



Moisture Content of Soil
Dried @ 40°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B28, 0.0'-1.5'	32	2/19/09	Hom	3/4"			No	22.56	131.38	112.16	21.5
B28, 1.5'-3.0'	33	2/19/09	Hom	No. 10			Yes	18.83	95.16	85.43	14.6
B28, 3.0'-4.5'	34	2/19/09	Hom	No. 10			Yes	20.10	110.21	94.68	20.8
B28, 4.5'-6.0'	35	2/19/09	Hom	No. 10			Yes	19.00	90.57	79.38	18.5
B28, 6.0'-7.5'	36	2/19/09	Hom	No. 10			Yes	19.04	108.53	90.51	25.2
B28, 7.5'-9.0'	37	2/19/09	Hom	No. 10			Yes	20.59	106.77	92.35	20.1
B28, 9.0'-10.5'	38	2/19/09	Hom	No. 10			Yes	20.66	126.32	104.90	25.4
B28, 12.5'-14.0'	39	2/19/09	Hom	No. 10			Yes	22.16	124.26	109.30	17.2
B28, 14.0'-15.5'	40	2/19/09	Hom	No. 10			Yes	18.92	110.14	93.97	21.5
B28, 15.5'-17.0'	41	2/19/09	Hom	No. 10			Yes	18.72	111.19	97.08	18.0
B28, 17.0'-18.5'	42	2/19/09	Hom	No. 10			Yes	18.71	105.77	91.73	19.2
B28, 18.5'-20.0'	43	2/19/09	Hom	No. 10			Yes	20.45	110.61	96.84	18.0
B28, 20.0'-21.5'	44	2/19/09	Hom	No. 10			Yes	20.55	100.97	89.09	17.3
B28, 21.5'-23.0'	45	2/19/09	Hom	No. 10			Yes	20.46	122.11	106.80	17.7
B28, 23.0'-24.5'	46	2/19/09	Hom	No. 10			Yes	20.71	104.80	92.49	17.1
B28, 24.5'-26.0'	47	2/19/09	Hom	No. 10			Yes	21.72	107.44	95.63	16.0
B28, 26.0'-27.5'	48	2/19/09	Hom	No. 10			Yes	19.66	97.82	85.51	18.7
B28, 27.5'-29.0'	49	2/19/09	Hom	No. 10			Yes	18.99	110.30	94.07	21.6
B28, 29.0'-30.5'	50	2/19/09	Hom	No. 10			Yes	18.43	111.73	94.48	22.7
B28, 30.5'-32.0'	51	2/19/09	Hom	No. 10			Yes	19.11	107.38	92.69	20.0
B28, 32.0'-33.5'	52	2/19/09	Hom	No. 10			Yes	20.47	104.04	89.65	20.8
B28, 33.5'-35.0'	53	2/19/09	Hom	No. 10			Yes	19.00	111.01	92.20	25.7
B28, 35.0'-36.5'	54	2/19/09	Hom	No. 10			Yes	19.04	107.89	88.53	27.9
B28, 36.5'-38.0'	55	2/19/09	Hom	No. 10			Yes	19.41	103.76	87.74	23.4
B28, 38.0'-39.5'	56	2/19/09	Hom	No. 10			Yes	22.28	145.71	117.70	29.4
B28, 41.5'-43.0'	57	2/19/09	Hom	No. 10			Yes	20.25	106.89	88.58	26.8
B28, 43.0'-44.5'	58	2/19/09	Hom	No. 10			Yes	20.82	102.26	84.82	27.3
B28, 44.5'-46.0'	59	2/19/09	Hom	No. 10			Yes	18.79	108.50	90.40	25.3
B28, 46.0'-47.5'	60	2/19/09	Hom	No. 10			Yes	19.03	111.35	93.50	24.0
B28, 47.5'-49.0'	61	2/19/09	Hom	No. 10			Yes	19.17	119.70	97.09	29.0



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Recommended Minimum Mass (g)	20	100	500	2,500	10,000	50,000

Test Method ASTM

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B35, 4.5'-6.0'	96	2/20/09	Hom	No. 10		Yes	19.53	104.84	92.60	16.8
B35, 6.0'-7.5'	97	2/20/09	Hom	No. 10		Yes	20.32	97.34	86.77	15.9
B35, 7.5'-9.0'	98	2/20/09	Hom	No. 10		Yes	19.92	94.83	84.71	15.6
B35, 9.0'-10.5'	99	2/20/09	Hom	No. 10		Yes	20.25	103.08	89.41	19.8
B35, 10.5'-12.0'	100	2/20/09	Hom	No. 10		Yes	19.53	96.23	83.56	19.8
B35, 12.0'-13.5'	101	2/20/09	Hom	No. 10		Yes	18.80	103.14	87.92	22.0
B35, 13.5'-15.0'	102	2/20/09	Hom	No. 10		Yes	18.47	112.05	95.98	20.7
B35, 15.0'-16.5'	103	2/20/09	Hom	No. 10		Yes	22.15	135.69	114.08	23.5
B35, 16.5'-18.0'	104	2/20/09	Hom	No. 10		Yes	22.10	132.30	113.64	20.4
B35, 18.0'-19.5'	105	2/20/09	Hom	No. 10		Yes	20.43	103.82	88.50	22.5
B35, 19.5'-21.0'	106	2/20/09	Hom	No. 10		Yes	22.47	121.09	102.87	22.7
B35, 21.0'-22.5'	107	2/20/09	Hom	No. 10		Yes	23.56	128.35	111.22	19.5
B35, 22.5'-24.0'	108	2/20/09	Hom	No. 10		Yes	18.67	103.69	88.63	21.5
B35, 24.0'-25.5'	109	2/20/09	Hom	No. 10		Yes	18.86	108.48	91.37	23.6
B35, 27.5'-29.0'	110	2/25/09								
B35, 29.0'-30.5'	111	2/25/09								
B35, 34.0'-35.5'	112	2/25/09								
B39, 5.0'-6.5'	113	2/20/09	Hom	No. 10		Yes	19.60	82.48	74.59	14.3
B39, 6.5'-8.0'	114	2/20/09	Hom	No. 10		Yes	20.78	96.49	87.40	13.6
B39, 8.0'-9.5'	115	2/20/09	Hom	No. 10		Yes	21.64	102.38	92.17	14.5
B39, 9.5'-11.0'	116	2/20/09	Hom	No. 10		Yes	21.09	110.80	99.24	14.8
B39, 11.0'-12.5'	117	2/20/09	Hom	No. 10		Yes	21.21	123.34	105.96	20.5
B39, 12.5'-14.0'	118	2/20/09	Hom	No. 10		Yes	21.24	108.76	96.90	15.7
B39, 14.0'-15.5'	119	2/20/09	Hom	No. 10		Yes	21.02	104.35	93.15	15.5
B39, 15.5'-17.0'	120	2/20/09	Hom	No. 10		Yes	19.07	103.13	92.84	13.9
B39, 17.0'-18.5'	121	2/20/09	Hom	No. 10		Yes	21.04	118.15	102.21	19.6
B39, 18.5'-20.0'	122	2/20/09	Hom	No. 10		Yes	22.05	133.87	115.84	19.2
B39, 20.0'-21.5'	123	2/20/09	Hom	No. 10		Yes	19.91	119.01	102.39	20.2
B39, 21.5'-23.0'	124	2/20/09	Hom	No. 10		Yes	18.89	112.23	97.08	19.4
B39, 23.0'-24.5'	125	2/20/09	Hom	No. 10		Yes	18.43	107.89	91.40	22.6

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Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B42, 10.0'-11.5'	142	2/23/09	Hom	No. 10		Yes	20.10	116.77	101.48	18.8
B42, 15.0'-16.5'	143	2/23/09	Hom	No. 10		Yes	21.08	125.18	108.56	19.0
B42, 16.5'-18.0'	144	2/23/09	Hom	No. 10		Yes	20.90	124.15	107.59	19.1
B42, 18.0'-19.5'	145	2/23/09	Hom	No. 10		Yes	18.55	106.94	92.12	20.1
B42, 19.5'-21.0'	146	2/23/09	Hom	No. 10		Yes	20.83	121.84	106.03	18.6
B42, 21.0'-22.5'	147	2/23/09	Hom	No. 10		Yes	20.80	129.97	112.12	19.5
B42, 22.5'-24.0'	148	2/23/09	Hom	No. 10		Yes	21.38	122.30	107.30	17.5
B42, 24.0'-25.5'	149	2/23/09	Hom	No. 10		Yes	21.62	119.97	104.01	19.4
B42, 25.5'-27.0'	150	2/23/09	Hom	No. 10		Yes	18.88	120.13	104.98	17.6
B42, 27.0'-28.5'	151	2/23/09	Hom	No. 10		Yes	14.76	103.06	90.66	16.3
B42, 40.5'-42.0'	152	2/23/09	Hom	No. 10		Yes	14.98	98.77	75.19	39.2
B42, 49.0'-50.5'	153	2/23/09	Hom	No. 10		Yes	20.96	117.12	100.41	21.0
B42, 50.5'-52.0'	154	2/23/09	Hom	No. 10		Yes	20.33	114.43	90.63	33.9
B42, 52.0'-53.5'	155	2/23/09	Hom	No. 10		Yes	26.10	138.87	109.35	35.5
B42, 53.5'-55.5'	156	2/23/09	Hom	No. 10		Yes	21.21	121.46	92.99	39.7
B42, 55.0'-56.5'	157	2/23/09	Hom	No. 10		Yes	26.59	171.49	137.58	30.6

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B-37, 15.0'-16.5'	356	3/4/09	Hom	No. 10			Yes	19.45	114.79	100.97	17.0
B-37, 20.0'-21.5'	357	3/10/09									
B-37, 25.0'-26.5'	358	3/10/09									
B-40, 4.0'-5.5'	359	3/4/09	Hom	No. 10			Yes	19.99	114.51	97.51	21.9
B-40, 9.5'-11.0'	360	3/4/09	Hom	No. 10			Yes	21.20	114.74	97.69	22.3



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B-34, 25.0'-26.5'	367	3/4/09	Hom	No. 10			Yes	20.57	121.35	103.48	21.6
B-34, 30.0'-31.5'	368	3/4/09	Hom	No. 10			Yes	20.68	117.40	98.03	25.0
B-34, 35.0'-36.5'	369	3/4/09	Hom	No. 10			Yes	21.06	131.39	111.35	22.2
B-34, 40.0'-41.5'	370	3/4/09	Hom	No. 10			Yes	19.89	112.45	94.98	23.3
B-34, 45.0'-46.5'	371	3/4/09	Hom	No. 10			Yes	22.09	119.10	101.63	22.0
B-34, 50.0'-51.5'	372	3/10/09									
B-34, 51.5'-53.0'	373	3/10/09									
B-46, 23.5'-25.0'	374	3/4/09	Hom	No. 10			Yes	21.07	130.17	116.85	13.9
B-46, 25.0'-26.5'	375	3/4/09	Hom	No. 10			Yes	23.43	146.24	129.49	15.8
B-46, 26.5'-28.0'	376	3/4/09	Hom	No. 10			Yes	20.16	131.34	114.84	17.4
B-46, 28.0'-29.5'	377	3/4/09	Hom	No. 10			Yes	20.57	131.74	112.74	20.6
B-46, 29.5'-31.0'	378	3/4/09	Hom	No. 10			Yes	20.18	115.18	100.57	18.2
B-46, 31.0'-32.5'	379	3/4/09	Hom	3/4"	1	3/4"	No	19.47	118.66	103.53	18.0



Moisture Content of Soil
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B-37, 15.0'-16.5'	356	3/4/09	Hom	No. 10		Yes	19.45	117.49	88.99	41.0
B-37, 20.0'-21.5'	357	3/10/09								
B-37, 25.0'-26.5'	358	3/10/09								
B-40, 4.0'-5.5'	359	3/4/09	Hom	No. 10		Yes	19.99	114.51	89.49	36.0
B-40, 9.5'-11.0'	360	3/4/09	Hom	No. 10		Yes	21.20	114.74	86.94	42.3

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B-34, 25.0'-26.5'	367	3/4/09	Hom	No. 10			Yes	20.57	121.35	93.08	39.0
B-34, 30.0'-31.5'	368	3/4/09	Hom	No. 10			Yes	20.68	117.40	88.47	42.7
B-34, 35.0'-36.5'	369	3/4/09	Hom	No. 10			Yes	21.06	131.39	98.97	41.6
B-34, 40.0'-41.5'	370	3/4/09	Hom	No. 10			Yes	19.89	112.45	85.19	41.7
B-34, 45.0'-46.5'	371	3/4/09	Hom	No. 10			Yes	22.09	119.10	95.84	31.5
B-34, 50.0'-51.5'	372	3/10/09									
B-34, 51.5'-53.0'	373	3/10/09									
B-46, 23.5'-25.0'	374	3/4/09	Hom	No. 10			Yes	21.07	130.17	107.06	26.9
B-46, 25.0'-26.5'	375	3/4/09	Hom	No. 10			Yes	23.43	146.24	118.33	29.4
B-46, 26.5'-28.0'	376	3/4/09	Hom	No. 10			Yes	20.16	131.34	104.25	32.2
B-46, 28.0'-29.5'	377	3/4/09	Hom	No. 10			Yes	20.57	131.74	102.51	35.7
B-46, 29.5'-31.0'	378	3/4/09	Hom	No. 10			Yes	20.18	115.18	89.88	36.3
B-46, 31.0'-32.5'	379	3/4/09	Hom	3/4"	1	3/4"	No	19.47	118.66	93.38	34.2



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B-33, 4.0'-5.5'	6	2/18/09	Hom	3/8"		No	43.85	216.37	185.13	22.1
B-33, 5.5'-7.0'	7	2/18/09	Hom	3/4"		No	43.45	210.88	181.33	21.4
B-33, 12.0'-13.5'	8	2/18/09	Hom	No. 10		Yes	43.56	268.31	207.34	37.2
B-33, 13.5'-15.0'	9	2/18/09	Hom	No. 10		Yes	43.56	267.24	205.92	37.8
B-33, 19.0'-20.5'	10	2/18/09	Hom	No. 10		Yes	43.54	311.84	223.66	49.0
B-33, 24.0'-25.5'	11	2/25/09								
B-38, 0.0'-1.5'	12	2/18/09	Hom	No. 10		Yes	43.28	207.45	170.77	28.8
B-38, 1.5'-3.0'	13	2/18/09	Hom	No. 10		Yes	46.98	234.30	183.39	37.3
B-38, 3.0'-4.5'	14	2/18/09	Hom	No. 10		Yes	43.99	230.77	186.14	31.4
B-38, 4.5'-6.0'	15	2/18/09	Hom	No. 10		Yes	48.21	165.15	135.41	34.1
B-38, 6.0'-7.5'	16	2/18/09	Hom	No. 10		Yes	46.80	221.86	172.77	39.0
B-38, 7.5'-9.0'	17	2/18/09	Hom	No. 10		Yes	43.56	262.64	211.28	30.6
B-38, 9.0'-10.5'	18	2/18/09	Hom	No. 10		Yes	44.82	237.61	190.77	32.1
B-38, 10.5'-12.0'	19	2/18/09	Hom	No. 10		Yes	43.67	237.05	187.86	34.1
B-38, 14.0'-15.5'	20	2/18/09	Hom	No. 10		Yes	43.41	249.48	188.24	42.3
B-38, 15.5'-17.0'	21	2/18/09	Hom	No. 10		Yes	47.51	284.76	211.65	44.5
B-38, 17.0'-18.5'	22	2/18/09	Hom	No. 10		Yes	37.99	268.66	201.45	41.1
B-38, 18.5'-20.0'	23	2/18/09	Hom	No. 10		Yes	46.73	259.20	192.71	45.5
B-38, 20.0'-21.5'	24	2/18/09	Hom	No. 10		Yes	43.86	297.58	219.82	44.2
B-38, 21.5'-23.0'	25	2/18/09	Hom	No. 10		Yes	37.79	262.38	192.94	44.8
B-38, 23.0'-24.5'	26	2/18/09	Hom	No. 10		Yes	46.45	291.85	211.53	48.7
B-38, 24.5'-26.0'	27	2/18/09	Hom	No. 10		Yes	27.98	159.52	117.26	47.3
B-38, 59.5'-61.0'	28	2/18/09	Hom	No. 10		Yes	43.47	288.60	224.77	35.2
B-38, 64.5'-66.0'	29	2/18/09	Hom	No. 10		Yes	43.85	288.27	205.57	51.1
B-38, 69.5'-71.0'	30	2/18/09	Hom	No. 10		Yes	47.75	312.68	223.77	50.5

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B28, 0.0'-1.5'	32	2/19/09	Hom	3/4"		No	22.56	131.38	104.07	33.5
B28, 1.5'-3.0'	33	2/19/09	Hom	No. 10		Yes	18.83	95.16	79.82	25.2
B28, 3.0'-4.5'	34	2/19/09	Hom	No. 10		Yes	20.10	110.21	87.92	32.9
B28, 4.5'-6.0'	35	2/19/09	Hom	No. 10		Yes	19.00	90.57	73.26	31.9
B28, 6.0'-7.5'	36	2/19/09	Hom	No. 10		Yes	19.04	108.53	82.90	40.1
B28, 7.5'-9.0'	37	2/19/09	Hom	No. 10		Yes	2.59	106.77	84.44	27.3
B28, 9.0'-10.5'	38	2/19/09	Hom	No. 10		Yes	20.66	126.32	95.89	40.4
B28, 12.5'-14.0'	39	2/19/09	Hom	No. 10		Yes	22.16	124.26	98.42	33.9
B28, 14.0'-15.5'	40	2/19/09	Hom	No. 10		Yes	18.92	110.14	85.51	37.0
B28, 15.5'-17.0'	41	2/19/09	Hom	No. 10		Yes	18.72	111.19	86.88	35.7
B28, 17.0'-18.5'	42	2/19/09	Hom	No. 10		Yes	18.71	105.77	82.62	36.2
B28, 18.5'-20.0'	43	2/19/09	Hom	No. 10		Yes	20.45	110.61	87.38	34.7
B28, 20.0'-21.5'	44	2/19/09	Hom	No. 10		Yes	20.55	100.97	80.73	33.6
B28, 21.5'-23.0'	45	2/19/09	Hom	No. 10		Yes	20.46	122.11	96.14	34.3
B28, 23.0'-24.5'	46	2/19/09	Hom	No. 10		Yes	20.71	104.80	84.22	32.4
B28, 24.5'-26.0'	47	2/19/09	Hom	No. 10		Yes	21.72	107.44	86.82	31.7
B28, 26.0'-27.5'	48	2/19/09	Hom	No. 10		Yes	19.66	97.82	78.02	33.9
B28, 27.5'-29.0'	49	2/19/09	Hom	No. 10		Yes	18.99	110.30	84.03	40.4
B28, 29.0'-30.5'	50	2/19/09	Hom	No. 10		Yes	18.43	111.73	84.40	41.4
B28, 30.5'-32.0'	51	2/19/09	Hom	No. 10		Yes	19.11	107.38	82.60	39.0
B28, 32.0'-33.5'	52	2/19/09	Hom	No. 10		Yes	20.47	104.04	80.98	38.1
B28, 33.5'-35.0'	53	2/19/09	Hom	No. 10		Yes	19.00	111.01	83.70	42.2
B28, 35.0'-36.5'	54	2/19/09	Hom	No. 10		Yes	19.04	107.89	81.35	42.6
B28, 36.5'-38.0'	55	2/19/09	Hom	No. 10		Yes	19.41	103.76	79.37	40.7
B28, 38.0'-39.5'	56	2/19/09	Hom	No. 10		Yes	22.28	145.71	107.88	44.2
B28, 41.5'-43.0'	57	2/19/09	Hom	No. 10		Yes	20.25	106.89	82.18	39.9
B28, 43.0'-44.5'	58	2/19/09	Hom	No. 10		Yes	20.82	102.26	79.68	38.4
B28, 44.5'-46.0'	59	2/19/09	Hom	No. 10		Yes	18.79	108.50	82.40	41.0
B28, 46.0'-47.5'	60	2/19/09	Hom	No. 10		Yes	19.03	111.35	82.53	45.4
B28, 47.5'-49.0'	61	2/19/09	Hom	No. 10		Yes	19.17	119.70	89.71	42.5



Moisture Content of Soil
Dried @ 200°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B28, 49.0'-49.7'	62	2/19/09	Hom	No. 10			Yes	20.50	115.53	87.99	40.8
B28, 54.0'-55.0'	63	2/19/09	Hom	No. 10			Yes	20.42	113.79	85.95	42.5
B29, 9.0'-10.5'	64	2/19/09	Hom	No. 10			Yes	20.50	118.49	92.64	35.8

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Moisture Content of Soil
Dried @ 200° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B32, 1.5'-3.0'	68	2/20/09	Hom	3/4"		No	20.67	92.94	78.18	25.7
B32, 3.0'-4.5'	69	2/24/09								
B32, 4.5'-6.0'	70	2/20/09	Hom	No. 10		Yes	20.82	99.43	80.80	31.1
B32, 6.0'-7.5'	71	2/20/09	Hom	No. 10		Yes	22.08	115.90	91.96	34.3
B32, 7.5'-9.0'	72	2/20/09	Hom	No. 10		Yes	21.42	111.22	86.08	38.9
B32, 9.0'-10.5'	73	2/20/09	Hom	No. 10		Yes	21.28	125.06	97.29	36.5
B32, 10.5'-12.0'	74	2/20/09	Hom	No. 10		Yes	20.10	111.52	87.43	35.8
B32, 12.0'-13.5'	75	2/20/09	Hom	No. 10		Yes	21.32	123.85	98.21	33.3
B32, 13.5'-15.0'	76	2/20/09	Hom	No. 10		Yes	19.47	104.85	84.13	32.0
B32, 15.0'-16.5'	77	2/20/09	Hom	No. 10		Yes	22.12	130.73	105.18	30.8
B32, 16.5'-18.0'	78	2/20/09	Hom	No. 10		Yes	23.45	137.46	107.07	36.3
B32, 18.0'-19.5'	79	2/20/09	Hom	No. 10		Yes	20.44	115.48	91.77	33.2
B32, 21.5'-23.0'	80	2/20/09	Hom	No. 10		Yes	19.25	111.21	90.14	29.7
B32, 23.0'-24.5'	81	2/20/09	Hom	No. 10		Yes	20.30	108.69	84.52	37.6
B32, 24.5'-26.0'	82	2/20/09	Hom	No. 10		Yes	21.05	130.66	101.81	35.7
B32, 26.0'-27.5'	83	2/20/09	Hom	No. 10		Yes	19.28	108.45	85.61	34.4
B32, 27.5'-29.0'	84	2/24/09								
B32, 29.0'-30.5'	85	2/24/09								
B32, 30.5'-32.0'	86	2/24/09								
B32, 32.0'-33.5'	87	2/20/09	Hom	No. 10		Yes	20.68	109.89	84.81	39.1
B32, 33.5'-35.0'	88	2/24/09								
B32, 37.0'-38.5'	89	2/24/09								
B32, 39.5'-41.0'	90	2/24/09								
B32, 44.5'-46.0'	91	2/24/09								
B32, 59.5'-59.7'	92	2/24/09								
B35, 0.0'-1.5'	93	2/20/09	Hom	1 1/2"		No	20.21	91.30	74.90	30.0
B35, 1.5'-3.0'	94	2/20/09	Hom	No. 10		Yes	21.07	104.05	85.63	28.5
B35, 3.0'-4.5'	95	2/24/09								



Moisture Content of Soil
Dried @ 200° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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: Stratifed, Laminated, Lensed, Homogeneous

Test Method ASTM

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 (%)
B35, 4.5'-6.0'	96	2/20/09	Hom	No. 10			Yes	19.53	104.84	83.71	32.9
B35, 6.0'-7.5'	97	2/20/09	Hom	No. 10			Yes	20.32	97.34	78.84	31.6
B35, 7.5'-9.0'	98	2/20/09	Hom	No. 10			Yes	19.92	94.83	77.52	30.1
B35, 9.0'-10.5'	99	2/20/09	Hom	No. 10			Yes	20.25	103.08	81.41	35.4
B35, 10.5'-12.0'	100	2/20/09	Hom	No. 10			Yes	19.53	96.23	75.86	36.2
B35, 12.0'-13.5'	101	2/20/09	Hom	No. 10			Yes	18.80	103.14	79.07	39.9
B35, 13.5'-15.0'	102	2/20/09	Hom	No. 10			Yes	18.47	112.05	86.72	37.1
B35, 15.0'-16.5'	103	2/20/09	Hom	No. 10			Yes	22.15	135.69	103.91	38.9
B35, 16.5'-18.0'	104	2/20/09	Hom	No. 10			Yes	22.10	132.30	102.43	37.2
B35, 18.0'-19.5'	105	2/20/09	Hom	No. 10			Yes	20.43	103.82	80.13	39.7
B35, 19.5'-21.0'	106	2/20/09	Hom	No. 10			Yes	22.47	121.09	92.58	40.7
B35, 21.0'-22.5'	107	2/20/09	Hom	No. 10			Yes	23.56	128.35	100.40	36.4
B35, 22.5'-24.0'	108	2/20/09	Hom	No. 10			Yes	18.67	103.69	79.53	39.7
B35, 24.0'-25.5'	109	2/20/09	Hom	No. 10			Yes	18.86	108.48	83.56	38.5
B35, 27.5'-29.0'	110	2/24/09									
B35, 29.0'-30.5'	111	2/24/09									
B35, 34.0'-35.5'	112	2/24/09									
B39, 5.0'-6.5'	113	2/20/09	Hom	No. 10			Yes	19.60	82.48	68.71	28.0
B39, 6.5'-8.0'	114	2/20/09	Hom	No. 10			Yes	20.78	96.49	80.20	27.4
B39, 8.0'-9.5'	115	2/20/09	Hom	No. 10			Yes	21.64	102.38	84.69	28.1
B39, 9.5'-11.0'	116	2/20/09	Hom	No. 10			Yes	21.09	110.80	89.74	30.7
B39, 11.0'-12.5'	117	2/20/09	Hom	No. 10			Yes	21.21	123.34	95.49	37.5
B39, 12.5'-14.0'	118	2/20/09	Hom	No. 10			Yes	21.24	108.76	87.80	31.5
B39, 14.0'-15.5'	119	2/20/09	Hom	No. 10			Yes	21.02	104.35	85.65	28.9
B39, 15.5'-17.0'	120	2/20/09	Hom	No. 10			Yes	19.07	103.13	86.17	25.3
B39, 17.0'-18.5'	121	2/20/09	Hom	No. 10			Yes	21.04	118.15	93.43	34.1
B39, 18.5'-20.0'	122	2/20/09	Hom	No. 10			Yes	22.05	133.87	107.80	30.4
B39, 20.0'-21.5'	123	2/20/09	Hom	No. 10			Yes	19.91	119.01	93.89	34.0
B39, 21.5'-23.0'	124	2/20/09	Hom	No. 10			Yes	18.89	112.23	88.19	34.7
B39, 23.0'-24.5'	125	2/20/09	Hom	No. 10			Yes	18.43	107.89	82.72	39.2



Moisture Content of Soil
Dried @ 200° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
B39, 24.5'-26.0'	126	2/23/09	Hom	No. 10			Yes	18.79	103.19	79.90	38.1
B39, 26.0'-27.5'	127	2/23/09	Hom	No. 10			Yes	18.47	106.62	83.12	36.3
B39, 29.5'-31.0'	128	2/23/09	Hom	No. 10			Yes	29.10	152.22	120.01	35.4
B39, 31.0'-32.5'	129	2/23/09	Hom	No. 10			Yes	26.40	155.53	122.84	33.9
B39, 32.5'-34.0'	130	2/23/09	Hom	No. 10			Yes	29.52	131.93	105.39	35.0
B39, 34.0'-35.5'	131	2/23/09	Hom	No. 10			Yes	27.01	163.43	135.75	25.5
B39, 35.5'-37.0'	132	2/23/09	Hom	No. 10			Yes	20.54	126.63	104.21	26.8
B39, 39.0'-40.5'	133	2/23/09	Hom	No. 10			Yes	20.71	121.18	95.51	34.3
B39, 40.5'-42.0'	134	2/23/09	Hom	No. 10			Yes	20.95	121.29	95.28	35.0
B39, 42.0'-43.5'	135	2/23/09	Hom	No. 10			Yes	20.89	125.64	101.07	30.6
B39, 43.5'-45.0'	136	2/23/09	Hom	No. 10			Yes	21.16	125.83	96.97	38.1
B39, 45.0'-46.5'	137	2/23/09	Hom	No. 10			Yes	21.39	128.05	93.12	48.7
B39, 46.5'-48.0'	138	2/23/09	Hom	No. 10			Yes	18.27	108.67	80.20	46.0
B39, 48.0'-49.5'	139	2/23/09	Hom	No. 10			Yes	21.32	134.70	93.55	57.0
B39, 51.5'-53.0'	140	2/23/09	Hom	No. 10			Yes	21.01	140.06	105.20	41.4

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Moisture Content of Soil
Dried @ 200° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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	Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B42, 10.0'-11.5'	142	2/23/09	Hom	No. 10			Yes	20.10	116.77	92.02	34.4
B42, 15.0'-16.5'	143	2/23/09	Hom	No. 10			Yes	21.08	125.18	96.90	37.3
B42, 16.5'-18.0'	144	2/23/09	Hom	No. 10			Yes	20.90	124.15	98.01	33.9
B42, 18.0'-19.5'	145	2/23/09	Hom	No. 10			Yes	18.55	106.94	83.91	35.2
B42, 19.5'-21.0'	146	2/23/09	Hom	No. 10			Yes	20.83	121.84	97.10	32.4
B42, 21.0'-22.5'	147	2/23/09	Hom	No. 10			Yes	20.80	129.97	102.18	34.1
B42, 22.5'-24.0'	148	2/23/09	Hom	No. 10			Yes	21.38	122.30	97.97	31.8
B42, 24.0'-25.5'	149	2/23/09	Hom	No. 10			Yes	21.62	119.97	94.96	34.1
B42, 25.5'-27.0'	150	2/23/09	Hom	No. 10			Yes	18.88	120.13	96.87	29.8
B42, 27.0'-28.5'	151	2/23/09	Hom	No. 10			Yes	14.76	103.06	83.28	28.9
B42, 40.5'-42.0'	152	2/23/09	Hom	No. 10			Yes	14.98	98.77	69.98	52.3
B42, 49.0'-50.5'	153	2/23/09	Hom	No. 10			Yes	20.96	117.12	90.67	37.9
B42, 50.5'-52.0'	154	2/23/09	Hom	No. 10			Yes	20.33	114.43	84.15	47.4
B42, 52.0'-53.5'	155	2/23/09	Hom	No. 10			Yes	26.10	138.87	102.66	47.3
B42, 53.5'-55.5'	156	2/23/09	Hom	No. 10			Yes	21.21	121.46	86.98	52.4
B42, 55.0'-56.5'	157	2/23/09	Hom	No. 10			Yes	26.59	171.49	129.93	40.2



Moisture Content of Soil
Dried @ 110° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Size	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B-33, 24.0'-25.5'	11	2/18/09	Hom	1 1/2"			No	38.25	237.25	202.34	21.3
B-38, 89.5'-90.2'	31	2/18/09	Hom	1 1/2"			No	46.57	159.49	144.63	15.2
B29, 15.5'-17.0'	65	2/19/09	Hom	No. 4			No	21.28	121.27	103.08	22.2
B29, 17.0'-18.5'	66	2/19/09	Hom	No. 4			Yes	21.26	145.90	121.63	24.2



Moisture Content of Soil
Dried @ 110°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B32, 0.0'-1.5'	67	2/20/09	Hom	3/4"			No	21.78	108.08	92.04	22.8
B32, 1.5'-3.0'	68	2/23/09									
B32, 3.0'-4.5'	69	2/20/09	Hom	3/8"			No	22.49	105.67	89.68	23.8
B32, 4.5'-6.0'	70	2/23/09									
B32, 6.0'-7.5'	71	2/23/09									
B32, 7.5'-9.0'	72	2/23/09									
B32, 9.0'-10.5'	73	2/23/09									
B32, 10.5'-12.0'	74	2/23/09									
B32, 12.0'-13.5'	75	2/23/09									
B32, 13.5'-15.0'	76	2/23/09									
B32, 15.0'-16.5'	77	2/23/09									
B32, 16.5'-18.0'	78	2/23/09									
B32, 18.0'-19.5'	79	2/23/09									
B32, 21.5'-23.0'	80	2/23/09									
B32, 23.0'-24.5'	81	2/23/09									
B32, 24.5'-26.0'	82	2/23/09									
B32, 26.0'-27.5'	83	2/23/09									
B32, 27.5'-29.0'	84	2/20/09	Hom	3/8"			No	20.52	95.13	82.19	21.0
B32, 29.0'-30.5'	85	2/20/09	Hom	3/8"			No	20.81	114.84	97.68	22.3
B32, 30.5'-32.0'	86	2/20/09	Hom	3/8"			No	21.11	101.08	85.72	23.8
B32, 32.0'-33.5'	87	2/23/09									
B32, 33.5'-35.0'	88	2/20/09	Hom	3/8"			No	20.48	96.86	78.94	30.7
B32, 37.0'-38.5'	89	2/20/09	Hom	No. 4			No	20.29	81.36	68.15	27.6
B32, 39.5'-41.0'	90	2/20/09	Hom	3/4"			No	21.31	89.34	75.12	26.4
B32, 44.5'-46.0'	91	2/20/09	Hom	3/4"			No	23.42	119.06	94.64	34.3
B32, 59.5'-59.7'	92	2/20/09	Hom	3/8"			No	21.13	100.71	78.04	39.8
B35, 0.0'-1.5'	93	2/23/09									
B35, 1.5'-3.0'	94	2/23/09									



Moisture Content of Soil

Dried @ 110°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B35, 3.0'-4.5'	95	2/20/09	Hom	3/4"			No	20.54	86.84	73.94	24.2
B35, 4.5'-6.0'	96	2/23/09									
B35, 6.0'-7.5'	97	2/23/09									
B35, 7.5'-9.0'	98	2/23/09									
B35, 9.0'-10.5'	99	2/23/09									
B35, 10.5'-12.0'	100	2/23/09									
B35, 12.0'-13.5'	101	2/23/09									
B35, 13.5'-15.0'	102	2/23/09									
B35, 15.0'-16.5'	103	2/23/09									
B35, 16.5'-18.0'	104	2/23/09									
B35, 18.0'-19.5'	105	2/23/09									
B35, 19.5'-21.0'	106	2/23/09									
B35, 21.0'-22.5'	107	2/23/09									
B35, 22.5'-24.0'	108	2/23/09									
B35, 24.0'-25.5'	109	2/23/09									
B35, 27.5'-29.0'	110	2/20/09	Hom	1 1/2"			No	21.31	122.17	98.26	31.1
B35, 29.0'-30.5'	111	2/20/09	Lam	3/4"			No	20.68	123.08	102.51	25.1
B35, 34.0'-35.5'	112	2/20/09	Hom	1 1/2"			No	22.01	121.65	98.86	29.7
B39, 5.0'-6.5'	113	2/23/09									
B39, 6.5'-8.0'	114	2/23/09									
B39, 8.0'-9.5'	115	2/23/09									
B39, 9.5'-11.0'	116	2/23/09									
B39, 11.0'-12.5'	117	2/23/09									
B39, 12.5'-14.0'	118	2/23/09									
B39, 14.0'-15.5'	119	2/23/09									
B39, 15.5'-17.0'	120	2/23/09									
B39, 17.0'-18.5'	121	2/23/09									
B39, 18.5'-20.0'	122	2/23/09									
B39, 20.0'-21.5'	123	2/23/09									
B39, 21.5'-23.0'	124	2/23/09									
B39, 23.0'-24.5'	125	2/23/09									



Moisture Content of Soil
Dried @ 110°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B39, 24.5'-26.0'	126	2/23/09									
B39, 26.0'-27.5'	127	2/23/09									
B39, 29.5'-31.0'	128	2/23/09									
B39, 31.0'-32.5'	129	2/23/09									
B39, 32.5'-34.0'	130	2/23/09									
B39, 34.0'-35.5'	131	2/23/09									
B39, 35.5'-37.0'	132	2/23/09									
B39, 39.0'-40.5'	133	2/23/09									
B39, 40.5'-42.0'	134	2/23/09									
B39, 42.0'-43.5'	135	2/23/09									
B39, 43.5'-45.0'	136	2/23/09									
B39, 45.0'-46.5'	137	2/23/09									
B39, 46.5'-48.0'	138	2/23/09									
B39, 48.0'-49.5'	139	2/23/09									
B39, 51.5'-53.0'	140	2/23/09									
B39, 53.0'-54.5'	141	2/20/09	Hom	3/4"			No	20.70	124.03	105.26	22.2
B42, 10.0'-11.5'	142	2/23/09									
B42, 15.0'-16.5'	143	2/23/09									
B42, 16.5'-18.0'	144	2/23/09									
B42, 18.0'-19.5'	145	2/23/09									
B42, 19.5'-21.0'	146	2/23/09									
B42, 21.0'-22.5'	147	2/23/09									
B42, 22.5'-24.0'	148	2/23/09									
B42, 24.0'-25.5'	149	2/23/09									
B42, 25.5'-27.0'	150	2/23/09									
B42, 27.0'-28.5'	151	2/23/09									
B42, 40.5'-42.0'	152	2/23/09									
B42, 49.0'-50.5'	153	2/23/09									
B42, 50.5'-52.0'	154	2/23/09									
B42, 52.0'-53.5'	155	2/23/09									
B42, 53.5'-55.5'	156	2/23/09									



Moisture Content of Soil
Dried @ 110°C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & CanWeight (g)	Moisture Content (%)
B42, 55.0'-56.5'	157	2/23/09								
B42, 56.5'-58.0'	158	2/20/09	Hom	3/4"		No	18.89	96.62	79.83	27.6
B42, 58.0'-59.5'	159	2/20/09	Hom	3/4"		No	20.63	99.07	82.81	26.1



Moisture Content of Soil
Dried at 110° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B-36, 4.0'-5.5'	353	3/3/09	Hom	1 1/2"			No	43.73	181.21	152.61	26.3
B-36, 9.0'-10.5'	354	3/3/09	Hom	3/4"			No	47.74	201.07	166.48	29.1
B-36, 14.0'-14.2'	355	3/3/09	Hom	1 1/2"			No	37.84	125.86	106.61	28.0
B-37, 15.0'-16.5'	356	3/10/09									
B-37, 20.0'-21.5'	357	3/3/09	Hom	3/4"			No	39.82	180.38	152.01	25.3
B-37, 25.0'-26.5'	358	3/3/09	Hom	3/4"			No	43.57	225.71	186.81	27.2
B-40, 4.0'-5.5'	359	3/10/09									
B-40, 9.5'-11.0'	360	3/10/09									
B-40, 14.0'-15.5'	361	3/3/09	Hom	3/4"			No	38.28	202.80	168.05	26.8
B-40, 19.0'-20.5'	362	3/3/09	Hom	3/8"			No	44.01	257.07	212.81	26.2
B-40, 24.0'-25.5'	363	3/3/09	Hom	3/8"			No	47.59	224.31	193.52	21.1
B-40, 29.0'-30.5'	364	3/3/09	Hom	3/8"			No	47.98	215.21	182.90	23.9
B-40, 34.0'-35.5'	365	3/3/09	Hom	3/4"			No	37.82	160.72	121.44	47.0
B-31, 64.5'-66.0'	366	3/3/09	Hom	3/4"			No	47.66	284.34	246.33	19.1

RJ



Moisture Content of Soil
Dried at 110° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

Material Type: Stratified, Laminated, Lensed, Homogeneous

Source	Lab ID	Date Tested	Material Type	Maximum Particle Size	Material Excluded Amount	Pass Min. Mass? (Y/N)	Can Weight (g)	Wet Soil & Can Weight (g)	Dry Soil & Can Weight (g)	Moisture Content (%)
B-34, 50.0'-51.5'	372	3/3/09	Hom	3/8"		No	38.27	153.70	128.96	27.3
B-34, 51.5'-53.0'	373	3/3/09	Hom	1 1/2"		No	47.76	255.16	201.16	35.2



Moisture Content of Soil
Dried at 110° C ASTM D 2216

Project Name Widows Creek Fossil Plant

Project Number 171468118
Tested By RJ

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

Test Method ASTM

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 (%)
B-46, 32.5'-34.0'	380	3/3/09	Hom	3/4"			No	43.22	251.88	208.53	26.2
B-46, 34.0'-35.5'	381	3/3/09	Hom	3/4"			No	37.43	148.51	125.68	25.9
B-46, 35.5'-37.0'	382	3/3/09	Hom	3/8"			No	38.21	171.69	140.03	31.1
B-46, 37.0'-38.5'	383	3/3/09	Len	3/8"			No	46.94	204.69	166.19	32.3
B-46, 38.5'-40.0'	384	3/3/09	Len	3/4"			No	43.77	226.72	183.81	30.6
B-46, 40.0'-41.5'	385	3/3/09	Len	3/4"			No	45.43	209.08	175.00	26.3
B-46, 41.5'-43.0'	386	3/3/09	Hom	3/8"			No	48.72	196.34	167.77	24.0
B-46, 43.0'-44.5'	387	3/3/09	Hom	3/8"			No	45.45	237.37	192.74	30.3
B-46, 44.5'-46.0'	388	3/3/09	Hom	3/4"			No	46.76	244.59	201.19	28.1
B-46, 46.0'-47.5'	389	3/3/09	Hom	3/4"			No	43.40	220.32	190.40	20.4
B-46, 47.5'-49.0'	390	3/3/09	Hom	3/8"			No	45.23	206.12	174.14	24.8
B-46, 49.0'-50.5'	391	3/3/09	Hom	3/8"			No	48.07	218.05	185.98	23.3
B-46, 50.5'-52.0'	392	3/3/09	Hom	3/8"			No	48.02	211.74	183.39	20.9
B-46, 52.0'-53.5'	393	3/3/09	Lam	3/4"			No	46.60	205.97	177.22	22.0
B-46, 53.5'-55.0'	394	3/3/09	Lam	3/4"			No	44.20	235.40	200.36	22.4
B-46, 55.0'-56.5'	395	3/3/09	Hom	1 1/2"			No	43.58	206.94	175.88	23.5
B-46, 56.5'-58.0'	396	3/3/09	Hom	3/8"			No	44.21	214.55	178.74	26.6
B-46, 58.0'-59.5'	397	3/3/09	Hom	1 1/2"			No	43.29	193.01	162.07	26.0
B-46, 59.5'-59.8'	398	3/3/09	Hom	3/8"			No	45.55	175.62	159.17	14.5

RJ



Particle-Size Analysis of Soils

ASTM D 422

Project Name TVA - Widows Creek Fossil Plant
 Source B-28 (sed. Gyp), 7.5'-9.0', 9.0'-10.5'

Project Number 171468118
 Lab ID 803

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: KWS
 Test Date: 03-19-2009
 Date Received 03-13-2009

Maximum Particle size: 3/8" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.7
No. 10	98.2

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

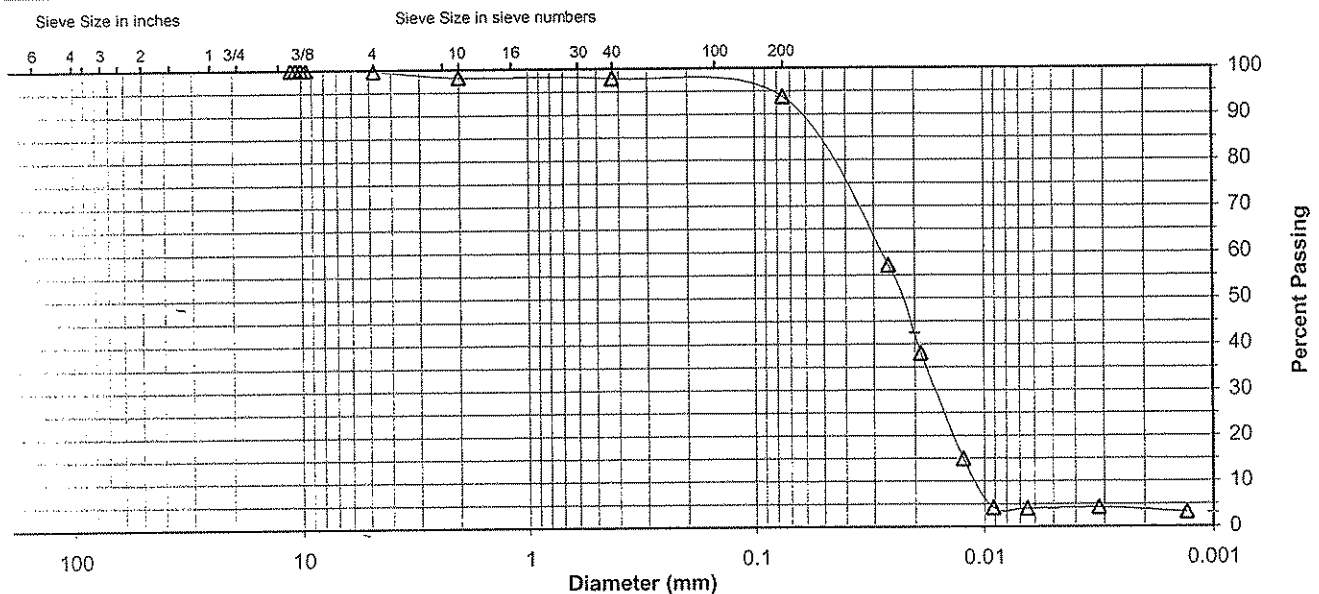
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.9
No. 200	93.7
0.02 mm	42.4
0.005 mm	3.9
0.002 mm	3.7
0.001 mm	3.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.3	1.5	0.3	4.2	89.8	3.9
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	1.8		0.3		4.2	90.0	3.7



Comments _____

Reviewed By [Signature]



Project Name TVA - Widows Creek Fossil Plant
Source B-32 (sed gyp), 21.5'-23.0', 23.0'-24.5'

Project Number 171468118
Lab ID 807

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: KWS
Test Date: 03-18-2009
Date Received 03-13-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	100.0
No. 4	99.8
No. 10	98.2

Maximum Particle size: 3/8" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

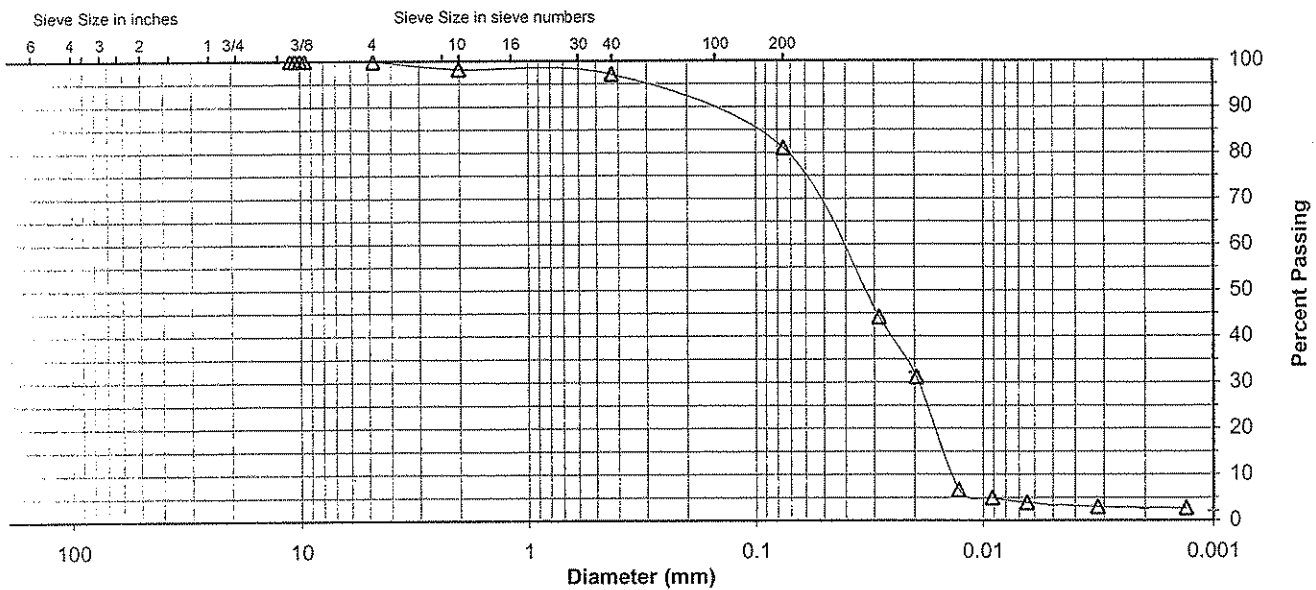
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	97.1
No. 200	81.0
0.02 mm	32.1
0.005 mm	3.3
0.002 mm	2.6
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.2	1.6	1.1	16.1	77.7	3.3
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	1.8		1.1		16.1	78.4	2.6



Comments _____

Reviewed By



Project Name TVA - Widows Creek Fossil Plant
Source B-32 (cast gyp), 4.5'-6.0' & B-33 (cast gyp), 4.0'-5.5'

Project Number 171468118
Lab ID 810

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

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.7
No. 4	95.0
No. 10	90.2

Tested By: KWS
Test Date: 03-18-2009
Date Received 03-13-2009

Maximum Particle size: 3/4" Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

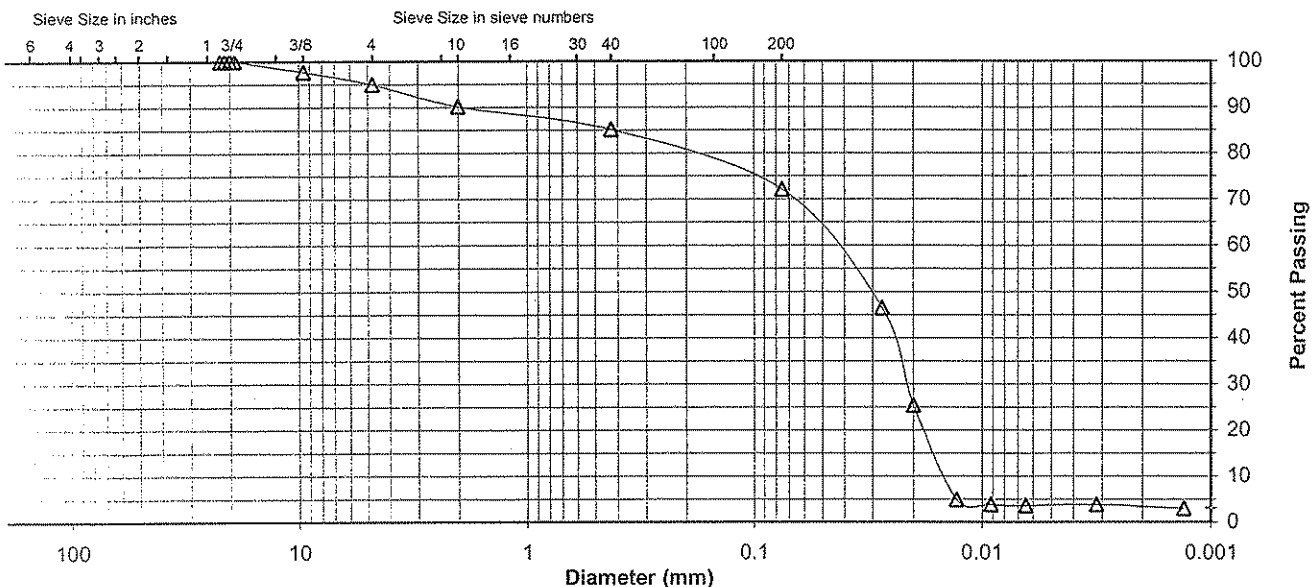
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	85.1
No. 200	72.1
0.02 mm	25.0
0.005 mm	3.7
0.002 mm	3.3
0.001 mm	3.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	5.0	4.8	5.1	13.0	68.4	3.7
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	9.8		5.1		13.0	68.8	3.3



Comments _____

Reviewed By



Project Name TVA - Widows Creek Fossil Plant
Source B-38 (cast gyp), 14.0'-15.5', 15.5'-17.0'

Project Number 171468118
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: N/A
Particle Hardness: N/A

Tested By: KWS
Test Date: 03-19-2009
Date Received 03-13-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	
No. 10	100.0

Maximum Particle size: No. 10 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

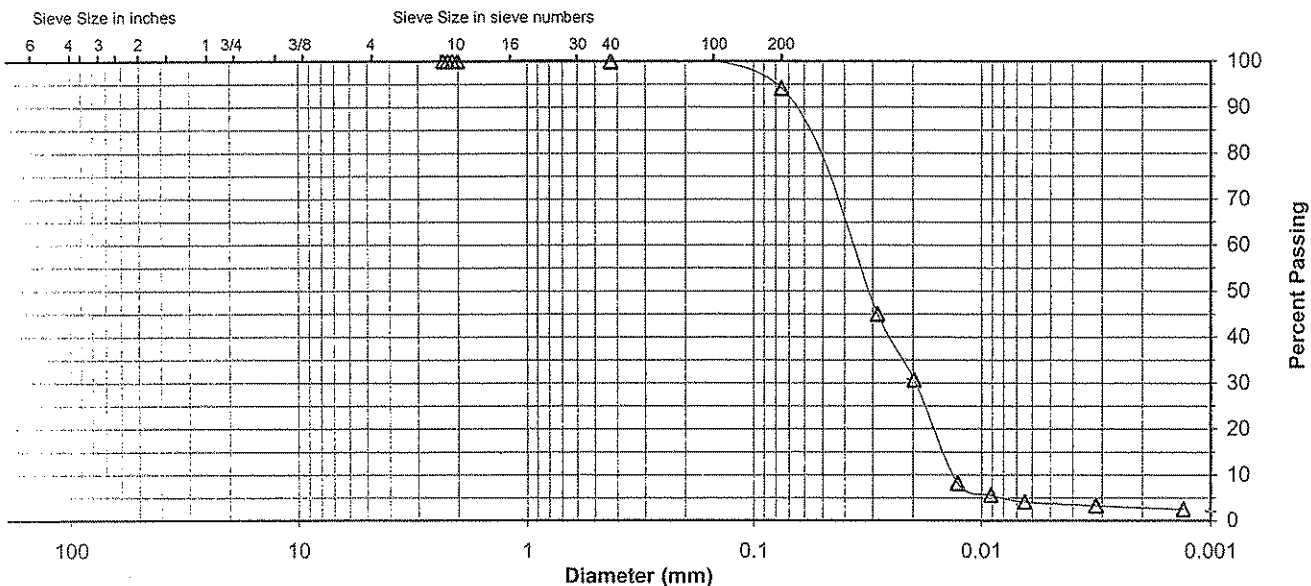
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.9
No. 200	94.1
0.02 mm	30.8
0.005 mm	3.7
0.002 mm	2.8
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	0.0	0.0	0.1	5.8	90.4	3.7	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	0.0		0.1		5.8	91.3		2.8



Comments _____

Reviewed By [Signature]



Project Name TVA - Widows Creek Fossil Plant
Source B-38 (sed gyp), 59.5'-61.0', 64.5'-66.0'

Project Number 171468118
Lab ID 816

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: KWS
Test Date: 03-19-2009
Date Received 03-13-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	
No. 10	100.0

Maximum Particle size: No. 10 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

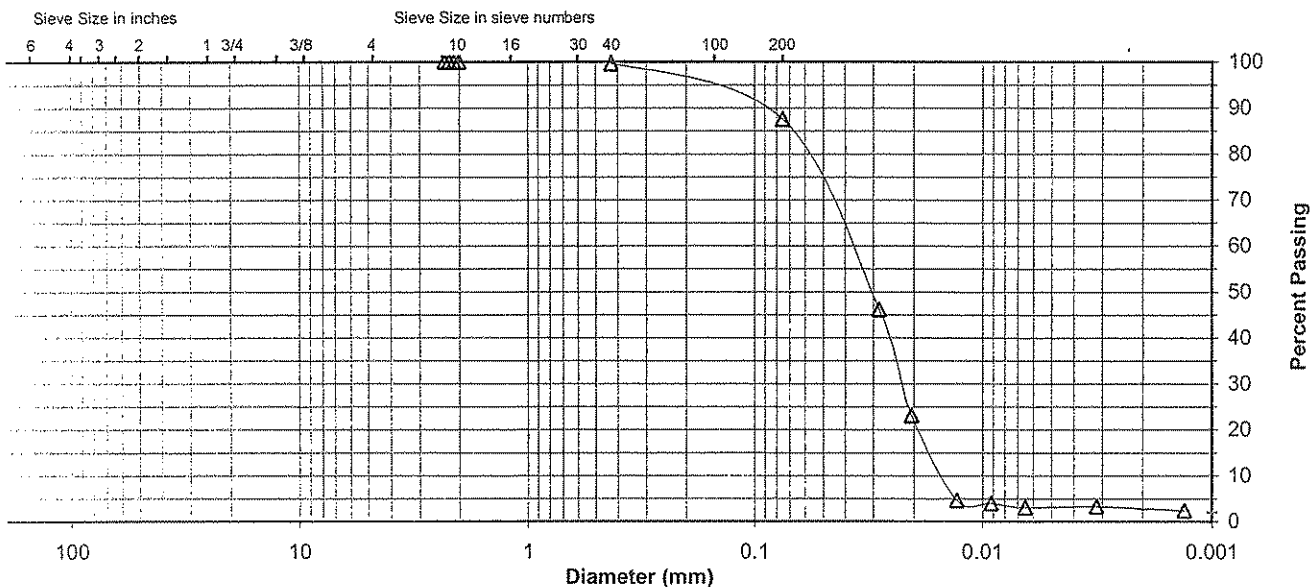
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.5
No. 200	87.6
0.02 mm	21.7
0.005 mm	3.1
0.002 mm	2.7
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.0	0.5	11.9	84.5	3.1
AASHTO	Gravel			Coarse Sand	Fine Sand	Silt	Clay
	0.0			0.5	11.9	84.9	2.7



Comments _____

Reviewed By



Particle-Size Analysis of Soils

ASTM D 422

Project Name TVA - Widows Creek Fossil Plant
 Source B-45 (B-2 cast), 16.5'-18.0', 18.0'-19.5'

Project Number 171468118
 Lab ID 819a

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: KWS
 Test Date: 03-19-2009
 Date Received 03-13-2009

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	99.6

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

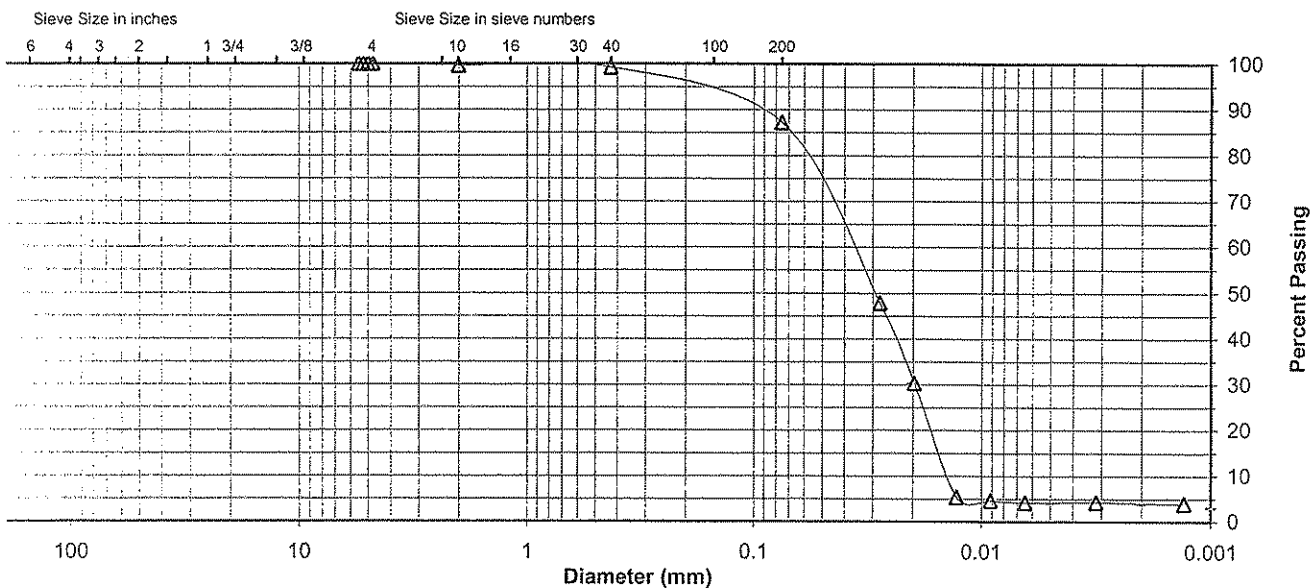
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.2
No. 200	87.2
0.02 mm	30.2
0.005 mm	4.1
0.002 mm	3.9
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	0.4	0.4	12.0	83.1	4.1	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	0.4		0.4		12.0	83.3		3.9



Comments _____

Reviewed By



Particle-Size Analysis of Soils

ASTM D 422

Project Name TVA - Widows Creek Fossil Plant
 Source B-45 (B-2 cast), 16.5'-18.0', 18.0'-19.5'

Project Number 171468118
 Lab ID 819b

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: KWS
 Test Date: 03-19-2009
 Date Received 03-13-2009

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	
3/8"	
No. 4	100.0
No. 10	99.6

Maximum Particle size: No. 4 Sieve

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

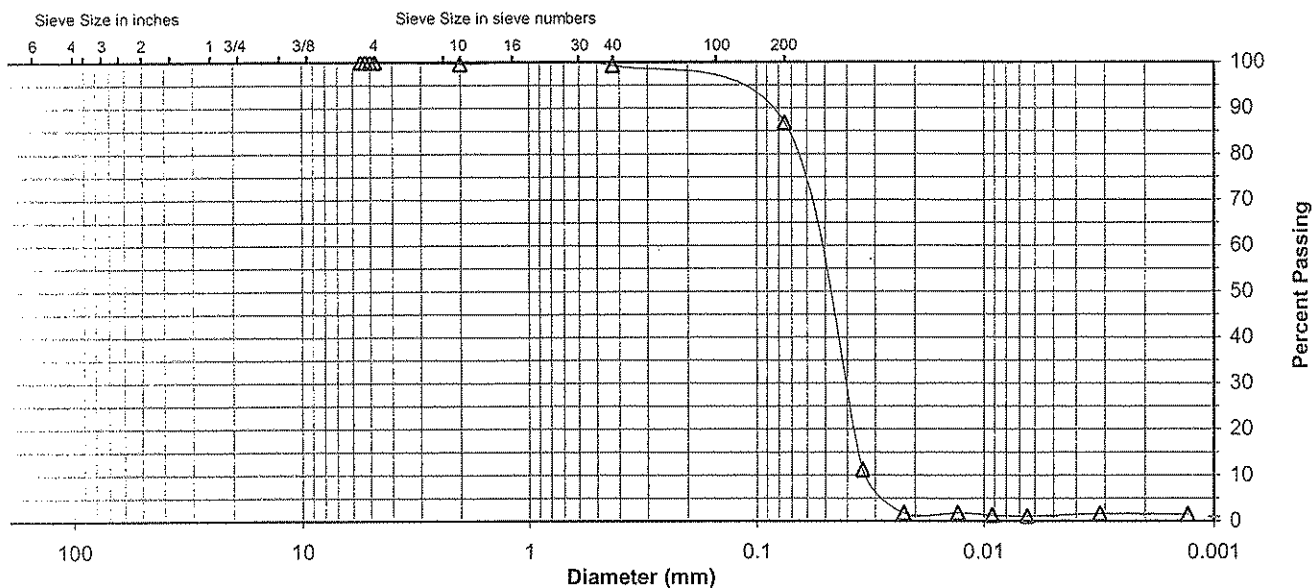
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.3
No. 200	86.8
0.02 mm	1.1
0.005 mm	1.1
0.002 mm	1.5
0.001 mm	1.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	0.0	0.4	0.3	12.5	85.7	1.1
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.4		0.3		12.5	85.3	1.5



Comments Gypsum water used in place of distilled water.

Reviewed By [Signature]



Particle-Size Analysis of Soils

ASTM D 422

Project Name TVA - Widows Creek Fossil Plant
 Source B-45 (B-2 sed), 31.5'-33.0', 33.0'-34.5'

Project Number 171468118
 Lab ID 822

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: KWS
 Test Date: 03-19-2009
 Date Received 03-13-2009

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	99.6

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

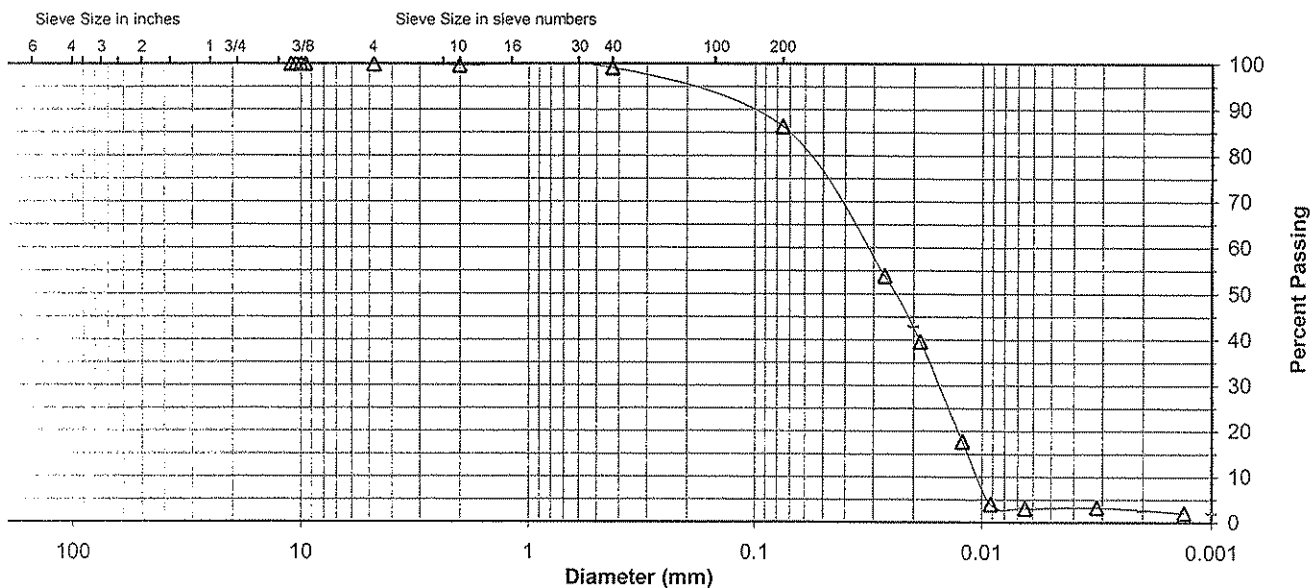
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.1
No. 200	86.3
0.02 mm	42.9
0.005 mm	3.1
0.002 mm	2.5
0.001 mm	2.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay	
	0.0	0.1	0.3	0.5	12.8	83.2	3.1	
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt		Clay
	0.4		0.5		12.8	63.8		2.5



Comments _____

Reviewed By



Particle-Size Analysis of Soils

ASTM D 422

Project Name TVA - Widows Creek Fossil Plant
 Source B-49 (B-3 clarification), 31.5'-33.0', 33.0'-34.5'

Project Number 171468118
 Lab ID 825

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: KWS
 Test Date: 03-19-2009
 Date Received 03-13-2009

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

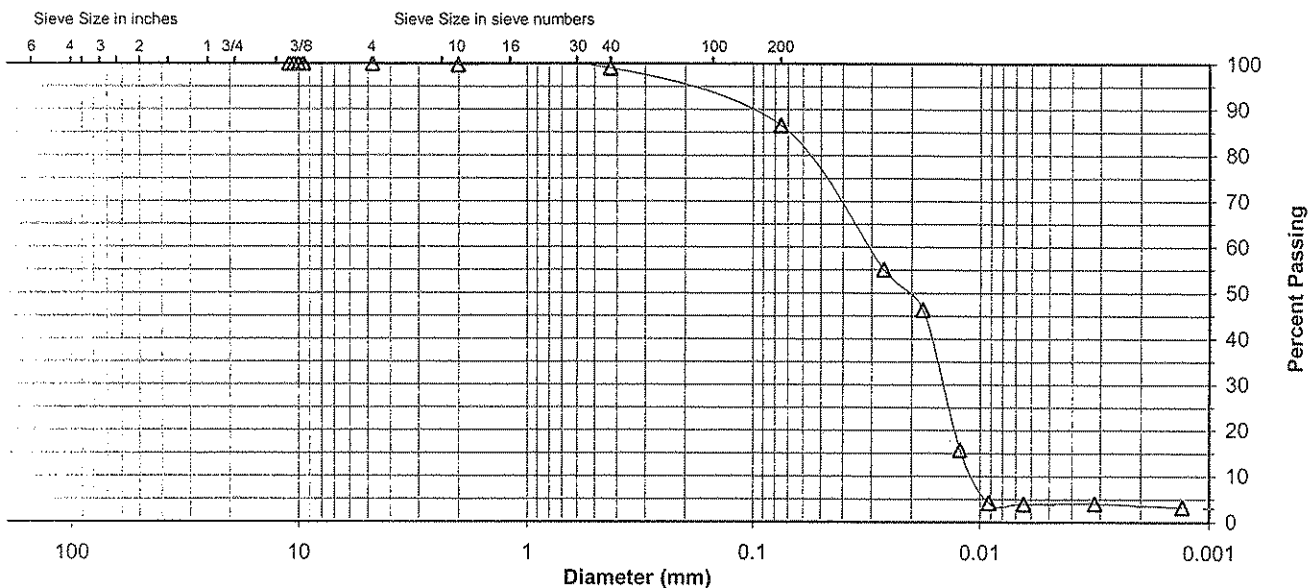
Specific Gravity 2.7

Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	99.0
No. 200	86.5
0.02 mm	49.9
0.005 mm	3.9
0.002 mm	3.5
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	0.3	0.7	12.5	82.6	3.9
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	0.3		0.7		12.5	83.0	3.5



Comments _____

Reviewed By _____

Project Name TVA - Widows Creek Fossil Plant
 Source B-29 (cast gyp), 4.5'-6.5'

 Project Number 171468118
 Lab ID 806
Sieve analysis for the Portion Coarser than the No. 10 Sieve

 Test Method: AASHTO T 88
 Prepared using: AASHTO T 87

 Particle Shape: Angular
 Particle Hardness: Hard and Durable

 Tested By: DG
 Test Date: 04-01-2009
 Date Received 03-13-2009

Maximum Particle size: 3/4" Sieve

Sieve Size	% Passing
3"	
2"	
1 1/2"	
1"	
3/4"	100.0
3/8"	97.6
No. 4	94.2
No. 10	89.1

Analysis for the portion Finer than the No. 10 Sieve

Analysis Based on: Total Sample

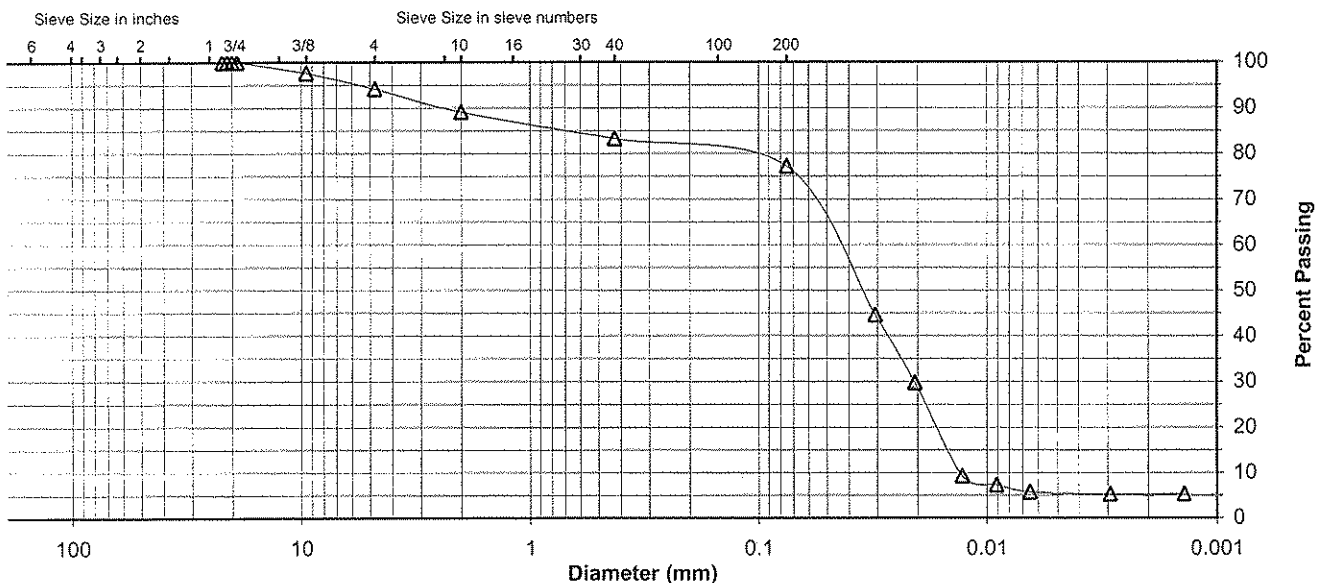
 Specific Gravity 2.7

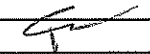
Dispersed using: Apparatus A - Mechanical, for 1 minute

No. 40	83.3
No. 200	77.2
0.02 mm	28.7
0.005 mm	5.3
0.002 mm	4.9
0.001 mm	5.0

Particle Size Distribution

ASTM	Coarse Gravel	Fine Gravel	C. Sand	Medium Sand	Fine Sand	Silt	Clay
	0.0	5.8	5.1	5.8	6.1	71.9	5.3
AASHTO	Gravel		Coarse Sand		Fine Sand	Silt	Clay
	10.9		5.8		6.1	72.3	4.9


 Comments Dry weight's determined using 40° C mc

 Reviewed By 



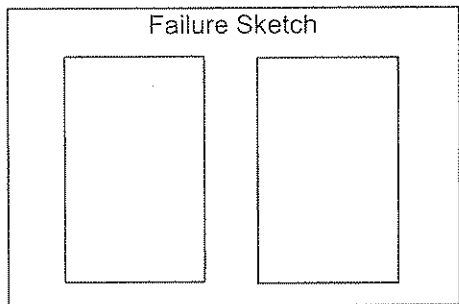
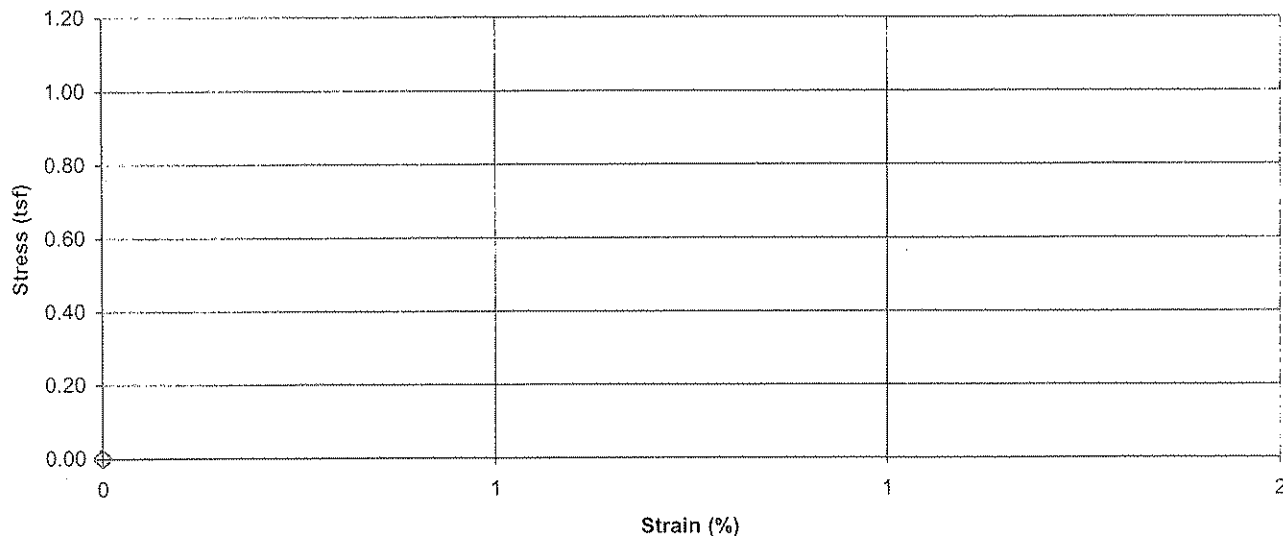
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-29 (cast gyp), 4.5'-6.5' Lab ID 806
 Visual Description Silt (ML), gray brown, moist, soft, gypsum

Recovered 0.6'
 Test Interval 4.7' - 5.2'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/19/2009</u>
Initial Wet Density (pcf) <u>122.8</u>	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Dry Density (pcf) <u>103.9</u>	PI <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>18.3</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content, 200°C (%) <u>N/A</u>	At Test MC Taken <u>N/A</u>	
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.607</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.867</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments _____

Reviewed By



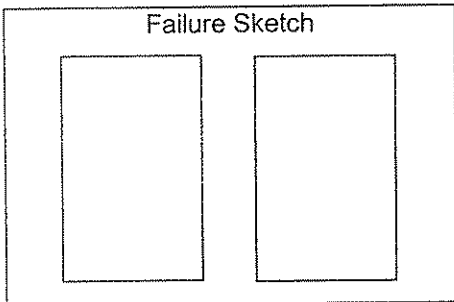
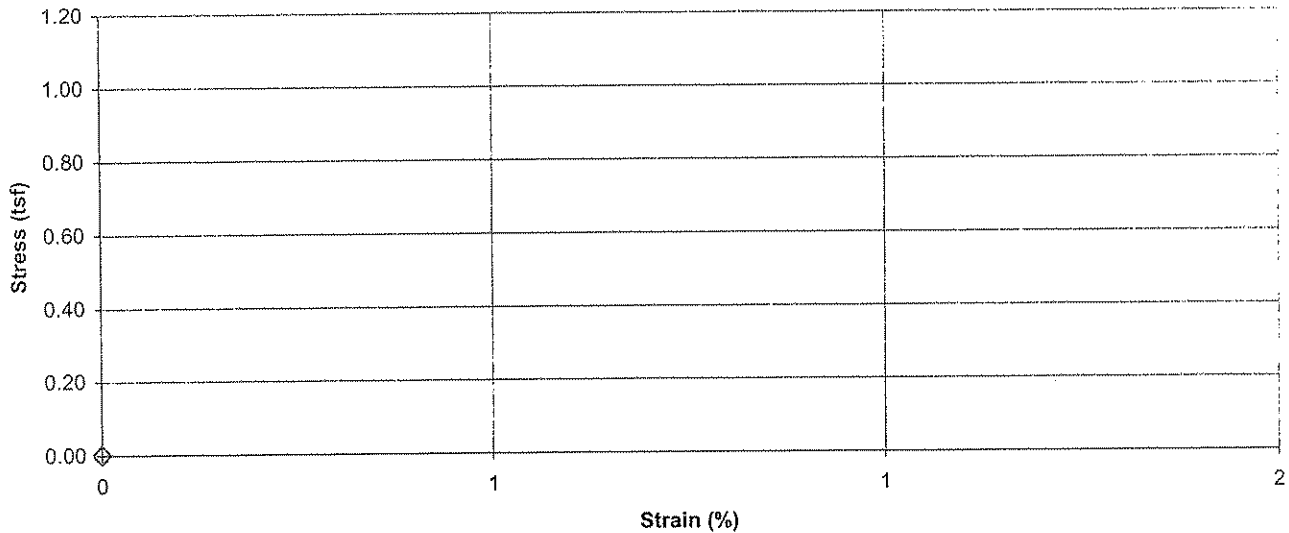
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B35 (clay), 25.5'-27.5' Lab ID 761A
 Visual Description Lean Clay with Silt (CL), gray, brown, moist, soft, gypsum

Recovered 0.6'
 Test Interval 25.7' - 26.2'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
Initial Wet Density (pcf) <u>114.3</u>	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Dry Density (pcf) <u>89.4</u>	PI <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>27.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content, 200°C (%) <u>34.2</u>	At Test MC Taken <u>N/A</u>	
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.084</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.900</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc
Weight of cylinder and material 1923.84g
Average height of cut cylinder 7.136"

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B35 (clay), 25.5'-27.5' Lab ID 761B
 Visual Description Lean Clay with Silt (CL), gray, brown, moist, soft, gypsum

Recovered 0.6'
 Test Interval 26.3' - 26.8'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

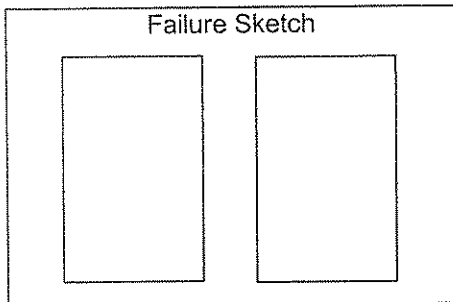
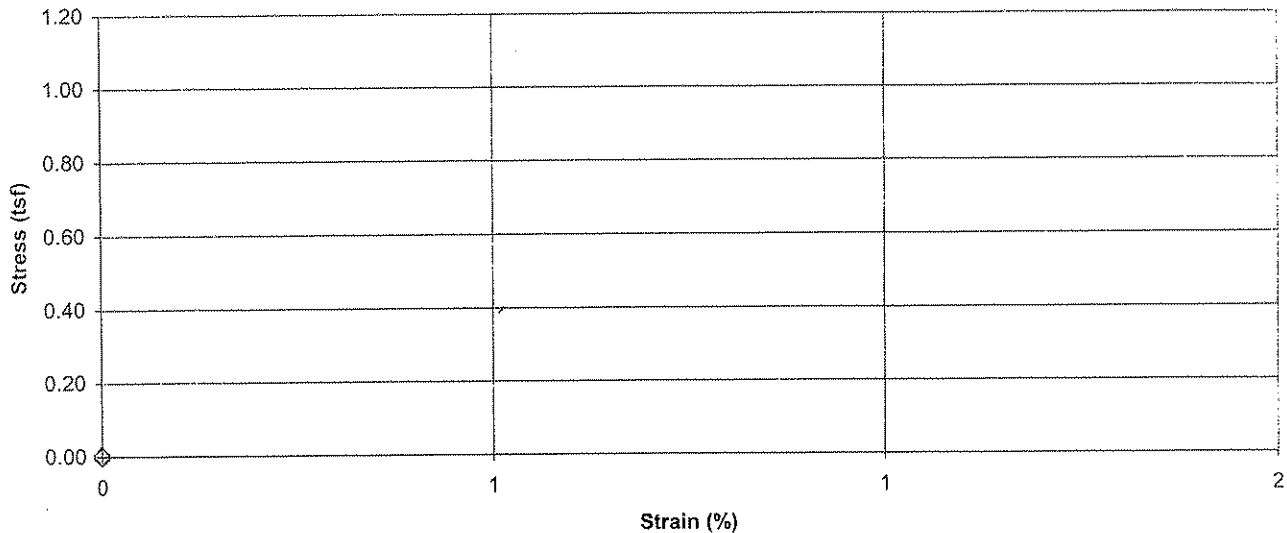
Initial Wet Density (pcf) _____
 Initial Dry Density (pcf) N/A
 Initial Moisture Content, 40°C (%) 28.1
 Initial Moisture Content, 200°C (%) 38.7
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) N/A
 Average Diameter (in) N/A
 Height to Diameter Ratio N/A

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Weight of cylinder and material 1714.27g

Average height of cut cylinder 6.391"

Saved in bag.

Reviewed By



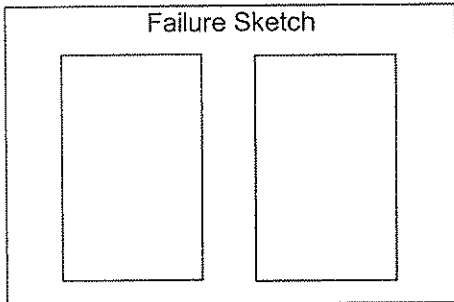
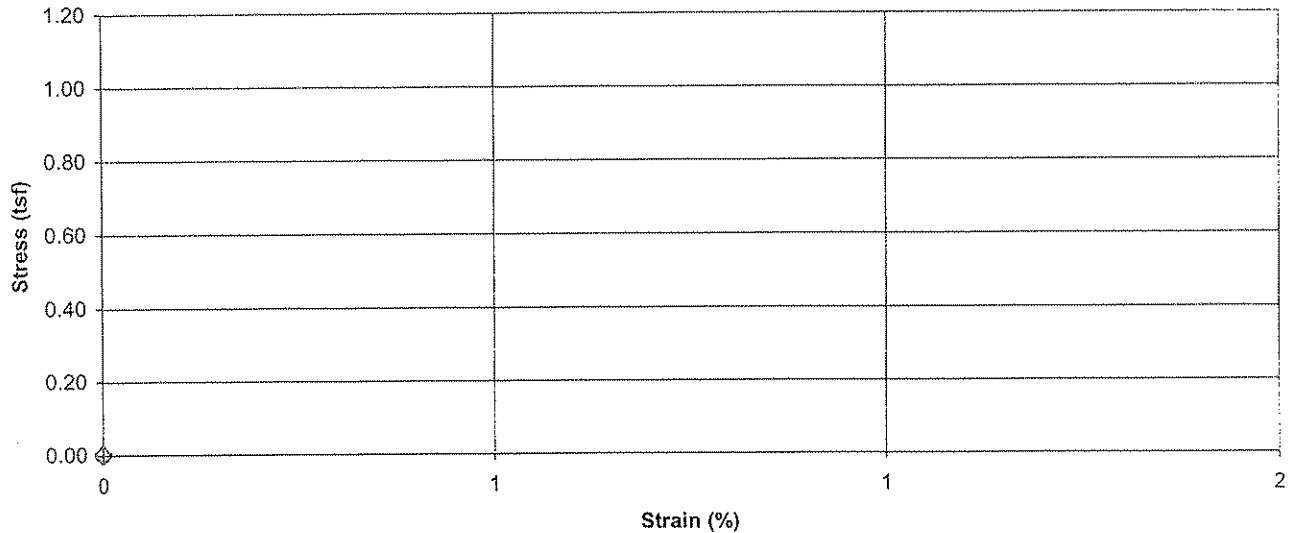
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 37.0'-39.0' Lab ID 763A
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 37.2' - 37.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>119.2</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>92.1</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>29.4</u>		
Initial Moisture Content, 200°C (%) <u>44.6</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.896</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.866</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc
Weight of cylinder and material 1930.56g
Average height of cut cylinder 7.197"

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 37.0'-39.0' Lab ID 763B
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 37.8' - 38.3'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

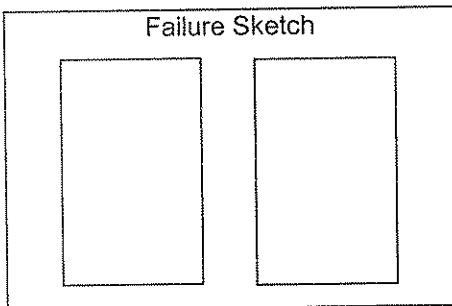
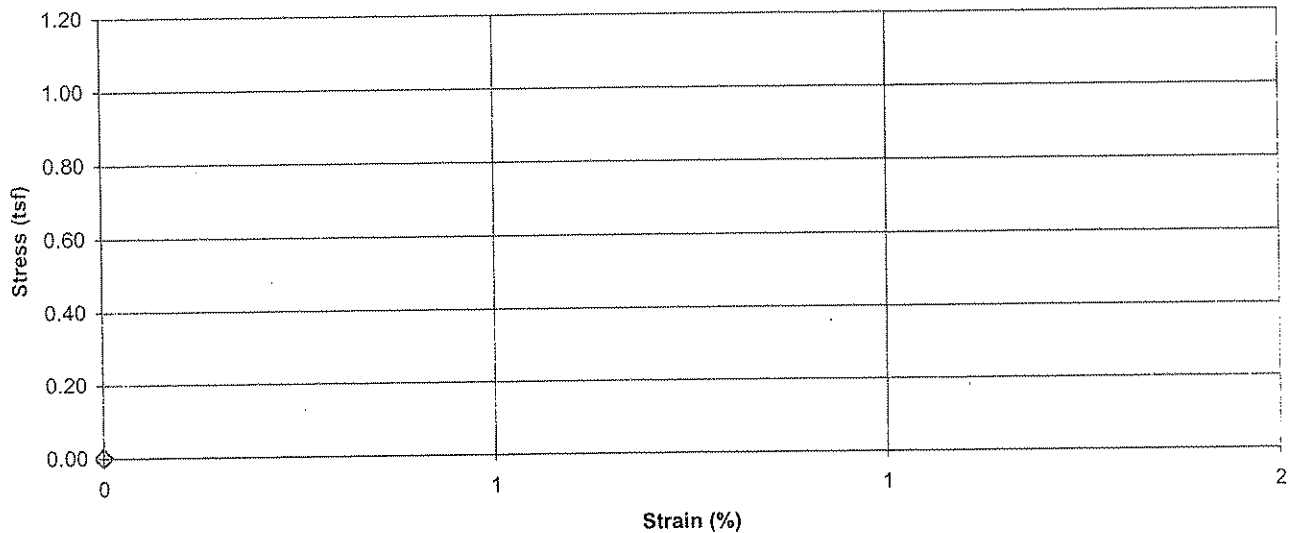
Initial Wet Density (pcf) 116.2
 Initial Dry Density (pcf) 92.5
 Initial Moisture Content, 40°C (%) 25.5
 Initial Moisture Content, 200°C (%) 39.8
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.687
 Average Diameter (in) 2.868
 Height to Diameter Ratio 2.0

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc
Weight of cylinder and material 1795.91g
Average height of cut cylinder 7.141"

Reviewed By



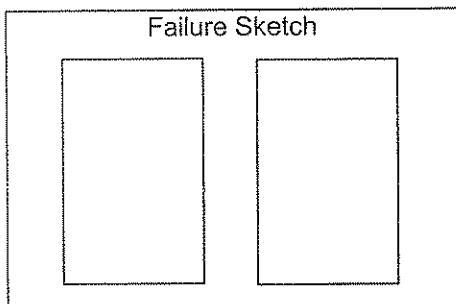
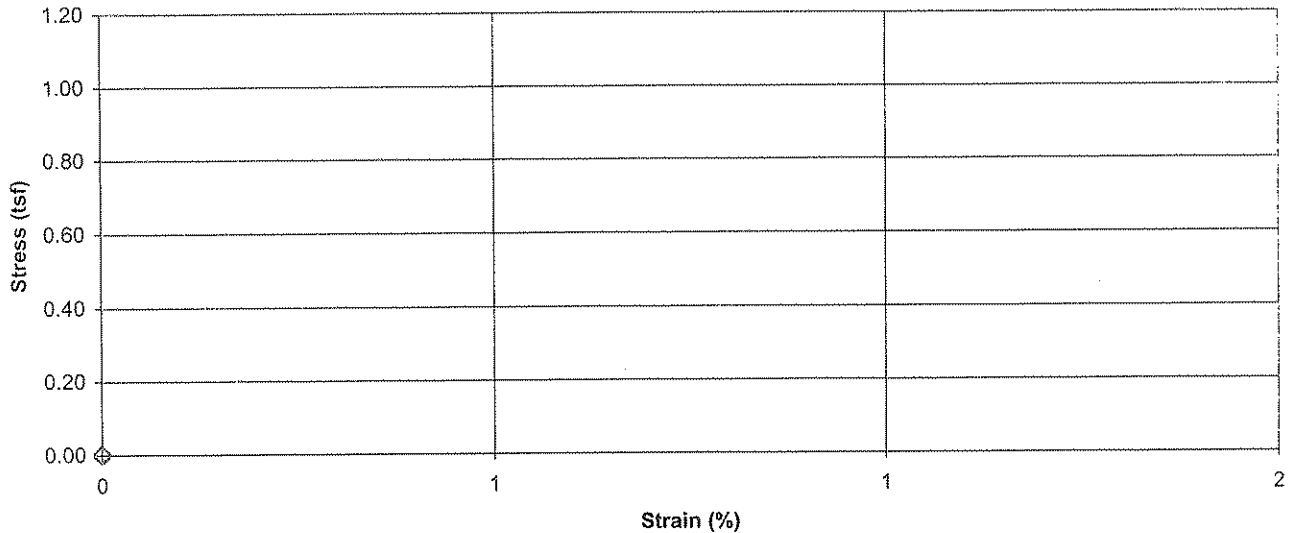
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 37.0'-39.0' Lab ID 763C
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 38.4' - 38.9'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
Initial Wet Density (pcf) <u>114.3</u>	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Dry Density (pcf) <u>90.9</u>	PI <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>25.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content, 200°C (%) <u>39.6</u>	At Test MC Taken <u>N/A</u>	
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Degree of Saturation (%) <u>N/A</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.877</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Average Diameter (in) <u>2.808</u>	Strain rate to failure (% / min.) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>		

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



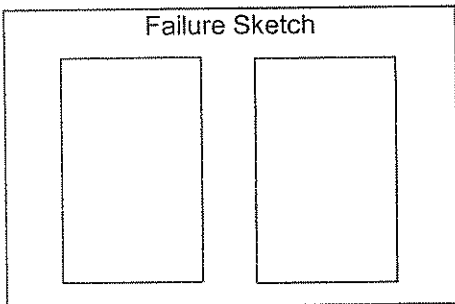
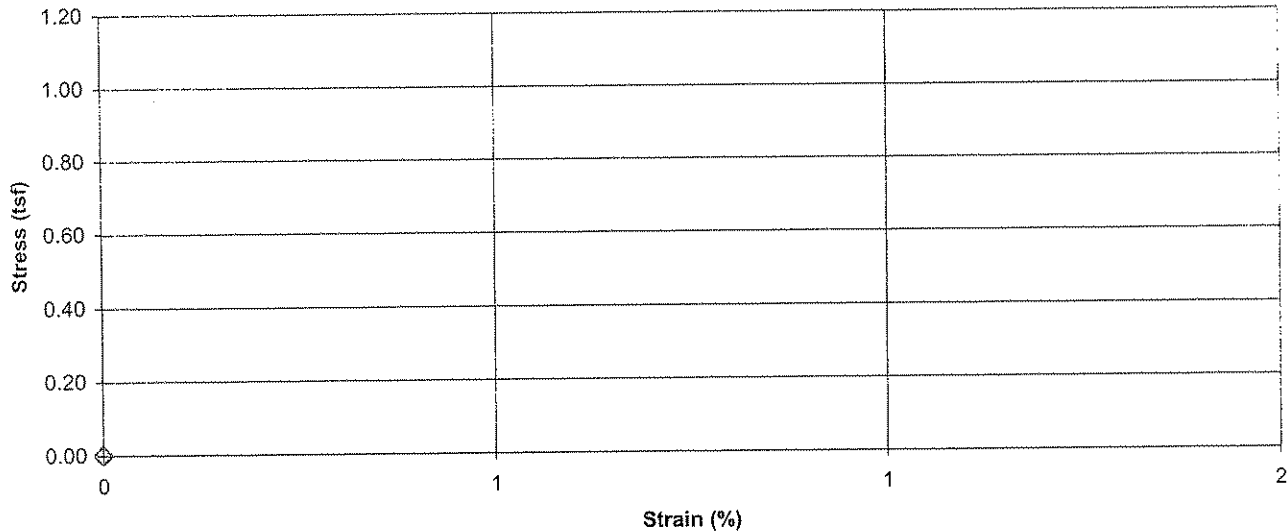
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 49.5'-51.5' Lab ID 764A
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 49.5' - 50.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>115.3</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>93.3</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>23.6</u>		
Initial Moisture Content, 200°C (%) <u>35.8</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.926</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.883</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 49.5'-51.5' Lab ID 764B
 Visual Description Silt (ML), gray, wet, soft, flyash

Recovered 0.6'
 Test Interval 50.1' - 50.6'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

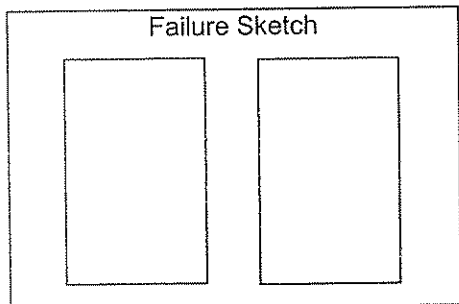
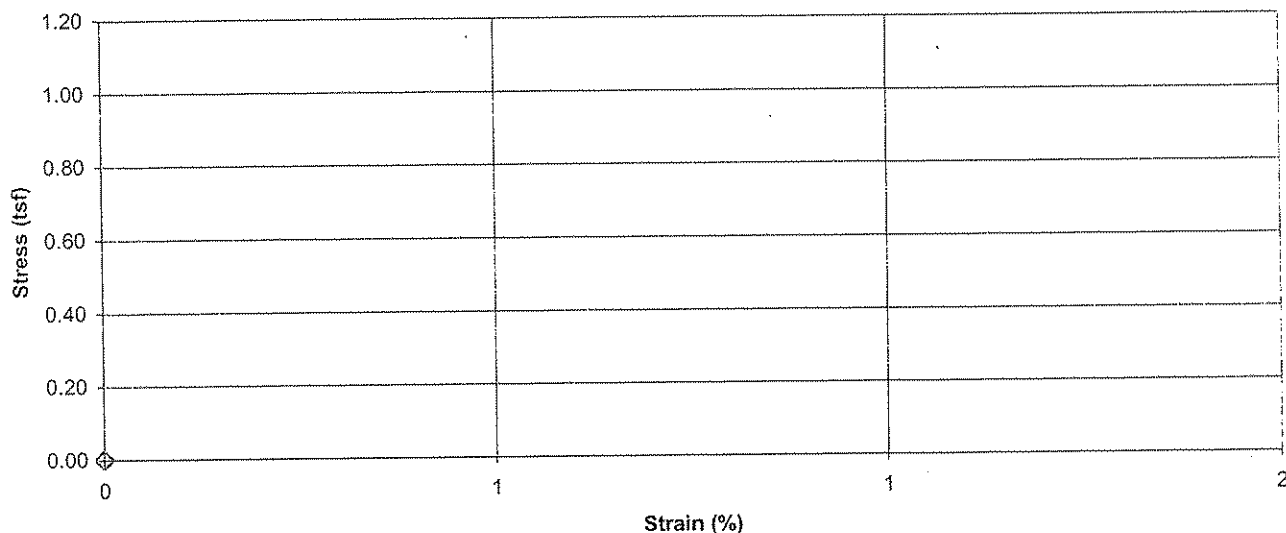
Date Extruded 03/16/2009
 Date Tested N/A

Initial Wet Density (pcf) 114.2
 Initial Dry Density (pcf) 88.7
 Initial Moisture Content, 40°C (%) 28.8
 Initial Moisture Content, 200°C (%) 46.0
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.984
 Average Diameter (in) 2.842
 Height to Diameter Ratio 2.1

Initial MC Taken Before Test, From Trimmings
 At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-39 (sed. Gyp), 49.5'-51.5' Lab ID 764C
 Visual Description Silt (ML), dark gray, wet, soft, flyash

Recovered 0.6'
 Test Interval 50.7' - 51.2'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

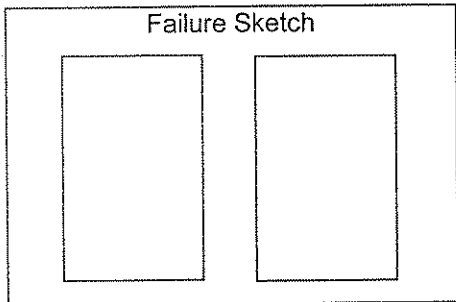
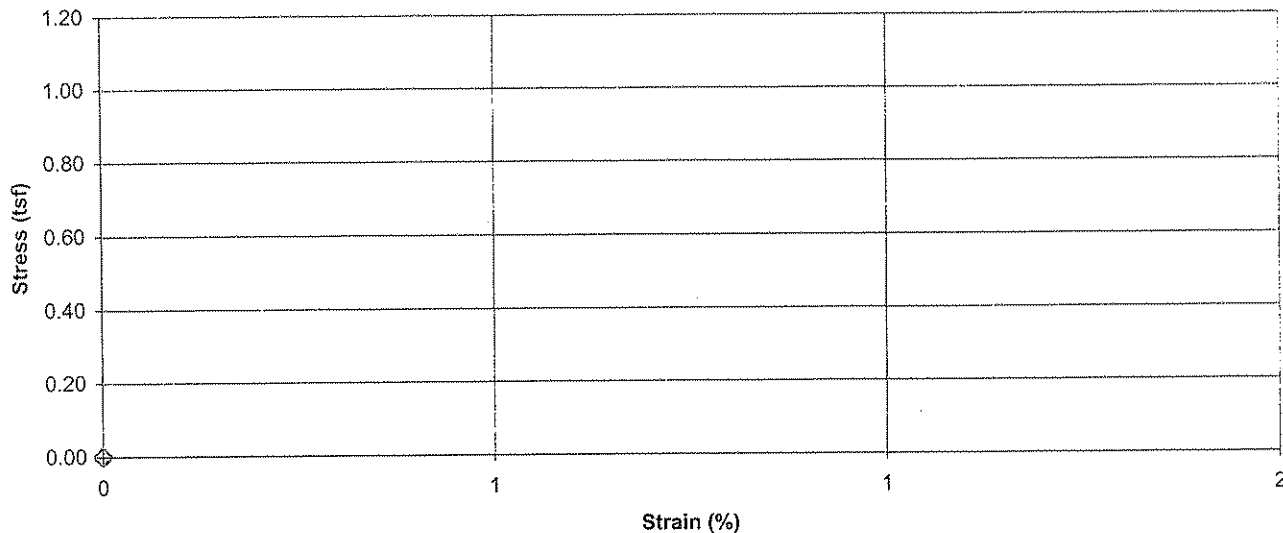
Initial Wet Density (pcf) 102.9
 Initial Dry Density (pcf) 68.4
 Initial Moisture Content, 40°C (%) 50.5
 Initial Moisture Content, 200°C (%) 59.3
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.842
 Average Diameter (in) 2.902
 Height to Diameter Ratio 2.0

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Reviewed By



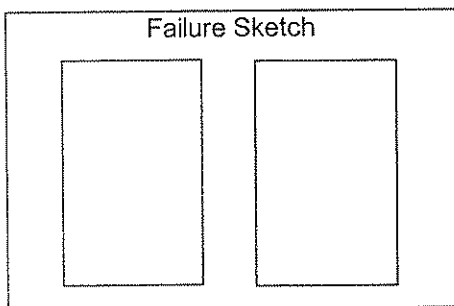
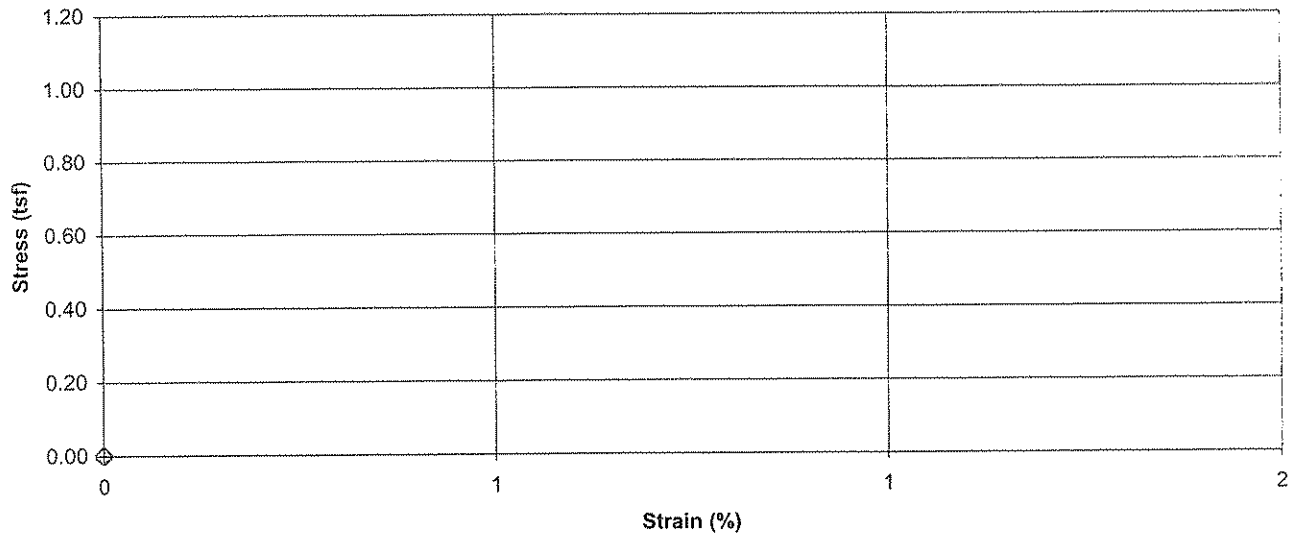
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B41 (cast gyp), 22.0'-24.0' Lab ID 765A
 Visual Description Silt (ML), gray to dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 22.1' - 22.6'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>106.9</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>80.6</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>32.7</u>		
Initial Moisture Content, 200°C (%) <u>45.5</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.847</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.984</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B41 (cast gyp), 22.0'-24.0' Lab ID 765B
 Visual Description Silt (ML), dark gray, wet, soft, flyash

Recovered 0.6'
 Test Interval 22.7' - 23.2'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

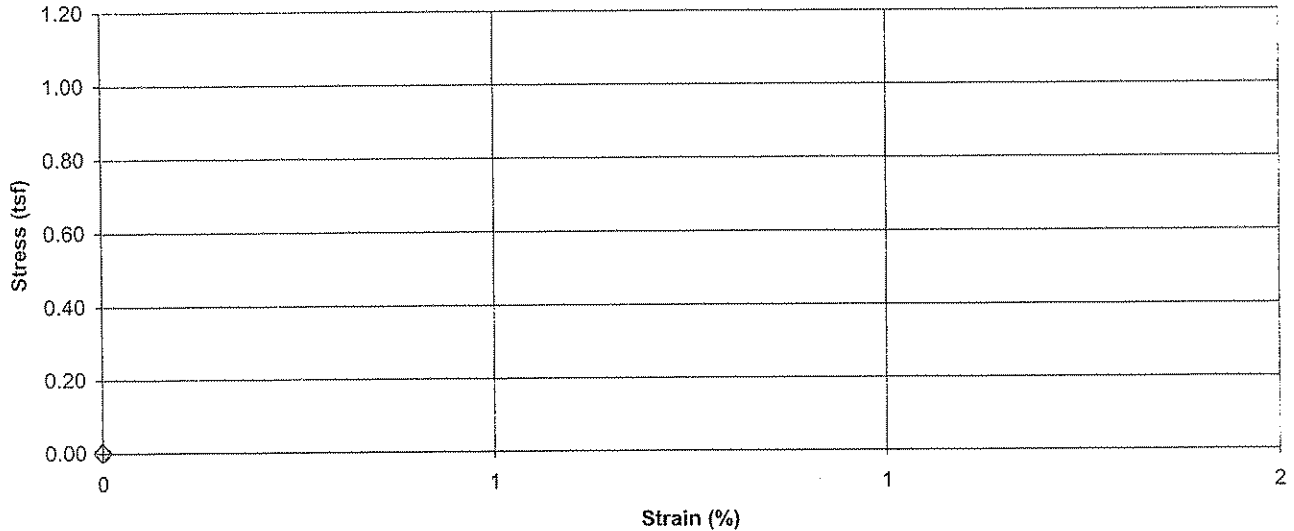
Initial Wet Density (pcf) 104.0
 Initial Dry Density (pcf) 65.8
 Initial Moisture Content, 40°C (%) 57.9
 Initial Moisture Content, 200°C (%) 69.9
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.669
 Average Diameter (in) 2.940
 Height to Diameter Ratio 1.9

Initial MC Taken Before Test, From Trimmings

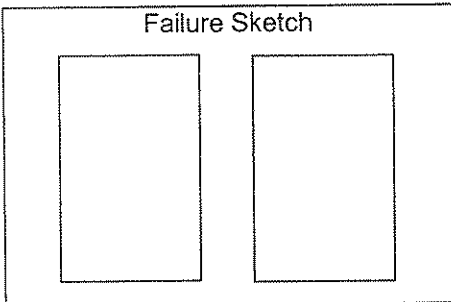
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Reviewed By



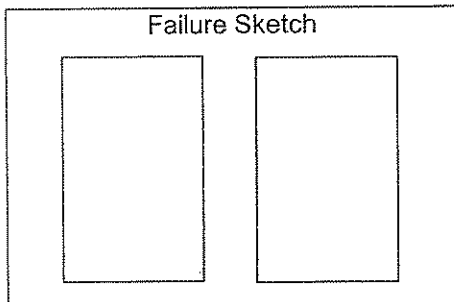
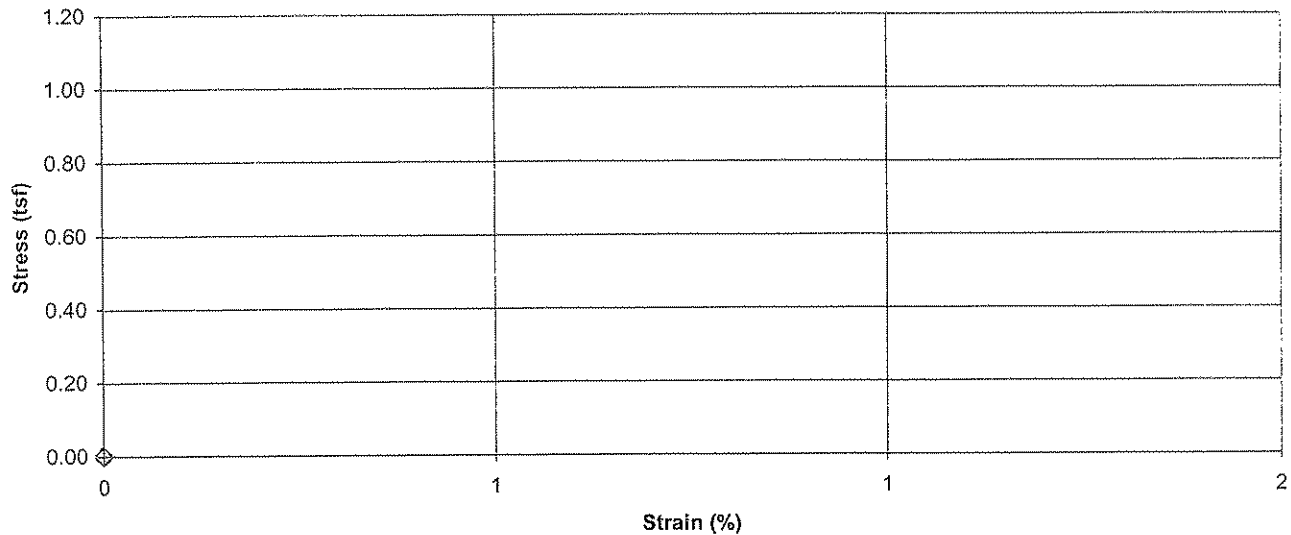
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B41 (cast gyp), 22.0'-24.0' Lab ID 765C
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 23.3' - 23.8'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>111.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>71.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>55.5</u>		
Initial Moisture Content, 200°C (%) <u>71.0</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.939</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.849</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



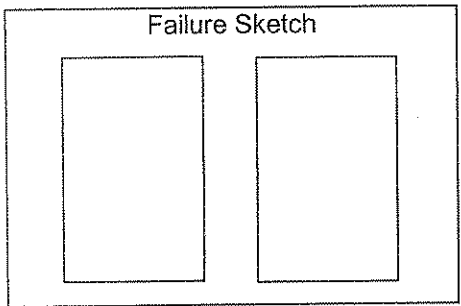
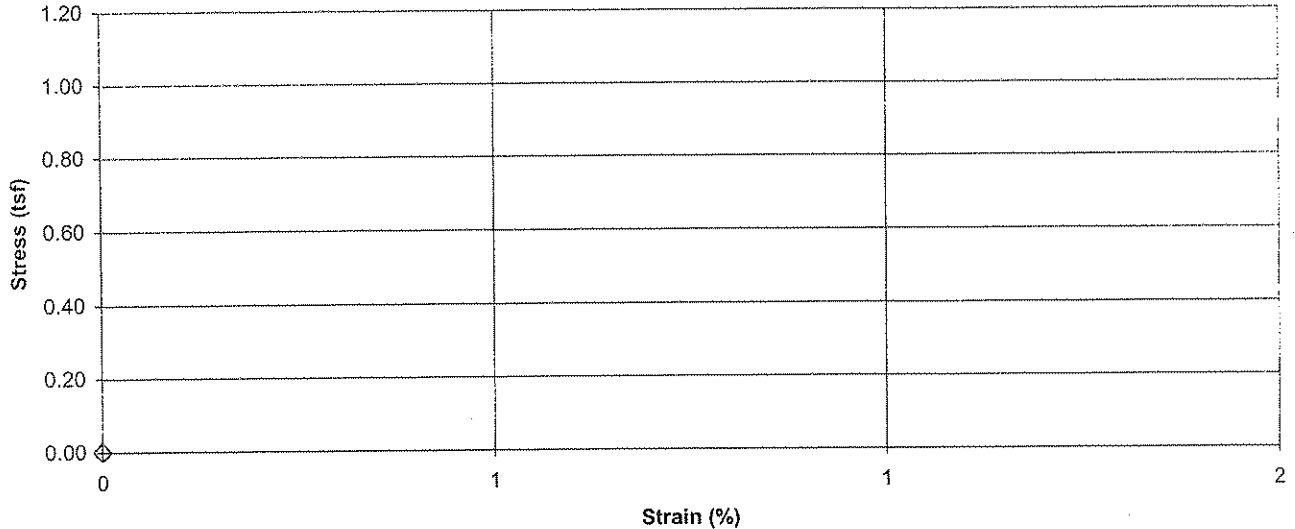
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B42 (sed. Gyp), 32.5'-34.5' Lab ID 770A
 Visual Description Silt (ML), dark gray, wet, soft, flyash

Recovered 0.6'
 Test Interval 32.7' - 33.2'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>121.6</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>100.0</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>21.6</u>		
Initial Moisture Content, 200°C (%) <u>38.7</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.718</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.930</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B42 (sed. Gyp), 32.5'-34.5' Lab ID 770B
 Visual Description Silt (ML), dark gray, wet, soft, flyash with pockets of gypsum

Recovered 0.6'
 Test Interval 33.3' - 33.8'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

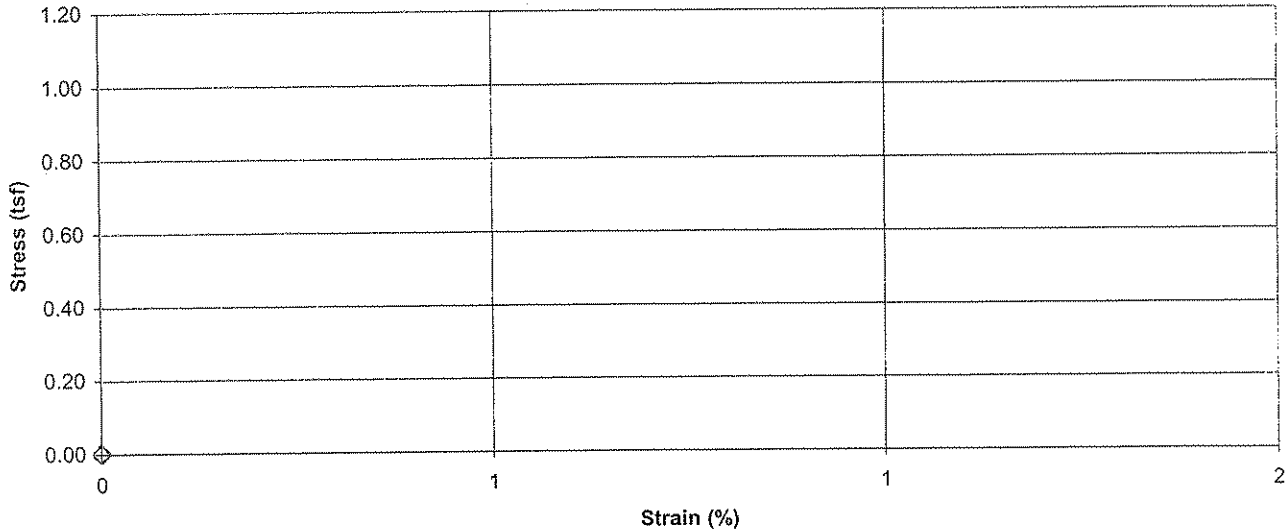
Initial Wet Density (pcf) 120.9
 Initial Dry Density (pcf) 99.0
 Initial Moisture Content, 40°C (%) 22.2
 Initial Moisture Content, 200°C (%) 38.5
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.742
 Average Diameter (in) 2.915
 Height to Diameter Ratio 2.0

Initial MC Taken Before Test, From Trimmings

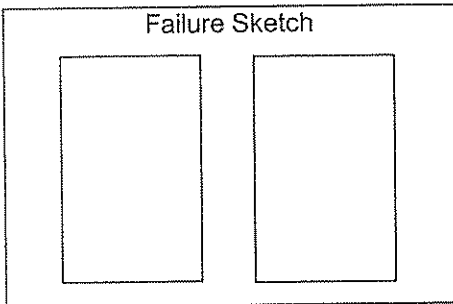
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Weight of cylinder and material 1968.75g

Average height of cut cylinder 7.1820"

Reviewed By *[Signature]*



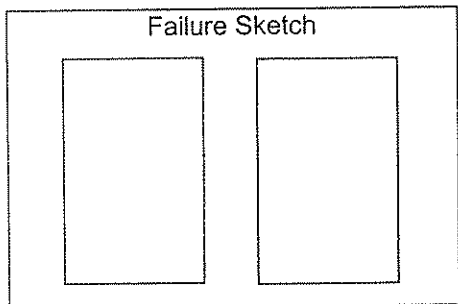
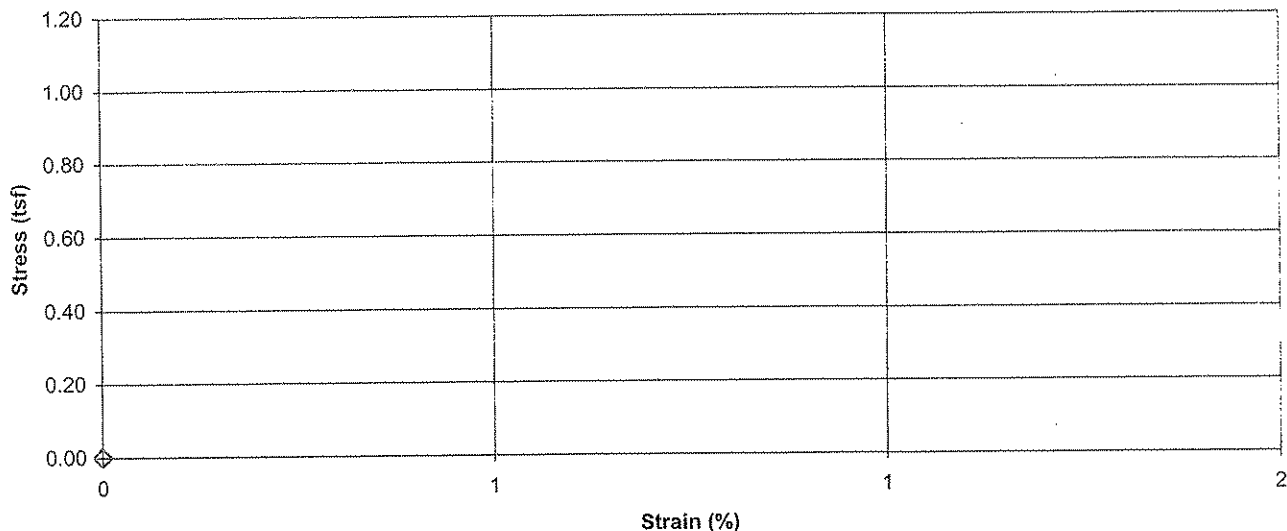
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B42 (sed. Gyp), 32.5'-34.5' Lab ID 770C
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 33.9' - 34.4'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>118.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>100.0</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>18.3</u>		
Initial Moisture Content, 200°C (%) <u>31.5</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.121</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.824</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.2</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc
Weight of cylinder and material 1982.79g
Average height of cut cylinder 7.171"

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B44 (cast Gyp), 22.0'-24.0' Lab ID 778
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 22.2' - 22.7'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

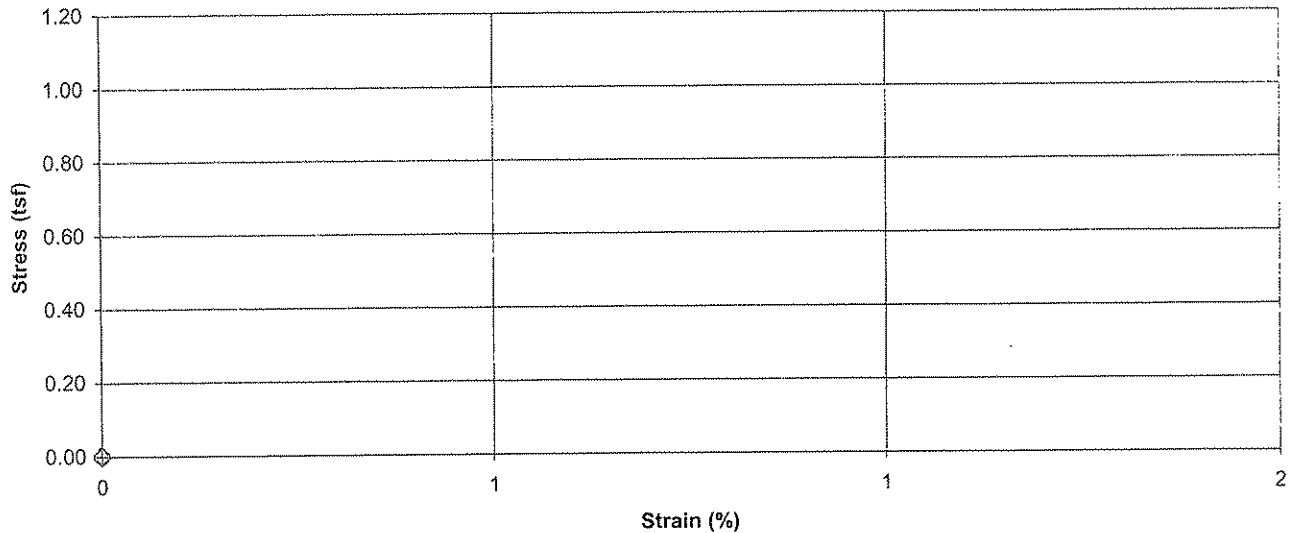
Initial Wet Density (pcf) 110.9
 Initial Dry Density (pcf) 86.6
 Initial Moisture Content, 40°C (%) 28.0
 Initial Moisture Content, 200°C (%) 43.2
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.615
 Average Diameter (in) 2.993
 Height to Diameter Ratio 1.9

Initial MC Taken Before Test, From Trimmings

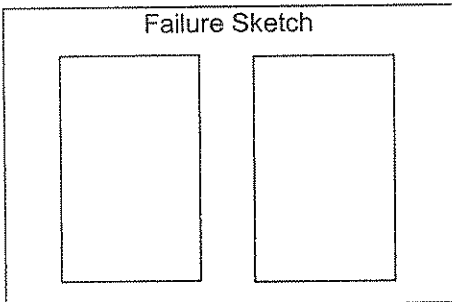
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Weight of cylinder and material 1826.17 g

Average height of cut cylinder 7.229"

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B44 (sed. Gyp), 52.0'-54.0' Lab ID 780A
 Visual Description Silt (ML), dark gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 52.2' - 52.7'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

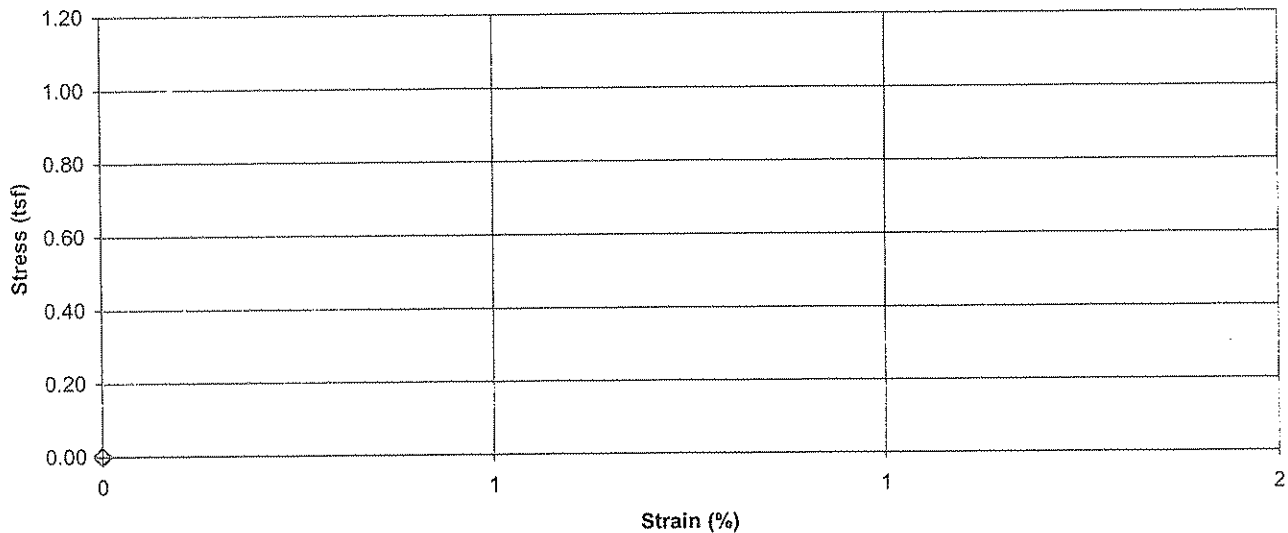
Initial Wet Density (pcf) 106.1
 Initial Dry Density (pcf) 75.8
 Initial Moisture Content, 40°C (%) 39.9
 Initial Moisture Content, 200°C (%) 53.7
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.547
 Average Diameter (in) 3.043
 Height to Diameter Ratio 1.8

Initial MC Taken Before Test, From Trimmings

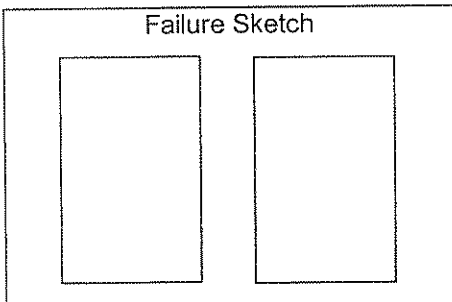
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Weight of cylinder and material 1761.85g

Average height of cut cylinder 7.1853"

Reviewed By



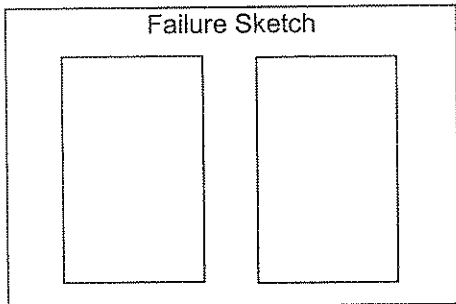
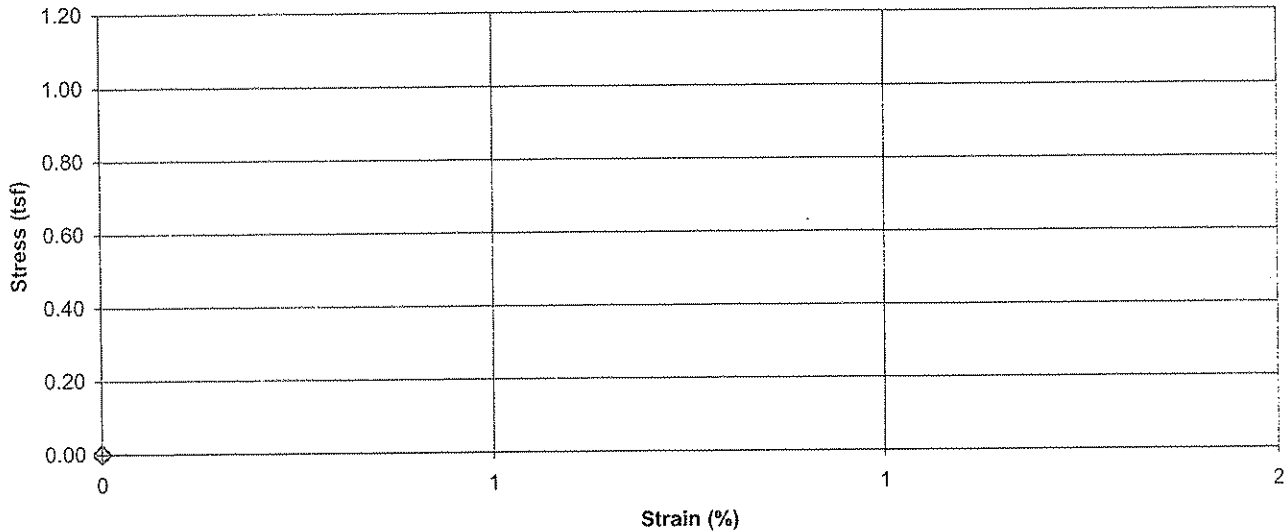
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B44 (sed. Gyp), 52.0'-54.0' Lab ID 780B
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 52.8' - 53.3'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/16/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>94.9</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>63.0</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>50.7</u>		
Initial Moisture Content, 200°C (%) <u>63.5</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.685</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>3.000</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>1.9</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc
Weight of cylinder and material 1652.90g
Average height of cut cylinder 7.1397"

Reviewed By [Signature]



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B44 (sed. Gyp), 52.0'-54.0' Lab ID 780C
 Visual Description Silt (ML), gray brown, moist, soft, gypsum, minespoil

Recovered 0.6'
 Test Interval 53.4' - 53.9'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/16/2009
 Date Tested N/A

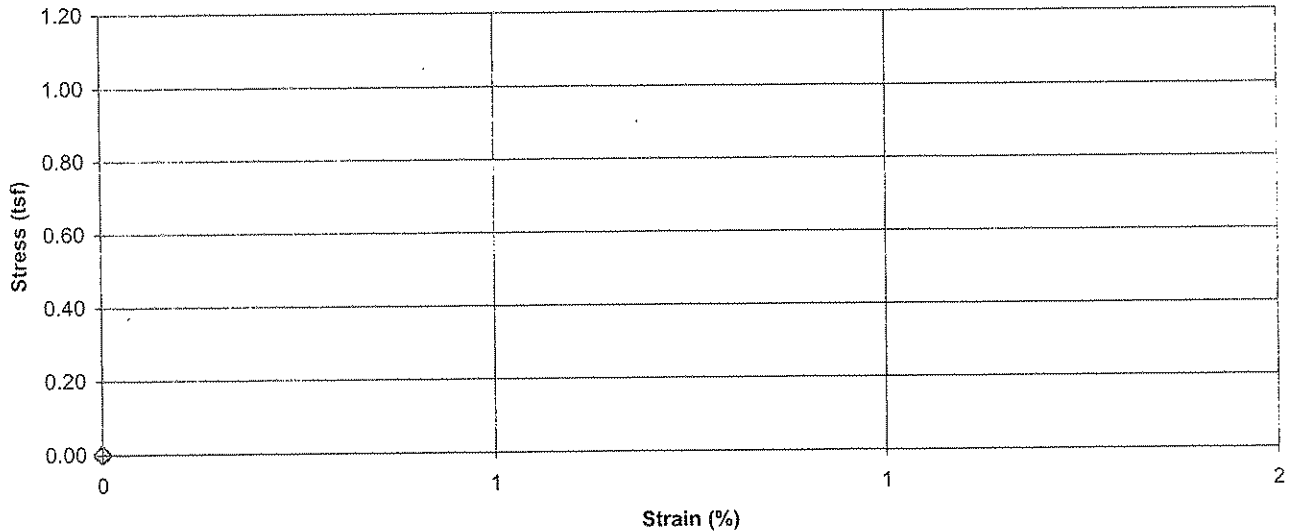
Initial Wet Density (pcf) _____
 Initial Dry Density (pcf) N/A
 Initial Moisture Content, 40°C (%) 24.2
 Initial Moisture Content, 200°C (%) 35.6
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) N/A
 Average Diameter (in) N/A
 Height to Diameter Ratio N/A

Initial MC Taken Before Test, From Trimmings

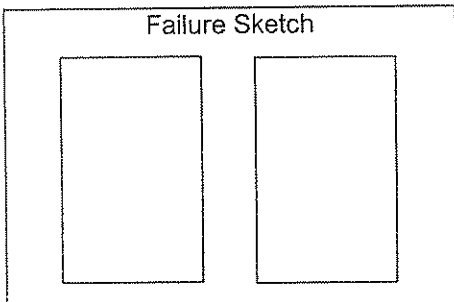
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Weight of cylinder and material 1996.96g

Average height of cut cylinder 7.1830"

Saved in bag.

Reviewed By



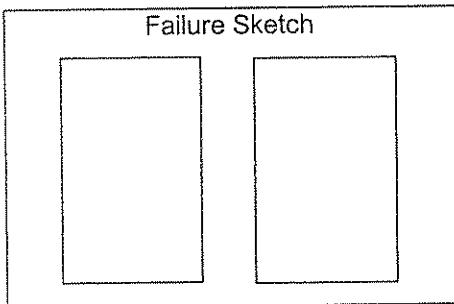
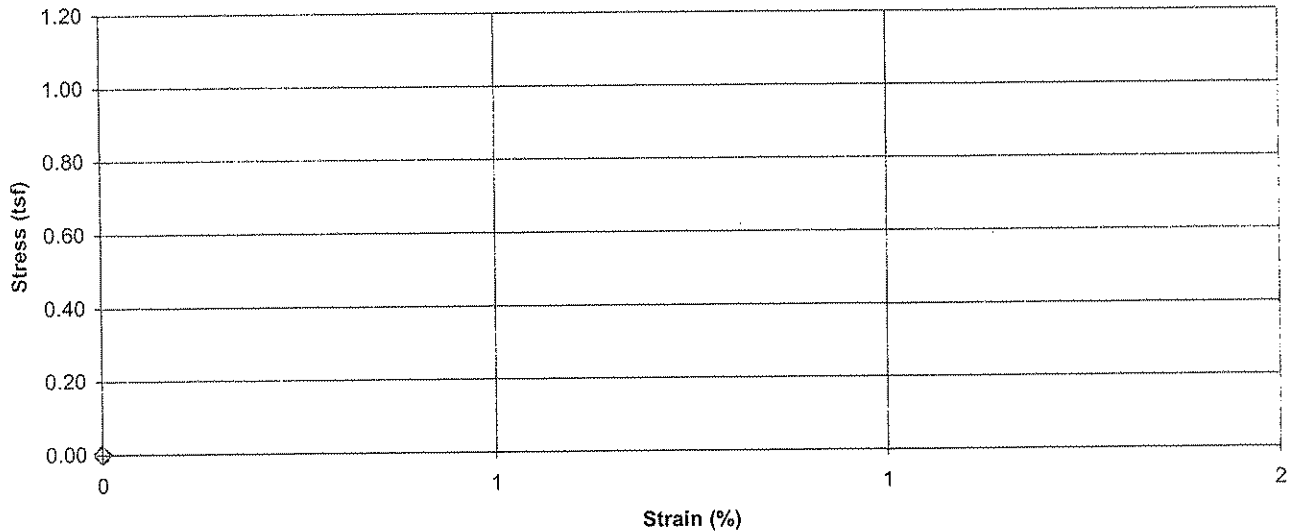
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-33 (sed. Gyp), 15.0'-17.0' Lab ID 782A
 Visual Description Silt (ML), gray, moist, firm, gypsum with pockets of fly ash

Recovered 0.6'
 Test Interval 15.2' - 15.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>116.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>96.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>20.7</u>		
Initial Moisture Content, 200°C (%) <u>35.2</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.153</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.843</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.2</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

 Reviewed By _____



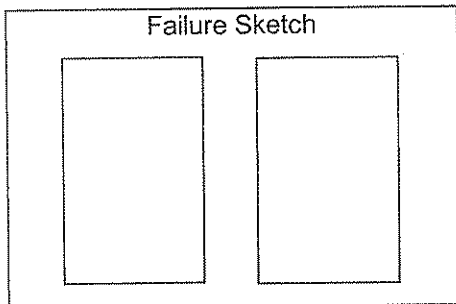
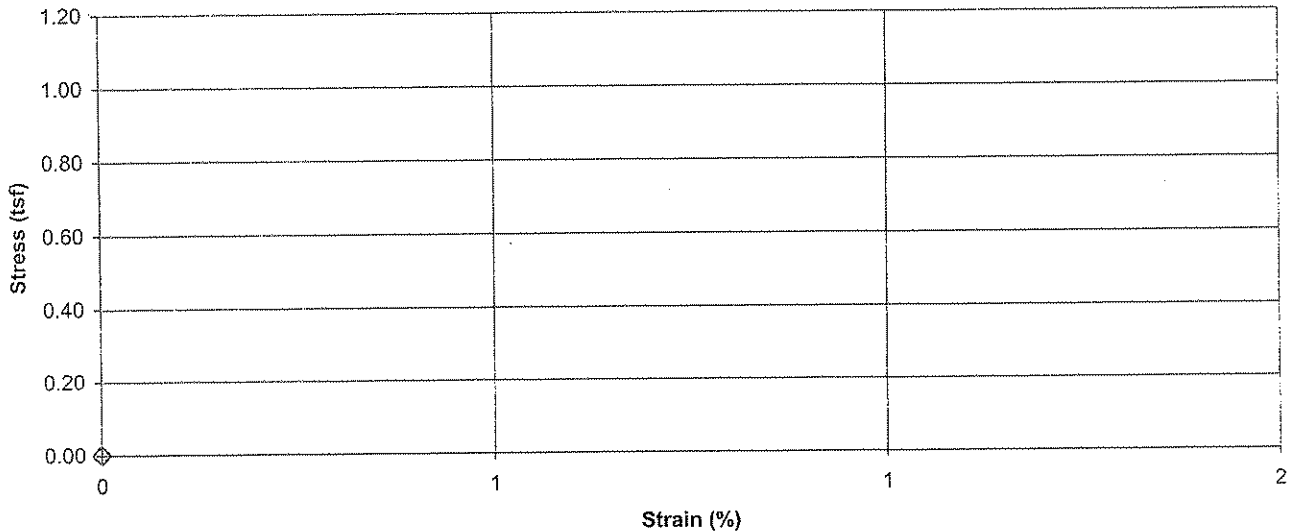
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-33 (sed. Gyp), 15.0'-17.0' Lab ID 782B
 Visual Description Silt (ML), dark gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 15.8' - 16.3'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>108.2</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>81.5</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>32.8</u>		
Initial Moisture Content, 200°C (%) <u>49.0</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.926</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.859</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Unit weight determined using 40° C mc

Reviewed By



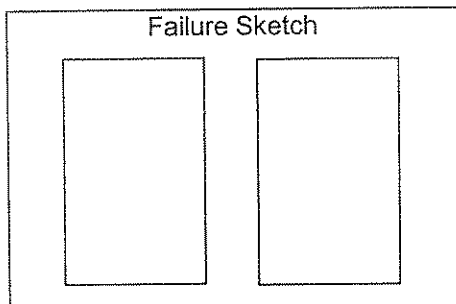
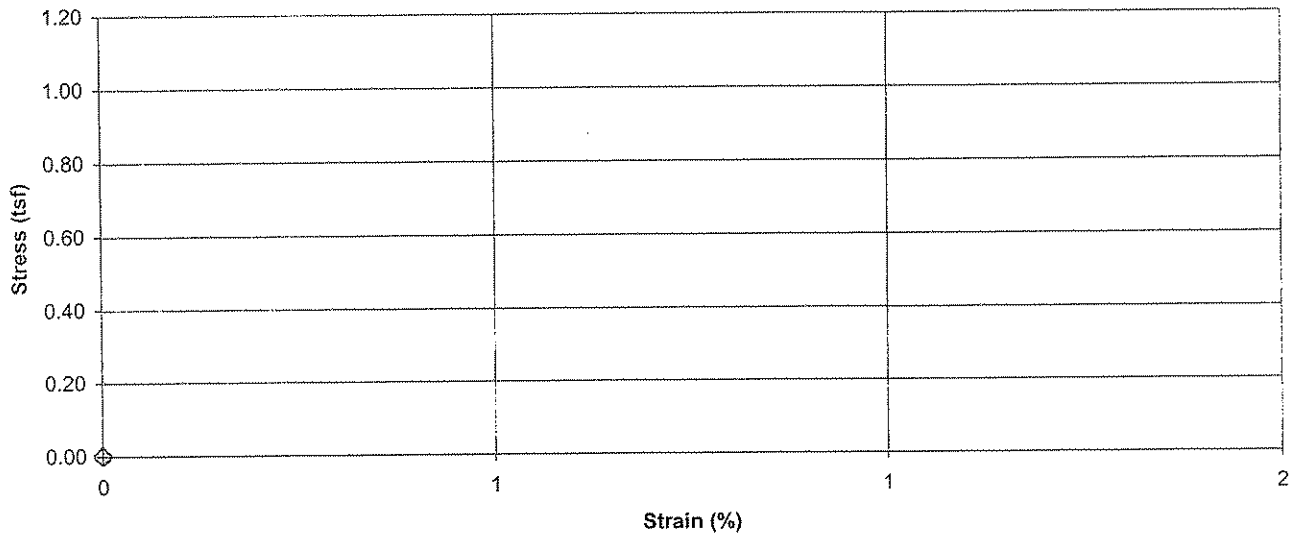
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-33 (sed. Gyp), 15.0'-17.0' Lab ID 782C
 Visual Description Silt (ML), gray, wet, very soft, gypsum

Recovered 0.6'
 Test Interval 16.5' - 17.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>108.3</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>79.8</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>35.7</u>		
Initial Moisture Content, 200°C (%) <u>52.0</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.184</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.836</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.2</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C oven

Reviewed By



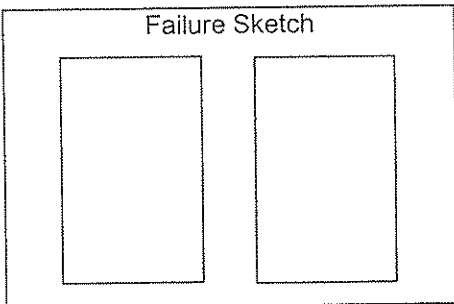
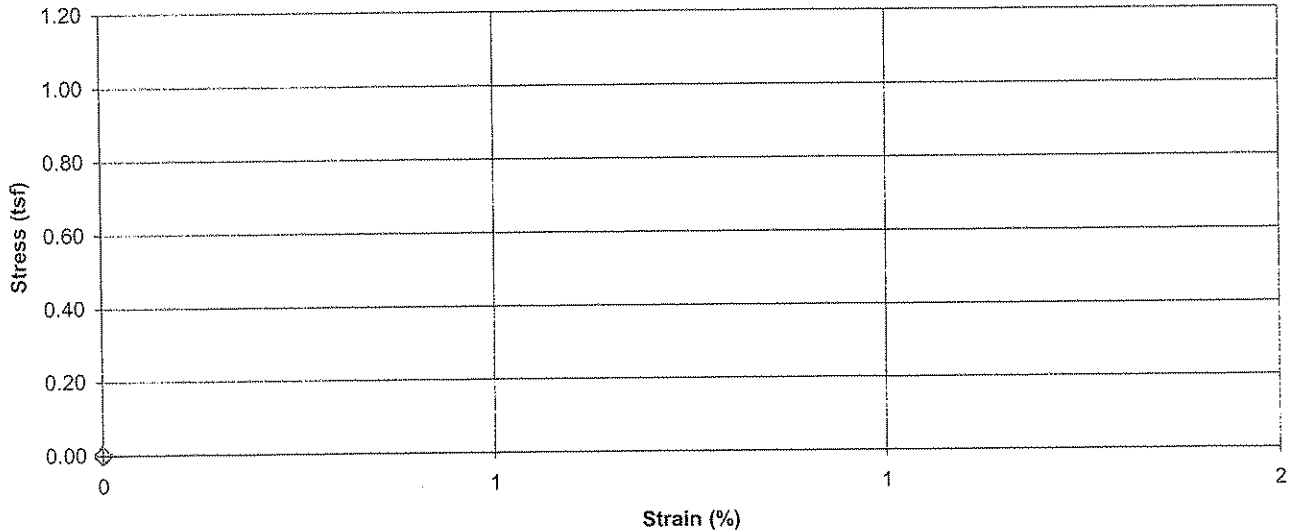
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (cast gyp), 12.0'-13.7' Lab ID 784A
 Visual Description Silt (ML), gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 12.0' - 12.5'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>107.7</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>89.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>20.0</u>		
Initial Moisture Content, 200°C (%) <u>39.1</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.766</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.862</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (cast gyp), 12.0'-13.7' Lab ID 784B
 Visual Description Silt (ML), gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 12.6' - 13.1'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

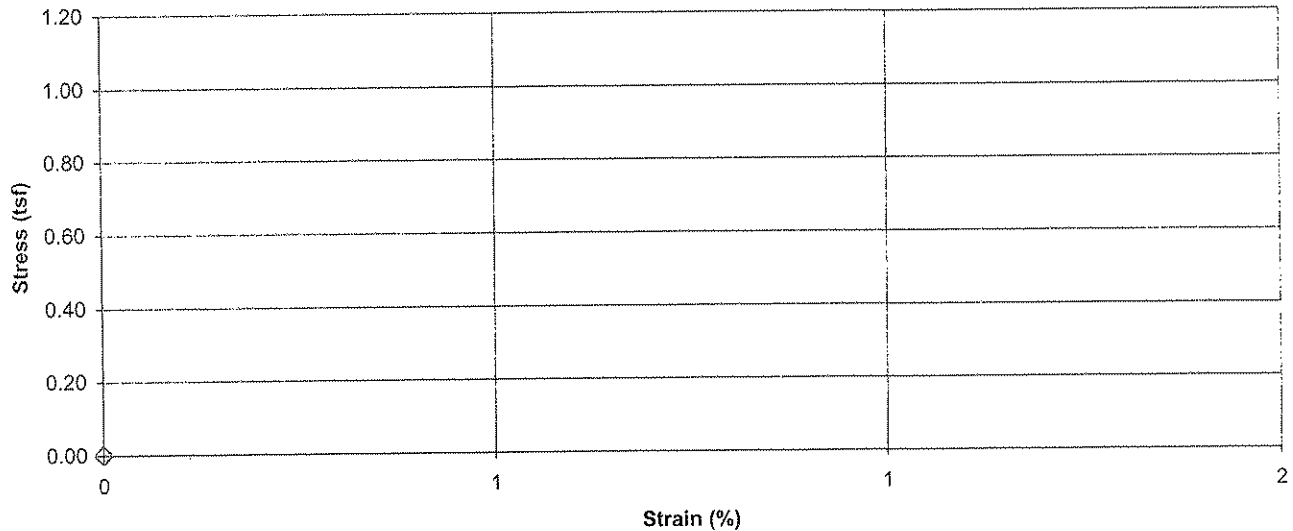
Initial Wet Density (pcf) 104.8
 Initial Dry Density (pcf) 83.5
 Initial Moisture Content, 40°C (%) 25.4
 Initial Moisture Content, 200°C (%) 50.5
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 6.213
 Average Diameter (in) 2.858
 Height to Diameter Ratio 2.2

Initial MC Taken Before Test, From Trimmings

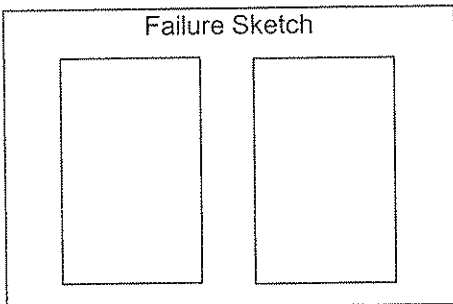
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Pant Project Number 171468118
 Source B-38 (cast gyp), 12.0'-13.7' Lab ID 784C
 Visual Description Silt (ML), gray, moist, soft, (gypsum)

Recovered 0.6'
 Test Interval 13.2' - 13.7'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

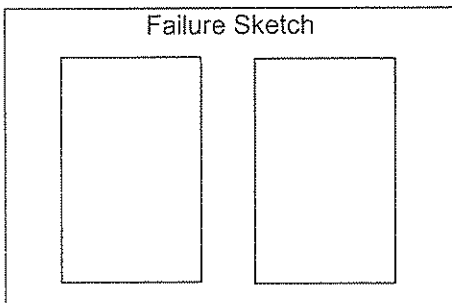
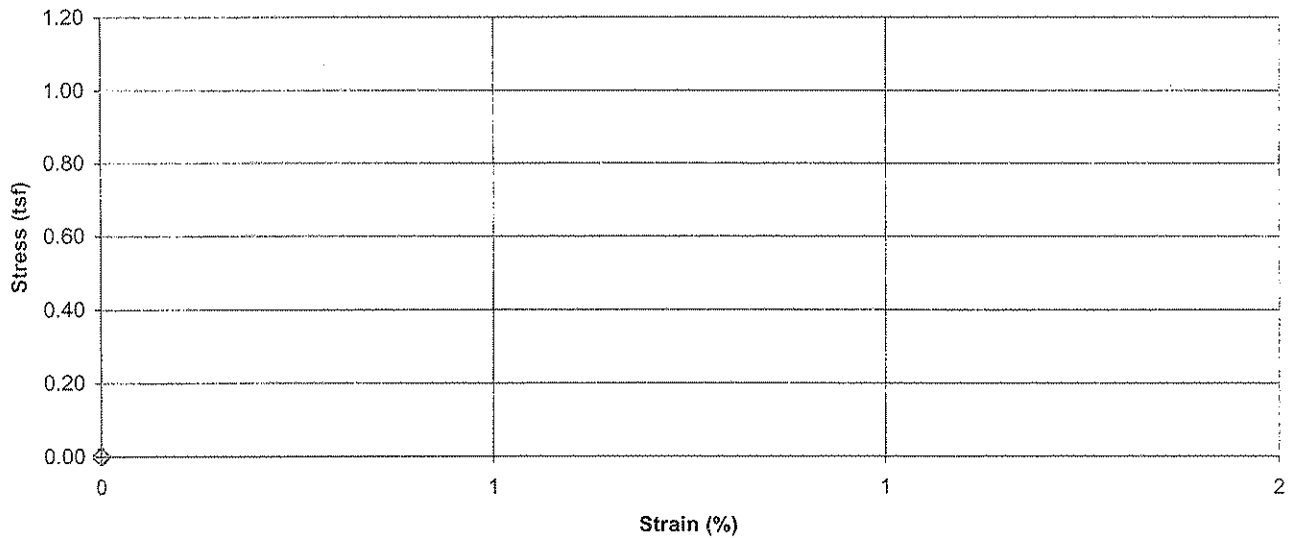
Initial Wet Density (pcf) 107.5
 Initial Dry Density (pcf) 84.4
 Initial Moisture Content, 40°C (%) 27.4
 Initial Moisture Content, 200°C (%) 47.5
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 6.163
 Average Diameter (in) 2.822
 Height to Diameter Ratio 2.2

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dry unit weight determined using 40° C mc

Reviewed By



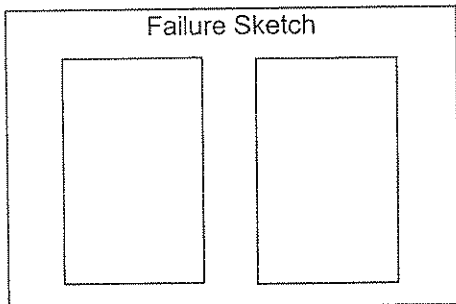
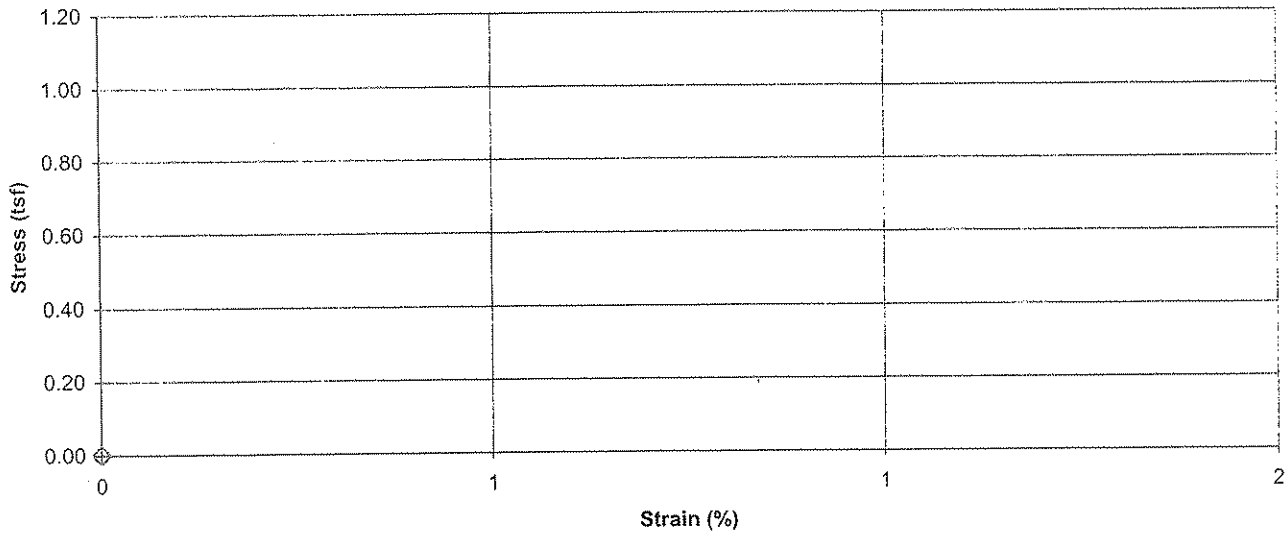
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (sed. Gyp), 71.0'-73.0' Lab ID 786A
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 71.2' - 71.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>113.6</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>86.3</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>31.7</u>		
Initial Moisture Content, 200°C (%) <u>50.9</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.085</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.867</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry unit weight determined using 40° C mc

Reviewed By



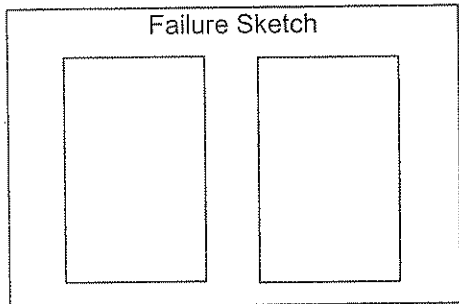
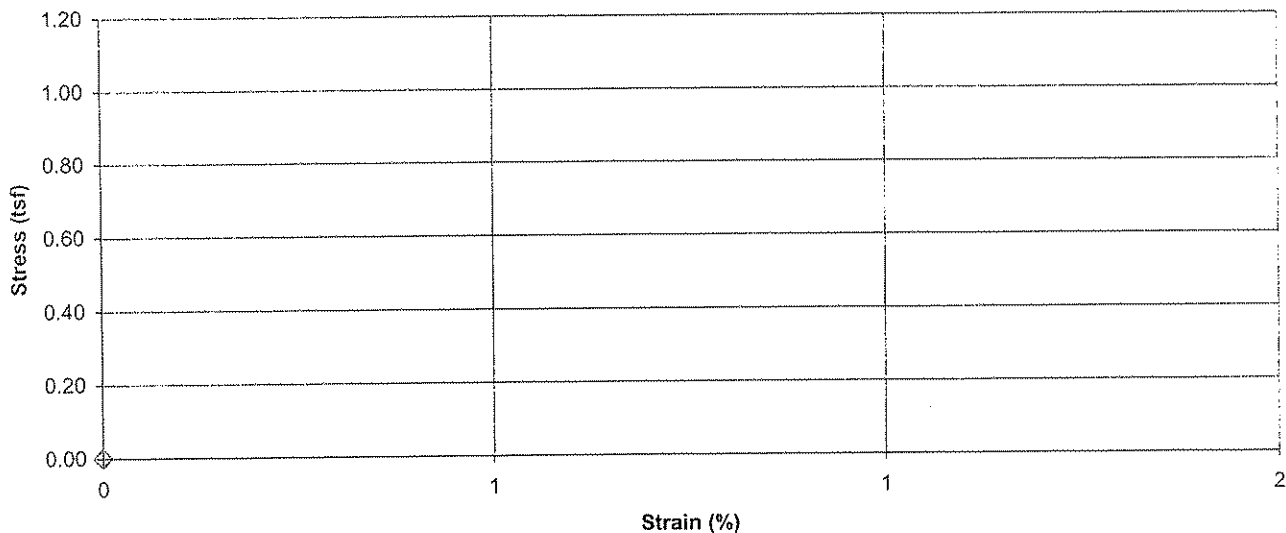
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (sed. Gyp), 71.0'-73.0' Lab ID 786B
 Visual Description Silt (ML), gray, moist, firm

Recovered 0.6'
 Test Interval 71.8' - 72.3'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>109.6</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>80.3</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>36.4</u>		
Initial Moisture Content, 200°C (%) <u>53.8</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.111</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.855</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (sed. Gyp), 71.0'-73.0' Lab ID 786C
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 72.4' - 72.9'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

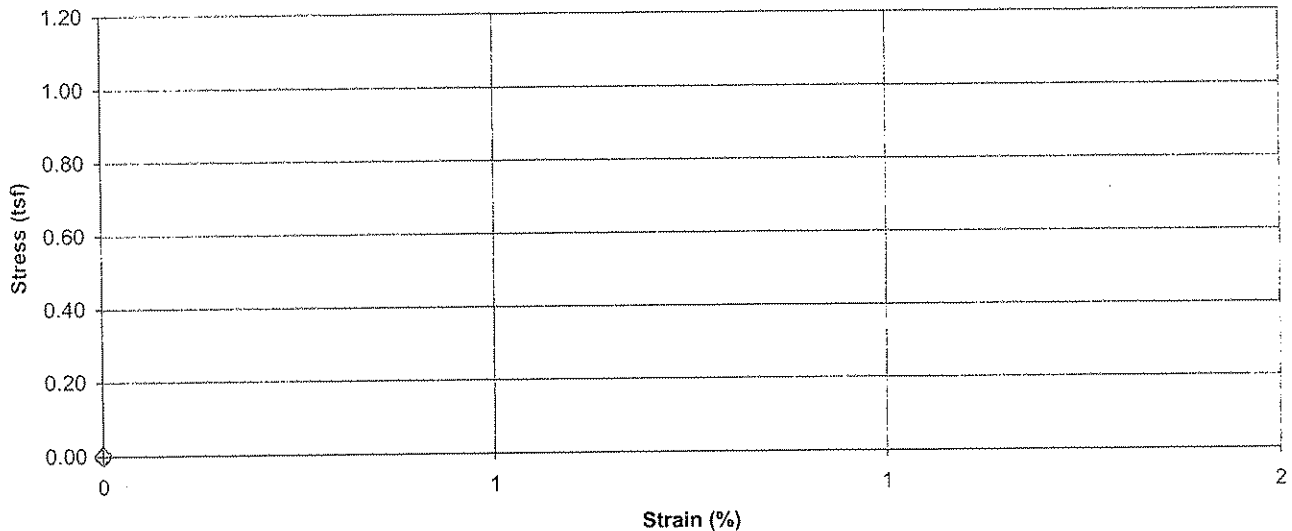
Initial Wet Density (pcf) 110.9
 Initial Dry Density (pcf) 86.6
 Initial Moisture Content, 40°C (%) 28.1
 Initial Moisture Content, 200°C (%) 45.6
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.969
 Average Diameter (in) 2.861
 Height to Diameter Ratio 2.1

Initial MC Taken Before Test, From Trimmings

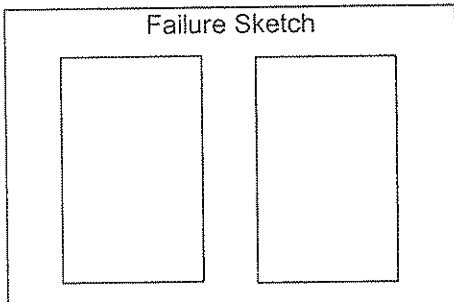
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry Unit Weight determined using 40° C mc

Reviewed By *[Signature]*



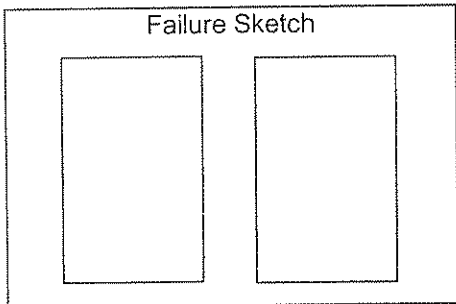
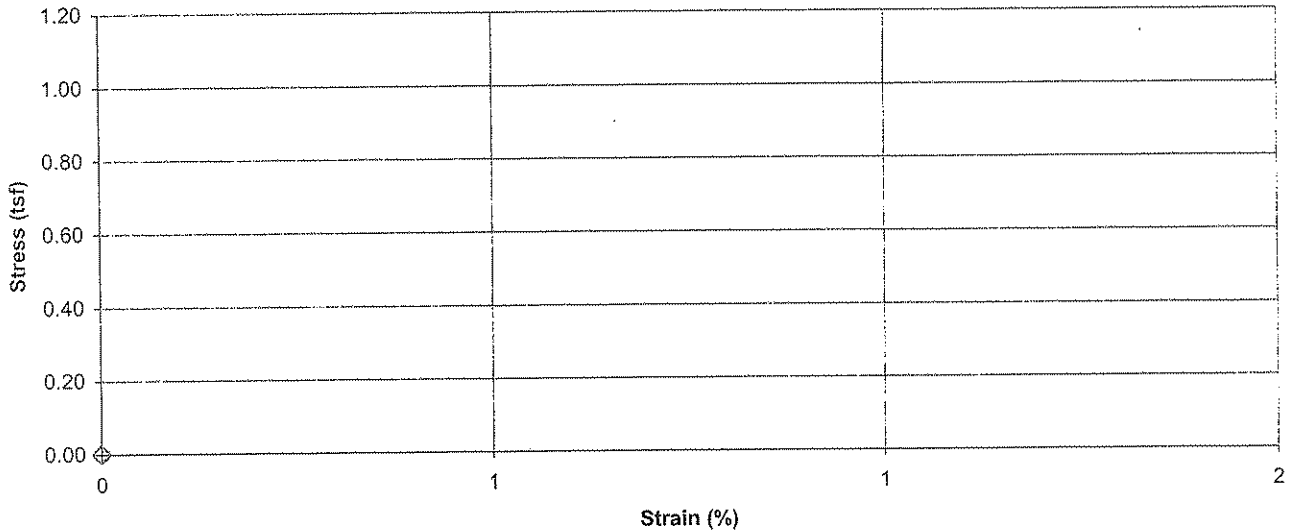
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Willows Creek Fossil Plant Project Number 171468118
 Source B-47 (cast gyp), 35.0'-37.0' Lab ID 790A
 Visual Description Silt (ML), gray to dark gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 35.1' - 35.6'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
Initial Wet Density (pcf) _____	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Dry Density (pcf) <u>N/A</u>	PI <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>35.0</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content, 200°C (%) <u>47.1</u>	At Test MC Taken <u>N/A</u>	
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Degree of Saturation (%) <u>N/A</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Height (in) <u>N/A</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Average Diameter (in) <u>N/A</u>	Strain rate to failure (% / min.) <u>N/A</u>	
Height to Diameter Ratio <u>N/A</u>		

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Sample very soft
Saved in bag

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-47 (cast gyp), 35.0'-37.0' Lab ID 790B
 Visual Description Silt (ML), dark gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 35.7' - 36.2'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

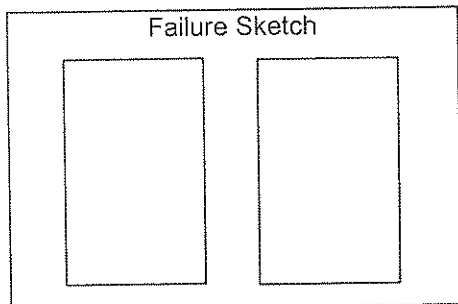
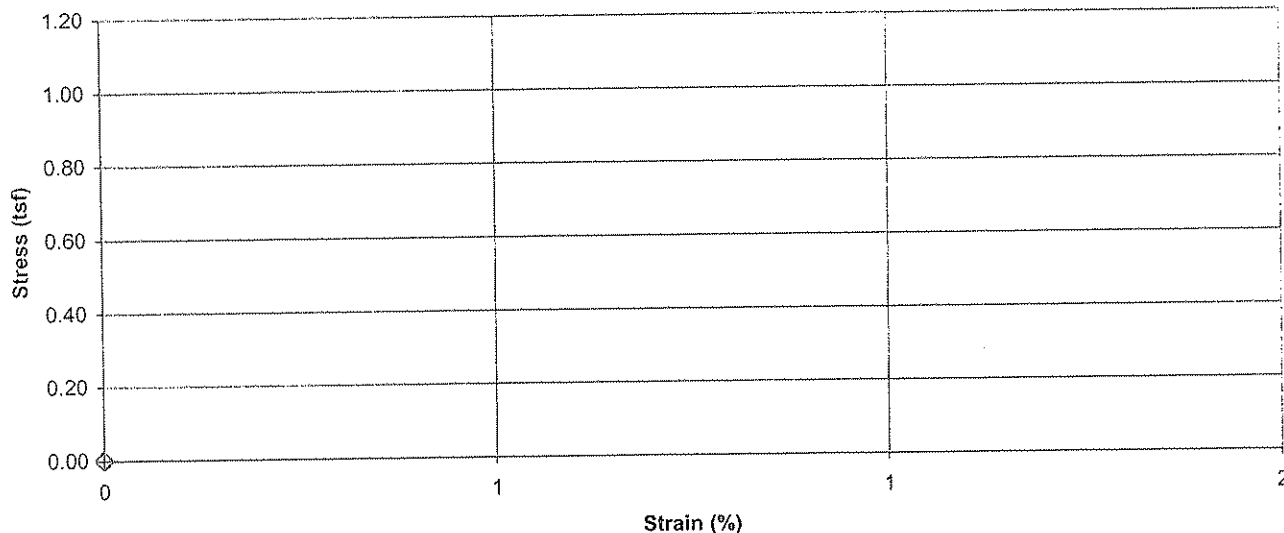
Date Extruded 03/18/2009
 Date Tested N/A

Initial Wet Density (pcf) 100.6
 Initial Dry Density (pcf) 76.5
 Initial Moisture Content, 40°C (%) 31.5
 Initial Moisture Content, 200°C (%) 43.4
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.541
 Average Diameter (in) 3.124
 Height to Diameter Ratio 1.8

Initial MC Taken Before Test, From Trimmings
 At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry Unit Weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-47 (cast gyp), 35.0'-37.0' Lab ID 790C
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 36.3' - 36.8'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

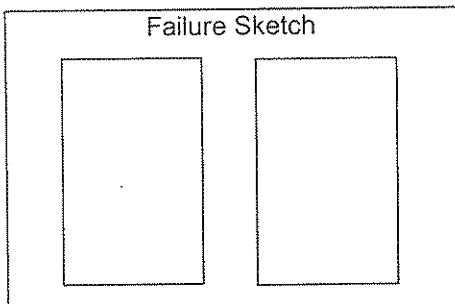
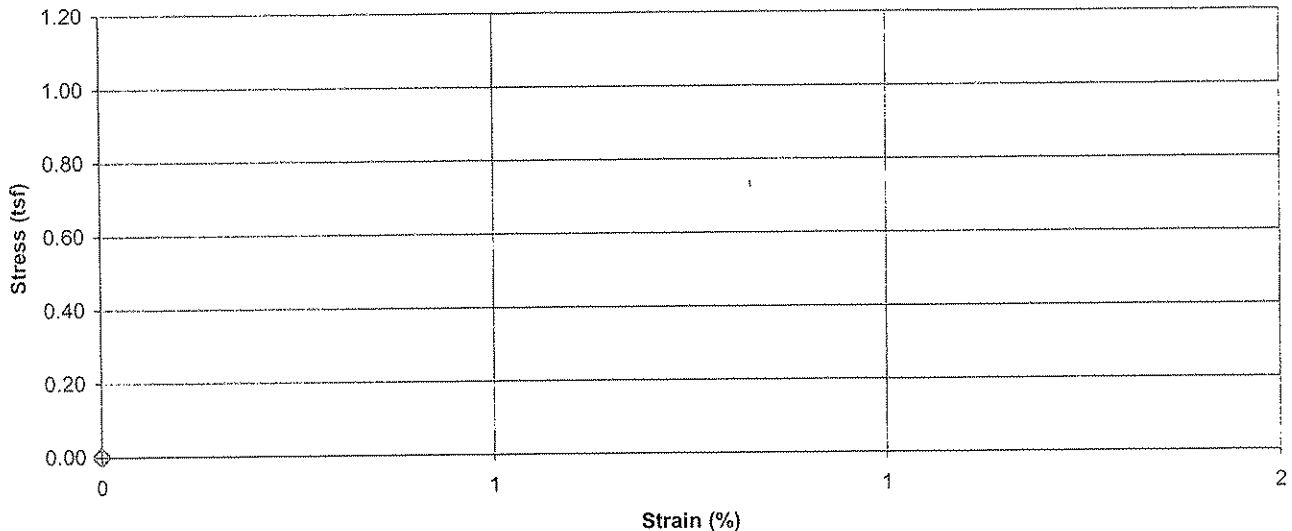
Initial Wet Density (pcf) 114.4
 Initial Dry Density (pcf) 91.5
 Initial Moisture Content, 40°C (%) 25.0
 Initial Moisture Content, 200°C (%) 41.8
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 6.022
 Average Diameter (in) 2.823
 Height to Diameter Ratio 2.1

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry Unit Weight determined using 40° C mc

Reviewed By



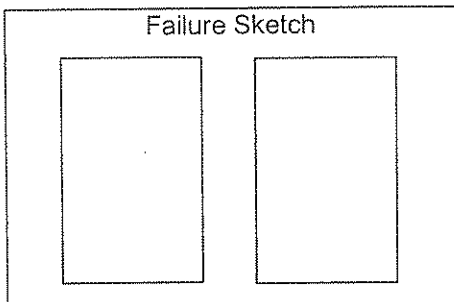
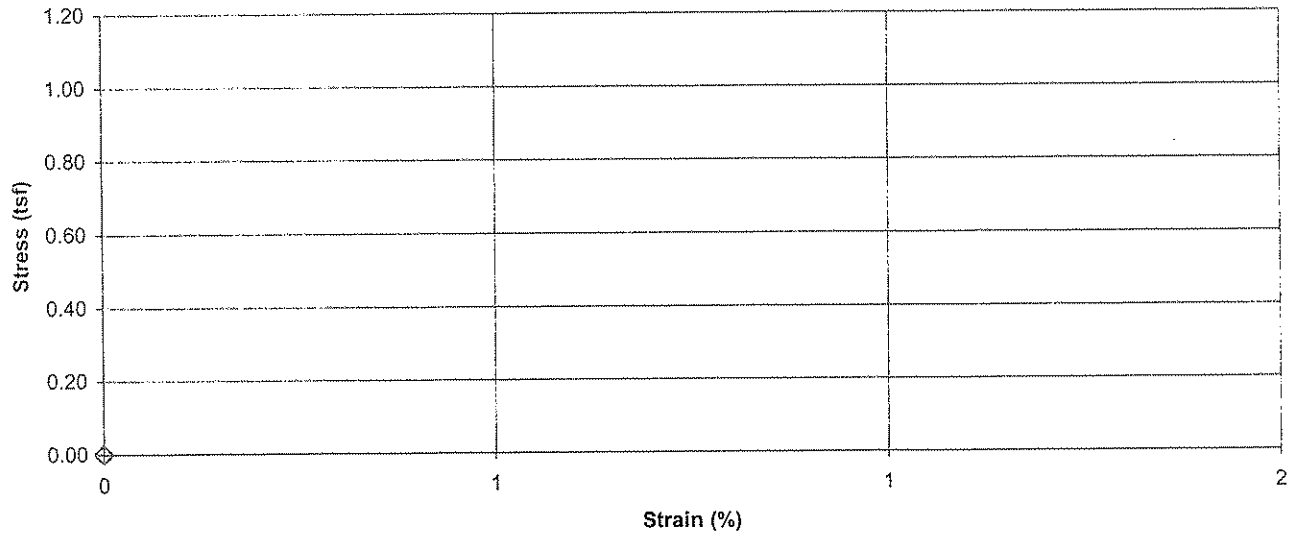
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-28 (sed. Gyp), 10.5'-12.5' Lab ID 792A
 Visual Description Silt (ML), gray to dark gray, wet, soft, gypsum

Recovered 0.6'
 Test Interval 10.5' - 11.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>108.0</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>84.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>27.4</u>		
Initial Moisture Content, 200°C (%) <u>41.8</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.148</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.932</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-28 (sed. Gyp), 10.5'-12.5' Lab ID 792B
 Visual Description Silt (ML), dark gray, moist to wet, firm to soft, fly ash

Recovered 0.6'
 Test Interval 11.0' - 11.5'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

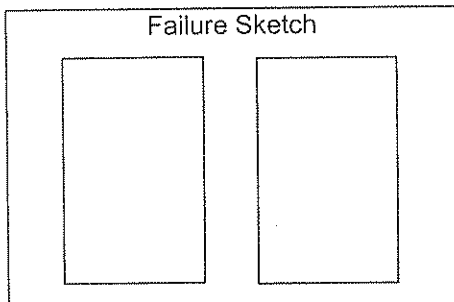
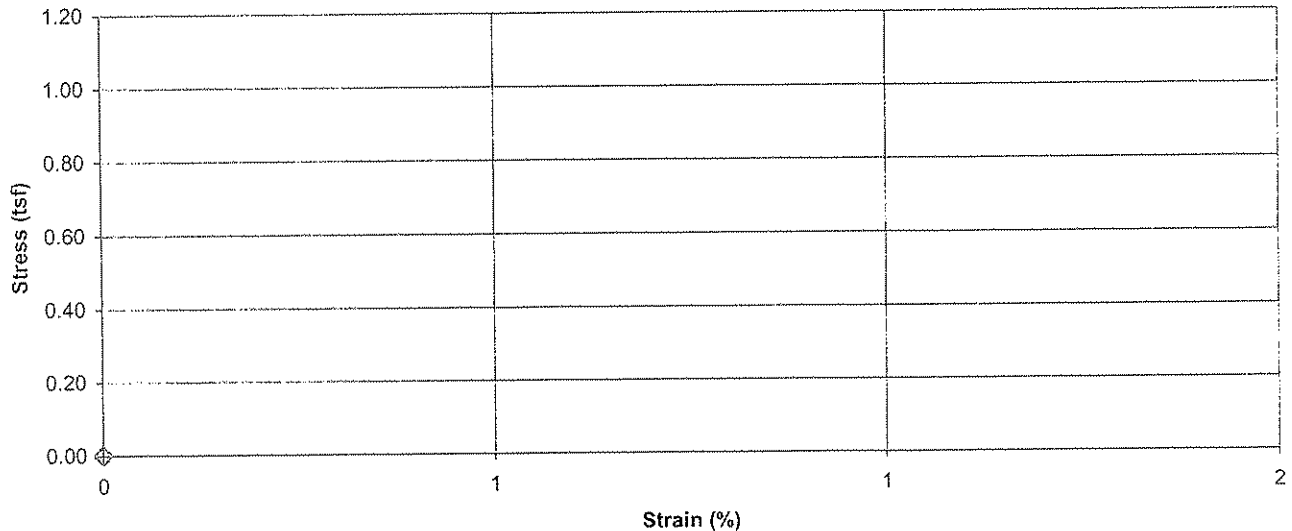
Initial Wet Density (pcf) 121.9
 Initial Dry Density (pcf) 101.3
 Initial Moisture Content, 40°C (%) 20.3
 Initial Moisture Content, 200°C (%) 35.7
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 6.078
 Average Diameter (in) 2.867
 Height to Diameter Ratio 2.1

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dry Unit Weight determined using 40° C mc

Reviewed By



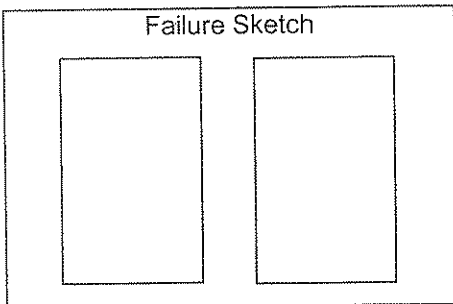
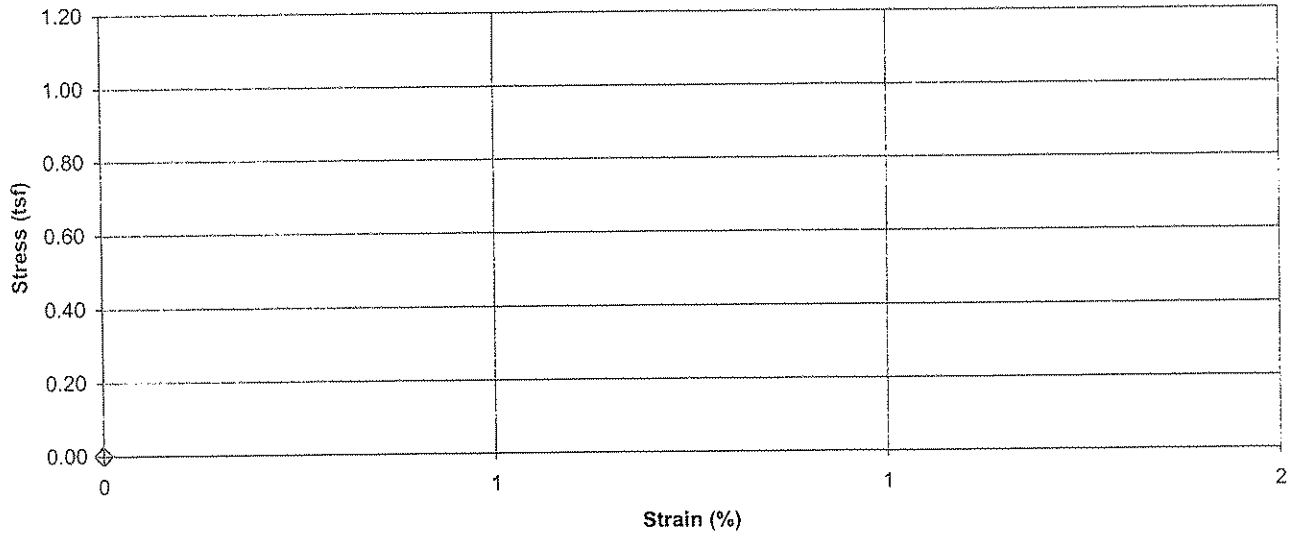
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-28 (sed. Gyp), 39.5'-41.5' Lab ID 793A
 Visual Description Silt (ML), dark gray, moist, soft, fly ash

Recovered 0.6'
 Test Interval 39.7' - 40.2'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>111.1</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>90.0</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>23.4</u>		
Initial Moisture Content, 200°C (%) <u>41.8</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.723</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>3.000</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>1.9</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



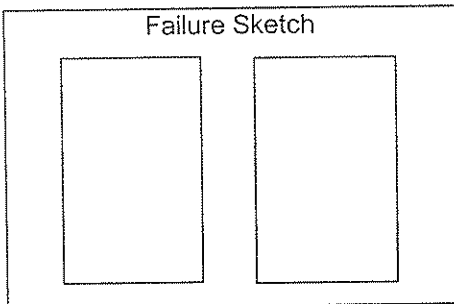
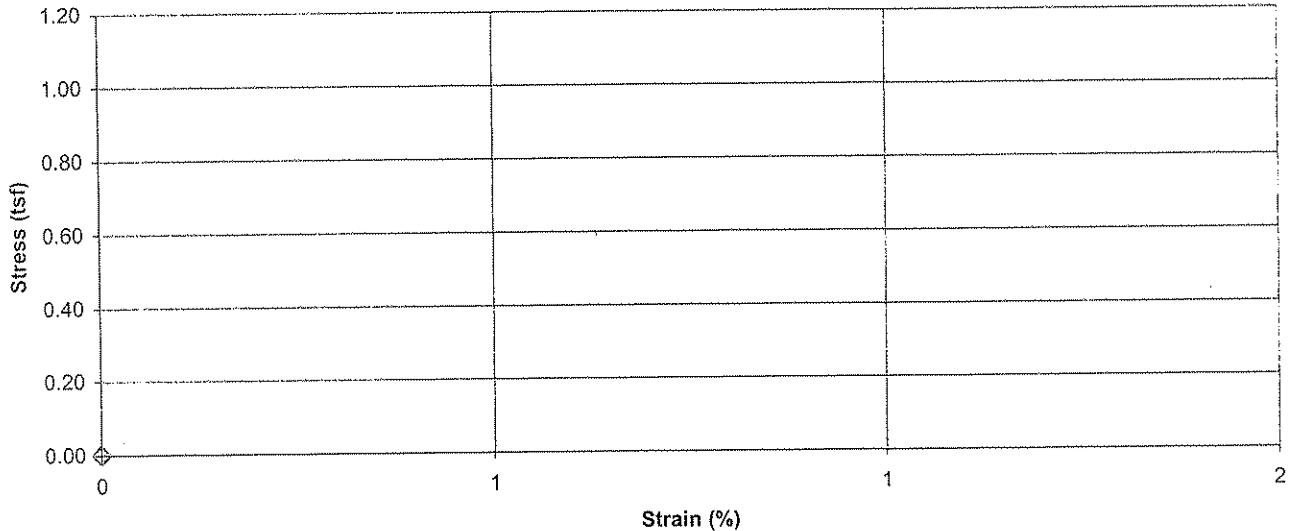
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-28 (sed. Gyp), 39.5'-41.5' Lab ID 793B
 Visual Description Silt (ML), dark gray, moist, soft, fly ash

Recovered 0.6'
 Test Interval 40.3' - 40.8'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>105.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>82.1</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>28.4</u>		
Initial Moisture Content, 200°C (%) <u>43.4</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.827</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.893</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



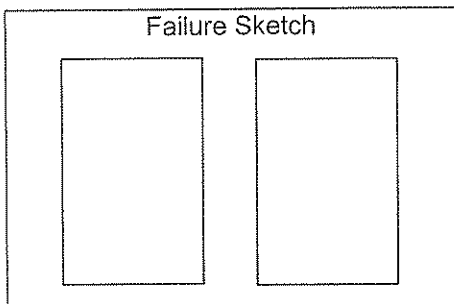
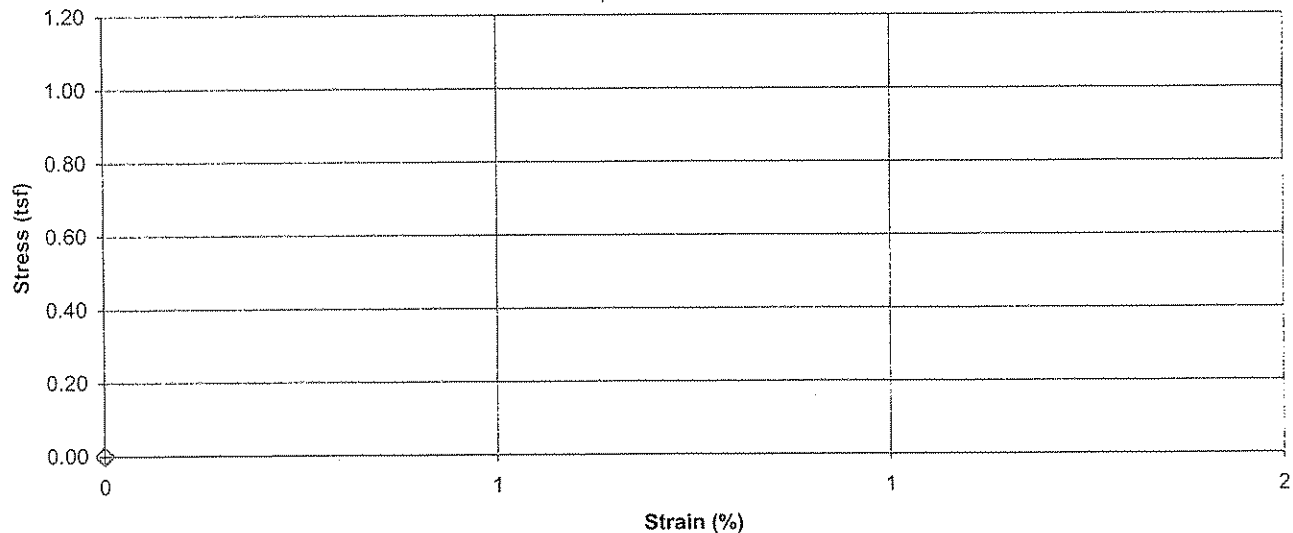
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-28 (sed. Gyp), 39.5'-41.5' Lab ID 793C
 Visual Description Silt (ML), gray to dark gray, moist, firm, gypsum with pockets of flyash

Recovered 0.6'
 Test Interval 41.0' - 41.5'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>105.0</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>79.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>31.7</u>		
Initial Moisture Content, 200°C (%) <u>47.1</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.237</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.805</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.2</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



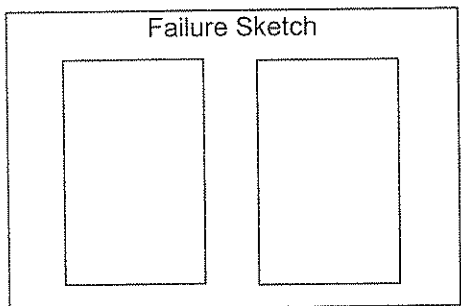
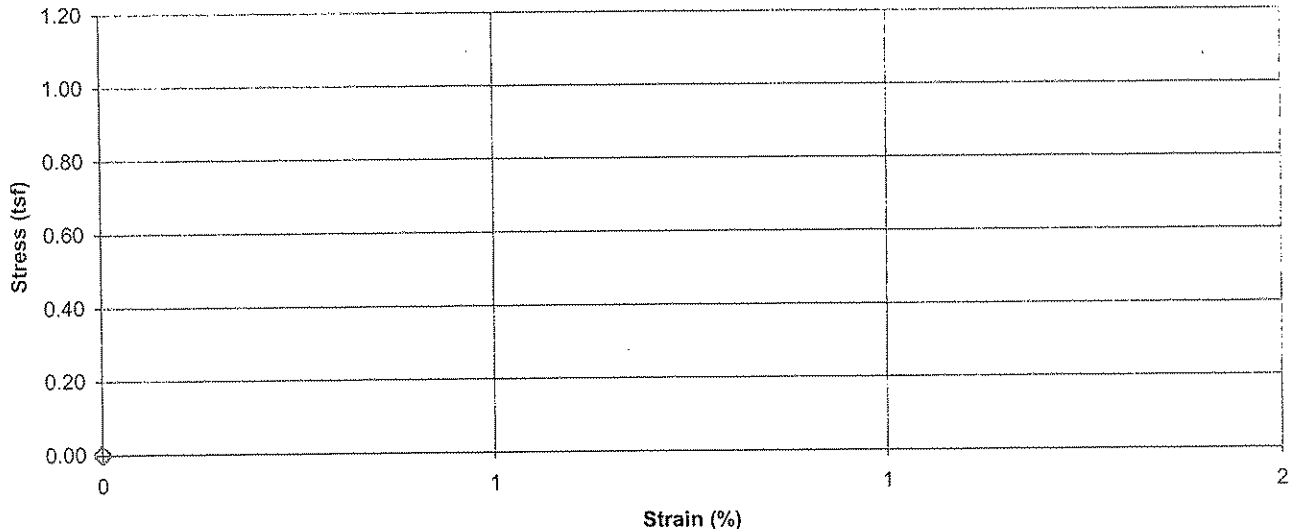
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-31 (sed. gyp), 44.5'-46.5' Lab ID 796A
 Visual Description Silt (ML), dark gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 44.5' - 45.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>124.0</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>103.6</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>19.6</u>		
Initial Moisture Content, 200°C (%) <u>30.9</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.280</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.862</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.2</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



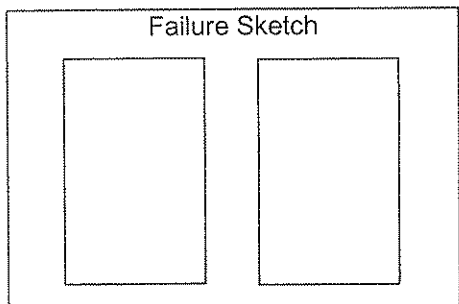
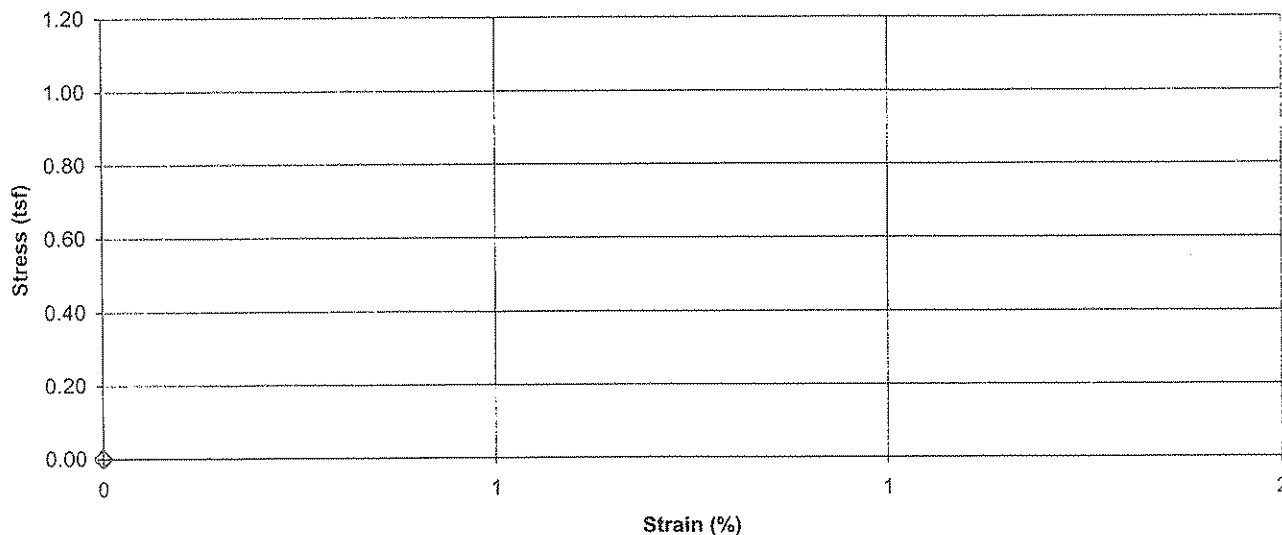
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-31 (sed. gyp), 44.5'-46.5' Lab ID 796B
 Visual Description Silt (ML), dark gray, moist, soft, flyash

Recovered 0.6'
 Test Interval 45.1' - 45.6'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>119.6</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>100.7</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>18.8</u>		
Initial Moisture Content, 200°C (%) <u>30.2</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.907</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.903</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-34 (cast gyp), 15.0'-17.0' Lab ID 797A
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 15.2' - 15.7'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/18/2009
 Date Tested N/A

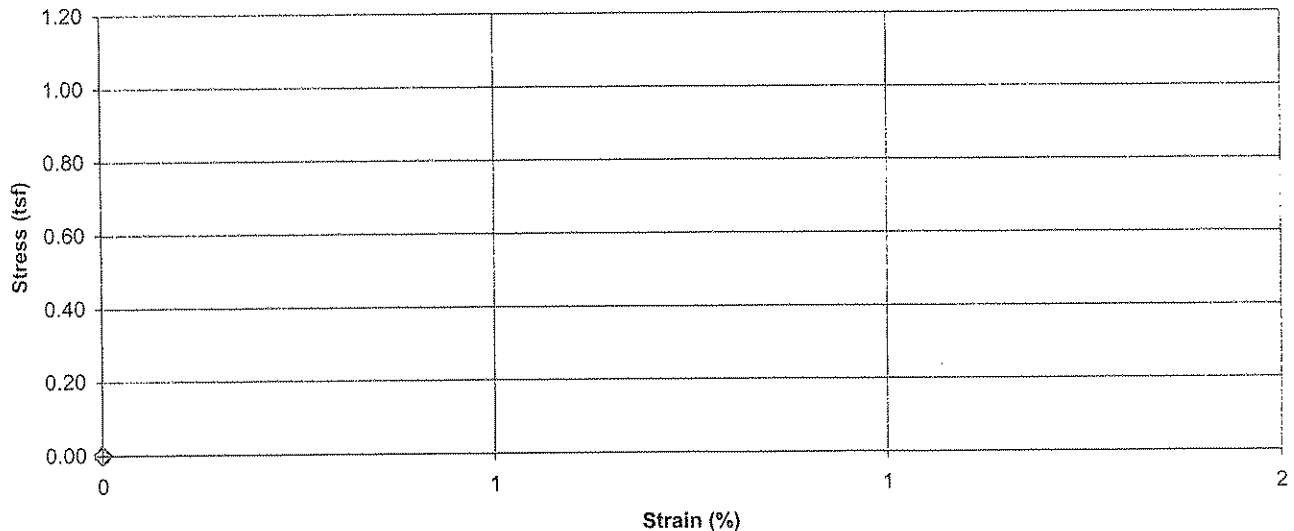
Initial Wet Density (pcf) 110.1
 Initial Dry Density (pcf) 90.3
 Initial Moisture Content, 40°C (%) 22.0
 Initial Moisture Content, 200°C (%) 35.1
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 6.017
 Average Diameter (in) 2.850
 Height to Diameter Ratio 2.1

Initial MC Taken Before Test, From Trimmings

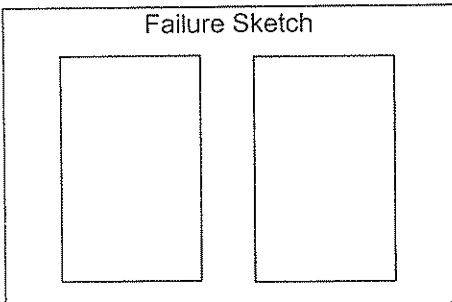
At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm²) N/A

Comments Dry Unit Weight determined using 40° C mc

Reviewed By



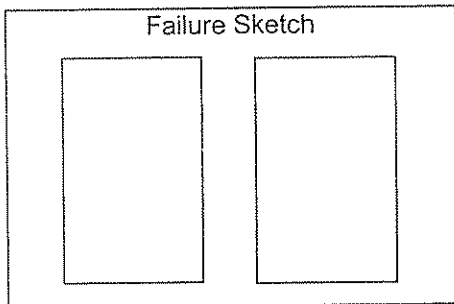
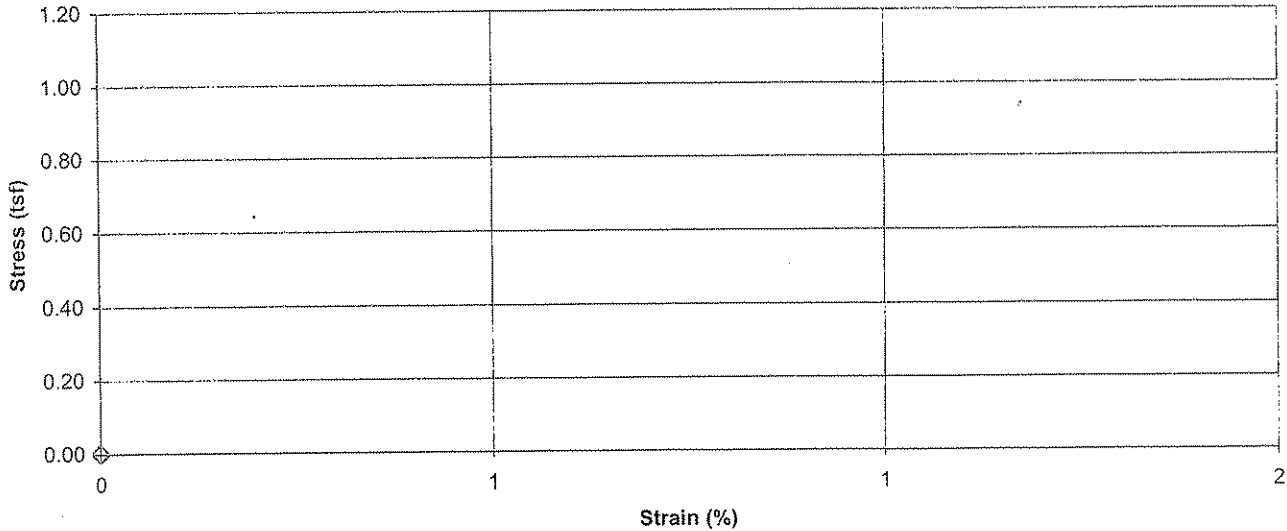
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-34 (cast gyp), 15.0'-17.0' Lab ID 797B
 Visual Description Silt (ML), gray, moist, firm, gypsum with pockets of fly ash

Recovered 0.6'
 Test Interval 15.8' - 16.3'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
Initial Wet Density (pcf) <u>114.1</u>	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Dry Density (pcf) <u>92.9</u>	PI <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>22.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content, 200°C (%) <u>41.1</u>	At Test MC Taken <u>N/A</u>	
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.157</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.879</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



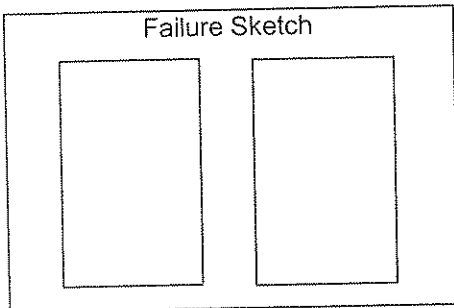
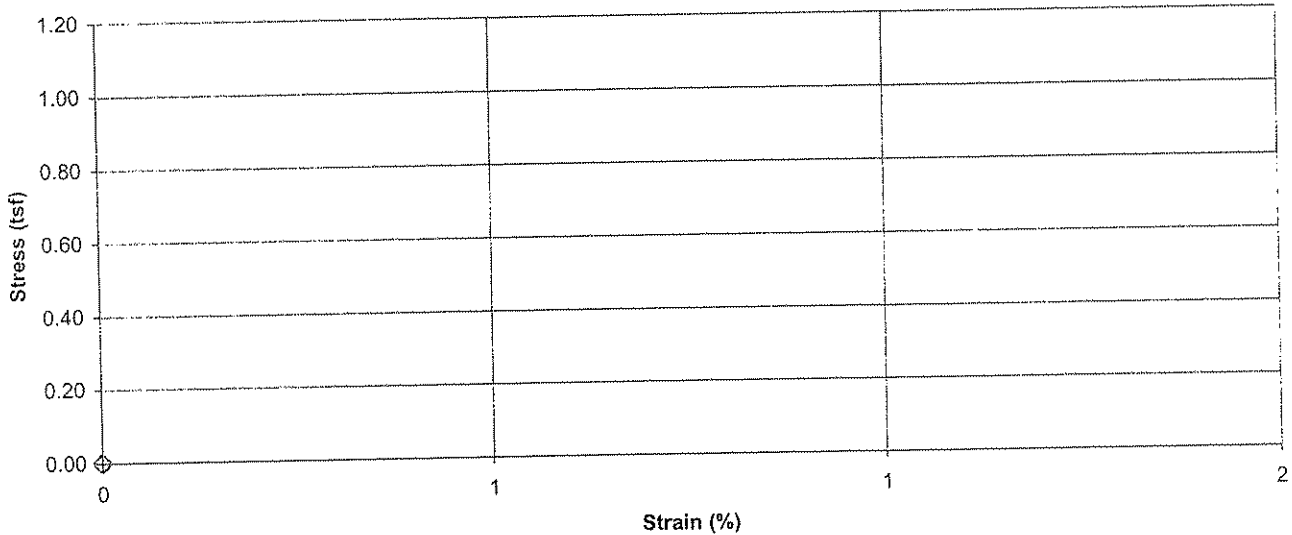
**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-34 (cast gyp), 15.0'-17.0' Lab ID 797C
 Visual Description Silt (ML), gray, moist, soft, gypsum

Recovered 0.6'
 Test Interval 16.4' - 16.9'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>03/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>110.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>90.3</u>	At Test MC Taken <u>N/A</u>	
Initial Moisture Content, 40°C (%) <u>22.7</u>		
Initial Moisture Content, 200°C (%) <u>42.2</u>		
At Test Moisture Content, 40°C (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.030</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.871</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Dry Unit Weight determined using 40° C mc

Reviewed By



**Unconfined Compressive Strength
of Cohesive Soil**
KM 64-522

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-29 (cast gyp), 4.5'-6.5' Lab ID 806
 Visual Description Silt (ML), gray brown, moist, soft, gypsum

Recovered 0.6'
 Test Interval 4.7' - 5.2'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

Date Extruded 03/19/2009
 Date Tested N/A

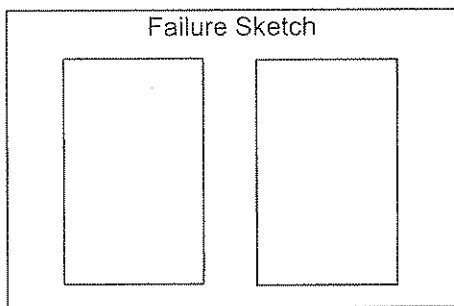
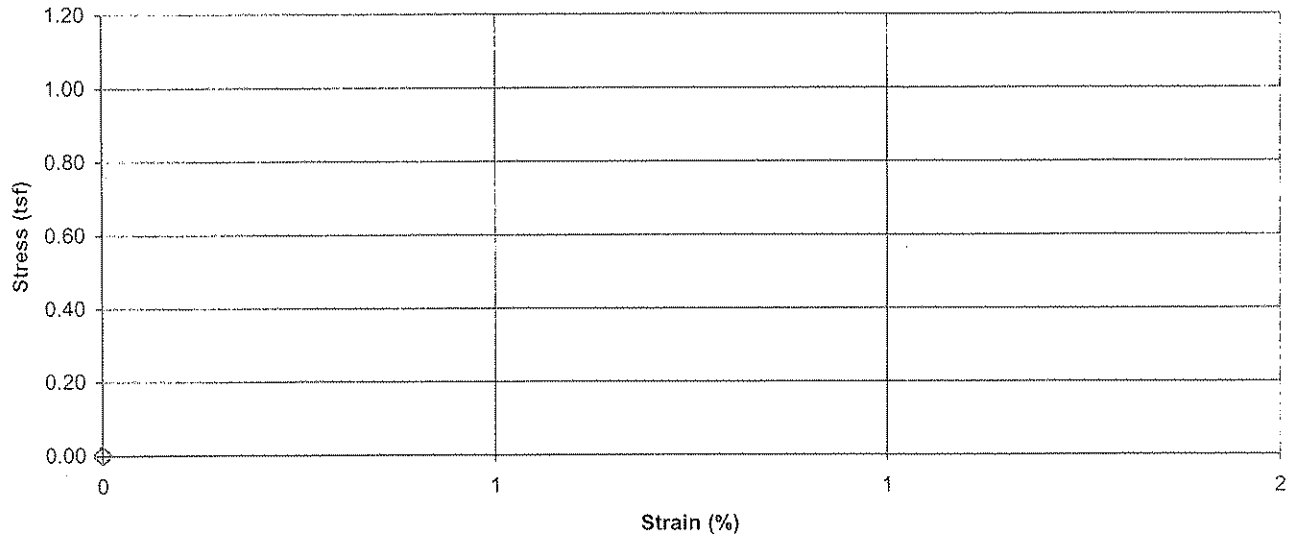
Initial Wet Density (pcf) 122.8
 Initial Dry Density (pcf) 103.9
 Initial Moisture Content, 40°C (%) 18.3
 Initial Moisture Content, 200°C (%) N/A
 At Test Moisture Content, 40°C (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.607
 Average Diameter (in) 2.867
 Height to Diameter Ratio 2.0

Initial MC Taken Before Test, From Trimmings

At Test MC Taken N/A

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments _____

Reviewed By



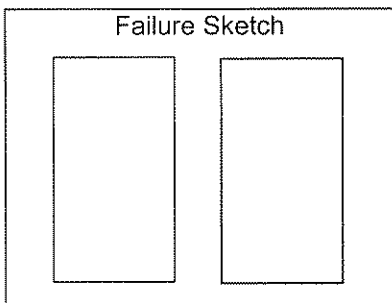
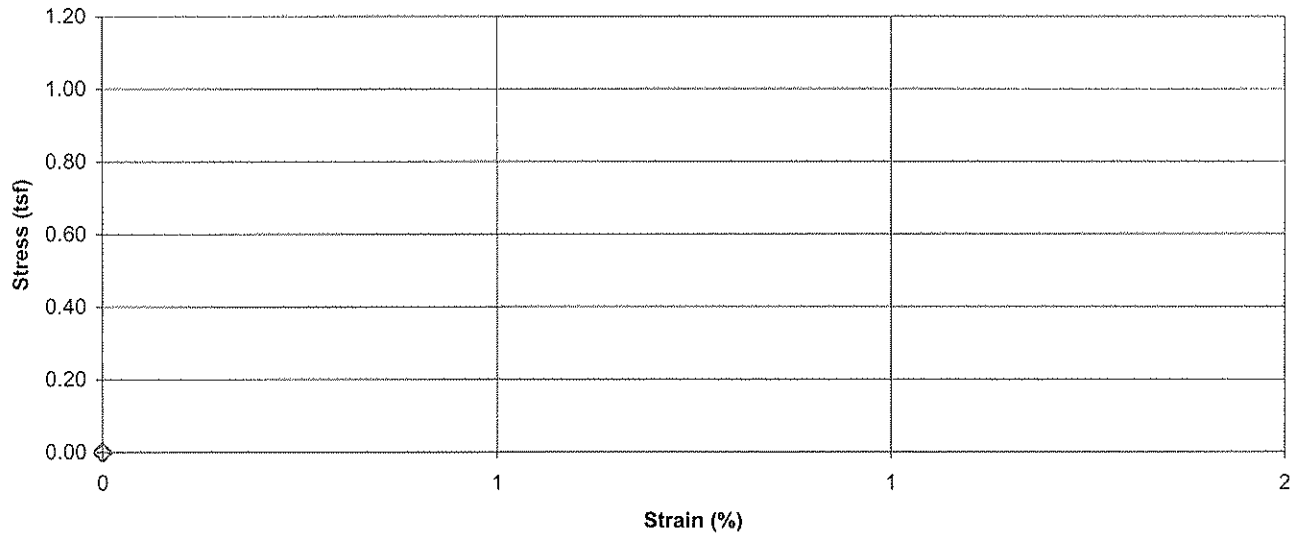
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B44, 37.0'-39.0' Lab ID 4A
 Visual Description Silt (MH), moist, soft, gray

Recovered 1.6'
 Test Interval 37.0' - 37.5'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>115.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>79.5</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>45.3</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.837</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.854</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By



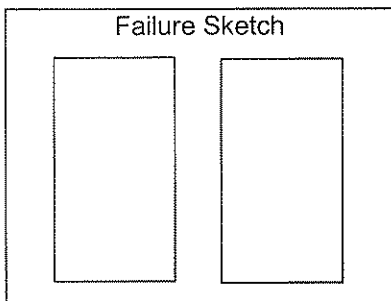
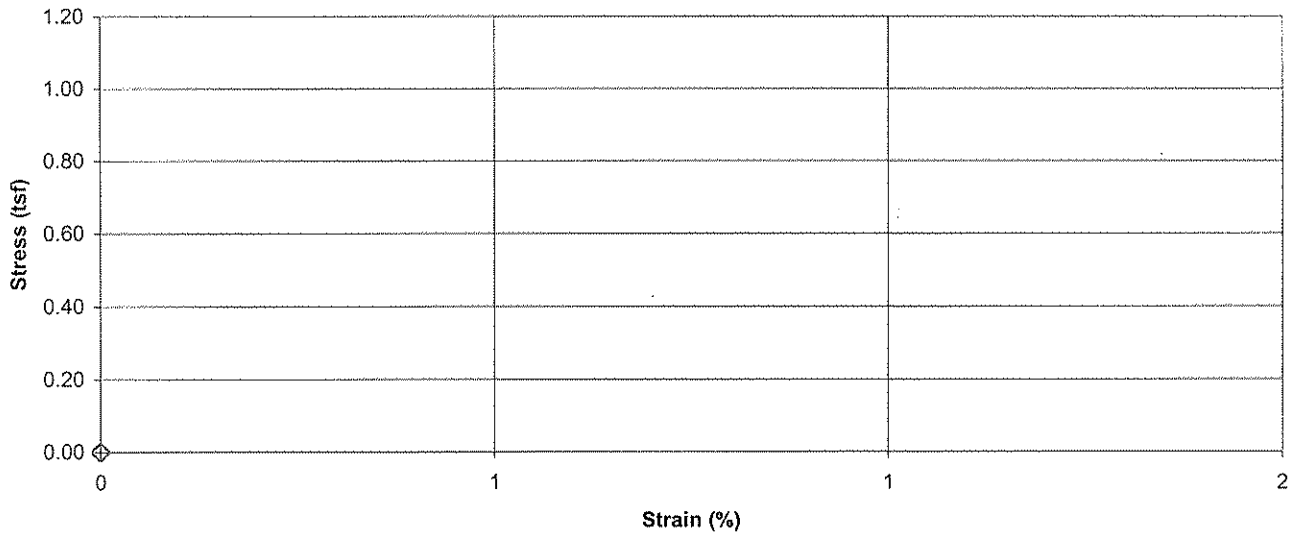
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B44, 37.0'-39.0' Lab ID 4C
 Visual Description Silt (MH), gray, wet, soft

Recovered 1.6'
 Test Interval 37.5' - 38.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/18/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) _____	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>N/A</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>39.4</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>N/A</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>N/A</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>N/A</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A
 Comments Saved in bag Unable to trim 6" specimen
Dried @ 40° C

Reviewed By *[Signature]*



**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B44, 37.0'-39.0' Lab ID 4B
 Visual Description Silt (MH), gray, moist, soft

Recovered 1.6'
 Test Interval 38.0' - 38.5'

Specimen Type: Undisturbed

LL N/A
 PL N/A
 PI N/A

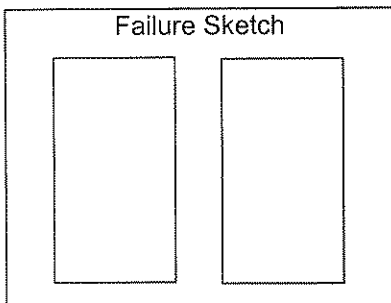
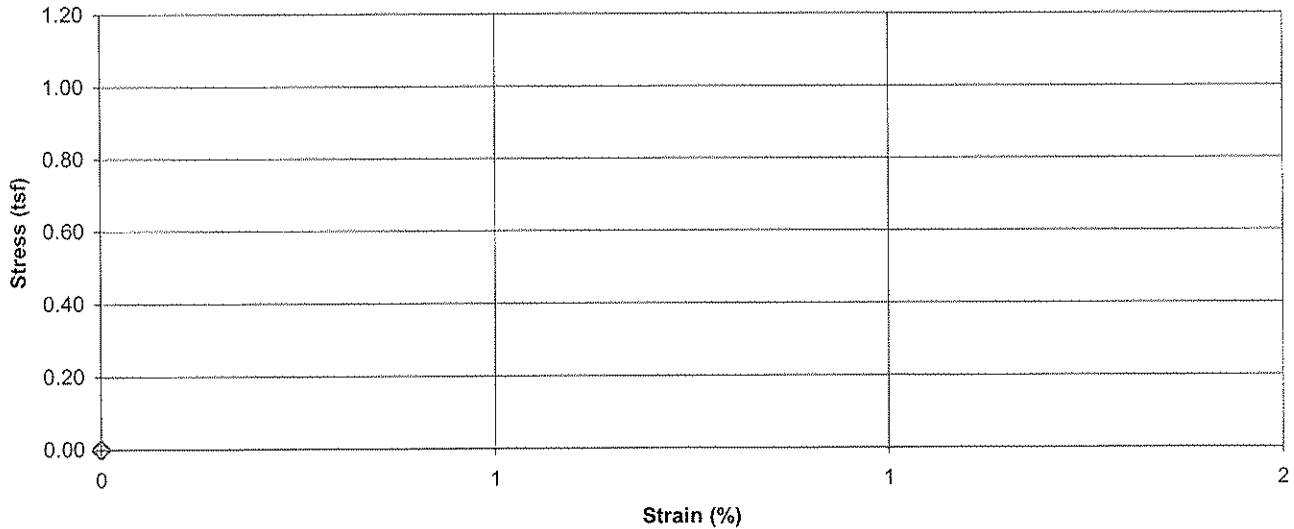
Date Extruded 02/18/2009
 Date Tested N/A

Initial Wet Density (pcf) 107.8
 Initial Dry Density (pcf) 83.7
 Initial Moisture Content (%) 28.8
 At Test Moisture Content (%) N/A
 Specific Gravity N/A
 Degree of Saturation (%) N/A
 Average Height (in) 5.710
 Average Diameter (in) 2.910
 Height to Diameter Ratio 2.0

Initial MC Taken Before Test, From Trimmings
 At Test MC Taken Before Test, From Trimmings

Unconfined Compressive Strength (tsf) N/A
 Undrained Shear Strength (tsf) N/A
 Strain at Maximum Stress (%) N/A
 Strain rate to failure (% / min.) N/A

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By



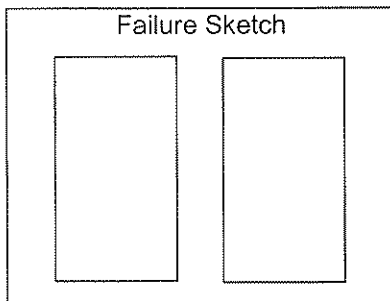
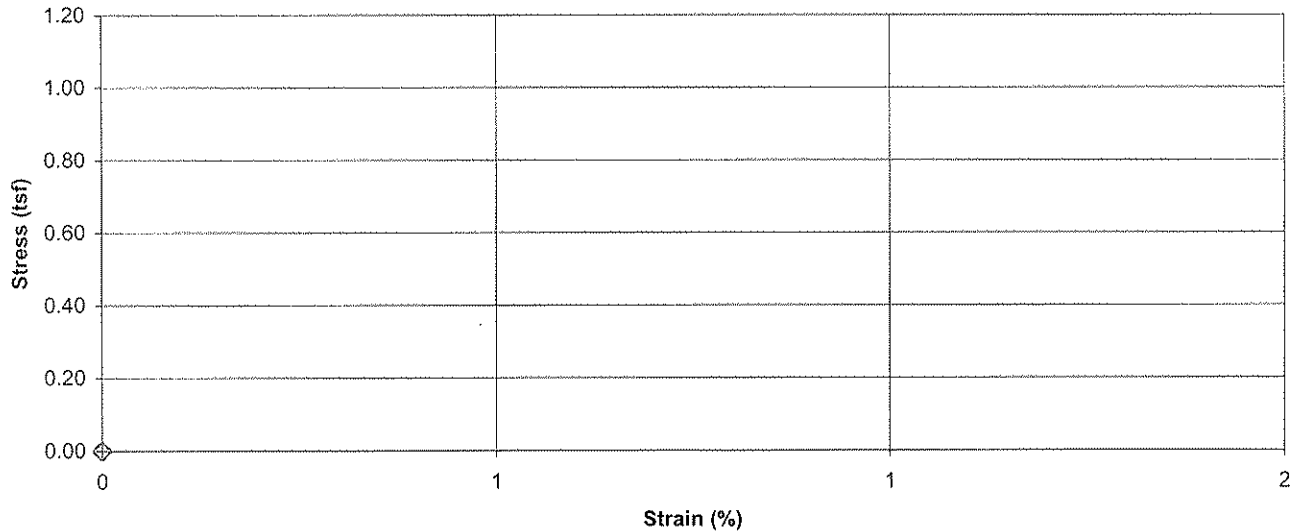
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-42 (sed. Gypsum), 46.0'-48.0' Lab ID 399A
 Visual Description Silt (ML), gray, wet, very soft, large pockets of gypsum

Recovered 2'
 Test Interval 46.2' - 46.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/25/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>110.8</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>78.0</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>42.1</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.621</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.911</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>1.9</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By

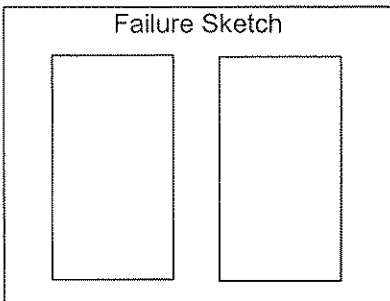
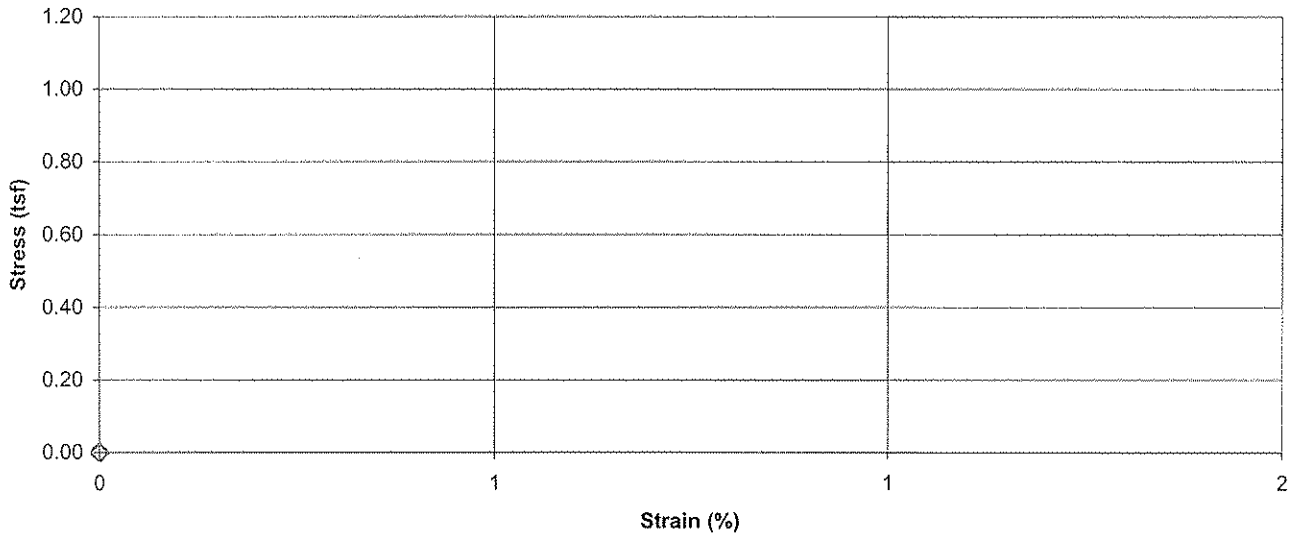


**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-42 (sed. Gypsum), 46.0'-48.0' Lab ID 399B
 Visual Description Silt (ML), gray, wet, very soft

		Recovered	<u>2'</u>
		Test Interval	<u>46.8' - 47.3'</u>
Specimen Type: <u>Undisturbed</u>	LL	<u>N/A</u>	
	PL	<u>N/A</u>	Date Extruded <u>02/25/2009</u>
	PI	<u>N/A</u>	Date Tested <u>N/A</u>
Initial Wet Density (pcf) <u>116.6</u>	Initial MC Taken	<u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>92.0</u>	At Test MC Taken	<u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>26.7</u>			
At Test Moisture Content (%) <u>N/A</u>			
Specific Gravity <u>N/A</u>			
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf)	<u>N/A</u>	
Average Height (in) <u>5.965</u>	Undrained Shear Strength (tsf)	<u>N/A</u>	
Average Diameter (in) <u>2.867</u>	Strain at Maximum Stress (%)	<u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.)	<u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By _____



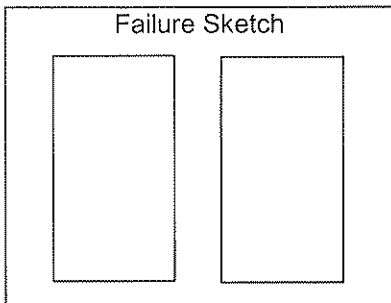
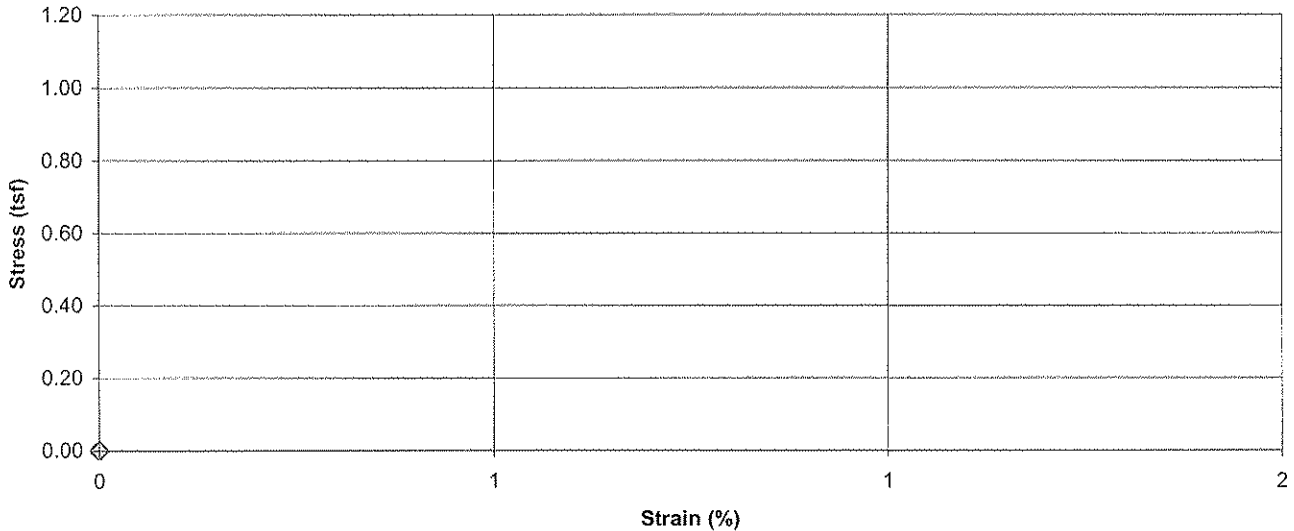
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-42 (sed. Gypsum), 46.0'-48.0' Lab ID 399C
 Visual Description Silt (ML), gray to dark gray, moist, firm

Recovered 2'
 Test Interval 47.5' - 48.0'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/25/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>117.5</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>96.8</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>21.4</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.076</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.887</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By



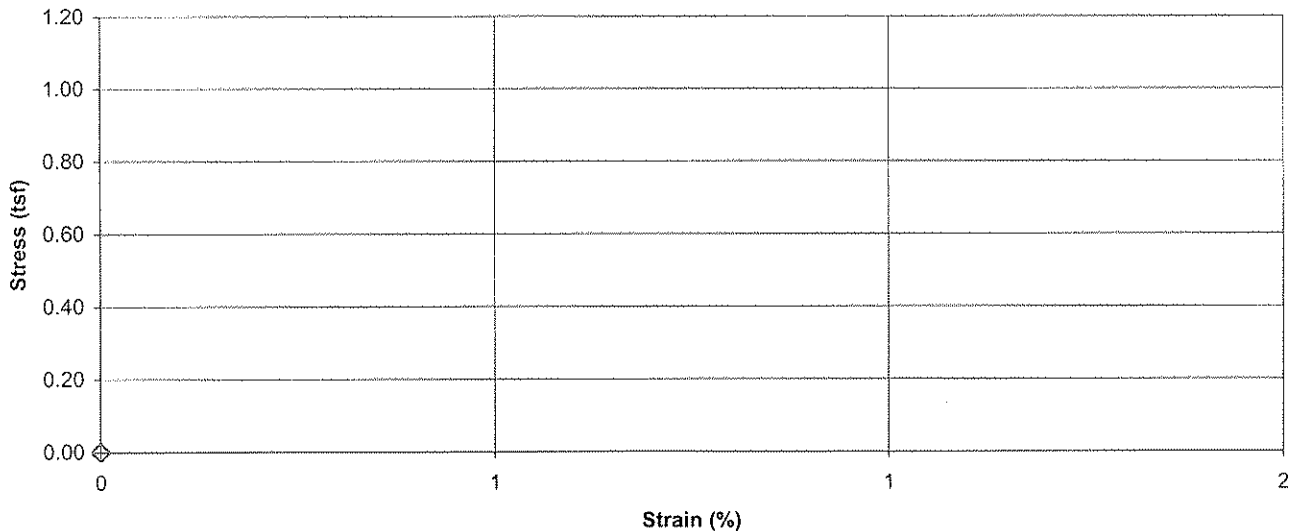
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (clay), 82.8'-84.8' Lab ID 400A
 Visual Description Silt (ML), dark gray, wet, very soft

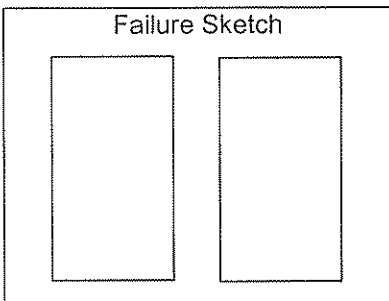
Recovered 1.4'
 Test Interval 83.2' - 83.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/24/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>110.2</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>83.7</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>31.8</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.797</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.927</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.0</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By



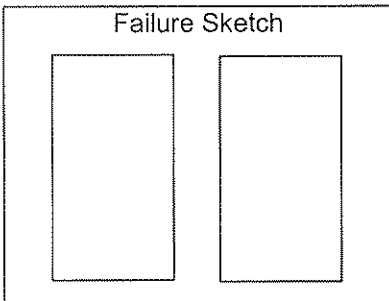
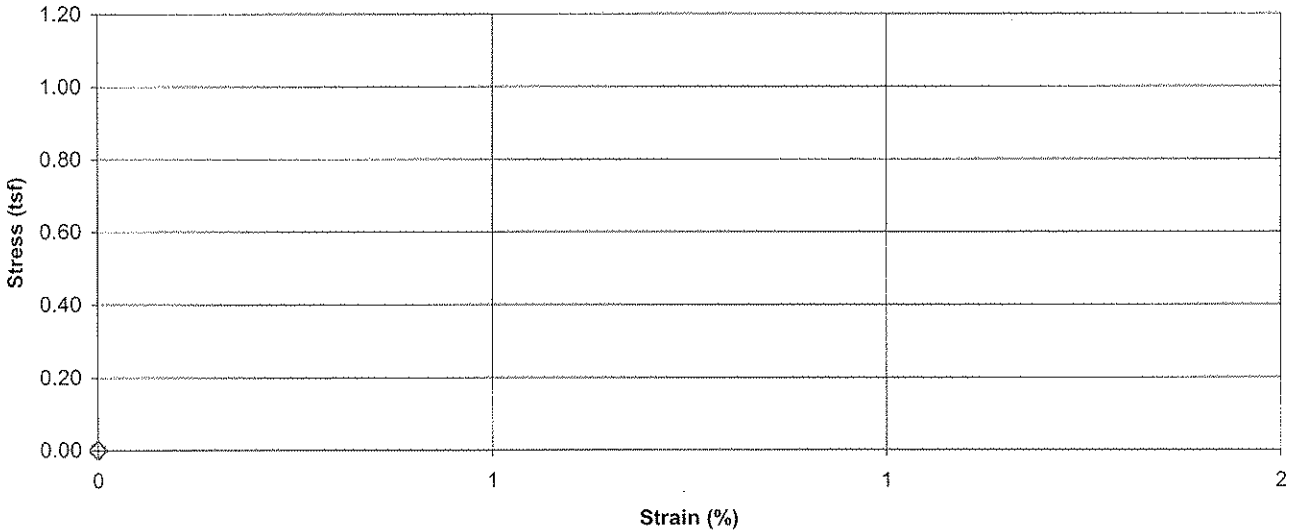
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-38 (clay), 82.8'-84.8' Lab ID 400B
 Visual Description Silt (ML), dark gray, wet, very soft

Recovered 1.4'
 Test Interval 83.7' - 84.2'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/24/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>111.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>84.5</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>31.8</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>5.517</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.915</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>1.9</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried @ 40° C

Reviewed By

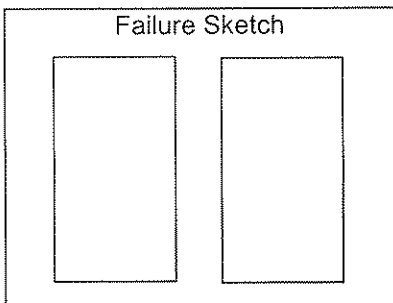
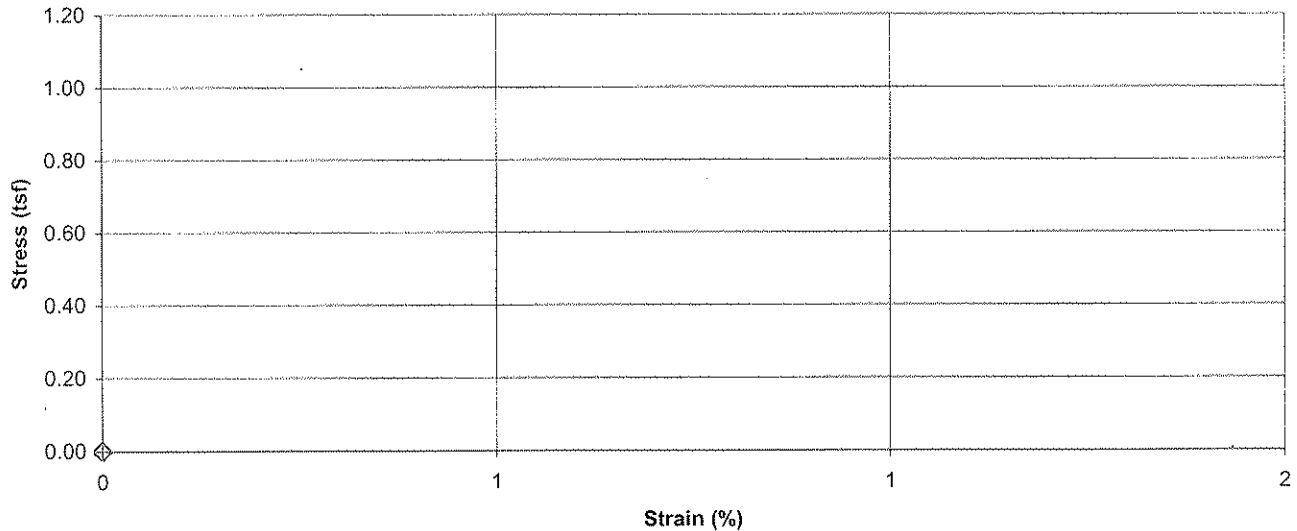


**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-32 (Clay), 35.0'-37.0' Lab ID 401A
 Visual Description Lean Clay (CL), gray and brown, wet, soft
 Recovered 1.8'
 Test Interval 35.0' - 35.5'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/24/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>123.4</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>95.7</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>28.9</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.081</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.869</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried at 110°C

Reviewed By



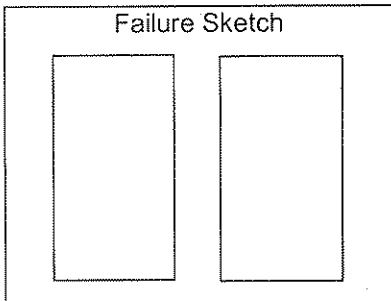
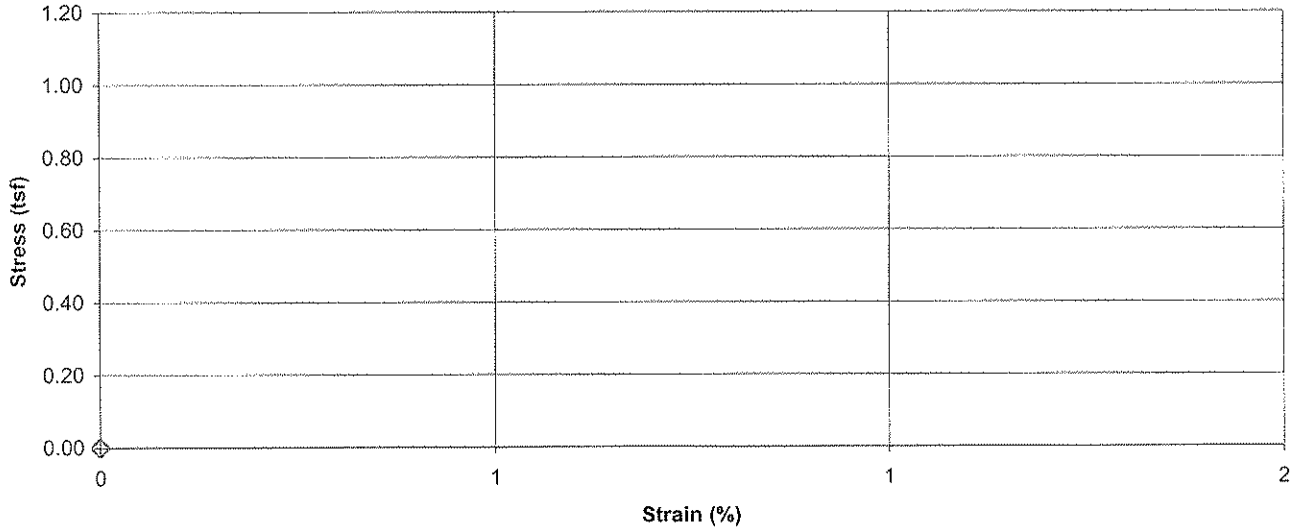
**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-32 (Clay), 35.0'-37.0' Lab ID 401B
 Visual Description Lean Clay (CL), gray and brown, wet, soft

Recovered 1.8'
 Test Interval 35.6' - 36.1'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/24/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
	PI <u>N/A</u>	
Initial Wet Density (pcf) <u>121.3</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
Initial Dry Density (pcf) <u>91.6</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Initial Moisture Content (%) <u>32.5</u>		
At Test Moisture Content (%) <u>N/A</u>		
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.020</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.885</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried at 110°C

Reviewed By

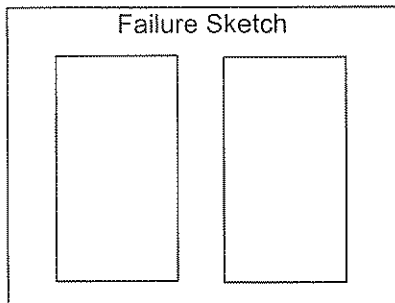
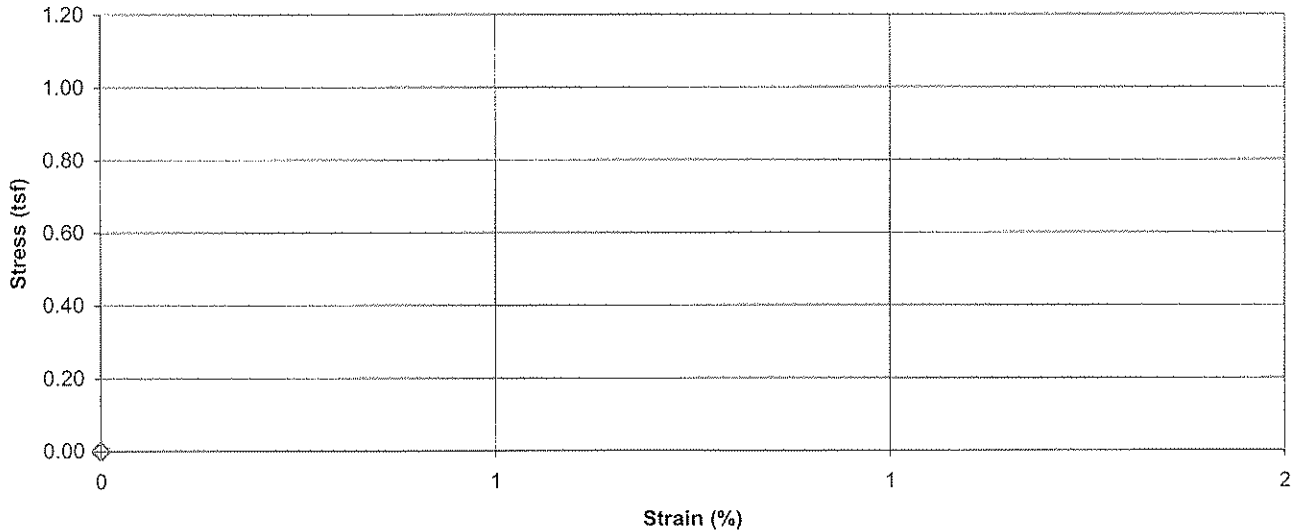


**Unconfined Compressive Strength
of Cohesive Soil**
ASTM D 2166

Project Name Widows Creek Fossil Plant Project Number 171468118
 Source B-32 (Clay), 35.0'-37.0' Lab ID 401C
 Visual Description Lean Clay (CL), brown and gray, moist, firm, Mn concretions
 Recovered 1.8'
 Test Interval 36.1' - 36.7'

Specimen Type: <u>Undisturbed</u>	LL <u>N/A</u>	Date Extruded <u>02/24/2009</u>
	PL <u>N/A</u>	Date Tested <u>N/A</u>
Initial Wet Density (pcf) <u>125.3</u>	PI <u>N/A</u>	
Initial Dry Density (pcf) <u>99.2</u>		
Initial Moisture Content (%) <u>26.3</u>	Initial MC Taken <u>Before Test, From Trimmings</u>	
At Test Moisture Content (%) <u>N/A</u>	At Test MC Taken <u>Before Test, From Trimmings</u>	
Specific Gravity <u>N/A</u>		
Degree of Saturation (%) <u>N/A</u>	Unconfined Compressive Strength (tsf) <u>N/A</u>	
Average Height (in) <u>6.067</u>	Undrained Shear Strength (tsf) <u>N/A</u>	
Average Diameter (in) <u>2.882</u>	Strain at Maximum Stress (%) <u>N/A</u>	
Height to Diameter Ratio <u>2.1</u>	Strain rate to failure (% / min.) <u>N/A</u>	

Stress vs. Strain



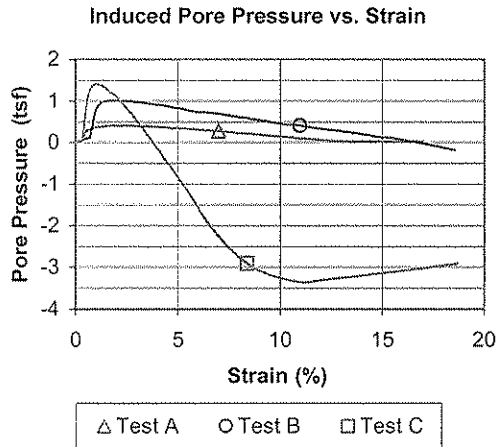
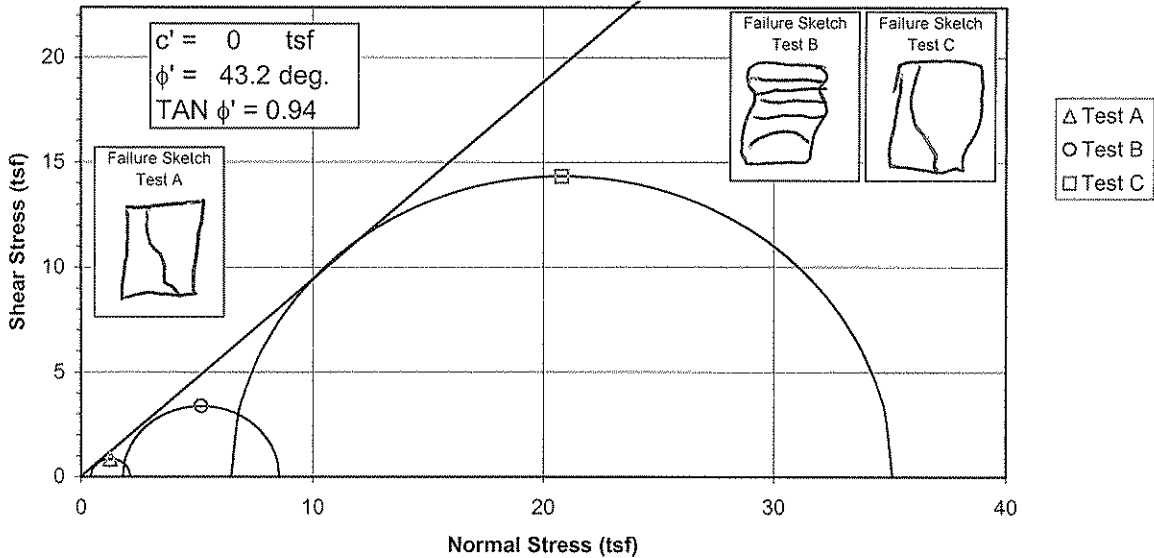
Pocket Penetrometer Reading (tsf) N/A
 Torvane Reading (kg/cm²) N/A

Comments Dried at 110°C

Reviewed By *[Signature]*

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 43.0	36.1	20.8
	Dry Density PCF	γ_{d_o} 73.2	75.4	100.7
	Saturation %	S_o 98.2	87.4	101.4
	Void Ratio	e_o 1.055	0.996	0.495
After Shear	Water content %	W_f 33.5	26.3	18.7
	Dry Density PCF	γ_{d_f} 83.2	92.1	103.7
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.808	0.634	0.451
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 0.44	1.82	6.49
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 1.69	6.80	28.64
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 53.3	40.4	48.1
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	21.24
	Initial Diameter, in.	D_o 1.424	1.475	1.408
Controlled - Strain Test	Initial Height, in.	H_o 3.028	3.081	3.075

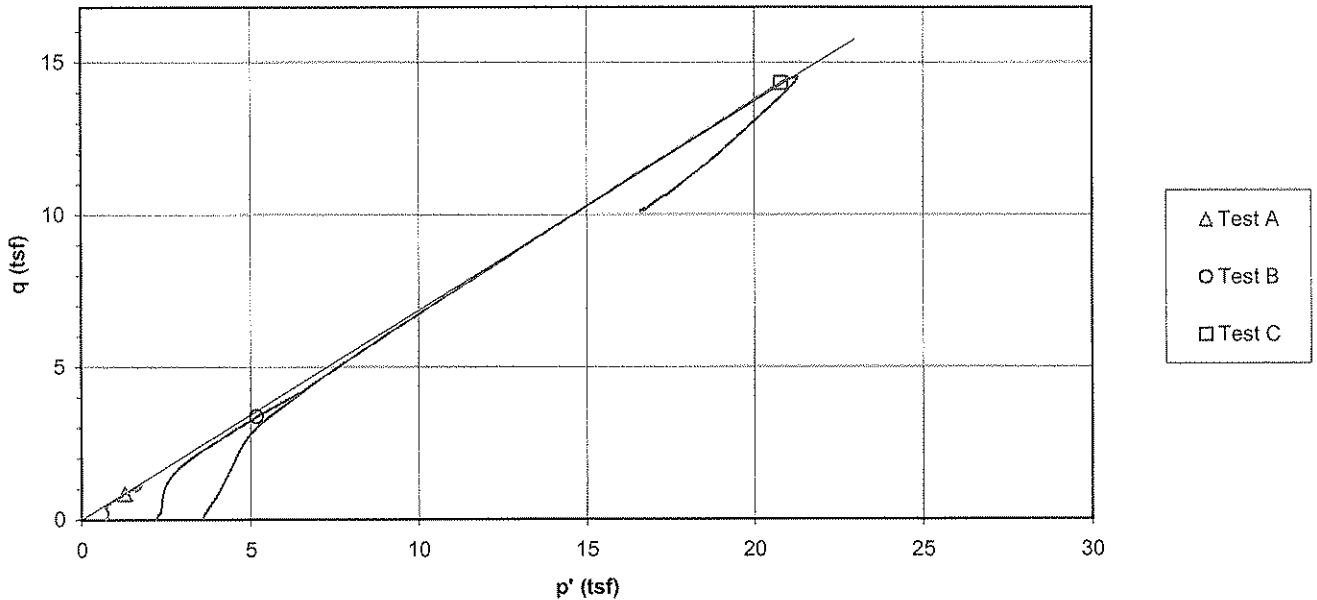
Description of Specimens		Silt (ML), gray, moist, soft		
		Type of Specimen	Undisturbed	Type of test
LL	PL	PI	Gs 2.41	R
Remarks:		Project Widows Creek Fossil Pant		
		Boring No.	B-39	Sample No.
		Depth Elev.	50.1'-51.2'	763
		Laboratory	Stantec	Date 4-24-09
TRIAXIAL COMPRESSION TEST REPORT				

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

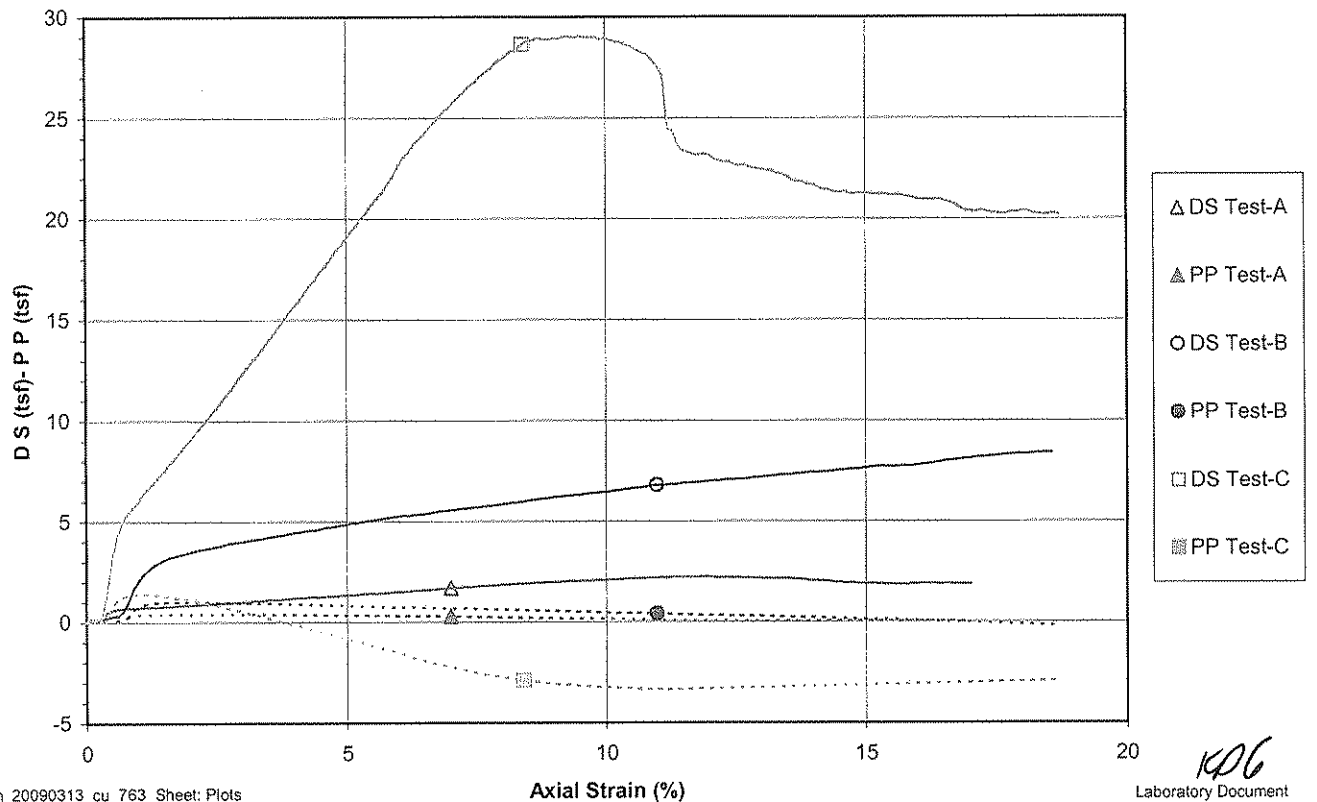
Project Widows Creek Fossil Pant
 Sample ID B-39 (sed. Gyp), 50.7'-51.2' & B-39 (sed. Gyp), 50.1'-50.6' & B-39 (sed. Gyp), 37.8' - 38.3'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 43.2$ deg.

Project No. 171468118
 Test Number 763
 $c' = 0.00$ tsf

p' vs. q Plot

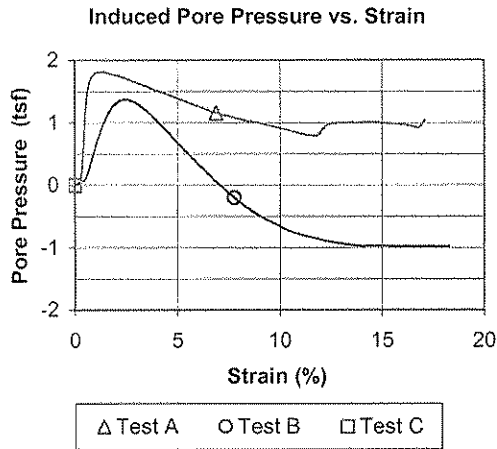
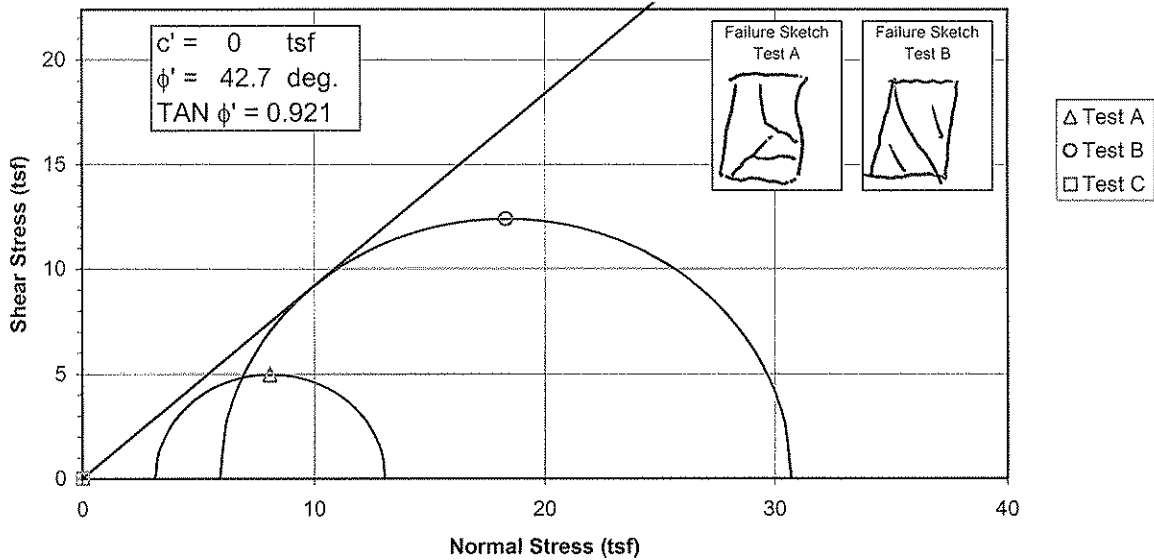


Deviator Stress and Induced Pore Pressure vs. Axial Strain



Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W _o 51.7	43.6	#####
	Dry Density PCF	γ _d _o 71.0	78.7	#####
	Saturation %	S _o 111.3	115.3	#####
	Void Ratio	e _o 1.120	0.913	#####
After Shear	Water content %	W _f 40.3	35.7	#####
	Dry Density PCF	γ _d _f 76.3	80.9	#####
	Saturation %	S _f 100.0	100.0	#####
	Void Ratio	e _f 0.971	0.860	#####
	Final Back Pressure TSF	u _c 2.16	0.72	0.00
Minor Principal Stress TSF @ failure		σ ₃ ' _f 3.15	5.95	0.00
Maximum Deviator Stress (tsf) @ failure		(σ ₁ '-σ ₃ ') _{max} 9.92	24.75	0.00
Time to (σ ₁ '-σ ₃ ') _{max} min.		t _f 20.0	22.6	0.0
Ultimate Deviator Stress, t/sq ft		(σ ₁ '-σ ₃ ') _{ult} n/a	22.75	0.00
Initial Diameter, in.		D _o 1.425	1.453	#####
Initial Height, in.		H _o 3.044	3.003	#####

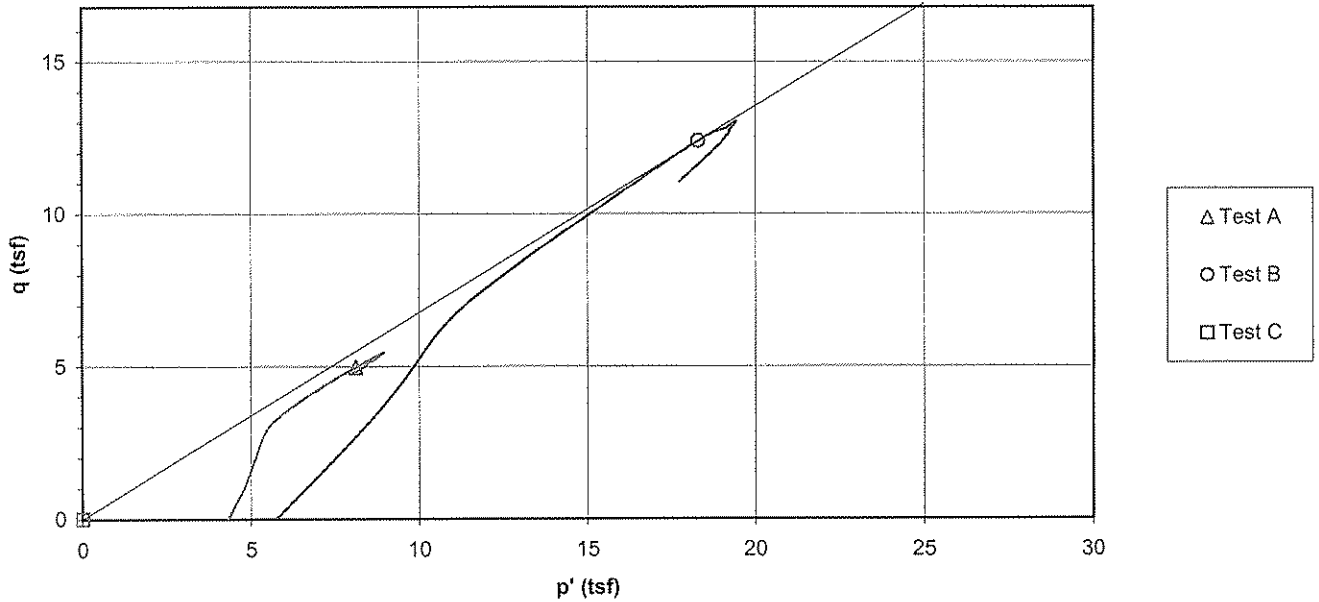
Controlled - Strain Test				Initial Diameter, in.		D _o	1.425	1.453	#####	
Description of Specimens				Initial Height, in.		H _o	3.044	3.003	#####	
Silt (ML), gray, moist, soft										
				Type of Specimen	Undisturbed			Type of test	R	
LL	PL	PI	Gs	2.41	Project					Widows Creek Fossil Plant
Remarks:										
				Boring No.	B-38	Sample No.		763		
				Depth Elev.	71.2'-72.3'					
				Laboratory	Stantec		Date			4-24-09
TRIAXIAL COMPRESSION TEST REPORT										

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

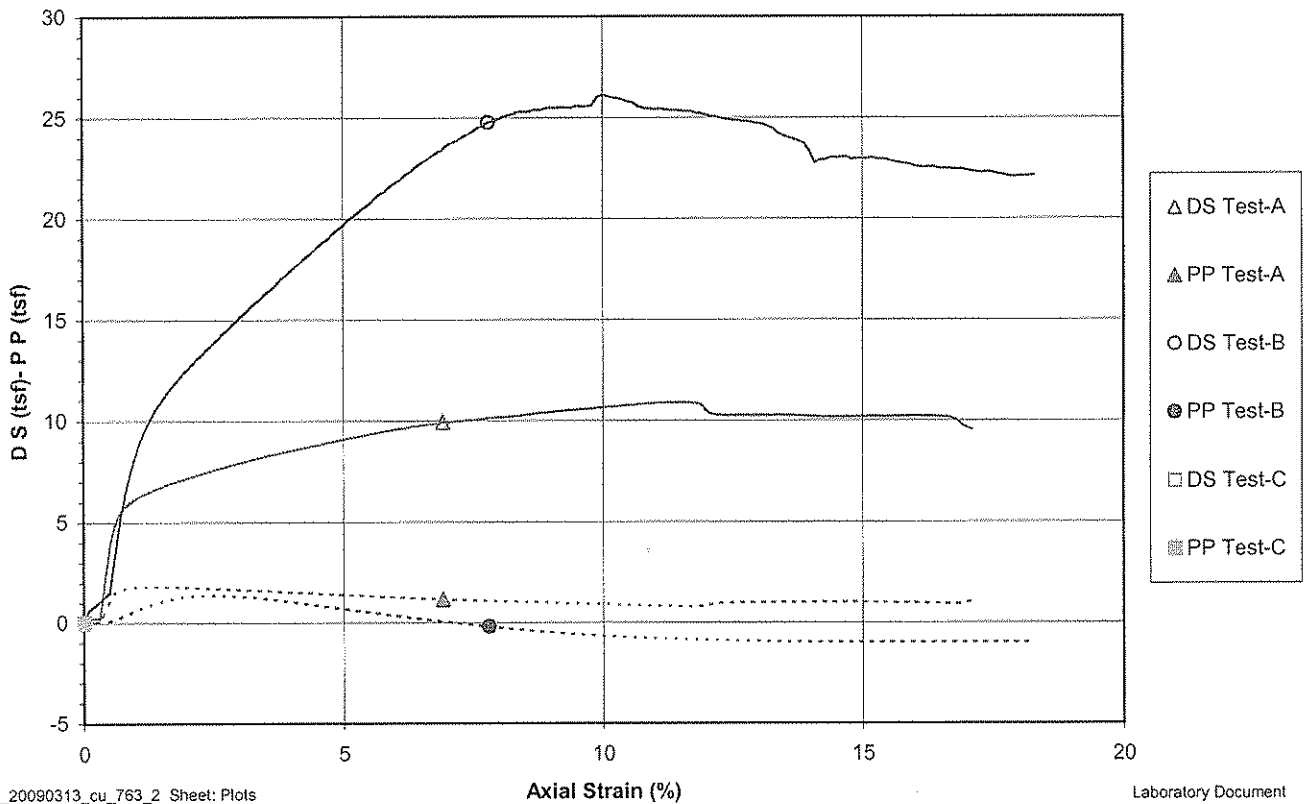
Project Widows Creek Fossil Plant
 Sample ID B-38 (sed. Gyp), 71.8' - 72.3' & B-38 (sed. Gyp.), 71.2' - 71.7'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 42.5$ deg.

Project No. 171468118
 Test Number 763
 $c' = 0.00$ tsf

p' vs. q Plot

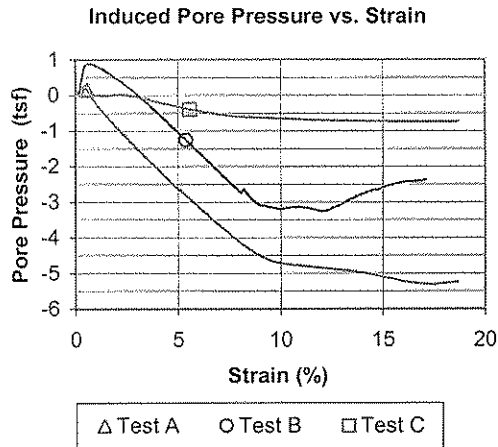
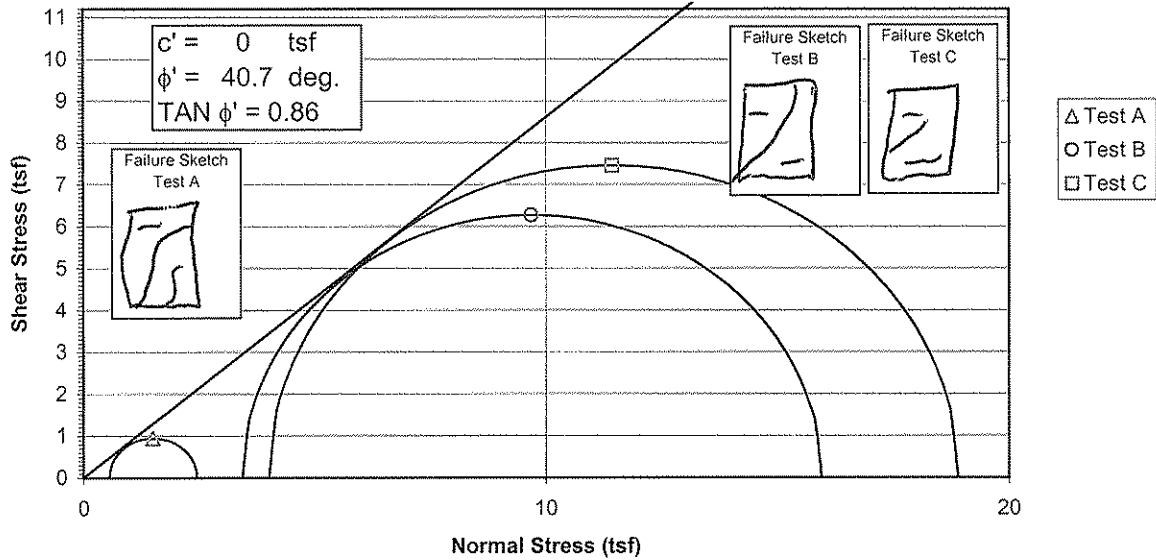


Deviator Stress and Induced Pore Pressure vs. Axial Strain



Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 40.6	43.2	46.2
	Dry Density PCF	γ_{d_o} 81.2	80.4	77.7
	Saturation %	S_o 113.8	118.4	117.9
	Void Ratio	e_o 0.868	0.886	0.953
After Shear	Water content %	W_f 39.4	38.7	38.8
	Dry Density PCF	γ_{d_f} 77.5	78.1	78.1
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.959	0.941	0.942
Final Back Pressure TSF		u_c 5.76	4.32	2.88
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 0.56	3.43	4.00
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 1.88	12.54	14.92
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 1.9	13.6	12.2
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	13.03
Initial Diameter, in.		D_o 1.486	1.438	1.441
Initial Height, in.		H_o 2.990	2.997	3.007

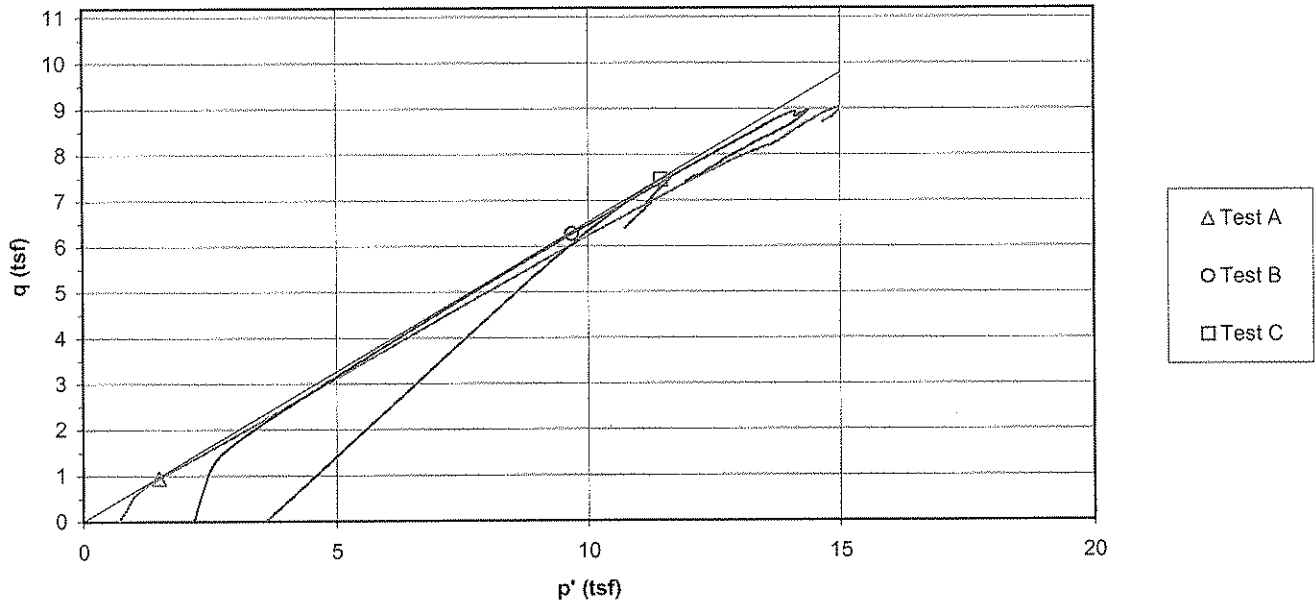
Controlled - Strain Test				Initial Height, in.		H_o	2.990	2.997	3.007	
Description of Specimens Silt (ML), gray, moist, soft										
				Type of Specimen	Undisturbed	Type of test				R
LL	PL	PI	Gs	2.43	Project					Widows Creek Fossil Pant
Remarks:										
				Boring No.	B-34	Sample No.				797
				Depth Elev.	15.2'-16.9'					
				Laboratory	Stantec	Date				4-24-09
TRIAXIAL COMPRESSION TEST REPORT										

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

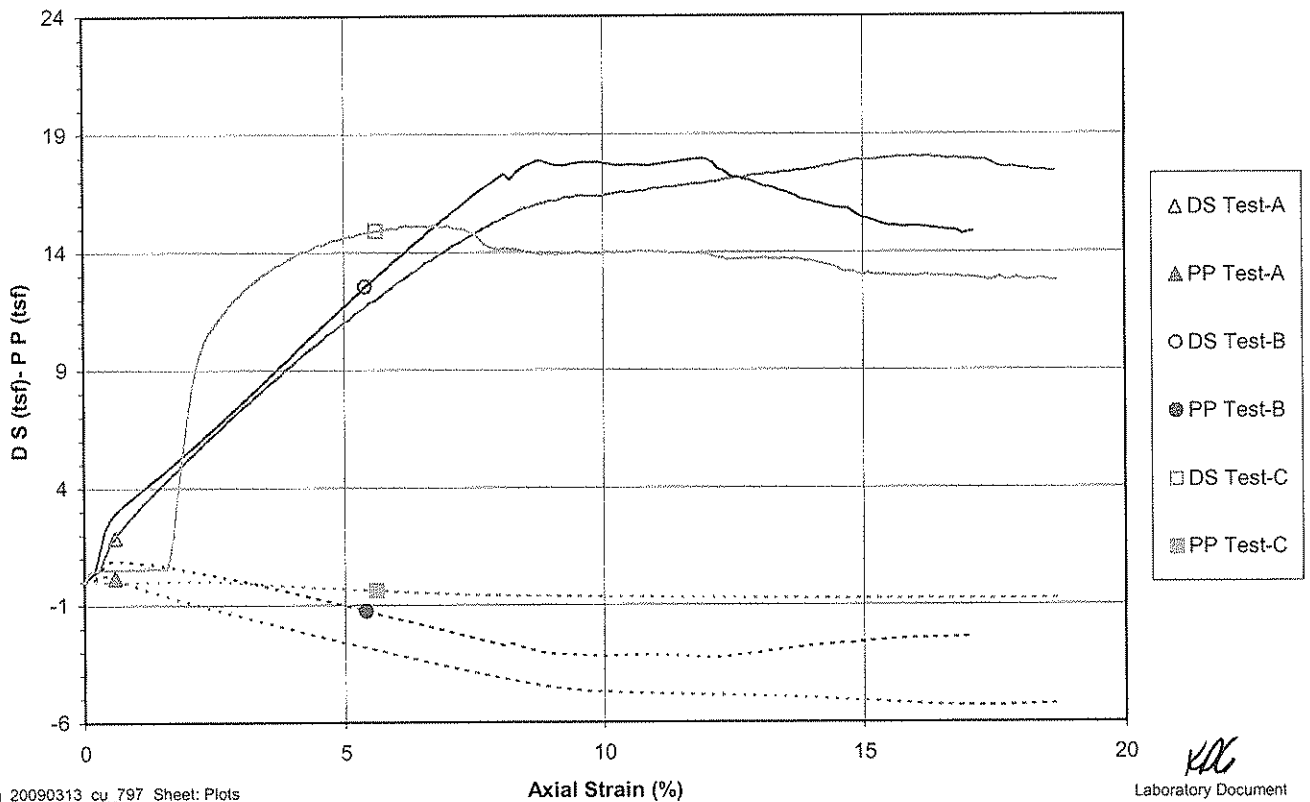
Project Widows Creek Fossil Pant
 Sample ID B-34 (cast gyp), 15.8'-16.3' & B-34 (cast gyp), 15.2'-15.7' & B-34 (cast gyp), 16.4'-16.9'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 40.7$ deg.

Project No. 171468118
 Test Number 797
 $c' = 0.00$ tsf

p' vs. q Plot

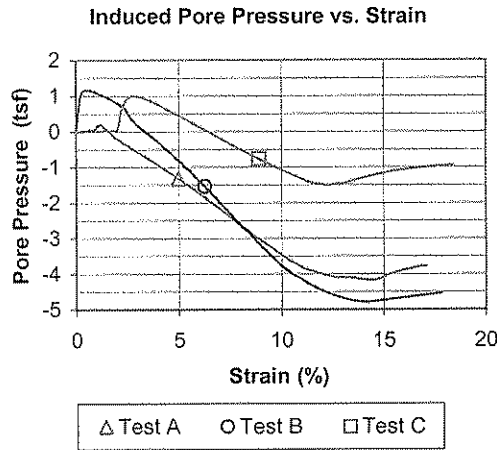
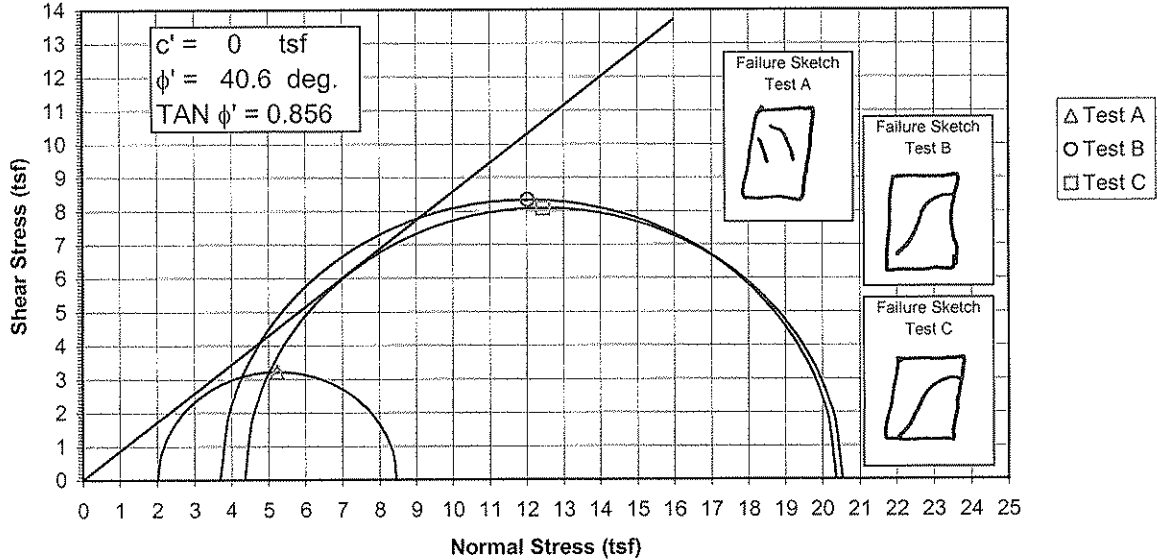


Deviator Stress and Induced Pore Pressure vs. Axial Strain



Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 32.1	45.6	51.1
	Dry Density PCF	γ_{d_o} 88.4	81.5	68.0
	Saturation %	S_o 108.8	128.6	101.0
	Void Ratio	e_o 0.716	0.861	1.230
After Shear	Water content %	W_f 31.9	40.3	37.6
	Dry Density PCF	γ_{d_f} 85.4	76.7	79.3
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.776	0.979	0.914
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 2.03	3.71	4.37
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 6.43	16.66	16.17
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 7.8	19.0	14.3
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	14.58
	Initial Diameter, in.	D_o 1.460	1.428	1.474
	Initial Height, in.	H_o 3.017	3.001	3.052

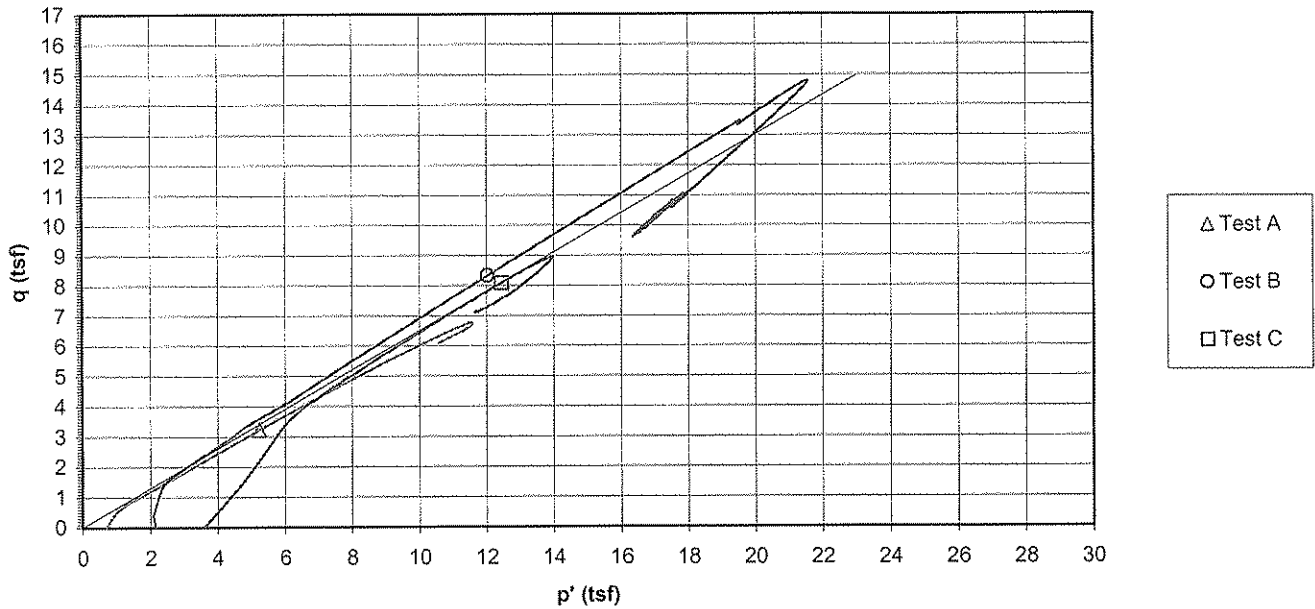
Controlled - Strain Test				Description of Specimens Silt (ML), gray			
LL				Type of Specimen Undisturbed			
PL				Type of test R			
PI				Project Widows Creek Fossil Plant			
Gs 2.43				Boring No. B-33			
Remarks:				Sample No. 782			
				Depth Elev. 15.0' - 17.0'			
				Laboratory Stantec		Date 4-17-09	
TRIAXIAL COMPRESSION TEST REPORT							

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

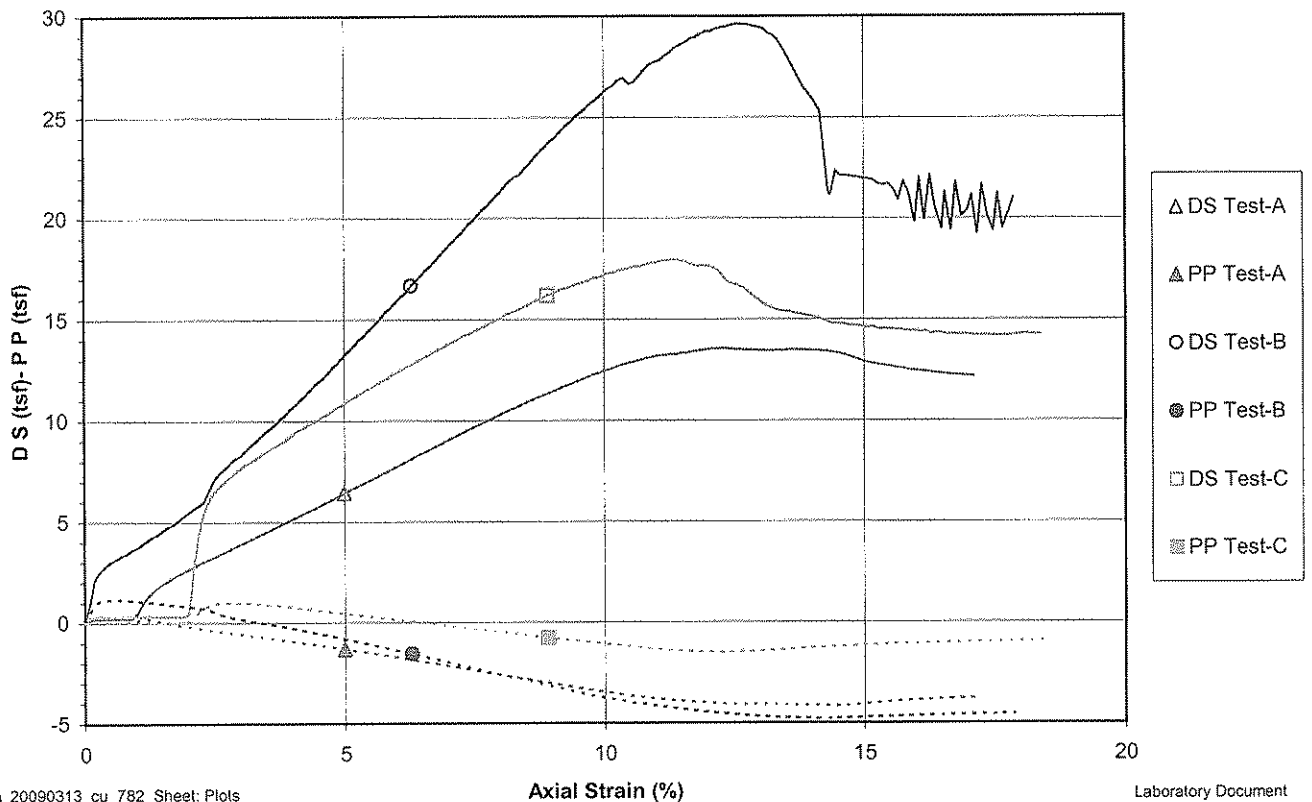
Project Widows Creek Fossil Plant
 Sample ID B-33, 15.2' - 15.7' & B-33, 16.5' - 17.0' & B-33, 16.8' - 17.3'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 40.6$ deg.

Project No. 171468118
 Test Number 782
 $c' = 0.00$ tsf

p' vs. q Plot

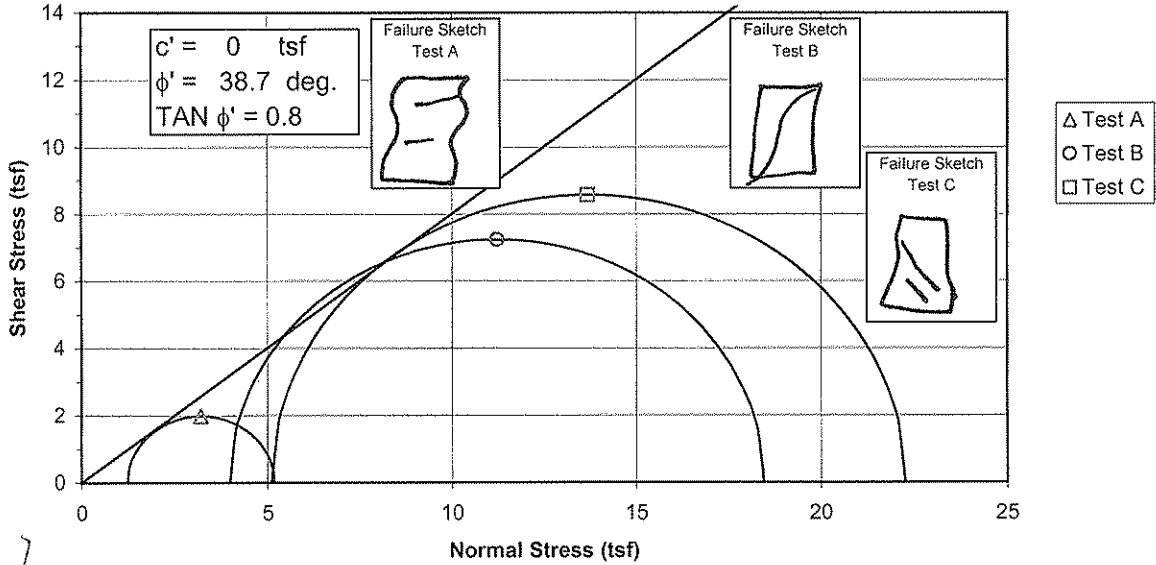


Deviator Stress and Induced Pore Pressure vs. Axial Strain

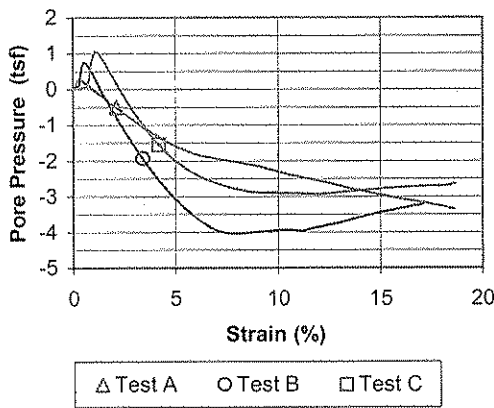


Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Induced Pore Pressure vs. Strain



Specimen No.		A	B	C
Initial Data	Water content %	W_o 46.5	40.5	39.1
	Dry Density PCF	γ_{d_o} 71.9	78.7	81.5
	Saturation %	S_o 102.6	107.0	111.5
	Void Ratio	e_o 1.092	0.911	0.846
After Shear	Water content %	W_f 45.0	42.0	38.0
	Dry Density PCF	γ_{d_f} 72.2	74.8	78.5
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 1.084	1.012	0.916
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 1.23	3.99	5.12
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 3.97	14.36	17.11
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 6.1	10.6	9.2
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 1.502	1.501	1.441
Initial Height, in.		H_o 3.053	3.024	2.999

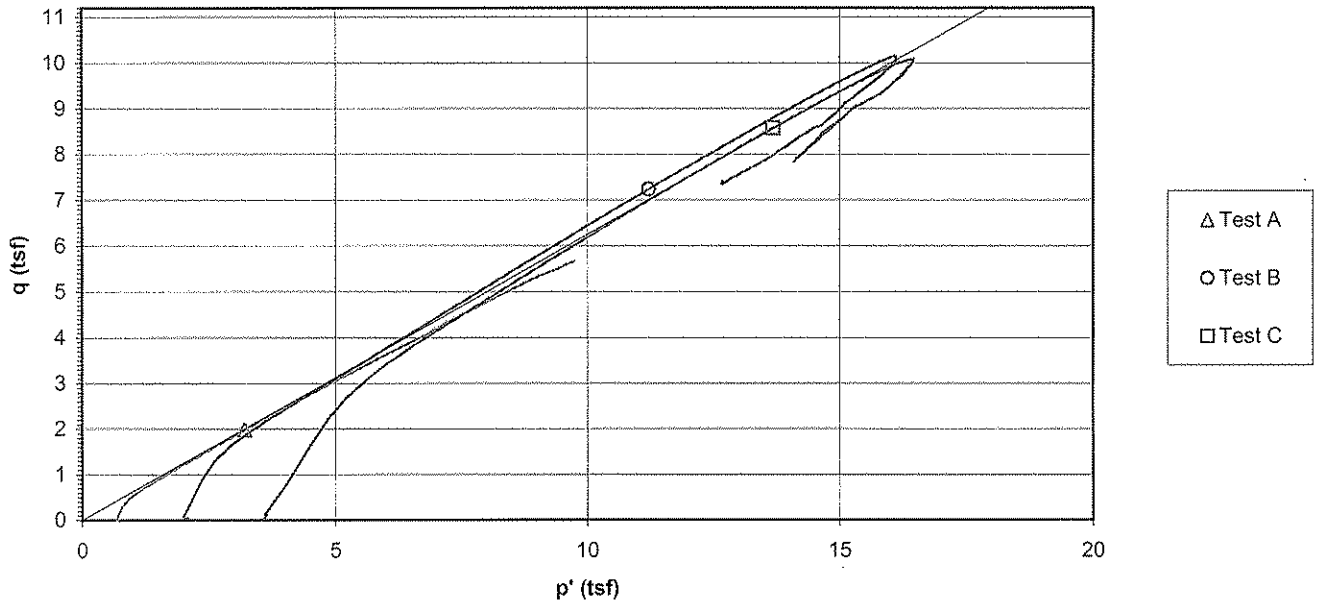
Controlled - Strain Test		Initial Diameter, in.		D_o	1.502	1.501	1.441
Description of Specimens		Initial Height, in.		H_o	3.053	3.024	2.999
Silt (ML), gray							
				Type of Specimen	Undisturbed	Type of test	
LL	PL	PI	Gs	2.41	Project		Widows Creek Fossil Plant
Remarks:				Boring No.	B-38	Sample No.	784
				Depth Elev.	12.0' - 14.0'		
				Laboratory	FMSM Engineers	Date	4-17-09
TRIAXIAL COMPRESSION TEST REPORT							

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

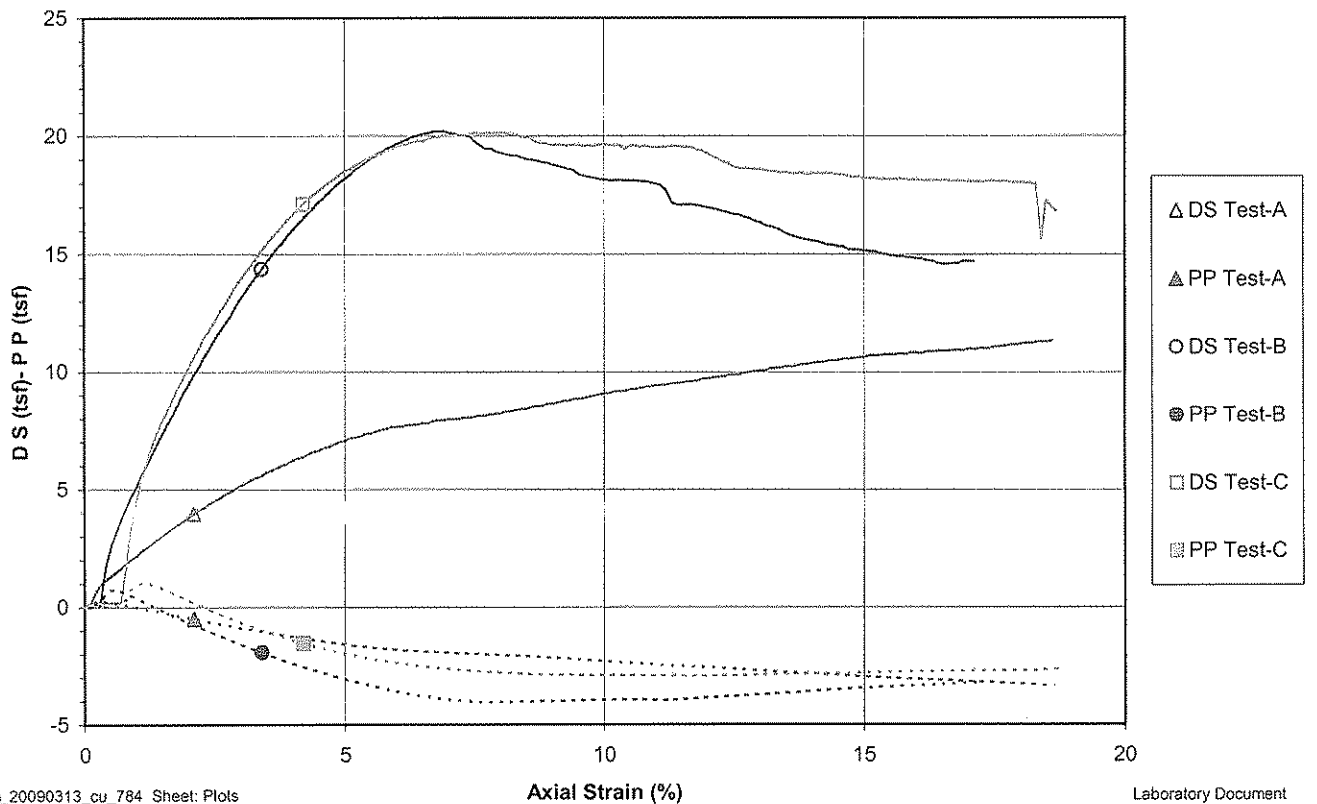
Project Widows Creek Fossil Plant
 Sample ID B-38, 12.8' - 13.3' & B-38, 12.2' - 12.7' & B-38, 13.4' - 13.9'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 38.7$ deg.

Project No. 171468118
 Test Number 784
 $c' = 0.00$ tsf

p' vs. q Plot

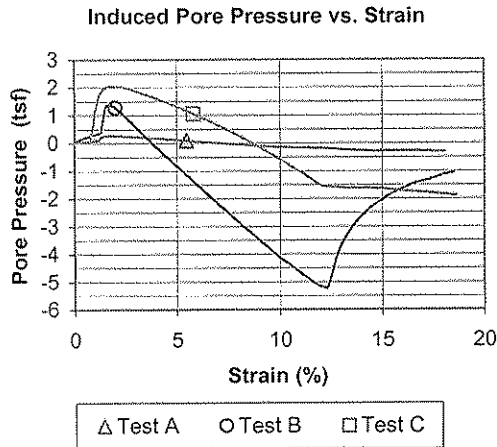
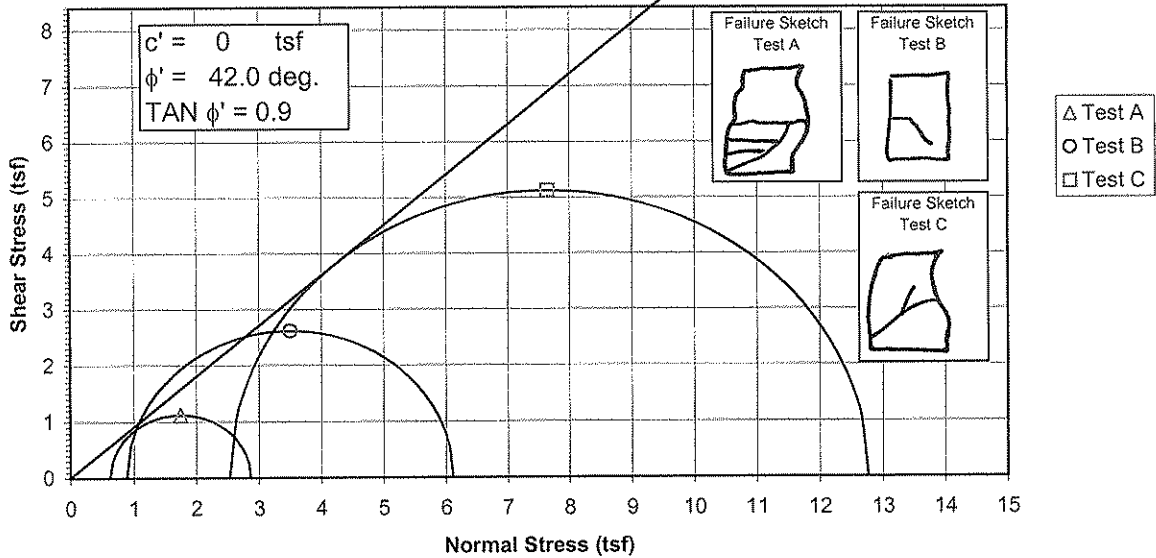


Deviator Stress and Induced Pore Pressure vs. Axial Strain



Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 57.4	50.1	40.7
	Dry Density PCF	γ_{d_o} 69.4	76.7	84.0
	Saturation %	S_o 116.9	123.5	121.3
After Shear	Void Ratio	e_o 1.204	0.993	0.821
	Water content %	W_f 41.7	42.0	34.4
	Dry Density PCF	γ_{d_f} 75.7	75.3	83.0
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 1.022	1.030	0.844
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 0.63	0.90	2.53
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 2.24	5.22	10.23
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 61.0	4.8	15.7
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
	Initial Diameter, in.	D_o 1.414	1.430	1.427
Controlled - Strain Test	Initial Height, in.	H_o 3.010	3.014	3.003

Description of Specimens					Silt (ML), gray, moist, soft														
Type of Specimen					Undisturbed														
Type of test					R														
LL	PL	PI	Gs	2.45	Project					Widows Creek Fossil Plant									
Remarks:										Boring No. B-41					Sample No. 765				
										Depth Elev. 22.0' - 24.0'									
										Laboratory Stantec					Date 4-17-09				
TRIAXIAL COMPRESSION TEST REPORT																			

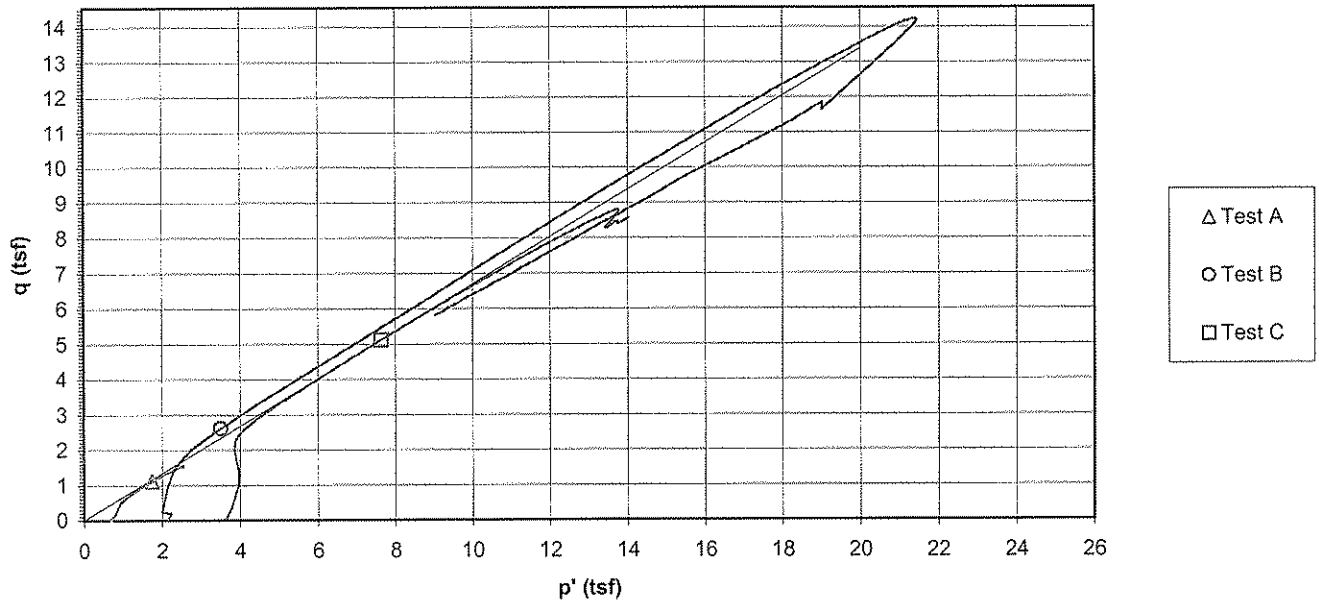
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Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X

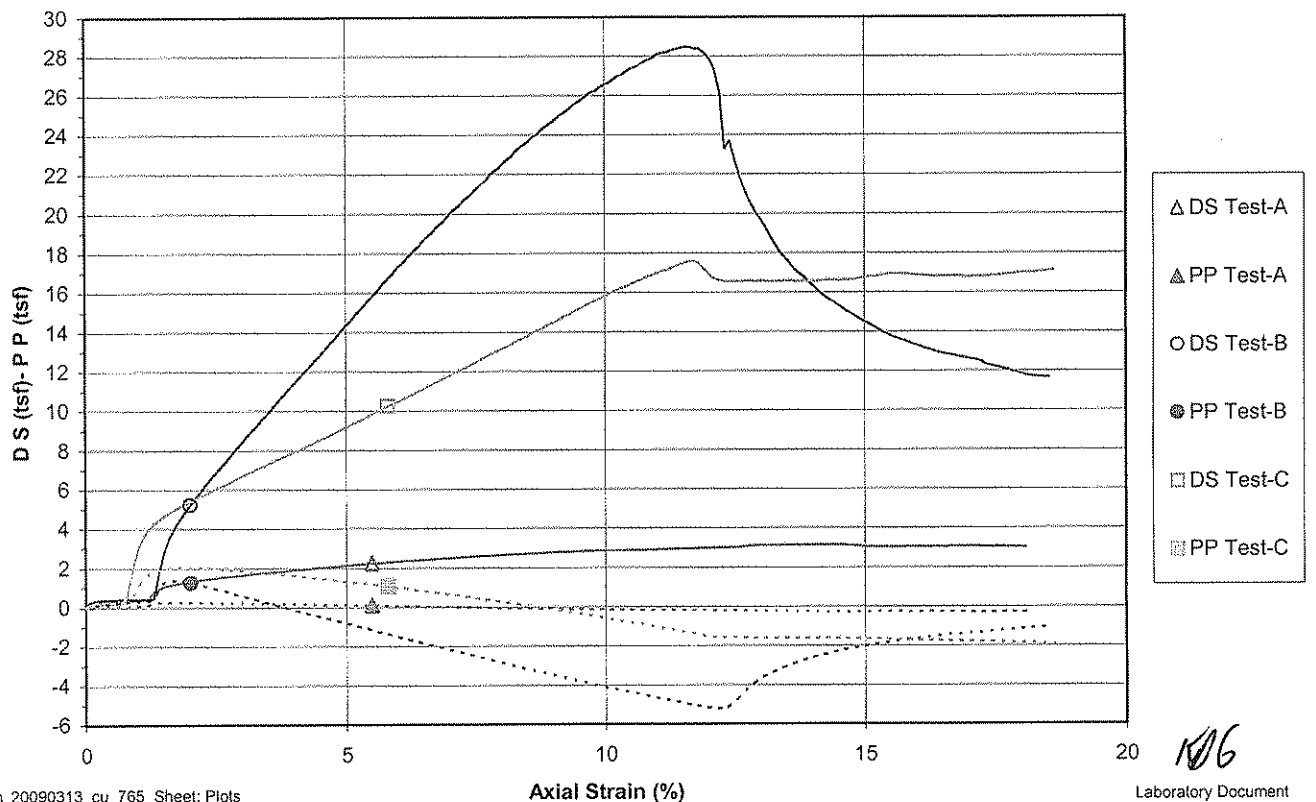
Project Widows Creek Fossil Plant
 Sample ID B-41, 22.7' - 23.2' & B-41, 23.3' - 23.8' & B-41, 22.1' - 22.6'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 42.0$ deg.

Project No. 171468118
 Test Number 765
 $c' = 0.00$ tsf

p' vs. q Plot



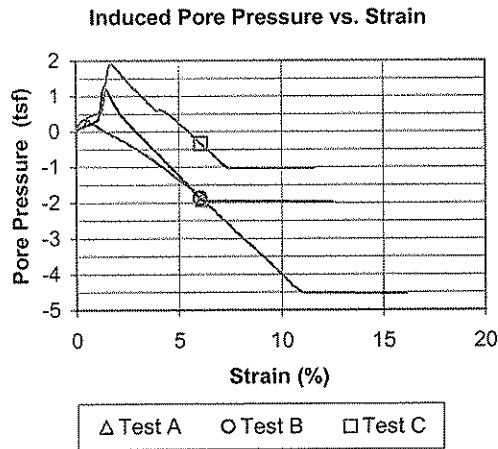
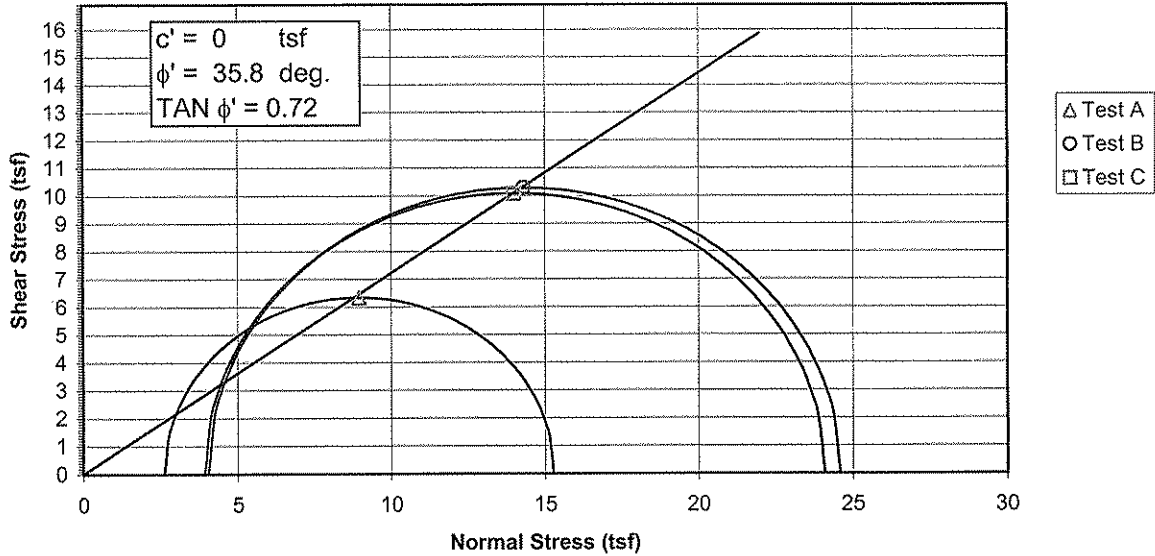
Deviator Stress and Induced Pore Pressure vs. Axial Strain



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Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



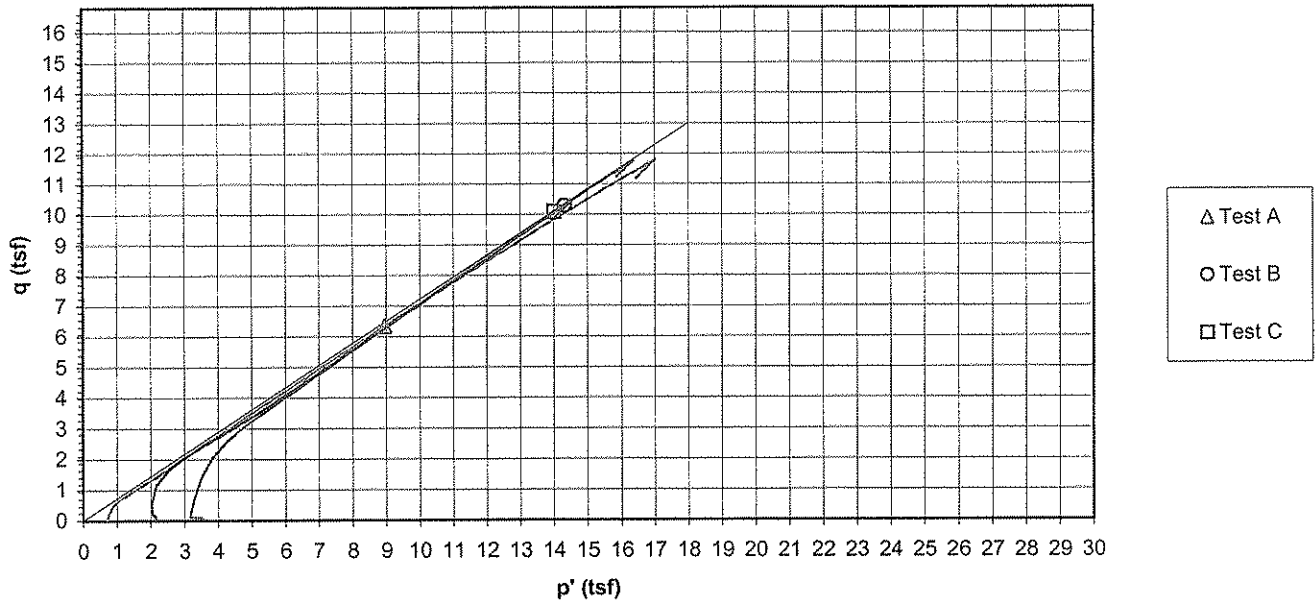
Specimen No.		A	B	C
Initial Data	Water content %	W_o 22.0	22.4	20.8
	Dry Density PCF	γ_{d_o} 98.9	99.0	98.1
	Saturation %	S_o 95.1	97.2	88.1
	Void Ratio	e_o 0.578	0.577	0.591
After Shear	Water content %	W_f 17.6	16.6	18.3
	Dry Density PCF	γ_{d_f} 108.3	110.2	107.0
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.441	0.416	0.458
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
Minor Principal Stress TSF @ failure		$\sigma_3'f$ 2.62	4.04	3.93
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1' - \sigma_3')_{max}$ 12.67	20.56	20.16
Time to $(\sigma_1' - \sigma_3')_{max}$ min.		t_f 243.2	258.2	364.5
Ultimate Deviator Stress, t/sq ft		$(\sigma_1' - \sigma_3')_{ult}$ n/a	19.59	n/a
Initial Diameter, in.		D_o 2.936	2.914	2.822
Initial Height, in.		H_o 5.739	5.737	6.119

Controlled - Strain Test							Initial Diameter, in.		D_o	2.936	2.914	2.822	
Description of Specimens							Initial Height, in.		H_o	5.739	5.737	6.119	
Silt (ML), dark gray, wet, soft, fly ash													
							Type of Specimen	Undisturbed			Type of test	R	
LL	NP	PL	NP	PI	NP	Gs	2.5	Project				Widows Creek Fossil Pant	
Remarks:													
							Boring No.	B-42	Sample No.		770		
							Depth Elev.	32.5' - 34.5'					
							Laboratory	Stantec		Date			3-30-09
TRIAXIAL COMPRESSION TEST REPORT													

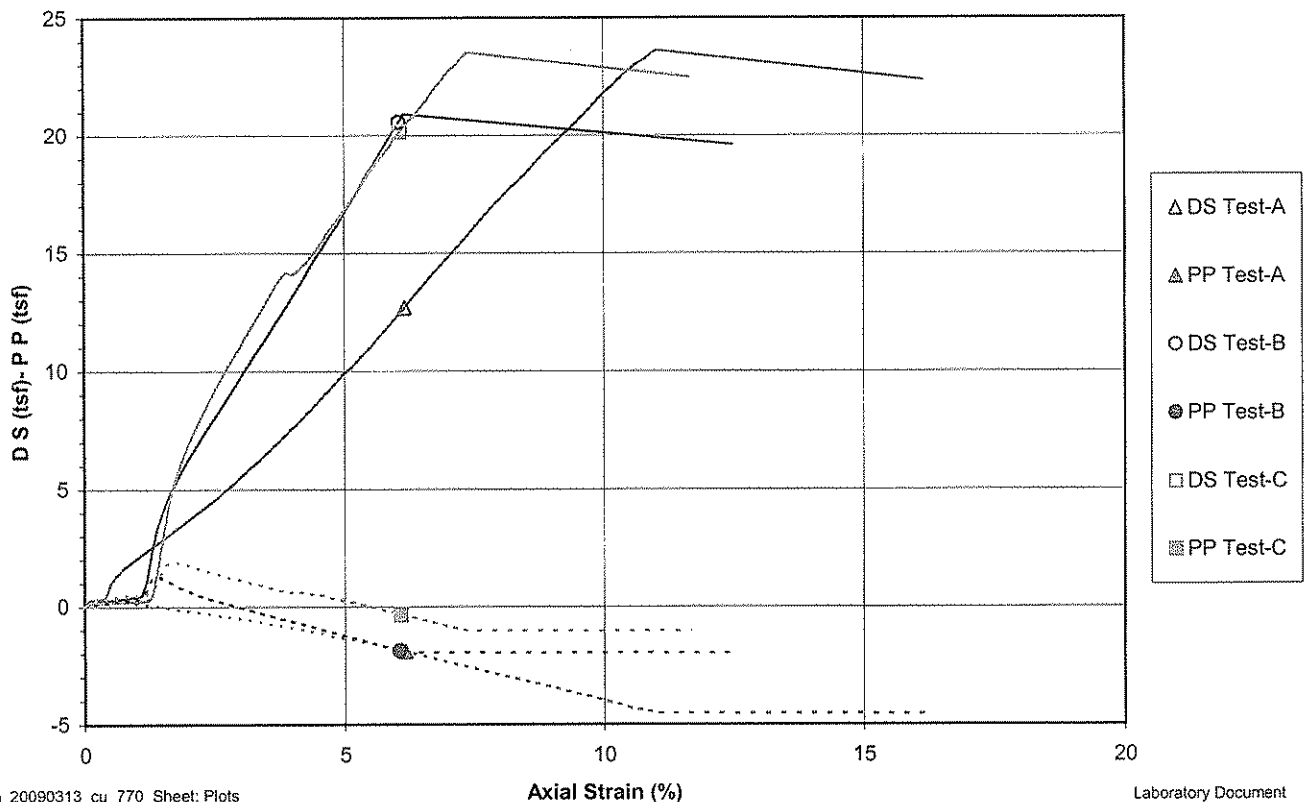
**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

Project Widows Creek Fossil Pant Project No. 171468118
 Sample ID B42 (sed. Gyp), 32.7'-33.2' & B42 (sed. Gyp), 33.3'-33.8' & B42 (sed. Gyp), 33.3'-33.8' Test Number 770
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 35.8$ deg. $c' = 0.00$ tsf

p' vs. q Plot

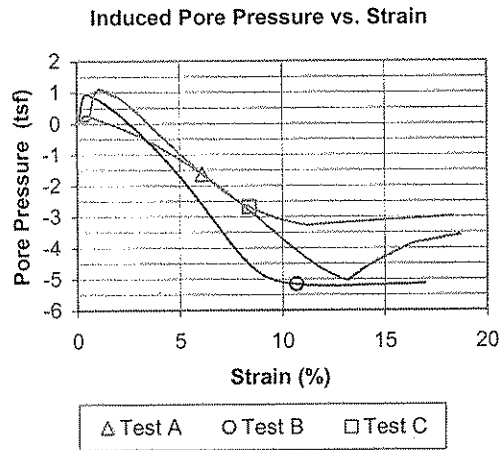
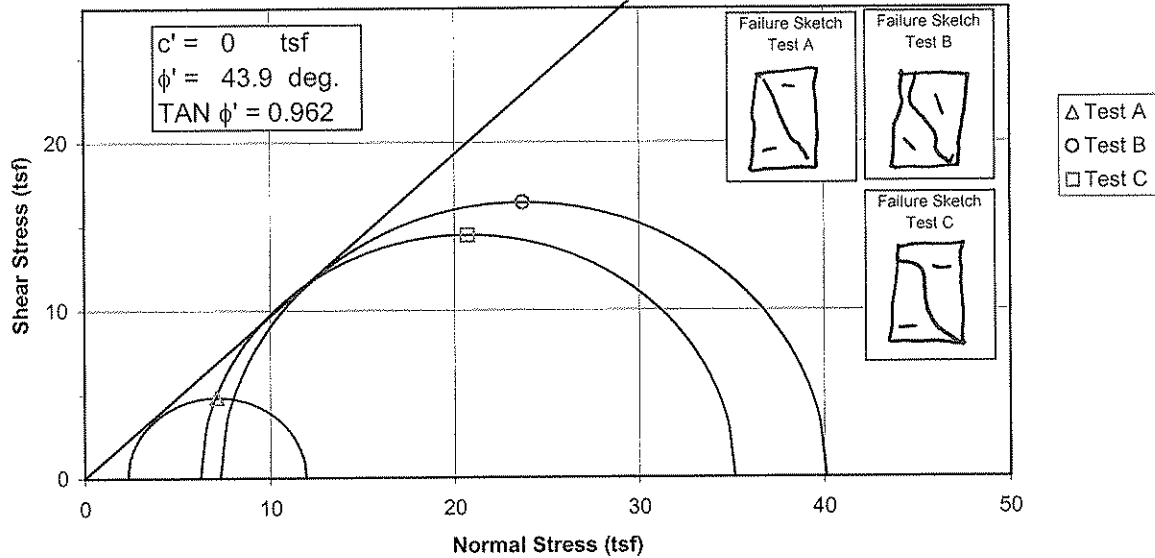


Deviator Stress and Induced Pore Pressure vs. Axial Strain



Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 43.7	39.9	50.8
	Dry Density PCF	γ_{d_o} 78.0	81.2	48.9
	Saturation %	S_o 111.3	110.6	58.5
After Shear	Void Ratio	e_o 0.962	0.885	2.130
	Water content %	W_f 34.9	39.3	44.5
	Dry Density PCF	γ_{d_f} 82.4	77.9	73.2
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.856	0.963	1.089
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 2.33	7.32	6.24
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 9.59	32.78	28.89
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 11.5	28.8	25.6
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	21.98	22.06
	Initial Diameter, in.	D_o 1.484	1.462	1.709
Controlled - Strain Test	Initial Height, in.	H_o 2.998	3.071	3.018

Description of Specimens		Silt (ML), gray, moist, soft	
Type of Specimen		Undisturbed	Type of test R
LL	PL	PI	Gs 2.45
Project		Widows Creek Fossil Pant	
Remarks:			
Boring No.		B-28	Sample No. 792
Depth Elev.			
Laboratory		Stantec	Date 4-23-09
TRIAXIAL COMPRESSION TEST REPORT			

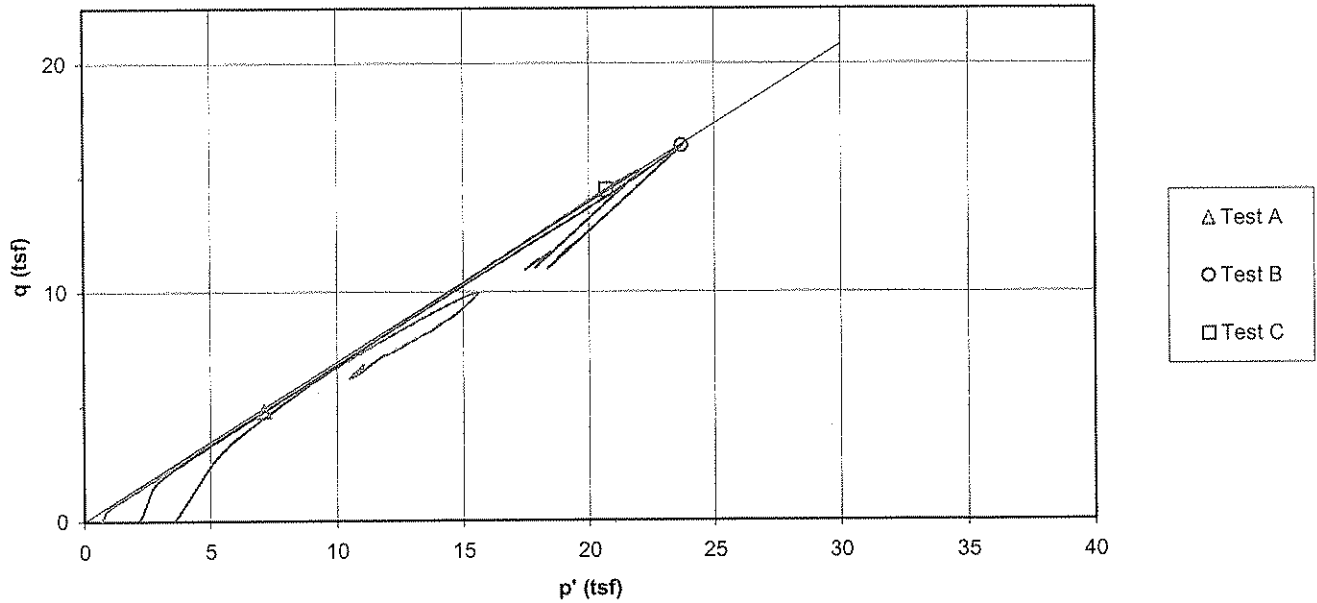
KD

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

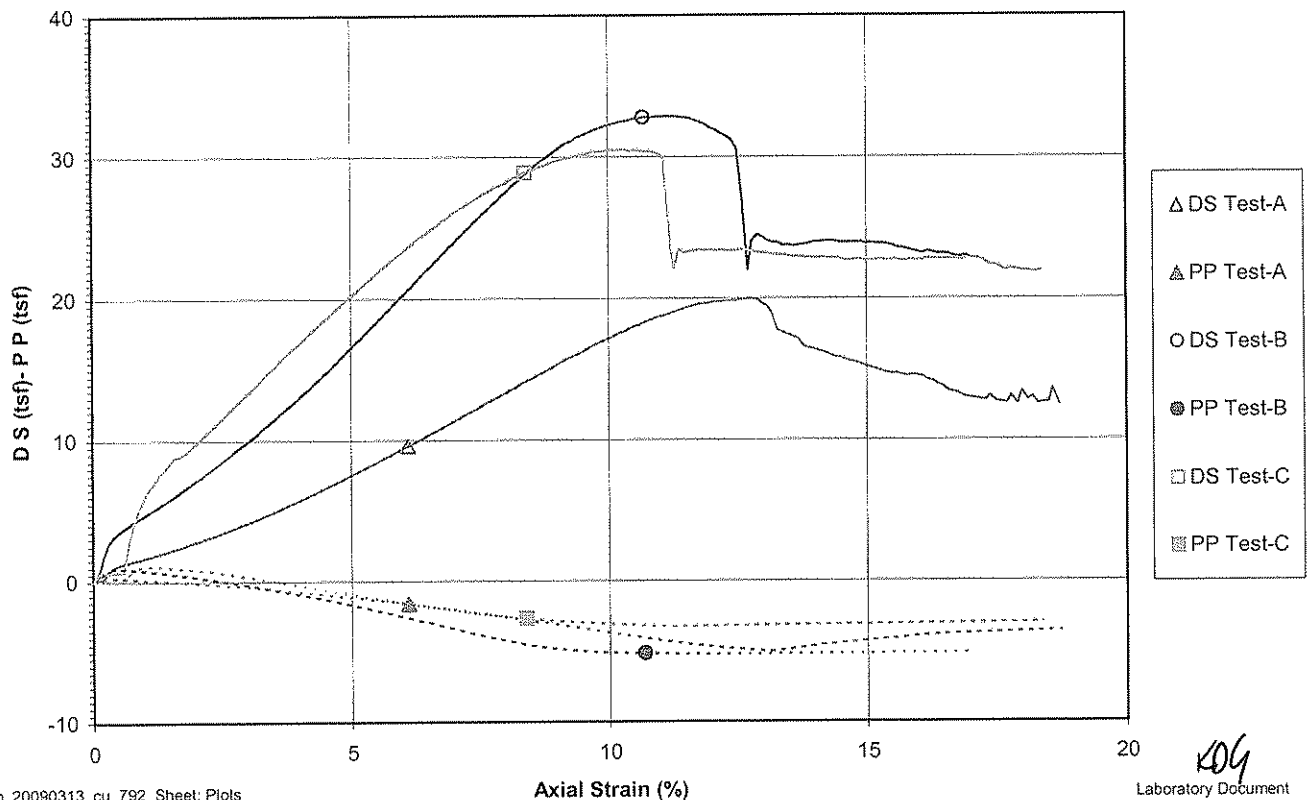
Project Widows Creek Fossil Pant
 Sample ID B-28 (sed. Gyp), 10.5'-11.0' & B-28 (sed. Gyp), 39.7'-40.2' & B-28 (sed. Gyp), 40.3'-40.8'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 43.9$ deg.

Project No. 171468118
 Test Number 792
 $c' = 0.00$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain

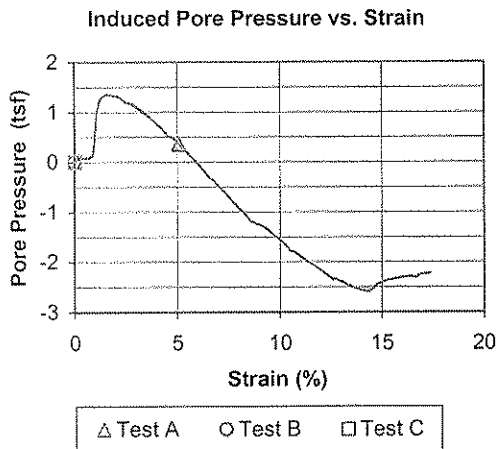
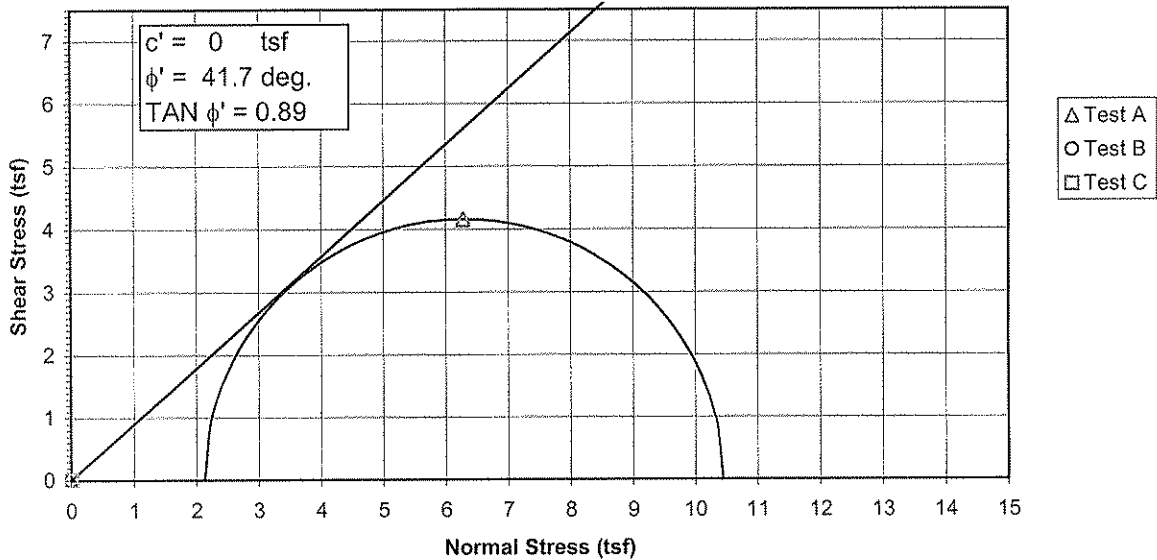


Sed. Gypsum

EM 1110-2-1906
 Appendix X
 30 Nov. 70

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W _o 35.7	#####	#####
	Dry Density PCF	γ _{d_o} 86.3	#####	#####
	Saturation %	S _o 110.5	#####	#####
	Void Ratio	e _o 0.808	#####	#####
After Shear	Water content %	W _f 29.8	#####	#####
	Dry Density PCF	γ _{d_f} 89.4	#####	#####
	Saturation %	S _f 100.0	#####	#####
	Void Ratio	e _f 0.745	#####	#####
	Final Back Pressure TSF	u _c 3.96	0.00	0.00
	Minor Principal Stress TSF @ failure	σ ₃ ' _f 2.13	0.00	0.00
	Maximum Deviator Stress (tsf) @ failure	(σ ₁ '-σ ₃ ') _{max} 8.29	0.00	0.00
	Time to (σ ₁ '-σ ₃ ') _{max} min.	t _f 27.1	0.0	0.0
	Ultimate Deviator Stress, t/sq ft	(σ ₁ '-σ ₃ ') _{ult} n/a	0.00	0.00
	Initial Diameter, in.	D _o 2.861	#####	#####
	Initial Height, in.	H _o 5.961	#####	#####

Controlled - Strain Test				Initial Diameter, in.		D _o	2.861	#####	#####
Description of Specimens				Initial Height, in.		H _o	5.961	#####	#####
Silt (ML), gray, wet, very soft									
				Type of Specimen	Undisturbed			Type of test	R
LL	PL	PI	Gs	2.5	Project	Widows Creek Fossil Plant 600.121			
Remarks:									
				Boring No.	B42	Sample No.	399B		
				Depth Elev.	46.8' - 47.3'				
				Laboratory	Stantec	Date	3-5-09		
TRIAXIAL COMPRESSION TEST REPORT									

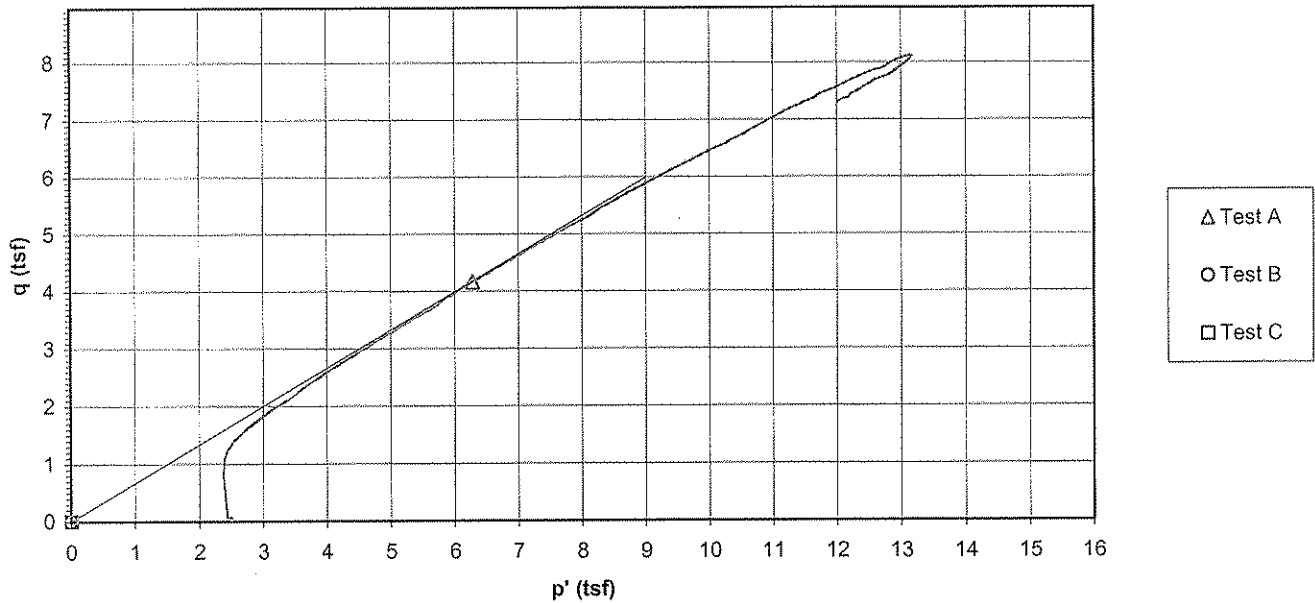
KOB

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

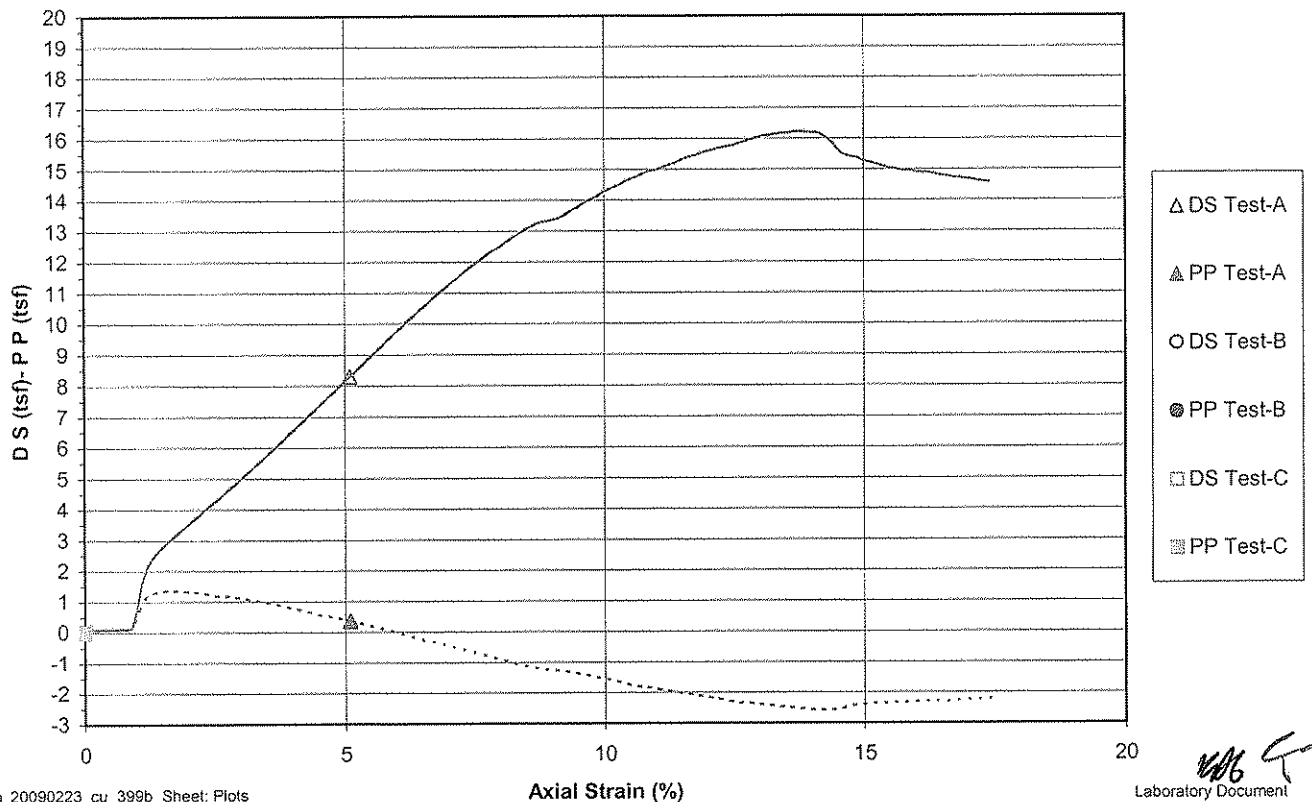
Project Widows Creek Fossil Plant 600.121
 Sample ID B-42, 46.8' - 47.3'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 41.7$ deg.

Project No. 171468118
 Test Number 399B
 $c' = 0.00$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain

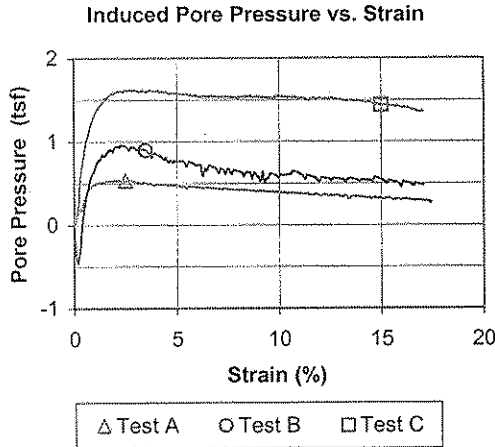
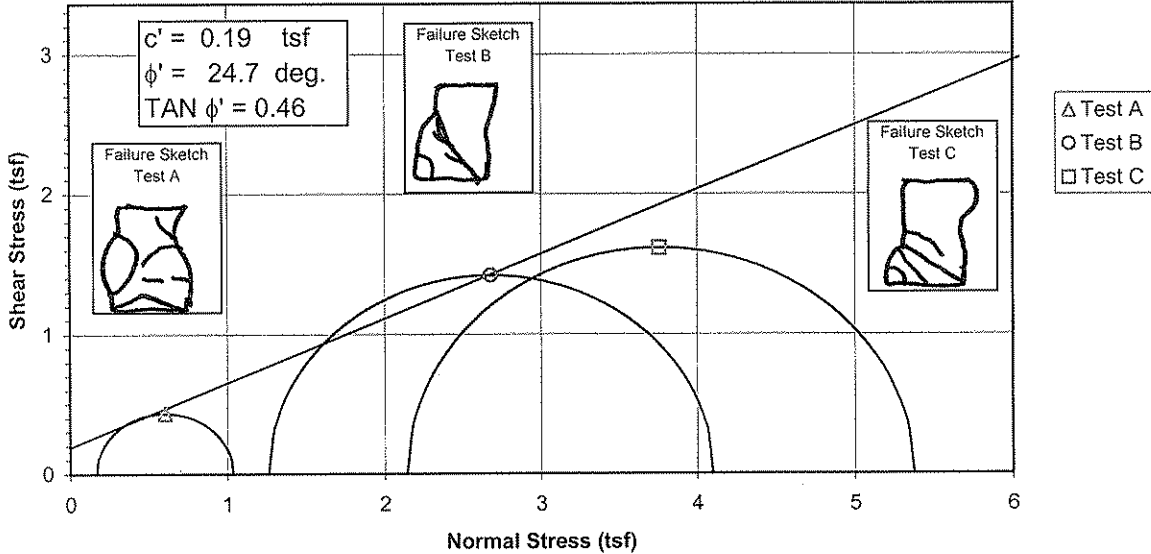


clay

EM 1110-2-1906
 Appendix X
 30 Nov. 70

Failure Criterion: Maximum Effective Principal Stress Ratio

Effective Strength Envelope



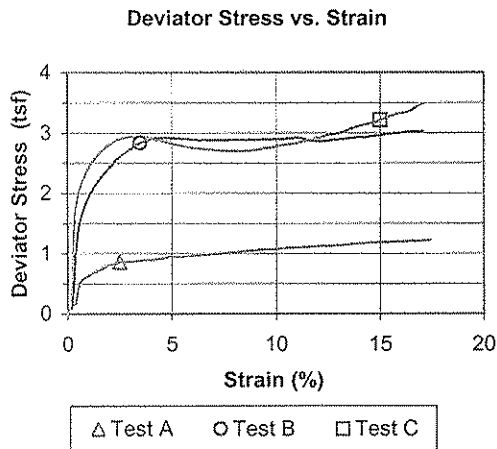
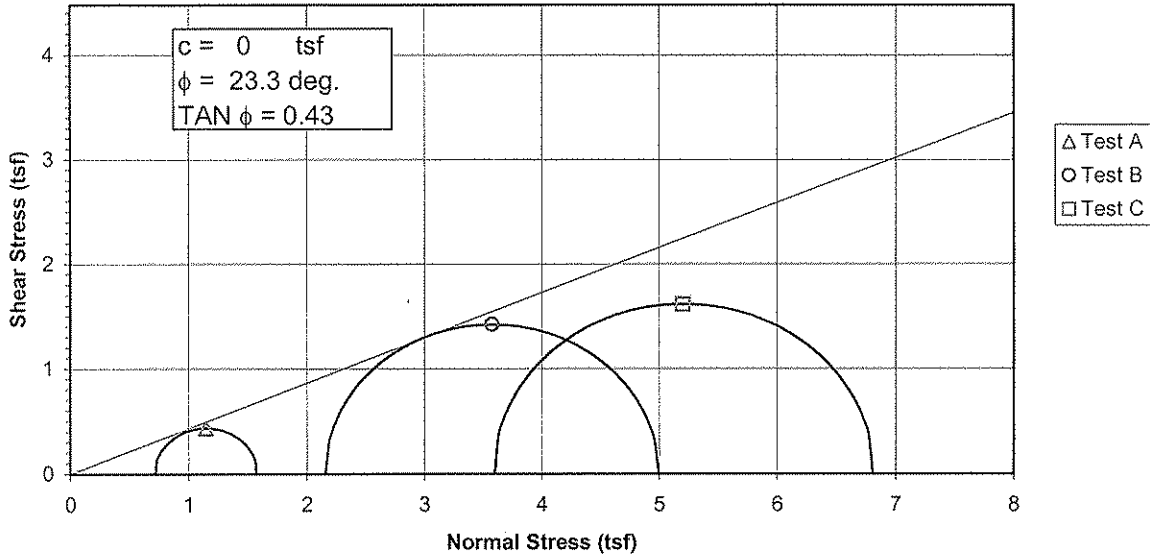
Specimen No.		A	B	C
Initial Data	Water content %	W_o 26.7	25.5	33.4
	Dry Density PCF	γ_{d_o} 97.4	99.6	90.8
	Saturation %	S_o 98.5	99.3	105.5
	Void Ratio	e_o 0.731	0.692	0.855
After Shear	Water content %	W_f 25.1	24.0	27.1
	Dry Density PCF	γ_{d_f} 100.5	102.2	97.4
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.678	0.649	0.731
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 0.17	1.26	2.14
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 0.85	2.84	3.21
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 80.8	250.0	462.3
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	n/a	n/a
	Initial Diameter, in.	D_o 2.870	2.886	2.884
	Initial Height, in.	H_o 6.079	6.065	6.030

Controlled - Strain Test				Initial Diameter, in.		D_o	2.870	2.886	2.884
Description of Specimens				Initial Height, in.		H_o	6.079	6.065	6.030
Lean Clay (CL), gray and brown, wet, soft									
				Type of Specimen	Undisturbed			Type of test	R
LL	PL	PI	Gs	2.7	Project		Widows Creek Fossil Plant 600.121		
Remarks:				Boring No.		B-32	Sample No.		401A,B,C
				Depth Elev.		35.0' - 37.0'			
				Laboratory		Stantec	Date		3-5-09
TRIAXIAL COMPRESSION TEST REPORT									

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Failure Criterion: Maximum Effective Principal Stress Ratio

Total Strength Envelope



Specimen No.		A	B	C
Initial Data	Water content %	W_o 26.7	25.5	33.4
	Dry Density PCF	γ_{d_o} 97.4	99.6	90.8
	Saturation %	S_o 98.5	99.3	105.5
	Void Ratio	e_o 0.731	0.692	0.855
After Shear	Water content %	W_f 25.1	24.0	27.1
	Dry Density PCF	γ_{d_f} 100.5	102.2	97.4
	Saturation %	S_f 100.0	100.0	100.0
	Void Ratio	e_f 0.678	0.649	0.731
	Final Back Pressure TSF	u_c 5.76	4.32	2.88
Minor Principal Stress TSF		σ_3 0.72	2.16	3.60
Maximum Deviator Stress (tsf) @ failure		$(\sigma_1 - \sigma_3)_{max}$ 0.85	2.84	3.21
Time to $(\sigma_1 - \sigma_3)_{max}$, min.		t_f 80.8	250.0	462.3
Ultimate Deviator Stress, t/sq ft		$(\sigma_1 - \sigma_3)_{ult}$ n/a	n/a	n/a
Initial Diameter, in.		D_o 2.870	2.886	2.884
Initial Height, in.		H_o 6.079	6.065	6.030

Controlled - Strain Test				Initial Height, in.			
Description of Specimens Lean Clay (CL), gray and brown, wet, soft							
				Type of Specimen Undisturbed		Type of test R	
LL	PL	PI	Gs 2.7	Project Widows Creek Fossil Plant 600.121			
Remarks:							
				Boring No. B-32		Sample No. 401A,B,C	
				Depth Elev. 35.0' - 37.0'			
				Laboratory FMSM Engineers		Date 3-5-09	
TRIAXIAL COMPRESSION TEST REPORT							

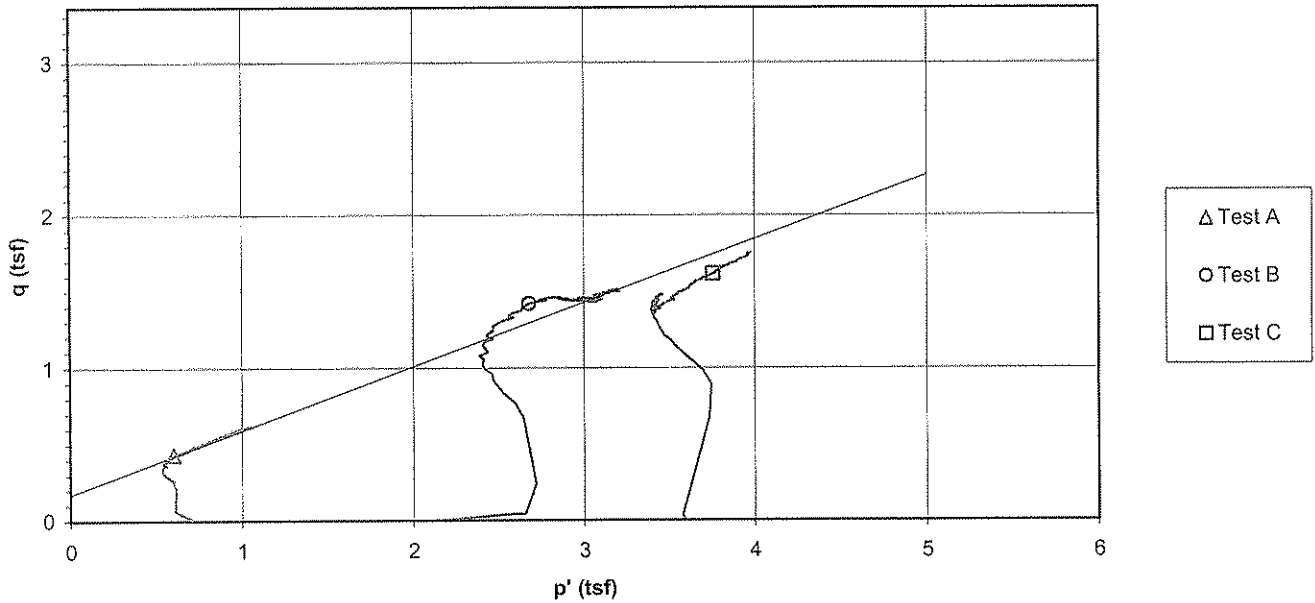
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**Consolidated Undrained Triaxial Test
EM 1110-2-1906 Appendix X**

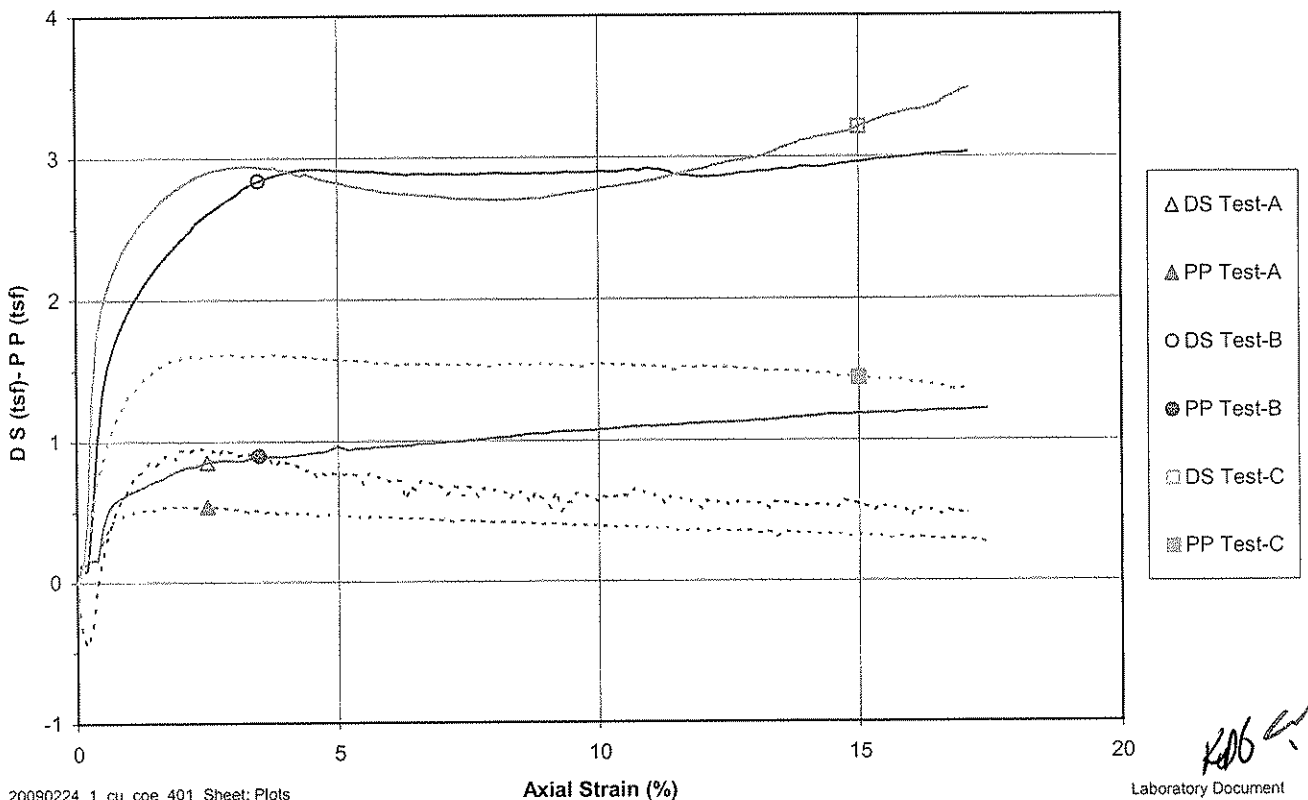
Project Widows Creek Fossil Plant 600.121
 Sample ID B-32, 35.0' - 35.5', 35.6' - 36.1', 36.2' - 36.7'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 24.7$ deg.

Project No. 171468118
 Test Number 401
 $c' = 0.19$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



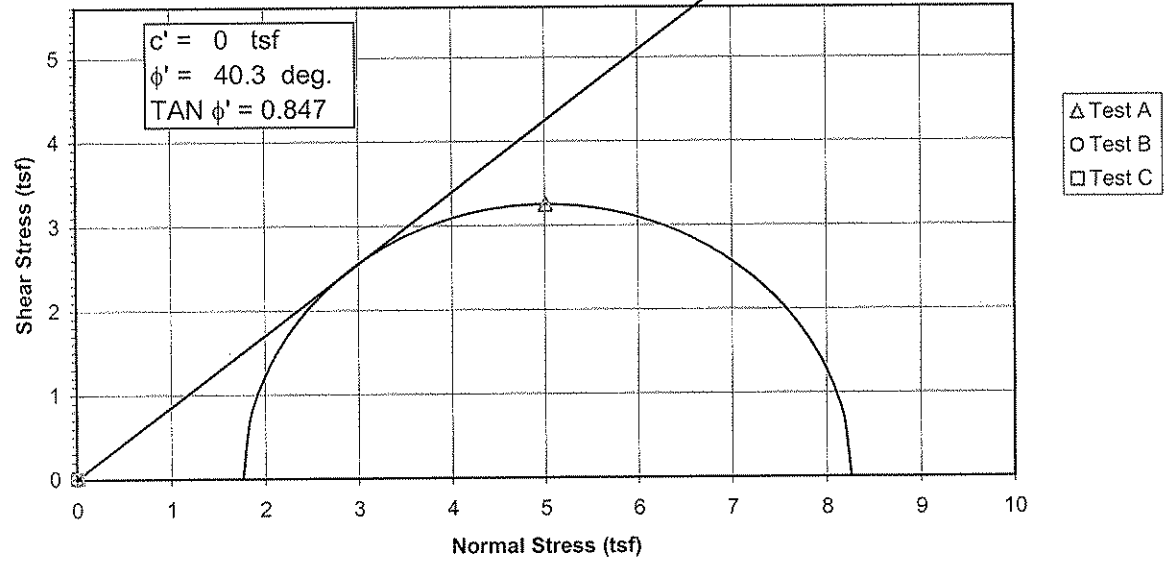
KOB

Cost by 6/3/09

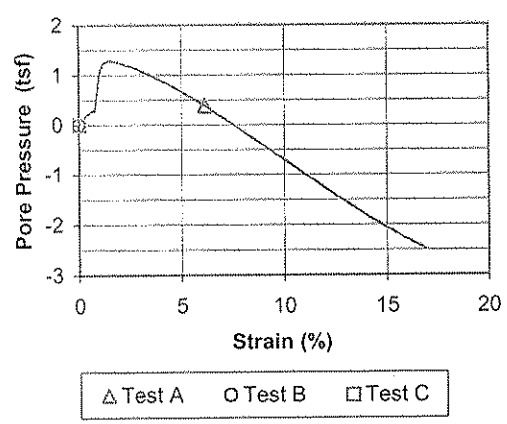
EM 1110-2-1906
 Appendix X
 30 Nov. 70

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 41.2	#####	#####
	Dry Density PCF	γ_{d_o} 81.8	#####	#####
	Saturation %	S_o 113.5	#####	#####
	Void Ratio	e_o 0.907	#####	#####
After Shear	Water content %	W_f 34.4	#####	#####
	Dry Density PCF	γ_{d_f} 83.9	#####	#####
	Saturation %	S_f 100.0	#####	#####
	Void Ratio	e_f 0.861	#####	#####
	Final Back Pressure TSF	u_c 4.32	0.00	0.00
	Minor Principal Stress TSF @ failure	$\sigma_3'f$ 1.77	0.00	0.00
	Maximum Deviator Stress (tsf) @ failure	$(\sigma_1' - \sigma_3')_{max}$ 6.48	0.00	0.00
	Time to $(\sigma_1' - \sigma_3')_{max}$ min.	t_f 42.2	0.0	0.0
	Ultimate Deviator Stress, t/sq ft	$(\sigma_1' - \sigma_3')_{ult}$ n/a	0.00	0.00
	Initial Diameter, in.	D_o 2.853	#####	#####
	Initial Height, in.	H_o 5.839	#####	#####

Controlled - Strain Test			
Description of Specimens Silt (ML), gray, moist, soft			
		Type of Specimen Undisturbed	Type of test R
LL	PL	PI	Gs 2.5
Project		Widows Creek Fossil Plant 600.121	
Remarks:			
Boring No. B44		Sample No. 4A	
Depth Elev. 37.0' - 37.5'			
Laboratory Stantec		Date 3-5-09	
TRIAXIAL COMPRESSION TEST REPORT			

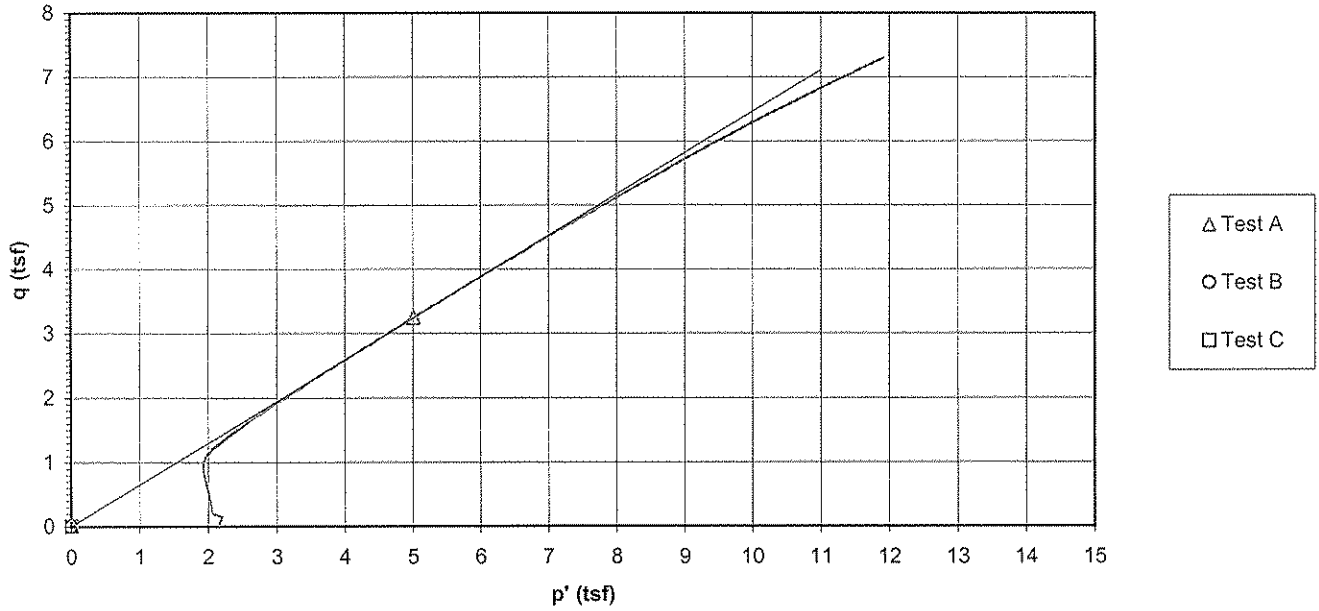
Laboratory Document
 Prepared By: MW
 Checked By: TLK

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

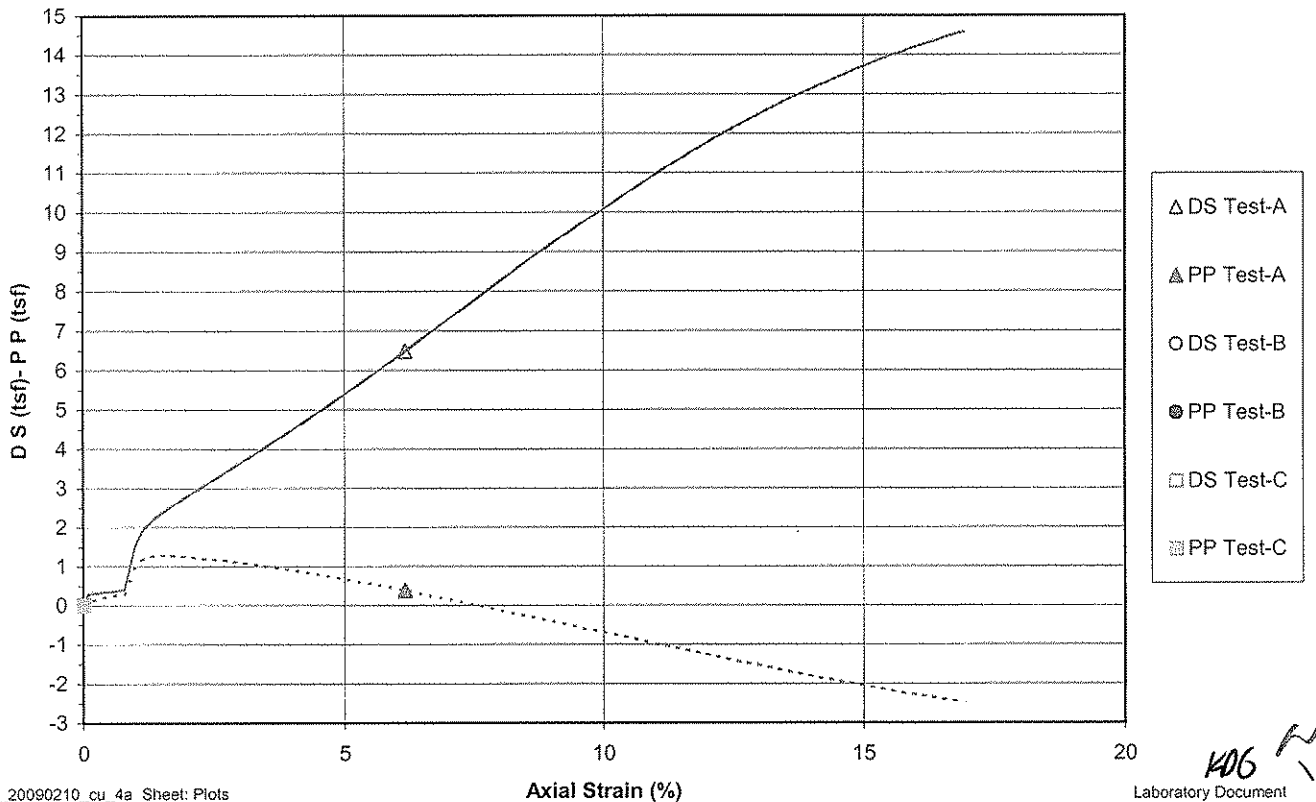
Project Widows Creek Fossil Plant 600.121
 Sample ID B44, 37.0' - 37.5'
 Failure Criterion: Maximum Effective Principal Stress Ratio $\phi' = 40.3$ deg.

Project No. 171468118
 Test Number 4A
 $c' = 0.00$ tsf

p' vs. q Plot



Deviator Stress and Induced Pore Pressure vs. Axial Strain



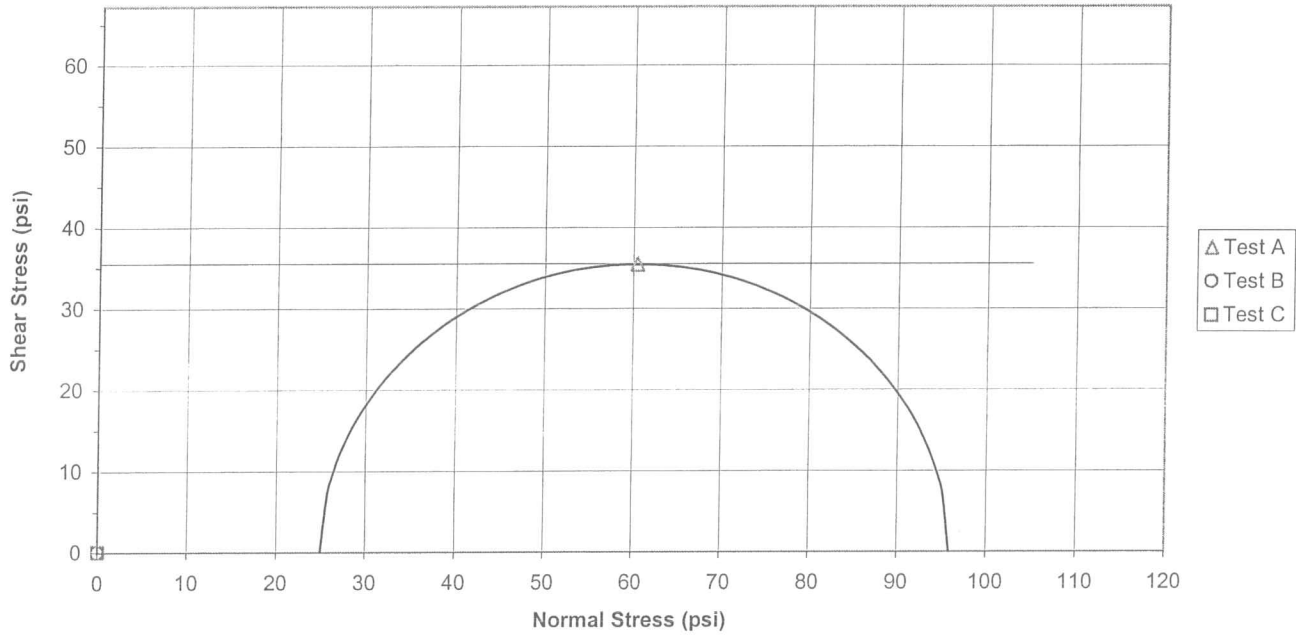
K06

Project Widows Creek Fossil Plant (TVA)
 Sample ID STN-V-10, 31.1'-31.6'

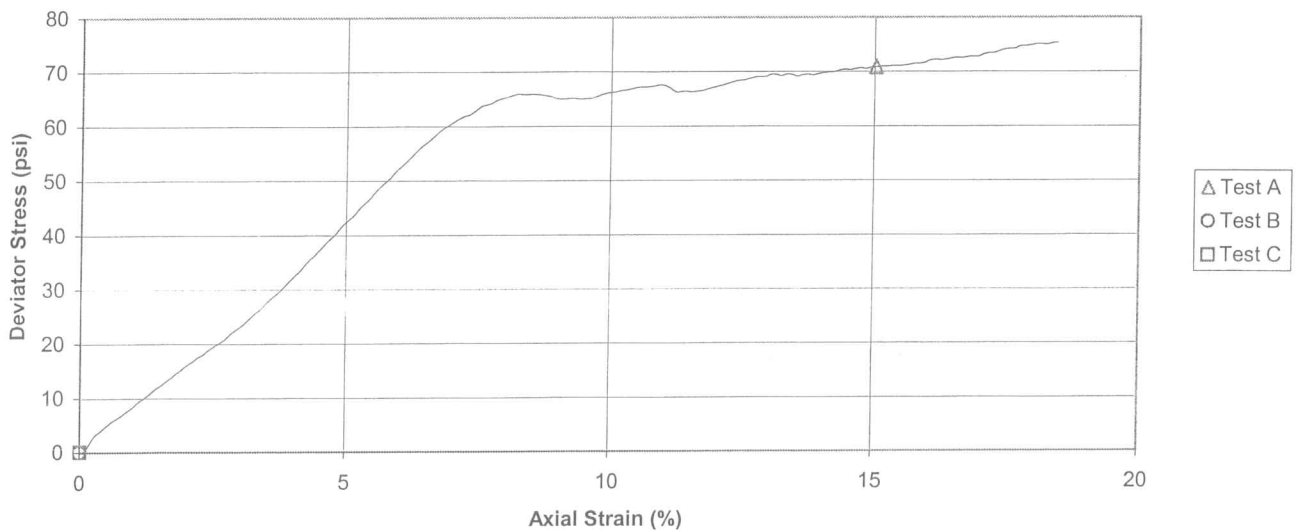
Project No. 175569036
 Test Number 1322A
 c = 35.5 psi


Failure Criterion: $\phi = 0.0$ deg. Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain



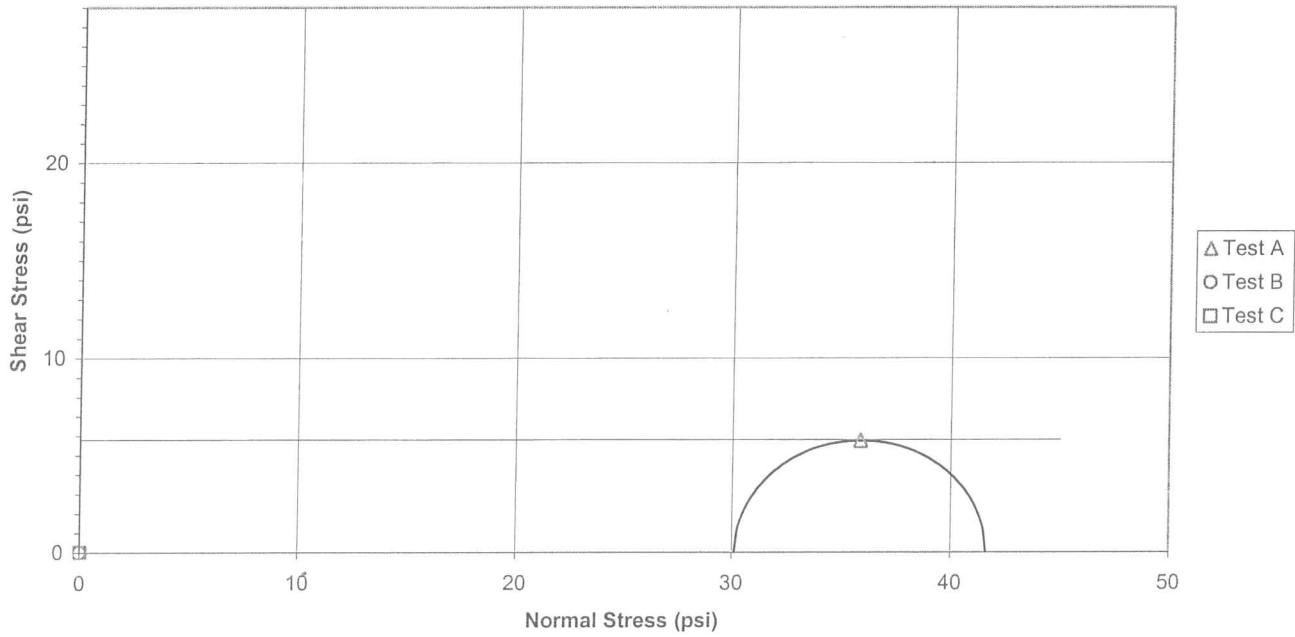
1009


Project Widows Creek Fossil Plant (TVA)
 Sample ID STN-V-10, 36.7'-37.2'

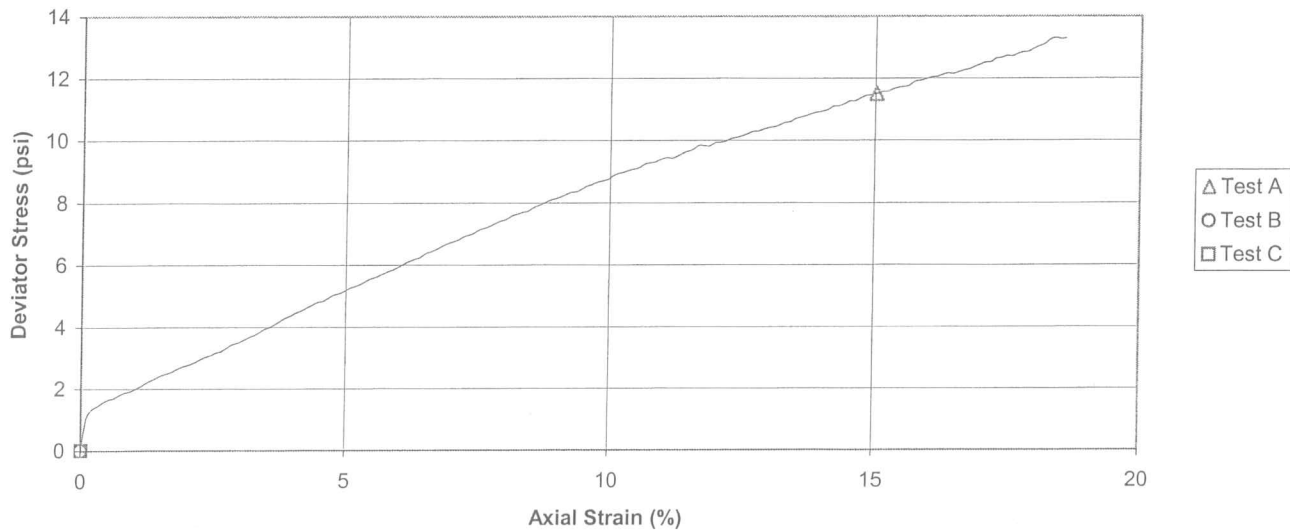
Project No. 175569036
 Test Number 1323B
 c = 5.8 psi

Failure Criterion: $\phi = 0.0 \text{ deg.}$
 Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain

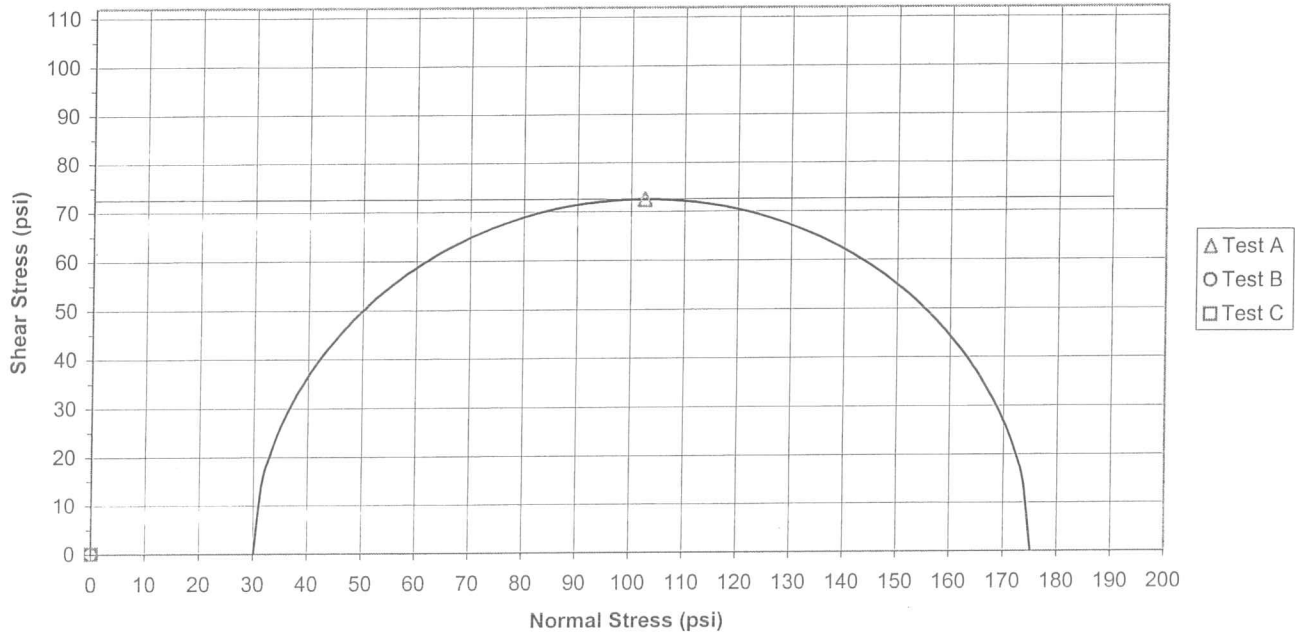


Project Widows Creek Fossil Plant (TVA)
 Sample ID STN-V-9, 33.0'-33.5'

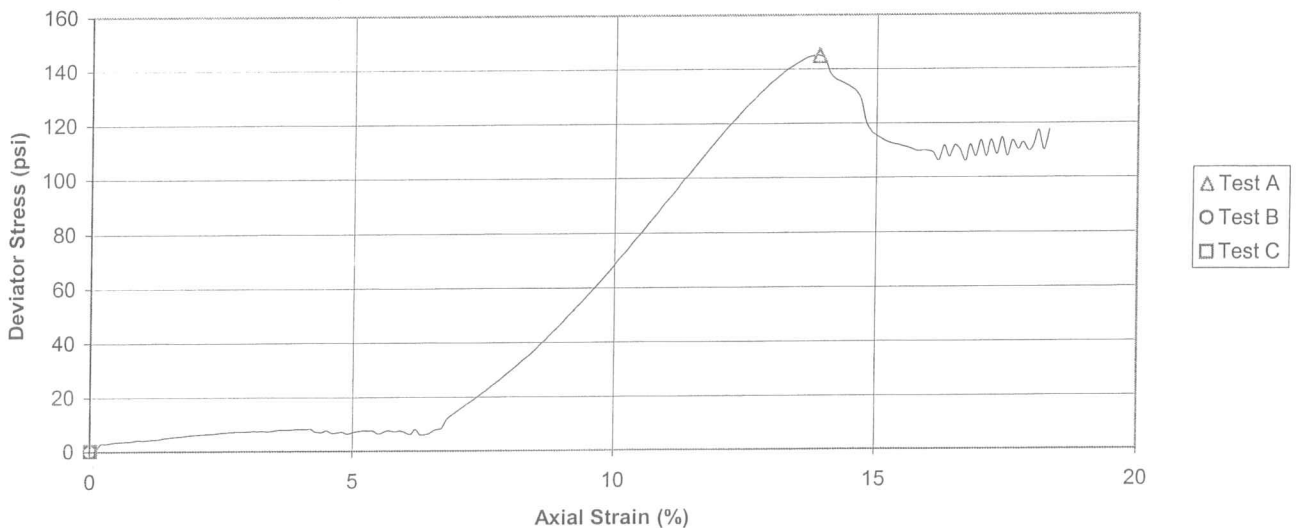
Project No. 175569036
 Test Number 1319A
 c = 72.6 psi

$\phi = 0.0 \text{ deg.}$
 Failure Criterion: Maximum Deviator Stress

Mohr Failure Envelope



Deviator Stress vs. Axial Strain

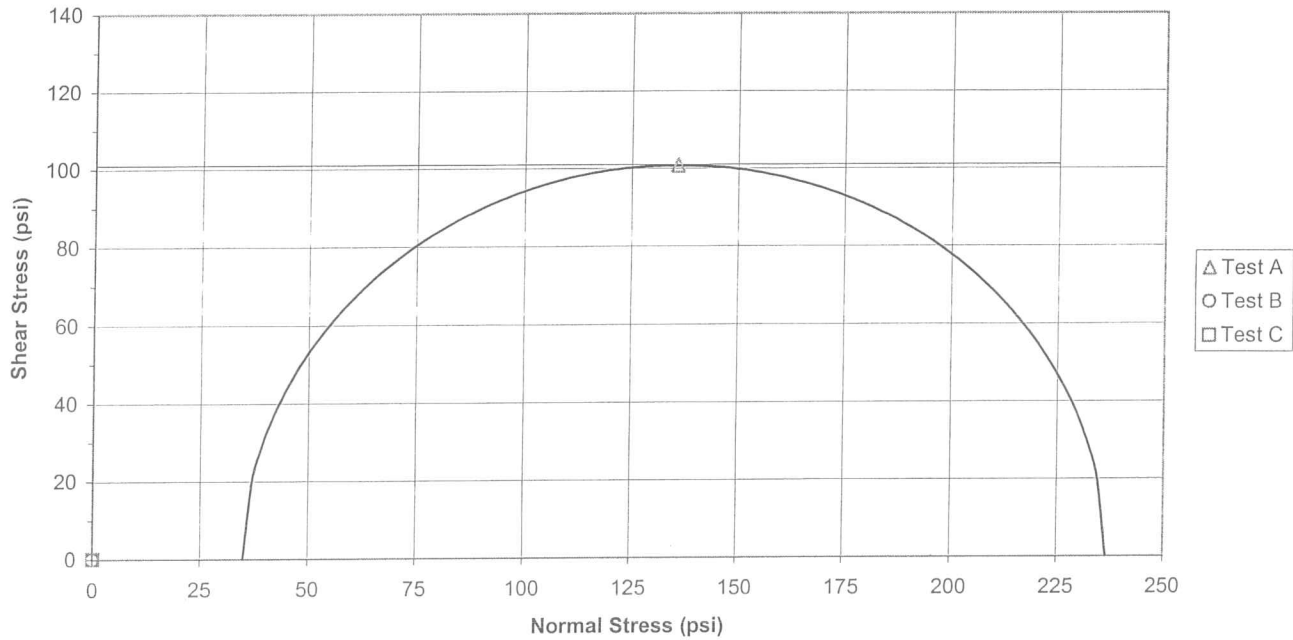


Project Widows Creek Fossil Plant (TVA)
 Sample ID STN-V-9, 37.1'-37.6'

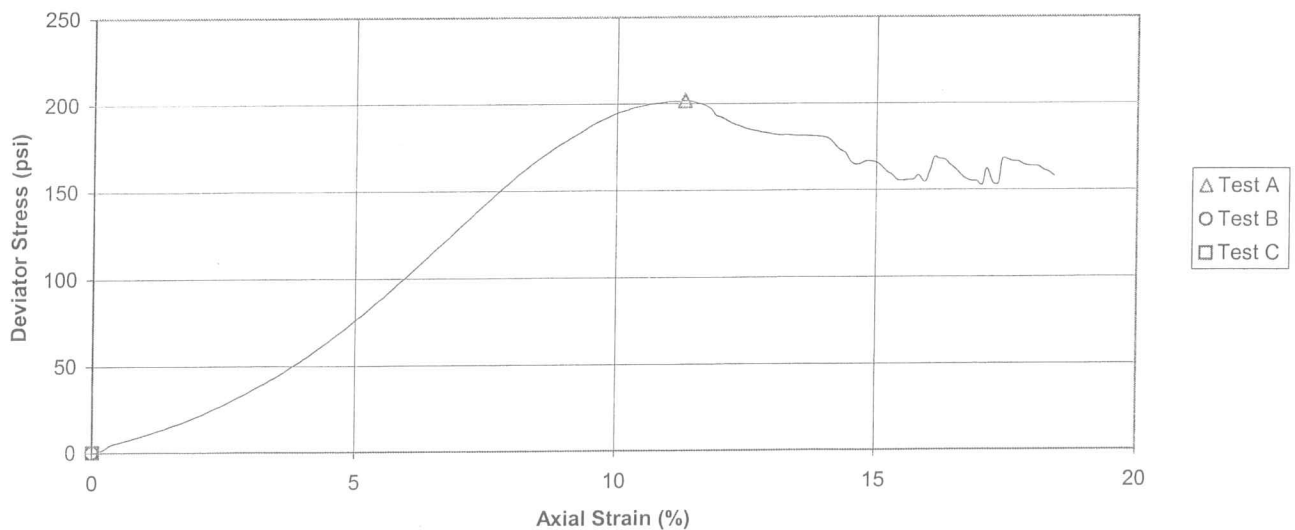
Project No. 175569036
 Test Number 1320A
 $c = 101.0$ psi

$\phi = 0.0$ deg.
 Failure Criterion: Maximum Deviator Stress

Mohr Failure Envelope



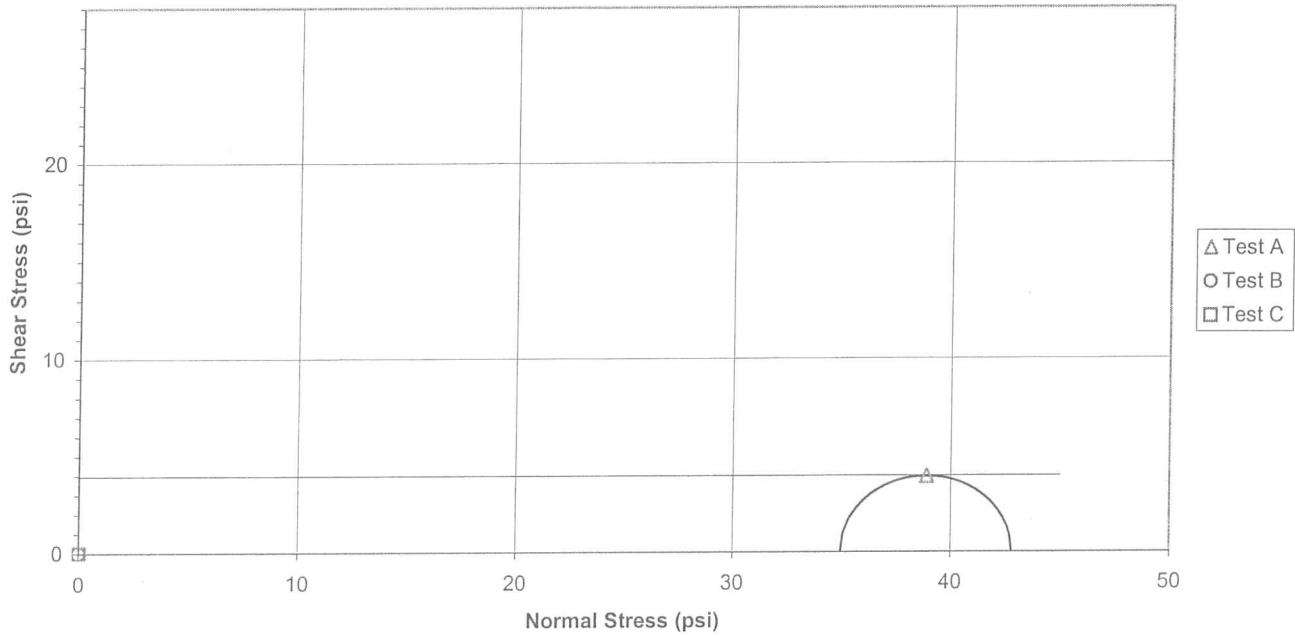
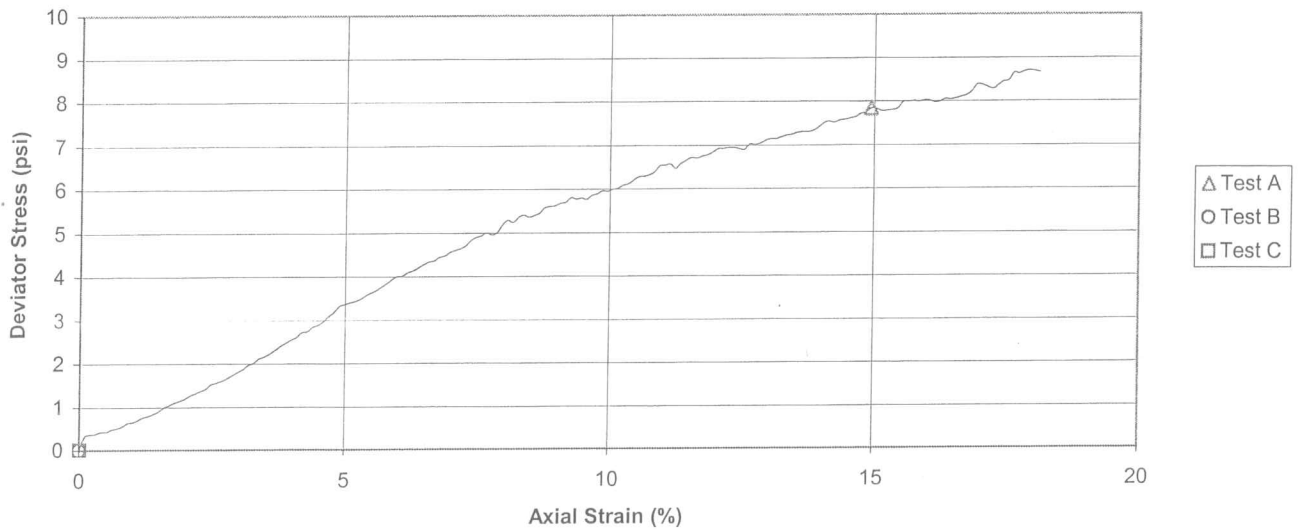
Deviator Stress vs. Axial Strain



Project Widows Creek Fossil Plant (TVA)
 Sample ID STN-V-9, 39.0'-39.5'

Project No. 175569036
 Test Number 1321A
 $c = 4.0$ psi

Failure Criterion: $\phi = 0.0$ deg. Maximum Deviator Stress

Mohr Failure Envelope

Deviator Stress vs. Axial Strain




Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

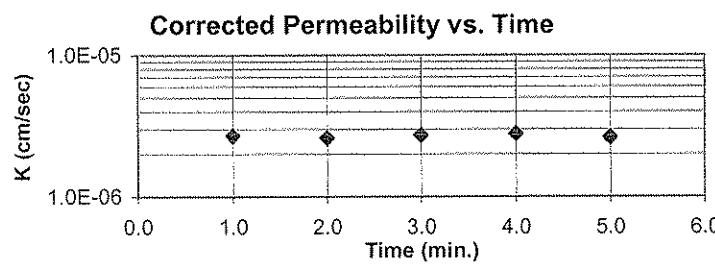
Project Name Widows Creek Fossil Plant Project No. 171468118
 Source B-47 (cast gyp), 35.0'-37.0' Test ID 790B
 Visual Classification Silt (ML), gray Prepared By JAM
 Undisturbed XX Specific Gravity 2.48 ASTM D854-A Date 4-15-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____

Permeant: De-aired gypsum saturated 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.)	1.2896	1.2667	1.2673	Chamber	75
Diameter (in.)	2.8287		2.8261	Influent	70
Moisture Content (%)	33.3		25.9	Effluent	65
Dry Unit Weight (pcf)	92.8		94.6	Applied Head Difference (psi)	5
Void Ratio	0.668		0.637	Back Pressure Saturated to (psi)	65
Degree of Saturation (%)	123.6		100.7	Maximum Effective Consolidation Stress (psi)	10
Trimmings MC (%)	37.1			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)
4-17-09	8:38	72.0	22.13	2.89	0	---	---	---	---
4-17-09	8:39	72.0	21.90	3.13	6.00E+01	2.8E-08	2.8E-06	2.7E-08	2.7E-06
4-17-09	8:40	72.0	21.66	3.34	6.00E+01	2.7E-08	2.7E-06	2.6E-08	2.6E-06
4-17-09	8:41	72.0	21.43	3.58	6.00E+01	2.9E-08	2.9E-06	2.7E-08	2.7E-06
4-17-09	8:42	72.0	21.20	3.83	6.00E+01	2.9E-08	2.9E-06	2.8E-08	2.8E-06
4-17-09	8:43	72.0	20.97	4.05	6.00E+01	2.8E-08	2.8E-06	2.6E-08	2.6E-06



A gradient of approximately 107 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 2.68E-08 cm/s 2.68E-06
 Average Hydraulic Conductivity @ 20° C (last run) m/s 2.68E-08 cm/s 2.68E-06

Reviewed by: [Signature]



Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

Project Name Widows Creek Fossil Plant Project No. 171468118
 Source B44 (cast Gyp), 22.0'-24.0' Test ID 778
 Visual Classification Silt (ML), gray Prepared By JAM
 Undisturbed XX Specific Gravity 2.47 ASTM D854-A Date 4-15-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____

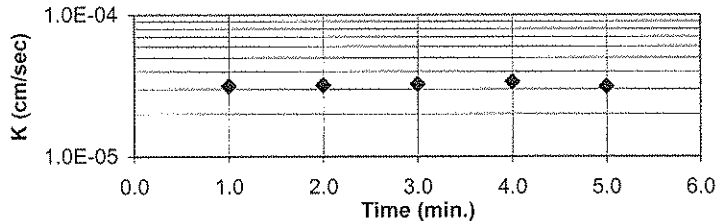
Permeant: De-aired gypsum saturated water
 Selection and Preparation Comments: _____

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.)	1.3683	1.3770	1.3772	Chamber <u>75</u>
Diameter (in.)	2.8423		2.7655	Influent <u>70</u>
Moisture Content (%)	21.5		20.6	Effluent <u>65</u>
Dry Unit Weight (pcf)	93.0		97.6	Applied Head Difference (psi) <u>5</u>
Void Ratio	0.658		0.580	Back Pressure Saturated to (psi) <u>65</u>
Degree of Saturation (%)	80.6		87.7	Maximum Effective Consolidation Stress (psi) <u>10</u>
Trimmings MC (%)	35.7			Minimum Effective Consolidation Stress (psi) <u>5</u>

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)
4-16-09	15:24	73.0	20.36	4.93	0	---	---	---	---
4-16-09	15:25	73.0	17.94	7.33	6.00E+01	3.4E-07	3.4E-05	3.1E-07	3.1E-05
4-16-09	15:26	73.0	15.56	9.66	6.00E+01	3.4E-07	3.4E-05	3.2E-07	3.2E-05
4-16-09	15:27	73.0	13.27	11.99	6.00E+01	3.5E-07	3.5E-05	3.2E-07	3.2E-05
4-16-09	15:28	73.0	10.96	14.33	6.00E+01	3.6E-07	3.6E-05	3.4E-07	3.4E-05
4-16-09	15:29	73.0	8.86	16.36	6.00E+01	3.3E-07	3.3E-05	3.1E-07	3.1E-05

Corrected Permeability vs. Time



A gradient of approximately 100.9 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 3.24E-07 cm/s 3.24E-05
 Average Hydraulic Conductivity @ 20° C (last run) m/s 3.22E-07 cm/s 3.22E-05

Reviewed by: [Signature]



Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

Project Name Widows Creek Fossil Plant Project No. 171468118
 Source B44 (sed. Gyp), 52.0'-54.0' Test ID 780B
 Visual Classification Silt (ML), gray Prepared By JAM
 Undisturbed XX Specific Gravity 2.49 ASTM D854-A Date 4-15-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____

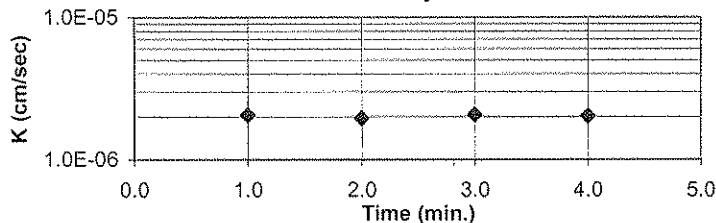
Permeant: De-aired gypsum saturated water
 Selection and Preparation Comments: _____

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.)	1.3616	1.1415	1.1461	Chamber	75
Diameter (in.)	2.8343		2.8441	Influent	70
Moisture Content (%)	70.0		55.2	Effluent	65
Dry Unit Weight (pcf)	57.0		67.3	Applied Head Difference (psi)	5
Void Ratio	1.726		1.311	Back Pressure Saturated to (psi)	65
Degree of Saturation (%)	100.9		104.9	Maximum Effective Consolidation Stress (psi)	10
Trimmings MC (%)	81.0			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)
4-17-09	8:19	72.0	21.64	3.73	0	---	---	---	---
4-17-09	8:20	72.0	21.44	3.93	6.00E+01	2.2E-08	2.2E-06	2.0E-08	2.0E-06
4-17-09	8:21	72.0	21.24	4.11	6.00E+01	2.1E-08	2.1E-06	2.0E-08	2.0E-06
4-17-09	8:22	72.0	21.04	4.31	6.00E+01	2.2E-08	2.2E-06	2.1E-08	2.1E-06
4-17-09	8:23	72.0	20.84	4.50	6.00E+01	2.1E-08	2.1E-06	2.0E-08	2.0E-06

Corrected Permeability vs. Time



A gradient of approximately 101.3 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 2.02E-08 cm/s 2.02E-06
 Average Hydraulic Conductivity @ 20° C (last run) m/s 2.02E-08 cm/s 2.02E-06

Reviewed by: *[Signature]*



Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM D 5084-03

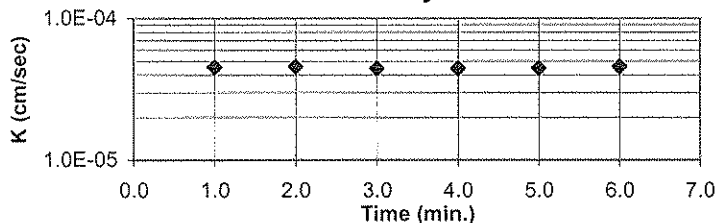
Project Name Widows Creek Fossil Plant Project No. 171468118
 Source B-28 (sed. Gyp), 39.5'-41.5' Test ID 793C
 Visual Classification Silt (ML), gray Prepared By JAM
 Undisturbed XX Specific Gravity 2.36 ASTM D854-A Date 4-15-09
 Maximum Dry Density (pcf) _____ Percent of Maximum _____
 Permeant: De-aired gypsum saturated 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.)	1.3929	1.3699	1.3697	Chamber	73
Diameter (in.)	2.8010		2.7750	Influent	68
Moisture Content (%)	31.2		31.0	Effluent	65
Dry Unit Weight (pcf)	82.4		85.4	Applied Head Difference (psi)	3
Void Ratio	0.787		0.725	Back Pressure Saturated to (psi)	65
Degree of Saturation (%)	93.5		100.8	Maximum Effective Consolidation Stress (psi)	8
Trimming MC (%)	40.0			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)
4-17-09	8:53	72.0	16.06	8.95	0	---	---	---	---
4-17-09	8:54	72.0	14.03	11.05	6.00E+01	4.8E-07	4.8E-05	4.5E-07	4.5E-05
4-17-09	8:55	72.0	12.04	13.03	6.00E+01	4.8E-07	4.8E-05	4.6E-07	4.6E-05
4-17-09	8:56	72.0	10.23	14.86	6.00E+01	4.7E-07	4.7E-05	4.4E-07	4.4E-05
4-17-09	8:57	72.0	8.47	16.57	6.00E+01	4.7E-07	4.7E-05	4.4E-07	4.4E-05
4-17-09	8:58	72.0	6.82	18.24	6.00E+01	4.7E-07	4.7E-05	4.5E-07	4.5E-05
4-17-09	8:59	72.0	5.21	19.86	6.00E+01	4.8E-07	4.8E-05	4.6E-07	4.6E-05

Corrected Permeability vs. Time



A gradient of approximately 99.1 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 4.47E-07 cm/s 4.47E-05
 Average Hydraulic Conductivity @ 20° C (last run) m/s 4.50E-07 cm/s 4.50E-05

Reviewed by: [Signature]



**TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801**

Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Data Report Number: 090513-181657
Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Location Code: WCF

Field ID: WCF SB-38

Sample Description: 6.0-12.0 SPT COMP

Sample ID: AK18726 **LRF ID:** 09030111
Matrix: Solids **Reg:** None
Date Collected: 03/11/2009
Time Collected: 0:00 CST
Date Received: 03/11/2009
Time Received: 8:00
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis Date	Analysis Time	Analyst	Method Reference
Miscellaneous Test (Narrative)		L6581178.NT			04/23/2009	9:13	CLS	
		%CO3 = 8.38						
Calcium Percent	7440-70-2	18.14	%	0.01	04/09/2009	15:00	CLS	Titration
Magnesium Percent	7439-95-4	0.56	%	0.01	04/09/2009	15:05	CLS	Titration
Acid Insoluble		28.62	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	0.14	%	0.01	04/10/2009	9:30	CLS	Titration
Total S as % SO4		32.24	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



**TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801**

Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Location Code: WCF

Field ID: WCF SB-38

Sample Description: 21.5-26.0 SPT COMP

Sample ID: AK18727 **LRF ID:** 09030111

Matrix: Solids **Reg:** None

Date Collected: 03/11/2009

Time Collected: 0:00 CST

Date Received: 03/11/2009

Time Received: 8:00

Project Manager: Ricardo I. Gilbert

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis	Analysis	Analyst	Method Reference
					Date	Time		
Miscellaneous Test (Narrative)		L6581197.NT			04/23/2009	9:13	CLS	
		%CO3 = 8.99						
Calcium Percent	7440-70-2	18.29	%	0.01	04/09/2009	15:15	CLS	Titration
Magnesium Percent	7439-95-4	0.32	%	0.01	04/09/2009	15:20	CLS	Titration
Acid Insoluble		31.57	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	5.26	%	0.01	04/10/2009	9:40	CLS	Titration
Total S as % SO4		30.35	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



**TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801**

Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Location Code: WCF

Field ID: WCF SB-45 (B-2)

Sample Description: 10.5-16.5 SPT COMP

Sample ID: AK18728 **LRF ID:** 09030111

Matrix: Solids **Reg:** None

Date Collected: 03/11/2009

Time Collected: 0:00 CST

Date Received: 03/11/2009

Time Received: 8:00

Project Manager: Ricardo I. Gilbert

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis Date	Analysis Time	Analyst	Method Reference
Miscellaneous Test (Narrative)		L6581206.NT			04/23/2009	9:13	CLS	
		%CO3 = 12.34						
Calcium Percent	7440-70-2	21.53	%	0.01	04/09/2009	15:30	CLS	Titration
Magnesium Percent	7439-95-4	0.43	%	0.01	04/09/2009	15:35	CLS	Titration
Acid Insoluble		19.65	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	0.34	%	0.01	04/10/2009	9:50	CLS	Titration
Total S as % SO4		33.53	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



**TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801**

Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Sample ID: AK18729 **LRF ID:** 09030111
Matrix: Solids **Reg:** None
Date Collected: 03/11/2009
Time Collected: 0:00 CST
Date Received: 03/11/2009
Time Received: 8:00
Project Manager: Ricardo I. Gilbert

Location Code: WCF

Field ID: WCF SB-45 (B-2)

Sample Description: 34.5-40.5 SPT COMP

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis		Analyst	Method Reference
					Date	Time		
Miscellaneous Test (Narrative)		L6581214.NT			04/23/2009	9:14	CLS	
		%CO3 = 13.61						
Calcium Percent	7440-70-2	20.93	%	0.01	04/09/2009	15:45	CLS	Titration
Magnesium Percent	7439-95-4	0.97	%	0.01	04/09/2009	15:50	CLS	Titration
Acid Insoluble		20.99	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	2.95	%	0.01	04/10/2009	10:00	CLS	Titration
Total S as % SO4		32.02	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



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Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Sample ID: AK18731 **LRF ID:** 09030111

Matrix: Solids **Reg:** None

Date Collected: 03/11/2009

Time Collected: 0:00 CST

Date Received: 03/11/2009

Time Received: 8:00

Location Code: WCF

Field ID: WCF SB-28

Project Manager: Ricardo I. Gilbert

Sample Description: 1.5-6.0 SPT COMP

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis Date	Analysis Time	Analyst	Method Reference
Miscellaneous Test (Narrative)		L6581231.NT			04/23/2009	9:14	CLS	
		%CO3 = 10.33						
Calcium Percent	7440-70-2	14.88	%	0.01	04/09/2009	16:15	CLS	Titration
Magnesium Percent	7439-95-4	0.38	%	0.01	04/09/2009	16:20	CLS	Titration
Acid Insoluble		45.99	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	0.00	%	0.01	04/10/2009	10:20	CLS	Titration
Total S as % SO4		20.65	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



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Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Location Code: WCF

Field ID: WCF SB-32

Sample Description: 13.5-19.5 SPT COMP

Sample ID: AK18732 **LRF ID:** 09030111

Matrix: Solids **Reg:** None

Date Collected: 03/11/2009

Time Collected: 0:00 CST

Date Received: 03/11/2009

Time Received: 8:00

Project Manager: Ricardo I. Gilbert

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis Date	Analysis Time	Analyst	Method Reference
Miscellaneous Test (Narrative)		L6581254.NT			04/23/2009	9:15	CLS	
		%CO3 = 20.93						
Calcium Percent	7440-70-2	24.84	%	0.01	04/09/2009	16:30	CLS	Titration
Magnesium Percent	7439-95-4	0.00	%	0.01	04/09/2009	16:35	CLS	Titration
Acid Insoluble		18.45	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	0.10	%	0.01	04/10/2009	10:30	CLS	Titration
Total S as % SO4		26.03	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None



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Data Report Number: 090513-181657

Report of Results: STD_ANL

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Sharath Vemuri
1409 N. Forbes Rd., Lexington, KY 40511
Phone: Not Available
Fax : Not Available
E-Mail: sharath.vemuri@stantec.com; EDM

Sample ID: AK18733 **LRF ID:** 09030111
Matrix: Solids **Reg:** None
Date Collected: 03/11/2009
Time Collected: 0:00 CST
Date Received: 03/11/2009
Time Received: 8:00
Project Manager: Ricardo I. Gilbert

Location Code: WCF

Field ID: WCF SB-32

Sample Description: 6.0-10.5 SPT COMP

Analyte	CAS Number ¹	Result	Units	MDL ²	Analysis Date	Analysis Time	Analyst	Method Reference
Miscellaneous Test (Narrative)		L6581276.NT			04/23/2009	9:15	CLS	
		%CO3 = 11.73						
Calcium Percent	7440-70-2	22.10	%	0.01	04/09/2009	16:45	CLS	Titration
Magnesium Percent	7439-95-4	0.19	%	0.01	04/09/2009	16:50	CLS	Titration
Acid Insoluble		17.95	%	0.1	04/10/2009	13:00	CLS	Gravimetric
SO3 Percent	14265-45-3	0.00	%	0.01	04/10/2009	10:40	CLS	Titration
Total S as % SO4		34.93	%	0.01	04/10/2009	8:30	CLS	Titration

Sample Comments: None