

**TVA - Widows Creek Gypsum Stack
 CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS
 FOR COARSE GRAINED SOILS**

Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₁₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
STN-28														
					Input Required									
		water =	33.5											
0.0 - 1.5	0.75	120	0.05	8	11	1.00	11	47	CL	FALSE	NA	22.0	NA	NA
1.5 - 3.0	2.25	106	0.12	18	24	1.00	24	73	ML	33	92	15.0	106	0.82
3.0 - 4.5	3.75	110	0.21	16	21	1.00	21	68	ML	32.5	91	21.0	110	0.83
4.5 - 6.0	5.25	105	0.29	9	12	1.00	12	52	ML	31	88.5	19.0	105	0.89
6.0 - 7.5	6.75	105	0.36	3	4	1.00	4	27	ML	28.5	84	25.0	105	0.99
7.5 - 9.0	8.25	109	0.45	15	20	1.00	20	67	ML	32.5	91	20.0	109	0.83
9.0 - 10.5	9.75	105	0.53	3	4	1.00	4	27	ML	28.5	84	25.0	105	0.99
10.5 - 12.5	11.5	120	0.63	ST	NA	1.00	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
12.5 - 14.0	13.25	115	0.73	80	107	1.00	107	100	ML	36	98	17.0	115	0.7
14.0 - 15.5	14.75	120	0.82	81	108	1.00	108	100	ML	36	98	22.0	120	0.7
15.5 - 17.0	16.25	116	0.91	56	75	1.00	75	100	ML	36	98	18.0	116	0.7
17.0 - 18.5	17.75	117	0.99	94	125	1.00	125	100	ML	36	98	19.0	117	0.7
18.5 - 20.0	19.25	116	1.08	63	84	0.96	81	100	ML	36	98	18.0	116	0.7
20.0 - 21.5	20.75	115	1.17	59	79	0.93	73	100	ML	36	98	17.0	115	0.7
21.5 - 23.0	22.25	116	1.25	85	113	0.89	101	100	ML	36	98	18.0	116	0.7
23.0 - 24.5	23.75	115	1.34	50	67	0.86	58	100	ML	36	98	17.0	115	0.7
24.5 - 26.0	25.25	114	1.43	77	103	0.84	86	100	ML	36	98	16.0	114	0.7
26.0 - 27.5	26.75	117	1.51	86	115	0.81	93	100	ML	36	98	19.0	117	0.7
27.5 - 29.0	28.25	116	1.60	34	45	0.79	36	86	ML	34.5	95	22.0	116	0.75
29.0 - 30.5	29.75	121	1.69	82	109	0.77	84	100	ML	36	98	23.0	121	0.7
30.5 - 32.0	31.25	118	1.78	59	79	0.75	59	100	ML	36	98	20.0	118	0.7
32.0 - 33.5	32.75	119	1.87	80	107	0.73	78	100	ML	36	98	21.0	119	0.7
33.5 - 35.0	34.25	116	1.91	24	32	0.72	23	71	ML	33	92	26.0	116	0.82
35.0 - 36.5	35.75	118	1.95	27	36	0.72	26	74	ML	33	92	28.0	118	0.82
36.5 - 38.0	37.25	119	1.99	53	71	0.71	50	98	ML	35.5	97	23.0	119	0.72
38.0 - 39.5	38.75	114	2.03	12	16	0.70	11	47	ML	30.5	88	29.0	114	0.91
39.5 - 41.5	40.5	120	2.08	ST	NA	0.69	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
41.5 - 43.0	42.25	117	2.13	27	36	0.69	25	73	ML	33	92	27.0	117	0.82
43.0 - 44.5	43.75	112	2.17	14	19	0.68	13	52	ML	31	88.5	27.0	112	0.89
44.5 - 46.0	45.25	111	2.20	14	19	0.67	13	52	ML	31	88.5	25.0	111	0.89
46.0 - 47.5	46.75	118	2.24	46	61	0.67	41	91	ML	35	96	24.0	119	0.74
47.5 - 49.0	48.25	116	2.28	19	25	0.66	17	60	ML	32	90	29.0	116	0.85
49.0 - 50.5	49.75	108	2.32	6	8	0.66	5	32	ML	29	85	27.0	108	0.97
54.0 - 55.5	54.75	119	2.46	34	45	0.64	29	77	ML	33.5	93	28.0	119	0.8

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N _c) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
STN-29				Input Required										
4.5 - 6.5	5.5	water = 120	4.5	NA	NA	1.00	NA	NA	ML	#N/A	#N/A	21.0	#N/A	#N/A
9.0 - 10.5	9.75	117	0.16	38	51	1.00	51	98	ML	35.5	97	22.0	117	0.72
15.5 - 17.0	16.25	120	0.28	19	25	1.00	25	74	CH	FALSE	NA	24.0	NA	NA
17.0 - 18.5	17.75	120	0.51	14	19	1.00	19	63	CH	FALSE	NA	24.0	NA	NA

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FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N _r) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
Input Required														
STN-31														
		water =	23.0											
25.0 - 27.0	26	120	0.75	NA	NA	1.00	NA	NA	CH	NA	NA	NA	NA	NA
44.5 - 46.5	45.5	120	1.31	ST	NA	0.87	NA	NA	CH	NA	NA	NA	NA	NA
64.5 - 66.0	65.25	120	1.88	18	24	0.73	18	60	CH	FALSE	NA	19.0	NA	NA

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Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
Input Required														
STN-32														
0.0 - 1.5	0.75	water = 120	10.5	14	19	1.00	19	63	CH	FALSE	NA	23.0	NA	NA
1.5 - 3.0	2.25	100	0.05	11	15	1.00	15	56	ML	31.5	89.5	12.0	100	0.87
3.0 - 4.5	3.75	120	0.21	12	16	1.00	16	60	CH	FALSE	NA	24.0	NA	NA
4.5 - 6.0	5.25	104	0.29	15	20	1.00	20	67	ML	32.5	91	14.0	104	0.83
6.0 - 7.5	6.75	108	0.37	19	25	1.00	25	74	ML	33	92	17.0	108	0.82
7.5 - 9.0	8.25	112	0.45	26	35	1.00	35	84	ML	34	94	19.0	112	0.77
9.0 - 10.5	9.75	112	0.54	18	24	1.00	24	73	ML	33	92	22.0	112	0.82
10.5 - 12.0	11.25	115	0.58	36	48	1.00	48	95	ML	35.5	97	19.0	115	0.72
12.0 - 13.5	12.75	115	0.62	40	53	1.00	53	99	ML	35.5	97	19.0	115	0.72
13.5 - 15.0	14.25	110	0.65	23	31	1.00	31	79	ML	33.5	93	18.0	110	0.8
15.0 - 16.5	15.75	110	0.69	18	24	1.00	24	73	ML	33	92	20.0	110	0.82
16.5 - 18.0	17.25	116	0.73	30	40	1.00	40	89	ML	34.5	95	22.0	116	0.75
18.0 - 19.5	18.75	111	0.76	18	24	1.00	24	73	ML	33	92	21.0	111	0.82
19.5 - 21.5	20.5	120	0.82	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	20.0	#N/A	#N/A
21.5 - 23.0	22.25	118	0.86	58	77	1.00	77	100	ML	36	98	20.0	118	0.7
23.0 - 24.5	23.75	117	0.90	22	29	1.00	29	79	ML	33.5	93	26.0	117	0.8
24.5 - 26.0	25.25	114	0.94	22	29	1.00	29	79	ML	33.5	93	23.0	114	0.8
26.0 - 27.5	26.75	116	0.98	38	51	1.00	51	98	ML	35.5	97	20.0	116	0.72
27.5 - 29.0	28.25	120	1.03	17	23	0.99	22	70	CH	FALSE	NA	21.0	NA	NA
29.0 - 30.5	29.75	120	1.07	72	96	0.97	93	100	CH	FALSE	NA	22.0	NA	NA
30.5 - 32.0	31.25	120	1.11	17	23	0.95	22	68	CH	FALSE	NA	24.0	NA	NA
32.0 - 33.5	32.75	117	1.15	20	27	0.93	25	73	ML	33	92	27.0	117	0.82
33.5 - 35.0	34.25	120	1.20	9	12	0.91	11	47	CH	FALSE	NA	31.0	NA	NA
35.0 - 37.0	36	120	1.25	ST	NA	0.90	NA	NA	CH	NA	NA	29.0	NA	NA
37.0 - 38.5	37.75	120	1.30	16	21	0.88	19	63	CH	FALSE	NA	31.0	NA	NA
39.5 - 41.0	40.25	120	1.37	13	17	0.85	15	56	CH	FALSE	NA	28.0	NA	NA
44.5 - 46.0	45.25	120	1.51	14	19	0.81	15	58	CH	FALSE	NA	34.0	NA	NA
59.5 - 59.7	59.6	120	1.93	0	0	0.72	1	11	CH	FALSE	NA	40.0	NA	NA

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													In-situ Unit Weight (pcf)	Void Ratio
				N ₆₀	N ₆₀	CN	(N ₆₀) ₆₀	Dr		φ	γ _d	m	γ _w	e
				Input Required										
STN-33														
		water =												
4.0 - 5.5	4.75	105	18.0	19	25	1.00	25	74	ML	33	92	14.0	105	0.82
5.5 - 7.0	6.25	120	0.34	5	7	1.00	7	35	CH	FALSE	NA	13.0	NA	NA
7.0 - 9.0	8	120	0.44	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	22.0	#N/A	#N/A
12.0 - 13.5	12.75	116	0.72	29	39	1.00	39	87	ML	34.5	95	22.0	116	0.75
13.5 - 15.0	14.25	109	0.80	10	13	1.00	13	53	ML	31	88.5	23.0	109	0.89
15.0 - 17.0	16	120	0.91	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	27.0	#N/A	#N/A
19.0 - 20.5	19.75	116	1.01	16	21	1.00	21	68	ML	32.5	91	27.0	116	0.83
20.5 - 22.5	21.5	120	1.06	ST	NA	0.97	NA	NA	ML	#N/A	#N/A	21.0	#N/A	#N/A
24.0 - 25.5	24.75	120	1.15	15	20	0.93	19	63	CH	FALSE	NA	21.0	NA	NA

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Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N _c) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
STN-34														
		water =												
15.0 - 17.0	16	120	13.0	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	22.0	#N/A	#N/A
25.0 - 26.5	25.75	105	0.67	5	7	1.00	7	35	ML	29.5	86	105	105	0.95
30.0 - 31.5	30.75	110	0.79	8	11	1.00	11	47	ML	30.5	88	110	110	0.91
32.5 - 34.5	33.5	120	0.87	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	#N/A	#N/A	#N/A
35.0 - 36.5	35.75	107	0.92	8	11	1.00	11	47	ML	30.5	88	107	107	0.91
40.0 - 41.5	40.75	106	1.03	5	7	0.99	7	35	ML	29.5	86	106	106	0.95
45.0 - 46.5	45.75	115	1.16	26	35	0.93	32	82	ML	34	94	115	115	0.77
50.0 - 51.5	50.75	120	1.30	16	21	0.88	19	63	CH	FALSE	NA	NA	NA	NA
51.5 - 53.0	52.25	120	1.34	47	63	0.86	54	99	CH	FALSE	NA	NA	NA	NA

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Input Required																
STN-35																
0.0 - 1.5	0.75	120	10.5	10	13	1.00	13	53	CL	FALSE	NA	17.0	NA	NA	NA	NA
1.5 - 3.0	2.25	106	0.12	16	21	1.00	21	68	ML	32.5	91	16.0	106	0.83		
3.0 - 4.5	3.75	120	0.21	17	23	1.00	23	70	CL	FALSE	NA	24.0	NA	NA	NA	NA
4.5 - 6.0	5.25	113	0.30	36	48	1.00	48	95	ML	35.5	97	17.0	113	0.72		
6.0 - 7.5	6.75	114	0.38	69	92	1.00	92	100	ML	36	98	16.0	114	0.7		
7.5 - 9.0	8.25	113	0.47	35	47	1.00	47	95	ML	35.5	97	16.0	113	0.72		
9.0 - 10.5	9.75	112	0.55	22	29	1.00	29	79	ML	33.5	93	20.0	112	0.8		
10.5 - 12.0	11.25	114	0.59	30	40	1.00	40	89	ML	34.5	95	20.0	114	0.75		
12.0 - 13.5	12.75	120	0.63	47	63	1.00	63	100	ML	36	98	22.0	120	0.7		
13.5 - 15.0	14.25	115	0.67	30	40	1.00	40	89	ML	34.5	95	21.0	115	0.75		
15.0 - 16.5	15.75	117	0.71	26	35	1.00	35	84	ML	34	94	24.0	117	0.77		
16.5 - 18.0	17.25	116	0.75	35	47	1.00	47	95	ML	35.5	97	20.0	116	0.72		
18.0 - 19.5	18.75	116	0.79	25	33	1.00	33	84	ML	34	94	23.0	116	0.77		
19.5 - 21.0	20.25	117	0.84	28	37	1.00	37	87	ML	34.5	95	23.0	117	0.75		
21.0 - 22.5	21.75	118	0.88	54	72	1.00	72	100	ML	36	98	20.0	118	0.7		
22.5 - 24.0	23.25	113	0.92	23	31	1.00	31	79	ML	33.5	93	22.0	113	0.8		
24.0 - 25.5	24.75	112	0.95	14	19	1.00	19	63	ML	32	90	24.0	112	0.85		
25.5 - 27.5	26.5	120	1.00	ST	NA	1.00	NA	NA	CH	NA	NA	NA	NA	NA	NA	NA
27.5 - 29.0	28.25	120	1.05	25	33	0.97	33	82	CH	FALSE	NA	31.0	NA	NA	NA	NA
29.0 - 30.5	29.75	120	1.10	24	32	0.96	31	79	CH	FALSE	NA	25.0	NA	NA	NA	NA
34.0 - 35.5	34.75	120	1.24	20	27	0.90	24	71	CH	FALSE	NA	30.0	NA	NA	NA	NA

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STN-36					Input Required									
		water =												
4.0 - 5.5	4.75	120	14.0	8	6	1.00	8	41	CH	FALSE	NA	26.0	NA	NA
9.0 - 10.5	9.75	120	0.29	15	11	1.00	15	56	CH	FALSE	NA	29.0	NA	NA
14.0 - 14.2	14.1	120	0.59	0		1.00	1	11	CH	FALSE	NA	28.0	NA	NA
			0.71											

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															N ₆₀
STN-37					Input Required										
		water =													
5.0 - 7.0	6	120	18.0	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	#N/A	#N/A	#N/A	
10.0 - 11.6	10.8	120	0.36	ST	NA	1.00	NA	NA	ML	#N/A	#N/A	#N/A	#N/A	#N/A	
15.0 - 16.5	15.75	105	0.65	11	15	1.00	15	56	ML	31.5	89.5	105	105	0.87	
20.0 - 21.5	20.75	120	0.91	17	23	0.98	22	70	CH	FALSE	NA	NA	NA	NA	
25.0 - 26.5	25.75	120	1.05	15	20	0.91	18	63	CH	FALSE	NA	NA	NA	NA	
			1.20												

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STN-38														
					Input Required									
0.0 - 1.5	0.75	113	24.5	43	57	1.00	57	100	ML	36	98	15.0	113	0.7
1.5 - 3.0	2.25	109	0.12	19	25	1.00	25	74	ML	33	92	19.0	109	0.82
3.0 - 4.5	3.75	107	0.20	23	31	1.00	31	79	ML	33.5	93	15.0	107	0.8
4.5 - 6.0	5.25	106	0.28	16	21	1.00	21	68	ML	32.5	91	17.0	106	0.83
6.0 - 7.5	6.75	106	0.36	12	16	1.00	16	60	ML	32	90	18.0	106	0.85
7.5 - 9.0	8.25	113	0.45	54	72	1.00	72	100	ML	36	98	15.0	113	0.7
9.0 - 10.5	9.75	115	0.53	66	88	1.00	88	100	ML	36	98	17.0	115	0.7
10.5 - 12.0	11.25	119	0.62	51	68	1.00	68	100	ML	36	98	21.0	119	0.7
12.0 - 13.7	12.85	120	0.72	ST	NA	1.00	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
14.0 - 15.5	14.75	116	0.83	23	31	1.00	31	79	ML	33.5	93	25.0	116	0.8
15.5 - 17.0	16.25	118	0.92	20	27	1.00	27	75	ML	33.5	93	27.0	118	0.8
17.0 - 18.5	17.75	114	1.00	15	20	1.00	20	67	ML	32.5	91	25.0	114	0.83
18.5 - 20.0	19.25	115	1.09	7	9	0.96	9	41	ML	30	87	32.0	115	0.93
20.0 - 21.5	20.75	114	1.18	9	12	0.92	11	47	ML	30.5	88	29.0	114	0.91
21.5 - 23.0	22.25	111	1.26	5	7	0.89	6	32	ML	29	85	31.0	111	0.97
23.0 - 24.5	23.75	112	1.34	2	3	0.86	2	18	ML	27.5	82	37.0	112	1.03
24.5 - 26.0	25.25	113	1.38	3	4	0.85	3	24	ML	28	83	36.0	113	1.01
32.0 - 34.0	33	120	1.60	ST	NA	0.79	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
59.5 - 61.0	60.25	114	2.30	36	48	0.66	32	81	ML	34	94	21.0	114	0.77
64.5 - 66.0	65.25	116	2.44	17	23	0.64	15	56	ML	31.5	89.5	30.0	116	0.87
69.5 - 71.0	70.25	117	2.58	17	23	0.62	14	56	ML	31.5	89.5	31.0	117	0.87
71.0 - 73.0	72	120	2.63	ST	NA	0.62	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
74.5 - 76.5	75.5	120	2.73	ST	NA	0.61	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
82.8 - 84.8	83.8	120	2.97	ST	NA	0.58	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
89.5 - 90.2	89.85	120	3.14		0	0.56	1	11	CH	FALSE	NA	15.0	NA	NA

TVA - Widows Creek Gypsum Stack																
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS																
FOR COARSE GRAINED SOILS																
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT		Correction Factor	Corrected N-Value (N ₁) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio		
				N Value	N ₆₀ Value											
				Input Required												
				N ₈₀	C _N											
				σ												
				γ _w												
				γ _d												
				γ _w												
				e												
STN-39																
		water =	20.0													
5.0 - 6.5	5.75	101	0.29	10	1.00	13	53	ML	31	88.5	14.0	101	0.89			
6.5 - 8.0	7.25	96	0.36	3	1.00	4	27	ML	28.5	84	14.0	96	0.99			
8.0 - 9.5	8.75	108	0.44	24	1.00	32	82	ML	34	94	15.0	108	0.77			
9.5 - 11.0	10.25	110	0.53	34	1.00	45	93	ML	35	96	15.0	110	0.74			
11.0 - 12.5	11.75	115	0.61	28	1.00	37	87	ML	34.5	95	21.0	115	0.75			
12.5 - 14.0	13.25	113	0.70	35	1.00	47	95	ML	35.5	97	16.0	113	0.72			
14.0 - 15.5	14.75	110	0.78	27	1.00	36	86	ML	34.5	95	16.0	110	0.75			
15.5 - 17.0	16.25	107	0.86	25	1.00	33	84	ML	34	94	14.0	107	0.77			
17.0 - 18.5	17.75	113	0.94	24	1.00	32	82	ML	34	94	20.0	113	0.77			
18.5 - 20.0	19.25	108	1.03	16	0.99	21	68	ML	32.5	91	19.0	108	0.83			
20.0 - 21.5	20.75	114	1.06	29	0.97	38	87	ML	34.5	95	20.0	114	0.75			
21.5 - 23.0	22.25	115	1.10	41	0.95	52	98	ML	35.5	97	19.0	115	0.72			
23.0 - 24.5	23.75	117	1.14	30	0.93	37	87	ML	34.5	95	23.0	117	0.75			
24.5 - 26.0	25.25	115	1.18	32	0.92	39	89	ML	34.5	95	21.0	115	0.75			
26.0 - 27.5	26.75	112	1.22	20	0.90	24	73	ML	33	92	22.0	112	0.82			
27.5 - 29.5	28.5	120	1.27	ST	0.89	NA	NA	ML	#N/A	#N/A		#N/A	#N/A			
29.5 - 31.0	30.25	114	1.32	29	0.87	34	84	ML	34	94	21.0	114	0.77			
31.0 - 32.5	31.75	117	1.36	36	0.86	41	91	ML	35	96	22.0	117	0.74			
32.5 - 34.0	33.25	117	1.40	28	0.85	32	81	ML	34	94	24.0	117	0.77			
34.0 - 35.5	34.75	109	1.43	20	0.84	22	70	ML	33	92	19.0	109	0.82			
35.5 - 37.0	36.25	101	1.46	6	0.83	7	35	ML	29.5	86	18.0	101	0.95			
37.0 - 39.0	38	120	1.51	ST	0.81	NA	NA	ML	#N/A	#N/A		#N/A	#N/A			
39.0 - 40.5	39.75	115	1.56	30	0.80	32	82	ML	34	94	22.0	115	0.77			
40.5 - 42.0	41.25	115	1.60	37	0.79	39	89	ML	34.5	95	21.0	115	0.75			
42.0 - 43.5	42.75	106	1.63	16	0.78	17	60	ML	32	90	18.0	106	0.85			
43.5 - 45.0	44.25	117	1.67	50	0.77	52	98	ML	35.5	97	21.0	117	0.72			
45.0 - 46.5	45.75	115	1.71	18	0.76	18	63	ML	32	90	28.0	115	0.85			
46.5 - 48.0	47.25	115	1.75	14	0.76	14	56	ML	31.5	89.5	28.0	115	0.87			
48.0 - 49.5	48.75	117	1.79	0	0.75	1	11	ML	27	81	44.0	117	1.05			
49.5 - 51.5	50.5	120	1.84	ST	0.74	NA	NA	ML	#N/A	#N/A		#N/A	#N/A			
51.5 - 53.0	52.25	116	1.89	8	0.73	8	41	ML	30	87	33.0	116	0.93			
53.0 - 54.5	53.75	120	1.93	6	0.72	6	32	CH	FALSE	NA	22.0	NA	NA			

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised	
													In-situ Unit Weight (pcf)	Void Ratio
		γ_w	σ	N ₆₀	N ₆₀	CN	(N ₆₀) _{cs}	Dr		ϕ'	γ_d	m	γ_w	e
Input Required														
STN-40														
		water =												
4.0 - 5.5	4.75	104	4.0	5	5	1.00	5	32	ML	29	85	22.0	104	0.97
7.5 - 9.5	8.5	120	0.10	NA	NA	1.00	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
9.5 - 11.0	10.25	110	0.21	17	17	1.00	17	60	ML	32	90	22.0	110	0.85
14.0 - 15.5	14.75	120	0.25	8	8	1.00	8	41	CH	FALSE	NA	27.0	NA	NA
19.0 - 20.5	19.75	120	0.38	9	9	1.00	9	44	CH	FALSE	NA	26.0	NA	NA
24.0 - 25.5	24.75	120	0.52	28	28	1.00	28	77	CH	FALSE	NA	21.0	NA	NA
29.0 - 30.5	29.75	120	0.67	32	32	1.00	32	82	CH	FALSE	NA	24.0	NA	NA
34.0 - 35.5	34.75	120	0.81	63	63	1.00	63	100	CH	FALSE	NA	47.0	NA	NA
			0.95											

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
Input Required														
STN-42														
		water =	34.0											
10.0 - 11.5	10.75	117	0.63	47	63	1.00	63	100	ML	36	98	19.0	117	0.7
15.0 - 16.5	15.75	117	0.92	51	68	1.00	68	100	ML	36	98	19.0	117	0.7
16.5 - 18.0	17.25	117	1.01	89	119	1.00	118	100	ML	36	98	19.0	117	0.7
18.0 - 19.5	18.75	118	1.09	56	75	0.96	71	100	ML	36	98	20.0	118	0.7
19.5 - 21.0	20.25	117	1.18	59	79	0.92	72	100	ML	36	98	19.0	117	0.7
21.0 - 22.5	21.75	118	1.27	89	119	0.89	105	100	ML	36	98	20.0	118	0.7
22.5 - 24.0	23.25	116	1.36	48	64	0.86	55	100	ML	36	98	18.0	116	0.7
24.0 - 25.5	24.75	114	1.44	41	55	0.83	46	93	ML	35	96	19.0	114	0.74
25.5 - 27.0	26.25	111	1.53	32	43	0.81	35	84	ML	34	94	18.0	111	0.77
27.0 - 28.5	27.75	107	1.61	21	28	0.79	22	70	ML	33	92	16.0	107	0.82
28.5 - 29.9	29.2	120	1.69	ST	NA	0.77	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
30.5 - 32.5	31.5	120	1.83	ST	NA	0.74	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
32.5 - 34.5	33.5	120	1.95	ST	NA	0.72	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
34.5 - 36.5	35.5	120	2.01	ST	NA	0.71	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
36.5 - 38.5	37.5	120	2.07	ST	NA	0.70	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
38.5 - 40.5	39.5	120	2.12	ST	NA	0.69	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
40.5 - 42.0	41.25	117	2.17	5	7	0.68	5	27	ML	28.5	84	39.0	117	0.99
42.0 - 44.0	43	120	2.22	ST	NA	0.67	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
44.0 - 46.0	45	120	2.28	ST	NA	0.66	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
46.0 - 48.0	47	120	2.34	ST	NA	0.65	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
48.0 - 49.0	48.5	120	2.38	ST	NA	0.65	NA	NA	ML	#N/A	#N/A		#N/A	#N/A
49.0 - 50.5	49.75	113	2.41	36	48	0.64	31	79	ML	33.5	93	21.0	113	0.8
50.5 - 52.0	51.25	119	2.45	16	21	0.64	14	53	ML	31	88.5	34.0	119	0.89
52.0 - 53.5	52.75	114	2.49	5	7	0.63	4	27	ML	28.5	84	36.0	114	0.99
53.5 - 55.0	54.25	116	2.53	4	5	0.63	3	24	ML	28	83	40.0	116	1.01
55.0 - 56.5	55.75	106	2.57	0	0	0.62	1	11	ML	27	81	31.0	106	1.05
56.5 - 58.0	57.25	120	2.61	23	31	0.62	19	65	CH	FALSE	NA	28.0	NA	NA
58.0 - 59.5	58.75	120	2.65	17	23	0.61	14	53	CH	FALSE	NA	26.0	NA	NA

TVA - Widows Creek Gypsum Stack
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS
FOR COARSE GRAINED SOILS

Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N ₆₀ Value	Correction Factor	Corrected N-Value (N ₁) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
				Input Required										
STN-45		water =	23.1											
0.0 - 1.5	0.75	120	0.05	9	12	1.00	12	52	CL	FALSE	NA	17.0	NA	NA
1.5 - 3.0	2.25	107	0.13	20	27	1.00	27	75	ML	33.5	93	15.0	107	0.8
3.0 - 4.5	3.75	109	0.21	26	35	1.00	35	84	ML	34	94	16.0	109	0.77
4.5 - 6.0	5.25	111	0.29	34	45	1.00	45	93	ML	35	96	16.0	111	0.74
6.0 - 7.5	6.75	115	0.38	34	45	1.00	45	93	ML	35	96	20.0	115	0.74
7.5 - 9.0	8.25	115	0.46	74	99	1.00	99	100	ML	36	98	17.0	115	0.7
9.0 - 10.5	9.75	118	0.55	44	59	1.00	59	100	ML	36	98	20.0	118	0.7
10.5 - 12.0	11.25	118	0.64	49	65	1.00	65	100	ML	36	98	20.0	118	0.7
12.0 - 13.5	12.75	119	0.73	66	88	1.00	88	100	ML	36	98	21.0	119	0.7
13.5 - 15.0	14.25	118	0.82	63	84	1.00	84	100	ML	36	98	20.0	118	0.7
15.0 - 16.5	15.75	118	0.91	35	47	1.00	47	95	ML	36.5	97	22.0	118	0.72
16.5 - 18.0	17.25	118	0.99	127	127	1.00	127	100	ML	36	98	20.0	118	0.7
18.0 - 19.5	18.75	118	1.08	83	111	0.96	106	100	ML	36	98	20.0	118	0.7
19.5 - 21.0	20.25	117	1.17	64	85	0.92	79	100	ML	36	98	19.0	117	0.7
21.0 - 22.5	21.75	113	1.25	28	37	0.89	33	84	ML	34	94	20.0	113	0.77
22.5 - 24.0	23.25	120	1.30	40	53	0.88	47	95	ML	35.5	97	24.0	120	0.72
24.0 - 25.5	24.75	113	1.33	19	25	0.87	22	68	ML	32.5	91	24.0	113	0.83
25.5 - 27.0	26.25	110	1.37	13	17	0.85	15	56	ML	31.5	89.5	23.0	110	0.87
27.0 - 28.5	27.75	112	1.41	22	29	0.84	25	73	ML	33	92	22.0	112	0.82
28.5 - 30.0	29.25	111	1.44	15	20	0.83	17	60	ML	32	90	23.0	111	0.85
30.0 - 31.5	30.75	115	1.48	26	35	0.82	29	77	ML	33.5	93	24.0	115	0.8
31.5 - 33.0	32.25	108	1.52	12	16	0.81	13	53	ML	31	88.5	22.0	108	0.89
33.0 - 34.5	33.75	107	1.55	1	1	0.80	1	11	ML	27	81	32.0	107	1.05
34.5 - 36.0	35.25	120	1.59	22	29	0.79	23	71	ML	33	92	30.0	120	0.82
36.0 - 37.5	36.75	114	1.63	11	15	0.78	12	47	ML	30.5	88	29.0	114	0.91
37.5 - 39.0	38.25	104	1.66	1	1	0.78	1	11	ML	27	81	29.0	104	1.05
39.0 - 40.5	39.75	110	1.70	4	5	0.77	4	27	ML	28.5	84	31.0	110	0.99
40.5 - 42.0	41.25	120	1.74	3	4	0.76	3	24	ML	28	83	45.0	120	1.01
42.0 - 43.5	42.75	120	1.79	9	12	0.75	9	44	CH	FALSE	NA	21.0	NA	NA
43.5 - 45.0	44.25	120	1.83	8	11	0.74	8	41	CH	FALSE	NA	21.0	NA	NA
45.0 - 46.5	45.75	120	1.87	10	13	0.73	10	44	CH	FALSE	NA	19.0	NA	NA
46.5 - 48.0	47.25	120	1.92	5	7	0.72	5	27	CH	FALSE	NA	20.0	NA	NA
48.0 - 49.5	48.75	120	1.96	13	17	0.71	12	52	CH	FALSE	NA	22.0	NA	NA

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₁) ₆₀	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
STN-46					Input Required									
		water =	7.0											
23.5 - 25.0	24.25	112	0.60	47	63	1.00	63	100	ML	36	98	14.0	112	0.7
25.0 - 26.5	25.75	114	0.64	50	67	1.00	67	100	ML	36	98	16.0	114	0.7
26.5 - 28.0	27.25	115	0.68	51	68	1.00	68	100	ML	36	98	17.0	115	0.7
28.0 - 29.5	28.75	109	0.71	14	19	1.00	19	63	ML	32	90	21.0	109	0.85
29.5 - 31.0	30.25	114	0.75	36	48	1.00	48	95	ML	35.5	97	18.0	114	0.72
31.0 - 32.5	31.75	114	0.79	38	51	1.00	51	98	ML	35.5	97	18.0	114	0.72
32.5 - 34.0	33.25	120	0.83	13	17	1.00	17	60	CH	FALSE	NA	26.0	NA	NA
34.0 - 35.5	34.75	120	0.88	20	27	1.00	27	75	CH	FALSE	NA	26.0	NA	NA
35.5 - 37.0	36.25	120	0.92	7	9	1.00	9	44	CH	FALSE	NA	31.0	NA	NA
37.0 - 38.5	37.75	120	0.96	12	16	1.00	16	60	CH	FALSE	NA	32.0	NA	NA
38.5 - 40.0	39.25	120	1.00	7	9	1.00	9	44	CH	FALSE	NA	31.0	NA	NA
40.0 - 41.5	40.75	120	1.05	15	20	0.98	20	65	CH	FALSE	NA	26.0	NA	NA
41.5 - 43.0	42.25	120	1.09	17	23	0.96	22	68	CH	FALSE	NA	24.0	NA	NA
43.0 - 44.5	43.75	120	1.13	9	12	0.94	11	47	CH	FALSE	NA	30.0	NA	NA
44.5 - 46.0	45.25	120	1.18	11	15	0.92	14	53	CH	FALSE	NA	28.0	NA	NA
46.0 - 47.5	46.75	120	1.22	19	25	0.91	23	70	CH	FALSE	NA	20.0	NA	NA
47.5 - 49.0	48.25	120	1.26	13	17	0.89	15	58	CH	FALSE	NA	25.0	NA	NA
49.0 - 50.5	49.75	120	1.31	23	31	0.87	27	75	CH	FALSE	NA	23.0	NA	NA
50.5 - 52.0	51.25	120	1.35	10	13	0.86	12	47	CH	FALSE	NA	21.0	NA	NA
52.0 - 53.5	52.75	120	1.39	21	28	0.85	24	71	CH	FALSE	NA	22.0	NA	NA
53.5 - 55.0	54.25	120	1.44	14	19	0.83	16	58	CH	FALSE	NA	22.0	NA	NA
55.0 - 56.5	55.75	120	1.48	16	21	0.82	18	60	CH	FALSE	NA	24.0	NA	NA
56.5 - 58.0	57.25	120	1.52	23	31	0.81	25	73	CH	FALSE	NA	27.0	NA	NA
58.0 - 59.5	58.75	120	1.57	11	15	0.80	12	47	CH	FALSE	NA	26.0	NA	NA
59.5 - 59.8	59.65	120	1.59		0	0.79	1	11	CH	FALSE	NA	15.0	NA	NA

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	In-situ Unit Weight (pcf)	Void Ratio
STN-48														
0.0 - 1.5	0.75	120	11.0	12	16	1.00	16	60	ML	FALSE	NA	17.0	NA	NA
1.5 - 3.0	2.25	107	0.13	22	29	1.00	29	79	ML	33.5	93	15.0	107	0.8
3.0 - 4.5	3.75	110	0.21	31	41	1.00	41	91	ML	35	96	15.0	110	0.74
4.5 - 6.0	5.25	107	0.29	26	35	1.00	35	84	ML	34	94	14.0	107	0.77
6.0 - 7.5	6.75	113	0.37	37	49	1.00	49	97	ML	35.5	97	16.0	113	0.72
7.5 - 9.0	8.25	113	0.46	35	47	1.00	47	95	ML	35.5	97	17.0	113	0.72
9.0 - 10.5	9.75	113	0.54	40	53	1.00	53	99	ML	35.5	97	17.0	113	0.72
10.5 - 12.0	11.25	118	0.58	68	91	1.00	91	100	ML	36	98	20.0	118	0.7
12.0 - 13.5	12.75	119	0.63	75	100	1.00	100	100	ML	36	98	21.0	119	0.7
13.5 - 15.0	14.25	118	0.67	70	93	1.00	93	100	ML	36	98	20.0	118	0.7
15.0 - 16.5	15.75	119	0.71	55	73	1.00	73	100	ML	36	98	21.0	119	0.7
16.5 - 17.3	16.9	118	0.74	100	133	1.00	133	100	ML	36	98	20.0	118	0.7
18.0 - 18.9	18.45	117	0.78	100	133	1.00	133	100	ML	36	98	20.0	117	0.7
19.5 - 21.0	20.25	118	0.83	57	76	1.00	76	100	ML	36	98	19.0	117	0.7
21.0 - 22.5	21.75	119	0.88	38	51	1.00	51	98	ML	35.5	97	23.0	119	0.72
22.5 - 24.0	23.25	117	0.92	32	43	1.00	43	91	ML	35	96	22.0	117	0.74
24.0 - 25.5	24.75	119	0.96	60	80	1.00	80	100	ML	36	98	21.0	119	0.7
25.5 - 27.0	26.25	117	1.00	31	41	1.00	41	91	ML	35	96	22.0	117	0.74
27.0 - 28.5	27.75	117	1.04	42	56	0.98	55	99	ML	35.5	97	21.0	117	0.72
28.5 - 30.0	29.25	115	1.08	26	35	0.96	33	84	ML	34	94	22.0	115	0.77
30.0 - 31.5	30.75	119	1.12	67	89	0.94	84	100	ML	36	98	21.0	119	0.7
31.5 - 33.0	32.25	117	1.16	78	104	0.93	96	100	ML	36	98	19.0	117	0.7
33.0 - 34.5	33.75	121	1.21	15	20	0.91	18	63	ML	32	90	34.0	121	0.85
34.5 - 36.0	35.25	112	1.24	4	5	0.90	5	27	ML	28.5	84	33.0	112	0.99
36.0 - 37.5	36.75	122	1.29	14	19	0.88	16	60	ML	32	90	36.0	122	0.85
37.5 - 39.0	38.25	121	1.33	3	4	0.87	4	24	ML	28	83	46.0	121	1.01
39.0 - 40.5	39.75	119	1.38	4	5	0.85	5	27	ML	28.5	84	42.0	119	0.99
40.5 - 42.0	41.25	119	1.42	2	3	0.84	2	18	ML	27.5	82	45.0	119	1.03
42.0 - 43.5	42.75	131	1.47	9	12	0.82	10	44	ML	30	87	51.0	131	0.93
43.5 - 45.0	44.25	115	1.51	22	29	0.81	24	71	ML	33	92	25.0	115	0.82
45.0 - 46.5	45.75	116	1.55	38	51	0.80	41	89	ML	34.5	95	22.0	116	0.75
46.5 - 48.0	47.25	119	1.59	50	67	0.79	53	98	ML	35.5	97	23.0	119	0.72
48.0 - 49.5	48.75	109	1.63	14	19	0.78	15	56	ML	31.5	89.5	22.0	109	0.87
49.5 - 51.0	50.25	111	1.66	6	8	0.78	6	35	ML	29.5	86	29.0	111	0.95
51.0 - 52.5	51.75	120	1.71	16	21	0.77	16	60	CH	FALSE	NA	31.0	NA	NA
52.5 - 54.0	53.25	120	1.75	15	20	0.76	15	58	CH	FALSE	NA	30.0	NA	NA
54.0 - 55.5	54.75	120	1.79	14	19	0.75	14	53	CH	FALSE	NA	24.0	NA	NA
55.5 - 57.0	56.25	120	1.84	75	100	0.74	74	100	CH	FALSE	NA	25.0	NA	NA
57.0 - 57.4	57.2	120	1.86	0	0	0.73	1	11	CH	FALSE	NA	13.0	NA	NA

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT N Value	SPT N Value	Correction Factor	Corrected N-Value (N ₁₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
Input Required														
STN-49	0.0 - 1.5	water =	18.0											
	1.5 - 3.0	102	0.04	13	17	1.00	17	60	ML	32	90	13.0	102	0.85
	3.0 - 4.5	109	0.12	32	43	1.00	43	91	ML	35	96	14.0	109	0.74
	4.5 - 6.0	114	0.21	71	95	1.00	95	100	ML	36	98	16.0	114	0.7
	6.0 - 7.5	115	0.29	61	81	1.00	81	100	ML	36	98	17.0	115	0.7
	7.5 - 9.0	117	0.38	63	84	1.00	84	100	ML	36	98	17.0	115	0.7
	9.0 - 10.5	117	0.46	96	128	1.00	128	100	ML	36	98	19.0	117	0.7
	10.5 - 12.0	117	0.55	43	57	1.00	57	100	ML	36	98	19.0	117	0.7
	12.0 - 13.5	119	0.64	44	59	1.00	59	100	ML	36	98	20.0	118	0.7
	13.5 - 15.0	117	0.73	58	77	1.00	77	100	ML	36	98	21.0	119	0.7
	15.0 - 16.5	118	0.82	64	85	1.00	85	100	ML	36	98	19.0	117	0.7
	16.5 - 18.0	115	0.91	36	47	1.00	47	95	ML	35.5	97	22.0	118	0.72
	18.0 - 19.5	115	1.03	30	40	1.00	45	93	ML	35	96	20.0	115	0.75
	19.5 - 21.0	111	1.07	17	23	0.97	22	68	ML	34.5	95	21.0	115	0.75
	21.0 - 22.5	111	1.10	16	21	0.95	20	67	ML	32.5	91	22.0	111	0.83
	22.5 - 24.0	109	1.14	19	25	0.94	24	71	ML	33	92	19.0	109	0.82
	24.0 - 25.5	105	1.17	11	15	0.92	14	53	ML	31	88.5	19.0	105	0.89
	25.5 - 27.0	109	1.21	21	28	0.91	26	74	ML	33	92	19.0	109	0.82
	27.0 - 28.5	111	1.24	15	20	0.90	18	60	ML	32	90	23.0	111	0.85
	28.5 - 30.0	112	1.28	23	31	0.88	27	77	ML	33.5	93	20.0	112	0.8
	30.0 - 31.5	104	1.31	4	5	0.87	5	27	ML	28.5	84	24.0	104	0.99
	31.5 - 33.0	100	1.34	0	0	0.86	1	11	ML	27	81	24.0	100	1.05
	33.0 - 34.5	101	1.37	0	0	0.85	1	11	ML	27	81	25.0	101	1.05
	34.5 - 36.0	119	1.41	0	0	0.84	1	11	ML	27	81	47.0	119	1.05
	36.0 - 37.5	121	1.46	1	1	0.83	1	11	ML	27	81	49.0	121	1.05
	37.5 - 39.0	111	1.49	2	3	0.82	2	18	ML	27.5	82	35.0	111	1.03
	39.0 - 40.5	120	1.54	3	4	0.81	3	24	CH	FALSE	NA	39.0	NA	NA
	40.5 - 42.0	120	1.58	3	4	0.80	3	24	CH	FALSE	NA	33.0	NA	NA
	42.0 - 43.5	120	1.62	12	16	0.79	13	52	CH	FALSE	NA	26.0	NA	NA
	43.5 - 45.0	120	1.66	9	12	0.78	9	44	CH	FALSE	NA	25.0	NA	NA
	45.0 - 46.5	120	1.71	4	5	0.77	4	27	CH	FALSE	NA	28.0	NA	NA
	46.5 - 48.0	120	1.75	9	12	0.76	9	44	CH	FALSE	NA	26.0	NA	NA
	48.0 - 49.5	120	1.79	12	16	0.75	12	47	CH	FALSE	NA	19.0	NA	NA
	49.5 - 51.0	120	1.84	13	17	0.74	13	52	CH	FALSE	NA	22.0	NA	NA
	51.0 - 52.5	120	1.88	18	24	0.73	18	60	CH	FALSE	NA	21.0	NA	NA
	52.5 - 54.0	120	1.92	25	33	0.72	24	73	CH	FALSE	NA	18.0	NA	NA
	54.0 - 55.5	120	1.97	15	20	0.71	14	56	CH	FALSE	NA	21.0	NA	NA
	55.5 - 57.0	120	2.01	15	20	0.71	14	56	CH	FALSE	NA	19.0	NA	NA
	57.0 - 58.5	120	2.05	23	31	0.70	21	68	CH	FALSE	NA	20.0	NA	NA
	58.5 - 60.0	120	2.10	48	64	0.69	44	93	CH	FALSE	NA	21.0	NA	NA
	60.0 - 61.5	120	2.14	46	61	0.68	42	91	CH	FALSE	NA	20.0	NA	NA
	61.5 - 62.1	120	2.17	0	0	0.68	1	11	CH	FALSE	NA	14.0	NA	NA

TVA - Widows Creek Gypsum Stack														
CORRELATION OF SPT DATA TO UNIT WEIGHTS AND SHEAR STRENGTHS														
FOR COARSE GRAINED SOILS														
Sample Interval	Depth of Mid. Pt. of Sample (ft.)	Assumed Estimated Unit Weight (pcf)	Vertical Effective Stress (tsf)	SPT Value	SPT N	Correction Factor	Corrected N-Value (N ₁₆₀)	Relative Density (%)	Unified Soil Classification	Internal Angle of Friction (degrees)	Unit Weight Dry (pcf)	Moisture Content (%)	Revised In-situ Unit Weight (pcf)	Void Ratio
STN-50														
0.0 - 1.5	0.75	103	16.4	15	20	1.00	20	67	ML	32.5	91	13.0	103	0.83
1.5 - 3.0	2.25	109	0.04	30	40	1.00	40	89	ML	34.5	95	15.0	109	0.75
3.0 - 4.5	3.75	107	0.20	21	28	1.00	28	77	ML	33.5	93	15.0	107	0.8
4.5 - 6.0	5.25	114	0.29	44	59	1.00	59	100	ML	36	98	16.0	114	0.7
6.0 - 7.5	6.75	117	0.37	59	79	1.00	79	100	ML	36	98	19.0	117	0.7
7.5 - 9.0	8.25	115	0.46	84	112	1.00	112	100	ML	36	98	17.0	115	0.7
9.0 - 10.5	9.75	119	0.55	47	63	1.00	63	100	ML	36	98	21.0	119	0.7
10.5 - 12.0	11.25	114	0.63	40	53	1.00	53	99	ML	35.5	97	18.0	114	0.72
12.0 - 13.5	12.75	117	0.72	51	68	1.00	68	100	ML	36	98	19.0	117	0.7
13.5 - 15.0	14.25	116	0.81	40	53	1.00	53	99	ML	35.5	97	20.0	116	0.72
15.0 - 16.5	15.75	112	0.89	23	31	1.00	31	79	ML	33.5	93	20.0	112	0.8
16.5 - 18.0	17.25	113	0.93	26	35	1.00	35	84	ML	34	94	20.0	113	0.77
18.0 - 19.5	18.75	107	0.96	16	21	1.00	21	68	ML	32.5	91	18.0	107	0.83
19.5 - 21.0	20.25	112	1.00	11	15	1.00	15	56	ML	31.5	89.5	25.0	112	0.87
21.0 - 22.5	21.75	106	1.03	7	9	0.98	9	44	ML	30	87	22.0	106	0.93
22.5 - 24.0	23.25	106	1.07	10	13	0.97	13	52	ML	31	88.5	20.0	106	0.89
24.0 - 25.5	24.75	104	1.10	9	12	0.95	12	47	ML	30.5	88	18.0	104	0.91
25.5 - 27.0	26.25	110	1.13	18	24	0.94	23	70	ML	33	92	20.0	110	0.82
27.0 - 28.5	27.75	113	1.17	41	55	0.92	51	98	ML	35.5	97	16.0	113	0.72
28.5 - 30.0	29.25	113	1.21	61	81	0.91	74	100	ML	36	98	15.0	113	0.7
30.0 - 31.5	30.75	113	1.25	19	25	0.90	23	70	ML	33	92	23.0	113	0.82
31.5 - 33.0	32.25	109	1.28	23	31	0.88	27	77	ML	33.5	93	17.0	109	0.8
33.0 - 34.5	33.75	108	1.32	36	48	0.87	42	91	ML	35	96	12.0	108	0.74
34.5 - 36.0	35.25	109	1.35	12	16	0.86	14	53	ML	31	88.5	23.0	109	0.89
36.0 - 37.5	36.75	120	1.39	14	19	0.85	16	58	CH	FALSE	NA	26.0	NA	NA
37.5 - 39.0	38.25	120	1.44	12	16	0.83	13	53	CH	FALSE	NA	27.0	NA	NA
39.0 - 40.5	39.75	120	1.48	9	12	0.82	10	44	CH	FALSE	NA	26.0	NA	NA
40.5 - 42.0	41.25	120	1.52	8	11	0.81	9	41	CH	FALSE	NA	28.0	NA	NA
42.0 - 43.5	42.75	120	1.57	13	17	0.80	14	53	CH	FALSE	NA	24.0	NA	NA
43.5 - 45.0	44.25	120	1.61	20	27	0.79	21	68	CH	FALSE	NA	25.0	NA	NA
45.0 - 46.5	45.75	120	1.65	11	15	0.78	11	47	CH	FALSE	NA	24.0	NA	NA
46.5 - 48.0	47.25	120	1.70	11	15	0.77	11	47	CH	FALSE	NA	26.0	NA	NA
48.0 - 49.5	48.75	120	1.74	23	31	0.76	23	71	CH	FALSE	NA	15.0	NA	NA
49.5 - 51.0	50.25	120	1.78	13	17	0.75	13	53	CH	FALSE	NA	22.0	NA	NA
51.0 - 52.5	51.75	120	1.83	18	24	0.74	18	60	CH	FALSE	NA	21.0	NA	NA
52.5 - 54.0	53.25	120	1.87	28	37	0.73	27	77	CH	FALSE	NA	18.0	NA	NA
54.0 - 55.5	54.75	120	1.91	19	25	0.72	18	63	CH	FALSE	NA	25.0	NA	NA
55.5 - 57.0	56.25	120	1.96	27	36	0.72	26	74	CH	FALSE	NA	21.0	NA	NA
57.0 - 58.5	57.75	120	2.00	34	45	0.71	32	82	CH	FALSE	NA	18.0	NA	NA
58.5 - 60.0	59.25	120	2.04	33	44	0.70	31	79	CH	FALSE	NA	23.0	NA	NA
60.0 - 61.5	60.75	120	2.09		0	0.69	1	11	CH	FALSE	NA	8.0	NA	NA