DSM Design Group, LLC

NEUTRALIZATION POTENTIAL AND ACID-BASE ACCOUNT

Company Name: Birmingham Coal & Coke
Mine Name: Gooden Creek #2
Sample I.D.: OB/MW-1
Sample Date: 09/19/11

Analyzed By: KF/BT
Date Analyzed: 09/21/11

Test I.D.	Sample Interval	pH (s.u.)	HCl (ml)	NaOH (ml)	Neuralizatior Potential	Sulfur (%)	Acid-Base Account
1	0 - 5	4.16	20.0	20.0	0.0	0.1078	-3.368
2	5 - 10	4.09	20.0	19.4	1.5	0.0500	-0.064
3	10 - 15	4.27	20.0	16.6	8.5	0.0496	6.949
4	15 - 20	4.45	20.0	20.0	0.0	0.0000	0.000
5	20 - 25	4.55	20.0	19.6	1.0	0.0290	0.093
6	25 - 30	4.41	20.0	18.6	3.5	0.0195	2.892
7	30 - 35	4.41	20.0	19.6	1.0	0.0281	0.122
8	35 - 40	4.49	20.0	19.4	1.5	0.0352	0.399
9	40 - 45	4.70	20.0	19.8	0.5	0.0000	0.500
10	45 - 50	4.22	20.0	19.6	1.0	0.0791	-1.471
11	50 - 55	6.79	20.0	16.6	8.5	0.1179	4.815
12	55 - 60	7.73	20.0	13.2	17.0	0.0000	17.000
13	60 - 65	7.67	20.0	10.0	25.0	0.0000	25.000
14	65 - 70	6.08	20.0	11.8	20.5	0.6091	1.465
15	70 - 75	7.03	20.0	13.0	17.5	0.2153	10.771
16	75 - 80	7.30	20.0	12.0	20.0	0.0209	19.346
17	80 - 85	7.46	20.0	11.2	22.0	0.0000	22.000
18	85 - 90	6.64	20.0	15.0	12.5	0.4423	-1.321
19	90 - 95	7.64	20.0	13.6	16.0	0.0010	15.968
20	95 - 100	7.68	20.0	13.6	16.0	0.0182	15.432
21	100 - 105	7.95	20.0	16.0	10.0	0.0000	10.000
22	105 - 110	7.99	20.0	17.0	7.5	0.0000	7.500
23	110 - 115	7.93	20.0	19.0	2.5	0.0000	2.500
24	115 - 120	7.74	20.0	18.0	5.0	0.0000	5.000
25	120 - 125	7.71	20.0	18.6	3.5	0.0000	3.500

Constant (C) = (ml acid added in blank)/(ml base added in blank
ml acid consumed = (ml acid added) - (ml base added x C
Tons CaCO3 equiv./1000 tons of mat. = acid consumed x 25.0 x (N of acid)
Acid-Base Account = (%Sulfur x -31.25) + Neutralization Potentia

DSM Design Group, LLC

TOTAL SULFUR

Company Name: Birmingham Coal & Coke
Mine Name: Gooden Creek #2
Sample I.D.: OB/MW-1
Sample Date: 09/19/11

Analyzed By: KF/BT
Date Analyzed: 09/21/11

Test I.D.	Sample Interval	Weight (g)	NaOH (ml)	meq H+/100g (meq)	Sulfur (%)
1	0 - 5	1.8658	1.9	10.2	0.1078
2	5 - 10	1.8409	1.3	7.1	0.0500
3	10 - 15	1.5625	1.1	7.0	0.0496
4	15 - 20	1.8482	0.8	4.3	0.0000
5	20 - 25	1.6878	1.0	5.9	0.0290
6	25 - 30	1.4791	0.8	5.4	0.0195
7	30 - 35	1.7020	1.0	5.9	0.0281
8	35 - 40	1.5970	1.0	6.3	0.0352
9	40 - 45	2.3844	0.8	3.4	0.0000
10	45 - 50	1.8539	1.6	8.6	0.0791
11	50 - 55	1.6773	1.8	10.7	0.1179
12	55 - 60	1.8641	0.1	0.5	0.0000
13	60 - 65	1.5035	0.2	1.3	0.0000
14	65 - 70	2.1458	8.0	37.3	0.6091
15	70 - 75	1.7504	2.8	16.0	0.2153
16	75 - 80	1.8219	1.0	5.5	0.0209
17	80 - 85	2.0981	0.2	1.0	0.0000
18	85 - 90	1.9460	5.5	28.3	0.4423
19	90 - 95	2.2664	1.0	4.4	0.0010
20	95 - 100	2.2477	1.2	5.3	0.0182
21	100 - 105	2.0397	0.4	2.0	0.0000
22	105 - 110	1.6304	0.1	0.6	0.0000
23	110 - 115	2.1248	0.4	1.9	0.0000
24	115 - 120	1.8941	0.1	0.5	0.0000
25	120 - 125	1.9177	0.1	0.5	0.0000

meq H+/100g = (ml NaOH) x (N NaOH) x (100g/weight of sample)
% S = 0.0185 (meq H+/100g) - 0.0806 (Grube, et al., 1973).

DSM Design Group, LLC

NEUTRALIZATION POTENTIAL AND ACID-BASE ACCOUNT

Company Name: Birmingham Coal & Coke
Mine Name: Gooden Creek #2
Sample I.D.: OB/MW-2
Sample Date: 09/19/11

Analyzed By: KF/BT
Date Analyzed: 09/21/11

Test I.D.	Sample Interval	pH (s.u.)	HCl (ml)	NaOH (ml)	Neuralizatior Potential	Sulfur (%)	Acid-Base Account
1	0 - 5	4.73	20.0	20.0	0.0	0.0698	-2.181
2	5 - 10	5.26	20.0	20.2	-0.5	0.0532	-2.163
3	10 - 15	5.19	20.0	20.8	-2.0	0.0379	-3.185
4	15 - 20	3.95	20.0	20.6	-1.5	0.0462	-2.944
5	20 - 25	4.68	20.0	19.0	2.5	0.0537	0.823
6	25 - 30	6.21	20.0	15.4	11.5	0.0344	10.424
7	30 - 35	6.50	20.0	14.8	13.0	0.0418	11.693
8	35 - 40	5.99	20.0	14.8	13.0	0.0028	12.912
9	40 - 45	6.08	20.0	14.0	15.0	0.0661	12.934
10	45 - 50	6.33	20.0	15.0	12.5	0.0984	9.426
11	50 - 53	6.14	20.0	14.0	15.0	0.1839	9.254
12	53 - 55	Coal Seam					
13	55 - 60	4.33	20.0	19.0	2.5	0.1112	-0.975
14	60 - 65	5.16	20.0	18.0	5.0	0.0656	2.950
15	65 - 70	5.49	20.0	20.0	0.0	0.0000	0.000
16	70 - 75	6.93	20.0	19.0	2.5	0.0000	2.500
17	75 - 80	6.59	20.0	19.6	1.0	0.0000	1.000
18	80 - 85	5.62	20.0	19.0	2.5	0.0122	2.118
19	85 - 90	5.68	20.0	17.6	6.0	0.0000	6.000
20	90 - 95	6.14	20.0	16.4	9.0	0.0000	9.000
21	95 - 100	5.28	20.0	17.0	7.5	0.1588	2.536
22	100 - 105	5.93	20.0	18.4	4.0	0.0000	4.000
23	100 - 105	6.85	20.0	17.2	7.0	0.0000	7.000
24	100 - 105	7.25	20.0	8.2	29.5	0.0000	29.500
25	100 - 105	7.38	20.0	13.2	17.0	0.0000	17.000
26	100 - 105	7.43	20.0	17.8	5.5	0.0000	5.500

Constant (C) = (ml acid added in blank)/(ml base added in blank
ml acid consumed = (ml acid added) - (ml base added x C
Tons CaCO3 equiv./1000 tons of mat. = acid consumed x 25.0 x (N of acid)
Acid-Base Account = (%Sulfur x -31.25) + Neutralization Potentia

DSM Design Group, LLC

TOTAL SULFUR

Company Name: Birmingham Coal & Coke
Mine Name: Gooden Creek #2
Sample I.D.: OB/MW-2
Sample Date: 09/19/11

Analyzed By: KF/BT
Date Analyzed: 09/21/11

Test I.D.	Sample Interval	Weight (g)	NaOH (ml)	meq H+/100g (meq)	Sulfur (%)
1	0 - 5	1.7223	1.4	8.1	0.0698
2	5 - 10	1.9355	1.4	7.2	0.0532
3	10 - 15	1.8729	1.2	6.4	0.0379
4	15 - 20	1.7507	1.2	6.9	0.0462
5	20 - 25	1.9291	1.4	7.3	0.0537
6	25 - 30	1.9298	1.2	6.2	0.0344
7	30 - 35	1.5111	1.0	6.6	0.0418
8	35 - 40	1.7743	0.8	4.5	0.0028
9	40 - 45	1.7653	1.4	7.9	0.0661
10	45 - 50	1.6538	1.6	9.7	0.0984
11	50 - 53	1.5390	2.2	14.3	0.1839
12	53 - 55	Coal Seam			
13	55 - 60	1.1574	1.2	10.4	0.1112
14	60 - 65	1.7716	1.4	7.9	0.0656
15	65 - 70	1.6804	0.6	3.6	0.0000
16	70 - 75	1.5889	0.2	1.3	0.0000
17	75 - 80	1.1718	0.4	3.4	0.0000
18	80 - 85	1.5946	0.8	5.0	0.0122
19	85 - 90	1.5692	0.4	2.5	0.0000
20	90 - 95	1.4062	0.6	4.3	0.0000
21	95 - 100	1.5453	2.0	12.9	0.1588
22	100 - 105	1.8188	0.4	2.2	0.0000
23	100 - 105	1.8029	0.2	1.1	0.0000
24	100 - 105	1.3879	0.6	4.3	0.0000
25	100 - 105	1.5805	0.2	1.3	0.0000
26	100 - 105	1.5411	0.4	2.6	0.0000

meq H+/100g = (ml NaOH) x (N NaOH) x (100g/weight of sample)
% S = 0.0185 (meq H+/100g) - 0.0806 (Grube, et al., 1973).

TABLE I

PERC ENGINEERING CO., INC.

CIVIL ENGINEERS & LAND SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

P.O. BOX 1712
JASPER, ALABAMA 35502

COMPANY NAME: Lost Creek Coal

MINE NAME: Mine #6

DRILL HOLE: DH-4

COLLECTED BY/DATE: SRI 5-01-90

ANALYZED BY/DATE: MW & PS 9-18-90

-All analysis performed according to EPA standards. INDEX: 82

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING?
0.00	5.00	4.810	0.012	0.375	0.000	-0.375	N
5.00	10.00	4.920	0.007	0.218	2.250	2.031	N
10.00	15.00	5.990	0.539	16.843	5.250	-11.593	Y
15.00	20.00	6.460	0.155	4.843	4.750	-0.093	N
20.00	25.00	6.750	0.045	1.406	9.250	7.843	N
25.00	30.00	7.230	0.037	1.156	8.250	7.093	N
30.00	35.00	7.220	0.048	1.500	7.750	6.250	N
35.00	40.00	7.110	0.078	2.437	6.500	4.062	N
40.00	45.00	6.870	0.048	1.500	7.500	6.000	N
45.00	50.00	6.970	0.046	1.437	7.250	5.812	N
50.00	51.00		0.480	15.000	0.000	-15.000	Y
51.00	55.00	7.370	0.045	1.406	8.000	6.593	N
55.00	60.00	7.430	0.046	1.437	8.000	6.562	N
**AVERAGE		6.433	0.102	3.172	5.875	2.703	N

*Calculated in tons CaCo3 per 1000 tons of material
**Averages do not include coal seams to be mined or intervals below lowest seam.

2002
SURF
COMMISSION

TABLE 2

Phone (205) 674-0677

Precision Testing Laboratory, Inc.

P. O. Box 551
5505 Adamsville Parkway
Adamsville, Alabama 35005

ANALYSIS NO: 114499

DATE: 9-19-90

PERC ENGINEERING

IDENTIFICATION: LOST CREEK COAL #6
DH-4 50'-51' COAL

	DRY BASIS	AS RECEIVED
MOISTURE TOTAL		
VOLATILE MATTER		
ASH		
FIXED CARBON		
SULFUR	.48	
FREE SWELLING INDEX		
BTU		
OXIDATION INDEX =	% TRANSMITTANCE	

PLASTOMETER

DDPM	
MAXIMUM FLUID TEMP.	°C
INITITAL TEMP	°C
SOLIDIFICATION TEMP.	°C
RANGE TEMP.	°C

ASH FUSION TEST

INITIAL DEFORMATION TEMP	°F
SOFTENING TEMP.	°F
HEMISPHERICAL TEMP.	°F
FLUID TEMP.	°F

CHARGE: $14.00

FLOAT SINK TEST

	SP. GR.
FLOAT	%
SINK	%
GRINDABILITY INDEX =	
SO_2 LBS./MILLION BTU	
MOIST. FREE ASH FREE BTU	

SCREEN TEST

RETAINED %	ACCUMULATIVE%

PRECISION TESTING LABORATORY, INC.

BY Henry L. Sims
ASTM SPECIFICATIONS

PERC ENGINEERING CO., INC.
CIVIL ENGINEERS & LAND SURVEYORS

TELEPHONE (205) 384-5553
FACSIMILE (205) 384-9491

P.O. BOX 1712
JASPER, ALABAMA 35502

COMPANY NAME: Lost Creek Coal

MINE NAME: Mine #6

DRILL HOLE: DH-8

COLLECTED BY/DATE: SRI 5-01-90

ANALYZED BY/DATE: MW & PS 9-06-90

-All analysis performed according to EPA standards. INDEX: 81

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING?
0.00	5.00	4.070	0.015	0.468	0.000	-0.468	N
5.00	10.00	4.530	0.015	0.468	0.000	-0.468	N
10.00	15.00	4.350	0.017	0.531	0.000	-0.531	N
15.00	20.00	4.380	0.016	0.500	0.000	-0.500	N
20.00	25.00	6.500	0.040	1.250	6.250	5.000	N
25.00	30.00	6.770	0.625	19.531	8.250	-11.281	Y
30.00	35.00	6.590	0.067	2.093	7.500	5.406	N
35.00	40.00	6.800	0.028	0.875	8.750	7.875	N
40.00	45.00	6.760	0.027	0.843	6.500	5.656	N
45.00	50.00	7.090	0.025	0.781	8.750	7.968	N
50.00	55.00	7.390	0.024	0.750	8.500	7.750	N
55.00	57.00	7.320	0.031	0.968	8.750	7.781	N
57.00	58.08		0.500	15.625	0.000	-15.625	Y
58.08	65.00	7.470	0.053	1.656	3.000	1.343	N
**AVERAGE		5.978	0.080	2.498	5.087	2.589	N

*Calculated in tons CaCo3 per 1000 tons of material
**Averages do not include coal seams to be mined or intervals below lowest seam.

TABLE 2

Phone (205) 674-0677

No 3851

Precision Testing Laboratory, Inc.

P. O. Box 551
5505 Adamsville Parkway
Adamsville, Alabama 35005

ANALYSIS NO: 114501

DATE: 9-19-90

PERC ENGINEERING

IDENTIFICATION: LOST CREEK MINE #6
DH-8 57-58.08 COAL

	DRY BASIS	AS RECEIVED
MOISTURE TOTAL		
VOLATILE MATTER		
ASH		
FIXED CARBON		
SULFUR	.50	
FREE SWELLING INDEX		
BTU		
OXIDATION INDEX =	% TRANSMITTANCE	

PLASTOMETER

DDPM	
MAXIMUM FLUID TEMP.	°C
INITITAL TEMP	°C
SOLIDIFICATION TEMP.	°C
RANGE TEMP.	°C

ASH FUSION TEST

INITIAL DEFORMATION TEMP	°F
SOFTENING TEMP.	°F
HEMISPHERICAL TEMP.	°F
FLUID TEMP.	°F

FLOAT SINK TEST

	SP. GR.
FLOAT	%
SINK	%
GRINDABILITY INDEX =	
SO_2 LBS./MILLION BTU	
MOIST. FREE ASH FREE BTU	

SCREEN TEST

RETAINED %	ACCUMULATIVE%

PRECISION TESTING LABORATORY, INC.

BY Henry L. Sims

ASTM SPECIFICATIONS

CHARGE: $14.00