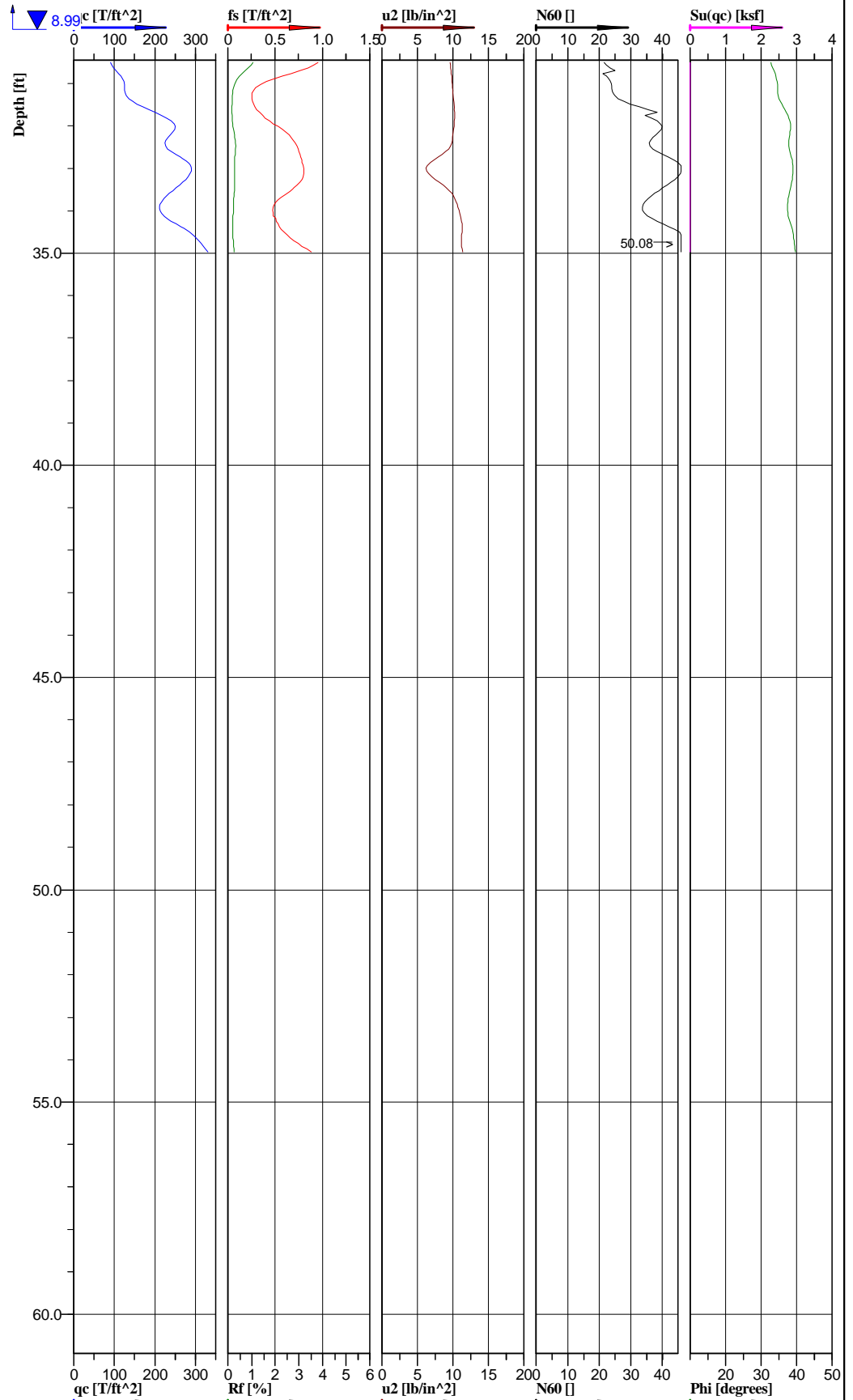
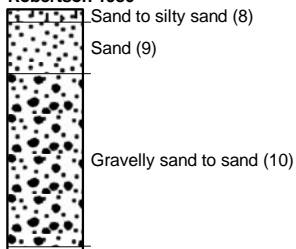


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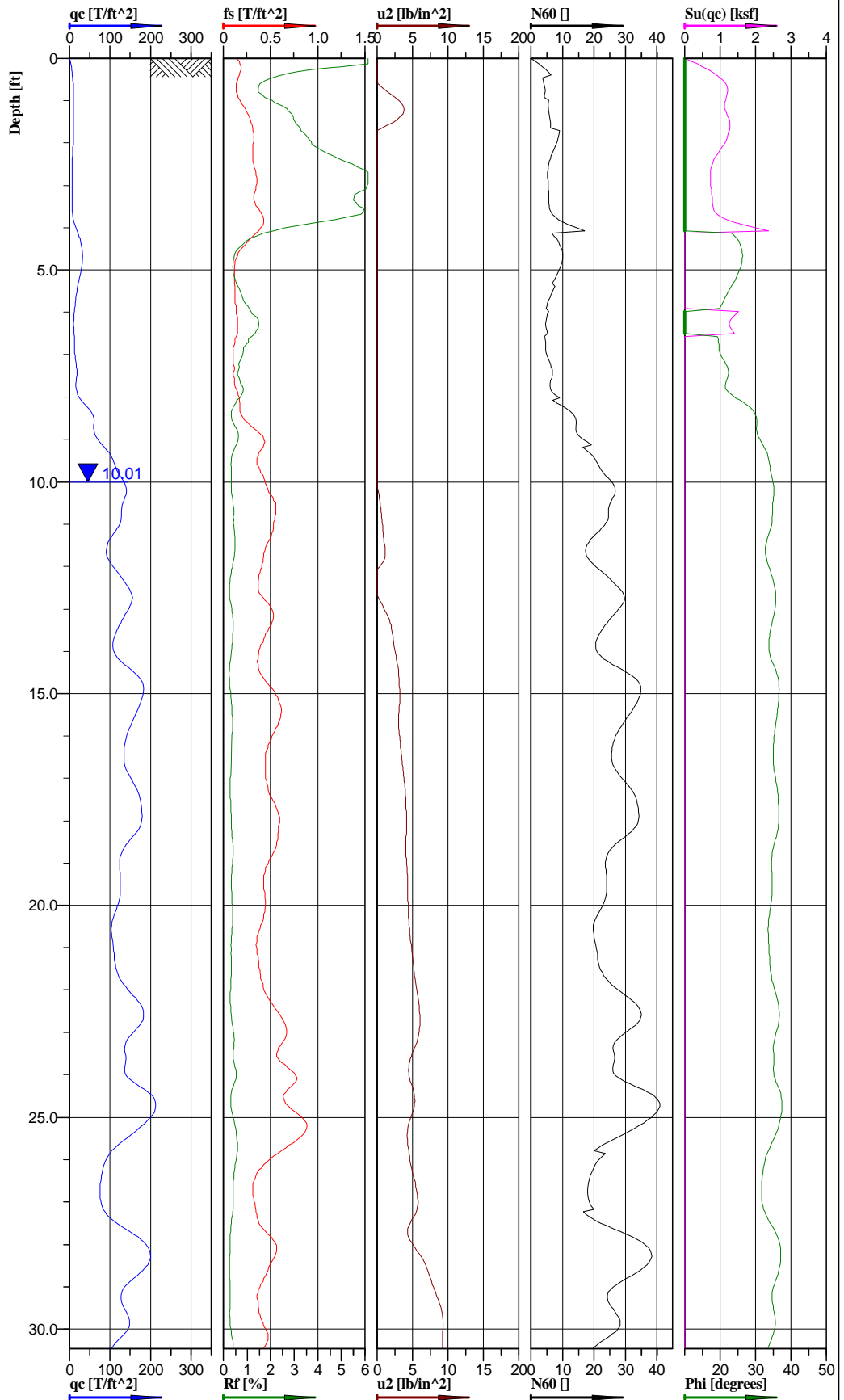
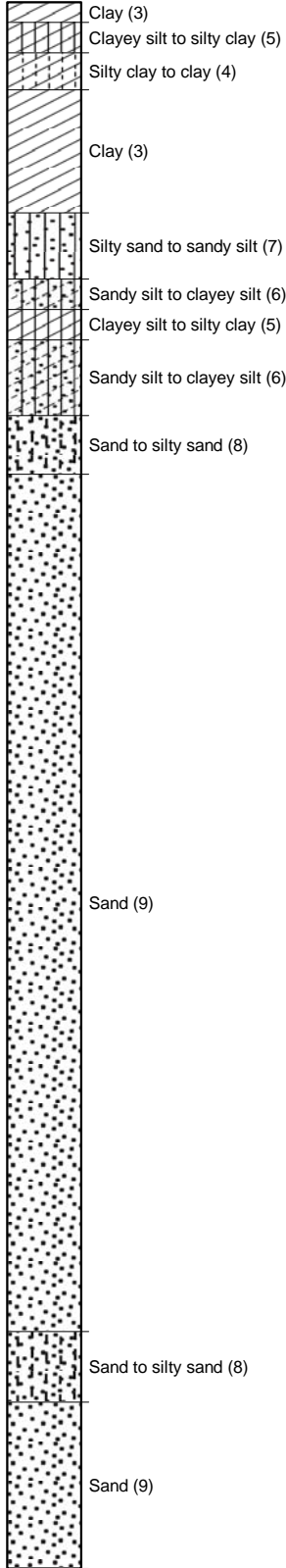
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727863.35 ft, Y: 996087.43 ft	Ground level: 468.60	Test no: C-11
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-1
		File: Labadie C-011.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-11
 Test date: 10/28/2009
 Location: Labadie MO
 File name: Labadie C-011.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden stress [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.136	0.031	-7.0122	Clayey silt to silty clay (5)	7.2	1.572	0.007	0.007			1.82	7.2	114	0.15	0.15	943
3.75	1.142	0.026	-6.2796	Clay (3)	6.0	0.924	0.021	0.021	22.3		1.82	6.0	114	0.44	0.44	277
6.25	0.832	0.04	-6.2008	Clayey silt to silty clay (5)	6.9	1.111	0.034	0.034			1.8	6.9	112	0.71	0.71	667
8.75	1.034	0.017	-4.6857	Clay (3)	5.3	0.952	0.048	0.047	22.0		1.82	5.3	114	1.00	0.98	286
11.25	1.296	0.018	4.0202	Sand to silty sand (8)	6.3	0.599	0.061	0.054	25.3	49	1.82	4.0	114	1.27	1.12	108
13.75	3.66	0.023	1.5868	Clayey silt to silty clay (5)	10.5	1.318	0.075	0.061	28.9	58	1.9	10.5	119	1.56	1.27	791
16.25	1.627	0.018	2.9491	Sand to silty sand (8)	6.3	1.258	0.089	0.067	26.0	47	1.86	4.0	116	1.85	1.39	135
18.75	14.028	0.066	3.8734	Sand (9)	28.8		0.103	0.074	34.8	78	1.98	14.4	124	2.14	1.54	1167
21.25	12.808	0.064	4.4935	Sand (9)	25.6		0.118	0.081	34.9	77	1.99	12.8	124	2.45	1.68	1066
23.75	12.257	0.048	4.447	Sand (9)	24.5		0.133	0.088	34.6	74	1.99	12.3	124	2.77	1.83	1020
26.25	15.667	0.037	7.7328	Sand (9)	31.3		0.148	0.095	36.0	80	1.99	15.7	124	3.08	1.98	1303
28.75	21.364	0.065	8.6803	Sand to silty sand (8)	38.8		0.163	0.103	37.7	88	2.02	24.8	126	3.39	2.14	1777
31.25	15.678	0.055	9.8124	Gravelly sand to sand (10)	30.4		0.178	0.11	35.7	77	1.99	20.7	124	3.70	2.29	1304
33.75	25.194	0.064	9.5982	Gravelly sand to sand (10)	42.0		0.193	0.117	38.5	91	2.04	28.6	127	4.01	2.43	2096

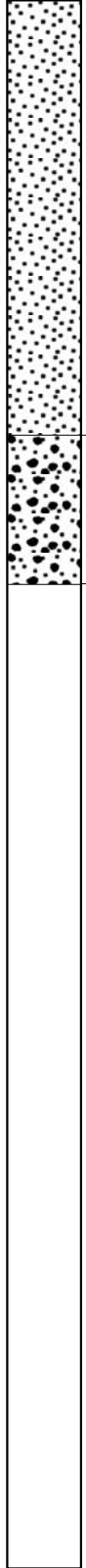
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

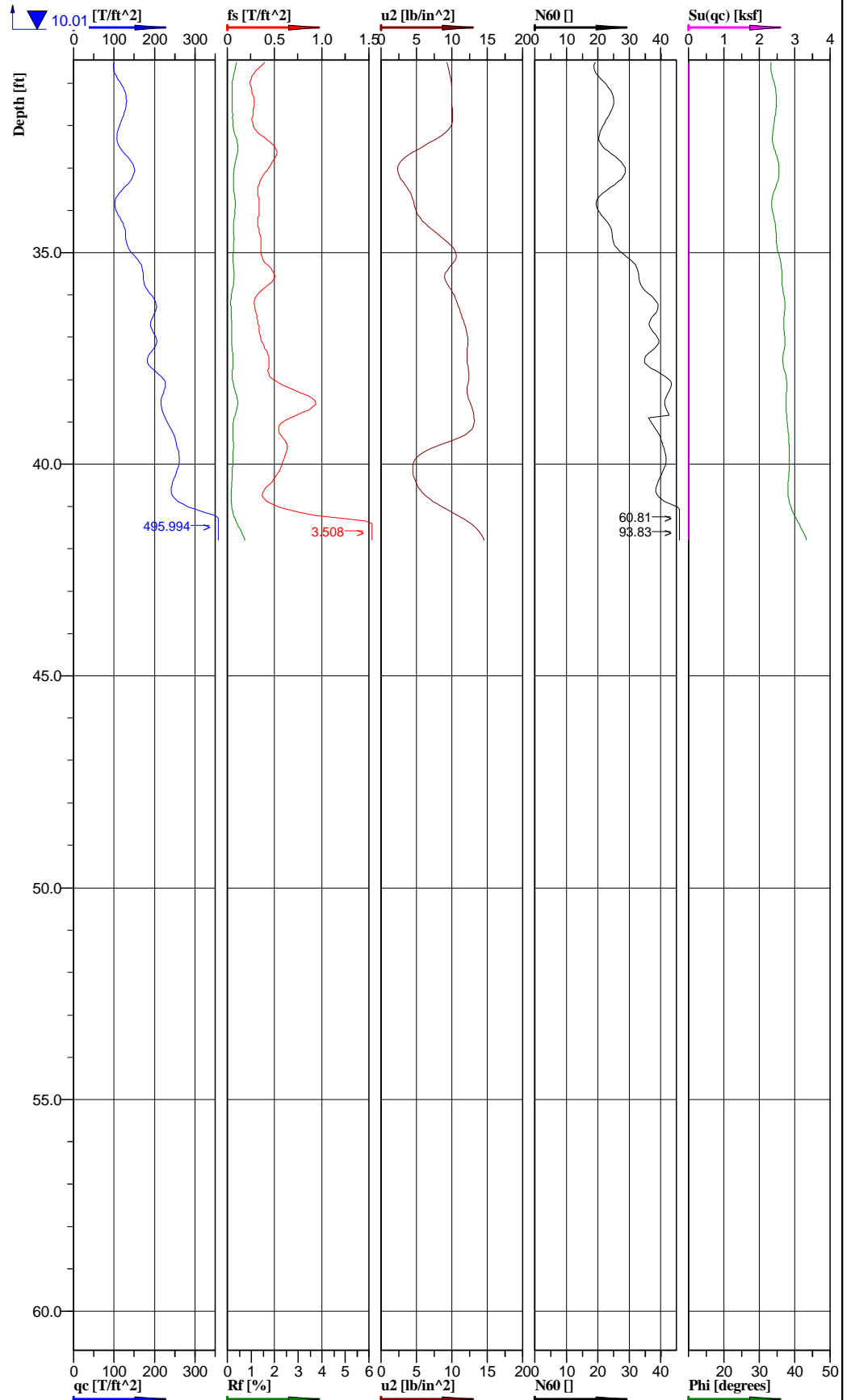
Location: Labadie, MO	Position: X: 728453.51 ft, Y: 996064.70 ft	Ground level: 468.11	Test no: C-13
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-2
Confirmation sounding adjacent to B-13		File: Labadie C-013.cpd	

Classification by
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Sand (9)

Gravelly sand to sand (10)



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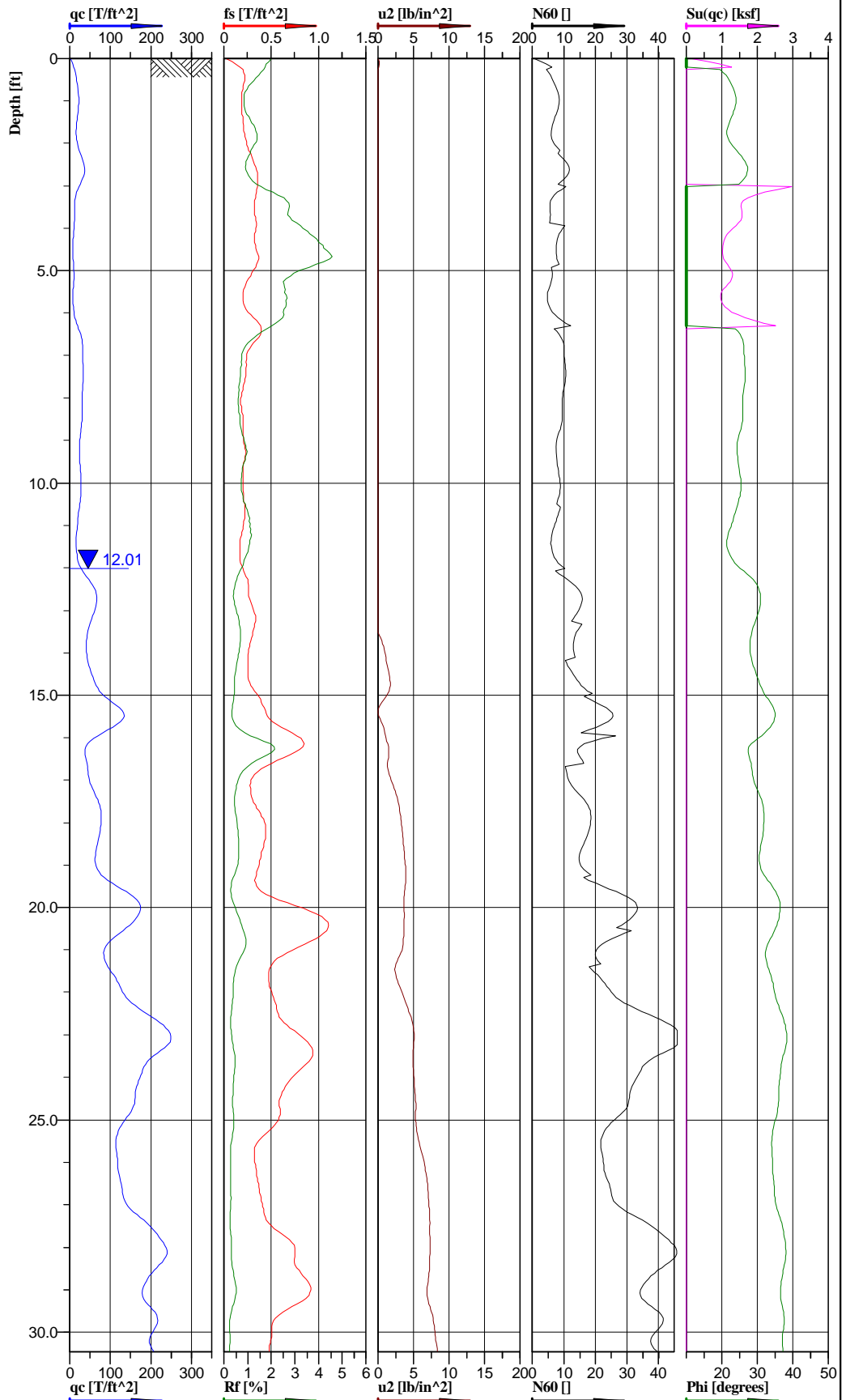
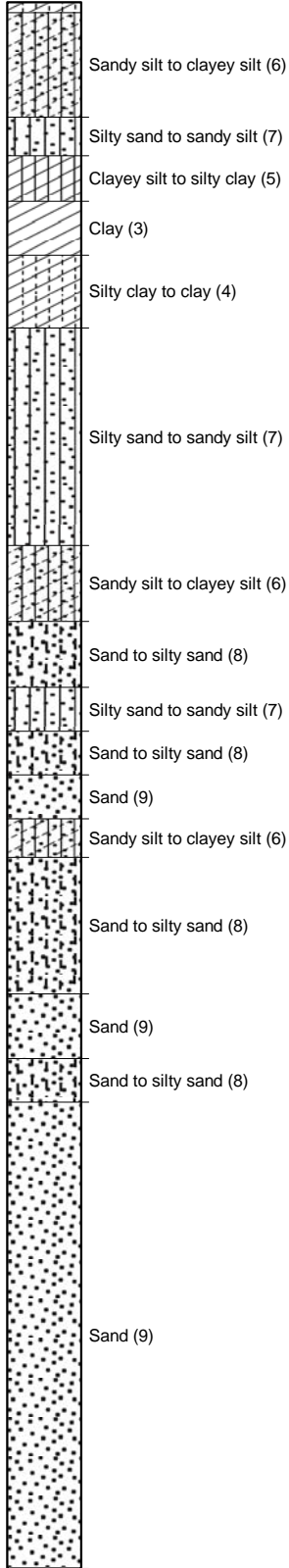
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728453.51 ft, Y: 996064.70 ft	Ground level: 468.11	Test no: C-13
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-2
Confirmation sounding adjacent to B-13		File: Labadie C-013.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-13
 Test date: 10/28/2009
 Location: Labadie MO
 File name: Labadie C-013.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.724	0.023	-0.2251	Clay (3)	5.6	0.999	0.007	0.007			1.77	5.6	111	0.15	0.15	300
3.75	1.487	0.028	-3.2628	Silty sand to sandy silt (7)	7.9	0.978	0.02	0.02	25.5		1.82	5.0	114	0.42	0.42	124
6.25	1.44	0.012	-1.9881	Sandy silt to clayey silt (6)	5.8	1.35	0.034	0.034	21.6		1.84	5.8	115	0.71	0.71	120
8.75	6.585	0.028	-2.0836	Sand (9)	15.1		0.048	0.048	29.7	68	1.93	7.5	120	1.00	1.00	548
11.25	11.458	0.045	0.3838	Sand (9)	22.9		0.063	0.059	34.3	78	1.98	11.5	124	1.31	1.23	953
13.75	13.488	0.042	2.035	Sand (9)	27.0		0.078	0.066	35.2	81	1.99	13.5	124	1.62	1.37	1122
16.25	14.709	0.049	3.4183	Sand (9)	29.4		0.092	0.073	35.7	82	1.99	14.7	124	1.91	1.52	1224
18.75	13.79	0.049	4.1731	Sand (9)	27.6		0.107	0.081	35.3	79	1.99	13.8	124	2.23	1.68	1147
21.25	11.975	0.04	5.0704	Sand (9)	23.9		0.122	0.088	34.5	74	1.99	12.0	124	2.54	1.83	996
23.75	16.046	0.064	5.2203	Sand (9)	32.1		0.137	0.095	36.1	81	1.99	16.0	124	2.85	1.98	1335
26.25	10.354	0.049	4.916	Sand (9)	22.7		0.152	0.102	33.5	66	1.96	11.4	122	3.16	2.12	861
28.75	15.144	0.043	7.2196	Sand (9)	30.3		0.167	0.109	35.8	77	1.99	15.1	124	3.47	2.27	1260
31.25	11.152	0.032	9.3155	Sand (9)	22.3		0.182	0.117	34.2	68	1.99	11.1	124	3.79	2.43	928
33.75	12.148	0.036	5.3593	Sand (9)	24.3		0.196	0.124	34.6	69	1.99	12.1	124	4.08	2.58	1011
36.25	17.845	0.036	10.9131	Sand (9)	35.7		0.211	0.131	36.7	80	1.99	17.8	124	4.39	2.72	1485
38.75	21.989	0.06	10.9403	Gravelly sand to sand (10)	40.3		0.226	0.138	37.8	85	2.02	27.4	126	4.70	2.87	1829
41.25	34.05	0.129	8.6089	Gravelly sand to sand (10)	56.7		0.239	0.145	39.6	95	2.04	38.6	127	4.97	3.02	2833

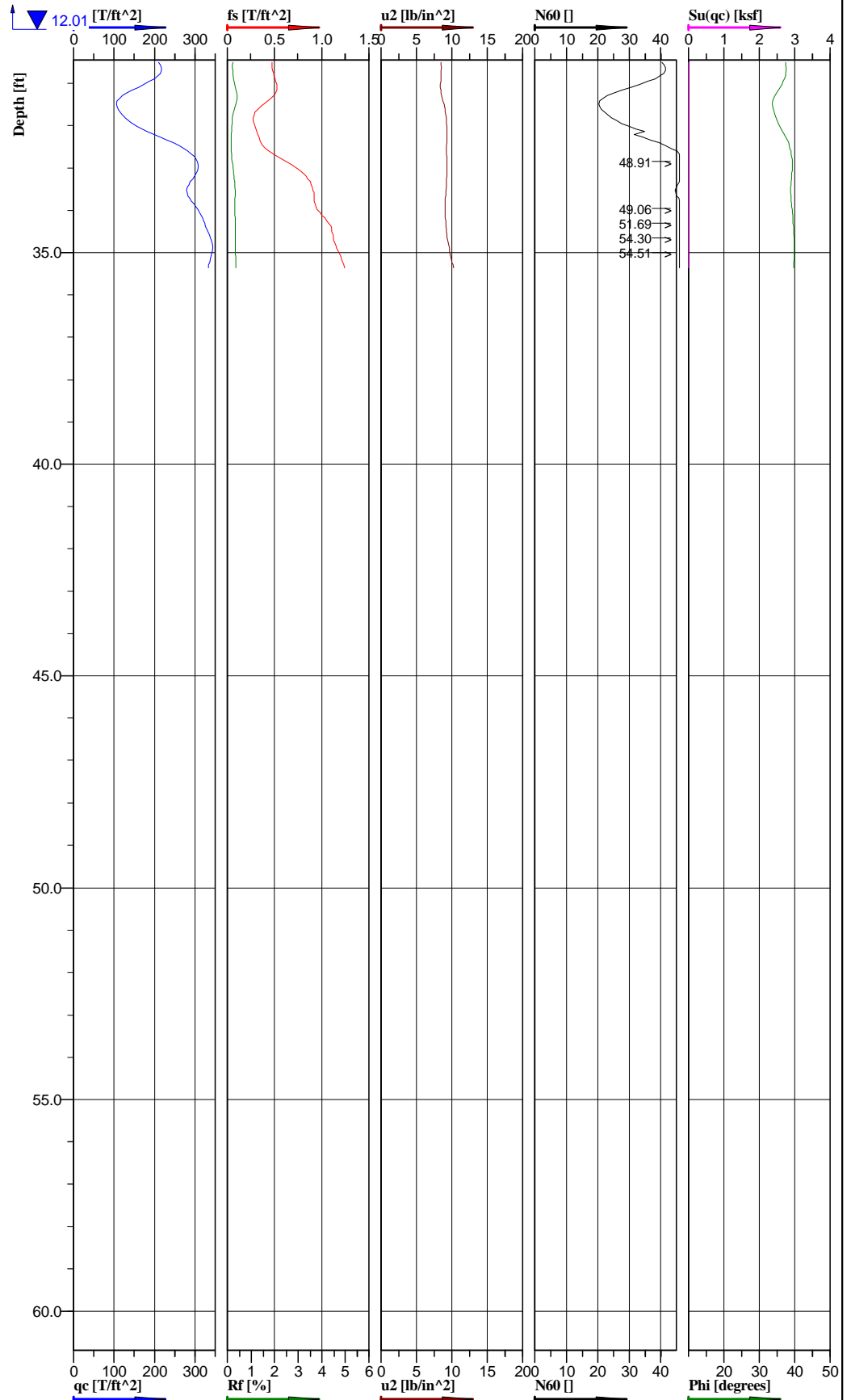
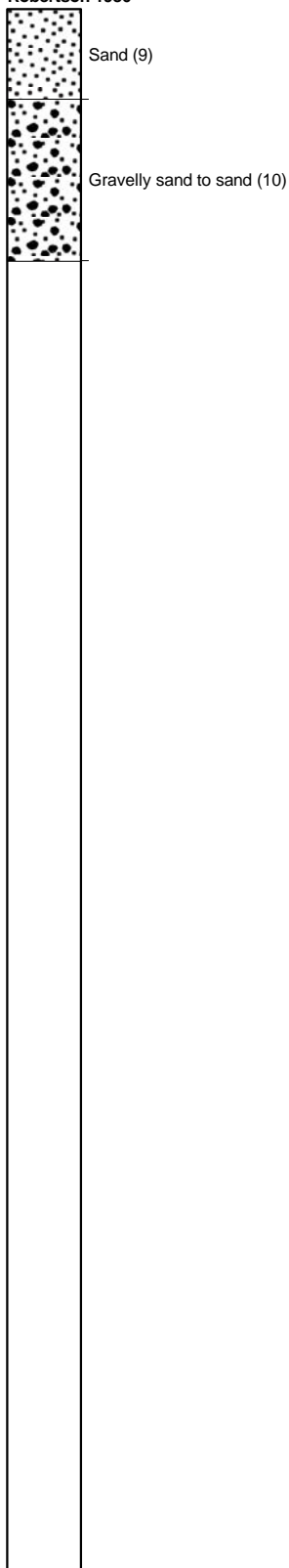
Classification by
Robertson 1986



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 727587.86 ft, Y: 995796.00 ft	Ground level: 469.49	Test no: C-16
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-3
File: Labadie C-016.cpd			

Classification by
Robertson 1986



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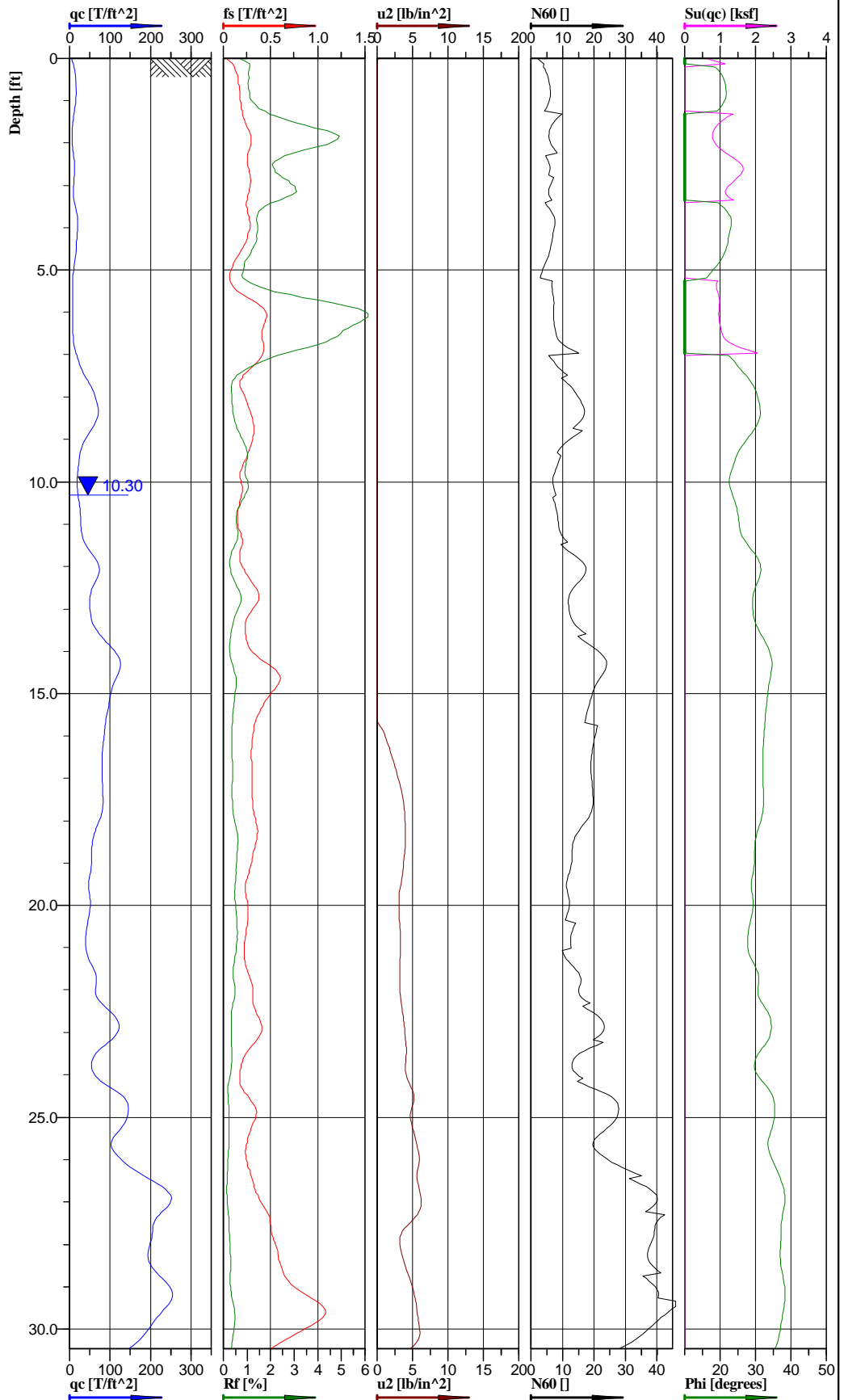
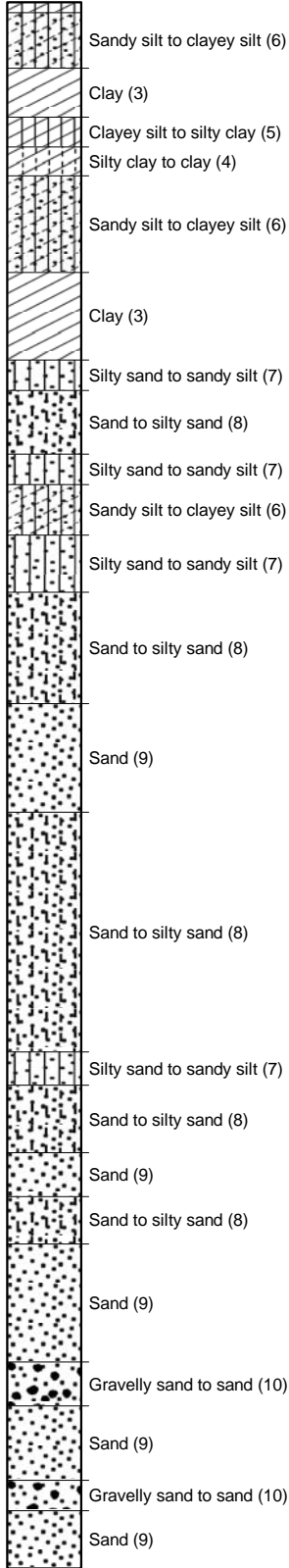
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727587.86 ft, Y: 995796.00 ft	Ground level: 469.49	Test no: C-16
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-3
		File: Labadie C-016.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-16
 Test date: 10/23/2009
 Location: Labadie MO
 File name: Labadie C-016.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.833	0.02	-0.7678	Silty sand to sandy silt (7)	7.2	0.737	0.007	0.007	23.1		1.83	4.6	114	0.15	0.15	153
3.75	1.428	0.032	-1.3414	Silty clay to clay (4)	7.9	1.432	0.021	0.021	26.5		1.83	7.9	114	0.44	0.44	716
6.25	1.934	0.026	-1.9854	Silty sand to sandy silt (7)	8.1	1.328	0.035	0.035	26.0		1.86	5.2	116	0.73	0.73	161
8.75	2.651	0.019	-2.7264	Silty sand to sandy silt (7)	8.9		0.049	0.049	25.4		1.89	5.7	118	1.02	1.02	221
11.25	2.539	0.02	-3.4778	Sand to silty sand (8)	8.4		0.063	0.062	24.5	50	1.87	5.4	117	1.31	1.29	211
13.75	5.252	0.027	-0.3621	Sand (9)	14.2		0.077	0.071	29.6	56	1.92	7.1	120	1.60	1.48	437
16.25	6.94	0.047	1.2901	Sand to silty sand (8)	17.3		0.091	0.078	30.8	62	1.93	11.0	120	1.89	1.62	577
18.75	8.773	0.041	3.5499	Sand (9)	19.9		0.105	0.085	32.4	64	1.95	9.9	122	2.18	1.77	730
21.25	12.19	0.068	3.3554	Sand (9)	25.9		0.12	0.092	34.5	73	1.97	13.0	123	2.50	1.91	1014
23.75	18.365	0.069	5.0401	Sand (9)	36.7		0.135	0.099	36.8	84	2	18.4	125	2.81	2.06	1528
26.25	12.858	0.038	6.533	Sand (9)	25.7		0.15	0.106	34.9	73	1.99	12.9	124	3.12	2.20	1070
28.75	19.984	0.069	7.3311	Sand (9)	40.0		0.165	0.114	37.3	85	2	20.0	125	3.43	2.37	1663
31.25	16.981	0.04	8.7446	Gravelly sand to sand (10)	32.8		0.18	0.121	36.3	78	2	22.3	125	3.74	2.52	1413
33.75	29.621	0.087	9.2581	Gravelly sand to sand (10)	49.4		0.195	0.128	39.3	94	2.04	33.6	127	4.06	2.66	2464
36.25	32.293	0.117	9.9953	Gravelly sand to sand (10)	53.8		0.203	0.133	39.7	97	2.04	36.6	127	4.22	2.77	2687

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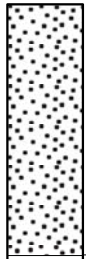
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

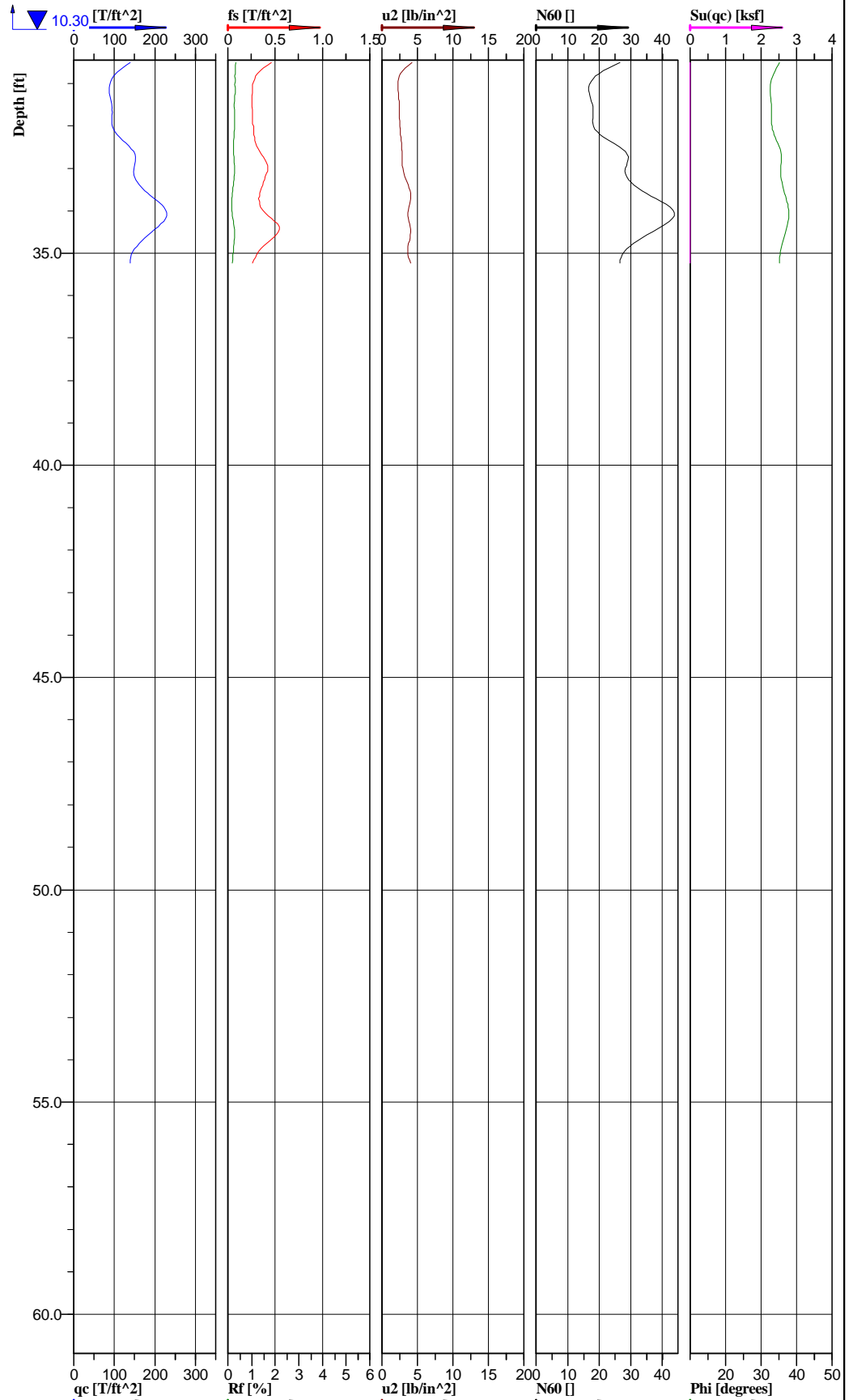


Location: Labadie, MO	Position: X: 728155.09 ft, Y: 995781.82 ft	Ground level: 468.01	Test no: C-18
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-4
File: Labadie C-018.cpd			

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Sand (9)



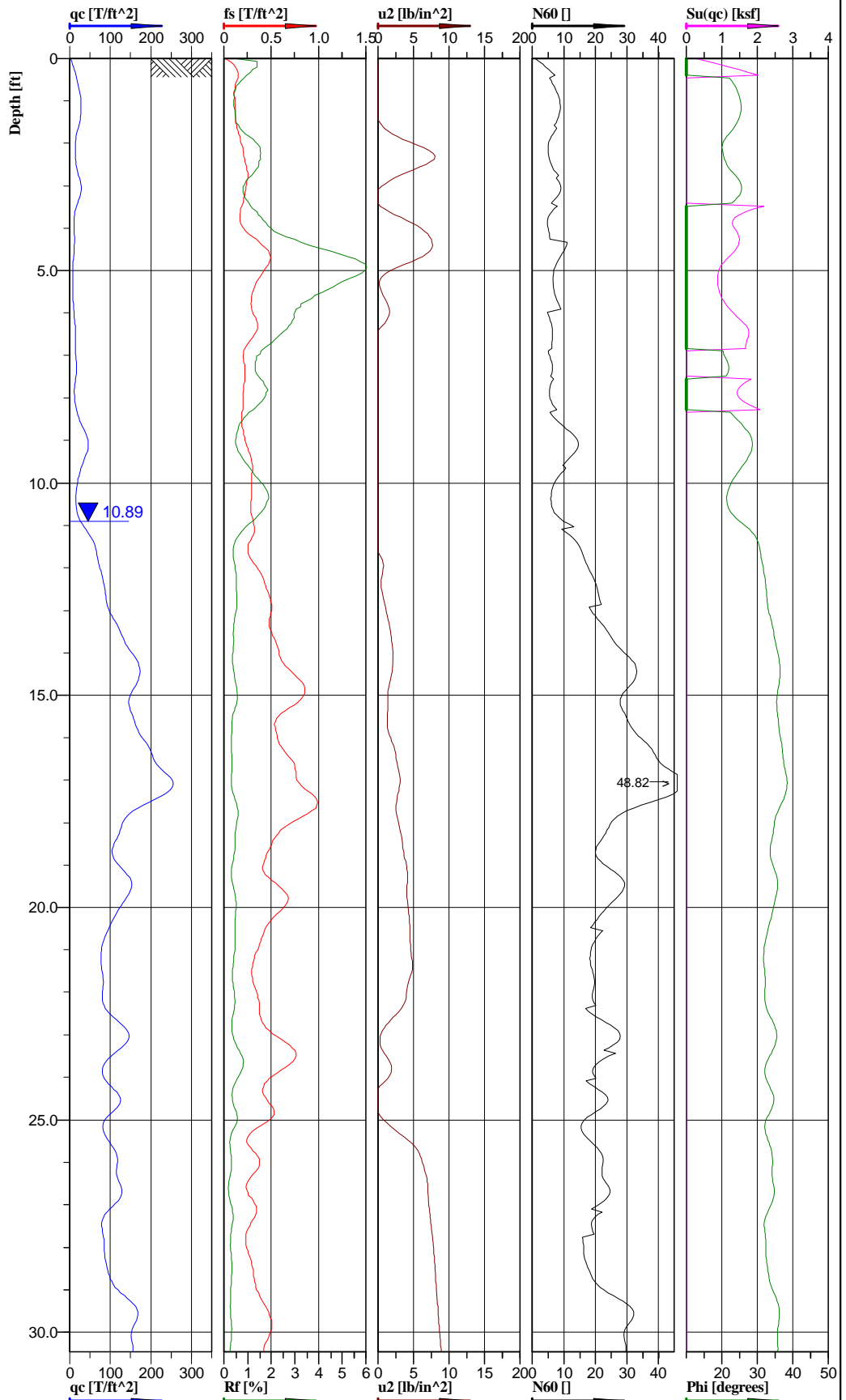
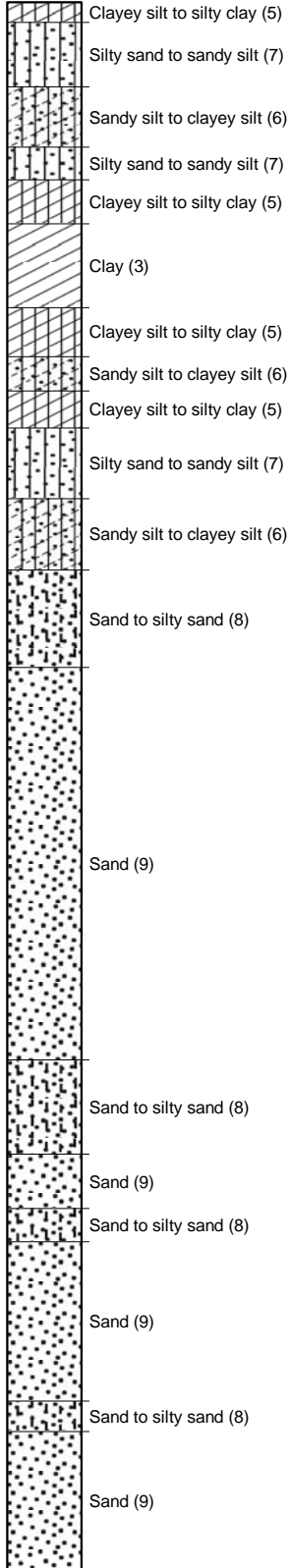
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728155.09 ft, Y: 995781.82 ft	Ground level: 468.01	Test no: C-18
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-4
		File: Labadie C-018.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-18
 Test date: 10/28/2009
 Location: Labadie MO
 File name: Labadie C-018.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.018	0.019	-2.0188	Clayey silt to silty clay (5)	5.8	1.066	0.007	0.007	20.7		1.82	5.8	114	0.15	0.15	640
3.75	1.339	0.022	-4.5879	Sandy silt to clayey silt (6)	6.1	1.384	0.021	0.021	21.3		1.84	6.1	115	0.44	0.44	111
6.25	1.237	0.03	-5.0259	Sand to silty sand (8)	7.8	1.093	0.034	0.034	23.1	52	1.81	5.0	113	0.71	0.71	103
8.75	4.209	0.024	-2.7613	Sandy silt to clayey silt (6)	12.0		0.048	0.048	27.6	63	1.9	12.0	119	1.00	1.00	350
11.25	3.935	0.019	-4.55	Sand to silty sand (8)	11.2		0.062	0.059	27.2	58	1.9	7.1	119	1.29	1.23	327
13.75	8.21	0.036	-3.2647	Sand (9)	17.6		0.077	0.066	32.0	65	1.97	8.8	123	1.60	1.37	683
16.25	8.197	0.032	1.0366	Sand to silty sand (8)	19.2		0.091	0.073	32.4	66	1.95	12.3	122	1.89	1.52	682
18.75	5.697	0.029	3.6581	Sand to silty sand (8)	14.2		0.106	0.08	30.1	54	1.94	9.1	121	2.20	1.66	474
21.25	5.348	0.025	3.2302	Sand (9)	13.9		0.12	0.087	29.6	53	1.93	6.9	120	2.50	1.81	445
23.75	9.678	0.027	4.2775	Sand (9)	20.5		0.135	0.094	33.1	65	1.97	10.2	123	2.81	1.96	805
26.25	16.638	0.032	5.5778	Sand (9)	30.8		0.15	0.101	36.1	80	2.01	15.4	125	3.12	2.10	1384
28.75	20.758	0.071	4.5801	Sand (9)	39.7		0.165	0.109	37.5	87	2	19.9	125	3.43	2.27	1727
31.25	11.053	0.034	3.1383	Sand (9)	22.1		0.18	0.116	34.0	67	1.99	11.1	124	3.74	2.41	920
33.75	16.94	0.038	3.5473	Sand (9)	33.9		0.195	0.123	36.4	79	2	16.9	125	4.06	2.56	1409
36.25	13.434	0.027	3.8208	Sand (9)	26.9		0.203	0.127	35.2	72	1.99	13.4	124	4.22	2.64	1118

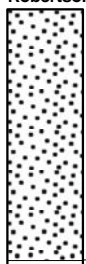
**Classification by
Robertson 1986**



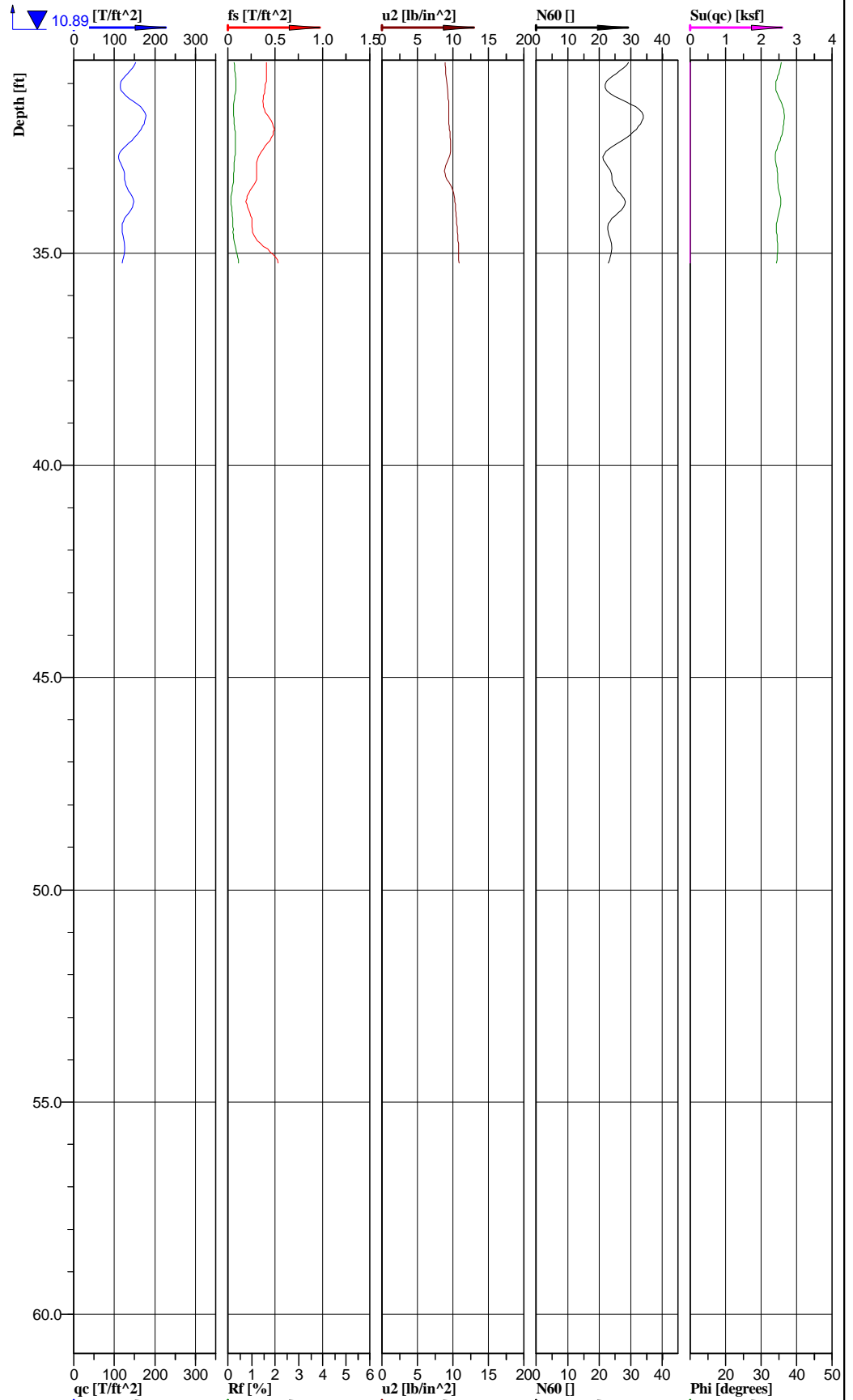
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727263.09 ft, Y: 995508.43 ft	Ground level: 469.09	Test no: C-21
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-5
		File: Labadie C-021.cpd	

Classification by
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Sand (9)



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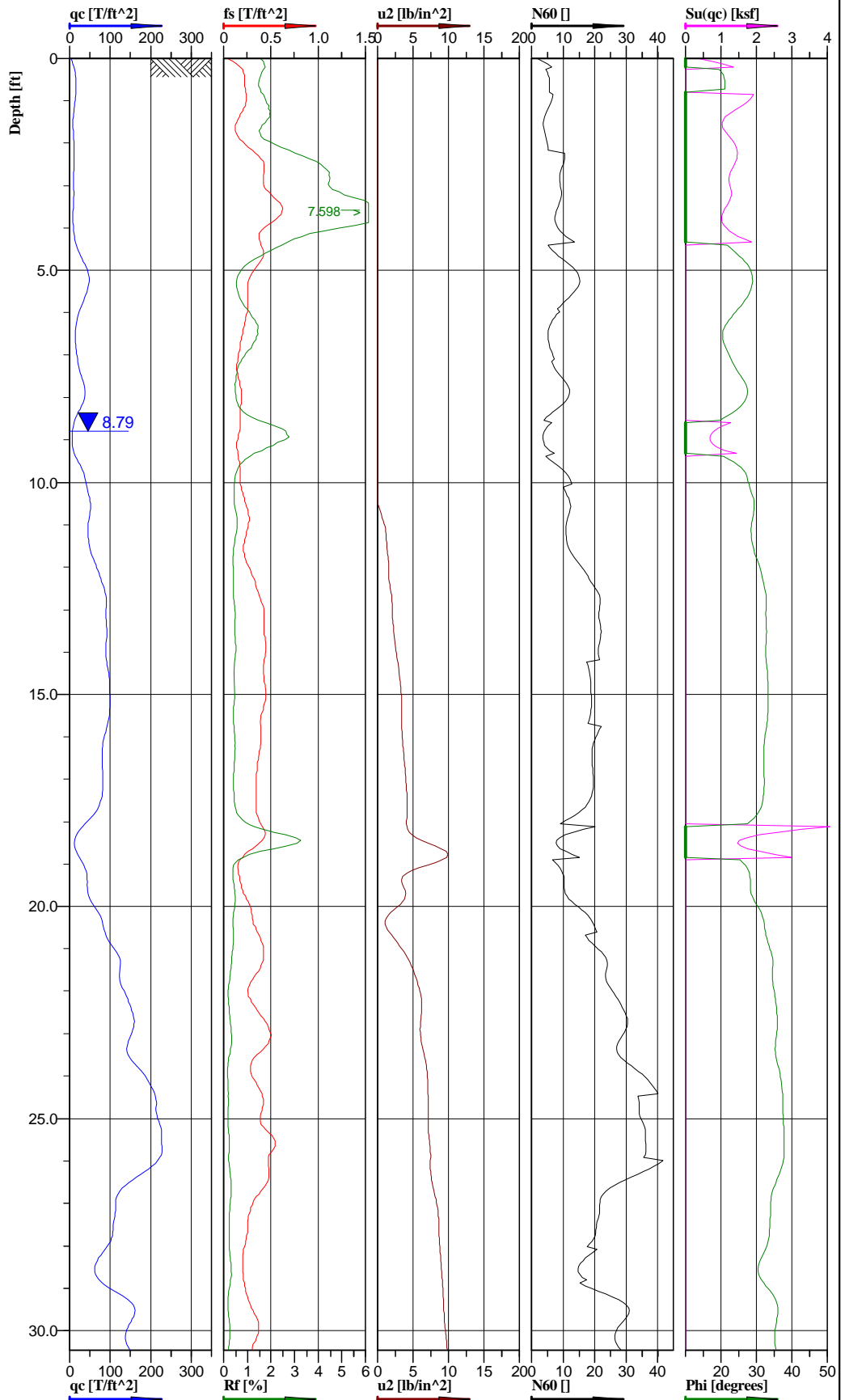
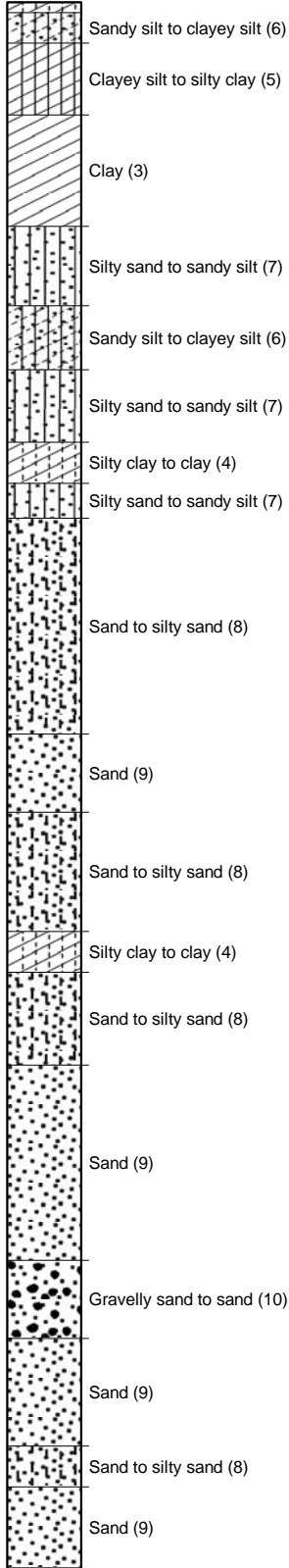
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727263.09 ft, Y: 995508.43 ft	Ground level: 469.09	Test no: C-21
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-5
		File: Labadie C-021.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-21
 Test date: 10/23/2009
 Location: Labadie MO
 File name: Labadie C-021.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.742	0.014	1.6755	Sandy silt to clayey silt (6)	6.4	1.176	0.007	0.007	22.9		1.86	6.4	116	0.15	0.15	145
3.75	1.449	0.028	3.6083	Clay (3)	7.4	1.358	0.021	0.021	24.1		1.83	7.4	114	0.44	0.44	407
6.25	1.105	0.028	-0.1141	Clayey silt to silty clay (5)	6.5	1.317	0.035	0.035	21.3		1.82	6.5	114	0.73	0.73	790
8.75	2.474	0.022	-1.5716	Sandy silt to clayey silt (6)	9.1	1.644	0.048	0.048	25.9		1.87	9.1	117	1.00	1.00	206
11.25	4.638	0.031	-2.3962	Sand to silty sand (8)	12.8		0.062	0.061	27.6	61	1.9	8.2	119	1.29	1.27	386
13.75	12.825	0.058	1.5653	Sand (9)	26.3		0.077	0.068	34.8	79	1.98	13.2	124	1.60	1.41	1067
16.25	18.669	0.068	2.1523	Sand (9)	37.3		0.092	0.075	36.9	88	2	18.7	125	1.91	1.56	1553
18.75	12.794	0.059	3.5458	Sand (9)	25.6		0.107	0.083	34.9	76	1.99	12.8	124	2.23	1.73	1064
21.25	8.417	0.037	4.2801	Sand (9)	19.6		0.121	0.09	32.5	63	1.95	9.8	122	2.52	1.87	700
23.75	10.592	0.051	0.6897	Sand (9)	22.3		0.136	0.097	33.8	69	1.97	11.1	123	2.83	2.02	881
26.25	9.951	0.03	5.8138	Sand to silty sand (8)	20.6		0.151	0.104	33.5	66	1.97	13.2	123	3.14	2.16	828
28.75	11.266	0.034	8.1397	Sand (9)	22.8		0.166	0.111	34.0	68	1.98	11.4	124	3.45	2.31	937
31.25	14.095	0.04	9.2242	Sand (9)	28.2		0.18	0.118	35.4	74	1.99	14.1	124	3.74	2.45	1173
33.75	12.117	0.028	10.0422	Sand (9)	24.2		0.195	0.126	34.6	69	1.99	12.1	124	4.06	2.62	1008
36.25	11.694	0.049	10.817	Sand (9)	23.4		0.203	0.129	34.5	68	1.99	11.7	124	4.22	2.68	973

Classification by Robertson 1986



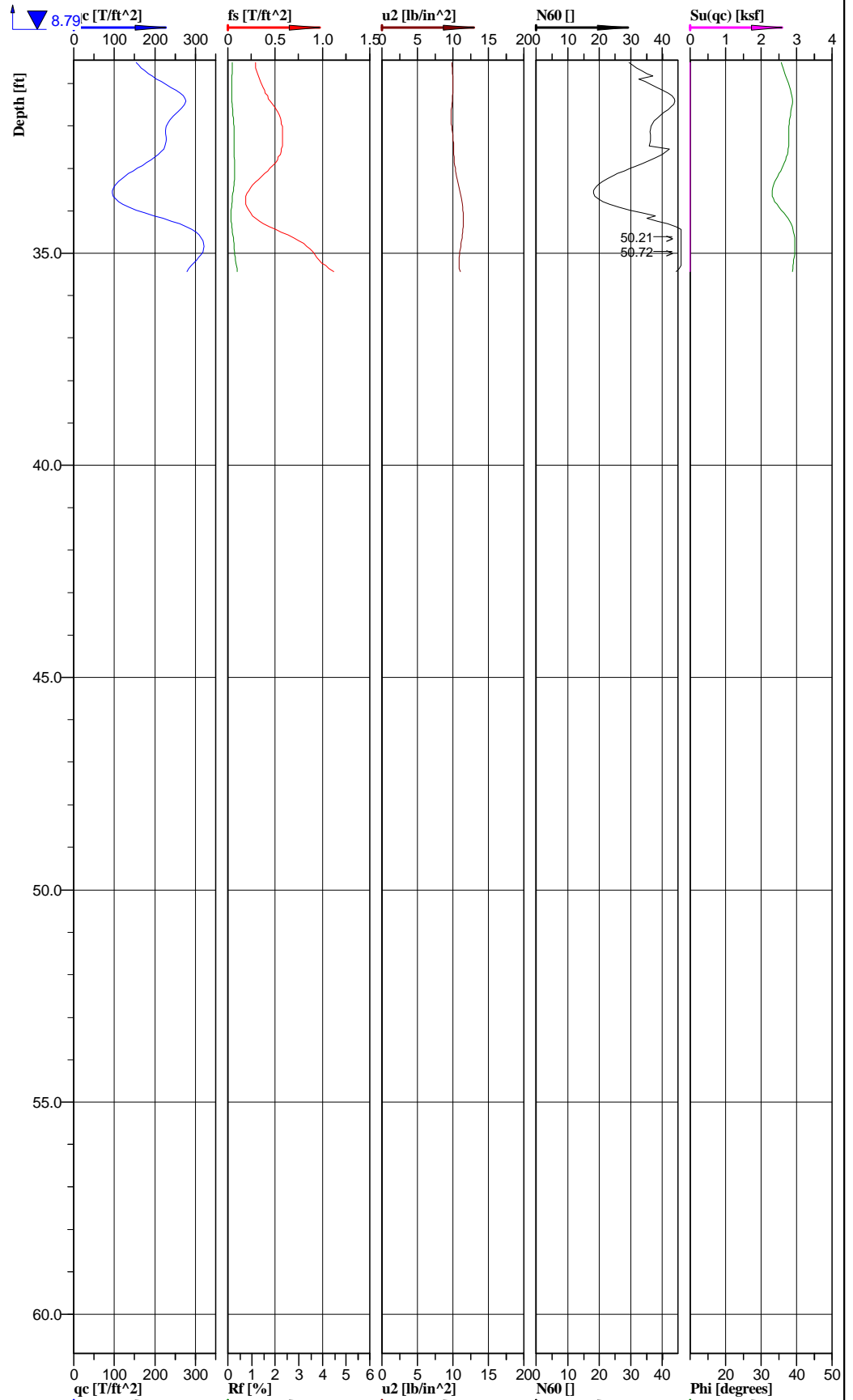
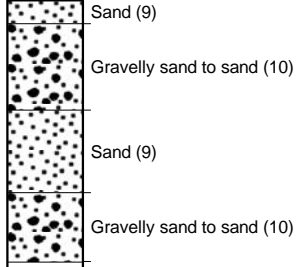
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 727854.20 ft, Y: 995493.86 ft	Ground level: 468.50	Test no: C-23
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-6
File: Labadie C-023.cpd			

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Robertson 1986



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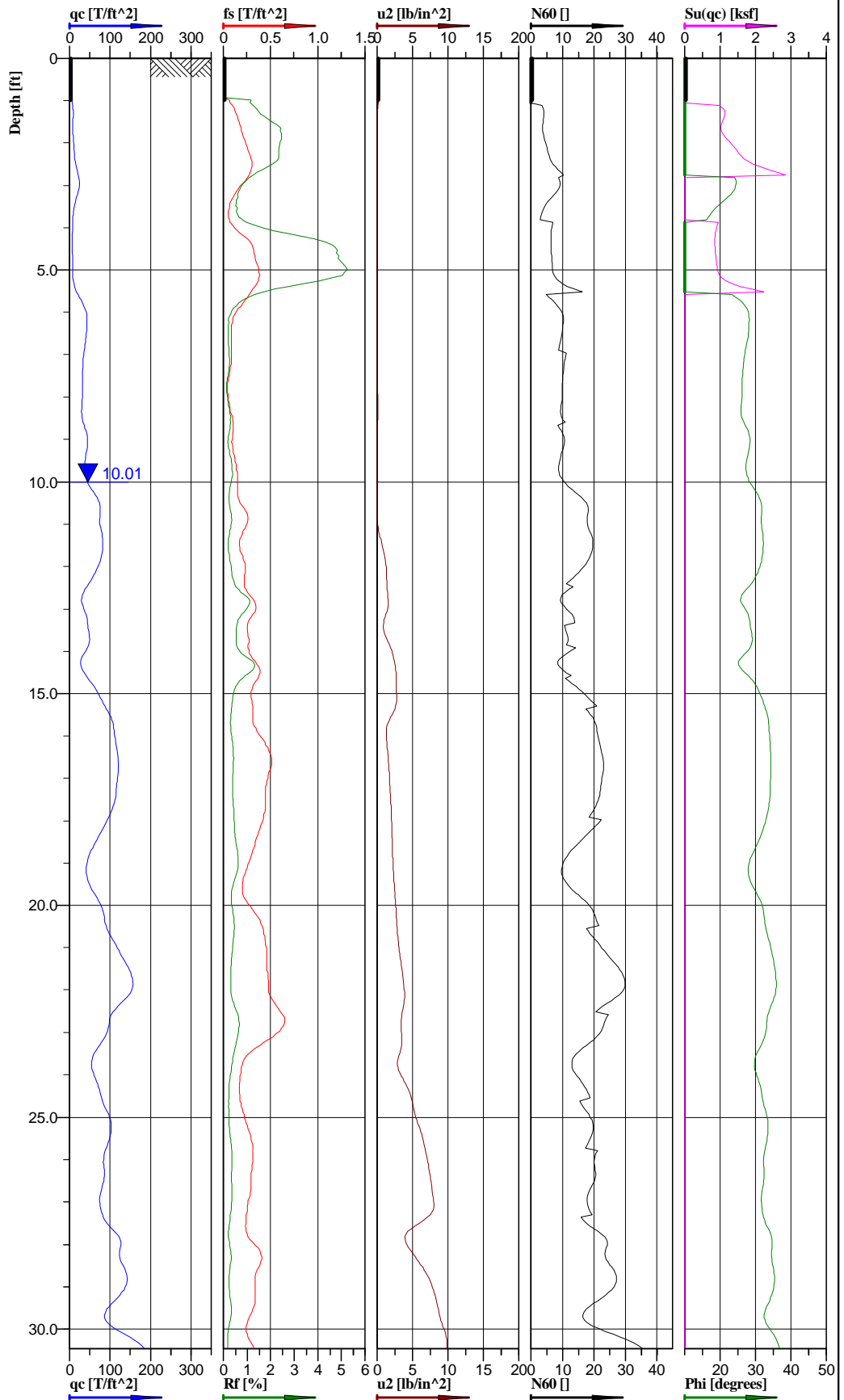
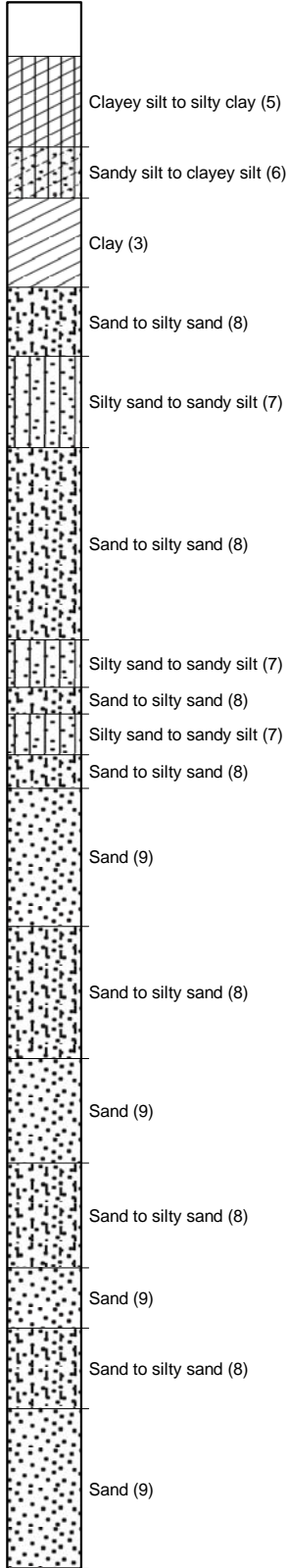
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727854.20 ft, Y: 995493.86 ft	Ground level: 468.50	Test no: C-23
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-6
		File: Labadie C-023.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-23
 Test date: 10/28/2009
 Location: Labadie MO
 File name: Labadie C-023.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.035	0.021	-4.2224	Clay (3)	5.7	1.31	0.007	0.007	20.7		1.83	5.7	114	0.15	0.15	393
3.75	1.479	0.043	-4.2924	Silty sand to sandy silt (7)	9.3	1.248	0.021	0.021	25.6		1.81	5.9	113	0.44	0.44	123
6.25	2.531	0.02	-0.8916	Silty sand to sandy silt (7)	8.9		0.034	0.034	24.4		1.87	5.7	117	0.71	0.71	211
8.75	2.168	0.016	-3.773	Silty sand to sandy silt (7)	8.0	0.929	0.048	0.047	25.4		1.86	5.1	116	1.00	0.98	180
11.25	5.312	0.024	0.8328	Sand to silty sand (8)	13.4		0.062	0.055	29.7	57	1.94	8.6	121	1.29	1.14	442
13.75	8.818	0.041	2.5375	Sand (9)	20.5		0.077	0.062	32.9	70	1.96	10.3	122	1.60	1.29	734
16.25	8.282	0.036	3.6544	Sand to silty sand (8)	19.4		0.092	0.069	32.5	67	1.95	12.4	122	1.91	1.44	689
18.75	3.805	0.027	5.1531	Sand to silty sand (8)	11.8	2.303	0.106	0.075	28.9	48	1.9	7.5	119	2.20	1.56	317
21.25	10.804	0.033	4.0027	Sand (9)	22.6		0.12	0.082	33.8	71	1.97	11.3	123	2.50	1.71	899
23.75	16.917	0.037	6.6786	Gravelly sand to sand (10)	32.2		0.135	0.09	36.4	83	2	21.9	125	2.81	1.87	1407
26.25	16.461	0.039	7.7524	Sand (9)	30.2		0.15	0.097	36.0	80	2.01	15.1	125	3.12	2.02	1370
28.75	10.464	0.025	9.0818	Sand (9)	21.9		0.165	0.104	33.5	66	1.97	11.0	123	3.43	2.16	871
31.25	20.363	0.042	9.8656	Sand (9)	35.8		0.18	0.112	37.3	85	2.02	17.9	126	3.74	2.33	1694
33.75	19.13	0.043	10.9222	Gravelly sand to sand (10)	34.9		0.195	0.119	36.6	81	2.01	23.7	125	4.06	2.48	1592
36.25	28.379	0.096	10.8957	Gravelly sand to sand (10)	47.3		0.204	0.123	39.1	94	2.04	32.2	127	4.24	2.56	2361

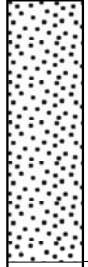
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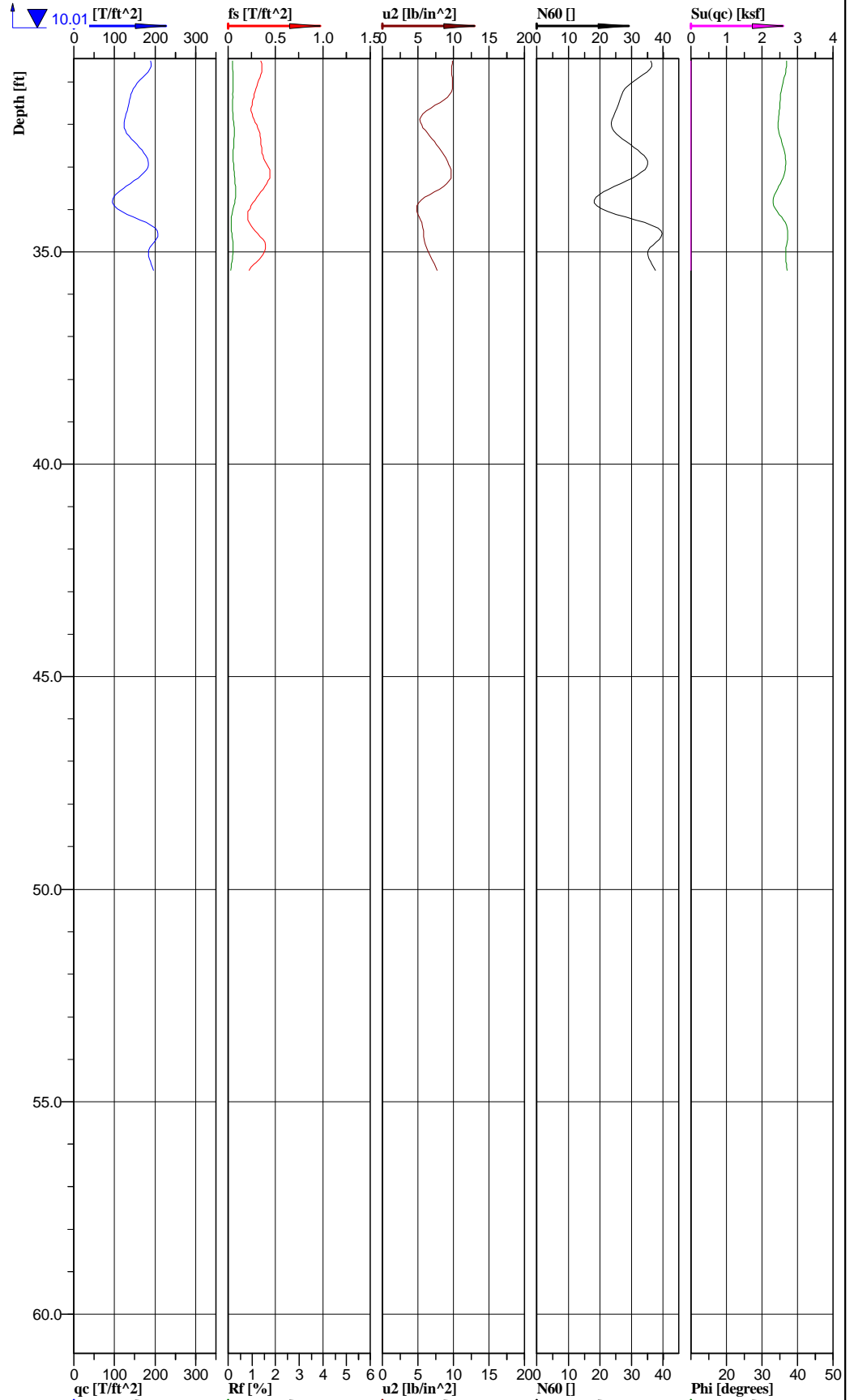
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728426.48 ft, Y: 995479.56 ft	Ground level: 466.99	Test no: C-25
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-7
		File: Labadie C-025.cpd	

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Sand (9)



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

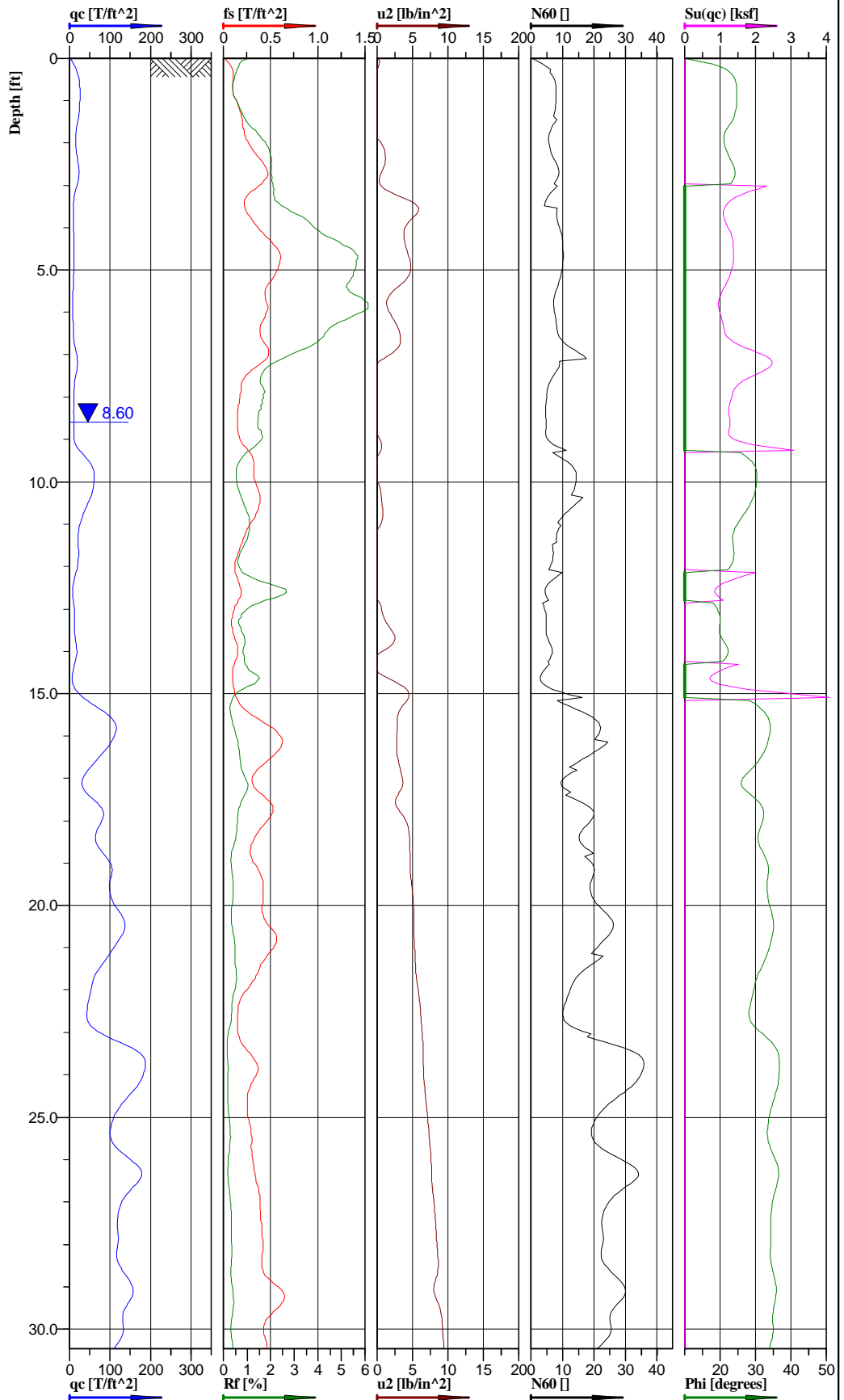
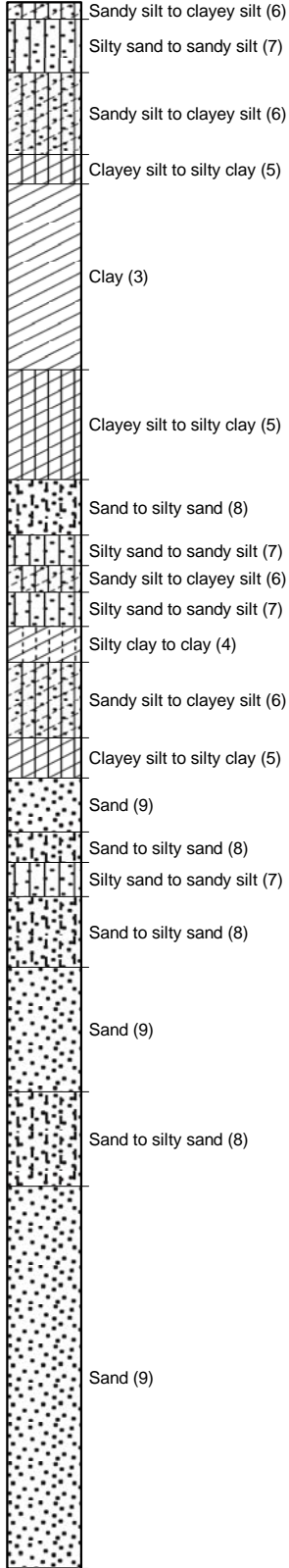


Location: Labadie, MO	Position: X: 728426.48 ft, Y: 995479.56 ft	Ground level: 466.99	Test no: C-25
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-7
		File: Labadie C-025.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-25
 Test date: 10/28/2009
 Location: Labadie MO
 File name: Labadie C-025.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.6	0.012	-0.4317	Clayey silt to silty clay (5)	4.7	1.308	0.007	0.007				1.83	4.7	114	0.15	0.15	785
3.75	1.143	0.02	-1.5508	Clay (3)	6.7	1.163	0.021	0.021	21.1			1.82	6.7	114	0.44	0.44	349
6.25	2.95	0.015	-2.0731	Silty sand to sandy silt (7)	9.6	1.394	0.035	0.035	27.0	53		1.89	6.2	118	0.73	0.73	245
8.75	3.477	0.009	-0.3216	Sand to silty sand (8)	9.8		0.049	0.049	27.1	49		1.91	6.3	119	1.02	1.02	289
11.25	6.586	0.019	0.5079	Silty sand to sandy silt (7)	16.6		0.063	0.059	31.0	63		1.94	10.6	121	1.31	1.23	548
13.75	4.013	0.029	1.8541	Sand to silty sand (8)	11.7		0.077	0.066	27.8	53		1.9	7.5	119	1.60	1.37	334
16.25	10.392	0.039	1.7857	Sand (9)	21.3		0.092	0.073	33.8	72		1.98	10.6	124	1.91	1.52	865
18.75	6.528	0.03	2.2111	Sand to silty sand (8)	15.4		0.107	0.08	30.7	56		1.94	9.9	121	2.23	1.66	543
21.25	11.562	0.043	3.2729	Sand (9)	24.0		0.121	0.087	34.3	73		1.98	12.0	124	2.52	1.81	962
23.75	7.498	0.031	3.8109	Sand (9)	17.8		0.136	0.094	31.8	59		1.95	8.9	122	2.83	1.96	624
26.25	8.381	0.027	6.9818	Sand (9)	19.1		0.15	0.101	32.5	62		1.96	9.5	122	3.12	2.10	697
28.75	11.332	0.03	6.8789	Sand (9)	22.7		0.165	0.108	34.2	69		1.99	11.3	124	3.43	2.25	943
31.25	14.355	0.029	8.2866	Sand (9)	28.7		0.18	0.115	35.5	75		1.99	14.3	124	3.74	2.39	1194
33.75	15.281	0.032	7.0697	Sand (9)	30.6		0.195	0.122	35.8	75		1.99	15.3	124	4.06	2.54	1271
36.25	18.094	0.029	7.1195	Sand (9)	36.2		0.204	0.127	36.8	81		1.99	18.1	124	4.24	2.64	1505

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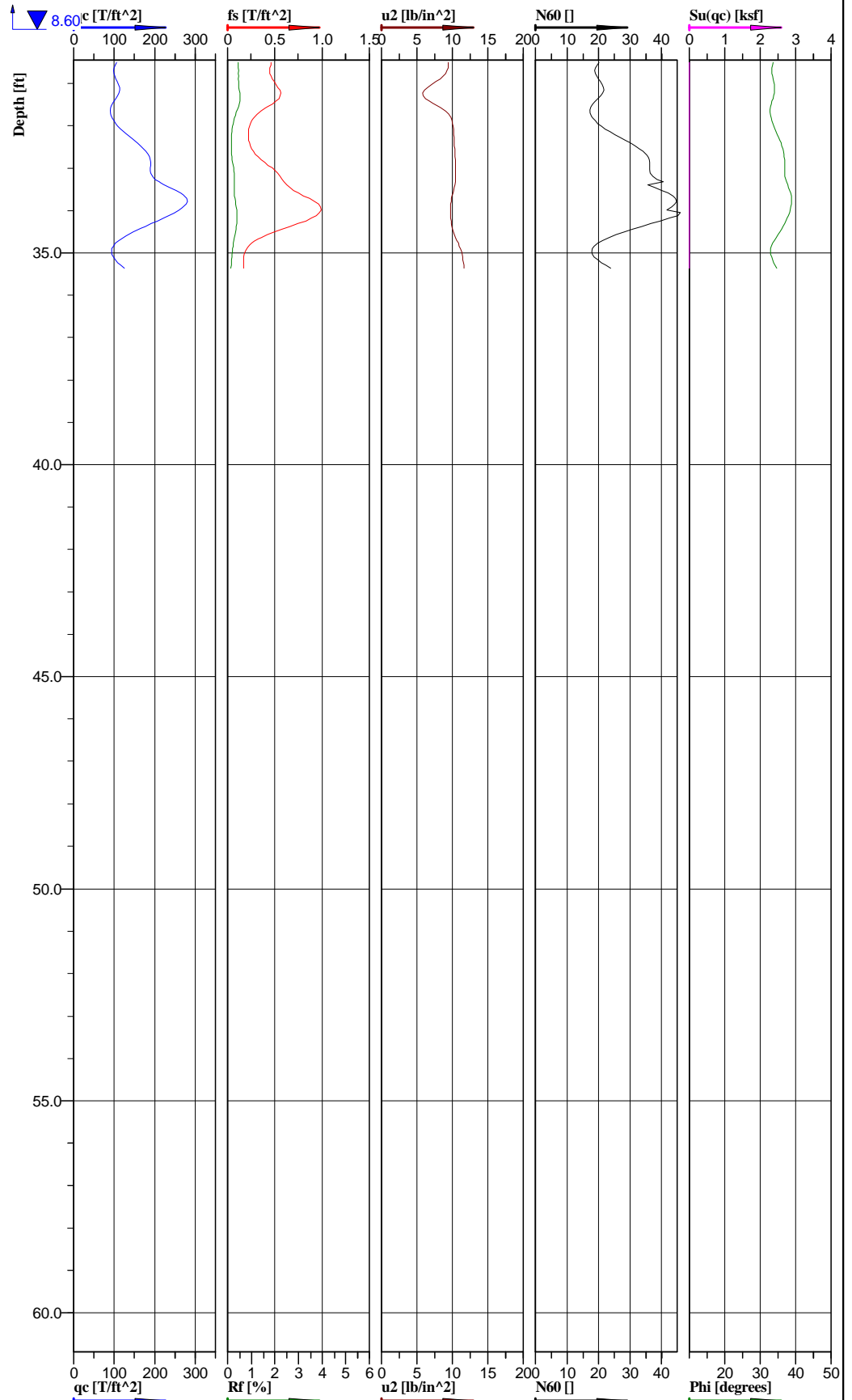
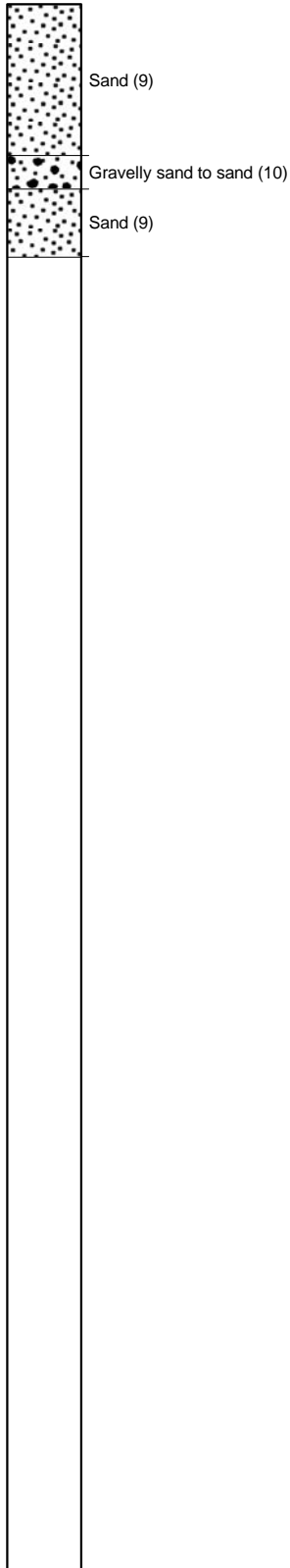


Location:	Labadie, MO	Position:	X: 727570.51 ft, Y: 995191.80 ft	Ground level:	468.01	Test no:	C-28
Project ID:	2008012455	Client:	Ameren Missouri	Date:	10/23/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	1	Fig:	C-8
				File:	Labadie C-028.cpd		



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Classification by
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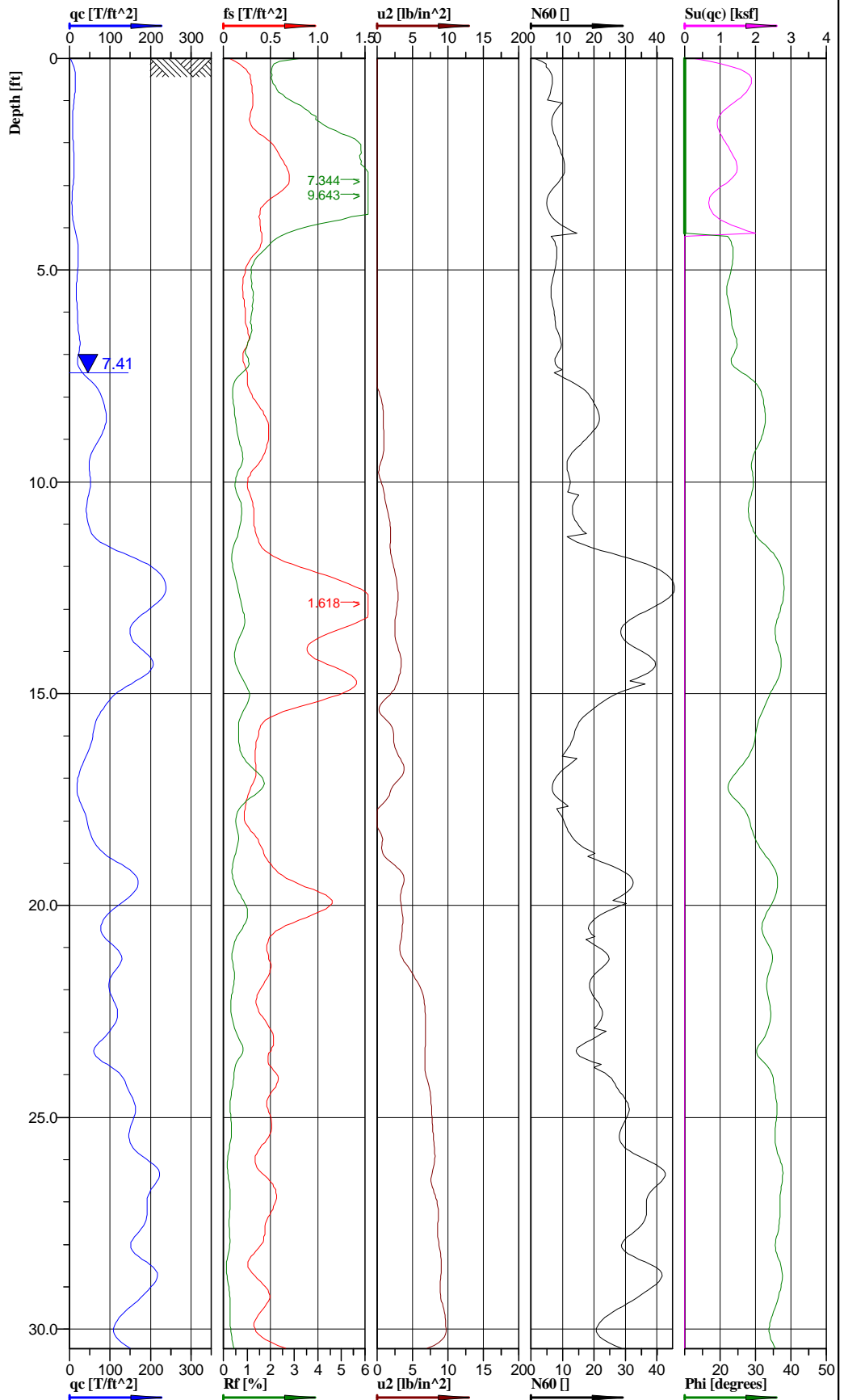
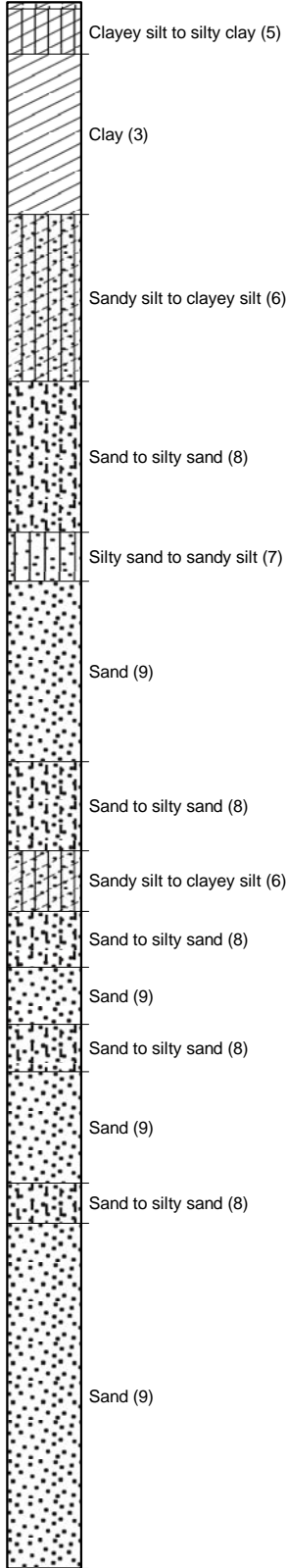
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727570.51 ft, Y: 995191.80 ft	Ground level: 468.01	Test no: C-28
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-8
		File: Labadie C-028.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-28
 Test date: 10/23/2009
 Location: Labadie MO
 File name: Labadie C-028.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.828	0.018	-0.303	Sandy silt to clayey silt (6)	6.7		0.007	0.007	22.2		1.85	6.7	115	0.15	0.15	152
3.75	1.201	0.04	3.4882	Clay (3)	8.5	1.361	0.021	0.021	23.8		1.81	8.5	113	0.44	0.44	408
6.25	1.068	0.041	1.9727	Clayey silt to silty clay (5)	9.2	1.437	0.034	0.034			1.8	9.2	112	0.71	0.71	862
8.75	2.294	0.021	-0.4584	Sand to silty sand (8)	7.7	1.48	0.048	0.047	29.3	56	1.86	4.9	116	1.00	0.98	191
11.25	2.718	0.024	-1.324	Silty clay to clay (4)	9.3	1.325	0.062	0.054	25.8	59	1.87	9.3	117	1.29	1.12	663
13.75	1.168	0.012	1.1113	Clayey silt to silty clay (5)	5.3	1.26	0.076	0.06	20.4		1.84	5.3	115	1.58	1.25	756
16.25	6.704	0.038	3.1577	Sand to silty sand (8)	16.1	3.873	0.09	0.066	30.8	65	1.94	10.3	121	1.87	1.37	558
18.75	8.328	0.038	4.3894	Sand (9)	18.5		0.104	0.073	32.4	66	1.96	9.2	122	2.16	1.52	693
21.25	8.565	0.036	5.4654	Sand to silty sand (8)	18.7		0.119	0.08	32.2	63	1.96	12.0	122	2.48	1.66	713
23.75	12.432	0.024	6.5603	Sand (9)	25.4		0.134	0.087	34.1	72	1.98	12.7	124	2.79	1.81	1034
26.25	12.653	0.032	7.6926	Sand (9)	25.3		0.149	0.095	34.8	74	1.99	12.6	124	3.10	1.98	1053
28.75	12.674	0.046	8.5583	Sand (9)	25.3		0.164	0.102	34.9	73	1.99	12.7	124	3.41	2.12	1054
31.25	10.969	0.038	8.8595	Sand (9)	21.9		0.178	0.109	34.0	68	1.99	11.0	124	3.70	2.27	913
33.75	18.474	0.054	10.2779	Sand (9)	34.8		0.193	0.117	36.6	81	2	17.4	125	4.01	2.43	1537
36.25	10.316	0.016	11.5203	Sand (9)	20.6		0.202	0.121	33.7	65	1.99	10.3	124	4.20	2.52	858

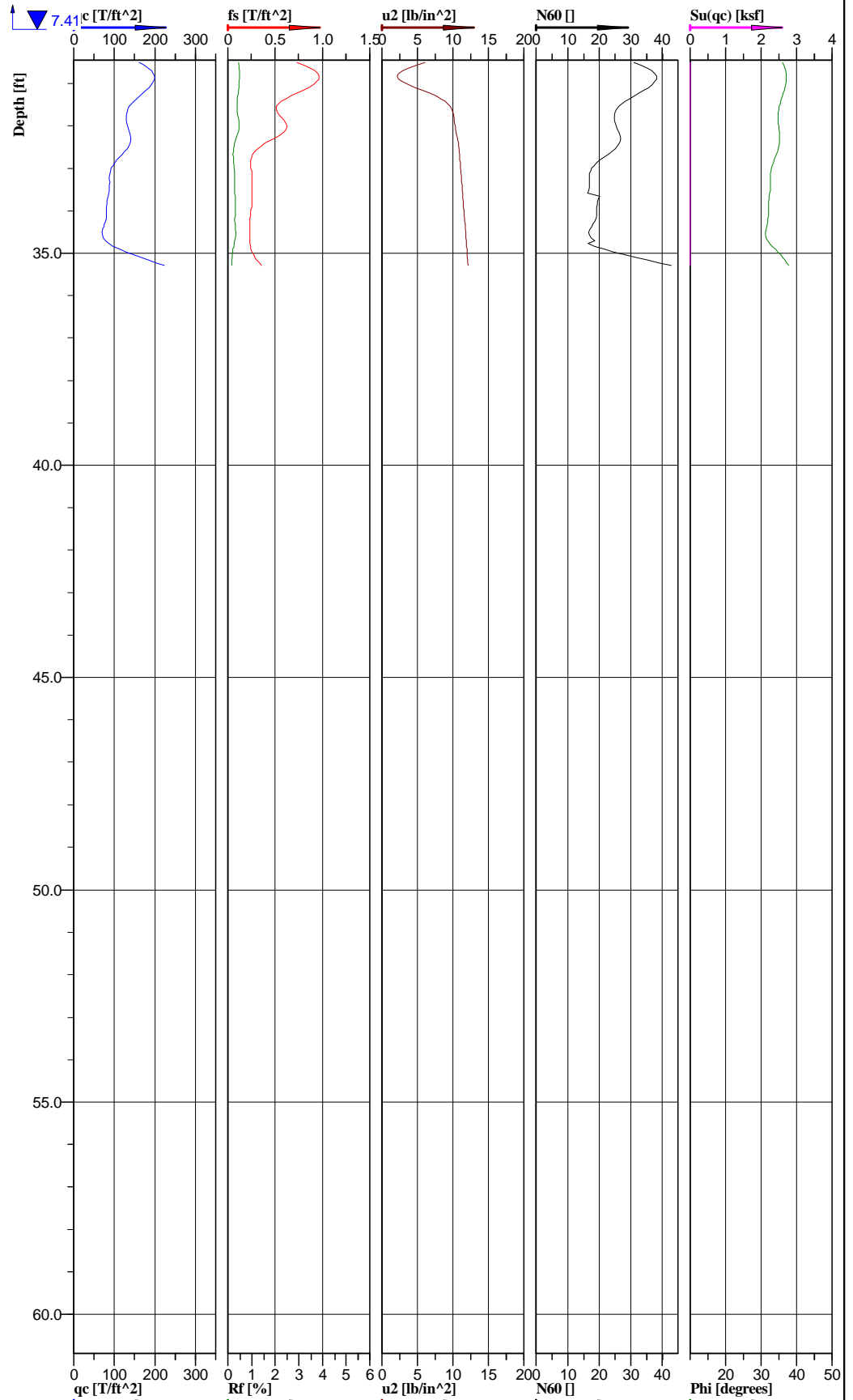
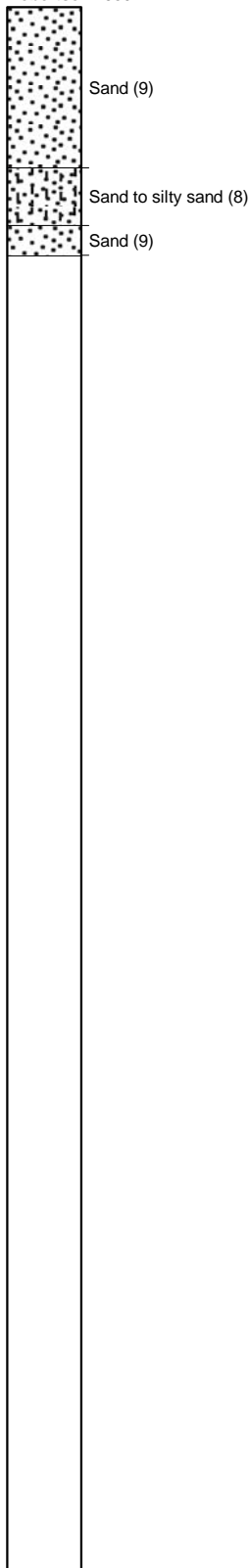
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Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728136.94 ft, Y: 995181.53 ft	Ground level: 468.21	Test no: C-30
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/29/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-9
		File: Labadie C-030.cpd	

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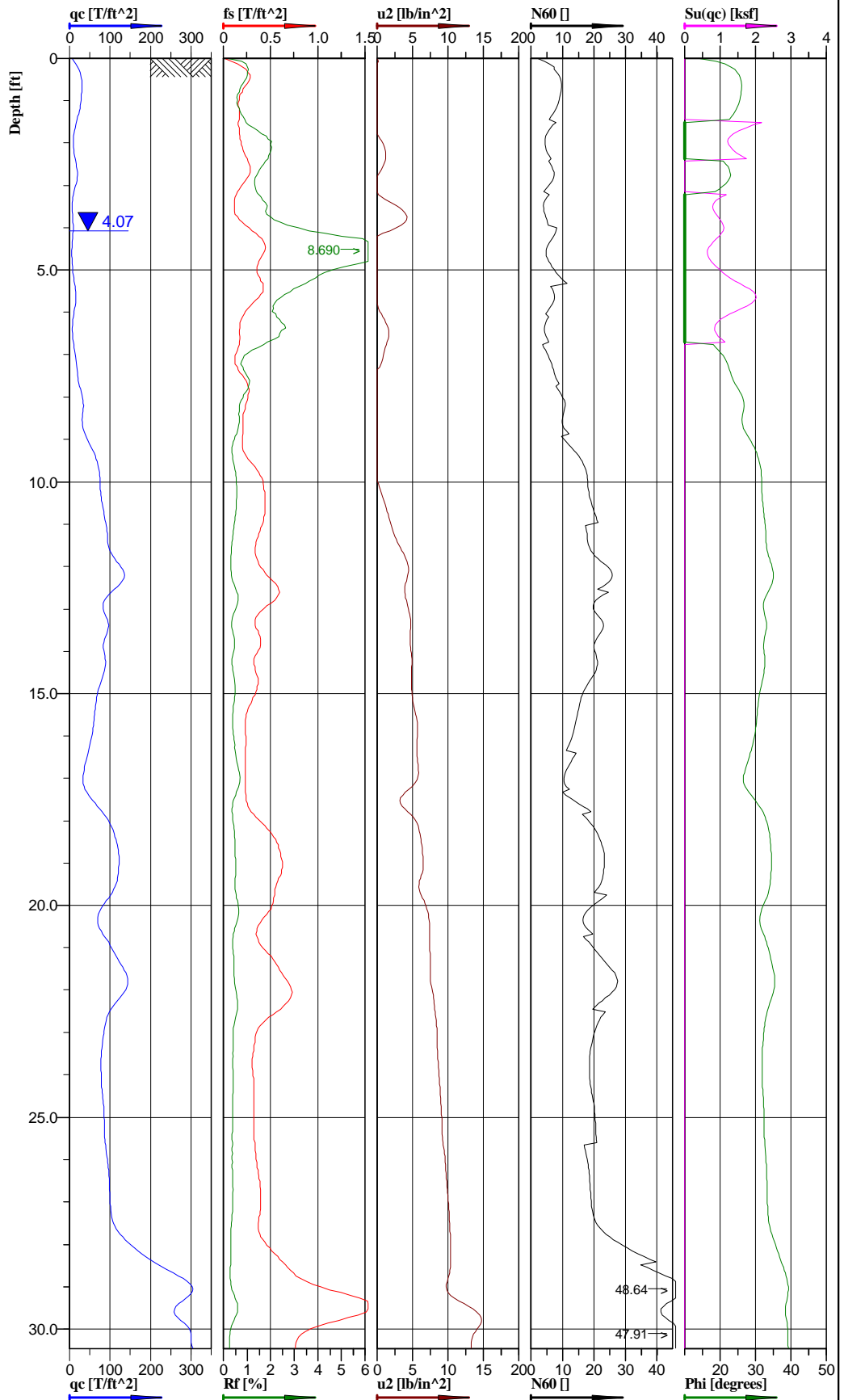
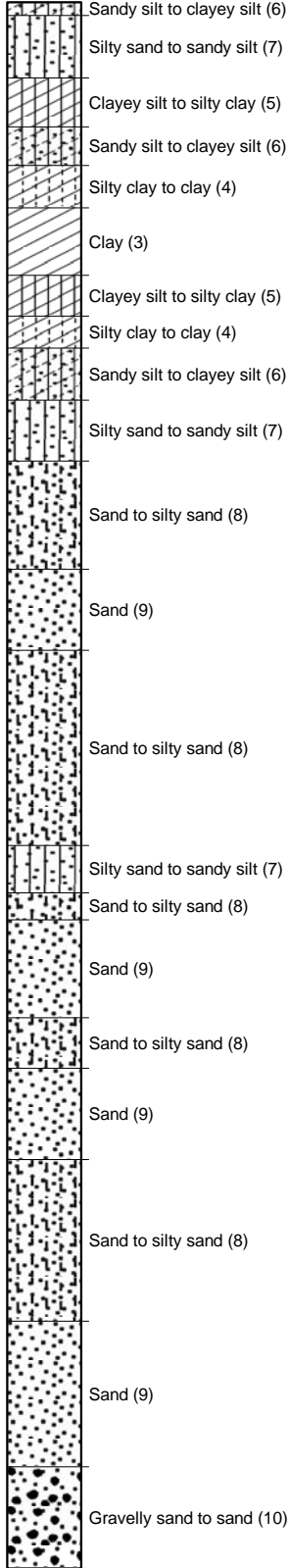
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728136.94 ft, Y: 995181.53 ft	Ground level: 468.21	Test no: C-30
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/29/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-9
		File: Labadie C-030.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-30
 Test date: 10/29/2009
 Location: Labadie MO
 File name: Labadie C-030.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.94	0.035	-4.0165	Clay (3)	7.3	1.305	0.007	0.007				1.81	7.3	113	0.15	0.15	392
3.75	1.217	0.043	-3.0654	Sandy silt to clayey silt (6)	8.0	1.115	0.02	0.02	23.2			1.77	8.0	111	0.42	0.42	101
6.25	2.062	0.022	-2.5059	Sand to silty sand (8)	7.8		0.034	0.034	23.5	50		1.85	5.0	115	0.71	0.71	172
8.75	6.502	0.036	0.5778	Sand to silty sand (8)	16.3		0.048	0.044	30.9	66		1.93	10.4	120	1.00	0.92	541
11.25	10.434	0.053	1.8211	Sand (9)	23.3		0.062	0.051	32.3	82		1.94	11.7	121	1.29	1.06	868
13.75	17.203	0.123	2.8134	Sand to silty sand (8)	35.2		0.077	0.058	36.5	90		1.98	22.5	124	1.60	1.21	1431
16.25	4.776	0.043	2.1285	Sandy silt to clayey silt (6)	13.4		0.092	0.065	28.1	60		1.9	13.4	119	1.91	1.35	397
18.75	9.106	0.051	1.6348	Sand to silty sand (8)	20.0		0.106	0.071	31.9	67		1.95	12.8	122	2.20	1.48	758
21.25	9.933	0.052	4.5489	Sand (9)	21.2		0.12	0.078	33.5	70		1.97	10.6	123	2.50	1.62	826
23.75	11.147	0.048	7.0477	Sand (9)	23.5		0.135	0.085	33.9	71		1.97	11.8	123	2.81	1.77	927
26.25	17.581	0.044	8.0751	Sand (9)	35.1		0.15	0.093	36.6	84		2	17.6	125	3.12	1.93	1463
28.75	16.018	0.036	9.051	Sand (9)	32.0		0.165	0.1	36.1	80		2	16.0	125	3.43	2.08	1333
31.25	14.378	0.06	7.9345	Sand (9)	28.7		0.18	0.107	35.5	76		1.99	14.4	124	3.74	2.23	1196
33.75	8.757	0.024	11.4375	Sand (9)	19.1		0.195	0.114	32.7	61		1.97	9.6	123	4.06	2.37	729
36.25	17.704	0.03	12.0524	Sand (9)	35.4		0.203	0.118	36.6	81		2	17.7	125	4.22	2.45	1473

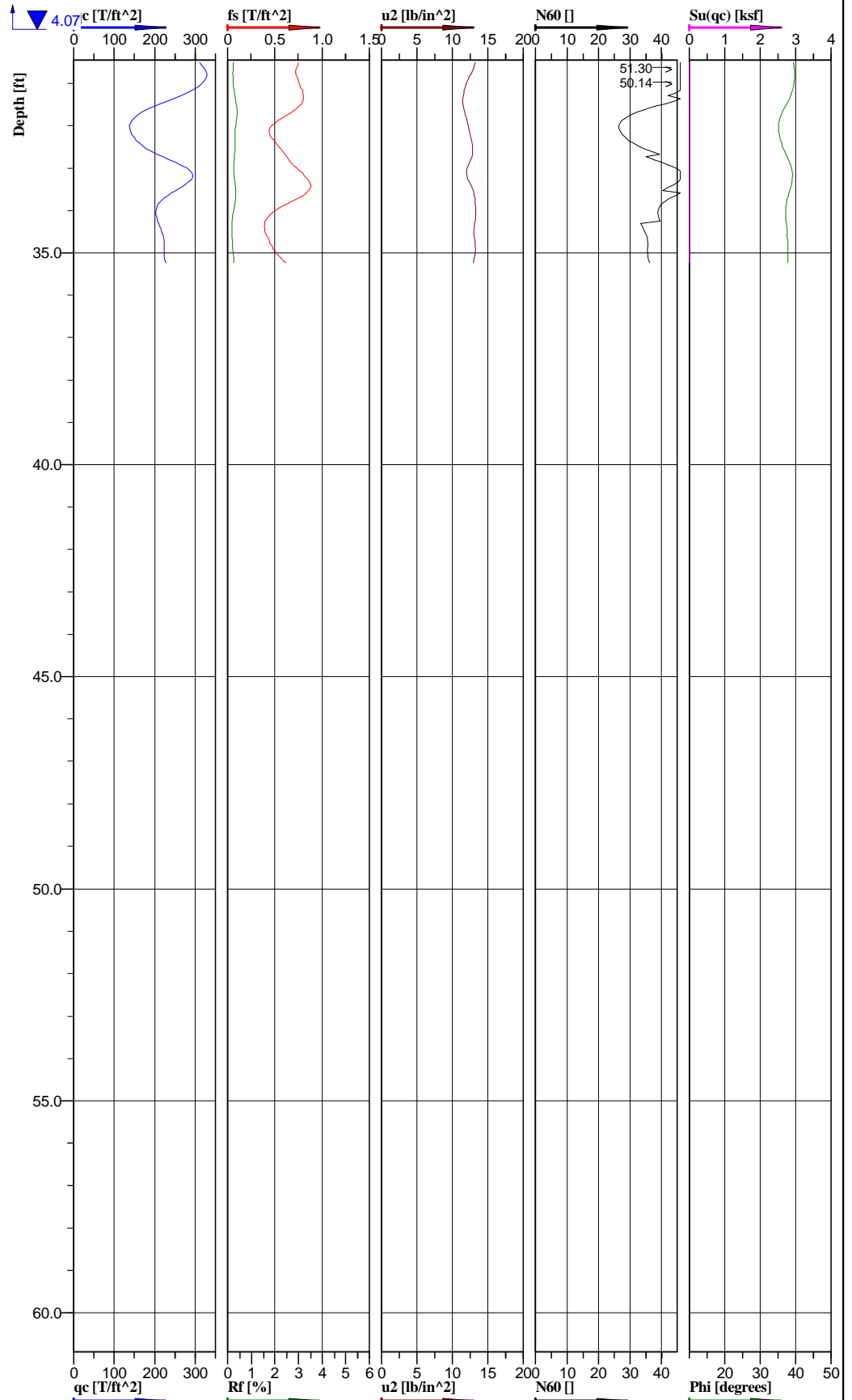
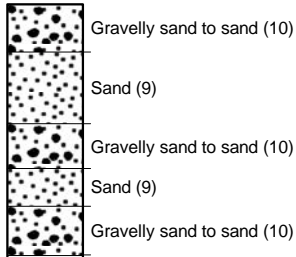
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727242.39 ft, Y: 994920.21 ft	Ground level: 468.11	Test no: C-32A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Pland UWL DSI		Page: 1	Fig: C-10
Sounding CPT-32 failed, replaced by CPT-32A		File: Labadie C-032A.cpd	

Classification by
Robertson 1986



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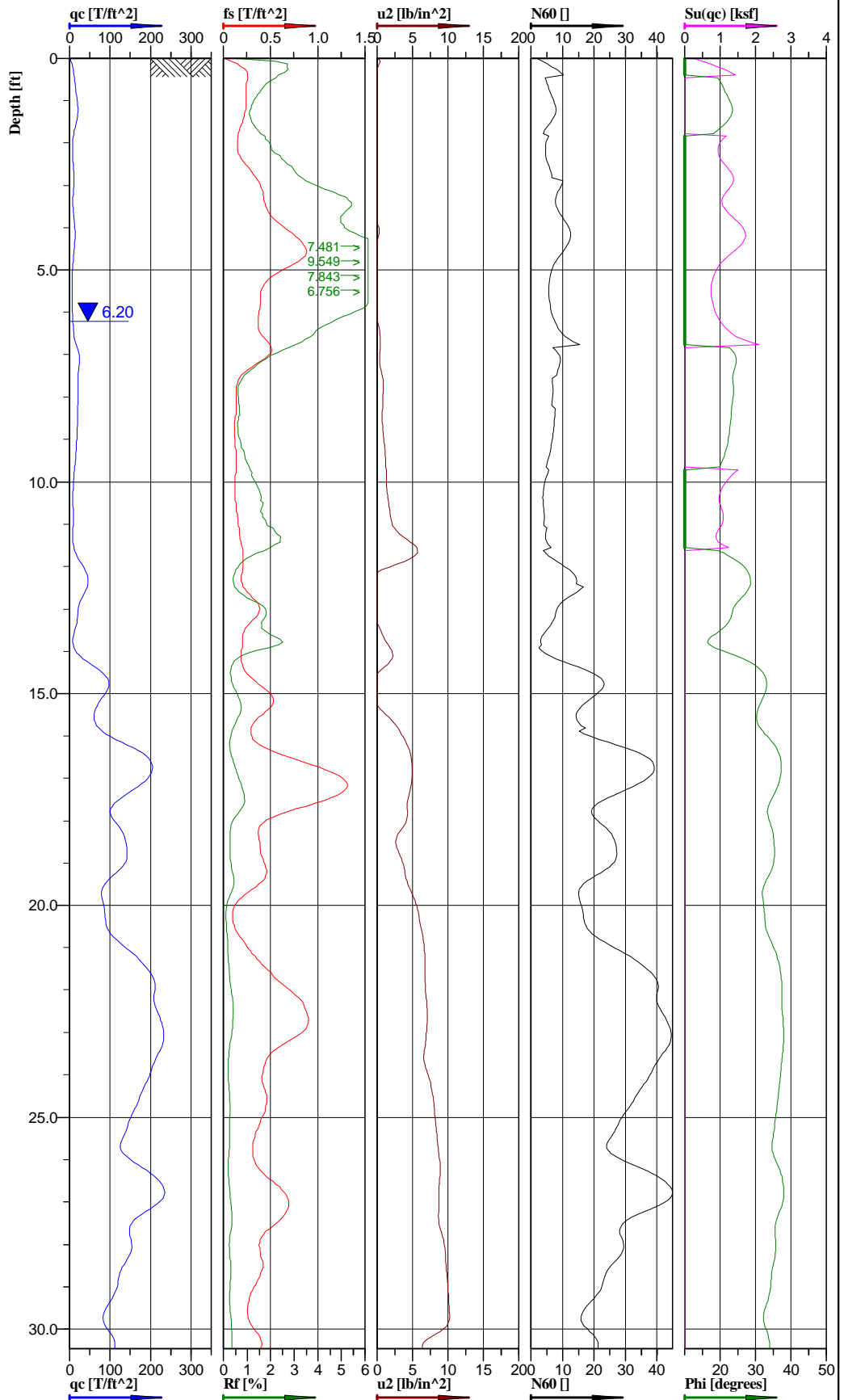
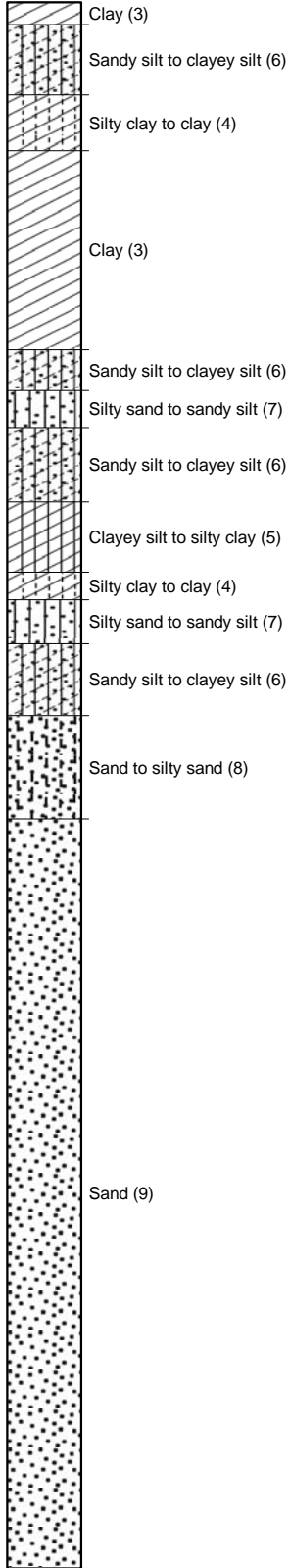
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727242.39 ft, Y: 994920.21 ft	Ground level: 468.11	Test no: C-32A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Pland UWL DSI		Page: 2	Fig: C-10
Sounding CPT-32 failed, replaced by CPT-32A			File: Labadie C-032A.cpd

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-32A
 Test date: 11/4/2009
 Location: Labadie MO
 File name: Labadie C-032A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.828	0.019	-0.0138	Sandy silt to clayey silt (6)	6.9	1.51	0.007	0.007	23.7		1.86	6.9	116	0.15	0.15	152
3.75	0.891	0.026	0.3718	Clay (3)	5.8	0.888	0.021	0.02	21.6		1.76	5.8	110	0.44	0.42	266
6.25	1.18	0.023	0.306	Sandy silt to clayey silt (6)	6.3	1.367	0.034	0.027	21.3		1.83	6.3	114	0.71	0.56	98
8.75	4.352	0.025	-1.6348	Sand to silty sand (8)	12.3		0.048	0.034	28.0	67	1.9	7.9	119	1.00	0.71	362
11.25	9.482	0.04	2.5565	Sand (9)	20.5		0.062	0.04	33.2	78	1.97	10.2	123	1.29	0.83	789
13.75	8.281	0.038	4.6218	Sand to silty sand (8)	20.6		0.077	0.048	32.5	72	1.95	13.2	122	1.60	1.00	689
16.25	4.783	0.023	5.2832	Sand to silty sand (8)	13.0		0.092	0.054	29.0	58	1.92	8.3	120	1.91	1.12	398
18.75	9.973	0.048	5.816	Sand to silty sand (8)	20.9		0.106	0.061	33.5	73	1.98	13.4	124	2.20	1.27	830
21.25	10.266	0.051	7.5407	Sand to silty sand (8)	21.6		0.121	0.068	33.5	72	1.97	13.8	123	2.52	1.41	854
23.75	7.911	0.033	8.6587	Sand to silty sand (8)	19.8		0.135	0.075	32.2	64	1.94	12.6	121	2.81	1.56	658
26.25	9.123	0.035	9.6726	Sand (9)	19.3		0.15	0.082	33.0	67	1.97	9.6	123	3.12	1.71	759
28.75	22.155	0.085	11.3245	Gravelly sand to sand (10)	38.7		0.165	0.09	37.6	90	2.01	26.3	125	3.43	1.87	1843
31.25	22.952	0.065	12.4246	Sand (9)	40.9		0.18	0.097	37.7	90	2.02	20.4	126	3.74	2.02	1910
33.75	22.236	0.058	12.8779	Gravelly sand to sand (10)	39.4		0.195	0.105	37.8	89	2.02	26.8	126	4.06	2.18	1850
36.25	21.55	0.054	13.0536	Gravelly sand to sand (10)	35.9		0.203	0.109	37.7	88	2.04	24.4	127	4.22	2.27	1793

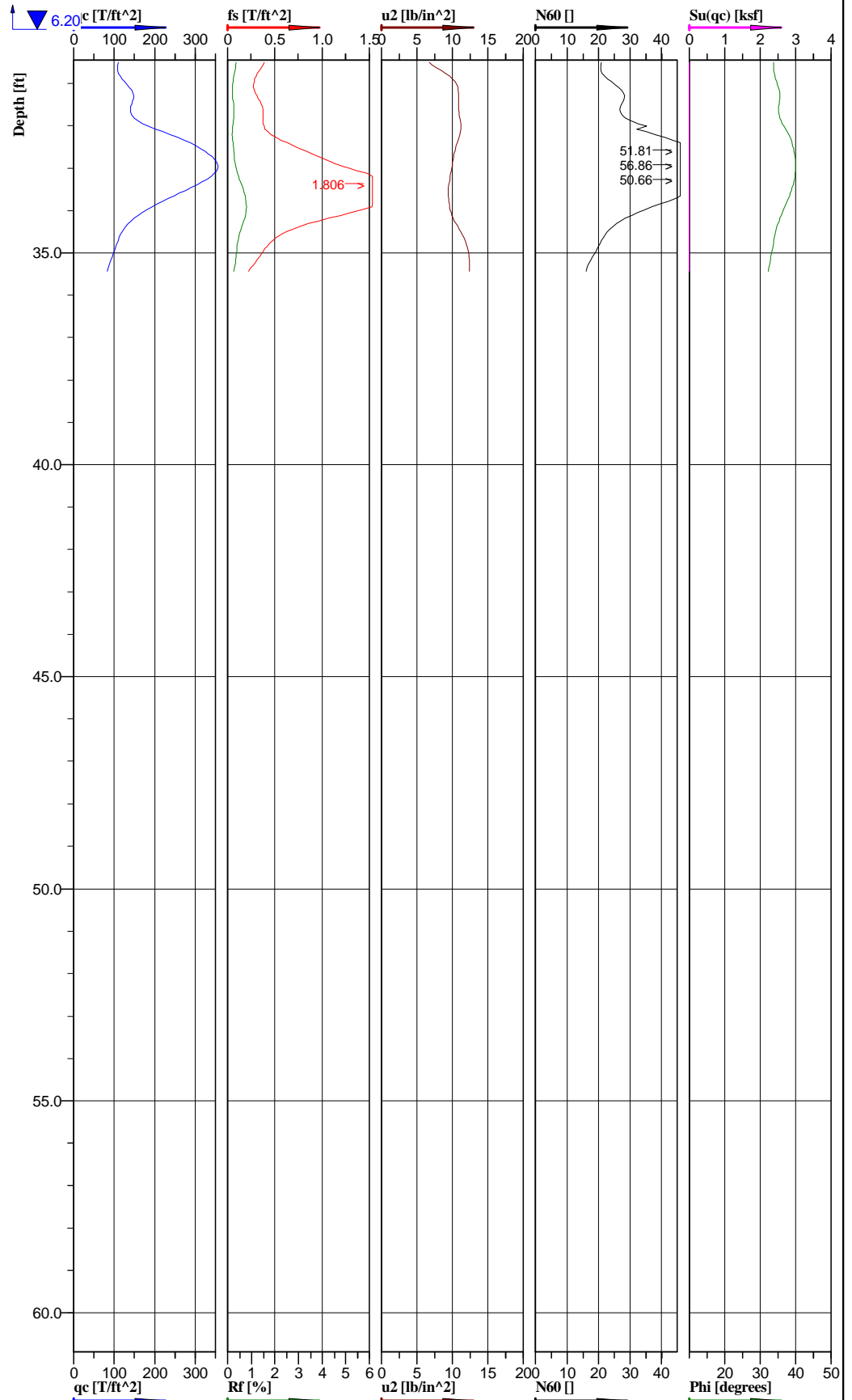
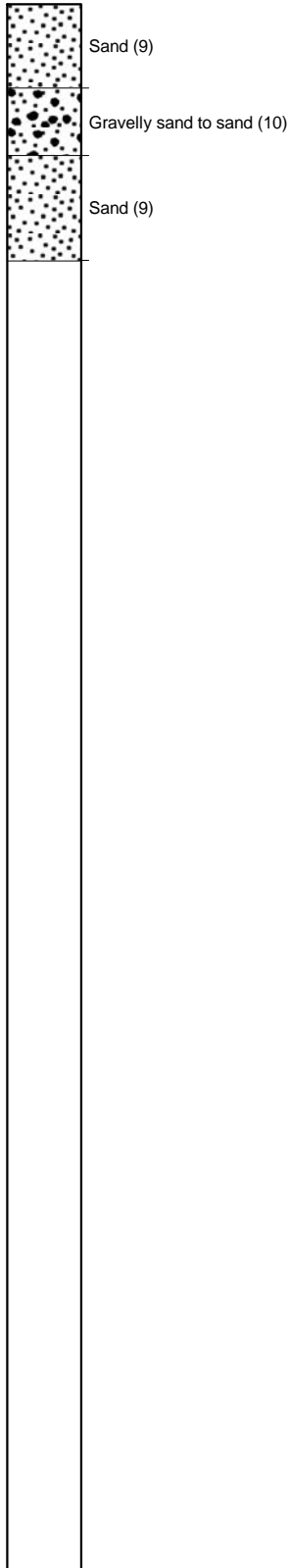
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 727840.03 ft, Y: 994906.92 ft	Ground level: 467.09	Test no: C-34
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/29/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-11
File: Labadie C-034.cpd			

Classification by
Robertson 1986



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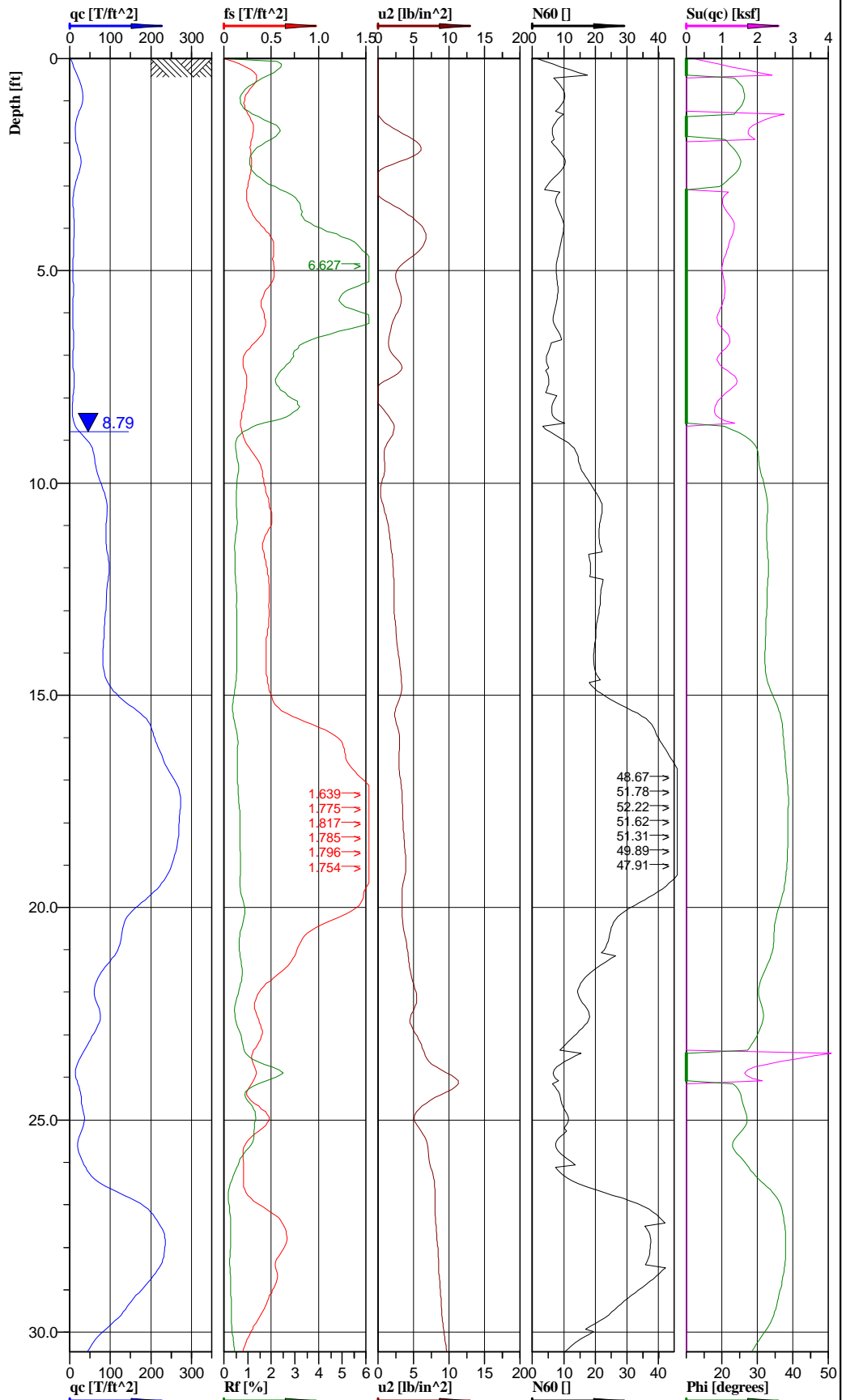
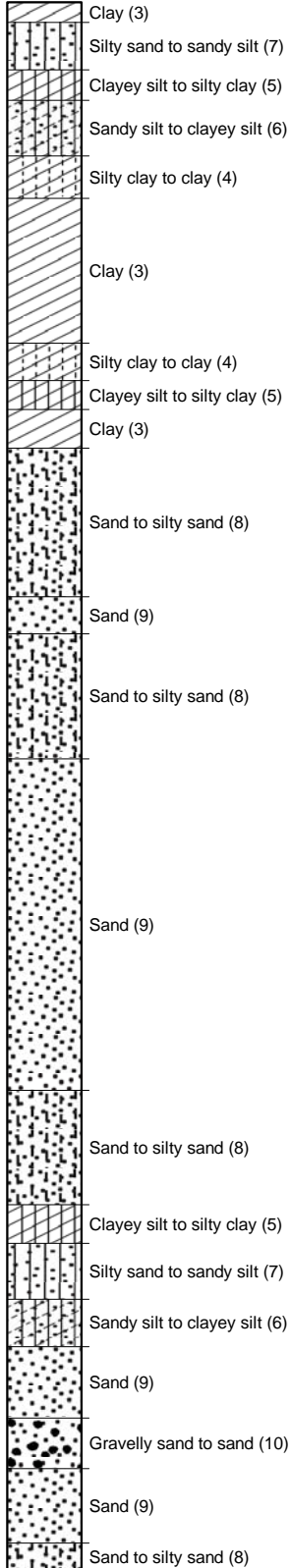
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727840.03 ft, Y: 994906.92 ft	Ground level: 467.09	Test no: C-34
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/29/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-11
		File: Labadie C-034.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-34
 Test date: 10/29/2009
 Location: Labadie MO
 File name: Labadie C-034.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.146	0.019	-1.2713	Silty clay to clay (4)	5.9	0.983	0.007	0.007	21.5		1.83	5.9	114	0.15	0.15	492
3.75	0.956	0.055	-0.7536	Clay (3)	9.2	1.304	0.021	0.021			1.79	9.2	112	0.44	0.44	391
6.25	1.181	0.038	0.0138	Silty sand to sandy silt (7)	7.9	1.015	0.034	0.033	23.9		1.8	5.0	112	0.71	0.69	98
8.75	1.658	0.013	0.9533	Clayey silt to silty clay (5)	6.4	1.304	0.048	0.04	22.6		1.85	6.4	115	1.00	0.83	782
11.25	1.717	0.016	2.0129	Sandy silt to clayey silt (6)	6.9	1.019	0.061	0.046	26.0		1.86	6.9	116	1.27	0.96	143
13.75	3.865	0.027	0.0811	Sand to silty sand (8)	11.2		0.075	0.052	25.6	56	1.88	7.2	117	1.56	1.08	322
16.25	12.45	0.068	3.2848	Sand (9)	26.0		0.09	0.059	34.2	78	1.97	13.0	123	1.87	1.23	1036
18.75	10.842	0.042	3.9455	Sand (9)	21.7	0.042	0.105	0.066	33.9	75	1.97	10.8	123	2.18	1.37	902
21.25	15.056	0.039	6.5462	Sand (9)	30.1		0.119	0.073	35.5	81	1.99	15.1	124	2.48	1.52	1253
23.75	19.307	0.055	7.2448	Sand (9)	38.6		0.134	0.081	37.1	89	2	19.3	125	2.79	1.68	1606
26.25	16.699	0.045	8.6431	Sand (9)	33.4	0.045	0.149	0.088	36.3	83	2	16.7	125	3.10	1.83	1389
28.75	11.596	0.034	9.7291	Sand (9)	23.2		0.164	0.095	34.3	71	1.98	11.6	124	3.41	1.98	965
31.25	15.03	0.037	9.783	Gravelly sand to sand (10)	28.3		0.179	0.103	35.5	77	2	19.3	125	3.72	2.14	1250
33.75	21.619	0.108	10.3489	Sand (9)	39.6	0.108	0.194	0.11	37.1	85	2.01	19.8	125	4.04	2.29	1799
36.25	8.623	0.028	12.4037	Sand (9)	17.2		0.203	0.114	32.7	61	1.99	8.6	124	4.22	2.37	717

**Classification by
Robertson 1986**

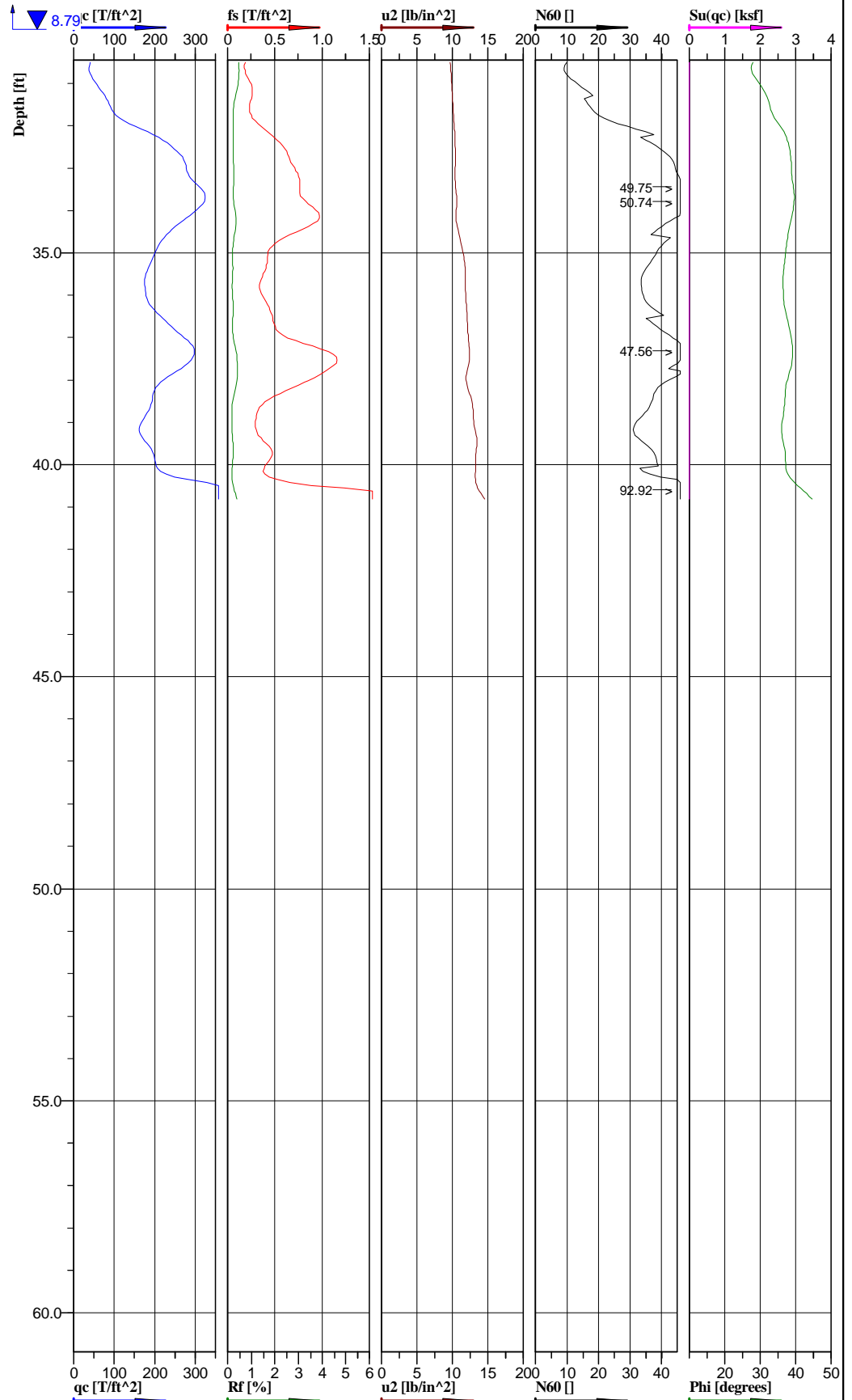
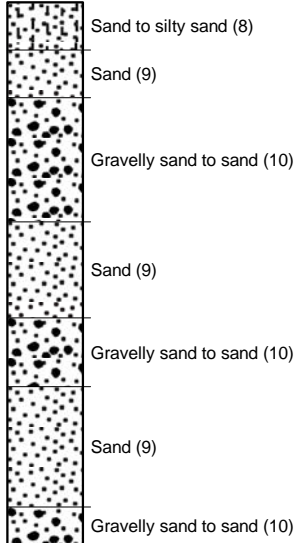


Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 726940.78 ft, Y: 994633.33 ft	Ground level: 466.80	Test no: C-37
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-12
		File: Labadie C-037.cpd	

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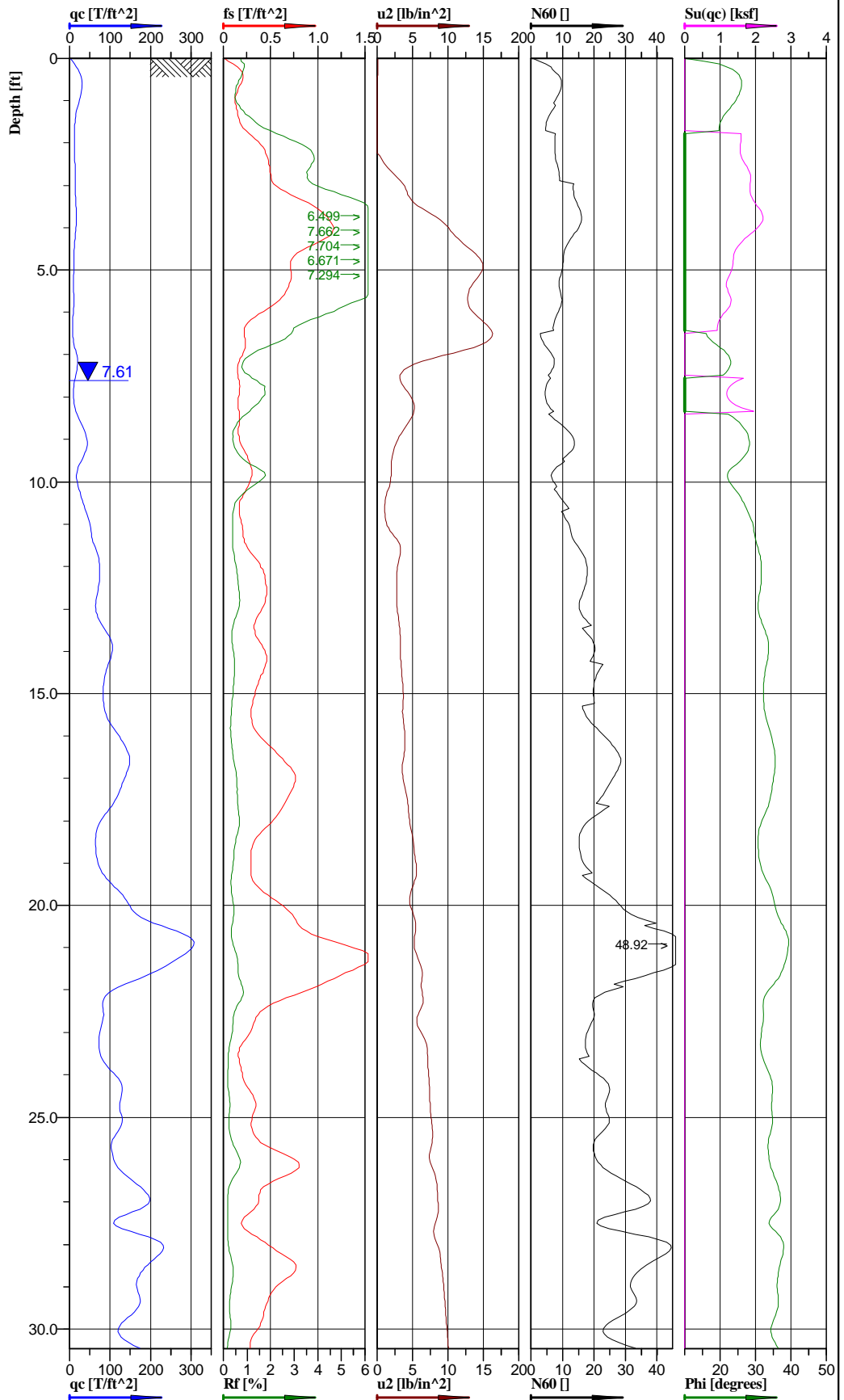
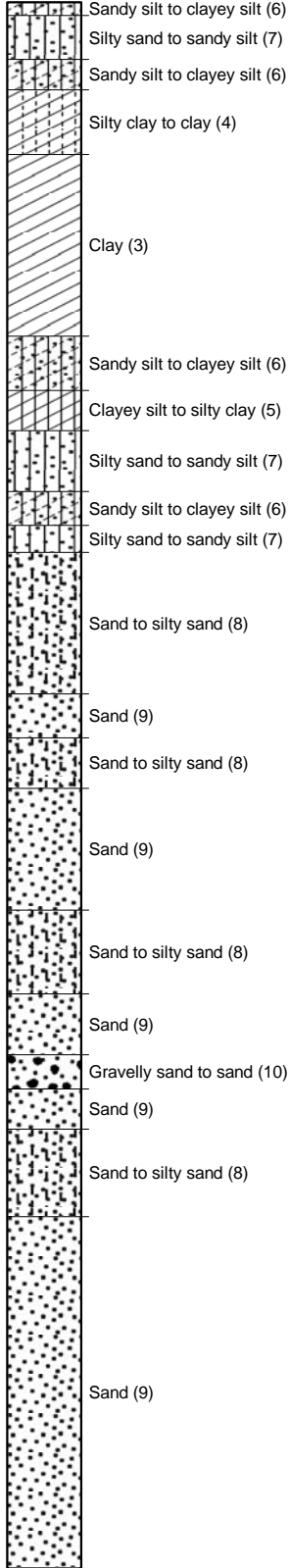
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 726940.78 ft, Y: 994633.33 ft	Ground level: 466.80	Test no: C-37
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-12
		File: Labadie C-037.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-37
 Test date: 10/22/2009
 Location: Labadie MO
 File name: Labadie C-037.cpd

Depth [ft]	CPT-Pro Calculated Values											Reitz and Jens Calculated Values				
	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.954	0.025	1.4591	Sandy silt to clayey silt (6)	8.6	1.728	0.007	0.007	24.6		1.85	8.6	115	0.15	0.15	163
3.75	1.052	0.036	3.0346	Clay (3)	8.2	1.153	0.021	0.021	22.5		1.81	8.2	113	0.44	0.44	346
6.25	0.791	0.035	2.4193	Clayey silt to silty clay (5)	6.8	1.051	0.034	0.034			1.8	6.8	112	0.71	0.71	631
8.75	3.245	0.026	0.8893	Sand to silty sand (8)	10.0	1.069	0.048	0.047	29.0	56	1.88	6.4	117	1.00	0.98	270
11.25	8.698	0.044	1.4771	Sand to silty sand (8)	20.7		0.062	0.055	32.8	72	1.95	13.2	122	1.29	1.14	724
13.75	8.499	0.044	2.7271	Sand (9)	20.5		0.077	0.062	32.6	69	1.94	10.2	121	1.60	1.29	707
16.25	20.798	0.112	2.9372	Sand (9)	41.6		0.091	0.069	37.4	93	1.99	20.8	124	1.89	1.44	1730
18.75	23.411	0.162	3.5804	Sand (9)	46.8		0.106	0.076	38.1	95	1.99	23.4	124	2.20	1.58	1948
21.25	9.61	0.068	4.3623	Sand to silty sand (8)	21.3		0.121	0.083	33.0	67	1.96	13.6	122	2.52	1.73	800
23.75	3.579	0.033	7.0228	Silty sand to sandy silt (7)	11.1	2.437	0.135	0.09	27.8	52	1.89	7.1	118	2.81	1.87	298
26.25	8.758	0.032	7.3435	Gravelly sand to sand (10)	19.1		0.15	0.096	30.3	71	1.93	13.0	120	3.12	2.00	729
28.75	17.304	0.049	8.6996	Sand to silty sand (8)	32.1		0.165	0.104	36.3	81	2.01	20.6	125	3.43	2.16	1440
31.25	9.674	0.028	9.9585	Gravelly sand to sand (10)	19.7		0.179	0.111	32.2	60	1.96	13.4	122	3.72	2.31	805
33.75	25.914	0.07	10.656	Sand (9)	44.4	0.07	0.194	0.118	38.6	92	2.03	22.2	127	4.04	2.45	2156
36.25	21.1	0.052	12.0146	Gravelly sand to sand (10)	38.7		0.209	0.125	37.5	85	2.01	26.3	125	4.35	2.60	1756
38.75	19.297	0.053	12.7964	Sand (9)	37.7		0.224	0.133	37.1	81	2	18.8	125	4.66	2.77	1606
41.25	41.944	0.12	13.5675	Sand (9)	70.4		0.234	0.138	40.2	99	2.03	35.2	127	4.87	2.87	3490

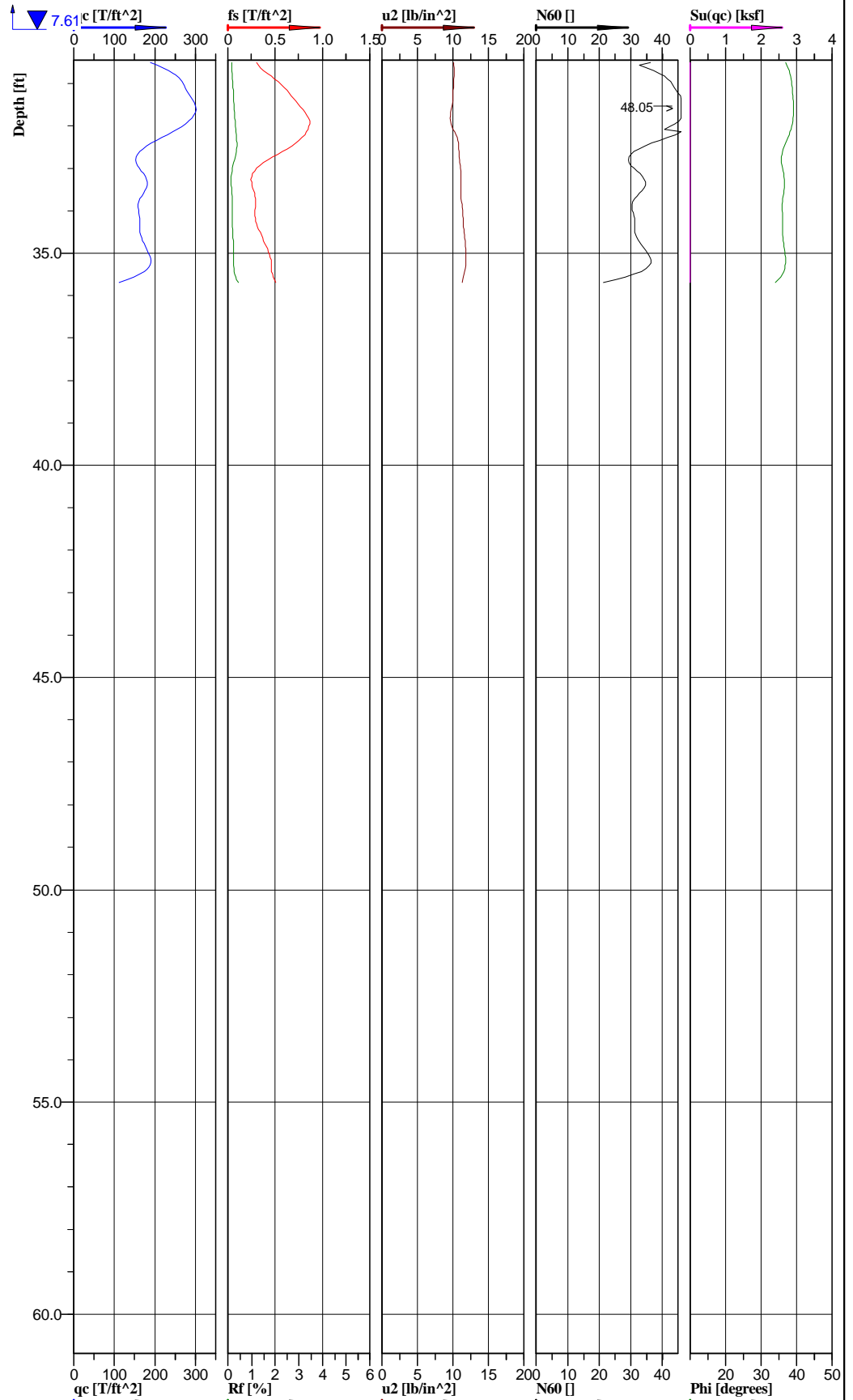
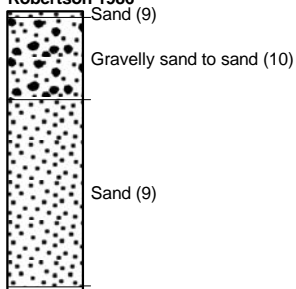
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 727532.48 ft, Y: 994610.37 ft	Ground level: 466.99	Test no: C-39
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-13
File: Labadie C-039.cpd			

Classification by
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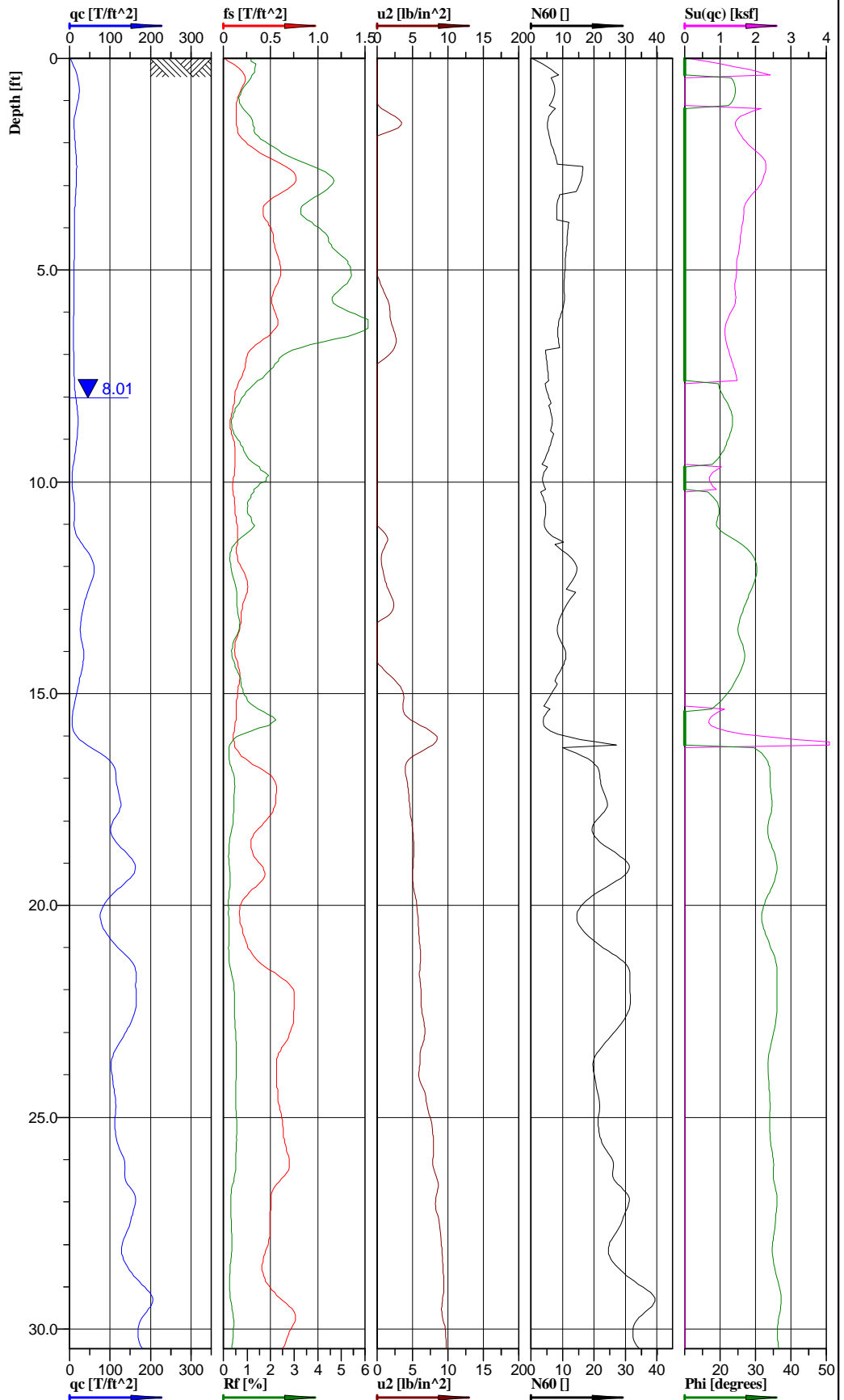
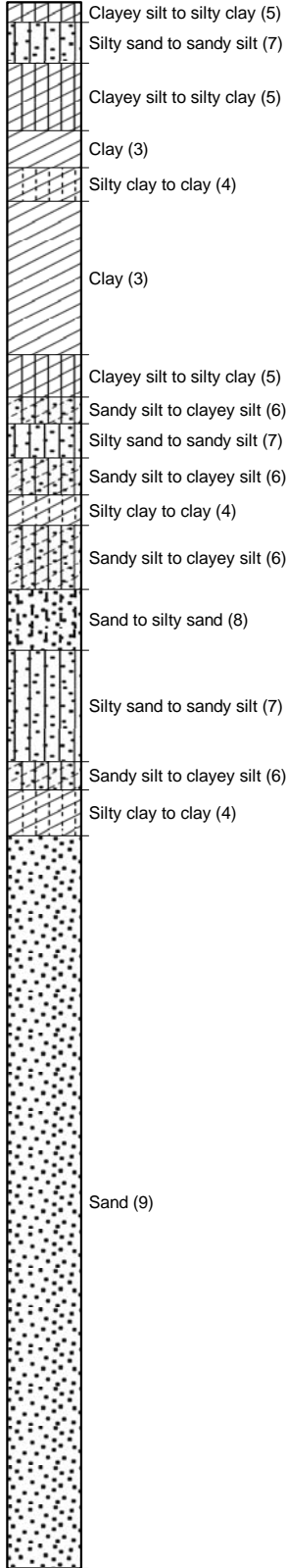
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727532.48 ft, Y: 994610.37 ft	Ground level: 466.99	Test no: C-39
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-13
		File: Labadie C-039.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-39
 Test date: 10/23/2009
 Location: Labadie MO
 File name: Labadie C-039.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.667	0.023	-0.377	Silty clay to clay (4)	7.1	1.609	0.007	0.007	22.1		1.84	7.1	115	0.15	0.15	805
3.75	1.309	0.079	8.5082	Clay (3)	12.4	1.782	0.021	0.021			1.79	12.4	112	0.44	0.44	535
6.25	1.095	0.036	11.9915	Clayey silt to silty clay (5)	7.4	1.176	0.034	0.034	20.5		1.81	7.4	113	0.71	0.71	706
8.75	2.25	0.019	3.3551	Sandy silt to clayey silt (6)	8.4	1.411	0.048	0.044	25.4		1.86	8.4	116	1.00	0.92	187
11.25	5.142	0.027	2.1572	Sand to silty sand (8)	13.5		0.062	0.051	29.1	61	1.92	8.6	120	1.29	1.06	428
13.75	8.101	0.038	3.2008	Sand to silty sand (8)	18.7		0.076	0.058	32.3	68	1.95	11.9	122	1.58	1.21	674
16.25	11.398	0.049	3.767	Sand (9)	23.2		0.091	0.065	34.2	76	1.98	11.6	124	1.89	1.35	948
18.75	8.584	0.04	4.93	Sand (9)	19.4		0.106	0.072	32.5	66	1.96	9.7	122	2.20	1.50	714
21.25	18.633	0.095	5.7662	Sand to silty sand (8)	36.1		0.121	0.079	36.4	86	1.99	23.1	124	2.52	1.64	1550
23.75	9.522	0.025	6.9251	Sand (9)	20.6		0.135	0.086	33.1	67	1.97	10.3	123	2.81	1.79	792
26.25	13.128	0.042	8.0442	Sand (9)	26.2		0.15	0.093	35.0	75	1.99	13.1	124	3.12	1.93	1092
28.75	16.621	0.048	9.1224	Sand (9)	33.2		0.165	0.101	36.3	81	2	16.6	125	3.43	2.10	1383
31.25	22.475	0.057	10.0734	Sand (9)	39.6		0.18	0.108	37.7	88	2.02	19.8	126	3.74	2.25	1870
33.75	16.016	0.033	11.2922	Sand (9)	32.0		0.195	0.115	36.2	78	1.99	16.0	124	4.06	2.39	1333
36.25	16.129	0.045	11.6501	Sand (9)	32.2		0.204	0.12	36.1	78	1.99	16.1	124	4.24	2.50	1342

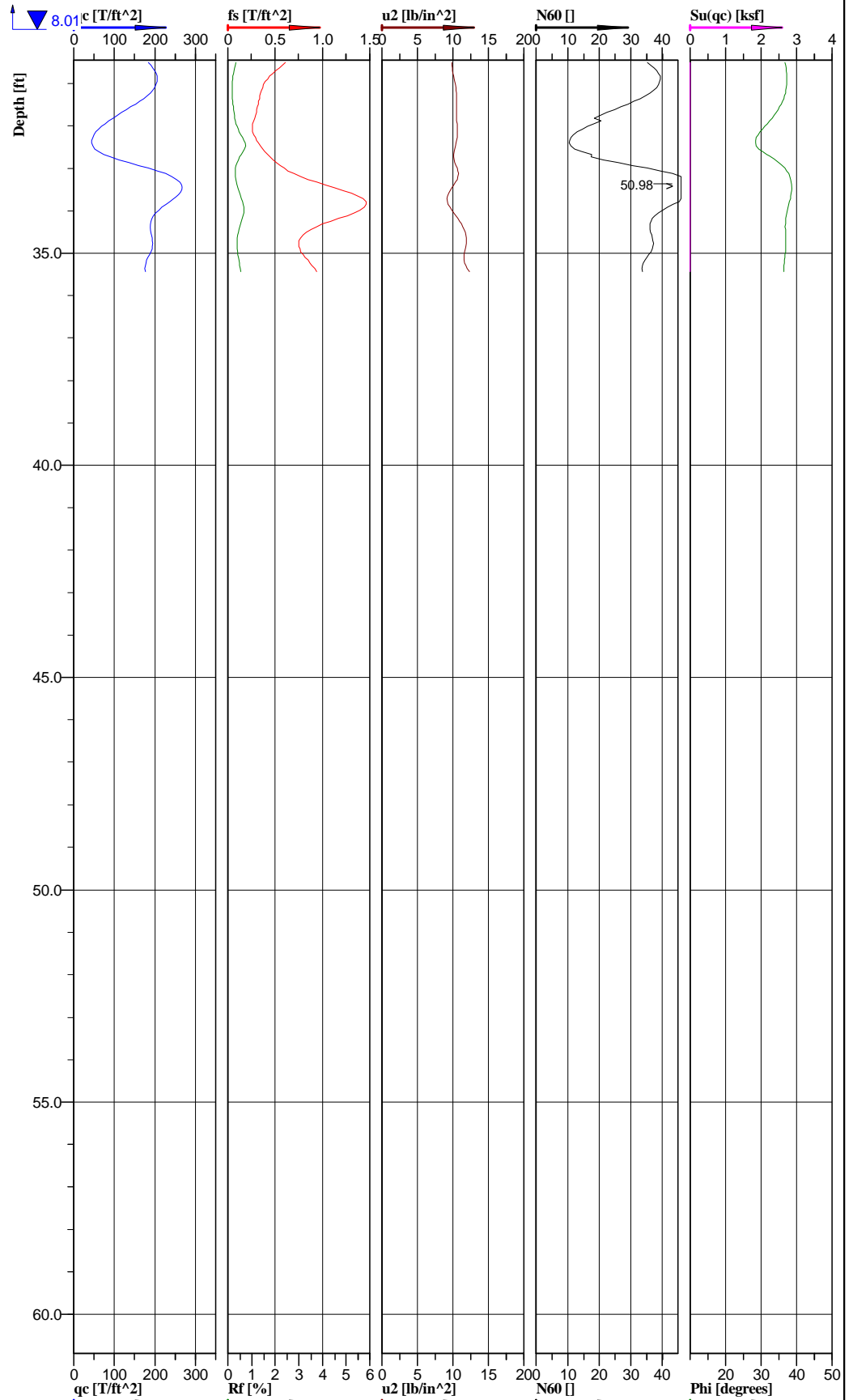
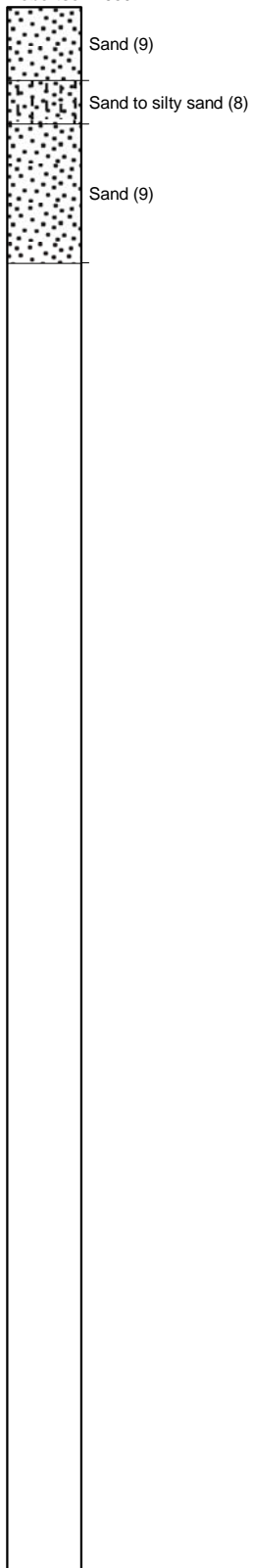
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728120.73 ft, Y: 994571.00 ft	Ground level: 466.99	Test no: C-41
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-14
File: Labadie C-041.cpd			

Classification by
Robertson 1986



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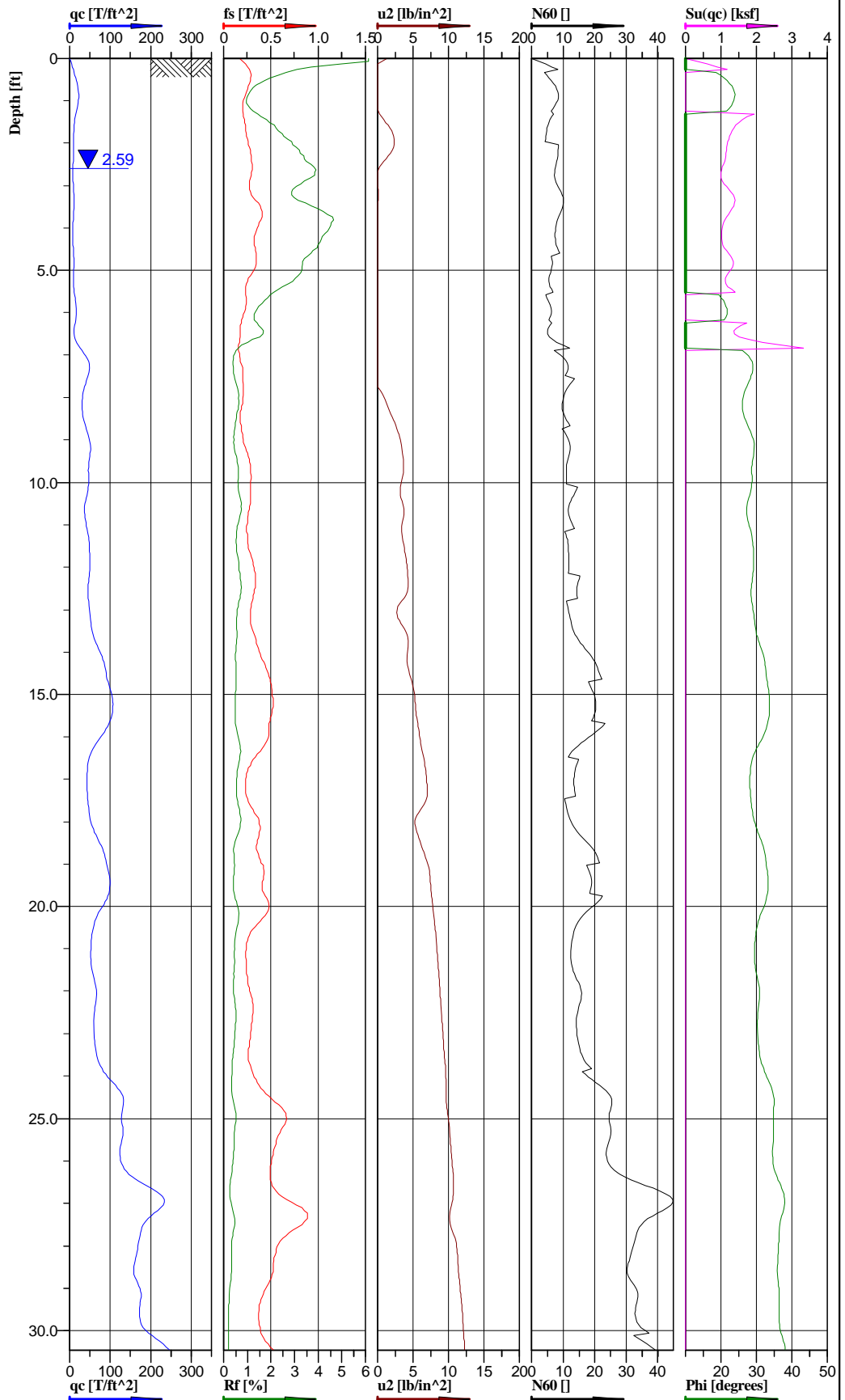
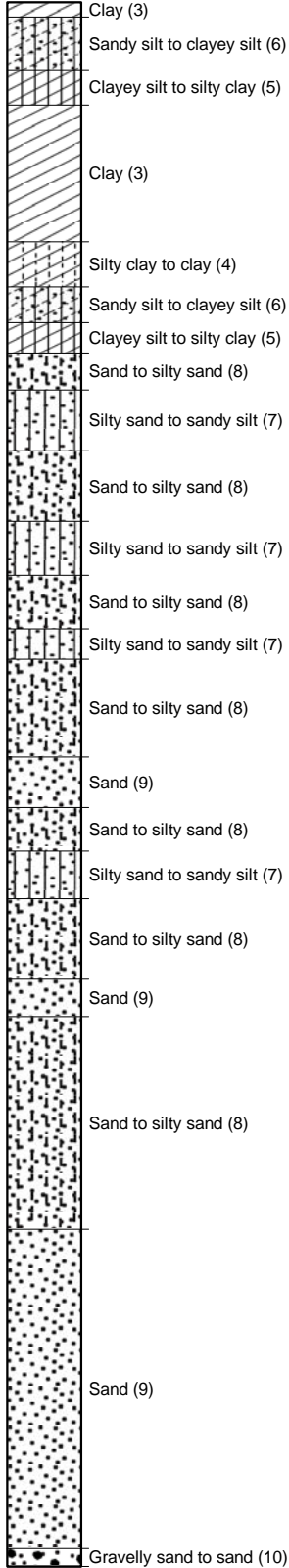
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728120.73 ft, Y: 994571.00 ft	Ground level: 466.99	Test no: C-41
Project ID: 2008012455	Client: Ameren Missouri	Date: 10/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-14
		File: Labadie C-041.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-41
 Test date: 10/23/2009
 Location: Labadie MO
 File name: Labadie C-041.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.466	0.021	-1.694	Clay (3)	6.6	1.714	0.007	0.007	23.7		1.84	6.6	115	0.15	0.15	514
3.75	1.274	0.055	-2.3654	Clay (3)	11.7	1.749	0.021	0.021			1.8	11.7	112	0.44	0.44	525
6.25	0.984	0.042	1.1243	Clayey silt to silty clay (5)	8.4	1.321	0.034	0.034			1.8	8.4	112	0.71	0.71	793
8.75	1.362	0.011	-2.61	Silty clay to clay (4)	5.5	0.949	0.048	0.045	21.5		1.85	5.5	115	1.00	0.94	475
11.25	2.818	0.015	0.0777	Sand to silty sand (8)	8.2	0.807	0.062	0.052	24.3	55	1.88	5.2	117	1.29	1.08	234
13.75	2.908	0.016	0.7916	Sandy silt to clayey silt (6)	9.8		0.076	0.058	25.8	53	1.88	9.8	117	1.58	1.21	242
16.25	5.826	0.026	5.0798	Sand (9)	14.3	1.761	0.09	0.065	30.3	72	1.92	7.1	120	1.87	1.35	485
18.75	11.88	0.035	5.0367	Sand (9)	23.8		0.104	0.072	34.5	76	1.99	11.9	124	2.16	1.50	988
21.25	12.463	0.041	6.0101	Sand (9)	24.9		0.119	0.079	34.5	75	1.98	12.5	124	2.48	1.64	1037
23.75	11.522	0.06	6.4915	Sand (9)	23.0		0.134	0.086	34.3	73	1.99	11.5	124	2.79	1.79	959
26.25	13.115	0.057	8.1494	Sand (9)	26.2		0.149	0.093	35.0	76	1.99	13.1	124	3.10	1.93	1091
28.75	15.598	0.052	9.2279	Sand (9)	31.2		0.164	0.101	36.0	79	1.99	15.6	124	3.41	2.10	1298
31.25	13.417	0.039	10.2563	Sand to silty sand (8)	27.6		0.179	0.108	34.4	71	1.97	17.7	123	3.72	2.25	1116
33.75	18.627	0.087	10.5791	Sand (9)	37.5		0.194	0.115	36.6	81	1.99	18.7	124	4.04	2.39	1550
36.25	17.188	0.083	11.7823	Sand (9)	34.4		0.202	0.119	36.5	80	1.99	17.2	124	4.20	2.48	1430

Classification by Robertson 1986

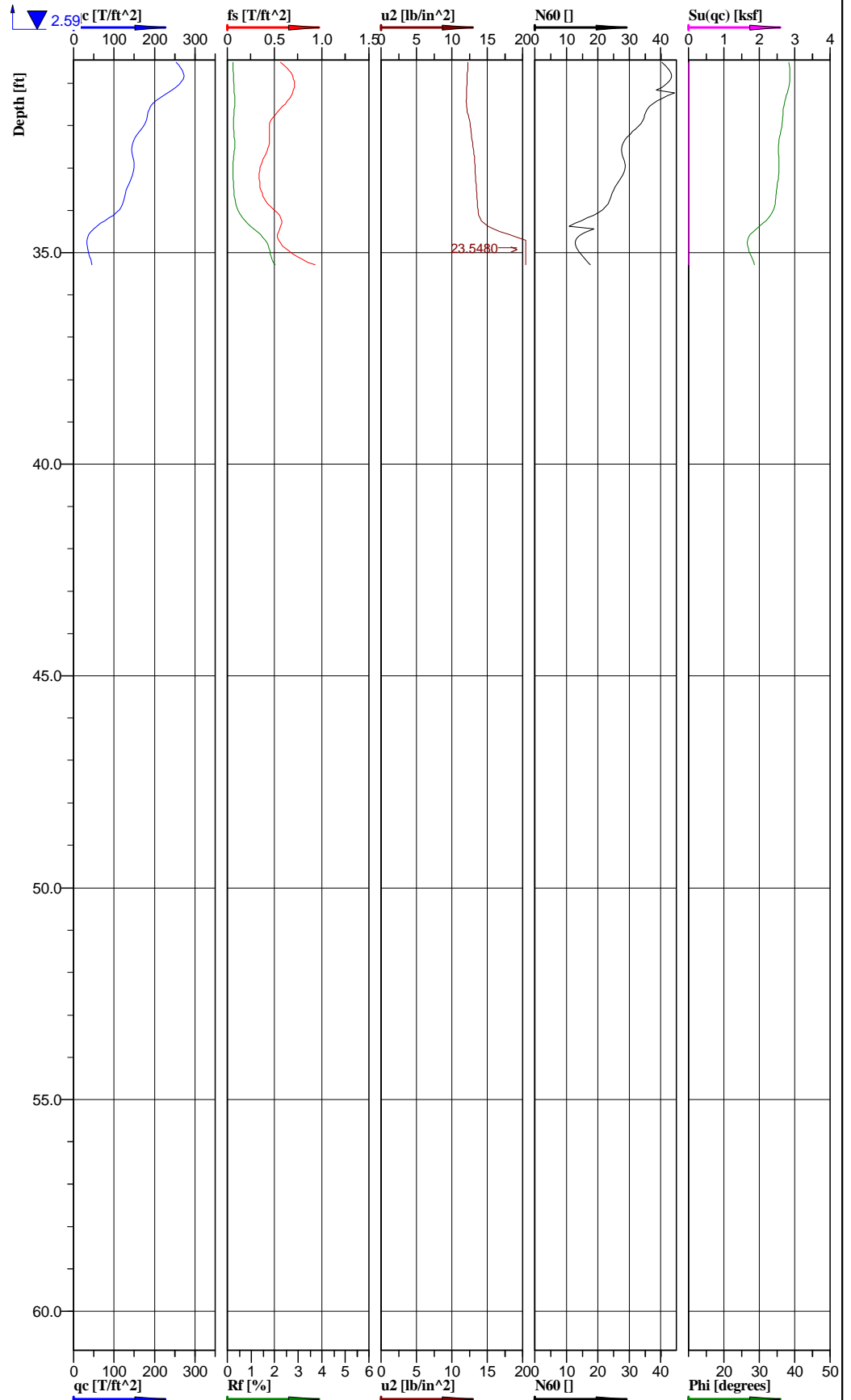
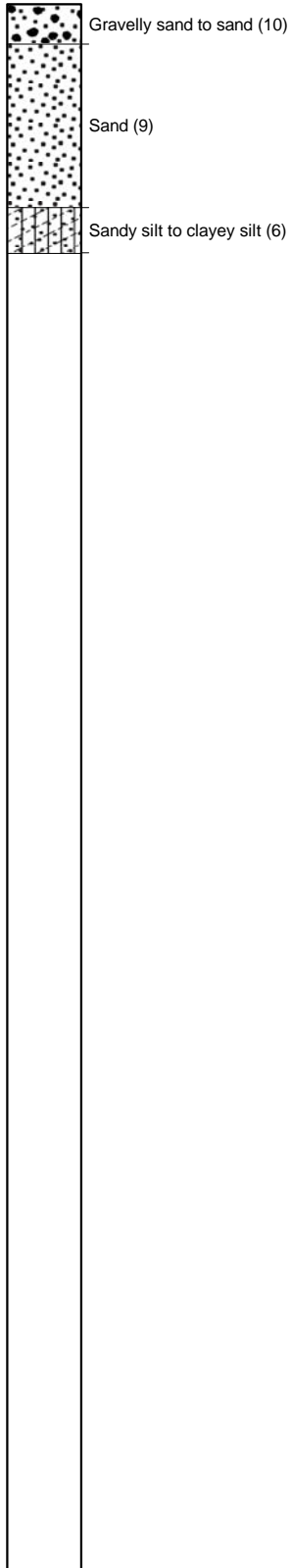


Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 727235.79 ft, Y: 994339.90 ft	Ground level: 466.50	Test no: C-44
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-15
		File: Labadie C-044.cpd	

Classification by
Robertson 1986



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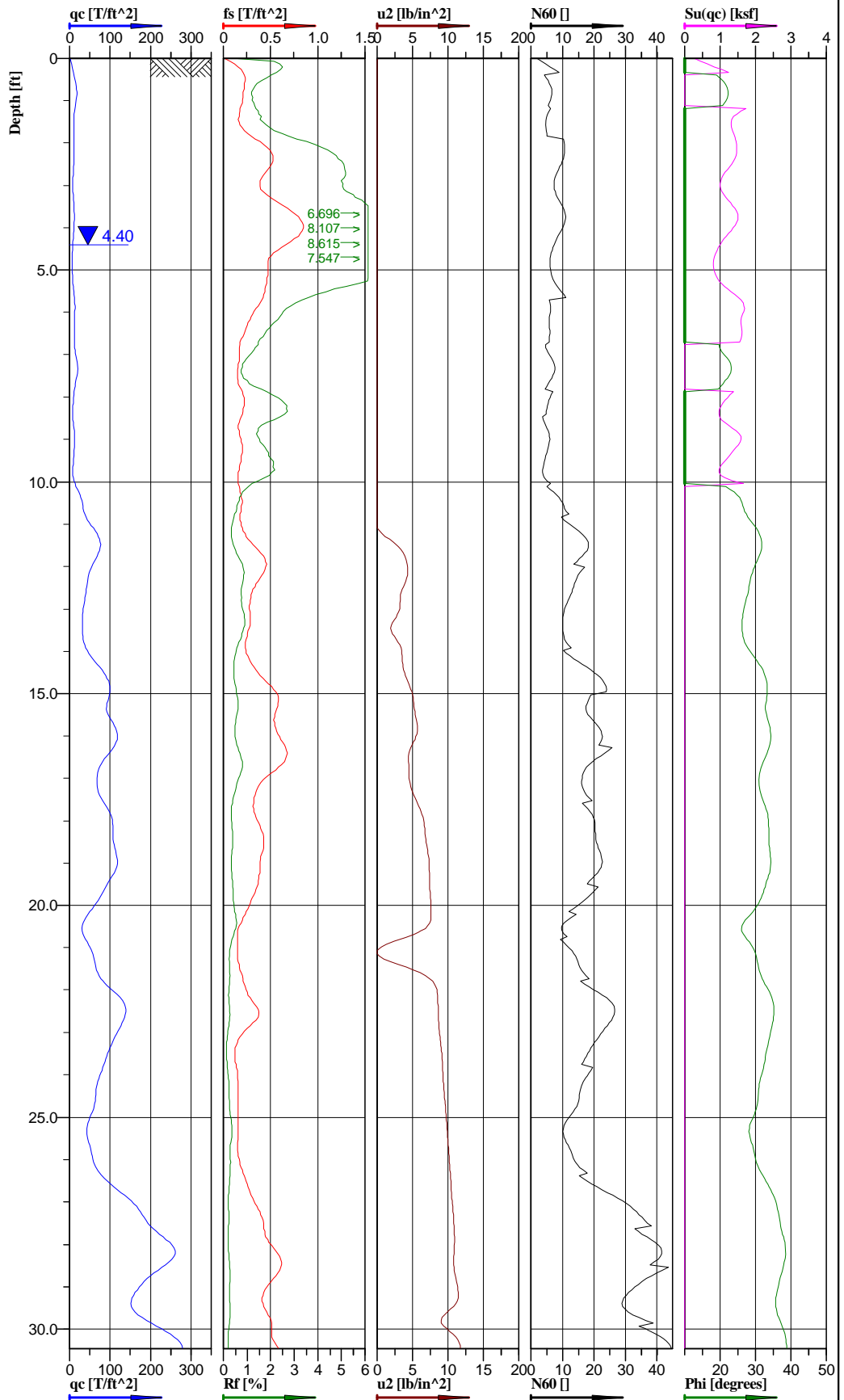
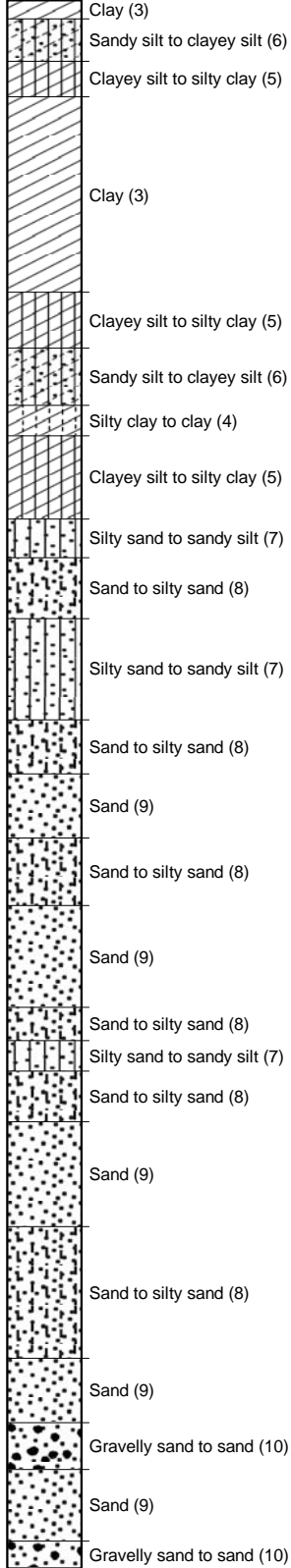
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727235.79 ft, Y: 994339.90 ft	Ground level: 466.50	Test no: C-44
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-15
		File: Labadie C-044.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-44
 Test date: 11/2/2009
 Location: Labadie MO
 File name: Labadie C-044.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	1.18	0.024	0.2853	Clay (3)	6.4	1.157	0.007	0.007	22.4		1.8	6.4	112	0.15	0.15	347
3.75	0.857	0.032	-1.4812	Silty clay to clay (4)	8.0	1.168	0.021	0.017			1.8	8.0	112	0.44	0.35	584
6.25	2.063	0.02	-3.2071	Silty sand to sandy silt (7)	7.4	1.586	0.034	0.023	24.8	61	1.86	4.8	116	0.71	0.48	172
8.75	3.96	0.021	2.2709	Sand to silty sand (8)	11.2		0.048	0.029	27.9	61	1.91	7.1	119	1.00	0.60	329
11.25	4.262	0.027	3.7265	Silty sand to sandy silt (7)	12.5		0.063	0.036	28.4	59	1.91	8.0	119	1.31	0.75	355
13.75	6.633	0.036	4.0381	Sand (9)	16.2		0.077	0.043	30.9	67	1.94	8.1	121	1.60	0.89	552
16.25	6.564	0.036	6.1911	Sand to silty sand (8)	16.4		0.091	0.05	30.6	69	1.93	10.5	120	1.89	1.04	546
18.75	7.334	0.037	6.6235	Sand to silty sand (8)	17.0		0.106	0.056	31.5	65	1.95	10.9	122	2.20	1.16	610
21.25	5.752	0.028	8.4539	Sand to silty sand (8)	14.4		0.12	0.063	30.3	58	1.94	9.2	121	2.50	1.31	479
23.75	8.548	0.036	9.47	Sand (9)	18.7		0.135	0.07	32.3	66	1.96	9.4	122	2.81	1.46	711
26.25	15.729	0.06	10.3871	Sand (9)	31.4		0.15	0.078	35.9	83	1.99	15.7	124	3.12	1.62	1309
28.75	16.368	0.047	11.4914	Sand (9)	32.7		0.165	0.085	36.3	83	1.99	16.4	124	3.43	1.77	1362
31.25	20.063	0.052	12.3276	Sand (9)	36.6		0.18	0.092	37.2	88	2.01	18.3	125	3.74	1.91	1669
33.75	9.879	0.044	15.4016	Sandy silt to clayey silt (6)	21.6		0.195	0.099	32.6	72	1.95	21.6	122	4.06	2.06	822
36.25	4.032	0.077	28.8202	Sandy silt to clayey silt (6)	16.1		0.202	0.103	28.1		1.84	16.1	115	4.20	2.14	335

**Classification by
Robertson 1986**

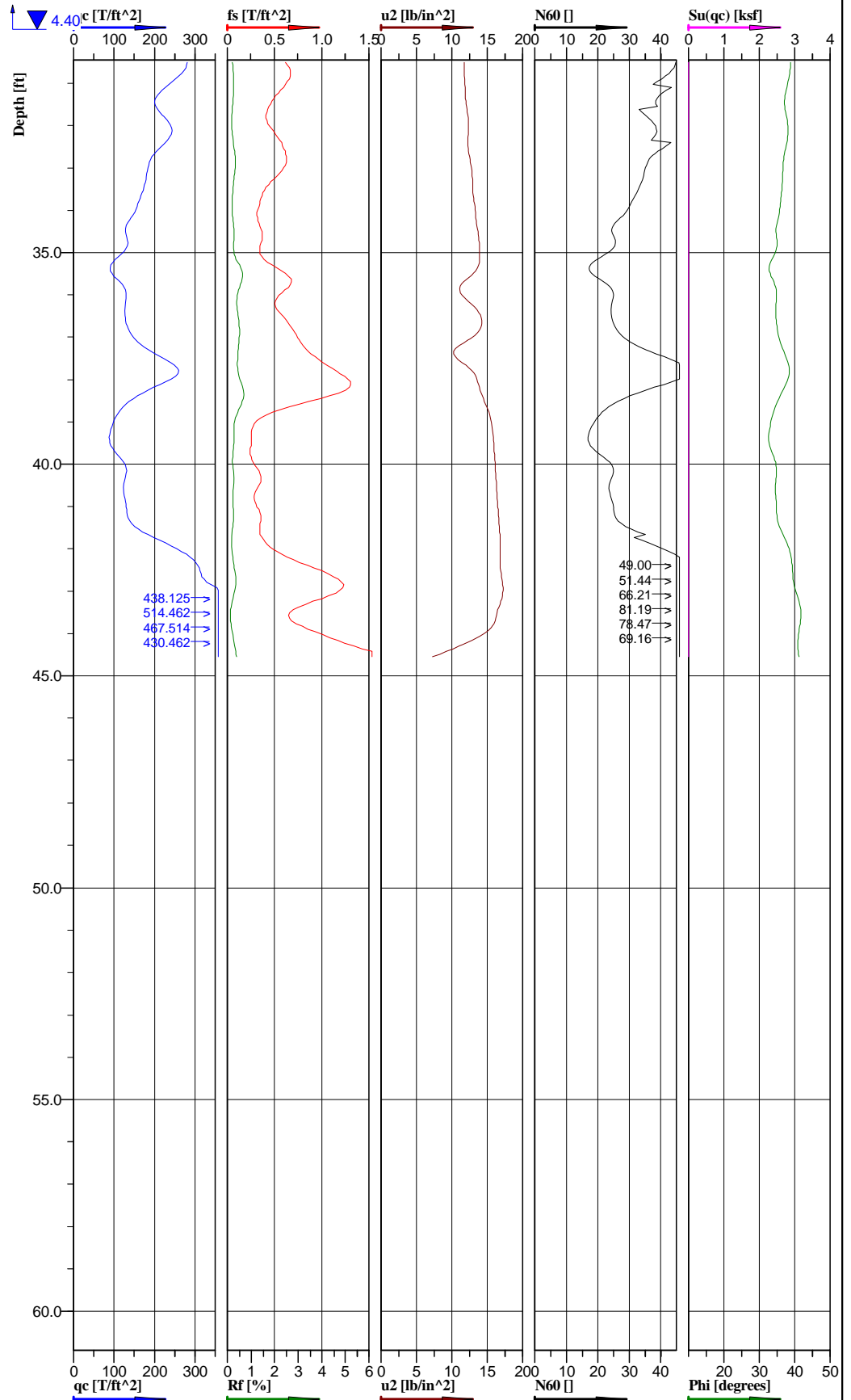
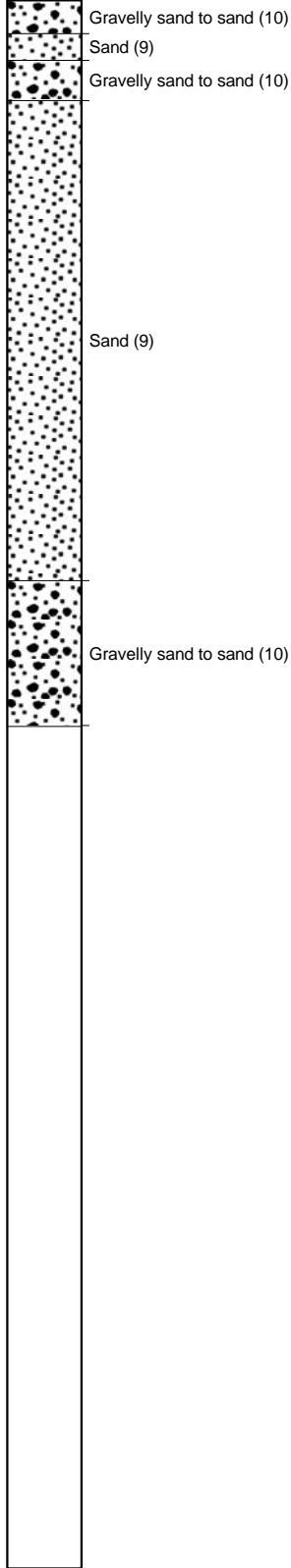


Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 727828.31 ft, Y: 994335.17 ft	Ground level: 466.50	Test no: C-46
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-16
File: Labadie C-046.cpd			

Classification by
Robertson 1986



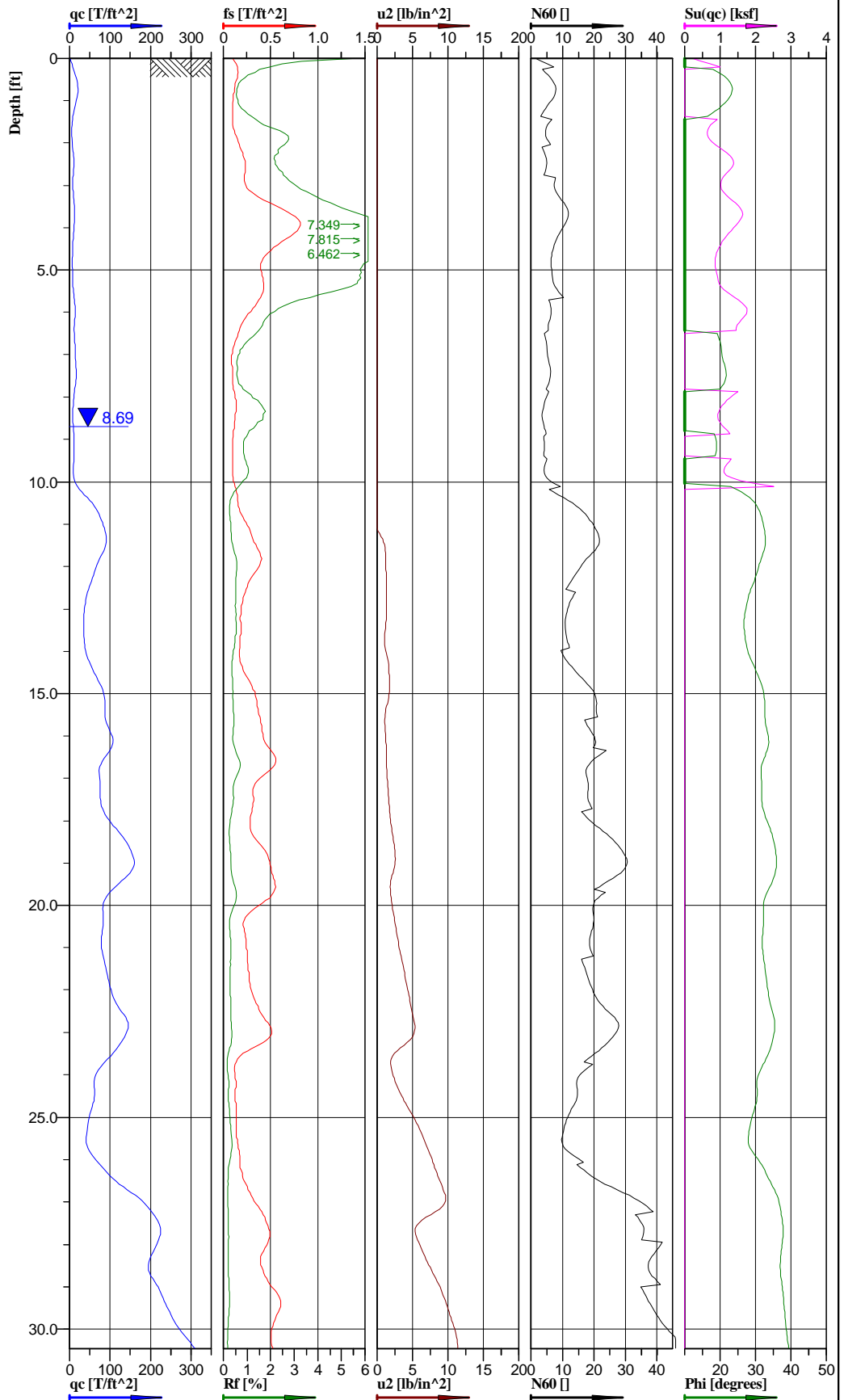
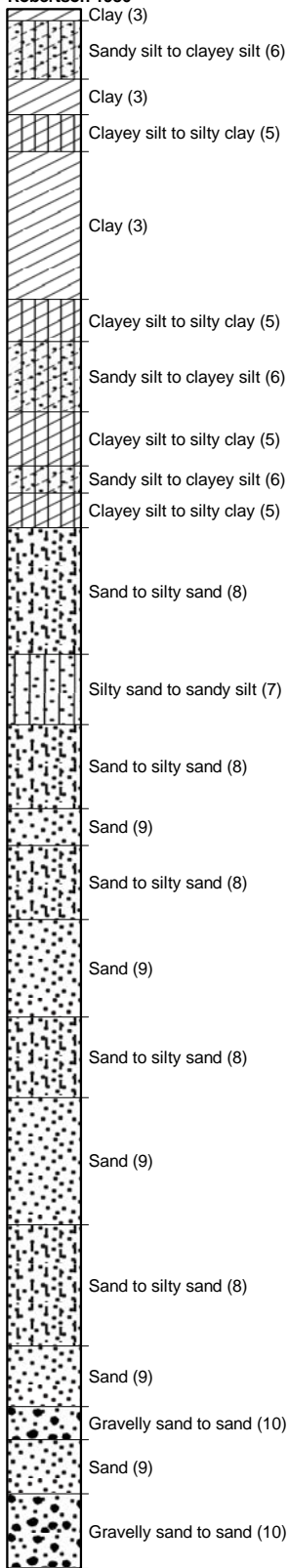
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727828.31 ft, Y: 994335.17 ft	Ground level: 466.50	Test no: C-46
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-16
File: Labadie C-046.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-46
 Test date: 11/2/2009
 Location: Labadie MO
 File name: Labadie C-046.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.084	0.025	-2.6394	Clay (3)	6.8	1.274	0.007	0.007	21.2		1.82	6.8	114	0.15	0.15	382
3.75	0.824	0.056	-5.0605	Clay (3)	8.2	1.127	0.021	0.02			1.78	8.2	111	0.44	0.42	338
6.25	1.23	0.027	-4.1147	Sandy silt to clayey silt (6)	6.7	1.426	0.034	0.028	21.8		1.82	6.7	114	0.71	0.58	102
8.75	0.985	0.017	-3.5146	Clayey silt to silty clay (5)	5.1	1.231	0.048	0.034	20.8		1.84	5.1	115	1.00	0.71	739
11.25	4.628	0.027	0.5309	Silty sand to sandy silt (7)	13.1	1.648	0.062	0.041	28.6	65	1.91	8.4	119	1.29	0.85	385
13.75	5.178	0.031	3.3395	Sand (9)	14.4		0.076	0.047	29.0	68	1.92	7.2	120	1.58	0.98	431
16.25	8.733	0.051	5.0036	Sand to silty sand (8)	19.4		0.09	0.054	32.7	71	1.95	12.4	122	1.87	1.12	727
18.75	9.533	0.035	6.9712	Sand to silty sand (8)	19.9		0.105	0.061	33.2	72	1.98	12.7	124	2.18	1.27	793
21.25	6.822	0.02	5.7914	Sand (9)	16.0		0.119	0.068	30.6	63	1.94	8.0	121	2.48	1.41	568
23.75	8.568	0.018	9.1748	Sand to silty sand (8)	18.7		0.134	0.075	32.4	65	1.97	11.9	123	2.79	1.56	713
26.25	9.261	0.023	10.2986	Sand (9)	19.8		0.149	0.082	32.2	63	1.96	9.9	122	3.10	1.71	771
28.75	19.65	0.048	10.6884	Gravelly sand to sand (10)	36.0		0.164	0.09	37.2	87	2.01	24.4	125	3.41	1.87	1635
31.25	22.878	0.051	11.9004	Sand (9)	40.0		0.179	0.097	38.0	91	2.03	20.0	127	3.72	2.02	1903
33.75	15.32	0.041	13.1708	Sand (9)	30.6		0.194	0.104	35.9	78	1.99	15.3	124	4.04	2.16	1275
36.25	12.843	0.061	12.612	Sand (9)	25.7		0.209	0.111	34.8	72	1.98	12.8	124	4.35	2.31	1069
38.75	14.309	0.064	14.6963	Sand (9)	28.6		0.224	0.119	35.1	73	1.99	14.3	124	4.66	2.48	1191
41.25	17.221	0.041	16.5616	Gravelly sand to sand (10)	31.6		0.238	0.126	36.2	77	2	21.5	125	4.95	2.62	1433
43.75	41.137	0.101	15.0084	Gravelly sand to sand (10)	68.5		0.252	0.133	40.8	103	2.04	46.6	127	5.24	2.77	3423

**Classification by
Robertson 1986**

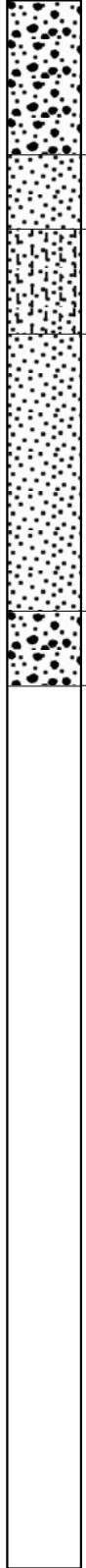


Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 727834.35 ft, Y: 994335.47 ft	Ground level: 466.40	Test no: C-46A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-17
Confirmation sounding for C-46		File: Labadie C-046A.cpd	

Classification by
Robertson 1986



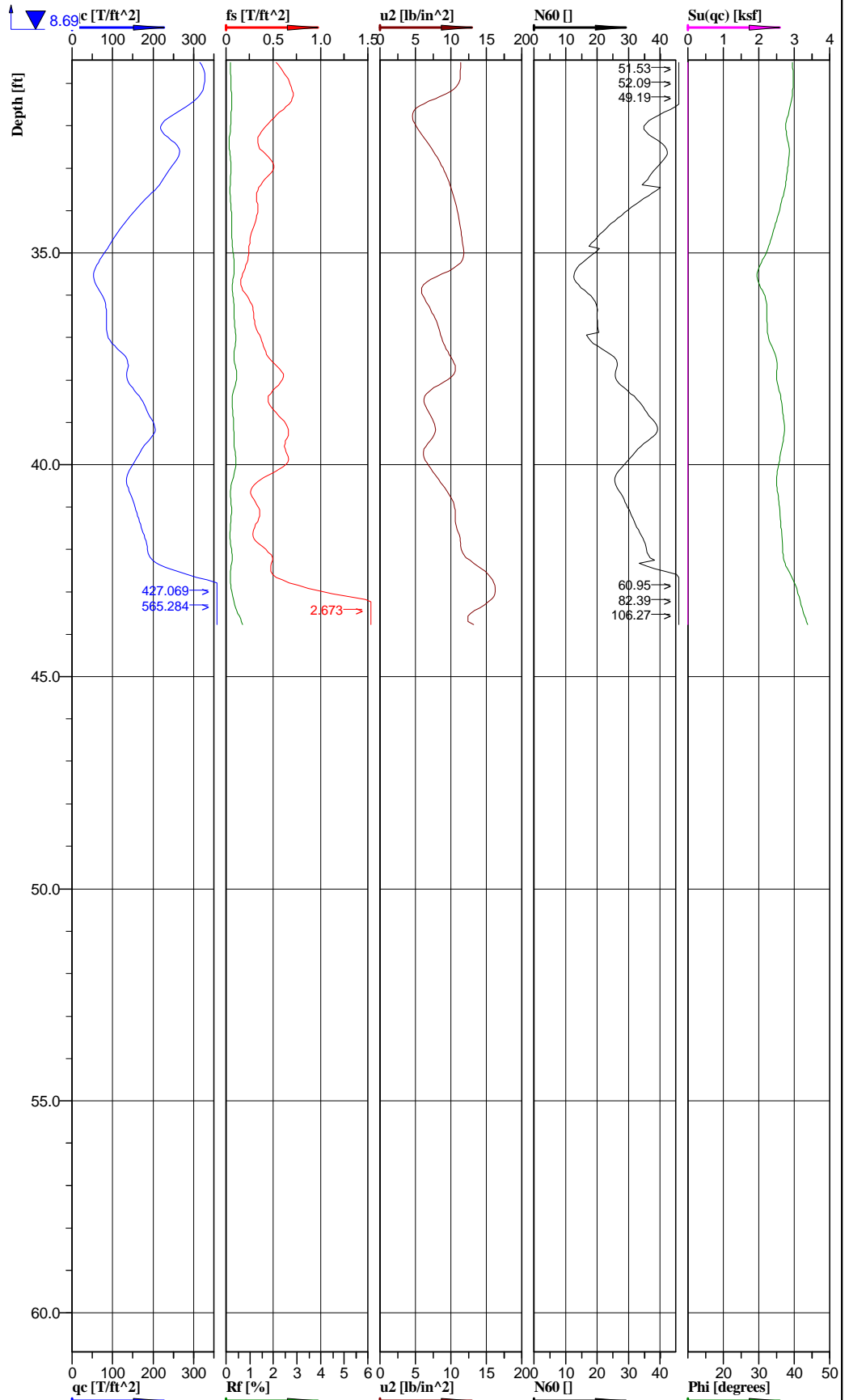
Gravelly sand to sand (10)

Sand (9)

Sand to silty sand (8)

Sand (9)

Gravelly sand to sand (10)



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

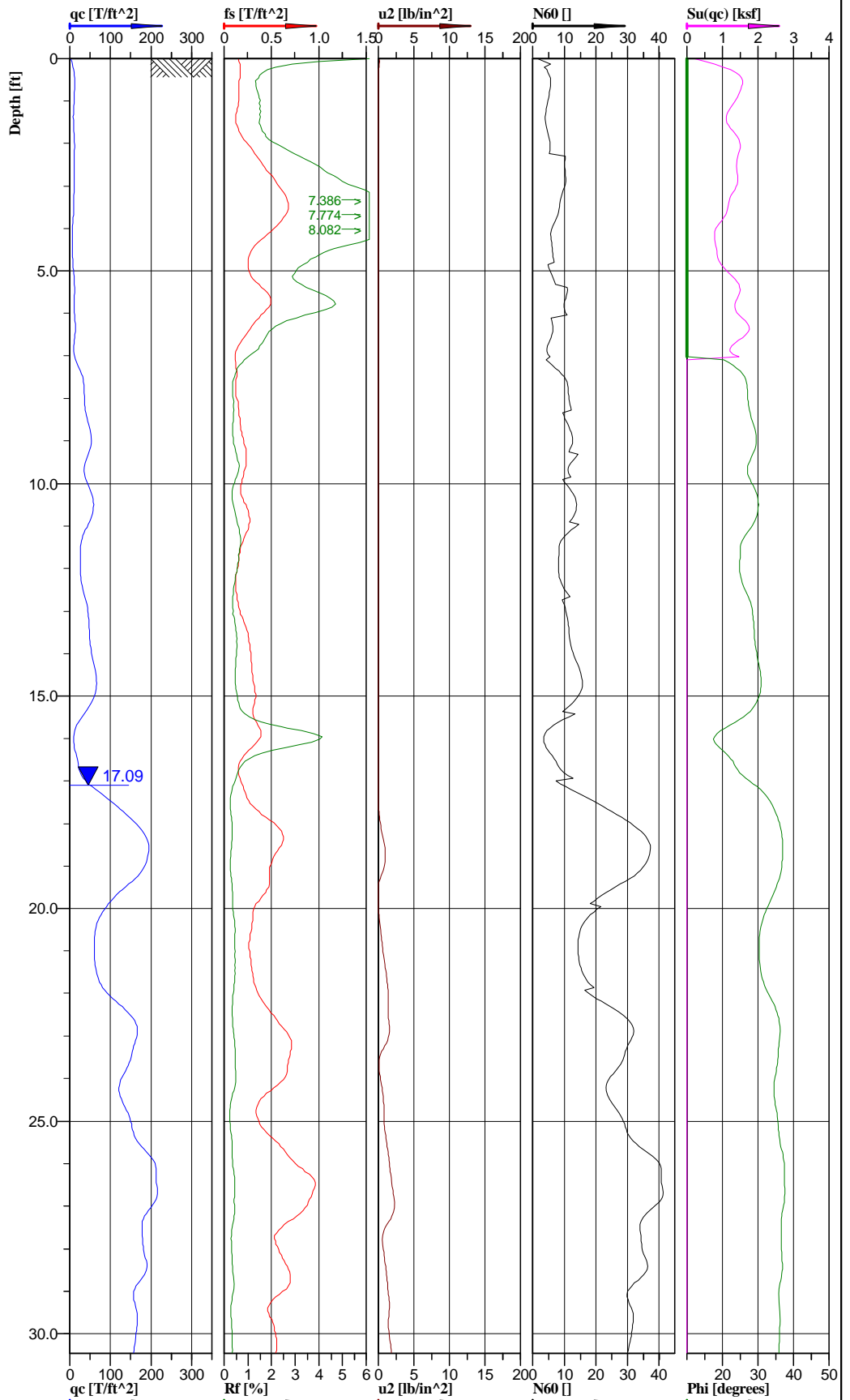
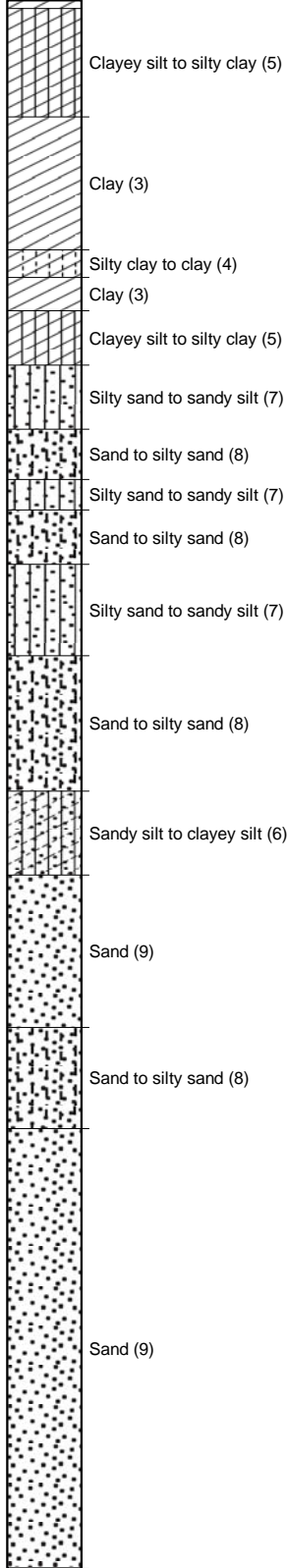


Location: Labadie, MO	Position: X: 727834.35 ft, Y: 994335.47 ft	Ground level: 466.40	Test no: C-46A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-17
Confirmation sounding for C-46		File: Labadie C-046A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-46A
 Test date: 11/2/2009
 Location: Labadie MO
 File name: Labadie C-046A.cpd

Depth [ft]	CPT-Pro Calculated Values											Reitz and Jens Calculated Values				
	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.011	0.013	-2.1891	Clayey silt to silty clay (5)	5.3	0.894	0.007	0.007	20.9		1.82	5.3	114	0.15	0.15	536
3.75	0.866	0.047	-3.0625	Clay (3)	8.2	1.181	0.021	0.021			1.79	8.2	112	0.44	0.44	354
6.25	1.152	0.022	-2.2557	Sandy silt to clayey silt (6)	6.2	1.361	0.034	0.034	20.6		1.82	6.2	114	0.71	0.71	96
8.75	0.995	0.01	-1.1146	Clayey silt to silty clay (5)	4.6	1.198	0.048	0.047	19.5		1.84	4.6	115	1.00	0.98	719
11.25	6.208	0.025	0.2264	Sand to silty sand (8)	15.7	2.256	0.062	0.054	30.5	62	1.94	10.1	121	1.29	1.12	517
13.75	4.582	0.02	1.3805	Sand to silty sand (8)	13.0		0.076	0.061	28.6	57	1.91	8.3	119	1.58	1.27	381
16.25	8.306	0.039	1.3333	Sand to silty sand (8)	19.4		0.091	0.067	32.5	67	1.95	12.4	122	1.89	1.39	691
18.75	11.357	0.039	2.0832	Sand to silty sand (8)	23.8		0.105	0.075	34.1	74	1.98	15.2	124	2.18	1.56	945
21.25	8.759	0.026	3.4726	Sand (9)	19.4		0.12	0.082	32.8	66	1.97	9.7	123	2.50	1.71	729
23.75	8.903	0.024	3.6986	Sand to silty sand (8)	19.3		0.135	0.089	32.4	63	1.96	12.4	122	2.81	1.85	741
26.25	10.539	0.023	7.6136	Gravelly sand to sand (10)	21.2		0.149	0.096	32.6	64	1.97	14.4	123	3.10	2.00	877
28.75	21.523	0.047	8.1646	Gravelly sand to sand (10)	38.5		0.164	0.103	37.7	88	2.02	26.2	126	3.41	2.14	1791
31.25	27.118	0.051	8.4427	Gravelly sand to sand (10)	45.2		0.18	0.111	38.8	94	2.04	30.7	127	3.74	2.31	2256
33.75	16.852	0.033	10.2177	Sand to silty sand (8)	31.2		0.195	0.118	36.0	78	2.01	20.0	125	4.06	2.45	1402
36.25	7.848	0.027	8.4115	Sand (9)	18.2		0.209	0.125	32.0	56	1.95	9.1	122	4.35	2.60	653
38.75	16.061	0.055	7.6694	Sand (9)	32.1		0.224	0.132	36.1	76	1.99	16.1	124	4.66	2.75	1336
41.25	16.155	0.036	10.5307	Gravelly sand to sand (10)	31.5		0.239	0.14	36.1	76	1.99	21.4	124	4.97	2.91	1344
43.75	47.766	0.19	14.732	Gravelly sand to sand (10)	79.6		0.25	0.145	41.3	105	2.04	54.1	127	5.20	3.02	3974

Classification by Robertson 1986



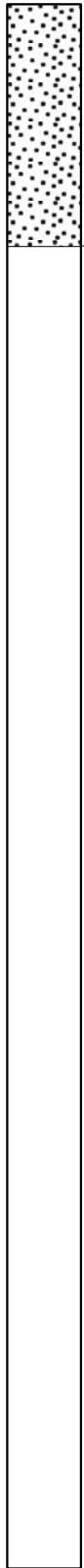
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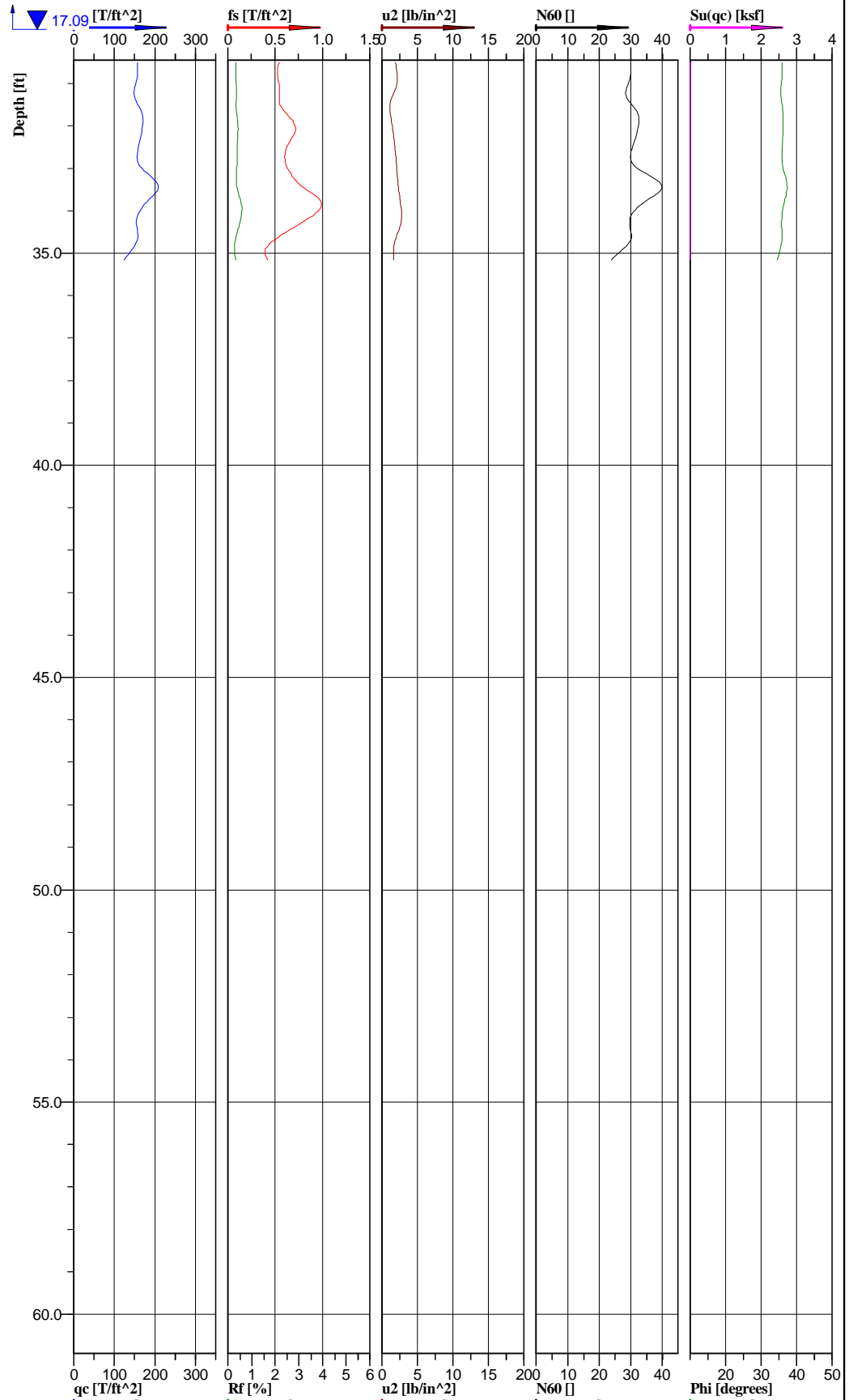
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728416.24 ft, Y: 994317.22 ft	Ground level: 466.70	Test no: C-48
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-18
File: Labadie C-048.cpd			

Classification by
Robertson 1986



Sand (9)



REITZ & JENS, INC.
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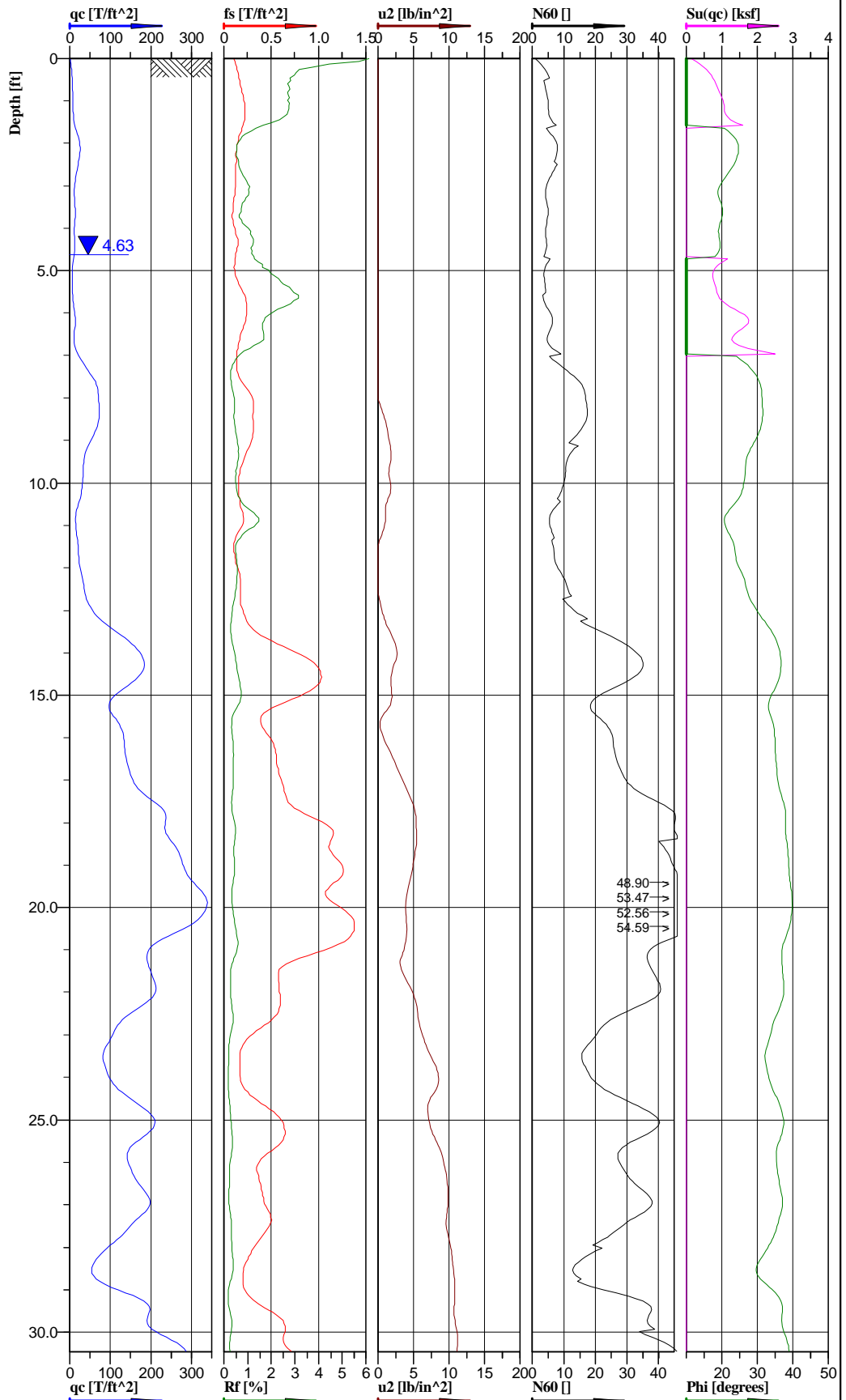
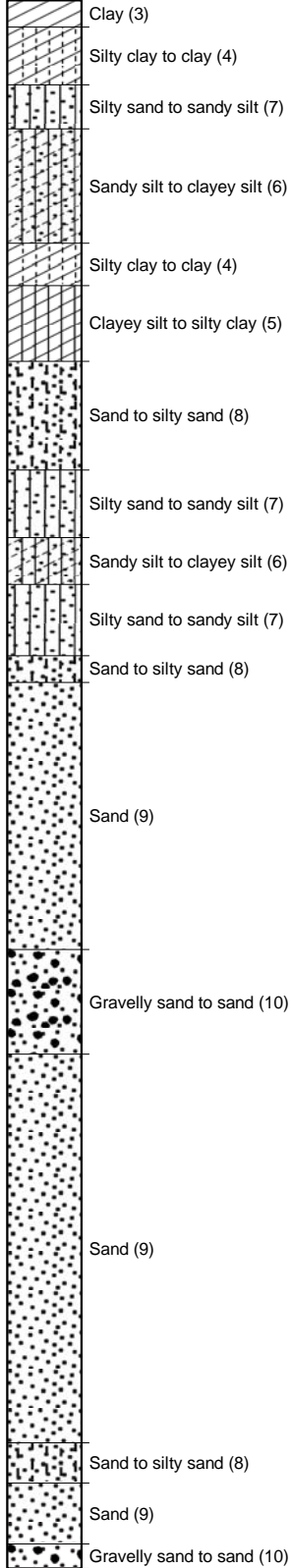
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728416.24 ft, Y: 994317.22 ft	Ground level: 466.70	Test no: C-48
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-18
		File: Labadie C-048.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-48
 Test date: 11/2/2009
 Location: Labadie MO
 File name: Labadie C-048.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.934	0.019	-1.4399	Clay (3)	5.4	1.293	0.007	0.007				1.82	5.4	114	0.15	0.15	388
3.75	0.792	0.046	-2.3464	Silty clay to clay (4)	7.7	1.078	0.021	0.021				1.79	7.7	112	0.44	0.44	539
6.25	1.316	0.027	-2.1757	Silty sand to sandy silt (7)	7.5	1.448	0.034	0.034	24.0			1.83	4.8	114	0.71	0.71	109
8.75	3.974	0.017	-1.3254	Sand to silty sand (8)	11.5		0.048	0.048	28.0	54	1.91	7.4	119	1.00	1.00	331	
11.25	3.657	0.018	-0.8916	Silty sand to sandy silt (7)	10.7		0.062	0.062	27.1	56	1.91	6.8	119	1.29	1.29	304	
13.75	4.977	0.024	-0.6112	Sand to silty sand (8)	12.7		0.077	0.077	29.3	51	1.93	8.1	120	1.60	1.60	414	
16.25	3.436	0.025	-0.3703	Sand (9)	9.4		0.091	0.091	25.2	53	1.88	4.7	117	1.89	1.89	286	
18.75	14.8	0.045	0.3354	Sand to silty sand (8)	29.8		0.105	0.1	35.6	77	1.99	19.1	124	2.18	2.08	1231	
21.25	7.633	0.031	0.8109	Sand (9)	17.6		0.12	0.107	31.8	57	1.95	8.8	122	2.50	2.23	635	
23.75	13.837	0.054	0.738	Sand (9)	27.7		0.135	0.114	35.4	74	1.99	13.8	124	2.81	2.37	1151	
26.25	18.256	0.069	1.5486	Sand (9)	36.5		0.15	0.122	36.8	81	1.99	18.3	124	3.12	2.54	1519	
28.75	16.51	0.055	1.1429	Sand (9)	33.0		0.165	0.129	36.3	78	1.99	16.5	124	3.43	2.68	1374	
31.25	15.309	0.056	1.6511	Sand (9)	30.6		0.179	0.136	35.9	75	1.99	15.3	124	3.72	2.83	1274	
33.75	16.1	0.067	2.2126	Sand (9)	32.2		0.194	0.143	36.2	75	1.99	16.1	124	4.04	2.97	1340	
36.25	12.34	0.039	1.5998	Sand (9)	24.7		0.202	0.147	34.8	67	1.99	12.3	124	4.20	3.06	1027	

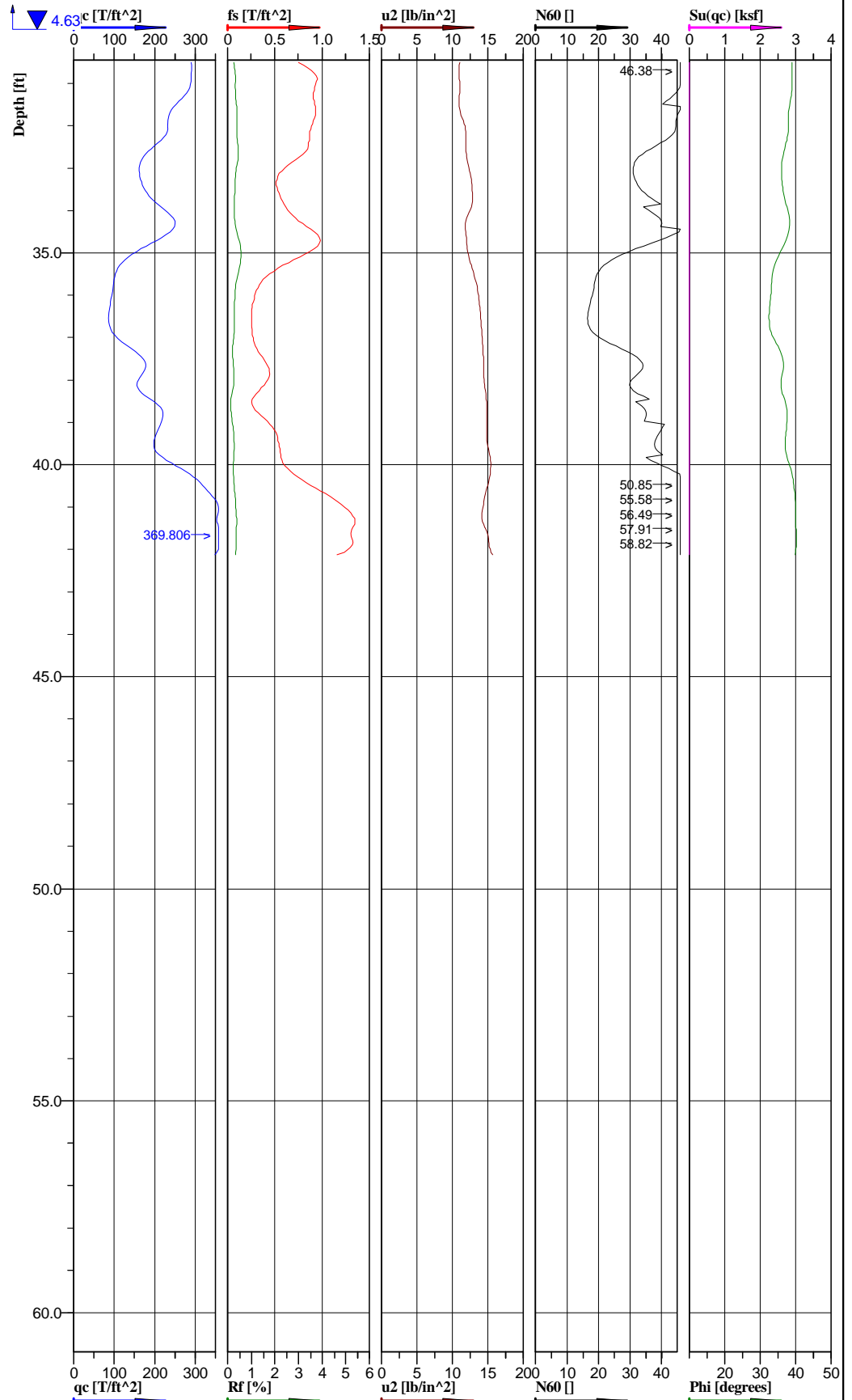
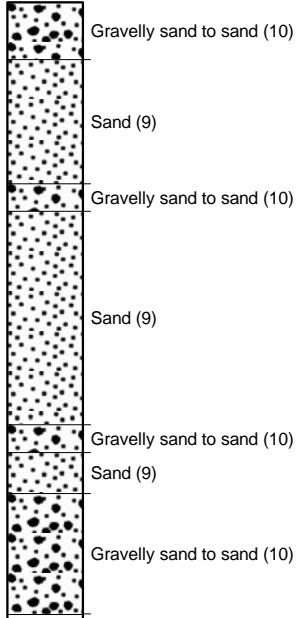
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729171.65 ft, Y: 994279.49 ft	Ground level: 467.59	Test no: C-50
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-19
Confirmation Sounding adjacent to B-50		File: Labadie C-050.cpd	

Classification by Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

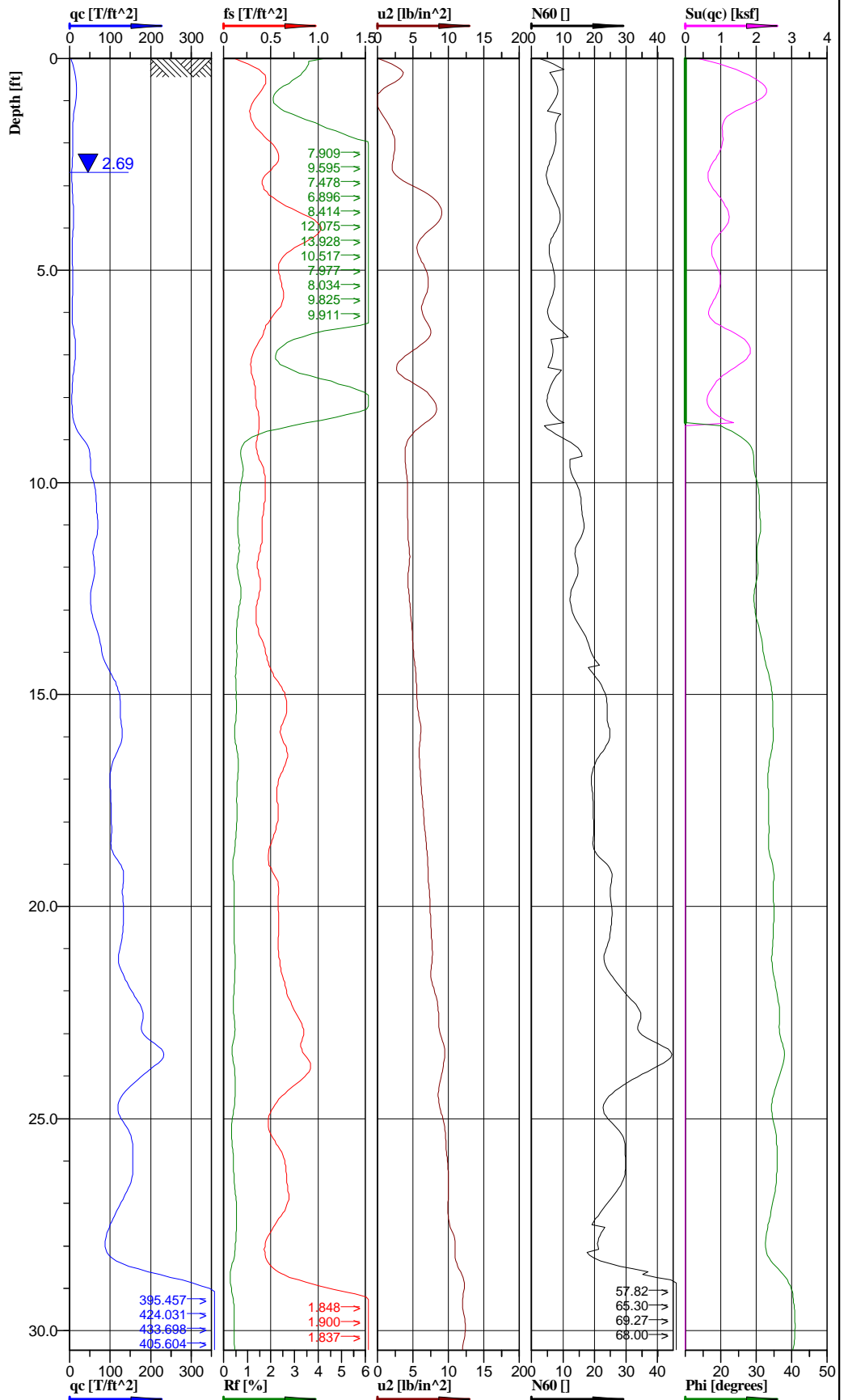
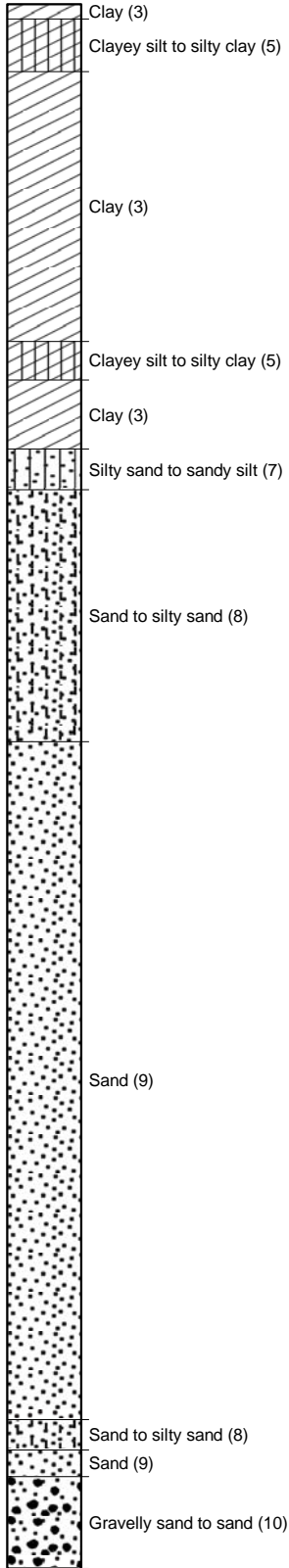


Location: Labadie, MO	Position: X: 729171.65 ft, Y: 994279.49 ft	Ground level: 467.59	Test no: C-50
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/2/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-19
Confirmation Sounding adjacent to B-50		File: Labadie C-050.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-50
 Test date: 11/2/2009
 Location: Labadie MO
 File name: Labadie C-050.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.166	0.016	-2.6133	Sandy silt to clayey silt (6)	5.5	0.879	0.007	0.007	23.6		1.81	5.5	113	0.15	0.15	97
3.75	1.121	0.011	-2.7684	Silty clay to clay (4)	4.8	0.905	0.021	0.021	19.8		1.84	4.8	115	0.44	0.44	453
6.25	1.647	0.017	-2.6078	Sand to silty sand (8)	6.2	1.299	0.034	0.029	27.6	55	1.85	3.9	115	0.71	0.60	137
8.75	5.212	0.024	0.9388	Silty sand to sandy silt (7)	14.1		0.049	0.036	29.4	69	1.92	9.0	120	1.02	0.75	434
11.25	2.224	0.015	0.5012	Silty sand to sandy silt (7)	7.8		0.063	0.042	23.9		1.87	5.0	117	1.31	0.87	185
13.75	11.407	0.056	1.5403	Sand (9)	23.7		0.077	0.049	33.5	80	1.97	11.9	123	1.60	1.02	949
16.25	13.232	0.053	2.1014	Sand (9)	26.5		0.092	0.056	35.0	83	1.98	13.2	124	1.91	1.16	1101
18.75	26.237	0.105	4.8657	Gravelly sand to sand (10)	46.4		0.107	0.063	38.7	101	2.02	31.5	126	2.23	1.31	2183
21.25	21.633	0.087	4.1347	Sand (9)	41.4		0.122	0.071	37.6	93	2	20.7	125	2.54	1.48	1800
23.75	11.734	0.03	7.1723	Sand (9)	23.5		0.136	0.078	34.2	74	1.99	11.7	124	2.83	1.62	976
26.25	16.458	0.046	9.0835	Sand (9)	32.9		0.151	0.085	36.3	83	1.99	16.5	124	3.14	1.77	1369
28.75	12.459	0.035	10.5824	Gravelly sand to sand (10)	25.5		0.166	0.093	34.2	71	1.97	17.3	123	3.45	1.93	1037
31.25	24.454	0.081	11.2739	Sand (9)	43.7		0.181	0.1	38.3	92	2.02	21.9	126	3.76	2.08	2035
33.75	18.58	0.068	12.2811	Sand (9)	35.6		0.196	0.107	36.9	83	2	17.8	125	4.08	2.23	1546
36.25	10.493	0.035	13.6545	Sand (9)	21.0		0.211	0.115	33.7	66	1.99	10.5	124	4.39	2.39	873
38.75	18.803	0.041	14.7885	Gravelly sand to sand (10)	35.4		0.226	0.122	37.0	82	2	24.1	125	4.70	2.54	1564
41.25	32.463	0.107	14.8471	Gravelly sand to sand (10)	54.1		0.24	0.129	39.7	97	2.04	36.8	127	4.99	2.68	2701

**Classification by
Robertson 1986**



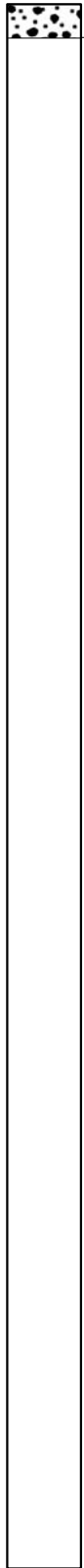
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

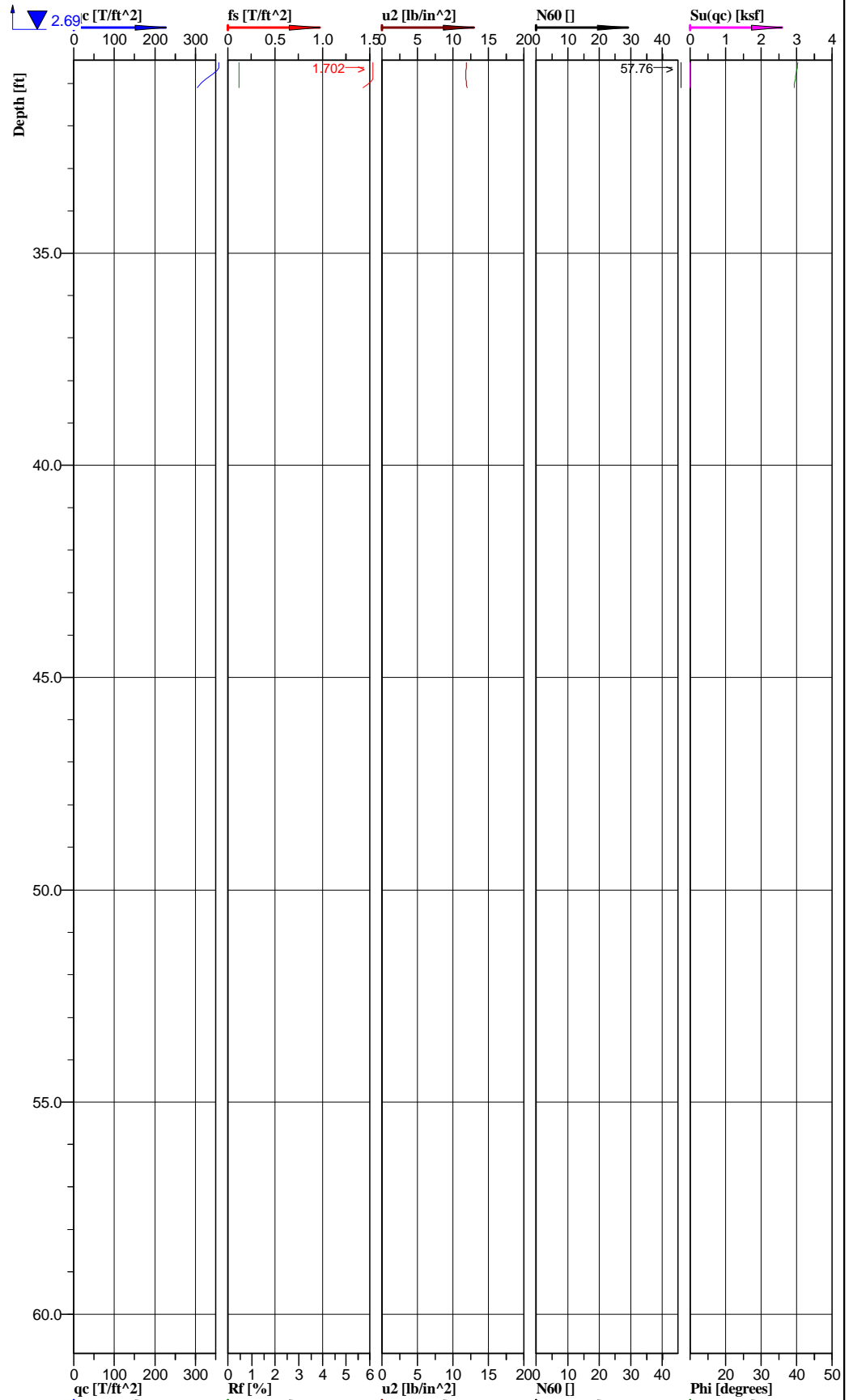


Location: Labadie, MO	Position: X: 727521.56 ft, Y: 994027.10 ft	Ground level: 466.40	Test no: C-60
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/6/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-20
		File: Labadie C-060.cpd	

Classification by
Robertson 1986



Gravelly sand to sand (10)



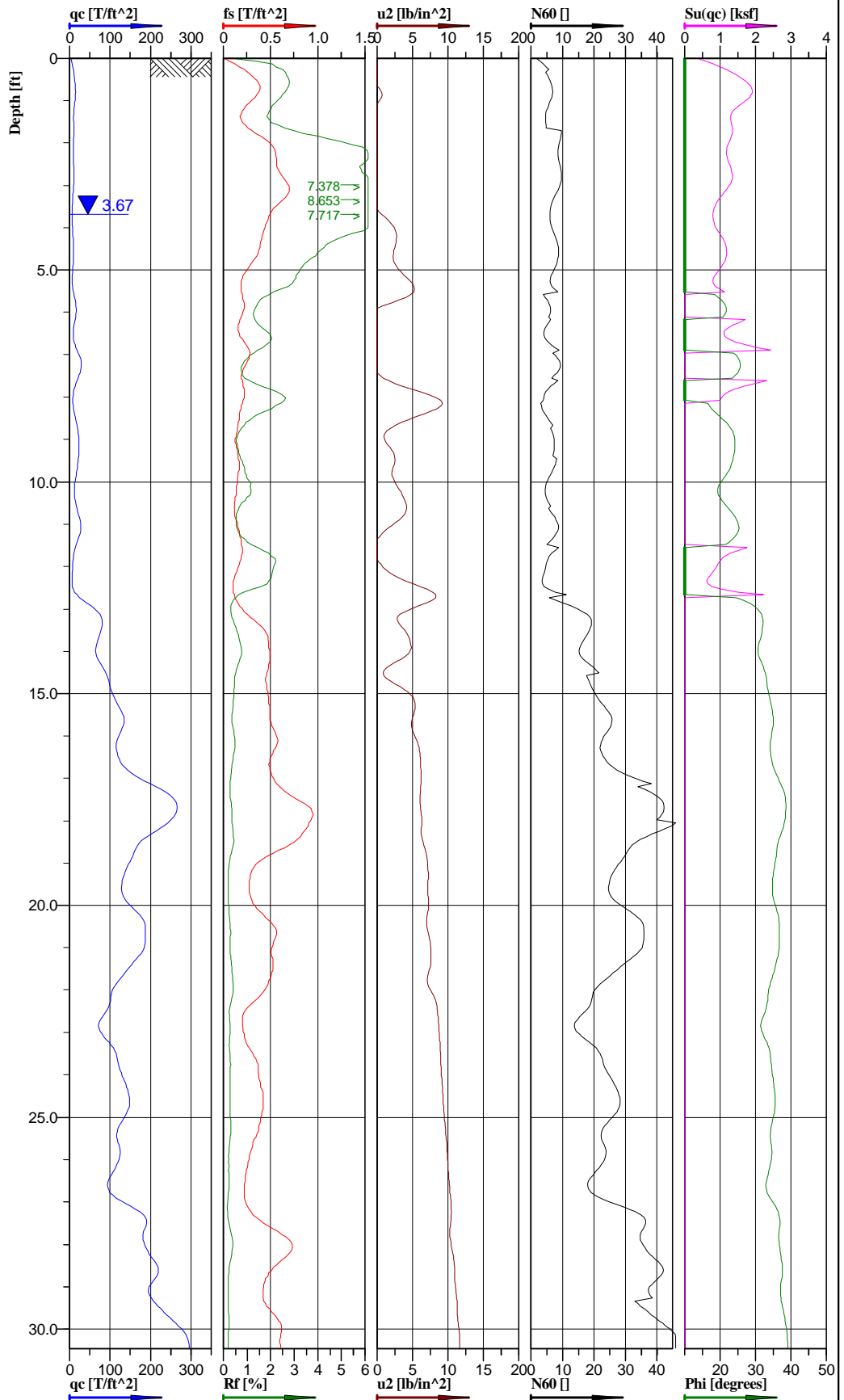
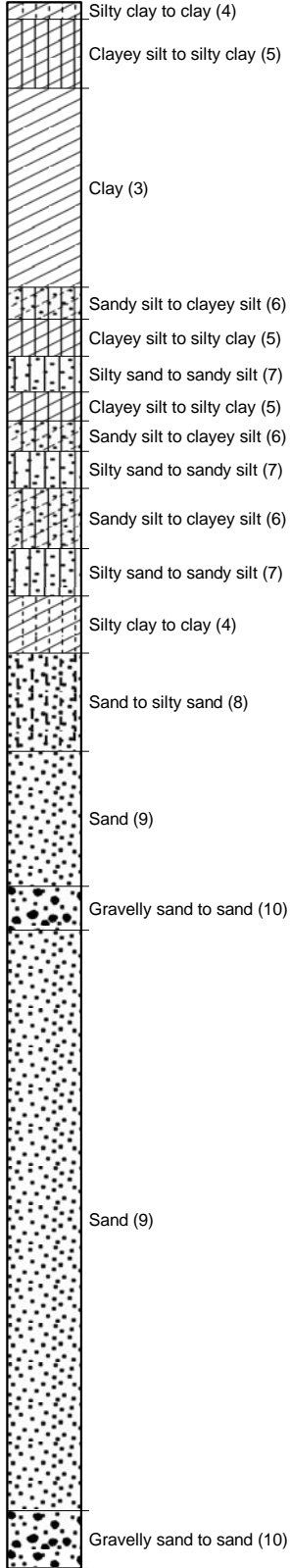
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 727521.56 ft, Y: 994027.10 ft	Ground level: 466.40	Test no: C-60
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/6/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-20
File: Labadie C-060.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-60
 Test date: 11/6/2009
 Location: Labadie MO
 File name: Labadie C-060.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.981	0.038	1.6516	Clay (3)	7.2	1.354	0.007	0.007				1.8	7.2	112	0.15	0.15	406
3.75	0.675	0.065	6.3283	Clay (3)	6.8	0.903	0.02	0.017				1.71	6.8	107	0.42	0.35	271
6.25	0.879	0.044	5.8558	Clay (3)	7.0	1.17	0.033	0.022				1.78	7.0	111	0.69	0.46	351
8.75	2.611	0.035	5.4847	Sand to silty sand (8)	9.4	0.813	0.047	0.028	27.7	65	1.85	6.0	115	0.98	0.58	217	
11.25	6.015	0.038	4.3284	Sand to silty sand (8)	15.0		0.061	0.035	30.6	68	1.94	9.6	121	1.27	0.73	500	
13.75	7.544	0.042	4.9939	Sand (9)	17.4		0.075	0.041	31.7	70	1.95	8.7	122	1.56	0.85	628	
16.25	11.043	0.06	5.9695	Sand (9)	22.1		0.09	0.049	34.1	80	1.99	11.0	124	1.87	1.02	919	
18.75	11.097	0.052	6.9366	Sand (9)	22.2		0.105	0.056	34.1	78	1.99	11.1	124	2.18	1.16	923	
21.25	13.312	0.06	7.7761	Sand (9)	26.6		0.12	0.063	35.1	82	1.99	13.3	124	2.50	1.31	1108	
23.75	16.617	0.072	8.9517	Sand (9)	33.2		0.134	0.07	36.2	86	1.99	16.6	124	2.79	1.46	1383	
26.25	13.321	0.058	9.8292	Sand to silty sand (8)	26.7		0.149	0.078	35.1	79	1.99	17.1	124	3.10	1.62	1108	
28.75	25.063	0.102	11.645	Gravelly sand to sand (10)	44.3		0.164	0.085	37.4	90	2	30.1	125	3.41	1.77	2085	
31.25	35.438	0.162	11.9855	Gravelly sand to sand (10)	59.0		0.175	0.09	40.2	105	2.04	40.1	127	3.64	1.87	2948	

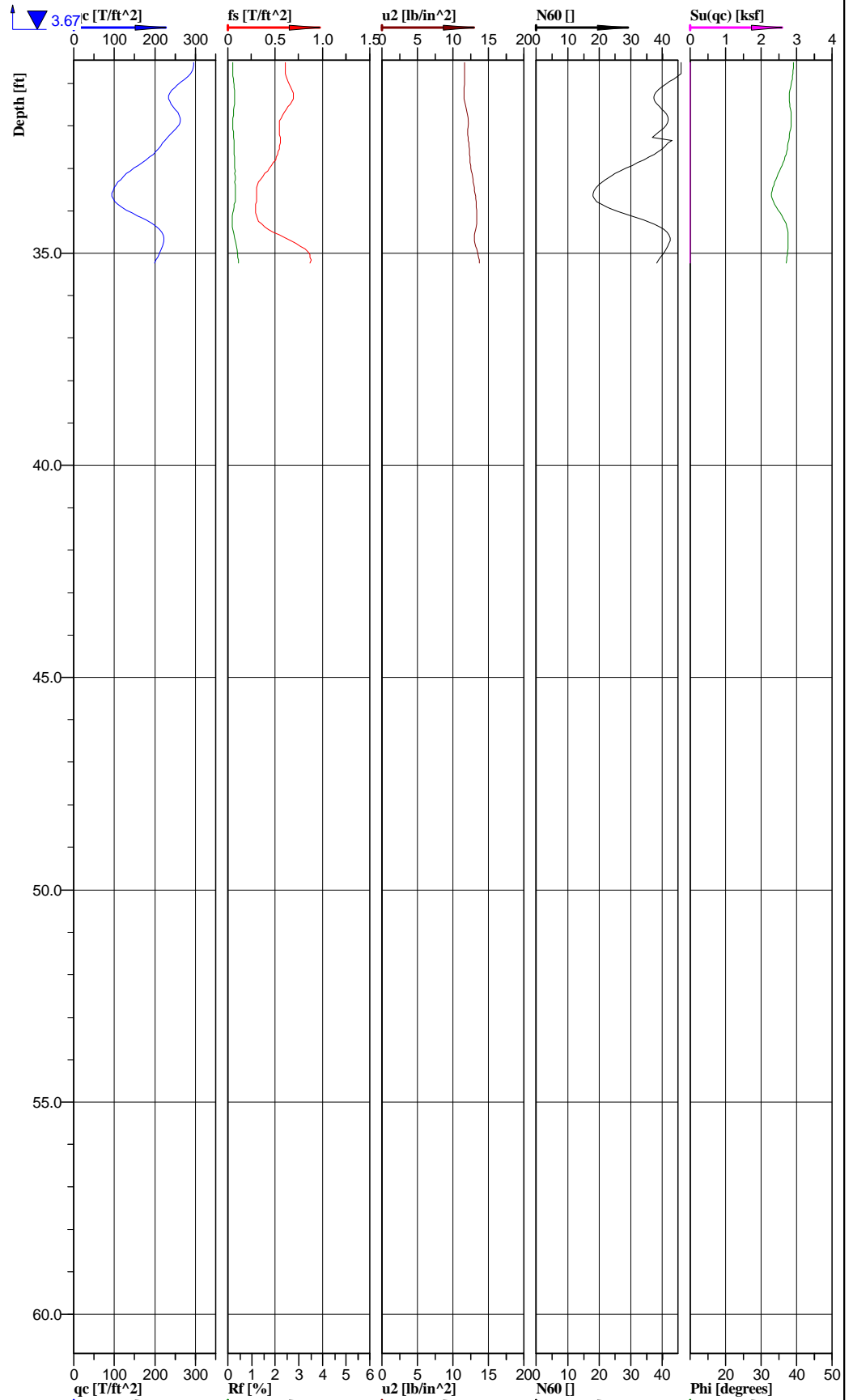
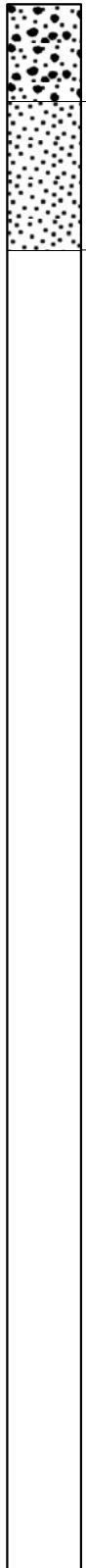
**Classification by
Robertson 1986**



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728113.06 ft, Y: 994016.40 ft	Ground level: 466.21	Test no: C-62
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/6/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-21
File: Labadie C-062.cpd			

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

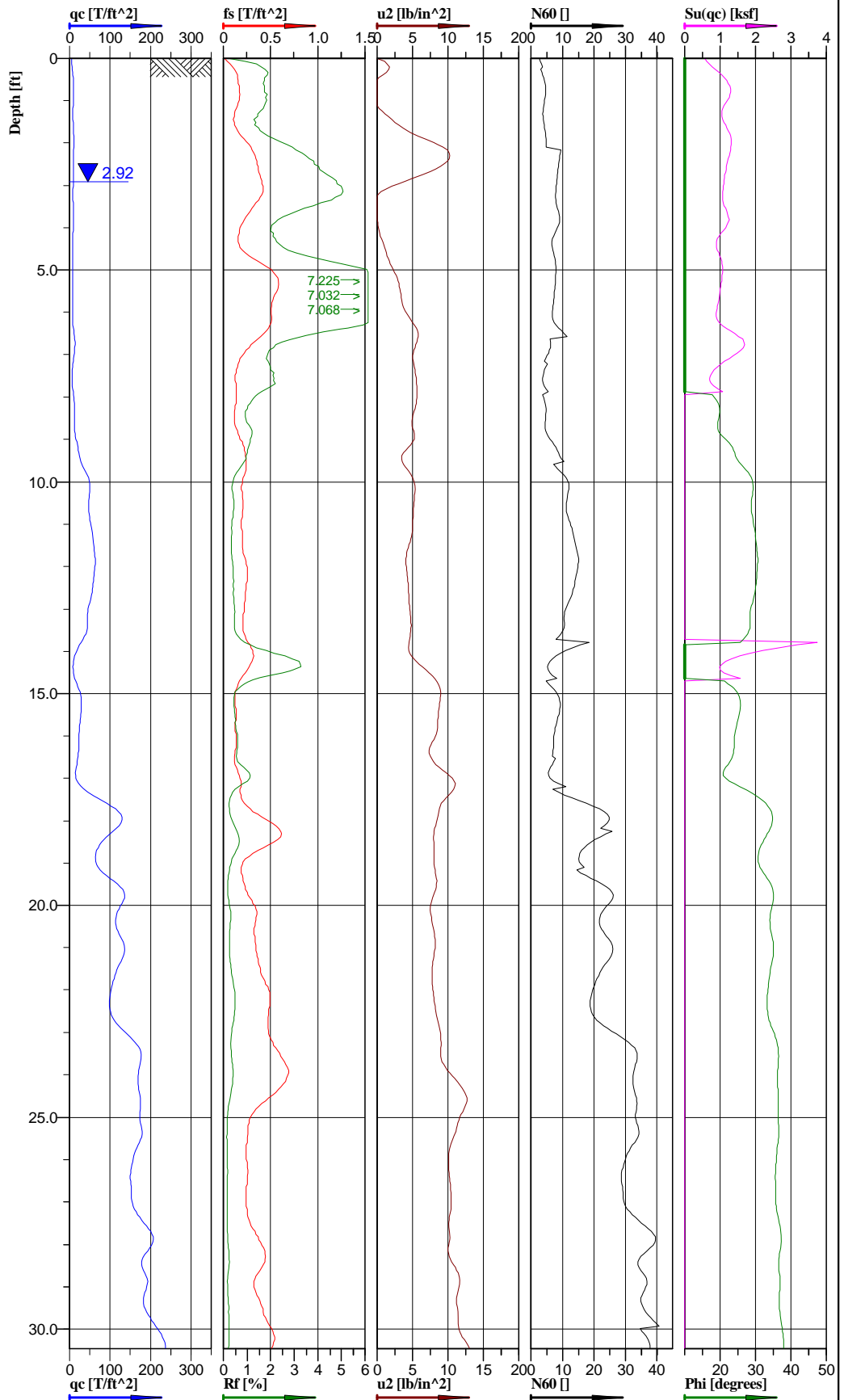
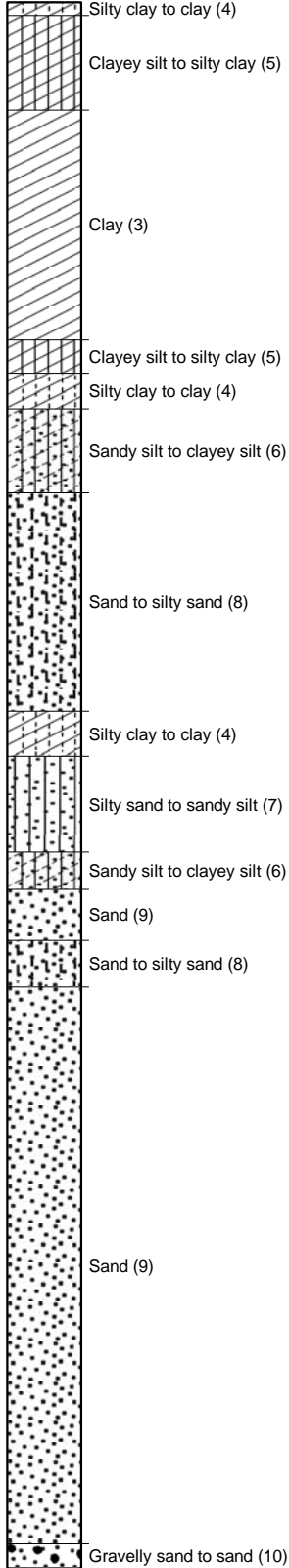


Location: Labadie, MO	Position: X: 728113.06 ft, Y: 994016.40 ft	Ground level: 466.21	Test no: C-62
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/6/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-21
		File: Labadie C-062.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-62
 Test date: 11/6/2009
 Location: Labadie MO
 File name: Labadie C-062.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.978	0.032	-2.0851	Clay (3)	6.6	1.355	0.007	0.007				1.82	6.6	114	0.15	0.15	407
3.75	0.785	0.047	0.2974	Clay (3)	7.9	1.064	0.021	0.019				1.78	7.9	111	0.44	0.40	319
6.25	1.43	0.02	0.2889	Silty sand to sandy silt (7)	6.5	1.26	0.034	0.026	22.9			1.84	4.1	115	0.71	0.54	119
8.75	1.573	0.016	3.6272	Sandy silt to clayey silt (6)	6.1	1.471	0.048	0.032	22.0			1.85	6.1	115	1.00	0.67	131
11.25	1.387	0.014	2.265	Silty clay to clay (4)	5.9	0.978	0.062	0.038	22.4			1.85	5.9	115	1.29	0.79	489
13.75	6.771	0.036	4.0663	Sand (9)	16.3	1.599	0.076	0.045	31.4	68	1.94	8.2	121	1.58	0.94	563	
16.25	14.186	0.052	5.6595	Gravelly sand to sand (10)	27.2		0.09	0.052	35.3	85	2	18.5	125	1.87	1.08	1180	
18.75	17.269	0.055	6.7436	Sand (9)	32.8		0.105	0.059	36.4	89	2	16.4	125	2.18	1.23	1437	
21.25	14.24	0.044	7.4891	Sand (9)	28.5		0.12	0.067	35.4	82	1.99	14.2	124	2.50	1.39	1185	
23.75	11.125	0.031	9.0131	Sand (9)	22.2		0.135	0.074	34.0	74	1.98	11.1	124	2.81	1.54	926	
26.25	12.27	0.028	10.0492	Sand (9)	24.5		0.15	0.081	34.6	75	1.99	12.3	124	3.12	1.68	1021	
28.75	20.356	0.053	10.9434	Gravelly sand to sand (10)	38.3		0.165	0.088	37.4	89	2	26.0	125	3.43	1.83	1694	
31.25	24.894	0.058	11.8145	Sand (9)	42.2		0.18	0.096	38.4	94	2.04	21.1	127	3.74	2.00	2071	
33.75	15.539	0.043	12.9894	Sand (9)	31.1		0.195	0.103	35.7	78	1.99	15.5	124	4.06	2.14	1293	
36.25	19.573	0.083	13.63	Sand (9)	39.1		0.203	0.107	37.2	85	1.99	19.6	124	4.22	2.23	1628	

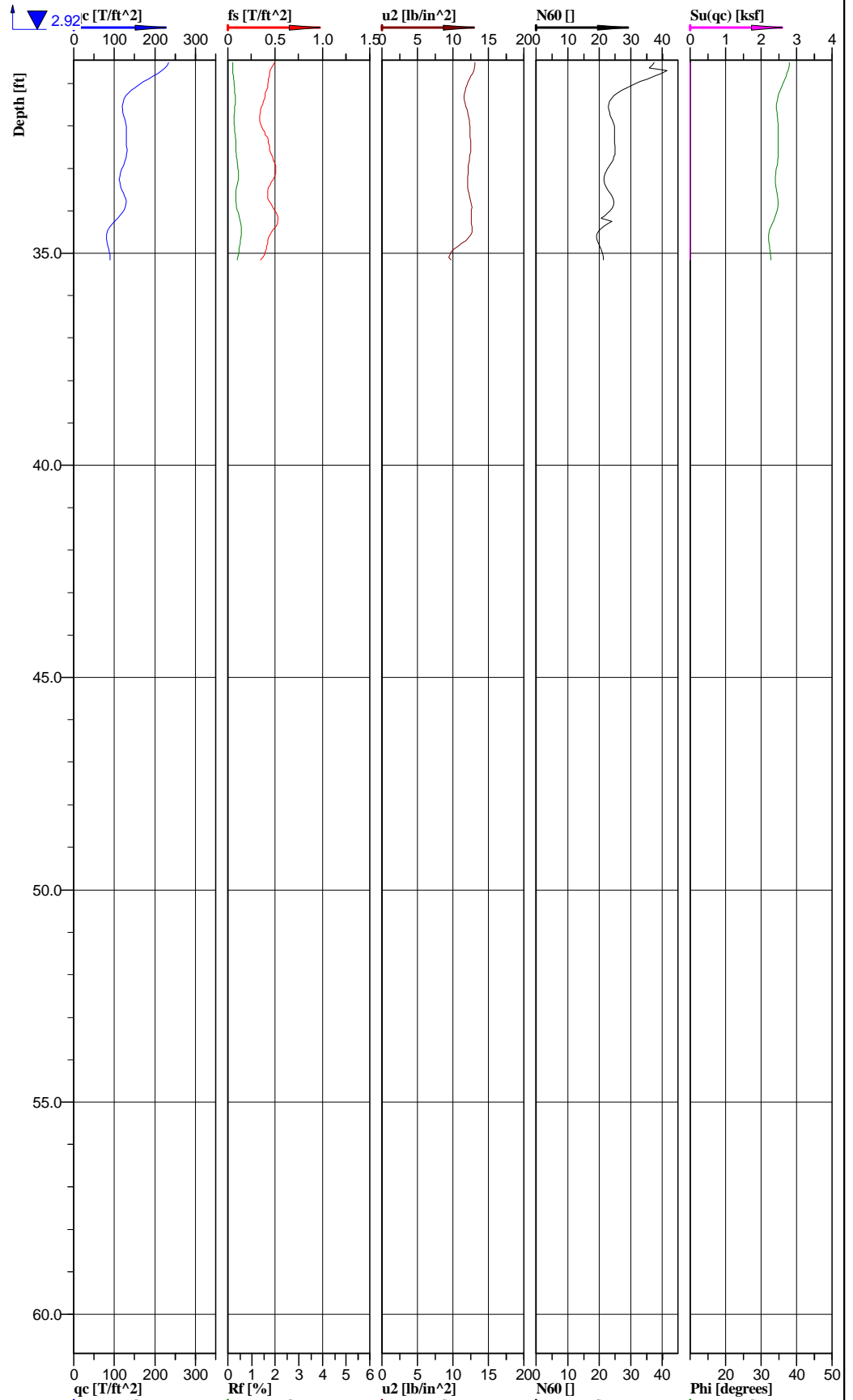
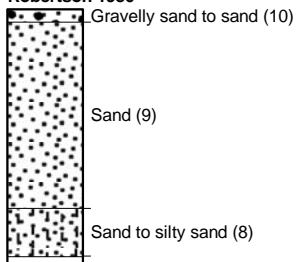
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728865.98 ft, Y: 993995.34 ft	Ground level: 466.60	Test no: C-64
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/6/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-22
File: Labadie C-064.cpd			

Classification by
Robertson 1986



Location:	Labadie, MO	Position:	X: 728865.98 ft, Y: 993995.34 ft	Ground level:	466.60	Test no:	C-64
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/6/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-22
				File:	Labadie C-064.cpd		



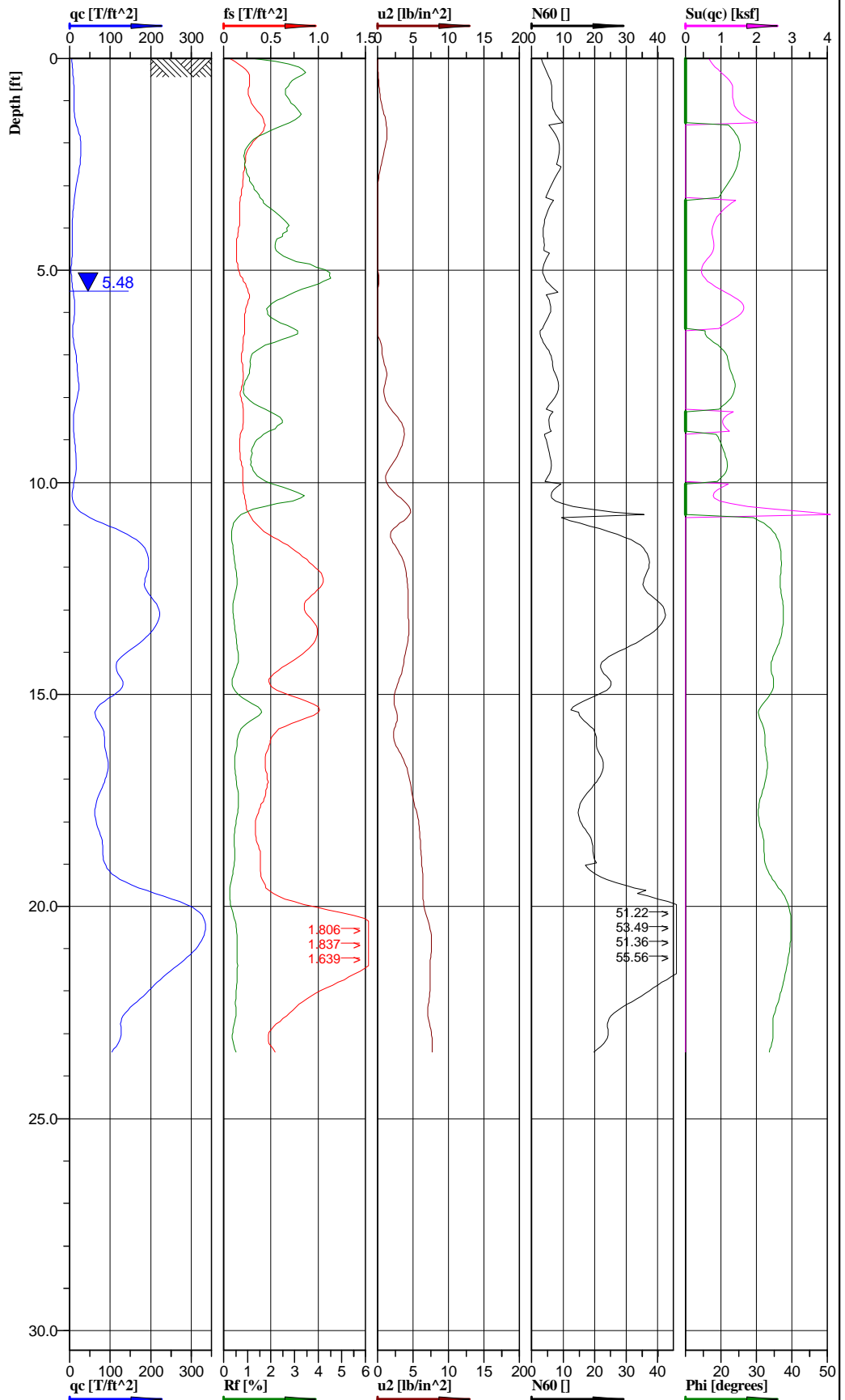
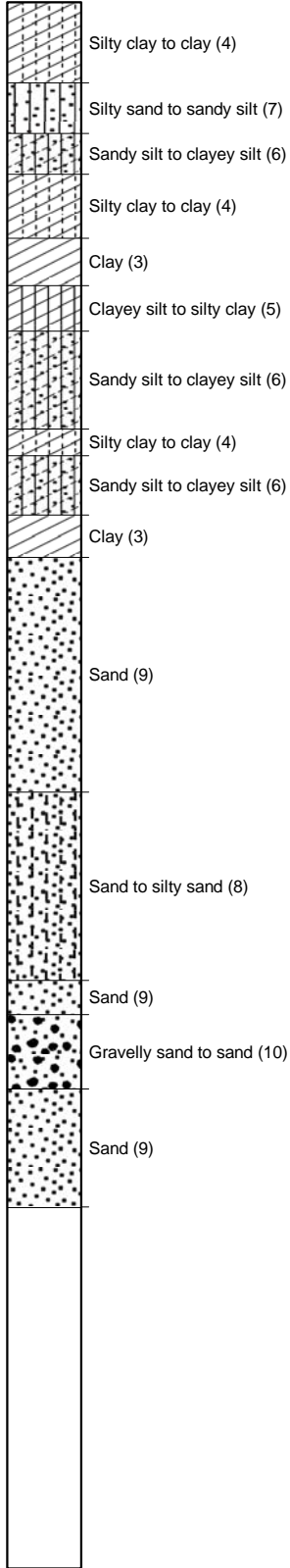
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-64
 Test date: 11/6/2009
 Location: Labadie MO
 File name: Labadie C-064.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.824	0.017	3.2295	Clay (3)	5.0	1.133	0.007	0.007			1.83	5.0	114	0.15	0.15	340
3.75	0.796	0.03	1.6508	Clay (3)	8.0	1.078	0.021	0.018			1.8	8.0	112	0.44	0.37	323
6.25	0.837	0.038	4.4757	Silty clay to clay (4)	6.8	1.112	0.034	0.024			1.81	6.8	113	0.71	0.50	556
8.75	1.857	0.016	4.9066	Sand to silty sand (8)	6.5	0.836	0.048	0.03	22.6	56	1.86	4.1	116	1.00	0.62	155
11.25	5.279	0.02	4.7203	Sand to silty sand (8)	13.2		0.062	0.036	29.8	63	1.94	8.4	121	1.29	0.75	439
13.75	2.944	0.022	5.6554	Silty sand to sandy silt (7)	9.6	1.759	0.076	0.043	27.3	56	1.88	6.2	117	1.58	0.89	245
16.25	2.621	0.014	8.8933	Sand (9)	8.1		0.09	0.049	24.7	58	1.88	4.1	117	1.87	1.02	218
18.75	9.712	0.032	8.2185	Sand (9)	20.7		0.105	0.056	33.2	73	1.97	10.4	123	2.18	1.16	808
21.25	11.111	0.038	7.9044	Sand (9)	22.2		0.119	0.063	34.1	76	1.99	11.1	124	2.48	1.31	924
23.75	15.201	0.05	10.2113	Sand (9)	30.4		0.134	0.071	35.8	84	1.99	15.2	124	2.79	1.48	1265
26.25	15.669	0.024	10.4552	Sand (9)	31.3		0.149	0.078	36.0	83	1.99	15.7	124	3.10	1.62	1304
28.75	18.505	0.038	10.9549	Gravelly sand to sand (10)	36.6		0.164	0.085	36.9	87	1.99	24.9	124	3.41	1.77	1540
31.25	15.729	0.041	12.2759	Sand (9)	29.5		0.179	0.093	35.9	80	2	14.8	125	3.72	1.93	1309
33.75	10.513	0.044	12.0874	Sand to silty sand (8)	22.4		0.194	0.1	33.8	68	1.97	14.3	123	4.04	2.08	875
36.25	8.537	0.035	9.541	Sand to silty sand (8)	21.3		0.202	0.103	32.7	62	1.97	13.6	123	4.20	2.14	710

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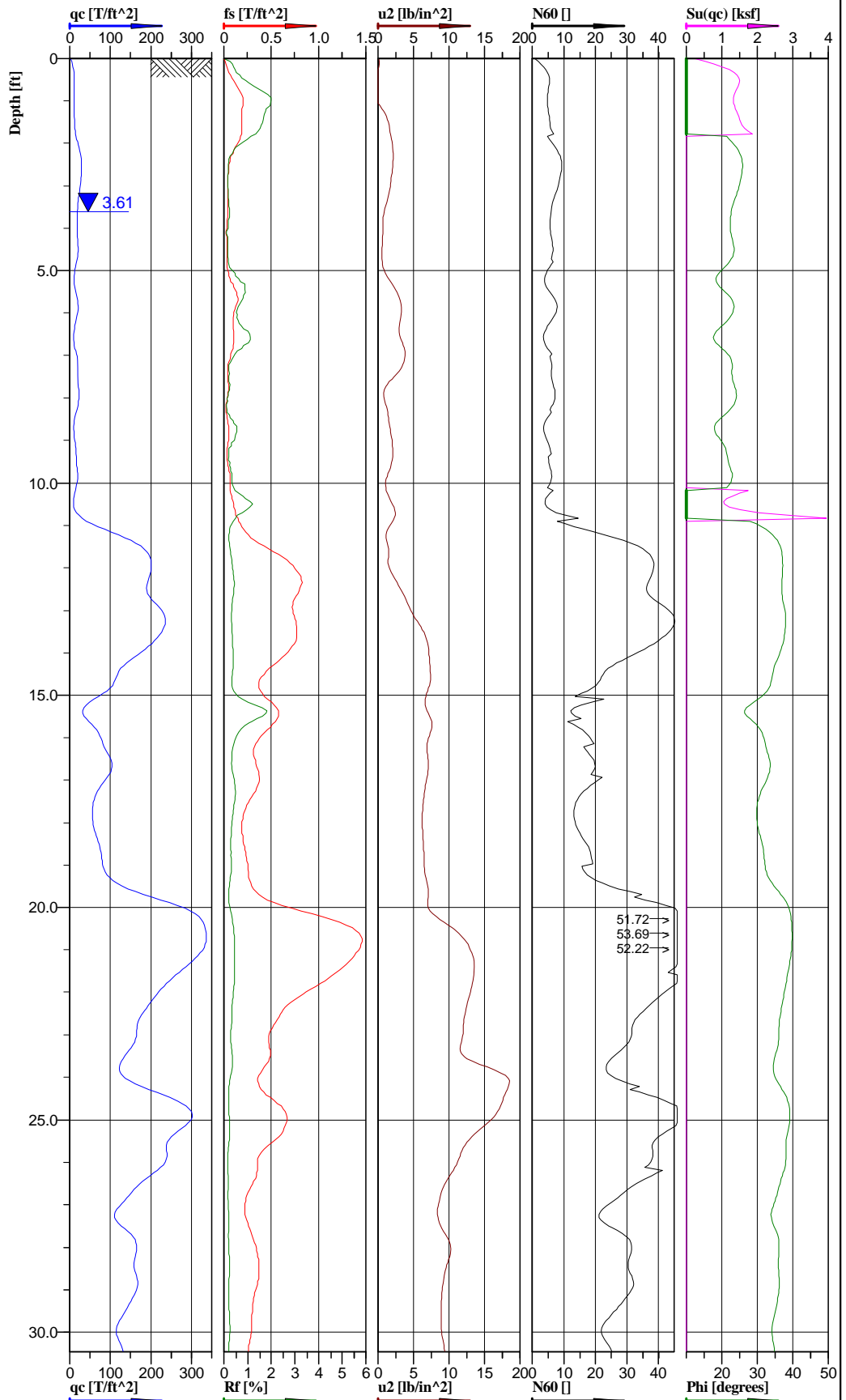
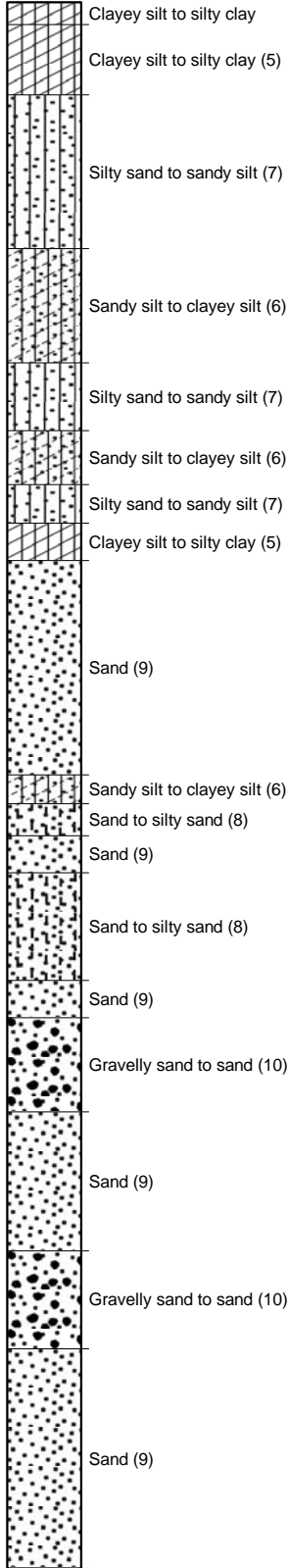
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729457.51 ft, Y: 993980.15 ft	Ground level: 467.68	Test no: C-66
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/7/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-23
		File: Labadie C-066.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-66
 Test date: 11/7/2009
 Location: Labadie MO
 File name: Labadie C-066.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.499	0.028	0.6329	Sandy silt to clayey silt (6)	6.9	1.267	0.007	0.007	24.6		1.84	6.9	115	0.15	0.15	125
3.75	0.936	0.016	-0.2127	Clay (3)	5.1	0.802	0.021	0.021	22.1		1.82	5.1	114	0.44	0.44	241
6.25	1.086	0.021	0.2446	Sandy silt to clayey silt (6)	5.4	1.134	0.034	0.032	20.3		1.82	5.4	114	0.71	0.67	90
8.75	1.377	0.018	2.1824	Clay (3)	6.1	1.159	0.048	0.038	21.4		1.84	6.1	115	1.00	0.79	348
11.25	11.16	0.056	3.2573	Sand (9)	25.5	1.703	0.062	0.044	35.7	89	1.94	12.7	121	1.29	0.92	929
13.75	16.016	0.077	3.838	Sand (9)	32.0		0.077	0.052	36.0	89	1.99	16.0	124	1.60	1.08	1333
16.25	7.874	0.056	3.3577	Sand to silty sand (8)	19.1		0.091	0.059	32.1	68	1.94	12.2	121	1.89	1.23	655
18.75	11.061	0.041	6.0524	Gravelly sand to sand (10)	22.9		0.106	0.065	33.3	72	1.96	15.6	122	2.20	1.35	920
21.25	25.134	0.132	7.3069	Sand (9)	45.8		0.121	0.073	38.3	97	2.01	22.9	125	2.52	1.52	2091
23.75	11.817	0.052	7.4588	Sand (9)	23.6		0.131	0.078	34.5	75	1.99	11.8	124	2.72	1.62	983

Classification by Robertson 1986

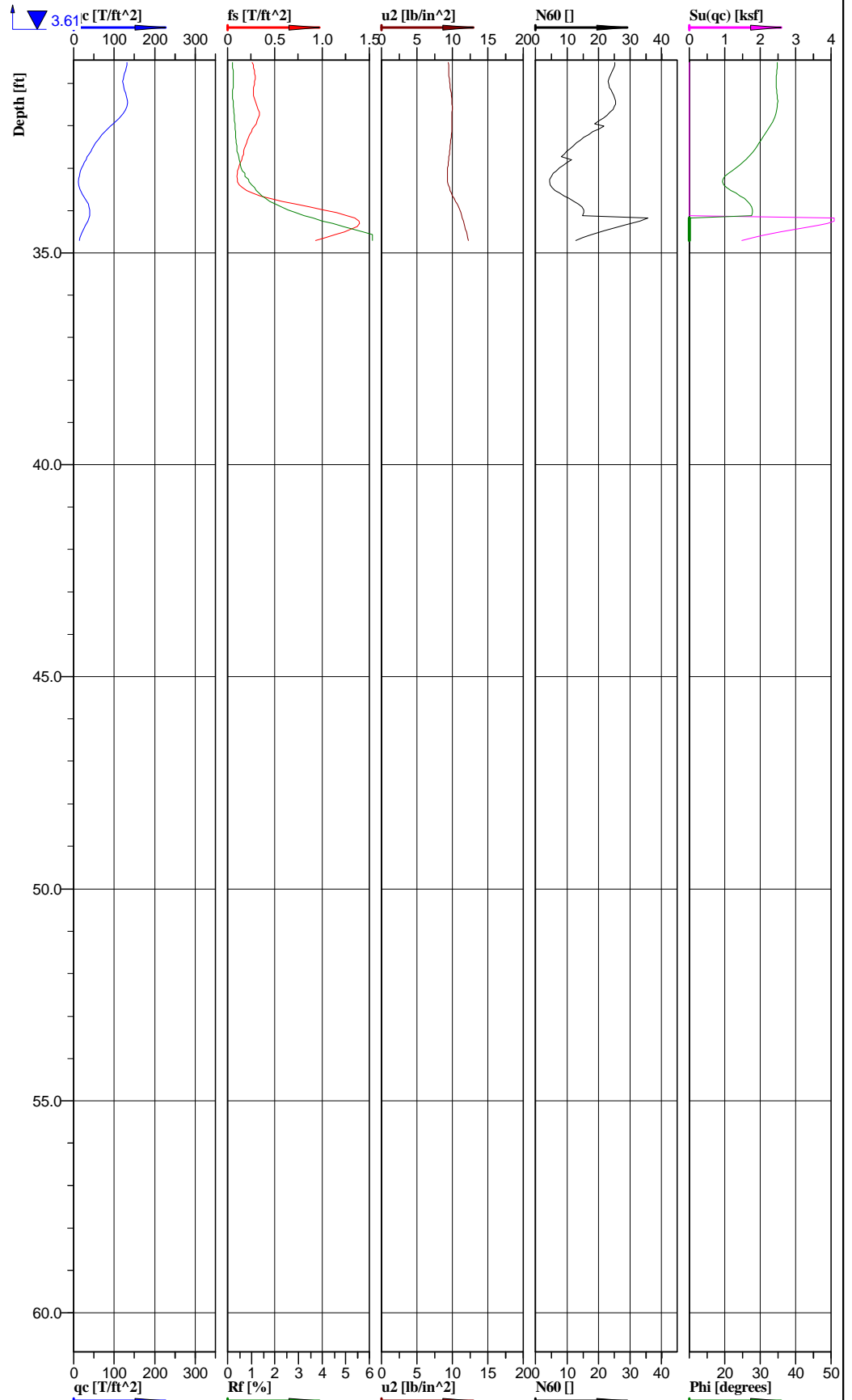
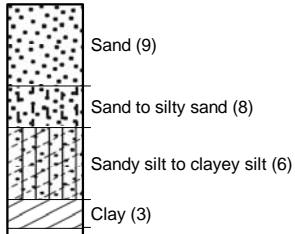


Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 729455.31 ft, Y: 993983.56 ft	Ground level: 467.59	Test no: C-66A
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-24
Confirmation Sounding adjacent to C-66		File: Labadie C-066A.cpd	

Classification by Robertson 1986



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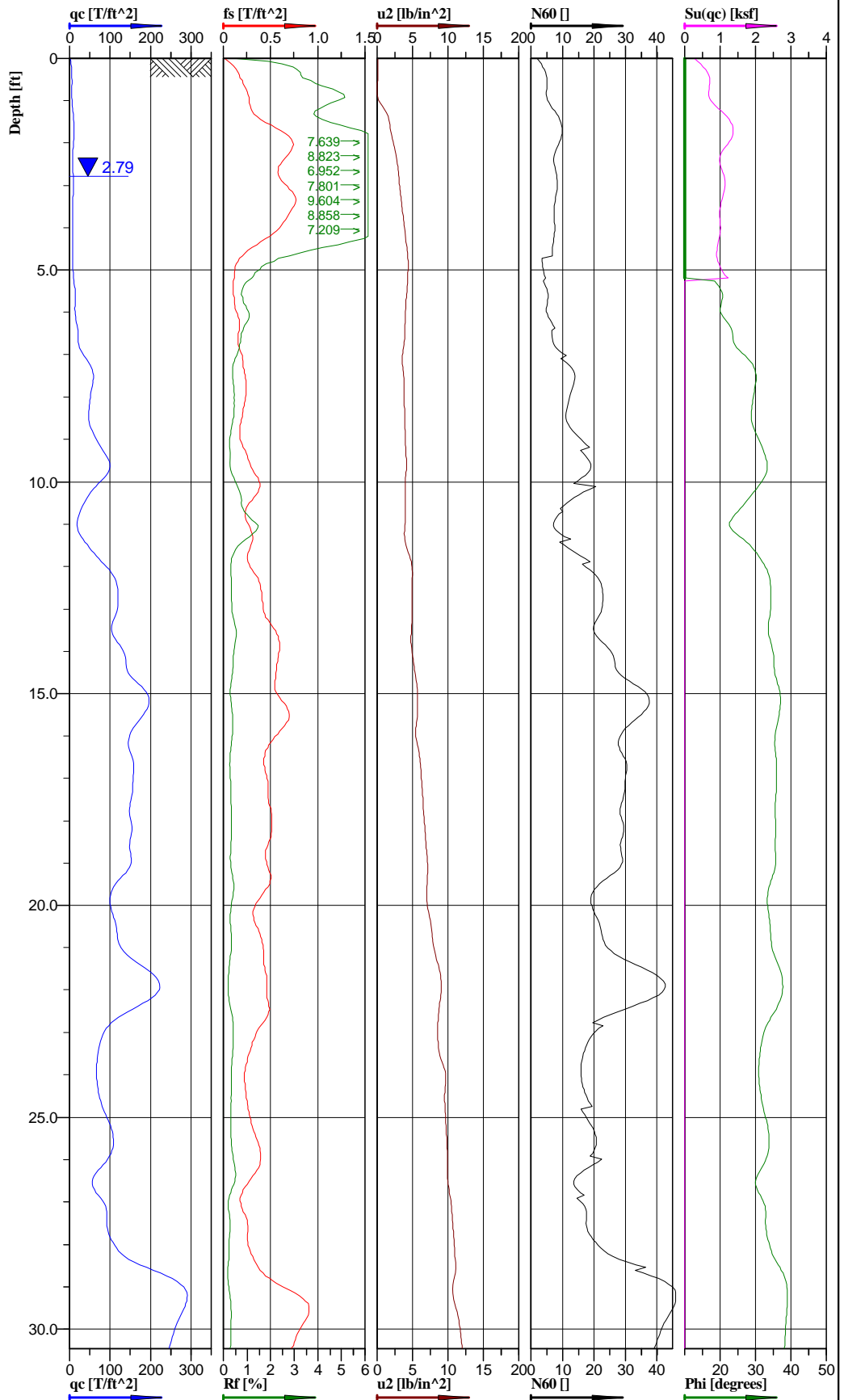
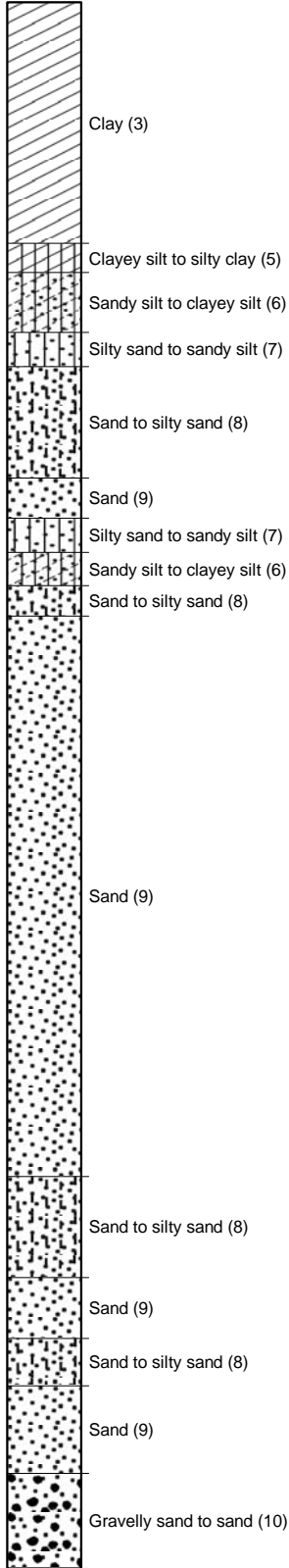
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729455.31 ft, Y: 993983.56 ft	Ground level: 467.59	Test no: C-66A
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-24
Confirmation Sounding adjacent to C-66		File: Labadie C-066A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-66A
 Test date: 12/28/2009
 Location: Labadie MO
 File name: Labadie C-066A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.374	0.012	0.6123	Silty sand to sandy silt (7)	5.7	1.341	0.007	0.007	24.3		1.84	3.7	115	0.15	0.15	114
3.75	1.976	0.004	1.0421	Sandy silt to clayey silt (6)	6.7		0.021	0.02	23.2		1.88	6.7	117	0.44	0.42	164
6.25	1.455	0.009	2.9152	Silty sand to sandy silt (7)	5.5		0.035	0.027	21.0		1.85	3.5	115	0.73	0.56	121
8.75	1.583	0.004	1.4991	Silty sand to sandy silt (7)	5.6		0.049	0.033	21.6		1.86	3.6	116	1.02	0.69	132
11.25	10.809	0.038	1.7712	Sand (9)	22.8	1.758	0.063	0.04	34.6	90	1.94	11.4	121	1.31	0.83	899
13.75	16.699	0.06	6.1681	Sand (9)	33.4		0.078	0.047	36.1	91	1.99	16.7	124	1.62	0.98	1389
16.25	6.884	0.038	6.9332	Sand to silty sand (8)	17.0		0.092	0.054	31.0	67	1.94	10.9	121	1.91	1.12	573
18.75	9.85	0.027	6.5447	Gravelly sand to sand (10)	20.5		0.107	0.061	32.6	70	1.96	14.0	122	2.23	1.27	820
21.25	26.582	0.106	11.967	Sand (9)	46.9		0.122	0.068	38.7	100	2.02	23.5	126	2.54	1.41	2212
23.75	17.888	0.047	14.8164	Gravelly sand to sand (10)	33.1		0.137	0.075	36.5	86	2	22.5	125	2.85	1.56	1488
26.25	18.655	0.035	10.7376	Sand (9)	33.7		0.152	0.083	36.7	86	2.01	16.8	125	3.16	1.73	1552
28.75	14.337	0.031	9.3339	Sand (9)	28.7		0.167	0.09	35.5	79	1.99	14.3	124	3.47	1.87	1193
31.25	10.6	0.026	9.6596	Sand to silty sand (8)	21.9		0.182	0.097	33.7	68	1.98	14.0	124	3.79	2.02	882
33.75	2.507	0.056	10.3875	Sandy silt to clayey silt (6)	13.2	3.036	0.195	0.104	24.4	39	1.84	13.2	115	4.06	2.16	209

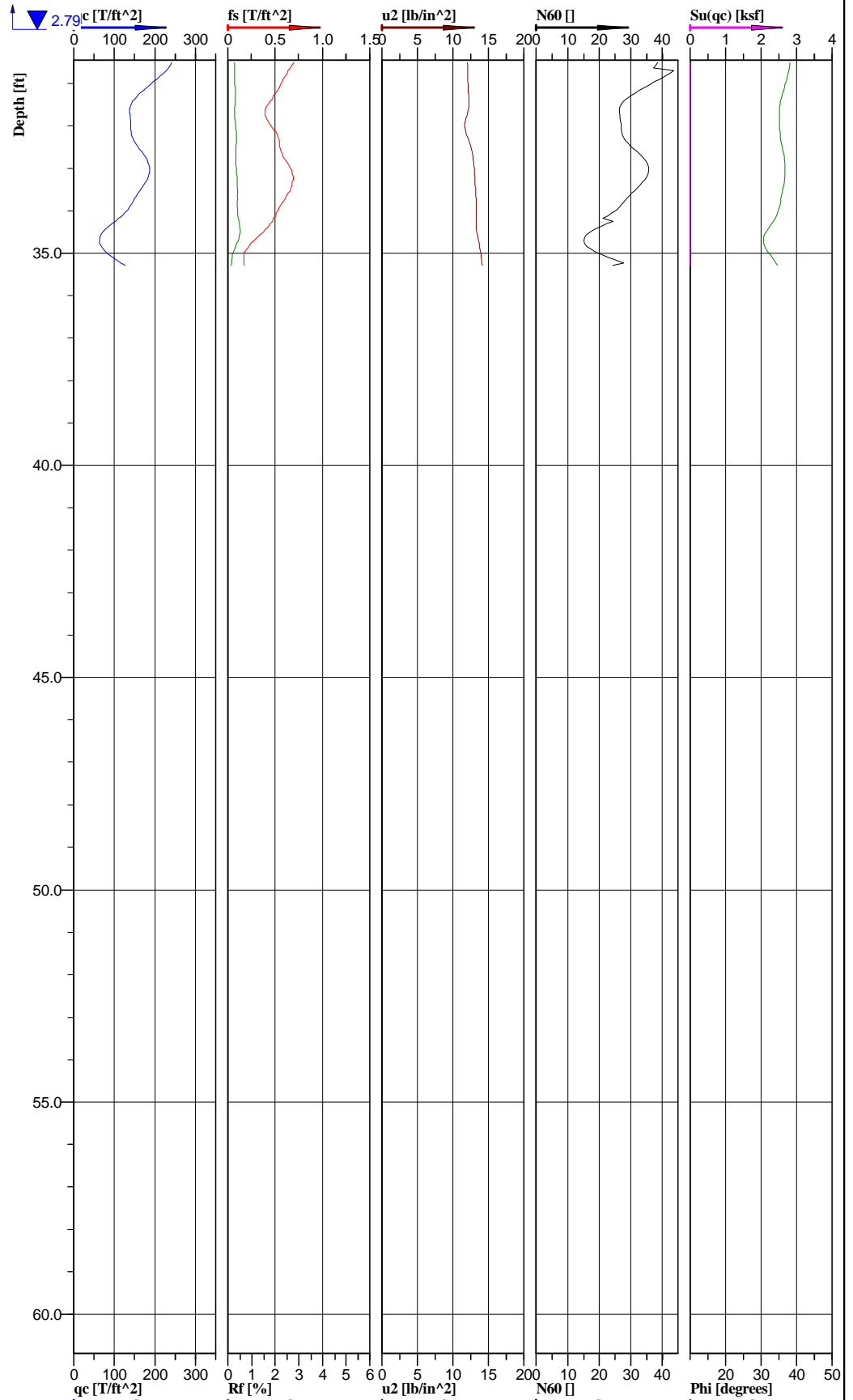
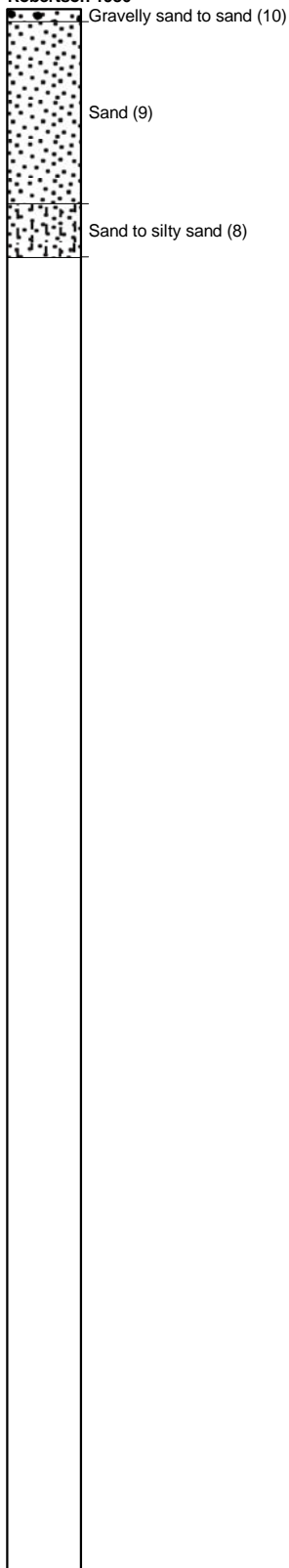
Classification by Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730078.54 ft, Y: 993969.55 ft	Ground level: 466.11	Test no: C-68
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/7/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-25
		File: Labadie C-068.cpd	

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

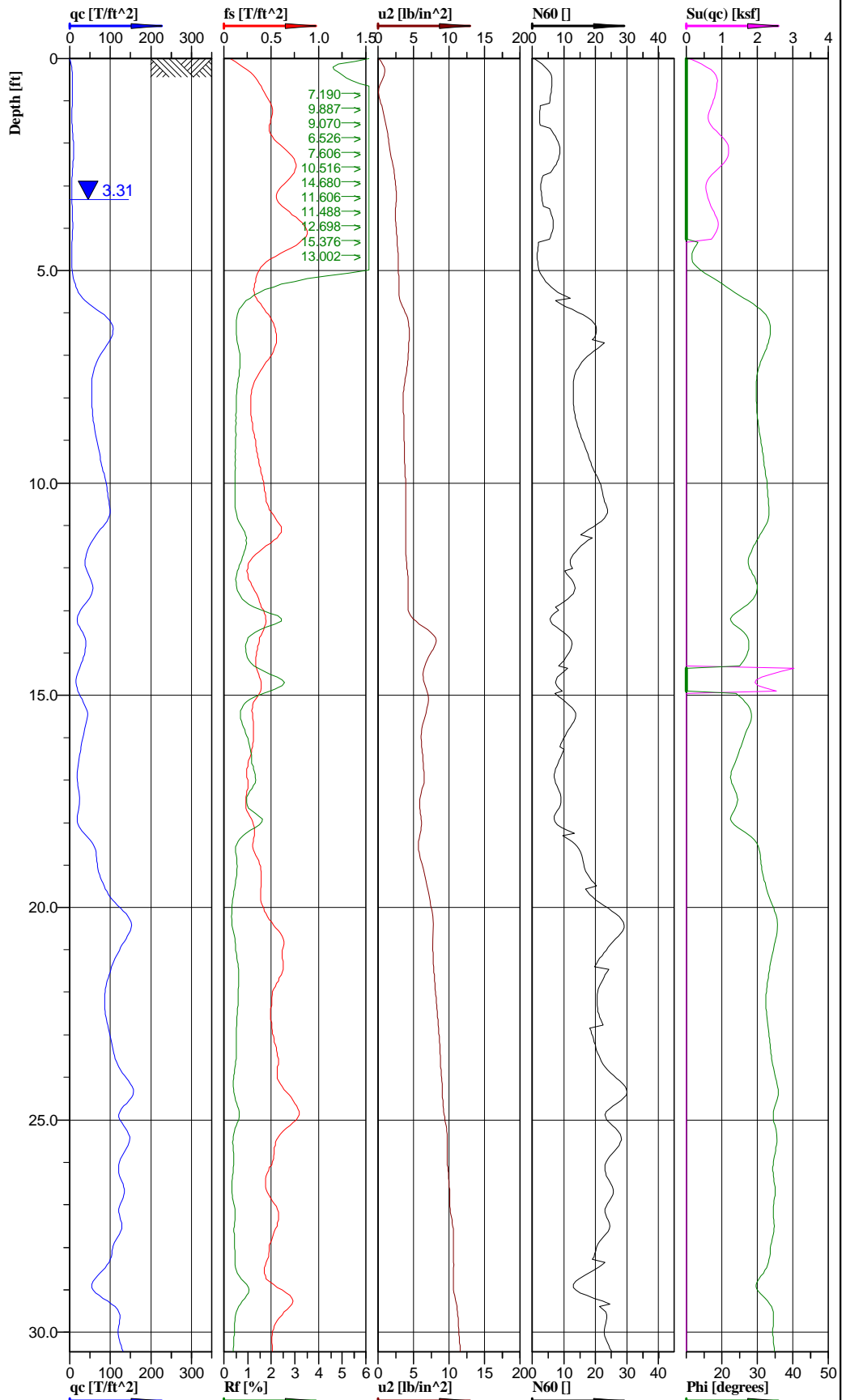
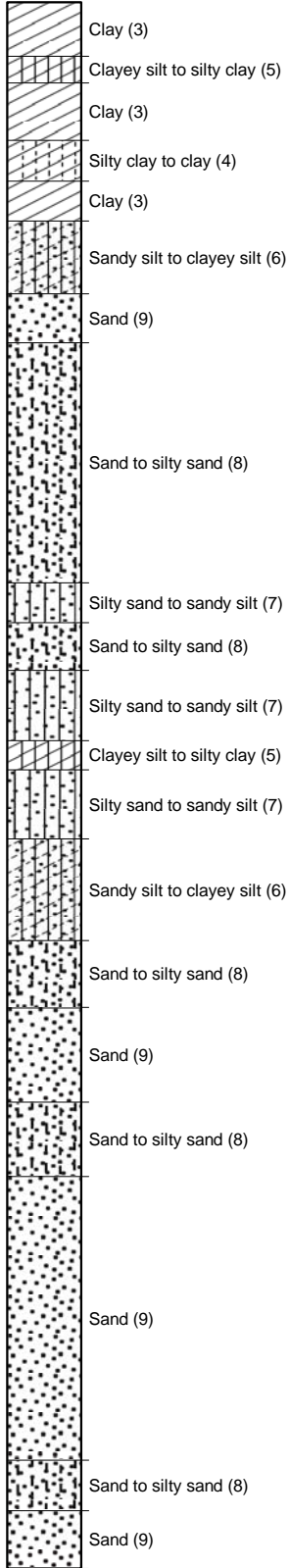


Location: Labadie, MO	Position: X: 730078.54 ft, Y: 993969.55 ft	Ground level: 466.11	Test no: C-68
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/7/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-25
File: Labadie C-068.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-68
 Test date: 11/7/2009
 Location: Labadie MO
 File name: Labadie C-068.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.674	0.038	1.2031	Clay (3)	6.7	0.927	0.007	0.007				1.78	6.7	111	0.15	0.15	278
3.75	0.753	0.049	3.7116	Clayey silt to silty clay (5)	7.0	1.016	0.02	0.017				1.79	7.0	112	0.42	0.35	610
6.25	2.32	0.015	3.9221	Sand to silty sand (8)	7.4	1.152	0.034	0.023	23.6	66	1.87	4.7	117	0.71	0.48	193	
8.75	6.392	0.023	3.9262	Sand (9)	14.5		0.048	0.03	30.7	70	1.95	7.3	122	1.00	0.62	532	
11.25	5.521	0.029	4.276	Sand (9)	14.2		0.063	0.037	28.8	73	1.91	7.1	119	1.31	0.77	459	
13.75	12.646	0.05	5.0668	Sand (9)	25.3		0.077	0.044	34.8	85	1.99	12.6	124	1.60	0.92	1052	
16.25	15.623	0.051	5.9034	Sand (9)	31.2		0.092	0.051	36.0	89	1.99	15.6	124	1.91	1.06	1300	
18.75	13.143	0.045	6.8734	Sand (9)	26.3		0.107	0.058	35.0	82	1.99	13.1	124	2.23	1.21	1093	
21.25	14.972	0.04	8.2709	Sand (9)	29.9		0.122	0.065	35.6	84	2	15.0	125	2.54	1.35	1246	
23.75	7.779	0.028	9.1298	Sand (9)	18.3		0.136	0.072	32.0	64	1.95	9.1	122	2.83	1.50	647	
26.25	8.349	0.028	10.0583	Sand (9)	17.8		0.151	0.08	32.4	65	1.97	8.9	123	3.14	1.66	695	
28.75	20.041	0.053	11.0155	Gravelly sand to sand (10)	35.0		0.166	0.087	36.9	87	2.02	23.8	126	3.45	1.81	1667	
31.25	17.529	0.054	12.0443	Sand (9)	33.0		0.181	0.094	36.5	83	2	16.5	125	3.76	1.96	1458	
33.75	12.766	0.049	13.2359	Sand to silty sand (8)	26.7		0.196	0.102	34.5	72	1.97	17.1	123	4.08	2.12	1062	
36.25	10.168	0.016	14.0302	Sand to silty sand (8)	24.2		0.204	0.105	33.6	66	1.99	15.5	124	4.24	2.18	846	

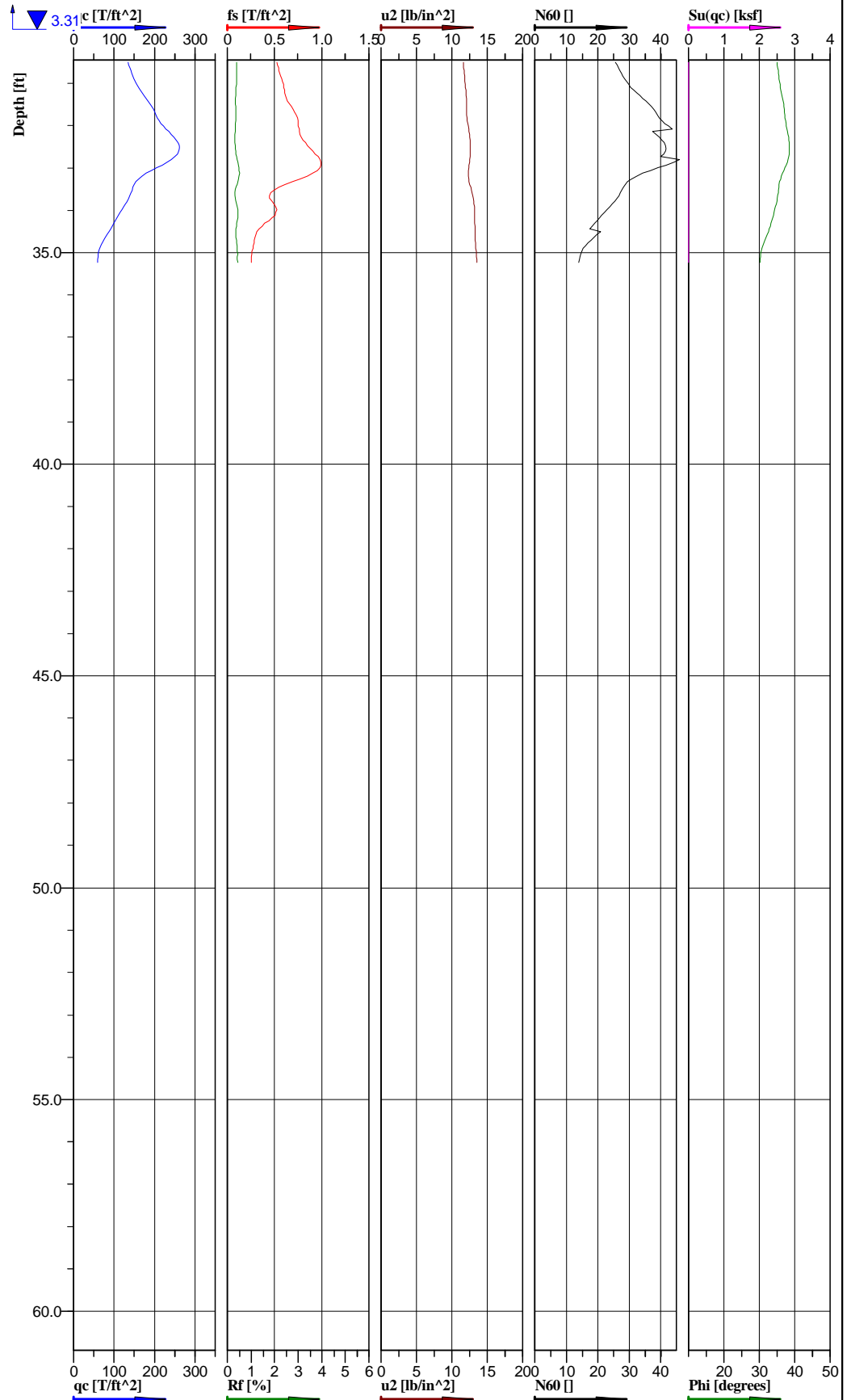
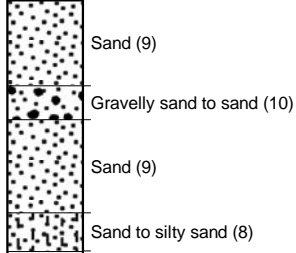
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730636.68 ft, Y: 993949.84 ft	Ground level: 466.01	Test no: C-70
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/7/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-26
File: Labadie C-070.cpd			

Classification by Robertson 1986



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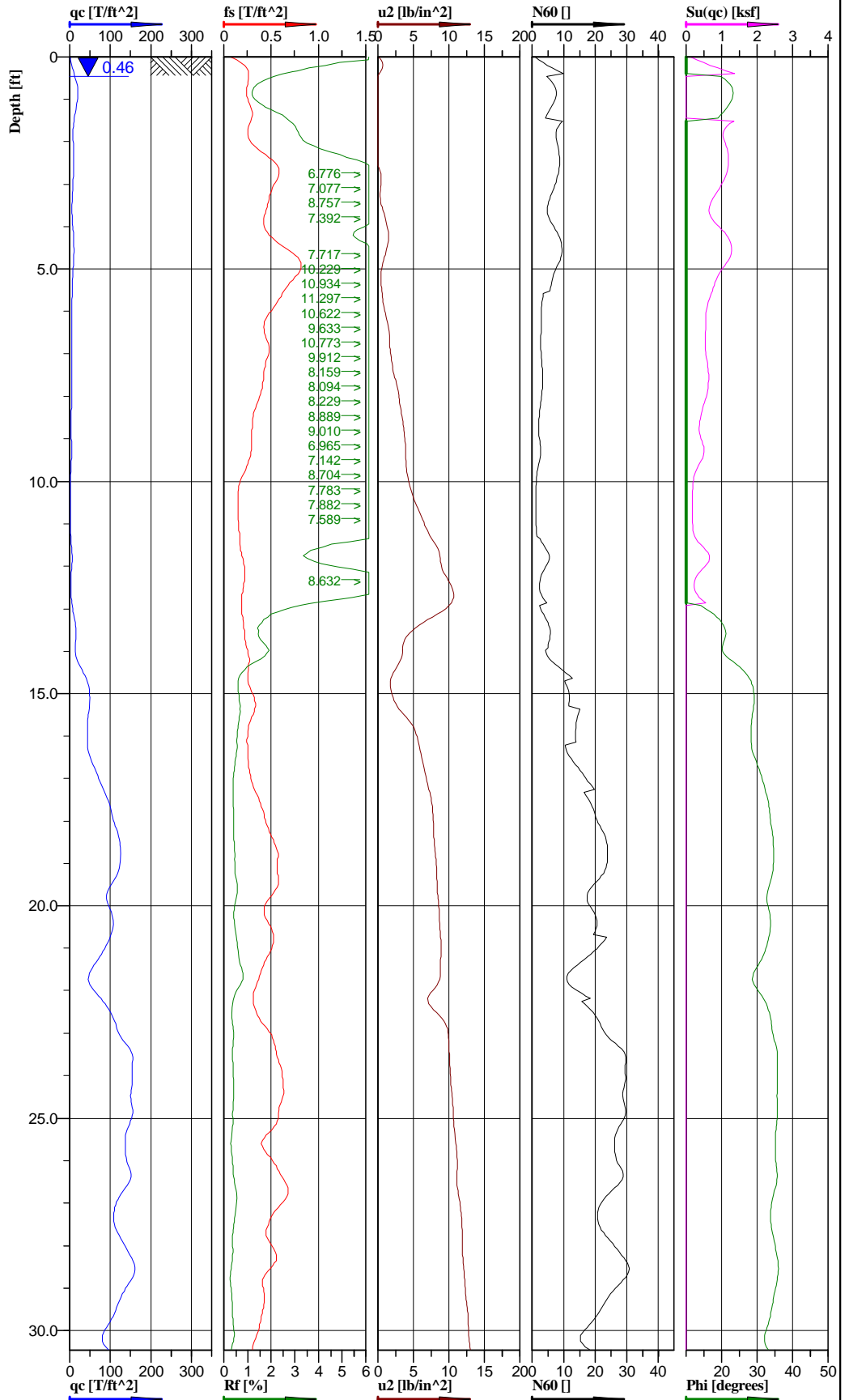
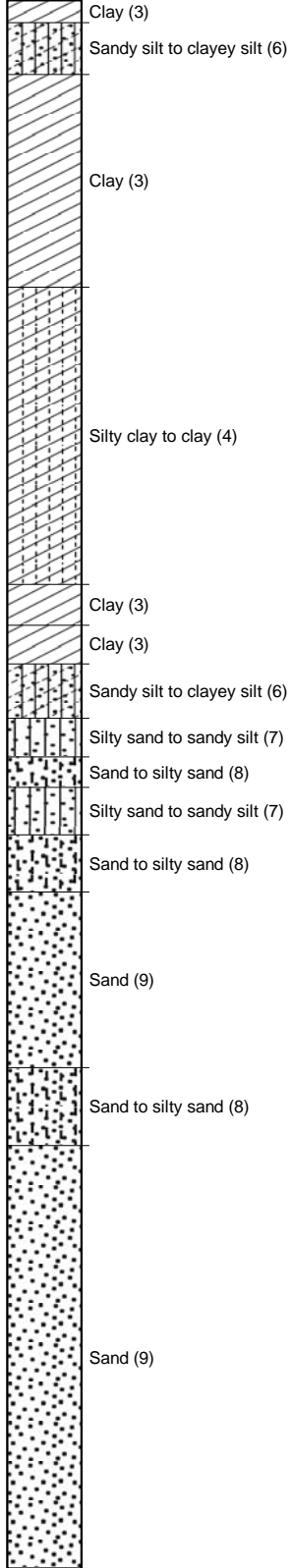
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730636.68 ft, Y: 993949.84 ft	Ground level: 466.01	Test no: C-70
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/7/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-26
File: Labadie C-070.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-70
 Test date: 11/7/2009
 Location: Labadie MO
 File name: Labadie C-070.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.599	0.045	0.9682	Clay (3)	5.5	0.824	0.006	0.006				1.68	5.5	105	0.12	0.12	247
3.75	0.52	0.063	2.5758	Sandy silt to clayey silt (6)	3.9	0.732	0.018	0.016	12.6			1.46	3.9	91	0.37	0.33	43
6.25	5.975	0.042	3.7826	Sand to silty sand (8)	14.0		0.03	0.021	28.9	80		1.79	8.9	112	0.62	0.44	497
8.75	6.336	0.032	3.6707	Sand to silty sand (8)	15.8		0.044	0.028	30.8	72		1.94	10.1	121	0.92	0.58	527
11.25	6.535	0.04	3.957	Sand to silty sand (8)	17.4		0.059	0.034	30.7	73		1.93	11.2	120	1.23	0.71	544
13.75	2.842	0.036	6.2067	Silty sand to sandy silt (7)	9.5	2.32	0.073	0.041	26.2	56		1.89	6.1	118	1.52	0.85	236
16.25	2.727	0.027	6.3726	Sandy silt to clayey silt (6)	9.8		0.087	0.047	25.3			1.86	9.8	116	1.81	0.98	227
18.75	5.809	0.033	6.3261	Sand (9)	14.5		0.101	0.054	29.2	66		1.92	7.2	120	2.10	1.12	483
21.25	10.865	0.053	7.8798	Sand to silty sand (8)	23.6		0.115	0.061	33.9	76		1.97	15.1	123	2.39	1.27	904
23.75	11.507	0.058	8.855	Sand (9)	23.6		0.13	0.068	34.3	76		1.98	11.8	124	2.70	1.41	957
26.25	12.476	0.052	9.9387	Sand (9)	24.9		0.145	0.075	34.8	77		1.99	12.5	124	3.02	1.56	1038
28.75	9.488	0.052	10.827	Sand (9)	20.4		0.16	0.082	33.1	67		1.97	10.2	123	3.33	1.71	789
31.25	17.258	0.062	11.9882	Gravelly sand to sand (10)	33.1		0.175	0.09	36.4	83		2	22.5	125	3.64	1.87	1436
33.75	13.544	0.055	12.9228	Sand to silty sand (8)	27.0		0.19	0.097	34.7	74		1.98	17.3	124	3.95	2.02	1127
36.25	5.703	0.024	13.5068	Sand to silty sand (8)	14.2		0.198	0.101	30.3	51		1.94	9.1	121	4.12	2.10	474

Classification by
Robertson 1986



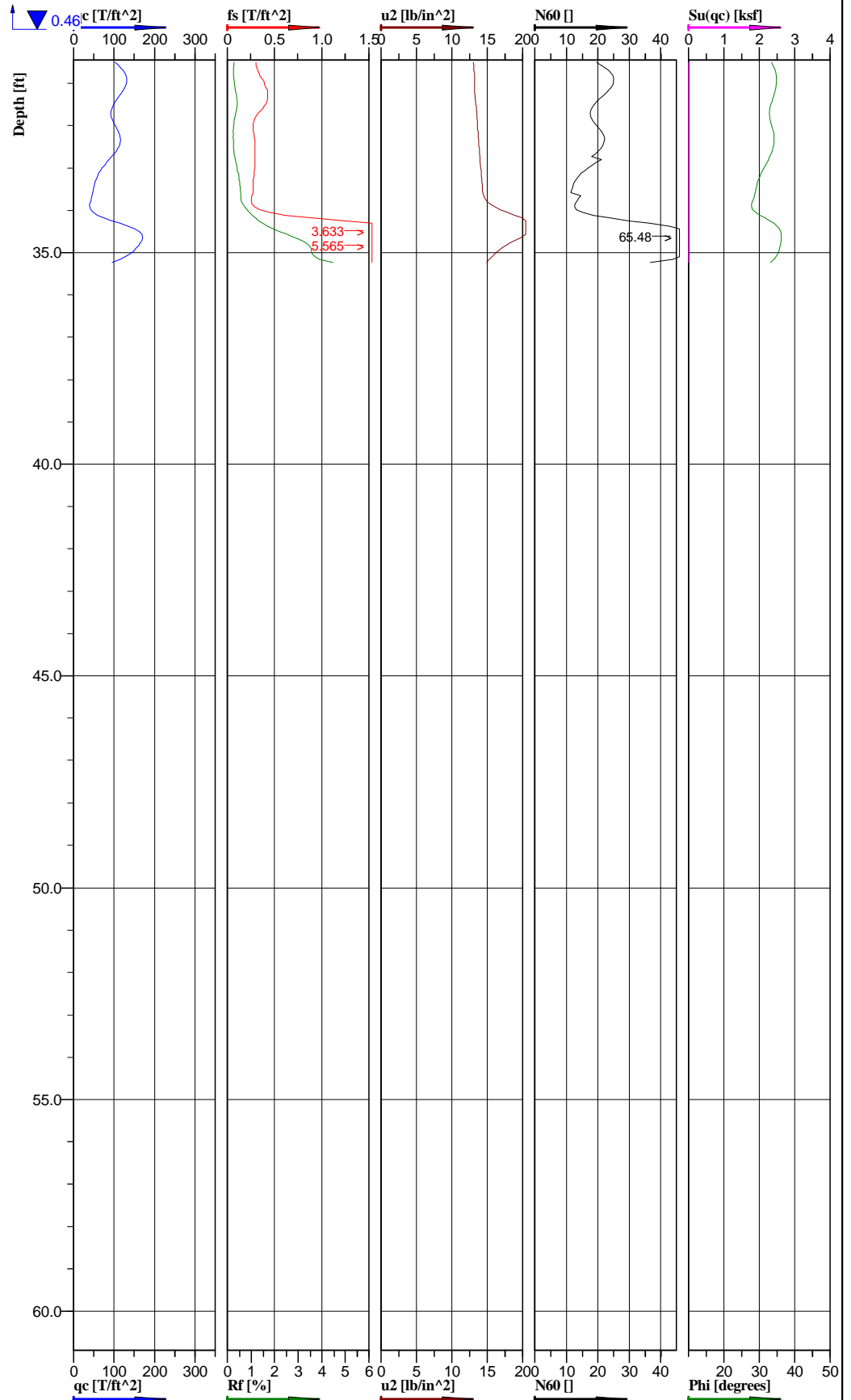
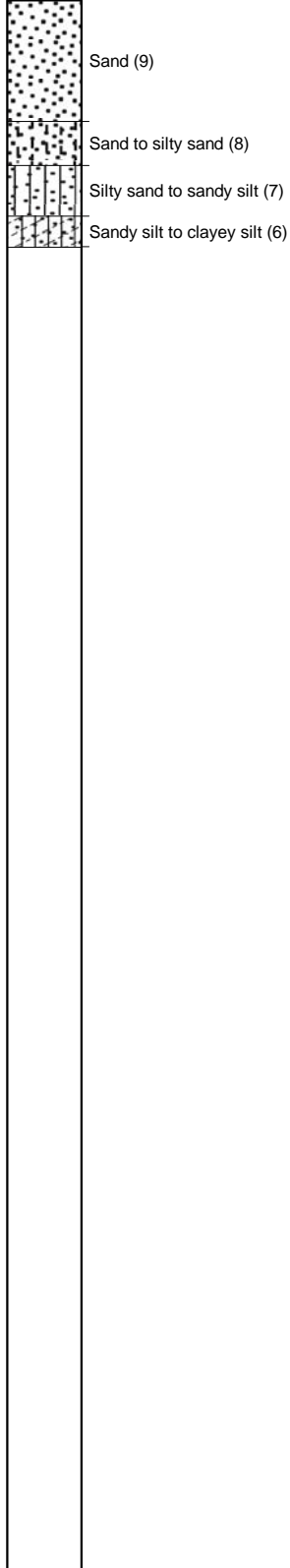
REITZ & JENS, INC.
CONSULTING ENGINEERS

Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 727218.57 ft, Y: 993741.14 ft	Ground level: 464.60	Test no: C-74
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-27
		File: Labadie C-074.cpd	

Classification by Robertson 1986



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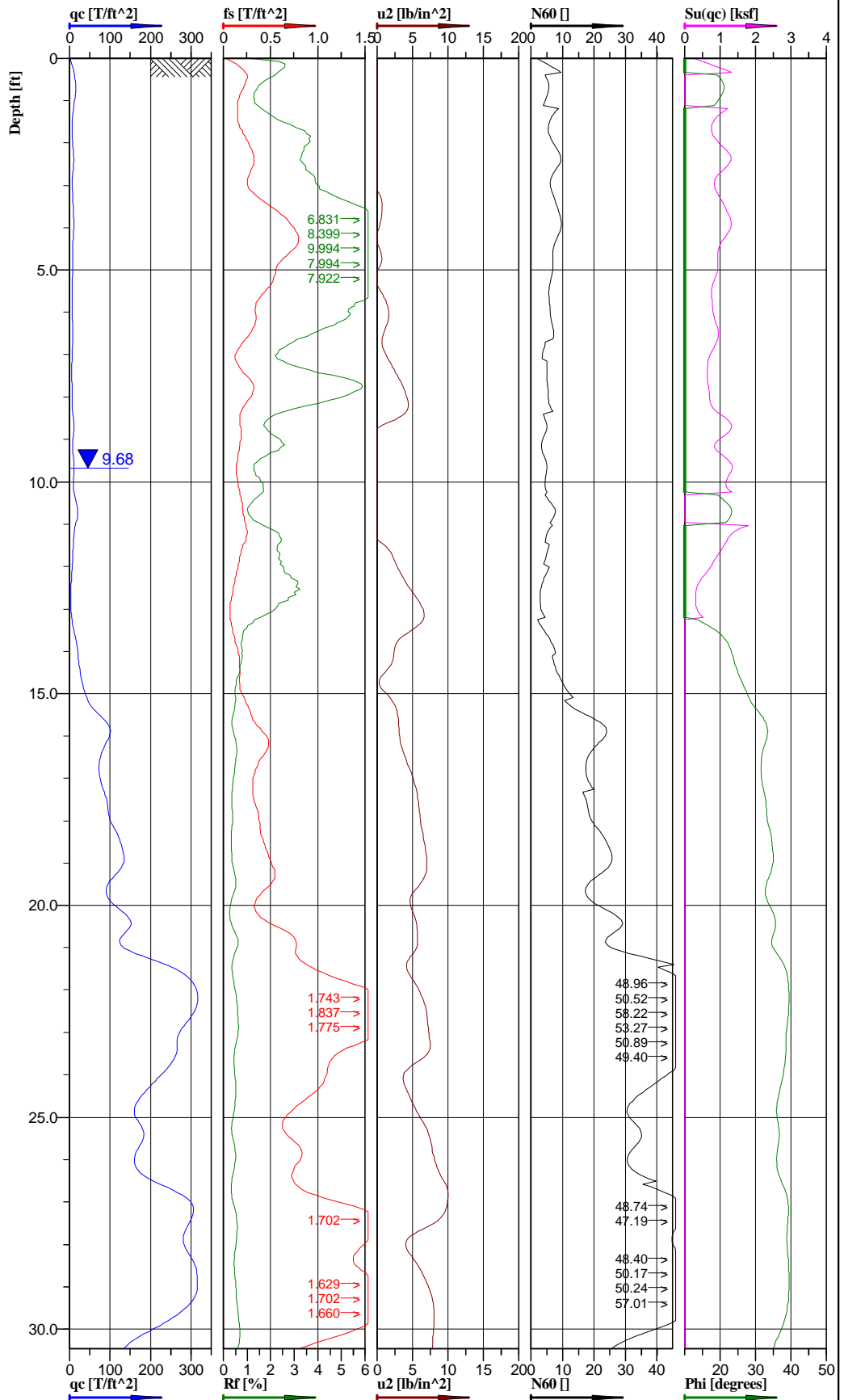
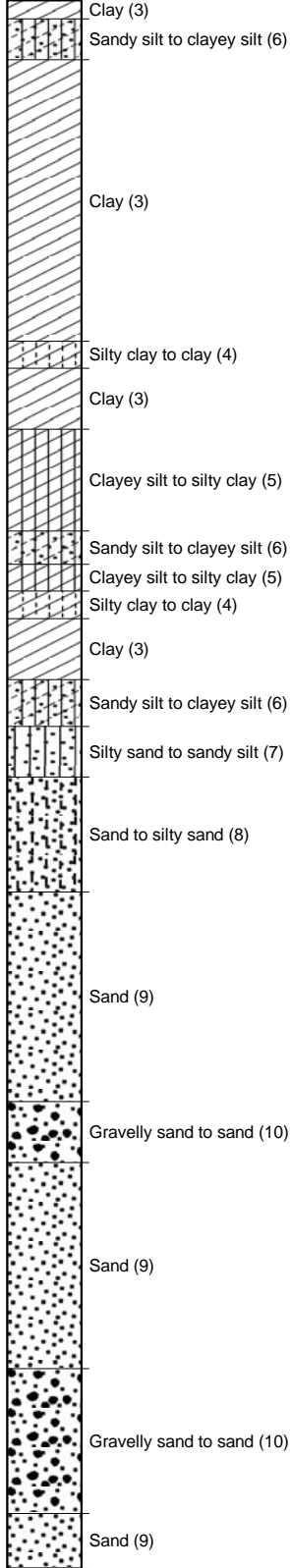
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727218.57 ft, Y: 993741.14 ft	Ground level: 464.60	Test no: C-74
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-27
		File: Labadie C-074.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-74
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-074.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	1.07	0.028	-0.6326	Clay (3)	6.9	1.018	0.007	0.004	21.6		1.79	6.9	112	0.15	0.08	305
3.75	0.739	0.054	0.7696	Clay (3)	7.4	1	0.02	0.01			1.72	7.4	107	0.42	0.21	300
6.25	0.488	0.05	1.2734	Silty clay to clay (4)	3.7	0.633	0.032	0.014			1.39	3.7	87	0.67	0.29	317
8.75	0.361	0.029	3.5105	Silty clay to clay (4)	2.4	0.44	0.042	0.016			1.34	2.4	84	0.87	0.33	220
11.25	0.276	0.017	7.3389	Clay (3)	2.4	0.302	0.052	0.019			1.43	2.4	89	1.08	0.40	91
13.75	1.873	0.022	5.1653	Sand to silty sand (8)	6.3	0.363	0.064	0.024	22.6	63	1.81	4.1	113	1.33	0.50	156
16.25	5.465	0.028	5.4159	Sand (9)	14.4		0.078	0.03	29.8	69	1.92	7.2	120	1.62	0.62	455
18.75	10.558	0.048	8.072	Sand (9)	21.1	0.048	0.093	0.037	33.9	83	1.98	10.6	124	1.93	0.77	878
21.25	7.764	0.04	8.4275	Sand (9)	17.4		0.108	0.044	31.9	70	1.95	8.7	122	2.25	0.92	646
23.75	13.584	0.053	10.0533	Sand (9)	27.2		0.122	0.051	35.2	85	1.99	13.6	124	2.54	1.06	1130
26.25	12.735	0.052	11.2107	Sand (9)	25.5	0.052	0.137	0.059	34.9	81	1.99	12.7	124	2.85	1.23	1060
28.75	12.333	0.043	12.2506	Sand (9)	24.6		0.152	0.066	34.7	79	1.99	12.3	124	3.16	1.37	1026
31.25	10.198	0.032	13.3244	Sand (9)	20.4		0.167	0.073	33.6	72	1.98	10.2	124	3.47	1.52	848
33.75	8.807	0.151	16.417	Sandy silt to clayey silt (6)	28.1	0.151	0.182	0.08	32.0	59	1.92	28.1	120	3.79	1.66	733
36.25	11.41	0.442	15.4751	Sandy silt to clayey silt (6)	45.6		0.189	0.084	34.3		1.9	45.6	119	3.93	1.75	949

**Classification by
Robertson 1986**



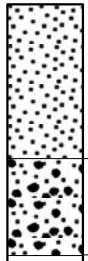
REITZ & JENS, INC.
CONSULTING ENGINEERS

Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



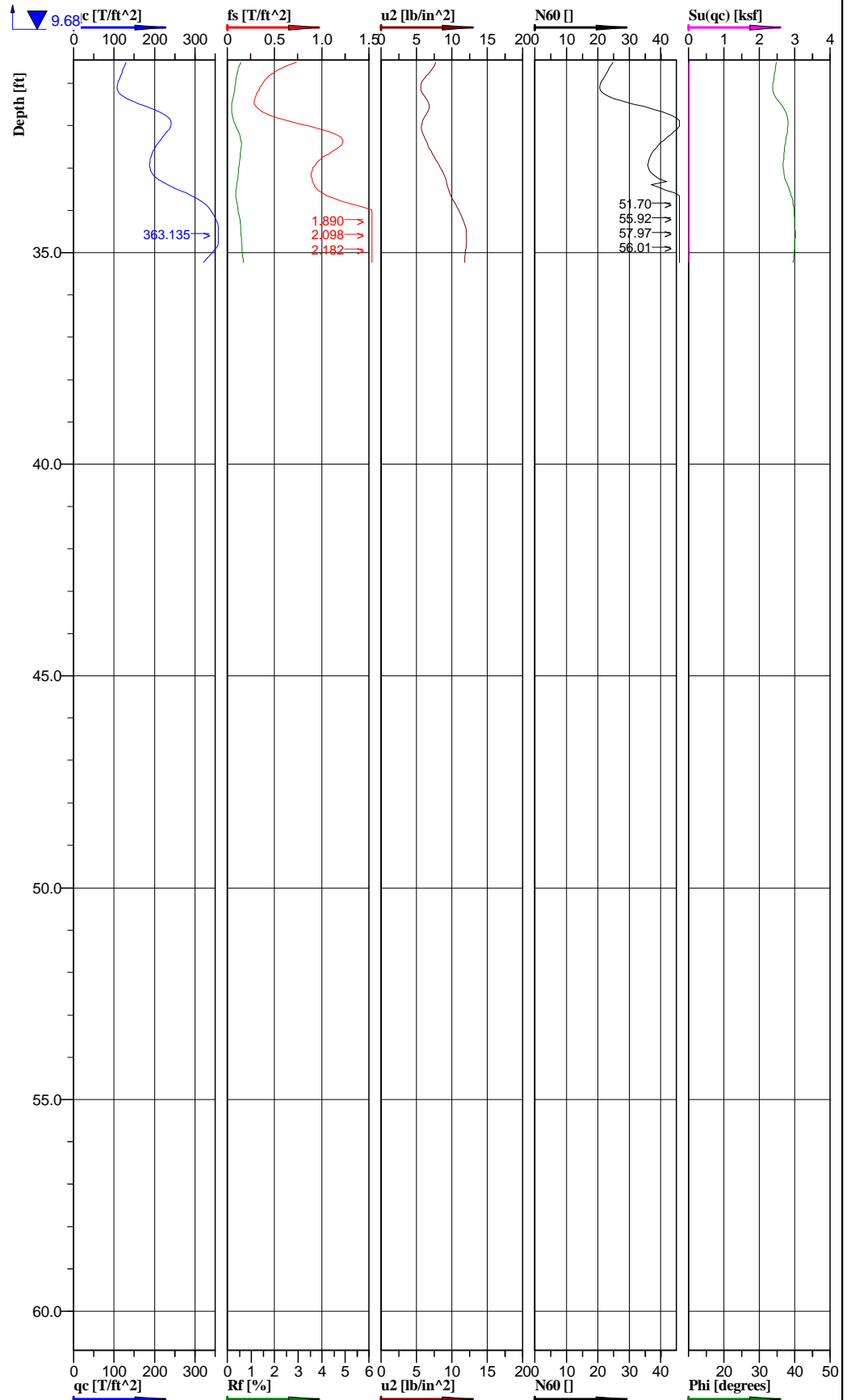
Location: Labadie, MO	Position: X: 727809.68 ft, Y: 993720.41 ft	Ground level: 465.72	Test no: C-76
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-28
File: Labadie C-076.cpd			

Classification by Robertson 1986



Sand (9)

Gravelly sand to sand (10)



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

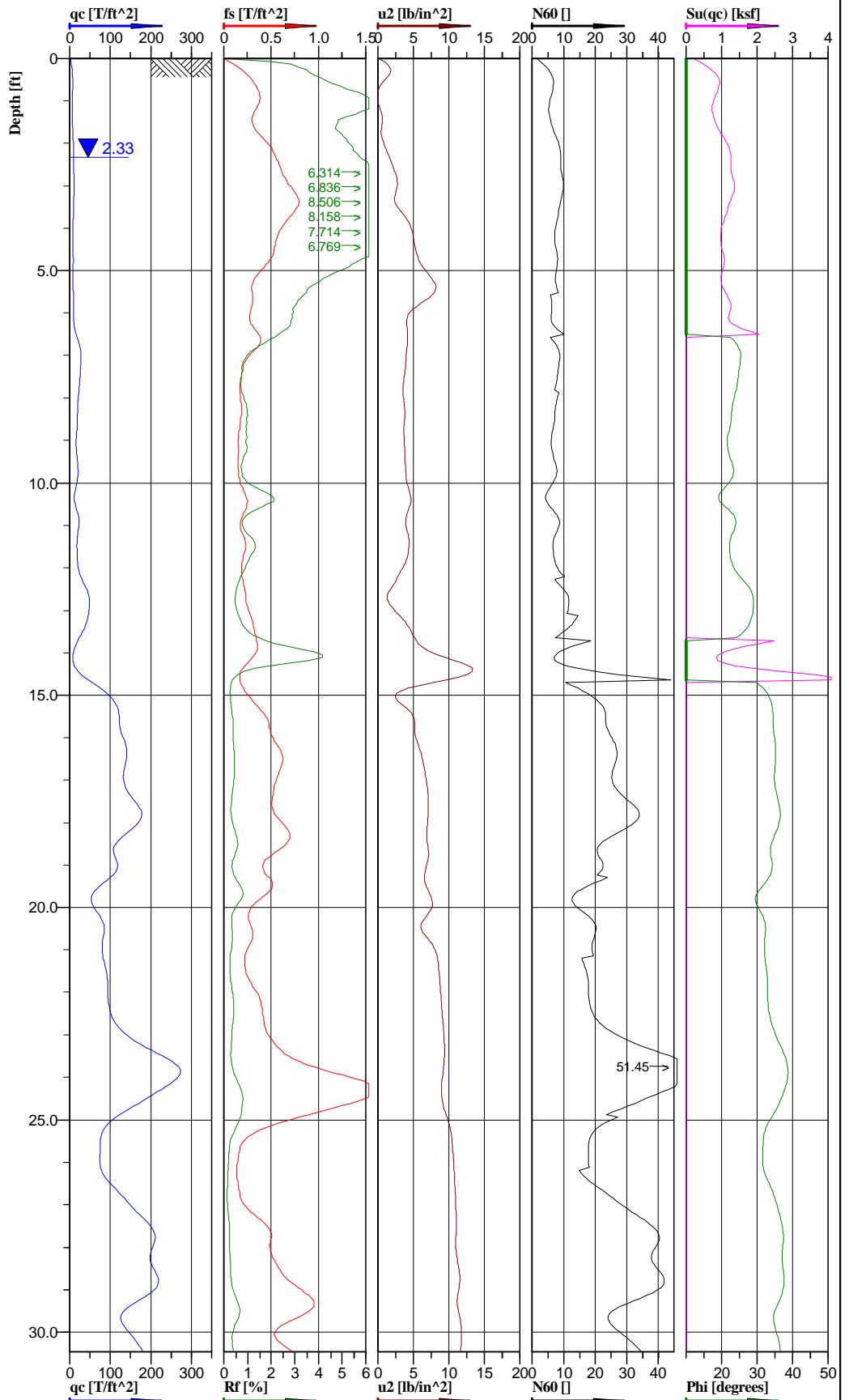
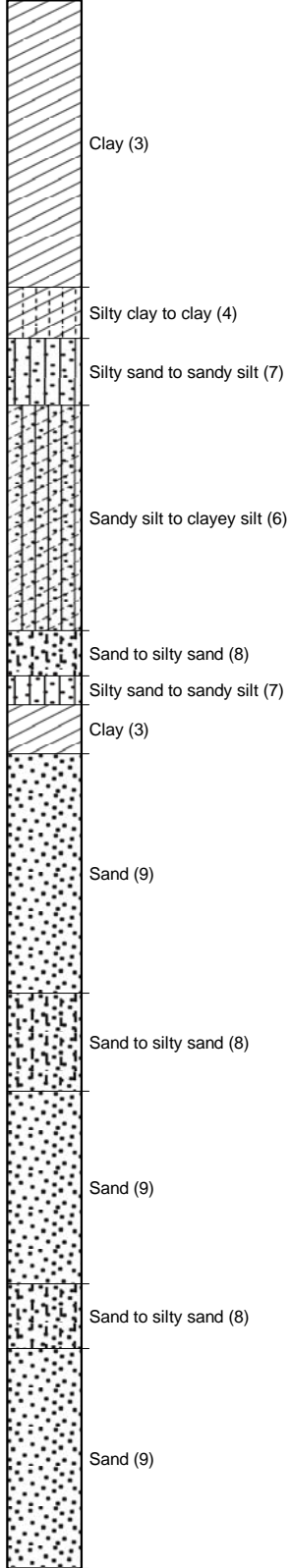


Location: Labadie, MO	Position: X: 727809.68 ft, Y: 993720.41 ft	Ground level: 465.72	Test no: C-76
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-28
File: Labadie C-076.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-76
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-076.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.866	0.02	-1.6791	Clay (3)	6.4	0.971	0.007	0.007	20.1		1.82	6.4	114	0.15	0.15	291
3.75	0.77	0.052	-0.0171	Clay (3)	7.7	1.044	0.021	0.021			1.78	7.7	111	0.44	0.44	313
6.25	0.604	0.03	1.147	Clay (3)	5.7	0.792	0.034	0.034			1.8	5.7	112	0.71	0.71	238
8.75	0.767	0.019	0.6506	Clayey silt to silty clay (5)	4.8	1.001	0.047	0.047			1.82	4.8	114	0.98	0.98	601
11.25	0.996	0.018	-0.0186	Clay (3)	5.3	0.955	0.061	0.056	21.9		1.83	5.3	114	1.27	1.16	287
13.75	1.584	0.012	3.4581	Silty sand to sandy silt (7)	6.2	0.348	0.075	0.062	22.8		1.84	4.0	115	1.56	1.29	132
16.25	7.445	0.033	3.7975	Sand (9)	18.3		0.089	0.069	31.7	64	1.95	9.2	122	1.85	1.44	619
18.75	10.563	0.041	6.1614	Sand (9)	21.1		0.103	0.076	33.8	72	1.98	10.6	124	2.14	1.58	879
21.25	20.717	0.096	5.4386	Gravelly sand to sand (10)	37.2		0.118	0.083	37.1	89	2.01	25.3	125	2.45	1.73	1724
23.75	22.375	0.118	5.8119	Sand (9)	44.5		0.133	0.09	37.8	91	2	22.2	125	2.77	1.87	1862
26.25	20.936	0.092	8.4346	Gravelly sand to sand (10)	38.2		0.148	0.098	37.4	88	2.01	26.0	125	3.08	2.04	1742
28.75	27.508	0.15	6.5306	Sand (9)	48.1		0.164	0.105	38.9	95	2.02	24.1	126	3.41	2.18	2289
31.25	16.221	0.068	6.5994	Sand (9)	32.4		0.178	0.113	36.0	78	2	16.2	125	3.70	2.35	1350
33.75	27.346	0.139	10.1217	Gravelly sand to sand (10)	47.6		0.193	0.12	38.7	92	2.02	32.4	126	4.01	2.50	2275
36.25	31.672	0.21	11.8248	Gravelly sand to sand (10)	52.8		0.202	0.124	39.6	97	2.03	35.9	127	4.20	2.58	2635

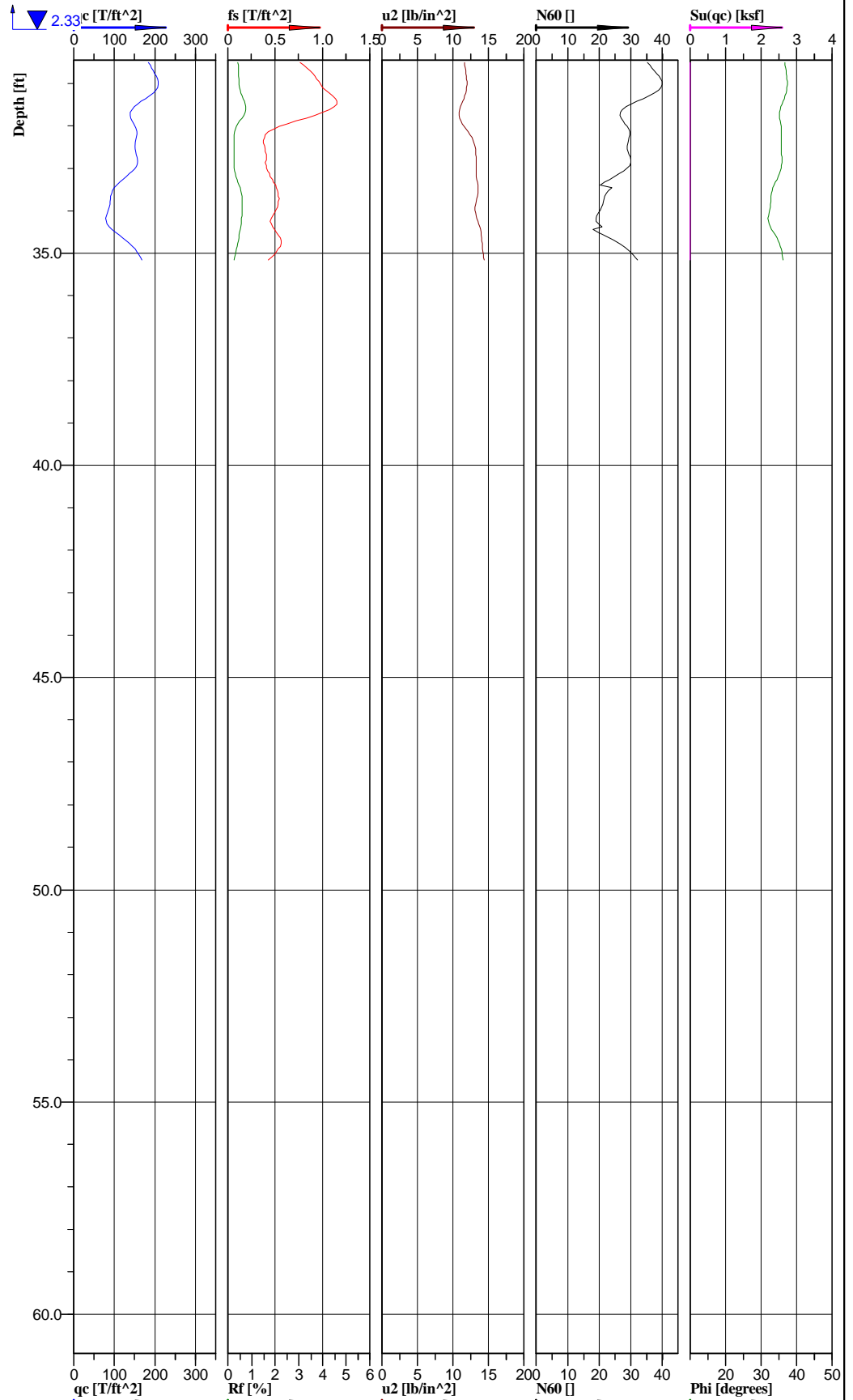
Classification by
Robertson 1986



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728399.77 ft, Y: 993707.28 ft	Ground level: 465.29	Test no: C-78
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-29
		File: Labadie C-078.cpd	

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

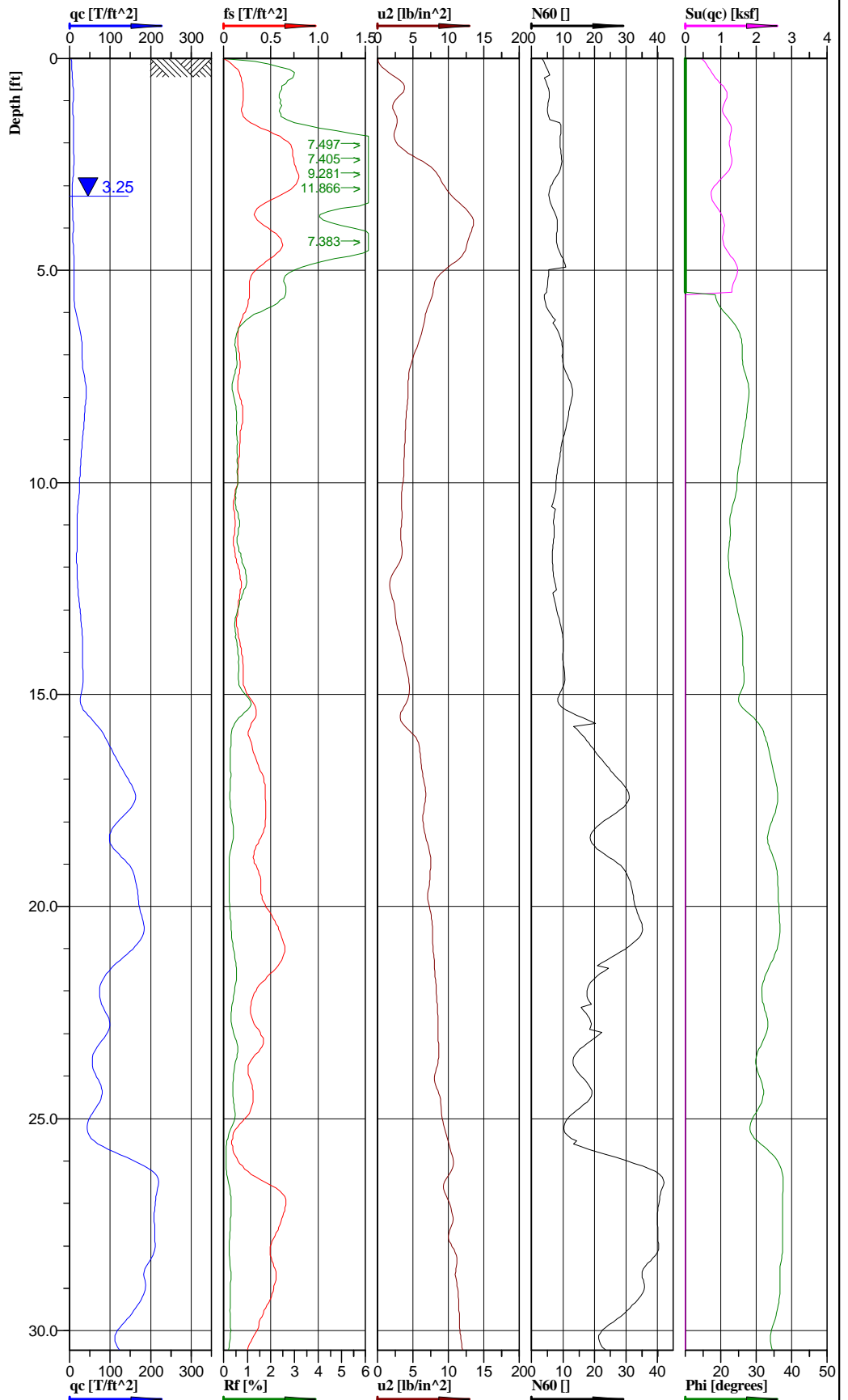
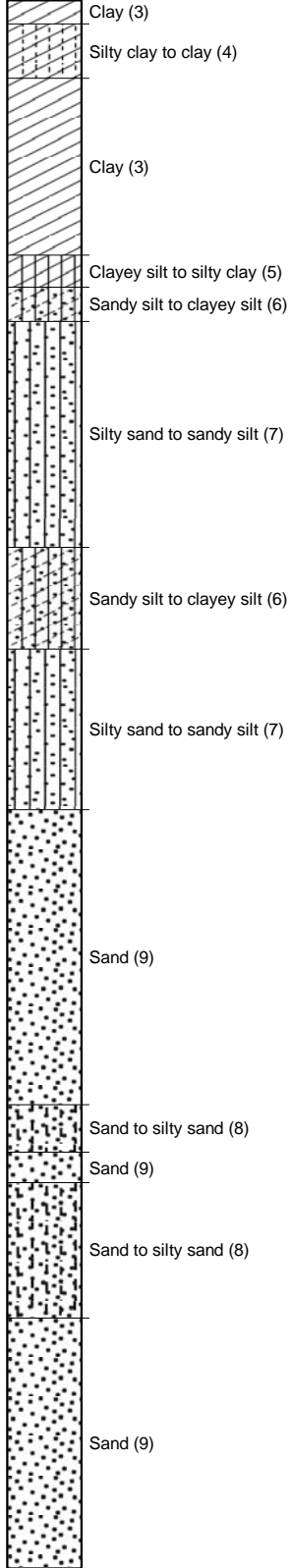



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Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-29
		File: Labadie C-078.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-78
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-078.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.656	0.034	0.8073	Clay (3)	6.6	0.903	0.007	0.007				1.78	6.6	111	0.15	0.15	271
3.75	0.84	0.059	4.0578	Clay (3)	8.4	1.135	0.02	0.016				1.78	8.4	111	0.42	0.33	341
6.25	1.526	0.028	5.1349	Silty sand to sandy silt (7)	7.4	1.236	0.034	0.022	24.6			1.84	4.7	115	0.71	0.46	127
8.75	1.831	0.016	3.7406	Sandy silt to clayey silt (6)	7.1		0.048	0.028	22.8			1.84	7.1	115	1.00	0.58	152
11.25	1.969	0.02	3.8455	Sand to silty sand (8)	7.2		0.061	0.034	22.9	51		1.85	4.6	115	1.27	0.71	164
13.75	3.635	0.025	5.7628	Sand (9)	13.9	2.17	0.075	0.04	28.9	63		1.89	7.0	118	1.56	0.83	302
16.25	12.617	0.048	5.6557	Sand (9)	25.2		0.09	0.047	34.9	84		1.99	12.6	124	1.87	0.98	1050
18.75	11.111	0.049	7.0199	Sand to silty sand (8)	23.2		0.104	0.054	33.7	77		1.97	14.8	123	2.16	1.12	924
21.25	8.244	0.028	7.9813	Sand (9)	18.2		0.119	0.061	32.4	68		1.96	9.1	122	2.48	1.27	686
23.75	17.731	0.088	9.241	Sand to silty sand (8)	35.7		0.134	0.069	36.4	87		2	22.9	125	2.79	1.44	1475
26.25	10.715	0.024	10.6832	Sand (9)	23.1		0.149	0.076	33.6	71		1.96	11.6	122	3.10	1.58	891
28.75	17.596	0.063	11.3115	Sand (9)	35.2		0.164	0.083	36.6	85		1.99	17.6	124	3.41	1.73	1464
31.25	16.251	0.074	11.7807	Sand (9)	32.5		0.179	0.09	36.2	82		1.99	16.2	124	3.72	1.87	1352
33.75	11.323	0.046	13.5307	Sand (9)	24.2		0.193	0.097	34.1	70		1.97	12.1	123	4.01	2.02	942
36.25	15.74	0.044	14.3357	Sand (9)	31.5		0.201	0.101	36.1	80		1.99	15.7	124	4.18	2.10	1310

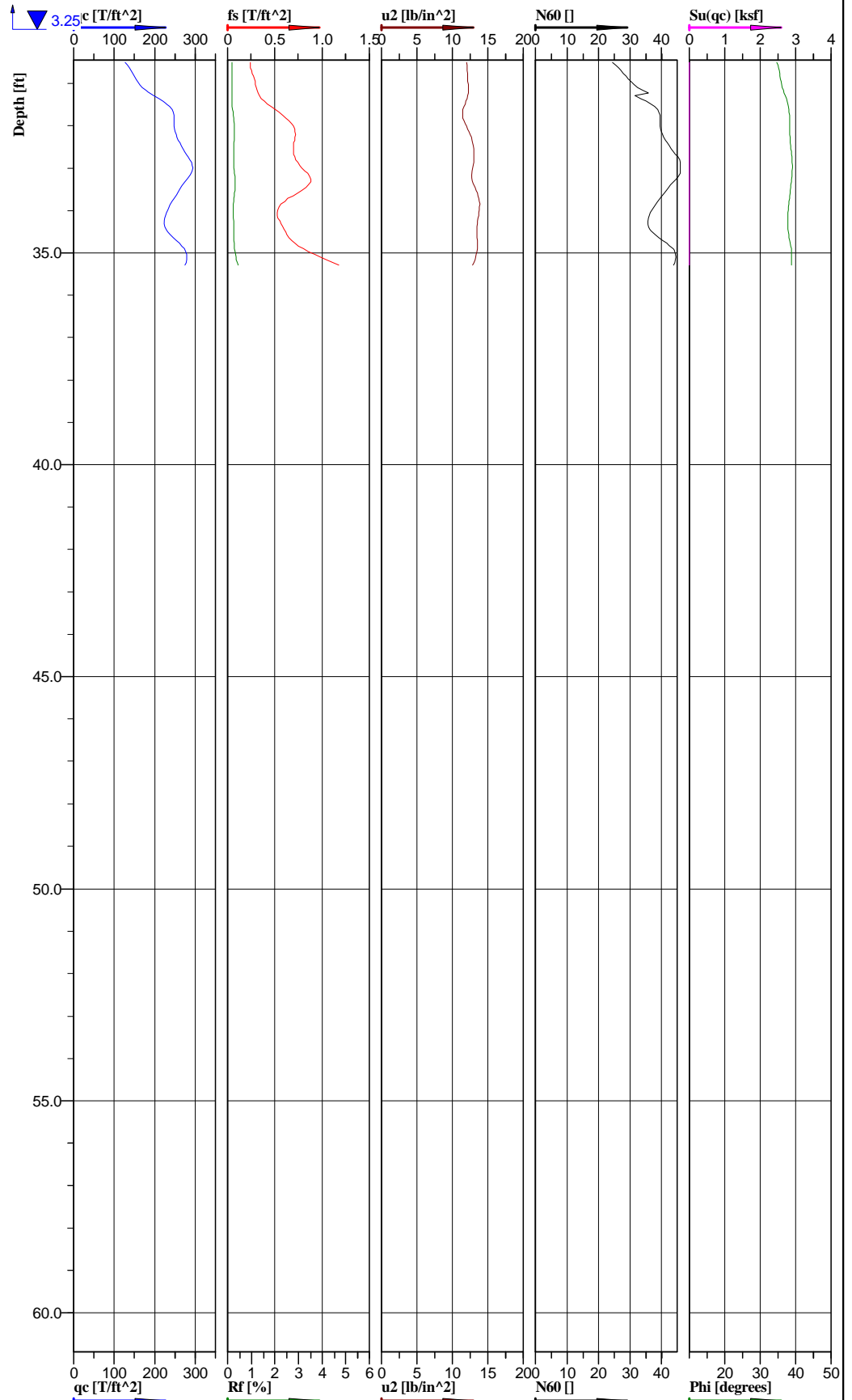
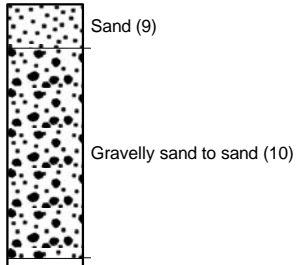
**Classification by
Robertson 1986**




 Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728845.96 ft, Y: 993690.91 ft	Ground level: 466.70	Test no: C-79
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-30
Confirmation sounding adjacent to P-79		File: Labadie C-079.cpd	

Classification by
Robertson 1986



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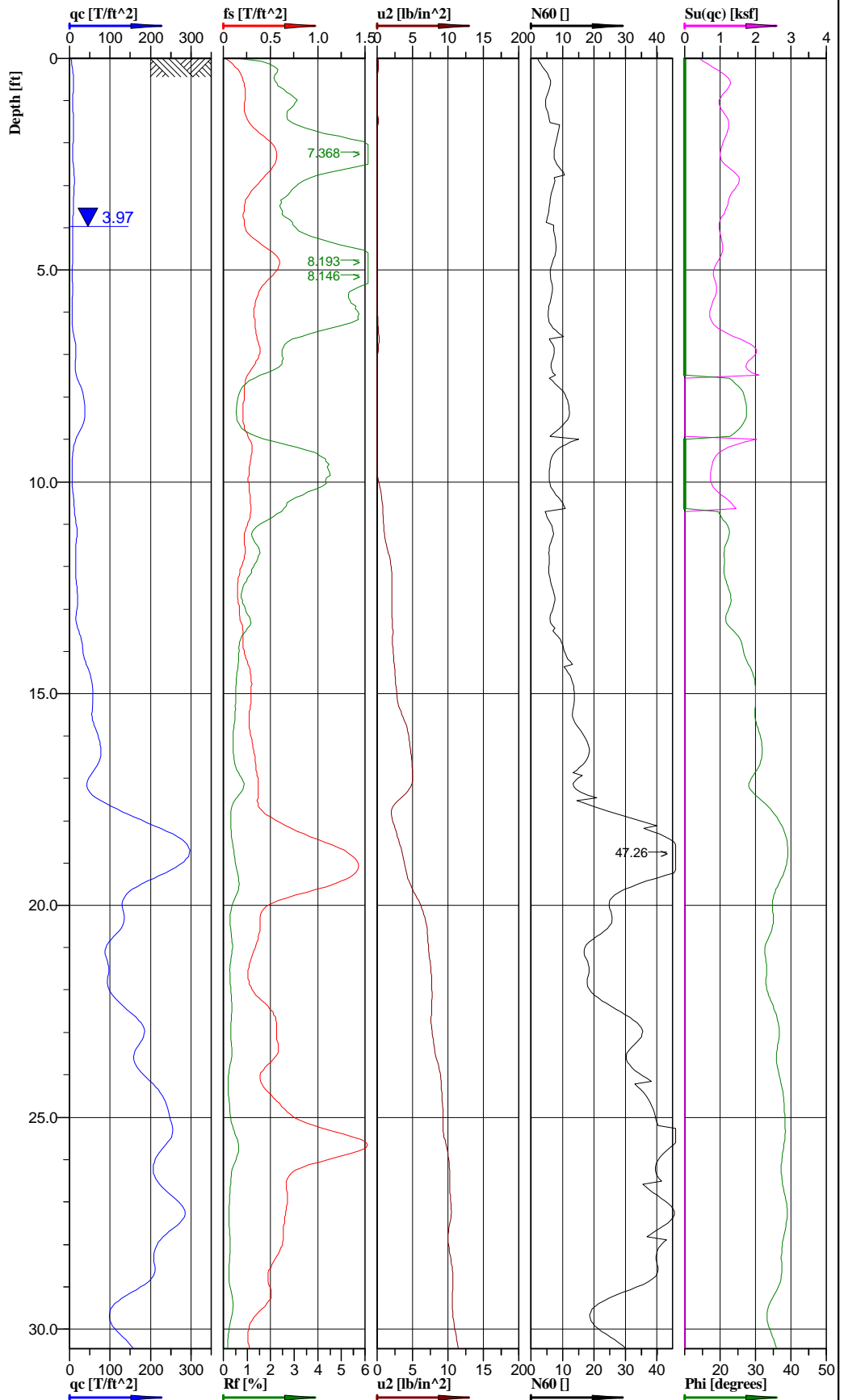
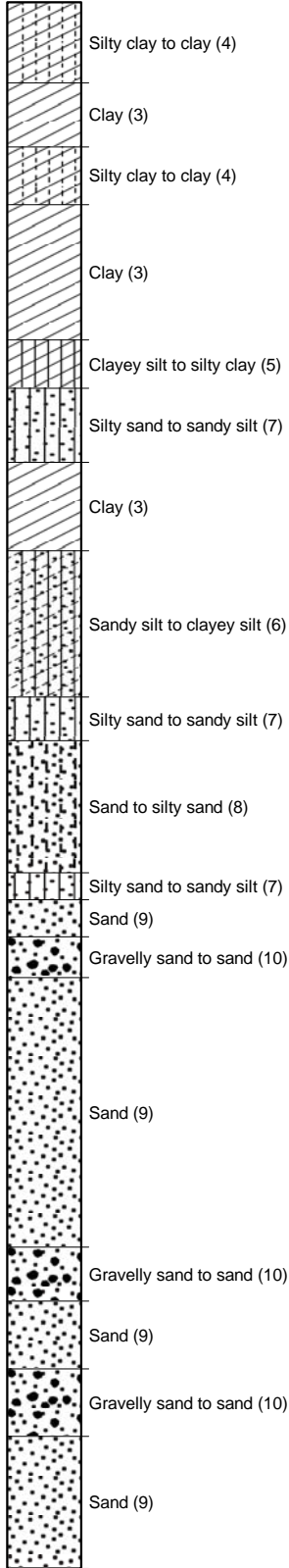
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150


Location: Labadie, MO	Position: X: 728845.96 ft, Y: 993690.91 ft	Ground level: 466.70	Test no: C-79
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-30
Confirmation sounding adjacent to P-79		File: Labadie C-079.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-79
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-079.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.788	0.035	2.937	Clay (3)	6.8	1.084	0.007	0.007				1.81	6.8	113	0.15	0.15	325
3.75	0.803	0.052	11.2245	Clayey silt to silty clay (5)	7.8	1.073	0.02	0.018				1.79	7.8	112	0.42	0.37	644
6.25	2.099	0.02	6.4142	Silty sand to sandy silt (7)	7.6	1.376	0.034	0.025	24.1			1.86	4.8	116	0.71	0.52	175
8.75	3.156	0.016	3.9581	Silty sand to sandy silt (7)	10.5		0.048	0.031	26.4			1.89	6.7	118	1.00	0.64	263
11.25	1.862	0.013	3.029	Sandy silt to clayey silt (6)	7.1		0.062	0.038	22.9			1.85	7.1	115	1.29	0.79	155
13.75	2.772	0.017	3.3041	Silty sand to sandy silt (7)	9.3		0.076	0.044	25.6			1.88	5.9	117	1.58	0.92	231
16.25	9.437	0.033	5.3561	Sand (9)	20.3		0.09	0.05	32.3	80	1.96	10.1	122	1.87	1.04	785	
18.75	13.353	0.038	7.0232	Sand (9)	26.7		0.105	0.058	35.1	83	1.99	13.3	124	2.18	1.21	1111	
21.25	12.231	0.047	7.9787	Sand (9)	25.8		0.12	0.065	34.3	77	1.97	12.9	123	2.50	1.35	1018	
23.75	7.004	0.03	8.5669	Sand to silty sand (8)	16.7		0.134	0.072	31.4	61	1.95	10.7	122	2.79	1.50	583	
26.25	14.894	0.034	10.0289	Sand (9)	30.3		0.149	0.079	34.8	77	1.98	15.1	124	3.10	1.64	1239	
28.75	17.232	0.047	11.0761	Sand (9)	34.4		0.164	0.086	36.5	84	1.99	17.2	124	3.41	1.79	1434	
31.25	18.509	0.042	12.0644	Gravelly sand to sand (10)	33.0		0.179	0.094	36.7	84	2.01	22.4	125	3.72	1.96	1540	
33.75	24.791	0.067	13.3255	Gravelly sand to sand (10)	41.3		0.194	0.101	38.4	93	2.04	28.1	127	4.04	2.10	2063	
36.25	26.593	0.1	13.1631	Gravelly sand to sand (10)	44.3		0.203	0.105	38.8	94	2.04	30.1	127	4.22	2.18	2213	

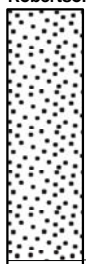
Classification by Robertson 1986



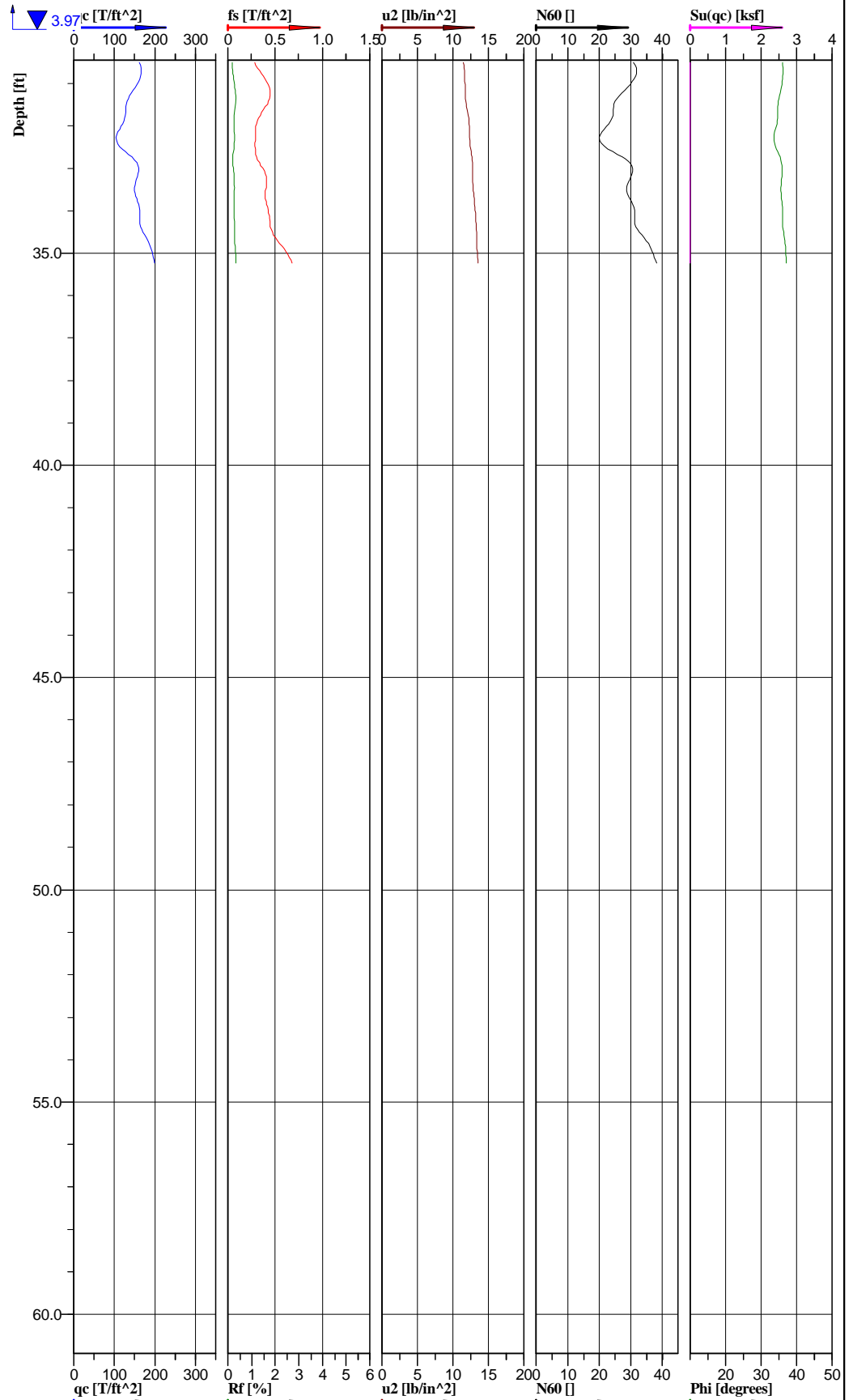

 Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729155.12 ft, Y: 993682.87 ft	Ground level: 466.60	Test no: C-80
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-31
File: Labadie C-080.cpd			

Classification by
Robertson 1986



Sand (9)



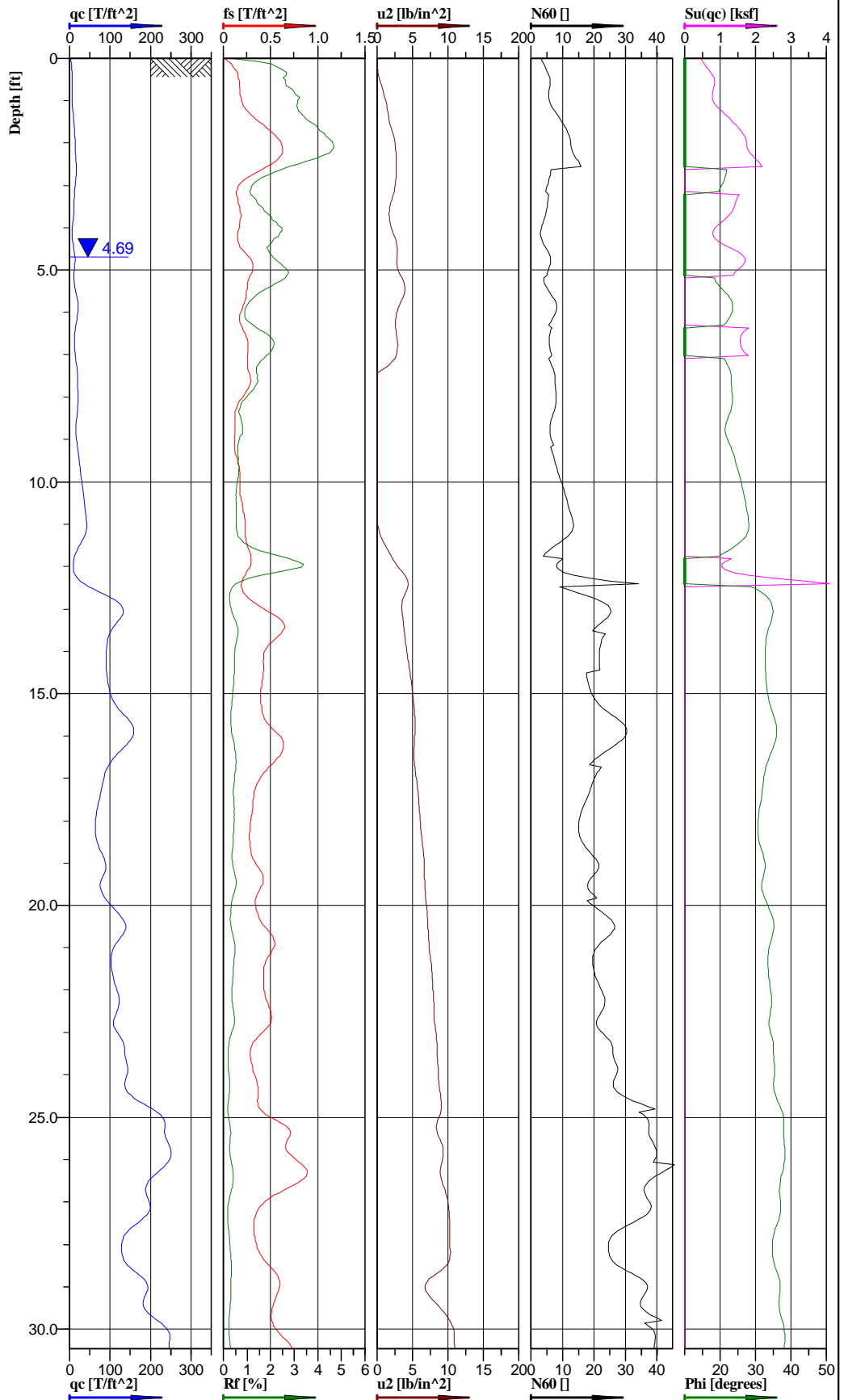
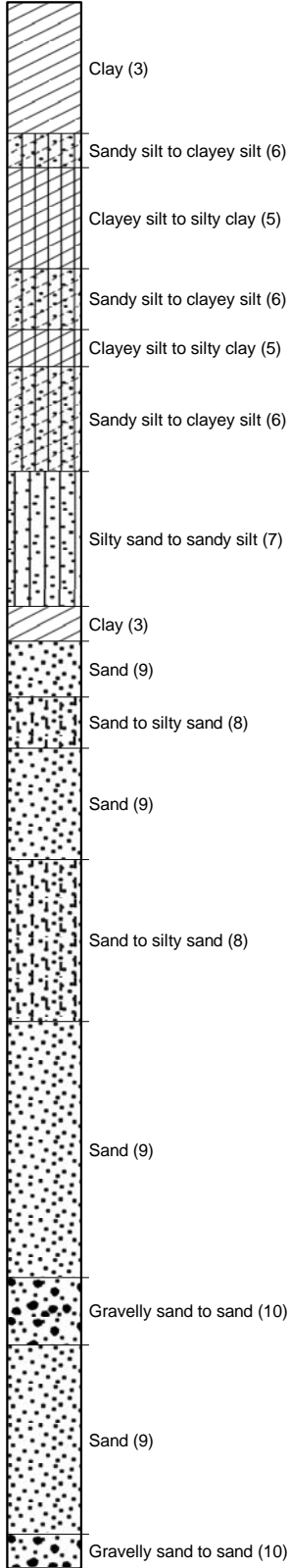
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150


Location: Labadie, MO	Position: X: 729155.12 ft, Y: 993682.87 ft	Ground level: 466.60	Test no: C-80
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-31
File: Labadie C-080.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-80
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-080.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.77	0.03	-0.3643	Clay (3)	6.2	1.063	0.007	0.007			1.81	6.2	113	0.15	0.15	319
3.75	0.838	0.035	-0.4666	Clay (3)	7.0	1.139	0.021	0.02			1.81	7.0	113	0.44	0.42	342
6.25	0.94	0.035	-0.003	Silty sand to sandy silt (7)	6.6	1.232	0.034	0.027	22.6		1.81	4.2	113	0.71	0.56	78
8.75	2	0.024	-0.7164	Clay (3)	8.9	0.992	0.048	0.033	25.9		1.84	8.9	115	1.00	0.69	298
11.25	1.336	0.022	1.2425	Sandy silt to clayey silt (6)	6.6	1.09	0.061	0.039	21.4		1.83	6.6	114	1.27	0.81	111
13.75	3.118	0.021	2.2817	Sand to silty sand (8)	9.6		0.075	0.045	25.7	58	1.88	6.2	117	1.56	0.94	259
16.25	5.902	0.03	4.1753	Sand (9)	15.6		0.089	0.052	30.4	63	1.93	7.8	120	1.85	1.08	491
18.75	19.513	0.088	3.6428	Sand (9)	36.3		0.104	0.059	36.8	92	2	18.2	125	2.16	1.23	1623
21.25	10.55	0.034	7.3065	Sand (9)	21.1		0.119	0.066	33.8	74	1.99	10.5	124	2.48	1.37	878
23.75	18.421	0.051	8.5063	Gravelly sand to sand (10)	34.4		0.134	0.073	36.8	89	2	23.4	125	2.79	1.52	1533
26.25	23.301	0.087	10.0206	Gravelly sand to sand (10)	42.4		0.149	0.081	38.1	94	2.01	28.8	125	3.10	1.68	1939
28.75	16.744	0.047	10.5092	Sand (9)	32.5		0.164	0.088	36.1	82	2	16.2	125	3.41	1.83	1393
31.25	12.969	0.032	11.8394	Sand (9)	25.9		0.179	0.096	35.0	75	1.99	13.0	124	3.72	2.00	1079
33.75	15.448	0.041	13.0184	Sand (9)	30.9		0.194	0.103	36.0	79	1.99	15.4	124	4.04	2.14	1285
36.25	18.842	0.063	13.4886	Sand (9)	37.7		0.202	0.107	37.0	84	1.99	18.8	124	4.20	2.23	1568

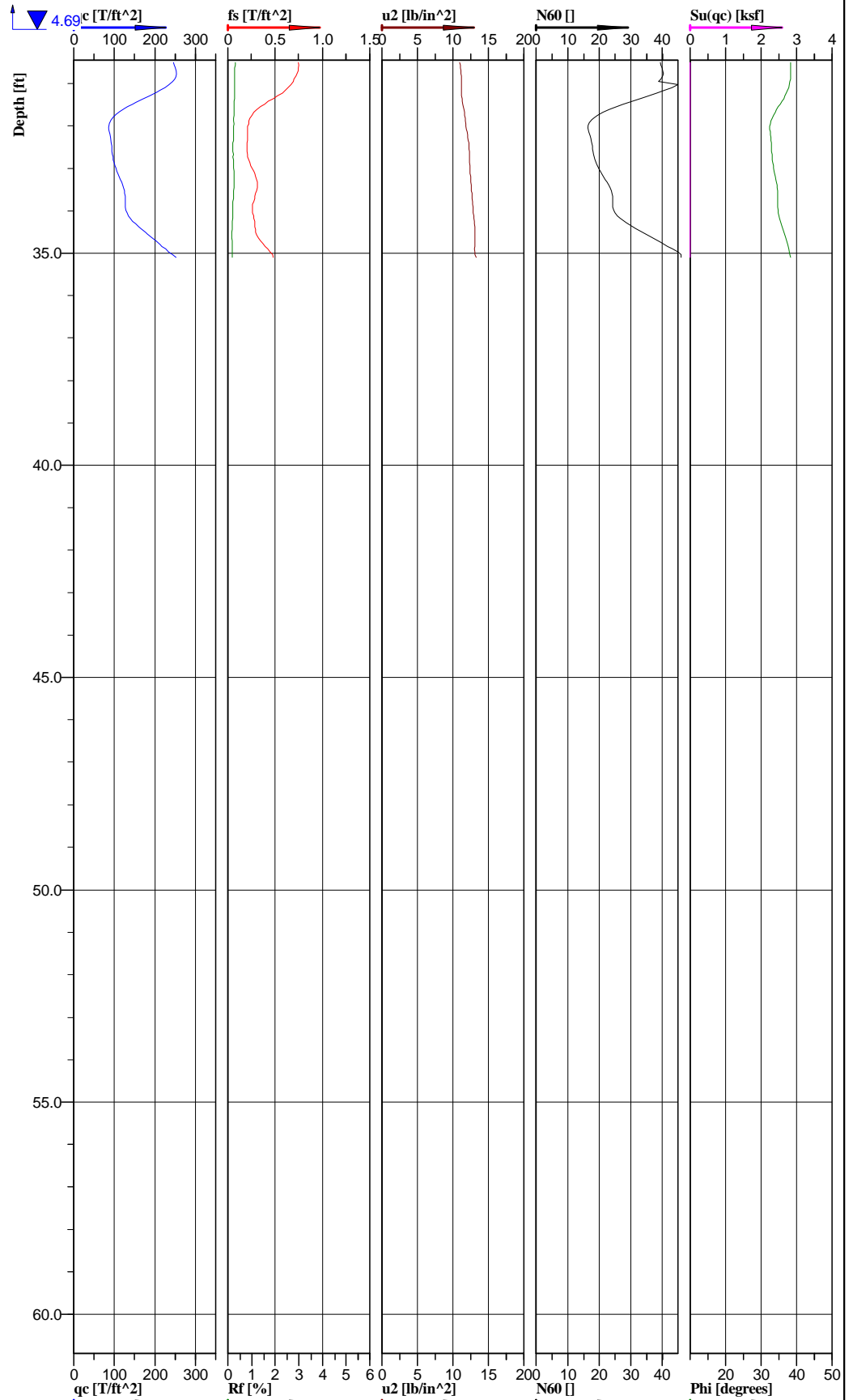
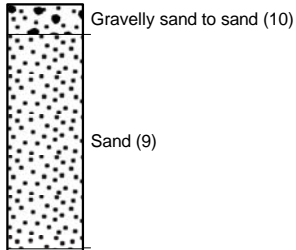
Classification by Robertson 1986




 Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729445.37 ft, Y: 993687.40 ft	Ground level: 467.29	Test no: C-81
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-32
Confirmation sounding adjacent to P-81		File: Labadie C-081.cpd	

Classification by
Robertson 1986



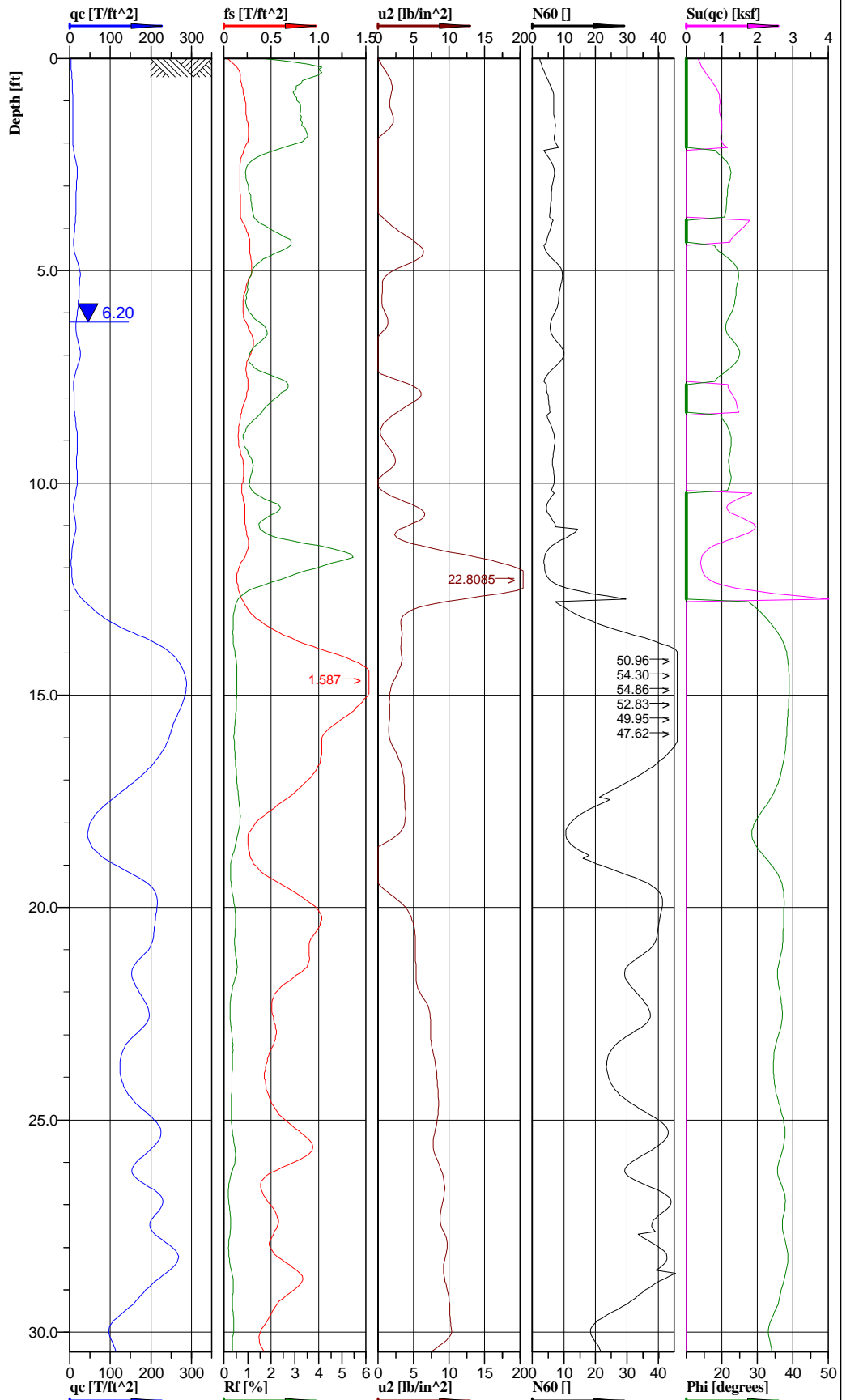
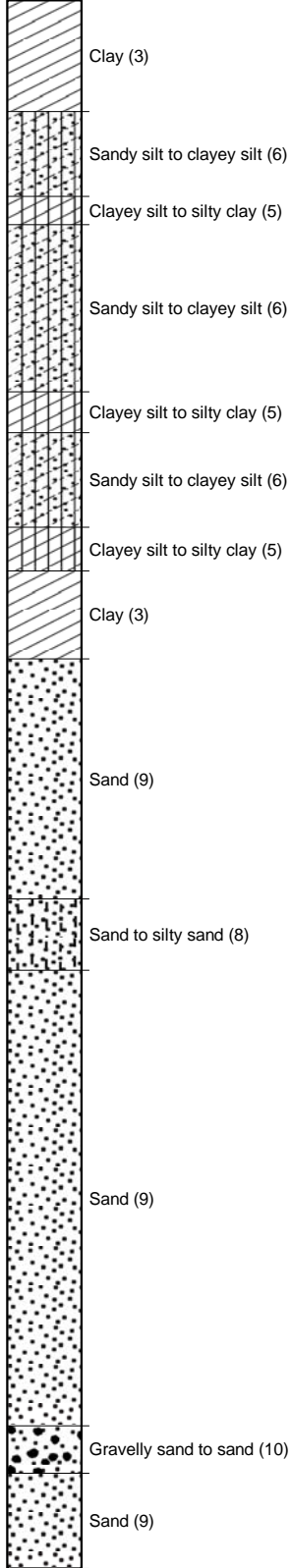
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729445.37 ft, Y: 993687.40 ft	Ground level: 467.29	Test no: C-81
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-32
Confirmation sounding adjacent to P-81		File: Labadie C-081.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-81
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-081.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.889	0.032	1.4536	Clay (3)	8.9	1.226	0.007	0.007				1.8	8.9	112	0.15	0.15	368
3.75	1.068	0.021	2.4037	Clayey silt to silty clay (5)	5.2	1.316	0.021	0.02	20.9			1.84	5.2	115	0.44	0.42	790
6.25	1.483	0.023	2.6241	Sandy silt to clayey silt (6)	6.3	1.61	0.034	0.029	21.9			1.84	6.3	115	0.71	0.60	123
8.75	2.001	0.016	-2.0832	Silty sand to sandy silt (7)	7.4		0.048	0.035	23.3			1.85	4.8	115	1.00	0.73	166
11.25	2.852	0.022	1.1734	Sand (9)	11.7	1.94	0.062	0.042	26.5	59		1.87	5.8	117	1.29	0.87	237
13.75	9.632	0.043	4.1407	Sand (9)	20.8		0.076	0.048	33.3	76		1.97	10.4	123	1.58	1.00	801
16.25	10.924	0.045	5.3587	Sand to silty sand (8)	23.1		0.091	0.056	33.9	77		1.97	14.8	123	1.89	1.16	909
18.75	7.327	0.031	6.4406	Sand (9)	17.9		0.105	0.063	31.7	65		1.95	9.0	122	2.18	1.31	610
21.25	11.173	0.043	7.5281	Sand (9)	22.3		0.12	0.07	34.2	75		1.99	11.2	124	2.50	1.46	930
23.75	13.842	0.036	8.5557	Gravelly sand to sand (10)	27.1		0.135	0.077	35.3	80		1.99	18.4	124	2.81	1.60	1152
26.25	20.621	0.059	9.3166	Sand (9)	38.0		0.15	0.084	37.5	90		2.01	19.0	125	3.12	1.75	1716
28.75	16.439	0.046	9.2614	Gravelly sand to sand (10)	32.1		0.165	0.092	36.2	82		1.99	21.8	124	3.43	1.91	1368
31.25	16.701	0.045	11.4163	Sand (9)	30.3		0.18	0.099	35.8	79		2.01	15.2	125	3.74	2.06	1390
33.75	13.539	0.028	12.7418	Sand (9)	27.1		0.195	0.106	35.0	74		1.99	13.5	124	4.06	2.20	1126
36.25	23.697	0.046	13.2022	Sand (9)	47.4		0.203	0.11	38.2	90		2.04	23.7	127	4.22	2.29	1972

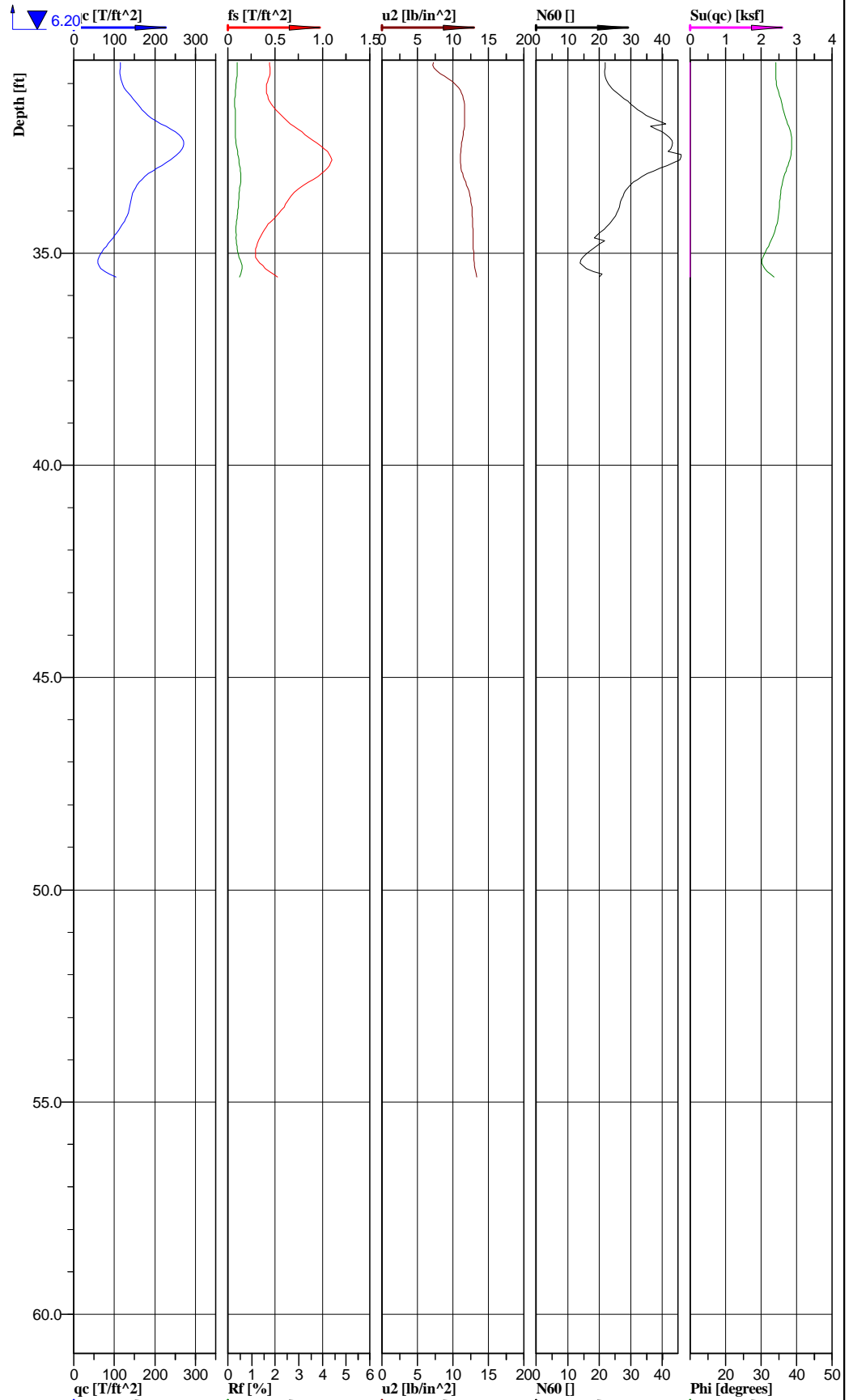
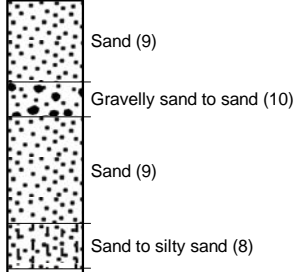
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729741.31 ft, Y: 993677.59 ft	Ground level: 467.49	Test no: C-82
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-33
		File: Labadie C-082.cpd	

Classification by Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

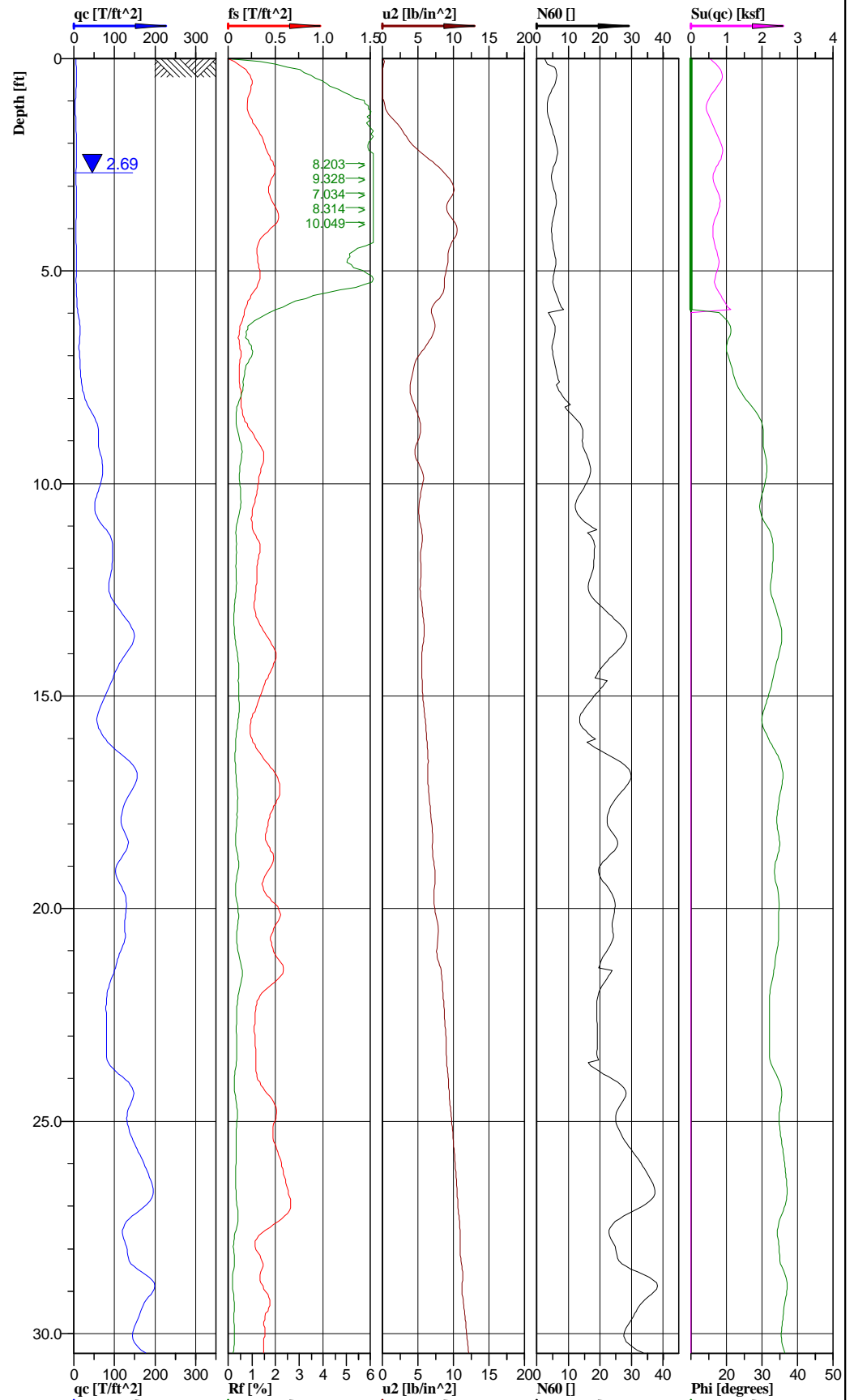
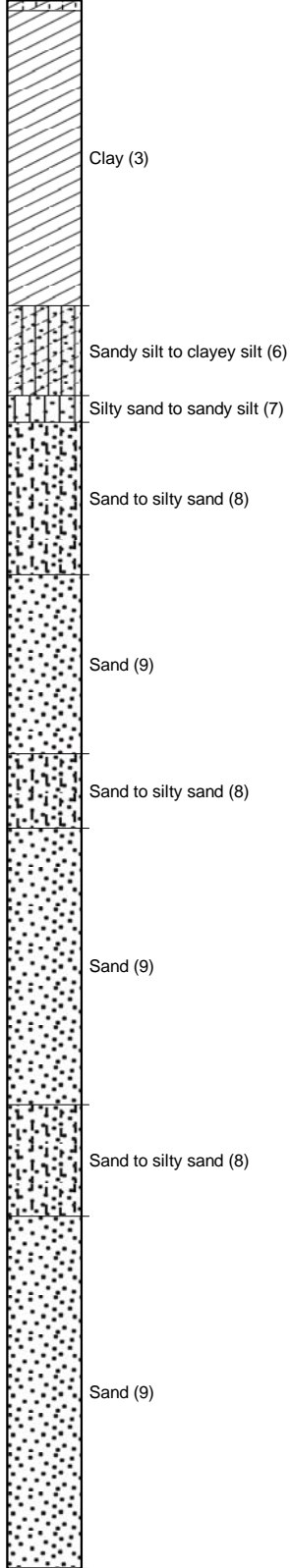


Location: Labadie, MO	Position: X: 729741.31 ft, Y: 993677.59 ft	Ground level: 467.49	Test no: C-82
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-33
		File: Labadie C-082.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-82
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-082.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.729	0.019	0.8957	Sandy silt to clayey silt (6)	5.9	0.828	0.007	0.007	20.5		1.8	5.9	112	0.15	0.15	61
3.75	1.47	0.021	1.4693	Sandy silt to clayey silt (6)	6.1	1.491	0.021	0.021	21.6		1.84	6.1	115	0.44	0.44	122
6.25	1.92	0.024	0.0082	Sandy silt to clayey silt (6)	7.7		0.034	0.033	23.0		1.84	7.7	115	0.71	0.69	160
8.75	1.415	0.019	2.2624	Sandy silt to clayey silt (6)	5.9	1.327	0.048	0.04	21.7		1.84	5.9	115	1.00	0.83	118
11.25	0.928	0.019	9.5793	Clay (3)	6.6	1.113	0.062	0.046	21.9		1.82	6.6	114	1.29	0.96	334
13.75	17.398	0.086	4.6493	Sand (9)	36.6	2.891	0.076	0.053	36.2	90	1.97	18.3	123	1.58	1.10	1448
16.25	20.468	0.101	2.5122	Sand to silty sand (8)	41.2		0.09	0.06	37.2	94	1.99	26.3	124	1.87	1.25	1703
18.75	10.991	0.045	1.3437	Sand (9)	23.5		0.105	0.067	33.0	71	1.96	11.7	122	2.18	1.39	914
21.25	17.846	0.077	5.481	Sand (9)	35.7		0.12	0.074	36.7	88	1.99	17.8	124	2.50	1.54	1485
23.75	14.741	0.048	7.9795	Sand (9)	29.5		0.135	0.081	35.6	81	1.99	14.7	124	2.81	1.68	1226
26.25	19.152	0.06	8.6275	Sand (9)	38.3		0.15	0.089	37.1	87	2	19.1	125	3.12	1.85	1593
28.75	18.345	0.056	9.7217	Sand (9)	33.8		0.165	0.096	36.6	83	2.01	16.9	125	3.43	2.00	1526
31.25	15.665	0.052	10.3158	Gravelly sand to sand (10)	29.4		0.18	0.103	35.7	78	2	20.0	125	3.74	2.14	1303
33.75	14.451	0.064	12.1752	Sand to silty sand (8)	29.0		0.195	0.111	35.2	74	1.99	18.6	124	4.06	2.31	1202
36.25	6.826	0.037	13.079	Sand to silty sand (8)	16.5		0.204	0.115	31.2	54	1.94	10.5	121	4.24	2.39	568

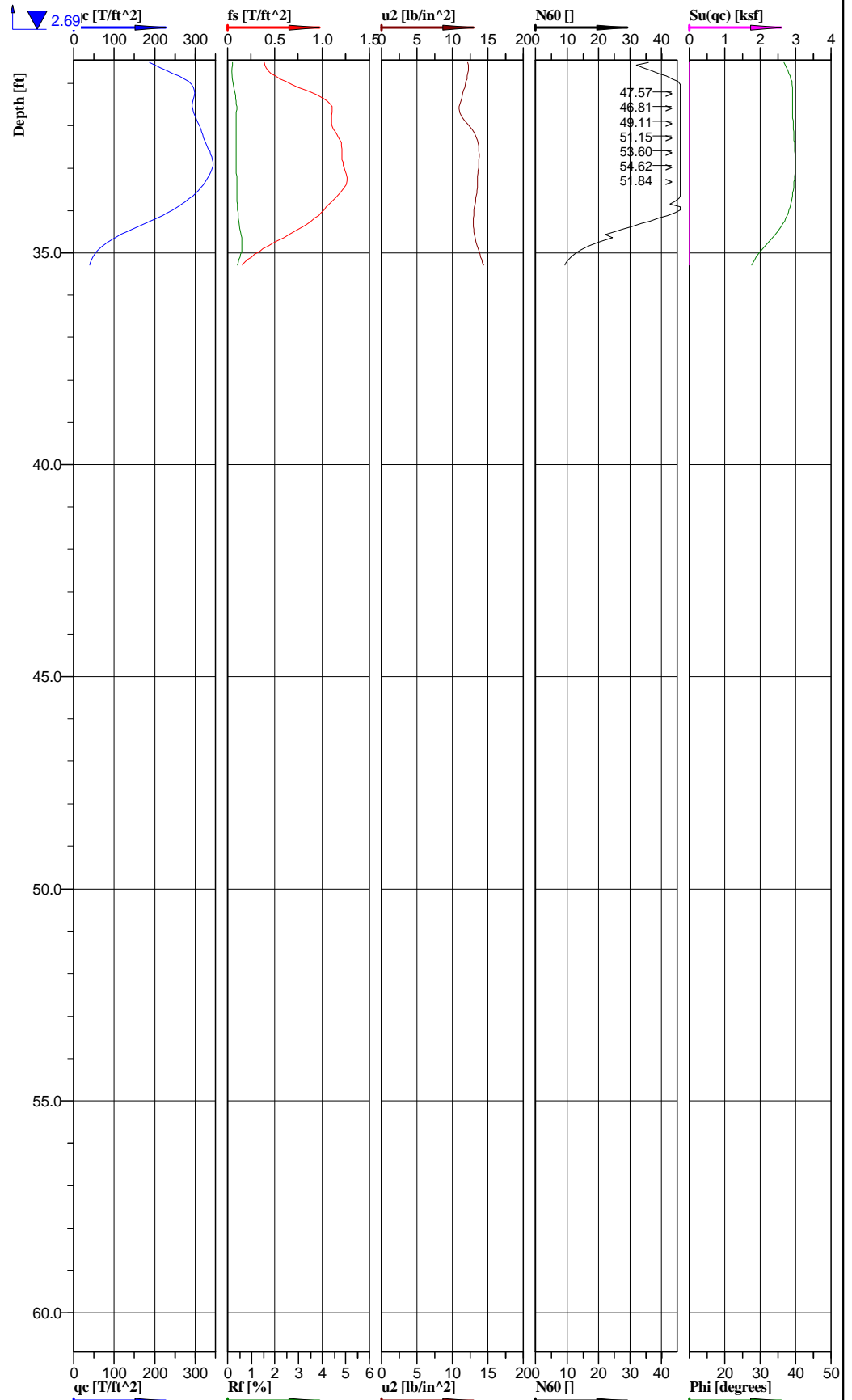
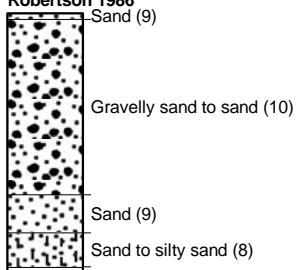
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730332.48 ft, Y: 993657.32 ft	Ground level: 465.09	Test no: C-84
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-34
File: Labadie C-084.cpd			

Classification by
Robertson 1986



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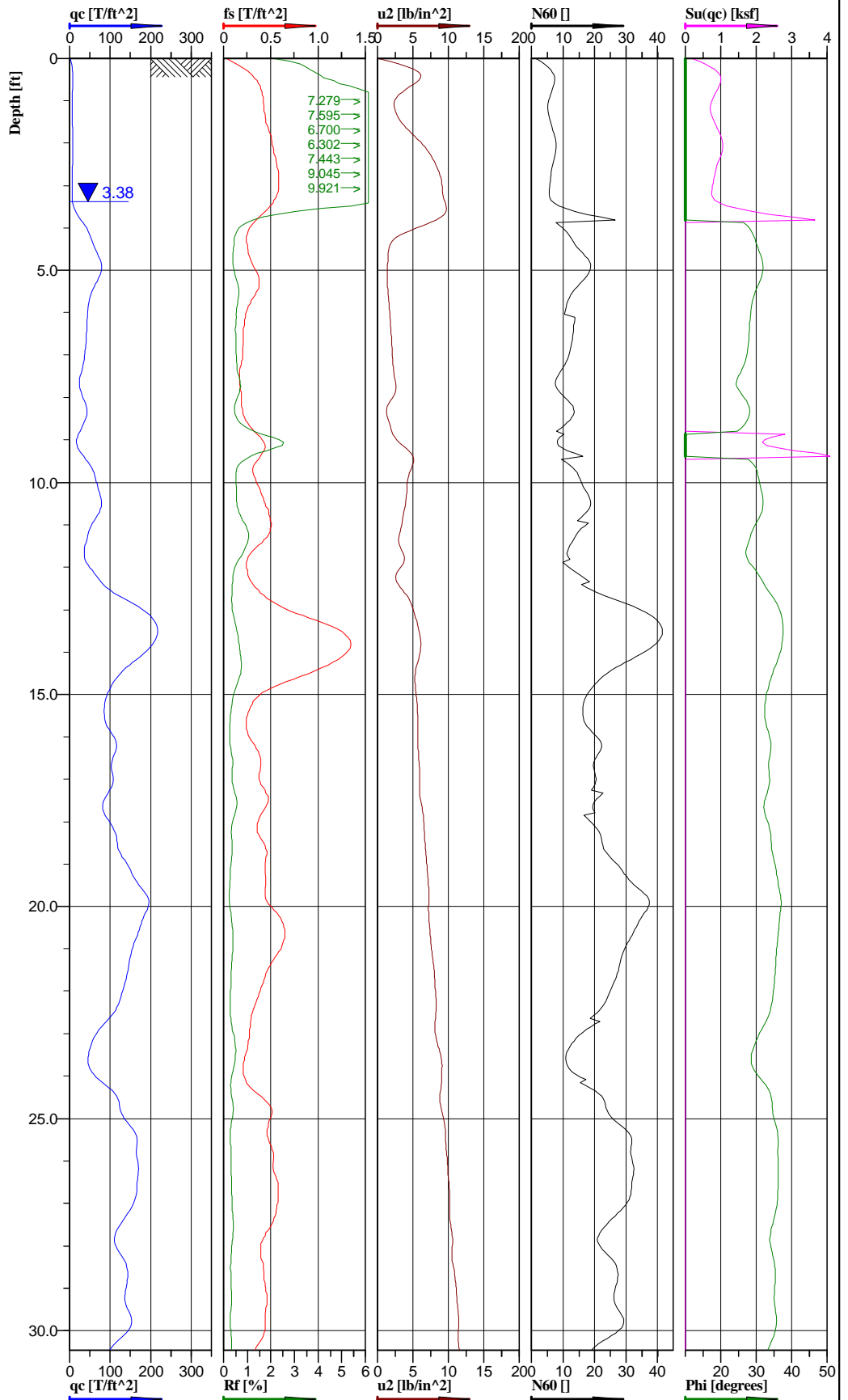
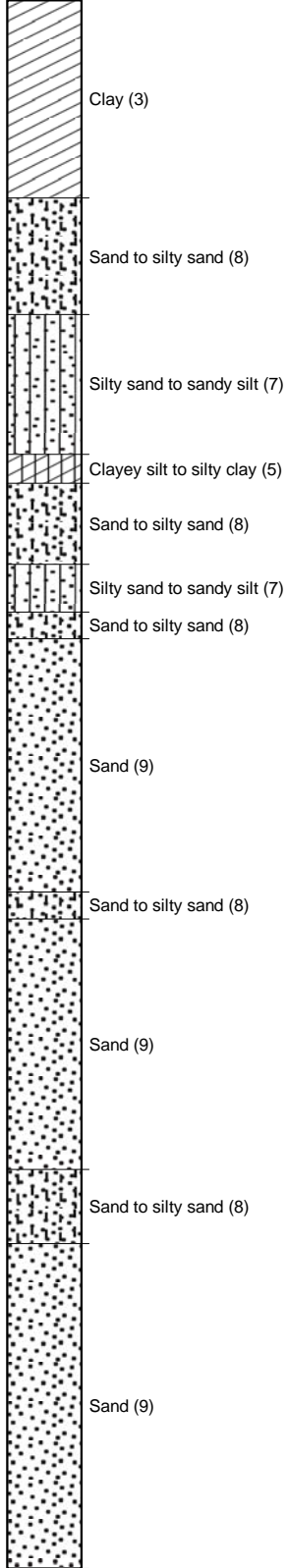
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730332.48 ft, Y: 993657.32 ft	Ground level: 465.09	Test no: C-84
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-34
		File: Labadie C-084.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-84
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-084.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.507	0.027	1.8792	Clay (3)	5.0	0.693	0.007	0.007			1.79	5.0	112	0.15	0.15	208
3.75	0.537	0.04	9.5001	Clay (3)	5.4	0.708	0.02	0.016			1.63	5.4	102	0.42	0.33	212
6.25	1.096	0.017	6.7146	Sandy silt to clayey silt (6)	5.7	0.816	0.033	0.022	20.7		1.82	5.7	114	0.69	0.46	91
8.75	4.928	0.023	4.8634	Sand to silty sand (8)	12.9		0.046	0.028	28.8	69	1.92	8.2	120	0.96	0.58	410
11.25	7.421	0.028	5.3691	Sand (9)	16.1		0.061	0.035	31.7	73	1.96	8.0	122	1.27	0.73	617
13.75	10.89	0.037	5.6122	Sand to silty sand (8)	22.5		0.076	0.042	33.9	81	1.98	14.4	124	1.58	0.87	906
16.25	10.027	0.036	6.238	Sand (9)	21.3		0.09	0.049	33.2	75	1.97	10.7	123	1.87	1.02	834
18.75	11.494	0.041	7.118	Sand (9)	23.0		0.105	0.056	34.4	79	1.99	11.5	124	2.18	1.16	956
21.25	10.039	0.044	8.0754	Sand to silty sand (8)	21.8		0.12	0.063	33.5	73	1.97	14.0	123	2.50	1.31	835
23.75	10.244	0.033	9.1752	Sand (9)	22.1		0.134	0.07	33.5	72	1.97	11.1	123	2.79	1.46	852
26.25	15.462	0.053	10.3421	Sand (9)	30.9		0.149	0.078	35.9	83	1.99	15.5	124	3.10	1.62	1286
28.75	14.949	0.035	11.2866	Sand (9)	29.9		0.164	0.085	35.7	81	1.99	14.9	124	3.41	1.77	1244
31.25	25.384	0.078	12.0874	Gravelly sand to sand (10)	43.3		0.179	0.092	38.4	94	2.03	29.5	127	3.72	1.91	2112
33.75	22.934	0.093	13.3976	Sand to silty sand (8)	40.9		0.195	0.1	37.2	87	2.01	26.2	125	4.06	2.08	1908
36.25	4.26	0.021	14.1201	Sand to silty sand (8)	10.6		0.203	0.104	28.4	42	1.92	6.8	120	4.22	2.16	354

Classification by Robertson 1986

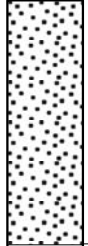


Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

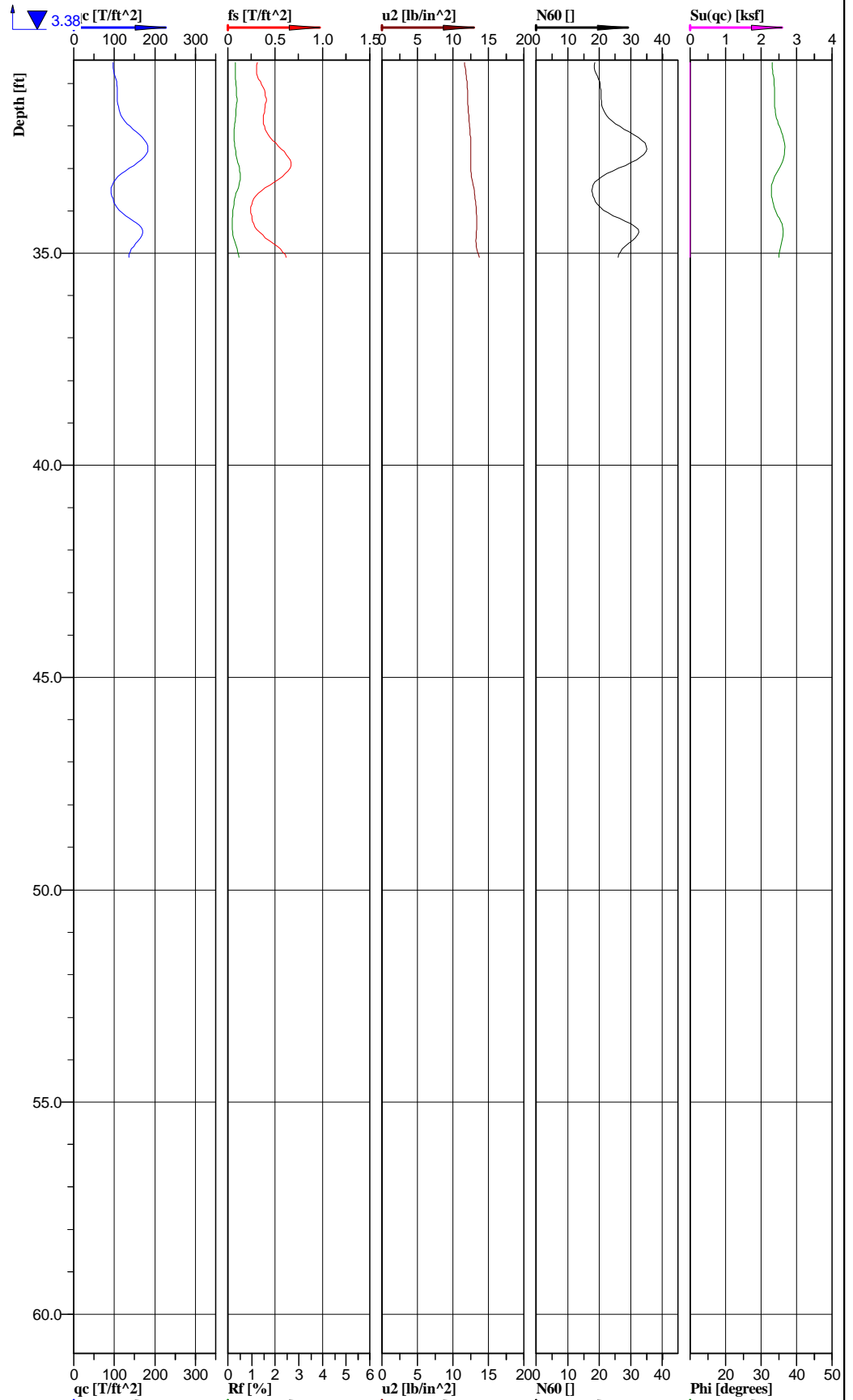


Location: Labadie, MO	Position: X: 730924.61 ft, Y: 993650.66 ft	Ground level: 465.72	Test no: C-86
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-35
		File: Labadie C-086.cpd	

Classification by
Robertson 1986



Sand (9)



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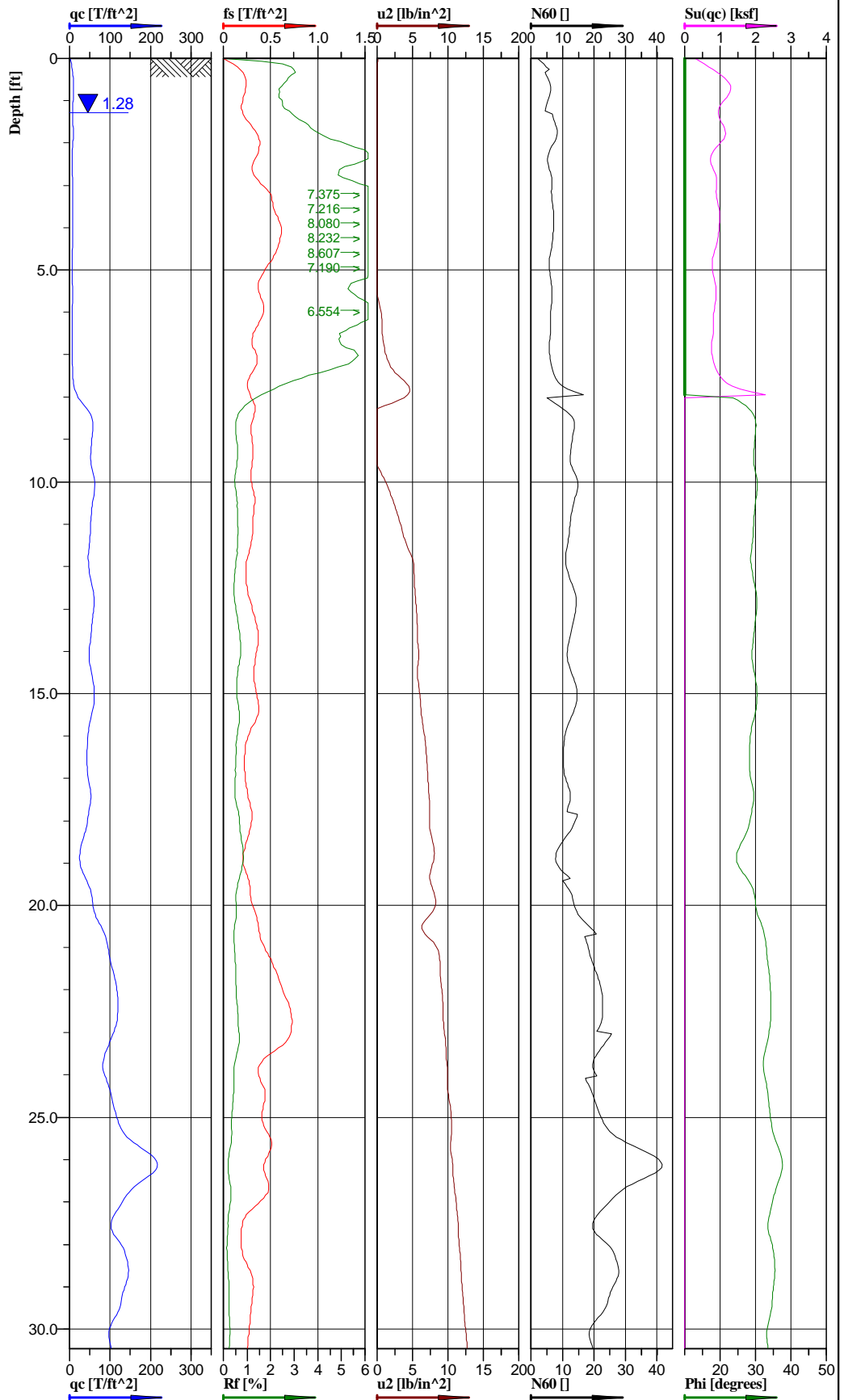
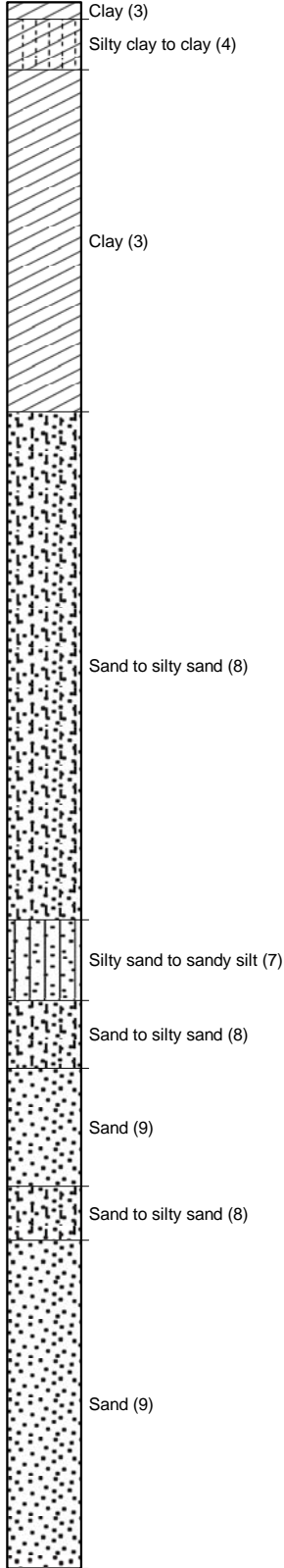
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730924.61 ft, Y: 993650.66 ft	Ground level: 465.72	Test no: C-86
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/5/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-35
File: Labadie C-086.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-86
 Test date: 11/5/2009
 Location: Labadie MO
 File name: Labadie C-086.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.627	0.039	4.6643	Clay (3)	6.3	0.856	0.007	0.007			1.78	6.3	111	0.15	0.15	257
3.75	3.299	0.039	5.971	Sand to silty sand (8)	11.8	1.248	0.02	0.019	30.2	73	1.86	7.5	116	0.42	0.40	274
6.25	4.312	0.024	1.8251	Silty sand to sandy silt (7)	12.5		0.035	0.026	28.3	69	1.91	8.0	119	0.73	0.54	359
8.75	3.503	0.027	2.9837	Sand to silty sand (8)	11.3	2.874	0.049	0.032	27.5	64	1.89	7.2	118	1.02	0.67	291
11.25	5.78	0.036	3.4555	Sand (9)	15.3		0.063	0.039	30.1	69	1.92	7.7	120	1.31	0.81	481
13.75	15.378	0.086	5.3672	Sand (9)	30.8		0.078	0.046	35.7	89	1.99	15.4	124	1.62	0.96	1279
16.25	9.482	0.033	5.7758	Sand to silty sand (8)	19.4		0.092	0.053	33.2	74	1.98	12.4	124	1.91	1.10	789
18.75	12.868	0.041	6.8098	Sand (9)	26.2		0.107	0.06	34.8	80	1.98	13.1	124	2.23	1.25	1071
21.25	14.418	0.048	7.7664	Sand (9)	28.8		0.122	0.067	35.5	83	1.99	14.4	124	2.54	1.39	1200
23.75	7.914	0.029	8.739	Sand (9)	17.4		0.137	0.074	31.8	63	1.96	8.7	122	2.85	1.54	658
26.25	15.055	0.05	9.9079	Sand (9)	30.1		0.152	0.082	35.8	82	1.99	15.0	124	3.16	1.71	1253
28.75	12.913	0.041	10.9412	Sand (9)	25.8		0.167	0.089	35.0	76	1.99	12.9	124	3.47	1.85	1074
31.25	11.806	0.037	12.0146	Sand (9)	23.6		0.181	0.096	34.4	72	1.99	11.8	124	3.76	2.00	982
33.75	12.931	0.042	13.0098	Sand (9)	25.8		0.196	0.103	34.9	73	1.99	12.9	124	4.08	2.14	1076
36.25	13.054	0.058	13.6663	Sand (9)	26.1		0.204	0.107	35.1	74	1.99	13.0	124	4.24	2.23	1086

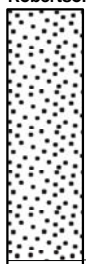
**Classification by
Robertson 1986**



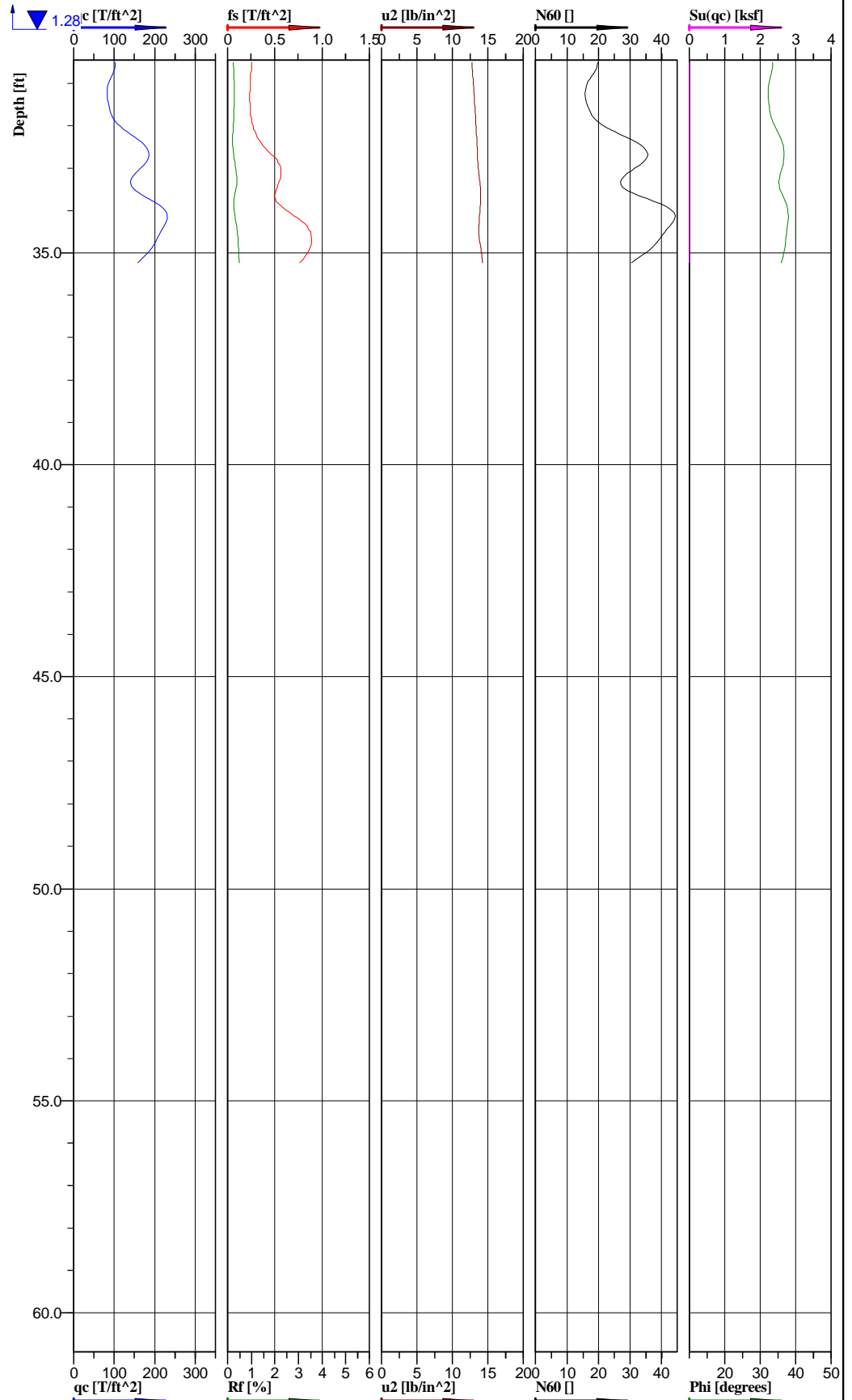
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727504.04 ft, Y: 993438.19 ft	Ground level: 465.09	Test no: C-89
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-36
File: Labadie C-089.cpd			

Classification by
Robertson 1986



Sand (9)



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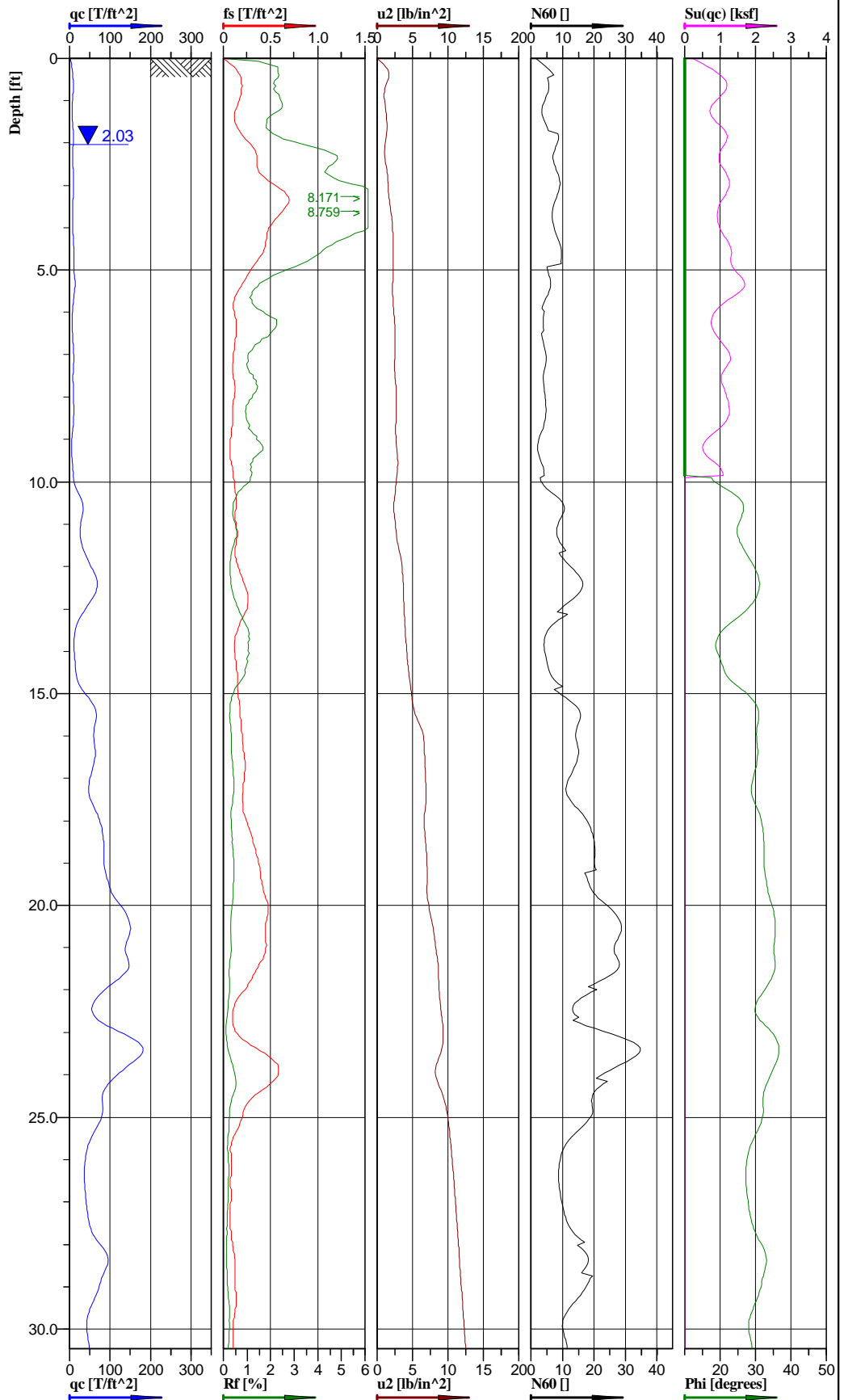
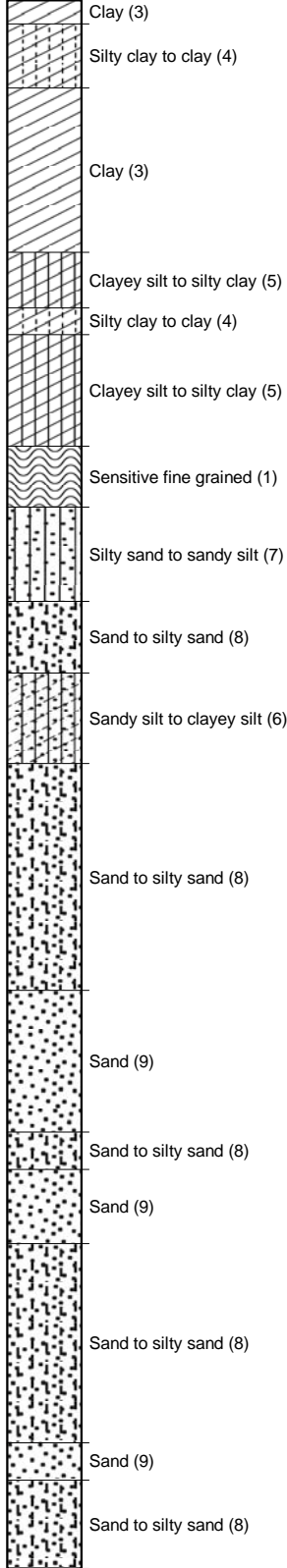
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727504.04 ft, Y: 993438.19 ft	Ground level: 465.09	Test no: C-89
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-36
		File: Labadie C-089.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-89
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-089.cpd


Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.694	0.024	-3.1316	Clay (3)	5.9	0.961	0.007	0.006			1.8	5.9	112	0.15	0.12	288
3.75	0.656	0.048	-2.5962	Clay (3)	6.6	0.889	0.02	0.013			1.78	6.6	111	0.42	0.27	267
6.25	0.634	0.035	0.7347	Clay (3)	6.3	0.835	0.034	0.018			1.78	6.3	111	0.71	0.37	251
8.75	4.247	0.029	0.3231	Sand to silty sand (8)	12.1	1.485	0.047	0.025	29.2	66	1.91	7.8	119	0.98	0.52	353
11.25	5.032	0.028	3.7232	Sand to silty sand (8)	12.6		0.062	0.031	29.5	64	1.94	8.0	121	1.29	0.64	419
13.75	5.279	0.032	5.6784	Sand to silty sand (8)	13.2		0.076	0.038	29.8	62	1.93	8.4	120	1.58	0.79	439
16.25	4.708	0.027	6.7641	Sand to silty sand (8)	11.8		0.091	0.045	29.0	57	1.93	7.5	120	1.89	0.94	392
18.75	3.878	0.025	7.7203	Sand to silty sand (8)	11.3		0.105	0.052	27.6	56	1.91	7.3	119	2.18	1.08	323
21.25	9.287	0.048	8.3171	Sand (9)	19.5		0.119	0.059	33.0	72	1.97	9.8	123	2.48	1.23	773
23.75	9.673	0.05	9.8195	Sand (9)	21.1		0.134	0.066	33.3	72	1.97	10.6	123	2.79	1.37	805
26.25	14.707	0.04	10.7934	Sand (9)	29.4		0.149	0.073	35.5	82	1.99	14.7	124	3.10	1.52	1224
28.75	12.027	0.025	11.9331	Sand (9)	24.0		0.164	0.08	34.6	75	1.99	12.0	124	3.41	1.66	1001
31.25	10.198	0.025	13.0444	Sand (9)	20.4		0.179	0.087	33.5	69	1.98	10.2	124	3.72	1.81	848
33.75	18.072	0.062	13.8114	Sand (9)	36.1		0.194	0.095	36.7	84	1.99	18.1	124	4.04	1.98	1504
36.25	16.195	0.077	14.1882	Sand (9)	32.4		0.202	0.099	36.2	81	1.99	16.2	124	4.20	2.06	1347

**Classification by
Robertson 1986**

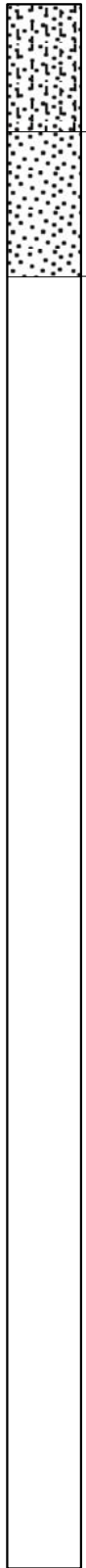


Location:	Labadie, MO	Position:	X: 728094.55 ft, Y: 993413.85 ft	Ground level:	465.09	Test no:	C-91
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/3/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	1	Fig:	C-37
				File:	Labadie C-091.cpd		



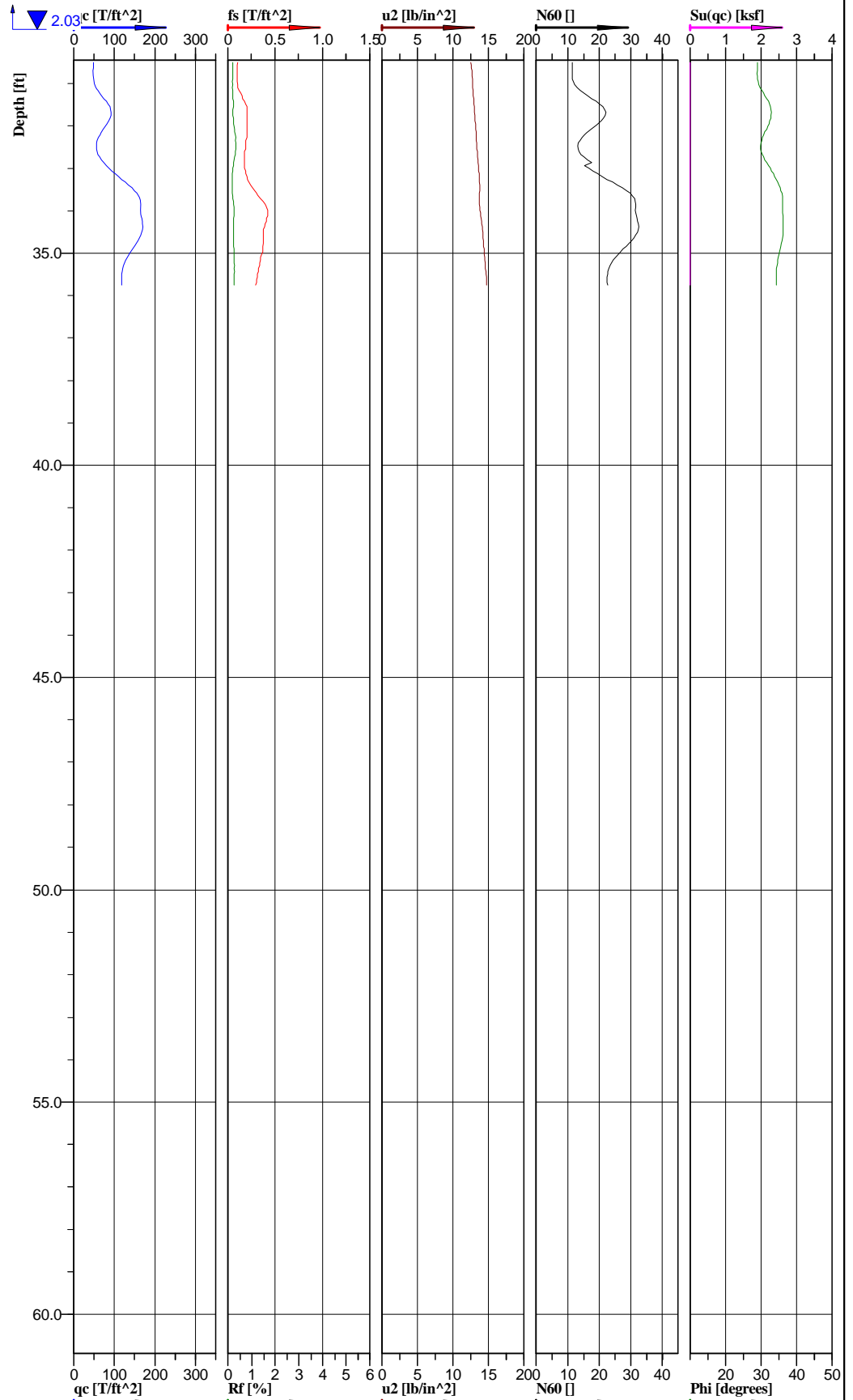

 Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Classification by
Robertson 1986



Sand to silty sand (8)

Sand (9)



Location: Labadie, MO	Position: X: 728094.55 ft, Y: 993413.85 ft	Ground level: 465.09	Test no: C-91
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-37
		File: Labadie C-091.cpd	



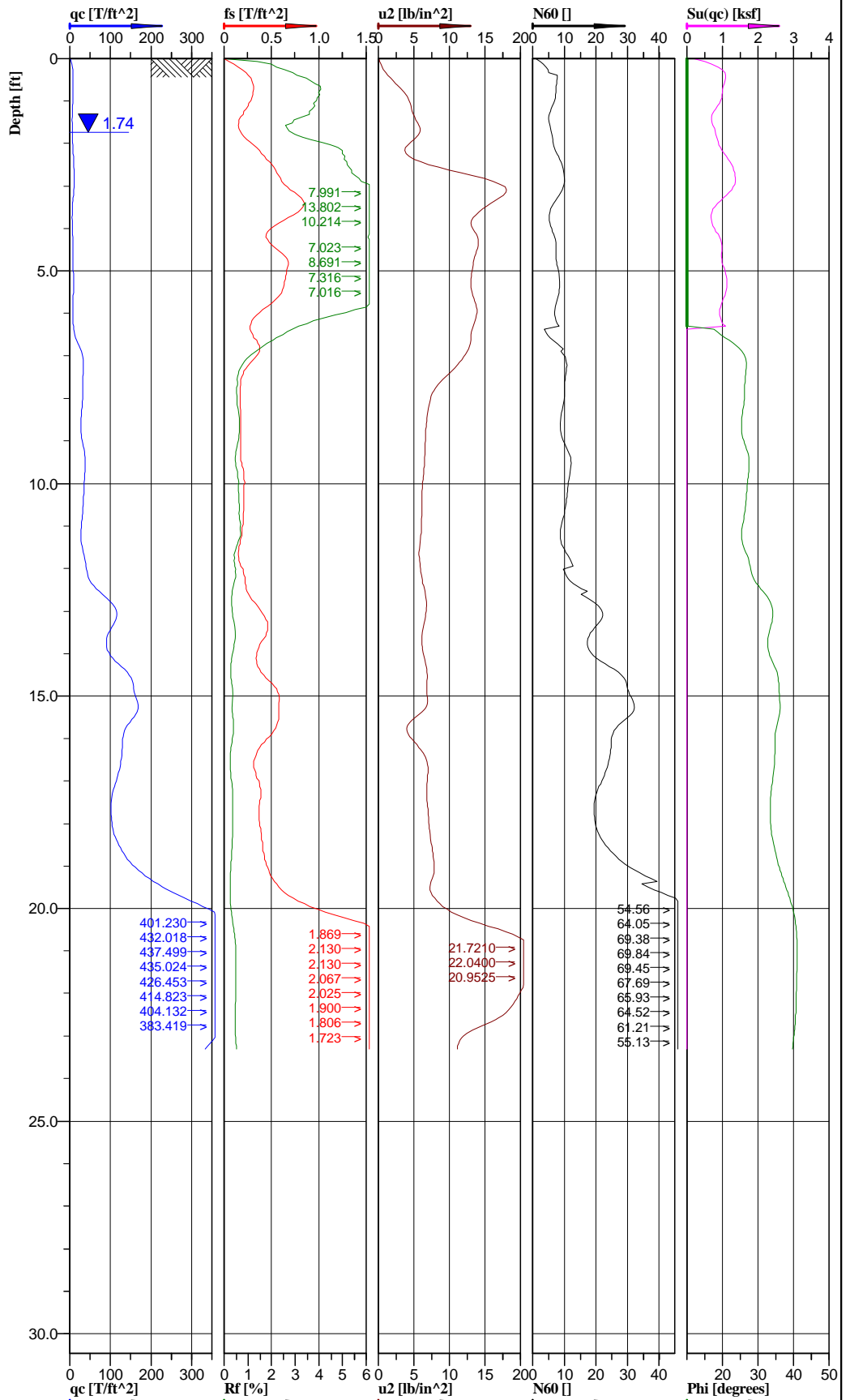
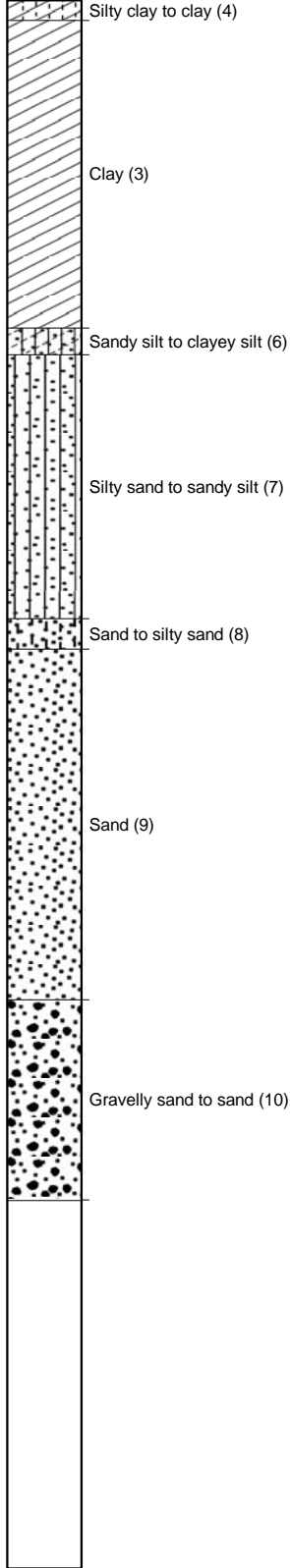
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-91
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-091.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.684	0.019	1.1763	Clay (3)	5.7	0.941	0.007	0.007				1.82	5.7	114	0.15	0.15	282
3.75	0.849	0.047	1.9296	Clayey silt to silty clay (5)	8.1	1.15	0.021	0.015				1.79	8.1	112	0.44	0.31	690
6.25	0.868	0.013	2.3817	Clayey silt to silty clay (5)	4.6	1.158	0.034	0.021				1.84	4.6	115	0.71	0.44	695
8.75	0.763	0.009	2.7078	Silty sand to sandy silt (7)	3.7	0.968	0.048	0.027	18.3			1.82	2.4	114	1.00	0.56	63
11.25	3.59	0.014	2.9275	Sand to silty sand (8)	10.4		0.062	0.033	26.7	64		1.9	6.6	119	1.29	0.69	299
13.75	2.495	0.016	4.1399	Sand to silty sand (8)	7.9		0.076	0.04	23.6	58		1.87	5.0	117	1.58	0.83	208
16.25	5.451	0.019	6.2785	Sand to silty sand (8)	13.6		0.09	0.046	29.9	60		1.94	8.7	121	1.87	0.96	454
18.75	8.242	0.032	6.9139	Sand (9)	18.9		0.104	0.053	32.3	70		1.95	9.5	122	2.16	1.10	686
21.25	11.602	0.033	8.3312	Sand to silty sand (8)	23.9		0.119	0.06	34.1	77		1.98	15.3	124	2.48	1.25	965
23.75	10.863	0.031	9.0755	Sand to silty sand (8)	23.4		0.134	0.067	33.7	73		1.97	15.0	123	2.79	1.39	904
26.25	4.454	0.009	10.6988	Sand to silty sand (8)	11.1		0.148	0.074	28.5	47		1.94	7.1	121	3.08	1.54	371
28.75	6.421	0.011	11.8008	Sand to silty sand (8)	14.8		0.163	0.081	30.7	56		1.95	9.5	122	3.39	1.68	534
31.25	5.97	0.014	12.8723	Sand to silty sand (8)	14.9		0.178	0.088	30.3	53		1.95	9.5	122	3.70	1.83	497
33.75	12.801	0.029	13.8739	Sand (9)	26.0		0.192	0.095	34.6	73		1.98	13.0	124	3.99	1.98	1065
36.25	11.746	0.031	14.6136	Sand (9)	23.5		0.202	0.1	34.5	72		1.99	11.7	124	4.20	2.08	977

Classification by
Robertson 1986



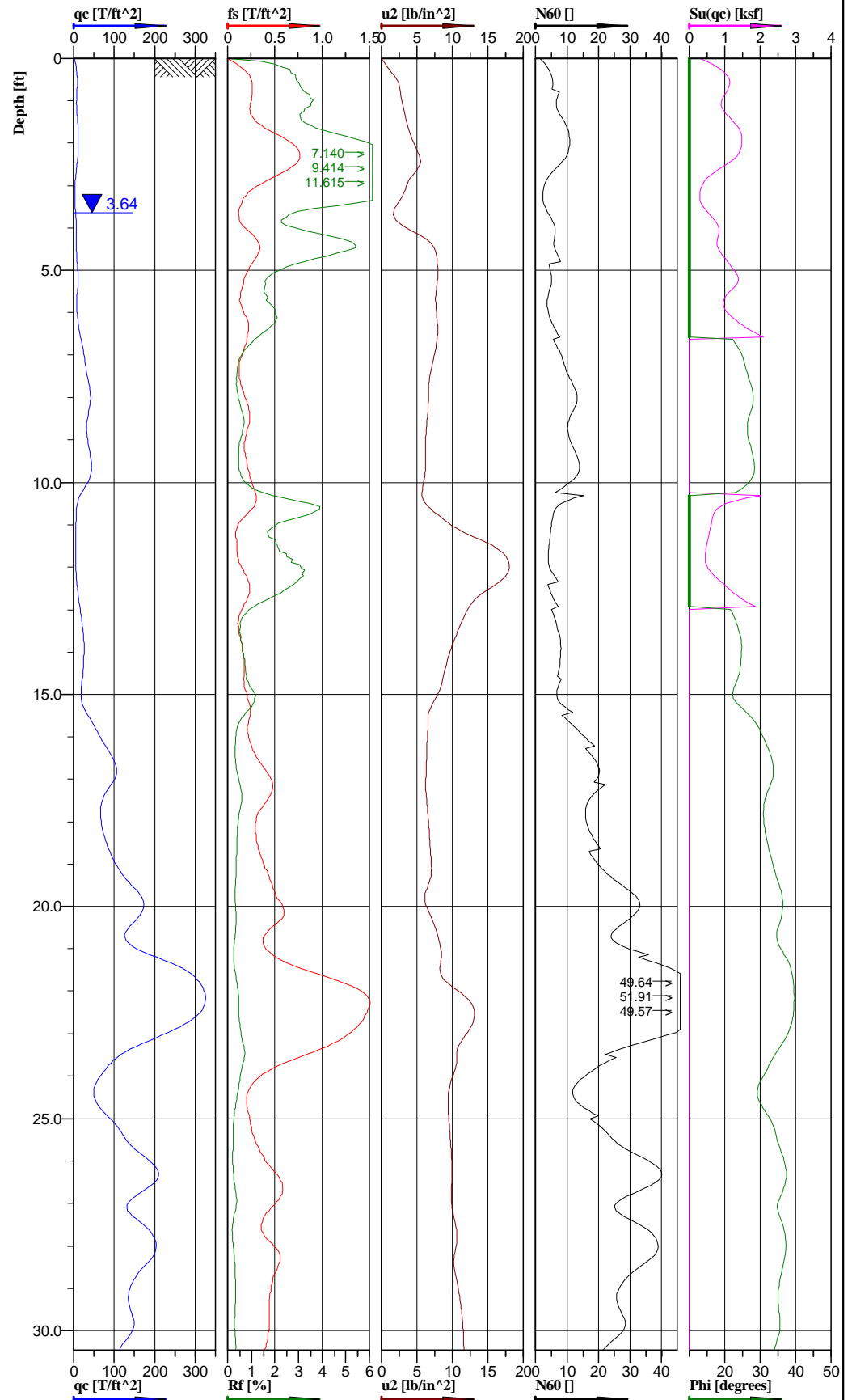
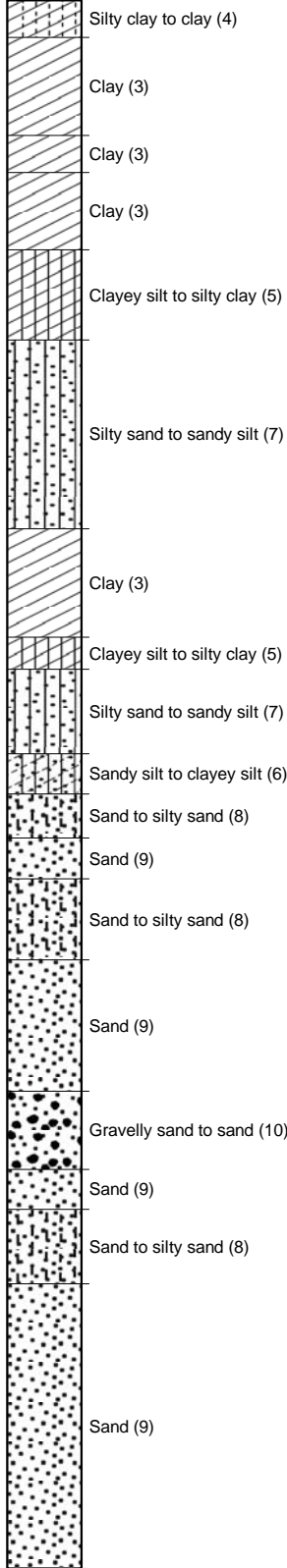
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150


Location: Labadie, MO	Position: X: 728843.80 ft, Y: 993398.00 ft	Ground level: 465.62	Test no: C-92
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/3/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-38
Confirmation sounding adjacent to B-92		File: Labadie C-092.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-92
 Test date: 11/3/2009
 Location: Labadie MO
 File name: Labadie C-092.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.661	0.025	3.8947	Clay (3)	6.4	0.905	0.007	0.006				1.79	6.4	112	0.15	0.12	272
3.75	0.754	0.061	14.2018	Clay (3)	7.5	1.001	0.02	0.014				1.76	7.5	110	0.42	0.29	300
6.25	1.598	0.038	12.618	Silty sand to sandy silt (7)	8.2	1.031	0.034	0.02	24.2			1.82	5.3	114	0.71	0.42	133
8.75	3.095	0.017	6.9124	Silty sand to sandy silt (7)	10.3		0.047	0.026	26.3			1.89	6.6	118	0.98	0.54	258
11.25	3.519	0.019	6.0394	Sand to silty sand (8)	10.8		0.061	0.032	27.0	62		1.9	6.9	119	1.27	0.67	293
13.75	11.088	0.039	6.5592	Sand (9)	22.3		0.076	0.039	34.0	83		1.98	11.1	124	1.58	0.81	923
16.25	12.619	0.042	6.0878	Sand (9)	25.2		0.091	0.046	34.8	84		1.99	12.6	124	1.89	0.96	1050
18.75	16.08	0.047	7.5631	Gravelly sand to sand (10)	29.9		0.106	0.054	35.7	87		2	20.3	125	2.20	1.12	1338
21.25	39.94	0.181	18.8299	Gravelly sand to sand (10)	66.5		0.121	0.061	40.7	114		2.04	45.2	127	2.52	1.27	3323
23.75	35.423	0.169	13.495	Gravelly sand to sand (10)	59.0		0.131	0.066	40.2	109		2.04	40.1	127	2.72	1.37	2947

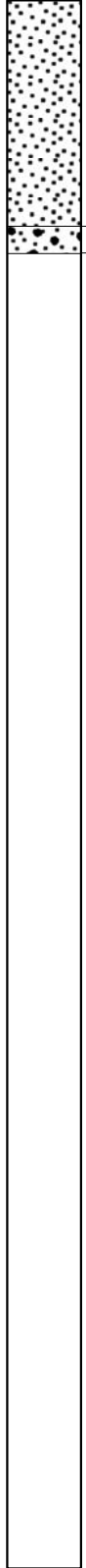
Classification by Robertson 1986




 Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

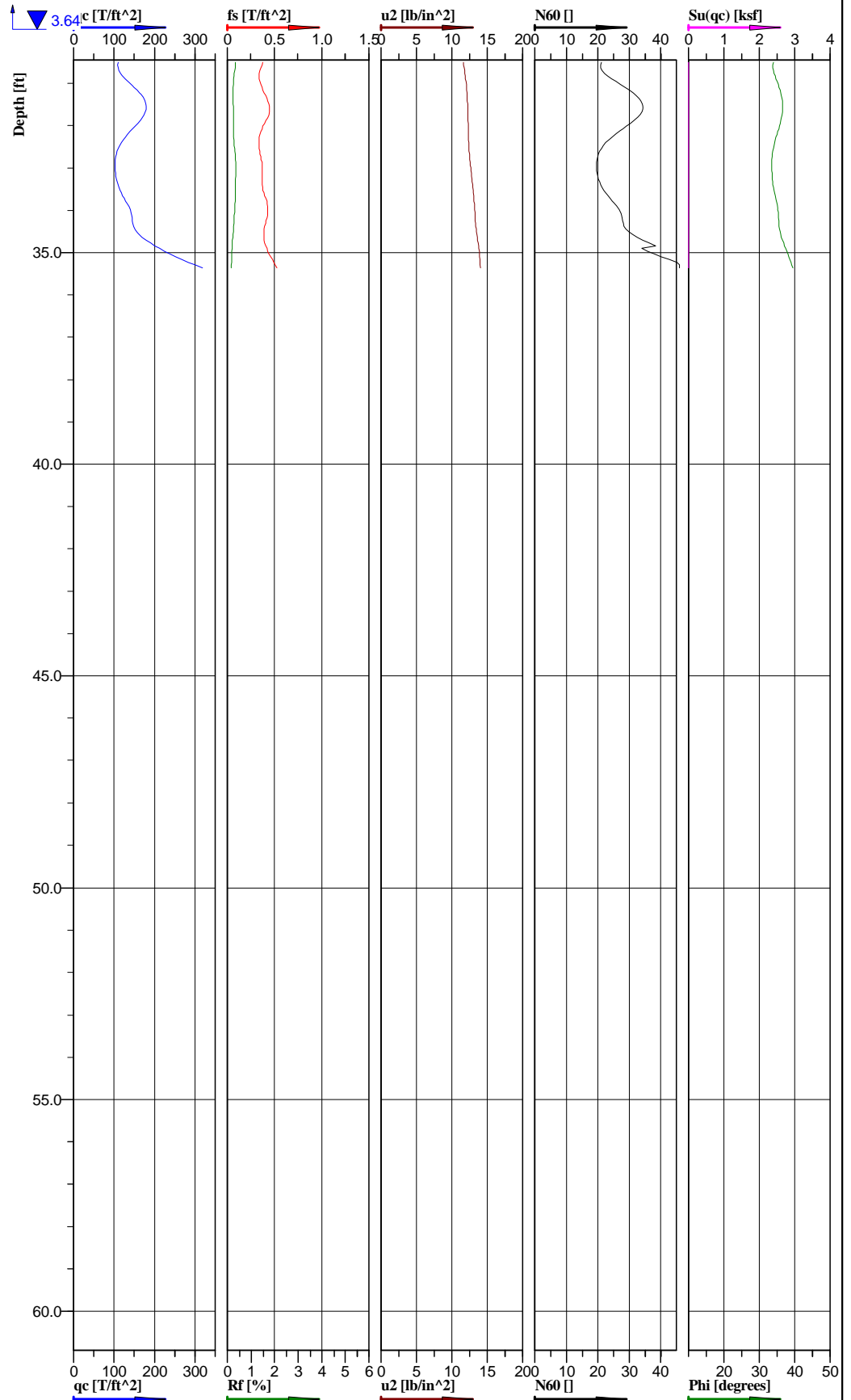
Location:	Labadie, MO	Position:	X: 729434.38 ft, Y: 993375.69 ft	Ground level:	466.50	Test no:	C-94
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/4/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	1	Fig:	C-39
				File:	Labadie C-094.cpd		

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Sand (9)

Gravelly sand to sand (10)



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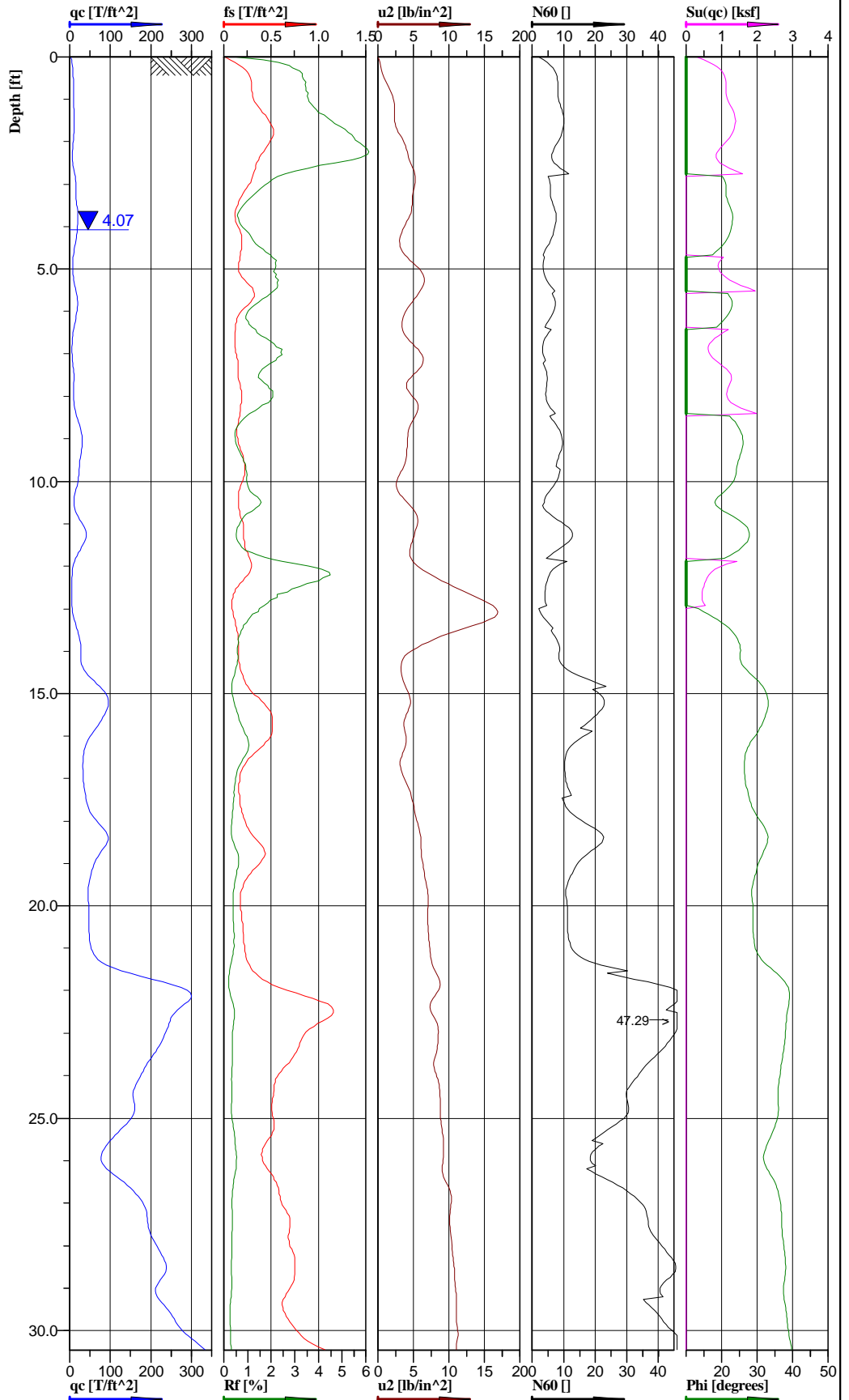
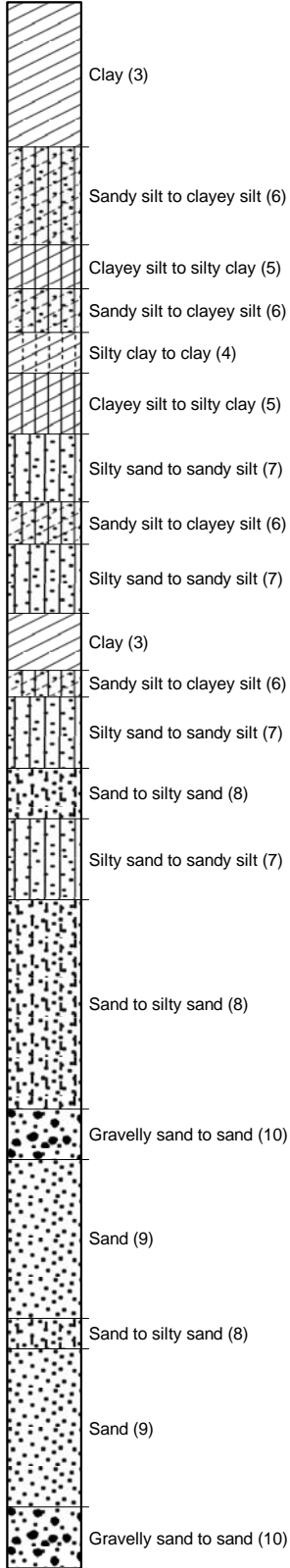
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729434.38 ft, Y: 993375.69 ft	Ground level: 466.50	Test no: C-94
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-39
File: Labadie C-094.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-94
 Test date: 11/4/2009
 Location: Labadie MO
 File name: Labadie C-094.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.81	0.037	3.2313	Clay (3)	7.5	1.114	0.007	0.007				1.8	7.5	112	0.15	0.15	334
3.75	0.529	0.027	4.7333	Clayey silt to silty clay (5)	4.8	0.703	0.02	0.018				1.65	4.8	103	0.42	0.37	422
6.25	1.575	0.016	7.6092	Silty sand to sandy silt (7)	6.2	1.304	0.033	0.025	24.9			1.85	4.0	115	0.69	0.52	131
8.75	3.624	0.019	6.3558	Silty sand to sandy silt (7)	12.1		0.047	0.031	27.4			1.9	7.7	119	0.98	0.64	302
11.25	0.794	0.017	12.2268	Clayey silt to silty clay (5)	5.9	0.736	0.061	0.037	24.7			1.81	5.9	113	1.27	0.77	442
13.75	1.92	0.016	10.4575	Sandy silt to clayey silt (6)	6.9	1.479	0.074	0.044	23.7			1.86	6.9	116	1.54	0.92	160
16.25	6.573	0.03	6.5213	Sand to silty sand (8)	15.4		0.089	0.05	30.3	67	1.94	9.9	121	1.85	1.04	547	
18.75	10.007	0.037	6.6417	Sand (9)	21.6		0.103	0.057	33.2	73	1.97	10.8	123	2.14	1.19	833	
21.25	21.863	0.081	9.0238	Gravelly sand to sand (10)	38.6		0.118	0.064	37.4	94	2.02	26.3	126	2.45	1.33	1819	
23.75	12.556	0.067	10.6657	Sand (9)	26.2		0.133	0.072	33.6	73	1.97	13.1	123	2.77	1.50	1045	
26.25	14.961	0.039	9.8716	Sand (9)	29.9		0.148	0.079	35.7	81	1.99	15.0	124	3.08	1.64	1245	
28.75	15.648	0.044	10.8051	Sand (9)	31.3		0.163	0.086	36.0	82	1.99	15.6	124	3.39	1.79	1302	
31.25	13.519	0.037	12.0398	Sand (9)	27.0		0.178	0.093	35.2	76	1.99	13.5	124	3.70	1.93	1125	
33.75	13.159	0.037	13.1095	Gravelly sand to sand (10)	25.7		0.192	0.1	34.9	74	1.99	17.5	124	3.99	2.08	1095	
36.25	26.499	0.046	13.9635	Gravelly sand to sand (10)	44.1		0.201	0.105	38.7	94	2.04	30.0	127	4.18	2.18	2205	

Classification by Robertson 1986

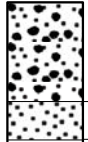


Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150



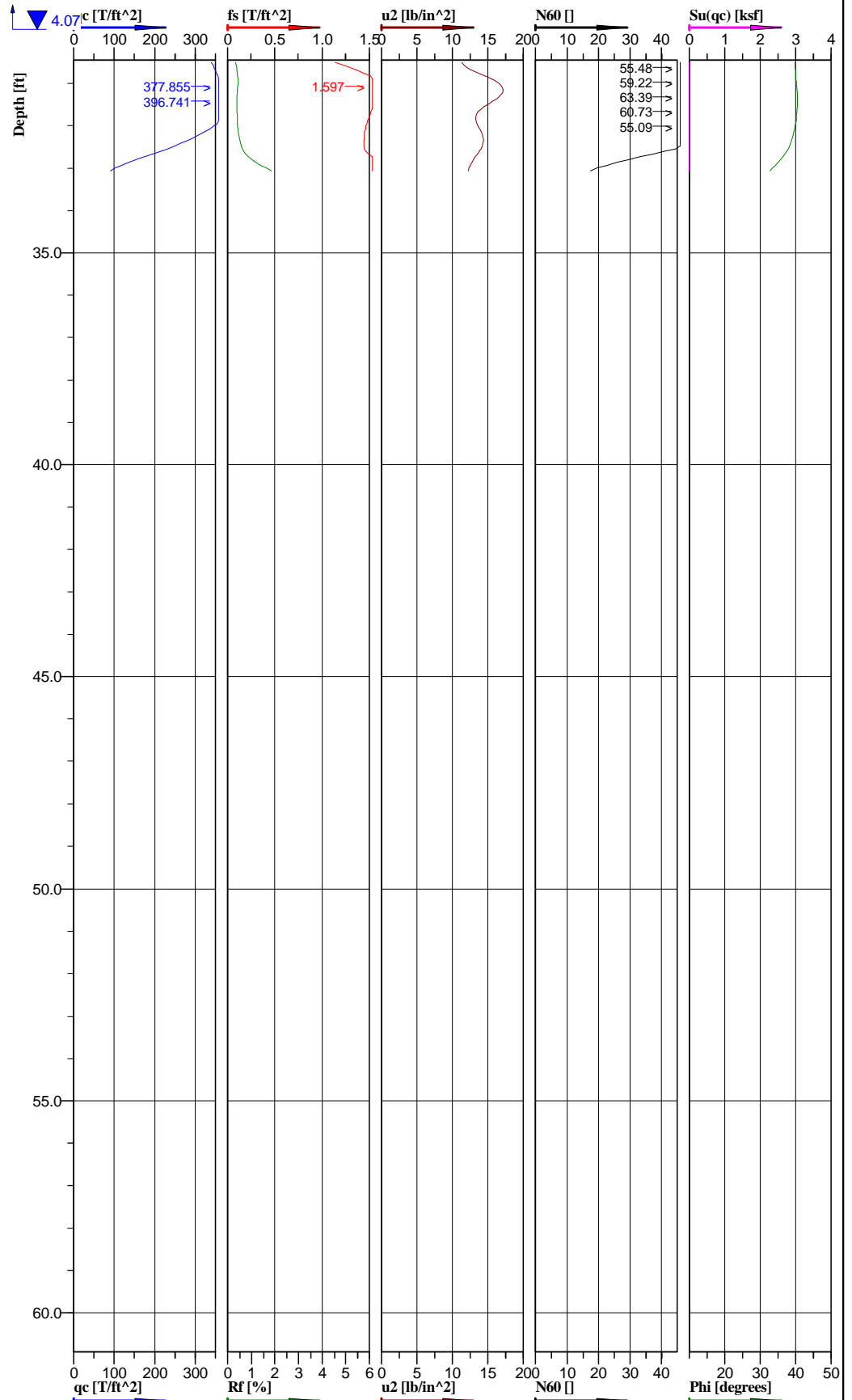
Location: Labadie, MO	Position: X: 730021.06 ft, Y: 993362.60 ft	Ground level: 467.91	Test no: C-96
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-40
		File: Labadie C-096.cpd	

Classification by Robertson 1986



Gravelly sand to sand (10)

Sand (9)



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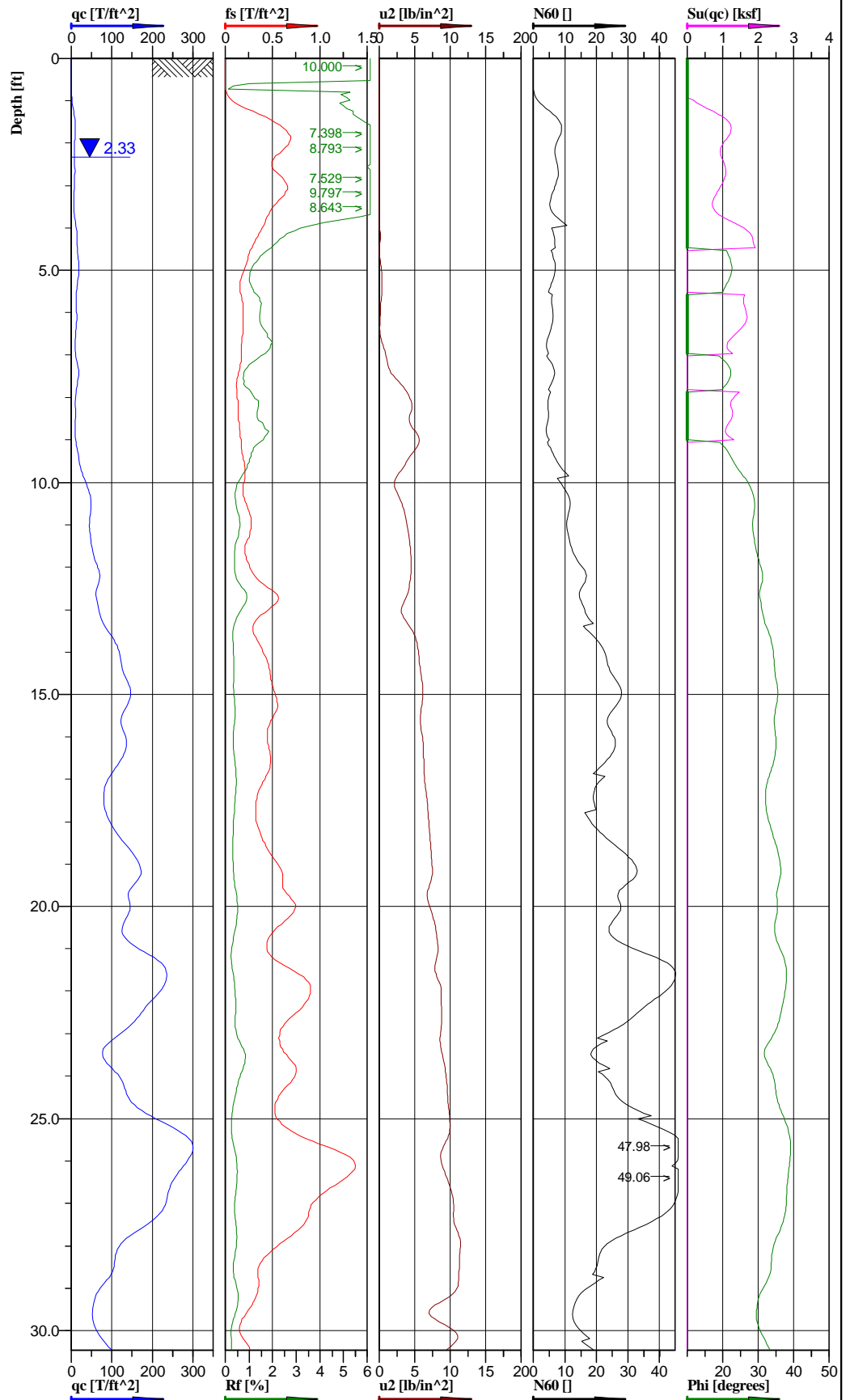
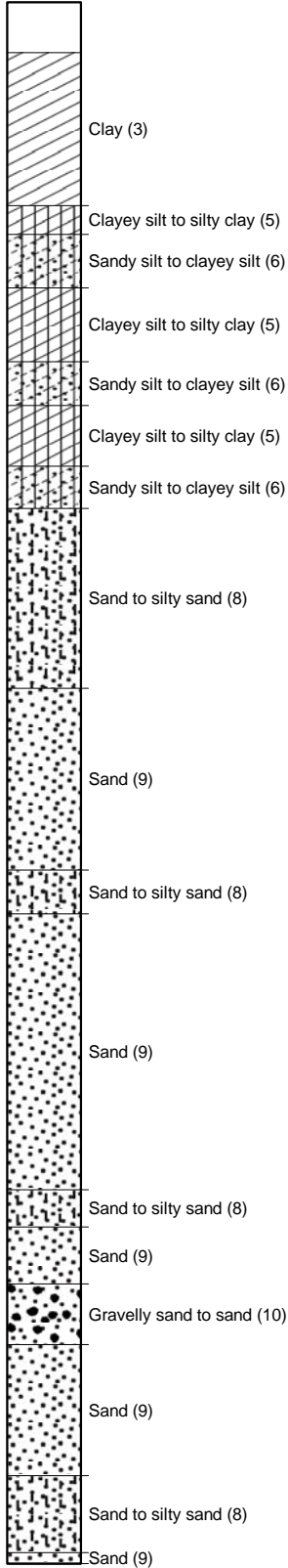
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730021.06 ft, Y: 993362.60 ft	Ground level: 467.91	Test no: C-96
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-40
		File: Labadie C-096.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-96
 Test date: 11/4/2009
 Location: Labadie MO
 File name: Labadie C-096.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.788	0.034	2.3233	Clay (3)	7.9	1.085	0.007	0.007			1.79	7.9	112	0.15	0.15	326
3.75	1.348	0.019	4.4359	Clayey silt to silty clay (5)	6.1	1.099	0.021	0.02	21.4		1.84	6.1	115	0.44	0.42	659
6.25	1.046	0.017	5.0928	Clayey silt to silty clay (5)	5.0	1.046	0.034	0.027	21.6		1.83	5.0	114	0.71	0.56	628
8.75	1.902	0.017	4.2686	Sandy silt to clayey silt (6)	7.2	1.337	0.048	0.034	24.6		1.86	7.2	116	1.00	0.71	158
11.25	1.75	0.02	5.4014	Clay (3)	7.2	0.759	0.062	0.04	23.3		1.84	7.2	115	1.29	0.83	228
13.75	2.727	0.015	8.7212	Sand to silty sand (8)	9.2	0.468	0.075	0.046	24.9	72	1.87	5.9	117	1.56	0.96	227
16.25	5.146	0.032	3.928	Sand to silty sand (8)	14.7		0.09	0.053	29.0	68	1.91	9.4	119	1.87	1.10	428
18.75	5.904	0.026	6.1525	Sand to silty sand (8)	14.7		0.104	0.059	30.2	58	1.94	9.4	121	2.16	1.23	491
21.25	12.944	0.041	7.5731	Sand (9)	24.7		0.119	0.066	33.1	72	1.98	12.3	124	2.48	1.37	1077
23.75	18.752	0.068	8.3817	Sand (9)	37.5		0.133	0.073	36.9	89	1.99	18.7	124	2.77	1.52	1560
26.25	12.903	0.052	9.5537	Sand (9)	26.7		0.148	0.081	34.7	76	1.98	13.3	124	3.08	1.68	1074
28.75	22.019	0.067	10.7731	Gravelly sand to sand (10)	41.3		0.163	0.088	37.8	91	2.01	28.1	125	3.39	1.83	1832
31.25	32.781	0.132	13.8501	Sand (9)	55.5		0.179	0.096	39.8	101	2.04	27.7	127	3.72	2.00	2727
33.75	15.062	0.151	13.0419	Sand (9)	30.1		0.188	0.1	35.6	77	1.95	15.1	122	3.91	2.08	1253

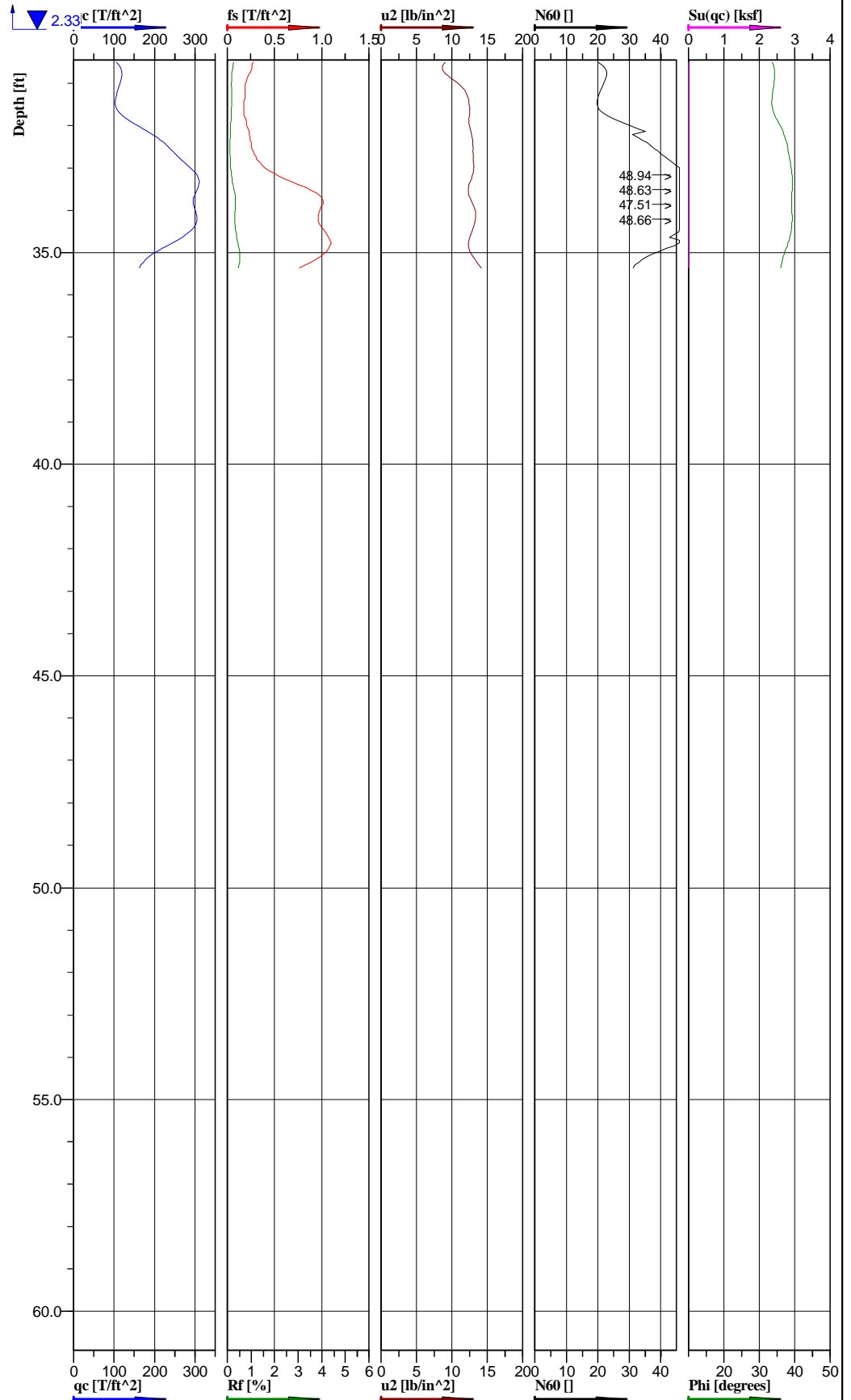
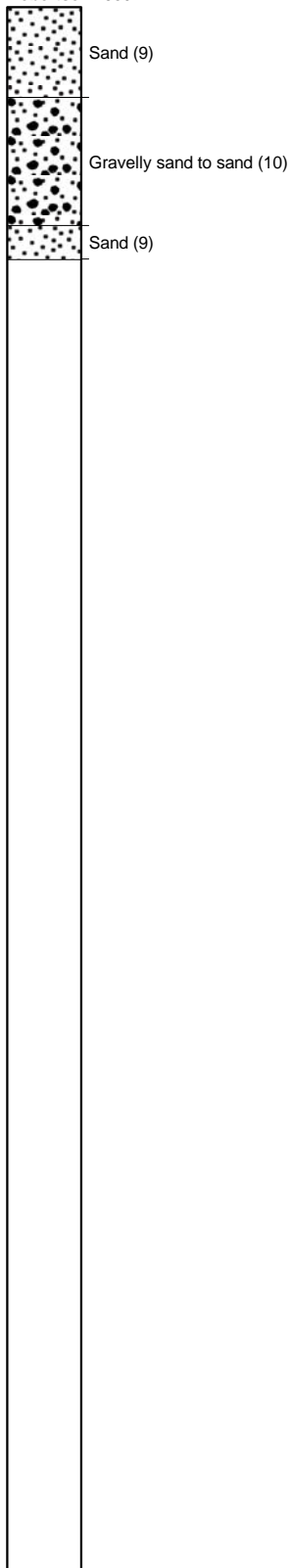
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730622.83 ft, Y: 993346.95 ft	Ground level: 465.19	Test no: C-98
Project ID: 20080124	Client: Ameren Missouri	Date: 11/4/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-41
		File: Labadie C-098.cpd	

Classification by
Robertson 1986



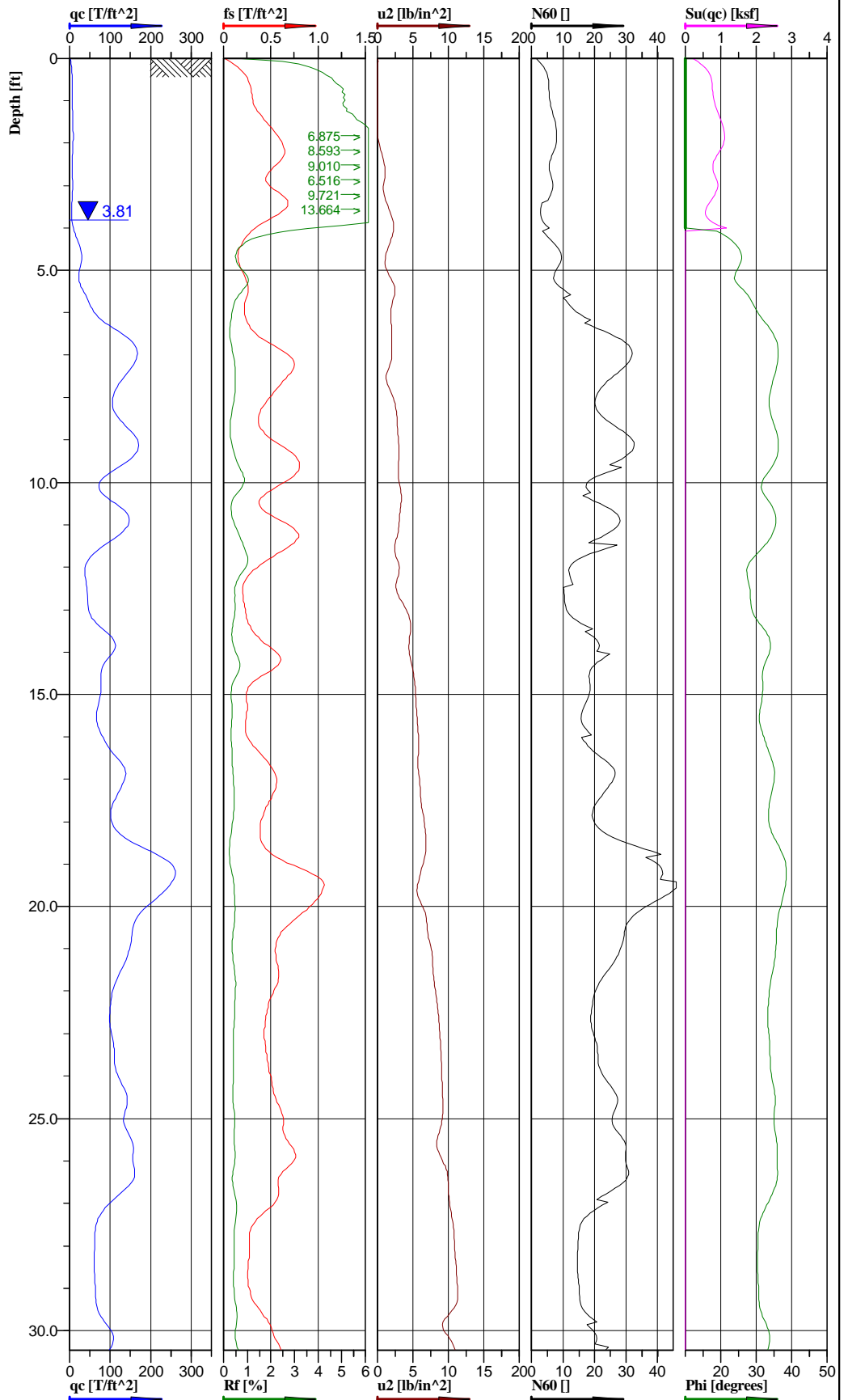
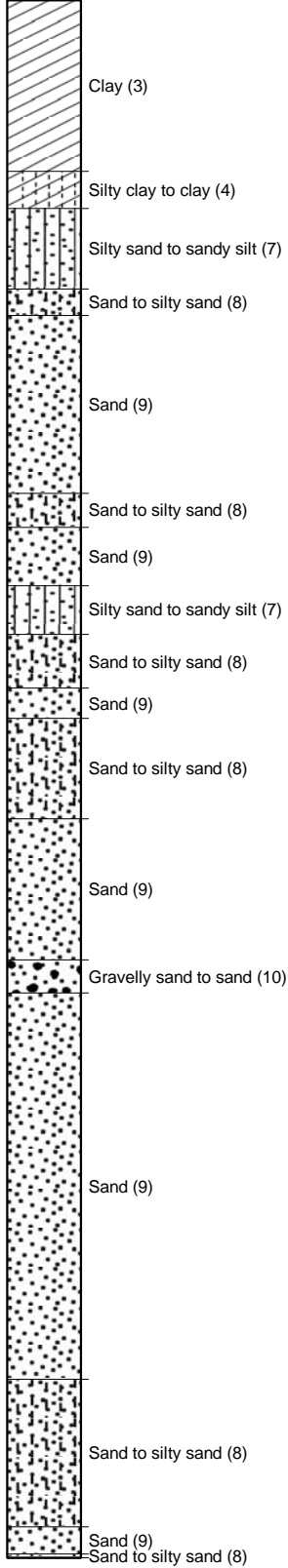
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 730622.83 ft, Y: 993346.95 ft	Ground level: 465.19	Test no: C-98
Project ID: 20080124	Client: Ameren Missouri	Date: 11/4/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-41
		File: Labadie C-098.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-98
 Test date: 11/4/09
 Location: Labadie MO
 File name: Labadie C-098.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.427	0.029	-1.645	Clay (3)	4.3	0.585	0.006	0.006			1.62	4.3	101	0.12	0.12	176
3.75	1.044	0.041	-0.6417	Sandy silt to clayey silt (6)	6.8	1.184	0.019	0.015	22.1		1.81	6.8	113	0.40	0.31	87
6.25	1.254	0.016	0.5465	Sandy silt to clayey silt (6)	5.6	1.464	0.033	0.021	21.3		1.84	5.6	115	0.69	0.44	104
8.75	1.481	0.015	4.0462	Sand to silty sand (8)	6.0	1.231	0.046	0.027	22.8	53	1.84	3.8	115	0.96	0.56	123
11.25	5.037	0.025	3.8291	Sand to silty sand (8)	12.6		0.061	0.033	29.4	63	1.93	8.1	120	1.27	0.69	419
13.75	9.863	0.041	4.8869	Sand (9)	20.8		0.075	0.04	33.2	78	1.97	10.4	123	1.56	0.83	821
16.25	11.16	0.044	6.1904	Sand to silty sand (8)	23.3		0.09	0.047	34.1	80	1.98	14.9	124	1.87	0.98	929
18.75	12.622	0.047	7.1028	Sand (9)	25.6		0.105	0.054	34.7	82	1.98	12.8	124	2.18	1.12	1050
21.25	17.366	0.065	8.1609	Sand (9)	34.7		0.119	0.062	36.5	89	2	17.4	125	2.48	1.29	1445
23.75	12.317	0.06	9.1859	Sand (9)	25.6		0.134	0.069	34.5	77	1.97	12.8	123	2.79	1.44	1025
26.25	24.064	0.096	9.7661	Sand (9)	44.2		0.149	0.076	38.2	96	2.01	22.1	125	3.10	1.58	2002
28.75	8.689	0.037	10.2597	Sand to silty sand (8)	19.0		0.164	0.084	32.3	64	1.96	12.1	122	3.41	1.75	723
31.25	12.35	0.02	11.4241	Gravelly sand to sand (10)	23.9		0.179	0.091	34.4	73	1.99	16.2	124	3.72	1.89	1028
33.75	26.858	0.076	12.8306	Sand (9)	45.9		0.194	0.098	38.8	95	2.03	22.9	127	4.04	2.04	2235
36.25	16.915	0.086	13.4101	Sand (9)	33.8		0.202	0.102	36.5	82	1.99	16.9	124	4.20	2.12	1407



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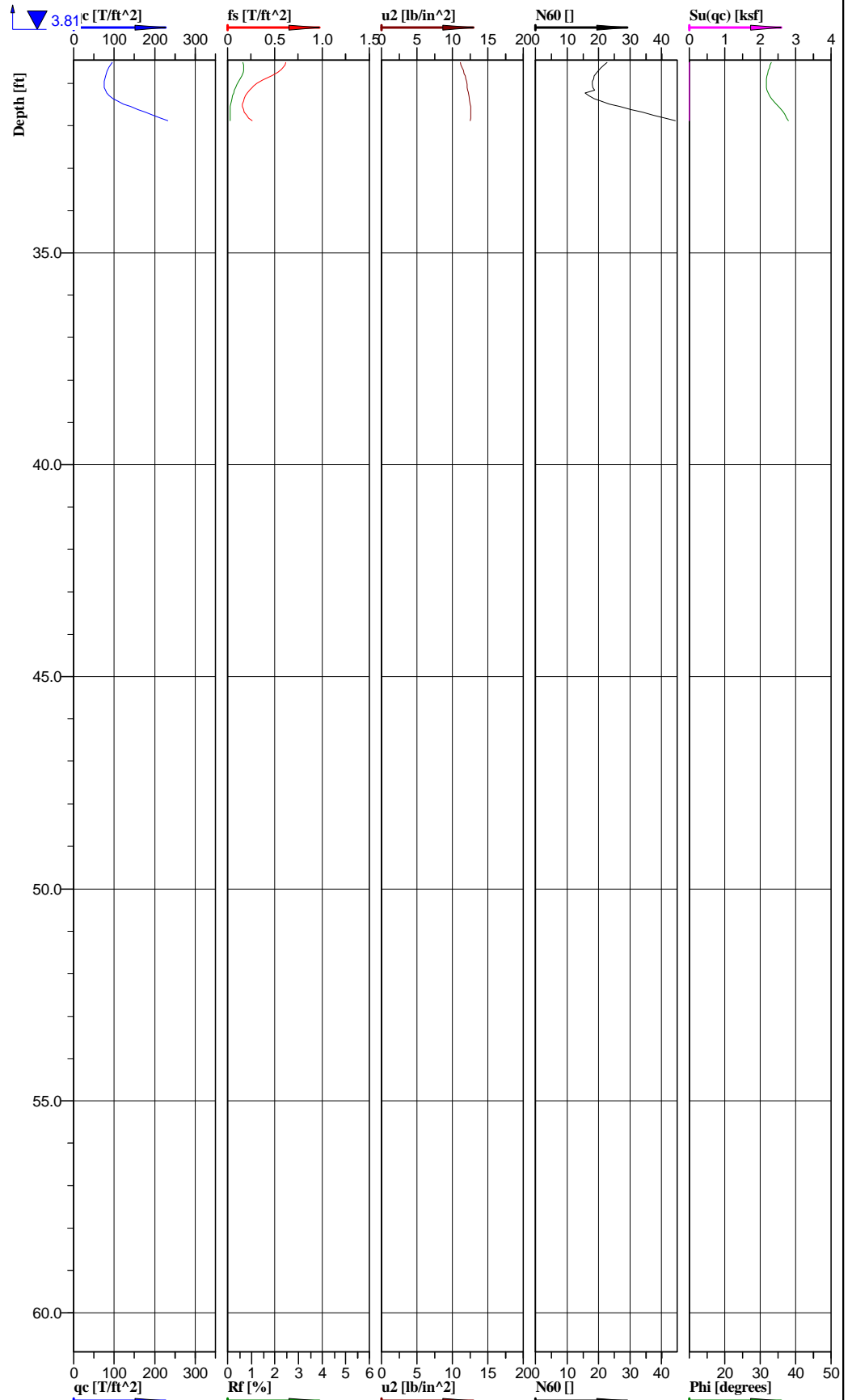


Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 731205.45 ft, Y: 993325.30 ft	Ground level: 465.72	Test no: C-100
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-42
Confirmation sounding adjacent to B-100		File: Labadie C-100.cpd	

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 Sand to silty sand (8)
 Sand (9)



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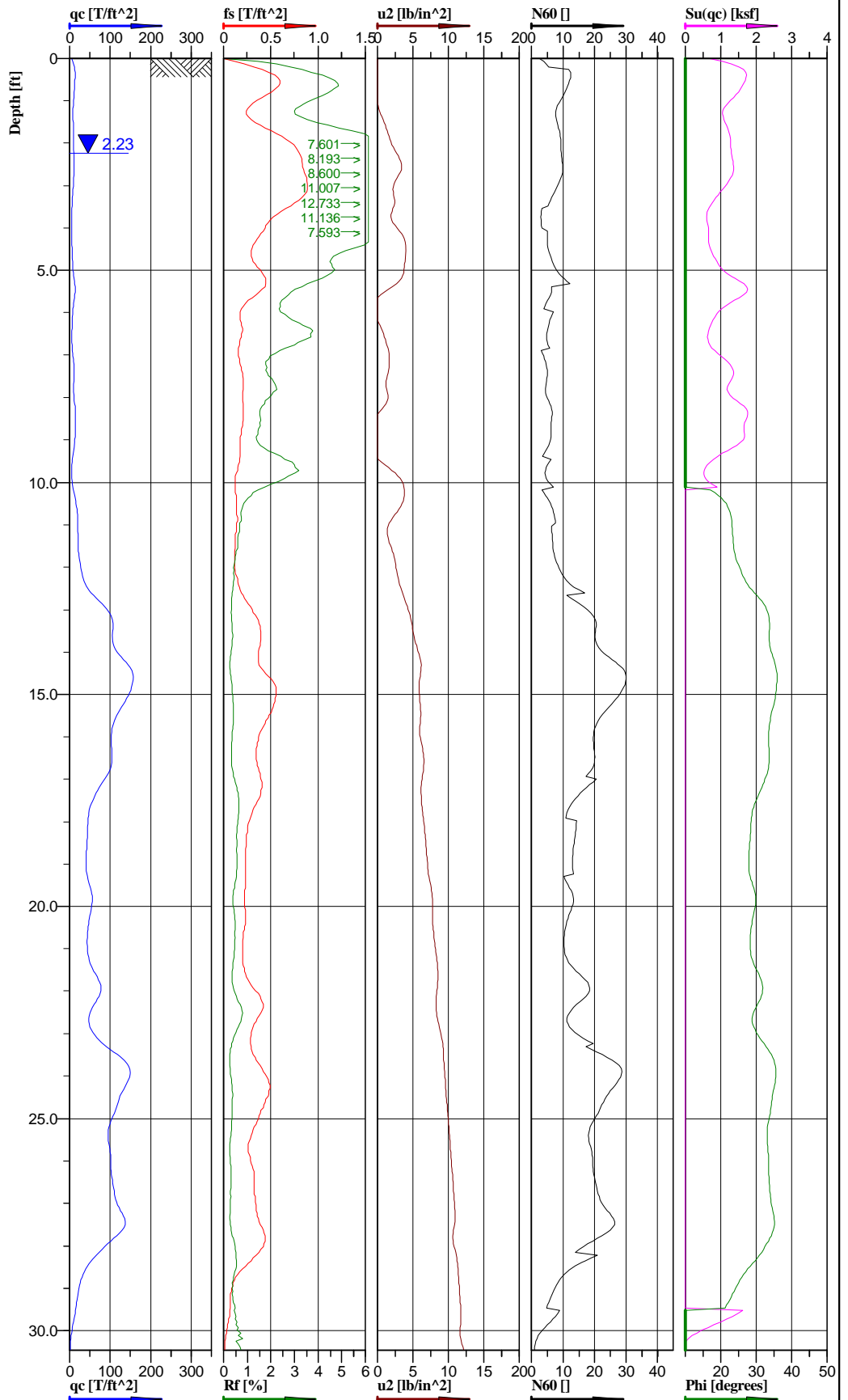
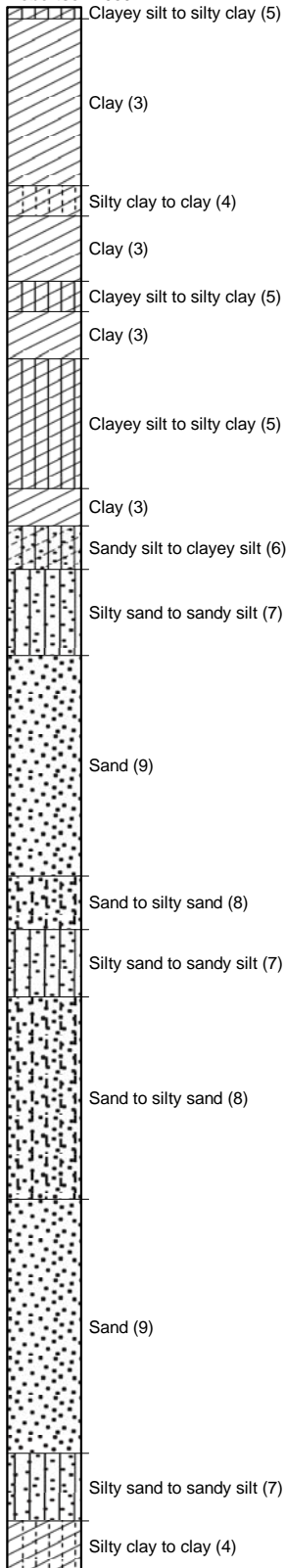
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 731205.45 ft, Y: 993325.30 ft	Ground level: 465.72	Test no: C-100
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/4/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-42
Confirmation sounding adjacent to B-100		File: Labadie C-100.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-100
 Test date: 11/4/2009
 Location: Labadie MO
 File name: Labadie C-100.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.607	0.038	-0.5206	Clay (3)	6.1	0.837	0.007	0.007			1.78	6.1	111	0.15	0.15	251
3.75	1.265	0.038	1.4214	Silty sand to sandy silt (7)	6.0	0.783	0.02	0.019	24.0		1.73	3.9	108	0.42	0.40	105
6.25	9.269	0.039	1.9278	Sand (9)	20.0		0.034	0.026	31.7	87	1.95	10.0	122	0.71	0.54	771
8.75	12.121	0.055	2.6085	Sand to silty sand (8)	25.0		0.048	0.033	34.5	88	1.98	16.0	124	1.00	0.69	1008
11.25	8.207	0.047	2.9249	Sand to silty sand (8)	19.3		0.063	0.04	31.7	80	1.94	12.3	121	1.31	0.83	683
13.75	7.235	0.033	4.4705	Sand to silty sand (8)	17.0		0.078	0.047	31.4	67	1.95	10.9	122	1.62	0.98	602
16.25	9.514	0.036	5.7413	Sand (9)	20.3		0.092	0.054	33.1	73	1.97	10.2	123	1.91	1.12	792
18.75	17.464	0.063	6.3205	Sand (9)	33.1		0.107	0.061	36.3	88	2	16.5	125	2.23	1.27	1453
21.25	12.946	0.057	7.6266	Sand (9)	25.9		0.122	0.069	34.9	79	1.99	12.9	124	2.54	1.44	1077
23.75	11.321	0.047	8.977	Sand (9)	22.6		0.137	0.076	34.2	74	1.99	11.3	124	2.85	1.58	942
26.25	12.407	0.056	9.5519	Sand to silty sand (8)	25.7		0.152	0.083	34.5	75	1.98	16.5	124	3.16	1.73	1032
28.75	6.529	0.031	10.7099	Sand (9)	15.8		0.166	0.09	31.0	56	1.94	7.9	121	3.45	1.87	543
31.25	10.729	0.036	11.675	Sand (9)	23.2		0.179	0.096	33.6	68	1.97	11.6	123	3.72	2.00	893

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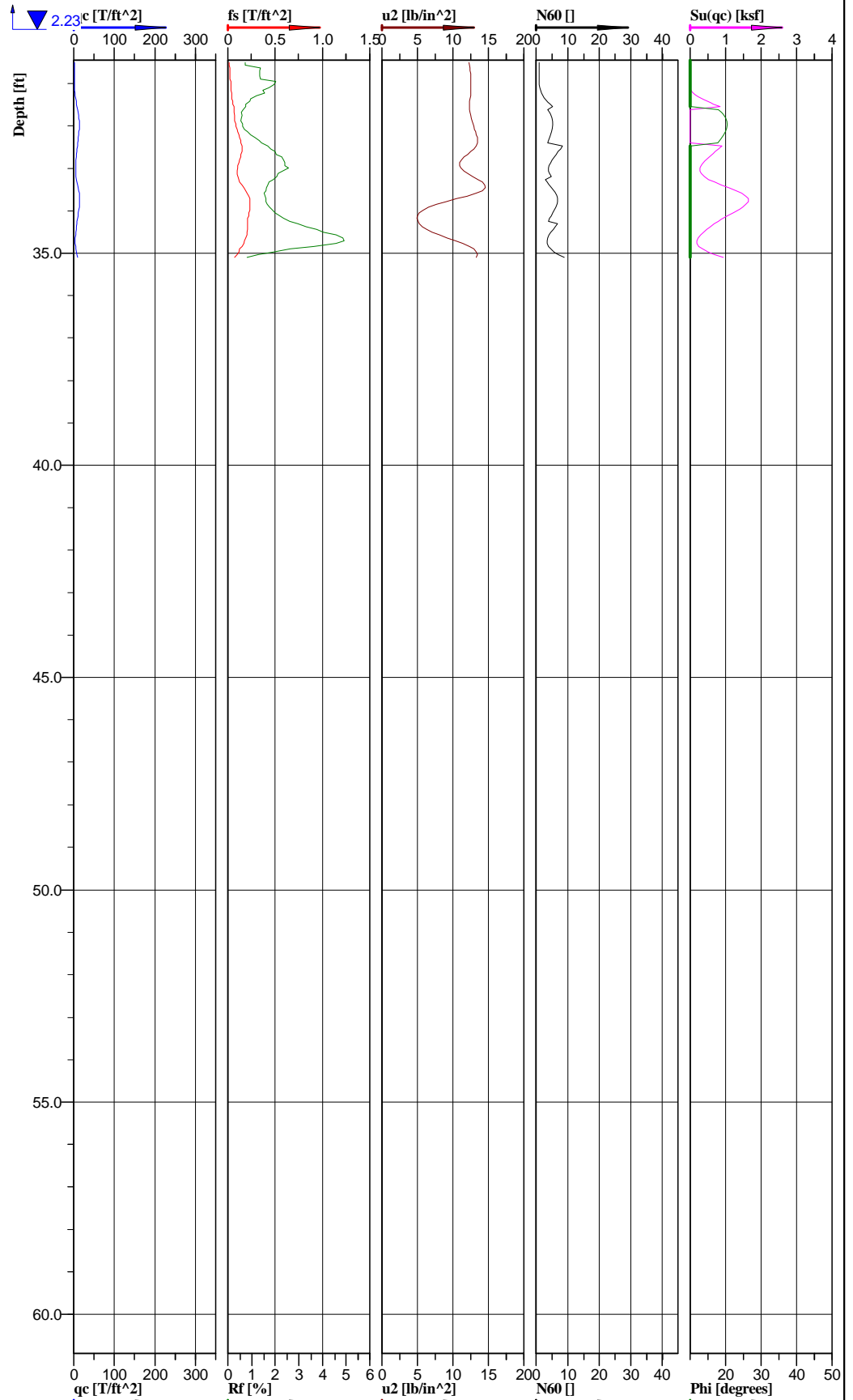
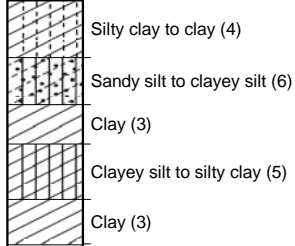


Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 727785.53 ft, Y: 993136.61 ft	Ground level: 464.50	Test no: C-103
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-43
File: Labadie C-103.cpd			

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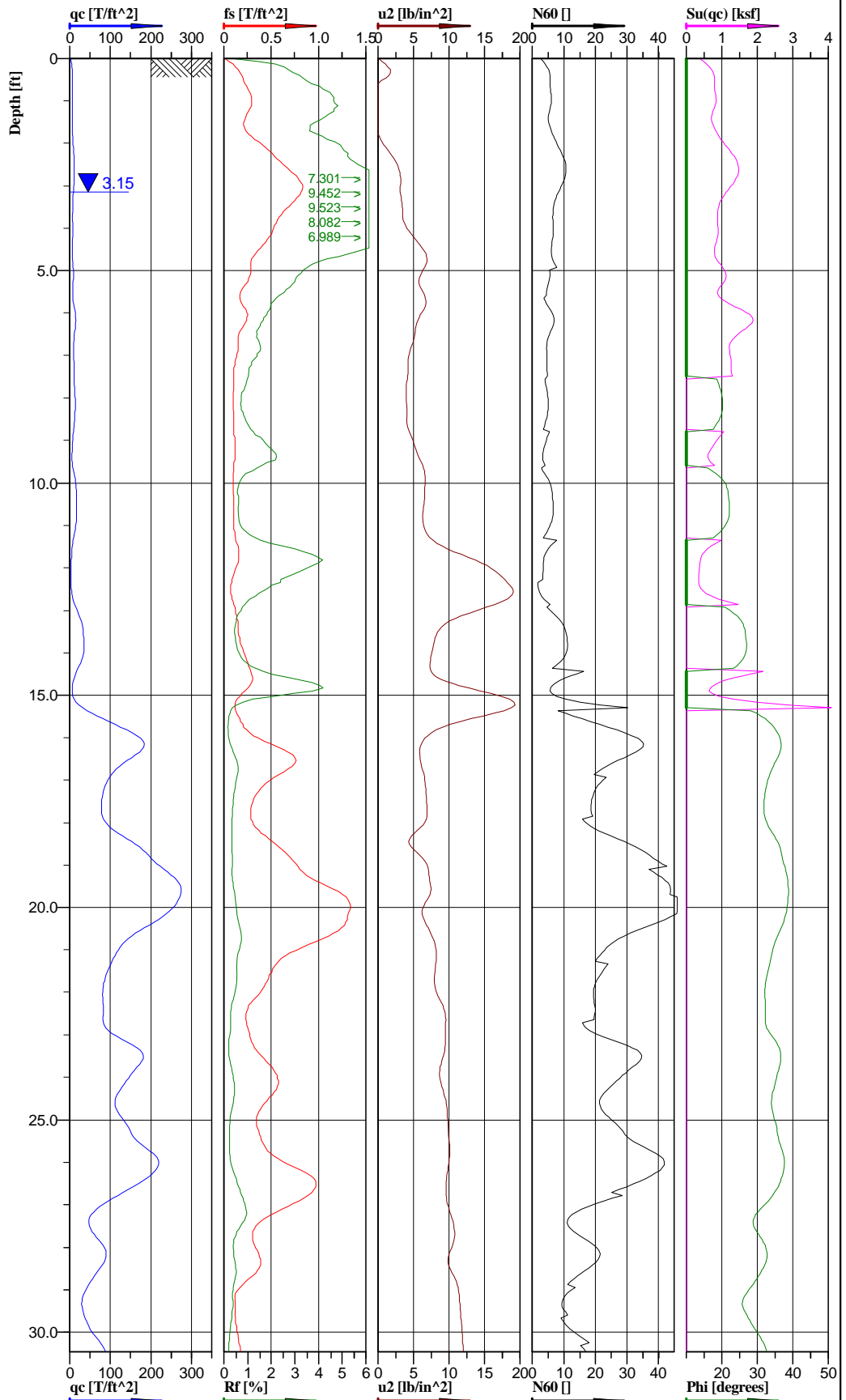
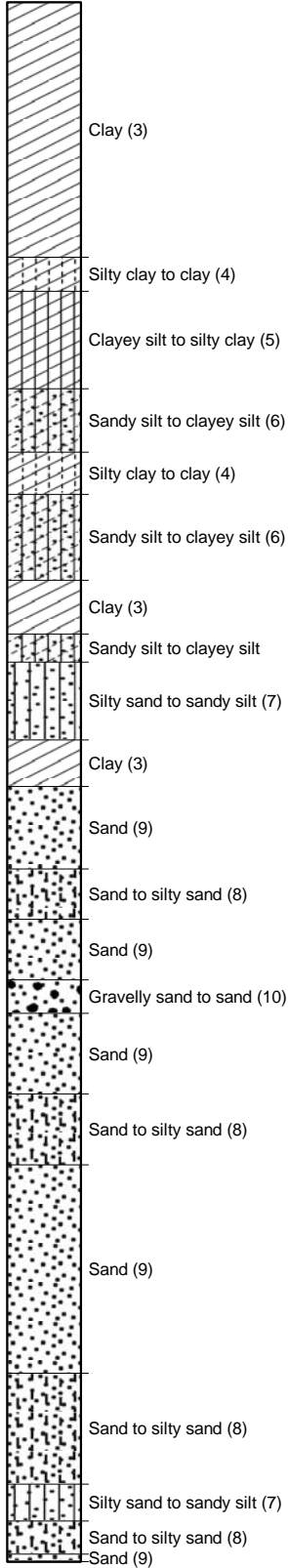
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727785.53 ft, Y: 993136.61 ft	Ground level: 464.50	Test no: C-103
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-43
		File: Labadie C-103.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-103
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-103.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.952	0.048	0.7453	Clay (3)	9.1	1.315	0.007	0.007				1.8	9.1	112	0.15	0.15	395
3.75	0.65	0.055	2.9866	Clay (3)	6.2	0.873	0.02	0.015				1.67	6.2	104	0.42	0.31	262
6.25	0.83	0.023	1.1273	Clayey silt to silty clay (5)	5.8	1.108	0.033	0.02				1.82	5.8	114	0.69	0.42	665
8.75	0.942	0.017	0.6016	Clay (3)	5.4	1.246	0.047	0.027				1.83	5.4	114	0.98	0.56	374
11.25	2.118	0.013	2.597	Silty sand to sandy silt (7)	7.6	0.818	0.06	0.033	23.6			1.87	4.9	117	1.25	0.69	176
13.75	11.061	0.036	5.1873	Sand (9)	22.4		0.075	0.039	33.9	83		1.98	11.2	124	1.56	0.81	920
16.25	9.692	0.039	6.1856	Sand to silty sand (8)	20.1		0.089	0.047	33.2	76		1.98	12.9	124	1.85	0.98	806
18.75	4.448	0.024	6.9801	Sand to silty sand (8)	12.8		0.104	0.053	28.7	55		1.91	8.2	119	2.16	1.10	370
21.25	5.283	0.025	8.1717	Sand to silty sand (8)	13.2		0.118	0.06	29.7	55		1.94	8.4	121	2.45	1.25	440
23.75	10.055	0.036	9.3231	Sand (9)	20.9		0.133	0.067	33.2	71		1.97	10.5	123	2.77	1.39	837
26.25	10.428	0.031	10.5241	Sand (9)	20.8		0.148	0.074	33.8	72		1.99	10.4	124	3.08	1.54	868
28.75	4.351	0.019	11.3364	Silty clay to clay (4)	11.7	0.985	0.162	0.081	28.2	70		1.89	11.7	118	3.37	1.68	493
31.25	0.584	0.005	12.531	Clay (3)	3.0	0.164	0.176	0.087	19.4			1.8	3.0	112	3.66	1.81	49
33.75	0.733	0.016	10.2809	Clay (3)	5.2	0.741	0.19	0.093				1.82	5.2	114	3.95	1.93	222
36.25	0.792	0.008	13.3617	Clay (3)	7.9	0.81	0.197	0.096				1.84	7.9	115	4.10	2.00	243

Classification by Robertson 1986



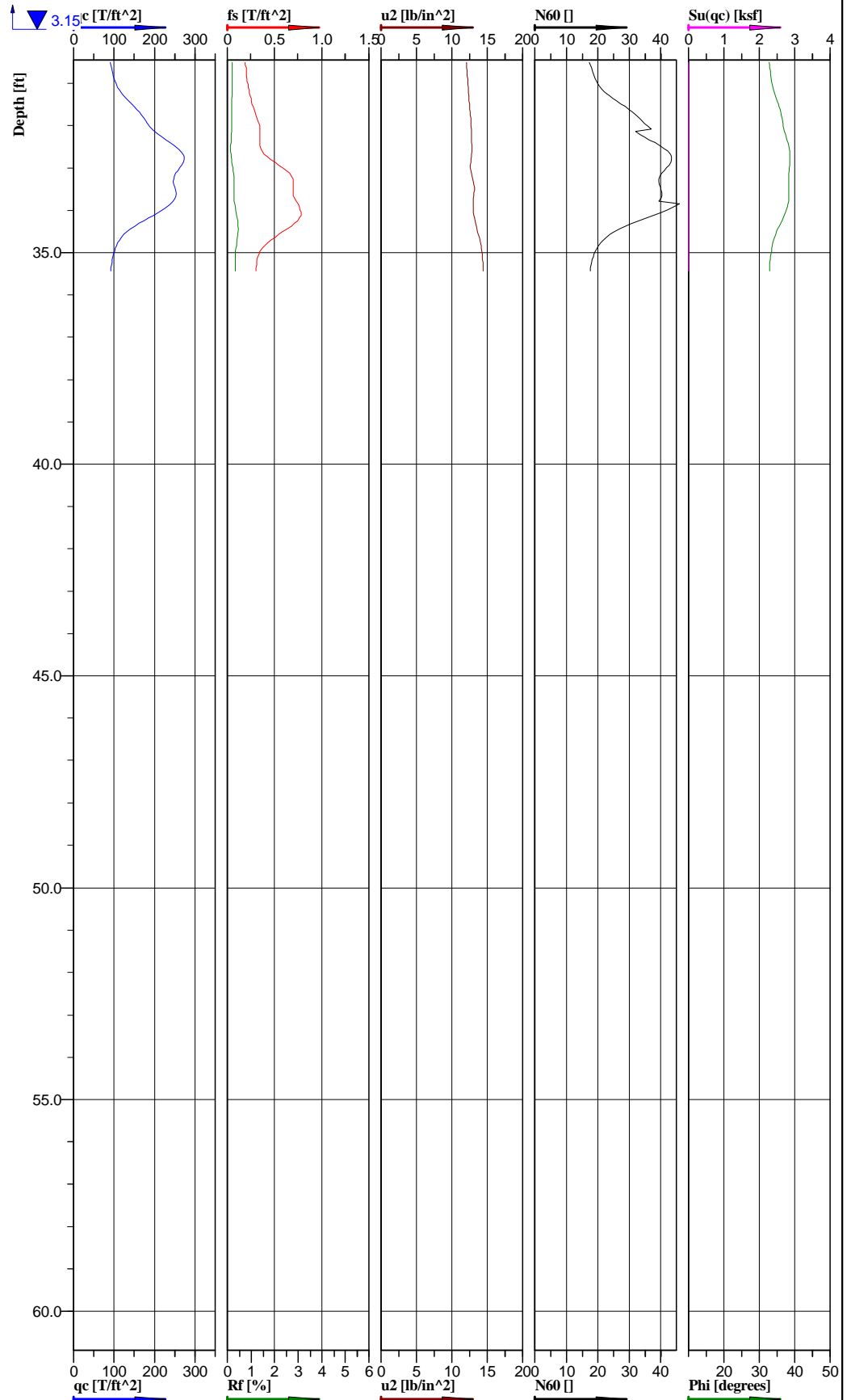
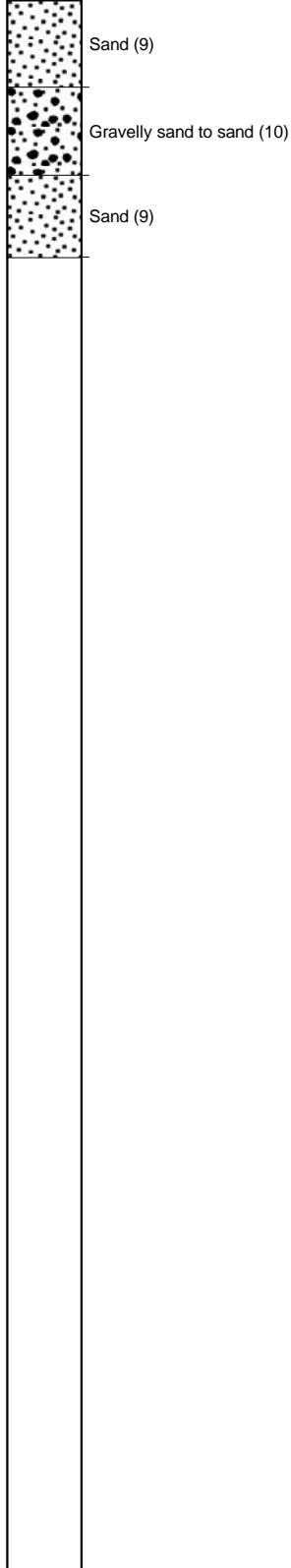
REITZ & JENS, INC.
CONSULTING ENGINEERS

Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 728390.06 ft, Y: 993135.14 ft	Ground level: 464.70	Test no: C-105
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-44
File: Labadie C-105.cpd			

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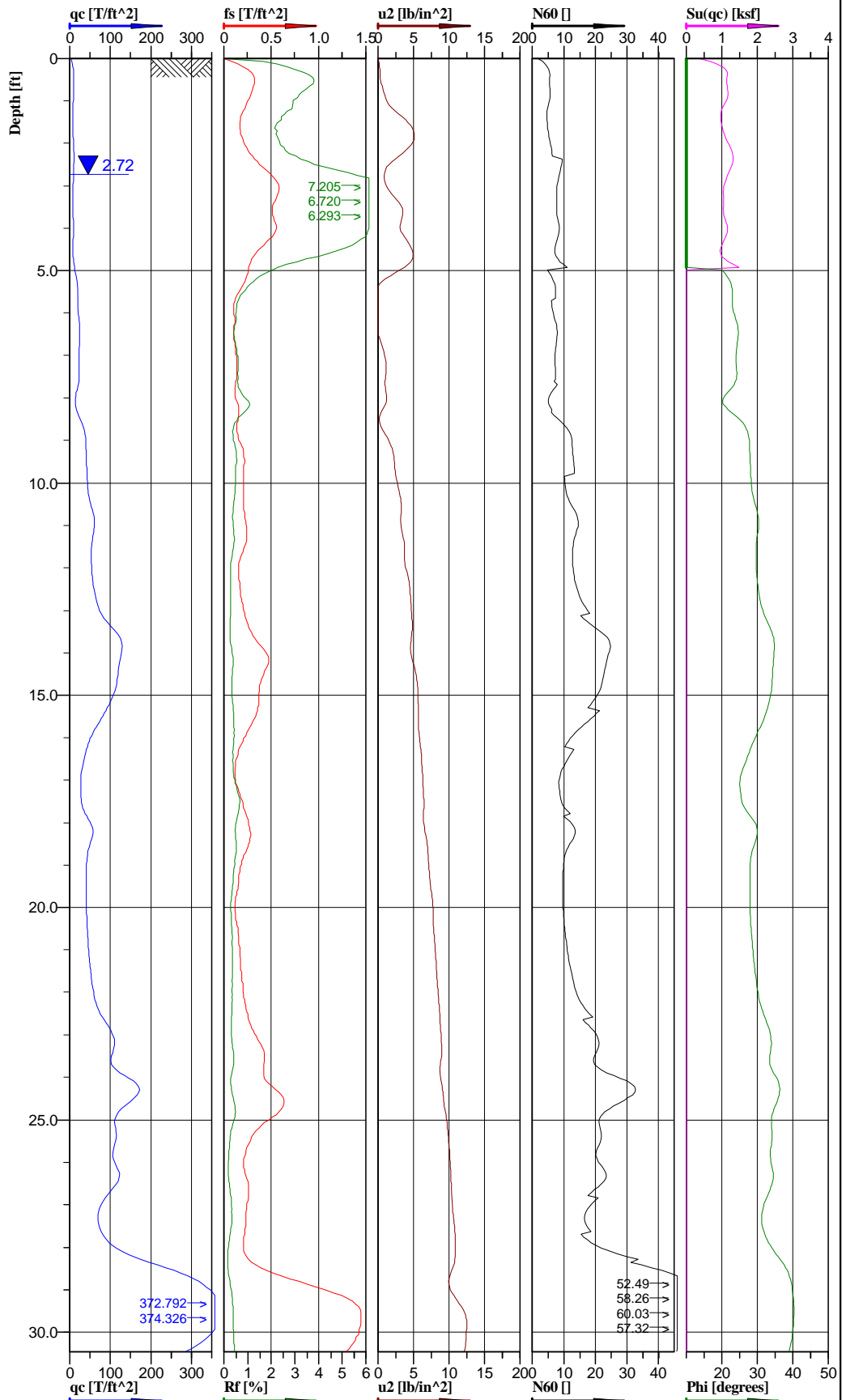
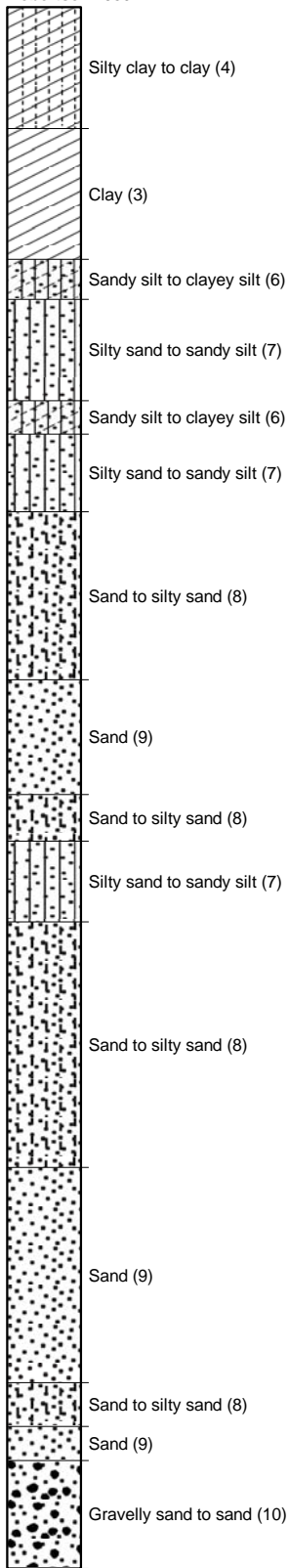
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728390.06 ft, Y: 993135.14 ft	Ground level: 464.70	Test no: C-105
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-44
		File: Labadie C-105.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-105
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-105.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.646	0.028	-0.0279	Clay (3)	6.5	0.89	0.007	0.007				1.78	6.5	111	0.15	0.15	267
3.75	0.756	0.054	4.4281	Silty clay to clay (4)	7.4	1.018	0.02	0.018				1.79	7.4	112	0.42	0.37	509
6.25	0.975	0.017	5.3498	Clayey silt to silty clay (5)	5.1	1.303	0.034	0.024	18.6			1.84	5.1	115	0.71	0.50	782
8.75	0.955	0.01	4.9151	Sandy silt to clayey silt (6)	4.4	0.773	0.047	0.03	19.3			1.84	4.4	115	0.98	0.62	79
11.25	0.959	0.011	10.34	Sandy silt to clayey silt (6)	4.9	0.472	0.061	0.036	21.2			1.82	4.9	114	1.27	0.75	80
13.75	1.973	0.018	11.0944	Clay (3)	8.3	1.022	0.075	0.042	25.5			1.85	8.3	115	1.56	0.87	307
16.25	10.056	0.038	9.2644	Sand to silty sand (8)	22.9	2.242	0.089	0.049	33.9	79	1.96	14.7	122	1.85	1.02	837	
18.75	17.56	0.069	6.4034	Sand (9)	33.6		0.104	0.056	36.1	89	1.99	16.8	124	2.16	1.16	1461	
21.25	12.248	0.07	7.8713	Sand to silty sand (8)	26.5		0.118	0.063	34.2	77	1.97	17.0	123	2.45	1.31	1019	
23.75	12.471	0.038	9.3016	Sand (9)	25.2		0.133	0.07	34.6	78	1.98	12.6	124	2.77	1.46	1038	
26.25	13.593	0.058	9.943	Sand to silty sand (8)	28.2		0.148	0.078	34.6	76	1.97	18.1	123	3.08	1.62	1131	
28.75	5.391	0.022	10.9746	Sand to silty sand (8)	14.2		0.163	0.085	29.5	55	1.92	9.1	120	3.39	1.77	449	
31.25	13.329	0.024	12.3763	Gravelly sand to sand (10)	25.7		0.177	0.091	34.7	74	1.99	17.4	124	3.68	1.89	1109	
33.75	19.8	0.057	13.2143	Sand (9)	35.4		0.192	0.099	37.0	85	2.02	17.7	126	3.99	2.06	1647	
36.25	9.09	0.03	14.3591	Sand (9)	18.2		0.201	0.103	33.0	64	1.99	9.1	124	4.18	2.14	756	

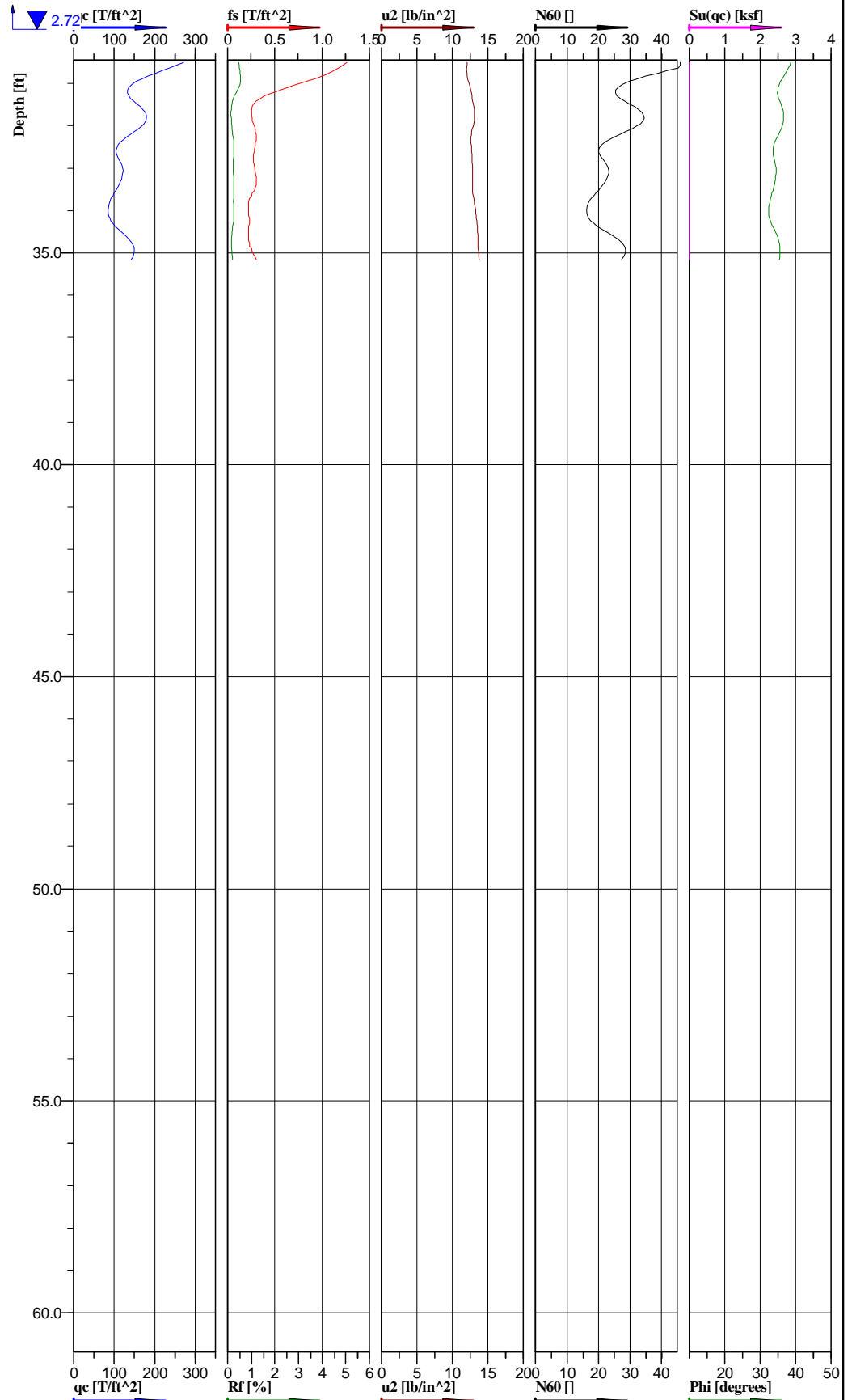
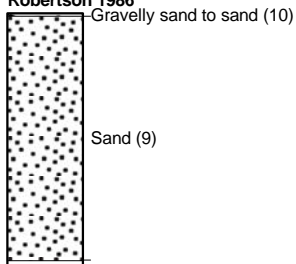
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728836.45 ft, Y: 993109.35 ft	Ground level: 464.90	Test no: C-106
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-45
Confirmation sounding adjacent to P-106		File: Labadie C-106.cpd	

Classification by
Robertson 1986



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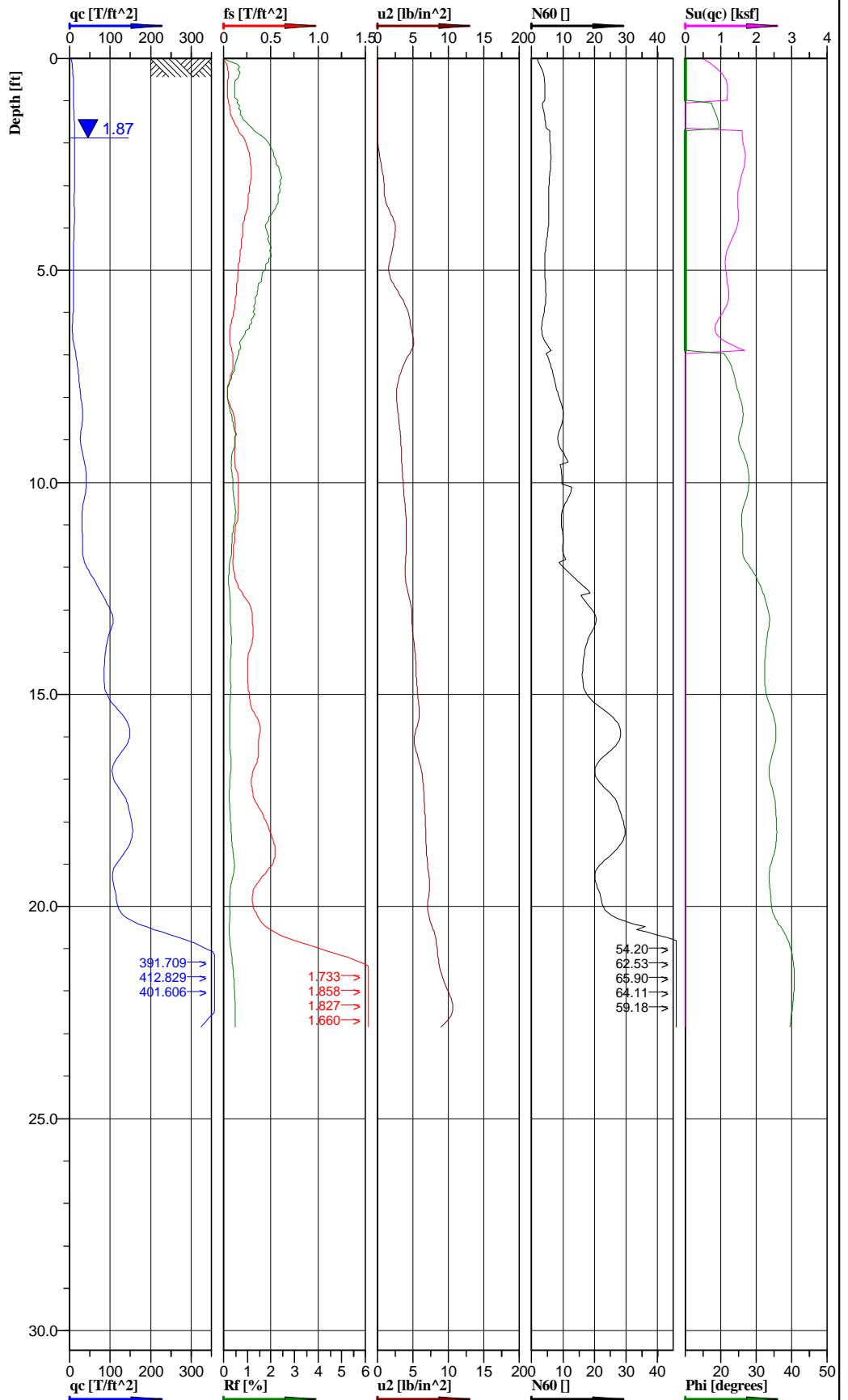
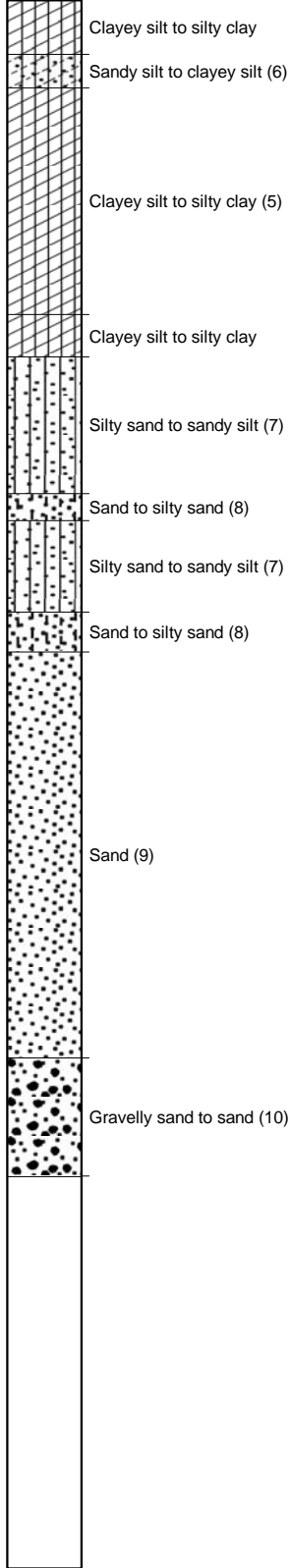
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728836.45 ft, Y: 993109.35 ft	Ground level: 464.90	Test no: C-106
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-45
Confirmation sounding adjacent to P-106		File: Labadie C-106.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-106
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-106.cpd

Depth [ft]	CPT-Pro Calculated Values											Reitz and Jens Calculated Values				
	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.793	0.023	2.2569	Clay (3)	5.6	1.091	0.007	0.007			1.82	5.6	114	0.15	0.15	327
3.75	0.839	0.044	2.9811	Sandy silt to clayey silt (6)	8.0	1.101	0.021	0.017	20.4		1.79	8.0	112	0.44	0.35	70
6.25	2.05	0.013	0.3658	Silty sand to sandy silt (7)	7.1		0.034	0.023	23.6		1.87	4.6	117	0.71	0.48	171
8.75	2.967	0.016	1.4273	Sand to silty sand (8)	9.8		0.048	0.03	25.5	58	1.88	6.3	117	1.00	0.62	247
11.25	5.205	0.019	3.5741	Sand to silty sand (8)	13.0		0.062	0.036	29.7	63	1.94	8.3	121	1.29	0.75	433
13.75	9.939	0.031	4.9096	Sand (9)	20.6		0.077	0.043	33.4	78	1.98	10.3	124	1.60	0.89	827
16.25	4.94	0.021	6.006	Silty sand to sandy silt (7)	13.0		0.092	0.05	28.6	66	1.92	8.3	120	1.91	1.04	411
18.75	4.163	0.019	7.0024	Sand to silty sand (8)	10.7		0.106	0.057	28.2	51	1.93	6.9	120	2.20	1.19	346
21.25	4.927	0.017	8.1572	Sand to silty sand (8)	12.3		0.12	0.064	29.3	53	1.94	7.9	121	2.50	1.33	410
23.75	11.537	0.042	8.9915	Sand (9)	23.3		0.135	0.071	34.2	75	1.99	11.6	124	2.81	1.48	960
26.25	9.618	0.025	10.2276	Sand to silty sand (8)	20.3		0.15	0.078	33.2	69	1.97	13.0	123	3.12	1.62	800
28.75	25.293	0.078	11.1029	Gravelly sand to sand (10)	43.4		0.165	0.085	37.8	92	2.02	29.5	126	3.43	1.77	2104
31.25	18.352	0.065	12.567	Sand (9)	34.9		0.18	0.093	36.5	84	2	17.4	125	3.74	1.93	1527
33.75	10.724	0.024	13.1422	Sand (9)	21.4		0.195	0.1	33.9	69	1.99	10.7	124	4.06	2.08	892
36.25	13.937	0.028	13.7412	Sand (9)	27.8		0.203	0.104	35.4	76	1.99	13.9	124	4.22	2.16	1160

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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

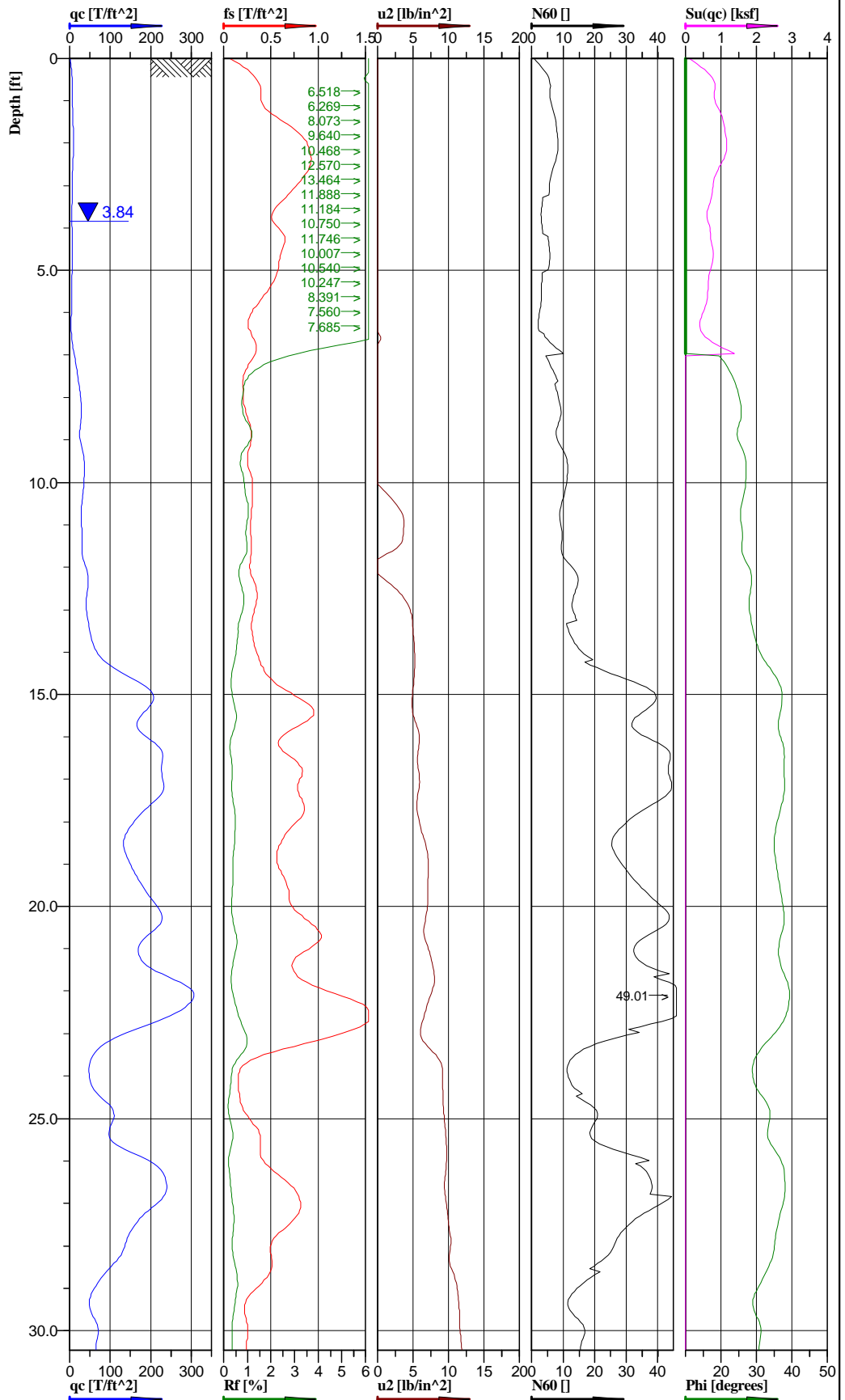
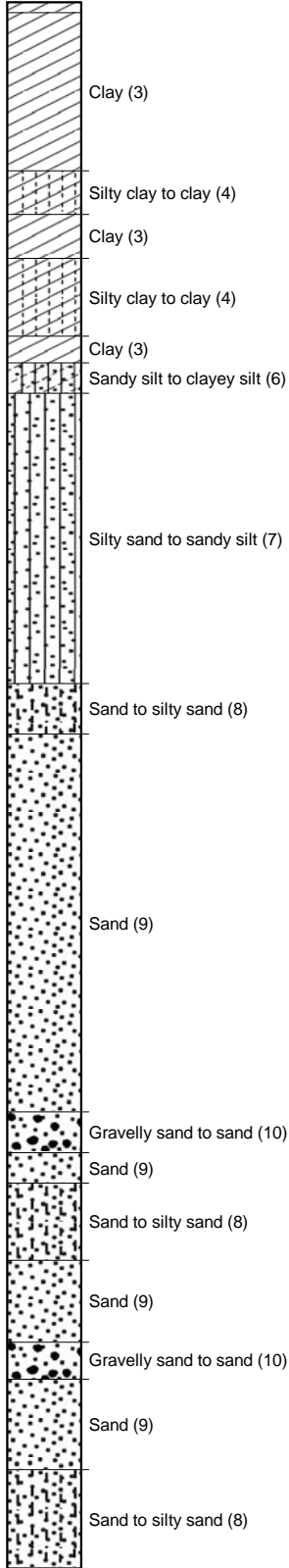



Location: Labadie, MO	Position: X: 729135.70 ft, Y: 993103.28 ft	Ground level: 464.99	Test no: C-107
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-46
File: Labadie C-107.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-107
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-107.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.963	0.012	-0.0069	Clayey silt to silty clay (5)	4.6	1.308	0.007	0.007	18.6		1.81	4.6	113	0.15	0.15	785
3.75	1.023	0.021	1.6062	Clayey silt to silty clay (5)	5.1	1.394	0.021	0.015			1.84	5.1	115	0.44	0.31	836
6.25	1.091	0.01	3.7849	Silty sand to sandy silt (7)	4.7	1.119	0.034	0.021	22.7		1.83	3.0	114	0.71	0.44	91
8.75	2.973	0.01	3.1253	Sand to silty sand (8)	9.3		0.048	0.027	26.0	57	1.9	5.9	119	1.00	0.56	247
11.25	3.75	0.013	3.9425	Sand to silty sand (8)	11.2		0.062	0.034	27.4	62	1.9	7.1	119	1.29	0.71	312
13.75	8.755	0.026	5.0958	Sand (9)	17.7		0.077	0.041	32.8	76	1.99	8.8	124	1.60	0.85	728
16.25	11.942	0.032	5.8744	Sand (9)	23.9		0.092	0.048	34.5	82	1.99	11.9	124	1.91	1.00	994
18.75	12.529	0.041	6.9567	Sand (9)	25.0		0.107	0.055	34.8	82	1.99	12.5	124	2.23	1.14	1042
21.25	30.397	0.116	8.7915	Gravelly sand to sand (10)	51.6		0.121	0.062	39.0	104	2.03	35.1	127	2.52	1.29	2529
23.75	32.514	0.16	9.8213	Gravelly sand to sand (10)	54.2		0.13	0.067	39.8	107	2.04	36.8	127	2.70	1.39	2705

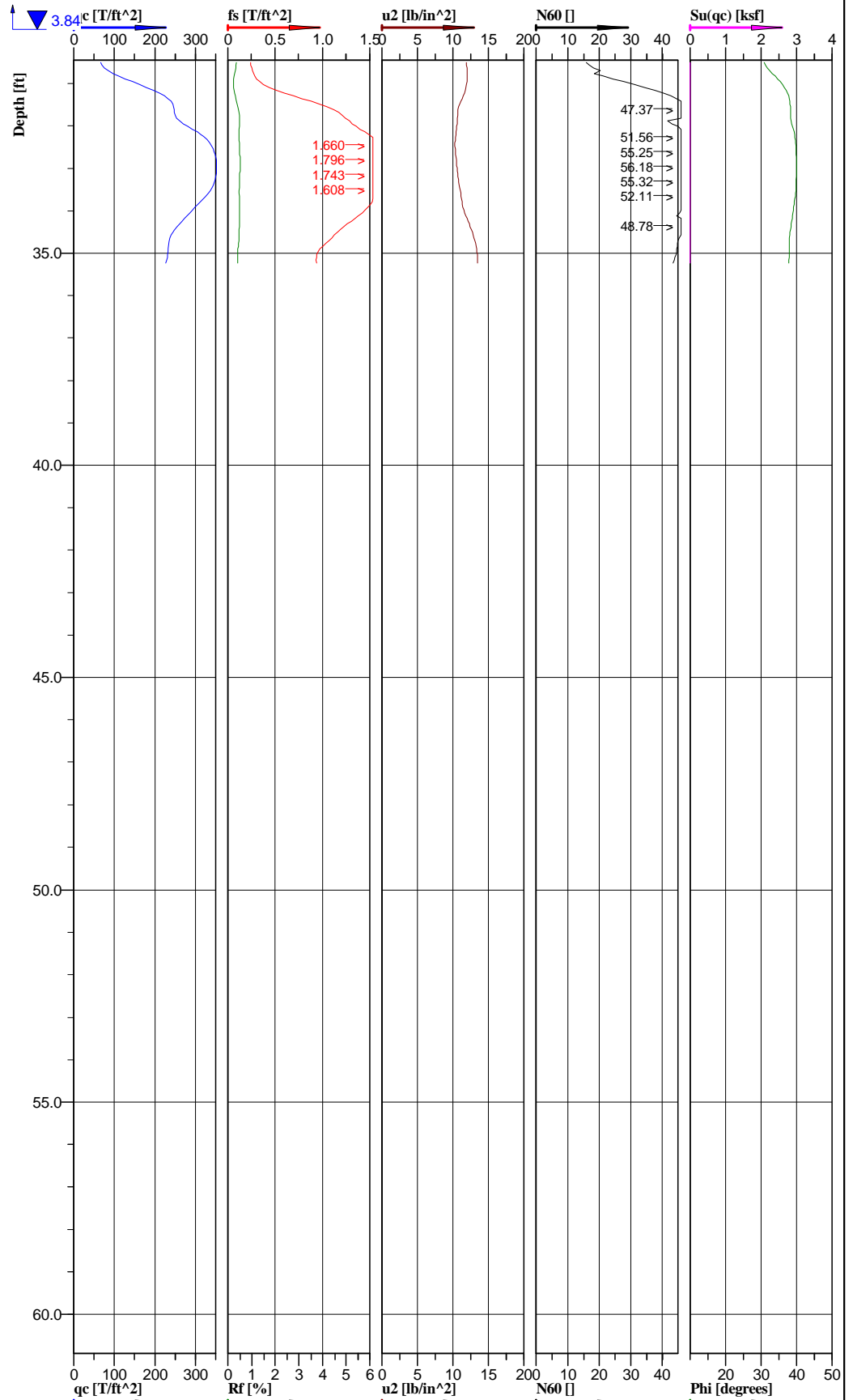
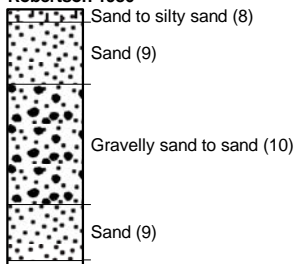
Classification by
Robertson 1986




 Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729146.13 ft, Y: 993103.08 ft	Ground level: 464.90	Test no: C-107A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-47
Confirmation sounding adjacent to C-107		File: Labadie C-107A.cpd	

Classification by
Robertson 1986



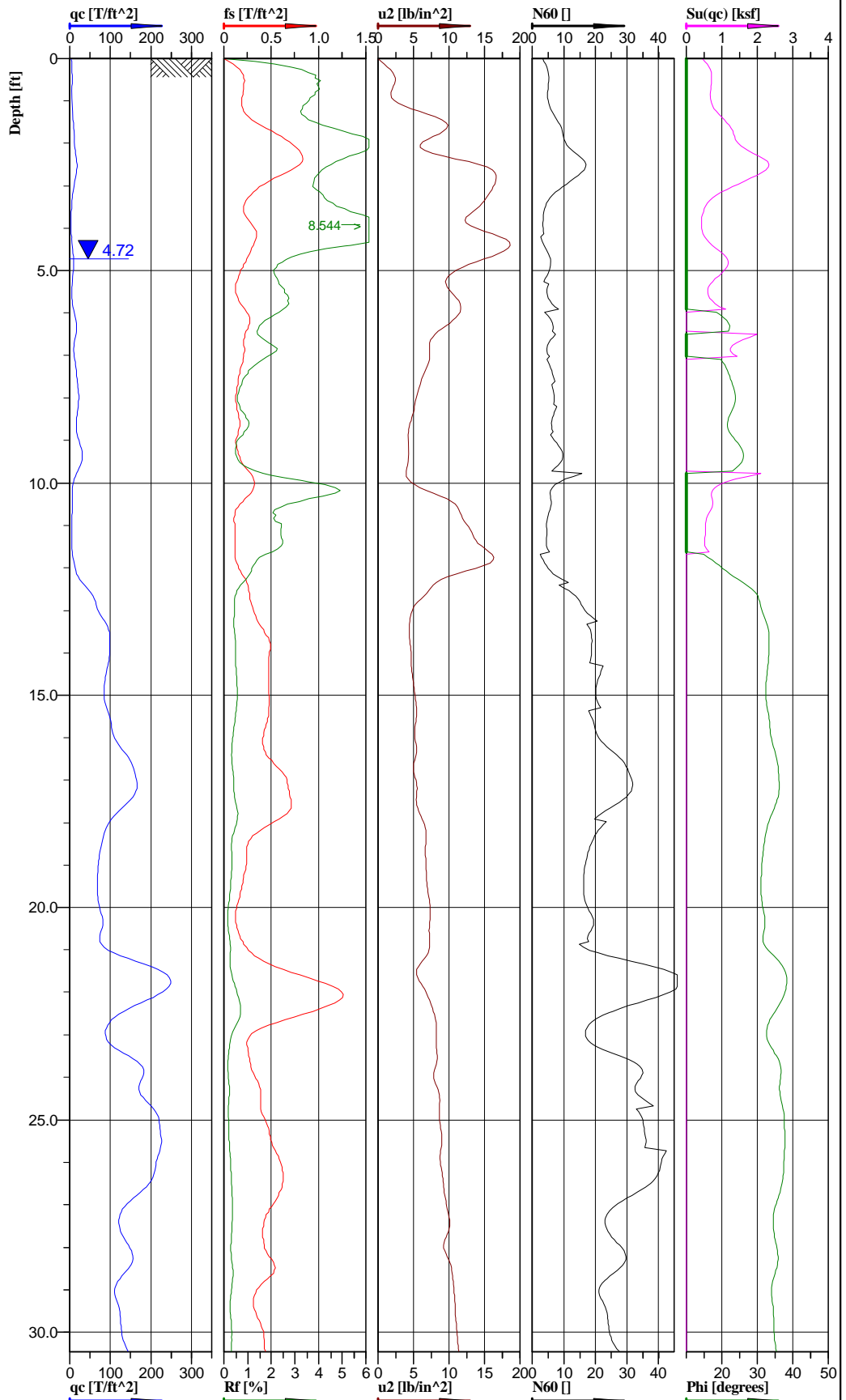
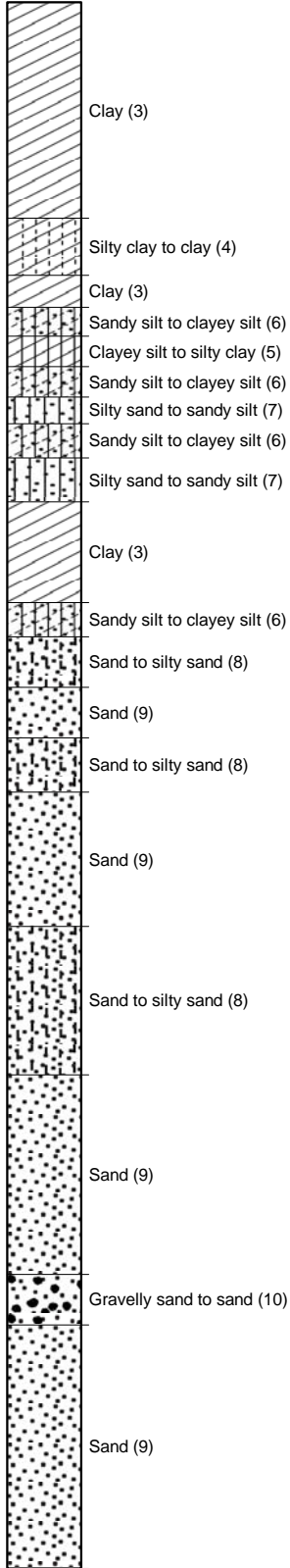
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729146.13 ft, Y: 993103.08 ft	Ground level: 464.90	Test no: C-107A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-47
Confirmation sounding adjacent to C-107		File: Labadie C-107A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-107A
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-107A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.641	0.054	-5.4553	Clay (3)	6.4	0.891	0.007	0.007				1.73	6.4	108	0.15	0.15	267
3.75	0.541	0.062	-5.4929	Silty clay to clay (4)	4.8	0.734	0.019	0.018				1.6	4.8	100	0.40	0.37	367
6.25	0.734	0.033	-3.2131	Sandy silt to clayey silt (6)	4.4	0.638	0.03	0.023	21.7			1.5	4.4	94	0.62	0.48	61
8.75	2.78	0.024	-4.4389	Silty sand to sandy silt (7)	9.4		0.043	0.028	25.6			1.88	6.0	117	0.89	0.58	231
11.25	3.258	0.028	1.9434	Silty sand to sandy silt (7)	10.9		0.057	0.035	26.6			1.89	6.9	118	1.19	0.73	271
13.75	8.16	0.038	4.7928	Sand (9)	19.0		0.072	0.041	31.3	75		1.94	9.5	121	1.50	0.85	679
16.25	19.929	0.075	5.5323	Sand (9)	39.9		0.086	0.048	37.3	97		1.99	19.9	124	1.79	1.00	1658
18.75	15.91	0.065	6.6131	Sand (9)	31.8		0.101	0.056	36.1	88		1.99	15.9	124	2.10	1.16	1324
21.25	22.034	0.094	7.2121	Sand (9)	41.5		0.116	0.063	37.7	96		2	20.7	125	2.41	1.31	1833
23.75	9.692	0.056	8.1181	Sand (9)	21.3		0.131	0.07	32.5	67		1.96	10.6	122	2.72	1.46	806
26.25	16.881	0.054	9.6476	Sand (9)	31.5		0.146	0.077	36.2	84		2	15.8	125	3.04	1.60	1404
28.75	8.692	0.038	10.872	Sand to silty sand (8)	19.1		0.161	0.085	32.2	63		1.96	12.2	122	3.35	1.77	723
31.25	18.624	0.077	11.2286	Gravelly sand to sand (10)	35.4		0.175	0.092	36.0	81		1.99	24.1	124	3.64	1.91	1550
33.75	28.852	0.14	11.5922	Sand (9)	50.9		0.19	0.099	39.1	97		2.02	25.4	126	3.95	2.06	2400
36.25	21.968	0.09	13.4379	Sand (9)	43.9		0.199	0.103	37.8	89		1.99	22.0	124	4.14	2.14	1828

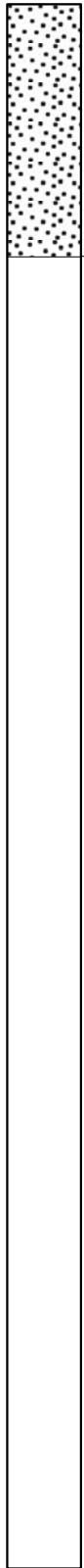
Classification by Robertson 1986



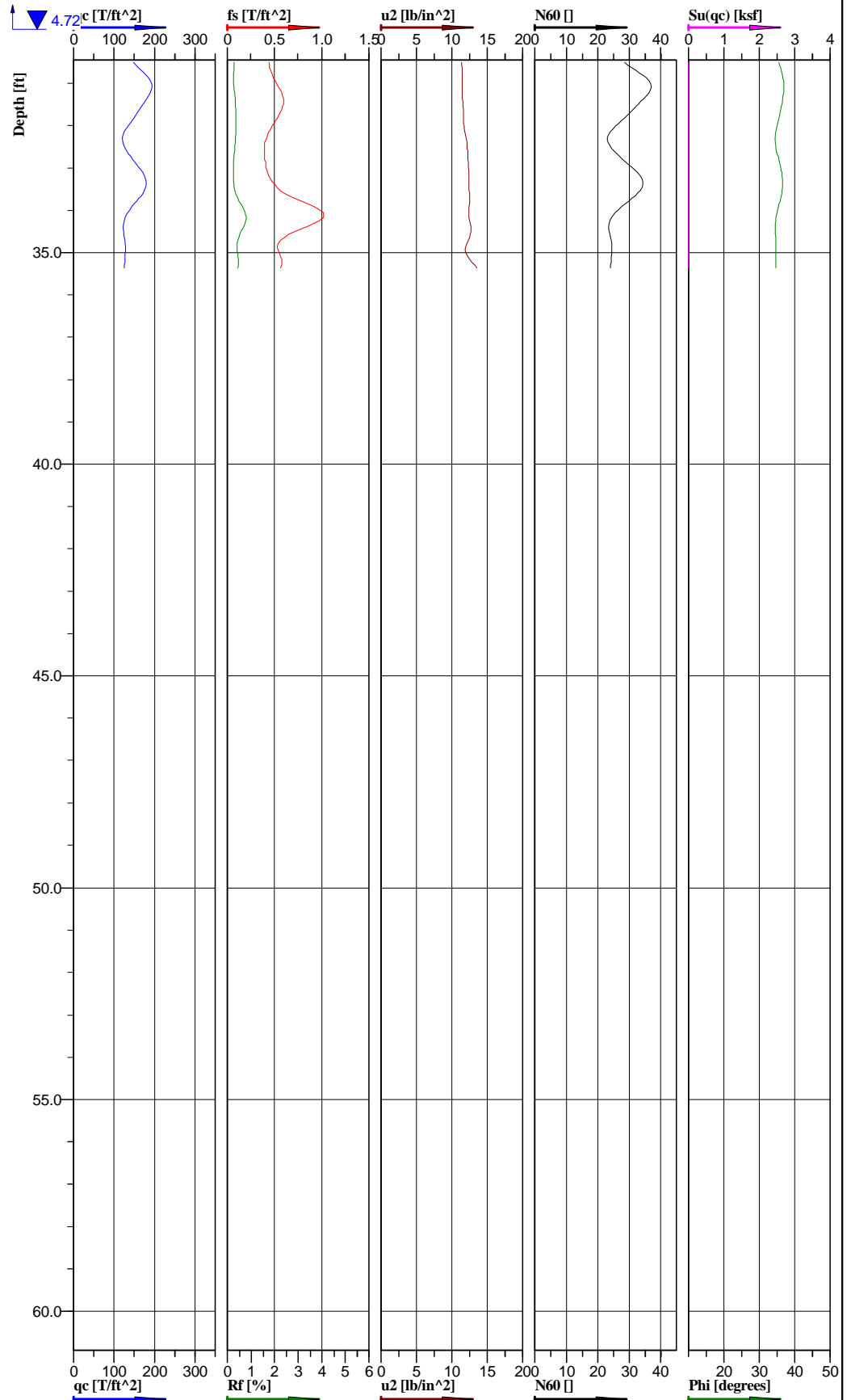
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729726.67 ft, Y: 993088.06 ft	Ground level: 466.31	Test no: C-109
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/9/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-48
		File: Labadie C-109.cpd	

Classification by
Robertson 1986



Sand (9)



Location:	Labadie, MO	Position:	X: 729726.67 ft, Y: 993088.06 ft	Ground level:	466.31	Test no:	C-109
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/9/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-48
				File:	Labadie C-109.cpd		



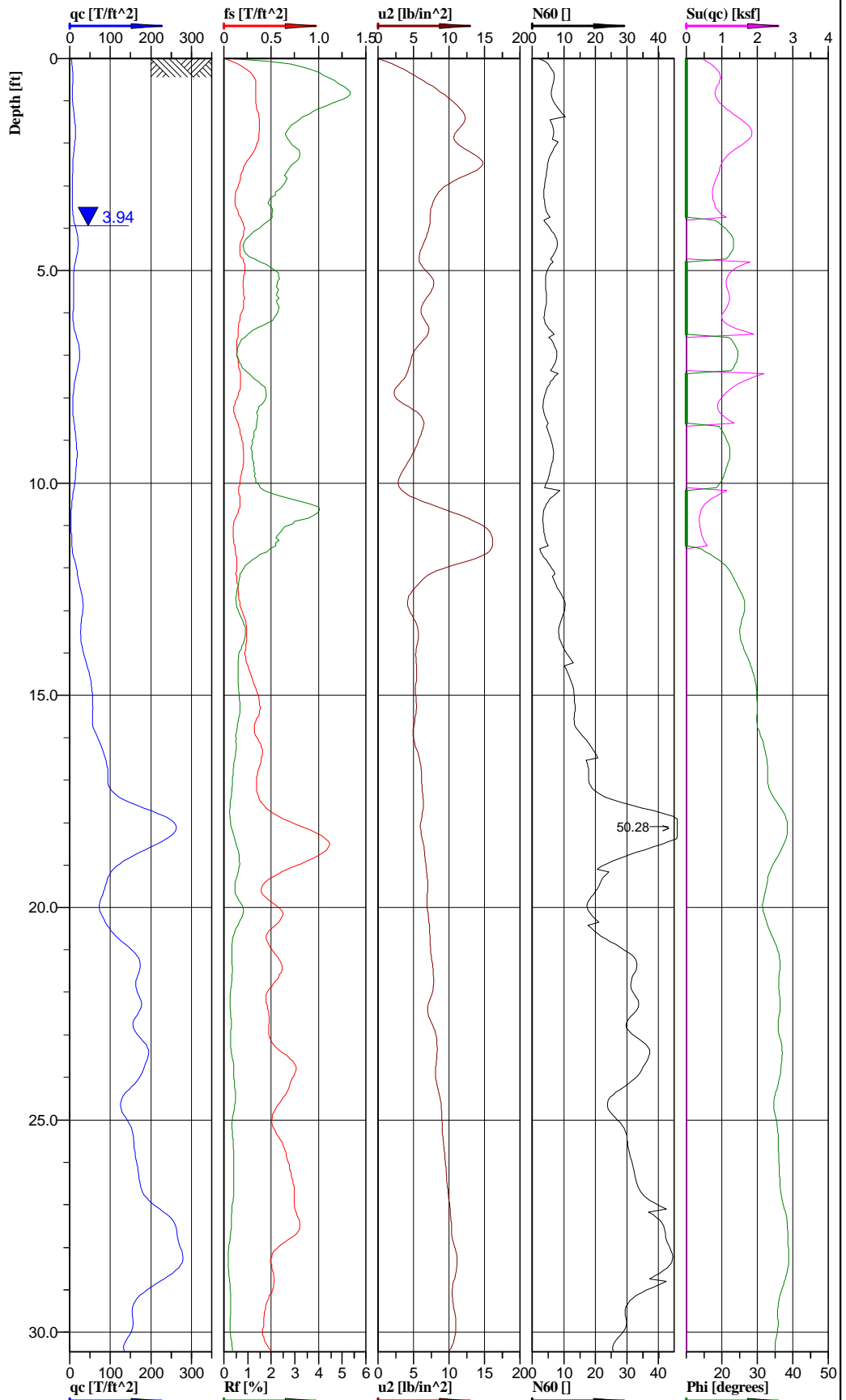
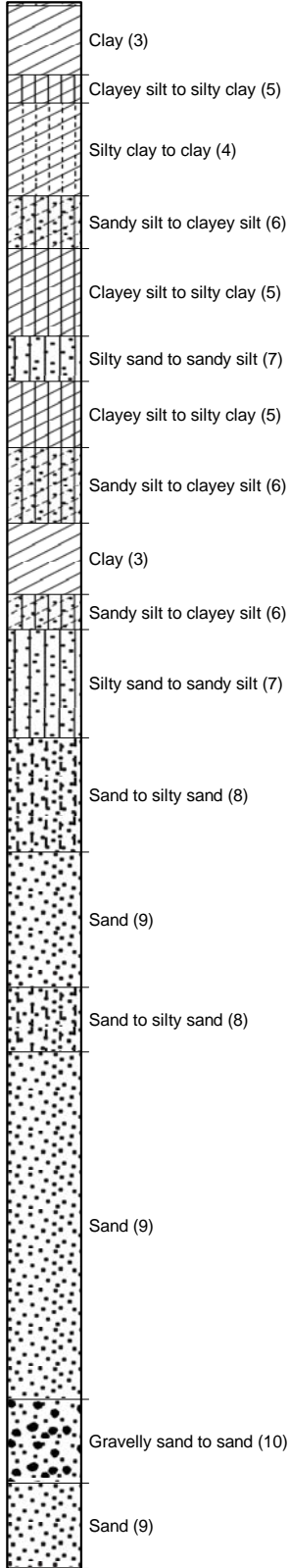
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-109
 Test date: 11/9/2009
 Location: Labadie MO
 File name: Labadie C-109.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.817	0.037	5.6293	Clay (3)	8.2	1.12	0.007	0.007			1.78	8.2	111	0.15	0.15	336
3.75	0.733	0.031	15.0859	Silty clay to clay (4)	6.5	0.971	0.02	0.02			1.71	6.5	107	0.42	0.42	486
6.25	1.065	0.018	8.942	Sandy silt to clayey silt (6)	5.6	1.046	0.033	0.028	21.1		1.83	5.6	114	0.69	0.58	89
8.75	1.947	0.017	4.7266	Clay (3)	7.8	1.455	0.047	0.035	23.5		1.86	7.8	116	0.98	0.73	437
11.25	1.056	0.016	11.5881	Sand to silty sand (8)	5.8	0.632	0.061	0.041	22.0	53	1.82	3.7	114	1.27	0.85	88
13.75	8.121	0.04	4.9319	Sand to silty sand (8)	18.5		0.075	0.047	32.3	71	1.96	11.8	122	1.56	0.98	676
16.25	12.269	0.05	5.2862	Sand (9)	25.1		0.089	0.054	34.6	81	1.98	12.5	124	1.85	1.12	1021
18.75	7.989	0.031	6.6339	Sand to silty sand (8)	18.9		0.104	0.061	32.1	67	1.95	12.1	122	2.16	1.27	665
21.25	13.956	0.055	6.8518	Sand (9)	29.1		0.119	0.068	34.8	79	1.98	14.6	124	2.48	1.41	1161
23.75	14.609	0.036	8.2769	Gravelly sand to sand (10)	28.3		0.133	0.075	35.4	81	1.99	19.3	124	2.77	1.56	1215
26.25	17.891	0.051	9.2303	Sand (9)	33.8		0.149	0.083	36.6	86	2	16.9	125	3.10	1.73	1489
28.75	12.47	0.039	10.3827	Sand (9)	24.9		0.164	0.09	34.8	75	1.99	12.5	124	3.41	1.87	1038
31.25	14.733	0.046	11.5706	Sand (9)	29.4		0.178	0.097	35.7	78	1.99	14.7	124	3.70	2.02	1226
33.75	13.928	0.06	12.3797	Sand (9)	27.8		0.193	0.105	35.4	76	1.99	13.9	124	4.01	2.18	1159
36.25	12.119	0.054	12.7092	Sand (9)	24.2		0.202	0.109	34.7	71	1.99	12.1	124	4.20	2.27	1008

Classification by Robertson 1986

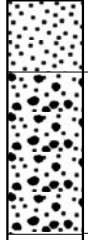


Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150



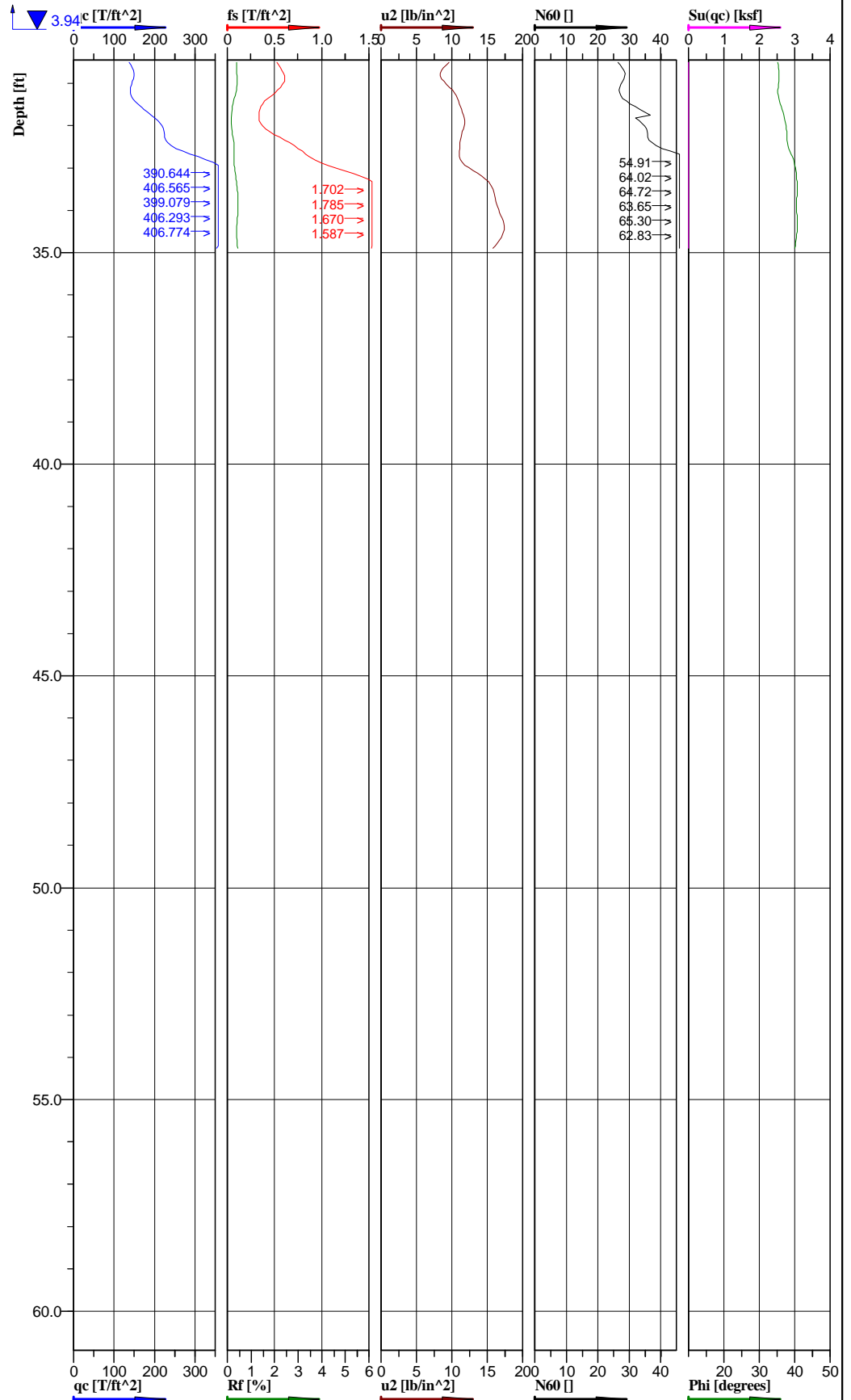
Location: Labadie, MO	Position: X: 730316.44 ft, Y: 993063.55 ft	Ground level: 466.31	Test no: C-111
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-49
File: Labadie C-111.cpd			

Classification by Robertson 1986



Sand (9)

Gravelly sand to sand (10)



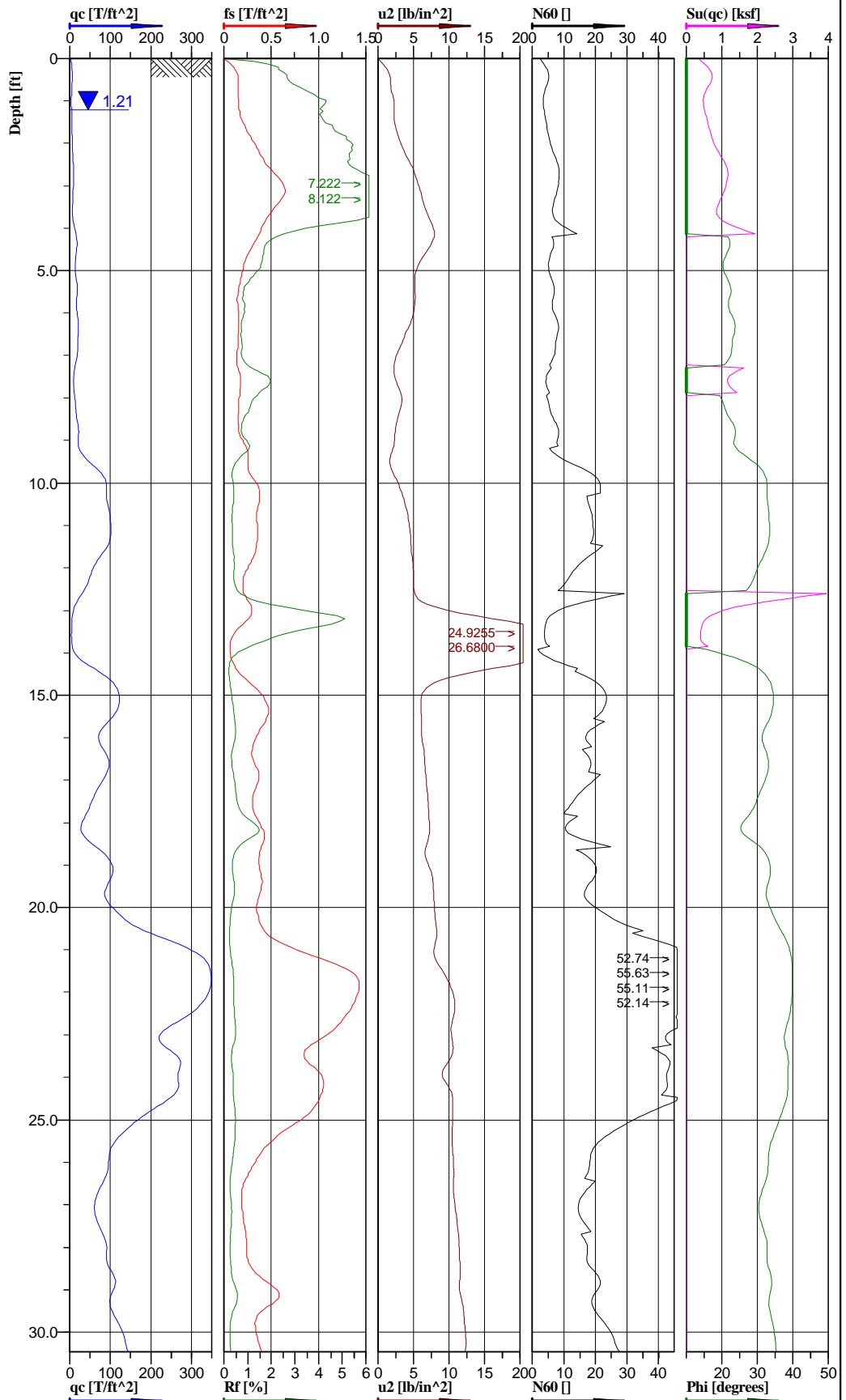
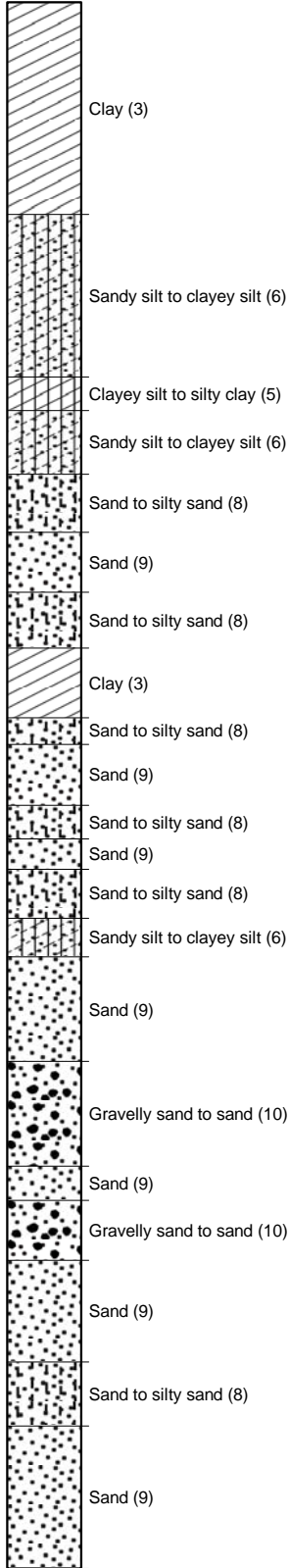
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730316.44 ft, Y: 993063.55 ft	Ground level: 466.31	Test no: C-111
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-49
		File: Labadie C-111.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-111
 Test date: 11/10/2009
 Location: Labadie MO
 File name: Labadie C-111.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.853	0.029	9.6356	Silty clay to clay (4)	6.5	1.165	0.007	0.007			1.81	6.5	113	0.15	0.15	583
3.75	1.072	0.017	8.0081	Clayey silt to silty clay (5)	5.3	0.977	0.021	0.02	21.8		1.84	5.3	115	0.44	0.42	586
6.25	1.334	0.017	6.1097	Clayey silt to silty clay (5)	5.5	1.29	0.034	0.027	23.6		1.85	5.5	115	0.71	0.56	774
8.75	1.19	0.016	4.3608	Sandy silt to clayey silt (6)	5.1	1.151	0.048	0.033	21.0		1.84	5.1	115	1.00	0.69	99
11.25	0.944	0.013	10.2344	Silty sand to sandy silt (7)	5.0	0.537	0.062	0.039	20.7		1.82	3.2	114	1.29	0.81	79
13.75	3.528	0.023	5.1601	Sand to silty sand (8)	10.5		0.076	0.046	27.0	57	1.9	6.7	119	1.58	0.96	294
16.25	7.708	0.035	5.6245	Sand (9)	17.2		0.09	0.052	31.8	68	1.96	8.6	122	1.87	1.08	641
18.75	15.086	0.066	6.5492	Sand to silty sand (8)	31.6		0.105	0.06	35.2	83	1.98	20.2	124	2.18	1.25	1255
21.25	13.674	0.05	7.3879	Sand (9)	27.9		0.119	0.067	35.1	81	1.98	14.0	124	2.48	1.39	1138
23.75	15.461	0.057	8.2743	Sand (9)	30.9		0.134	0.074	35.9	84	1.99	15.5	124	2.79	1.54	1286
26.25	17.603	0.066	9.6338	Gravelly sand to sand (10)	33.8		0.149	0.081	36.6	86	2	23.0	125	3.10	1.68	1465
28.75	20.656	0.05	10.7553	Sand (9)	37.2		0.164	0.089	37.3	89	2.02	18.6	126	3.41	1.85	1719
31.25	16.458	0.047	10.5002	Gravelly sand to sand (10)	30.7		0.179	0.096	36.2	81	2	20.9	125	3.72	2.00	1369
33.75	36.395	0.141	15.1176	Gravelly sand to sand (10)	60.6		0.194	0.103	40.3	103	2.04	41.2	127	4.04	2.14	3028

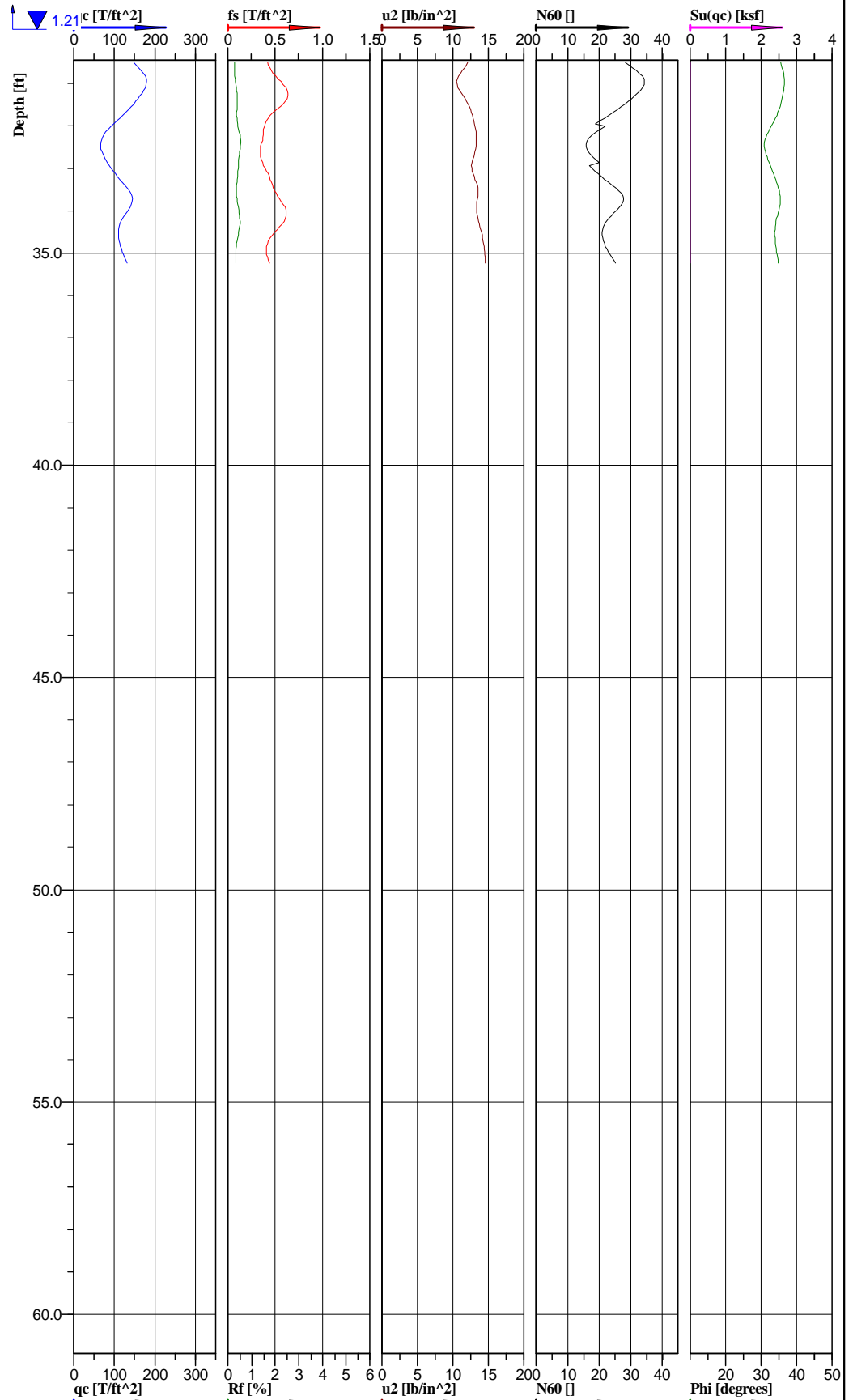
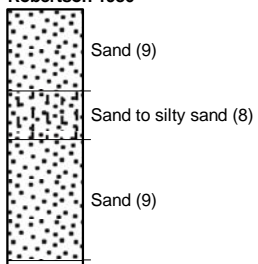
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730901.31 ft, Y: 993054.99 ft	Ground level: 463.48	Test no: C-113
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-50
		File: Labadie C-113.cpd	

Classification by
Robertson 1986



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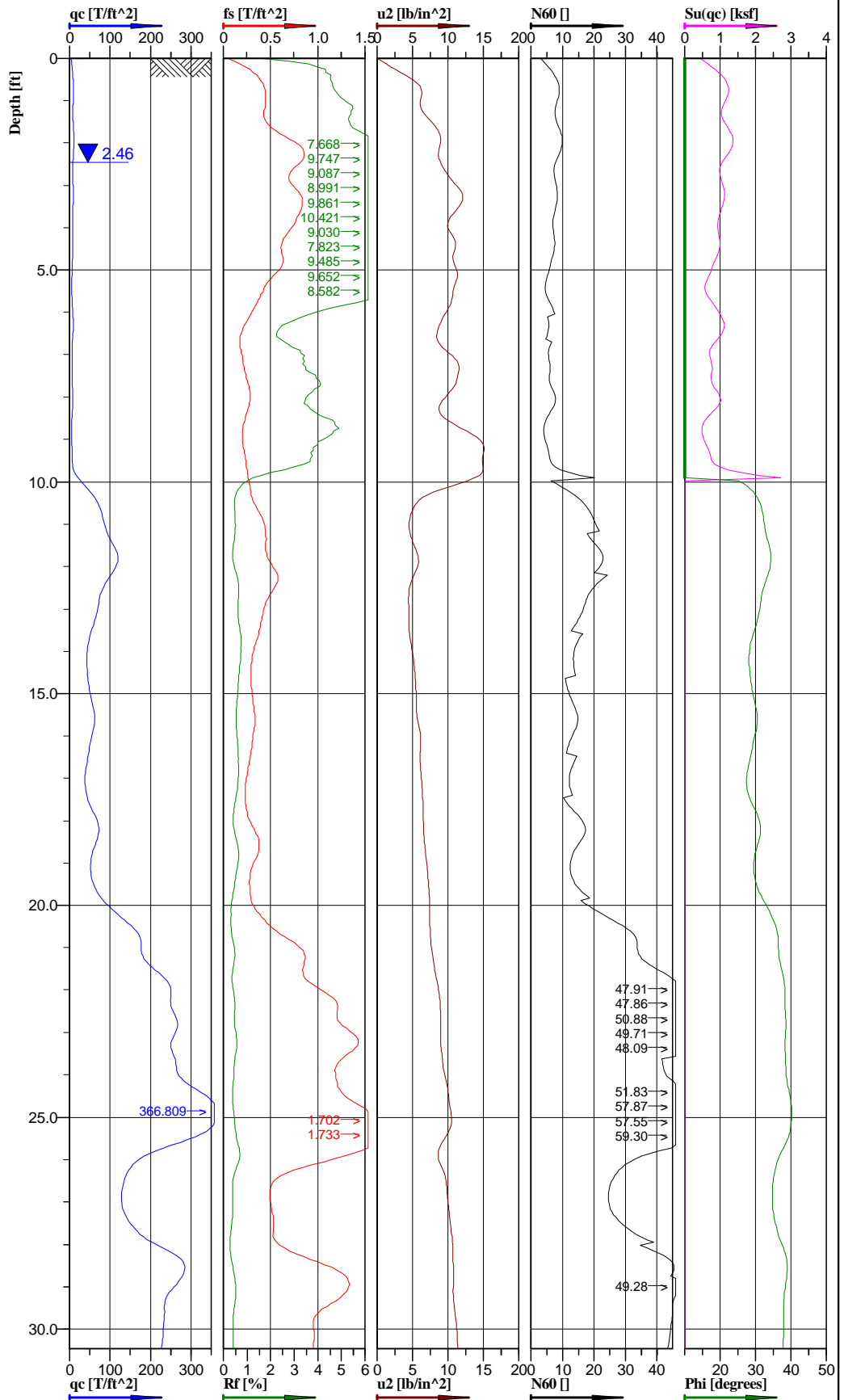
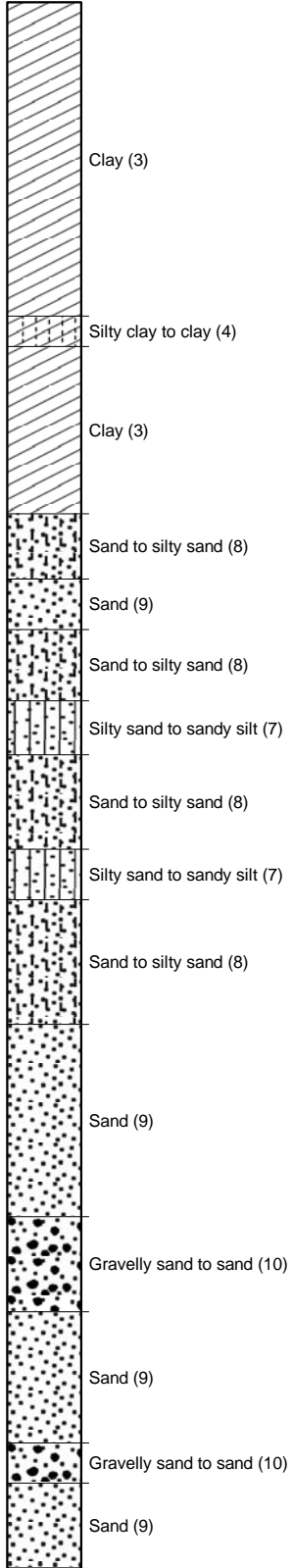
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730901.31 ft, Y: 993054.99 ft	Ground level: 463.48	Test no: C-113
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-50
		File: Labadie C-113.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-113
 Test date: 11/10/2009
 Location: Labadie MO
 File name: Labadie C-113.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.496	0.021	2.4219	Clay (3)	5.0	0.678	0.007	0.006			1.78	5.0	111	0.15	0.12	203
3.75	1.059	0.041	6.4387	Sandy silt to clayey silt (6)	7.4	1.122	0.02	0.012	21.2		1.81	7.4	113	0.42	0.25	88
6.25	1.647	0.015	4.0042	Clayey silt to silty clay (5)	6.7	1.346	0.034	0.018	22.4		1.84	6.7	115	0.71	0.37	808
8.75	3.013	0.02	2.5144	Sand to silty sand (8)	9.1	1.247	0.048	0.025	25.3	67	1.87	5.8	117	1.00	0.52	251
11.25	7.724	0.03	4.3853	Sand to silty sand (8)	17.1		0.062	0.031	31.8	75	1.96	11.0	122	1.29	0.64	643
13.75	3.686	0.019	15.4276	Sand (9)	11.5	1.154	0.076	0.038	29.1	60	1.87	5.7	117	1.58	0.79	307
16.25	8.439	0.035	6.4354	Sand to silty sand (8)	18.8		0.091	0.045	32.5	73	1.96	12.0	122	1.89	0.94	702
18.75	6.85	0.036	7.3035	Sand (9)	16.2		0.105	0.052	30.7	70	1.94	8.1	121	2.18	1.08	570
21.25	26.283	0.092	9.0406	Gravelly sand to sand (10)	44.8		0.12	0.059	38.4	101	2.03	30.5	127	2.50	1.23	2187
23.75	23.53	0.097	10.1831	Sand (9)	42.7		0.135	0.066	38.1	97	2.02	21.3	126	2.81	1.37	1958
26.25	8.861	0.033	10.6807	Sand to silty sand (8)	19.2		0.15	0.074	32.6	67	1.97	12.3	123	3.12	1.54	737
28.75	9.771	0.034	11.6851	Sand (9)	19.7		0.165	0.081	33.4	69	1.99	9.9	124	3.43	1.68	813
31.25	12.594	0.044	12.1819	Sand to silty sand (8)	26.0		0.18	0.088	34.6	74	1.98	16.6	124	3.74	1.83	1048
33.75	10.821	0.045	13.4924	Sand (9)	22.2		0.194	0.095	33.9	69	1.98	11.1	124	4.04	1.98	900
36.25	12.203	0.041	14.5435	Sand (9)	24.4		0.202	0.099	34.7	73	1.99	12.2	124	4.20	2.06	1015

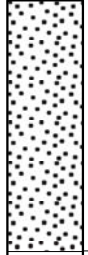
Classification by Robertson 1986



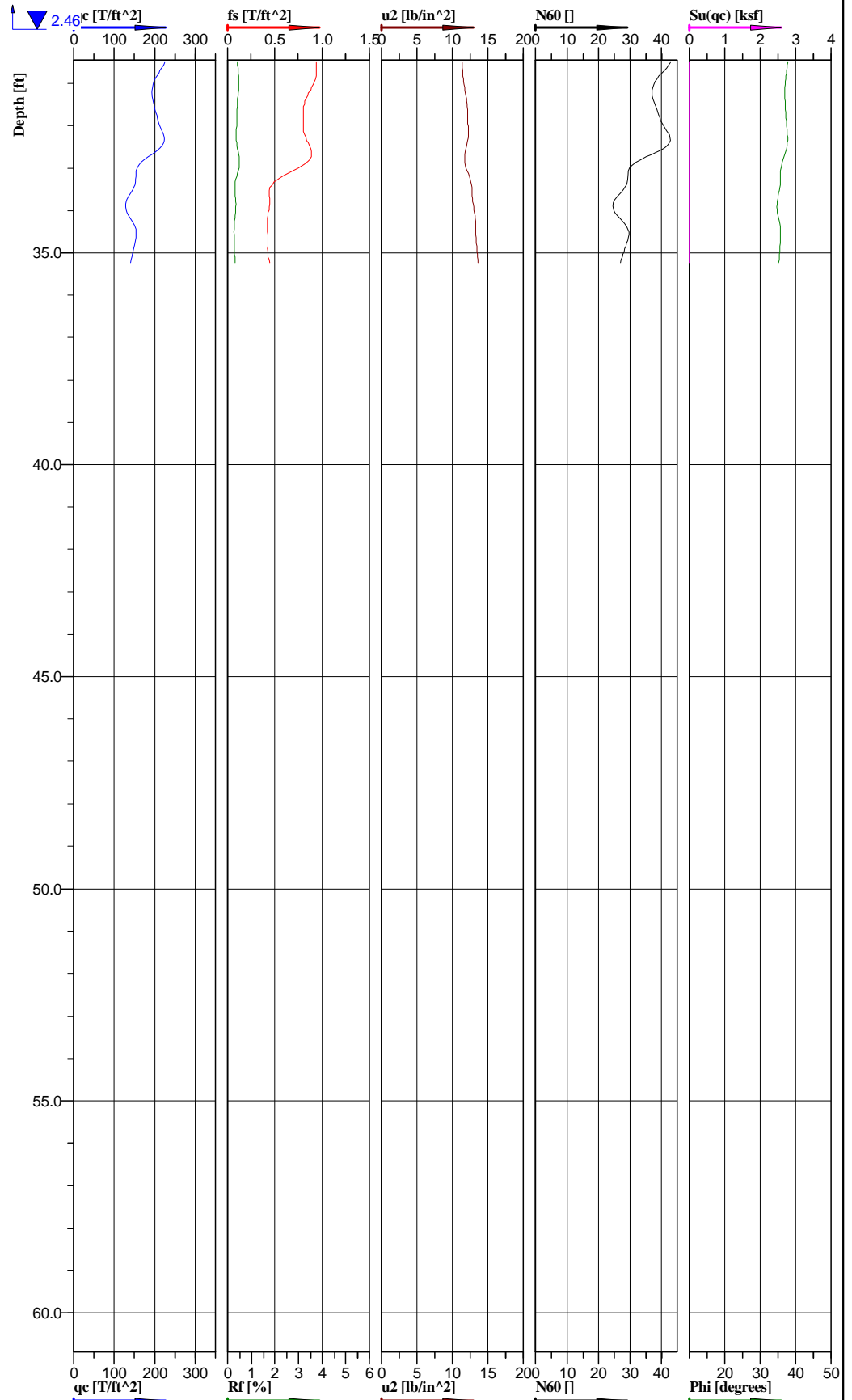
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728076.08 ft, Y: 992838.22 ft	Ground level: 465.29	Test no: C-117
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI	Page: 1	Fig: C-51	
		File: Labadie C-117.cpd	

Classification by
Robertson 1986



Sand (9)



Location:	Labadie, MO	Position:	X: 728076.08 ft, Y: 992838.22 ft	Ground level:	465.29	Test no:	C-117
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/11/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-51
				File:	Labadie C-117.cpd		



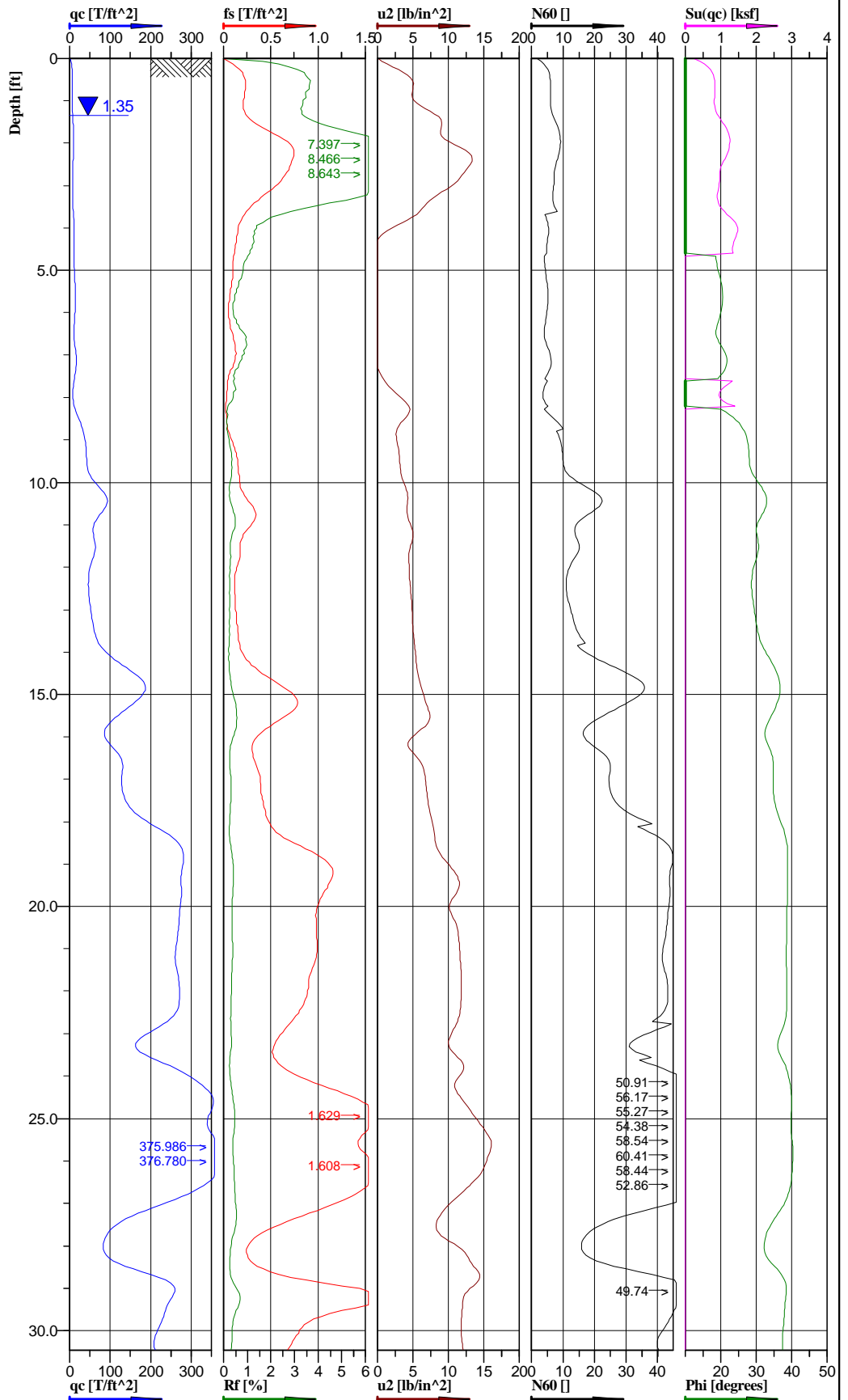
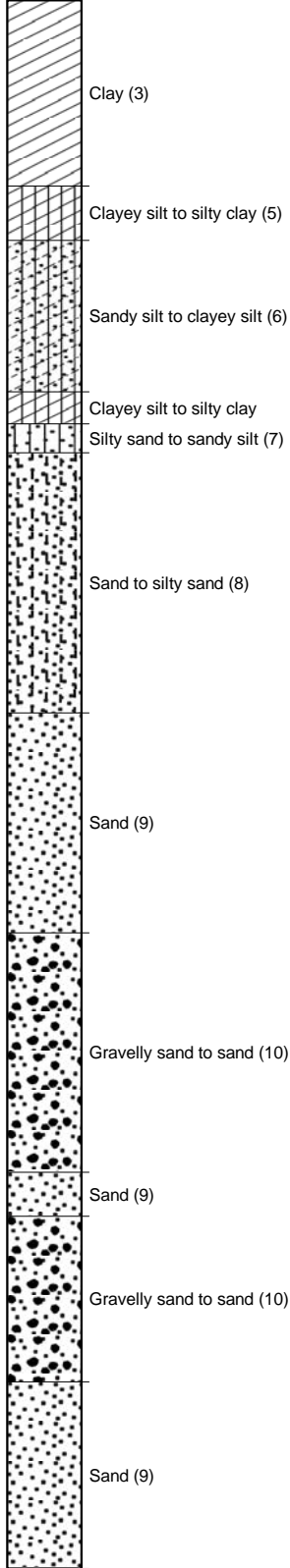
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-117
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-117.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.806	0.049	6.4964	Clay (3)	8.1	1.104	0.007	0.007				1.78	8.1	111	0.15	0.15	331
3.75	0.732	0.068	10.8151	Clay (3)	7.3	0.975	0.02	0.016				1.78	7.3	111	0.42	0.33	293
6.25	0.624	0.028	10.1779	Clay (3)	5.6	0.809	0.033	0.021				1.72	5.6	107	0.69	0.44	243
8.75	0.789	0.023	12.2164	Sand to silty sand (8)	6.8	0.861	0.046	0.027	25.8	48	1.8	4.3	112	0.96	0.56	66	
11.25	8.452	0.042	5.6621	Sand to silty sand (8)	19.1		0.06	0.033	32.3	77	1.95	12.2	122	1.25	0.69	703	
13.75	5.24	0.035	4.8508	Sand to silty sand (8)	14.6		0.075	0.04	29.6	65	1.92	9.3	120	1.56	0.83	436	
16.25	4.719	0.027	6.0023	Sand to silty sand (8)	13.0		0.089	0.047	29.0	59	1.92	8.3	120	1.85	0.98	393	
18.75	6.025	0.029	6.8741	Sand (9)	14.7		0.104	0.054	30.5	61	1.94	7.4	121	2.16	1.12	501	
21.25	18.578	0.077	8.0241	Sand (9)	37.1		0.118	0.061	36.8	91	1.99	18.6	124	2.45	1.27	1546	
23.75	27.65	0.126	9.4808	Gravelly sand to sand (10)	49.7		0.133	0.068	38.9	101	2.02	33.8	126	2.77	1.41	2300	
26.25	18.95	0.095	9.7059	Sand (9)	35.9	0.095	0.148	0.076	36.6	87	2	18.0	125	3.08	1.58	1577	
28.75	22.769	0.093	10.7969	Sand (9)	42.9		0.163	0.083	37.9	93	2	21.5	125	3.39	1.73	1894	
31.25	20.279	0.084	11.7974	Sand (9)	40.5		0.178	0.09	37.4	89	1.99	20.3	124	3.70	1.87	1687	
33.75	14.607	0.051	12.7567	Sand (9)	29.2		0.193	0.098	35.6	78	1.99	14.6	124	4.01	2.04	1215	
36.25	13.698	0.042	13.5793	Sand (9)	27.4		0.201	0.102	35.3	76	1.99	13.7	124	4.18	2.12	1140	

Classification by Robertson 1986



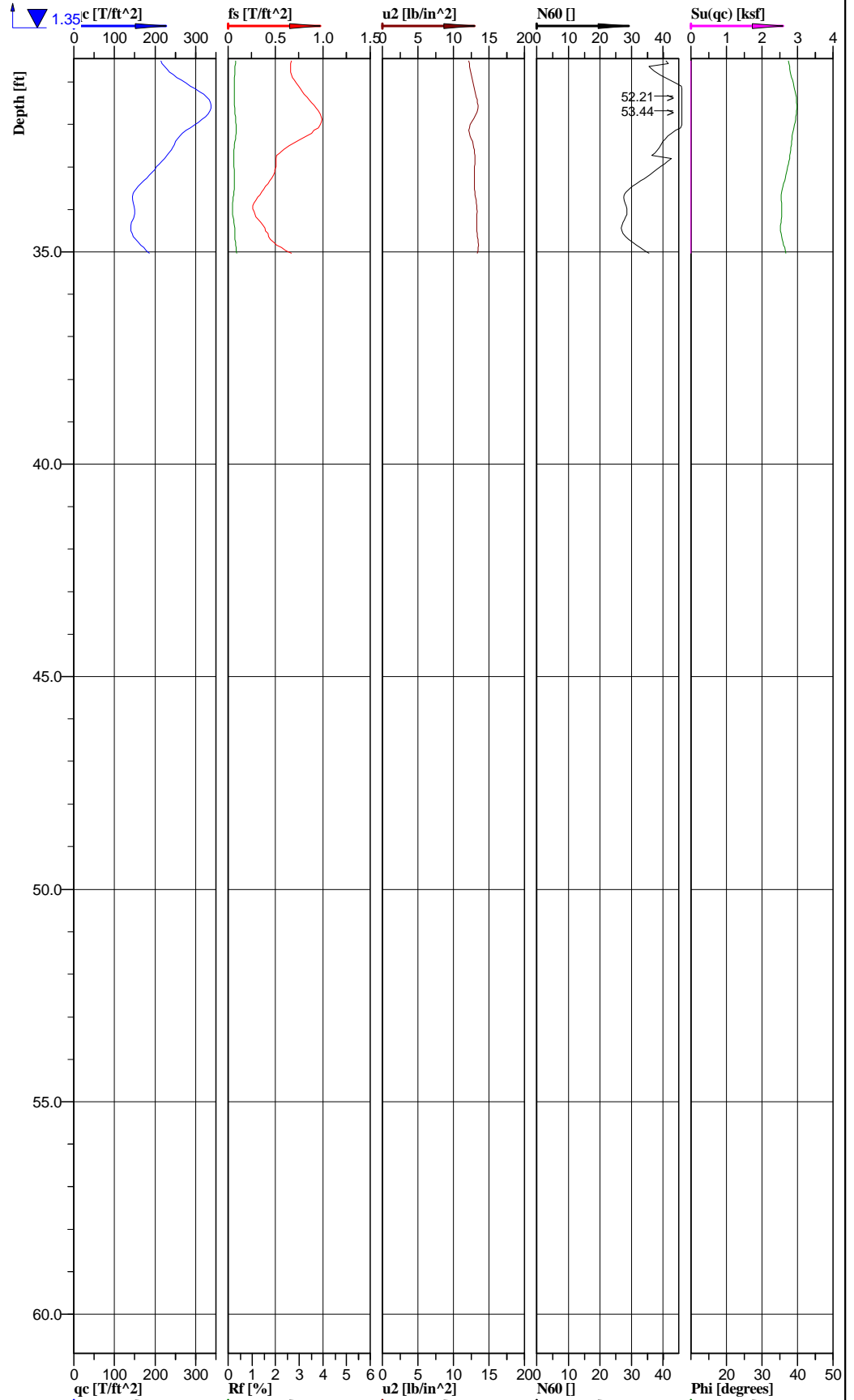
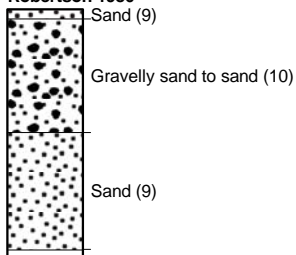
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 728831.40 ft, Y: 992807.05 ft	Ground level: 465.09	Test no: C-119
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-52
		File: Labadie C-119.cpd	

Classification by
Robertson 1986



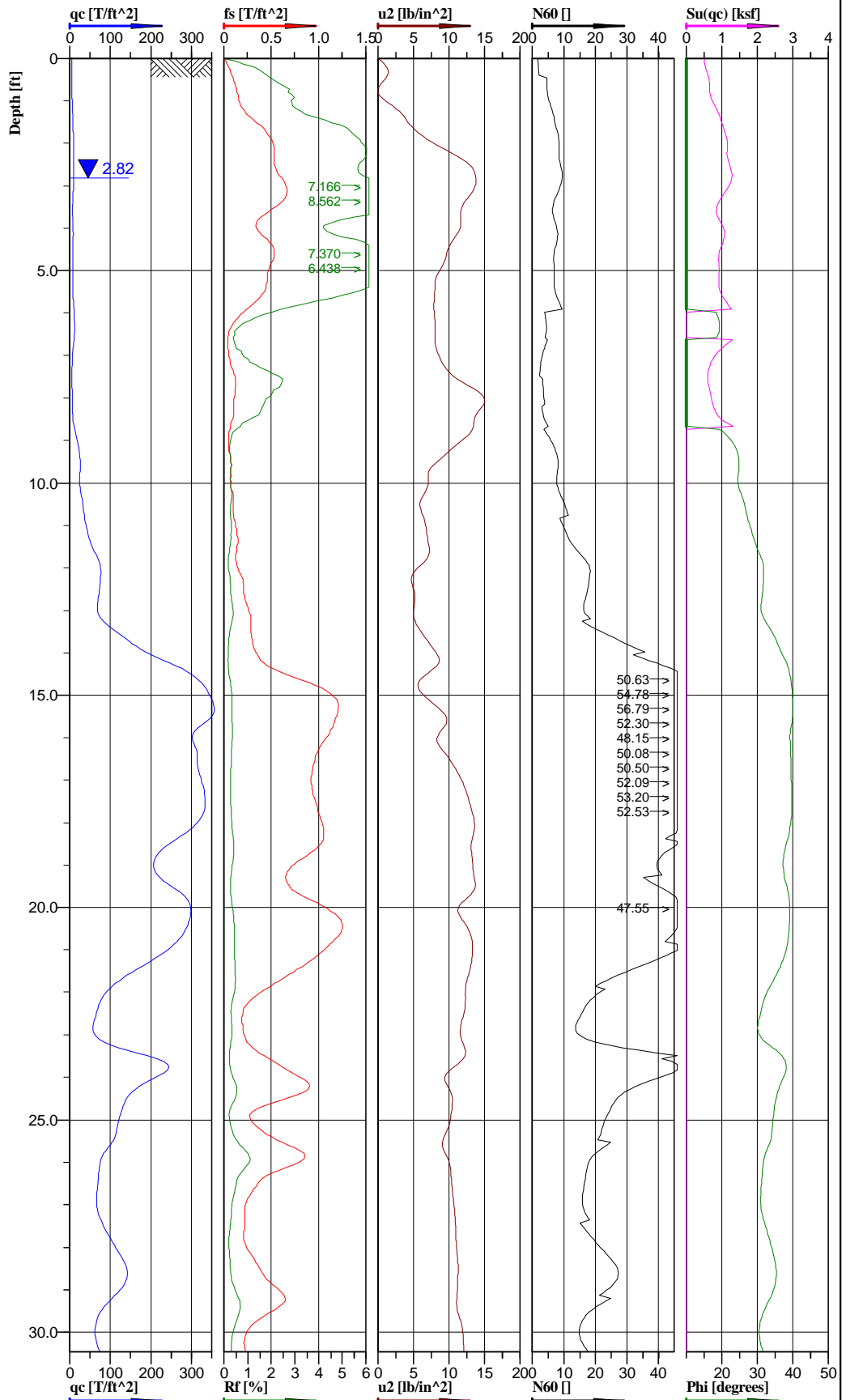
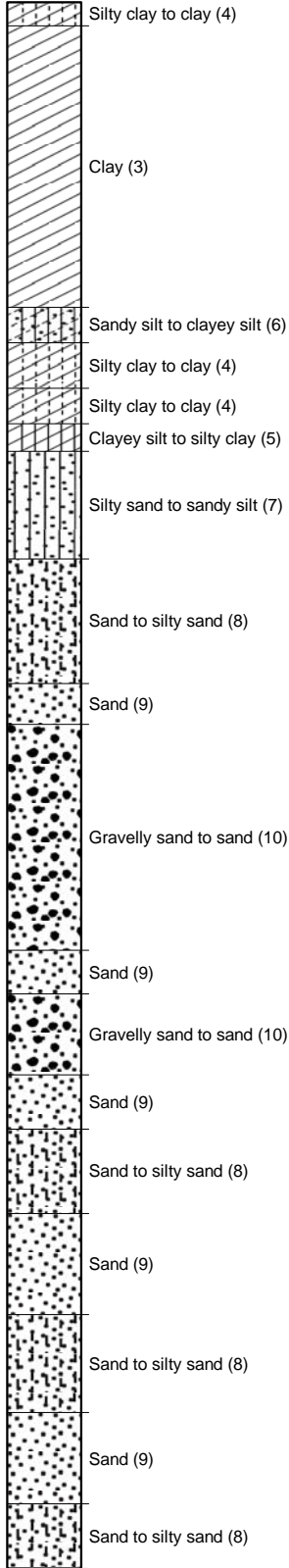
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728831.40 ft, Y: 992807.05 ft	Ground level: 465.09	Test no: C-119
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-52
		File: Labadie C-119.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-119
 Test date: 11/10/2009
 Location: Labadie MO
 File name: Labadie C-119.cpd

Depth	Corrected point resistance	Corrected local friction	Pore pressure behind cone	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60	Undrained shear strength	Total overburden stress	Effective total overburden str	R&J Phi Angle	Relative density	Unit weight	Corrected N60	Unit Weight	Total Overburden	Effective Overburden	Es (OCR=4)
[ft]	[MPa]	[MPa]	[lb/in^2]		[bpf]	[ksf]	[MPa]	[MPa]	[degrees]	[%]	[g/cm^3]	[bpf]	[pcf]	[ksf]	[ksf]	(ksf)
1.25	0.687	0.036	7.4468	Clay (3)	6.9	0.937	0.007	0.006			1.78	6.9	111	0.15	0.12	281
3.75	0.889	0.028	4.7902	Sandy silt to clayey silt (6)	5.8	1.153	0.02	0.013	18.9		1.82	5.8	114	0.42	0.27	74
6.25	1.252	0.008	-0.0993	Sandy silt to clayey silt (6)	5.0		0.034	0.019	20.1		1.84	5.0	115	0.71	0.40	104
8.75	2.844	0.008	3.071	Sand to silty sand (8)	8.1	1.117	0.048	0.025	26.7	61	1.88	5.2	117	1.00	0.52	237
11.25	6.147	0.02	4.4608	Sand to silty sand (8)	15.4		0.062	0.032	30.6	69	1.95	9.8	122	1.29	0.67	511
13.75	9.361	0.026	5.3141	Sand (9)	20.1		0.077	0.039	32.3	75	1.96	10.0	122	1.60	0.81	779
16.25	11.812	0.044	6.3075	Sand (9)	23.6		0.091	0.046	34.4	82	1.98	11.8	124	1.89	0.96	983
18.75	23.428	0.08	9.2175	Gravelly sand to sand (10)	40.2		0.106	0.053	38.0	100	2.03	27.4	127	2.20	1.10	1949
21.25	25.599	0.09	11.452	Gravelly sand to sand (10)	42.6		0.122	0.061	38.6	101	2.04	29.0	127	2.54	1.27	2130
23.75	25.527	0.087	11.4784	Gravelly sand to sand (10)	44.5		0.137	0.068	38.4	98	2.02	30.3	126	2.85	1.41	2124
26.25	29.037	0.129	13.0986	Sand (9)	50.1		0.152	0.076	38.9	100	2.03	25.1	127	3.16	1.58	2416
28.75	17.167	0.078	12.0201	Sand (9)	34.3		0.167	0.083	36.0	83	1.98	17.2	124	3.47	1.73	1428
31.25	25.821	0.076	12.5867	Gravelly sand to sand (10)	44.6		0.182	0.091	38.6	95	2.03	30.3	127	3.79	1.89	2148
33.75	16.418	0.041	13.1552	Sand (9)	32.0		0.197	0.098	36.2	81	2	16.0	125	4.10	2.04	1366

Classification by
Robertson 1986

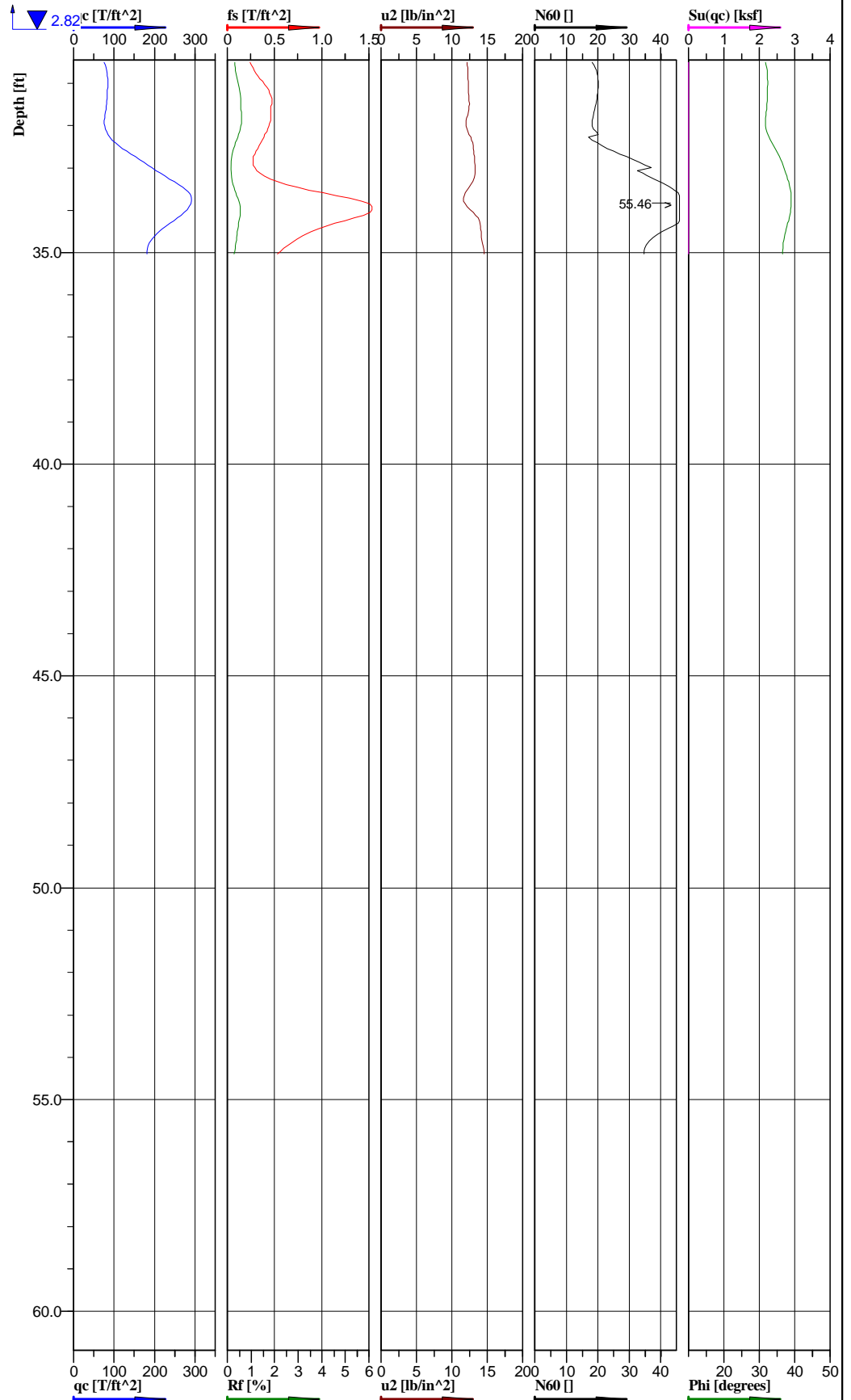
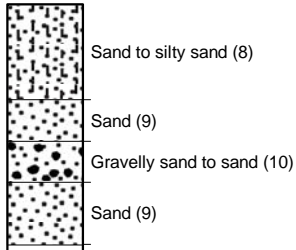


Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 729418.04 ft, Y: 992788.42 ft	Ground level: 464.11	Test no: C-121
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-53
File: Labadie C-121.cpd			

Classification by
Robertson 1986



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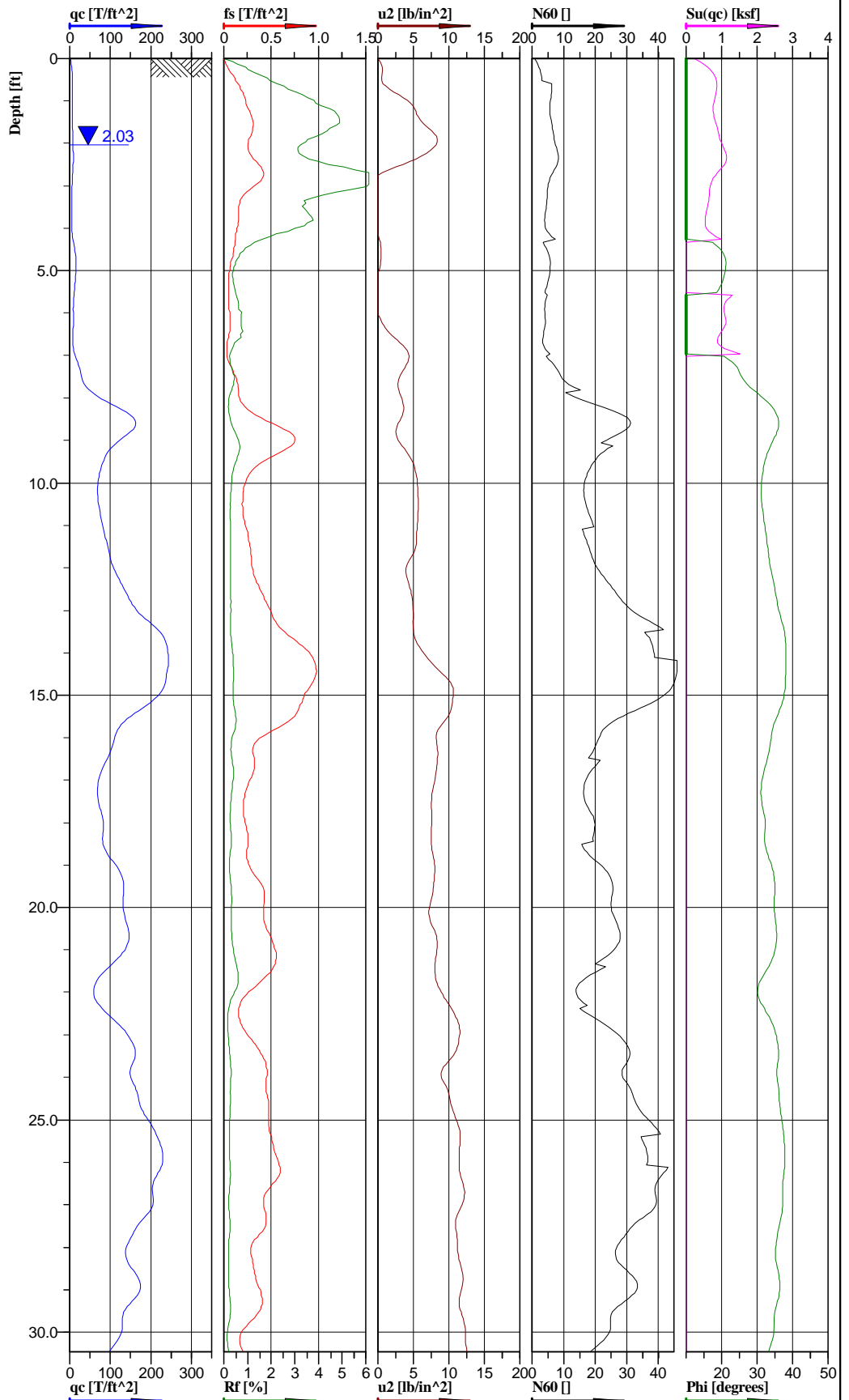
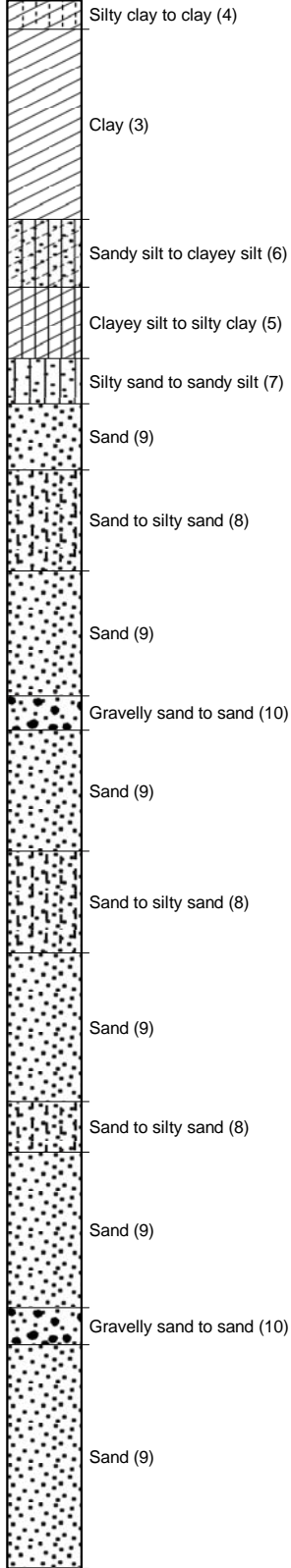
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729418.04 ft, Y: 992788.42 ft	Ground level: 464.11	Test no: C-121
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-53
		File: Labadie C-121.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-121
 Test date: 11/10/2009
 Location: Labadie MO
 File name: Labadie C-121.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.642	0.027	4.3747	Clay (3)	6.1	0.879	0.007	0.007			1.79	6.1	112	0.15	0.15	264
3.75	0.766	0.049	11.4799	Clay (3)	7.7	1.023	0.02	0.017			1.78	7.7	111	0.42	0.35	307
6.25	0.794	0.019	8.4104	Silty clay to clay (4)	5.1	0.913	0.034	0.023	19.0		1.8	5.1	112	0.71	0.48	457
8.75	1.428	0.008	11.4398	Silty sand to sandy silt (7)	5.5	0.798	0.047	0.029	23.6		1.86	3.5	116	0.98	0.60	119
11.25	4.915	0.013	6.2279	Sand to silty sand (8)	13.0		0.061	0.036	28.9	65	1.92	8.3	120	1.27	0.75	409
13.75	17.252	0.044	6.3328	Gravelly sand to sand (10)	31.6		0.076	0.043	35.5	90	1.99	21.5	124	1.58	0.89	1435
16.25	31.276	0.1	9.9619	Gravelly sand to sand (10)	52.1		0.091	0.05	39.6	110	2.04	35.4	127	1.89	1.04	2602
18.75	25.621	0.086	13.1586	Gravelly sand to sand (10)	45.0		0.106	0.058	38.5	102	2.02	30.6	126	2.20	1.21	2132
21.25	18.212	0.078	12.5503	Sand to silty sand (8)	34.3		0.121	0.065	36.1	87	2	21.9	125	2.52	1.35	1515
23.75	13.35	0.044	10.9598	Sand (9)	28.4		0.136	0.072	34.5	77	1.98	14.2	124	2.83	1.50	1111
26.25	7.988	0.042	10.1667	Sand (9)	18.6		0.151	0.079	32.1	63	1.95	9.3	122	3.14	1.64	665
28.75	10.044	0.037	11.2453	Sand to silty sand (8)	21.4		0.166	0.086	33.4	68	1.97	13.7	123	3.45	1.79	836
31.25	7.788	0.035	12.3049	Sand (9)	18.8		0.18	0.093	32.1	61	1.94	9.4	121	3.74	1.93	648
33.75	21.275	0.076	13.2582	Gravelly sand to sand (10)	40.0		0.195	0.101	37.5	88	2	27.2	125	4.06	2.10	1770

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Robertson 1986**



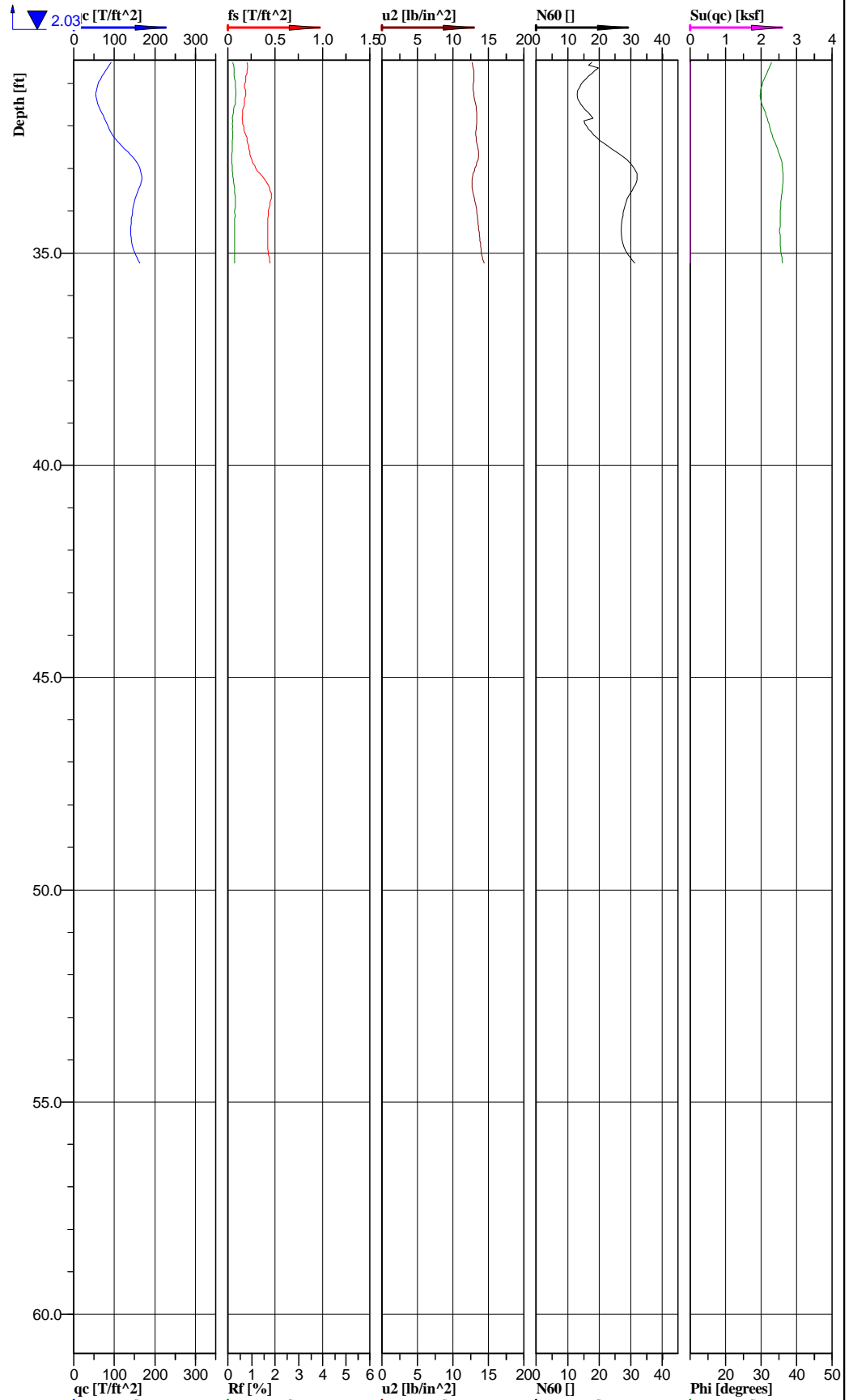
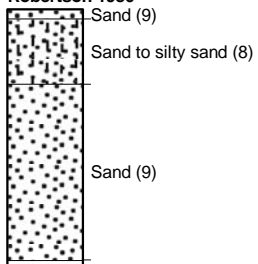
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CONSULTING ENGINEERS



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730008.50 ft, Y: 992783.30 ft	Ground level: 464.90	Test no: C-123
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-54
		File: Labadie C-123.cpd	

Classification by
Robertson 1986



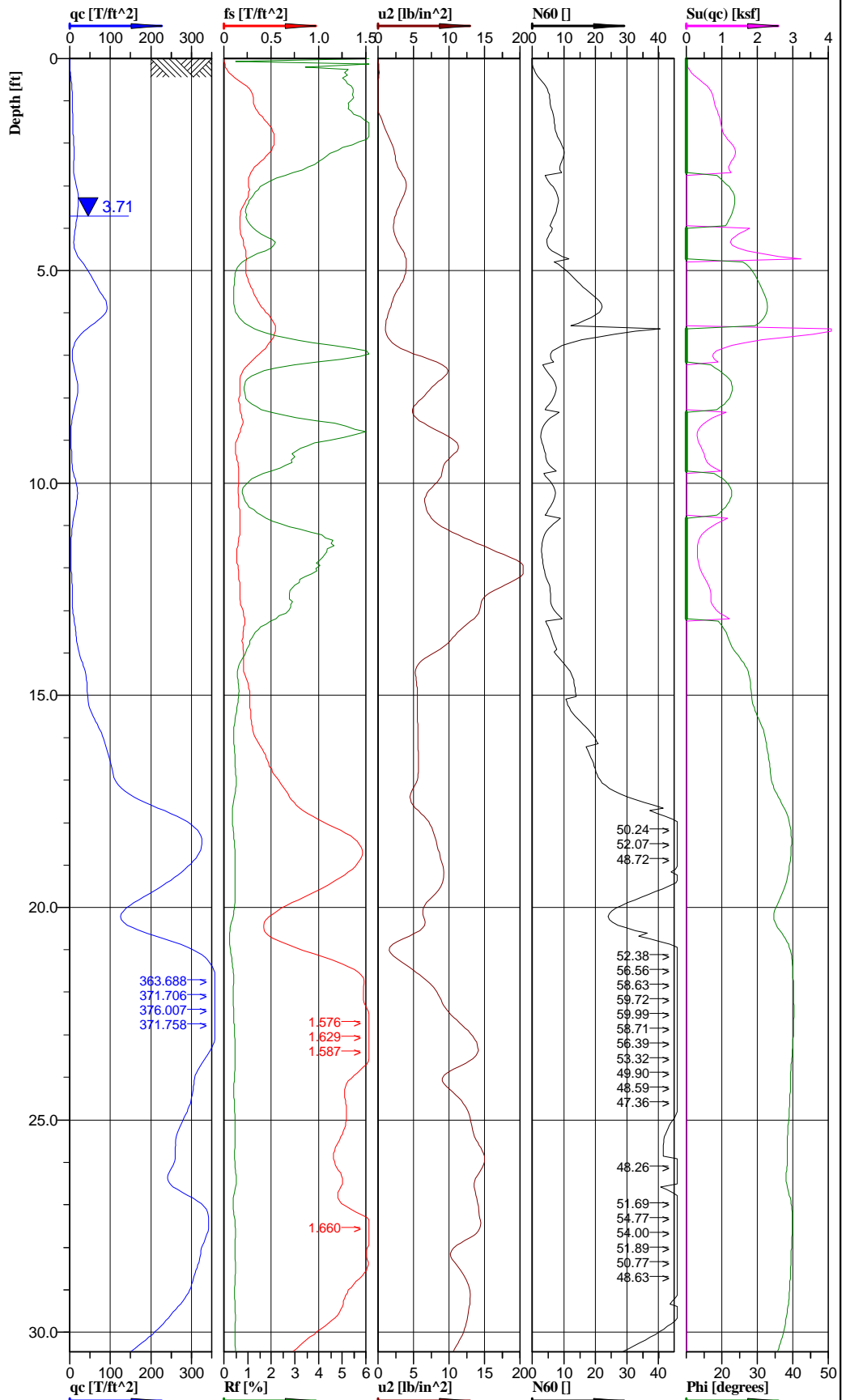
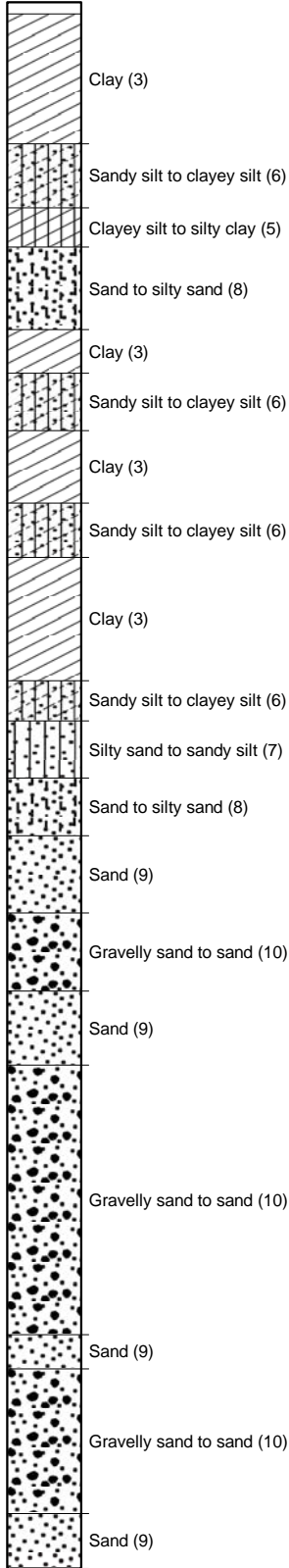
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730008.50 ft, Y: 992783.30 ft	Ground level: 464.90	Test no: C-123
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-54
		File: Labadie C-123.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-123
 Test date: 11/10/2009
 Location: Labadie MO
 File name: Labadie C-123.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.62	0.021	4.2539	Clay (3)	5.7	0.847	0.007	0.007			1.8	5.7	112	0.15	0.15	254
3.75	0.749	0.018	-0.6722	Sandy silt to clayey silt (6)	5.1	0.689	0.02	0.015	20.2		1.8	5.1	112	0.42	0.31	62
6.25	1.22	0.006	1.3273	Silty sand to sandy silt (7)	5.0	1.086	0.034	0.021	22.1		1.82	3.2	114	0.71	0.44	102
8.75	9.343	0.037	3.7429	Sand to silty sand (8)	20.8		0.048	0.027	32.6	84	1.96	13.3	122	1.00	0.56	777
11.25	8.804	0.025	5.0862	Sand (9)	19.0		0.063	0.034	32.7	78	1.97	9.5	123	1.31	0.71	732
13.75	20.167	0.07	6.7269	Sand (9)	38.4		0.077	0.042	37.3	99	2	19.2	125	1.60	0.87	1678
16.25	10.709	0.043	8.6736	Sand to silty sand (8)	22.9		0.092	0.049	33.5	77	1.97	14.6	123	1.91	1.02	891
18.75	9.872	0.028	7.6612	Sand (9)	21.2		0.107	0.056	33.3	74	1.97	10.6	123	2.23	1.16	821
21.25	10.164	0.039	8.4126	Sand (9)	21.6		0.122	0.063	33.3	73	1.97	10.8	123	2.54	1.31	846
23.75	14.733	0.036	10.4311	Sand (9)	29.4		0.136	0.07	35.7	83	1.99	14.7	124	2.83	1.46	1226
26.25	19.853	0.047	11.5384	Sand (9)	37.7		0.151	0.078	37.3	90	2	18.9	125	3.14	1.62	1652
28.75	14.222	0.031	11.6383	Sand (9)	28.4		0.166	0.085	35.5	79	1.99	14.2	124	3.45	1.77	1183
31.25	8.05	0.017	12.9894	Sand (9)	17.6		0.181	0.092	32.1	61	1.96	8.8	122	3.76	1.91	670
33.75	14.33	0.037	13.3571	Sand (9)	28.6		0.196	0.099	35.6	77	1.99	14.3	124	4.08	2.06	1192
36.25	15.098	0.042	14.2028	Sand (9)	30.2		0.204	0.103	35.9	78	1.99	15.1	124	4.24	2.14	1256

Classification by Robertson 1986



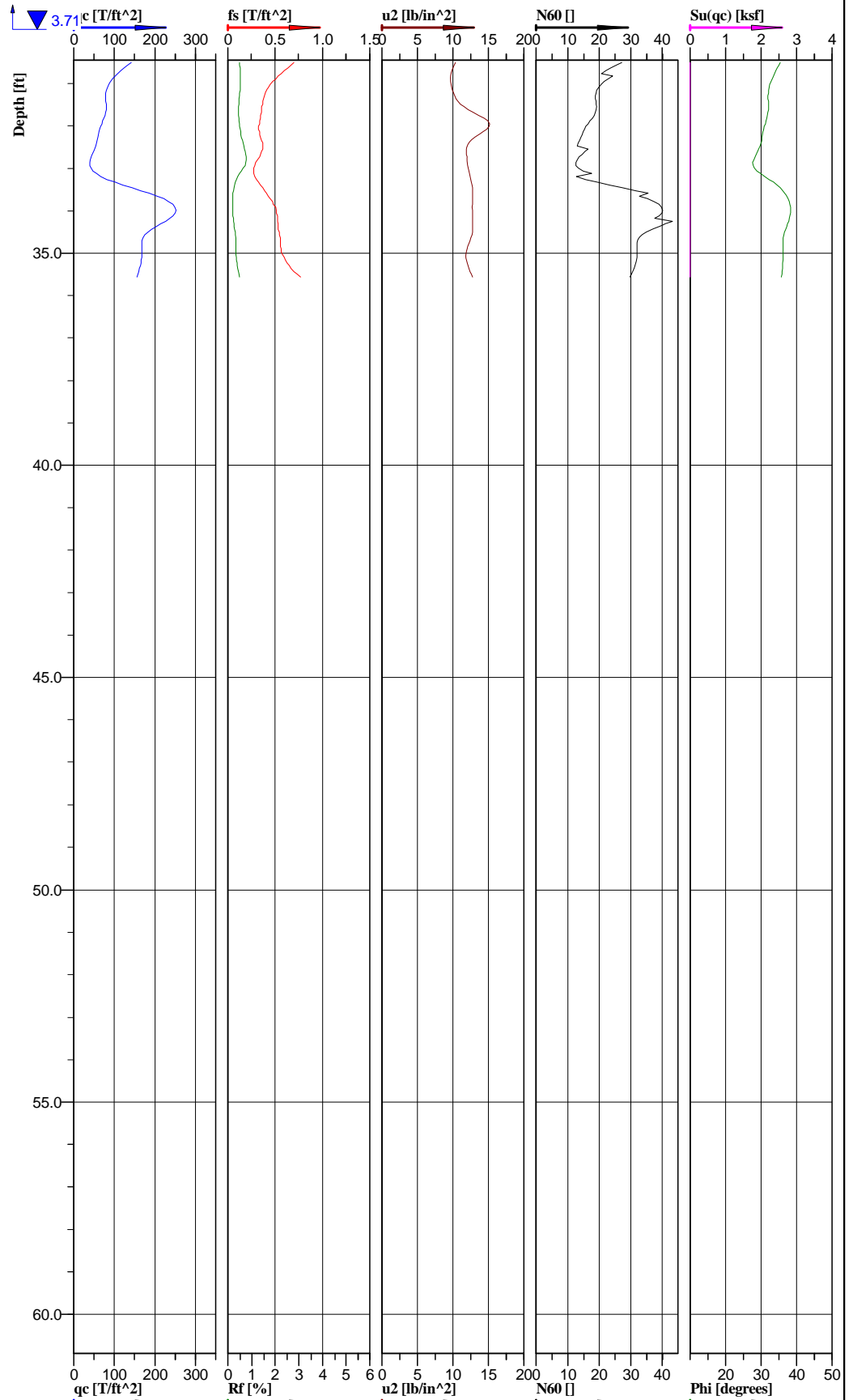
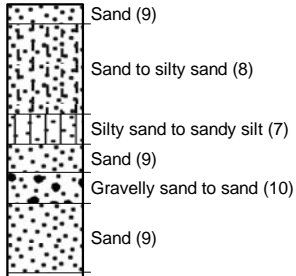
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 730600.30 ft, Y: 992770.51 ft	Ground level: 466.01	Test no: C-125
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI	Page: 1	Fig: C-55	
		File: Labadie C-125.cpd	

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Robertson 1986



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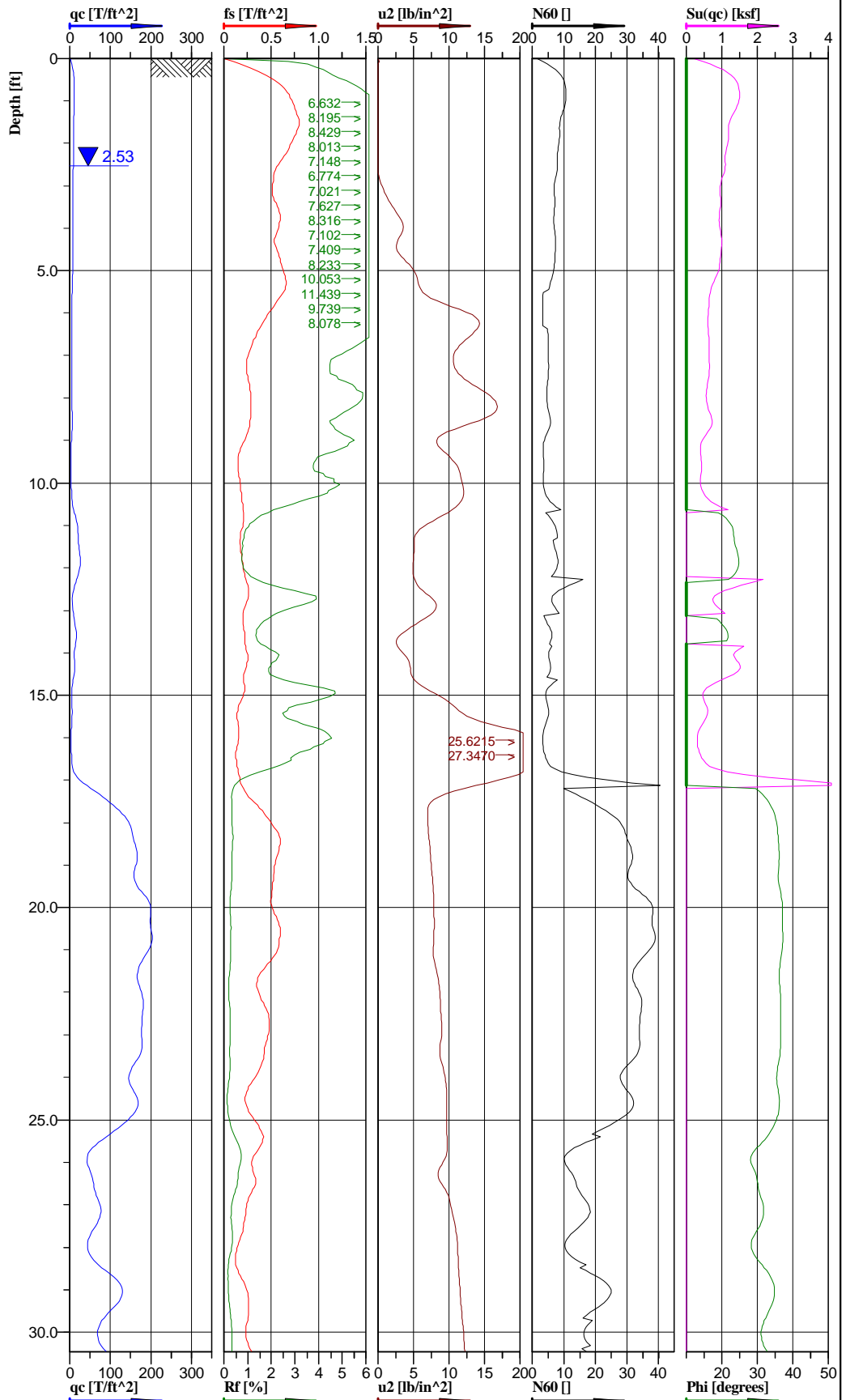
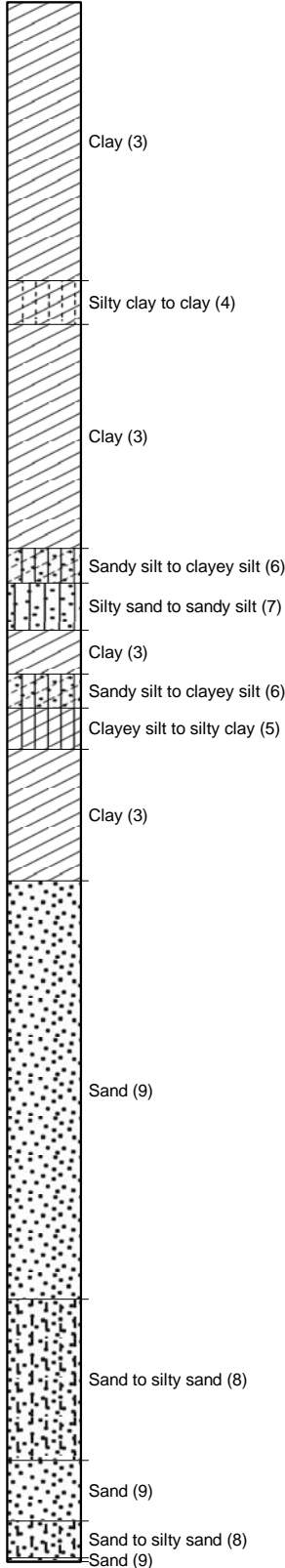
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730600.30 ft, Y: 992770.51 ft	Ground level: 466.01	Test no: C-125
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/10/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-55
		File: Labadie C-125.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-125
 Test date: 11/10/09
 Location: Labadie MO
 File name: Labadie C-125.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.587	0.031	0.6753	Clay (3)	5.9	0.807	0.006	0.006				1.71	5.9	107	0.12	0.12	242
3.75	1.775	0.021	3.1855	Sand to silty sand (8)	7.2	1.652	0.02	0.019	23.3	60	1.85	4.6	115	115	0.42	0.40	148
6.25	4.262	0.035	3.7607	Sandy silt to clayey silt (6)	14.7	2.041	0.034	0.026	28.6	76	1.88	14.7	117	117	0.71	0.54	355
8.75	0.91	0.015	8.1393	Sandy silt to clayey silt (6)	5.2	0.55	0.048	0.032	21.2		1.81	5.2	113	113	1.00	0.67	76
11.25	0.781	0.015	12.8816	Clay (3)	5.0	0.506	0.061	0.038	21.5		1.8	5.0	112	112	1.27	0.79	152
13.75	2.127	0.02	9.7481	Silty sand to sandy silt (7)	8.6	0.82	0.075	0.044	24.8		1.85	5.5	115	115	1.56	0.92	177
16.25	8.87	0.041	5.4323	Sand (9)	19.2		0.089	0.051	32.4	72	1.96	9.6	122	122	1.85	1.06	738
18.75	24.957	0.108	7.775	Sand (9)	44.2		0.104	0.058	38.3	100	2.02	22.1	126	126	2.16	1.21	2076
21.25	27.758	0.099	5.9082	Gravelly sand to sand (10)	47.4		0.119	0.065	38.6	100	2.03	32.3	127	127	2.48	1.35	2309
23.75	31.407	0.139	11.8625	Gravelly sand to sand (10)	52.3		0.134	0.073	39.6	104	2.04	35.6	127	127	2.79	1.52	2613
26.25	27.061	0.123	14.0581	Gravelly sand to sand (10)	47.1		0.149	0.081	38.8	98	2.02	32.0	126	126	3.10	1.68	2251
28.75	27.888	0.131	12.206	Sand (9)	48.6		0.165	0.088	39.0	98	2.03	24.3	127	127	3.43	1.83	2320
31.25	9.485	0.047	11.632	Sand to silty sand (8)	21.5		0.18	0.095	32.8	64	1.95	13.8	122	122	3.74	1.98	789
33.75	14.292	0.042	12.4347	Sand (9)	28.3		0.194	0.102	34.4	82	1.98	14.1	124	124	4.04	2.12	1189
36.25	15.596	0.063	12.1913	Sand (9)	31.2		0.203	0.107	36.0	79	1.99	15.6	124	124	4.22	2.23	1298

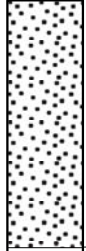
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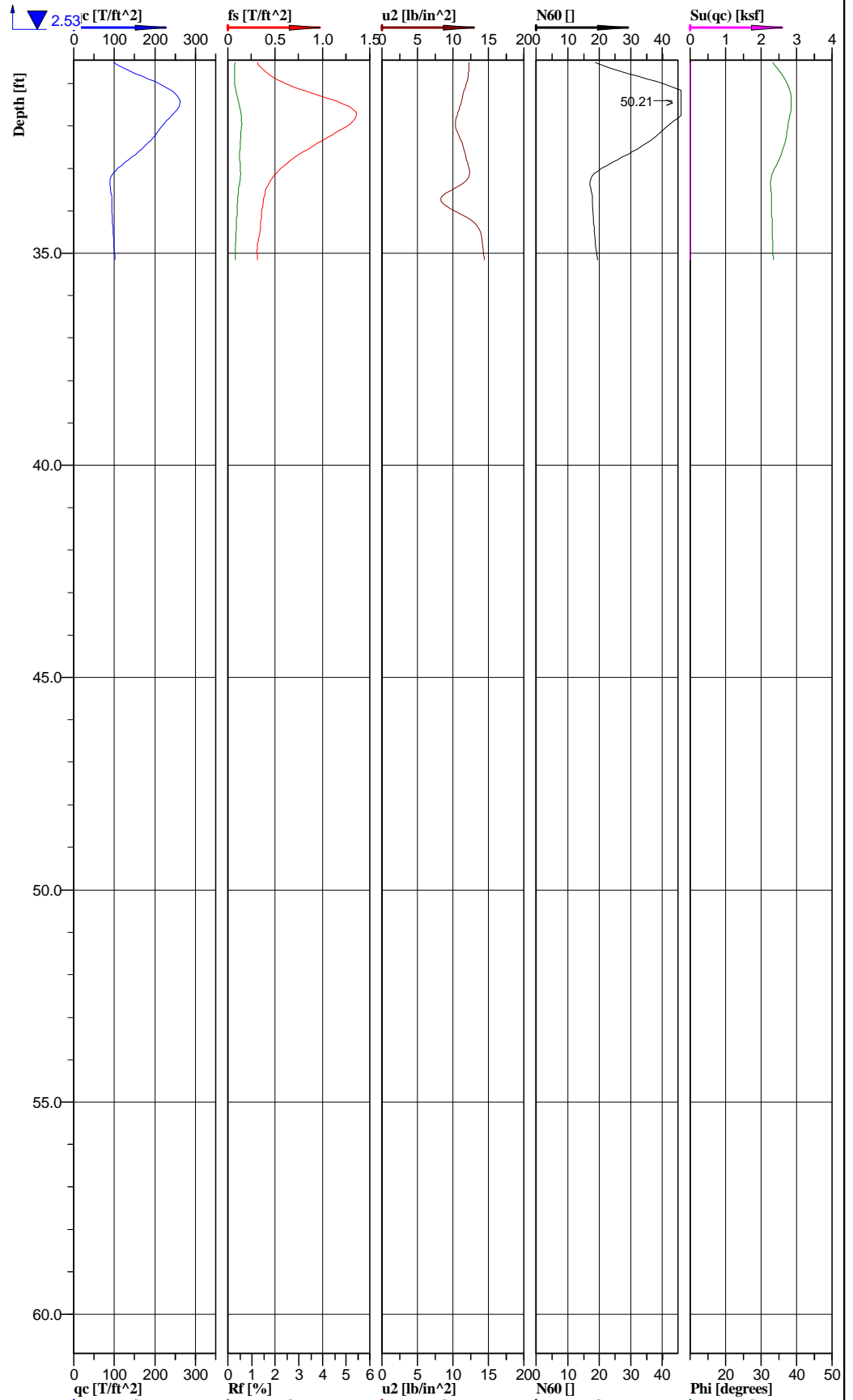
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 727767.13 ft, Y: 992541.27 ft	Ground level: 464.11	Test no: C-129
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-56
		File: Labadie C-129.cpd	

Classification by
Robertson 1986



Sand (9)



Location:	Labadie, MO	Position:	X: 727767.13 ft, Y: 992541.27 ft	Ground level:	464.11	Test no:	C-129
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/11/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-56
				File:	Labadie C-129.cpd		



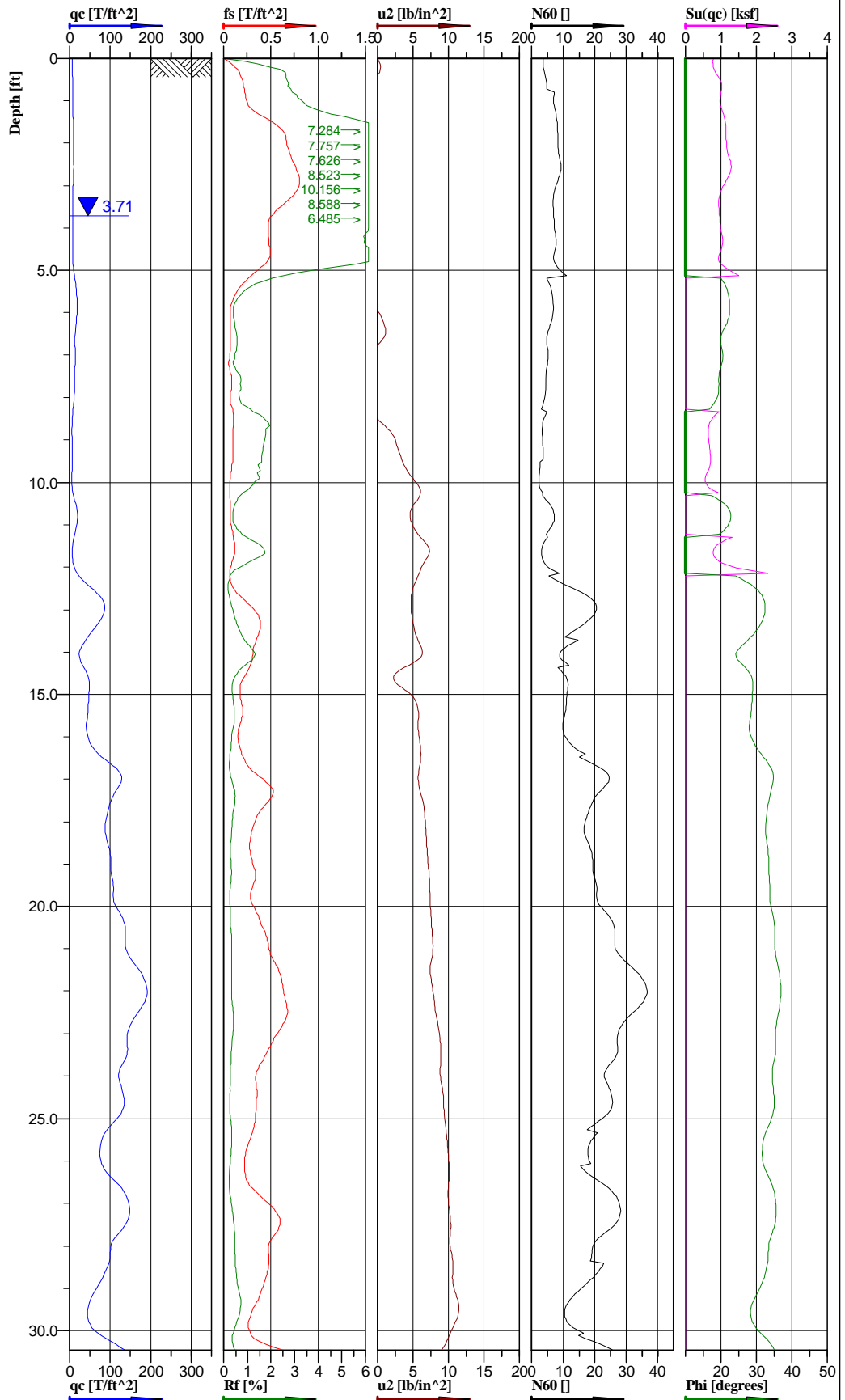
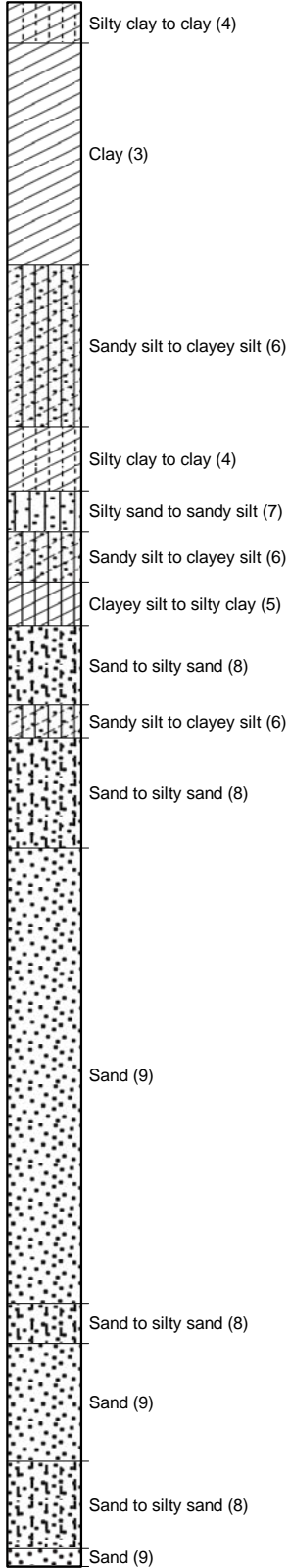
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-129
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-129.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.862	0.059	-2.038	Clay (3)	8.6	1.194	0.007	0.007				1.78	8.6	111	0.15	0.15	358
3.75	0.716	0.054	2.3248	Clay (3)	7.2	0.966	0.02	0.016				1.78	7.2	111	0.42	0.33	290
6.25	0.516	0.04	10.337	Clay (3)	4.6	0.659	0.033	0.021				1.61	4.6	101	0.69	0.44	198
8.75	0.437	0.021	12.3521	Clay (3)	4.4	0.527	0.046	0.026				1.78	4.4	111	0.96	0.54	158
11.25	1.516	0.019	7.2849	Clay (3)	7.3	0.963	0.059	0.032	23.2			1.84	7.3	115	1.23	0.67	289
13.75	0.975	0.021	5.4527	Clay (3)	5.8	1.055	0.073	0.038	20.7			1.82	5.8	114	1.52	0.79	317
16.25	1.774	0.016	17.4535	Sand (9)	8.8	0.925	0.086	0.044	31.6	68		1.83	4.4	114	1.79	0.92	148
18.75	15.172	0.049	7.4021	Sand (9)	30.3		0.101	0.051	35.8	88		1.99	15.2	124	2.10	1.06	1262
21.25	17.785	0.046	8.1962	Sand (9)	35.6		0.115	0.058	36.7	91		1.99	17.8	124	2.39	1.21	1480
23.75	15.809	0.035	9.2235	Sand (9)	31.6		0.13	0.066	36.1	86		1.99	15.8	124	2.70	1.37	1315
26.25	6.799	0.029	9.6893	Sand to silty sand (8)	16.1		0.145	0.073	31.0	59		1.94	10.3	121	3.02	1.52	566
28.75	7.992	0.019	11.4888	Sand to silty sand (8)	17.4		0.16	0.08	31.8	62		1.96	11.1	122	3.33	1.66	665
31.25	17.467	0.077	11.4498	Sand (9)	35.4		0.174	0.087	36.1	83		1.99	17.7	124	3.62	1.81	1453
33.75	9.965	0.042	11.8796	Sand (9)	19.9		0.189	0.094	33.5	67		1.98	10.0	124	3.93	1.96	829
36.25	9.694	0.03	14.3598	Sand (9)	19.4		0.197	0.098	33.4	66		1.99	9.7	124	4.10	2.04	807

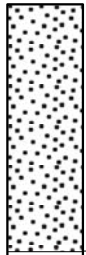
**Classification by
Robertson 1986**



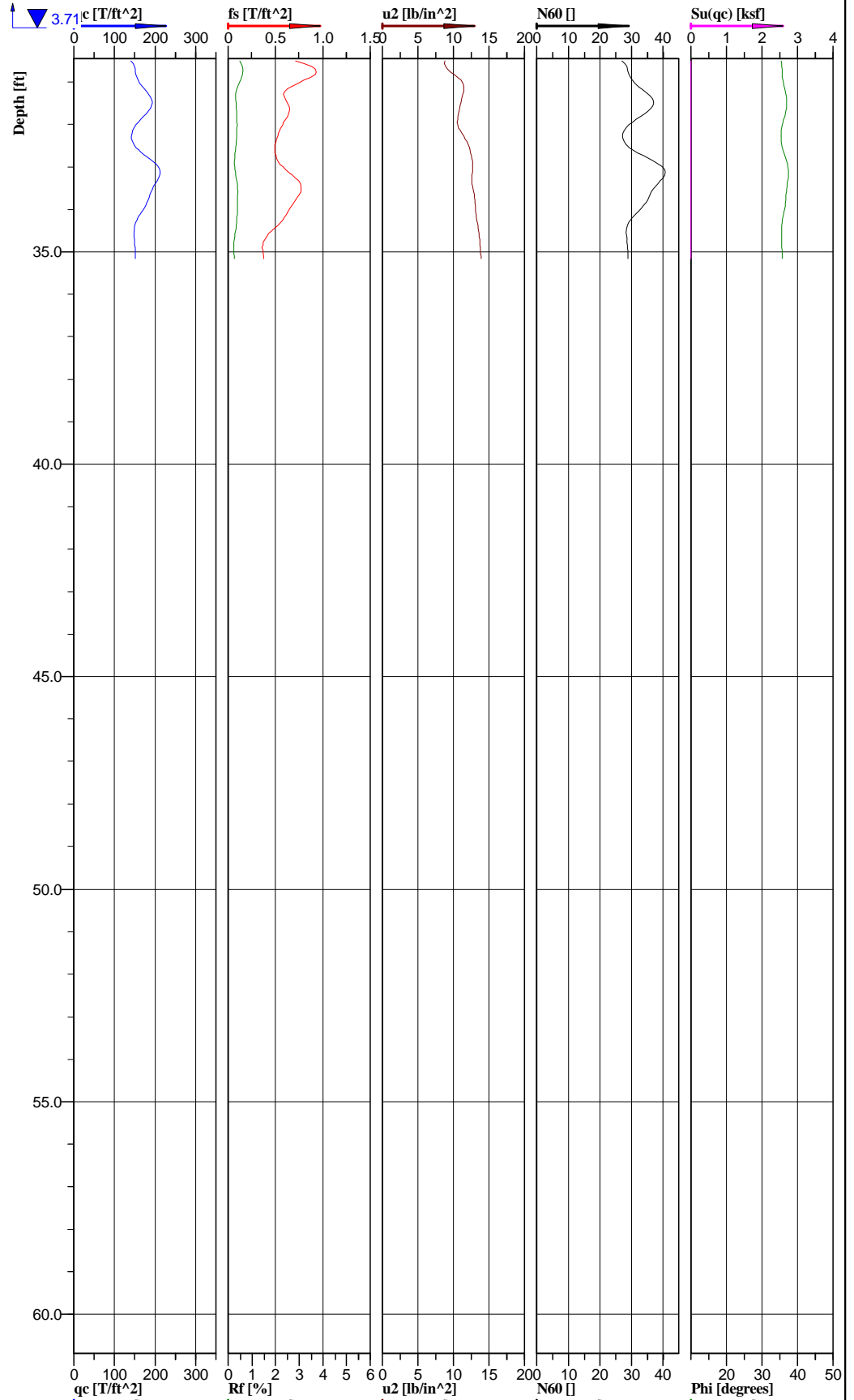
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728365.32 ft, Y: 992547.90 ft	Ground level: 464.99	Test no: C-131
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-57
File: Labadie C-131.cpd			

Classification by
Robertson 1986



Sand (9)



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

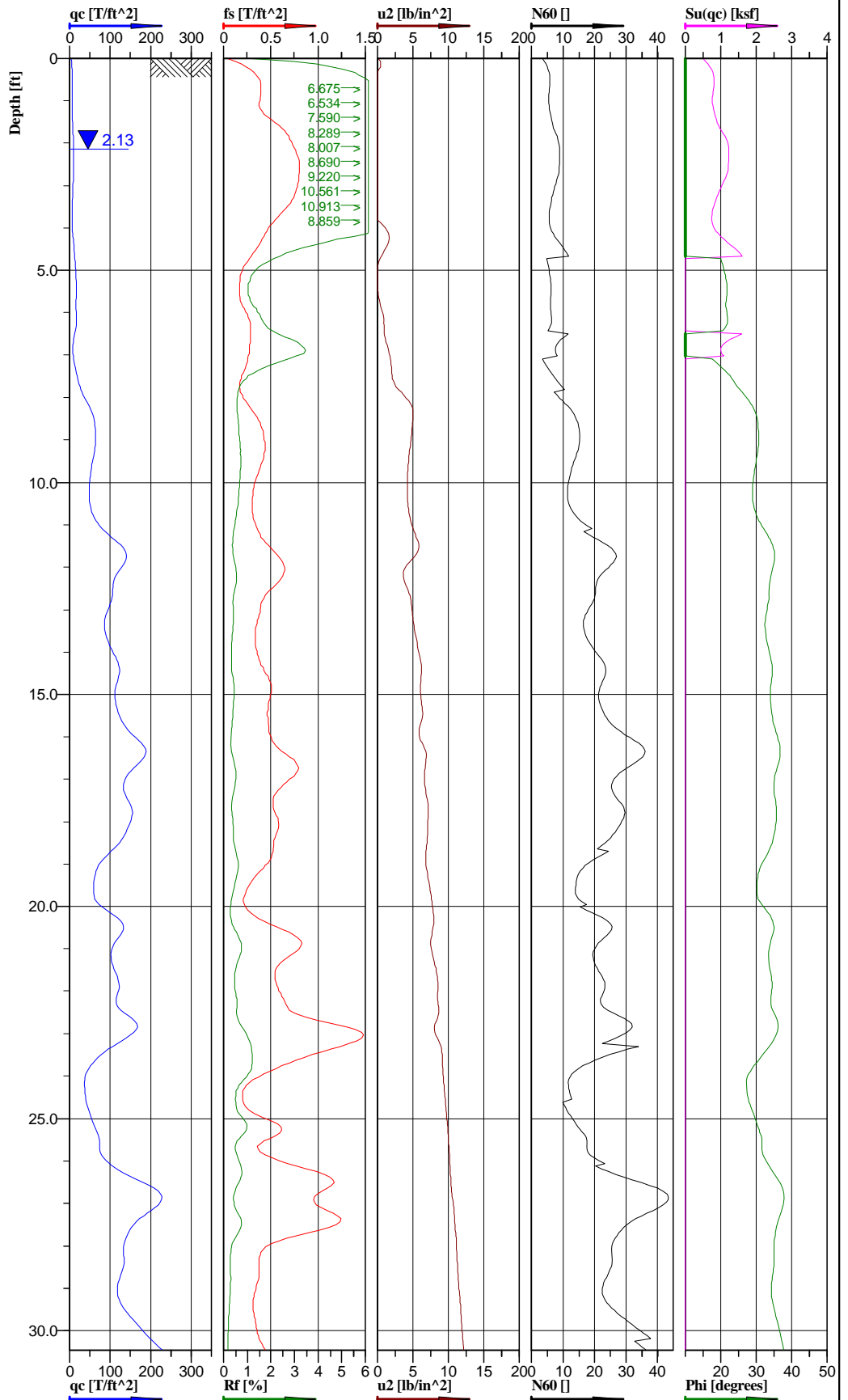
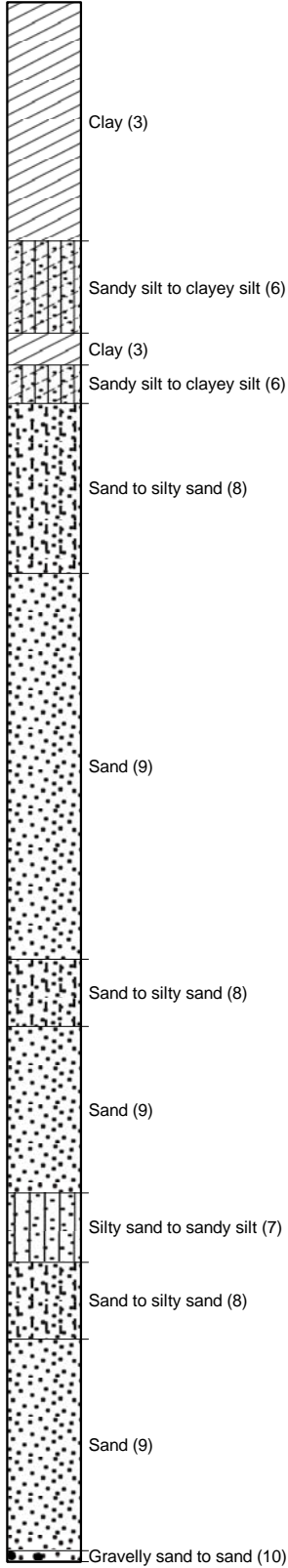


Location: Labadie, MO	Position: X: 728365.32 ft, Y: 992547.90 ft	Ground level: 464.99	Test no: C-131
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-57
		File: Labadie C-131.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-131
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-131.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.757	0.039	-3.2302	Clay (3)	6.9	1.049	0.007	0.007				1.8	6.9	112	0.15	0.15	315
3.75	0.764	0.055	-3.9377	Clay (3)	7.6	1.041	0.02	0.019				1.79	7.6	112	0.42	0.40	312
6.25	1.39	0.01	-0.445	Sandy silt to clayey silt (6)	5.9	1.43	0.034	0.026	20.9			1.84	5.9	115	0.71	0.54	116
8.75	0.689	0.008	1.5727	Silty sand to sandy silt (7)	3.6	0.674	0.048	0.032	18.7			1.83	2.3	114	1.00	0.67	57
11.25	1.547	0.008	5.7584	Sand to silty sand (8)	5.7	1.055	0.061	0.038	22.9	51		1.85	3.6	115	1.27	0.79	129
13.75	5.06	0.027	4.6657	Sand to silty sand (8)	13.7		0.075	0.045	29.0	62		1.91	8.8	119	1.56	0.94	421
16.25	7.243	0.026	5.8234	Sand (9)	15.8		0.09	0.051	31.0	64		1.96	7.9	122	1.87	1.06	603
18.75	9.512	0.031	7.0072	Sand (9)	19.0		0.104	0.059	33.3	73		1.99	9.5	124	2.16	1.23	791
21.25	15.05	0.05	7.6984	Sand (9)	30.1		0.119	0.066	35.8	84		1.99	15.0	124	2.48	1.37	1252
23.75	13.06	0.042	8.9186	Sand (9)	26.1		0.134	0.073	35.1	79		1.99	13.1	124	2.79	1.52	1087
26.25	10.483	0.033	9.9546	Sand (9)	22.1		0.149	0.08	33.6	71		1.97	11.0	123	3.10	1.66	872
28.75	7.53	0.039	10.7032	Sand to silty sand (8)	17.1		0.164	0.087	31.5	59		1.95	10.9	122	3.41	1.81	626
31.25	14.515	0.059	10.5828	Sand (9)	29.1		0.178	0.094	35.5	78		1.99	14.5	124	3.70	1.96	1208
33.75	16.694	0.055	13.0307	Sand (9)	33.4		0.193	0.102	36.3	81		1.99	16.7	124	4.01	2.12	1389
36.25	14.448	0.036	13.8475	Sand (9)	28.9		0.201	0.105	35.6	77		1.99	14.4	124	4.18	2.18	1202

Classification by Robertson 1986



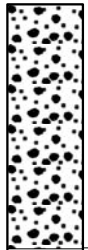
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

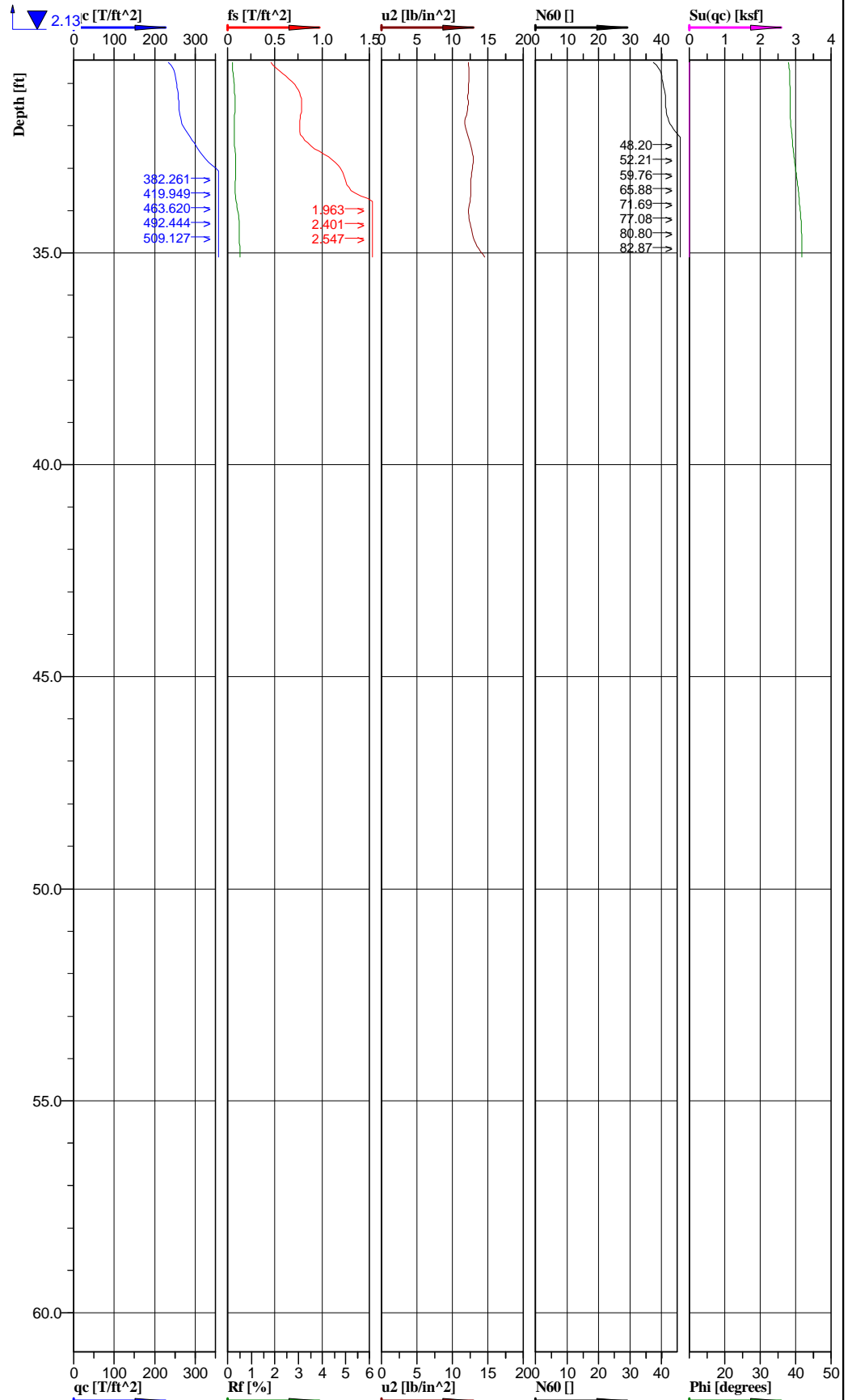


Location: Labadie, MO	Position: X: 729146.49 ft, Y: 992516.70 ft	Ground level: 464.60	Test no: C-133
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-58
File: Labadie C-133.cpd			

Classification by
Robertson 1986



Gravelly sand to sand (10)



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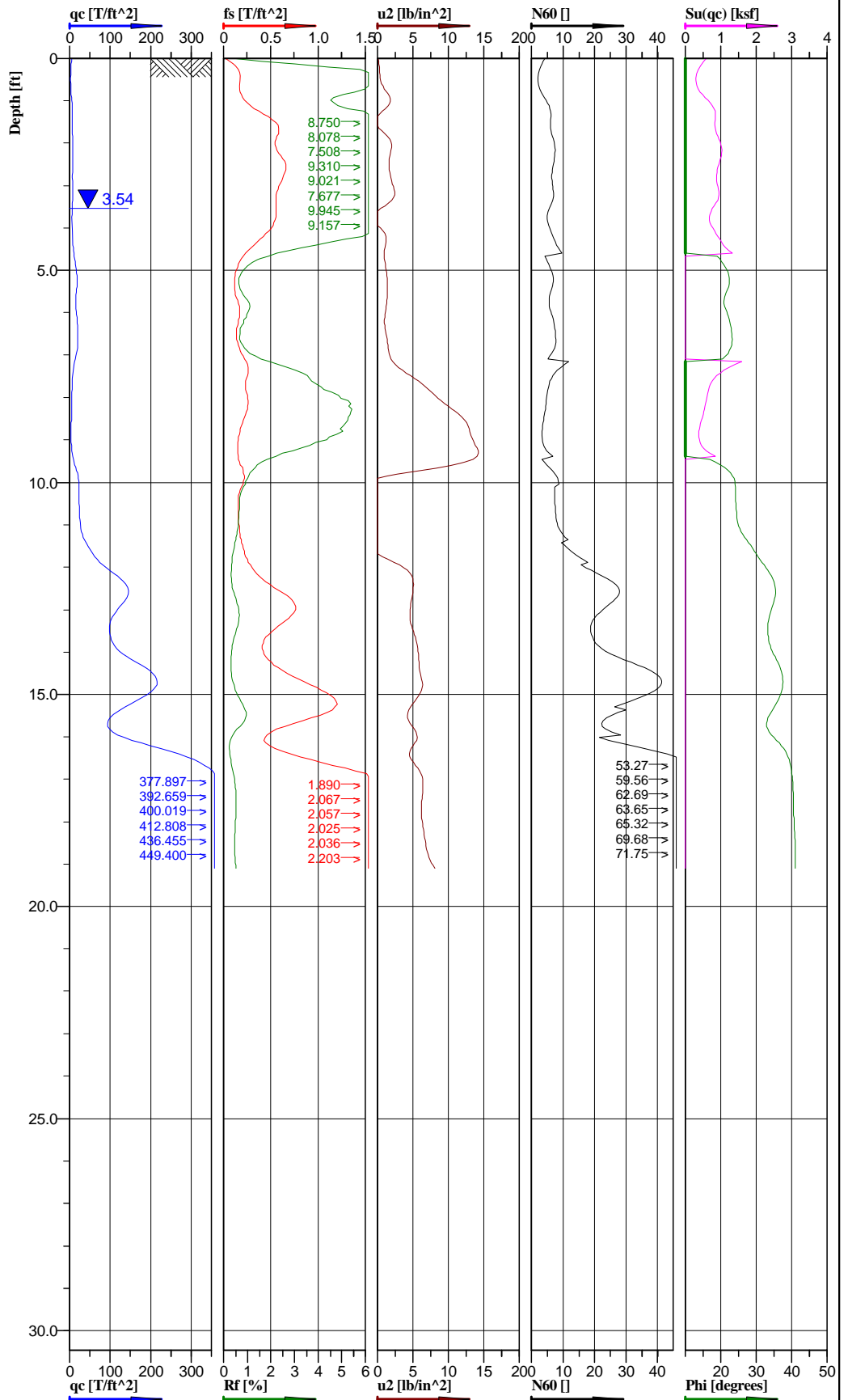
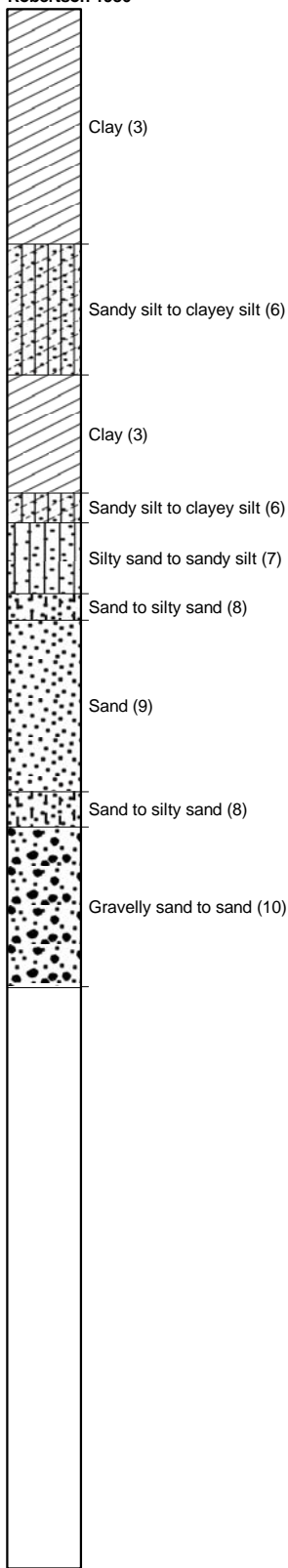
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729146.49 ft, Y: 992516.70 ft	Ground level: 464.60	Test no: C-133
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-58
File: Labadie C-133.cpd			

Client: Aneren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-133
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-133.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.666	0.048	-2.3972	Clay (3)	6.7	0.921	0.007	0.007			1.78	6.7	111	0.15	0.15	276
3.75	0.841	0.052	-0.322	Sandy silt to clayey silt (6)	7.2	1.022	0.02	0.015	20.6		1.8	7.2	112	0.42	0.31	70
6.25	1.339	0.022	0.9269	Sandy silt to clayey silt (6)	6.6	1.171	0.034	0.021	21.3		1.83	6.6	114	0.71	0.44	111
8.75	4.842	0.032	4.2585	Sand to silty sand (8)	12.5		0.048	0.028	28.9	66	1.92	8.0	120	1.00	0.58	403
11.25	8.763	0.042	4.5831	Sand (9)	18.7		0.062	0.034	32.3	76	1.97	9.3	123	1.29	0.71	729
13.75	9.975	0.039	5.4884	Sand (9)	19.9		0.077	0.042	33.5	79	1.98	10.0	124	1.60	0.87	830
16.25	13.939	0.055	6.4677	Sand (9)	27.9		0.092	0.049	35.4	86	1.99	13.9	124	1.91	1.02	1160
18.75	9.808	0.042	7.1385	Sand (9)	21.3		0.107	0.056	33.0	73	1.96	10.7	122	2.23	1.16	816
21.25	10.997	0.057	8.0847	Sand (9)	22.0		0.121	0.063	34.1	76	1.98	11.0	124	2.52	1.31	915
23.75	7.856	0.068	9.0521	Sand to silty sand (8)	19.6		0.136	0.07	31.1	70	1.93	12.6	120	2.83	1.46	654
26.25	12.927	0.079	10.3313	Sand (9)	27.3		0.15	0.077	34.3	75	1.96	13.7	122	3.12	1.60	1076
28.75	13.186	0.041	11.4379	Sand (9)	26.4		0.165	0.084	35.1	77	1.99	13.2	124	3.43	1.75	1097
31.25	24.327	0.064	12.1666	Gravelly sand to sand (10)	41.0		0.18	0.092	38.3	94	2.03	27.9	127	3.74	1.91	2024
33.75	41.311	0.17	12.7782	Gravelly sand to sand (10)	68.8		0.196	0.099	40.8	107	2.04	46.8	127	4.08	2.06	3437
36.25	50.05	0.263	14.3985	Gravelly sand to sand (10)	83.4		0.203	0.103	41.8	113	2.04	56.7	127	4.22	2.14	4164

Classification by Robertson 1986



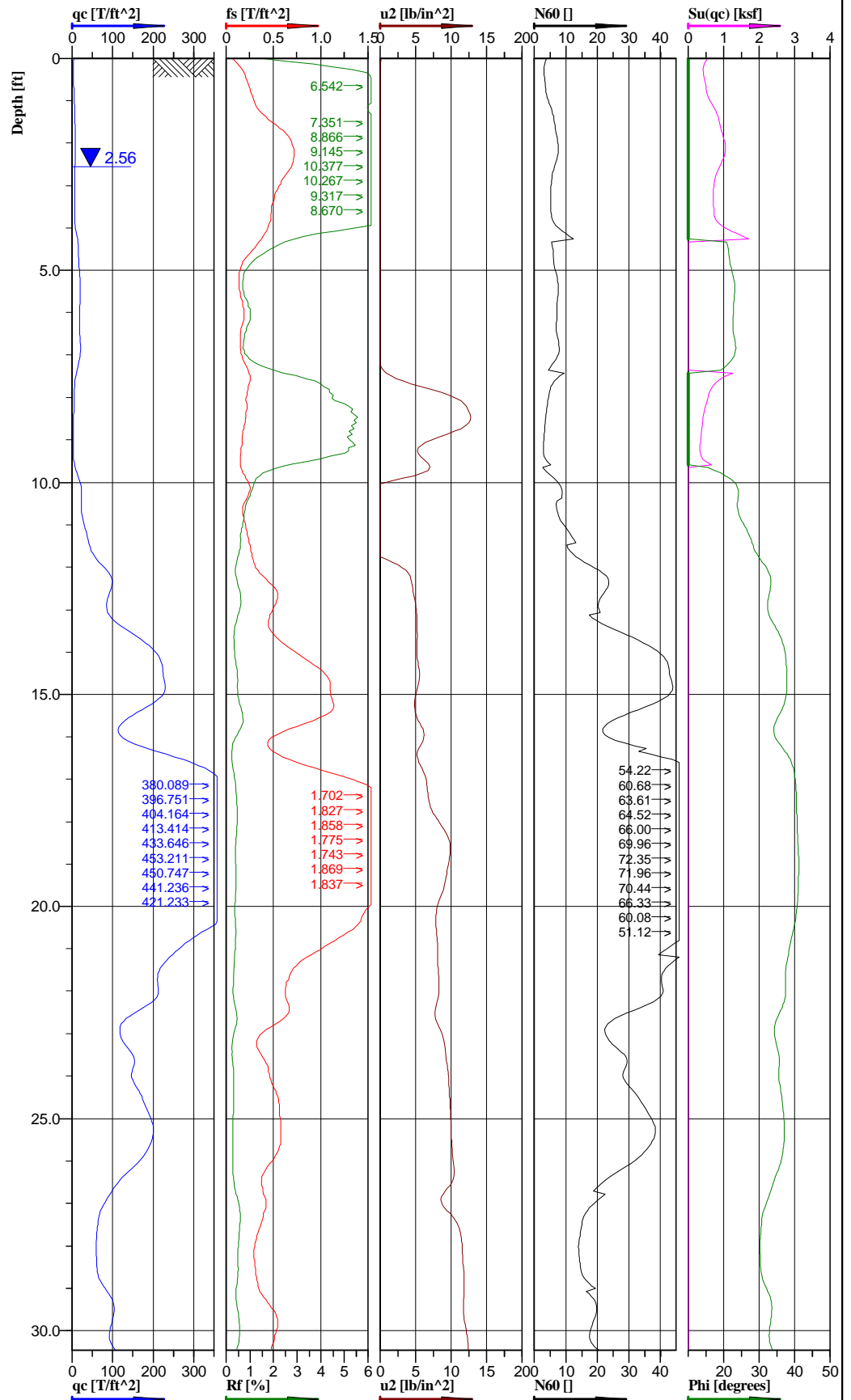
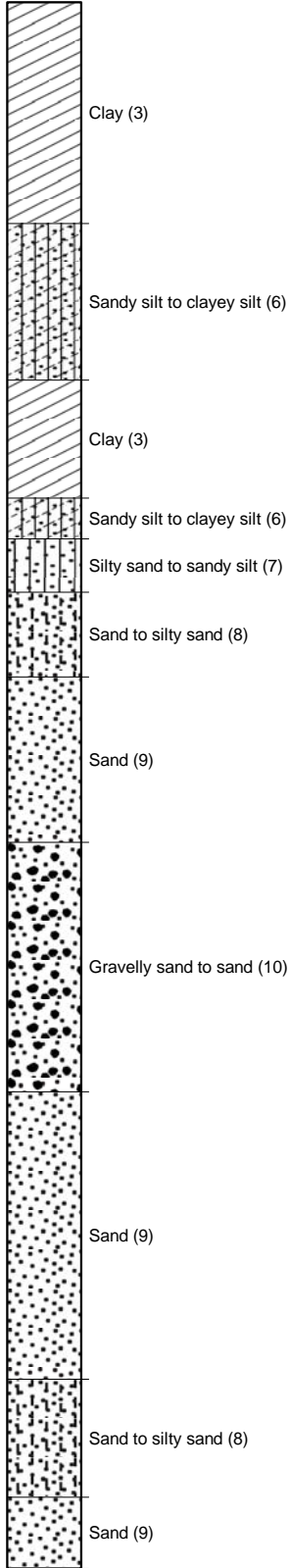
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729732.32 ft, Y: 992494.23 ft	Ground level: 463.71	Test no: C-135
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-59
File: Labadie C-135.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-135
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-135.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.515	0.036	0.9556	Clay (3)	5.2	0.708	0.006	0.006				1.7	5.2	106	0.12	0.12	212
3.75	0.784	0.043	1.1503	Sandy silt to clayey silt (6)	6.4	0.894	0.019	0.018	20.6			1.75	6.4	109	0.40	0.37	65
6.25	1.52	0.016	1.7248	Clay (3)	7.0	1.14	0.033	0.024	22.1			1.83	7.0	114	0.69	0.50	342
8.75	0.751	0.019	9.3867	Sandy silt to clayey silt (6)	5.0	0.549	0.046	0.03	21.6			1.8	5.0	112	0.96	0.62	62
11.25	5.321	0.023	-1.0433	Sand (9)	13.0		0.06	0.037	28.2	74		1.92	6.5	120	1.25	0.77	443
13.75	13.955	0.062	5.4052	Sand (9)	27.9		0.075	0.044	35.2	87		1.99	14.0	124	1.56	0.92	1161
16.25	23.166	0.11	5.3639	Gravelly sand to sand (10)	41.4		0.09	0.051	37.3	97		2.01	28.2	125	1.87	1.06	1927
18.75	40.698	0.2	6.7326	Gravelly sand to sand (10)	67.8		0.102	0.057	40.8	115		2.04	46.1	127	2.12	1.19	3386

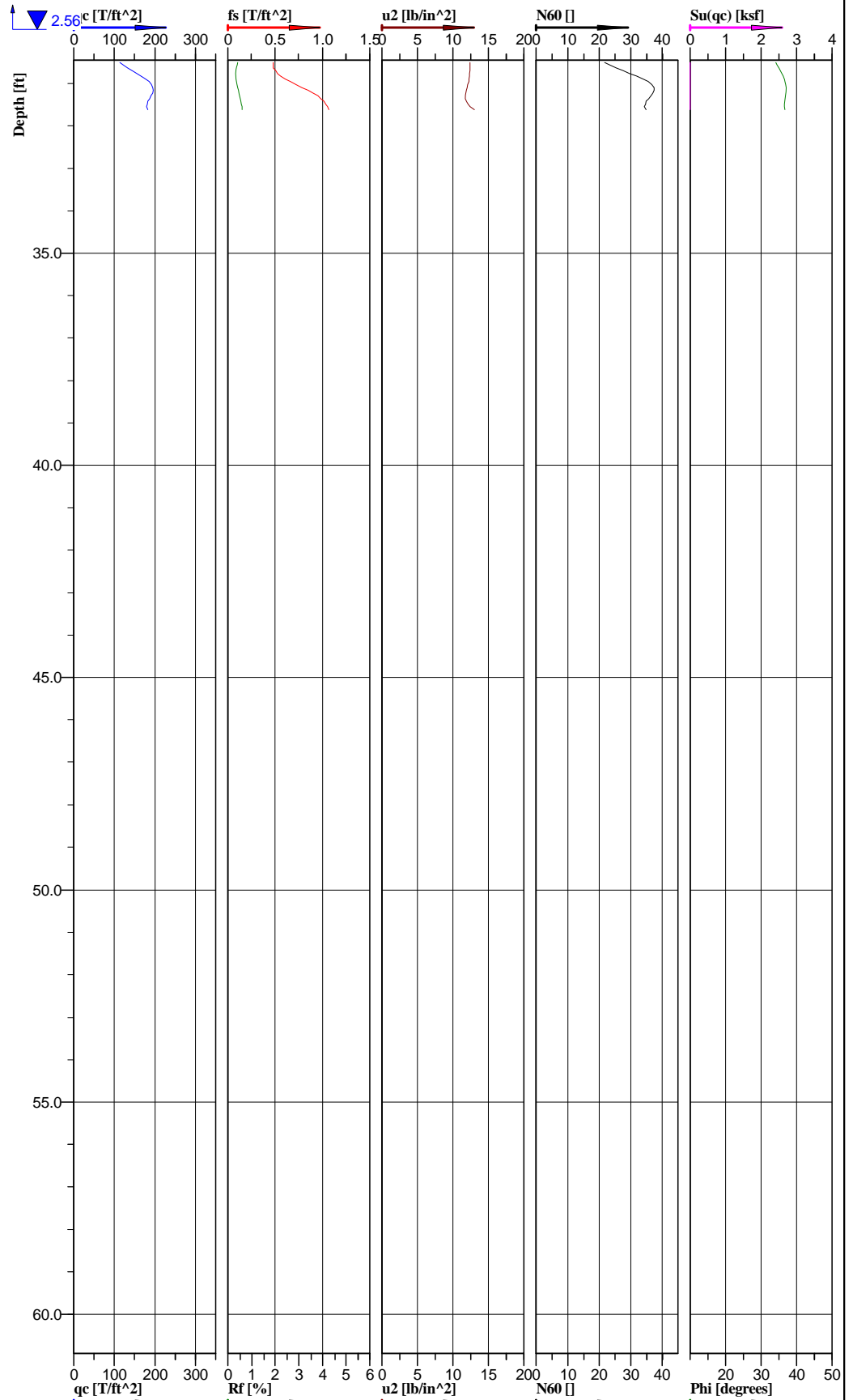
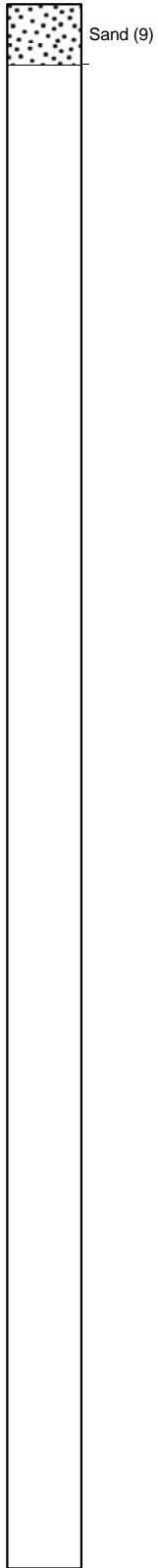
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729740.19 ft, Y: 992494.16 ft	Ground level: 463.91	Test no: C-135A
Project ID: 200801245	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-60
Confirmation sounding adjacent to C-135		File: Labadie C-135A.cpd	

Classification by
Robertson 1986



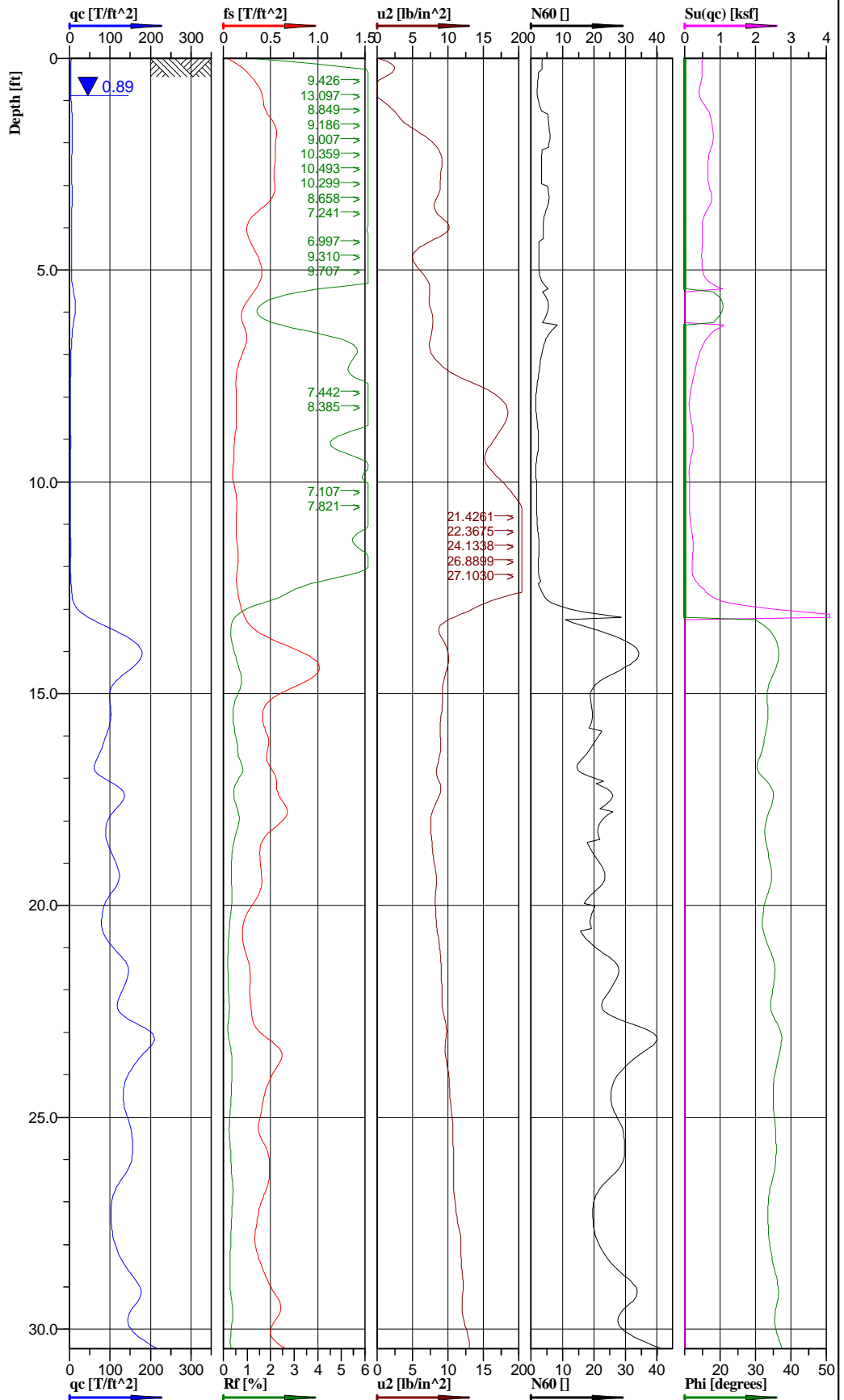
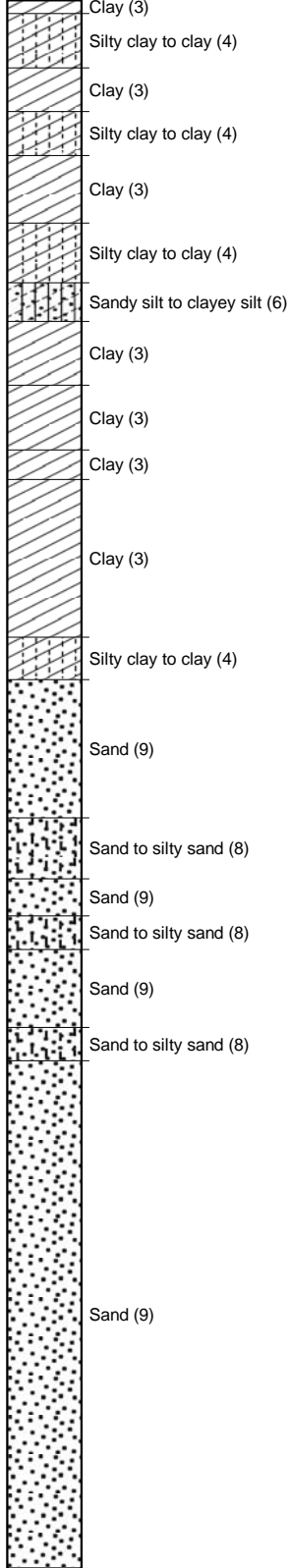
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729740.19 ft, Y: 992494.16 ft	Ground level: 463.91	Test no: C-135A
Project ID: 200801245	Client: Ameren Missouri	Date: 11/11/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-60
Confirmation sounding adjacent to C-135		File: Labadie C-135A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-135A
 Test date: 11/11/2009
 Location: Labadie MO
 File name: Labadie C-135A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.538	0.041	-3.8534	Clay (3)	5.4	0.745	0.007	0.007				1.78	5.4	111	0.15	0.15	224
3.75	0.915	0.041	-2.7141	Sandy silt to clayey silt (6)	6.3	0.873	0.02	0.017	21.6			1.8	6.3	112	0.42	0.35	76
6.25	1.705	0.016	-0.7871	Clay (3)	7.2	1.091	0.034	0.023	22.6			1.84	7.2	115	0.71	0.48	327
8.75	0.569	0.019	7.7746	Sandy silt to clayey silt (6)	4.3	0.483	0.047	0.028	20.1			1.79	4.3	112	0.98	0.58	47
11.25	4.616	0.026	-1.4165	Sand to silty sand (8)	13.0		0.061	0.035	27.9	71		1.91	8.3	119	1.27	0.73	384
13.75	15.766	0.069	5.1665	Sand (9)	32.5		0.076	0.042	35.6	91		1.98	16.3	124	1.58	0.87	1312
16.25	23.424	0.096	5.7792	Gravelly sand to sand (10)	41.6		0.091	0.049	37.6	99		2.01	28.3	125	1.89	1.02	1949
18.75	41.091	0.171	8.8275	Gravelly sand to sand (10)	68.5		0.106	0.056	40.9	116		2.04	46.6	127	2.20	1.16	3419
21.25	25.158	0.091	8.0401	Sand (9)	45.5		0.121	0.064	38.3	99		2.01	22.7	125	2.52	1.33	2093
23.75	14.467	0.045	9.2201	Sand (9)	28.9		0.136	0.071	35.6	82		1.99	14.5	124	2.83	1.48	1204
26.25	12.949	0.044	9.9354	Sand to silty sand (8)	27.0		0.151	0.078	34.5	75		1.97	17.3	123	3.14	1.62	1077
28.75	7.407	0.037	11.7045	Sand (9)	16.6		0.165	0.085	31.7	60		1.95	8.3	122	3.43	1.77	616
31.25	14.37	0.066	12.2357	Sand (9)	28.7		0.177	0.091	35.3	78		1.98	14.4	124	3.68	1.89	1196

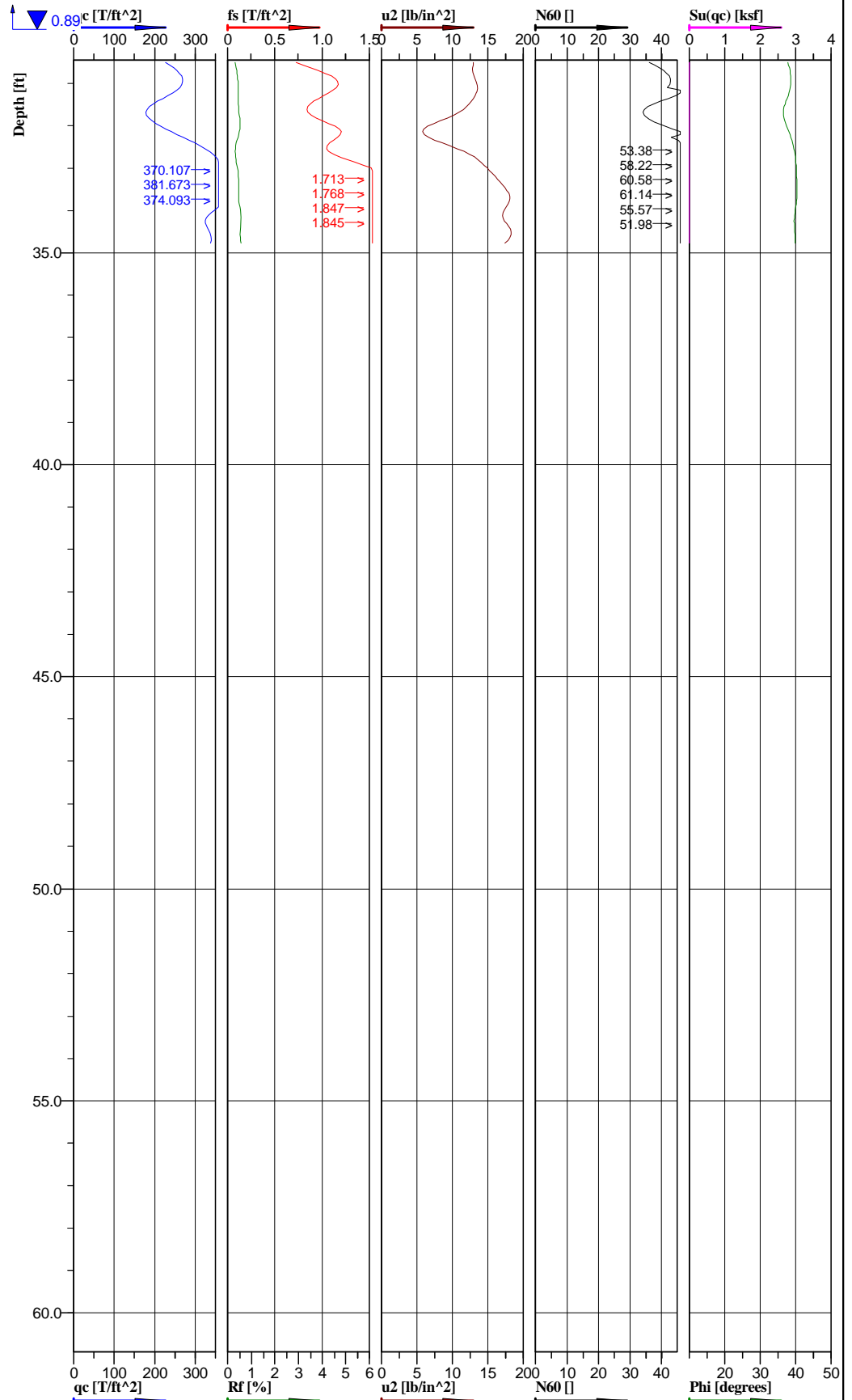
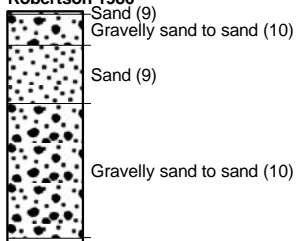
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730304.63 ft, Y: 992490.72 ft	Ground level: 463.62	Test no: C-137
Project ID: 20080124055	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-61
File: Labadie C-137.cpt			

Classification by Robertson 1986



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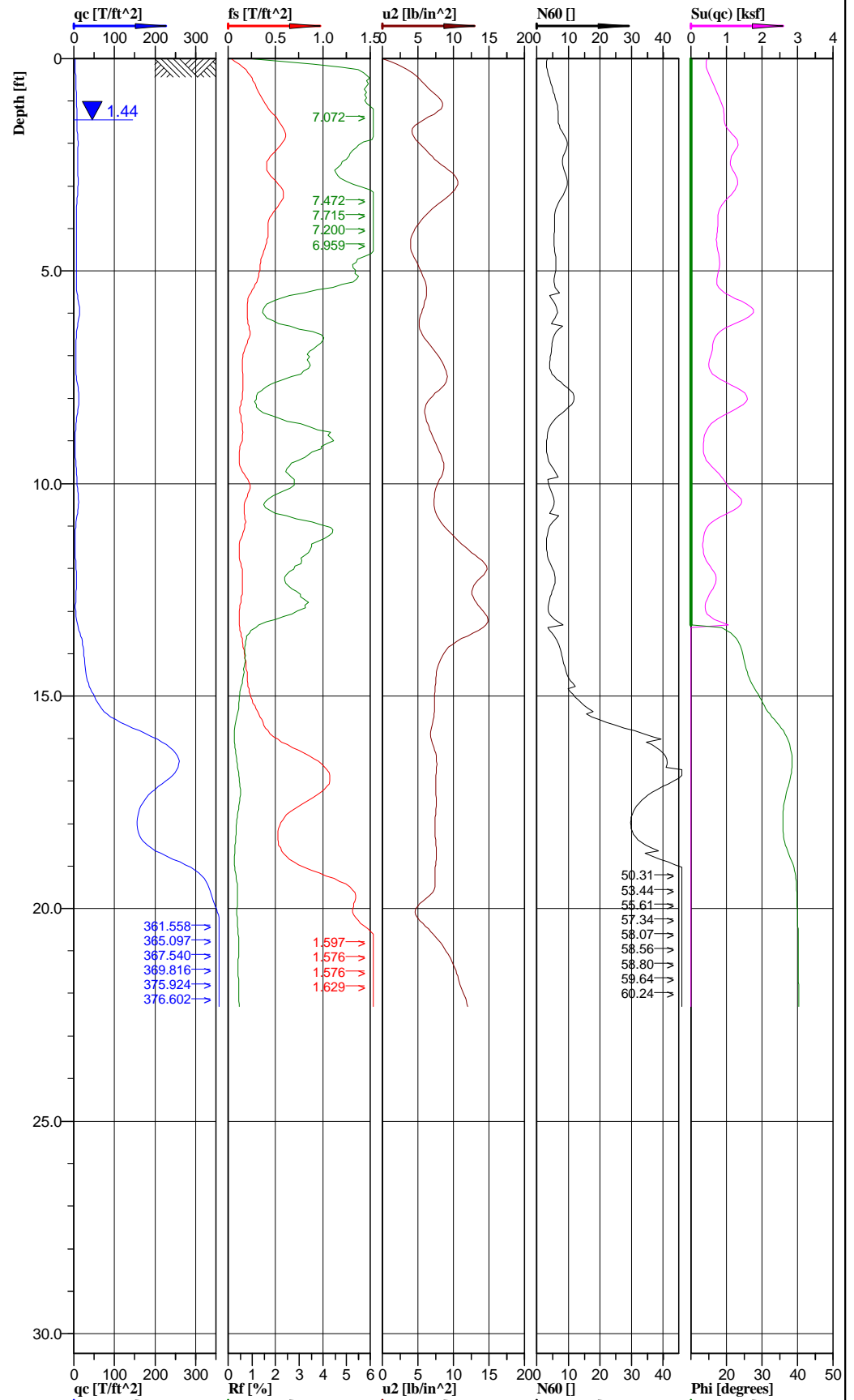
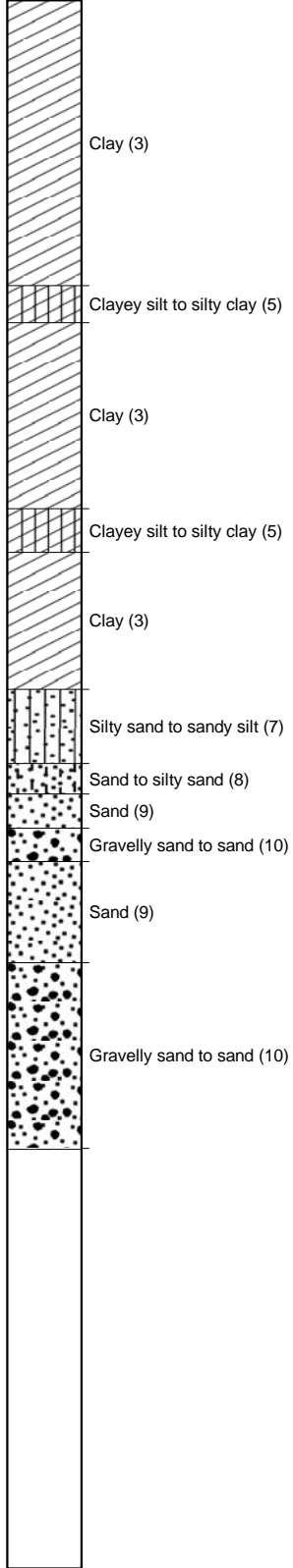
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730304.63 ft, Y: 992490.72 ft	Ground level: 463.62	Test no: C-137
Project ID: 20080124055	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-61
		File: Labadie C-137.cpt	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-137
 Test date: 11/12/2009
 Location: Labadie MO
 File name: Labadie C-137.cpt

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.449	0.041	3.8258	Silty clay to clay (4)	3.8	0.611	0.007	0.007				1.8	3.8	112	0.15	0.15	306
3.75	0.446	0.038	7.9504	Silty clay to clay (4)	3.8	0.581	0.02	0.02				1.74	3.8	109	0.42	0.42	291
6.25	0.678	0.023	7.9177	Clay (3)	4.2	0.564	0.033	0.033	19.7			1.8	4.2	112	0.69	0.69	169
8.75	0.19	0.012	16.493	Clay (3)	1.9	0.176	0.046	0.046				1.52	1.9	95	0.96	0.96	53
11.25	0.231	0.013	22.9563	Silty clay to clay (4)	2.2	0.209	0.057	0.057				1.45	2.2	91	1.19	1.19	105
13.75	9.573	0.053	11.274	Sand (9)	21.2	2.068	0.069	0.069	34.7	78	1.93	10.6	120	1.44	1.44	796	
16.25	8.994	0.047	8.8529	Sand (9)	19.8		0.084	0.084	32.8	66	1.96	9.9	122	1.75	1.75	748	
18.75	10.066	0.044	7.9906	Sand to silty sand (8)	21.5		0.099	0.099	33.6	67	1.97	13.8	123	2.06	2.06	837	
21.25	10.804	0.024	8.8212	Sand (9)	22.5		0.113	0.113	33.9	67	1.97	11.2	123	2.35	2.35	899	
23.75	15.16	0.044	9.9425	Sand (9)	30.3		0.128	0.128	35.8	75	1.99	15.2	124	2.66	2.66	1261	
26.25	12.617	0.041	10.8608	Sand (9)	25.2		0.143	0.143	34.8	68	1.99	12.6	124	2.97	2.97	1050	
28.75	13.572	0.044	11.9935	Sand (9)	27.1		0.158	0.158	35.2	69	1.99	13.6	124	3.29	3.29	1129	
31.25	21.933	0.09	11.1782	Gravelly sand to sand (10)	40.5		0.173	0.173	37.7	81	2.01	27.6	125	3.60	3.60	1825	
33.75	33.997	0.159	16.4069	Gravelly sand to sand (10)	56.6		0.187	0.187	40.0	93	2.04	38.5	127	3.89	3.89	2829	

Classification by Robertson 1986



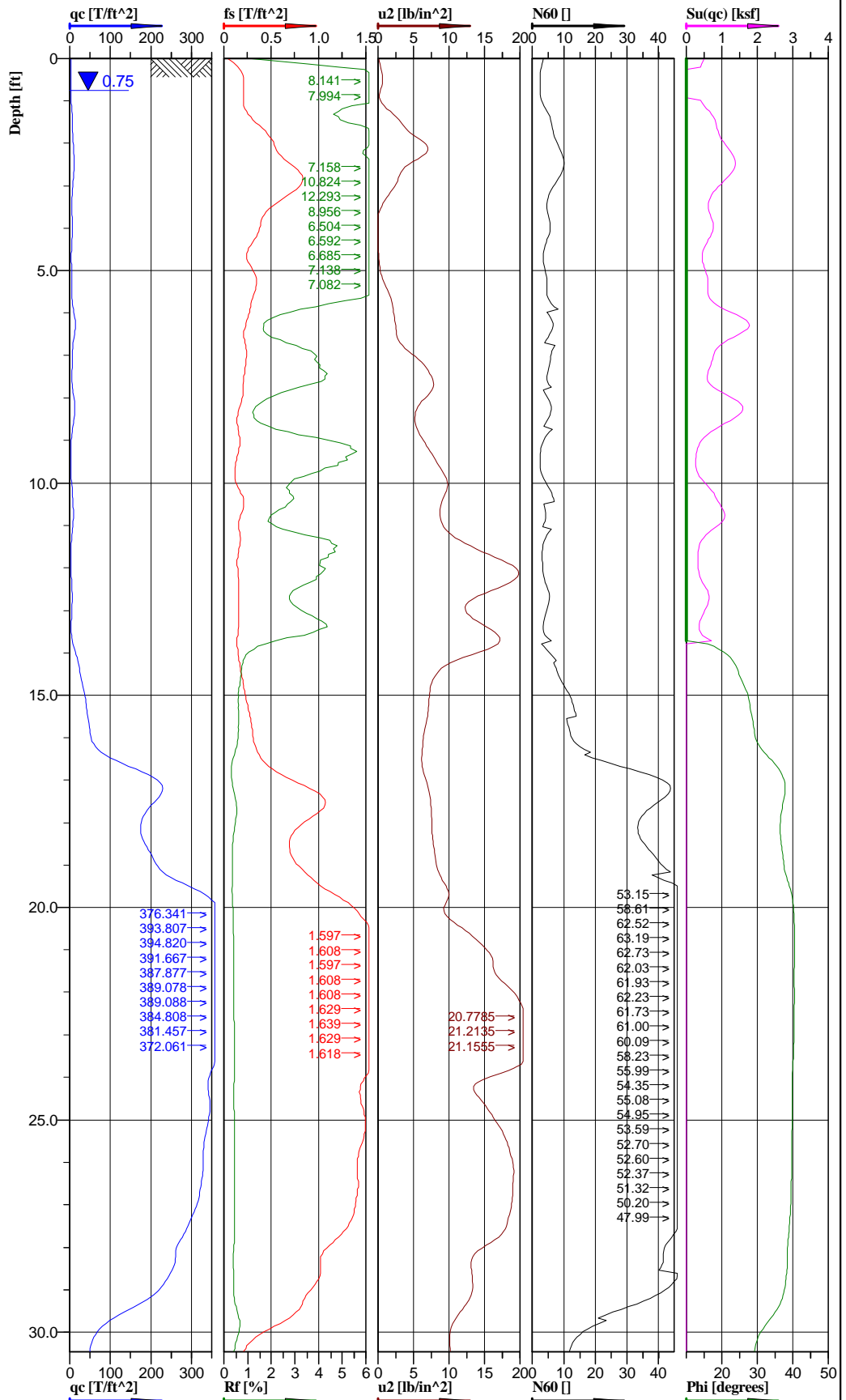
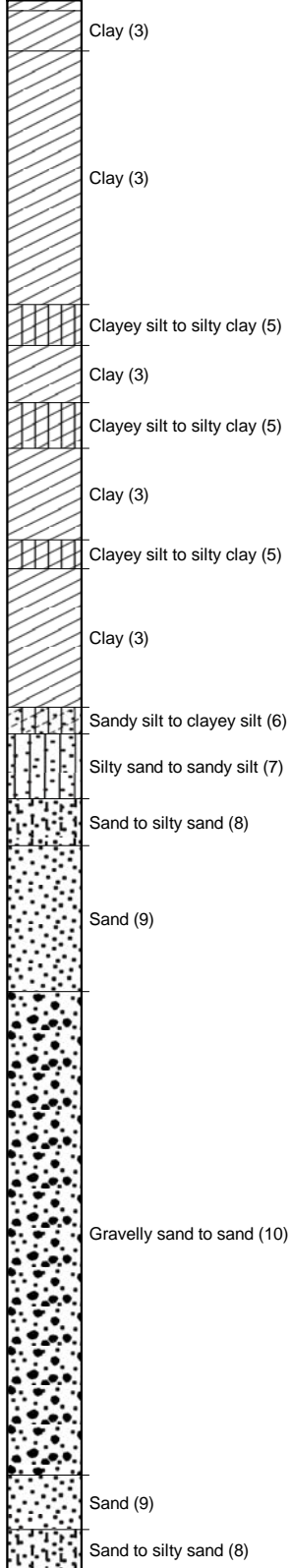
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 730891.11 ft, Y: 992467.72 ft	Ground level: 464.40	Test no: C-139
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-62
File: Labadie C-139.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-139
 Test date: 11/12/2009
 Location: Labadie MO
 File name: Labadie C-139.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.648	0.038	5.7536	Clay (3)	6.5	0.885	0.007	0.006				1.78	6.5	111	0.15	0.12	266
3.75	0.68	0.042	6.6503	Clay (3)	6.8	0.91	0.02	0.013				1.78	6.8	111	0.42	0.27	273
6.25	0.698	0.02	6.5971	Clay (3)	5.4	0.915	0.034	0.019				1.8	5.4	112	0.71	0.40	275
8.75	0.64	0.014	7.4686	Clayey silt to silty clay (5)	6.1	0.815	0.047	0.025				1.81	6.1	113	0.98	0.52	489
11.25	0.589	0.015	10.5393	Clay (3)	4.5	0.72	0.061	0.031				1.81	4.5	113	1.27	0.64	216
13.75	1.961	0.016	10.5776	Sand to silty sand (8)	7.2	0.551	0.074	0.037	25.0	57	1.85	4.6	115	1.54	0.77	163	
16.25	17.111	0.066	7.3273	Sand (9)	32.6		0.089	0.043	35.9	91	1.99	16.3	124	1.85	0.89	1424	
18.75	23.26	0.081	7.1608	Gravelly sand to sand (10)	41.2		0.103	0.051	37.8	99	2.02	28.0	126	2.14	1.06	1935	
21.25	35.243	0.149	8.9143	Gravelly sand to sand (10)	58.7		0.118	0.058	40.2	111	2.04	39.9	127	2.45	1.21	2932	

Classification by Robertson 1986



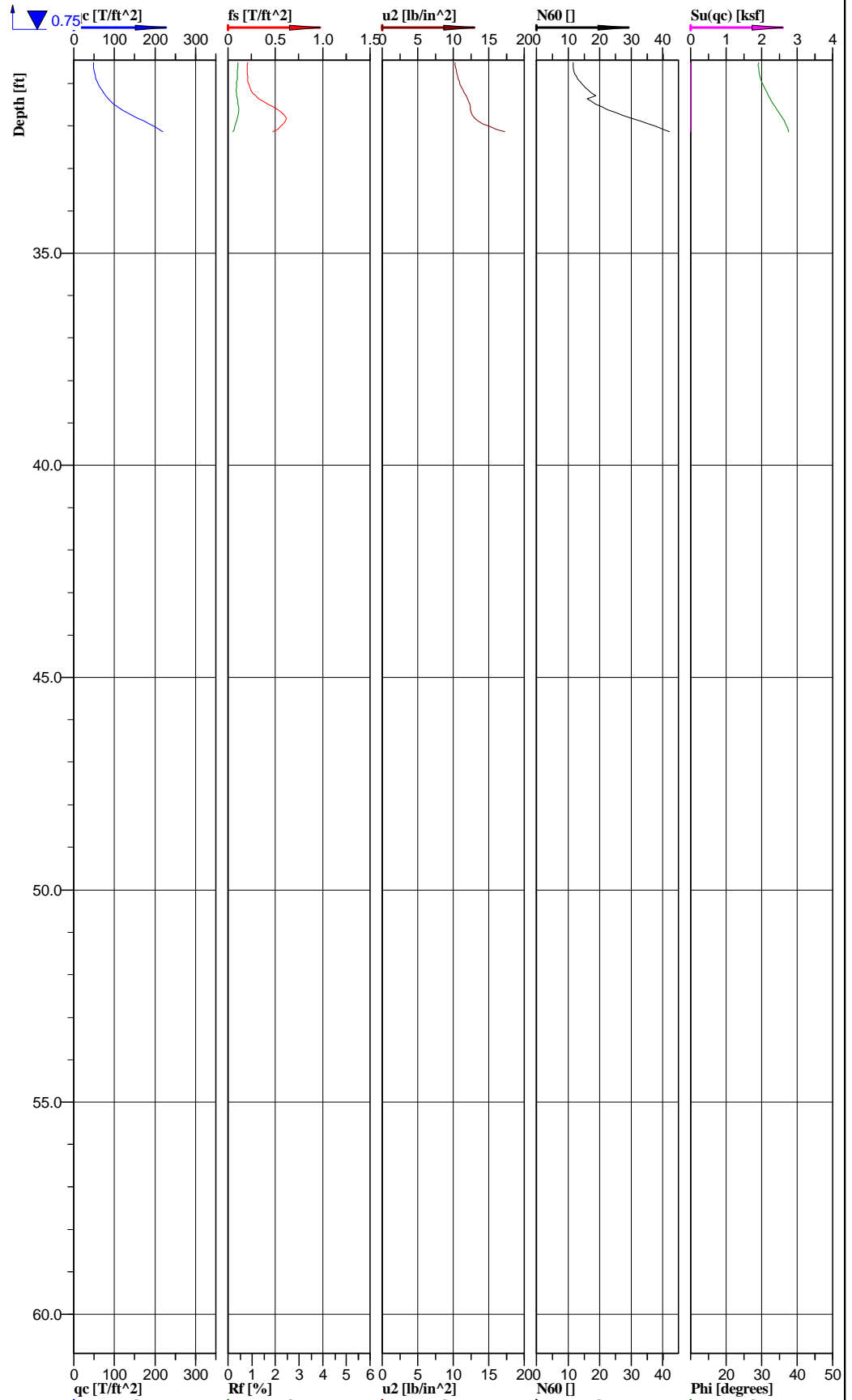
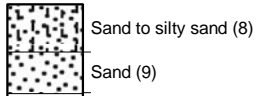
REITZ & JENS, INC.
CONSULTING ENGINEERS

Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 730892.03 ft, Y: 992473.23 ft	Ground level: 464.50	Test no: C-139A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-63
Confirmation sounding adjacent to C-139		File: Labadie C-139A.cpd	

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

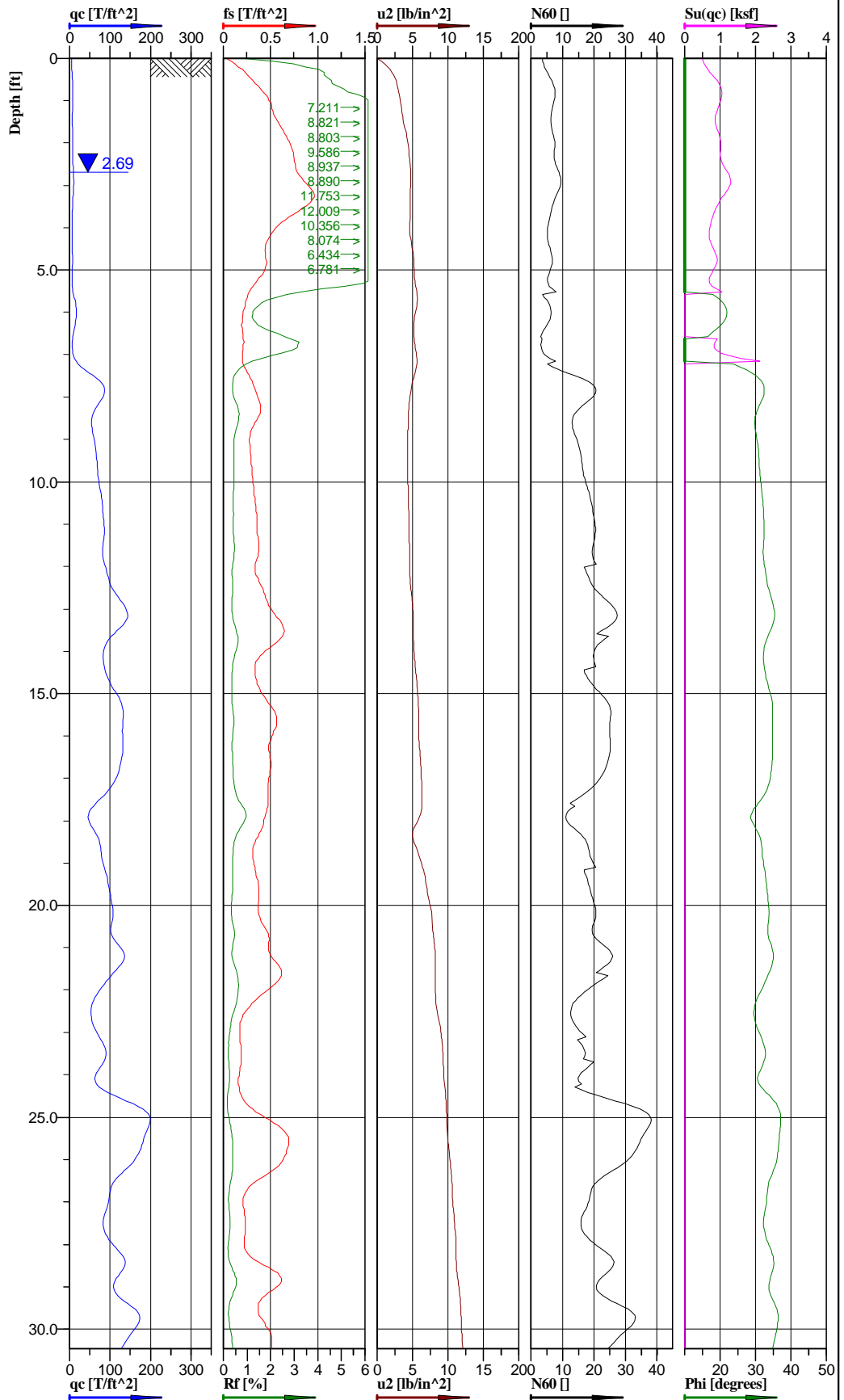
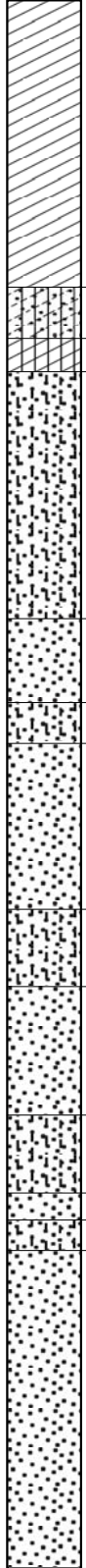


Location: Labadie, MO	Position: X: 730892.03 ft, Y: 992473.23 ft	Ground level: 464.50	Test no: C-139A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-63
Confirmation sounding adjacent to C-139		File: Labadie C-139A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-139A
 Test date: 11/12/2009
 Location: Labadie MO
 File name: Labadie C-139A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.536	0.033	2.6807	Clay (3)	5.4	0.638	0.007	0.005				1.81	5.4	113	0.15	0.10	191
3.75	0.545	0.046	0.8462	Clay (3)	5.5	0.728	0.021	0.011				1.84	5.5	115	0.44	0.23	218
6.25	0.714	0.025	3.2034	Clay (3)	5.4	0.941	0.034	0.017				1.84	5.4	115	0.71	0.35	282
8.75	0.594	0.015	7.1124	Clay (3)	4.2	0.75	0.048	0.024				1.81	4.2	113	1.00	0.50	225
11.25	0.519	0.016	12.9686	Clay (3)	4.3	0.618	0.061	0.029				1.81	4.3	113	1.27	0.60	185
13.75	1.382	0.016	12.2696	Silty sand to sandy silt (7)	6.2	0.511	0.075	0.035	23.6			1.84	4.0	115	1.56	0.73	115
16.25	10.676	0.046	6.7083	Sand (9)	23.3		0.089	0.042	32.4	80		1.96	11.6	122	1.85	0.87	888
18.75	22.3	0.088	8.3494	Gravelly sand to sand (10)	41.3		0.104	0.049	37.7	99		2	28.1	125	2.16	1.02	1855
21.25	37.259	0.151	15.5875	Gravelly sand to sand (10)	62.1		0.119	0.057	40.4	113		2.04	42.2	127	2.48	1.19	3100
23.75	34.438	0.148	18.1447	Gravelly sand to sand (10)	57.4		0.134	0.064	40.0	109		2.04	39.0	127	2.79	1.33	2865
26.25	30.874	0.136	18.4364	Gravelly sand to sand (10)	51.4		0.15	0.072	39.5	104		2.03	35.0	127	3.12	1.50	2569
28.75	19.706	0.088	13.2396	Sand to silty sand (8)	36.5		0.165	0.079	36.8	87		1.98	23.3	124	3.43	1.64	1640
31.25	8.862	0.033	11.7318	Sand to silty sand (8)	19.4		0.178	0.086	32.0	62		1.96	12.4	122	3.70	1.79	737

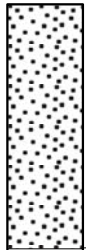
Classification by
Robertson 1986



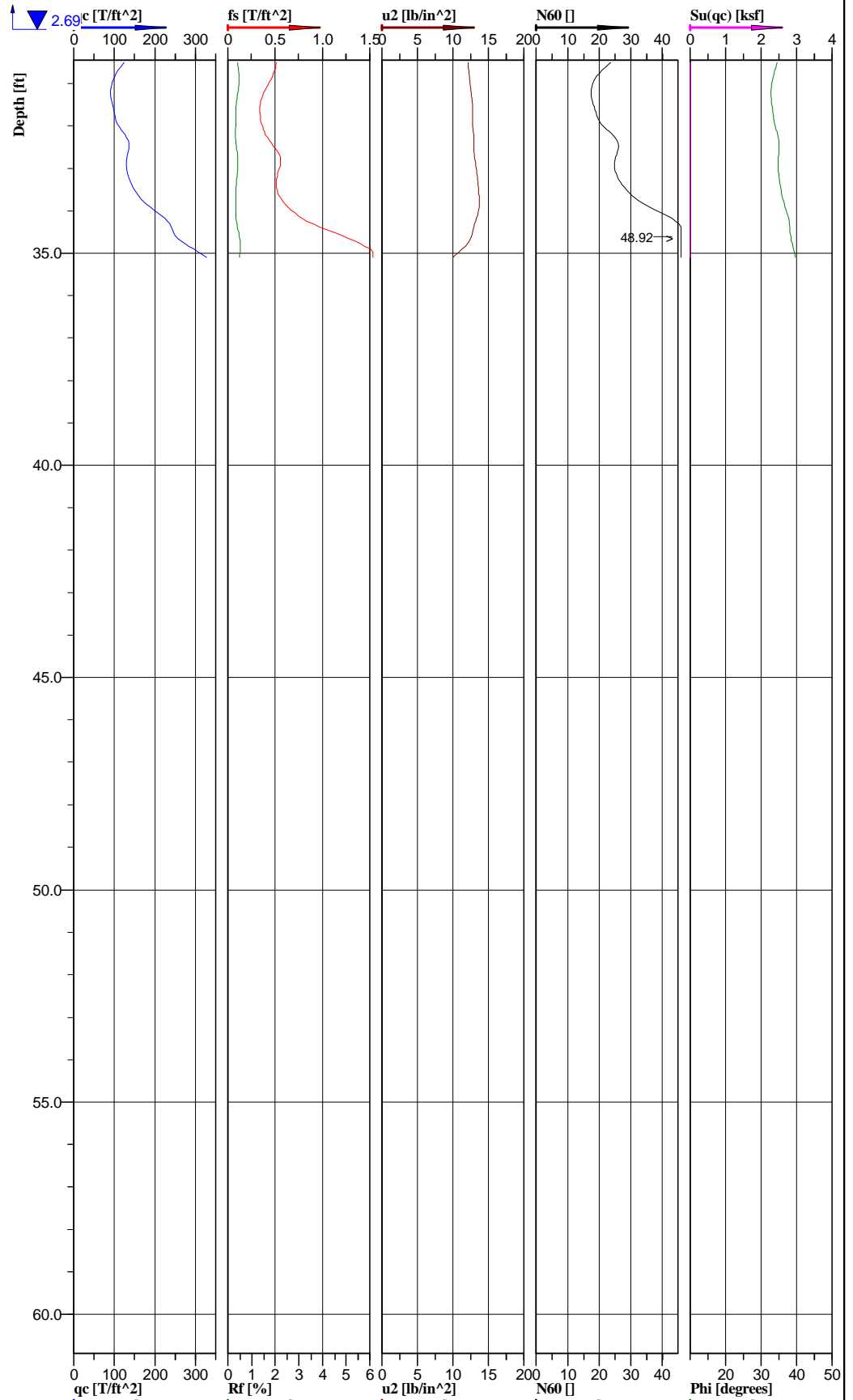
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728062.43 ft, Y: 992247.01 ft	Ground level: 463.91	Test no: C-143
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-64
File: Labadie C-143.cpd			

Classification by
Robertson 1986



Sand (9)



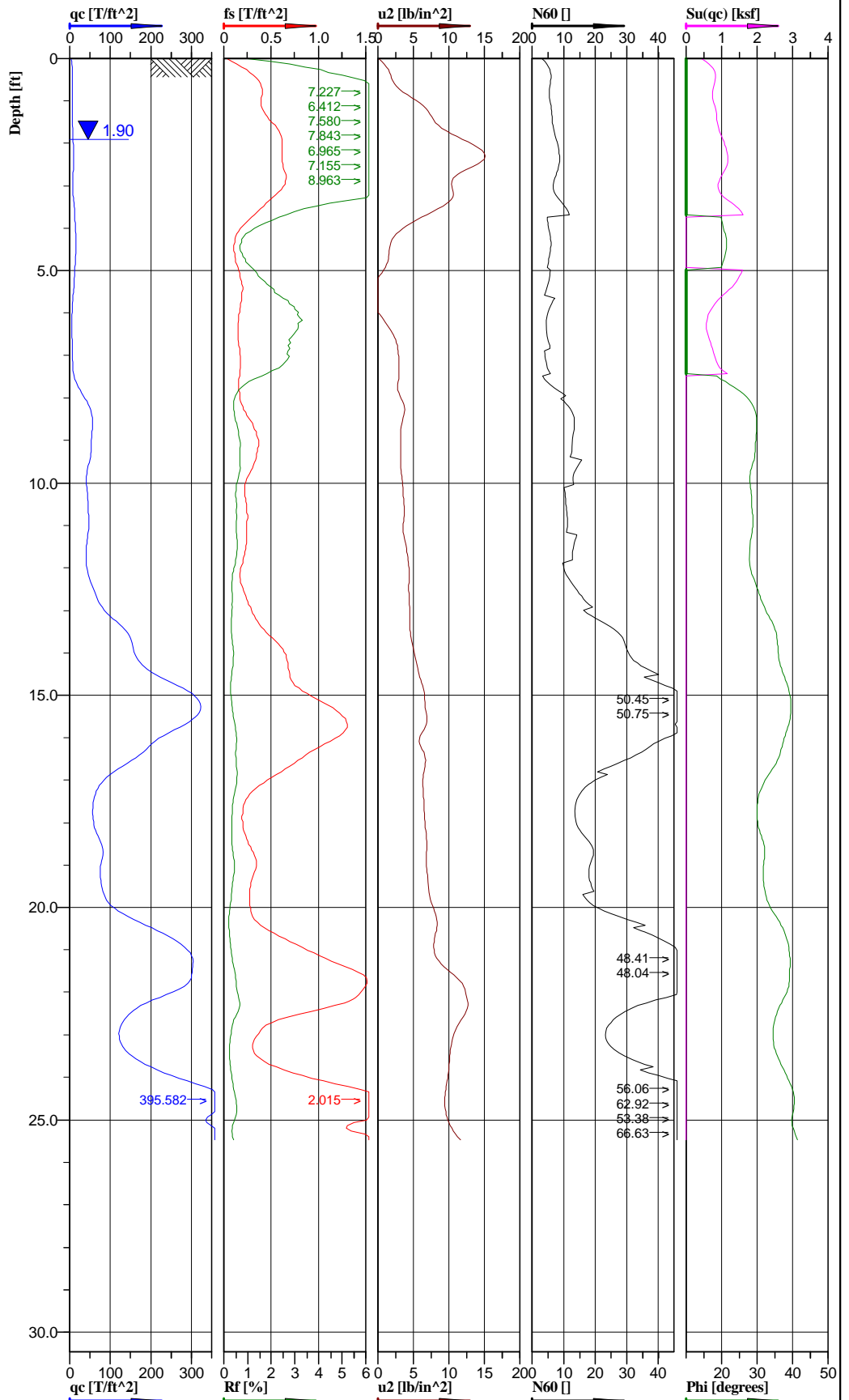
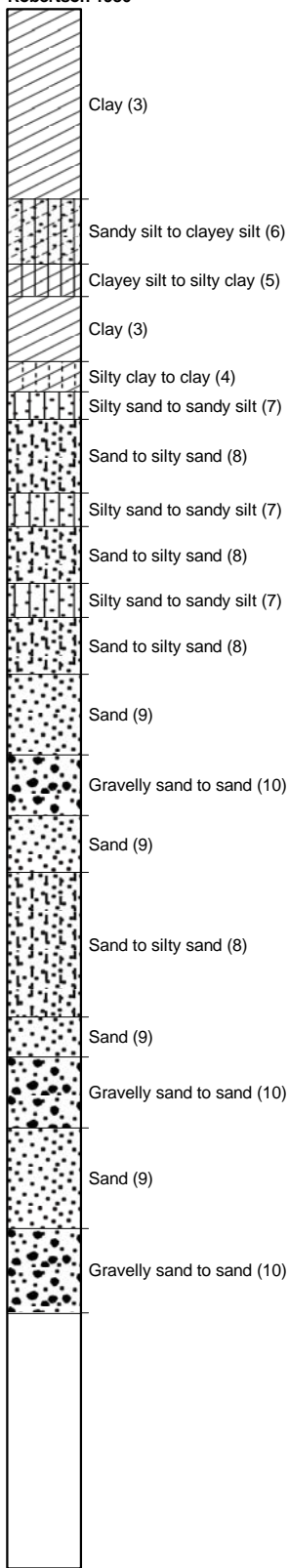
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728062.43 ft, Y: 992247.01 ft	Ground level: 463.91	Test no: C-143
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-64
		File: Labadie C-143.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-143
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-143.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.665	0.048	3.3241	Clay (3)	6.7	0.912	0.007	0.007				1.78	6.7	111	0.15	0.15	274
3.75	0.694	0.064	4.7954	Clay (3)	6.9	0.931	0.02	0.017				1.75	6.9	109	0.42	0.35	279
6.25	1.478	0.023	5.3869	Sand to silty sand (8)	5.9	0.976	0.033	0.022	22.2	59	1.83	3.8	114	0.69	0.46	123	
8.75	6.464	0.031	4.4679	Sand to silty sand (8)	16.2		0.048	0.029	31.0	72	1.94	10.3	121	1.00	0.60	538	
11.25	8.156	0.034	4.5162	Sand (9)	19.3		0.062	0.036	32.4	76	1.95	9.7	122	1.29	0.75	679	
13.75	10.396	0.044	5.2167	Sand (9)	22.1		0.077	0.043	33.7	80	1.97	11.0	123	1.60	0.89	865	
16.25	11.581	0.048	6.0298	Sand (9)	23.2		0.091	0.05	34.3	81	1.98	11.6	124	1.89	1.04	964	
18.75	7.413	0.036	6.2038	Sand (9)	16.7		0.106	0.057	31.6	66	1.95	8.3	122	2.20	1.19	617	
21.25	9.518	0.044	8.0676	Sand to silty sand (8)	20.3		0.121	0.064	33.1	71	1.97	13.0	123	2.52	1.33	792	
23.75	8.91	0.02	9.3075	Sand (9)	19.3		0.135	0.071	32.4	66	1.96	9.7	122	2.81	1.48	741	
26.25	13.149	0.042	10.3769	Sand (9)	26.3		0.15	0.078	34.8	77	1.99	13.1	124	3.12	1.62	1094	
28.75	12.281	0.037	11.4346	Sand (9)	24.5		0.165	0.086	34.6	75	1.99	12.3	124	3.43	1.79	1022	
31.25	10.932	0.041	12.512	Sand (9)	21.8		0.18	0.093	34.0	70	1.99	10.9	124	3.74	1.93	910	
33.75	18.367	0.076	13.0128	Sand (9)	36.7		0.195	0.1	36.6	83	1.99	18.4	124	4.06	2.08	1528	
36.25	30.857	0.153	10.2297	Sand (9)	61.7		0.202	0.104	39.5	99	2.04	30.8	127	4.20	2.16	2567	

Classification by Robertson 1986



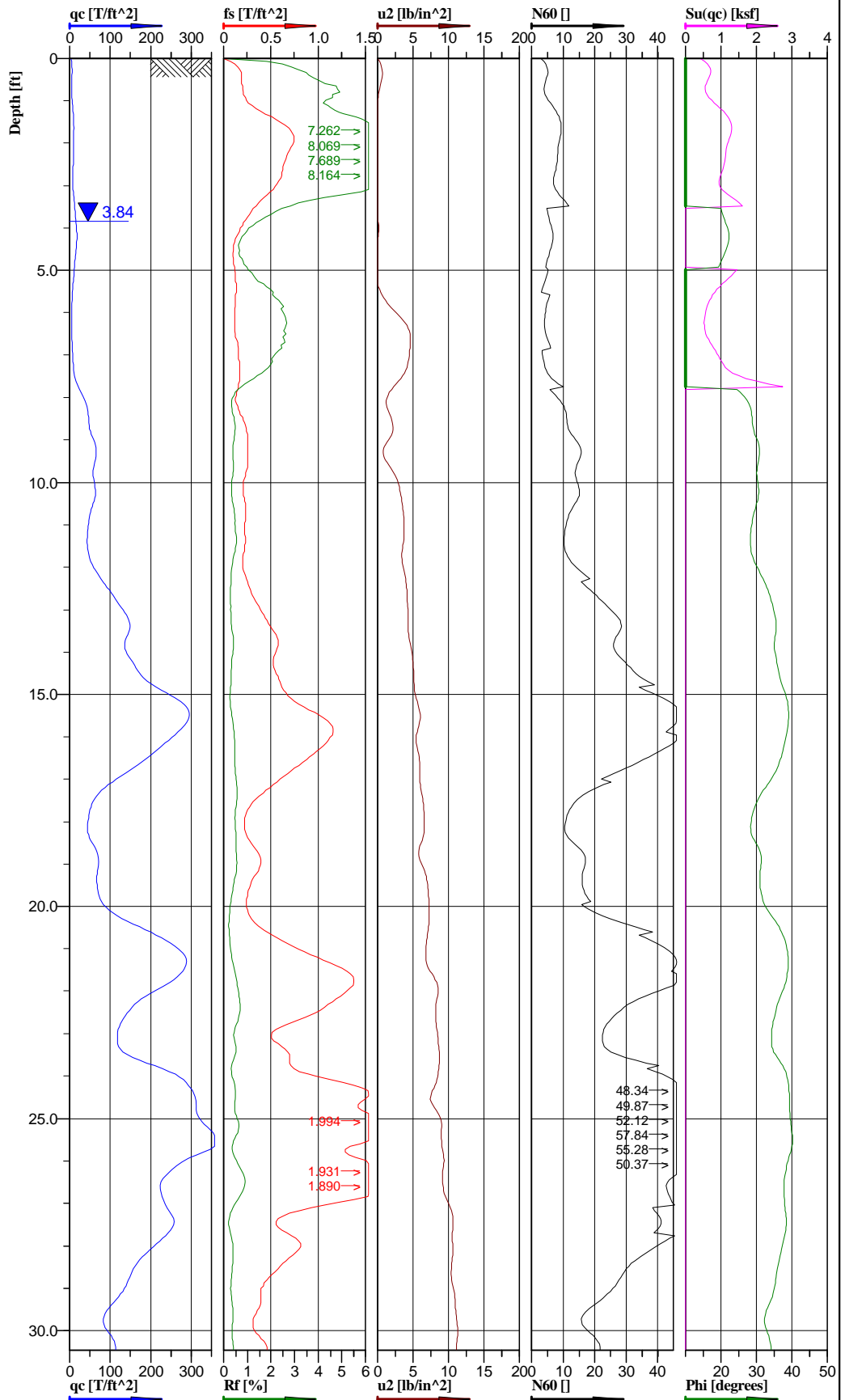
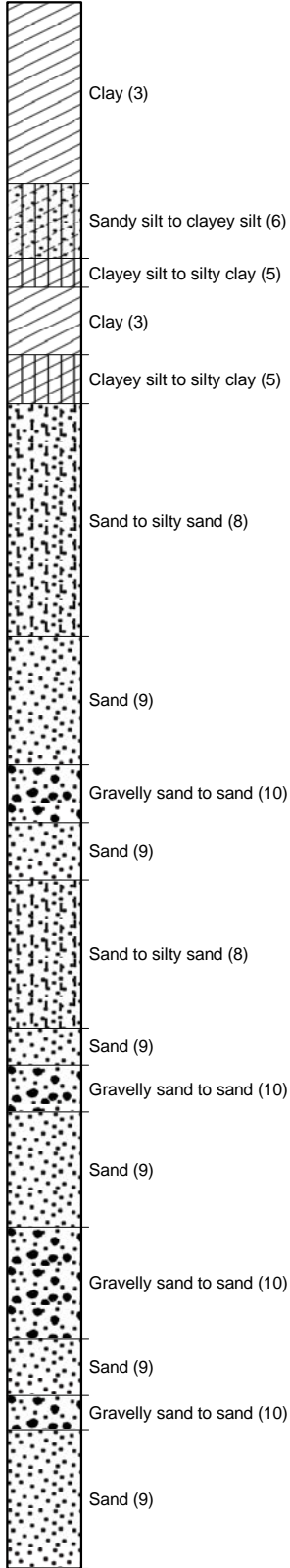
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728823.72 ft, Y: 992222.70 ft	Ground level: 464.99	Test no: C-145
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-65
File: Labadie C-145.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-145
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-145.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.653	0.043	7.4055	Clay (3)	6.5	0.89	0.007	0.007			1.78	6.5	111	0.15	0.15	267
3.75	1.106	0.032	5.9971	Clayey silt to silty clay (5)	6.8	1.179	0.02	0.015	20.7		1.82	6.8	114	0.42	0.31	707
6.25	0.695	0.016	1.1258	Silty sand to sandy silt (7)	4.9	0.89	0.034	0.021	19.1		1.81	3.1	113	0.71	0.44	58
8.75	4.25	0.025	3.2536	Silty sand to sandy silt (7)	11.8		0.048	0.027	28.0	66	1.91	7.6	119	1.00	0.56	354
11.25	4.321	0.021	3.9038	Sand to silty sand (8)	11.7		0.062	0.034	28.5	59	1.92	7.5	120	1.29	0.71	360
13.75	15.188	0.051	5.1003	Gravelly sand to sand (10)	29.2		0.077	0.04	35.3	89	1.99	19.8	124	1.60	0.83	1264
16.25	18.219	0.081	6.451	Sand to silty sand (8)	34.6		0.092	0.048	35.9	90	1.99	22.1	124	1.91	1.00	1516
18.75	7.126	0.025	6.9024	Sand (9)	17.1		0.106	0.055	31.5	66	1.94	8.6	121	2.20	1.14	593
21.25	22.574	0.092	9.8068	Sand (9)	40.3		0.121	0.062	37.7	96	2.02	20.2	126	2.52	1.29	1878
23.75	22.514	0.091	10.1753	Gravelly sand to sand (10)	39.8		0.136	0.069	37.4	93	2.01	27.1	125	2.83	1.44	1873
26.25	37.332	0.143	10.5995	Gravelly sand to sand (10)	62.2		0.145	0.074	40.4	109	2.04	42.3	127	3.02	1.54	3106

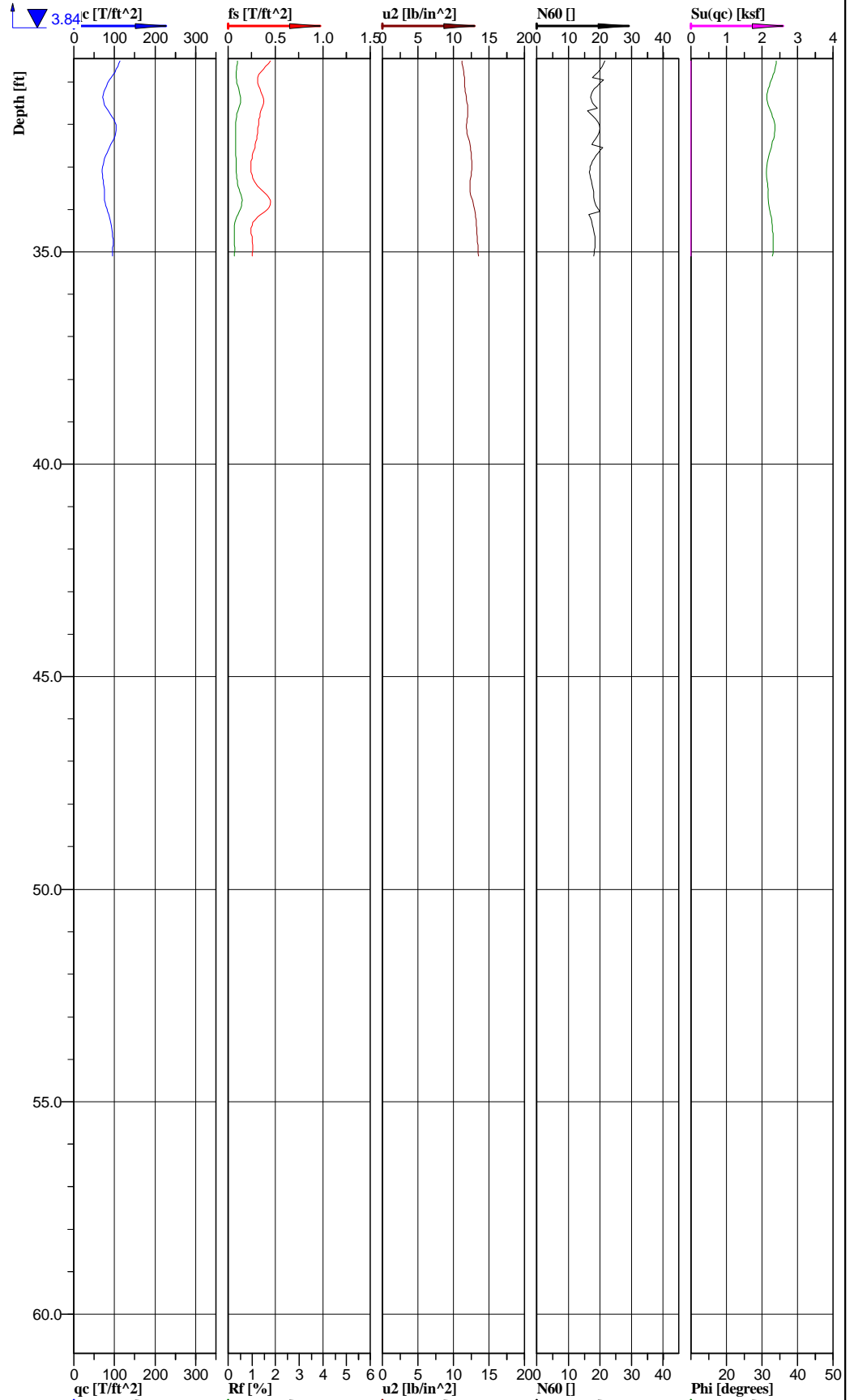
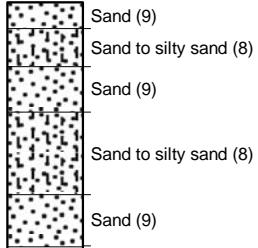
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728823.23 ft, Y: 992218.34 ft	Ground level: 464.99	Test no: C-145A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-66
Confirmation sounding adjacent to C-145		File: Labadie C-145A.cpd	

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

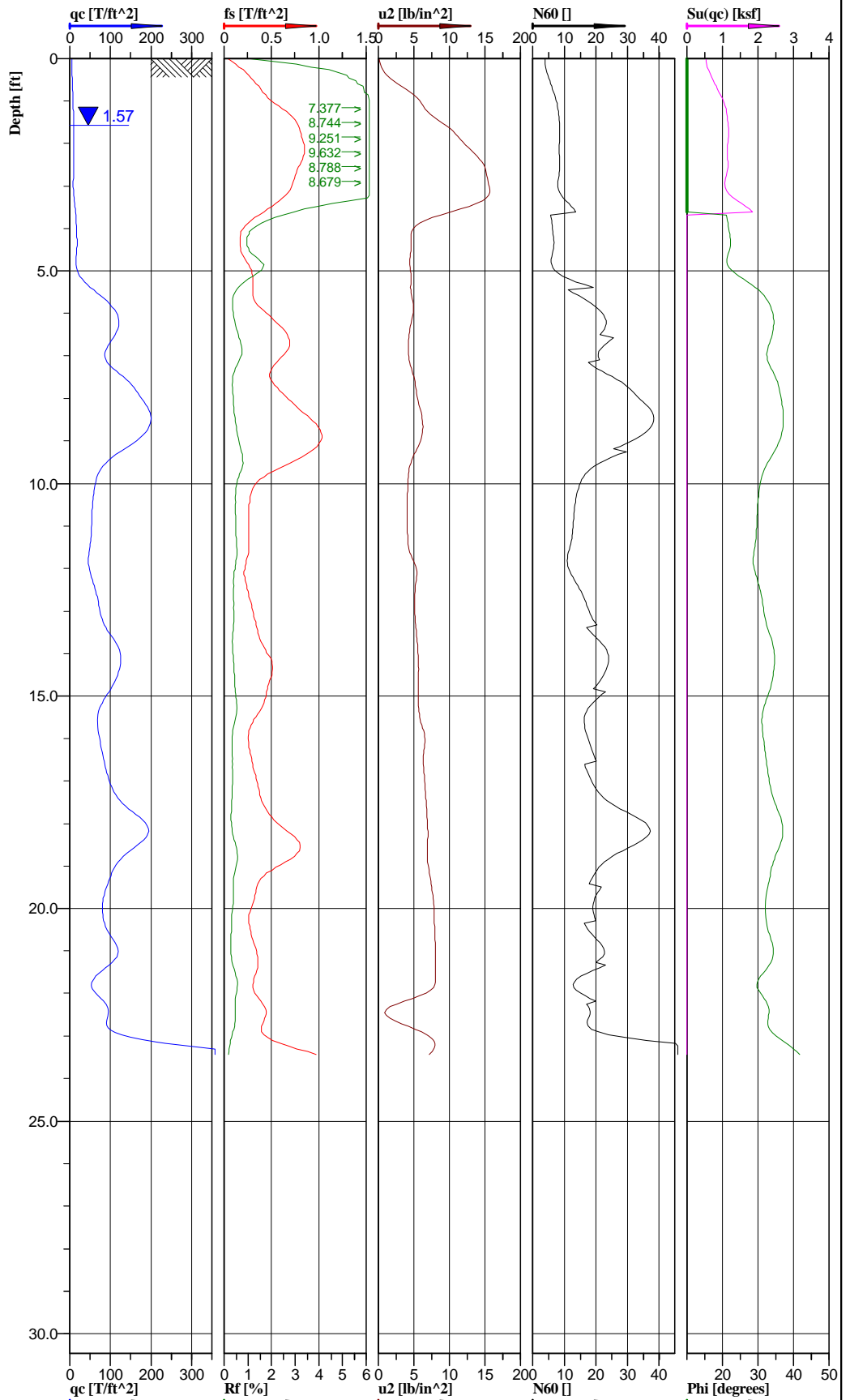
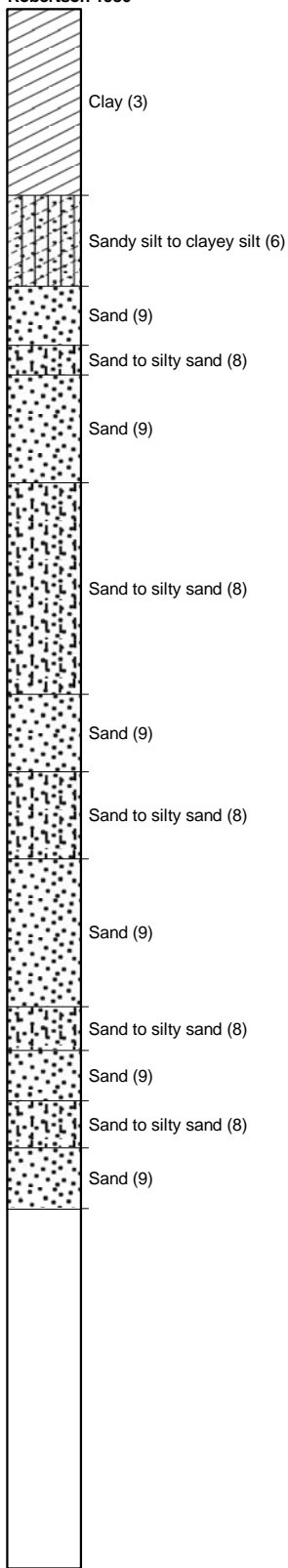


Location: Labadie, MO	Position: X: 728823.23 ft, Y: 992218.34 ft	Ground level: 464.99	Test no: C-145A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-66
Confirmation sounding adjacent to C-145		File: Labadie C-145A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-145A
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-145A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]	
1.25	0.679	0.041	-0.3545	Clay (3)	6.8	0.937	0.007	0.007				1.78	6.8	111	0.15	0.15	281
3.75	1.184	0.028	-0.3941	Clayey silt to silty clay (5)	6.7	1.173	0.02	0.019	21.1			1.82	6.7	114	0.42	0.40	704
6.25	0.656	0.013	2.8015	Clayey silt to silty clay (5)	4.5	0.863	0.034	0.026				1.82	4.5	114	0.71	0.54	518
8.75	4.614	0.02	1.7991	Sand to silty sand (8)	12.0	2.196	0.048	0.033	29.2	62	1.92	7.6	120	1.00	0.69	384	
11.25	5.493	0.021	3.5897	Sand (9)	13.3		0.062	0.04	29.9	62	1.94	6.6	121	1.29	0.83	457	
13.75	14.697	0.048	4.6493	Gravelly sand to sand (10)	28.6		0.077	0.047	35.6	88	1.99	19.5	124	1.60	0.98	1223	
16.25	19.193	0.079	5.8353	Sand to silty sand (8)	35.9		0.092	0.054	36.5	91	2	23.0	125	1.91	1.12	1597	
18.75	5.912	0.028	6.5737	Sand (9)	14.6		0.106	0.061	30.4	58	1.94	7.3	121	2.20	1.27	492	
21.25	20.053	0.084	7.5136	Sand (9)	37.0		0.121	0.068	37.1	91	2.01	18.5	125	2.52	1.41	1668	
23.75	20.498	0.096	8.3115	Gravelly sand to sand (10)	36.4		0.136	0.075	37.0	89	2.01	24.7	125	2.83	1.56	1705	
26.25	26.879	0.144	9.4971	Gravelly sand to sand (10)	48.0		0.151	0.083	38.8	98	2.02	32.7	126	3.14	1.73	2236	
28.75	14.409	0.049	10.7415	Sand (9)	28.2		0.167	0.09	35.2	77	1.99	14.1	124	3.47	1.87	1199	
31.25	9.05	0.034	11.6814	Sand to silty sand (8)	19.2		0.181	0.098	32.9	64	1.97	12.3	123	3.76	2.04	753	
33.75	7.923	0.028	12.8336	Sand (9)	18.1		0.196	0.105	32.2	60	1.96	9.0	122	4.08	2.18	659	
36.25	9.072	0.024	13.4995	Sand (9)	18.1		0.203	0.108	33.0	63	1.99	9.1	124	4.22	2.25	755	

Classification by Robertson 1986



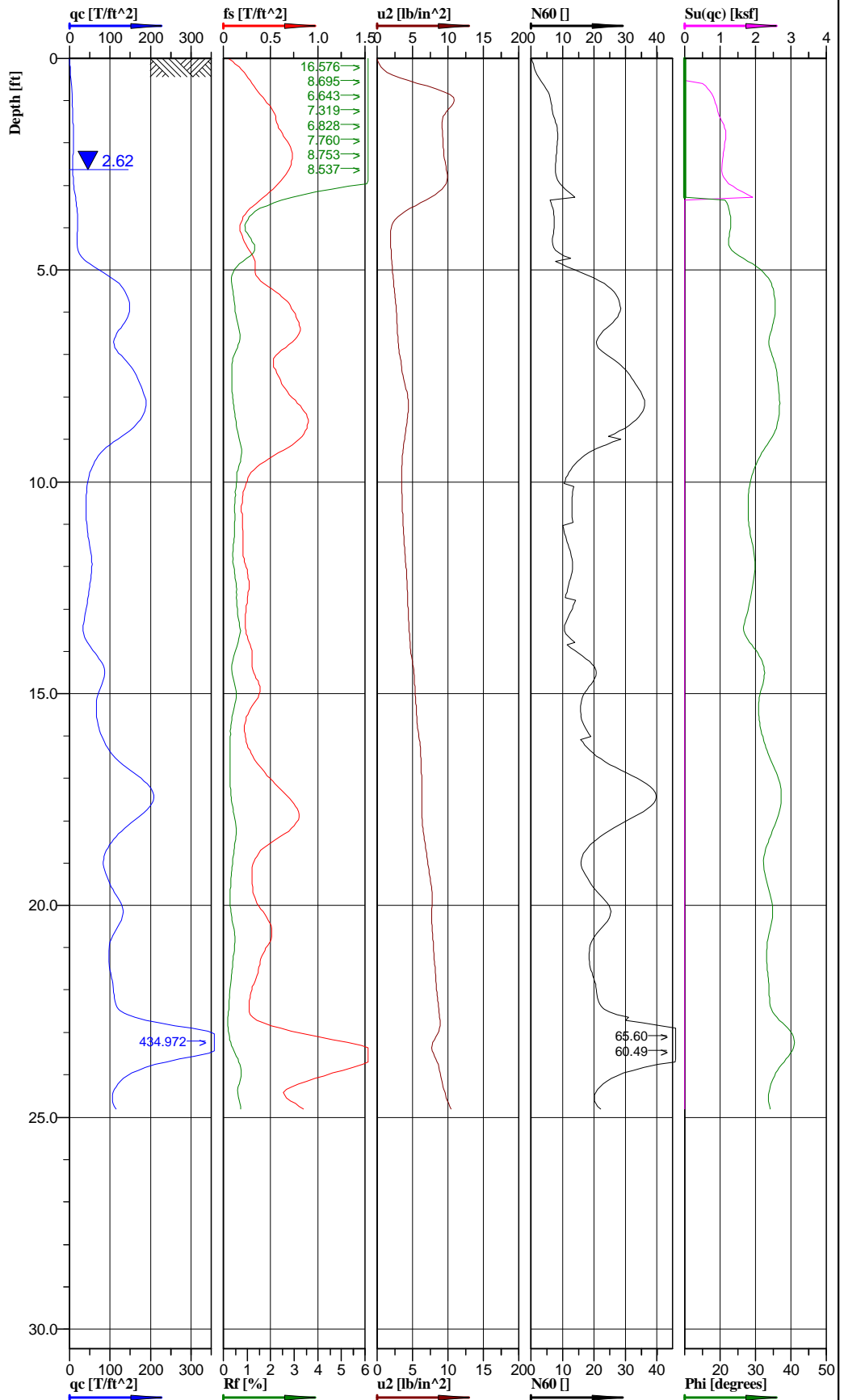
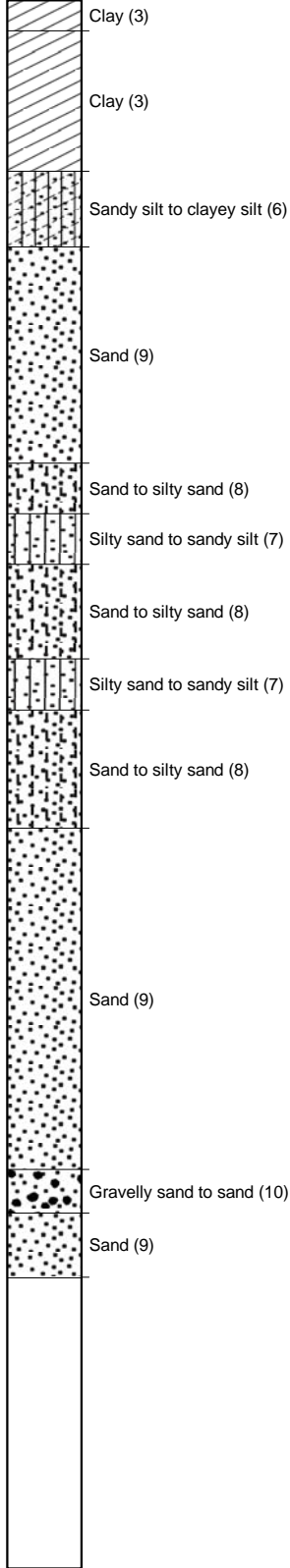
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729416.57 ft, Y: 992208.04 ft	Ground level: 464.50	Test no: C-147
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-67
File: Labadie C-147.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-147
 Test date: 11/12/2009
 Location: Labadie MO
 File name: Labadie C-147.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.718	0.055	7.391	Clay (3)	7.2	0.979	0.007	0.006			1.78	7.2	111	0.15	0.12	294
3.75	1.309	0.04	9.2053	Sandy silt to clayey silt (6)	7.7	1.283	0.02	0.014	21.8		1.82	7.7	114	0.42	0.29	109
6.25	8.838	0.047	4.5731	Sand (9)	19.7		0.034	0.02	32.3	89	1.95	9.9	122	0.71	0.42	735
8.75	13.842	0.071	5.3345	Sand to silty sand (8)	29.0		0.049	0.027	35.0	93	1.97	18.6	123	1.02	0.56	1152
11.25	5.13	0.024	4.485	Sand to silty sand (8)	12.8		0.064	0.034	29.6	63	1.94	8.2	121	1.33	0.71	427
13.75	9.414	0.038	5.404	Sand to silty sand (8)	20.3		0.078	0.041	33.1	77	1.97	13.0	123	1.62	0.85	783
16.25	8.207	0.031	6.2621	Sand (9)	18.6		0.093	0.048	32.3	71	1.96	9.3	122	1.93	1.00	683
18.75	12.628	0.05	7.1321	Sand to silty sand (8)	26.2		0.108	0.055	34.6	81	1.98	16.7	124	2.25	1.14	1051
21.25	8.394	0.032	6.8157	Sand (9)	18.5		0.122	0.062	32.4	68	1.96	9.2	122	2.54	1.29	698
23.75	18.846	0.052	5.5989	Sand (9)	37.7		0.132	0.067	35.9	85	2	18.8	125	2.75	1.39	1568

Classification by Robertson 1986



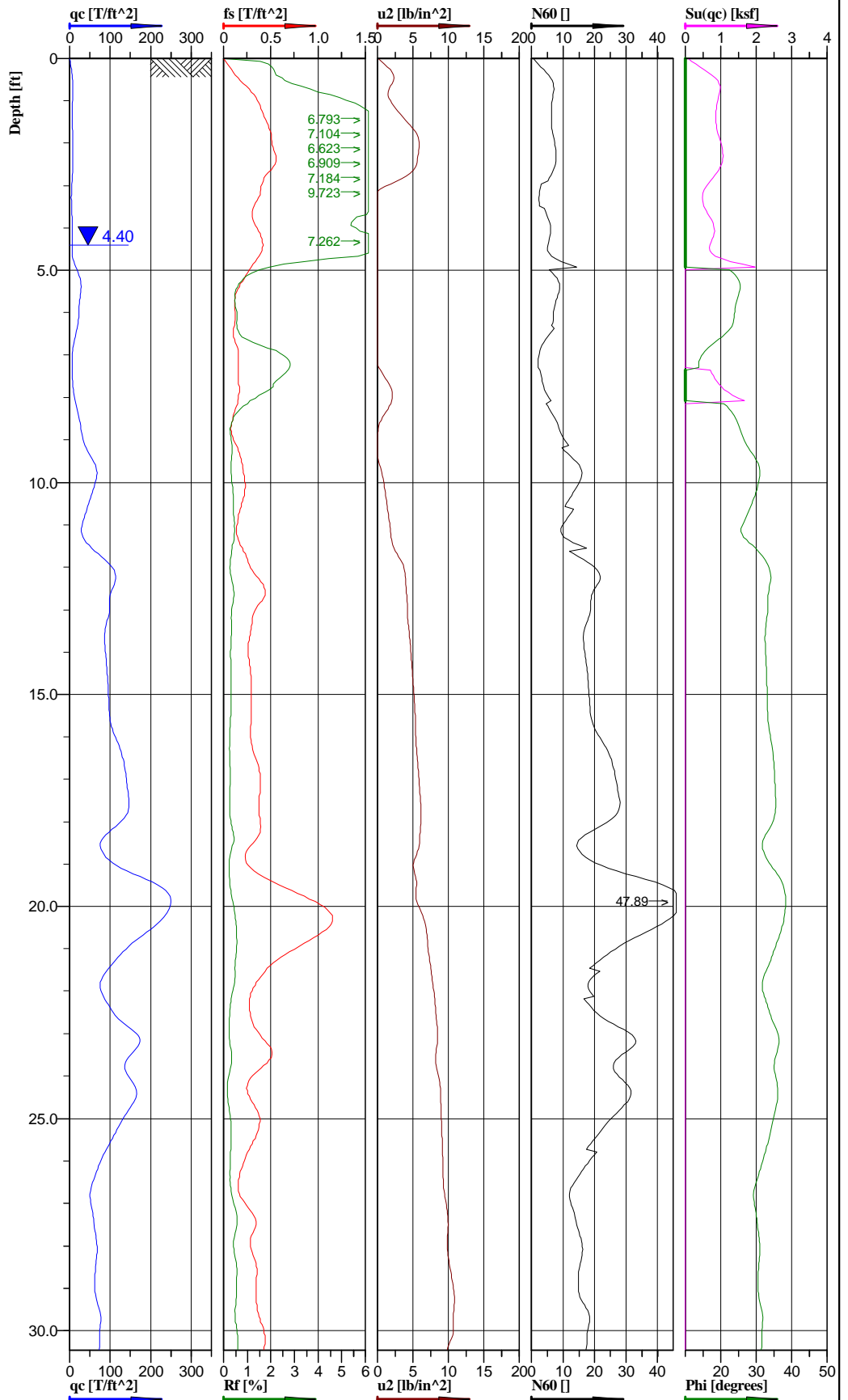
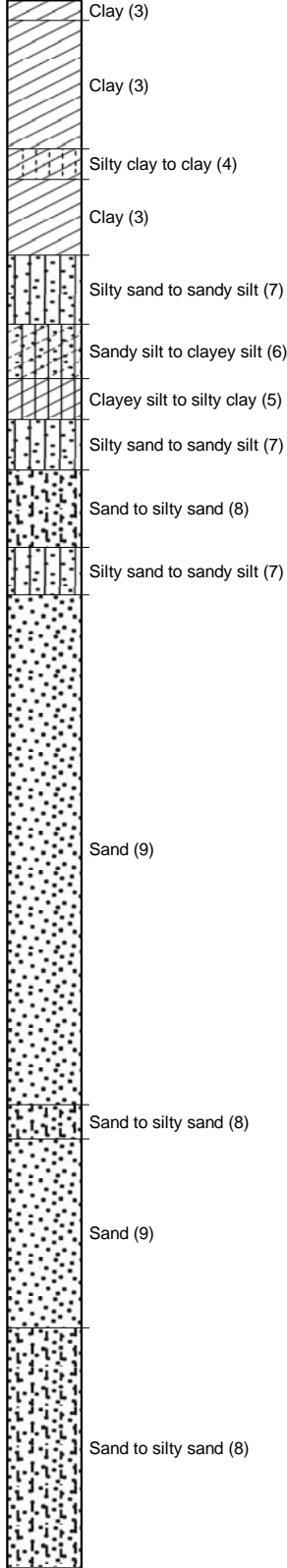
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729416.37 ft, Y: 992202.59 ft	Ground level: 464.50	Test no: C-147A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-68
Confirmation sounding adjacent to C-147		File: Labadie C-147A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-147A
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-147A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.589	0.046	7.5955	Clay (3)	5.9	0.757	0.006	0.006				1.66	5.9	104	0.12	0.12	227
3.75	2.112	0.035	4.7627	Sand (9)	8.8	1.323	0.02	0.016	24.3	75	1.84	4.4	115	115	0.42	0.33	176
6.25	12.622	0.06	2.8465	Sand (9)	25.2		0.034	0.023	34.8	95	1.99	12.6	124	124	0.71	0.48	1050
8.75	12.2	0.062	3.899	Silty sand to sandy silt (7)	25.8		0.049	0.03	33.9	88	1.97	16.5	123	123	1.02	0.62	1015
11.25	4.489	0.021	3.7934	Sand to silty sand (8)	12.4		0.063	0.037	28.7	60	1.92	7.9	120	120	1.31	0.77	373
13.75	5.42	0.027	4.7374	Sand to silty sand (8)	14.8		0.077	0.043	29.6	66	1.92	9.5	120	120	1.60	0.89	451
16.25	11.14	0.035	5.9509	Sand (9)	23.6		0.092	0.05	33.6	77	1.97	11.8	123	123	1.91	1.04	927
18.75	11.76	0.047	6.9771	Sand (9)	23.5		0.107	0.057	34.2	78	1.98	11.8	124	124	2.23	1.19	978
21.25	10.58	0.037	8.091	Sand (9)	21.1		0.121	0.065	33.9	75	1.99	10.6	124	124	2.52	1.35	880
23.75	21.307	0.092	8.8518	Sand (9)	38.3		0.136	0.072	36.9	90	2	19.2	125	125	2.83	1.50	1773

**Classification by
Robertson 1986**



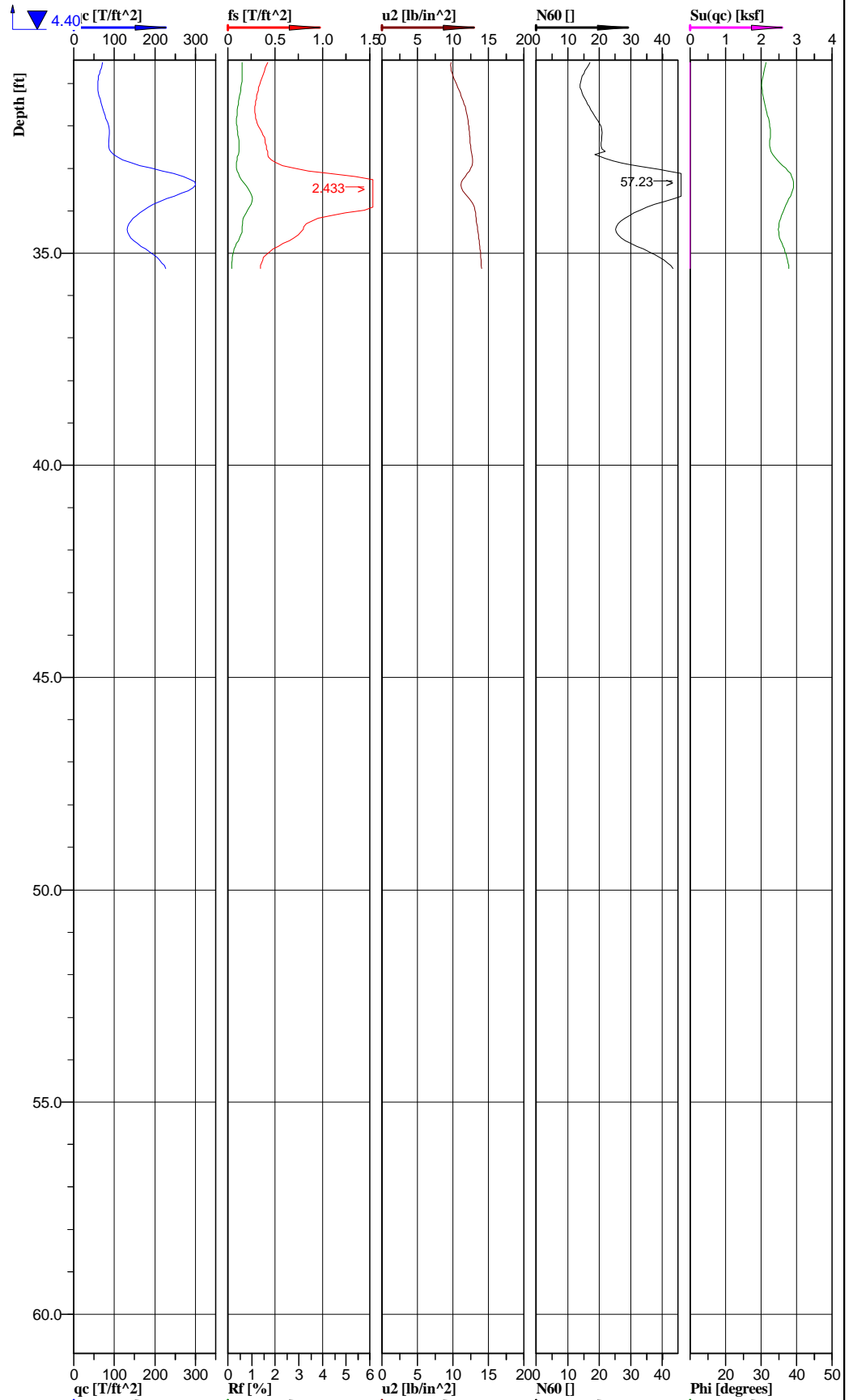
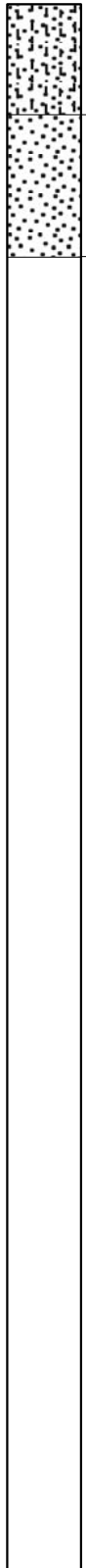
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 730004.82 ft, Y: 992190.52 ft	Ground level: 463.29	Test no: C-149
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-69
File: Labadie C-149.cpd			

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

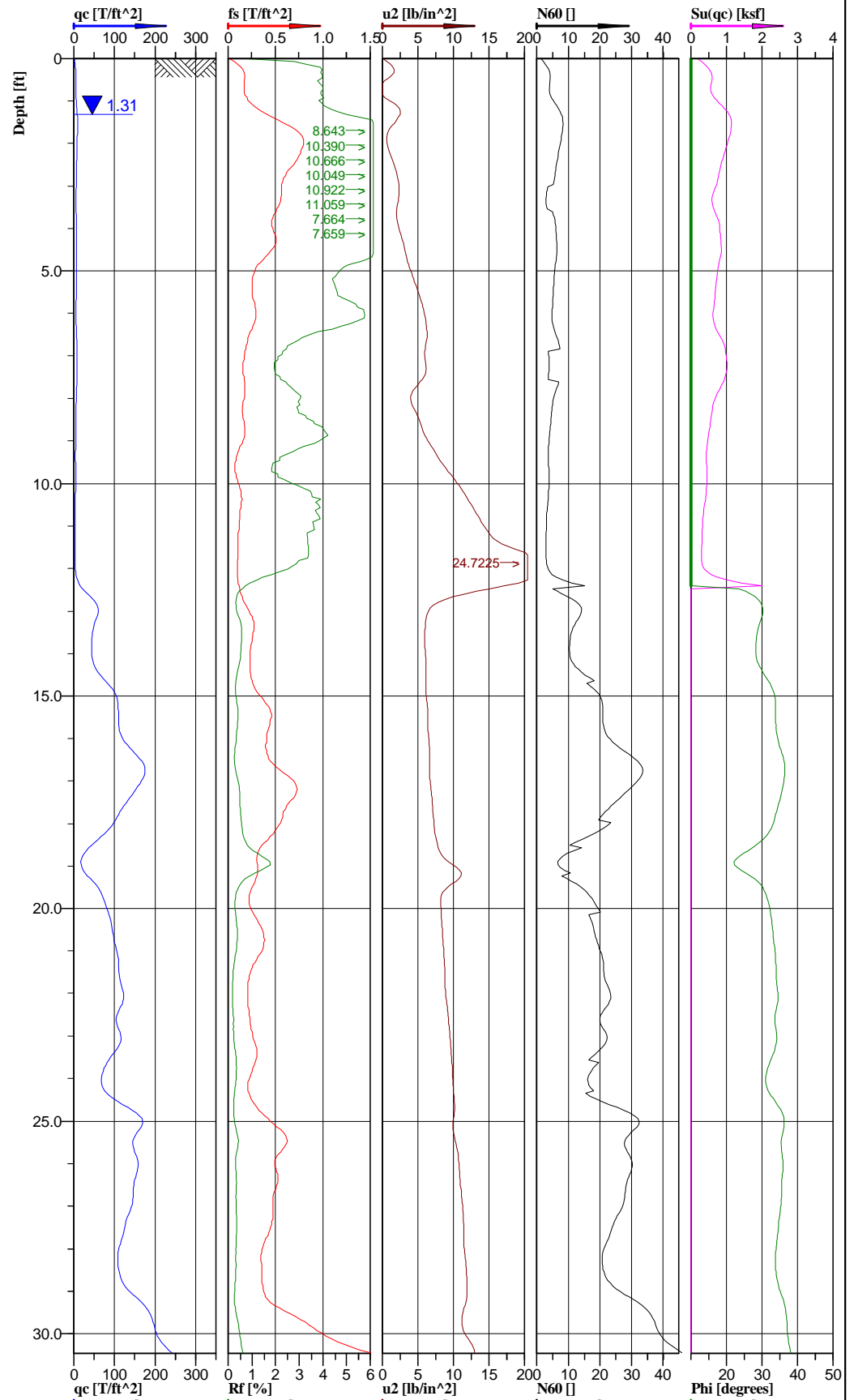
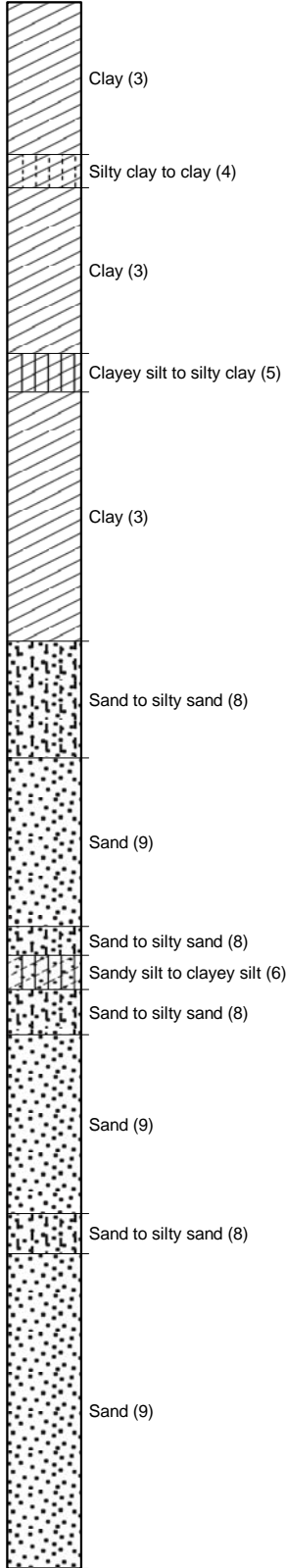


Location: Labadie, MO	Position: X: 730004.82 ft, Y: 992190.52 ft	Ground level: 463.29	Test no: C-149
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-69
		File: Labadie C-149.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-149
 Test date: 12/23/2009
 Location: Labadie MO
 File name: Labadie C-149.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.622	0.035	3.4655	Clay (3)	6.2	0.851	0.007	0.007			1.79	6.2	112	0.15	0.15	255
3.75	0.645	0.036	-0.2242	Silty sand to sandy silt (7)	5.5	0.781	0.02	0.019	22.9		1.67	3.5	104	0.42	0.40	54
6.25	1.596	0.014	-0.5592	Clayey silt to silty clay (5)	5.7	0.771	0.033	0.027	21.3		1.85	5.7	115	0.69	0.56	463
8.75	3.22	0.014	0.7778	Sand to silty sand (8)	9.4	1.164	0.047	0.034	27.2	65	1.89	6.0	118	0.98	0.71	268
11.25	6.158	0.022	2.3367	Sand (9)	14.7		0.061	0.04	30.0	71	1.94	7.4	121	1.27	0.83	512
13.75	8.902	0.029	4.5842	Sand (9)	17.8		0.076	0.047	32.9	74	1.99	8.9	124	1.58	0.98	741
16.25	11.596	0.031	5.5583	Sand (9)	23.2		0.091	0.055	34.3	80	1.99	11.6	124	1.89	1.14	965
18.75	14.188	0.044	5.6888	Sand (9)	28.4		0.106	0.062	35.0	82	1.99	14.2	124	2.20	1.29	1180
21.25	13.181	0.063	7.3188	Sand (9)	27.3		0.12	0.069	34.6	78	1.98	13.7	124	2.50	1.44	1097
23.75	14.262	0.034	8.5543	Sand (9)	28.5		0.135	0.076	35.5	81	1.99	14.3	124	2.81	1.58	1187
26.25	7.331	0.025	9.3714	Sand to silty sand (8)	16.7		0.15	0.083	31.4	59	1.95	10.7	122	3.12	1.73	610
28.75	6.453	0.033	10.3813	Sand to silty sand (8)	16.1		0.165	0.09	31.0	56	1.94	10.3	121	3.43	1.87	537
31.25	7.001	0.034	11.1509	Sand to silty sand (8)	17.5		0.179	0.097	31.4	57	1.94	11.2	121	3.72	2.02	582
33.75	17.559	0.109	12.763	Sand (9)	35.3		0.194	0.104	36.3	81	1.99	17.7	124	4.04	2.16	1461
36.25	20.442	0.035	13.9635	Sand (9)	40.9		0.202	0.108	37.5	86	2.02	20.4	126	4.20	2.25	1701

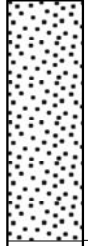
Classification by Robertson 1986



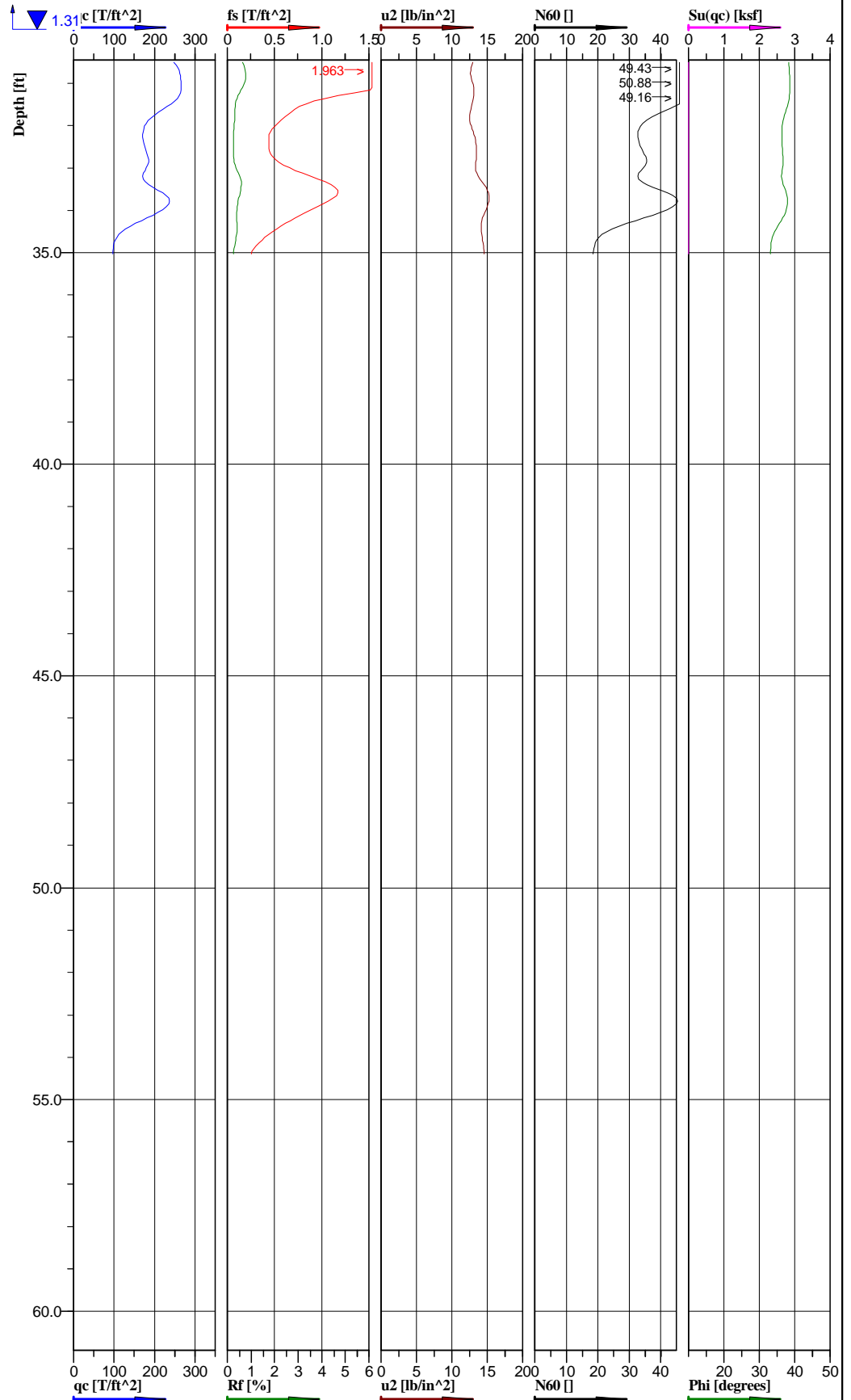
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 730603.48 ft, Y: 992180.61 ft	Ground level: 462.99	Test no: C-151
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/12/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-70
File: Labadie C-151.cpd			

Classification by
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Sand (9)



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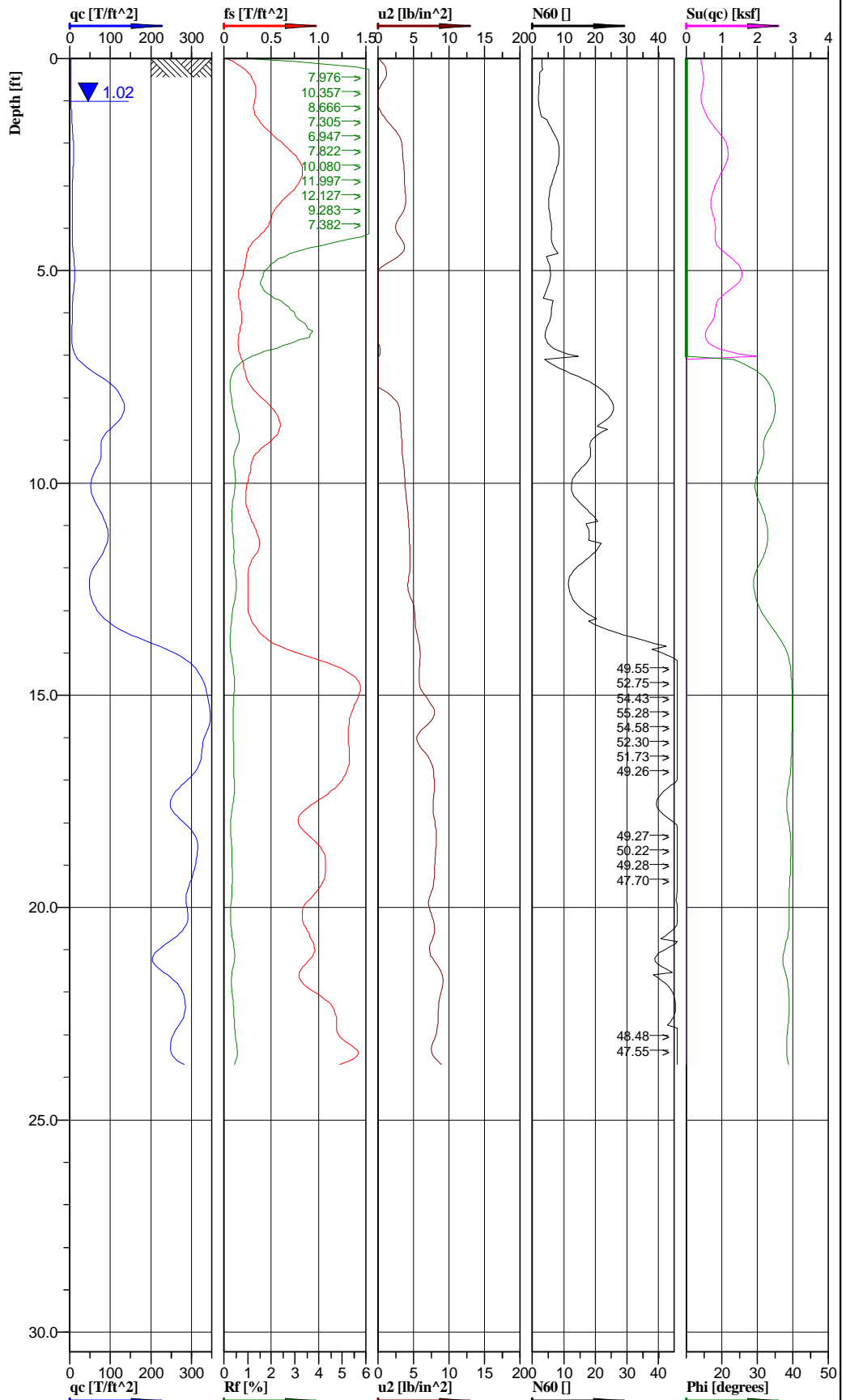
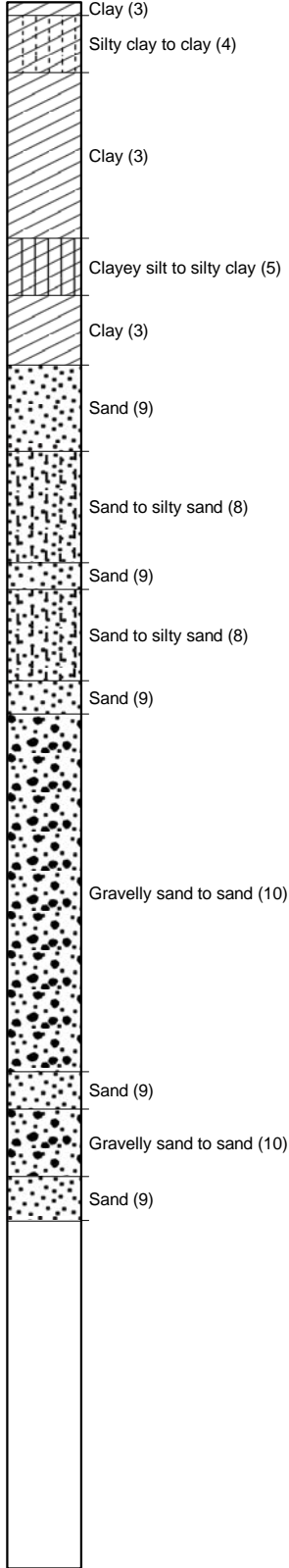
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	Labadie, MO	Position:	X: 730603.48 ft, Y: 992180.61 ft	Ground level:	462.99	Test no:	C-151
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/12/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-70
				File:	Labadie C-151.cpd		

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-151
 Test date: 11/12/2009
 Location: Labadie MO
 File name: Labadie C-151.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.59	0.042	1.0393	Clay (3)	5.9	0.81	0.007	0.006			1.78	5.9	111	0.15	0.12	243
3.75	0.564	0.047	2.591	Clay (3)	5.3	0.754	0.02	0.012			1.65	5.3	103	0.42	0.25	226
6.25	0.611	0.022	5.6754	Clayey silt to silty clay (5)	5.0	0.797	0.033	0.017			1.8	5.0	112	0.69	0.35	478
8.75	0.454	0.013	6.4741	Clay (3)	4.5	0.559	0.046	0.023			1.79	4.5	112	0.96	0.48	168
11.25	0.504	0.011	16.7051	Sand to silty sand (8)	4.1	0.458	0.059	0.029	24.4	41	1.8	2.6	112	1.23	0.60	42
13.75	5.485	0.023	6.6711	Sand (9)	13.0		0.073	0.035	29.7	63	1.94	6.5	121	1.52	0.73	456
16.25	13.054	0.048	6.5718	Sand (9)	26.1		0.088	0.042	35.0	87	1.99	13.0	124	1.83	0.87	1086
18.75	6.169	0.036	8.3922	Sand to silty sand (8)	15.3		0.103	0.049	29.6	67	1.92	9.8	120	2.14	1.02	513
21.25	10.143	0.026	8.6929	Sand (9)	20.5		0.117	0.056	33.6	75	1.99	10.2	124	2.43	1.16	844
23.75	9.878	0.026	9.7652	Sand (9)	20.7		0.132	0.063	33.3	72	1.97	10.4	123	2.75	1.31	822
26.25	14.13	0.049	10.809	Sand (9)	28.2		0.147	0.071	35.5	82	1.99	14.1	124	3.06	1.48	1176
28.75	13.777	0.048	11.6052	Sand (9)	27.5		0.162	0.078	35.2	79	1.99	13.8	124	3.37	1.62	1146
31.25	21.31	0.105	12.8236	Sand (9)	42.6		0.177	0.085	37.6	91	1.99	21.3	124	3.68	1.77	1773
33.75	16.277	0.067	14.2568	Sand (9)	32.5		0.191	0.092	36.0	81	1.99	16.3	124	3.97	1.91	1354

Classification by Robertson 1986



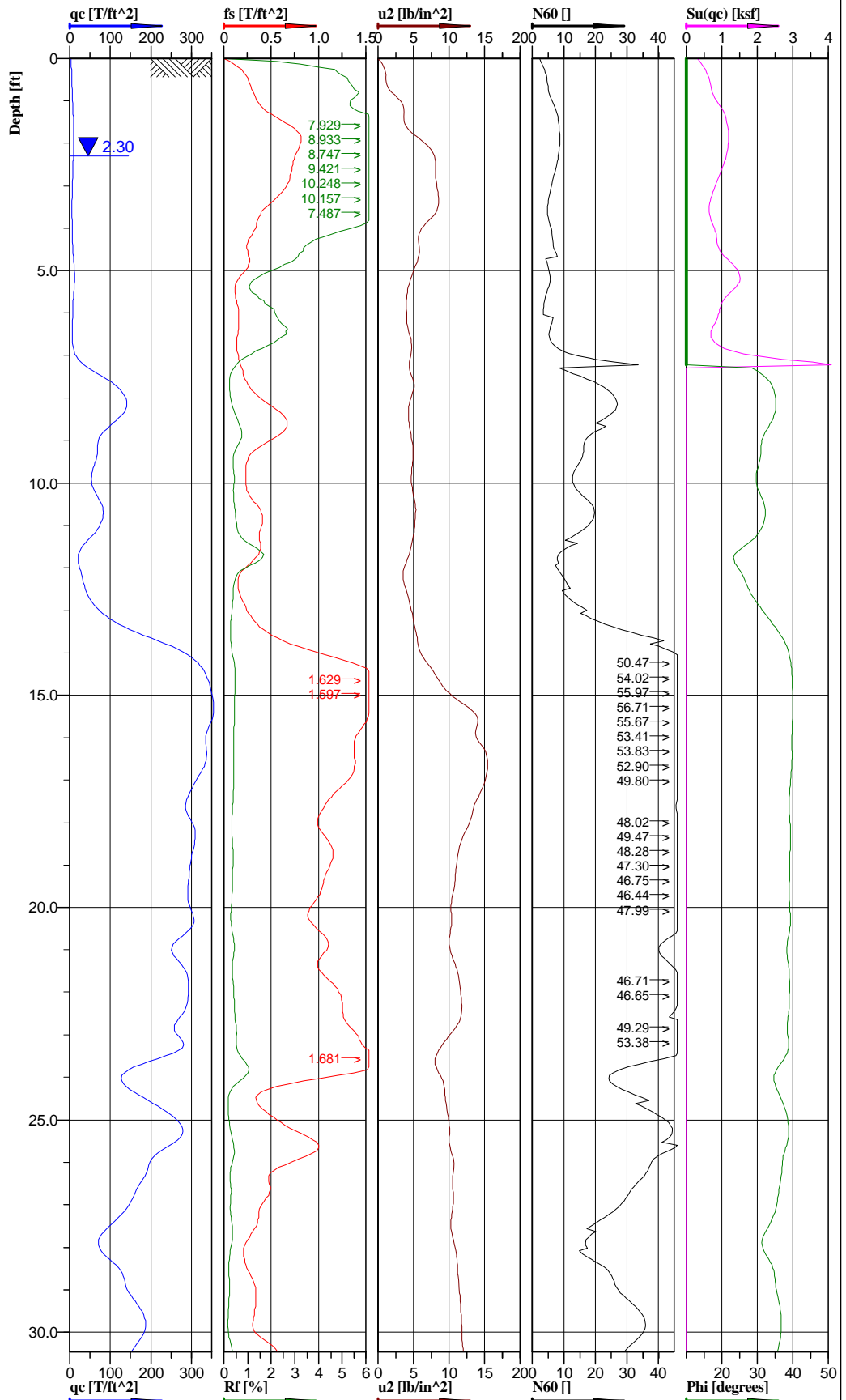
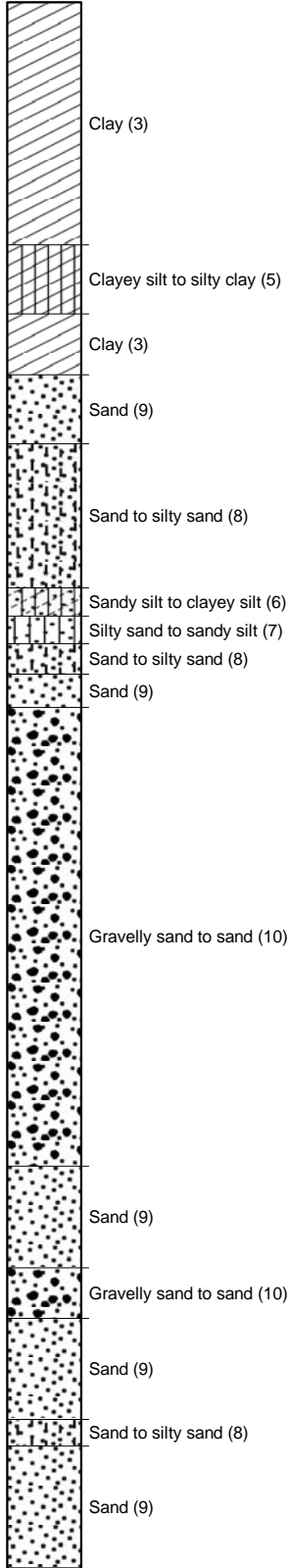
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150


Location: Labadie, MO	Position: X: 729107.35 ft, Y: 991919.95 ft	Ground level: 464.11	Test no: C-157
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-71
		File: Labadie C-157.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-157
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-157.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.515	0.041	1.5656	Clay (3)	4.7	0.707	0.006	0.004			1.57	4.7	98	0.12	0.08	212
3.75	0.695	0.048	3.0089	Clayey silt to silty clay (5)	6.0	0.939	0.018	0.01			1.76	6.0	110	0.37	0.21	563
6.25	1.571	0.017	-0.6562	Sand (9)	6.6	0.988	0.032	0.016	28.5	67	1.84	3.3	115	0.67	0.33	131
8.75	8.997	0.038	2.7364	Sand to silty sand (8)	19.9		0.046	0.022	32.7	84	1.96	12.7	122	0.96	0.46	749
11.25	6.696	0.027	4.263	Sand to silty sand (8)	15.9		0.061	0.029	31.0	72	1.95	10.2	122	1.27	0.60	557
13.75	18.981	0.07	5.5189	Gravelly sand to sand (10)	34.3		0.075	0.036	35.8	94	2	23.3	125	1.56	0.75	1579
16.25	30.246	0.123	7.1797	Gravelly sand to sand (10)	50.4		0.09	0.044	39.4	110	2.04	34.3	127	1.87	0.92	2516
18.75	28.046	0.091	7.8363	Gravelly sand to sand (10)	46.7		0.106	0.051	39.0	106	2.04	31.8	127	2.20	1.06	2333
21.25	24.828	0.088	8.1594	Gravelly sand to sand (10)	43.5		0.121	0.059	38.4	100	2.03	29.6	127	2.52	1.23	2066
23.75	25.079	0.122	8.1185	Gravelly sand to sand (10)	47.8		0.132	0.064	38.5	100	2.01	32.5	125	2.75	1.33	2087

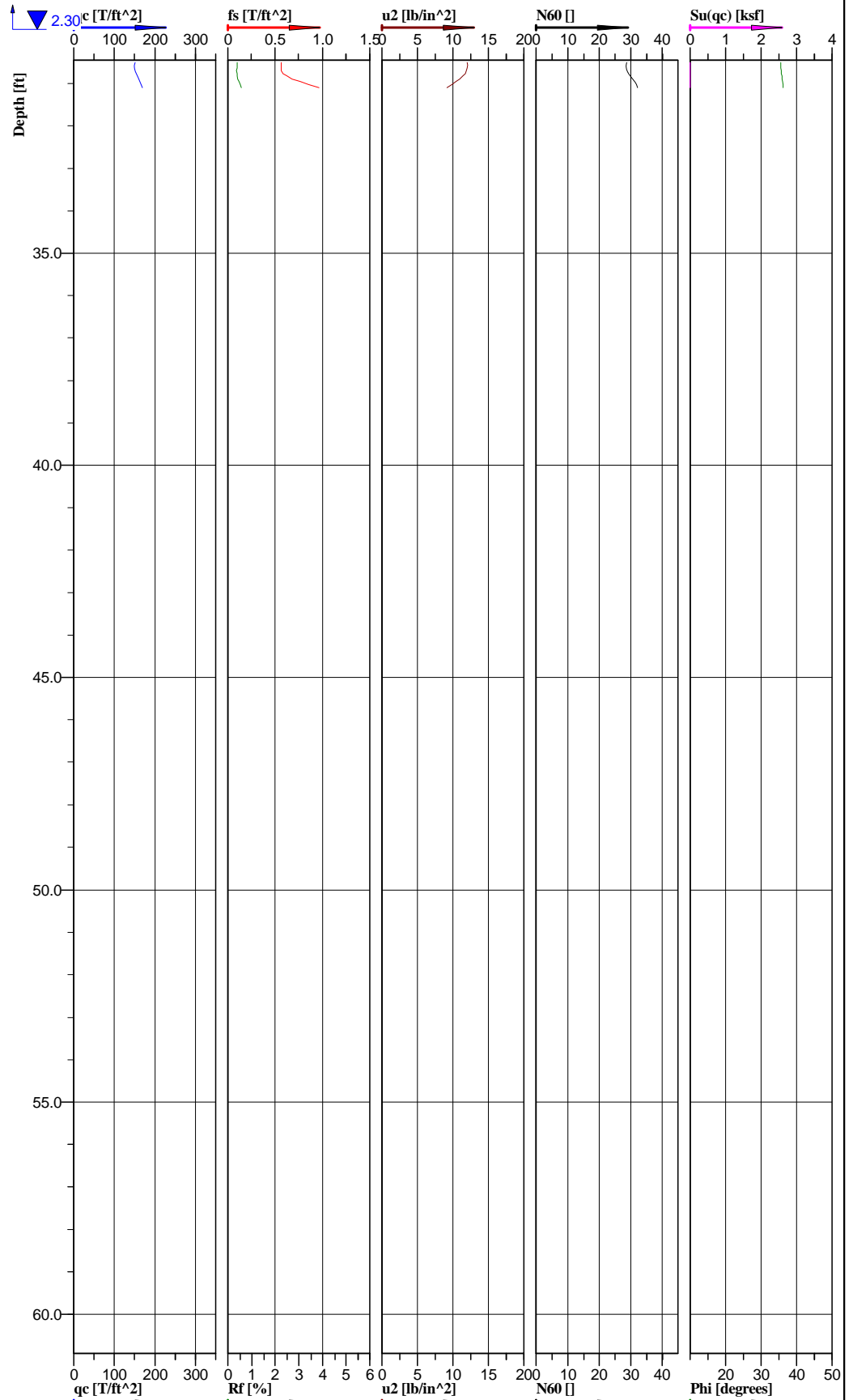
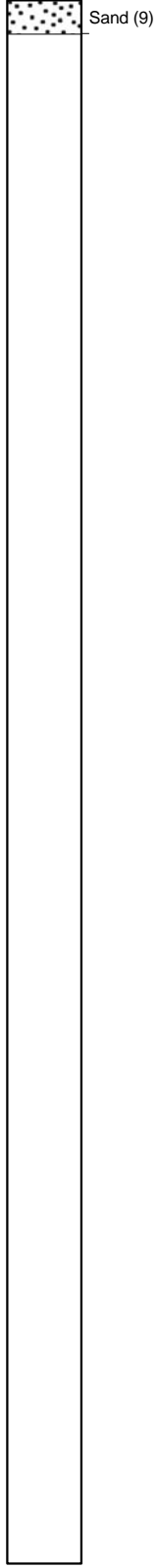
Classification by Robertson 1986




 Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729106.30 ft, Y: 991925.39 ft	Ground level: 464.01	Test no: C-157A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-72
Confirmation sounding adjacent to C-157		File: Labadie C-157A.cpd	

Classification by
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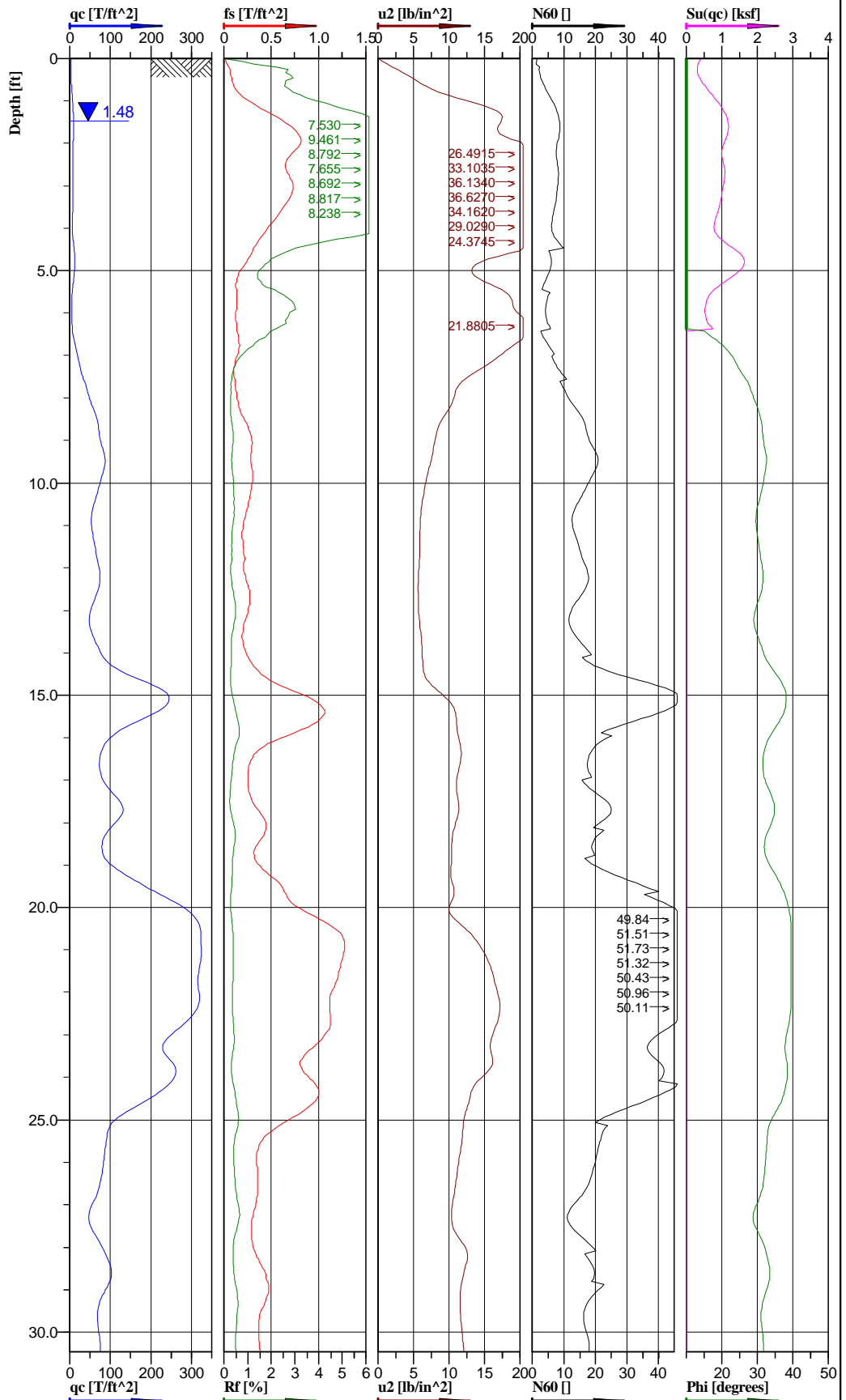
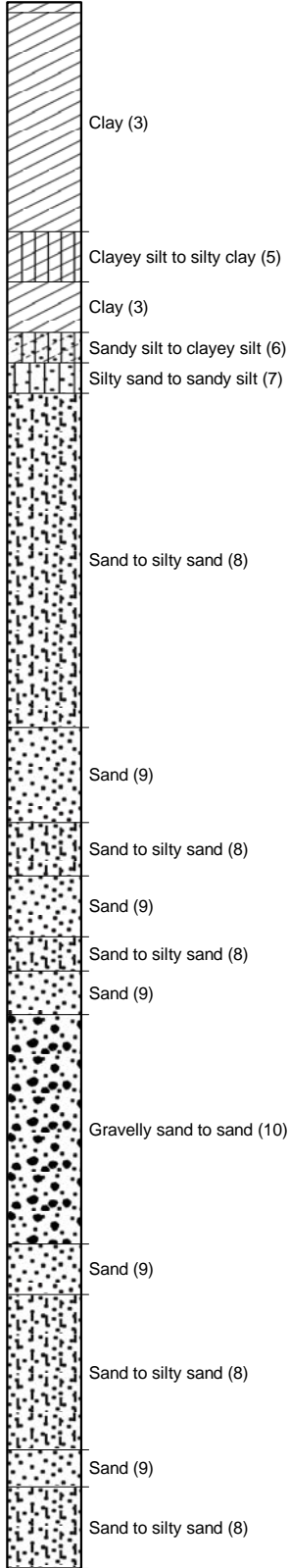
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729106.30 ft, Y: 991925.39 ft	Ground level: 464.01	Test no: C-157A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/13/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-72
Confirmation sounding adjacent to C-157		File: Labadie C-157A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-157A
 Test date: 11/13/2009
 Location: Labadie MO
 File name: Labadie C-157A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.665	0.047	3.8624	Clay (3)	6.7	0.911	0.007	0.007			1.78	6.7	111	0.15	0.15	273
3.75	0.668	0.041	6.9782	Clayey silt to silty clay (5)	5.9	0.893	0.02	0.015			1.73	5.9	108	0.42	0.31	536
6.25	1.687	0.015	4.3745	Sand (9)	8.4	1.322	0.033	0.021	30.8	74	1.85	4.2	115	0.69	0.44	140
8.75	8.791	0.038	4.6902	Sand to silty sand (8)	19.4		0.048	0.028	32.5	80	1.96	12.4	122	1.00	0.58	731
11.25	4.824	0.029	4.5779	Sand to silty sand (8)	13.4		0.062	0.035	28.5	70	1.91	8.6	119	1.29	0.73	401
13.75	20.396	0.082	6.3019	Gravelly sand to sand (10)	36.1		0.076	0.041	36.1	94	2	24.6	125	1.58	0.85	1697
16.25	31.682	0.133	14.1531	Gravelly sand to sand (10)	52.8		0.092	0.049	39.6	110	2.04	35.9	127	1.91	1.02	2636
18.75	28.47	0.101	11.6112	Gravelly sand to sand (10)	47.4		0.107	0.057	39.1	105	2.04	32.3	127	2.23	1.19	2369
21.25	27.204	0.103	10.8583	Gravelly sand to sand (10)	45.3		0.122	0.064	38.9	102	2.04	30.8	127	2.54	1.33	2263
23.75	20.751	0.102	9.515	Gravelly sand to sand (10)	39.7		0.137	0.072	37.3	92	2	27.0	125	2.85	1.50	1726
26.25	18.271	0.057	10.3686	Sand (9)	34.6		0.152	0.079	36.6	86	2	17.3	125	3.16	1.64	1520
28.75	12.687	0.028	11.2613	Sand (9)	26.0		0.167	0.086	34.6	74	1.98	13.0	124	3.47	1.79	1056
31.25	15.414	0.056	11.4439	Sand (9)	30.8		0.178	0.091	36.0	81	1.99	15.4	124	3.70	1.89	1282

Classification by Robertson 1986

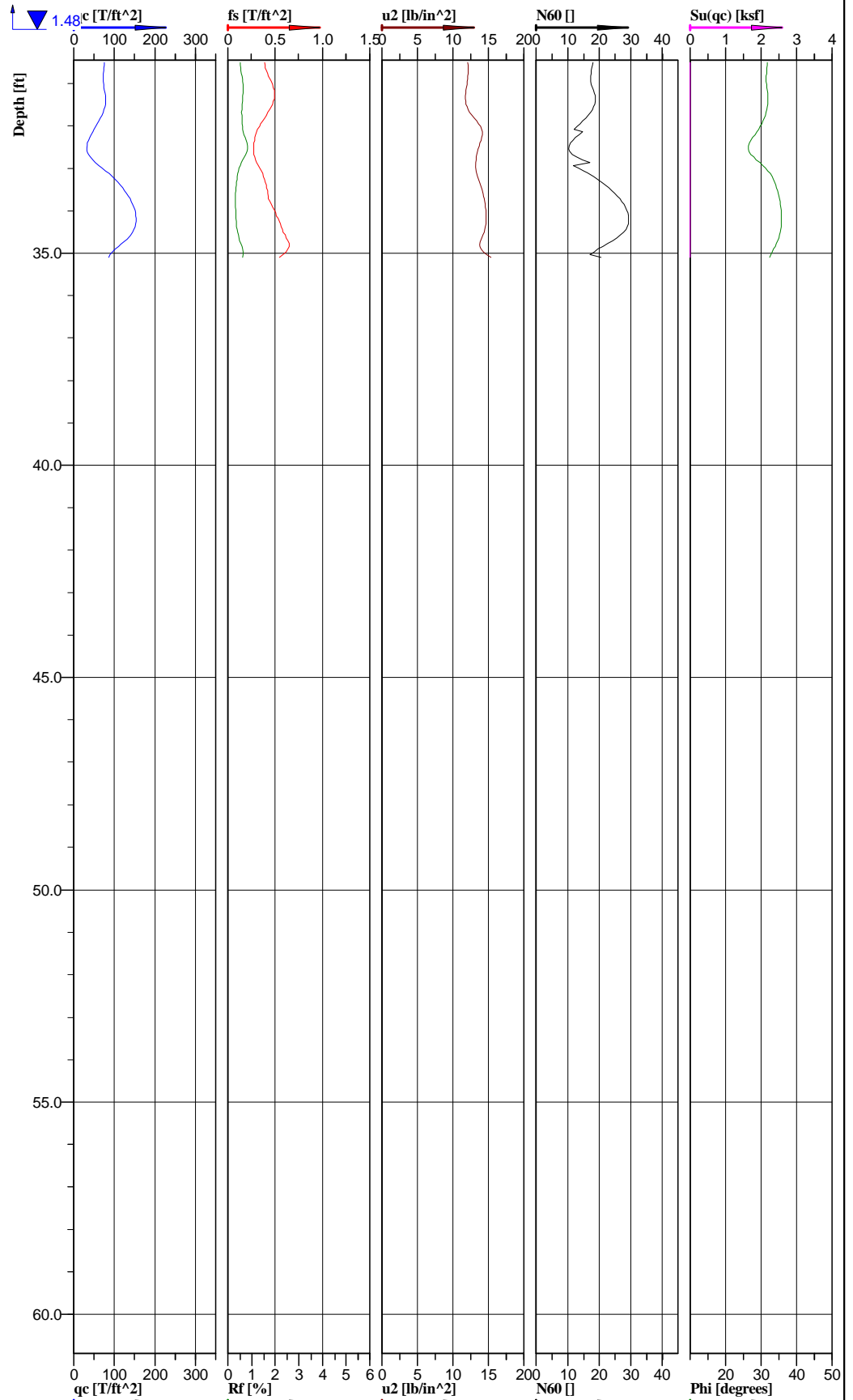
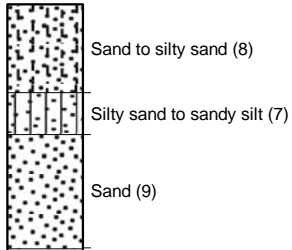


Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 729691.99 ft, Y: 991906.89 ft	Ground level: 463.81	Test no: C-159
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-73
		File: Labadie C-159.cpd	

Classification by
Robertson 1986



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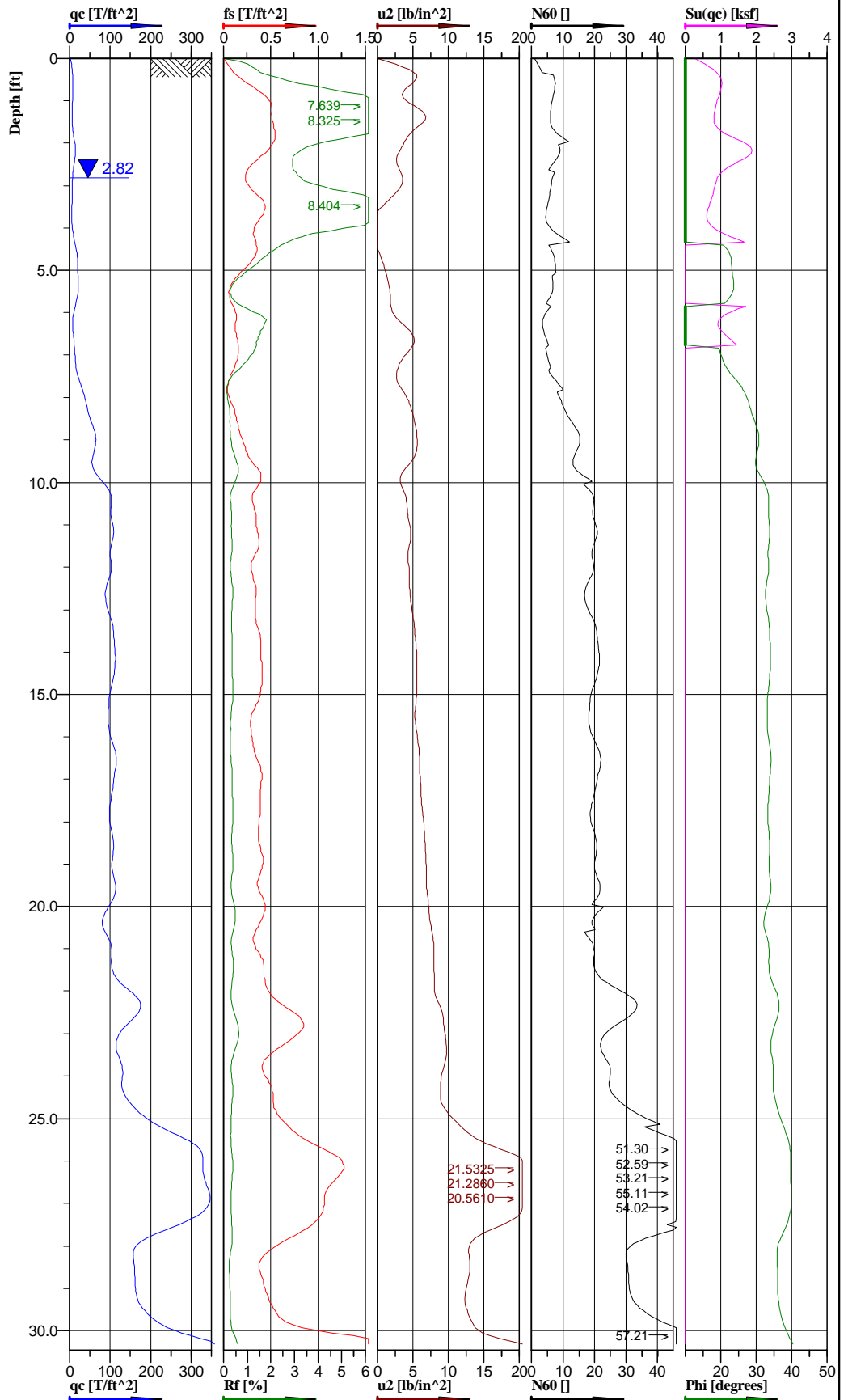
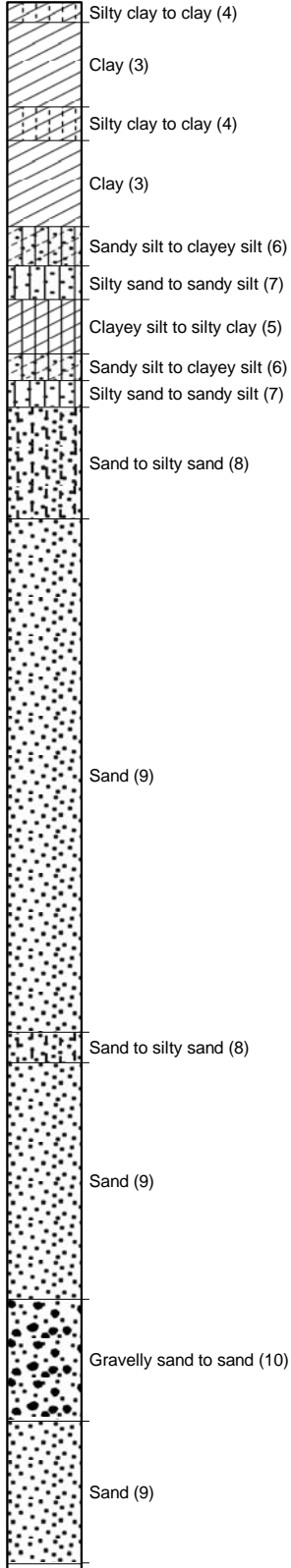
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729691.99 ft, Y: 991906.89 ft	Ground level: 463.81	Test no: C-159
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-73
		File: Labadie C-159.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-159
 Test date: 11/16/2009
 Location: Labadie MO
 File name: Labadie C-159.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.624	0.041	14.7954	Clay (3)	6.1	0.838	0.007	0.006				1.78	6.1	111	0.15	0.12	251
3.75	0.841	0.048	28.3798	Clayey silt to silty clay (5)	7.1	1.103	0.02	0.013				1.8	7.1	112	0.42	0.27	662
6.25	1.163	0.013	17.7547	Silty sand to sandy silt (7)	5.4	0.761	0.034	0.019	21.9			1.83	3.5	114	0.71	0.40	97
8.75	6.45	0.022	8.797	Sand to silty sand (8)	16.2		0.048	0.026	30.8	73		1.94	10.3	121	1.00	0.54	537
11.25	6.119	0.022	5.9558	Sand to silty sand (8)	15.3		0.062	0.032	30.7	69		1.94	9.8	121	1.29	0.67	509
13.75	9.433	0.032	6.3796	Sand (9)	20.6		0.077	0.039	32.2	74		1.96	10.3	122	1.60	0.81	785
16.25	12.085	0.053	11.1126	Sand (9)	25.7		0.092	0.046	34.1	81		1.97	12.9	123	1.91	0.96	1005
18.75	13.284	0.045	10.5869	Gravelly sand to sand (10)	26.3		0.106	0.054	34.7	82		1.98	17.9	124	2.20	1.12	1105
21.25	30.34	0.111	14.7008	Gravelly sand to sand (10)	50.5		0.121	0.061	39.4	106		2.04	34.4	127	2.52	1.27	2524
23.75	22.004	0.09	14.8235	Sand (9)	38.7		0.136	0.068	37.7	94		2.01	19.4	125	2.83	1.41	1831
26.25	7.198	0.036	11.1393	Sand to silty sand (8)	17.7		0.151	0.076	31.5	61		1.94	11.3	121	3.14	1.58	599
28.75	7.692	0.037	11.7944	Sand to silty sand (8)	17.9		0.166	0.083	32.0	62		1.95	11.4	122	3.45	1.73	640
31.25	6.318	0.037	12.5537	Silty sand to sandy silt (7)	16.3		0.18	0.09	30.7	58		1.93	10.4	120	3.74	1.87	526
33.75	10.62	0.044	14.0118	Sand (9)	22.0		0.195	0.096	33.3	72		1.97	11.0	123	4.06	2.00	884
36.25	8.401	0.054	15.022	Sand (9)	18.8		0.202	0.1	32.6	62		1.94	9.4	121	4.20	2.08	699

Classification by Robertson 1986



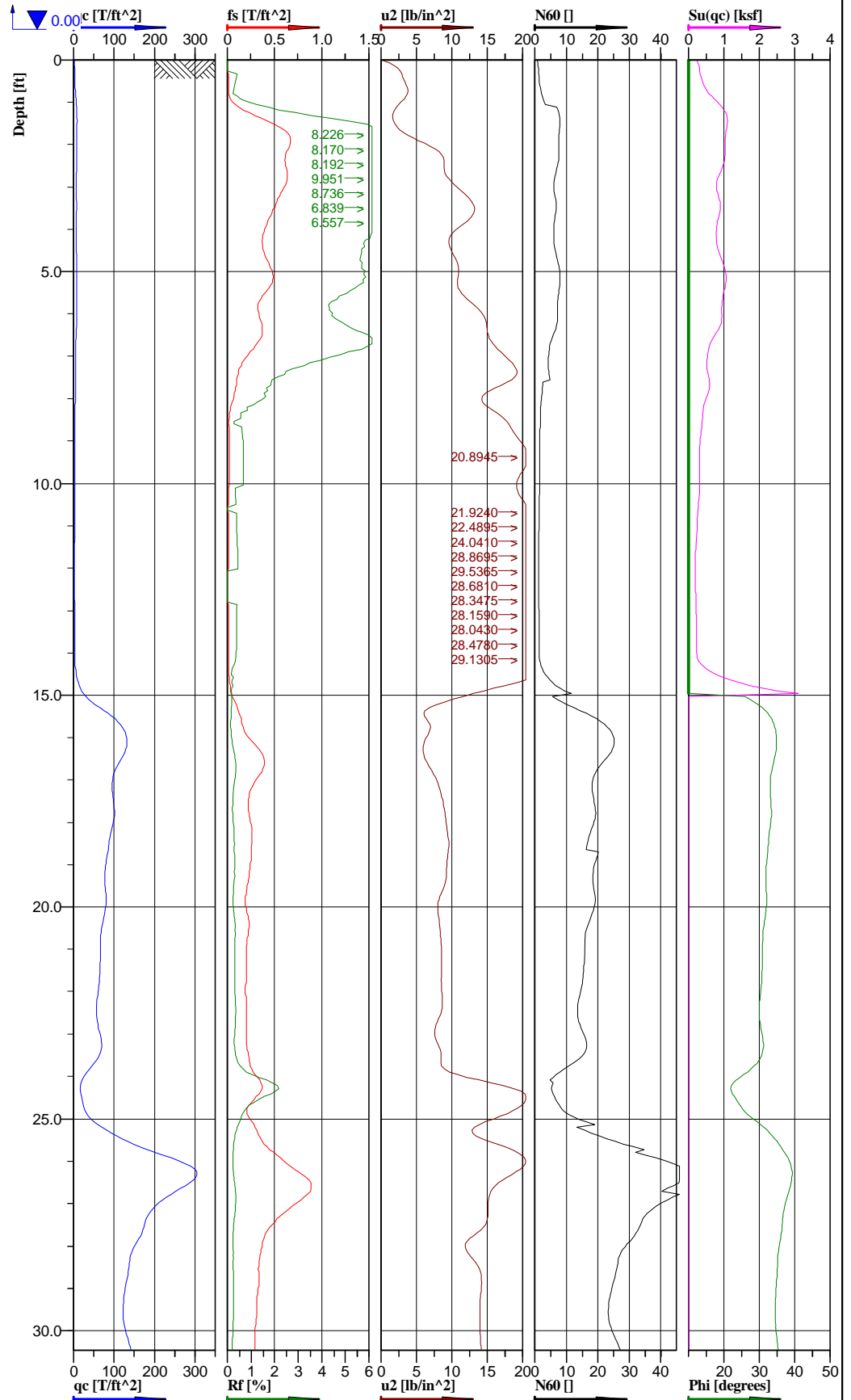
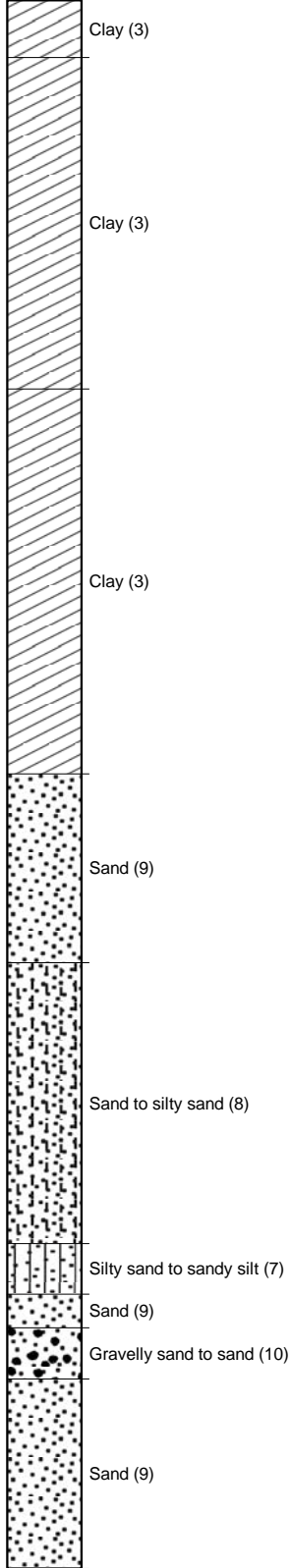
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 730278.18 ft, Y: 991888.45 ft	Ground level: 463.19	Test no: C-161
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-74
File: Labadie C-161.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-161
 Test date: 12/23/2009
 Location: Labadie MO
 File name: Labadie C-161.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.785	0.036	4.2384	Silty clay to clay (4)	6.6	1.078	0.007	0.007				1.8	6.6	112	0.15	0.15	539
3.75	0.962	0.031	0.8819	Sandy silt to clayey silt (6)	6.5	0.881	0.02	0.017	22.5			1.73	6.5	108	0.42	0.35	80
6.25	1.38	0.011	2.942	Silty sand to sandy silt (7)	5.4	1.186	0.034	0.023	22.1			1.85	3.4	115	0.71	0.48	115
8.75	5.027	0.018	4.4712	Sand (9)	12.7		0.048	0.029	29.2	66	1.93	6.4	120	1.00	0.60	418	
11.25	9.658	0.032	4.3143	Sand (9)	19.3		0.062	0.036	33.4	80	1.99	9.7	124	1.29	0.75	804	
13.75	9.912	0.036	5.2438	Sand (9)	19.8		0.077	0.044	33.5	79	1.98	9.9	124	1.60	0.92	825	
16.25	9.968	0.033	5.7442	Sand (9)	19.9		0.092	0.051	33.6	77	1.99	10.0	124	1.91	1.06	829	
18.75	10.058	0.037	6.7358	Sand to silty sand (8)	20.2		0.107	0.058	33.6	75	1.99	12.9	124	2.23	1.21	837	
21.25	11.098	0.042	7.9386	Sand (9)	23.1		0.121	0.065	34.0	75	1.98	11.6	124	2.52	1.35	923	
23.75	13.184	0.056	9.3811	Sand (9)	26.4		0.136	0.072	35.1	79	1.99	13.2	124	2.83	1.50	1097	
26.25	29.323	0.098	18.2566	Sand (9)	49.5		0.151	0.08	39.2	101	2.03	24.8	127	3.14	1.66	2440	
28.75	17.678	0.054	13.2329	Sand (9)	35.3		0.167	0.087	36.6	85	1.99	17.7	124	3.47	1.81	1471	
31.25	31.147	0.16	17.5421	Sand (9)	62.3		0.175	0.091	39.5	101	2.04	31.1	127	3.64	1.89	2591	

Classification by Robertson 1986



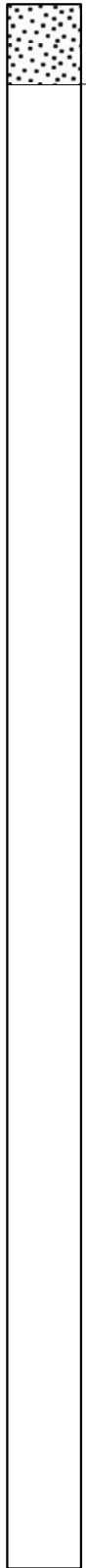
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

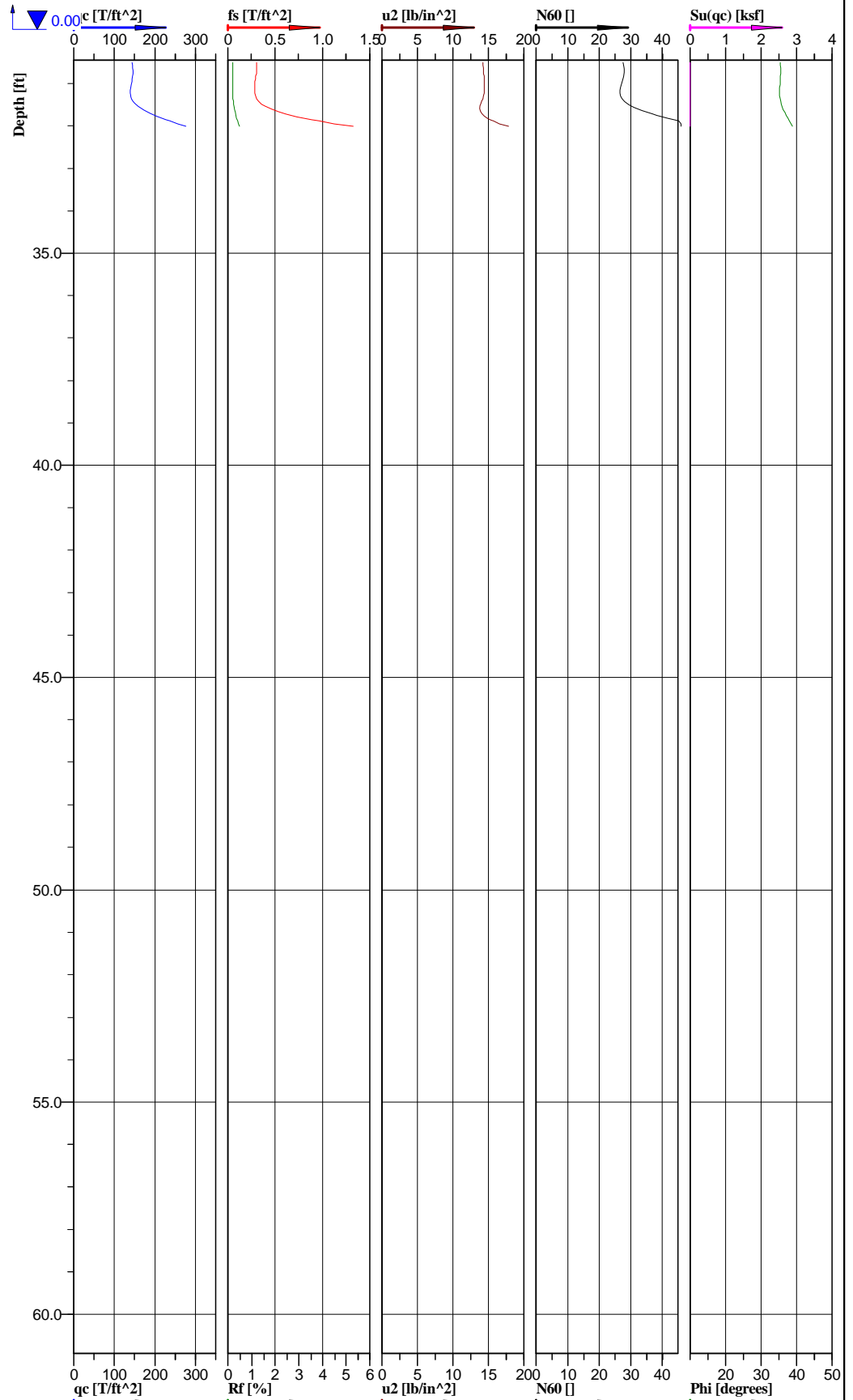


Location:	Labadie, MO	Position:	X: 730886.02 ft, Y: 991897.77 ft	Ground level:	462.30	Test no:	C-163
Project ID:	2008012455	Client:	Ameren Missouri	Date:	12/28/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	1	Fig:	C-75
				File:	Labadie C-163.cpd		

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Sand (9)



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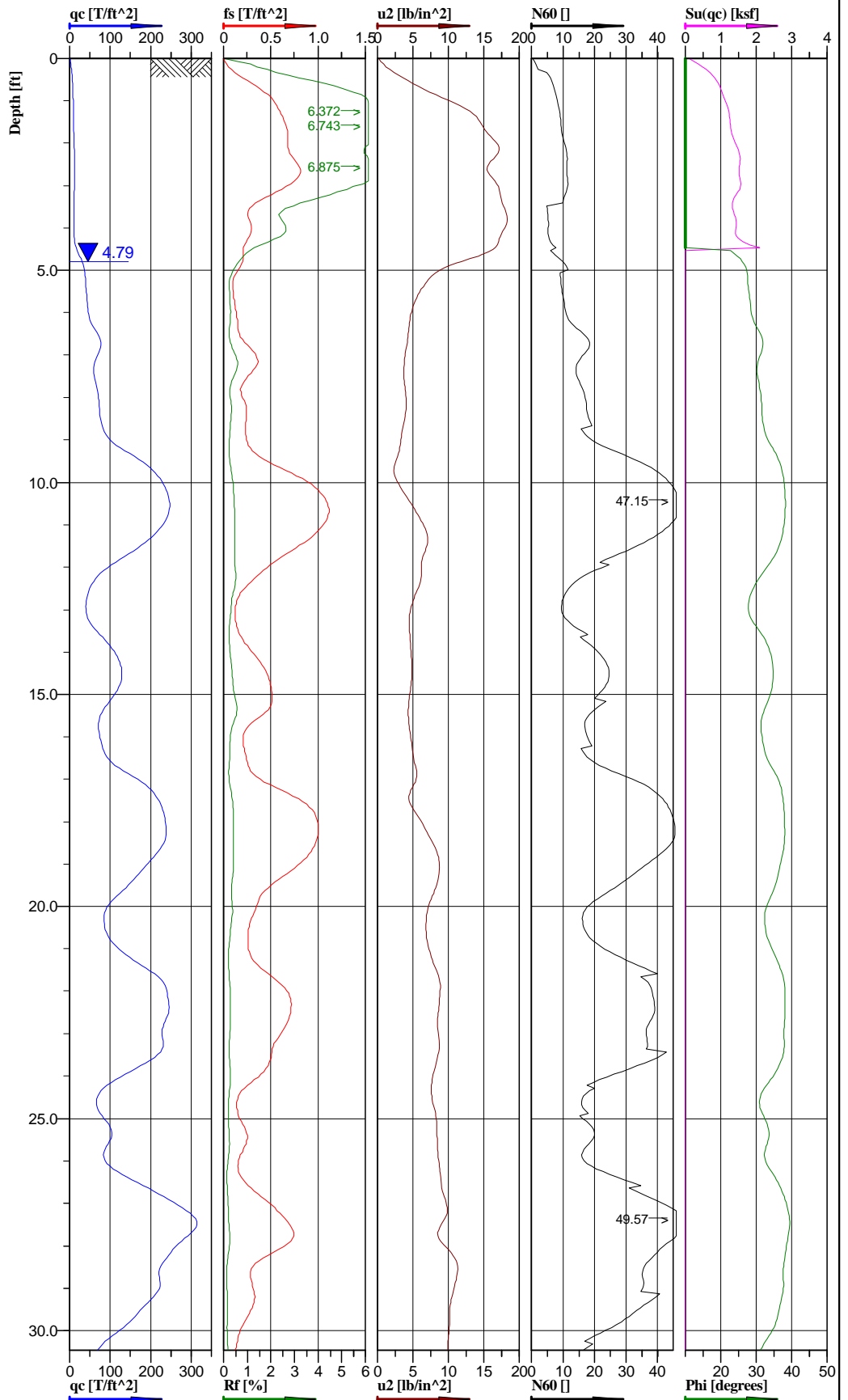
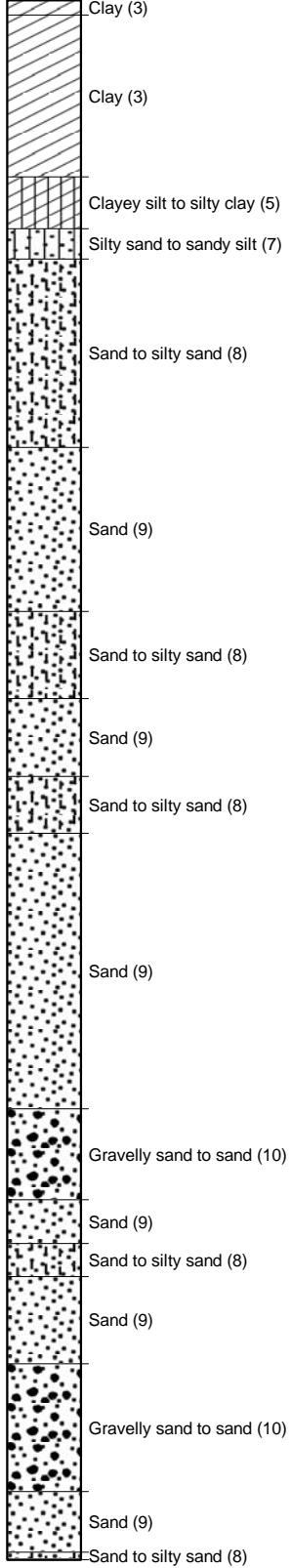
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730886.02 ft, Y: 991897.77 ft	Ground level: 462.30	Test no: C-163
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/28/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-75
		File: Labadie C-163.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-163
 Test date: 12/28/2009
 Location: Labadie MO
 File name: Labadie C-163.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.58	0.03	4.0868	Clay (3)	5.1	0.793	0.007	0.003			1.79	5.1	112	0.15	0.06	238
3.75	0.653	0.046	10.8925	Clay (3)	6.5	0.865	0.02	0.009			1.78	6.5	111	0.42	0.19	260
6.25	0.618	0.03	14.8491	Clay (3)	6.2	0.793	0.034	0.014			1.79	6.2	112	0.71	0.29	238
8.75	0.346	0.003	18.2008	Clay (3)	1.8	0.39	0.047	0.02			1.79	1.8	112	0.98	0.42	117
11.25	0.252	0.001	24.5399	Clay (3)	1.3	0.232	0.06	0.026			1.78	1.3	111	1.25	0.54	70
13.75	0.564	0.001	25.8676	Sand (9)	2.6	0.561	0.074	0.032	25.9	46	1.8	1.3	112	1.54	0.67	47
16.25	9.682	0.023	7.2586	Sand (9)	19.4		0.088	0.038	33.1	79	1.98	9.7	124	1.83	0.79	806
18.75	8.274	0.022	9.0487	Sand to silty sand (8)	18.6	0.022	0.102	0.045	32.5	73	1.96	11.9	122	2.12	0.94	688
21.25	6.274	0.019	8.436	Sand to silty sand (8)	15.7		0.117	0.052	30.8	63	1.94	10.0	121	2.43	1.08	522
23.75	4.216	0.024	12.2737	Silty sand to sandy silt (7)	11.2		0.131	0.059	27.5	55	1.9	7.2	119	2.72	1.23	351
26.25	18.909	0.056	16.2498	Sand (9)	35.0		0.146	0.066	36.4	91	2	17.5	125	3.04	1.37	1573
28.75	13.086	0.032	13.588	Sand (9)	26.1		0.161	0.073	35.0	79	1.99	13.1	124	3.35	1.52	1089
31.25	15.303	0.041	14.4439	Sand (9)	30.6		0.174	0.08	35.8	82	1.99	15.3	124	3.62	1.66	1273

Classification by Robertson 1986

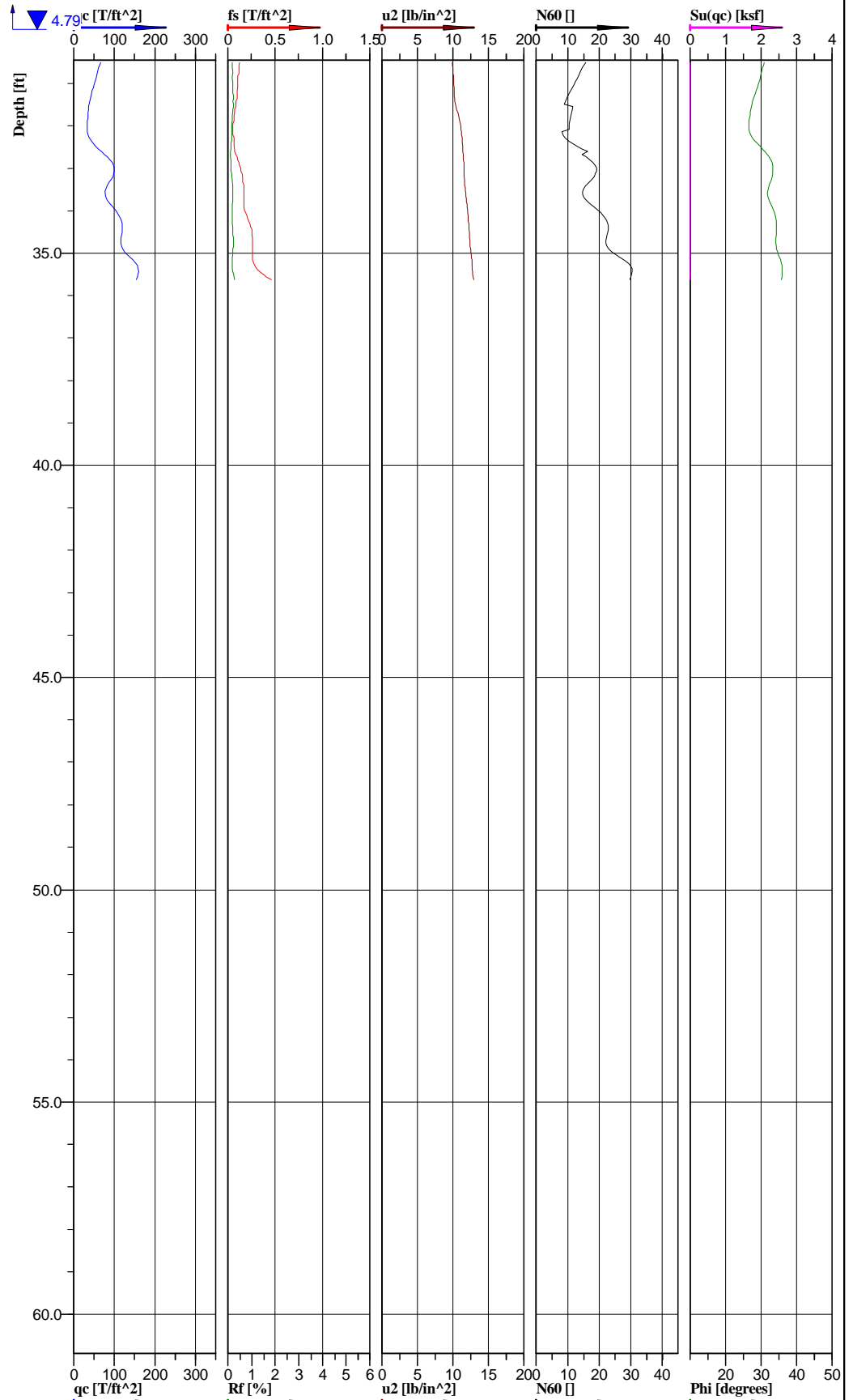
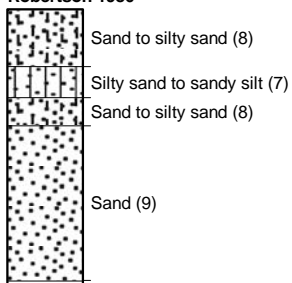


Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 728048.69 ft, Y: 991654.40 ft	Ground level: 464.21	Test no: C-166
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-76
File: Labadie C-166.cpd			

Classification by
Robertson 1986



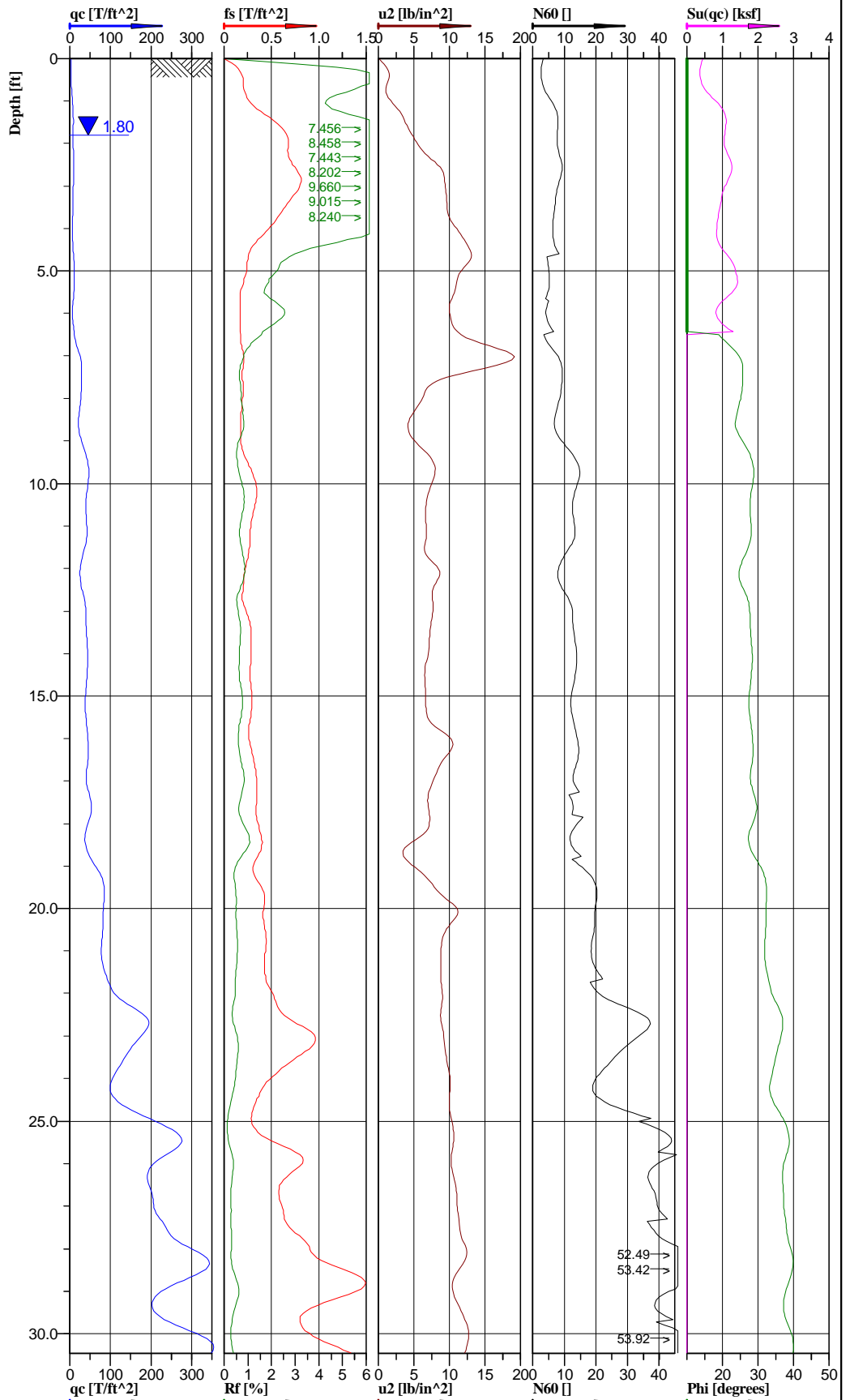
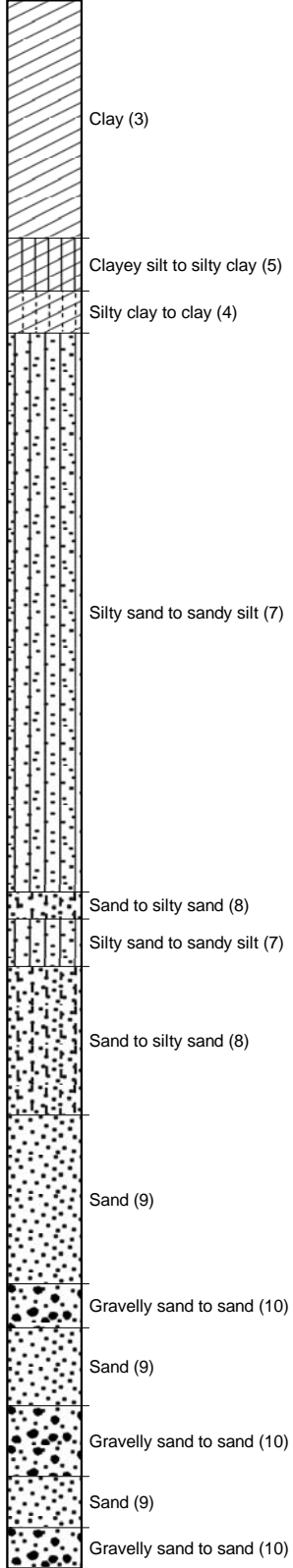
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728048.69 ft, Y: 991654.40 ft	Ground level: 464.21	Test no: C-166
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-76
		File: Labadie C-166.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-166
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-166.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.82	0.048	10.7847	Clay (3)	8.0	1.118	0.007	0.007			1.79	8.0	112	0.15	0.15	335
3.75	1.509	0.037	16.0009	Silty sand to sandy silt (7)	8.3	1.489	0.02	0.02	25.6	57	1.83	5.3	114	0.42	0.42	126
6.25	5.257	0.018	4.8843	Sand to silty sand (8)	13.1		0.035	0.03	29.6	65	1.94	8.4	121	0.73	0.62	437
8.75	11.248	0.034	3.3554	Sand (9)	24.1		0.049	0.037	33.6	82	1.96	12.0	122	1.02	0.77	936
11.25	16.684	0.075	5.7862	Sand to silty sand (8)	34.2		0.064	0.044	35.7	90	1.98	21.9	124	1.33	0.92	1388
13.75	8.249	0.027	4.7463	Sand (9)	17.5		0.078	0.051	31.8	68	1.97	8.8	123	1.62	1.06	686
16.25	11.172	0.037	4.782	Sand (9)	24.0		0.093	0.058	33.7	76	1.97	12.0	123	1.93	1.21	930
18.75	18.33	0.074	7.3716	Sand (9)	36.6		0.108	0.065	36.7	89	1.99	18.3	124	2.25	1.35	1525
21.25	15.618	0.042	7.8174	Gravelly sand to sand (10)	28.5		0.123	0.072	35.5	82	2	19.4	125	2.56	1.50	1299
23.75	15.313	0.039	8.1918	Sand (9)	28.8		0.138	0.08	35.2	79	2	14.4	125	2.87	1.66	1274
26.25	16.113	0.031	8.9066	Gravelly sand to sand (10)	29.0		0.153	0.087	35.5	79	2.01	19.7	125	3.18	1.81	1341
28.75	20.809	0.038	10.2303	Sand (9)	36.7		0.168	0.095	37.4	88	2.02	18.4	126	3.49	1.98	1731
31.25	5.078	0.009	10.459	Sand to silty sand (8)	12.8		0.183	0.102	29.1	49	1.93	8.2	120	3.81	2.12	422
33.75	9.539	0.017	11.9309	Sand (9)	19.2		0.197	0.109	33.2	64	1.98	9.6	124	4.10	2.27	794
36.25	14.495	0.031	12.7035	Sand (9)	29.0		0.206	0.113	35.6	76	1.99	14.5	124	4.28	2.35	1206

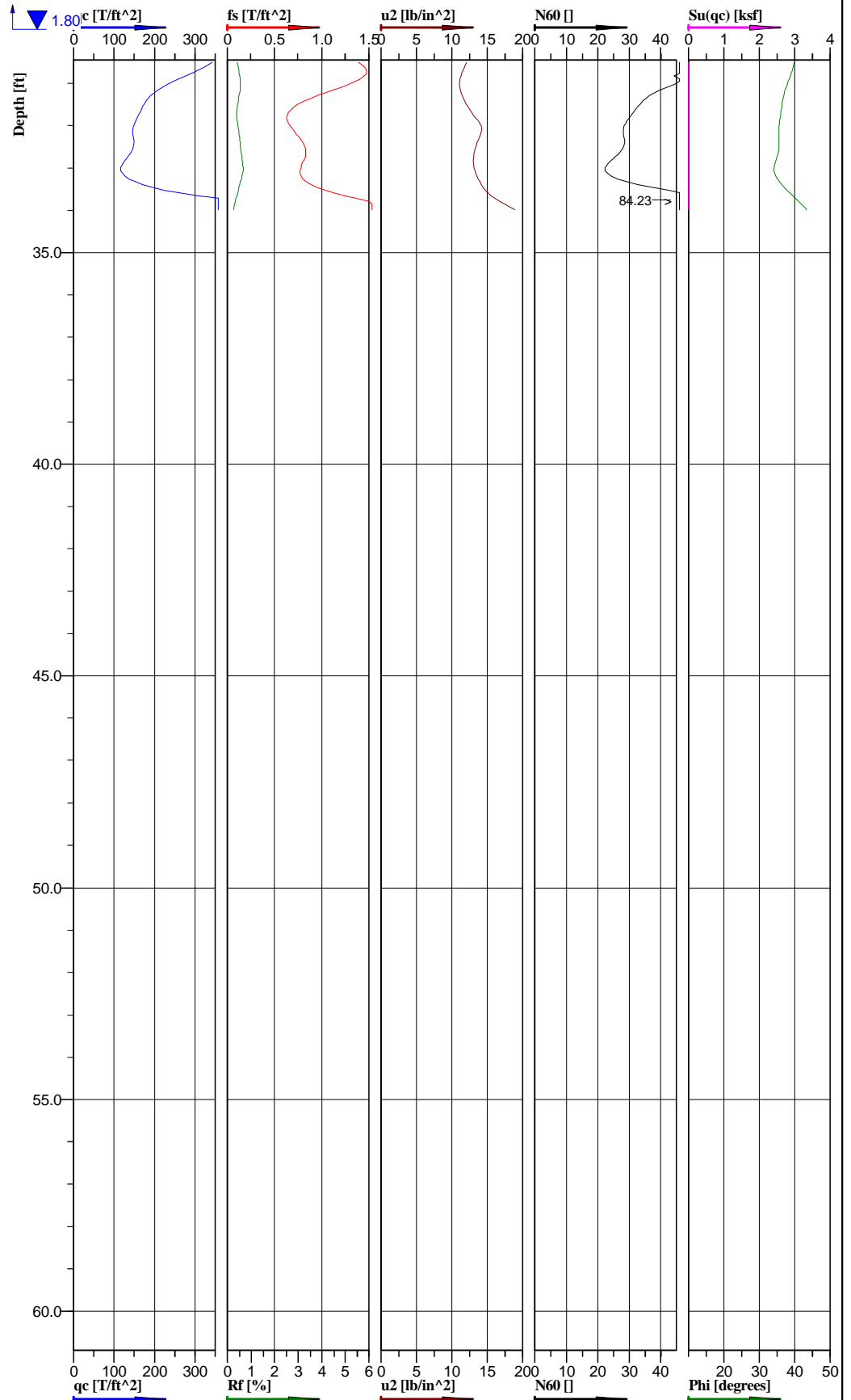
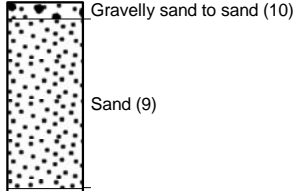
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 728804.07 ft, Y: 991635.63 ft	Ground level: 464.01	Test no: C-168
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-77
		File: Labadie C-168.cpd	

Classification by
Robertson 1986



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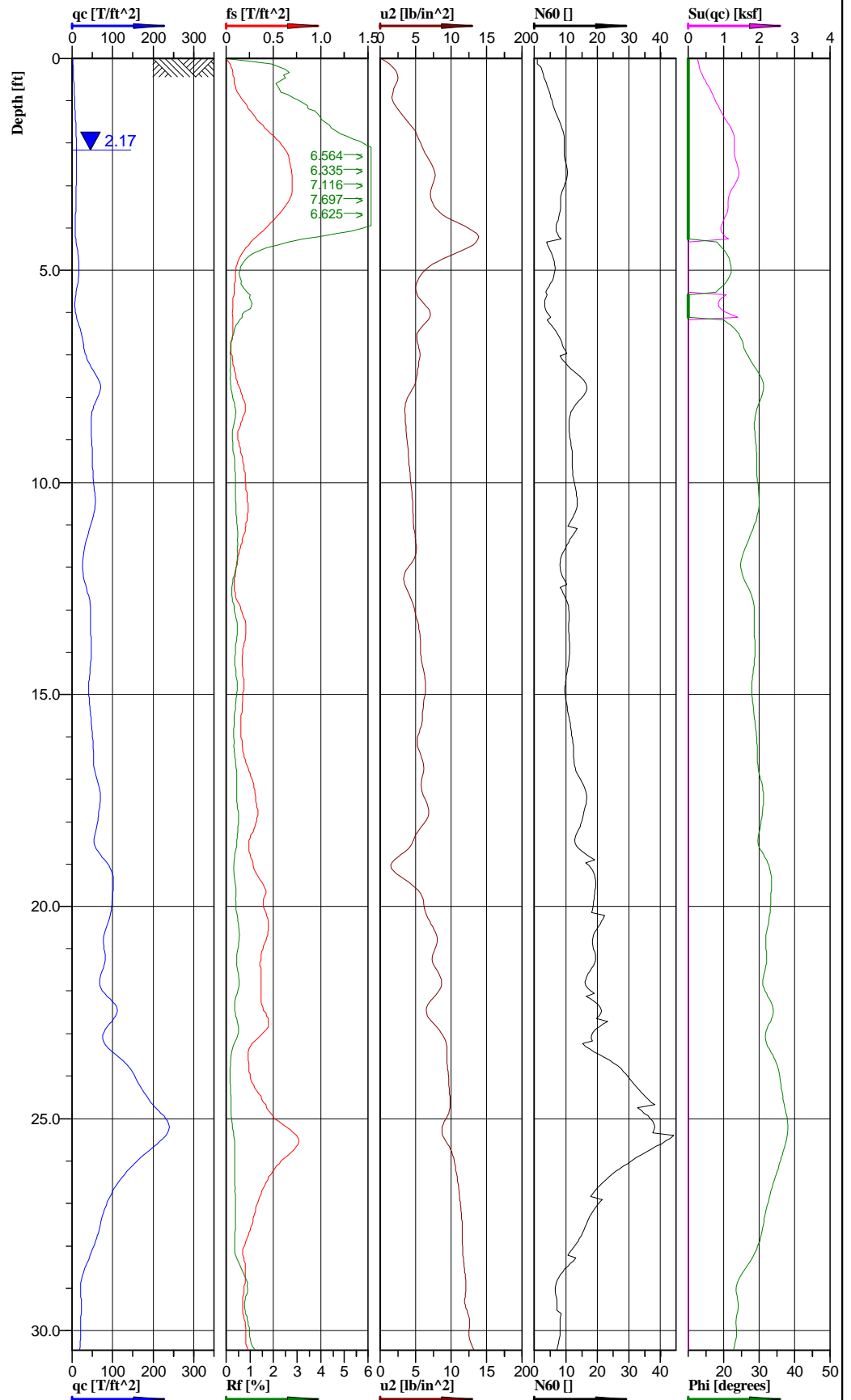
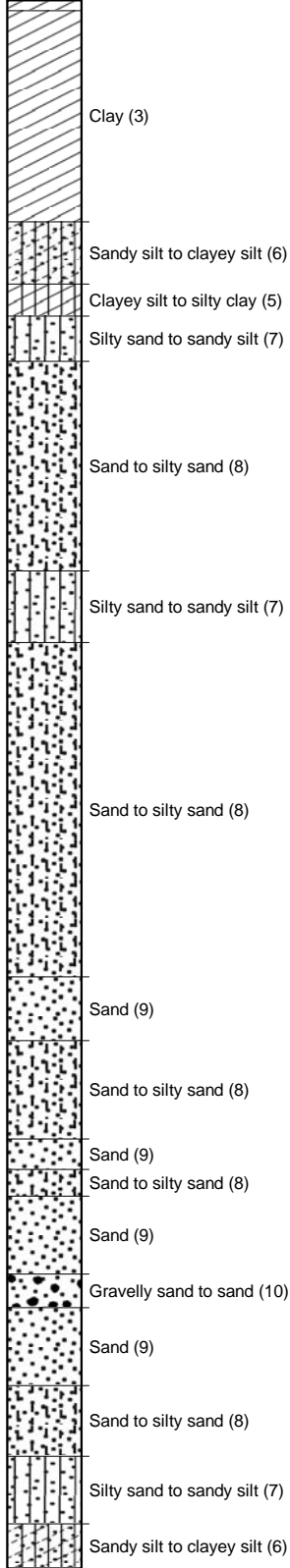
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728804.07 ft, Y: 991635.63 ft	Ground level: 464.01	Test no: C-168
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-77
		File: Labadie C-168.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-168
 Test date: 11/16/2009
 Location: Labadie MO
 File name: Labadie C-168.cpd

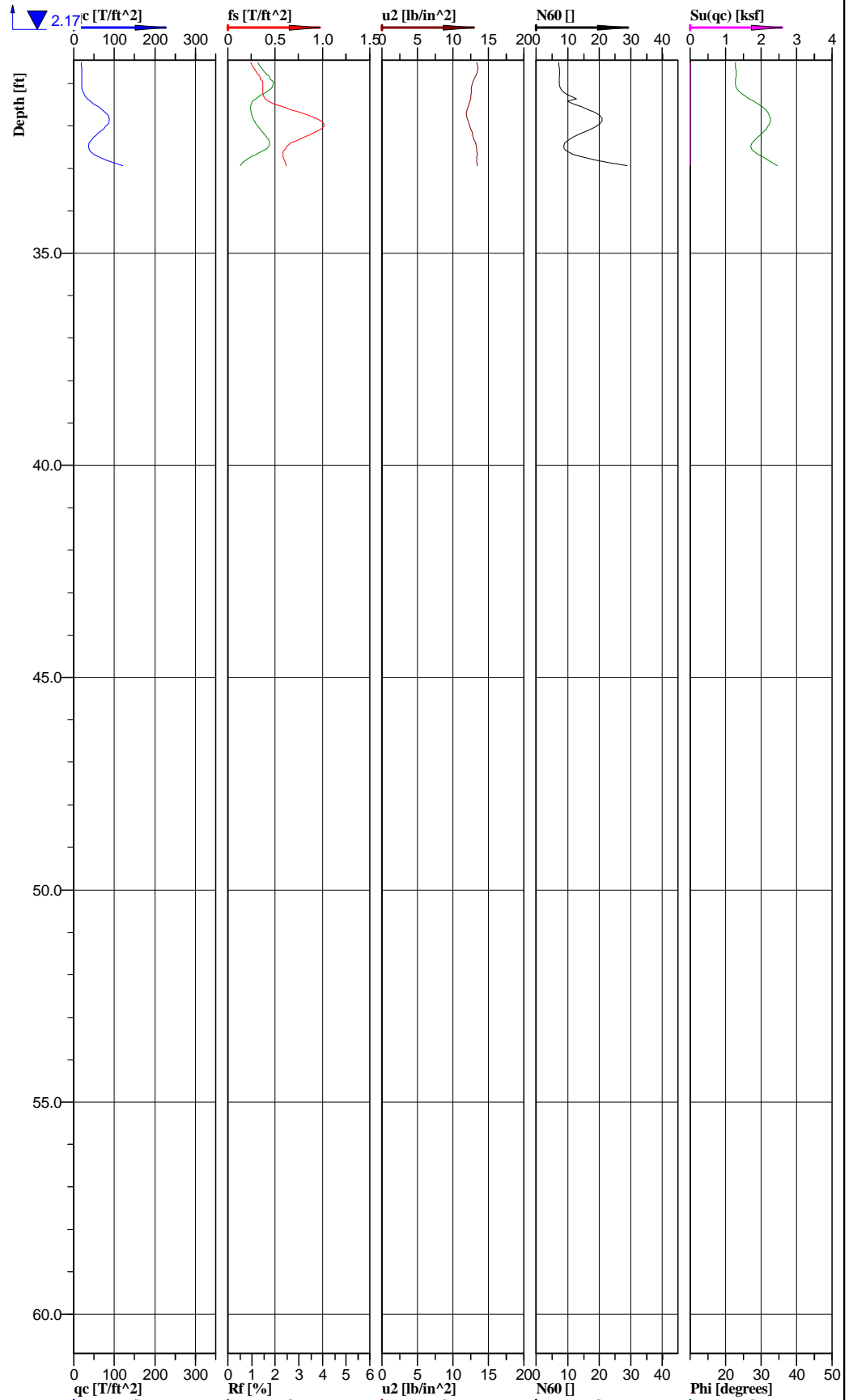
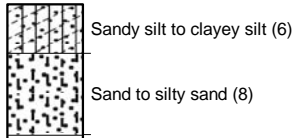
Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.616	0.04	3.4633	Clay (3)	6.2	0.844	0.006	0.006				1.73	6.2	108	0.12	0.12	253
3.75	0.779	0.05	10.7326	Clayey silt to silty clay (5)	6.9	1.042	0.02	0.014				1.8	6.9	112	0.42	0.29	625
6.25	1.443	0.018	12.4131	Silty sand to sandy silt (7)	6.0	1.129	0.033	0.02	23.7			1.85	3.8	115	0.69	0.42	120
8.75	3.083	0.021	6.2603	Silty sand to sandy silt (7)	10.3		0.047	0.026	26.1			1.89	6.6	118	0.98	0.54	257
11.25	3.416	0.026	7.1742	Silty sand to sandy silt (7)	11.4		0.062	0.033	26.9			1.89	7.3	118	1.29	0.69	284
13.75	3.863	0.025	7.0898	Silty sand to sandy silt (7)	12.9		0.076	0.039	27.8			1.89	8.2	118	1.58	0.81	321
16.25	4.109	0.029	8.1003	Sand to silty sand (8)	13.3		0.09	0.046	28.2	47	1.89	8.5	118	1.87	0.96	342	
18.75	5.768	0.035	6.7009	Sand to silty sand (8)	15.7		0.104	0.052	30.0	55	1.92	10.0	120	2.16	1.08	480	
21.25	9.358	0.044	9.2261	Sand (9)	21.3		0.118	0.059	33.0	62	1.95	10.7	122	2.45	1.23	779	
23.75	13.943	0.058	9.6511	Gravelly sand to sand (10)	27.7		0.133	0.066	35.3	72	1.99	18.8	124	2.77	1.37	1160	
26.25	21.372	0.058	10.7554	Gravelly sand to sand (10)	39.5		0.148	0.074	37.6	83	2.01	26.9	125	3.08	1.54	1778	
28.75	25.752	0.1	11.6279	Gravelly sand to sand (10)	45.7		0.163	0.081	38.5	87	2.02	31.0	126	3.39	1.68	2143	
31.25	21.709	0.095	12.4878	Sand (9)	39.9		0.178	0.088	37.4	79	2	19.9	125	3.70	1.83	1806	
33.75	23.179	0.099	14.5177	Sand (9)	46.3		0.19	0.094	37.0	76	2	23.2	125	3.95	1.96	1928	

Classification by Robertson 1986



Location: Labadie, MO	Position: X: 728805.71 ft, Y: 991644.98 ft	Ground level: 464.21	Test no: C-168A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-78
Confirmation sounding adjacent to C-168		File: Labadie C-168A.cpd	

Classification by
Robertson 1986



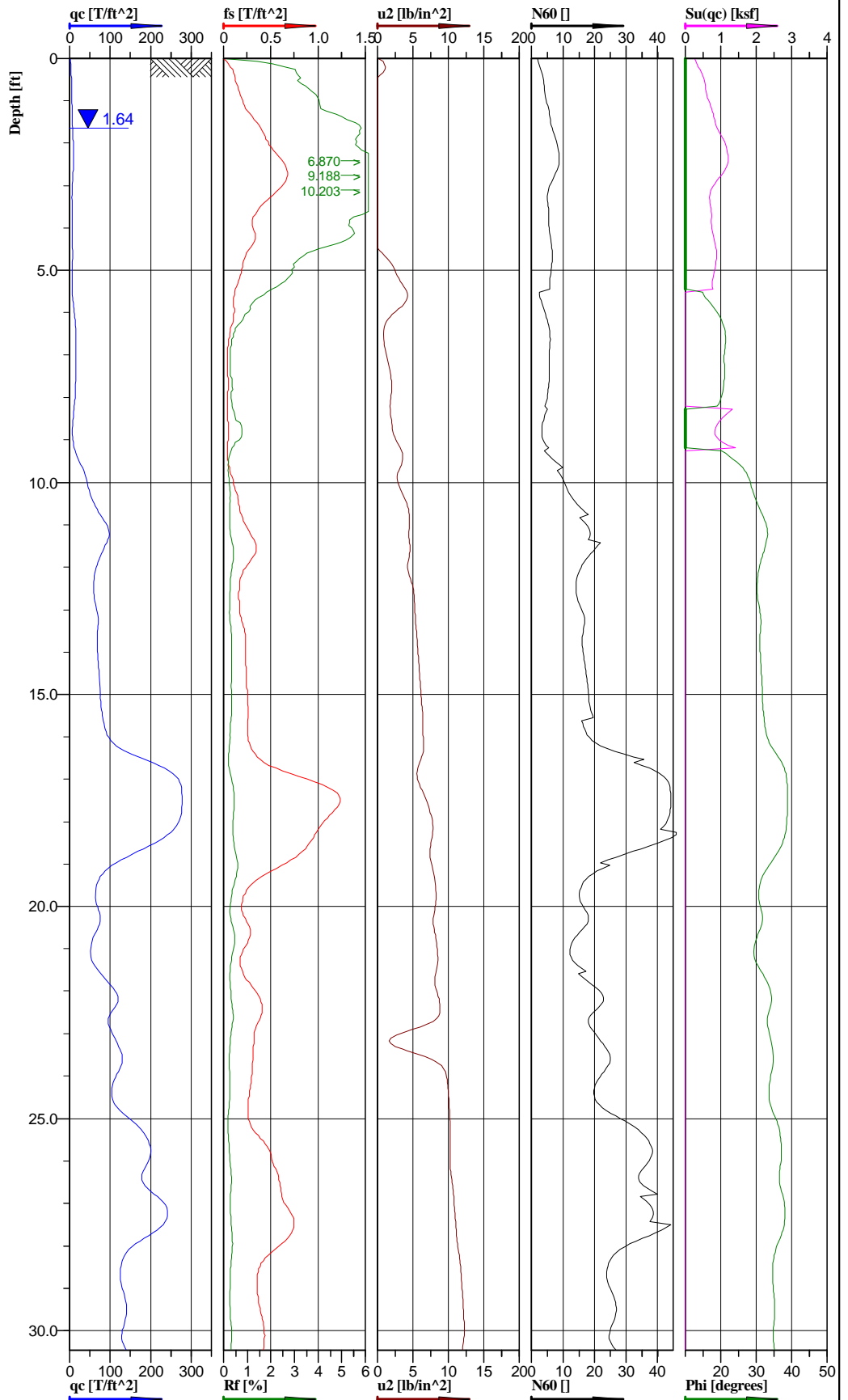
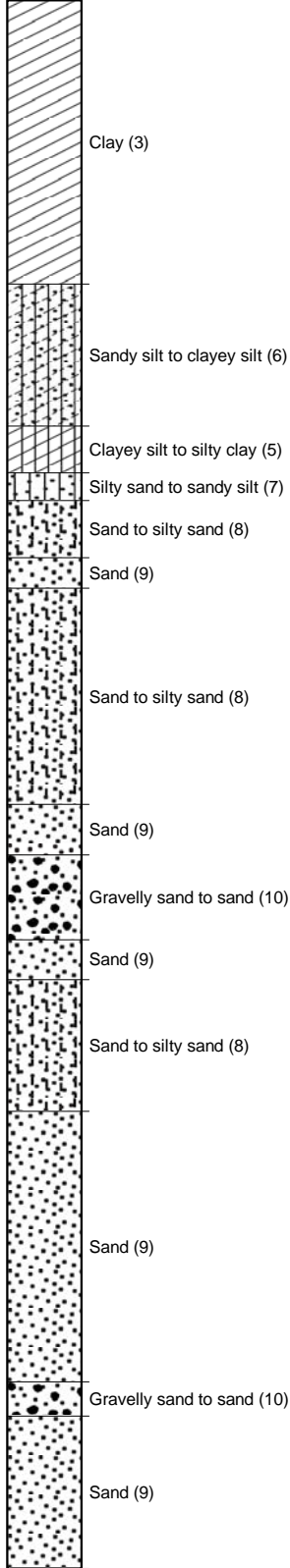
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150


Location: Labadie, MO	Position: X: 728805.71 ft, Y: 991644.98 ft	Ground level: 464.21	Test no: C-168A
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-78
Confirmation sounding adjacent to C-168		File: Labadie C-168A.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-168A
 Test date: 11/16/2009
 Location: Labadie MO
 File name: Labadie C-168A.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.656	0.03	3.6493	Clay (3)	6.5	0.899	0.007	0.007				1.78	6.5	111	0.15	0.15	270
3.75	1.029	0.043	9.2071	Sandy silt to clayey silt (6)	7.7	1.16	0.02	0.015	20.8			1.8	7.7	112	0.42	0.31	86
6.25	2.26	0.007	5.6476	Sand to silty sand (8)	7.1	1.015	0.034	0.021	24.5	65	1.86	4.6	116	0.71	0.44	188	
8.75	5.108	0.016	3.9856	Sand to silty sand (8)	12.8		0.048	0.028	29.5	66	1.94	8.2	121	1.00	0.58	425	
11.25	3.878	0.016	4.424	Sand to silty sand (8)	11.0		0.063	0.035	27.6	62	1.91	7.1	119	1.31	0.73	323	
13.75	4.224	0.016	5.5026	Sand to silty sand (8)	10.5		0.077	0.041	28.4	55	1.93	6.7	120	1.60	0.85	351	
16.25	5.106	0.02	5.8561	Sand to silty sand (8)	12.8		0.091	0.048	29.5	58	1.94	8.2	121	1.89	1.00	425	
18.75	7.495	0.031	4.7203	Sand (9)	16.7		0.106	0.055	31.7	66	1.96	8.3	122	2.20	1.14	624	
21.25	8.065	0.038	7.5188	Sand (9)	18.9		0.12	0.062	32.3	67	1.95	9.5	122	2.50	1.29	671	
23.75	13.339	0.033	9.1045	Gravelly sand to sand (10)	26.6		0.135	0.069	34.8	79	1.98	18.1	124	2.81	1.44	1110	
26.25	13.911	0.048	10.4364	Sand to silty sand (8)	27.7		0.15	0.077	34.9	78	1.99	17.7	124	3.12	1.60	1157	
28.75	3.255	0.019	11.9718	Sandy silt to clayey silt (6)	9.8		0.165	0.083	26.0	53	1.89	9.8	118	3.43	1.73	271	
31.25	3.817	0.049	12.7117	Sand to silty sand (8)	11.2		0.179	0.09	26.5	52	1.87	7.1	117	3.72	1.87	318	
33.75	6.623	0.057	13.4001	Sand to silty sand (8)	16.5		0.187	0.093	30.6	54	1.92	10.6	120	3.89	1.93	551	

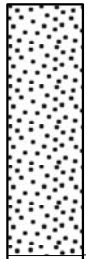
Classification by Robertson 1986



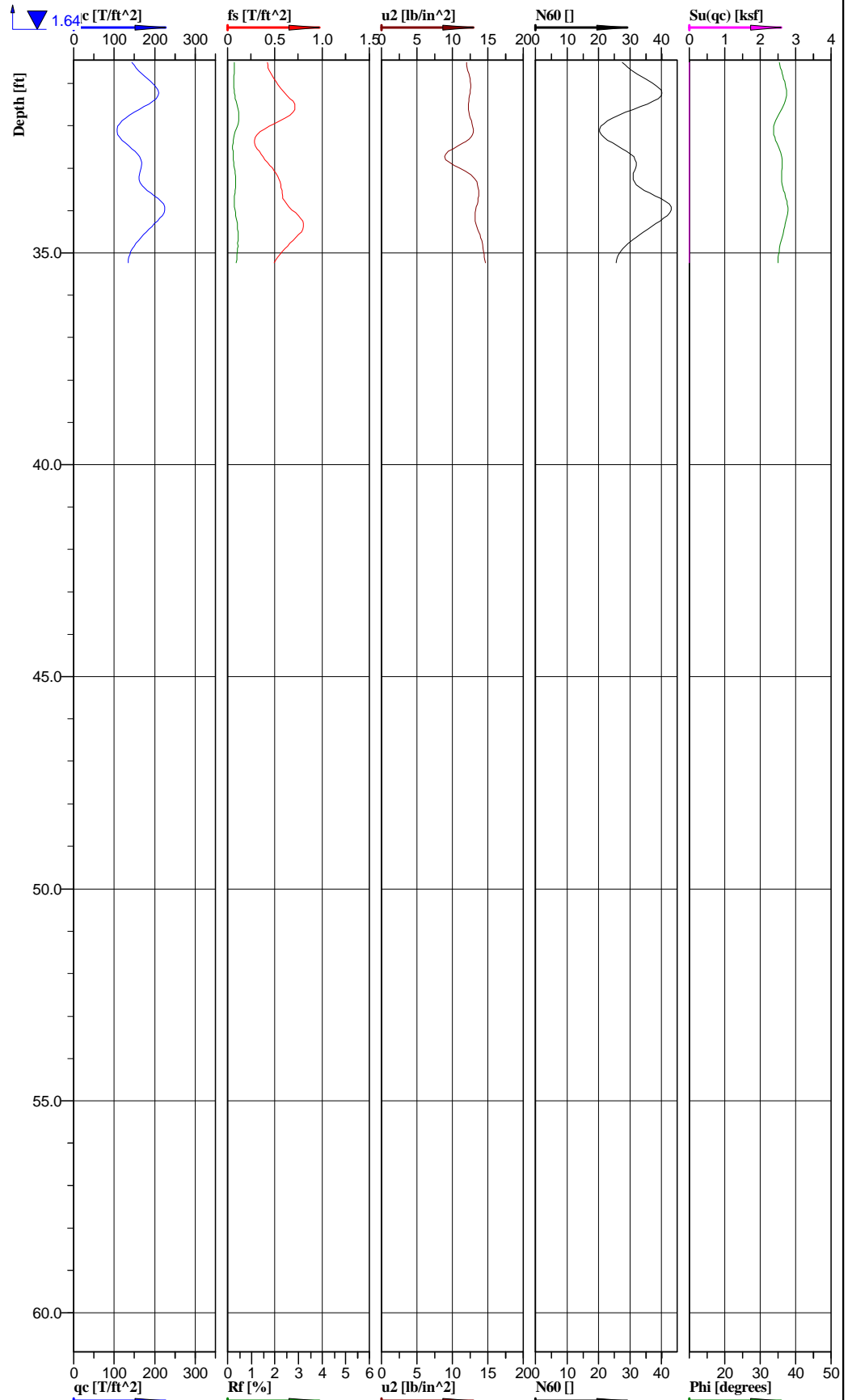

 Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729392.26 ft, Y: 991620.18 ft	Ground level: 464.01	Test no: C-170
Project ID: 2008012455	Client: Ameren Missouri	Date: 11/16/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-79
File: Labadie C-170.cpd			

Classification by
Robertson 1986



Sand (9)



Location:	Labadie, MO	Position:	X: 729392.26 ft, Y: 991620.18 ft	Ground level:	464.01	Test no:	C-170
Project ID:	2008012455	Client:	Ameren Missouri	Date:	11/16/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-79
				File:	Labadie C-170.cpd		



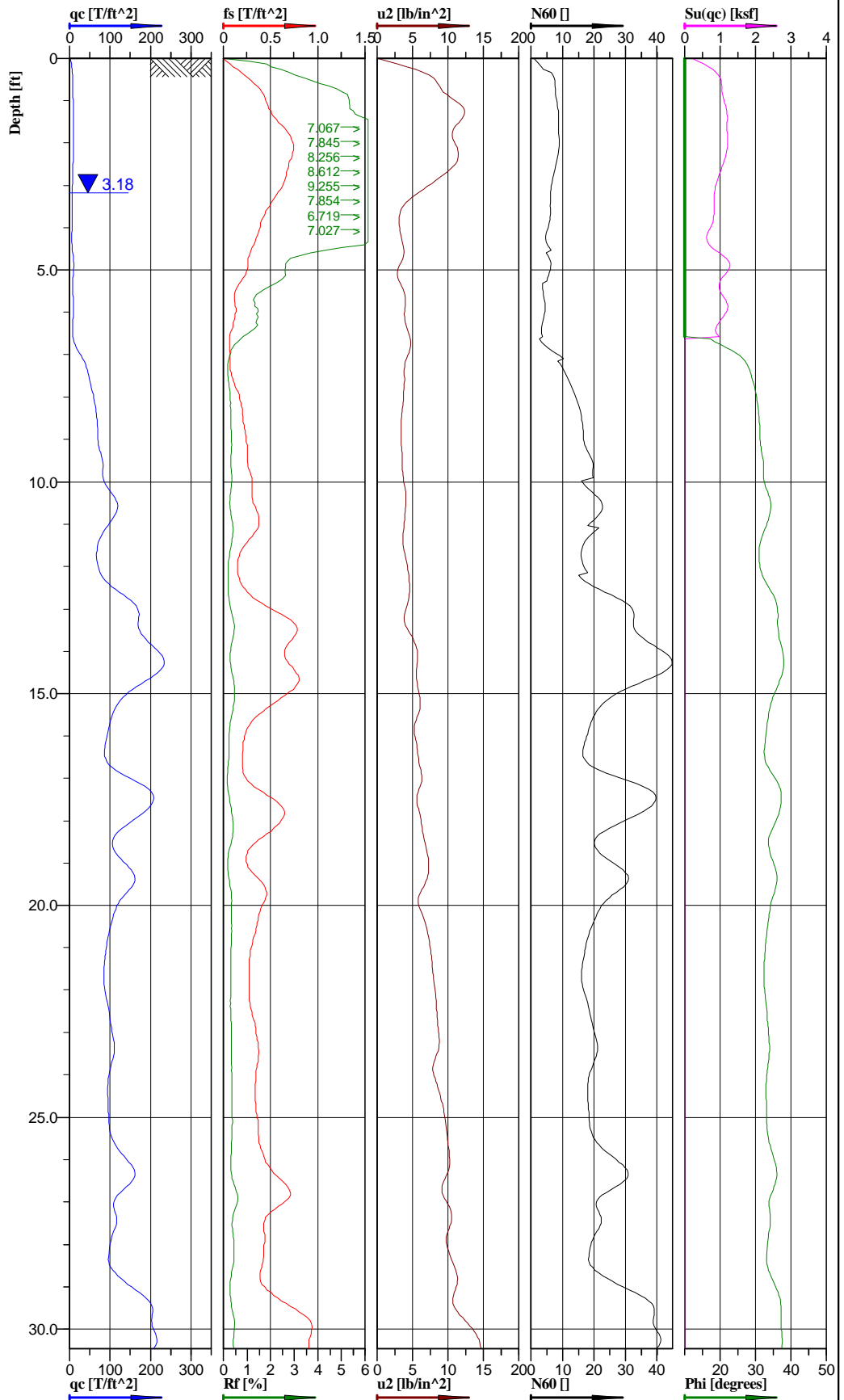
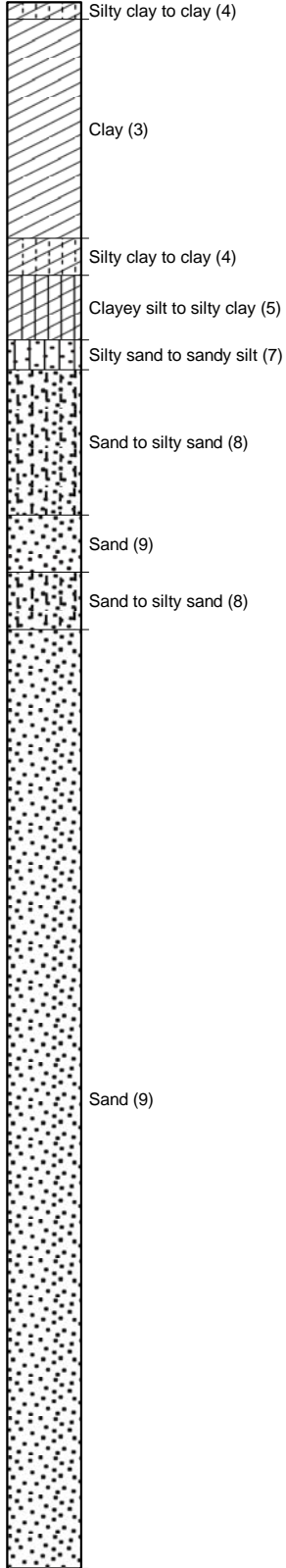
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-170
 Test date: 11/16/2009
 Location: Labadie MO
 File name: Labadie C-170.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.569	0.029	-1.3162	Clay (3)	5.7	0.785	0.007	0.006			1.78	5.7	111	0.15	0.12	236
3.75	0.608	0.038	-0.177	Clay (3)	6.1	0.819	0.02	0.013			1.73	6.1	108	0.42	0.27	246
6.25	1.127	0.008	2.1464	Sandy silt to clayey silt (6)	5.1	0.777	0.033	0.019	19.9		1.83	5.1	114	0.69	0.40	94
8.75	1.623	0.005	2.4609	Sand to silty sand (8)	5.7	1.038	0.047	0.025	23.0	58	1.84	3.6	115	0.98	0.52	135
11.25	6.816	0.021	4.3069	Sand to silty sand (8)	16.0		0.061	0.032	31.2	72	1.95	10.2	122	1.27	0.67	567
13.75	6.606	0.02	5.6104	Sand to silty sand (8)	16.5		0.076	0.039	31.2	69	1.94	10.6	121	1.58	0.81	550
16.25	15.512	0.05	6.2242	Gravelly sand to sand (10)	28.7		0.09	0.046	35.2	87	1.99	19.5	124	1.87	0.96	1291
18.75	15.705	0.068	7.7493	Sand to silty sand (8)	30.4		0.105	0.053	35.1	84	1.99	19.4	124	2.18	1.10	1307
21.25	7.595	0.025	8.3022	Sand (9)	17.0		0.12	0.06	31.7	65	1.96	8.5	122	2.50	1.25	632
23.75	10.956	0.029	7.7263	Sand (9)	21.9		0.135	0.067	34.1	75	1.99	11.0	124	2.81	1.39	912
26.25	19.181	0.052	10.5154	Sand (9)	36.5		0.15	0.074	37.1	90	2	18.2	125	3.12	1.54	1596
28.75	13.877	0.043	11.7654	Sand (9)	27.7		0.165	0.082	35.3	79	1.99	13.9	124	3.43	1.71	1155
31.25	14.526	0.047	12.2629	Sand (9)	29.0		0.179	0.089	35.5	79	1.99	14.5	124	3.72	1.85	1209
33.75	17.059	0.057	12.7429	Sand (9)	34.1		0.194	0.096	36.5	83	1.99	17.0	124	4.04	2.00	1419
36.25	13.006	0.05	14.5471	Sand (9)	26.0		0.202	0.1	35.0	75	1.99	13.0	124	4.20	2.08	1082

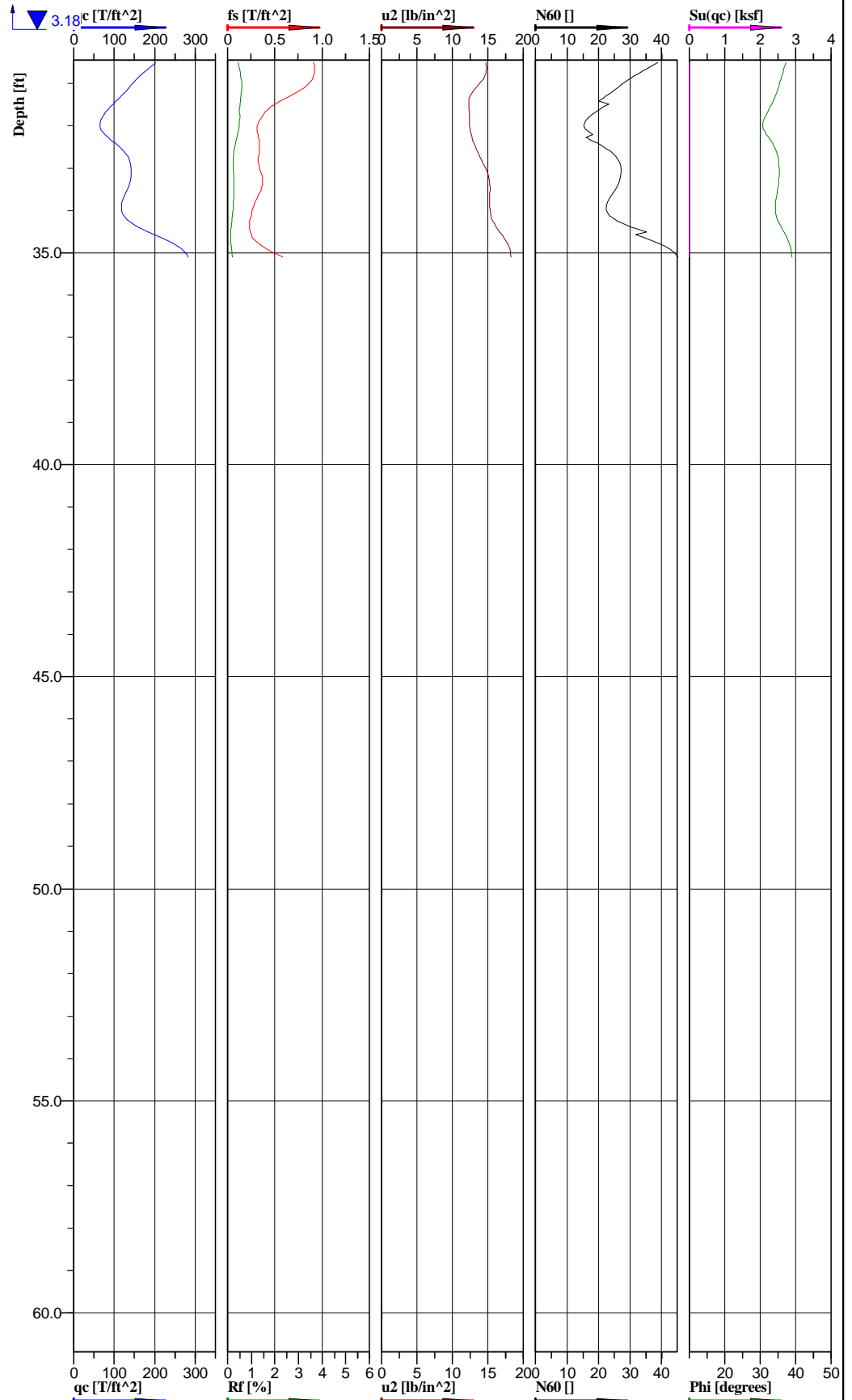
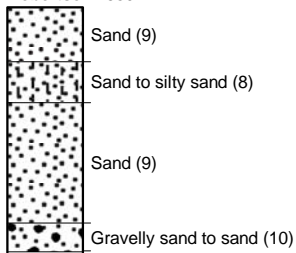
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729981.27 ft, Y: 991596.82 ft	Ground level: 463.19	Test no: C-172
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-80
File: Labadie C-172.cpd			

Classification by Robertson 1986



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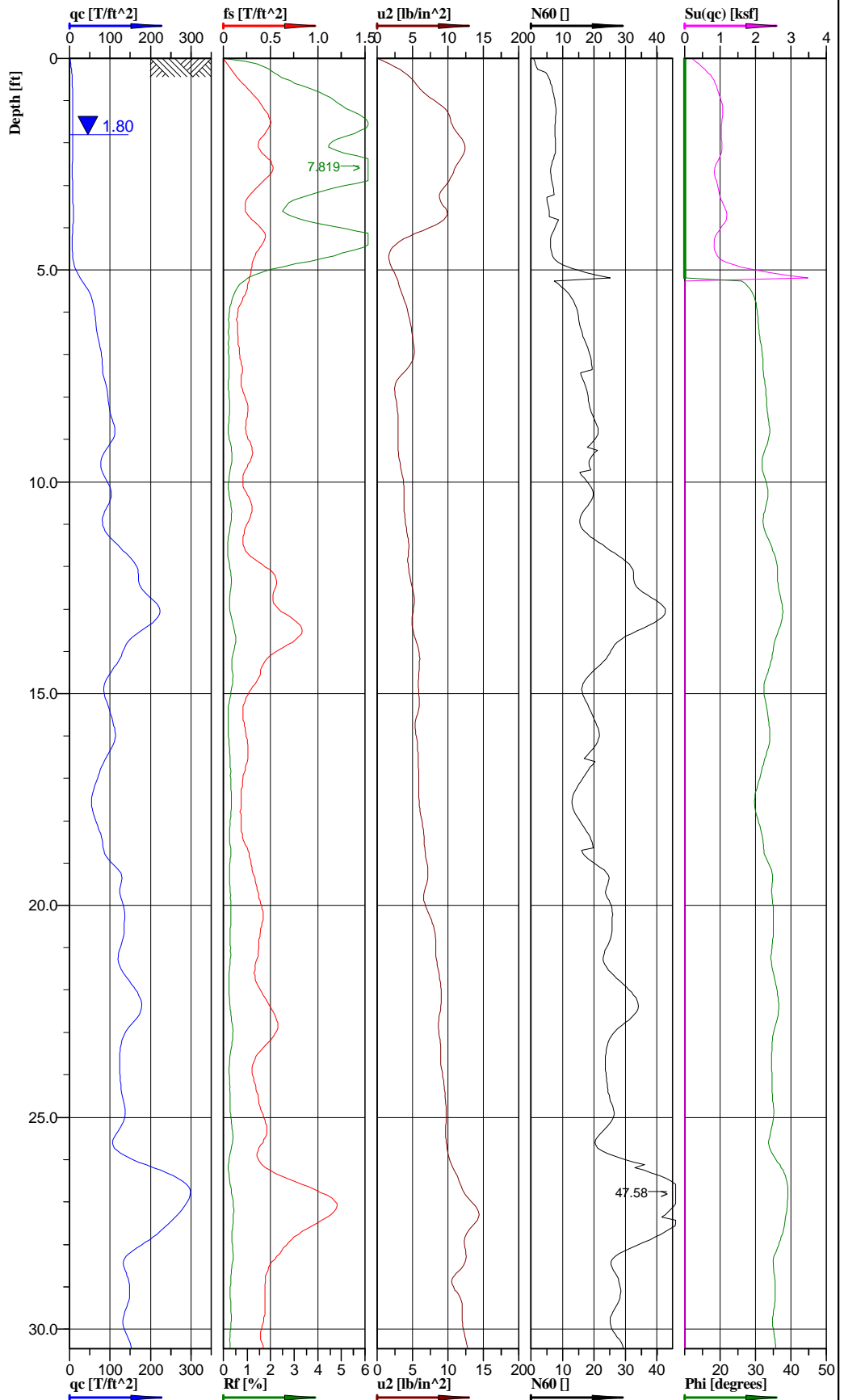
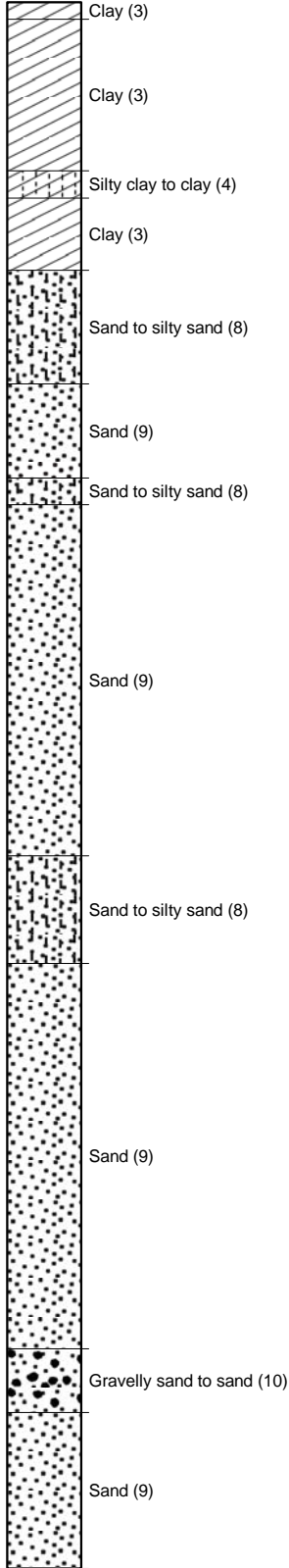
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729981.27 ft, Y: 991596.82 ft	Ground level: 463.19	Test no: C-172
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-80
		File: Labadie C-172.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-172
 Test date: 12/23/2009
 Location: Labadie MO
 File name: Labadie C-172.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.771	0.047	9.5776	Clay (3)	7.6	1.051	0.007	0.007			1.79	7.6	112	0.15	0.15	315
3.75	0.666	0.042	4.795	Silty clay to clay (4)	6.1	0.892	0.02	0.018			1.79	6.1	112	0.42	0.37	446
6.25	1.597	0.011	3.9414	Sand to silty sand (8)	5.7	1.048	0.034	0.024	25.0	60	1.85	3.6	115	0.71	0.50	133
8.75	6.648	0.021	3.554	Sand (9)	16.4		0.048	0.031	31.1	72	1.94	8.2	121	1.00	0.64	553
11.25	8.607	0.025	4.0143	Sand (9)	18.7		0.063	0.038	32.6	76	1.97	9.4	123	1.31	0.79	716
13.75	17.424	0.061	4.9821	Sand (9)	34.8		0.077	0.045	36.5	94	2	17.4	125	1.60	0.94	1450
16.25	11.784	0.031	5.7907	Sand (9)	23.6		0.092	0.052	34.2	80	1.99	11.8	124	1.91	1.08	980
18.75	13.728	0.041	6.4871	Sand (9)	27.4		0.107	0.06	35.2	83	1.99	13.7	124	2.23	1.25	1142
21.25	8.99	0.029	7.5374	Sand (9)	18.0		0.122	0.067	32.9	70	1.98	9.0	124	2.54	1.39	748
23.75	9.634	0.033	8.6078	Sand (9)	19.3		0.137	0.074	33.4	70	1.99	9.6	124	2.85	1.54	802
26.25	11.782	0.047	9.9064	Sand (9)	23.5		0.152	0.081	34.4	74	1.99	11.8	124	3.16	1.68	980
28.75	13.945	0.053	10.9888	Sand (9)	27.9		0.167	0.089	35.1	77	1.99	13.9	124	3.47	1.85	1160
31.25	12.716	0.061	13.3604	Sand (9)	26.5		0.181	0.096	34.4	72	1.97	13.3	123	3.76	2.00	1058
33.75	15.106	0.03	15.6243	Gravelly sand to sand (10)	28.6		0.196	0.103	35.6	77	2	19.4	125	4.08	2.14	1257
36.25	26.928	0.053	18.2337	Gravelly sand to sand (10)	44.9		0.204	0.107	38.9	94	2.04	30.5	127	4.24	2.23	2240

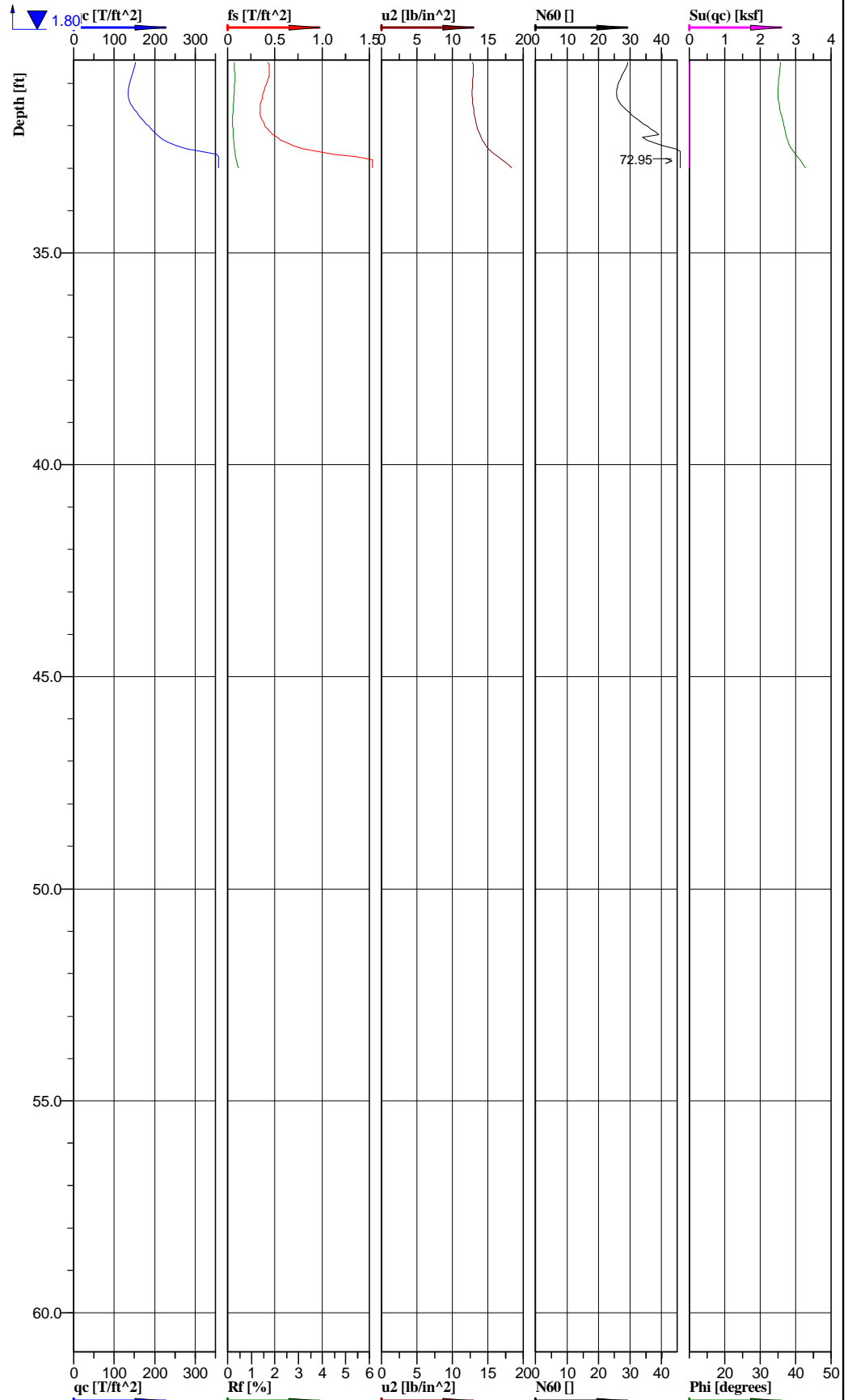
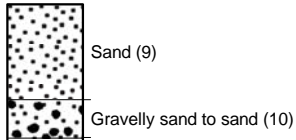
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730570.70 ft, Y: 991581.46 ft	Ground level: 463.48	Test no: C-174
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-81
		File: Labadie C-174.cpd	

Classification by
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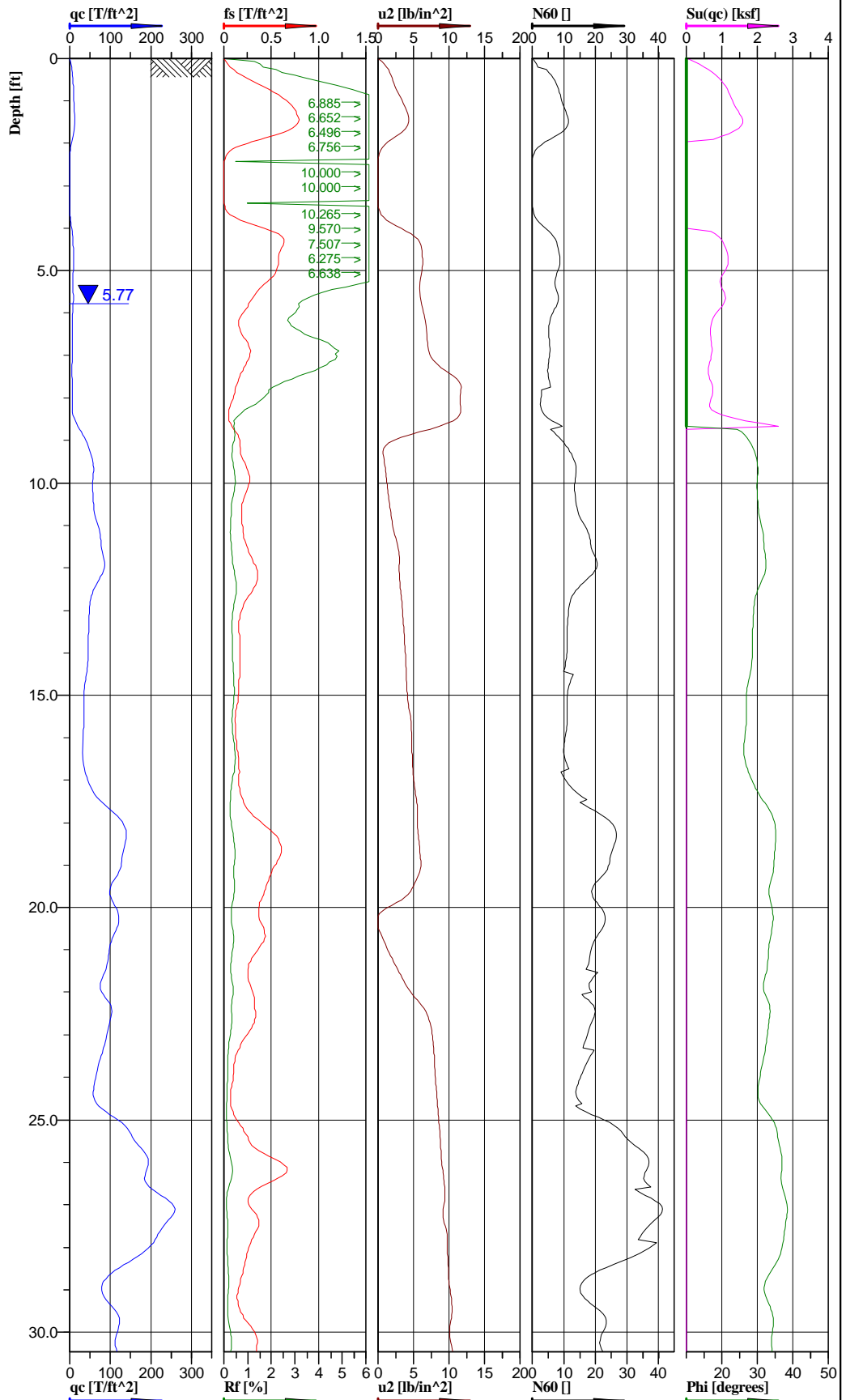
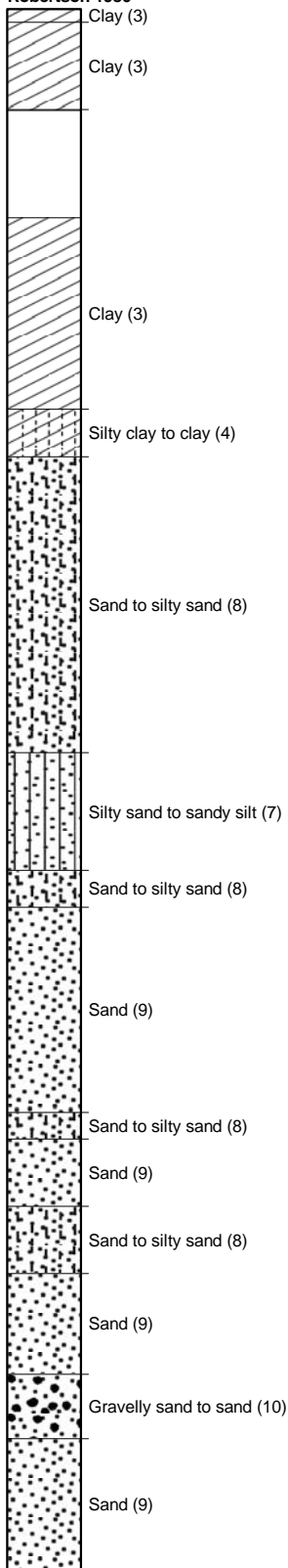
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730570.70 ft, Y: 991581.46 ft	Ground level: 463.48	Test no: C-174
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-81
		File: Labadie C-174.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-174
 Test date: 12/23/2009
 Location: Labadie MO
 File name: Labadie C-174.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.664	0.032	8.4343	Clay (3)	6.5	0.903	0.007	0.006			1.79	6.5	112	0.15	0.12	271
3.75	0.785	0.034	6.776	Clay (3)	7.3	1.055	0.02	0.014			1.8	7.3	112	0.42	0.29	317
6.25	5.967	0.018	4.1834	Sand (9)	15.8	2.915	0.034	0.021	30.7	75	1.93	7.9	120	0.71	0.44	496
8.75	9.003	0.023	2.9855	Sand (9)	18.8		0.049	0.028	32.9	82	1.98	9.4	124	1.02	0.58	749
11.25	11.636	0.031	4.2191	Sand (9)	23.3		0.064	0.035	34.2	85	1.98	11.6	124	1.33	0.73	968
13.75	14.535	0.053	5.4866	Sand (9)	29.1		0.078	0.042	35.3	89	1.98	14.5	124	1.62	0.87	1209
16.25	8.462	0.022	5.7383	Sand to silty sand (8)	18.2		0.093	0.049	32.5	72	1.97	11.6	123	1.93	1.02	704
18.75	9.047	0.026	6.6269	Sand (9)	19.6		0.108	0.056	32.7	71	1.96	9.8	122	2.25	1.16	753
21.25	13.608	0.038	8.3643	Sand (9)	27.2		0.122	0.063	35.2	82	1.99	13.6	124	2.54	1.31	1132
23.75	12.901	0.04	9.1547	Sand (9)	25.8		0.137	0.07	35.0	79	1.99	12.9	124	2.85	1.46	1073
26.25	19.774	0.067	11.4296	Sand (9)	35.4		0.152	0.078	36.9	88	2.01	17.7	125	3.16	1.62	1645
28.75	14.872	0.051	11.9651	Sand (9)	29.7		0.168	0.085	35.7	80	1.99	14.9	124	3.49	1.77	1237
31.25	15.708	0.041	13.1299	Gravelly sand to sand (10)	30.4		0.182	0.092	36.0	81	1.99	20.7	124	3.79	1.91	1307
33.75	42.433	0.16	16.7131	Gravelly sand to sand (10)	70.7		0.191	0.097	40.8	108	2.04	48.1	127	3.97	2.02	3530

Classification by Robertson 1986



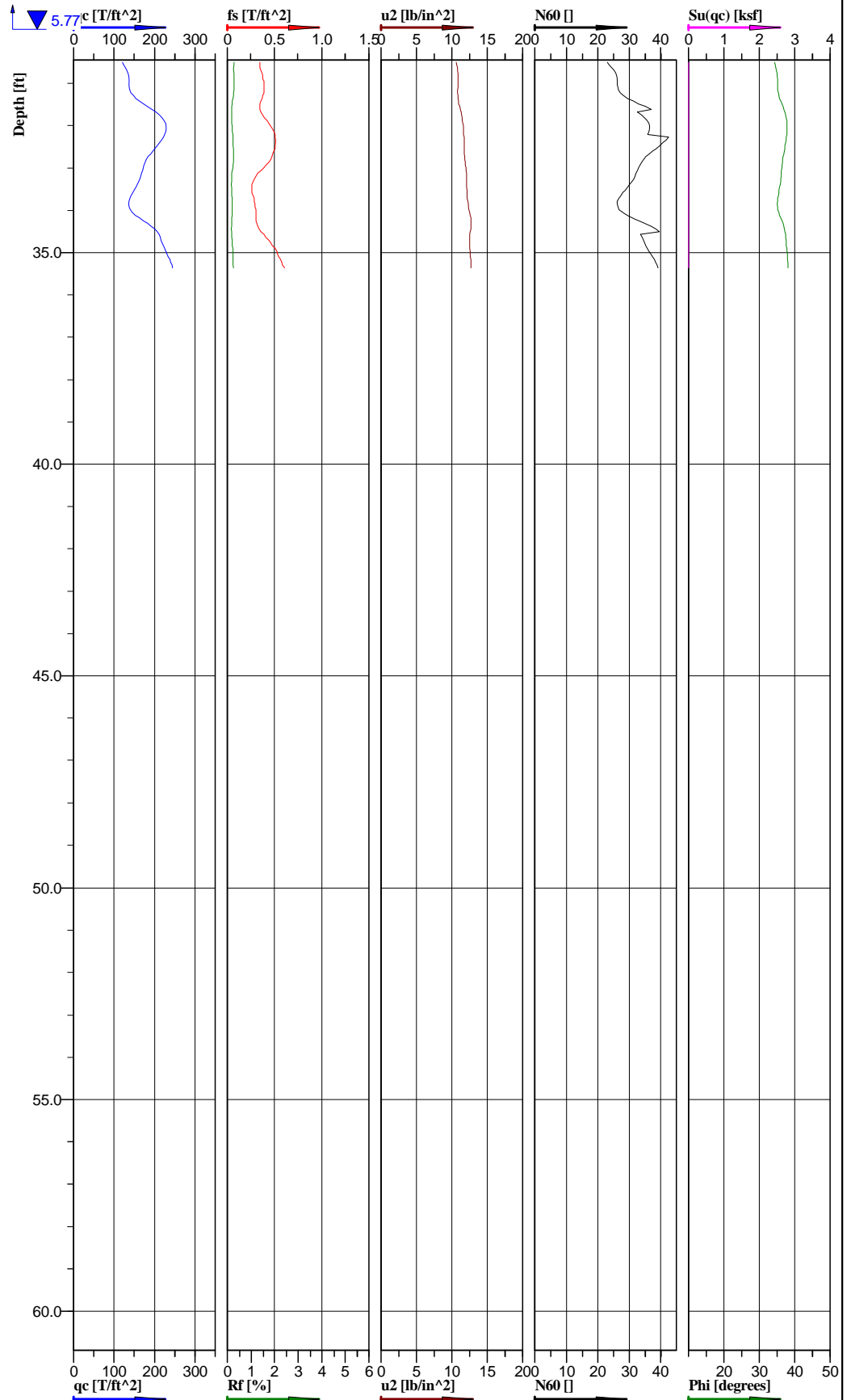
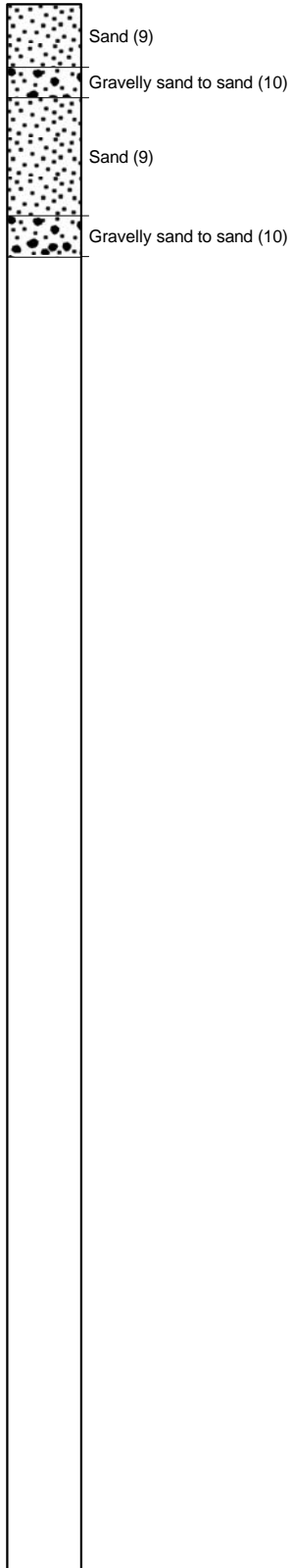
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Cone No: 0
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728334.65 ft, Y: 991342.29 ft	Ground level: 463.91	Test no: C-178
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-82
File: Labadie C-178 combin.d.cpd			

Classification by
Robertson 1986



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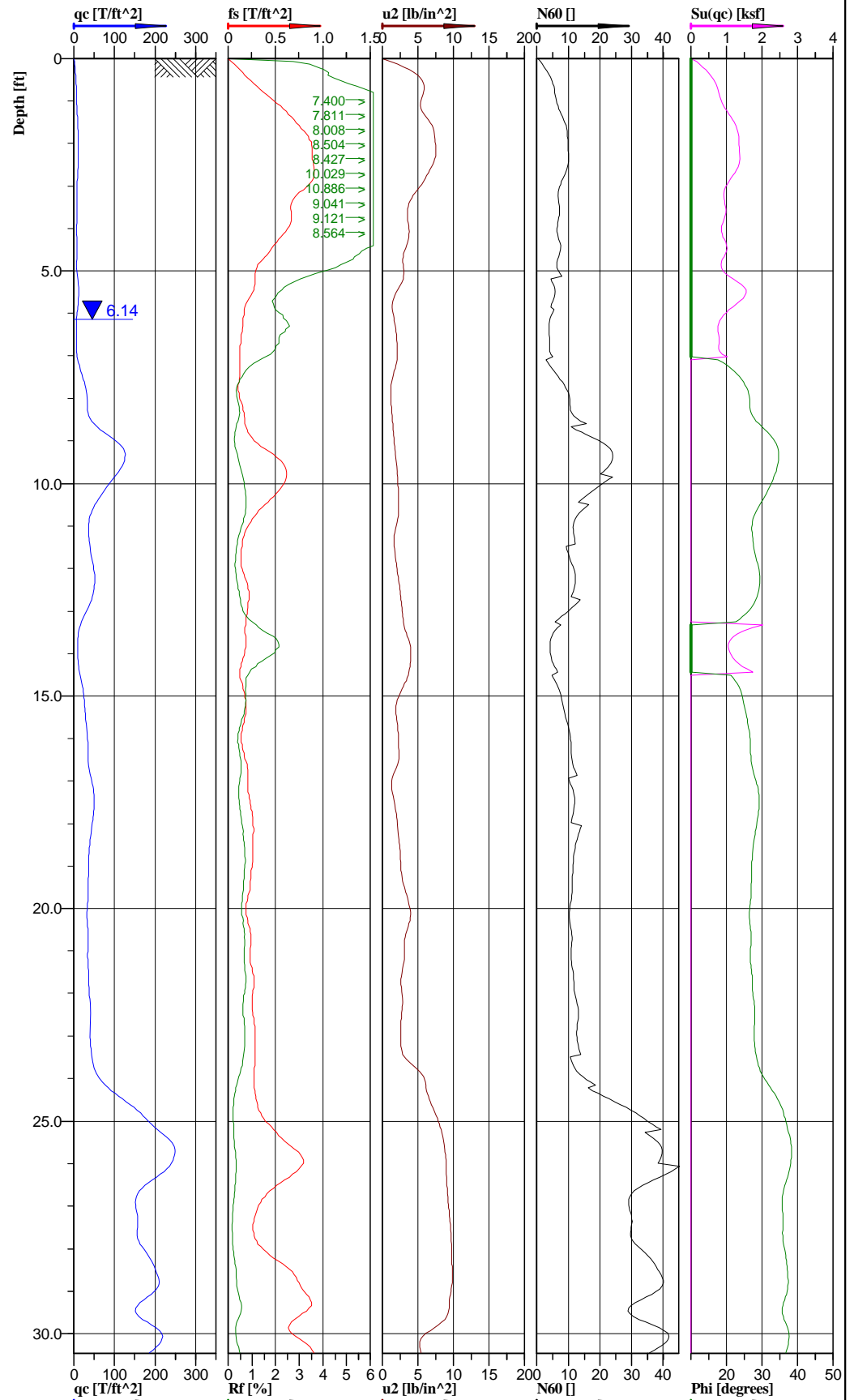
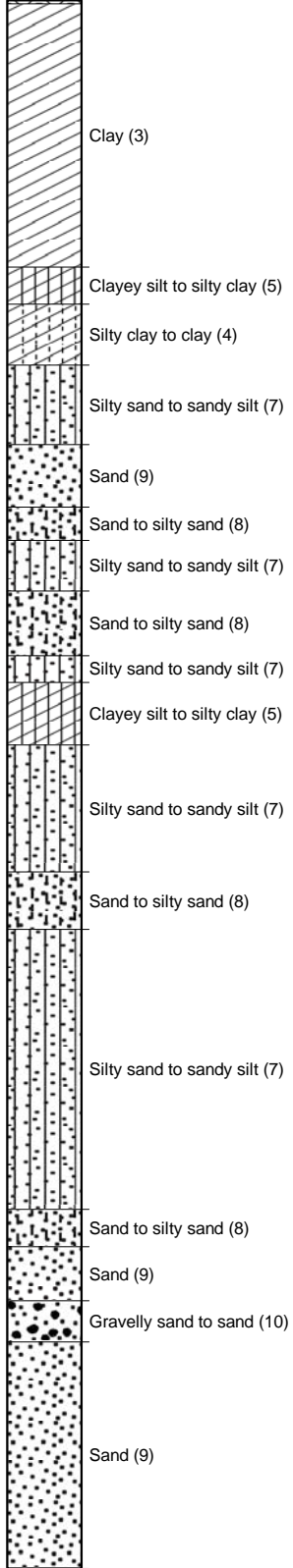
Cone No: 0
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728334.65 ft, Y: 991342.29 ft	Ground level: 463.91	Test no: C-178
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/09	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-82
File: Labadie C-178 combind.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-178
 Test date: 12/22/09
 Location: Labadie MO
 File name: Labadie C-178 combin.dcpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.617	0.036	2.1464	NO SAMPLING												
3.75	0.357	0.026	2.6647	NO SAMPLING												
6.25	0.621	0.026	7.0585	Clay (3)	6.2	0.812	0.031	0.029			1.79	6.2	112	0.64	0.60	244
8.75	2.856	0.014	6.1759	Sand to silty sand (8)	8.3	0.992	0.044	0.035	28.8	59	1.88	5.3	117	0.92	0.73	238
11.25	6.685	0.024	2.3587	Sand to silty sand (8)	16.7		0.058	0.042	31.2	68	1.94	10.7	121	1.21	0.87	556
13.75	4.302	0.017	3.7101	Silty sand to sandy silt (7)	11.4		0.073	0.049	28.5	55	1.93	7.3	120	1.52	1.02	358
16.25	3.822	0.014	4.7857	Sand to silty sand (8)	11.3		0.087	0.055	27.5	55	1.9	7.2	119	1.81	1.14	318
18.75	11.318	0.043	5.1724	Sand (9)	22.6		0.102	0.062	34.2	77	1.99	11.3	124	2.12	1.29	942
21.25	9.426	0.032	2.5546	Sand (9)	19.6		0.116	0.069	33.2	70	1.98	9.8	124	2.41	1.44	784
23.75	7.649	0.015	7.9367	Sand (9)	16.9		0.131	0.076	31.9	63	1.96	8.5	122	2.72	1.58	636
26.25	18.875	0.035	9.0661	Gravelly sand to sand (10)	34.9		0.146	0.084	36.9	87	2.01	23.7	125	3.04	1.75	1570
28.75	12.826	0.022	10.0061	Sand (9)	24.7		0.161	0.091	34.6	74	1.99	12.4	124	3.35	1.89	1067
31.25	15.899	0.038	11.0096	Sand (9)	30.1		0.176	0.098	35.9	80	2	15.1	125	3.66	2.04	1323
33.75	17.002	0.035	12.2614	Gravelly sand to sand (10)	32.5		0.191	0.106	36.4	81	2	22.1	125	3.97	2.20	1415
36.25	22.87	0.054	12.6319	Gravelly sand to sand (10)	38.1		0.199	0.11	38.0	89	2.04	25.9	127	4.14	2.29	1903

Classification by Robertson 1986

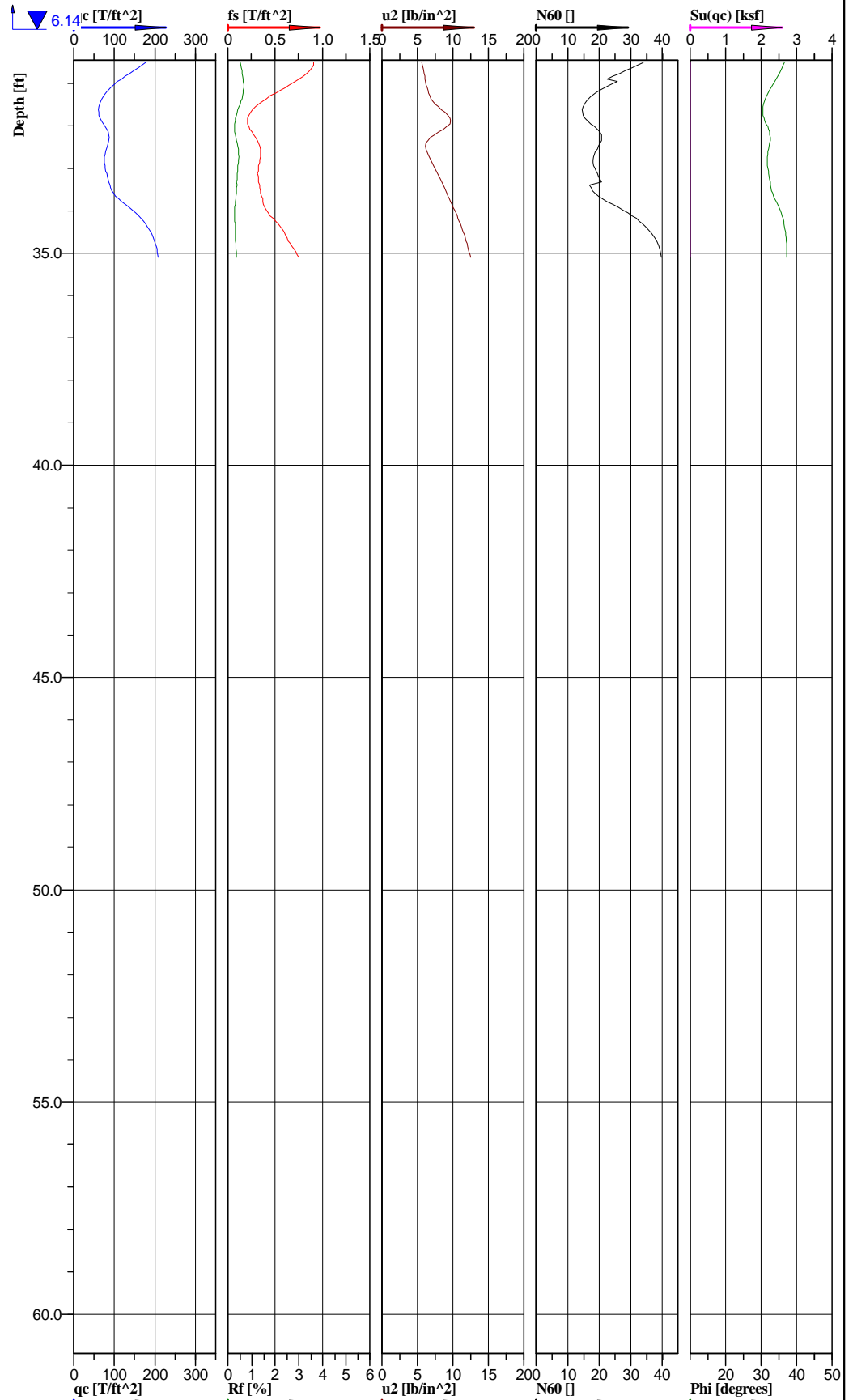
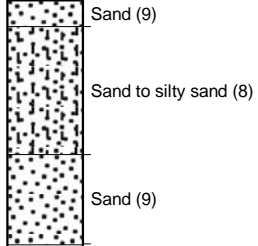


Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 729095.01 ft, Y: 991331.59 ft	Ground level: 464.30	Test no: C-180
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-83
		File: Labadie C-180.cpd	

Classification by
Robertson 1986



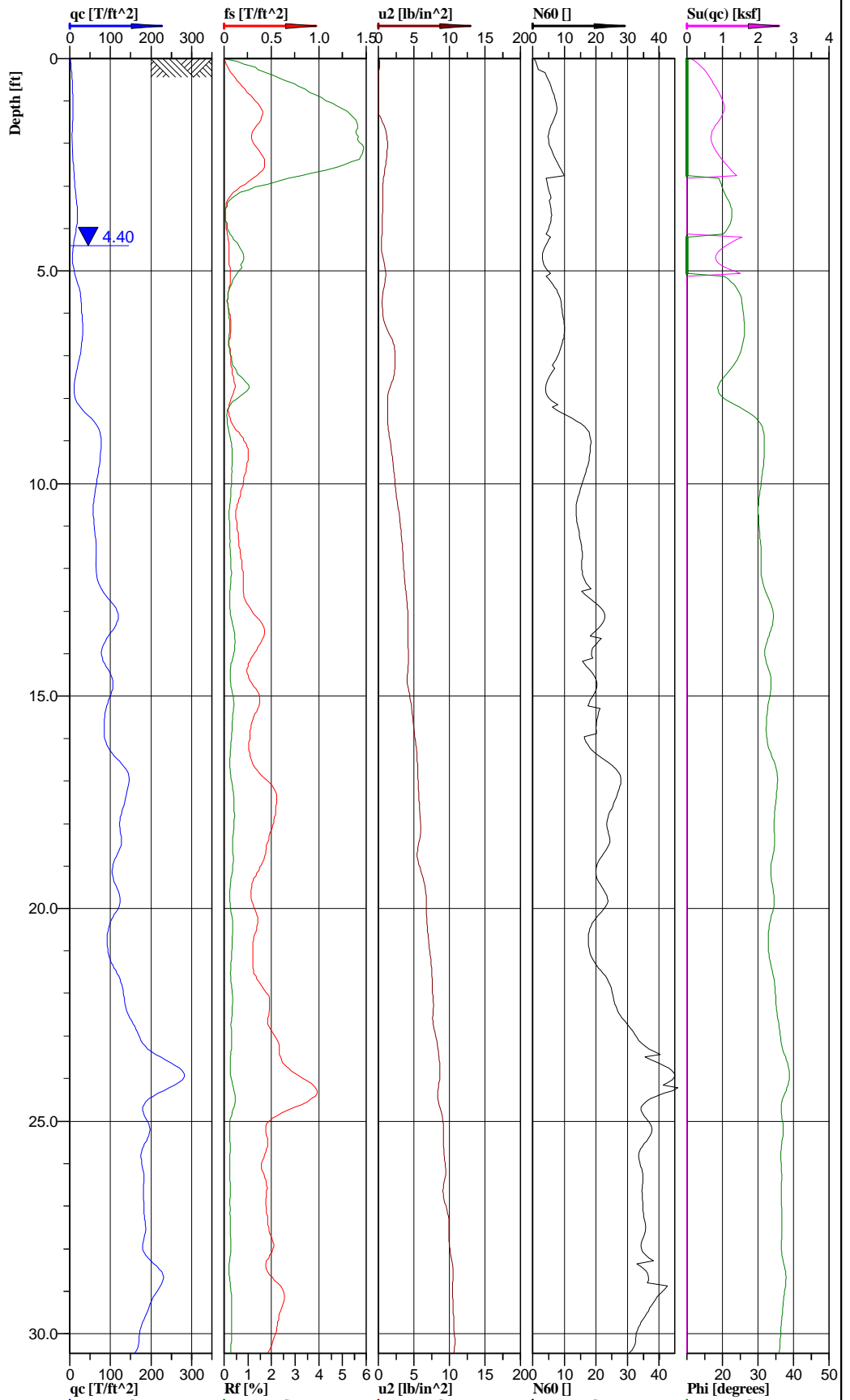
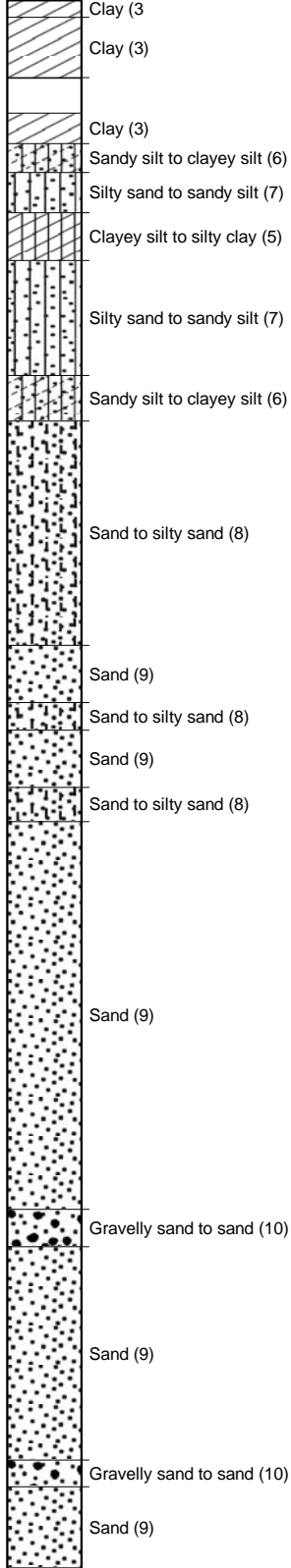
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729095.01 ft, Y: 991331.59 ft	Ground level: 464.30	Test no: C-180
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-83
		File: Labadie C-180.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-180
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-180.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.708	0.054	5.8598	Clay (3)	7.1	0.967	0.007	0.007			1.77	7.1	111	0.15	0.15	290
3.75	0.723	0.059	4.0589	Clay (3)	7.2	0.973	0.02	0.02			1.78	7.2	111	0.42	0.42	292
6.25	0.943	0.017	1.9211	Silty sand to sandy silt (7)	4.9	1.048	0.034	0.032	21.3		1.84	3.1	115	0.71	0.67	78
8.75	6.971	0.03	1.6006	Sand to silty sand (8)	16.3		0.048	0.04	30.4	79	1.94	10.4	121	1.00	0.83	580
11.25	4.612	0.024	2.0501	Sand to silty sand (8)	12.8		0.062	0.046	28.8	58	1.92	8.2	120	1.29	0.96	384
13.75	1.967	0.017	3.2197	Silty sand to sandy silt (7)	7.1	1.337	0.076	0.053	25.2	54	1.86	4.5	116	1.58	1.10	164
16.25	3.445	0.018	1.9125	Sand to silty sand (8)	10.5		0.09	0.059	26.9	51	1.9	6.7	119	1.87	1.23	287
18.75	3.754	0.023	2.6059	Silty sand to sandy silt (7)	11.7		0.104	0.066	27.6	51	1.9	7.5	119	2.16	1.37	312
21.25	3.435	0.023	3.0859	Silty sand to sandy silt (7)	11.4		0.118	0.072	27.1		1.89	7.3	118	2.45	1.50	286
23.75	7.386	0.028	4.7106	Sand (9)	17.5		0.133	0.079	30.8	66	1.93	8.8	120	2.77	1.64	615
26.25	18.699	0.049	8.9683	Sand (9)	35.1		0.148	0.086	36.9	87	2	17.5	125	3.08	1.79	1556
28.75	17.52	0.059	9.2079	Sand (9)	35.0		0.163	0.094	36.6	84	1.99	17.5	124	3.39	1.96	1458
31.25	10.842	0.05	6.8436	Sand to silty sand (8)	24.1		0.177	0.101	33.4	66	1.96	15.4	122	3.68	2.10	902
33.75	12.604	0.043	9.5373	Sand (9)	26.5		0.192	0.108	34.4	70	1.97	13.2	123	3.99	2.25	1049
36.25	19.858	0.071	12.4337	Sand (9)	39.7		0.2	0.111	37.3	85	1.99	19.8	124	4.16	2.31	1652

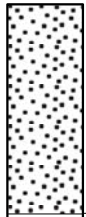
Classification by Robertson 1986



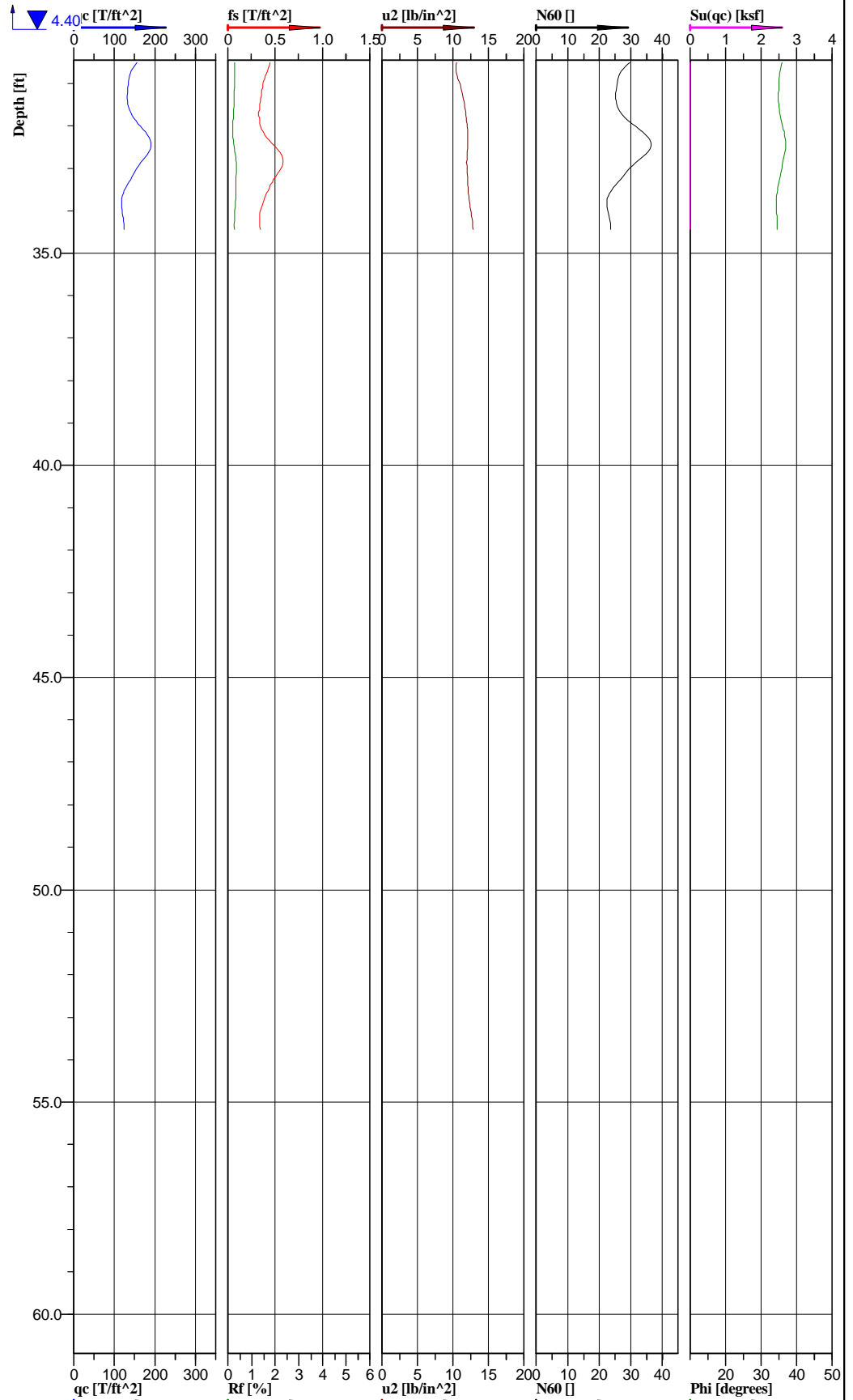
Cone No: 4274
 Tip area [cm2]: 10
 Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729674.15 ft, Y: 991324.64 ft	Ground level: 464.50	Test no: C-182
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-84
File: Labadie C-182.cpd			

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Sand (9)



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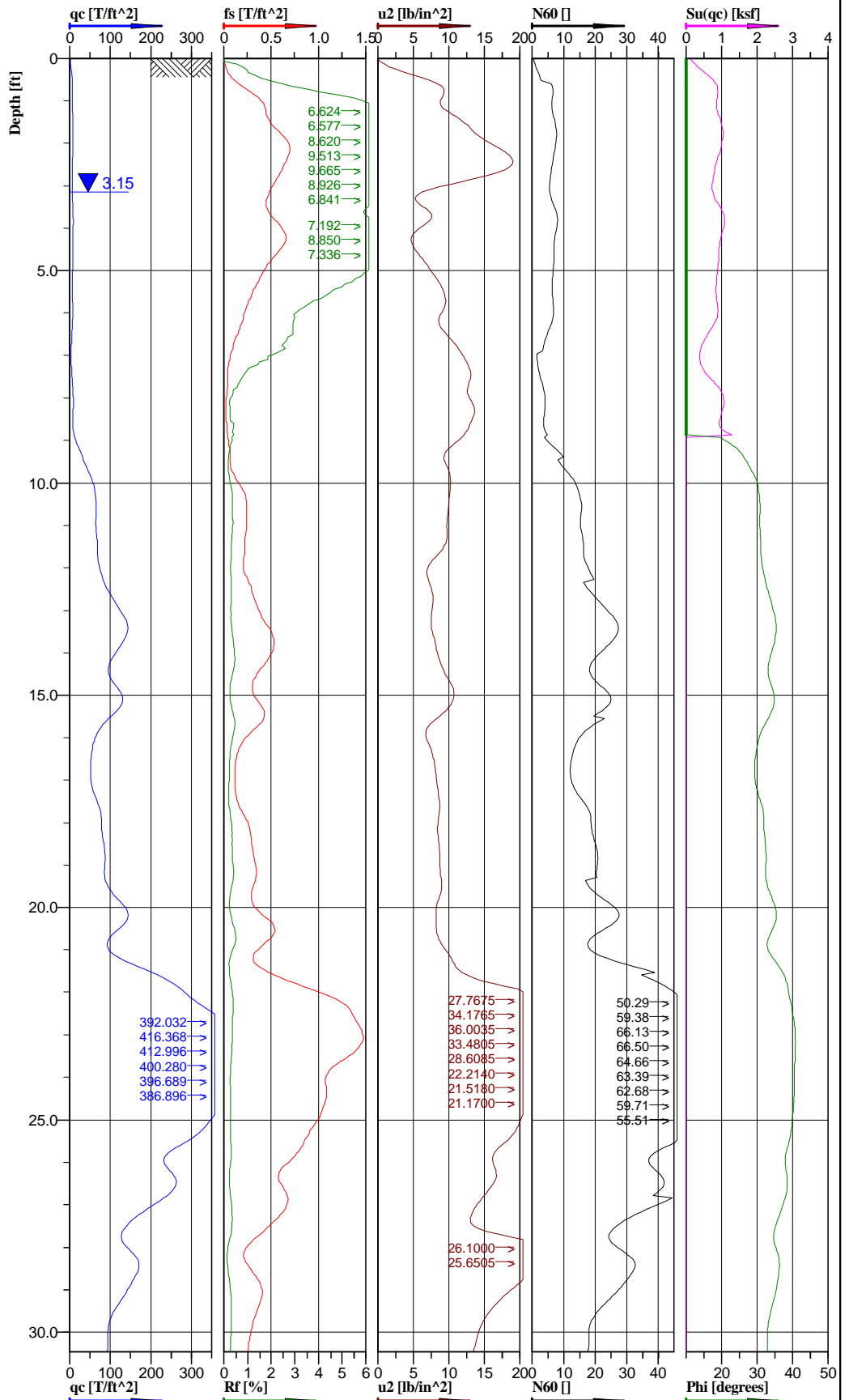
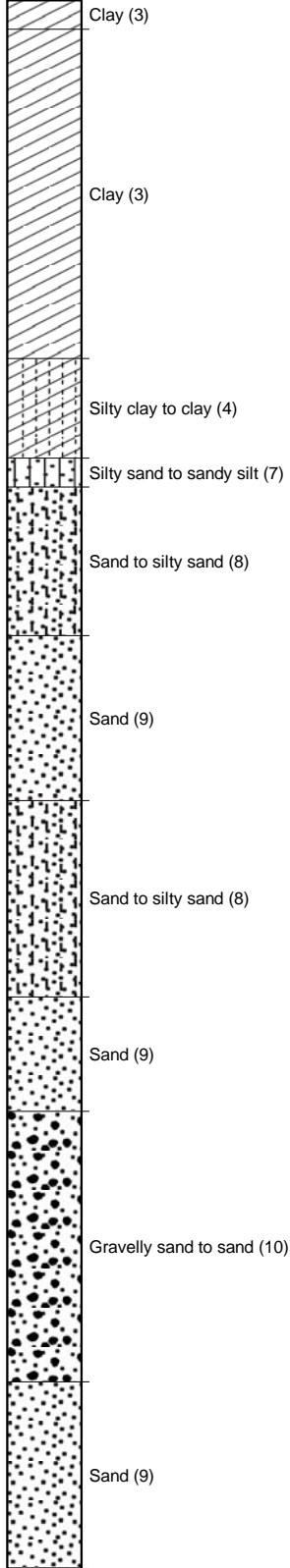
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 729674.15 ft, Y: 991324.64 ft	Ground level: 464.50	Test no: C-182
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-84
		File: Labadie C-182.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-182
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-182.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.574	0.026	0.1929	Clay (3)	5.6	0.79	0.007	0.007			1.78	5.6	111	0.15	0.15	237
3.75	1.182	0.009	0.6216	Clayey silt to silty clay (5)	5.2	1.136	0.021	0.02	21.2		1.83	5.2	114	0.44	0.42	682
6.25	2.35	0.006	1.3834	Sandy silt to clayey silt (6)	8.0	1.508	0.034	0.029	24.4		1.88	8.0	117	0.71	0.60	196
8.75	5.016	0.015	1.6976	Sand to silty sand (8)	13.0		0.048	0.035	27.9	68	1.91	8.3	119	1.00	0.73	417
11.25	6.096	0.016	3.1848	Sand to silty sand (8)	15.1		0.063	0.042	30.7	65	1.94	9.7	121	1.31	0.87	507
13.75	9.394	0.03	4.1318	Sand (9)	19.6		0.077	0.049	33.2	75	1.98	9.8	124	1.60	1.02	782
16.25	10.634	0.035	5.23	Sand (9)	22.3		0.092	0.056	33.8	76	1.98	11.2	124	1.91	1.16	885
18.75	11.435	0.04	6.0391	Sand (9)	22.9		0.107	0.063	34.3	77	1.99	11.4	124	2.23	1.31	951
21.25	10.821	0.035	7.3065	Sand (9)	21.6		0.122	0.07	34.0	74	1.99	10.8	124	2.54	1.46	900
23.75	19.705	0.064	8.3858	Sand (9)	37.0		0.137	0.078	37.2	90	2	18.5	125	2.85	1.62	1639
26.25	17.62	0.042	9.3811	Sand (9)	35.2		0.152	0.085	36.7	86	1.99	17.6	124	3.16	1.77	1466
28.75	18.829	0.052	10.382	Sand (9)	36.2		0.167	0.092	37.0	86	2	18.1	125	3.47	1.91	1567
31.25	14.807	0.039	11.32	Sand (9)	29.6		0.182	0.1	35.7	78	1.99	14.8	124	3.79	2.08	1232
33.75	13.326	0.043	12.2525	Sand (9)	26.6		0.195	0.106	35.1	74	1.99	13.3	124	4.06	2.20	1109

Classification by Robertson 1986



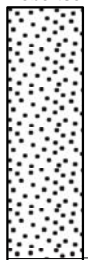
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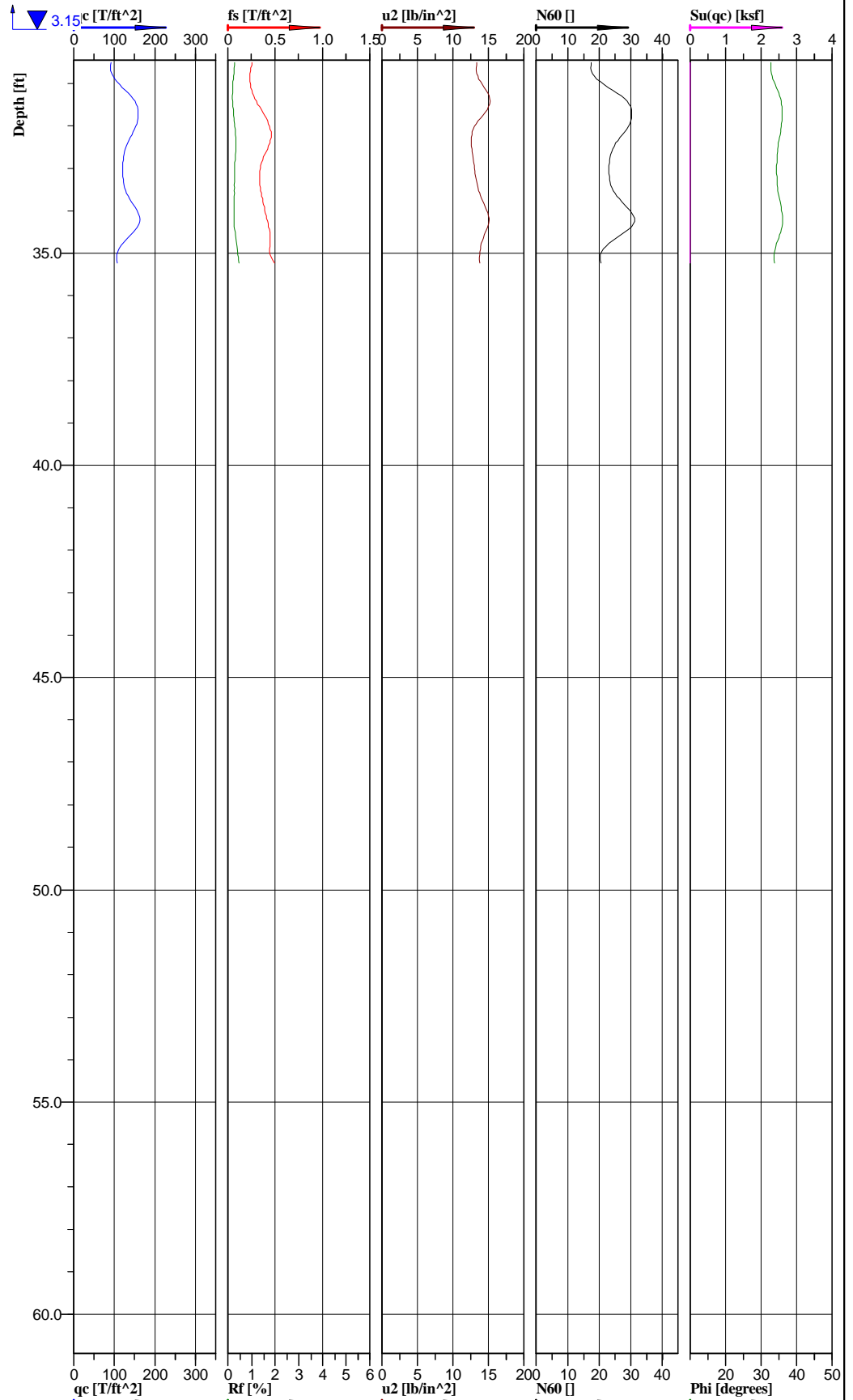
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 730272.57 ft, Y: 991307.05 ft	Ground level: 463.19	Test no: C-184
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/24/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-85
		File: Labadie C-184.cpd	

Classification by
Robertson 1986



Sand (9)



Location:	Labadie, MO	Position:	X: 730272.57 ft, Y: 991307.05 ft	Ground level:	463.19	Test no:	C-184
Project ID:	2008012455	Client:	Ameren Missouri	Date:	12/24/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-85
				File:	Labadie C-184.cpd		



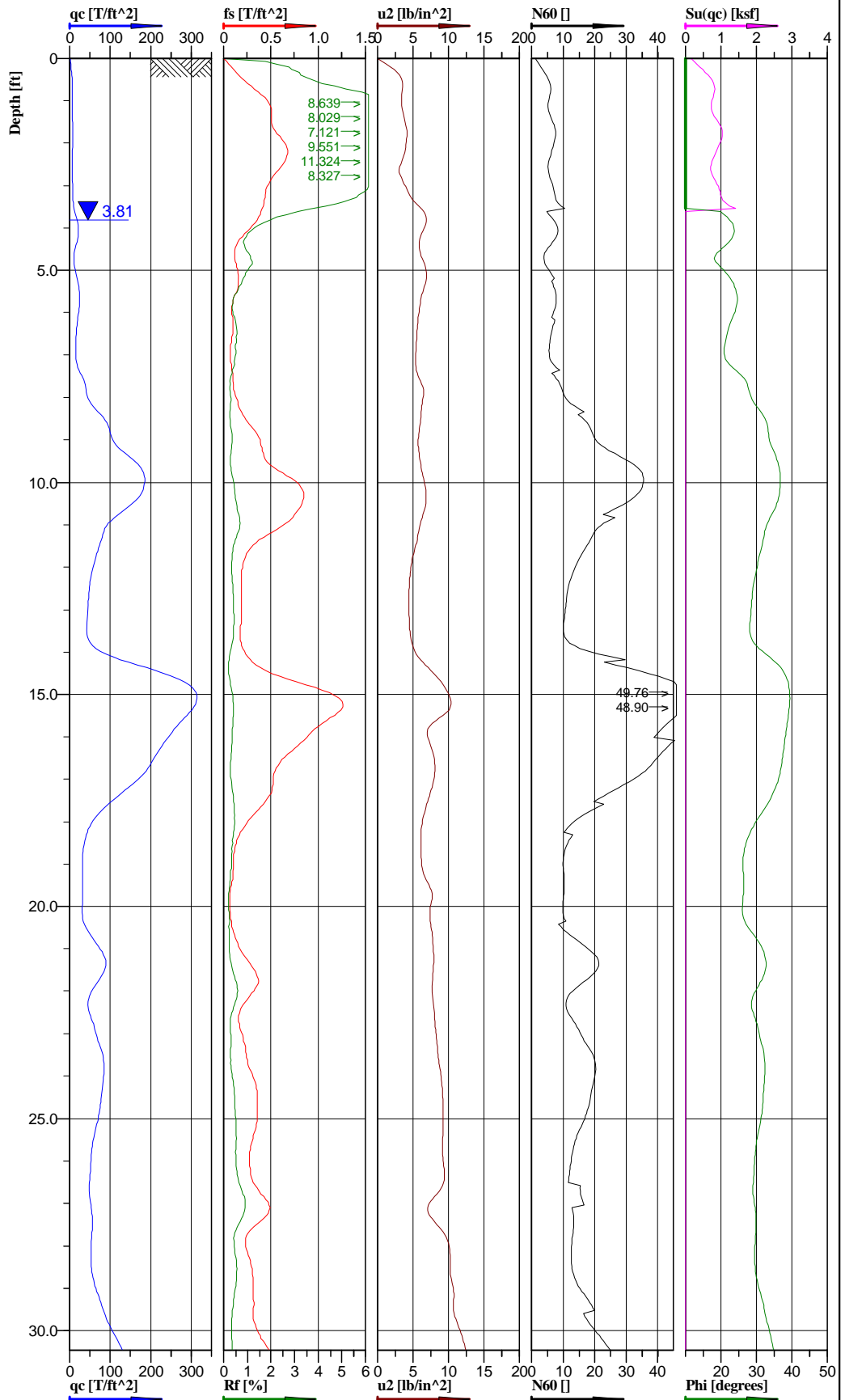
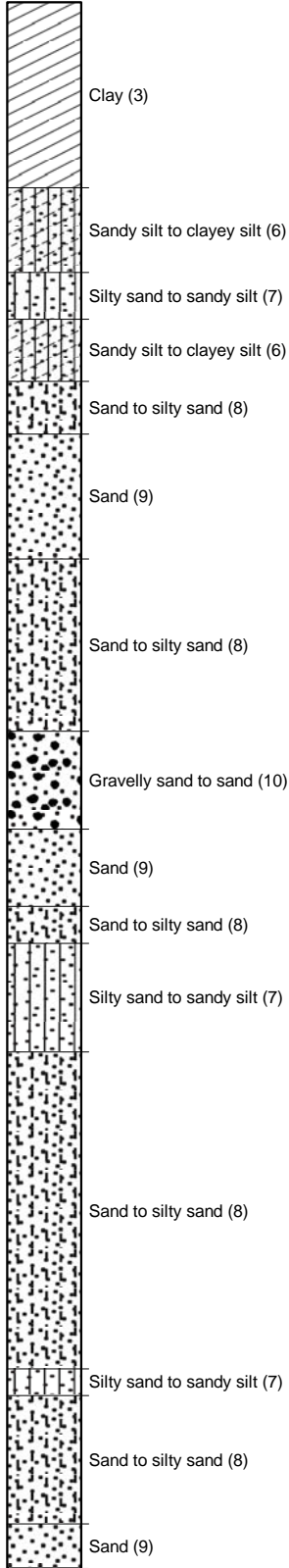
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-184
 Test date: 12/24/2009
 Location: Labadie MO
 File name: Labadie C-184.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.604	0.039	10.8402	Clay (3)	5.7	0.816	0.007	0.007			1.79	5.7	112	0.15	0.15	245
3.75	0.676	0.052	7.7969	Clay (3)	6.8	0.902	0.02	0.018			1.78	6.8	111	0.42	0.37	271
6.25	0.533	0.018	10.1805	Silty clay to clay (4)	4.8	0.681	0.034	0.024			1.78	4.8	111	0.71	0.50	341
8.75	1.981	0.005	11.6524	Sand to silty sand (8)	6.3	0.982	0.047	0.03	26.3	60	1.84	4.0	115	0.98	0.62	165
11.25	6.681	0.022	8.9149	Sand (9)	16.2		0.061	0.036	31.2	70	1.94	8.1	121	1.27	0.75	556
13.75	11.298	0.039	8.5334	Sand (9)	22.6		0.076	0.044	34.2	82	1.99	11.3	124	1.58	0.92	940
16.25	7.011	0.022	8.2412	Sand to silty sand (8)	16.3		0.091	0.051	31.1	65	1.95	10.4	122	1.89	1.06	583
18.75	8.572	0.027	8.6401	Sand (9)	19.9		0.105	0.057	32.6	70	1.95	10.0	122	2.18	1.19	713
21.25	18.269	0.062	14.7498	Gravelly sand to sand (10)	33.0		0.12	0.065	36.3	88	2	22.4	125	2.50	1.35	1520
23.75	37.726	0.117	27.2113	Gravelly sand to sand (10)	62.8		0.135	0.072	40.5	110	2.04	42.7	127	2.81	1.50	3139
26.25	23.412	0.067	16.1657	Sand (9)	40.7		0.15	0.08	38.0	94	2.03	20.4	127	3.12	1.66	1948
28.75	12.82	0.031	19.4809	Sand (9)	25.6		0.165	0.087	34.9	76	1.99	12.8	124	3.43	1.81	1067
31.25	11.938	0.031	13.7493	Sand (9)	23.9		0.18	0.094	34.4	72	1.99	11.9	124	3.74	1.96	993
33.75	12.746	0.037	13.8546	Sand (9)	25.5		0.195	0.102	34.9	74	1.99	12.7	124	4.06	2.12	1060
36.25	10.201	0.045	13.7532	Sand (9)	20.4		0.203	0.106	33.7	67	1.99	10.2	124	4.22	2.20	849

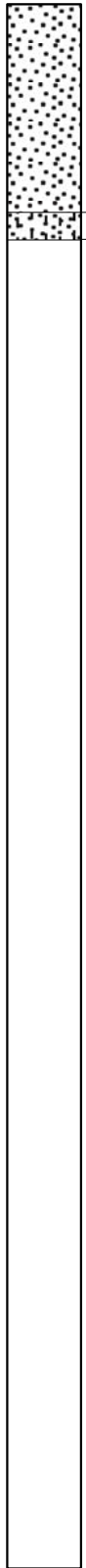
Classification by Robertson 1986



Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

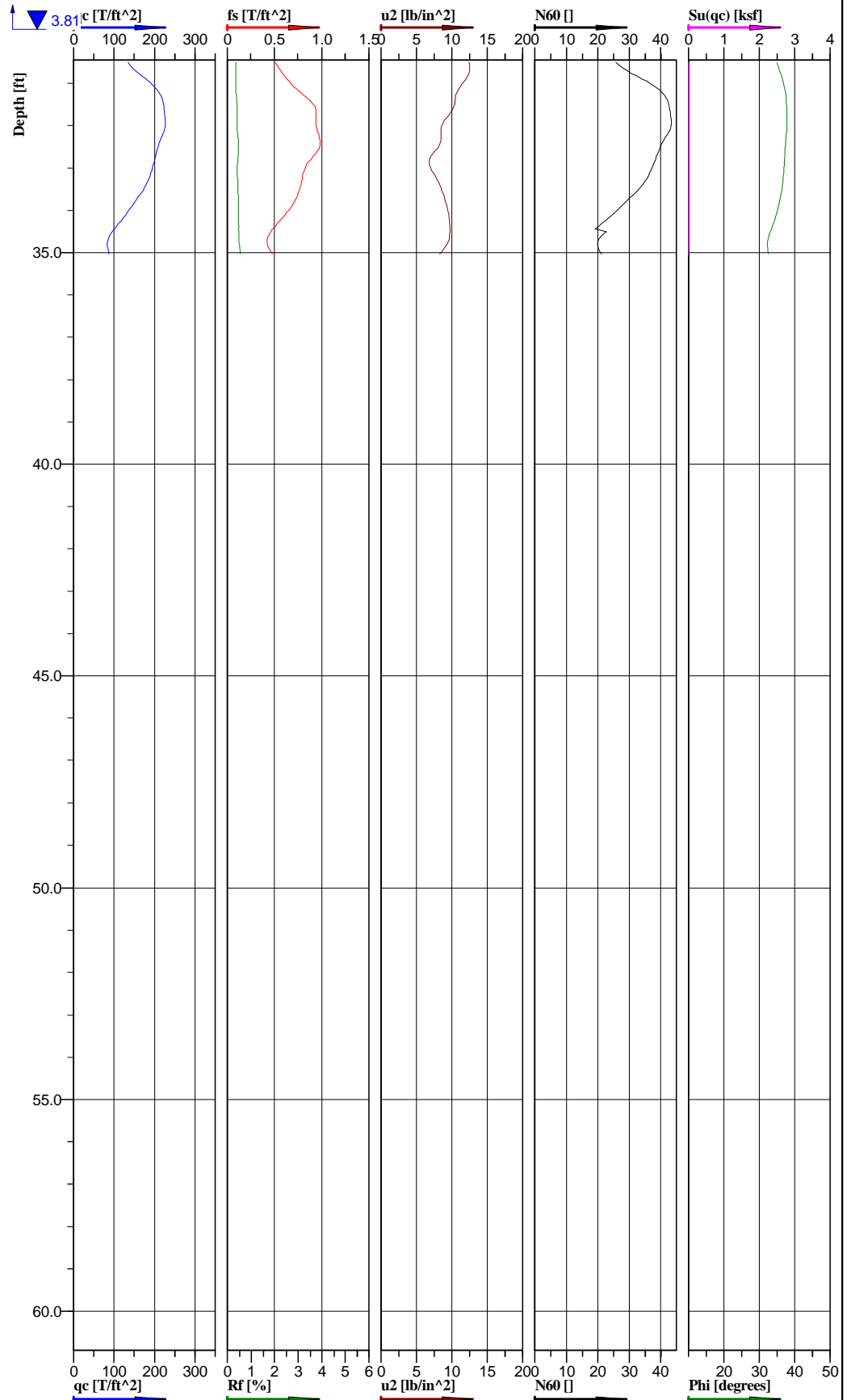
Location: Labadie, MO	Position: X: 730857.68 ft, Y: 991283.37 ft	Ground level: 463.39	Test no: C-186
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/23/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-86
File: Labadie C-186.cpd			

Classification by
Robertson 1986



Sand (9)

Sand to silty sand (8)



Location:	Labadie, MO	Position:	X: 730857.68 ft, Y: 991283.37 ft	Ground level:	463.39	Test no:	C-186
Project ID:	2008012455	Client:	Ameren Missouri	Date:	12/23/2009	Scale:	1 : 44
Project:	Labadie Power Plant UWL DSI			Page:	2	Fig:	C-86
				File:	Labadie C-186.cpd		



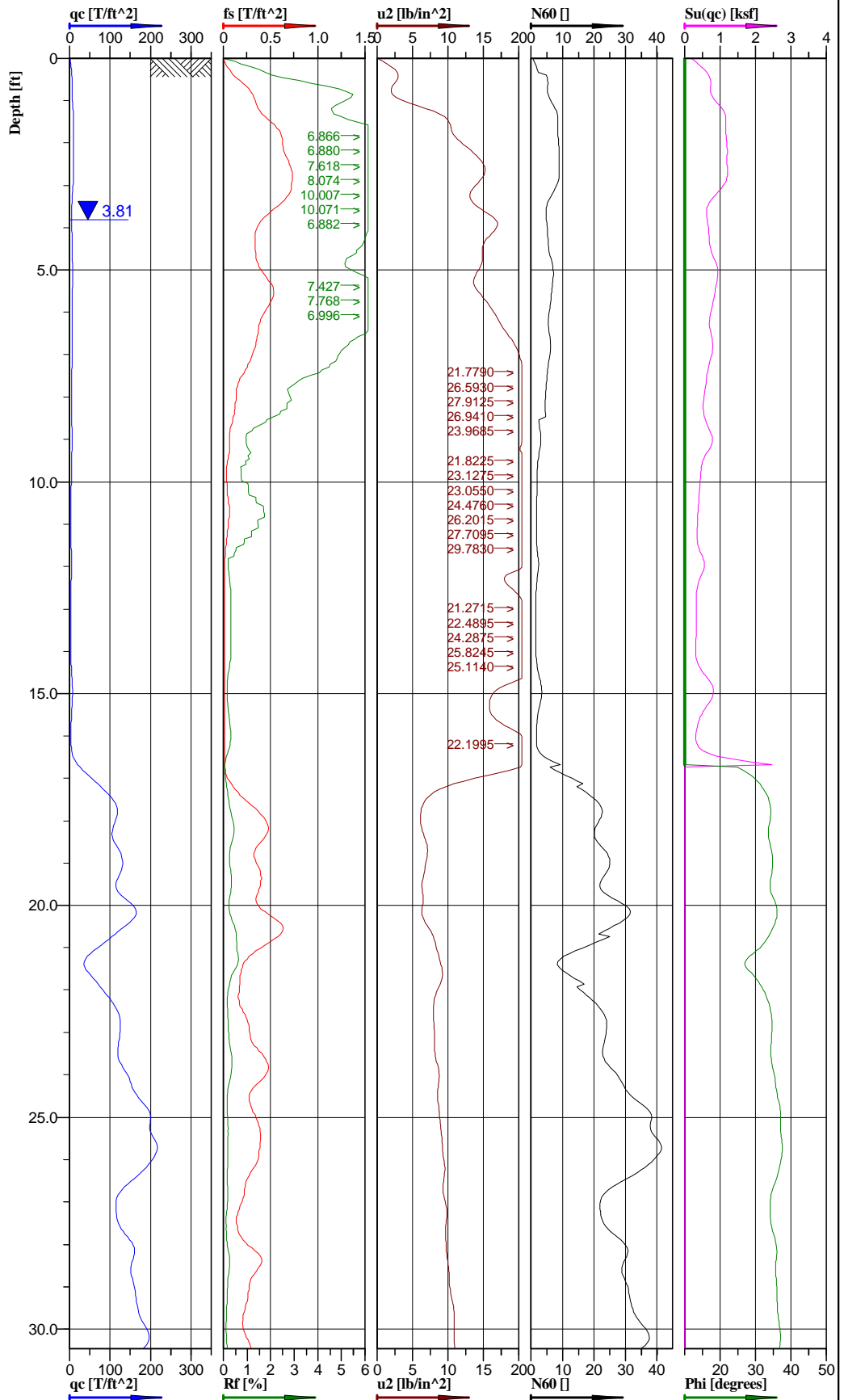
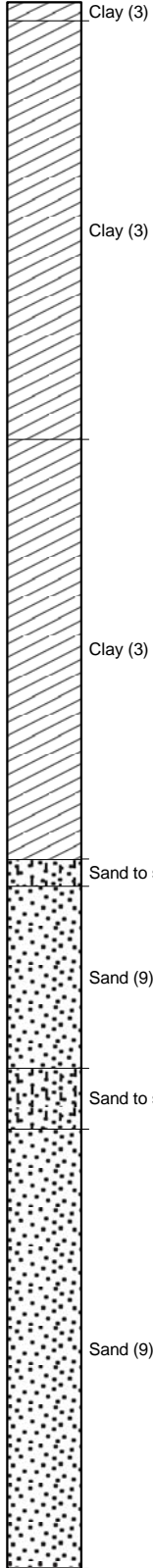
Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-186
 Test date: 12/23/2009
 Location: Labadie MO
 File name: Labadie C-186.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.557	0.042	3.3064	Clay (3)	5.6	0.762	0.007	0.007			1.78	5.6	111	0.15	0.15	229
3.75	1.172	0.031	5.4803	Sandy silt to clayey silt (6)	6.4	0.945	0.02	0.019	21.2		1.82	6.4	114	0.42	0.40	98
6.25	1.91	0.01	5.8513	Sand to silty sand (8)	6.8		0.034	0.027	23.0	48	1.86	4.3	116	0.71	0.56	159
8.75	10.011	0.032	6.1045	Sand (9)	20.8		0.048	0.033	32.7	79	1.97	10.4	123	1.00	0.69	833
11.25	9.327	0.046	5.6353	Sand to silty sand (8)	21.0		0.063	0.04	32.5	75	1.95	13.4	122	1.31	0.83	776
13.75	11.525	0.035	5.958	Gravelly sand to sand (10)	22.1		0.078	0.047	32.3	72	1.97	15.0	123	1.62	0.98	959
16.25	21.299	0.077	8.1431	Sand (9)	38.9		0.093	0.055	37.4	96	2.01	19.4	125	1.93	1.14	1772
18.75	4.197	0.015	6.6477	Silty sand to sandy silt (7)	12.2		0.107	0.062	27.8	61	1.91	7.8	119	2.23	1.29	349
21.25	5.599	0.02	7.7248	Sand to silty sand (8)	14.4		0.121	0.068	29.8	57	1.94	9.2	121	2.52	1.41	466
23.75	7.061	0.026	8.7015	Sand to silty sand (8)	17.6		0.136	0.075	31.5	61	1.94	11.3	121	2.83	1.56	587
26.25	5.265	0.033	8.7228	Sand to silty sand (8)	13.9		0.15	0.082	29.7	52	1.93	8.9	120	3.12	1.71	438
28.75	6.496	0.028	10.4393	Sand (9)	15.3		0.165	0.089	30.9	55	1.95	7.6	122	3.43	1.85	540
31.25	17.975	0.072	10.5307	Sand (9)	35.9		0.18	0.096	36.6	84	1.99	18.0	124	3.74	2.00	1496
33.75	14.104	0.065	8.5706	Sand (9)	29.2		0.195	0.103	35.2	75	1.98	14.6	124	4.06	2.14	1173

Classification by Robertson 1986



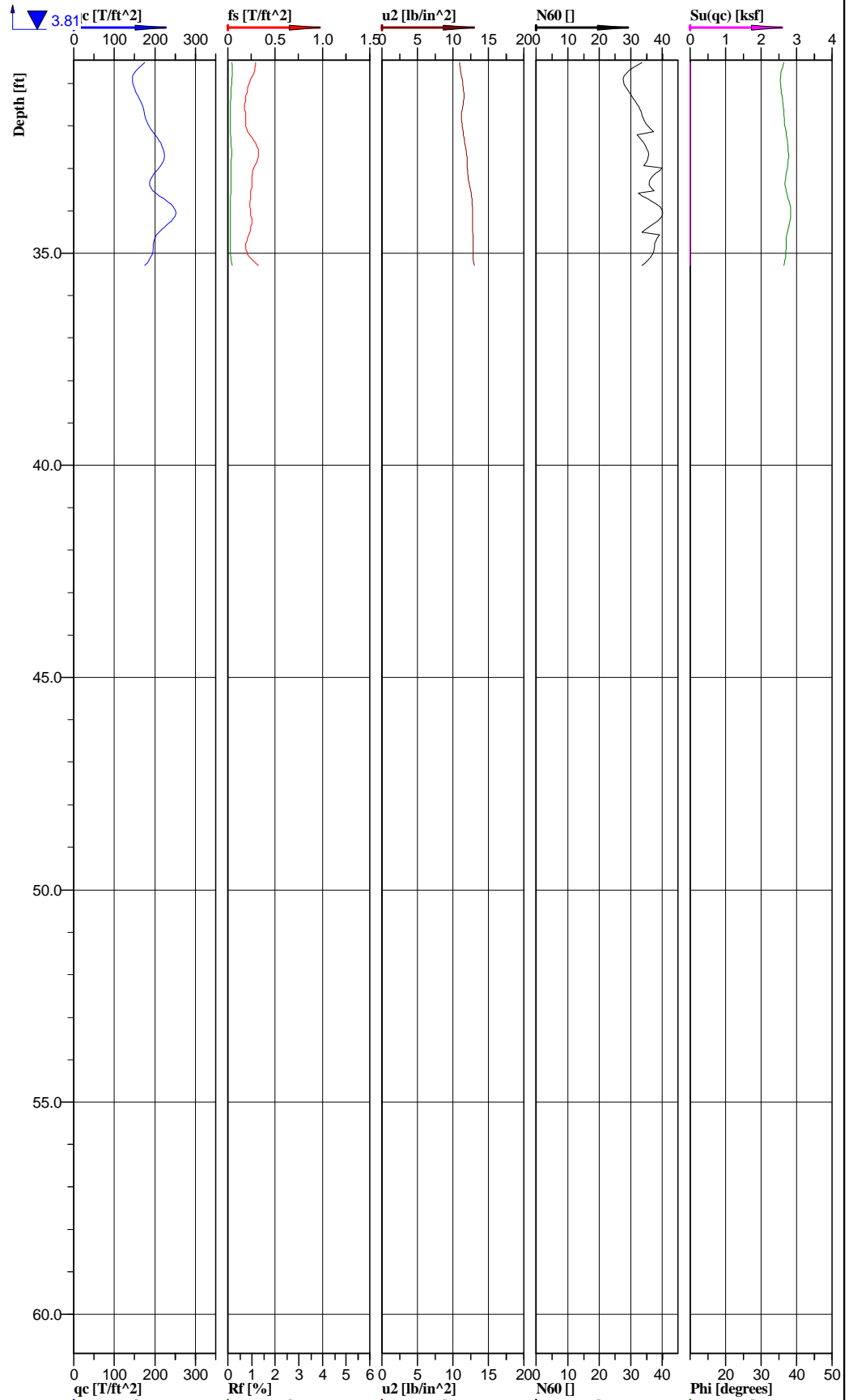
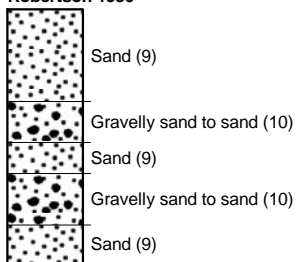
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Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728854.89 ft, Y: 991041.40 ft	Ground level: 463.19	Test no: C-190
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-87
File: Labadie C-190.cpd			

Classification by Robertson 1986



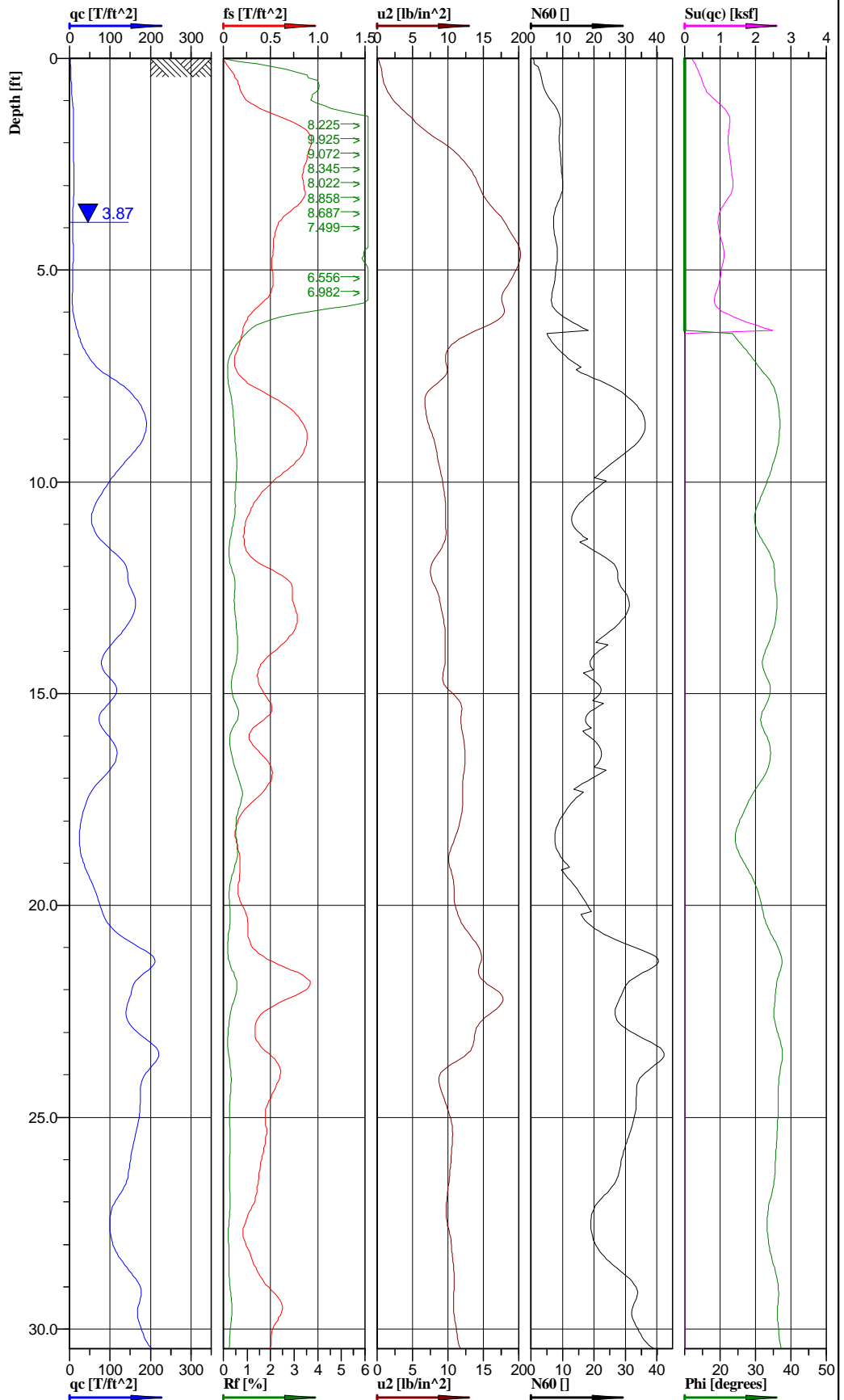
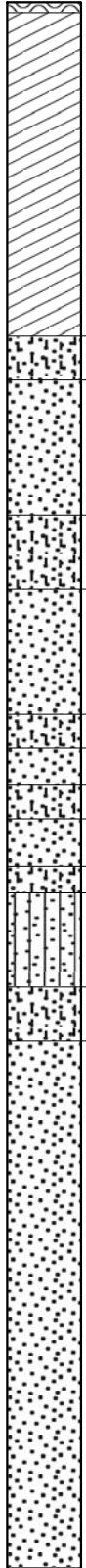
Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728854.89 ft, Y: 991041.40 ft	Ground level: 463.19	Test no: C-190
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-87
File: Labadie C-190.cpd			

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-190
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-190.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.688	0.038	7.4755	Clay (3)	6.7	0.936	0.007	0.007				1.79	6.7	112	0.15	0.15	281
3.75	0.637	0.048	14.9127	Clay (3)	6.4	0.838	0.02	0.019				1.71	6.4	107	0.42	0.40	251
6.25	0.602	0.037	17.5904	Clay (3)	6.0	0.765	0.033	0.025				1.78	6.0	111	0.69	0.52	230
8.75	0.488	0.008	24.2949	Clay (3)	3.3	0.58	0.046	0.031				1.79	3.3	112	0.96	0.64	174
11.25	0.38	0.003	24.4615	Clay (3)	1.9	0.412	0.06	0.037				1.78	1.9	111	1.25	0.77	124
13.75	0.398	0.001	22.166	Clay (3)	2.0	0.423	0.073	0.043				1.78	2.0	111	1.52	0.89	127
16.25	2.568	0.004	16.7728	Sand (9)	6.7	0.653	0.086	0.048	30.5	62	1.85	3.3	115	1.79	1.00	214	
18.75	11.555	0.036	6.5551	Sand (9)	23.1		0.101	0.055	34.4	80	1.99	11.6	124	2.10	1.14	961	
21.25	9.016	0.032	8.0442	Sand (9)	19.3		0.115	0.062	32.3	68	1.96	9.7	122	2.39	1.29	750	
23.75	13.767	0.032	8.3814	Sand (9)	27.5		0.13	0.069	35.3	81	1.99	13.8	124	2.70	1.44	1145	
26.25	15.942	0.027	9.3786	Sand (9)	31.9		0.145	0.077	36.0	83	2	15.9	125	3.02	1.60	1326	
28.75	15.306	0.025	10.2396	Sand (9)	30.6		0.16	0.084	35.9	82	1.99	15.3	124	3.33	1.75	1273	
31.25	16.976	0.022	11.2762	Gravelly sand to sand (10)	32.9		0.175	0.091	36.4	83	2	22.4	125	3.64	1.89	1412	
33.75	20.517	0.024	12.4819	Sand (9)	36.9		0.19	0.099	37.5	88	2.02	18.5	126	3.95	2.06	1707	
36.25	17.694	0.025	12.8876	Sand (9)	35.4		0.198	0.103	36.7	83	1.99	17.7	124	4.12	2.14	1472	

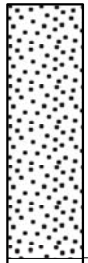
Classification by
Robertson 1986



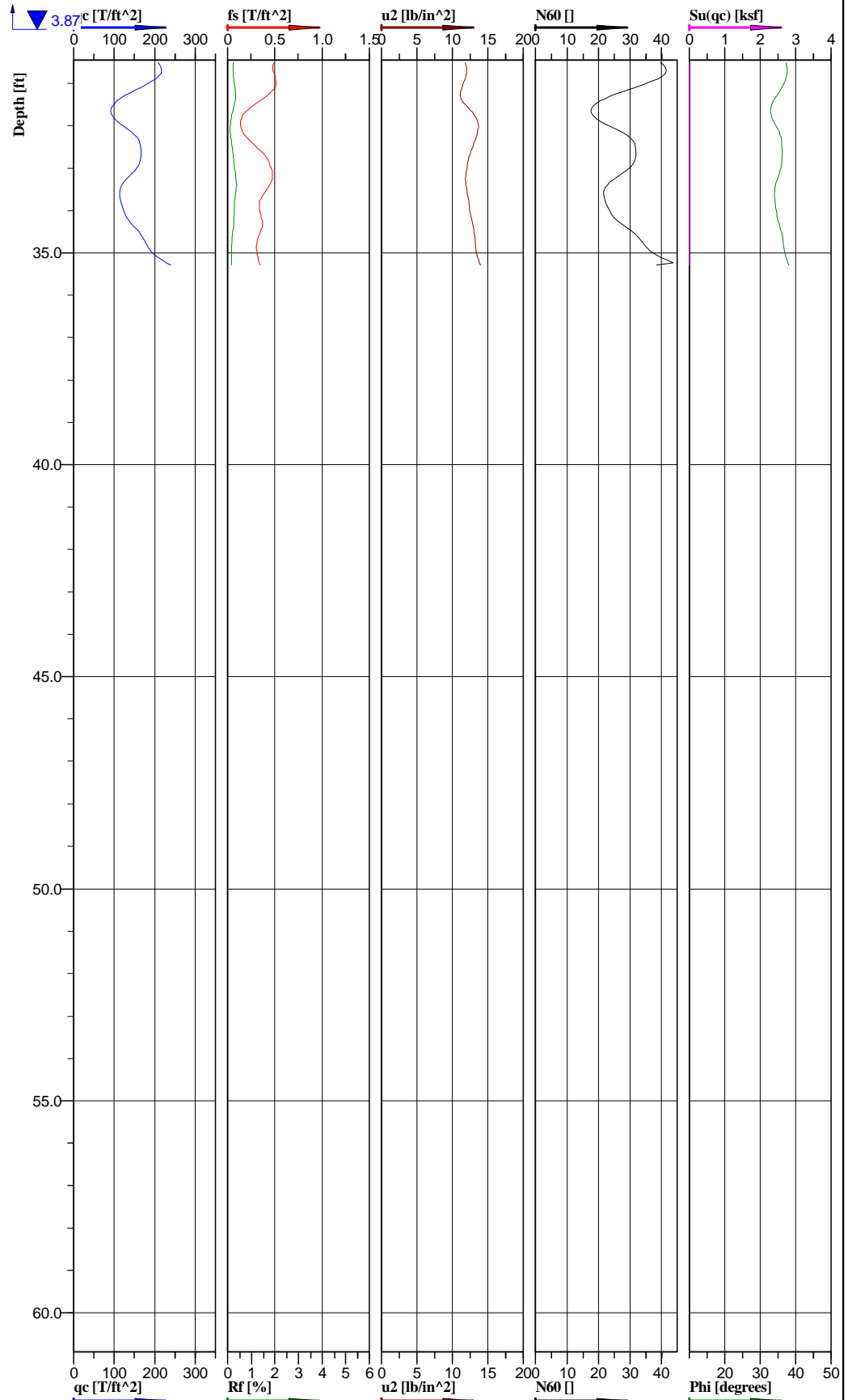
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729372.41 ft, Y: 991029.27 ft	Ground level: 464.30	Test no: C-192
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-88
		File: Labadie C-192.cpd	

Classification by
Robertson 1986



Sand (9)



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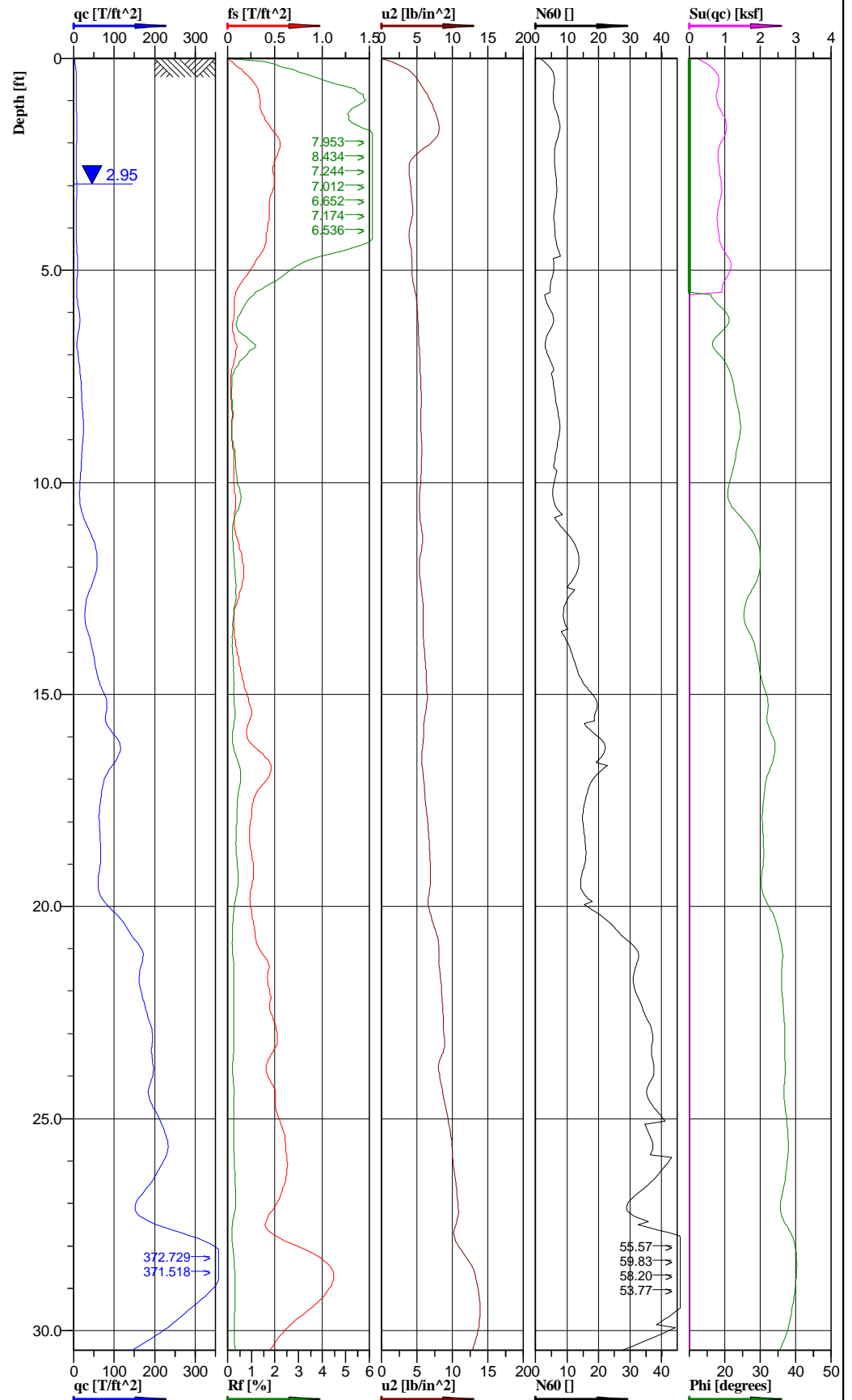
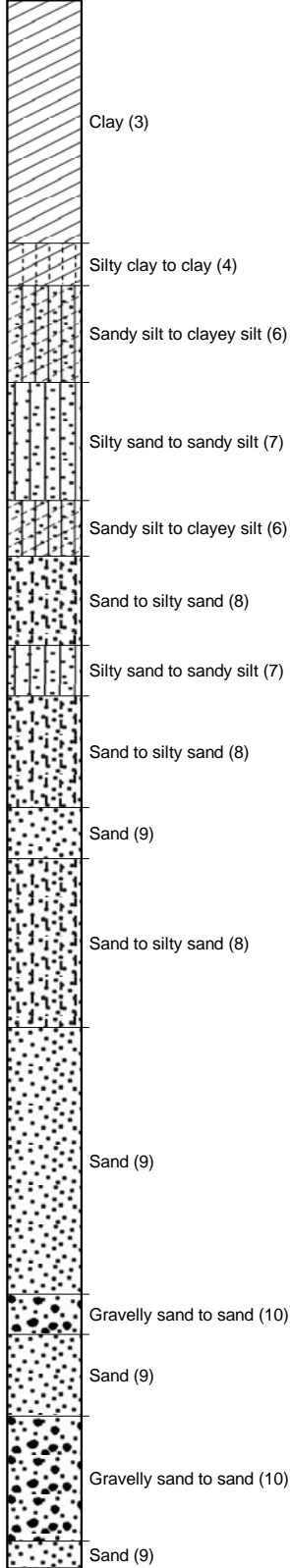
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729372.41 ft, Y: 991029.27 ft	Ground level: 464.30	Test no: C-192
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-88
		File: Labadie C-192.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-192
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-192.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) [ksf]
1.25	0.679	0.048	5.0496	Clay (3)	6.7	0.929	0.007	0.007			1.78	6.7	111	0.15	0.15	279
3.75	0.847	0.064	17.2342	Clay (3)	8.5	1.126	0.02	0.019			1.78	8.5	111	0.42	0.40	338
6.25	2.663	0.028	14.426	Sand (9)	10.1	1.211	0.034	0.026	28.5	62	1.85	5.1	115	0.71	0.54	222
8.75	14.757	0.065	7.949	Sand to silty sand (8)	29.7		0.048	0.033	35.6	93	1.99	19.0	124	1.00	0.69	1228
11.25	9.142	0.036	8.9469	Sand (9)	20.0		0.063	0.04	32.6	76	1.96	10.0	122	1.31	0.83	761
13.75	11.65	0.057	9.3889	Sand (9)	24.3		0.078	0.047	34.2	81	1.98	12.2	124	1.62	0.98	969
16.25	8.449	0.04	12.0528	Silty sand to sandy silt (7)	19.2		0.092	0.054	32.4	72	1.96	12.3	122	1.91	1.12	703
18.75	3.891	0.017	10.9947	Sand to silty sand (8)	11.2		0.107	0.061	27.3	57	1.9	7.2	119	2.23	1.27	324
21.25	14.058	0.047	14.384	Sand (9)	28.4		0.121	0.068	35.2	81	1.98	14.2	124	2.52	1.41	1170
23.75	17.289	0.045	11.5431	Sand (9)	34.6		0.136	0.075	36.5	87	1.99	17.3	124	2.83	1.56	1438
26.25	13.285	0.036	10.2123	Sand (9)	26.6		0.151	0.083	35.1	77	1.99	13.3	124	3.14	1.73	1105
28.75	14.035	0.04	10.7058	Sand (9)	28.1		0.166	0.09	35.3	78	1.99	14.0	124	3.45	1.87	1168
31.25	15.075	0.034	12.2027	Sand (9)	30.1		0.181	0.097	35.6	78	1.99	15.1	124	3.76	2.02	1254
33.75	14.094	0.036	12.5191	Sand (9)	28.2		0.196	0.104	35.4	76	1.99	14.1	124	4.08	2.16	1173
36.25	20.884	0.031	13.6938	Sand (9)	40.2		0.204	0.108	37.6	87	2.02	20.1	126	4.24	2.25	1738

Classification by Robertson 1986

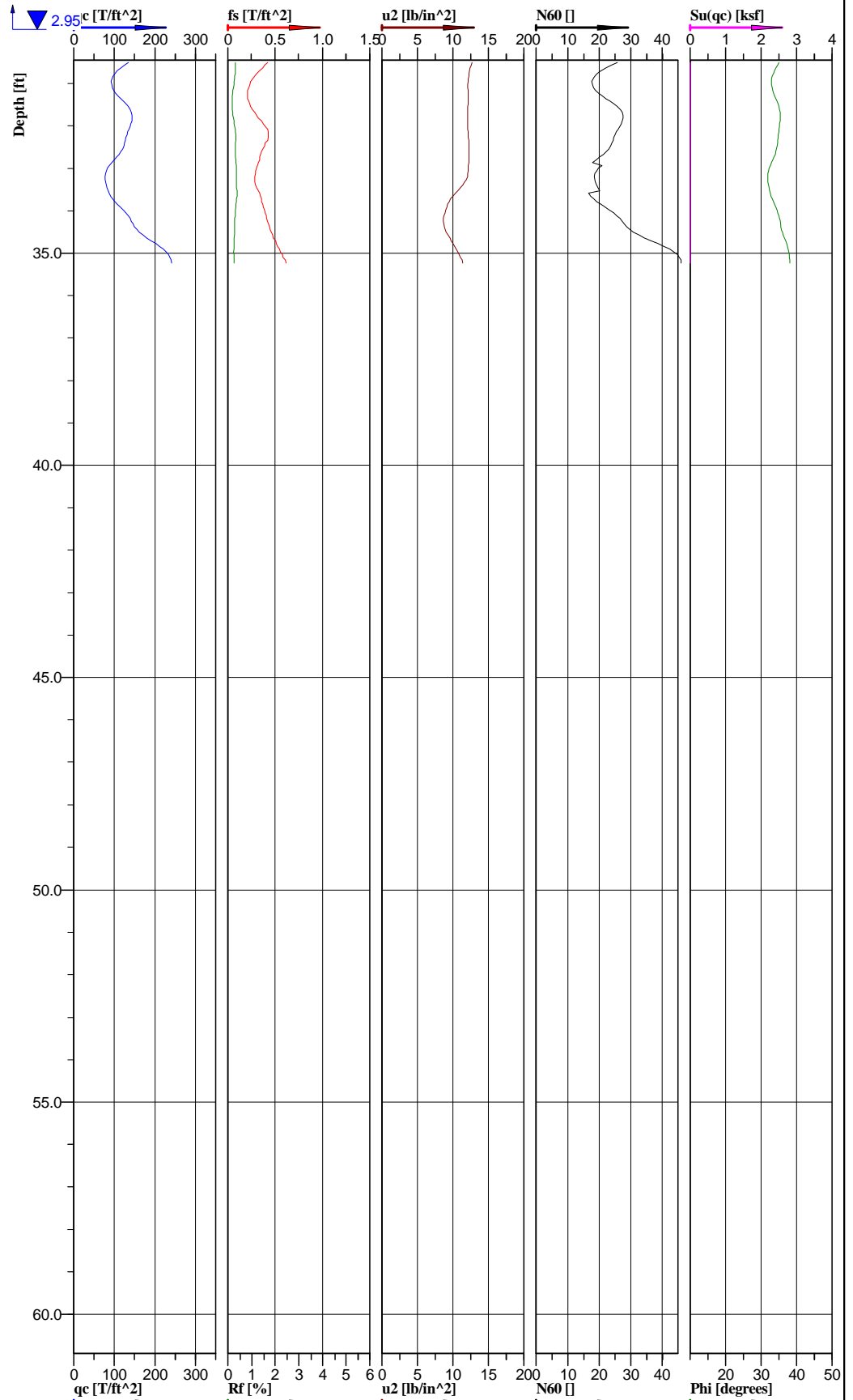
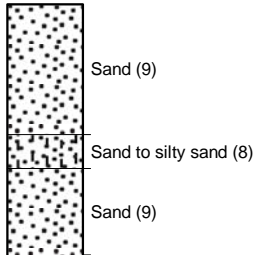


Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150



Location: Labadie, MO	Position: X: 729967.59 ft, Y: 991014.63 ft	Ground level: 463.19	Test no: C-194
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/24/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-89
		File: Labadie C-194.cpd	

Classification by Robertson 1986



Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

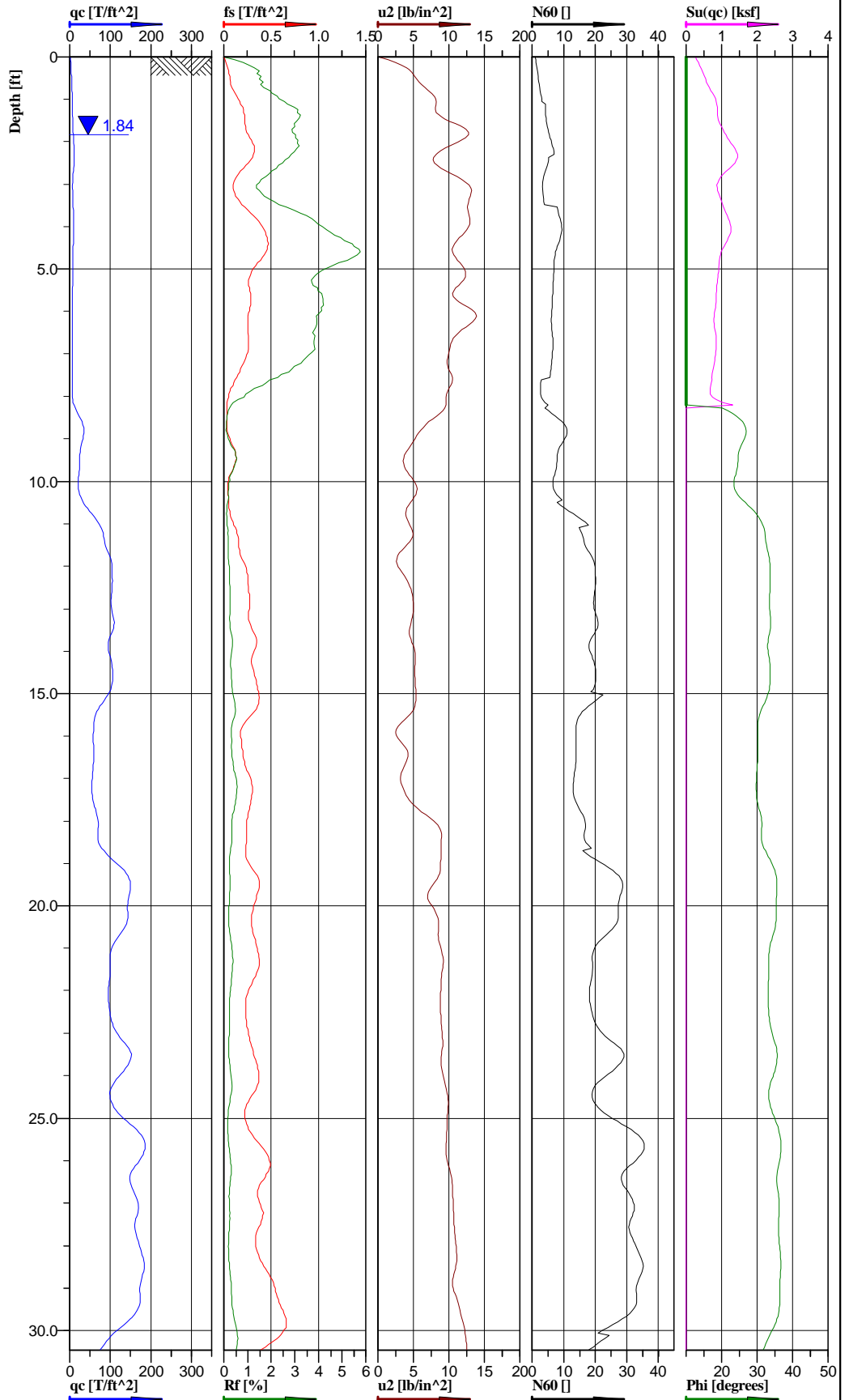
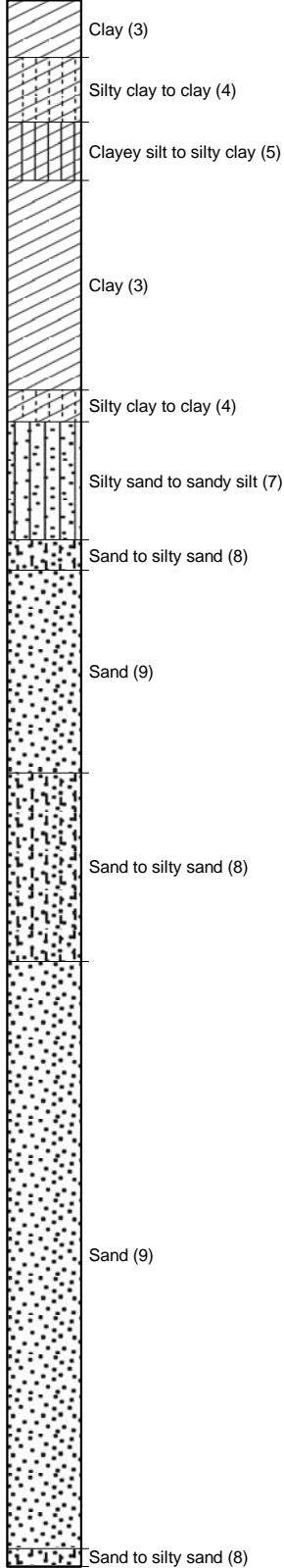


Location: Labadie, MO	Position: X: 729967.59 ft, Y: 991014.63 ft	Ground level: 463.19	Test no: C-194
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/24/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-89
		File: Labadie C-194.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-194
 Test date: 12/24/2009
 Location: Labadie MO
 File name: Labadie C-194.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values							Reitz and Jens Calculated Values						
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.602	0.035	5.796	Clay (3)	6.0	0.82	0.007	0.007				1.78	6.0	111	0.15	0.15	246
3.75	0.678	0.039	4.1396	Silty clay to clay (4)	6.3	0.91	0.02	0.018				1.79	6.3	112	0.42	0.37	455
6.25	1.051	0.008	5.0705	Silty sand to sandy silt (7)	4.5	0.991	0.034	0.024	19.1			1.83	2.9	114	0.71	0.50	87
8.75	1.933	0.005	5.5725	Sandy silt to clayey silt (6)	6.6		0.048	0.03	23.2			1.88	6.6	117	1.00	0.62	161
11.25	3.612	0.011	5.4832	Silty sand to sandy silt (7)	9.8		0.062	0.036	26.5	58		1.91	6.3	119	1.29	0.75	301
13.75	4.306	0.011	6.035	Sand to silty sand (8)	11.7		0.076	0.043	28.2	59		1.92	7.5	120	1.58	0.89	358
16.25	8.382	0.029	5.9885	Sand to silty sand (8)	19.0		0.09	0.05	32.5	72		1.96	12.2	122	1.87	1.04	697
18.75	6.272	0.024	6.6559	Sand (9)	15.5	0.024	0.105	0.057	30.8	62		1.94	7.7	121	2.18	1.19	522
21.25	14.642	0.035	7.9843	Sand (9)	29.3		0.12	0.064	35.6	84		1.99	14.6	124	2.50	1.33	1218
23.75	18.449	0.046	8.6524	Sand (9)	36.9		0.134	0.071	36.9	89		1.99	18.4	124	2.79	1.48	1535
26.25	19.156	0.054	10.2428	Gravelly sand to sand (10)	35.8		0.15	0.078	37.1	89		2.01	24.3	125	3.12	1.62	1594
28.75	30.083	0.082	12.6737	Sand (9)	50.7		0.165	0.086	39.3	100		2.04	25.3	127	3.43	1.79	2503
31.25	12.648	0.034	12.3692	Sand (9)	25.3		0.18	0.093	34.8	74		1.99	12.6	124	3.74	1.93	1052
33.75	12.189	0.037	10.4805	Sand (9)	25.4		0.195	0.101	34.3	71		1.98	12.7	124	4.06	2.10	1014
36.25	22.846	0.057	11.1505	Sand (9)	45.7		0.203	0.104	38.0	90		2.04	22.8	127	4.22	2.16	1901

Classification by
Robertson 1986









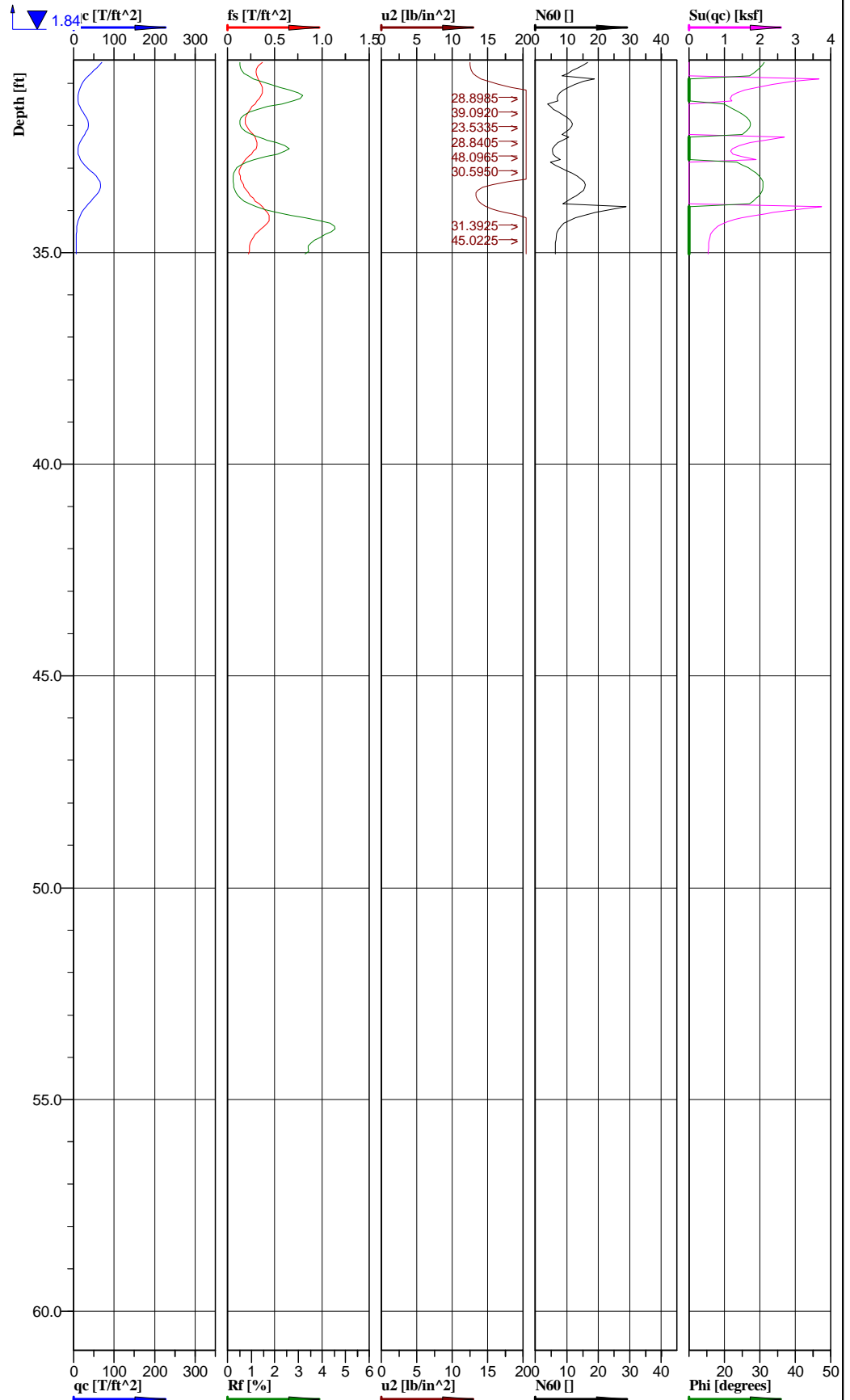
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 730560.70 ft, Y: 990995.87 ft	Ground level: 463.48	Test no: C-196
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/24/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-90
File: Labadie C-196.cpd			

**Classification by
Robertson 1986**

-  Sand to silty sand (8)
-  Silty clay to clay (4)
-  Silty sand to sandy silt (7)
-  Clayey silt to silty clay (5)
-  Sand to silty sand (8)
-  Clay (3)



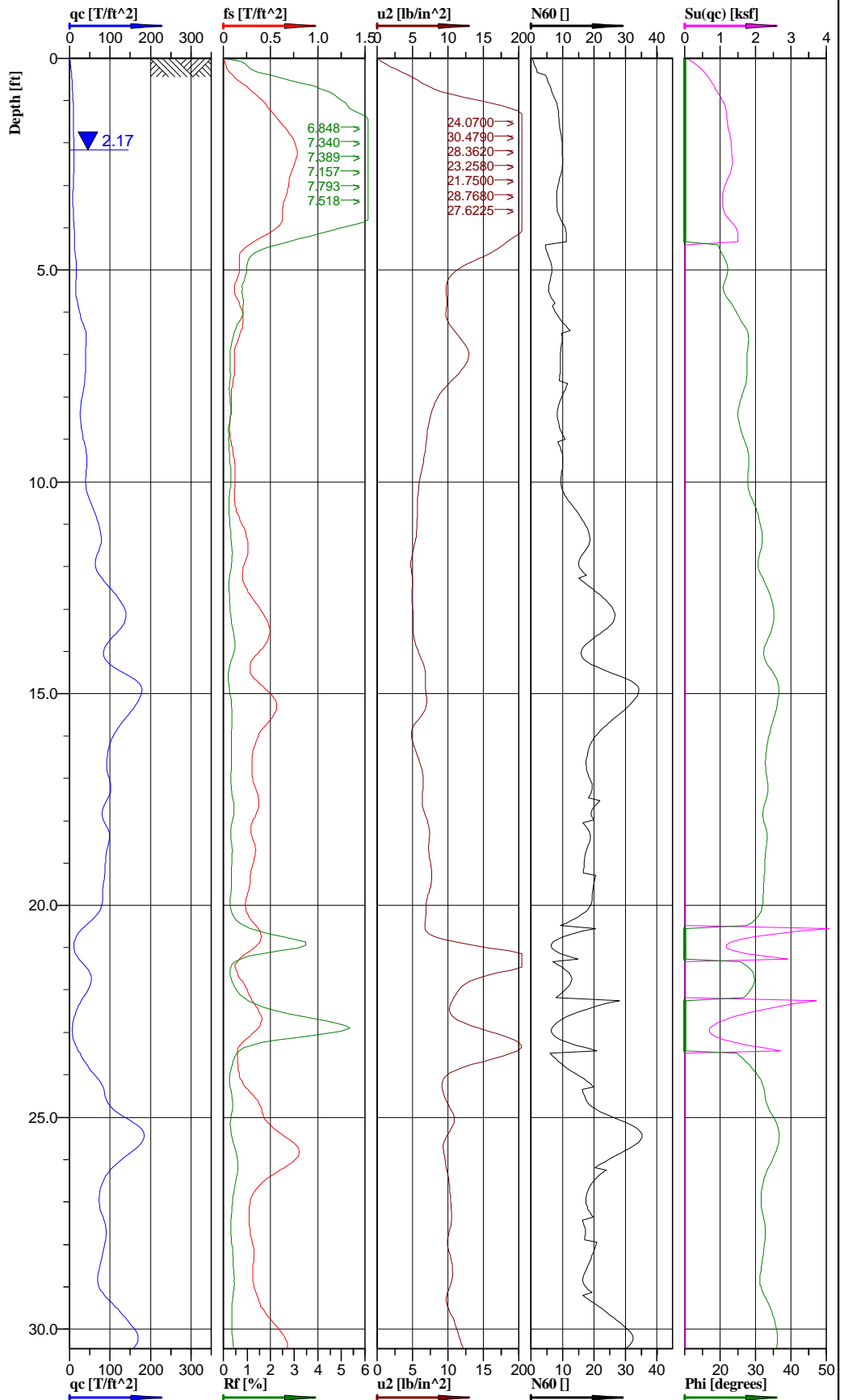
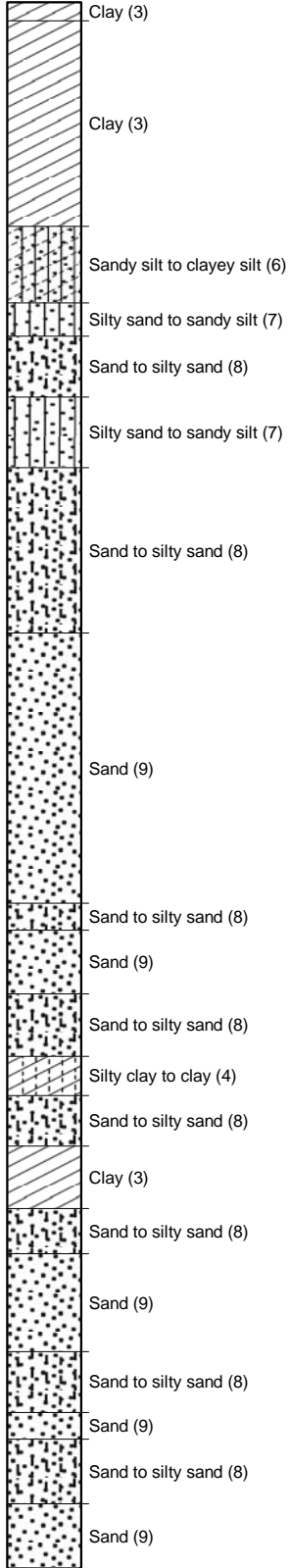
Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150


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Project ID: 2008012455	Client: Ameren Missouri	Date: 12/24/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-90
		File: Labadie C-196.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-196
 Test date: 12/24/2009
 Location: Labadie MO
 File name: Labadie C-196.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in ²]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm ³]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.652	0.017	7.826	Clayey silt to silty clay (5)	3.9	0.888	0.007	0.007				1.81	3.9	113	0.15	0.15	533
3.75	0.79	0.028	11.8086	Clay (3)	6.5	1.054	0.021	0.015				1.81	6.5	113	0.44	0.31	316
6.25	0.637	0.024	11.3078	Clay (3)	6.4	0.823	0.034	0.02				1.79	6.4	112	0.71	0.42	247
8.75	1.96	0.007	6.7492	Silty sand to sandy silt (7)	6.9	0.8	0.048	0.026	24.7			1.87	4.4	117	1.00	0.54	163
11.25	7.024	0.013	4.1637	Sand (9)	15.2		0.062	0.033	30.7	75		1.96	7.6	122	1.29	0.69	584
13.75	9.808	0.029	4.9787	Sand to silty sand (8)	19.7		0.077	0.04	33.5	80		1.99	12.6	124	1.60	0.83	816
16.25	5.891	0.025	3.8496	Sand to silty sand (8)	14.7		0.091	0.047	30.4	62		1.94	9.4	121	1.89	0.98	490
18.75	9.795	0.027	7.8371	Sand (9)	21.1		0.106	0.054	33.1	73		1.96	10.5	122	2.20	1.12	815
21.25	10.61	0.029	8.7346	Sand (9)	21.2		0.12	0.061	33.8	75		1.99	10.6	124	2.50	1.27	883
23.75	11.517	0.028	9.2711	Sand (9)	23.0		0.135	0.068	34.3	76		1.99	11.5	124	2.81	1.41	958
26.25	15.709	0.036	10.1399	Sand (9)	31.4		0.15	0.076	36.1	84		1.99	15.7	124	3.12	1.58	1307
28.75	15.904	0.047	11.1531	Sand (9)	31.8		0.165	0.083	36.1	83		1.99	15.9	124	3.43	1.73	1323
31.25	3.74	0.032	22.7182	Clayey silt to silty clay (5)	11.9	1.897	0.18	0.09	28.2	57		1.88	11.9	117	3.74	1.87	1138
33.75	2.607	0.025	31.1757	Sand to silty sand (8)	10.6	1.23	0.194	0.096	28.8	45		1.85	6.8	115	4.04	2.00	217

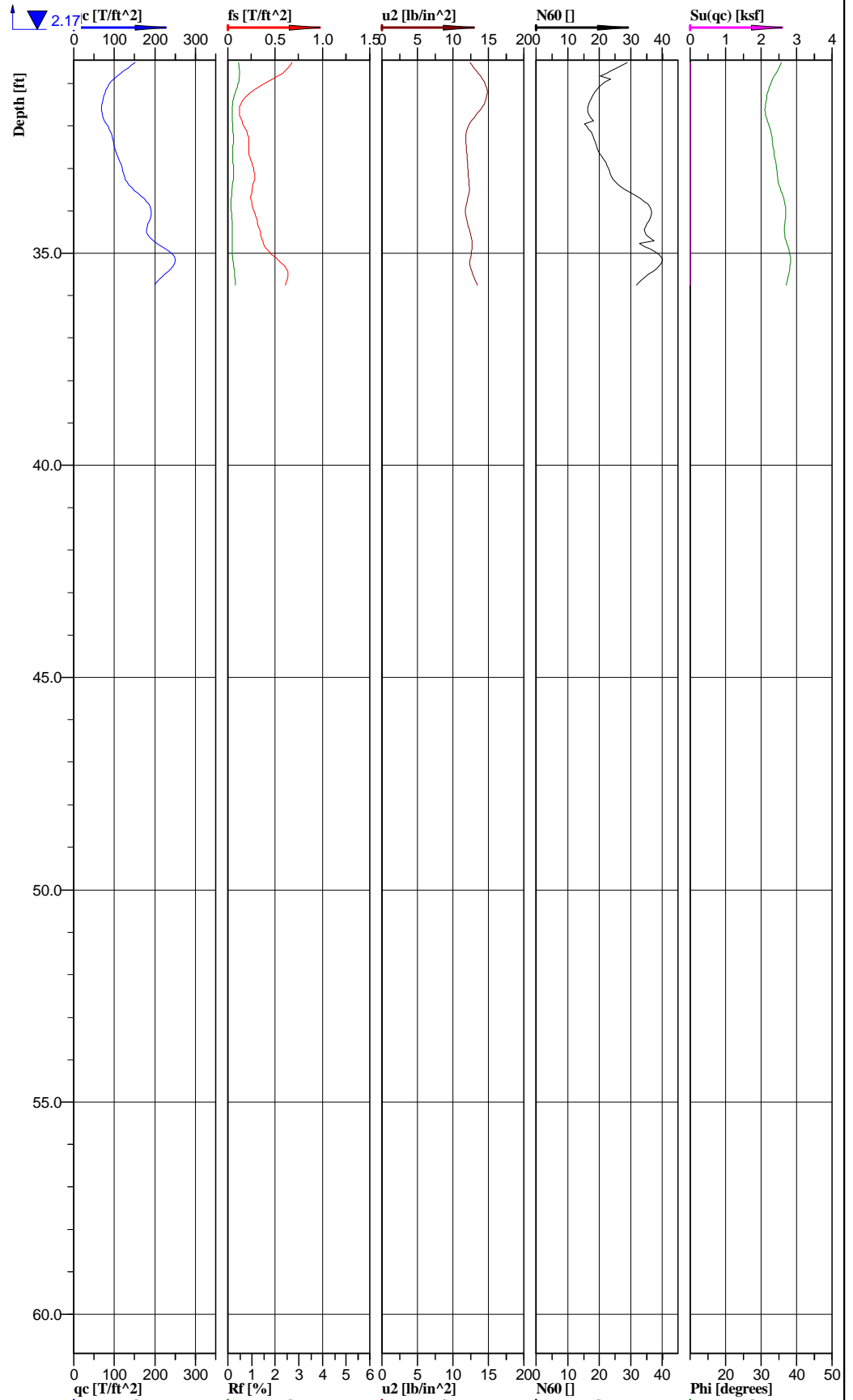
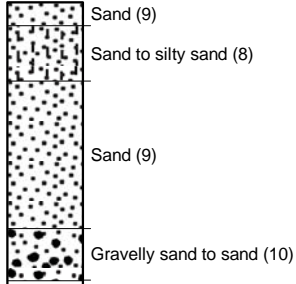
Classification by Robertson 1986



 **u₂**
 Cone No: 4274
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Labadie, MO	Position: X: 728321.52 ft, Y: 990764.90 ft	Ground level: 463.71	Test no: C-198
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-91
File: Labadie C-198.cpd			

Classification by
Robertson 1986



Location: Labadie, MO	Position: X: 728321.52 ft, Y: 990764.90 ft	Ground level: 463.71	Test no: C-198
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/22/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-91
		File: Labadie C-198.cpd	

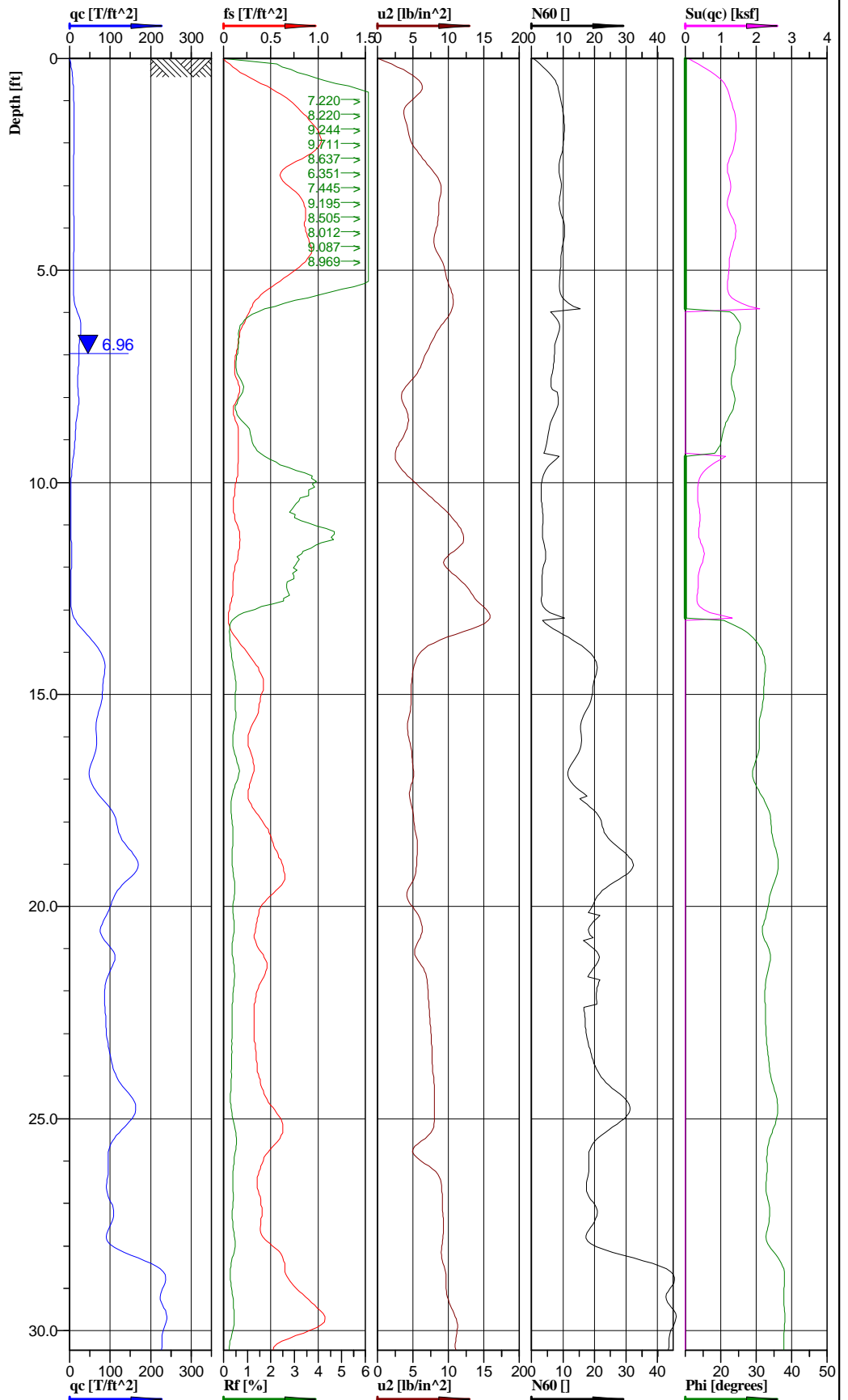
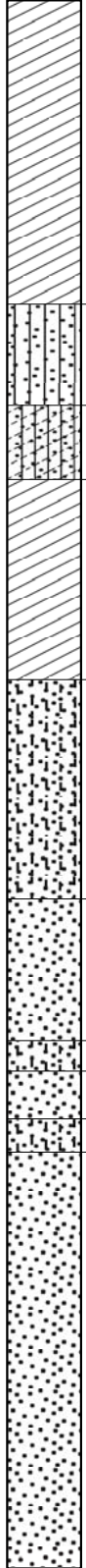


Cone No: 4274
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-198
 Test date: 12/22/2009
 Location: Labadie MO
 File name: Labadie C-198.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values				
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)
1.25	0.753	0.045	17.5693	Clay (3)	7.4	1.014	0.007	0.007			1.79	7.4	112	0.15	0.15	304
3.75	1.075	0.048	21.2838	Sandy silt to clayey silt (6)	8.3	1.245	0.02	0.015	21.0		1.8	8.3	112	0.42	0.31	89
6.25	2.846	0.014	10.9315	Sand to silty sand (8)	8.4		0.034	0.021	25.3	60	1.89	5.4	118	0.71	0.44	237
8.75	3.32	0.009	7.5062	Sand to silty sand (8)	9.6		0.048	0.028	26.8	57	1.91	6.1	119	1.00	0.58	276
11.25	6.426	0.019	5.3401	Sand (9)	15.5		0.063	0.035	30.8	69	1.94	7.7	121	1.31	0.73	535
13.75	11.973	0.037	5.7401	Sand (9)	23.9		0.077	0.042	34.4	84	1.98	12.0	124	1.60	0.87	996
16.25	11.052	0.038	6.019	Sand to silty sand (8)	22.2		0.092	0.049	34.0	79	1.99	14.2	124	1.91	1.02	920
18.75	8.363	0.029	7.2151	Sand to silty sand (8)	18.8		0.107	0.056	32.5	70	1.96	12.0	122	2.23	1.16	696
21.25	3.533	0.026	12.4153	Clay (3)	13.0	2.308	0.121	0.063	29.1	52	1.89	13.0	118	2.52	1.31	692
23.75	4.889	0.026	12.937	Sand (9)	14.0	1.326	0.135	0.069	31.1	60	1.9	7.0	119	2.81	1.44	407
26.25	11.145	0.047	10.1061	Sand (9)	24.0		0.15	0.076	33.8	72	1.97	12.0	123	3.12	1.58	927
28.75	9.28	0.035	10.3359	Sand (9)	20.3		0.165	0.083	32.9	66	1.96	10.2	122	3.43	1.73	772
31.25	10.051	0.034	12.989	Sand (9)	21.6		0.179	0.091	33.3	67	1.97	10.8	123	3.72	1.89	836
33.75	15.622	0.028	12.1778	Gravelly sand to sand (10)	30.3		0.194	0.098	35.9	79	1.99	20.6	124	4.04	2.04	1300
36.25	22.081	0.056	12.7648	Gravelly sand to sand (10)	36.8		0.204	0.102	37.8	89	2.02	25.0	126	4.24	2.12	1837

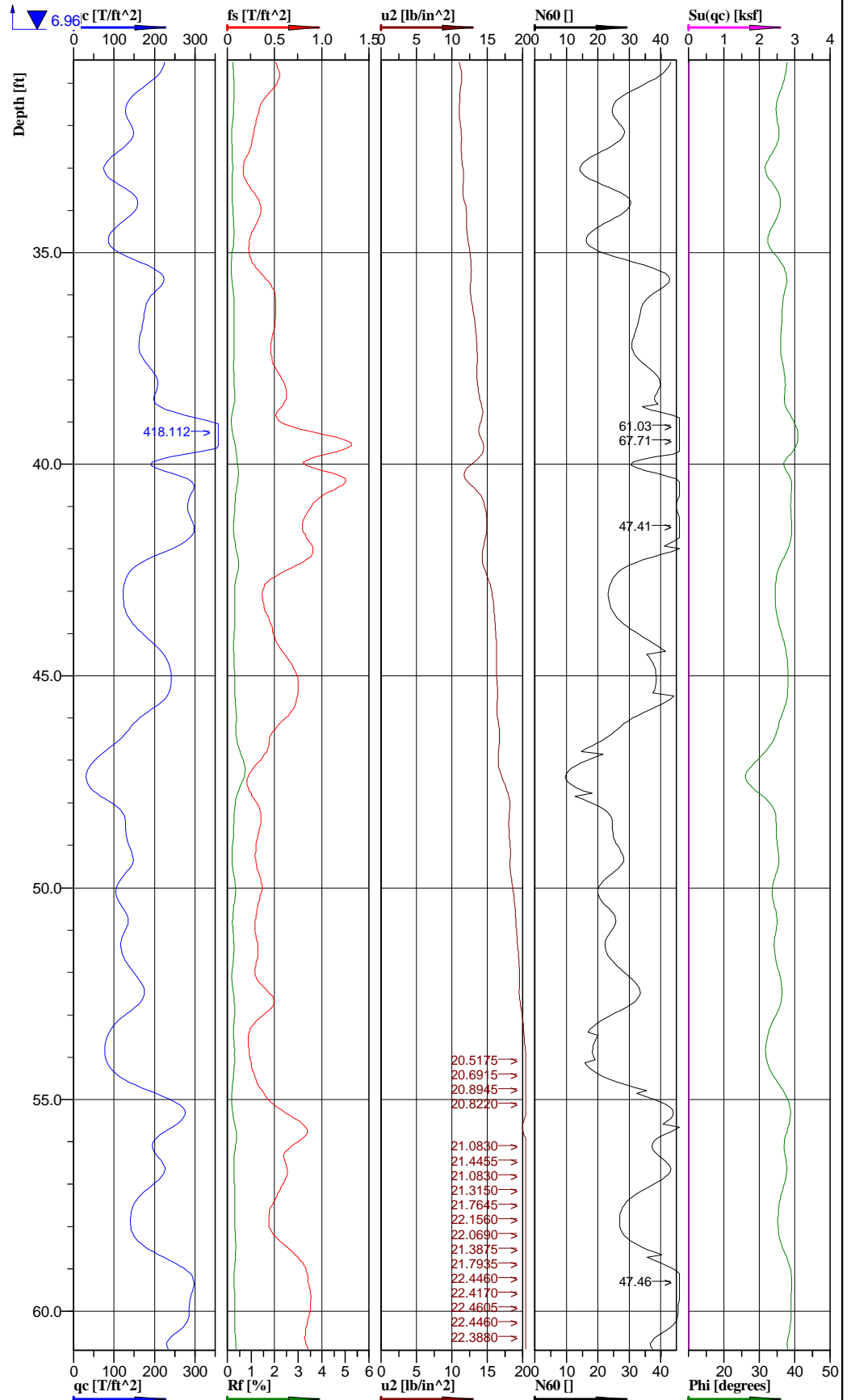
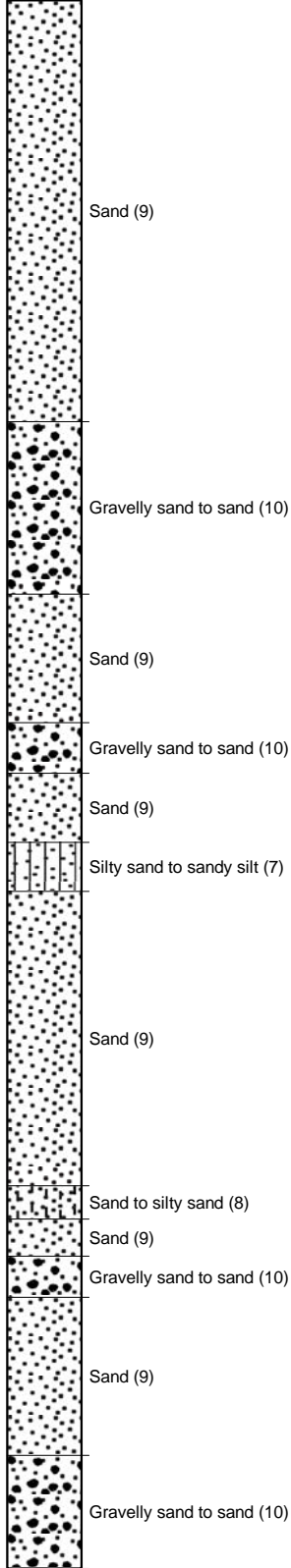
Classification by
Robertson 1986



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729076.02 ft, Y: 990737.63 ft	Ground level: 464.80	Test no: C-200
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/21/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 1	Fig: C-92
File: Labadie C-200.cpd			

Classification by
Robertson 1986



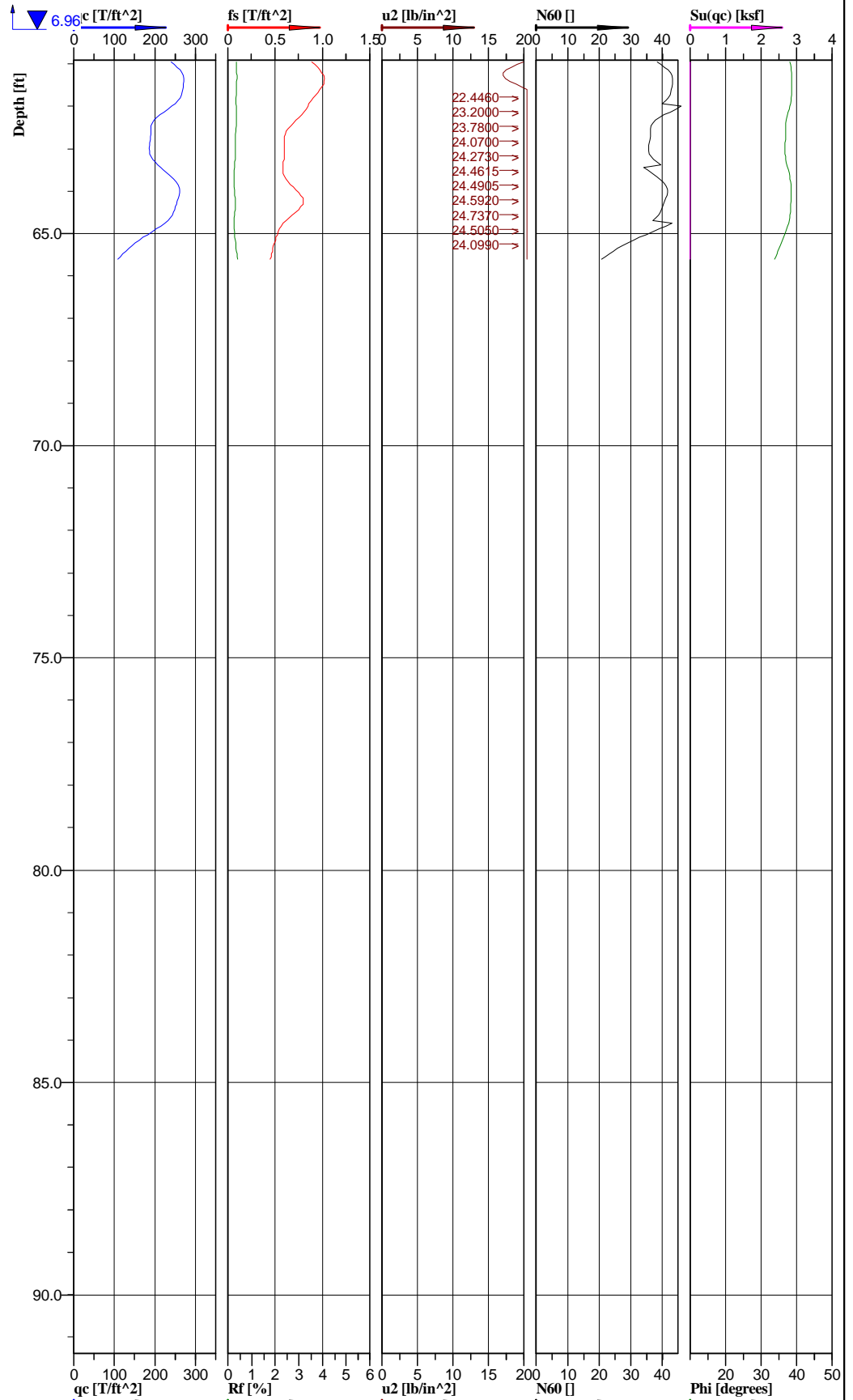
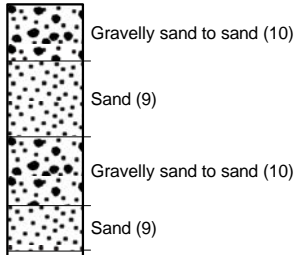
REITZ & JENS, INC.
CONSULTING ENGINEERS

Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: Labadie, MO	Position: X: 729076.02 ft, Y: 990737.63 ft	Ground level: 464.80	Test no: C-200
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/21/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 2	Fig: C-92
		File: Labadie C-200.cpd	

Classification by
Robertson 1986



Cone No: 4274
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Labadie, MO	Position: X: 729076.02 ft, Y: 990737.63 ft	Ground level: 464.80	Test no: C-200
Project ID: 2008012455	Client: Ameren Missouri	Date: 12/21/2009	Scale: 1 : 44
Project: Labadie Power Plant UWL DSI		Page: 3	Fig: C-92
		File: Labadie C-200.cpd	

Client: Ameren Missouri
 Project name: Labadie Power Plant UWL DSI
 Test no.: C-200
 Test date: 12/21/2009
 Location: Labadie MO
 File name: Labadie C-200.cpd

Depth [ft]	Corrected point resistance [MPa]	Corrected local friction [MPa]	Pore pressure behind cone [lb/in^2]	CPT-Pro Calculated Values								Reitz and Jens Calculated Values					
				Soil Type	SPT Energy Ratio N60 [bpf]	Undrained shear strength [ksf]	Total overburden stress [MPa]	Effective total overburden str [MPa]	R&J Phi Angle [degrees]	Relative density [%]	Unit weight [g/cm^3]	Corrected N60 [bpf]	Unit Weight [pcf]	Total Overburden [ksf]	Effective Overburden [ksf]	Es (OCR=4) (ksf)	
1.25	0.842	0.064	4.7027	Clay (3)	8.4	1.156	0.007	0.007				1.78	8.4	111	0.15	0.15	347
3.75	0.948	0.077	8.5476	Clay (3)	9.5	1.28	0.02	0.02				1.78	9.5	111	0.42	0.42	384
6.25	1.806	0.026	8.5286	Silty sand to sandy silt (7)	8.4	1.362	0.034	0.034	24.2			1.85	5.4	115	0.71	0.71	150
8.75	1.324	0.014	3.7462	Clay (3)	6.0	0.635	0.048	0.042	21.9			1.84	6.0	115	1.00	0.87	191
11.25	0.359	0.012	10.1463	Clay (3)	3.6	0.401	0.061	0.048				1.78	3.6	111	1.27	1.00	120
13.75	4.743	0.02	9.4343	Sand to silty sand (8)	12.8	0.539	0.075	0.054	30.3	60	1.89	8.2	118	1.56	1.12	395	
16.25	6.207	0.029	4.6619	Sand (9)	15.3		0.089	0.061	30.7	60	1.94	7.7	121	1.85	1.27	516	
18.75	12.296	0.048	5.0862	Sand (9)	24.6		0.104	0.068	34.6	78	1.99	12.3	124	2.16	1.41	1023	
21.25	8.813	0.036	6.3172	Sand (9)	19.6		0.118	0.075	32.8	67	1.96	9.8	122	2.45	1.56	733	
23.75	11.187	0.037	7.759	Sand (9)	22.4		0.133	0.082	34.1	72	1.99	11.2	124	2.77	1.71	931	
26.25	10.062	0.043	7.9119	Sand (9)	20.1		0.148	0.089	33.6	69	1.99	10.1	124	3.08	1.85	837	
28.75	18.45	0.071	9.857	Sand (9)	36.9		0.163	0.097	36.6	83	1.99	18.4	124	3.39	2.02	1535	
31.25	16.467	0.042	11.1806	Sand (9)	32.9		0.178	0.104	36.2	80	2	16.5	125	3.70	2.16	1370	
33.75	10.684	0.024	11.8487	Sand (9)	21.3		0.193	0.111	33.8	67	1.98	10.7	124	4.01	2.31	889	
36.25	17.144	0.042	13.0143	Sand (9)	34.3		0.208	0.118	36.5	80	2	17.1	125	4.33	2.45	1426	
38.75	25.488	0.071	13.8706	Gravelly sand to sand (10)	45.2		0.223	0.126	38.3	89	2.01	30.7	125	4.64	2.62	2121	
41.25	24.522	0.088	14.01	Sand (9)	42.2		0.238	0.133	38.3	88	2.02	21.1	126	4.95	2.77	2040	
43.75	16.106	0.049	15.9296	Gravelly sand to sand (10)	30.5		0.253	0.14	36.0	75	2	20.7	125	5.26	2.91	1340	
46.25	13.171	0.05	16.588	Silty sand to sandy silt (7)	26.5		0.268	0.148	33.8	75	1.97	16.9	123	5.57	3.08	1096	
48.75	10.898	0.03	18.1321	Sand (9)	22.5		0.282	0.155	33.7	65	1.98	11.2	124	5.87	3.22	907	
51.25	12.734	0.031	19.2165	Sand (9)	25.4		0.297	0.162	34.9	67	1.99	12.7	124	6.18	3.37	1059	
53.75	11.984	0.031	20.3409	Gravelly sand to sand (10)	24.2		0.312	0.169	34.2	63	1.98	16.4	124	6.49	3.52	997	
56.25	20.555	0.061	20.9674	Sand (9)	39.1		0.327	0.177	37.4	79	2	19.6	125	6.80	3.68	1710	
58.75	21.412	0.067	22.0961	Gravelly sand to sand (10)	38.0		0.342	0.184	37.4	79	2.02	25.8	126	7.11	3.83	1781	
61.25	23.823	0.083	21.4444	Sand (9)	41.2		0.357	0.191	38.2	82	2.02	20.6	126	7.43	3.97	1982	
63.75	21.193	0.061	24.4068	Sand (9)	38.3		0.372	0.199	37.6	78	2.02	19.2	126	7.74	4.14	1763	
66.25	13.578	0.046	24.3818	Sand (9)	27.1		0.381	0.203	35.2	65	1.99	13.6	124	7.92	4.22	1130	

Appendix D

**ANALYSIS OF CPT SOUNDINGS
AND COMPARISON WITH BORINGS**

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Ameren Missouri Labadie Power Plant
Utility Waste Landfill Detailed Site Investigation
Summary of Geotechnical Investigation

Appendix D – Analysis of CPT Soundings and Comparison with Borings

The Cone Penetration Test (CPT) data, which appear in Appendix C, have been processed using the program CPT-Pro by GeoSoft in order for the soundings to be easily interpreted visually. This processing includes smoothing the raw data and interpretation for both geologic and geotechnical parameters. The raw data generated by the cone penetrometer include: the cone tip pressure (q_c), skin friction (f_s), and porewater pressure measured behind the cone tip (u_2). The tip pressure and skin friction are corrected by CPT-Pro to account for static pore water pressure (q_t and f_t respectively).

A smoothing function is used to clean up the raw data, to correct for the sensitivity of the CPT equipment and the normal errors that are generated during penetration. This smoothing function removes any erroneous data, and evens out any micro-scale features such as those caused by individual gravel fragments or thin layering which are beyond the ability of the cone penetrometer to reasonably detect due to the probe geometry. By smoothing the data, we ensure that it represents the soil behavior of a soil stratum and not individual anomalies. This smoothing of the data has been shown to have little impact on the soil stratigraphy that is created from the data.

After the data has been smoothed, interpretations can be made. Based upon the pore water pressure data, the ground water depth is approximated manually. Knowing the depth to ground water, the software calculates the static pore water pressure (u_0). From the smoothed data of q_t and f_t , CPT-Pro automatically calculates the friction ratio (R_f), which is defined as (f_t/q_t) or alternately as (f_s/q_t) . In general, a high R_f is indicative of fine-grain and low sensitivity soils. CPT-Pro also calculates the pore pressure ratio (B_q), which is defined as $(u_2-u_0)/(q_t-\sigma_{vo})$. In general, higher pore pressure ratios correspond to more sensitive soils, that is, soils which lose significant undrained shear strength when disturbed. Very sensitive soils are typically found in marine deposits in saltwater environments, not in the St. Louis area.

The soil stratigraphy can be determined with this base information, which is derived solely from the data collected from the cone penetrometer as it is pushed, because there are no soil cuttings or soil samples. The primary classification system that we used is the “ R_f and q_t based Robertson 1986”, which determines the soil type based upon the corrected cone tip pressure and the friction ratio. The chart used for this method is shown in Figure D-1, which we copied from the CPT-Pro manual. This method is one of 5 that are part of the CPT-Pro program. Coarse-grain soils generally have high q_t and low R_f , and fine-grain soils (silts and clays) have low q_t and high R_f . These relative values are the basis of soil classification under the R_f & q_t method. In order to account for the limits of data acquisition due to probe geometry, a minimum layer thickness of 6 inches was used for soil classification.

In some cases, we used a second classification system where unexpected or anomalous classifications were produced by the R_f & q_t method – specifically where either “sensitive fine grained” or “organic material” classifications were selected by CPT-Pro. The term “sensitive fine grained” was not useful as it does not descriptive of a soil type. A few CPT logs were developed in our initial analyses using the

R_f & q_t method that had very thick layers (greater than 5 feet) of “organic material.” None of the standard borings on the site encountered anything more than laminations of organics, so we questioned the validity of this classification. The second classification system employed was “ B_q and q_t based Robertson 1986,” which determines the soil type based upon the corrected cone tip pressure and the pore pressure ratio. The chart for this classification method is shown in Figure D-2, also from the CPT-Pro manual. A reasonable soil classification resulted using the B_q & q_t method in each case where a questionable classification from the R_f & q_t method was re-analyzed. Our engineering judgment, and CPT soundings correlated with geotechnical borings with soil samples on this project and from other projects, led to our choice of the above two methods of the 5 available in CPT-Pro. We tried the other methods of analyses in the CPT-Pro program, but this yielded the best results.

Five extra temporary geotechnical borings were made next to selected CPT soundings to verify that the CPT sounding produced similar or better results than a standard boring. The pairs of CPT logs and boring logs are depicted in Figures D-3 through D-7. Some logs, specifically C-100 and B-100 in Figure D-6, demonstrate that the CPT probe can detect finer soil layering than a standard geotechnical boring in which soil samples are taken at intervals. In addition to the geotechnical borings, we made CPT soundings next to 3 selected piezometer borings. These are depicted in Figures D-8 through D-10. The general soil classifications in each of these pairs of logs are very similar for practical purposes, with the exception of laminated soils. Laminated soils have been identified in the CPT logs as an average of the soil types in that interval because of the scale limitations of the probe’s size and geometry.

Nine extra confirmation CPT soundings were made next to the planned CPT soundings to demonstrate the repeatability of the results. These comparisons are depicted in Figures D-11 through D-19. The distance in feet between the soundings is shown at the bottom in each figure. The results for each pair are very similar.

Based on the soil type and generated parameters (B_q , R_f , etc.), geotechnical soil parameters were then developed by CPT-Pro. These parameters include: undrained shear strength (s_u), internal effective friction angle (ϕ'), a pseudo corrected SPT blow count (N_{60}), relative density (D_r or I_D), Young’s modulus (E_s), and wet unit weight (γ). Some of these are calculated by CPT-Pro using internal equations, and some are calculated with user-input equations from other sources. The references for the equations used are listed below. The data are plotted on the CPT sounding logs and/or are listed in the CPT reports. The CPT reports list the means of data and calculated parameters within each 2.5-foot depth interval. Each CPT report follows the corresponding CPT log in Appendix C.

We noted that the N_{60} -values from the standard borings were drastically different from the N_{60} -values which were calculated by CPT-Pro for the pairs of borings and CPT soundings. Therefore, the N_{60} -values from CPT-Pro have been corrected with factors developed by Reitz & Jens for this site. The factors depend upon the soil type. The corrected N_{60} -values are listed in the CPT reports. The correlations which we used are plotted in Figure D-20.

REFERENCES USED IN ANALYSES

Lunne, T., Robertson P.K. and Powell J.J.M. (1997), *Cone Penetration Testing in Geotechnical Practice*. Blackie Academic & Professional.

Bowles, Joseph (1996), *Foundation Analysis and Design, 5th Ed.* McGraw-Hill.

Soil classification method based on R_f and q_t . Robertson 1986.

Source paper.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J.

Use of piezometer cone data.

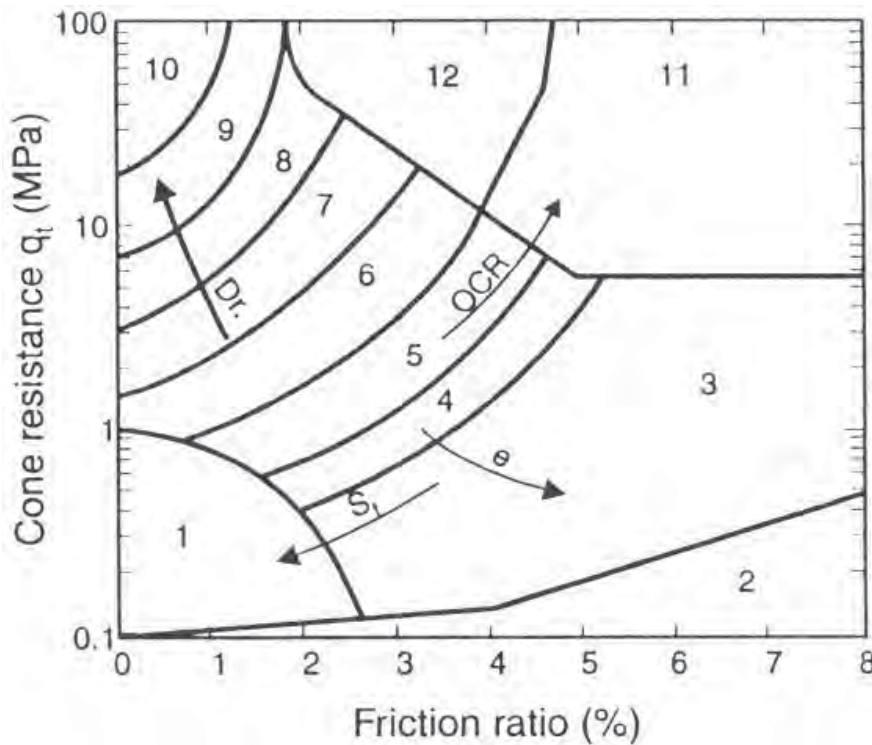
Proceedings of the ASCE Specialty Conference In Situ '86: Use of In Situ Tests in Geotechnical Engineering. ASCE. 1986.

Also quoted in:

Lunne, T., Robertson P.K. and Powell J.J.M. (1997).

Cone Penetration Testing in Geotechnical Practice.

Blackie Academic & Professional.



Classification system from CPTU data (quoted after Lunne, Robertson and Powell, 1997).

Zone	Soil Behaviour Type	Zone	Soil Behaviour Type
1	Sensitive fine grained	7	Silty sand to silty clay
2	Organic material	8	Sand to silty sand
3	Clay	9	Sand
4	Silty clay to clay	10	Gravelly sand to sand
5	Clayey silt to silty clay	11	Very stiff fine grained *
6	Sandy silt to clayey silt	12	Sand to clayey sand *

* Overconsolidated or cemented.

Soil classification method based on B_q and q_t . Robertson 1986.

Source paper.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J.

Use of piezometer cone data.

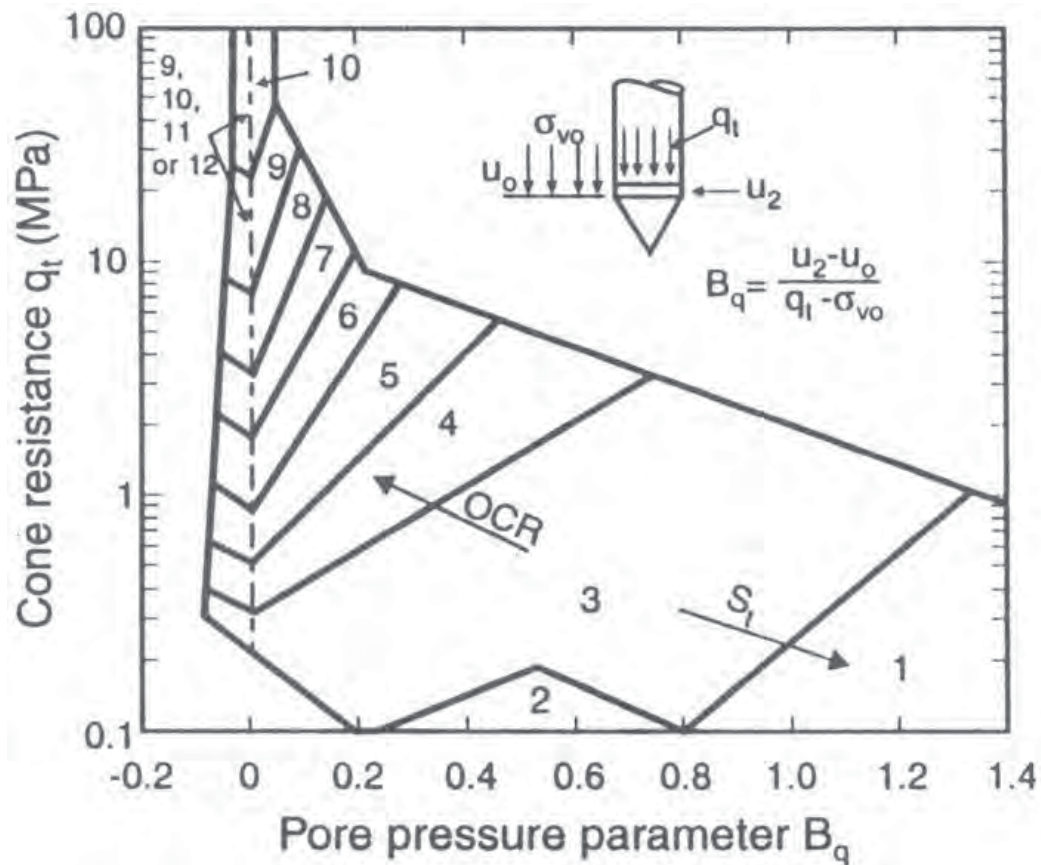
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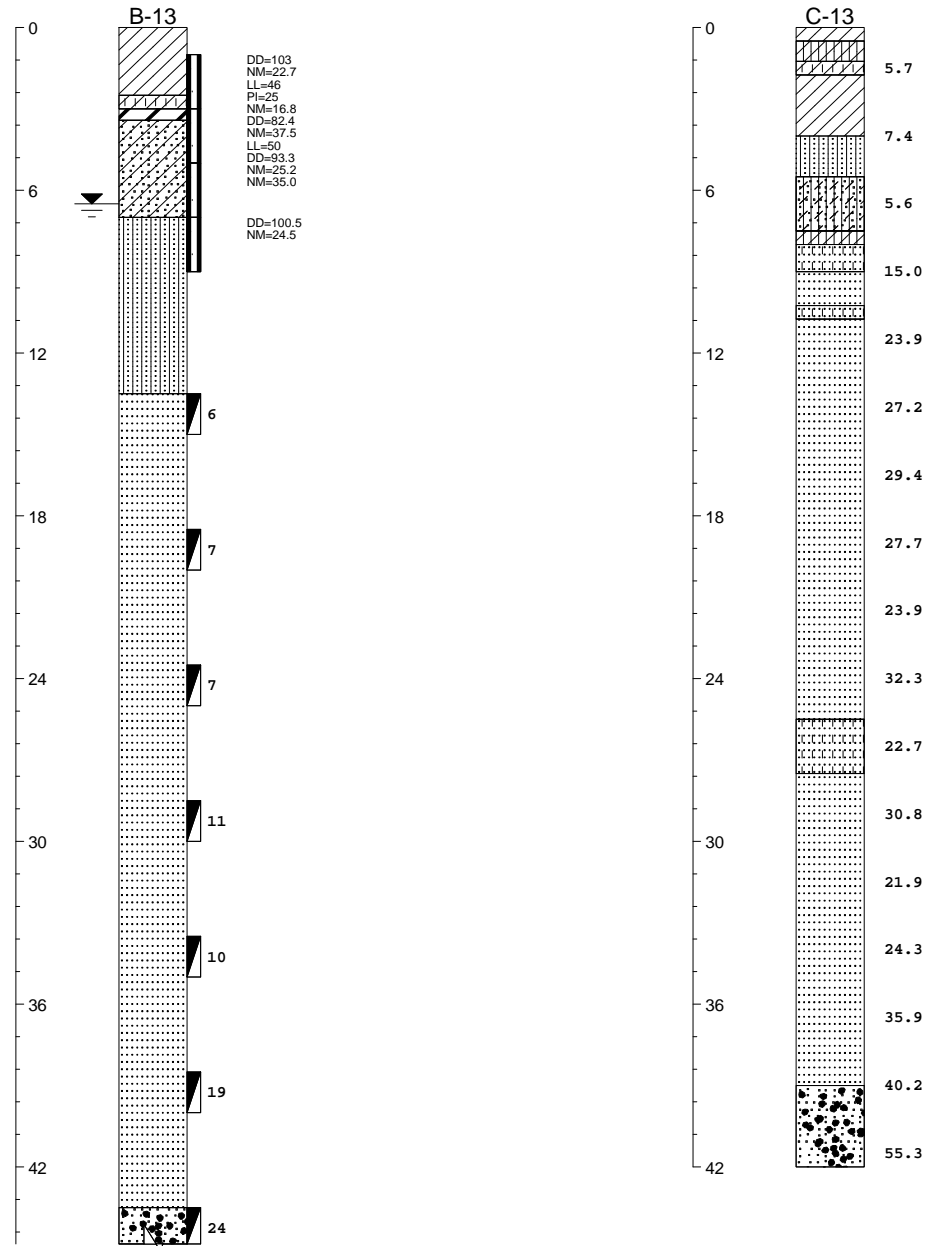
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5	Clayey silt to silty clay	11	Very stiff fine grained *
6	Sandy silt to clayey silt	12	Sand to clayey sand *

* Overconsolidated or cemented

LOG OF BORINGS

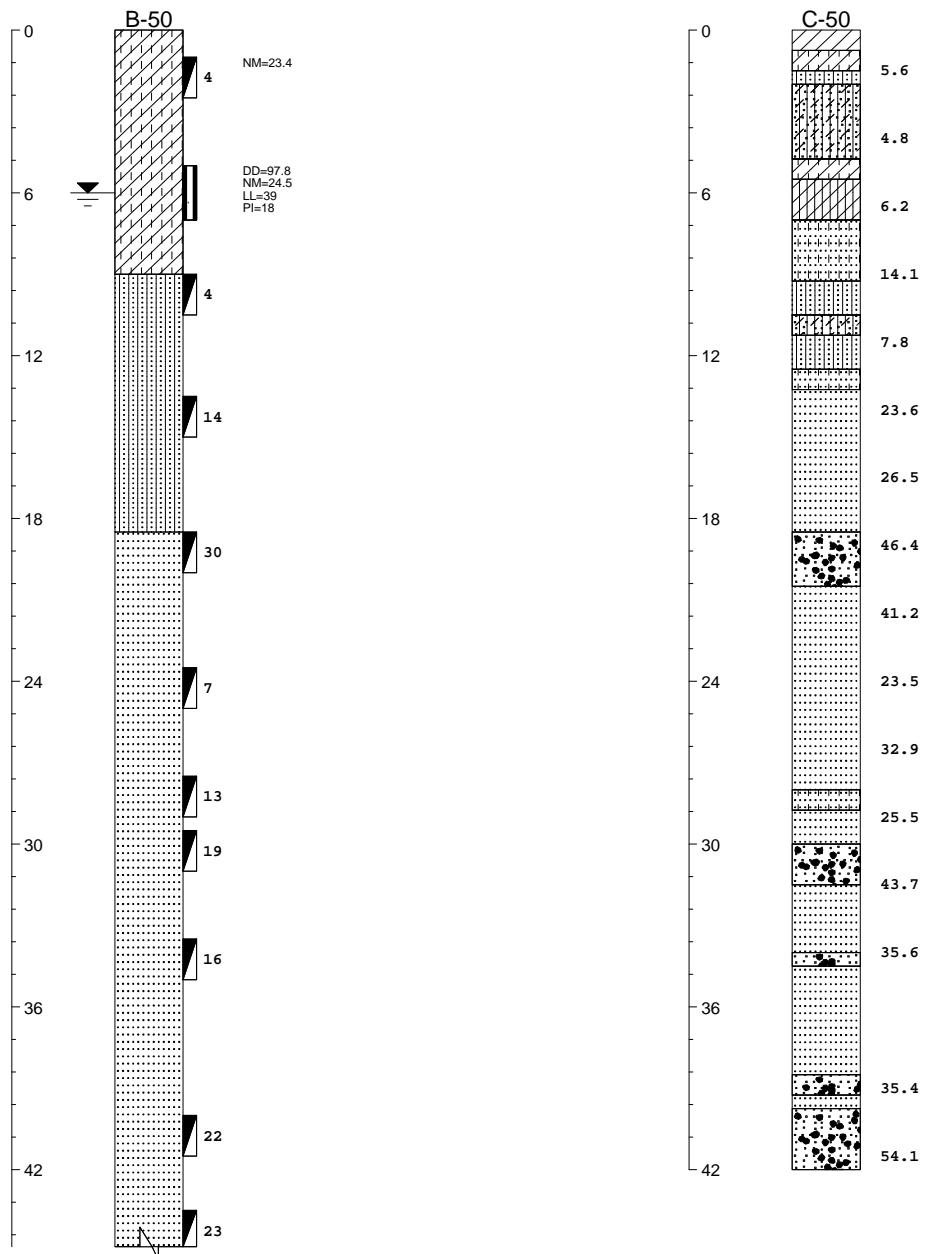
Labadie Power Plant UWL DSI



REITZ & JENS, INC.

LOG OF BORINGS

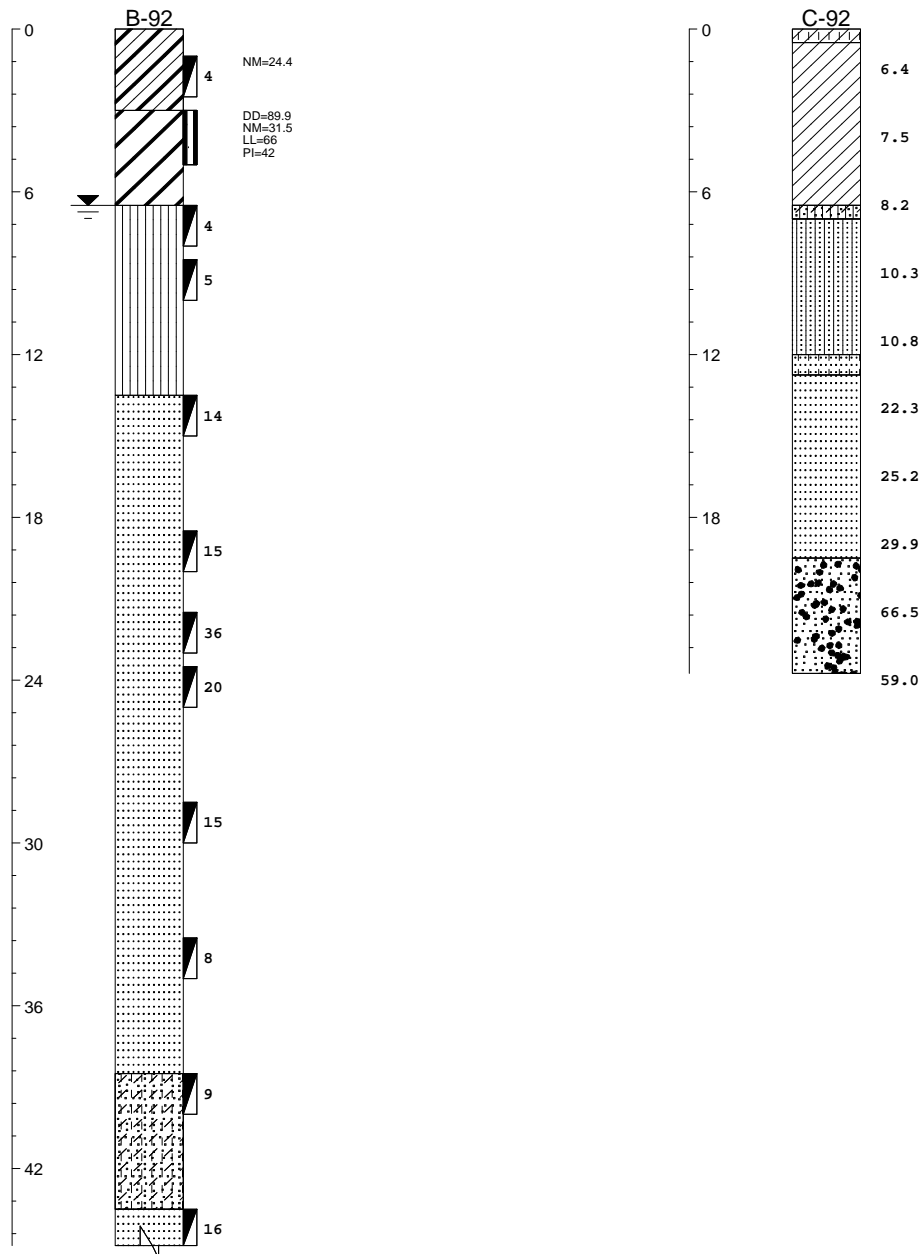
Labadie Power Plant UWL DSI



REITZ & JENS, INC.

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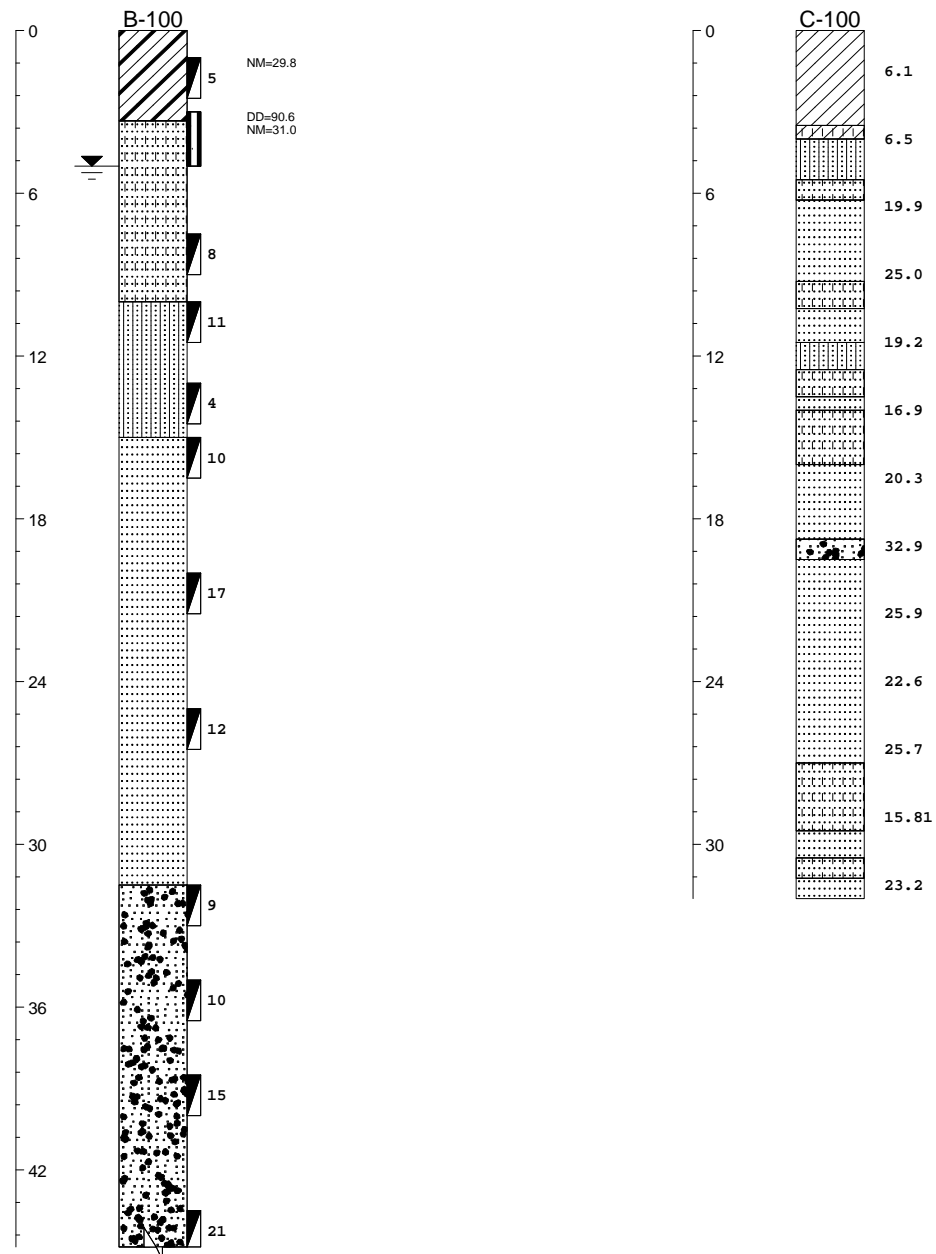
Labadie Power Plant UWL DSI



REITZ & JENS, INC.

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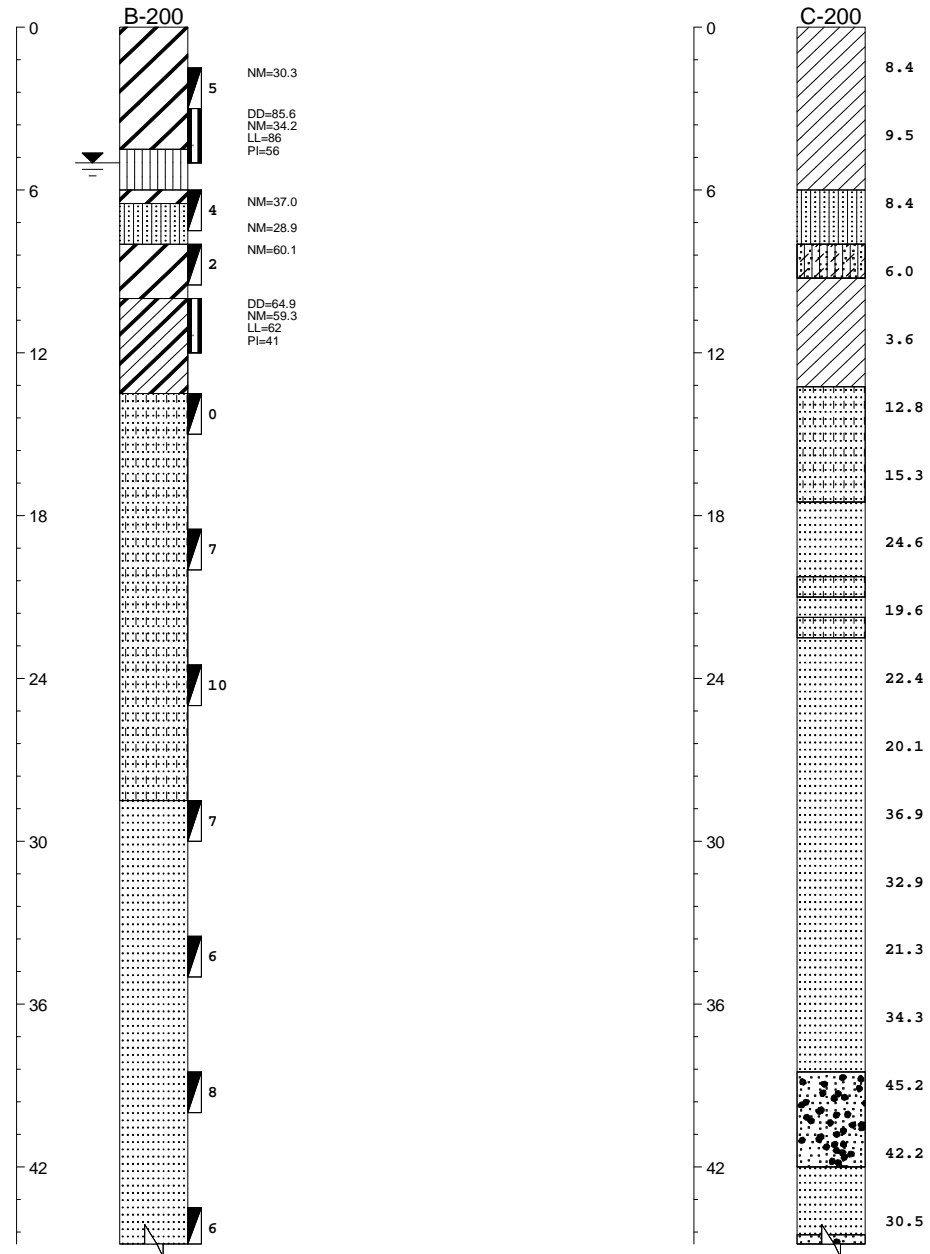
Labadie Power Plant UWL DSI



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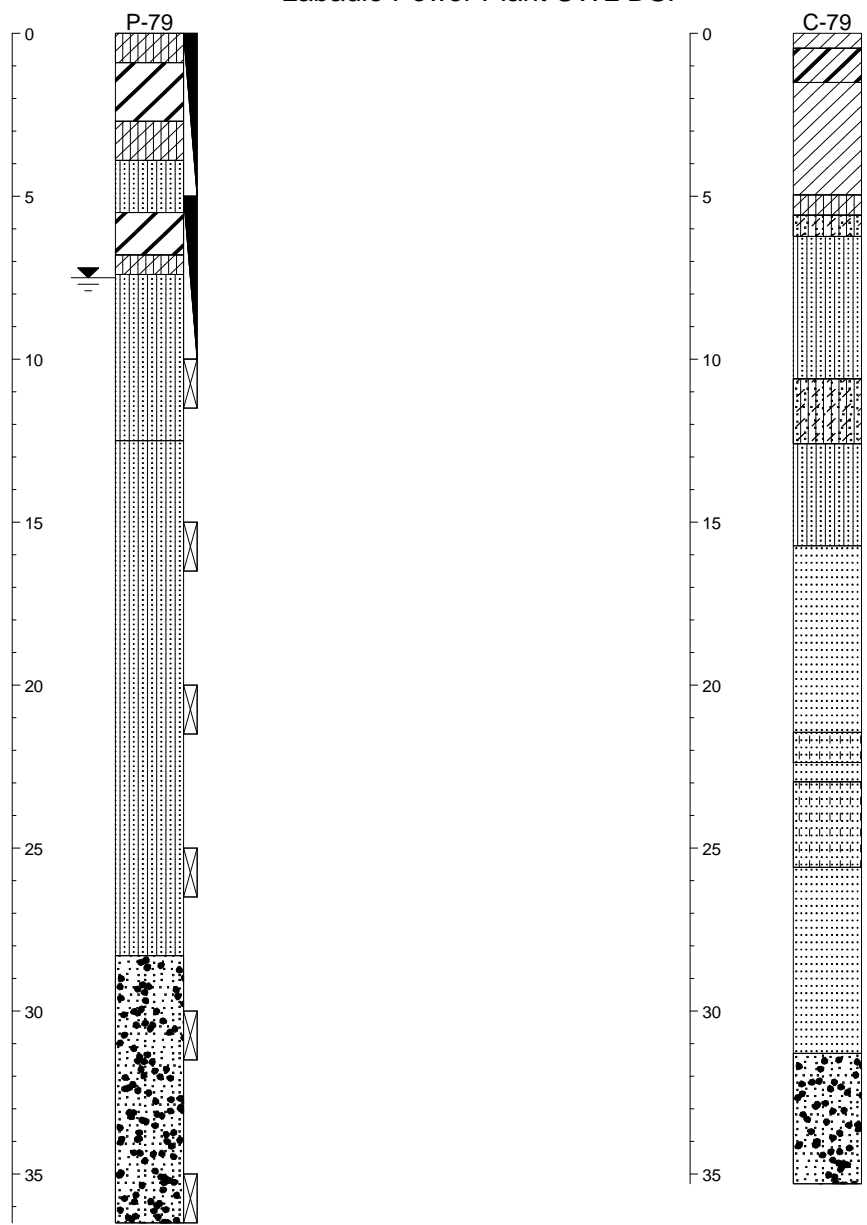
Labadie Power Plant UWL DSI



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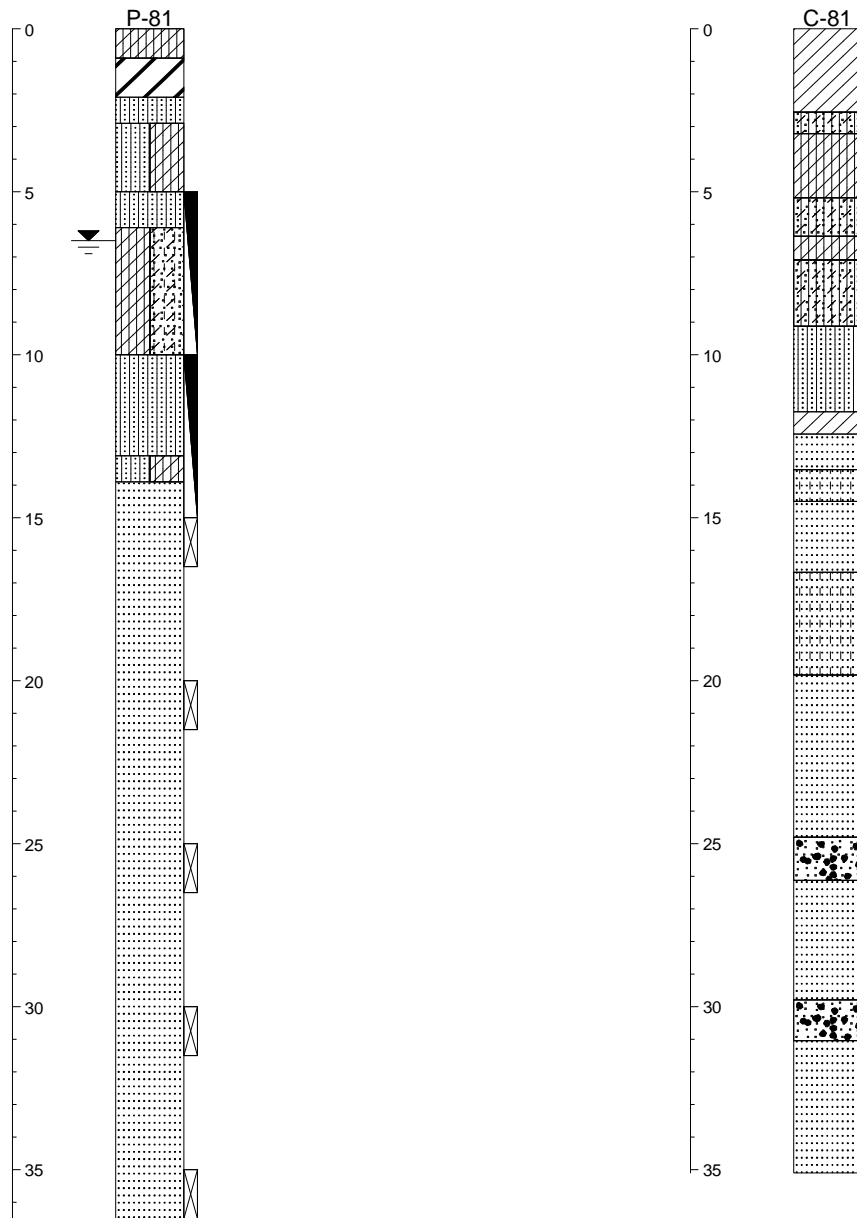
Labadie Power Plant UWL DSI



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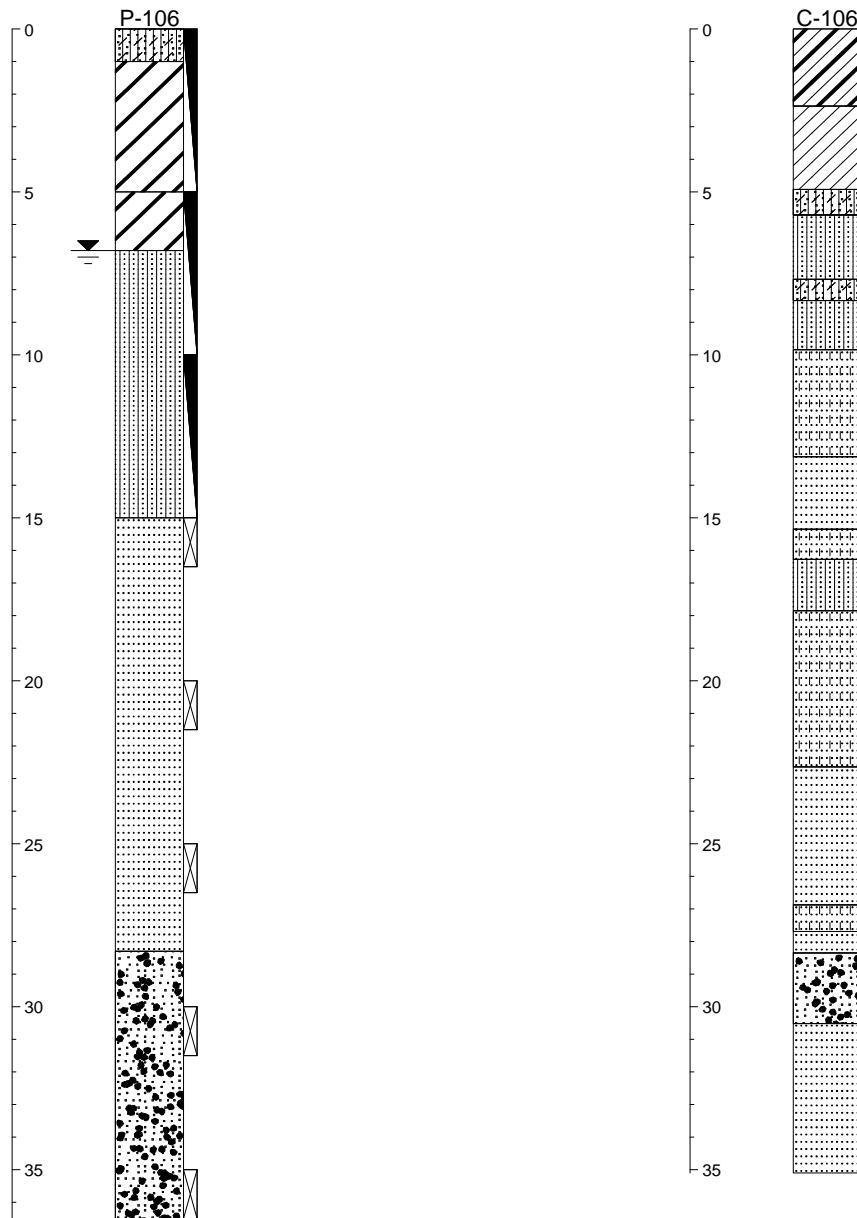
Labadie Power Plant UWL DSI



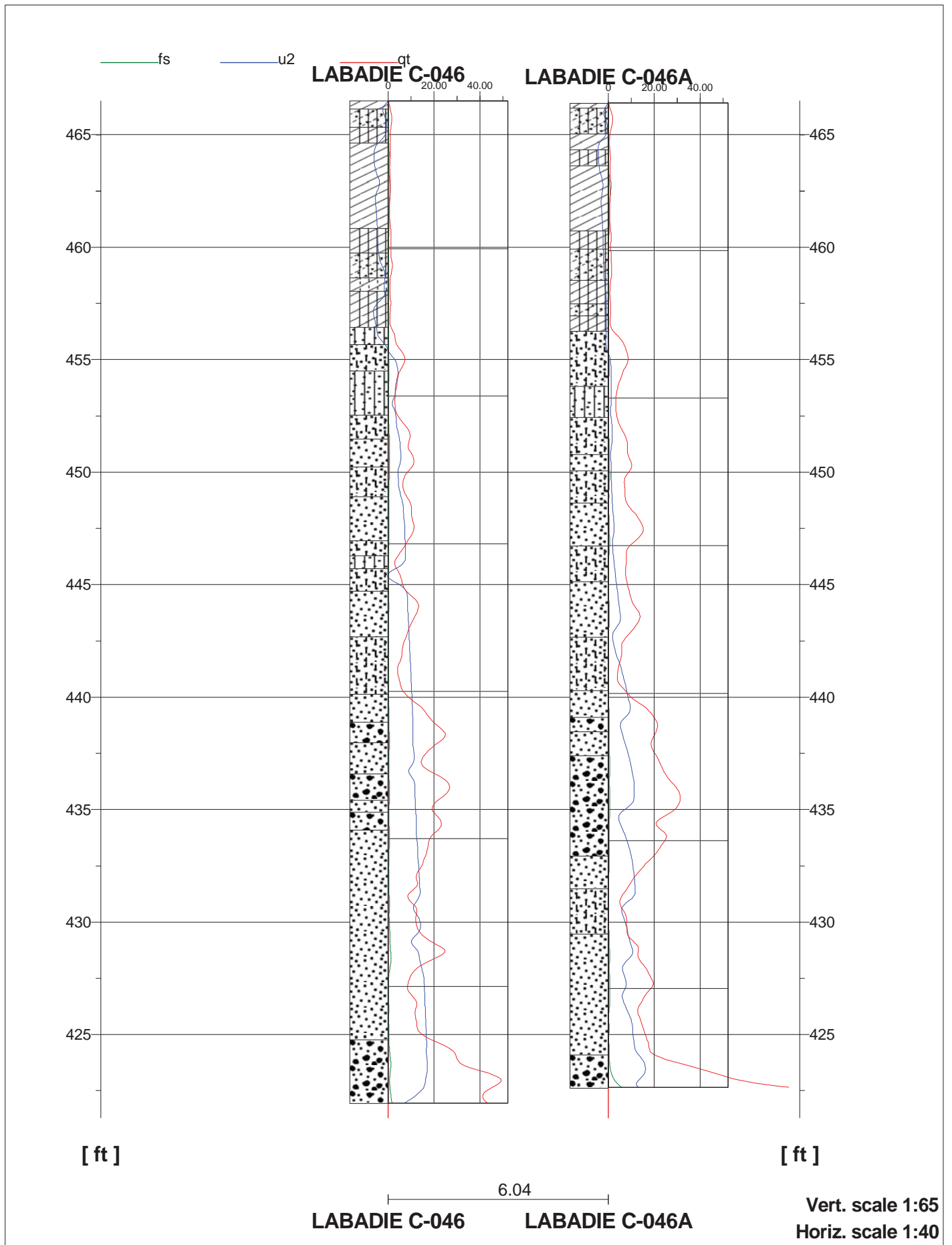
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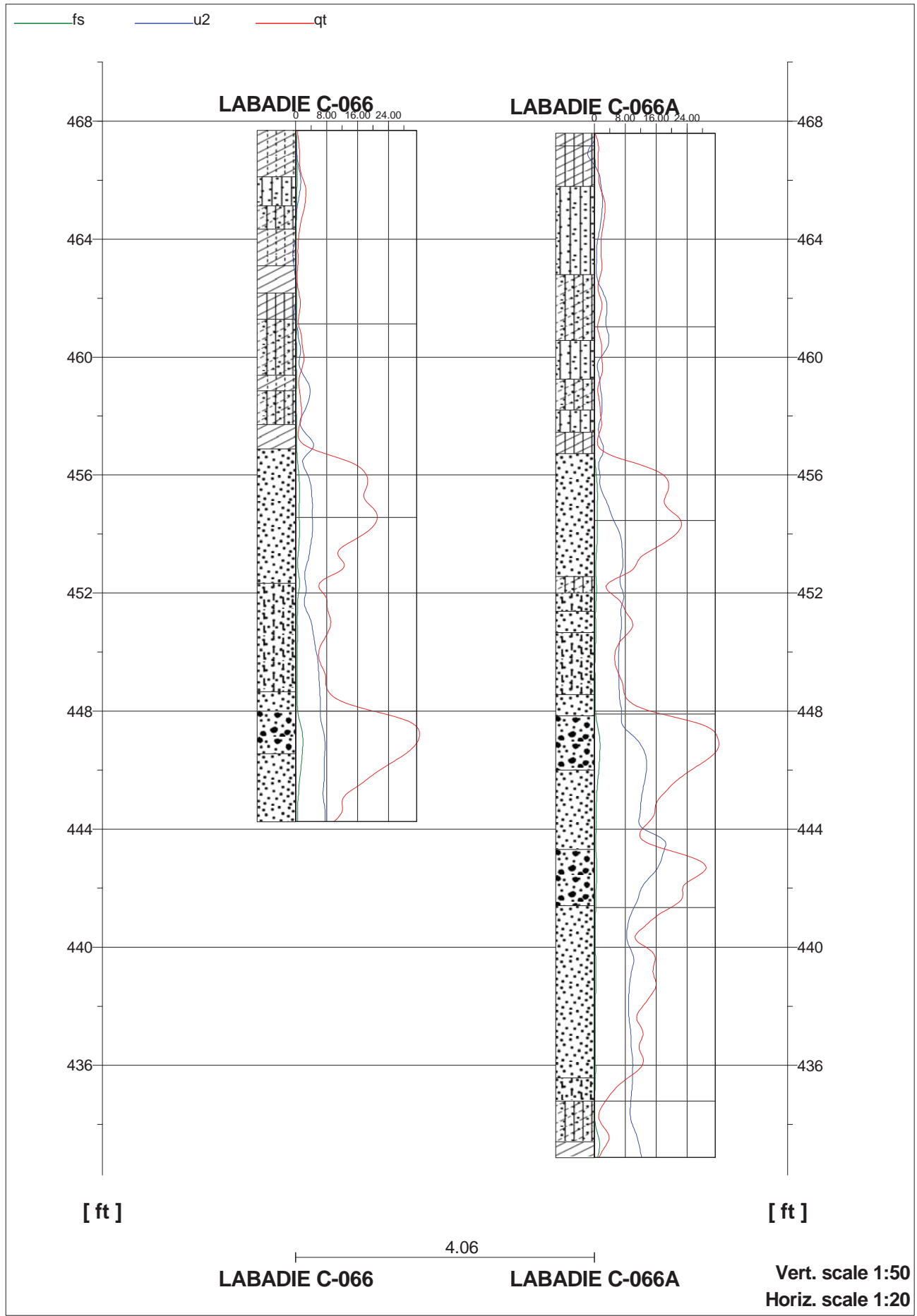
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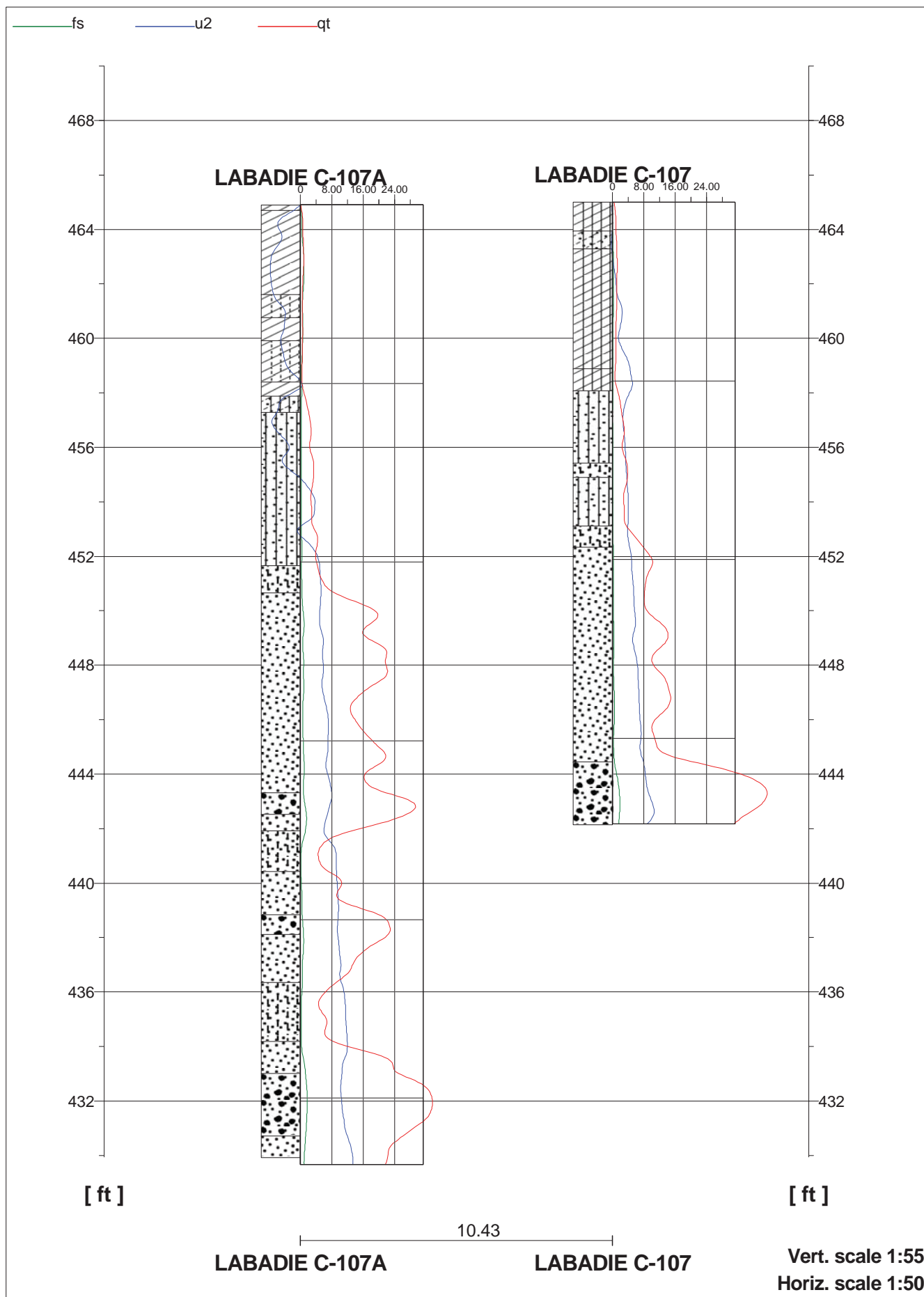
Labadie Power Plant UWL DSI

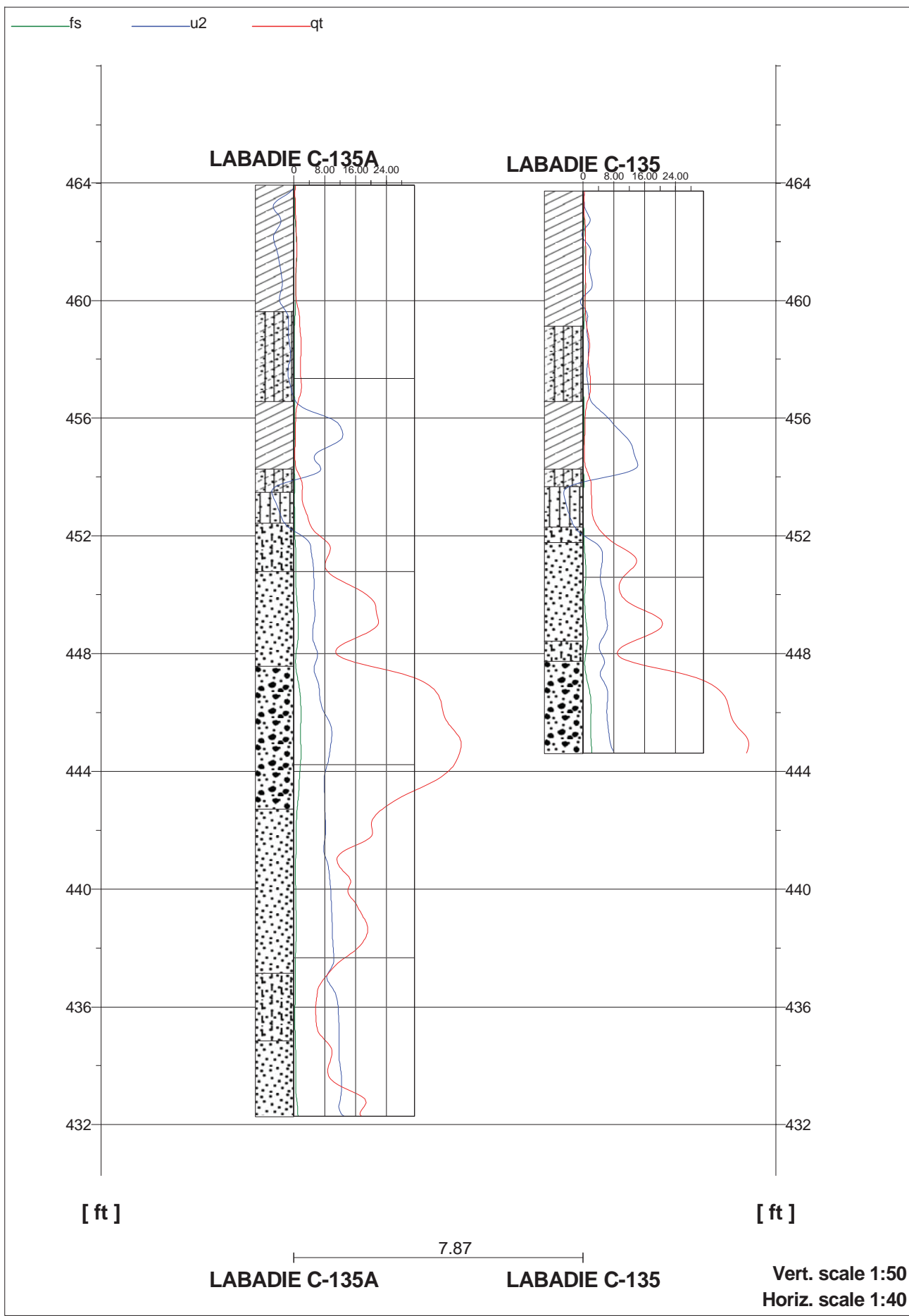


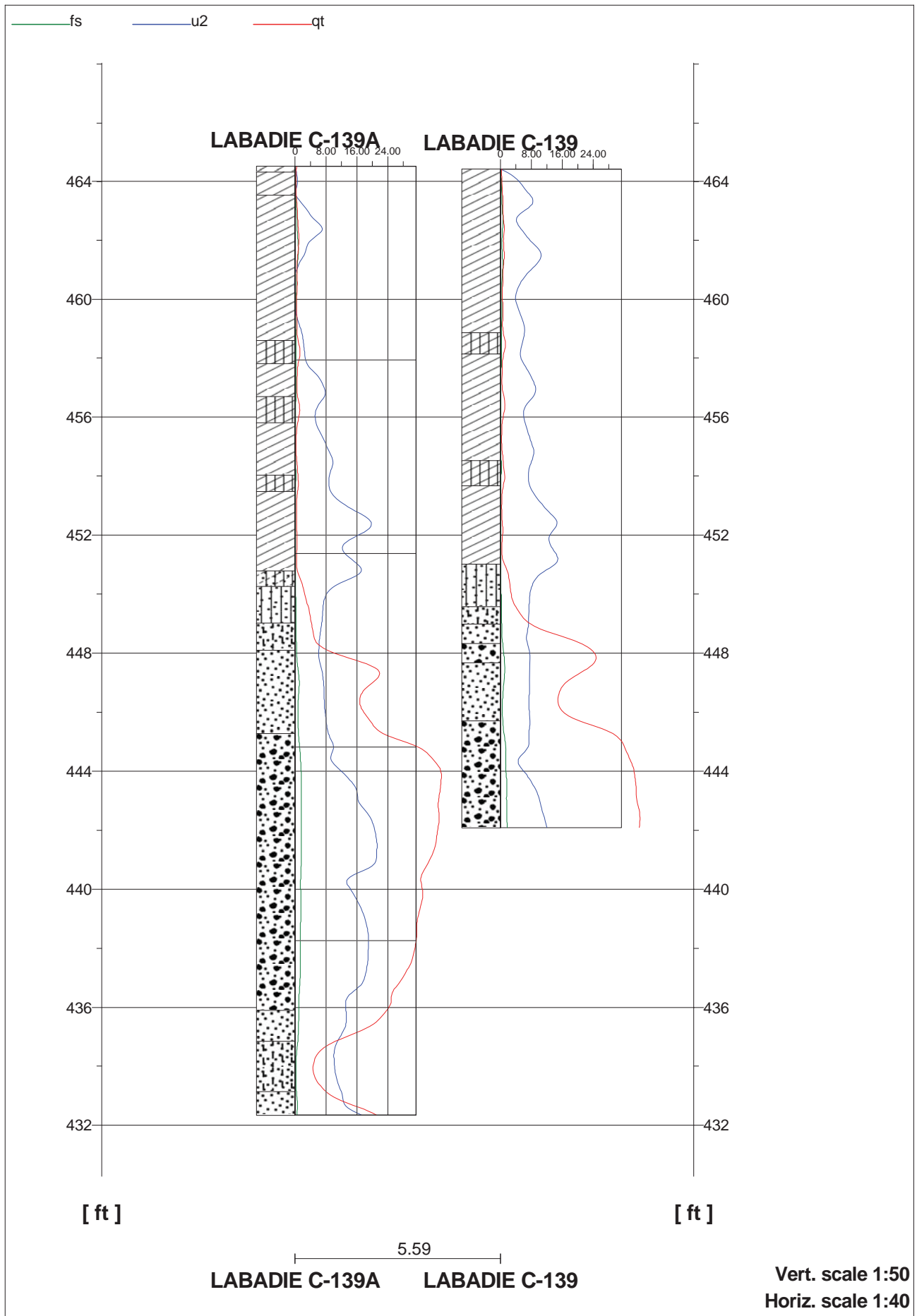
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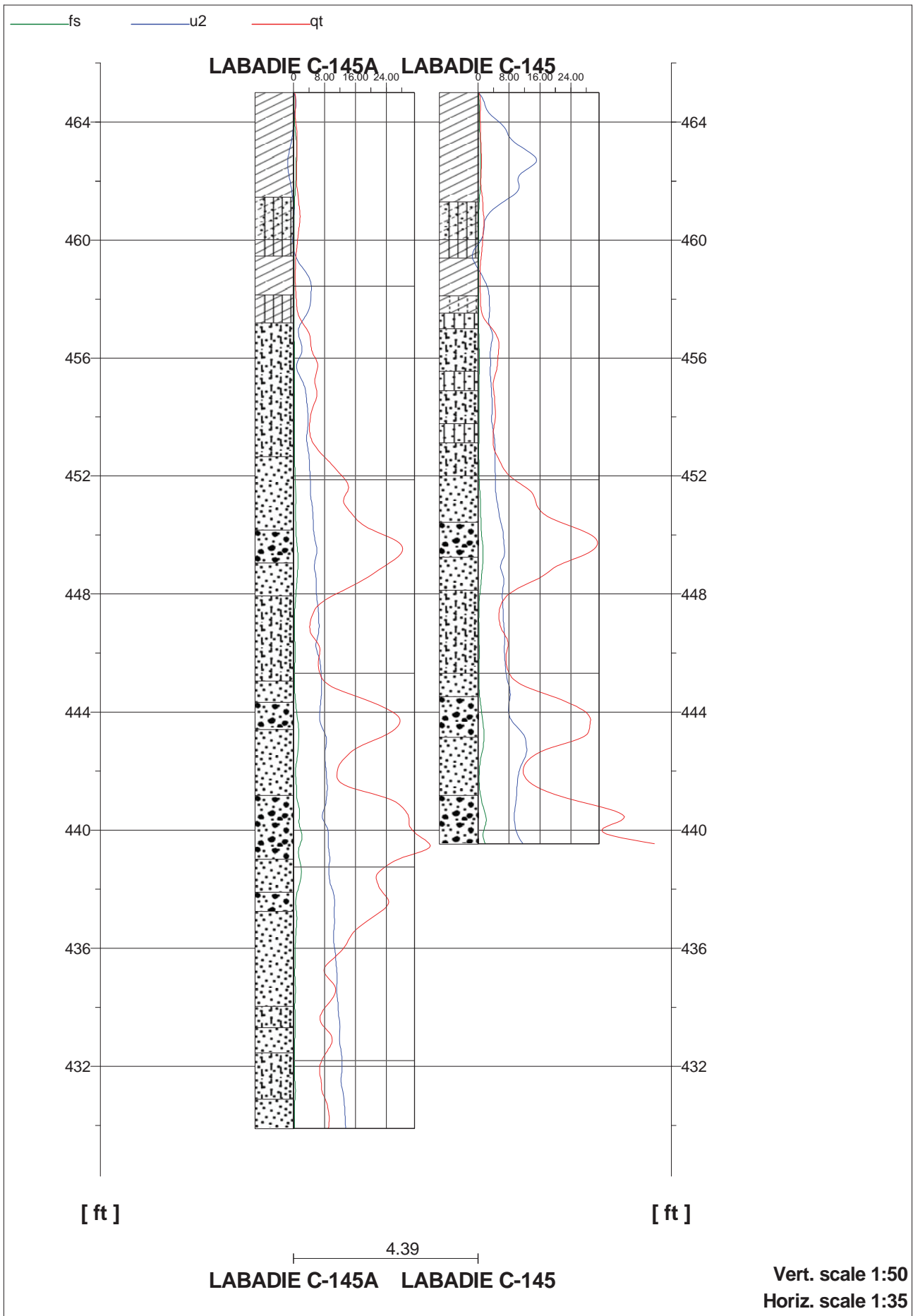


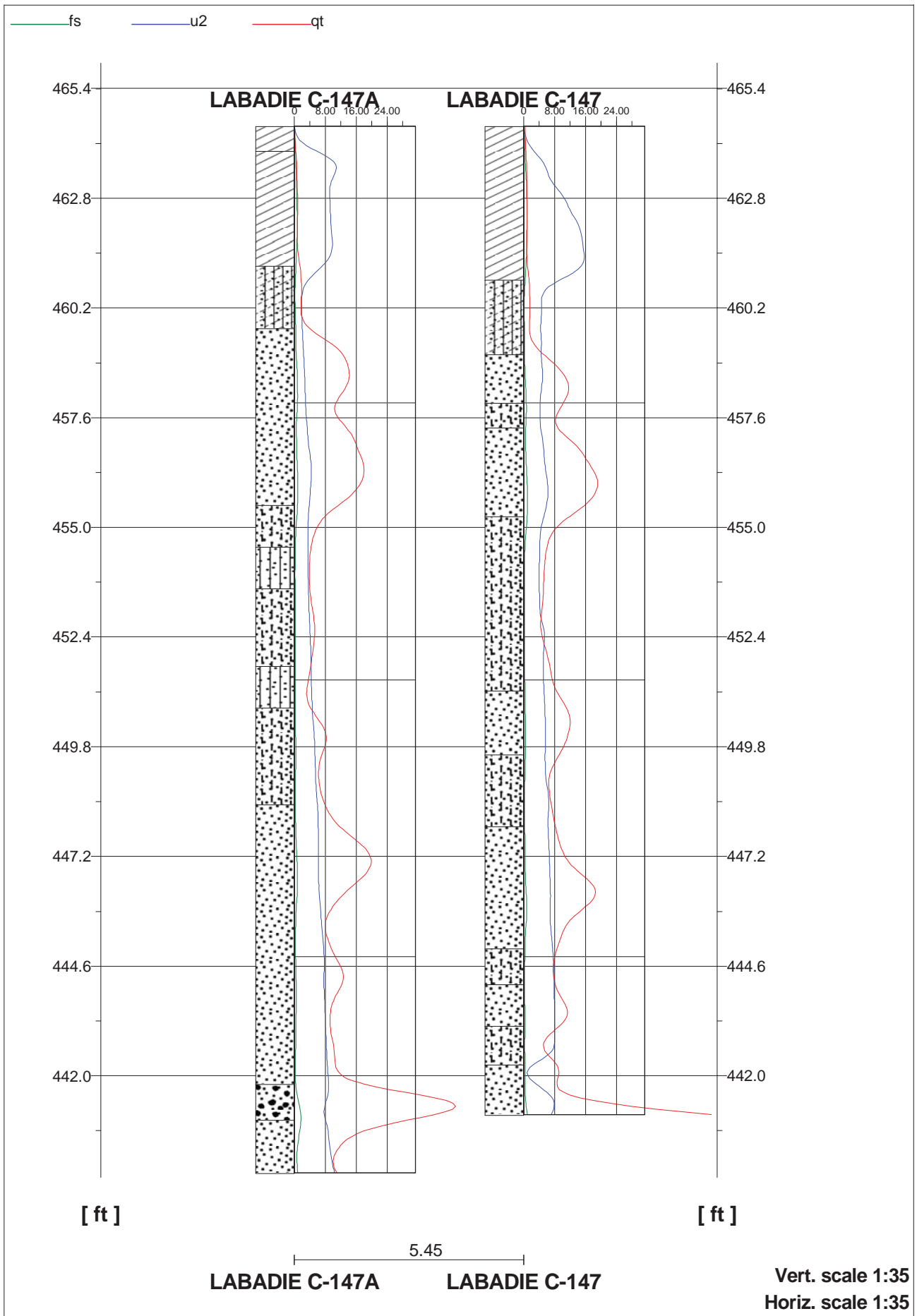


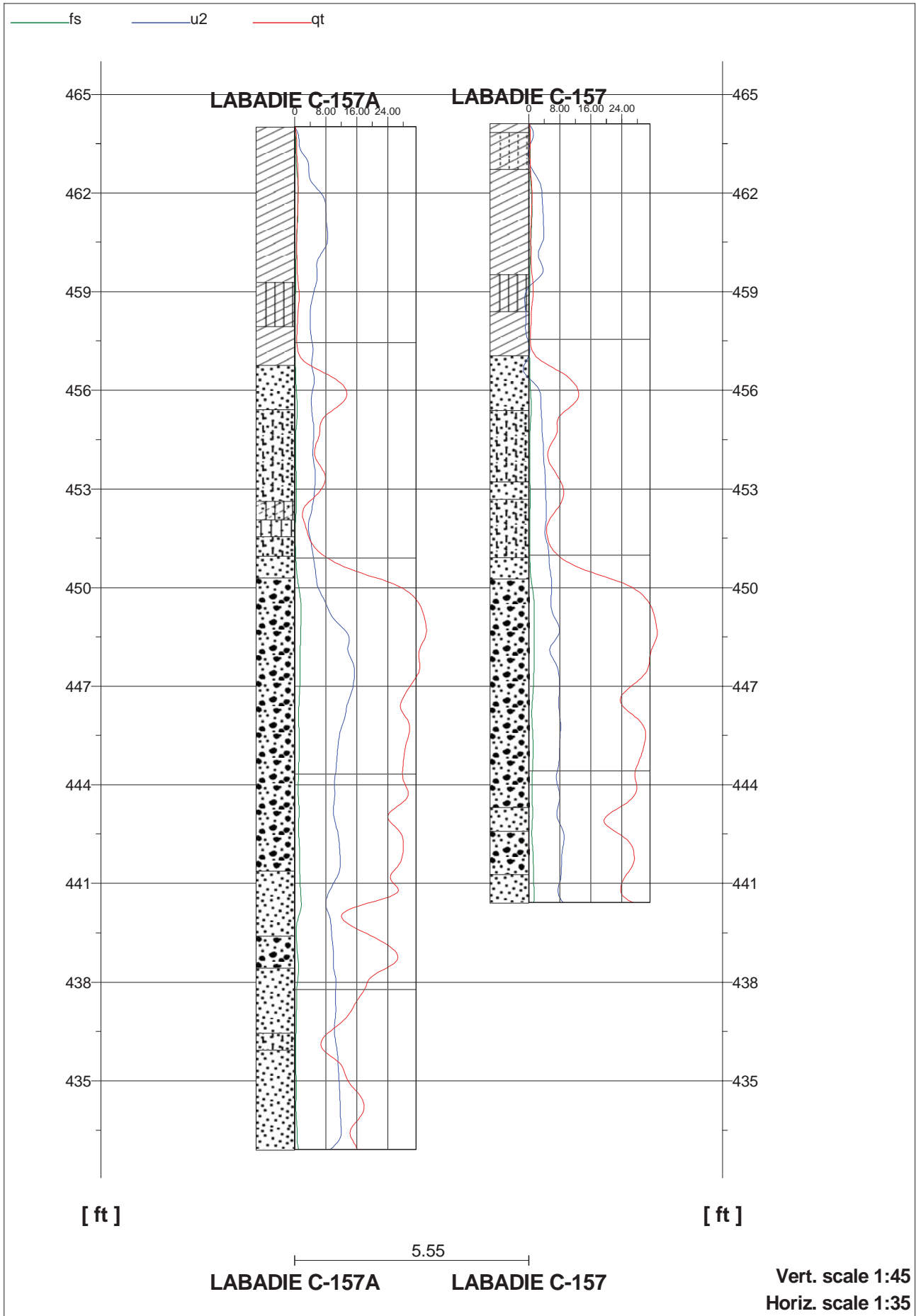


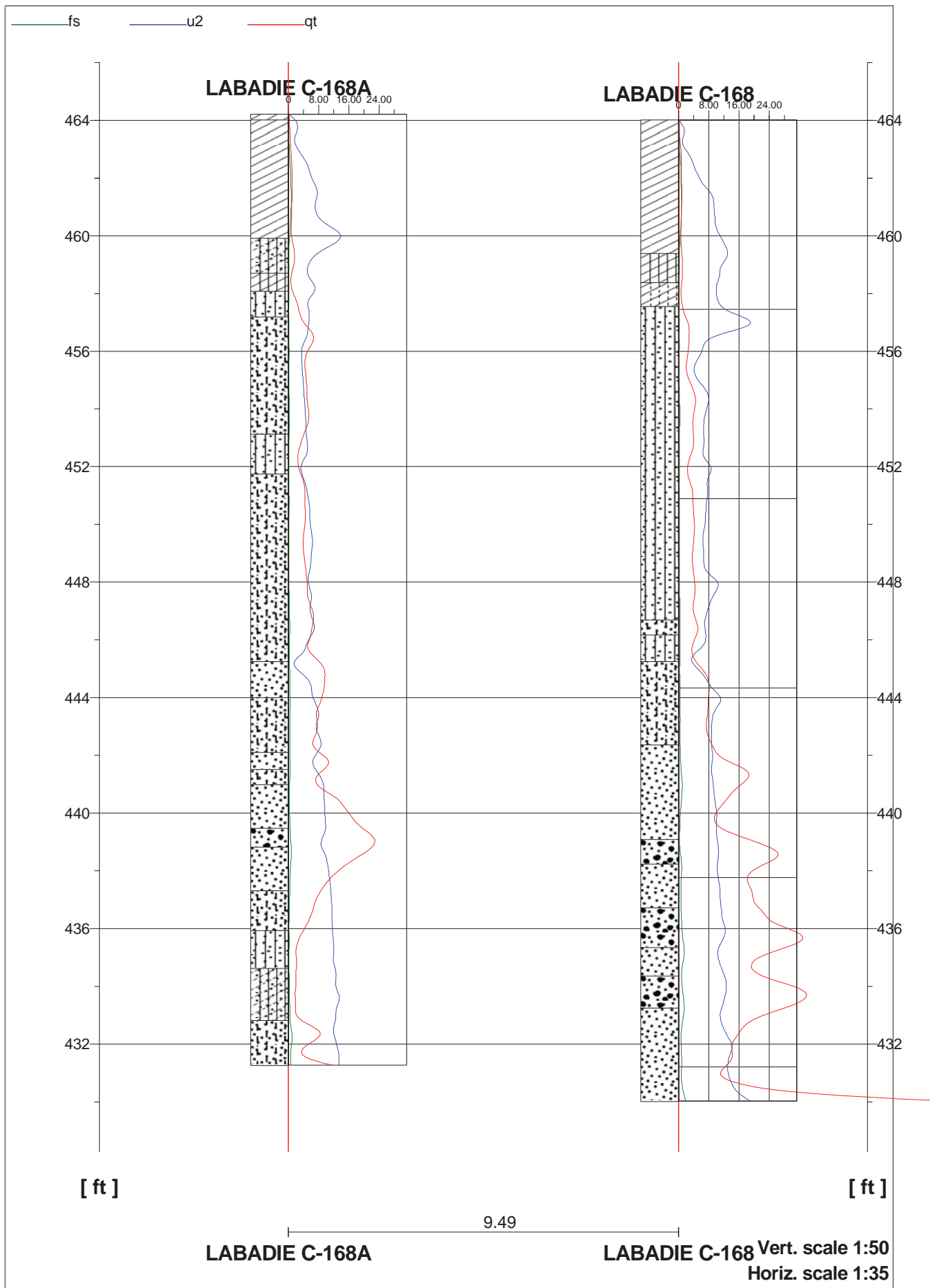




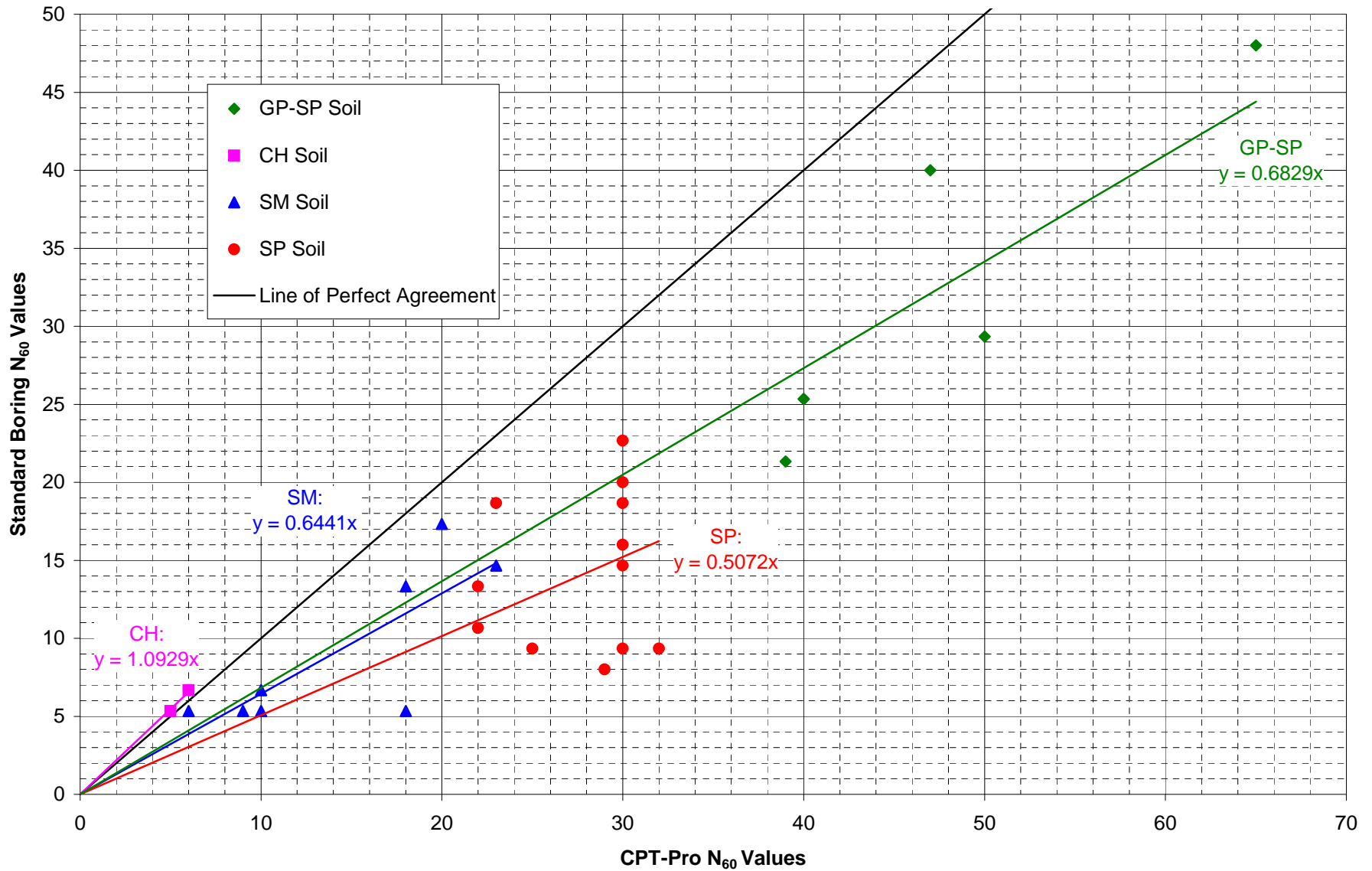








CPT-N₆₀ vs Boring N₆₀



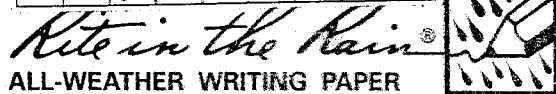
Appendix 3

Field Notes

Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant

Prepared by: GREDELL Engineering Resources, Inc.


Geotech Environmental Equipment, Inc.
 2650 East 40th Avenue
 Denver, CO 80205 (800) 833-7958 Fax (303) 322-7242
 sales@geotechenv.com • www.geotechenv.com



ALL-WEATHER
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Name **GREDELL Engineering Resources, Inc.**
 ENVIRONMENTAL ENGINEERING LAND - AIR - WATER
 Address **MIKEL C. CARLSON, R.G.**
 SENIOR GEOLOGIST
 Telephone (573) 659-9078 Cellular (573) 694-0624
 Facsimile (573) 659-9079 E-mail: mikec@ger-inc.biz
 Phone
 1505 East High Street, Jefferson City, Missouri 65101
 PRINTED ON RECYCLED STOCK
 Project

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

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- 148 Sampling guidelines (Liquids)
- 149 Sampling guidelines (Solids)
- 150 Approximate Volume of Water in Casing or Hole, Ground Water Monitoring Well
- 151 PVC Pipe casing tables
- 152 Soil Classification
- 153 Soil Classification
- 154 Conversions (Length, Weight, Volume, Temp, etc...)
- 155 Conversions (Concentrations, Volume/Flow or Time, Velocity, Acceleration)
- 156 Maximum Concentration of Contaminants for the Toxicity Characteristic

CONTENTS

PAGE	REFERENCE	DATE

Location LABADIE Date 9/14/09
Project / Client RAJ DSI

ON SITE: 7:00 am
Max's Enterprises
Doug Henziker
Ryan Henziker
Robert Nixon
Safety Training 7:15 - 7:45
Mtg w/ J. Zimmer - Provide HASP,
Dry Screening + OSHA Certs.
Slow down source of water.
Unload rig + equipment @ 8:30
Mob to first hole @ 9:05
(P-33)

Location Labadie Date 9/14

Project / Client R+S DSI

Clear/Sunny/70's/Dry

P-33 Rig up: 9:40 Begin: 9:42 End: 3:50

CS to 12.5'

0'-1.4' CS, moist, ~~med~~, lt br

1.4'-2.3' St, lam, ϕ 5 clay lam, lt gy

2.3'-6.8' Clay, SC, cohesive, ~~lt br~~ w/g

silt layers 1"-3", ol gy, contorted

beds/corr @ 6.0'; score lower contact

6.8'-8.2' Clay, fat, to silt, lam, ol gy (wtr 8.2')

8.2'-11.6' // Clay + St, lam, lt gy, wet

11.6'-12.5' Sand, wet, F-gr, silty, lt gy

Rig w/ SS & resume @ ~~10:45~~ 10:45

John Eimer visit 10:30

15'-16.5' ϕ 10/1 rec 17"/18" F Sand

w/ tr clay

20'-21.5' 2/6/5 rec 10"/18" F Sand w/

tr clay lt br/med gy

25'-26.5' 2/3/3 rec 7"/18" F Sand/

C Sand w/ ligate @ 26'

30'-31.5' 6/8/6 rec 13"; C Sand / VC

Sand w/ gravel (2-4mm)

35'-36.5' suck up to ~ 33' (wash out w/ tritic)

4/2/5, rec 8" // F & VC

Sand med gy

Lunch 12:45-1:15

Location Labadie Date 9/14

Project / Client R+S DSI

Well Construction Notes

2" Sch 40 PVC Set base ~ 34.8'

Sand (20/40) Tritic to 21.7', use 240 #

S Sand (^{30/70}50/100) Tritic to 20.5', use 50 #

But Grout (20-30%) to CS

use 91 g (calc 52g)

(30g PW)

8 1/4" OD - 2" PVC = 2.6 g/ft hole

Tritic here @ 1:45

D. Binz here @ 10:30

done @ 3:50

Leave Hole @ 4:05

Location Labadie Date 9/14 -15
Project / Client R+J DSI

P-35 Rigup: 4:20 Begin: 4:22 End: 10:25
CS to 11.5

0 - 1.3' Silt//CS, Lat Gy
1.3 - 3.2' Clay, 01 Gy, plastic
3.2 - 4.3' SC//Clay, 01 Gy
4.3 - 4.8' Silt, Lat Gy
4.8 - 6.2' Clay, 01 gy, firm, plastic
8.2' - 10.2 //St+Clay, wtr @ 8.5'
NR 6-8' ? + NR 11.5 - 15.0'
10.2 - 11.5' VF Sand w/ clay, wet
Break down rods
done for day @ 4:50
Leave site @ 5:05

9/15/09

Resume @ 7:15 w/SS w/clay low
15' - 16.5' 0/0/1 rec 9" F Sand, 01 gy
20' - 21.5' 2/3/1 rec 12" F Sand / M-C Sand
25' - 26.5' 2/3/2 rec 18" Med gy w/clay low
Fine Sand / Coarse sand w/ gr
30' - 31.5' (suck up - 3') wash out +
resume @ 8:09
2/2/4 rec 15" M sand / VC Sand
w/Gravel
35 - 36.5' 3/2/4 rec 10" M-C Sand

Location Labadie Date 9/15
Project / Client R+J DSI

9/15 - Cloudy, spotty rain, 70's, dry

Wash out well to seat upper catcher,
difficulty in keeping interior of auger
sand free, suck up persists w/ removing rods
drop PVC, suck up ~ 7', wash out to ~ 35'

Well Construction Notes

* 2" Sch 40 PVC, Set base ~ 33.0'
P. Sand to 20.6', use 250 #
S. Sand to 19.3', use 50 #
Best Slurry, use 52 g (calc r = 49 g)
PW = 50 g
Natural Sand - 1' at base
could not wash down to 35' due to constant
flaming sand

Leave Hole @ 10:35

Location Labadie Date 9/15
 Project / Client R+S DSI

P-29 Begin 10:56 End 2:15
 CS to 13.6' (N/SS)
 0' - 0.9' CS, med br
 0.9' - 1.3' Silt, lgt br, x lam
 1.3' - 3.6 Clay, dgy, plastic
 Shelby Tube 2'-4'
 3.6 - 5.9 SC, dgy
 5.9 - 10.2 11st & Clay, lam, met 6.9'
 10.2 - ~~13.0~~ 13.0' CH (fat clay "blue" ★
 gumbo) w/ iron nodules
 13.0' - 13.6' // VF / st / Clay, med br
 13.6' - 15.0' N/R
 Dave H here @ 11:30
 Lunch 11:30-12:00
 Resume N/SS @ 12:20
 15.0 - 16.5' (o/o/o) (W/A) Rec 6" "Blue"
 Clay w/ Tr VF Sand
 20.0 - 21.5' 2/4/4 Rec 18" Clay to 20.6'
 F Sand below
 25.0 - 26.5' 2/2/2 Rec 18" M Sand / C Sand
 w/ clay seam at base
 30.0 - 31.5' 7/5/5 Rec 18" M Sand / C Sand
 w/ gravel, Tr clay at contact
 35.0 - 36.5' 9/4/5 Rec 16" C-VC Sand
 1:15 w/ small gravel 104R5/1

Location Labadie Date 9/15
 Project / Client R+S DSI

Wash out WSA's for sand & ensure base
 at 35', sand sock up to ~30' when returning
 catcher

Well Const. Notes

~~CS to 13.6'~~
 2" Sch 40 PVC, set base ~ 35.0'
 P. Sand to 22.3', use 225 lb
 S. Sand to 20.8', use 50 lb.

Best Slurry to GS, use 45 g
 (Calc vol = 53 g)
 PW = 35 g

clean up / leave
 hole @ 2:45

at 2:00 Travis rides w/ mo Gas to verify the
 location of pipeline & Rick

10 Location Labadie DSI Date 9/15
Project / Client R+J

P-36 Begin: 3:11 End: 5:00
CS to 11'
0'-1.0' CS/Silt
1.0'-1.6' Clay, dk bn, firm plastic
1.6'-2.6' SC, dk bn
2.6'-6.6' Silt // CS, lam yw bn
6.6'-107 (NR 7.2-10') lam wet clay + silt
Wtr 6.6'

10-15 Push, recover 1' VF/F Sand, dry

SS

15'-16.5' - 4/7/11 Rec 18" Fine Sand, wet
20'-21.5' - 1/0/0 Rec 7" Fine Sand, wet
25'-26.5' - 5/4/6 Rec 11" Fine Sand, wet
30'-31.5' - 13/8/5 Rec 7" Fine Sand, wet

base 3" ga gy F sand w/clay

Poss. Clay/VF Sand at base !!

25.0
3.4

Location Labadie DSI Date 9/15
Project / Client R+J

Well Const. Notes

2" Sch 40 PVC, set base ~ 35.3'
P. Sand (20/40) to 22.0', use 100 lb
S. Sand to 20.0', use 50 lb
Best Slurry to GS, use 66 g
Calc vol ~ 51 g
PW = 30 g

* Lots of sand collapse while sanding
& extracting augers.

Clean up / leave hole @ 5:30

leave site 5:50

7 1/2

Location Labadie DSI Date 9/16Project / Client R+J

On Site 7:15; Clear, 70's, day

P-24 Begin @ 7:25 End 10:30

CS to 11.1

0' - 1.3' CS/Silt (TS) wind blown

1.3' - 2.3' Clay, plastic, dk lgn

2.3' - 3.1' Silt w/CS, lat bn, friable, Ø

3.1' - 4.2' CS/Silt, m bn, moist, lam

4.2' - 54' Lam Silt/Clay, X lam, pl gy

50' - 100' Recover 1.3' (As Above)

100' - 150' Recover 0.8' (0.3' As Above)

0.5' VF Sand/Fine Sand

wt ~ 13.0'

SS

15' - 16.5' 3/9/16 Recover 18" F Sand, tr clay Ø

20' - 21.5' 2/5/5 Rec 11"; F Sand, lam tr clay Ø

25' - 26.5' 1/0/1 Rec 7"; As Above

30' - 31.5' 6/3/1 Rec 8"; F Sand w/ M Sand Ø

35' - 36.5' 12/3/5 Rec 18" F Sand / M Sand

Ø, w/ C-VC (Spars) Sand

No color change at
base abt P-36!Location Labadie DSI Date 9/16Project / Client R+J

Visitors: D. Bine 8:45 - 2:45

Drop Expansion Drum to seat keeper @ TD
Flush hole & retract, sand @ 30', wash
down to 35'

Well Cont Notes

2" Sch 40 PVC, Set base ~ 35.0'

P. Sand to 22.0', use 225 lb

S. Sand to 20.8', use 50 lb

Bent Slurry to CS, use 49 g

(Calc Vol = 53g)

PW ~ 35g

Go to mtg 10:00 - 10:50 w/ JE
& DBNotes break down & move to
next hole 10:20

10:35 Chris Vierlether, MONE, onsite.

25
3.8

Location Labadie DSI Date 9/16Project / Client R + J

Visitors - Chris V (DSLS) 10:45 - 5:30

P-17 Begin: 11:00 End: 1:15

CS to 11.8'

0' - 0.9' CS/Silt (TS)

0.9' - 1.8' st//VF//Clay Lam, lt/med Br

1.8' - 3.1' SC dk br, plastic

3.1' - 4.6' st//SC, lam

4.6' - VF/F Sand, lt br

5-10' Recover 1.5' VF Sand, wet
at base (8.5' - 10.0')10-15' Recover 1.8' F Sand, \emptyset , lt gy
dry (10-11.8')

SS

15-16.5' 0/6/13 Rec 14" Fine Sand, wet
 \emptyset w/ tr clay20-21.5' 4/7/12 Rec 14" VF/F Sand /
Lam Silty VF Sand @ 21'

25'-26.5' 1/0/2 Rec 10" F Sand, tr clay

30-32.5' 13/5/4 Rec 18"+ F Sand w/ Tr
C sand at base35'-36.5' 19/8/6 Rec 18"+ F Sand, br
Firm / DenseLocation Labadie DSI Date 9/16Project / Client R + J

Well Casing Note >

2" Sch 40 PVC, set base ~ 35.0'

P. Sand to 22.4', use 225 lbs

S. Sand to 20.9', use 50 lbs

Bent Slurry to GS, use 45 g
(Calc Vol = 53 g)

P.W. = 30 g

Man to next hole @ 1:20

9 1/2"

Labadie DSI

9/16

R+J

P-12	Begin: 1:40	End: 4:15
CS to 8.9'		
0'-0.8'	CS/Silt (TS)	
0.8'-1.3'	Clay, brown, high plasticity, trace roots damp	
1.3'-2.3'	Clayey silt, light brown, damp	
2.3'-3.5'	same as previous w/ clay laminate	
3.5'-4.8'	Fine sand w/ traces silt and clay, tan, grading moist	
4.8'-5.0'	Silty clay, brown, damp, plastic,	
5-10'	Recover 2.7' (5.0-7.7')	
5.0-5.9	SC, dk br	
5.9-6.7	Clay dk br	
6.7-7.7'	1/2 St/Clay/NF sand, lean, lt br	
10-15'	Recover 1' F Sand, dry SS	
15'-16.5'	1/2/4 nec 13", F-M Sand, clean, Ø, lt br	
20-21.5'	6/4/4 nec 12", F-M Sand	
25-26.5'	1/0/2 nec 6" M Sand / sty F Sand / 9/9/4 w/ clay?	
30-31.5'	5/4/5 nec 11" M Sand, 9/9/4 w/ clay balls	
35-36.5'	12/12/8 nec 18" C Sand / VC Gravelly Sand	

Labadie DSI

9/16

R+J

Set keeper, flood hole, remove expander +
 box well at 31' (didn't add wbr,
 ~ 8' sucker, - hand cut)

Well Const Notes

2" Sch 40 PVC, set box ~ 33.8'
 P. Sand to 21.0', use 200 lbs
 S. Sand to 19.5', use 45 lbs
 But Slurry to 6.5', use 46 g
 (Calc Vol = 50 g)
 PW = 25g
 Natural Sand 31' - 33.8'!

clean up / clean hole @ 4:30

9/12/18

4"

Location Labadie DSI Date 9/16-9/17
 Project / Client R+S

P.15 Begin: 4:40 End: 9/17 8:50

CS to 5.9 (10?)

0'-1.5' F Sand, 1st bn

1.5'-1.8' VF // Silt, Lam

1.8'-3.4' CS, thin bed, ol gy

3.4'-4.2' Clay, dk bn, firm, plastic

4.2'- SC, mud bn,

5-10' Recover 0.9 as above, none

// Silt, Clay, VF Sand

SS

10-11.5' 2/2/2 rec 18" wet 10.5'; // St +
 VF Sand w/ clay laminae

15-16.5' 1/0/4 rec 8" F Sand w/ clay seams
 Leach hole 5:20 / Leave Site 5:30

~~20-21.5'~~ K Resume @ 7:30 9/17 **

20-21.5' 1/0/1 rec 8" VF Shy Sand w/ clay
 laminae, ol gy

25-26.5' 3/3/1 rec 11" F Sand / M Sand w/ clay
 balls, ol gy

30-31.5' 5/5/4 rec 11" M Sand, MS, w/
 Tr gravel

35-36.5' 19/12/5 rec 18" M Sand, Ø
 clean

Location Labadie DSI Date 9/17

Project / Client R+S DGLS

On Site 7:00 Visitors Chris V. 8:30

Well Const. Notes

Sch 40 2" PVC, set base ~ 35.0'

P. Sand (20/40) to 22.3', use 150 lb

S. Sand to 20.8', use 50 lb

But Slurry Grout to GS, use ~~30~~ 53,

(Calc Vol = 53 g)

PW = 30g

Sand collapse base augers not
 permitting p sand to drop out
 from interior

Clean up / Leave hole 9:00

$$10 \frac{1}{2} \text{ cu } \frac{25}{4.2} = 20$$

Location Labadie DSI Date 9/17
Project / Client R+S

P-20 Begin 9:30 End 11:30

CS to 10

0-5' (Recover 2.8')

0-1.5' silt/CS

1.0-2.0' VF/F Sand, lgt br, dry

2.0-2.8' CS w/ VF sand

(2.8-5.0' NR)

5-10' (Recover 0.9')

5-5.9' //VF sand/silt/clay, ripple lam -
vthin bed

~~10-11.5' 0/1/2 rec 9.9' //VF sand/silt
etc. vthin bed~~

~~15-16.5' rec 18"~~

10-11.5' 0/1/2¹ SC, silt/clay moist

15-16.5' 0/0/1 rec 10" SC /VF/F Sand 16.2'
wet!

20-21.5' 0/0/1 rec 12" CS/VF-F Sand

25-26.5' 0/2/2 rec 0" No Sample
Assume VF Sand

30-31.5' 11/8/6 rec 18" VF/F Sand, clean, dry

35-36.5' 12/17/16 rec 18" VF/F Sand / C Sand
w 36.2'

Location Labadie DSI Date 9/17
Project / Client R+S

Pull rods, ~ 6" Suckup

Well Casing Notes

2" Sch 40 PVC, ext base ~ 34.8'

P. Sand to 22.0', use 225 lb

S. Sand to 20.1', use 50 lb

Best Slurry to GS, use 63 g

(Calc Vol = 51g) 3'; 12" F

PW = 25 g

Leave hole 11:45

Lunch 11:30 - 12:00

12
17
16

22 Location Labadie DSI Date 9/17

Project / Client R+S

Visitor - Dan Banz 11:30 - 4:45

P-27 Begin: 12:20 End: 2:25

CS to 6.4'

0'-0.6' Silt (TS)

0.6'-1.0' VF Sand

1.0'-2.0' Silt/VF Sand, Lam

2.0'-3.7' Clay/SC w/ 1"-2" seams
silt + VF Sand, dk bn

3.7'-6.4' As Above

NR 6.4 - 10.0'

10-11.5' 3/3/4 Rec 17" VF Sand, x lam

15-16.5' WOH (0/0/0) Rec 5" VF Sand w/
clay balls

20-21.5' 0/1/4, Rec 11" VF/F Sand w/ clay
layer 20.7'

25-26.5' 4/1/1 Rec 12" F Sand w/ clay
balls, lignite at base (C Sand?)

30-31.5' 9/5/4 Rec 18"+ F Sand, Ø

35'-36.5' 18/9/6 Rec 18"+ F Sand, Ø
gy gr at base

23 Location Labadie DSI Date 9/17

Project / Client R+S

John Finer - 12:45 - 1:00

PVl Center rods, ~ 2' sand suck up

Well Const Notes

2" Sch 40 PVC, set base 35.2'

P. Sand to 24.9', use 340 lbs

S. Sand to 20.3', use 50 lbs

Bent Slurry to GS, use 42 g

(Calc Vol = 50 g)

PW = 40 g

clean up / leave hole
e

* VC Sand noted on lead auger -
not noted from split spind

12"

24 Location Labadie DSI Date 9/17/09
Project / Client R+S

Shawn

P-43 Begin: 3:05 End: 5:20

CS to 7.2'

0'-5' (Recover 2.8')

0-1' Silt, bn

1'-1.3' VF Sand, dry, 1 pt bn

1.3'-2.8' SC/CS w/ clay layers
dk bn

5'-10' (Recover 2.2')

5'-7' CS // Clay

7-7.2' VF Sand

SS

10-11.5' 1/1/3 rec 13" ; silt; bn/stal
gray; wet

15-16.5' WON rec 8" clay w/ gray F-M Sand
find w/ clay inside (?)

20-21.5' 1/4/7 rec 18" F-M Sand, steel gy
w/ clay balls & m bn clay seams
0.3" thick

25-26.5' 4/2/2 rec 18" A> Above Clay
// F-M "Blue" Sand, Clay Plastic
(brown? cut-bank??)

30-31.5' 4/4/2 rec 16", M Sand / C-VC
Sand w/ S gravel

25 Location Labadie DSI Date 9/17
Project / Client R+S

35-36.5' 5/3/3 rec 18" C-VC

Sand, steel gy w/ tr gravel

Pull rods to set CS; suck up ~2'
can't wash down to TD

Well Const Notes

2" Sch 40 PVC, set base ~ 34.8'

P. Sand to 21.8', use 200 lbs

S. Sand to 20.1', use 50 lbs

But Slurry to GS, use 35 g
(Calc Vol = 51 g)

PW = 35 g

Top off Wells

5:30 - 6:30

P-33 29 g

P-17 15 g

P-35 19 g

P-12 20 g

P-29 20 g

P-15 12 g

P-36 20 g

P-20 12 g

P-24 18 g

P-27 10 g

n-36003

2'

Cleanup/lean stc @ 6:45

Location Labadie DSI Date 9/18Project / Client RFS

On Site: 7:00 Clear, dry, 70's

P-45 Begin: 7:35 End: 10:10

CS to 9.4'

0' - 1.2' Silty/VF Sand, x lam, lat bn

1.2' - 6.0' Clay/SC + CS, plastic, CH
toward base, dk bn6.0' - 9.4' As Above, more clay, lam
wet ~ 9'

SS

10 - 11.5' 1/2/5 rec 14" VF sty Sand, m bn
wet, lam15 - 16.5' 0/0/3 rec 11" Clay/CS (slough?) /
VF Sand, sty, as above20 - 21.5' 2/4/3 rec 12" VF Sty Sand /
F gy sand @ 21'25 - 26.5' 3/5/8 rec 14" F Sand, Ø
lat gy30 - 31.5' 4/5/7 rec 18"+ F Sand /
F Sand // Clay, med bn35 - 36.5' 4/4/4 rec 18"+ F-M Sand /
F Sand // Clay > 36', C-VK

Sand at base

8:45

Location Labadie DSI Date 9/18Project / Client RFS

Visitors: JoAnn Thue 10:15 - 11:30

Expander snagged 5' bgs on HSA,
lift 5' to inspect, bad back, re-water
to 35' + clean out ID HSA + set riser

Well Const Notes:

2" Sch 40 PVC, set base to 34.8'

P. Sand to 21.5', vx 1.75 lb

S. Sand to 19.6', vx 50 lb

Bunt Slurry to 65, vx 60 g

(Calc Vol = 50 g)

PW = 40 g

Shelby Tube 3'-5' (10' offset W)
(#2) (see P-29 9/15)

clean up / leave hole @ 10:25

13 1/2"

Location Labadie DSI Date 9/18Project / Client R+JDon Bork 12:15

P-47 Begin: 10:30 End: 1:15

CS to 7.7'

0' - 1.3' S.H., lt bn

1.3' - 2.2' SC, clay

2.2' - 4.2' Clay, lean, stiff, dk bn

4.2' - 5.0' S.H. 4", VF Sand, lt bn

5.0' - 5.9' Clay / SC dk bn

5.9' - 7.2' lean st, wet 6.5'

7.2' - 7.7' VF Sand, lt bn, clay

SS

10 - 11.5' 2/2/1 rec 11" VF sty Sand w/

clay layers

15' - 16.5' 0/1/7 rec 10" CS-sty / VF sty

sand, Ø

20' - 21.5' 3/3/3 rec 13" VF sty Sand /

C sand w/ gravel @ 21' (shar contact)

25' - 26.5' 5/8/16 rec 11" F-C Sand

30' - 31.5' 5/5/7 rec 12" C Sand w/

gravel

35' - 36.5' 5/1/2 rec 7" C Sand w/ VC

Sand at base

Location Labadie DSI Date 9/18Project / Client R+JP-47 - set expander, remove rods,
4' sand suck up, wash down + set riser

Well Const Notes

2" Sch 40 PVC, set base ~ 34.9'

F. Sand to 21.8', use 200 lbs

S. Sand to 20.4', use 50 lbs

Best Slurry to CS, use 56 g

(Calc Vol = 52 g)

PW = 50 g

1/2"

Delco to install 9/13 Prot Leg set
in concrete. Have TD over after

Rep SS

Grout

Monday

Invoice

CS Blunt

Ma have site @ 1:45

Location Labadie Date 9/30Project / Client R+S DSIClear, dry, 50's

visitors - Chris V (DGLD) leave @ 1:15
 On site for weekly mtg w/ Annun
 (J. Eimer) + to startup 4" hole

Weekly mtg

Attending:

Jeff Fouse / John Eimer

- CPT 10/12 mob date

- Review hole locations on map

- Provide HASP Daily's

- ZZ walls in

- 10/7 next mtg

- Swine Flu

Copies of Reent drly logs w/ SFF

- Break on SPT's! (stagger)

mtg over 11:15 am

Jeff leaves site

Location Labadie Date 9/30Project / Client R+S DSIVisitors - Chris V:

Back to job site @ 11:20

Finished P-105

Set up on P-130 / done 12:55

Travis notes

Tracker key / USACE map / Newman spec

1/2 hr lunch, set up on 2nd 4"
hole @ 1:30

P-104 Begin: 1:40 End: 4:40

sample w/ 8 1/4" HSA to 35'

trip out of hole + re-enter w/

10 1/4" HSA w/ wood plug

@ 3:15

Est Grnt 3.5 g / LE (10 1/4" / 4")

Est Sand 46 # / LE (" ")

New Grnt Tub 15g" (325 g capacity)

No difficulties noted w/ 4"

P-104 Begin: 5:00

use 8 1/4" w/ SPT's down to 35'

@ 6:00 pull auger, leave hole

e

Leave Site @ 6:30

Location Labadie Date 10/1Project / Client Rx 5 DSICloudy, damp, sleet spotty rain

On Site 7:00

Load samples - Travis stake remaining
 7 PZ's on Heizer, put temp covers
 on PZ's due to chance heavy rain,

* Delay delg due to lightning 7:30-

Visitors -

*

Resume P-104 @

Top off PZ's 7gwt while waiting
 on weather

P-102	12g	✓	P-116	16g	✓
P-155	10g	✓	P-118	16g	✓
P-170	16g	?	P-90	12g	✓
	16g	!			

Rained out!

w/ Scott King to discuss well
 development

Leave site

@ 11:20

Location Labadie Date 10/7Project / Client Rx 5 DSISunny, 40's, wet ground conditions

On Site @ 9:00

On Site for weekly progress mtg +
 to assist Scott King w/ initial
 well development

Progress Mtg Notes (10:00 - 10:45)

Attending: John Eimer, John Thee
 Jeff Pouse, Mike Carlson

To jobsite @ 11:05, on P-22
 (4" well)

Discuss 2nd rig w/ Dave H + manager
 issues in light of bad weather
 impending in order to maintain
 schedule

Chris V (DGLS) on site

Scott King performing initial WL's
 + soundings

Get concrete for above grades

Ditch drain above grades

Scott + I develop P-33 (3:00 - 3:45)

Leave site 4:10

In D/C 6:00

Location Labadie Date 10/12Project / Client R+S DSIMuddy, PC, 40's

P-40 Burn: 7:57 End: 10:59

CS to 15'

0-5' (Reamer 4.5')

0-1.2' SC // Silt, dk bn, moist
slit plastic1.2'-2.2' SC 7/8 silt, dk bn
plastic, moist

2.2'-4.0' Clay, plastic, dk bn

4.0'-6.1' SC, dk bn // ol bn, plastic

5-10' (Reamer 4')

6.1'-6.5' CS, color as above

6.5'-6.9' Silt, lam, lit Bn

6.9'-8.8' // Silt + Clay, soft, moist
lam, ol gy - med bn8.8'-14.5' As above, distinct color change
across sharp contact to
steel casing ("gumbo" color)

10'-15' (Reamer 2.8')

14.5'-15.0' F Sand, wet, or - bn

SS 15-16.5' WOH 18", F Sand, ^{wet} 9/16" Tr Clay20-21.5' 3/16" 12", F-M Sand / C-VC
Gravelly Sand below 21'25-26.5' 2 1/4" 8" M-C Sand, Tr gr
+ clayLocation Labadie Date 10/12Project / Client R+S DSI

Visitors: Scott King 8:40-

Well Construction Notes

2" Sch 40 PVC, set base ~ 34.8'

P Sand to 20.5', use 150 lb Natural

S Sand to 18.8', use 30 lb

Best Shown to GS, use 49 g

Calc Vol = 48 g

PW = 388 g

Clean Up 11:00 - 11:10

Scott developing P-38

Clb Cut Arrives ~ 10:30 (no lighter!)

Lame Hole @ 11:15

→ SS Notes (cont)

30-31.5' 8/7/10 5" F-M Sand as above w/
Tr gr

35'-36.5' 4/3/4 18" C-VC Sand w/ gr

2 1/2" 9 1/2"

Location Labadie Date 10/12Project / Client R+S DSTTravis on site @ 1:00

P-31 Begin: 12:00 End:

CS to 15'

0-0.9' CS (topsoil) dk bn

0.9-1.4' Silt/VF Sand, Lam, lt bn

1.4-2.5' Clay, plastic, firm, dk bn

2.5-3.1' Clay w/ layers lt bn silt 1" to 2"

3.1-4.4' Clay, plastic, firm, dk bn

4.4-9.2' SC, med. dk bn, plastic,

moist

9.2'-12.0' // Silt, VF Sand, Clay, Lam, med
bd / ogy12.0'-15.0' F Sand - M Sand, ogy, wet
carb frags 14.3'

SS 15'-16.5' 2/2/3 Recover 12"

F sand, WS, wet

20-21.5' 3/1/1 Recover 17"

F Sand (as above), VF Sty Sand

steel ogy @ 21' sharp contact

25-26.5' 0/1/3 Recover 18" +, F Sand

w/ steel ogy silt/VF Sand w/ clay

@ 26.2'

30-31.5' 1/2/1 Recover 18" +, F Sand

w/ steel ogy silt/VF Sand / plas. &

alay" gyms @ 31-31.5'

Location Labadie Date 10/12Project / Client R+S DST

SS (cont'd)

35'-36.5' 1/4/13 Recover 18" +

C-VC Sand w/ Tr F Sand
at top

Well Construction Notes

(see Travis' notes)

4" Sch 40 PVC w/ 10-slot

at base @ 34.5'

Leave Site @ 3:00

In J/C @ 4:45

Location Labadie Date 10/14Project / Client R+S DSIOvercast, mud, 40's

On Site @ 1:00 for weekly progress

mtg w/ Arsen + R+S

Attending: 2:30-3:30

M. Carlson

J. Fouse

J. Eimer

Notes: New wells drilled:

10/5 - 104, 167 10/12 - 40, 31, 189

10/6 - 42 10/13 - 65, 67, 69

10/7 - 22 10/14 - 51,

10/8-9 Rained Out (Total = 35)

1) Distribute Progress Rpt

2) Copies Daily Safety Mtgs

3) R+S for Samples to R+S

4) Club Cart w/ R+S

5) New Daily Logs to R+S?

Jeff review access/mud conditions

+ stop by rig on P-49 (mud 50/50)

w/ Scott K on Well Development

(get notes)

w/ Promis + daily crew on work status

Leave Site @ 4:20

In J/C 6:05

Location Labadie Date 10/20/09 39Project / Client R+S DSIP/C, 50's, wet ground - Week 6

On Site 10:15

Mtg re Cultural Resource Survey

Scheduled for 11:00 - JoAnn Thue,

Paul Reitz, Jeff Fouse,

Review Development Notes w/ Scott King

* Timeouts/Travel Time

Max's here w/ new helpers @ 11:00

Wells Developed

10/15 - P-47, 45

10/19 - P-43, 59, 63, 77, 75

~~Order~~ Order New 2" Pump

To D-100 (P-93) @ 12:38 - 1:30

* Drwg Screen

* Invoice

* Progress Rpt

Not Drilled - P-61 (4")

Not Completed - P-19 (4"), P-144 (4")

P-65, P-67, P-69

In J/C 4:30

38/36

Location Labadie Date 10/21
 Project / Client R+S DSI
P/C, 50's, drying

On site @ 9:20 for Proj Mgr Mtg
 w/ Annen + R+S

- Progress Rpt
- Jar Samples
- New Dely Personnel
- Access
- Well Count
- CPT Schedule

10:00-

John Einar Jeff Fouse
 Ken Kintz Mike Carlson

- Survey Wells/TB's (staking) x
- Monthly WL's
- Central Boring

Sound P-22 : 37.50' btoe (TD)

To Dels (on P-99)

Leave Site @ 2:30
 In J/C 4:30

Location Labadie Date 10/28 41
 Project / Client R+S DSI
P/C, Mvd, 50's

R+S on site w/ CPT + ATV for
 TB's (w/ Terra Drill)

- DGLS on site to review
 CPT's (Chris V; Bert Pierce;
 Blake S)
- Bert relays Public Inquiry
 from Peter P.
- Review CPT Progress w/ DGLS
 + Kyle (Ken out to site)
- Review TB Progress w/ R+S
 (B-26)
- Review P2 Progress w/ Travis
 (Finished P-187 VF-F Sand w/
 A wood chunks/frags Top/Bottom)
 To set up on P-79 Row w/ my
 orders to burn down w/o SS
- Drawdown Test Notes
 - P-42; WL: 8.66' btoe TD: 37.40'
 @ 1:31 btoe
- at hole @ 2:37
 Pump rate 0.26 g/s (16 g/m)
 5 min test
 SWL 60" → 48" (Good!)
- Water purged 90 g
- Discuss sampling techniques w/ DGLS (grab
 DGLS leave site @ 4:30 vs SS)

Location Labadie Date 10/28Project / Client R+J DSI

Well Recovery Test - P-42 (Test 2)

SWL ~~60.562~~" btw 60.762" btw

5 min test (5:21 - 5:26)

90 gal

Stable Max Reading +/- 48.176"

Recover back to 60.3 @ 1 minute

Good test!

No Data Recovery!

Leave Site 6:15

Location Labadie Date 10/29Project / Client R+J DSI

P/C, Mud, 50's

On site to resume preliminary aquifer testing. @ 7:00 am

Max's / Travis set up on P-106 @ 8:05

R+J CPT on site @ 7:30, set up on C-30/C-34

R+J TB's on site @ 7:40; set up on B-26

Prelim Aquifer Test Notes

P-53 @ 8:17

10-slot Initial W.L. 7:57' btoe TD: 37.03' btoe
muddy

Start test 8:43, pump rate ~ 16gpm

8:45 discontinue

~~Example~~ Disconnecting, stop test & re-run as test 8" transducer at slightly deeper

depth 104.52 @ 9:39 - 9:44

max depress 74.7 (5 min)

Pump ~ 122 g

90% Rebound < 20 sec

Final WL 7.57' btoe @ 9:57

TD: 37.10' btoe

Broken
Jumps!

Location LabadieDate 10/29Project / Client R+J DSI

Aquifer Testing (cont)

P-57 Initial W.L.: 7.71' btlc @ 10:05

10.5' slot No Lock! TD: 37.28' btlc

Insert Pump/Transducer + begin test

@ 10:15 (5 min test @ 16gpm)

SWL 100.7"

Max Suppress: 89.8"

End: 10:20

Recover to SWL ~ 13 sec

Rained out! Leave Site 11:20
In J/C 1:30

26:40

Labadie11/2

Project / Client

R+J DSISunny, 50's, mud

Leave J/C @ 5:30

On Site @ 7:30

Doug M, Ryan N, Bill D (Max's)

on site loading trailer in preparation
for well completions @ 8:30- Review wells to be grouted &
completed

- Tailgate mtg @ 7:45 am

Scott King on site @ 8:30 am to
Develop wells

Set Scott up on P-40 w/ trailer

Ken Katz visit 9:15-9:30

I set up to complete development
on P-53 (Purge 38 g)

Pump rate = 16 gpm (pump 3m)

Initial W.L. = 5.08' btlc @ 10:00

Pump 40g done @ 10:10 SWL = same

P-57 Resume Development

Need to Purge 87 g (~ 5.4 m)

Initial W.L. = 5.36' btlc @ 10:17

Pump 6m (76g) @ 10:26

Location Labadie Date 11/2Project / Client R+S DSI

Well Development Notes

P-19 (4") TD: 37.33' btoc

Initial WL 6.17' btoc @ 10:46

5^{6:00} Pump Vol (Calc) = 163 g (~10 min)

Pump 10.5 m = 168 g

done @ 11:07 SWL = ~~6.19'~~P-144 (4") TD: ~~37.48'~~ btoc (rwd)

Initial WL 3.29' btoc @ 11:37

Purge Vol (Calc) = 211 g (13.2 m)

4^{6:30} Pump 15 m = 240 g

done @ 12:05

TD = 37.52'

Scott finish P-51, set up on P-49 @ 12:30

CPT rig on C-46, visit w/ Chris - (R+S)

Share log data on surrounding hole

Kyle is apparently doing the interpretation

Throw-out bearing on Rig, out down for

repins - 11:30 - 5:30

Visit TB rig; on B-12 @ 1:50

B-100 (to Bedrock)

Scott on P-55 develop @ 3:10

Location Labadie Date 11/2Project / Client R+S DSI

Completion/Grant Notes

P-9 (4") 0g Completed 11/3

P-61 (4") - Completed 11/3

P-67 - 10/21? Yes - completed

P-69 - 10/21? Yes - completed

P-71 - Completed 11/3

P-79 - Completed 11/3

P-81 (4") - Completed 11/3

P-93 - 0g Completed 11/3

P-95 3g, Completed 11/3

P-97 5g, Completed 11/3

P-99 5g, Completed 11/3

P-104 (4") (Inaccessible) 0g Completed 11/3

P-120 (4")

P-140 - 10g - Completed!

P-187 (Inaccessible)

P-87 9g - Completed!

Well Development Notes

P-9 (NOT completed) (4") TD: 37.97' ^{visit} btoc

Initial W.L. 7.65' btoc @ 2:34

Purge Vol (Calc) = 166 g (~10 m)

Pump 10.7 m (171 g)

done @ 3:00

Leave Site 4:10 / In 5/c 6:00

Location Labadie Date 11/4Project / Client Rx J DSISunny, 10-15 mph wind, drying

On Site: 9:24

Attend Project Mgt Mtg - 10:00 - 10:30

Kyle Kocher, Ken Kintz

Mike Carlson

Safety Issues - None

Manpower - Cultural Resources

Schedule - Rain M-W??

Visit w/ Kyle K until 11:00

Review hole locations/access West side

of drainage - cannot currently drive

w/in 30-40' of drainage. Can //

further away. Most hole locations

here on dry ground

Utility Clearances checked.

P-73; wires ~ 40' ag; 25' E

P-128; lines ~ 34' ag; ~ 35' E

P-165; lines ~ 46' ag; ~ 25' E

(Under water)

done w/ utility check @ 12:00

With Scott on Well Development

@ 12-1:00

Visit w/ TB + DGLS (Chris + Blake)

til 2:15

Location Labadie Date 11/4Project / Client Rx J DSI

Talk to Scott - wells developed today

155, 65, 67 (on to 69)

w/3 - 132, 189, 167

Visit w/ Travis on P-112 til 3:15

"Gluy Facies" clay 11'-15'.

1/2 Lunch

Check on Ryan w/B-53 (Support truck
repair)Back to P-112 + watch install P2;
discuss Aquifer Testing w/ Chris V

Leave Site w/ Ryan @ 5:00

Location Labadie Date 11/5Project / Client R+S DSISunny, lat wind, 50's, dry

On Site @ 6:00

ATV down w/ starter - run to replace.

Set Mobile B-53 on P-73(4") @ 7:54

P-73(4") Begin: 8:18 End: 2:04

Auger to 0.5'CS to 8'

Chris V here @ 8:11; Blake S

0-5' (Recover 4.2' here @ 9:00)

0-1.6' CS, M Bn, soft, plastic

1.6-2.2' Silty, Lt Bn, non-c, dry

2.2-3.5' Clay dk b, plastic, fat

3.5-4.4' SC/Silt, gn-bn, soft, wet

4.4-4.9' VF Sand, Silty, wet, indistinct bdy

5-8' (Recover 2.6')

4.9-6.3' VF Sand as above, sat!

6.3-6.6' SC, plastic gn-bn

6.6-7.5' F Sand, Lt Bn

SS

10'-11.5' 1/2/5 Recover 14", 7" F Sand/

7" Plastic Clay, m bn

15'-16.5' 2/2/7 Recover 18" + 3" F sand

as above w/ clay plug 16.2'-16.3'

D/2L 5.5"

Location Labadie Date 11/5Project / Client R+S DSI

P-73 (can't)

SS 20-21.5' 0/3/4 Recover 18" +

F Sand as above w/ 5 Sty
strucks

25-26.5' 2/1/5 Recover 18" +

F Sand as above w/ another clay
plug 26.2-26.3'

30-31.5' 9/26/50+ Recover 18"

Fine Sand to 31.2' (as above)

Coarse Sand w/ granules 31.2-31.5'

35-36.5' 10/5/9 Recover 18"

Fine Sand to 36' (as above)

Coarse Sand w/ C granules +
carb matterPull sample of bottom Auger
@ 10:55Set up w/ 1 1/2" HSA to near hole +
set well @ 11:20

Well Construction Notes

4" Sch 40 PVC w/ 20-slot

Set beam @ 34.0'

P. Sand (1/2e) to 21.0', use 275 #

S. Sand (30/70) to 19.3', use 75 #

But Slurry to GS, use 46 #

(Calc V = 68 g PW = 40 g)

Location Labadie Date 11/5Project / Client R + J DSI

Eat Lunch 2:00-2:30

Dane to get water to set up on P-88

Ryan + Travis back from parts run 2:26

Discuss DGLS comments / mtg w/ Paul Reitz @ 2:45

P-88 (2") Begin: 3:00 End:

0-7'

0-5' Recover 3.3'

0-2.5' SC med br - gn br, soft, slit plastic

2.5-5.0' S.12/VF Sand

5-7' Recover 2.0'

5.0-6.5' VF Sand, as above, sat!

6.5-7.0' F Sand, Mod Br saturated

SS

7-8.5' 3/3/6 Recover 11" VF-F Sand

w/ clay seam 2", med br, sat

10-11.5' 2/2/2 Recover 18" VF-F

Sand as above w/ clay seam 2"

15-16.5' 3/2/5 Recover 18" F Sand,

Clean, lit br

20-21.5' 7/19/50+ Recover 18" F Sand

as above

Location Labadie Date 11/5 53Project / Client R + J DSI

5 +

P-88 (Cont)

25-26.5' 7/7/50+ Recover 18" F Sand, as above

30-31.5' 1/2/4 Recover 16" F Sand w/ VF Granully Sand 31.2-31.5'

35-36.5' 1/6/10 Recover 12" F Sand w/ VF Granully Sand bottom 8"

Mtg w/ Paul R, Jo Ann, Chris, Jason, Travis, Mike C 4:30-5:00

Well Const Notes

2" Sch 40 PVC, Set base ~ 35.0'

Riser Locking in hole; up ~ 1.0'

P Sand (20/40) to	1/2"	1/2"
S Sand to	1/2"	1/2"

Casing still coming up hole. Ryan thinks catcher didn't open

Completely due to granully sand at TD. Decide to trip out of hole + burn down w/ plug

Leave site @ 5:45

Location Labadie Date 11/6Project / Client R+J DSI

Summary, 60's, deeping On Site 6:15

P-88 (Cont')

Back to hole to turn HSA's w/ cutter plug
+ set well: @ 7:38

Well Const. Notes

2' Sch to PVC 1/10" slit; Set burner 1.8'

P Sand (20/40) to 22.0', use 275 #

S Sand to 20.8', use 40 #

But Slurry to GS, use 32 g

(Calc Vol = 53 g)

PW = 60 g

4" Done 9:32 / Leave Hole @ 9:50

Location Labadie Date 11/6Project / Client R+J DSI

P-142 (2") Begin: 10:56 End: 3:00

CS to 9' (0-5 + 5-9)

0-0.7' SC, ol br, slit plastic

0.7-2.3 Clay, dk br, plastic, Tr silt seams

2.3-3.2 SC // CS, mottled dk br / lat br, soft

3.2-5.9' Clay, dk br to 4.5', or overtimes
below to 5.9'; cohesive, plastic5.9-8.3' // Silt + Plastic Clay, silt is lam
w/ VF Sand lams, some v thin bds"gley" plastic clay, all clay v.
plastic, "gumbo" < 1' thick
sharp contacts w/ // silt + VF sandSS 8.3-9.0' F Sand, hot Brown, sharp
contact w/ above, clean, wet

SS

10-11.5' 1/0/1 Recover 16" Fine Sand, lat
br, wet, clean, to 11.3', plastic
m br clay to 11.5'15-16.5' 4/2/1 Recover 12" Fine Sand, clean
as above20-21.5' 8/10/27 Recover 18" Fine Sand,
as above

Location Labadie Date 11/6Project / Client R+S DSI

P-142 (Cont)

SS 25-26.5' 4/4/13 Reamer 18" +

Fine Sand, As Above w/ TR

lg (10mm) gravel at base

20-31.5' 9/16/24 Reamer 14" F Sand

w/gy color, granules at base ^{feldspar} ^{granite}

35-36.5' 3/1/5 Reamer 10" F Sand

w/ clay layer upper 5";

remainder VC Sand

@ 12:30

Well Const Notes

2" Sch 40 PVC (10-Std); Set base ~ 35.1'

Needed to pull auger + burn down w/ plug

due to clay buildup + lg gravel in auger head

P Sand to 22.1' use 300 #S Sand to 20.1' use 50 #But Shing to GS, use 21 #

Calc Vol = 51g

PW = 63g

done 3:00

leave h/c @ 3:20

1/2 hr Lunch

Location Labadie Date 11/6Project / Client R+S DSI~~9#~~

Ryan repairing CME (sit up on P-128)

Dave run to get parts / starter

Bill to repair bearing on Support Truck

Help Bill w/ tools: clean up

work area 4:30-5:30

Travis sample P-128 (CME running!)

Back to trailer - stage out / unload

Wait for Dave w/ starter.

Scott King in ~ 5:30 (4 wells developed)

leave site @ 6:00

Location Labadie Date 11/7Project / Client R+S DSI

On Site: 6:15

Travis, Dave, Doug, Ryan, Bill, Ryan N

Travis/Ryan to finish up P-128

Dave/Doug to set up on P-122

To Fields @ 7:00

4" Well Inventory

Riser - 28

10-Slot - 4

20-Slot - 2

No access to P-122, decide to set up
on P-146 - almost stuck! Inaccessible
try for P-114 on East side project.

Also very soft + inaccessible. No
place for B-53 to go!

Leave Travis to finish up P-128
+ govt up other wells completed in
that area.

Leave Site @ 8:30

In 3/4 10:15

Location Labadie Date 11/9Project / Client R+S DSIWeather: Cloudy, 0-5 wind, drying, 60's

On Site: 9:00

Present: Max's @ 9:30, Dave, Doug,
Ryan, Ryan N, Bill

Visitors: None

Safety Mtg @ 10:50

Repair Flat on club cart, load up
rigs/support vehicles + go w/ Dave
in Club Cart to check out hole locations
@ 10:07 both P-146 + P-156
appear accessible, as does P-83 + P-85

Decide to set CME on 146 + 53 on
P-156 @ 10:35

Travis D on site @ 11:15 (to log P-156)

Location Labadie Date 11/9Project / Client R+S DSI

P-146 CME 750 Ryan H 2"

Begin 11:13 End 1:28

CS to 10.0' (0-5' 4' Recover / 5-10' 2 1/2' recover)

0-2.8' Clay, dk ol bn, plastic, stiff

2.8'-4.3' CS, soft, slt plastic, ol gy, west at base

4.3'-10.0' VF Silty Sand, ol gy, west, carb matter, ^{Faint} lens, saturated, clean

SS

10-11.5' WOH Recover 16", 5" VF Silty Sand as above / 11" "gray" colored silt / VF sand / clay fine lens

15-16.5' WOH Recover 16" VF-F Sand, on gy (almost "gray" colored) clean

20-21.5' 4/7/10 Recover 16", 13" VF-F Sand as above w/ clay plug near base, lower 3" Gravelly M-G Sand w/ angular clasts up to 5 mm carb matter

25-26.5' 7/6/5 Recover 18" + VF-F Sand as above w/ bottom 5" Sandy Gravel, ang clasts up to 10-20 mm

30-31.5' 10/8/6 Recover 18", VF-F Sand as above w/ bottom 7" consisting of gravelly sand (gravel size appears to minor VF-F, press M sand)

Location Labadie Date 11/9Project / Client R+S DSI

P-146 (cont)

35-36.5' 10/5/7; Recover 18" As Above w/ 7" VC gravelly sand at base

Pull Rods to set well

Well Const Notes 2" Sch 40 PVC Set base - 34.8'

P. Sand to 25', vx 225 # natural 12.1' 18-25'

S. Sand to 18.0', vx 25 #

But Slurry to GS, vx 30 g (expanding)

Calc Vol = 46 g

PW = 34 g

Done @ 1:28

Clean up / Leave hole @ 2:08

Grab Samples Gravelly Sand 25' + 35'

⊕ bag lg pebbles 2-4 cm oblates

Load up supplies for 2" (P-148) w/ Ford, guys eat quick lunch, check

w/ Travis on P-156

To P-148 @ 2:10

Location Labadie Date 11/9Project / Client R+S DSI

P-148 (2")

Begin: 3:00 End: 5:15

Notes: Decide to offset 60' w/ dwe
to wet ground conditions (support
truck stuff ~ 45 minutes, decide to drill
as is to reduce weight)

CS to 7'

0-3.5' Clay, dk bl bn, stiff, plastic firm

3.5'-3.9' CS/SC on gy, soft

3.9-4.8' Silty/CS/SC, slt lams, S VF Sand
soft4.8'-7.0' VF Silty Sand, lgt brown,
saturated, soft

SS

10-11.5' 0/2/3 Recover 13" VF-F Sand
w/ S granules lower 6", lgt bn, wet15-16.5' 9/16/20 Recover 8" VF-F Sand
as above ^{sharp} color change to "gley"
lower 13", grain size the same!20-21.5' 13/24/29 Recover 18" AS Above
w/ lower 7" "gley" colored VF-F
Silty SandLocation Labadie Date 11/9Project / Client R+S DSI

13 24

P-148 (cont) - CS

25-26.5' 3/3/5 Recover 13"

upper 5" Lt B_n VF-F Sand as above

lower 8" VC Gravelly Sand w/ pebbles

20 mm, med lgt gy

30-31.5' 9/3/2 Recover 13"

8" "Gley" F Sand w/ S granules

5" VC Gravelly Sand med lgt gy

35-36.5' 8/4/10 Recover 18"

AS Above w/ lower 8" VC

Gravelly Sand, med lgt gy

Pull Rods/Lead Hole

Well Const Notes (2" Sch 40 PVC)

Set beam ~ 34.7'

P Sand (20/40) to 21.5' use 225 g

S Sand (50/100) to 20.3' use 30 g

Bart Slurry to GS, use 30 g

Calc Vol = 52 g

PW = 36 g

done 5:15

clean up/leave hole @ 5:27

↳ get support truck unstack

leave site @ 5:45

Location Lebadie Date 11/10Project / Client R+J DSICloudy, 20-25 West Wind
50's, dryOn Site @ 6:15 Travis, Dave, Dan,
Ramon, Ryan N, Bill

Visitors: Blake Snodgrass, DGLS

B-53 to resume on P-83

I scout out hole locations.

P-179 - wet! inaccessible!!

P-169 - very soft + not currently accessible

P-134 - double

Repair Generator(s), add oil, adjust
clutch on 750 + to 134 @ 8:15

CME 750/Ryan

P-134 (2") Begin: 8:30 End: 10:35

CS to 8.5'

0-1.0' CS, dk ol bn, soft

1.0-2.8' Clay, dk bn, stiff, plastic

2.8-3.5' SC, dk bn, soft, slt plastic

3.5-6.8' Clay, dk ol bn, plastic

6.8-7.8' Silt/Clay/UF Sand, faint lms, saturated! lt bn

7.8-8.5' VF-F Sand, Lt Bn, Clean, wet

SS

10-11.5' 0/0/1 Recover 18" + VF-F Sand,
lt bn, cleanLocation Lebadie Date 11/10Project / Client R+J DSI

P-134 (cont)

15-16.5' 1/2/2 Recover 18"; VF-F

Sand as above

20-21.5' 0/2/5 Recover 18", 8" VF-F

Sand as above ~ 10" VC Sand,

med gy across gradual contact

25-26.5' 3/2/2 Recover 13", 11" VF-F

Sand as above ~ 2" VC Gravelly Sand
at base

30-31.5' 9/3/2 Recover 14", 4" F Sand

~ 10" VC Gravelly Sand below

35-36.5' 7/13/25 Recover 18" + F Sand as

above ~ 10" VC Gravelly Sand

Flush hole to set well

2" Sol 40 PVC, set base ~ 34.9'

P Sand to 24', use 150 # ^{Normal Sand} 20.0-24.0

S Sand to 18.3', use 25 #

Best Slurry to GS, use 30 #

Calc Vol = 47 g

PW = -0- (20, est)

clean up / leave hole @ 10:44

Location Labadie Date 11/10Project / Client R+J DSI

P-122 (2") CME 750 Ryan

Begin: 11:22 End 2:16

CS to 13'

0-1.2' CS, dk bn, soft

1.2-4.6 Clay, dk bn stiff/plastic ~ 3' w/
ol gy color4.6-9.7' Silt (Clay/VF Sand, gy gr to ol gy
laminated, soft, wet ~ 5')

9.7-11.5' Clay, "gley" very plastic

~~11.5~~ 11.5-13.0' Gley-colored highly interlaminated
Silt/Clay/VF-F Sand w/ F Sand at base

SS

15-16.5' 0/2/2 Recover 17" "gley" colored
VF-F Silt. Sand20-21.5' 7/7/8 Recover 18" VF-F Sand
lt brown25-26.5' 5/4/4 Recover 18" VF-F Sand
lt brown30-31.5' 11/25/45 Recover 18" F Sand w/
R M + C sand, lt brown35-36.5' 1/2/5 Recover 13", 5" F Sand
as above, lower 8" C-VL sand
w/ A 2-4mm granules
e 1:25Location Labadie Date 11/10Project / Client R+J DSI

P-122 (cont)

Well Const. Notes - 2" Sch 40 PVC
Set base ~ 35.2'

P. Sand to 21.4', use 275 # (20/40)

S. Sand to 20.1', use 25 # (50/100)

But Slurry to GS, use 30 g

Calc Vol = 51 g

PW = 42 g

done @ 2:16

clean up + lean hole @ 2:36

Water source temporarily shut down
while loading equipment for next
hole. Slight delay (20 min).Take ATV CME 750 + set up on P-136 (4")
via N-S offset due south from C-123
on East side drainage ditch. Ground
soft but to location w/ only support
truck being towed last 80'.

Location Labadie Date 11/10Project / Client R+J DSI

1.3

P-136 (4") CME 750 w/ Ror H, kniller
 Begin: 3:48 End: 11/10 9:06 am
 CS to 13.5

0-1.5' Clay, dk br, stiff, plastic

1.5-6.7' Silt//Clay + CS, lt br/lt ol gy
 soft, wet ~ 5'

6.7'-9.2' Silt//VF-F Sand//Clay, ol gy - mod br,
 laminated, Fe nodules/mottles

9.2-12.2' Silt//Clay, "Gley", highly plastic
 laminated

12.2-13.5' VF Silty Sand, "Gley", laminated
 SS

15-16.5' WOH Recover 16" "Gley" colored
 VF-F Sand

20-21.5' 2/0/1 Recover 18" + "Gley"
 colored M-C sand

25-26.5' 1/1/1 Recover 18" "Gley" colored
 M-C Sand w/ Tr granules/pbbles

30-31.5' 3/3/6 Recover 16" Fine Sand
 lt brown w/ 3" VL Gravelly Sand
 at base

35-36.5' 8/7/9 Recover 18" + M Sand
 lt brown w/ 15 mm gravel frag
 at base

Location Labadie Date 11/10Project / Client R+J DSI

Leave hole for day due to lack
 of daylight. Pull NSA's +
 leave hole @ 5:20

Leave Site @ 5:45

Location Labadie Date 11/11Project / Client R + J DSI

Sunny, 50's, drying, light wind 0-5

On Site 6:15

Bill D needs to go home on account of family emergency. Dave to drive him to Ft. Scott & be back ASAP. Man down! Need another dr's helper. Down to one mg due to manpower

Reset on P-136 (4") to Set Well @ 7:00 am

Ream w/ 10 1/4" NSA's to TD (35')

Well Const Notes (4" Sch 40 10-slot)

Set base ~ 34.7'

P. Sand to 21.6', use 425 #

S. Sand to 20.0', use 75 #

But Slurry to GS, use 68 g 17"

Calc Vol = 70 g

PW = 70 g

Done @ 9:06

Cleanup, leave hole @ 9:15

Back-drag support truck out of mud.

Location Labadie Date 11/11Project / Client R + J DSI

Visitors: None

Project Status Mtg w/ Ken K 10⁰⁰ - 10²⁰

Get Scott K unstuck w/ Club Car (between P-112 & C-113 - low area!) @ 10:45

Run to trailer for supplies @ 10:55

Back to P-124 (CME drlg w/ Ryan & Travis) @ 11:20

Label sample jars & fill out field logs 11:20 - 1:00

Restake P-126 further south (irrigation wheels) @ 1:15

To assist Scott K w/ development @ 1:30

P-81 12 gal w/ diff generator!

159 g (Calc) ~ 13 1/2 min

Begin @ 2:22 End @ 2:35:30

P-104

150g (Calc) ~ 13 min

Begin @ 4:29:40 - 4:42:40

Pump quit working! Repair(?) + back to well @ 4:27

P-31 No lock! 157g (Calc) (13 min)

Begin 5:04 End 5:27

variable pump speed (clogged?)

Vol Project 165 g

Leave Site @ 5:45

Labadie

11/12

R+S DSI

Sunny, 30's (hi 60), lt wind, drying

On Site @ 6:09

Present: Travis, Ryan H, Doug H, Ryan N, Scott K

Visitors: Chris V @ 12:30

Lead up & Arlos to P-114; Scott & I to

develop 4" wells before after

P-61 Base ~~37.62' btoc~~ / 37.53' btoc

Calc Vol = 159 g

Begin @ 8:24 End: 8.41 (170 g)

Pump Rate @ 5 g / 30 s = 10 gpm (17 min)

P-73 (Not Completed) Grant - 2' bgs

Base 36.70' btoc (before) 36.84' btoc after

Calc Vol = 146 g (16 min)

Begin @ 9:04 End @ 9:20

Pump Rate @ 10 gpm

P-128 (Not Completed) Grant - 3' bgs

Base 36.13' btoc (37.39' btoc after)

Calc Vol 180 g (20 min) 200 g

Begin 9:37:30 End 9:57:30

Pump Rate 10 gpm

Darr H here @ 9:30

Check out P-165 location: looks passable 11/14

Check out P-177 location: Close to passable

Revise to
37.17'
after
cut
cs
complete
11/14

Labadie

11/12

R+S DSI

To P-114 to check on Travis / CME @ 10:30

w/ Dave + B-53 to setup on P-138 @ 11:00

P-138 (2") Dave H / Mable B-53

offset hole ~ 75' due E due to access issues.

Begin: 11:10 End: 4:00

CS to 11.5'

0' - 6.5' Clay, dk d bn, S SC streaks, plastic, firm

6.5' - 8.4' silt/clay + SC, lam - vth Lbd, lgt bn - ol gr, wet ~ 6', sharp contact below

8.4' - 11.0' "Gley" facies; high plastic clay w/ S silt lam

11.0' - 11.5' "Gley" VF Silty Sand

SS

15-16.5' 1/3/4 Recover 7"; 5" Gley Clay
1/2" Gley VF Silty Sand

20-21.5' 2/3/4 Recover 18"

9" VF-F "Gley" Sand, Clean, Clay Balls

9" VF-F Sand w/ A Carb lam & silt lam; "Gley" facies

Location Labadie Date 11/12Project / Client R+J DSI5.9

P-138 (cont)

25-26.5' 5/9/8 Reamer 10", 3"
VF-F "Gley" Sand / 7" VF-F Sand"
A blk carb lens + clay balls "Gley"

30-31.5' 7/7/13 Reamer 13", 7"
VF-F "Gley" Sand / 6" VF-F Sand
w/ carb mixer + clay balls "Gley"

35-36.5' 5/3/4 Reamer 11"; VF-F
"Gley" Sand, bottom 1" "Gley" M-C
Sand

Pull Rods, Clean hole Dave decide to
wash rotary to clean hole better, cty's
include VC Sand! No good rods
still 1' above TD, clean out again
sand suck up to ~ 30'; pull augers
+ burn down w/ plug @ 2:50

Well Const Notes (2" Sch 40 PVC)

Set base ~ 34.4'

P. Sand to 21.2', var 225 #

S. Sand to 19.3', var 50 #

Bent Slurry to GS, var 25 g 7" 10' V

Cdk Vol = 49g

PW = 44g

done @ 4:00

Leave hole @ 4:48 505

Leave
siteLocation Labadie Date 11/13Project / Client R+J DSI

PC / 30's am / 60's pm, drying, 1st wind 0-5 mph

On Site: 6:15

Crew: Travis, Dave H, Day H, Ryan H, Ryan N

Visitors

Completions / Great to be done (7-4" / 12-2")

P-73 (4") - 0 - Completed, 5-2 9-3

P-88 - 0 - Completed, ~~Next week~~ No lock

✓ P-128 (4") 12g

P-142 - 0 - Completed, No lock

✓ P-83 - 4g

✓ P-85 (4") - 5g

✓ P-114 (4") - 8g

✓ P-120 (4") - 10g

✓ P-122 - 7.5g

✓ P-124 - 11g

✓ P-126 (4") - 16g

✓ P-134 - 9g

✓ P-136 (4") - 8g

P-138

P-146

P-148

P-152

P-156

P-187 - 0 - Completed, No lock

✓ P-165 - 5g

P-128 - Completed, No lock

Location Labadie Date 11/13Project / Client R+D DSI

Trans w/ Ryan + CME to do P-165 @ 7:20
Done to Groot holes

Me to inspect remaining hole locations for access.

Report Finding to Paul R + Tom G
@ 9:45 (maybe 5 remaining accessible)

Add discussions w/ Paul about access

@ 10:00 - 10:45.

D-l's finishing P-165 @ 10:50

Material Inventory

2" Screen - #12 6" P Rammer - 4

2" Riser - 20 23 (7 wells)

4" Screen - 0

4" Riser - 11

Trans w/ Ryan / CME to set up on P-158 @ 12:20

Mc w/ Dave / B-53 to set up on P-177

P-177 (2") w/ Dave H + B-53

Begin: 1:05

End: 4:30

CS to 13.8'

0-3.3' Clay, dk ol bn, stiff plastic

3.3-5.1' SL, med bn, soft, slit plastic, wet w/

5.1'-8.1' // Silt/Clay/CS gn gy - ol bn, wet
low - thin bedded, grad contact
w/ below

Location Labadie Date 11/13Project / Client R+D DSI

8.1'-12.5' "Gley" facies; Silt/Clay, high plastic
alt beds 4"-9" thick; sharp contact
w/ below

12.5'-13.5' "Gley" facies, VF Silty Sand faint

13.5'-13.8' ^{lans} Gley" VF-F Clay Sand
SS

15-16.5' 1/1/4 Recover 15" "Gley"-colored
VF-F Sand, clean

20-21.5' 4/9/21 Recover 18" "Gley" colored
VF-F Sand, clean

25-26.5' 3/4/5 Recover 15", 13" VF-F
"Gley" Sand as above w/ lower 2"
C Sand w/ gravel 2-10 mm

30-31.5' 1/9/50 Recover 18" VF-F Sand
"Gley" as above w/ 6" VC Gravelly
Sand at base, up to 20 mm⁺

35-36.5' 10/11/50 Recover 18" VF-F Sand
"Gley" as above w/ bottom 7" VC
Gravelly Sand;

done @ 2:48

Pull rods, need to overdrill due to

sand suck up in Augers. Burn

down w/ center plug + set

well @ 3:40

5.7

Location Labadie Date 11/13
 Project / Client R+J DSI

P-177 Well Const-Notes

2" Sch 40 PVC w/ 10' SS / 6' slit
 Set base @ 34.6'

P. Sand to 21.6', use 175 # natural!

S. Sand to 20.0', use 50 #

Bath Slurry to GS, use 21 g 6 1/2" x 1/2"

Calc Vol = 51 g.

PW = 41 g.

done @ 4:30

clean up / leave hole @ 4:50

SHELBY TUBE 2'-4'

leave site @ 5:25

Location Labadie Date 11/14
 Project / Client R+J DSI
 P/C, 40's - 60's, 1st wind, drying

On Site: 6:10

Present: Travis, Dave H, Darryl H, Ryan H
 Ryan N

Visitors

Travis w/ CME / Ryan to attempt set up
 on P-150 @ 6:40

Dave to get concrete for completions @ 6:45

Mike cleanup & organize trailer & materials
 @ 6:45 - 7:15

Paperwork 7:15 - 8:30

Need 5 boxes CME gas!

w/ Dave to do completions

P-83 @ 8:40 2"

P-85 @ 9:00 4"

Get stuck! Wait for CME to finish

P-150 @ 10:00

Back to trailer, load samples & generator
 w/ Travis

ATV struck pulling Dave's truck out
 due to coming in from soft side!

B-53 also likely stuck

unload / sort samples
 till 2:55

Leave site 10:55

In J/C 1:15

Location Labadie Date 12/12Project / Client R+S DSIP/C, 30', F-T

On site @ 7:30

Mauls - Doug / Bill / Ryan N

Visitors -

P. 173 Begin 7:30 End 11:27

CS to 10'

0-5', Recover 2' / 5'-10' Recover 2.6'

0-3' NR

3.0'-3.9' Clay, dk bn, plastic, stiff

3.9'-4.2', Silt, yw bn

4.2'-? SC/CS / Clay, yw bn / ol gy
moist

7.4'-9.7' sh gy - mud bn st // clay // VF Sand, thin bed

9.7'-10.0' "Gley" // st // clay // VF Sand w/ br matter

GW @ 7.8'

SS

10-11.5' 0/1/3 Recover 12", F Sand

Clean, lat bn (rusty), TR Gravel + C Sand

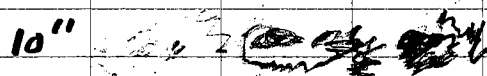
15-16.5' 1/2/5 Recover 18" +; 9" AS

Above / M-C w/ C granules / 9"

"Gley" colored VF-F Sand

across sharp contact

10"

Location Labadie Date 12/12Project / Client R+S DSI

SS (cont)

20'-21.5' 0/6/9 Recover 18" +;

VF-F Sand / M-C Sand w/ Common

granules lower 0.2' "Gley" to Med gy

25-26.5' 2/3/4; Recover 18" ;

As above, F-M Sand, more lat gy

def "Gley" bottom 3" w/ Common

granules

30-31.5' 8/11/23, Recover 18" +;

As above w/ lower 10" definite

"Gley" F Sand / VF Sand

35-36.5' 17/14/9, Recover 18" As Above

w/ lower 8" "Gley" F-M Sand w/ 1/2 Ls

granul frag at base 30' m (crushed)

Well Const Notes

2" Sch 40 PVC; Set base @ 35.0'P Sand to 22.1', use 300 #S Sand to 20.9', use 50 #But Slurry to G.S., use 45 g

Calc Vol = 53g done @ 11:27

PW = 50g

Leave hole @ 11:35

Clean / Tracked up 4"

Leave site @ 1:00 In SL 3:25

Location Labadie Date 12/14Project / Client R+S DSI

P/C, wet, 40's, dropping temps w/ SWind 10'

On Site 7:30

Accompanied by: Frank Phillips

Visitors

Trains on site ~ 10:30

Max's on site ~ 11:30

On site to conduct aquifer test

P-42 WL: 10:52' btoc @ 8:46 am

9:20 Pump Rate: 10 gpm

Begin level ~ 6.1

HydroStatic (HS) ~ 5.5'

End test @ 9:26 (5 min)

P-22 WL: 12.36' btoc @ 9:41

Begin @ 9:47 level ~ 5.99

Pump Rate ~ 10 gpm

HS ~ 0.35'

End Test @ 9:52 (5 min)

P-9 WL 15.60' btoc @ 10:15

Begin @ 10:23 level ~ 7.28

Pump Rate ~ 10 gpm

HS ~ 0.4'

End time @ 10:28 (5 min)

Location Labadie Date 12/14Project / Client R+S DSI

Aquifer Testing Cont'

P-31 (from P-9 due S across corn)

WL 11.23' btoc @ 10:42

Begin @ 10:47:30 level 11.67'

Pump Rate ~ 10 gpm

HS ~ 0.6'

End time @ 10:52:30

P-19 WL 11:43' btoc @ 11:23

Begin @ 11:29 level 6:06

Pump Rate ~ 10 gpm

HS ~ 0.5'

End time @ 11:34 (5 min)

P-114 WL 5.64' btoc @ 12:02

Begin @ 12:11 level 10.79

Pump Rate ~ 10 gpm

HS ~ 0.56'

End Time @ 12:16 (5 min)

P-126 WL 7.62' btoc @ 12:40

Begin @ 12:48:30 level 9.78

Pump Rate ~ 10 gpm

HS ~ 1.2'

End time @ 12:54 (5 1/2 min)

Location Labadie Date 12/14Project / Client R+S DST1302Aquifer Testing Cont. \swarrow Also 4" cap!

P-85 (Concrete Pad needs repair)

WL 5.95' btec @ 1:13

Begin @ 1:18³⁰ Level ~ 7.9'

Pump Rate ~ 10.7 gpm

HS ~ 0.4'

End time @ 1:23³⁰

P-144 WL 7:02' btec @ 2:01

Begin @ 2:06 Level 9:42'

Pump Rate ~ 10.7 gpm

HS ~ 0.7'

End time @ 2:11

P-120 WL 6.94' btec @ 2:28

Begin @ 2:33²⁰ Level 7.39

Pump Rate ~ 10 gpm

HS ~ 0.5'

End time @ 2:38²⁰

P-104 WL 7.62' btec @ 3:21

Begin @ 3:26 Level 6.8'

Pump Rate ~ 10 gpm

HS ~ 0.8'

End time @ 3:31

change B.A.
leave
@ 4:00Location Labadie Date 12/15Project / Client R+S DSTClear, 20's, frozen, N wind 10-15 mph

On Site: 6:30

Accompanied by F. Phillips, T. Doll

Doug H; Bill D; Ryan N

Visitors

Delin to locate on remaining 2 wells
@ 7:50

P-165 WL 6.60' btec @ 8:22

Begin @ 8:31:30 Level 6.61'

Pump Rate ~ 10 gpm

HS ~ 0.5'

End time @ 8:36:30

P-128 Pad needs repair!

W.L. 8.96' btec @ 8:48

Begin @ 8:54 Level 8:45

Pump Rate ~ ~~10~~ 10 gpm

HS ~ 0.7"

End Time @ 8:59

Aquifer Testing Con't

P-73 W.L. 10.62' btoc @ 9:12

Begin @ 9:16 Level: 6:49'

Pump Rate ~ 9.8 gpm

H.S. ~ 0.44'

End @ 9:21

P-61 W.L. 9.43' btoc @ 9:36

Begin @ 9:41 Level: 8.32'

Pump Rate ~ 9.8 gpm

H.S. ~ 0.5'

End @ 9:46

P-81 W.L. 10.27' btoc @ 10:04

Begin @ 10:10:30 Level 7.37'

~~Pump Rate ~~~~~H.S. ~~~~~End @~~

Pump Quit Working, Buy New Pump

W.L. 10.27' btoc @ 2:55 + Restore

Begin @ 3:15 Level 7.44'

Pump Rate ~ 17.5 gpm (new pump)

H.S. ~ 0.65'

End @ 3:20

P-136

W.L. 6.12' btoc @ 3:38

Begin @ 3:42 Level: 6.63'

Pump Rate ~ 17.5 gpm

H.S. ~ 2.6'

End @ 3:47

clean up

Leave site @ 4:38

"*Rite in the Rain*"[®]
ALL-WEATHER WRITING PAPER



ALL-WEATHER
ENVIRONMENTAL FIELD BOOK

CREDELL Engineering Resources, Inc.

ENVIRONMENTAL ENGINEERING LAND - AIR - WATER

TRAVIS A. DOLL, R.E.H.S.
ENVIRONMENTAL GEOLOGIST

Telephone (573) 659-9078

Facsimile (537) 659-9079

E-mail: travisd@ger-inc.biz

1505 East High Street, Jefferson City, Missouri 65101
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Location _____

Date 06/04/09

Project / Client Ameren UE Lebadie

1015 - Arrive onsite for contractor safety training with Mike Carlson and site reconnaissance.
 WEATHER: WARM, 70°F, MOSTLY SUNNY, MILD CALM

1049 - TAD completed safety training

1052 - Begin site reconnaissance with mcc and Ameren UE employee John Eimer. Observed survey markers and previously installed monitoring wells. Corn plants at throughout majority of site at ~ 24" height. Center pivot irrigation onsite. Observed the irrigation supply well ~ 100 yds from the intersection of Davis Rd and Lebadie Bottom Road. Observed gas pipeline and electrical overhead lines.

1138 - Drop off John Eimer at his office. Visit with John in his office about his contact information and communication methods.

1148 - OFFSITE
 James Dow

Location American UE - Labadie Date 09/03/09

Project / Client Reitz & Sons

TRAFFIC DOW

145 - Arrive onsite to meet John Emer and Paul Reitz at John Emer's office.

150 - So Ann Thoe onsite for coordination of field staking meeting.

158 - Complete meeting and ride with Paul Reitz to the piezometer locations to determine current crops/harvesting and correct water levels from P-1, P-2, and P-3. Water levels gauged by Mr. Reitz.

PZ	SWL
P-1	10.65
P-2	11.86
P-3	11.69

Discussed utility locate placement with John Emer, So Ann Thoe and LaCade Gas (Steve). Drive back to Emer's office.

168 - Begin field staking. Ground is dry.

170 - John Emer and Glenn Ludwig (Enbridge) onsite. Informed John F was finished staking for the day and will meet him back at the office.

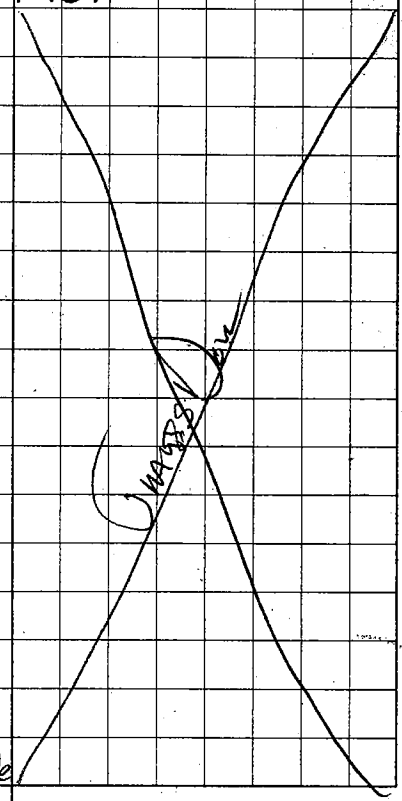
172 - Talk with John about water, trailer and supply locations. OFFSITE
Gross Dow

Location American UE - Labadie Date 09/03/09 5

Project / Client Reitz & Sons

WEATHER: WARM, SOFT CALM, MILD, PARTLY CLOUDY

Piezometers Field	Staked								
P-9 - Sandy Soil	P-102 - 1' grass/corn stubble								
P-22	P-118 - "								28
P-33	P-116 - "								"
P-12	P-130 - "								"
P-17	P-141 - "								"
P-19	P-155 - "								"
P-24	P-167 - "								"
P-29									
P-36									
P-35									
P-38 - S of LBR									
P-40 - N of LBR									
P-42 - N of LBR									
P-47									
P-45									
P-43									
P-63									
P-61									
P-59									
P-77									
P-75									
P-90									
P-104 - 1' grass/corn stubble									



Location American UE-Labadie Date 9/18/09

Project / Client Reitz & Jens

WEATHER: WARM, BDF, MOSTLY SUNNY, 5-10 MPH NEW WIND, M20

30 - Mike Carlson and Dan Binz offsite. Move off of P-47 and prepare for completions of the piezometers

	PZ	W.L.	T.D.	Growth	Add. Comment
51	P-33	14.89'	37.58'	7g	Dan Binz back onsite
118	P-35	14.15'	36.61'	0g	CORRECTED!
25	P-29	14.52'	37.73'	5g	No 5-Plug
132	P-36	14.61'	37.60'	1g	5g
40	P-27	15.87'	38.00'	7g	6g
48	P-24	15.07'	37.84'	8g	5g
55	P-17	16.08'	37.77'	10g	
105	P-12	16.14'	36.99'	12g	10g
114	P-15	16.60'	37.70'	13g	

120 - Completed steel casings, -plugs and locks for above wells. Dan Binz offsite.

156 - Max's finished unloading supplies and securing trailer. Dan Binz offsite.

200 - Offsite. CT John Eimer informing him of demobilization.

~~Grants Don~~

Location American UE-Labadie Date 9/21/09 7

Project / Client Reitz & Jens

WEATHER: WARM 70°F, HEAVY FOG, CALM, HUMID, HEAVY RAIN OVER WEEKEND

0855 - TAD arrive onsite. Max's crew to be here at 0930 hours. Load truck with materials.

0955 - Complete 3rd utility locate rework. Send via email to John Eimer, Mike Carlson and Dave Hunziker.

1000 - CT Doug Hunziker, Max's, to get ETR. Left voice message.

1026 - Max's Enterprises onsite, Doug Hunziker, Robert Hixon and Ryan Hunziker

1049 - CT Mike Carlson. Informed that fields are wet and soft; however we will try setting up on P-63 and monitor field settings. He said just be sure to stay within a 12' path.

1115 - Support vehicle became stuck on way to P-63. ATV drill rig used to pull vehicle to P-63.

1125 - John Eimer onsite. Complete tailgate safety mtg. 1130 - Eimer offsite.

~~Grants Don~~

Location Americane-Labadie Date 09/21/09

Project / Client Reitz & Jens

PZ-63	Begin: 1131	End: 1422
2S Rec	Sample Description	
-1.1' 5/5'	S: H, H. brn, soft, wet, 10YR 4/2	
-4.1' 1-Grab	Clay w/ silt, brn, firm, plastic, moist, 10YR 3/2	
-4.5'	Very fine sand, tan, loose, damp, 10YR 5/2	
-5.5'	S: H w/ trace clay & very fine sand, soft, moist, 10YR 3/3	

REVERSE DEPTHS/DESC. 0-5'

4.4' 2.2/5'	Clay w/ silt, brn, firm, plastic, moist, 10YR 3/2	
1-7'	S: H w/ trace very fine sand, wet, perched wt, lt. brn., soft, 10YR 4/3	
7.25'	Clay, H. brn, highly plastic, firm, moist, 10YR 4/2	
7.25' 2-Grab	Fine sand w/ trace silt/clay, soft, wet, H. brn, apparent wt, 10YR 4/2	
5-8.2'	Fine sand w/ trace silt/clay, soft, wet, H. brn, apparent wt, 10YR 4/2	
-11.8' 2.8/5'	Fine sand w/ trace very fine sand, Fe' staining, soft, wet, tan, 10YR 4/3	
5-12.8'	Fine sand, gray, wet, soft, Clay 1 3/1	

S	Rec	Sample	Description
16.5'	0/0/1	3	Clay w/ trace fine sand and silt, wet, soft, H. brn., 15.5' 10YR 4/3
			Very fine sand gray, soft, wet, 16" Clay 1 3/1

~~CRANDS DOW~~

Location Americane-Labadie Date 09/21/09

Project / Client Reitz & Jens

WEATHER: WARM 80°F, MOSTLY SUNNY, 5 MPH EAST WIND, HUMID

SS	Rec	Sample	Description	Cont. P-63
20-21.5'	3 1/3	4	Fine sand and clay/silt, tan, soft, wet, 20.5' 10YR 4/2	
			Load hole w/ H ₂ O	
25-26.5'	2 1/3	5	Medium to coarse sand, gray, soft, wet, Clay 1 3/1	20.4'
			Medium to coarse sand, gray, firm, wet, Clay 1 3/1	
			25.75'	
			Coarse sand, gray, soft, wet, w/ trace fine/medium sand, 26' 10YR 4/1	
			Clay w/ silt and fine sand, 10YR 4/2	
			H. brn, soft, wet, 26.1'	
			Coarse sand w/ medium/gr. fine sand, trace gravel, soft, wet, 26.3' 10YR 4/1	
30-31.5'	6 1/4	6	Fine sand, soft, wet, H. gray, 30.5' 10YR 4/1	
			grading to coarse sand	
			30.7' w/ interbedded clay 10YR 4/2	
			Coarse sand w/ medium and fine sand, H. gray, soft, wet, 30.9' 10YR 4/1	

CRANDS DOW

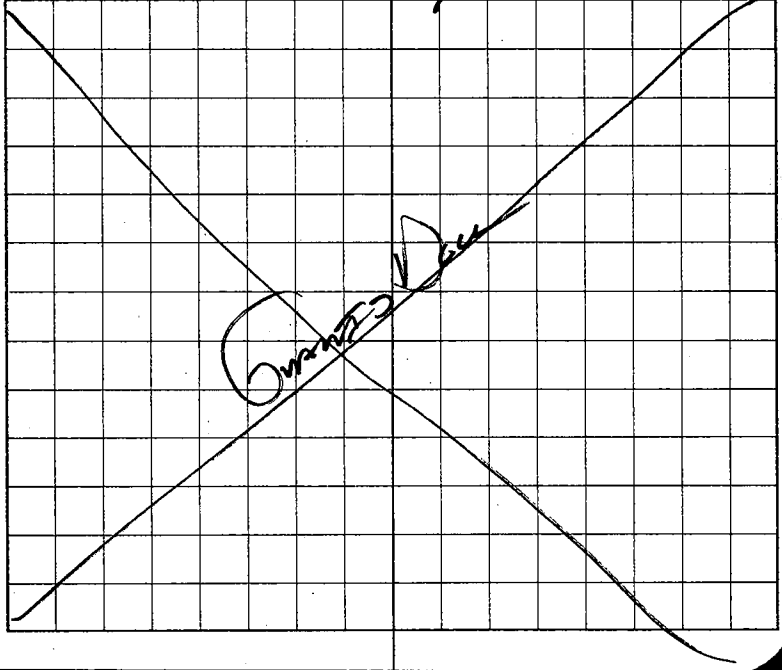
FS	Rec.	Sample	Description Cont: P-63
-36.5'	12" 2/1/4	7	Medium sand w/ fine sand, lt. gray, sat, wet 35.5', 10YR4/1 grading coarse sand 35.6' grading coarse sand w/ trace gravel 35.7', interbedded 10YR4/2 clay 35.8', and grading back to coarse sand 35.9', 10YR4/1

Well Construction Notes: P-63
 2" Sch 40 PVC, set base ~ 34.9'
 P. Sand to 22.0', use 190 lb 20/40
 S. Sand to 19.8', use 50 lb 30/70
 Bent. Slurry to GS, use 50 g
 (Calc. Vol = 50.5g) $D_i = 2.5"$ $D_f = 9.5"$
 PW = 50g

- 30- Cleanup/Leavehole
 - 30- Begin drilling P-59. See boring log for description
 - 31- Max's takes lunch break.
 - 32- Restart drilling P-59.
 - 37- Finished drilling P-59.
- James Dow*

Well Construction Notes: P-59
 2" Sch 40 PVC, set base ~ 35.3'
 P. Sand to 22.2', use 225 lb 20/40
 S. Sand to 20.9', use 50 lb 30/70
 Bent. Slurry to GS, use 46 g
 (Calc. Vol = 53') $D_i = 8.5"$ $D_f = 15"$
 PW = 38g

1740- Cleanup/Leavehole
 1800 offsite. Call John Emer and leave voice message re: status.



Location American-Labadie Date 09/22/09

Project / Client Reitz & Jens

WEATHER: WARM 105°F MOSTLY CLOUDY, CALM, HUMID, HEAVY RAIN LAST EVENING

100 - Arrive onsite. Doug, Ryan Hanzlker and Robert Hixon onsite. Recon farm fields to get status of standing water.

PHOTO LOG:

- 1) NE, P-40 location in standing water.
- 2) N, P-40 location in standing water.
- 3) W, P-403 and path in standing water.

1710 - Heisel/Neuman farm access road south of LBR very muddy and almost become stuck in Greden 2-wheel drive truck.

720 - Setup on P-38.

734 - Complete tailgate safety meeting.

735 - Begin drilling on P-38.

745 - John Eimer and Rich Hill onsite. John stated the generator for Max's must have a GFI. He said he is going to get a GFI for them to use.

859 - Chris Verrether, MDRR onsite.

707 - John Eimer onsite/offsite w/ GFI.

05 - CF Mike Carlson. He stated he is considering pulling off the site due to the saturated conditions. He wants me to call him once we are finished w/ P-38.

Graves Don

Location American-Labadie Date 09/22/09 13

Project / Client Reitz & Jens

WEATHER: WARM, 75°F, MOSTLY SUNNY, CALM, HUMID

Well Construction Notes: P-38 2256

2' Sch 40 PVC set base ~ 34.6'

P. Sand to ~~21.5'~~ 21.5', use ~~200~~ 210 lb 20/40

S. Sand to 19.3', use 500 lb 30/70

Bent. Slurry to GS, use 70 g

(Calc. Vol = 49 g) $V_i = 3"$ $D_r = 13"$

PW = 40 g

1035 - Finished drilling, sanding and grouting P-38.

1040 - CF Mike Carlson. Informed him that P-40 still has standing water around the location/stake. He stated to plan on demobilizing and to have Max's install temporary protective casings around all remaining unprotected wells. Mike asked me to call him prior to demob.

1045 - Chris Verrether offsite.

1050 - CME 750 Drill Rig will not start.

1108 - PHOTO LOG CONT:

4) SE, P-38 ground after drilling

5) S, P-38 ground after drilling.

6) NE, P-40 location in standing water.

1113 - Max's got drilling started.

Graves Don

Location AmerenUE-Labadie Date 09/21/09

Project / Client Leitz & Sens

14 - Max's begins setting temporary protective casings, j-plugs and locks on all remaining uncompleted well heads.
P-43, P-45, P-47, P-59, P-63, P-38, P-20

20 PHOTO LOG CONT:

1) WEST P-38 location after drilling

13 - Finished setting temporary casings.

15 - Finished unloading support vehicle. Secure site. Offsite

13 - CT Rich Hill, Const. Safety Ameren, to inform him we were offsite for the remainder of the week.

~~Max's Done~~

Location AmerenUE-Labadie Date 09/28/09 15

Project / Client Leitz & Sens

WEATHER: COOL 50°F CLEAR SKIES, MILD, BREEZY GROUND & FIELDS HARD

0630 - Arrive onsite to continue OSI field work.

0655 - Max's Enterprises onsite. Doug & Ryan Hanziker and Robert Nixon

0700 - CME 750 drill rig's battery is dead. Max's begins jump starting.

0725 - Setup on P-75

0730 - CF Mike Carlson. Checked on status of ground conditions and activities.

0745 - Conduct tailgate safety meeting.

0750 - Begin drilling P-75

~~Max's Done~~

Location AmerenUE - Labadie Date 09/28/09

Project / Client Reitz & Jens

WEATHER: WARM, 100°F CLEAR SKIES, MILD, GUST-
Y WINDS 30 MPH

Well Construction Notes: P-75

1" Sch 40 PVC, set base at 34.8

1/40 P. Sand to 21.5' use 250 lb

7/70 S. Sand to 20.2' use 40 lb

wt. Slurry to GS, use 49 g

(Calc. Vol. = 51.5g) $D_i = 3"$ $D_F = 10"$

$W = 31g$

135 - Finished drilling sand and grouting P-75

00 - Setup on P-77

10 - Begin drilling P-77

Well Construction Notes: P-77

1" Sch 40 PVC set base at 35' ²¹²

1/40 P. Sand to 21.4' use 210 lb

1/70 S. Sand to 19.9' use 38 lb

wt. Slurry to GS, use 53 g

(Calc. Vol. = 51 g) $D_i = 8.5"$ $D_F = 16"$

$W = 31g$

130 - Chris Verrether, MARR, on site.

145 - Finished drilling sand and grouting P-77.

00 - Setup on P-90.

120 - Begin drilling on P-90.

Chris Verrether

Location AmerenUE - Labadie Date 09/28/09¹⁷

Project / Client Reitz & Jens

Well Construction Notes: P-90

5" Sch 40 PVC, set base at 35'

29/40 P. Sand to 21.2' use 225 lb

39/70 S. Sand to 20' use 60 lb

Bent. Slurry to GS, use 53 g

(Calc. Vol. = 51 g) $D_i = 3"$ $D_F = 10.5"$

$PW = 31g$

1700 - Finished drilling sand and grouting P-90

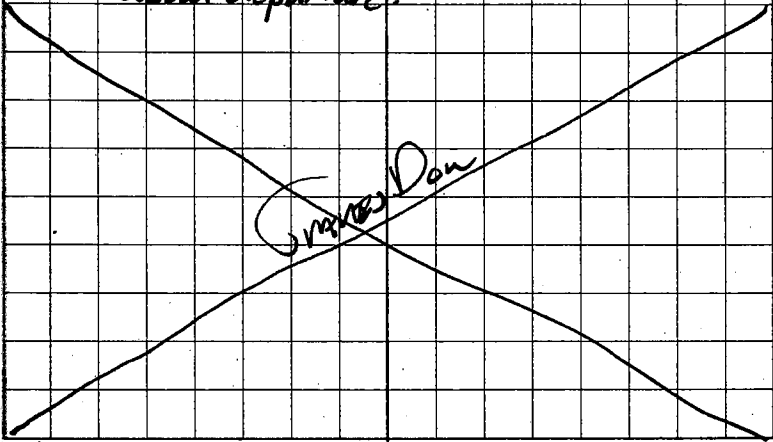
1715 - Begin drilling P-102

1720 - Chris Verrether off site.

1750 - Finished drilling for day on P-102.

Sample to 15' bgs.

1815 - Off site for the day CT John Eimer
about departure.



Location AmerenUE-Labadie Date 09/29/09

Project / Client Reitz & Sons

WEATHER: COOL, 50°F, CLEAR SKIES, MID, BREEZY

- 045 - Arrive onsite for DST Fieldwork
055 - Max's Enterprises arrive onsite.
Doug & Ryan Hunziker Robert Hixon
125 - Setup on P-102 to resume drilling.
130 - Conduct tailgate safety meeting.
138 - Resume drilling on P-102.
140 - Drill string and sand catch opener
became stuck in HSAs when pulling
drill string out. Required hoist to
remove. Coarse sands were on the
sand catch opener when removed.

Well Construction Notes: P-102

2" Sch 40 PVC set base at 34.7'

240 P. Sand to 21' use 200 lb

70 S. Sand to 19.8' use 40 lb

ent. Slurry to GS, use 49 g

(Calc. Vol. = 50.5 g) $D_i = 10''$ $D_o = 17''$

$D = 31g$

24 - Chris Viereck MONE onsite.

45 - Finished drilling, sand, and grouting P-102.
Sands still heaving in HSAs during tremb
method of Filter pack
Grouts Down

Location AmerenUE-Labadie Date 09/29/09 19

Project / Client Reitz & Sons

WEATHER: COOL, 65°F, CLEAR SKIES, MID, 15-20 MPH
WIND FROM NW

- 1011 - Setup on P-116. Max's back to plant
to fill up w/water.
1038 - Begin drilling on P-116.
Well Construction Notes: P-116
2" Sch 40 PVC, set base at 35'
240 P. Sand to 21.5' use 225 lb
300 S. Sand to 19.8' use 40 lb
Bent Slurry to GS, use 49 g
(Calc. Vol. = 50.5 g) $D_i = 3''$ $D_o = 10''$
PW = 25g
1215 - Robert Hixon offsite to buy lunch.
1248 - Robert Hixon back onsite.
1325 - Finished drilling, sand, and grouting P-116.
1340 - Setup on P-118. Max's goes to plant to
fill up w/water.
1405 - Begin drilling on P-118.
1510 - John Eimer onsite to monitor safety.
1515 - John Eimer offsite.
1638 - Finished drilling, sand, and grouting P-118.
1650 - Setup on P-155.
1704 - Begin drilling on P-155.
1816 - Unload. Offsite
Grouts Down

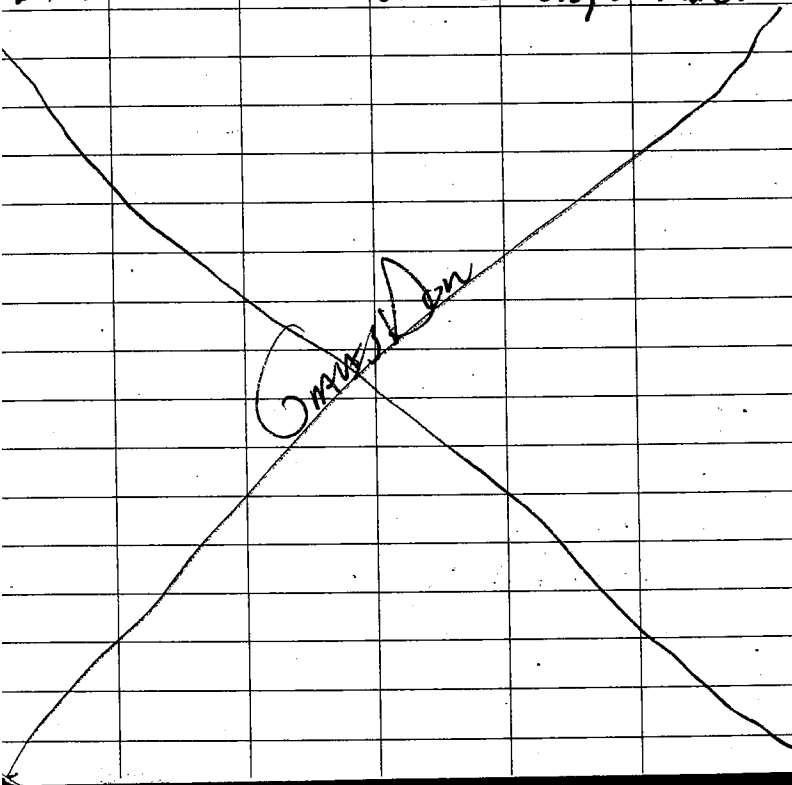
Location America UE - Labadie Date 09/29/09
Project / Client Reitz & Sons

Location America UE - Labadie Date 09/30/09 21
Project / Client Reitz & Sons
WEATHER: 002, 50°F, HEAVY FOG, HUMID, CALM

Well Construction Notes: P-118
2" Sch 40 PVC, set base at 35.2'
3/40 P. Sand to 21.7, use 225 lb
3/40 S. Sand to 19.9, use 50 lb
Bent. Slurry to GS, use 60 g
(Calc. Vol. = 51 g) $D_i = 10"$ $D_o = 18.5"$
PW = 28g

0640 - Arrive onsite for OSE fieldwork
0650 - Max's Enterprises onsite.
Doug & Ryan Hunziker, Robert Hixon
0711 - Setup on P-155 to resume drilling.
0730 - Conduct tailgate safety meeting.
0731 - Resume drilling on P-155.

1830 - CT John Eimer about departure.



Well Construction Notes: P-155
2" Sch 40 PVC, set base at 34.8'
2 3/40 P. Sand to 21.5', use 250 lb
3 3/40 S. Sand to 19.9', use 40 lb
Bent Slurry to GS use 42 g
(Calc. Vol. = 51 g) $D_i = 4.5"$ $D_o = 10.5"$
PW = 38g

0923 - Chris Vierthel, MOOR, onsite.
0925 - Dave Hunziker, Jeff Fouse, and Mike Carlson onsite.
0941 - Finished drilling, sand and grading P-155.
0945 - Mike Carlson & Jeff Fouse offsite to safety/progress mtg. w/ John Eimer.
0953 - Setup on P-130
1018 - Begin drilling on P-130.
1125 - Mike Carlson back onsite from meeting.
Gruve's Don

Location AmerieuE-Labadie Date 09/30/09

Project / Client Reitz & Sens

WEATHER: WARM 70°F, MOSTLY SUNNY, MILD, WIND FROM SE @ 5 MPH

Well Construction Notes: P-130

4" Sch 40 PVC, set base at 34.9'

40 P. Sand to 21', use 240 lb

70 S. Sand to 19.5', use 50 lb

ent. Slurry to GS, use 32* g

Calc. Vol. = 50 g) $D_i = 9.5"$ $D_o = 14"$

W-44

17 - Mike Carlson and Robert Hixon offsite to buy lunch

40 - Chris Viereither offsite.

45 - Mike Carlson and Robert Hixon onsite.

50 - Finished drilling sand and grouting P-130.

Dave Hunziker stated the ground depth is actually 6" = *42 g

20 - Setup on P-144 First 4" Well

30 - Begin drilling on P-144.

46 - Finished drilling/sampling w/ 8.25" augers.

75 - Begin drilling w/ 10" (6.75") I.D. on P-144.

33 - Finished augering down to 35' on P-144.

18 - Finished adding sand to P-144.

40 - Finished drilling sand and grouting P-144.

51 - Setup on P-104

James Dow

Location AmerieuE-Labadie Date 09/30/09 23

Project / Client Reitz & Sens

Well Construction Notes: P-144

4" Sch 40 PVC, set base at 34.7', 20-Slot

100 P. Sand to 21.7', use 300 lb

30 S. Sand to 20', use 80 lb

Bent Slurry to GS, use 52 g

(Calc. Vol. = 69 g) $D_i = 5"$ $D_o = 8.5"$

PW = 96 g

1700 - Begin drilling on P-104

1715 - Chris Viereither, MONE, onsite.

1810 - Finished drilling for day on P-104.

Drilled to 35' w/ 8.25-inch augers.

1830 - Made Ent. offsite and Chris Viereither

1840 - Offsite.

1842 - Call to John Elmer about departure.

~~James Dow~~

Location AmerenUE-Labadie Date 10/01/09

Project / Client Reitz & Sons

WEATHER: COOL, 40°F, OVERCAST, HUMID, SCATTERED RAIN SHOWERS, THUNDERSTORMS IN FORECAST

040 - Arrive onsite for DSI fieldwork.

045 - Mike Carlson onsite.

55 - Max's Enterprises onsite. Dave Doug and Ryan Hunziker, Robert Hixon

20 - Mike Carlson returns to P-104 to resume drilling, while I continue field staking along the western area of the Heisel property

PIEZOMETERS FIELD STAKED

P-109

P-177

P-165

P-142

315 - Lost satellite coverage for GPS and could not continue locate of Piezometers.

25 - Head back to construction trailer to wait out thunderstorms/lightning. Prep. soil sample bottles/labels.

00 - Max's Enterprises offsite and sent home due to rain.

15 - Offsite and go back to hotel to check out for week.

~~Chris Dow~~

Location AmerenUE-Labadie Date 10/05/09²⁵

Project / Client Reitz & Sons

WEATHER: COLD, 40°F, LIGHT FOG, DAMP, CALM

0635 - Arrive onsite for DSI fieldwork. Observed flat fire on 10.25" Auger trailer.

0639 - CF Doug Hunziker to inform him of flat fire prior to them arriving onsite.

0650 - Max's Enterprises onsite. Doug & Ryan Hunziker, Robert Hixon

0705 - Conduct tailgate safety meeting.

0718 - Support truck for Max's became stuck in field enroute to P-104.

0745 - Max's uses drill rig to pull support vehicle to P-104.

PHOTO LOG

1) EAST cuts created from support vehicle & drill rig to P-104

2) EAST, same as previous

3) WEST, cuts created from support vehicle

4) WEST, same as previous.

0750 - CF Mike Carlson. Informed him of the drill rig becoming stuck enroute to P-104.

0755 - Begin 10.25" augers/drilling on P-104
Chris Dow