KELRON Environmental

LOG OF BORING MW40S

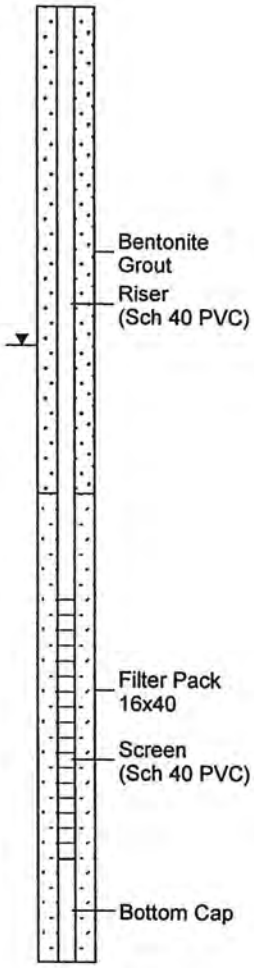
New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

Location: Twp 5N, Rng 9W, 20 SE/SW/SW

Date Started/Finished	: 6/18 - 6/21/2004	Driller	: John McMullan
Hole Diameter	: 12.5 / 8.5 inches	Geologist	: Stuart Cravens (Kelron)
Drilling Method	: Hollow Stem	Land Surface Elevation	: 441.25
Sampling Method	: Split-Spoon	Top of Casing Elevation	444.55
Drilling Company	: Harriss Drilling Services, Inc.	X,Y Coordinates	: 510473, 800637

Depth in Feet	DESCRIPTION	Surf. Elev. 441.25	Samples	Recovery inches	USCS	GRAPHIC
25		416			SP	
	- fine to medium, well graded, wet		13	19	SW	
30		411				
	CLAY, Clayey SILT, and Silty CLAY in alternating layers		14	22	CH-ML	
	- Clayey SILT at 34.75 to 35 feet has trace roots, black organics, non-plastic, olive gray		15	21		
35		406				
	SAND (fine), poorly graded, olive gray, wet		16	23	SP	
	Silty CLAY, non to highly plastic, olive gray, moist		17	24	CL	
	SAND (fine to medium), trace coarse sand, well graded, olive gray, wet				SW	
40		401			SP	
	SAND (fine), poorly graded		18	24		
	Silty CLAY, high plasticity, moist				CH	
	SAND (fine), poorly graded, medium gray, wet		19	24	SP	
	END BOREHOLE AT 43.6 FEET BLS					
45		396				
50						

Well: MW40S
Elev.: 444.55



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drilling\boring~1\wr_mw40s.bor

KELRON Environmental

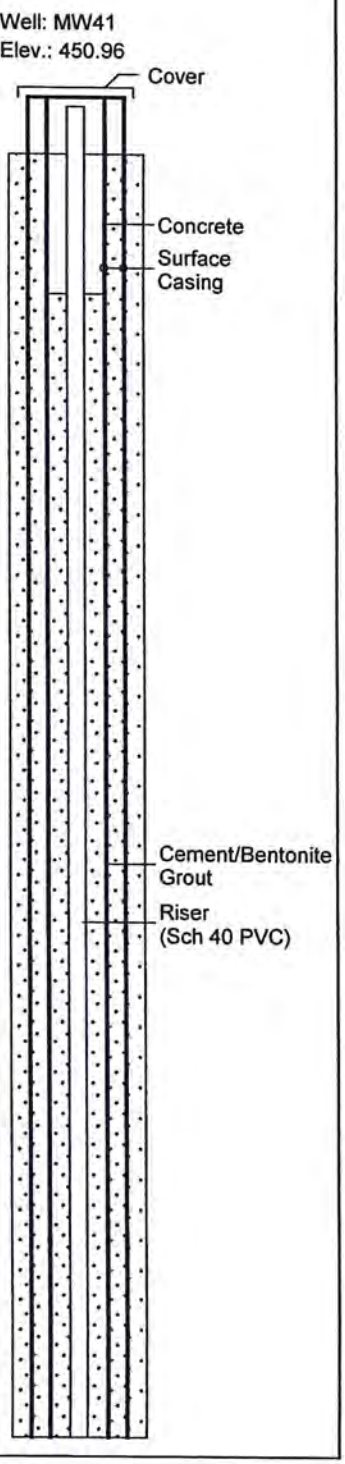
LOG OF BORING MW41

New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

Location: Twp 5N, Rng 9W, 20 SE/SW/SW

Date Started/Finished	: 6/21 - 6/23/2004	Driller	: John McMullan
Hole Diameter	: 12.5 / 8.5 inches	Geologist	: Stuart Cravens (Kelron)
Drilling Method	: Hollow-Stem	Land Surface Elevation	: 448.11
Sampling Method	: Split-Spoon	Top of Casing Elevation	450.96
Drilling Company	: Harriss Drilling Services, Inc.	X,Y Coordinates	: 509910, 800592

Depth in Feet	DESCRIPTION	Surf. Elev. 448.11	Samples	Recovery inches	Blow Count	Qp TSF	USCS	GRAPHIC
0	FLYASH, medium gray, moist	448	1	20	2 3 5 8			
5	Note: Surface Casing = 10.75-inch O.D. PVC installed to 24.5 feet below grade. Cement-bentonite grout around surface casing extends to 30 feet below grade.	443						
	- wet		2	24	8 12 12 11	2.5	FL	
10		438						
	- moist							
	- bottom ash, trace coal, wet		3	18	1 5 8 5	0.5		
15		433						
	- alternating layers of bottom ash and flyash, light to medium gray, moist to wet		4	21	7 9 7 7	1.0		
20								



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drillingboring~1\wr_mw41.bor

KELRON Environmental

LOG OF BORING MW41

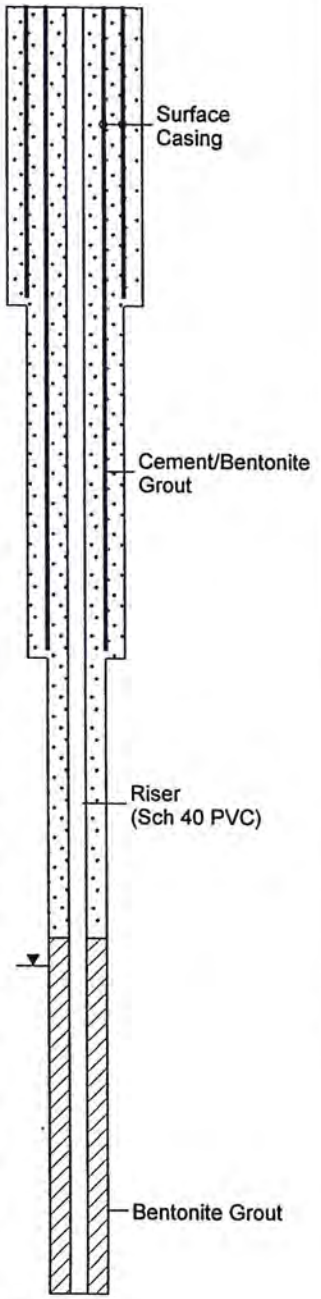
New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

Location: Twp 5N, Rng 9W, 20 SE/SW/SW

Date Started/Finished	: 6/21 - 6/23/2004	Driller	: John McMullan
Hole Diameter	: 12.5 / 8.5 inches	Geologist	: Stuart Cravens (Kelron)
Drilling Method	: Hollow-Stem	Land Surface Elevation	: 448.11
Sampling Method	: Split-Spoon	Top of Casing Elevation	450.96
Drilling Company	: Harriss Drilling Services, Inc.	X,Y Coordinates	: 509910, 800592

Depth in Feet	DESCRIPTION	Surf. Elev. 448.11	Samples	Recovery inches	Blow Count	Qp TSF	USCS	GRAPHIC
20		428	5	20	5 7 7	1.5		
			6	21	5 5 8	1.0		
			7	22	7 6 6	1.5	FL	
25	- bottom ash, dark gray, wet	423			13 13 8			
	- flyash		8	7				
	CLAY, few roots, high plasticity, dark gray, wet		9	21	0 2 3 3	2.25		
30		418						
	Silty CLAY, high plasticity, light gray, moist							
	- dark gray		10	23	0 2 2 3	1.0	CH	
35		413						
	CLAY, few silt, high plasticity, medium gray w/ intermittent brown mottling							
			11	24	1 3 3 5	1.75		
40								

Well: MW41
Elev.: 450.96



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drilling\boring~1\wr_mw41.bor

KELRON Environmental

LOG OF BORING MW41

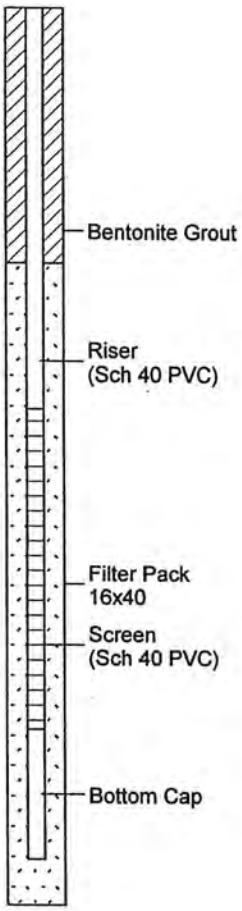
New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

Location: Twp 5N, Rng 9W, 20 SE/SW/SW

Date Started/Finished	: 6/21 - 6/23/2004	Driller	: John McMullan
Hole Diameter	: 12.5 / 8.5 inches	Geologist	: Stuart Cravens (Kelron)
Drilling Method	: Hollow-Stem	Land Surface Elevation	: 448.11
Sampling Method	: Split-Spoon	Top of Casing Elevation	450.96
Drilling Company	: Harriss Drilling Services, Inc.	X,Y Coordinates	: 509910, 800592

Depth in Feet	DESCRIPTION	Surf. Elev. 448.11	Samples	Recovery inches	Blow Count	Qp TSF	USCS	GRAPHIC
40		408	12	24	2 2 2 2 2	1.75	CH	
	SILT, brown, wet		13	24	12 16 17	1.5	ML	
	SAND (fine), few silt, poorly graded, light grading to medium brown, wet						SP	
45	CLAY, trace silt, medium gray, moist	403	14	24	3 8 12		CL	
	SAND (fine to medium), trace coarse sand and fine gravel, well graded, light brown, wet		15	20	16 0 6 13 15		SW	
	- medium brown							
50		398						
	- medium brown-gray		16	15	8 10 8 7			
	END BOREHOLE AT 54 FEET BLS							
55		393						
60								

Well: MW41
Elev.: 450.96



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drilling\boring~1\wr_mw41.bor

KELRON Environmental

LOG OF BORING MW42

(Page 1 of 2)

New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

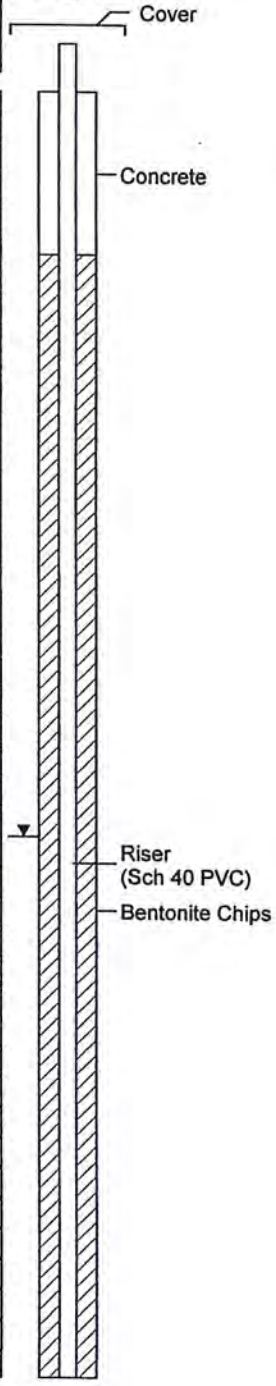
Location: Twp 5N, Rng 9W, 20 NW/SW/SW

Date Started/Finished : 6/22/2004
Hole Diameter : 8.5 inches
Drilling Method : Hollow-Stem
Sampling Method : Split-Spoon
Drilling Company : Harriss Drilling Services, Inc.

Driller : John McMullan
Geologist : Stuart Cravens (Kelron)
Land Surface Elevation: 422.97
Top of Casing Elevation 425.72
X,Y Coordinates : 509319, 801288

Depth in Feet	DESCRIPTION	Surf. Elev. 422.97	Samples	Recovery inches	Blow Count	Qp TSF	USCS	GRAPHIC
0	FILL - Silty CLAY with large white gravel, few sand, roots, dark brown, dry	422	1	8	4 5 6 6		FL	
2	CLAY with roots, high plasticity, medium brown with light gray mottling - light brown	420	2	21	2 4 4 4	1.5	CH	
4	Silty CLAY, trace fine sand, roots, low-medium plasticity, light brown, moist	418	3	16	1 2 3 3	1.25	CL	
6	- no roots, black organics, with light gray mottling	416	4	19	1 2 2 3	1.0		
8	- 0.5-inch sand seam (fine to medium grain size), light brown, wet - 1.5-inch sand seam (fine to medium grain size)	414	5	16	3 0 1 2	1.5		
10	CLAY, high plasticity, light gray with orange-brown mottling, moist - 1.5-inch clayey sand seam (fine), medium brown, wet	412	6	23	3 0 1 2	1.5		
12		410	7	22	2 0 1 1	1.5	CH	
14			8	20	2 0	1.0	ML	

Well: MW42
Elev.: 425.72



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drilling\boring~1\wr_mw42.bor

KELRON Environmental

LOG OF BORING MW42

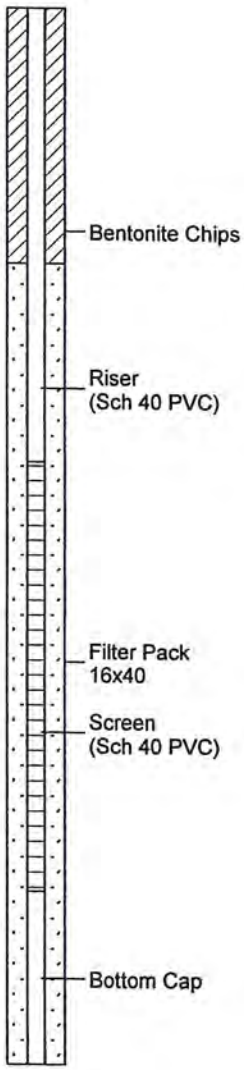
New East Ash Pond Hydrogeologic Investigation
Wood River Power Station
Dynegy Midwest Generation, Inc.

Location: Twp 5N, Rng 9W, 20 NW/SW/SW

Date Started/Finished	: 6/22/2004	Driller	: John McMullan
Hole Diameter	: 8.5 inches	Geologist	: Stuart Cravens (Kelron)
Drilling Method	: Hollow-Stem	Land Surface Elevation	: 422.97
Sampling Method	: Split-Spoon	Top of Casing Elevation	425.72
Drilling Company	: Harriss Drilling Services, Inc.	X,Y Coordinates	: 509319, 801288

Depth in Feet	DESCRIPTION	Surf. Elev. 422.97	Samples	Recovery inches	Blow Count	Qp TSF	USCS	GRAPHIC
15	SILT, trace fine sand, non-plastic, light brown, wet							
	- few fine sand	407	8	20	4 6	1.0	ML	
	Clayey SILT, brown-gray				2 3			
17	Silty SAND (fine), medium brown		9	21	5	<0.5	SM	
	SAND (fine to medium), well graded, medium brown	405			5 5		SW	
19	SAND (fine) with silt, trace medium sand poorly graded, medium brown-gray		10	24	8 9			
		403			9 3			
21			11	22	4 5			
		401			5 3			
23			12	24	8 15		SW-SM	
		399			4 2			
25			13	24	3 4			
		397			4 2			
27			14	24	3 3			
		395			4			
	END BOREHOLE AT 28 FEET BLS							
29								

Well: MW42
Elev.: 425.72



08-13-2004 c:\powerp~1\woodri~1\hydroi~1\drillingboring~1\wr_mw42.bor

APPENDIX B

GRAIN SIZE ANALYSES AND LABORATORY HYDRAULIC CONDUCTIVITY TEST RESULTS

APPENDIX B1

GRAIN SIZE ANALYSES

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-001	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	8.00
#4 To #200	*Sand*	24.93
Finer Than #200	*Silt & Clay*	67.07

USCS Symbol:

cl, ASSUMED

USCS Classification:

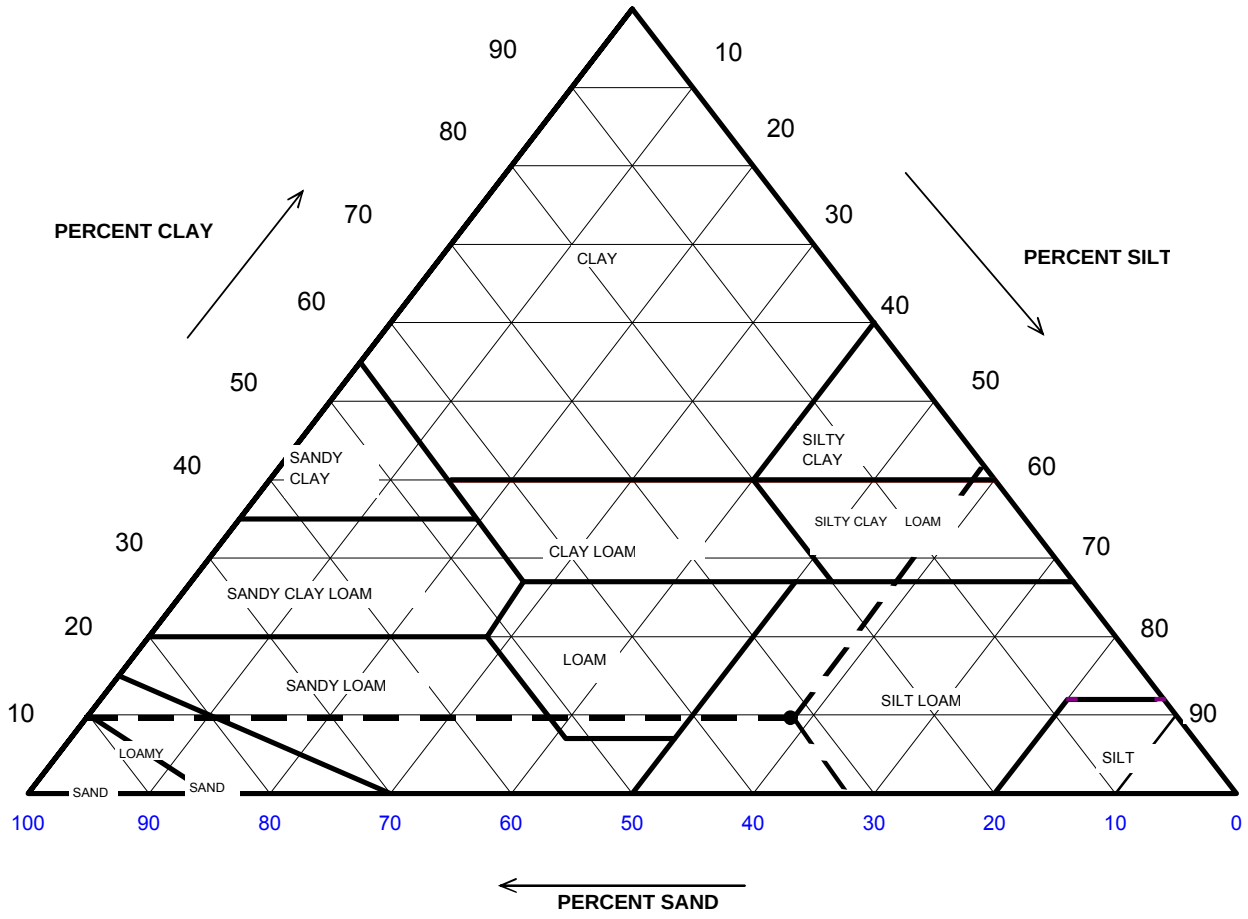
SANDY LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-001	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	11.02	**0.00**
2	88.98	*Sand*	28.53	**32.06**
0.05	60.45	*Silt*	51.91	**58.33**
0.002	8.55	*Clay*	8.55	**9.60**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-001	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1414	Tare No.	NA
Weight of Tare & Wet Sample (g)	590.10	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	475.10	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.50	Weight of Tare (g)	NA
Weight of Water (g)	115.00	Weight of Water (g)	NA
Weight of Dry Sample (g)	329.60	Weight of Dry Sample (g)	NA
Moisture Content (%)	**34.9**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	329.60
Dry Weight of -3/4" Sample (g)	94.81	Weight of - #200 Material (g)	221.06
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	108.54
Dry Weight of +3/4" Sample (g)	13.73		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	13.73	4.17	4.17		95.83	**95.83**
1/2"	12.5	1.23	0.37	4.54		95.46	**95.46**
3/8"	9.50	4.76	1.44	5.98		94.02	**94.02**
#4	4.75	6.65	2.02	8.00		92.00	**92.00**
#10	2.00	9.94	3.02	11.02		88.98	**88.98**
#20	0.85	9.43	2.86	13.88		86.12	**86.12**
#40	0.425	8.99	2.73	16.60		83.40	**83.40**
#60	0.250	12.95	3.93	20.53		79.47	**79.47**
#140	0.106	25.18	7.64	28.17		71.83	**71.83**
#200	0.075	15.68	4.76	32.93		67.07	**67.07**
Pan	-	221.06	67.07	100.00		-	**-**

Tested By RAL Date 10/8/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-001	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		41.5	22.5	6.18	35.3	76.4	0.01305	0.0284	**51.2**
5		34.5	22.5	6.18	28.3	61.3	0.01305	0.0190	**41.1**
16		26.5	22.5	6.18	20.3	43.9	0.01305	0.0113	**29.5**
30		22.5	22.5	6.18	16.3	35.3	0.01305	0.0085	**23.7**
60		19.0	22.4	6.22	12.8	27.6	0.01307	0.0061	**18.5**
250		13.5	22.5	6.18	7.3	15.8	0.01305	0.0031	**10.6**
1440		10.5	23	6.00	4.5	9.7	0.01297	0.0013	**6.5**

Soil Specimen Data		**Other Corrections**		
Tare No.	633			
Weight of Tare & Dry Material (g)	146.90	a - Factor	0.99	
Weight of Tare (g)	96.13			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	67.07	
Weight of Dry Material (g)	45.8			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/8/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

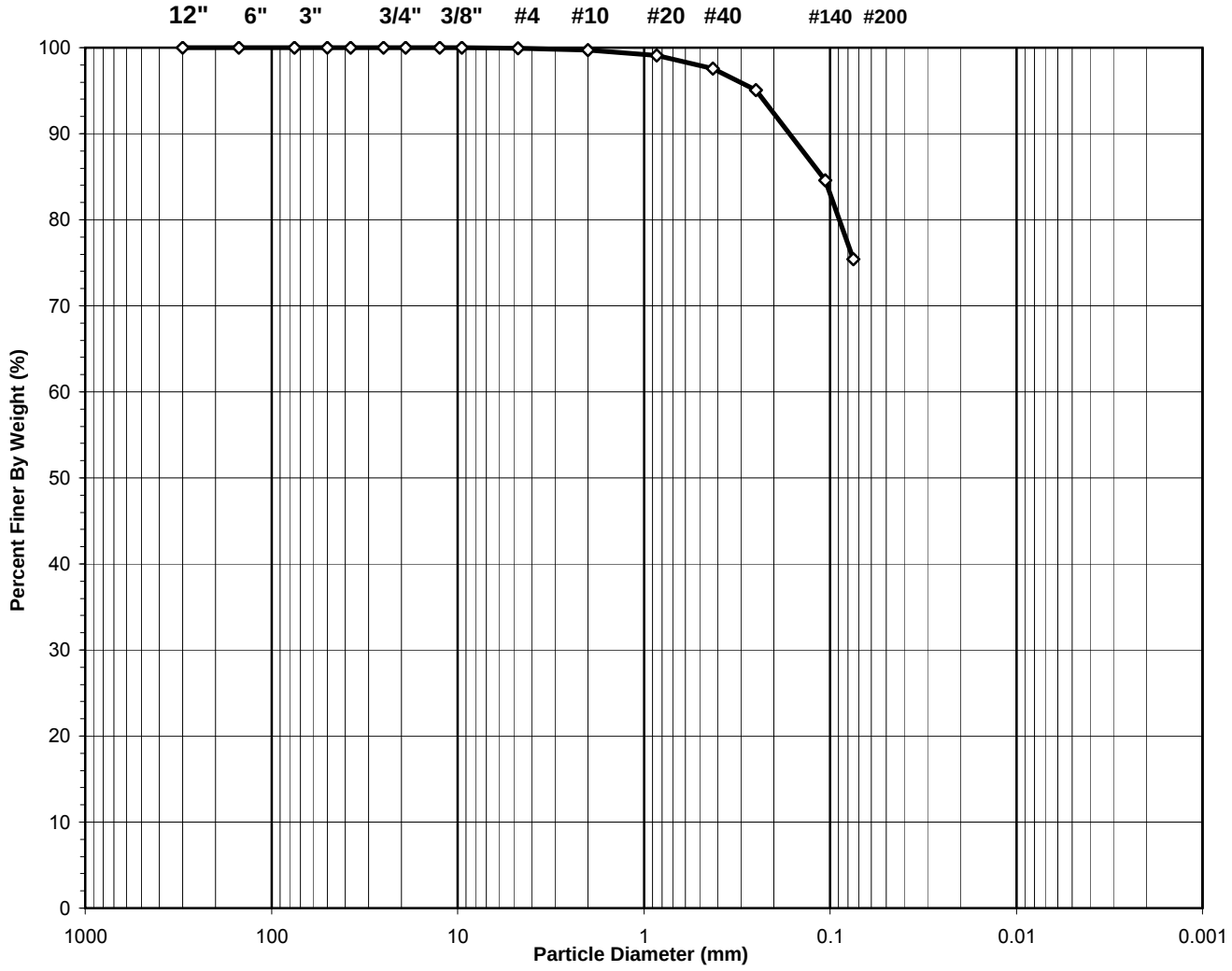
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-004	Sample No.:	SS-6
Lab ID:	2015-485-004-002	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT WITH SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-004	Sample No.:	SS-6
Lab ID:	2015-485-004-002	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1432	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	396.76	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	345.22	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.48	Weight of Tare (g):	NA
Weight of Water (g):	51.54	Weight of Water (g):	NA
Weight of Dry Sample (g):	199.74	Weight of Dry Sample (g):	NA
Moisture Content (%):	**25.8**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	199.74
Dry Weight of - 3/4" Sample (g):	49.1	Weight of - #200 Material (g):	150.60
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	49.14
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.20	0.10	0.10	99.90	**99.90**
#10	2.00	0.39	0.20	0.30	99.70	**99.70**
#20	0.850	1.22	0.61	0.91	99.09	**99.09**
#40	0.425	3.06	1.53	2.44	97.56	**97.56**
#60	0.250	4.95	2.48	4.92	95.08	**95.08**
#140	0.106	20.99	10.51	15.43	84.57	**84.57**
#200	0.075	18.33	9.18	24.60	75.40	**75.40**
Pan	-	150.60	75.40	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

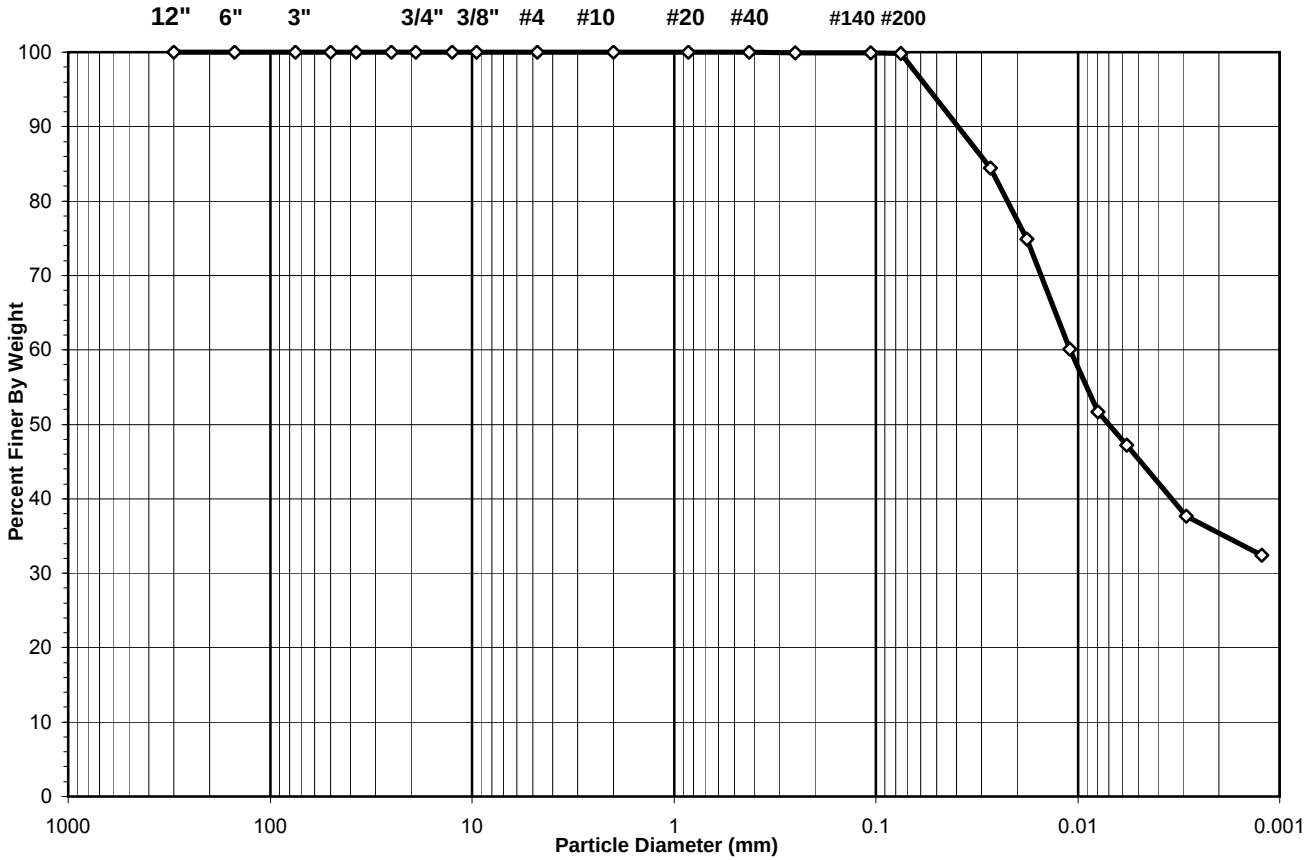
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-41.5
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID:	2015-485-004-003	Soil Color:	Brown / Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	0.18
Finer Than #200	*Silt & Clay*	99.82

USCS Symbol:
CH, TESTED

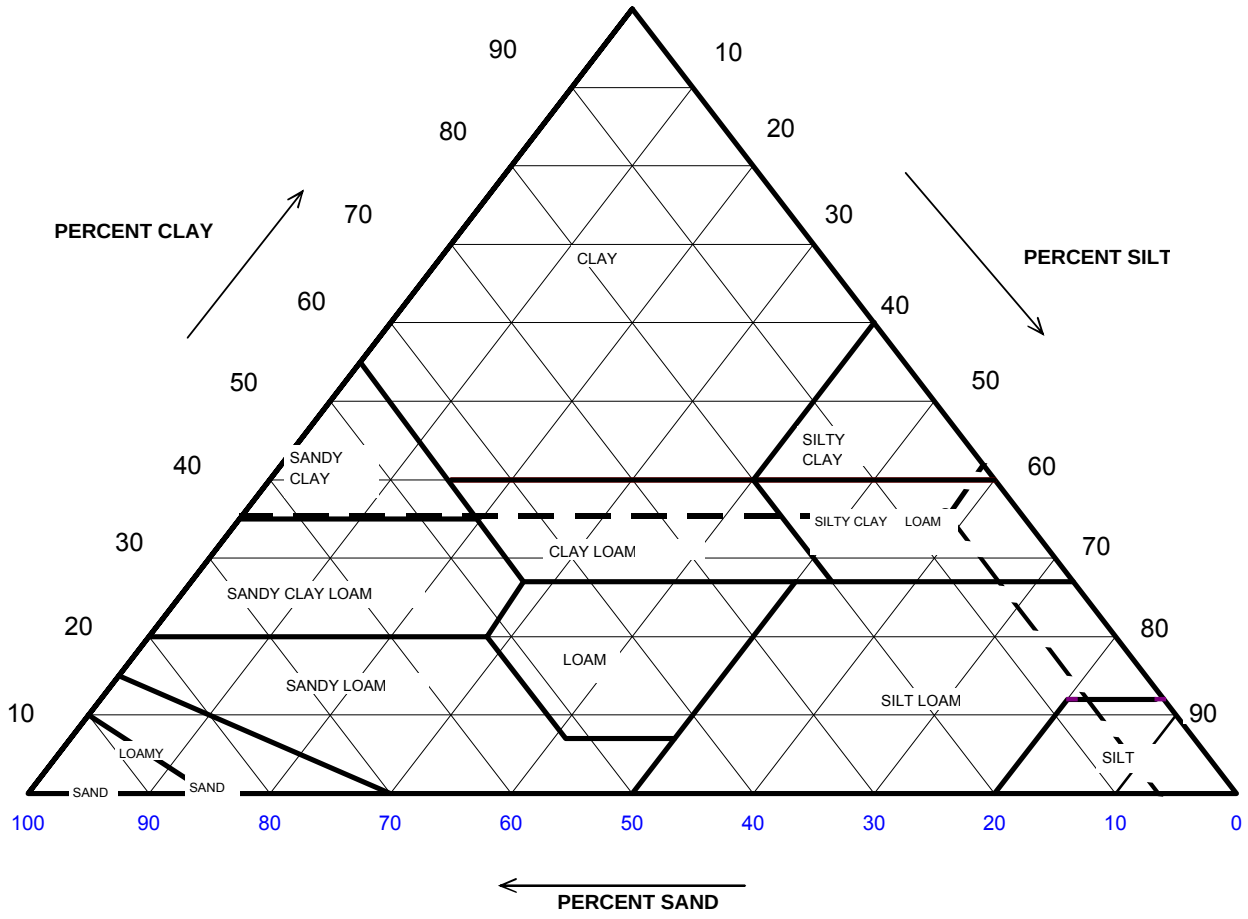
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-41.5
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID:	2015-485-004-003	Soil Color:	Brown / Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	6.33	**6.33**
0.05	93.67	*Silt*	58.28	**58.28**
0.002	35.39	*Clay*	35.39	**35.39**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-41.5
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID:	2015-485-004-003	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	25	Tare No.	NA
Weight of Tare & Wet Sample (g)	808.14	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	654.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	203.65	Weight of Tare (g)	NA
Weight of Water (g)	153.84	Weight of Water (g)	NA
Weight of Dry Sample (g)	450.65	Weight of Dry Sample (g)	NA
Moisture Content (%)	**34.1**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	450.65
Dry Weight of -3/4" Sample (g)	0.80	Weight of - #200 Material (g)	449.85
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	0.80
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.05	0.01	0.01		99.99	**99.99**
#40	0.425	0.14	0.03	0.04		99.96	**99.96**
#60	0.250	0.08	0.02	0.06		99.94	**99.94**
#140	0.106	0.24	0.05	0.11		99.89	**99.89**
#200	0.075	0.29	0.06	0.18		99.82	**99.82**
Pan	-	449.85	99.82	100.00		-	**-**

Tested By RAL Date 10/7/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-41.5
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID:	2015-485-004-003	Soil Color:	Brown / Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		46.0	22.9	6.04	40.0	84.6	0.01299	0.0272	**84.4**
5		41.5	22.9	6.04	35.5	75.0	0.01299	0.0179	**74.9**
15		34.5	22.9	6.04	28.5	60.2	0.01299	0.0109	**60.1**
30		30.5	22.9	6.04	24.5	51.8	0.01299	0.0080	**51.7**
60		28.5	22.6	6.15	22.4	47.3	0.01303	0.0057	**47.2**
250		24.0	22.5	6.18	17.8	37.7	0.01305	0.0029	**37.6**
1440		21.5	22.5	6.18	15.4	32.5	0.01305	0.0012	**32.4**

Soil Specimen Data		**Other Corrections**		
Tare No.	1019			
Weight of Tare & Dry Material (g)	153.15	a - Factor	0.99	
Weight of Tare (g)	101.37			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	99.82	
Weight of Dry Material (g)	46.8			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/7/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

S:Excel\Excel QA\Spreadsheets\SieveHyd.xls

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-12
Lab ID:	2015-485-004-004	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**

USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.18 **CC = 0.91**

D30 = 0.13 **CU = 1.61**

D10 = 0.11

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-12
Lab ID:	2015-485-004-004	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1435	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	491.90	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	423.80	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.48	Weight of Tare (g):	NA
Weight of Water (g):	68.10	Weight of Water (g):	NA
Weight of Dry Sample (g):	278.32	Weight of Dry Sample (g):	NA
Moisture Content (%):	**24.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	278.32
Dry Weight of - 3/4" Sample (g):	268.6	Weight of - #200 Material (g):	9.73
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	268.59
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.00	0.00	0.00	100.00	**100.00**
#20	0.850	0.10	0.04	0.04	99.96	**99.96**
#40	0.425	0.26	0.09	0.13	99.87	**99.87**
#60	0.250	9.84	3.54	3.66	96.34	**96.34**
#140	0.106	250.51	90.01	93.67	6.33	**6.33**
#200	0.075	7.88	2.83	96.50	3.50	**3.50**
Pan	-	9.73	3.50	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

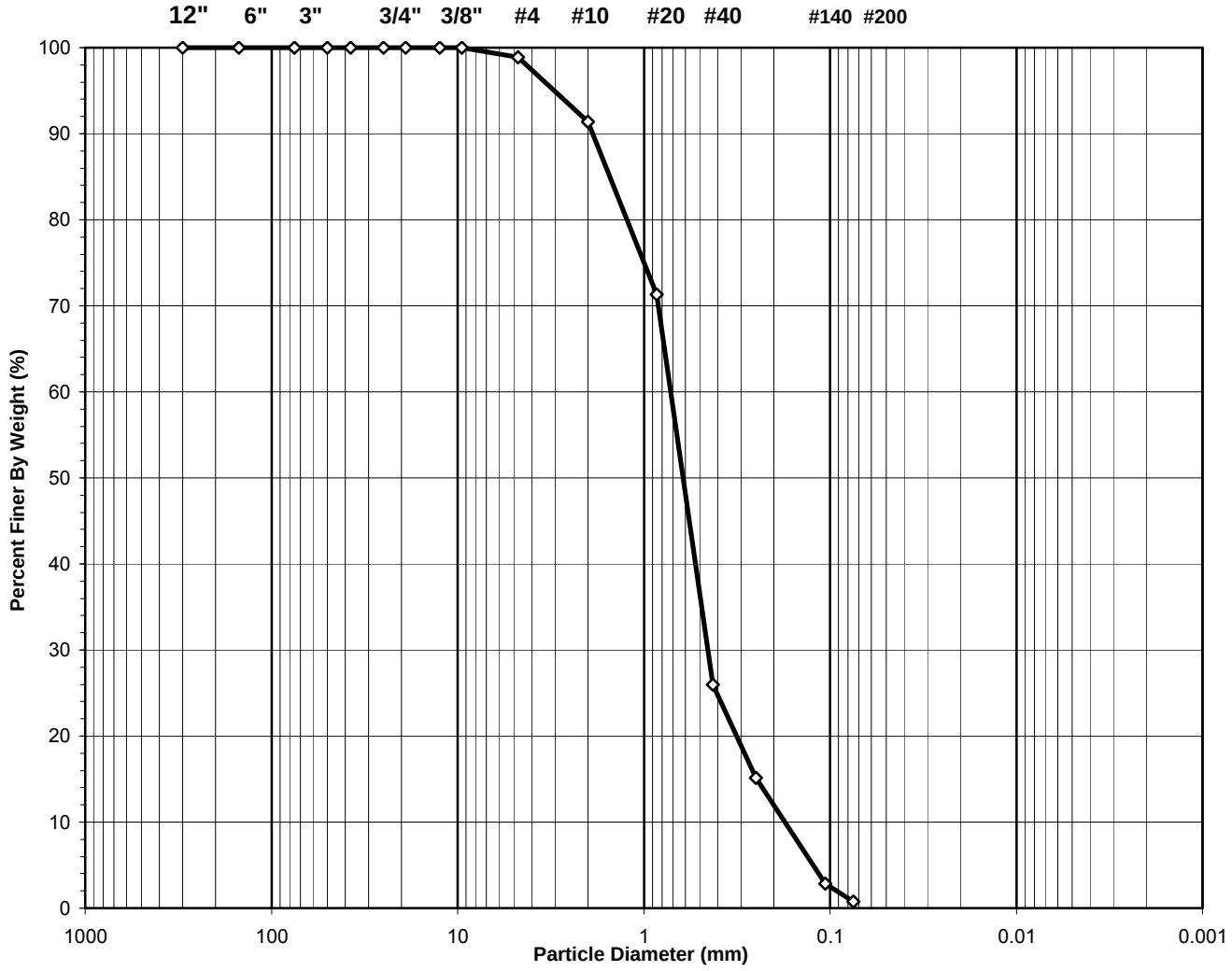
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	73.5-75.0
Project No.:	2015-485-004	Sample No.:	SS-17
Lab ID:	2015-485-004-005	Soil Color:	Brownish Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.71 **CC = 1.64**

D30 = 0.45 **CU = 4.09**

D10 = 0.17

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-1
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	73.5-75.0
Project No.:	2015-485-004	Sample No.:	SS-17
Lab ID:	2015-485-004-005	Soil Color:	Brownish Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1420	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	516.10	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	466.60	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.71	Weight of Tare (g):	NA
Weight of Water (g):	49.50	Weight of Water (g):	NA
Weight of Dry Sample (g):	321.89	Weight of Dry Sample (g):	NA
Moisture Content (%):	**15.4**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	321.89
Dry Weight of - 3/4" Sample (g):	319.4	Weight of - #200 Material (g):	2.51
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	319.38
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	3.62	1.12	1.12	98.88	**98.88**
#10	2.00	24.03	7.47	8.59	91.41	**91.41**
#20	0.850	64.66	20.09	28.68	71.32	**71.32**
#40	0.425	145.90	45.33	74.00	26.00	**26.00**
#60	0.250	34.97	10.86	84.87	15.13	**15.13**
#140	0.106	39.50	12.27	97.14	2.86	**2.86**
#200	0.075	6.70	2.08	99.22	0.78	**0.78**
Pan	-	2.51	0.78	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.4-35.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-007	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	0.02
Finer Than #200	*Silt & Clay*	99.98

USCS Symbol:
CH, TESTED

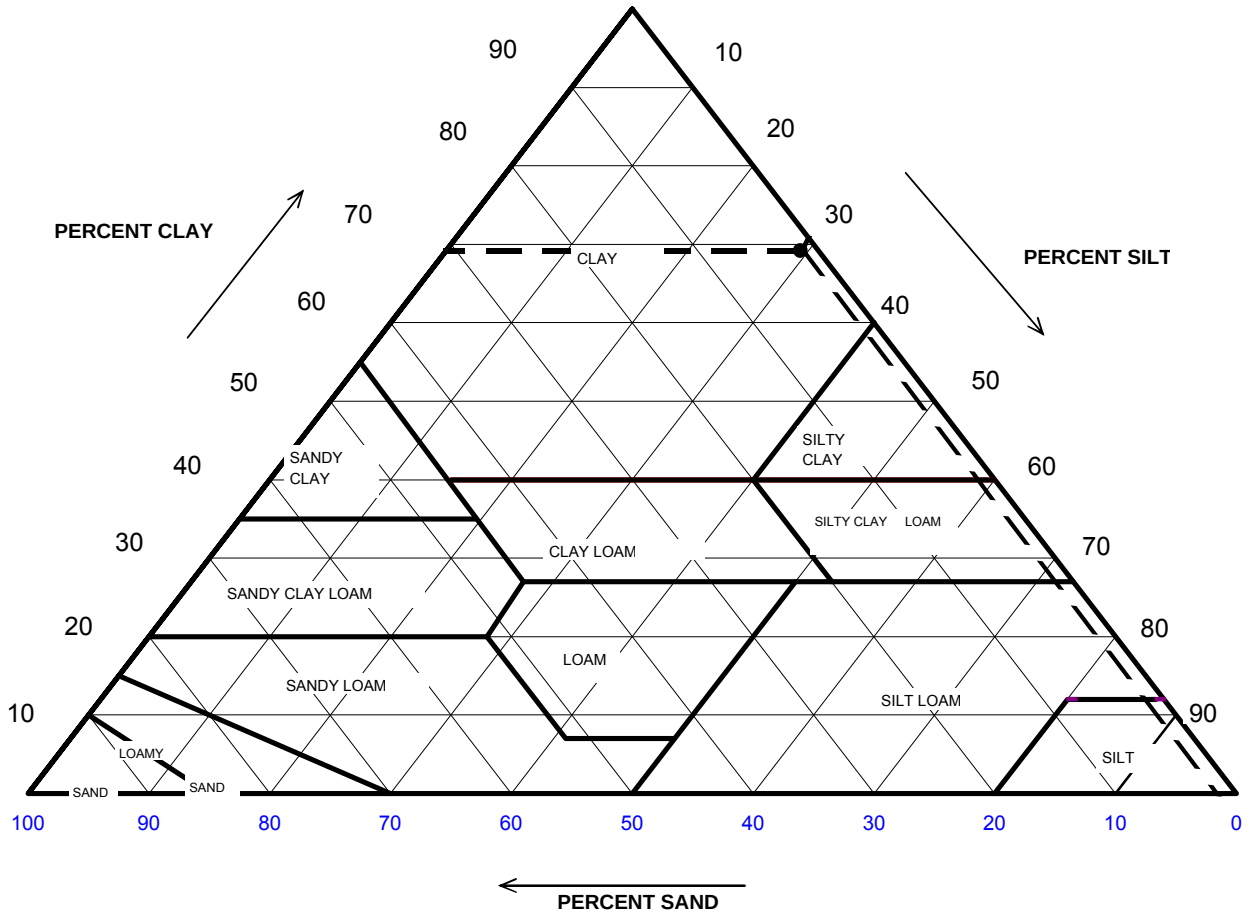
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.4-35.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-007	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	1.49	**1.49**
0.05	98.51	*Silt*	29.34	**29.34**
0.002	69.17	*Clay*	69.17	**69.17**

USDA Classification: ***CLAY***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.4-35.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-007	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	24	Tare No.	NA
Weight of Tare & Wet Sample (g)	925.25	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	646.70	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	202.45	Weight of Tare (g)	NA
Weight of Water (g)	278.55	Weight of Water (g)	NA
Weight of Dry Sample (g)	444.25	Weight of Dry Sample (g)	NA
Moisture Content (%)	**62.7**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	444.25
Dry Weight of -3/4" Sample (g)	0.11	Weight of - #200 Material (g)	444.14
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	0.11
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.00	0.00	0.00		100.00	**100.00**
#40	0.425	0.00	0.00	0.00		100.00	**100.00**
#60	0.250	0.05	0.01	0.01		99.99	**99.99**
#140	0.106	0.04	0.01	0.02		99.98	**99.98**
#200	0.075	0.02	0.00	0.02		99.98	**99.98**
Pan	-	444.14	99.98	100.00		-	**-**

Tested By HL Date 9/29/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.4-35.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-007	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		33.0	23.1	5.97	27.0	96.7	0.01296	0.0302	**96.7**
5		32.5	23.1	5.97	26.5	94.9	0.01296	0.0192	**94.9**
17		31.5	23.1	5.97	25.5	91.4	0.01296	0.0105	**91.3**
30		31.0	23.1	5.97	25.0	89.6	0.01296	0.0079	**89.5**
62		29.5	22.9	6.04	23.5	83.9	0.01299	0.0056	**83.9**
250		26.5	23	6.00	20.5	73.3	0.01297	0.0028	**73.3**
1440		23.5	23.4	5.86	17.6	63.1	0.01291	0.0012	**63.1**

Soil Specimen Data		**Other Corrections**		
Tare No.	925			
Weight of Tare & Dry Material (g)	132.42	a - Factor	0.99	
Weight of Tare (g)	99.75			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	99.98	
Weight of Dry Material (g)	27.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/29/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-004	Sample No.:	SS-10
Lab ID:	2015-485-004-008	Soil Color:	Brownish Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**

USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.18 **CC = 0.91**

D30 = 0.13 **CU = 1.60**

D10 = 0.11

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-004	Sample No.:	SS-10
Lab ID:	2015-485-004-008	Soil Color:	Brownish Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1452	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	569.50	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	490.10	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.28	Weight of Tare (g):	NA
Weight of Water (g):	79.40	Weight of Water (g):	NA
Weight of Dry Sample (g):	344.82	Weight of Dry Sample (g):	NA
Moisture Content (%):	**23.0**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	344.82
Dry Weight of - 3/4" Sample (g):	338.8	Weight of - #200 Material (g):	6.01
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	338.81
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.16	0.05	0.05	99.95	**99.95**
#20	0.850	0.57	0.17	0.21	99.79	**99.79**
#40	0.425	2.29	0.66	0.88	99.12	**99.12**
#60	0.250	12.55	3.64	4.52	95.48	**95.48**
#140	0.106	313.90	91.03	95.55	4.45	**4.45**
#200	0.075	9.34	2.71	98.26	1.74	**1.74**
Pan	-	6.01	1.74	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

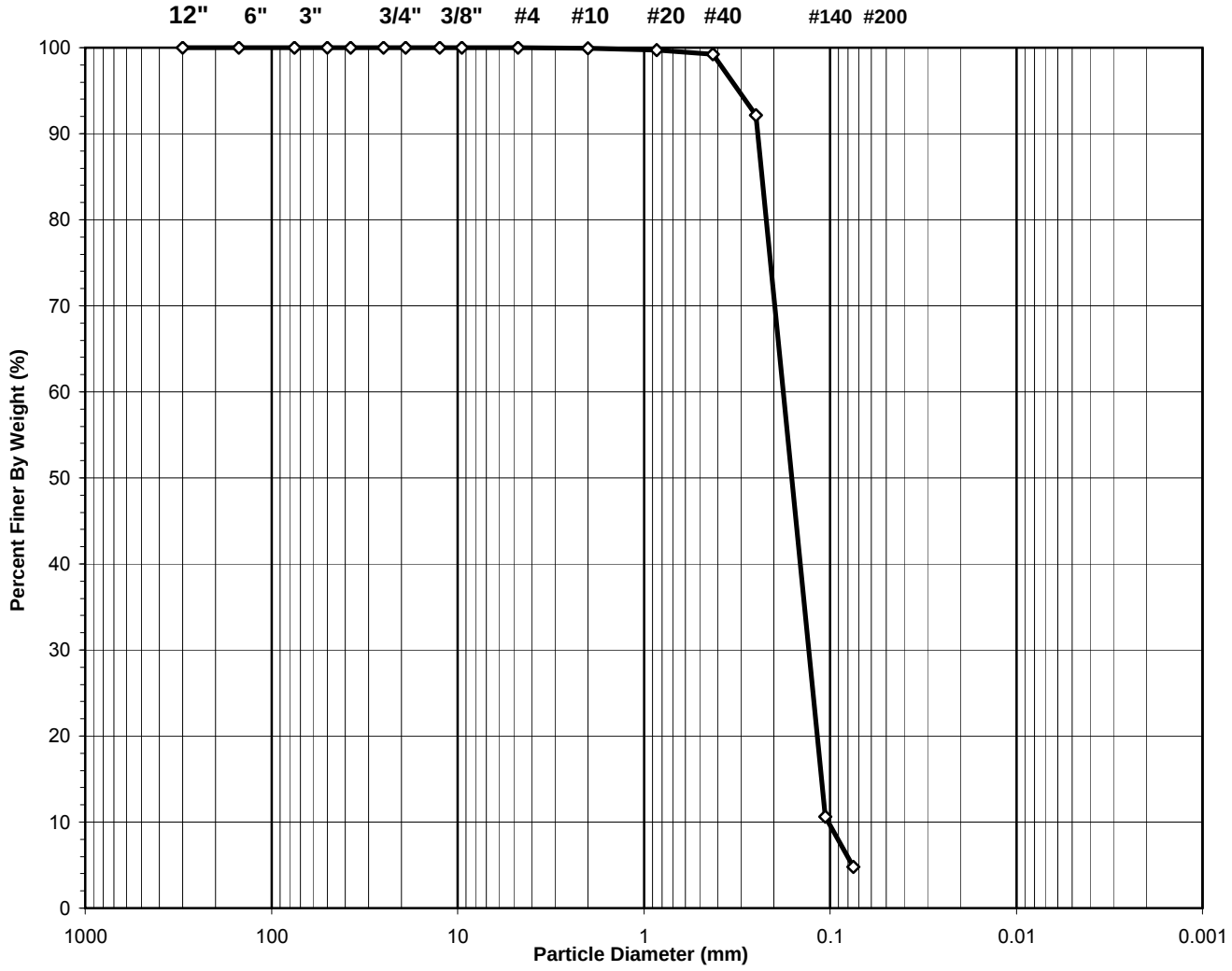
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-11
Lab ID:	2015-485-004-009	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.18 **CC = 0.93**

D30 = 0.13 **CU = 1.75**

D10 = 0.10

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-2
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-11
Lab ID:	2015-485-004-009	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1441	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	618.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	509.50	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	143.96	Weight of Tare (g):	NA
Weight of Water (g):	109.30	Weight of Water (g):	NA
Weight of Dry Sample (g):	365.54	Weight of Dry Sample (g):	NA
Moisture Content (%):	**29.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	365.54
Dry Weight of - 3/4" Sample (g):	347.9	Weight of - #200 Material (g):	17.63
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	347.91
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.12	0.03	0.03	99.97	**99.97**
#10	2.00	0.26	0.07	0.10	99.90	**99.90**
#20	0.850	0.63	0.17	0.28	99.72	**99.72**
#40	0.425	1.90	0.52	0.80	99.20	**99.20**
#60	0.250	25.90	7.09	7.88	92.12	**92.12**
#140	0.106	297.80	81.47	89.35	10.65	**10.65**
#200	0.075	21.30	5.83	95.18	4.82	**4.82**
Pan	-	17.63	4.82	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

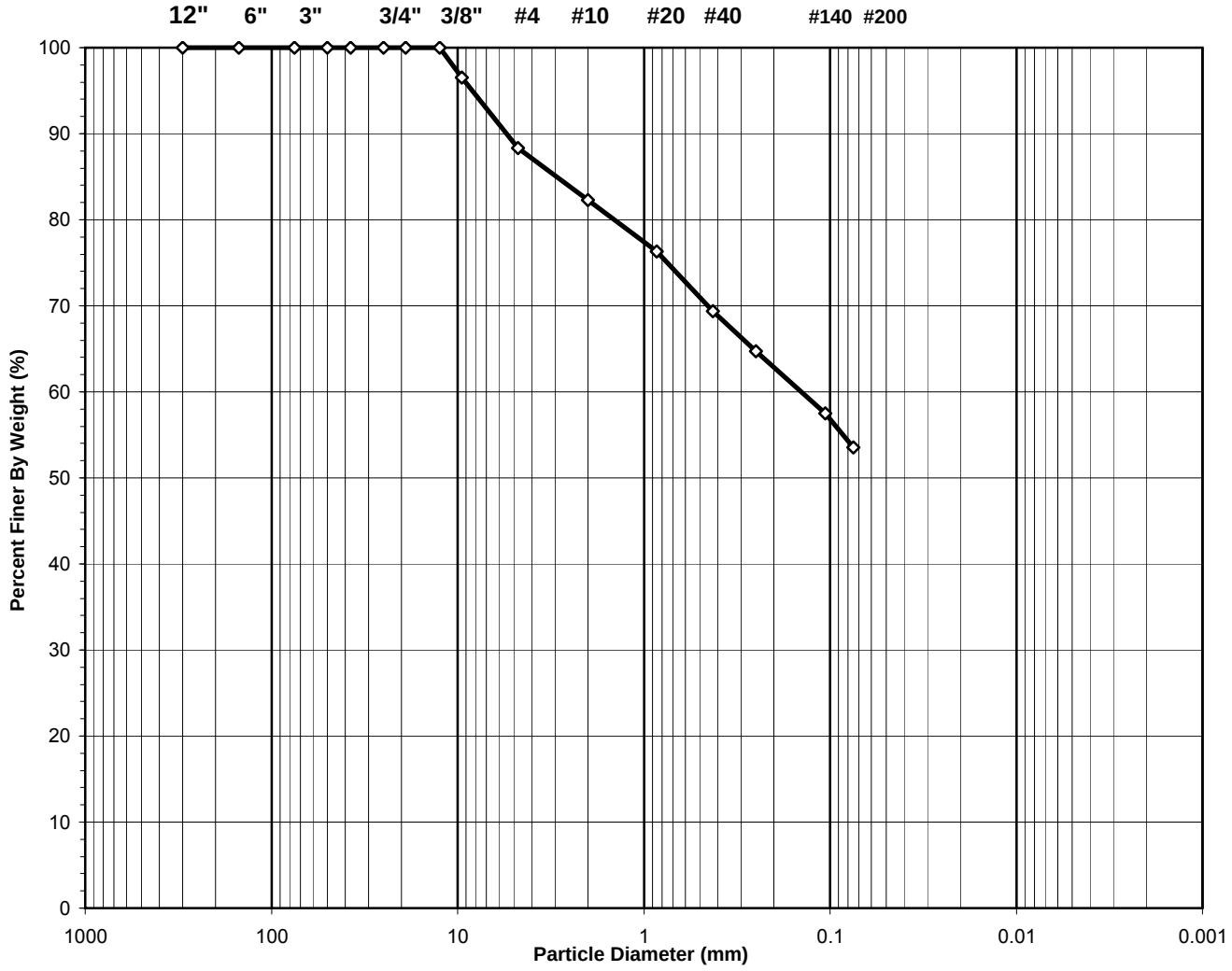
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-5
Lab ID:	2015-485-004-010	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SANDY SILT

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-5
Lab ID:	2015-485-004-010	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1437	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	350.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	318.60	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.77	Weight of Tare (g):	NA
Weight of Water (g):	32.10	Weight of Water (g):	NA
Weight of Dry Sample (g):	173.83	Weight of Dry Sample (g):	NA
Moisture Content (%):	**18.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	173.83
Dry Weight of - 3/4" Sample (g):	80.7	Weight of - #200 Material (g):	93.13
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	80.70
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	6.05	3.48	3.48	96.52	**96.52**
#4	4.75	14.23	8.19	11.67	88.33	**88.33**
#10	2.00	10.50	6.04	17.71	82.29	**82.29**
#20	0.850	10.34	5.95	23.66	76.34	**76.34**
#40	0.425	12.12	6.97	30.63	69.37	**69.37**
#60	0.250	8.07	4.64	35.27	64.73	**64.73**
#140	0.106	12.58	7.24	42.51	57.49	**57.49**
#200	0.075	6.81	3.92	46.42	53.58	**53.58**
Pan	-	93.13	53.58	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

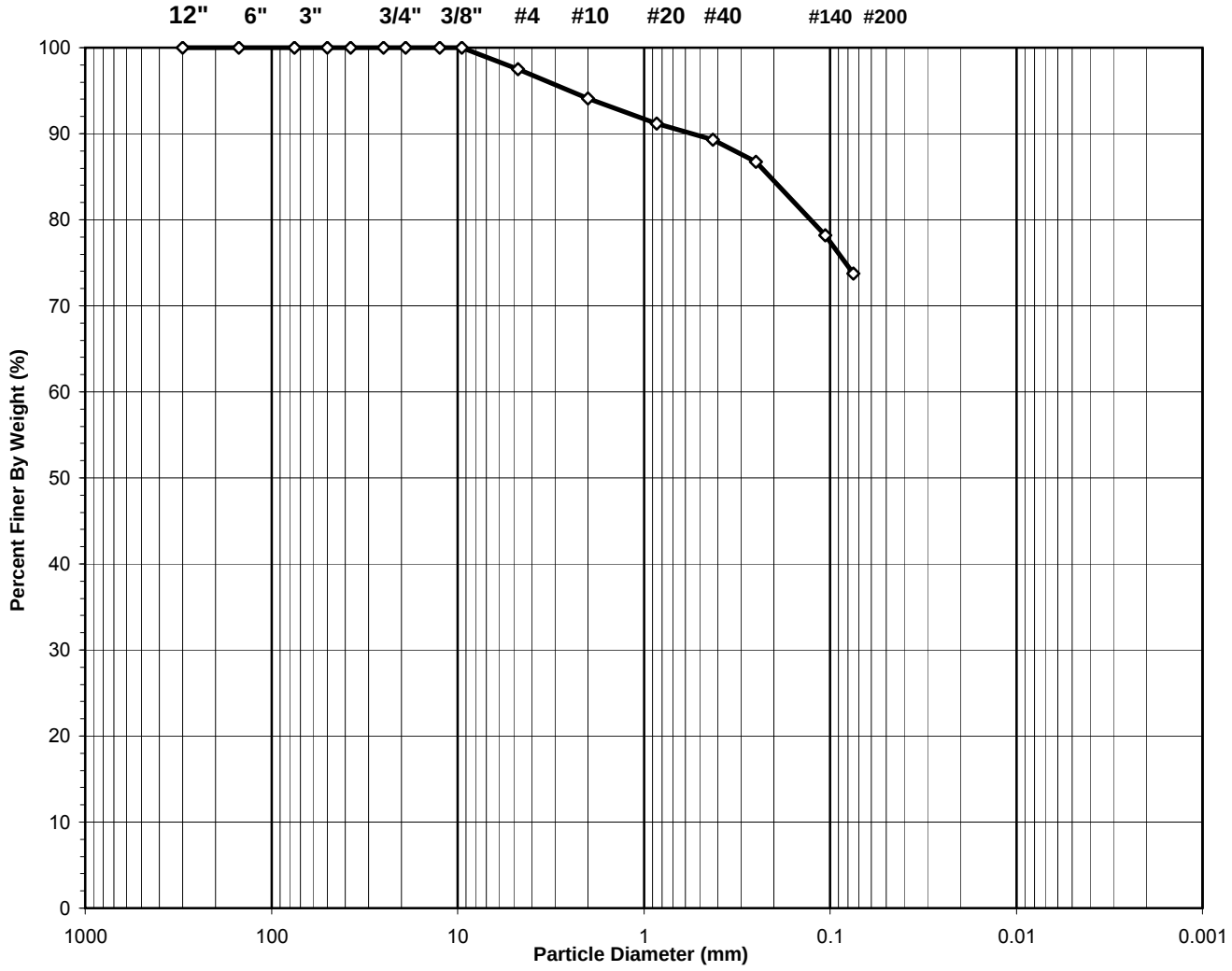
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-004	Sample No.:	SS-7
Lab ID:	2015-485-004-011	Soil Color:	Dark Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
cl, ASSUMED

USCS Classification:
LEAN CLAY WITH SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-004	Sample No.:	SS-7
Lab ID:	2015-485-004-011	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1429	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	226.40	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	211.66	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.86	Weight of Tare (g):	NA
Weight of Water (g):	14.74	Weight of Water (g):	NA
Weight of Dry Sample (g):	66.80	Weight of Dry Sample (g):	NA
Moisture Content (%):	**22.1**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	66.80
Dry Weight of - 3/4" Sample (g):	17.5	Weight of - #200 Material (g):	49.26
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	17.54
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.69	2.53	2.53	97.47	**97.47**
#10	2.00	2.24	3.35	5.88	94.12	**94.12**
#20	0.850	1.97	2.95	8.83	91.17	**91.17**
#40	0.425	1.23	1.84	10.67	89.33	**89.33**
#60	0.250	1.71	2.56	13.23	86.77	**86.77**
#140	0.106	5.73	8.58	21.81	78.19	**78.19**
#200	0.075	2.97	4.45	26.26	73.74	**73.74**
Pan	-	49.26	73.74	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.9-36.4
Project No.:	2015-485-004	Sample No.:	ST-3
Lab ID:	2015-485-004-012	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	6.72
Finer Than #200	*Silt & Clay*	93.28

USCS Symbol:
CL, TESTED

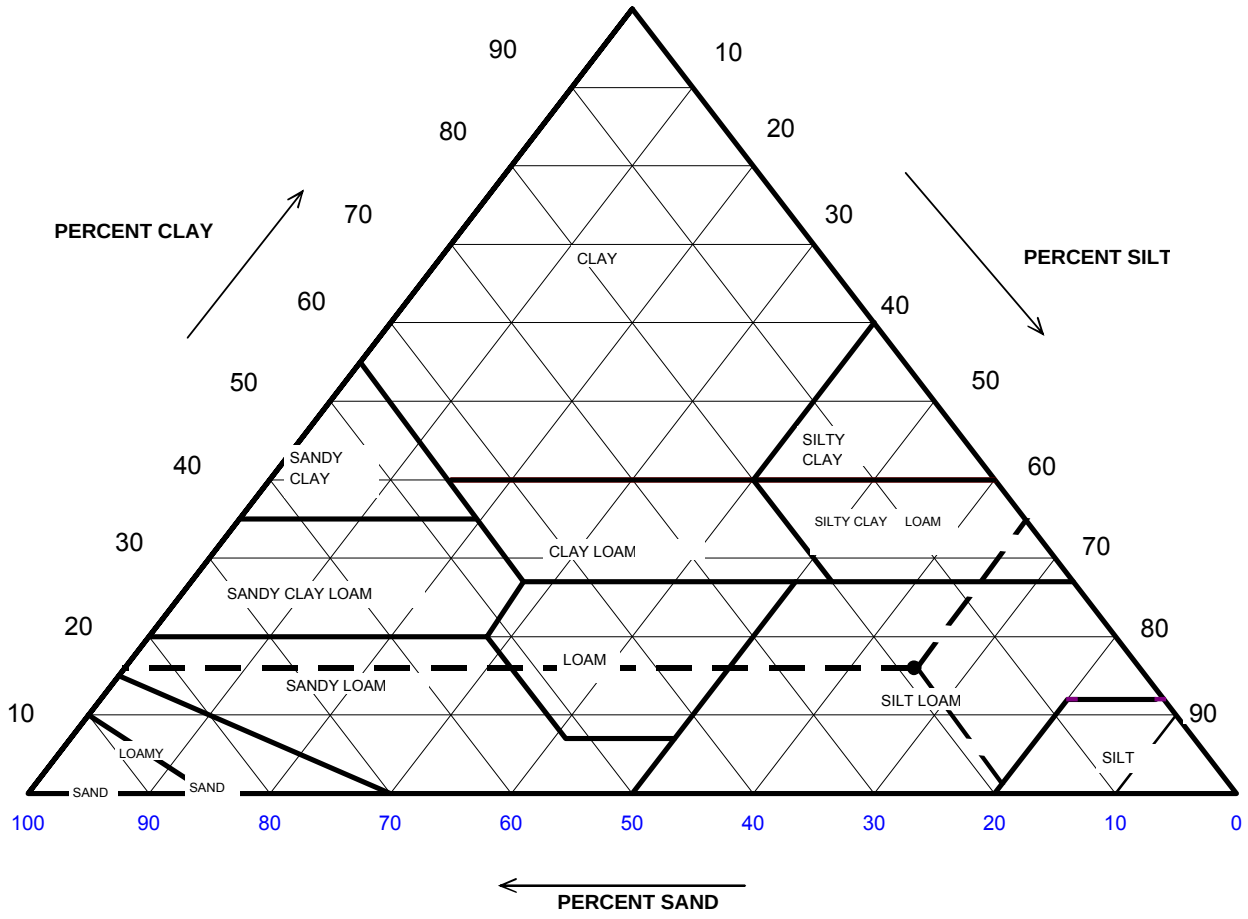
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.9-36.4
Project No.:	2015-485-004	Sample No.:	ST-3
Lab ID:	2015-485-004-012	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.04	**0.00**
2	99.96	*Sand*	18.65	**18.65**
0.05	81.31	*Silt*	65.29	**65.32**
0.002	16.02	*Clay*	16.02	**16.03**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.9-36.4
Project No.:	2015-485-004	Sample No.:	ST-3
Lab ID:	2015-485-004-012	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	8	Tare No.	NA
Weight of Tare & Wet Sample (g)	1008.46	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	856.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	201.38	Weight of Tare (g)	NA
Weight of Water (g)	152.16	Weight of Water (g)	NA
Weight of Dry Sample (g)	654.92	Weight of Dry Sample (g)	NA
Moisture Content (%)	**23.2**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	654.92
Dry Weight of -3/4" Sample (g)	44.00	Weight of - #200 Material (g)	610.92
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	44.00
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.26	0.04	0.04		99.96	**99.96**
#20	0.85	1.42	0.22	0.26		99.74	**99.74**
#40	0.425	1.54	0.24	0.49		99.51	**99.51**
#60	0.250	1.20	0.18	0.67		99.33	**99.33**
#140	0.106	14.85	2.27	2.94		97.06	**97.06**
#200	0.075	24.73	3.78	6.72		93.28	**93.28**
Pan	-	610.92	93.28	100.00		-	**-**

Tested By RAL Date 10/8/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	35.9-36.4
Project No.:	2015-485-004	Sample No.:	ST-3
Lab ID:	2015-485-004-012	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		43.0	22.5	6.18	36.8	68.9	0.01305	0.0281	**64.3**
5		33.0	22.5	6.18	26.8	50.2	0.01305	0.0193	**46.8**
15		23.0	22.5	6.18	16.8	31.5	0.01305	0.0119	**29.4**
30		20.5	22.5	6.18	14.3	26.8	0.01305	0.0086	**25.0**
60		18.0	22.4	6.22	11.8	22.0	0.01307	0.0062	**20.6**
250		16.0	22.5	6.18	9.8	18.4	0.01305	0.0031	**17.1**
1440		14.5	23	6.00	8.5	15.9	0.01297	0.0013	**14.8**

Soil Specimen Data		**Other Corrections**		
Tare No.	963			
Weight of Tare & Dry Material (g)	158.72	a - Factor	0.99	
Weight of Tare (g)	100.81			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	93.28	
Weight of Dry Material (g)	52.9			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/8/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

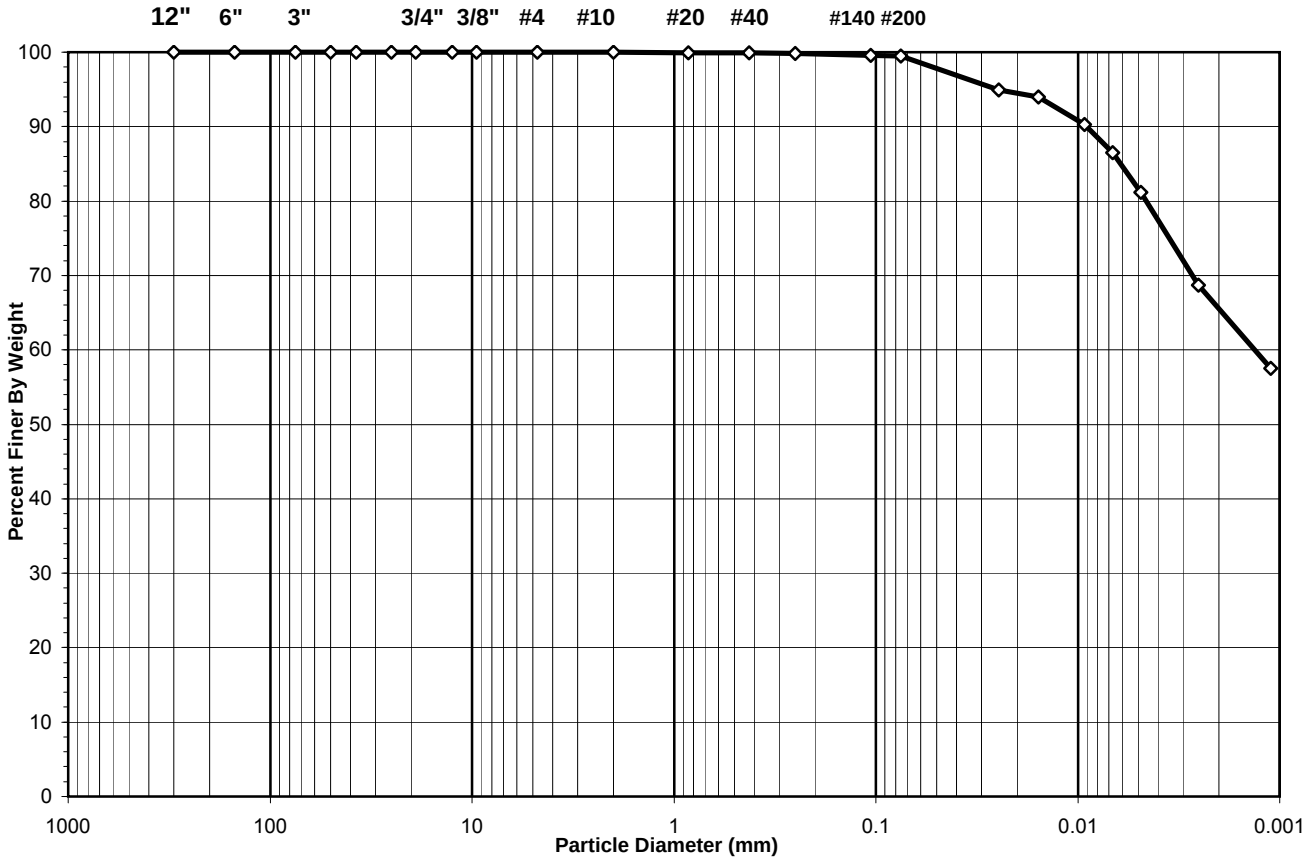
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-013	Soil Color:	Brown / Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	0.50
Finer Than #200	*Silt & Clay*	99.50

USCS Symbol:
CH, TESTED

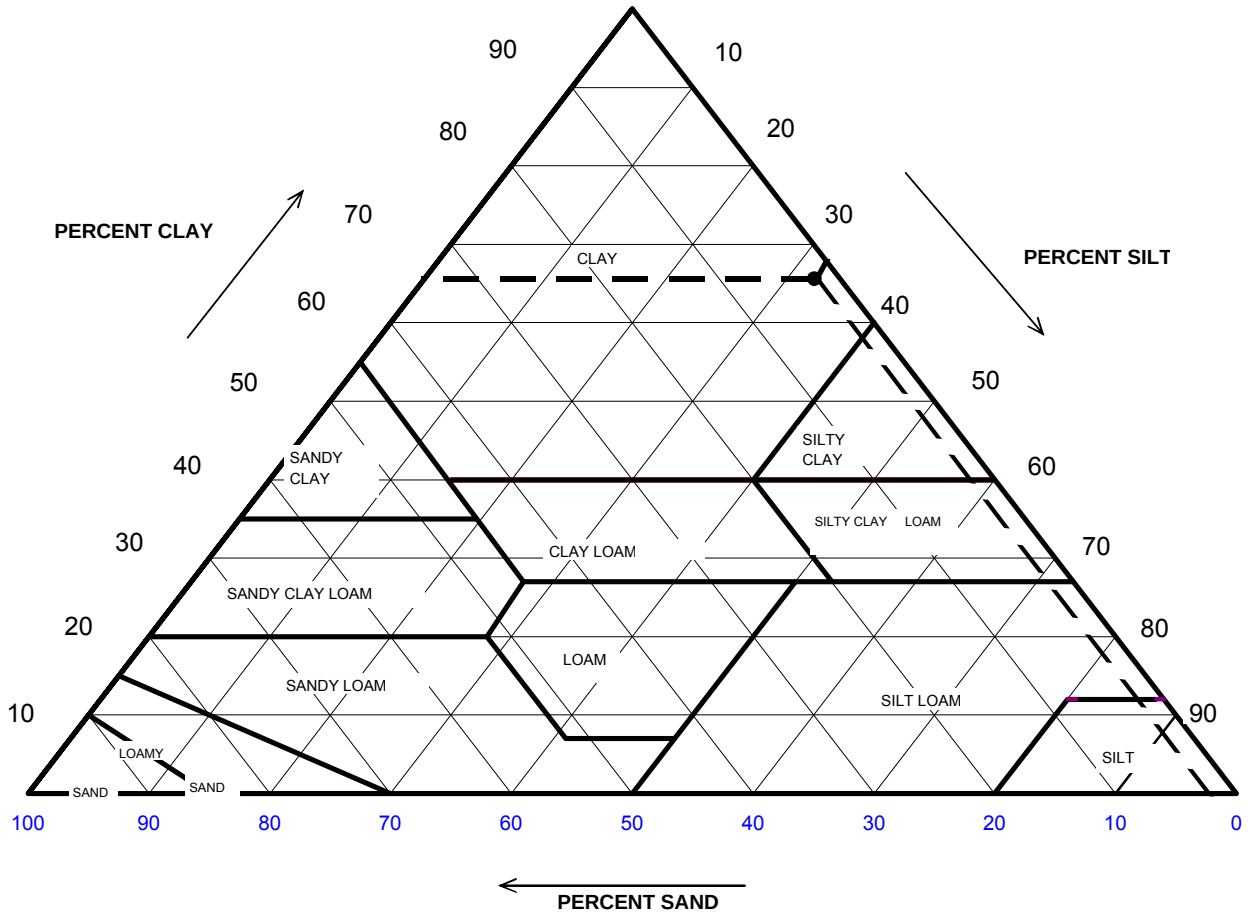
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-013	Soil Color:	Brown / Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.04	**0.00**
2	99.96	*Sand*	2.12	**2.12**
0.05	97.84	*Silt*	32.25	**32.27**
0.002	65.59	*Clay*	65.59	**65.61**

USDA Classification: ***CLAY***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-013	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1427	Tare No.	NA
Weight of Tare & Wet Sample (g)	400.30	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	309.37	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.62	Weight of Tare (g)	NA
Weight of Water (g)	90.93	Weight of Water (g)	NA
Weight of Dry Sample (g)	163.75	Weight of Dry Sample (g)	NA
Moisture Content (%)	**55.5**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	163.75
Dry Weight of -3/4" Sample (g)	0.82	Weight of - #200 Material (g)	162.93
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	0.82
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.07	0.04	0.04		99.96	**99.96**
#20	0.85	0.11	0.07	0.11		99.89	**99.89**
#40	0.425	0.01	0.01	0.12		99.88	**99.88**
#60	0.250	0.10	0.06	0.18		99.82	**99.82**
#140	0.106	0.40	0.24	0.42		99.58	**99.58**
#200	0.075	0.13	0.08	0.50		99.50	**99.50**
Pan	-	162.93	99.50	100.00		-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-013	Soil Color:	Brown / Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		57.5	20.7	6.83	50.7	95.4	0.01333	0.0247	**94.9**
5		57.0	20.7	6.83	50.2	94.5	0.01333	0.0157	**94.0**
15		55.0	20.7	6.83	48.2	90.7	0.01333	0.0093	**90.3**
30		53.0	20.7	6.83	46.2	87.0	0.01333	0.0067	**86.5**
60		50.0	21.1	6.68	43.3	81.6	0.01327	0.0049	**81.2**
250		43.0	22.1	6.33	36.7	69.1	0.01311	0.0025	**68.7**
1440		37.0	22.2	6.29	30.7	57.8	0.01310	0.0011	**57.5**

Soil Specimen Data		**Other Corrections**		
Tare No.	528			
Weight of Tare & Dry Material (g)	149.93	a - Factor	0.99	
Weight of Tare (g)	92.36			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	99.50	
Weight of Dry Material (g)	52.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

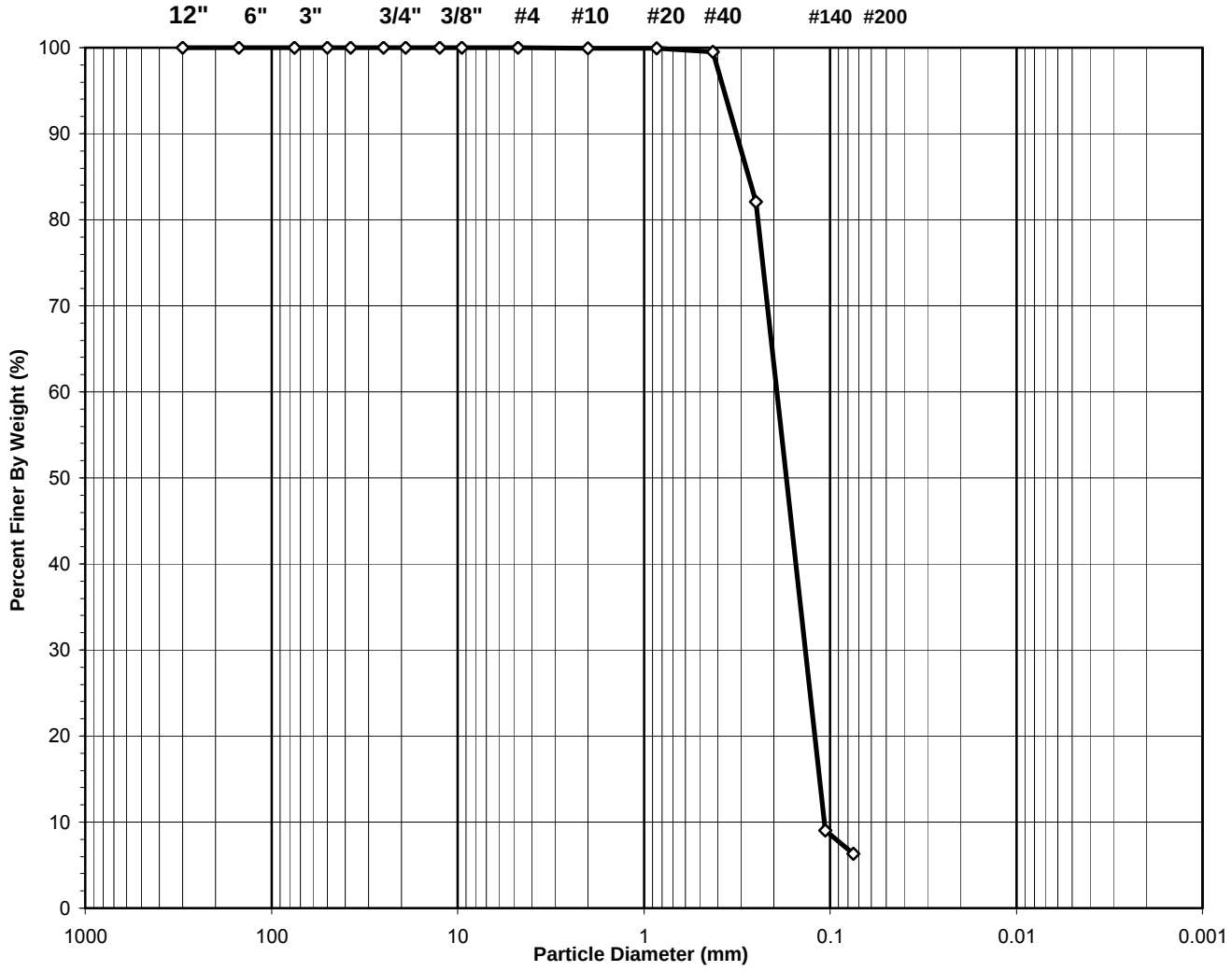
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	73.5-75.0
Project No.:	2015-485-004	Sample No.:	SS-17
Lab ID:	2015-485-004-014	Soil Color:	Brown / Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.19 **CC = 0.89**

D30 = 0.14 **CU = 1.80**

D10 = 0.11

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-3
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	73.5-75.0
Project No.:	2015-485-004	Sample No.:	SS-17
Lab ID:	2015-485-004-014	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	679	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	377.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	327.97	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	95.02	Weight of Tare (g):	NA
Weight of Water (g):	49.73	Weight of Water (g):	NA
Weight of Dry Sample (g):	232.95	Weight of Dry Sample (g):	NA
Moisture Content (%):	**21.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	232.95
Dry Weight of - 3/4" Sample (g):	218.3	Weight of - #200 Material (g):	14.70
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	218.25
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.11	0.05	0.05	99.95	**99.95**
#20	0.850	0.08	0.03	0.08	99.92	**99.92**
#40	0.425	1.02	0.44	0.52	99.48	**99.48**
#60	0.250	40.58	17.42	17.94	82.06	**82.06**
#140	0.106	170.19	73.06	91.00	9.00	**9.00**
#200	0.075	6.27	2.69	93.69	6.31	**6.31**
Pan	-	14.70	6.31	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-4
Lab ID:	2015-485-004-015	Soil Color:	Gray / Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary		
Sieve Sizes (mm)		**Percentage**
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	18.17
Finer Than #200	*Silt & Clay*	81.83

USCS Symbol:

cl, ASSUMED

USCS Classification:

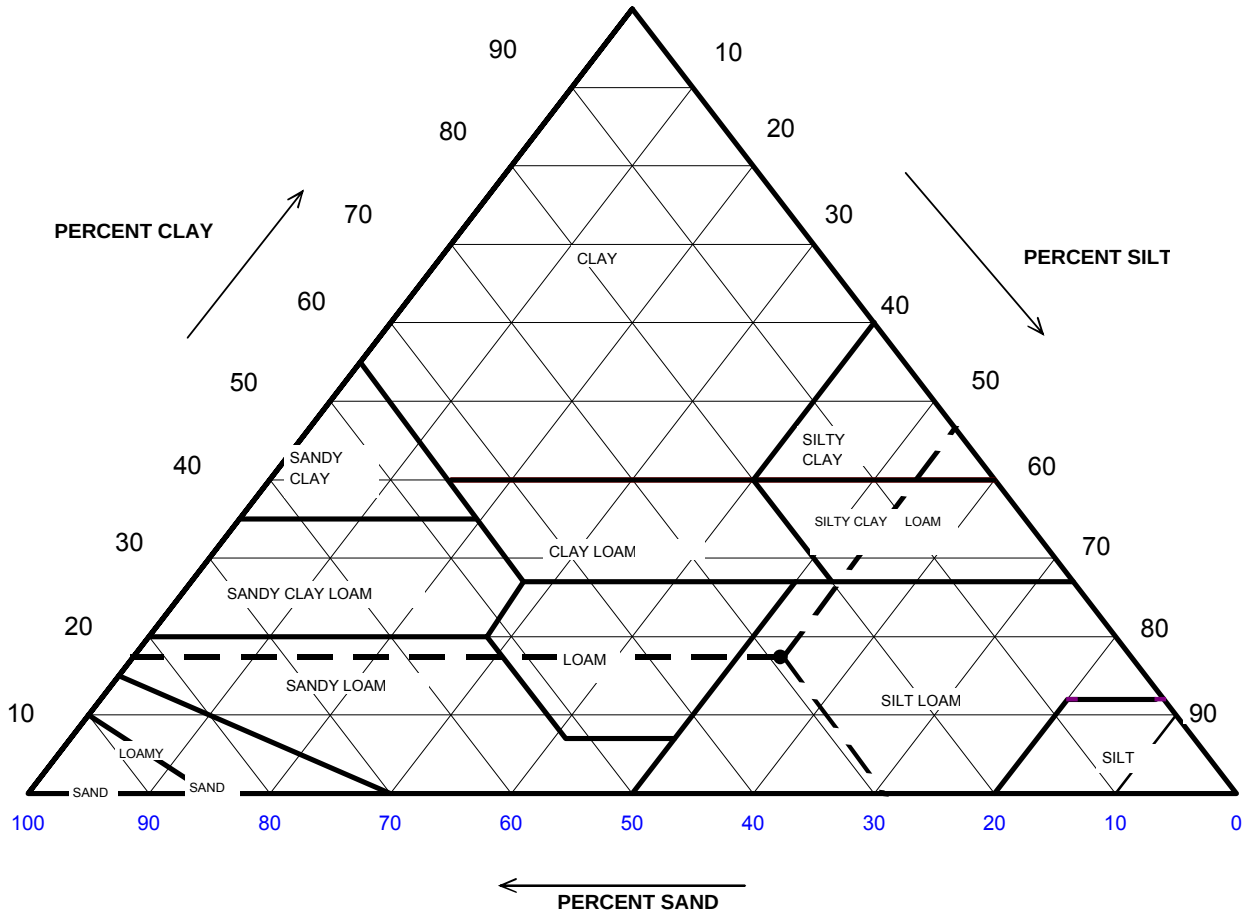
LEAN CLAY WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-4
Lab ID:	2015-485-004-015	Soil Color:	Gray / Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	29.02	**29.02**
0.05	70.98	*Silt*	53.63	**53.63**
0.002	17.35	*Clay*	17.35	**17.35**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-4
Lab ID:	2015-485-004-015	Soil Color:	Gray / Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	2343	Tare No.	NA
Weight of Tare & Wet Sample (g)	497.30	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	409.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	93.48	Weight of Tare (g)	NA
Weight of Water (g)	88.00	Weight of Water (g)	NA
Weight of Dry Sample (g)	315.82	Weight of Dry Sample (g)	NA
Moisture Content (%)	**27.9**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	315.82
Dry Weight of -3/4" Sample (g)	57.40	Weight of - #200 Material (g)	258.42
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	57.40
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.49	0.16	0.16		99.84	**99.84**
#40	0.425	1.75	0.55	0.71		99.29	**99.29**
#60	0.250	7.33	2.32	3.03		96.97	**96.97**
#140	0.106	31.42	9.95	12.98		87.02	**87.02**
#200	0.075	16.41	5.20	18.17		81.83	**81.83**
Pan	-	258.42	81.83	100.00		-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.5-15.0
Project No.:	2015-485-004	Sample No.:	SS-4
Lab ID:	2015-485-004-015	Soil Color:	Gray / Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		39.5	20.7	6.83	32.7	69.5	0.01333	0.0295	**56.9**
5		31.5	20.7	6.83	24.7	52.5	0.01333	0.0199	**43.0**
20		22.5	20.7	6.83	15.7	33.4	0.01333	0.0106	**27.3**
30		20.5	20.7	6.83	13.7	29.1	0.01333	0.0088	**23.8**
60		19.5	21.1	6.68	12.8	27.3	0.01327	0.0062	**22.3**
250		17.0	22.1	6.33	10.7	22.7	0.01311	0.0030	**18.6**
1440		15.5	22.2	6.29	9.2	19.6	0.01310	0.0013	**16.0**

Soil Specimen Data		**Other Corrections**		
Tare No.	644			
Weight of Tare & Dry Material (g)	151.17	a - Factor	0.99	
Weight of Tare (g)	99.66			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	81.83	
Weight of Dry Material (g)	46.5			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.2-31.7
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-016	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.03
#4 To #200	*Sand*	0.88
Finer Than #200	*Silt & Clay*	99.09

USCS Symbol:
CL, TESTED

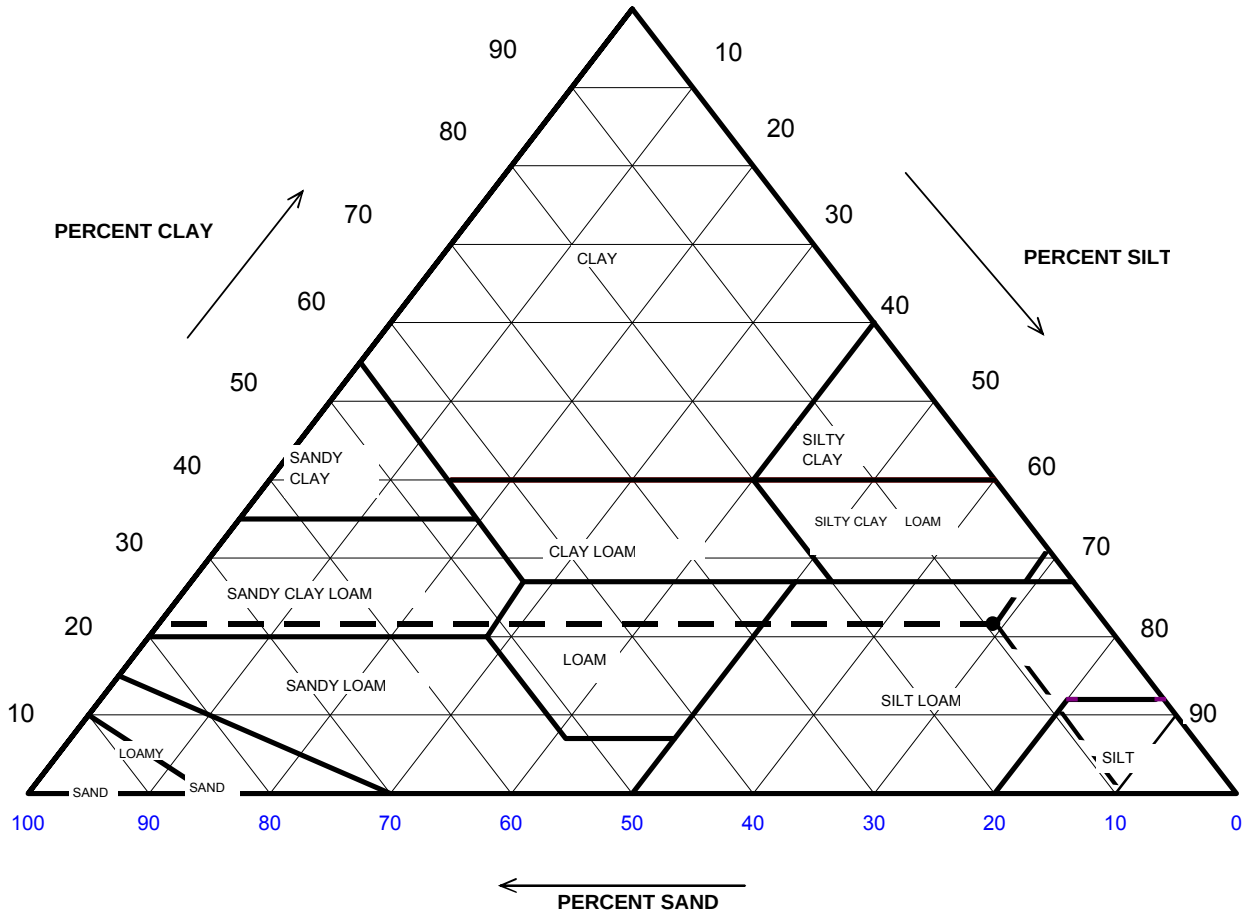
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.2-31.7
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-016	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.23	**0.00**
2	99.77	*Sand*	9.31	**9.33**
0.05	90.46	*Silt*	68.88	**69.04**
0.002	21.58	*Clay*	21.58	**21.63**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.2-31.7
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-016	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1445	Tare No.	NA
Weight of Tare & Wet Sample (g)	741.60	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	553.20	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	146.37	Weight of Tare (g)	NA
Weight of Water (g)	188.40	Weight of Water (g)	NA
Weight of Dry Sample (g)	406.83	Weight of Dry Sample (g)	NA
Moisture Content (%)	**46.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	406.83
Dry Weight of -3/4" Sample (g)	3.71	Weight of - #200 Material (g)	403.12
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	3.71
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.14	0.03	0.03		99.97	**99.97**
#10	2.00	0.79	0.19	0.23		99.77	**99.77**
#20	0.85	1.13	0.28	0.51		99.49	**99.49**
#40	0.425	0.32	0.08	0.59		99.41	**99.41**
#60	0.250	0.17	0.04	0.63		99.37	**99.37**
#140	0.106	0.35	0.09	0.71		99.29	**99.29**
#200	0.075	0.81	0.20	0.91		99.09	**99.09**
Pan	-	403.12	99.09	100.00		-	**-**

Tested By AMC Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.2-31.7
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-016	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		39.5	23.4	5.86	33.6	79.3	0.01291	0.0286	**78.6**
5		32.0	23.4	5.86	26.1	61.6	0.01291	0.0192	**61.1**
15		25.5	23.4	5.86	19.6	46.3	0.01291	0.0116	**45.9**
30		22.0	23.4	5.86	16.1	38.1	0.01291	0.0084	**37.7**
60		19.5	23.3	5.89	13.6	32.1	0.01293	0.0060	**31.8**
250		16.0	22.9	6.04	10.0	23.5	0.01299	0.0030	**23.3**
1440		14.5	22.9	6.04	8.5	20.0	0.01299	0.0013	**19.8**

Soil Specimen Data		**Other Corrections**		
Tare No.	949			
Weight of Tare & Dry Material (g)	144.21	a - Factor	0.99	
Weight of Tare (g)	97.22			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	99.09	
Weight of Dry Material (g)	42.0			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

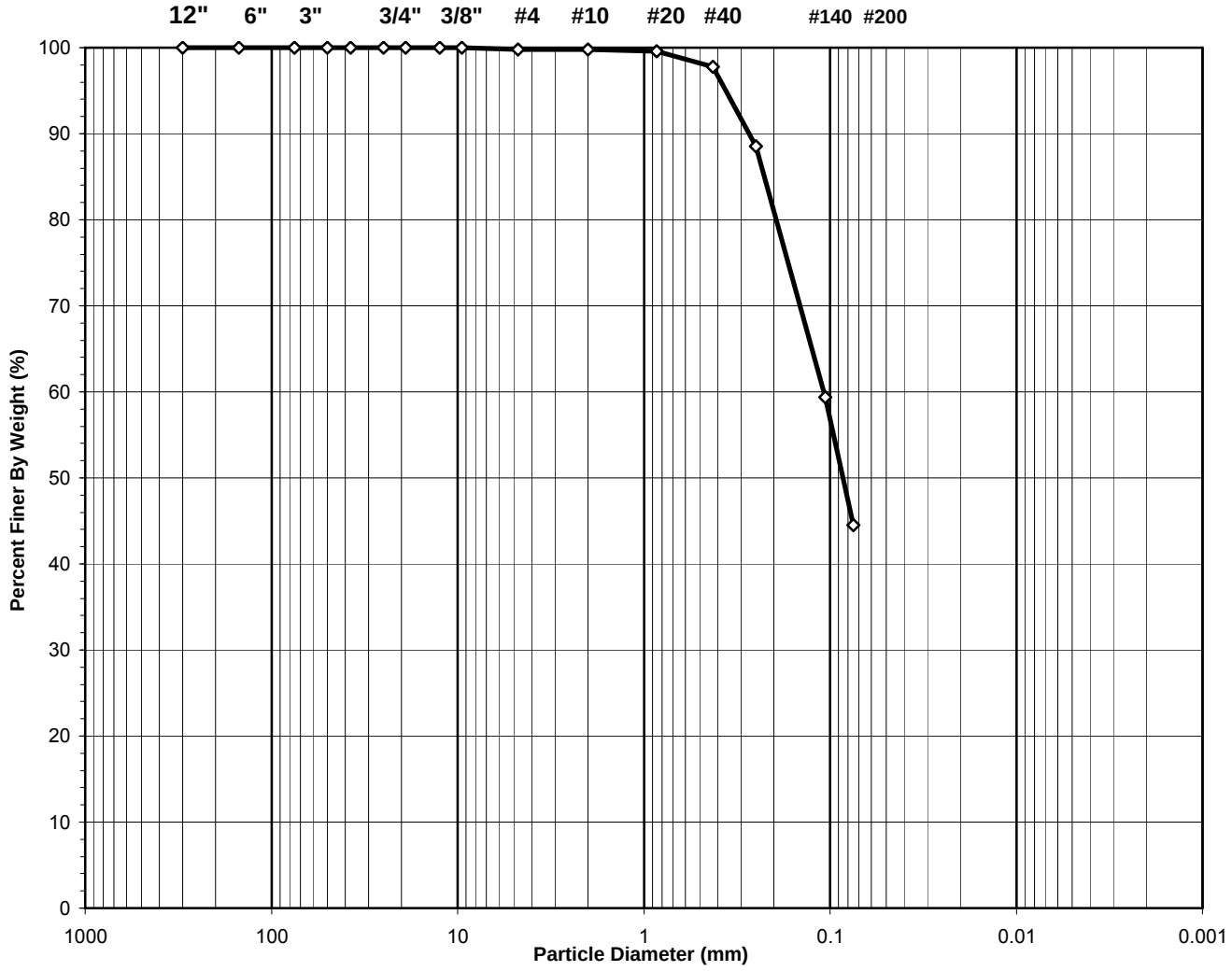
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-11
Lab ID:	2015-485-004-018	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-004	Sample No.:	SS-11
Lab ID:	2015-485-004-018	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	301	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	655.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	523.00	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	105.97	Weight of Tare (g):	NA
Weight of Water (g):	132.70	Weight of Water (g):	NA
Weight of Dry Sample (g):	417.03	Weight of Dry Sample (g):	NA
Moisture Content (%):	**31.8**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	417.03
Dry Weight of - 3/4" Sample (g):	231.4	Weight of - #200 Material (g):	185.64
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	231.39
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.88	0.21	0.21	99.79	**99.79**
#10	2.00	0.09	0.02	0.23	99.77	**99.77**
#20	0.850	0.90	0.22	0.45	99.55	**99.55**
#40	0.425	7.35	1.76	2.21	97.79	**97.79**
#60	0.250	38.63	9.26	11.47	88.53	**88.53**
#140	0.106	121.70	29.18	40.66	59.34	**59.34**
#200	0.075	61.84	14.83	55.49	44.51	**44.51**
Pan	-	185.64	44.51	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	53.5-55.0
Project No.:	2015-485-004	Sample No.:	SS-12
Lab ID:	2015-485-004-019	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**

USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-4
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	53.5-55.0
Project No.:	2015-485-004	Sample No.:	SS-12
Lab ID:	2015-485-004-019	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	929	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	694.40	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	605.10	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	100.14	Weight of Tare (g):	NA
Weight of Water (g):	89.30	Weight of Water (g):	NA
Weight of Dry Sample (g):	504.96	Weight of Dry Sample (g):	NA
Moisture Content (%):	**17.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	504.96
Dry Weight of - 3/4" Sample (g):	390.6	Weight of - #200 Material (g):	114.38
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	390.58
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.57	0.11	0.11	99.89	**99.89**
#20	0.850	2.41	0.48	0.59	99.41	**99.41**
#40	0.425	12.04	2.38	2.97	97.03	**97.03**
#60	0.250	67.76	13.42	16.39	83.61	**83.61**
#140	0.106	230.47	45.64	62.03	37.97	**37.97**
#200	0.075	77.33	15.31	77.35	22.65	**22.65**
Pan	-	114.38	22.65	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-020	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	6.55
#4 To #200	*Sand*	36.36
Finer Than #200	*Silt & Clay*	57.09

USCS Symbol:

ml, ASSUMED

USCS Classification:

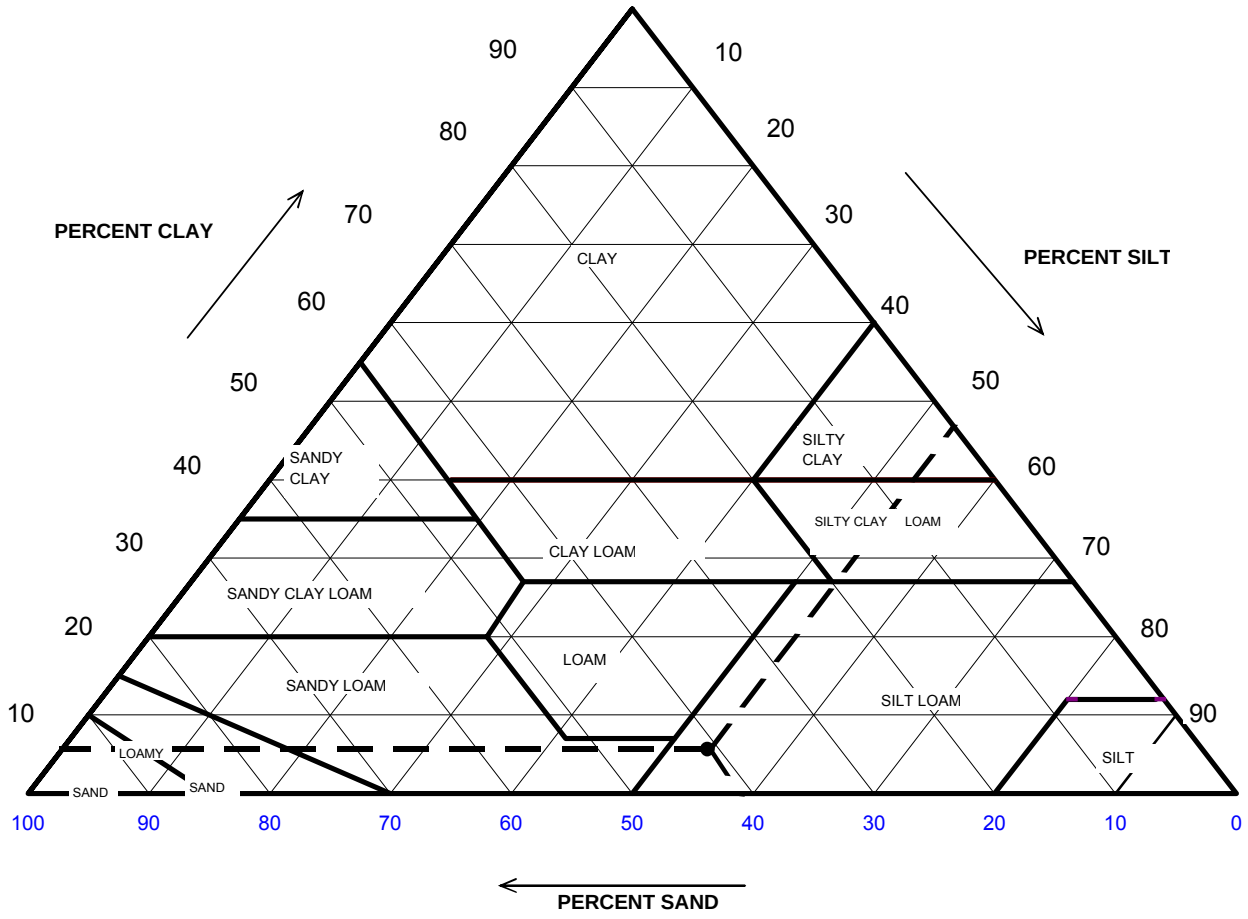
SANDY SILT

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-020	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	14.99	**0.00**
2	85.01	*Sand*	34.80	**40.93**
0.05	50.21	*Silt*	45.40	**53.40**
0.002	4.82	*Clay*	4.82	**5.66**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-020	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	889	Tare No.	NA
Weight of Tare & Wet Sample (g)	470.70	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	399.92	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	100.62	Weight of Tare (g)	NA
Weight of Water (g)	70.78	Weight of Water (g)	NA
Weight of Dry Sample (g)	299.30	Weight of Dry Sample (g)	NA
Moisture Content (%)	**23.6**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	299.30
Dry Weight of -3/4" Sample (g)	128.44	Weight of - #200 Material (g)	170.86
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	128.44
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	1.92	0.64	0.64		99.36	**99.36**
#4	4.75	17.69	5.91	6.55		93.45	**93.45**
#10	2.00	25.25	8.44	14.99		85.01	**85.01**
#20	0.85	22.24	7.43	22.42		77.58	**77.58**
#40	0.425	15.42	5.15	27.57		72.43	**72.43**
#60	0.250	11.29	3.77	31.34		68.66	**68.66**
#140	0.106	20.75	6.93	38.28		61.72	**61.72**
#200	0.075	13.88	4.64	42.91		57.09	**57.09**
Pan	-	170.86	57.09	100.00		-	**-**

Tested By RAL Date 10/8/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-020	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		41.0	22.5	6.18	34.8	71.3	0.01305	0.0286	**40.7**
5		34.5	22.5	6.18	28.3	58.0	0.01305	0.0190	**33.1**
16		25.5	22.5	6.18	19.3	39.6	0.01305	0.0114	**22.6**
30		20.5	22.5	6.18	14.3	29.3	0.01305	0.0086	**16.7**
60		16.5	22.4	6.22	10.3	21.1	0.01307	0.0062	**12.0**
250		11.5	22.5	6.18	5.3	10.9	0.01305	0.0031	**6.2**
1440		9.0	23	6.00	3.0	6.1	0.01297	0.0013	**3.5**

Soil Specimen Data		**Other Corrections**		
Tare No.	925			
Weight of Tare & Dry Material (g)	153.10	a - Factor	0.99	
Weight of Tare (g)	99.77			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	57.09	
Weight of Dry Material (g)	48.3			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/8/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

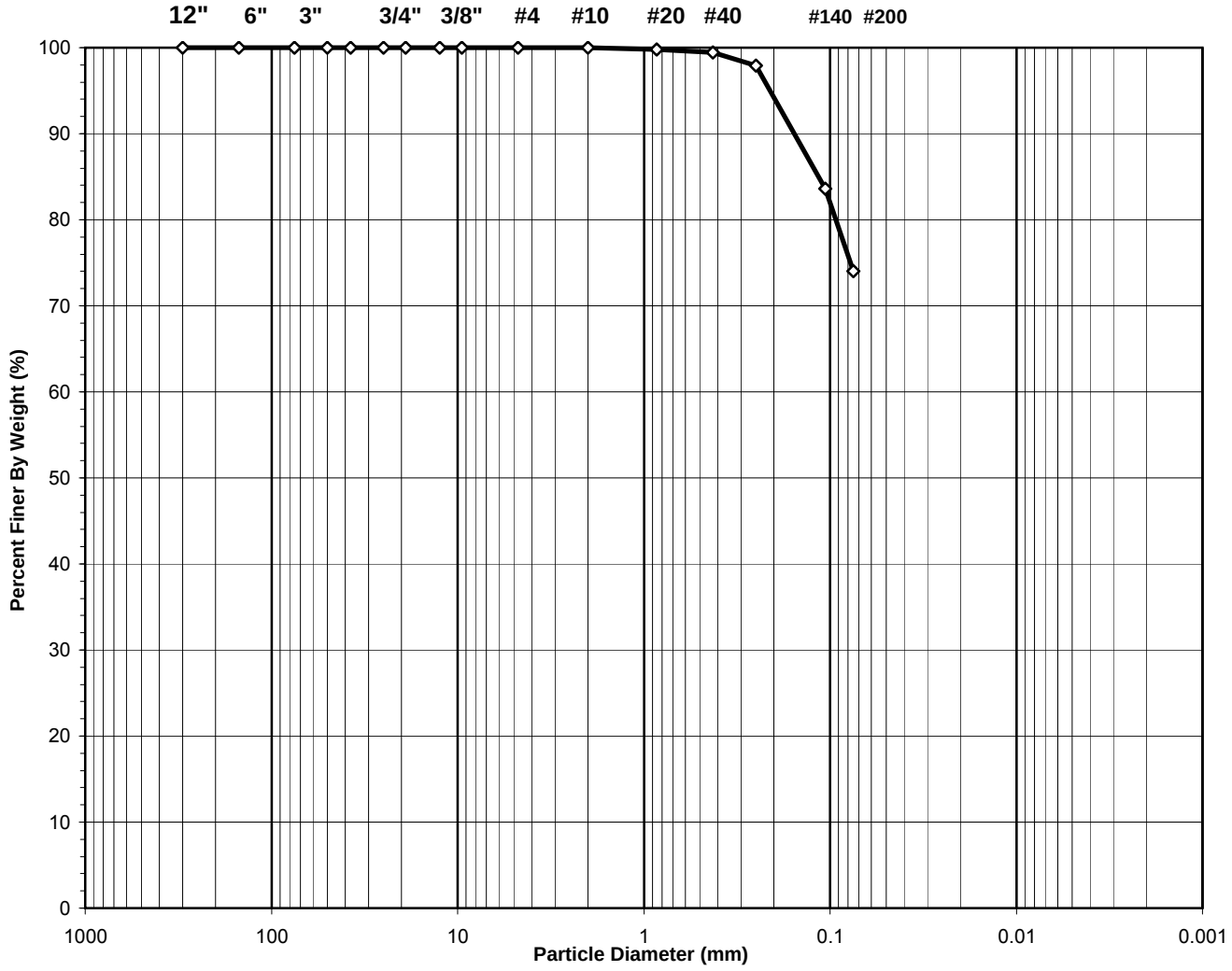
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	38.5-40.0
Project No.:	2015-485-004	Sample No.:	SS-10
Lab ID:	2015-485-004-021	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
CL-ML, TESTED

USCS Classification:
SILTY CLAY WITH SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	38.5-40.0
Project No.:	2015-485-004	Sample No.:	SS-10
Lab ID:	2015-485-004-021	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	503	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	659.90	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	544.20	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	93.31	Weight of Tare (g):	NA
Weight of Water (g):	115.70	Weight of Water (g):	NA
Weight of Dry Sample (g):	450.89	Weight of Dry Sample (g):	NA
Moisture Content (%):	**25.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	450.89
Dry Weight of - 3/4" Sample (g):	117.0	Weight of - #200 Material (g):	333.94
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	116.95
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.12	0.03	0.03	99.97	**99.97**
#20	0.850	0.77	0.17	0.20	99.80	**99.80**
#40	0.425	1.63	0.36	0.56	99.44	**99.44**
#60	0.250	6.85	1.52	2.08	97.92	**97.92**
#140	0.106	64.39	14.28	16.36	83.64	**83.64**
#200	0.075	43.19	9.58	25.94	74.06	**74.06**
Pan	-	333.94	74.06	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	55.0-55.5
Project No.:	2015-485-004	Sample No.:	ST-5
Lab ID:	2015-485-004-022	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	1.68
Finer Than #200	*Silt & Clay*	98.32

USCS Symbol:
CL, TESTED

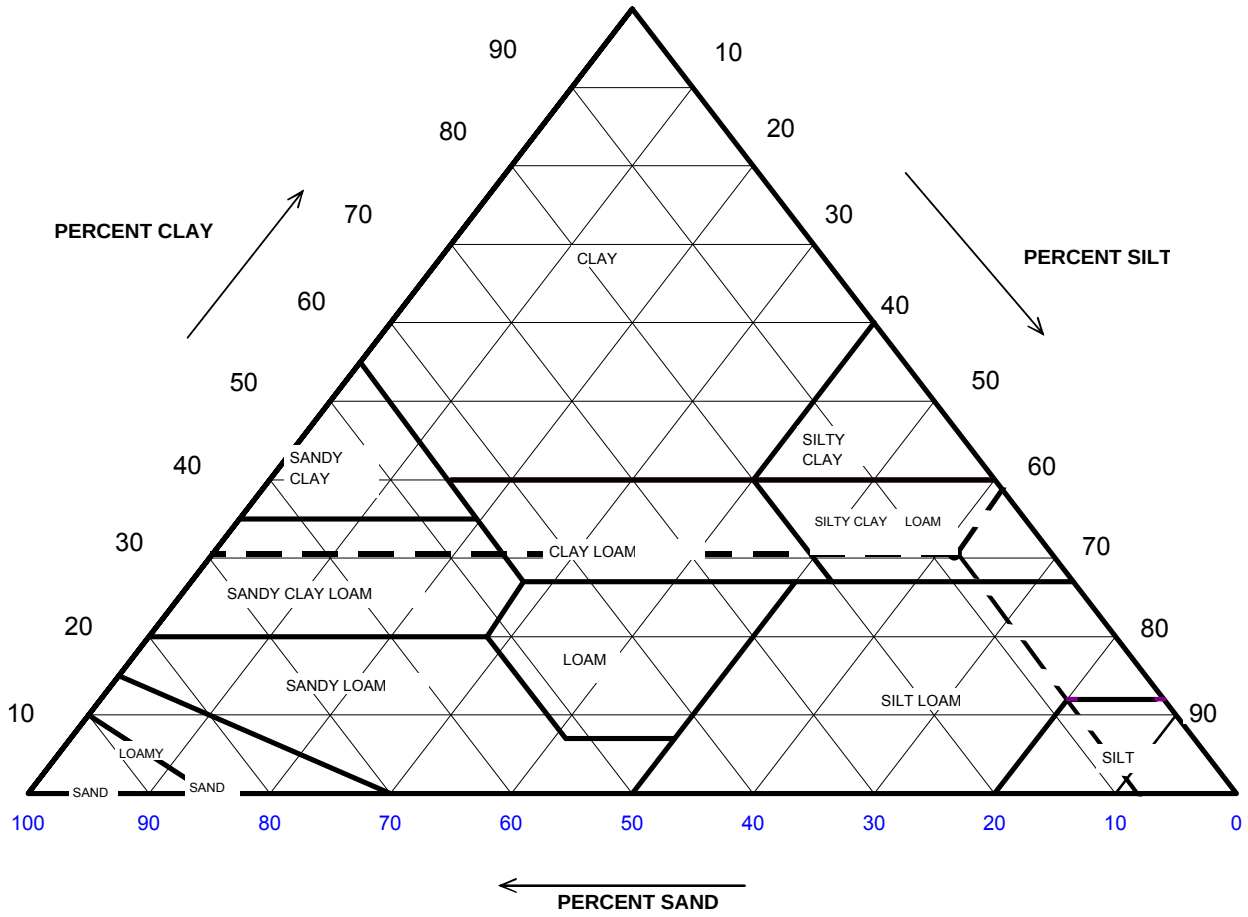
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	55.0-55.5
Project No.:	2015-485-004	Sample No.:	ST-5
Lab ID:	2015-485-004-022	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.01	**0.00**
2	99.99	*Sand*	8.03	**8.03**
0.05	91.96	*Silt*	61.40	**61.41**
0.002	30.56	*Clay*	30.56	**30.56**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	55.0-55.5
Project No.:	2015-485-004	Sample No.:	ST-5
Lab ID:	2015-485-004-022	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	2324	Tare No.	NA
Weight of Tare & Wet Sample (g)	551.05	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	415.03	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	97.71	Weight of Tare (g)	NA
Weight of Water (g)	136.02	Weight of Water (g)	NA
Weight of Dry Sample (g)	317.32	Weight of Dry Sample (g)	NA
Moisture Content (%)	**42.9**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	317.32
Dry Weight of -3/4" Sample (g)	5.34	Weight of - #200 Material (g)	311.98
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	5.34
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.04	0.01	0.01		99.99	**99.99**
#20	0.85	0.03	0.01	0.02		99.98	**99.98**
#40	0.425	0.07	0.02	0.04		99.96	**99.96**
#60	0.250	0.10	0.03	0.08		99.92	**99.92**
#140	0.106	1.06	0.33	0.41		99.59	**99.59**
#200	0.075	4.04	1.27	1.68		98.32	**98.32**
Pan	-	311.98	98.32	100.00		-	**-**

Tested By PC Date 9/28/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	55.0-55.5
Project No.:	2015-485-004	Sample No.:	ST-5
Lab ID:	2015-485-004-022	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		29.5	22.7	6.11	23.4	86.0	0.01302	0.0312	**84.5**
5		26.5	22.7	6.11	20.4	75.0	0.01302	0.0201	**73.7**
16		21.5	22.7	6.11	15.4	56.6	0.01302	0.0116	**55.6**
32		20.5	22.7	6.11	14.4	52.9	0.01302	0.0083	**52.0**
71		17.0	22.8	6.07	10.9	40.2	0.01300	0.0057	**39.5**
250		15.0	22.6	6.15	8.9	32.6	0.01303	0.0031	**32.0**
1440		14.0	23.1	5.97	8.0	29.5	0.01296	0.0013	**29.0**

Soil Specimen Data		**Other Corrections**		
Tare No.	927			
Weight of Tare & Dry Material (g)	129.95	a - Factor	0.99	
Weight of Tare (g)	98.02			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	98.32	
Weight of Dry Material (g)	26.9			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

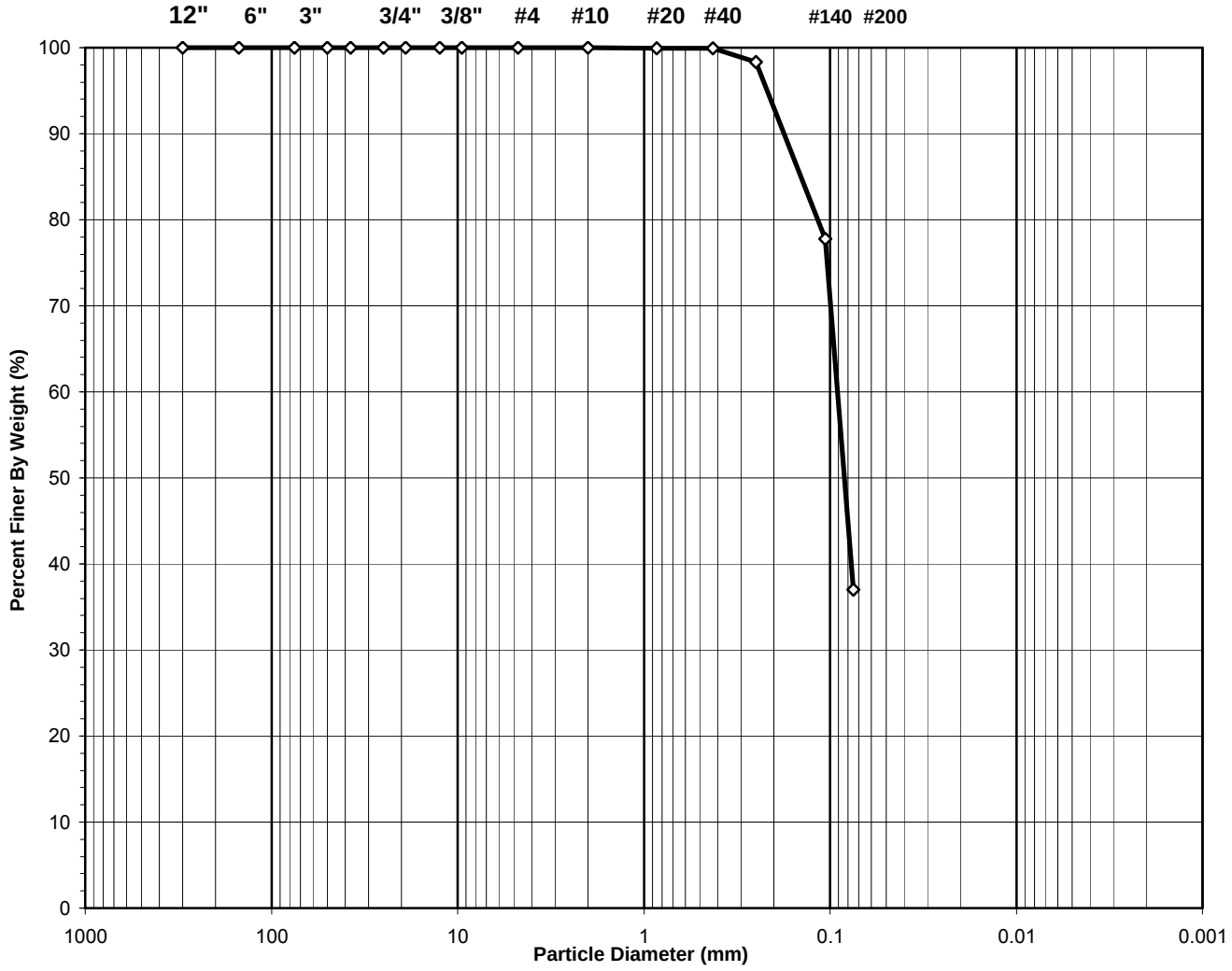
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-023	Soil Color:	Gray / Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-023	Soil Color:	Gray / Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	958	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	489.50	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	411.20	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	97.44	Weight of Tare (g):	NA
Weight of Water (g):	78.30	Weight of Water (g):	NA
Weight of Dry Sample (g):	313.76	Weight of Dry Sample (g):	NA
Moisture Content (%):	**25.0**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	313.76
Dry Weight of - 3/4" Sample (g):	197.6	Weight of - #200 Material (g):	116.14
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	197.62
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.01	0.00	0.00	100.00	**100.00**
#20	0.850	0.11	0.04	0.04	99.96	**99.96**
#40	0.425	0.20	0.06	0.10	99.90	**99.90**
#60	0.250	4.89	1.56	1.66	98.34	**98.34**
#140	0.106	64.46	20.54	22.20	77.80	**77.80**
#200	0.075	127.95	40.78	62.98	37.02	**37.02**
Pan	-	116.14	37.02	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/12/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

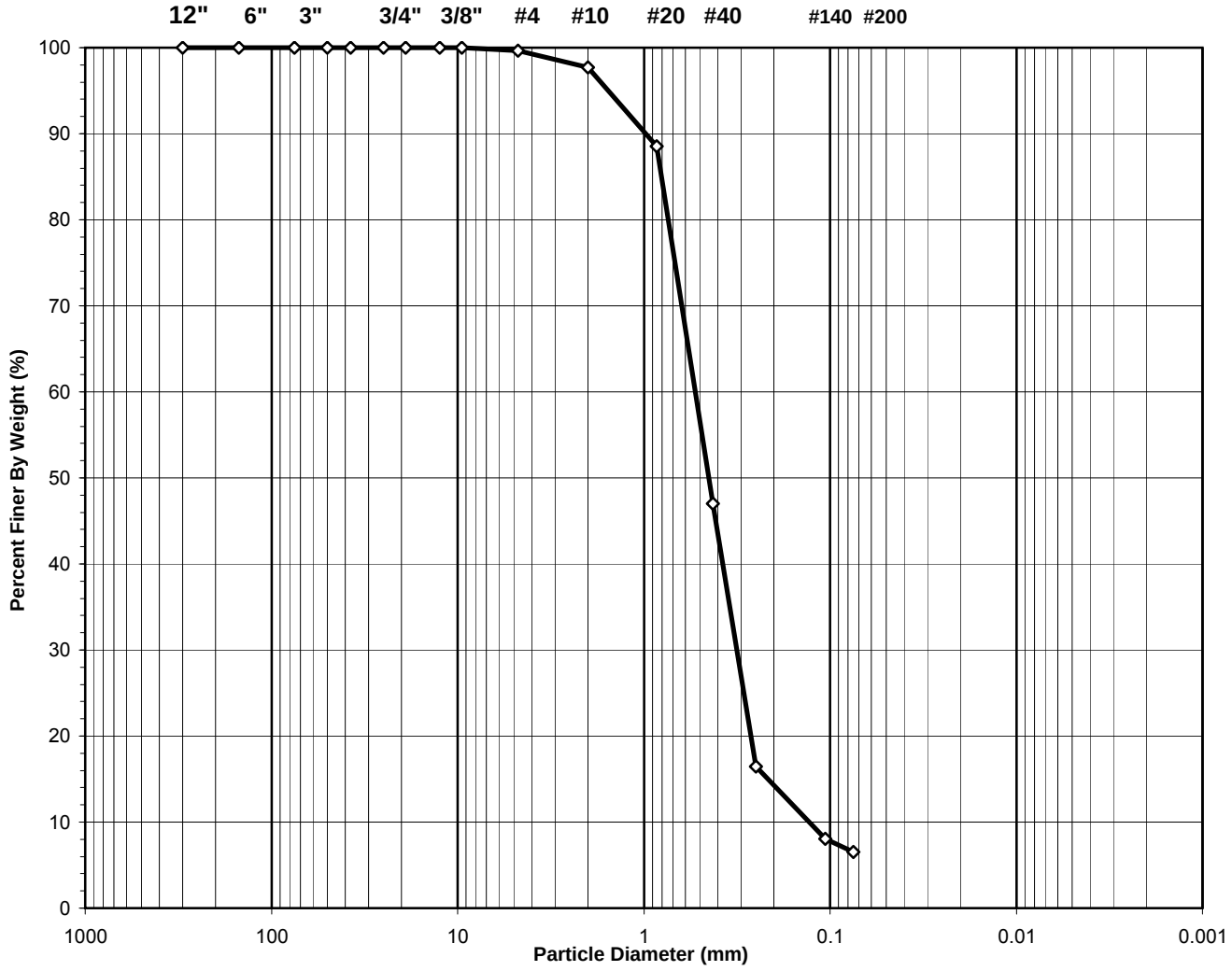
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	78.5-80.0
Project No.:	2015-485-004	Sample No.:	SS-18
Lab ID:	2015-485-004-024	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.53 **CC = 1.47**

D30 = 0.32 **CU = 4.09**

D10 = 0.13

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-5
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	78.5-80.0
Project No.:	2015-485-004	Sample No.:	SS-18
Lab ID:	2015-485-004-024	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1018	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	443.40	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	392.07	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	94.62	Weight of Tare (g):	NA
Weight of Water (g):	51.33	Weight of Water (g):	NA
Weight of Dry Sample (g):	297.45	Weight of Dry Sample (g):	NA
Moisture Content (%):	**17.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	297.45
Dry Weight of - 3/4" Sample (g):	278.1	Weight of - #200 Material (g):	19.39
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	278.06
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.06	0.36	0.36	99.64	**99.64**
#10	2.00	5.78	1.94	2.30	97.70	**97.70**
#20	0.850	27.26	9.16	11.46	88.54	**88.54**
#40	0.425	123.61	41.56	53.02	46.98	**46.98**
#60	0.250	90.69	30.49	83.51	16.49	**16.49**
#140	0.106	25.03	8.41	91.92	8.08	**8.08**
#200	0.075	4.63	1.56	93.48	6.52	**6.52**
Pan	-	19.39	6.52	100.00	-	**-**

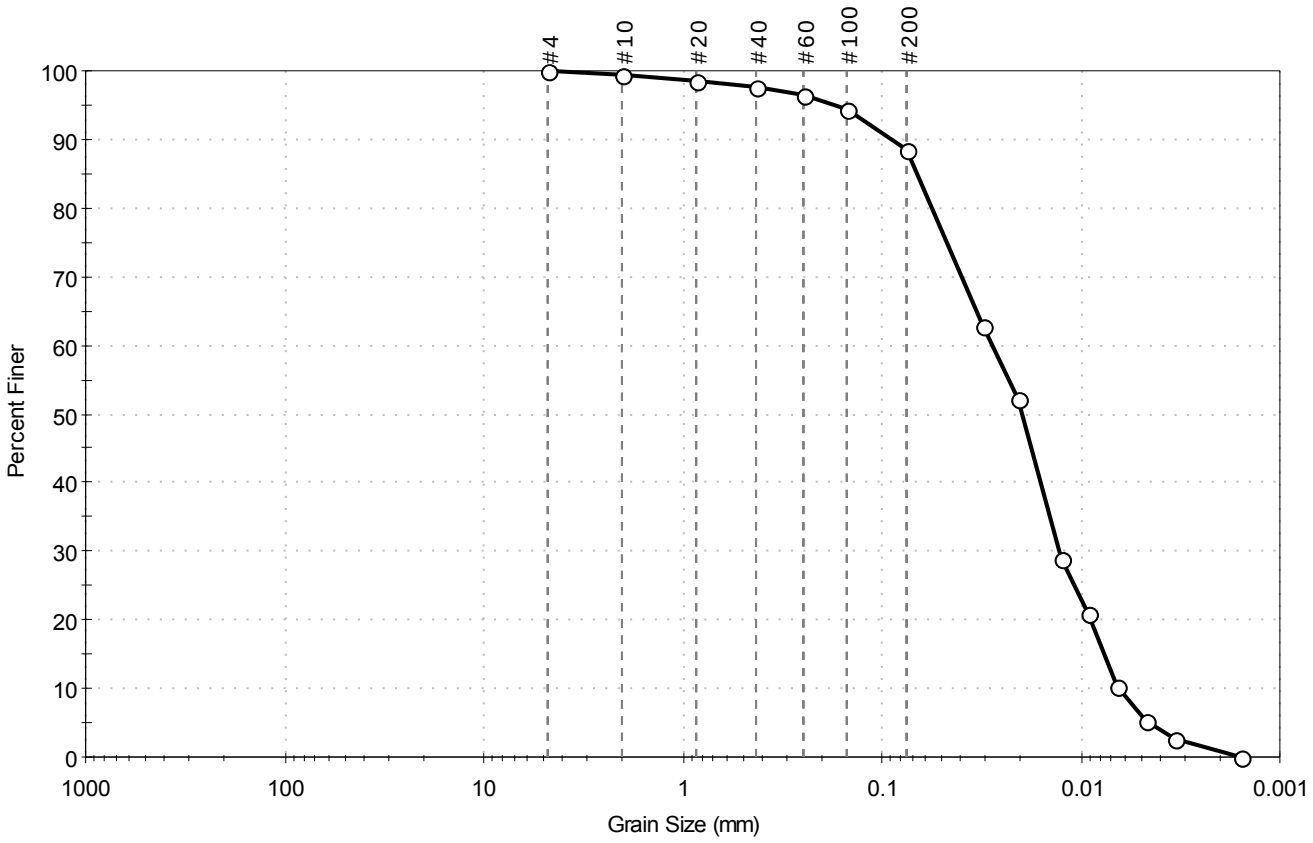
Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

Client:	AECOM				
Project:	Dynegy Wood River Power Station				
Location:	Alton, IL			Project No:	GTX-303782
Boring ID:	WOR-B006	Sample Type:	tube	Tested By:	jbr
Sample ID:	ST-1 (Top)	Test Date:	12/17/15	Checked By:	emm
Depth :	20-22 ft	Test Id:	356847		
Test Comment:	---				
Visual Description:	Moist, gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	11.4	88.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	95		
#200	0.075	89		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0314	63		
---	0.0205	52		
---	0.0127	29		
---	0.0091	21		
---	0.0067	10		
---	0.0047	5		
---	0.0034	3		
---	0.0016	0		

Coefficients

D_{85} = 0.0665 mm	D_{30} = 0.0130 mm
D_{60} = 0.0280 mm	D_{15} = 0.0076 mm
D_{50} = 0.0196 mm	D_{10} = 0.0065 mm
C_u = 4.308	C_c = 0.929

Classification

ASTM Silt (ML)

AASHTO Silty Soils (A-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Specific Gravity : 2.65

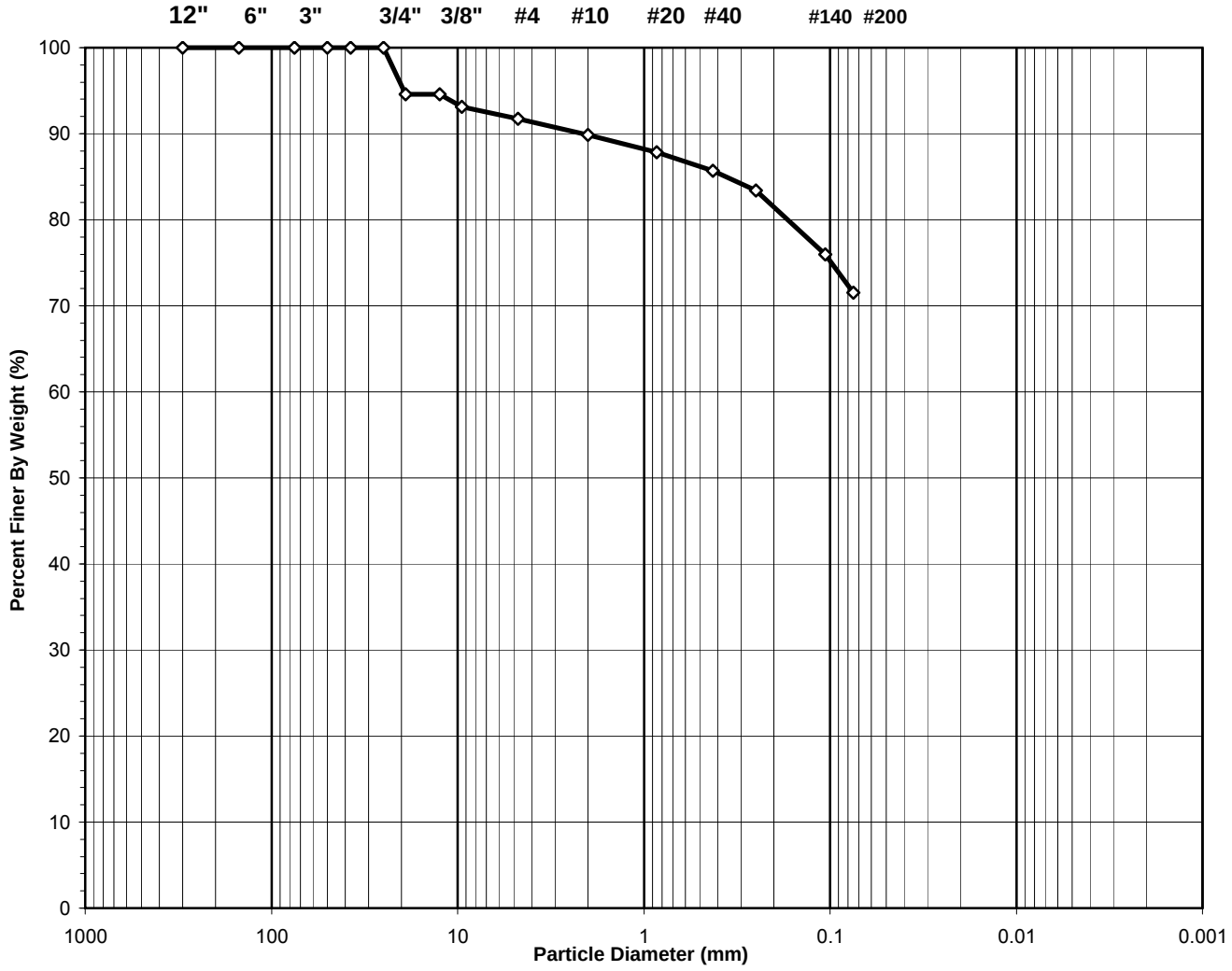
Separation of Sample: #200 Sieve

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-025	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT WITH SAND

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-004	Sample No.:	SS-3
Lab ID:	2015-485-004-025	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	516	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	351.00	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	301.48	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	89.96	Weight of Tare (g):	NA
Weight of Water (g):	49.52	Weight of Water (g):	NA
Weight of Dry Sample (g):	211.52	Weight of Dry Sample (g):	NA
Moisture Content (%):	**23.4**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	211.52
Dry Weight of - 3/4" Sample (g):	48.9	Weight of - #200 Material (g):	151.27
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	60.25
Dry Weight of + 3/4" Sample (g):	11.39		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	11.39	5.38	5.38	94.62	**94.62**
1/2"	12.50	0.00	0.00	5.38	94.62	**94.62**
3/8"	9.50	3.20	1.51	6.90	93.10	**93.10**
#4	4.75	2.88	1.36	8.26	91.74	**91.74**
#10	2.00	3.93	1.86	10.12	89.88	**89.88**
#20	0.850	4.35	2.06	12.17	87.83	**87.83**
#40	0.425	4.44	2.10	14.27	85.73	**85.73**
#60	0.250	4.98	2.35	16.63	83.37	**83.37**
#140	0.106	15.69	7.42	24.05	75.95	**75.95**
#200	0.075	9.39	4.44	28.48	71.52	**71.52**
Pan	-	151.27	71.52	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.4-31.8
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-026	Soil Color:	Dark Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	2.96
Finer Than #200	*Silt & Clay*	97.04

USCS Symbol:
CL, TESTED

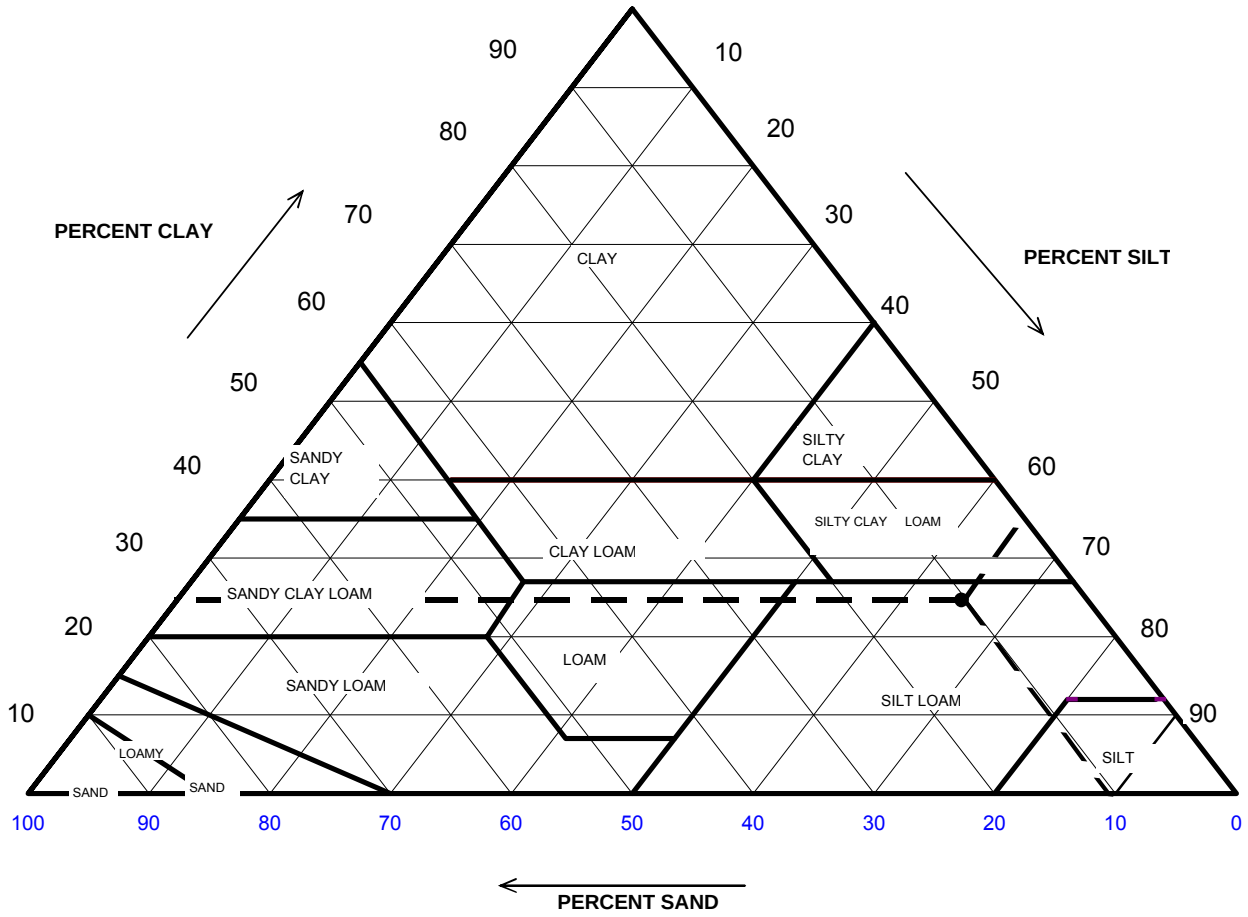
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.4-31.8
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-026	Soil Color:	Dark Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	10.41	**10.41**
0.05	89.59	*Silt*	64.93	**64.93**
0.002	24.66	*Clay*	24.66	**24.66**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.4-31.8
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-026	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1428	Tare No.	NA
Weight of Tare & Wet Sample (g)	916.18	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	776.80	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.62	Weight of Tare (g)	NA
Weight of Water (g)	139.38	Weight of Water (g)	NA
Weight of Dry Sample (g)	631.18	Weight of Dry Sample (g)	NA
Moisture Content (%)	**22.1**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	631.18
Dry Weight of -3/4" Sample (g)	18.69	Weight of - #200 Material (g)	612.49
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	18.69
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.32	0.05	0.05		99.95	**99.95**
#40	0.425	0.68	0.11	0.16		99.84	**99.84**
#60	0.250	0.97	0.15	0.31		99.69	**99.69**
#140	0.106	7.64	1.21	1.52		98.48	**98.48**
#200	0.075	9.08	1.44	2.96		97.04	**97.04**
Pan	-	612.49	97.04	100.00		-	**-**

Tested By AMC Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.4-31.8
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID:	2015-485-004-026	Soil Color:	Dark Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		46.5	23.4	5.86	40.6	80.6	0.01291	0.0269	**78.2**
5		39.5	23.4	5.86	33.6	66.7	0.01291	0.0181	**64.7**
15		32.0	23.4	5.86	26.1	51.8	0.01291	0.0111	**50.3**
30		27.5	23.4	5.86	21.6	42.9	0.01291	0.0081	**41.6**
60		24.0	23.3	5.89	18.1	35.9	0.01293	0.0059	**34.8**
250		20.0	22.9	6.04	14.0	27.7	0.01299	0.0030	**26.9**
1440		17.5	22.9	6.04	11.5	22.7	0.01299	0.0013	**22.1**

Soil Specimen Data		**Other Corrections**		
Tare No.	690			
Weight of Tare & Dry Material (g)	150.15	a - Factor	0.99	
Weight of Tare (g)	95.22			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	97.04	
Weight of Dry Material (g)	49.9			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

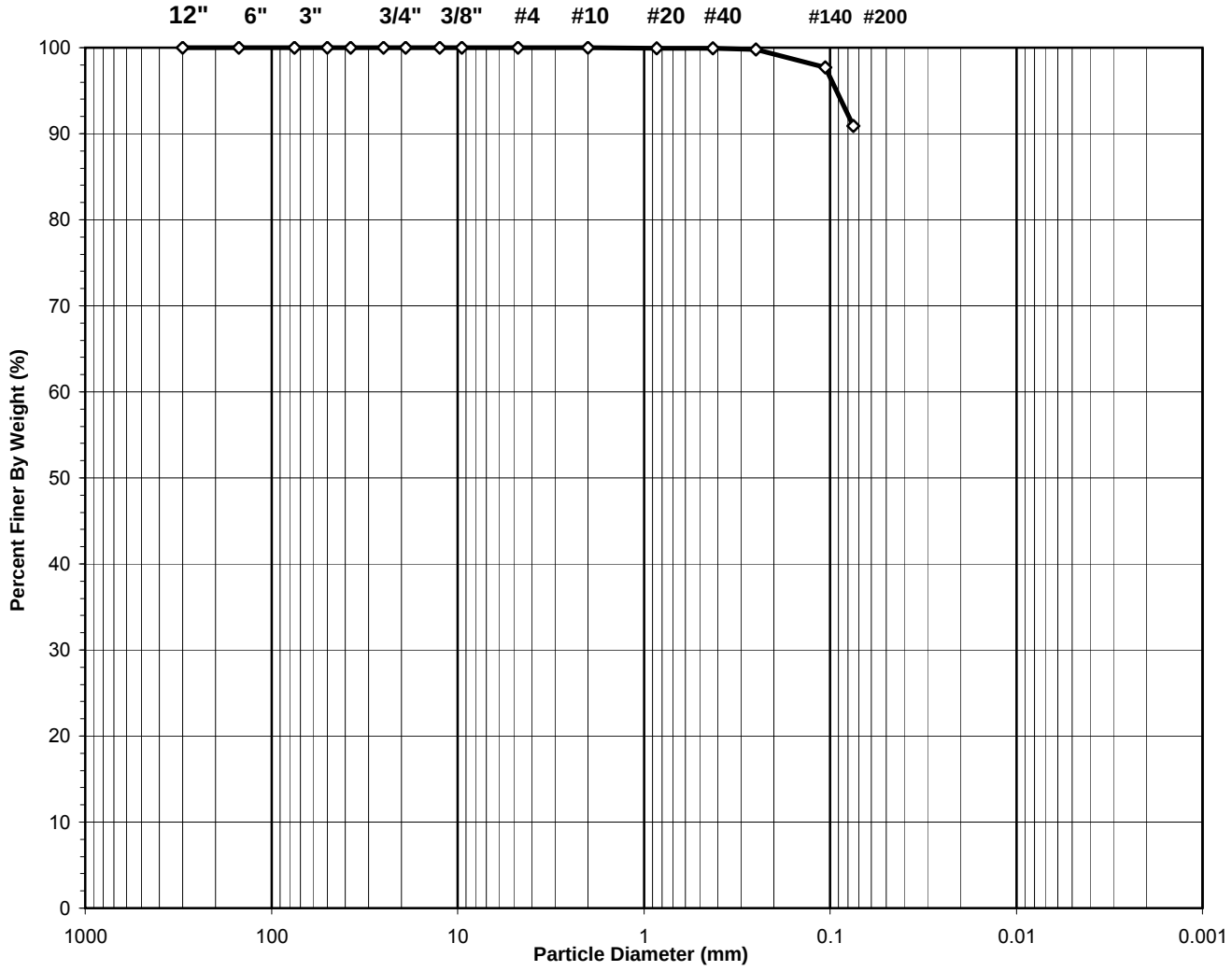
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-004	Sample No.:	SS-13
Lab ID:	2015-485-004-027	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT

Tested By	HL	Date	10/5/15	Checked By	KC	Date	10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-004	Sample No.:	SS-13
Lab ID:	2015-485-004-027	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	923	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	519.10	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	413.30	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	99.21	Weight of Tare (g):	NA
Weight of Water (g):	105.80	Weight of Water (g):	NA
Weight of Dry Sample (g):	314.09	Weight of Dry Sample (g):	NA
Moisture Content (%):	**33.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	314.09
Dry Weight of - 3/4" Sample (g):	28.5	Weight of - #200 Material (g):	285.61
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	28.48
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.00	0.00	0.00	100.00	**100.00**
#20	0.850	0.11	0.04	0.04	99.96	**99.96**
#40	0.425	0.21	0.07	0.10	99.90	**99.90**
#60	0.250	0.30	0.10	0.20	99.80	**99.80**
#140	0.106	6.51	2.07	2.27	97.73	**97.73**
#200	0.075	21.35	6.80	9.07	90.93	**90.93**
Pan	-	285.61	90.93	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

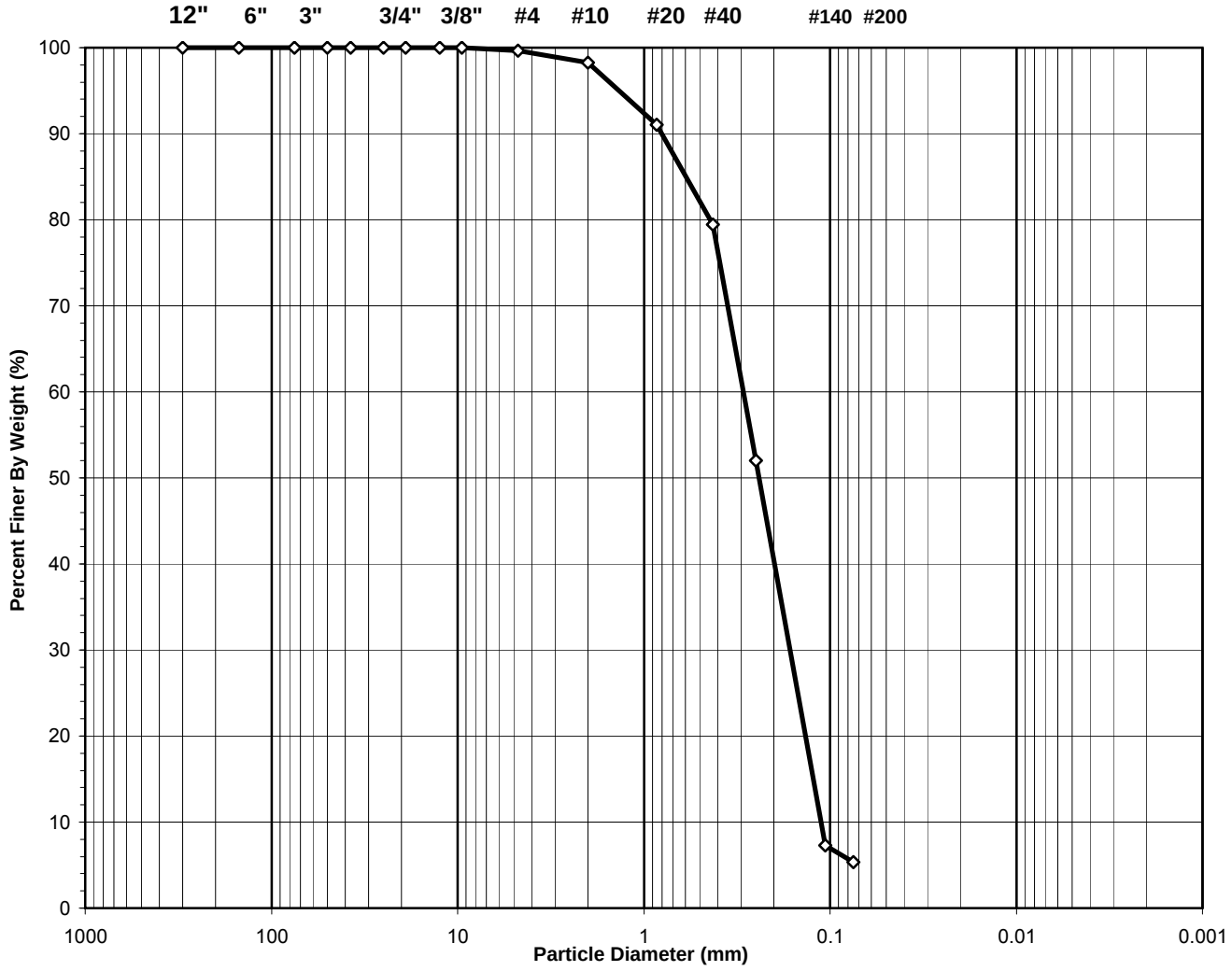
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	53.5-55.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-028	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.29 **CC = 0.82**

D30 = 0.16 **CU = 2.61**

D10 = 0.11

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-6
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	53.5-55.0
Project No.:	2015-485-004	Sample No.:	SS-15
Lab ID:	2015-485-004-028	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	664	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	453.20	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	387.73	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	95.38	Weight of Tare (g):	NA
Weight of Water (g):	65.47	Weight of Water (g):	NA
Weight of Dry Sample (g):	292.35	Weight of Dry Sample (g):	NA
Moisture Content (%):	**22.4**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	292.35
Dry Weight of - 3/4" Sample (g):	276.7	Weight of - #200 Material (g):	15.61
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	276.74
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.00	0.34	0.34	99.66	**99.66**
#10	2.00	4.11	1.41	1.75	98.25	**98.25**
#20	0.850	21.05	7.20	8.95	91.05	**91.05**
#40	0.425	33.86	11.58	20.53	79.47	**79.47**
#60	0.250	80.27	27.46	47.99	52.01	**52.01**
#140	0.106	130.70	44.71	92.69	7.31	**7.31**
#200	0.075	5.75	1.97	94.66	5.34	**5.34**
Pan	-	15.61	5.34	100.00	-	**-**

Tested By HL Date 10/5/15 Checked By KC Date 10/14/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B009
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.4-9.9
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-001	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	6.03
Finer Than #200	*Silt & Clay*	93.97

USCS Symbol:
CL, TESTED

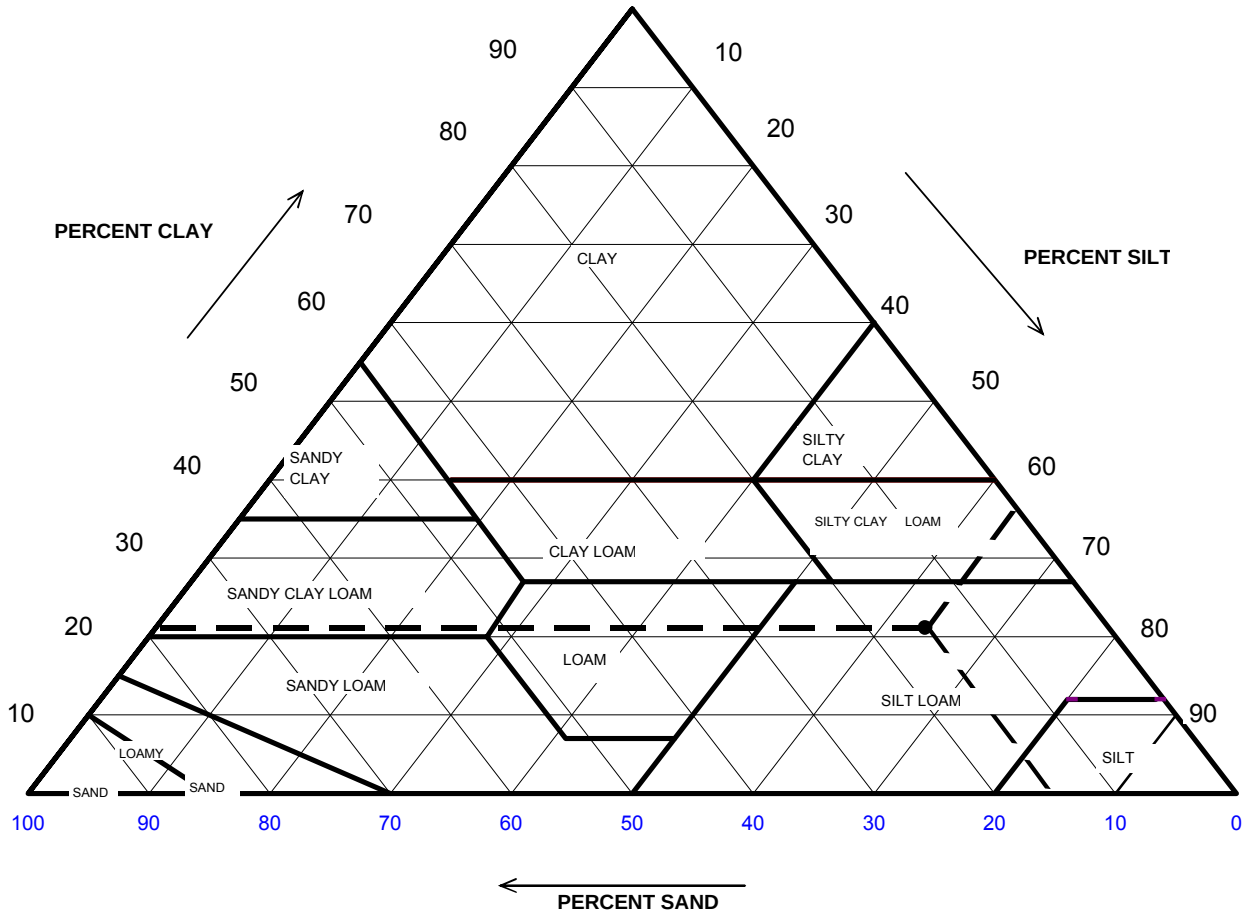
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B009
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.4-9.9
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-001	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.03	**0.00**
2	99.97	*Sand*	15.16	**15.16**
0.05	84.81	*Silt*	63.71	**63.73**
0.002	21.11	*Clay*	21.11	**21.11**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B009
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.4-9.9
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-001	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1464	Tare No.	NA
Weight of Tare & Wet Sample (g)	1196.43	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	1035.40	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.16	Weight of Tare (g)	NA
Weight of Water (g)	161.03	Weight of Water (g)	NA
Weight of Dry Sample (g)	890.24	Weight of Dry Sample (g)	NA
Moisture Content (%)	**18.1**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	890.24
Dry Weight of -3/4" Sample (g)	53.72	Weight of - #200 Material (g)	836.52
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	53.72
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.01	0.00	0.00		100.00	**100.00**
#10	2.00	0.27	0.03	0.03		99.97	**99.97**
#20	0.85	1.35	0.15	0.18		99.82	**99.82**
#40	0.425	1.96	0.22	0.40		99.60	**99.60**
#60	0.250	2.58	0.29	0.69		99.31	**99.31**
#140	0.106	24.10	2.71	3.40		96.60	**96.60**
#200	0.075	23.45	2.63	6.03		93.97	**93.97**
Pan	-	836.52	93.97	100.00		-	**-**

Tested By HL Date 11/9/15 Checked By KC Date 11/11/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B009
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.4-9.9
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-001	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		40.0	21.6	6.50	33.5	77.3	0.01319	0.0291	**72.6**
5		33.0	21.6	6.50	26.5	61.1	0.01319	0.0195	**57.4**
15		25.0	21.6	6.50	18.5	42.7	0.01319	0.0119	**40.1**
30		22.0	21.6	6.50	15.5	35.7	0.01319	0.0086	**33.6**
60		19.0	21.9	6.40	12.6	29.1	0.01314	0.0062	**27.3**
250		17.0	22.2	6.29	10.7	24.7	0.01310	0.0030	**23.2**
1440		15.0	22.2	6.29	8.7	20.1	0.01310	0.0013	**18.9**

Soil Specimen Data		**Other Corrections**		
Tare No.	301			
Weight of Tare & Dry Material (g)	153.91	a - Factor	0.99	
Weight of Tare (g)	105.99			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	93.97	
Weight of Dry Material (g)	42.9			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 11/9/15 Checked By KC Date 11/11/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

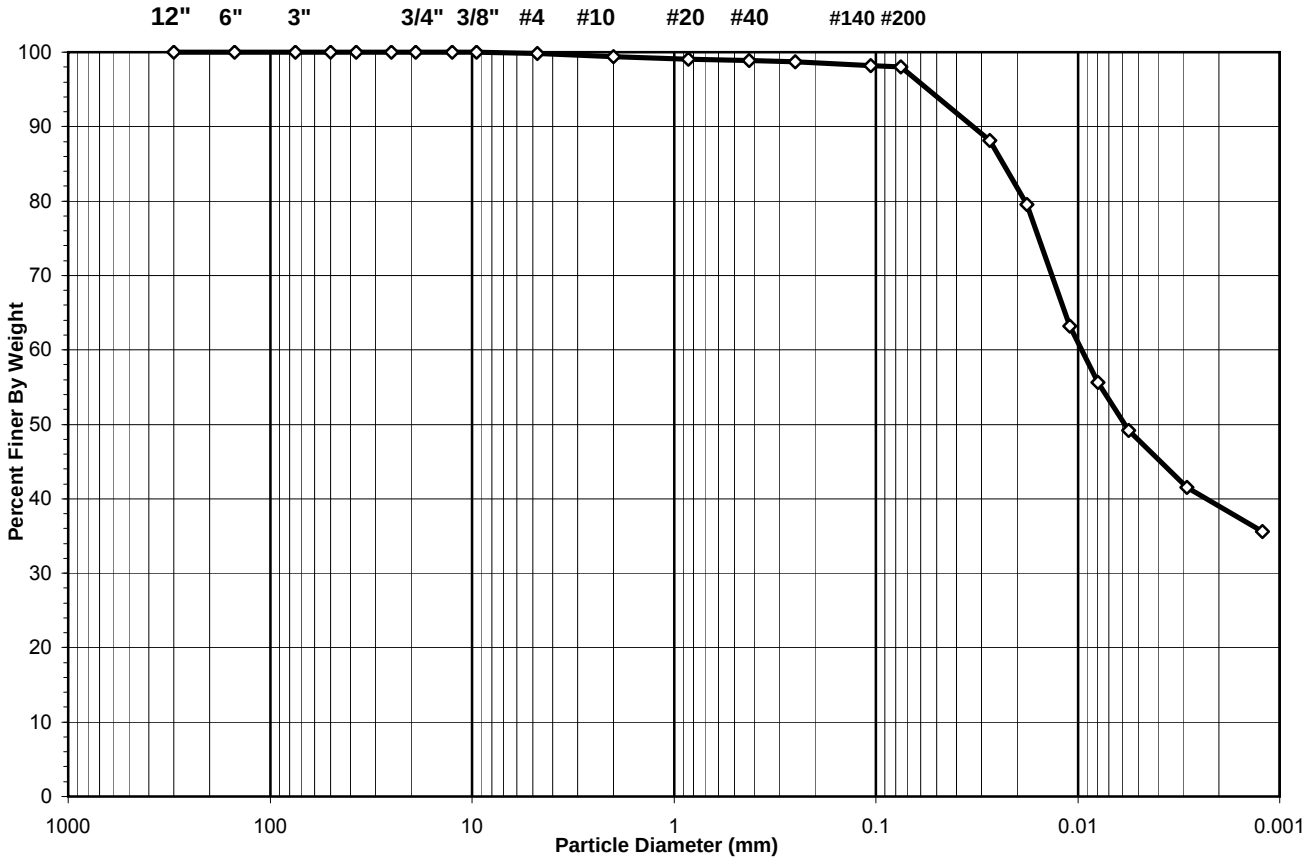
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.5-6.9
Project No.:	2015-485-006	Sample No.:	ST-1
Lab ID:	2015-485-006-001	Soil Color:	Dark Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.19
#4 To #200	*Sand*	1.83
Finer Than #200	*Silt & Clay*	97.99

USCS Symbol:

CH, TESTED

USCS Classification:

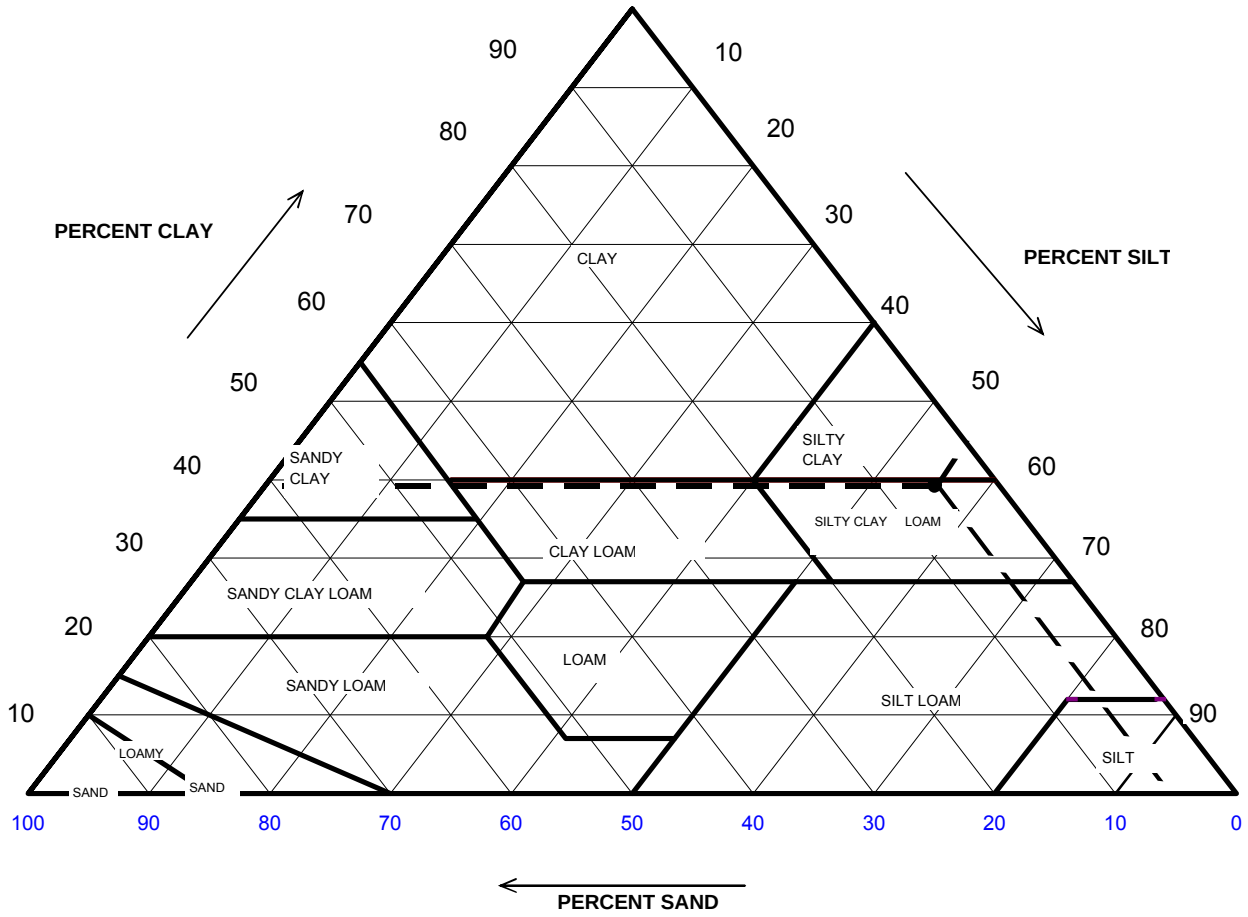
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.5-6.9
Project No.:	2015-485-006	Sample No.:	ST-1
Lab ID:	2015-485-006-001	Soil Color:	Dark Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.63	**0.00**
2	99.37	*Sand*	5.30	**5.34**
0.05	94.07	*Silt*	55.08	**55.43**
0.002	38.99	*Clay*	38.99	**39.23**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.5-6.9
Project No.:	2015-485-006	Sample No.:	ST-1
Lab ID:	2015-485-006-001	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	659	Tare No.	NA
Weight of Tare & Wet Sample (g)	698.18	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	570.50	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	95.44	Weight of Tare (g)	NA
Weight of Water (g)	127.68	Weight of Water (g)	NA
Weight of Dry Sample (g)	475.06	Weight of Dry Sample (g)	NA
Moisture Content (%)	**26.9**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	475.06
Dry Weight of -3/4" Sample (g)	9.55	Weight of - #200 Material (g)	465.51
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	9.55
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.88	0.19	0.19		99.81	**99.81**
#10	2.00	2.11	0.44	0.63		99.37	**99.37**
#20	0.85	1.62	0.34	0.97		99.03	**99.03**
#40	0.425	0.79	0.17	1.14		98.86	**98.86**
#60	0.250	0.89	0.19	1.32		98.68	**98.68**
#140	0.106	2.17	0.46	1.78		98.22	**98.22**
#200	0.075	1.09	0.23	2.01		97.99	**97.99**
Pan	-	465.51	97.99	100.00		-	**-**

Tested By RAL Date 10/23/15 Checked By KC Date 10/29/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.5-6.9
Project No.:	2015-485-006	Sample No.:	ST-1
Lab ID:	2015-485-006-001	Soil Color:	Dark Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		47.0	22	6.36	40.6	90.0	0.01313	0.0272	**88.2**
5		43.0	22	6.36	36.6	81.1	0.01313	0.0179	**79.5**
15		35.5	22	6.36	29.1	64.5	0.01313	0.0110	**63.2**
30		32.0	22	6.36	25.6	56.8	0.01313	0.0080	**55.6**
63		29.0	22.1	6.33	22.7	50.2	0.01311	0.0056	**49.2**
250		25.5	22	6.36	19.1	42.4	0.01313	0.0029	**41.5**
1440		22.5	22.7	6.11	16.4	36.3	0.01302	0.0012	**35.6**

Soil Specimen Data		**Other Corrections**		
Tare No.	960			
Weight of Tare & Dry Material (g)	144.85	a - Factor	0.99	
Weight of Tare (g)	95.14			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	97.99	
Weight of Dry Material (g)	44.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/27/15 Checked By KC Date 10/29/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	7.4-7.9
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-001	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.03
#4 To #200	*Sand*	24.16
Finer Than #200	*Silt & Clay*	75.81

USCS Symbol:

CL, TESTED

USCS Classification:

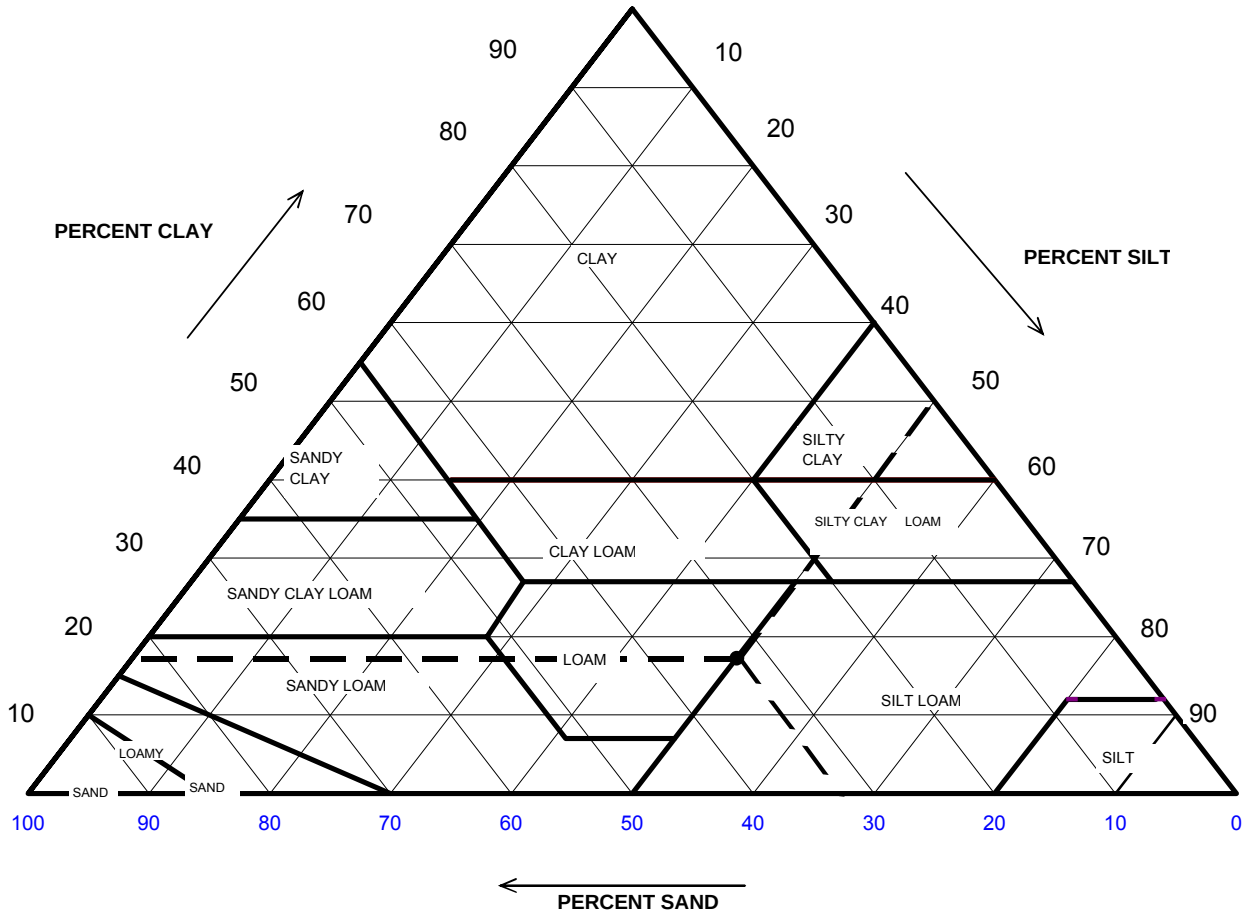
LEAN CLAY WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	7.4-7.9
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-001	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.51	**0.00**
2	99.49	*Sand*	32.52	**32.69**
0.05	66.97	*Silt*	49.82	**50.07**
0.002	17.15	*Clay*	17.15	**17.24**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	7.4-7.9
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-001	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1435	Tare No.	NA
Weight of Tare & Wet Sample (g)	1047.20	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	908.00	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.42	Weight of Tare (g)	NA
Weight of Water (g)	139.20	Weight of Water (g)	NA
Weight of Dry Sample (g)	762.58	Weight of Dry Sample (g)	NA
Moisture Content (%)	**18.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	762.58
Dry Weight of -3/4" Sample (g)	184.50	Weight of - #200 Material (g)	578.08
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	184.50
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.24	0.03	0.03		99.97	**99.97**
#10	2.00	3.67	0.48	0.51		99.49	**99.49**
#20	0.85	7.50	0.98	1.50		98.50	**98.50**
#40	0.425	4.38	0.57	2.07		97.93	**97.93**
#60	0.250	10.95	1.44	3.51		96.49	**96.49**
#140	0.106	101.85	13.36	16.86		83.14	**83.14**
#200	0.075	55.91	7.33	24.19		75.81	**75.81**
Pan	-	578.08	75.81	100.00		-	**-**

Tested By RAL Date 9/25/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	7.4-7.9
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-001	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		33.0	23.3	5.89	27.1	73.8	0.01293	0.0302	**55.9**
5		26.5	23.3	5.89	20.6	56.1	0.01293	0.0200	**42.5**
15		20.0	23.3	5.89	14.1	38.4	0.01293	0.0120	**29.1**
30		17.0	23.3	5.89	11.1	30.2	0.01293	0.0087	**22.9**
60		16.5	23.3	5.89	10.6	28.9	0.01293	0.0062	**21.9**
250		15.0	23.7	5.75	9.2	25.2	0.01287	0.0030	**19.1**
1440		13.0	23.8	5.71	7.3	19.8	0.01285	0.0013	**15.0**

Soil Specimen Data		**Other Corrections**		
Tare No.	528			
Weight of Tare & Dry Material (g)	133.73	a - Factor	0.99	
Weight of Tare (g)	92.37			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	75.81	
Weight of Dry Material (g)	36.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By DB Date 9/25/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.0-9.4
Project No.:	2015-485-006	Sample No.:	ST-2
Lab ID:	2015-485-006-002	Soil Color:	Brown & Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.07
#4 To #200	*Sand*	14.08
Finer Than #200	*Silt & Clay*	85.84

USCS Symbol:
CL, TESTED

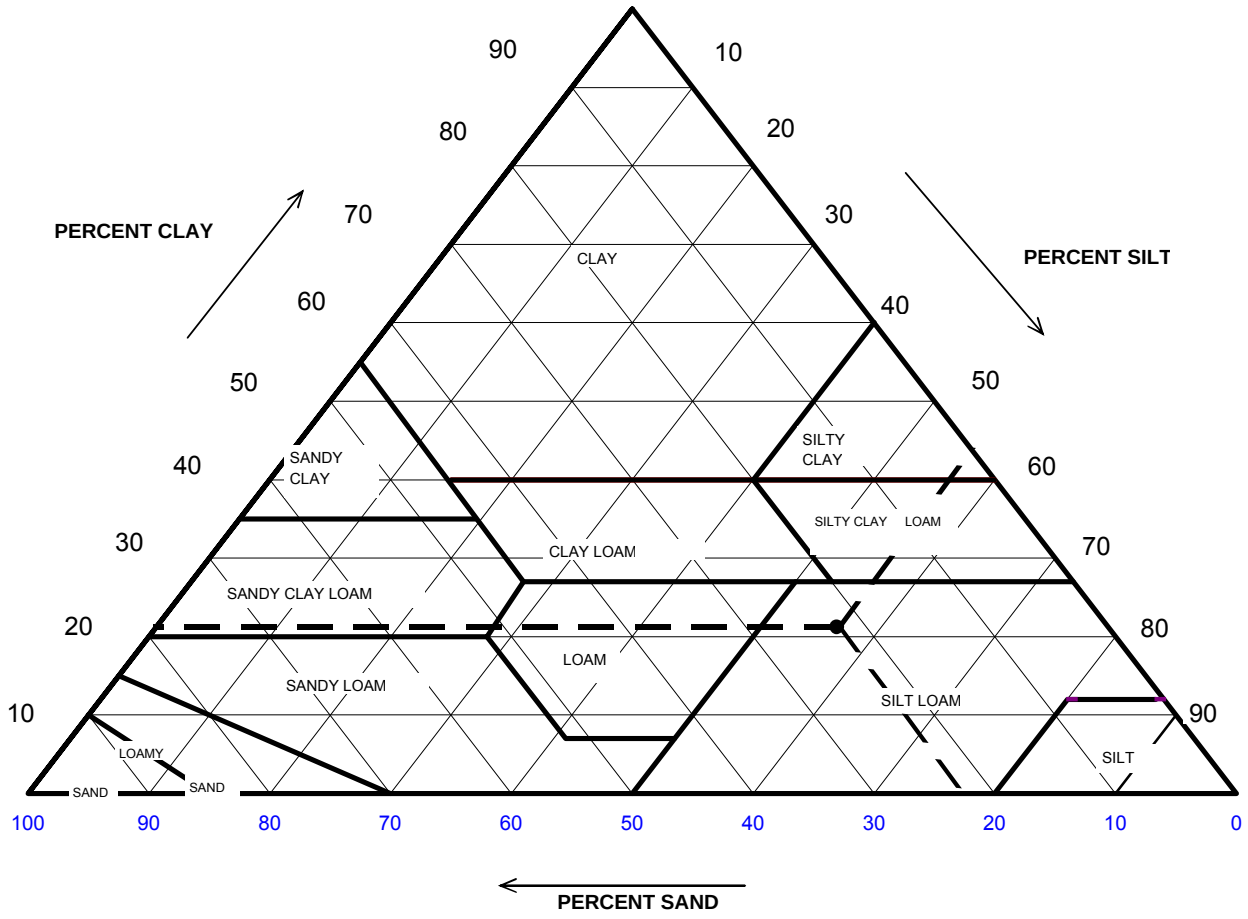
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.0-9.4
Project No.:	2015-485-006	Sample No.:	ST-2
Lab ID:	2015-485-006-002	Soil Color:	Brown & Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.52	**0.00**
2	99.48	*Sand*	22.33	**22.45**
0.05	77.15	*Silt*	56.03	**56.32**
0.002	21.12	*Clay*	21.12	**21.23**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.0-9.4
Project No.:	2015-485-006	Sample No.:	ST-2
Lab ID:	2015-485-006-002	Soil Color:	Brown & Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	516	Tare No.	NA
Weight of Tare & Wet Sample (g)	832.75	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	711.00	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	90.03	Weight of Tare (g)	NA
Weight of Water (g)	121.75	Weight of Water (g)	NA
Weight of Dry Sample (g)	620.97	Weight of Dry Sample (g)	NA
Moisture Content (%)	**19.6**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	620.97
Dry Weight of -3/4" Sample (g)	87.90	Weight of - #200 Material (g)	533.07
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	87.90
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.46	0.07	0.07		99.93	**99.93**
#10	2.00	2.77	0.45	0.52		99.48	**99.48**
#20	0.85	2.72	0.44	0.96		99.04	**99.04**
#40	0.425	1.52	0.24	1.20		98.80	**98.80**
#60	0.250	2.78	0.45	1.65		98.35	**98.35**
#140	0.106	44.49	7.16	8.82		91.18	**91.18**
#200	0.075	33.16	5.34	14.16		85.84	**85.84**
Pan	-	533.07	85.84	100.00		-	**-**

Tested By RAL Date 10/23/15 Checked By KC Date 10/29/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.0-9.4
Project No.:	2015-485-006	Sample No.:	ST-2
Lab ID:	2015-485-006-002	Soil Color:	Brown & Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		44.0	22	6.36	37.6	75.4	0.01313	0.0280	**64.7**
5		36.0	22	6.36	29.6	59.3	0.01313	0.0189	**50.9**
15		28.0	22	6.36	21.6	43.3	0.01313	0.0116	**37.2**
30		25.0	22	6.36	18.6	37.3	0.01313	0.0084	**32.0**
66		23.0	22.1	6.33	16.7	33.4	0.01311	0.0057	**28.7**
250		19.0	22	6.36	12.6	25.3	0.01313	0.0030	**21.7**
1440		18.0	22.7	6.11	11.9	23.8	0.01302	0.0013	**20.4**

Soil Specimen Data		**Other Corrections**		
Tare No.	693			
Weight of Tare & Dry Material (g)	147.68	a - Factor	0.99	
Weight of Tare (g)	93.24			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	85.84	
Weight of Dry Material (g)	49.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/27/15 Checked By KC Date 10/29/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.9-10.4
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-002	Soil Color:	Brown / Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.05
#4 To #200	*Sand*	18.50
Finer Than #200	*Silt & Clay*	81.45

USCS Symbol:

CL, TESTED

USCS Classification:

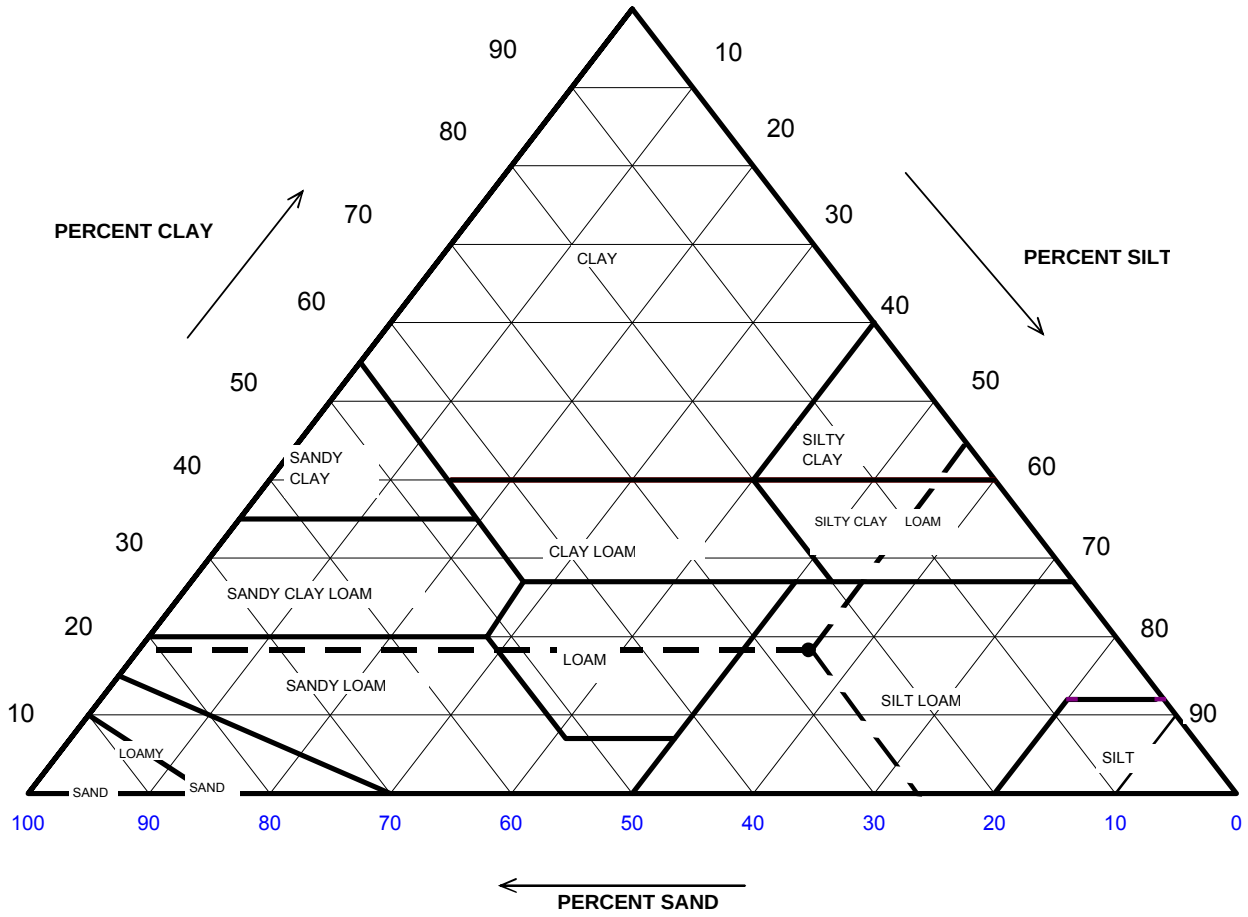
LEAN CLAY WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.9-10.4
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-002	Soil Color:	Brown / Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.59	**0.00**
2	99.41	*Sand*	26.11	**26.26**
0.05	73.31	*Silt*	55.17	**55.50**
0.002	18.14	*Clay*	18.14	**18.24**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.9-10.4
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-002	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1453	Tare No.	NA
Weight of Tare & Wet Sample (g)	1061.81	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	924.50	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	137.42	Weight of Tare (g)	NA
Weight of Water (g)	137.31	Weight of Water (g)	NA
Weight of Dry Sample (g)	787.08	Weight of Dry Sample (g)	NA
Moisture Content (%)	**17.4**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	787.08
Dry Weight of -3/4" Sample (g)	146.00	Weight of - #200 Material (g)	641.08
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	146.00
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.38	0.05	0.05		99.95	**99.95**
#10	2.00	4.24	0.54	0.59		99.41	**99.41**
#20	0.85	9.39	1.19	1.78		98.22	**98.22**
#40	0.425	6.35	0.81	2.59		97.41	**97.41**
#60	0.250	4.52	0.57	3.16		96.84	**96.84**
#140	0.106	64.08	8.14	11.30		88.70	**88.70**
#200	0.075	57.04	7.25	18.55		81.45	**81.45**
Pan	-	641.08	81.45	100.00		-	**-**

Tested By RAL Date 9/25/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-10
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	9.9-10.4
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-002	Soil Color:	Brown / Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		33.0	23.3	5.89	27.1	77.5	0.01293	0.0302	**63.2**
5		26.0	23.3	5.89	20.1	57.5	0.01293	0.0201	**46.8**
15		20.0	23.3	5.89	14.1	40.3	0.01293	0.0120	**32.9**
30		17.0	23.3	5.89	11.1	31.8	0.01293	0.0087	**25.9**
60		15.5	23.3	5.89	9.6	27.5	0.01293	0.0062	**22.4**
250		14.0	23.7	5.75	8.2	23.6	0.01287	0.0030	**19.2**
1440		13.0	23.8	5.71	7.3	20.8	0.01285	0.0013	**17.0**

Soil Specimen Data		**Other Corrections**		
Tare No.	2337			
Weight of Tare & Dry Material (g)	135.04	a - Factor	0.99	
Weight of Tare (g)	95.43			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	81.45	
Weight of Dry Material (g)	34.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By DB Date 9/25/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

S:Excel\Excel QA\Spreadsheets\SieveHyd.xls

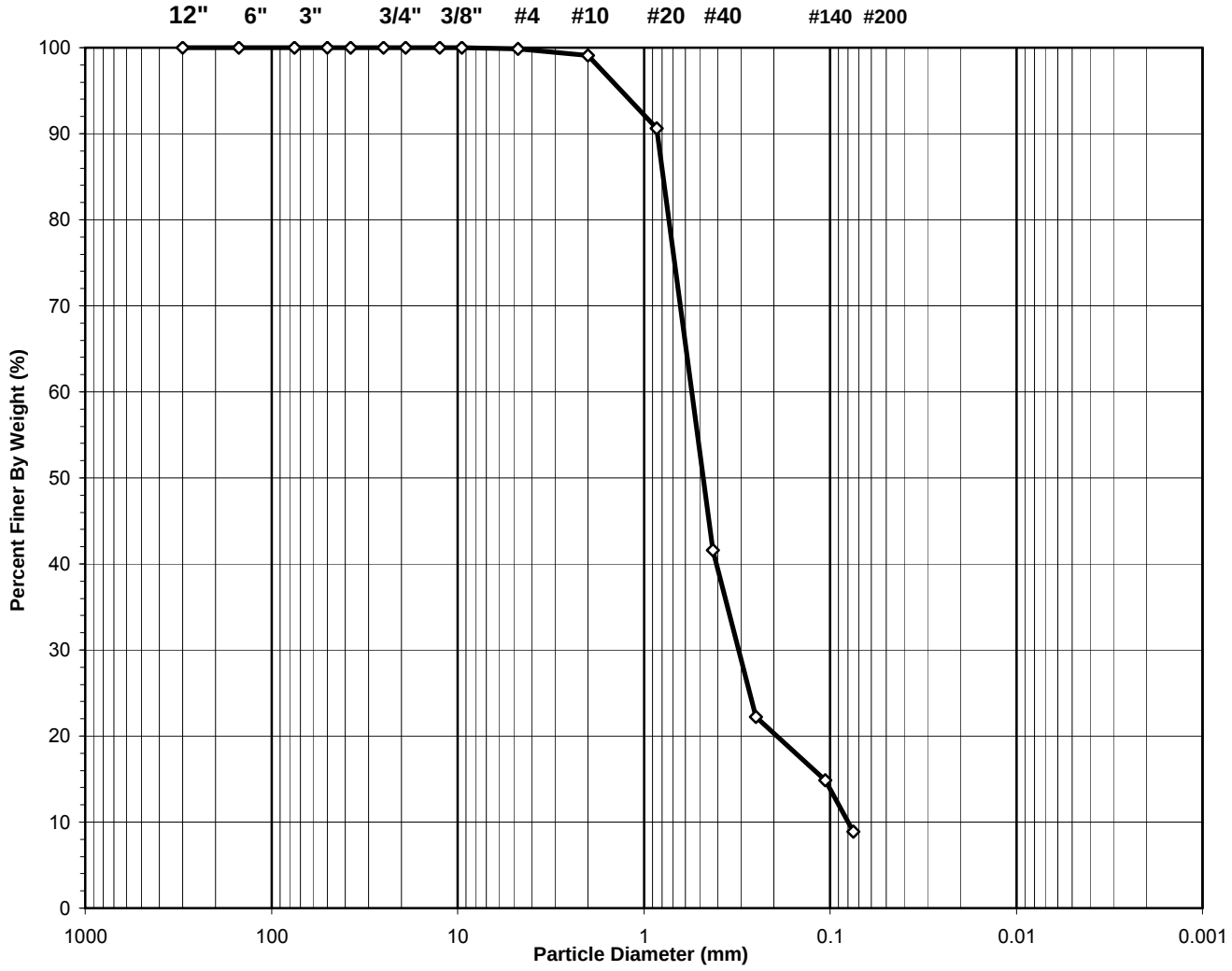
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35
Project No.:	2015-485-009	Sample No.:	SS-8
Lab ID:	2015-485-009-001	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sw-sm, ASSUMED

USCS Classification:
WELL-GRADED SAND WITH SILT

D60 = 0.55 **CC = 2.17**

D30 = 0.31 **CU = 6.90**

D10 = 0.08

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35
Project No.:	2015-485-009	Sample No.:	SS-8
Lab ID:	2015-485-009-001	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1441	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	371.28	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	339.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	143.84	Weight of Tare (g):	NA
Weight of Water (g):	31.88	Weight of Water (g):	NA
Weight of Dry Sample (g):	195.56	Weight of Dry Sample (g):	NA
Moisture Content (%):	**16.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	195.56
Dry Weight of - 3/4" Sample (g):	178.1	Weight of - #200 Material (g):	17.43
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	178.13
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.24	0.12	0.12	99.88	**99.88**
#10	2.00	1.55	0.79	0.92	99.08	**99.08**
#20	0.850	16.54	8.46	9.37	90.63	**90.63**
#40	0.425	95.95	49.06	58.44	41.56	**41.56**
#60	0.250	37.80	19.33	77.77	22.23	**22.23**
#140	0.106	14.44	7.38	85.15	14.85	**14.85**
#200	0.075	11.61	5.94	91.09	8.91	**8.91**
Pan	-	17.43	8.91	100.00	-	**-**

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

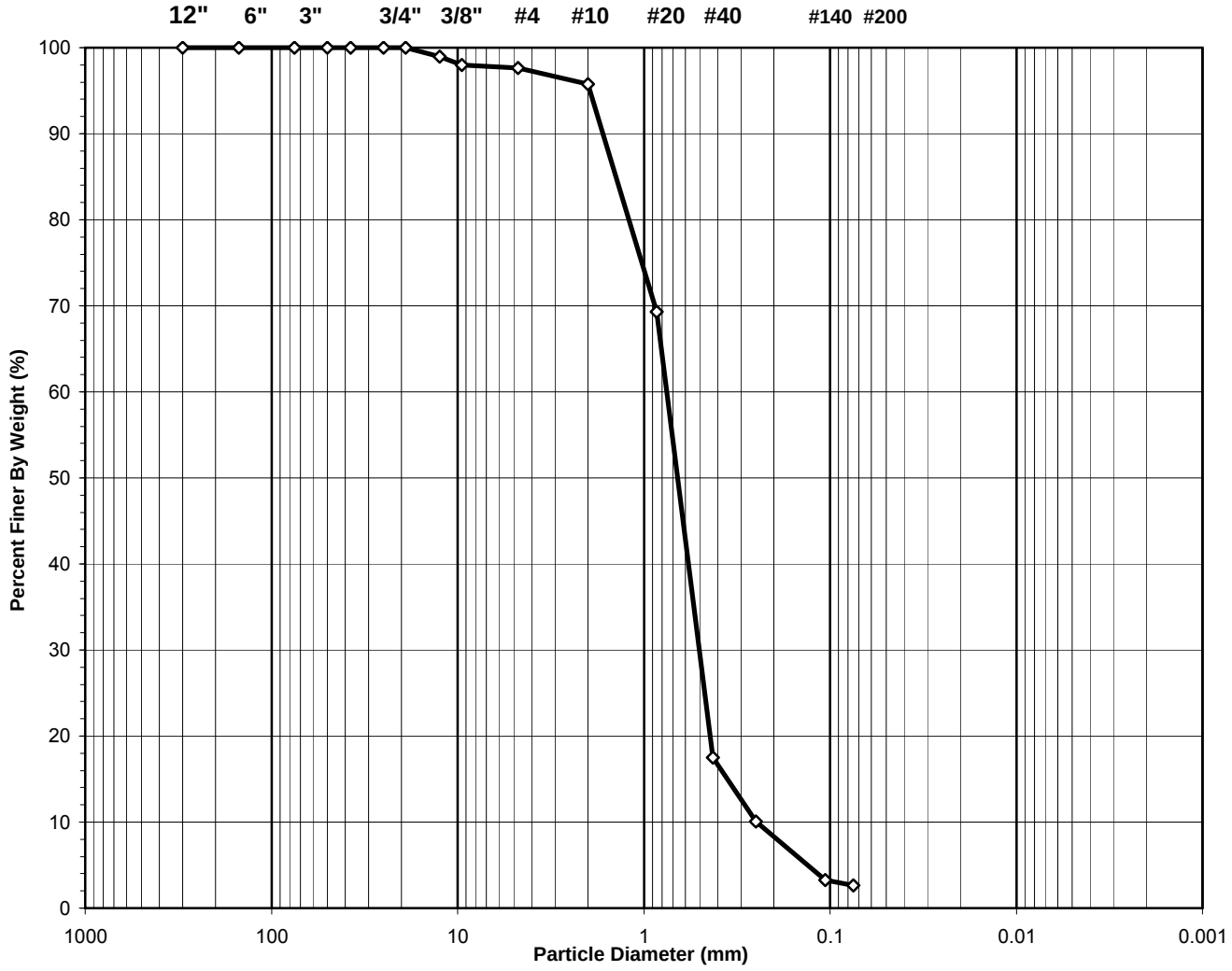
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50
Project No.:	2015-485-009	Sample No.:	SS-11
Lab ID:	2015-485-009-002	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.75 **CC = 1.35**

D30 = 0.50 **CU = 3.02**

D10 = 0.25

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50
Project No.:	2015-485-009	Sample No.:	SS-11
Lab ID:	2015-485-009-002	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1498	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	545.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	488.90	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	149.35	Weight of Tare (g):	NA
Weight of Water (g):	56.80	Weight of Water (g):	NA
Weight of Dry Sample (g):	339.55	Weight of Dry Sample (g):	NA
Moisture Content (%):	**16.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	339.55
Dry Weight of - 3/4" Sample (g):	330.7	Weight of - #200 Material (g):	8.89
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	330.66
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	3.58	1.05	1.05	98.95	**98.95**
3/8"	9.50	3.17	0.93	1.99	98.01	**98.01**
#4	4.75	1.37	0.40	2.39	97.61	**97.61**
#10	2.00	6.34	1.87	4.26	95.74	**95.74**
#20	0.850	89.69	26.41	30.67	69.33	**69.33**
#40	0.425	176.04	51.85	82.52	17.48	**17.48**
#60	0.250	25.28	7.45	89.96	10.04	**10.04**
#140	0.106	22.97	6.76	96.73	3.27	**3.27**
#200	0.075	2.22	0.65	97.38	2.62	**2.62**
Pan	-	8.89	2.62	100.00	-	**-**

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

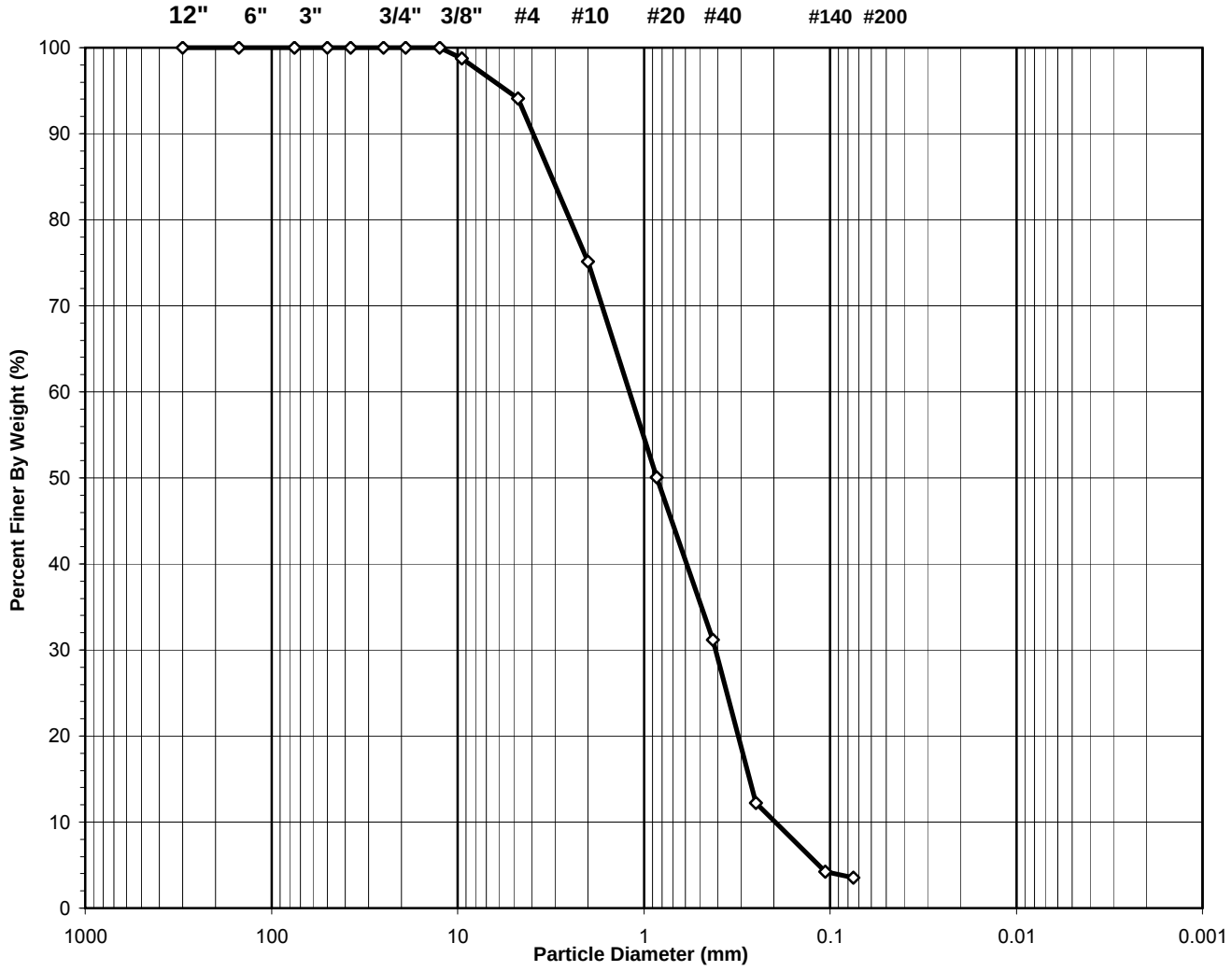
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-009	Sample No.:	SS-14
Lab ID:	2015-485-009-003	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 1.19 **CC = 0.72**

D30 = 0.41 **CU = 6.03**

D10 = 0.20

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B010
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	63.5-65.0
Project No.:	2015-485-009	Sample No.:	SS-14
Lab ID:	2015-485-009-003	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1451	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	340.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	340.80	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.79	Weight of Tare (g):	NA
Weight of Water (g):	0.00	Weight of Water (g):	NA
Weight of Dry Sample (g):	196.01	Weight of Dry Sample (g):	NA
Moisture Content (%):	**0.0**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	196.01
Dry Weight of - 3/4" Sample (g):	189.1	Weight of - #200 Material (g):	6.91
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	189.10
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	2.39	1.22	1.22	98.78	**98.78**
#4	4.75	9.12	4.65	5.87	94.13	**94.13**
#10	2.00	37.19	18.97	24.85	75.15	**75.15**
#20	0.850	49.11	25.05	49.90	50.10	**50.10**
#40	0.425	37.04	18.90	68.80	31.20	**31.20**
#60	0.250	37.27	19.01	87.81	12.19	**12.19**
#140	0.106	15.63	7.97	95.79	4.21	**4.21**
#200	0.075	1.35	0.69	96.47	3.53	**3.53**
Pan	-	6.91	3.53	100.00	-	**-**

Tested By HL Date 11/13/15 Checked By KC Date 11/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-001	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.05
#4 To #200	*Sand*	5.37
Finer Than #200	*Silt & Clay*	94.57

USCS Symbol:
CL, TESTED

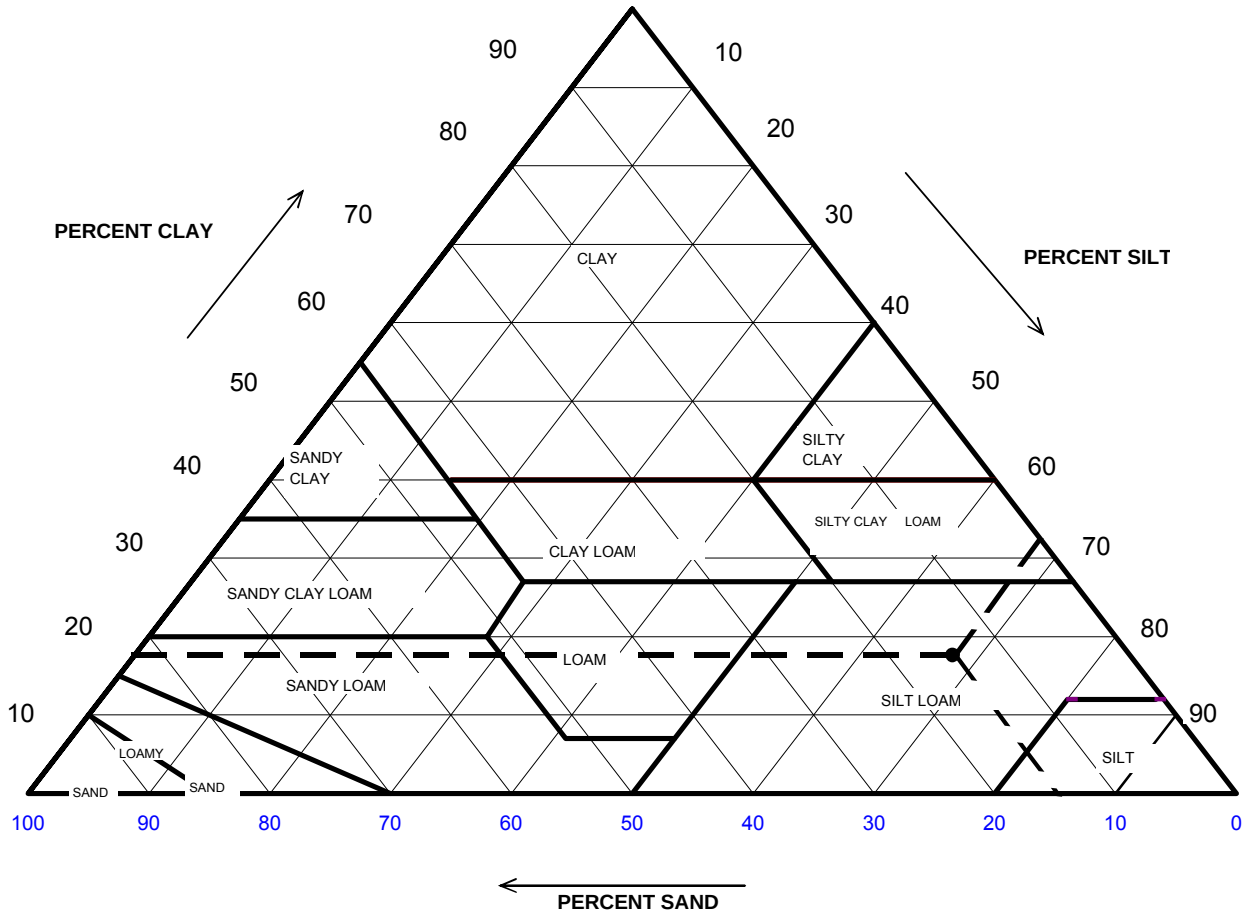
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-001	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.16	**0.00**
2	99.84	*Sand*	14.63	**14.65**
0.05	85.22	*Silt*	67.62	**67.73**
0.002	17.60	*Clay*	17.60	**17.62**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-001	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1449	Tare No.	NA
Weight of Tare & Wet Sample (g)	348.22	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	348.22	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.54	Weight of Tare (g)	NA
Weight of Water (g)	0.00	Weight of Water (g)	NA
Weight of Dry Sample (g)	202.68	Weight of Dry Sample (g)	NA
Moisture Content (%)	**0.0**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	202.68
Dry Weight of -3/4" Sample (g)	11.00	Weight of - #200 Material (g)	191.68
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	11.00
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.11	0.05	0.05		99.95	**99.95**
#10	2.00	0.21	0.10	0.16		99.84	**99.84**
#20	0.85	0.74	0.37	0.52		99.48	**99.48**
#40	0.425	0.81	0.40	0.92		99.08	**99.08**
#60	0.250	1.57	0.77	1.70		98.30	**98.30**
#140	0.106	4.48	2.21	3.91		96.09	**96.09**
#200	0.075	3.08	1.52	5.43		94.57	**94.57**
Pan	-	191.68	94.57	100.00		-	**-**

Tested By HL Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-001	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		45.5	20.7	6.83	38.7	76.0	0.01333	0.0280	**71.9**
5		34.5	20.7	6.83	27.7	54.4	0.01333	0.0194	**51.4**
17		25.0	20.7	6.83	18.2	35.7	0.01333	0.0113	**33.8**
30		22.5	20.7	6.83	15.7	30.8	0.01333	0.0086	**29.1**
60		20.5	21.1	6.68	13.8	27.1	0.01327	0.0062	**25.7**
250		17.0	22.1	6.33	10.7	21.0	0.01311	0.0030	**19.8**
1440		14.5	22.2	6.29	8.2	16.1	0.01310	0.0013	**15.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	2331			
Weight of Tare & Dry Material (g)	149.10	a - Factor	0.99	
Weight of Tare (g)	93.71			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	94.57	
Weight of Dry Material (g)	50.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

S:Excel\Excel QA\Spreadsheets\SieveHyd.xls

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-002	Soil Color:	Dark Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary		
Sieve Sizes (mm)		**Percentage**
Greater Than #4	*Gravel*	0.06
#4 To #200	*Sand*	25.02
Finer Than #200	*Silt & Clay*	74.92

USCS Symbol:

CL, TESTED

USCS Classification:

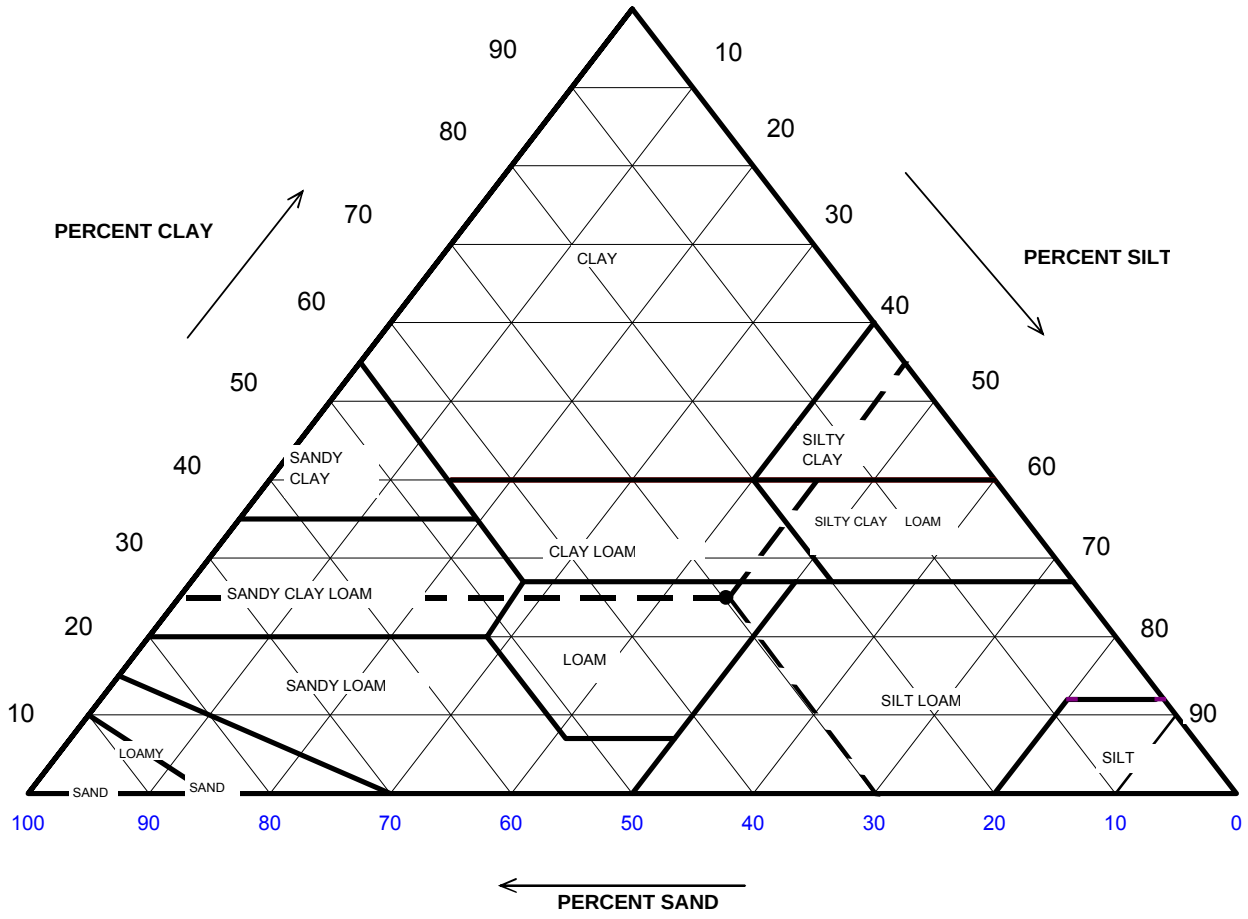
LEAN CLAY WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-002	Soil Color:	Dark Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.14	**0.00**
2	99.86	*Sand*	29.70	**29.74**
0.05	70.16	*Silt*	45.27	**45.33**
0.002	24.89	*Clay*	24.89	**24.93**

USDA Classification: ***LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-002	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1447	Tare No.	NA
Weight of Tare & Wet Sample (g)	467.20	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	410.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.34	Weight of Tare (g)	NA
Weight of Water (g)	56.90	Weight of Water (g)	NA
Weight of Dry Sample (g)	264.96	Weight of Dry Sample (g)	NA
Moisture Content (%)	**21.5**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	264.96
Dry Weight of -3/4" Sample (g)	66.45	Weight of - #200 Material (g)	198.51
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	66.45
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.16	0.06	0.06		99.94	**99.94**
#10	2.00	0.20	0.08	0.14		99.86	**99.86**
#20	0.85	0.54	0.20	0.34		99.66	**99.66**
#40	0.425	3.68	1.39	1.73		98.27	**98.27**
#60	0.250	9.53	3.60	5.33		94.67	**94.67**
#140	0.106	20.39	7.70	13.02		86.98	**86.98**
#200	0.075	31.95	12.06	25.08		74.92	**74.92**
Pan	-	198.51	74.92	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-002	Soil Color:	Dark Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		53.0	22.1	6.33	46.7	83.2	0.01311	0.0256	**62.3**
5		47.5	22.1	6.33	41.2	73.4	0.01311	0.0171	**55.0**
15		40.0	22.1	6.33	33.7	60.0	0.01311	0.0106	**44.9**
30		36.0	22.1	6.33	29.7	52.9	0.01311	0.0077	**39.6**
60		33.0	22.1	6.33	26.7	47.5	0.01311	0.0056	**35.6**
250		26.0	22.6	6.15	19.9	35.4	0.01303	0.0029	**26.5**
1440		23.0	22.9	6.04	17.0	30.2	0.01299	0.0012	**22.6**

Soil Specimen Data		**Other Corrections**		
Tare No.	528			
Weight of Tare & Dry Material (g)	153.11	a - Factor	0.99	
Weight of Tare (g)	92.54			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	74.92	
Weight of Dry Material (g)	55.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/2/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

S:Excel\Excel QA\Spreadsheets\SieveHyd.xls

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.9-22.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-003	Soil Color:	Brown / Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	2.76
Finer Than #200	*Silt & Clay*	97.24

USCS Symbol:

ML, TESTED

USCS Classification:

SILT

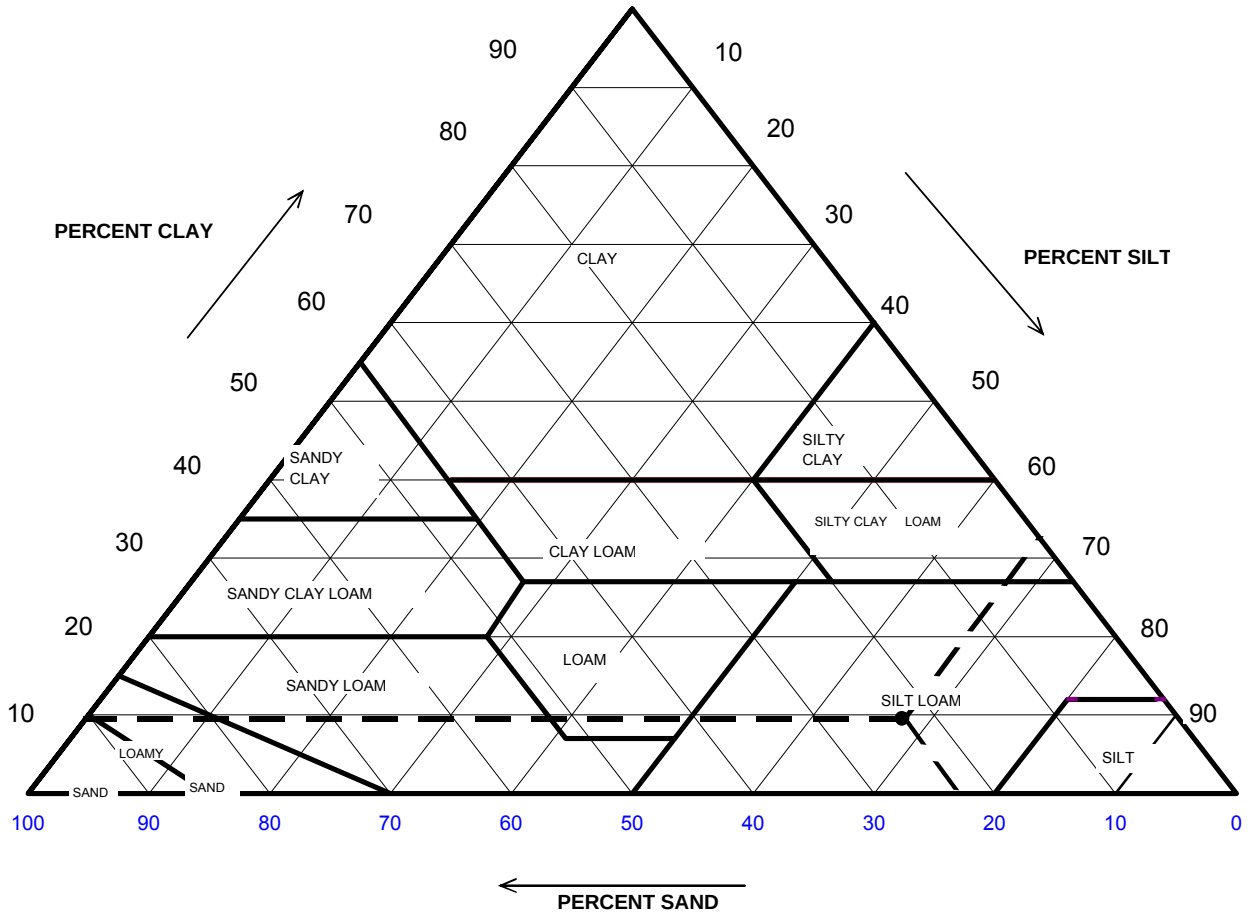
(NON-PLASTIC FINES)

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.9-22.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-003	Soil Color:	Brown / Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	22.84	**22.84**
0.05	77.16	*Silt*	67.58	**67.58**
0.002	9.58	*Clay*	9.58	**9.58**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.9-22.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-003	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	889	Tare No.	NA
Weight of Tare & Wet Sample (g)	777.76	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	603.40	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	100.66	Weight of Tare (g)	NA
Weight of Water (g)	174.36	Weight of Water (g)	NA
Weight of Dry Sample (g)	502.74	Weight of Dry Sample (g)	NA
Moisture Content (%)	**34.7**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	502.74
Dry Weight of -3/4" Sample (g)	13.88	Weight of - #200 Material (g)	488.86
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	13.88
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.24	0.05	0.05		99.95	**99.95**
#40	0.425	0.39	0.08	0.13		99.87	**99.87**
#60	0.250	0.50	0.10	0.22		99.78	**99.78**
#140	0.106	2.37	0.47	0.70		99.30	**99.30**
#200	0.075	10.38	2.06	2.76		97.24	**97.24**
Pan	-	488.86	97.24	100.00		-	**-**

Tested By HL Date 9/27/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-12
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.9-22.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-003	Soil Color:	Brown / Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		30.0	23.1	5.97	24.0	54.8	0.01296	0.0309	**53.3**
5		20.5	23.1	5.97	14.5	33.2	0.01296	0.0208	**32.3**
15		14.5	23.1	5.97	8.5	19.5	0.01296	0.0125	**18.9**
30		13.5	23.1	5.97	7.5	17.2	0.01296	0.0089	**16.7**
60		12.5	22.9	6.04	6.5	14.7	0.01299	0.0063	**14.3**
250		10.5	23	6.00	4.5	10.3	0.01297	0.0031	**10.0**
1440		10.0	23.4	5.86	4.1	9.5	0.01291	0.0013	**9.2**

Soil Specimen Data		**Other Corrections**		
Tare No.	960			
Weight of Tare & Dry Material (g)	143.73	a - Factor	0.99	
Weight of Tare (g)	95.35			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	97.24	
Weight of Dry Material (g)	43.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/29/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-003	Soil Color:	Dark Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	1.74
#4 To #200	*Sand*	6.98
Finer Than #200	*Silt & Clay*	91.28

USCS Symbol:
CL, TESTED

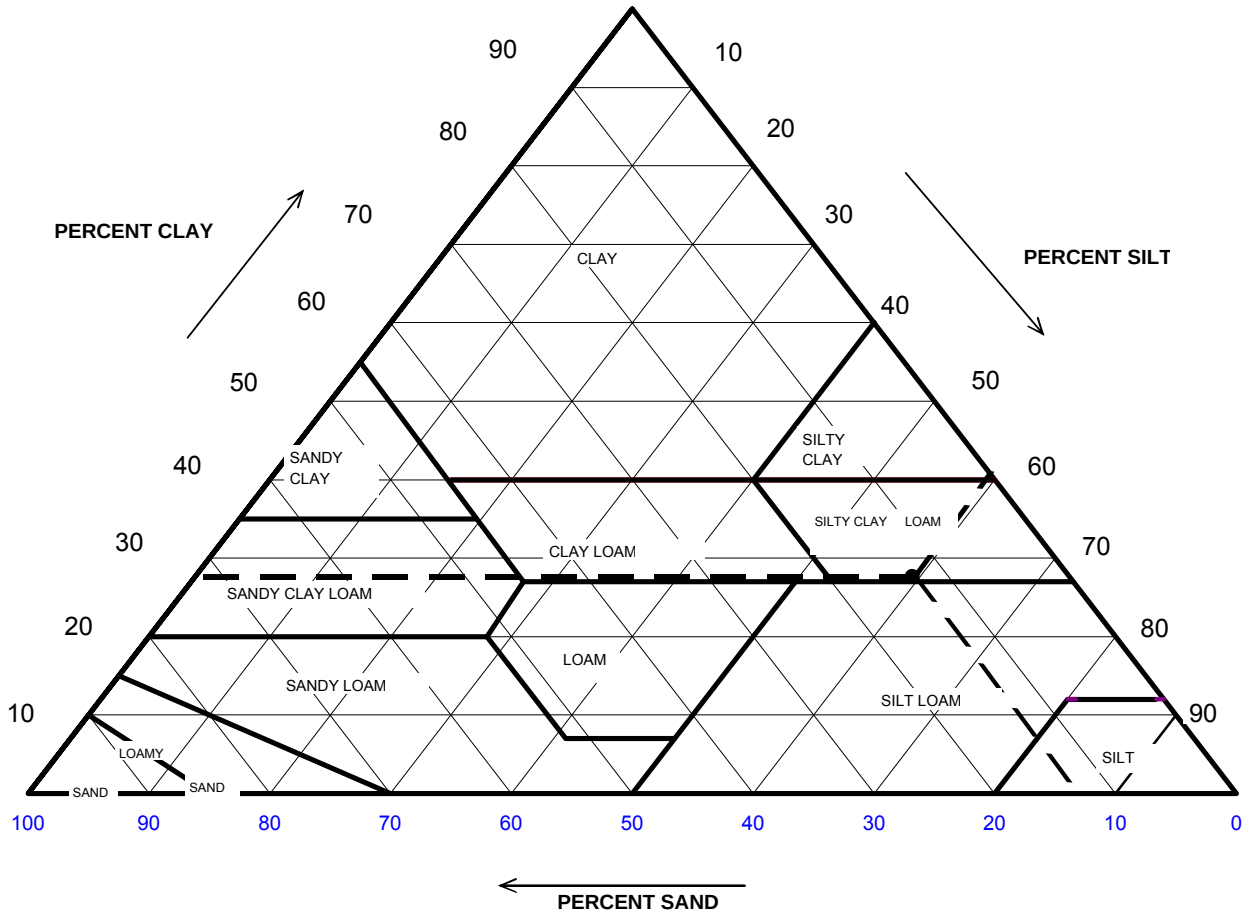
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-003	Soil Color:	Dark Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	2.86	**0.00**
2	97.14	*Sand*	12.57	**12.94**
0.05	84.57	*Silt*	57.69	**59.39**
0.002	26.88	*Clay*	26.88	**27.67**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-003	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1434	Tare No.	NA
Weight of Tare & Wet Sample (g)	527.30	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	462.90	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.04	Weight of Tare (g)	NA
Weight of Water (g)	64.40	Weight of Water (g)	NA
Weight of Dry Sample (g)	317.86	Weight of Dry Sample (g)	NA
Moisture Content (%)	**20.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	317.86
Dry Weight of -3/4" Sample (g)	27.72	Weight of - #200 Material (g)	290.14
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	27.72
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	1.93	0.61	0.61		99.39	**99.39**
#4	4.75	3.60	1.13	1.74		98.26	**98.26**
#10	2.00	3.55	1.12	2.86		97.14	**97.14**
#20	0.85	2.09	0.66	3.51		96.49	**96.49**
#40	0.425	1.19	0.37	3.89		96.11	**96.11**
#60	0.250	1.64	0.52	4.40		95.60	**95.60**
#140	0.106	8.78	2.76	7.17		92.83	**92.83**
#200	0.075	4.94	1.55	8.72		91.28	**91.28**
Pan	-	290.14	91.28	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-003	Soil Color:	Dark Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		48.0	22.1	6.33	41.7	81.4	0.01311	0.0269	**74.3**
5		43.0	22.1	6.33	36.7	71.7	0.01311	0.0178	**65.4**
15		35.5	22.1	6.33	29.2	57.0	0.01311	0.0110	**52.0**
32		30.5	22.1	6.33	24.2	47.2	0.01311	0.0078	**43.1**
60		28.5	22.1	6.33	22.2	43.3	0.01311	0.0058	**39.5**
250		22.5	22.6	6.15	16.4	32.0	0.01303	0.0029	**29.2**
1440		19.5	22.9	6.04	13.5	26.3	0.01299	0.0012	**24.0**

Soil Specimen Data		**Other Corrections**		
Tare No.	644			
Weight of Tare & Dry Material (g)	155.53	a - Factor	0.99	
Weight of Tare (g)	99.86			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	91.28	
Weight of Dry Material (g)	50.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/6/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.9-19.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-004	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	1.21
Finer Than #200	*Silt & Clay*	98.79

USCS Symbol:
CL, TESTED

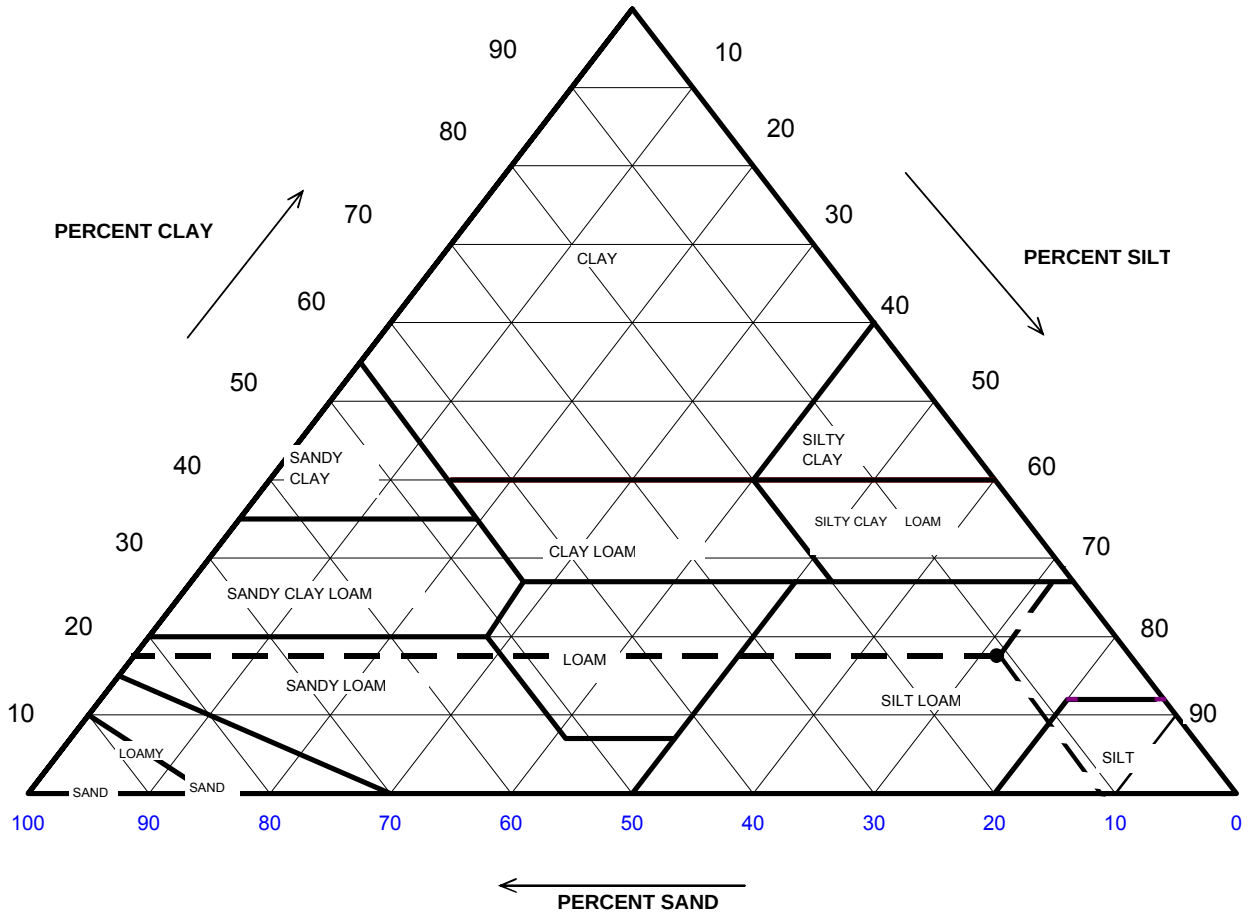
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.9-19.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-004	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.05	**0.00**
2	99.95	*Sand*	11.05	**11.06**
0.05	88.90	*Silt*	71.40	**71.43**
0.002	17.50	*Clay*	17.50	**17.51**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.9-19.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-004	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1465	Tare No.	NA
Weight of Tare & Wet Sample (g)	922.04	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	734.20	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	97.72	Weight of Tare (g)	NA
Weight of Water (g)	187.84	Weight of Water (g)	NA
Weight of Dry Sample (g)	636.48	Weight of Dry Sample (g)	NA
Moisture Content (%)	**29.5**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	636.48
Dry Weight of -3/4" Sample (g)	7.73	Weight of - #200 Material (g)	628.75
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	7.73
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.34	0.05	0.05		99.95	**99.95**
#20	0.85	1.60	0.25	0.30		99.70	**99.70**
#40	0.425	2.23	0.35	0.66		99.34	**99.34**
#60	0.250	1.64	0.26	0.91		99.09	**99.09**
#140	0.106	1.44	0.23	1.14		98.86	**98.86**
#200	0.075	0.48	0.08	1.21		98.79	**98.79**
Pan	-	628.75	98.79	100.00		-	**-**

Tested By PC Date 9/28/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.9-19.4
Project No.:	2015-485-002	Sample No.:	ST-1
Lab ID:	2015-485-002-004	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		28.0	22.7	6.11	21.9	78.6	0.01302	0.0315	**77.6**
5		25.0	22.7	6.11	18.9	67.8	0.01302	0.0203	**67.0**
15		17.5	22.7	6.11	11.4	40.9	0.01302	0.0123	**40.4**
30		14.5	22.7	6.11	8.4	30.1	0.01302	0.0089	**29.8**
74		13.5	22.8	6.07	7.4	26.7	0.01300	0.0057	**26.3**
250		11.5	22.6	6.15	5.4	19.2	0.01303	0.0031	**19.0**
1440		10.5	23.1	5.97	4.5	16.3	0.01296	0.0013	**16.1**

Soil Specimen Data		**Other Corrections**		
Tare No.	947			
Weight of Tare & Dry Material (g)	132.91	a - Factor	0.99	
Weight of Tare (g)	100.33			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	98.79	
Weight of Dry Material (g)	27.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/28/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	28.5-30.0
Project No.:	2015-485-003	Sample No.:	SS-10
Lab ID:	2015-485-003-004	Soil Color:	Brown / Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	1.98
Finer Than #200	*Silt & Clay*	98.02

USCS Symbol:
CH, TESTED

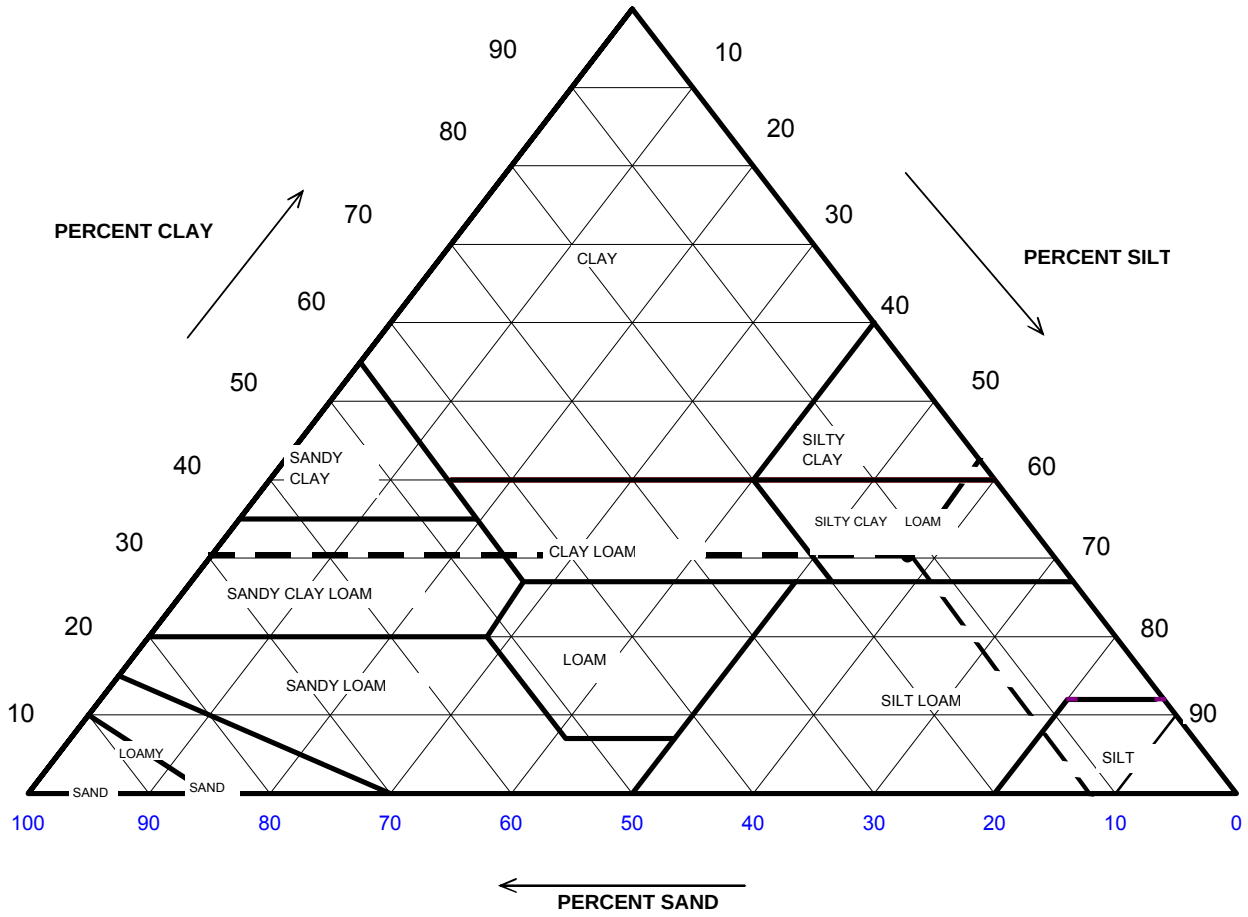
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	28.5-30.0
Project No.:	2015-485-003	Sample No.:	SS-10
Lab ID:	2015-485-003-004	Soil Color:	Brown / Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.02	**0.00**
2	99.98	*Sand*	12.01	**12.01**
0.05	87.97	*Silt*	57.66	**57.67**
0.002	30.31	*Clay*	30.31	**30.32**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	28.5-30.0
Project No.:	2015-485-003	Sample No.:	SS-10
Lab ID:	2015-485-003-004	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1455	Tare No.	NA
Weight of Tare & Wet Sample (g)	428.80	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	342.67	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.30	Weight of Tare (g)	NA
Weight of Water (g)	86.13	Weight of Water (g)	NA
Weight of Dry Sample (g)	197.37	Weight of Dry Sample (g)	NA
Moisture Content (%)	**43.6**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	197.37
Dry Weight of -3/4" Sample (g)	3.91	Weight of - #200 Material (g)	193.46
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	3.91
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.03	0.02	0.02		99.98	**99.98**
#20	0.85	0.10	0.05	0.07		99.93	**99.93**
#40	0.425	0.15	0.08	0.14		99.86	**99.86**
#60	0.250	0.23	0.12	0.26		99.74	**99.74**
#140	0.106	1.22	0.62	0.88		99.12	**99.12**
#200	0.075	2.18	1.10	1.98		98.02	**98.02**
Pan	-	193.46	98.02	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	28.5-30.0
Project No.:	2015-485-003	Sample No.:	SS-10
Lab ID:	2015-485-003-004	Soil Color:	Brown / Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		46.0	22.1	6.33	39.7	74.6	0.01311	0.0274	**73.1**
5		39.5	22.1	6.33	33.2	62.4	0.01311	0.0184	**61.1**
15		34.5	22.1	6.33	28.2	53.0	0.01311	0.0110	**51.9**
30		31.5	22.1	6.33	25.2	47.3	0.01311	0.0080	**46.4**
60		29.5	22.1	6.33	23.2	43.6	0.01311	0.0057	**42.7**
250		24.5	22.6	6.15	18.4	34.5	0.01303	0.0029	**33.8**
1440		20.0	22.9	6.04	14.0	26.2	0.01299	0.0012	**25.7**

Soil Specimen Data		**Other Corrections**		
Tare No.	975			
Weight of Tare & Dry Material (g)	153.89	a - Factor	0.99	
Weight of Tare (g)	96.22			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	98.02	
Weight of Dry Material (g)	52.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/6/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

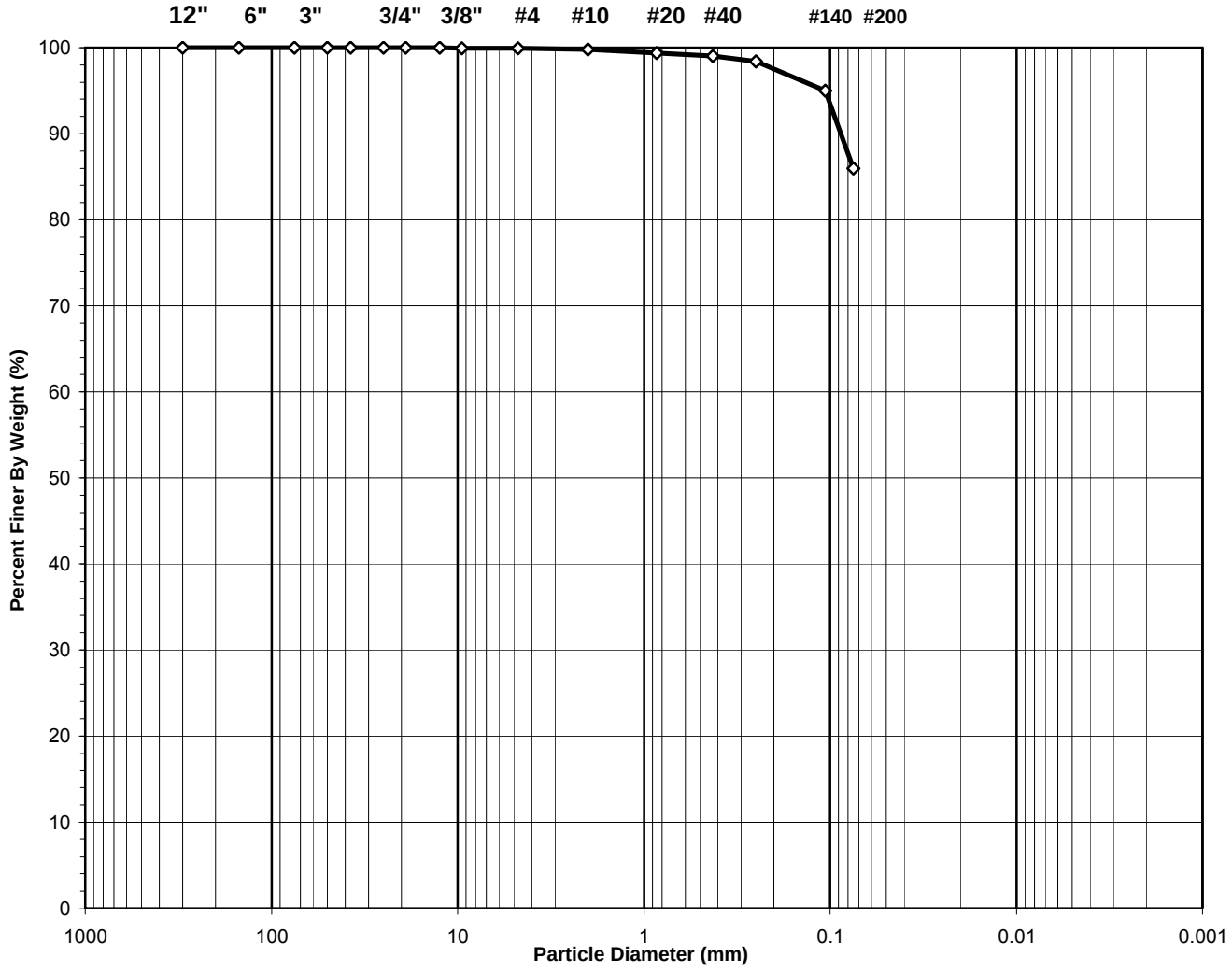
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-11
Lab ID:	2015-485-003-005	Soil Color:	Dark Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
cl, ASSUMED

USCS Classification:
LEAN CLAY

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-11
Lab ID:	2015-485-003-005	Soil Color:	Dark Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	28	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	652.78	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	525.50	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	203.60	Weight of Tare (g):	NA
Weight of Water (g):	127.28	Weight of Water (g):	NA
Weight of Dry Sample (g):	321.90	Weight of Dry Sample (g):	NA
Moisture Content (%):	**39.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	321.90
Dry Weight of - 3/4" Sample (g):	45.2	Weight of - #200 Material (g):	276.73
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	45.17
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.27	0.08	0.08	99.92	**99.92**
#4	4.75	0.06	0.02	0.10	99.90	**99.90**
#10	2.00	0.44	0.14	0.24	99.76	**99.76**
#20	0.850	1.19	0.37	0.61	99.39	**99.39**
#40	0.425	1.20	0.37	0.98	99.02	**99.02**
#60	0.250	1.98	0.62	1.60	98.40	**98.40**
#140	0.106	10.92	3.39	4.99	95.01	**95.01**
#200	0.075	29.11	9.04	14.03	85.97	**85.97**
Pan	-	276.73	85.97	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

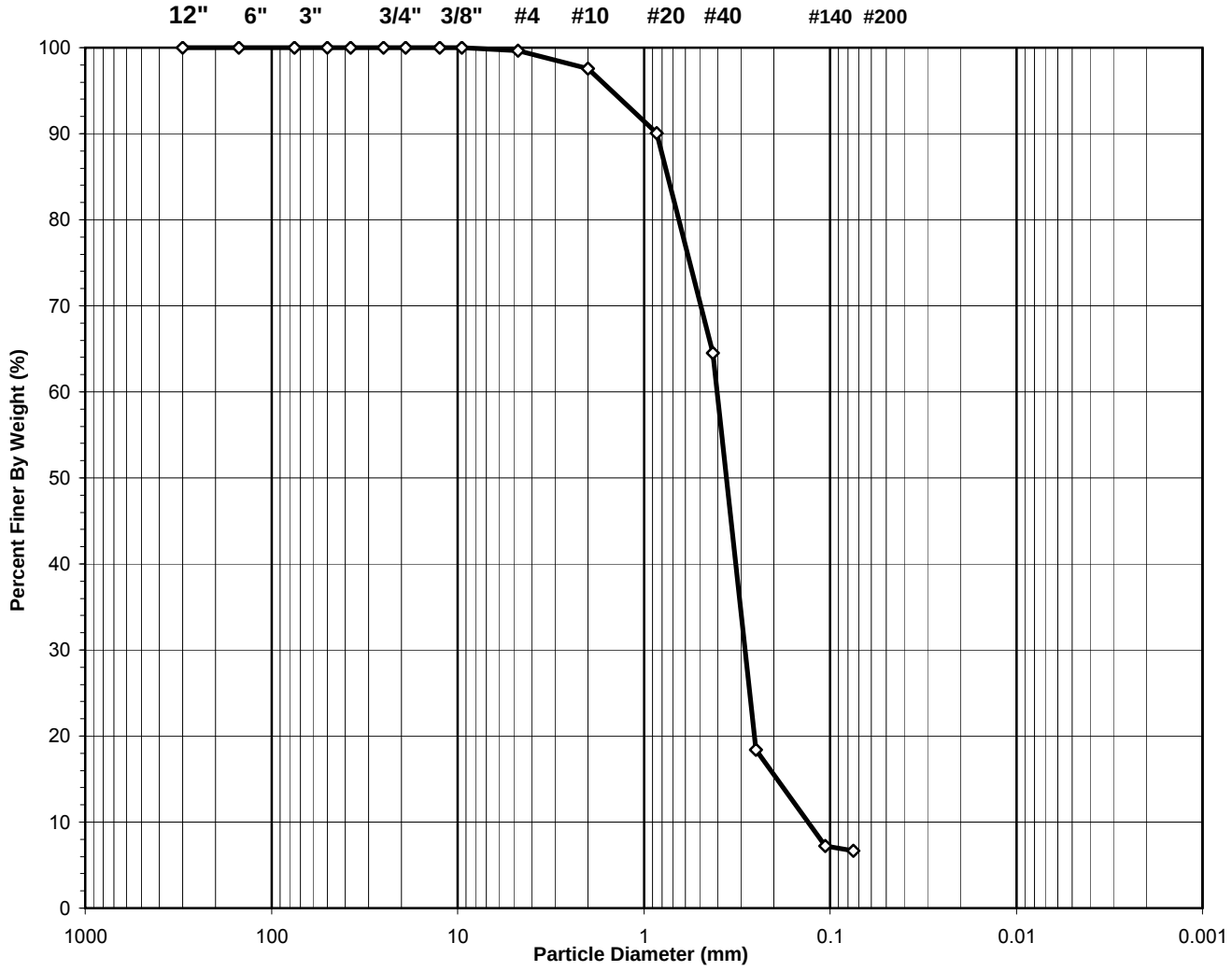
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-42.5
Project No.:	2015-485-003	Sample No.:	SS-15
Lab ID:	2015-485-003-006	Soil Color:	Brownish Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.40 **CC = 1.54**

D30 = 0.29 **CU = 3.07**

D10 = 0.13

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	41.0-42.5
Project No.:	2015-485-003	Sample No.:	SS-15
Lab ID:	2015-485-003-006	Soil Color:	Brownish Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1418	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	594.30	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	526.00	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.23	Weight of Tare (g):	NA
Weight of Water (g):	68.30	Weight of Water (g):	NA
Weight of Dry Sample (g):	380.77	Weight of Dry Sample (g):	NA
Moisture Content (%):	**17.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	380.77
Dry Weight of - 3/4" Sample (g):	355.5	Weight of - #200 Material (g):	25.32
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	355.45
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.31	0.34	0.34	99.66	**99.66**
#10	2.00	7.86	2.06	2.41	97.59	**97.59**
#20	0.850	28.66	7.53	9.94	90.06	**90.06**
#40	0.425	97.29	25.55	35.49	64.51	**64.51**
#60	0.250	175.70	46.14	81.63	18.37	**18.37**
#140	0.106	42.56	11.18	92.81	7.19	**7.19**
#200	0.075	2.07	0.54	93.35	6.65	**6.65**
Pan	-	25.32	6.65	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

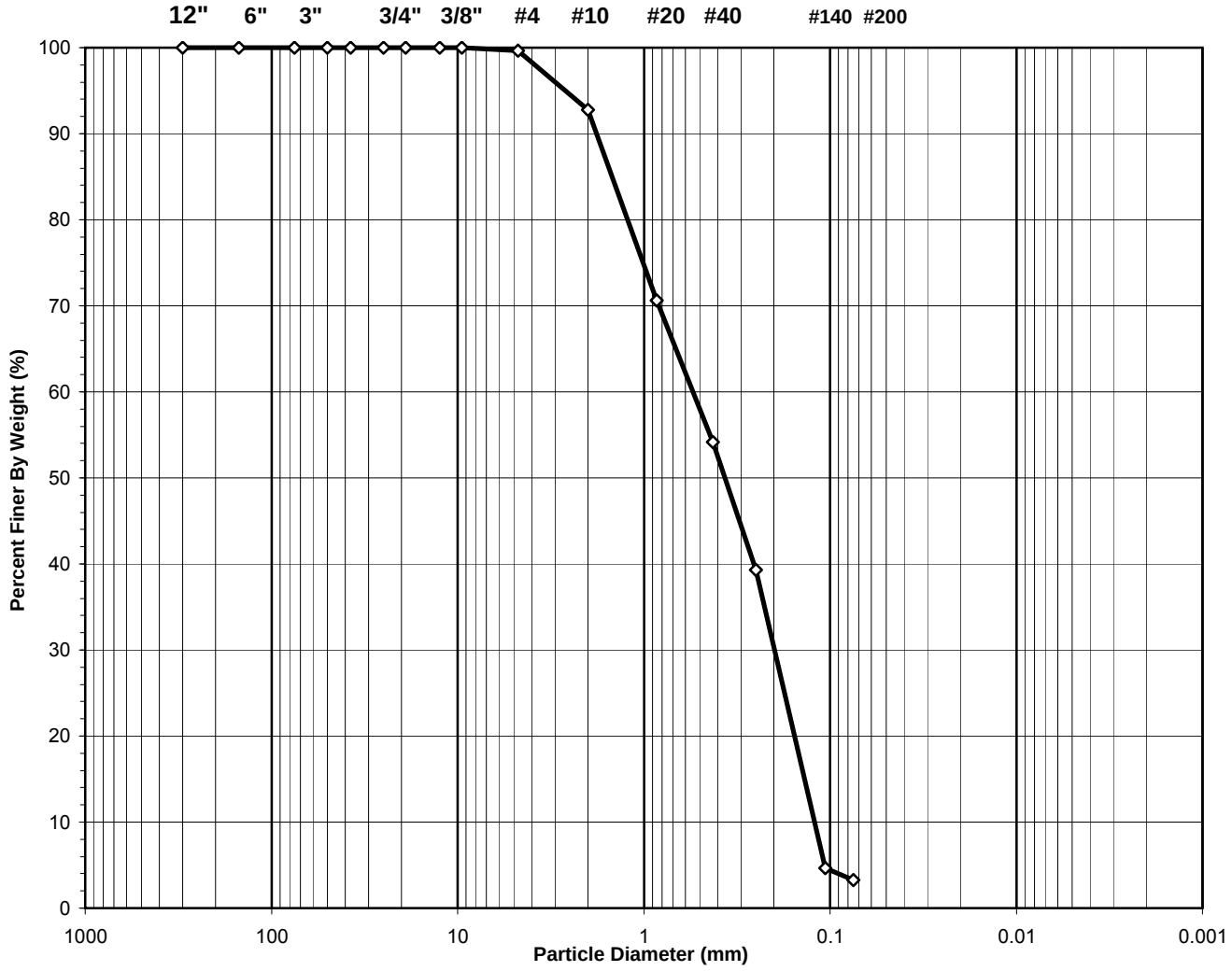
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	58.5-60.0
Project No.:	2015-485-003	Sample No.:	SS-18
Lab ID:	2015-485-003-007	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.54 **CC = 0.60**

D30 = 0.20 **CU = 4.48**

D10 = 0.12

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-13
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	58.5-60.0
Project No.:	2015-485-003	Sample No.:	SS-18
Lab ID:	2015-485-003-007	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1424	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	618.50	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	542.80	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	146.08	Weight of Tare (g):	NA
Weight of Water (g):	75.70	Weight of Water (g):	NA
Weight of Dry Sample (g):	396.72	Weight of Dry Sample (g):	NA
Moisture Content (%):	**19.1**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	396.72
Dry Weight of - 3/4" Sample (g):	383.8	Weight of - #200 Material (g):	12.90
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	383.82
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.46	0.37	0.37	99.63	**99.63**
#10	2.00	27.08	6.83	7.19	92.81	**92.81**
#20	0.850	87.93	22.16	29.36	70.64	**70.64**
#40	0.425	65.25	16.45	45.81	54.19	**54.19**
#60	0.250	59.20	14.92	60.73	39.27	**39.27**
#140	0.106	137.40	34.63	95.36	4.64	**4.64**
#200	0.075	5.50	1.39	96.75	3.25	**3.25**
Pan	-	12.90	3.25	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

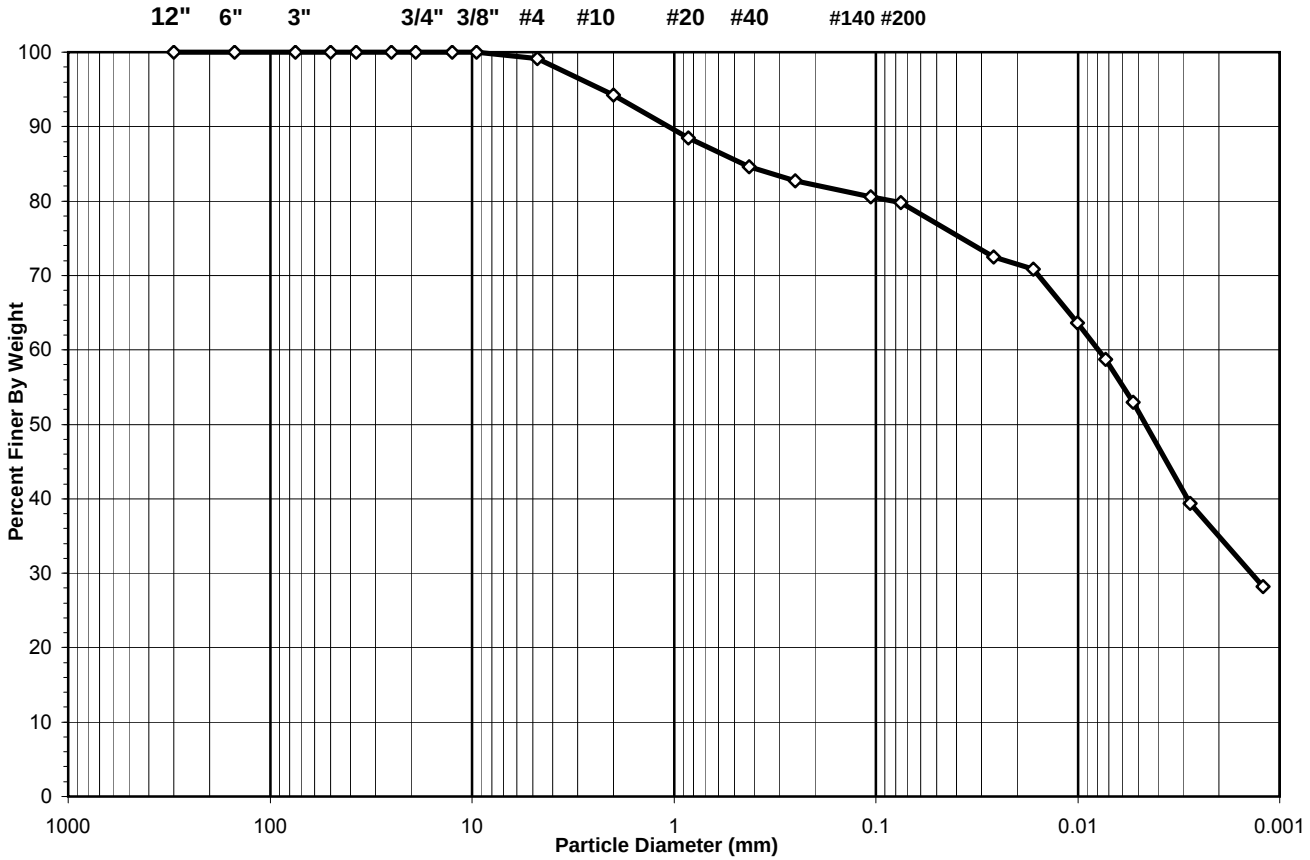
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	29.2-29.7
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-002	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.88
#4 To #200	*Sand*	19.36
Finer Than #200	*Silt & Clay*	79.76

USCS Symbol:

MH, TESTED

USCS Classification:

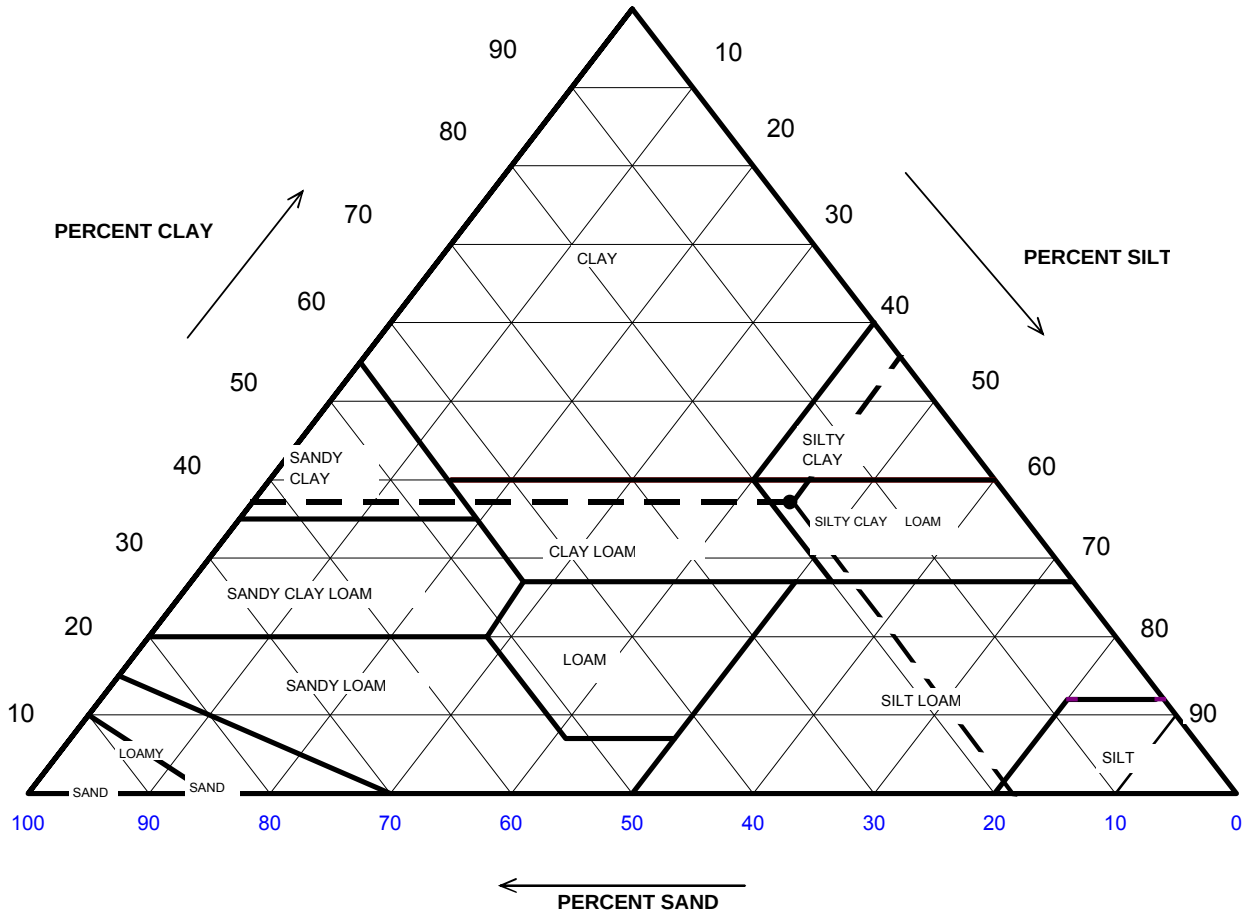
ELASTIC SILT WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	29.2-29.7
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-002	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	5.72	**0.00**
2	94.28	*Sand*	17.31	**18.36**
0.05	76.97	*Silt*	41.96	**44.50**
0.002	35.02	*Clay*	35.02	**37.14**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	29.2-29.7
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-002	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1440	Tare No.	NA
Weight of Tare & Wet Sample (g)	892.56	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	588.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.59	Weight of Tare (g)	NA
Weight of Water (g)	304.26	Weight of Water (g)	NA
Weight of Dry Sample (g)	442.71	Weight of Dry Sample (g)	NA
Moisture Content (%)	**68.7**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	442.71
Dry Weight of -3/4" Sample (g)	89.61	Weight of - #200 Material (g)	353.10
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	89.61
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	3.90	0.88	0.88		99.12	**99.12**
#10	2.00	21.42	4.84	5.72		94.28	**94.28**
#20	0.85	25.85	5.84	11.56		88.44	**88.44**
#40	0.425	16.88	3.81	15.37		84.63	**84.63**
#60	0.250	8.57	1.94	17.31		82.69	**82.69**
#140	0.106	9.51	2.15	19.46		80.54	**80.54**
#200	0.075	3.48	0.79	20.24		79.76	**79.76**
Pan	-	353.10	79.76	100.00		-	**-**

Tested By RAL Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	29.2-29.7
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-002	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		51.0	22.4	6.22	44.8	90.9	0.01307	0.0260	**72.5**
5		50.0	22.4	6.22	43.8	88.9	0.01307	0.0166	**70.9**
15		45.5	22.4	6.22	39.3	79.7	0.01307	0.0100	**63.6**
30		42.5	22.4	6.22	36.3	73.6	0.01307	0.0073	**58.7**
60		39.0	22.3	6.25	32.7	66.5	0.01308	0.0053	**53.0**
250		30.5	22.6	6.15	24.4	49.4	0.01303	0.0028	**39.4**
1440		23.5	22.8	6.07	17.4	35.4	0.01300	0.0012	**28.2**

Soil Specimen Data		**Other Corrections**		
Tare No.	925			
Weight of Tare & Dry Material (g)	153.69	a - Factor	0.99	
Weight of Tare (g)	99.91			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	79.76	
Weight of Dry Material (g)	48.8			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

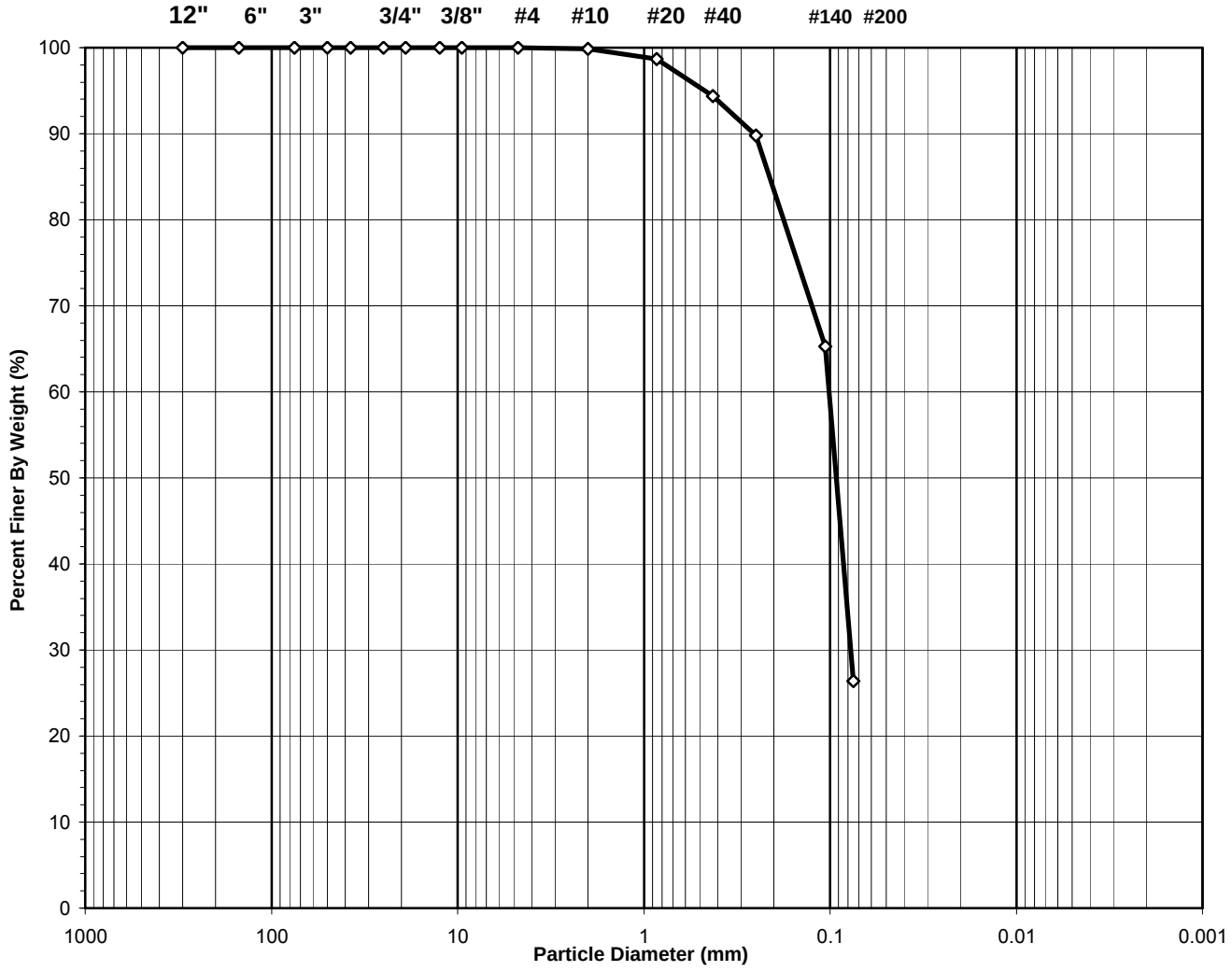
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35.0
Project No.:	2015-485-001	Sample No.:	SS-10
Lab ID:	2015-485-001-003	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35.0
Project No.:	2015-485-001	Sample No.:	SS-10
Lab ID:	2015-485-001-003	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1425	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	477.30	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	413.70	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.92	Weight of Tare (g):	NA
Weight of Water (g):	63.60	Weight of Water (g):	NA
Weight of Dry Sample (g):	268.78	Weight of Dry Sample (g):	NA
Moisture Content (%):	**23.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	268.78
Dry Weight of - 3/4" Sample (g):	197.8	Weight of - #200 Material (g):	70.97
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	197.81
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.43	0.16	0.16	99.84	**99.84**
#20	0.850	3.14	1.17	1.33	98.67	**98.67**
#40	0.425	11.56	4.30	5.63	94.37	**94.37**
#60	0.250	12.24	4.55	10.18	89.82	**89.82**
#140	0.106	65.91	24.52	34.70	65.30	**65.30**
#200	0.075	104.53	38.89	73.60	26.40	**26.40**
Pan	-	70.97	26.40	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

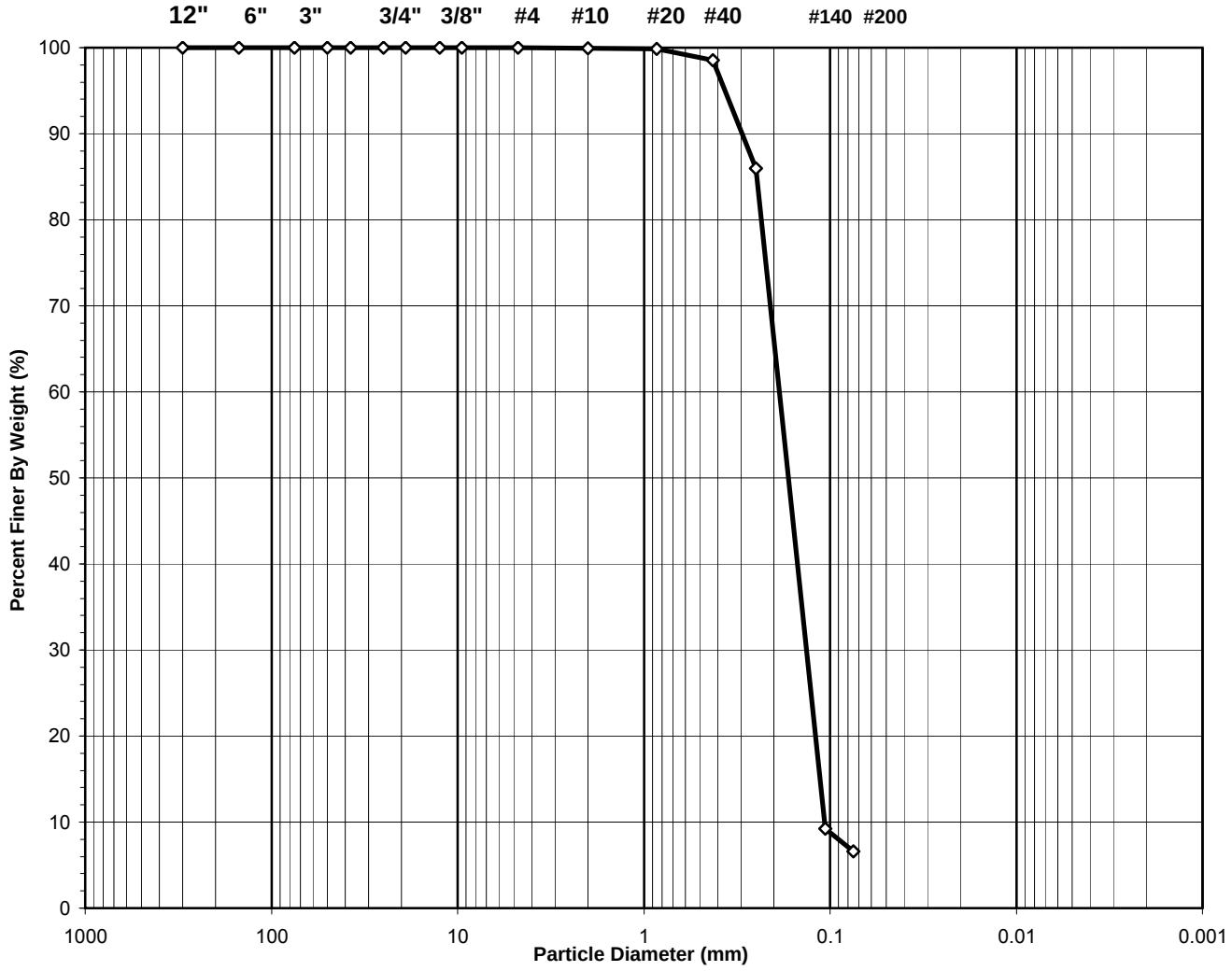
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	46.0-47.5
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-004	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.19 **CC = 0.89**

D30 = 0.13 **CU = 1.75**

D10 = 0.11

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	46.0-47.5
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-004	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1438	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	538.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	450.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.53	Weight of Tare (g):	NA
Weight of Water (g):	88.40	Weight of Water (g):	NA
Weight of Dry Sample (g):	305.87	Weight of Dry Sample (g):	NA
Moisture Content (%):	**28.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	305.87
Dry Weight of - 3/4" Sample (g):	285.7	Weight of - #200 Material (g):	20.13
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	285.74
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.12	0.04	0.04	99.96	**99.96**
#20	0.850	0.30	0.10	0.14	99.86	**99.86**
#40	0.425	3.94	1.29	1.43	98.57	**98.57**
#60	0.250	38.46	12.57	14.00	86.00	**86.00**
#140	0.106	234.90	76.80	90.80	9.20	**9.20**
#200	0.075	8.02	2.62	93.42	6.58	**6.58**
Pan	-	20.13	6.58	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

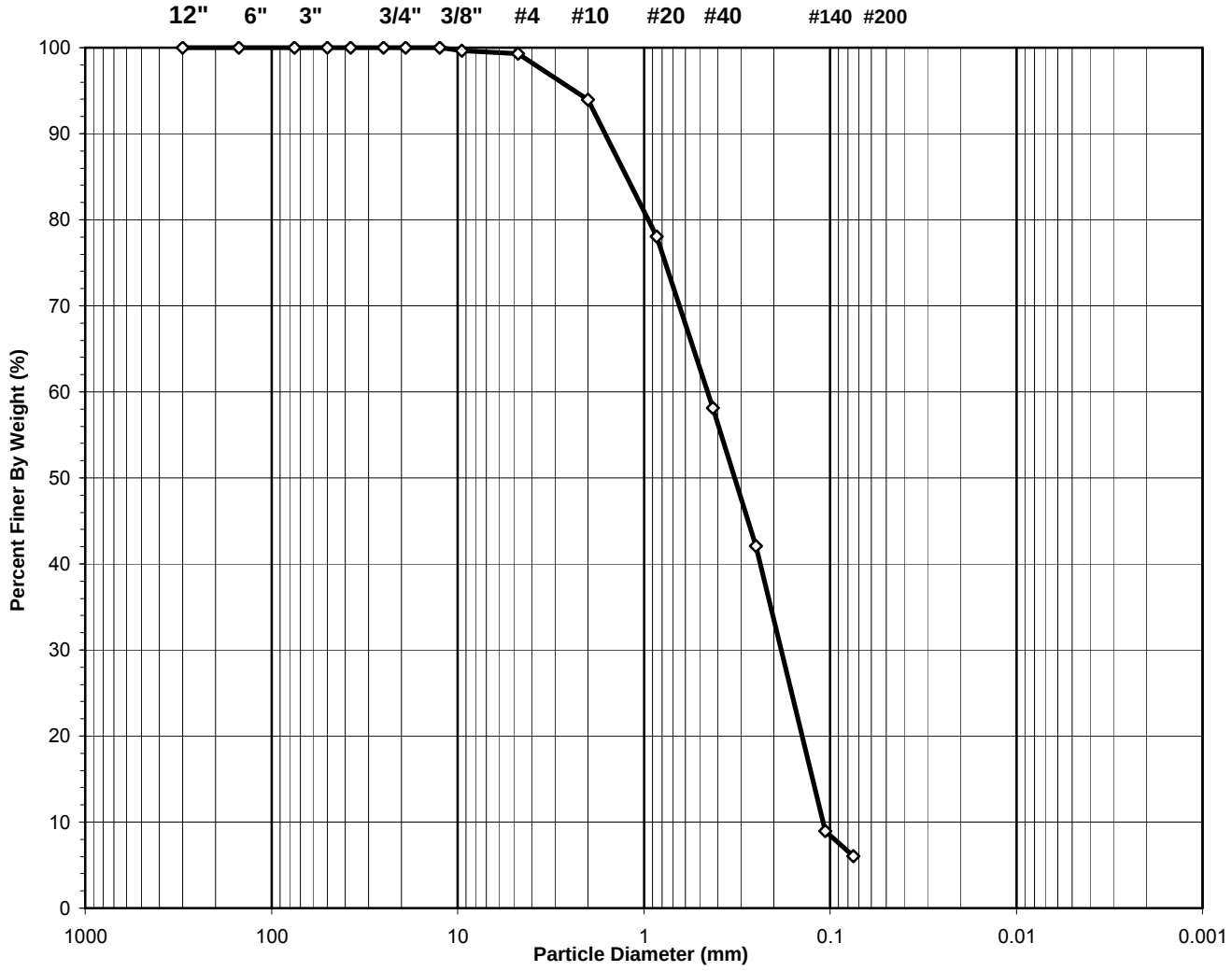
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	58.5-60.0
Project No.:	2015-485-001	Sample No.:	SS-19
Lab ID:	2015-485-001-005	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.45 **CC = 0.68**

D30 = 0.18 **CU = 4.16**

D10 = 0.11

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B014
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	58.5-60.0
Project No.:	2015-485-001	Sample No.:	SS-19
Lab ID:	2015-485-001-005	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1454	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	692.38	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	590.70	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	138.40	Weight of Tare (g):	NA
Weight of Water (g):	101.68	Weight of Water (g):	NA
Weight of Dry Sample (g):	452.30	Weight of Dry Sample (g):	NA
Moisture Content (%):	**22.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	452.30
Dry Weight of - 3/4" Sample (g):	425.1	Weight of - #200 Material (g):	27.25
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	425.05
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	1.70	0.38	0.38	99.62	**99.62**
#4	4.75	1.33	0.29	0.67	99.33	**99.33**
#10	2.00	24.35	5.38	6.05	93.95	**93.95**
#20	0.850	71.79	15.87	21.93	78.07	**78.07**
#40	0.425	90.12	19.92	41.85	58.15	**58.15**
#60	0.250	72.81	16.10	57.95	42.05	**42.05**
#140	0.106	149.68	33.09	91.04	8.96	**8.96**
#200	0.075	13.27	2.93	93.98	6.02	**6.02**
Pan	-	27.25	6.02	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	14.4-14.9
Project No.:	2015-485-007	Sample No.:	ST-1
Lab ID:	2015-485-007-002	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.29
#4 To #200	*Sand*	10.42
Finer Than #200	*Silt & Clay*	89.29

USCS Symbol:
CL, TESTED

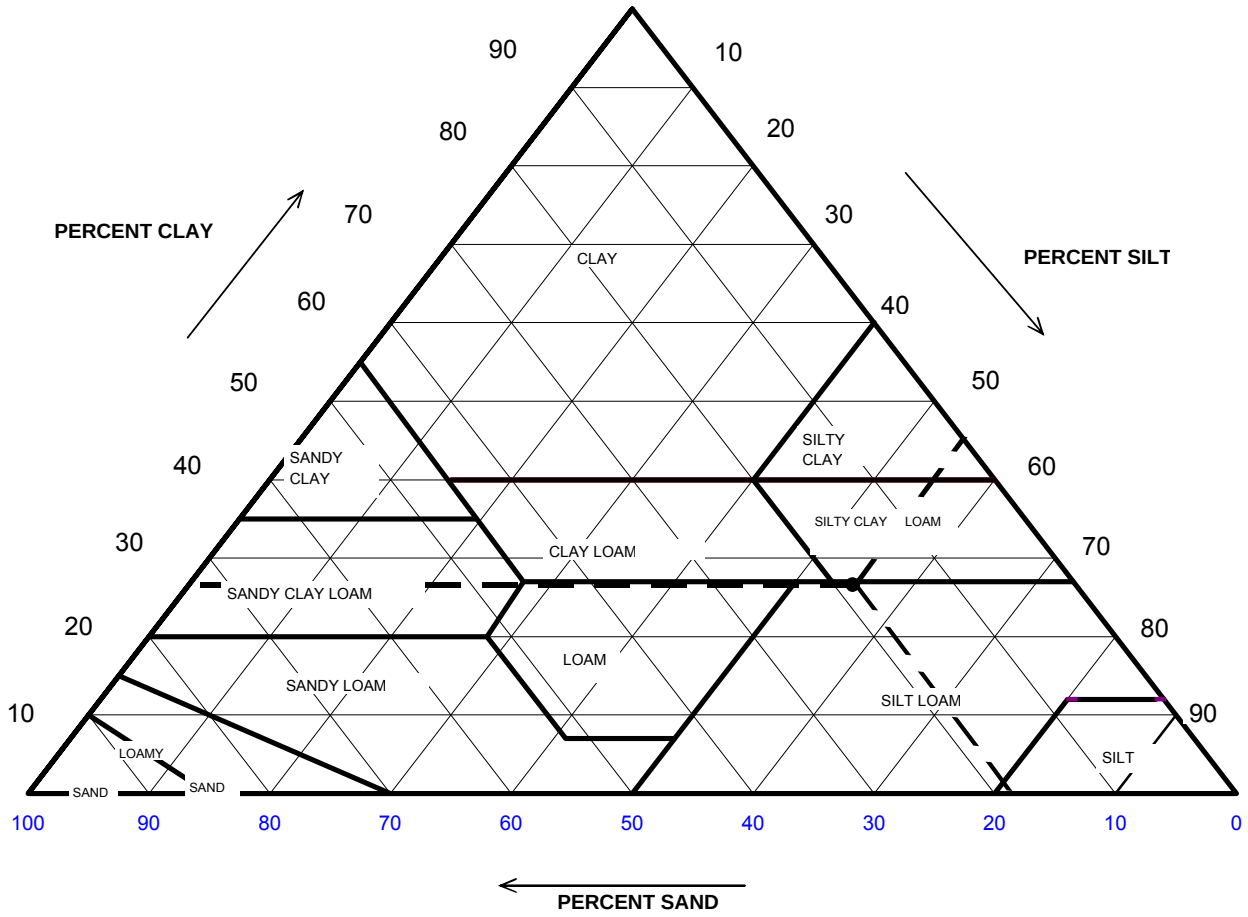
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	14.4-14.9
Project No.:	2015-485-007	Sample No.:	ST-1
Lab ID:	2015-485-007-002	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.75	**0.00**
2	99.25	*Sand*	18.30	**18.44**
0.05	80.95	*Silt*	54.56	**54.97**
0.002	26.39	*Clay*	26.39	**26.59**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	14.4-14.9
Project No.:	2015-485-007	Sample No.:	ST-1
Lab ID:	2015-485-007-002	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1451	Tare No.	NA
Weight of Tare & Wet Sample (g)	1119.84	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	953.50	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	144.72	Weight of Tare (g)	NA
Weight of Water (g)	166.34	Weight of Water (g)	NA
Weight of Dry Sample (g)	808.78	Weight of Dry Sample (g)	NA
Moisture Content (%)	**20.6**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	808.78
Dry Weight of -3/4" Sample (g)	86.59	Weight of - #200 Material (g)	722.19
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	86.59
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	2.31	0.29	0.29		99.71	**99.71**
#10	2.00	3.76	0.46	0.75		99.25	**99.25**
#20	0.85	1.56	0.19	0.94		99.06	**99.06**
#40	0.425	2.84	0.35	1.29		98.71	**98.71**
#60	0.250	12.08	1.49	2.79		97.21	**97.21**
#140	0.106	41.07	5.08	7.87		92.13	**92.13**
#200	0.075	22.97	2.84	10.71		89.29	**89.29**
Pan	-	722.19	89.29	100.00		-	**-**

Tested By HL Date 11/5/15 Checked By KC Date 11/9/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	14.4-14.9
Project No.:	2015-485-007	Sample No.:	ST-1
Lab ID:	2015-485-007-002	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		44.5	23.1	5.97	38.5	76.9	0.01296	0.0275	**68.6**
5		38.0	23.1	5.97	32.0	63.9	0.01296	0.0184	**57.1**
15		31.5	23.1	5.97	25.5	50.9	0.01296	0.0112	**45.5**
30		28.5	23.1	5.97	22.5	44.9	0.01296	0.0081	**40.1**
63		25.5	23.3	5.89	19.6	39.1	0.01293	0.0057	**34.9**
250		22.0	23.5	5.82	16.2	32.3	0.01290	0.0029	**28.8**
1440		19.0	23.2	5.93	13.1	26.1	0.01294	0.0012	**23.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	1092			
Weight of Tare & Dry Material (g)	153.90	a - Factor	0.99	
Weight of Tare (g)	99.27			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	89.29	
Weight of Dry Material (g)	49.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/27/15 Checked By KC Date 11/9/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	15.0-15.5
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-003	Soil Color:	Dark Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.23
#4 To #200	*Sand*	10.43
Finer Than #200	*Silt & Clay*	89.34

USCS Symbol:
CL, TESTED

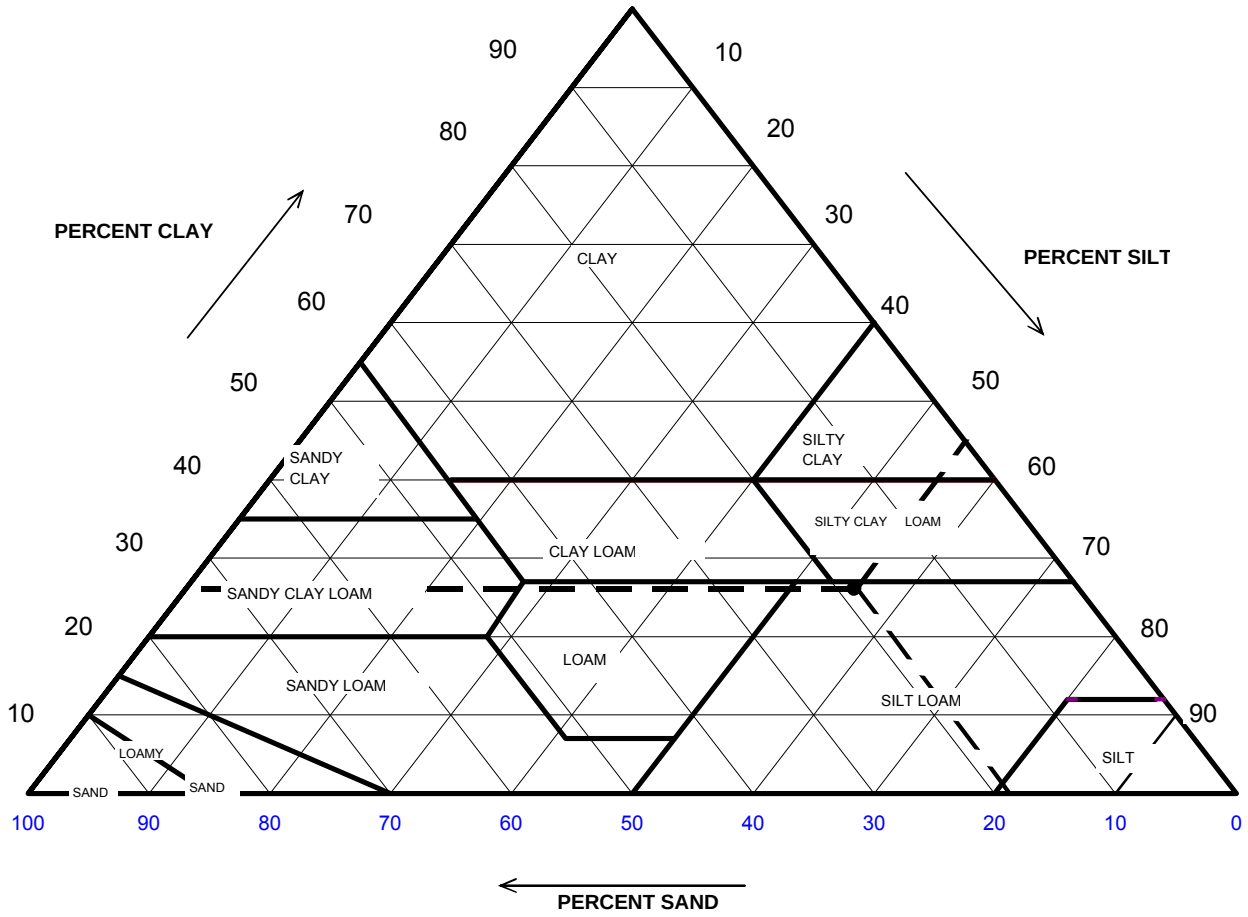
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	15.0-15.5
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-003	Soil Color:	Dark Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.52	**0.00**
2	99.48	*Sand*	18.49	**18.58**
0.05	81.00	*Silt*	55.03	**55.32**
0.002	25.96	*Clay*	25.96	**26.10**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	15.0-15.5
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-003	Soil Color:	Dark Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	925	Tare No.	NA
Weight of Tare & Wet Sample (g)	816.12	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	690.10	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	99.76	Weight of Tare (g)	NA
Weight of Water (g)	126.02	Weight of Water (g)	NA
Weight of Dry Sample (g)	590.34	Weight of Dry Sample (g)	NA
Moisture Content (%)	**21.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	590.34
Dry Weight of -3/4" Sample (g)	62.94	Weight of - #200 Material (g)	527.40
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	62.94
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	1.38	0.23	0.23		99.77	**99.77**
#10	2.00	1.67	0.28	0.52		99.48	**99.48**
#20	0.85	3.22	0.55	1.06		98.94	**98.94**
#40	0.425	3.13	0.53	1.59		98.41	**98.41**
#60	0.250	5.31	0.90	2.49		97.51	**97.51**
#140	0.106	25.23	4.27	6.77		93.23	**93.23**
#200	0.075	23.00	3.90	10.66		89.34	**89.34**
Pan	-	527.40	89.34	100.00		-	**-**

Tested By PC Date 10/31/15 Checked By KC Date 11/2/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B015A
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	15.0-15.5
Project No.:	2015-485-007	Sample No.:	ST-2
Lab ID:	2015-485-007-003	Soil Color:	Dark Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		39.5	22.4	6.22	33.3	78.1	0.01307	0.0290	**69.8**
5		34.0	22.4	6.22	27.8	65.2	0.01307	0.0191	**58.2**
15		28.5	22.4	6.22	22.3	52.3	0.01307	0.0115	**46.7**
30		24.5	22.4	6.22	18.3	42.9	0.01307	0.0084	**38.3**
60		23.0	22.4	6.22	16.8	39.4	0.01307	0.0060	**35.2**
250		20.0	22.5	6.18	13.8	32.4	0.01305	0.0030	**29.0**
1440		17.0	22.3	6.25	10.7	25.2	0.01308	0.0013	**22.5**

Soil Specimen Data		**Other Corrections**		
Tare No.	644			
Weight of Tare & Dry Material (g)	146.77	a - Factor	0.99	
Weight of Tare (g)	99.57			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	89.34	
Weight of Dry Material (g)	42.2			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/31/15 Checked By KC Date 11/2/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

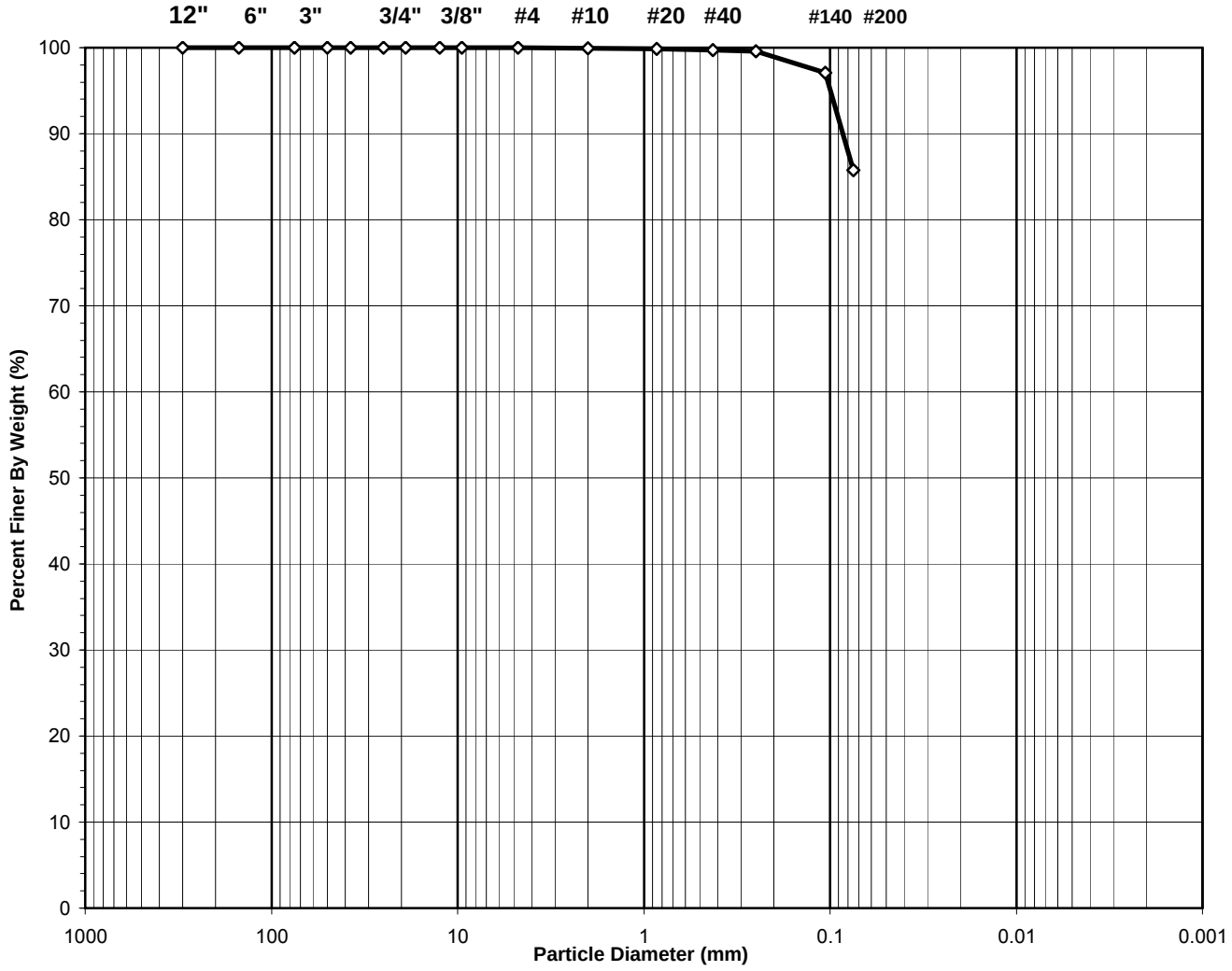
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-2
Lab ID:	2015-485-001-006	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
CL, TESTED

USCS Classification:
LEAN CLAY

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-2
Lab ID:	2015-485-001-006	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1418	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	552.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	491.20	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.19	Weight of Tare (g):	NA
Weight of Water (g):	61.60	Weight of Water (g):	NA
Weight of Dry Sample (g):	346.01	Weight of Dry Sample (g):	NA
Moisture Content (%):	**17.8**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	346.01
Dry Weight of - 3/4" Sample (g):	49.3	Weight of - #200 Material (g):	296.71
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	49.30
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.20	0.06	0.06	99.94	**99.94**
#20	0.850	0.29	0.08	0.14	99.86	**99.86**
#40	0.425	0.42	0.12	0.26	99.74	**99.74**
#60	0.250	0.45	0.13	0.39	99.61	**99.61**
#140	0.106	8.66	2.50	2.90	97.10	**97.10**
#200	0.075	39.28	11.35	14.25	85.75	**85.75**
Pan	-	296.71	85.75	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-007	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary		
Sieve Sizes (mm)		**Percentage**
Greater Than #4	*Gravel*	0.14
#4 To #200	*Sand*	5.17
Finer Than #200	*Silt & Clay*	94.69

USCS Symbol:

ML, TESTED

USCS Classification:

SILT

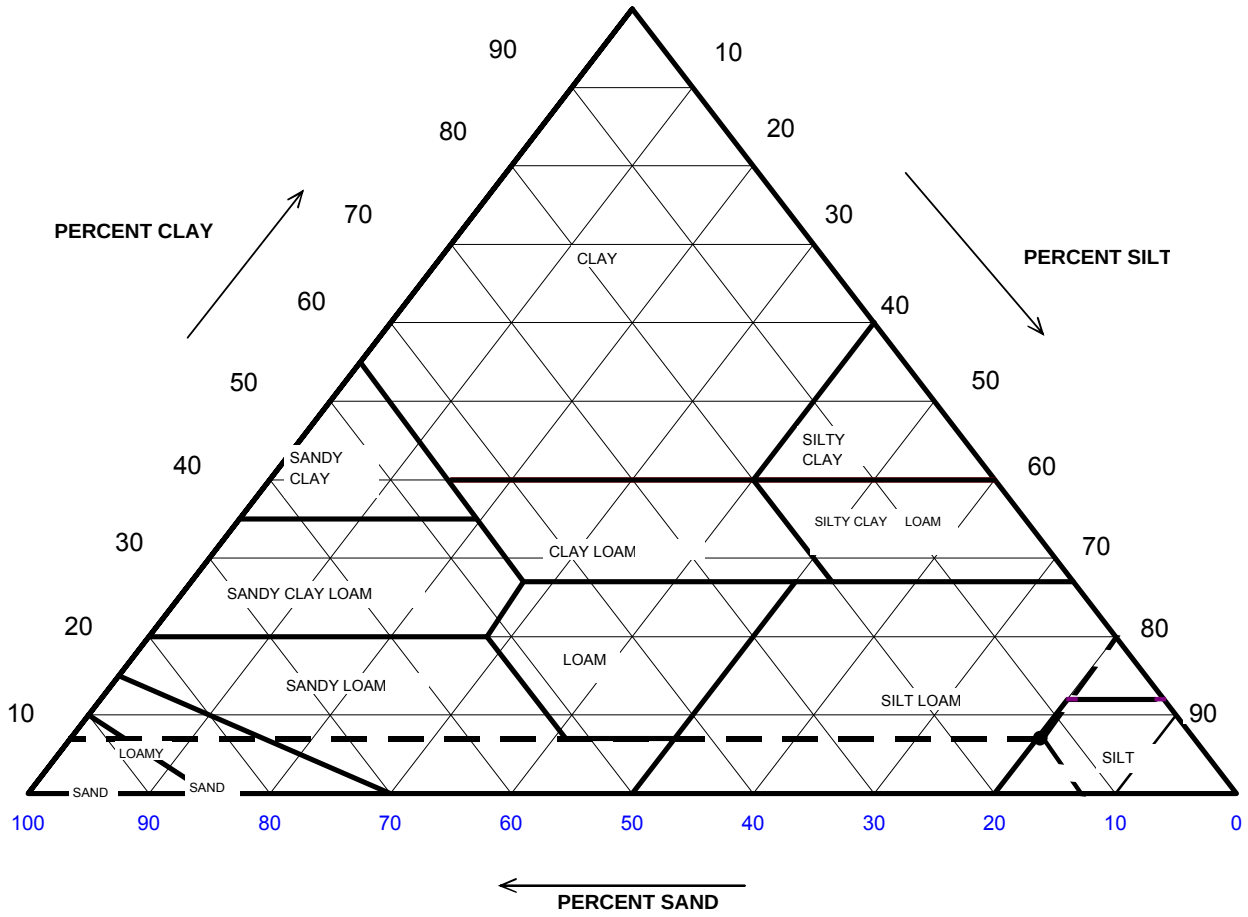
(NON-PLASTIC FINES)

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-007	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.34	**0.00**
2	99.66	*Sand*	12.66	**12.70**
0.05	87.00	*Silt*	79.98	**80.25**
0.002	7.03	*Clay*	7.03	**7.05**

USDA Classification: ***SILT***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-007	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	975	Tare No.	NA
Weight of Tare & Wet Sample (g)	423.04	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	365.78	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	96.13	Weight of Tare (g)	NA
Weight of Water (g)	57.26	Weight of Water (g)	NA
Weight of Dry Sample (g)	269.65	Weight of Dry Sample (g)	NA
Moisture Content (%)	**21.2**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	269.65
Dry Weight of -3/4" Sample (g)	14.32	Weight of - #200 Material (g)	255.33
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	14.32
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.38	0.14	0.14		99.86	**99.86**
#10	2.00	0.53	0.20	0.34		99.66	**99.66**
#20	0.85	0.47	0.17	0.51		99.49	**99.49**
#40	0.425	0.70	0.26	0.77		99.23	**99.23**
#60	0.250	1.73	0.64	1.41		98.59	**98.59**
#140	0.106	5.06	1.88	3.29		96.71	**96.71**
#200	0.075	5.45	2.02	5.31		94.69	**94.69**
Pan	-	255.33	94.69	100.00		-	**-**

Tested By RAL Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B016
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-007	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		49.5	22.4	6.22	43.3	79.1	0.01307	0.0264	**74.9**
5		43.0	22.4	6.22	36.8	67.2	0.01307	0.0178	**63.7**
18		33.0	22.4	6.22	26.8	49.0	0.01307	0.0102	**46.4**
32		28.0	22.4	6.22	21.8	39.8	0.01307	0.0079	**37.7**
62		22.0	22.3	6.25	15.7	28.8	0.01308	0.0059	**27.3**
250		12.5	22.6	6.15	6.4	11.6	0.01303	0.0031	**11.0**
1440		8.0	22.8	6.07	1.9	3.5	0.01300	0.0013	**3.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	970			
Weight of Tare & Dry Material (g)	159.79	a - Factor	0.99	
Weight of Tare (g)	100.63			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	94.69	
Weight of Dry Material (g)	54.2			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

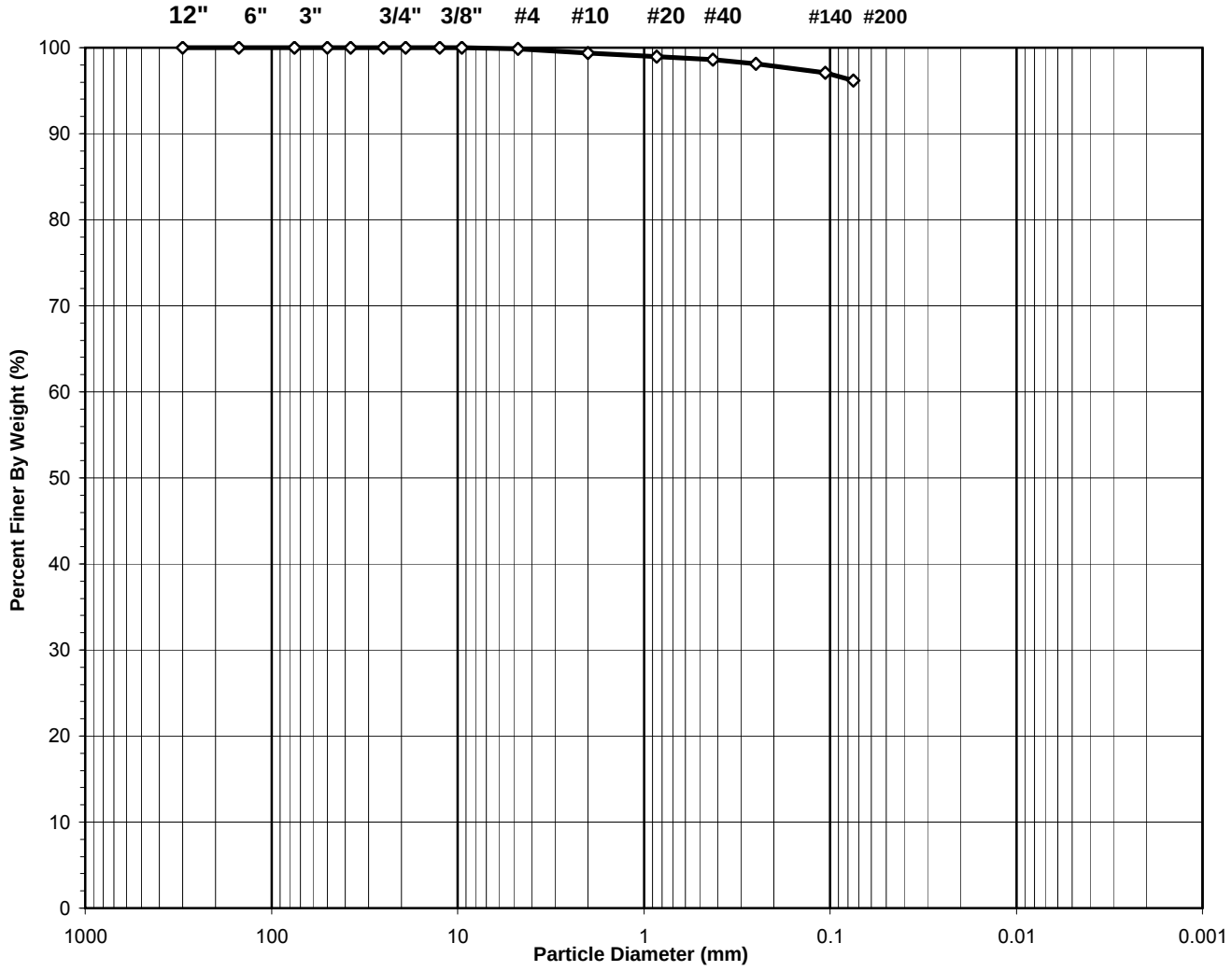
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-008	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
cl, ASSUMED

USCS Classification:
LEAN CLAY

Tested By	PC	Date	10/2/15	Checked By	KC	Date	10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	1.0-2.5
Project No.:	2015-485-003	Sample No.:	SS-1
Lab ID:	2015-485-003-008	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1442	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	424.50	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	384.15	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.81	Weight of Tare (g):	NA
Weight of Water (g):	40.35	Weight of Water (g):	NA
Weight of Dry Sample (g):	238.34	Weight of Dry Sample (g):	NA
Moisture Content (%):	**16.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	238.34
Dry Weight of - 3/4" Sample (g):	9.1	Weight of - #200 Material (g):	229.27
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	9.07
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.40	0.17	0.17	99.83	**99.83**
#10	2.00	1.09	0.46	0.63	99.37	**99.37**
#20	0.850	1.00	0.42	1.04	98.96	**98.96**
#40	0.425	0.87	0.37	1.41	98.59	**98.59**
#60	0.250	1.13	0.47	1.88	98.12	**98.12**
#140	0.106	2.38	1.00	2.88	97.12	**97.12**
#200	0.075	2.20	0.92	3.81	96.19	**96.19**
Pan	-	229.27	96.19	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

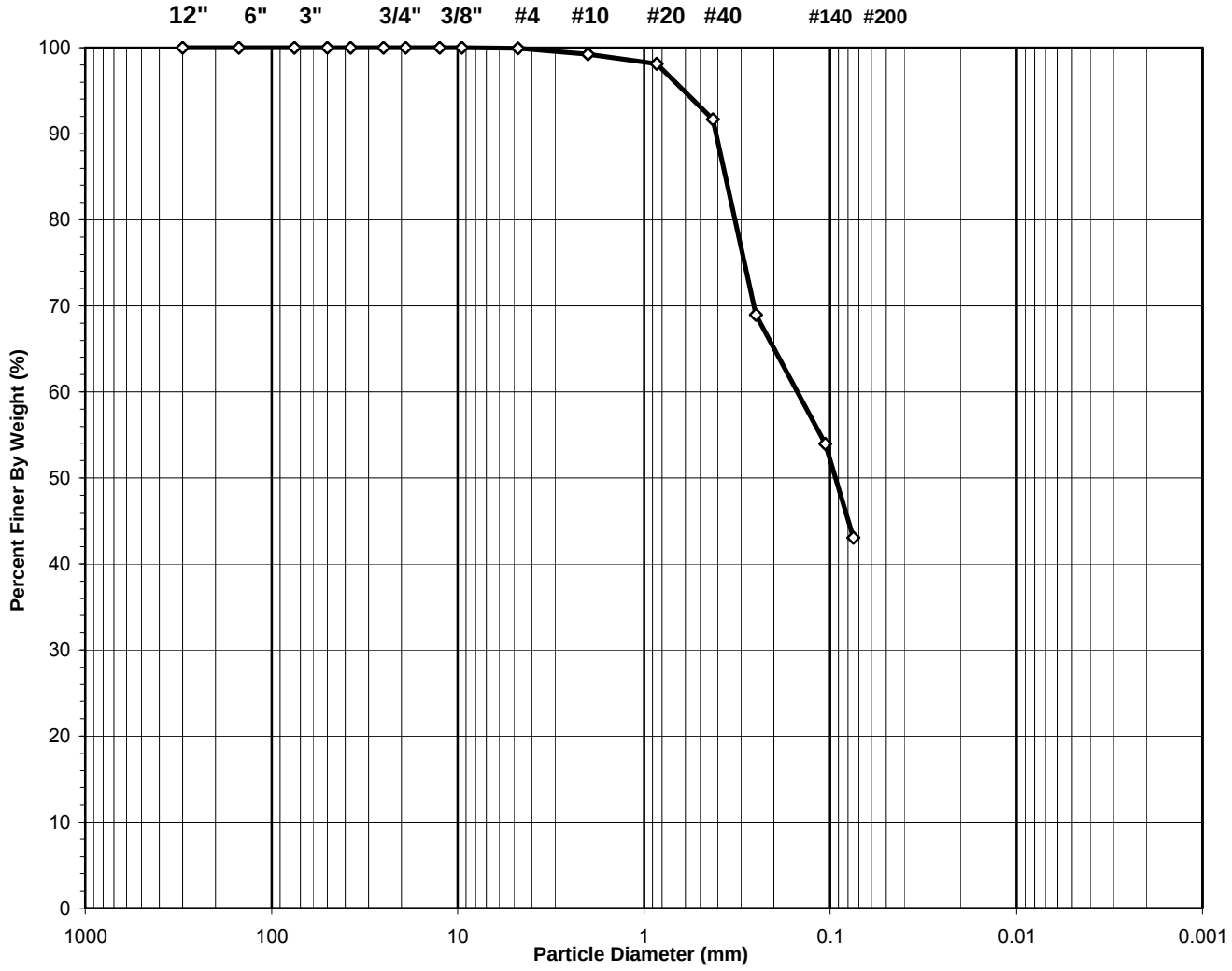
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-009	Soil Color:	Brownish Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	PC	Date	10/2/15	Checked By	KC	Date	10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	11.0-12.5
Project No.:	2015-485-003	Sample No.:	SS-5
Lab ID:	2015-485-003-009	Soil Color:	Brownish Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	56	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	532.00	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	498.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	204.70	Weight of Tare (g):	NA
Weight of Water (g):	33.60	Weight of Water (g):	NA
Weight of Dry Sample (g):	293.70	Weight of Dry Sample (g):	NA
Moisture Content (%):	**11.4**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	293.70
Dry Weight of - 3/4" Sample (g):	167.2	Weight of - #200 Material (g):	126.48
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	167.22
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.21	0.07	0.07	99.93	**99.93**
#10	2.00	2.12	0.72	0.79	99.21	**99.21**
#20	0.850	3.25	1.11	1.90	98.10	**98.10**
#40	0.425	18.92	6.44	8.34	91.66	**91.66**
#60	0.250	66.71	22.71	31.06	68.94	**68.94**
#140	0.106	44.03	14.99	46.05	53.95	**53.95**
#200	0.075	31.98	10.89	56.94	43.06	**43.06**
Pan	-	126.48	43.06	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

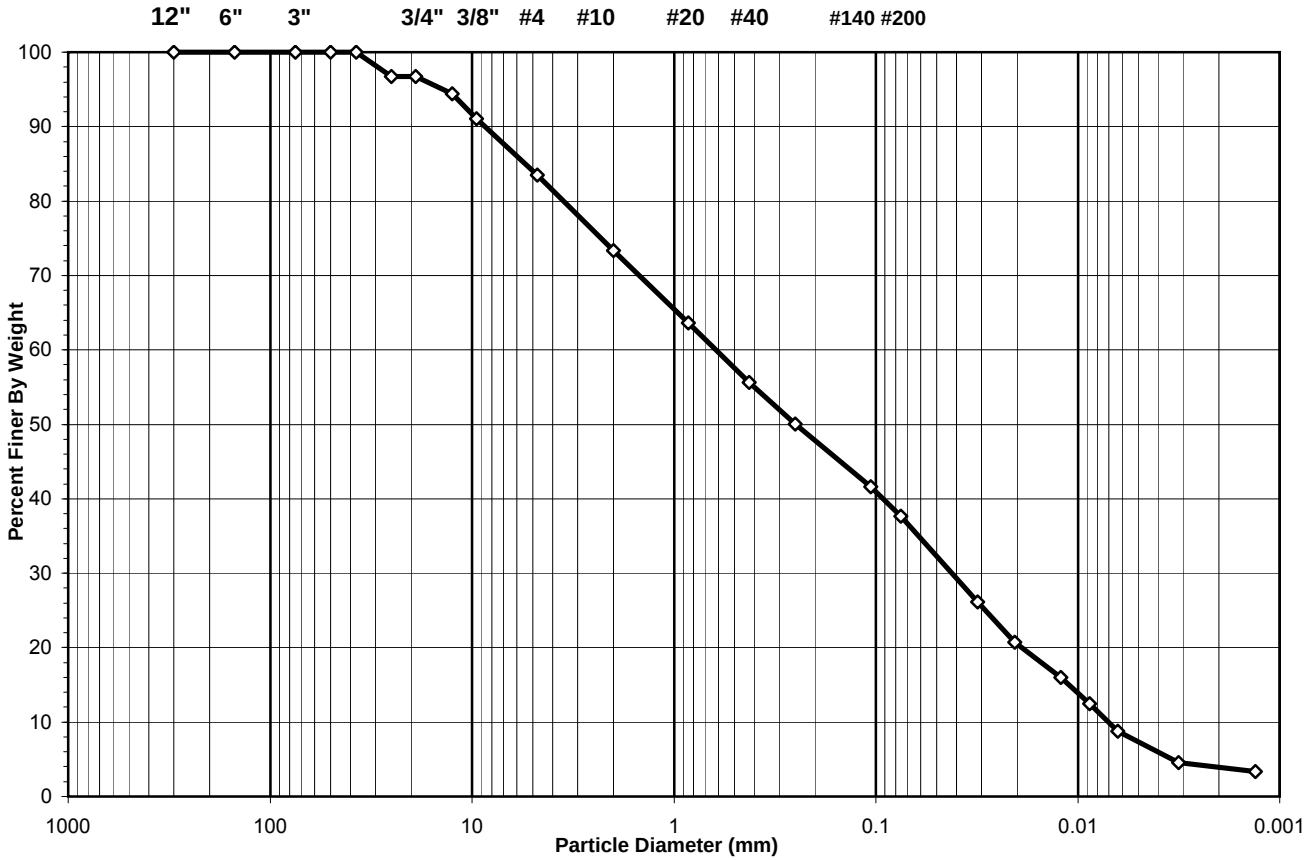
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.0-22.5
Project No.:	2015-485-003	Sample No.:	SS-9
Lab ID:	2015-485-003-010	Soil Color:	Dark Gray / Black

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary		
Sieve Sizes (mm)		**Percentage**
Greater Than #4	*Gravel*	16.47
#4 To #200	*Sand*	45.86
Finer Than #200	*Silt & Clay*	37.67

USCS Symbol:

sm, ASSUMED

USCS Classification:

SILTY SAND WITH GRAVEL

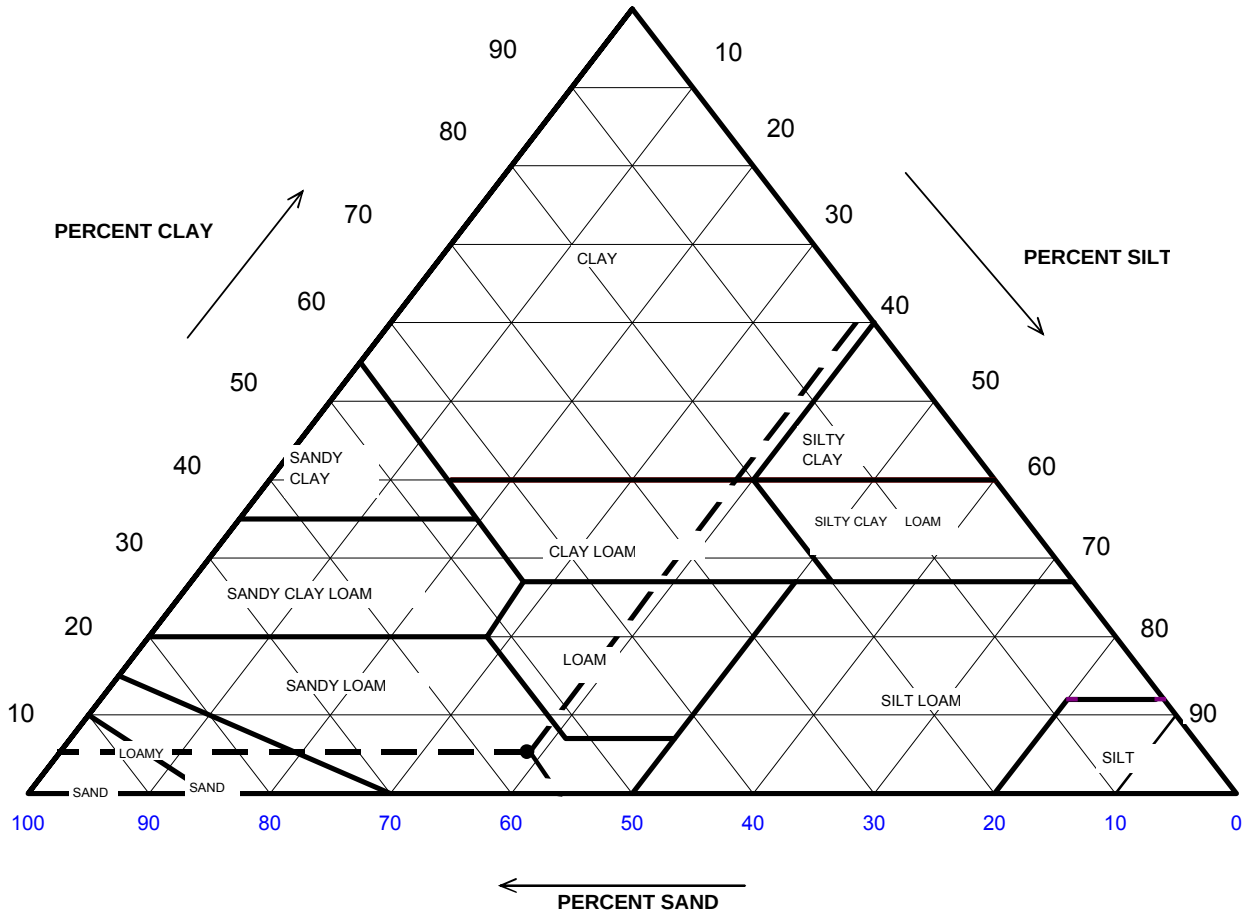
VISUAL DESCRIPTION: Dark Gray / Black Ash

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.0-22.5
Project No.:	2015-485-003	Sample No.:	SS-9
Lab ID:	2015-485-003-010	Soil Color:	Dark Gray / Black



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	26.62	**0.00**
2	73.38	*Sand*	41.10	**56.01**
0.05	32.28	*Silt*	28.37	**38.66**
0.002	3.92	*Clay*	3.92	**5.34**

USDA Classification: ***SANDY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.0-22.5
Project No.:	2015-485-003	Sample No.:	SS-9
Lab ID:	2015-485-003-010	Soil Color:	Dark Gray / Black

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	67	Tare No.	NA
Weight of Tare & Wet Sample (g)	631.30	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	554.90	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	199.80	Weight of Tare (g)	NA
Weight of Water (g)	76.40	Weight of Water (g)	NA
Weight of Dry Sample (g)	355.10	Weight of Dry Sample (g)	NA
Moisture Content (%)	**21.5**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	355.10
Dry Weight of -3/4" Sample (g)	209.60	Weight of - #200 Material (g)	133.75
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	221.35
Dry Weight of +3/4" Sample (g)	11.75		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	11.75	3.31	3.31		96.69	**96.69**
3/4"	19.0	0.00	0.00	3.31		96.69	**96.69**
1/2"	12.5	8.04	2.26	5.57		94.43	**94.43**
3/8"	9.50	12.11	3.41	8.98		91.02	**91.02**
#4	4.75	26.59	7.49	16.47		83.53	**83.53**
#10	2.00	36.04	10.15	26.62		73.38	**73.38**
#20	0.85	34.59	9.74	36.36		63.64	**63.64**
#40	0.425	28.46	8.01	44.38		55.62	**55.62**
#60	0.250	19.91	5.61	49.98		50.02	**50.02**
#140	0.106	29.74	8.38	58.36		41.64	**41.64**
#200	0.075	14.12	3.98	62.33		37.67	**37.67**
Pan	-	133.75	37.67	100.00		-	**-**

Tested By RAL Date 10/7/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	21.0-22.5
Project No.:	2015-485-003	Sample No.:	SS-9
Lab ID:	2015-485-003-010	Soil Color:	Dark Gray / Black

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		28.0	22.9	6.04	22.0	69.3	0.01299	0.0314	**26.1**
5		23.5	22.9	6.04	17.5	55.1	0.01299	0.0205	**20.8**
15		19.5	22.9	6.04	13.5	42.5	0.01299	0.0121	**16.0**
30		16.5	22.9	6.04	10.5	33.0	0.01299	0.0087	**12.4**
60		13.5	22.6	6.15	7.4	23.2	0.01303	0.0063	**8.7**
250		10.0	22.5	6.18	3.8	12.1	0.01305	0.0032	**4.5**
1440		9.0	22.5	6.18	2.8	8.9	0.01305	0.0013	**3.4**

Soil Specimen Data		**Other Corrections**		
Tare No.	967			
Weight of Tare & Dry Material (g)	136.73	a - Factor	0.99	
Weight of Tare (g)	100.37			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	37.67	
Weight of Dry Material (g)	31.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/7/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

S:Excel\Excel QA\Spreadsheets\SieveHyd.xls

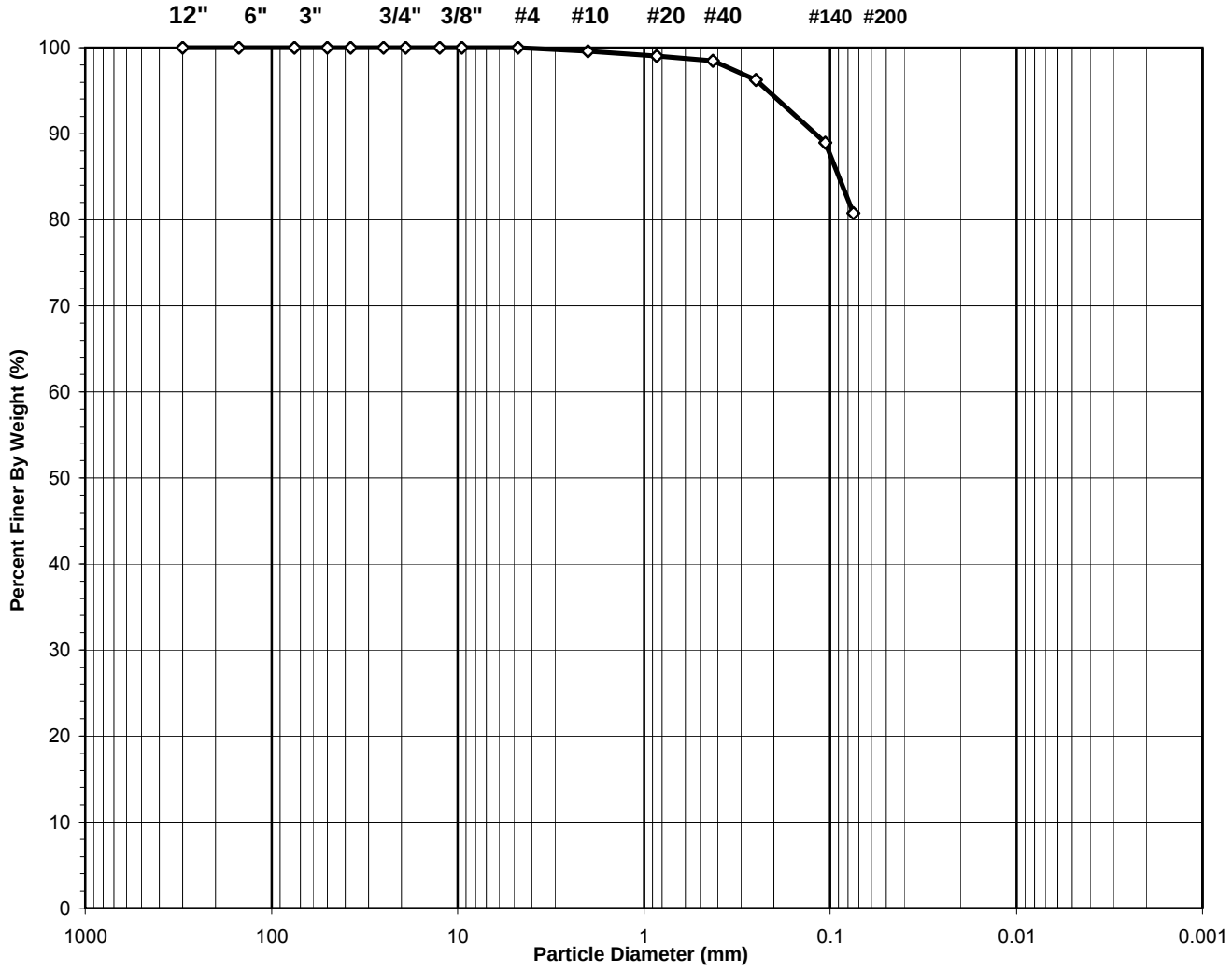
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-13
Lab ID:	2015-485-003-011	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
cl, ASSUMED

USCS Classification:
LEAN CLAY WITH SAND

Tested By	PC	Date	10/2/15	Checked By	KC	Date	10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-13
Lab ID:	2015-485-003-011	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	26	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	682.30	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	581.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	200.68	Weight of Tare (g):	NA
Weight of Water (g):	100.90	Weight of Water (g):	NA
Weight of Dry Sample (g):	380.72	Weight of Dry Sample (g):	NA
Moisture Content (%):	**26.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	380.72
Dry Weight of - 3/4" Sample (g):	73.3	Weight of - #200 Material (g):	307.45
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	73.27
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	1.66	0.44	0.44	99.56	**99.56**
#20	0.850	2.15	0.56	1.00	99.00	**99.00**
#40	0.425	2.10	0.55	1.55	98.45	**98.45**
#60	0.250	8.26	2.17	3.72	96.28	**96.28**
#140	0.106	27.98	7.35	11.07	88.93	**88.93**
#200	0.075	31.12	8.17	19.25	80.75	**80.75**
Pan	-	307.45	80.75	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

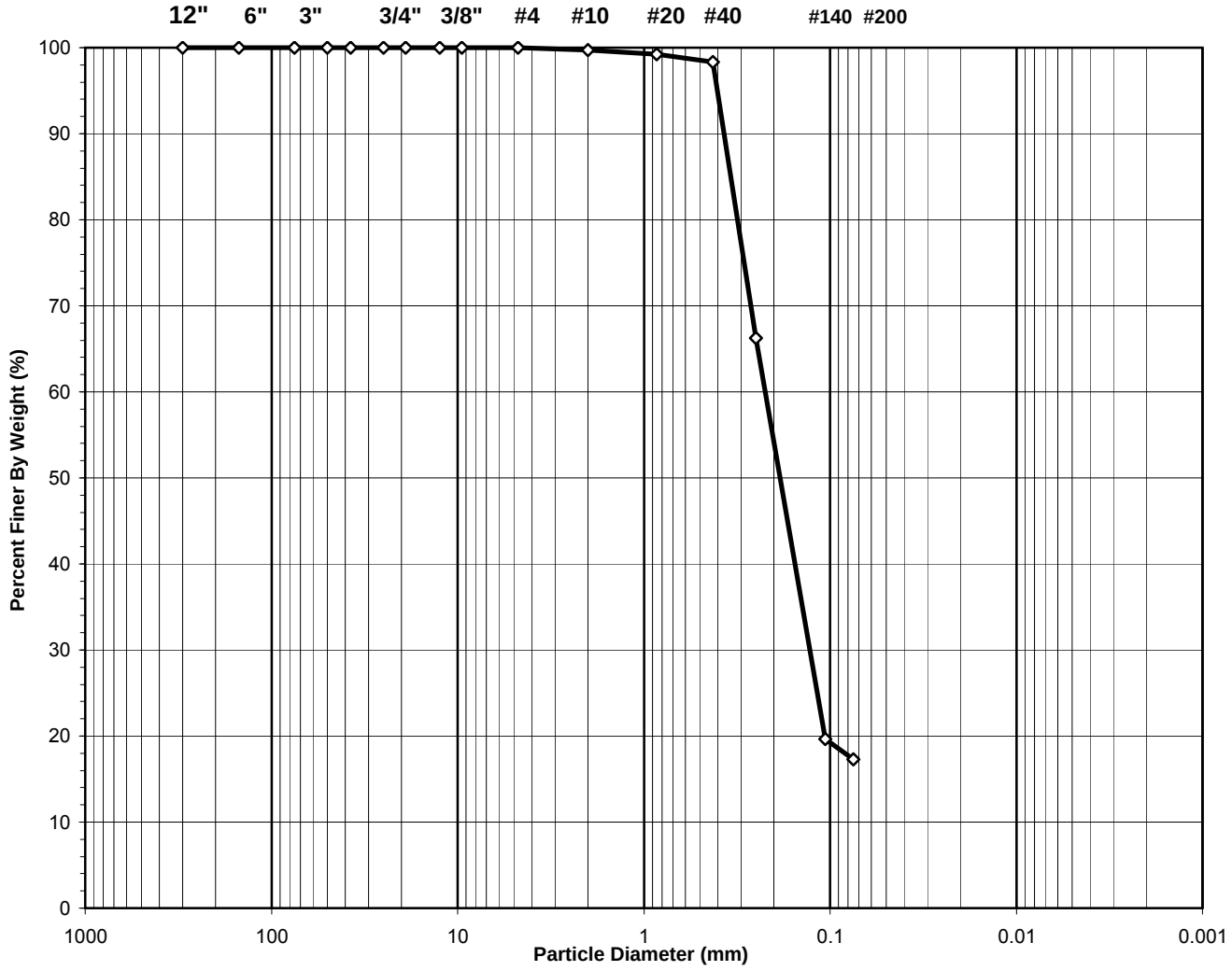
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	38.5-40.0
Project No.:	2015-485-003	Sample No.:	SS-16
Lab ID:	2015-485-003-012	Soil Color:	Brownish Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	38.5-40.0
Project No.:	2015-485-003	Sample No.:	SS-16
Lab ID:	2015-485-003-012	Soil Color:	Brownish Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	20	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	634.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	532.28	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	204.50	Weight of Tare (g):	NA
Weight of Water (g):	102.42	Weight of Water (g):	NA
Weight of Dry Sample (g):	327.78	Weight of Dry Sample (g):	NA
Moisture Content (%):	**31.2**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	327.78
Dry Weight of - 3/4" Sample (g):	271.1	Weight of - #200 Material (g):	56.72
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	271.06
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	1.02	0.31	0.31	99.69	**99.69**
#20	0.850	1.44	0.44	0.75	99.25	**99.25**
#40	0.425	3.09	0.94	1.69	98.31	**98.31**
#60	0.250	105.15	32.08	33.77	66.23	**66.23**
#140	0.106	152.64	46.57	80.34	19.66	**19.66**
#200	0.075	7.72	2.36	82.70	17.30	**17.30**
Pan	-	56.72	17.30	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

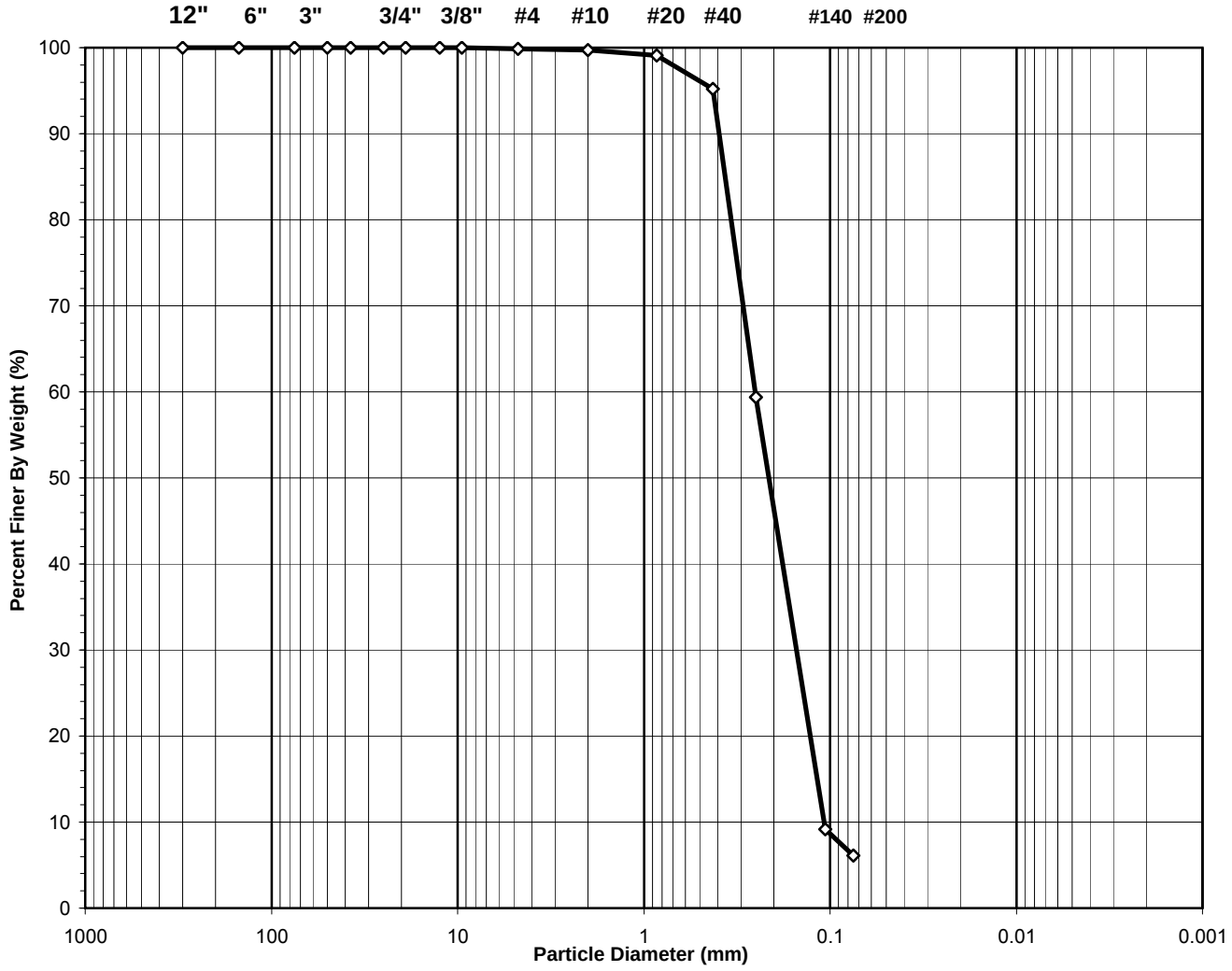
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	56.0-57.5
Project No.:	2015-485-003	Sample No.:	SS-23
Lab ID:	2015-485-003-013	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.25 **CC = 0.84**

D30 = 0.15 **CU = 2.35**

D10 = 0.11

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-18
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	56.0-57.5
Project No.:	2015-485-003	Sample No.:	SS-23
Lab ID:	2015-485-003-013	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	10	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	515.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	449.00	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	202.37	Weight of Tare (g):	NA
Weight of Water (g):	66.70	Weight of Water (g):	NA
Weight of Dry Sample (g):	246.63	Weight of Dry Sample (g):	NA
Moisture Content (%):	**27.0**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	246.63
Dry Weight of - 3/4" Sample (g):	231.6	Weight of - #200 Material (g):	15.05
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	231.58
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.40	0.16	0.16	99.84	**99.84**
#10	2.00	0.37	0.15	0.31	99.69	**99.69**
#20	0.850	1.49	0.60	0.92	99.08	**99.08**
#40	0.425	9.52	3.86	4.78	95.22	**95.22**
#60	0.250	88.41	35.85	40.62	59.38	**59.38**
#140	0.106	123.76	50.18	90.80	9.20	**9.20**
#200	0.075	7.63	3.09	93.90	6.10	**6.10**
Pan	-	15.05	6.10	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.0-5.5
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-014	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	10.64
Finer Than #200	*Silt & Clay*	89.36

USCS Symbol:

cl, ASSUMED

USCS Classification:

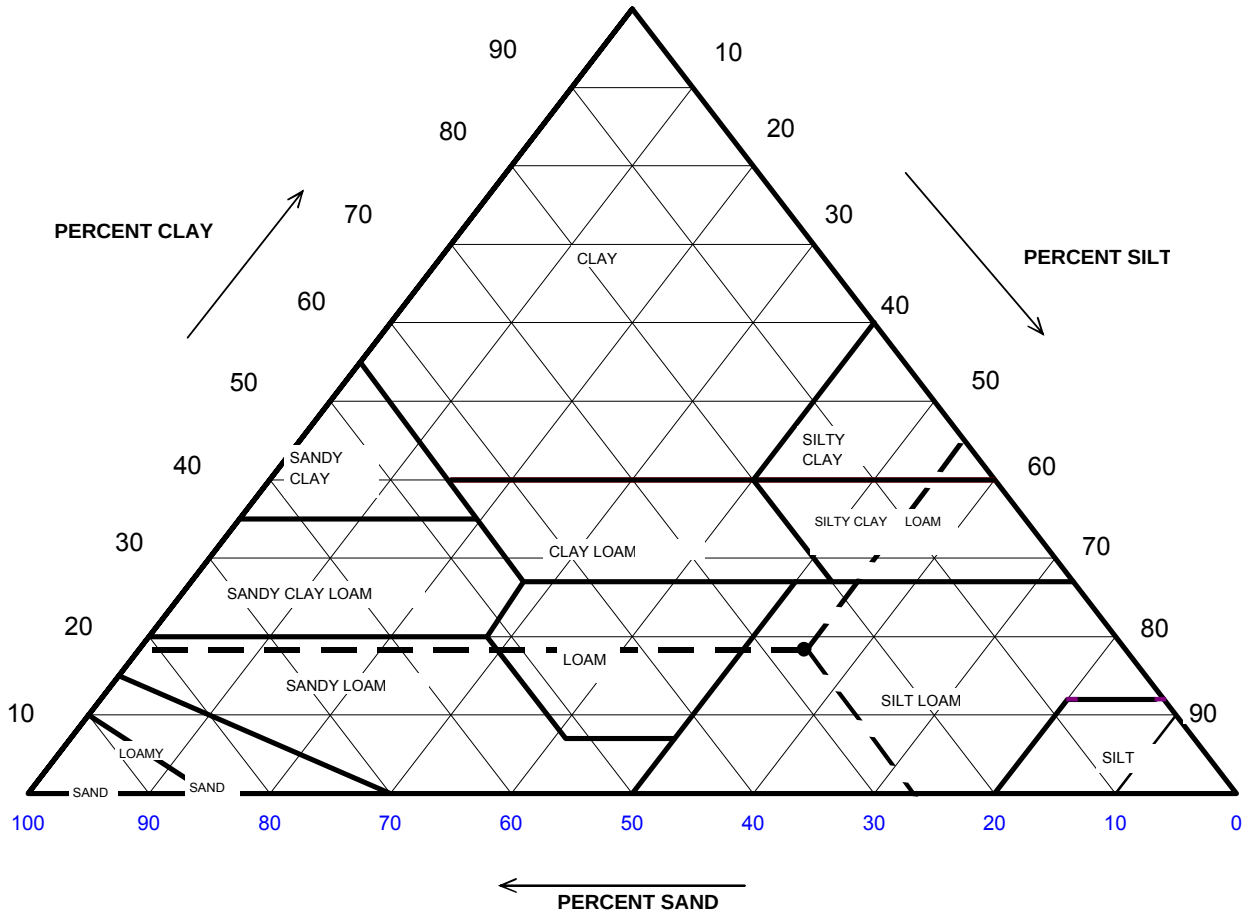
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.0-5.5
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-014	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.02	**0.00**
2	99.98	*Sand*	26.59	**26.60**
0.05	73.39	*Silt*	55.08	**55.09**
0.002	18.31	*Clay*	18.31	**18.31**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.0-5.5
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-014	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	15	Tare No.	NA
Weight of Tare & Wet Sample (g)	552.50	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	495.90	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	201.42	Weight of Tare (g)	NA
Weight of Water (g)	56.60	Weight of Water (g)	NA
Weight of Dry Sample (g)	294.48	Weight of Dry Sample (g)	NA
Moisture Content (%)	**19.2**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	294.48
Dry Weight of -3/4" Sample (g)	31.34	Weight of - #200 Material (g)	263.14
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	31.34
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.05	0.02	0.02		99.98	**99.98**
#20	0.85	0.22	0.07	0.09		99.91	**99.91**
#40	0.425	0.43	0.15	0.24		99.76	**99.76**
#60	0.250	0.50	0.17	0.41		99.59	**99.59**
#140	0.106	5.85	1.99	2.39		97.61	**97.61**
#200	0.075	24.29	8.25	10.64		89.36	**89.36**
Pan	-	263.14	89.36	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.0-5.5
Project No.:	2015-485-003	Sample No.:	SS-2
Lab ID:	2015-485-003-014	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		39.0	22.1	6.33	32.7	58.4	0.01311	0.0292	**52.2**
5		29.5	22.1	6.33	23.2	41.4	0.01311	0.0198	**37.0**
15		24.0	22.1	6.33	17.7	31.6	0.01311	0.0119	**28.2**
30		22.0	22.1	6.33	15.7	28.0	0.01311	0.0085	**25.0**
60		21.5	22.1	6.33	15.2	27.1	0.01311	0.0060	**24.2**
250		18.5	22.6	6.15	12.4	22.1	0.01303	0.0030	**19.7**
1440		16.5	22.9	6.04	10.5	18.7	0.01299	0.0013	**16.7**

Soil Specimen Data		**Other Corrections**		
Tare No.	695			
Weight of Tare & Dry Material (g)	152.89	a - Factor	0.99	
Weight of Tare (g)	92.49			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	89.36	
Weight of Dry Material (g)	55.4			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/6/15 Checked By KC Date 10/12/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

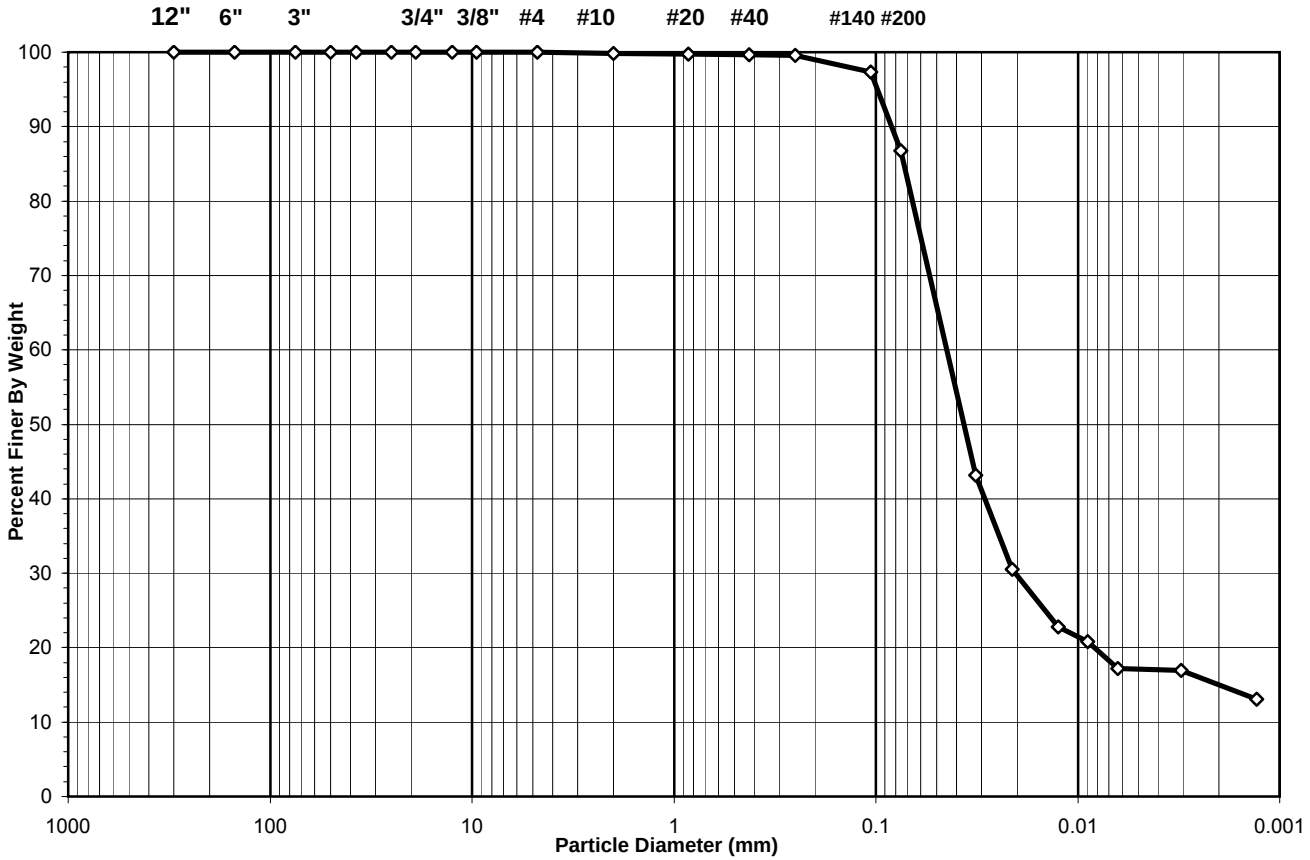
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	8.5-10.0
Project No.:	2015-485-003	Sample No.:	SS-4
Lab ID:	2015-485-003-015	Soil Color:	Brown

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	13.28
Finer Than #200	*Silt & Clay*	86.72

USCS Symbol:

ml, ASSUMED

USCS Classification:

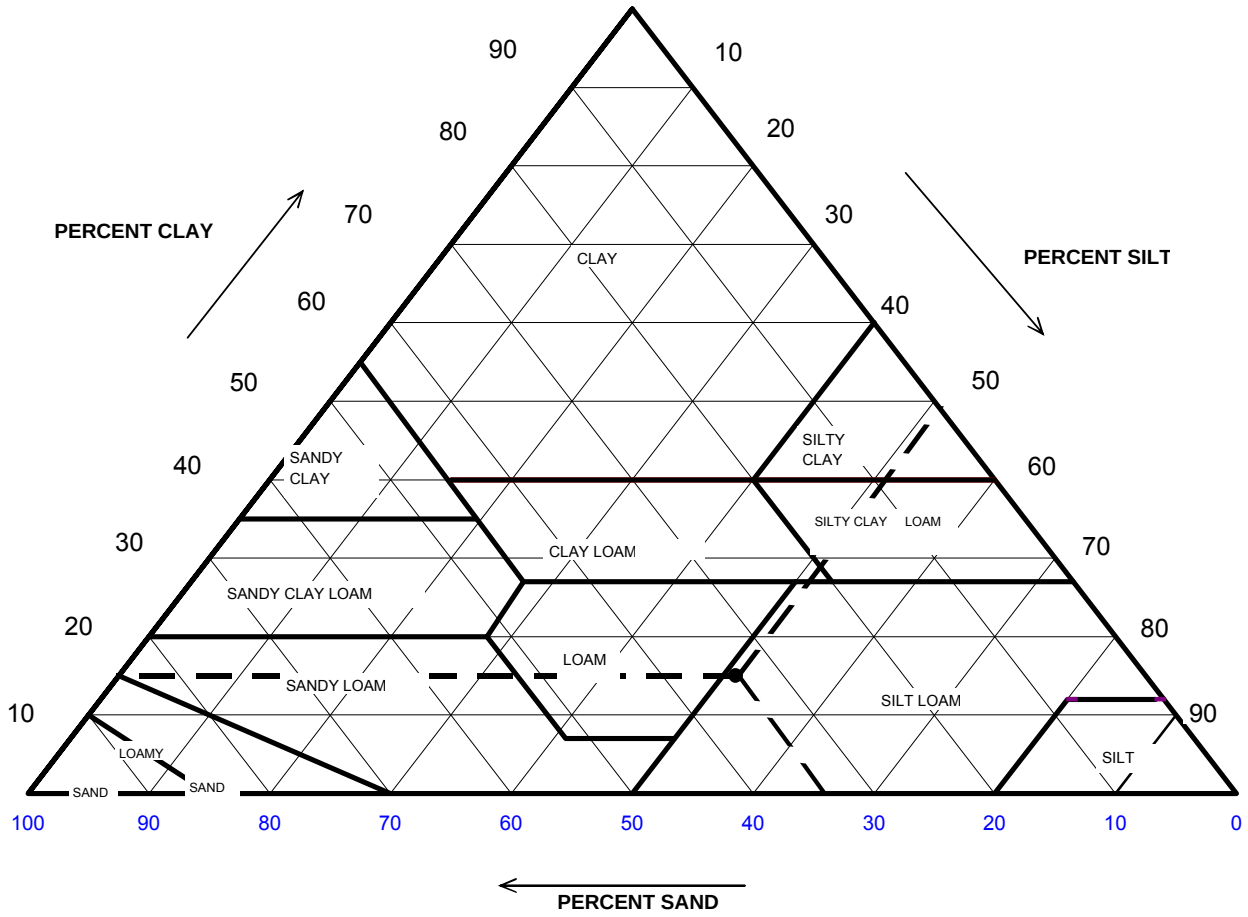
SILT

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	8.5-10.0
Project No.:	2015-485-003	Sample No.:	SS-4
Lab ID:	2015-485-003-015	Soil Color:	Brown



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.16	**0.00**
2	99.84	*Sand*	33.85	**33.91**
0.05	65.99	*Silt*	51.00	**51.08**
0.002	14.99	*Clay*	14.99	**15.01**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	8.5-10.0
Project No.:	2015-485-003	Sample No.:	SS-4
Lab ID:	2015-485-003-015	Soil Color:	Brown

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	64	Tare No.	NA
Weight of Tare & Wet Sample (g)	474.40	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	424.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	200.72	Weight of Tare (g)	NA
Weight of Water (g)	50.10	Weight of Water (g)	NA
Weight of Dry Sample (g)	223.58	Weight of Dry Sample (g)	NA
Moisture Content (%)	**22.4**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	223.58
Dry Weight of -3/4" Sample (g)	29.69	Weight of - #200 Material (g)	193.89
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	29.69
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.36	0.16	0.16		99.84	**99.84**
#20	0.85	0.14	0.06	0.22		99.78	**99.78**
#40	0.425	0.22	0.10	0.32		99.68	**99.68**
#60	0.250	0.25	0.11	0.43		99.57	**99.57**
#140	0.106	5.00	2.24	2.67		97.33	**97.33**
#200	0.075	23.72	10.61	13.28		86.72	**86.72**
Pan	-	193.89	86.72	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	8.5-10.0
Project No.:	2015-485-003	Sample No.:	SS-4
Lab ID:	2015-485-003-015	Soil Color:	Brown

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		29.0	20.7	6.83	22.2	49.8	0.01333	0.0320	**43.2**
5		22.5	20.7	6.83	15.7	35.2	0.01333	0.0212	**30.5**
15		18.5	20.7	6.83	11.7	26.2	0.01333	0.0125	**22.7**
30		17.5	20.7	6.83	10.7	24.0	0.01333	0.0089	**20.8**
60		15.5	21.1	6.68	8.8	19.8	0.01327	0.0064	**17.2**
250		15.0	22.1	6.33	8.7	19.5	0.01311	0.0031	**16.9**
1440		13.0	22.2	6.29	6.7	15.1	0.01310	0.0013	**13.1**

Soil Specimen Data		**Other Corrections**		
Tare No.	694			
Weight of Tare & Dry Material (g)	143.19	a - Factor	0.99	
Weight of Tare (g)	94.13			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	86.72	
Weight of Dry Material (g)	44.1			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-003	Sample No.:	SS-6
Lab ID:	2015-485-003-016	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.26
#4 To #200	*Sand*	19.31
Finer Than #200	*Silt & Clay*	80.43

USCS Symbol:

ml, ASSUMED

USCS Classification:

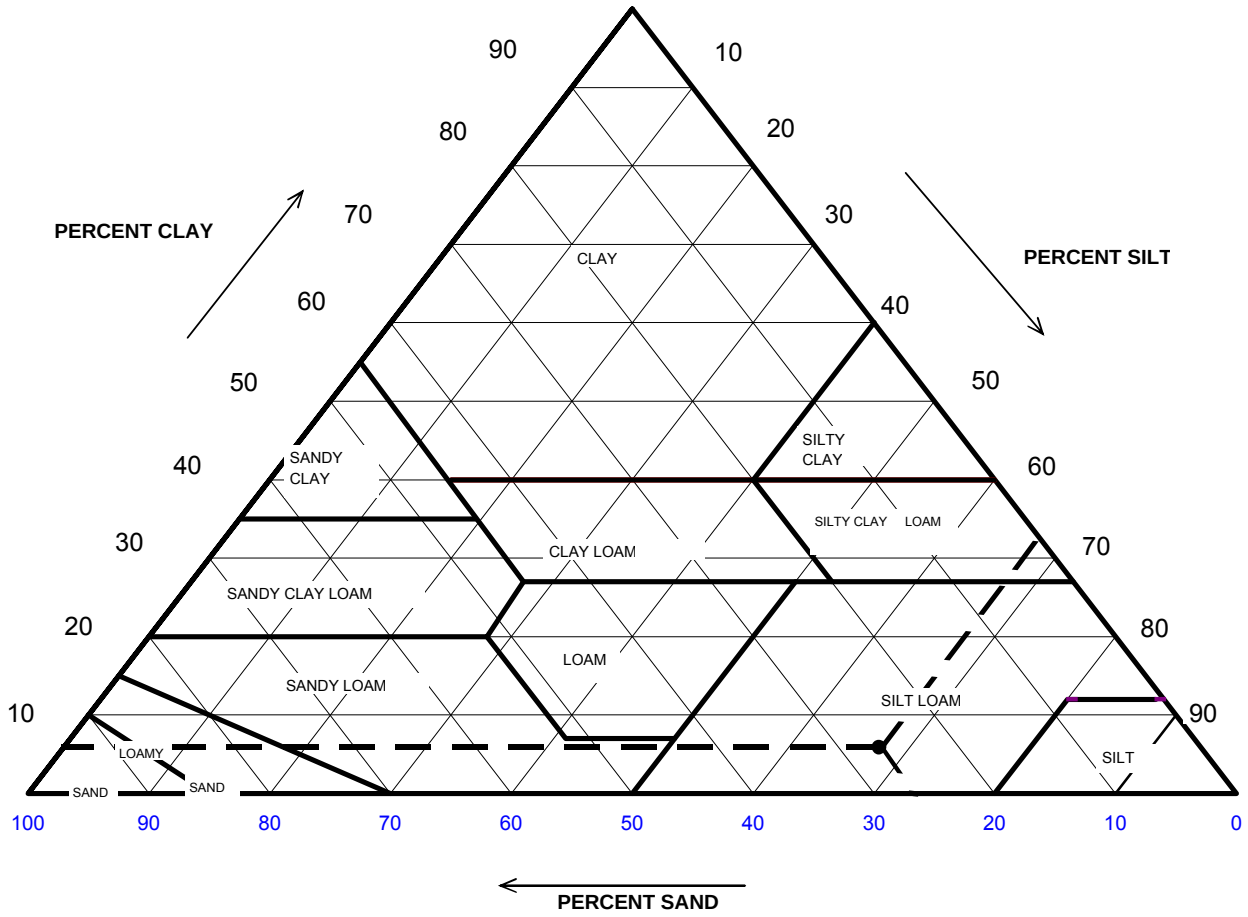
SILT WITH SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-003	Sample No.:	SS-6
Lab ID:	2015-485-003-016	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	1.70	**0.00**
2	98.30	*Sand*	26.14	**26.59**
0.05	72.16	*Silt*	66.36	**67.51**
0.002	5.80	*Clay*	5.80	**5.90**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-003	Sample No.:	SS-6
Lab ID:	2015-485-003-016	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	31	Tare No.	NA
Weight of Tare & Wet Sample (g)	575.10	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	464.50	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	203.34	Weight of Tare (g)	NA
Weight of Water (g)	110.60	Weight of Water (g)	NA
Weight of Dry Sample (g)	261.16	Weight of Dry Sample (g)	NA
Moisture Content (%)	**42.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	261.16
Dry Weight of -3/4" Sample (g)	51.10	Weight of - #200 Material (g)	210.06
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	51.10
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.67	0.26	0.26		99.74	**99.74**
#10	2.00	3.77	1.44	1.70		98.30	**98.30**
#20	0.85	3.18	1.22	2.92		97.08	**97.08**
#40	0.425	3.60	1.38	4.30		95.70	**95.70**
#60	0.250	5.43	2.08	6.38		93.62	**93.62**
#140	0.106	18.04	6.91	13.28		86.72	**86.72**
#200	0.075	16.41	6.28	19.57		80.43	**80.43**
Pan	-	210.06	80.43	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.5-20.0
Project No.:	2015-485-003	Sample No.:	SS-6
Lab ID:	2015-485-003-016	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		46.5	20.7	6.83	39.7	74.8	0.01333	0.0278	**60.2**
5		41.0	20.7	6.83	34.2	64.4	0.01333	0.0184	**51.8**
15		32.0	20.7	6.83	25.2	47.5	0.01333	0.0114	**38.2**
30		27.0	20.7	6.83	20.2	38.0	0.01333	0.0084	**30.6**
60		21.5	21.1	6.68	14.8	27.9	0.01327	0.0061	**22.5**
250		12.5	22.1	6.33	6.2	11.6	0.01311	0.0031	**9.4**
1440		8.0	22.2	6.29	1.7	3.2	0.01310	0.0013	**2.6**

Soil Specimen Data		**Other Corrections**		
Tare No.	706			
Weight of Tare & Dry Material (g)	156.57	a - Factor	0.99	
Weight of Tare (g)	99.06			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	80.43	
Weight of Dry Material (g)	52.5			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

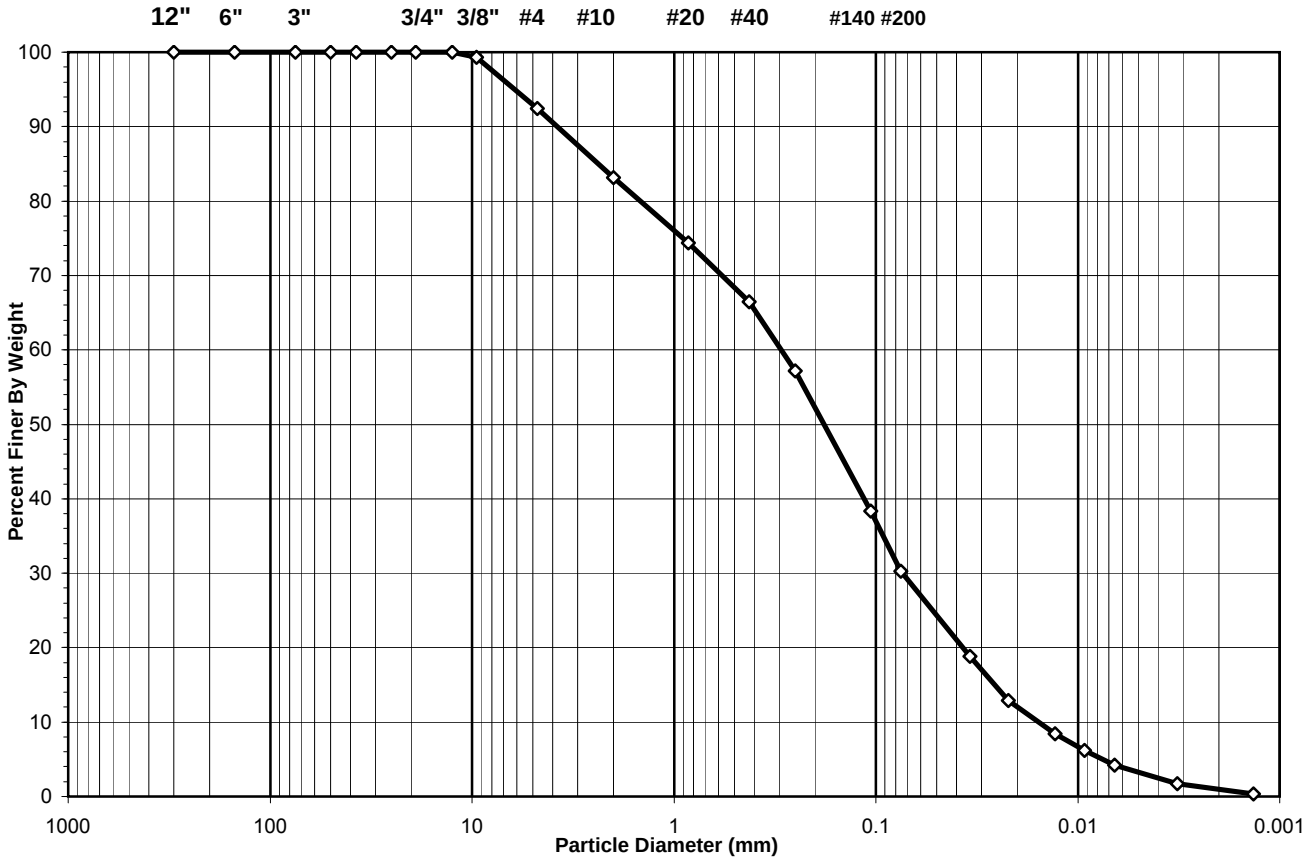
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-003	Sample No.:	SS-8
Lab ID:	2015-485-003-017	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	7.52
#4 To #200	*Sand*	62.20
Finer Than #200	*Silt & Clay*	30.27

USCS Symbol:

sm, ASSUMED

USCS Classification:

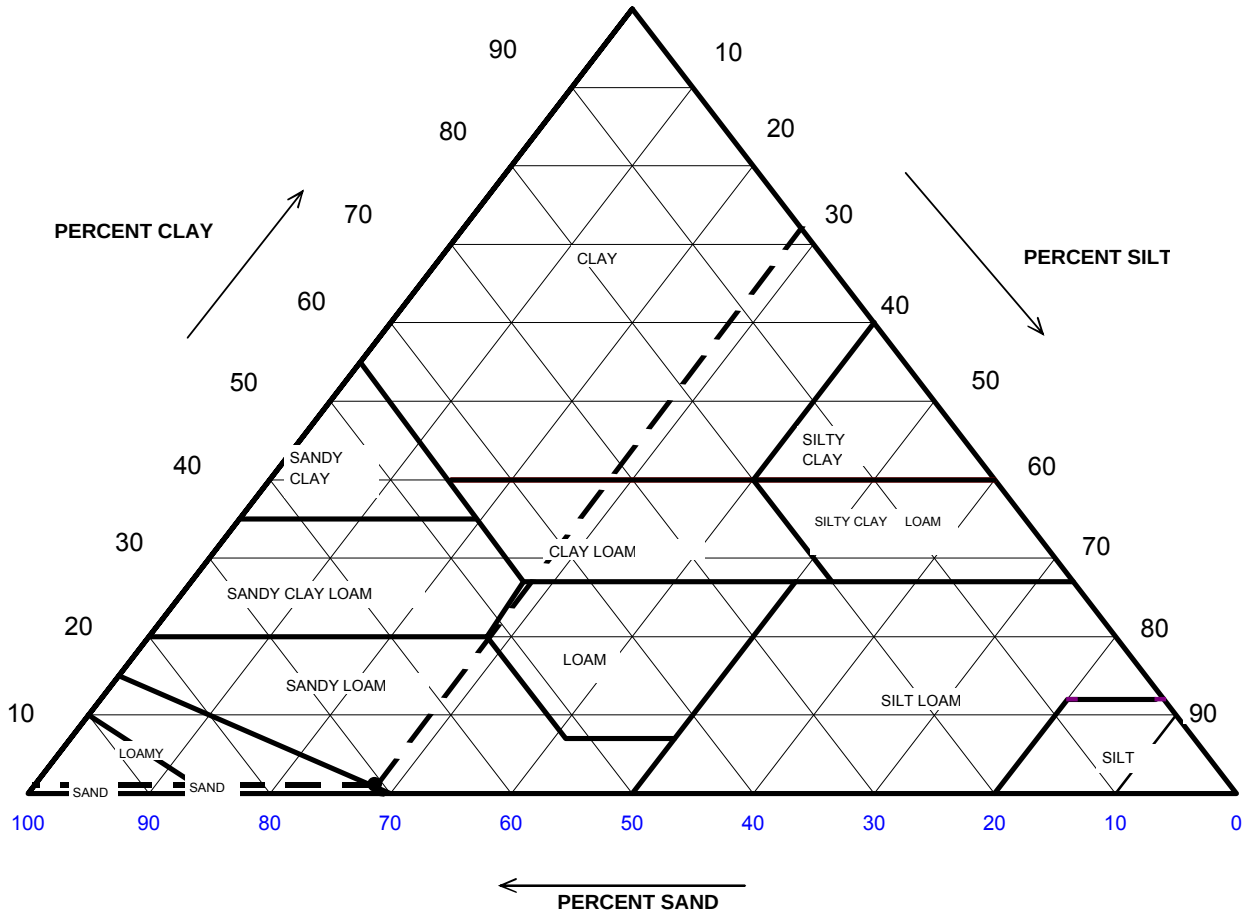
SILTY SAND

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-003	Sample No.:	SS-8
Lab ID:	2015-485-003-017	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	16.83	**0.00**
2	83.17	*Sand*	58.81	**70.71**
0.05	24.36	*Silt*	23.40	**28.14**
0.002	0.96	*Clay*	0.96	**1.16**

USDA Classification: ***SANDY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-003	Sample No.:	SS-8
Lab ID:	2015-485-003-017	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1422	Tare No.	NA
Weight of Tare & Wet Sample (g)	411.90	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	334.10	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	144.98	Weight of Tare (g)	NA
Weight of Water (g)	77.80	Weight of Water (g)	NA
Weight of Dry Sample (g)	189.12	Weight of Dry Sample (g)	NA
Moisture Content (%)	**41.1**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	189.12
Dry Weight of -3/4" Sample (g)	131.87	Weight of - #200 Material (g)	57.25
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	131.87
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	1.29	0.68	0.68		99.32	**99.32**
#4	4.75	12.94	6.84	7.52		92.48	**92.48**
#10	2.00	17.60	9.31	16.83		83.17	**83.17**
#20	0.85	16.69	8.83	25.66		74.34	**74.34**
#40	0.425	14.82	7.84	33.49		66.51	**66.51**
#60	0.250	17.66	9.34	42.83		57.17	**57.17**
#140	0.106	35.67	18.86	61.69		38.31	**38.31**
#200	0.075	15.20	8.04	69.73		30.27	**30.27**
Pan	-	57.25	30.27	100.00		-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-003	Sample No.:	SS-8
Lab ID:	2015-485-003-017	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		19.5	20.7	6.83	12.7	62.1	0.01333	0.0341	**18.8**
5		15.5	20.7	6.83	8.7	42.5	0.01333	0.0221	**12.9**
15		12.5	20.7	6.83	5.7	27.8	0.01333	0.0130	**8.4**
30		11.0	20.7	6.83	4.2	20.4	0.01333	0.0093	**6.2**
60		9.5	21.1	6.68	2.8	13.8	0.01327	0.0066	**4.2**
250		7.5	22.1	6.33	1.2	5.8	0.01311	0.0032	**1.7**
1440		6.5	22.2	6.29	0.2	1.0	0.01310	0.0013	**0.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	927			
Weight of Tare & Dry Material (g)	123.05	a - Factor	0.99	
Weight of Tare (g)	97.84			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	30.27	
Weight of Dry Material (g)	20.2			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 10/12/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

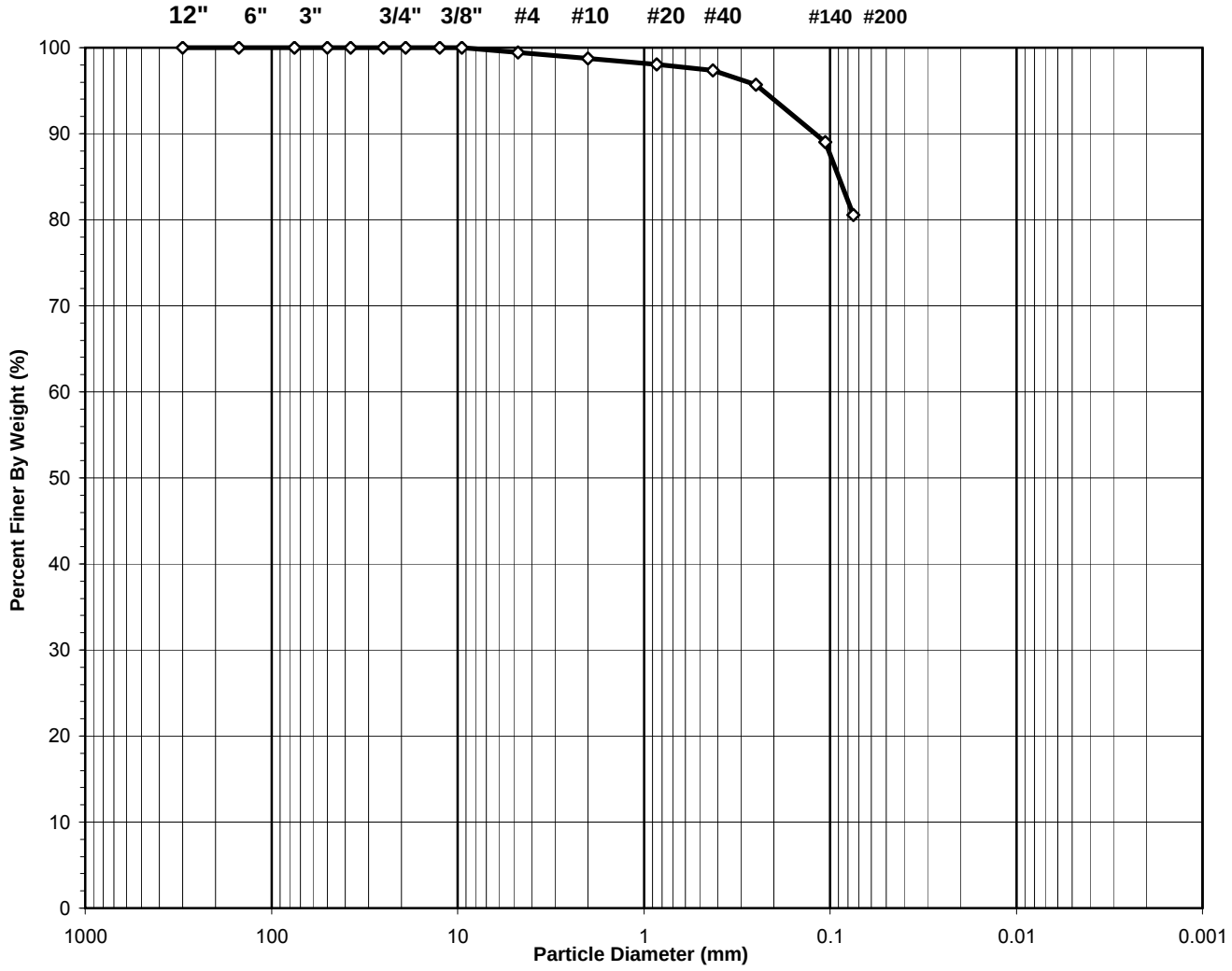
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-11
Lab ID:	2015-485-003-018	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT WITH SAND

Tested By	PC	Date	10/2/15	Checked By	KC	Date	10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	31.0-32.5
Project No.:	2015-485-003	Sample No.:	SS-11
Lab ID:	2015-485-003-018	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1426	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	429.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	329.66	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.17	Weight of Tare (g):	NA
Weight of Water (g):	100.14	Weight of Water (g):	NA
Weight of Dry Sample (g):	184.49	Weight of Dry Sample (g):	NA
Moisture Content (%):	**54.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	184.49
Dry Weight of - 3/4" Sample (g):	35.9	Weight of - #200 Material (g):	148.63
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	35.86
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.00	0.54	0.54	99.46	**99.46**
#10	2.00	1.31	0.71	1.25	98.75	**98.75**
#20	0.850	1.31	0.71	1.96	98.04	**98.04**
#40	0.425	1.24	0.67	2.63	97.37	**97.37**
#60	0.250	3.09	1.67	4.31	95.69	**95.69**
#140	0.106	12.35	6.69	11.00	89.00	**89.00**
#200	0.075	15.56	8.43	19.44	80.56	**80.56**
Pan	-	148.63	80.56	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.8-44.3
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-005	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.05
#4 To #200	*Sand*	2.01
Finer Than #200	*Silt & Clay*	97.95

USCS Symbol:
CH, TESTED

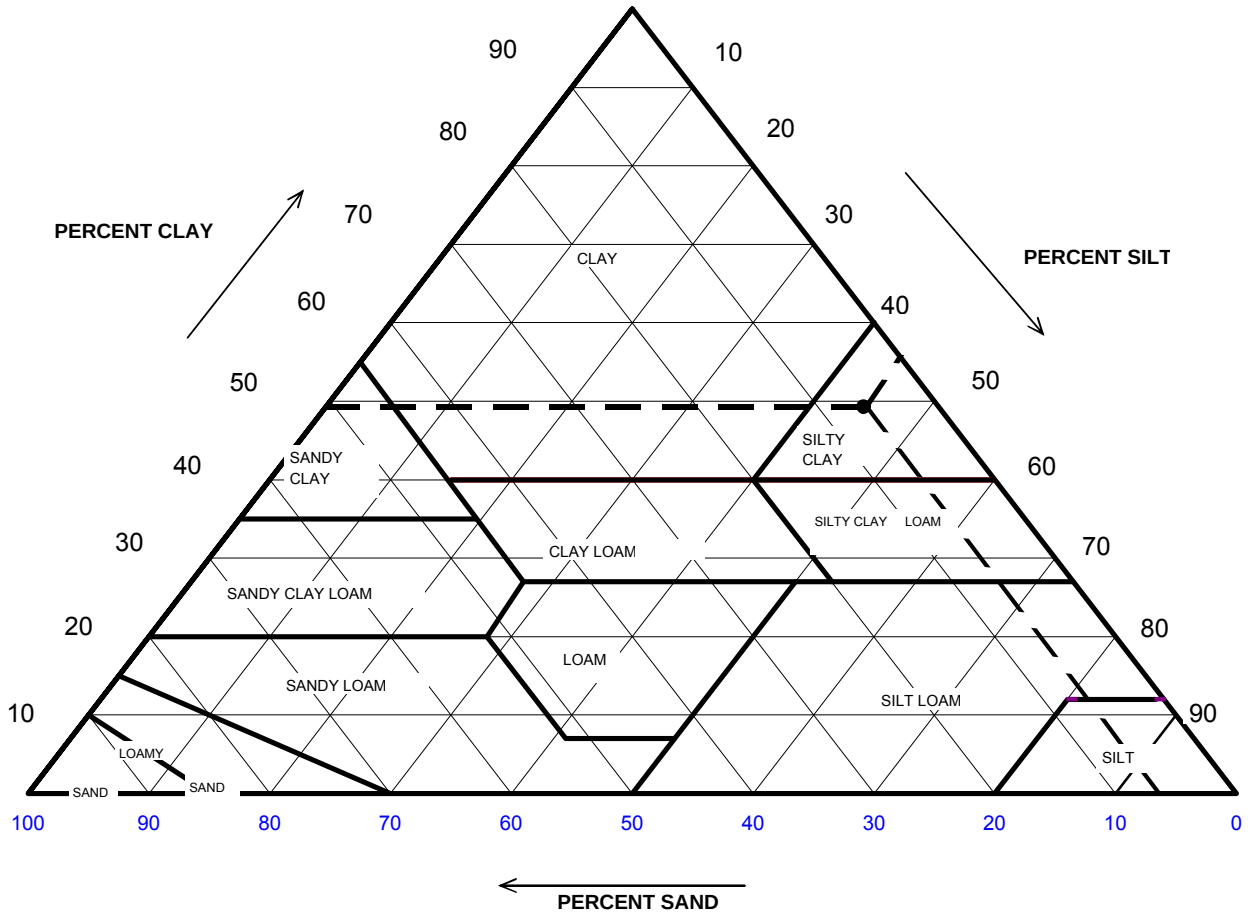
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.8-44.3
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-005	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.28	**0.00**
2	99.72	*Sand*	6.21	**6.23**
0.05	93.50	*Silt*	44.41	**44.54**
0.002	49.09	*Clay*	49.09	**49.23**

USDA Classification: ***SILTY CLAY***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.8-44.3
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-005	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1440	Tare No.	NA
Weight of Tare & Wet Sample (g)	858.26	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	649.90	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	145.70	Weight of Tare (g)	NA
Weight of Water (g)	208.36	Weight of Water (g)	NA
Weight of Dry Sample (g)	504.20	Weight of Dry Sample (g)	NA
Moisture Content (%)	**41.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	504.20
Dry Weight of -3/4" Sample (g)	10.36	Weight of - #200 Material (g)	493.84
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	10.36
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.24	0.05	0.05		99.95	**99.95**
#10	2.00	1.18	0.23	0.28		99.72	**99.72**
#20	0.85	1.48	0.29	0.58		99.42	**99.42**
#40	0.425	1.29	0.26	0.83		99.17	**99.17**
#60	0.250	1.17	0.23	1.06		98.94	**98.94**
#140	0.106	2.39	0.47	1.54		98.46	**98.46**
#200	0.075	2.61	0.52	2.05		97.95	**97.95**
Pan	-	493.84	97.95	100.00		-	**-**

Tested By AMC Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.8-44.3
Project No.:	2015-485-002	Sample No.:	ST-2
Lab ID:	2015-485-002-005	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		42.0	23.4	5.86	36.1	89.0	0.01291	0.0280	**87.2**
5		40.0	23.4	5.86	34.1	84.1	0.01291	0.0180	**82.3**
15		36.5	23.4	5.86	30.6	75.4	0.01291	0.0107	**73.9**
30		34.5	23.4	5.86	28.6	70.5	0.01291	0.0077	**69.1**
74		31.5	23.3	5.89	25.6	63.0	0.01293	0.0050	**61.7**
250		28.0	22.9	6.04	22.0	54.1	0.01299	0.0028	**53.0**
1440		24.0	22.9	6.04	18.0	44.2	0.01299	0.0012	**43.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	972			
Weight of Tare & Dry Material (g)	145.82	a - Factor	0.99	
Weight of Tare (g)	100.61			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	97.95	
Weight of Dry Material (g)	40.2			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/30/15 Checked By KC Date 10/14/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

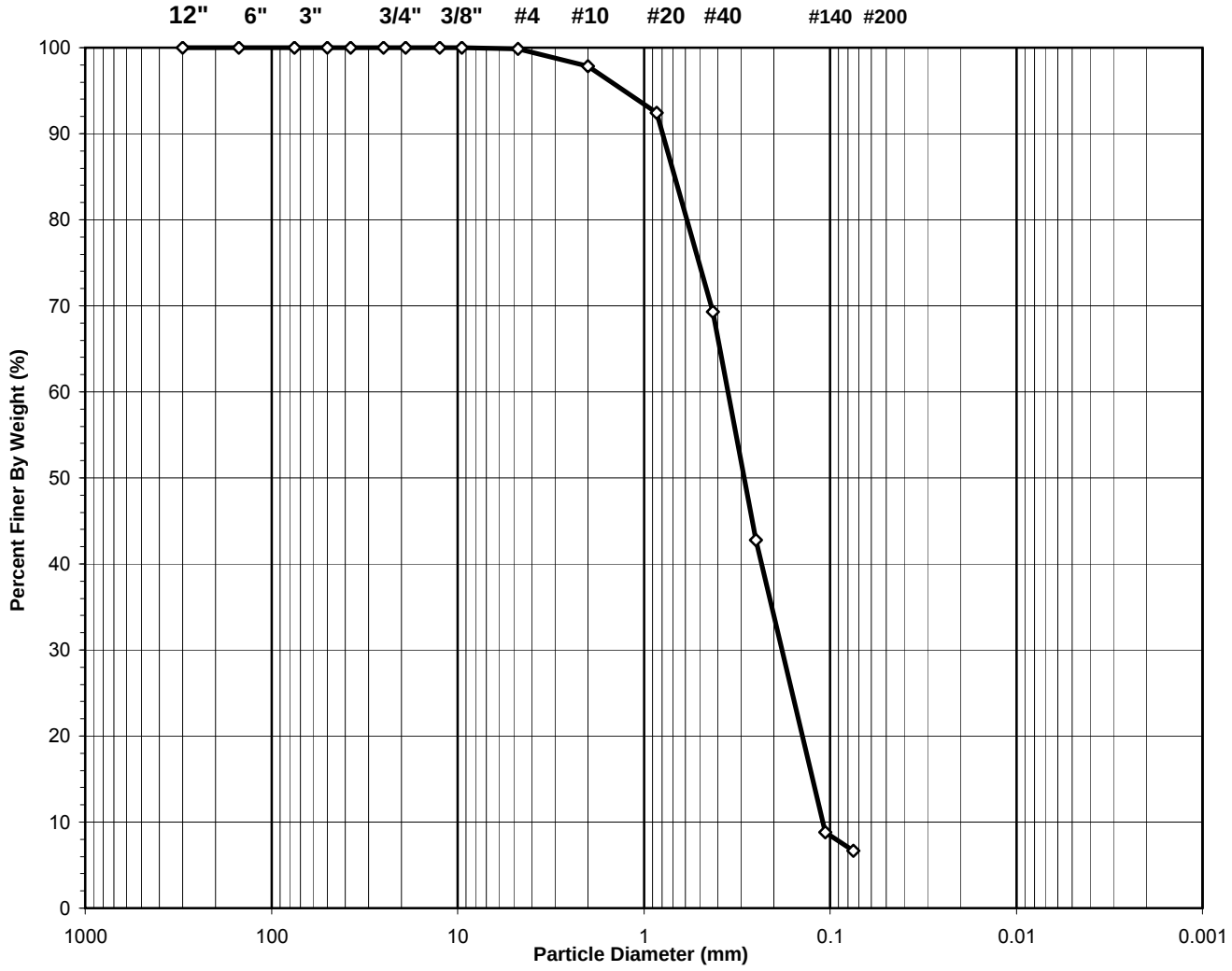
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-003	Sample No.:	SS-14
Lab ID:	2015-485-003-019	Soil Color:	Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.35 **CC = 0.85**

D30 = 0.18 **CU = 3.23**

D10 = 0.11

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	B-20
Client Reference:	Dynegy-Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-003	Sample No.:	SS-14
Lab ID:	2015-485-003-019	Soil Color:	Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1450	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	472.00	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	416.60	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	145.02	Weight of Tare (g):	NA
Weight of Water (g):	55.40	Weight of Water (g):	NA
Weight of Dry Sample (g):	271.58	Weight of Dry Sample (g):	NA
Moisture Content (%):	**20.4**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	271.58
Dry Weight of - 3/4" Sample (g):	253.4	Weight of - #200 Material (g):	18.17
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	253.41
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.41	0.15	0.15	99.85	**99.85**
#10	2.00	5.50	2.03	2.18	97.82	**97.82**
#20	0.850	14.66	5.40	7.57	92.43	**92.43**
#40	0.425	62.81	23.13	30.70	69.30	**69.30**
#60	0.250	71.99	26.51	57.21	42.79	**42.79**
#140	0.106	92.19	33.95	91.16	8.84	**8.84**
#200	0.075	5.85	2.15	93.31	6.69	**6.69**
Pan	-	18.17	6.69	100.00	-	**-**

Tested By PC Date 10/2/15 Checked By KC Date 10/2/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-1
Lab ID:	2015-485-001-009	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	2.99
#4 To #200	*Sand*	28.90
Finer Than #200	*Silt & Clay*	68.11

USCS Symbol:

ml, ASSUMED

USCS Classification:

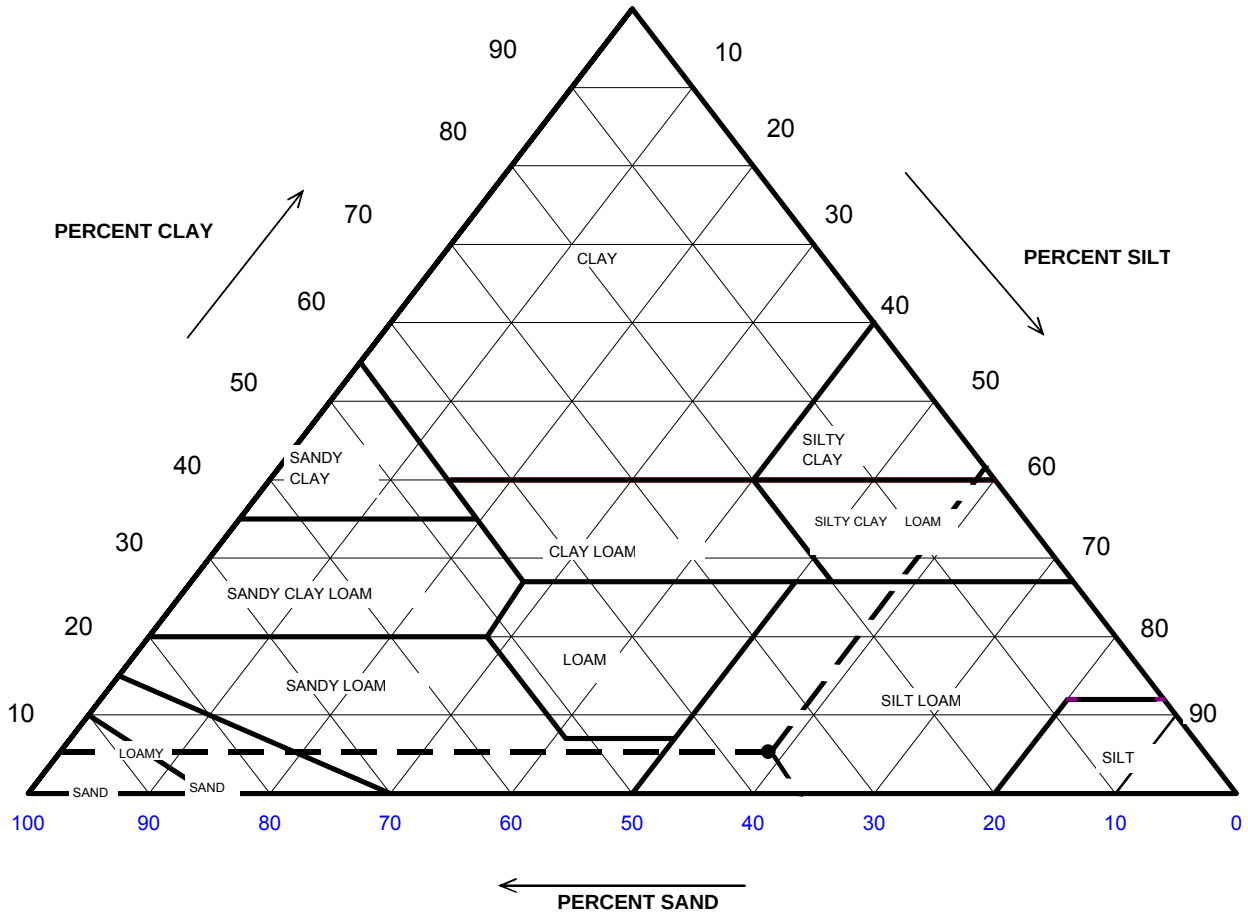
SANDY SILT

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-1
Lab ID:	2015-485-001-009	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	6.51	**0.00**
2	93.49	*Sand*	33.70	**36.05**
0.05	59.79	*Silt*	54.81	**58.62**
0.002	4.98	*Clay*	4.98	**5.33**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-1
Lab ID:	2015-485-001-009	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	706	Tare No.	NA
Weight of Tare & Wet Sample (g)	626.80	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	442.70	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	98.94	Weight of Tare (g)	NA
Weight of Water (g)	184.10	Weight of Water (g)	NA
Weight of Dry Sample (g)	343.76	Weight of Dry Sample (g)	NA
Moisture Content (%)	**53.6**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	343.76
Dry Weight of -3/4" Sample (g)	109.63	Weight of - #200 Material (g)	234.13
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	109.63
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	1.28	0.37	0.37		99.63	**99.63**
#4	4.75	9.01	2.62	2.99		97.01	**97.01**
#10	2.00	12.10	3.52	6.51		93.49	**93.49**
#20	0.85	9.51	2.77	9.28		90.72	**90.72**
#40	0.425	8.84	2.57	11.85		88.15	**88.15**
#60	0.250	10.44	3.04	14.89		85.11	**85.11**
#140	0.106	32.54	9.47	24.35		75.65	**75.65**
#200	0.075	25.91	7.54	31.89		68.11	**68.11**
Pan	-	234.13	68.11	100.00		-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	3.5-5.0
Project No.:	2015-485-001	Sample No.:	SS-1
Lab ID:	2015-485-001-009	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		38.5	22.4	6.22	32.3	71.6	0.01307	0.0292	**48.7**
5		33.0	22.4	6.22	26.8	59.4	0.01307	0.0193	**40.4**
17		25.5	22.4	6.22	19.3	42.7	0.01307	0.0110	**29.1**
30		22.0	22.4	6.22	15.8	35.0	0.01307	0.0085	**23.8**
60		17.5	22.3	6.25	11.2	24.9	0.01308	0.0062	**17.0**
250		11.5	22.6	6.15	5.4	11.9	0.01303	0.0031	**8.1**
1440		7.5	22.8	6.07	1.4	3.2	0.01300	0.0013	**2.2**

Soil Specimen Data		**Other Corrections**		
Tare No.	644			
Weight of Tare & Dry Material (g)	149.39	a - Factor	0.99	
Weight of Tare (g)	99.73			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	68.11	
Weight of Dry Material (g)	44.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

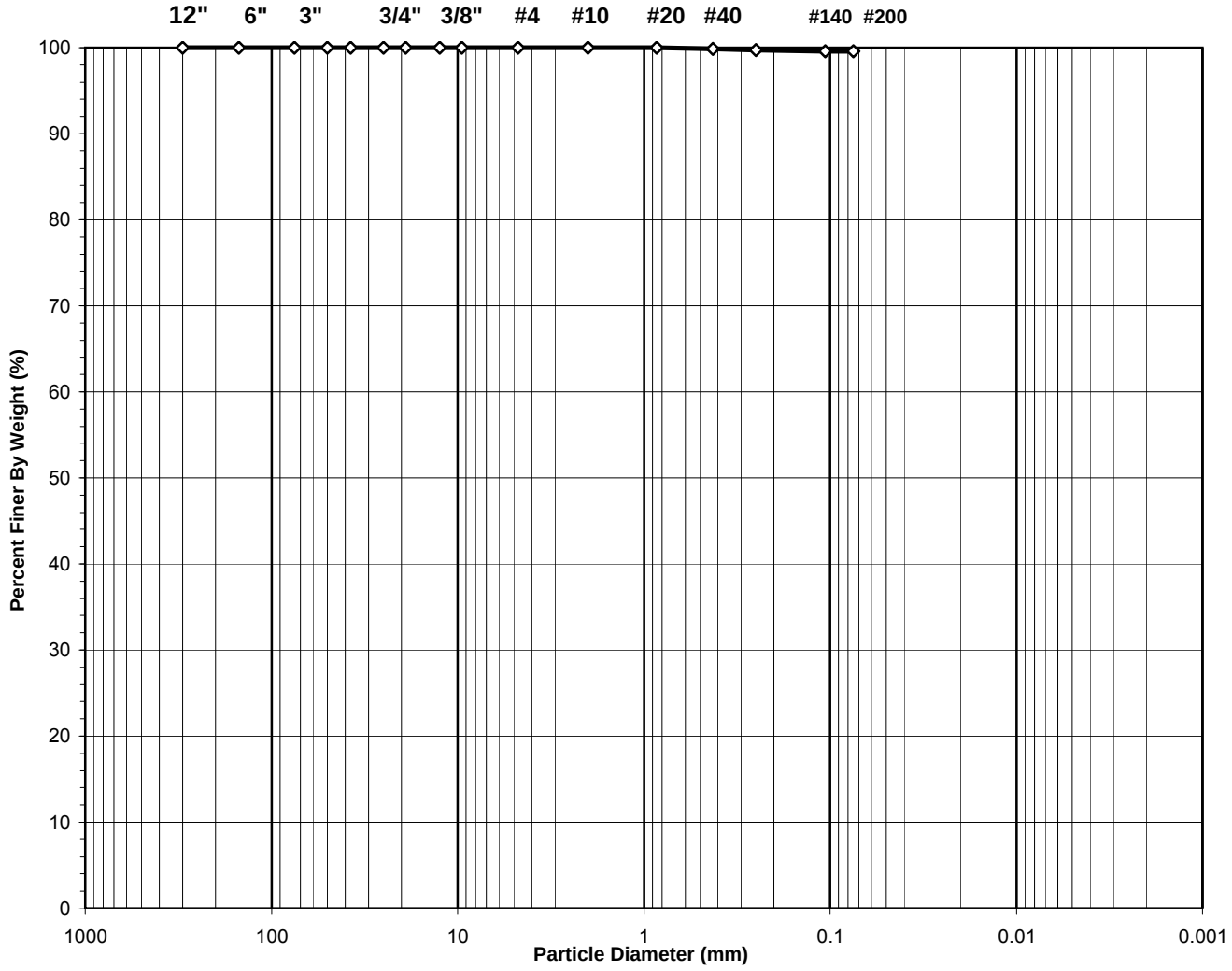
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	16.0-17.5
Project No.:	2015-485-001	Sample No.:	SS-4
Lab ID:	2015-485-001-010	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
CL, TESTED

USCS Classification:
LEAN CLAY

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	16.0-17.5
Project No.:	2015-485-001	Sample No.:	SS-4
Lab ID:	2015-485-001-010	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	961	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	483.60	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	396.40	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	101.06	Weight of Tare (g):	NA
Weight of Water (g):	87.20	Weight of Water (g):	NA
Weight of Dry Sample (g):	295.34	Weight of Dry Sample (g):	NA
Moisture Content (%):	**29.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	295.34
Dry Weight of - 3/4" Sample (g):	1.3	Weight of - #200 Material (g):	294.02
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	1.32
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.00	0.00	0.00	100.00	**100.00**
#20	0.850	0.06	0.02	0.02	99.98	**99.98**
#40	0.425	0.35	0.12	0.14	99.86	**99.86**
#60	0.250	0.37	0.13	0.26	99.74	**99.74**
#140	0.106	0.42	0.14	0.41	99.59	**99.59**
#200	0.075	0.12	0.04	0.45	99.55	**99.55**
Pan	-	294.02	99.55	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/16/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

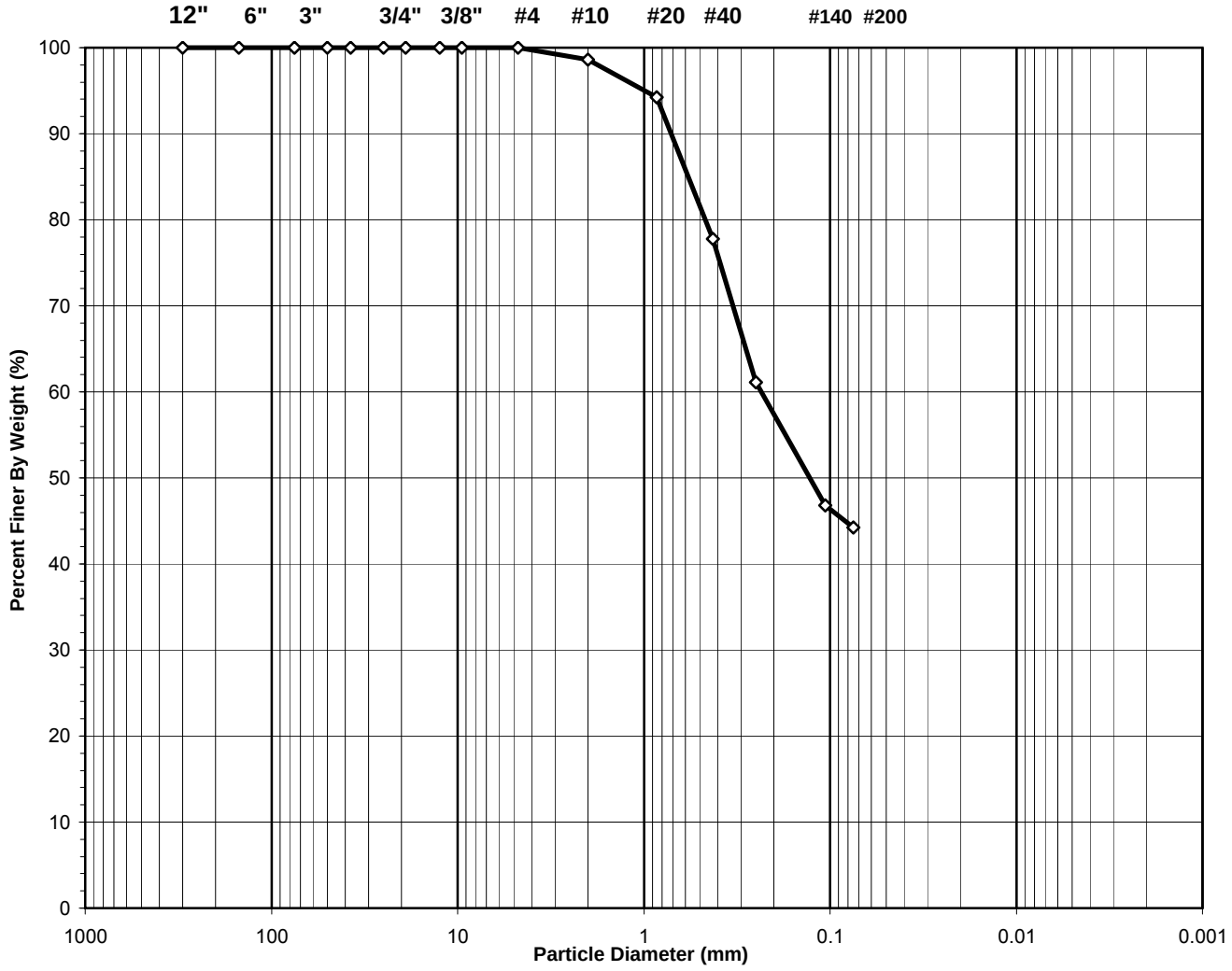
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-001	Sample No.:	SS-6
Lab ID:	2015-485-001-011	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-001	Sample No.:	SS-6
Lab ID:	2015-485-001-011	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1466	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	561.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	447.90	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	110.51	Weight of Tare (g):	NA
Weight of Water (g):	113.80	Weight of Water (g):	NA
Weight of Dry Sample (g):	337.39	Weight of Dry Sample (g):	NA
Moisture Content (%):	**33.7**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	337.39
Dry Weight of - 3/4" Sample (g):	188.0	Weight of - #200 Material (g):	149.36
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	188.03
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	4.74	1.40	1.40	98.60	**98.60**
#20	0.850	14.59	4.32	5.73	94.27	**94.27**
#40	0.425	55.73	16.52	22.25	77.75	**77.75**
#60	0.250	56.23	16.67	38.91	61.09	**61.09**
#140	0.106	48.15	14.27	53.18	46.82	**46.82**
#200	0.075	8.59	2.55	55.73	44.27	**44.27**
Pan	-	149.36	44.27	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

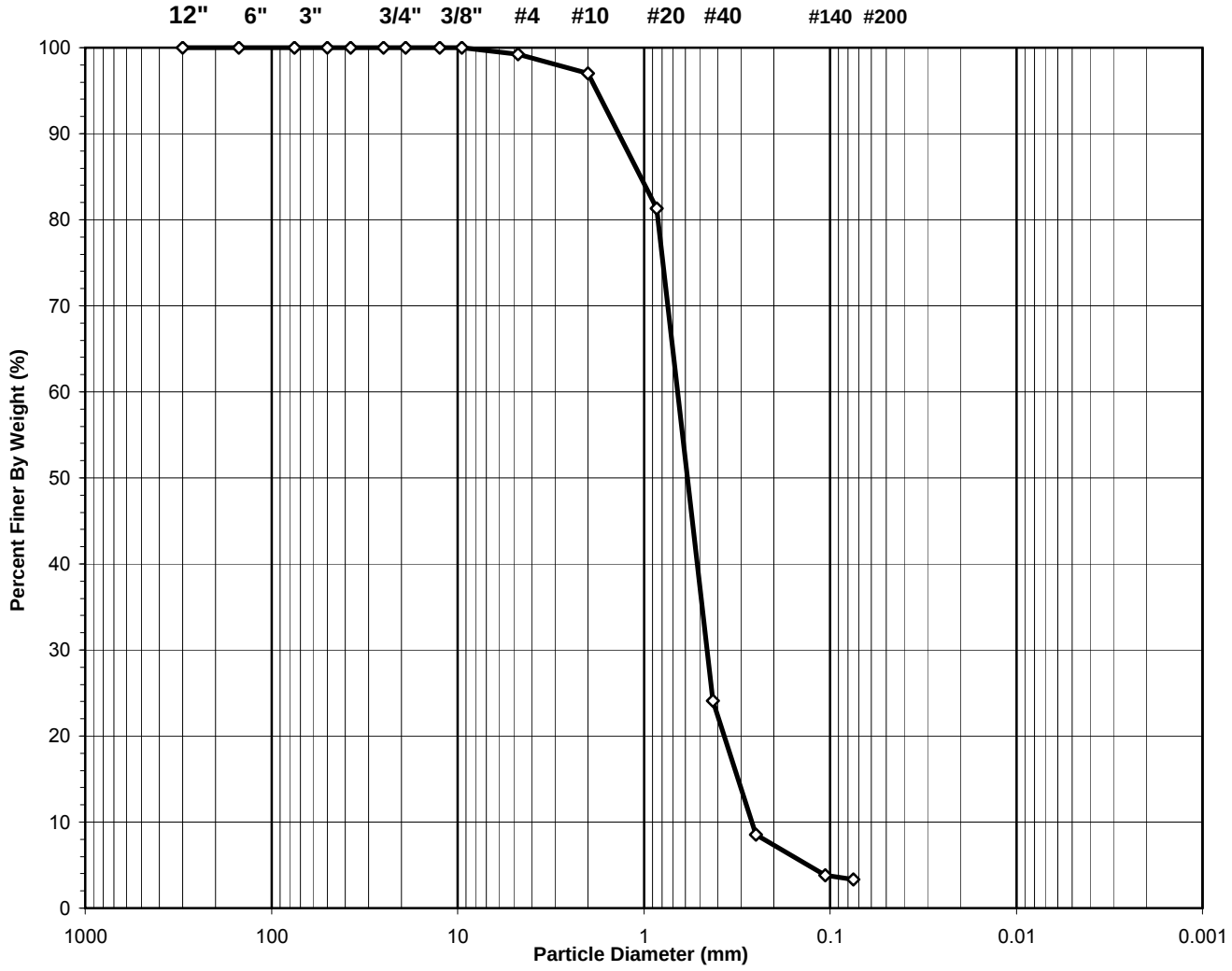
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-012	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.66 **CC = 1.21**

D30 = 0.46 **CU = 2.50**

D10 = 0.26

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-012	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	697	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	479.50	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	418.90	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	97.75	Weight of Tare (g):	NA
Weight of Water (g):	60.60	Weight of Water (g):	NA
Weight of Dry Sample (g):	321.15	Weight of Dry Sample (g):	NA
Moisture Content (%):	**18.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	321.15
Dry Weight of - 3/4" Sample (g):	310.4	Weight of - #200 Material (g):	10.75
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	310.40
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	2.49	0.78	0.78	99.22	**99.22**
#10	2.00	7.21	2.25	3.02	96.98	**96.98**
#20	0.850	50.32	15.67	18.69	81.31	**81.31**
#40	0.425	183.68	57.19	75.88	24.12	**24.12**
#60	0.250	49.99	15.57	91.45	8.55	**8.55**
#140	0.106	15.19	4.73	96.18	3.82	**3.82**
#200	0.075	1.52	0.47	96.65	3.35	**3.35**
Pan	-	10.75	3.35	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

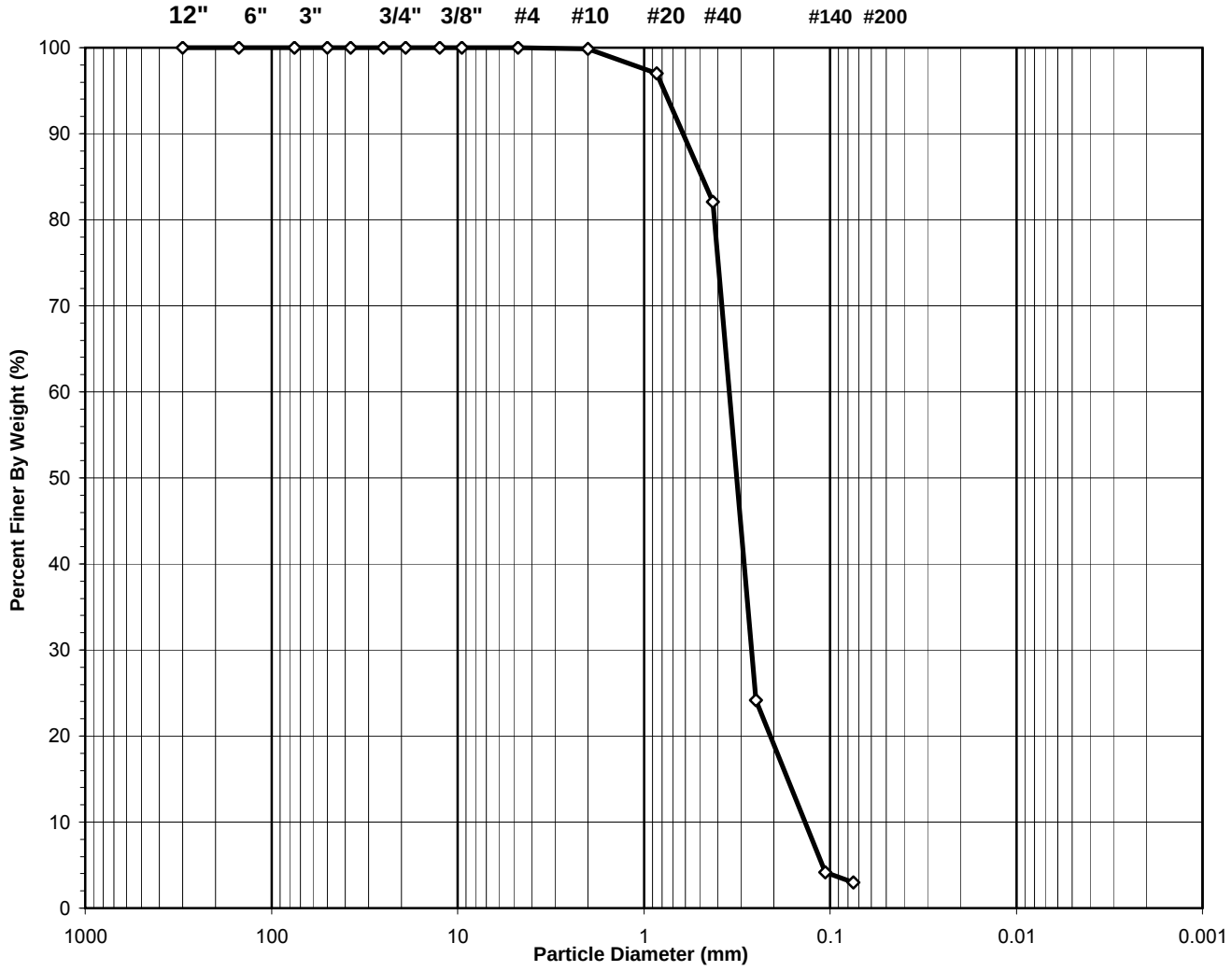
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-013	Soil Color:	Gray

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:

SP

USCS Classification:

POORLY GRADED SAND

D60 = 0.35 **CC = 1.47**

D30 = 0.26 **CU = 2.55**

D10 = 0.14

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B021
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-013	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	968	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	640.20	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	549.50	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	99.97	Weight of Tare (g):	NA
Weight of Water (g):	90.70	Weight of Water (g):	NA
Weight of Dry Sample (g):	449.53	Weight of Dry Sample (g):	NA
Moisture Content (%):	**20.2**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	449.53
Dry Weight of - 3/4" Sample (g):	436.1	Weight of - #200 Material (g):	13.42
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	436.11
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.75	0.17	0.17	99.83	**99.83**
#20	0.850	12.78	2.84	3.01	96.99	**96.99**
#40	0.425	67.12	14.93	17.94	82.06	**82.06**
#60	0.250	260.21	57.88	75.83	24.17	**24.17**
#140	0.106	89.80	19.98	95.80	4.20	**4.20**
#200	0.075	5.45	1.21	97.01	2.99	**2.99**
Pan	-	13.42	2.99	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.9-14.4
Project No.:	2015-485-001	Sample No.:	ST-1
Lab ID:	2015-485-001-014	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.05
#4 To #200	*Sand*	5.94
Finer Than #200	*Silt & Clay*	94.01

USCS Symbol:

ML, TESTED

USCS Classification:

SILT

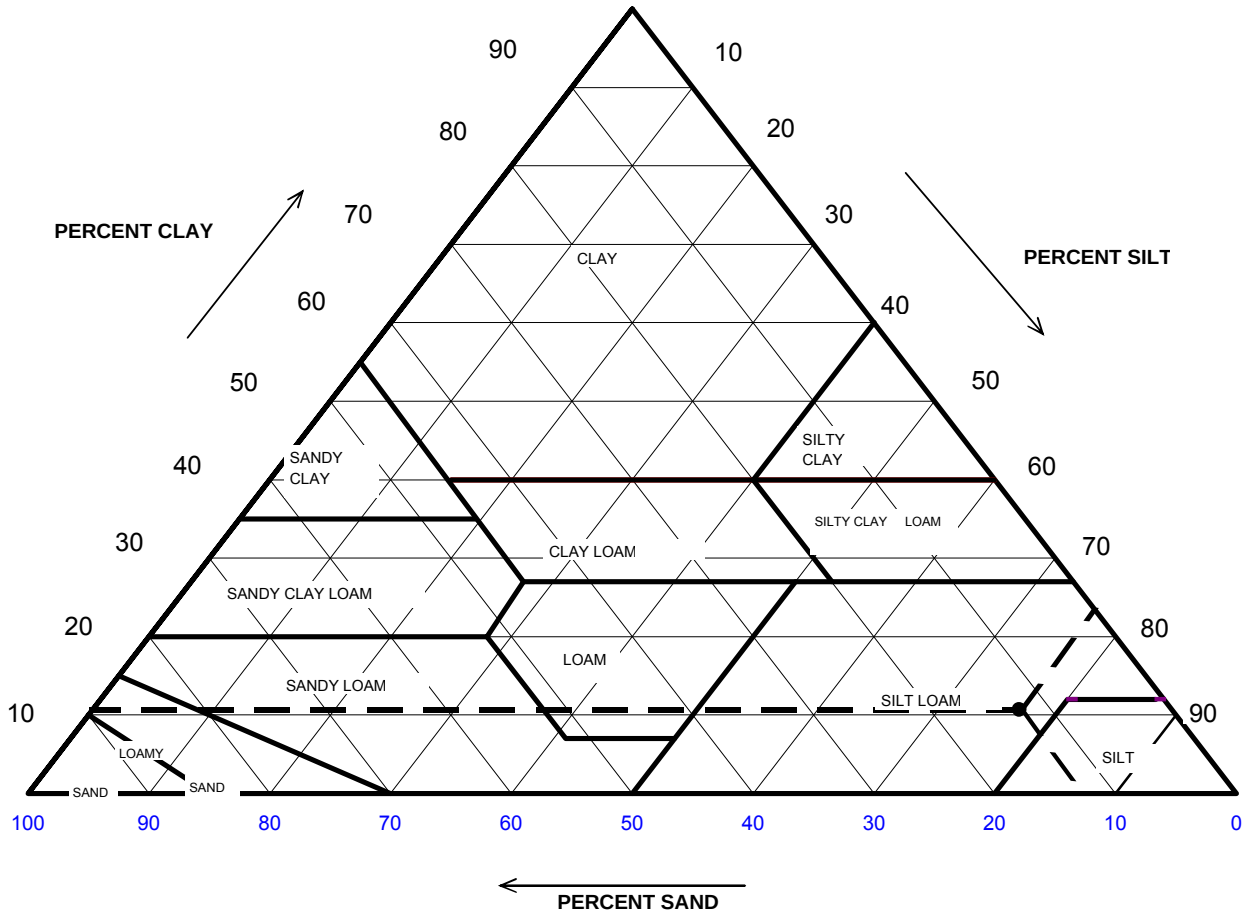
(NON-PLASTIC FINES)

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.9-14.4
Project No.:	2015-485-001	Sample No.:	ST-1
Lab ID:	2015-485-001-014	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.18	**0.00**
2	99.82	*Sand*	12.60	**12.62**
0.05	87.23	*Silt*	76.60	**76.74**
0.002	10.63	*Clay*	10.63	**10.65**

USDA Classification: ***SILT LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.9-14.4
Project No.:	2015-485-001	Sample No.:	ST-1
Lab ID:	2015-485-001-014	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	2471	Tare No.	NA
Weight of Tare & Wet Sample (g)	758.04	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	407.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	98.28	Weight of Tare (g)	NA
Weight of Water (g)	350.74	Weight of Water (g)	NA
Weight of Dry Sample (g)	309.02	Weight of Dry Sample (g)	NA
Moisture Content (%)	**113.5**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	309.02
Dry Weight of -3/4" Sample (g)	18.51	Weight of - #200 Material (g)	290.51
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	18.51
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.15	0.05	0.05		99.95	**99.95**
#10	2.00	0.40	0.13	0.18		99.82	**99.82**
#20	0.85	0.79	0.26	0.43		99.57	**99.57**
#40	0.425	1.66	0.54	0.97		99.03	**99.03**
#60	0.250	1.48	0.48	1.45		98.55	**98.55**
#140	0.106	5.85	1.89	3.34		96.66	**96.66**
#200	0.075	8.18	2.65	5.99		94.01	**94.01**
Pan	-	290.51	94.01	100.00		-	**-**

Tested By RAL Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	13.9-14.4
Project No.:	2015-485-001	Sample No.:	ST-1
Lab ID:	2015-485-001-014	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		43.5	22.4	6.22	37.3	82.4	0.01307	0.0280	**77.5**
5		39.0	22.4	6.22	32.8	72.5	0.01307	0.0184	**68.1**
15		30.0	22.4	6.22	23.8	52.6	0.01307	0.0114	**49.4**
32		23.5	22.4	6.22	17.3	38.2	0.01307	0.0081	**35.9**
60		19.0	22.3	6.25	12.7	28.2	0.01308	0.0061	**26.5**
250		12.5	22.6	6.15	6.4	14.1	0.01303	0.0031	**13.2**
1440		10.0	22.8	6.07	3.9	8.7	0.01300	0.0013	**8.2**

Soil Specimen Data		**Other Corrections**		
Tare No.	947			
Weight of Tare & Dry Material (g)	149.88	a - Factor	0.99	
Weight of Tare (g)	100.11			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	94.01	
Weight of Dry Material (g)	44.8			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

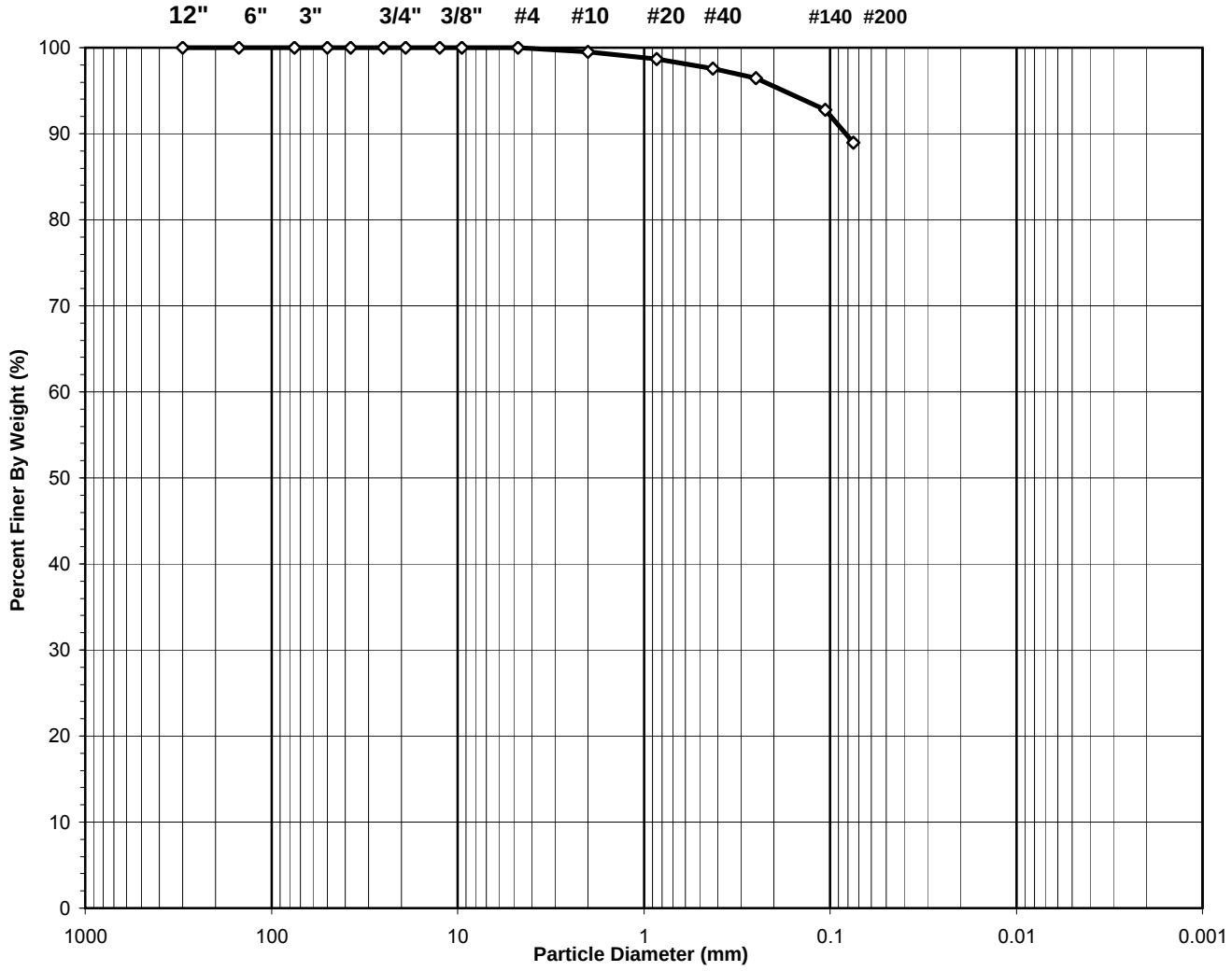
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	17.0-17.55 Upper
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-015	Soil Color:	Grayish Brown

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:

ML, TESTED

USCS Classification:

SILT

(NON-PLASTIC FINES), UNABLE TO RUN HYDROMETER

Tested By AMC Date 9/17/15 Checked By KC Date 9/18/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	17.0-17.55 Upper
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-015	Soil Color:	Grayish Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	21	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	429.10	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	373.34	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	201.74	Weight of Tare (g):	NA
Weight of Water (g):	55.76	Weight of Water (g):	NA
Weight of Dry Sample (g):	171.60	Weight of Dry Sample (g):	NA
Moisture Content (%):	**32.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	171.60
Dry Weight of - 3/4" Sample (g):	18.9	Weight of - #200 Material (g):	152.70
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	18.90
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.84	0.49	0.49	99.51	**99.51**
#20	0.850	1.44	0.84	1.33	98.67	**98.67**
#40	0.425	1.86	1.08	2.41	97.59	**97.59**
#60	0.250	1.98	1.15	3.57	96.43	**96.43**
#140	0.106	6.31	3.68	7.24	92.76	**92.76**
#200	0.075	6.47	3.77	11.01	88.99	**88.99**
Pan	-	152.70	88.99	100.00	-	**-**

Tested By AMC Date 9/17/15 Checked By KC Date 9/18/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.4-18.8 Lower
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-016	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay

USCS Summary		
Sieve Sizes (mm)		**Percentage**
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	3.80
Finer Than #200	*Silt & Clay*	96.20

USCS Symbol:
CL, TESTED

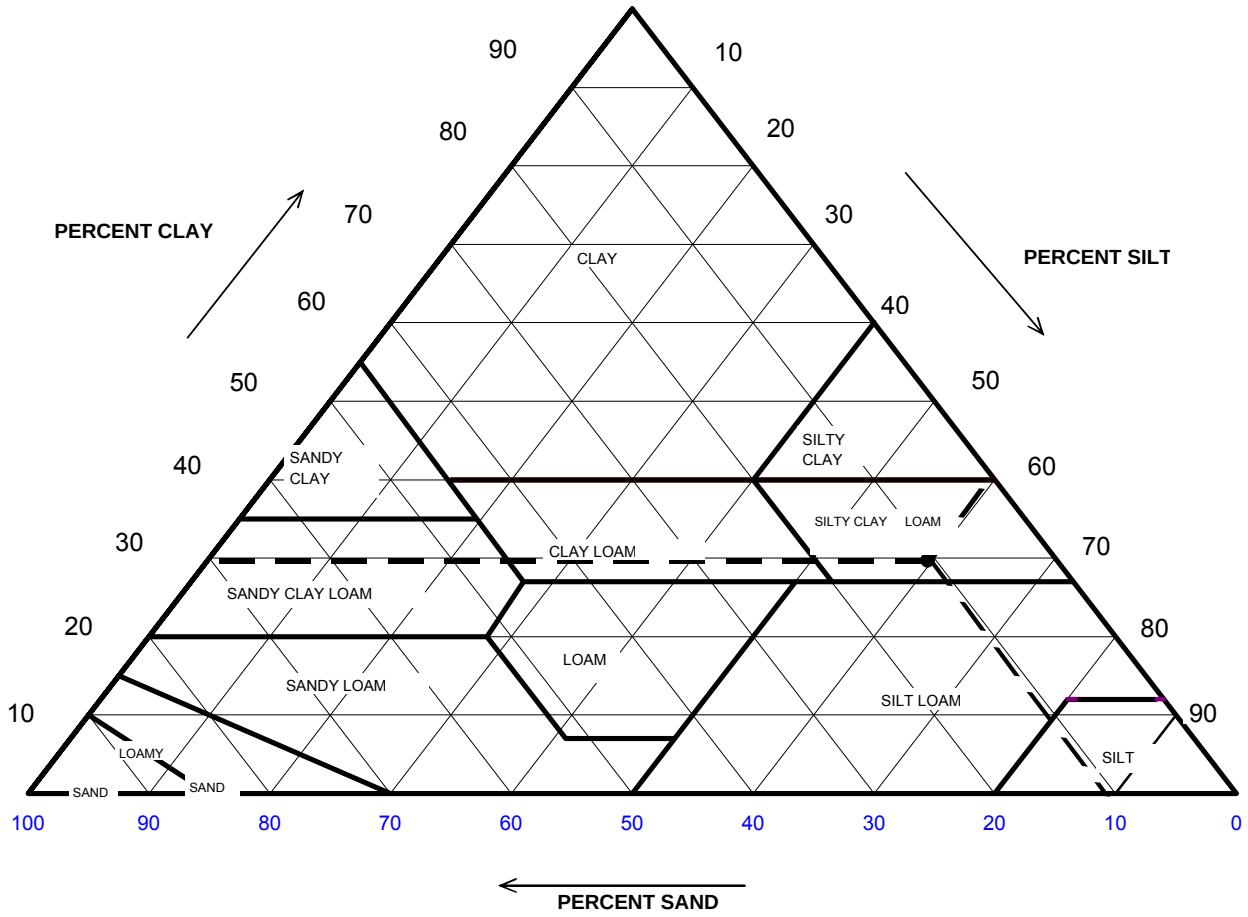
USCS Classification:
LEAN CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.4-18.8 Lower
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-016	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.10	**0.00**
2	99.90	*Sand*	10.68	**10.69**
0.05	89.22	*Silt*	59.54	**59.60**
0.002	29.69	*Clay*	29.69	**29.72**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.4-18.8 Lower
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-016	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	932	Tare No.	NA
Weight of Tare & Wet Sample (g)	595.27	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	496.30	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	97.81	Weight of Tare (g)	NA
Weight of Water (g)	98.97	Weight of Water (g)	NA
Weight of Dry Sample (g)	398.49	Weight of Dry Sample (g)	NA
Moisture Content (%)	**24.8**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	398.49
Dry Weight of -3/4" Sample (g)	15.16	Weight of - #200 Material (g)	383.33
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	15.16
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.40	0.10	0.10		99.90	**99.90**
#20	0.85	0.30	0.08	0.18		99.82	**99.82**
#40	0.425	0.24	0.06	0.24		99.76	**99.76**
#60	0.250	1.41	0.35	0.59		99.41	**99.41**
#140	0.106	7.31	1.83	2.42		97.58	**97.58**
#200	0.075	5.50	1.38	3.80		96.20	**96.20**
Pan	-	383.33	96.20	100.00		-	**-**

Tested By RAL Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	18.4-18.8 Lower
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID:	2015-485-001-016	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
2		41.0	22.4	6.22	34.8	82.8	0.01307	0.0286	**79.6**
5		36.0	22.4	6.22	29.8	70.9	0.01307	0.0188	**68.2**
17		29.0	22.4	6.22	22.8	54.2	0.01307	0.0108	**52.1**
32		25.5	22.4	6.22	19.3	45.9	0.01307	0.0080	**44.1**
60		23.5	22.3	6.25	17.2	41.0	0.01308	0.0060	**39.5**
250		20.0	22.6	6.15	13.9	33.0	0.01303	0.0030	**31.7**
1440		18.0	22.8	6.07	11.9	28.4	0.01300	0.0013	**27.3**

Soil Specimen Data		**Other Corrections**		
Tare No.	695			
Weight of Tare & Dry Material (g)	139.19	a - Factor	0.99	
Weight of Tare (g)	92.58			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	96.20	
Weight of Dry Material (g)	41.6			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

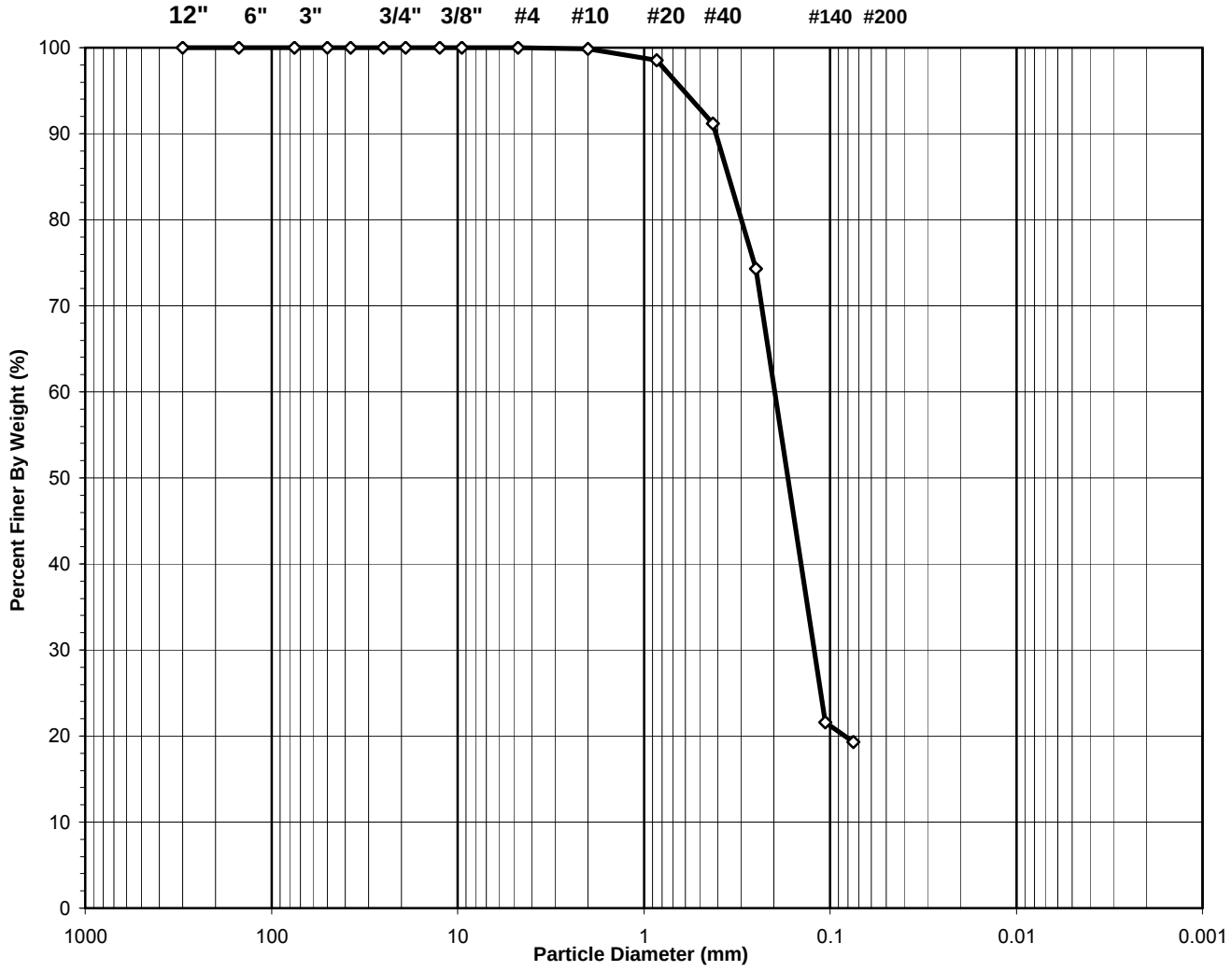
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-018	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B022
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-018	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	1436	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	777.90	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	638.10	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	144.18	Weight of Tare (g):	NA
Weight of Water (g):	139.80	Weight of Water (g):	NA
Weight of Dry Sample (g):	493.92	Weight of Dry Sample (g):	NA
Moisture Content (%):	**28.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	493.92
Dry Weight of - 3/4" Sample (g):	398.5	Weight of - #200 Material (g):	95.38
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	398.54
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.81	0.16	0.16	99.84	**99.84**
#20	0.850	6.30	1.28	1.44	98.56	**98.56**
#40	0.425	36.57	7.40	8.84	91.16	**91.16**
#60	0.250	83.17	16.84	25.68	74.32	**74.32**
#140	0.106	260.54	52.75	78.43	21.57	**21.57**
#200	0.075	11.15	2.26	80.69	19.31	**19.31**
Pan	-	95.38	19.31	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

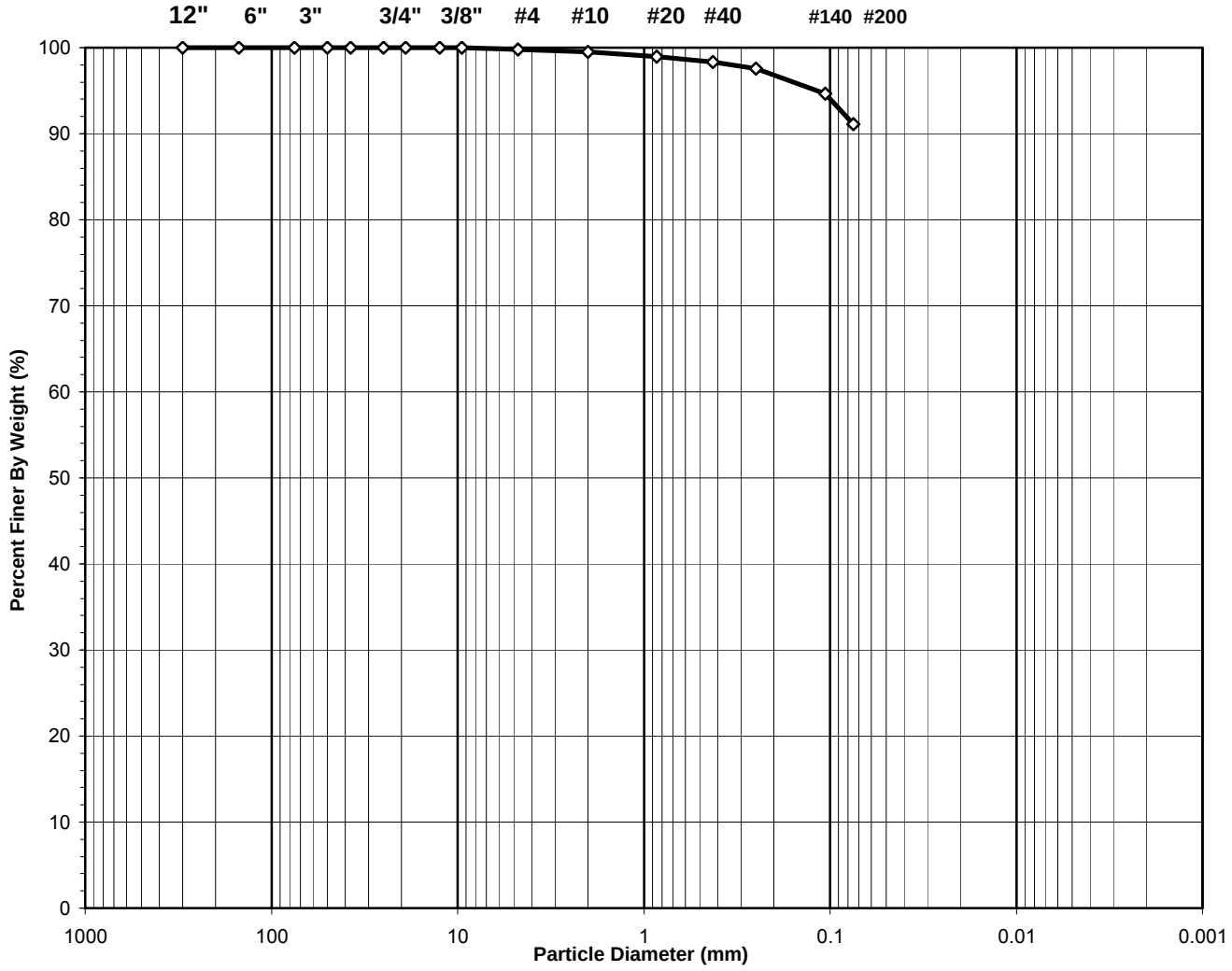
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-001	Sample No.:	SS-2
Lab ID:	2015-485-001-019	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	6.0-7.5
Project No.:	2015-485-001	Sample No.:	SS-2
Lab ID:	2015-485-001-019	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	926	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	521.30	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	378.73	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	95.48	Weight of Tare (g):	NA
Weight of Water (g):	142.57	Weight of Water (g):	NA
Weight of Dry Sample (g):	283.25	Weight of Dry Sample (g):	NA
Moisture Content (%):	**50.3**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	283.25
Dry Weight of - 3/4" Sample (g):	25.2	Weight of - #200 Material (g):	258.06
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	25.19
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.65	0.23	0.23	99.77	**99.77**
#10	2.00	0.80	0.28	0.51	99.49	**99.49**
#20	0.850	1.41	0.50	1.01	98.99	**98.99**
#40	0.425	1.82	0.64	1.65	98.35	**98.35**
#60	0.250	2.23	0.79	2.44	97.56	**97.56**
#140	0.106	8.18	2.89	5.33	94.67	**94.67**
#200	0.075	10.10	3.57	8.89	91.11	**91.11**
Pan	-	258.06	91.11	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

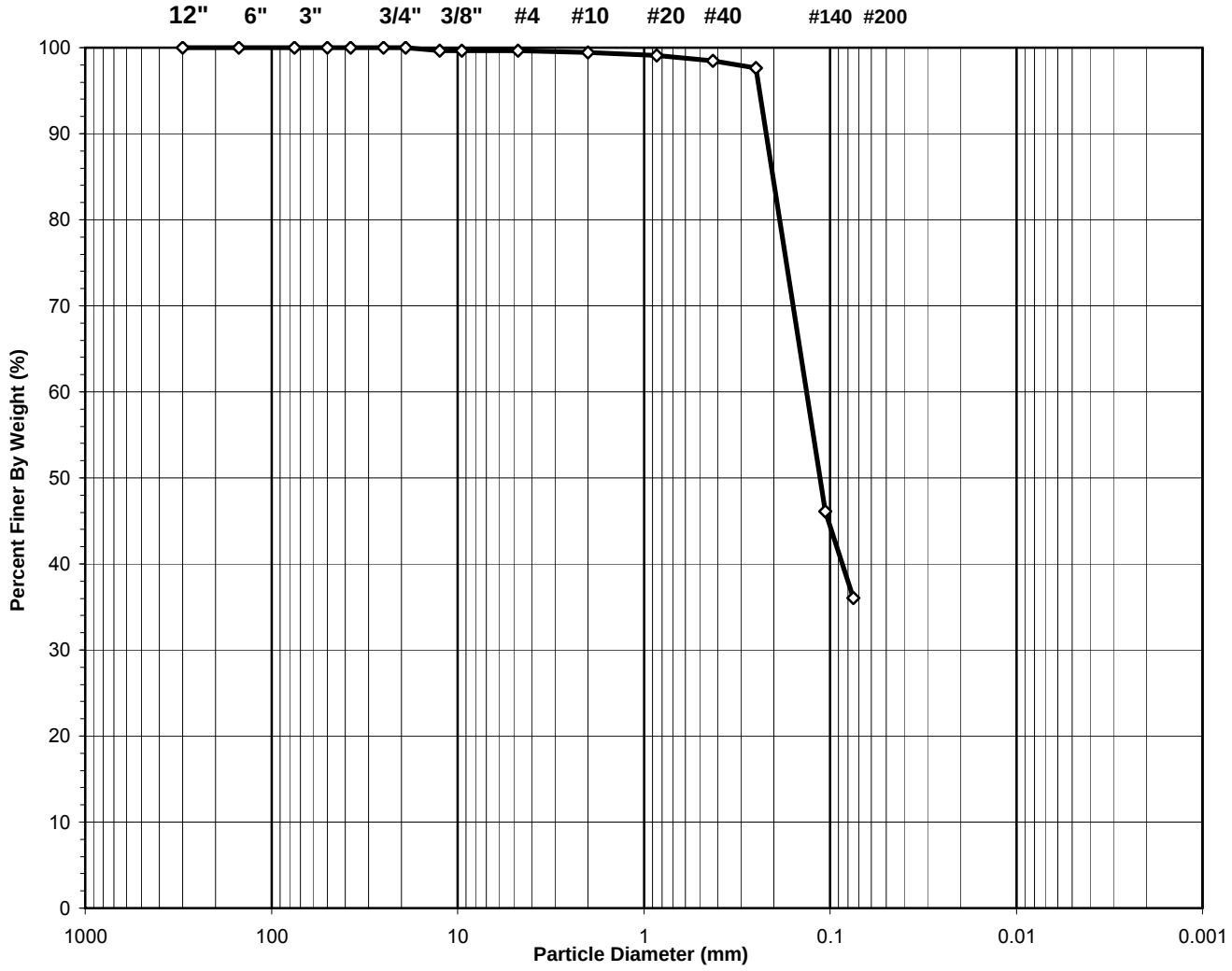
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-001	Sample No.:	SS-7
Lab ID:	2015-485-001-021	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sm, ASSUMED

USCS Classification:
SILTY SAND

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	23.5-25.0
Project No.:	2015-485-001	Sample No.:	SS-7
Lab ID:	2015-485-001-021	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	703	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	559.20	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	446.70	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	97.71	Weight of Tare (g):	NA
Weight of Water (g):	112.50	Weight of Water (g):	NA
Weight of Dry Sample (g):	348.99	Weight of Dry Sample (g):	NA
Moisture Content (%):	**32.2**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	348.99
Dry Weight of - 3/4" Sample (g):	223.3	Weight of - #200 Material (g):	125.74
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	223.25
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	1.12	0.32	0.32	99.68	**99.68**
3/8"	9.50	0.00	0.00	0.32	99.68	**99.68**
#4	4.75	0.00	0.00	0.32	99.68	**99.68**
#10	2.00	0.94	0.27	0.59	99.41	**99.41**
#20	0.850	1.20	0.34	0.93	99.07	**99.07**
#40	0.425	1.96	0.56	1.50	98.50	**98.50**
#60	0.250	3.14	0.90	2.40	97.60	**97.60**
#140	0.106	179.59	51.46	53.86	46.14	**46.14**
#200	0.075	35.30	10.11	63.97	36.03	**36.03**
Pan	-	125.74	36.03	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

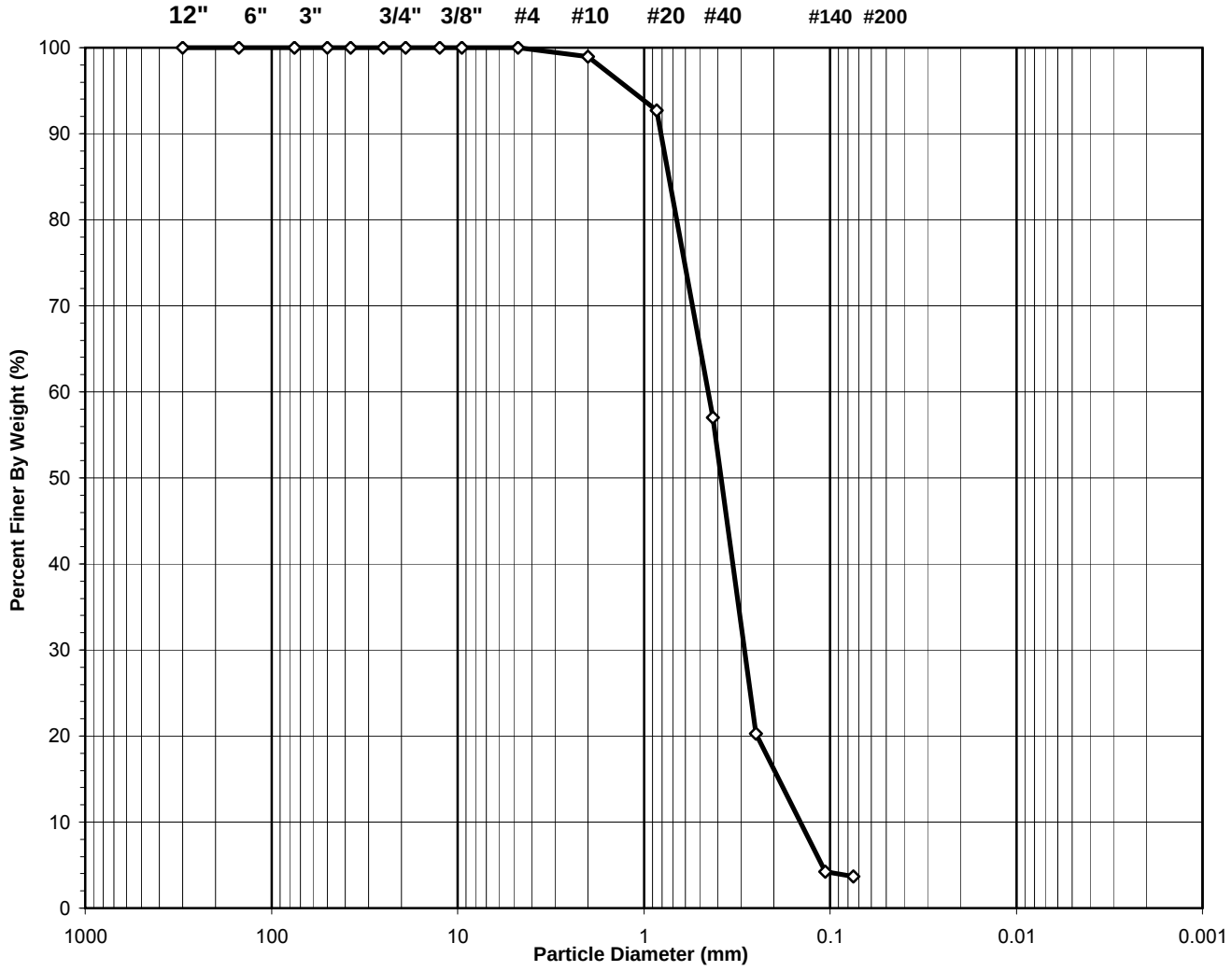
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35.0
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-022	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
SP

USCS Classification:
POORLY GRADED SAND

D60 = 0.45 **CC = 1.27**

D30 = 0.29 **CU = 3.12**

D10 = 0.14

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B024
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	33.5-35.0
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-022	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	52	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	597.80	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	526.00	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	200.08	Weight of Tare (g):	NA
Weight of Water (g):	71.80	Weight of Water (g):	NA
Weight of Dry Sample (g):	325.92	Weight of Dry Sample (g):	NA
Moisture Content (%):	**22.0**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	325.92
Dry Weight of - 3/4" Sample (g):	314.0	Weight of - #200 Material (g):	11.91
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	314.01
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	3.47	1.06	1.06	98.94	**98.94**
#20	0.850	20.28	6.22	7.29	92.71	**92.71**
#40	0.425	116.27	35.67	42.96	57.04	**57.04**
#60	0.250	119.81	36.76	79.72	20.28	**20.28**
#140	0.106	52.24	16.03	95.75	4.25	**4.25**
#200	0.075	1.94	0.60	96.35	3.65	**3.65**
Pan	-	11.91	3.65	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

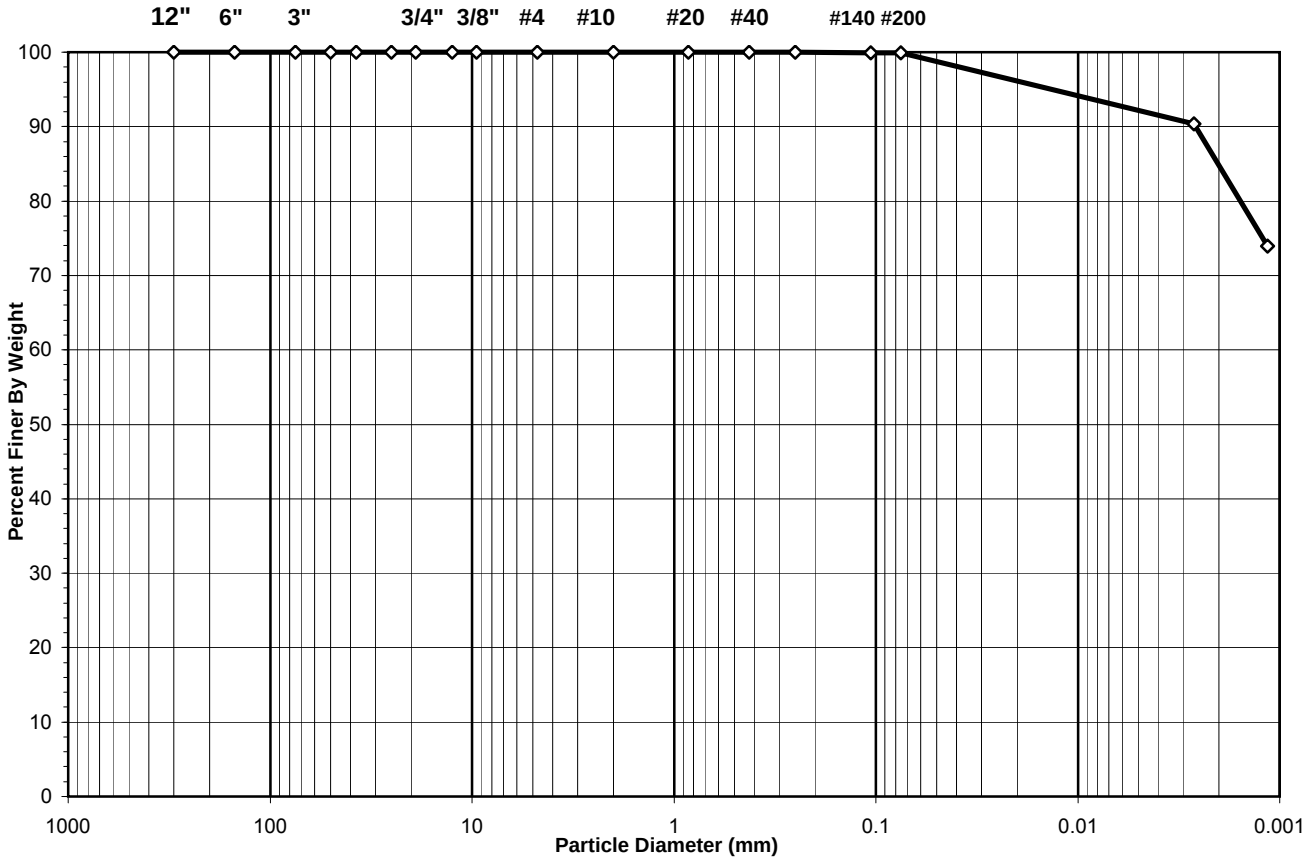
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	32.3-32.7
Project No.:	2015-485-001	Sample No.:	ST-3
Lab ID:	2015-485-001-023	Soil Color:	Gray

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	0.00
#4 To #200	*Sand*	0.06
Finer Than #200	*Silt & Clay*	99.94

USCS Symbol:
CH, TESTED

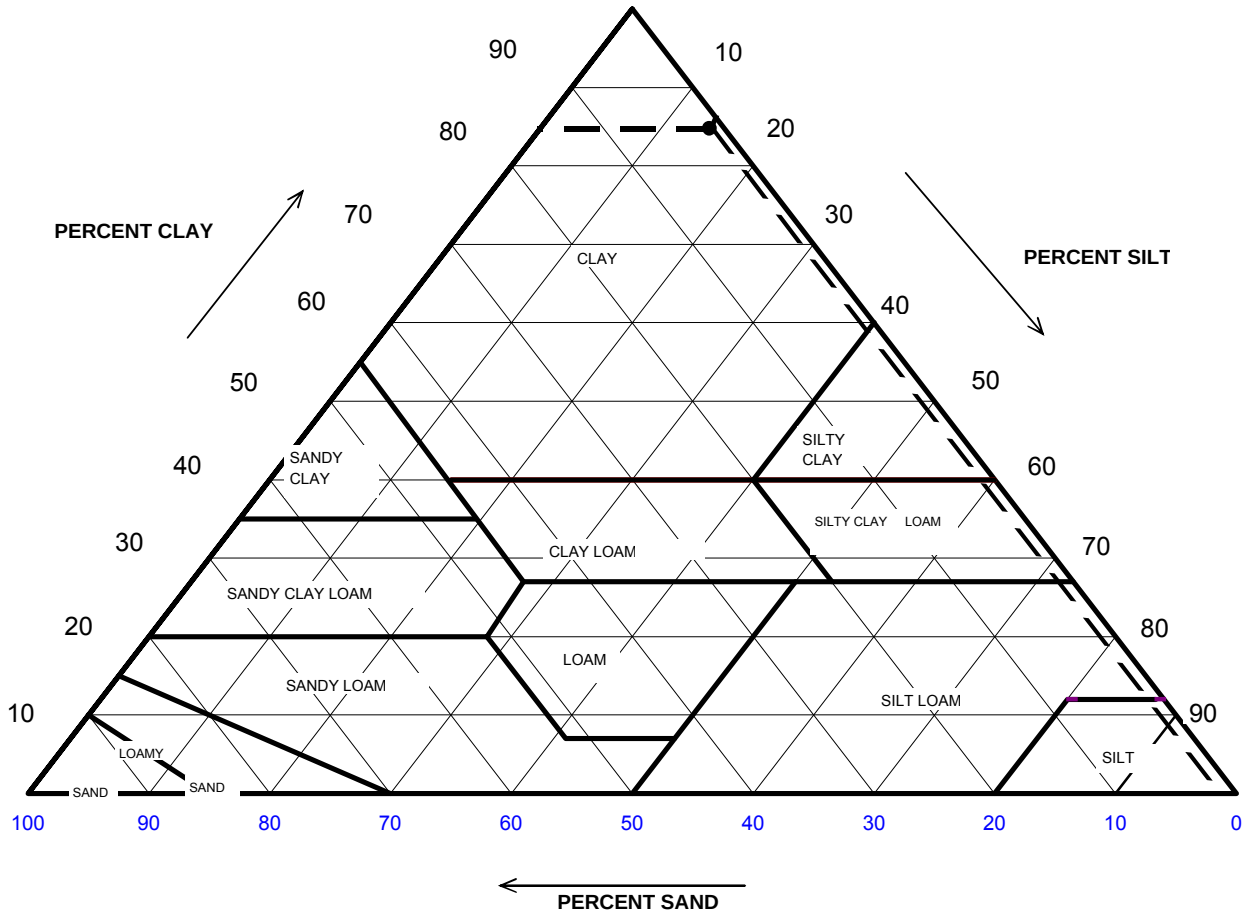
USCS Classification:
FAT CLAY

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

USDA CLASSIFICATION CHART

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	32.3-32.7
Project No.:	2015-485-001	Sample No.:	ST-3
Lab ID:	2015-485-001-023	Soil Color:	Gray



Particle Size	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
(mm)	(%)		(%)	(%)
		Gravel	0.00	**0.00**
2	100.00	*Sand*	1.23	**1.23**
0.05	98.77	*Silt*	14.00	**14.00**
0.002	84.77	*Clay*	84.77	**84.77**

USDA Classification: ***CLAY***

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	32.3-32.7
Project No.:	2015-485-001	Sample No.:	ST-3
Lab ID:	2015-485-001-023	Soil Color:	Gray

Moisture Content of Passing 3/4" Materia		Water Content of Retained 3/4" Material	
Tare No.	1920	Tare No.	NA
Weight of Tare & Wet Sample (g)	630.49	Weight of Tare & Wet Sample (g)	NA
Weight of Tare & Dry Sample (g)	423.70	Weight of Tare & Dry Sample (g)	NA
Weight of Tare (g)	97.21	Weight of Tare (g)	NA
Weight of Water (g)	206.79	Weight of Water (g)	NA
Weight of Dry Sample (g)	326.49	Weight of Dry Sample (g)	NA
Moisture Content (%)	**63.3**	**Moisture Content (%)**	**NA**

Wet Weight of -3/4" Sample (g)	NA	Weight of the Dry Sample (g)	326.49
Dry Weight of -3/4" Sample (g)	0.21	Weight of - #200 Material (g)	326.28
Wet Weight of +3/4" Sample (g)	NA	Weight of + #200 Material (g)	0.21
Dry Weight of +3/4" Sample (g)	0.00		
Total Dry Weight of Sample (g)	NA		

Sieve Size	Sieve Opening	Weight of Soil Retained	Percent Retained	Accumulated Percent Retained		Percent Finer	Accumulated Percent Finer
	(mm)	(g)	(%)	(%)		(%)	(%)
12"	300	0.00	0.00	0.00		100.00	**100.00**
6"	150	0.00	0.00	0.00		100.00	**100.00**
3"	75	0.00	0.00	0.00		100.00	**100.00**
2"	50	0.00	0.00	0.00		100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00		100.00	**100.00**
1"	25.0	0.00	0.00	0.00		100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00		100.00	**100.00**
1/2"	12.5	0.00	0.00	0.00		100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00		100.00	**100.00**
#4	4.75	0.00	0.00	0.00		100.00	**100.00**
#10	2.00	0.00	0.00	0.00		100.00	**100.00**
#20	0.85	0.00	0.00	0.00		100.00	**100.00**
#40	0.425	0.00	0.00	0.00		100.00	**100.00**
#60	0.250	0.04	0.01	0.01		99.99	**99.99**
#140	0.106	0.13	0.04	0.05		99.95	**99.95**
#200	0.075	0.04	0.01	0.06		99.94	**99.94**
Pan	-	326.28	99.94	100.00		-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

HYDROMETER ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	32.3-32.7
Project No.:	2015-485-001	Sample No.:	ST-3
Lab ID:	2015-485-001-023	Soil Color:	Gray

Elapsed Time		R Measured	Temp.	Composite Correction	R Corrected	N	K Factor	Diameter	N'
(min)			(°C)			(%)		(mm)	(%)
0		NA	NA	NA	NA	NA	NA	NA	NA
250		36.0	22.6	6.15	29.9	90.4	0.01303	0.0027	**90.4**
1440		30.5	22.8	6.07	24.4	74.0	0.01300	0.0012	**73.9**

Soil Specimen Data		**Other Corrections**		
Tare No.	633			
Weight of Tare & Dry Material (g)	133.79	a - Factor	0.99	
Weight of Tare (g)	96.10			
Weight of Deflocculant (g)	5.0	Percent Finer than # 200	99.94	
Weight of Dry Material (g)	32.7			
		Specific Gravity	2.7	Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 9/15/15 Checked By KC Date 9/17/15

DCN: CT-S3A DATE: 3/18/13 REVISION: 11

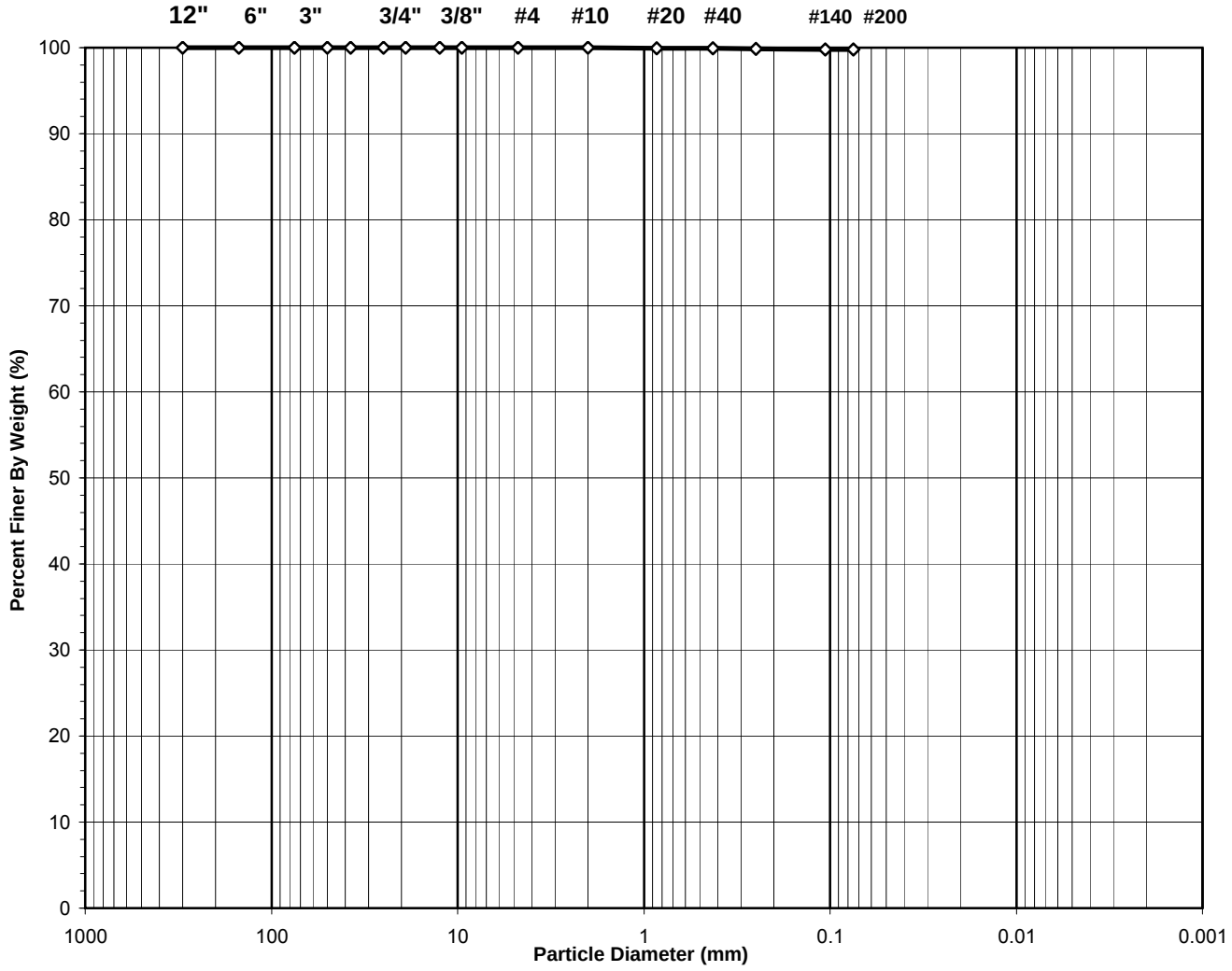
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-024	Soil Color:	Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
ml, ASSUMED

USCS Classification:
SILT

Tested By	JP	Date	9/12/15	Checked By	KC	Date	9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	36.0-37.5
Project No.:	2015-485-001	Sample No.:	SS-11
Lab ID:	2015-485-001-024	Soil Color:	Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	18	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	526.30	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	409.30	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	202.70	Weight of Tare (g):	NA
Weight of Water (g):	117.00	Weight of Water (g):	NA
Weight of Dry Sample (g):	206.60	Weight of Dry Sample (g):	NA
Moisture Content (%):	**56.6**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	206.60
Dry Weight of - 3/4" Sample (g):	0.5	Weight of - #200 Material (g):	206.13
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	0.47
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.04	0.02	0.02	99.98	**99.98**
#20	0.850	0.04	0.02	0.04	99.96	**99.96**
#40	0.425	0.09	0.04	0.08	99.92	**99.92**
#60	0.250	0.08	0.04	0.12	99.88	**99.88**
#140	0.106	0.13	0.06	0.18	99.82	**99.82**
#200	0.075	0.09	0.04	0.23	99.77	**99.77**
Pan	-	206.13	99.77	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

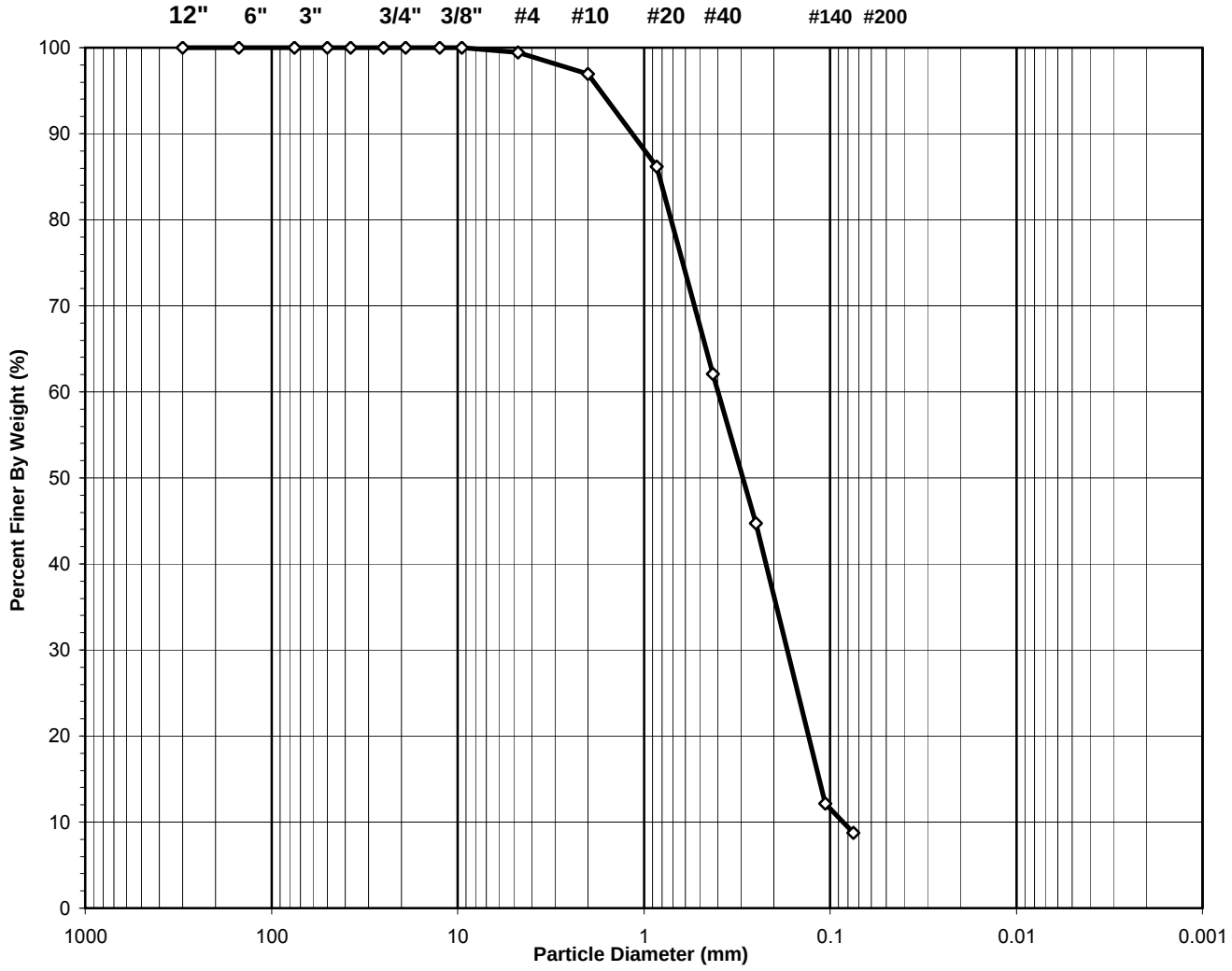
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-025	Soil Color:	Brown / Gray

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.40 **CC = 0.85**

D30 = 0.17 **CU = 4.68**

D10 = 0.09

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	43.5-45.0
Project No.:	2015-485-001	Sample No.:	SS-14
Lab ID:	2015-485-001-025	Soil Color:	Brown / Gray

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	41	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	649.70	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	577.30	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	205.85	Weight of Tare (g):	NA
Weight of Water (g):	72.40	Weight of Water (g):	NA
Weight of Dry Sample (g):	371.45	Weight of Dry Sample (g):	NA
Moisture Content (%):	**19.5**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	371.45
Dry Weight of - 3/4" Sample (g):	338.9	Weight of - #200 Material (g):	32.54
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	338.91
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	2.06	0.55	0.55	99.45	**99.45**
#10	2.00	9.31	2.51	3.06	96.94	**96.94**
#20	0.850	39.98	10.76	13.82	86.18	**86.18**
#40	0.425	89.47	24.09	37.91	62.09	**62.09**
#60	0.250	64.55	17.38	55.29	44.71	**44.71**
#140	0.106	121.00	32.58	87.86	12.14	**12.14**
#200	0.075	12.54	3.38	91.24	8.76	**8.76**
Pan	-	32.54	8.76	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

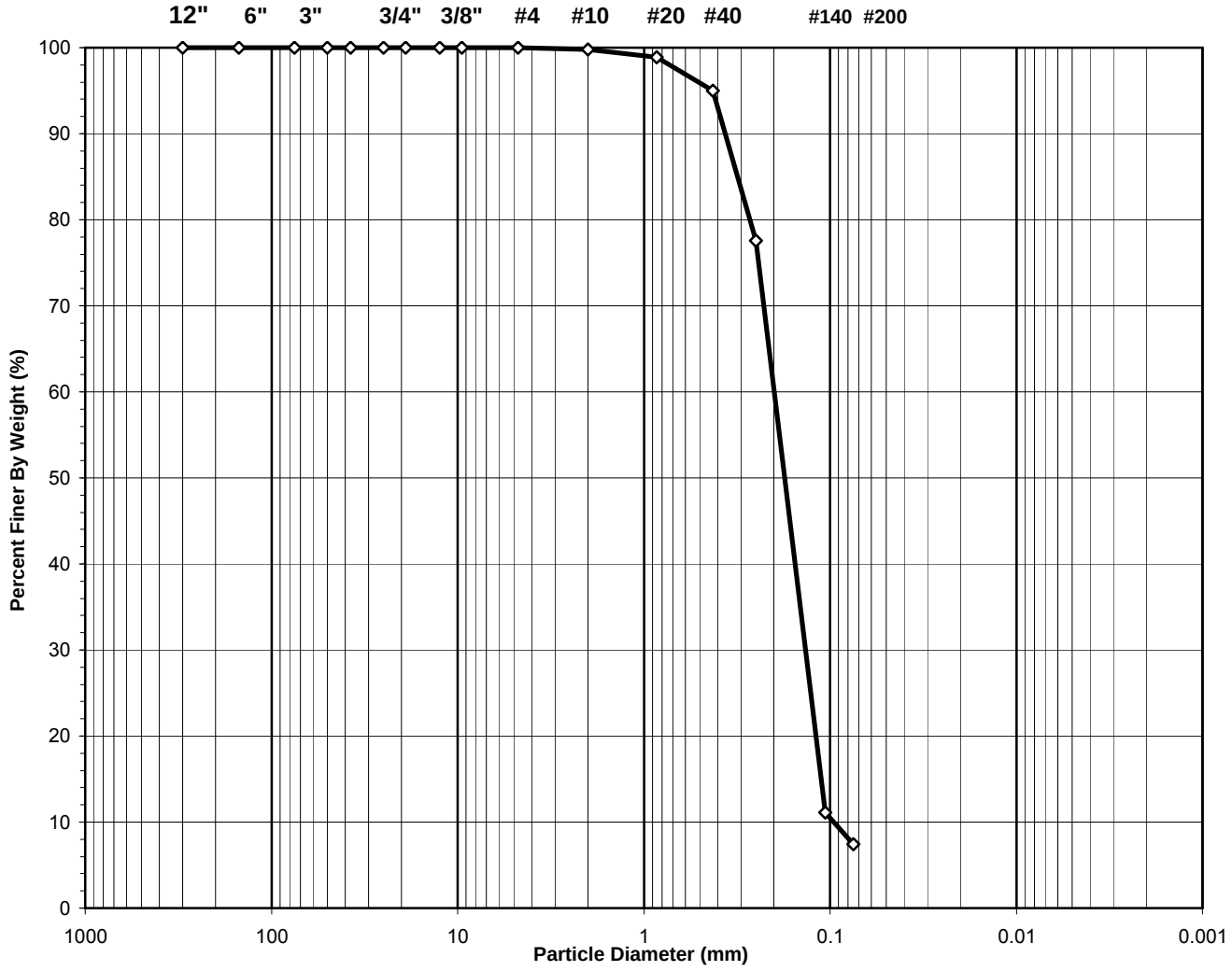
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-001	Sample No.:	SS-16
Lab ID:	2015-485-001-026	Soil Color:	Gray / Brown

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol:
sp-sm, ASSUMED

USCS Classification:
POORLY GRADED SAND WITH SILT

D60 = 0.20 **CC = 0.96**

D30 = 0.14 **CU = 2.09**

D10 = 0.10

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

WASH SIEVE ANALYSIS

ASTM D 422-63 (2007)

Client:	AECOM	Boring No.:	WOR-B025
Client Reference:	Dynegy - Wood River Pwr. Sta. 60440115	Depth (ft):	48.5-50.0
Project No.:	2015-485-001	Sample No.:	SS-16
Lab ID:	2015-485-001-026	Soil Color:	Gray / Brown

Moisture Content of Passing 3/4" Sample		Water Content of Retained 3/4" Sample	
Tare No.:	61	Tare No.:	NA
Wt. of Tare & Wet Sample (g):	589.90	Weight of Tare & Wet Sample (g):	NA
Wt. of Tare & Dry Sample (g):	510.70	Weight of Tare & Dry Sample (g):	NA
Weight of Tare (g):	205.33	Weight of Tare (g):	NA
Weight of Water (g):	79.20	Weight of Water (g):	NA
Weight of Dry Sample (g):	305.37	Weight of Dry Sample (g):	NA
Moisture Content (%):	**25.9**	**Moisture Content (%):**	**NA**

Wet Weight of -3/4" Sample (g):	NA	Weight of the Dry Sample (g):	305.37
Dry Weight of - 3/4" Sample (g):	282.6	Weight of - #200 Material (g):	22.76
Wet Weight of +3/4" Sample (g):	NA	Weight of + #200 Material (g):	282.61
Dry Weight of + 3/4" Sample (g):	0.00		
Total Dry Weight of Sample (g):	NA		

Sieve Size	Sieve Opening (mm)	Weight of Soil Retained (g)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.56	0.18	0.18	99.82	**99.82**
#20	0.850	2.90	0.95	1.13	98.87	**98.87**
#40	0.425	11.81	3.87	5.00	95.00	**95.00**
#60	0.250	53.30	17.45	22.45	77.55	**77.55**
#140	0.106	202.91	66.45	88.90	11.10	**11.10**
#200	0.075	11.13	3.64	92.55	7.45	**7.45**
Pan	-	22.76	7.45	100.00	-	**-**

Tested By JP Date 9/12/15 Checked By KC Date 9/15/15

DCN: CT-S3C DATE 3/20/13 REVISION: 3

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

APPENDIX B2

LABORATORY HYDRAULIC CONDUCTIVITY TEST RESULTS

PERMEABILITY TEST

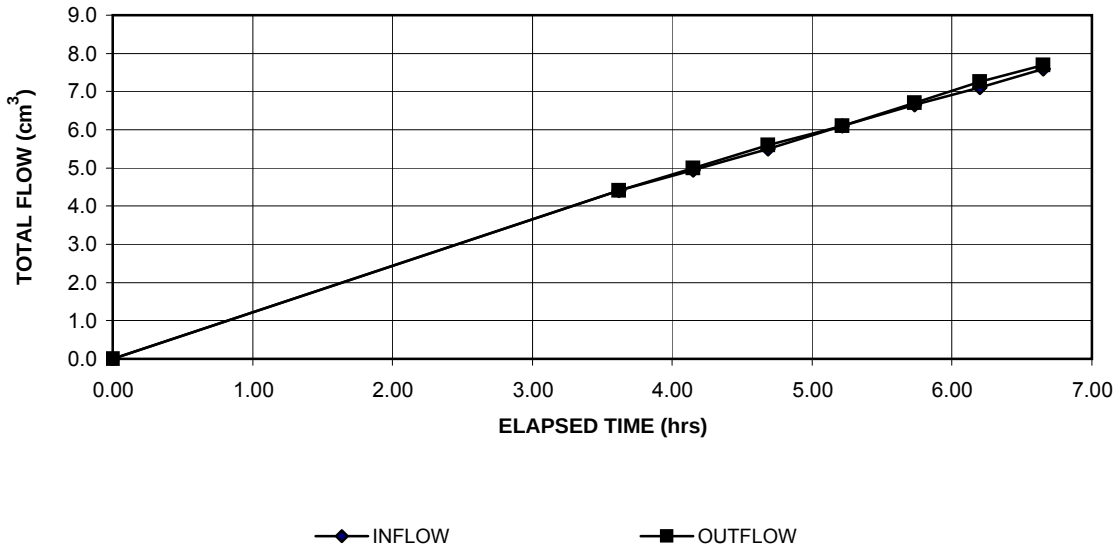
ASTM D 5084-10

Client:	AECOM	Boring No.:	B-1
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	41.7 - 41.9
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID No.:	2015-485-004-003		

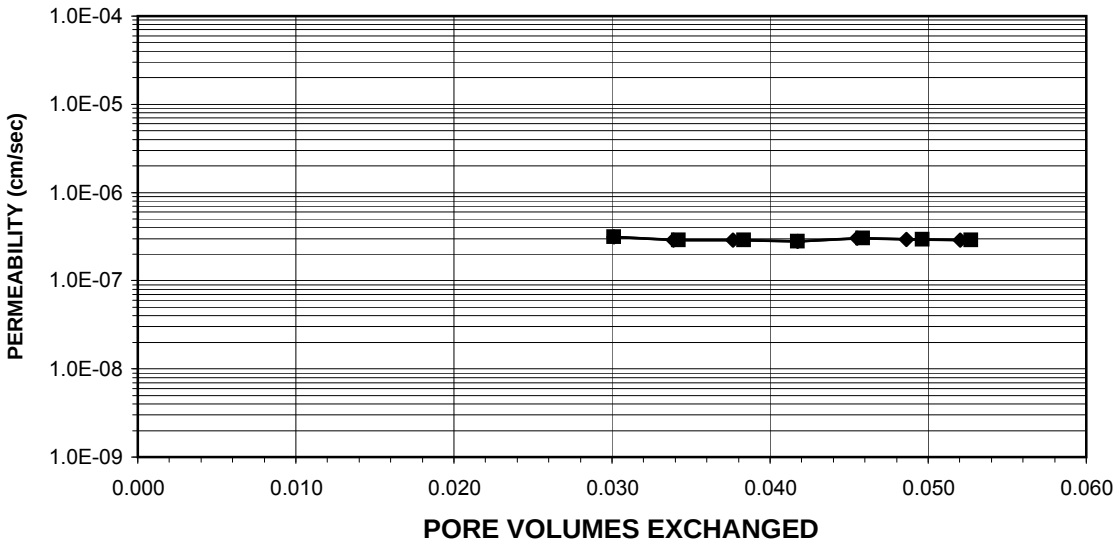
AVERAGE PERMEABILITY = 2.9E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.9E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 9/28/15 Checked By: KC Date: 9/30/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	B-1
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	41.7 - 41.9
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID No.:	2015-485-004-003		

Specific Gravity: 2.70 Assumed

Sample Condition: Undisturbed

Visual Description: Gray Clay

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	577	875
Weight of Tare & Wet Sample (g)	279.21	741.71
Weight of Tare & Dry Sample (g)	234.28	604.90
Weight of Tare (g)	84.37	110.40
Weight of Water (g)	44.93	136.81
Weight of Dry Sample (g)	149.91	494.50
Moisture Content (%)	**30.0**	**27.7**

SPECIMEN:	BEFORE TEST	AFTER TEST
Weight of Tube & Wet Sample (g)	853.83	NA
Weight of Tube (g)	218.56	NA
Weight of Wet Sample (g)	635.27	624.00
Length 1 (in)	3.093	3.101
Length 2 (in)	3.073	3.097
Length 3 (in)	3.094	3.093
Top Diameter (in)	2.895	2.861
Middle Diameter (in)	2.879	2.858
Bottom Diameter (in)	2.884	2.875
Average Length (in)	3.09	3.10
Average Area (in^2)	6.54	6.45
Sample Volume (cm^3)	330.88	327.10
Unit Wet Weight (g/cm^3)	1.92	1.91
Unit Wet Weight (pcf)	119.8	119.1
Unit Dry Weight (pcf)	92.2	93.3
Unit Dry Weight (g/cm^3)	1.48	1.49
Void Ratio, e	0.83	0.81
Porosity, n	0.45	0.45
Pore Volume (cm^3)	149.9	146.1
Total Weight of Sample After Test (g)		631.6

Tested By: JAB Date: 9/28/15 Checked By: KC Date: 9/30/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	B-1
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	41.7 - 41.9
Project No.:	2015-485-004	Sample No.:	ST-1
Lab ID No.:	2015-485-004-003		

Pressure Heads (Constant)	
Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.34

Final Sample Dimensions	
Sample Length (cm), L	7.87
Sample Diameter (cm)	7.28
Sample Area (cm^2), A	41.58
Inflow Burette Area (cm^2), a-in	0.866
Outflow Burette Area (cm^2), a-out	0.855
B Parameter (%)	97

AVERAGE PERMEABILITY = 2.9E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 2.9E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
9/29/15	8	36	0.000	0.0	0.0	200.8	0	21.5	NA
9/29/15	12	13	3.617	4.4	4.4	190.6	0	21.5	3.1E-07
9/29/15	12	45	4.150	5.0	5.0	189.3	0	21.5	2.9E-07
9/29/15	13	17	4.683	5.5	5.6	188.0	0	21.5	2.9E-07
9/29/15	13	49	5.217	6.1	6.1	186.7	0	21.5	2.8E-07
9/29/15	14	20	5.733	6.7	6.7	185.4	0	21.5	3.0E-07
9/29/15	14	48	6.200	7.1	7.3	184.2	0	21.5	2.9E-07
9/29/15	15	15	6.650	7.6	7.7	183.1	1	21.5	2.9E-07

Tested By: JAB Date: 9/28/15 Checked By: KC Date: 9/30/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

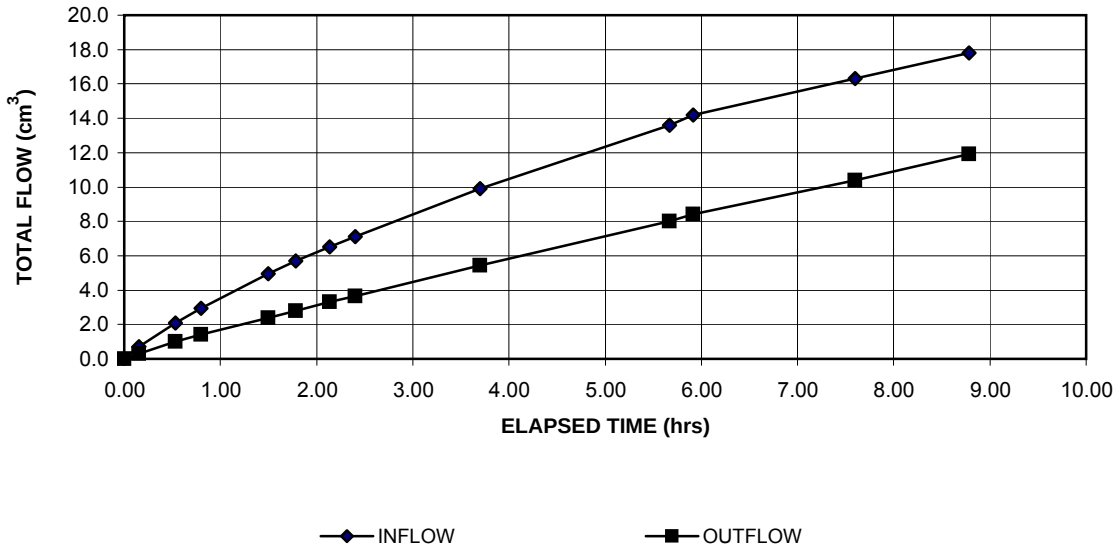
PERMEABILITY TEST

ASTM D 5084-10

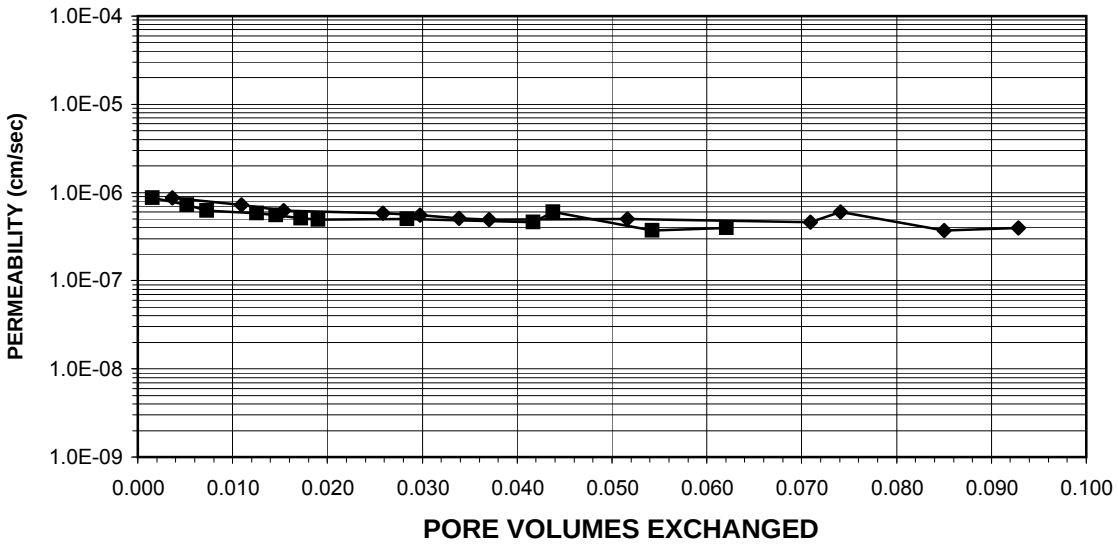
Client:	AECOM	Boring No.:	B-4
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	31.7-31.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID No.:	2015-485-004-016		

AVERAGE PERMEABILITY = 4.6E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 4.6E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 9/28/15 Checked By: KC Date: 10/2/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	B-4
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	31.7-31.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID No.:	2015-485-004-016		

Specific Gravity: 2.70 Assumed
Sample Condition: Undisturbed

Visual Description: Gray Silt

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	887	605
Weight of Tare & Wet Sample (g)	230.65	646.17
Weight of Tare & Dry Sample (g)	189.73	456.90
Weight of Tare (g)	109.63	86.42
Weight of Water (g)	40.92	189.27
Weight of Dry Sample (g)	80.10	370.48
Moisture Content (%)	**51.1**	**51.1**

SPECIMEN:	BEFORE TEST	AFTER TEST
Weight of Tube & Wet Sample (g)	785.70	NA
Weight of Tube (g)	218.18	NA
Weight of Wet Sample (g)	567.52	567.53
Length 1 (in)	3.119	3.166
Length 2 (in)	3.114	3.159
Length 3 (in)	3.105	3.134
Top Diameter (in)	2.882	2.855
Middle Diameter (in)	2.888	2.860
Bottom Diameter (in)	2.878	2.851
Average Length (in)	3.11	3.15
Average Area (in^2)	6.53	6.40
Sample Volume (cm^3)	332.90	330.85
Unit Wet Weight (g/cm^3)	1.70	1.72
Unit Wet Weight (pcf)	106.4	107.1
Unit Dry Weight (pcf)	70.4	70.9
Unit Dry Weight (g/cm^3)	1.13	1.14
Void Ratio, e	1.39	1.38
Porosity, n	0.58	0.58
Pore Volume (cm^3)	193.8	191.7
Total Weight of Sample After Test (g)		631.6

Tested By: JAB Date: 9/28/15 Checked By: KC Date: 10/2/15

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	B-4
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	31.7-31.9
Project No.:	2015-485-004	Sample No.:	ST-2
Lab ID No.:	2015-485-004-016		

Pressure Heads (Constant)	
Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	21.95

Final Sample Dimensions	
Sample Length (cm), L	8.01
Sample Diameter (cm)	7.25
Sample Area (cm^2), A	41.31
Inflow Burette Area (cm^2), a-in	0.861
Outflow Burette Area (cm^2), a-out	0.851
B Parameter (%)	98

AVERAGE PERMEABILITY = 4.6E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 4.6E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
9/30/15	8	48	0.000	0.0	0.0	199.6	0	21.3	NA
9/30/15	8	57	0.150	0.7	0.3	198.4	0	21.3	8.7E-07
9/30/15	9	20	0.533	2.1	1.0	196.0	0	21.3	7.2E-07
9/30/15	9	36	0.800	3.0	1.4	194.5	0	21.3	6.2E-07
9/30/15	10	18	1.500	5.0	2.4	191.0	0	21.3	5.8E-07
9/30/15	10	35	1.783	5.7	2.8	189.7	0	21.3	5.5E-07
9/30/15	10	56	2.133	6.5	3.3	188.2	0	21.3	5.1E-07
9/30/15	11	12	2.400	7.1	3.7	187.1	0	21.3	4.9E-07
9/30/15	12	30	3.700	9.9	5.5	181.7	0	21.3	5.0E-07
9/30/15	14	28	5.667	13.6	8.0	174.5	0	21.3	4.6E-07
9/30/15	14	43	5.917	14.2	8.4	173.3	0	21.3	6.0E-07
9/30/15	16	24	7.600	16.3	10.4	168.5	0	21.4	3.7E-07
9/30/15	17	35	8.783	17.8	11.9	165.0	1	21.5	3.9E-07

Tested By: JAB Date: 9/28/15 Checked By: KC Date: 10/2/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

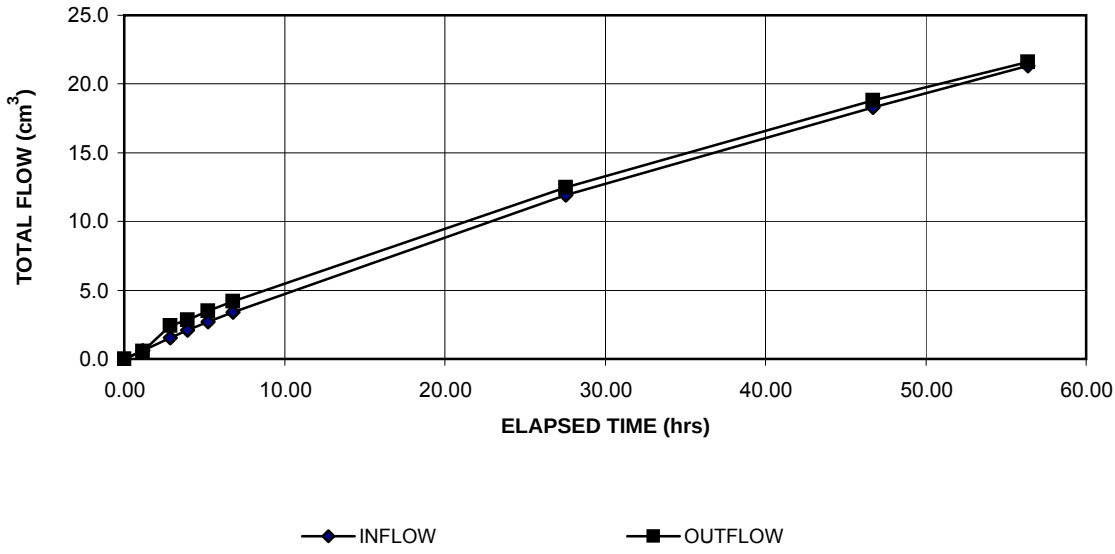
ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B014
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	28.95-29.2
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID No.:	2015-485-001-002		

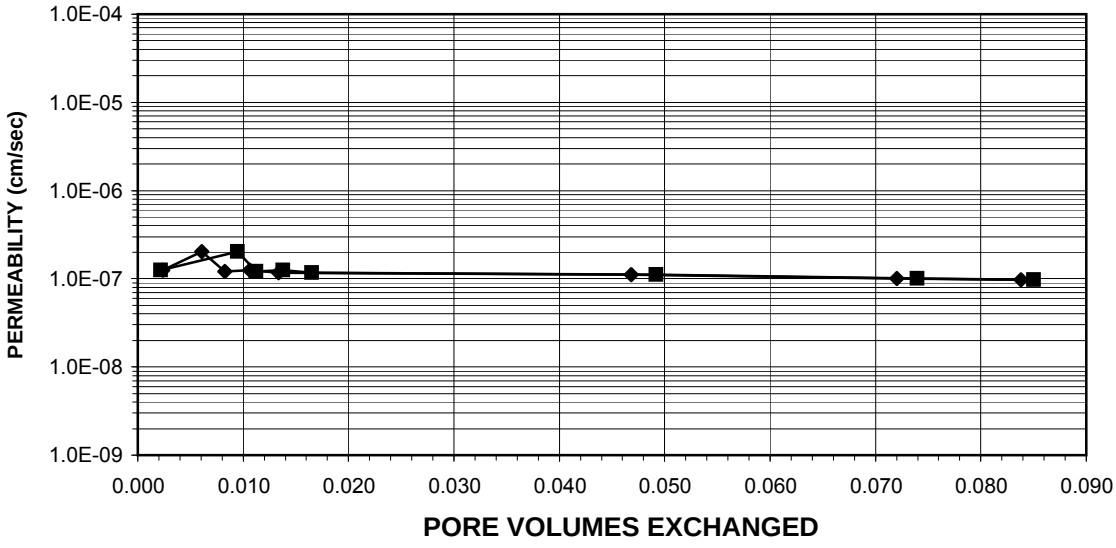
AVERAGE PERMEABILITY = 1.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.1E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JAB Date: 9/10/15 Checked By: KC Date: 9/15/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B014
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	28.95-29.2
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID No.:	2015-485-001-002		

Specific Gravity: 2.70 Assumed
Sample Condition: Undisturbed

Visual Description: Gray Clay

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	3083	623
Weight of Tare & Wet Sample (g)	71.00	583.43
Weight of Tare & Dry Sample (g)	43.98	379.16
Weight of Tare (g)	6.52	83.41
Weight of Water (g)	27.02	204.27
Weight of Dry Sample (g)	37.46	295.75
Moisture Content (%)	**72.1**	**69.1**

SPECIMEN:	BEFORE TEST	AFTER TEST
Weight of Tube & Wet Sample (g)	548.51	NA
Weight of Tube (g)	212.80	NA
Weight of Wet Sample (g)	335.71	329.74
Length 1 (in)	3.048	3.108
Length 2 (in)	3.040	3.089
Length 3 (in)	3.031	3.115
Top Diameter (in)	2.871	2.856
Middle Diameter (in)	2.884	2.857
Bottom Diameter (in)	2.872	2.861
Average Length (in)	3.04	3.10
Average Area (in^2)	6.49	6.42
Sample Volume (cm^3)	323.51	326.32
Unit Wet Weight (g/cm^3)	1.04	1.01
Unit Wet Weight (pcf)	64.8	63.1
Unit Dry Weight (pcf)	37.6	37.3
Unit Dry Weight (g/cm^3)	0.60	0.60
Void Ratio, e	3.48	3.52
Porosity, n	0.78	0.78
Pore Volume (cm^3)	251.3	254.1
Total Weight of Sample After Test (g)		511.0

Tested By: JAB Date: 9/10/15 Checked By: KC Date: 9/15/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B014
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	28.95-29.2
Project No.:	2015-485-001	Sample No.:	ST-2
Lab ID No.:	2015-485-001-002		

Pressure Heads (Constant)	
Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	22.29

Final Sample Dimensions	
Sample Length (cm), L	7.88
Sample Diameter (cm)	7.26
Sample Area (cm^2), A	41.39
Inflow Burette Area (cm^2), a-in	0.897
Outflow Burette Area (cm^2), a-out	0.899
B Parameter (%)	98

AVERAGE PERMEABILITY = 1.1E-07 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.1E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
9/11/15	9	37	0.000	0.0	0.0	202.5	0	22.0	NA
9/11/15	10	46	1.150	0.6	0.6	201.2	0	22.0	1.2E-07
9/11/15	12	30	2.883	1.6	2.4	198.1	0	21.8	2.0E-07
9/11/15	13	33	3.933	2.1	2.9	197.0	0	21.8	1.2E-07
9/11/15	14	51	5.233	2.7	3.5	195.6	0	21.5	1.2E-07
9/11/15	16	24	6.783	3.4	4.2	194.0	0	21.5	1.2E-07
9/12/15	13	10	27.550	11.9	12.5	175.4	0	21.5	1.1E-07
9/13/15	8	20	46.717	18.3	18.8	161.3	0	21.4	1.0E-07
9/13/15	18	0	56.383	21.3	21.6	154.8	1	21.4	9.7E-08

Tested By: JAB Date: 9/10/15 Checked By: KC Date: 9/15/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

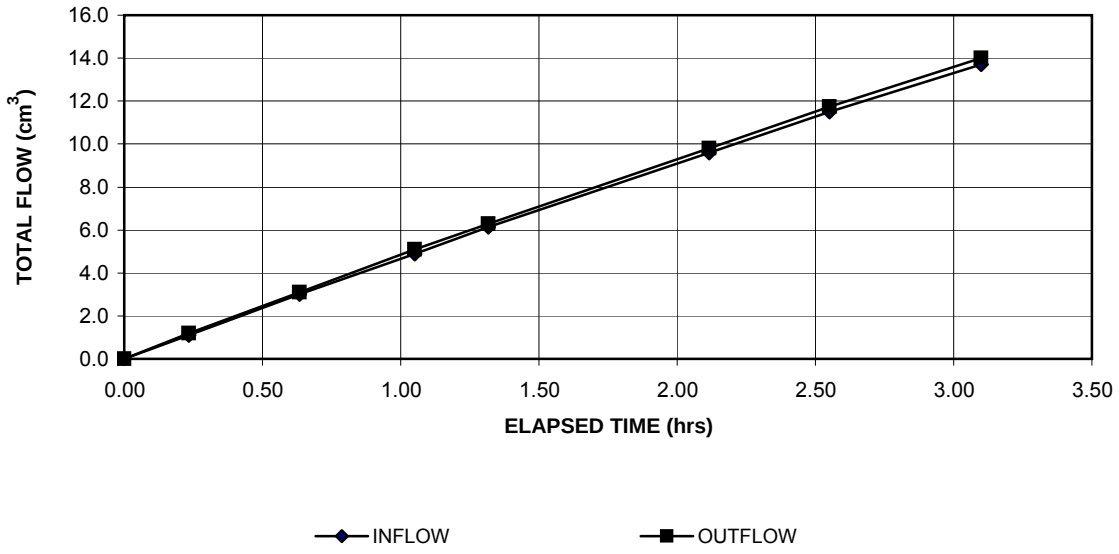
ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B022
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	17.8 - 18.2
Project No.:	2015-485-010	Sample No.:	ST-2
Lab ID No.:	2015-485-010-001		

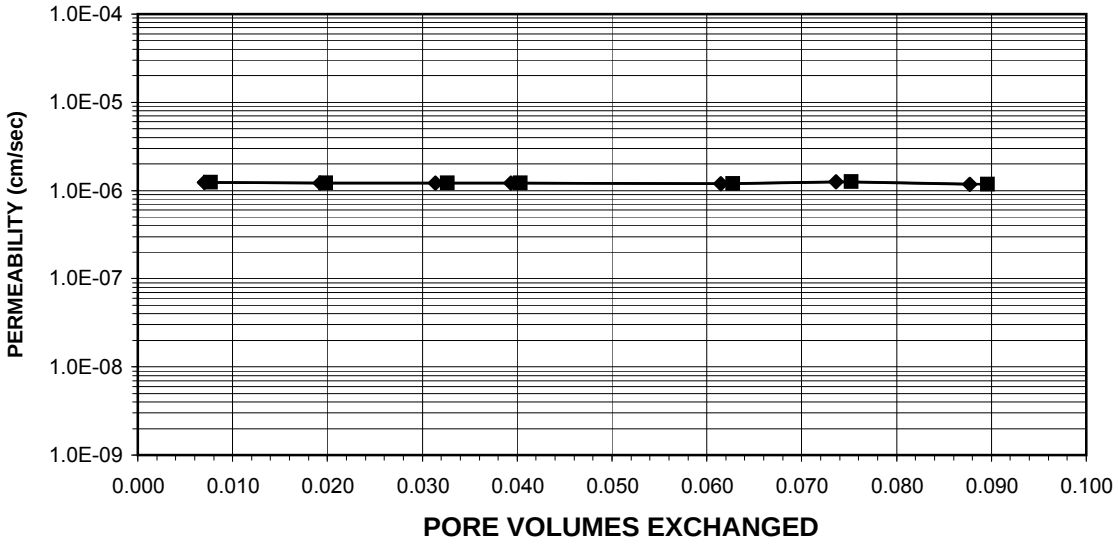
AVERAGE PERMEABILITY = 1.2E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: TRE Date: 11/11/15 Checked By: KC Date: 11/13/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B022
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	17.8 - 18.2
Project No.:	2015-485-010	Sample No.:	ST-2
Lab ID No.:	2015-485-010-001		

Specific Gravity: 2.70 Assumed

Sample Condition: Undisturbed

Visual Description: Gray Clay

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	1706	881
Weight of Tare & Wet Sample (g)	186.57	669.31
Weight of Tare & Dry Sample (g)	160.96	529.30
Weight of Tare (g)	82.74	110.35
Weight of Water (g)	25.61	140.01
Weight of Dry Sample (g)	78.22	418.95
Moisture Content (%)	**32.7**	**33.4**

SPECIMEN:	BEFORE TEST	AFTER TEST
Weight of Tube & Wet Sample (g)	568.56	NA
Weight of Tube (g)	0.00	NA
Weight of Wet Sample (g)	568.56	571.47
Length 1 (in)	3.085	2.961
Length 2 (in)	3.096	3.026
Length 3 (in)	3.088	3.006
Top Diameter (in)	2.873	2.835
Middle Diameter (in)	2.856	2.860
Bottom Diameter (in)	2.848	2.875
Average Length (in)	3.09	3.00
Average Area (in^2)	6.42	6.41
Sample Volume (cm^3)	325.04	314.84
Unit Wet Weight (g/cm^3)	1.75	1.82
Unit Wet Weight (pcf)	109.2	113.3
Unit Dry Weight (pcf)	82.3	84.9
Unit Dry Weight (g/cm^3)	1.32	1.36
Void Ratio, e	1.05	0.98
Porosity, n	0.51	0.50
Pore Volume (cm^3)	166.4	156.2
Total Weight of Sample After Test (g)		559.3

Tested By: TRE Date: 11/11/15 Checked By: KC Date: 11/13/15

DCN: CT-22 DATE: 4/10/13 REVISION: 10

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

PERMEABILITY TEST

ASTM D 5084-10

Client:	AECOM	Boring No.:	WOR-B022
Client Project:	DYNEGY-Wood River Pwr. Sta. 60440115	Depth (ft):	17.8 - 18.2
Project No.:	2015-485-010	Sample No.:	ST-2
Lab ID No.:	2015-485-010-001		

Pressure Heads (Constant)	
Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	23.08

Final Sample Dimensions	
Sample Length (cm), L	7.61
Sample Diameter (cm)	7.26
Sample Area (cm^2), A	41.35
Inflow Burette Area (cm^2), a-in	0.866
Outflow Burette Area (cm^2), a-out	0.855
B Parameter (%)	100

AVERAGE PERMEABILITY = 1.2E-06 cm/sec @ 20°C

AVERAGE PERMEABILITY = 1.2E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
11/12/15	8	44	0.000	0.0	0.0	200.8	0	20.7	NA
11/12/15	8	58	0.233	1.1	1.2	198.1	0	20.7	1.2E-06
11/12/15	9	22	0.633	3.0	3.1	193.7	0	20.7	1.2E-06
11/12/15	9	47	1.050	4.9	5.1	189.2	0	20.7	1.2E-06
11/12/15	10	3	1.317	6.2	6.3	186.4	0	20.7	1.2E-06
11/12/15	10	51	2.117	9.6	9.8	178.4	0	20.7	1.2E-06
11/12/15	11	17	2.550	11.5	11.8	173.9	0	20.7	1.3E-06
11/12/15	11	50	3.100	13.7	14.0	168.8	1	20.7	1.2E-06

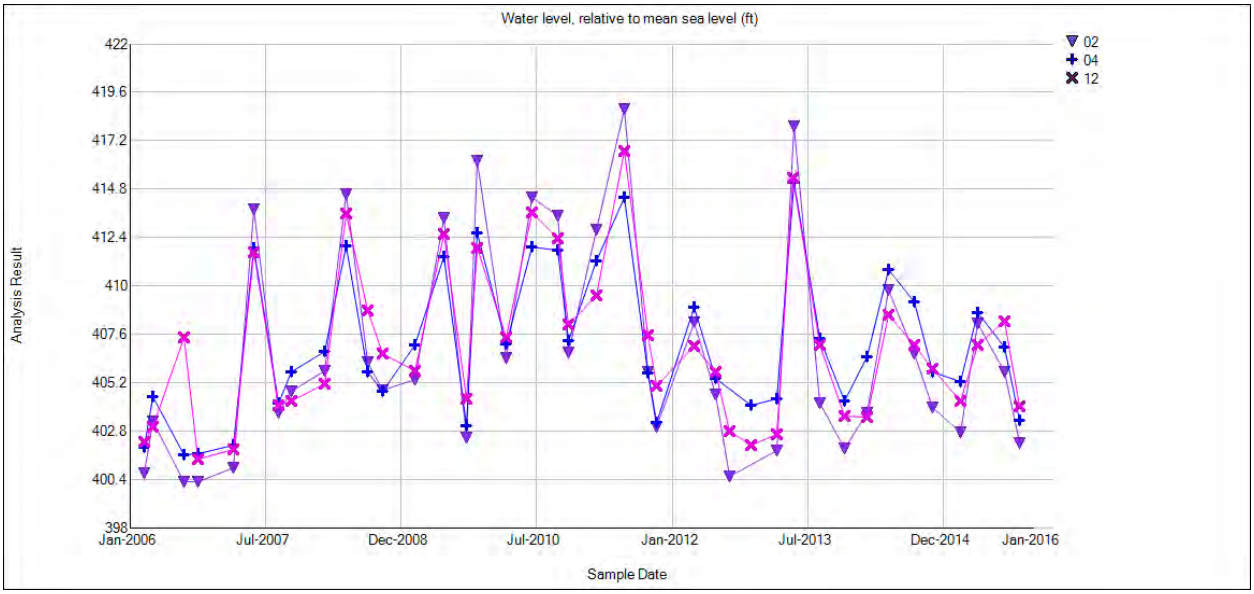
Tested By: TRE Date: 11/11/15 Checked By: KC Date: 11/13/15

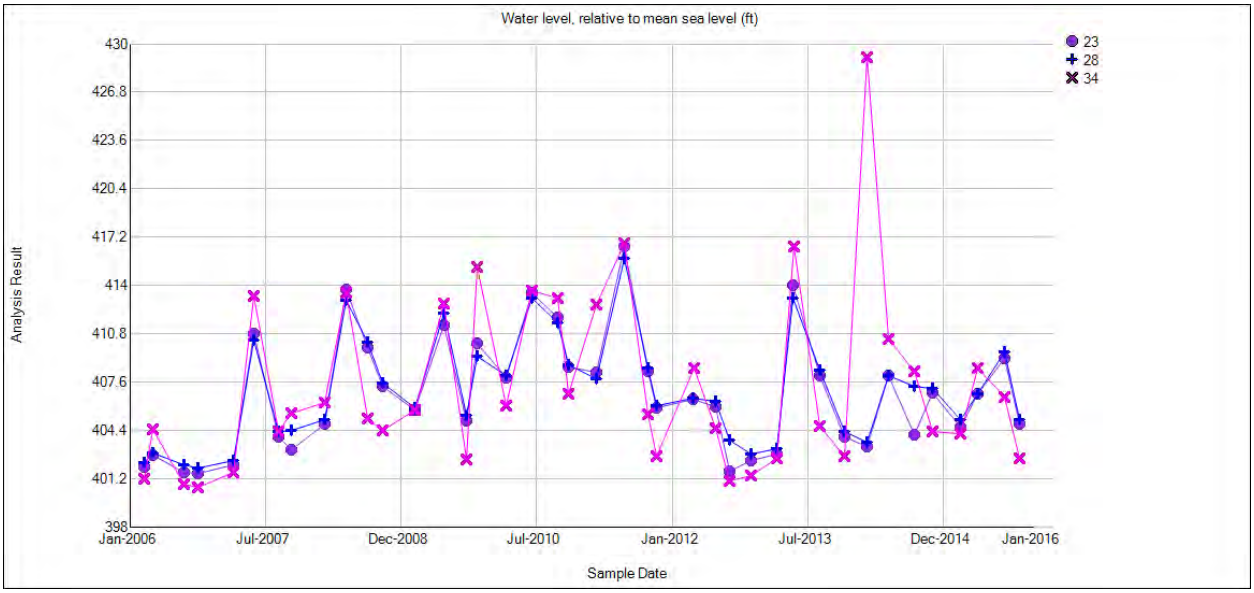
DCN: CT-22 DATE: 4/10/13 REVISION: 10

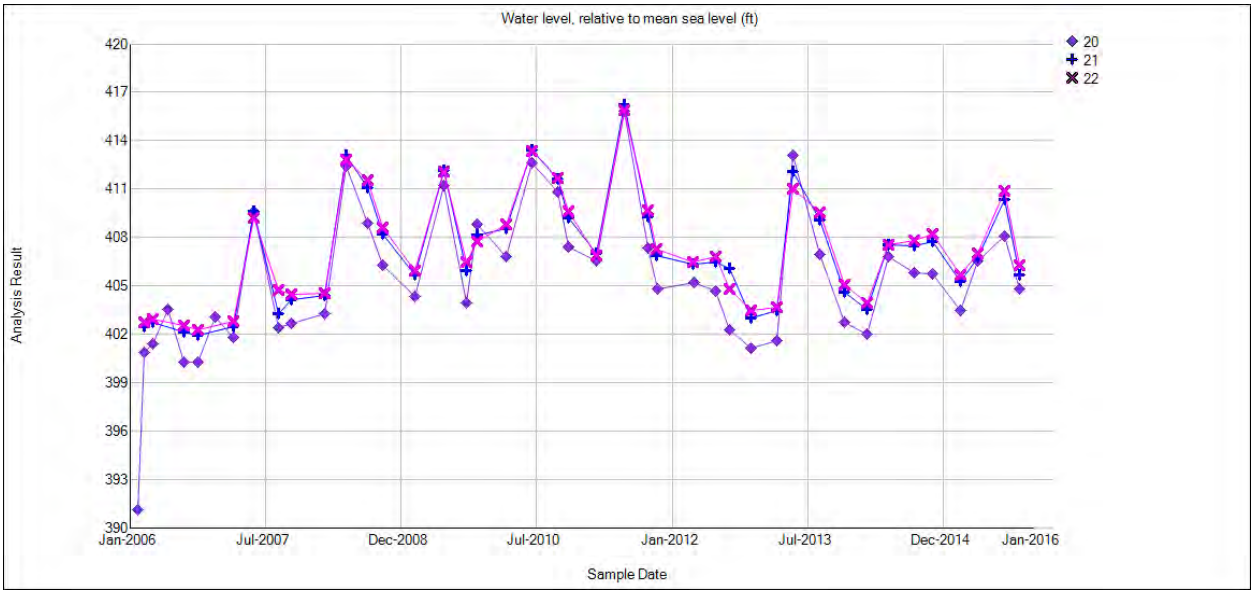
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999 • www.geotechnics.net

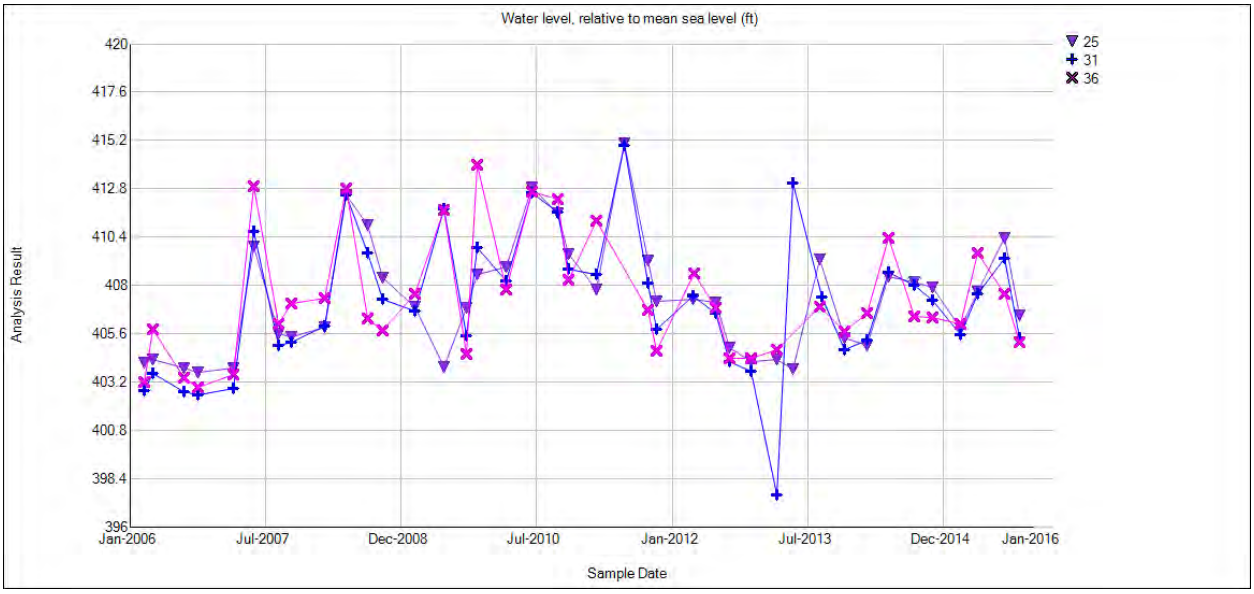
APPENDIX C

MONITORING WELL HYDROGRAPHS (2006-2015)


Water level, relative to mean sea level (ft)
02
04
12
Analysis Result
422
419.6
417.2
414.8
412.4
410
407.6
405.2
402.8
400.4
398
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016
Sample Date

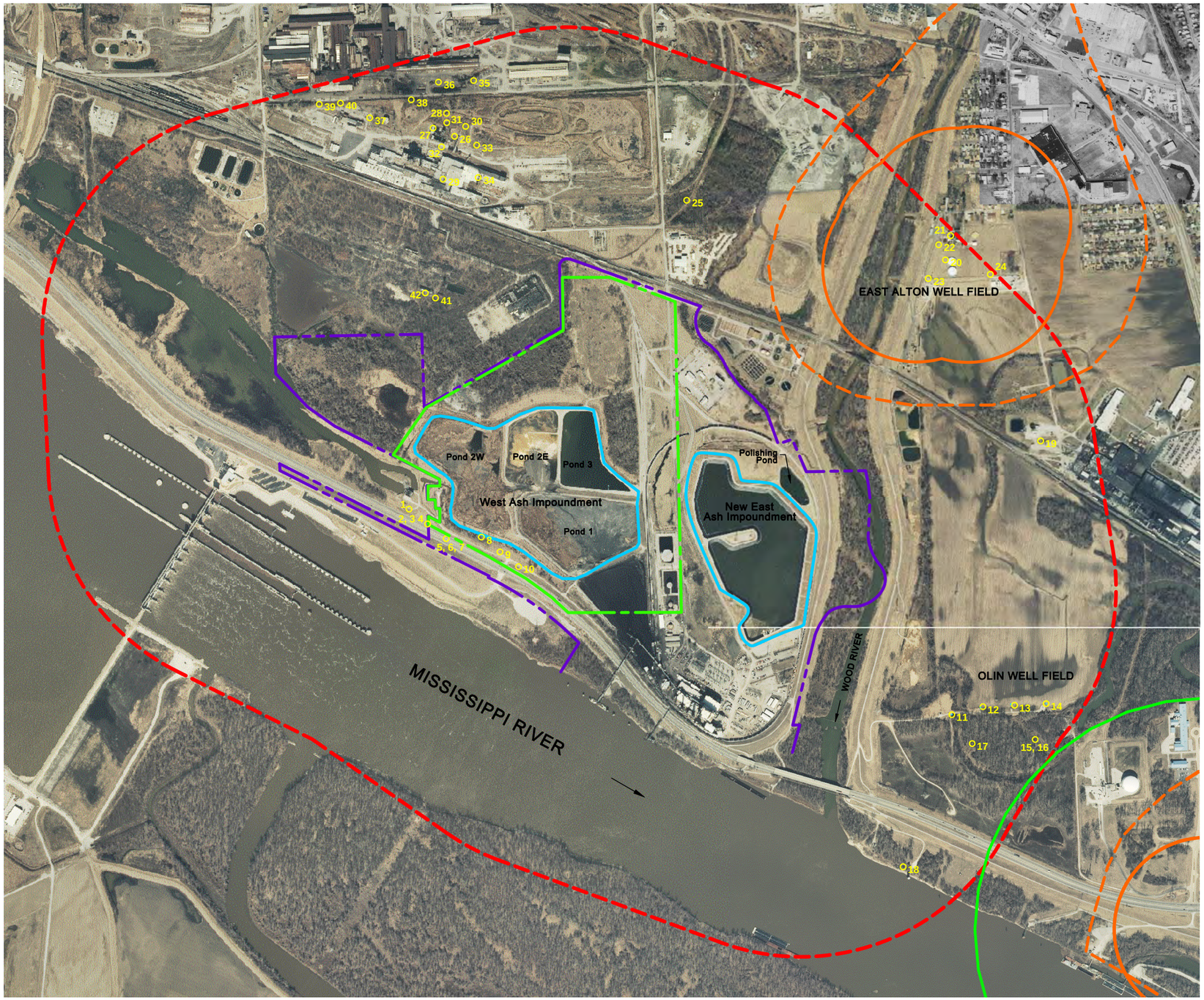

Water level, relative to mean sea level (ft)
23
28
34
Analysis Result
430
426.8
423.6
420.4
417.2
414
410.8
407.6
404.4
401.2
398
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016
Sample Date


Water level, relative to mean sea level (ft)
Analysis Result
Sample Date
20
21
22
420
417
414
411
408
405
402
399
396
393
390
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


Water level, relative to mean sea level (ft)
Analysis Result
Sample Date
25
31
36
420
417.6
415.2
412.8
410.4
408
405.6
403.2
400.8
398.4
396
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016

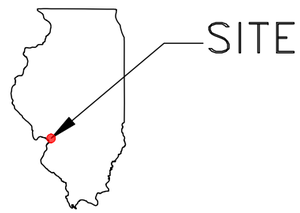
APPENDIX D

WATER WELL LOCATIONS AND RECORDS WITHIN 2,500-FOOT RADIUS OF PROPERTY BOUNDARY, WOOD RIVER POWER STATION



LEGEND

- 3 — WATER WELL LOCATION
- ASH POND
- APPROXIMATE PROPERTY BOUNDARY
- 2500 FT. RADIUS FROM PROPERTY BOUNDARY
- GROUNDWATER MANAGEMENT ZONE
- CWS PHASE 1 WELLHEAD PROTECTION AREA
- CWS PHASE 2 WELLHEAD PROTECTION AREA
- ADOPTED MAXIMUM SETBACK ZONE



SOURCE:
2007 DIGITAL ORTHOPHOTOS FROM THE NATIONAL MAP SEAMLESS SERVER (http://seamless.usgs.gov), AND REFERENCE UTM ZONE 15 NAD83 (meter) COORDINATE SYSTEM.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY SOURCE WATER ASSESSMENT PROGRAM (SWAP) ArcIMS MAPPING TOOL (http://maps.sps.state.il.us/website/swap/intro.html)

ILLINOIS STATE GEOLOGICAL SURVEY, DIGITAL WATER WELL RECORDS INTERACTIVE MAP (http://www.isgs.illinois.edu/maps-data-pub/wwdb/wwdb.shtml)

N

0 600 1200
SCALE IN FEET

AERIAL PHOTOGRAPH WITH WATER WELLS

WATER WELL SURVEY
WOOD RIVER POWER STATION
WOOD RIVER, ILLINOIS

DRAWN BY:	RLH	DATE: 06/01/09
CHECKED BY:	RJC	DATE: 06/01/09
APPROVED BY:	RJC	DATE: 06/01/09

DRAWING NO: 1957-2-B02C
REFERENCE: 03556537.tif, 23301363.tif, 55874701.tif, 77718002.tif

NATURAL RESOURCE TECHNOLOGY

PROJECT NO.
1957/2.0

FIGURE NO.
2

KELRON environmental

Appendix D

Water Well Records Within 2,500-Foot Radius of Property Boundary Wood River Power Station; East Alton, Illinois

Map Well #	Source of Well Information				Location Name at Time of Well Completion	Well Depth	County	Location				Year Drilled	Aquifer Type	Formation	Well Use
	ISGS	ISWS**	IEPA	Other				Township	Range	Section	Subsection				
1	121190262400	12860	02624	- -	Wood River Dr.& Levee Dist (Well #94)	75	Madison	5N	9W	19	NW/NW/SE	1971	unconsolidated	sand and gravel (shale at 75 feet)	IC
2	121192549600	017966	25496	- -	Alberici-Eby	112	Madison	5N	9W	19	SW/NW/SE	1990	unconsolidated	sand and gravel	IC
3	121192565100	017965	25651	- -	Alberici-Eby	90	Madison	5N	9W	19	SW/NW/SE	1990	unconsolidated	sand and gravel	IC
4	121190262500	**	02625	- -	Wood River Dr.& Levee Dist (Well #95)	96	Madison	5N	9W	19	SW/NW/SE	1971	unconsolidated	sand and gravel	IC
5	121190262600	**	02626	- -	Wood River Dr.& Levee Dist (Well #96)	102	Madison	5N	9W	19	SW/NW/SE	1971	unconsolidated	sand and gravel	IC
6	121190262700	**	02627	- -	Wood River Dr.& Levee Dist (Well #97)	92	Madison	5N	9W	19	SW/NW/SE	1971	unconsolidated	sand and gravel	IC
7	121190262800	**	02628	- -	Wood River Dr.&Levee Dist (Well #97X)	93	Madison	5N	9W	19	SW/NW/SE	1971	unconsolidated	sand and gravel	IC
8	121190262900	**	02629	- -	Wood River Dr.&Levee Dist. (Well #98)	98	Madison	5N	9W	19	SE/NW/SE	1972	unconsolidated	sand and gravel	IC
9	121190263000	**	02630	- -	Wood River Dr.&Levee Dist. (Well #99)	90	Madison	5N	9W	19	SE/NW/SE	1971	unconsolidated	sand and gravel	IC
10	121190263100	**	02631	- -	Wood River Dr.&Levee Dist (Well #100)	92	Madison	5N	9W	19	SE/NW/SE	1971	unconsolidated	sand and gravel	IC
11	121190233300	NF 5874	02333	Olin	Mathieson, Olin (Well #2)	95	Madison	5N	9W	20	SW/SW/SE	1969	unconsolidated	sand and gravel	IC
12	121190233400	NF 5873	02334	Olin	Mathieson, Olin (Well #3)	93	Madison	5N	9W	20	SW/SW/SE	1969	unconsolidated	sand and gravel	IC
13	121190233500	NF 5875	02335	Olin	Mathieson, Olin (Well #4)	89	Madison	5N	9W	20	SE/SW/SE	1969	unconsolidated	sand and gravel	IC
14	121190233600	NF 5876	02336	Olin	Mathieson, Olin (Well #5)	87	Madison	5N	9W	20	SE/SW/SE	1969	unconsolidated	sand and gravel	IC
15	121192789700	**	27897	- -	Olin Corporation	- -	Madison	5N	9W	29	NE/NW/NE	- -	- -	- -	IC
16	121192789800	**	27898	- -	Olin Corporation	- -	Madison	5N	9W	29	NE/NW/NE	- -	- -	- -	IC
17	121192789600	**	27896	- -	Olin Corporation	- -	Madison	5N	9W	29	NW/NW/NE	- -	- -	- -	IC
18	121190083100	**	00831	Olin	Mathieson, Olin Chemical Corp. (Ranney Well)	87	Madison	5N	9W	29	NE/SE/NW	1958	unconsolidated	sand and gravel	IC
19	121190233200	NF 5872	02332	Olin	Mathieson, Olin (Well #1)	117	Madison	5N	9W	20	SE/SW/NE	1969	unconsolidated	sand and gravel	IC
20	121190214100	**	60058	SWA	East Alton, City of (Well #2)	92	Madison	5N	9W	29	NW/NW/NE	1967	unconsolidated	sand and gravel	CWS
21	121190145800	**	60059	SWA	East Alton, City of (Well #3)	103	Madison	5N	9W	29	NW/NW/NE	- -	- -	- -	CWS
22	121192446200	118416	60060	SWA	East Alton, City of (Well #4)	108	Madison	5N	9W	20	NW/NW/NE	1985	unconsolidated	sand and gravel	CWS
23	121192614300	E891782	00715	SWA	East Alton, City of #5	91	Madison	5N	9W	20	NW/NW/NE	1989	unconsolidated	sand and gravel	CWS
24	121192736600	E900108	00697	SWA	East Alton, City of (Well #7)	91	Madison	5N	9W	20	NW/NW/NE	- -	unconsolidated	sand and gravel	CWS
25	121192748500	**	27485	- -	International Mill Service	97	Madison	5N	9W	17	SW/SW/SW	1999	unconsolidated	sand and gravel shale at 90 feet	IC
26	121190161200	**	01612	- -	Alton Boxboard & Paper Co. (Well #1)	94	Madison	5N	9W	18	NE/SW/SE	1928	unconsolidated	sand and gravel	IC
27	121190161300	**	01613	- -	Alton Boxboard & Paper Co. (Well #2)	94	Madison	5N	9W	18	NW/SW/SE	1930	unconsolidated	sand and gravel	IC
28	121190161400	**	01614	- -	Alton Boxboard & Paper Co. (Well #3)	90	Madison	5N	9W	18	NW/SW/SE	1931	unconsolidated	sand and gravel	IC
29	121190159900	**	01599	- -	Alton Boxboard Co. (Well #3)	96	Madison	5N	9W	18	SW/SW/SE	1937	unconsolidated	sand and gravel	IC
30	121190161500	**	01615	- -	Alton Boxboard & Paper Co. (Well #4)	90	Madison	5N	9W	18	NE/SW/SE	1931	unconsolidated	sand and gravel	IC
31	121190161600	**	01616	- -	Alton Boxboard & Paper Co. (Well #5)	90	Madison	5N	9W	18	NW/SW/SE	1931	unconsolidated	sand and gravel	IC
32	121190160000	**	01600	- -	Alton Boxboard Co. (Well #6)	109	Madison	5N	9W	18	NW/SW/SE	1937	unconsolidated	sand and gravel	IC
33	121190160100	**	01601	- -	Alton Boxboard Co. (Well #7)	86	Madison	5N	9W	18	NE/SW/SE	1938	unconsolidated	sand and gravel	IC
34	121190160200	**	01602	- -	Alton Boxboard Co. (Well #8)	96	Madison	5N	9W	18	SE/SW/SE	1938	unconsolidated	sand and gravel	IC
35	121190160300	**	01603	- -	Alton Boxboard Co. (Well #9)	72	Madison	5N	9W	18	SE/NW/SE	1940	unconsolidated	sand and gravel	IC
36	121190160400	**	01604	- -	Alton Boxboard Co. (Well #10)	99	Madison	5N	9W	18	SW/NW/SE	1940	unconsolidated	sand and gravel	IC
37	121190160500	**	01605	- -	Alton Boxboard Co. (Well #16)	107	Madison	5N	9W	18	SE/NE/SW	1946	unconsolidated	sand and gravel	IC
38	121190161800	**	01618	- -	Laclede Steel Co. (Well #2)	93	Madison	5N	9W	18	SW/NW/SE	- -	unconsolidated	sand and gravel bedrock at 93 feet	IC
39	121190162000	**	01620	- -	Leclede Steel Co (Well #4)	94	Madison	5N	9W	18	SW/NE/SW	1927	unconsolidated	sand and gravel	IC
40	121190162100	**	01621	- -	Laclede Steel Co. (Well #5)	93	Madison	5N	9W	18	SE/NE/SW	1929	unconsolidated	sand and gravel	IC
41	121190162200	**	01622	- -	Amer. Smelting & Ref.	85	Madison	5N	9W	19	NW/NW/NE	1913	- -	- -	IC
42	121190162300	**	01623	- -	Amer. Smelting & Ref.	85	Madison	5N	9W	19	NW/NW/NE	1915	unconsolidated	sand and gravel	IC

Table 1. Water Well Records Within 2,500-Foot Radius of Property Boundary
Wood River Power Station; East Alton, Illinois

Map Well #	Source of Well Information				Location Name at Time of Well Completion	Well Depth	County	Location				Year Drilled	Aquifer Type	Formation	Well Use
	ISGS	ISWS**	IEPA	Other				Township	Range	Section	Subsection				
A	121192549700	018101	25497	- -	Kienstra Cement Inc. (Well #2)	79	Madison	Well is incorrectly located in ISGS/IEPA databases in NE/NE/SE, S19, T5N, R9W. Well is >1 mile from WRPS property boundary.				1990	unconsolidated	sand and gravel	IC
A	121192777500	**	27775	- -	Jefferson Smurfit Corp. (Well #25)	76	Madison	Well is incorrectly located in ISGS/IEPA databases in SW/SW/SW, S18, T5N, R9W. Well is >1 mile from WRPS property boundary.				1997	unconsolidated	sand and gravel	IC
A	121190064000	**	00640	- -	Owens-Illinois Glass Co. (Well #5)	82	Madison	Well is incorrectly located in ISGS/IEPA databases in NW/NW/NW, S19, T5N, R9W. Well is >1 mile from WRPS property boundary.				1956	unconsolidated	sand and gravel	IC

Sources of Information

IEPA	Illinois Environmental Protection Agency
ISGS	Illinois State Geological Survey
ISWS	Illinois State Water Survey
SWA	IEPA Source Water Assessment
Olin	2005 Correspondence from Olin Corporation

Well Use

FD	Farm and/or Domestic Water Well
IC	Industrial/Commercial Water Well
CWS	Community Water Supply
NCWS	Non-Community Water Supply

Notes

- -	Not applicable or no information available
**	ISWS data pending
A	Well is mislocated in ISGS and/or IEPA databases

APPENDIX E

GROUNDWATER QUALITY DATA

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

Well Id	Date Sampled	Lab Id	Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
02	03/02/2010					406.4
	06/14/2010		2.400	1.000	6.770	414.4
	09/27/2010					413.5
	11/09/2010		2.200	0.7700	6.730	406.7
	03/03/2011					412.8
	06/23/2011		2.200	0.8400	6.740	418.8
	09/27/2011					405.7
	11/01/2011		2.700	0.9600	6.870	403.0
	03/28/2012					408.2
	06/26/2012		2.300	0.7700	6.600	404.6
	08/21/2012					400.5
	02/27/2013					401.8
	05/06/2013		2.890	1.300	6.960	417.9
	08/20/2013					404.2
	11/25/2013		2.560	1.210	7.040	401.9
	02/26/2014					403.7
	05/22/2014		3.230	1.070	7.190	409.8
	09/03/2014					406.6
	11/18/2014		2.890	1.180	7.000	404.0
	03/11/2015					402.7
	05/21/2015		2.500	1.360	6.830	408.1
	09/04/2015					405.7
	11/03/2015		3.450	1.980	6.950	402.2
04	03/02/2010					407.1
	06/14/2010		0.3300	8.700	6.600	411.9
	09/27/2010					411.7
	11/09/2010		0.3600	5.400	6.670	407.3
	03/03/2011					411.2
	06/23/2011		0.3800	5.200	6.540	414.4
	09/27/2011					405.7
	11/01/2011		0.4900	6.300	6.570	403.2
	03/28/2012					408.9
	06/26/2012		0.4300	5.800	6.480	405.4
	11/14/2012		0.3600	5.980	6.760	404.1
	02/27/2013					404.4
	05/06/2013		0.3300	6.770	6.640	415.1
	08/20/2013					407.4

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
04	11/25/2013	0.3200	6.460	6.970	404.3
	02/26/2014				406.5
	05/22/2014	0.3510	4.910	6.970	410.8
	09/03/2014				409.2
	11/18/2014	0.3480	6.120	6.890	405.7
	03/11/2015				405.2
	05/21/2015	0.4440	5.230	6.880	408.7
	09/04/2015				406.9
	11/03/2015	0.3970	6.400	7.010	403.3
12	03/02/2010				407.4
	06/14/2010	2.000	0.4200	6.760	413.6
	09/27/2010				412.3
	11/09/2010	1.300	0.3100	6.950	408.1
	03/03/2011				409.5
	06/23/2011	1.900	0.3900	6.740	416.7
	09/27/2011				407.5
	11/01/2011	1.700	0.3800	6.670	405.0
	03/28/2012				407.0
	06/26/2012	2.000	0.4300	6.700	405.7
	08/21/2012				402.8
	11/14/2012	2.070	0.5400	7.000	402.1
	02/27/2013				402.6
	05/02/2013	2.320	0.5000	6.950	415.3
	08/20/2013				407.1
	11/25/2013	2.120	0.4500	6.540	403.5
	02/26/2014				403.5
	05/22/2014	2.270	0.4690	6.960	408.6
	09/03/2014				407.1
	11/18/2014	1.970	0.6160	7.210	405.9
	03/11/2015				404.3
	05/21/2015	2.210	0.5640	6.930	407.0
	09/04/2015				408.2
	11/05/2015	2.050	0.6350	6.990	404.0
20	03/02/2010	0.2800	<0.005000	6.330	406.8
	06/14/2010	0.2900	<0.005000	6.450	412.6
	09/27/2010	0.3700	<0.005000	6.120	410.8
	11/09/2010	0.3000	<0.005000	6.170	407.4

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
20	03/02/2011	0.3200	0.01100	6.120	406.6
	06/23/2011	0.3700	<0.005000	6.410	415.8
	09/27/2011	0.4700	<0.005000	6.770	407.4
	11/02/2011	0.3700	<0.005000	6.270	404.8
	03/28/2012	0.3900	0.009000	6.780	405.2
	06/26/2012	0.3200	<0.005000	6.490	404.7
	08/21/2012	0.3400	<0.005000	6.450	402.3
	11/14/2012	0.3500	0.04000	6.590	401.1
	02/27/2013	0.3300	0.1200	6.250	401.6
	05/02/2013	0.3300	<0.005000	7.140	413.1
	08/20/2013	0.2500	<0.005000	6.660	407.0
	11/25/2013	0.2600	0.05000	6.620	402.8
	02/26/2014	0.2400	0.01000	6.680	402.0
	05/22/2014	0.2100	<0.005000	7.130	406.8
	09/03/2014	0.2940	<0.005000	6.250	405.8
	11/18/2014	0.2000	<0.003000	6.350	405.7
	03/11/2015	0.2180	0.04210	6.250	403.4
	05/21/2015	0.2230	0.006900	6.250	406.5
	09/04/2015	0.2180	<0.005000	6.420	408.1
	11/05/2015	0.1920	0.006800	6.130	404.8
21	03/02/2010				408.5
	06/14/2010	0.2700	<0.005000	6.720	413.4
	09/27/2010				411.6
	11/09/2010	0.2500	<0.005000	6.900	409.2
	03/03/2011				407.0
	06/23/2011	0.2500	<0.005000	6.900	416.2
	09/27/2011				409.3
	11/01/2011	0.4100	<0.005000	6.440	406.9
	03/27/2012				406.3
	06/26/2012	0.3800	<0.005000	6.690	406.4
	08/21/2012				406.0
	11/14/2012	0.3100	0.008400	6.480	403.0
	02/27/2013				403.4
	05/02/2013	0.4100	0.3500	7.320	412.1
	08/20/2013				409.1
	11/25/2013	0.3300	0.007100	7.000	404.6
	02/26/2014				403.5

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
21	05/22/2014	0.3430	0.01370	6.940	407.5
	09/03/2014				407.5
	11/18/2014	0.2250	<0.003000	7.040	407.7
	03/11/2015				405.3
	05/21/2015	0.3640	0.05250	6.900	406.7
	09/04/2015				410.3
	11/04/2015	0.3680	<0.005000	6.820	405.7
22	03/02/2010				408.8
	06/14/2010	0.2900	<0.005000	6.530	413.4
	09/27/2010				411.7
	11/09/2010	0.2700	<0.005000	6.820	409.6
	03/03/2011				406.8
	06/23/2011	0.3000	<0.005000	6.850	415.9
	09/27/2011				409.7
	11/01/2011	0.3200	<0.005000	6.940	407.3
	03/27/2012				406.5
	06/26/2012	0.2900	<0.005000	6.770	406.8
	08/21/2012				404.8
	11/14/2012	0.2700	<0.005000	7.080	403.5
	02/27/2013				403.7
	05/02/2013	0.3200	0.1500	6.970	411.0
	08/20/2013				409.6
	11/25/2013	0.2600	<0.005000	7.050	405.1
	02/26/2014				403.9
	05/22/2014	0.3310	0.01630	7.020	407.5
	09/03/2014				407.8
	11/18/2014	0.2860	<0.003000	7.030	408.2
	03/11/2015				405.7
	05/21/2015	0.3270	<0.005000	6.890	407.0
	09/04/2015				410.9
	11/05/2015	0.2630	<0.005000	6.970	406.2
23	03/02/2010				407.9
	06/14/2010	0.3500	0.01200	6.210	413.5
	09/27/2010				411.9
	11/09/2010	0.3000	0.03700	6.070	408.5
	03/03/2011				408.2
	06/23/2011	0.3900	0.005600	6.300	416.6

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
23	09/27/2011				408.3
	11/01/2011	0.4000	0.07700	6.000	405.9
	03/27/2012				406.5
	06/26/2012	0.3600	0.03800	6.360	405.9
	08/21/2012				401.6
	11/14/2012	0.4000	0.4500	6.410	402.4
	02/27/2013				402.8
	05/02/2013	0.4500	0.4700	6.840	414.0
	08/20/2013				408.0
	11/25/2013	0.3500	0.3300	6.330	403.9
	02/26/2014				403.3
	05/22/2014	0.5530	1.010	6.940	408.0
	09/03/2014				404.1
	11/18/2014	0.4360	0.5100	6.320	406.8
	03/11/2015				404.6
	05/21/2015	0.3590	0.01300	6.260	406.8
	09/04/2015				409.2
	11/05/2015	0.3430	0.1190	6.030	404.8
25	03/02/2010				408.9
	06/14/2010	0.7600	0.04300	6.880	412.9
	09/27/2010				411.6
	11/09/2010	0.6100	0.1300	6.640	409.6
	03/03/2011				407.8
	06/23/2011	0.8300	0.7600	6.690	415.0
	09/27/2011				409.2
	11/01/2011	0.6800	0.05900	6.540	407.2
	03/27/2012				407.3
	06/26/2012	0.5600	0.007700	6.740	407.1
	08/21/2012				404.9
	11/14/2012	0.3900	0.1100	6.770	404.2
	02/27/2013				404.3
	05/02/2013	0.5800	0.8100	7.010	403.8
	08/20/2013				409.3
	11/25/2013	0.6200	0.001000	7.460	405.4
	02/26/2014				405.0
	05/22/2014	0.5010	0.07760	7.100	408.4
	09/03/2014				408.2

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
25	11/18/2014	0.6480	0.09080	6.870	407.9
	03/11/2015				405.9
	05/21/2015	0.5030	0.07110	6.920	407.7
	09/04/2015				410.4
	11/04/2015	0.5220	0.02020	6.730	406.5
28	03/02/2010				408.0
	06/14/2010	1.900	0.4500	6.390	413.1
	09/27/2010				411.5
	11/09/2010	1.200	0.4800	6.640	408.7
	03/03/2011				407.8
	06/23/2011	2.300	1.100	6.530	415.8
	09/27/2011				408.5
	11/01/2011	0.7900	0.2600	6.720	406.0
	03/27/2012				406.5
	06/26/2012	0.9500	0.8100	6.820	406.3
	08/21/2012				403.7
	11/14/2012	1.040	2.200	6.960	402.8
	02/27/2013				403.2
	05/02/2013	2.090	1.740	6.960	413.1
	08/20/2013				408.4
	11/25/2013	0.7600	0.5300	6.940	404.3
	02/26/2014				403.6
	05/22/2014	1.200	1.400	6.990	408.0
	09/03/2014				407.3
	11/18/2014	0.9130	3.540	6.930	407.1
	03/11/2015				405.1
	05/21/2015	1.020	1.540	6.860	406.8
	09/04/2015				409.6
	11/05/2015	0.9080	1.820	6.800	405.1
31	03/02/2010				408.2
	06/14/2010	1.100	0.4100	6.210	412.6
	09/27/2010				411.6
	11/09/2010	1.100	0.09600	6.510	408.8
	03/03/2011				408.5
	06/23/2011	1.200	0.1500	6.360	415.0
	09/27/2011				408.1
	11/01/2011	1.200	0.03100	6.390	405.8

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
31	03/27/2012				407.4
	06/26/2012	1.000	0.03400	6.100	406.6
	08/21/2012				404.2
	11/14/2012	0.9800	0.06000	7.020	403.7
	02/27/2013				397.6
	05/02/2013	1.190	0.001000	7.270	413.1
	08/29/2013	0.9900	0.05000	6.860	407.4
	11/25/2013	0.9000	0.07000	7.390	404.8
	02/26/2014				405.3
	05/22/2014	0.9270	0.04300	6.600	408.6
	09/03/2014				408.0
	11/18/2014	0.9360	0.05150	7.030	407.3
	03/11/2015				405.5
	05/21/2015	0.9020	0.04150	7.020	407.6
	09/04/2015				409.3
	11/04/2015	0.7970	0.04550	6.980	405.4
34	03/02/2010				406.0
	06/14/2010	1.300	6.100	6.740	413.7
	09/27/2010				413.2
	11/09/2010	0.9500	3.200	6.700	406.8
	03/03/2011				412.7
	06/23/2011	0.8000	6.200	6.630	416.8
	09/27/2011				405.4
	11/01/2011	0.9500	4.000	6.600	402.7
	03/28/2012				408.5
	06/26/2012	1.300	4.500	6.480	404.5
	08/21/2012				401.0
	11/14/2012	1.430	6.100	6.890	401.3
	02/27/2013				402.5
	05/06/2013	0.9000	6.050	6.820	416.5
	08/20/2013				404.6
	11/25/2013	7.390	4.450	7.030	402.6
	02/26/2014				429.1
	05/22/2014	2.090	7.750	6.890	410.4
	09/03/2014				408.3
	11/18/2014	5.890	5.250	6.860	404.3
	03/11/2015				404.2

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Boron, dissolved, mg/L	Manganese, dissolved, mg/L	pH (field), SU	Water level, relative to, ft
34	05/21/2015	5.950	6.700	6.820	408.5
	09/04/2015				406.6
	11/03/2015	7.490	4.960	7.050	402.5
36	03/02/2010				407.8
	06/14/2010	0.07900	2.600	6.960	412.6
	09/27/2010				412.3
	11/09/2010	0.08900	2.200	6.810	408.3
	03/03/2011				411.2
	09/27/2011				406.7
	11/01/2011	0.09200	3.200	6.870	404.7
	03/28/2012				408.6
	06/26/2012	0.08500	2.600	7.090	406.9
	08/21/2012				404.4
	11/14/2012	0.1600	3.340	6.650	404.3
	02/27/2013				404.8
	08/20/2013				406.9
	11/25/2013	0.1300	2.520	7.320	405.7
	02/26/2014				406.6
	05/22/2014	0.1240	2.520	6.880	410.3
	09/03/2014				406.5
	11/18/2014	0.1220	2.630	7.010	406.4
	03/11/2015				406.1
	05/21/2015	0.1400	3.190	6.930	409.6
	09/04/2015				407.6
	11/03/2015	0.1190	2.520	7.140	405.2

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

Well Id	Date Sampled	Lab Id	Residue, total filtrable, mg/L	Sulfate, total, mg/L
02	06/14/2010		930.0	180.0
	11/09/2010		940.0	140.0
	06/23/2011		880.0	160.0
	11/01/2011		930.0	210.0
	06/26/2012		1000.	220.0
	05/06/2013		1020.	288.0
	11/25/2013		936.0	298.0
	05/22/2014		964.0	222.0
	11/18/2014		872.0	185.0
	05/21/2015		862.0	213.0
	11/03/2015		948.0	228.0
04	06/14/2010		1000.	10.00
	11/09/2010		970.0	11.00
	06/23/2011		940.0	<5.000
	11/01/2011		930.0	47.00
	06/26/2012		1000.	<5.000
	11/14/2012		908.0	<10.00
	05/06/2013		894.0	10.00
	11/25/2013		928.0	<10.00
	05/22/2014		740.0	<10.00
	11/18/2014		820.0	<20.00
	05/21/2015		758.0	<10.00
	11/03/2015		884.0	<10.00
12	06/14/2010		520.0	37.00
	11/09/2010		460.0	18.00
	06/23/2011		530.0	50.00
	11/01/2011		460.0	16.00
	06/26/2012		570.0	30.00
	11/14/2012		490.0	71.00
	05/02/2013		500.0	74.00
	11/25/2013		436.0	33.00
	05/22/2014		498.0	68.00
	11/18/2014		454.0	33.00
	05/21/2015		496.0	39.00
	11/05/2015		502.0	48.00
20	03/02/2010		380.0	64.00
	06/14/2010		310.0	62.00

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Residue, total filtrable, mg/L	Sulfate, total, mg/L
20	09/27/2010	490.0	150.0
	11/09/2010	360.0	110.0
	03/02/2011	450.0	100.0
	06/23/2011	380.0	100.0
	09/27/2011	450.0	140.0
	11/02/2011	400.0	97.00
	03/28/2012	530.0	140.0
	06/26/2012	700.0	150.0
	08/21/2012	730.0	180.0
	11/14/2012	652.0	152.0
	02/27/2013	600.0	162.0
	05/02/2013	590.0	157.0
	08/20/2013	548.0	87.00
	11/25/2013	546.0	93.00
	02/26/2014	528.0	91.00
	05/22/2014	468.0	74.00
	09/03/2014	518.0	111.0
	11/18/2014	440.0	56.00
	03/11/2015	420.0	83.00
	05/21/2015	424.0	61.00
	09/04/2015	422.0	72.00
	11/05/2015	430.0	70.00
21	06/14/2010	540.0	130.0
	11/09/2010	490.0	110.0
	06/23/2011	550.0	140.0
	11/01/2011	600.0	170.0
	06/26/2012	600.0	110.0
	11/14/2012	508.0	129.0
	05/02/2013	630.0	236.0
	11/25/2013	490.0	118.0
	05/22/2014	574.0	109.0
	11/18/2014	438.0	74.00
	05/21/2015	526.0	96.00
	11/04/2015	554.0	116.0
22	06/14/2010	570.0	78.00
	11/09/2010	500.0	91.00
	06/23/2011	520.0	75.00

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Residue, total filtrable, mg/L	Sulfate, total, mg/L
22	11/01/2011	490.0	67.00
	06/26/2012	560.0	62.00
	11/14/2012	408.0	76.00
	05/02/2013	480.0	79.00
	11/25/2013	454.0	59.00
	05/22/2014	628.0	99.00
	11/18/2014	530.0	77.00
	05/21/2015	536.0	62.00
	11/05/2015	444.0	46.00
23	06/14/2010	640.0	180.0
	11/09/2010	610.0	130.0
	06/23/2011	670.0	150.0
	11/01/2011	670.0	140.0
	06/26/2012	720.0	150.0
	11/14/2012	626.0	158.0
	05/02/2013	552.0	183.0
	11/25/2013	604.0	132.0
	05/22/2014	760.0	219.0
	11/18/2014	644.0	180.0
	05/21/2015	668.0	182.0
	11/05/2015	670.0	123.0
25	06/14/2010	1500.	260.0
	11/09/2010	1600.	290.0
	06/23/2011	1200.	180.0
	11/01/2011	1700.	300.0
	06/26/2012	1600.	270.0
	11/14/2012	1140.	192.0
	05/02/2013	690.0	104.0
	11/25/2013	1710.	307.0
	05/22/2014	742.0	89.00
	11/18/2014	1410.	283.0
	05/21/2015	974.0	124.0
	11/04/2015	1320.	219.0
28	06/14/2010	800.0	180.0
	11/09/2010	730.0	130.0
	06/23/2011	800.0	180.0
	11/01/2011	490.0	68.00

Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

Date Range: 01/01/2010 to 12/31/2015

		Residue, total filtrable, mg/L	Sulfate, total, mg/L
28	06/26/2012	800.0	180.0
	11/14/2012	626.0	118.0
	05/02/2013	858.0	285.0
	11/25/2013	678.0	178.0
	05/22/2014	790.0	235.0
	11/18/2014	784.0	252.0
	05/21/2015	644.0	173.0
	11/05/2015	596.0	154.0
31	06/14/2010	2800.	270.0
	11/09/2010	4800.	250.0
	06/23/2011	6000.	230.0
	11/01/2011	5100.	230.0
	06/26/2012	3700.	240.0
	11/14/2012	2490.	206.0
	05/02/2013	1720.	164.0
	08/29/2013	2040.	169.0
	11/25/2013	1860.	149.0
	05/22/2014	1620.	129.0
	11/18/2014	2020.	161.0
	05/21/2015	2240.	118.0
	11/04/2015	2170.	149.0
34	06/14/2010	860.0	<5.000
	11/09/2010	670.0	7.400
	06/23/2011	860.0	<5.000
	11/01/2011	680.0	10.00
	06/26/2012	740.0	6.800
	11/14/2012	896.0	15.00
	05/06/2013	900.0	30.00
	11/25/2013	720.0	10.00
	05/22/2014	1050.	47.00
	11/18/2014	770.0	<10.00
	05/21/2015	902.0	<10.00
	11/03/2015	758.0	<10.00
36	06/14/2010	620.0	11.00
	11/09/2010	600.0	11.00
	11/01/2011	620.0	33.00
	06/26/2012	530.0	11.00

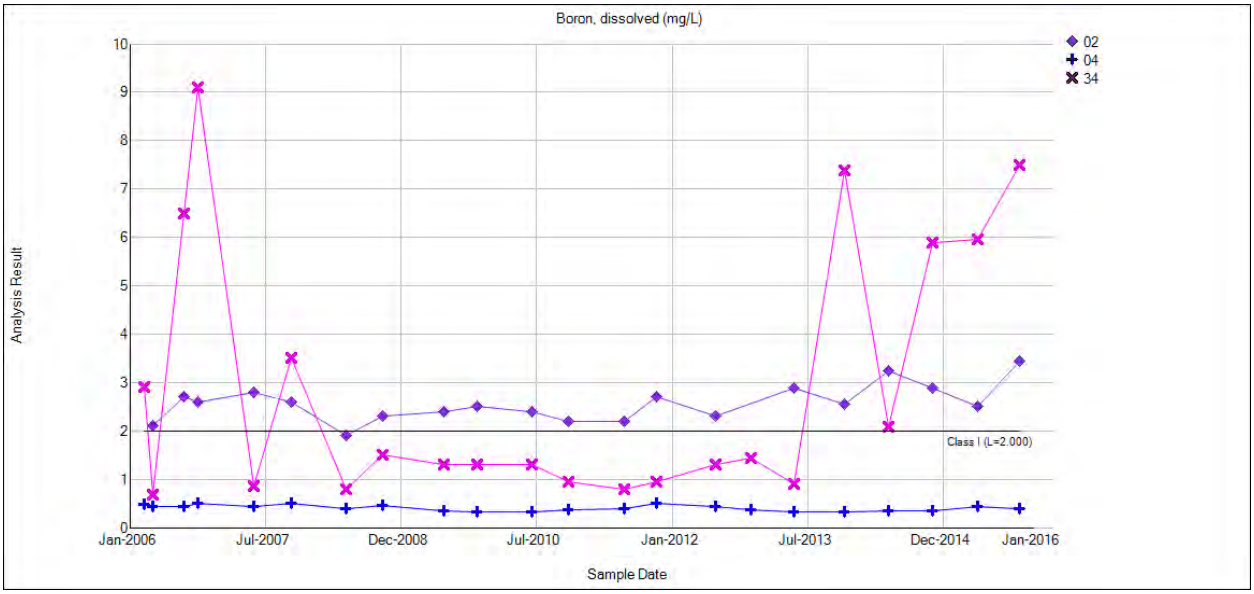
Wood River
Groundwater Monitoring Data for the West Ash Pond System: 2010 - 2015

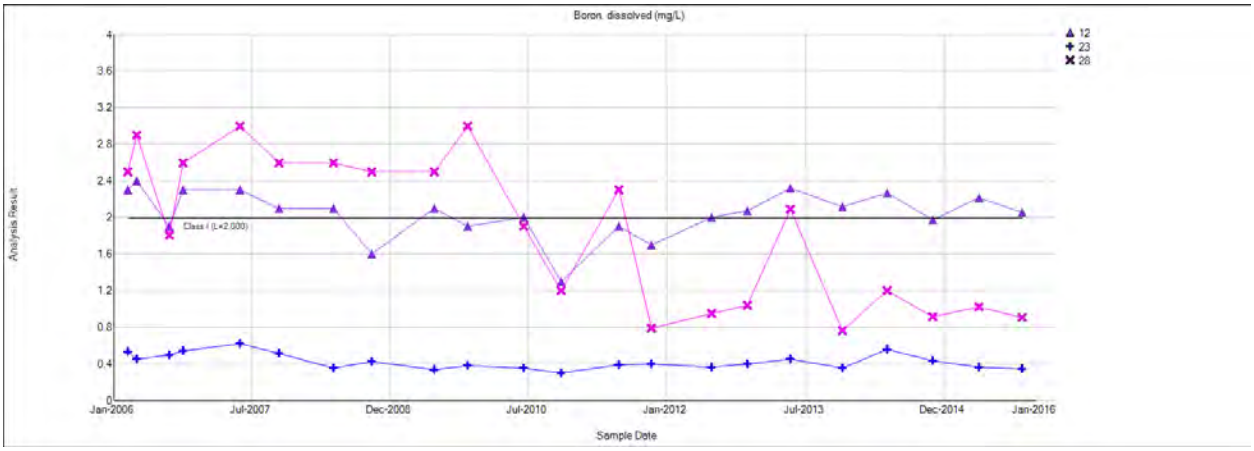
Date Range: 01/01/2010 to 12/31/2015

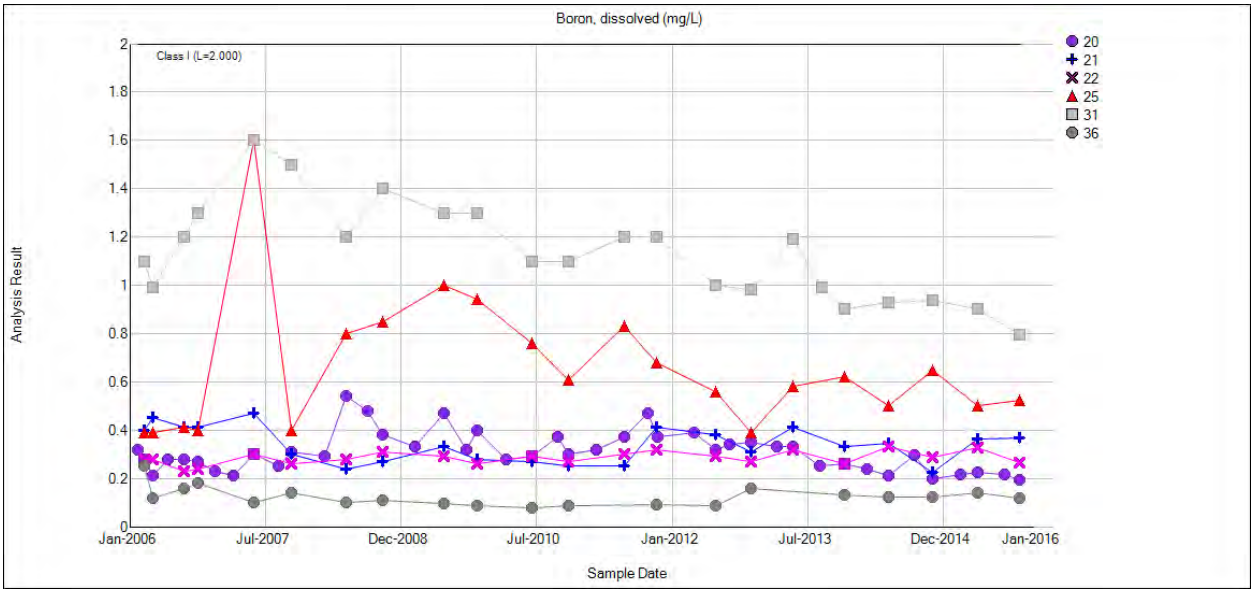
		Residue, total filtrable, mg/L	Sulfate, total, mg/L
36	11/14/2012	768.0	<10.00
	11/25/2013	474.0	<10.00
	05/22/2014	468.0	<10.00
	11/18/2014	474.0	<10.00
	05/21/2015	556.0	<10.00
	11/03/2015	430.0	<10.00

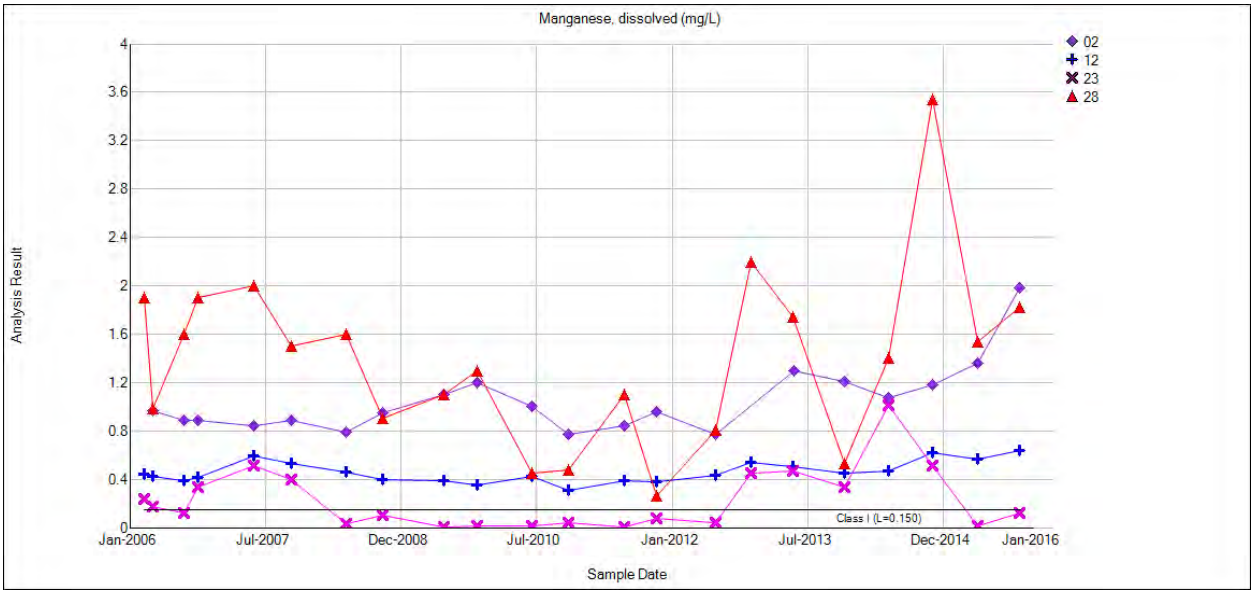
APPENDIX F

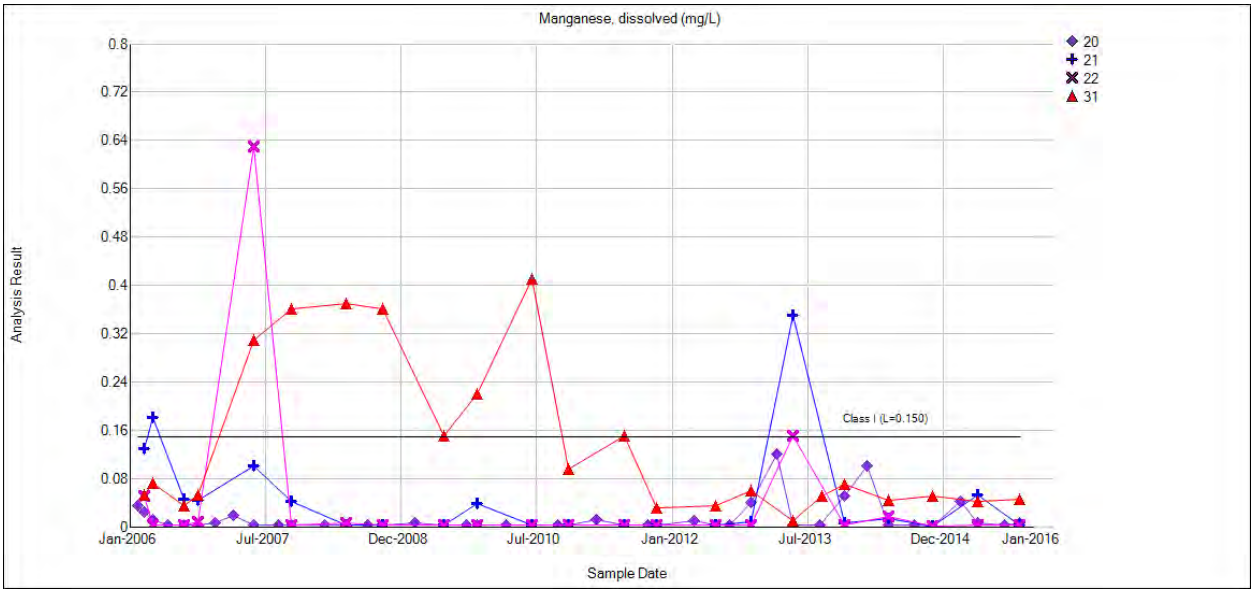
WATER QUALITY TREND GRAPHS

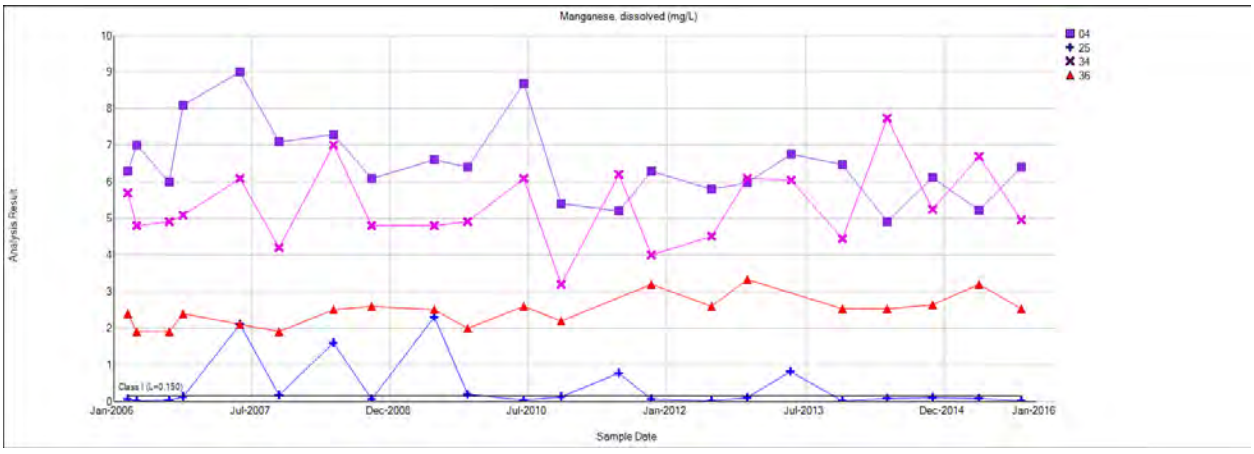

Boron, dissolved (mg/L)
02
04
34
Analysis Result
Class I (L=2.000)
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016
Sample Date

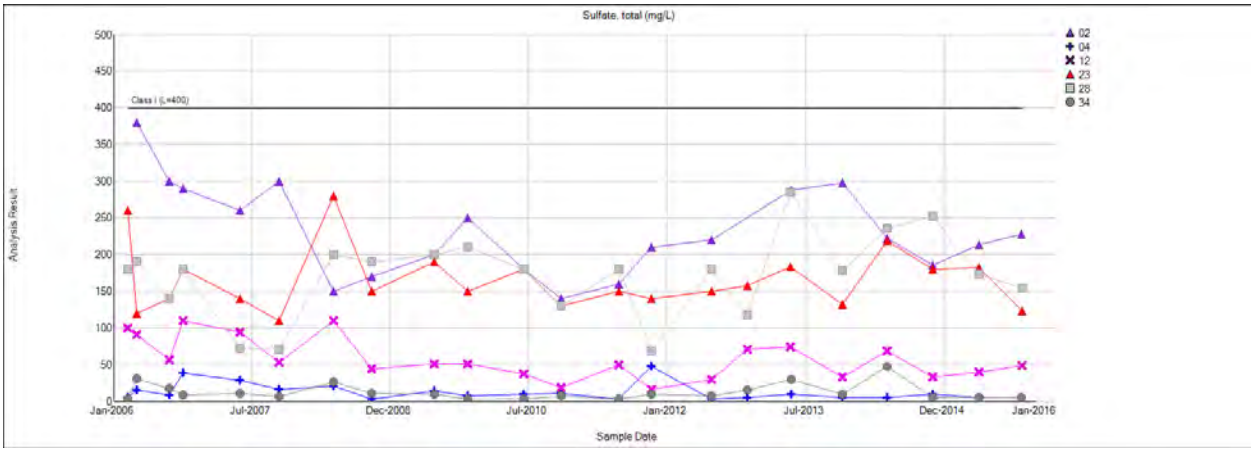

Boron, dissolved (mg/L)
12
23
28
Analysis Result
Class I (L=2.000)
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016
Sample Date

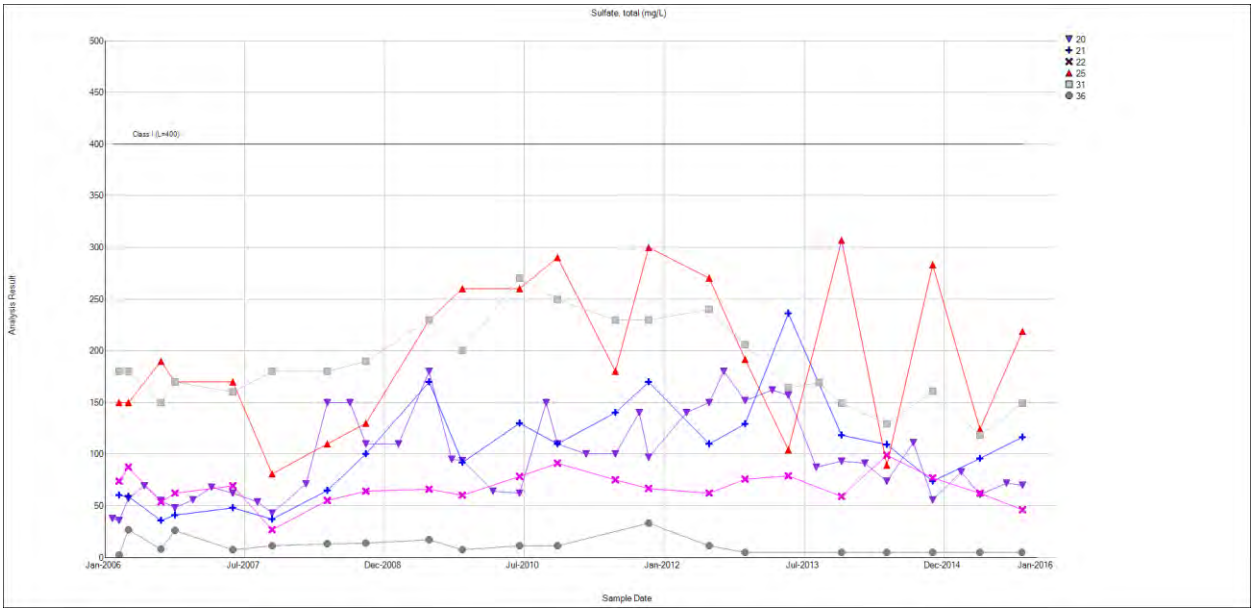

Boron, dissolved (mg/L)
Class I (L=2.000)
20
21
22
25
31
36
Analysis Result
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016
Sample Date

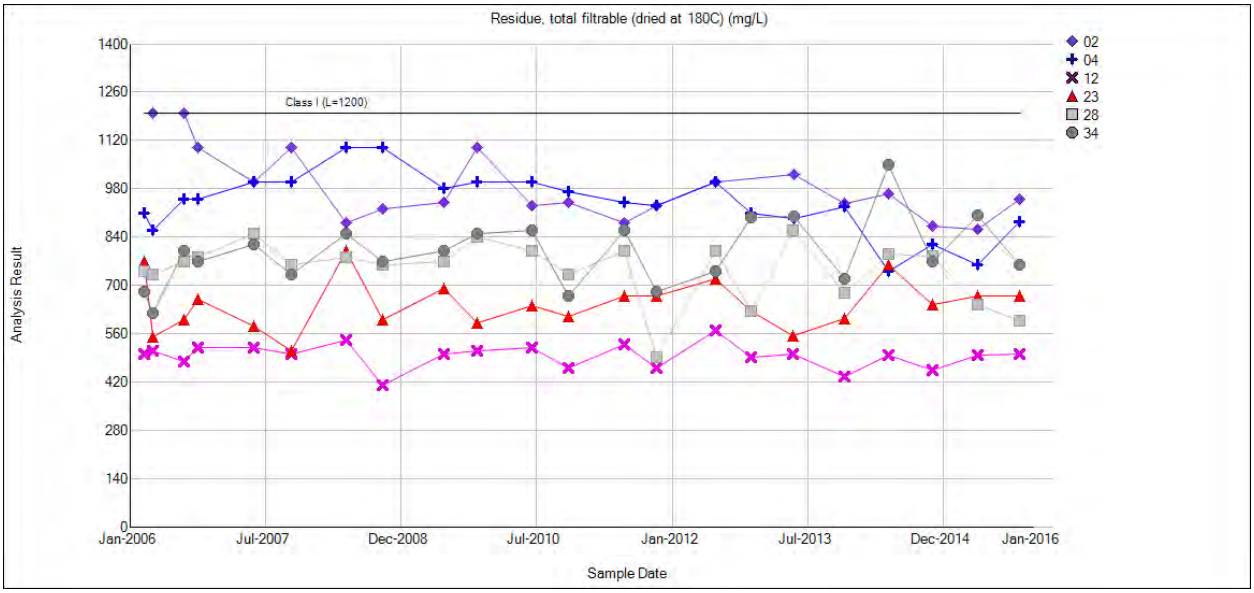

Manganese, dissolved (mg/L)
02
12
23
28
Analysis Result
Sample Date
Class I (L=0.150)
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016

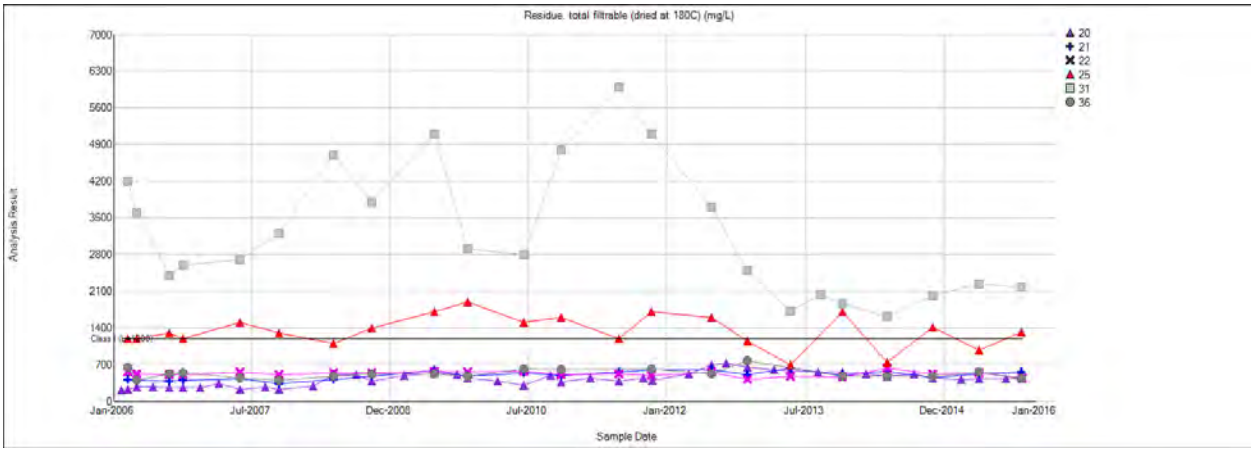

Manganese, dissolved (mg/L)
20
21
22
31
Analysis Result
Sample Date
Class I (L=0.150)
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016

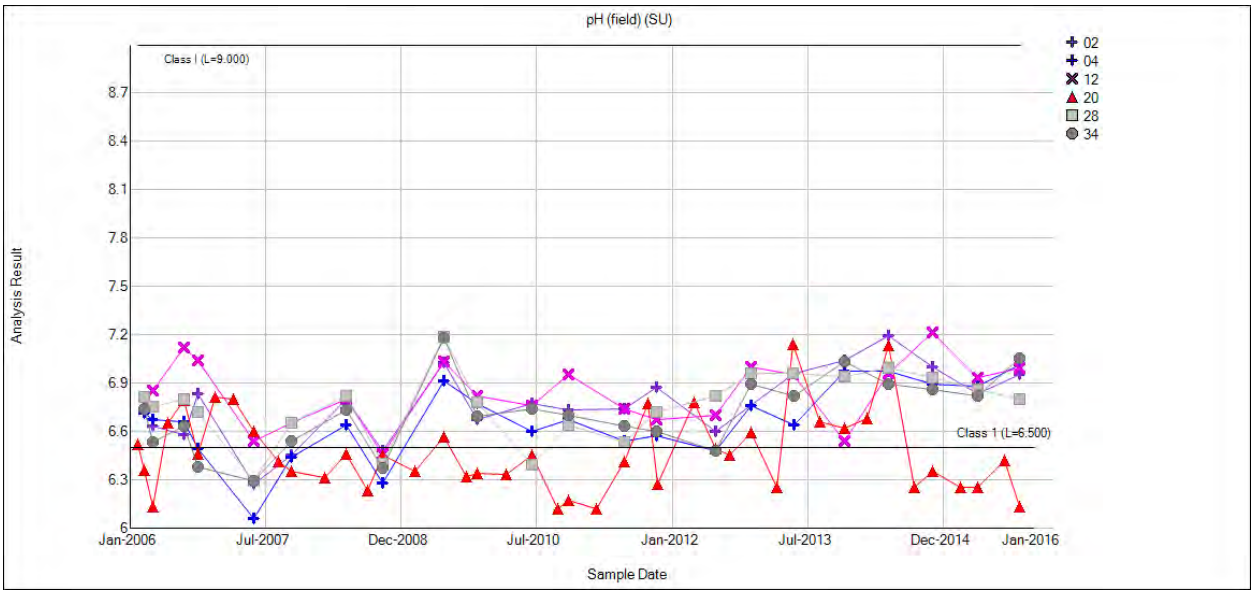

Manganese, dissolved (mg/L)
04
25
34
36
Analysis Result
Sample Date
Class I (L=0.150)
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016

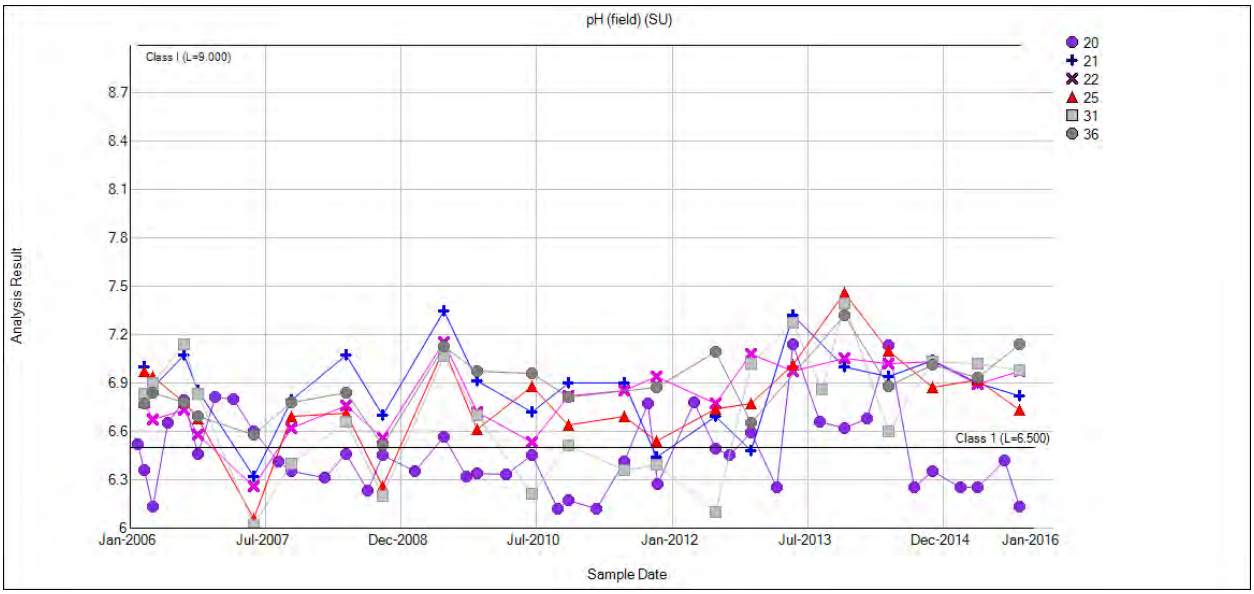

Sulfate, total (mg/L)
Class I (L=400)
Analysis Result
Sample Date
02
04
12
23
28
34
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


Sulfate, total (mg/L)
Class I (L=400)
Analysis Result
Sample Date
20
21
22
25
31
36
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


Residue, total filtrable (dried at 180C) (mg/L)
Class I (L=1200)
Analysis Result
Sample Date
02
04
12
23
28
34
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


Residue, total filtrable (dried at 180C) (mg/L)
Analysis Result
Sample Date
20
21
22
25
31
36
7000
6300
5600
4900
4200
3500
2800
2100
1400
700
0
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


pH (field) (SU)
Class I (L=9.000)
Class 1 (L=6.500)
Analysis Result
Sample Date
02
04
12
20
28
34
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016


pH (field) (SU)
Class I (L=9.000)
Class 1 (L=6.500)
Analysis Result
Sample Date
20
21
22
25
31
36
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6
Jan-2006
Jul-2007
Dec-2008
Jul-2010
Jan-2012
Jul-2013
Dec-2014
Jan-2016

Appendix B.
Groundwater Monitoring Plan

SMARTER SOLUTIONS

EXCEPTIONAL SERVICE

VALUE

GROUNDWATER MONITORING PLAN

West Ash Pond Complex
Wood River Power Station
Alton, Illinois

FINAL

October 19, 2016

NATURAL RESOURCE TECHNOLOGY

ENVIRONMENTAL CONSULTANTS

NATURAL RESOURCE TECHNOLOGY
ENVIRONMENTAL CONSULTANTS

234 W. FLORIDA STREET, FIFTH FLOOR
MILWAUKEE, WISCONSIN 53204
(P) 414.837.3607
(F) 414.837.3608

GROUNDWATER MONITORING PLAN

WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

Project No. 2376

Prepared For:

Dynegy Operating Company
1500 Eastport Plaza Drive
Collinsville, IL 62234

Prepared By:

Natural Resource Technology, Inc.
234 W. Florida Street, Fifth Floor
Milwaukee, Wisconsin 53204

FINAL
October 19, 2016

Stuart J. Cravens, PG
Principal Hydrogeologist

Nathaniel R. Keller, PG
Hydrogeologist

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1 INTRODUCTION

1.1 Overview

This Groundwater Monitoring Plan was prepared by Natural Resource Technology, Inc. (NRT) in support of a Closure Plan for impoundments located at the Wood River Power Station (WRPS) which is owned by Dynegy Midwest Generation, LLC (DMG).

This plan and the Closure Plan will apply specifically to Coal Combustion Residuals (CCR) surface water impoundments associated with the WRPS West Ash Pond Complex which includes the following components:

- West Ash Pond 1
- West Ash Pond 2E
- West Ash Pond 2W

In November 2015, in accordance with 40 CFR Part 257, Subpart D, DMG submitted to the Illinois Environmental Protection Agency (IEPA) a notice of intent to close the inactive West Ash Pond 2W. The notice of intent to close the West Ash Pond 2E and West Ash Pond 1 will be submitted by May 17, 2017. Another CCR unit, the Wood River East Ash Pond Complex is not the subject of this groundwater monitoring plan.

This plan describes the groundwater monitoring and reporting to be completed in support of the Closure Plan for the West Ash Pond Complex. In addition to this goundwater monitoring plan, a Groundwater Management Zone Application is being submitted under separate cover.

1.2 Site Location and Background

The WRPS West Ash Pond Complex is located in Alton in Madison County, Illinois. The power plant and the West and East Ash Pond Complexes are situated on the east bank of the Mississippi River, about six river miles upstream from the confluence of the Mississippi and Missouri Rivers. Wood River , a perennial stream that discharges into the Mississippi River, lies on eastern edge of the site.

The West Ash Pond Complex is located within Section 19 Township 5 North and Range 9 West. The cities of Alton, East Alton, and Wood River are within 2 miles of the impoundments. The WPRS is located in an area of heavy industrial activity. Metal refining, vinegar production, cardboard manufacturing, and sewage treatment occur within ½ mile of the plant. The site location is shown on Figure 1. The WRPS Property is bordered on the south by the State Route 143 and the Mississippi River, the east by the Wood

River, the north by vacant/abandoned industrial property and railroad tracks, and the west by vacant land/water retention ponds of the Mississippi River levee system operated by the Army Corps of Engineers.

Electrical generation at WRPS was shut down in June 2016, and the plant is closing its ash impoundments. This monitoring plan addresses the closure of the West Ash Pond Complex which consists of 3 inactive impoundments (Figure 2):

- West Ash Pond 1 (22 acres, inactive)
- West Ash Pond 2W (19 acres, inactive)
- West Ash Pond 2E (11.5 acres, inactive)

Pond 3 is also shown on the Figure 2 and was used as a polishing pond when the complex was used for ash handling prior to 2006. It is not considered part of the West Ash Complex. West Ash Pond 2E was constructed with a geomembrane liner system and West Ash Ponds 1 and 2W are unlined. The Wood River West Ash Pond Complex will be closed by leaving CCR in place and using a geomembrane cover system. This design will control the potential for water infiltration into the closed CCR unit and will allow drainage of surface water off of the cover system (AECOM, 2016). All impoundments of the West Ash Pond Complex have been extensively evaluated during previous hydrogeologic investigations, groundwater quality assessments, and modeling.

1.3 Conceptual Model

Significant site investigation and characterization has been completed at WRPS. The initial site investigation was completed in 1984, and has been supplemented by additional activities to characterize the geology, hydrogeology and groundwater quality. Based on extensive investigation and monitoring, the West Ash Pond Complex has been well characterized and detailed in the Hydrogeologic Site Characterization Report (NRT, 2016). A site conceptual model has been developed and is discussed below.

The West and East Ash Pond Complexes are located on top of river deposits which consist of the following units (beginning at the ground surface):

- Fill (consisting of clay, sand, and silt mixtures) and coal ash: primarily occurs within the impoundments, impoundment berms and the Wood River and Mississippi River levees
- Upper silty clay unit: Clay and silty clay alluvial deposits of the Mississippi River and Wood River

- Inter-sand unit: a thin (generally 5 feet or less) silty sand/ sand unit above the lower silty clay unit that is continuous across most of the site and may intersect the primary sand unit in the northern portion of the site

- Lower silty clay unit: Clay and silty clay alluvial deposits of the Mississippi River and Wood River

- Primary sand unit: Sand and gravel deposits that are highly variable, well to poorly sorted, with intermittent layers of clay and silt. This unit is the uppermost aquifer unit

- Silt and sandy silt, and silty clay diamicton only observed at depth near the east side of the New East Ash Pond (NEAP)

The ash fill lies on top of the silty clay unit, or the inter-sand unit in places where the upper silty clay was either not deposited, or removed during construction. With the exception of the southeast portion of the New East Ash Pond (NEAP), also called the Primary East Ash Pond, the ash fill is underlain by silty clay of variable thickness.

Groundwater is encountered in the primary sand unit, and occasionally in the inter-sand when Mississippi River water levels are high. The groundwater elevations are significantly influenced by the Mississippi and Wood Rivers, flowing toward the rivers during normal river stages (Figure 3), and away from the rivers during flood events when river water recharges the groundwater (Figure 4). Groundwater flow occurs in the primarily in the primary sand unit and occasionally in the inter-sand unit during river flooding events.

Exceedances of Class I groundwater quality standards are present in monitoring wells at various locations around the West Ash Pond Complex for boron, manganese, and total dissolved solids. Measurements of pH collected from groundwater wells located immediately north of the West and East Ash Pond Complexes are also frequently below the Class I lower limit (6.5 S.U.) The exceedances of Class I groundwater quality standards for manganese, TDS and pH are attributable to either naturally occurring geochemical variability, or non-CCR sources not associated with the West Ash Pond Complex.

2 GROUNDWATER MONITORING

Currently, there are two monitoring programs for the WRPS West Ash Pond Complex. One program (IEPA monitoring) was conducted to meet the requirements of the Illinois EPA and was originally specified in the approved Closure Plan (NRT, 2000). The scope of this monitoring program was subsequently reduced through approved modifications requested in annual reports. The IEPA monitoring program has been utilized since the Closure Plan in 2000 to evaluate post-closure groundwater quality and trends and to demonstrate compliance with the applicable groundwater quality standards identified in Section 3.2.

In addition to the IEPA monitoring, a monitoring program has been established consistent with the requirements of 40 CFR Part 257 (CCR Rule). CCR Rule monitoring commenced in November 2015. Upon approval of the Closure Plan in which this document is attached, the monitoring network will consist of one program to comply with both IEPA and CCR Rule requirements. The proposed groundwater monitoring well network consists of a sufficient number of wells, installed at appropriate locations and depths, to monitor post-closure compliance with groundwater quality standards for Class I: Potable Resource Groundwater.

The proposed groundwater monitoring program included in this document is consistent with the requirements of 35 IAC Part 620 and Illinois EPA-approved modifications as well as 40 CFR Part 257. The wells will monitor the primary sand unit in the vicinity of the West ash Pond Complex which has been designated the uppermost aquifer.

The monitoring wells are designed and constructed in accordance with applicable standards, including the following:

- All monitoring wells are cased in a manner that maintains the integrity of the boreholes
- Wells are screened to allow sampling only at the specified interval
- All wells are covered with vented caps, unless located in flood-prone areas, and equipped with devices to protect against tampering and damage

The monitoring well network described below fulfills the following goals:

- Enable the collection of groundwater samples that represent the quality of background water that has not been affected by the West Ash Complex
- Enable the collection of groundwater samples that represent the quality of downgradient groundwater
- Include wells that are located within the stratigraphic unit that may serve as potential chemical migration pathways

2.1 Existing Monitoring Well Network and Analysis

The existing well network for the West Ash Pond Complex is summarized in Table 1 and shown on Figure 2. The monitoring network currently includes one leachate head well, 17 monitoring wells, and 8 piezometers. Monitoring wells have been installed and abandoned since monitoring began in 1984, and the piezometers, some of which are located within the ash impoundments, were installed in 2015 to comply with the CCR Rule.

2.1.1 IEPA Monitoring

The monitoring program performed in compliance with the IEPA-approved Closure Plan (NRT, 2000) includes 12 wells that are sampled semi-annually for dissolved boron and manganese, total sulfate, total dissolved solids (TDS), pH, and groundwater elevation. These monitoring wells include Wells 02, 04, 12, 20, 21, 22, 23, 25, 28, 31, 34, and 36. Additional groundwater elevation measurements are collected at Wells 29, 30, 32R, and 33. Wells 03 and 35R are present on-site but are not monitored. All wells are screened in the primary sand unit near the West Ash Pond Complex.

2.1.2 40 CFR Part 257 Monitoring

CCR monitoring commenced in November 2015 and consists of quarterly groundwater elevation measurements and water quality samples collected at background Monitoring Wells 25, 31, 36, and downgradient Wells 02, 04, 32R, and 34. The groundwater is analyzed for Appendix III and Appendix IV parameters (see below). Piezometers (P008, P015, P016, P020, P021, P024, P025, and P026) are measured monthly for groundwater elevation only.

Appendix III Parameters (total, unless noted)	**Appendix IV Parameters (total)**	
Boron	Antimony	Mercury
Calcium	Arsenic	Molybdenum
Chloride	Barium	Selenium
Fluoride	Beryllium	Thallium
Sulfate	Cadmium	Radium 226/228
TDS (dissolved)	Chromium	
pH-Field	Cobalt	
	Fluoride	
	Lead	
	Lithium	

Boring logs and monitoring well construction reports for the groundwater monitoring system are provided in Appendix A.

2.2 Proposed Monitoring Network

This Closure Plan proposes a single groundwater monitoring program to meet the requirements of both 40 CFR 257, and 35 IAC Part 620.410, including the modifications previously approved by Illinois EPA. Wells to be sampled are summarized in Table 2 and below, and the proposed monitoring network is shown on Figure 5.

The well depths, well screen intervals, depth to groundwater, and position relative to the West Ash Pond Complex are summarized below:

Well Number	Well Screen Interval (ft bgs)	Depth To Groundwater (ft bgs)	Well Position in Primary Sand
02	35.2-37.2	32.86	Downgradient
04	21-23	16.22	Downgradient
23	18-38.4	27.48	Upgradient
25	18.1-38.5	25.75	Upgradient
28	20.4-35.4	17.54	Upgradient
31	20.4-35.4	30.38	Upgradient
32R	17-27	24.01	Downgradient
33	10-20	5.91	Upgradient
34	35-40	27.64	Downgradient
35R	23-28	19.3	Sidegradient
36	20-25	11.14	Upgradient

Groundwater depth elevations shown are from November 2015

Many of these wells have been sampled historically for select parameters as required by the IEPA monitoring. All of these wells have been sampled for Appendix III and Appendix IV parameters included in 40 CFR 257 beginning in November 2015. Wells 23, 28, 33, and 35R are not included in the groundwater quality sampling but elevations will be measured to provide control on groundwater flow directions.

2.3 Abandoned Wells

Monitoring wells and piezometers not included in the proposed network will be abandoned upon approval of this Groundwater Monitoring Plan. Monitoring wells 03, 22, 29, and 30 are located north of the West Ash Pond Complex and are no longer required because no CCR constituents have been detected at concentrations of concern at these locations. Well 12 is located adjacent to Pond 3 and is not part of the

West Ash Pond Complex. Although well 12 has boron concentrations that are close to or sometimes exceed the Class I standard, it is not properly positioned nor needed to monitor the West Ash Pond Complex and the well will be abandoned.

The leachate well L1 and piezometers ((P008, P015, P016, P020, P021, P024, P025, and P026) will be abandoned prior to capping of the ash complex. The locations of the leachate well, monitoring wells, and piezometers that will be abandoned are shown on Figure 5.

3 APPLICABLE GROUNDWATER QUALITY STANDARDS

3.1 Groundwater Classification

The classification of groundwater at the WRPS West Ash Pond Complex has been evaluated and based on the detailed geologic information provided for the primary sand unit the Site can be classified as Class I - Potable Resource Groundwater. The thickness of the primary sand unit is much greater than 5 feet and field hydraulic conductivity tests performed on the primary sand had geometric mean hydraulic conductivities of approximately $5.7x10^{-2}$ cm/s. Sands and gravels with thicknesses greater than 5 feet or with a hydraulic conductivity of greater than $1x10^{-4}$ cm/s meets the provisions of Section 620.210 (Class I) Potable Resource Groundwater.

3.2 Applicable Groundwater Quality Standards

The groundwater quality standards for the proposed monitoring well network screened in the primary sand are Class I Potable Resource Groundwater [35 IAC 620.410] standards or background concentrations based on statistical analyses (Section 3.3). For determination of background concentrations, only parameters included in the proposed analyte list and from wells within the proposed network were used in the evaluation. Background concentrations were calculated for pH, sulfate and TDS from background wells 25, 31, and 36.

Based on the statistical evaluation of the background groundwater data (Table 3), background concentrations exceed groundwater quality standards for Class I Potable Resource Groundwater for TDS, and pH (less than the lower limit). Therefore, the background groundwater concentration for these parameters will apply to the proposed monitoring well network. The exception is sulfate, where the background concentration is lower than the Class I standard. Therefore, the standard for sulfate from the Class I Potable Resource Groundwater will be applied.

Background groundwater quality for additional parameters will be established through statistical evaluation following completion of 8 quarters of groundwater sampling of background wells 25, 31, and 36 that commenced in November 2015. The groundwater quality standard for these parameters at the proposed monitoring well network at the West Ash Complex will be the greater of either the background concentration or the groundwater quality standard for Class I Potable Resource Groundwater. This is consistent with the methods outlined in 40 CFR Part 257. The current list of applicable groundwater quality standards for the monitoring well network is shown on Table 3.

3.3 Statistical Evaluation of Background Groundwater Data

A statistical evaluation was performed to determine the maximum background concentrations likely to occur upgradient of the WRPS West Ash Pond Complex. The groundwater quality data collected from upgradient monitoring wells 25, 31, and 36 was evaluated using the Electric Power Research Institute (EPRI, March 2014) computer database and analysis program, MANAGES™ (Version 3.4.49). The statistical analysis procedures used here are consistent with procedures described in the document: 2009 Unified Guidance. "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities—Unified Guidance," March 2009, EPA 530/R-09-2007 (USEPA, 2009).

The statistical methodology is provided in Appendix B. Establishing the tolerance interval(s) for the groundwater constituents was accomplished by using either a parametric or non-parametric procedure based on the percentage of non-detects in the data sets and the distribution of the sample population. If the statistical data for a constituent had less than 50 percent non-detects and was normally or log-normally distributed, a parametric procedure was used. If the data was not normally or log-normally distributed or had more than 50 percent non-detects, a non-parametric procedure was used. Appendix B, Figure B-1 is a flow chart which illustrates the processes followed to determine the appropriate statistical procedure used for each constituent based on its statistical characteristics.

3.4 Statistical Analysis Results

The results of the statistical analyses for the groundwater in the primary sand are located in Appendix B. Appendix B includes a statistical summary of the background water quality data from Wells 25, 31, and 36 and the statistical analysis procedure inputs and results.

Calculated background values (upper and lower limits) for the tested inorganic constituents and pH are listed in Appendix B, Table B-1 along with the percent non-detects, normal or lognormal distribution, test method, and confidence level. The calculated background values are also shown on Table 3 and are compared to the groundwater quality standards for Class I: Potable Resource Groundwater. The higher of the two values is shown as the Applicable Groundwater Standard on Table 3 (see additional discussion provided in Section 3.2).

3.5 Proposed Exceptions to the Groundwater Monitoring Parameters

Based on the results of groundwater monitoring performed at WRPS to date and reductions to the closure monitoring program approved by the IEPA, the following exceptions to the above applicable Class I: Potable Resource Groundwater standards are proposed:

- Analytical results (Appendix C) indicate manganese and iron have historically exceeded the groundwater quality standards of Class I Potable Resource Groundwater inorganic constituents listed in 35 IAC 620.410(a)(1). However, based on extensive analysis, elevated metals concentrations have been attributed to reducing conditions and aquifer composition and are not prevalent in groundwater associated with the West Ash Pond Complex.

- Nitrate is included in the inorganic parameters for Class I Potable Resource Groundwater. Historical monitoring has not exhibited nitrate exceedances and nitrate is not prevalent in groundwater associated with the West Ash Pond Complex.

- Class I Potable Resource Groundwater requires monitoring the inorganic constituents copper, cyanide, nickel, silver, vanadium, and zinc listed in 35 IAC 620.410(a)(1). These constituents will not be monitored because they may be sensitive to the aquifer reducing conditions and are not expected to be associated with the chemical characteristics of the West Ash Pond Complex.

- Perchlorate is commonly used as an oxidizer in solid propellants, munitions, fireworks, airbag initiators for vehicles, matches and signal flares. It is also used in some electroplating operations and found in some disinfectants and herbicides (USEPA, 2014). Perchlorate is an inorganic constituent listed in 35 IAC 620.410(a)(1) but has not been previously analyzed. Perchlorate will not be monitored because it is not expected to be associated with the chemical characteristics of CCR at the West Ash Pond Complex.

The proposed groundwater monitoring parameters for the proposed monitoring well network are discussed further in Section 4.1.

4 GROUNDWATER MONITORING PLAN

The groundwater monitoring plan will monitor and evaluate groundwater quality to demonstrate compliance with the groundwater quality standards for Class I: Potable Resource Groundwater as well as USEPA MCLs or background exceedances, as appropriate. As discussed in Section 3, the proposed post-closure groundwater sampling network consists of three background monitoring wells and 4 compliance monitoring wells as shown on Figure 5.

4.1 Groundwater Monitoring

The proposed IEPA and 40 CFR Part 257 well network consists of 4 monitoring wells installed in the primary sand adjacent to the West Ash Pond Complex (02, 04, 32R, and 34) and 3 background monitoring wells (25, 31, and 36). Groundwater samples will be collected and analyzed for the following laboratory and field parameters:

Laboratory Parameters		
Metals (totals)		
Antimony	Cadmium	Lithium
Arsenic	Calcium	Mercury
Barium	Chromium	Molybdenum
Beryllium	Cobalt	Selenium
Boron	Lead	Thallium
Inorganics (totals)		
Fluoride	Sulfate	
Chloride	Total Dissolved Solids	
Other (total)		
Radium 226 and 228 combined		
Field Parameters		
pH	Temperature	
Oxidation/Reduction Potential	Specific Conductivity	
Dissolved Oxygen	Turbidity	

As discussed in Section 3.4, other constituents listed under 35 IAC 620 will not be monitored at the proposed monitoring well network because the groundwater monitoring results to date indicate that the inorganic constituents copper, cyanide, lead, nitrate, nickel, silver, and zinc either meet the Class I: Potable Resource Groundwater standards or are not associated with the chemical characteristics of the West Ash Pond Complex. Iron and manganese will not be sampled because they are indicative of

reducing conditions in the aquifer and are not prevalent in groundwater associated with the West Ash Pond Complex. All parameters listed above will be sampled a minimum of eight times by October 17, 2017 to establish background groundwater quality. Following the initial eight rounds of sampling, the parameters to be monitored will be in accordance with the requirements of 40 CFR Part 257.94 and 257.95 and this plan.

4.2 Sampling Schedule

Groundwater sampling for the proposed monitoring well network will initially be performed quarterly according to the following schedule:

Frequency	Duration
Quarterly	Begins: upon approval of this plan.
	Ends: 5 years after completion of cap and upon demonstration that monitoring effectiveness is not compromised and that there are no increasing trends attributable to the West Ash Pond Complex.
Semiannual	Begins: after IEPA approves that quarterly monitoring requirements have been satisfied.
	Ends: 5 years after initiation of semiannual monitoring and upon demonstration that monitoring effectiveness is not compromised and that there are no increasing trends attributable to the West Ash Pond Complex.
Annual	Begins: after IEPA approves that semiannual monitoring requirements have been satisfied.
	Ends: upon IEPA approval of a certified post-closure care report, but no less than 30 years from the date of closure as specified in 40 CFR 257

Five years after approval of the Closure Plan, a request may be made to modify the post-closure care plan to reduce the frequency of groundwater monitoring to semi-annual sampling by demonstrating all of the following:

- Monitoring effectiveness will not be compromised by the reduced frequency of monitoring
- Sufficient data has been collected to characterize groundwater
- Concentrations of constituents monitored at the downgradient boundaries show no statistically significant increasing trends that can be attributed to the former ash ponds

If concentrations of parameters of concern at the downgradient wells of the site show no statistically significant increasing trends that can be attributed to the Wood River West Ash Complex for the five years after reducing the monitoring frequency to semi-annual, a request may be made to modify the

post-closure care plan to reduce monitoring frequency to annual sampling by demonstrating the same items above as for the reduction to semi-annual monitoring.

Groundwater monitoring may be discontinued upon Illinois EPA's approval of a certified post-closure care report after a minimum 30 years of post-closure groundwater monitoring has been completed. Specifically, when no statistically significant increase is detected in the concentration of any constituent above that measured and recorded during the immediately preceding scheduled sampling for four consecutive years after changing to an annual monitoring frequency.

Groundwater monitoring for the 40 CFR Part 257 well network will follow a schedule in accordance with the requirements of 40 CFR Part 257.94 and 257.95. Post-closure care groundwater monitoring will continue for a minimum of 30 years in accordance with 40 CFR Part 257.104

4.3 Groundwater Sample Collection

Groundwater samples will be collected consistent with the requirements of 35 IAC Part 620 and 40 CFR 257.93 as described in Appendix D. In addition to groundwater well samples, quality assurance samples will be collected as described in Section 4.5 (Table 4).

4.4 Laboratory Analysis

Laboratory analysis will be performed consistent with the requirements of 35 IAC Part 620 and 40 CFR 257.93 by a state-certified laboratory using methods approved by Illinois EPA and USEPA (Table 4). The practical quantitation limit (PQL) for all parameters analyzed will be lower than the applicable groundwater quality standard. Concentrations lower than the PQL will be reported as less than the PQL. A list of these parameters and the required PQLs are summarized in Table 5.

4.5 Quality Assurance Program

Consistent with the requirements of 35 IAC Part 620 and 40 CFR 257.93, the sampling and analysis program includes procedures and techniques for quality assurance and quality control (Table 4). Additional quality assurance samples to be collected will include the following:

- Two blind duplicate groundwater samples from randomly selected monitoring wells
- One equipment blank sample will be collected and analyzed for each day of sampling. If dedicated sampling equipment is used, than equipment blank samples will not be collected.

The duplicate and equipment blank quality assurance samples will be supplemented by the laboratory QA/QC program, which typically includes:

- Regular generation of instrument calibration curves to assure instrument reliability
- Laboratory control samples and/or quality control check standards that have been spiked, and analyses to monitor the performance of the analytical method
- Matrix spike/matrix spike duplicate analyses to determine percent recoveries and relative percent differences for each of the parameters detected
- Analysis of replicate samples to check the precision of the instrumentation and/or methodology employed for all analytical methods
- Analysis of method blanks to assure that the system is free of contamination

4.6 Groundwater Monitoring System Maintenance Plan

Consistent with the requirements of 35 IAC Part 620 and 40 CFR 257.91, maintenance will be performed as needed to assure that the monitoring wells provide representative groundwater samples. Monitoring wells will be inspected during each groundwater sampling event. Monitoring well inspections will consist of the following:

- Visual inspection, clearing of vegetation, replacement of markers, and painting of protective casings as needed to assure that monitoring wells are clearly marked and accessible
- Visual inspection and repair or replacement of well aprons as needed to assure that they are intact, drain water away from the well, and have not heaved
- Visual inspection and repair or replacement of protective casings as needed to assure that they are undamaged, and that locks are present and functional
- Checks to assure that well caps are intact and vented, unless in flood-prone areas in which case caps will not be vented
- Annual measurement of monitoring well depths to determine the degree of siltation within the wells. Wells will be redeveloped as needed to remove siltation from the screened interval if it impedes flow of water into the well
- Checks that wells are clear of internal obstructions, and flow freely

If maintenance of a monitoring well cannot address an identified deficiency, a replacement well will be installed.

4.7 Annual Statistical Analysis

Trend analysis will be performed annually for each of the monitored parameters. Sen's Estimate of Slope will be applied to a minimum of four consecutive quarterly monitoring results. If there are increasing trends during closure and post-closure care periods, they will be further investigated as described below.

- If the results of sampling and analysis show an increasing trend at any compliance monitoring well, a Mann-Kendall analysis will be performed at 95 percent confidence to determine whether or not the increasing trend is statistically significant.

- If a statistically significant increasing trend occurs during post-closure care, further investigation of monitored concentrations will be performed as well as more frequent inspections of the surface of the cover system.

- If the investigation attributes a statistically significant increasing trend to a source other than the West Ash Pond Complex, then the Illinois EPA will be notified in writing, stating the cause of the increasing trend and providing the rationale used in such a determination.

- If there is not an alternative source causing the statistically significant increasing concentration and the sampling frequency had been reduced to semi-annual or annual sampling, a quarterly sampling schedule will be reestablished. The frequency of sampling will return to either semi-annual or annual, once four consecutive quarterly samples show no statistically significant increasing trend.

Notifications concerning statistically significant increasing trends and revisions of the sampling frequency will be reported to Illinois EPA in writing within 30 days after making the determinations.

In addition as required in 40 CFR Part 257.93, statistical analysis will be performed to determine whether or not a statistically significant increase over a background value has occurred for each constituent and at each well. Appropriate statistical methods will be chosen from the list of methods provided and the test chosen will be conducted separately for each constituent in each monitoring well. In addition, each statistical method chosen will comply with the performance standards, as appropriate, based on the test method used. If a statistically significant increase over background values is determined, procedures from 40 CFR Part 257 will be followed including 1) establishing an assessment monitoring program or 2) demonstrating that a source other than the West Ash Pond Complex caused the increase or demonstrating another plausible reason for the increase (error in sampling, etc.).

4.8 Data Reporting

Sampling and analysis data from quarterly, semi-annual and/or annual groundwater monitoring for the monitoring well network will be reported to Illinois EPA within 60 days after completion of sampling. Statistical analysis of the laboratory analytical data will be reported to Illinois EPA with the annual report for the facility, as described in the closure plan.

Data reporting for the 40 CFR Part 257 monitoring well network will be consistent with recordkeeping, notification, and internet posting requirements described in 40 CFR 257.105 through 257.107.

4.9 Compliance with Applicable On-Site Groundwater Quality Standards

In accordance with IAC 620 Section 620.240, the compliance boundary is a lateral distance of 25 feet outward from the outermost edge of the Wood River West Ash Pond Complex berms. Following completion of the corrective action, the groundwater standard at the compliance boundary will be in accordance with IAC 620 Section 450(a)(4) for groundwater quality restoration such that the standard for each released chemical constituent will be the higher of either the Class I groundwater standard or the concentration determined by groundwater monitoring at the compliance boundary.

Compliance with on-site groundwater quality standards, as measured at the proposed monitoring well network, will be achieved when there are no statistically significant increasing trends that are attributed to the West Ash Complex for parameters detected at the compliance boundary after a minimum 30 years of post-closure groundwater monitoring has been completed. Evaluation of groundwater quality data under USEPA (2015) will be consistent with 40 CFR Part 257.93 and 257.94.

4.10 Corrective Action

If a statistically significant increasing trend is observed to continue over a period of two or more years in groundwater sampled at the well network, and a subsequent hydrogeologic site investigation demonstrates that such exceedances are due to a release from the West Ash Pond Complex and corrective actions are appropriate to mitigate such releases, a corrective action plan will be proposed as a modification to the post-closure care plan. A corrective action plan will be submitted to Illinois EPA within 180 days after completion of the investigation activities. The plan will propose corrective actions to be undertaken to mitigate the impacts associated with the constituents of concern which exceed applicable groundwater standards.

5 REFERENCES

AECOM, December 31, 2015. 30% Design Data Report for the Dynegy Wood River Energy Complex; West Ash Pond and East Ash Pond CCR Units.

Natural Resource Technology, Inc. 2016. Hydrogeologic Site Characterization Report

USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. EPA 530/R-09/007, U.S. Environmental Protection Agency, Office of Resource Conservation and Recovery, Washington, D.C., 554 p. + 4 app.

USEPA, January 2014. Technical Fact Sheet – Perchlorate

USEPA, April 17, 2015. 40 CFR Parts 257and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule

FIGURES

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

SITE LOCATION MAP

GROUNDWATER MONITORING PLAN
WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

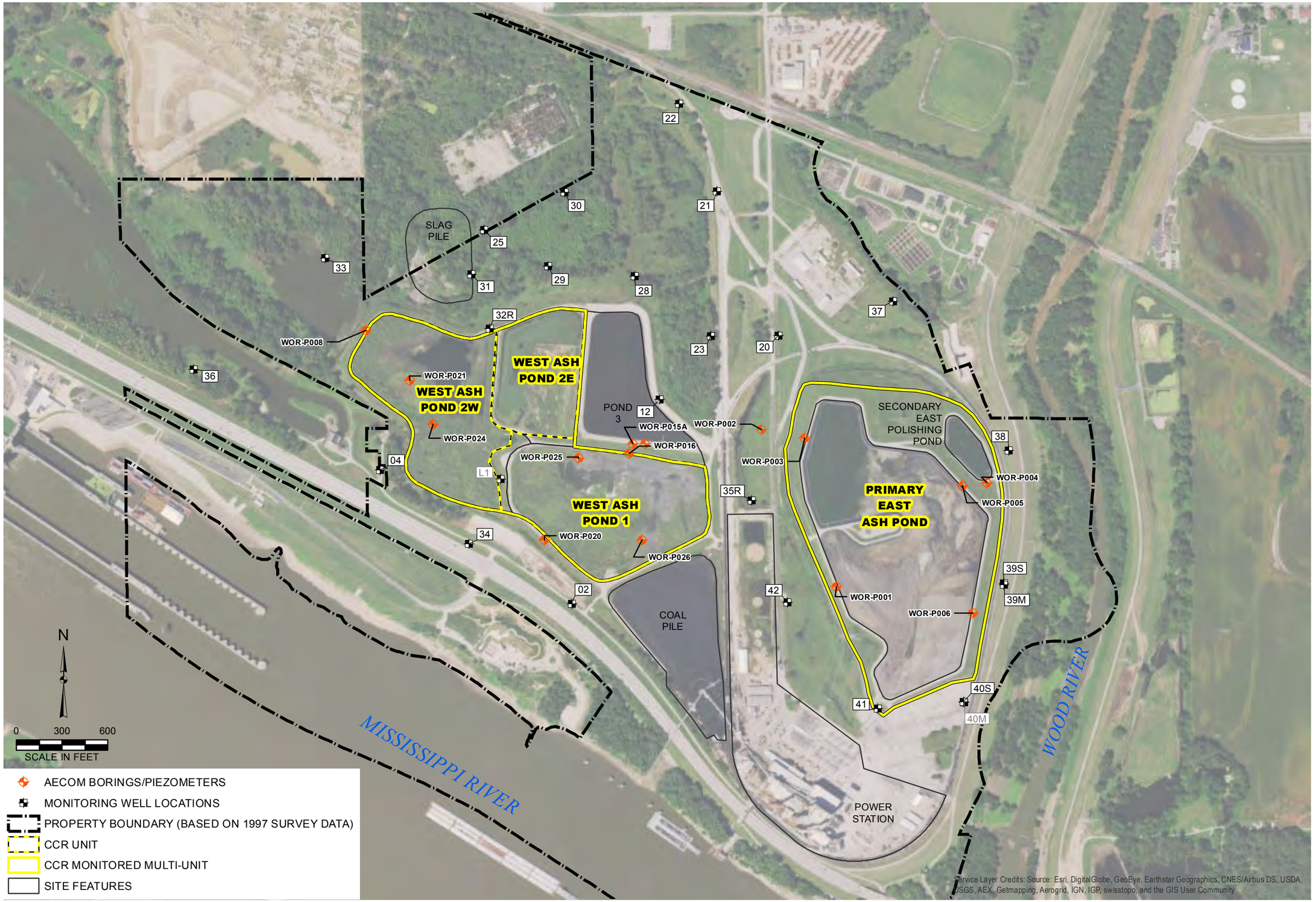
DRAWN BY/DATE:
SDS 7/22/16
REVIEWED BY/DATE:
NRK 7/22/16
APPROVED BY/DATE:
SJC 7/28/16

PROJECT NO: 2376

FIGURE NO: 1

NATURAL RESOURCE TECHNOLOGY

Y:\Mapping\Projects\23\2376\MXD\GW_Monitoring\Figure 1_Site Location Map.mxd Author: sstolz: Date/Time: 7/28/2016, 12:24:15 PM



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

BORING AND MONITORING WELL LOCATION MAP

GROUNDWATER MONITORING PLAN
WEST ASH POND COMPLEX
WOOD RIVER POWER STATION
ALTON, ILLINOIS

PROJECT NO: 2376

FIGURE NO: 2

NATURAL RESOURCE TECHNOLOGY