3	5.853	3.61	6.6275	79.1	11.940	11.818	28.088	16.270	22.18	5.91	1.726	9.7	
0:09:59	80.5	0.226	16.3	5.846	3.72	6.6349	80.6	12.150	12.025	28.298	16.273	22.29	6.01	1.739	10.0	
0:10:13	81.9	0.231	16.3	5.840	3.81	6.6412	82.1	12.356	12.228	28.500	16.271	22.39	6.11	1.752	10.2	
0:10:30	83.0	0.237	16.3	5.834	3.91	6.6485	83.2	12.509	12.378	28.650	16.272	22.46	6.19	1.761	10.5	
0:10:48	84.6	0.244	16.3	5.828	4.02	6.6559	84.7	12.728	12.593	28.868	16.275	22.57	6.30	1.774	10.8	
0:11:02	85.6	0.250	16.3	5.822	4.11	6.6623	85.7	12.868	12.730	29.005	16.275	22.64	6.37	1.782	11.0	
0:11:17	86.6	0.255	16.3	5.816	4.21	6.6688	86.7	13.002	12.860	29.132	16.272	22.70	6.43	1.790	11.3	
0:11:34	87.5	0.262	16.3	5.810	4.31	6.6761	87.7	13.131	12.986	29.259	16.273	22.77	6.49	1.798	11.6	
0:11:51	88.8	0.268	16.3	5.804	4.41	6.6833	88.9	13.303	13.155	29.421	16.267	22.84	6.58	1.809	11.9	
0:12:08	90.0	0.274	16.3	5.797	4.52	6.6908	90.1	13.466	13.314	29.592	16.279	22.94	6.66	1.818	12.1	
0:12:23	91.0	0.280	16.3	5.792	4.61	6.6972	91.1	13.607	13.452	29.721	16.269	22.99	6.73	1.827	12.4	
0:12:40	92.1	0.286	16.3	5.785	4.72	6.7046	92.2	13.758	13.600	29.875	16.276	23.08	6.80	1.836	12.7	
0:12:55	92.6	0.292	16.3	5.780	4.81	6.7110	92.7	13.817	13.656	29.924	16.269	23.10	6.83	1.839	12.9	
0:13:12	93.6	0.298	16.3	5.773	4.92	6.7186	93.7	13.954	13.788	30.059	16.271	23.16	6.89	1.847	13.2	
0:13:29	94.8	0.305	16.3	5.767	5.02	6.7262	94.9	14.114	13.945	30.211	16.266	23.24	6.97	1.857	13.5	
0:13:43	95.6	0.310	16.3	5.761	5.11	6.7325	95.7	14.222	14.050	30.323	16.273	23.30	7.03	1.863	13.7	
0:14:01	96.7	0.317	16.3	5.755	5.22	6.7401	96.8	14.366	14.190	30.456	16.266	23.36	7.09	1.872	14.0	
0:14:15	97.4	0.322	16.3	5.749	5.31	6.7466	97.5	14.459	14.280	30.548	16.267	23.41	7.14	1.878	14.3	
0:14:32	98.3	0.329	16.3	5.743	5.41	6.7541	98.5	14.577	14.395	30.667	16.272	23.47	7.20	1.885	14.5	
0:14:47	98.9	0.334	16.3	5.737	5.51	6.7607	99.0	14.646	14.461	30.727	16.267	23.50	7.23	1.889	14.8	

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.072 (in.)
Diameter	2.852 (in.)
Area	6.388 (in ²)

Final Values	
Height	5.0315 (in.)
Dia. avg.	3.137 (in.)
Area avg.	7.7273 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1019CA
Data File ID	UU-1019C
Back Pressure (psi)	0
Lateral Pressure (psi)	16.2

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:04	99.7	0.341	16.3	5.731	5.61	6.7681	99.9	14.755	14.566	30.825	16.260	23.54	7.28	1.896	15.1
0:15:21	100.3	0.347	16.3	5.724	5.72	6.7759	100.4	14.822	14.630	30.895	16.265	23.58	7.31	1.899	15.4
0:15:36	100.7	0.353	16.3	5.719	5.81	6.7825	100.8	14.860	14.665	30.926	16.262	23.59	7.33	1.902	15.6
0:15:53	101.5	0.359	16.3	5.712	5.92	6.7902	101.6	14.970	14.771	31.031	16.260	23.65	7.39	1.908	15.9
0:16:07	102.3	0.365	16.3	5.707	6.01	6.7969	102.4	15.065	14.863	31.122	16.259	23.69	7.43	1.914	16.1
0:16:25	103.1	0.371	16.2	5.700	6.12	6.8046	103.2	15.167	14.961	31.210	16.249	23.73	7.48	1.921	16.4
0:16:42	103.8	0.378	16.3	5.694	6.22	6.8123	103.9	15.259	15.049	31.305	16.255	23.78	7.52	1.926	16.7
0:16:56	104.3	0.383	16.3	5.688	6.32	6.8190	104.5	15.322	15.109	31.366	16.257	23.81	7.55	1.929	16.9
0:17:13	104.8	0.390	16.3	5.682	6.42	6.8268	104.9	15.368	15.151	31.404	16.253	23.83	7.58	1.932	17.2
0:17:28	105.7	0.395	16.2	5.676	6.51	6.8335	105.9	15.493	15.273	31.521	16.247	23.88	7.64	1.940	17.5
0:17:45	105.9	0.402	16.2	5.670	6.62	6.8413	106.1	15.506	15.283	31.525	16.242	23.88	7.64	1.941	17.8
0:18:00	106.3	0.408	16.2	5.664	6.71	6.8481	106.4	15.543	15.317	31.558	16.241	23.90	7.66	1.943	18.0
0:18:17	106.7	0.414	16.2	5.657	6.82	6.8561	106.9	15.585	15.356	31.553	16.197	23.88	7.68	1.948	18.3
0:18:32	107.3	0.420	16.2	5.652	6.91	6.8629	107.4	15.647	15.414	31.636	16.222	23.93	7.71	1.950	18.5
0:18:49	107.7	0.426	16.3	5.645	7.02	6.8710	107.8	15.691	15.455	31.718	16.264	23.99	7.73	1.950	18.8
0:19:03	108.0	0.432	16.3	5.639	7.12	6.8779	108.1	15.723	15.484	31.772	16.288	24.03	7.74	1.951	19.1
0:19:20	109.1	0.439	16.3	5.633	7.22	6.8858	109.2	15.860	15.617	31.918	16.301	24.11	7.81	1.958	19.3
0:19:35	109.4	0.444	16.3	5.627	7.32	6.8926	109.5	15.884	15.638	31.939	16.301	24.12	7.82	1.959	19.6
0:19:52	109.8	0.451	16.3	5.621	7.42	6.9006	109.9	15.931	15.681	31.995	16.313	24.15	7.84	1.961	19.9
0:20:07	110.5	0.456	16.3	5.615	7.51	6.9074	110.7	16.021	15.768	32.087	16.318	24.20	7.88	1.966	20.1
0:20:24	110.9	0.463	16.3	5.609	7.62	6.9155	111.0	16.058	15.802	32.124	16.322	24.22	7.90	1.968	20.4
0:20:39	111.5	0.468	16.3	5.603	7.71	6.9223	111.6	16.120	15.861	32.184	16.323	24.25	7.93	1.972	20.7
0:20:56	112.1	0.475	16.3	5.597	7.82	6.9303	112.3	16.198	15.934	32.260	16.325	24.29	7.97	1.976	20.9
0:21:13	112.7	0.481	16.3	5.590	7.93	6.9383	112.8	16.262	15.995	32.316	16.322	24.32	8.00	1.980	21.2
0:21:27	112.9	0.487	16.3	5.585	8.02	6.9451	113.0	16.273	16.003	32.315	16.312	24.31	8.00	1.981	21.5
0:21:44	113.5	0.493	16.3	5.578	8.12	6.9532	113.6	16.343	16.070	32.374	16.305	24.34	8.03	1.986	21.7
0:21:59	113.4	0.499	16.3	5.573	8.22	6.9601	113.5	16.313	16.036	32.341	16.304	24.32	8.02	1.984	22.0
0:22:16	113.8	0.505	16.3	5.566	8.32	6.9681	113.9	16.346	16.066	32.375	16.309	24.34	8.03	1.985	22.3
0:22:33	114.7	0.511	16.3	5.560	8.43	6.9761	114.8	16.458	16.174	32.483	16.309	24.40	8.09	1.992	22.6
0:22:48	115.2	0.517	16.3	5.555	8.52	6.9831	115.3	16.511	16.224	32.530	16.306	24.42	8.11	1.995	22.8
0:23:05	115.6	0.523	16.3	5.548	8.62	6.9911	115.7	16.557	16.266	32.569	16.303	24.44	8.13	1.998	23.1
0:23:22	115.9	0.530	16.3	5.542	8.73	6.9991	116.1	16.583	16.289	32.595	16.306	24.45	8.14	1.999	23.4
0:23:37	116.1	0.535	16.3	5.536	8.82	7.0060	116.3	16.597	16.300	32.602	16.302	24.45	8.15	2.000	23.6
0:23:54	116.6	0.542	16.3	5.530	8.92	7.0141	116.7	16.641	16.341	32.648	16.307	24.48	8.17	2.002	23.9
0:24:09	117.3	0.547	16.3	5.524	9.01	7.0211	117.4	16.725	16.421	32.721	16.300	24.51	8.21	2.007	24.2
0:24:26	117.8	0.553	16.3	5.518	9.12	7.0292	117.9	16.776	16.470	32.771	16.302	24.54	8.23	2.010	24.4
0:24:43	118.3	0.560	16.3	5.512	9.22	7.0373	118.4	16.830	16.519	32.821	16.302	24.56	8.26	2.013	24.7
0:25:00	118.9	0.566	16.3	5.505	9.33	7.0455	119.1	16.902	16.588	32.895	16.307	24.60	8.29	2.017	25.0
0:25:14	119.2	0.572	16.3	5.500	9.42	7.0524	119.4	16.926	16.610	32.911	16.301	24.61	8.30	2.019	25.2
0:25:32	119.8	0.578	16.3	5.494	9.52	7.0605	119.9	16.985	16.664	32.959	16.295	24.63	8.33	2.023	25.5
0:25:49	120.2	0.584	16.3	5.487	9.62	7.0686	120.3	17.017	16.693	32.998	16.305	24.65	8.35	2.024	25.8
0:26:03	120.5	0.590	16.3	5.482	9.71	7.0757	120.7	17.054	16.727	33.025	16.298	24.66	8.36	2.026	26.1
0:26:20	121.0	0.596	16.3	5.475	9.82	7.0839	121.2	17.102	16.772	33.072	16.300	24.69	8.39	2.029	26.3
0:26:37	121.5	0.602	16.3	5.469	9.92	7.0921	121.6	17.151	16.817	33.118	16.301	24.71	8.41	2.032	26.6
0:26:55	121.6	0.609	16.3	5.463	10.03	7.1004	121.8	17.147	16.809	33.111	16.302	24.71	8.40	2.031	26.9
0:27:09	122.0	0.614	16.3	5.457	10.12	7.1075	122.2	17.187	16.847	33.145	16.298	24.72	8.42	2.034	27.2
0:27:26	122.4	0.621	16.3	5.451	10.22	7.1159	122.6	17.226	16.882	33.178	16.296	24.74	8.44	2.036	27.4
0:27:41	122.6	0.626	16.3	5.445	10.31	7.1231	122.7	17.226	16.879	33.181	16.302	24.74	8.44	2.035	27.7
0:27:58	122.1	0.633	16.3	5.439	10.42	7.1315	122.2	17.141	16.790	33.091	16.301	24.70	8.40	2.030	28.0
0:28:15	120.1	0.639	16.3	5.432	10.53	7.1399	120.2	16.834	16.480	32.781	16.301	24.54	8.24	2.011	28.3
0:28:30	115.1	0.645	16.3	5.427	10.62	7.1472	115.2	16.117	15.760	32.056	16.296	24.18	7.88	1.967	28.5
0:28:47	107.1	0.651	16.3	5.420	10.73	7.1558	107.3	14.991	14.630	30.919	16.290	23.60	7.31	1.898	28.8
0:29:01	98.8	0.657	16.3	5.415	10.82	7.1633	98.9	13.808	13.444	29.731	16.287	23.01	6.72	1.825	29.0
0:29:18	89.2	0.663	16.3	5.408	10.93	7.1721	89.3	12.455	12.088	28.372	16.284	22.33	6.04	1.742	29.3
0:29:33	80.9	0.669	16.3	5.403	11.02	7.1796	81.1	11.293	10.922	27.203	16.281	21.74	5.46	1.671	29.6
0:29:50	72.1	0.676	16.3	5.396	11.13	7.1883	72.2	10.048	9.674	25.958	16.284	21.12	4.84	1.594	29.8

* Corrected Deviator Stress
for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c
Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.072 (in.)
Diameter	2.852 (in.)
Area	6.388 (in ²)

Final Values	
Height	5.0315 (in.)
Dia. avg.	3.137 (in.)
Area avg.	7.7273 (in ²)

Tested By	KDG
Date	6-25-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1019CA
Data File ID	UU-1019C
Back Pressure (psi)	0
Lateral Pressure (psi)	16.2

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:05	65.4	0.681	16.3	5.390	11.22	7.1958	65.5	9.100	8.723	24.998	16.276	20.64	4.36	1.536	30.1
0:30:22	59.0	0.688	16.3	5.384	11.33	7.2044	59.2	8.212	7.830	24.103	16.273	20.19	3.92	1.481	30.4
0:30:36	54.9	0.693	16.3	5.378	11.42	7.2119	55.1	7.635	7.251	23.522	16.271	19.90	3.63	1.446	30.6
0:30:54	50.8	0.700	16.3	5.372	11.53	7.2206	50.9	7.051	6.663	22.934	16.270	19.60	3.33	1.410	30.9
0:31:08	47.6	0.705	16.3	5.366	11.62	7.2280	47.7	6.605	6.214	22.482	16.268	19.37	3.11	1.382	31.1
0:31:25	43.9	0.712	16.3	5.360	11.72	7.2366	44.1	6.089	5.695	21.964	16.269	19.12	2.85	1.350	31.4
0:31:42	40.7	0.718	16.3	5.353	11.83	7.2453	40.9	5.641	5.243	21.502	16.259	18.88	2.62	1.322	31.7
0:31:57	38.4	0.724	16.3	5.348	11.92	7.2528	38.5	5.314	4.913	21.171	16.258	18.71	2.46	1.302	32.0
0:32:14	36.5	0.730	16.3	5.341	12.03	7.2617	36.7	5.051	4.646	20.906	16.260	18.58	2.32	1.286	32.2
0:32:29	34.8	0.736	16.3	5.336	12.12	7.2692	34.9	4.799	4.392	20.651	16.259	18.46	2.20	1.270	32.5
0:32:46	33.5	0.742	16.3	5.329	12.22	7.2780	33.6	4.621	4.209	20.462	16.253	18.36	2.10	1.259	32.8
0:33:03	32.0	0.749	16.3	5.323	12.33	7.2869	32.2	4.414	3.999	20.250	16.250	18.25	2.00	1.246	33.1
0:33:17	31.0	0.754	16.2	5.317	12.42	7.2944	31.1	4.268	3.850	20.098	16.248	18.17	1.93	1.237	33.3
0:33:35	29.8	0.761	16.2	5.311	12.53	7.3033	30.0	4.102	3.681	19.927	16.246	18.09	1.84	1.227	33.6
0:33:49	29.3	0.766	16.2	5.305	12.62	7.3109	29.4	4.026	3.601	19.849	16.247	18.05	1.80	1.222	33.8
0:34:06	27.9	0.773	16.2	5.299	12.72	7.3198	28.0	3.825	3.397	19.641	16.244	17.94	1.70	1.209	34.1
0:34:23	27.6	0.779	16.2	5.293	12.83	7.3286	27.7	3.779	3.347	19.583	16.236	17.91	1.67	1.206	34.4
0:34:38	27.0	0.784	16.2	5.287	12.92	7.3361	27.2	3.703	3.268	19.492	16.223	17.86	1.63	1.201	34.6
0:34:55	26.4	0.791	16.2	5.281	13.03	7.3451	26.5	3.610	3.172	19.389	16.217	17.80	1.59	1.196	34.9
0:35:12	25.9	0.797	16.2	5.274	13.13	7.3541	26.0	3.537	3.095	19.302	16.207	17.75	1.55	1.191	35.2
0:35:27	25.5	0.803	16.2	5.269	13.22	7.3619	25.6	3.476	3.031	19.246	16.215	17.73	1.52	1.187	35.5
0:35:44	25.2	0.809	16.3	5.262	13.33	7.3708	25.3	3.433	2.985	19.251	16.267	17.76	1.49	1.183	35.7
0:35:59	24.6	0.815	16.3	5.257	13.42	7.3786	24.7	3.351	2.899	19.177	16.278	17.73	1.45	1.178	36.0
0:36:16	24.2	0.821	16.3	5.250	13.53	7.3876	24.4	3.300	2.845	19.134	16.290	17.71	1.42	1.175	36.3
0:36:33	24.0	0.828	16.3	5.244	13.63	7.3967	24.1	3.261	2.802	19.095	16.293	17.69	1.40	1.172	36.6
0:36:47	23.7	0.833	16.3	5.238	13.72	7.4045	23.9	3.223	2.761	19.057	16.296	17.68	1.38	1.169	36.8
0:37:04	23.6	0.840	16.3	5.232	13.83	7.4136	23.7	3.202	2.737	19.038	16.301	17.67	1.37	1.168	37.1
0:37:19	23.2	0.845	16.3	5.226	13.92	7.4214	23.4	3.148	2.680	18.987	16.307	17.65	1.34	1.164	37.3
0:37:36	23.2	0.852	16.3	5.220	14.03	7.4306	23.3	3.140	2.667	18.969	16.302	17.64	1.33	1.164	37.6
0:37:53	22.9	0.858	16.3	5.213	14.13	7.4399	23.0	3.091	2.616	18.910	16.295	17.60	1.31	1.161	37.9
0:38:08	22.8	0.864	16.3	5.208	14.23	7.4479	22.9	3.074	2.595	18.899	16.304	17.60	1.30	1.159	38.1
0:38:25	22.4	0.870	16.3	5.201	14.33	7.4571	22.5	3.019	2.537	18.833	16.297	17.56	1.27	1.156	38.4
0:38:40	22.4	0.876	16.3	5.196	14.42	7.4652	22.6	3.023	2.538	18.825	16.288	17.56	1.27	1.156	38.7
0:38:57	22.3	0.882	16.3	5.189	14.53	7.4744	22.4	2.998	2.509	18.798	16.289	17.54	1.25	1.154	39.0
0:39:11	22.2	0.888	16.3	5.184	14.62	7.4825	22.3	2.979	2.487	18.783	16.296	17.54	1.24	1.153	39.2
0:39:28	21.7	0.894	16.3	5.177	14.73	7.4918	21.9	2.918	2.422	18.711	16.288	17.50	1.21	1.149	39.5
0:39:45	22.1	0.901	16.3	5.171	14.84	7.5011	22.2	2.960	2.461	18.750	16.289	17.52	1.23	1.151	39.8
0:40:00	21.8	0.906	16.3	5.165	14.93	7.5093	22.0	2.925	2.422	18.710	16.288	17.50	1.21	1.149	40.0
0:40:17	21.7	0.913	16.3	5.159	15.04	7.5188	21.8	2.901	2.395	18.686	16.291	17.49	1.20	1.147	40.3
0:40:32	21.6	0.918	16.3	5.153	15.13	7.5271	21.7	2.886	2.377	18.667	16.290	17.48	1.19	1.146	40.5
0:40:46	21.6	0.924	16.3	5.147	15.22	7.5354	21.7	2.880	2.368	18.656	16.288	17.47	1.18	1.145	40.8
0:41:03	21.6	0.931	16.3	5.141	15.33	7.5451	21.7	2.878	2.362	18.648	16.286	17.47	1.18	1.145	41.1
0:41:18	21.8	0.936	16.3	5.135	15.42	7.5534	21.9	2.904	2.385	18.680	16.295	17.49	1.19	1.146	41.3
0:41:35	21.5	0.943	16.3	5.129	15.53	7.5631	21.6	2.862	2.339	18.630	16.291	17.46	1.17	1.144	41.6
0:41:50	21.6	0.949	16.3	5.123	15.63	7.5716	21.8	2.874	2.348	18.634	16.286	17.46	1.17	1.144	41.8
0:42:07	21.5	0.955	16.3	5.116	15.74	7.5814	21.7	2.859	2.329	18.614	16.285	17.45	1.16	1.143	42.1
0:42:21	21.7	0.961	16.3	5.111	15.83	7.5898	21.8	2.873	2.340	18.623	16.282	17.45	1.17	1.144	42.4
0:42:36	21.7	0.967	16.3	5.105	15.92	7.5982	21.9	2.880	2.344	18.632	16.288	17.46	1.17	1.144	42.6
0:42:53	21.8	0.973	16.3	5.098	16.03	7.6080	22.0	2.887	2.347	18.632	16.285	17.46	1.17	1.144	42.9
0:43:08	22.1	0.979	16.3	5.093	16.12	7.6164	22.3	2.924	2.381	18.669	16.288	17.48	1.19	1.146	43.1
0:43:25	22.1	0.985	16.3	5.086	16.23	7.6261	22.2	2.912	2.366	18.651	16.285	17.47	1.18	1.145	43.4
0:43:39	22.4	0.991	16.3	5.081	16.32	7.6345	22.5	2.953	2.404	18.685	16.281	17.48	1.20	1.148	43.7
0:43:57	22.7	0.998	16.3	5.074	16.43	7.6444	22.8	2.981	2.428	18.712	16.284	17.50	1.21	1.149	44.0
0:44:14	22.7	1.004	16.3	5.068	16.54	7.6541	22.8	2.981	2.424	18.707	16.282	17.49	1.21	1.149	44.2
0:44:28	23.1	1.010	16.3	5.062	16.63	7.6626	23.2	3.029	2.469	18.758	16.289	17.52	1.23	1.152	44.5
0:44:45	23.3	1.016	16.3	5.055	16.74	7.6725	23.5	3.060	2.497	18.787	16.290	17.54	1.25	1.153	44.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height 6.072 (in.)
 Diameter 2.852 (in.)
 Area 6.388 (in²)

Final Values
 Height 5.0315 (in.)
 Dia. avg. 3.137 (in.)
 Area avg. 7.7273 (in²)

Tested By KDG
 Date 6-25-09
 Press No. 2
 Panel No. D

Project Number 175569038
 Test Number UU-1019CA
 Data File ID UU-1019C
 Back Pressure (psi) 0
 Lateral Pressure (psi) 16.2

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:45:00	23.5	1.022	16.3	5.050	16.83	7.6808	23.6	3.073	2.507	18.794	16.288	17.54	1.25	1.154	45.0
0:45:17	24.0	1.028	16.3	5.044	16.93	7.6905	24.1	3.134	2.564	18.847	16.283	17.56	1.28	1.157	45.3
0:45:32	23.9	1.034	16.3	5.038	17.02	7.6991	24.1	3.125	2.552	18.836	16.284	17.56	1.28	1.157	45.5
0:45:49	24.5	1.040	16.3	5.032	17.13	7.7089	24.6	3.192	2.615	18.899	16.284	17.59	1.31	1.161	45.8

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019CB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 = (4(EM)(Thickness)(Strain))/D_c
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1019CC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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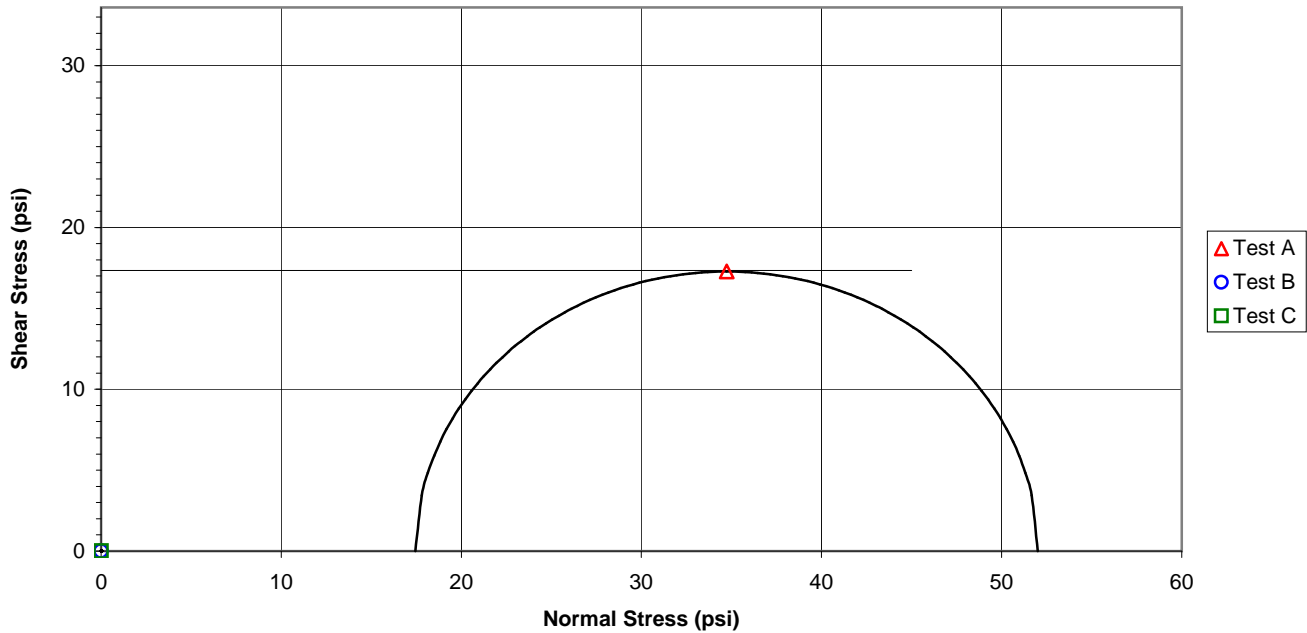
Project John Siever Fossil Plant
 Sample ID JS-45-SV, 29.5' - 30.0'

Project No. 175569038
 Test Number 1020A

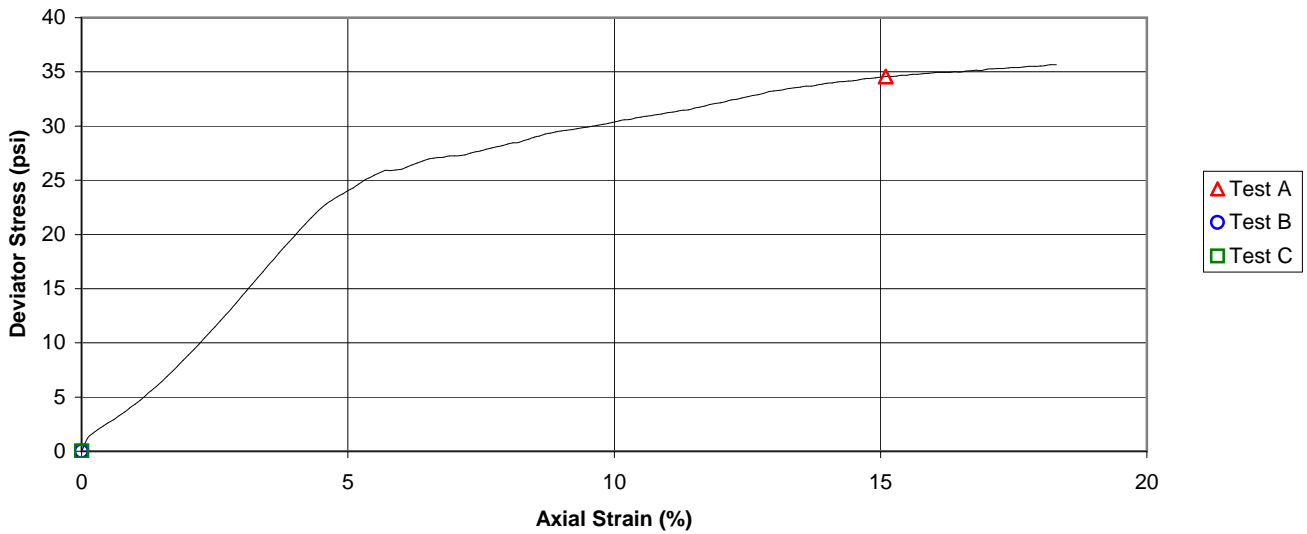
Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

$c = 17.4 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 29.5' - 30.0'</u>			Test Number	<u>UU-1020A</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-45-SV, 29.5' - 31.5'</u>		Date	<u>6-25-09</u>
Specific Gravity	<u>2.29</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.872</u>	1 <u>5.923</u>	Sample <u>37.7922</u> (V _o)	Wet Weight (g) <u>971.29</u>
Middle <u>2.849</u>	2 <u>5.827</u>	Solids <u>17.9875</u> (VS _o)	Dry Weight (g) <u>675.05</u>
Bottom <u>2.844</u>	3 <u>5.942</u>	Water <u>18.0767</u> (Vw _o)	Wet Unit Weight (pcf) <u>97.9</u>
Avg. <u>2.8550</u> (D _o)	4 <u>5.923</u>	Voids <u>19.8047</u> (Vv _o)	Dry Unit Weight (pcf) <u>68.0</u>
Area (in ²) <u>6.4018</u> (A _o)	Avg. (H _o) <u>5.9034</u>	Degree of Saturation (%) <u>91.3</u> (S _o)	
Moisture Content (%) <u>43.9</u>	Final Trimmings	Void Ratio <u>1.101</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-26-09</u>
			Panel Board Number	<u>C</u>

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>5.9034</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4018</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>37.7922</u> (V _s)

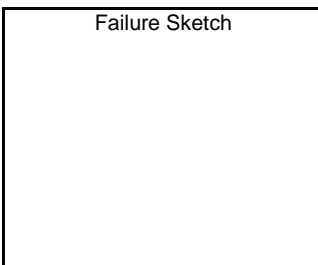
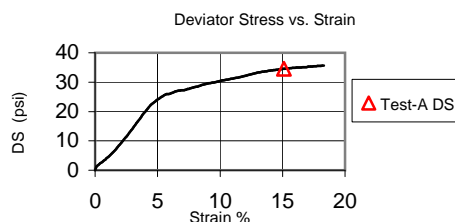
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>17.5</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>17.5</u> (σ ₃)
Height (in.) <u>5.9034</u> (H _c)		Volume (in ³) <u>37.7922</u> (V _c)	
Area (in ³) Method A <u>6.4018</u> (A _c)		Volume - Water (in ³) <u>18.0767</u> (Vw _c)	t ₅₀ (min.) _____
Diameter (in.) <u>2.8550</u> (D _c)		Water Content (%) <u>43.9</u>	
Dry Density (pcf) <u>68.0</u>		Degree of Saturation (%) <u>91.3</u> (S _c)	Void Ratio <u>1.101</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.228</u> (in.)	Wet Weight (g) <u>971.29</u>	Corrected Deviator <u>34.56</u> σ _d (psi)
Wet weight (g) <u>971.29</u> (WW _f)	Dry Weight (g) <u>675.05</u>	Major Principal <u>52.01</u> σ ₁₁ (psi)
Average Diameter <u>3.176</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>17.45</u> σ ₃₁ (psi)
		Rate of Strain (% / min.) <u>0.236</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>15.10</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch

Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1020AB</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By _____

Back Pressure Saturated to: _____ (psi) Final Pore Pressure Parameter B _____ Date _____

Panel Board Number _____

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

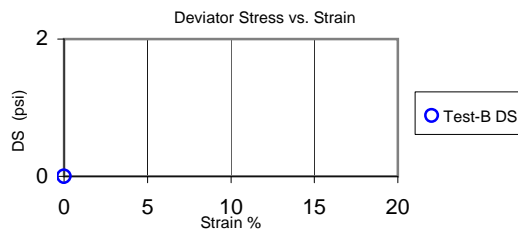
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch



Comments: _____



Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1020AC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.29</u> #REF!	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

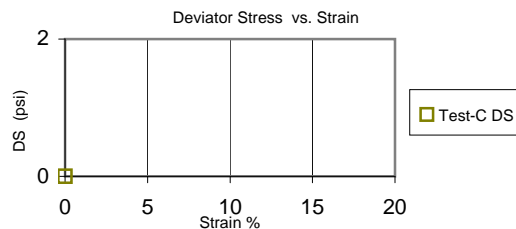
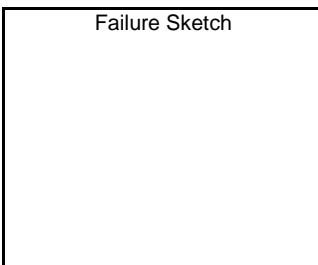
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.903 (in.)
Diameter	2.855 (in.)
Area	6.402 (in ²)

Final Values	
Height	4.8231 (in.)
Dia. avg.	3.176 (in)
Area avg.	7.9240 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1020AA
Data File ID	UU-1020A
Back Pressure (psi)	0
Lateral Pressure (psi)	17.5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	4.7	-0.017	17.5	5.903	0.00	6.4018	0.0	0.000	0.000	17.500	17.500	17.50	0.00	1.000	0.0
0:00:15	12.2	-0.010	17.4	5.897	0.11	6.4086	7.5	1.174	1.170	18.552	17.382	17.97	0.59	1.067	0.3
0:00:26	15.3	-0.004	17.4	5.891	0.21	6.4151	10.6	1.652	1.645	19.020	17.375	18.20	0.82	1.095	0.4
0:00:37	17.6	0.002	17.4	5.885	0.31	6.4216	13.0	2.020	2.009	19.383	17.374	18.38	1.00	1.116	0.6
0:00:48	19.8	0.008	17.4	5.879	0.41	6.4282	15.2	2.360	2.346	19.723	17.377	18.55	1.17	1.135	0.8
0:00:58	21.7	0.013	17.4	5.874	0.50	6.4340	17.0	2.647	2.631	20.002	17.372	18.69	1.32	1.151	1.0
0:01:09	23.7	0.019	17.4	5.868	0.61	6.4408	19.0	2.952	2.932	20.311	17.379	18.84	1.47	1.169	1.2
0:01:20	25.8	0.025	17.4	5.862	0.70	6.4472	21.2	3.286	3.262	20.647	17.384	19.02	1.63	1.188	1.3
0:01:33	28.3	0.031	17.4	5.856	0.81	6.4541	23.6	3.660	3.632	21.006	17.374	19.19	1.82	1.209	1.6
0:01:43	30.6	0.037	17.4	5.850	0.90	6.4601	25.9	4.015	3.984	21.365	17.381	19.37	1.99	1.229	1.7
0:01:54	33.0	0.043	17.4	5.844	1.00	6.4667	28.3	4.378	4.344	21.725	17.381	19.55	2.17	1.250	1.9
0:02:05	35.6	0.049	17.4	5.838	1.10	6.4733	30.9	4.773	4.736	22.109	17.373	19.74	2.37	1.273	2.1
0:02:16	38.2	0.054	17.4	5.832	1.20	6.4797	33.5	5.177	5.137	22.515	17.378	19.95	2.57	1.296	2.3
0:02:27	41.0	0.060	17.4	5.827	1.30	6.4862	36.4	5.610	5.567	22.939	17.372	20.16	2.78	1.320	2.5
0:02:39	44.0	0.066	17.4	5.820	1.41	6.4932	39.3	6.053	6.006	23.381	17.375	20.38	3.00	1.346	2.7
0:02:51	46.9	0.072	17.4	5.814	1.51	6.4998	42.2	6.493	6.442	23.824	17.383	20.60	3.22	1.371	2.9
0:03:02	50.0	0.078	17.4	5.809	1.60	6.5061	45.3	6.964	6.910	24.292	17.381	20.84	3.46	1.398	3.0
0:03:13	53.0	0.084	17.4	5.803	1.70	6.5127	48.4	7.431	7.374	24.759	17.385	21.07	3.69	1.424	3.2
0:03:24	56.2	0.090	17.4	5.797	1.80	6.5194	51.5	7.904	7.843	25.230	17.387	21.31	3.92	1.451	3.4
0:03:35	59.7	0.096	17.4	5.791	1.90	6.5261	55.1	8.436	8.372	25.761	17.389	21.58	4.19	1.481	3.6
0:03:46	63.1	0.102	17.4	5.785	2.01	6.5328	58.5	8.949	8.882	26.269	17.388	21.83	4.44	1.511	3.8
0:03:57	66.6	0.108	17.4	5.779	2.11	6.5395	61.9	9.470	9.399	26.786	17.387	22.09	4.70	1.541	4.0
0:04:08	70.2	0.114	17.4	5.773	2.21	6.5465	65.5	10.007	9.932	27.318	17.385	22.35	4.97	1.571	4.1
0:04:20	73.8	0.120	17.4	5.767	2.31	6.5532	69.1	10.545	10.467	27.859	17.392	22.63	5.23	1.602	4.3
0:04:31	77.2	0.126	17.4	5.761	2.41	6.5599	72.5	11.052	10.971	28.365	17.395	22.88	5.49	1.631	4.5
0:04:41	80.5	0.131	17.4	5.756	2.50	6.5659	75.8	11.549	11.465	28.866	17.401	23.13	5.73	1.659	4.7
0:04:52	84.1	0.137	17.4	5.750	2.60	6.5727	79.5	12.094	12.007	29.400	17.393	23.40	6.00	1.690	4.9
0:05:04	88.2	0.143	17.4	5.743	2.71	6.5802	83.6	12.704	12.613	30.010	17.398	23.70	6.31	1.725	5.1
0:05:14	91.4	0.149	17.4	5.738	2.80	6.5861	86.8	13.178	13.084	30.487	17.403	23.95	6.54	1.752	5.2
0:05:25	95.4	0.154	17.4	5.732	2.90	6.5929	90.7	13.759	13.662	31.064	17.403	24.23	6.83	1.785	5.4
0:05:37	99.7	0.161	17.4	5.726	3.01	6.6004	95.1	14.406	14.305	31.722	17.417	24.57	7.15	1.821	5.6
0:05:47	103.3	0.166	17.4	5.720	3.10	6.6066	98.6	14.927	14.823	32.246	17.424	24.84	7.41	1.851	5.8
0:05:58	107.3	0.172	17.4	5.714	3.20	6.6136	102.6	15.516	15.409	32.846	17.437	25.14	7.70	1.884	6.0
0:06:10	111.3	0.178	17.4	5.708	3.30	6.6205	106.6	16.108	15.997	33.394	17.397	25.40	8.00	1.920	6.2
0:06:21	115.2	0.184	17.4	5.702	3.41	6.6275	110.6	16.683	16.568	33.959	17.391	25.68	8.28	1.953	6.4
0:06:32	119.2	0.190	17.4	5.697	3.50	6.6343	114.5	17.262	17.144	34.532	17.388	25.96	8.57	1.986	6.5
0:06:43	123.0	0.196	17.4	5.691	3.61	6.6412	118.3	17.815	17.694	35.087	17.392	26.24	8.85	2.017	6.7
0:06:54	127.2	0.202	17.4	5.685	3.71	6.6482	122.5	18.430	18.305	35.693	17.388	26.54	9.15	2.053	6.9
0:07:05	130.9	0.208	17.4	5.679	3.80	6.6548	126.2	18.965	18.837	36.229	17.392	26.81	9.42	2.083	7.1
0:07:16	134.4	0.214	17.4	5.673	3.90	6.6616	129.8	19.478	19.347	36.735	17.389	27.06	9.67	2.113	7.3
0:07:27	138.1	0.219	17.4	5.667	4.00	6.6685	133.5	20.016	19.881	37.262	17.380	27.32	9.94	2.144	7.5
0:07:38	141.9	0.225	17.4	5.661	4.10	6.6754	137.3	20.562	20.425	37.806	17.381	27.59	10.21	2.175	7.6
0:07:49	145.6	0.231	17.4	5.656	4.20	6.6823	140.9	21.092	20.951	38.324	17.373	27.85	10.48	2.206	7.8
0:08:01	149.6	0.238	17.4	5.649	4.31	6.6901	144.9	21.659	21.515	38.884	17.370	28.13	10.76	2.239	8.0
0:08:11	152.7	0.243	17.4	5.644	4.40	6.6963	148.1	22.112	21.964	39.341	17.377	28.36	10.98	2.264	8.2
0:08:22	156.0	0.249	17.4	5.638	4.50	6.7034	151.3	22.578	22.427	39.802	17.376	28.59	11.21	2.291	8.4
0:08:34	158.8	0.255	17.4	5.632	4.60	6.7103	154.2	22.974	22.820	40.198	17.378	28.79	11.41	2.313	8.6
0:08:45	161.2	0.261	17.4	5.626	4.70	6.7175	156.5	23.303	23.145	40.520	17.375	28.95	11.57	2.332	8.8
0:08:56	163.6	0.267	17.4	5.620	4.80	6.7247	159.0	23.639	23.477	40.853	17.376	29.11	11.74	2.351	8.9
0:09:07	165.6	0.273	17.4	5.614	4.90	6.7318	160.9	23.909	23.744	41.115	17.371	29.24	11.87	2.367	9.1
0:09:18	167.9	0.279	17.4	5.608	5.00	6.7390	163.3	24.230	24.062	41.438	17.376	29.41	12.03	2.385	9.3
0:09:29	169.8	0.284	17.4	5.602	5.10	6.7459	165.1	24.474	24.303	41.676	17.373	29.52	12.15	2.399	9.5
0:09:40	172.3	0.290	17.4	5.596	5.20	6.7530	167.7	24.831	24.656	42.039	17.382	29.71	12.33	2.418	9.7
0:09:51	174.8	0.297	17.4	5.590	5.31	6.7605	170.2	25.168	24.990	42.364	17.374	29.87	12.49	2.438	9.9
0:10:01	176.6	0.302	17.4	5.585	5.40	6.7670	171.9	25.405	25.223	42.603	17.380	29.99	12.61	2.451	10.0
0:10:12	178.6	0.308	17.4	5.579	5.50	6.7743	173.9	25.672	25.487	42.861	17.374	30.12	12.74	2.467	10.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.903 (in.)
Diameter	2.855 (in.)
Area	6.402 (in ²)

Final Values	
Height	4.8231 (in.)
Dia. avg.	3.176 (in)
Area avg.	7.9240 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1020AA
Data File ID	UU-1020A
Back Pressure (psi)	0
Lateral Pressure (psi)	17.5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:10:24	180.3	0.314	17.4	5.573	5.60	6.7817	175.7	25.904	25.715	43.086	17.371	30.23	12.86	2.480	10.4
0:10:35	182.0	0.320	17.4	5.567	5.71	6.7892	177.3	26.122	25.930	43.306	17.376	30.34	12.97	2.492	10.6
0:10:45	182.0	0.326	17.4	5.561	5.80	6.7958	177.3	26.092	25.897	43.268	17.371	30.32	12.95	2.491	10.8
0:10:56	182.6	0.332	17.4	5.555	5.90	6.8031	178.0	26.158	25.959	43.331	17.372	30.35	12.98	2.494	10.9
0:11:07	183.1	0.338	17.4	5.549	6.00	6.8105	178.4	26.197	25.995	43.374	17.379	30.38	13.00	2.496	11.1
0:11:18	184.8	0.344	17.4	5.543	6.10	6.8179	180.2	26.424	26.219	43.596	17.377	30.49	13.11	2.509	11.3
0:11:29	186.4	0.350	17.4	5.537	6.21	6.8255	181.8	26.628	26.419	43.792	17.373	30.58	13.21	2.521	11.5
0:11:39	187.9	0.355	17.4	5.531	6.30	6.8322	183.2	26.818	26.606	43.977	17.371	30.67	13.30	2.532	11.7
0:11:50	189.2	0.361	17.4	5.525	6.40	6.8397	184.5	26.976	26.760	44.129	17.369	30.75	13.38	2.541	11.8
0:12:01	190.6	0.367	17.4	5.519	6.50	6.8472	186.0	27.159	26.940	44.316	17.376	30.85	13.47	2.550	12.0
0:12:12	191.6	0.373	17.4	5.513	6.61	6.8547	186.9	27.269	27.046	44.414	17.368	30.89	13.52	2.557	12.2
0:12:22	192.2	0.379	17.4	5.508	6.70	6.8614	187.6	27.338	27.113	44.492	17.379	30.94	13.56	2.560	12.4
0:12:33	192.7	0.385	17.4	5.502	6.80	6.8689	188.0	27.369	27.140	44.511	17.370	30.94	13.57	2.562	12.6
0:12:44	193.7	0.391	17.4	5.496	6.90	6.8764	189.0	27.488	27.256	44.635	17.379	31.01	13.63	2.568	12.7
0:12:56	193.9	0.397	17.4	5.490	7.00	6.8840	189.2	27.490	27.255	44.621	17.366	30.99	13.63	2.569	12.9
0:13:07	194.2	0.403	17.4	5.484	7.11	6.8916	189.6	27.511	27.272	44.640	17.368	31.00	13.64	2.570	13.1
0:13:17	194.8	0.408	17.4	5.478	7.20	6.8983	190.2	27.568	27.326	44.694	17.368	31.03	13.66	2.573	13.3
0:13:28	196.4	0.415	17.4	5.472	7.31	6.9065	191.8	27.764	27.518	44.910	17.392	31.15	13.76	2.582	13.5
0:13:38	197.4	0.420	17.4	5.467	7.40	6.9134	192.8	27.881	27.632	45.034	17.402	31.22	13.82	2.588	13.6
0:13:48	198.2	0.426	17.4	5.461	7.50	6.9206	193.6	27.968	27.716	45.122	17.406	31.26	13.86	2.592	13.8
0:14:00	199.5	0.432	17.4	5.455	7.60	6.9285	194.9	28.129	27.873	45.281	17.408	31.34	13.94	2.601	14.0
0:14:11	200.7	0.438	17.4	5.449	7.70	6.9362	196.0	28.259	28.000	45.422	17.423	31.42	14.00	2.607	14.2
0:14:21	201.6	0.444	17.4	5.443	7.80	6.9435	196.9	28.364	28.102	45.533	17.431	31.48	14.05	2.612	14.4
0:14:31	202.5	0.449	17.4	5.437	7.90	6.9506	197.9	28.469	28.203	45.650	17.447	31.55	14.10	2.616	14.5
0:14:42	203.7	0.455	17.4	5.431	8.00	6.9584	199.0	28.598	28.329	45.776	17.447	31.61	14.16	2.624	14.7
0:14:53	204.7	0.461	17.4	5.425	8.10	6.9661	200.0	28.716	28.443	45.855	17.411	31.63	14.22	2.634	14.9
0:15:04	205.3	0.468	17.4	5.419	8.20	6.9738	200.6	28.768	28.492	45.894	17.402	31.65	14.25	2.637	15.1
0:15:16	206.6	0.474	17.4	5.413	8.30	6.9816	202.0	28.932	28.653	46.052	17.399	31.73	14.33	2.647	15.3
0:15:25	207.9	0.479	17.4	5.408	8.40	6.9885	203.2	29.076	28.794	46.196	17.402	31.80	14.40	2.655	15.4
0:15:38	209.5	0.485	17.4	5.401	8.51	6.9970	204.9	29.277	28.991	46.394	17.403	31.90	14.50	2.666	15.6
0:15:48	210.4	0.491	17.4	5.396	8.60	7.0038	205.7	29.375	29.086	46.484	17.398	31.94	14.54	2.672	15.8
0:15:59	211.7	0.497	17.4	5.390	8.70	7.0117	207.1	29.535	29.243	46.645	17.403	32.02	14.62	2.680	16.0
0:16:10	212.7	0.503	17.4	5.384	8.80	7.0195	208.0	29.639	29.343	46.747	17.404	32.08	14.67	2.686	16.2
0:16:21	213.7	0.509	17.4	5.378	8.90	7.0273	209.1	29.751	29.452	46.852	17.400	32.13	14.73	2.693	16.4
0:16:32	214.6	0.515	17.4	5.372	9.01	7.0354	210.0	29.845	29.542	46.949	17.407	32.18	14.77	2.697	16.5
0:16:42	215.3	0.520	17.4	5.366	9.10	7.0425	210.6	29.904	29.598	46.997	17.399	32.20	14.80	2.701	16.7
0:16:53	216.1	0.526	17.4	5.360	9.20	7.0503	211.4	29.986	29.677	47.074	17.398	32.24	14.84	2.706	16.9
0:17:04	216.9	0.532	17.4	5.354	9.30	7.0581	212.3	30.073	29.760	47.160	17.400	32.28	14.88	2.710	17.1
0:17:15	217.8	0.538	17.4	5.348	9.40	7.0660	213.2	30.170	29.854	47.252	17.398	32.33	14.93	2.716	17.3
0:17:26	218.4	0.544	17.4	5.343	9.50	7.0739	213.8	30.223	29.904	47.301	17.397	32.35	14.95	2.719	17.4
0:17:38	219.4	0.550	17.4	5.337	9.60	7.0818	214.8	30.329	30.006	47.403	17.398	32.40	15.00	2.725	17.6
0:17:47	220.1	0.556	17.4	5.331	9.70	7.0891	215.5	30.398	30.072	47.466	17.394	32.43	15.04	2.729	17.8
0:17:59	221.2	0.562	17.4	5.325	9.80	7.0970	216.5	30.511	30.182	47.582	17.400	32.49	15.09	2.735	18.0
0:18:10	222.0	0.568	17.4	5.319	9.90	7.1050	217.3	30.591	30.258	47.661	17.403	32.53	15.13	2.739	18.2
0:18:21	223.1	0.574	17.4	5.313	10.00	7.1133	218.5	30.713	30.377	47.748	17.372	32.56	15.19	2.749	18.4
0:18:32	224.3	0.580	17.4	5.307	10.10	7.1213	219.7	30.846	30.506	47.908	17.402	32.66	15.25	2.753	18.5
0:18:42	225.1	0.585	17.4	5.301	10.20	7.1286	220.4	30.922	30.579	47.986	17.407	32.70	15.29	2.757	18.7
0:18:53	225.7	0.591	17.4	5.295	10.30	7.1368	221.0	30.967	30.621	48.021	17.401	32.71	15.31	2.760	18.9
0:19:04	226.9	0.598	17.4	5.289	10.41	7.1453	222.2	31.097	30.747	48.151	17.404	32.78	15.37	2.767	19.1
0:19:14	227.7	0.603	17.4	5.284	10.50	7.1528	223.0	31.180	30.827	48.232	17.406	32.82	15.41	2.771	19.2
0:19:26	228.4	0.609	17.4	5.277	10.61	7.1613	223.8	31.250	30.893	48.299	17.405	32.85	15.45	2.775	19.4
0:19:36	229.3	0.615	17.4	5.272	10.70	7.1687	224.6	31.331	30.971	48.384	17.412	32.90	15.49	2.779	19.6
0:19:47	230.2	0.621	17.4	5.266	10.80	7.1770	225.5	31.420	31.057	48.462	17.405	32.93	15.53	2.784	19.8
0:19:57	230.9	0.626	17.4	5.260	10.89	7.1845	226.2	31.485	31.119	48.523	17.404	32.96	15.56	2.788	20.0
0:20:08	231.9	0.632	17.4	5.254	11.00	7.1928	227.2	31.592	31.222	48.628	17.406	33.02	15.61	2.794	20.1
0:20:20	232.7	0.639	17.4	5.248	11.10	7.2012	228.1	31.673	31.299	48.699	17.400	33.05	15.65	2.799	20.3

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	5.903 (in.)
Diameter	2.855 (in.)
Area	6.402 (in ²)

Final Values	
Height	4.8231 (in.)
Dia. avg.	3.176 (in)
Area avg.	7.9240 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-1020AA
Data File ID	UU-1020A
Back Pressure (psi)	0
Lateral Pressure (psi)	17.5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:20:30	233.6	0.644	17.4	5.243	11.19	7.2087	228.9	31.758	31.381	48.785	17.404	33.09	15.69	2.803	20.5
0:20:41	234.6	0.650	17.4	5.236	11.30	7.2173	230.0	31.862	31.482	48.893	17.411	33.15	15.74	2.808	20.7
0:20:51	235.1	0.656	17.4	5.231	11.39	7.2250	230.4	31.894	31.511	48.907	17.396	33.15	15.76	2.811	20.9
0:21:02	236.4	0.662	17.4	5.224	11.50	7.2337	231.8	32.038	31.651	49.059	17.408	33.23	15.83	2.818	21.0
0:21:12	237.4	0.668	17.4	5.219	11.60	7.2415	232.7	32.134	31.744	49.148	17.403	33.28	15.87	2.824	21.2
0:21:23	238.4	0.674	17.4	5.213	11.70	7.2501	233.7	32.238	31.844	49.248	17.404	33.33	15.92	2.830	21.4
0:21:35	239.7	0.680	17.4	5.206	11.81	7.2587	235.1	32.384	31.987	49.394	17.406	33.40	15.99	2.838	21.6
0:21:45	240.7	0.686	17.4	5.201	11.90	7.2666	236.0	32.478	32.077	49.485	17.407	33.45	16.04	2.843	21.8
0:21:55	241.5	0.692	17.4	5.195	12.00	7.2747	236.9	32.559	32.156	49.563	17.407	33.48	16.08	2.847	21.9
0:22:07	242.6	0.698	17.4	5.189	12.11	7.2835	238.0	32.670	32.263	49.672	17.409	33.54	16.13	2.853	22.1
0:22:17	243.9	0.703	17.4	5.183	12.20	7.2912	239.2	32.810	32.400	49.809	17.409	33.61	16.20	2.861	22.3
0:22:28	244.8	0.710	17.4	5.177	12.30	7.2998	240.1	32.898	32.485	49.882	17.397	33.64	16.24	2.867	22.5
0:22:38	245.9	0.715	17.4	5.172	12.39	7.3076	241.3	33.015	32.598	50.006	17.408	33.71	16.30	2.873	22.6
0:22:49	247.1	0.721	17.4	5.165	12.50	7.3163	242.4	33.137	32.716	50.128	17.412	33.77	16.36	2.879	22.8
0:23:01	248.2	0.727	17.4	5.159	12.60	7.3250	243.6	33.250	32.826	50.236	17.410	33.82	16.41	2.885	23.0
0:23:11	248.8	0.733	17.4	5.154	12.69	7.3326	244.2	33.299	32.872	50.287	17.415	33.85	16.44	2.888	23.2
0:23:22	250.2	0.739	17.4	5.148	12.80	7.3413	245.5	33.445	33.014	50.431	17.417	33.92	16.51	2.896	23.4
0:23:33	251.7	0.745	17.4	5.142	12.90	7.3500	247.0	33.607	33.173	50.588	17.415	34.00	16.59	2.905	23.6
0:23:43	252.5	0.750	17.4	5.136	12.99	7.3579	247.8	33.682	33.246	50.671	17.425	34.05	16.62	2.908	23.7
0:23:55	253.3	0.757	17.4	5.130	13.10	7.3670	248.6	33.751	33.310	50.731	17.420	34.08	16.66	2.912	23.9
0:24:05	254.2	0.762	17.4	5.124	13.20	7.3751	249.5	33.837	33.393	50.817	17.424	34.12	16.70	2.916	24.1
0:24:16	255.2	0.768	17.4	5.118	13.30	7.3838	250.5	33.930	33.483	50.899	17.416	34.16	16.74	2.923	24.3
0:24:26	255.9	0.774	17.4	5.113	13.39	7.3917	251.3	33.991	33.541	50.965	17.424	34.19	16.77	2.925	24.4
0:24:37	256.7	0.780	17.4	5.107	13.50	7.4007	252.1	34.060	33.606	51.031	17.425	34.23	16.80	2.929	24.6
0:24:49	257.6	0.786	17.4	5.100	13.60	7.4096	252.9	34.136	33.679	51.106	17.428	34.27	16.84	2.933	24.8
0:25:00	258.0	0.792	17.4	5.094	13.70	7.4184	253.4	34.153	33.692	51.123	17.431	34.28	16.85	2.933	25.0
0:25:10	258.9	0.798	17.4	5.089	13.80	7.4263	254.2	34.234	33.770	51.211	17.442	34.33	16.88	2.936	25.2
0:25:21	259.9	0.804	17.4	5.083	13.90	7.4353	255.2	34.323	33.856	51.300	17.444	34.37	16.93	2.941	25.4
0:25:31	260.8	0.809	17.5	5.077	13.99	7.4433	256.2	34.415	33.944	51.398	17.454	34.43	16.97	2.945	25.5
0:25:43	261.4	0.815	17.4	5.071	14.09	7.4521	256.7	34.446	33.972	51.420	17.448	34.43	16.99	2.947	25.7
0:25:54	262.3	0.822	17.4	5.065	14.20	7.4613	257.6	34.531	34.053	51.500	17.447	34.47	17.03	2.952	25.9
0:26:04	262.9	0.827	17.5	5.060	14.29	7.4695	258.2	34.573	34.092	51.548	17.456	34.50	17.05	2.953	26.1
0:26:15	263.7	0.833	17.4	5.053	14.40	7.4785	259.0	34.636	34.151	51.592	17.441	34.52	17.08	2.958	26.3
0:26:25	264.3	0.839	17.4	5.048	14.49	7.4869	259.7	34.686	34.199	51.644	17.445	34.54	17.10	2.960	26.4
0:26:37	265.2	0.845	17.4	5.042	14.60	7.4960	260.5	34.752	34.261	51.710	17.449	34.58	17.13	2.963	26.6
0:26:48	266.2	0.851	17.4	5.036	14.70	7.5052	261.6	34.850	34.356	51.787	17.432	34.61	17.18	2.971	26.8
0:26:58	266.7	0.857	17.4	5.030	14.80	7.5134	262.0	34.875	34.377	51.820	17.443	34.63	17.19	2.971	27.0
0:27:09	267.5	0.863	17.4	5.024	14.90	7.5230	262.8	34.938	34.436	51.883	17.447	34.66	17.22	2.974	27.2
0:27:19	268.3	0.869	17.4	5.018	15.00	7.5313	263.6	35.002	34.498	51.946	17.448	34.70	17.25	2.977	27.3
0:27:31	269.1	0.875	17.5	5.012	15.10	7.5404	264.4	35.066	34.559	52.010	17.452	34.73	17.28	2.980	27.5
0:27:41	269.5	0.880	17.4	5.006	15.19	7.5488	264.9	35.090	34.579	52.010	17.431	34.72	17.29	2.984	27.7
0:27:52	270.1	0.886	17.4	5.000	15.30	7.5580	265.4	35.121	34.606	52.048	17.442	34.75	17.30	2.984	27.9
0:28:03	271.0	0.892	17.4	4.994	15.40	7.5672	266.3	35.194	34.676	52.119	17.443	34.78	17.34	2.988	28.1
0:28:13	271.4	0.898	17.4	4.988	15.50	7.5760	266.8	35.213	34.692	52.141	17.449	34.79	17.35	2.988	28.2
0:28:25	272.4	0.904	17.5	4.982	15.60	7.5853	267.7	35.296	34.771	52.230	17.459	34.84	17.39	2.992	28.4
0:28:35	272.7	0.910	17.4	4.977	15.70	7.5938	268.1	35.299	34.771	52.208	17.437	34.82	17.39	2.994	28.6
0:28:45	273.5	0.916	17.4	4.971	15.79	7.6024	268.9	35.368	34.837	52.274	17.437	34.86	17.42	2.998	28.8
0:28:56	274.1	0.922	17.4	4.965	15.90	7.6119	269.5	35.403	34.868	52.306	17.437	34.87	17.43	3.000	28.9
0:29:07	274.8	0.928	17.4	4.959	16.00	7.6214	270.2	35.447	34.909	52.346	17.437	34.89	17.45	3.002	29.1
0:29:17	275.5	0.934	17.4	4.953	16.10	7.6300	270.8	35.494	34.953	52.384	17.432	34.91	17.48	3.005	29.3
0:29:27	275.7	0.939	17.4	4.948	16.19	7.6386	271.1	35.489	34.944	52.385	17.441	34.91	17.47	3.004	29.5
0:29:39	276.2	0.945	17.4	4.941	16.30	7.6482	271.5	35.500	34.952	52.385	17.434	34.91	17.48	3.005	29.7
0:29:50	276.9	0.951	17.4	4.935	16.40	7.6576	272.3	35.558	35.007	52.433	17.426	34.93	17.50	3.009	29.8
0:30:00	277.1	0.957	17.4	4.930	16.49	7.6662	272.4	35.536	34.982	52.399	17.417	34.91	17.49	3.008	30.0
0:30:11	278.0	0.963	17.4	4.924	16.60	7.6758	273.4	35.615	35.057	52.487	17.431	34.96	17.53	3.011	30.2
0:30:23	278.7	0.969	17.5	4.917	16.70	7.6853	274.1	35.663	35.102	52.562	17.460	35.01	17.55	3.010	30.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	5.903 (in.)
Diameter	2.855 (in.)
Area	6.402 (in ²)

Final Values

Height	4.8231 (in.)
Dia. avg.	3.176 (in.)
Area avg.	7.9240 (in ²)

Tested By KDGDate 6-26-09Press No. 1Panel No. CProject Number 175569038Test Number UU-1020AAData File ID UU-1020ABack Pressure (psi) 0Lateral Pressure (psi) 17.5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:30:33	279.4	0.975	17.4	4.912	16.79	7.6938	274.8	35.711	35.147	52.593	17.446	35.02	17.57	3.015	30.6
0:30:44	279.8	0.981	17.5	4.906	16.90	7.7035	275.1	35.711	35.143	52.607	17.464	35.04	17.57	3.012	30.7
0:30:55	280.8	0.987	17.5	4.900	17.00	7.7129	276.2	35.807	35.235	52.710	17.475	35.09	17.62	3.016	30.9
0:31:05	281.6	0.992	17.5	4.894	17.09	7.7216	276.9	35.863	35.288	52.772	17.484	35.13	17.64	3.018	31.1
0:31:17	282.0	0.999	17.5	4.888	17.20	7.7314	277.3	35.871	35.293	52.751	17.458	35.10	17.65	3.022	31.3
0:31:27	282.5	1.004	17.5	4.883	17.29	7.7402	277.8	35.894	35.312	52.770	17.458	35.11	17.66	3.023	31.5
0:31:38	283.3	1.010	17.5	4.876	17.40	7.7500	278.6	35.952	35.367	52.837	17.470	35.15	17.68	3.024	31.6
0:31:49	283.8	1.016	17.5	4.870	17.50	7.7596	279.2	35.980	35.392	52.862	17.470	35.17	17.70	3.026	31.8
0:31:59	284.3	1.022	17.5	4.865	17.59	7.7684	279.6	35.995	35.404	52.870	17.466	35.17	17.70	3.027	32.0
0:32:10	285.0	1.028	17.5	4.859	17.69	7.7781	280.3	36.042	35.447	52.925	17.478	35.20	17.72	3.028	32.2
0:32:21	285.9	1.034	17.5	4.853	17.79	7.7871	281.2	36.111	35.513	52.989	17.476	35.23	17.76	3.032	32.4
0:32:32	286.3	1.040	17.5	4.847	17.90	7.7973	281.7	36.126	35.524	53.012	17.489	35.25	17.76	3.031	32.5
0:32:43	287.0	1.046	17.5	4.841	18.00	7.8071	282.3	36.161	35.555	53.046	17.491	35.27	17.78	3.033	32.7
0:32:53	287.5	1.051	17.5	4.835	18.09	7.8157	282.8	36.190	35.581	53.063	17.482	35.27	17.79	3.035	32.9
0:33:05	288.5	1.057	17.5	4.829	18.19	7.8256	283.8	36.267	35.655	53.117	17.462	35.29	17.83	3.042	33.1
0:33:16	288.9	1.064	17.5	4.823	18.30	7.8357	284.2	36.273	35.657	53.125	17.467	35.30	17.83	3.041	33.3

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1020AB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
----------------------	---------------	----------------------------------------	-----------------------------------------	------------------------------	---------------	-----------------------------------------	----------------------------	-----------------------------	-------------------------------------------	---------------------	---------------------	---------------------------------------------	---------------------------------------------	----------------------------------------------------	---------------------

* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 = (4(EM)(Thickness)(Strain))/D_c
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1020AC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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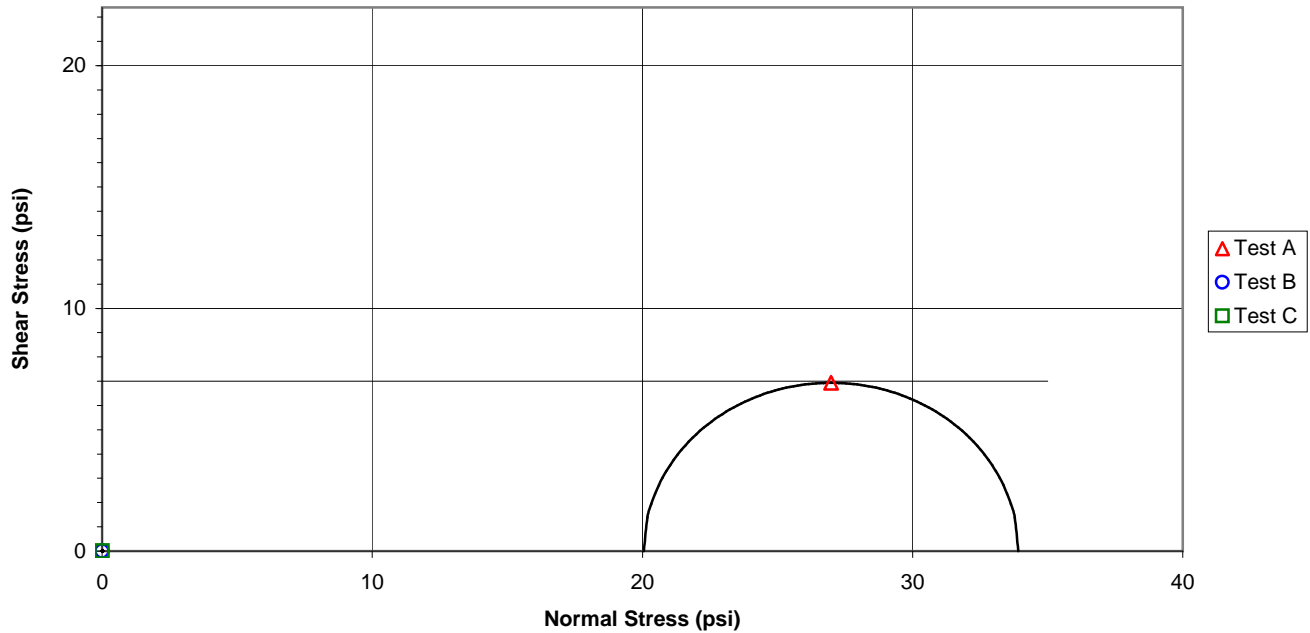
Project John Siever Fossil Plant
 Sample ID JS-45-SV, 30.1' - 30.6'

Project No. 175569038
 Test Number 1020B

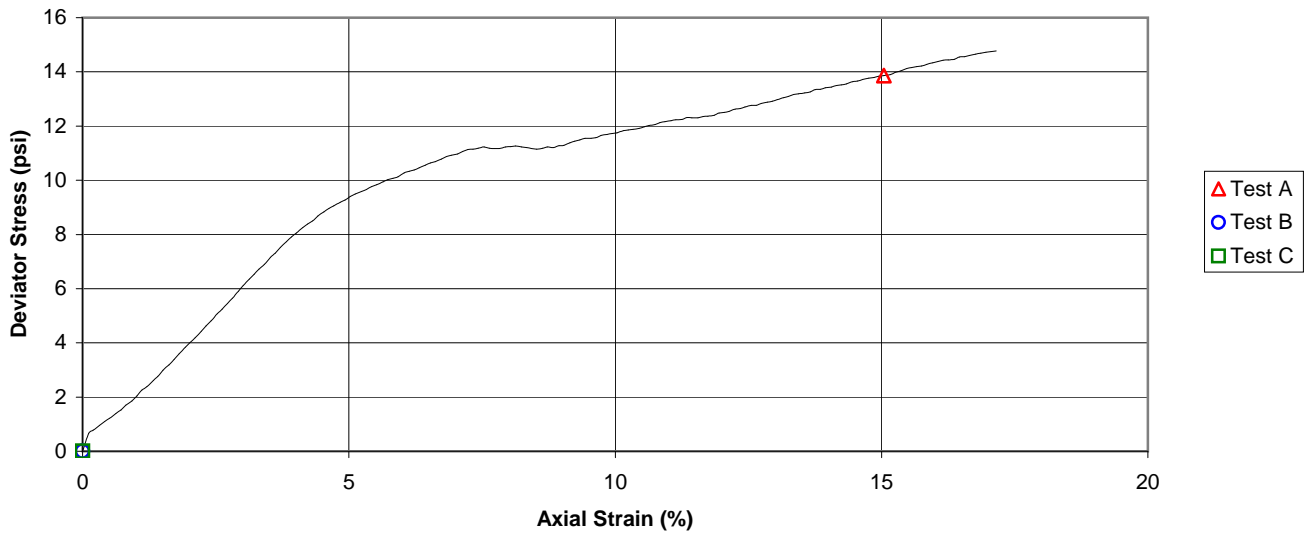
Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

$c = 7.0 \text{ psi}$

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	<u>JS-45-SV, 30.1' - 30.6'</u>			Test Number	<u>UU-1020B</u>
Visual Description	<u>Silt (ML), (fly ash), gray, moist, firm</u>			Prepared By	<u>KDG</u>
Undisturbed	Source	<u>JS-45-SV, 29.5' - 31.5'</u>		Date	<u>6-25-09</u>
Specific Gravity	<u>2.34</u> ASTM D 854 Method A	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>
				Plasticity Index	<u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.853</u>	1 <u>6.016</u>	Sample <u>38.6648</u> (V _o)	Wet Weight (g) <u>957.68</u>
Middle <u>2.867</u>	2 <u>6.029</u>	Solids <u>16.4092</u> (VS _o)	Dry Weight (g) <u>629.26</u>
Bottom <u>2.850</u>	3 <u>6.071</u>	Water <u>20.0400</u> (Vw _o)	Wet Unit Weight (pcf) <u>94.4</u>
Avg. <u>2.8567</u> (D _o)	4 <u>6.016</u>	Voids <u>22.2555</u> (Vv _o)	Dry Unit Weight (pcf) <u>62.0</u>
Area (in ²) <u>6.4093</u> (A _o)	Avg. (H _o) <u>6.0326</u>	Degree of Saturation (%) <u>90.0</u> (S _o)	
Moisture Content (%) <u>52.2</u>	Final Trimmings	Void Ratio <u>1.356</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>KDG</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>6-26-09</u>
			Panel Board Number	<u>D</u>

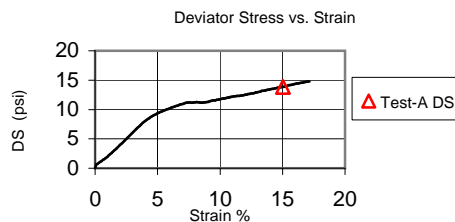
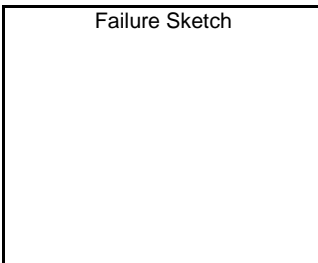
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0326</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.4093</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>38.6648</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>19.9</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>19.9</u> (σ ₃)
Height (in.) <u>6.0326</u> (H _c)		Volume (in ³) <u>38.6648</u> (V _c)	
Area (in ³) Method A <u>6.4093</u> (A _c)		Volume - Water (in ³) <u>20.0400</u> (VW _c)	t ₅₀ (min.) _____
Diameter (in.) <u>2.8567</u> (D _c)		Water Content (%) <u>52.2</u>	
Dry Density (pcf) <u>62.0</u>		Degree of Saturation (%) <u>90.0</u> (S _c)	Void Ratio <u>1.356</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.25</u> (in.)	Wet Weight (g) <u>957.68</u>	Corrected Deviator <u>13.87</u> σ _d (psi)
Wet weight (g) <u>957.68</u> (WW _f)	Dry Weight (g) <u>629.26</u>	Major Principal <u>33.92</u> σ ₁₁ (psi)
Average Diameter <u>3.113</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>20.05</u> σ ₃₁ (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.258</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.04</u>
		Failure Criterion: Maximum Deviator Stress



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1020BB</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.34</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in3)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

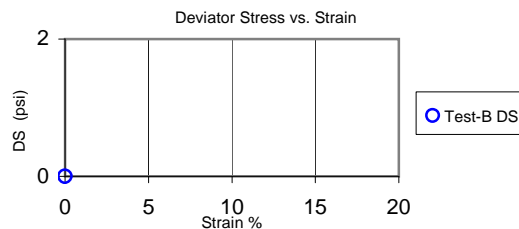
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) <u>#VALUE!</u> (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{w_c})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress

Failure Sketch



Comments: _____

Project Name	<u>John Siever Fossil Plant</u>			Project Number	<u>175569038</u>
Sample Identification	_____			Test Number	<u>UU-1020BC</u>
Visual Description	_____			Prepared By	_____
Undisturbed	Source	<u>0</u>	Date _____		
Specific Gravity	<u>2.34</u>	#REF!	Liquid Limit	<u>N/A</u>	Plastic Limit <u>N/A</u>
					Plasticity Index <u>N/A</u>

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top _____	1 _____	Sample _____ (V _o)	Wet Weight (g) _____
Middle _____	2 _____	Solids <u>#VALUE!</u> (V _{S_o})	Dry Weight (g) <u>Need!</u>
Bottom _____	3 _____	Water <u>#VALUE!</u> (V _{w_o})	Wet Unit Weight (pcf) _____
Avg. _____ (D _o)	4 _____	Voids <u>#VALUE!</u> (V _{v_o})	Dry Unit Weight (pcf) <u>#VALUE!</u>
Area (in ²) _____ (A _o)	Avg. (H _o) _____	Degree of Saturation (%) <u>#VALUE!</u> (S _o)	
Moisture Content (%) <u>Need!</u>	<u>Need!</u>	Void Ratio <u>#VALUE!</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By _____
Back Pressure Saturated to:	_____ (psi)	Final Pore Pressure Parameter B _____	Date _____
			Panel Board Number _____

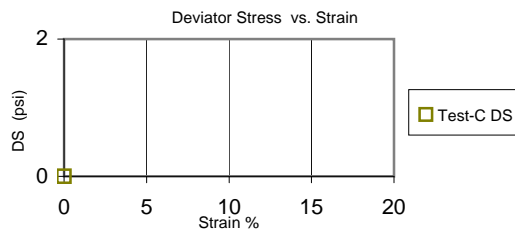
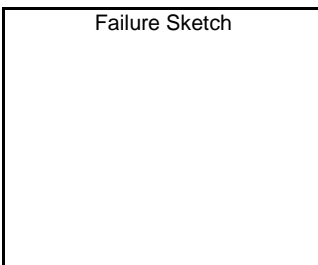
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) _____ (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A _____ (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) _____ (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber _____
Final _____	Final _____ (in.)	Final _____ (in.)	Back _____
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral _____ (σ ₃)
Height (in.) <u>#VALUE!</u> (H _c)		Volume (in ³) _____ (V _c)	
Area (in ³) Method A _____ (A _c)		Volume - Water (in ³) <u>#VALUE!</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) _____ (D _c)		Water Content (%) _____	
Dry Density (pcf) <u>#VALUE!</u>		Degree of Saturation (%) <u>#VALUE!</u> (S _c)	Void Ratio <u>#VALUE!</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter _____ (in.)	Wet Weight (g) <u>Need!</u>	Corrected Deviator <u>0.00</u> σ _d (psi)
Wet weight (g) _____ (WW _f)	Dry Weight (g) <u>Need!</u>	Major Principal <u>0.00</u> σ _{1f} (psi)
Average Diameter <u>#DIV/0!</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>0.00</u> σ _{3f} (psi)
		Rate of Strain (% / min.) <u>0.000</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.00</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: _____

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.857 (in.)
Area	6.409 (in ²)

Final Values	
Height	4.9980 (in.)
Dia. avg.	3.113 (in.)
Area avg.	7.6111 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1020BA
Data File ID	UU-1020B
Back Pressure (psi)	0
Lateral Pressure (psi)	19.9

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.8	-0.001	19.9	6.033	0.00	6.4093	0.0	0.000	0.000	19.900	19.900	19.90	0.00	1.000	0.0
0:00:15	6.1	0.005	20.0	6.026	0.11	6.4165	4.2	0.662	0.658	20.678	20.019	20.35	0.33	1.033	0.3
0:00:24	6.9	0.011	20.0	6.021	0.20	6.4222	5.1	0.787	0.780	20.805	20.025	20.42	0.39	1.039	0.4
0:00:37	8.0	0.018	20.0	6.013	0.32	6.4298	6.2	0.962	0.951	20.972	20.021	20.50	0.48	1.048	0.6
0:00:46	9.0	0.024	20.0	6.008	0.41	6.4359	7.2	1.116	1.102	21.129	20.027	20.58	0.55	1.055	0.8
0:00:56	9.7	0.029	20.0	6.002	0.50	6.4417	7.9	1.229	1.212	21.235	20.022	20.63	0.61	1.061	0.9
0:01:08	11.0	0.036	20.0	5.995	0.62	6.4495	9.1	1.418	1.397	21.419	20.022	20.72	0.70	1.070	1.1
0:01:18	11.8	0.042	20.0	5.989	0.72	6.4556	10.0	1.552	1.528	21.549	20.021	20.79	0.76	1.076	1.3
0:01:28	12.9	0.047	20.0	5.984	0.81	6.4616	11.1	1.722	1.695	21.721	20.026	20.87	0.85	1.085	1.5
0:01:40	14.0	0.055	20.0	5.977	0.93	6.4692	12.2	1.889	1.858	21.879	20.021	20.95	0.93	1.093	1.7
0:01:50	15.3	0.060	20.0	5.971	1.02	6.4753	13.5	2.077	2.043	22.070	20.027	21.05	1.02	1.102	1.8
0:02:00	16.7	0.066	20.0	5.966	1.11	6.4813	14.9	2.296	2.259	22.284	20.025	21.15	1.13	1.113	2.0
0:02:10	17.6	0.072	20.0	5.960	1.21	6.4878	15.8	2.431	2.391	22.416	20.026	21.22	1.20	1.119	2.2
0:02:22	19.0	0.079	20.0	5.953	1.32	6.4953	17.2	2.653	2.608	22.634	20.026	21.33	1.30	1.130	2.4
0:02:32	20.1	0.084	20.0	5.947	1.41	6.5011	18.3	2.813	2.765	22.789	20.024	21.41	1.38	1.138	2.5
0:02:41	21.6	0.090	20.0	5.942	1.51	6.5074	19.8	3.038	2.987	23.015	20.028	21.52	1.49	1.149	2.7
0:02:54	22.9	0.097	20.0	5.935	1.62	6.5150	21.1	3.239	3.185	23.214	20.029	21.62	1.59	1.159	2.9
0:03:03	24.3	0.102	20.0	5.929	1.72	6.5213	22.5	3.449	3.392	23.417	20.025	21.72	1.70	1.169	3.1
0:03:13	25.7	0.108	20.0	5.923	1.81	6.5277	23.9	3.658	3.597	23.623	20.026	21.82	1.80	1.180	3.2
0:03:25	27.3	0.115	20.0	5.916	1.93	6.5353	25.5	3.899	3.834	23.858	20.024	21.94	1.92	1.191	3.4
0:03:35	28.5	0.120	20.0	5.911	2.02	6.5413	26.7	4.087	4.019	24.048	20.029	22.04	2.01	1.201	3.6
0:03:45	29.7	0.126	20.0	5.905	2.11	6.5477	27.9	4.266	4.195	24.217	20.022	22.12	2.10	1.210	3.8
0:03:57	31.3	0.133	20.0	5.898	2.23	6.5554	29.5	4.504	4.429	24.451	20.021	22.24	2.21	1.221	4.0
0:04:07	32.7	0.138	20.0	5.893	2.32	6.5614	30.9	4.703	4.625	24.645	20.020	22.33	2.31	1.231	4.1
0:04:17	34.0	0.144	20.0	5.887	2.42	6.5680	32.2	4.896	4.815	24.844	20.029	22.44	2.41	1.240	4.3
0:04:29	35.8	0.151	20.0	5.880	2.53	6.5757	34.0	5.165	5.080	25.098	20.018	22.56	2.54	1.254	4.5
0:04:39	36.9	0.157	20.0	5.875	2.62	6.5818	35.1	5.331	5.243	25.264	20.021	22.64	2.62	1.262	4.7
0:04:49	38.4	0.163	20.0	5.869	2.72	6.5884	36.5	5.548	5.456	25.479	20.023	22.75	2.73	1.273	4.8
0:04:58	39.7	0.168	20.0	5.863	2.81	6.5945	37.9	5.744	5.649	25.675	20.026	22.85	2.82	1.282	5.0
0:05:11	41.4	0.175	20.0	5.856	2.92	6.6024	39.6	6.003	5.905	25.926	20.022	22.97	2.95	1.295	5.2
0:05:20	42.9	0.181	20.0	5.851	3.02	6.6086	41.1	6.216	6.115	26.138	20.023	23.08	3.06	1.305	5.3
0:05:33	44.5	0.187	20.0	5.844	3.13	6.6164	42.7	6.454	6.349	26.374	20.025	23.20	3.17	1.317	5.6
0:05:42	45.8	0.193	20.0	5.838	3.22	6.6227	44.0	6.639	6.531	26.560	20.029	23.29	3.27	1.326	5.7
0:05:52	47.1	0.198	20.0	5.833	3.31	6.6289	45.3	6.827	6.716	26.740	20.024	23.38	3.36	1.335	5.9
0:06:02	48.3	0.204	20.0	5.827	3.41	6.6357	46.5	7.013	6.899	26.918	20.019	23.47	3.45	1.345	6.0
0:06:14	50.1	0.211	20.0	5.820	3.53	6.6435	48.3	7.271	7.153	27.174	20.021	23.60	3.58	1.357	6.2
0:06:24	51.3	0.217	20.0	5.814	3.62	6.6499	49.4	7.436	7.314	27.334	20.019	23.68	3.66	1.365	6.4
0:06:34	52.7	0.222	20.0	5.809	3.71	6.6563	50.9	7.650	7.525	27.548	20.022	23.79	3.76	1.376	6.6
0:06:46	54.2	0.229	20.0	5.802	3.83	6.6642	52.4	7.863	7.734	27.755	20.021	23.89	3.87	1.386	6.8
0:06:56	55.5	0.235	20.0	5.796	3.92	6.6709	53.6	8.042	7.910	27.933	20.023	23.98	3.95	1.395	6.9
0:07:05	56.5	0.241	20.0	5.790	4.01	6.6774	54.7	8.186	8.051	28.075	20.023	24.05	4.03	1.402	7.1
0:07:18	57.9	0.248	20.0	5.783	4.13	6.6857	56.1	8.390	8.251	28.273	20.022	24.15	4.13	1.412	7.3
0:07:27	58.8	0.254	20.0	5.778	4.23	6.6920	57.0	8.522	8.380	28.396	20.017	24.21	4.19	1.419	7.5
0:07:37	59.7	0.259	20.0	5.772	4.32	6.6986	57.9	8.644	8.498	28.518	20.019	24.27	4.25	1.425	7.6
0:07:47	61.0	0.265	20.0	5.766	4.41	6.7053	59.2	8.822	8.674	28.684	20.010	24.35	4.34	1.433	7.8
0:07:59	62.1	0.272	20.0	5.759	4.53	6.7134	60.3	8.985	8.832	28.845	20.013	24.43	4.42	1.441	8.0
0:08:09	63.1	0.278	20.0	5.754	4.62	6.7200	61.2	9.114	8.959	28.975	20.016	24.50	4.48	1.448	8.2
0:08:19	63.8	0.283	20.0	5.748	4.72	6.7266	62.0	9.212	9.054	29.063	20.009	24.54	4.53	1.452	8.3
0:08:31	64.7	0.290	20.0	5.741	4.83	6.7349	62.9	9.344	9.182	29.197	20.015	24.61	4.59	1.459	8.5
0:08:41	65.4	0.296	20.0	5.735	4.93	6.7415	63.6	9.438	9.272	29.286	20.014	24.65	4.64	1.463	8.7
0:08:51	66.4	0.302	20.0	5.730	5.02	6.7483	64.6	9.566	9.397	29.401	20.004	24.70	4.70	1.470	8.9
0:09:00	67.1	0.307	20.0	5.724	5.12	6.7550	65.3	9.662	9.490	29.495	20.005	24.75	4.75	1.474	9.0
0:09:13	67.9	0.314	20.0	5.717	5.24	6.7634	66.1	9.769	9.593	29.598	20.005	24.80	4.80	1.480	9.2
0:09:22	68.4	0.320	20.0	5.711	5.33	6.7702	66.6	9.835	9.656	29.655	19.999	24.83	4.83	1.483	9.4
0:09:32	69.2	0.326	20.0	5.705	5.43	6.7770	67.4	9.948	9.765	29.764	19.999	24.88	4.88	1.488	9.5
0:09:42	69.8	0.332	20.0	5.700	5.52	6.7837	68.0	10.026	9.840	29.831	19.991	24.91	4.92	1.492	9.7

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.857 (in.)
Area	6.409 (in ²)

Final Values	
Height	4.9980 (in.)
Dia. avg.	3.113 (in.)
Area avg.	7.6111 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1020BA
Data File ID	UU-1020B
Back Pressure (psi)	0
Lateral Pressure (psi)	19.9

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:09:54	70.6	0.339	20.0	5.692	5.64	6.7923	68.8	10.127	9.937	29.929	19.992	24.96	4.97	1.497	9.9
0:10:04	71.3	0.344	20.0	5.687	5.73	6.7991	69.4	10.214	10.022	30.010	19.989	25.00	5.01	1.501	10.1
0:10:14	71.7	0.350	20.0	5.681	5.83	6.8059	69.9	10.264	10.068	30.054	19.986	25.02	5.03	1.504	10.2
0:10:23	72.2	0.356	19.9	5.675	5.92	6.8128	70.4	10.334	10.135	30.064	19.929	25.00	5.07	1.509	10.4
0:10:36	73.3	0.363	20.0	5.668	6.04	6.8212	71.4	10.473	10.270	30.292	20.022	25.16	5.14	1.513	10.6
0:10:45	73.8	0.369	20.0	5.663	6.13	6.8279	72.0	10.542	10.336	30.374	20.038	25.21	5.17	1.516	10.8
0:10:55	74.2	0.374	20.1	5.657	6.23	6.8349	72.4	10.594	10.385	30.440	20.055	25.25	5.19	1.518	10.9
0:11:05	74.8	0.380	20.1	5.651	6.32	6.8416	73.0	10.670	10.458	30.524	20.066	25.29	5.23	1.521	11.1
0:11:17	75.6	0.387	20.1	5.644	6.43	6.8501	73.8	10.774	10.557	30.628	20.071	25.35	5.28	1.526	11.3
0:11:27	76.3	0.392	20.1	5.639	6.53	6.8569	74.5	10.859	10.639	30.718	20.079	25.40	5.32	1.530	11.5
0:11:37	76.7	0.398	20.1	5.633	6.62	6.8637	74.9	10.909	10.687	30.770	20.084	25.43	5.34	1.532	11.6
0:11:49	77.5	0.405	20.1	5.626	6.74	6.8723	75.7	11.011	10.785	30.870	20.085	25.48	5.39	1.537	11.8
0:11:59	78.2	0.411	20.1	5.621	6.83	6.8791	76.4	11.107	10.877	30.967	20.090	25.53	5.44	1.541	12.0
0:12:08	78.6	0.416	20.1	5.615	6.92	6.8861	76.8	11.156	10.923	31.012	20.088	25.55	5.46	1.544	12.1
0:12:21	79.1	0.423	20.1	5.608	7.04	6.8947	77.3	11.211	10.975	31.069	20.094	25.58	5.49	1.546	12.4
0:12:30	79.9	0.429	20.1	5.602	7.14	6.9018	78.1	11.309	11.069	31.166	20.097	25.63	5.53	1.551	12.5
0:12:41	80.4	0.435	20.1	5.596	7.23	6.9091	78.6	11.375	11.132	31.226	20.094	25.66	5.57	1.554	12.7
0:12:51	80.6	0.441	20.1	5.590	7.33	6.9162	78.8	11.394	11.148	31.237	20.089	25.66	5.57	1.555	12.9
0:13:00	80.9	0.446	20.1	5.585	7.42	6.9232	79.1	11.428	11.179	31.274	20.095	25.68	5.59	1.556	13.0
0:13:13	81.4	0.454	20.1	5.578	7.54	6.9321	79.6	11.477	11.224	31.311	20.087	25.70	5.61	1.559	13.2
0:13:22	81.2	0.459	20.1	5.572	7.63	6.9391	79.4	11.442	11.186	31.272	20.086	25.68	5.59	1.557	13.4
0:13:32	81.2	0.465	20.1	5.566	7.73	6.9462	79.4	11.431	11.171	31.257	20.086	25.67	5.59	1.556	13.5
0:13:42	81.3	0.471	20.1	5.561	7.83	6.9534	79.5	11.433	11.170	31.256	20.086	25.67	5.58	1.556	13.7
0:13:54	81.8	0.478	20.1	5.554	7.94	6.9622	80.0	11.494	11.228	31.311	20.083	25.70	5.61	1.559	13.9
0:14:04	82.0	0.483	20.1	5.548	8.04	6.9693	80.2	11.509	11.239	31.316	20.078	25.70	5.62	1.560	14.1
0:14:14	82.3	0.489	20.1	5.542	8.13	6.9764	80.5	11.540	11.267	31.352	20.085	25.72	5.63	1.561	14.2
0:14:26	82.2	0.496	20.1	5.535	8.25	6.9852	80.4	11.509	11.232	31.319	20.087	25.70	5.62	1.559	14.4
0:14:36	82.1	0.502	20.1	5.530	8.34	6.9923	80.3	11.488	11.208	31.295	20.087	25.69	5.60	1.558	14.6
0:14:45	82.0	0.507	20.1	5.524	8.43	6.9994	80.2	11.456	11.172	31.254	20.082	25.67	5.59	1.556	14.8
0:14:56	81.9	0.513	20.1	5.518	8.53	7.0068	80.1	11.433	11.146	31.228	20.082	25.66	5.57	1.555	14.9
0:15:08	82.3	0.520	20.1	5.511	8.64	7.0154	80.5	11.478	11.188	31.260	20.072	25.67	5.59	1.557	15.1
0:15:18	82.7	0.525	20.1	5.506	8.73	7.0220	80.9	11.522	11.229	31.314	20.085	25.70	5.61	1.559	15.3
0:15:30	82.7	0.532	20.1	5.500	8.83	7.0304	80.9	11.504	11.207	31.295	20.088	25.69	5.60	1.558	15.5
0:15:42	83.3	0.538	20.1	5.493	8.95	7.0390	81.5	11.575	11.274	31.360	20.086	25.72	5.64	1.561	15.7
0:15:52	83.5	0.544	20.1	5.487	9.04	7.0460	81.7	11.596	11.293	31.376	20.084	25.73	5.65	1.562	15.9
0:16:04	84.3	0.551	20.1	5.481	9.15	7.0547	82.5	11.690	11.382	31.462	20.080	25.77	5.69	1.567	16.1
0:16:14	84.8	0.556	20.1	5.475	9.24	7.0619	83.0	11.756	11.446	31.531	20.085	25.81	5.72	1.570	16.2
0:16:24	85.2	0.562	20.1	5.469	9.34	7.0692	83.4	11.799	11.485	31.568	20.083	25.83	5.74	1.572	16.4
0:16:34	85.8	0.567	20.1	5.464	9.43	7.0766	84.0	11.869	11.552	31.630	20.078	25.85	5.78	1.575	16.6
0:16:46	86.0	0.574	20.1	5.457	9.55	7.0857	84.1	11.874	11.554	31.632	20.079	25.86	5.78	1.575	16.8
0:16:56	86.2	0.580	20.1	5.451	9.64	7.0930	84.4	11.898	11.574	31.648	20.074	25.86	5.79	1.577	16.9
0:17:05	86.9	0.586	20.1	5.445	9.73	7.1004	85.0	11.977	11.650	31.727	20.077	25.90	5.82	1.580	17.1
0:17:18	87.2	0.593	20.1	5.438	9.85	7.1095	85.4	12.016	11.685	31.773	20.088	25.93	5.84	1.582	17.3
0:17:27	87.6	0.598	20.1	5.433	9.94	7.1167	85.8	12.057	11.723	31.800	20.077	25.94	5.86	1.584	17.5
0:17:37	87.9	0.604	20.1	5.427	10.03	7.1241	86.1	12.088	11.751	31.831	20.080	25.96	5.88	1.585	17.6
0:17:49	88.7	0.611	20.1	5.420	10.15	7.1333	86.9	12.175	11.834	31.911	20.077	25.99	5.92	1.589	17.8
0:17:59	88.9	0.616	20.1	5.415	10.24	7.1406	87.1	12.203	11.859	31.914	20.055	25.98	5.93	1.591	18.0
0:18:09	89.2	0.622	20.1	5.409	10.33	7.1479	87.4	12.227	11.880	31.960	20.080	26.02	5.94	1.592	18.2
0:18:21	89.6	0.629	20.1	5.402	10.45	7.1571	87.8	12.265	11.913	32.001	20.088	26.04	5.96	1.593	18.4
0:18:31	90.2	0.635	20.1	5.397	10.54	7.1645	88.4	12.333	11.979	32.064	20.085	26.07	5.99	1.596	18.5
0:18:41	90.6	0.640	20.1	5.391	10.63	7.1718	88.8	12.382	12.025	32.111	20.086	26.10	6.01	1.599	18.7
0:18:53	91.0	0.647	20.1	5.384	10.75	7.1811	89.2	12.416	12.055	32.137	20.082	26.11	6.03	1.600	18.9
0:19:03	91.6	0.652	20.1	5.379	10.84	7.1885	89.8	12.493	12.129	32.212	20.083	26.15	6.06	1.604	19.1
0:19:12	92.0	0.658	20.1	5.373	10.93	7.1959	90.2	12.535	12.168	32.255	20.087	26.17	6.08	1.606	19.2
0:19:25	92.4	0.665	20.1	5.366	11.05	7.2052	90.6	12.573	12.202	32.283	20.081	26.18	6.10	1.608	19.4
0:19:34	92.8	0.671	20.1	5.361	11.14	7.2127	91.0	12.613	12.239	32.322	20.083	26.20	6.12	1.609	19.6

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.033 (in.)
Diameter	2.857 (in.)
Area	6.409 (in ²)

Final Values	
Height	4.9980 (in.)
Dia. avg.	3.113 (in.)
Area avg.	7.6111 (in ²)

Tested By	KDG
Date	6-26-09
Press No.	2
Panel No.	D

Project Number	175569038
Test Number	UU-1020BA
Data File ID	UU-1020B
Back Pressure (psi)	0
Lateral Pressure (psi)	19.9

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:19:47	93.0	0.678	20.1	5.354	11.25	7.2221	91.2	12.626	12.248	32.329	20.080	26.20	6.12	1.610	19.8
0:19:56	93.6	0.683	20.1	5.348	11.35	7.2296	91.8	12.700	12.318	32.395	20.077	26.24	6.16	1.614	19.9
0:20:06	93.6	0.689	20.1	5.343	11.44	7.2372	91.8	12.689	12.304	32.385	20.081	26.23	6.15	1.613	20.1
0:20:18	93.8	0.696	20.1	5.336	11.55	7.2466	92.0	12.696	12.308	32.387	20.079	26.23	6.15	1.613	20.3
0:20:28	94.2	0.701	20.1	5.330	11.65	7.2542	92.4	12.741	12.350	32.437	20.087	26.26	6.17	1.615	20.5
0:20:38	94.5	0.707	20.1	5.324	11.74	7.2619	92.7	12.761	12.366	32.451	20.085	26.27	6.18	1.616	20.6
0:20:50	94.9	0.714	20.1	5.317	11.86	7.2714	93.1	12.800	12.402	32.487	20.085	26.29	6.20	1.617	20.8
0:21:00	95.6	0.719	20.1	5.312	11.95	7.2791	93.7	12.879	12.478	32.551	20.073	26.31	6.24	1.622	21.0
0:21:10	95.9	0.725	20.1	5.306	12.04	7.2869	94.1	12.912	12.507	32.591	20.084	26.34	6.25	1.623	21.2
0:21:20	96.2	0.731	20.1	5.300	12.14	7.2946	94.4	12.945	12.537	32.617	20.081	26.35	6.27	1.624	21.3
0:21:32	97.1	0.738	20.1	5.293	12.25	7.3042	95.2	13.040	12.628	32.706	20.078	26.39	6.31	1.629	21.5
0:21:42	97.3	0.743	20.1	5.288	12.34	7.3119	95.5	13.063	12.648	32.728	20.080	26.40	6.32	1.630	21.7
0:21:51	97.8	0.749	20.1	5.282	12.44	7.3197	96.0	13.119	12.701	32.772	20.071	26.42	6.35	1.633	21.9
0:22:04	98.5	0.756	20.1	5.275	12.56	7.3295	96.7	13.190	12.768	32.839	20.072	26.46	6.38	1.636	22.1
0:22:13	98.6	0.762	20.1	5.270	12.65	7.3373	96.8	13.193	12.768	32.848	20.079	26.46	6.38	1.636	22.2
0:22:23	99.2	0.767	20.1	5.264	12.74	7.3450	97.4	13.261	12.833	32.910	20.077	26.49	6.42	1.639	22.4
0:22:35	99.8	0.774	20.1	5.257	12.86	7.3549	98.0	13.321	12.889	32.957	20.069	26.51	6.44	1.642	22.6
0:22:45	100.1	0.780	20.1	5.251	12.95	7.3628	98.3	13.349	12.913	32.985	20.072	26.53	6.46	1.643	22.8
0:22:55	100.7	0.785	20.1	5.246	13.04	7.3706	98.9	13.417	12.978	33.051	20.072	26.56	6.49	1.647	22.9
0:23:07	101.3	0.793	20.1	5.239	13.16	7.3806	99.5	13.486	13.044	33.124	20.080	26.60	6.52	1.650	23.1
0:23:17	101.9	0.798	20.1	5.233	13.25	7.3885	100.1	13.543	13.097	33.173	20.076	26.62	6.55	1.652	23.3
0:23:27	102.5	0.804	20.1	5.227	13.35	7.3966	100.7	13.614	13.165	33.227	20.061	26.64	6.58	1.656	23.5
0:23:37	102.8	0.810	20.1	5.222	13.44	7.4046	101.0	13.644	13.192	33.262	20.070	26.67	6.60	1.657	23.6
0:23:49	103.3	0.817	20.1	5.215	13.56	7.4147	101.5	13.685	13.229	33.296	20.067	26.68	6.61	1.659	23.8
0:23:59	103.7	0.823	20.1	5.209	13.66	7.4233	101.9	13.722	13.262	33.334	20.071	26.70	6.63	1.661	24.0
0:24:09	104.4	0.828	20.1	5.203	13.75	7.4314	102.6	13.806	13.344	33.414	20.071	26.74	6.67	1.665	24.2
0:24:19	104.7	0.834	20.1	5.197	13.85	7.4395	102.9	13.826	13.360	33.425	20.065	26.75	6.68	1.666	24.3
0:24:28	105.2	0.840	20.1	5.192	13.94	7.4476	103.4	13.881	13.412	33.478	20.065	26.77	6.71	1.668	24.5
0:24:41	105.6	0.847	20.1	5.184	14.06	7.4579	103.7	13.911	13.439	33.502	20.063	26.78	6.72	1.670	24.7
0:24:50	106.1	0.852	20.1	5.179	14.15	7.4660	104.3	13.975	13.499	33.561	20.062	26.81	6.75	1.673	24.8
0:25:00	106.4	0.858	20.1	5.173	14.25	7.4742	104.6	13.996	13.517	33.575	20.058	26.82	6.76	1.674	25.0
0:25:10	106.9	0.864	20.1	5.167	14.34	7.4824	105.1	14.042	13.560	33.622	20.062	26.84	6.78	1.676	25.2
0:25:22	107.7	0.871	20.1	5.160	14.46	7.4926	105.9	14.128	13.643	33.701	20.058	26.88	6.82	1.680	25.4
0:25:32	108.0	0.877	20.1	5.155	14.55	7.5009	106.2	14.154	13.665	33.722	20.057	26.89	6.83	1.681	25.5
0:25:42	108.5	0.882	20.1	5.149	14.65	7.5091	106.7	14.208	13.716	33.767	20.051	26.91	6.86	1.684	25.7
0:25:54	109.0	0.889	20.0	5.142	14.76	7.5194	107.2	14.260	13.763	33.808	20.045	26.93	6.88	1.687	25.9
0:26:04	109.4	0.895	20.0	5.136	14.86	7.5277	107.6	14.293	13.793	33.833	20.040	26.94	6.90	1.688	26.1
0:26:14	109.9	0.900	20.0	5.131	14.95	7.5359	108.1	14.347	13.845	33.890	20.045	26.97	6.92	1.691	26.2
0:26:23	110.2	0.906	20.1	5.125	15.04	7.5443	108.4	14.372	13.867	33.917	20.051	26.98	6.93	1.692	26.4
0:26:36	110.6	0.913	20.0	5.118	15.16	7.5547	108.8	14.406	13.897	33.938	20.041	26.99	6.95	1.693	26.6
0:26:45	111.4	0.919	20.0	5.112	15.26	7.5631	109.6	14.491	13.978	33.981	20.003	26.99	6.99	1.699	26.8
0:26:55	111.9	0.925	20.0	5.107	15.35	7.5715	110.1	14.539	14.023	34.037	20.015	27.03	7.01	1.701	26.9
0:27:07	112.8	0.932	20.0	5.100	15.47	7.5820	111.0	14.640	14.120	34.129	20.009	27.07	7.06	1.706	27.1
0:27:17	113.3	0.937	20.1	5.094	15.56	7.5905	111.5	14.684	14.161	34.217	20.056	27.14	7.08	1.706	27.3
0:27:27	113.7	0.943	20.1	5.088	15.66	7.5990	111.8	14.718	14.192	34.264	20.072	27.17	7.10	1.707	27.5
0:27:37	114.0	0.949	20.1	5.082	15.75	7.6076	112.2	14.748	14.219	34.308	20.089	27.20	7.11	1.708	27.6
0:27:47	114.6	0.955	20.1	5.077	15.85	7.6162	112.8	14.814	14.282	34.379	20.097	27.24	7.14	1.711	27.8
0:27:59	115.3	0.962	20.1	5.069	15.97	7.6270	113.4	14.874	14.338	34.446	20.108	27.28	7.17	1.713	28.0
0:28:09	115.8	0.967	20.1	5.064	16.06	7.6355	114.0	14.926	14.386	34.499	20.113	27.31	7.19	1.715	28.2
0:28:18	116.3	0.973	20.1	5.058	16.15	7.6442	114.4	14.971	14.428	34.543	20.115	27.33	7.21	1.717	28.3
0:28:28	116.5	0.979	20.1	5.052	16.25	7.6529	114.7	14.986	14.440	34.548	20.109	27.33	7.22	1.718	28.5
0:28:40	116.9	0.986	20.1	5.045	16.37	7.6638	115.1	15.019	14.469	34.584	20.114	27.35	7.23	1.719	28.7
0:28:50	117.6	0.992	20.1	5.039	16.46	7.6724	115.8	15.096	14.542	34.656	20.114	27.39	7.27	1.723	28.8
0:29:00	117.9	0.997	20.1	5.034	16.56	7.6811	116.1	15.119	14.562	34.678	20.116	27.40	7.28	1.724	29.0
0:29:10	118.4	1.003	20.1	5.028	16.65	7.6899	116.6	15.164	14.604	34.716	20.112	27.41	7.30	1.726	29.2
0:29:22	119.0	1.010	20.1	5.021	16.77	7.7007	117.1	15.213	14.649	34.764	20.115	27.44	7.32	1.728	29.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values
 Height 6.033 (in.)
 Diameter 2.857 (in.)
 Area 6.409 (in²)

Final Values
 Height 4.9980 (in.)
 Dia. avg. 3.113 (in.)
 Area avg. 7.6111 (in²)

Tested By KDG
 Date 6-26-09
 Press No. 2
 Panel No. D

Project Number 175569038
 Test Number UU-1020BA
 Data File ID UU-1020B
 Back Pressure (psi) 0
 Lateral Pressure (psi) 19.9

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:29:32	119.4	1.016	20.1	5.015	16.87	7.7095	117.6	15.256	14.689	34.810	20.122	27.47	7.34	1.730	29.5
0:29:41	119.9	1.022	20.1	5.009	16.96	7.7183	118.1	15.296	14.726	34.846	20.120	27.48	7.36	1.732	29.7
0:29:51	120.2	1.027	20.1	5.004	17.05	7.7271	118.4	15.317	14.744	34.862	20.118	27.49	7.37	1.733	29.9
0:30:01	120.5	1.033	20.1	4.998	17.15	7.7360	118.7	15.347	14.771	34.882	20.111	27.50	7.39	1.734	30.0

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values
 Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values
 Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1020BB
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

Clock Time	Load	Deflection Dial Reading	Chamber Pressure Reading	Corrected Height	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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* Corrected Deviator Stress
 for Membrane Only (ASTM Method)
 $= (4(EM)(Thickness)(Strain))/D_c$
 Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height ##### (in.)
 Diameter (in.)
 Area (in²)

Final Values

Height #VALUE! (in.)
 Dia. avg. #DIV/0! (in.)
 Area avg. #DIV/0! (in²)

Tested By
 Date
 Press No.
 Panel No.

Project Number 175569038
 Test Number UU-1020BC
 Data File ID
 Back Pressure (psi) 0
 Lateral Pressure (psi)

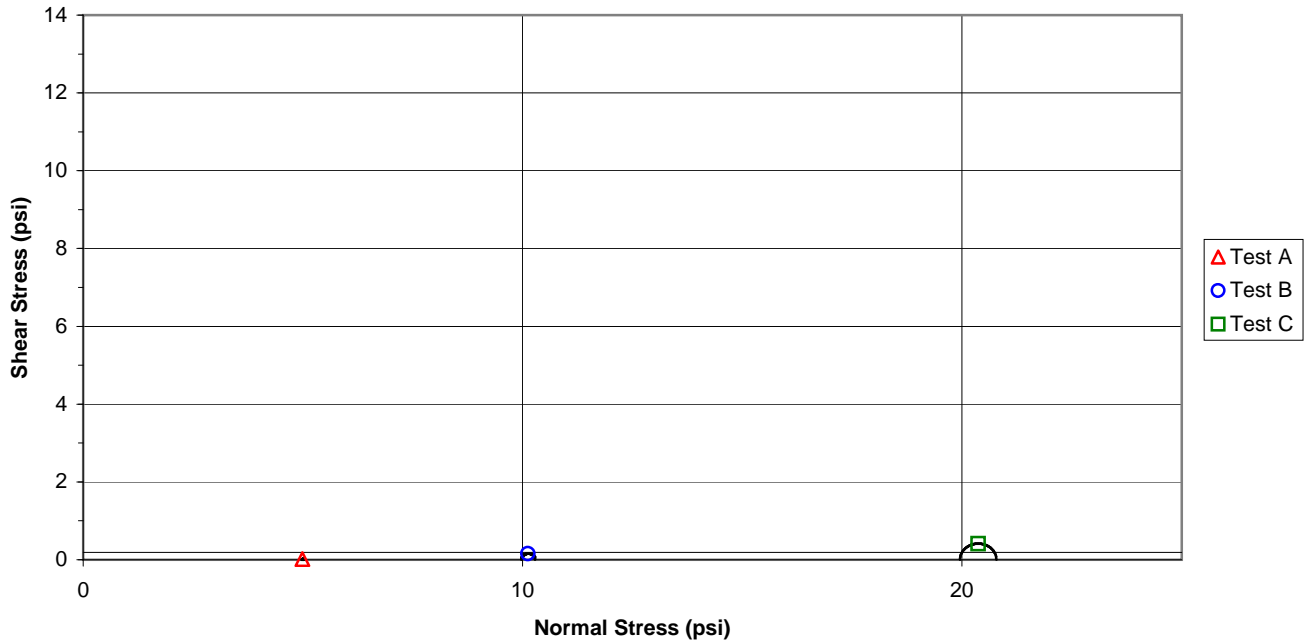
Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
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Project John Siever Fossil Plant
 Sample ID JS-49, 12.0' - 18.0'

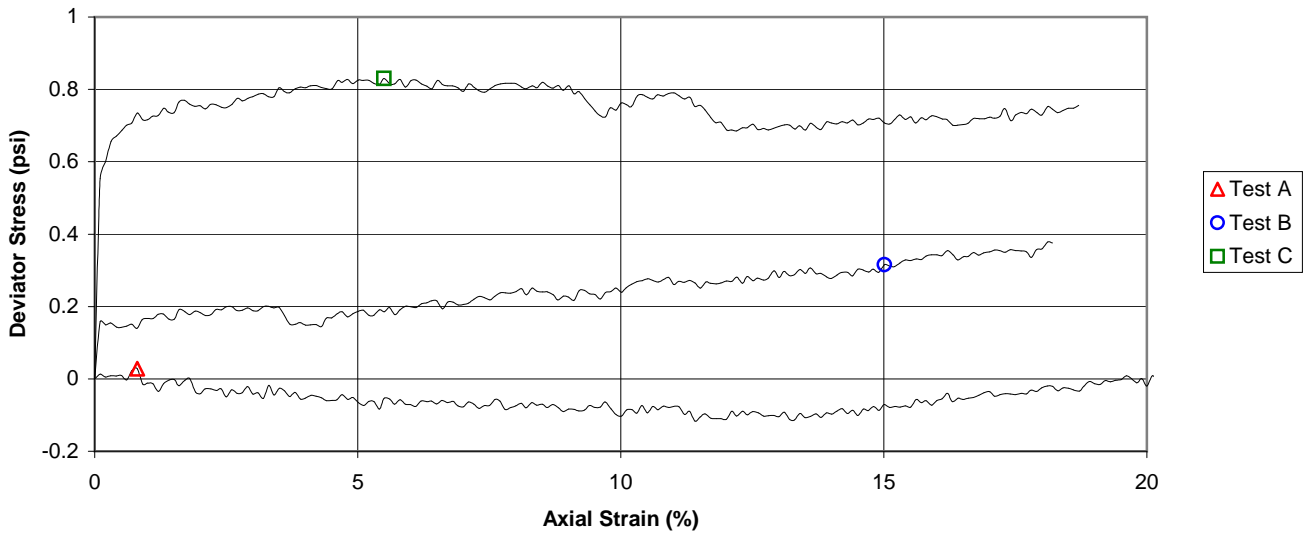
Project No. 175569038
 Test Number 1

Failure Criterion: $\phi = 0.0$ deg. $c = 0.2$ psi
 Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-49, 12.0' - 18.0'</u>	Test Number	<u>UU-1A</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>KDG</u>
		Date	<u>5-27-09</u>

Specific Gravity	<u>2.26</u>	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>	Plasticity Index	<u>N/A</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1064.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>21.4446</u> (VS _o)	Dry Weight (g) <u>794.24</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>16.4605</u> (Vw _o)	Wet Unit Weight (pcf) <u>109.7</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>15.5006</u> (Vv _o)	Dry Unit Weight (pcf) <u>81.9</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>106.2</u> (S _o)	
Moisture Content (%) <u>34.0</u>	Final Trimmings	Void Ratio <u>0.723</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>5-27-09</u>
			Panel Board Number	<u>B</u>

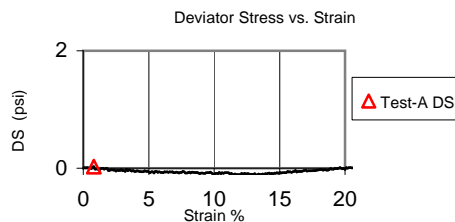
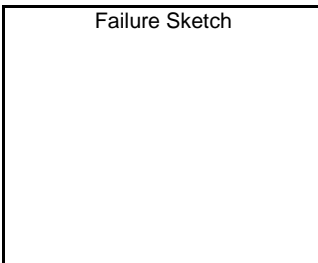
Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>5</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>16.4605</u> (VW _c)	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>34.0</u>	
Dry Density (pcf) <u>81.9</u>		Degree of Saturation (%) <u>106.2</u> (S _c)	Void Ratio <u>0.723</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.464</u> (in.)	Wet Weight (g) <u>1064.00</u>	Corrected Deviator <u>0.03</u> σ _d (psi)
Wet weight (g) <u>1064</u> (WW _f)	Dry Weight (g) <u>794.24</u>	Major Principal <u>5.00</u> σ ₁₁ (psi)
Average Diameter <u>3.186</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>4.98</u> σ ₃₁ (psi)
		Rate of Strain (% / min.) <u>0.265</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Axial Strain at Failure (%) <u>0.81</u>
Membrane Thickness (in.) <u>0.012</u>		Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-49, 12.0' - 18.0'</u>	Test Number	<u>UU-1B</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>RC</u>
		Date	<u>5-27-09</u>

Specific Gravity	<u>2.26</u>	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>	Plasticity Index	<u>N/A</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1064</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>21.5243</u> (V _{S_o})	Dry Weight (g) <u>797.20</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>16.2804</u> (V _{w_o})	Wet Unit Weight (pcf) <u>109.7</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>15.4209</u> (V _{v_o})	Dry Unit Weight (pcf) <u>82.2</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>105.6</u> (S _o)	
Moisture Content (%) <u>33.5</u>	Final Trimmings	Void Ratio <u>0.716</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>5-27-09</u>
			Panel Board Number	<u>B</u>

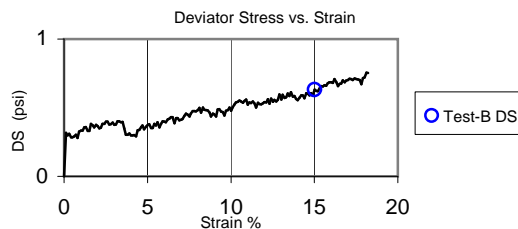
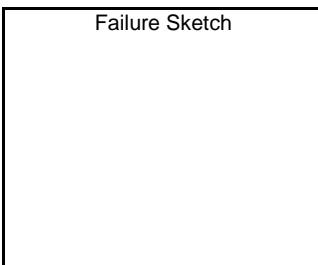
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)	<u>6.0000</u> (H _s)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Area (in ²) Method A	<u>6.1575</u> (A _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Specimen Volume (in ³)	<u>36.9451</u> (V _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)		

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>10</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>10</u> (σ ₃)
Height (in.)	<u>6.0000</u> (H _c)	Volume (in ³)	<u>36.9451</u> (V _c)
Area (in ³) Method A	<u>6.1575</u> (A _c)	Volume - Water (in ³)	<u>16.2804</u> (V _{wc})
Diameter (in.)	<u>2.8000</u> (D _c)	Water Content (%)	<u>33.5</u>
Dry Density (pcf)	<u>82.2</u>	Degree of Saturation (%)	<u>105.6</u> (S _c)
			t ₅₀ (min.) _____
			Void Ratio <u>0.716</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.444</u> (in.)	Wet Weight (g) <u>1064.00</u>	Corrected Deviator <u>0.32</u> σ _d (psi)
Wet weight (g) <u>1064</u> (WWf)	Dry Weight (g) <u>797.20</u>	Major Principal <u>10.28</u> σ _{1f} (psi)
Average Diameter <u>3.158</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>9.97</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.294</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk sample from low blow count material.

Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-49, 12.0' - 18.0'</u>	Test Number	<u>UU-1C</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>RC</u>
		Date	<u>5-27-09</u>

Specific Gravity	<u>2.26</u>	Liquid Limit	<u>N/A</u>	Plastic Limit	<u>N/A</u>	Plasticity Index	<u>N/A</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1064</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>21.7411</u> (V _{S_o})	Dry Weight (g) <u>805.23</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>15.7904</u> (V _{W_o})	Wet Unit Weight (pcf) <u>109.7</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>15.2040</u> (V _{V_o})	Dry Unit Weight (pcf) <u>83.0</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>103.9</u> (S _o)	
Moisture Content (%) <u>32.1</u>	Final Trimmings	Void Ratio <u>0.699</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>5-27-09</u>
			Panel Board Number	<u>B</u>

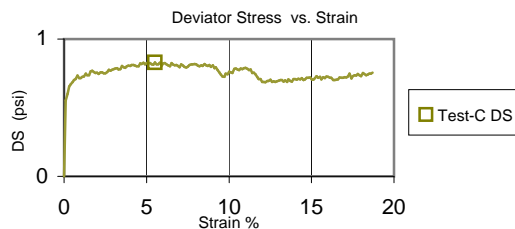
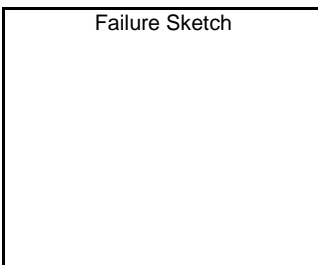
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>20</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>20</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>15.7904</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>32.1</u>	
Dry Density (pcf) <u>83.0</u>		Degree of Saturation (%) <u>103.9</u> (S _c)	Void Ratio <u>0.699</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.402</u> (in.)	Wet Weight (g) <u>1064.00</u>	Corrected Deviator <u>0.83</u> σ _d (psi)
Wet weight (g) <u>1064</u> (WWf)	Dry Weight (g) <u>805.23</u>	Major Principal <u>20.78</u> σ _{1f} (psi)
Average Diameter <u>3.144</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>19.95</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.294</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>5.50</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Compacted samples at as received moisture content. Bulk sample from low blow count material.

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.7276 (in.)
Dia. avg.	3.186 (in.)
Area avg.	7.9739 (in ²)

Tested By	KG/RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1A
Data File ID	UU-1A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.0	-0.191	5.0	6.000	0.00	6.1575	0.0	0.000	0.000	5.001	5.001	5.00	0.00	1.000	0.0
0:00:11	1.1	-0.185	5.0	5.994	0.10	6.1638	0.1	0.016	0.013	5.010	4.997	5.00	0.01	1.003	0.2
0:00:19	1.1	-0.179	5.0	5.988	0.20	6.1699	0.1	0.012	0.006	5.005	4.999	5.00	0.00	1.001	0.3
0:00:27	1.1	-0.173	5.0	5.982	0.30	6.1762	0.1	0.019	0.009	4.985	4.976	4.98	0.00	1.002	0.5
0:00:36	1.1	-0.167	5.0	5.975	0.41	6.1829	0.1	0.022	0.008	4.983	4.975	4.98	0.00	1.002	0.6
0:00:43	1.2	-0.161	5.0	5.970	0.50	6.1886	0.2	0.027	0.009	5.002	4.993	5.00	0.00	1.002	0.7
0:00:52	1.1	-0.155	5.0	5.963	0.61	6.1954	0.1	0.018	-0.003	4.976	4.978	4.98	0.00	0.999	0.9
0:00:59	1.3	-0.149	5.0	5.958	0.71	6.2012	0.3	0.047	0.023	5.013	4.990	5.00	0.01	1.005	1.0
0:01:08	1.3	-0.143	5.0	5.952	0.81	6.2076	0.3	0.056	0.028	5.004	4.976	4.99	0.01	1.006	1.1
0:01:16	1.1	-0.136	5.0	5.945	0.92	6.2144	0.1	0.018	-0.014	4.974	4.988	4.98	-0.01	0.997	1.3
0:01:24	1.1	-0.131	5.0	5.940	1.01	6.2202	0.1	0.022	-0.012	4.957	4.969	4.96	-0.01	0.998	1.4
0:01:33	1.1	-0.125	5.0	5.934	1.11	6.2264	0.2	0.024	-0.014	4.972	4.985	4.98	-0.01	0.997	1.6
0:01:41	1.0	-0.119	5.0	5.927	1.21	6.2330	0.0	0.007	-0.034	4.935	4.969	4.95	-0.02	0.993	1.7
0:01:50	1.2	-0.113	5.0	5.922	1.31	6.2391	0.2	0.031	-0.014	4.950	4.963	4.96	-0.01	0.997	1.8
0:01:58	1.3	-0.106	5.0	5.915	1.42	6.2462	0.3	0.046	-0.002	4.986	4.989	4.99	0.00	1.000	2.0
0:02:06	1.3	-0.100	5.0	5.909	1.51	6.2521	0.3	0.050	-0.002	4.962	4.964	4.96	0.00	1.000	2.1
0:02:13	1.2	-0.095	5.0	5.904	1.60	6.2577	0.2	0.036	-0.019	4.958	4.976	4.97	-0.01	0.996	2.2
0:02:22	1.3	-0.088	5.0	5.897	1.72	6.2651	0.3	0.055	-0.004	4.957	4.961	4.96	0.00	0.999	2.4
0:02:29	1.4	-0.083	5.0	5.891	1.81	6.2710	0.4	0.062	0.000	4.992	4.991	4.99	0.00	1.000	2.5
0:02:38	1.2	-0.076	5.0	5.885	1.92	6.2779	0.2	0.029	-0.037	4.921	4.958	4.94	-0.02	0.993	2.6
0:02:45	1.2	-0.071	5.0	5.880	2.01	6.2837	0.2	0.028	-0.041	4.920	4.961	4.94	-0.02	0.992	2.8
0:02:53	1.3	-0.065	5.0	5.874	2.10	6.2896	0.3	0.045	-0.027	4.950	4.978	4.96	-0.01	0.995	2.9
0:03:01	1.3	-0.059	5.0	5.868	2.21	6.2964	0.3	0.048	-0.028	4.929	4.957	4.94	-0.01	0.994	3.0
0:03:10	1.3	-0.053	5.0	5.861	2.31	6.3033	0.3	0.047	-0.032	4.946	4.978	4.96	-0.02	0.994	3.2
0:03:17	1.3	-0.047	5.0	5.856	2.40	6.3092	0.3	0.055	-0.028	4.941	4.969	4.96	-0.01	0.994	3.3
0:03:26	1.2	-0.041	5.0	5.850	2.50	6.3154	0.2	0.036	-0.049	4.904	4.954	4.93	-0.02	0.990	3.4
0:03:35	1.4	-0.035	5.0	5.844	2.61	6.3222	0.4	0.059	-0.030	4.947	4.977	4.96	-0.02	0.994	3.6
0:03:43	1.3	-0.029	5.0	5.838	2.71	6.3289	0.3	0.053	-0.040	4.913	4.953	4.93	-0.02	0.992	3.7
0:03:52	1.4	-0.023	5.0	5.832	2.81	6.3353	0.4	0.058	-0.038	4.937	4.975	4.96	-0.02	0.992	3.9
0:04:00	1.5	-0.017	5.0	5.826	2.90	6.3417	0.5	0.078	-0.022	4.941	4.962	4.95	-0.01	0.996	4.0
0:04:09	1.4	-0.011	5.0	5.820	3.00	6.3482	0.4	0.062	-0.041	4.914	4.956	4.93	-0.02	0.992	4.2
0:04:18	1.4	-0.005	5.0	5.814	3.10	6.3547	0.4	0.068	-0.038	4.941	4.979	4.96	-0.02	0.992	4.3
0:04:26	1.4	0.001	5.0	5.808	3.20	6.3613	0.4	0.056	-0.054	4.920	4.973	4.95	-0.03	0.989	4.4
0:04:35	1.6	0.007	5.0	5.802	3.31	6.3681	0.6	0.096	-0.018	4.936	4.954	4.95	-0.01	0.996	4.6
0:04:44	1.5	0.013	5.0	5.795	3.41	6.3748	0.5	0.073	-0.044	4.925	4.970	4.95	-0.02	0.991	4.7
0:04:52	1.6	0.019	4.9	5.789	3.51	6.3814	0.6	0.094	-0.026	4.921	4.947	4.93	-0.01	0.995	4.9
0:05:01	1.6	0.025	5.0	5.784	3.61	6.3879	0.6	0.090	-0.033	4.919	4.952	4.94	-0.02	0.993	5.0
0:05:10	1.5	0.031	5.0	5.778	3.70	6.3942	0.5	0.078	-0.049	4.925	4.974	4.95	-0.02	0.990	5.2
0:05:19	1.6	0.037	5.0	5.771	3.81	6.4015	0.6	0.093	-0.037	4.930	4.968	4.95	-0.02	0.992	5.3
0:05:28	1.5	0.043	4.9	5.765	3.91	6.4081	0.5	0.078	-0.056	4.889	4.946	4.92	-0.03	0.989	5.5
0:05:35	1.5	0.049	4.9	5.760	4.00	6.4143	0.5	0.084	-0.053	4.894	4.947	4.92	-0.03	0.989	5.6
0:05:44	1.6	0.055	5.0	5.753	4.11	6.4214	0.6	0.095	-0.046	4.919	4.965	4.94	-0.02	0.991	5.7
0:05:53	1.6	0.061	4.9	5.747	4.21	6.4282	0.6	0.096	-0.048	4.898	4.947	4.92	-0.02	0.990	5.9
0:06:01	1.6	0.068	4.9	5.741	4.31	6.4351	0.6	0.095	-0.052	4.896	4.948	4.92	-0.03	0.989	6.0
0:06:09	1.6	0.073	5.0	5.736	4.40	6.4412	0.6	0.091	-0.060	4.896	4.956	4.93	-0.03	0.988	6.2
0:06:17	1.6	0.079	5.0	5.729	4.51	6.4485	0.6	0.095	-0.059	4.910	4.969	4.94	-0.03	0.988	6.3
0:06:26	1.6	0.085	4.9	5.724	4.60	6.4547	0.6	0.100	-0.058	4.883	4.941	4.91	-0.03	0.988	6.4
0:06:35	1.8	0.091	4.9	5.718	4.70	6.4613	0.8	0.118	-0.044	4.905	4.948	4.93	-0.02	0.991	6.6
0:06:44	1.7	0.097	5.0	5.711	4.81	6.4688	0.7	0.109	-0.056	4.903	4.959	4.93	-0.03	0.989	6.7
0:06:53	1.8	0.103	4.9	5.706	4.91	6.4752	0.8	0.117	-0.051	4.894	4.945	4.92	-0.03	0.990	6.9
0:07:03	1.7	0.109	4.9	5.699	5.01	6.4823	0.7	0.106	-0.066	4.876	4.942	4.91	-0.03	0.987	7.1
0:07:12	1.7	0.115	4.9	5.693	5.11	6.4893	0.7	0.102	-0.074	4.865	4.939	4.90	-0.04	0.985	7.2
0:07:20	1.8	0.121	5.0	5.687	5.21	6.4961	0.8	0.117	-0.062	4.895	4.957	4.93	-0.03	0.988	7.3
0:07:29	1.8	0.127	4.9	5.681	5.31	6.5028	0.8	0.119	-0.063	4.874	4.936	4.90	-0.03	0.987	7.5
0:07:37	1.7	0.133	4.9	5.675	5.41	6.5098	0.7	0.102	-0.083	4.847	4.931	4.89	-0.04	0.983	7.6
0:07:45	1.9	0.139	4.9	5.670	5.50	6.5159	0.9	0.135	-0.054	4.881	4.935	4.91	-0.03	0.989	7.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= 4(EM)(Thickness)(Strain)/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.7276 (in.)
Dia. avg.	3.186 (in.)
Area avg.	7.9739 (in ²)

Tested By	KG/RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1A
Data File ID	UU-1A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:07:54	1.9	0.145	5.0	5.663	5.61	6.5234	0.9	0.136	-0.056	4.920	4.976	4.95	-0.03	0.989	7.9
0:08:01	1.8	0.151	5.0	5.658	5.70	6.5298	0.8	0.125	-0.070	4.882	4.953	4.92	-0.04	0.986	8.0
0:08:10	1.9	0.157	4.9	5.652	5.80	6.5370	0.9	0.141	-0.058	4.871	4.928	4.90	-0.03	0.988	8.2
0:08:18	1.9	0.163	4.9	5.646	5.91	6.5441	0.9	0.132	-0.070	4.863	4.933	4.90	-0.04	0.986	8.3
0:08:26	1.9	0.169	4.9	5.640	6.00	6.5507	0.9	0.135	-0.071	4.859	4.930	4.89	-0.04	0.986	8.4
0:08:34	1.9	0.175	4.9	5.634	6.10	6.5576	0.9	0.133	-0.076	4.851	4.927	4.89	-0.04	0.985	8.6
0:08:43	2.0	0.181	4.9	5.628	6.21	6.5650	1.0	0.152	-0.061	4.867	4.928	4.90	-0.03	0.988	8.7
0:08:51	2.0	0.188	4.9	5.621	6.31	6.5725	1.0	0.154	-0.063	4.860	4.923	4.89	-0.03	0.987	8.9
0:08:59	2.0	0.193	4.9	5.616	6.40	6.5787	1.0	0.159	-0.061	4.858	4.919	4.89	-0.03	0.988	9.0
0:09:07	2.0	0.199	4.9	5.610	6.50	6.5857	1.0	0.154	-0.069	4.853	4.922	4.89	-0.03	0.986	9.1
0:09:16	2.1	0.205	4.9	5.604	6.60	6.5927	1.1	0.167	-0.060	4.874	4.934	4.90	-0.03	0.988	9.3
0:09:26	2.1	0.211	4.9	5.597	6.71	6.6003	1.1	0.164	-0.066	4.851	4.917	4.88	-0.03	0.987	9.4
0:09:35	2.1	0.217	4.9	5.591	6.81	6.6075	1.1	0.171	-0.062	4.848	4.910	4.88	-0.03	0.987	9.6
0:09:43	2.1	0.223	4.9	5.586	6.91	6.6144	1.1	0.162	-0.075	4.833	4.908	4.87	-0.04	0.985	9.7
0:09:52	2.1	0.229	4.9	5.580	7.00	6.6213	1.1	0.163	-0.077	4.819	4.897	4.86	-0.04	0.984	9.9
0:10:00	2.2	0.235	4.9	5.574	7.10	6.6283	1.2	0.179	-0.064	4.827	4.891	4.86	-0.03	0.987	10.0
0:10:09	2.2	0.241	4.9	5.568	7.21	6.6357	1.2	0.177	-0.070	4.805	4.875	4.84	-0.03	0.986	10.2
0:10:18	2.1	0.247	4.9	5.562	7.31	6.6428	1.1	0.169	-0.082	4.801	4.882	4.84	-0.04	0.983	10.3
0:10:26	2.2	0.253	4.9	5.556	7.41	6.6500	1.2	0.181	-0.073	4.802	4.876	4.84	-0.04	0.985	10.4
0:10:35	2.2	0.259	4.9	5.550	7.51	6.6573	1.2	0.184	-0.074	4.825	4.898	4.86	-0.04	0.985	10.6
0:10:44	2.4	0.265	4.9	5.544	7.61	6.6645	1.4	0.204	-0.057	4.892	4.949	4.92	-0.03	0.989	10.7
0:10:52	2.4	0.271	5.0	5.538	7.70	6.6714	1.4	0.203	-0.061	4.898	4.959	4.93	-0.03	0.988	10.9
0:11:01	2.2	0.277	5.0	5.532	7.80	6.6785	1.2	0.184	-0.084	4.880	4.964	4.92	-0.04	0.983	11.0
0:11:11	2.3	0.283	5.0	5.525	7.91	6.6865	1.3	0.192	-0.079	4.890	4.969	4.93	-0.04	0.984	11.2
0:11:18	2.3	0.289	5.0	5.520	8.00	6.6933	1.3	0.200	-0.074	4.893	4.968	4.93	-0.04	0.985	11.3
0:11:27	2.4	0.295	5.0	5.513	8.11	6.7010	1.4	0.210	-0.068	4.884	4.951	4.92	-0.03	0.986	11.5
0:11:34	2.4	0.301	5.0	5.508	8.20	6.7076	1.4	0.202	-0.079	4.894	4.973	4.93	-0.04	0.984	11.6
0:11:43	2.5	0.307	5.0	5.502	8.31	6.7155	1.5	0.219	-0.066	4.911	4.977	4.94	-0.03	0.987	11.7
0:11:50	2.4	0.313	5.0	5.496	8.40	6.7223	1.5	0.216	-0.072	4.885	4.957	4.92	-0.04	0.985	11.8
0:11:59	2.5	0.319	5.0	5.489	8.51	6.7302	1.5	0.222	-0.070	4.904	4.973	4.94	-0.03	0.986	12.0
0:12:06	2.5	0.325	5.0	5.484	8.60	6.7371	1.5	0.217	-0.078	4.891	4.969	4.93	-0.04	0.984	12.1
0:12:15	2.5	0.331	5.0	5.477	8.71	6.7451	1.5	0.228	-0.071	4.886	4.957	4.92	-0.04	0.986	12.3
0:12:24	2.5	0.337	5.0	5.471	8.81	6.7526	1.5	0.222	-0.080	4.876	4.956	4.92	-0.04	0.984	12.4
0:12:31	2.5	0.343	5.0	5.466	8.90	6.7593	1.5	0.215	-0.091	4.886	4.976	4.93	-0.05	0.982	12.5
0:12:40	2.5	0.349	5.0	5.459	9.01	6.7671	1.5	0.226	-0.083	4.886	4.969	4.93	-0.04	0.983	12.7
0:12:48	2.5	0.355	4.9	5.453	9.11	6.7749	1.5	0.229	-0.084	4.865	4.949	4.91	-0.04	0.983	12.8
0:12:56	2.5	0.361	4.9	5.448	9.20	6.7814	1.5	0.227	-0.089	4.860	4.949	4.90	-0.04	0.982	12.9
0:13:05	2.6	0.368	5.0	5.441	9.31	6.7900	1.6	0.233	-0.086	4.888	4.974	4.93	-0.04	0.983	13.1
0:13:13	2.7	0.373	5.0	5.436	9.40	6.7965	1.7	0.248	-0.074	4.887	4.961	4.92	-0.04	0.985	13.2
0:13:22	2.7	0.379	4.9	5.430	9.50	6.8042	1.7	0.247	-0.079	4.870	4.949	4.91	-0.04	0.984	13.4
0:13:30	2.7	0.385	4.9	5.423	9.61	6.8122	1.7	0.252	-0.078	4.864	4.942	4.90	-0.04	0.984	13.5
0:13:38	2.8	0.391	4.9	5.418	9.70	6.8192	1.8	0.269	-0.064	4.884	4.948	4.92	-0.03	0.987	13.6
0:13:46	2.7	0.398	5.0	5.411	9.82	6.8277	1.7	0.253	-0.083	4.884	4.967	4.93	-0.04	0.983	13.8
0:13:54	2.6	0.403	5.0	5.406	9.91	6.8346	1.7	0.241	-0.098	4.865	4.963	4.91	-0.05	0.980	13.9
0:14:02	2.6	0.410	4.9	5.399	10.01	6.8428	1.6	0.240	-0.103	4.839	4.942	4.89	-0.05	0.979	14.0
0:14:10	2.8	0.415	4.9	5.394	10.11	6.8499	1.8	0.260	-0.086	4.855	4.941	4.90	-0.04	0.983	14.2
0:14:18	2.8	0.422	4.9	5.387	10.21	6.8581	1.8	0.265	-0.085	4.855	4.940	4.90	-0.04	0.983	14.3
0:14:26	2.8	0.427	4.9	5.382	10.31	6.8651	1.8	0.259	-0.094	4.840	4.935	4.89	-0.05	0.981	14.4
0:14:33	2.9	0.433	5.0	5.376	10.40	6.8723	1.9	0.283	-0.073	4.893	4.967	4.93	-0.04	0.985	14.6
0:14:42	2.8	0.439	5.0	5.370	10.50	6.8803	1.8	0.267	-0.094	4.868	4.962	4.91	-0.05	0.981	14.7
0:14:50	3.0	0.445	4.9	5.364	10.61	6.8880	2.0	0.287	-0.076	4.853	4.929	4.89	-0.04	0.984	14.8
0:14:59	2.9	0.451	4.9	5.357	10.71	6.8960	1.9	0.282	-0.085	4.858	4.943	4.90	-0.04	0.983	15.0
0:15:08	3.0	0.457	4.9	5.351	10.81	6.9039	2.0	0.295	-0.076	4.866	4.941	4.90	-0.04	0.985	15.1
0:15:16	3.0	0.463	5.0	5.345	10.91	6.9115	2.0	0.295	-0.079	4.885	4.963	4.92	-0.04	0.984	15.3
0:15:25	3.1	0.469	5.0	5.340	11.01	6.9190	2.1	0.301	-0.077	4.882	4.959	4.92	-0.04	0.985	15.4
0:15:33	3.1	0.475	4.9	5.334	11.11	6.9269	2.1	0.304	-0.077	4.856	4.933	4.89	-0.04	0.984	15.6

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.7276 (in.)
Dia. avg.	3.186 (in.)
Area avg.	7.9739 (in ²)

Tested By	KG/RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1A
Data File ID	UU-1A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:42	3.0	0.481	4.9	5.328	11.21	6.9348	2.0	0.286	-0.098	4.840	4.938	4.89	-0.05	0.980	15.7
0:15:51	3.1	0.487	4.9	5.321	11.31	6.9427	2.1	0.298	-0.090	4.841	4.931	4.89	-0.04	0.982	15.9
0:15:59	2.9	0.493	4.9	5.315	11.41	6.9506	1.9	0.275	-0.117	4.818	4.934	4.88	-0.06	0.976	16.0
0:16:08	3.0	0.499	4.9	5.309	11.51	6.9585	2.0	0.289	-0.106	4.835	4.941	4.89	-0.05	0.979	16.1
0:16:15	3.1	0.505	5.0	5.304	11.60	6.9656	2.1	0.302	-0.096	4.858	4.954	4.91	-0.05	0.981	16.3
0:16:25	3.0	0.512	5.0	5.297	11.71	6.9746	2.0	0.292	-0.109	4.847	4.956	4.90	-0.05	0.978	16.4
0:16:34	3.1	0.518	4.9	5.291	11.82	6.9826	2.1	0.295	-0.110	4.828	4.938	4.88	-0.05	0.978	16.6
0:16:41	3.1	0.523	4.9	5.286	11.90	6.9894	2.1	0.298	-0.110	4.820	4.930	4.87	-0.05	0.978	16.7
0:16:50	3.1	0.529	4.9	5.280	12.01	6.9978	2.1	0.301	-0.111	4.823	4.934	4.88	-0.06	0.977	16.8
0:16:59	3.3	0.535	4.9	5.273	12.11	7.0061	2.3	0.326	-0.089	4.849	4.939	4.89	-0.04	0.982	17.0
0:17:06	3.2	0.541	5.0	5.268	12.20	7.0134	2.2	0.316	-0.103	4.857	4.960	4.91	-0.05	0.979	17.1
0:17:15	3.3	0.547	5.0	5.261	12.31	7.0221	2.3	0.333	-0.089	4.866	4.955	4.91	-0.04	0.982	17.3
0:17:22	3.3	0.553	4.9	5.256	12.40	7.0295	2.3	0.326	-0.100	4.836	4.936	4.89	-0.05	0.980	17.4
0:17:31	3.4	0.559	4.9	5.250	12.51	7.0377	2.4	0.339	-0.090	4.841	4.931	4.89	-0.05	0.982	17.5
0:17:39	3.4	0.566	4.9	5.243	12.61	7.0464	2.4	0.339	-0.094	4.843	4.937	4.89	-0.05	0.981	17.7
0:17:47	3.4	0.571	4.9	5.237	12.71	7.0543	2.4	0.334	-0.102	4.835	4.938	4.89	-0.05	0.979	17.8
0:17:54	3.4	0.577	4.9	5.232	12.80	7.0616	2.4	0.337	-0.102	4.834	4.936	4.88	-0.05	0.979	17.9
0:18:03	3.4	0.583	5.0	5.225	12.91	7.0703	2.4	0.341	-0.101	4.862	4.963	4.91	-0.05	0.980	18.1
0:18:10	3.4	0.589	5.0	5.220	13.00	7.0778	2.4	0.341	-0.105	4.853	4.958	4.91	-0.05	0.979	18.2
0:18:19	3.5	0.595	4.9	5.213	13.11	7.0865	2.5	0.357	-0.092	4.847	4.940	4.89	-0.05	0.981	18.3
0:18:27	3.4	0.601	4.9	5.207	13.21	7.0949	2.4	0.341	-0.112	4.817	4.929	4.87	-0.06	0.977	18.5
0:18:35	3.4	0.607	4.9	5.202	13.30	7.1023	2.4	0.342	-0.114	4.824	4.938	4.88	-0.06	0.977	18.6
0:18:43	3.6	0.613	4.9	5.196	13.41	7.1110	2.6	0.364	-0.096	4.839	4.935	4.89	-0.05	0.981	18.7
0:18:52	3.5	0.619	4.9	5.190	13.50	7.1189	2.5	0.356	-0.107	4.823	4.930	4.88	-0.05	0.978	18.9
0:19:01	3.6	0.625	5.0	5.184	13.61	7.1273	2.6	0.363	-0.103	4.853	4.956	4.90	-0.05	0.979	19.0
0:19:09	3.7	0.632	4.9	5.177	13.71	7.1361	2.7	0.374	-0.096	4.837	4.933	4.88	-0.05	0.981	19.2
0:19:17	3.6	0.637	4.9	5.172	13.81	7.1440	2.6	0.367	-0.106	4.827	4.933	4.88	-0.05	0.978	19.3
0:19:25	3.7	0.644	4.9	5.165	13.91	7.1527	2.7	0.383	-0.094	4.833	4.927	4.88	-0.05	0.981	19.4
0:19:33	3.7	0.649	4.9	5.160	14.01	7.1605	2.7	0.383	-0.097	4.835	4.932	4.88	-0.05	0.980	19.6
0:19:40	3.8	0.655	4.9	5.154	14.10	7.1685	2.8	0.394	-0.090	4.849	4.938	4.89	-0.04	0.982	19.7
0:19:49	3.9	0.661	5.0	5.147	14.21	7.1776	2.9	0.405	-0.082	4.872	4.955	4.91	-0.04	0.983	19.8
0:19:56	3.8	0.667	5.0	5.142	14.30	7.1853	2.8	0.395	-0.096	4.862	4.957	4.91	-0.05	0.981	19.9
0:20:05	3.9	0.673	4.9	5.135	14.41	7.1945	2.9	0.407	-0.087	4.843	4.930	4.89	-0.04	0.982	20.1
0:20:12	3.9	0.679	4.9	5.130	14.51	7.2022	2.9	0.397	-0.101	4.820	4.921	4.87	-0.05	0.980	20.2
0:20:21	4.0	0.685	4.9	5.123	14.61	7.2113	3.0	0.417	-0.084	4.847	4.931	4.89	-0.04	0.983	20.4
0:20:28	4.0	0.691	4.9	5.118	14.70	7.2188	3.0	0.416	-0.088	4.849	4.937	4.89	-0.04	0.982	20.5
0:20:37	4.1	0.697	4.9	5.112	14.80	7.2275	3.1	0.432	-0.076	4.857	4.933	4.90	-0.04	0.985	20.6
0:20:45	4.1	0.703	4.9	5.106	14.91	7.2362	3.1	0.424	-0.087	4.857	4.944	4.90	-0.04	0.982	20.8
0:20:54	4.2	0.709	5.0	5.100	15.01	7.2446	3.2	0.444	-0.071	4.887	4.958	4.92	-0.04	0.986	20.9
0:21:03	4.2	0.715	4.9	5.094	15.11	7.2534	3.2	0.439	-0.079	4.848	4.927	4.89	-0.04	0.984	21.1
0:21:11	4.2	0.721	4.9	5.087	15.21	7.2620	3.2	0.446	-0.076	4.858	4.934	4.90	-0.04	0.985	21.2
0:21:20	4.2	0.727	4.9	5.081	15.31	7.2707	3.2	0.447	-0.078	4.851	4.929	4.89	-0.04	0.984	21.3
0:21:29	4.3	0.733	4.9	5.076	15.41	7.2791	3.3	0.453	-0.075	4.851	4.926	4.89	-0.04	0.985	21.5
0:21:37	4.3	0.739	4.9	5.069	15.51	7.2880	3.3	0.454	-0.078	4.846	4.924	4.88	-0.04	0.984	21.6
0:21:46	4.5	0.746	5.0	5.063	15.62	7.2969	3.5	0.479	-0.057	4.900	4.957	4.93	-0.03	0.989	21.8
0:21:55	4.5	0.752	4.9	5.057	15.71	7.3055	3.5	0.473	-0.066	4.883	4.949	4.92	-0.03	0.987	21.9
0:22:02	4.5	0.757	4.9	5.052	15.80	7.3132	3.5	0.481	-0.061	4.864	4.925	4.89	-0.03	0.988	22.0
0:22:11	4.5	0.763	4.9	5.046	15.91	7.3221	3.5	0.473	-0.072	4.851	4.924	4.89	-0.04	0.985	22.2
0:22:19	4.6	0.769	4.9	5.040	16.01	7.3310	3.6	0.489	-0.060	4.865	4.925	4.90	-0.03	0.988	22.3
0:22:28	4.6	0.775	4.9	5.034	16.11	7.3396	3.6	0.497	-0.055	4.869	4.924	4.90	-0.03	0.989	22.5
0:22:36	4.8	0.781	4.9	5.027	16.21	7.3488	3.8	0.516	-0.040	4.884	4.924	4.90	-0.02	0.992	22.6
0:22:44	4.6	0.787	4.9	5.022	16.30	7.3570	3.6	0.496	-0.063	4.858	4.921	4.89	-0.03	0.987	22.7
0:22:53	4.8	0.793	4.9	5.015	16.41	7.3665	3.8	0.509	-0.053	4.869	4.923	4.90	-0.03	0.989	22.9
0:23:00	4.8	0.799	4.9	5.010	16.50	7.3745	3.8	0.509	-0.056	4.866	4.923	4.89	-0.03	0.989	23.0
0:23:09	4.8	0.805	4.9	5.003	16.61	7.3840	3.8	0.516	-0.053	4.879	4.932	4.91	-0.03	0.989	23.2
0:23:16	4.8	0.811	5.0	4.998	16.70	7.3921	3.8	0.521	-0.052	4.899	4.951	4.93	-0.03	0.990	23.3

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.7276 (in.)
Dia. avg.	3.186 (in.)
Area avg.	7.9739 (in ²)

Tested By	KG/RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1A
Data File ID	UU-1A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieight (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:23:25	4.9	0.817	4.9	4.991	16.81	7.4017	3.9	0.531	-0.045	4.876	4.921	4.90	-0.02	0.991	23.4
0:23:32	5.0	0.823	4.9	4.986	16.91	7.4104	4.0	0.542	-0.038	4.885	4.923	4.90	-0.02	0.992	23.5
0:23:41	5.1	0.830	4.9	4.979	17.02	7.4200	4.1	0.548	-0.035	4.883	4.919	4.90	-0.02	0.993	23.7
0:23:48	5.0	0.835	4.9	4.974	17.10	7.4278	4.0	0.539	-0.048	4.865	4.912	4.89	-0.02	0.990	23.8
0:23:57	5.1	0.841	4.9	4.968	17.21	7.4372	4.1	0.546	-0.044	4.875	4.919	4.90	-0.02	0.991	24.0
0:24:05	5.1	0.847	4.9	4.961	17.31	7.4466	4.1	0.553	-0.041	4.880	4.921	4.90	-0.02	0.992	24.1
0:24:13	5.1	0.853	4.9	4.956	17.40	7.4549	4.1	0.555	-0.042	4.870	4.912	4.89	-0.02	0.991	24.2
0:24:21	5.2	0.859	4.9	4.950	17.51	7.4642	4.2	0.557	-0.043	4.871	4.914	4.89	-0.02	0.991	24.4
0:24:30	5.2	0.865	4.9	4.943	17.61	7.4737	4.2	0.564	-0.040	4.875	4.915	4.90	-0.02	0.992	24.5
0:24:39	5.2	0.871	4.9	4.937	17.71	7.4826	4.2	0.566	-0.041	4.842	4.884	4.86	-0.02	0.992	24.7
0:24:46	5.3	0.877	4.9	4.932	17.80	7.4910	4.3	0.580	-0.031	4.869	4.899	4.88	-0.02	0.994	24.8
0:24:55	5.3	0.883	4.9	4.926	17.91	7.5006	4.3	0.579	-0.035	4.864	4.899	4.88	-0.02	0.993	24.9
0:25:02	5.4	0.889	4.9	4.920	18.00	7.5092	4.4	0.592	-0.025	4.872	4.897	4.88	-0.01	0.995	25.0
0:25:11	5.5	0.895	4.9	4.913	18.11	7.5193	4.5	0.602	-0.019	4.874	4.893	4.88	-0.01	0.996	25.2
0:25:18	5.5	0.901	4.9	4.908	18.20	7.5278	4.5	0.604	-0.020	4.862	4.883	4.87	-0.01	0.996	25.3
0:25:27	5.5	0.907	4.9	4.901	18.31	7.5378	4.5	0.595	-0.033	4.844	4.877	4.86	-0.02	0.993	25.5
0:25:34	5.6	0.913	4.9	4.896	18.41	7.5465	4.6	0.606	-0.025	4.853	4.878	4.87	-0.01	0.995	25.6
0:25:43	5.6	0.919	4.9	4.889	18.51	7.5563	4.6	0.609	-0.026	4.847	4.873	4.86	-0.01	0.995	25.7
0:25:50	5.6	0.925	4.9	4.884	18.60	7.5648	4.6	0.607	-0.031	4.859	4.889	4.87	-0.02	0.994	25.8
0:25:59	5.6	0.932	4.9	4.877	18.71	7.5752	4.6	0.608	-0.034	4.890	4.923	4.91	-0.02	0.993	26.0
0:26:06	5.7	0.937	5.0	4.872	18.80	7.5835	4.7	0.624	-0.021	4.943	4.964	4.95	-0.01	0.996	26.1
0:26:15	5.9	0.943	5.0	4.866	18.91	7.5931	4.9	0.641	-0.007	4.954	4.961	4.96	0.00	0.999	26.3
0:26:24	5.9	0.949	5.0	4.859	19.01	7.6028	4.9	0.638	-0.014	4.947	4.960	4.95	-0.01	0.997	26.4
0:26:32	5.9	0.955	5.0	4.853	19.11	7.6124	4.9	0.640	-0.015	4.955	4.970	4.96	-0.01	0.997	26.5
0:26:41	6.0	0.961	5.0	4.847	19.21	7.6217	5.0	0.654	-0.005	4.964	4.969	4.97	0.00	0.999	26.7
0:26:49	6.0	0.967	4.9	4.841	19.31	7.6310	5.0	0.654	-0.008	4.940	4.948	4.94	0.00	0.998	26.8
0:26:58	6.1	0.973	4.9	4.835	19.41	7.6407	5.1	0.662	-0.004	4.944	4.948	4.95	0.00	0.999	27.0
0:27:07	6.1	0.979	5.0	4.829	19.51	7.6501	5.1	0.667	-0.002	4.954	4.955	4.95	0.00	1.000	27.1
0:27:15	6.2	0.985	5.0	4.823	19.61	7.6595	5.2	0.681	0.009	4.983	4.974	4.98	0.00	1.002	27.3
0:27:24	6.2	0.991	5.0	4.817	19.71	7.6691	5.2	0.676	0.000	4.967	4.967	4.97	0.00	1.000	27.4
0:27:33	6.1	0.997	5.0	4.811	19.81	7.6789	5.1	0.668	-0.011	4.948	4.959	4.95	-0.01	0.998	27.6
0:27:40	6.2	1.003	4.9	4.806	19.90	7.6875	5.3	0.683	0.001	4.948	4.947	4.95	0.00	1.000	27.7
0:27:49	6.1	1.009	4.9	4.800	20.00	7.6970	5.1	0.666	-0.020	4.920	4.940	4.93	-0.01	0.996	27.8
0:27:57	6.4	1.015	5.0	4.794	20.10	7.7066	5.4	0.698	0.009	4.960	4.951	4.96	0.00	1.002	28.0
0:28:06	6.3	1.021	4.9	4.788	20.20	7.7164	5.3	0.690	-0.002	4.937	4.940	4.94	0.00	1.000	28.1
0:28:15	6.5	1.027	4.9	4.782	20.30	7.7262	5.5	0.707	0.010	4.950	4.940	4.94	0.01	1.002	28.3
0:28:23	6.5	1.033	5.0	4.775	20.41	7.7364	5.5	0.710	0.010	4.978	4.968	4.97	0.01	1.002	28.4
0:28:32	6.5	1.039	5.0	4.769	20.51	7.7466	5.5	0.710	0.007	4.969	4.962	4.97	0.00	1.001	28.5
0:28:39	6.5	1.045	4.9	4.764	20.60	7.7555	5.5	0.712	0.006	4.947	4.942	4.94	0.00	1.001	28.7
0:28:48	6.6	1.052	4.9	4.757	20.71	7.7662	5.6	0.718	0.008	4.948	4.940	4.94	0.00	1.002	28.8
0:28:55	6.7	1.057	4.9	4.752	20.80	7.7749	5.7	0.732	0.019	4.954	4.935	4.94	0.01	1.004	28.9
0:29:04	6.7	1.063	4.9	4.745	20.91	7.7854	5.7	0.729	0.012	4.947	4.934	4.94	0.01	1.003	29.1
0:29:11	6.8	1.069	4.9	4.739	21.01	7.7952	5.8	0.741	0.021	4.952	4.931	4.94	0.01	1.004	29.2
0:29:19	6.9	1.075	4.9	4.734	21.10	7.8042	5.9	0.752	0.029	4.963	4.935	4.95	0.01	1.006	29.3
0:29:27	6.8	1.081	4.9	4.728	21.21	7.8149	5.8	0.748	0.021	4.960	4.939	4.95	0.01	1.004	29.5

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9075 (in.)
Dia. avg.	3.158 (in.)
Area avg.	7.8327 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1B
Data File ID	UU-1B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.8	-0.012	10.0	6.000	0.00	6.1575	0.0	0.000	0.000	10.003	10.003	10.00	0.00	1.000	0.0
0:00:13	2.8	-0.005	10.0	5.994	0.11	6.1640	1.0	0.162	0.158	10.158	9.999	10.08	0.08	1.016	0.2
0:00:22	2.8	0.001	10.0	5.987	0.21	6.1704	1.0	0.157	0.150	10.148	9.999	10.07	0.07	1.015	0.4
0:00:32	2.8	0.007	10.0	5.982	0.31	6.1765	1.0	0.166	0.155	10.149	9.994	10.07	0.08	1.016	0.5
0:00:42	2.8	0.013	10.0	5.975	0.41	6.1832	1.0	0.157	0.143	10.135	9.992	10.06	0.07	1.014	0.7
0:00:49	2.8	0.018	10.0	5.970	0.50	6.1885	1.0	0.159	0.142	10.136	9.994	10.07	0.07	1.014	0.8
0:00:58	2.8	0.025	10.0	5.964	0.61	6.1952	1.0	0.166	0.146	10.133	9.988	10.06	0.07	1.015	1.0
0:01:07	2.9	0.031	10.0	5.958	0.71	6.2014	1.1	0.175	0.151	10.143	9.992	10.07	0.08	1.015	1.1
0:01:15	2.8	0.036	10.0	5.952	0.80	6.2072	1.0	0.167	0.139	10.126	9.986	10.06	0.07	1.014	1.3
0:01:47	3.0	0.043	10.0	5.946	0.90	6.2136	1.2	0.195	0.164	10.145	9.981	10.06	0.08	1.016	1.8
0:01:56	3.1	0.049	10.0	5.939	1.01	6.2203	1.3	0.202	0.167	10.153	9.986	10.07	0.08	1.017	1.9
0:02:04	3.1	0.055	10.0	5.933	1.11	6.2269	1.3	0.205	0.167	10.146	9.980	10.06	0.08	1.017	2.1
0:02:12	3.2	0.061	10.0	5.928	1.21	6.2327	1.4	0.220	0.178	10.163	9.985	10.07	0.09	1.018	2.2
0:02:19	3.2	0.067	10.0	5.922	1.30	6.2389	1.4	0.224	0.179	10.159	9.980	10.07	0.09	1.018	2.3
0:02:28	3.1	0.073	10.0	5.915	1.41	6.2456	1.3	0.214	0.165	10.150	9.985	10.07	0.08	1.017	2.5
0:02:37	3.2	0.079	10.0	5.909	1.52	6.2523	1.4	0.218	0.166	10.151	9.985	10.07	0.08	1.017	2.6
0:02:44	3.4	0.085	10.0	5.904	1.61	6.2582	1.5	0.247	0.192	10.172	9.981	10.08	0.10	1.019	2.7
0:02:53	3.3	0.091	10.0	5.897	1.72	6.2651	1.5	0.244	0.185	10.163	9.978	10.07	0.09	1.019	2.9
0:03:00	3.3	0.097	10.0	5.892	1.80	6.2706	1.5	0.240	0.178	10.153	9.975	10.06	0.09	1.018	3.0
0:03:09	3.4	0.103	10.0	5.885	1.91	6.2776	1.6	0.253	0.187	10.173	9.985	10.08	0.09	1.019	3.2
0:03:16	3.4	0.109	10.0	5.880	2.01	6.2835	1.6	0.252	0.183	10.159	9.976	10.07	0.09	1.018	3.3
0:03:25	3.4	0.115	10.0	5.874	2.11	6.2901	1.6	0.247	0.175	10.158	9.983	10.07	0.09	1.017	3.4
0:03:33	3.4	0.121	10.0	5.868	2.21	6.2966	1.6	0.253	0.177	10.153	9.976	10.06	0.09	1.018	3.6
0:03:42	3.5	0.127	10.0	5.862	2.31	6.3029	1.7	0.270	0.191	10.166	9.975	10.07	0.10	1.019	3.7
0:03:51	3.5	0.133	10.0	5.856	2.41	6.3094	1.7	0.274	0.191	10.170	9.979	10.07	0.10	1.019	3.9
0:03:59	3.6	0.139	10.0	5.850	2.51	6.3159	1.8	0.286	0.200	10.169	9.969	10.07	0.10	1.020	4.0
0:04:08	3.6	0.145	10.0	5.844	2.60	6.3221	1.8	0.289	0.200	10.177	9.978	10.08	0.10	1.020	4.1
0:04:16	3.6	0.151	10.0	5.838	2.70	6.3286	1.8	0.281	0.189	10.162	9.973	10.07	0.09	1.019	4.3
0:04:25	3.6	0.157	10.0	5.831	2.81	6.3355	1.8	0.287	0.190	10.160	9.970	10.07	0.10	1.019	4.4
0:04:34	3.7	0.163	10.0	5.825	2.91	6.3420	1.9	0.296	0.196	10.171	9.975	10.07	0.10	1.020	4.6
0:04:42	3.7	0.169	10.0	5.819	3.01	6.3488	1.8	0.291	0.188	10.166	9.979	10.07	0.09	1.019	4.7
0:04:50	3.7	0.175	10.0	5.814	3.10	6.3547	1.9	0.295	0.189	10.156	9.968	10.06	0.09	1.019	4.8
0:04:58	3.8	0.181	10.0	5.808	3.20	6.3614	2.0	0.310	0.200	10.170	9.970	10.07	0.10	1.020	5.0
0:05:07	3.8	0.187	10.0	5.802	3.30	6.3678	2.0	0.314	0.200	10.167	9.966	10.07	0.10	1.020	5.1
0:05:16	3.8	0.193	10.0	5.795	3.41	6.3748	2.0	0.313	0.197	10.174	9.977	10.08	0.10	1.020	5.3
0:05:23	3.8	0.198	10.0	5.790	3.50	6.3809	2.0	0.318	0.198	10.165	9.967	10.07	0.10	1.020	5.4
0:05:32	3.7	0.205	10.0	5.784	3.61	6.3879	1.9	0.298	0.175	10.148	9.973	10.06	0.09	1.018	5.5
0:05:40	3.6	0.211	10.0	5.777	3.71	6.3948	1.8	0.278	0.151	10.117	9.966	10.04	0.08	1.015	5.7
0:05:49	3.6	0.217	10.0	5.771	3.82	6.4018	1.8	0.282	0.151	10.116	9.965	10.04	0.08	1.015	5.8
0:05:56	3.7	0.223	10.0	5.766	3.91	6.4078	1.9	0.290	0.156	10.125	9.969	10.05	0.08	1.016	5.9
0:06:05	3.6	0.229	10.0	5.759	4.01	6.4148	1.8	0.286	0.149	10.119	9.970	10.04	0.07	1.015	6.1
0:06:12	3.7	0.234	10.0	5.754	4.10	6.4208	1.9	0.290	0.150	10.116	9.967	10.04	0.07	1.015	6.2
0:06:21	3.7	0.241	10.0	5.748	4.21	6.4280	1.9	0.294	0.150	10.115	9.965	10.04	0.07	1.015	6.4
0:06:30	3.7	0.247	10.0	5.741	4.32	6.4352	1.9	0.293	0.145	10.109	9.964	10.04	0.07	1.015	6.5
0:06:37	3.9	0.253	10.0	5.736	4.40	6.4411	2.1	0.319	0.168	10.133	9.965	10.05	0.08	1.017	6.6
0:06:46	3.9	0.259	10.0	5.729	4.51	6.4483	2.1	0.324	0.169	10.137	9.968	10.05	0.08	1.017	6.8
0:06:54	4.0	0.265	10.0	5.723	4.61	6.4553	2.2	0.338	0.180	10.146	9.967	10.06	0.09	1.018	6.9
0:07:02	4.1	0.270	10.0	5.718	4.70	6.4613	2.2	0.347	0.186	10.154	9.968	10.06	0.09	1.019	7.0
0:07:10	4.0	0.277	10.0	5.712	4.80	6.4682	2.2	0.336	0.172	10.138	9.967	10.05	0.09	1.017	7.2
0:07:19	4.1	0.283	10.0	5.706	4.91	6.4752	2.3	0.349	0.181	10.142	9.962	10.05	0.09	1.018	7.3
0:07:28	4.1	0.289	10.0	5.700	5.00	6.4819	2.3	0.358	0.187	10.154	9.967	10.06	0.09	1.019	7.5
0:07:36	4.2	0.295	10.0	5.694	5.11	6.4888	2.4	0.365	0.190	10.152	9.962	10.06	0.09	1.019	7.6
0:07:45	4.1	0.301	10.0	5.687	5.21	6.4961	2.3	0.355	0.176	10.139	9.963	10.05	0.09	1.018	7.8
0:07:52	4.1	0.307	10.0	5.682	5.30	6.5023	2.3	0.358	0.176	10.143	9.967	10.06	0.09	1.018	7.9
0:08:01	4.3	0.313	10.0	5.675	5.41	6.5100	2.4	0.376	0.191	10.154	9.963	10.06	0.10	1.019	8.0
0:08:08	4.2	0.319	10.0	5.670	5.51	6.5163	2.4	0.374	0.186	10.148	9.963	10.06	0.09	1.019	8.1

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9075 (in.)
Dia. avg.	3.158 (in)
Area avg.	7.8327 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1B
Data File ID	UU-1B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:08:16	4.3	0.324	10.0	5.664	5.60	6.5228	2.5	0.389	0.197	10.156	9.959	10.06	0.10	1.020	8.3
0:08:24	4.2	0.331	10.0	5.658	5.71	6.5302	2.4	0.374	0.178	10.134	9.956	10.05	0.09	1.018	8.4
0:08:32	4.4	0.336	10.0	5.652	5.80	6.5367	2.6	0.390	0.191	10.148	9.957	10.05	0.10	1.019	8.5
0:08:40	4.4	0.343	10.0	5.646	5.91	6.5441	2.6	0.403	0.200	10.164	9.964	10.06	0.10	1.020	8.7
0:08:48	4.5	0.348	10.0	5.640	6.00	6.5506	2.7	0.405	0.199	10.153	9.953	10.05	0.10	1.020	8.8
0:08:56	4.5	0.355	10.0	5.634	6.11	6.5580	2.7	0.406	0.197	10.150	9.953	10.05	0.10	1.020	8.9
0:09:05	4.6	0.361	10.0	5.627	6.21	6.5652	2.8	0.421	0.208	10.160	9.952	10.06	0.10	1.021	9.1
0:09:14	4.6	0.367	10.0	5.621	6.31	6.5725	2.8	0.427	0.210	10.166	9.956	10.06	0.11	1.021	9.2
0:09:21	4.7	0.372	10.0	5.616	6.40	6.5786	2.9	0.435	0.216	10.179	9.963	10.07	0.11	1.022	9.4
0:09:30	4.7	0.378	10.0	5.610	6.50	6.5856	2.9	0.439	0.216	10.171	9.956	10.06	0.11	1.022	9.5
0:09:40	4.6	0.385	10.0	5.603	6.61	6.5935	2.8	0.420	0.193	10.151	9.958	10.05	0.10	1.019	9.7
0:09:48	4.7	0.391	10.0	5.597	6.71	6.6005	2.9	0.442	0.212	10.171	9.960	10.07	0.11	1.021	9.8
0:09:57	4.8	0.397	10.0	5.591	6.81	6.6077	2.9	0.445	0.212	10.172	9.960	10.07	0.11	1.021	10.0
0:10:05	4.7	0.403	10.0	5.585	6.91	6.6147	2.9	0.441	0.204	10.161	9.957	10.06	0.10	1.020	10.1
0:10:14	4.8	0.409	10.0	5.579	7.01	6.6220	3.0	0.447	0.206	10.172	9.966	10.07	0.10	1.021	10.2
0:10:22	4.8	0.415	10.0	5.574	7.10	6.6283	3.0	0.453	0.209	10.161	9.952	10.06	0.10	1.021	10.4
0:10:30	4.9	0.421	10.0	5.568	7.21	6.6357	3.1	0.467	0.220	10.172	9.951	10.06	0.11	1.022	10.5
0:10:39	5.0	0.427	9.9	5.561	7.31	6.6431	3.2	0.478	0.228	10.177	9.949	10.06	0.11	1.023	10.7
0:10:47	5.0	0.433	10.0	5.556	7.41	6.6502	3.2	0.479	0.225	10.176	9.952	10.06	0.11	1.023	10.8
0:10:56	5.0	0.439	9.9	5.549	7.51	6.6577	3.2	0.476	0.218	10.146	9.928	10.04	0.11	1.022	10.9
0:11:03	5.1	0.445	9.9	5.544	7.60	6.6642	3.3	0.489	0.228	10.163	9.935	10.05	0.11	1.023	11.1
0:11:12	5.2	0.451	9.9	5.538	7.71	6.6716	3.3	0.502	0.238	10.175	9.937	10.06	0.12	1.024	11.2
0:11:21	5.2	0.457	9.9	5.531	7.81	6.6794	3.4	0.506	0.238	10.171	9.933	10.05	0.12	1.024	11.4
0:11:28	5.2	0.463	9.9	5.526	7.90	6.6860	3.4	0.508	0.237	10.168	9.930	10.05	0.12	1.024	11.5
0:11:37	5.3	0.469	9.9	5.519	8.01	6.6937	3.5	0.516	0.241	10.170	9.929	10.05	0.12	1.024	11.6
0:11:45	5.3	0.475	9.9	5.513	8.12	6.7014	3.5	0.528	0.249	10.174	9.925	10.05	0.12	1.025	11.8
0:11:53	5.3	0.481	9.9	5.508	8.21	6.7080	3.4	0.514	0.232	10.158	9.926	10.04	0.12	1.023	11.9
0:12:01	5.4	0.487	9.9	5.501	8.32	6.7160	3.6	0.536	0.251	10.165	9.914	10.04	0.13	1.025	12.0
0:12:09	5.4	0.493	9.9	5.496	8.41	6.7227	3.6	0.531	0.242	10.148	9.905	10.03	0.12	1.024	12.2
0:12:18	5.4	0.499	9.9	5.489	8.51	6.7306	3.6	0.533	0.241	10.143	9.902	10.02	0.12	1.024	12.3
0:12:25	5.4	0.505	9.9	5.484	8.61	6.7373	3.6	0.535	0.240	10.144	9.904	10.02	0.12	1.024	12.4
0:12:34	5.4	0.511	9.9	5.477	8.72	6.7455	3.6	0.531	0.232	10.119	9.887	10.00	0.12	1.024	12.6
0:12:41	5.3	0.517	9.9	5.472	8.80	6.7520	3.5	0.520	0.218	10.097	9.879	9.99	0.11	1.022	12.7
0:12:50	5.4	0.523	9.9	5.465	8.91	6.7599	3.6	0.534	0.229	10.108	9.879	9.99	0.11	1.023	12.8
0:12:58	5.4	0.528	9.9	5.460	9.00	6.7665	3.6	0.535	0.226	10.151	9.925	10.04	0.11	1.023	13.0
0:13:08	5.4	0.535	10.0	5.453	9.11	6.7749	3.6	0.530	0.218	10.182	9.964	10.07	0.11	1.022	13.1
0:13:16	5.6	0.541	10.0	5.447	9.21	6.7823	3.8	0.559	0.244	10.211	9.968	10.09	0.12	1.024	13.3
0:13:24	5.6	0.547	10.0	5.442	9.30	6.7892	3.8	0.564	0.245	10.213	9.968	10.09	0.12	1.025	13.4
0:13:32	5.6	0.553	10.0	5.435	9.41	6.7972	3.8	0.558	0.235	10.213	9.978	10.10	0.12	1.024	13.5
0:13:40	5.6	0.559	10.0	5.430	9.50	6.8042	3.8	0.560	0.234	10.217	9.983	10.10	0.12	1.023	13.7
0:13:48	5.6	0.565	10.0	5.423	9.61	6.8124	3.8	0.551	0.221	10.207	9.986	10.10	0.11	1.022	13.8
0:13:56	5.7	0.571	10.0	5.418	9.71	6.8195	3.9	0.571	0.239	10.225	9.986	10.11	0.12	1.024	13.9
0:14:04	5.8	0.577	10.0	5.411	9.81	6.8276	3.9	0.578	0.241	10.220	9.978	10.10	0.12	1.024	14.1
0:14:12	5.8	0.583	10.0	5.406	9.91	6.8346	4.0	0.591	0.251	10.230	9.979	10.10	0.13	1.025	14.2
0:14:20	5.8	0.589	10.0	5.399	10.01	6.8426	4.0	0.583	0.239	10.223	9.984	10.10	0.12	1.024	14.3
0:14:28	5.9	0.595	10.0	5.394	10.10	6.8495	4.1	0.598	0.252	10.236	9.984	10.11	0.13	1.025	14.5
0:14:36	6.0	0.601	10.0	5.388	10.21	6.8575	4.2	0.612	0.262	10.240	9.979	10.11	0.13	1.026	14.6
0:14:44	6.1	0.607	10.0	5.382	10.30	6.8648	4.3	0.622	0.269	10.251	9.982	10.12	0.13	1.027	14.7
0:14:52	6.1	0.613	10.0	5.376	10.41	6.8728	4.3	0.628	0.271	10.246	9.975	10.11	0.14	1.027	14.9
0:15:01	6.2	0.619	10.0	5.369	10.51	6.8806	4.4	0.637	0.276	10.263	9.987	10.12	0.14	1.028	15.0
0:15:10	6.2	0.625	10.0	5.363	10.61	6.8884	4.4	0.636	0.273	10.259	9.987	10.12	0.14	1.027	15.2
0:15:18	6.2	0.631	10.0	5.357	10.71	6.8964	4.4	0.635	0.268	10.246	9.978	10.11	0.13	1.027	15.3
0:15:27	6.3	0.637	10.0	5.351	10.81	6.9041	4.5	0.646	0.275	10.252	9.977	10.11	0.14	1.028	15.5
0:15:36	6.3	0.643	10.0	5.345	10.91	6.9118	4.5	0.654	0.280	10.253	9.972	10.11	0.14	1.028	15.6
0:15:44	6.2	0.649	10.0	5.339	11.01	6.9195	4.4	0.639	0.261	10.235	9.974	10.10	0.13	1.026	15.7
0:15:52	6.3	0.655	10.0	5.334	11.10	6.9265	4.5	0.650	0.270	10.242	9.972	10.11	0.13	1.027	15.9

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= 4(EM)(Thickness)(Strain)/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.9075 (in.)
Dia. avg.	3.158 (in)
Area avg.	7.8327 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1B
Data File ID	UU-1B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:16:00	6.3	0.661	10.0	5.328	11.20	6.9344	4.5	0.651	0.267	10.244	9.977	10.11	0.13	1.027	16.0
0:16:09	6.4	0.667	10.0	5.322	11.31	6.9425	4.6	0.660	0.272	10.241	9.969	10.11	0.14	1.027	16.2
0:16:18	6.4	0.673	10.0	5.315	11.41	6.9505	4.6	0.657	0.265	10.237	9.972	10.10	0.13	1.027	16.3
0:16:26	6.3	0.679	10.0	5.309	11.51	6.9587	4.5	0.646	0.251	10.224	9.973	10.10	0.13	1.025	16.4
0:16:35	6.4	0.685	10.0	5.303	11.62	6.9667	4.6	0.666	0.268	10.243	9.975	10.11	0.13	1.027	16.6
0:16:42	6.4	0.691	10.0	5.298	11.70	6.9738	4.6	0.665	0.264	10.233	9.969	10.10	0.13	1.026	16.7
0:16:51	6.5	0.697	10.0	5.291	11.81	6.9824	4.7	0.668	0.263	10.236	9.973	10.10	0.13	1.026	16.9
0:16:58	6.5	0.703	10.0	5.286	11.90	6.9894	4.7	0.674	0.265	10.235	9.970	10.10	0.13	1.027	17.0
0:17:07	6.6	0.709	10.0	5.280	12.01	6.9978	4.8	0.682	0.270	10.256	9.985	10.12	0.14	1.027	17.1
0:17:16	6.6	0.715	10.0	5.273	12.11	7.0062	4.8	0.685	0.270	10.241	9.972	10.11	0.13	1.027	17.3
0:17:23	6.7	0.721	10.0	5.268	12.21	7.0136	4.9	0.699	0.281	10.250	9.969	10.11	0.14	1.028	17.4
0:17:32	6.6	0.727	10.0	5.261	12.31	7.0221	4.8	0.687	0.264	10.243	9.978	10.11	0.13	1.027	17.5
0:17:39	6.8	0.732	10.0	5.256	12.40	7.0292	5.0	0.708	0.283	10.260	9.977	10.12	0.14	1.028	17.7
0:17:48	6.7	0.739	10.0	5.249	12.51	7.0382	4.9	0.700	0.271	10.243	9.972	10.11	0.14	1.027	17.8
0:17:55	6.8	0.745	10.0	5.244	12.61	7.0457	5.0	0.711	0.279	10.252	9.974	10.11	0.14	1.028	17.9
0:18:04	6.8	0.751	10.0	5.237	12.71	7.0542	5.0	0.709	0.273	10.251	9.977	10.11	0.14	1.027	18.1
0:18:11	6.9	0.757	10.0	5.232	12.80	7.0616	5.1	0.718	0.279	10.257	9.979	10.12	0.14	1.028	18.2
0:18:20	7.0	0.763	10.0	5.225	12.91	7.0704	5.2	0.741	0.298	10.266	9.967	10.12	0.15	1.030	18.3
0:18:28	6.9	0.769	10.0	5.219	13.01	7.0787	5.1	0.726	0.280	10.248	9.968	10.11	0.14	1.028	18.5
0:18:36	7.1	0.774	10.0	5.214	13.10	7.0858	5.3	0.746	0.297	10.260	9.964	10.11	0.15	1.030	18.6
0:18:44	7.0	0.781	10.0	5.208	13.20	7.0942	5.2	0.738	0.285	10.261	9.976	10.12	0.14	1.029	18.7
0:18:53	7.1	0.787	10.0	5.202	13.30	7.1024	5.3	0.744	0.288	10.264	9.976	10.12	0.14	1.029	18.9
0:19:02	7.2	0.793	10.0	5.196	13.40	7.1107	5.4	0.762	0.302	10.269	9.967	10.12	0.15	1.030	19.0
0:19:10	7.2	0.799	10.0	5.189	13.51	7.1192	5.4	0.755	0.292	10.262	9.970	10.12	0.15	1.029	19.2
0:19:18	7.3	0.805	10.0	5.184	13.60	7.1269	5.5	0.773	0.307	10.273	9.966	10.12	0.15	1.031	19.3
0:19:26	7.2	0.811	10.0	5.177	13.71	7.1360	5.4	0.761	0.290	10.260	9.970	10.11	0.15	1.029	19.4
0:19:34	7.3	0.816	10.0	5.172	13.80	7.1434	5.5	0.765	0.292	10.264	9.972	10.12	0.15	1.029	19.6
0:19:42	7.2	0.823	10.0	5.165	13.91	7.1524	5.4	0.759	0.282	10.251	9.969	10.11	0.14	1.028	19.7
0:19:50	7.2	0.829	10.0	5.160	14.00	7.1602	5.4	0.757	0.277	10.254	9.977	10.12	0.14	1.028	19.8
0:19:58	7.3	0.835	10.0	5.153	14.11	7.1692	5.5	0.771	0.287	10.255	9.968	10.11	0.14	1.029	20.0
0:20:06	7.4	0.840	10.0	5.148	14.20	7.1767	5.6	0.781	0.294	10.266	9.971	10.12	0.15	1.030	20.1
0:20:15	7.5	0.847	10.0	5.141	14.31	7.1859	5.6	0.785	0.295	10.262	9.968	10.11	0.15	1.030	20.3
0:20:22	7.4	0.853	10.0	5.136	14.40	7.1936	5.6	0.779	0.285	10.264	9.979	10.12	0.14	1.029	20.4
0:20:31	7.6	0.859	10.0	5.130	14.51	7.2024	5.8	0.800	0.303	10.278	9.975	10.13	0.15	1.030	20.5
0:20:39	7.6	0.865	10.0	5.123	14.61	7.2110	5.8	0.802	0.301	10.270	9.969	10.12	0.15	1.030	20.7
0:20:48	7.6	0.871	10.0	5.117	14.71	7.2198	5.8	0.799	0.295	10.274	9.979	10.13	0.15	1.030	20.8
0:20:55	7.7	0.876	10.0	5.112	14.80	7.2271	5.9	0.810	0.303	10.276	9.972	10.12	0.15	1.030	20.9
0:21:04	7.6	0.882	10.0	5.106	14.90	7.2357	5.8	0.805	0.294	10.268	9.974	10.12	0.15	1.029	21.1
0:21:14	7.8	0.889	10.0	5.099	15.01	7.2452	6.0	0.830	0.316	10.282	9.967	10.12	0.16	1.032	21.2
0:21:22	7.8	0.895	10.0	5.093	15.11	7.2540	6.0	0.829	0.311	10.280	9.969	10.12	0.16	1.031	21.4
0:21:30	7.8	0.900	10.0	5.088	15.20	7.2613	6.0	0.832	0.310	10.286	9.976	10.13	0.16	1.031	21.5
0:21:38	7.9	0.907	10.0	5.082	15.30	7.2701	6.1	0.844	0.320	10.291	9.972	10.13	0.16	1.032	21.6
0:21:47	8.0	0.913	10.0	5.076	15.41	7.2789	6.2	0.857	0.329	10.293	9.965	10.13	0.16	1.033	21.8
0:21:56	8.1	0.919	10.0	5.069	15.51	7.2879	6.3	0.859	0.327	10.295	9.967	10.13	0.16	1.033	21.9
0:22:04	8.1	0.925	10.0	5.063	15.61	7.2968	6.3	0.867	0.332	10.299	9.967	10.13	0.17	1.033	22.1
0:22:13	8.2	0.931	10.0	5.057	15.71	7.3054	6.3	0.869	0.330	10.295	9.965	10.13	0.16	1.033	22.2
0:22:20	8.3	0.936	10.0	5.052	15.80	7.3131	6.4	0.881	0.339	10.307	9.967	10.14	0.17	1.034	22.3
0:22:29	8.3	0.943	10.0	5.046	15.90	7.3221	6.5	0.888	0.343	10.307	9.964	10.14	0.17	1.034	22.5
0:22:38	8.3	0.949	10.0	5.039	16.01	7.3313	6.5	0.892	0.343	10.309	9.967	10.14	0.17	1.034	22.6
0:22:45	8.4	0.954	10.0	5.034	16.10	7.3392	6.6	0.893	0.341	10.303	9.963	10.13	0.17	1.034	22.8
0:22:54	8.5	0.961	10.0	5.027	16.21	7.3487	6.7	0.911	0.355	10.318	9.963	10.14	0.18	1.036	22.9
0:23:02	8.4	0.967	10.0	5.021	16.32	7.3581	6.6	0.902	0.343	10.307	9.965	10.14	0.17	1.034	23.0
0:23:10	8.4	0.973	10.0	5.016	16.41	7.3660	6.6	0.891	0.329	10.299	9.970	10.13	0.16	1.033	23.2
0:23:18	8.5	0.979	10.0	5.009	16.51	7.3755	6.7	0.903	0.337	10.296	9.959	10.13	0.17	1.034	23.3
0:23:26	8.5	0.985	10.0	5.004	16.61	7.3837	6.7	0.907	0.338	10.304	9.966	10.13	0.17	1.034	23.4
0:23:33	8.6	0.990	10.0	4.998	16.70	7.3920	6.8	0.922	0.349	10.317	9.968	10.14	0.17	1.035	23.6

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9075 (in.)
Dia. avg.	3.158 (in.)
Area avg.	7.8327 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1B
Data File ID	UU-1B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:23:42	8.6	0.997	10.0	4.991	16.81	7.4017	6.8	0.919	0.342	10.309	9.967	10.14	0.17	1.034	23.7
0:23:49	8.7	1.002	10.0	4.986	16.90	7.4098	6.9	0.928	0.348	10.307	9.959	10.13	0.17	1.035	23.8
0:23:58	8.7	1.009	10.0	4.980	17.01	7.4193	6.9	0.934	0.351	10.315	9.964	10.14	0.18	1.035	24.0
0:24:06	8.8	1.015	10.0	4.973	17.11	7.4285	7.0	0.942	0.356	10.316	9.960	10.14	0.18	1.036	24.1
0:24:14	8.8	1.020	10.0	4.968	17.20	7.4367	7.0	0.944	0.354	10.321	9.967	10.14	0.18	1.036	24.2
0:24:23	8.8	1.027	10.0	4.962	17.30	7.4459	7.0	0.944	0.350	10.320	9.970	10.15	0.18	1.035	24.4
0:24:31	8.9	1.033	10.0	4.956	17.40	7.4550	7.1	0.954	0.357	10.322	9.965	10.14	0.18	1.036	24.5
0:24:40	8.9	1.039	10.0	4.950	17.50	7.4640	7.1	0.954	0.354	10.322	9.967	10.14	0.18	1.036	24.7
0:24:48	9.0	1.045	10.0	4.944	17.61	7.4734	7.2	0.957	0.353	10.317	9.964	10.14	0.18	1.035	24.8
0:24:57	9.0	1.051	10.0	4.937	17.72	7.4832	7.2	0.958	0.351	10.312	9.961	10.14	0.18	1.035	25.0
0:25:04	8.9	1.057	10.0	4.932	17.81	7.4914	7.1	0.946	0.336	10.298	9.962	10.13	0.17	1.034	25.1
0:25:12	9.1	1.062	10.0	4.926	17.90	7.5001	7.3	0.971	0.357	10.326	9.969	10.15	0.18	1.036	25.2
0:25:20	9.1	1.069	10.0	4.919	18.01	7.5100	7.3	0.977	0.360	10.322	9.962	10.14	0.18	1.036	25.3
0:25:29	9.3	1.075	10.0	4.913	18.12	7.5198	7.5	0.999	0.378	10.342	9.963	10.15	0.19	1.038	25.5
0:25:37	9.3	1.081	10.0	4.908	18.21	7.5282	7.5	1.000	0.376	10.332	9.956	10.14	0.19	1.038	25.6

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8776 (in.)
Dia. avg.	3.144 (in)
Area avg.	7.7651 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1C
Data File ID	UU-1C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	1.3	-0.038	20.0	6.000	0.00	6.1575	0.0	0.000	0.000	19.962	19.962	19.96	0.00	1.000	0.0
0:00:14	4.7	-0.031	20.0	5.994	0.11	6.1640	3.4	0.557	0.554	20.515	19.961	20.24	0.28	1.028	0.2
0:00:21	5.0	-0.025	20.0	5.987	0.21	6.1704	3.8	0.608	0.601	20.556	19.955	20.26	0.30	1.030	0.4
0:00:30	5.4	-0.019	20.0	5.981	0.31	6.1768	4.1	0.667	0.656	20.614	19.958	20.29	0.33	1.033	0.5
0:00:38	5.5	-0.013	20.0	5.975	0.41	6.1829	4.2	0.685	0.671	20.629	19.958	20.29	0.34	1.034	0.6
0:00:47	5.6	-0.007	20.0	5.969	0.52	6.1895	4.4	0.705	0.687	20.638	19.951	20.29	0.34	1.034	0.8
0:00:54	5.8	-0.001	20.0	5.963	0.61	6.1953	4.5	0.722	0.701	20.654	19.952	20.30	0.35	1.035	0.9
0:01:02	5.8	0.004	19.9	5.958	0.70	6.2012	4.5	0.732	0.708	20.656	19.949	20.30	0.35	1.035	1.0
0:01:10	6.0	0.011	20.0	5.951	0.81	6.2079	4.7	0.763	0.735	20.693	19.958	20.33	0.37	1.037	1.2
0:01:18	5.9	0.017	20.0	5.945	0.91	6.2142	4.6	0.748	0.716	20.677	19.961	20.32	0.36	1.036	1.3
0:01:25	5.9	0.022	20.0	5.940	1.00	6.2199	4.7	0.751	0.716	20.678	19.962	20.32	0.36	1.036	1.4
0:01:33	6.0	0.028	20.0	5.934	1.10	6.2261	4.8	0.763	0.726	20.689	19.963	20.33	0.36	1.036	1.6
0:01:41	6.1	0.035	20.0	5.928	1.21	6.2327	4.8	0.769	0.727	20.683	19.956	20.32	0.36	1.036	1.7
0:01:50	6.2	0.041	19.9	5.921	1.31	6.2395	4.9	0.793	0.748	20.697	19.949	20.32	0.37	1.037	1.8
0:01:57	6.2	0.046	20.0	5.916	1.40	6.2450	4.9	0.786	0.738	20.691	19.953	20.32	0.37	1.037	2.0
0:02:06	6.2	0.053	20.0	5.910	1.51	6.2518	4.9	0.788	0.736	20.695	19.959	20.33	0.37	1.037	2.1
0:02:13	6.4	0.058	20.0	5.904	1.60	6.2578	5.1	0.820	0.765	20.734	19.969	20.35	0.38	1.038	2.2
0:02:22	6.5	0.064	20.0	5.898	1.70	6.2640	5.2	0.828	0.770	20.731	19.961	20.35	0.39	1.039	2.4
0:02:30	6.4	0.070	20.0	5.892	1.80	6.2705	5.2	0.822	0.760	20.722	19.963	20.34	0.38	1.038	2.5
0:02:39	6.4	0.076	20.0	5.886	1.90	6.2771	5.1	0.819	0.753	20.715	19.962	20.34	0.38	1.038	2.7
0:02:48	6.5	0.082	20.0	5.880	2.00	6.2834	5.2	0.823	0.755	20.713	19.958	20.34	0.38	1.038	2.8
0:02:56	6.4	0.088	20.0	5.874	2.10	6.2898	5.1	0.818	0.746	20.707	19.961	20.33	0.37	1.037	2.9
0:03:05	6.5	0.094	20.0	5.868	2.20	6.2963	5.3	0.834	0.758	20.727	19.969	20.35	0.38	1.038	3.1
0:03:14	6.6	0.100	20.0	5.862	2.30	6.3027	5.3	0.837	0.758	20.715	19.957	20.34	0.38	1.038	3.2
0:03:22	6.5	0.107	20.0	5.856	2.41	6.3093	5.3	0.833	0.750	20.707	19.957	20.33	0.38	1.038	3.4
0:03:31	6.6	0.113	20.0	5.850	2.51	6.3158	5.3	0.836	0.750	20.707	19.957	20.33	0.37	1.038	3.5
0:03:40	6.6	0.119	20.0	5.843	2.61	6.3225	5.4	0.848	0.759	20.721	19.962	20.34	0.38	1.038	3.7
0:03:48	6.8	0.125	20.0	5.837	2.71	6.3291	5.5	0.869	0.776	20.728	19.952	20.34	0.39	1.039	3.8
0:03:57	6.8	0.131	20.0	5.831	2.81	6.3358	5.5	0.865	0.769	20.722	19.954	20.34	0.38	1.039	4.0
0:04:05	6.8	0.137	20.0	5.825	2.91	6.3423	5.5	0.875	0.775	20.736	19.961	20.35	0.39	1.039	4.1
0:04:13	6.9	0.142	20.0	5.820	3.00	6.3481	5.6	0.883	0.780	20.734	19.954	20.34	0.39	1.039	4.2
0:04:21	7.0	0.149	20.0	5.814	3.11	6.3550	5.7	0.893	0.787	20.739	19.953	20.35	0.39	1.039	4.4
0:04:30	7.0	0.155	19.9	5.807	3.21	6.3619	5.7	0.898	0.788	20.738	19.950	20.34	0.39	1.040	4.5
0:04:38	7.0	0.160	20.0	5.802	3.30	6.3678	5.7	0.893	0.780	20.731	19.951	20.34	0.39	1.039	4.6
0:04:46	7.0	0.167	19.9	5.795	3.41	6.3748	5.7	0.897	0.780	20.727	19.947	20.34	0.39	1.039	4.8
0:04:54	7.2	0.172	20.0	5.790	3.50	6.3810	5.9	0.925	0.805	20.769	19.965	20.37	0.40	1.040	4.9
0:05:02	7.1	0.179	20.0	5.783	3.61	6.3881	5.9	0.918	0.794	20.753	19.958	20.36	0.40	1.040	5.0
0:05:10	7.1	0.184	20.0	5.778	3.70	6.3941	5.9	0.918	0.791	20.746	19.955	20.35	0.40	1.040	5.2
0:05:18	7.2	0.191	20.0	5.771	3.81	6.4015	6.0	0.932	0.802	20.754	19.952	20.35	0.40	1.040	5.3
0:05:26	7.3	0.196	20.0	5.766	3.90	6.4076	6.0	0.940	0.807	20.773	19.967	20.37	0.40	1.040	5.4
0:05:34	7.3	0.203	20.0	5.759	4.01	6.4147	6.0	0.942	0.804	20.759	19.955	20.36	0.40	1.040	5.6
0:05:42	7.4	0.208	20.0	5.754	4.10	6.4208	6.1	0.951	0.810	20.770	19.959	20.36	0.41	1.041	5.7
0:05:50	7.4	0.215	20.0	5.748	4.21	6.4280	6.1	0.955	0.811	20.769	19.959	20.36	0.41	1.041	5.8
0:05:59	7.4	0.221	20.0	5.741	4.31	6.4348	6.1	0.954	0.806	20.759	19.953	20.36	0.40	1.040	6.0
0:06:08	7.4	0.227	19.9	5.735	4.41	6.4416	6.1	0.953	0.802	20.750	19.948	20.35	0.40	1.040	6.1
0:06:16	7.4	0.233	20.0	5.729	4.51	6.4485	6.2	0.956	0.802	20.758	19.957	20.36	0.40	1.040	6.3
0:06:25	7.6	0.239	20.0	5.723	4.61	6.4554	6.3	0.982	0.824	20.780	19.956	20.37	0.41	1.041	6.4
0:06:32	7.6	0.244	20.0	5.718	4.70	6.4612	6.3	0.980	0.819	20.770	19.951	20.36	0.41	1.041	6.5
0:06:41	7.7	0.251	20.0	5.712	4.81	6.4684	6.4	0.992	0.827	20.778	19.951	20.36	0.41	1.041	6.7
0:06:48	7.6	0.256	20.0	5.706	4.90	6.4749	6.4	0.984	0.816	20.769	19.953	20.36	0.41	1.041	6.8
0:06:57	7.7	0.263	19.9	5.699	5.01	6.4825	6.5	0.998	0.826	20.771	19.945	20.36	0.41	1.041	7.0
0:07:04	7.8	0.268	19.9	5.694	5.10	6.4888	6.5	0.999	0.824	20.766	19.942	20.35	0.41	1.041	7.1
0:07:13	7.8	0.275	19.9	5.687	5.21	6.4962	6.5	1.004	0.825	20.768	19.943	20.36	0.41	1.041	7.2
0:07:20	7.8	0.281	19.9	5.682	5.31	6.5026	6.5	0.999	0.817	20.759	19.942	20.35	0.41	1.041	7.3
0:07:29	7.8	0.287	19.9	5.675	5.41	6.5098	6.5	1.000	0.814	20.752	19.938	20.35	0.41	1.041	7.5
0:07:36	7.9	0.292	20.0	5.670	5.50	6.5160	6.6	1.018	0.830	20.784	19.954	20.37	0.41	1.042	7.6

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8776 (in.)
Dia. avg.	3.144 (in.)
Area avg.	7.7651 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1C
Data File ID	UU-1C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:07:45	7.8	0.299	19.9	5.663	5.61	6.5235	6.6	1.007	0.815	20.761	19.946	20.35	0.41	1.041	7.8
0:07:52	7.9	0.304	19.9	5.658	5.70	6.5297	6.6	1.010	0.815	20.762	19.947	20.35	0.41	1.041	7.9
0:08:01	8.0	0.310	19.9	5.652	5.80	6.5370	6.7	1.027	0.828	20.774	19.947	20.36	0.41	1.041	8.0
0:08:10	7.9	0.317	20.0	5.646	5.91	6.5441	6.6	1.009	0.806	20.757	19.951	20.35	0.40	1.040	8.2
0:08:18	8.0	0.323	19.9	5.639	6.01	6.5513	6.7	1.030	0.824	20.762	19.938	20.35	0.41	1.041	8.3
0:08:27	8.1	0.329	19.9	5.633	6.11	6.5582	6.8	1.036	0.826	20.768	19.941	20.35	0.41	1.041	8.5
0:08:36	8.0	0.335	19.9	5.627	6.21	6.5652	6.8	1.028	0.815	20.754	19.938	20.35	0.41	1.041	8.6
0:08:44	8.0	0.341	19.9	5.621	6.31	6.5723	6.7	1.026	0.809	20.748	19.938	20.34	0.40	1.041	8.7
0:08:53	8.0	0.347	19.9	5.615	6.41	6.5793	6.7	1.022	0.802	20.740	19.938	20.34	0.40	1.040	8.9
0:09:01	8.2	0.353	19.9	5.609	6.51	6.5865	6.9	1.048	0.825	20.757	19.932	20.34	0.41	1.041	9.0
0:09:10	8.1	0.359	19.9	5.603	6.61	6.5936	6.9	1.040	0.813	20.744	19.931	20.34	0.41	1.041	9.2
0:09:18	8.1	0.364	19.9	5.598	6.70	6.5999	6.9	1.039	0.809	20.745	19.935	20.34	0.40	1.041	9.3
0:09:26	8.2	0.370	19.9	5.592	6.80	6.6070	6.9	1.043	0.810	20.741	19.931	20.34	0.41	1.041	9.4
0:09:35	8.2	0.377	19.9	5.586	6.90	6.6142	6.9	1.041	0.805	20.733	19.928	20.33	0.40	1.040	9.6
0:09:43	8.1	0.383	19.9	5.580	7.01	6.6215	6.9	1.035	0.795	20.720	19.925	20.32	0.40	1.040	9.7
0:09:52	8.3	0.389	19.9	5.573	7.11	6.6287	7.0	1.059	0.815	20.745	19.930	20.34	0.41	1.041	9.9
0:10:01	8.3	0.395	19.9	5.567	7.21	6.6362	7.0	1.053	0.806	20.719	19.913	20.32	0.40	1.040	10.0
0:10:08	8.2	0.400	19.9	5.562	7.30	6.6425	7.0	1.047	0.797	20.714	19.917	20.32	0.40	1.040	10.1
0:10:17	8.2	0.407	19.9	5.556	7.41	6.6501	7.0	1.046	0.792	20.697	19.905	20.30	0.40	1.040	10.3
0:10:24	8.3	0.412	19.9	5.550	7.50	6.6569	7.0	1.057	0.800	20.702	19.902	20.30	0.40	1.040	10.4
0:10:33	8.4	0.419	19.9	5.544	7.61	6.6645	7.1	1.072	0.811	20.702	19.891	20.30	0.41	1.041	10.6
0:10:41	8.5	0.425	19.9	5.537	7.71	6.6720	7.2	1.079	0.815	20.692	19.877	20.28	0.41	1.041	10.7
0:10:49	8.5	0.430	19.9	5.532	7.80	6.6788	7.2	1.084	0.817	20.698	19.881	20.29	0.41	1.041	10.8
0:10:57	8.6	0.437	19.9	5.525	7.91	6.6865	7.3	1.088	0.817	20.677	19.860	20.27	0.41	1.041	11.0
0:11:05	8.6	0.442	19.9	5.520	8.00	6.6933	7.3	1.091	0.816	20.685	19.869	20.28	0.41	1.041	11.1
0:11:13	8.5	0.449	19.8	5.513	8.11	6.7012	7.3	1.085	0.807	20.655	19.848	20.25	0.40	1.041	11.2
0:11:21	8.5	0.455	19.9	5.508	8.21	6.7079	7.3	1.083	0.802	20.688	19.886	20.29	0.40	1.040	11.4
0:11:30	8.6	0.461	19.9	5.501	8.32	6.7160	7.4	1.095	0.810	20.746	19.936	20.34	0.40	1.041	11.5
0:11:37	8.6	0.466	19.9	5.496	8.40	6.7224	7.3	1.093	0.804	20.750	19.945	20.35	0.40	1.040	11.6
0:11:46	8.8	0.473	20.0	5.490	8.51	6.7301	7.5	1.111	0.819	20.787	19.968	20.38	0.41	1.041	11.8
0:11:54	8.7	0.479	20.0	5.483	8.61	6.7378	7.4	1.104	0.809	20.780	19.972	20.38	0.40	1.040	11.9
0:12:03	8.7	0.485	20.0	5.477	8.71	6.7450	7.4	1.102	0.803	20.778	19.974	20.38	0.40	1.040	12.1
0:12:11	8.8	0.491	20.0	5.471	8.81	6.7527	7.5	1.113	0.810	20.793	19.983	20.39	0.41	1.041	12.2
0:12:19	8.7	0.497	20.0	5.466	8.91	6.7596	7.5	1.103	0.797	20.787	19.990	20.39	0.40	1.040	12.3
0:12:27	8.8	0.503	20.0	5.459	9.01	6.7675	7.6	1.119	0.810	20.799	19.990	20.39	0.40	1.041	12.5
0:12:35	8.7	0.509	20.0	5.453	9.11	6.7746	7.5	1.100	0.788	20.772	19.985	20.38	0.39	1.039	12.6
0:12:42	8.8	0.514	20.0	5.448	9.20	6.7817	7.5	1.109	0.794	20.786	19.992	20.39	0.40	1.040	12.7
0:12:51	8.7	0.521	20.0	5.441	9.31	6.7899	7.4	1.094	0.774	20.768	19.994	20.38	0.39	1.039	12.9
0:12:58	8.6	0.527	20.0	5.436	9.41	6.7969	7.3	1.081	0.758	20.754	19.996	20.38	0.38	1.038	13.0
0:13:07	8.5	0.533	20.0	5.429	9.51	6.8049	7.3	1.066	0.740	20.729	19.989	20.36	0.37	1.037	13.1
0:13:14	8.5	0.538	20.0	5.424	9.60	6.8117	7.2	1.057	0.728	20.718	19.990	20.35	0.36	1.036	13.2
0:13:23	8.5	0.545	20.0	5.417	9.71	6.8198	7.2	1.057	0.724	20.704	19.981	20.34	0.36	1.036	13.4
0:13:30	8.7	0.550	20.0	5.412	9.80	6.8265	7.4	1.085	0.749	20.738	19.989	20.36	0.37	1.037	13.5
0:13:39	8.7	0.557	20.0	5.406	9.91	6.8346	7.4	1.082	0.743	20.733	19.990	20.36	0.37	1.037	13.7
0:13:48	8.8	0.563	20.0	5.400	10.01	6.8423	7.6	1.105	0.762	20.747	19.984	20.37	0.38	1.038	13.8
0:13:56	8.8	0.569	20.0	5.393	10.11	6.8500	7.6	1.105	0.758	20.743	19.985	20.36	0.38	1.038	13.9
0:14:04	8.8	0.574	20.0	5.388	10.20	6.8569	7.6	1.102	0.753	20.738	19.986	20.36	0.38	1.038	14.1
0:14:13	9.1	0.581	20.0	5.381	10.31	6.8656	7.8	1.136	0.783	20.762	19.979	20.37	0.39	1.039	14.2
0:14:22	9.1	0.587	20.0	5.375	10.41	6.8731	7.8	1.142	0.785	20.766	19.981	20.37	0.39	1.039	14.4
0:14:31	9.1	0.593	20.0	5.369	10.51	6.8808	7.8	1.138	0.778	20.761	19.984	20.37	0.39	1.039	14.5
0:14:39	9.1	0.599	20.0	5.363	10.61	6.8885	7.8	1.137	0.774	20.749	19.975	20.36	0.39	1.039	14.7
0:14:47	9.2	0.604	20.0	5.358	10.70	6.8954	7.9	1.152	0.785	20.763	19.977	20.37	0.39	1.039	14.8
0:14:55	9.2	0.610	20.0	5.352	10.80	6.9033	8.0	1.152	0.782	20.759	19.978	20.37	0.39	1.039	14.9
0:15:04	9.3	0.617	20.0	5.346	10.91	6.9112	8.0	1.162	0.788	20.760	19.972	20.37	0.39	1.039	15.1
0:15:13	9.4	0.623	20.0	5.340	11.01	6.9192	8.1	1.168	0.790	20.774	19.984	20.38	0.40	1.040	15.2
0:15:21	9.3	0.629	20.0	5.333	11.11	6.9270	8.1	1.164	0.783	20.765	19.983	20.37	0.39	1.039	15.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values

Height	4.8776 (in.)
Dia. avg.	3.144 (in)
Area avg.	7.7651 (in ²)

Tested By RC

Date	5-27-09
Press No.	1
Panel No.	B

Project Number 175569038

Test Number	UU-1C
Data File ID	UU-1C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:30	9.3	0.635	20.0	5.327	11.21	6.9348	8.0	1.158	0.774	20.752	19.978	20.36	0.39	1.039	15.5
0:15:39	9.4	0.641	20.0	5.321	11.31	6.9428	8.1	1.166	0.778	20.759	19.981	20.37	0.39	1.039	15.7
0:15:46	9.2	0.646	20.0	5.316	11.40	6.9501	8.0	1.144	0.753	20.727	19.974	20.35	0.38	1.038	15.8
0:15:55	9.3	0.653	20.0	5.309	11.51	6.9584	8.0	1.151	0.756	20.735	19.979	20.36	0.38	1.038	15.9
0:16:02	9.2	0.658	20.0	5.304	11.60	6.9655	7.9	1.141	0.743	20.723	19.980	20.35	0.37	1.037	16.0
0:16:11	9.1	0.665	20.0	5.298	11.71	6.9741	7.8	1.124	0.722	20.698	19.976	20.34	0.36	1.036	16.2
0:16:18	9.0	0.670	20.0	5.292	11.80	6.9815	7.8	1.113	0.709	20.680	19.971	20.33	0.35	1.035	16.3
0:16:27	9.1	0.677	20.0	5.286	11.91	6.9897	7.8	1.117	0.709	20.676	19.967	20.32	0.35	1.036	16.5
0:16:35	9.0	0.683	20.0	5.279	12.01	6.9983	7.7	1.099	0.688	20.666	19.978	20.32	0.34	1.034	16.6
0:16:43	9.0	0.689	20.0	5.273	12.11	7.0059	7.7	1.103	0.688	20.659	19.970	20.31	0.34	1.034	16.7
0:16:50	9.0	0.694	20.0	5.268	12.20	7.0134	7.7	1.103	0.685	20.664	19.978	20.32	0.34	1.034	16.8
0:16:59	9.1	0.701	20.0	5.261	12.31	7.0220	7.8	1.116	0.694	20.671	19.976	20.32	0.35	1.035	17.0
0:17:06	9.1	0.706	20.0	5.256	12.40	7.0295	7.9	1.120	0.694	20.667	19.973	20.32	0.35	1.035	17.1
0:17:15	9.2	0.713	20.0	5.249	12.51	7.0379	8.0	1.132	0.704	20.682	19.979	20.33	0.35	1.035	17.3
0:17:23	9.2	0.719	20.0	5.243	12.61	7.0461	7.9	1.121	0.689	20.670	19.981	20.33	0.34	1.034	17.4
0:17:32	9.2	0.725	20.0	5.237	12.71	7.0544	8.0	1.129	0.693	20.671	19.978	20.32	0.35	1.035	17.5
0:17:39	9.2	0.730	20.0	5.232	12.80	7.0617	8.0	1.127	0.688	20.672	19.984	20.33	0.34	1.034	17.7
0:17:48	9.3	0.736	20.0	5.226	12.90	7.0698	8.0	1.135	0.692	20.671	19.978	20.32	0.35	1.035	17.8
0:17:57	9.4	0.743	20.0	5.220	13.01	7.0782	8.1	1.143	0.698	20.666	19.969	20.32	0.35	1.035	18.0
0:18:05	9.4	0.749	20.0	5.213	13.11	7.0869	8.2	1.152	0.702	20.683	19.981	20.33	0.35	1.035	18.1
0:18:13	9.5	0.755	20.0	5.207	13.21	7.0949	8.2	1.154	0.701	20.680	19.979	20.33	0.35	1.035	18.2
0:18:20	9.4	0.761	20.0	5.202	13.31	7.1028	8.1	1.147	0.691	20.672	19.981	20.33	0.35	1.035	18.3
0:18:27	9.5	0.766	20.0	5.196	13.40	7.1106	8.2	1.159	0.700	20.675	19.976	20.33	0.35	1.035	18.5
0:18:36	9.5	0.773	20.0	5.189	13.51	7.1195	8.2	1.151	0.688	20.665	19.977	20.32	0.34	1.034	18.6
0:18:43	9.6	0.779	20.0	5.184	13.61	7.1274	8.4	1.173	0.706	20.682	19.976	20.33	0.35	1.035	18.7
0:18:52	9.6	0.785	20.0	5.177	13.71	7.1362	8.3	1.165	0.695	20.661	19.966	20.31	0.35	1.035	18.9
0:19:00	9.6	0.791	20.0	5.172	13.81	7.1438	8.3	1.163	0.690	20.664	19.975	20.32	0.34	1.035	19.0
0:19:08	9.8	0.797	20.0	5.165	13.91	7.1527	8.5	1.187	0.710	20.673	19.963	20.32	0.35	1.036	19.1
0:19:16	9.8	0.802	20.0	5.160	14.00	7.1601	8.5	1.188	0.707	20.675	19.968	20.32	0.35	1.035	19.3
0:19:24	9.8	0.809	20.0	5.154	14.11	7.1688	8.5	1.189	0.705	20.674	19.969	20.32	0.35	1.035	19.4
0:19:33	9.9	0.815	20.0	5.147	14.21	7.1774	8.6	1.198	0.711	20.675	19.964	20.32	0.36	1.036	19.6
0:19:41	9.9	0.821	20.0	5.141	14.31	7.1858	8.6	1.198	0.707	20.679	19.972	20.33	0.35	1.035	19.7
0:19:50	10.0	0.827	20.0	5.135	14.41	7.1942	8.7	1.209	0.715	20.681	19.966	20.32	0.36	1.036	19.8
0:19:59	9.9	0.833	20.0	5.129	14.51	7.2026	8.6	1.199	0.702	20.677	19.975	20.33	0.35	1.035	20.0
0:20:07	10.0	0.839	20.0	5.123	14.61	7.2110	8.7	1.208	0.707	20.681	19.974	20.33	0.35	1.035	20.1
0:20:16	10.1	0.845	20.0	5.117	14.71	7.2194	8.8	1.222	0.718	20.685	19.967	20.33	0.36	1.036	20.3
0:20:25	10.1	0.851	20.0	5.112	14.81	7.2277	8.9	1.225	0.717	20.683	19.966	20.32	0.36	1.036	20.4
0:20:33	10.2	0.857	20.0	5.105	14.91	7.2366	8.9	1.231	0.720	20.685	19.965	20.33	0.36	1.036	20.6
0:20:42	10.1	0.863	20.0	5.099	15.01	7.2454	8.9	1.222	0.707	20.675	19.968	20.32	0.35	1.035	20.7
0:20:51	10.1	0.869	20.0	5.093	15.12	7.2540	8.9	1.223	0.705	20.677	19.973	20.33	0.35	1.035	20.9
0:20:58	10.3	0.874	20.0	5.088	15.20	7.2616	9.0	1.238	0.717	20.686	19.969	20.33	0.36	1.036	21.0
0:21:07	10.4	0.881	20.0	5.082	15.31	7.2703	9.1	1.255	0.730	20.698	19.968	20.33	0.36	1.037	21.1
0:21:15	10.3	0.887	20.0	5.075	15.41	7.2791	9.1	1.245	0.717	20.689	19.972	20.33	0.36	1.036	21.3
0:21:24	10.4	0.893	20.0	5.069	15.51	7.2881	9.2	1.256	0.724	20.676	19.952	20.31	0.36	1.036	21.4
0:21:31	10.3	0.898	20.0	5.064	15.60	7.2960	9.1	1.242	0.707	20.672	19.965	20.32	0.35	1.035	21.5
0:21:40	10.5	0.905	20.0	5.057	15.71	7.3052	9.2	1.260	0.722	20.688	19.966	20.33	0.36	1.036	21.7
0:21:47	10.5	0.910	20.0	5.052	15.80	7.3132	9.2	1.258	0.716	20.674	19.958	20.32	0.36	1.036	21.8
0:21:56	10.6	0.917	20.0	5.045	15.91	7.3224	9.3	1.272	0.727	20.693	19.966	20.33	0.36	1.036	21.9
0:22:03	10.6	0.922	20.0	5.040	16.00	7.3304	9.3	1.273	0.725	20.686	19.961	20.32	0.36	1.036	22.1
0:22:12	10.6	0.929	20.0	5.033	16.11	7.3401	9.3	1.271	0.718	20.678	19.960	20.32	0.36	1.036	22.2
0:22:19	10.6	0.934	20.0	5.028	16.20	7.3479	9.4	1.273	0.717	20.678	19.960	20.32	0.36	1.036	22.3
0:22:28	10.6	0.941	20.0	5.021	16.31	7.3574	9.3	1.260	0.701	20.662	19.961	20.31	0.35	1.035	22.5
0:22:35	10.6	0.946	20.0	5.016	16.40	7.3656	9.3	1.263	0.701	20.653	19.952	20.30	0.35	1.035	22.6
0:22:44	10.6	0.953	20.0	5.009	16.51	7.3750	9.4	1.269	0.703	20.662	19.959	20.31	0.35	1.035	22.7
0:22:51	10.7	0.958	20.0	5.004	16.60	7.3832	9.4	1.276	0.707	20.657	19.950	20.30	0.35	1.035	22.9
0:23:00	10.8	0.965	20.0	4.998	16.71	7.3925	9.6	1.292	0.719	20.673	19.953	20.31	0.36	1.036	23.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8776 (in.)
Dia. avg.	3.144 (in)
Area avg.	7.7651 (in ²)

Tested By	RC
Date	5-27-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-1C
Data File ID	UU-1C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:23:09	10.9	0.971	20.0	4.991	16.81	7.4018	9.6	1.295	0.719	20.672	19.953	20.31	0.36	1.036	23.2
0:23:17	10.9	0.977	20.0	4.985	16.91	7.4110	9.6	1.299	0.719	20.674	19.955	20.31	0.36	1.036	23.3
0:23:26	11.0	0.983	19.9	4.979	17.02	7.4201	9.7	1.307	0.723	20.660	19.937	20.30	0.36	1.036	23.4
0:23:33	11.0	0.988	19.9	4.974	17.10	7.4280	9.7	1.307	0.720	20.662	19.942	20.30	0.36	1.036	23.6
0:23:42	11.1	0.995	19.9	4.967	17.21	7.4376	9.8	1.316	0.726	20.665	19.939	20.30	0.36	1.036	23.7
0:23:49	11.3	1.000	19.9	4.962	17.30	7.4457	10.0	1.340	0.747	20.681	19.934	20.31	0.37	1.037	23.8
0:23:58	11.0	1.007	19.9	4.955	17.41	7.4557	9.8	1.310	0.713	20.640	19.927	20.28	0.36	1.036	24.0
0:24:05	11.2	1.013	19.9	4.950	17.51	7.4643	9.9	1.330	0.730	20.649	19.919	20.28	0.36	1.037	24.1
0:24:14	11.3	1.019	19.9	4.943	17.62	7.4742	10.0	1.340	0.736	20.652	19.916	20.28	0.37	1.037	24.2
0:24:22	11.3	1.025	19.9	4.937	17.71	7.4827	10.0	1.340	0.733	20.645	19.912	20.28	0.37	1.037	24.4
0:24:29	11.4	1.031	19.9	4.932	17.81	7.4914	10.2	1.356	0.746	20.653	19.908	20.28	0.37	1.037	24.5
0:24:38	11.4	1.037	19.8	4.925	17.91	7.5012	10.1	1.350	0.735	20.525	19.790	20.16	0.37	1.037	24.6
0:24:45	11.4	1.042	19.9	4.920	18.00	7.5096	10.1	1.347	0.730	20.608	19.878	20.24	0.36	1.037	24.8
0:24:54	11.6	1.049	19.9	4.913	18.11	7.5195	10.3	1.374	0.753	20.641	19.888	20.26	0.38	1.038	24.9
0:25:01	11.6	1.054	19.9	4.908	18.20	7.5279	10.3	1.370	0.746	20.688	19.943	20.32	0.37	1.037	25.0
0:25:10	11.6	1.061	20.0	4.902	18.31	7.5372	10.3	1.363	0.736	20.707	19.971	20.34	0.37	1.037	25.2
0:25:18	11.6	1.067	20.0	4.896	18.41	7.5466	10.4	1.373	0.742	20.719	19.977	20.35	0.37	1.037	25.3
0:25:27	11.7	1.073	20.0	4.889	18.51	7.5563	10.4	1.383	0.748	20.731	19.983	20.36	0.37	1.037	25.5
0:25:36	11.8	1.079	20.0	4.883	18.61	7.5654	10.5	1.386	0.748	20.730	19.982	20.36	0.37	1.037	25.6
0:25:44	11.9	1.085	20.0	4.878	18.71	7.5744	10.6	1.397	0.756	20.744	19.988	20.37	0.38	1.038	25.7

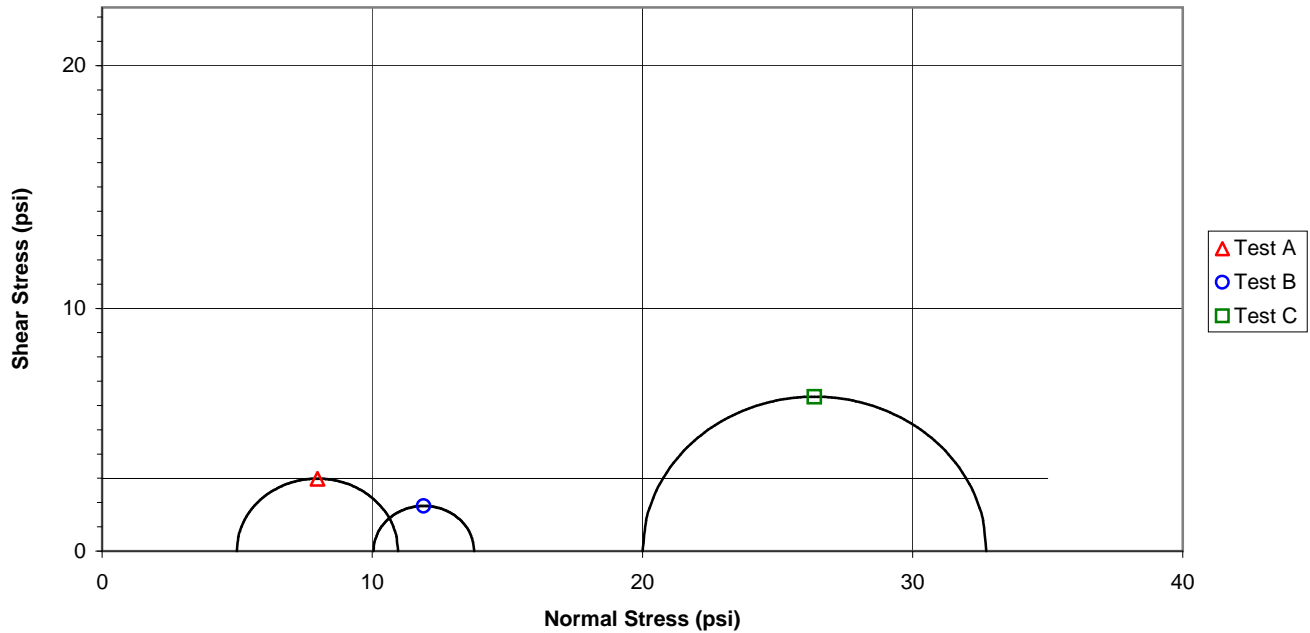
Project John Siever Fossil Plant
 Sample ID JS-49, 2.6' - 10.5'

Project No. 175569038
 Test Number 510

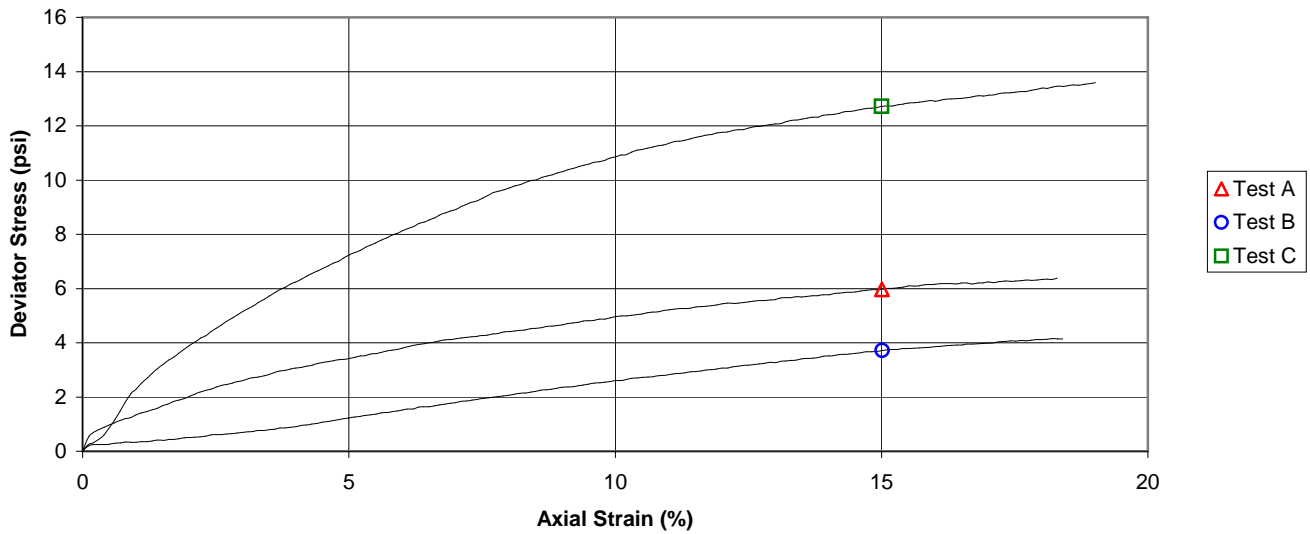
Failure Criterion: $\phi = 0.0$ deg.
 Maximum Deviator Stress

$c = 3.0$ psi

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



Project Name John Siever Fossil Plant
 Sample Identification JS-49, 2.6' - 10.5'
 Visual Description Silt (ML), gray, (fly ash)

Project Number 175569038
 Test Number JU-510A
 Prepared By KG/RC
 Date 5-28-09

Specific Gravity 2.32 Liquid Limit NP Plastic Limit NP Plasticity Index NP

Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1133.00</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>23.6674</u> (V _{S_o})	Dry Weight (g) <u>899.84</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>14.2274</u> (V _{w_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>13.2778</u> (V _{v_o})	Dry Unit Weight (pcf) <u>92.8</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>107.2</u> (S _o)	
Moisture Content (%) <u>25.9</u>	Final Trimmings	Void Ratio <u>0.561</u>	

Saturation

Set Up & Saturated: Wet xx Dry _____ Set up By RC
 Back Pressure Saturated to: 0 (psi) Final Pore Pressure Parameter B _____ Date 5-28-09
 Panel Board Number C

Height Readings (in.)	Back Pressure Burette	Chamber Burette	
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Specimen Height (in.) <u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

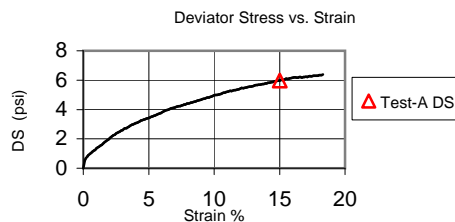
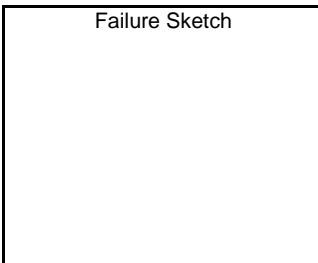
Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>5</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>5</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>14.2274</u> (V _{Wc})	t ₅₀ (min.) _____
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>25.9</u>	
Dry Density (pcf) <u>92.8</u>		Degree of Saturation (%) <u>107.2</u> (S _c)	Void Ratio <u>0.561</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.459</u> (in.)	Wet Weight (g) <u>1133.00</u>	Corrected Deviator <u>5.97</u> σ _d (psi)
Wet weight (g) <u>1133</u> (WW _f)	Dry Weight (g) <u>899.84</u>	Major Principal <u>10.95</u> σ ₁₁ (psi)
Average Diameter <u>3.197</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>4.98</u> σ ₃₁ (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.308</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>

Failure Criterion: Maximum Deviator Stress



Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-49, 2.6' - 10.5'</u>	Test Number	<u>UU-510B</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>KDG/RC</u>
		Date	<u>5-28-09</u>

Specific Gravity	<u>2.32</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451</u> (V _o)	Wet Weight (g) <u>1133</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>23.5873</u> (V _{S_o})	Dry Weight (g) <u>896.80</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>14.4132</u> (V _{W_o})	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000</u> (D _o)	4 <u>6.000</u>	Voids <u>13.3578</u> (V _{V_o})	Dry Unit Weight (pcf) <u>92.5</u>
Area (in ²) <u>6.1575</u> (A _o)	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>107.9</u> (S _o)	
Moisture Content (%) <u>26.3</u>	Final Trimmings	Void Ratio <u>0.566</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>5-28-09</u>
			Panel Board Number	<u>C</u>

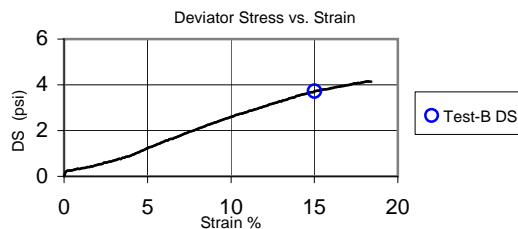
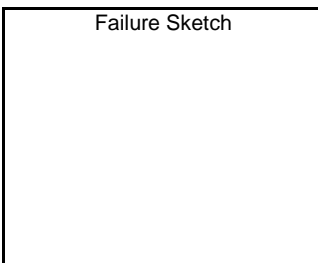
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000</u> (H _s)
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575</u> (A _s)
Change <u>0.0000</u> (ΔH _o)	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451</u> (V _s)

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>10</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000</u> (ΔH _c)	Change _____ (in.)	Change _____ (in.)	Lateral <u>10</u> (σ ₃)
Height (in.) <u>6.0000</u> (H _c)		Volume (in ³) <u>36.9451</u> (V _c)	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575</u> (A _c)		Volume - Water (in ³) <u>14.4132</u> (V _{Wc})	
Diameter (in.) <u>2.8000</u> (D _c)		Water Content (%) <u>26.3</u>	
Dry Density (pcf) <u>92.5</u>		Degree of Saturation (%) <u>107.9</u> (S _c)	Void Ratio <u>0.566</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.079</u> (in.)	Wet Weight (g) <u>1133.00</u>	Corrected Deviator <u>3.72</u> σ _d (psi)
Wet weight (g) <u>1133</u> (WW _f)	Dry Weight (g) <u>896.80</u>	Major Principal <u>13.77</u> σ _{1f} (psi)
Average Diameter <u>3.024</u> (in.)	Tare Weight (g) <u>0.00</u>	Minor Principal <u>10.05</u> σ _{3f} (psi)
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.316</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.01</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Project Name	<u>John Siever Fossil Plant</u>	Project Number	<u>175569038</u>
Sample Identification	<u>JS-49, 2.6' - 10.5'</u>	Test Number	<u>UU-510C</u>
Visual Description	<u>Silt (ML), gray, (fly ash)</u>	Prepared By	<u>RC/KG</u>
		Date	<u>5-28-09</u>

Specific Gravity	<u>2.32</u>	Liquid Limit	<u>NP</u>	Plastic Limit	<u>NP</u>	Plasticity Index	<u>NP</u>
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Initial Specimen Data

Specimen Diameter (in.)	Specimen Height (in.)	Volumes (in ³)	Specimen
Top <u>2.800</u>	1 <u>6.000</u>	Sample <u>36.9451 (V_o)</u>	Wet Weight (g) <u>1133</u>
Middle <u>2.800</u>	2 <u>6.000</u>	Solids <u>23.7619 (V_{S_o})</u>	Dry Weight (g) <u>903.44</u>
Bottom <u>2.800</u>	3 <u>6.000</u>	Water <u>14.0080 (V_{W_o})</u>	Wet Unit Weight (pcf) <u>116.8</u>
Avg. <u>2.8000 (D_o)</u>	4 <u>6.000</u>	Voids <u>13.1832 (V_{V_o})</u>	Dry Unit Weight (pcf) <u>93.2</u>
Area (in ²) <u>6.1575 (A_o)</u>	Avg. (H _o) <u>6.0000</u>	Degree of Saturation (%) <u>106.3 (S_o)</u>	
Moisture Content (%) <u>25.4</u>	Final Trimmings	Void Ratio <u>0.555</u>	

Saturation

Set Up & Saturated:	Wet <u>xx</u>	Dry _____	Set up By	<u>RC</u>
Back Pressure Saturated to:	<u>0</u> (psi)	Final Pore Pressure Parameter B _____	Date	<u>5-28-09</u>
			Panel Board Number	<u>C</u>

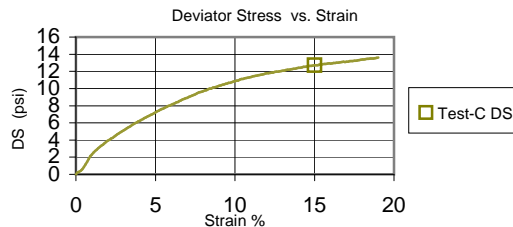
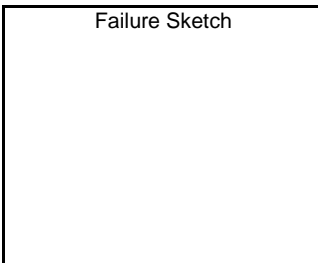
Height Readings (in.)	Back Pressure Burette	Chamber Burette	Specimen Height (in.)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	<u>6.0000 (H_s)</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Area (in ²) Method A <u>6.1575 (A_s)</u>
Change <u>0.0000 (ΔH_o)</u>	Change _____ (in.)	Change _____ (in.)	Specimen Volume (in ³) <u>36.9451 (V_s)</u>

Consolidation

Height Readings (in.)	Back Pressure Burette Readings	Chamber Burette Readings	Pressures (psi)
Initial _____	Initial _____ (in.)	Initial _____ (in.)	Chamber <u>20</u>
Final _____	Final _____ (in.)	Final _____ (in.)	Back <u>0</u>
Change <u>0.0000 (ΔH_c)</u>	Change _____ (in.)	Change _____ (in.)	Lateral <u>20 (σ₃)</u>
Height (in.) <u>6.0000 (H_c)</u>		Volume (in ³) <u>36.9451 (V_c)</u>	t ₅₀ (min.) _____
Area (in ³) Method A <u>6.1575 (A_c)</u>		Volume - Water (in ³) <u>14.0080 (V_{Wc})</u>	
Diameter (in.) <u>2.8000 (D_c)</u>		Water Content (%) <u>25.4</u>	
Dry Density (pcf) <u>93.2</u>		Degree of Saturation (%) <u>106.3 (S_c)</u>	Void Ratio <u>0.555</u>

After Test

Final Measurements	Final Moisture Content	Stresses (membrane corrected) at Failure (psi)
Maximum Diameter <u>3.427 (in.)</u>	Wet Weight (g) <u>1133.00</u>	Corrected Deviator <u>12.72 σ_d (psi)</u>
Wet weight (g) <u>1133 (WW_f)</u>	Dry Weight (g) <u>903.44</u>	Major Principal <u>32.73 σ_{1f} (psi)</u>
Average Diameter <u>3.313 (in.)</u>	Tare Weight (g) <u>0.00</u>	Minor Principal <u>20.01 σ_{3f} (psi)</u>
Youngs Modulus for Membrane (psi) <u>200</u>		Rate of Strain (% / min.) <u>0.356</u>
Membrane Thickness (in.) <u>0.012</u>		Axial Strain at Failure (%) <u>15.00</u>
		Failure Criterion: Maximum Deviator Stress



Comments: Remolded samples at as received moisture content. Bulk sample taken from low blow count material.

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.197 (in.)
Area avg.	8.0257 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510A
Data File ID	UU-510A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	1.0	-0.015	5.0	6.000	0.00	6.1575	0.0	0.000	0.000	4.970	4.970	4.97	0.00	1.000	0.0
0:00:22	4.4	-0.008	5.0	5.993	0.12	6.1648	3.4	0.556	0.552	5.528	4.976	5.25	0.28	1.111	0.4
0:00:30	5.3	-0.003	5.0	5.988	0.20	6.1699	4.3	0.691	0.685	5.655	4.970	5.31	0.34	1.138	0.5
0:00:40	6.0	0.003	5.0	5.981	0.31	6.1767	5.0	0.812	0.801	5.773	4.972	5.37	0.40	1.161	0.7
0:00:48	6.6	0.009	5.0	5.976	0.40	6.1824	5.6	0.900	0.886	5.861	4.975	5.42	0.44	1.178	0.8
0:00:57	7.2	0.015	5.0	5.969	0.51	6.1892	6.2	0.998	0.981	5.952	4.971	5.46	0.49	1.197	1.0
0:01:04	7.6	0.021	5.0	5.964	0.60	6.1947	6.6	1.065	1.045	6.014	4.969	5.49	0.52	1.210	1.1
0:01:13	8.2	0.027	5.0	5.958	0.70	6.2012	7.2	1.154	1.130	6.097	4.967	5.53	0.56	1.228	1.2
0:01:22	8.6	0.033	5.0	5.952	0.80	6.2072	7.6	1.226	1.199	6.179	4.980	5.58	0.60	1.241	1.4
0:01:30	8.9	0.039	5.0	5.946	0.90	6.2135	7.9	1.271	1.240	6.216	4.976	5.60	0.62	1.249	1.5
0:01:39	9.6	0.045	5.0	5.940	1.00	6.2199	8.6	1.377	1.343	6.313	4.971	5.64	0.67	1.270	1.7
0:01:47	10.0	0.051	5.0	5.934	1.10	6.2262	9.0	1.453	1.415	6.392	4.977	5.68	0.71	1.284	1.8
0:01:56	10.4	0.057	5.0	5.928	1.21	6.2326	9.4	1.504	1.462	6.444	4.981	5.71	0.73	1.294	1.9
0:02:05	10.9	0.063	5.0	5.921	1.31	6.2394	9.9	1.583	1.538	6.515	4.977	5.75	0.77	1.309	2.1
0:02:13	11.3	0.069	5.0	5.915	1.41	6.2457	10.3	1.643	1.594	6.571	4.977	5.77	0.80	1.320	2.2
0:02:22	11.9	0.075	5.0	5.909	1.51	6.2519	10.9	1.738	1.687	6.668	4.981	5.82	0.84	1.339	2.4
0:02:31	12.2	0.081	5.0	5.904	1.60	6.2577	11.2	1.792	1.738	6.714	4.977	5.85	0.87	1.349	2.5
0:02:39	12.8	0.087	5.0	5.898	1.70	6.2642	11.8	1.888	1.830	6.800	4.970	5.88	0.91	1.368	2.7
0:02:49	13.2	0.093	5.0	5.891	1.81	6.2710	12.2	1.950	1.888	6.864	4.977	5.92	0.94	1.379	2.8
0:02:58	13.6	0.099	5.0	5.885	1.91	6.2775	12.6	2.009	1.943	6.926	4.982	5.95	0.97	1.390	3.0
0:03:06	14.2	0.106	5.0	5.879	2.02	6.2842	13.2	2.102	2.033	7.014	4.981	6.00	1.02	1.408	3.1
0:03:14	14.7	0.111	5.0	5.874	2.10	6.2897	13.7	2.178	2.106	7.087	4.981	6.03	1.05	1.423	3.2
0:03:22	15.2	0.117	5.0	5.868	2.20	6.2963	14.2	2.259	2.184	7.156	4.972	6.06	1.09	1.439	3.4
0:03:31	15.6	0.123	5.0	5.861	2.31	6.3030	14.6	2.319	2.240	7.225	4.985	6.11	1.12	1.449	3.5
0:03:40	15.9	0.129	5.0	5.855	2.41	6.3095	14.9	2.367	2.285	7.253	4.969	6.11	1.14	1.460	3.7
0:03:48	16.5	0.135	5.0	5.849	2.51	6.3162	15.5	2.452	2.366	7.337	4.971	6.15	1.18	1.476	3.8
0:03:57	16.9	0.142	5.0	5.843	2.61	6.3228	15.9	2.518	2.429	7.404	4.976	6.19	1.21	1.488	4.0
0:04:06	17.2	0.148	5.0	5.837	2.71	6.3292	16.2	2.560	2.467	7.437	4.970	6.20	1.23	1.496	4.1
0:04:14	17.5	0.154	5.0	5.831	2.81	6.3358	16.5	2.610	2.514	7.494	4.980	6.24	1.26	1.505	4.2
0:04:23	18.0	0.160	5.0	5.825	2.92	6.3425	17.0	2.674	2.574	7.554	4.980	6.27	1.29	1.517	4.4
0:04:31	18.2	0.165	5.0	5.819	3.01	6.3488	17.2	2.707	2.603	7.580	4.977	6.28	1.30	1.523	4.5
0:04:40	18.7	0.171	5.0	5.813	3.11	6.3551	17.7	2.781	2.674	7.652	4.977	6.31	1.34	1.537	4.7
0:04:49	19.0	0.177	5.0	5.808	3.20	6.3613	18.0	2.824	2.714	7.697	4.983	6.34	1.36	1.545	4.8
0:04:57	19.1	0.183	5.0	5.802	3.31	6.3681	18.1	2.849	2.735	7.716	4.981	6.35	1.37	1.549	5.0
0:05:07	19.5	0.189	5.0	5.795	3.41	6.3749	18.5	2.899	2.782	7.755	4.973	6.36	1.39	1.559	5.1
0:05:16	19.8	0.195	5.0	5.790	3.50	6.3811	18.8	2.951	2.831	7.804	4.973	6.39	1.42	1.569	5.3
0:05:25	20.3	0.201	5.0	5.784	3.60	6.3875	19.3	3.020	2.897	7.871	4.974	6.42	1.45	1.582	5.4
0:05:34	20.8	0.207	5.0	5.777	3.71	6.3947	19.8	3.091	2.964	7.943	4.979	6.46	1.48	1.595	5.6
0:05:43	20.9	0.213	5.0	5.772	3.81	6.4013	19.9	3.114	2.984	7.949	4.965	6.46	1.49	1.601	5.7
0:05:52	21.3	0.219	5.0	5.766	3.90	6.4076	20.3	3.167	3.033	8.000	4.967	6.48	1.52	1.611	5.9
0:06:00	21.5	0.225	5.0	5.760	4.00	6.4141	20.5	3.202	3.065	8.036	4.971	6.50	1.53	1.617	6.0
0:06:10	21.7	0.231	5.0	5.753	4.11	6.4214	20.7	3.229	3.088	8.054	4.966	6.51	1.54	1.622	6.2
0:06:19	22.1	0.237	5.0	5.748	4.20	6.4278	21.1	3.279	3.135	8.099	4.964	6.53	1.57	1.631	6.3
0:06:29	22.4	0.244	5.0	5.741	4.31	6.4352	21.4	3.324	3.176	8.142	4.966	6.55	1.59	1.640	6.5
0:06:36	22.8	0.249	5.0	5.736	4.41	6.4414	21.8	3.390	3.239	8.201	4.962	6.58	1.62	1.653	6.6
0:06:44	23.1	0.255	5.0	5.730	4.50	6.4477	22.1	3.422	3.267	8.225	4.957	6.59	1.63	1.659	6.7
0:06:52	23.4	0.261	5.0	5.723	4.61	6.4552	22.4	3.465	3.306	8.266	4.959	6.61	1.65	1.667	6.9
0:07:00	23.7	0.267	5.0	5.717	4.71	6.4619	22.7	3.506	3.345	8.303	4.958	6.63	1.67	1.675	7.0
0:07:07	23.9	0.273	5.0	5.712	4.81	6.4684	22.9	3.534	3.369	8.327	4.957	6.64	1.68	1.680	7.1
0:07:14	24.0	0.279	5.0	5.706	4.91	6.4751	23.0	3.559	3.391	8.351	4.960	6.66	1.70	1.684	7.2
0:07:22	24.3	0.285	5.0	5.700	5.00	6.4818	23.3	3.599	3.428	8.379	4.952	6.67	1.71	1.692	7.4
0:07:30	24.6	0.292	5.0	5.693	5.12	6.4895	23.6	3.640	3.465	8.429	4.964	6.70	1.73	1.698	7.5
0:07:38	25.0	0.298	5.0	5.687	5.21	6.4962	24.0	3.696	3.517	8.479	4.962	6.72	1.76	1.709	7.6
0:07:45	25.1	0.304	5.0	5.681	5.31	6.5031	24.1	3.713	3.531	8.492	4.961	6.73	1.77	1.712	7.8
0:07:53	25.5	0.309	5.0	5.675	5.41	6.5098	24.5	3.768	3.582	8.560	4.978	6.77	1.79	1.720	7.9
0:08:00	25.7	0.315	5.0	5.669	5.51	6.5166	24.7	3.793	3.604	8.575	4.971	6.77	1.80	1.725	8.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.197 (in.)
Area avg.	8.0257 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510A
Data File ID	UU-510A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:08:07	26.0	0.321	5.0	5.664	5.61	6.5232	25.0	3.835	3.643	8.618	4.975	6.80	1.82	1.732	8.1
0:08:15	26.4	0.327	5.0	5.658	5.70	6.5298	25.4	3.890	3.694	8.667	4.973	6.82	1.85	1.743	8.3
0:08:23	26.7	0.333	5.0	5.651	5.81	6.5374	25.7	3.925	3.726	8.707	4.981	6.84	1.86	1.748	8.4
0:08:31	26.9	0.339	5.0	5.646	5.91	6.5441	25.9	3.956	3.753	8.738	4.985	6.86	1.88	1.753	8.5
0:08:38	27.2	0.345	5.0	5.640	6.00	6.5507	26.2	4.005	3.799	8.776	4.976	6.88	1.90	1.764	8.6
0:08:47	27.7	0.352	5.0	5.633	6.12	6.5586	26.7	4.072	3.863	8.851	4.988	6.92	1.93	1.774	8.8
0:08:54	28.0	0.358	5.0	5.627	6.21	6.5654	27.0	4.113	3.900	8.890	4.990	6.94	1.95	1.782	8.9
0:09:02	28.4	0.363	5.0	5.621	6.31	6.5723	27.4	4.162	3.946	8.922	4.977	6.95	1.97	1.793	9.0
0:09:09	28.6	0.369	5.0	5.615	6.41	6.5792	27.5	4.187	3.967	8.957	4.989	6.97	1.98	1.795	9.2
0:09:17	28.8	0.375	5.0	5.610	6.51	6.5861	27.8	4.222	3.999	8.983	4.984	6.98	2.00	1.802	9.3
0:09:24	29.0	0.381	5.0	5.604	6.61	6.5930	28.0	4.253	4.027	9.015	4.988	7.00	2.01	1.807	9.4
0:09:31	29.4	0.387	5.0	5.598	6.70	6.6000	28.4	4.298	4.068	9.059	4.991	7.03	2.03	1.815	9.5
0:09:39	29.7	0.393	5.0	5.592	6.80	6.6068	28.7	4.337	4.104	9.084	4.980	7.03	2.05	1.824	9.7
0:09:47	29.8	0.400	5.0	5.585	6.91	6.6149	28.8	4.357	4.120	9.111	4.991	7.05	2.06	1.826	9.8
0:09:55	30.1	0.405	5.0	5.579	7.01	6.6217	29.1	4.389	4.148	9.132	4.984	7.06	2.07	1.832	9.9
0:10:02	30.3	0.411	5.0	5.574	7.11	6.6286	29.3	4.423	4.179	9.168	4.988	7.08	2.09	1.838	10.0
0:10:11	30.5	0.418	5.0	5.567	7.21	6.6363	29.5	4.448	4.201	9.190	4.989	7.09	2.10	1.842	10.2
0:10:18	30.7	0.423	5.0	5.561	7.31	6.6431	29.7	4.471	4.221	9.207	4.987	7.10	2.11	1.846	10.3
0:10:26	30.9	0.429	5.0	5.556	7.40	6.6499	29.9	4.494	4.240	9.232	4.992	7.11	2.12	1.849	10.4
0:10:34	31.1	0.436	5.0	5.549	7.51	6.6577	30.1	4.527	4.269	9.248	4.979	7.11	2.13	1.857	10.6
0:10:42	31.3	0.441	5.0	5.544	7.60	6.6642	30.3	4.549	4.288	9.273	4.985	7.13	2.14	1.860	10.7
0:10:50	31.7	0.447	5.0	5.537	7.71	6.6720	30.7	4.595	4.331	9.316	4.985	7.15	2.17	1.869	10.8
0:10:58	31.8	0.453	5.0	5.532	7.80	6.6788	30.8	4.613	4.346	9.337	4.991	7.16	2.17	1.871	11.0
0:11:06	32.2	0.460	5.0	5.525	7.91	6.6867	31.2	4.673	4.401	9.384	4.983	7.18	2.20	1.883	11.1
0:11:14	32.4	0.465	5.0	5.520	8.01	6.6934	31.4	4.687	4.413	9.400	4.987	7.19	2.21	1.885	11.2
0:11:22	32.6	0.472	5.0	5.513	8.12	6.7014	31.6	4.711	4.433	9.416	4.984	7.20	2.22	1.889	11.4
0:11:30	32.8	0.477	5.0	5.507	8.21	6.7082	31.8	4.747	4.465	9.447	4.981	7.21	2.23	1.896	11.5
0:11:37	33.0	0.483	5.0	5.502	8.30	6.7149	32.0	4.759	4.474	9.462	4.988	7.23	2.24	1.897	11.6
0:11:46	33.3	0.489	5.0	5.496	8.41	6.7227	32.3	4.804	4.516	9.506	4.990	7.25	2.26	1.905	11.8
0:11:53	33.5	0.495	5.0	5.490	8.50	6.7296	32.5	4.822	4.531	9.516	4.985	7.25	2.27	1.909	11.9
0:12:02	33.7	0.501	5.0	5.483	8.61	6.7376	32.7	4.853	4.558	9.540	4.982	7.26	2.28	1.915	12.0
0:12:09	34.1	0.507	5.0	5.478	8.71	6.7447	33.1	4.905	4.606	9.589	4.983	7.29	2.30	1.924	12.2
0:12:18	34.2	0.513	5.0	5.471	8.81	6.7525	33.2	4.916	4.614	9.588	4.974	7.28	2.31	1.928	12.3
0:12:25	34.5	0.519	5.0	5.465	8.91	6.7599	33.4	4.948	4.643	9.630	4.987	7.31	2.32	1.931	12.4
0:12:33	34.7	0.525	5.0	5.460	9.01	6.7671	33.7	4.974	4.666	9.649	4.983	7.32	2.33	1.936	12.6
0:12:40	35.0	0.531	5.0	5.454	9.10	6.7742	34.0	5.024	4.712	9.696	4.984	7.34	2.36	1.945	12.7
0:12:47	35.2	0.537	5.0	5.448	9.20	6.7817	34.2	5.042	4.727	9.714	4.987	7.35	2.36	1.948	12.8
0:12:55	35.5	0.543	5.0	5.442	9.30	6.7893	34.5	5.075	4.756	9.746	4.989	7.37	2.38	1.953	12.9
0:13:02	35.8	0.549	5.0	5.436	9.40	6.7966	34.8	5.125	4.803	9.793	4.990	7.39	2.40	1.962	13.0
0:13:10	36.0	0.555	5.0	5.430	9.50	6.8041	35.0	5.139	4.813	9.793	4.980	7.39	2.41	1.967	13.2
0:13:17	36.1	0.561	5.0	5.424	9.60	6.8115	35.1	5.153	4.824	9.810	4.986	7.40	2.41	1.967	13.3
0:13:24	36.5	0.567	5.0	5.418	9.70	6.8190	35.5	5.200	4.868	9.854	4.986	7.42	2.43	1.976	13.4
0:13:33	36.6	0.573	5.0	5.411	9.81	6.8274	35.6	5.213	4.876	9.860	4.984	7.42	2.44	1.978	13.6
0:13:41	36.9	0.579	5.0	5.406	9.91	6.8347	35.9	5.258	4.918	9.908	4.989	7.45	2.46	1.986	13.7
0:13:48	37.3	0.585	5.0	5.400	10.00	6.8421	36.3	5.306	4.963	9.952	4.989	7.47	2.48	1.995	13.8
0:13:57	37.5	0.592	5.0	5.393	10.12	6.8505	36.5	5.335	4.988	9.970	4.982	7.48	2.49	2.001	14.0
0:14:04	37.6	0.597	5.0	5.387	10.21	6.8577	36.6	5.338	4.988	9.976	4.987	7.48	2.49	2.000	14.1
0:14:11	37.8	0.603	5.0	5.382	10.31	6.8651	36.8	5.365	5.012	10.004	4.992	7.50	2.51	2.004	14.2
0:14:19	38.1	0.609	5.0	5.376	10.40	6.8726	37.1	5.398	5.041	10.032	4.991	7.51	2.52	2.010	14.3
0:14:26	38.3	0.615	5.0	5.370	10.50	6.8801	37.3	5.418	5.057	10.054	4.996	7.53	2.53	2.012	14.4
0:14:34	38.7	0.621	5.0	5.364	10.60	6.8878	37.7	5.471	5.108	10.102	4.994	7.55	2.55	2.023	14.6
0:14:41	39.0	0.627	5.0	5.358	10.70	6.8955	38.0	5.505	5.138	10.126	4.988	7.56	2.57	2.030	14.7
0:14:50	39.1	0.634	5.0	5.351	10.82	6.9043	38.1	5.516	5.145	10.132	4.986	7.56	2.57	2.032	14.8
0:14:57	39.4	0.639	5.0	5.345	10.91	6.9117	38.4	5.562	5.188	10.180	4.992	7.59	2.59	2.039	15.0
0:15:04	39.7	0.645	5.0	5.339	11.01	6.9193	38.7	5.596	5.218	10.209	4.990	7.60	2.61	2.046	15.1
0:15:12	40.0	0.651	5.0	5.334	11.10	6.9266	38.9	5.623	5.242	10.237	4.995	7.62	2.62	2.050	15.2

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.9019 (in.)
Dia. avg.	3.197 (in.)
Area avg.	8.0257 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510A
Data File ID	UU-510A
Back Pressure (psi)	0
Lateral Pressure (psi)	5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:20	40.2	0.658	5.0	5.327	11.21	6.9352	39.2	5.649	5.264	10.260	4.995	7.63	2.63	2.054	15.3
0:15:28	40.2	0.663	5.0	5.321	11.31	6.9428	39.2	5.651	5.264	10.255	4.991	7.62	2.63	2.055	15.5
0:15:35	40.4	0.669	5.0	5.316	11.40	6.9502	39.4	5.667	5.276	10.271	4.995	7.63	2.64	2.056	15.6
0:15:44	40.8	0.676	5.0	5.309	11.52	6.9588	39.8	5.714	5.320	10.310	4.991	7.65	2.66	2.066	15.7
0:15:51	40.9	0.681	5.0	5.303	11.61	6.9662	39.9	5.728	5.329	10.326	4.996	7.66	2.66	2.067	15.9
0:15:59	41.0	0.687	5.0	5.298	11.70	6.9735	40.0	5.742	5.340	10.335	4.994	7.66	2.67	2.069	16.0
0:16:07	41.3	0.693	5.0	5.292	11.81	6.9820	40.3	5.775	5.370	10.362	4.992	7.68	2.69	2.076	16.1
0:16:15	41.6	0.699	5.0	5.286	11.90	6.9894	40.6	5.802	5.394	10.384	4.990	7.69	2.70	2.081	16.3
0:16:23	41.9	0.705	5.0	5.279	12.01	6.9981	40.9	5.847	5.435	10.431	4.996	7.71	2.72	2.088	16.4
0:16:31	42.2	0.711	5.0	5.274	12.11	7.0056	41.2	5.877	5.462	10.454	4.992	7.72	2.73	2.094	16.5
0:16:39	42.2	0.718	5.0	5.267	12.22	7.0144	41.1	5.866	5.447	10.442	4.995	7.72	2.72	2.091	16.7
0:16:47	42.4	0.723	5.0	5.262	12.31	7.0217	41.4	5.891	5.469	10.457	4.988	7.72	2.73	2.096	16.8
0:16:55	42.6	0.730	5.0	5.255	12.42	7.0304	41.6	5.912	5.486	10.469	4.982	7.73	2.74	2.101	16.9
0:17:03	42.8	0.735	5.0	5.250	12.51	7.0378	41.8	5.939	5.510	10.493	4.982	7.74	2.76	2.106	17.1
0:17:10	43.0	0.741	5.0	5.244	12.60	7.0453	42.0	5.964	5.532	10.519	4.987	7.75	2.77	2.109	17.2
0:17:19	43.3	0.747	5.0	5.237	12.71	7.0542	42.3	5.992	5.556	10.547	4.991	7.77	2.78	2.113	17.3
0:17:26	43.4	0.753	5.0	5.232	12.80	7.0616	42.4	6.000	5.561	10.546	4.985	7.77	2.78	2.116	17.4
0:17:35	43.6	0.760	5.0	5.225	12.91	7.0706	42.6	6.019	5.576	10.566	4.990	7.78	2.79	2.118	17.6
0:17:42	43.8	0.765	5.0	5.220	13.01	7.0783	42.8	6.044	5.598	10.590	4.992	7.79	2.80	2.121	17.7
0:17:50	44.3	0.771	5.0	5.214	13.11	7.0862	43.2	6.103	5.654	10.646	4.993	7.82	2.83	2.132	17.8
0:17:57	44.4	0.777	5.0	5.208	13.20	7.0943	43.4	6.118	5.666	10.650	4.984	7.82	2.83	2.137	18.0
0:18:04	44.5	0.783	5.0	5.202	13.30	7.1024	43.5	6.122	5.666	10.654	4.988	7.82	2.83	2.136	18.1
0:18:12	44.8	0.789	5.0	5.196	13.40	7.1104	43.8	6.157	5.698	10.681	4.983	7.83	2.85	2.143	18.2
0:18:19	44.8	0.795	5.0	5.190	13.50	7.1189	43.8	6.147	5.684	10.678	4.994	7.84	2.84	2.138	18.3
0:18:27	45.0	0.801	5.0	5.184	13.60	7.1270	44.0	6.175	5.709	10.701	4.992	7.85	2.85	2.143	18.5
0:18:34	45.2	0.807	5.0	5.178	13.70	7.1353	44.2	6.200	5.730	10.721	4.990	7.86	2.87	2.148	18.6
0:18:41	45.4	0.813	5.0	5.172	13.80	7.1435	44.3	6.208	5.735	10.716	4.981	7.85	2.87	2.151	18.7
0:18:49	45.7	0.819	5.0	5.166	13.90	7.1518	44.7	6.246	5.769	10.763	4.994	7.88	2.88	2.155	18.8
0:18:57	45.8	0.826	5.0	5.159	14.01	7.1611	44.8	6.250	5.769	10.753	4.983	7.87	2.88	2.158	19.0
0:19:05	46.1	0.831	5.0	5.153	14.11	7.1690	45.1	6.296	5.812	10.802	4.990	7.90	2.91	2.165	19.1
0:19:12	46.3	0.837	5.0	5.148	14.21	7.1770	45.3	6.316	5.829	10.811	4.981	7.90	2.91	2.170	19.2
0:19:20	46.5	0.843	5.0	5.142	14.30	7.1851	45.5	6.338	5.848	10.836	4.988	7.91	2.92	2.172	19.3
0:19:28	46.7	0.850	5.0	5.135	14.42	7.1947	45.7	6.354	5.860	10.846	4.986	7.92	2.93	2.175	19.5
0:19:36	46.9	0.856	5.0	5.129	14.51	7.2028	45.9	6.373	5.875	10.860	4.984	7.92	2.94	2.179	19.6
0:19:43	47.2	0.861	5.0	5.123	14.61	7.2111	46.2	6.407	5.906	10.894	4.987	7.94	2.95	2.184	19.7
0:19:50	47.5	0.867	5.0	5.117	14.71	7.2196	46.5	6.438	5.934	10.916	4.982	7.95	2.97	2.191	19.8
0:19:58	47.7	0.874	5.0	5.111	14.81	7.2282	46.7	6.467	5.959	10.946	4.986	7.97	2.98	2.195	20.0
0:20:05	47.9	0.879	5.0	5.105	14.91	7.2365	46.8	6.474	5.962	10.942	4.979	7.96	2.98	2.197	20.1
0:20:13	48.0	0.885	5.0	5.100	15.01	7.2448	47.0	6.487	5.972	10.955	4.982	7.97	2.99	2.199	20.2
0:20:20	48.4	0.891	5.0	5.094	15.10	7.2531	47.4	6.530	6.012	10.992	4.980	7.99	3.01	2.207	20.3
0:20:27	48.4	0.897	5.0	5.088	15.20	7.2614	47.4	6.532	6.011	10.981	4.971	7.98	3.01	2.209	20.5
0:20:36	48.6	0.904	5.0	5.081	15.31	7.2710	47.6	6.549	6.024	10.996	4.973	7.98	3.01	2.211	20.6
0:20:43	48.9	0.909	5.0	5.075	15.41	7.2792	47.9	6.582	6.054	11.019	4.966	7.99	3.03	2.219	20.7
0:20:51	49.3	0.915	5.0	5.070	15.51	7.2875	48.3	6.632	6.100	11.088	4.988	8.04	3.05	2.223	20.9
0:21:00	49.3	0.922	5.0	5.063	15.61	7.2968	48.3	6.623	6.087	11.082	4.995	8.04	3.04	2.219	21.0
0:21:07	49.5	0.927	5.0	5.057	15.71	7.3051	48.5	6.644	6.105	11.104	4.998	8.05	3.05	2.221	21.1
0:21:14	49.8	0.933	5.0	5.052	15.80	7.3133	48.8	6.673	6.132	11.124	4.993	8.06	3.07	2.228	21.2
0:21:23	50.0	0.939	5.0	5.046	15.91	7.3224	49.0	6.691	6.146	11.148	5.002	8.08	3.07	2.228	21.4
0:21:30	50.2	0.945	5.0	5.040	16.00	7.3306	49.2	6.713	6.165	11.162	4.997	8.08	3.08	2.234	21.5
0:21:39	50.4	0.952	5.0	5.033	16.11	7.3403	49.4	6.734	6.181	11.183	5.002	8.09	3.09	2.236	21.7
0:21:46	50.5	0.957	5.0	5.028	16.21	7.3483	49.5	6.739	6.183	11.189	5.006	8.10	3.09	2.235	21.8
0:21:55	50.6	0.964	5.0	5.021	16.31	7.3579	49.6	6.737	6.177	11.183	5.006	8.09	3.09	2.234	21.9
0:22:02	50.6	0.969	5.0	5.016	16.41	7.3661	49.6	6.736	6.173	11.172	4.999	8.09	3.09	2.235	22.0
0:22:10	50.9	0.975	5.0	5.010	16.50	7.3744	49.9	6.770	6.204	11.206	5.001	8.10	3.10	2.241	22.2
0:22:18	51.0	0.981	5.0	5.004	16.61	7.3838	50.0	6.773	6.203	11.205	5.001	8.10	3.10	2.240	22.3
0:22:26	50.9	0.987	5.0	4.998	16.70	7.3921	49.9	6.745	6.172	11.178	5.006	8.09	3.09	2.233	22.4

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values

Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values

Height	4.9019 (in.)
Dia. avg.	3.197 (in.)
Area avg.	8.0257 (in ²)

Tested By RCDate 5-28-09Press No. 1Panel No. CProject Number 175569038Test Number UU-510AData File ID UU-510ABack Pressure (psi) 0Lateral Pressure (psi) 5

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p (σ_1, σ_3)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:22:34	51.2	0.993	5.0	4.991	16.81	7.4017	50.2	6.781	6.205	11.204	4.999	8.10	3.10	2.241	22.6
0:22:42	51.3	0.999	5.0	4.986	16.90	7.4101	50.3	6.783	6.204	11.208	5.005	8.11	3.10	2.240	22.7
0:22:50	51.6	1.005	5.0	4.979	17.01	7.4196	50.6	6.820	6.237	11.234	4.997	8.12	3.12	2.248	22.8
0:22:58	51.5	1.011	5.0	4.974	17.11	7.4282	50.5	6.803	6.216	11.215	4.999	8.11	3.11	2.244	23.0
0:23:05	51.9	1.017	5.0	4.968	17.20	7.4368	50.9	6.839	6.249	11.258	5.009	8.13	3.12	2.248	23.1
0:23:14	52.1	1.024	5.0	4.961	17.32	7.4472	51.1	6.867	6.273	11.275	5.002	8.14	3.14	2.254	23.2
0:23:21	52.1	1.030	5.0	4.955	17.42	7.4560	51.1	6.858	6.261	11.266	5.005	8.14	3.13	2.251	23.4
0:23:29	52.3	1.035	5.0	4.949	17.51	7.4647	51.3	6.878	6.278	11.278	5.001	8.14	3.14	2.255	23.5
0:23:36	52.6	1.042	5.0	4.943	17.61	7.4740	51.6	6.899	6.295	11.296	5.002	8.15	3.15	2.259	23.6
0:23:43	52.8	1.047	5.0	4.937	17.71	7.4829	51.7	6.916	6.308	11.309	5.000	8.15	3.15	2.262	23.7
0:23:51	52.8	1.054	5.0	4.931	17.81	7.4921	51.8	6.913	6.302	11.309	5.007	8.16	3.15	2.259	23.9
0:23:58	52.9	1.060	5.0	4.925	17.91	7.5013	51.9	6.924	6.310	11.306	4.996	8.15	3.15	2.263	24.0
0:24:06	53.2	1.065	5.0	4.919	18.01	7.5101	52.2	6.955	6.337	11.346	5.008	8.18	3.17	2.265	24.1
0:24:13	53.4	1.071	5.0	4.913	18.11	7.5192	52.4	6.963	6.342	11.357	5.014	8.19	3.17	2.265	24.2
0:24:20	53.4	1.077	5.0	4.908	18.21	7.5282	52.4	6.959	6.335	11.338	5.004	8.17	3.17	2.266	24.3
0:24:28	53.8	1.083	5.0	4.902	18.30	7.5369	52.8	7.007	6.380	11.383	5.003	8.19	3.19	2.275	24.5

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8959 (in.)
Dia. avg.	3.024 (in.)
Area avg.	7.1837 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-510B
Data File ID	UU-510B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:00:00	2.3	-0.020	10.0	6.000	0.00	6.1575	0.0	0.000	0.000	10.030	10.030	10.03	0.00	1.000	0.0
0:00:55	3.5	-0.014	10.0	5.994	0.10	6.1640	1.2	0.198	0.195	10.217	10.023	10.12	0.10	1.019	0.9
0:01:10	3.9	-0.008	10.0	5.988	0.20	6.1701	1.6	0.260	0.253	10.281	10.029	10.15	0.13	1.025	1.2
0:01:18	3.9	-0.002	10.0	5.982	0.30	6.1762	1.6	0.261	0.251	10.273	10.022	10.15	0.13	1.025	1.3
0:01:26	3.9	0.004	10.0	5.975	0.41	6.1828	1.6	0.266	0.252	10.281	10.029	10.15	0.13	1.025	1.4
0:01:34	4.0	0.010	10.0	5.970	0.51	6.1889	1.7	0.282	0.264	10.294	10.029	10.16	0.13	1.026	1.6
0:01:45	4.2	0.016	10.0	5.963	0.61	6.1952	1.9	0.311	0.290	10.317	10.027	10.17	0.15	1.029	1.8
0:02:01	4.3	0.022	10.0	5.958	0.71	6.2014	2.0	0.329	0.304	10.336	10.032	10.18	0.15	1.030	2.0
0:02:08	4.5	0.028	10.0	5.951	0.81	6.2079	2.3	0.368	0.340	10.377	10.037	10.21	0.17	1.034	2.1
0:02:15	4.5	0.034	10.0	5.946	0.91	6.2139	2.2	0.359	0.327	10.354	10.026	10.19	0.16	1.033	2.3
0:02:23	4.5	0.040	10.0	5.940	1.00	6.2198	2.3	0.366	0.332	10.357	10.025	10.19	0.17	1.033	2.4
0:02:30	4.7	0.046	10.0	5.934	1.10	6.2261	2.5	0.396	0.358	10.390	10.031	10.21	0.18	1.036	2.5
0:02:39	4.8	0.052	10.0	5.927	1.21	6.2330	2.5	0.400	0.358	10.387	10.029	10.21	0.18	1.036	2.7
0:02:46	4.9	0.058	10.0	5.922	1.30	6.2388	2.7	0.425	0.381	10.410	10.029	10.22	0.19	1.038	2.8
0:02:54	5.1	0.064	10.0	5.916	1.40	6.2452	2.8	0.455	0.407	10.442	10.035	10.24	0.20	1.041	2.9
0:03:02	5.1	0.070	10.0	5.909	1.51	6.2521	2.8	0.451	0.399	10.427	10.028	10.23	0.20	1.040	3.0
0:03:10	5.3	0.077	10.0	5.903	1.61	6.2586	3.1	0.490	0.435	10.472	10.037	10.25	0.22	1.043	3.2
0:03:17	5.3	0.082	10.0	5.897	1.71	6.2648	3.1	0.492	0.433	10.472	10.039	10.26	0.22	1.043	3.3
0:03:24	5.5	0.088	10.0	5.892	1.80	6.2705	3.3	0.523	0.461	10.499	10.037	10.27	0.23	1.046	3.4
0:03:33	5.8	0.094	10.0	5.885	1.91	6.2776	3.5	0.561	0.496	10.539	10.043	10.29	0.25	1.049	3.6
0:03:40	5.8	0.100	10.0	5.879	2.01	6.2839	3.6	0.571	0.502	10.546	10.044	10.29	0.25	1.050	3.7
0:03:47	6.0	0.106	10.0	5.874	2.11	6.2900	3.8	0.597	0.524	10.557	10.032	10.29	0.26	1.052	3.8
0:03:55	6.1	0.112	10.0	5.868	2.21	6.2965	3.8	0.611	0.535	10.574	10.040	10.31	0.27	1.053	3.9
0:04:02	6.2	0.118	10.0	5.861	2.31	6.3031	4.0	0.631	0.552	10.588	10.036	10.31	0.28	1.055	4.0
0:04:10	6.5	0.124	10.0	5.856	2.40	6.3092	4.3	0.680	0.598	10.633	10.035	10.33	0.30	1.060	4.2
0:04:17	6.6	0.130	10.0	5.850	2.50	6.3156	4.4	0.694	0.608	10.646	10.038	10.34	0.30	1.061	4.3
0:04:24	6.7	0.136	10.0	5.844	2.60	6.3221	4.5	0.706	0.617	10.652	10.035	10.34	0.31	1.061	4.4
0:04:32	6.9	0.142	10.0	5.838	2.70	6.3285	4.6	0.731	0.639	10.674	10.036	10.35	0.32	1.064	4.5
0:04:39	7.0	0.148	10.0	5.832	2.80	6.3349	4.7	0.741	0.645	10.685	10.040	10.36	0.32	1.064	4.7
0:04:47	7.2	0.154	10.0	5.826	2.90	6.3416	4.9	0.773	0.673	10.701	10.028	10.36	0.34	1.067	4.8
0:04:54	7.3	0.160	10.0	5.820	3.00	6.3482	5.1	0.797	0.694	10.729	10.034	10.38	0.35	1.069	4.9
0:05:01	7.5	0.166	10.0	5.814	3.10	6.3548	5.2	0.823	0.716	10.752	10.036	10.39	0.36	1.071	5.0
0:05:09	7.6	0.172	10.0	5.808	3.20	6.3613	5.4	0.846	0.737	10.770	10.034	10.40	0.37	1.073	5.2
0:05:16	7.9	0.178	10.0	5.802	3.30	6.3679	5.6	0.880	0.767	10.778	10.011	10.39	0.38	1.077	5.3
0:05:24	7.9	0.184	10.0	5.796	3.40	6.3744	5.6	0.879	0.762	10.724	9.962	10.34	0.38	1.077	5.4
0:05:32	8.2	0.191	10.1	5.789	3.51	6.3818	5.9	0.925	0.805	10.858	10.054	10.46	0.40	1.080	5.5
0:05:40	8.2	0.196	10.0	5.783	3.61	6.3881	6.0	0.938	0.814	10.857	10.044	10.45	0.41	1.081	5.7
0:05:47	8.6	0.202	10.0	5.777	3.71	6.3947	6.3	0.985	0.858	10.903	10.045	10.47	0.43	1.085	5.8
0:05:54	8.6	0.208	10.0	5.772	3.81	6.4013	6.4	0.996	0.866	10.915	10.049	10.48	0.43	1.086	5.9
0:06:02	8.8	0.214	10.0	5.766	3.91	6.4079	6.5	1.022	0.888	10.923	10.036	10.48	0.44	1.088	6.0
0:06:09	9.0	0.220	10.0	5.759	4.01	6.4148	6.7	1.050	0.912	10.944	10.032	10.49	0.46	1.091	6.2
0:06:17	9.3	0.227	10.0	5.753	4.12	6.4219	7.0	1.092	0.951	10.988	10.037	10.51	0.48	1.095	6.3
0:06:23	9.4	0.232	10.0	5.748	4.20	6.4276	7.2	1.113	0.969	11.005	10.037	10.52	0.48	1.097	6.4
0:06:30	9.7	0.238	10.0	5.742	4.30	6.4342	7.4	1.149	1.002	11.038	10.037	10.54	0.50	1.100	6.5
0:06:38	9.9	0.244	10.0	5.736	4.40	6.4412	7.6	1.180	1.029	11.066	10.038	10.55	0.51	1.102	6.6
0:06:45	10.1	0.250	10.0	5.730	4.51	6.4481	7.9	1.223	1.068	11.100	10.031	10.57	0.53	1.107	6.8
0:06:52	10.4	0.256	10.0	5.724	4.61	6.4549	8.1	1.261	1.103	11.139	10.036	10.59	0.55	1.110	6.9
0:07:00	10.6	0.262	10.0	5.717	4.71	6.4618	8.3	1.289	1.127	11.169	10.042	10.61	0.56	1.112	7.0
0:07:07	10.8	0.268	10.0	5.711	4.81	6.4687	8.6	1.327	1.162	11.205	10.043	10.62	0.58	1.116	7.1
0:07:15	11.1	0.274	10.0	5.705	4.91	6.4754	8.9	1.368	1.200	11.237	10.037	10.64	0.60	1.120	7.3
0:07:22	11.3	0.280	10.0	5.700	5.01	6.4820	9.0	1.396	1.224	11.261	10.036	10.65	0.61	1.122	7.4
0:07:29	11.6	0.286	10.0	5.694	5.11	6.4888	9.4	1.443	1.268	11.303	10.035	10.67	0.63	1.126	7.5
0:07:38	11.8	0.293	10.0	5.687	5.22	6.4964	9.5	1.462	1.283	11.317	10.034	10.68	0.64	1.128	7.6
0:07:45	12.0	0.298	10.0	5.681	5.31	6.5030	9.7	1.498	1.316	11.352	10.036	10.69	0.66	1.131	7.8
0:07:53	12.2	0.304	10.0	5.676	5.41	6.5095	10.0	1.529	1.344	11.384	10.041	10.71	0.67	1.134	7.9
0:08:00	12.4	0.310	10.0	5.670	5.51	6.5164	10.2	1.560	1.371	11.400	10.029	10.71	0.69	1.137	8.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

**Unconsolidated Undrained Triaxial Test
ASTM D2850-03a**

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8959 (in.)
Dia. avg.	3.024 (in)
Area avg.	7.1837 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-510B
Data File ID	UU-510B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Hieght (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:08:08	12.7	0.316	10.0	5.664	5.60	6.5230	10.5	1.607	1.415	11.451	10.036	10.74	0.71	1.141	8.1
0:08:16	12.9	0.323	10.0	5.657	5.72	6.5308	10.6	1.627	1.431	11.471	10.040	10.76	0.72	1.143	8.3
0:08:24	13.1	0.329	10.0	5.651	5.82	6.5377	10.9	1.663	1.464	11.489	10.025	10.76	0.73	1.146	8.4
0:08:31	13.4	0.334	10.0	5.645	5.91	6.5445	11.1	1.695	1.492	11.526	10.034	10.78	0.75	1.149	8.5
0:08:38	13.6	0.340	10.0	5.639	6.01	6.5513	11.3	1.728	1.522	11.553	10.031	10.79	0.76	1.152	8.6
0:08:46	13.9	0.346	10.0	5.634	6.11	6.5580	11.6	1.772	1.563	11.597	10.034	10.82	0.78	1.156	8.8
0:08:53	13.9	0.352	10.0	5.628	6.21	6.5649	11.7	1.776	1.563	11.598	10.035	10.82	0.78	1.156	8.9
0:09:01	14.3	0.358	10.0	5.622	6.31	6.5719	12.1	1.839	1.623	11.649	10.026	10.84	0.81	1.162	9.0
0:09:08	14.5	0.364	10.0	5.616	6.40	6.5788	12.2	1.860	1.640	11.668	10.028	10.85	0.82	1.164	9.1
0:09:15	14.5	0.370	10.0	5.610	6.50	6.5858	12.3	1.860	1.638	11.666	10.028	10.85	0.82	1.163	9.3
0:09:23	14.8	0.376	10.0	5.604	6.60	6.5929	12.6	1.906	1.680	11.706	10.026	10.87	0.84	1.168	9.4
0:09:30	15.1	0.382	10.0	5.598	6.70	6.6000	12.8	1.938	1.708	11.734	10.025	10.88	0.85	1.170	9.5
0:09:38	15.3	0.388	10.0	5.592	6.80	6.6070	13.0	1.968	1.735	11.764	10.029	10.90	0.87	1.173	9.6
0:09:45	15.5	0.394	10.0	5.586	6.91	6.6143	13.2	2.001	1.764	11.787	10.023	10.90	0.88	1.176	9.8
0:09:52	15.7	0.400	10.0	5.580	7.01	6.6215	13.5	2.036	1.796	11.823	10.028	10.93	0.90	1.179	9.9
0:10:00	16.0	0.406	10.0	5.573	7.11	6.6287	13.8	2.080	1.836	11.856	10.019	10.94	0.92	1.183	10.0
0:10:07	16.2	0.412	10.0	5.567	7.21	6.6361	14.0	2.104	1.857	11.881	10.024	10.95	0.93	1.185	10.1
0:10:15	16.5	0.418	10.0	5.561	7.31	6.6434	14.2	2.140	1.889	11.912	10.023	10.97	0.94	1.189	10.3
0:10:22	16.7	0.424	10.0	5.555	7.41	6.6505	14.4	2.169	1.914	11.929	10.015	10.97	0.96	1.191	10.4
0:10:29	17.0	0.430	10.0	5.549	7.51	6.6576	14.7	2.210	1.953	11.968	10.016	10.99	0.98	1.195	10.5
0:10:37	17.1	0.436	10.0	5.543	7.61	6.6647	14.8	2.228	1.967	11.988	10.021	11.00	0.98	1.196	10.6
0:10:44	17.3	0.442	10.0	5.538	7.71	6.6717	15.0	2.255	1.991	12.002	10.011	11.01	1.00	1.199	10.7
0:10:52	17.5	0.448	10.0	5.532	7.81	6.6789	15.3	2.288	2.020	12.041	10.021	11.03	1.01	1.202	10.9
0:10:59	17.7	0.454	10.0	5.526	7.90	6.6859	15.5	2.314	2.044	12.064	10.020	11.04	1.02	1.204	11.0
0:11:06	17.9	0.460	10.0	5.520	8.00	6.6931	15.6	2.337	2.063	12.079	10.016	11.05	1.03	1.206	11.1
0:11:14	18.2	0.466	10.0	5.514	8.10	6.7006	16.0	2.384	2.106	12.099	9.994	11.05	1.05	1.211	11.2
0:11:21	18.4	0.472	10.0	5.508	8.21	6.7081	16.2	2.411	2.130	12.136	10.006	11.07	1.07	1.213	11.4
0:11:29	18.6	0.478	10.0	5.501	8.31	6.7157	16.3	2.434	2.149	12.166	10.016	11.09	1.07	1.215	11.5
0:11:36	18.9	0.485	10.0	5.495	8.41	6.7232	16.6	2.469	2.181	12.192	10.011	11.10	1.09	1.218	11.6
0:11:42	19.1	0.490	10.0	5.490	8.50	6.7296	16.8	2.500	2.209	12.217	10.008	11.11	1.10	1.221	11.7
0:11:50	19.4	0.496	10.0	5.484	8.60	6.7371	17.1	2.543	2.248	12.251	10.003	11.13	1.12	1.225	11.8
0:11:57	19.6	0.502	10.0	5.478	8.71	6.7448	17.3	2.567	2.269	12.271	10.003	11.14	1.13	1.227	12.0
0:12:04	19.7	0.508	10.0	5.471	8.81	6.7523	17.5	2.590	2.288	12.287	9.999	11.14	1.14	1.229	12.1
0:12:12	20.0	0.514	10.0	5.465	8.91	6.7597	17.8	2.628	2.323	12.314	9.991	11.15	1.16	1.233	12.2
0:12:19	20.3	0.520	10.0	5.459	9.01	6.7672	18.0	2.664	2.356	12.356	10.000	11.18	1.18	1.236	12.3
0:12:27	20.4	0.526	10.0	5.453	9.11	6.7749	18.2	2.681	2.368	12.360	9.992	11.18	1.18	1.237	12.5
0:12:34	20.6	0.532	10.0	5.447	9.21	6.7822	18.3	2.703	2.387	12.369	9.982	11.18	1.19	1.239	12.6
0:12:41	20.9	0.538	10.0	5.442	9.31	6.7893	18.6	2.740	2.421	12.410	9.989	11.20	1.21	1.242	12.7
0:12:49	21.1	0.544	10.0	5.436	9.40	6.7965	18.8	2.769	2.446	12.434	9.988	11.21	1.22	1.245	12.8
0:12:56	21.4	0.550	10.0	5.430	9.50	6.8041	19.1	2.808	2.482	12.465	9.983	11.22	1.24	1.249	12.9
0:13:05	21.6	0.557	10.0	5.423	9.61	6.8125	19.3	2.837	2.507	12.486	9.978	11.23	1.25	1.251	13.1
0:13:12	21.7	0.563	10.0	5.417	9.71	6.8200	19.5	2.858	2.525	12.501	9.977	11.24	1.26	1.253	13.2
0:13:20	22.0	0.568	10.0	5.411	9.81	6.8272	19.7	2.888	2.552	12.521	9.970	11.25	1.28	1.256	13.3
0:13:27	22.2	0.574	10.0	5.405	9.91	6.8349	19.9	2.910	2.571	12.560	9.989	11.27	1.29	1.257	13.5
0:13:34	22.4	0.580	10.0	5.399	10.01	6.8424	20.2	2.946	2.602	12.631	10.028	11.33	1.30	1.260	13.6
0:13:42	22.5	0.586	10.0	5.394	10.11	6.8497	20.3	2.959	2.612	12.651	10.039	11.34	1.31	1.260	13.7
0:13:49	22.8	0.592	10.0	5.388	10.20	6.8572	20.6	2.998	2.648	12.694	10.046	11.37	1.32	1.264	13.8
0:13:57	23.1	0.598	10.1	5.382	10.30	6.8646	20.9	3.039	2.686	12.737	10.052	11.39	1.34	1.267	14.0
0:14:05	23.3	0.605	10.1	5.375	10.41	6.8733	21.0	3.060	2.703	12.757	10.053	11.40	1.35	1.269	14.1
0:14:13	23.5	0.610	10.1	5.369	10.51	6.8809	21.2	3.081	2.721	12.778	10.057	11.42	1.36	1.271	14.2
0:14:20	23.6	0.617	10.1	5.363	10.61	6.8887	21.4	3.103	2.739	12.804	10.065	11.43	1.37	1.272	14.3
0:14:27	23.8	0.622	10.1	5.357	10.71	6.8964	21.5	3.120	2.753	12.806	10.053	11.43	1.38	1.274	14.5
0:14:35	24.1	0.628	10.1	5.351	10.81	6.9040	21.8	3.157	2.786	12.843	10.057	11.45	1.39	1.277	14.6
0:14:42	24.2	0.634	10.1	5.345	10.91	6.9118	21.9	3.175	2.801	12.861	10.060	11.46	1.40	1.278	14.7
0:14:50	24.5	0.641	10.1	5.339	11.02	6.9198	22.2	3.209	2.832	12.883	10.051	11.47	1.42	1.282	14.8
0:14:56	24.7	0.646	10.1	5.334	11.10	6.9266	22.5	3.242	2.861	12.922	10.061	11.49	1.43	1.284	14.9

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8959 (in.)
Dia. avg.	3.024 (in.)
Area avg.	7.1837 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-510B
Data File ID	UU-510B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:15:03	24.8	0.652	10.1	5.328	11.20	6.9345	22.5	3.251	2.867	12.922	10.055	11.49	1.43	1.285	15.1
0:15:11	25.0	0.658	10.1	5.322	11.31	6.9426	22.8	3.281	2.893	12.951	10.058	11.50	1.45	1.288	15.2
0:15:18	25.3	0.664	10.1	5.315	11.41	6.9507	23.0	3.313	2.922	12.981	10.059	11.52	1.46	1.290	15.3
0:15:25	25.4	0.670	10.1	5.309	11.51	6.9585	23.2	3.330	2.936	12.993	10.057	11.52	1.47	1.292	15.4
0:15:33	25.7	0.676	10.1	5.303	11.61	6.9665	23.4	3.363	2.964	13.022	10.058	11.54	1.48	1.295	15.6
0:15:40	25.9	0.683	10.1	5.297	11.71	6.9745	23.7	3.394	2.993	13.057	10.064	11.56	1.50	1.297	15.7
0:15:48	26.1	0.688	10.1	5.291	11.81	6.9824	23.8	3.409	3.004	13.065	10.061	11.56	1.50	1.299	15.8
0:15:55	26.3	0.694	10.1	5.285	11.91	6.9900	24.1	3.446	3.037	13.103	10.066	11.58	1.52	1.302	15.9
0:16:02	26.6	0.700	10.1	5.279	12.01	6.9979	24.3	3.480	3.068	13.129	10.062	11.60	1.53	1.305	16.0
0:16:10	26.7	0.706	10.1	5.273	12.11	7.0059	24.4	3.488	3.073	13.133	10.061	11.60	1.54	1.305	16.2
0:16:17	27.0	0.712	10.1	5.267	12.21	7.0139	24.8	3.530	3.112	13.167	10.055	11.61	1.56	1.309	16.3
0:16:25	27.3	0.718	10.1	5.261	12.31	7.0222	25.0	3.564	3.142	13.201	10.059	11.63	1.57	1.312	16.4
0:16:31	27.4	0.724	10.1	5.256	12.40	7.0291	25.2	3.583	3.158	13.218	10.060	11.64	1.58	1.314	16.5
0:16:38	27.6	0.730	10.0	5.250	12.50	7.0373	25.4	3.605	3.177	13.225	10.048	11.64	1.59	1.316	16.6
0:16:46	27.9	0.736	10.0	5.244	12.61	7.0457	25.6	3.632	3.200	13.248	10.048	11.65	1.60	1.318	16.8
0:16:53	28.0	0.742	10.1	5.237	12.71	7.0540	25.8	3.654	3.218	13.271	10.053	11.66	1.61	1.320	16.9
0:17:00	28.2	0.748	10.1	5.231	12.81	7.0622	26.0	3.678	3.239	13.289	10.050	11.67	1.62	1.322	17.0
0:17:08	28.6	0.755	10.1	5.225	12.92	7.0708	26.3	3.726	3.283	13.335	10.052	11.69	1.64	1.327	17.1
0:17:15	28.6	0.761	10.1	5.219	13.02	7.0789	26.3	3.720	3.274	13.325	10.051	11.69	1.64	1.326	17.3
0:17:21	28.9	0.766	10.1	5.214	13.10	7.0859	26.7	3.766	3.317	13.368	10.051	11.71	1.66	1.330	17.4
0:17:29	29.1	0.772	10.0	5.208	13.20	7.0941	26.8	3.781	3.328	13.373	10.045	11.71	1.66	1.331	17.5
0:17:36	29.3	0.778	10.0	5.202	13.30	7.1024	27.0	3.803	3.347	13.393	10.046	11.72	1.67	1.333	17.6
0:17:44	29.5	0.784	10.0	5.196	13.41	7.1108	27.2	3.828	3.368	13.416	10.048	11.73	1.68	1.335	17.7
0:17:51	29.8	0.790	10.0	5.190	13.50	7.1188	27.6	3.871	3.408	13.456	10.048	11.75	1.70	1.339	17.9
0:18:00	30.0	0.797	10.1	5.183	13.61	7.1280	27.7	3.892	3.426	13.478	10.052	11.76	1.71	1.341	18.0
0:18:07	30.1	0.803	10.0	5.177	13.71	7.1362	27.9	3.908	3.437	13.487	10.049	11.77	1.72	1.342	18.1
0:18:14	30.3	0.808	10.0	5.171	13.81	7.1444	28.1	3.932	3.458	13.507	10.049	11.78	1.73	1.344	18.2
0:18:22	30.7	0.814	10.0	5.165	13.91	7.1526	28.5	3.982	3.505	13.553	10.048	11.80	1.75	1.349	18.4
0:18:29	30.9	0.820	10.0	5.160	14.01	7.1606	28.7	4.001	3.521	13.564	10.043	11.80	1.76	1.351	18.5
0:18:37	31.0	0.826	10.1	5.153	14.11	7.1689	28.8	4.016	3.532	13.585	10.053	11.82	1.77	1.351	18.6
0:18:44	31.3	0.832	10.0	5.147	14.21	7.1774	29.1	4.051	3.564	13.611	10.047	11.83	1.78	1.355	18.7
0:18:51	31.5	0.838	10.1	5.142	14.31	7.1855	29.2	4.069	3.579	13.631	10.053	11.84	1.79	1.356	18.9
0:18:59	31.6	0.844	10.0	5.136	14.40	7.1936	29.4	4.086	3.592	13.639	10.047	11.84	1.80	1.358	19.0
0:19:07	31.9	0.851	10.1	5.129	14.51	7.2030	29.6	4.109	3.611	13.661	10.050	11.86	1.81	1.359	19.1
0:19:15	32.1	0.857	10.0	5.123	14.61	7.2114	29.8	4.136	3.635	13.675	10.041	11.86	1.82	1.362	19.3
0:19:22	32.4	0.862	10.0	5.117	14.71	7.2196	30.1	4.172	3.667	13.712	10.045	11.88	1.83	1.365	19.4
0:19:30	32.5	0.868	10.0	5.111	14.81	7.2282	30.2	4.181	3.673	13.717	10.044	11.88	1.84	1.366	19.5
0:19:37	32.6	0.874	10.0	5.105	14.91	7.2368	30.3	4.188	3.677	13.716	10.039	11.88	1.84	1.366	19.6
0:19:44	33.0	0.880	10.0	5.099	15.01	7.2452	30.7	4.236	3.721	13.770	10.049	11.91	1.86	1.370	19.7
0:19:52	33.1	0.886	10.0	5.093	15.11	7.2537	30.9	4.256	3.738	13.783	10.045	11.91	1.87	1.372	19.9
0:19:59	33.3	0.893	10.0	5.087	15.21	7.2624	31.0	4.269	3.747	13.796	10.049	11.92	1.87	1.373	20.0
0:20:05	33.3	0.898	10.0	5.082	15.30	7.2702	31.1	4.274	3.749	13.794	10.044	11.92	1.87	1.373	20.1
0:20:13	33.7	0.904	10.0	5.076	15.40	7.2788	31.4	4.317	3.789	13.837	10.048	11.94	1.89	1.377	20.2
0:20:20	33.8	0.910	10.0	5.070	15.51	7.2875	31.5	4.322	3.791	13.832	10.041	11.94	1.90	1.377	20.3
0:20:28	33.9	0.916	10.1	5.063	15.61	7.2966	31.6	4.334	3.799	13.850	10.051	11.95	1.90	1.378	20.5
0:20:35	34.0	0.922	10.0	5.057	15.71	7.3054	31.8	4.346	3.808	13.850	10.043	11.95	1.90	1.379	20.6
0:20:42	34.2	0.928	10.0	5.051	15.81	7.3140	31.9	4.362	3.819	13.862	10.043	11.95	1.91	1.380	20.7
0:20:50	34.4	0.934	10.0	5.045	15.91	7.3227	32.1	4.385	3.839	13.889	10.050	11.97	1.92	1.382	20.8
0:20:57	34.6	0.940	10.0	5.039	16.01	7.3315	32.3	4.408	3.859	13.903	10.045	11.97	1.93	1.384	21.0
0:21:05	34.7	0.946	10.0	5.033	16.11	7.3400	32.4	4.419	3.867	13.915	10.048	11.98	1.93	1.385	21.1
0:21:12	34.9	0.952	10.0	5.027	16.21	7.3488	32.7	4.444	3.889	13.936	10.048	11.99	1.94	1.387	21.2
0:21:19	35.1	0.958	10.0	5.021	16.31	7.3576	32.9	4.465	3.906	13.952	10.046	12.00	1.95	1.389	21.3
0:21:27	35.3	0.964	10.0	5.015	16.41	7.3666	33.0	4.483	3.921	13.967	10.046	12.01	1.96	1.390	21.5
0:21:34	35.4	0.970	10.0	5.009	16.51	7.3755	33.1	4.487	3.921	13.957	10.036	12.00	1.96	1.391	21.6
0:21:40	35.6	0.976	10.0	5.004	16.60	7.3833	33.4	4.519	3.949	13.994	10.045	12.02	1.97	1.393	21.7
0:21:48	35.7	0.982	10.0	4.998	16.71	7.3925	33.4	4.523	3.951	13.992	10.041	12.02	1.98	1.393	21.8

* Corrected Deviator Stress

for Membrane Only (ASTM Method)
= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8959 (in.)
Dia. avg.	3.024 (in)
Area avg.	7.1837 (in ²)

Tested By	RC
Date	5-28-09
Press No.	1
Panel No.	B

Project Number	175569038
Test Number	UU-510B
Data File ID	UU-510B
Back Pressure (psi)	0
Lateral Pressure (psi)	10

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected		Corrected Area (in ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
				Corrected Height (in.)	Strain (%)										
0:21:55	35.9	0.988	10.0	4.991	16.81	7.4017	33.6	4.541	3.964	14.013	10.049	12.03	1.98	1.394	21.9
0:22:03	36.1	0.994	10.1	4.985	16.91	7.4107	33.8	4.561	3.981	14.033	10.051	12.04	1.99	1.396	22.1
0:22:10	36.2	1.000	10.0	4.979	17.01	7.4195	33.9	4.573	3.990	14.036	10.046	12.04	1.99	1.397	22.2
0:22:17	36.3	1.006	10.0	4.973	17.11	7.4288	34.1	4.589	4.002	14.049	10.047	12.05	2.00	1.398	22.3
0:22:25	36.6	1.012	10.1	4.967	17.21	7.4379	34.4	4.622	4.031	14.084	10.052	12.07	2.02	1.401	22.4
0:22:32	36.8	1.019	10.0	4.961	17.31	7.4469	34.5	4.637	4.043	14.086	10.043	12.06	2.02	1.403	22.5
0:22:40	37.1	1.025	10.1	4.955	17.42	7.4561	34.8	4.667	4.070	14.121	10.051	12.09	2.04	1.405	22.7
0:22:47	37.0	1.031	10.0	4.949	17.52	7.4654	34.8	4.659	4.059	14.106	10.048	12.08	2.03	1.404	22.8
0:22:54	37.3	1.036	10.1	4.943	17.61	7.4739	35.0	4.682	4.078	14.132	10.053	12.09	2.04	1.406	22.9
0:23:02	37.3	1.042	10.0	4.937	17.71	7.4828	35.0	4.681	4.074	14.119	10.046	12.08	2.04	1.406	23.0
0:23:09	37.5	1.048	10.0	4.931	17.81	7.4917	35.3	4.709	4.098	14.112	10.014	12.06	2.05	1.409	23.2
0:23:17	37.7	1.054	10.1	4.926	17.91	7.5006	35.4	4.726	4.112	14.166	10.053	12.11	2.06	1.409	23.3
0:23:24	37.8	1.060	10.0	4.920	18.00	7.5095	35.6	4.737	4.120	14.159	10.040	12.10	2.06	1.410	23.4
0:23:31	38.0	1.066	10.0	4.914	18.10	7.5187	35.8	4.756	4.135	14.181	10.045	12.11	2.07	1.412	23.5
0:23:39	38.2	1.072	10.0	4.908	18.20	7.5277	35.9	4.772	4.148	14.193	10.045	12.12	2.07	1.413	23.7
0:23:46	38.2	1.078	10.0	4.902	18.30	7.5370	35.9	4.769	4.142	14.180	10.038	12.11	2.07	1.413	23.8
0:23:54	38.2	1.084	10.0	4.896	18.40	7.5462	36.0	4.769	4.138	14.185	10.047	12.12	2.07	1.412	23.9

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8593 (in.)
Dia. avg.	3.313 (in.)
Area avg.	8.6222 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510C
Data File ID	UU-510C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($(\sigma_1 + \sigma_3)/2$) (psi)	q ($(\sigma_1 - \sigma_3)/2$) (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:00:00	1.5	-0.058	20.0	6.000	0.00	6.1575	0.0	0.000	0.000	19.983	19.983	19.98	0.00	1.000	0.0
0:00:12	3.0	-0.052	20.0	5.994	0.10	6.1639	1.5	0.235	0.232	20.221	19.989	20.11	0.12	1.012	0.2
0:00:20	3.5	-0.046	20.0	5.988	0.21	6.1702	2.0	0.321	0.314	20.308	19.993	20.15	0.16	1.016	0.3
0:00:28	4.5	-0.039	20.0	5.981	0.32	6.1771	2.9	0.476	0.465	20.455	19.989	20.22	0.23	1.023	0.5
0:00:35	5.3	-0.034	20.0	5.976	0.40	6.1824	3.8	0.615	0.601	20.590	19.990	20.29	0.30	1.030	0.6
0:00:42	7.0	-0.028	20.0	5.970	0.51	6.1889	5.5	0.885	0.868	20.857	19.989	20.42	0.43	1.043	0.7
0:00:49	8.9	-0.022	20.0	5.964	0.60	6.1950	7.3	1.185	1.164	21.149	19.984	20.57	0.58	1.058	0.8
0:00:57	10.8	-0.016	20.0	5.958	0.70	6.2010	9.3	1.495	1.471	21.460	19.989	20.72	0.74	1.074	1.0
0:01:04	12.9	-0.010	20.0	5.952	0.80	6.2072	11.4	1.835	1.807	21.794	19.986	20.89	0.90	1.090	1.1
0:01:12	14.9	-0.004	20.0	5.946	0.91	6.2139	13.4	2.158	2.127	22.110	19.983	21.05	1.06	1.106	1.2
0:01:19	16.1	0.002	20.0	5.940	1.01	6.2201	14.5	2.339	2.304	22.289	19.985	21.14	1.15	1.115	1.3
0:01:26	17.4	0.008	20.0	5.934	1.11	6.2265	15.9	2.556	2.518	22.510	19.992	21.25	1.26	1.126	1.4
0:01:34	18.7	0.015	20.0	5.927	1.22	6.2334	17.2	2.761	2.719	22.705	19.986	21.35	1.36	1.136	1.6
0:01:40	19.7	0.020	20.0	5.922	1.30	6.2388	18.1	2.908	2.864	22.846	19.982	21.41	1.43	1.143	1.7
0:01:47	20.9	0.026	20.0	5.916	1.40	6.2452	19.3	3.097	3.049	23.039	19.990	21.51	1.52	1.153	1.8
0:01:55	21.8	0.032	20.0	5.909	1.51	6.2519	20.3	3.249	3.197	23.190	19.993	21.59	1.60	1.160	1.9
0:02:02	22.9	0.039	20.0	5.903	1.62	6.2587	21.4	3.414	3.359	23.351	19.992	21.67	1.68	1.168	2.0
0:02:10	23.7	0.045	20.0	5.897	1.72	6.2650	22.2	3.542	3.483	23.470	19.987	21.73	1.74	1.174	2.2
0:02:16	24.5	0.050	20.0	5.892	1.80	6.2704	23.0	3.667	3.605	23.591	19.986	21.79	1.80	1.180	2.3
0:02:23	25.5	0.056	20.0	5.886	1.90	6.2768	24.0	3.819	3.754	23.748	19.994	21.87	1.88	1.188	2.4
0:02:31	26.4	0.062	20.0	5.880	2.00	6.2833	24.9	3.967	3.898	23.886	19.988	21.94	1.95	1.195	2.5
0:02:39	27.4	0.069	20.0	5.873	2.12	6.2906	25.9	4.111	4.038	24.022	19.984	22.00	2.02	1.202	2.7
0:02:47	28.3	0.075	20.0	5.867	2.22	6.2971	26.8	4.249	4.173	24.154	19.982	22.07	2.09	1.209	2.8
0:02:54	28.9	0.081	20.0	5.861	2.31	6.3034	27.4	4.344	4.264	24.254	19.990	22.12	2.13	1.213	2.9
0:03:01	29.9	0.086	20.0	5.855	2.41	6.3095	28.3	4.490	4.407	24.403	19.996	22.20	2.20	1.220	3.0
0:03:09	30.7	0.092	20.0	5.850	2.50	6.3157	29.1	4.613	4.527	24.512	19.985	22.25	2.26	1.227	3.2
0:03:16	31.4	0.098	20.0	5.844	2.60	6.3221	29.9	4.733	4.644	24.621	19.977	22.30	2.32	1.232	3.3
0:03:24	32.4	0.104	20.0	5.838	2.70	6.3285	30.9	4.885	4.792	24.773	19.981	22.38	2.40	1.240	3.4
0:03:32	33.3	0.111	20.0	5.831	2.81	6.3359	31.8	5.023	4.926	24.899	19.973	22.44	2.46	1.247	3.5
0:03:40	34.1	0.116	20.0	5.825	2.91	6.3421	32.6	5.137	5.037	25.024	19.986	22.50	2.52	1.252	3.7
0:03:47	34.9	0.122	20.0	5.819	3.01	6.3487	33.4	5.259	5.156	25.110	19.954	22.53	2.58	1.258	3.8
0:03:55	35.7	0.128	20.0	5.813	3.11	6.3552	34.2	5.374	5.268	25.240	19.972	22.61	2.63	1.264	3.9
0:04:02	36.3	0.134	20.0	5.808	3.20	6.3614	34.8	5.470	5.360	25.336	19.976	22.66	2.68	1.268	4.0
0:04:09	37.2	0.140	20.0	5.802	3.30	6.3677	35.6	5.598	5.485	25.453	19.968	22.71	2.74	1.275	4.2
0:04:18	38.0	0.147	20.0	5.795	3.41	6.3751	36.5	5.727	5.610	25.585	19.975	22.78	2.81	1.281	4.3
0:04:25	38.9	0.153	20.0	5.789	3.52	6.3819	37.4	5.860	5.739	25.713	19.974	22.84	2.87	1.287	4.4
0:04:33	39.7	0.158	20.0	5.783	3.61	6.3883	38.2	5.975	5.851	25.836	19.985	22.91	2.93	1.293	4.6
0:04:40	40.5	0.165	20.0	5.777	3.71	6.3950	39.0	6.092	5.965	25.967	20.001	22.98	2.98	1.298	4.7
0:04:48	41.1	0.171	20.0	5.771	3.82	6.4019	39.6	6.186	6.055	26.051	19.996	23.02	3.03	1.303	4.8
0:04:54	41.8	0.176	20.0	5.766	3.90	6.4075	40.3	6.289	6.155	26.145	19.990	23.07	3.08	1.308	4.9
0:05:01	42.4	0.182	20.0	5.760	4.00	6.4143	40.9	6.378	6.241	26.233	19.992	23.11	3.12	1.312	5.0
0:05:09	43.2	0.188	20.0	5.753	4.11	6.4214	41.7	6.491	6.350	26.347	19.996	23.17	3.18	1.318	5.2
0:05:16	44.0	0.195	20.0	5.747	4.22	6.4286	42.5	6.614	6.469	26.472	20.003	23.24	3.23	1.323	5.3
0:05:22	44.6	0.200	20.0	5.742	4.30	6.4343	43.1	6.697	6.549	26.546	19.997	23.27	3.27	1.328	5.4
0:05:30	45.3	0.206	20.0	5.736	4.40	6.4412	43.7	6.792	6.641	26.642	20.002	23.32	3.32	1.332	5.5
0:05:37	46.0	0.212	20.0	5.730	4.51	6.4482	44.5	6.898	6.743	26.739	19.996	23.37	3.37	1.337	5.6
0:05:44	46.7	0.218	20.0	5.724	4.61	6.4550	45.1	6.993	6.835	26.840	20.005	23.42	3.42	1.342	5.7
0:05:52	47.4	0.224	20.0	5.717	4.71	6.4618	45.9	7.099	6.938	26.933	19.995	23.46	3.47	1.347	5.9
0:05:59	48.0	0.230	20.0	5.712	4.81	6.4685	46.4	7.178	7.013	27.017	20.004	23.51	3.51	1.351	6.0
0:06:07	48.8	0.236	20.0	5.706	4.91	6.4753	47.3	7.306	7.138	27.145	20.007	23.58	3.57	1.357	6.1
0:06:14	49.6	0.242	20.0	5.699	5.01	6.4822	48.1	7.416	7.244	27.248	20.004	23.63	3.62	1.362	6.2
0:06:21	50.2	0.248	20.0	5.693	5.11	6.4892	48.7	7.506	7.331	27.338	20.007	23.67	3.67	1.366	6.4
0:06:29	50.8	0.255	20.0	5.687	5.21	6.4962	49.3	7.590	7.411	27.413	20.003	23.71	3.71	1.370	6.5
0:06:36	51.6	0.261	20.0	5.681	5.32	6.5033	50.1	7.708	7.525	27.520	19.995	23.76	3.76	1.376	6.6
0:06:42	52.2	0.266	20.0	5.676	5.40	6.5092	50.7	7.785	7.600	27.591	19.991	23.79	3.80	1.380	6.7
0:06:50	52.8	0.272	20.0	5.670	5.51	6.5163	51.3	7.868	7.679	27.689	20.010	23.85	3.84	1.384	6.8

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8593 (in.)
Dia. avg.	3.313 (in.)
Area avg.	8.6222 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510C
Data File ID	UU-510C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:06:57	53.5	0.278	20.0	5.663	5.61	6.5236	52.0	7.975	7.782	27.779	19.996	23.89	3.89	1.389	7.0
0:07:05	54.2	0.284	20.0	5.657	5.71	6.5306	52.7	8.070	7.874	27.877	20.003	23.94	3.94	1.394	7.1
0:07:12	54.9	0.291	20.0	5.651	5.81	6.5376	53.4	8.171	7.972	27.974	20.002	23.99	3.99	1.399	7.2
0:07:20	55.4	0.297	20.0	5.645	5.91	6.5445	53.9	8.235	8.032	28.031	19.998	24.01	4.02	1.402	7.3
0:07:27	56.2	0.302	20.0	5.639	6.01	6.5514	54.7	8.350	8.144	28.138	19.994	24.07	4.07	1.407	7.5
0:07:34	56.7	0.308	20.0	5.633	6.11	6.5584	55.2	8.418	8.208	28.208	20.000	24.10	4.10	1.410	7.6
0:07:42	57.3	0.314	20.0	5.627	6.21	6.5653	55.8	8.492	8.279	28.285	20.005	24.15	4.14	1.414	7.7
0:07:49	58.2	0.321	20.0	5.621	6.31	6.5724	56.6	8.618	8.401	28.403	20.002	24.20	4.20	1.420	7.8
0:07:57	58.5	0.326	20.0	5.615	6.41	6.5793	57.0	8.664	8.445	28.447	20.002	24.22	4.22	1.422	8.0
0:08:04	59.1	0.332	20.0	5.610	6.51	6.5861	57.6	8.749	8.526	28.524	19.999	24.26	4.26	1.426	8.1
0:08:11	59.7	0.338	20.0	5.604	6.60	6.5928	58.2	8.823	8.597	28.604	20.007	24.31	4.30	1.430	8.2
0:08:19	60.5	0.344	20.0	5.598	6.70	6.5998	59.0	8.941	8.711	28.706	19.995	24.35	4.36	1.436	8.3
0:08:27	61.2	0.351	20.0	5.591	6.81	6.6077	59.6	9.027	8.793	28.798	20.006	24.40	4.40	1.440	8.5
0:08:35	61.7	0.356	20.0	5.585	6.91	6.6146	60.2	9.101	8.864	28.853	19.989	24.42	4.43	1.443	8.6
0:08:42	62.2	0.362	20.0	5.579	7.01	6.6218	60.7	9.161	8.920	28.917	19.997	24.46	4.46	1.446	8.7
0:08:50	62.9	0.368	20.0	5.573	7.11	6.6288	61.4	9.265	9.021	29.026	20.005	24.52	4.51	1.451	8.8
0:08:57	63.6	0.374	20.0	5.568	7.20	6.6356	62.0	9.349	9.102	29.097	19.995	24.55	4.55	1.455	9.0
0:09:04	64.1	0.380	20.0	5.562	7.30	6.6425	62.6	9.425	9.175	29.174	19.999	24.59	4.59	1.459	9.1
0:09:13	64.7	0.387	20.0	5.555	7.41	6.6506	63.2	9.499	9.245	29.248	20.004	24.63	4.62	1.462	9.2
0:09:20	65.4	0.392	20.0	5.549	7.51	6.6577	63.9	9.593	9.336	29.335	20.000	24.67	4.67	1.467	9.3
0:09:27	66.1	0.398	20.0	5.544	7.60	6.6642	64.6	9.693	9.432	29.431	19.999	24.71	4.72	1.472	9.5
0:09:34	67.0	0.405	20.0	5.537	7.72	6.6725	65.4	9.806	9.541	29.556	20.015	24.79	4.77	1.477	9.6
0:09:40	67.4	0.411	20.0	5.531	7.81	6.6795	65.9	9.861	9.593	29.604	20.011	24.81	4.80	1.479	9.7
0:09:46	67.8	0.416	20.0	5.525	7.91	6.6866	66.3	9.912	9.640	29.649	20.009	24.83	4.82	1.482	9.8
0:09:53	68.4	0.422	20.0	5.519	8.01	6.6938	66.8	9.986	9.711	29.722	20.011	24.87	4.86	1.485	9.9
0:09:59	68.9	0.428	20.0	5.513	8.11	6.7011	67.4	10.062	9.784	29.785	20.001	24.89	4.89	1.489	10.0
0:10:05	69.3	0.435	20.0	5.507	8.21	6.7085	67.8	10.107	9.825	29.815	19.990	24.90	4.91	1.491	10.1
0:10:11	70.0	0.441	20.0	5.501	8.31	6.7159	68.5	10.193	9.908	29.911	20.003	24.96	4.95	1.495	10.2
0:10:17	70.6	0.447	20.0	5.495	8.42	6.7233	69.1	10.270	9.982	29.982	20.000	24.99	4.99	1.499	10.3
0:10:23	70.9	0.453	20.0	5.489	8.52	6.7308	69.3	10.303	10.011	30.018	20.008	25.01	5.01	1.500	10.4
0:10:30	71.5	0.459	20.0	5.483	8.62	6.7383	70.0	10.391	10.096	30.104	20.008	25.06	5.05	1.505	10.5
0:10:36	72.0	0.465	20.0	5.477	8.72	6.7457	70.4	10.442	10.143	30.158	20.014	25.09	5.07	1.507	10.6
0:10:42	72.4	0.471	20.0	5.471	8.82	6.7531	70.9	10.497	10.195	30.200	20.005	25.10	5.10	1.510	10.7
0:10:48	73.0	0.477	20.0	5.465	8.92	6.7604	71.5	10.577	10.271	30.280	20.009	25.14	5.14	1.513	10.8
0:10:54	73.4	0.483	20.0	5.459	9.02	6.7676	71.9	10.622	10.312	30.313	20.000	25.16	5.16	1.516	10.9
0:11:00	74.0	0.489	20.0	5.453	9.12	6.7752	72.4	10.693	10.381	30.388	20.007	25.20	5.19	1.519	11.0
0:11:07	74.4	0.495	20.0	5.447	9.22	6.7827	72.9	10.741	10.425	30.424	19.999	25.21	5.21	1.521	11.1
0:11:13	75.0	0.501	20.0	5.441	9.32	6.7900	73.4	10.815	10.496	30.506	20.010	25.26	5.25	1.525	11.2
0:11:19	75.5	0.507	20.0	5.435	9.42	6.7976	73.9	10.877	10.554	30.562	20.008	25.29	5.28	1.528	11.3
0:11:25	75.8	0.513	20.0	5.429	9.52	6.8053	74.3	10.918	10.591	30.603	20.011	25.31	5.30	1.529	11.4
0:11:30	76.3	0.518	20.0	5.424	9.60	6.8115	74.8	10.985	10.655	30.654	19.999	25.33	5.33	1.533	11.5
0:11:36	76.6	0.524	20.0	5.418	9.70	6.8190	75.1	11.015	10.682	30.696	20.013	25.35	5.34	1.534	11.6
0:11:42	77.0	0.530	20.0	5.412	9.80	6.8267	75.5	11.059	10.723	30.731	20.008	25.37	5.36	1.536	11.7
0:11:49	77.7	0.536	20.0	5.406	9.90	6.8343	76.2	11.143	10.803	30.809	20.006	25.41	5.40	1.540	11.8
0:11:55	78.1	0.542	20.0	5.400	10.00	6.8418	76.6	11.195	10.852	30.863	20.011	25.44	5.43	1.542	11.9
0:12:02	78.7	0.549	20.0	5.393	10.11	6.8504	77.2	11.273	10.926	30.927	20.001	25.46	5.46	1.546	12.0
0:12:08	78.9	0.554	20.0	5.387	10.21	6.8578	77.4	11.290	10.939	30.953	20.014	25.48	5.47	1.547	12.1
0:12:15	79.7	0.560	20.0	5.381	10.31	6.8653	78.2	11.384	11.030	31.029	19.999	25.51	5.52	1.552	12.3
0:12:21	80.3	0.566	20.0	5.376	10.40	6.8726	78.7	11.458	11.101	31.104	20.003	25.55	5.55	1.555	12.4
0:12:27	80.6	0.572	20.0	5.370	10.50	6.8801	79.0	11.488	11.128	31.128	19.999	25.56	5.56	1.556	12.5
0:12:33	81.0	0.578	20.0	5.364	10.60	6.8877	79.5	11.543	11.179	31.184	20.005	25.59	5.59	1.559	12.6
0:12:40	81.4	0.584	20.0	5.357	10.71	6.8962	79.9	11.585	11.218	31.218	20.001	25.61	5.61	1.561	12.7
0:12:47	81.9	0.590	20.0	5.352	10.81	6.9037	80.4	11.641	11.270	31.272	20.001	25.64	5.64	1.563	12.8
0:12:53	82.2	0.596	20.0	5.346	10.91	6.9113	80.6	11.668	11.295	31.304	20.009	25.66	5.65	1.564	12.9
0:12:59	82.7	0.602	20.0	5.340	11.00	6.9187	81.1	11.726	11.349	31.362	20.013	25.69	5.67	1.567	13.0
0:13:06	83.3	0.609	20.0	5.333	11.12	6.9276	81.7	11.800	11.419	31.418	19.999	25.71	5.71	1.571	13.1

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in.)
Area	6.158 (in ²)

Final Values	
Height	4.8593 (in.)
Dia. avg.	3.313 (in.)
Area avg.	8.6222 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510C
Data File ID	UU-510C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ_1 (psi)	σ_3 (psi)	p ($\sigma_1 + \sigma_3$)/2 (psi)	q ($\sigma_1 - \sigma_3$)/2 (psi)	Principal Stress Ratio σ_1 / σ_3	Test Time (min.)
0:13:13	83.5	0.614	20.0	5.327	11.21	6.9350	82.0	11.819	11.435	31.443	20.008	25.73	5.72	1.572	13.2
0:13:19	83.8	0.620	20.0	5.322	11.31	6.9424	82.3	11.857	11.469	31.480	20.011	25.75	5.73	1.573	13.3
0:13:25	84.3	0.626	20.0	5.316	11.40	6.9498	82.8	11.912	11.522	31.530	20.008	25.77	5.76	1.576	13.4
0:13:32	84.8	0.633	20.0	5.309	11.51	6.9588	83.3	11.971	11.576	31.584	20.008	25.80	5.79	1.579	13.5
0:13:38	85.1	0.638	20.0	5.303	11.61	6.9663	83.6	12.004	11.606	31.609	20.003	25.81	5.80	1.580	13.6
0:13:45	85.6	0.644	20.0	5.298	11.70	6.9737	84.1	12.054	11.653	31.664	20.011	25.84	5.83	1.582	13.8
0:13:52	85.9	0.651	20.0	5.291	11.82	6.9827	84.4	12.085	11.680	31.694	20.014	25.85	5.84	1.584	13.9
0:13:58	86.4	0.657	20.0	5.285	11.92	6.9905	84.9	12.146	11.738	31.751	20.013	25.88	5.87	1.587	14.0
0:14:04	86.8	0.662	20.0	5.279	12.01	6.9982	85.3	12.182	11.770	31.780	20.010	25.90	5.88	1.588	14.1
0:14:11	87.0	0.669	20.0	5.273	12.11	7.0063	85.4	12.193	11.778	31.792	20.014	25.90	5.89	1.588	14.2
0:14:17	87.5	0.675	20.0	5.267	12.22	7.0144	86.0	12.259	11.840	31.848	20.008	25.93	5.92	1.592	14.3
0:14:23	87.8	0.681	20.0	5.261	12.32	7.0225	86.2	12.280	11.858	31.863	20.005	25.93	5.93	1.593	14.4
0:14:28	87.9	0.686	20.0	5.256	12.40	7.0291	86.4	12.288	11.862	31.869	20.007	25.94	5.93	1.593	14.5
0:14:34	88.4	0.692	20.0	5.250	12.50	7.0373	86.9	12.349	11.921	31.929	20.009	25.97	5.96	1.596	14.6
0:14:40	88.9	0.698	20.0	5.244	12.61	7.0456	87.4	12.399	11.966	31.979	20.013	26.00	5.98	1.598	14.7
0:14:46	89.0	0.704	20.0	5.238	12.71	7.0538	87.5	12.406	11.971	31.988	20.017	26.00	5.99	1.598	14.8
0:14:53	89.4	0.710	20.0	5.231	12.81	7.0622	87.9	12.449	12.010	32.021	20.011	26.02	6.00	1.600	14.9
0:14:59	89.8	0.716	20.0	5.225	12.91	7.0704	88.3	12.489	12.046	32.060	20.014	26.04	6.02	1.602	15.0
0:15:05	90.1	0.722	20.0	5.219	13.01	7.0784	88.6	12.515	12.069	32.075	20.006	26.04	6.03	1.603	15.1
0:15:11	90.3	0.728	20.0	5.214	13.11	7.0863	88.8	12.532	12.083	32.092	20.009	26.05	6.04	1.604	15.2
0:15:17	91.0	0.734	20.0	5.208	13.21	7.0945	89.5	12.612	12.159	32.172	20.013	26.09	6.08	1.608	15.3
0:15:23	91.4	0.740	20.0	5.202	13.30	7.1025	89.9	12.653	12.196	32.204	20.008	26.11	6.10	1.610	15.4
0:15:30	91.6	0.746	20.0	5.196	13.40	7.1107	90.1	12.667	12.208	32.223	20.015	26.12	6.10	1.610	15.5
0:15:36	92.0	0.752	20.0	5.190	13.51	7.1191	90.5	12.711	12.248	32.255	20.007	26.13	6.12	1.612	15.6
0:15:42	92.4	0.758	20.0	5.184	13.61	7.1273	90.9	12.754	12.287	32.299	20.011	26.16	6.14	1.614	15.7
0:15:48	92.8	0.764	20.0	5.178	13.71	7.1356	91.3	12.788	12.318	32.320	20.002	26.16	6.16	1.616	15.8
0:15:54	92.9	0.770	20.0	5.171	13.81	7.1440	91.4	12.797	12.323	32.340	20.016	26.18	6.16	1.616	15.9
0:16:00	93.5	0.776	20.0	5.165	13.91	7.1524	92.0	12.861	12.384	32.395	20.011	26.20	6.19	1.619	16.0
0:16:07	93.8	0.782	20.0	5.159	14.01	7.1606	92.3	12.891	12.411	32.420	20.009	26.21	6.21	1.620	16.1
0:16:13	94.1	0.788	20.0	5.154	14.11	7.1689	92.5	12.908	12.424	32.431	20.007	26.22	6.21	1.621	16.2
0:16:19	94.4	0.794	20.0	5.147	14.21	7.1774	92.9	12.943	12.455	32.461	20.005	26.23	6.23	1.623	16.3
0:16:25	95.0	0.800	20.0	5.142	14.31	7.1854	93.4	13.005	12.515	32.523	20.009	26.27	6.26	1.625	16.4
0:16:31	95.2	0.806	20.0	5.136	14.40	7.1935	93.7	13.020	12.527	32.542	20.015	26.28	6.26	1.626	16.5
0:16:39	95.7	0.813	20.0	5.129	14.52	7.2033	94.1	13.068	12.570	32.577	20.007	26.29	6.29	1.628	16.7
0:16:45	96.0	0.819	20.0	5.123	14.62	7.2116	94.5	13.106	12.605	32.617	20.013	26.32	6.30	1.630	16.8
0:16:51	96.4	0.824	20.0	5.117	14.71	7.2197	94.8	13.136	12.632	32.635	20.003	26.32	6.32	1.631	16.9
0:16:57	96.6	0.830	20.0	5.112	14.81	7.2277	95.1	13.155	12.647	32.653	20.006	26.33	6.32	1.632	17.0
0:17:03	97.0	0.836	20.0	5.106	14.90	7.2358	95.4	13.189	12.678	32.687	20.008	26.35	6.34	1.634	17.1
0:17:09	97.4	0.842	20.0	5.100	15.00	7.2444	95.9	13.237	12.722	32.733	20.011	26.37	6.36	1.636	17.2
0:17:17	97.7	0.849	20.0	5.093	15.12	7.2544	96.1	13.254	12.735	32.734	19.999	26.37	6.37	1.637	17.3
0:17:23	97.8	0.855	20.0	5.087	15.21	7.2625	96.3	13.257	12.735	32.749	20.014	26.38	6.37	1.636	17.4
0:17:29	98.3	0.860	20.0	5.081	15.31	7.2708	96.8	13.307	12.782	32.795	20.013	26.40	6.39	1.639	17.5
0:17:35	98.6	0.866	20.0	5.076	15.41	7.2791	97.0	13.331	12.802	32.814	20.011	26.41	6.40	1.640	17.6
0:17:42	99.0	0.872	20.0	5.070	15.50	7.2871	97.4	13.370	12.839	32.856	20.017	26.44	6.42	1.641	17.7
0:17:49	99.2	0.879	20.0	5.063	15.62	7.2970	97.7	13.387	12.851	32.861	20.010	26.44	6.43	1.642	17.8
0:17:55	99.5	0.884	20.0	5.057	15.71	7.3053	98.0	13.413	12.874	32.877	20.003	26.44	6.44	1.644	17.9
0:18:01	99.8	0.890	20.0	5.052	15.81	7.3135	98.3	13.440	12.898	32.909	20.011	26.46	6.45	1.645	18.0
0:18:09	100.2	0.897	20.0	5.045	15.92	7.3232	98.7	13.480	12.935	32.944	20.009	26.48	6.47	1.646	18.2
0:18:15	100.2	0.902	20.0	5.039	16.01	7.3314	98.7	13.460	12.911	32.916	20.005	26.46	6.46	1.645	18.3
0:18:21	100.6	0.908	20.0	5.034	16.11	7.3398	99.1	13.496	12.943	32.956	20.012	26.48	6.47	1.647	18.4
0:18:27	101.0	0.914	20.0	5.028	16.20	7.3482	99.5	13.534	12.979	32.989	20.010	26.50	6.49	1.649	18.5
0:18:33	101.2	0.920	20.0	5.022	16.30	7.3569	99.7	13.549	12.990	33.001	20.011	26.51	6.50	1.649	18.6
0:18:40	101.5	0.926	20.0	5.016	16.41	7.3660	99.9	13.566	13.004	33.004	20.001	26.50	6.50	1.650	18.7
0:18:46	101.7	0.932	20.0	5.010	16.51	7.3750	100.2	13.586	13.020	33.024	20.004	26.51	6.51	1.651	18.8
0:18:52	102.0	0.938	20.0	5.004	16.61	7.3839	100.5	13.613	13.043	33.049	20.005	26.53	6.52	1.652	18.9
0:18:58	102.4	0.944	20.0	4.997	16.71	7.3931	100.9	13.646	13.073	33.078	20.005	26.54	6.54	1.653	19.0

* Corrected Deviator Stress

for Membrane Only (ASTM Method)

= (4(EM)(Thickness)(Strain))/D_c

Where: EM = 200 psi and Thickness = .012"

Unconsolidated Undrained Triaxial Test ASTM D2850-03a

Consolidation Values	
Height	6.000 (in.)
Diameter	2.800 (in)
Area	6.158 (in ²)

Final Values	
Height	4.8593 (in.)
Dia. avg.	3.313 (in)
Area avg.	8.6222 (in ²)

Tested By	RC
Date	6-1-09
Press No.	1
Panel No.	C

Project Number	175569038
Test Number	UU-510C
Data File ID	UU-510C
Back Pressure (psi)	0
Lateral Pressure (psi)	20

Clock Time (min.)	Load (lbf)	Deflection Dial Reading (in.)	Chamber Pressure Reading (psi)	Corrected Height (in.)	Strain (%)	Corrected Area (cm ²)	Corrected Load (lbf)	Deviator Stress (psi)	Corrected Deviator Stress* (tsf)	σ ₁ (psi)	σ ₃ (psi)	p (σ ₁ +σ ₃)/2 (psi)	q (σ ₁ -σ ₃)/2 (psi)	Principal Stress Ratio σ ₁ / σ ₃	Test Time (min.)
0:19:04	102.8	0.951	20.0	4.991	16.81	7.4021	101.3	13.688	13.112	33.122	20.010	26.57	6.56	1.655	19.1
0:19:10	102.9	0.957	20.0	4.985	16.91	7.4110	101.4	13.679	13.099	33.100	20.001	26.55	6.55	1.655	19.2
0:19:17	103.3	0.963	20.0	4.979	17.01	7.4199	101.8	13.720	13.136	33.141	20.005	26.57	6.57	1.657	19.3
0:19:23	103.5	0.969	20.0	4.973	17.12	7.4290	102.0	13.730	13.143	33.144	20.001	26.57	6.57	1.657	19.4
0:19:29	104.0	0.975	20.0	4.967	17.22	7.4380	102.5	13.776	13.186	33.190	20.004	26.60	6.59	1.659	19.5
0:19:35	104.4	0.980	20.0	4.961	17.31	7.4467	102.9	13.812	13.219	33.229	20.010	26.62	6.61	1.661	19.6
0:19:41	104.5	0.986	20.0	4.955	17.41	7.4556	103.0	13.810	13.213	33.222	20.009	26.62	6.61	1.660	19.7
0:19:47	104.8	0.992	20.0	4.949	17.51	7.4645	103.3	13.839	13.239	33.253	20.014	26.63	6.62	1.661	19.8
0:19:54	105.1	0.998	20.0	4.943	17.61	7.4736	103.6	13.861	13.257	33.261	20.003	26.63	6.63	1.663	19.9
0:20:00	105.3	1.004	20.0	4.937	17.71	7.4827	103.8	13.868	13.260	33.239	19.979	26.61	6.63	1.664	20.0
0:20:06	105.8	1.010	20.0	4.931	17.81	7.4920	104.3	13.924	13.313	33.316	20.003	26.66	6.66	1.666	20.1
0:20:12	106.2	1.017	20.0	4.925	17.91	7.5013	104.7	13.957	13.343	33.347	20.004	26.68	6.67	1.667	20.2
0:20:18	106.7	1.023	20.0	4.919	18.01	7.5104	105.2	14.007	13.390	33.389	19.999	26.69	6.69	1.670	20.3
0:20:24	106.8	1.028	20.0	4.913	18.11	7.5195	105.3	14.005	13.384	33.379	19.995	26.69	6.69	1.669	20.4
0:20:31	107.3	1.034	20.0	4.907	18.21	7.5285	105.8	14.054	13.430	33.429	19.999	26.71	6.71	1.672	20.5
0:20:37	107.7	1.040	20.0	4.901	18.31	7.5377	106.2	14.088	13.460	33.473	20.013	26.74	6.73	1.673	20.6
0:20:43	107.8	1.046	20.0	4.895	18.41	7.5469	106.3	14.086	13.455	33.470	20.015	26.74	6.73	1.672	20.7
0:20:49	108.2	1.052	20.0	4.890	18.51	7.5560	106.7	14.119	13.484	33.493	20.009	26.75	6.74	1.674	20.8
0:20:55	108.5	1.058	20.0	4.884	18.60	7.5649	107.0	14.146	13.508	33.528	20.021	26.77	6.75	1.675	20.9
0:21:01	108.6	1.064	20.0	4.878	18.70	7.5741	107.1	14.140	13.499	33.530	20.032	26.78	6.75	1.674	21.0
0:21:09	109.1	1.071	20.0	4.871	18.82	7.5847	107.6	14.180	13.535	33.553	20.018	26.79	6.77	1.676	21.2
0:21:15	109.4	1.077	20.0	4.865	18.92	7.5940	107.9	14.206	13.558	33.577	20.019	26.80	6.78	1.677	21.3
0:21:21	109.9	1.082	20.0	4.859	19.01	7.6030	108.3	14.250	13.598	33.626	20.028	26.83	6.80	1.679	21.4