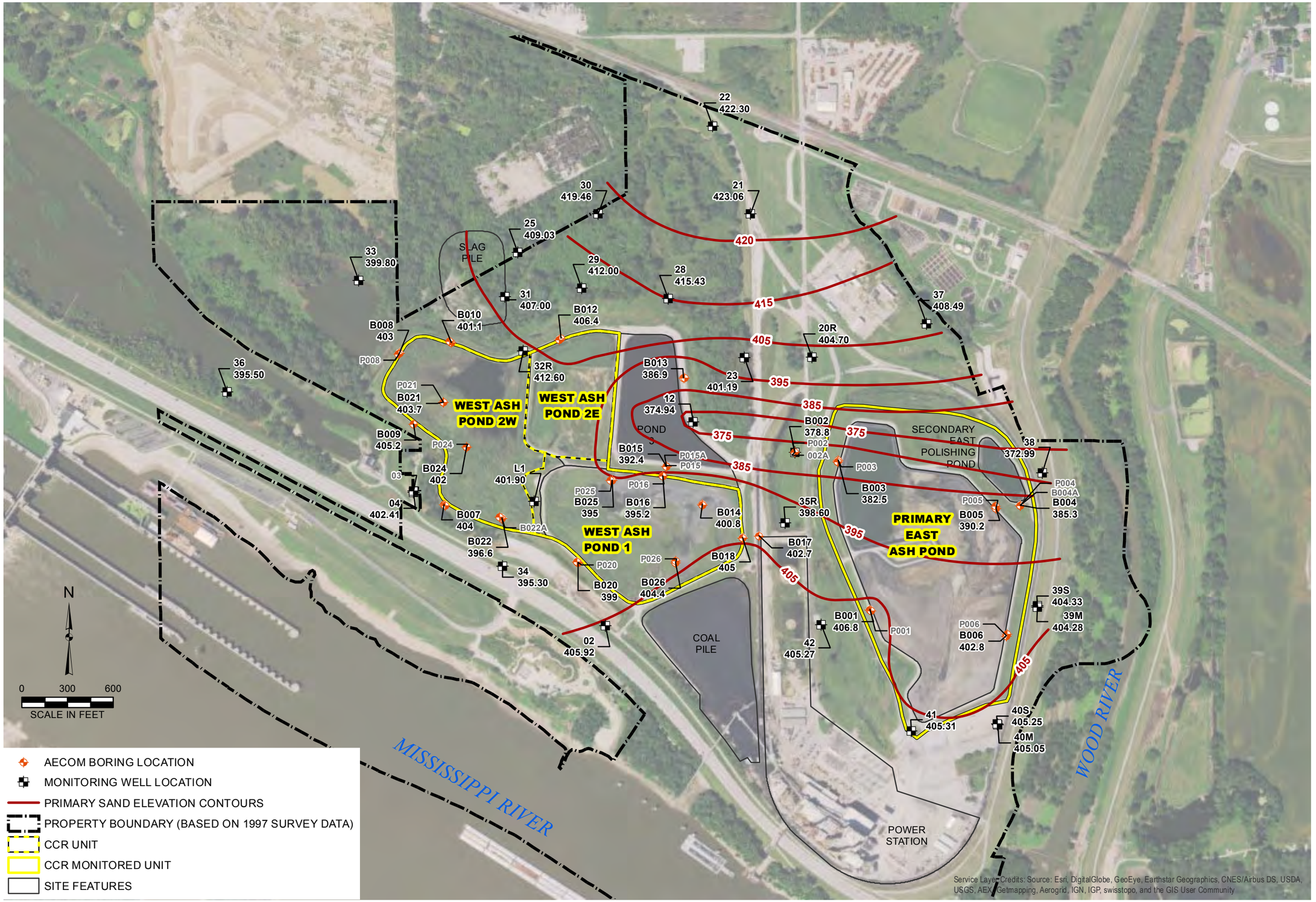

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NRK 7/15/16
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SJC 7/28/16

TOP OF PRIMARY SAND ELEVATION CONTOURS

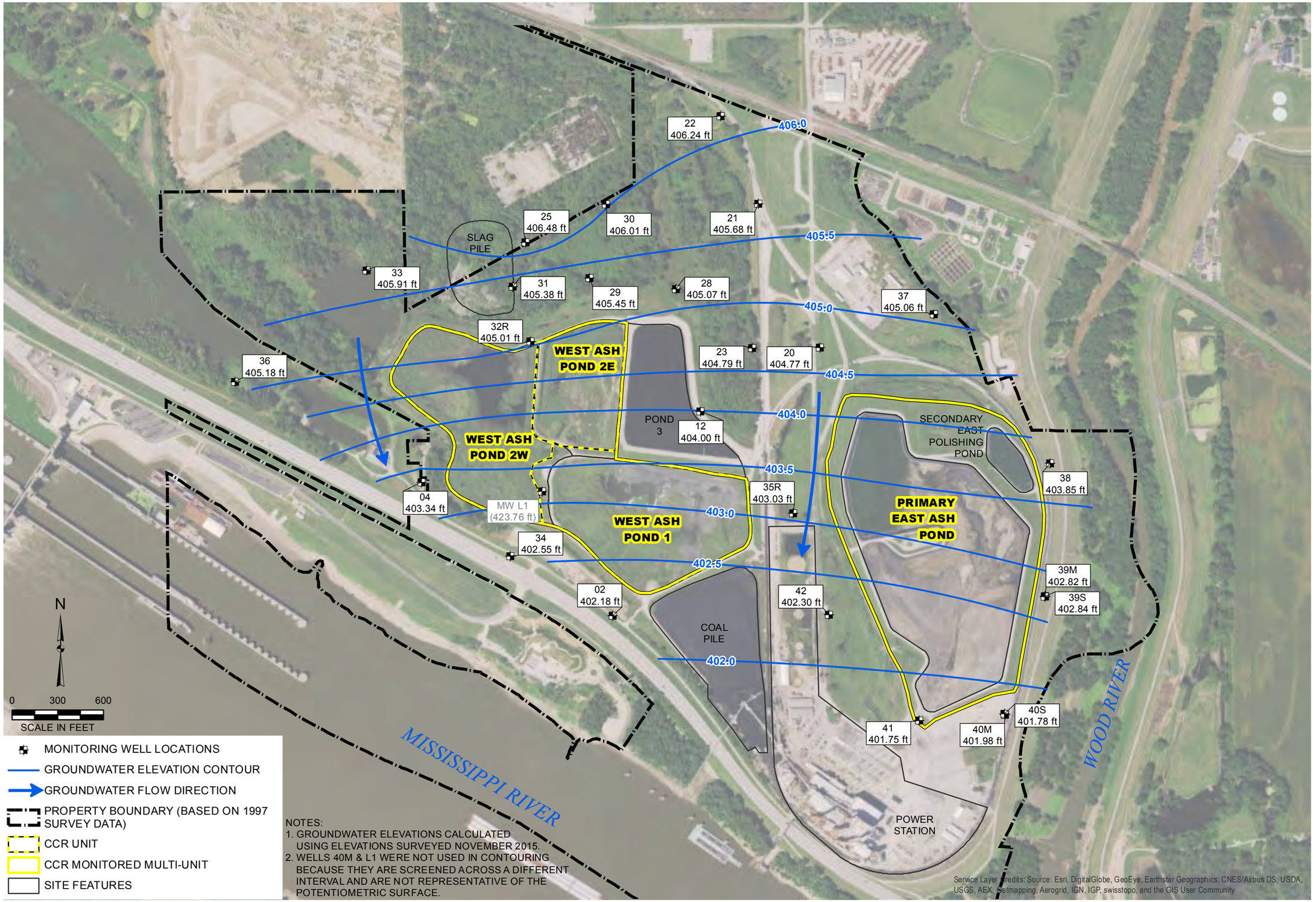
HYDROGEOLOGIC CHARACTERIZATION REPORT
WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

PROJECT NO: 2376

FIGURE NO: 7

NATURAL RESOURCE TECHNOLOGY

Y:\Mapping\Projects\23\2376\MXD\Hydrogeologic_CRR\Figure 7_Top of Primary Sand.mxd Author: sstolz Date/Time: 7/28/2016, 4:48:16 PM



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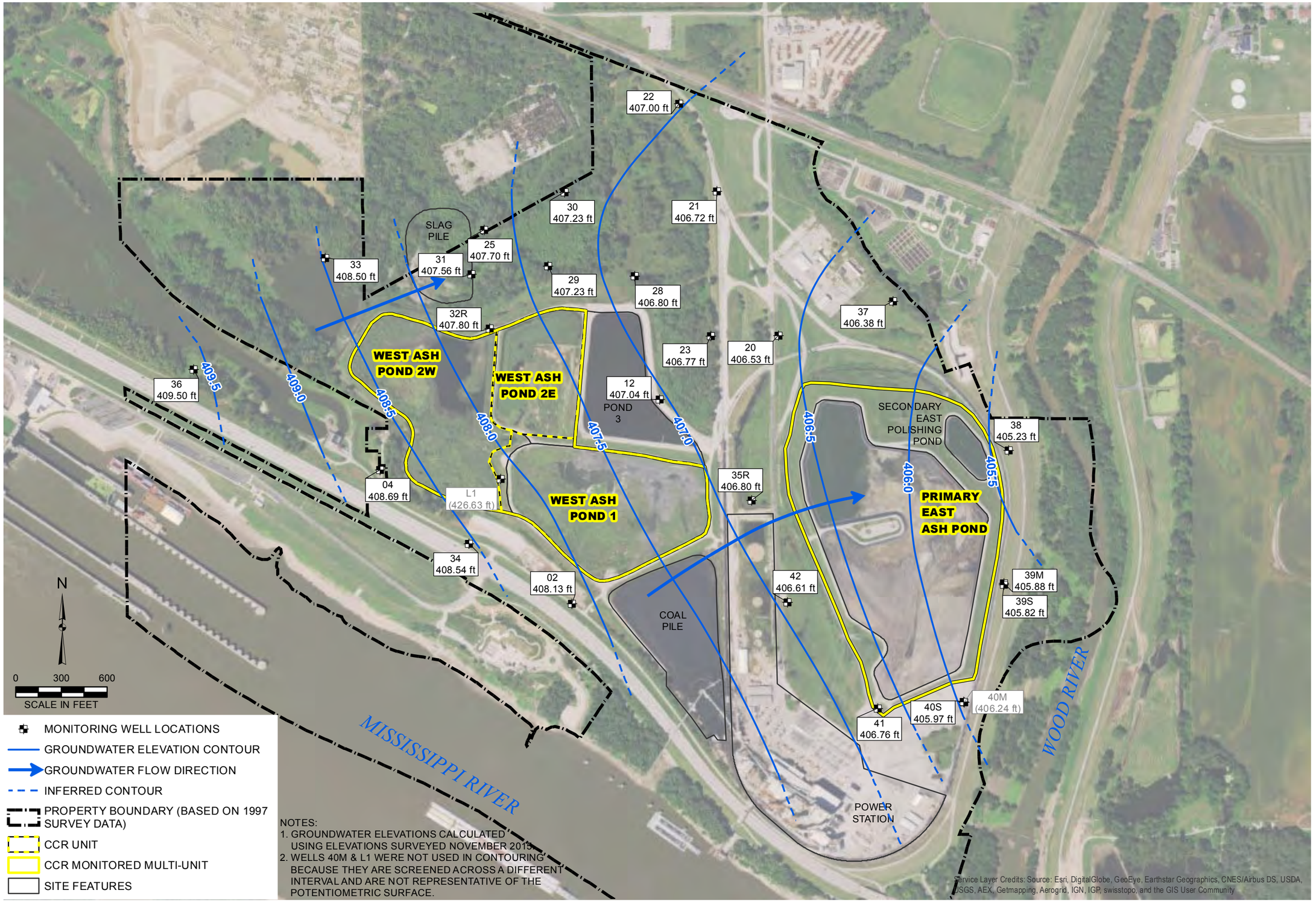
POTENTIOMETRIC SURFACE
NOVEMBER 3-5, 2015

HYDROGEOLOGIC CHARACTERIZATION REPORT
WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

PROJECT NO: 2376

FIGURE NO: 8

NATURAL RESOURCE TECHNOLOGY



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SDS 7/15/16
REVIEWED BY/DATE:
NRK 7/15/16
APPROVED BY/DATE:
SJC 7/28/16

POTENTIOMETRIC SURFACE
MAY 21, 2015

HYDROGEOLOGIC CHARACTERIZATION REPORT
WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

PROJECT NO: 2376

FIGURE NO: 9

NATURAL RESOURCE TECHNOLOGY

TABLES

Table 1
Summary of Hydraulic Conductivity Test Results in the Clay Unit
Hydrogeologic Characterization Report
Wood River Power Station

Boring/Well	Test Type[(1)]	Soil Type Description	Laboratory Vertical Hydraulic Conductivity cm/s	Laboratory Vertical Hydraulic Conductivity ft/day	Field Horizontal Hydraulic Conductivity cm/s	Field Horizontal Hydraulic Conductivity ft/day
10	a.	Silty Clay			2.3E-05	6.4E-02
11	a.	Silty Clay			2.6E-05	7.4E-02
13	b.	Silty Clay	3.0E-07	8.5E-04		
B-5-04-3	c.	Lean Clay	1.7E-08	4.8E-05		
B-5-04-6	c.	Sandy Lean Clay	1.2E-07	3.4E-04		
B-5-04-8	c.	Lean Clay	2.4E-08	6.8E-05		
WOR-B001	d.	Fat Clay	2.9E-07	8.2E-04		
WOR-B004	d.	Lean Clay	4.6E-07	1.3E-03		
WOR-B014	d.	Silt	1.2E-07	3.4E-04		
WOR-B022	d.	Silt w/ Sand, Lean Clay	1.2E-06	3.4E-03		
		Minimum Hydraulic Conductivity	1.7E-08	4.8E-05	2.3E-05	6.4E-02
		Maximum Hydraulic Conductivity	1.2E-06	3.4E-03	2.6E-05	7.4E-02
		Geometric Mean Hydraulic Conductivity	**1.1E-07**	**3.2E-04**	**2.4E-05**	**6.9E-02**

[1] Test types:

a. Slug test analyzed with Hvorslev (1951) solution, Hampton and O'Hearn (1984)
b. Falling head permeameter test, Hampton and O'Hearn (1984)
c. Falling head permeameter test, Kelron Environmental (2004)
d. Falling head permeameter test, AECOM (2015)

Table 2
Summary of Hydraulic Conductivity Test Resultsin the Primary Sand
Hydrogeologic Characterization Report
Wood River Power Station

Well	Test Type[1]	Formation	Field Hydraulic Conductivity	
			cm/s	ft/d
Sand Units				
1	a.	Sand	2.5E-02	72
2	a.	Sand	2.0E-03	6
3	a.	Sand	7.8E-04	2
4	a.	Sand	1.8E-03	5
5	a.	Sand	8.1E-03	23
6	a.	Sand	1.2E-03	3
7	a.	Sand	4.2E-04	1
8	a.	Sand	4.2E-03	12
9	a.	Sand	3.2E-03	9
12	a.	Sand	2.3E-02	66
14	a.	Sand	3.5E-02	98
20	b.	Sand	1.3E-02	37
21	b.	Sand	2.1E-02	60
22	b.	Sand	2.3E-02	64
23	b.	Silty Clay (top) / Sand (bottom)	8.1E-03	23
24	b.	Sand	8.1E-03	23
25	b.	Sand	2.1E-03	6
32	c.	Sand	9.0E-02	255
33	c.	Sand	2.6E-02	74
34	c.	Sand	1.1E-03	3
37	d.	Sand	1.1E-01	306
38	d.	Sand	2.7E-02	75
39S	d.	Sand	5.5E-02	155
39M	d.	Sand	1.8E-01	510
40S	d.	Sand	9.5E-03	27
40M	d.	Sand	2.1E-01	587
41	d.	Sand	6.2E-02	175
42	d.	Sand	3.3E-02	95
	Minimum Hydraulic Conductivity		4.2E-04	1
	Maximum Hydraulic Conductivity		2.1E-01	587
	Geometric Mean Hydraulic Conductivity		**5.7E-02**	**33**

1. Test types:

a. nitrogen gas slug, analyzed using method of Hvorslev (1951), performed by Hampton and O'Hearn (1984)

b. PVC slug, analyzed using method of Bower & Rice (1976), performed by Kelron Environmental (1995)

c. PVC slug, analyzed using method of Bower & Rice (1976), performed by STMI (this report)

d. PVC slug and air slug, analyzed using Bower and Rice, 1976, performed by Kelron Environmental (2004)

Table 3
Summary of Existing Monitoring Well Network and AECOM Borings
Hydrogeologic Characterization Report
Wood River Power Station

Boring/Well ID	Ground Surface at Time of Install	Measuring Point Elevation (2015)	Top of Screen Elevation	Bottom of Screen Elevation	Screen length	Total Boring Depth
2	432.9	435.0	397.7	395.7	2	395.7
4	417.4	419.6	396.4	394.4	2	391.4
12	426.9	428.8	370.9	368.9	2	368.9
20R	425.2	427.2	406.3	386.7	20	385.2
21	433.1	434.8	414.0	393.6	20	390.1
22	433.3	435.0	410.0	394.8	15	390.8
23	431.2	432.3	413.2	392.8	20	391.2
25	430.5	432.2	412.4	392.0	20	390.5
28	420.4	422.6	400.0	385.0	15	384.4
29	428.0	429.9	407.6	392.6	15	392.0
30	430.5	432.3	410.1	395.1	15	394.5
31	433.8	435.8	413.4	398.4	15	397.8
32R	427.1	429.0	410.1	400.1	10	393.1
33	409.8	411.8	399.8	389.8	10	
34	429.3	430.2	394.3	389.3	5	
35R	422.6	424.7	399.6	394.6	5	394.6
36	413.5	416.3	393.5	388.5	5	
37	429.29	432.44	405.4	400.3	5	398.3
38	434.49	437.09	367.7	362.7	5	360.5
39S	437.33	440.08	401.1	396.1	5	393.9
39M	437.28	440.03	369.9	364.9	5	362.8
40S	441.25	444.55	404.7	399.7	5	397.7
40M	441.05	444.20	388.1	383.0	5	381.1
41	448.11	450.96	401.9	396.8	5	394.1
42	422.97	425.72	402.7	397.6	5	395.0
L1	433.9	437.49	416.9	411.9	5	
L2	435.99	439.41	431.3	421.2	10	
L3	441.80	444.26	432.1	422.1	10	
L4	448.29	450.84	430.7	420.6	10	420.3
AECOM Borings and Piezometers						
B001/P001	451.8	451.78	436.8	426.8	10.0	371.1
B002/P002	422.3	425.35	407.3	397.3	10.0	362.3
B003/P003	451.0	451.05	416.0	406.0	10.0	371
B004/P004	433.8	436.60	418.8	408.8	10.0	373.8
B005/P005	451.2	451.24	421.2	411.2	10.0	371.2
B006/P006	451.3	451.32	401.3	391.3	10.0	371.3
B007	426.5	NA	NA	NA	NA	356.5
B008/P008	426.5	426.48	406.5	396.5	10.0	356.5
B009	426.2	NA	NA	NA	NA	356.2
B010	426.1	NA	NA	NA	NA	356.1
B012	430.9	NA	NA	NA	NA	360.9
B013	427.9	NA	NA	NA	NA	357.9
B014	431.8	NA	NA	NA	NA	361.8
B015/P015	428.4	428.45	393.4	383.4	10.0	378.4
B016/P016	442.2	442.23	422.2	412.2	10.0	372.2
B017	431.7	NA	NA	NA	NA	361.7
B018	443.9	NA	NA	NA	NA	373.9
B020/P020	444.0	444.05	404.5	394.5	10.0	374
B021/P021	422.7	425.33	408.7	393.7	15.0	352.7
B022	430.6	NA	NA	NA	NA	380.6
B024/P024	423.0	425.46	408.0	393.0	15.0	353
B025/P025	433.5	435.98	418.5	408.5	10.0	373.5
B026/P026	431.4	433.81	415.4	405.4	10.0	402.9

Table 4
Summary of Groundwater Elevations (2010-2015)
Hydrogeologic Characterization Report
Wood River Power Station

Month-Year	02	04	12	20	21	22	23	25	28	29	30	31	32R	33	34	35R	36	37	38	39M	39S	40M	40S	41	42	L1R
March-10	406.4	407.1	407.42	406.78	408.52	408.84	407.9	408.89	408.02	403.32	408.71	408.24	407.98		406.04	406.74	407.77	407.77	406.91	406.27	406.32	405.56	405.79	405.57	406.15	415.3
June-10	414.36	411.93	413.61	412.6	413.41	413.36	413.52	412.88	413.12	412.87	413.06	412.59	412.82		413.67	414.33	412.65	413.61	414.12	414.54	414.55	414.89	414.89	414.95	414.62	429.2
September-10	413.47	411.74	412.33	410.78	411.62	411.7	411.89	411.59	411.54	411.64	411.63	411.62	411.89		413.17	413.07	412.27	411.97	412.76	413.13	413.13	413.41	413.54	413.52	413.42	428.94
November-10	406.7	407.26	408.07	407.41	409.22	409.58	408.55	409.56	408.75	408.88	409.35	408.78	408.42	408.77	406.82	407.43	408.28	408.18	407.55	400.74	400.57	406.65	406.78	406.5	406.86	426.78
March-11	412.76	411.24	409.51	406.56	407.01	406.84	408.24	407.8	407.8	408.07	407.48	408.51	409.16	409.28	412.73	410.31	411.23	407.49	409.07	409.77	409.52	411.14	410.68	411.81	411.02	430.1
June-11	418.78	414.38	416.68	415.82	416.21	415.86	416.56	415.04	415.79	415.38	415.4	414.96	415.27	412.44	416.76	418.14		417.29	417.79	418.42	418.38	418.82	418.91	419.18	418.79	430.05
September-11	405.73	405.68	407.53	407.36	409.28	409.68	408.3	409.25	408.5	408.59	409.17	408.12	407.7	407.81	405.45	406.86	406.75	408.52	407.54	406.67	406.73	405.9	406.09	405.8	406.3	426.13
November-11	403.01	403.23	405.03	404.79	406.86	407.29	405.86	407.21	406.04	406.17	406.81	405.82	405.36	405.79	402.68	404.13	404.75	406.14	405.1	403.93	404.03	402.85	402.8	402.74	403.4	425.48
March-12	408.16	408.92	407.01	405.19	406.33	406.5	406.48	407.29	406.53	406.94	406.82	407.45	407.52		408.53	406.98	408.59	406.09	406.14	405.95	405.83	406.44	406.18	406.85	406.81	429.53
June-12	404.6	405.38	405.73	404.69	406.44	406.8	405.93	407.13	406.27	406.62	406.92	406.62	406.32	407.12	404.54	405.06	406.86	405.24	404.88	404.48	404.52	404.12	404.16	404.2	404.67	426.3
August-12	400.55		402.77	402.28	406.04	404.78	401.65	404.9	403.75	404.17	404.66	404.22	403.72	405.29	401.04	401.66	404.39	403.22	402.5	401.53	401.58	400.34	400.65	400.26	401.01	424.18
November-12		404.06	402.1	401.11	402.98	403.46	402.36	404.21	402.79	403.37	403.68	403.7	403.27	405.25	401.35	401.24	404.35		401.43	400.43	400.41	399.79				423.75
February-13	401.8	404.41	402.64	401.59	403.43	403.66	402.81	404.31	403.16	403.61	403.85	397.57	403.53	405.2	402.55	401.88	404.79		402.03	401.04		400.75				426.86
May-13	417.9	415.13	415.32	413.1	412.11	411.02	413.98	403.81	413.14	412.96	411.77	413.07	413.78		416.55	416.77		414.35	416.3	417.19	417.25	417.82	417.72	418.39	417.82	430.05
August-13	404.19	407.36	407.06	406.96	409.1	409.57	407.99	409.27	408.37	408.61	403.24	407.39	407.74		404.63	406	406.91	408.02	406.79	405.8	405.89	404.61	403.23	404.35	405.24	427.63
November-13	401.95	404.27	403.51	402.76	404.63	405.09	403.95	405.37	404.32	404.72	405.06	404.81	404.44	405.83	402.64	402.65	405.72		403.01	401.93	401.93	401.11			401.8	425.68
February-14	403.71	406.46	403.47	401.96	403.55	403.94	403.34	405	403.63	404.2	404.27	405.26	404.63	406.34	429.11	403.11	406.6	402.89	402.3	401.6	401.14	401.83	401.34	401.34	401.11	426.59
May-14	409.78	410.8	408.58	406.83	407.54	407.53	408.01	408.41	408.03	408.41	408.07	408.63	408.84		410.44	408.94	410.33	407.34	407.79	407.97	407.93	408.56	408.45	409.03	409.1	428.92
September-14	406.62	409.2	407.07	405.8	407.46	407.83	404.11	408.18	407.31	407.74	407.96	408.01	407.85		408.27	406.34	406.46	406.79	406.34	405.83	405.78	405.68	405.67	405.79	405.87	428.03
November-14	403.98	405.7	405.91	405.75	407.75	408.18	406.85	407.88	407.15	407.43	407.94	407.27	406.78		404.33	405.3	406.37	406.88	405.74	404.79	404.85	403.82	403.88	403.81	404.57	428.94
March-15	402.75	405.24	404.27	403.43	405.28	405.67	404.62	405.88	405.06	405.46	405.69	405.53	405.25	406.54	404.16	403.13	406.06	404.63	403.61	402.48	402.48	401.69	401.63	401.76	402.32	
May-15	408.91	410.13	407.83	406.12	407.44	407.69	407.41	408.08	407.49	407.85	407.86	408.22	408.33	409.12	410.23	407.66	410.33	407.02	406.09	406.65	406.58	406.98	406.77	407.58	407.36	429.09
September-15	405.71	406.95	408.24	408.09	410.33	410.9	409.18	410.36	409.6	410.76	410.44	409.32	408.74	408.97	406.61	407.22	407.58	408.84	407.74	407	407.04	406.12	406.34	405.96	406.49	428.47
November-15	402.18	403.21	404	404.77	405.68	406.24	404.79	406.48	405.07	405.45	406.01	405.38	404.975	405.91	401.64	403.03	405.18	405.06	403.83	402.82	402.84	401.98	401.78	401.75	402.3	423.76

Table 5
Summary of Groundwater Elevations (AECOM Piezometers)
Hydrogeologic Characterization Report
Wood River Power Station

Date	WOR-P001	WOR-P002	WOR-P003	WOR-P004	WOR-P005	WOR-P006	WOR-P008	WOR-P015	WOR-P016	WOR-P020	WOR-P021	WOR-P024	WOR-P025	WOR-P026
10/29/2015	-	418.8	421.5	421.6	422.3	401.9	404.7	403.2	424.6	403.6	403.7	402.8	425.5	423.8
11/19/2015	-	421.8	421.7	421.8	422.0	403.3	407.5	405.1	426.0	406.0	406.9	406.6	427.8	426.9
12/14/2015	-	421.8	422.4	423.3	422.4	407.7	409.3	408.2	428.1	408.9	408.7	409.1	428.9	428.3
1/12/2016	-	420.6	423.2	425.2	423.1	415.5	411.3	414.0	430.0	414.5	411.5	412.2	431.1	431.0

Well screened at elevation within impoundment fill

Notes: 1. Water Surface Elevations from 10/29/15 updated to consider the PVC riser length for the open standpipe piezometers with sitckup cover.

NATURAL RESOURCE TECHNOLOGY

Table 6
Summary of Vertical Gradients
Hydrogeologic Characterization Report
Wood River Power Station

	Well ID	Screen Elev. (ft)[1]	Formation	Vertical Gradient Range[2] Min	Median	Max
Historical Well Nests (gradients measured prior to August, 2000)						
Shallow Well	02	385.3	Primary Sand	0.000	0.029	0.101
Deep Well	01	397.2	Primary Sand			
Shallow Well	04	384.3	Primary Sand	-0.183	-0.026	0.105
Deep Well	03	395.7	Primary Sand			
Shallow Well	32	405.1	Primary Sand	0.181	0.206	0.235
Deep Well	05	392.7	Primary Sand			
Shallow Well	08	402.9	Primary Sand	-0.008	0.000	0.030
Deep Well	07	389.6	Primary Sand			
Shallow Well	11	408.1	Clay Unit	0.185	0.204	0.385
Deep Well	10	381.6	Clay Unit			
Shallow Well	13	391.3	Clay Unit	-0.058	0.346	0.465
Deep Well	12	369.9	Primary Sand			
Current Well Nests (2010-2015)						
Shallow Well	39S	398.6	Primary Sand	-0.460	0.000	0.100
Deep Well	39M	367.4	Primary Sand			
Shallow Well	40S	402	Primary Sand	-1.380	-0.010	0.310
Deep Well	40M	385.6	Primary Sand			

1. Center of screen
2. Based on dates when both wells were sampled, **negative** vaues indicate upward gradients while **positive** indicate downward gradients

Table 7
Statistical Summary of Groundwater Monitoring Parameters: January 2010 to December 2015
Hydrogeologic Characterization Report
Wood River Power Station

BORON (dissolved - mg/L)

Monitoring Well Number	Number of Data Points	Mean	Median	Maximum	Minimum	Standard Deviation	Percent Non-Detects	Sen Slope Trend	
02	11	2.67	2.56	3.45	2.20	0.41	0	**0.17**	**
04	12	0.38	0.36	0.49	0.32	0.05	0	0.00	
12	12	1.99	2.03	2.32	1.30	0.28	0	**0.08**	**
20	24	0.30	0.30	0.47	0.19	0.07	0	**-0.03**	**
21	12	0.33	0.34	0.41	0.23	0.06	0	0.02	
22	12	0.29	0.29	0.33	0.26	0.03	0	0.00	
23	12	0.39	0.38	0.55	0.30	0.07	0	0.01	
25*	12	0.60	0.60	0.83	0.39	0.12	0	-0.03	
28	12	1.26	1.03	2.30	0.76	0.53	0	-0.08	
31*	13	1.02	0.99	1.20	0.80	0.13	0	**-0.05**	**
34	12	3.04	1.37	7.49	0.80	2.75	0	**0.99**	**
36 Bck Well	10	0.11	0.12	0.16	0.08	0.03	0	0.01	

MANGANESE (dissolved - mg/L)

Monitoring Well Number	Number of Data Points	Mean	Median	Maximum	Minimum	Standard Deviation	Percent Non-Detects	Sen Slope Trend	
02	11	1.13	1.07	1.98	0.77	0.35	0	**0.12**	**
04	12	6.11	6.05	8.70	4.91	1.00	0	-0.03	
12	12	0.48	0.46	0.64	0.31	0.10	0	**0.05**	**
20	24	0.019	0.005	0.12	0.003	0.03	63	0.00	
21	12	0.039	0.005	0.35	0.003	0.10	58	0.00	
22	12	0.018	0.005	0.15	0.003	0.04	83	0.00	
23	12	0.26	0.098	1.01	0.006	0.31	0	**0.05**	**
25*	12	0.18	0.07	0.81	0.008	0.28	0	-0.01	
28	12	1.32	1.25	3.54	0.26	0.94	0	**0.26**	**
31*	13	0.08	0.05	0.41	0.010	0.10	0	-0.01	
34	12	5.44	5.65	7.75	3.20	1.28	0	0.23	
36 Bck Well	10	2.73	2.60	3.34	2.20	0.37	0	0.00	

SULFATE (dissolved - mg/L)

Monitoring Well Number	Number of Data Points	Mean	Median	Maximum	Minimum	Standard Deviation	Percent Non-Detects	Sen Slope Trend	
02	11	213	213	298	140	48	0	**13.6**	**
04	12	13	10	47	5.0	11	67	0.0	
12	12	43	38	74	16	20	0	4.3	
20	24	107	99	180	56	38	0	-7.0	
21	12	128	117	236	74	41	0	-6.2	
22	12	73	76	99	46	14	0	-3.7	
23	12	161	154	219	123	29	0	4.9	
25*	12	218	240	307	89	79	0	-14.3	
28	12	178	179	285	68	59	0	7.2	
31*	13	190	169	270	118	50	0	**-28.9**	**
34	12	14	10	47	5.0	12.4	42	**1.1**	**
36 Bck Well	10	13	10	33	10.0	7.2	60	**-0.2**	**

Notes: Sen Slope Trend is in milligrams per Liter per year; negative value (-) is downward trend; positive value is upward trend.
Significant trend based on Mann-Kendall test is indicated as bold with**.
Sample results below the method detection limit (MDL) for that parameter have been replaced by the detection limit.

* Wells within influence of off-site slag pile.
Wells with groundwater exceeding Class 1 groundwater standard for the given parameter in 2015.

TOTAL DISSOLVED SOLIDS (mg/L)

Monitoring Well Number	Number of Data Points	Mean	Median	Maximum	Minimum	Standard Deviation	Percent Non-Detects	Sen Slope Trend
02	11	935	936	1,020	862	50	0	-1.3
04	12	898	918	1,000	740	86	0	**-36** **
12	12	493	497	570	436	37	0	-2.0
20	24	490	459	730	310	107	0	6
21	12	542	545	630	438	55	0	-1.4
22	12	510	510	628	408	61	0	-8
23	12	653	656	760	552	54	0	5.6
25*	12	1,299	1,365	1,710	690	355	0	-73
28	12	716	757	858	490	109	0	-11.1
31*	13	2,966	2,240	6,000	1,620	1,455	0	**-546** **
34	12	817	815	1,050	670	113	0	14
36 Bck Well	10	554	543	768	430	102	0	**-33** **

pH (Field / Standard Units)

Monitoring Well Number	Number of Data Points	Mean	Median	Maximum	Minimum	Standard Deviation	Sen Slope Trend
02	11	6.88	6.87	7.19	6.60	0.17	0.05
04	12	6.75	6.72	7.01	6.48	0.19	**0.08** **
12	12	6.87	6.94	7.21	6.54	0.19	0.04
20	24	6.46	6.42	7.14	6.12	0.29	0.00
21	12	6.85	6.90	7.32	6.44	0.24	0.04
22	12	6.91	6.96	7.08	6.53	0.15	**0.05** **
23	12	6.34	6.31	6.94	6.00	0.29	0.02
25*	12	6.86	6.82	7.46	6.54	0.25	0.06
28	12	6.80	6.84	6.99	6.39	0.19	**0.08** **
31*	13	6.75	6.86	7.39	6.10	0.41	**0.14** **
34	12	6.79	6.82	7.05	6.48	0.17	**0.06** **
36 Bck Well	10	6.97	6.95	7.32	6.65	0.19	0.03

Notes: Sen Slope Trend is in Standard Units per year; negative value (-) is downward trend; positive value is upward trend.
Significant trend based on Mann-Kendall test is indicated as bold with**.
Sample results below the method detection limit (MDL) for that parameter have been replaced by the detection limit.

* Wells within influence of off-site slag pile.

Wells with groundwater exceeding Class 1 groundwater standard for the given parameter in 2015.

Table 8
Summary of Exceedances of Class I Groundwater Standards 2010 to 2015
Hydrogeologic Characterization Report
Wood River Power Station

Parameters Submitted to the IEPA for Routine Groundwater Monitoring	Class 1 Standard	unit	Number of exceedances of Class 1 Groundwater Standards between January 2010 and December 2015 (and year of last exceedance)[2]											
			Current Monitoring Wells Monitored Semi-Annually for Reporting to the IEPA											
			02	04	12	20	21	22	23	25*	28	31*	34	36[bck]
	Number of Samples		11	12	12	24	12	12	12	12	12	13	12	10
Boron	2.0	mg/L	**11$_{(2015)}$**	0	**6$_{(2015)}$**	0	0	0	0	0	2$_{(2013)}$	0	**5$_{(2015)}$**	0
Manganese	0.15	mg/L	**11$_{(2015)}$**	**12$_{(2015)}$**	**12$_{(2015)}$**	0	1$_{(2013)}$	0	5$_{(2014)}$	2$_{(2013)}$	**12$_{(2015)}$**	1$_{(2010)}$	**12$_{(2015)}$**	**10$_{(2015)}$**
pH[1]	6.50 / 9.00	Std.	0	1$_{(2012)}$	0	**16$_{(2015)}$**	2$_{(2012)}$	0	**10$_{(2015)}$**	0	1$_{(2010)}$	4$_{(2012)}$	1$_{(2012)}$	0
Sulfate	400	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Total Dissolved Solids	1,200	mg/L	0	0	0	0	0	0	0	**7$_{(2015)}$**	0	**13$_{(2015)}$**	0	0
Groundwater Elevation	no Class 1 Standard													

[bck] Background monitoring wells.

bold indicates exceedances in in 2015

[1] All pH exceedances are below the lower standard of 6.50 Standard Units.

[2] Parameters with exceedances of Class I groundwater standards in 2015 are highlighted for each monitoring well.

* Wells are within influence of off-site slag pile.

Table 9
Annual Median Boron, Sulfate, , and Manganese Concentrations
Hydrogeologic Characterization Report
Wood River Power Station

Median Boron Concentration (mg/L)[1]

Well[2]	Position	In Service[3]	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% Change[4]
02	Downgradient - S	**2.45**	**3.85**	**4.60**	**3.35**	**4.45**	**3.60**	**2.70**	**2.40**	**2.30**	**2.60**	**2.70**	**2.10**	**2.45**	**2.30**	**2.45**	**2.30**	**2.73**	**3.06**	**2.98**	21%
04	Downgradient - SW	0.63	0.58	0.57	0.60	0.55	0.54	0.47	0.45	0.48	0.46	0.46	0.42	0.34	0.35	0.44	0.40	0.33	0.35	0.42	**-33%**
12	Downgradient - E	1.80	1.60	1.50	1.50	1.40	1.40	1.40	1.60	1.70	**2.30**	**2.20**	1.85	2.00	1.65	1.80	**2.04**	**2.20**	**2.12**	**2.13**	18%
20	Downgradient - E	1.00	0.60	0.55	0.55	0.63	0.49	0.31	0.34	0.32	0.28	0.28	0.46	0.37	0.30	0.37	0.35	0.30	0.23	0.22	**-78%**
21	Downgradient - NE	0.49	0.42	0.55	1.10	1.85	0.88	0.55	0.68	0.40	0.41	0.39	0.26	0.31	0.26	0.33	0.35	0.37	0.28	0.37	**-25%**
22	Downgradient - N	0.42	0.23	0.28	0.26	0.32	0.36	0.27	0.28	0.30	0.26	0.28	0.30	0.28	0.28	0.31	0.28	0.29	0.31	0.30	**-29%**
23	Downgradient - E	**2.40**	1.45	1.50	**2.05**	1.02	0.83	0.53	0.48	0.50	0.51	0.57	0.39	0.36	0.33	0.40	0.38	0.40	0.49	0.35	**-85%**
25*	Downgradient - N	1.10	1.60	1.30	0.55	1.90	1.01	0.61	1.25	0.47	0.40	1.00	0.83	0.97	0.69	0.76	0.48	0.60	0.57	0.51	**-53%**
28	Downgradient - N	**3.65**	**3.10**	**3.15**	**3.15**	**3.45**	**2.85**	**2.65**	**2.90**	2.00	**2.55**	**2.80**	**2.55**	**2.75**	1.55	1.55	1.00	1.43	1.06	0.96	**-74%**
31*	Downgradient - N	**2.50**	1.30	1.20	1.25	1.65	**2.05**	1.85	1.70	1.25	1.15	1.55	1.30	1.30	1.10	1.20	0.99	0.99	0.93	0.85	**-66%**
34	Downgradient - S	0.24	0.28	0.12	0.22	0.32	0.38	0.59	0.69	1.38	**4.70**	**2.18**	1.15	1.30	1.13	0.88	1.37	**4.15**	**3.99**	**6.72**	2700%
36	Background - W			0.11	0.12	0.10	0.09	0.09	0.09	0.11	0.17	0.12	0.11	0.09	0.08	0.09	0.12	0.13	0.12	0.13	

Median Sulfate Concentration (mg/L)[1]

Well[2]	Position	In Service[3]	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% Change[4]
02	Downgradient - S	360	305	280	335	330	350	390	**405**	370	300	280	160	225	160	185	220	293	204	221	**-39%**
04	Downgradient - SW	62	50	20	19	17	11	35	13	5.1	12	22	13	11	11	26	<7.5	10	<10.0	<10.0	**-84%**
12	Downgradient - E	96	175	190	155	145	115	91	74	72	96	74	77	51	28	33	51	54	51	44	**-55%**
20	Downgradient - E	130	95	105	88	72	90	57	78	65	55	58	130	103	87	100	156	125	83	71	**-45%**
21	Downgradient - NE	120	145	180	275	205	145	99	87	58	50	43	83	131	120	155	120	177	92	106	**-12%**
22	Downgradient - N	78	53	64	74	68	110	97	70	90	68	48	59.5	63	84.5	71	69	69	88	54	**-31%**
23	Downgradient - E	200	155	145	195	235	225	210	225	220	160	125	215	170	155	145	154	158	200	153	**-24%**
25*	Downgradient - N	220	235	240	195	180	260	225	180	185	160	126	120	245	275	240	231	206	186	172	**-22%**
28	Downgradient - N	180	200	195	190	180	165	135	170	140	180	72	195	205	155	124	149	232	244	164	**-9%**
31*	Downgradient - N	175	165	175	150	185	215	190	165	160	175	170	185	215	260	230	223	164	145	133.5	**-24%**
34	Downgradient - S	22	43	12	8	28	7	20	24	22	17	8.7	19	8	6	8	11	20	29	<10.0	**-55%**
36	Background - W			43	37	45	15	23	24	29	26	9.2	14	12	11	33	11	<10	<10.0	<10.0	

Median Manganese Concentration (mg/L)[1]

Well[2]	Position	In Service[3]	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% Change[4]
02	Downgradient - S	**0.735**	**0.570**	**0.735**	**0.905**	**0.950**	**0.960**	**0.995**	**0.990**	**1.10**	**0.890**	**0.865**	**0.870**	**1.15**	**0.885**	**0.900**	**0.770**	**1.26**	**1.13**	**1.67**	127%
04	Downgradient - SW	**11.50**	**9.10**	**8.30**	**8.20**	**7.65**	**7.30**	**7.20**	**8.20**	**7.20**	**6.65**	**8.05**	**6.70**	**6.50**	**7.05**	**5.75**	**5.89**	**6.62**	**5.52**	**5.82**	**-49%**
12	Downgradient - E	**0.660**	**0.760**	**0.690**	**0.675**	**0.650**	**0.585**	**0.570**	**0.525**	**0.500**	**0.415**	**0.560**	**0.430**	**0.370**	**0.365**	**0.385**	**0.485**	**0.450**	**0.543**	**0.600**	**-9%**
20	Downgradient - E	<0.03	0.001	<0.005	0.006	0.009	0.008	0.005	0.009	<0.005	0.007	<0.005	<0.005	0.005	<0.005	<0.005	0.015	0.028	0.005	0.007	**-77%**
21	Downgradient - NE	<0.03	0.002	0.017	**0.290**	**0.190**	0.046	0.104	0.065	0.029	0.088	0.071	<0.005	0.022	<0.005	<0.005	0.007	**0.179**	0.009	0.029	**-3%**
22	Downgradient - N	<0.03	<0.005	<0.005	0.010	0.010	0.005	0.043	0.122	<0.005	<0.005	**0.318**	0.006	0.005	<0.005	<0.005	<0.005	0.078	0.010	<0.005	
23	Downgradient - E	**0.261**	0.120	0.059	**0.310**	**0.550**	0.123	**0.270**	0.081	0.040	**0.205**	**0.455**	0.065	0.010	0.025	0.042	**0.244**	**0.400**	**0.760**	0.066	**-75%**
25*	Downgradient - N	**0.170**	**0.175**	0.055	0.022	**0.240**	0.007	0.012	**0.150**	0.006	0.045	**1.13**	**0.830**	**1.24**	0.087	**0.410**	0.059	**0.410**	0.085	0.046	**-73%**
28	Downgradient - N	**0.225**	**0.595**	**0.525**	**1.25**	**1.04**	**0.920**	**1.30**	**1.40**	**0.995**	**1.75**	**1.75**	**1.25**	**1.20**	**0.465**	**0.680**	**1.51**	**1.14**	**2.47**	**1.68**	647%
31*	Downgradient - N	**0.458**	**0.250**	**0.150**	0.135	**0.205**	**0.170**	**0.180**	0.104	**0.155**	0.053	**0.335**	**0.365**	**0.185**	**0.253**	0.091	0.047	0.050	0.048	0.044	**-90%**
34	Downgradient - S	**5.72**	**9.50**	**4.40**	**5.10**	**5.30**	**5.10**	**6.15**	**5.90**	**5.45**	**5.00**	**5.15**	**5.90**	**4.85**	**4.65**	**5.10**	**5.30**	**5.25**	**6.50**	**5.83**	2%
36	Background - W			**3.75**	**3.15**	**3.00**	**2.70**	**2.45**	**2.50**	**2.35**	**2.15**	**2.00**	**2.55**	**2.25**	**2.40**	**3.20**	**2.97**	**2.52**	**2.58**	**2.86**	

Median pH (S.U.)[5]

Well[2]	Position	In Service[3]	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	% Change[4]
02	Downgradient - S	6.90	7.15	6.93	7.09	7.13	6.77	**6.45**	6.61	7.00	6.63	**6.36**	6.64	6.85	6.75	6.81	6.60	7.00	7.10	6.89	**0%**
04	Downgradient - SW	6.70	6.64	7.50	7.18	7.10	6.65	6.54	6.53	7.32	6.67	**6.25**	**6.46**	6.84	6.64	6.56	6.62	6.81	6.93	6.95	4%
12	Downgradient - E	7.11	6.84	7.35	7.39	6.94	6.70	6.52	6.54	7.66	6.95	6.60	6.63	6.93	6.86	6.71	6.85	6.75	7.09	6.96	**-2%**
20	Downgradient - E	6.78	**6.46**	**6.28**	6.51	6.56	**6.39**	**6.06**	6.59	7.16	6.52	6.51	**6.38**	**6.35**	**6.25**	**6.34**	6.54	6.64	6.52	**6.25**	**-8%**
21	Downgradient - NE	7.03	7.13	6.81	6.77	6.94	6.81	6.69	6.79	7.22	6.94	6.56	6.89	7.13	6.81	6.67	6.59	7.16	6.99	6.86	**-2%**
22	Downgradient - N	7.14	6.99	6.97	6.86	6.98	6.78	6.55	6.71	7.29	6.70	6.44	6.66	6.94	6.68	6.90	6.93	7.01	7.03	6.93	**-3%**
23	Downgradient - E	6.67	6.50	**6.20**	**6.44**	6.54	**6.18**	**6.14**	**6.09**	6.59	**6.31**	**6.26**	**6.18**	**6.33**	**6.14**	**6.15**	**6.39**	6.59	6.63	**6.15**	**-8%**
25*	Downgradient - N	6.98	6.57	6.66	6.71	6.73	6.64	6.65	6.57	7.50	6.86	6.38	6.49	6.86	6.76	6.62	6.76	7.24	6.99	6.83	**-2%**
28	Downgradient - N	7.16	6.97	6.88	6.88	6.86	6.77	**6.42**	6.86	7.45	6.78	**6.47**	6.61	6.98	6.52	6.63	6.89	6.95	6.96	6.83	**-5%**
31*	Downgradient - N	6.77	6.62	6.62	6.77	**6.49**	6.69	6.56	6.78	7.42	6.87	**6.21**	**6.43**	6.88	**6.36**	**6.38**	6.56	7.27	6.82	7.00	3%
34	Downgradient - S	6.72	**6.47**	7.89	7.40	7.26	6.69	**6.46**	6.51	7.34	6.58	**6.42**	6.55	6.93	6.72	6.62	6.69	6.93	6.88	6.94	3%
36	Background - W			7.77	7.52	7.13	6.85	6.65	6.72	7.53	6.78	6.68	6.68	7.05	6.89	6.87	6.87	7.32	6.95	7.04	

Notes:
1. Shading indicates median concentration greater than Class I standard; 0.15 mg/L for manganese. Blank indicates no samples taken during that year.
2. * indicates wells within influence area of slag pile.
3. All unlined ponds removed from service as of January 1998.
4. Difference based on change in median concentration from In Service (before 1998) to current year; not calculated if both values were below the pre-1998 detection limits.
5. pH llimits include lower limit 6.5 and upper limit 9.0 S.U.

APPENDIX A

BORING LOGS AND WELL CONSTRUCTION DETAILS

APPENDIX A1

AECOM LOGS

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B001

Sheet 1 of 3

Date(s) Drilled	09/09/2015 12:00 AM to 09/09/2015 12:00 AM	Logged By	C.Dicke	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	80.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	451.08 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801420.9 E 2306193.3 (ft NAD83)	Groundwater Level(s)	First encountered at 22.5 ft bgs (perched) and 47.5 ft on 9/9/2015 22.5 ft on 9/10/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						451.1 / 0.0								
	0					450.4 / 0.7 Crushed LIMESTONE GRAVEL (8")								
450		SS-1	38 50/5"	100		449.8 / 1.3 Soft, moist, brown, lean CLAY (CL) trace gravel [FILL]					0.25 - -			
						Very dense, moist, dark brown to black, poorly-graded fine SAND (SP) [BOTTOM ASH]								
		SS-2	12 20 21	45		becomes dense								
	5					445.1 / 6.0								
445		SS-3	4 6 12	78		Medium dense, moist, dartk brown to black, sandy SILT (ML), trace coal fragments [FLY ASH]								*%G=8 %S=25 %M=52 %C=15*
		SS-4	12 15 12	50										
	10													
440														
		SS-5	10 11 13	22										
	15													
435														
		SS-6	4 4 2	78		becomes loose								*%G=0 %S=25 %F=75*
	20													
430														*Driller noted a change near 22.5 ft bgs*
						428.6 / 22.5 ▽								
						Loose, wet, dark gray SILT (ML) with sand [FILL]								
		SS-7	1 7 8	78		427.1 / 24.0 Medium dense, moist, dark gray with brown grains, poorly-graded medium to coarse SAND (SP), trace silt [BOTTOM ASH]								
	25													
425														
		SS-8	13 14 12	50		becomes fine sand with silt (SP-SM)								
	30													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B001

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30					418.1 / 33.0								*Driller noted a change near 32-33 ft bgs*
420		SS-9	8 11 13	89		Hard, moist to dry, dark gray with brown staining, lean CLAY (CL) trace sand and root fragments [POSSIBLE FILL]					4.0 4.5+ 4.5+			
	35					413.1 / 38.0								
415		SS-10	3 2 4	100		Stiff to very stiff, moist, gray, fat CLAY (CH) trace organics and fine sand seams [ALLUVIUM]					1.75 2.0 2.0			
	40	ST-1		88		becomes stiff	30 29.3 34.1	119.8 113.0	82	60	1.25			*%G=0 %S=0 %M=58 %C=42 UU=19.8 psi, k=2.9E-07*
410		SS-11	4 6 8	100		406.8 / 44.3					1.25 1.25 -			
	45					Medium dense, moist to wet, brown, poorly-graded SAND (SP), trace silt [ALLUVIUM]								
405		SS-12	4 4 5	100		becomes loose, wet								*Water on rods at 47.5 ft bgs %G=0 %S=97 %F=4%*
	50													*Switched to wash rotary at 50 ft bgs*
400		SS-13	7 17 17	78		becomes dense								
	55													
395		SS-14	7 8 10	72		becomes medium dense								
	60													
390		SS-15	10 29 20	100		becomes dense, gray 4" coarse sand layer at 64.5' bgs								
	65													

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B001

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
385														
		SS-16	12 17 18	78										
	70													
380														
		SS-17	8 7 7	80		becomes medium dense								*%G=1 %S=98 %F=1*
	75													
375														
		SS-18	8 9 10	44										
	80					371.1 / 80.0								
370						End of Boring at 80 ft								
	85													
365														
	90													
360														
	95													
355														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B002

Sheet 1 of 2

Date(s) Drilled	09/15/2015 12:00 AM to 09/15/2015 12:00 AM	Logged By	N.Sanna	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	60.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	422.3 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802453.5 E 2305700 (ft NAD83)	Groundwater Level(s)	First encountered at 9.5 ft on 9/15/2015 Measured 3 ft bgs on 10/29/2015 and 0.5 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						422.3 / 0.0								
	0					422.1 / 0.2 TOPSOIL (2")								
420		SS-1	2 1 2	89		Very loose, moist, gray SILTY SAND (SM) [FILL]								
						418.8 / 3.5								
		SS-2	1 1 2	100		Very loose, moist, brown SILT (ML) with sand, trace roots [Possible Ash Fill]								
	5													
415		ST-1		100		becomes stiff	25.0		31	8	2.0 1.6 1.7	0.28 0.28 0.3		*GUS sampler used %G=0 %S=1 %M=88 %C=11*
						413.8 / 8.5								
		SS-3	1 1 1	100		Very loose, wet, gray and brown SILTY SAND (SM) [Possible Ash Fill]								
	10													
410														
						408.8 / 13.5								
		SS-4	WOH/12" 2	100		Very soft to soft, wet, gray with brown mottling, SILTY CLAY (CL-ML)								
	15													
405														
						403.8 / 18.5								
		SS-5	WOH/6" 1 2	100		Soft, wet, gray fat CLAY (CH) [ALLUVIUM]			80	44				
	20													
400														
		SS-6	WOH/18"	100		becomes very soft					0.5 0.25 0.25			
	25													
395														
		SS-7	WOH/18"	100										
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B002

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
390														
	35	SS-8	WOH/18"	100										
		ST-2		96			60.8 62.7	101.1 100.3 101.1	86	52	0.5 0.5 0.6	0.18 0.28 0.31		*%G=0 %S=0 %M=29 %C=71 UU=12.3 psi*
385														
		SS-9	WOH/12" 1	100		becomes with trace sand								
	40													
380														
						Elevation (feet) 378.8 — Depth (feet) 43.5								
		SS-10	7 6 5	100		Medium dense, wet, gray, poorly-graded, fine to medium SAND (SP) [ALLUVIUM]								*Switched to wash rotary at 43.5 ft bgs %G=0 %S=98 %F=2*
	45													
375														
		SS-11	5 5 10	72		becomes with trace organics								*%G=0 %S=95 %F=5*
	50													
370														
		SS-12	8 12 14	67										
	55													
365														
		SS-13	11 12 14	33		becomes with well-rounded gravel without organics								
	60					362.3 becomes with trace gravel — 60.0 End of Boring at 60 ft								
360														
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B002A

Sheet 1 of 1

Date(s) Drilled	09/21/2015 12:00 AM to 09/22/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	30.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	422.3 ft NAVD88
Borehole Backfill	Well WOR-P002 Installed	Sampling Method(s)	Shelby Tube (ST)	Hammer Data	Automatic Hammer
Boring Location	N 802453.4 E 2305700.5 (ft NAD83)	Groundwater Level(s)	First encountered at 9.5 ft on 9/15/2015 Measured 3 ft bgs on 10/29/2015 and 0.5 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
422.3	0.0													
422.1	0.2					Offset boring to WOR-B002. Augered to 13 ft bgs without sampling. Based on visual observation of auger cuttings, soils appear to be similar to WOR-B002.								
418.8	3.5													
413.8	8.5													
408.8	13.5	ST-1		92										
403.8	18.5	ST-2		67										
392.3	30.0					End of Boring at 30 ft								

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B003

Date(s) Drilled	09/09/2015 12:00 AM to 09/10/2015 12:00 AM	Logged By	C.Dicke	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	80.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	451.0 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802400.4 E 2305984.4 (ft NAD83)	Groundwater Level(s)	First Encountered at 38 ft on 9/10/2015 Measured 29.5 on 10/29/2015 and 29.4 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) / Depth (feet)								
	0					451.0 / 0.0								
						450.3 / 0.7 Crushed LIMESTONE GRAVEL (8")								
450						449.7 / 1.3 Dry to moist, brown lean CLAY (CL) [FILL]								
		SS-1	40 50/4"	100		Very dense, moist, black, poorly-graded SAND (SP) trace silt, trace gravel [BOTTOM ASH]								
						447.5 / 3.5								
		SS-2	7 10 12	94		Medium dense, gray SILT (ML) with sand [FLY ASH] 2" wet sand layer								
	5													
445		SS-3	5 9 11	83		444.0 / 7.0 3" coarse sand layer Medium dense, moist, brown, poorly-graded fine to medium SAND (SP), trace silt [FILL]								
		SS-4	8 15 19	89		441.8 / 9.2 Dense, moist to dry, black to dark gray, poorly-graded SAND (SP) with silt, trace coal fragments [BOTTOM ASH]								
	10													
440						437.5 / 13.5								
		SS-5	10 10 13	78		Medium dense, moist to dry, gray silty SAND (SM) [FLY ASH]								*%G=12 %S=35 %F=54*
	15													
435														
		SS-6	11 22 20	56		becomes dense								
	20													
430		ST-1		0										*GUS sampler used*
		SS-7	2 2 3	56		becomes loose								*%G=3 %S=24 %F=74* *Water inside augers at 24.5' bgs on 9/10 @ 0900*
	25													
425		ST-2		96		424.0 / 27.0								*GUS sampler used*
						Very stiff, moist, dark gray, lean CLAY (CL) with trace organics, with to trace fine sand seams interbedded								
		SS-8	3 3 6	89							2.25 2.75 2.75			
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B003

Elevation (feet)	Depth (feet)	Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
420														
		SS-9	WOH 2 3	100		becomes medium stiff with interbedded fine sand seams, trace organics [ALLUVIUM]					0.5 0.7 0.5	0.4 0.45 0.4		
	35	ST-3		100			27.3 27.8	122.5 122.0 121.3	28	8	1.0			*%G=0 %S=7 %M=65 %C=28 SG=2.60, Organic Content = 2.6%*
415						412.5 / 38.5								
		SS-10	1 2 2	100		Soft to medium stiff, wet, gray with brown oxidation staining, SILTY CLAY (CL-ML) to SILT (ML), trace sand [ALLUVIUM]					0.5 0.5 0.5	0.4 0.4 0.35		*Water on rods near 38 ft bgs*
	40					408.0 / 43.0								
410		SS-11	WOH/12" 1	100		Soft, moist, gray fat CLAY (CH) with interbedded fine sand seams [ALLUVIUM]					0.0 0.0 0.0	0.15 0.2 0.15		
	45	ST-4		88			56.7		94	64	0.5	0.4		*%G=0 %S=0 %M=44 %C=56 UU = 7.1 psi*
405		SS-12	WOH 2 2	100		becomes without sand seams					0.25 0.25 0.25	0.2 0.3 0.15		
	50													
400														
		SS-13	WOH 1 2	100							0.25 0.25 0.25	0.3 0.35 0.3		
	55													
395														
		SS-14	WOH/12" 2	100		becomes dark gray with trace organics 1" silt layer					0.25 0.25 0.0	0.2 0.2 0.15		
	60					1" silt layer								*Switched to washed rotary at 60 ft bgs*
390														
		SS-15	WOH 1 2	89		becomes interbedded with dark gray clay seams interbedded	58.7		85	57	0.25 0.25 0.0	0.3 0.35 0.3		*%G=0 %S=1 %M=32 %C=67*
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B003

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
385						382.5 / 68.5								
	70	SS-16	12 12 14	78		Medium dense, wet, gray, poorly-graded fine to medium SAND (SP), trace silt [ALLUVIUM]								
380														
	75	SS-17	14 15 17	56		becomes dense								*%G=0 %S=94 %F=6*
375														
	80	SS-18	13 19 29			371.0 / 80.0 End of Boring at 80 ft								
370														
	85													
365														
	90													
360														
	95													
355														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B004

Sheet 1 of 2

Date(s) Drilled	09/15/2015 12:00 AM to 09/15/2015 12:00 AM	Logged By	N.Sanna	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	60.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	433.8 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802104.7 E 2307178.8 (ft NAD83)	Groundwater Level(s)	First Encountered at 8 ft on 9/15/2015 Measured at 12.2 ft bgs on 10/29/2015 and 12 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Elevation (feet)	Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0						433.8	0.0								
						5" TOPSOIL	433.4	0.4								
		SS-1	4 8 9	56		Medium dense, moist, gray SILTY SAND (SM) [ASH]										
430		SS-2	4 3 3	89		becomes loose 3" brown silt layer										
	5	ST-1		100					57.0		NP	NP	<0.5 <0.5			*%G=0 %S=33 %M=63 %C=4 GUS sampler used*
425		SS-3	WOH/18"	100		becomes very loose, wet										
	10					4" coal layer										
							420.3	13.5								
420		SS-4	WOH/12" 1	100		Very loose, wet, gray SILT (ML) with sand [FILL - POSSIBLE ASH FILL]			28.8							*%G=0 %S=18 %M=53 %C=17 Organic Content=1.4%*
	15															
415		SS-5	WOH/12" 1	100		becomes gray and brown										
	20															
							410.3	23.5								
410		SS-6	WOH/18"	100		Very soft, wet, gray and brown SILTY CLAY (CL-ML) with sand [POSSIBLE FILL]										
	25															
							405.3	28.5								
405		SS-7	WOH/6" 1 2	100		Medium stiff to stiff, wet, gray lean CLAY (CL) [ALLUVIUM]							1.0 1.25 1.0			
	30															

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B004

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	ST-2		83		becomes stiff	51.1 46.3	106.4 106.3	45	29	1.5 1.75 1.6			*%G=0 %S=1 %M=69 %C=30 k=4.6E-07, Organic Content = 3.8%*
400														
	35	SS-8	WOH/12" 1	100		becomes very soft								
395		SS-9	WOH/18"	100			43.8		44	22				
	40													
390		SS-10	WOH/12" 1	100		become with light gray mottling and trace organics								
	45													
						385.3 / 48.5								
385		SS-11	3 2 3	100		Loose, wet, gray, SILTY SAND (SM) [ALLUVIUM]								*%G=0 %S=55 %F=45*
	50													
380		SS-12	3 3 8	100		becomes medium dense								*%G=0 %S=77 %F=23*
	55													
375		SS-13	4 7 7	6		becomes with trace coal fragments and organics								
	60					373.8 / 60.0 End of Boring at 60 ft								
370														
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B004A

Sheet 1 of 1

Date(s) Drilled	09/21/2015 12:00 AM to 09/21/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	30.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	433.8 ft NAVD88
Borehole Backfill	Well WOR-P004 Installed	Sampling Method(s)	Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802104.7 E 2307178.8 (ft NAD83)	Groundwater Level(s)	8 ft on 9/15/2015 12.5 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Elevation (feet)	Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
							433.8	0.0								
430	0					433.4 Offset boring to WOR-B004. Augered to 21 ft bgs without sampling. Based on visual observation of auger cuttings, soils appear to be similar to WOR-B004.		0.4								
	5															
425																
	10															
420							420.3	13.5								
	15															
415																
	20	ST-1		96												GUS sampler used
410		ST-2		100			410.3	23.5								GUS sampler used
	25															
405							405.3	28.5								
	30						403.8	30.0								

End of Boring at 30 ft

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B005

Date(s) Drilled	09/10/2015 12:00 AM to 09/11/2015 12:00 AM	Logged By	C.Dicke	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	80.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	451.2 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802087.1 E 2307018.7 (ft NAD83)	Groundwater Level(s)	First Encountered at 30 ft on 9/11/2015 Measured 29 ft bgs on 10/29/2015 and 29.2 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					451.2 / 0.0								
						Crushed LIMESTONE GRAVEL (10")								
						450.4 / 0.8								
450		SS-1	4 50/2"	63		450.0 / 1.3 Dry to moist, brown, lean CLAY (CL) trace sand [FILL]								
						Very dense, dry, black, poorly-graded SAND (SP) with silt, trace coal fragments as gravel [BOTTOM ASH]								
		SS-2	20 37 24	78		becomes dense								
	5					445.2 / 6.0								
445		SS-3	6 7 8	83		Medium dense, dark gray SILTY SAND (SM) trace coal fragments as coarse sand and fine gravel [BOTTOM ASH]	22.9							*%G=7 %S=36 %M=45 %C=12*
		SS-4	6 17 20	89		becomes dense, dry to moist								
	10													
440														
		SS-5	10 15 14	78		becomes medium dense, moist								
	15													
435														
		SS-6	7 8 9	94										
	20					431.2 / 20.0								
						Very loose, moist to wet dark gray SILT (ML) with sand [FLY ASH]								
430		SS-7	WOH 1 1	44		becomes very loose, moist to wet								
		ST-1		92			64.2		NP	NP				*GUS sampler used %G=0 %S=4 %M=93 %C=3*
	25	ST-2		0										*GUS sampler used Stopped @ 25 ft bgs on 9/10/15 @ 1600, Started 9/11/15 at 0815 Driller noted harder drilling at 27'-28' bgs, possible cobble*
425														
		SS-8	3 5 4	94		421.2 / 30.0								
	30													

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B005

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
420	30	ST-3		100		Very soft, wet, gray lean CLAY (CL) with sand [ALLUVIUM]	25.4 26.8 26.9	115.1 117.9 118.9	30	10	0.0			*Water on rods at 30'* *GUS sampler used* *%G=0 %S=17* *%M=74 %C=9*
		SS-9	WOH 2 3	100		becomes gray with brown mottling					0.0 0.0 0.0			
415	35					416.5 / 34.8 Very soft, wet, brown with gray mottling and oxidation staining, SILTY CLAY (CL-ML) with sand [ALLUVIUM]								*Switched to washed rotary at 35'*
		SS-10	2 1 1	100		becomes brown with oxidation staining			23	7	0.0 0.0 0.0	0.15 0.1 0.1		*%G=0 %S=26* *%F=74*
410	40					407.7 / 43.5								
		SS-11	WOH/12" 3	100		Very soft, wet, gray, lean CLAY (CL) with interbedded silt seams [ALLUVIUM] becomes stiff, moist to wet					0.0 0.0 1.0	0.15 0.1 0.15		
405	45													
		SS-12	WOH/12" 2	100		becomes soft to medium stiff, without silt seams					0.25 0.5 0.5	0.5 0.45 0.3		
400	50	ST-4		0										*Shelby tube was discarded due to low recovery*
		SS-13	2 1 2	100		becomes moist, dark gray, with trace organics					0.5 0.5 0.5	0.55 0.6 0.45		
395	55	ST-5		92			47.2 45	109.6 112.8 109.0	47	27	- - 0.5	- - 0.55		*%G=0 %S=2* *%M=61 %C=37*
		SS-14	2 2 4	100							0.25 0.5 0.5			
390	60					390.2 / 61.0 Medium dense, wet, gray, SILTY SAND (SM) [ALLUVIUM]								
	65	SS-15	6 10 16	78										*%G=0 %S=63* *%F=37*

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B005

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
385														
		SS-16	8 12 16	56										
	70													
380														
		SS-17	15 32 35	89		becomes dense								
	75													
375														
		SS-18	12 13 12	67		becomes medium dense, poorly-graded SAND (SP), trace silt								*%G=0 %S=93 %F=7*
	80					Elevation (feet) 371.2 Depth (feet) 80.0								
						End of Boring at 80 ft								
370														
	85													
365														
	90													
360														
	95													
355														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B006

Sheet 1 of 3

Date(s) Drilled	09/14/2015 12:00 AM to 09/14/2015 12:00 AM	Logged By	N.Sanna	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	80.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	451.3 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801250.9 E 2307088.8 (ft NAD83)	Groundwater Level(s)	First Encountered at 47.5 ft on 9/14/2015 Measured 49.4 ft bgs on 10/29/2015 and 48.1 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) / Depth (feet) 451.3 / 0.0 Crushed LIMESTONE GRAVEL								
450	0	SS-1	18 50/4"	80		449.5 / 1.8 Very dense, moist, gray, sandy SILT (ML), trace gravel [FLY ASH]								
		SS-2	8 13 16	67		becomes medium dense								
445	5	SS-3	4 4 11	61										*%G=8 %S=20 %F=72*
		SS-4	11 14 15	89										
440	10													
		SS-5	6 9 9	61										
435	15					432.8 / 18.5 Very loose, moist, gray with black streaks SILT (ML) with sand [FLY ASH]								
		SS-6	1 1 1											
430	20	ST-1		96		430.3 / 21.0 Dense, moist, dark brown SILTY SAND (SM), trace gravel [POSSIBLE FILL]					2.8 3.5 2.8	0.22 0.25		*GUS sampler used*
		SS-7	18 13 21	78		becomes gray, with gravel								
425	25					424.3 / 27.0 Hard, moist, dark gray lean CLAY (CL), trace sand [ALLUVIUM]								
		SS-8	5 7 10	100							>4.5 4.5			
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B006

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	ST-2		67		becomes very stiff	22.5 22.1	124.5	43	22	2.75 2.75 3.0	0.72 0.72 0.8		*%G=0 %S=1 %M=65 %C=32*
420														
		SS-9	3 3 5	100										
	35													
415														
						412.8 / 38.5								
		SS-10	4 6 6	67		Medium dense, moist, gray, poorly-graded fine SAND (SP) [ALLUVIUM]								
	40													
410														
		SS-11	2 2 3	94		becomes loose, with brown mottling								*%G=0 %S=9 %F=91*
	45													
405														
		SS-12	4 7 11	94		becomes medium dense, wet, fine to coarse sand								
	50													*Switched to wash rotary at 50' bgs*
400														
		SS-13	9 8 10	61		becomes gray								*%G=0 %S=95 %F=5*
	55													
395														
		SS-14	10 12 14	61		becomes fine to medium sand								
	60													
390														
		SS-15	8 11 15	61										
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B006

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
385														
	70	SS-16	6 10 17	56										
380						becomes dense								
	75	SS-17	11 17 20	56										
375						becomes medium dense								
	80	SS-18	8 10 14	56		371.3 / 80.0 End of Boring at 80 ft								
370														
	85													
365														
	90													
360														
	95													
355														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B007

Date(s) Drilled	09/15/2015 12:00 AM to 09/15/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	426.5 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802111.4 E 2303395 (ft NAD83)	Groundwater Level(s)	23 ft on 9/15/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					426.5 / 0.0 Very stiff to hard, moist, gray lean CLAY (CL) [FILL]								
425		SS-1	6 7 9	83							4.5 4.0 4.0			
	5	ST-1		71										
420		SS-2	4 7 8	78		becomes stiff with silt lenses					2.0 2.0 2.0			
		ST-2		50										
	10													
415		SS-3	6 5 9	78		becomes very stiff					4.0 4.5 4.0			
		SS-4	5 5 9	94							4.0 4.5 4.5			
	15					410.5 / 16.0								
410		SS-5	4 5 9	72		Very stiff, moist, gray with brown mottling, lean CLAY (CL) [ALLUVIUM]					4.0 4.0 2.5			
		SS-6	4 4 8	78							4.0 4.0 4.0			
	20													
405		ST-3		71		404.0 / 22.5								
		SS-7	4 5 9	100		Loose, wet, gray, poorly-graded medium SAND (SP), trace clay lenses interbedded [ALLUVIUM] ▽								
	25													
400		SS-8	4 2 6	72										
		SS-9	6 6 6	89		becomes medium dense with fine sand								
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B007

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
395														
		SS-10	4 4 8	89		becomes with wood fragments								
	35													
390														
		SS-11	5 6 8	78										
	40													
385														
		SS-12	4 5 7	72		becomes with trace wood fragments								
	45													
380						378.0 / 48.5								
		SS-13	2 2 2	61		Soft to medium stiff, moist, dark gray CLAY (CL-CH) [ALLUVIUM]					0.5 1.0 0.75			
	50													
375						373.0 / 53.5								
		SS-14	2 3 2	50		Loose, wet, gray, poorly-graded medium SAND (SP) [ALLUVIUM]								
	55													
370														
		SS-15	5 6 7	50		becomes medium dense								
	60													
365														
		SS-16	9 11 12	67		becomes with trace coarse sand								
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B007

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
360														
		SS-17	5 5 8	39		becomes medium to coarse sand								
	70					356.5 / 70.0								
355						End of Boring at 70 ft								
	75													
350														
	80													
345														
	85													
340														
	90													
335														
	95													
330														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B008

Sheet 1 of 3

Date(s) Drilled	09/11/2015 12:00 AM to 09/14/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	426.5 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 803106.7 E 2303105.1 (ft NAD83)	Groundwater Level(s)	First Encountered at 23 ft on 9/11/2015 Measured 21.8 ft bgs on 10/29/2015 and 19 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 426.5 / Depth (feet) 0.0								
	0					Very stiff, moist, dark brown, lean CLAY (CL), trace gravel [FILL]								
425		SS-1	3 4 5	83							3.5 4.0 3.5			
		SS-2	7 8 10	0										
	5													
420		ST-1		46										
		SS-3	3 4 5	83		becomes stiff					1.5 2.5 1.5			
	10													
415		SS-4	3 5 9	100		becomes very stiff, gray					3.0 2.0 2.5			
		ST-2		75										
	15													
						Elevation (feet) 410.5 / Depth (feet) 16.0								
410		SS-5	4 5 5	89		Very stiff, moist, gray, lean CLAY (CL) [ALLUVIUM]					3.25 3.0 3.0			
		ST-3		75										
	20													
405														
						Elevation (feet) 403.0 / Depth (feet) 23.5								
		SS-6	2 3 2			Loose, wet, gray, poorly-graded medium SAND (SP) [ALLUVIUM]								
	25													
400		SS-7	3 4 8			becomes medium dense, brown								
		SS-8	3 6 11											
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B008

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
395	30													
	35	SS-9	6 8 8	61										
390														
	40	SS-10	5 5 7	50										
385														
	45	SS-11	9 9 12	89										
380														
	50	SS-12	8 9 10	44										
375														
	55	SS-13	6 7 7	61		becomes with trace coarse sand								
370														
	60	SS-14	5 6 5	39		becomes with trace fine gravel and coarse sand								
365														
	65	SS-15	8 8 12	50		becomes with gravel								

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B008

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
360														
		SS-16	14 16 19			becomes dense								
	70					356.5 / 70.0 End of Boring at 70 ft								
355														
	75													
350														
	80													
345														
	85													
340														
	90													
335														
	95													
330														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B009

Sheet 1 of 3

Date(s) Drilled	09/14/2015 12:00 AM to 09/15/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	426.2 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802638.5 E 2303193.6 (ft NAD83)	Groundwater Level(s)	21 ft on 9/14/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					426.2 / 0.0 Very stiff, moist, gray, lean CLAY (CL) [FILL]								
425		SS-1	6 7 8	67							3.5 3.5 3.0			
		ST-1		96										
	5													
420		SS-2	5 7 8	100		becomes with root fibers					2.5 2.5 2.0			
		ST-2		94			16.2	130.6	32	17				*%G=0 %S=6 %M=73 %C=21*
	10													
415		SS-3	7 9 10	89		becomes hard without root fibers					4.5 4.5 4.5			
		SS-4	7 8 11	78		becomes very stiff					3.5 3.5 3.5			
	15													
410		SS-5	6 6 9	83							3.5 3.0 3.5			
						407.7 / 18.5								
		SS-6	3 3 4	72		Stiff, moist, gray lean CLAY (CL) [ALLUVIUM]					1.5 1.5 1.75			
	20					405.2 / 21 ▽								
405		SS-7	4 4 4	50		Loose, wet, brown, poorly-graded medium SAND (SP) [ALLUVIUM]								
		SS-8	4 4 5	89		becomes with fine-grained sand								
	25													
400		SS-9	4 6 6	100		becomes medium dense, trace fine-grained sand								
		SS-10	3 4 4	100		becomes loose								
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B009

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
395		SS-11	6 10 12	61		becomes medium dense								
		SS-12	3 5 7	56										
	35													
390														
		SS-13	6 8 9	50										
	40													
385														
		SS-14	11 13 15	56		becomes gray								
	45													
380														
		SS-15	9 9 10	67										
	50													
375														
		SS-16	4 6 8	67										
	55													
370														
		SS-17	6 8 9	61		becomes with trace coarse sand								
	60													
365														
		SS-18	10 10 6	50										
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B009

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
360														
		SS-19	10 12 12	50										
	70					Elevation (feet) 356.2 — Depth (feet) 70.0 End of Boring at 70 ft								
355														
	75													
350														
	80													
345														
	85													
340														
	90													
335														
	95													
330														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B010

Sheet 1 of 3

Date(s) Drilled	09/11/2015 12:00 AM to 09/11/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	426.1 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 803174.2 E 2303445.3 (ft NAD83)	Groundwater Level(s)	28 ft on 9/11/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					426.1 / 0.0								
425		SS-1	6 6 9	56		Stiff, moist, brown fat CLAY (CH), trace sand [FILL]								
		SS-2	5 8 10	89		becomes very stiff								
	5													*ST-1 Upper Portion %G=0 %S=2 %M=59 %C=39*
420		ST-1		83		becomes gray			58	39	3.5 3.75			*ST-1 Lower Portion %G=0 %S=24 %M=50 %C=26*
						419.1 / 7.0								
						Very stiff, moist, dark brown to gray lean CLAY (CL) with sand [FILL]	17.2	130.3	29	15	4.25			
		ST-2		88		becomes hard	15.9	131.9 122.9	29 43	11 27	4.5 4.5 4.5			*ST-2 Upper Portion %G=0 %S=19 %M=63 %C=18* *ST-2 Lower Portion %G=0 %S=14 %M=65 %C=21*
415	10	SS-3	6 5 6	78		becomes stiff								
						413.1 / 13.0								
		ST-3		83		Very stiff, moist, brown lean CLAY (CL), trace to with silty fine sand lenses interbedded [ALLUVIUM]					3.0 3.0 3.0			
410	15	SS-4	8 8 7	72										
		ST-4		71		becomes stiff					2.0 2.0 2.5			
						406.1 / 20.0								
405	20	SS-5	3 3 4	100		Stiff, moist, dark gray fat CLAY (CH) [ALLUVIUM]	41.6		73	39				
		ST-5		58										
						401.1 / 25.0								
400	25					Very loose, moist, gray, poorly-graded medium SAND (SP)								
		SS-6	1 1 2	17		becomes wet								
	30													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B010

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
395		SS-7	12 9 9	50		becomes medium dense								
		SS-8	6 6 6	61			16.9		NP	NP				*%G=0 %S=91 %F=9*
	35													
390														
		SS-9	6 6 9	50										
	40													
385														
		SS-10	13 16 17	56		becomes dense								
	45													
380														
		SS-11	7 8 9	44		becomes medium dense			NP	NP				*%G=2 %S=95 %F=2*
	50													
375														
		SS-12	5 7 8	50										
	55													
370														
		SS-13	5 6 8	11		becomes with gravel								
	60													
365														
		SS-14	8 5 6	50		becomes with coarse sand			NP	NP				*%G=6 %S=91 %F=4*
	65													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B010

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
360														
		SS-15	7 8 9	61										
	70					Elevation (feet) 356.1 — Depth (feet) 70.0 End of Boring at 70 ft								
355														
	75													
350														
	80													
345														
	85													
340														
	90													
335														
	95													
330														
	100													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B012

Sheet 1 of 3

Date(s) Drilled	09/10/2015 12:00 AM to 09/10/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	430.9 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 803201.5 E 2304163.2 (ft NAD83)	Groundwater Level(s)	18.5 ft on 9/10/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) / Depth (feet)								
	0					430.9 / 0.0 Very stiff, moist, brown lean CLAY (CL) [FILL]								
430		SS-1	3 8 10	44			18.8		32	16				*%G=0 %S=5 %M=68 %C=27*
		SS-2	5 3 7	33										
	5													
425		SS-3	4 4 5	17		becomes stiff, gray					1.75			
		SS-4	4 5 8	72		becomes very stiff with wood fragments					2.25 2.5 2.0			
	10													
420		SS-5	3 4 6	100			22.6		42	20	2.5 2.5 2.5			*%G=0 %S=25 %M=45 %C=30*
		SS-6	5 5 7	61		becomes stiff with sand					1.5 1.5 1.75			
	15					415.9 / 15.0								
415		SS-7	4 4 5	67		Loose, moist, brown, poorly-graded fine grained SAND (SP) [POSSIBLE FILL]								
		SS-8	3 3 3	56		▽ 411.4 / 19.5								
	20					Medium stiff, moist, gray lean CLAY (CL) with sand seams [ALLUVIUM]								
410		ST-1		96			28.2 34.7 40.5	115.4 113.0	NP	NP				*%G=0 %S=3 %M=88 %C=10*
		SS-9	0 5 9	89		406.4 / 24.5					1.0 0.5 0.5			
	25					Medium dense, wet, brown, poorly-graded medium SAND (SP) [ALLUVIUM]								
405														
		SS-10	3 3 3	100		becomes loose								
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B012

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
400		SS-11	10 10 12	61		becomes medium dense								
		SS-12	10 10 10	50										
	35													
395														
		SS-13	7 9 10	44										
	40													
390														
		SS-14	8 9 9	50		becomes gray								
	45													
385														
		SS-15	11 11 10	50										
	50													
380														
		SS-16	7 8 9	44										
	55													
375														
		SS-17	12 15 18	50		becomes dense								
	60													
370														
		SS-18	1 2 1	61		Organic clay layer from 64 to 65 ft bgs								
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B012

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
365														
		SS-19	4 4 8	44		becomes medium dense								
		SS-20	7 7 8	72										
	70					Elevation (feet) 360.9 — Depth (feet) 70.0 End of Boring at 70 ft								
360														
	75													
355														
	80													
350														
	85													
345														
	90													
340														
	95													
335														
	100													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B013

Date(s) Drilled	09/09/2015 12:00 AM to 09/09/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	427.9 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802940.4 E 2304969.1 (ft NAD83)	Groundwater Level(s)	16 ft on 9/9/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						427.9 / 0.0 Stiff, moist, brown sandy lean CLAY (CL) [FILL]								
		SS-1	3 6 10	67							2.0 2.5 2.25			
425														
		SS-2	3 8 7	89		becomes very stiff to hard, gray, trace sand	20.4		38	19	2.5 3.0 3.0			*%G=2 %S=7 %M=58 %C=34*
	5													
		SS-3	6 6 7	94							4.0 4.0 4.25			
420														
		SS-4	3 5 10	78							2.5 2.5 2.5			
	10													
415														
		SS-5	2 2 3	67		becomes stiff					1.5 1.5 2.0			
	15					411.9 / 16 ▽								
		SS-6	1 1 2	83		Soft, wet, brown and gray lean CLAY (CL) [POSSIBLE FILL]								
410		ST-1		88			28.9	117.5	44	26				*%G=0 %S=1 %M=81 %C=18*
	20					406.9 / 21.0								
		SS-7	1 1 2	100		Soft, moist, gray, fat CLAY (CH) [ALLUVIUM]					0.75 0.75 1.0			
405														
		SS-8	1 2 1	100							<0.5	0.3		
	25													
		SS-9	0 1 1	100										
400														
		SS-10	1 1 1	61			44.5		58	30				*%G=0 %S=2 %M=58 %C=40*
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B013

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30					396.9 / 31.0								
		SS-11	2 1 2	100		Very loose, wet, gray, sandy SILT (ML)								*%G=0 %S=14 %F=86*
395														
		SS-12	1 1 2	78										
	35													
		SS-13	1 1 1	100										
390						389.4 / 38.5								
		SS-14	0 1 1	100		Soft, moist to wet, gray, lean CLAY (CL)						0.3		
	40					386.9 / 41.0								
		SS-15	1 1 1	44		Very loose, wet, gray poorly-graded medium SAND (SP) [ALLUVIUM]								*%G=0 %S=93 %F=7*
385														
	45													
380														
		SS-16	6 7 7	56		becomes medium dense								
	50													
375														
		SS-17	3 3 3	50		becomes loose								
	55													
370														
		SS-18	6 7 9	67		becomes medium dense with coarse sand								*%G=0 %S=96 %F=4*
	60													
365														
		SS-19	9 10 11	72		becomes trace gravel								
	65													

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B013

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
360														
		SS-20	9 12 16	50		becomes trace to with gravel								
	70					357.9 / 70.0								
						End of Boring at 70 ft								
355														
	75													
350														
	80													
345														
	85													
340														
	90													
335														
	95													
330														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B014

Date(s) Drilled	08/26/2015 12:00 AM to 08/26/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	431.8 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST)	Hammer Data	Automatic Hammer
Boring Location	N 802115.2 E 2305092.8 (ft NAD83)	Groundwater Level(s)	6 ft on 8/26/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 431.8 / Depth (feet) 0.0								
	0					Very loose, moist, black, SILT (ML) with sand [FLY ASH]								
430														
		SS-1	WOH/18"	11										
	5													
		SS-2	2 3 1	56		becomes loose to very loose, wet ▽								
425														
		SS-3	1 1 1	44										
	10													
420		SS-4	WOH/18"	89										
		SS-5	1 1 1	72										
	15													
415		SS-6	1 1 0	83										
		SS-7	0 1 0	61		Elevation (feet) 412.3 / Depth (feet) 19.5								
	20					Very loose to loose, moist, gray SILT (ML) [ALLUVIUM]								
410		SS-8	WOH/18"	56			51.4		NP	NP				
		SS-9	2 1 2	78										
	25													
		ST-1		12							<0.50	0.325		
405														
		ST-2		100		becomes elastic SILT (MH)	72.1 68.1 68.7	98.4 98.7	74	35	<0.50	0.325		*%G=1 %S=19 %M=45 %C=35*
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B014

Elevation (feet)	Depth (feet)	Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30					Elevation (feet) 400.8 — Depth (feet) 31.0 Loose, wet, gray SILTY SAND (SM) [ALLUVIUM]								
400		SS-10	2 3 3	67										*%G=0 %S=74 %F=26*
	35													
395						becomes dense, poorly-graded medium SAND								
		SS-11	15 16 24	67										
	40													
		SS-12	9 9 10	78		becomes medium dense								
390		SS-13	6 9 14	89										
	45					Elevation (feet) 385.8 — Depth (feet) 46.0								
385		SS-14	8 11 14	89		Medium dense, wet, gray, poorly-graded fine SAND (Sm) with silt								*%G=0 %S=93 %F=7*
		SS-15	10 16 12	56		becomes medium dense								
	50													
		SS-16	12 20 26	67		becomes dense								
380		SS-17	9 24 26	89										
	55													
375		SS-18	13 21 23	100										
		SS-19	8 10 7	78										*%G=1 %S=93 %F=6*
	60													
370		SS-20	6 6 8	33										
		SS-21	9 9 10	67										
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B014

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	SAMPLES Sampling Resist. OR Core RQD (%)	SAMPLES Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
365		SS-22	8 11 10	50		becomes with fine gravel								
		SS-23	6 7 9	56										
	70					361.8 / 70.0 End of Boring at 70 ft								
360	75													
355	80													
350	85													
345	90													
340	95													
335	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B015

Sheet 1 of 2

Date(s) Drilled	09/03/2015 12:00 AM to 09/04/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	50.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	428.4 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802361.9 E 2304856 (ft NAD83)	Groundwater Level(s)	18.5 ft on 9/3/2015 Measured 25.3 ft bgs on 10/29/2015 and 23.3 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	Type	Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0						428.4 / 0.0 Very stiff, gray and brown, lean CLAY (CL) with sand [FILL]								
		SS	1	3 4 6	44							2.5 2.5 2.5			
425															
		SS	2	3 3 4	100							2.0 2.0 2.0			
	5														
		SS	3	6 7 7	56							3.5 3.5 3.0			
420															
		SS	4	6 9 8	39		becomes hard, brown, without sand					4.5 4.0 4.5			
	10														
		SS	5	6 7 9	56		becomes gray					4.0 4.5 4.5			
415															
		SS	6	8 8 10	100		becomes dark gray, with root fibers								
	15														
		SS	7	3 3 5	100		becomes stiff, gray and brown					1.5 1.5 1.5			
410							409.9 / 18.5 ▽								
		SS	8	3 2 2	33		Very loose, wet, gray, poorly-graded medium SAND (SP) [POSSIBLE FILL]								
	20						407.4 / 21.0								
		SS	9	1 1 1	89		Very loose, wet, gray SILT (ML) with root fibers								
405							404.9 / 23.5								
		SS	10	WOH/6" 1 1	100		Soft to very soft, moist, gray fat CLAY (CH) [ALLUVIUM]					<0.5	0.05		
	25														
		SS	11	1 1 2	100								0.1		
400															
		ST	1		100			73.9 82.6 72.6	92.3 93.2 93.9	103	71				*%G=0 %S=1 %M=63 %C=36 GUS sampler used*
	30														

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B015

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	ST-1		100						71				
		SS-12	1 1 2	100								0.15		
395		SS-13	WOH/18"	100		becomes with trace shell fragments						0.2		
	35					392.4 / 36.0								
		SS-14	8 9 9	44		Medium dense, wet, gray, poorly-graded medium SAND (SP) [ALLUVIUM]								
390		SS-15	12 14 16	39		becomes dense with fine sand								
	40	SS-16	8 8 8	33		becomes medium dense								
385		SS-17	6 5 6	72										
	45	SS-18	7 9 13	100										
380		SS-19	10 10 11	67										
	50					378.4 / 50.0 End of Boring at 50 ft								
375	55													
370	60													
365	65													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B015A

Sheet 1 of 1

Date(s) Drilled	09/23/2015 12:00 AM to 09/23/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	30.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	428.4 ft NAVD88
Borehole Backfill	Well WOR-P015 Installed	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST)	Hammer Data	Automatic Hammer
Boring Location	N 802361.9 E 2304856 (ft NAD83)	Groundwater Level(s)	18.5 ft on 9/3/2015 Measured 25.3 ft bgs on 10/29/2015 and 23.3 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 428.4 / Depth (feet) 0.0								
425	0					Offset boring to WOR-B015. Augered to 13 ft bgs without sampling. Based on visual observation of auger cuttings, soils appear to be similar to WOR-B015.								
	5													
420														
	10													
415		ST-1		79			21.6	127.7 125.2	39	23				*%G=0 %S=10 %M=63 %C=26*
	15	ST-2		58			18.9 21.4	127.9 125.8	34	16				*%G=0 %S=10 %M=63 %C=26*
410						409.9 / 18.5								
	20					407.4 / 21.0								
405						404.9 / 23.5								
	25	ST-3		100										
		ST-4		96										
400														
	30					398.4 / 30.0								

End of Boring at 30 ft

AECOM

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B016

Sheet 1 of 3

Date(s) Drilled	09/02/2015 12:00 AM to 09/03/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	442.2 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802298.6 E 2304833.3 (ft NAD83)	Groundwater Level(s)	21 ft on 9/2/2015 Measured 17.7ft bgs on 10/29/2015 and 16.2 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					442.2 / 0.0 Stiff to very stiff, moist to dry, brown lean CLAY (CL) [FILL]								
440		SS-1	6 9 8	50										
		SS-2	9 7 14	78					31	11				*%G=0 %S=14 %F=86*
	5	SS-3	10 11 19	72										
435		SS-4	13 15 18	89		becomes hard and gray								
	10	SS-5	8 8 12	61		becomes very stiff								
430		SS-6	7 8 7	44										
	15	SS-7	3 3 2	78		becomes medium stiff					1.5 1.5 1.5			
425		SS-8	1 1 1	67		becomes soft								
	20	SS-9	WOH/18"	89		421.2 / 21 ▽ Very loose, moist to wet, gray SILT (ML) [FLY ASH]								
420		ST-1		4										*GUS sampler used*
	25	ST-2		100										*GUS sampler used*
415														
	30	SS-10	WOH/18"	33										

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B016

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30													
410		SS-11	WOH/18"	78		becomes with trace sand	39.0		NP	NP				*%G=0 %S=0 %F=95 Organic Content = 2.8%*
		SS-12	WOH/18"	100										
	35													
		SS-13	1 2 2	89		405.7 / 36.5 Medium stiff, moist, gray fat CLAY (CL) [ALLUVIUM]					1.0 1.0 0.75			
405		ST-3		96										
	40													
		SS-14	0 1 2	100										
400		SS-15	2 1 2	100			68.8		86	59				
	45													
		SS-16	11 12 15	100		395.2 / 47.0 Medium dense, wet, gray, poorly-graded SAND (SP) [ALLUVIUM]					0.75 0.75 -			
395		SS-17	10 11 13	61										
	50													
		SS-18	13 14 15	50										
390		SS-19	10 13 14	11										
	55													
		SS-20	15 21 33	72		becomes very dense								
385		SS-21	18 19 23	67		becomes dense								
	60													
		SS-22	9 17 18	72										
380		SS-23	16 19 22	89										
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B016

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
375		SS-24	12 17 22	89										
		SS-25	12 15 15	89										
	70					372.2 / 70.0 End of Boring at 70 ft								
370														
	75													
365														
	80													
360														
	85													
355														
	90													
350														
	95													
345														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B017

Sheet 1 of 3

Date(s) Drilled	09/16/2015 12:00 AM to 09/16/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	431.7 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801904.6 E 2305465.1 (ft NAD83)	Groundwater Level(s)	16 ft on 9/16/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					Elevation (feet) 431.7 / Depth (feet) 0.0 Very stiff, moist, gray lean CLAY (CL) [FILL]								
430		SS-1	2 2 3	39							2.0 2.5 2.0			
		SS-2	2 3 4	44		becomes stiff					0.75 1.25 1.75			
	5					becomes moist to dry								
425		SS-3	3 2 4	39							3.0 3.5 3.0			
		SS-4	3 4 5	33							2.5 2.0 2.0			
	10													
420		ST-1		46										
		SS-5	3 4 4	94		becomes stiff, moist					1.0 1.5 1.0			
	15					▽								
415		ST-2		92										
						Elevation (feet) 414.2 / Depth (feet) 17.5 Very loose, wet, brown, poorly-graded medium SAND (SP) [POSSIBLE FILL]								
		SS-6	2 1 1	100										
	20					Elevation (feet) 410.7 / Depth (feet) 21.0 Soft moist, gray lean CLAY (CL) [ALLUVIUM]								
410		SS-7	1 1 1	100										
		ST-3		100							0.5 0.5 0.5			
	25													
405		SS-8	1 2 2	100		becomes medium stiff					1.0 0.75 1.0			
		SS-9	6 7 9	89		Elevation (feet) 402.7 / Depth (feet) 29.0 Medium dense, wet, gray, poorly-graded fine SAND (SP) with silt [ALLUVIUM]								
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B017

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
400	30													
		SS-10	9 9 12	44										
395	35													
		SS-11	12 12 18	56		becomes fine to medium sand								
390	40													
		SS-12	7 13 13	72										
385	45													
		SS-13	16 16 17	78		becomes dense								
380	50													
		SS-14	12 13 16	67		becomes medium dense								
375	55													
		SS-15	15 16 13	78		becomes medium sand, trace fine sand								
370	60													
		SS-16	10 13 16											
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B017

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
365														
		SS-17	23 25 18	61		becomes dense with coarse sand and gravel								
	70					361.7 / 70.0 End of Boring at 70 ft								
360														
	75													
355														
	80													
350														
	85													
345														
	90													
340														
	95													
335														
	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B018

Sheet 1 of 3

Date(s) Drilled	09/04/2015 12:00 AM to 09/04/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	443.9 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801895.2 E 2305355.3 (ft NAD83)	Groundwater Level(s)	17 ft on 9/4/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 443.9 / Depth (feet) 0.0								
	0	SS-1	6 5 5	61		Loose, moist, brown, poorly-graded fine SAND (SP), trace to with clay [FILL]			30	9				*%G=0 %S=4 %F=96*
440		SS-2	9 6 9	28		becomes medium dense								
	5	SS-3	9 14 23	61		becomes dense								
435		SS-4	13 14 20	50										
	10	SS-5	9 12 15	39		becomes medium dense			NP	NP				*%G=0 %S=57 %F=43*
430		SS-6	13 15 15	61										
	15	SS-7	11 12 12	33		426.9 / 17 ▽ Medium dense, wet, gray, poorly-graded medium SAND (SP) with gravel and coal, with layers of bottom ash interbedded [ASH]								
425		SS-8	4 5 4	28										
	20	SS-9	1 1 2	67			21.1							*%G=16 %S=46 %M=28 %C=9*
420		SS-10	WOH/18"	11										
	25	SS-11	6 6 9	22		wood railroad tie								
415		SS-12	3 4 4	6										
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B018

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30					412.9 / 31.0								
		SS-13	1 1 1	100		Very loose, wet, brown and gray, poorly graded fine to medium SAND (SP) [ALLUVIUM]	27.4							*%G=0 %S=19 %F=81*
410		SS-14	2 2 3	22		becomes loose								
	35	SS-15	5 5 6	22		becomes medium dense								
405		SS-16	4 3 3	28		becomes loose								*%G=0 %S=83 %F=17*
	40	SS-17	6 9 8	72		becomes medium dense								
400		SS-18	6 7 8	61										
	45	SS-19	6 7 11	50		becomes light gray with clay								
395		SS-20	9 11 15	56										
	50	SS-21	9 6 11	61										
390		SS-22	9 11 16	33										
	55	SS-23	9 11 16	89										*%G=0 %S=94 %F=6*
385		SS-24	8 12 10	72										
	60	SS-25	10 15 16	89		becomes dense								
380		SS-26	11 12 14	56		becomes medium dense								
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B018

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) / Depth (feet)								
		SS-27	14 22 25	72		becomes dense								
375		SS-28	16 15 16	67		373.9 / 70.0								
	70					End of Boring at 70 ft								
370	75													
365	80													
360	85													
355	90													
350	95													
345	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B020

Sheet 1 of 3

Date(s) Drilled	09/08/2015 12:00 AM to 09/09/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	444.0 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801731.3 E 2304276.8 (ft NAD83)	Groundwater Level(s)	15 ft on 9/8/2015 Measured 40.5 ft bgs on 10/29/2015 and 38 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
							Elevation (feet) 444.0 / Depth (feet) 0.0								
	0	SS	SS-1	11 12 14	78		Medium dense, moist, brown, poorly-graded fine to medium SAND (SP), trace silt [FILL]								
440		SS	SS-2	4 7 9	72			19.6							*%G=0 %S=11 %M=55 %C=34*
	5	SS	SS-3	8 14 22	83		becomes dense								
435		SS	SS-4	8 10 10	72		becomes with silt	22.7							*%G=0 %S=13 %M=51 %C=36*
	10														
430		SS	SS-5	10 11 12	61		becomes gray								
	15						429.0 / 15.0 ▽								
							Very loose, wet, gray SILT(ML) with slag [FLY ASH]								
425		SS	SS-6	1 WOH/12"	100			42.6							*%G=0 %S=19 %M=66 %C=14*
	20						424.0 / 20.0								
		SS	SS-7	1 WOH/12"	89		Very loose, wet, gray poorly-graded medium-grained SAND (SP) [BOTTOM ASH]								
420		SS	SS-8	2 1 2	100			42.9							*%G=8 %S=62 %M=23 %C=7*
	25						418.0 / 26.0								
		SS	SS-9	WOH/18"	89		Very loose, wet, gray, SILTY SAND (SM) [POSSIBLE FILL]								
415		SS	SS-10	1 1 1	100										
	30														

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B020

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	SS-11	1 1 1	100										*%G=1 %S=19 %F=81*
410	35	SS-12	WOH/12" 1	100										
		SS-13	2 2 4	100		407.0 (37.0) Medium stiff, moist, gray, fat CLAY (CL) [ALLUVIUM]								
405	40	ST-1		100										*GUS sampler used*
400	45	ST-2		44		399.0 (45.0) Medium dense, wet, light gray, poorly-graded fine to medium SAND (SP) [ALLUVIUM]	54.8 33.3	103.6	60	39				*%G=0 %S=2 %M=49 %C=49*
395	50	SS-14	13 13 15	100			19.6							*%G=0 %S=93 %F=7*
390	55	SS-15	8 11 15	67		becomes with coarse sand								
385	60	SS-16	13 14 19	50		becomes dense								
380	65	SS-17	16 20 22	50										

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B020

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
375	70	SS-18	8 8 11	61		becomes medium dense Elevation (feet): 374.0 Depth (feet): 70.0 End of Boring at 70 ft								
370	75													
365	80													
360	85													
355	90													
350	95													
345	100													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B021

Sheet 1 of 3

Date(s) Drilled	08/28/2015 12:00 AM to 08/28/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	422.7 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802779.5 E 2303390.7 (ft NAD83)	Groundwater Level(s)	Frist Encountered at 6 ft bgs and 19 ft on 8/28/2015 Measured 19 ft bgs on 10/29/2015 and 18.4 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 422.7 / Depth (feet) 0.0								
	0					Very loose, moist to wet, gray sandy SILT (ML) [FLY ASH]								
420		SS-1	2 1 1	67										*%G=0 %S=29 %M=63 %C=5*
	5	SS-2	WOH/18"	78		becomes wet								
415		ST-1		0										
	10	ST-2		100										*GUS sampler used*
410		SS-3	WOH/18"	0										
	15					407.7 / 15.0 Stiff, moist, gray lean CLAY (CL) [ALLUVIUM]								
		SS-4	3 5 6	89			26.9		47	23				*%G=0 %S=0 %F=100*
405		ST-3		0		403.7 / 19.0 Loose, wet, gray SILTY SAND (SM) [ALLUVIUM]								
	20	SS-5	3 4 4	89										
400						6" clay layer								
		SS-6	4 5 5	100										*%G=0 %S=56 %F=44*
	25	SS-7	7 7 8	56		becomes medium dense								
395														
		SS-8	6 7 8											
	30													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B021

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	SS-9	7 8 9	61										
390														
		SS-10	7 8 8	50										
	35					Elevation (feet) 386.7 — Depth (feet) 36.0								
		SS-11	3 4 5	67		Loose, wet, gray, poorly-graded SAND (SP) [ALLUVIUM]								*%G=1 %S=96 %F=3*
385														
		SS-12	5 4 4	72										
	40													
		SS-13	5 13 13	67										
380														
		SS-14	6 5 8	89										*%G=0 %S=97 %F=3*
	45													
		SS-15	3 3 5	61										
375														
		SS-16	3 6 7	56		becomes trace to with coal fragments as gravel								
	50													
		SS-17	5 6 6	67										
370						becomes medium to coarse sand								
		SS-18	6 6 10	44										
	55													
		SS-19	5 5 7	33										
365														
		SS-20	4 9 10	28										
	60													
		SS-21	15 12 11	50		becomes with fine gravel								
360														
		SS-22	10 15 16											
	65													

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B021

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	SAMPLES: Sampling Resist. OR Core RQD (%)	SAMPLES: Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
355		SS-23	7 7 7	56										
		SS-24	7 7 9											
	70					Elevation (feet) 352.7 — Depth (feet) 70.0 End of Boring at 70 ft								
350														
	75													
345														
	80													
340														
	85													
335														
	90													
330														
	95													
325														
	100													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B022

Sheet 1 of 2

Date(s) Drilled	09/01/2015 12:00 AM to 09/01/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	50.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	430.6 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802021.8 E 2303775.5 (ft NAD83)	Groundwater Level(s)	6 ft on 9/1/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 430.6 / Depth (feet) 0.0								
430	0					Loose, moist, gray, SILT (ML) with sand [FLY ASH]								
		SS-1	4 5 5											
425	5					▽								
		SS-2	4 3 3	61		becomes wet with bottom ash								
		SS-3	1 3 1	83		becomes very loose								
420	10	SS-4	WOH/6" 1 1	72										
		ST-1		42		becomes trace sand	122.7 113.5 65.0	85.7	NP	NP				*GUS sampler used %G=0 %S=6 %M=83 %C=11*
415	15	ST-2		100			58.3 73.6 73.7 24.3 23 25	93.2 86.6 - 122.3 120.6 -	NP 39	NP 23				*GUS sampler used Upper: %G=0 %S=11 %F=89 Lower: %G=0 %S=4 %M=67 %C=30 SG=2.50, k=1.2E-06*
						412.1 / 18.5 Stiff, moist, gray, lean CLAY (CL) [ALLUVIUM]								
410	20	SS-5	4 5 5	89							2.0 2.0 1.75			
		SS-6	3 4 4	94		becomes with sand					2.0 2.0 2.0			
405	25	SS-7	2 3 3	89							1.25 1.50 1.50			
		SS-8	2 3 2	100		becomes medium stiff to stiff					1.0 1.25 1.0			
	30													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B022

Sheet 2 of 2

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
400	30	SS-9		100		becomes medium stiff	38.5		46	21	0.5 0.75 0.5			
		SS-10	2 3 4	72		396.6 / 34.0 Loose, wet, dark gray, SILTY SAND (SM) [ALLUVIUM]								
395	35	SS-11	5 7 10	89		becomes medium dense								*%G=0 %S=81 %F=19*
		SS-12	4 8 9	56										
390	40	SS-13	6 9 12	67		becomes interbedded with clay lenses								
		SS-14	5 9 10	72										
385	45	SS-15	4 4 6	61										
		SS-16	5 5 7	72		380.6 / 50.0 End of Boring at 50 ft								
380	50													
375	55													
370	60													
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B022A

Sheet 1 of 1

Date(s) Drilled	09/01/2015 12:00 AM to 09/01/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	30.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	430.6 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802021.8 E 2303775.5 (ft NAD83)	Groundwater Level(s)	6 ft on 9/1/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
430	0					Elevation (feet) 430.6 / Depth (feet) 0.0 Offset boring to WOR-B022. Augered to 8 ft bgs without sampling. Based on visual observation of auger cuttings, soils appear to be similar to WOR-B022.								
425	5					▽								
420	10	ST-1		96										*GUS sampler used*
		ST-2		96										*GUS sampler used*
415	15	ST-3		42										*GUS sampler used*
		ST-4		100										*GUS sampler used*
410	20					412.1 / 18.5								
405	25													
	30					400.6 / 30.0 End of Boring at 30 ft								

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B024

Sheet 1 of 3

Date(s) Drilled	08/31/2015 12:00 AM to 08/31/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	70.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	423.0 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802489.4 E 2303542.5 (ft NAD83)	Groundwater Level(s)	21 ft on 8/31/2015 Measured 20.3 ft bgs on 10/29/2015 and 18.9 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	0					423.0 / 0.0 Very loose, moist, gray, SILT (ML) with sand [ASH]								
420		SS-1	WOH/18"	0										
	5	SS-2	WOH/18"	100		becomes with trace sand								*%G=1 %S=9 %F=91*
415		ST-1		100										
	10	ST-2		100		412.0 / 11.0 Stiff to medium stiff, moist, gray fat CLAY (CH) with rock fragments [FILL]								
410		SS-5	2 3 3	78			36.1		58	29	1.25 1.25 1.0			
	15	SS-6	1 1 0	67		407.0 / 16.0 Stiff to medium stiff, moist, gray fat CLAY (CH) [ALLUVIUM]					1.0 1.0 1.25			
405		SS-7	1 1 1	89							0.5 0.5 0.75			
	20	SS-8	3 2 3	78		402.0 / 21 ▽ Loose, wet, gray SILTY SAND (SM), trace organics [ALLUVIUM]								
400		SS-9	2 2 2	89			33.8							*%G=0 %S=64 %F=36 Organic Content = 2.8%*
	25	SS-10	3 2 2	56										
395						394.5 / 28.5								
	30	SS-11	1 2 3	89		Loose, wet, gray poorly-graded medium grained SAND (SP) [ALLUVIUM]								

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B024

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	SS-12	4 4 5	44										
390														
		SS-13	3 2 4	56										*%G=0 %S=96 %F=4*
	35					387.0 / 36.0								
		SS-14	2 2 2	100		Soft to medium stiff, gray fat CLAY (CH) [ALLUVIUM]					0.5 0.5 0.5			
385						384.5 / 38.5								
		SS-15	1 1 1	56		Very loose, wet, gray poorly-graded fine SAND (SP) [ALLUVIUM]								
	40	SS-16	10 19 16	89		becomes dense, poorly-graded medium SAND								
380														
		SS-17	8 8 9	94		becomes medium dense								
	45					377.0 / 46.0								
		SS-18	1 1 1	89		Soft, moist to wet, lean CLAY (CL)								
375														
	50					372.0 / 51.0								
		SS-19	10 12 10	89		Medium dense, wet, gray, poorly-graded fine SAND (SP) [ALLUVIUM]								
370														
		SS-20	8 5 2	61		becomes loose, poorly-graded medium SAND								
	55													
		SS-21	8 7 9	44		becomes medium dense								
365														
		SS-22	7 8 8	56										
	60													
360														
		SS-23	8 9 10	50		becomes interbedded with clay lenses								
	65													

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Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B024

Sheet 3 of 3

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION Elevation (feet) / Depth (feet)	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
		SS-24	6 9 10	39										
355		SS-25	6 7 8	50										
	70					353.0 / 70.0 End of Boring at 70 ft								
350														
	75													
345														
	80													
340														
	85													
335														
	90													
330														
	95													
325														
	100													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B025

Sheet 1 of 2

Date(s) Drilled	09/02/2015 12:00 AM to 09/02/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	60.0 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	433.5 ft NAVD88
Borehole Backfill	Cement Grout	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 802267.5 E 2304498.5 (ft NAD83)	Groundwater Level(s)	6 ft on 9/2/2015 Measured 8 ft bgs on 10/29/2015 and 8.2 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) 433.5 / Depth (feet) 0.0								
	0					Loose, moist, gray, SILT (SM) with sand [FLY ASH]								
430		SS-1	3 4 2	100										
	5					▽ becomes very loose, wet								
		SS-2	WOH/18"	100										
425		ST-1		100										*GUS sampler used*
	10													
		SS-3	WOH/18"	100										
420		SS-4	WOH/18"	56										
	15													
		SS-5	WOH/6" 1 WOH/6"	72										
415		SS-6	WOH/18"	17										
	20													
		SS-7	WOH/18"	0										
410		SS-8	WOH/18"	100										
	25					407.5 / 26.0								
		SS-9	WOH/12" 1	61		Very soft, moist, gray fat CLAY (CH) [ALLUVIUM]								
405		ST-2		0										
	30													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B025

Elevation (feet)	Depth (feet)	SAMPLES: Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION (Elevation (feet) / Depth (feet))	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
	30	ST-3		83			64 66.6 63.3	- 99 99.8	94	56	0.35			*%G=0 %S=0 %M=15 %C=85*
400		SS-10	WOH/6" 0 WOH/6"	100										
	35	SS-11	1 2 2	100		becomes soft to medium stiff, lean to fat CLAY (CL-CH)					0.5 0.5 0.75			*%G=0 %S=0 %F=100*
395		SS-12	5 9 12	67		395.0 / 38.5 Medium dense, wet, gray poorly-graded SAND (SP) [ALLUVIUM]								
	40	SS-13	12 15 21	44		becomes dense								
390		SS-14	9 15 16	72										*%G=1 %S=90 %F=9*
	45	SS-15	19 21 24	67										
385		SS-16	8 8 8	61		becomes medium dense								*%G=0 %S=93 %F=7*
	50													
380		SS-17	6 10 7	78										
	55													
375		SS-18	2 2 4	50		becomes loose								
	60					373.5 / 60.0 End of Boring at 60 ft								
370														
	65													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

Project: Dynegy

Project Location: Wood River Power Station, Alton, IL

Project Number: 60440115

Log of Boring WOR-B026

Sheet 1 of 1

Date(s) Drilled	09/16/2015 12:00 AM to 09/16/2015 12:00 AM	Logged By	B. Clayton	Checked By	V. Gautam
Drilling Method	Hollow Stem Auger / Mud Rotary	Drill Bit Size/Type	3 1/4" ID HSA, 3 3/8" Tricone	Borehole Depth	28.5 ft
Drill Rig Type	CME-550 ATV	Drilling Contractor	Terracon	Surface Elevation	431.4 ft NAVD88
Borehole Backfill	Well WOR-P026 Installed	Sampling Method(s)	2" ID Split Spoon (SS), Shelby Tube (ST), Gregory Undisturbed Sampler (GUS)	Hammer Data	Automatic Hammer
Boring Location	N 801728.8 E 2304914.5 (ft NAD83)	Groundwater Level(s)	5 ft on 9/16/2015 Measured 7.6 ft bgs on 10/29/2015 and 6.9 ft on 11/19/2015		

Elevation (feet)	Depth (feet)	SAMPLES Type Number	Sampling Resist. OR Core RQD (%)	Recovery (%)	Graphic Symbol	MATERIAL DESCRIPTION	Natural Moisture Content (%)	Total Unit Weight (pcf)	Liquid Limit	Plasticity Index	Pocket Pen. Su (ksf)	Torvane Su (ksf)	TXUU (ksf)	REMARKS
						Elevation (feet) / Depth (feet)								
	0					431.4 / 0.0 Loose, moist, dark gray SILT (ML) [FLY ASH]								
430		SS-1	2 6 3	72										
		SS-2	WOH/18"	100		becomes very loose								
	5					▽ becomes wet								
425		ST-1		75		424.9 / 6.5 Very loose, wet, light gray, poorly-graded medium SAND (SP) [BOTTOM ASH]								
		SS-3	1 1 1	89										
	10													
420		SS-4	1 1 1	94										
						417.9 / 13.5								
		SS-5	1 1 1	100		Very loose, wet, dark gray SILT (ML) [FLY ASH]								
	15													
415		SS-6	WOH/6" 1 WOH/6"	100										
		SS-7	1 1 1	100										
	20													
410		ST-2		92										
						407.4 / 24.0								
		SS-8	1 2 3	100		Medium stiff, moist, gray lean to fat CLAY (CL-CH) [ALLUVIUM]					1.0 1.0 1.0			
	25													
405		SS-9	3 5 8	89		404.4 / 27.0 Medium dense, wet, brown, poorly-graded medium SAND (SP)								
						402.9 / 28.5 End of Boring at 28.5 ft								
	30													

Report: 12/29/15 GEO_SOIL K:\PROJECTS\D\DYNEGY\60428794_WOODRIVER\DOCS\LOGS\DYNEGY_WOOD RIVER REV0.GPJ DYNEGY LIBRARY.GLB

APPENDIX A2

HISTORICAL BORING LOGS

B-1: Illinois State Water Survey: 1982 Boring and Piezometer Logs (Hampton and O'Hearn, 1984)

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344

BORING M-7
SHEET 1 OF 2

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification) Soil Classification System: Unified. Surface Elevation: –	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)
5	1	SS	24/15	1	Gray Fine Sand and Fly Ash, FILL	2-3-4	
10	2	SS	24/19			1/12-2	
15	3	SS	24/20		Fly Ash with Clay Seams and Fine to Medium Sand, FILL	3-8-7	
20	4	SS	24/24			13-8-9	
25	5	SS	24/18		Grayish Brown Fine SAND, Trace Silty Clay, and Fly Ash, Fill	6-2-1	
30	6	SS	24/16		Gray CLAY	3-4-6	
35	7	SS	24/21			3-5-6	

Shear Strength, tsf
SV△ QP/2□ QU/2○
0 ½ 1 1½ 2 2½
PL + NMC • LL ×
0 50 100
Rock Quality Designation
0 50 100

DRILLING METHOD Hollow Augers
DATE DRILLED 12-20-82
DRILLED BY Bignall
LOGGED BY Hileman
PIEZOMETER See Sketch

GROUNDWATER LEVELS
Encountered at 40.0 Feet
___ Hours after completion ___ Feet
___ after completion ___ et
___ after completion ___ et

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344
BORING M-7
SHEET 2 OF 2

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)
					(Color Modifier MATERIAL. Classification) Soil Classification System Unified Surface Elevation —		
40	8	SS	24/24		Gray CLAY	2-2-5	
45	9	SS	24/16		Brown to Gray Fine to Medium SAND Trace Silt and Clay	12-11-16	
50	10	SS	24/14		Brown Fine to Medium SAND, Trace Coarse Sand	10-11-15	
60	11	SS	42/20			10-12-14	
					TOB		
65					REMARKS: 1. Two-foot Long Split-spoon Used Entire Boring, Blow Counts Shown For First 18 Inches.		
70							

Shear Strength, tsf
SV△ QP/₂□ QU/₂○
0 ½ 1 1½ 2 2½
PL + NMC • LL x
0 50 100
Rock Quality Designation
0 50 100

DRILLING METHOD Hollow Augers
DATE DRILLED 12-20-82
DRILLED BY Bignall
LOGGED BY Hileman
PIEZOMETER See Sketch

GROUNDWATER LEVELS
Encountered at ___ Feet
___ Hours after completion ___ Feet
___ after completion ___ Feet
___ after completion ___ Feet

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

John Mathes & Associates, Inc.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344
BORING M-8
SHEET 1 OF 1

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification)	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)
				1			
40							
	1	SS	24/24	2	Gray CLAY, Trace Silt	1-2-3	
45	2	SS	24/24	3	Brown Fine to Medium SAND	4-13-16	
					TOB		
50							
55							
60							
65							
70							

Soil Classification System Unified
Surface Elevation –

Shear Strength, tsf
SV△ QP/2□ QU/2○
0 ½ 1 1½ 2 2½
PL NMC LL
0 50 100
Rock Quality Designation
0 50 100

REMARKS:
1. Drilled Down to 41' Took First Sample.
2. Two-foot Long Split-spoon Used Entire Boring, Blow Counts for First 18 Inches.
3. Ten Inches Blow-in, Drove Split-spoon, Washed Out, Drilled Down to 47'.

DRILLING METHOD Hollow Augers
DATE DRILLED 12-21-82
DRILLED BY Bignall
LOGGED BY Hileman
PIEZOMETER See Sketch

GROUNDWATER LEVELS
Encountered at 34.1 Feet
___ Hours after completion ___ Feet
___ after completion ___ Feet
___ after completion ___ Feet

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

John Mathes & Associates, Inc.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344

BORING M-9
SHEET 1 OF 1

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification)	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)
5	1	SS	18/16		Gray to Brown CLAY, Trace Sand	2-2-2	
10	2	SS	18/16			2-3-3	
15	3	SS	18/17		Gray CLAY	2-4-6	
20	4	SS	18/14			1-1-2	
25	5	SS	18/18		Gray Silty CLAY, Trace Sand	2-2-3	
30	6	SS	18/14			WH-1-1	
35	7	SS	18/9		Brown Fine to Medium SAND TOB	12-17-17	

Soil Classification System Unified
Surface Elevation —

Shear Strength, tsf
SV△ QP/2□ QU/2○
0 ½ 1 1½ 2 2½
PL + NMC • LL x
0 50 100
Rock Quality Designation
0 50 100

DRILLING METHOD Hollow Augers
DATE DRILLED 12-20-82
DRILLED BY Roberts
LOGGED BY Schaefer
PIEZOMETER See Sketch

GROUNDWATER LEVELS
Encountered at 19.3 Feet
___ Hours after completion ___ Feet
___ after completion ___ Feet
___ after completion ___ Feet

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John Mathes & Associates, Inc.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344

BORING M-10
SHEET 1 OF 2

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification)	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)
				1			
5	1	SS	18/16		Gray to Brown Silty CLAY	3-5-8	
10	2	SS	18/18		Gray Clayey SILT, Trace Fine Sand	4-7-10	
15	3	SS	18/18		Gray Silty CLAY	2-3-3	
20	4	SS	18/18	2	Trace Fine Sand	1/12-2	
25	5	SS	18/6		Brown Fine SAND, Trace Clay	1-1-2	
30	6	SS	18/18		Gray Silty CLAY, Trace Fine Sand	1-2-2	
35	7	SS	18/18		Gray CLAY, Trace Silt	WH-1-2	

Soil Classification System Unified
Surface Elevation —

Shear Strength, tsf
SV△ QP/2□ QU/2○
0 ½ 1 1½ 2 2½
PL NMC LL
0 50 100
Rock Quality Designation
0 50 100

DRILLING METHOD Hollow Augers
DATE DRILLED 12-21-82
DRILLED BY Roberts
LOGGED BY Schaefer
PIEZOMETER See Sketch

GROUNDWATER LEVELS
Encountered at 19.3 Feet
___ Hours after completion ___ Feet
___ after completion ___ Feet
___ after completion ___ Feet

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

John Mathes & Associates, Inc.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344

BORING M-10
SHEET 2 OF 2

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification) Soil Classification System: Unified. Surface Elevation: –	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)	Shear Strength, tsf: SV△ QP/2□ QU/2○ (0, ½, 1, 1½, 2, 2½); PL + NMC • LL × (0, 50, 100); Rock Quality Designation (0, 50, 100)
					Gray CLAY, Trace Silt			
40	8	SS	18/18			WH-1-2		
45	9	SS	18/18			WH-WH-2		
50	10	SS	18/18			WH-1-2		
55	11	SS	18/18			WH-WH-3		
					TOB			
60					REMARKS:			
					1. Approx. 6" Fly Ash at Surface			
					2. Pulled SS, 18" Blow-in, Added Water, Continued Drilling.			
65								
70								

DRILLING METHOD Hollow Augers
DATE DRILLED 12-21-82
DRILLED BY Roberts
LOGGED BY Schaefer
PIEZOMETER See Sketch

GROUNDWATER LEVELS

Encountered at ____ Feet
____ Hours after completion ____ Feet
____ after completion ____ Feet
____ after completion ____ Feet

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

John Mathes & Associates, Inc.

RECORD OF SUBSURFACE EXPLORATION

PROJECT Illinois Power - Wood River Power Plant Monitoring Wells
JOB NO. 82-1344

BORING M-11
SHEET 1 OF 1

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL AND TYPE	SAMPLE ADVANCED / RECOVERED (in)	SEE REMARK #	DESCRIPTION OF MATERIALS (Color Modifier MATERIAL. Classification) Soil Classification System Unified; Surface Elevation —	BLOWS (per 6 in)	DRY UNIT WEIGHT (pcf)	Shear Strength, tsf (SV△ QP/2□ QU/2○ 0 ½ 1 1½ 2 2½); PL + NMC • LL x (0 50 100); Rock Quality Designation (0 50 100)
5				1				
10								
15								
20	1	SS	18/14		Gray Silty CLAY	1-1-4		
					Gray Fine SAND			
25	2	SS	18/16			1-1-0		
30	3	SS	18/18		- with Gray Clay TOB	1-1-2		
35					REMARKS: 1. Drilled Down to 19', Took First Sample.			

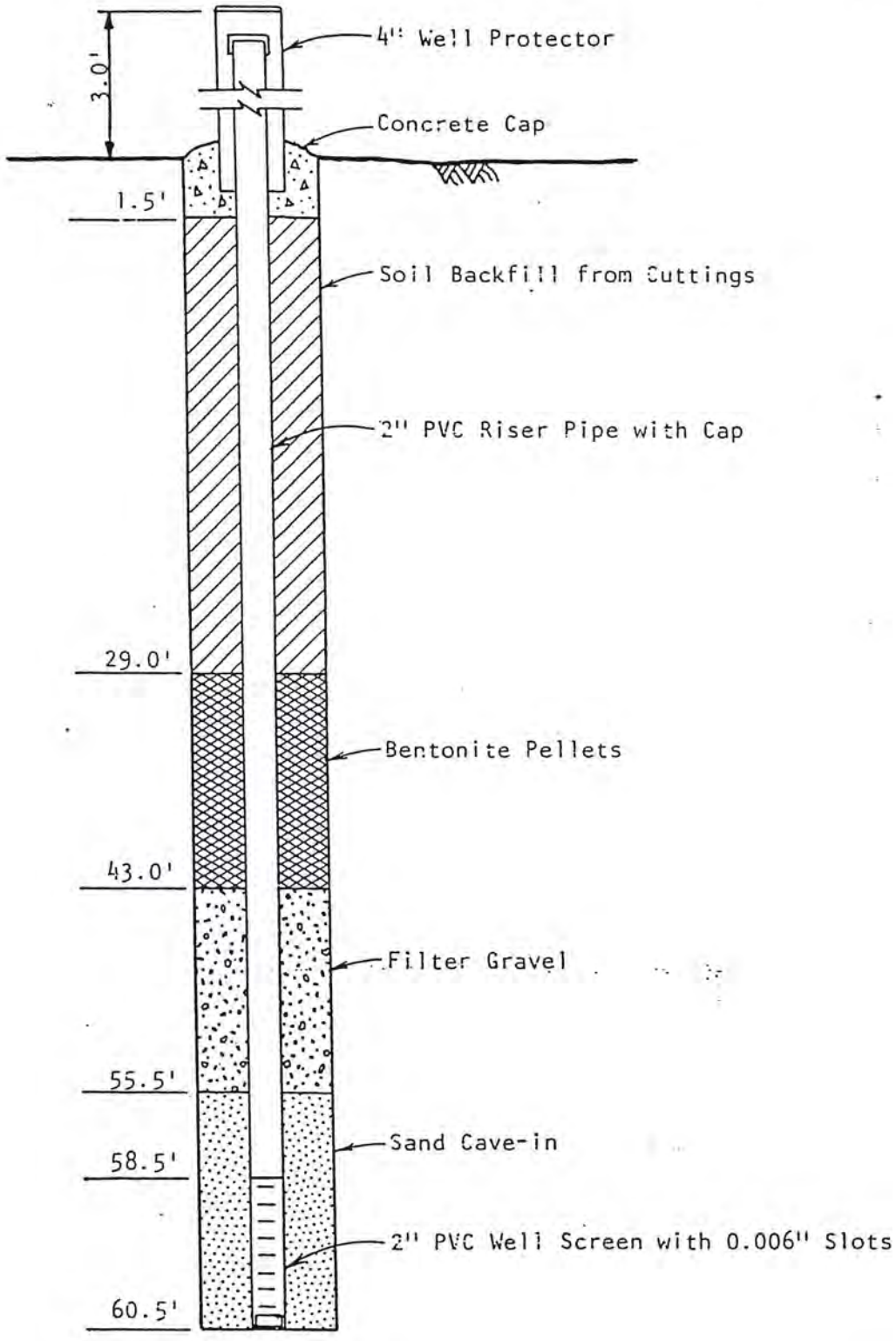
DRILLING METHOD Hollow Auger
DATE DRILLED 12-22-82
DRILLED BY Roberts
LOGGED BY Schaefer
PIEZOMETER See Sketch

GROUNDWATER LEVELS

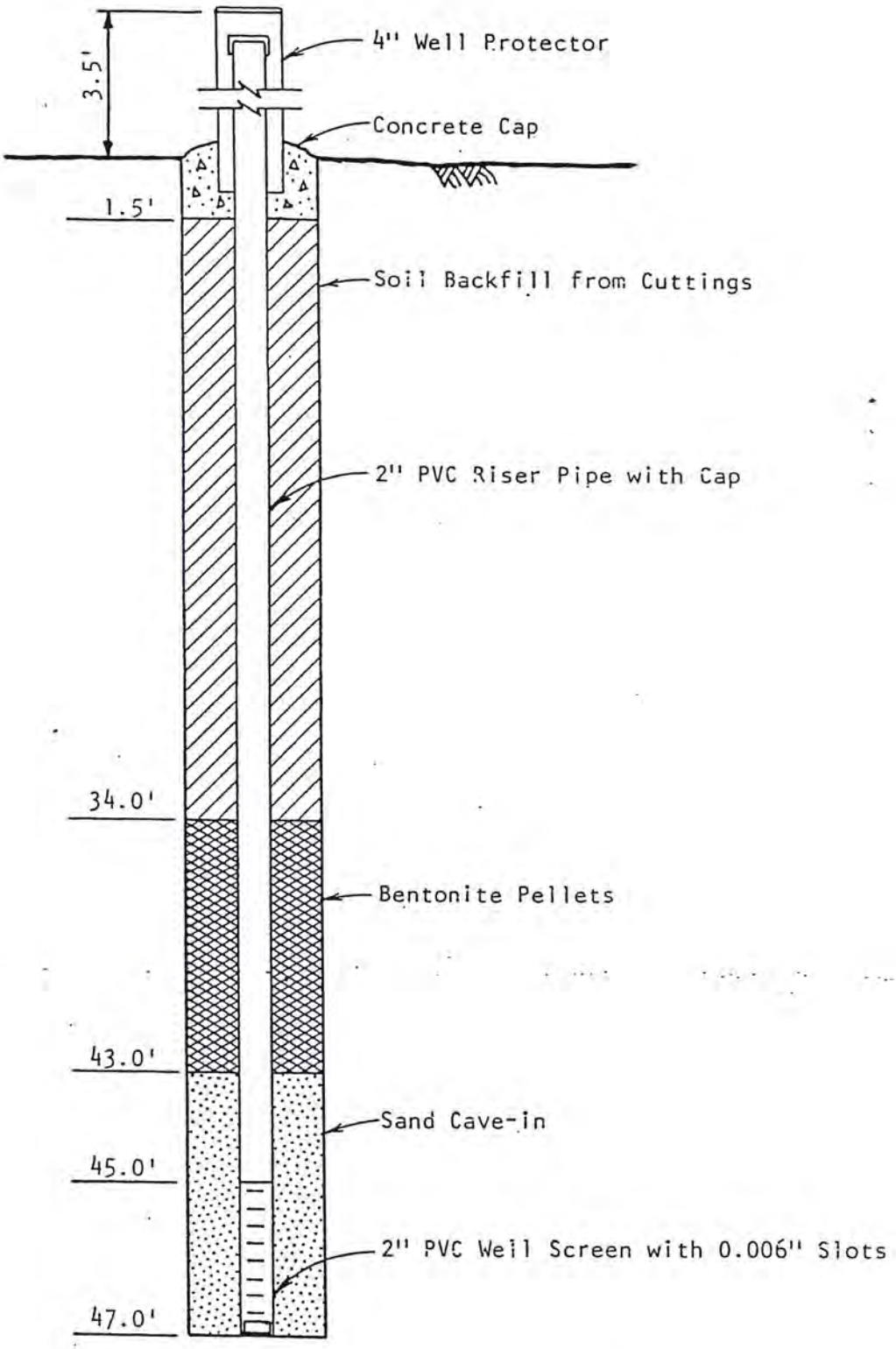
Encountered at — Feet
___ Hours after completion ___ Feet
___ after completion ___ Feet
___ after completion ___ Feet

NOTE: Refer to the attached GENERAL NOTES and NOTATION USED ON RECORDS OF SUBSURFACE EXPLORATION for abbreviations, explanations, and qualifications relative to this log.

John Mathes & Associates, Inc.



PIEZOMETER M-7



PIEZOMETER M-8

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