

APPENDIX B

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Appendix B presents the lithologic, chemical and physical descriptions of the overburden in the coal resource areas for the life-of-mine plans. The locations of the deep, shallow and highwall cores used to characterize the overburden are shown on Drawings 85613 and 85613A.

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J-28 MINING AREA

(DEEP CORES)

DEPTH (cm)	CORRECTION	SAMPLE NO.	SATURATION %	SAR	SOL. Na.	SOL. Ca.	SOL. Mg	%S	pH
			(MOISTURE)	(ASH)		(BTU)			
0		1	55.2	1.5	5.9	16.7	12.6	< 0.06	6.6
		2	59.2	1.6	7.2	22.3	16.4	0.08	4.2
10		3	49.9	1.6	6.0	13.0	16.6	0.07	4.2
		4	37.5	2.1	9.9	17.4	27.3	< 0.06	5.7
20		-	-	12.6	-	11,662	-	2.82	4.7
		5	54.4	5.6	17.0	9.5	9.0	< 0.06	6.2
30		6	66.2	18.3	31.6	4.0	1.9	< 0.06	6.4
		7	63.5	22.2	47.8	6.3	3.0	< 0.06	5.9
40		8	66.2	21.1	20.8	1.1	0.9	< 0.06	6.6
50		-	-	5.7	-	12,932	-	0.87	7.7
		9	64.2	32.4	21.8	0.7	0.2	< 0.06	6.5
60		10	63.4	17.8	20.2	1.4	1.2	< 0.06	7.9
		11	32.9	37.7	40.5	1.3	1.1	< 0.06	7.3
70		12	64.3	16.3	21.9	1.7	1.9	< 0.06	8.3
		13	70.7	10.8	15.8	2.3	2.0	< 0.06	8.7
80		14	75.1	17.4	25.2	3.1	1.1	< 0.06	8.3
90		15	38.4 517	17.4	23.6	2.5 Revised 11/21/03	1.2	< 0.06	8.2

HOLE # 23155C

DEPTH (FEET)	DESCRIPTION	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL. Na. (BTU)	SOL. Ca. (BTU)	SOL. Mg (BTU)	%S	pH
90									
95		16	54.3	12.9	54.3	23.4	4.0	< 0.06	8.0
105		-	-	9.6	-	12,351	-	0.56	7.9
115		17	70.9	13.9	15.6	1.4	1.1	< 0.06	9.0
120		-	-	5.12	-	13,034	-	0.52	7.9
125		18	72.2	14.4	23.7	3.5	1.9	< 0.06	5.6
135		-	-	31.4	-	9,155	-	1.32	7.3
140		19	41.3	13.1	19.6	3.2	1.3	< 0.06	
145		20	57.5	8.6	9.4	1.4	1.0	< 0.06	8.2
150		21	36.9	21.6	31.8	2.4	2.0	< 0.06	8.4
155		22	71.9	12.5	14.0	1.7	0.8	< 0.06	7.9
160									
170									
180									

PEABODY COAL COMPANY
Central Laboratory

Township: 36N
Range: 19E
Date Cored:

Mine: Kayenta
Core: 23155-C
Section: 35

Lithology	Depth Ft.	Thickness Ft.	Lab No.	pH	Conduc- tivity Ppm	Sat. %	Saturation Extract			ESP	NaHCO ₃ * P ppm	NH ₄ OAc K ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l				
Silty shale	0.0	4.0	1	6.6	3.7	55.2	5.9	16.7	12.6	1.5	6.6	114.4	15
Silty shale	4.0	4.0	2	4.2	5.0	59.4	7.2	22.3	16.4	1.6	4.2	151.2	2
Silty shale	8.0	4.0	3	4.2	3.5	49.9	6.0	13.0	16.6	1.6	4.2	183.3	2
Sandstone	12.0	5.4	4	5.7	6.5	37.5	9.9	17.4	27.3	2.1	5.7	82.7	159
Coal	17.4	2.7	--										
Shale/Sandstone	20.1	7.7	5	6.2	4.2	54.4	17.0	9.5	9.0	5.6	6.2	164.8	179
Shale	27.8	8.5	6	6.4	4.5	66.2	31.6	4.0	1.9	18.3	6.4	484.3	105
Shale	36.3	8.5	7	5.9	6.7	63.5	47.8	6.3	3.0	22.2	5.9	359.6	105
Coal/Shale	44.8	7.2	8	6.6	2.7	66.2	20.8	1.1	0.9	21.1	6.6	419.2	109
Shaley coal	52.0	3.8	--										
Shale/Sandstone	55.8	2.7	9	6.5	2.6	64.6	21.8	0.7	0.2	32.4	6.5	192.5	46
Shale/Silty shale	58.5	5.5	10	7.9	2.7	63.4	20.2	1.4	1.2	17.8	7.9	306.3	142
Sandstone	64.0	3.3	11	7.3	5.2	32.9	40.5	1.3	1.1	37.7	7.3	162.5	78
Shale/Coal	67.3	5.8	12	8.3	3.0	64.3	21.9	1.7	1.9	16.3	8.3	322.9	105
Shale	73.1	6.1	13	8.7	2.5	70.7	15.8	2.3	2.0	10.8	8.7	518.6	114
Shale	79.2	6.0	14	8.3	3.3	75.1	25.2	3.1	1.1	17.4	8.3	417.7	101
Sandstone	85.2	8.8	15	8.2	2.9	38.4	23.6	2.5	1.2	17.4	8.2	94.3	114
Siltstone/Shale	94.0	7.4	16	8.0	3.2	54.3	23.4	4.0	2.6	12.9	8.0	256.2	98
Coal	101.4	12.6	--										
Siltstone/Shale	114.0	2.4	17	9.0	2.2	70.9	15.6	1.4	1.1	13.9	9.0	235.9	109
Shaley coal	116.4	2.6	--										
Shale	119.0	6.0	18	8.6	3.5	72.2	23.7	3.5	1.9	14.4	8.6	782.1	98

Dry Basis
Total-N is Sum of NH₄-N and NO₃-N
*NH₄ - Nitrogen

Mine: Kayenta
 Core: 23155-C
 Section: 35
 Township: 36N
 Range: 19E
 Date Cored:

PEABODY COAL COMPANY
 Central Laboratory

Lithology	Depth Fe.	Thickness Fe.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	SATURATION EXTRACT			SAR	ESP	NaHCO ₃ p ppm	NH ₄ OAc ppm	Total N ppm
							Na mg/l	Ca mg/l	Mg mg/l					
Shaley coal	125.0	5.2	--	7.6	2.8	41.3	19.6	3.2	1.3	13.1	15.1	7.6	143.4	60
Silty sandstone	130.2	5.3	19	8.2	1.2	57.5	9.4	1.4	1.0	8.6	10.2	8.2	182.0	34
Coal/Sandstone/Shale	135.5	7.3	20	8.4	4.1	36.9	31.8	2.4	2.0	21.6	22.0	8.4	121.0	98
Sandstone	142.8	3.4	21	7.9	1.8	71.9	14.0	1.7	0.8	12.5	13.0	7.9	518.9	27
Shale/coal	146.2	5.4	22											

†Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N
 *NH₄
 † - N=2ppm and NO₃ - N=1ppm

Central Laboratory

Mine: Kayenta
 Core: 23155-C
 Date Cored:

Township: 36N
 Range: 19E
 Section: 35

*Tons of CaCO₃ Equivalent per
 1000 Tons Material

Lab No.	*Dry Basis			*Tons of CaCO ₃ Equivalent per 1000 Tons Material				* % Organic Matter	Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)			
	%	*	Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutral-ity	Excess CaCO ₃ Equiv.		%	Sand	%	Silt	%		Clay	1/3 BAR	15 BAR
1	<0.06			1.88	7.77		5.89	5.2	26.7	43.4	29.8	30.1	16.9	13.2			
2	0.08			2.52	0.00	2.52		2.1	29.0	38.1	32.9	34.5	14.4	20.1			
3	0.07			2.14	0.00	2.14		4.5	19.5	41.0	39.5	35.6	16.5	19.1			
4	<0.06			1.88	18.90		17.02	2.1	72.4	15.2	12.4	21.5	8.0	13.5			
--																	
5	<0.06			1.88	25.76		23.88	3.9	49.5	16.4	34.1	37.8	19.0	18.8			
6	<0.06			1.88	8.33		6.45	10.2	39.7	16.6	43.7	42.4	26.9	15.5			
7	<0.06			1.88	8.30		6.42	9.1	25.5	20.1	54.4	48.4	26.3	22.1			
8	<0.06			1.88	6.89		5.01	14.3	37.2	20.0	42.8	47.2	23.8	23.4			
--																	
9	<0.06			1.88	6.45		4.57	3.5	49.5	12.0	38.5	33.3	16.4	16.9			
10	<0.06			1.88	3.74		1.86	3.8	11.2	50.1	38.6	41.9	18.5	23.4			
11	<0.06			1.88	23.52		21.64	2.2	73.2	18.3	8.5	20.8	7.3	13.5			
12	<0.06			1.88	5.05		3.17	15.1	37.6	13.6	48.8	39.8	21.1	18.7			
13	<0.06			1.88	6.05		4.17	4.2	41.8	16.9	41.3	43.1	26.5	16.6			
14	<0.06			1.88	4.55		2.67	4.0	39.6	12.8	47.6	41.6	23.0	18.6			
15	<0.06			1.88	48.85		46.97	1.5	62.3	21.2	16.5	21.2	8.8	12.4			
16	<0.06			1.88	18.85		16.97	4.1	34.7	36.2	29.0	31.1	16.1	15.0			
--																	
17	<0.06			1.88	21.24		19.36	3.9	14.8	50.1	35.1	38.7	20.4	18.3			
--																	
18	<0.06			1.88	15.00		13.34	4.0	21.8	37.7	48.0	43.0	21.0	14.0			

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Revised 11/21/03

Central Laboratory

Mine: Kayenta
 Core: 23155-C
 Date Cored:

Township: 36N
 Range: 19E
 Section: 35

Lab No.	*Dry Basis			*Tons of CaCO ₃ Equivalent per 1000 Tons Material					Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)	
	% * Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutral-ity	Excess CaCO ₃ Equiv.	% Organic Matter	% Sand	% Silt	% Clay	1/3 BAR	15 BAR				
--															
19			<0.06	1.88	6.01		4.13	2.6	47.9	42.7	9.4	24.3	10.8	13.5	
20			<0.06	1.88	1.43	0.45		14.7	2.5	65.9	31.6	33.6	16.4	17.2	
21			<0.06	1.88	24.84		22.96	1.4	46.2	49.1	4.7	20.7	7.5	13.2	
22			<0.06	1.88	2.34		0.46	15.1	42.9	16.7	40.3	44.3	26.7	17.6	

Revised 11/21/03

522

LE NO 23329C

DRILLER G. Hopkins

CATION

DATE DRILLED 5/19/81

SUB AREA J-28

DEPTH	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL. Na. (BTU)	SOL. Ca. (BTU)	SOL. Mg	%S	pH
0	23	72.5	3.4	5.1	3.5	1.0	<0.06	7.9
	24	63.4	8.2	22.6	8.7	6.3	<0.06	7.3
10	25	35.0	8.6	27.8	14.5	6.2	<0.06	7.2
	26	41.7	6.6	24.9	16.1	12.4	<0.06	7.2
20	27	57.9	6.8	24.4	12.1	13.6	<0.06	7.2
	28	69.1	8.5	14.5	2.6	3.2	<0.06	7.9
30	29	59.3	9.6	14.5	2.2	2.4	<0.06	8.2
	30	37.9	11.6	20.8	2.4	4.0	<0.06	7.9
40	31	70.1	8.5	10.5	1.2	1.9	<0.06	8.7
	32	32.2	30.6	24.6	0.4	0.9	<0.06	8.2
50	33	36.1	23.2	28.9	2.1	1.0	<0.06	7.4
	34	68.0	43.2	23.8	0.4	0.2	<0.06	7.5
60	35	37.0	20.0	24.6	2.3	0.8	<0.06	7.7
70	36	72.9	51.2	28.8	0.4	0.2	<0.06	7.5
80			6.4		12,864		0.49	7.8
		523			Revised	11/21/03		
	37	72.1	15.8	15.3	1.1	0.8	<0.06	8.7

E NO. 23329C

DRILLER G. Hopkins

LOCATION _____

DATE DRILLED 5/19/81

SUB AREA J-28

EVA ON _____

SAMPLE NO. SATURATION % (MOISTURE) SAR (ASH) SOL.Na. SOL.Ca. SOL.Mg (BTU) %S

DEPTH	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	
90	-	-	5.8	-	12,921	-	0.45	7.8
95	38	69.3	13.4	20.0	2.7	1.8	0.11	8.2
100	39	68.2	33.1	31.3	1.3	0.5	0.06	7.7
110	40	22.7	12.4	13.5	1.3	1.1	< 0.12	8.3
115	41	37.1	9.2	19.1	7.0	1.7	< 0.06	7.0
120								
130								
140								
150								
160								
170								

Mine: Kayenta
Core: 23329-C
Section: 35

Township: 36N
Range: 19E
Date Cored: 5/19/81

PLAERDY COAL COMPANY
Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc-tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ P ppm	NH ₄ OAc. R ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l					
Surface soil	0.0	2.0	23	7.9	1.1	72.5	5.1	3.5	1.0	3.4	4.1	7.9	400.4	33
Surface soil	2.0	2.0	24	7.3	3.7	63.4	22.6	8.7	6.3	8.2	8.5	7.3	213.5	44
Sandstone	4.0	8.0	25	7.2	4.8	35.0	27.8	14.5	6.2	8.6	11.2	7.2	106.7	24
Siltstone	12.0	4.5	26	7.1	5.2	41.7	24.9	16.1	12.4	6.6	8.4	7.1	102.8	19
Shale/Sandstone	16.5	4.3	27	7.2	5.9	57.9	24.4	12.1	13.6	6.8	7.6	7.2	107.0	17
Shale/Silty shale	20.8	6.2	28	7.9	2.1	69.1	14.5	2.6	3.2	8.5	9.8	7.9	250.1	23
Shale/Silty shale	27.0	6.3	29	8.2	1.9	59.3	14.5	2.2	2.4	9.6	10.8	8.2	213.9	33
Sandstone	33.3	3.8	30	7.9	2.9	37.9	20.8	2.4	4.0	11.6	15.3	7.9	163.2	34
Shale	37.1	2.9	31	8.7	1.7	70.1	10.5	1.2	1.9	8.5	9.0	8.7	609.9	53
Sandstone/Shale	40.0	4.0	32	8.2	3.2	32.2	24.6	0.4	0.9	30.6	34.6	8.2	210.3	49
Sandstone	44.0	8.8	33	7.4	3.3	36.1	28.9	2.1	1.0	23.2	27.1	7.4	208.4	154
Shale	52.8	8.7	34	7.5	2.7	68.0	23.8	0.4	0.2	43.2	33.4	7.5	816.9	43
Sandstone	61.5	9.5	35	7.7	2.9	37.0	24.6	2.3	0.8	20.0	22.0	7.7	227.4	166
Shale	71.0	6.9	36	7.5	3.1	72.9	28.8	0.4	0.2	51.2	36.5	7.5	1103.2	94
Coal	77.9	6.5	--											
Shale	84.4	5.6	37	8.7	2.1	72.1	15.3	1.1	0.8	15.8	18.2	8.7	637.5	179
Coal	90.0	5.3	--											
Shale/Coal	95.3	3.8	38	8.2	2.6	69.3	20.0	2.7	1.8	13.4	16.2	8.2	460.0	91
Shale	99.1	8.9	39	7.7	3.2	68.2	31.3	1.3	0.5	33.1	29.8	7.7	597.7	37
Coal	108.0	2.5	40	8.3	1.8	22.7	13.5	1.3	1.1	12.4	16.1	8.3	324.5	15
Silty sandstone	110.5	5.8	41	7.0	3.0	37.1	19.1	7.0	1.7	9.2	11.9	7.0	140.2	72

8/11/21/03

*Dry Basis
Total-N is Sum of NH₄-N and NO₃-N
**NH₄ - N < 2ppm and NO₃ - N < 1ppm

LAUREL COAL COMPANY
Central Laboratory

Mine: Kayenta Township: 36N
Core: 23329-C Range: 19E
Date Corred: 5/19/81 Section: 35

Lab No.	Dry Basis	Sulfur	*Tons of CaCO ₃ Equivalent per 1000 Tons Material				* % Organic Matter	Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
			Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.		% Sand	% Silt	% Clay	1/3 BAR	15 BAR	
23		40.06	1.88	17.94		16.06	2.3	28.6	31.6	39.8	41.4	23.9	17.5
24		40.06	1.88	11.00		9.12	1.9	32.0	22.1	45.8	45.3	24.1	21.2
25		40.06	1.88	6.91		5.03	1.8	59.4	28.9	11.8	21.5	7.6	13.9
26		40.06	1.88	68.49		66.61	0.8	34.2	52.4	13.5	27.9	13.1	14.8
27		40.06	1.88	6.94		5.06	0.4	46.5	14.9	38.6	40.7	16.5	24.2
28		40.06	1.88	2.75		0.87	0.6	18.0	35.3	46.7	40.2	18.8	21.4
29		40.06	1.88	8.31		6.43	0.6	19.0	46.1	35.0	39.6	19.9	19.7
30		40.06	1.88	21.63		19.75	1.5	54.5	32.5	13.0	18.1	7.9	10.2
31		40.06	1.88	19.78		17.90	2.0	40.1	5.6	54.4	45.5	26.8	18.7
32		40.06	1.88	17.53		15.65	2.1	74.5	19.0	6.5	18.1	7.2	10.9
33		40.06	1.88	20.16		18.28	1.0	56.8	26.1	17.1	19.2	8.1	11.1
34		40.06	1.88	10.57		8.69	4.7	21.2	24.6	54.3	46.5	26.4	20.1
35		40.06	1.88	20.67		18.79	2.0	52.9	37.8	9.3	19.7	8.5	11.2
36		40.06	1.88	21.64		19.76	4.3	19.2	32.2	48.6	47.0	23.0	24.0
37		40.06	1.88	3.24		1.36	3.7	30.5	14.4	55.1	40.9	25.3	15.6
38		0.11	3.41	10.11		6.70	31.9	32.7	26.8	40.5	42.4	22.6	19.8
39		40.06	1.88	5.99		4.11	4.2	25.9	24.8	49.3	43.7	26.6	17.1
40		0.12	4.10	2.25	1.85		44.5				15.1	3.7	11.4
41		40.06	1.88	6.94		5.06	3.0	50.1	37.9	11.9	26.0	9.3	16.7

*Moistly carbonitic.

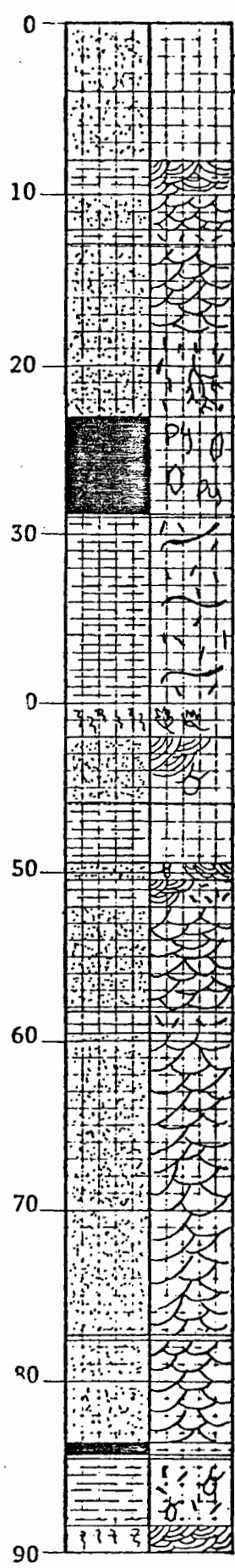
LOCATION
 HOLE # 23330C

DATE DRILLED 5/25/81
 DRILLER G. Hopkins

SUB AREA J-28

DEPTH

SAMPLE NO. SATURATION % (MOISTURE) SAR (ASH) SOL.Na. SOL.Ca. SOL.Mg (BTU) Σ S pH



0	42	31.8	8.1	71.4	5.0	4.2	<0.06	7.4
	43	35.1	5.9	49.4	35.6	104.1	<0.06	7.2
	44	63.1	4.8	30.3	24.9	55.4	<0.06	7.2
10	45	57.2	5.5	28.5	13.9	40.0	<0.06	7.1
	46	38.2	4.3	25.1	23.4	46.2	<0.06	7.0
20			7.0	-	12,827	-	0.63	6.7
	47	65.8	21.4	20.9	1.1	0.9	<0.06	8.5
30								
	48	37.5	20.5	28.6	2.1	1.8	<0.06	8.8
40								
	49	62.0	12.2	25.3	4.7	3.9	<0.06	8.8
50								
	50	36.5	19.4	27.3	2.2	1.8	<0.06	8.3
60								
70								
80								
90								

PEARBLY COAL COMPANY
Central Laboratory

Township: 36N
Range: 19E
Date Cored: 5-25-81

Mine: Kayenta
Core: 2330-C
Section: 35

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	Saturation Extract			ESP	NaHCO ₃ P ppm	NH ₄ OAC K ppm	Total L ppm
							Na meg/l	Ca meg/l	Mg meg/l				
Sandstone	0.0	2.0	42	7.4	3.7	31.8	17.4	5.0	4.2	9.5	411.8	72	
Sandstone	2.0	2.0	43	7.2	20.2	35.1	49.4	35.6	104.1	7.4	150.3	51	
Sandstone/Shale	4.0	6.0	44	7.2	13.3	63.1	30.3	24.9	55.4	4.9	220.2	21	
Sandstone/Shale	10.0	2.9	45	7.1	9.1	57.2	28.5	13.9	40.0	6.3	111.5	25	
Sandstone	12.9	10.1	46	7.0	9.8	38.2	25.1	23.4	46.2	4.9	96.5	15	
Coal Shale	23.0	5.9	--										
Siltstone/Sandstone	28.9	11.1	47	8.3	2.5	65.8	20.9	1.1	0.9	25.5	397.4	91	
Shale/Sandstone	40.0	5.9	48	8.8	3.4	37.5	28.6	2.1	1.8	25.1	240.4	200	
Sandstone	45.9	6.1	49	8.8	4.0	62.0	25.3	4.7	3.9	14.9	245.9	154	
Sandstone	52.0	6.5	50	8.3	3.2	36.5	27.3	2.2	1.8	23.3	246.3	105	

Revised 11/21/03

† Dry Basis
Total-N is Sum of NH₄-N and NO₃-N
**NH₄ - N=2ppm and NO₃ - N=1ppm

Central Laboratory

Mine: Kayenta
 Core: 23330-C
 Date Cored: 5-25-81

Township: 36N
 Range: 19E
 Section: 35

Lab No.	*Dry Basis		*Tons of CaCO ₃ Equivalent per 1000 Tons Material				Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)	
	% Sulfur	% Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	% Organic Matter	% Sand	% Silt	% Clay	1/3 BAR		15 BAR
42	<0.06	<0.06	1.88	23.53		21.65	1.5	62.2	24.4	13.4	19.3	8.5	10.8
43	<0.06	<0.06	1.88	22.97		21.09	0.7	73.9	12.6	13.5	20.6	8.3	12.3
44	<0.06	<0.06	1.88	2.81		0.93	0.4	42.8	25.2	32.1	40.6	18.2	22.4
45	<0.06	<0.06	1.88	26.19		24.31	0.4	41.7	28.8	29.5	38.5	18.6	19.9
46	<0.06	<0.06	1.88	6.87		4.99	0.7	44.3	49.2	6.5	20.9	8.7	12.2
--													
47	<0.06	<0.06	1.88	3.22		1.34	2.7	41.5	4.6	53.9	40.8	27.3	13.5
48	<0.06	<0.06	1.88	19.78		17.90	1.5	38.0	35.8	26.2	25.5	10.2	15.3
49	<0.06	<0.06	1.88	30.84		28.96	2.4	45.1	21.9	33.1	35.5	18.4	17.1
50	<0.06	<0.06	1.88	5.10		3.22	1.6	66.2	22.0	11.8	21.8	8.8	13.0

WELL NO. 23331C

DRILLER G. Hopkins

LOCATION

DATE DRILLED 6/2/81

SUB AREA J-28

DEPTH

SAMPLE NO. SATURATION % (MOISTURE) SAR (ASH) SOL.Na. SOL.Ca. SOL.Mg (BTU) %S pH

0	51	49.9	1.6	3.2	5.2	2.5	<0.06	7.8
	52	48.5	5.1	12.4	5.1	6.8	<0.06	7.5
	53	73.2	2.4	8.8	7.4	20.7	<0.06	5.5
10	54	51.7	0.9	5.4	13.1	57.7	<0.06	4.4
	55	36.4	0.7	4.0	12.6	44.3	<0.06	5.5
20	56	69.3	0.8	3.7	7.2	36.2	<0.06	5.9
	-	-	6.4	-	12,858	-	0.85	5.6
30	57	75.0	15.5	19.3	1.2	2.0	<0.06	7.6
	58	38.0	27.2	27.9	1.2	1.0	<0.06	7.0
40	59	35.7	15.7	18.5	0.9	1.9	<0.06	7.4
	60	34.9	15.9	18.3	1.1	1.6	<0.06	7.8
50	61	37.3	7.8	26.3	5.3	17.6	<0.06	8.5
60	62	75.9 ⁵³¹	7.0	20.2	4.4	12.2	<0.06	9.0

Revised 11/21/03

HOLE NO. 23331C

DRILLER G. Hopkins

LOCATION _____

DATE DRILLED 6/2/81

SUB AREA J-28

ELEVATION	CORRECTION	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	S	
								%S	
90									
		63	65.0	6.9	18.7	2.9	12.0	< 0.06	
100		64	76.0	5.6	14.8	1.8	12.2	< 0.06	9.1
110		65	35.2	5.9	29.1	11.2	37.3	< 0.06	8.6
120		66	34.5	23.4	25.1	1.3	1.1	< 0.06	6.1
		67	72.4	16.6	50.0	0.6	1.0	< 0.06	8.0
130		68	69.5	12.4	25.1	4.4	3.7	< 0.06	8.6
140		-	-	13.3	-	11,876	-	0.56	7.
		69	74.0	4.2	7.6	2.4	5.0	0.10	8.6
		-	-	13.3	-	11,876	-	0.56	7.2
150		70	71.5	5.3	8.4	2.4	3.0	< 0.06	8.8
160		71	34.5	5.4	8.4	3.2	1.6	< 0.06	8.3
		72	59.5	6.9	7.0	1.5	0.6	< 0.06	8.7
170									
180									

Mine: Kayenta
Core: 23331-C
Section: 27

Township: 36N
Range: 19E
Date Cored: 6/2/81

PEABODY COAL COMPANY
Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc-tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ P ppm	NH ₄ OAc R ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l					
Silty shale	0.0	1.5	51	7.8	1.5	49.9	3.2	5.2	2.5	1.6	1.2	7.8	341.4	22
Siltstone	1.5	3.5	52	7.5	2.6	48.5	12.4	5.1	6.8	5.1	6.4	7.5	308.5	26
Shale	5.0	5.0	53	5.5	3.9	73.2	8.8	7.4	20.7	2.4	2.2	5.5	422.3	10**
Shale/Siltstone	10.0	6.1	54	4.4	8.7	51.7	5.4	13.1	57.7	0.9	0.1	4.4	149.1	20
Siltstone/Sandstone	16.1	6.8	55	5.5	7.2	36.4	4.0	12.6	44.3	0.7	0.1	5.5	173.4	21
Shale	22.9	4.2	56	5.9	4.9	69.3	3.7	7.2	36.2	0.8	0.1	5.9	418.7	70
Coal	27.1	5.9	--	--	--	--	--	--	--	--	--	--	--	--
Shale	33.0	9.8	57	7.6	2.3	75.0	19.3	1.2	2.0	15.5	18.3	7.6	677.7	91
Sandstone	42.8	10.2	58	7.0	3.5	38.0	27.9	1.2	1.0	27.2	29.5	7.0	122.4	15
Sandstone	53.0	10.2	59	7.4	2.6	35.7	18.5	0.9	1.9	15.7	19.1	7.4	301.0	84
Sandstone	63.2	10.2	60	7.8	2.8	34.9	18.3	1.1	1.6	15.9	17.3	7.8	296.9	91
Sandstone	73.4	10.2	61	8.5	5.8	37.3	26.3	5.3	17.6	7.8	10.5	8.5	101.4	208
Shale	83.6	8.9	62	9.0	4.4	75.9	20.2	4.4	12.2	7.0	7.2	9.0	321.0	132
Shale	92.5	8.9	63	9.1	3.5	65.0	18.7	2.9	12.0	6.9	7.8	9.1	308.8	118
Shale	101.4	8.8	64	9.1	2.6	76.0	14.8	1.8	12.2	5.6	5.8	9.1	296.8	105
Sandstone	110.2	5.8	65	8.6	9.1	35.2	29.1	11.2	37.3	5.9	6.8	8.6	97.1	81
Coal/Sandstone	116.0	7.0	66	6.1	2.8	34.5	25.1	1.3	1.1	23.4	26.4	6.1	103.3	91
Shale/Coal/Sandstone	123.0	6.0	67	8.0	1.9	72.4	15.0	0.6	1.0	16.6	20.3	8.0	740.3	62
Shale/Siltstone	129.0	6.9	68	8.6	3.6	69.5	25.1	4.4	3.7	12.4	16.3	8.6	351.3	91
Coal	135.9	5.1	--	--	--	--	--	--	--	--	--	--	--	--
Shale	141.0	3.0	69	8.6	1.2	74.0	7.6	2.4	5.0	4.2	4.5	8.6	533.4	38
Coal	144.0	4.0	--	--	--	--	--	--	--	--	--	--	--	--

*Dry Basis
Total-N is Sum of NH₄-N and NO₃-N

**NH₄ - N < 2ppm and NO₃ - N > 1ppm

6/2/81

Mine: Kayenta
 Core: 23331-C
 Section: 27

Township: 36N
 Range: 19E
 Date Cored: 6/2/81

PIABODY COAL COMPANY
 Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ * P ppm	NH ₄ OAc* K ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l					
Shale	148.0	8.3	70	8.8	1.2	71.5	8.4	2.4	3.0	5.3	6.7	8.8	678.3	38
Sandstone	156.3	7.6	71	8.3	1.6	34.5	8.4	3.2	1.6	5.4	6.1	8.3	148.3	21
Silty shale	163.9	7.8	72	8.7	1.1	59.5	7.0	1.5	0.6	6.9	8.6	8.7	157.8	35

*Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N
 **NH₄ - N < 2ppm and NO₃ - N < 1ppm

Central Laboratory

Mine: Kayenta
 Core: 23331-C
 Date Cored: 6/2/81

Township: 36N
 Range: 19E
 Section: 27

Lab No.	*Dry Basis		*Tons of CaCO ₃ Equivalent per 1000 Tons Material						*Moisture			Available H ₂ O Hold. Capacity (1/3-15 BAR)	
	% Sulfur	* Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	% Organic Matter	Particle Size					
								% Sand	% Silt	% Clay	1/3 BAR		15 BAR
51	<0.06		1.88	12.85		10.97	1.1	28.4	36.0	35.6	34.3	15.6	18.7
52	<0.06		1.88	9.24		7.36	0.5	3.9	70.9	25.2	25.1	10.9	14.2
53	<0.06		1.88	2.25		0.37	2.9	32.7	21.3	46.0	43.5	23.9	19.6
54	<0.06		1.88	0.00	1.88		1.5	32.9	38.0	29.1	33.8	16.9	16.7
55	<0.06		1.88	20.68		18.80	1.1	40.6	44.4	15.0	23.5	9.1	14.4
56	<0.06		1.88	23.90		22.02	3.4	17.4	31.3	51.4	46.2	26.3	19.9
57	<0.06		1.88	2.82		0.94	1.4	4.6	41.5	53.9	48.3	23.7	14.6
58	<0.06		1.88	7.39		5.51	0.7	62.5	33.6	3.9	18.5	7.8	10.7
59	<0.06		1.88	12.02		10.14	1.2	66.2	18.1	15.7	18.1	7.9	10.2
60	<0.06		1.88	5.96		4.08	1.9	75.6	6.2	18.2	20.7	7.5	13.2
61	<0.06		1.88	16.09		14.21	1.6	55.2	28.5	16.3	18.4	8.3	15.1
62	<0.06		1.88	7.44		5.56	1.9	15.7	27.9	56.3	46.8	26.5	20.3
63	<0.06		1.88	3.65		1.77	1.8	24.7	30.5	44.8	42.7	26.7	16.0
64	<0.06		1.88	10.57		8.69	1.8	54.3	5.2	40.5	42.0	23.9	18.2
65	<0.06		1.88	11.02		9.14	1.5	53.5	35.9	10.6	21.2	8.2	15.4
66	<0.06		1.88	0.85	1.03		12.9	59.9	22.8	17.2	18.1	7.1	10.8
67	<0.06		1.88	3.71		1.83	15.2	27.6	21.7	50.7	42.3	11.1	19.2
68	<0.06		1.88	19.32		17.44	5.4	17.5	44.6	37.9	36.7	11.2	17.9
69	0.10		3.18	9.24		6.06	34.8	30.1	17.0	52.9	40.8	24.3	16.5

PLATON COAL COMPANY
Central Laboratory

Line: Kayenta
Core: 23331-C
Date Cored: 6/2/81

Township: 36N
Range: 19E
Section: 27

Lab No.	*Dry Basis			*Tons of CaCO ₃ Equivalent per 1000 Tons Material					Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
	% * Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutral-ity	Excess CaCO ₃ Equiv.	% Organic Matter	% Sand	% Silt	% Clay	1/3 BAR	15 BAR			
70	<0.06	1.88	2.27		0.39	2.5	42.6	14.8	42.6	46.2	24.4	21.8		
71	<0.06	1.88	24.76		22.88	2.2	69.2	27.8	3.0	18.6	7.4	11.2		
72	<0.06	1.88	4.08		2.20	1.1	19.7	43.4	36.9	34.2	16.1	18.1		

Revised 11/21/03

536

ATION
OLE # 23332C

DATE DRILLED 6/7/81
DRILLER G. Hopkins

SUB AREA J-28

DEPTH (ft)	CORRECTION	SAMPLE NO.	SATURATION %	SAR	SOL. Na.	SOL. Ca.	SOL. Mg	%S	pH
			(MOISTURE)	(ASH)		(BTU)			
0		73	65.3	1.7	3.8	4.9	4.5	<0.06	7.9
		74	65.6	2.5	12.4	11.9	38.5	<0.06	7.2
		75	68.5	3.4	16.3	10.1	35.7	<0.06	7.1
10		76	36.8	4.2	21.4	18.3	34.9	<0.06	7.3
		77	41.5	3.5	15.7	10.8	28.5	<0.06	7.1
		78	43.3	4.3	17.0	6.5	25.3	<0.06	7.0
20		79	32.5	2.7	14.8	18.5	42.6	<0.06	6.9
		80	34.0	2.1	11.9	22.3	41.5	<0.06	5.1
30				5.2		12,811		0.70	4.3
		81	68.2	10.3	10.6	1.2	1.0	<0.06	8.0
50		82	37.7	8.2	13.0	3.2	1.8	<0.06	7.5
		83	72.3	5.7	14.7	3.8	9.6	<0.06	8.8
70				7.52		2,775		0.76	7.8
		84	63.3	39.8	33.7	0.5	0.9	<0.06	7.5
80		85	42.1	18.8	24.9	2.2	1.3	<0.06	7.7
90		86	537 59.1	15.0	10.7	Revised 0.3	11/21/08 0.7	0.13	7.4

NO. _____

DRILLER G. Hopkins

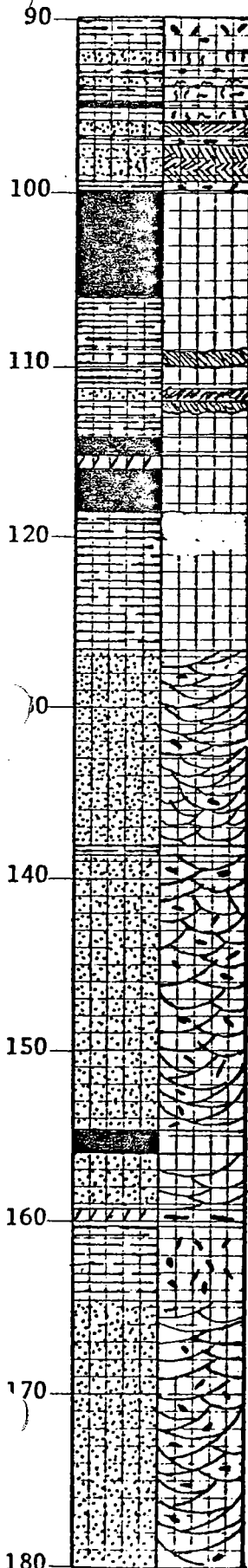
LOCATION _____

DATE DRILLED 6/7/81

SUB AREA J-28

HOLE # 23332C

ELEVATION _____



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL. Na.	SOL. Ca. (BTU)	SOL. Mg	%S	pH
87	54.4	6.7	13.4	1.5	6.4	< 0.06	8.4
88	47.8	22.8	25.7	1.0	1.6	< 0.06	7.7
-	-	7.8	-	12,640	-	0.80	7.4
89	72.6	2.8	6.6	9.1	7.6	< 0.06	9.0
-	-	12.41	-	11,830	-	0.59	7.4
90	25.5	9.2	16.2	1.4	4.8	0.06	7.8
-	-	9.04	-	12,483	-	0.56	7.3
91	64.1	3.3	6.1	1.6	5.4	< 0.06	8.6
92	42.0	3.2	5.8	1.9	4.8	< 0.06	

Mine: Kayenta
 Core: 23332-C
 Section: 26

Township: 30N
 Range: 19E
 Date Cored: 6/7/81

PEABODY COAL COMPANY
 Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc-tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ P ppm	NH ₄ OAC R ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l					
Cuttings-Shale	0.0	2.5	73	7.9	1.3	65.3	3.8	4.9	4.5	1.7	1.4	7.9	211.1	11
Cuttings-Shale	2.5	2.5	74	7.2	7.5	65.6	12.4	11.9	38.5	2.5	2.3	7.2	302.8	13
Cuttings-Shale	5.0	2.0	75	7.1	7.2	68.5	16.3	10.1	35.7	3.4	3.4	7.1	240.6	12
Cuttings-Sandstone	7.0	3.0	76	7.3	7.6	36.8	21.4	18.3	34.9	4.2	4.0	7.3	71.7	15
Sandstone/Shale	10.0	3.0	77	7.1	6.6	41.5	15.7	10.8	28.5	3.5	3.6	7.1	78.0	12
Sandstone/Shale	13.0	4.0	78	7.0	4.8	43.3	17.0	6.5	25.3	4.3	5.2	7.0	93.1	12
Sandstone	17.0	8.9	79	6.9	8.0	32.5	14.8	18.5	42.6	2.7	2.6	6.9	47.4	13
Sandstone	25.9	8.9	80	5.1	8.5	34.0	11.9	22.3	41.5	2.1	1.8	5.1	77.4	4**
Coal	34.8	7.2	--											
Shale/Siltstone	42.0	8.6	81	8.0	1.5	68.2	10.6	1.2	1.0	10.3	14.0	8.0	244.5	17
Sandstone	50.6	9.9	82	7.5	1.8	37.7	13.0	3.2	1.8	8.2	10.8	7.5	95.5	22
Coal/Shale	60.5	6.3	83	8.8	3.3	72.3	14.7	3.8	9.6	5.7	6.4	8.8	301.4	81
Coal	66.8	5.4	--											
Shale	72.2	4.8	84	7.5	3.7	63.3	33.7	0.5	0.9	39.8	38.1	7.5	699.2	30
Coal	77.0	3.7	--											
Silty sandstone	80.7	5.6	85	7.7	3.4	42.1	24.9	2.2	1.3	18.8	20.6	7.7	154.3	159
Shale/Coal	86.3	4.8	86	7.4	1.4	59.1	10.7	0.3	0.7	15.0	18.7	7.4	466.0	21
Shale/Sandstone/Coal	91.1	4.4	87	8.4	2.5	54.4	13.4	1.5	6.4	6.7	7.5	8.4	226.9	58
Sandstone/Shale	95.5	4.3	88	7.7	3.1	47.8	25.7	1.0	1.6	22.8	26.8	7.7	539.0	33
Coal	99.8	6.1	--											
Shale/Sandstone	105.9	8.3	89	9.0	1.8	72.6	6.6	9.1	7.6	2.8	3.0	9.0	205.8	60
Coal	114.2	1.0	--											
Carbonaceous shale	115.2	0.8	90	7.8	3.0	25.5	16.2	1.4	4.8	9.2	10.6	7.8	499.0	19

*Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N

**NH₄ - N < 2ppm and NO₃ - N > 1ppm

Revised 11/21/83

Mine: Kayenta
 Core: 2332-C
 Section: 26

Township: 36N
 Range: 19E
 Date Cored: 6/7/91

PLUMBLY COAL COMPANY
 Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ p ppm	NH ₄ OAc ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l					
Coal	116.0	2.5	---											
Shale	118.5	8.1	91	8.6	1.0	64.1	6.1	1.6	5.4	3.3	3.9	8.6	383.9	19
Silty sandstone	126.6	11.8	92	7.9	1.5	42.0	5.8	1.9	4.8	3.2	3.5	7.9	136.4	11

†Dry Basis
 †Total-N is Sum of NH₄-N and NO₃-N
 *NH₄ - N=2ppm and NO₃ - N=1ppm

Central Laboratory

Mine: Kayenta
 Core: 2332-C
 Date Cored: 6/7/81
 Township: 36N
 Range: 19E
 Section: 26

Lab No.	*Dry Basis	*Tons of CaCO ₃ Equivalent per 1000 Tons Material					*% Organic Matter	Particle Size			* Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
		Max. Req From Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	*% Sulfur		Sand	Silt	Clay	1/3 BAR	15 BAR	
73		1.88	9.66		7.78	0.7	26.3	31.1	42.6	42.1	24.5	17.6	
74		1.88	4.12		2.24	0.8	35.2	11.5	53.3	47.9	22.8	25.1	
75		1.88	2.83		0.95	0.8	43.2	14.3	42.5	46.9	26.4	20.5	
76		1.88	25.80		23.92	0.1	76.2	17.1	6.6	20.8	8.8	12.0	
77		1.88	1.78	0.10		0.5	53.6	28.0	18.4	28.3	11.1	17.2	
78		1.88	4.63		2.75	0.4	49.3	41.0	9.7	23.1	10.8	12.3	
79		1.88	3.20		1.32	0.4	53.1	28.9	18.0	21.4	7.5	13.9	
80		1.88	0.55	1.33		2.4	75.1	13.2	11.7	20.3	8.1	12.2	
81		1.88	9.16		7.28	2.4	3.5	47.8	48.7	43.7	20.9	22.8	
82		1.88	28.54		26.66	2.5	75.9	13.4	10.7	19.0	8.8	10.2	
83		1.88	14.26		12.38	13.3	37.4	19.3	43.3	46.6	24.5	22.1	
84		1.88	3.66		1.78	4.8	29.6	27.7	42.7	47.0	27.2	19.8	
85		1.88	5.13		3.25	2.7	49.9	27.6	22.5	24.9	9.3	15.6	
86		4.19	1.79	2.40		39.1	44.6	17.0	38.4	43.6	19.6	24.0	
87		1.88	7.43		5.55	13.4	37.0	24.3	38.7	32.0	14.7	17.3	
88		1.88	14.35		12.47	3.6	54.9	12.0	33.1	27.5	13.9	13.6	
89		1.88	6.43		4.55	2.5	39.9	17.5	42.6	39.7	21.7	18.0	
90		3.53	3.75		0.22	37.2	25.2	33.1	33.1	33.1	33.1	33.1	

PERDUE LUM COMPANY
Central Laboratory

Mine: Kayenta
Core: 23332-C
Date Cored: 6/7/81

Township: 36N
Range: 19E
Section: 26

Lab No.	*Dry Basis			*Tons of CaCO ₃ Equivalent per 1000 Tons Material				* % Organic Matter	Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
	% * Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	% Sand	% Silt		% Clay	1/3 BAR	15 BAR			
--														
91		40.06	1.88	2.27		0.39	3.7	22.7	34.4	42.9	44.9	24.7	20.2	
92		40.06	1.88	5.51		3.63	0.4	46.1	27.6	26.3	23.3	11.0	12.3	

Revised 11/21/03

ATION
OLE # 23333C

DATE DRILLED 6/15/81
DRILLER G. Hopkins

SUB AREA J-28

ELEVATION

SAMPLE NO. SATURATION % (MOISTURE) SAR (ASH) SOL.Na. SOL.Ca. (BTU) SOL.Mg Σ S pH

0		93	46.3	4.1	6.7	3.9	1.6	< 0.06	7.8
		94	45.1	11.9	20.5	2.8	3.2	< 0.06	8.3
		95	36.7	10.3	20.2	4.2	3.5	< 0.06	8.0
10		96	71.0	2.9	3.5	1.8	2.2	< 0.06	8.1
		97	45.8	1.7	4.0	4.6	6.1	< 0.06	7.8
		98	71.6	0.6	3.9	13.6	59.3	< 0.06	5.4
20		99	71.6	0.4	2.3	12.6	59.9	< 0.06	4.1
		100	46.5	2.2	16.3	18.1	97.0	< 0.06	6.2
		101	66.1	1.1	8.1	15.6	101.2	< 0.06	5.3
30		-	-	6.42	-	12,790	-	0.69	5.7
		102	75.7	7.1	14.8	2.2	6.4	< 0.06	8.5
		-	-	5.21	-	12,998	-	0.50	7.7
40		103	64.5	18.5	25.5	1.1	2.7	< 0.06	8.5
		-	-	5.43	-	13,020	-	0.72	7.9
50		104	37.3	12.1	27.9	7.5	3.1	< 0.06	7.4
		105	61.3	16.7	26.7	3.3	1.8	< 0.06	5.7
60			543						
70									
80									
90									

ELEVATION	SAMPLE NO.	SATURATION %	SAR	SOL.Na.	SOL.Ca.	SOL.Mg	%S	pH
		(MOISTURE)	(ASH)		(BTU)			
90	106	48.4	27.9	38.0	2.8	0.9	< 0.06	
	-	-	17.98	-	11,122	-	0.81	7.3
100	107	23.8	9.3	29.2	4.0	15.7	0.15	7.9
	108	41.3	7.8	17.0	2.2	7.2	< 0.06	8.3
110								
	109	26.5	16.0	38.0	4.2	7.1	< 0.06	8.3
120								
	110	66.4	6.0	12.1	2.3	5.8	< 0.06	8.6
130								
140								
150								
160								
170								
180								

PEABODY COAL COMPANY

Mine: Kayenta
 Core: 2333-C
 Section: 26

Township: 36N
 Range: 19E
 Date Cored: 6/15/81

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	Saturation Extract			ESP	NaHCO ₃ * ppm	NH ₄ OAc* ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l				
Siltstone	0.0	2.5	93	7.8	1.2	46.3	6.7	3.9	1.6	4.1	4.0	96.1	10**
Siltstone	2.5	2.5	94	8.3	2.9	45.1	20.5	2.8	3.2	11.9	12.4	147.9	17
Sandstone	5.0	5.0	95	8.0	2.8	36.7	20.2	4.2	3.5	10.3	10.9	92.1	19
Shale	10.0	7.4	96	8.1	0.6	71.0	3.5	1.8	2.2	2.9	3.3	236.6	16
Siltstone/Sandstone	17.4	3.7	97	7.8	1.6	45.8	4.0	4.6	6.1	1.7	1.3	94.1	22
Shale	21.1	7.5	98	5.4	8.4	71.6	3.9	13.6	59.3	0.6	0.1	264.6	44
Shale	28.6	7.6	99	4.1	7.9	71.6	2.3	12.6	59.9	0.4	0.1	333.1	5**
Siltstone/Silty shale	36.2	6.2	100	6.2	14.7	46.5	16.3	18.1	97.0	2.2	2.0	113.8	19
Shale	42.4	7.9	101	5.3	12.6	66.1	8.1	15.6	101.2	1.1	0.3	199.8	17
Coal	50.3	6.6	---										
Shale	56.9	2.8	102	8.5	2.8	75.7	14.8	2.2	6.4	7.1	9.0	431.1	67
Coal	59.7	6.9	---										
Shale/Sideritic shale	66.6	5.8	103	8.5	3.2	64.5	25.5	1.1	2.7	18.5	18.8	394.3	137
Coal	72.4	4.6	---										
Sandstone/Siltstone	77.0	5.1	104	7.4	3.8	37.3	27.9	7.5	3.1	12.1	13.8	127.2	233
Silty-Shale/Coal	82.1	5.0	105	5.7	3.2	61.3	26.7	3.3	1.8	16.7	18.1	230.7	11
Siltstone/Sandstone	87.1	4.5	106	7.3	4.6	48.4	38.0	2.8	0.9	27.9	26.6	98.3	94
Coal	91.6	7.0	---										
Carbon. shale/Coal	98.6	2.4	107	7.9	5.1	23.8	29.2	4.0	15.7	9.3	10.0	209.2	51
Sandy shale/Sandstone	101.0	8.8	108	8.3	3.0	41.3	17.0	2.2	7.2	7.8	8.5	173.8	78
Shale/Coal	109.8	8.7	109	8.3	5.2	26.5	38.0	4.2	7.1	16.0	16.0	269.2	62
Carbon.Shale/Shale	118.5	8.7	110	8.6	2.5	66.4	12.1	2.3	5.8	6.0	7.2	365.3	67

†Dry Basis
 †Total-N is Sum of NH₄-N and NO₃-N
 **NH₄ - N-2ppm and NO₃ - N-1ppm

Central Laboratory

Mine: Kay nta
 Core: 23333-C
 Date Cor'd: 6/15/81

Township: 36N
 Range: 19E
 Section: 26

Lab No.	*Dry Basis			*Tons of CaCO ₃ Equivalent per 1000 Tons Material					Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
	% * Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	% Organic Matter	% Sand	% Silt	% Clay	1/3 BAR	15 BAR			
93	<0.06	1.88	13.25		11.37	0.2	13.0	80.0	7.0	25.6	11.9	13.7		
94	<0.06	1.88	7.39		5.51	0.4	17.8	60.8	21.5	27.4	12.5	14.9		
95	<0.06	1.88	3.67		1.79	<0.1	60.4	34.6	5.0	21.9	8.1	13.8		
96	<0.06	1.88	10.60		8.72	0.3	18.9	33.0	48.1	44.1	22.8	21.3		
97	<0.06	1.88	15.15		13.27	0.2	60.5	7.0	32.6	30.4	14.3	16.1		
98	<0.06	1.88	3.65		1.77	0.9	19.1	15.1	55.8	43.4	24.0	19.4		
99	0.06	1.98	0.00	1.98		1.3	40.4	12.9	46.7	42.1	25.7	10.4		
100	<0.06	1.88	21.25		19.37	1.3	58.4	13.9	27.7	29.8	14.2	15.6		
101	<0.06	1.88	17.48		15.60	2.6	24.6	32.3	43.1	41.4	22.9	18.5		
--														
102	<0.06	1.88	12.41		10.53	15.2	22.7	27.6	49.7	42.0	24.6	17.4		
--														
103	<0.06	1.88	22.09		20.21	4.7	11.2	32.7	56.1	45.6	23.2	22.4		
--														
104	<0.06	1.88	4.08		2.20	1.8	53.7	24.6	21.6	23.5	9.3	14.2		
105	<0.06	1.88	1.35	0.53		14.9	6.6	42.8	50.6	44.3	22.6	21.7		
106	<0.06	1.88	27.12		25.24	2.6	25.4	51.5	23.1	25.6	11.1	14.5		

107	0.15	4.70	5.08		0.38	43.2	*	*	*	15.4	3.7	11.7		
108	<0.06	1.88	3.70		1.82	2.1	40.8	39.2	19.9	24.6	9.5	15.1		
109	<0.06	1.88	3.16		1.28	12.8	*	*	*	15.7	4.3	11.4		
110	<0.06	1.88	7.32		5.94	2.4	5.8	44.6	49.6	42.9	23.2	19.7		

*Mostly carbolic

Revised 11/21/03

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ELEVATION	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca.	SOL.Mg.	S	pH
				(BTU)				
0	111	71.0	1.9	3.2	3.7	2.0	< 0.06	6.8
	112	74.6	4.3	5.8	2.8	0.9	< 0.06	4.4
10	113	33.6	1.6	5.6	13.2	12.6	0.08	3.9
	114	62.5	1.3	4.4	10.5	12.1	< 0.06	6.6
	115	73.0	2.6	5.5	2.3	6.7	< 0.06	7.7
20	116	38.3	2.5	6.5	5.0	8.4	< 0.06	7.4
	117	75.7	3.3	6.4	2.8	4.7	< 0.06	7.9
	118	56.8	2.6	8.8	9.3	14.3	< 0.06	6.4
30	119	72.5	4.2	8.7	4.4	4.2	< 0.06	7.6
	120	53.1	3.8	8.4	5.3	4.4	< 0.06	7.3
40	121	48.9	4.2	12.0	7.4	8.8	< 0.06	7.1
	122	65.8	5.5	10.4	3.2	4.0	< 0.06	8.0
50	123	64.1	6.1	16.8	7.8	7.1	< 0.06	7.1
	124	66.9	13.5	18.9	1.9	2.1	< 0.06	6.8
60	125	32.7	8.2	21.8	3.8	10.4	< 0.06	7.9
	126	71.0	11.4	14.4	0.5	2.7	< 0.06	8.6
70	127	31.5	16.1	33.3	3.2	5.3	< 0.06	7.9
	128	52.1	12.4	30.0	6.0	5.8	< 0.06	8.1
80	129	65.3	19.6	33.9	1.9	4.1	< 0.06	7.2
90								

DEPTH (FEET)	SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL. Na.	SOL. Ca. (BTU)	SOL. Mg	%S	pH
90	-	-	5.20	-	13,016	-	0.59	7.7
100	130	74.7	13.0	18.7	0.5	3.6	0.12	8.0
110	131	65.2	42.1	55.1	2.5	1.0	< 0.06	8.8
120	-	-	6.0	-	12,976	-	0.74	7.5
120	132	31.6	9.1	25.7	12.5	3.7	< 0.06	7.8
130	133	60.1	19.2	21.2	1.6	0.8	0.12	7.7
130	134	42.9	14.7	18.9	1.9	1.4	< 0.06	8.5
130	135	63.1	12.1	18.7	1.8	3.0	< 0.06	
140								
150								
160								
170								
180								

Core: 23334-C
 Section: 25
 Date Cored: 6/20/81

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity, Paste	Sat. %	Saturation Extract			SAR	ESP	NH ₄ OC K ppm	Total N ppm
							Na meq/l	Ca meq/l	Mg meq/l				
Shale	0.0	4.0	111.	6.8	1.1	71.0	3.2	3.7	2.0	1.9	1.4	369.1	10**
Shale	4.0	4.0	112	4.4	1.1	74.6	5.8	2.8	0.9	4.3	5.2	673.3	2
Sandstone	8.0	2.0	113	3.9	3.6	33.6	5.6	13.2	12.6	1.6	1.1	115.1	2
Siltstone/Sandstone	10.0	4.0	114	6.6	3.0	62.5	4.4	10.5	12.1	1.3	0.8	155.3	13
Shale	14.0	4.4	115	7.7	1.6	73.0	5.5	2.3	6.7	2.6	2.6	463.2	33
Sandstone	18.4	2.3	116	7.4	2.4	38.3	6.5	5.0	8.4	2.5	2.5	75.2	24
Shale	20.7	4.6	117	7.9	1.6	75.7	6.4	2.8	4.7	3.3	3.4	428.5	75
Sandstone/Shale	25.3	5.3	118	6.4	3.5	56.8	8.8	9.3	14.3	2.6	2.5	197.0	38
Sandstone	30.6	6.5	119	7.6	2.0	72.5	8.7	4.4	4.2	4.2	4.9	439.7	44
Coal/Shale/Sandstone	37.1	3.7	120	7.3	1.9	53.1	8.4	5.3	4.4	3.8	4.2	122.4	31
Sandstone/Shale	40.8	6.9	121	7.1	3.0	48.9	12.0	7.4	8.8	4.2	4.3	122.9	34
Shale/Sandstone	47.7	5.0	122	8.0	2.0	65.8	10.4	3.2	4.0	5.5	7.2	232.3	62
Coal/Shale/Sandstone	52.7	4.6	123	7.1	3.5	64.1	16.8	7.8	7.1	6.1	6.6	308.8	25
Shale/Coal	57.3	5.2	124	6.8	2.6	66.9	18.9	1.9	2.1	13.5	16.9	480.8	34
Sandstone	62.5	2.6	125	7.9	3.8	32.7	21.8	3.8	10.4	8.2	8.8	143.9	48
Shale	65.1	8.9	126	8.6	1.9	71.0	14.4	0.5	2.7	13.4	14.1	520.9	105
Sandstone	74.0	3.9	127	7.9	5.3	31.5	33.3	3.2	5.3	16.1	20.6	155.0	114
Silty Shale	77.9	6.3	128	8.1	4.5	52.1	30.0	6.0	5.8	12.4	12.7	252.4	122
Shale	84.2	2.6	129	7.2	4.0	65.3	33.9	1.9	4.1	19.6	21.3	471.4	58
Coal	86.8	11.6	---										
Shale/Coal	98.4	6.6	130	8.0	2.5	74.7	18.7	0.5	3.6	13.0	15.9	452.7	78
Shale	105.0	9.5	131	8.8	3.6	65.2	55.1	2.5	1.0	42.1	37.8	997.6	193

†Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N
 **NH₄ - N-2ppm and NO₃ - N-1ppm

Project: 23334-C
 Section: 25
 Location: Lower Hill
 Range: 192
 Date Collected: 6/20/81

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conduc- tivity Paste	Sat. %	Saturation Extract			SAR	ESP	NaHCO ₃ ppm	NH ₄ OAc ppm	Total N ppm
							Na meq/L	Ca meq/L	Mg meq/L					
Coal	114.5	3.5	---	7.8	4.8	31.6	25.7	12.5	3.7	9.1	11.1	7.8	104.9	142
Sandstone	118.0	5.6	132	7.7	2.4	60.1	21.2	1.6	0.8	19.2	21.0	7.7	270.2	48
Silty Shale/Coal	123.6	4.0	133	8.5	2.8	42.9	18.9	1.9	1.4	14.7	14.6	8.5	264.0	132
Shale/Sandstone	127.6	2.4	134	8.5	2.4	63.1	18.7	1.8	3.0	12.1	12.1	8.5	488.5	98
Shale/Coal	130.0	7.0	135											

†Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N
 *NH₄
 † - NH₄ 2ppm and NO₃ - NH 1ppm

Central Laboratory

Mine: Kayenta
 Core: 23334-C
 Date Cored: 6/20/81
 Township: 36N
 Range: 19E
 Section: 25

Lab No.	*Dry Basis		*Tons of CaCO ₃ Equivalent per 1000 Tons Material					* % Organic Matter	Particle Size			% Moisture		Available H ₂ O Hold. Capacity (1/3-15 BAR)
	% Sulfur	* Sulfur	Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess CaCO ₃ Equiv.	% Sand		% Silt	% Clay	1/3 BAR	15 BAR		
111	<0.06		1.88	3.19		1.31	1.0	31.2	17.1	51.7	43.5	24.6	18.9	
112	<0.06		1.88	0.02	1.86		0.7	20.2	39.3	40.5	47.7	27.0	20.7	
113	0.08		2.50	0.00	2.50		0.3	45.0	49.9	5.1	18.3	7.4	10.9	
114	<0.06		1.88	31.34		29.46	1.0	4.8	67.9	27.2	34.7	19.4	15.3	
115	<0.06		1.88	9.69		7.81	1.5	6.8	38.1	55.1	49.2	23.7	25.5	
116	<0.06		1.88	44.55		42.67	0.7	43.5	50.8	5.7	20.0	8.1	11.9	
117	<0.06		1.88	12.36		10.48	1.7	10.4	35.1	54.6	44.8	24.2	20.6	
118	<0.06		1.88	6.38		4.50	2.9	30.0	43.5	26.5	34.0	15.3	18.7	
119	<0.06		1.88	41.35		39.47	3.3	53.0	18.1	28.9	36.6	19.6	17.0	
120	<0.06		1.88	29.86		27.98	11.1	59.3	18.3	22.4	31.2	15.1	16.1	
121	<0.06		1.88	6.36		4.48	1.0	67.4	28.8	3.8	28.7	12.0	16.7	
122	<0.06		1.88	9.16		7.28	1.7	30.9	29.8	39.3	38.0	18.1	19.9	
123	<0.06		1.88	14.30		12.42	14.5	47.0	11.9	41.2	38.1	21.1	17.0	
124	<0.06		1.88	6.93		5.05	3.2	18.1	25.6	56.3	41.2	27.2	14.0	
125	<0.06		1.88	16.12		14.24	1.1	67.9	24.3	7.8	20.0	7.8	12.2	
126	<0.06		1.88	4.57		2.69	2.5	26.5	21.0	52.5	41.1	24.8	16.3	
127	<0.06		1.88	14.65		12.77	2.4	53.3	32.6	14.1	18.6	8.2	10.4	
128	<0.06		1.88	31.31		29.43	1.3	26.9	36.3	36.8	33.8	15.7	18.1	
129	<0.06		1.88	10.12		8.24	5.0	35.0	20.9	44.1	42.4	27.5	14.9	

130	0.12		3.72	5.11		1.39	31.2	40.8	19.2	40.1	44.5	26.7	17.8	
131	<0.06		1.88	13.29		12.41	3.1	77.5	23.8	48.8	46.6	24.5	22.1	

Mine: Kayenta
 Core: 2334-C
 Date Cored: 6/20/81

Township: 36N
 Range: 19E
 Section: 25

Central Laboratory

Lab No.	ADRY Basis	% Sulfur	Tons of CaCO ₃ Equivalent per 100 Tons Material					Particle Size				Available H ₂ O Hold. Capacity (1/3-15 BAR)	
			Max. Req From Total Sulfur	Amount Present By Titra- tion	Amount Needed for Neutral- ity	Excess CaCO ₃ Equiv.	% Organic Matter	% Sand	% Silt	% Clay	% 1/3 BAR		% 15 BAR
132		<0.06	1.88	36.33		34.45	1.9	55.1	37.6	7.3	20.0	8.1	11.9
133		0.12	3.77	4.55		0.78	31.9	27.8	38.3	33.9	32.7	15.3	17.4
134		<0.06	1.88	5.98		4.10	1.5	52.2	32.0	15.9	27.4	13.1	14.3
135		<0.06	1.88	13.31		11.43	13.4	28.1	28.2	43.7	44.9	25.3	19.6

2003 DRILLING AREAS

(DEEP CORES)

LITHOLOGIC SYMBOLS AND DESCRIPTORS

(2003 DRILLING)

COLOR CODES

BLK - black
BR - brown
BRGR - brownish gray
DGR - dark gray
DGRBR - dark grayish brown
DRDBR - dark reddish brown
DRDGR - dark reddish gray
DYBR - dark yellowish brown
GR - gray
GRBR - grayish brown
LBRGR - light brownish gray
LGR - light gray
LRBR - light reddish brown
LRDBR - light reddish brown
LYBR - light yellowish brown
PBR - pale brown
RBR - reddish brown
RD - red
RDBR - reddish brown
RDGR - reddish gray
RGR - reddish gray
RDY - reddish yellow
VDGR - very dark gray
YBR - yellowish brown

LITHOLOGY CODES

BRN - burn
BR - burn
CO - coal
CS - claystone
MS - mudstone
SH - shale
SL - siltstone
SO - soil
SS - sandstone

OTHER CODES

GAL - Green Analytical Laboratory, Inc.
LC - lost core

LITHOLOGIC SYMBOLS AND DESCRIPTORS

(2003 DRILLING)

COAL SEAM CODES (See Chapter 4, Figures 6 and 6a)

BOX - BLUE 0
B1X - BLUE 1
BXX - BLUE
EOX - ORANGE 0
E01 - ORANGE 0 & 1 MERGE
E1X - ORANGE 1
E1A - ORANGE 1 A
E2X - ORANGE 2
E3X - ORANGE 3
EXX - ORANGE
G1X - GREEN 1
GXX - GREEN
M0X - BOTTOM RED 0
M1X - BOTTOM RED 1
MXX - BOTTOM RED
N0X - BROWN 0
N1X - BROWN 1
N2X - BROWN 2
NXX - BROWN
R0X - RED 0
R1X - RED 1
RXX - RED
Y0A - VIOLET 0 A
Y0B - VIOLET 0 B
Y0C - YELLOW 0 C
Y0X - YELLOW 0
Y1A - YELLOW 1 A
Y1B - YELLOW 1 B
Y1X - YELLOW 1
YNX - YELLOW & BROWN MERGE
YXX - YELLOW

HOLE NUMBER: 30362EO*

MINE AREA: J2

DATE: 7/27/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
N/A	0.0-33.5	33.5	BRN	N/A	LC: 0.0-33.5
**	33.5-38.0	4.5	CO (Y0B)	BLK	LC: 34.0-35.3
1	38.0-40.2	2.2	SL	GR	SANDY
**	40.2-43.0	2.8	CO (Y1X)	BLK	LC: 40.2-40.5
2#	43.0-47.5	4.5	SS	GR	SILTY
3	47.5-53.4	5.9	SH	VDGR, DGR	LC: 50.0-51.0
4	53.4-59.0	5.6	SS	GR	
** +	59.0-68.0	9.0	CO (NXX)	BLK	LC: 59.3-59.8
5+	68.0-77.0	9.0	SS, SL	GR	LC: 70.0-70.7
**	77.0-79.0	2.0	CO (N1X)	BLK	LC: 77.5-78.0
6+	79.0-83.8	4.8	SS, SL	GR	
7	83.8-88.0	4.2	SH, CO	VDGR, BLK	
8	88.0-92.7	4.7	SL	GR	LC: 90.0-91.0, SANDY
9	92.7-97.2	4.5	SH	DGR	SILTY
10	97.2-100.0	2.8	CO (EOX), SH	VDGR, BLK	NONMINEABLE
11	100.0-110.0	10.0	SS	GR, LGR	LC: 100.0-101.8
12#	110.0-120.0	10.0	SS	GR, LGR	LC: 110.0-110.2
13	120.0-123.0	3.0	SS	GRBR, GR	LC: 121.8-122.0
14	123.0-130.0	7.0	SH	VDGR	LC: 123.0-124.3
**	130.0-134.6	4.6	CO (E1X)	BLK	LC: 130.0-131.2
15+	134.6-140.6	6.0	SH, CO	VDGR, BLK	
**	140.6-143.7	3.1	CO (E2X)	BLK	LC: 140.6-142.0
16+	143.7-148.0	4.3	SS	DGR	
17	148.0-150.0	2.0	SH, CO	VDGR	
18	150.0-160.0	10.0	SS, SL	GR, DGR	
19	160.0-170.0	10.0	SS	LGR, GR	

* Core boxes 1 through 14, 10 foot of core per box except Box 1 that represents 40 feet.

Designated duplicate sample, process core, send representative split to GAL.

** Mineable coal seam, process core & store, no analyses required at this time.

+ The following increments were removed to perform coal washability analyses: 64.55-64.62, 65.65-65.70, 68.0-68.3, 79.0-79.3, 134.6-134.9, & 143.7-144.0.

CORE NO: 30362EO

Mine Area: J02, Peabody Coordinates: 24138.14E, -17739.33N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	33.50	LC														
33.50	4.50	CO	Y0B													
38.00	2.20	SL		4.8	3.9	22.0	12.0	14.0	3.4	38	52	10	1.00	0.90	0.10	28.80
40.20	2.80	CO	Y1X													
43.00	4.50	SS		7.1	3.0	2.0	1.0	27.0	22.2	50	40	10	0.80			25.90
47.50	5.90	SH		7.9	1.7	0.4	0.2	14.0	24.7	18	59	23	1.00	0.80	0.10	25.70
53.40	5.60	SS		8.1	1.3	0.3	0.2	12.0	24.0	51	38	11	<0.01			0.09
59.00	9.00	CO	NXX													
68.00	9.00	SS		8.7	1.4	0.2	0.1	8.8	26.0	28	46	26	0.05			1.60
77.00	2.00	CO														
79.00	4.80	SS		8.0	2.3	0.4	0.3	22.0	36.4	72	25	3	0.20			5.53
83.80	4.20	SH		8.5	1.2	0.2	0.1	11.0	30.0	24	45	31	0.50			16.80
88.00	4.70	SL		9.0	0.9	0.2	0.1	8.3	24.3	16	54	30	0.04			1.36
92.70	4.50	SH		8.9	1.5	0.3	0.5	11.0	16.5	16	49	35	0.10			3.19
97.20	2.80	CO		7.7	1.3	0.1	0.1	12.0	38.8	83	12	5	0.80	0.30	0.50	9.94
100.00	10.00	SS		8.4	1.3	0.2	0.1	8.7	24.7	61	31	8	0.03			0.90
110.00	10.00	SS		8.5	0.9	0.1	0.1	7.7	23.9	57	33	10	0.04			1.11
120.00	3.00	SS		8.5	1.6	0.2	0.1	15.0	33.8	73	23	4	<0.01			0.05
123.00	7.00	SH		8.3	1.6	0.3	0.2	16.0	31.4	21	49	30	1.10	0.90	0.20	26.80
130.00	4.60	CO	E1X													
134.60	6.00	SH		8.2	1.4	0.2	0.1	13.0	30.0	49	29	22	0.20			7.09
140.60	3.10	CO	E2X													
143.70	4.30	SS		7.8	1.6	0.6	0.2	13.0	20.8	48	48	4	0.30			8.63
148.00	2.00	SH		7.6	0.8	0.2	0.1	7.1	21.4	82	16	2	0.50	0.10	0.40	3.81
150.00	10.00	SS		7.8	1.3	0.5	0.2	11.0	18.5	49	40	11	0.20			7.06
160.00	10.00	SS		8.4	0.9	0.4	0.2	7.6	14.6	75	24	1	<0.01			0.07

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Revised 11/21/03

CORE NO: 30362EO

Mine Area: J02, Peabody Coordinates: 24138.14E, -17739.33N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	33.50	LC							
33.50	4.50	CO	Y0B						
38.00	2.20	SL		7.96	-20.90	0.07	0.11	0.50	0.39
40.20	2.80	CO	Y1X						
43.00	4.50	SS		28.40	2.42	<0.05	0.08	0.40	0.29
47.50	5.90	SH		16.40	-9.31	0.07	0.11	0.40	0.28
53.40	5.60	SS		51.00	50.90	<0.05	0.06	0.20	0.27
59.00	9.00	CO	NXX						
68.00	9.00	SS		23.60	22.10	0.08	0.11	0.30	0.25
77.00	2.00	CO							
79.00	4.80	SS		57.80	52.20	<0.05	0.05	0.10	0.26
83.80	4.20	SH		21.40	4.55	0.08	0.11	0.80	0.28
88.00	4.70	SL		29.70	28.30	0.06	0.08	0.20	0.25
92.70	4.50	SH		16.90	13.80	0.13	0.15	0.50	0.28
97.20	2.80	CO		13.60	3.68	0.12	0.12	2.00	0.53
100.00	10.00	SS		45.00	44.10	<0.05	<0.05	<0.10	0.28
110.00	10.00	SS		37.50	36.40	<0.05	<0.05	0.10	0.28
120.00	3.00	SS		111.00	111.00	<0.05	<0.05	0.10	0.26
123.00	7.00	SH		19.00	-7.89	0.11	0.15	0.90	0.37
130.00	4.60	CO	E1X						
134.60	6.00	SH		26.50	19.40	0.08	0.10	1.20	0.47
140.60	3.10	CO	E2X						
143.70	4.30	SS		13.00	4.43	0.06	0.10	0.40	0.39
148.00	2.00	SH		11.70	7.90	<0.05	<0.05	1.90	0.78
150.00	10.00	SS		7.47	0.41	<0.05	0.06	0.20	0.44
160.00	10.00	SS		69.40	69.40	<0.05	<0.05	<0.10	0.31

CORE NO: 30359EO

Mine Area: J04, Peabody Coordinates: 29779.58E, -26034.95N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SS		7.7	0.8	2.6	1.7	3.5	2.4	51	30	19	0.02			0.63
10.00	8.00	SH		5.2	2.0	7.7	11.0	5.6	1.8	2	52	46	0.07			2.19
18.00	3.10	SS		7.4	3.3	10.0	31.0	5.0	1.1	28	40	32	0.05			1.56
21.10	10.00	SS		7.3	4.9	25.0	53.0	4.4	0.7	30	42	28	<0.01			0.05
31.10	10.00	SS		8.0	1.2	2.1	8.5	2.3	1.0	52	28	20	<0.01			0.09
41.10	4.60	SS		7.9	0.8	1.6	6.1	1.6	0.8	66	19	15	<0.01			0.01
45.70	6.30	SS		7.3	2.6	15.0	18.0	3.1	0.8	33	32	35	0.20			5.63
52.00	6.70	CO	YXX													
58.70	3.90	SL		7.2	1.7	6.8	10.0	4.0	1.4	20	48	32	0.40			11.20
62.60	5.10	SH		7.0	2.1	7.4	12.0	5.5	1.8	30	42	28	1.30	1.10	0.20	41.90
67.70	3.20	SL		8.0	0.7	1.2	2.0	4.0	3.2	12	50	38	0.20			5.00
70.90	3.20	SS		7.8	0.9	2.4	3.6	3.1	1.8	52	31	17	0.02			0.75
74.10	6.90	SL		8.1	0.8	1.3	1.9	4.5	3.6	31	40	29	0.50			15.30
81.00	3.00	SH		7.6	2.0	5.9	8.3	6.5	2.4	6	56	38	1.90	1.60	0.30	53.80
84.00	6.50	CO	NOX													
90.50	5.30	SL		8.3	1.9	0.2	0.1	16.0	35.9	41	33	26	1.00	0.70	0.20	21.40
95.80	2.80	CO	E0X													
98.60	5.40	SS		8.3	2.5	0.6	0.2	25.0	37.5	42	31	27	0.20			5.31
104.00	2.20	SH		7.9	1.5	0.2	0.1	12.0	31.4	21	48	31	2.40	1.60	0.50	73.80
106.20	10.50	CO	E1X													
116.70	3.30	SH		8.7	0.7	0.2	0.1	6.8	17.5	11	41	48	1.00	0.50	0.20	14.30

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Revised 11/21/03

CORE NO: 30359EO

Mine Area: J04, Peabody Coordinates: 29779.58E, -26034.95N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		5.90	5.28	<0.05	<0.05	0.10	0.30
10.00	8.00	SH		3.38	1.19	0.19	0.20	0.80	0.30
18.00	3.10	SS		16.80	15.30	0.08	0.10	0.20	0.44
21.10	10.00	SS		28.40	28.40	<0.05	<0.05	0.10	0.23
31.10	10.00	SS		51.30	51.20	<0.05	<0.05	0.10	0.21
41.10	4.60	SS		13.10	13.10	<0.05	<0.05	<0.10	0.18
45.70	6.30	SS		54.30	48.60	<0.05	<0.05	0.60	0.20
52.00	6.70	CO	YXX						
58.70	3.90	SL		53.80	42.60	<0.05	0.08	0.60	0.36
62.60	5.10	SH		8.35	-33.50	<0.05	0.09	0.40	0.64
67.70	3.20	SL		33.00	28.00	<0.05	0.08	0.20	0.47
70.90	3.20	SS		84.40	83.60	<0.05	<0.05	0.30	0.40
74.10	6.90	SL		54.20	38.90	<0.05	0.11	0.60	0.26
81.00	3.00	SH		30.30	-23.40	<0.05	0.10	0.60	0.32
84.00	6.50	CO	NOX						
90.50	5.30	SL		12.20	-9.21	<0.05	0.08	0.60	0.40
95.80	2.80	CO	E0X						
98.60	5.40	SS		28.60	23.30	<0.05	0.07	0.10	0.36
104.00	2.20	SH		30.20	-43.50	<0.05	0.08	0.20	0.30
106.20	10.50	CO	E1X						
116.70	3.30	SH		4.72	-9.52	0.18	0.25	0.70	0.38

HOLE NUMBER: 30366EO*

MINE AREA: J6

DATE: 8/4-5/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-6.8	6.8	SS	LYBR	LC: 0.0-5.1
2	6.8-9.6	2.8	SH	DGRBR	
3	9.6-18.1	8.5	SS	LYBR	LC: 10.0-13.0
4#	18.1-30.0	11.9	SS	LRDBR	LC: 20.0-26.0
5	30.0-38.7	8.7	SS	RDBR	LC: 30.0-34.4, SILTY
6	38.7-49.1	10.4	SS	LYBR	LC: 40.0-43.2, SILTY
7	49.1-58.9	9.8	SS, SL	GR, DGR	
8	58.9-70.0	11.1	SH, SL	DGR	LC: 60.0-60.8, SANDY
9	70.0-76.5	6.5	SS	RDGR	LC: 70.0-71.1
10	76.5-81.8	6.3	SL, SH	DGR, VDGR	LC: 80.0-80.8,
**	81.8-88.8	7.0	CO (YOX)	BLK	LC: 81.8-87.1
11	88.8-91.2	2.4	SH	DGR, VDGR	
**	91.2-94.6	3.4	CO (Y1X)	BLK	LC: 91.2-92.6, 93.8-94.6
12	94.6-96.0	1.4	SH	DGR, RDBR	LC: 94.6-95.1
13	96.0-102.1	6.1	SS	LBRGR, GR	
**	102.1-111.3	9.2	CO (NXX)	BLK	LC: 102.1-104.7
14#	111.3-118.0	6.7	SH	DGR	SILTY
15	118.0-119.6	1.6	CO, SH	VDGR, BLK	
16	119.6-124.7	5.1	SS	LBRGR, GR	
17	124.7-126.9	2.2	SH, SL	VDGR	
18	126.9-134.7	7.8	SS	GR	
19	134.7-138.9	4.2	SL	DGR	
20	138.9-142.3	3.4	CO, SH	VDGR, BLK	
21	142.3-148.0	5.7	SS	GR	
22	148.0-158.0	10.0	SL	DGR	LC: 150.0-150.7
23	158.0-161.1	3.1	SL	DGR	
24#	161.1-163.7	2.6	SH, CO	VDGR, BLK	
**	163.7-173.6	9.9	CO (EXX)	BLK	
25	173.6-174.9	1.3	SH, CO	VDGR, BLK	
26	174.9-179.0	4.1	SS	GR	
27	179.0-185.5	6.5	SL, SS	GR, DGR	

* Core boxes 1 through 19, 10 foot of core per box except Box 19 that represents 5.5 feet.

Designated duplicate sample, process core, send representative split to Energy Lab.

** Mineable coal seam, process core & store, no analyses required at this time.

+ The following increments were removed to perform coal washability analyses: 88.8-89.1, 107.1-107.2, 111.3-111.6, 164.9-165.2, 173.05-173.15, & 173.6-173.9.

CORE NO: 30366EO

Mine Area: J06, Peabody Coordinates: 28075.93E, -38183.23N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	6.80	SS		8.3	2.1	1.1	3.3	15.0	10.0	76	15	9	0.01			0.42
6.80	2.80	SH		7.9	4.2	5.5	10.1	25.0	8.9	33	33	35	0.02			0.67
9.60	8.50	SS		7.4	4.9	28.4	16.2	16.2	3.4	65	18	18	0.02			0.58
18.10	11.90	SS		6.8	3.7	18.0	14.2	11.1	2.8	76	11	13	0.02			0.70
30.00	8.70	SS		7.8	10.4	27.2	129.2	30.2	3.4	49	30	21	0.14			4.42
38.70	10.40	SS		7.6	6.8	23.0	29.6	36.9	7.2	28	39	34	0.05			1.66
49.10	9.80	SS		7.0	6.6	5.7	12.4	68.7	22.8	51	29	20	0.03			0.97
58.90	11.10	SH		3.2	16.0	43.1	135.7	75.3	8.0	41	36	23	0.45	0.08		14.01
70.00	6.50	SS		7.0	6.6	33.8	44.4	33.0	5.3	64	24	13	0.21			6.42
76.50	4.30	SL		6.1	12.0	35.3	103.7	76.1	9.1	23	48	30	0.43			13.40
80.80	1.00	SL		6.1	12.0	35.3	103.7	76.1	9.1	23	48	30	0.43			13.40
81.80	7.00	CO	Y0X	2.5	38.8	53.4	306.9	2.4	0.2	68	18	15	2.38	0.94		74.19
88.80	2.40	SH		3.5	21.2	40.2	140.7	235.8	24.8	23	31	46	0.26	0.02		8.07
91.20	3.40	CO	Y1X													
94.60	1.40	SH		6.0	14.6	35.3	271.5	30.4	2.5	46	29	25	0.84			26.38
96.00	6.10	SS		3.0	15.8	30.0	209.8	2.5	0.2	53	34	14	0.57	0.09		17.71
102.10	9.20	CO	NXX													
111.30	6.70	SH		8.4	1.8	0.3	0.2	15.8	31.2	18	35	48	0.29	0.12		9.21
118.00	1.60	CO		7.9	1.3	5.3	0.2	12.4	7.5	60	18	23	0.41	0.08		12.76
119.60	5.10	SS		8.7	2.3	0.4	0.2	21.4	38.1	63	23	15	0.03			1.00
124.70	2.20	SH		8.7	1.3	0.2	0.2	12.2	27.4	21	43	36	0.97	0.87		30.40
126.90	7.80	SS		9.1	1.3	0.1	0.1	12.9	40.2	39	34	28	0.06			1.75
134.70	4.20	SL		9.6	1.1	0.1	0.1	10.6	32.3	13	43	45	0.06			1.86
138.90	3.40	SH		8.5	1.4	0.2	0.1	13.1	36.2	39	21	40	0.59	0.30		18.53
142.30	5.70	SS		9.0	1.9	0.9	0.4	17.9	22.8	60	19	21	0.04			1.33
148.00	10.00	SL		9.4	1.3	0.2	0.2	12.7	27.5	23	38	40	0.05			1.71
158.00	3.10	SL		9.5	1.2	0.1	0.4	11.7	23.2	14	41	45	0.09			2.77
161.10	2.60	SH		9.1	0.9	0.2	0.3	8.4	17.6	38	19	44	0.15			4.59
163.70	9.90	CO	EXX													
173.60	1.30	SH		7.8	0.8	0.4	0.2	7.1	12.4	63	13	25	0.23	0.04		7.11
174.90	4.10	SS		8.2	1.3	0.9	0.4	10.3	12.7	50	25	25	0.04			1.31
179.00	6.50	SL		8.6	1.2	0.9	0.9	9.3	9.8	40	33	28	0.03			0.84

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CORE NO: 30366EO

Mine Area: J06, Peabody Coordinates: 28075.93E, -38183.23N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	6.80	SS		12.49	12.07	<0.02		0.32	<0.50
6.80	2.80	SH		9.68	9.01	<0.02		0.22	<0.50
9.60	8.50	SS		8.57	7.99	<0.02		0.28	<0.50
18.10	11.90	SS		0.85	0.15	<0.02		0.22	0.57
30.00	8.70	SS		89.05	84.63	0.04		1.02	<0.50
38.70	10.40	SS		20.70	19.03	0.16		0.60	<0.50
49.10	9.80	SS		10.65	9.68	0.07		0.38	<0.50
58.90	11.10	SH		-8.95	-22.96	0.07		0.77	1.15
70.00	6.50	SS		111.95	105.53	0.03		0.20	<1.25
76.50	4.30	SL		23.89	10.49	0.12		0.70	<0.50
80.80	1.00	SL		23.89	10.49	0.12		0.70	<0.50
81.80	7.00	CO	Y0X	-25.61	-99.80	0.03		1.05	7.75
88.80	2.40	SH		-14.34	-22.40	0.38		4.25	3.18
91.20	3.40	CO	Y1X						
94.60	1.40	SH		45.92	19.55	0.05		0.82	<0.50
96.00	6.10	SS		-5.51	-23.23	0.02		1.02	0.75
102.10	9.20	CO	NXX						
111.30	6.70	SH		4.29	-4.92	0.22		1.20	0.99
118.00	1.60	CO		7.71	-5.05	0.11		1.50	1.46
119.60	5.10	SS		35.03	34.03	0.05		0.30	<0.50
124.70	2.20	SH		4.78	-25.63	0.15		0.82	0.65
126.90	7.80	SS		22.29	20.54	0.08		0.35	1.26
134.70	4.20	SL		5.01	3.16	0.14		0.50	1.09
138.90	3.40	SH		7.71	-10.82	0.26		2.13	1.16
142.30	5.70	SS		41.52	40.18	0.08		0.25	<0.50
148.00	10.00	SL		18.01	16.29	0.16		0.45	1.13
158.00	3.10	SL		8.70	5.92	0.19		0.73	1.26
161.10	2.60	SH		7.22	2.64	0.14		1.80	0.99
163.70	9.90	CO	EXX						
173.60	1.30	SH		6.25	-0.86	0.06		2.58	2.81
174.90	4.10	SS		1.34	0.04	0.08		0.38	1.03
179.00	6.50	SL		3.31	2.47	0.09		0.30	0.95

HOLE NUMBER: 30367EO*

MINE AREA: J6

DATE: 8/5/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
N/A	0.0-37.0	37.0	BRN	N/A	LC: 0.0-37.0
1	37.0-46.0	9.0	SS	LRDBR, LBRGR	LC: 40.0-41.0
2	46.0-53.0	7.0	SS	LRDBR, LBRGR	
3	53.0-56.9	3.9	SH, CO	VDGR, BLK	LC: 53.0-54.0, 55.1-56.0
4	56.9-61.6	4.7	SS	GR, RDGR	LC: 60.0-61.6
5	61.6-72.0	10.4	SL	DGR	
6	72.0-77.1	5.1	SS	LGR	
7#	77.1-82.5	5.4	SL	DGR	
8	82.5-83.5	1.0	SH	VDGR	
**	83.5-91.2	7.7	CO (YOX)	BLK	
9	91.2-94.5	3.3	SS	GR, DGR	
**	94.5-99.0	4.5	CO (Y1X)	BLK	
10	99.0-102.5	3.5	SS	GR	
11	102.5-105.6	3.1	CO, SH	BLK, VDGR	CO: 102.5-104.4
12	105.6-108.4	2.8	SL	DGR	
**	108.4-115.1	6.7	CO (NXX)	BLK	
13	115.1-116.7	1.6	SH, CO	VDGR, BLK	
14	116.7-122.0	5.3	SL, SH	DGR	
15	122.0-125.6	3.6	SH, CO	VDGR, BLK	LC: 122.0-122.3, CO: 123.7-124.8
16	125.6-131.5	5.9	SS	LGR, GR	
17#	131.5-134.5	3.0	SH, CO	VDGR, BLK	SILTY
18	134.5-143.9	9.4	SS	LGR	LC: 140.0-140.2
19	143.9-151.5	7.6	SL, SH	DGR	
20	151.5-158.9	7.4	SH, CO	DGR-BLK	LC: 152.9-154.0
21	158.9-163.7	4.8	SL	DGR	
**	163.7-175.8	12.1	CO (EXX)	BLK	
22	175.8-185.8	10.0	SL	DGR	

* Core boxes 1 through 16, 10 foot of core per box except Box 1 that represents 40 feet.

Designated duplicate sample, process core, send representative split to Energy Lab.

** Mineable coal seam, process core & store, no analyses required at this time.

+ The following increments were removed to perform coal washability analyses: 86.67-86.74, 91.2-91.5, 97.33-97.40, 99.0-99.3, 112.83-112.93, 115.1-115.4, 163.9-164.1, & 175.8-176.1.

CORE NO: 30367EO

Mine Area: J06, Peabody Coordinates: 27412.31E, -39939.58N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	37.00	LC														
37.00	9.00	SS		7.7	8.6	10.9	12.7	85.7	24.9	38	40	23	0.05			1.56
46.00	7.00	SS		8.1	7.6	10.1	13.2	74.8	21.9	60	23	18	0.04			1.39
53.00	3.90	SH		3.1	15.6	28.7	36.9	149.6	26.1	50	23	28	0.25	0.01		7.89
56.90	4.70	SS		5.8	9.3	8.8	21.5	110.5	28.4	21	50	29	0.05			1.57
61.60	10.40	SL		3.9	12.5	31.5	120.9	49.6	5.7	43	40	18	0.41	0.12		12.89
72.00	5.10	SS		6.9	6.3	24.1	28.5	43.4	8.5	63	24	14	0.15			4.80
77.10	5.40	SL		7.8	4.0	1.0	1.0	38.4	38.9	41	35	24	0.91	0.90		28.53
82.50	1.00	SH		6.9	4.6	1.4	0.9	46.1	42.5	21	44	35	3.45	3.34		107.72
83.50	7.70	CO	Y0X													
91.20	3.30	SS		8.0	2.4	0.6	0.3	23.6	35.4	45	34	21	0.22			6.79
94.50	4.50	CO	Y1X													
99.00	3.50	SS		6.8	5.9	14.5	5.9	56.1	17.6	45	38	18	1.09	0.73		34.11
102.50	3.10	CO		7.7	1.2	0.4	0.2	11.6	22.9	78	10	13	0.38	0.16		11.75
105.60	2.80	SL		8.9	0.9	0.1	0.1	8.7	23.8	8	53	40	0.05			1.48
108.40	6.70	CO	NXX													
115.10	1.60	SH		7.4	3.7	0.5	0.2	33.6	54.5	38	23	40	1.17	0.74		36.39
116.70	5.30	SL		9.2	1.3	0.1	0.0	12.1	57.1	5	43	53	0.17			5.38
122.00	3.60	SH		8.4	1.0	0.2	0.2	9.9	20.5	49	18	34	0.29	0.13		9.13
125.60	5.90	SS		8.4	2.3	0.6	0.8	20.2	23.6	65	21	14	0.09			2.80
131.50	3.00	SH		8.2	2.0	1.1	1.9	18.3	14.8	40	33	28	0.84	0.64		26.26
134.50	9.40	SS		8.6	2.5	0.5	0.7	22.0	27.7	70	15	15	0.03			1.07
143.90	7.60	SL		9.3	1.1	0.2	0.6	10.0	16.3	21	36	43	0.07			2.15
151.50	7.40	SH		9.0	1.3	0.1	0.2	12.4	31.1	15	33	53	0.40	0.21		12.43
158.90	4.80	SL		9.4	1.1	0.1	0.0	10.3	39.8	13	40	48	0.13			4.07
163.70	12.10	CO	EXX													
175.80	10.00	SL		8.6	0.8	0.3	0.1	6.8	16.2	13	48	40	0.07			2.12

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CORE NO: 30367EO

Mine Area: J06, Peabody Coordinates: 27412.31E, -39939.58N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	37.00	LC							
37.00	9.00	SS		5.75	4.20	0.17		0.70	0.60
46.00	7.00	SS		37.48	36.09	0.13		0.40	<0.50
53.00	3.90	SH		-10.41	-18.31	0.23		1.75	3.16
56.90	4.70	SS		5.75	4.18	0.11		0.57	<0.50
61.60	10.40	SL		-0.61	-13.50	0.03		0.93	1.45
72.00	5.10	SS		110.48	105.68	0.02		1.05	<0.50
77.10	5.40	SL		24.38	-4.15	0.09		0.77	<0.50
82.50	1.00	SH		4.78	-102.94	0.07		1.98	<0.50
83.50	7.70	CO	Y0X						
91.20	3.30	SS		14.09	7.30	0.13		1.13	<0.50
94.50	4.50	CO	Y1X						
99.00	3.50	SS		14.57	-19.54	0.15		1.05	<0.50
102.50	3.10	CO		7.22	-4.52	0.03		2.58	0.87
105.60	2.80	SL		2.33	0.85	0.23		1.38	0.70
108.40	6.70	CO	NXX						
115.10	1.60	SH		5.75	-30.64	0.51		4.22	0.98
116.70	5.30	SL		7.22	1.85	0.19		1.17	0.96
122.00	3.60	SH		6.74	-2.39	0.11		2.03	0.84
125.60	5.90	SS		71.04	68.24	0.03		0.45	<0.50
131.50	3.00	SH		11.63	-14.63	0.14		1.00	0.87
134.50	9.40	SS		58.30	57.23	0.04		0.15	<0.50
143.90	7.60	SL		10.16	8.02	0.21		0.40	1.20
151.50	7.40	SH		7.22	-5.21	0.50		1.35	1.28
158.90	4.80	SL		15.07	11.00	0.25		0.90	1.08
163.70	12.10	CO	EXX						
175.80	10.00	SL		3.31	1.18	0.12		0.75	1.85

CORE NO: 30364EO

Mine Area: J09, Peabody Coordinates: 30924.85E, -54735.81N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium	Sand	Silt	Clay	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
									Absorption Ratio (SAR)							
0.00	10.00	SS		8.2	2.1	2.5	6.5	11.0	5.4	60	29	11	<0.01			0.01
10.00	10.00	SS		8.0	1.5	3.0	5.1	6.5	3.2	58	28	14	<0.01			0.01
20.00	10.00	SS		8.4	0.7	2.3	2.9	2.8	1.7	91	3	6	<0.01			0.01
30.00	10.00	SS		8.4	0.6	2.3	2.7	2.3	1.5	83	12	5	<0.01			0.01
40.00	4.70	SS		7.6	0.8	3.0	2.8	2.8	1.7	79	15	6	0.08			2.50
44.70	4.80	CO	RXX													
49.50	2.80	SH		8.8	0.9	0.4	0.1	8.5	16.7	8	52	40	0.06			1.76
52.30	5.10	SS		8.9	0.6	0.4	0.1	6.5	13.1	25	45	30	<0.01			0.01
57.40	6.00	SH		8.8	1.4	0.4	0.2	10.0	19.3	12	47	41	0.20			5.88
63.40	2.80	CO	MXX													
66.20	2.00	SH		8.0	1.1	0.2	0.0	10.0	28.2	65	27	8	0.60	0.20	0.30	7.66
68.20	3.80	SS		8.5	1.7	0.5	0.2	16.0	27.8	52	33	15	0.07			2.12
72.00	3.60	SL		8.4	1.5	0.3	0.1	14.0	29.4	8	71	21	1.80	1.50	0.20	47.60
75.60	3.70	SH		8.1	1.3	0.3	0.1	12.0	26.3	47	25	28	1.00	0.60	0.40	16.60
79.30	9.80	SS		9.0	0.8	0.4	0.1	8.3	16.5	30	44	26	0.05			1.69
89.10	8.20	SS		8.7	1.2	0.4	0.1	12.0	23.8	42	38	20	<0.01			0.08
97.30	1.50	CO		8.3	1.2	0.4	0.2	13.0	24.7	30	45	25	0.10			3.91
98.80	7.20	SS		8.9	0.8	0.2	0.1	7.7	19.9	75	19	6	0.03			0.83
106.00	9.00	SS		9.3	0.9	0.2	0.1	8.3	20.6	66	24	10	<0.01			0.01
115.00	7.40	SS		8.7	0.9	0.2	0.1	8.3	21.9	70	20	10	0.03			0.97
122.40	15.40	CO	YNX													
137.80	5.30	SL		8.7	0.7	0.3	0.1	7.0	15.9	21	43	36	0.05			1.45
143.10	2.10	SH		8.6	0.6	0.6	0.2	6.9	11.1	25	42	33	0.10			3.01

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Revised 11/21/03

CORE NO: 30364EO

Mine Area: J09, Peabody Coordinates: 30924.85E, -54735.81N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		20.00	20.00	<0.05	<0.05	0.10	0.18
10.00	10.00	SS		11.30	11.30	<0.05	<0.05	0.30	0.17
20.00	10.00	SS		62.50	62.40	<0.05	<0.05	<0.10	0.17
30.00	10.00	SS		67.80	67.80	<0.05	<0.05	<0.10	0.16
40.00	4.70	SS		3.09	0.59	<0.05	<0.05	0.30	0.20
44.70	4.80	CO	RXX						
49.50	2.80	SH		5.37	3.62	0.09	0.10	0.70	0.28
52.30	5.10	SS		29.10	29.10	0.11	0.12	0.40	0.21
57.40	6.00	SH		21.90	16.00	0.14	0.17	1.10	0.23
63.40	2.80	CO	MXX						
66.20	2.00	SH		6.67	-0.98	0.06	0.10	2.50	0.28
68.20	3.80	SS		89.50	87.40	<0.05	0.10	0.40	0.19
72.00	3.60	SL		9.03	-38.50	0.07	0.13	0.70	0.20
75.60	3.70	SH		7.57	-11.00	0.10	0.15	1.40	0.27
79.30	9.80	SS		37.80	36.10	<0.05	0.06	0.30	0.20
89.10	8.20	SS		36.10	36.00	<0.05	0.10	0.50	0.21
97.30	1.50	CO		25.20	21.30	0.08	0.14	0.80	0.27
98.80	7.20	SS		32.00	31.10	<0.05	<0.05	<0.10	0.18
106.00	9.00	SS		29.70	29.70	<0.05	<0.05	<0.10	0.18
115.00	7.40	SS		14.00	13.10	0.09	0.16	0.40	0.19
122.40	15.40	CO	YNX						
137.80	5.30	SL		7.92	6.48	0.14	0.18	0.70	0.20
143.10	2.10	SH		9.69	6.69	0.07	0.11	1.30	0.17

HOLE NUMBER: 30360EO*

MINE AREA: J14

DATE: 7/25-26/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-11.1	11.1	SS	RBR, LRBR	LC: 0.0-5.0, 10.0-10.7
2	11.1-21.1	10.0	SH	RBR, RGR	SANDY
3	21.1-31.1	10.0	SS	LGR	LC: 30.0-31.1
4	31.1-35.7	4.6	SS	LGR	LC: 31.1-31.3
5	35.7-42.2	6.5	SS	GR	LC: 40.0-41.5, SILTY
6	42.2-48.5	6.3	SS	DGR	SILTY
7	48.5-54.4	5.9	SS	GR	SILTY
8	54.4-58.2	3.8	CO, SH	VDGR, BLK	
**	58.2-61.8	3.6	CO (MOX)	BLK	
9+	61.8-63.7	1.9	SH	VDGR	
10#	63.7-65.3	1.6	CO (M1X)	BLK	NONMINEABLE
11	65.3-67.8	2.5	SH	DGR, VDGR	
12	67.8-77.5	9.7	SS	GR	SILTY
13	77.5-81.5	4.0	SL	DGR	SHALEY
**	81.5-92.6	11.1	CO (YXX)	BLK	
14+	92.6-99.0	6.4	SS, SL	GR	
**	99.0-102.4	3.4	CO (NOX)	BLK	
15+	102.4-106.0	3.6	SL	GR	SANDY
16	106.0-108.2	2.2	SH, CO	VDGR, BLK	
** +	108.2-114.5	6.3	CO (N1X)	BLK	LC: 111.7-112.0
17+	114.5-120.9	6.4	SH, SL	DGR	LC: 120.0-120.5
18	120.9-125.6	4.7	SH, CO	VDGR, BLK	
19	125.6-134.7	9.1	SL	DGR	
20#	134.7-138.3	3.6	SH, CO	VDGR	
21	138.3-144.6	6.3	SL	DGR	LC: 140.0-142.1
22	144.6-148.0	3.4	SH	VDGR	
23	148.0-156.6	8.6	SL	DGR	
24	156.6-160.4	3.8	SH	VDGR	
25	160.4-164.6	4.2	SL, SS	DGR	
26	164.6-167.0	2.4	SH, CO	VDGR, BLK	
** +	167.0-176.7	9.7	CO (EXX)	BLK	LC: 170.0-171.5
27+	176.7-181.1	4.4	SH	GR, DGR	
28	181.1-191.1	10.0	SL	GR	
29	191.1-194.0	2.9	SL	DGR	
30#	194.0-196.0	2.0	SH, CO	VDGR, BLK	
**	196.0-199.7	3.7	CO (E3X)	BLK	
31+	199.7-203.6	3.9	SL, SS	GR	LC: 200.0-200.4
32	203.6-210.0	6.4	SH	DGR	

CORE NO: 30360EO

Mine Area: J14, Peabody Coordinates: 19406.16E, -34299.93N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
									Absorption Ratio (SAR)							
0.00	11.10	SS		7.6	1.7	6.4	5.7	7.4	3.0	39	37	24	<0.01			0.09
11.10	10.00	SH		7.6	1.3	5.6	4.1	4.2	1.9	17	51	32	<0.01			0.04
21.10	10.00	SS		7.6	0.6	2.9	1.6	1.7	1.1	79	14	7	<0.01			0.03
31.10	4.60	SS		6.7	0.8	3.8	3.4	2.0	1.1	74	16	10	0.02			0.57
35.70	6.50	SS		7.4	1.2	5.3	7.8	2.5	1.0	49	32	19	0.02			0.75
42.20	6.30	SS		7.6	1.2	4.8	6.2	2.2	0.9	49	33	18	<0.01			0.04
48.50	5.90	SS		7.6	1.4	5.3	6.4	1.7	0.7	63	27	10	0.01			0.31
54.40	3.80	CO		7.0	1.3	5.2	6.4	1.7	0.7	76	12	12	1.30	0.50	0.70	17.10
58.20	3.60	CO	MOX													
61.80	1.90	SH		7.0	1.8	7.9	12.0	2.6	0.8	43	34	23	1.10	0.60	0.40	19.30
63.70	1.60	CO	M1X		7.1	0.7	1.4	2.0	1.2	89	11	<1	0.80	0.20	0.50	7.63
65.30	2.50	SH		7.3	1.2	3.2	6.6	3.4	1.5	22	44	34	0.70	0.40	0.30	12.40
67.80	9.70	SS		7.7	0.9	2.2	4.5	2.7	1.4	56	32	12	0.07			2.19
77.50	4.00	SL		7.5	1.7	4.6	10.0	4.5	1.6	20	56	24	1.40	1.10	0.20	34.50
81.50	11.10	CO	YXX													
92.60	6.40	SS		7.6	3.8	2.2	0.8	35.0	28.8	39	46	15	0.90			27.50
99.00	3.40	CO	NOX													
102.40	3.60	SL		8.7	1.7	0.5	0.2	19.0	32.5	41	34	25	0.10			4.06
106.00	2.20	SH		8.5	1.3	0.4	0.1	13.0	27.0	19	41	40	0.30			10.00
108.20	6.30	CO	N1X													
114.50	6.40	SH		8.9	1.2	0.3	0.1	13.0	29.1	1	17	82	0.20			6.88
120.90	4.70	SH		9.0	1.4	0.1	0.1	9.9	31.8	23	42	35	0.10			4.38
125.60	9.10	SL		8.7	0.8	0.1	0.1	7.8	26.6	39	39	22	0.06			1.88
134.70	3.60	SH		8.2	1.0	0.2	0.1	11.0	27.9	37	41	22	0.60			20.00
138.30	6.30	SL		9.1	1.2	0.2	0.1	10.0	26.1	16	44	40	0.20			7.81
144.60	3.40	SH		9.2	1.2	0.4	0.2	15.0	29.6	2	52	46	0.10			3.13
148.00	8.60	SL		9.2	0.8	0.2	0.1	5.9	14.4	15	51	34	0.10			3.07
156.60	3.80	SH		9.3	0.7	0.2	0.1	6.8	19.3	20	32	48	0.10			3.31
160.40	4.20	SL		8.9	0.8	0.3	0.1	7.6	17.2	34	41	25	0.09			2.82
164.60	2.40	SH		8.5	0.5	0.2	0.1	4.2	10.6	43	30	27	0.20			5.25
167.00	9.70	CO	EXX													
176.70	4.40	SH		8.9	0.6	0.2	0.1	5.2	15.1	11	60	29	0.10			3.03
181.10	10.00	SL		8.7	0.7	0.2	0.1	7.6	19.1	44	39	17	0.06			1.78
191.10	2.90	SL		9.0	0.6	0.3	0.2	5.6	11.7	12	55	33	0.09			2.88
194.00	2.00	SH		8.0	0.9	0.1	<0.0	7.6	39.0	75	19	6	0.70	0.20	0.50	5.09
196.00	3.70	CO	E3X													
199.70	3.90	SL		7.3	1.6	0.3	0.2	12.0	21.8	66	32	2	0.30	0.10	0.20	4.00
203.60	6.40	SH		8.8	0.8	0.2	0.1	7.5	20.2	16	50	34	0.10			4.53

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Revised 11/21/03

CORE NO: 30360EO

Mine Area: J14, Peabody Coordinates: 19406.16E, -34299.93N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	11.10	SS		116.00	116.00	<0.05	<0.05	0.20	0.31
11.10	10.00	SH		54.00	53.90	<0.05	<0.05	0.20	0.32
21.10	10.00	SS		8.11	8.09	<0.05	<0.05	<0.10	0.23
31.10	4.60	SS		5.43	4.68	<0.05	<0.05	<0.10	0.26
35.70	6.50	SS		11.10	10.30	<0.05	<0.05	0.10	0.24
42.20	6.30	SS		128.00	128.00	<0.05	0.07	0.40	0.24
48.50	5.90	SS		128.00	128.00	<0.05	0.08	0.20	0.24
54.40	3.80	CO		14.30	-2.85	0.06	0.08	2.20	0.54
58.20	3.60	CO	MOX						
61.80	1.90	SH		8.93	-10.40	<0.05	0.07	1.50	0.61
63.70	1.60	CO	M1X	13.00	5.41	<0.05	<0.05	0.60	0.89
65.30	2.50	SH		11.60	-0.86	0.11	0.15	0.80	0.61
67.80	9.70	SS		67.80	65.70	<0.05	0.07	0.30	0.30
77.50	4.00	SL		29.60	-4.86	0.06	0.12	0.60	0.43
81.50	11.10	CO	YXX						
92.60	6.40	SS		45.60	18.10	0.05	0.07	0.40	0.28
99.00	3.40	CO	NOX						
102.40	3.60	SL		43.80	39.80	0.07	0.09	0.50	0.26
106.00	2.20	SH		24.40	14.40	0.21	0.26	1.20	0.31
108.20	6.30	CO	N1X						
114.50	6.40	SH		22.10	15.20	0.17	0.19	0.60	0.26
120.90	4.70	SH		43.40	39.00	0.09	0.10	0.80	0.30
125.60	9.10	SL		51.70	49.80	<0.05	0.06	0.40	0.27
134.70	3.60	SH		43.30	23.30	0.06	0.11	0.90	0.35
138.30	6.30	SL		31.30	23.50	0.12	0.13	0.70	0.30
144.60	3.40	SH		24.00	20.90	0.17	0.20	0.50	0.69
148.00	8.60	SL		15.50	12.50	0.11	0.13	0.40	0.30
156.60	3.80	SH		7.62	4.31	0.10	0.11	0.50	0.36
160.40	4.20	SL		44.60	41.80	0.05	0.09	0.40	0.29
164.60	2.40	SH		21.20	16.00	<0.05	<0.05	1.50	0.38
167.00	9.70	CO	EXX						
176.70	4.40	SH		5.71	2.69	0.07	0.10	0.60	0.30
181.10	10.00	SL		48.50	46.70	<0.05	0.07	0.30	0.29
191.10	2.90	SL		16.20	13.30	0.15	0.20	0.60	0.27
194.00	2.00	SH		4.68	-0.41	<0.05	0.07	2.40	0.65
196.00	3.70	CO	E3X						
199.70	3.90	SL		-1.16	2.84	0.09	0.14	1.10	0.41
203.60	6.40	SH		1.53	6.06	0.10	0.14	0.70	0.37

HOLE NUMBER: 30361EO*

MINE AREA: J14

DATE: 7/26-27/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-18.0	18.0	SL	GRBR	LC: 0.0-15.9
2	18.0-26.1	8.1	SS, SL	LGR, DGR	LC: 20.0-20.4
3	26.1-29.0	2.9	SH	VDGR	
4	29.0-32.0	3.0	SL, SS	GR, DGR	
5	32.0-35.9	3.9	CO (NOX), SH	VDGR, BLK	NONMINABLE
6	35.9-41.1	5.2	SH	DGR	LC: 40.0-41.1
7	41.1-45.4	4.3	SH, CO	VDGR, BLK	
** +	45.4-49.8	4.4	CO (N1X)	BLK	
8# +	49.8-54.1	4.3	SL	GR	SANDY
9	54.1-61.7	7.6	SS	GR	LC: 60.0-60.6, SILTY
10	61.7-66.3	4.6	SS	GR, LGR	
11	66.3-68.5	2.2	CO, SH	VDGR	
12	68.5-74.5	6.0	SS	LGR	
13	74.5-76.6	2.1	SH	DGR, VDGR	SILTY
14	76.6-79.5	2.9	SS	GR	
15	79.5-87.5	8.0	SL	GR, DGR	LC: 80.0-81.6
16	87.5-90.0	2.5	SH	DGR	
17	90.0-92.8	2.8	SS	GR	
18#	92.8-102.5	9.7	SL	DGR	SHALEY
19	102.5-106.8	4.3	SS	GR	COAL LENSES
20	106.8-115.5	8.7	SS	GR	
21	115.5-120.0	4.5	SH	DGR	SILTY
** +	120.0-129.5	9.5	CO (EXX)	BLK	
22+	129.5-134.7	5.2	SL	DGR	LC: 130.0-130.9
23	134.7-140.0	5.3	SH, CO	VDGR, BLK	
24	140.0-146.8	6.8	SL	DGR	SHALEY
25	146.8-148.2	1.4	SH, CO	VDGR, BLK	
**	148.2-151.9	3.7	CO (E3X)	BLK	LC: 150.0-151.0
26+	151.9-157.3	5.4	SL, SH	DGR, VDGR	
27	157.3-165.0	7.7	SL, SS	GR	

* Core boxes 1 through 16, 10 foot of core per box except Box 1 that represents 20 feet.

Designated duplicate sample, process core, send representative split to GAL.

** Mineable coal seam, process core & store, no analyses required at this time.

+ The following increments were removed to perform coal washability analyses: 46.55-46.65, 48.15-48.20, 49.8-50.1, 121.1-121.4, 129.5-129.8, & 151.9-152.0.

CORE NO: 30361EO

Mine Area: J14, Peabody Coordinates: 21403.35E, -35348.07N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption			Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)	
									Ratio (SAR)	Sand (%)	Silt (%)					Clay (%)
0.00	18.00	SL		3.2	6.8	22.0	72.0	9.3	1.4	34	42	24	0.10	0.02	0.03	0.69
18.00	8.10	SS		6.7	7.0	30.0	110.0	6.4	0.8	56	32	12	0.05			1.68
26.10	2.90	SH		3.4	13.0	28.0	217.0	3.4	0.3	36	46	18	0.50	0.10	0.10	4.38
29.00	3.00	SL		3.2	13.0	28.0	137.0	2.3	0.2	42	48	10	1.20	0.70	0.20	22.20
32.00	3.90	CO	N0X	5.0	5.0	26.0	31.0	18.0	3.4	82	10	8	1.20	0.30	0.70	7.94
35.90	5.20	SH		7.7	2.1	3.3	2.7	14.0	8.0	13	53	34	0.30			8.59
41.10	4.30	SH		7.3	2.1	3.0	2.4	15.0	9.2	31	41	28	0.40	0.20	0.20	7.41
45.40	4.40	CO	N1X													
49.80	4.30	SL		9.1	1.8	0.4	0.2	17.0	29.6	26	46	28	0.20			5.28
54.10	7.60	SS		8.9	2.6	0.5	0.3	31.0	48.0	62	25	13	0.09			2.72
61.70	4.60	SS		8.9	1.6	0.2	0.1	14.0	34.9	72	19	9	<0.01			0.13
66.30	2.20	CO		8.6	1.2	0.1	0.1	12.0	34.4	38	41	21	0.10			4.13
68.50	6.00	SS		8.6	1.5	0.2	0.1	14.0	38.7	73	26	1	<0.01			0.14
74.50	2.10	SH		9.1	1.7	0.7	0.4	17.0	23.2	20	62	18	1.00	0.80	0.10	26.30
76.60	2.90	SS		8.9	3.3	0.2	0.1	37.0	91.8	65	28	7	0.10			3.63
79.50	8.00	SL		9.2	1.7	0.2	0.1	17.0	48.1	33	43	24	0.08			2.43
87.50	2.50	SH		9.5	0.9	0.1	0.1	8.8	29.2	26	49	25	0.03			0.88
90.00	2.80	SS		9.0	1.6	0.2	0.1	15.0	41.9	60	30	10	0.07			2.09
92.80	9.70	SL		9.3	1.4	0.1	0.1	13.0	40.8	24	50	26	0.07			2.33
102.50	4.30	SS		9.0	1.6	0.1	0.1	15.0	52.1	59	26	15	0.09			2.90
106.80	8.70	SS		9.0	1.3	0.1	0.1	12.0	37.1	51	36	13	0.04			1.40
115.50	4.50	SH		9.1	0.9	0.2	0.1	9.9	25.1	36	43	21	0.10			3.03
120.00	9.50	CO	EXX													
129.50	5.20	SL		8.8	1.4	0.3	0.2	15.0	30.3	25	51	24	0.05			1.57
134.70	5.30	SH		8.8	0.8	0.2	0.1	7.7	22.7	29	43	28	0.10			3.75
140.00	6.80	SL		8.7	0.8	0.2	0.1	7.7	19.9	34	39	27	0.04			1.37
146.80	1.40	SH		8.1	0.7	0.2	0.1	7.7	20.6	62	24	14	0.30			10.60
148.20	3.70	CO	E3X													
151.90	5.40	SL		7.8	0.7	0.4	0.1	7.4	14.7	53	31	16	0.40	0.30	0.10	8.94
157.30	7.70	SL		8.5	0.6	0.2	0.1	6.5	16.1	40	42	18	0.06			1.76

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Revised 11/21/03

CORE NO: 30361EO

Mine Area: J14, Peabody Coordinates: 21403.35E, -35348.07N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	18.00	SL		-1.40	-2.10	0.18	0.21	0.20	0.27
18.00	8.10	SS		70.30	68.60	0.09	0.10	0.30	0.22
26.10	2.90	SH		-7.72	-11.50	<0.05	<0.05	0.40	0.32
29.00	3.00	SL		-7.02	-29.20	<0.05	<0.05	0.50	0.36
32.00	3.90	CO	N0X	5.31	-2.62	0.07	0.08	2.20	0.89
35.90	5.20	SH		43.80	35.20	0.09	0.15	1.00	0.28
41.10	4.30	SH		11.70	4.30	0.19	0.25	1.40	0.40
45.40	4.40	CO	N1X						
49.80	4.30	SL		6.97	1.69	0.15	0.17	0.70	0.22
54.10	7.60	SS		22.10	19.40	0.09	0.12	0.30	0.21
61.70	4.60	SS		47.40	47.20	<0.05	0.08	0.10	0.27
66.30	2.20	CO		8.39	4.26	0.14	0.19	0.90	0.41
68.50	6.00	SS		87.80	87.60	<0.05	<0.05	0.10	0.23
74.50	2.10	SH		17.40	-8.88	0.12	0.16	0.40	0.25
76.60	2.90	SS		10.20	6.58	0.06	0.09	0.20	0.21
79.50	8.00	SL		48.20	45.70	0.09	0.11	0.30	0.27
87.50	2.50	SH		8.92	8.04	0.08	0.09	0.20	0.26
90.00	2.80	SS		52.30	50.20	0.06	0.10	0.20	0.24
92.80	9.70	SL		26.20	23.80	0.11	0.13	0.30	0.26
102.50	4.30	SS		4.67	1.77	0.09	0.11	0.30	0.25
106.80	8.70	SS		47.90	46.50	<0.05	0.06	0.10	0.22
115.50	4.50	SH		10.20	7.13	0.09	0.12	1.00	0.34
120.00	9.50	CO	EXX						
129.50	5.20	SL		5.31	3.75	0.08	0.11	0.40	0.41
134.70	5.30	SH		25.90	22.10	0.10	0.14	0.70	0.46
140.00	6.80	SL		52.50	51.20	0.06	0.10	0.30	0.40
146.80	1.40	SH		24.00	13.40	0.07	0.11	2.00	0.99
148.20	3.70	CO	E3X						
151.90	5.40	SL		2.52	-6.42	0.06	0.14	1.30	0.94
157.30	7.70	SL		2.45	0.69	<0.05	0.07	0.20	0.60

HOLE NUMBER: 30363EO*

MINE AREA: J15

DATE: 7/28/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SL	GRBR	LC: 0.0-7.0
2#	10.0-18.5	8.5	SS	LBRGR	LC: 10.0-11.0
3	18.5-25.3	6.8	SS	LYBR, GRBR	SILTY
**	25.3-29.5	4.2	CO (R0X)	BLK	
4+	29.5-30.5	1.0	SH	VDGR, BLK	LC: 30.0-30.1
**	30.5-36.0	5.5	CO (R1X)	BLK	
5+	36.0-39.4	3.4	SH, CO	VDGR, BLK	
6	39.4-45.9	6.5	SS	GR	
7	45.9-47.9	2.0	SL	DGR	SANDY
8	47.9-50.0	2.1	CO, SH	VDGR, BLK	
9	50.0-53.3	3.3	SL	DGR	
10	53.3-56.9	3.6	SH, CO	VDGR, BLK	
11	56.9-65.6	8.7	SS, SL	GR	
12#	65.6-73.4	7.8	SL	GR	LC: 70.0-71.0, SANDY
13	73.4-82.8	9.4	SS	GR, LGR	
14	82.8-90.6	7.8	SS	LGR, LBRGR	
**	90.6-95.3	4.7	CO (Y0B)	BLK	LC: 91.4-94.0
15+	95.3-96.8	1.5	SL, SH	DGR	
** +	96.8-100.0	3.2	CO (Y1X)	BLK	
16+	100.0-106.8	6.8	SL	DGR	SHALEY
**	106.8-113.6	6.8	CO (N0X)	BLK	
17+	113.6-122.0	8.4	SL, SS	GR	
18	122.0-128.7	6.7	SS, SL	GR	
19	128.7-132.0	3.3	SH, CO	VDGR, BLK	LC: 130.0-130.3
**	132.0-137.1	5.1	CO (N1X)	BLK	
20+	137.1-142.6	5.5	SS	GR	
21	142.6-145.3	2.7	SH	DGR, VDGR	SILTY
22#	145.3-150.2	4.9	SH, CO	VDGR, BLK	SANDY
**	150.2-154.0	3.8	CO (E0X)	BLK	
23+	154.0-162.4	8.4	SS	GR, LGR	SILTY
24	162.4-172.0	9.6	SL	DGR	LC: 162.4-162.9
25	172.0-176.1	4.1	SL	DGR	
26	176.1-180.0	3.9	SH, CO	VDGR, BLK	SILTY
27	180.0-190.0	10.0	SL	GR	
28	190.0-191.2	1.2	SL, SH	VDGR	
**	191.2-196.0	4.8	CO (E1X)	BLK	LC: 191.2-193.0
29+	196.0-199.0	3.0	SH, CO	VDGR, BLK	LC: 198.0-199.0
**	199.0-204.0	5.0	CO (E2X)	BLK	LC: 199.0-199.5
30+	204.0-208.7	4.7	SL	DGR	LC: 205.2-206.0
31	208.7-212.2	3.5	SH	DGR, VDGR	
**	212.2-215.3	3.1	CO (E3X)	BLK	
32#+	215.3-218.7	3.4	SH, CO	VDGR, BLK	
33	218.7-220.0	1.3	SL	DGR	

CORE NO: 30363EO

Mine Area: J15, Peabody Coordinates: 12260.88E, -21413.75N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SL		8.0	2.9	6.6	23.0	7.2	1.9	35	34	31	0.02			0.72
10.00	8.50	SS		7.7	4.2	35.0	42.0	3.3	0.5	71	22	7	<0.01			0.01
18.50	6.80	SS		7.2	5.3	25.0	71.0	3.4	0.5	45	34	21	0.06			1.74
25.30	4.20	CO	R0X													
29.50	1.00	SH		6.8	3.5	16.0	15.0	19.0	4.7	73	19	8	1.90	1.30	0.50	42.20
30.50	5.50	CO	R1X													
36.00	3.40	SH		7.4	1.7	0.6	0.8	14.0	17.4	44	34	22	0.70	0.40	0.20	11.60
39.40	6.50	SS		8.4	1.9	0.3	0.3	18.0	33.6	59	29	12	0.07			2.31
45.90	2.00	SL		7.9	3.1	0.4	0.3	32.0	51.1	29	48	23	1.40	1.20	0.20	36.60
47.90	2.10	CO		7.4	3.4	0.5	0.4	35.0	51.1	45	30	25	1.90	1.30	0.50	40.40
50.00	3.30	SL		8.8	1.6	0.2	0.1	16.0	43.5	28	45	27	0.08			2.64
53.30	3.60	SH		8.0	2.0	0.2	0.1	20.0	46.0	59	21	20	1.40	0.04	0.50	1.16
56.90	8.70	SS		9.0	1.5	0.2	0.1	14.0	42.6	20	56	24	0.05			1.98
65.60	7.80	SL		8.8	2.6	0.2	0.1	26.0	66.5	20	53	27	0.07			2.32
73.40	9.40	SS		8.6	2.7	0.2	0.1	26.0	69.5	58	29	13	0.04			1.29
82.80	7.80	SS		8.6	1.8	0.2	0.1	16.0	39.4	73	22	5	0.10			3.22
90.60	4.70	CO	Y0B													
95.30	1.50	SL		8.3	2.0	0.1	0.1	18.0	60.2	30	50	20	0.40	0.30	0.07	10.20
96.80	3.20	CO	Y1X													
100.00	6.80	SL		8.1	2.9	0.3	0.2	27.0	53.0	32	50	18	1.20	1.00	0.10	29.80
106.80	6.80	CO	N0X													
113.60	8.40	SL		8.7	2.5	0.3	0.1	24.0	51.9	50	31	19	0.07			2.21
122.00	6.70	SS		8.7	1.8	0.3	0.2	18.0	37.4	60	27	13	0.05			1.72
128.70	3.30	SH		8.5	1.7	0.2	0.1	18.0	49.6	23	50	27	0.10			3.72
132.00	5.10	CO	N1X													
137.10	5.50	SS		8.5	2.0	0.4	0.2	18.0	33.7	60	30	10	0.10			3.31
142.60	2.70	SH		8.4	1.7	0.3	0.1	17.0	36.1	26	51	23	0.90	0.80	0.09	24.50
145.30	4.90	SH		7.8	2.0	0.3	0.1	18.0	35.8	53	21	26	0.60	0.30	0.20	10.50
150.20	3.80	CO	E0X													
154.00	8.40	SS		8.4	1.7	0.4	0.1	15.0	29.6	57	27	16	0.10			3.44
162.40	9.60	SL		8.8	1.4	0.4	0.2	14.0	25.8	26	44	30	0.10			3.38
172.00	4.10	SL		9.0	1.3	0.2	0.1	12.0	33.3	10	60	30	0.08			1.35
176.10	3.90	SH		8.5	1.9	0.3	0.1	19.0	43.4	31	47	22	0.40	0.10	0.10	4.31
180.00	10.00	SL		8.8	1.2	0.2	0.1	11.0	27.2	25	55	20	0.03			1.00
190.00	1.20	SL		8.7	0.9	0.4	0.2	11.0	21.8	21	59	20	0.06			1.73
191.20	4.80	CO	E1X													
196.00	3.00	SH		7.6	1.4	0.3	0.1	14.0	31.9	60	16	24	0.30			8.72
199.00	5.00	CO	E2X													
204.00	4.70	SL		7.7	2.9	1.7	0.6	29.0	27.0	57	33	10	0.70	0.60	0.10	17.90
208.70	3.50	SH		8.6	1.5	0.3	0.1	9.9	22.8	25	41	34	0.20			5.59
212.20	3.10	CO	E3X													
215.30	3.40	SH		8.0	1.7	0.4	0.1	15.0	29.3	56	22	22	0.30			9.03
218.70	1.30	SL		8.2	0.9	0.2	0.0	8.3	26.7	57	29	14	0.05	0.01	0.04	0.39

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Revised 11/21/03

CORE NO: 30363EO

Mine Area: J15, Peabody Coordinates: 12260.88E, -21413.75N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SL		26.90	26.20	<0.05	<0.05	1.30	0.29
10.00	8.50	SS		271.00	271.00	<0.05	<0.05	0.20	0.19
18.50	6.80	SS		8.50	6.76	<0.05	<0.05	0.50	0.22
25.30	4.20	CO	ROX						
29.50	1.00	SH		26.30	-15.90	<0.05	0.13	3.00	0.46
30.50	5.50	CO	R1X						
36.00	3.40	SH		9.32	-2.25	0.06	0.12	1.00	0.38
39.40	6.50	SS		75.50	73.20	<0.05	0.09	0.40	0.24
45.90	2.00	SL		34.50	-2.06	0.08	0.20	1.00	0.26
47.90	2.10	CO		15.10	-25.30	0.11	0.17	1.40	0.49
50.00	3.30	SL		35.60	33.00	0.06	0.10	0.50	0.31
53.30	3.60	SH		13.70	12.60	0.07	0.13	1.70	0.39
56.90	8.70	SS		11.90	9.90	0.12	0.13	0.40	0.35
65.60	7.80	SL		36.00	33.70	0.08	0.11	0.50	0.32
73.40	9.40	SS		35.50	34.20	<0.05	<0.05	0.30	0.27
82.80	7.80	SS		75.70	72.40	<0.05	0.07	0.30	0.24
90.60	4.70	CO	YOB						
95.30	1.50	SL		12.00	1.77	0.11	0.17	1.00	0.24
96.80	3.20	CO	Y1X						
100.00	6.80	SL		30.20	0.35	0.07	0.13	0.60	0.24
106.80	6.80	CO	NOX						
113.60	8.40	SL		35.10	32.90	0.06	0.08	0.30	0.24
122.00	6.70	SS		63.20	61.50	<0.05	0.07	0.30	0.20
128.70	3.30	SH		22.90	19.20	0.09	0.13	1.40	0.29
132.00	5.10	CO	N1X						
137.10	5.50	SS		43.60	40.30	<0.05	0.08	0.30	0.20
142.60	2.70	SH		15.00	-9.53	0.07	0.12	0.50	0.23
145.30	4.90	SH		6.67	-3.83	0.15	0.21	2.00	0.38
150.20	3.80	CO	E0X						
154.00	8.40	SS		34.80	31.40	0.06	0.09	0.40	0.23
162.40	9.60	SL		14.50	11.20	0.11	0.15	0.60	0.27
172.00	4.10	SL		3.81	2.47	0.11	0.16	0.60	0.27
176.10	3.90	SH		5.70	1.39	0.08	0.12	1.20	0.30
180.00	10.00	SL		29.10	28.10	0.09	0.12	0.40	0.27
190.00	1.20	SL		6.05	4.32	0.07	0.10	1.10	0.25
191.20	4.80	CO	E1X						
196.00	3.00	SH		32.20	23.50	0.10	0.14	3.40	0.48
199.00	5.00	CO	E2X						
204.00	4.70	SL		8.14	-9.76	0.11	0.19	0.90	0.26
208.70	3.50	SH		21.60	16.00	0.08	0.10	1.20	0.34
212.20	3.10	CO	E3X						
215.30	3.40	SH		11.40	2.33	0.07	0.09	1.60	0.44
218.70	1.30	SL		0.94	0.55	<0.05	<0.05	0.50	0.31

HOLE NUMBER: 30365EO*

MINE AREA: J23

DATE: 7/29-30/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-6.0	6.0	SO	RBR	LC: 0.0-3.8
2	6.0-15.8	9.8	SS	YBR	LC: 7.3-13.4
3	15.8-18.3	2.5	SH	GR	SILTY
4	18.3-20.0	1.7	CO, SH	VDGR, BLK	
5	20.0-29.1	9.1	SL	GR	LC: 20.0-21.8, SHALEY
6	29.1-32.7	3.6	SH, CO	VDGR, BLK	
7#	32.7-41.3	8.6	SL, SS	GR	
8	41.3-44.2	2.9	SH, CO	VDGR, BLK	LC: 41.5-42.0
9	44.2-54.2	10.0	SL	GR, DGR	LC: 50.0-50.4, SHALEY
10	54.2-57.8	3.6	SH, CO	VDGR, BLK	
11	57.8-63.9	6.1	SL	GR	
12	63.9-65.9	2.0	SH, CO	VDGR, BLK	
13	65.9-74.0	8.1	SL, SS	GR	
**	74.0-76.0	2.0	CO (G1X)	BLK	LC: 74.0-74.2
14+	76.0-78.0	2.0	SH	DGR	SILTY
** +	78.0-101.9	23.9	CO (BXX)	BLK	
15+	101.9-105.2	3.3	SH, SS	DGR, VDGR	
16	105.2-112.0	6.8	SS	GR	SILTY
** +	112.0-123.8	11.8	CO (RXX)	BLK	LC: 121.1-122.0
17#+	123.8-127.0	3.2	SH	VDGR, BLK	COALY
18	127.0-129.0	2.0	SL	DGR	
19	129.0-131.0	2.0	SH, CO	VDGR, BLK	
**	131.0-133.4	2.4	CO (MXX)	BLK	
20+	133.4-136.0	2.6	SH, CO	VDGR, BLK	
21	136.0-144.0	8.0	SL	DGR, GR	SANDY
22	144.0-147.6	3.6	SH, CO	VDGR, BLK	SILTY
23	147.6-152.3	4.7	SS	LGR, GR	
24	152.3-160.0	7.7	SL, SH	VDGR, DGR	
** +	160.0-167.5	7.5	CO (YOX)	BLK	
25+	167.5-171.7	4.2	SS, SL	LGR, GR	
** +	171.7-177.0	5.3	CO (Y1X)	BLK	
26+	177.0-179.6	2.6	SH	VDGR	SILTY
27#	179.6-188.7	9.1	SS, SL	GR, DGR	
**	188.7-196.2	7.5	CO (NXX)	BLK	
28+	196.2-200.0	3.8	SL, SS	GR	SHALEY
**	200.0-202.0	2.0	CO (N1X)	BLK	
29+	202.0-205.2	3.2	SH, CO	VDGR, BLK	
30	205.2-210.0	4.8	SS	GR	SILTY
31	210.0-212.2	2.2	SH	VDGR	
**	212.2-216.4	4.2	CO (EOX)	BLK	
32+	216.4-220.0	3.6	SL	DGR	SHALEY

CORE NO: 30365E0
 Mine Area: J23, Peabody Coordinates: 51518.76E, -47749.44N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	6.00	SO		8.0	0.6	2.4	1.3	3.3	2.5	55	32	13	<0.01			0.01
6.00	9.80	SS		7.9	1.4	5.3	3.2	6.2	3.0	69	25	6	<0.01			0.02
15.80	2.50	SH		7.4	2.0	7.7	7.0	7.2	2.6	22	49	29	<0.01			0.03
18.30	1.70	CO		4.5	4.9	16.0	22.0	25.0	5.7	33	25	42	0.10			4.66
20.00	9.10	SL		6.9	2.9	2.8	6.3	20.0	9.2	30	41	29	0.20			7.78
29.10	3.60	SH		7.6	1.5	1.1	0.7	14.0	14.5	31	49	20	0.08			2.58
32.70	8.60	SL		8.2	1.3	0.5	0.3	12.0	19.2	57	32	11	<0.01			0.12
41.30	2.90	SH		7.5	1.9	0.6	0.4	18.0	25.4	64	27	9	0.30			9.44
44.20	10.00	SL		8.4	1.3	0.5	0.2	12.0	20.9	18	54	28	0.09			2.89
54.20	3.60	SH		8.0	0.8	0.2	0.1	8.5	21.2	20	51	29	0.30			8.00
57.80	6.10	SL		8.4	0.8	0.6	0.3	9.0	13.8	28	43	29	0.10			3.91
63.90	2.00	SH		8.0	0.9	0.1	0.1	7.7	24.2	17	51	32	0.20			5.25
65.90	8.10	SL		8.1	1.6	0.3	0.2	15.0	28.4	55	32	13	<0.01			0.10
74.00	2.00	CO	G1X													
76.00	2.00	SH		8.1	0.7	0.1	0.1	7.0	20.6	16	56	28	0.06			1.90
78.00	23.90	CO	BXX													
101.90	3.30	SH		7.6	0.6	0.1	0.0	6.1	25.8	60	33	7	0.30	0.20	0.20	5.19
105.20	6.80	SS		8.4	0.9	0.2	0.1	8.9	22.6	48	36	16	<0.01			0.20
112.00	11.80	CO	RXX													
123.80	3.20	SH		8.3	1.3	0.2	0.1	12.0	33.1	24	40	36	0.20	0.08	0.10	2.44
127.00	2.00	SL		8.5	1.3	0.5	0.2	14.0	22.2	21	51	28	0.10			4.13
129.00	2.00	SH		7.8	1.8	0.5	0.2	16.0	26.3	41	33	26	0.30			9.13
131.00	2.40	CO	MXX													
133.40	2.60	SH		7.7	0.9	0.1	0.0	8.8	36.7	68	19	13	0.60	0.20	0.40	6.28
136.00	8.00	SL		7.9	2.6	0.6	0.3	25.0	36.6	51	38	11	0.60			18.80
144.00	3.60	SH		7.5	1.5	0.1	0.1	13.0	41.7	40	42	18	0.90	0.60	0.20	19.40
147.60	4.70	SS		8.5	1.7	0.3	0.1	16.0	34.4	62	30	8	<0.01			0.27
152.30	7.70	SL		7.6	2.3	0.7	0.3	20.0	28.1	24	58	18	1.90	1.70	0.20	53.50
160.00	7.50	CO	Y0X													
167.50	4.20	SS		8.1	2.1	0.7	0.3	19.0	25.4	48	41	11	0.10			4.16
171.70	5.30	CO	Y1X													
177.00	2.60	SH		8.7	0.9	0.6	0.3	9.5	14.2	19	56	25	0.07			2.18
179.60	9.10	SS		8.3	1.5	0.2	0.1	14.0	34.5	43	40	17	0.30			9.94
188.70	7.50	CO	NXX													
196.20	3.80	SL		8.6	1.2	0.1	0.0	9.7	33.7	36	36	28	0.20			4.69
200.00	2.00	CO	N1X													
202.00	3.20	SH		8.1	0.9	0.3	0.1	9.1	21.5	26	48	26	0.70	0.50	0.07	16.00
205.20	4.80	SS		8.4	1.7	0.4	0.3	16.0	27.1	69	24	7	0.10			3.16
210.00	2.20	SH		8.3	1.6	0.2	0.1	10.0	25.6	22	53	25	1.10	0.90	0.10	28.40
212.20	4.20	CO	EOX													
216.40	3.60	SL		8.8	0.7	0.2	0.1	8.6	21.6	22	49	29	0.05			1.63

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Revised 11/21/03

CORE NO: 30365EO

Mine Area: J23, Peabody Coordinates: 51518.76E, -47749.44N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	6.00	SO		34.80	34.80	<0.05	<0.05	<0.10	0.38
6.00	9.80	SS		43.80	43.80	<0.05	<0.05	0.20	0.17
15.80	2.50	SH		72.40	72.30	0.07	0.08	0.50	0.25
18.30	1.70	CO		9.06	4.41	0.12	0.14	1.70	0.59
20.00	9.10	SL		35.80	28.00	0.09	0.12	0.80	0.24
29.10	3.60	SH		65.20	62.60	0.07	0.11	1.00	0.22
32.70	8.60	SL		142.00	141.00	<0.05	0.07	0.40	0.18
41.30	2.90	SH		15.90	6.44	0.10	0.13	1.30	0.32
44.20	10.00	SL		26.80	23.90	0.06	0.08	0.30	0.16
54.20	3.60	SH		25.30	17.30	0.08	0.12	0.90	0.21
57.80	6.10	SL		36.40	32.70	0.05	0.08	0.50	0.21
63.90	2.00	SH		9.63	4.38	0.11	0.16	0.70	0.25
65.90	8.10	SL		140.00	140.00	<0.05	0.07	0.60	0.16
74.00	2.00	CO	GLX						
76.00	2.00	SH		8.13	6.23	0.05	0.06	0.90	0.15
78.00	23.90	CO	BXX						
101.90	3.30	SH		3.62	-1.57	0.07	0.10	0.80	0.24
105.20	6.80	SS		83.50	83.30	<0.05	<0.05	0.30	0.18
112.00	11.80	CO	RXX						
123.80	3.20	SH		7.53	5.09	0.07	0.09	0.90	0.16
127.00	2.00	SL		35.20	31.00	0.07	0.09	0.60	0.16
129.00	2.00	SH		17.00	7.92	0.06	0.08	1.40	0.28
131.00	2.40	CO	MXX						
133.40	2.60	SH		7.40	1.12	0.06	0.06	1.50	0.39
136.00	8.00	SL		36.70	17.90	<0.05	0.06	0.50	0.20
144.00	3.60	SH		5.71	-13.70	<0.05	0.08	0.70	0.32
147.60	4.70	SS		89.60	89.40	<0.05	<0.05	0.30	0.19
152.30	7.70	SL		22.20	-31.20	<0.05	0.08	0.70	0.24
160.00	7.50	CO	Y0X						
167.50	4.20	SS		60.00	55.90	0.09	0.11	0.50	0.21
171.70	5.30	CO	Y1X						
177.00	2.60	SH		5.88	3.71	0.12	0.14	0.80	0.25
179.60	9.10	SS		37.20	27.30	0.07	0.09	0.40	0.22
188.70	7.50	CO	NXX						
196.20	3.80	SL		15.30	10.60	0.13	0.15	1.10	0.23
200.00	2.00	CO	N1X						
202.00	3.20	SH		7.96	-8.05	0.11	0.14	1.00	0.31
205.20	4.80	SS		142.00	139.00	<0.05	0.09	0.40	0.22
210.00	2.20	SH		15.50	-12.90	0.11	0.15	1.10	0.35
212.20	4.20	CO	EOX						
216.40	3.60	SL		10.90	9.28	0.11	0.11	0.80	0.27

HOLE NUMBER: 30355EO*

MINE AREA: N9

DATE: 7/16,21/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-12.2	12.2	SS	YBR	LC: 0.0-2.3
2	12.2-16.7	4.5	SL	GR	
3	16.7-20.4	3.7	SS	YBR	
4	20.4-26.4	6.0	SL, SS	GR, YBR	
5	26.4-30.2	3.8	SL	GR	SANDY
6	30.2-31.4	1.2	CO	BLK	LC: 31.2-31.4
7	31.4-35.7	4.3	SL	DGR	
**	35.7-42.6	6.9	CO (MXX)	BLK	
8+	42.6-47.5	4.9	SS	BRGR	SHALEY
9	47.5-51.4	3.9	SH, CO	VDGR, BLK	LC: 50.0-50.5
10#	51.4-56.3	4.9	SS	GR	
11	56.3-62.2	5.9	SL	DGR	
12	62.2-65.6	3.4	SH, CO	VDGR, BLK	
13	65.6-67.0	1.4	SS	GR	
14	67.0-72.4	5.4	SH, CO	VDGR, BLK	
15	72.4-76.9	4.5	SL	DGR	SHALEY
16	76.9-79.7	2.8	CO (YOX), SH	BLK, VDGR	NONMINABLE
17	79.7-83.9	4.2	SS	GR	SILTY
18	83.9-87.1	3.2	CO, SH	BLK, VDGR	
19	87.1-92.3	5.2	SS	DGR	LC: 90.0-90.4 COAL & SHALE
**	92.3-94.5	2.2	CO (Y1X)	BLK	
20#+	94.5-98.0	3.5	SS	GR	
21	98.0-104.6	6.6	SL	DGR	SHALEY
22	104.6-113.5	8.9	SS	LGR	
23	113.5-115.8	2.3	SH	VDGR	
** +	115.8-125.0	9.2	CO (NXX)	BLK	LC: 120.0-120.5
24+	125.0-127.3	2.3	SH, CO	VDGR, BLK	
25	127.3-133.5	6.2	SH	DGR	SILTY
26	133.5-143.5	10.0	SL	GR	SANDY
27	143.5-153.5	10.0	SS	GR, LGR	
28	153.5-163.5	10.0	SS	LBRGR, LGR	
29	163.5-168.0	4.5	SL, SH	DGR, VDGR	
** +	168.0-172.7	4.7	CO (EOX)	BLK	
30#+	172.7-180.0	7.3	SL	GR	SANDY
31	180.0-190.0	10.0	SL	DGR	SHALEY
32	190.0-194.2	4.2	CO, SH	VDGR, BLK	LC: 190.2-191.4
33	194.2-198.7	4.5	SH	DGR	COAL, SHALEY
**	198.7-201.1	2.4	CO (E1X)	BLK	
34+	201.1-203.3	2.2	SH	DGR, VDGR	SANDY
**	203.3-206.3	3.0	CO (E2X)	BLK	
35+	206.3-210.0	3.7	SL	GR	SANDY

CORE NO: 30355EO

Mine Area: N09, Peabody Coordinates: 21746.43E, 5480.15N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption			Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
									Ratio (SAR)	Sand (%)	Silt (%)				
0.00	12.20	SS		8.0	2.9	5.9	25.4	7.4	1.9	51	31	18	0.02		0.77
12.20	4.50	SL		7.8	2.1	3.4	19.7	3.3	1.0	35	36	29	0.07		2.29
16.70	3.70	SS		7.9	1.6	3.3	14.6	2.3	0.8	58	29	14	0.03		0.93
20.40	6.00	SL		7.7	1.8	4.1	15.8	2.1	0.7	45	30	25	0.06		1.86
26.40	3.80	SL		7.5	1.6	5.7	12.3	2.2	0.7	33	35	33	0.10		3.08
30.20	1.20	CO		7.1	0.5	2.1	1.5	2.3	1.7	93	5	3	0.88	0.06	27.64
31.40	4.30	SL		7.6	1.0	2.8	2.2	4.9	3.1	28	44	29	0.49	0.37	15.27
35.70	6.90	CO	MXX												
42.60	4.90	SS		8.0	2.2	0.6	0.3	21.8	33.2	63	24	14	0.11		3.49
47.50	3.90	SH		7.6	3.5	1.0	0.6	36.5	40.9	44	34	23	1.30	1.12	40.58
51.40	4.90	SS		8.3	2.2	0.5	0.2	22.3	38.0	63	25	13	0.08		2.58
56.30	5.90	SL		7.7	5.4	1.0	0.7	58.3	63.5	30	41	29	1.35	1.06	42.14
62.20	3.40	SH		7.3	4.7	1.0	0.5	49.6	57.1	40	31	29	2.73	1.92	85.32
65.60	1.40	SS		7.7	4.8	1.3	0.6	51.8	52.0	53	29	19	0.52	0.35	16.33
67.00	5.40	SH		6.5	6.1	2.4	1.3	62.6	46.4	33	40	28	3.66	2.57	114.34
72.40	4.50	SL		8.3	3.1	1.1	0.5	34.4	39.0	21	46	33	0.52		16.32
76.90	2.80	CO	Y0X	7.8	1.4	0.4	0.2	13.2	23.5	60	19	21	0.78	0.34	24.26
79.70	4.20	SS		8.4	2.9	0.4	0.4	34.2	53.9	68	18	15	0.06		1.73
83.90	3.20	CO		8.4	1.1	0.6	0.4	11.4	15.7	46	29	25	0.47	0.13	14.54
87.10	5.20	SS		5.9	4.1	1.0	0.6	41.4	46.2	59	29	13	1.12	0.99	35.11
92.30	2.20	CO	Y1X												
94.50	3.50	SS		8.5	3.4	0.6	0.2	38.0	60.6	60	23	18	0.31		9.75
98.00	6.60	SL		8.4	1.8	0.5	0.3	17.6	28.7	30	40	30	0.86	0.59	26.74
104.60	8.90	SS		8.6	1.6	0.4	0.2	16.8	31.5	70	20	10	0.19		6.02
113.50	2.30	SH		7.9	5.3	0.8	0.5	57.4	72.8	20	46	34	2.86	2.41	89.28
115.80	9.20	CO	NXX												
125.00	2.30	SH		7.4	1.6	0.2	0.1	15.0	35.0	88	10	3	2.88	1.68	89.81
127.30	6.20	SH		9.2	1.1	0.2	0.1	11.4	29.7	33	35	33	0.06		1.88
133.50	10.00	SL		8.6	1.8	0.5	0.2	19.2	32.2	50	25	25	0.05		1.51
143.50	10.00	SS		8.6	1.4	0.4	0.2	14.3	26.4	63	20	18	0.12		3.88
153.50	10.00	SS		8.6	1.3	0.2	0.1	13.8	31.8	75	16	9	0.04		1.17
163.50	4.50	SL		8.9	1.2	0.2	0.2	12.5	28.7	25	40	35	0.62		19.31
168.00	4.70	CO	E0X												
172.70	7.30	SL		9.7	0.9	0.1	0.1	8.9	32.5	25	43	33	0.04		1.12
180.00	10.00	SL		9.3	1.1	0.1	0.1	12.3	35.2	35	38	28	0.03		1.08
190.00	4.20	SH		8.3	1.0	0.3	0.1	10.0	22.0	75	13	13	0.77	0.35	24.16
194.20	4.50	SH		9.0	1.2	0.1	0.2	13.0	33.4	36	31	33	0.25		7.86
198.70	2.40	CO	E1X												
201.10	2.20	SH		9.1	1.1	0.1	0.1	12.0	33.7	20	33	48	0.16		5.01
203.30	3.00	CO	E2X												
206.30	3.70	SL		7.3	2.9	0.7	0.4	28.3	37.6	48	36	16	0.43	0.27	13.38

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Revised 11/21/03

CORE NO: 30355EO

Mine Area: N09, Peabody Coordinates: 21746.43E, 5480.15N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	12.20	SS		217.08	216.31	<0.02		0.43	0.81
12.20	4.50	SL		170.04	167.75	0.04		1.02	0.90
16.70	3.70	SS		159.38	158.45	<0.02		0.28	0.57
20.40	6.00	SL		145.17	143.31	0.02		0.73	0.77
26.40	3.80	SL		83.06	79.98	0.04		1.02	1.17
30.20	1.20	CO		10.66	-16.98	<0.02		1.25	2.75
31.40	4.30	SL		11.15	-4.12	0.09		0.70	3.07
35.70	6.90	CO	MXX						
42.60	4.90	SS		26.83	23.34	0.11		0.73	1.86
47.50	3.90	SH		34.67	-5.91	0.13		0.98	2.96
51.40	4.90	SS		54.15	51.57	0.05		0.30	0.75
56.30	5.90	SL		31.24	-10.90	0.09		0.70	3.17
62.20	3.40	SH		11.15	-74.17	0.09		1.27	2.38
65.60	1.40	SS		11.15	-5.18	0.11		0.47	1.66
67.00	5.40	SH		5.76	-108.58	0.08		0.93	1.94
72.40	4.50	SL		40.55	24.23	0.18		1.02	1.66
76.90	2.80	CO	Y0X	9.68	-14.58	0.19		1.58	1.92
79.70	4.20	SS		112.22	110.49	0.06		0.35	0.64
83.90	3.20	CO		8.70	-5.84	0.17		0.85	1.71
87.10	5.20	SS		4.29	-30.82	0.08		0.73	0.88
92.30	2.20	CO	Y1X						
94.50	3.50	SS		37.50	27.70	0.09		0.30	0.78
98.00	6.60	SL		7.23	-19.51	0.08		0.40	1.15
104.60	8.90	SS		38.59	32.57	0.02		<0.15	<0.05
113.50	2.30	SH		12.62	-76.66	0.11		0.85	1.75
115.80	9.20	CO	NXX						
125.00	2.30	SH		8.21	-81.60	0.12		4.35	2.33
127.30	6.20	SH		10.66	8.78	0.09		0.88	1.10
133.50	10.00	SL		65.91	64.40	0.07		0.40	1.42
143.50	10.00	SS		17.52	13.64	0.04		0.38	1.02
153.50	10.00	SS		39.08	37.91	0.03		0.30	0.51
163.50	4.50	SL		19.97	0.66	0.14		0.95	2.45
168.00	4.70	CO	E0X						
172.70	7.30	SL		4.78	3.66	0.14		0.57	1.11
180.00	10.00	SL		16.54	15.46	0.06		0.45	1.13
190.00	4.20	SH		9.68	-14.48	0.09		0.93	1.52
194.20	4.50	SH		28.30	20.44	0.17		1.23	1.40
198.70	2.40	CO	E1X						
201.10	2.20	SH		20.46	15.45	0.13		1.30	2.02
203.30	3.00	CO	E2X						
206.30	3.70	SL		7.23	-6.15	0.12		0.52	0.69

HOLE NUMBER: 30356EO*

MINE AREA: N9

DATE: 7/21-22/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-5.1	5.1	SS	YBR	
2	5.1-12.9	7.8	SH	GR	LC: 10.5-12.0
3	12.9-15.8	2.9	SH, CO	VDGR, BLK	
4	15.8-20.8	5.0	SL	DGR	SHALEY
5#	20.8-30.0	9.2	SL	DGR	SANDY
6	30.0-34.7	4.7	SL, SH	VDGR	
7	34.7-39.5	4.8	SH, CO	VDGR, BLK	
**	39.5-41.5	2.0	CO (B1X)	BLK	
8+	41.5-43.5	2.0	SH, CO	VDGR, BLK	LC: 41.8-42.0
9	43.5-49.9	6.4	SS	GR	SILTY
**	49.9-54.9	5.0	CO (ROX)	BLK	
10+	54.9-59.0	4.1	SS	GR	
11	59.0-60.9	1.9	SH	DGR, VDGR	
**	60.9-65.1	4.2	CO (R1X)	BLK	
12+	65.1-72.0	6.9	SH, SL	DGR	
13	72.0-74.7	2.7	SH, CO	VDGR, BLK	
14	74.7-82.8	8.1	SL	GR	SANDY
15#	82.8-91.8	9.0	SS	GR	SILTY
16	91.8-100.0	8.2	SS	GR	
17	100.0-101.2	1.2	CO, SH	VDGR, BLK	
18	101.2-106.3	5.1	SS	GR	
**	106.3-109.4	3.1	CO (MOX)	BLK	
19+	109.4-112.1	2.7	SL	DGR	
**	112.1-114.0	1.9	CO (M1X)	BLK	
20+	114.0-118.6	4.6	SL	GR, DGR	SANDY
21	118.6-120.7	2.1	SH, CO	VDGR, BLK	
22	120.7-125.8	5.1	SL	GR, DGR	SANDY
23	125.8-130.0	4.2	SS	GR	
24	130.0-139.3	9.3	SS	GR	
25#	139.3-150.0	10.7	SH	DGR, VDGR	
26	150.0-158.5	8.5	SS	GR	
**	158.5-162.4	3.9	CO (YOX)	BLK	LC: 160.0-161.3
27	162.4-166.5	4.1	SS	GR	SILTY
28	166.5-169.0	2.5	CO, SH	VDGR, BLK	
29	169.0-177.5	8.5	SS	GR, DGR	LC: 171.5-172.0
** +	177.5-181.1	3.6	CO (Y1X)	BLK	LC: 180.5-181.1
30+	181.1-189.5	8.4	SS	DGR	SHALEY
31	189.5-192.4	2.9	SS	LGR	VERY HARD
32	192.4-198.8	6.4	SH, CO	VDGR, BLK	
**	198.8-204.6	5.8	CO (NXX)	BLK	LC: 200.0-204.6
33+	204.6-210.0	5.4	SS	DGR	SHALEY
34	210.0-214.1	4.1	CO, SH	VDGR, BLK	LC: 210.0-211.0
35#	214.1-218.0	3.9	SS	DGR	LC: 217.3-218.0 SILTY

CORE NO: 30356EO

Mine Area: N09, Peabody Coordinates: 24738.00E, 13702.75N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption			Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
									Ratio (SAR)	Sand (%)	Silt (%)				
0.00	5.10	SS		8.3	0.7	1.3	2.9	2.9	2.0	60	26	14	0.01		0.44
5.10	7.80	SH		7.0	2.1	7.7	13.7	7.2	2.2	10	41	49	0.04		1.17
12.90	2.90	SH		3.1	6.0	25.0	48.8	10.3	1.7	33	25	43	0.38	0.00	11.72
15.80	5.00	SL		7.1	2.2	6.4	12.9	5.7	1.8	26	41	33	0.07		2.04
20.80	9.20	SL		7.0	1.9	9.1	7.4	5.5	1.9	38	35	28	0.41		12.95
30.00	4.70	SL		7.0	1.7	8.7	5.4	6.0	2.2	31	41	28	1.46	1.33	45.61
34.70	4.80	SH		7.0	0.5	1.8	1.3	2.6	2.1	58	20	23	0.45	0.06	14.18
39.50	2.00	CO	B1X												
41.50	2.00	SH		6.5	2.7	3.5	3.2	22.8	12.5	68	14	19	3.32	2.15	103.69
43.50	6.40	SS		6.8	3.1	9.3	5.9	22.7	8.2	54	31	15	0.58	0.48	18.04
49.90	5.00	CO	R0X												
54.90	4.10	SS		7.4	2.9	1.8	0.9	29.8	25.8	46	35	19	0.43		13.32
59.00	1.90	SH		6.8	4.8	3.8	2.1	47.0	27.1	33	39	29	2.51	2.19	78.35
60.90	4.20	CO	R1X												
65.10	6.90	SH		6.7	4.2	1.9	1.0	42.2	35.0	40	34	26	0.97	0.84	30.16
72.00	2.70	SH		7.3	2.4	0.8	0.3	22.5	30.6	34	34	33	1.38	0.96	42.96
74.70	8.10	SL		8.3	1.3	0.5	0.2	13.2	21.3	44	33	24	0.07		2.10
82.80	9.00	SS		8.3	1.2	0.7	0.3	12.3	16.8	43	31	26	0.05		1.57
91.80	8.20	SS		8.1	1.8	0.7	0.3	17.8	24.8	56	21	23	0.08		2.55
100.00	1.20	CO		7.3	1.0	0.3	0.1	9.1	20.2	81	10	9	1.21	0.58	37.71
101.20	5.10	SS		5.7	3.2	4.4	2.5	26.3	14.1	56	28	16	0.81	0.67	25.38
106.30	3.10	CO	MOX												
109.40	2.70	SL		6.8	1.8	3.9	2.6	13.4	7.4	40	40	20	0.76	0.55	23.59
112.10	1.90	CO	M1X												
114.00	4.60	SL		7.1	1.2	4.6	4.5	3.8	1.8	53	29	19	0.15		4.78
118.60	2.10	SH		6.9	1.3	5.5	5.0	4.2	1.8	45	30	25	2.13	1.68	66.45
120.70	5.10	SL		6.9	1.7	9.8	8.7	2.3	0.8	30	21	49	0.55	0.45	17.11
125.80	4.20	SS		6.3	3.2	24.2	20.6	1.7	0.4	85	9	6	0.44		13.61
130.00	9.30	SS		6.9	3.4	22.7	24.6	2.0	0.4	83	13	5	0.38		11.84
139.30	10.70	SH		7.1	1.9	9.5	8.8	4.2	1.4	20	50	30	1.52	1.32	47.61
150.00	8.50	SS		6.1	3.5	29.5	19.0	4.0	0.8	54	34	13	0.85		26.71
158.50	3.90	CO	Y0X												
162.40	4.10	SS		8.8	1.4	0.1	0.1	14.7	46.2	40	35	25	0.16		5.00
166.50	2.50	CO		7.9	1.8	0.2	0.1	17.5	43.5	73	15	13	2.04	1.26	63.60
169.00	8.50	SS		7.1	3.7	2.8	1.5	36.8	25.3	64	24	13	0.52	0.47	16.27
177.50	3.60	CO	Y1X												
181.10	8.40	SS		7.8	2.9	0.6	0.3	28.8	41.3	51	30	19	0.84	0.67	26.25
189.50	2.90	SS		8.0	1.8	0.6	0.6	17.7	22.9	73	19	9	0.08		2.41
192.40	6.40	SH		7.7	3.1	1.1	0.5	33.3	37.7	35	39	26	1.99	1.68	62.14
198.80	5.80	CO	NXX												
204.60	5.40	SS		7.6	2.8	0.7	0.3	27.2	38.8	48	34	19	1.06	0.91	33.24
210.00	4.10	SH		7.9	0.7	0.3	0.2	7.1	15.4	74	16	10	0.78	0.29	24.30
214.10	3.90	SS		7.5	3.1	1.0	0.5	33.8	39.4	58	28	15	0.27		8.29

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Revised 11/21/03

CORE NO: 30356EO

Mine Area: N09, Peabody Coordinates: 24738.00E, 13702.75N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	5.10	SS		159.87	159.43	<0.02		0.40	0.82
5.10	7.80	SH		5.27	4.10	0.03		0.55	1.14
12.90	2.90	SH		-18.25	-29.97	0.05		1.40	1.67
15.80	5.00	SL		31.24	29.20	0.04		0.70	1.15
20.80	9.20	SL		26.22	13.27	0.08		0.65	1.57
30.00	4.70	SL		6.74	-38.87	0.09		0.73	2.16
34.70	4.80	SH		8.21	-5.97	0.05		1.90	2.57
39.50	2.00	CO	B1X						
41.50	2.00	SH		7.72	-95.97	0.05		0.98	2.27
43.50	6.40	SS		7.23	-10.81	0.07		0.22	<1.25
49.90	5.00	CO	R0X						
54.90	4.10	SS		37.98	24.66	0.09		0.55	<1.25
59.00	1.90	SH		7.72	-70.63	0.12		1.00	2.08
60.90	4.20	CO	R1X						
65.10	6.90	SH		14.09	-16.07	0.10		1.00	2.79
72.00	2.70	SH		4.78	-38.17	0.15		1.10	5.18
74.70	8.10	SL		36.51	34.41	0.04		0.40	1.63
82.80	9.00	SS		19.97	18.40	0.03		0.32	1.52
91.80	8.20	SS		28.79	26.24	0.04		0.30	1.50
100.00	1.20	CO		6.74	-30.97	0.09		0.85	5.70
101.20	5.10	SS		1.35	-24.03	0.07		0.50	1.55
106.30	3.10	CO	M0X						
109.40	2.70	SL		11.15	-12.44	0.10		0.88	2.50
112.10	1.90	CO	M1X						
114.00	4.60	SL		27.81	23.03	0.11		0.90	1.23
118.60	2.10	SH		12.13	-54.32	0.12		1.42	2.24
120.70	5.10	SL		8.70	-8.41	0.12		0.63	0.59
125.80	4.20	SS		23.40	9.79	0.02		<0.15	<0.50
130.00	9.30	SS		46.92	35.08	<0.02		<0.15	<0.50
139.30	10.70	SH		15.07	-32.54	0.06		0.73	1.65
150.00	8.50	SS		9.19	-17.52	0.04		0.40	0.96
158.50	3.90	CO	Y0X						
162.40	4.10	SS		8.21	3.21	0.10		0.50	6.48
166.50	2.50	CO		7.23	-56.37	0.09		1.38	5.66
169.00	8.50	SS		16.05	-0.22	0.07		0.40	1.54
177.50	3.60	CO	Y1X						
181.10	8.40	SS		9.68	-16.57	0.06		0.45	1.47
189.50	2.90	SS		21.44	19.03	0.02		0.17	0.71
192.40	6.40	SH		16.05	-46.09	0.07		1.23	2.47
198.80	5.80	CO	NXX						
204.60	5.40	SS		4.29	-28.95	0.11		0.93	1.96
210.00	4.10	SH		6.74	-17.56	0.05		2.70	2.02
214.10	3.90	SS		15.56	7.27	0.11		0.63	0.79

HOLE NUMBER: 30357EO*

MINE AREA: N9

DATE: 7/22-23/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-11.5	11.5	SS	YBR	LC: 0.0-3.0
2	11.5-20.0	8.5	SS	BR	
3	20.0-26.2	6.2	SH	GRBR	SANDY
4	26.2-27.4	1.2	CO, SH	VDGR, BLK	
5	27.4-33.7	6.3	SH	DGR, VDGR	LC: 30.0-30.8
6	33.7-35.8	2.1	SH, CO	VDGR, BLK	
**	35.8-37.8	2.0	CO (BOX)	BLK	
7+	37.8-43.5	5.7	CO (BOX), SH	BLK, VDGR	NONMINABLE
8	43.5-49.0	5.5	SS	DGR	
9	49.0-58.2	9.2	CO, SH	VDGR, BLK	LC: 50.8-51.1, 57.7-58.0
10#	58.2-63.3	5.1	SL, SH	DGR, VDGR	SANDY
**	63.3-67.6	4.3	CO (R1X)	BLK	
11+	67.6-76.9	9.3	SH, CO	VDGR, BLK	LC: 70.0-70.9 SILTY
12	76.9-86.7	9.8	SL, SS	DGR	VERY HARD
13	86.7-96.7	10.0	SS, SL	DGR, GR	
14	96.7-106.6	9.9	SS	GR	
15	106.6-112.6	6.0	SH, CO	DGR-BLK	LC: 106.6-108.6, 111.4-112.0, SANDY
** +	112.6-118.8	6.2	CO (MXX)	BLK	LC: 114.9-115.4, 115.7-116.3
16+	118.8-123.2	4.4	SS	DGR	SILTY
17	123.2-132.8	9.6	SH, CO, SL	VDGR, BLK	SANDY
18	132.8-139.8	7.0	SS, SL	DGR, VDGR	SHALEY
19	139.8-149.0	9.2	SS	GR	LC: 140.0-140.3
20#	149.0-155.1	6.1	SL	GR, DGR	SANDY
21	155.1-156.1	1.0	SH, CO	VDGR, BLK	
**	156.1-159.1	3.0	CO (YOX)	BLK	
22+	159.1-163.3	4.2	SL, SS	GR, DGR	
23	163.3-165.4	2.1	SH, CO	VDGR, BLK	LC: 163.7-164.6
24	165.4-170.0	4.6	SS	GR	
25	170.0-171.0	1.0	SH, CO	VDGR, BLK	
**	171.0-174.7	3.7	CO (Y1X)	BLK	LC: 171.0-172.4
26+	174.7-178.2	3.5	SS	GR	
27	178.2-181.2	3.0	SH	DGR, VDGR	
28	181.2-188.7	7.5	SS	GR	LC: 181.2-182.0, 186.0-187.0
29#	188.7-192.9	4.2	SH	VDGR, BLK	
**	192.9-199.1	6.2	CO (NXX)	BLK	LC: 192.9-194.0, 196.0-199.1
30	199.1-206.0	6.9	SS	GR, DGR	LC: 199.1-204.7
31	206.0-206.9	0.9	SH	VDGR	
**	206.9-210.0	3.1	CO (N2X)	BLK	

CORE NO: 30357EO

Mine Area: N09, Peabody Coordinates: 22964.71E, 11496.07N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	11.50	SS		8.1	1.1	2.0	4.2	6.5	3.7	51	26	23	0.01			0.41
11.50	8.50	SS		7.7	0.9	3.1	3.4	2.8	1.6	69	18	14	0.01			0.20
20.00	6.20	SH		7.3	2.8	11.5	22.6	3.3	0.8	39	28	34	0.04			1.30
26.20	1.20	CO		2.8	4.2	28.1	25.0	3.2	0.6	70	28	3	1.59	0.89		49.67
27.40	6.30	SH		7.5	1.7	8.5	9.0	3.8	1.3	28	46	26	0.26			8.06
33.70	2.10	SH		7.0	2.4	13.4	14.4	4.9	1.3	30	40	30	2.08	1.56		65.14
35.80	2.00	CO	BOX													
37.80	5.70	CO	BOX	6.5	1.5	10.9	6.3	1.5	0.5	76	13	11	1.82	0.88		56.76
43.50	5.50	SS		7.0	2.3	21.7	9.7	1.8	0.5	46	36	18	0.46			14.34
49.00	9.20	SH		6.4	1.8	12.8	7.7	2.1	0.7	68	19	14	1.49	1.05		46.39
58.20	5.10	SL		7.1	2.6	22.1	12.3	2.6	0.6	48	31	21	0.96			30.10
63.30	4.30	CO	R1X													
67.60	9.30	SH		6.5	2.2	16.0	11.7	2.4	0.7	31	38	31	0.74	0.63		23.00
76.90	9.80	SL		7.3	1.3	6.7	6.4	1.9	0.7	53	25	23	0.08			2.39
86.70	10.00	SS		7.3	1.3	6.5	8.2	1.8	0.6	61	20	19	0.07			2.21
96.70	9.90	SS		7.8	1.4	5.7	10.9	1.7	0.6	71	18	11	0.04			1.13
106.60	6.00	SH		5.6	2.5	13.6	16.5	3.4	0.9	59	24	18	1.22	0.87		38.14
112.60	6.20	CO	MXX													
118.80	4.40	SS		7.2	1.4	6.7	6.8	2.6	1.0	49	29	23	0.14			4.41
123.20	9.60	SH		6.6	2.4	14.8	12.4	4.3	1.2	34	38	29	1.62	1.65		50.70
132.80	7.00	SS		6.8	4.2	7.6	3.9	35.1	14.6	28	43	30	1.94	1.69		60.73
139.80	9.20	SS		7.1	3.4	25.9	19.7	4.4	0.9	80	11	9	0.70			21.93
149.00	6.10	SL		7.3	3.1	6.3	3.7	23.7	10.6	55	29	16	0.43			13.36
155.10	1.00	SH		7.4	2.4	1.4	0.6	22.0	21.9	84	8	9	1.58	1.16		49.23
156.10	3.00	CO	Y0X													
159.10	4.20	SL		8.7	2.2	0.8	0.4	23.3	30.4	51	26	23	0.22			6.78
163.30	2.10	SH		7.8	2.0	0.3	0.1	20.1	46.1	58	26	16	1.11	0.72		34.61
165.40	4.60	SS		7.8	3.9	1.7	1.0	39.9	34.1	59	26	15	0.56	0.47		17.38
170.00	1.00	SH		5.6	8.5	9.6	5.6	82.2	29.8	68	19	14	3.62	2.98		113.00
171.00	3.70	CO	Y1X													
174.70	3.50	SS		8.4	2.9	0.5	0.3	31.4	49.1	61	23	16	0.12			3.69
178.20	3.00	SH		8.2	4.8	0.8	0.4	50.9	67.4	24	48	29	1.59	1.21		49.77
181.20	7.50	SS		8.5	2.7	0.5	0.4	30.8	47.9	61	23	16	0.05			1.60
188.70	4.20	SH		7.6	6.2	1.8	1.2	70.0	58.1	34	39	28	2.35	2.48		73.29
192.90	6.20	CO	NXX													
199.10	6.90	SS		7.2	3.9	0.8	0.4	40.4	52.2	49	33	19	0.54	0.40		16.73
206.00	0.90	SH		7.1	4.4	0.8	0.5	40.6	50.4	29	49	23	1.55	0.99		48.55
206.90	3.10	CO	N2X													
210.00	6.00	SS		8.6	2.1	0.6	0.3	19.9	30.7	63	24	14	0.07			2.18
216.00	4.00	SH		8.7	2.2	0.2	0.1	22.3	51.6	35	35	30	1.08			33.71
220.00	2.00	SL		9.4	1.0	0.1	0.1	11.3	40.0	19	43	39	0.08			2.64
222.00	3.60	CO	E0X													
225.60	4.20	SS		8.4	1.6	0.1	0.1	16.8	52.4	50	30	20	0.36			11.12
229.80	2.60	CO	E1A													
232.40	3.80	SL		8.6	1.4	0.2	0.1	14.3	41.3	55	28	18	0.41	0.41		12.77
236.20	8.70	SS		8.6	1.8	0.8	0.4	18.0	22.9	56	28	16	0.07			2.28
244.90	5.10	SS		7.7	1.4	4.5	4.3	6.6	3.1	76	15	9	0.03			0.78

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Revised 11/21/03

CORE NO: 30357EO

Mine Area: N09, Peabody Coordinates: 22964.71E, 11496.07N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	11.50	SS		105.11	104.70	<0.02		0.52	0.58
11.50	8.50	SS		4.29	4.09	<0.02		<0.15	<0.50
20.00	6.20	SH		8.70	7.40	0.06		0.57	0.97
26.20	1.20	CO		1.35	-48.32	<0.02		1.35	4.70
27.40	6.30	SH		18.01	9.95	0.07		0.65	1.16
33.70	2.10	SH		7.72	-57.42	0.08		1.48	1.85
35.80	2.00	CO	BOX						
37.80	5.70	CO	BOX	7.72	-49.04	0.06		2.03	1.91
43.50	5.50	SS		19.85	5.51	0.06		0.28	<0.50
49.00	9.20	SH		3.80	-42.59	0.06		0.98	2.20
58.20	5.10	SL		41.90	11.80	0.08		0.77	0.98
63.30	4.30	CO	R1X						
67.60	9.30	SH		8.70	-14.30	0.09		1.08	2.43
76.90	9.80	SL		195.40	193.01	0.05		1.05	1.58
86.70	10.00	SS		180.70	178.49	0.04		0.70	0.94
96.70	9.90	SS		86.98	85.85	0.05		0.43	0.52
106.60	6.00	SH		2.33	-35.81	0.09		1.08	2.76
112.60	6.20	CO	MXX						
118.80	4.40	SS		19.97	15.56	0.11		1.15	1.79
123.20	9.60	SH		6.74	-43.96	0.11		1.15	1.70
132.80	7.00	SS		4.78	-55.95	0.09		0.98	3.76
139.80	9.20	SS		99.36	77.43	<0.02		0.25	<0.50
149.00	6.10	SL		20.95	7.59	0.06		0.47	2.25
155.10	1.00	SH		5.27	-43.96	<0.02		2.70	6.74
156.10	3.00	CO	Y0X						
159.10	4.20	SL		16.05	9.27	0.14		0.65	2.89
163.30	2.10	SH		5.27	-29.34	0.14		2.25	3.39
165.40	4.60	SS		10.66	-6.72	0.08		0.47	1.24
170.00	1.00	SH		1.84	-111.16	0.06		1.65	2.94
171.00	3.70	CO	Y1X						
174.70	3.50	SS		14.58	10.89	0.06		0.45	1.11
178.20	3.00	SH		4.29	-45.48	0.09		0.73	1.61
181.20	7.50	SS		24.38	22.78	0.04		0.28	0.56
188.70	4.20	SH		12.62	-60.67	0.09		1.40	1.33
192.90	6.20	CO	NXX						
199.10	6.90	SS		7.23	-9.50	0.13		0.73	0.84
206.00	0.90	SH		3.31	-45.24	0.24		1.52	1.04
206.90	3.10	CO	N2X						
210.00	6.00	SS		40.92	38.74	0.06		0.28	1.02
216.00	4.00	SH		37.12	3.41	0.11		0.93	2.45
220.00	2.00	SL		8.70	6.06	0.16		0.60	3.12
222.00	3.60	CO	E0X						
225.60	4.20	SS		12.13	1.01	0.08		0.40	1.96
229.80	2.60	CO	E1A						
232.40	3.80	SL		2.33	-10.44	0.14		0.47	3.06
236.20	8.70	SS		6.25	3.97	0.07		1.42	1.51
244.90	5.10	SS		1.35	0.57	0.02		<0.15	0.64

HOLE NUMBER: 30358EO*

MINE AREA: N9
DATE: 7/24/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-6.3	6.3	SH	GRBR	LC: 0.0-1.2, SANDY
2#	6.3-16.3	10.0	SS	YBR	
3	16.3-26.3	10.0	SS	YBR, DGRBR	CONCRECTIONS SHALE
4	26.3-34.2	7.9	SS	YBR, DGRBR	CONCRECTIONS SHALE LC: 30.0-31.1,
5	34.2-44.0	9.8	SH, SL	DGR, VDGR	
6	44.0-54.0	10.0	SL	GR, DGR	SHALEY
7	54.0-63.6	9.6	SL, SS	GR, DGR	SHALEY
8	63.6-72.4	8.8	SS	GR, DGR	SHALEY
9	72.4-76.0	3.6	SH, CO	VDGR, BLK	SANDY
**	76.0-79.4	3.4	CO (MOX)	BLK	LC: 76.9-78.0
10+	79.4-81.8	2.4	SL	DGR	
**	81.8-84.1	2.3	CO (MIX)	BLK	
11+	84.1-87.1	3.0	SS	GR, DGR	SHALEY
12#	87.1-90.8	3.7	SH, CO	VDGR, BLK	LC: 90.0-90.2
13	90.8-94.5	3.7	SS	GR	
14	94.5-100.0	5.5	SH	DGR	SILTY
15	100.0-103.8	3.8	SH, CO	VDGR, BLK	
16	103.8-107.3	3.5	SL	GR, DGR	SANDY
17	107.3-109.6	2.3	SH	VDGR	
**	109.6-114.5	4.9	CO (YOX)	BLK	
18+	114.5-119.3	4.8	SS	GR	SILTY
19	119.3-122.0	2.7	SH, CO	VDGR, BLK	LC: 120.0-121.0
20	122.0-126.0	4.0	SS	DGR	
21	126.0-132.2	6.2	SH, CO	VDGR, BLK	SILTY
22#	132.2-136.0	3.8	SS	GR	
23	136.0-140.0	4.0	SH	DGR, VDGR	SANDY
24	140.0-148.0	8.0	SS	GR	LC: 140.0-140.7
25	148.0-152.0	4.0	SH, CO	VDGR, BLK	LC: 150.0-150.3
**+	152.0-158.1	6.1	CO (NXX)	BLK	
26+	158.1-160.0	1.9	SH, CO	VDGR, BLK	
27	160.0-161.8	1.8	SS	GR	SILTY
**	161.8-165.2	3.4	CO (N2X)	BLK	LC: 161.8-163.4, 164.0-165.2
28+	165.2-166.7	1.5	SH	VDGR	
29	166.7-173.3	6.6	SS	LGR	
30	173.3-177.4	4.1	SL	DGR	SANDY
31	177.4-179.1	1.7	SH	VDGR	
**	179.1-183.7	4.6	CO (EOX)	BLK	LC: 181.1-182.7
32# +	183.7-188.8	5.1	SH	VDGR	LC: 185.5-186.3, SILTY
**	188.8-191.1	2.3	CO (E1A)	BLK	LC: 190.0-191.1

CORE NO: 30358EO

Mine Area: N09, Peabody Coordinates: 24657.14E, 8684.30N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption			Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
									Ratio (SAR)	Sand (%)	Silt (%)				
0.00	6.30	SH		8.2	1.0	1.7	2.9	5.1	3.4	49	31	20	0.01		0.40
6.30	10.00	SS		8.2	0.4	1.5	1.1	1.3	1.2	74	16	10	0.01		0.23
16.30	10.00	SS		8.1	0.6	2.2	2.0	1.5	1.0	60	24	16	0.01		0.29
26.30	7.90	SS		8.0	1.0	3.8	5.5	1.9	0.9	71	18	11	0.01		0.33
34.20	9.80	SH		7.5	1.4	5.4	8.7	2.3	0.9	25	41	34	0.13		4.21
44.00	10.00	SL		7.4	1.3	4.0	7.3	2.2	0.9	35	33	33	0.08		2.44
54.00	9.60	SL		7.5	1.6	6.3	8.4	3.0	1.1	45	28	28	0.06		1.81
63.60	8.80	SS		7.5	1.5	7.0	6.9	3.6	1.4	50	24	26	0.14		4.43
72.40	3.60	SH		7.0	1.8	7.4	6.6	6.0	2.3	38	35	28	1.11	0.77	34.68
76.00	3.40	CO	MOX												
79.40	2.40	SL		7.9	2.3	0.6	0.4	17.6	25.5	36	40	24	0.54	0.42	16.83
81.80	2.30	CO	M1X												
84.10	3.00	SS		8.4	2.2	0.3	0.2	18.8	39.1	38	36	26	0.20		6.22
87.10	3.70	SH		7.8	2.5	0.5	0.3	23.6	36.8	40	35	25	1.51	1.12	47.11
90.80	3.70	SS		8.6	1.9	0.4	0.2	18.3	34.0	55	30	15	0.07		2.16
94.50	5.50	SH		8.1	3.6	0.8	0.5	35.8	44.6	29	43	29	1.44	0.89	45.05
100.00	3.80	SH		8.0	2.7	0.2	0.2	25.9	56.3	25	41	34	2.21	1.71	69.01
103.80	3.50	SL		8.8	1.5	0.2	0.1	15.0	38.5	31	39	30	0.32		9.88
107.30	2.30	SH		7.6	5.0	1.9	1.1	49.6	41.0	11	56	33	3.34	2.87	104.25
109.60	4.90	CO	YOX												
114.50	4.80	SS		8.7	2.2	0.2	0.1	21.1	47.9	54	26	20	0.23		7.19
119.30	2.70	SH		8.6	1.1	0.1	0.1	10.4	30.3	25	43	33	0.77	0.53	23.92
122.00	4.00	SS		7.4	3.4	2.0	1.3	32.7	25.4	60	26	14	0.84	0.62	26.28
126.00	6.20	SH		7.1	3.2	0.6	0.3	30.5	44.3	76	16	8	1.99	1.49	62.14
132.20	3.80	SS		8.2	2.1	0.5	0.2	19.9	32.3	56	28	16	0.31		9.61
136.00	4.00	SH		7.1	4.1	1.0	0.6	40.1	44.8	35	40	25	2.26	2.30	70.54
140.00	8.00	SS		8.5	2.3	0.3	0.2	20.1	42.0	56	26	18	0.28		8.77
148.00	4.00	SH		7.5	3.3	0.5	0.4	32.0	47.1	41	35	24	2.77	2.34	86.60
152.00	6.10	CO	NXX												
158.10	1.90	SH		7.9	1.3	0.3	0.2	11.9	23.5	75	14	11	0.62	0.33	19.51
160.00	1.80	SS		7.4	3.6	2.5	0.8	35.0	27.0	51	36	13	0.32	0.14	9.93
161.80	3.40	CO	N2X												
165.20	1.50	SH		8.7	1.0	0.1	0.1	9.3	26.6	16	45	39	0.23	0.07	7.24
166.70	6.60	SS		9.0	1.3	0.3	0.1	12.4	28.4	79	13	9	0.06		1.73
173.30	4.10	SL		8.5	2.6	0.4	0.2	24.9	45.1	49	30	21	0.81		25.35
177.40	1.70	SH		8.6	1.6	0.2	0.1	15.4	40.2	25	43	33	1.29	0.88	40.39
179.10	4.60	CO	E0X												
183.70	5.10	SH		9.4	1.3	0.1	0.1	12.5	40.3	18	45	38	0.34		10.73
188.80	2.30	CO	E1A												
191.10	2.90	SL		8.4	1.5	0.5	0.2	14.0	22.7	45	34	21	0.59	0.50	18.33
194.00	3.60	SH		8.8	1.1	0.1	0.1	10.6	34.4	48	26	26	0.34	0.09	10.49
197.60	2.40	SL		9.2	1.1	0.1	0.1	11.1	36.1	15	58	28	0.14		4.27

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Revised 11/21/03

CORE NO: 30358EO

Mine Area: N09, Peabody Coordinates: 24657.14E, 8684.30N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	6.30	SH		52.80	52.40	<0.02		0.55	0.69
6.30	10.00	SS		149.09	148.86	<0.02		0.17	<0.50
16.30	10.00	SS		132.43	132.14	0.03		0.80	<0.50
26.30	7.90	SS		195.52	195.19	0.06		0.38	<0.50
34.20	9.80	SH		139.78	135.57	0.08		1.05	1.56
44.00	10.00	SL		153.99	151.55	0.04		1.05	1.46
54.00	9.60	SL		241.95	240.14	0.04		0.85	1.44
63.60	8.80	SS		64.93	60.50	0.03		0.60	1.31
72.40	3.60	SH		5.27	-29.41	0.11		1.17	2.06
76.00	3.40	CO	MOX						
79.40	2.40	SL		4.29	-12.54	0.08		0.75	1.66
81.80	2.30	CO	M1X						
84.10	3.00	SS		43.98	37.76	0.16		0.80	1.09
87.10	3.70	SH		23.89	-23.22	0.12		1.00	2.40
90.80	3.70	SS		48.27	46.11	0.05		0.35	0.61
94.50	5.50	SH		31.24	-13.81	0.09		0.80	1.01
100.00	3.80	SH		10.17	-58.84	0.09		1.17	1.65
103.80	3.50	SL		23.89	14.01	0.10		0.63	1.53
107.30	2.30	SH		8.70	-95.55	0.10		1.00	1.48
109.60	4.90	CO	YOX						
114.50	4.80	SS		25.36	18.17	0.12		0.45	0.72
119.30	2.70	SH		6.25	-17.67	0.16		1.20	1.63
122.00	4.00	SS		19.48	-6.80	0.08		0.35	0.95
126.00	6.20	SH		5.76	-56.38	0.06		1.45	1.84
132.20	3.80	SS		28.18	18.57	0.05		0.32	0.51
136.00	4.00	SH		5.27	-65.27	0.08		0.73	0.97
140.00	8.00	SS		28.30	19.53	0.05		0.25	<0.50
148.00	4.00	SH		10.66	-75.94	0.07		1.30	1.35
152.00	6.10	CO	NXX						
158.10	1.90	SH		6.74	-12.77	0.11		1.50	1.29
160.00	1.80	SS		4.29	-5.64	0.22		0.95	<0.50
161.80	3.40	CO	N2X						
165.20	1.50	SH		3.31	-3.94	0.27		1.50	4.34
166.70	6.60	SS		51.21	49.48	0.04		0.20	<0.50
173.30	4.10	SL		41.53	16.18	0.07		0.43	0.66
177.40	1.70	SH		16.54	-23.85	0.16		1.17	0.93
179.10	4.60	CO	E0X						
183.70	5.10	SH		12.13	1.40	0.20		0.70	1.53
188.80	2.30	CO	E1A						
191.10	2.90	SL		6.25	-12.08	0.19		0.75	1.83
194.00	3.60	SH		5.76	-4.73	0.11		1.45	3.53
197.60	2.40	SL		4.29	0.02	0.08		0.47	3.02

HOLE NUMBER: 30354EO*

MINE AREA: N10

DATE: 7/14-15/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SS	LGR, RBR	LC: 0.0-6.0 SILTY
2	10.0-20.0	10.0	SL	GRBR	LC: 10.0-12.0 SANDY
3	20.0-23.5	3.5	SL	GRBR	SANDY
4	23.5-29.7	6.2	SH	VDGR	
**	29.7-32.4	2.7	CO (GXX)	BLK	
5+	32.4-38.2	5.8	SS	GR	
6	38.2-47.7	9.5	SL	GR	LC: 40.2-42.0 SANDY
7#	47.7-50.0	2.3	SH	DGR	
8	50.0-55.6	5.6	SH, CO	VDGR, BLK	
9	55.6-65.3	9.7	SL	DGR	LC: 60.0-60.9 SANDY
10	65.3-69.4	4.1	SH, CO	VDGR, BLK	
**	69.4-74.9	5.5	CO (RXX)	BLK	
11+	74.9-80.0	5.1	SL	GR	
12	80.0-81.4	1.4	SH, CO	VDGR, BLK	LC: 80.0-80.2
**	81.4-84.5	3.1	CO (MXX)	BLK	
13+	84.5-88.1	3.6	SS	GR	
14	88.1-92.5	4.4	SH, CO	VDGR, BLK	LC: 90.0-90.8
15	92.5-96.5	4.0	SS	GR	SILTY
16	96.5-98.8	2.3	SH, CO	VDGR, BLK	
17#	98.8-105.7	6.9	SS	GR	SHALEY
18	105.7-109.0	3.3	SH	VDGR	
19	109.0-119.0	10.0	SL	DGR	SANDY
20	119.0-121.8	2.8	SL, SS	GR, DGR	
**	121.8-126.9	5.1	CO (YOA, YOB)	BLK	SH: 123.7-124.2
21	126.9-135.0	8.1	SH, SL	VDGR, BLK	LC: 130.0-131.2 SANDY
22	135.0-145.0	10.0	SS	GR	LC: 138.3-139.0
23	145.0-155.2	10.2	SS	GR	
**	155.2-157.9	2.7	CO (Y1B)	BLK	
24+	157.9-161.4	3.5	SH	VDGR	
25	161.4-171.1	9.7	SS, SL	GR	
26	171.1-181.0	9.9	SS	GR	
27#	181.0-189.6	8.6	SL	GR	SHALEY
28	189.6-192.6	3.0	SH	VDGR	
** +	192.6-204.2	11.6	CO (NXX)	BLK	
29+	204.2-206.0	1.8	SH	VDGR, BLK	
30	206.0-216.0	10.0	SL	GR	LC: 210.0-210.5
31	216.0-226.0	10.0	SS	GR	
32	226.0-236.0	10.0	SS	GR	
33	236.0-241.0	5.0	SS	GR	LC: 240.5-241.5
34	241.0-244.0	3.0	SH, CO	VDGR, BLK	

CORE NO: 30354EO

Mine Area: N10, Peabody Coordinates: 34287.15E, 8595.89N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SS		8.0	2.6	4.2	14.0	11.0	3.7	40	37	23	<0.01			0.01
10.00	10.00	SL		5.0	7.7	25.0	117.0	6.5	0.8	41	44	15	0.30	0.04	0.06	1.38
20.00	3.50	SL		3.4	5.9	25.0	48.0	5.3	0.9	45	40	15	0.60	0.30	0.08	8.14
23.50	6.20	SH		6.6	4.1	21.0	26.0	11.0	2.4	27	42	31	0.70			20.30
29.70	2.70	CO	GXX													
32.40	5.80	SS		7.2	1.7	3.3	2.3	13.0	7.9	53	32	15	0.09			2.92
38.20	9.50	SL		7.4	2.8	3.4	2.2	22.0	13.1	42	37	21	0.30			8.25
47.70	2.30	SH		7.0	4.1	6.0	3.6	31.0	14.2	31	42	27	1.40	1.10	0.30	35.50
50.00	5.60	SH		6.5	5.7	10.0	5.9	46.0	16.0	46	33	21	2.40	1.70	0.60	52.70
55.60	9.70	SL		7.1	5.4	9.1	4.1	45.0	17.6	35	38	27	1.30			41.20
65.30	4.10	SH		7.4	1.7	0.5	0.3	17.0	26.5	32	41	27	0.40			13.10
69.40	5.50	CO	RXX													
74.90	5.10	SL		7.1	4.6	4.3	1.8	40.0	23.0	48	35	17	0.80			25.90
80.00	1.40	SH		6.8	7.6	14.0	4.0	66.0	22.1	57	25	18	3.40			68.80
81.40	3.10	CO	MXX													
84.50	3.60	SS		7.7	3.0	0.5	0.3	26.0	41.0	44	39	17	0.20			6.25
88.10	4.40	SH		7.0	3.4	1.6	0.8	38.0	34.5	32	43	25	1.60	1.20	0.30	37.80
92.50	4.00	SS		8.0	2.3	0.7	0.4	25.0	33.5	51	32	17	0.20			4.69
96.50	2.30	SH		7.1	3.0	1.0	0.4	32.0	38.6	33	44	23	2.40	1.90	0.50	59.50
98.80	6.90	SS		7.0	4.4	4.2	1.9	48.0	27.4	37	44	19	1.00			30.50
105.70	3.30	SH		7.2	5.5	4.6	1.6	60.0	34.0	21	48	31	1.50	1.00	0.20	31.60
109.00	10.00	SL		8.2	1.8	0.2	0.1	18.0	45.3	33	38	29	0.10			4.19
119.00	2.80	SL		8.3	1.8	0.3	0.3	18.0	32.0	42	31	27	0.10			2.99
121.80	5.10	CO	YOA													
126.90	8.10	SH		6.8	1.9	11.0	8.6	3.2	1.0	42	35	23	0.60			19.90
135.00	10.00	SS		6.9	2.8	19.0	18.0	1.6	0.4	86	8	6	0.30			9.53
145.00	10.20	SS		7.0	3.5	16.0	9.3	20.0	5.6	60	27	13	0.50			15.00
155.20	2.70	CO	Y1B													
157.90	3.50	SH		6.4	3.7	17.0	9.7	18.0	5.0	38	35	27	2.90	2.40	0.50	75.30
161.40	9.70	SS		8.3	2.0	0.2	0.1	9.2	22.0	30	48	22	0.07			2.16
171.10	9.90	SS		8.2	1.7	0.8	0.5	14.0	17.1	60	28	12	<0.01			0.21
181.00	8.60	SL		7.9	3.2	1.5	0.6	37.0	35.7	28	43	29	1.40			43.10
189.60	3.00	SH		7.5	3.0	1.8	0.6	31.0	28.5	20	50	30	2.90	2.40	0.40	74.80
192.60	11.60	CO	NXX													
204.20	1.80	SH		8.1	1.7	0.2	0.2	16.0	34.5	12	57	31	0.40	0.30	0.10	9.75
206.00	10.00	SL		8.4	0.8	0.1	0.1	7.4	25.3	31	47	22	0.04			1.37
216.00	10.00	SS		8.4	1.3	0.2	0.1	8.9	23.3	61	25	14	0.02			0.69
226.00	10.00	SS		7.9	1.3	1.0	0.7	11.0	12.3	70	20	10	0.04			1.38
236.00	5.00	SS		7.2	2.2	6.8	4.2	12.0	5.1	73	18	9	0.20			5.50
241.00	3.00	SH		8.5	1.4	0.1	0.1	9.0	25.0	23	41	36	0.20			5.09
244.00	4.30	CO	E0X													
248.30	4.70	SH		8.4	1.5	0.2	0.2	17.0	36.9	26	23	51	0.40			12.20
253.00	2.50	CO	E1A													
255.50	4.30	SH		8.4	1.6	0.3	0.2	16.0	33.6	23	72	5	0.60			20.10
259.80	6.10	CO	E1X													
265.90	3.40	SH		8.7	1.0	0.1	0.1	8.8	25.3	9	54	<37	0.08			2.36
269.30	0.70	CO	E2X													

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CORE NO: 30354EO

Mine Area: N10, Peabody Coordinates: 34287.15E, 8595.89N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		14.20	14.20	<0.05	<0.05	0.20	0.55
10.00	10.00	SL		4.51	3.14	<0.05	<0.05	0.40	0.46
20.00	3.50	SL		1.50	-6.64	<0.05	<0.05	0.40	0.41
23.50	6.20	SH		22.60	2.27	0.06	0.07	1.20	0.81
29.70	2.70	CO	GXX						
32.40	5.80	SS		12.40	9.53	<0.05	0.06	0.30	0.65
38.20	9.50	SL		75.50	67.20	<0.05	0.06	0.40	0.64
47.70	2.30	SH		15.80	-19.70	0.05	0.09	1.00	1.22
50.00	5.60	SH		17.80	-34.90	<0.05	0.08	1.50	1.58
55.60	9.70	SL		108.00	66.80	<0.05	0.06	0.70	0.70
65.30	4.10	SH		67.00	53.90	<0.05	0.08	1.00	0.95
69.40	5.50	CO	RXX						
74.90	5.10	SL		37.50	11.60	<0.05	0.06	0.40	0.65
80.00	1.40	SH		52.80	-16.10	<0.05	0.05	1.90	1.32
81.40	3.10	CO	MXX						
84.50	3.60	SS		43.60	37.40	<0.05	0.08	0.30	0.64
88.10	4.40	SH		12.60	-25.20	0.07	0.13	1.20	1.69
92.50	4.00	SS		129.00	124.00	<0.05	0.13	0.80	0.61
96.50	2.30	SH		13.00	-46.50	0.05	0.11	1.10	1.76
98.80	6.90	SS		37.90	7.35	<0.05	0.09	0.60	0.88
105.70	3.30	SH		38.10	6.44	<0.05	0.07	0.60	1.42
109.00	10.00	SL		132.00	128.00	<0.05	0.08	0.50	1.05
119.00	2.80	SL		93.80	90.80	<0.05	0.10	0.40	0.89
121.80	5.10	CO	YOA						
126.90	8.10	SH		25.90	6.01	0.06	0.12	0.70	0.64
135.00	10.00	SS		36.80	27.30	<0.05	<0.05	0.20	0.32
145.00	10.20	SS		37.50	22.40	<0.05	0.07	0.30	0.50
155.20	2.70	CO	Y1B						
157.90	3.50	SH		11.10	-64.20	<0.05	0.06	0.90	0.91
161.40	9.70	SS		19.10	17.00	<0.05	0.07	0.30	0.79
171.10	9.90	SS		129.00	129.00	<0.05	<0.05	<0.10	0.53
181.00	8.60	SL		53.90	10.80	<0.05	0.06	0.40	1.14
189.60	3.00	SH		28.20	-46.50	<0.05	<0.05	0.60	2.11
192.60	11.60	CO	NXX						
204.20	1.80	SH		9.73	-0.02	0.06	0.10	0.30	1.51
206.00	10.00	SL		31.20	29.80	<0.05	<0.05	0.10	0.81
216.00	10.00	SS		32.20	31.50	<0.05	<0.05	<0.10	0.46
226.00	10.00	SS		22.70	21.40	<0.05	<0.05	<0.10	0.37
236.00	5.00	SS		19.30	13.80	<0.05	<0.05	<0.10	0.39
241.00	3.00	SH		18.60	13.50	0.07	0.10	0.60	1.34
244.00	4.30	CO	EOX						
248.30	4.70	SH		33.50	21.30	0.06	0.09	0.40	0.95
253.00	2.50	CO	E1A						
255.50	4.30	SH		25.20	5.14	0.10	0.17	0.40	0.61
259.80	6.10	CO	E1X						
265.90	3.40	SH		14.50	12.10	0.06	0.10	0.70	0.55
269.30	0.70	CO	E2X						

HOLE NUMBER: 30351EO*

MINE AREA: N99

DATE: 7/8-10/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-15.0	15.0	SS	YBR	LC: 0.0-6.3, 10.0-12.0
2	15.0-20.0	5.0	CS	BRGR	
3	20.0-30.0	10.0	SH	GR	LC: 20.0-24.0
4	30.0-40.0	10.0	SS	BRGR	LC: 30.0-33.5
5#	40.0-53.0	13.0	SS	BRGR	LC: 40.0-43.4, 50.0-52.0
6	53.0-63.0	10.0	SS	BRGR	LC: 55.0-57.0, 62.0-63.0
7	63.0-68.1	5.1	SH	BLK	
8	68.1-75.0	6.9	SL, SS	GR	
9	75.0-79.2	4.2	MS	VDGR	LC: 75.0-76.0
10	79.2-82.0	2.8	CO	BLK	WEATHERED
11	82.0-89.1	7.1	MS, CO	VDGR/BLK	
12	89.1-98.3	9.2	SS	GR	
13	98.3-108.0	9.7	SS	GR	SHALEY
14	108.0-117.6	9.6	SS	GR	
15#	117.6-127.5	9.9	SH, MS, CO	DGR-BLK	
**	127.5-130.2	2.7	CO (MXX)	BLK	
16+	130.2-137.9	7.7	SH	DGR/GR	LC: 131.6-136.0
17	137.9-142.2	4.3	SS	GR	
18	142.2-144.9	2.7	SH, CO	DGR, BLK	
19	144.9-150.0	5.1	SS	GR	
20	150.0-154.8	4.8	SH	DGR, VDGR	
21	154.8-156.5	1.7	CO	BLK	
22	156.5-161.8	5.3	MS, SH	GR, DGR	
23	161.8-171.6	9.8	MS, SNDY	GR	LC: 170.0-170.9
24	171.6-181.6	10.0	SH, SL	GR	
25#	181.6-184.7	3.1	SS	GR	
26	184.7-187.4	2.7	SH, CO, SS	VDGR, BLK	
27	187.4-192.5	5.1	MS	DGR	
28	192.5-194.3	1.8	CO	BLK	
29	194.3-198.4	4.1	MS	DGR	
30	198.4-204.0	5.6	SS	GR	
31	204.0-209.5	5.5	SH	VDGR	
**	209.5-213.0	3.5	CO (Y1A)	BLK	LC: 210.0-210.9
32+	213.0-220.0	7.0	SL, SH	DGR	
33	220.0-226.8	6.8	SH, MS	VDGR, DGR	
**	226.8-232.0	5.2	CO (NOX)	BLK	
34+	232.0-233.5	1.5	SH	VDGR-BLK	
**	233.5-236.5	3.0	CO (N1X)	BLK	
35#+	236.5-243.0	6.5	SH	VDGR	
36	243.0-249.8	6.8	SL	DGR	
37	249.8-255.7	5.9	SS	GR	

CORE NO: 30351EO

Mine Area: N99, Peabody Coordinates: 38440.07E, -7976.75N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	15.00	SS		7.9	1.4	1.9	1.3	9.3	7.4	68	14	18	<0.01			0.25
15.00	5.00	CS		7.5	1.1	3.5	3.0	3.8	2.1	1	43	56	0.03			1.00
20.00	10.00	SH		7.4	0.6	1.4	1.3	2.5	2.1	1	53	46	<0.01			0.28
30.00	10.00	SS		7.7	1.9	1.2	1.1	2.0	1.8	37	35	28	<0.01			0.04
40.00	13.00	SS		7.7	1.9	1.6	1.2	1.5	1.3	62	20	18	<0.01			0.08
53.00	10.00	SS		7.4	0.6	2.3	1.1	1.6	1.2	62	20	18	0.03			0.98
63.00	5.10	SH		7.0	1.1	5.4	2.2	2.4	1.2	6	34	60	0.02			0.55
68.10	6.90	SL		6.7	1.5	9.6	3.1	2.4	0.9	39	37	24	0.07			2.04
75.00	4.20	MS		5.2	2.0	14.0	4.6	2.4	0.8	37	35	28	0.20			4.91
79.20	2.80	CO		4.0	3.5	31.0	13.0	3.1	0.6	72	20	8	0.70	<0.01	0.60	0.09
82.00	7.10	MS		3.7	4.3	31.0	23.0	3.9	0.8	31	37	32	0.60	0.02	0.40	0.56
89.10	9.20	SS		6.7	1.5	9.3	4.5	2.3	0.9	59	17	24	0.06			1.94
98.30	9.70	SS		7.0	1.0	5.4	3.3	2.3	1.1	56	22	22	0.30			9.31
108.00	9.60	SS		6.9	1.5	9.3	5.8	2.4	0.9	68	16	16	0.07			2.30
117.60	9.90	SH		6.2	4.2	21.0	18.0	15.0	3.4	29	42	29	1.40	1.00	0.30	32.20
127.50	2.70	CO	MXX													
130.20	7.70	SH		7.2	3.4	1.2	0.7	40.0	41.8	19	49	32	0.90			27.20
137.90	4.30	SS		8.0	3.2	0.8	0.5	33.0	40.4	49	28	24	0.07			2.30
142.20	2.70	SH		7.5	4.3	0.8	0.5	41.0	51.1	35	35	30	1.10			34.40
144.90	5.10	SS		8.2	2.2	0.3	0.1	21.0	46.2	41	31	28	0.10			3.19
150.00	4.80	SH		7.2	5.7	2.6	1.2	60.0	44.0	5	57	38	2.20	1.70	0.30	53.10
154.80	1.70	CO		5.9	6.8	5.5	2.2	78.0	39.7	67	15	18	3.70	2.20	1.40	69.40
156.50	5.30	MS		7.2	3.4	0.9	0.4	34.0	41.2	16	48	36	1.20	0.90	0.20	28.60
161.80	9.80	MS		8.7	1.7	0.4	0.2	16.0	30.2	61	17	22	<0.01			0.14
171.60	10.00	SH		8.8	2.0	0.2	0.1	12.0	27.4	62	18	20	<0.01			0.12
181.60	3.10	SS		8.7	1.7	0.3	0.1	16.0	33.5	24	40	36	0.06			2.03
184.70	2.70	SH		7.4	2.5	0.4	0.2	23.0	45.8	45	25	30	1.30	0.80	0.60	23.70
187.40	5.10	MS		7.5	3.5	0.8	0.3	37.0	50.4	36	30	34	0.50			16.50
192.50	1.80	CO		7.2	0.7	0.2	0.1	6.7	18.2	83	7	10	0.70	0.06	0.60	1.84
194.30	4.10	MS		7.4	1.0	5.0	3.8	3.5	1.7	22	44	34	0.10			4.13
198.40	5.60	SS		6.7	3.7	31.0	28.0	4.1	0.8	73	11	16	0.70			21.80
204.00	5.50	SH		5.6	4.2	34.0	29.0	8.3	1.5	16	52	32	2.90	2.30	0.60	71.60
209.50	3.50	CO	Y1A													
213.00	7.00	SL		7.3	5.9	5.8	2.5	60.0	29.3	17	47	36	1.40	1.10	0.20	35.20
220.00	6.80	SH		7.4	5.1	4.1	1.6	55.0	32.7	27	39	34	1.30			39.70
226.80	5.20	CO	NOX													
232.00	1.50	SH		7.6	2.4	0.5	0.2	24.0	41.5	76	10	14	1.00	0.50	0.50	15.00
233.50	3.00	CO	N1X													
236.50	6.50	SH		8.4	1.7	0.2	0.1	18.0	46.5	12	48	40	0.20			7.78
243.00	6.80	SL		8.6	1.7	0.3	0.1	17.0	37.3	31	35	34	0.05			1.65
249.80	5.90	SS		8.6	1.8	0.3	0.1	19.0	39.3	42	28	30	<0.01			0.06
255.70	7.90	SH		8.5	1.9	0.3	0.2	20.0	43.0	33	33	34	0.06			1.91
263.60	9.30	SL		8.6	1.5	0.2	0.1	14.0	36.6	54	23	23	0.03			0.99
272.90	4.80	CO	E0X													
277.70	2.90	SH		9.0	1.0	0.2	0.1	11.0	34.1	2	54	44	0.05			1.61
280.60	8.50	CO	E1X													
289.10	6.60	SH		8.7	1.5	0.2	0.1	11.0	30.9	7	41	52	0.10			3.66
295.70	2.00	CO	E2X													
297.70	2.30	SS		7.1	3.1	17.0	3.1	17.0	27.2	60	12	28	0.40			13.20
									5.4	44	34	22	0.20			5.50

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Revised 11/21/03

CORE NO: 30351EO

Mine Area: N99, Peabody Coordinates: 38440.07E, -7976.75N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	15.00	SS		8.45	8.21	<0.05	<0.05	<0.10	0.27
15.00	5.00	CS		10.60	9.62	<0.05	<0.05	0.10	0.25
20.00	10.00	SH		10.10	9.84	<0.05	<0.05	0.10	0.29
30.00	10.00	SS		12.30	12.30	<0.05	<0.05	<0.10	0.27
40.00	13.00	SS		10.30	10.20	<0.05	<0.05	<0.10	0.29
53.00	10.00	SS		9.31	8.34	<0.05	<0.05	0.50	0.32
63.00	5.10	SH		10.50	9.99	<0.05	<0.05	0.20	0.58
68.10	6.90	SL		7.47	5.43	<0.05	<0.05	0.20	0.33
75.00	4.20	MS		10.70	5.75	<0.05	<0.05	1.40	0.45
79.20	2.80	CO		3.76	3.66	<0.05	<0.05	14.60	2.00
82.00	7.10	MS		1.77	1.21	<0.05	<0.05	2.20	1.30
89.10	9.20	SS		30.60	28.60	<0.05	<0.05	0.20	0.45
98.30	9.70	SS		44.50	35.20	<0.05	<0.05	0.10	0.37
108.00	9.60	SS		14.10	11.80	<0.05	<0.05	0.20	0.34
117.60	9.90	SH		10.00	-22.10	<0.05	0.05	0.60	1.00
127.50	2.70	CO	MXX						
130.20	7.70	SH		42.80	15.70	<0.05	0.05	0.40	0.66
137.90	4.30	SS		124.00	122.00	<0.05	0.07	0.50	0.57
142.20	2.70	SH		50.40	16.10	<0.05	0.10	0.40	1.50
144.90	5.10	SS		52.90	49.70	<0.05	<0.05	0.20	0.67
150.00	4.80	SH		36.40	-16.70	<0.05	0.06	0.70	1.30
154.80	1.70	CO		11.80	-57.60	<0.05	<0.05	1.70	3.10
156.50	5.30	MS		17.60	-11.00	<0.05	0.06	0.40	1.30
161.80	9.80	MS		125.00	125.00	<0.05	<0.05	0.10	0.51
171.60	10.00	SH		125.00	125.00	<0.05	<0.05	0.10	0.47
181.60	3.10	SS		47.40	45.40	<0.05	<0.05	0.20	0.85
184.70	2.70	SH		10.30	-13.40	0.05	0.07	0.90	1.50
187.40	5.10	MS		21.10	4.58	0.07	0.08	0.60	0.98
192.50	1.80	CO		9.40	7.56	<0.05	<0.05	1.40	2.10
194.30	4.10	MS		46.10	42.00	<0.05	0.05	0.40	0.50
198.40	5.60	SS		65.00	43.20	<0.05	<0.05	0.10	0.40
204.00	5.50	SH		10.70	-60.90	<0.05	<0.05	0.80	1.10
209.50	3.50	CO	Y1A						
213.00	7.00	SL		41.00	5.86	<0.05	0.07	0.40	0.95
220.00	6.80	SH		47.40	7.76	<0.05	0.07	0.60	0.98
226.80	5.20	CO	N0X						
232.00	1.50	SH		18.80	3.85	0.07	0.14	2.60	1.00
233.50	3.00	CO	N1X						
236.50	6.50	SH		18.90	11.10	0.05	0.09	0.80	0.51
243.00	6.80	SL		51.40	49.80	<0.05	0.06	0.20	0.40
249.80	5.90	SS		77.80	77.80	<0.05	0.06	0.20	0.38
255.70	7.90	SH		44.70	42.80	<0.05	0.07	0.40	0.41
263.60	9.30	SL		51.70	50.70	<0.05	0.08	0.20	0.36
272.90	4.80	CO	E0X						
277.70	2.90	SH		10.10	8.48	0.15	0.22	0.60	0.41
280.60	8.50	CO	E1X						
289.10	6.60	SH		27.30	23.70	0.11	0.21	0.70	0.40
295.70	2.00	CO	E2X						
297.70	2.30	SS		44.50	31.30	0.07	0.12	1.20	0.70
				22.10	16.60	<0.05	0.09	0.20	0.40

HOLE NUMBER: 30352EO*

MINE AREA: N99

DATE: 7/11-12/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SS, SHALEY	YBR	LC: 0.0-2.0
2#	10.0-14.0	4.0	SS	YBR	
3	14.0-20.0	6.0	SH	DGR, YBR	SANDY
4	20.0-26.1	6.1	SH, SANDY	DGR, YBR	LC: 20.0-22.0
5	26.1-34.5	8.4	SH, SL	DGR	
6	34.5-39.8	5.3	SH, CO	VDGR, BLK	CO: 35.8-36.9
7	39.8-49.6	9.8	SL, SH	DGR, GR	
8	49.6-59.3	9.7	SS	LGR, BRGR	
9	59.3-65.0	5.7	SS	GR	SHALEY
10	65.0-74.9	9.9	SS, SH	GR, DGR	
11	74.9-80.3	5.4	CO (MXX)	BLK	VDGRSH: 78.3-79.2
12#	80.3-86.5	6.2	SS	GR	SHALEY
13	86.5-91.1	4.6	SH	DGR, VDGR	
** +	91.1-94.0	2.9	CO (Y0A)	BLK	
14+	94.0-96.6	2.6	SH	VDGR	
15	96.6-98.5	1.9	CO	BLK	
16	98.5-102.0	3.5	SH	DGR	LC: 100.0-100.7
17	102.0-111.0	9.0	SH, SS, CO	DGR, BLK	LC: 110.0-110.3
18	111.0-116.0	5.0	SS	GR	
19	116.0-122.5	6.5	SS	GR	
20	122.5-124.6	2.1	SH	VDGR	
21	124.6-130.0	5.4	SL	GR	SHALEY
** +	130.0-133.1	3.1	CO (Y1A)	BLK	
22#+	133.1-142.2	9.1	SH	DGR, VDGR	
23	142.2-148.8	6.6	SS	GR, DGR	
**	148.8-154.0	5.2	CO (N0X)	BLK	
24+	154.0-160.8	6.8	SH	VDGR, BLK	
** +	160.8-164.4	3.6	CO (N1X)	BLK	
25+	164.4-170.9	6.5	SL	DGR, VDGR	SHALEY, COAL
26	170.9-181.0	10.1	SS	GR	LC: 173.7-180.0
27	181.0-184.4	3.4	SH	DGR	SANDY
28	184.4-186.8	2.4	SH, CO	VDGR, BLK	CO: 185.9-186.9
29	186.8-196.8	10.0	SL	DGR	LC: 190.0-191.5
30	196.8-201.9	5.1	SL, SH	DGR, VDGR	LC: 200.0-201.9
**	201.9-209.5	7.6	CO (E1X)	BLK	LC: 201.9-208.0
31+	209.5-216.0	6.5	SH	DGR, VDGR	LC: 210.0-213.0
32#	216.0-220.0	4.0	SL, SH	GR, DGR	

* Core boxes 1 through 22, 10 foot of core per box.

Designated duplicate sample, process core, send representative split to GAL.

** Mineable coal seam, process core & store, no analyses required at this time.

+ The following increments were removed to perform coal washability analyses: 91.1-91.4, 94.0-94.3, 130.65-130.70, 133.1-133.4, 154.0-154.3, 162.3-162.5, 164.4-164.7, & 209.5-209.8.

CORE NO: 30352EO

Mine Area: N99, Peabody Coordinates: 44572.08E, -9148.39N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SS		7.9	2.9	4.5	11.0	17.0	6.0	58	23	19	<0.01			0.04
10.00	4.00	SS		8.1	1.4	2.0	3.3	5.8	3.6	86	9	5	<0.01			0.01
14.00	6.00	SH		7.7	4.7	16.0	38.0	13.0	2.6	10	42	48	0.06			2.00
20.00	6.10	SH		7.5	6.4	20.0	85.0	9.9	1.4	31	30	39	0.10			3.03
26.10	8.40	SH		4.2	6.5	24.0	76.0	7.1	1.0	30	50	20	0.80	0.60	0.10	19.70
34.50	5.30	SH		6.4	2.9	13.0	8.0	15.0	4.7	28	49	23	1.00	0.70	0.30	23.30
39.80	9.80	SL		8.0	1.3	0.5	0.2	3.8	6.3	35	40	25	<0.01			0.08
49.60	9.70	SS		8.0	1.5	1.4	0.6	13.0	13.4	69	20	11	0.70			2.26
59.30	5.70	SS		8.2	1.4	0.3	0.2	14.0	27.6	76	11	13	0.05			1.44
65.00	9.90	SS		8.3	1.6	0.6	0.3	17.0	25.8	40	33	27	0.10			3.41
74.90	5.40	CO	MXX	6.5	4.7	6.2	2.0	41.0	20.3	57	30	13	2.60	2.00	0.60	62.40
80.30	6.20	SS		8.2	2.2	1.0	0.4	24.0	29.3	42	44	14	0.08			2.62
86.50	4.60	SH		7.2	5.4	7.3	2.7	53.0	23.8	19	52	29	2.20	1.80	0.20	57.80
91.10	2.90	CO	YOA													
94.00	2.60	SH		7.6	3.6	3.4	1.4	36.0	23.6	27	49	24	0.70	0.60	0.08	18.70
96.60	1.90	CO		7.7	0.9	0.2	0.1	8.0	24.2	92	7	1	1.40	0.40	0.90	13.80
98.50	3.50	SH		8.1	1.9	1.0	0.4	17.0	20.7	27	46	27	0.30			10.80
102.00	9.00	SH		7.4	3.0	6.4	3.3	26.0	11.8	46	34	20	1.30	0.80	0.30	25.40
111.00	5.00	SS		7.0	3.4	32.0	23.0	2.0	0.4	87	6	7	0.30			8.41
116.00	6.50	SS		6.8	4.4	36.0	39.0	2.3	0.4	87	8	5	0.60			19.30
122.50	2.10	SH		6.4	2.9	29.0	19.0	3.4	0.7	28	43	29	3.50	3.00	0.50	94.20
124.60	5.40	SL		6.3	3.0	31.0	19.0	2.8	0.6	38	45	17	1.10	0.90	0.10	28.80
130.00	3.10	CO	Y1A													
133.10	9.10	SH		7.9	5.1	2.1	0.7	59.0	49.9	20	55	25	2.30	2.00	0.20	60.90
142.20	6.60	SS		7.3	4.7	6.7	2.3	48.0	22.6	51	34	15	1.00	0.90	0.09	26.90
148.80	5.20	CO	NOX													
154.00	6.80	SH		7.8	5.1	1.5	0.6	53.0	52.9	50	32	18	1.80	1.40	0.30	42.90
160.80	3.60	CO	N1X													
164.40	6.50	SL		7.9	2.3	0.4	0.1	22.0	43.6	47	39	14	0.50	0.30	0.10	10.60
170.90	10.10	SS		8.6	2.0	0.4	0.2	21.0	39.2	59	28	13	<0.01			0.07
181.00	3.40	SH		8.1	4.0	1.4	0.7	45.0	45.1	47	34	19	0.60			19.80
184.40	2.40	SH		8.2	1.5	0.2	0.1	19.0	48.9	33	40	27	1.00	0.80	0.20	24.30
186.80	10.00	SL		9.0	1.7	0.3	0.1	17.0	43.2	37	40	23	<0.01			0.07
196.80	5.10	SL		9.0	1.4	0.1	0.3	14.0	31.0	15	58	27	0.09			2.96
201.90	7.60	CO	E1X													
209.50	6.50	SH		9.1	1.5	0.5	0.1	12.0	21.1	14	49	37	0.06			1.75
216.00	4.00	SL		8.8	1.3	0.2	0.1	12.0	31.8	29	46	25	0.06			1.78

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Revised 11/21/03

CORE NO: 30352EO

Mine Area: N99, Peabody Coordinates: 44572.08E, -9148.39N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		17.60	17.50	<0.05	<0.05	<0.10	0.40
10.00	4.00	SS		7.40	7.39	<0.05	<0.05	<0.10	0.33
14.00	6.00	SH		20.40	18.40	<0.05	<0.05	0.40	0.55
20.00	6.10	SH		23.40	20.40	<0.05	<0.05	0.30	0.52
26.10	8.40	SH		11.50	-8.22	0.05	0.05	0.40	0.78
34.50	5.30	SH		7.43	-15.90	0.06	0.06	0.40	1.40
39.80	9.80	SL		52.10	52.10	<0.05	<0.05	0.30	0.89
49.60	9.70	SS		32.10	29.90	<0.05	<0.05	<0.10	0.47
59.30	5.70	SS		37.30	35.90	<0.05	<0.05	0.10	0.54
65.00	9.90	SS		40.70	37.30	<0.05	0.06	0.40	0.89
74.90	5.40	CO	MXX	-55.00	7.40	<0.05	0.06	1.40	3.70
80.30	6.20	SS		52.90	50.20	<0.05	0.06	0.20	0.87
86.50	4.60	SH		28.50	-29.30	<0.05	0.06	0.70	1.60
91.10	2.90	CO	Y0A						
94.00	2.60	SH		18.90	0.23	0.08	0.08	0.50	1.70
96.60	1.90	CO		9.77	-4.04	<0.05	<0.05	1.70	4.30
98.50	3.50	SH		13.50	2.72	0.09	0.11	0.50	1.50
102.00	9.00	SH		22.00	-3.43	0.08	0.10	0.90	1.80
111.00	5.00	SS		32.50	24.10	<0.05	<0.05	<0.10	0.37
116.00	6.50	SS		73.30	54.00	<0.05	<0.05	0.20	0.37
122.50	2.10	SH		2.38	-91.90	<0.05	0.08	0.80	0.73
124.60	5.40	SL		10.50	-18.30	<0.05	0.05	0.40	0.49
130.00	3.10	CO	Y1A						
133.10	9.10	SH		19.60	-41.30	<0.05	0.06	0.60	1.40
142.20	6.60	SS		30.40	3.59	<0.05	<0.05	0.30	1.00
148.80	5.20	CO	NOX						
154.00	6.80	SH		15.90	-27.10	0.09	0.12	0.80	0.76
160.80	3.60	CO	N1X						
164.40	6.50	SL		-1.08	-11.70	0.07	0.10	0.50	0.58
170.90	10.10	SS		75.60	75.60	<0.05	0.06	0.40	0.39
181.00	3.40	SH		58.20	38.50	<0.05	0.08	0.40	0.47
184.40	2.40	SH		17.60	-6.72	0.05	0.07	0.90	0.89
186.80	10.00	SL		33.80	33.80	0.09	0.10	0.30	0.38
196.80	5.10	SL		9.43	6.47	0.15	0.17	1.40	0.42
201.90	7.60	CO	E1X						
209.50	6.50	SH		12.30	10.60	0.08	0.09	0.40	0.45
216.00	4.00	SL		15.30	13.80	0.05	0.05	0.20	0.46

HOLE NUMBER: 30353EO*

MINE AREA: N99

DATE: 7/13-14/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SH	GR	LC: 0.0-8.0
2	10.0-20.0	10.0	SS	LGR, YBR	LC: 10.0-16.0
3	20.0-30.0	10.0	SL	GR	LC: 20.0-24.0
4	30.0-36.5	6.5	SS	GRBR	LC: 30.0-34.0
5	36.5-46.0	9.5	SH	VDGR, BLK	
6	46.0-56.0	10.0	SL	GR	LC: 47.7-48.3, 51.0-53.0
7	56.0-63.1	7.1	SH, CO-MXX	VDGR, BLK	NONMINEABLE
8	63.1-71.2	8.1	SL, SH	GR, DGR	SANDY
9	71.2-76.4	5.2	SH	DGR-BLK	
10#	76.4-85.9	9.5	SL	DGR	LC: 80.0-80.5
11	85.9-96.4	10.5	SL	GR, DGR	SANDY
12	96.4-102.3	5.9	SH, CO	VDGR, BLK	
13	102.3-108.0	5.7	SL	DGR	SHALEY
14	108.0-115.6	7.6	SS	GR	SHALEY
15	115.6-122.2	6.6	SS	GR	
16	122.2-130.0	7.8	SS	GR	
17	130.0-140.0	10.0	SS	GR	LC: 131.2-132.0
18	140.0-144.9	4.9	SL	GR	SANDY, LC: 140.0-140.6
19	144.9-148.0	3.1	SH	VDGR	
20#	148.0-155.6	7.6	SS	GR	LC: 150.0-151.3
21	155.6-158.8	3.2	SL, CO	VDGR, BLK	
22	158.8-164.5	5.7	SL	GR	SANDY LC: 160.0-161.4
23	164.5-170.0	5.5	SH	VDGR, BLK	
24	170.0-180.0	10.0	SH, CO	VDGR, BLK	LC: 170.0-170.9
25	180.0-184.6	4.6	SS	GR	
26	184.6-192.4	7.8	SH, CO	VDGR, BLK	LC: 190.0-192.0
27	192.4-199.0	6.6	SS	DGR	
28	199.0-201.3	2.3	SH	VDGR	LC: 200.0-200.8
29	201.3-210.0	8.7	SL	GR	SANDY
30#	210.0-216.4	6.4	SL	GR	SANDY
** +	216.4-219.6	3.2	CO (Y1A)	BLK	
31+	219.6-222.8	3.2	SL	GR	220.0-220.4
32	222.8-230.0	7.2	SH	DGR	
33	230.0-233.7	3.7	SH	VDGR, BLK	LC: 230.0-231.3
34	233.7-238.0	4.3	SS	DGR	SILTY
**	238.0-244.6	6.6	CO (NOX)	BLK	
35+	244.6-253.0	8.4	SH	VDGR	LC: 252.0-253.0
**	253.0-256.4	3.4	CO (N1X)	BLK	LC: 253.0-254.8
36+	256.4-259.0	2.6	SL	DGR	SHALEY
37	259.0-260.6	1.6	CO (N2X)	BLK	NONMINEABLE
38	260.6-268.0	7.4	SS	GR	
39	268.0-275.0	7.0	SH	DGR	LC: 274.0-275.0

CORE NO: 30353EO

Mine Area: N99, Peabody Coordinates: 43480.10E, -5874.13N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SH		7.8	1.7	3.1	1.5	15.0	9.8	25	39	36	<0.01			<0.00
10.00	10.00	SS		7.3	1.5	6.7	3.4	7.7	3.4	65	21	14	0.01			0.31
20.00	10.00	SL		7.4	2.9	13.0	27.0	3.6	0.8	24	43	33	<0.01			<0.00
30.00	6.50	SS		7.6	1.6	3.9	15.0	2.4	0.8	46	35	19	0.02			0.63
36.50	9.50	SH		5.8	3.7	26.0	33.0	3.3	0.6	16	48	36	0.50	0.20	0.20	6.06
46.00	10.00	SL		6.8	2.0	15.0	12.0	3.2	0.9	34	43	23	0.60			18.40
56.00	7.10	SH		6.4	3.2	17.0	12.0	16.0	4.1	36	34	30	1.40	0.90	0.40	28.50
63.10	8.10	SL		7.6	1.3	1.4	0.7	13.0	12.4	23	51	26	0.10			3.41
71.20	5.20	SH		7.4	2.6	3.5	1.2	27.0	17.3	17	53	30	0.60			18.70
76.40	9.50	SL		8.2	1.4	1.3	0.6	17.0	16.8	14	57	29	0.06			1.94
85.90	10.50	SL		7.8	2.8	2.7	0.9	27.0	19.9	33	42	25	0.30			10.40
96.40	5.90	SH		5.9	5.3	19.0	5.5	46.0	13.2	30	50	20	2.20	1.80	0.40	54.80
102.30	5.70	SL		8.1	0.8	1.1	0.4	8.1	9.4	12	57	31	0.08			2.50
108.00	7.60	SS		7.8	0.9	2.3	1.2	7.6	5.8	46	34	20	0.08			2.53
115.60	6.60	SS		7.8	1.0	3.1	1.8	5.7	3.6	67	21	12	0.02			0.78
122.20	7.80	SS		7.7	1.3	6.8	4.8	5.3	2.2	70	19	11	0.04			1.41
130.00	10.00	SS		6.1	2.4	19.0	12.0	4.4	1.1	78	16	6	0.30	0.30	0.04	8.15
140.00	4.90	SL		8.0	1.7	1.2	0.6	16.0	17.2	48	30	22	0.06			1.94
144.90	3.10	SH		7.6	3.0	3.9	1.2	31.0	19.4	40	38	22	0.90	0.70	0.20	20.80
148.00	7.60	SS		7.6	1.5	5.8	4.1	7.7	3.5	72	18	10	0.05			1.56
155.60	3.20	SL		7.3	1.3	4.2	2.6	8.2	4.4	50	29	21	0.60	0.30	0.30	9.91
158.80	5.70	SL		7.9	1.7	1.4	0.6	18.0	18.3	49	33	18	0.10			3.28
164.50	5.50	SH		6.8	5.1	15.0	5.3	45.0	14.2	36	36	28	2.50	1.80	0.50	56.10
170.00	10.00	SH		6.6	4.4	5.6	2.0	42.0	21.4	42	32	26	1.60	1.10	0.50	33.70
180.00	4.60	SS		6.9	3.5	7.2	3.6	35.0	15.2	60	22	18	0.90			28.70
184.60	7.80	SH		7.1	1.9	6.1	3.0	13.0	6.1	29	43	28	0.60			18.20
192.40	6.60	SS		7.3	2.6	27.0	15.0	1.9	0.4	85	9	6	0.40			12.40
199.00	2.30	SH		6.1	3.1	34.0	22.0	4.1	0.8	34	38	28	3.40	2.90	0.50	89.30
201.30	8.70	SL		7.0	1.4	11.0	6.9	2.3	0.8	33	43	24	0.20			5.44
210.00	6.40	SL		7.3	0.9	6.2	4.3	1.8	0.8	46	36	18	0.10			3.06
216.40	3.20	CO	Y1A													
219.60	3.20	SL		6.9	4.3	14.0	5.0	39.0	12.7	49	35	16	0.60			18.90
222.80	7.20	SH		7.2	4.8	7.4	2.9	47.0	20.7	18	52	30	2.10	1.80	0.30	55.20
230.00	3.70	SH		6.9	5.3	11.0	4.2	67.0	24.1	15	53	32	2.80	2.40	0.40	74.20
233.70	4.30	SS		7.3	3.4	3.9	1.7	34.0	20.2	49	31	20	0.90			27.40
238.00	6.60	CO	NOX													
244.60	8.40	SH		7.4	4.1	1.8	1.0	51.0	42.9	42	36	22	1.40	1.00	0.30	32.20
253.00	3.40	CO	N1X													
256.40	2.60	SL		7.9	2.3	0.5	0.2	23.0	41.0	24	46	30	0.70	0.40	0.10	13.90
259.00	1.60	CO	N2X													
260.60	7.40	SS		8.4	1.8	0.5	0.2	18.0	31.0	57	27	16	<0.01			0.07
268.00	7.00	SH		8.1	2.6	0.5	0.2	30.0	49.4	30	40	30	0.60			19.70
275.00	5.00	CO	E0X													
280.00	10.00	SL		8.5	1.3	0.3	0.1	16.0	36.9	27	39	34	0.07			2.30
290.00	8.60	CO	E1X													
298.60	4.40	SH		8.3	1.4	0.4	0.2	19.0	34.1	8	42	50	0.30			7.84
303.00	2.40	CO	E2X													
305.40	2.20	SH		7.4	1.8	0.6	0.3	18.0	27.0	20	50	30	0.30	0.20	0.08	6.96
307.60	2.40	SS		7.9	1.4	0.7	0.4	13.0	17.7	54	30	16	0.07			2.06

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CORE NO: 30353EO

Mine Area: N99, Peabody Coordinates: 43480.10E, -5874.13N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SH		12.80	12.80	<0.05	<0.05	0.10	0.38
10.00	10.00	SS		8.18	7.86	0.05	0.08	0.40	0.28
20.00	10.00	SL		23.30	23.30	0.08	0.10	0.10	0.28
30.00	6.50	SS		7.86	7.23	<0.05	0.06	0.20	0.36
36.50	9.50	SH		11.30	5.26	<0.05	<0.05	0.80	1.50
46.00	10.00	SL		50.70	32.20	<0.05	0.05	0.60	0.62
56.00	7.10	SH		16.40	-12.00	<0.05	0.09	1.20	1.60
63.10	8.10	SL		41.40	38.00	<0.05	0.06	0.50	0.70
71.20	5.20	SH		20.50	1.79	0.07	0.13	0.80	1.00
76.40	9.50	SL		57.50	55.60	<0.05	0.06	0.50	0.70
85.90	10.50	SL		46.00	35.60	<0.05	<0.05	0.40	0.66
96.40	5.90	SH		10.50	-44.30	<0.05	0.09	0.90	1.50
102.30	5.70	SL		15.30	12.80	<0.05	0.08	0.50	0.50
108.00	7.60	SS		51.20	48.70	<0.05	0.06	0.20	0.40
115.60	6.60	SS		47.90	47.10	<0.05	<0.05	<0.10	0.32
122.20	7.80	SS		69.30	67.90	<0.05	<0.05	<0.10	0.32
130.00	10.00	SS		9.02	0.87	<0.05	<0.05	<0.10	0.36
140.00	4.90	SL		41.30	39.40	<0.05	0.11	0.80	0.50
144.90	3.10	SH		22.20	1.40	<0.05	0.09	0.50	0.70
148.00	7.60	SS		49.90	48.30	<0.05	<0.05	<0.10	0.36
155.60	3.20	SL		11.10	1.17	<0.05	0.07	0.70	1.40
158.80	5.70	SL		99.50	96.20	<0.05	0.07	0.50	0.52
164.50	5.50	SH		46.00	-10.00	<0.05	0.08	0.90	1.40
170.00	10.00	SH		14.80	-18.90	<0.05	0.14	1.20	2.90
180.00	4.60	SS		45.80	17.10	<0.05	0.10	0.60	1.90
184.60	7.80	SH		26.40	8.23	<0.05	0.11	0.70	0.86
192.40	6.60	SS		15.20	2.78	<0.05	<0.05	<0.10	0.32
199.00	2.30	SH		10.50	-78.80	<0.05	<0.05	0.90	0.62
201.30	8.70	SL		32.90	27.50	<0.05	<0.05	0.20	0.42
210.00	6.40	SL		33.20	30.10	<0.05	0.05	0.10	0.40
216.40	3.20	CO	Y1A						
219.60	3.20	SL		22.00	3.16	<0.05	0.09	0.50	1.00
222.80	7.20	SH		22.40	-32.90	<0.05	0.06	0.60	1.20
230.00	3.70	SH		18.60	-55.60	<0.05	<0.05	0.70	1.50
233.70	4.30	SS		40.40	13.00	<0.05	<0.05	0.50	0.98
238.00	6.60	CO	NOX						
244.60	8.40	SH		31.40	-0.85	0.07	0.15	1.20	0.68
253.00	3.40	CO	N1X						
256.40	2.60	SL		8.52	-5.35	0.07	0.18	0.70	0.44
259.00	1.60	CO	N2X			<0.05	0.13	1.30	0.74
260.60	7.40	SS		13.50	9.17	<0.05	0.09	0.40	0.32
268.00	7.00	SH		57.60	37.80	<0.05	0.12	0.50	0.34
275.00	5.00	CO	E0X						
280.00	10.00	SL		35.80	33.60	<0.05	0.12	0.50	0.42
290.00	8.60	CO	E1X						
298.60	4.40	SH		8.70	0.86	0.10	0.23	1.40	0.52
303.00	2.40	CO	E2X						
305.40	2.20	SH		7.07	0.12	<0.05	0.14	0.60	0.44
307.60	2.40	SS		10.80	8.77	<0.05	0.07	0.10	0.34

HOLE NUMBER: 30368EO*

MINE AREA: N99

DATE: 8/6/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SS	LBRGR	LC: 0.0-1.3
2	10.0-18.1	8.1	SS	LBRGR	
3	18.1-22.0	3.9	SS	LGR, LBRGR	LC: 20.0-20.7, SHALEY
4	22.0-24.0	2.0	SS	PBR	
5#	24.0-34.0	10.0	SS	LGR	LC: 30.0-31.5
6	34.0-44.0	10.0	SS	LGR	LC: 40.0-40.5
7	44.0-53.4	9.4	SS	LGR	LC: 50.0-50.5
8	53.4-56.5	3.1	SS	GR	
9	56.5-59.5	3.0	SH	VDGR	
10	59.5-62.0	2.5	SS	GR	
11	62.0-65.5	3.5	CO (Y1A), SH	VDGR, BLK	CO: 63.2-65.0, NONMINABLE
12	65.5-67.7	2.2	SS	GR	
13	67.7-77.5	9.8	SL, SS	DGR, VDGR	SHALEY
14	77.5-81.0	3.5	SS, SL	GR	
**	81.0-87.6	6.6	CO (NOX)	BLK	LC: 81.0-82.2
15#+	87.6-93.0	5.4	SL	VDGR	LC: 90.0-90.3
16	93.0-100.0	7.0	SH, CO	VDGR, BLK	LC: 97.8-98.2
17	100.0-102.9	2.9	CO (N1X), SH	BLK, VDGR	CO: 100.4-101.7, NONMINABLE
18	102.9-106.0	3.1	SS	GR	
19	106.0-108.0	2.0	SL, CO	VDGR, BLK	SHALEY
20	108.0-114.0	6.0	SS	GR	
21	114.0-115.6	1.6	CO, SH	VDGR, BLK	
22	115.6-125.3	9.7	SS	GR, DGR	SILTY
23	125.3-128.0	2.7	SH	VDGR, BLK	
**	128.0-132.4	4.4	CO (EOX)	BLK	
24+	132.4-138.6	6.2	SL	DGR	SHALEY
** +	138.6-147.5	8.9	CO (E1X)	BLK	SH: 146.0-146.8
25#+	147.5-154.0	6.5	SL, SH	DGR, VDGR	LC: 147.8-148.4
**	154.0-157.0	3.0	CO (E2X)	BLK	LC: 154.0-154.5
26+	157.0-164.0	7.0	SS, SL	GR, DGR	
27	164.0-166.4	2.4	CO, SH	VDGR, BLK	CO: 164.5-165.7
28	166.4-171.1	4.7	SS	GR	
29	171.1-175.1	4.0	CO, SH	VDGR, BLK	CO: 172.8-174.1
30	175.1-181.0	5.9	SS	GR	LC: 180.0-180.4, SILTY
31	181.0-190.3	9.3	SS	LGR	
32	190.3-198.4	8.1	SH, SL	VDGR, DGR	SANDY
33	198.4-208.4	10.0	SS, SL	DGR, GR	
34	208.4-215.9	7.5	CO, SH	VDGR, BLK	CO: 210.8-211.1, CO: 214.4-215.7
35#	215.9-220.0	4.1	SL	DGR	

CORE NO: 30368EO

Mine Area: N99, Peabody Coordinates: 44724.68E, -11246.06N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption			Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)	
									Ratio (SAR)	Sand (%)	Silt (%)					Clay (%)
0.00	10.00	SS		7.8	2.6	5.4	20.9	5.5	1.5	63	20	18	0.03			1.06
10.00	8.10	SS		7.8	1.5	4.8	9.3	2.4	0.9	71	15	14	0.03			0.94
18.10	3.90	SS		7.7	2.0	10.6	10.9	2.3	0.7	56	19	25	0.04			1.25
22.00	2.00	SS		7.8	1.6	8.4	7.5	1.9	0.7	83	10	8	0.02			0.61
24.00	10.00	SS		7.1	2.1	14.0	9.6	1.8	0.5	80	13	8	0.09			2.94
34.00	10.00	SS		7.0	2.1	12.9	9.1	2.3	0.7	70	18	13	0.20			6.15
44.00	9.40	SS		7.5	1.8	10.0	8.4	2.5	0.8	78	13	10	0.04			1.19
53.40	3.10	SS		6.8	4.0	27.9	29.5	3.6	0.7	79	13	9	0.76			23.85
56.50	3.00	SH		5.8	3.8	26.6	24.3	4.3	0.9	25	43	33	3.40	2.79		106.18
59.50	2.50	SS		6.5	2.6	16.6	12.6	2.7	0.7	36	44	20	0.88	0.84		27.53
62.00	3.50	CO	Y1A	7.0	6.4	5.0	2.6	57.9	29.7	45	34	21	1.51	1.46		47.14
65.50	2.20	SS		7.6	2.7	1.2	0.4	23.7	27.1	50	38	13	0.20	0.12		6.26
67.70	9.80	SL		7.8	3.5	0.8	0.4	31.7	40.9	23	46	31	2.20	2.08		68.73
77.50	3.50	SS		6.3	2.8	4.8	3.4	19.4	9.6	65	23	13	1.99	1.70		62.01
81.00	6.60	CO	NOX													
87.60	5.40	SL		7.9	3.9	0.8	0.4	36.5	47.4	50	31	19	1.85	1.44		57.70
93.00	7.00	SH		8.6	1.7	0.2	0.1	14.8	34.9	26	29	45	0.57	0.35		17.95
100.00	2.90	CO	N1X	8.0	1.1	0.2	0.1	9.4	26.3	44	29	28	0.42	0.10		13.04
102.90	3.10	SS		8.4	2.0	0.6	0.3	17.4	26.5	68	20	13	0.05			1.42
106.00	2.00	SL		7.4	2.7	0.5	0.3	23.4	37.3	54	31	15	1.32	1.05		41.36
108.00	6.00	SS		7.0	2.5	0.6	0.3	20.1	29.5	51	39	10	0.17			5.23
114.00	1.60	CO		8.0	1.0	0.1	0.1	8.3	22.2	35	38	28	0.46	0.18		14.36
115.60	9.70	SS		8.6	3.0	0.8	0.3	27.3	36.8	55	28	18	0.37			11.46
125.30	2.70	SH		8.6	1.6	0.2	0.1	14.1	34.9	20	44	36	1.19	1.08		37.05
128.00	4.40	CO	EOX													
132.40	6.20	SL		8.9	1.0	0.1	0.1	9.4	29.1	18	50	33	0.04			1.35
138.60	8.90	CO	E1X													
147.50	6.50	SL		8.7	1.3	0.2	0.1	11.3	31.3	30	26	44	0.13			4.18
154.00	3.00	CO	E2X													
157.00	7.00	SS		7.3	3.8	8.0	3.1	26.4	11.3	50	34	16	0.73			22.86
164.00	2.40	CO		7.3	1.4	0.5	0.2	11.4	20.2	61	25	14	0.78	0.49		24.22
166.40	4.70	SS		8.1	1.9	0.9	0.4	14.9	18.3	49	31	20	0.28			8.83
171.10	4.00	SH		7.9	1.6	0.6	0.2	13.6	21.4	48	26	26	0.75	0.43		23.46
175.10	5.90	SS		8.5	1.0	0.3	0.3	8.3	15.6	35	33	33	0.06			1.98
181.00	9.30	SS		8.2	1.5	0.9	0.4	11.6	14.3	74	14	13	0.02			0.56
190.30	8.10	SH		8.3	1.2	0.3	0.1	9.9	20.1	29	34	38	0.17			5.30
198.40	10.00	SS		8.3	1.3	0.8	0.3	10.7	15.0	53	29	19	0.03			0.87
208.40	7.50	SH		8.0	2.2	1.2	0.4	18.2	20.3	40	25	35	0.59	0.40		18.32
215.90	4.10	SL		8.6	0.9	0.2	0.4	7.5	13.1	13	54	34	0.03			1.06

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Revised 11/21/03

CORE NO: 30368EO

Mine Area: N99, Peabody Coordinates: 44724.68E, -11246.06N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTFA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		16.54	15.47	<0.02		<0.15	0.50
10.00	8.10	SS		57.07	56.13	<0.02		0.15	<0.50
18.10	3.90	SS		8.70	7.44	0.03		0.25	<0.50
22.00	2.00	SS		10.65	10.05	<0.02		<0.15	<0.50
24.00	10.00	SS		10.65	7.71	0.02		<0.15	<0.50
34.00	10.00	SS		13.10	6.95	0.03		0.15	<0.50
44.00	9.40	SS		18.49	17.30	0.02		<0.15	<0.50
53.40	3.10	SS		112.93	89.08	0.02		0.22	<0.50
56.50	3.00	SH		3.31	-102.88	0.05		1.00	1.70
59.50	2.50	SS		6.25	-21.29	0.07		0.43	0.80
62.00	3.50	CO	Y1A	22.04	-25.10	0.10		0.77	2.85
65.50	2.20	SS		6.25	-0.02	0.11		0.85	1.90
67.70	9.80	SL		18.98	-49.74	0.08		0.50	4.30
77.50	3.50	SS		6.25	-55.77	0.05		0.70	4.70
81.00	6.60	CO	NOX						
87.60	5.40	SL		25.36	-32.35	0.13		1.30	1.25
93.00	7.00	SH		12.62	-5.33	0.20		1.45	1.55
100.00	2.90	CO	N1X	6.25	-6.79	0.12		1.45	1.85
102.90	3.10	SS		86.34	84.92	0.05		1.17	1.45
106.00	2.00	SL		3.79	-37.57	0.12		0.28	1.70
108.00	6.00	SS		5.75	0.53	0.06		1.13	0.70
114.00	1.60	CO		4.78	-9.59	0.15		1.02	2.65
115.60	9.70	SS		134.85	123.40	0.09		1.10	1.40
125.30	2.70	SH		19.48	-17.58	0.16		0.50	1.30
128.00	4.40	CO	E0X						
132.40	6.20	SL		9.68	8.33	0.15		1.05	1.20
138.60	8.90	CO	E1X						
147.50	6.50	SL		19.96	15.79	0.15		0.75	1.10
154.00	3.00	CO	E2X						
157.00	7.00	SS		53.64	30.78	0.09		1.02	<0.50
164.00	2.40	CO		4.78	-19.45	0.10		0.47	1.85
166.40	4.70	SS		27.07	18.23	0.10		1.02	0.70
171.10	4.00	SH		6.25	-17.21	0.11		0.43	1.40
175.10	5.90	SS		3.31	1.33	0.17		1.48	0.75
181.00	9.30	SS		136.32	135.76	0.03		0.65	<0.50
190.30	8.10	SH		9.18	3.89	0.11		0.90	1.05
198.40	10.00	SS		72.63	71.76	<0.02		0.32	1.30
208.40	7.50	SH		5.26	-13.06	0.09		1.45	1.55
215.90	4.10	SL		3.79	2.73	0.12		0.55	2.10

HOLE NUMBER: 30369EO*

MINE AREA: N99

DATE: 8/7-8/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SC	RDBR	LC: 0.0-8.4
2	10.0-20.0	10.0	SL	GRBR	SHALEY
3	20.0-30.0	10.0	SL	GRBR	SANDY
4	30.0-40.0	10.0	SL	YBR, DYBR	LC: 30.0-31.8, SANDY
5	40.0-46.7	6.7	CO, SH	VDGR, BLK	CO: 43.0-44.4
6	46.7-49.5	2.8	SL	DGR	
7	49.5-59.5	10.0	SS	GR	LC: 50.0-50.3
8	59.5-69.5	10.0	SS	LGR, GR	LC: 60.0-62.0
9	69.5-75.6	6.1	SS	GR	
10#	75.6-84.0	8.4	SL, SH	DGR-BLK	SANDY, COAL
**	84.0-86.7	2.7	CO (MXX)	BLK	
11+	86.7-88.6	1.9	CO, SH	VDGR, BLK	SANDY
12	88.6-91.0	2.4	SL	DGR	LC: 90.0-90.3
13	91.0-95.4	4.4	SH, CO	VDGR, BLK	CO: 94.1-94.7, SILTY
14	95.4-100.0	4.6	SS	GR	
15	100.0-102.2	2.2	SH, CO	VDGR, BLK	CO: 101.1-102.0, SILTY
16	102.2-107.8	5.6	SS	GR, LGR	
17	107.8-111.8	4.0	SL	DGR	
18	111.8-114.9	3.1	SH, CO	VDGR, BLK	CO: 112.7-114.6
19	114.9-124.0	9.1	SS	GR, LGR	
20#	124.0-133.6	9.6	SS	GR, LGR	
21	133.6-141.5	7.9	CO, SH, SL	DGR-BLK	CO: 133.8-134.5, 136.7-137.4, 139.7-141.3, SANDY
22	141.5-148.0	6.5	SS	LGR, GR	
23	148.0-154.4	6.4	SL	DGR	
** +	154.4-157.3	2.9	CO (Y1A)	BLK	
24+	157.3-160.4	3.1	SL	DGR	SHALEY
25	160.4-166.4	6.0	SS	GR, LGR	
26	166.4-172.2	5.8	SL, SS	DGR	SHALEY
** +	172.2-178.0	5.8	CO (NOX)	BLK	
27+	178.0-179.4	1.4	SH, SL	VDGR	
** +	179.4-182.4	3.0	CO (N1X)	BLK	
28+	182.4-184.2	1.8	SH	VDGR	
29	184.2-191.6	7.4	SS	GR, LGR	SILTY
30#	191.6-201.6	10.0	SS	LGR	
31	201.6-209.6	8.0	SS	LGR	
32	209.6-215.7	6.1	SL, SS	GR	
33	215.7-217.6	1.9	CO, SH	VDGR, BLK	CO: 215.7-217.3
34	217.6-226.7	9.1	SS	GR	SILTY
35	226.7-228.6	1.9	SL, SH	VDGR	

CORE NO: 30369EO

Mine Area: N99, Peabody Coordinates: 37996.63E, -12529.23N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SS		8.1	1.1	5.7	1.7	3.2	1.7	78	20	3	0.02			0.61
10.00	10.00	SL		7.6	0.8	4.2	1.5	1.5	0.9	23	45	33	0.05			1.52
20.00	10.00	SL		7.4	0.9	4.8	1.5	1.6	0.9	20	45	35	0.03			0.93
30.00	10.00	SL		7.3	1.9	10.7	7.2	2.1	0.7	33	34	34	0.03			0.94
40.00	6.70	SH		5.1	3.7	19.2	24.1	4.9	1.0	40	26	34	0.76	0.82		23.75
46.70	2.80	SL		7.8	0.5	0.9	1.1	2.3	2.3	19	49	33	0.07	0.03		2.07
49.50	10.00	SS		7.9	0.7	2.0	2.2	2.5	1.7	43	36	21	0.05			1.61
59.50	10.00	SS		7.9	0.9	2.4	2.5	3.5	2.3	63	23	15	0.04			1.17
69.50	6.10	SS		7.9	0.9	2.7	2.7	2.8	1.7	55	28	18	0.07			2.03
75.60	8.40	SL		6.9	3.6	4.0	3.0	28.0	15.0	35	40	25	1.35	1.00		42.30
84.00	2.70	CO	MXX													
86.70	1.90	SH		6.7	6.0	2.0	1.1	59.6	48.2	63	24	14	3.33	2.29		104.00
88.60	2.40	SL		7.5	2.8	0.3	0.2	24.0	47.2	31	48	21	0.39	0.31		12.16
91.00	4.40	SH		8.3	1.2	0.1	0.1	10.2	35.3	36	35	29	0.96	0.69		29.96
95.40	4.60	SS		8.4	3.1	0.8	0.4	31.0	39.5	63	25	13	0.21			6.48
100.00	2.20	SH		7.6	4.6	1.2	0.6	43.0	46.4	46	31	23	2.87	2.04		89.72
102.20	5.60	SS		8.6	2.4	0.7	0.2	21.3	31.5	55	30	15	0.05			1.65
107.80	4.00	SL		8.0	2.2	0.3	0.2	18.6	40.4	20	49	31	1.63	1.61		51.01
111.80	3.10	CO		7.2	5.2	1.8	0.9	48.7	41.9	70	18	13	3.97	2.51		123.99
114.90	9.10	SS		8.1	1.8	0.5	0.2	15.2	25.4	39	39	23	0.16			5.04
124.00	9.60	SS		7.9	2.6	0.6	0.4	21.7	31.6	65	20	15	0.12			3.70
133.60	7.90	SH		7.1	4.3	0.8	0.4	40.8	53.4	58	28	15	1.17	0.91		36.71
141.50	6.50	SS		6.7	5.4	13.9	7.9	41.2	12.5	68	18	15	0.60			18.84
148.00	6.40	SL		6.6	6.0	2.0	1.0	53.1	43.9	34	33	34	2.49	2.05		77.94
154.40	2.90	CO	Y1A													
157.30	3.10	SL		7.1	4.8	1.8	0.7	43.5	39.0	18	49	34	1.52	1.35		47.45
160.40	6.00	SS		7.7	3.3	2.1	1.3	27.9	21.3	60	25	15	0.23			7.31
166.40	5.80	SL		7.2	4.8	2.0	0.9	42.1	35.2	18	50	33	2.49	2.17		77.79
172.20	5.80	CO	NOX													
178.00	1.40	SH		7.8	3.6	0.9	0.3	32.3	40.5	76	15	9	1.51	1.04		47.33
179.40	3.00	CO	N1X													
182.40	1.80	SH		8.6	1.2	0.2	0.1	10.3	29.9	44	19	38	0.64	0.41		20.00
184.20	7.40	SS		9.0	2.0	0.5	0.2	17.4	28.3	55	25	20	0.05			1.68
191.60	10.00	SS		8.8	2.0	0.4	0.2	16.1	28.8	75	11	14	0.03			0.80
201.60	8.00	SS		8.8	2.2	0.7	0.3	18.7	26.1	63	20	18	0.05			1.41
209.60	6.10	SL		9.3	1.2	0.1	0.1	10.6	32.4	28	40	33	0.06			1.91
215.70	1.90	CO		8.3	0.6	0.1	0.1	5.1	14.8	90	8	3	0.60	0.47		18.73
217.60	9.10	SS		9.0	1.9	0.5	0.2	16.4	26.7	60	28	13	0.04			1.15
226.70	1.90	SL		9.1	1.4	0.1	0.1	11.7	31.1	15	40	45	1.44	1.24		44.89
228.60	14.40	CO	E01													
243.00	9.00	SH		8.9	1.1	0.3	0.2	8.8	17.1	23	26	51	0.24	0.06		7.50
252.00	8.00	SL		8.7	1.4	0.9	0.4	11.7	14.8	35	35	30	0.06			1.76

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Revised 11/21/03

CORE NO: 30369EO

Mine Area: N99, Peabody Coordinates: 37996.63E, -12529.23N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	SS		57.08	56.47	0.09		<0.15	0.85
10.00	10.00	SL		1.83	0.31	0.03		0.32	<0.50
20.00	10.00	SL		3.31	2.38	0.08		0.22	<0.50
30.00	10.00	SL		27.32	26.37	0.13		0.73	0.50
40.00	6.70	SH		3.79	-19.95	0.11		1.15	2.20
46.70	2.80	SL		1.83	-0.24	0.08		0.45	0.75
49.50	10.00	SS		9.18	7.58	0.04		0.28	<0.50
59.50	10.00	SS		10.65	9.48	0.03		<0.15	<0.50
69.50	6.10	SS		36.38	34.34	0.03		<0.15	<0.50
75.60	8.40	SL		4.78	-37.52	0.08		0.90	1.40
84.00	2.70	CO	MXX						
86.70	1.90	SH		4.78	-99.22	0.10		1.17	1.70
88.60	2.40	SL		5.26	-6.90	0.14		0.57	0.75
91.00	4.40	SH		6.25	-23.71	0.13		1.17	1.40
95.40	4.60	SS		105.45	98.98	0.14		0.65	0.55
100.00	2.20	SH		13.60	-76.13	0.14		1.02	1.90
102.20	5.60	SS		135.83	134.19	0.07		0.38	0.75
107.80	4.00	SL		27.80	-23.21	0.10		0.85	1.50
111.80	3.10	CO		10.16	-113.83	0.05		1.83	3.60
114.90	9.10	SS		6.25	1.21	0.07		0.28	1.40
124.00	9.60	SS		30.37	26.67	0.05		0.20	0.90
133.60	7.90	SH		5.26	-31.44	0.13		1.27	3.55
141.50	6.50	SS		24.98	6.14	0.05		0.30	1.10
148.00	6.40	SL		4.78	-73.17	0.04		0.70	3.45
154.40	2.90	CO	Y1A						
157.30	3.10	SL		3.79	-43.66	0.10		0.63	2.50
160.40	6.00	SS		112.44	105.13	0.04		<0.15	0.70
166.40	5.80	SL		9.68	-68.11	0.09		0.60	2.20
172.20	5.80	CO	NOX						
178.00	1.40	SH		6.74	-40.59	0.18		2.55	4.35
179.40	3.00	CO	N1X						
182.40	1.80	SH		5.75	-14.24	0.24		1.77	4.00
184.20	7.40	SS		13.47	11.79	0.09		0.28	0.90
191.60	10.00	SS		7.22	6.43	0.04		<0.15	<0.50
201.60	8.00	SS		24.74	23.33	0.06		<0.15	0.65
209.60	6.10	SL		13.60	11.68	0.07		0.32	1.25
215.70	1.90	CO		8.70	-10.03	0.05		1.25	3.85
217.60	9.10	SS		81.94	80.78	0.06		0.20	<0.50
226.70	1.90	SL		5.26	-39.63	0.41		2.72	2.10
228.60	14.40	CO	E01						
243.00	9.00	SH		7.22	-0.27	0.14		1.10	1.30
252.00	8.00	SL		29.76	27.99	0.06		0.35	0.75

HOLE NUMBER: 30370EO*

MINE AREA: N99

DATE: 8/8-9/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SC	RD, RDY	LC: 0.0-8.0
2	10.0-19.3	9.3	SS	GR	LC: 10.0-12.0, VERY HARD
3	19.3-24.0	4.7	SC, SH	RDGR, VDGR	LC: 20.0-22.0
4	24.0-30.0	6.0	SL	RDGR	SANDY
5	30.0-40.0	10.0	SL	DRDGR	LC: 30.0-30.4, SHALEY
6#	40.0-44.9	4.9	SL, CO	DRDGR-BLK	CO: 43.8-44.3, SHALEY
7	44.9-50.0	5.1	SS	LGR	SILTY
8	50.0-56.4	6.4	SS, SH, CO	GR-BLK	LC: 50.0-50.3, CO: 51.0-51.4, SILTY
**	56.4-60.0	3.6	CO (MXX)	BLK	
9	60.0-63.0	3.0	SL, SS	GR	
10	63.0-68.2	5.2	SH, CO	VDGR, BLK	CO: 63.0-63.3 & 66.9-67.5
11	68.2-73.0	4.8	SS	GR	LC: 70.0-70.5
12	73.0-75.1	2.1	SH, CO	VDGR, BLK	
13	75.1-82.2	7.1	SS	LGR, GR	
14	82.2-88.0	5.8	SL	DGR	
15	88.0-90.0	2.0	CO, SH	VDGR, BLK	
16#	90.0-100.0	10.0	SL	DGR	
17	100.0-107.2	7.2	SS, SL	DGR, VDGR	SHALEY, COALY
18	107.2-108.5	1.3	CO, SH	VDGR, BLK	CO: 107.2-108.3
19	108.5-111.9	3.4	SS	GR	LC: 100.0-110.3
**	111.9-114.1	2.2	CO (YOC)	BLK	
20+	114.1-119.4	5.3	SS	LGR, GR	
21	119.4-125.4	6.0	SL, SH	DGR, VDGR	LC: 120.0-120.2
**	125.4-127.8	2.4	CO (Y1A)	BLK	
22+	127.8-132.6	4.8	SS	GR	LC: 130.0-130.6
23	132.6-134.2	1.6	SL, SH	VDGR	
24	134.2-143.1	8.9	SS	LBRGR, LGR	
25	143.1-145.5	2.4	SL, SH	DGR, VDGR	
26#	145.5-151.4	5.9	SS, SL	GR	
** +	151.4-163.3	11.9	CO (NXX)	BLK	LC: 158.7-161.2
27+	163.3-174.0	10.7	SS	LGR, GR	SILTY
28	174.0-178.4	4.4	CO, SH	VDGR, BLK	CO: 176.3-177.3
29	178.4-188.4	10.0	SL, SS	LGR, GR	LC: 180.0-180.4
30	188.4-194.0	5.6	SL	DGR	
**	194.0-197.0	3.0	CO (EOX)	BLK	LC: 195.3-196.0
31+	197.0-201.6	4.6	SL	GR, DGR	
32	201.6-208.8	7.2	SL, SS	GR, LGR	
**	208.8-218.4	9.6	CO (E1X)	BLK	
33+	218.4-220.0	1.6	SH	VDGR, BLK	

CORE NO: 30370EO

Mine Area: N12, Peabody Coordinates: 33431.01E, -6154.81N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	BR		7.4	1.8	8.0	2.2	6.0	2.6	66	29	5	0.02			0.73
10.00	9.30	SS		7.5	0.3	2.1	0.2	0.5	0.5	68	27	5	0.20			5.66
19.30	4.70	SH		7.5	0.7	3.9	1.4	1.0	0.6	46	35	19	0.20			5.03
24.00	6.00	SL		7.6	1.2	4.5	6.2	1.8	0.8	21	48	31	0.02			0.76
30.00	10.00	SL		7.6	1.2	4.7	6.6	1.9	0.8	26	42	32	0.04			1.09
40.00	4.90	SL		6.3	2.6	18.0	13.0	2.4	0.6	36	40	24	0.70	0.40	0.30	11.80
44.90	5.10	SS		7.0	1.9	13.0	8.2	2.0	0.6	41	41	18	0.20			7.19
50.00	6.40	SS		6.8	2.6	20.0	11.0	2.9	0.7	44	36	20	1.10			33.10
56.40	3.60	CO	MXX													
60.00	3.00	SL		6.6	3.4	24.0	16.0	6.4	1.4	41	41	18	0.70	0.60	0.10	18.60
63.00	5.20	SH		7.0	1.9	5.2	4.9	8.5	3.8	47	31	22	0.80	0.50	0.30	14.60
68.20	4.80	SS		7.4	1.8	3.3	3.9	10.0	5.4	58	27	15	0.09			2.81
73.00	2.10	SH		7.4	2.5	2.5	2.4	17.0	10.9	27	64	9	1.70	1.40	0.30	44.10
75.10	7.10	SS		8.2	2.1	0.6	0.4	17.0	24.0	64	22	14	0.02			0.74
82.20	5.80	SL		7.8	5.4	0.7	0.4	48.0	64.5	28	43	29	1.80	1.50	0.20	45.70
88.00	2.00	CO		5.5	8.0	9.0	4.3	74.0	28.6	76	15	9	4.20	2.70	1.20	83.10
90.00	10.00	SL		8.3	2.6	0.3	<0.1	24.0	58.2	29	41	30	0.90			29.20
100.00	7.20	SS		8.3	7.5	1.8	0.8	77.0	66.4	48	32	20	1.90	1.30	0.40	41.70
107.20	1.30	CO		8.3	0.5	0.1	0.1	4.2	13.3	88	10	2	1.20	0.10	1.00	4.06
108.50	3.40	SS		8.2	4.1	0.5	<0.1	36.0	70.4	42	35	23	0.60			19.30
111.90	2.20	CO	Y0C													
114.10	5.30	SS		8.3	2.8	1.2	0.8	29.0	29.6	53	32	15	0.20			5.00
119.40	6.00	SL		7.1	4.7	0.5	0.2	41.0	67.6	28	46	26	3.00	2.40	0.40	74.20
125.40	2.40	CO	Y1A													
127.80	4.80	SS		6.8	3.3	0.8	0.5	31.0	37.9	66	21	13	0.40			13.20
132.60	1.60	SL		7.0	5.0	0.9	0.3	47.0	60.5	31	38	31	2.40	1.80	0.50	55.40
134.20	8.90	SS		7.9	2.7	0.6	0.4	22.0	31.7	62	27	11	0.10			4.22
143.10	2.40	SL		7.7	3.3	0.5	0.2	29.0	48.7	12	57	31	2.30	1.90	0.30	58.90
145.50	5.90	SS		8.7	1.6	0.2	<0.1	15.0	50.5	22	50	28	0.06			1.72
151.40	11.90	CO	NXX													
163.30	10.70	SS		8.5	2.4	0.3	<0.1	22.0	50.8	51	31	18	0.30			10.10
174.00	4.40	SH		8.5	1.3	0.4	<0.1	10.0	21.4	28	38	34	0.90	0.50	0.20	15.10
178.40	10.00	SL		8.5	1.9	0.3	<0.1	17.0	39.7	50	27	23	0.30			8.50
188.40	5.60	SL		9.1	1.3	0.3	<0.1	13.0	32.8	12	44	44	0.06			2.02
194.00	3.00	CO	E0X													
197.00	4.60	SL		9.4	1.2	0.2	<0.1	11.0	36.2	2	56	42	0.04			1.14
201.60	7.20	SL		9.0	1.4	0.3	0.2	13.0	26.0	32	40	28	0.06			1.88
208.80	9.60	CO	E1X													
218.40	1.60	SH		8.7	1.3	0.3	<0.1	11.0	28.9	17	37	46	0.10			4.19
220.00	3.00	CO	E2X													
223.00	12.80	SL		7.8	2.4	1.0	0.5	19.0	21.6	38	40	22	0.70			20.80
235.80	2.00	SH		8.3	1.5	0.5	0.2	12.0	19.5	20	46	34	1.20	1.00	0.20	30.20
237.80	2.00	CO														
239.80	6.20	SL		8.7	1.0	0.3	0.2	7.3	14.3	13	52	35	0.08			2.39
246.00	4.00	SH		8.7	1.3	0.4	0.1	10.0	21.2	51	19	30	0.60	0.10	0.30	4.00

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Revised 11/21/03

CORE NO: 30370EO

Mine Area: N12, Peabody Coordinates: 33431.01E, -6154.81N

Depth	Thick	RType	Seam	Neutralization Potential (TN/1000TN)	Acid Base Potential (TN/1000TN)	Selenium H2O (PPM)	Selenium ABDTPA (PPM)	Selenium Total (PPM)	Boron (PPM)
0.00	10.00	BR		8.87	8.15	<0.05	<0.05	0.20	0.16
10.00	9.30	SS		10.80	5.11	<0.05	<0.05	0.20	0.15
19.30	4.70	SH		7.98	2.95	<0.05	<0.05	0.40	0.14
24.00	6.00	SL		24.40	23.60	<0.05	<0.05	0.30	0.17
30.00	10.00	SL		33.60	32.60	<0.05	<0.05	0.30	0.16
40.00	4.90	SL		13.90	2.04	<0.05	0.05	0.80	0.47
44.90	5.10	SS		24.80	17.60	<0.05	0.05	0.20	0.17
50.00	6.40	SS		36.10	2.94	<0.05	0.06	0.50	0.21
56.40	3.60	CO	MXX						
60.00	3.00	SL		6.90	-11.70	0.05	0.08	0.50	0.26
63.00	5.20	SH		15.60	0.93	<0.05	0.05	0.90	0.50
68.20	4.80	SS		88.30	85.50	0.05	0.12	0.70	0.31
73.00	2.10	SH		13.40	-30.70	0.05	0.12	0.90	0.71
75.10	7.10	SS		142.00	141.00	<0.05	0.06	0.40	0.28
82.20	5.80	SL		35.90	-9.83	<0.05	0.10	0.60	0.46
88.00	2.00	CO		8.57	-74.60	<0.05	<0.05	1.70	0.96
90.00	10.00	SL		36.60	7.45	<0.05	0.08	0.80	0.35
100.00	7.20	SS		7.20	-34.50	<0.05	0.08	0.90	0.36
107.20	1.30	CO		11.10	7.05	<0.05	<0.05	1.00	0.55
108.50	3.40	SS		29.00	9.67	0.09	0.12	0.90	0.23
111.90	2.20	CO	YOC						
114.10	5.30	SS		71.40	66.40	<0.05	0.07	0.40	0.20
119.40	6.00	SL		8.53	-65.60	<0.05	<0.05	0.70	0.31
125.40	2.40	CO	Y1A						
127.80	4.80	SS		17.00	3.89	<0.05	0.07	0.30	0.33
132.60	1.60	SL		6.90	-48.50	<0.05	0.11	0.80	0.84
134.20	8.90	SS		87.50	83.30	<0.05	<0.05	0.20	0.28
143.10	2.40	SL		20.90	-37.90	<0.05	0.08	0.50	0.47
145.50	5.90	SS		30.70	29.00	0.06	0.09	0.70	0.33
151.40	11.90	CO	NXX						
163.30	10.70	SS		37.80	27.60	<0.05	0.08	0.40	0.18
174.00	4.40	SH		14.50	-0.52	0.07	0.11	1.20	0.33
178.40	10.00	SL		37.80	29.30	<0.05	0.06	0.40	0.23
188.40	5.60	SL		26.70	24.70	0.06	0.08	0.60	0.29
194.00	3.00	CO	E0X						
197.00	4.60	SL		10.40	9.32	0.12	0.13	0.50	0.22
201.60	7.20	SL		52.70	50.80	0.08	0.10	0.60	0.22
208.80	9.60	CO	E1X						
218.40	1.60	SH		41.70	37.50	0.11	0.14	2.30	0.31
220.00	3.00	CO	E2X						
223.00	12.80	SL		26.90	6.06	0.06	0.10	0.70	0.32
235.80	2.00	SH		12.70	-17.50	0.08	0.11	0.90	0.41
237.80	2.00	CO							
239.80	6.20	SL		26.00	23.60	0.05	0.07	0.50	0.40
246.00	4.00	SH		7.75	3.76	0.06	0.08	1.90	0.76

HOLE NUMBER: 30381EO*

MINE AREA: N99

DATE: 8/9-10/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
1	0.0-10.0	10.0	SS	LYBR	LC: 0.0-0.9
2	10.0-18.0	8.0	SS	LYBR	LC: 10.0-10.4
3	18.0-21.7	3.7	SS	LYBR	
4	21.7-24.8	3.1	SH	DRDBR	LC: 21.7-23.0
5	24.8-29.0	4.2	SL, SS	GR	
6	29.0-30.8	1.8	SH, CO	VDGR, BLK	CO: 29.8-30.5
7	30.8-37.7	6.9	SS, SL	GR	
8	37.7-47.7	10.0	SS	LYBR	IRON STAINING
9#	47.7-54.0	6.3	SS	LBRGR	
10	54.0-59.3	5.3	SS	LYBR, LBRGR	
11	59.3-65.0	5.7	SS, SL	GR	LC: 60.0-60.4
12	65.0-70.0	5.0	SL, SH, CO	VDGR, BLK	CO: 68.4-69.2
13	70.0-75.2	5.2	SS, SL	GR	
14	75.2-77.5	2.3	SH, CO	VDGR, BLK	CO: 76.3-77.4
15	77.5-84.9	7.4	SS, SL	GR	
16	84.9-87.9	3.0	SH	DGR, VDGR	
**	87.9-90.6	2.7	CO (YOA)	BLK	
17+	90.6-92.5	1.9	SS, SL	GR	
18#	92.5-95.5	3.0	CO, SH	VDGR, BLK	CO: 92.8-94.6
19	95.5-97.7	2.2	SS, SL	GR	
20	97.7-100.0	2.3	SH, CO	VDGR, BLK	CO: 98.3-98.6, SILTY
21	100.0-104.9	4.9	SS, SL	GR, DGR	LC: 100.0-100.4
22	104.9-108.4	3.5	SH, CO, SL	VDGR, BLK	CO: 105.0-106.8
23	108.4-115.8	7.4	SS	LGR, GR	
24	115.8-118.3	2.5	SH, SL	DGR, VDGR	CO: 116.9-117.0
25	118.3-126.4	8.1	SS, SL	GR	
** +	126.4-129.4	3.0	CO (Y1A)	BLK	
26+	129.4-139.4	10.0	SL, SS	GR, DGR	
27	139.4-144.6	5.2	SS	GR	
** +	144.6-151.1	6.5	CO (NOX)	BLK	
28#+	151.1-154.5	3.4	SL	DGR	
** +	154.5-158.3	3.8	CO (N1X)	BLK	
29+	158.3-160.6	2.3	SS	LGR, GR	
30	160.6-162.4	1.8	CO, SH	VDGR, BLK	CO: 161.0-162.2
31	162.4-170.0	7.6	SS	LGR, GR	
32	170.0-172.0	2.0	SL, SH	DGR, VDGR	
**	172.0-176.5	4.5	CO (EOX)	BLK	
33+	176.5-186.7	10.2	SS	LGR	
**	186.7-194.6	7.9	CO (E1X)	BLK	LC: 189.5-190.0
34+	194.6-200.0	5.4	SH	VDGR, DGR	LC: 198.0-199.0, SILTY
35	200.0-208.6	8.6	SS	GR	SILTY
36	208.6-210.0	1.4	SH, SL	VDGR	

CORE NO: 30381EO

Mine Area: N99, Peabody Coordinates: 42818.81E, -10630.30N

Depth	Thick	RType	Seam	pH	EC (MMHO/CM)	Calcium (MEQ/L)	Magnesium (MEQ/L)	Sodium (MEQ/L)	Sodium Absorption Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
0.00	10.00	SS		8.0	2.6	2.3	10.0	12.0	4.9	74	19	7	<0.01			0.04
10.00	8.00	SS		7.9	1.6	3.8	8.3	4.1	1.7	72	20	8	<0.01			0.01
18.00	3.70	SS		7.6	4.5	22.0	40.0	3.3	0.6	84	11	5	<0.01			0.03
21.70	3.10	SH		6.1	8.9	22.0	140.0	5.2	0.6	30	29	41	0.20	0.02	0.05	0.64
24.80	4.20	SL		3.5	10.7	21.0	146.0	2.2	0.2	32	47	21	1.00	0.80	0.10	25.50
29.00	1.80	SH		3.6	7.6	23.0	66.0	5.1	0.8	74	18	8	3.90	2.70	1.20	84.40
30.80	6.90	SS		7.1	1.9	5.2	12.0	4.1	1.4	32	45	23	0.10			3.88
37.70	10.00	SS		7.5	1.7	3.4	10.0	4.6	1.8	61	25	14	0.02			0.66
47.70	6.30	SS		8.0	1.3	1.5	7.5	4.3	2.0	75	19	6	<0.01			0.06
54.00	5.30	SS		8.0	1.6	1.2	9.7	5.6	2.4	74	16	10	0.04			1.29
59.30	5.70	SS		7.5	1.8	3.2	9.0	5.2	2.1	43	37	20	0.30			8.47
65.00	5.00	SL		6.7	2.5	8.7	9.8	7.7	2.5	44	34	22	1.50	1.20	0.30	38.10
70.00	5.20	SS		7.4	1.6	4.6	3.3	6.9	3.5	41	39	20	0.50			14.60
75.20	2.30	SH		6.7	2.4	6.2	4.2	13.0	5.9	53	33	14	3.00	2.10	0.80	66.80
77.50	7.40	SS		8.0	1.9	0.7	0.3	16.0	21.9	45	41	14	0.30			9.59
84.90	3.00	SH		7.1	4.4	5.6	3.0	37.0	17.9	20	50	30	2.50	2.20	0.30	67.50
87.90	2.70	CO	Y0A													
90.60	1.90	SS		5.8	3.5	25.0	15.0	4.9	1.1	35	52	13	0.70	0.50	0.10	15.60
92.50	3.00	CO		6.6	1.7	2.3	1.1	11.0	8.3	72	15	13	1.50	0.70	0.70	23.10
95.50	2.20	SS		8.0	1.3	0.9	0.3	9.9	12.6	34	42	24	0.20			4.84
97.70	2.30	SH		7.7	1.8	0.9	0.5	13.0	16.4	30	40	30	1.40	1.00	0.40	29.70
100.00	4.90	SS		7.3	2.5	2.6	1.5	18.0	12.3	40	41	19	0.70			20.30
104.90	3.50	SH		7.2	1.2	4.5	3.2	3.9	2.0	39	40	21	0.60	0.10	0.30	3.56
108.40	7.40	SS		6.9	3.7	29.0	22.0	2.7	0.5	82	13	5	0.40			11.40
115.80	2.50	SH		6.2	3.3	22.0	17.0	4.5	1.0	35	43	22	3.70	3.00	0.60	95.10
118.30	8.10	SS		6.6	2.6	17.0	14.0	3.1	0.8	41	44	15	0.80			25.80
126.40	3.00	CO	Y1A													
129.40	10.00	SL		7.9	3.6	1.2	0.6	32.0	34.1	28	48	24	1.90	1.60	0.20	49.60
139.40	5.20	SS		7.3	4.2	2.2	0.7	35.0	29.0	54	30	16	1.20	1.00	0.20	31.10
144.60	6.50	CO	N0X													
151.10	3.40	SL		7.8	3.1	0.5	0.2	26.0	44.8	55	29	16	2.40	1.60	0.50	50.80
154.50	3.80	CO	N1X													
158.30	2.30	SS		8.2	1.9	0.2	<0.1	15.0	43.4	58	24	18	0.10			3.44
160.60	1.80	CO		7.7	1.6	0.1	<0.1	13.0	55.0	75	17	8	1.10	0.60	0.50	18.30
162.40	7.60	SS		8.5	2.1	0.3	0.2	19.0	38.2	60	28	12	<0.01			0.11
170.00	2.00	SL		8.4	1.7	0.2	<0.1	13.0	39.9	18	49	33	1.40	1.10	0.20	35.50
172.00	4.50	CO	E0X													
176.50	10.20	SS		8.8	1.4	0.3	<0.1	12.0	31.8	56	29	15	<0.01			0.04
186.70	7.90	CO	E1X													
194.60	5.40	SH		8.8	1.2	0.2	<0.1	10.0	26.8	11	48	41	0.09			2.94
200.00	8.60	SS		8.5	1.3	0.3	<0.1	10.0	24.7	37	36	27	0.09			2.84
208.60	1.40	SH		8.5	1.2	0.2	<0.1	11.0	25.7	26	42	32	0.10			3.97

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Revised 11/21/03

CORE NO: 30381EO
 Mine Area: N99, Peabody Coordinates: 42818.81E, -10630.30N

Depth	Thick	RTYPE	Seam	Neutralization Potential		Acid Base Potential		Selenium H2O		Selenium ABBTPA		Selenium Total		Boron	
				(TN/1000TN)	(TN/1000TN)	(TN/1000TN)	(TN/1000TN)	(PPM)	(PPM)	(PPM)	(PPM)	(PPM)	(PPM)		
0.00	10.00	SS		149.00	149.00	<0.05	<0.05	<0.05	<0.05	<0.10	0.15				
10.00	8.00	SS		83.40	83.40	<0.05	<0.05	<0.05	<0.05	0.10	0.12				
18.00	3.70	SS		15.50	15.40	<0.05	<0.05	<0.05	<0.10	0.13	0.30				
21.70	3.10	SH		5.60	4.96	<0.05	<0.05	0.06	0.40	0.40	0.30				
24.80	4.20	SL		-1.61	-27.10	<0.05	<0.05	0.06	0.40	0.27	0.27				
29.00	1.80	SH		1.69	-82.70	<0.05	<0.05	0.08	1.30	1.25	1.25				
30.80	6.90	SS		20.00	16.20	0.05	0.07	0.07	0.20	0.29	0.29				
37.70	10.00	SS		10.80	10.80	<0.05	<0.05	<0.05	<0.10	0.22	0.22				
47.70	6.30	SS		83.70	83.70	<0.05	<0.05	<0.05	<0.10	0.16	0.16				
54.00	5.30	SS		18.40	17.20	<0.05	<0.05	<0.05	<0.10	0.17	0.17				
59.30	5.70	SS		38.60	30.20	<0.05	<0.05	0.07	0.20	0.36	0.36				
65.00	5.00	SL		6.51	-31.60	<0.05	0.08	0.08	0.80	0.88	0.88				
70.00	5.20	SS		85.40	70.80	<0.05	<0.05	0.12	0.60	0.42	0.42				
75.20	2.30	SH		8.14	-58.70	<0.05	<0.05	0.05	1.00	1.66	1.66				
77.50	7.40	SS		37.80	28.30	<0.05	0.10	0.10	0.30	0.54	0.54				
84.90	3.00	SH		36.40	-31.10	<0.05	0.09	0.09	0.60	0.97	0.97				
87.90	2.70	CO	Y0A												
90.60	1.90	SS		7.57	-8.02	0.06	0.10	0.10	0.60	0.75	0.75				
92.50	3.00	CO		8.87	-14.30	<0.05	0.08	0.08	1.80	1.27	1.27				
95.50	2.20	SS		12.70	7.83	0.07	0.11	0.11	0.40	0.66	0.66				
97.70	2.30	SH		6.03	-23.70	0.06	0.09	0.09	1.00	1.17	1.17				
100.00	4.90	SS		35.40	15.10	0.08	0.13	0.13	0.60	0.71	0.71				
104.90	3.50	SH		7.13	3.57	0.06	0.10	0.10	1.00	0.68	0.68				
108.40	7.40	SS		89.20	77.80	<0.05	<0.05	<0.05	0.20	0.25	0.25				
115.80	2.50	SH		5.64	-89.50	<0.05	0.06	0.06	0.70	0.58	0.58				
118.30	8.10	SS		52.00	26.20	<0.05	0.06	0.06	0.30	0.38	0.38				
126.40	3.00	CO	Y1A												
129.40	10.00	SL		34.90	-14.80	<0.05	0.07	0.07	0.40	0.63	0.63				
139.40	5.20	SS		26.80	-4.27	<0.05	0.07	0.07	0.40	0.57	0.57				
144.60	6.50	CO	NOX												
151.10	3.40	SL		15.30	-35.50	0.06	0.11	0.11	1.60	0.36	0.36				
154.50	3.80	CO	N1X												
158.30	2.30	SS		47.80	44.40	<0.05	0.06	0.06	0.30	0.24	0.24				
160.60	1.80	CO		9.70	-8.61	0.05	0.10	0.10	1.20	0.55	0.55				
162.40	7.60	SS		140.00	140.00	<0.05	0.08	0.08	0.40	0.20	0.20				
170.00	2.00	SL		11.70	-23.80	0.09	0.13	0.13	0.70	0.24	0.24				
172.00	4.50	CO	EOX												
176.50	10.20	SS		58.70	58.60	0.05	0.07	0.07	0.20	0.18	0.18				
186.70	7.90	CO	E1X												
194.60	5.40	SH		9.26	6.32	0.17	0.20	0.20	0.60	0.21	0.21				
200.00	8.60	SS		47.80	45.00	0.07	0.10	0.10	0.40	0.20	0.20				
208.60	1.40	SH		21.00	17.10	0.10	0.13	0.13	0.60	0.21	0.21				