STANDARD PROCTOR COMPACTION TEST (ASTM D-698)

Company Name: Birmingham Coal & Coke Co., Inc
Location: Old Union #2 Mine
Sample I.D.: Basin 003
Description: Dam Material

Sample Date: 07/11/11
Analyzed By: KF/GA
Date Analyzed: 07/13/11
Requested By: JRW

Weight of Mold (W1): 4,250 Grams

Test No.	Wt. of Mold & Wet Soil (w2) grams	Wt. of wet Soil (w2-w1) grams	Wet Unit Wt. (w2-w1)/c lb/cu-ft	Moisture Content (w) %	Dry Unit Weight lb/cu-ft
1	6,024	1,774	117.3	8.4	108.3
2	6,152	1,902	125.8	11.9	112.5
3	6,249	1,999	132.2	14.9	115.0
4	6,228	1,978	130.8	16.0	112.8
5	6,199	1,949	128.9	17.2	110.0
6					
7					

Constant C = 15.12 (conversion factor)

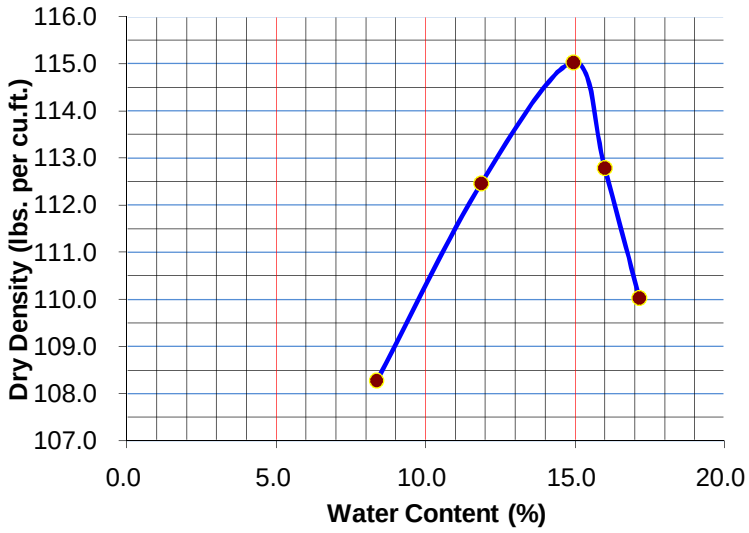
MOISTURE CONTENT DETERMINATION

Test No.	1	2	3	4	5	6	7
Can No.	1	2	3	4	5	6	
Wt. of Can, a, (g)	20.5	20.5	20.6	20.5	20.6		
Wt. of Can + Wet Soil, b, (g)	81.4	84.6	67.5	82.1	83.0		
Wt. of Can + Dry Soil, c, (g)	76.7	77.8	61.4	73.6	73.9		
* Moisture Content, w, (%)	8.4	11.9	14.9	16.0	17.2		

* Moisture Content, w = (b - c)/(c - a) x 100

Maximum Dry Density (Lb/Cu-Ft):
Optimum Moisture Content (%):

Birmingham Coal & Coke Co., Inc
Old Union #2 Mine, Basin 003, Dam Material
Moisture Density Relationship
(Proctor Method)



ASTM D-698 Method C	Water Content %	Specific Gravity	%> No. 4	%< No. 200	LL %	PL %	PI %
			23.30	12.80	25.0	23.0	2.0

Sample Description, Classification and Location	Sample No.:	Basin 003 Dam Material
Coarse Grained Silty Sand (SM)	Optimum Moisture Content=	14.9
	Maximum Dry Density =	115.0

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke
Location: Old Union #2 Mine
Sample I.D.: Basin 003
Description: Dam Material

Sample Date: 7/11/11
Analyzed By: KF/GA
Date Analyzed: 7/13/11
Requested By: J.R.W.

Weight of Oven Dry Sample (W): **1235.0 Grams**

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	581.0	540.0	41.0	3.3	3.3	3.3	96.7
4	759.0	513.0	246.0	20.0	23.3	23.3	76.7
10	758.0	462.0	296.0	24.0	47.3	47.3	52.7
40	762.0	383.0	379.0	30.8	78.1	78.1	21.9
200	445.9	333.0	112.9	9.2	87.2	87.2	12.8
Pan	519.1	362.0	157.1	12.8	100.0	100.0	0.0
		Total Weight (W1):	1232.0				

SOIL CLASSIFICATION

Unified System (ASTM D-2487)

Liquid Limit: 25.0
Plastic Limit: 23.0
Plasticity Index: 2.0

Soil Classification: **SM**

Coarse Grained
Silty Sand

Effective Cohesion: 1.8750 psi
Total Cohesion: 6.528 psi
Permeability: 12.30 ft/yr
Maximum Dry Density: 115.0 pcf
Optimum Moisture: 14.9 %
Effective Cohesion: 270.0 psf
Angle of Internal Friction: 33.02 degrees
Mass Unit Weight: 132.14 pcf

SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Birmingham Coal & Coke
Location: Old Union #2 Mine
Sample I.D.: Basin 003
Description: Foundation

Sample Date: 7/11/11
Analyzed By: KF/GA
Date Analyzed: 7/13/11
Requested By: J.R.W.

Weight of Oven Dry Sample (W): **1199.0 Grams**

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
3/4"	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1/2"	540.8	540.0	0.8	0.1	0.1	0.1	99.9
4	603.0	513.0	90.0	7.5	7.6	7.6	92.4
10	722.0	462.0	260.0	21.8	29.4	29.4	70.6
40	505.0	383.0	122.0	10.2	39.6	39.6	60.4
200	656.7	333.0	323.7	27.1	66.7	66.7	33.3
Pan	760.3	362.0	398.3	33.3	100.0	100.0	0.0
		Total Weight (W1):	1194.8				

SOIL CLASSIFICATION

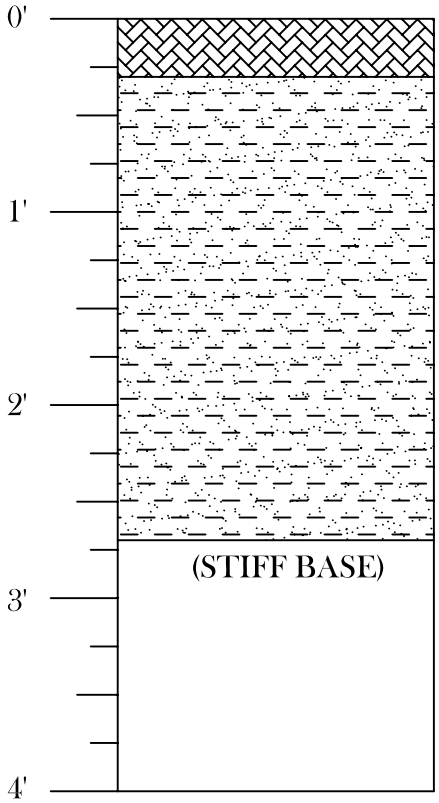
Unified System (ASTM D-2487)

Liquid Limit: 26.5
Plastic Limit: 22.2
Plasticity Index: 4.3

Soil Classification: **SM-SC**

Coarse Grained
Silty, Clayey Sanc

Effective Cohesion: 1.2500 psi
Total Cohesion: 1.940 psi
Permeability: 1.40 ft/yr
Maximum Dry Density: 120.0 pcf
Optimum Moisture: 13.3 %
Effective Cohesion: 180.0 psf
Angle of Internal Friction: 30.54 degrees
Mass Unit Weight: 135.96 pcf



INTERVAL:	DESCRIPTION:
0' - 0.3'	Surface Material
0.3' - 2.7'	Silty Sand

BIRMINGHAM COAL AND COKE CO., INC.

DRAWN BY: JRW	DATE: 07/19/11	OLD UNION #2 BASIN 003P FOUNDATION INVESTIGATION
APPROVED BY: J.D.M.	DATE: 07/19/11	
SCALE: 1" = 1'	SHEET: 1 OF 1	LYNN & POPLAR SPRINGS USGS QUADRANGLE

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