APPENDIX B

LITHOLOGIC, CHEMICAL AND PHYSICAL ANALYSES OF OVERBURDEN FOR THE BLACK MESA AND KAYENTA MINES

APPENDIX B

INDEX

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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APPROVED SEP 2005

LITHOLOGIC SYMBOLS AND DESCRIPTORS

EXPLANATION

HOLE NO.	_____:	Refers to P.C.C. drill hole numbers.
LOCATION	_____N(S):	Distance in feet North or South of a zero point.
	_____E(W):	Distance in feet East or West of a zero point.
ELEVATION	_____:	Elevation above mean sea level in feet.
DRILLER	_____:	Name of core drill operator.
DATE DRILLED	_____:	Completion date of drilling
SUB-AREA	_____:	Area in which drilling was done.

The lithologic log consists of two columns. The column to the extreme left of the chart describes the general rock type. Symbol used are as follows:

SURFICIAL MATERIAL (SO)

SANDSTONE (SS)

SHALE (SH)

SILTSTONE (SL)

MUDSTONE (MS)

LIMESTONE (LS)

CARBONACEOUS SHALE (CAR SH)

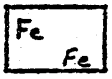
COAL (CO)

COMBINATION SHALE USED TO INDICATE MIXED LITHOLOGIES e.g. SANDY SHALE

The second column indicates unusual features found in the core. Generally, these refer to weathering, mineralization, bedding characteristics, and fossil evidence. Symbols used to denote this information are as follows:

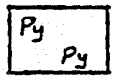
ROOT FRAGMENTS

SMUT (WEATHERED COAL OR HUMIC ZONE)

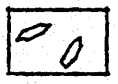


IRON STAINING

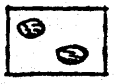
WEATHERING

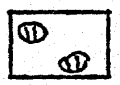


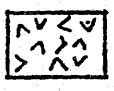
PYRITE


GYPSUM

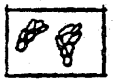
SANDSTONE CLASTS (PEBBLES)


SHALE CLASTS (PEBBLES)

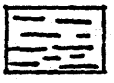

SILTSTONE CLASTS (PEBBLES)

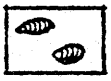

BURN

CARBONACEOUS FRAGMENTS

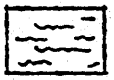

CYCAD IMPRESSIONS

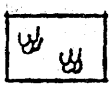
LEAF IMPRESSIONS


COAL STRINGERS


PELEYPOD OR BRACHIOPOD FRAGMENTS

BIOTURBATION


HORIZONTAL BIOTURBATION


WORM BURROWS

RIPPLE MARKS

CROSS-STRATIFICATIONS

SEED PODS

J-7 Subarea

Peabody Correlations	Geological Correlations
VOX	GOX
V1X	G1X
GXX	BXX
BXX	RXX
BOX	ROX
B1X	R1X
ROX	YOX
ROA	YOA
ROB	YOB
RXX	YNX
R1X	Y1N
R1A	Y1X
R1B	NXX

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J-7 MINING AREA

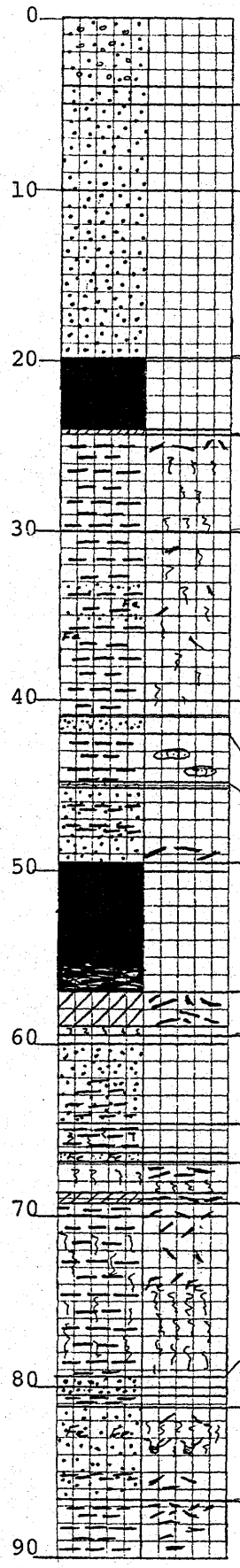
(DEEP CORES)

HOLE NO. 15418 - C DRILLER M. Venier PAGE

LOCATION S 48263 DATE DRILLED Nov. 23, 1977 SUB AREA J-7

E 30144

ELEVATION 6538.1'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
Wt. Ave of R-8-473 to R-8-479	39.4	4.3	4.9	2.0	1.3	<.06	8.2
R-8-480	50.0	6.5	13.0	2.2	5.7	<.06	8.4
R-8-481	37.5	2.4	4.7	2.6	5.1	<.06	8.1
V1X (8-123-R)	(12.18)	(7.13)		(10673)	-	(.58)	(3.3)
R-8-482	47.5	9.9	13.1	1.9	1.6	<.06	7.1
R-8-483	40.0	10.0	12.6	2.1	1.1	<.06	8.3
R-8-484	35.0	13.8	14.5	1.1	1.1	<.06	8.3
R-8-485	37.5	4.9	10.5	7.1	1.9	<.06	8.3
R-8-486	35.0	8.0	6.7	.7	.7	<.06	8.1
GXX (8-124-R)	(12.26)	(8.04)		(12656)	-	(.56)	(7.0)
R-8-487	50.0	19.0	22.5	1.3	1.5	1.06	8.3
R-8-488	37.5	21.5	19.2	.8	.8	.08	8.4
R-8-489	40.0	22.7	22.1	1.1	.8	<.06	8.5
R-8-490	42.5	25.3	26.5	1.1	1.1	.85	6.8
R-8-491	52.5	18.4	15.4	1.1	.3	.09	8.8
R-8-492	35.0	17.2	18.0	.9	1.3	<.06	8.7
R-8-493	35.0	18.4	25.4	2.4	1.4	.07	8.6

(CON'T)

OCT 27 1986 SEP 3 1986

HOLE NO. 15418 - C

DRILLER M. Venier

PAGE

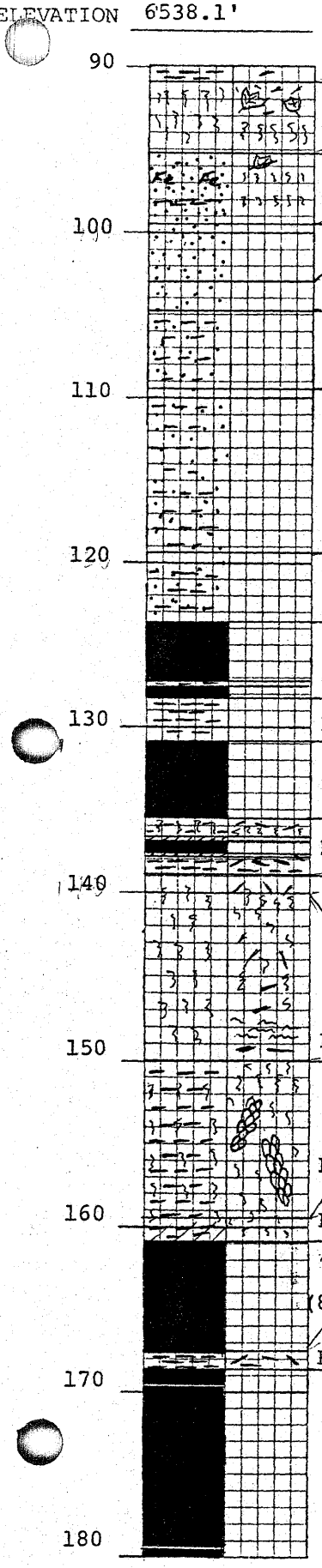
LOCATION S 48263

E 30144

DATE DRILLED Nov. 23, 1977

SUB AREA J-7

ELEVATION 6538.1'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-494	52.5	18.4	27.6	2.9	1.6	.83	7.9
R-8-495	35.0	33.3	29.8	.4	1.2	<.06	8.6
R-8-496	30.0	38.5	29.8	.4	.8	<.06	8.8
R-8-497	35.0	8.9	28.7	.9	1.2	.15	8.2
R-8-498	45.0	25.1	21.0	.4	1.0	.32	8.1
R-8-499	40.0	22.7	22.1	1.4	.5	.18	8.1
R-8-500	37.5	12.3	18.3	2.8	1.6	.18	8.0
R-8-501	32.5	25.9	26.5	1.2	.9	.14	8.2
BOX (8-126-R)	(11.13)	(17.1)		(11333)		(0.49)	8.2
R-8-502	60.0	18.2	19.9	.6	1.8	.12	8.9
B1X (8-126-R)	(12.45	(9.3)		(12454)		(0.54)	(8.4)
R-8-503	50.0	41.1	27.6	.5	.4	.82	6.6
R-8-504	42.5	43.6	27.6	.4	.4	.36	8.4
R-8-505	45.0	27.6	27.6	1.3	.7	.56	7.7
R-8-506	40.0	39.5	36.4	1.0	.7	.96	8.1
R-8-507	52.5	36.0	34.2	.7	.9	2.65	7.2
ROX (8-127-R)	(11.42)	(7.27)		(12806)	-	(.64)	(8.0)
R-8-508	45.0	20.0	21.0	1.7	.5	1.11	7.9
R1X							

OCT 27 1986

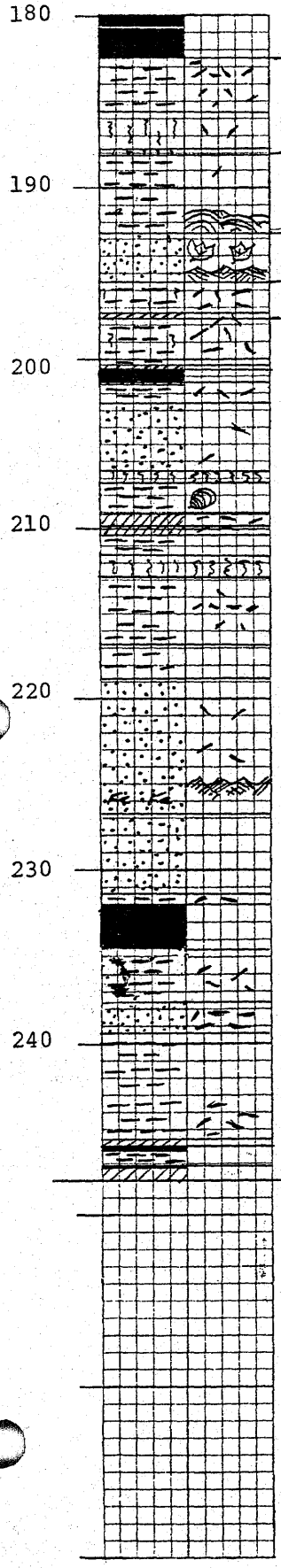
SEP 3 1986

HOLE NO. 15418 - C. DRILLER M. Venier PAGE

LOCATION S 48263 DATE DRILLED Nov. 23, 1977 SUB AREA J-7

E 30144

ELEVATION 6538.1'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
(8-128-R)	(11.17)	(9.94)		(12374)	-	(.45)	(8.0)
R-8-509	40.0	29.7	19.9	.4	.5	.08	8.9
R-8-510	57.5	16.9	22.1	.9	2.5	<.06	9.2
R-8-511	35.0	27.5	35.3	2.4	.9	.06	8.9
R-8-512	70.0	37.9	25.4	.8	.1	.09	8.9

TD 248.0'

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

*Dry Basis

					1:5 Extract	Saturated Paste Extract								
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	780000473	7.7	37.5	0.6	2.4	3.8	0.9	1.6					1.1
SO	0.1	780000474	7.9	45	0.6	2.4	3.3	0.9	1.7					1.3
SO	0.5	780000475	8	50	0.6	2.4	4.5	1.9	1.3					0.6
SO	1	780000476	8.1	42.5	0.6	2.9	2	1.1	2.3					2.1
LOST	1.5	LOST												
SO	2	780000477	8.2	37.5	0.6	4	1.7	1	3.4					3.6
SO	3	780000478	8.4	35	0.7	6.6	1.4	2.3	4.9					5.6
SO	4	780000479	8.5	35	1	8.6	0.7	0.9	9.6					11.4
SS	5	780000480	8.4	50	1.9	13	2.2	5.7	6.5					7.7
SS	10	780000481	8.1	37.5	1.5	4.7	2.6	5.1	2.4					2.2
CO	19.6	COAL												
SH	24.2	780000482	7.1	47.5	1.5	13.1	1.9	1.6	9.9					11.8
SH	30	780000483	8.3	40	1.2	12.6	2.1	1.1	10					11.9
SH,SS	40	780000484	8.3	35	0.9	14.5	1.1	1.1	13.8					16
SH	42	780000485	8.3	37.5	1.1	10.5	7.1	1.9	4.9					5.6
SS,SH	44.8	780000486	8.1	35	0.7	6.7	0.7	0.7	8					9.5
CO	49.3	COAL												
SH,SL	57.2	780000487	8.3	50	1.5	22.5	1.3	1.5	19					21.1
SS	59.5	780000488	8.4	37.5	1	19.2	0.8	0.8	21.5					23.3
SH,SD	64.7	780000489	8.5	40	1.9	22.1	1.1	0.8	22.7					24.4
SL,SH	66.8	780000490	6.8	42.5	1.6	26.5	1.1	1.1	25.3					26.5
SH	69.3	780000491	8.8	52.5	2.2	15.4	1.1	0.3	18.4					20.6
SS,SH	79.3	780000492	8.7	35	2.3	18	0.9	1.3	17.2					19.4
SS	81.2	780000493	8.6	35	2	25.4	2.4	1.4	18.4					20.6
SH	86.7	780000494	7.9	52.5	1.8	27.6	2.9	1.6	18.4					20.6
SL	91	780000495	8.6	35	1.1	29.8	0.4	1.2	33.3					32.3
SS	95.2	780000496	8.8	30	1.7	29.8	0.4	0.8	38.5					35.7
SS	99.5	780000497	8.2	35	1.3	28.7	0.9	1.2	8.9					10.6
SH	102.9	780000498	8.1	45	1.2	21	0.4	1	25.1					26.3
SS	104.8	780000499	8.1	40	1.6	22.1	1.4	0.5	22.7					24.4
SS	109.5	780000500	8	37.5	1.6	18.3	2.8	1.6	12.3					14.4
SS	119.5	780000501	8.2	32.5	1.6	26.5	1.2	0.9	25.9					27
CO	123.7	COAL												
SH,CO	128.3	780000502	8.9	60	2.5	19.9	0.6	1.8	18.2					20.4
CO	130.9	COAL												
SH,SL,CO	135.4	780000503	6.6	50	2	27.6	0.5	0.4	41.1					37.2
SH,SL	137.7	780000504	8.4	42.5	2.4	27.6	0.4	0.4	43.6					38.7
SL	139.8	780000505	7.7	45	2.5	27.6	1.3	0.7	27.6					28.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

*Dry Basis

					1:5 Extract	Saturated Paste Extract								
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	150	780000506	8.1	40	2	36.4	1	0.7	39.5					36.3
SH	159.5	780000507	7.2	52.5	2.2	34.2	0.7	0.9	36					34.1
CO	160.7	COAL												
SH	167.5	780000508	7.9	45	2.4	21	1.7	0.5	20					22
CO	168.8	COAL												
SH,SL	182.6	780000509	8.9	40	1.5	19.9	0.4	0.5	29.7					29.8
SS	188.1	780000510	9.2	57.5	1.5	22.1	0.9	2.5	16.9					19.1
SS	192.7	780000511	8.9	35	1.5	35.3	2.4	0.9	27.5					28.2
SH	195.5	780000512	8.9	70	2	25.4	0.8	0.1	37.9					35.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	780000473	9	9.6	272.6	<0.06	1.88	7.06	.	5.18	57.4	19.4	23.2	20.8	6.5	14.3
SO	780000474	6	2.4	190	<0.06	1.88	21.11	.	19.23	54.4	16.4	29.2	25	8.9	16.1
SO	780000475	3	2.1	171.8	<0.06	1.88	55.17	.	53.29	47.4	18.4	34.2	32.5	11	21.5
SO	780000476	<2	1.7	157.1	<0.06	1.88	34.78	.	32.9	51.4	21.4	27.2	24.6	8	16.6
LOST	LOST														
SO	780000477	<2	1.3	157.2	<0.06	1.88	22.21	.	20.33	55.4	22.4	22.2	25.3	6.9	18.4
SO	780000478	3	1.3	142.9	<0.06	1.88	17.86	.	15.98	56.4	32.4	11.2	28.5	2.9	25.6
SO	780000479	3	1.7	165.6	<0.06	1.88	17.99	.	16.11	59.4	29.4	11.2	20.5	5.8	14.7
SS	780000480	4	1.7	87.1	<0.06	1.88	32.34	.	30.46	39.4	31.4	29.2	29.5	9.5	20
SS	780000481	13	0.7	68.6	<0.06	1.88	47.27	.	45.39	53	27.4	19.6	30.4	6.7	23.7
CO	COAL														
SH	780000482	19	4	260.1	<0.06	1.88	4.9	.	3.02	18	42.4	39.6	26.5	12.3	14.2
SH	780000483	5	2.2	170	<0.06	1.88	30.41	.	28.53	30	38.4	31.6	34.7	11.4	23.3
SH,SS	780000484	3	1.4	123.4	<0.06	1.88	28.48	.	26.6	44	30.4	25.6	34.6	5.9	28.7
SH	780000485	3	1.8	151.4	<0.06	1.88	29.08	.	27.2	34.4	32	33.6	24.6	7.3	17.3
SS,SH	780000486	3	1.4	73	<0.06	1.88	6.94	.	5.06	54.4	26	19.6	15.3	3.6	11.7
CO	COAL														
SH,SL	780000487	3	1.8	240.3	1.06	33.13	1.37	31.76	.	40	26.4	33.6	35	12.5	22.5
SS	780000488	3	2.1	128.2	0.08	2.5	2.71	.	0.21	34	38.4	27.6	22.6	7.3	15.3
SH,SD	780000489	<2	1.8	178.9	<0.06	1.88	35.93	.	34.05	37	32.2	30.8	28.9	8.5	20.4
SL,SH	780000490	3	2.1	116.1	0.85	26.56	4.42	22.14	.	52	27.2	20.8	21.9	7.3	14.6
SH	780000491	2	2.7	258.4	0.09	2.81	40.92	.	38.11	18.4	42.8	38.8	39.8	11.8	28
SS,SH	780000492	<2	3.8	165.1	<0.06	1.88	49.79	.	47.91	36.4	38.8	24.8	19	4.9	14.1
SS	780000493	2	2.4	123.5	0.07	2.19	39.62	.	37.43	40.4	36.4	23.2	19.1	5.3	13.8
SH	780000494	2	2.8	234.4	0.83	25.94	5.7	20.24	.	22.8	37.4	39.8	37.7	12.5	25.2
SL	780000495	3	2.4	119.4	<0.06	1.88	39.33	.	37.45	28.8	43.8	27.4	23.6	5.7	17.9
SS	780000496	<2	1.7	82.3	<0.06	1.88	42	.	40.12	54.4	23.2	22.4	18.9	3.7	15.2
SS	780000497	3	2	120.8	0.15	4.69	34.39	.	29.7	41.6	28.4	30	21.6	7.2	14.4
SH	780000498	3	2.3	154.4	0.32	10	4.14	5.86	.	33.6	30.2	36.2	24.7	11.1	13.6
SS	780000499	<2	1.2	60.1	0.18	5.63	37.95	.	32.32	59.6	22	18.4	25.9	3.2	22.7
SS	780000500	<2	1.5	69.8	0.18	5.63	18.34	.	12.71	61.6	24	14.4	12.5	3.5	9
SS	780000501	3	2.3	79	0.14	4.38	7.55	.	3.17	51.6	28	20.4	14.9	5.3	9.6
CO	COAL														
SH,CO	780000502	5	2.6	321.6	0.12	3.75	11.84	.	8.09	15.6	38	46.4	46.2	16.3	29.9
CO	COAL														
SH,SL,CO	780000503	4	2.8	90.8	0.82	25.63	3.02	22.61	.	33.6	52	14.4	14.5	8.2	6.3
SH,SL	780000504	4	2.5	159.7	0.36	11.25	38.58	.	27.33	25.6	46	28.4	32.6	6.3	26.3
SL	780000505	<2	2	111.9	0.56	17.5	33.08	.	15.58	23.4	54.8	21.8	26.2	7.1	19.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	780000506	3	2.5	173.1	0.96	30	34.39	.	4.39	22.4	48.8	28.8	28.5	7.5	21
SH	780000507	4	3.3	202.2	2.65	82.81	5.07	77.44	.	20.4	45.8	33.8	26.8	9.8	17
CO	COAL														
SH	780000508	<2	2.8	113.6	1.11	34.69	35.61	.	0.92	36.4	47.8	15.8	28	6.5	21.5
CO	COAL														
SH,SL	780000509	3	2.7	196.6	0.08	2.5	16.25	.	13.75	31.4	31.8	36.8	28.9	18.1	10.8
SS	780000510	<2	2.2	297.3	<0.06	1.88	3.17	.	1.29	14.4	37.8	47.8	52.2	26.4	25.8
SS	780000511	3	2	191	0.06	1.88	36.26	.	35.67	39.4	35.8	24.8	26	13.7	12.3
SH	780000512	<2	2.5	333.5	0.09	2.81	27.03	.	24.22	21.4	24.8	53.8	55	29.5	25.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	780000473	0.5	0.06	<0.01	<0.6	17	0.2	2.3	13.3	12.9	<1		1.3
SO	780000474	0.6	0.04	<0.01	<0.6	21	0.2	2.8	7.5	7.5	<1		1.3
SO	780000475	1.1	0.04	<0.01	<0.6	25	0.1	3	11.2	6.3	<1		1.4
SO	780000476	0.9	0.04	<0.01	<0.6	17	0.1	1.9	9	4	<1		0.6
LOST	LOST												
SO	780000477	0.8	0.09	<0.01	<0.6	10	<0.1	1.6	7.9	3.2	<1		0.4
SO	780000478	1	0.11	<0.01	<0.6	10	0.3	1.5	32.2	13.1	<1		0.1
SO	780000479	0.9	0.1	<0.01	<0.6	<10	0.1	1.4	32.7	12.8	<1		0.2
SS	780000480	1.3	0.04	<0.01	<0.6	29	0.1	3.3	15.2	1.8	<1		0.5
SS	780000481	0.5	<0.01	<0.01	<0.6	16	0.2	1.6	51.2	13.1	<1		0.6
CO	COAL												
SH	780000482	0.5	0.05	0.13	<0.6	54	1.4	5.1	26	1.3	10.6		4.1
SH	780000483	0.7	0.08	0.06	<0.6	17	1.5	2.2	63	3.4	7.6		1.8
SH,SS	780000484	0.2	0.13	0.04	<0.6	15	1.4	2.2	52.8	2.6	7		1.2
SH	780000485	0.2	0.06	0.05	<0.6	11	1.8	2.1	68.8	4.9	8		2
SS,SH	780000486	0.2	0.12	0.05	<0.6	14	1.1	2	31.8	2.5	5.7		0.9
CO	COAL												
SH,SL	780000487	1.7	0.17	0.15	<0.6	28	2.1	5.2	345.5	1.2	2.3		COAL
SS	780000488	<0.1	0.16	0.08	<0.6	23	1.7	4	21	1	12.8		2.1
SH,SD	780000489	0.1	0.04	0.08	<0.6	16	1.4	2.5	108.3	3.5	9.2		5.8
SL,SH	780000490	1.4	0.02	0.03	<0.6	34	7.4	3.9	266.4	13.4	14.6		14.4
SH	780000491	<0.1	0.11	0.09	0.6	31	2	6	53.1	5.1	14.8		2.8
SS,SH	780000492	0.2	0.02	0.09	<0.6	13	0.8	3.1	138	10.4	7		2.4
SS	780000493	0.3	0.07	0.08	<0.6	13	1.1	2.6	137.8	8.2	8.5		2.3
SH	780000494	1.2	0.03	0.1	<0.6	25	6.9	8.7	301.3	30.1	17.8		11.3
SL	780000495	0.1	0.06	0.06	<0.6	13	1.5	2.5	68.3	4.6	10.1		2.8
SS	780000496	<0.1	0.04	0.04	<0.6	14	1.2	2.1	76.3	3.2	6.8		1.8
SS	780000497	<0.1	0.1	0.05	<0.6	15	1.5	4.7	62.9	2.1	9.4		1.9
SH	780000498	0.3	0.14	<0.01	<0.6	20	2.1	6	36.1	8	11.6		2.7
SS	780000499	<0.1	0.02	<0.01	<0.6	19	1.1	2.4	37.1	4.3	5.1		0.9
SS	780000500	<0.1	<0.01	<0.01	<0.6	16	0.3	1.9	46.6	2.2	4.2		2.1
SS	780000501	<0.1	0.02	0.02	<0.6	19	0.9	2.6	41.3	9.1	6.1		3.3
CO	COAL												
SH,CO	780000502	0.1	0.47	0.31	<0.6	37	1.8	4.4	20.7	1	25.9		3
CO	COAL												
SH,SL,CO	780000503	1.6	0.13	0.16	<0.6	45	6.3	3.6	214.8	5.7	16.7		24.2
SH,SL	780000504	0.2	0.07	0.23	<0.6	11	2.7	5	56.3	6.6	14		9.5
SL	780000505	0.1	<0.01	0.04	<0.6	28	2.6	3.8	77.5	39.6	10.1		5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:15418C
DATE CORED:23NOV1977
DATE REPORTED:10APR1985

Dry Basis

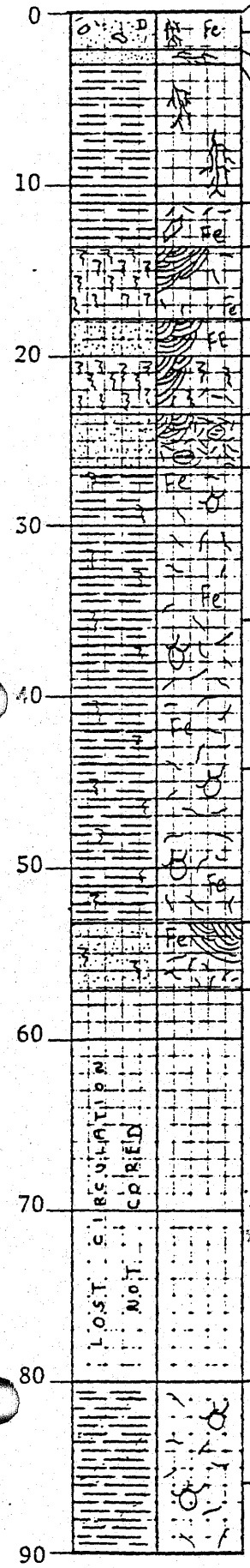
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH (40')	780000506	0.1	0.02	0.14	<0.6	33	2.6	7	53.1	17.2	17.2		6
SH	780000507	1.1	1.97	0.07	<0.6	64	10.2	7	266.5	46.6	25.8		8.4
CO	COAL												
SH	780000508	0.2	0.29	0.21	<0.6	31	0.9	4.1	13.9	1	10.7		21.4
CO	COAL												
SH,SL	780000509	0.6	0.38	0.25	<0.6	75	0.8	7.5	10	1	8.3		0.2
SS	780000510	0.9	0.42	0.21	<0.6	87	0.8	6.9	7.5	1	7.3		0.5
SS	780000511	0.7	0.28	0.1	<0.6	12	1	2.6	38.1	1	15.4		1.5
SH	780000512	0.9	0.2	0.32	<0.6	34	1.5	5.3	20.7	1	13.8		5.3

251946 — J. Elliott

LOCATION S 50340.0 — DATE DRILLED 7-31-81 — SUB AREA J-7

E 26689.0

ELEVATION 6463.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-1777	44.8	0.4	0.5	2.6	0.7	0.01	7.4
R-82-1778	40.5	0.7	0.9	2.5	0.6	0.01	7.7
R-82-1779	38.4	0.9	1.1	2.3	0.9	0.05	7.9
R-82-1780	44.6	6.2	9.0	2.0	2.2	0.01	8.1
R-82-1781	65.7	4.1	11.4	6.0	9.6	0.03	7.6
R-82-1782	46.4	3.2	9.7	5.7	12.6	0.01	7.7
R-82-1783	40.2	2.2	5.4	2.0	9.9	0.01	8.0
R-82-1784	40.4	2.3	8.2	2.9	22.9	0.05	8.1
R-82-1785	44.5	1.7	11.4	23.1	66.3	0.10	6.2
R-82-1786	45.7	6.1	47.1	27.6	91.5	0.43	3.8
R-82-1787	40.7	34.7	84.0	2.3	9.4	0.06	8.3
R-82-1788	38.6	28.7	56.6	1.9	5.9	0.07	8.3
R-82-1789	36.3	10.1	14.3	1.0	3.0	0.01	8.1
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-82-1790	48.5	21.6	18.7	0.5	1.0	0.04	8.8

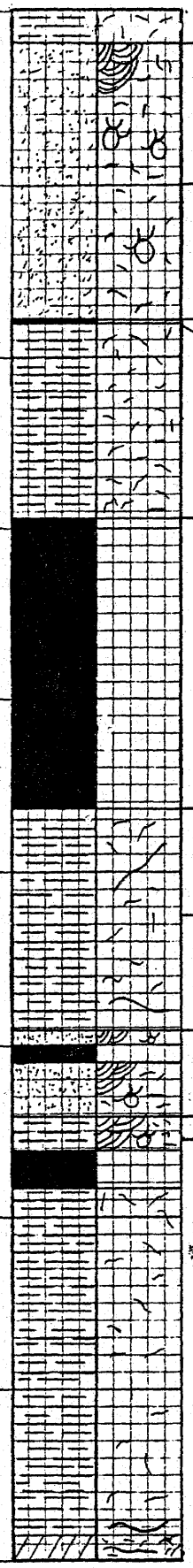
OCT 27 1986 SEP. 3 1986

HOLE NO. 23154C DRILLER J. Elliott PAGE 2

LOCATION S 50340.0 DATE DRILLED 7-31-81 SUB AREA J-7

E 26689.0

ELEVATION 6463.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-1791	40.3	25.7	20.7	0.7	0.6	0.04	8.9
R-82-1792	28.7	19.6	21.0	0.6	1.7	0.02	8.7
R-82-1793	32.1	18.9	12.7	0.5	0.4	<0.01	9.0
R-82-1794	45.8	26.0	15.4	0.3	0.4	0.32	8.2
R-82-1795	83.1	4.7	19.2	1.1	3.2	0.08	9.3
RXX (82-873-R)	(N/A)	(9.77)		(12,392)		(0.44)	(8.4)
R-82-1796	68.2	30.0	36.1	2.0	0.9	0.21	7.7
R-82-1797	63.7	11.7	13.6	1.7	1.0	0.03	9.1
R-82-1798	31.6	16.3	15.5	1.0	0.8	0.07	8.5
R-82-1799	43.1	27.1	34.3	2.3	0.9	0.69	7.5

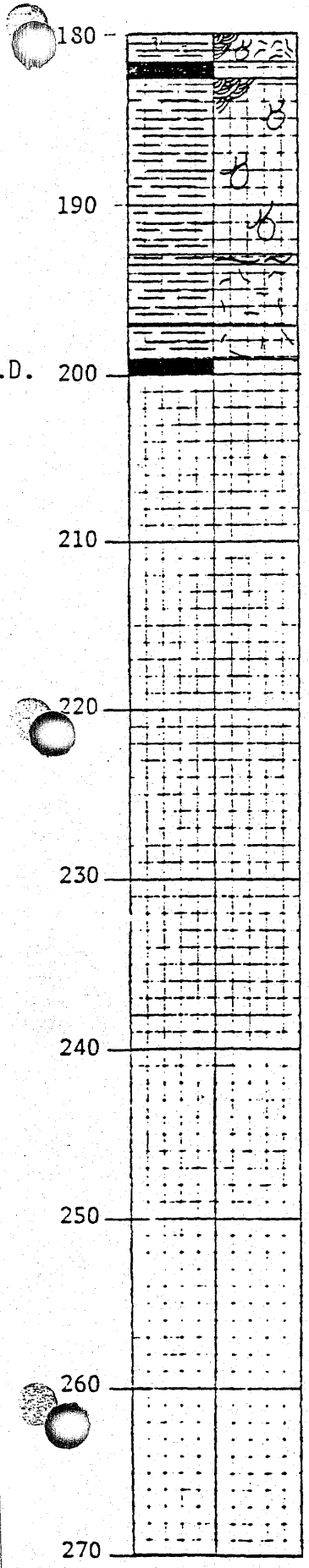
OCT 27 1986 SEP 3 1986

LOCATION S 50340.0 DATE DRILLED 7-31-81 SUB AREA J-7

E 26689.0

ELEVATION 6463.6

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



OCT 27 1986

SEP. 3 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J7
CORE NO:23154C
DATE CORED:19JUL1981
DATE REPORTED:01JUL1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001777	7.4	44.8	0.4	0.5	2.6	0.7	0.4					-0.7
SO	1.2	820001778	7.7	40.5	0.3	0.9	2.5	0.6	0.7					-0.2
SS	2.3	820001779	7.9	38.4	0.3	1.1	2.3	0.9	0.9					0.1
SH	3	820001780	8.1	44.6	1.2	9	2	2.2	6.2					7.3
SH	11	820001781	7.6	65.7	2.4	11.4	6	9.6	4.1					4.6
SL	13.7	820001782	7.7	46.4	2.2	9.7	5.7	12.6	3.2					3.4
SS	17.9	820001783	8	40.2	1.6	5.4	2	9.9	2.2					1.9
SL	20	820001784	8.1	40.4	2.7	8.2	2.9	22.9	2.3					2.1
SS	23.5	820001785	6.2	44.5	6.5	11.4	23.1	66.3	1.7					1.2
SH	26.7	820001786	3.8	45.7	11.5	47.1	27.6	91.5	6.1					7.2
SH	35.5	820001787	8.3	40.7	8.4	84	2.3	9.4	34.7					33.3
SH	44.3	820001788	8.3	38.6	5.6	56.6	1.9	5.9	28.7					29.1
SS	53.3	820001789	8.1	36.3	1.7	14.3	1	3	10.1					12
LOST	57.3	LOST												
SH	80	820001790	8.8	48.5	2.1	18.7	0.5	1	21.6					23.4
SH	85.9	820001791	8.9	40.3	2	20.7	0.7	0.6	25.7					26.8
SS	91.9	820001792	8.7	28.7	2.2	21	0.6	1.7	19.6					21.7
SS	99.8	820001793	9	32.1	1.3	12.7	0.5	0.4	18.9					21
CO	107.8	820001794	8.2	45.8	1.4	15.4	0.3	0.4	26					27.1
SH	108	820001795	9.3	83.1	1	19.2	1.1	3.2	4.7					5.4
CO	119.5	COAL												
SH	136.5	820001796	7.7	68.2	3.9	36.1	2	0.9	30					30.1
SH	142.9	820001797	9.1	63.7	1.6	13.6	1.7	1	11.7					13.8
SS,CO	149.3	820001798	8.5	31.6	1.6	15.5	1	0.8	16.3					18.6
SH,CO	154.2	820001799	7.5	43.1	3.6	34.3	2.3	0.9	27.1					27.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J7
CORE NO:23154C
DATE CORED:19JUL1981
DATE REPORTED:01JUL1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001777	21	4.2	255.6	0.01	0.31	7.11	.	6.8	68.2	22.4	9.4	18.5	7.4	11.1
SO	820001778	10	1.6	110.2	0.01	0.31	32.16	.	31.85	74.6	16.4	9	14.3	6.3	8
SS	820001779	5	1.1	77	0.05	1.56	62.65	.	61.09	77.6	14.8	7.6	14.7	6.2	8.5
SH	820001780	10	1.6	63.4	0.01	0.31	43.91	.	43.6	51.6	21.8	26.6	21.9	9.6	12.3
SH	820001781	6	2.5	88.5	0.03	0.94	4.65	.	3.71	8.6	34.8	56.6	27.6	14.2	13.4
SL	820001782	10	1.7	52.9	0.01	0.31	2.59	.	2.28	43	36.4	20.6	19.5	6.8	12.7
SS	820001783	56	1.3	47.7	0.01	0.31	27.88	.	27.57	64	25.8	10.2	13.6	3.9	9.7
SL	820001784	102	1.2	74.5	0.05	1.56	65.6	.	64.04	74	16.8	9.2	10.6	4.6	6
SS	820001785	73	4.1	70.7	0.1	3.13	6.43	.	3.3	56.6	28.2	15.2	13.7	5.6	8.1
SH	820001786	145	3.2	76.6	0.43	13.44	0.57	.	12.87	43.6	31.2	25.2	16.5	8.1	8.4
SH	820001787	34	1.7	290.2	0.06	1.88	50.78	.	48.9	24	44.8	31.2	16.5	8.7	7.8
SH	820001788	43	2.3	296	0.07	2.19	44.47	.	42.28	19.6	51.2	29.2	17.4	8.2	9.2
SS	820001789	36	0.7	112.1	0.01	0.31	72.38	.	72.07	74.4	19.8	5.8	11.4	3.9	7.5
LOST	LOST														
SH	820001790	23	1.2	178	0.04	1.25	11.53	.	10.28	26.8	49	24.2	25.6	18.2	7.4
SH	820001791	14	0.9	150.1	0.04	1.25	44.09	.	42.84	42.8	38	19.2	20.4	13.8	6.6
SS	820001792	6	0.8	56.6	0.02	0.63	21.57	.	20.94	75.8	17	7.2	13.1	6.8	6.3
SS	820001793	6	0.5	37.6	<0.01	0.31	124.1	.	123.79	86.8	12.4	0.8	7.2	3	4.2
CO	820001794	16	0.8	127.6	0.32	10	12.02	.	2.02	78.4	12.8	8.8	15.8	10	5.8
SH	820001795	20	0.8	333.7	0.08	2.5	18.57	.	16.07	16.4	38.8	44.8	41.9	27.7	14.2
CO	COAL														
SH	820001796	23	3.2	270	0.21	6.56	7.1	.	0.54	18	30.8	51.2	30.4	19.4	11
SH	820001797	19	0.7	250.5	0.03	0.94	5.84	.	4.9	20.4	37.4	42.2	34.4	21.3	13.1
SS,CO	820001798	8	0.8	69.4	0.07	2.19	70.67	.	68.48	76.4	18.4	5.2	9.1	4.3	4.8
SH,CO	820001799	8	1.9	127.3	0.69	21.56	40.85	.	19.29	53.5	28	18.5	14	7.6	6.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J7
CORE NO:23154C
DATE CORED:19JUL1981
DATE REPORTED:01JUL1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001777	0.3	0.08	<0.01	<0.6	<10	0.3	2.6	16	17.6	<1		1
SO	820001778	<0.1	<0.01	<0.01	<0.6	<10	0.4	2.2	40.9	23.1	<1		0.8
SS	820001779	0.2	<0.01	<0.01	<0.6	<10	0.4	2.5	48.9	23	<1		0.5
SH	820001780	0.6	0.07	<0.01	<0.6	21	0.3	3.6	30.4	7	6.1		0.5
SH	820001781	0.2	0.03	0.05	<0.6	52	0.6	6.6	9.1	1	11.8		0.5
SL	820001782	0.2	0.02	<0.01	<0.6	<10	0.4	4.2	8.9	2.4	4.4		0.2
SS	820001783	0.3	<0.01	0.03	<0.6	13	0.3	1.3	15.1	3.8	<1		0.2
SL	820001784	0.3	<0.01	0.02	<0.6	<10	0.4	3.9	42	5.2	1.1		0.8
SS	820001785	<0.1	<0.01	0.05	<0.6	<10	1.1	4.2	124.1	31.8	9.2		1.1
SH	820001786	1.8	0.06	0.07	<0.6	<10	3.1	7.9	203.9	22.6	26		10.2
SH	820001787	<0.1	0.02	0.37	<0.6	<10	1.5	12.9	39.7	19.8	16.1		1.5
SH	820001788	<0.1	0.02	0.33	<0.6	<10	1.3	11.9	41.7	23.2	14		1.7
SS	820001789	<0.1	0.12	0.07	<0.6	<10	0.5	5.9	63.9	15.2	7.5		1.1
LOST	LOST												
SH	820001790	<0.1	0.25	0.1	<0.6	14	3.7	7.7	29.7	2	15		1.4
SH	820001791	<0.1	0.06	0.06	<0.6	<10	2.2	5.5	96.4	10	11		1.7
SS	820001792	<0.1	0.19	0.04	<0.6	<10	1.7	4.1	58.2	6.5	7.2		1.3
SS	820001793	<0.1	0.12	0.02	<0.6	<10	0.6	2	436.9	4.7	2.7		0.6
CO	820001794	1.2	0.16	0.18	<0.6	<10	1	3.7	18.5	1.4	5.5		COAL
SH	820001795	<0.1	0.15	0.28	<0.6	<10	1.6	9.8	29.1	1	18.9		4.5
CO	COAL												
SH	820001796	0.9	0.2	0.38	<0.6	<10	2.7	14.8	53.6	1	20.8		5.2
SH	820001797	0.2	0.24	0.26	<0.6	<10	2.2	12.2	29.4	1	16.4		2.4
SS,CO	820001798	0.6	0.09	0.06	<0.6	38	1.4	3.5	78.6	2.5	6.3		COAL
SH,CO	820001799	1	<0.01	0.1	<0.6	<10	3.3	4.5	112.2	9.1	12		COAL

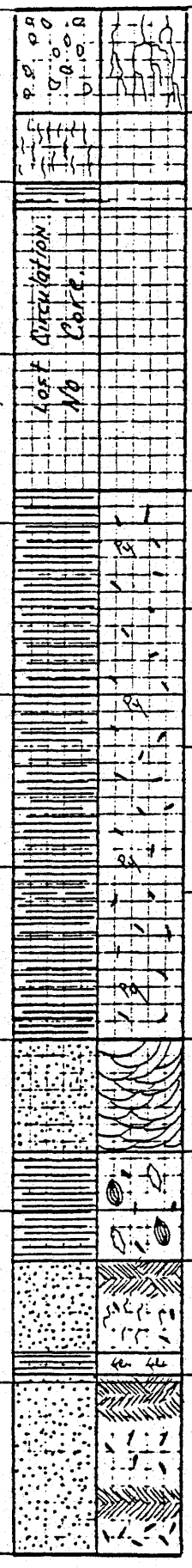
PAGE 1

LOCATION S 49601.0
E 28283.0

DATE DRILLED 8-14-81

SUB AREA J-7

ELEVATION 6467.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820001800	48.8	2.0	5.6	10.1	5.2	0.04	7.8
820001801	40.4	1.9	9.9	37.5	17.0	0.19	7.9
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
820001802	42.5	25.3	154.3	28.0	46.4	0.16	5.9
820001803	40.3	25.0	104.0	15.3	19.3	0.10	8.0
820001804	44.7	28.8	224.4	29.8	91.7	0.37	7.6
820001805	42.7	26.6	194.0	25.7	80.9	0.27	7.5
820001806	40.2	14.5	77.1	23.9	32.4	0.02	8.2
820001807	46.8	21.8	79.5	8.4	18.1	0.10	7.0
820001808	36.3	34.9	66.6	2.7	4.6	0.03	8.1
820001809	34.2	31.2	30.4	0.8	1.1	0.03	8.7

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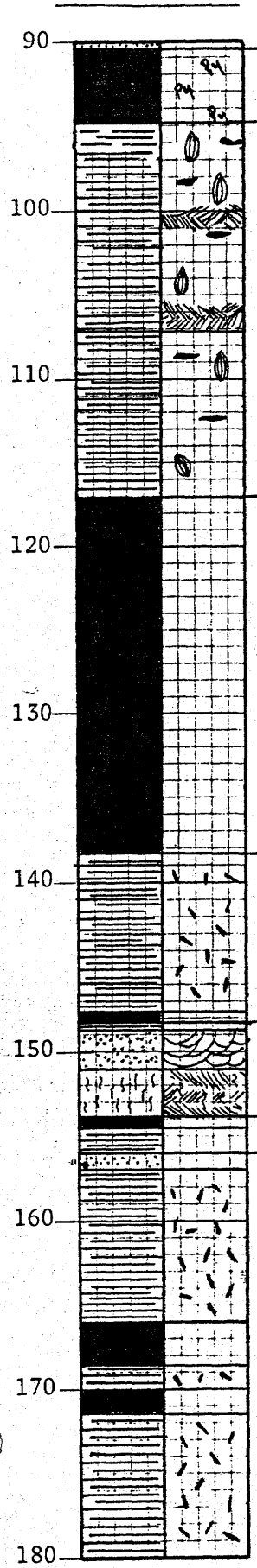
OCT 27 1986

HOLE NO. 23156C DRILLER J. Elliott PAGE 2

LOCATION S 49601.0 DATE DRILLED 8-14-81 SUB AREA J-7

E 28283.0

ELEVATION 6467.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
B1X (82-874-R)	(N/A)	(5.84)		(12,851)		(0.66)	(8.3)
820001810	40.3	32.3	40.9	1.9	1.3	0.61	7.6
RXX (82-875-R)	(N/A)	(9.69)		(12,370)		(0.38)	(8.5)
820001811	74.2	18.2	17.7	0.5	1.4	0.18	8.6
820001812	32.2	18.7	20.5	1.3	1.1	0.08	8.5
820001813	52.3	24.2	29.2	1.7	1.2	0.28	8.1

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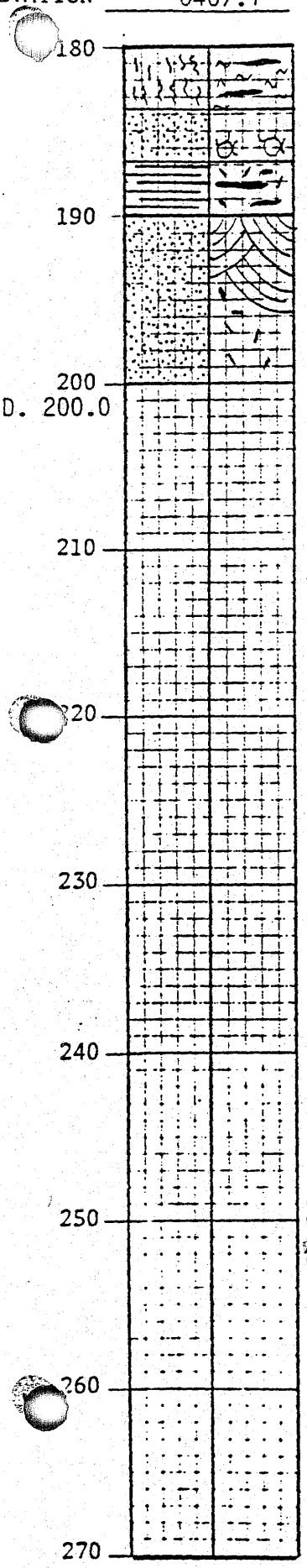
OCT 27 1986

[illegible] 251500 PROJECT J. Elliott PAGE [illegible]

LOCATION S 49601.0 DATE DRILLED 8-14-81 SUB AREA J-7

E 28283.0

ELEVATION 6467.1



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

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23156C
DATE CORED:02AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001800	7.8	48.8	1.8	5.6	10.1	5.2	2					1.7
SH,SL	6	820001801	7.9	40.4	4.1	9.9	37.5	17	1.9					1.5
LOST	11.6	LOST												
SH	28	820001802	5.9	42.5	17.3	154.3	28	46.4	25.3					26.5
SH	35	820001803	8	40.3	11.3	104	15.3	19.3	25					26.3
LOST	42	LOST												
SH	43	820001804	7.6	44.7	23.9	224.4	29.8	91.7	28.8					29.2
SH	5:.5	820001805	7.5	42.7	20.7	194	25.7	80.9	26.6					27.5
SS	60	820001806	8.2	40.2	9.8	77.1	23.9	32.4	14.5					16.8
SH	66.6	820001807	7	46.8	8.5	79.5	8.4	18.1	21.8					23.6
SD,SH	73	820001808	8.1	36.3	6.4	66.6	2.7	4.6	34.9					33.4
SS	79.5	820001809	8.7	34.2	3	30.4	0.8	1.1	31.2					30.9
CO	90.5	COAL												
SH	94.7	820001810	7.6	40.3	4	40.9	1.9	1.3	32.3					31.7
CO	117.1	COAL												
SH	138.4	820001811	8.6	74.2	1.8	17.7	0.5	1.4	18.2					20.4
SS,SL	148.7	820001812	8.5	32.2	2.1	20.5	1.3	1.1	18.7					20.8
SH,CO	153.4	820001813	8.1	52.3	3.1	29.2	1.7	1.2	24.2					25.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23156C
DATE CORED:02AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001800	8	1.3	584.3	0.04	1.25	32.73	.	31.58	51.6	24.4	24	18.1	12.1	6
SH,SL	820001801	13	3.6	407.2	0.19	5.94	100.01	.	94.07	81.6	12.4	6	15.4	4.3	11.1
LOST	LOST														
SH	820001802	581	2.3	289	0.16	5	4.91	0.09	.	42.6	30.6	26.8	13.7	6.6	7.1
SH	820001803	355	1.5	257.1	0.1	3.13	28.35	.	25.22	57.6	24.4	18	7.8	4	3.8
LOST	LOST														
SH	820001804	731	4.7	346	0.37	11.56	9.44	2.12	.	44.6	29.4	26	12.3	6.5	5.8
SH	820001805	552	2.4	316.7	0.27	8.43	16.03	.	7.6	49.6	22.4	28	11.6	7.4	4.2
SS	820001806	62	1.2	116.3	0.02	0.63	81.68	.	81.05	77.6	13.8	8.6	11.1	3.4	7.7
SH	820001807	90	2.4	331.6	0.1	3.13	15.43	.	12.3	17.6	41.8	40.6	22.7	9.8	12.9
SD,SH	820001808	13	1.2	138.8	0.03	0.94	23.04	.	22.1	65.6	22.8	11.6	12.5	5.3	7.2
SS	820001809	12	1.2	94.8	0.03	0.94	72.7	.	71.76	69.6	18.1	12	11.9	4.3	7.6
CO	COAL														
SH	820001810	<2	2.3	149	0.61	19.06	38.53	.	19.47	52.6	29	18.4	6.7	5.1	1.6
CO	COAL														
SH	820001811	15	1.1	288.4	0.18	5.63	5.74	.	0.11	8.8	29	62.2	39.5	18.8	20.7
SS,SL	820001812	12	1.3	90.4	0.08	2.5	132.3	.	129.8	70	18.4	11.6	9.6	4	5.6
SH,CO	820001813	16	1.6	191.7	0.28	8.75	4.73	4.02	.	33	29.4	37.6	27.3	13.4	13.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23156C
DATE CORED:02AUG1981
DATE REPORTED:16FEB1985

Dry Basis

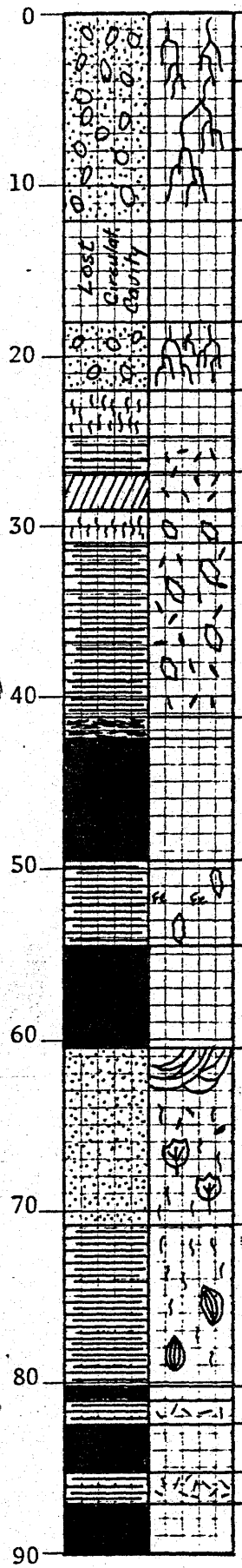
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001800	0.7	0.08	<0.01	<0.6	48	0.7	9.6	27.2	12.4	2.9		0.3
SH,SL	820001801	0.9	0.02	<0.01	<0.6	13	0.5	7.5	96.6	45.8	1.6		<0.1
LOST	LOST												
SH	820001802	1.2	0.01	0.47	<0.6	56	1.4	2.6	63.7	2.5	28.2		1.6
SH	820001803	0.3	0.01	0.38	<0.6	59	0.9	14	32.4	1.5	16.3		0.4
LOST	LOST												
SH	820001804	0.8	<0.01	0.21	<0.6	68	0.8	3.3	27.7	2.2	22		0.2
SH	820001805	0.8	<0.01	0.14	<0.6	25	1.1	6	46	9	21.8		0.9
SS	820001806	<0.1	<0.01	<0.01	<0.6	<10	0.3	2.1	43.2	2.9	2.9		0.1
SH	820001807	0.1	0.05	0.04	<0.6	<10	6.2	12.1	51.5	80.4	29.1		2.2
SD,SH	820001808	<0.1	0.18	0.04	<0.6	<10	1.6	9	75.7	18.6	9.1		1.7
SS	820001809	<0.1	0.21	0.05	<0.6	<10	0.6	6.7	62.5	9.7	5.8		1.3
CO	COAL												
SH	820001810	<0.1	<0.01	0.09	<0.6	<10	3.9	8.5	117.3	20.8	15.4		4.8
CO	COAL												
SH	820001811	0.6	0.21	0.42	<0.6	11	1.8	14.3	32.4	1	17.2		COAL
SS,SL	820001812	0.3	<0.01	0.06	<0.6	<10	2	2.7	89.2	2.9	9.8		2.4
SH,CO	820001813	0.9	0.13	0.1	<0.6	20	1.2	7.6	47.1	1.5	9.2		COAL

HOLE NO. 23158C DRILLER J. Elliott PAGE 1

LOCATION S 50476.0 DATE DRILLED 8-31-81 SUB AREA J-7

E 29640.0

ELEVATION 6459.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-1891	40.4	1.2	2.2	5.7	1.5	0.01	7.9
R-82-1892	42.1	1.6	4.0	9.3	3.0	<0.01	7.8
R-82-1893	40.3	1.7	10.5	58.6	16.1	0.01	7.4
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-82-1894	59.5	3.1	18.3	49.8	20.9	0.23	4.7
R-82-1895	63.9	3.5	22.7	37.0	46.5	0.20	6.8
R-82-1896	43.7	7.5	47.4	32.4	47.2	0.13	4.7
R-82-1897	45.5	7.3	44.5	30.7	43.8	0.22	5.8
BOX (N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
R-82-1898	47.0	19.9	81.0	13.3	19.8	0.07	6.7
B1X (82-880-R)	(N/A)	(6.58)		(12,195)		(0.57)	(6.2)
R-82-1899	42.0	19.3	39.5	5.0	3.4	0.31	7.3
R-82-1900	46.9	22.0	41.5	4.4	2.7	1.21	7.0
R-82-1901	47.9	10.5	37.5	23.3	2.0	0.62	7.6
B0A (82-881-R)	(N/A)	(21.06)		(10,722		(0.73)	(8.7)
R-82-1902	64.5	19.1	19.6	0.5	1.6	0.08	8.7

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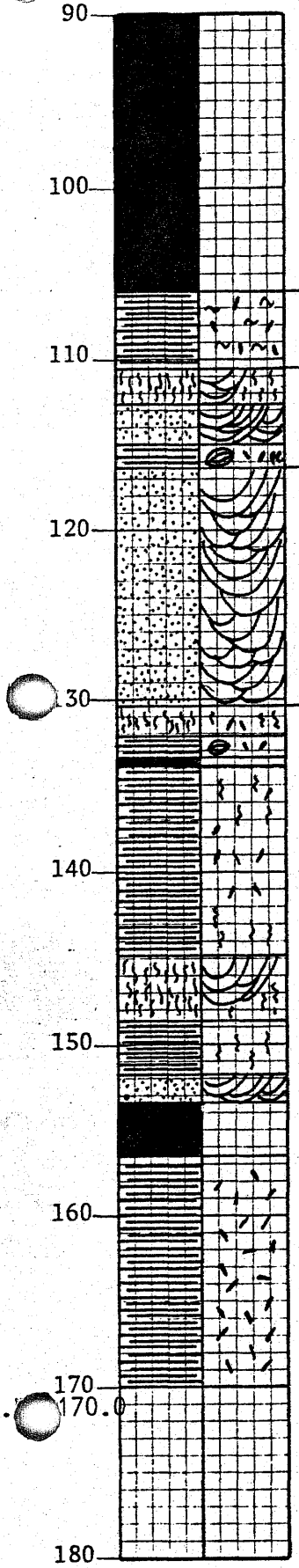
HOLE NO. 23158C DRILLER J. Elliott PAGE 2

LOCATION S 50476.0 DATE DRILLED 8-31-81 SUB AREA J-7

E 29640.0

ELEVATION 6459.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
RXX (82-882-R)	(N/A)	(9.97)		(12,328)		(0.41)	(8.4)
R-82-1903	51.0	9.5	18.4	6.0	1.5	0.08	8.8
R-82-1904	40.3	33.6	34.4	1.2	0.9	0.10	7.8
R-82-1905	32.2	32.6	19.3	0.3	0.4	<0.01	8.4

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23158C
DATE CORED:16AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001891	7.9	40.4	1	2.2	5.7	1.5	1.2					0.5
SO	4	820001892	7.8	42.1	1.9	4	9.3	3	1.6					1.1
SO	8	820001893	7.4	40.3	8.2	10.5	58.6	16.1	1.7					1.2
LOST	12	LOST												
SO	18	820001894	4.7	59.5	8.9	18.3	49.8	20.9	3.1					3.2
SL,SH	22	820001895	6.8	63.9	8	22.7	37	46.5	3.5					3.8
SH,SL	26.9	820001896	4.7	43.7	9.7	47.4	32.4	47.2	7.5					8.9
SH	31	820001897	5.8	45.5	8.9	44.5	30.7	43.8	7.3					8.7
SM,CO	41.2	COAL												
SH	49.6	820001898	6.7	47	9.4	81	13.3	19.8	19.9					21.9
CO	54.5	COAL												
SS	60.5	820001899	7.3	42	4.3	39.5	5	3.4	19.3					21.4
SH	70.8	820001900	7	46.9	5.7	41.5	4.4	2.7	22					23.8
CO,SH	80.3	820001901	7.6	47.9	8.1	37.5	23.3	2	10.5					12.5
CO	82.5	COAL												
SH	85.3	820001902	8.7	64.5	2	19.6	0.5	1.6	19.1					21.2
CO	87.1	COAL												
SH	106	820001903	8.8	51	2.7	18.4	6	1.5	9.5					11.3
SL,SS,SH	110.5	820001904	7.8	40.3	3.8	34.4	1.2	0.9	33.6					32.6
SS	116.3	820001905	8.4	32.2	1.9	19.3	0.3	0.4	32.6					31.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23158C
DATE CORED:16AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001891	14	3.8	292.8	0.01	0.31	28.6	.	28.29	61	22	17	20.3	11.7	8.6
SO	820001892	52	3.2	165.6	<0.01	0.31	22.58	.	22.27	61.2	21.6	17.4	20.2	11.1	9.1
SO	820001893	322	5.6	106	0.01	0.31	20.73	.	20.42	65.2	18.4	16.4	18	9.6	8.4
LOST	LOST														
SO	820001894	985	2.8	103.7	0.23	7.19	22	.	14.81	68.6	21	10.4	30.9	20.4	10.5
SL,SH	820001895	435	15.8	249.5	0.2	6.25	27.96	.	21.71	16.2	36.4	47.4	23.7	16.9	6.8
SH,SL	820001896	539	0.8	294.5	0.13	4.06	6.74	.	2.68	49	24.6	26.4	20.7	14.1	6.6
SH	820001897	240	2.8	272.5	0.22	6.88	8.86	.	1.98	52	25	23	17.5	11.1	6.4
CO	COAL														
SH	820001898	117	1.9	313.1	0.07	2.19	38.72	.	36.53	25	34	41	20.7	14.1	6.6
CO	COAL														
SS	820001899	7	0.3	85.1	0.31	9.69	50.61	.	40.92	64	26	10	14.9	6.5	8.4
SH	820001900	4	4.4	140.9	1.21	37.81	27.56	10.25	.	35	40	25	14.2	7.9	6.3
CO,SH	820001901	12	0.8	215.8	0.62	19.38	6.44	12.94	.	34	26	40	31.1	19.5	11.6
CO	COAL														
SH	820001902	6	1.3	282.4	0.08	2.5	20.24	.	17.74	17	15	68	46	27.9	18.1
CO	COAL														
SH	820001903	8	0.4	265	0.08	2.5	4.28	.	1.78	7	29	64	40	24.1	15.9
SL,SS,SH	820001904	8	1.4	164.6	0.1	3.13	7.26	.	4.13	41	29	30	21.5	14.2	7.3
SS	820001905	<2	0.7	85.3	<0.01	0.31	55.44	.	55.13	76	13	11	13.2	7.2	6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-7
CORE NO:23158C
DATE CORED:16AUG1981
DATE REPORTED:16FEB1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001891	0.6	0.07	0.02	<0.6	19	0.2	2.4	19.8	15.1	<1		1.8
SO	820001892	0.7	0.03	<0.01	<0.6	12	<0.1	2.2	17.7	11.5	<1		0.8
SO	820001893	0.6	0.02	0.03	<0.6	13	<0.1	1.9	16.4	7.2	<1		0.5
LOST	LOST												
SO	820001894	<0.1	0.03	0.06	<0.6	5379	0.5	1.4	150.5	24.6	2.4		27.5
SL,SH	820001895	0.6	0.03	0.08	<0.6	229	0.2	5.2	78.6	1.6	21.7		1.2
SH,SL	820001896	1.1	0.03	0.05	<0.6	<10	0.8	3.4	96.1	2.8	19		6.9
SH	820001897	0.9	<0.01	0.04	<0.6	<10	0.6	3.6	171.4	4.5	22.5		COAL
CO	COAL												
SH	820001898	0.3	0.04	0.1	<0.6	<10	1.3	13.1	51.2	13.2	18.3		3.2
CO	COAL												
SS	820001899	<0.1	0.12	0.07	<0.6	18	3.1	4.6	75.2	9.5	10.8		5.5
SH	820001900	<0.1	0.07	0.02	<0.6	<10	5.1	6.5	146	22.4	12.7		11.2
CO,SH	820001901	0.7	0.28	0.35	<0.6	<10	2.3	11.2	74.3	1.5	8.9		COAL
CO	COAL												
SH	820001902	0.2	0.27	0.98	<0.6	51	1.5	26.5	30.5	1	23.7		COAL
CO	COAL												
SH	820001903	0.3	0.49	0.3	<0.6	22	1	12.7	15.5	1	5.5		COAL
SL,SS,SH	820001904	0.4	0.51	0.14	<0.6	<10	3.4	5.2	26.4	1	14.9		2.8
SS	820001905	0.2	0.63	0.06	<0.6	12	1.3	2.6	54.4	2.3	6.5		3.1

B

J-16 MINING AREA

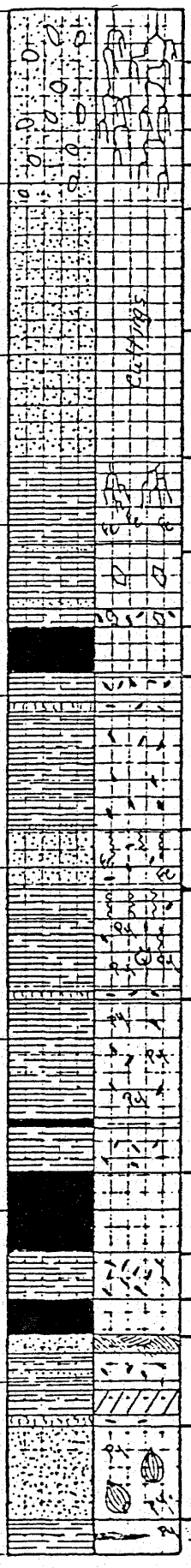
(DEEP CORES)

JOB NO. 251460 DRILLER G. Elliott PAGE 1

LOCATION S 21117.0 DATE DRILLED 4/26/81 SUB AREA J-16

E 54610.0

ELEVATION 6792.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2070 R-81-2071 R-81-2072	64.0	2.1	3.3	3.5	1.8	0.01	7.3
R-81-2073	54.8	3.1	3.4	0.7	1.7	0.02	8.0
R-81-2074	48.5	5.9	7.9	0.7	2.9	0.02	8.3
R-81-2075	44.4	7.4	13.9	1.6	5.4	<0.01	8.1
R-81-2076	42.1	6.3	10.9	1.9	4.1	0.01	8.1
R-81-2077	36.1	4.0	10.3	4.1	8.9	<0.01	7.9
R-81-2078	38.1	1.8	7.8	11.8	26.3	0.03	7.8
R-81-2079	61.6	1.3	8.8	24.3	63.4	0.40	3.7
R-81-2080	63.7	1.0	5.8	18.2	54.8	0.24	5.8
MXX	-	14.9	-	11449	-	2.1	4.7
R-81-2081	55.3	3.3	19.2	29.4	39.9	1.21	5.3
R-81-2082	44.3	2.9	15.5	27.3	28.6	0.37	6.9
R-81-2083	44.6	4.4	19.8	18.2	22.3	0.81	7.1
R-81-2084	55.5	4.3	23.9	27.8	34.3	1.64	4.9
YQX	-	6.7	-	12,621	-	1.15	5.8
R-81-2085	55.3	4.7	21.8	18.2	25.1	1.33	6.6
Y1X	-	3.5	-	13094	-	0.79	7.4
R-81-2086	55.1	25.4	48.8	3.3	4.1	0.96	5.3
R-81-2087	40.1	3.8	16.7	16.2	22.8	0.41	7.1

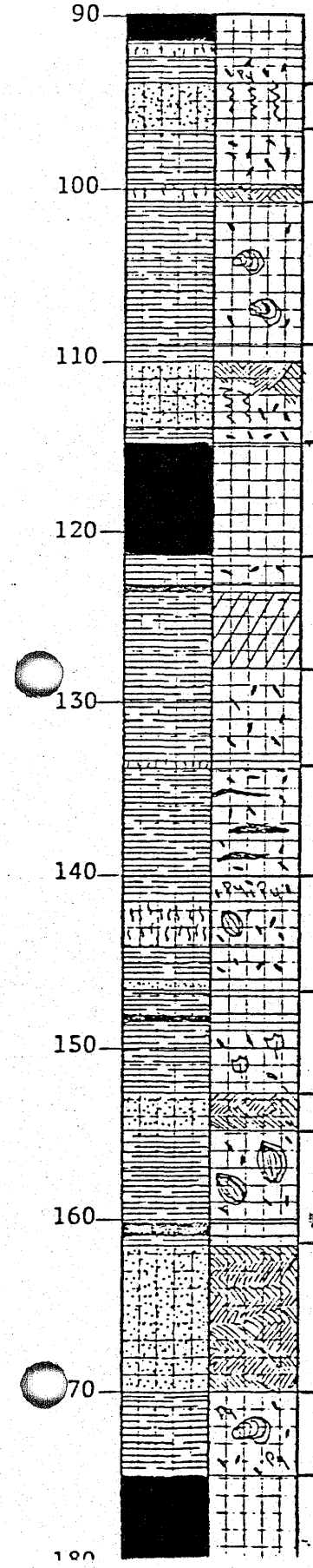
OCT 27 1986 SFP

DLE NO. 23146C DRILLER G. Elliott PAGE 2

OCATION S21117.0 DATE DRILLED 4/26/81 SUB AREA J-16

E 54610.0

CE ON 6792.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2088	50.5	11.1	56.0	25.3	25.2	1.68	4.3
R-81-2089	44.2	9.0	50.1	34.4	30.4	0.34	6.8
R-81-2090	50.7	18.1	86.0	31.1	14.8	2.19	6.2
R-81-2091	63.2	26.0	96.4	14.4	12.7	2.85	5.5
R-81-2092	46.7	13.5	58.7	23.2	15.5	0.97	7.2
NOX	-	20.3	-	10,786	-	0.79	8.0
R-81-2093	61.5	31.8	90.7	11.4	4.8	2.62	6.3
R-81-2094	70.8	13.2	32.1	10.7	1.2	0.59	8.5
R-81-2095	105.4	52.2	35.0	0.5	0.4	0.35	8.1
R-81-2096	49.5	47.7	30.2	0.3	0.5	0.51	7.7
R-81-2097	47.4	31.5	27.4	1.0	0.5	0.49	7.9
R-81-2098	30.2	39.7	33.1	0.6	0.8	0.01	9.0
R-81-2099	47.3	42.9	41.6	0.8	1.1	0.54	7.8
R-81-2100	30.4	17.3	36.0	0.6	8.1	0.17	8.6
R-81-2101	58.00	37.5	60.5	3.2	2.0	1.02	7.6
		30					

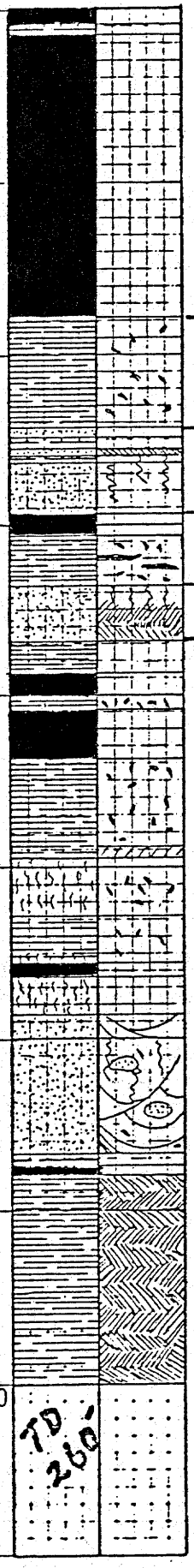
OCT 27 1986 SEP 3 1986

DRILLER G. Elliott PAGE 3

LOCATION S 21117.0
E 54610.0

DATE DRILLED 4/26/81 SUB AREA J-16

ELEVATION 6792.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
EXX	-	7.9	-	12,677	-	0.44	8.0
R-81-2102	43.2	26.3	21.2	0.6	0.7	0.07	8.6
R-81-2103	30.5	0.9	1.3	2.9	1.6	0.17	8.0
R-81-2104	49.5	10.6	17.7	4.7	0.9	0.18	8.4
R-81-2105	36.5	18.8	13.9	0.3	0.8	0.01	8.7

SED 3 1986
OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23146C
DATE CORED:26APR1981
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	810002070	7.9	50.8	0.9	3.8	4.5	1.3	2.2					1.9
SO	1	810002071	7.5	53	0.6	3.8	2.4	1.5	2.7					2.7
SO	2	810002072	7	88.2	0.6	2.4	3.6	2.6	1.4					0.7
SO	3	810002073	8	54.8	0.5	3.4	0.7	1.7	3.1					3.2
SO	5	810002074	8.3	48.5	1	7.9	0.7	2.9	5.9					6.9
SO	7	810002075	8.1	44.4	1.9	13.9	1.6	5.4	7.4					8.8
SD	9	810002076	8.1	42.1	1.5	10.9	1.9	4.1	6.3					7.4
SS	11.2	810002077	7.9	36.1	2.4	10.3	4.1	8.9	4					4.4
SS	18.7	810002078	7.8	38.1	3.3	7.8	11.8	26.3	1.8					1.4
MS	26.3	810002079	3.7	61.6	6	8.8	24.3	63.4	1.3					0.6
SS,SH	31.3	810002080	5.8	63.7	4.7	5.8	18.2	54.8	4					0.2
CO	35.8	COAL												
SH,SL	39.1	810002081	5.3	55.3	5.4	19.2	29.4	39.9	3.3					3.5
SS	47.8	810002082	6.9	44.3	4.4	15.5	27.3	28.6	2.9					3
SH,SL	51.3	810002083	7.1	44.6	4.1	19.8	18.2	22.3	4.4					5
SH,CO	57.8	810002084	4.9	55.5	5.4	23.9	27.8	34.3	4.3					4.8
CO	67.6	COAL												
SH	72.6	810002085	6.6	53.3	4.6	21.8	18.2	25.1	4.7					5.4
CO	75.1	COAL												
SH,SS,SL	77.5	810002086	5.3	55.1	4.7	48.8	3.3	4.1	25.4					26.6
SS	82.6	810002087	7.1	40.1	3.8	16.7	16.2	22.8	3.8					4.2
MS,SH,CO,SL	88	810002088	4.3	50.5	7.5	56	25.3	25.2	11.1					13.1
SS	94	810002089	6.8	44.2	7.9	50.1	34.4	30.4	9					10.7
SH,SL	96.5	810002090	6.2	50.7	9.6	86	31.1	14.8	18.1					20.3
SH	100.5	810002091	5.5	63.2	10.1	96.4	14.4	12.7	26					27.1
SH,SS	109.2	810002092	7.2	46.7	7.3	58.7	23.2	15.5	13.5					15.7
CO	114.8	COAL												
SH,CO	121.3	810002093	6.3	61.5	8.5	90.7	11.4	4.8	31.8					31.3
SH,SL	128.1	810002094	8.5	70.8	4.1	32.1	10.7	1.2	13.2					15.4
SH	133.8	810002095	8.1	105.4	3.5	35	0.5	0.4	52.2					43.1
SH,SL,SS	140	810002096	7.7	49.5	2.9	30.2	0.3	0.5	47.7					40.9
SH,CO	146.8	810002097	7.9	47.4	2.9	27.4	1	0.5	31.5					31.1
SS	152.6	810002098	9	30.2	2.7	33.1	0.6	0.8	39.7					36.4
SH,CO	154.9	810002099	7.8	47.3	4.4	41.6	0.8	1.1	42.9					38.3
SS	161.3	810002100	8.6	30.4	3.5	36	0.6	8.1	17.3					19.5
SH	170	810002101	7.6	58	5.7	60.5	3.2	2	37.5					35.1
CO	174.9	COAL												
SH	197.8	810002102	8.6	43.2	2.1	21.2	0.6	0.7	26.3					27.3
SS,SH	204.3	810002103	8	30.5	3	28.4	2.9	1.6	18.9					21
SH,CO	209.4	810002104	8.4	49.5	2.3	17.7	4.7	0.9	10.6					12.6
SS	213.5	810002105	8.7	36.5	1.3	13.9	0.3	0.8	18.8					20.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23146C
DATE CORED:26APR1981
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	810002070	2	2.2	134.6	<0.01	0.31	21.89	.	21.58	29.6	35	35.4	22.9	11.2	11.7
SO	810002071	<2	2.2	128.9	<0.01	0.31	23.39	.	23.08	33.6	32.4	34	22.5	10.5	12
SO	810002072	5	4.6	147.8	0.02	0.63	9.07	.	8.44	34.6	30.4	35	28.8	11.9	16.9
SO	810002073	2	2.8	113.5	0.02	0.63	22.4	.	21.77	45.6	27.4	27	19.4	8.7	10.7
SO	810002074	<2	1.3	237.7	0.02	0.63	12.54	.	11.91	54.6	22.4	23	18.6	6.9	11.7
SO	810002075	8	2.6	65.4	<0.01	0.31	8.66	.	8.35	60.6	20.4	19	15.8	5	10.8
SD	810002076	<2	2	62	0.01	0.31	14.76	.	14.45	70.6	12.4	17	11.2	3.6	7.6
SS	810002077	7	1.3	44.3	<0.01	0.31	22.1	.	21.79	78.6	11.4	10	10.3	2.9	7.4
SS	810002078	5	1.3	50.2	0.03	0.94	9.24	.	8.3	75.6	16.4	8	9.8	2.8	7
MS	810002079	11	9.1	81.6	0.4	12.5	0.17	12.33	.	10.6	48.4	41	19.8	10.1	9.7
SS,SH	810002080	13	3.6	166.2	0.24	7.5	1.46	6.04	.	18.6	38.4	43	21.5	9.6	11.9
CO	COAL														
SH,SL	810002081	6	11.6	141.6	1.21	37.81	24.47	13.34	.	16.6	16.4	37	16.5	7.7	8.8
SS	810002082	<2	3.5	65.2	0.37	11.56	79.72	.	68.16	53.6	29	17.4	12.6	4.1	8.5
SH,SL	810002083	6	4.3	143.2	0.81	25.31	89.39	.	64.08	30.6	41.4	28	13	5.8	7.2
SH,CO	810002084	11	13	169.2	1.64	51.25	9.36	41.89	.	26.6	35.4	38	17	8.3	8.7
CO	COAL														
SH	810002085	17	3.1	219.9	1.33	41.56	40.42	1.14	.	19.8	38.8	41.4	18	9.1	8.9
CO	COAL														
SH,SS,SL	810002086	10	2.1	126	0.96	30	5.25	24.75	.	28.6	37.4	34	18	7.9	10.1
SS	810002087	5	0.9	50.2	0.41	12.81	51.89	.	39.08	58.6	27.4	14	11.7	3	8.7
MS,SH,CO,SL	810002088	11	9.1	57.6	1.68	52.5	5.92	46.58	.	49.1	30.4	20.5	14	7	7
SS	810002089	<2	1.2	86.7	0.34	10.63	50.68	.	40.05	50.2	37	12.8	11.5	3.8	7.7
SH,SL	810002090	10	10	106.4	2.19	68.44	45.47	22.97	.	10.6	62	27.4	11.6	5.3	6.3
SH	810002091	14	25.1	213.9	2.85	89.06	13.4	75.66	.	7.6	51	41.4	20.2	8.7	11.5
SH,SS	810002092	3	11.9	110.2	0.97	30.31	50.4	.	20.09	54.6	26	19.4	11.1	4.9	6.2
CO	COAL														
SH,CO	810002093	12	10.9	155	2.62	81.88	6.87	75.01	.	60.6	18	21.4	17.2	2.3	14.9
SH,SL	810002094	15	8.5	312.1	0.59	18.44	48.37	.	29.93	27.6	25	47.4	32.8	18.1	14.7
SH	810002095	25	1.9	394.6	0.35	10.94	7.66	3.28	.	6.6	25	68.4	43.5	8.7	34.8
SH,SL,SS	810002096	9	1.5	200.9	0.51	15.94	8.47	7.47	.	26.6	40	33.4	20.8	9.9	10.9
SH,CO	810002097	13	3.5	200.7	0.49	15.31	25.97	.	10.66	27.6	37	35.4	22.1	8.9	13.2
SS	810002098	9	0.9	64.1	0.01	0.31	110.31	.	110	73.6	15	11.4	8.9	0.4	8.5
SH,CO	810002099	15	2	215.6	0.54	16.88	33.24	.	16.36	26.6	36	37.4	20.8	12.4	8.4
SS	810002100	19	1.1	159.2	0.17	5.31	112.06	.	106.75	62.6	21	16.4	10.7	4.2	6.5
SH	810002101	13	2.1	244.6	1.02	31.88	21.69	10.19	.	19.6	35	45.4	17.3	9.1	8.2
CO	COAL														
SH	810002102	9	4.9	219.6	0.07	2.19	41.35	.	39.16	20.6	30	49.4	23.6	15.4	8.2
SS,SH	810002103	8	1.9	86.6	0.17	5.31	52.93	.	47.62	68.6	14	17.4	9.5	3.8	5.7
SH,CO	810002104	15	0.7	243.2	0.18	5.63	61.83	.	56.2	26.6	31	42.4	26.7	20.5	6.2
SS	810002105	13	0.5	174.5	0.01	0.31	10.7	.	10.39	43.6	28.4	28	16.7	8.1	8.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23146C
DATE CORED:26APR1981
DATE REPORTED:27MAR1985

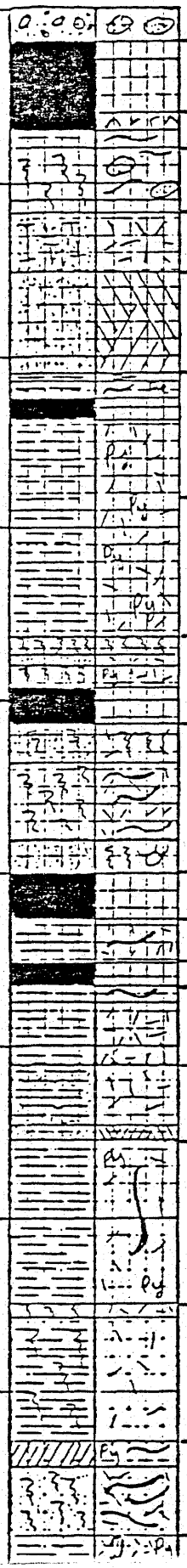
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	810002070	0.3	0.03	0.01	<0.6	33	0.9	9	28.5	13.8	6.5		1.1
SO	810002071	0.3	0.02	0.01	<0.6	33	1.1	9.1	26.5	21.3	5.6		1.6
SO	810002072	<0.1	0.01	<0.01	<0.6	10	2.2	6.8	8.9	45.4	2.4		15.7
SO	810002073	<0.1	<0.01	<0.01	0.9	27	0.3	2.6	17.6	13.5	2.5		0.5
SO	810002074	0.1	<0.01	0.01	0.6	31	0.2	2.1	20.3	9.5	2		0.2
SO	810002075	0.1	<0.01	<0.01	<0.6	16	<0.1	2.2	20.8	7.9	1.5		0.1
SD	810002076	0.2	<0.01	<0.01	<0.6	12	0.2	1.6	36.8	10.2	1.6		<0.1
SS	810002077	0.3	<0.01	0.02	<0.6	13	0.2	0.7	40.9	15.2	<1		0.1
SS	810002078	0.1	<0.01	<0.01	<0.6	13	0.2	1	38.2	10.5	1.1		<0.1
MS	810002079	0.7	0.02	0.04	<0.6	<10	6.2	13.3	274.7	20.9	23.7		2.9
SS,SH	810002080	1.1	<0.01	0.01	<0.6	<10	3.9	8.1	72	13.4	16.7		3.6
CO	COAL												
SH,SL	810002081	0.7	<0.01	<0.01	<0.6	<10	8.2	9.2	280.1	74.7	20.7		7
SS	810002082	0.3	<0.01	0.03	<0.6	<10	1.7	3.5	147.9	57.7	5.6		3.4
SH,SL	810002083	0.4	<0.01	0.08	<0.6	<10	4	10.5	155.6	35.4	16.3		4.1
SH,CO	810002084	<0.1	<0.01	0.07	<0.6	<10	7.6	7.4	295.6	67.1	25.2		10.1
CO	COAL												
SH	810002085	1	<0.01	0.02	<0.6	<10	4.8	9.7	178.7	16.3	14.4		8.6
CO	COAL												
SH,SS,SL	810002086	1.7	<0.01	0.05	<0.6	<10	10.3	8.4	249.7	13.9	14.8		8.4
SS	810002087	0.2	<0.01	<0.01	<0.6	<10	1.5	1.9	116	7.9	6.8		2
MS,SH,CO,SL	810002088	1.1	0.01	0.02	<0.6	<10	9.7	4.5	371.9	31.1	16.7		9.7
SS	810002089	0.3	<0.01	<0.01	<0.6	<10	0.9	1.8	109.3	10.5	5.7		1.9
SH,SL	810002090	0.7	<0.01	0.02	<0.6	<10	5.5	5.6	296.9	55.8	9.3		7.9
SH	810002091	1.5	<0.01	0.02	<0.6	<10	10.3	7.3	298.5	64.1	18.7		8.2
SH,SS	810002092	0.6	<0.01	0.02	<0.6	<10	1.3	3.4	103.3	12.5	9.3		6.1
CO	COAL												
SH,CO	810002093	2.8	0.03	0.11	<0.6	<10	5.7	4.9	430.5	13.8	19.1		12.9
SH,SL	810002094	0.4	1	0.07	<0.6	<10	1.1	10.8	91.9	2.6	15.5		3.3
SH	810002095	0.9	0.85	0.14	<0.6	<10	2.4	13.1	85.6	3.6	17.3		4.8
SH,SL,SS	810002096	0.7	<0.01	<0.01	<0.6	<10	2.5	5.8	153.8	5.6	9.4		8.9
SH,CO	810002097	0.6	<0.01	0.08	<0.6	<10	3.4	9.2	118.7	20.4	15.1		4.3
SS	810002098	0.2	<0.01	0.02	<0.6	<10	0.6	1.9	150	6.6	5.9		1.2
SH,CO	810002099	0.6	0.18	0.08	<0.6	<10	3.8	9.8	118.5	29	19.5		3.8
SS	810002100	0.1	<0.01	0.04	<0.6	<10	0.9	3.8	143.6	7.6	8.1		1.9
SH	810002101	0.4	<0.01	0.14	<0.6	<10	3.7	7	118.7	14	21.4		4.2
CO	COAL												
SH	810002102	0.4	0.09	0.2	<0.6	24	1.9	10.1	90.3	6.1	18.1		2.1
SS,SH	810002103	0.2	<0.01	0.03	<0.6	<10	2.1	4.5	136.5	7.4	6.1		1.8
SH,CO	810002104	1.2	0.25	0.14	<0.6	<10	1.1	8.3	42.1	1	7.6		4.7
SS	810002105	0.4	0.54	0.06	0.6	10	2.4	3.5	35.8	1	21.4		1.7

J. Elliott PAGE 1

LOCATION S 22806.0 E 53745.0 DATE DRILLED 5/6/81 SUB AREA J-16

ELEVATION 6765.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2106 R-81-2107	50.6	5.0	9.1	4.4	2.5	0.01	7.0
R-81-2108	61.1	0.2	1.0	27.4	14.8	0.47	3.2
R-81-2109	73.9	2.3	16.4	25.6	70.0	0.57	2.9
R-81-2110	54.9	1.4	7.7	26.0	33.2	0.23	3.2
R-81-2111	51.7	1.0	4.4	23.0	18.1	0.33	3.2
R-81-2112	42.3	0.6	3.8	29.2	35.5	0.25	6.7
R-81-2113	53.3	0.8	5.4	27.7	73.8	1.71	3.4
R-81-2114	57.1	0.8	6.5	25.6	56.0	2.87	4.8
R-81-2115	49.1	0.5	3.1	32.0	39.6	1.33	6.3
R-81-2116	54.6	2.7	8.6	12.4	8.6	0.08	7.3
N1X	-	(7.46)	-	(12.563)	-	(1.13)	(4.7)
R-81-2117	53.5	1.0	6.7	27.7	54.6	2.22	3.0
-	-	(14.38)	-	(11,671)	-	(1.06)	(4.2)
R-81-2118	71.9	12.5	22.2	3.6	2.7	0.12	7.0
R-81-2119	52.9	19.2	18.2	1.2	0.6	0.05	8.5
R-81-2120	67.2	10.6	31.4	1.5	0.3	0.17	8.7
R-81-2121	77.2	29.5	27.2	1.1	0.6	0.12	9.1
R-81-2122	50.6	37.9	39.7	1.8	0.4	0.19	7.5

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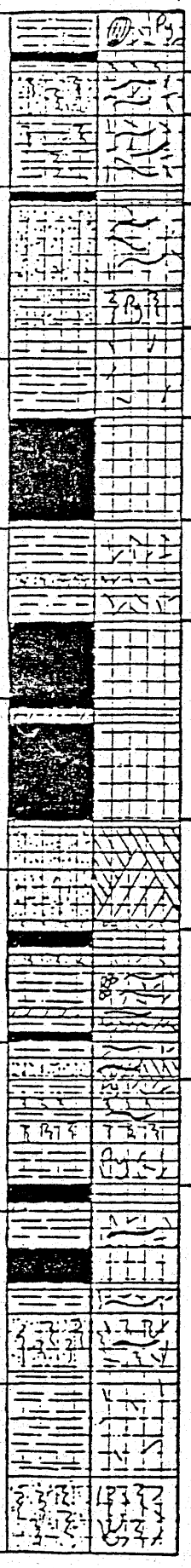
LOCATION S 22806.0
E 53745.0
6765.0

DATE DRILLED 5/6/81

SUB AREA J-16



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2123	56.8	53.8	56.4	1.3	0.9	0.75	6.6
R-81-2124	40.2	35.1	27.2	0.9	0.3	0.09	8.3
R-81-2125	56.6	56.7	43.9	0.7	0.5	0.59	7.2
R-81-2126	38.1	14.6	27.2	3.6	3.3	0.06	8.2
R-81-2127	50.4	29.2	62.7	8.4	0.8	0.85	7.0
EOX	-	(6.32)	-	(12,904)	-	(0.49)	(8.0)
R-81-2128	54.5	31.2	20.9	0.8	0.1	0.04	8.9
E1X E2X	-	(7.0)	-	(12,862)	-	(0.54)	(7.9)
R-81-2129	42.1	9.4	23.0	11.3	0.6	0.28	7.2
R-81-2130	46.7	26.1	35.5	2.3	1.4	0.59	7.2
R-81-2131	46.6	18.8	23.0	2.0	1.0	0.05	8.6

SEP 3 1986
OCT 27 1986

LOCATION S 22806.0 E 53745.0

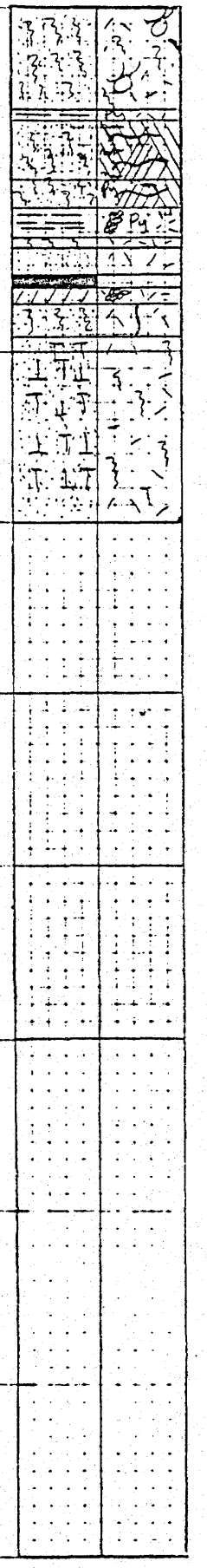
ELEVATION 6765.0

DRILLER J. Elliott

DATE DRILLED 5/6/81

HOLE NO. 3

SUB AREA J-16



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

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23147C
DATE CORED:06MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	810002106	7.5	52.7	1.3	9.6	3.6	2	5.8					6.8
SO	1	810002107	6.6	48.5	1.5	8.6	5.3	2.9	4.2					4.7
CO,SH	2	810002108	3.2	61.1	5.1	20.8	27.4	14.8	4.5					5.1
CO,SH	6	810002109	2.9	73.9	7.5	16.4	25.6	70	2.3					2.1
SL	8	810002110	3.2	54.9	4.8	7.7	26	33.2	1.4					0.7
LOST	11	LOST												
MS	11.7	810002111	3.2	51.7	4	4.4	23	18.1	1					0.2
SS	15.1	810002112	6.7	42.3	4.2	3.8	29.2	35.5	0.6					-0.4
SH,CO	21	810002113	3.4	53.3	6.7	5.4	27.7	73.8	0.8					-0.1
SH	28.1	810002114	4.8	57.1	5.4	6.5	25.6	56	0.8					-0.1
SL,SS,SH,CO	36.4	810002115	6.3	49.1	4.5	3.1	32	39.6	0.5					-0.5
SS,SL	41.3	810002116	7.3	54.6	2.5	8.6	12.4	8.6	2.7					2.7
CO	49.9	COAL												
SH	52.7	810002117	3	53.5	6.9	6.7	27.7	54.6	1					0.2
CO	55.1	COAL												
SH,SL	56.6	810002118	7	71.9	2.8	22.2	3.6	2.7	12.5					14.7
SH,SS	61.2	810002119	8.5	52.9	2.1	18.2	1.2	0.6	19.2					21.3
SH	65.6	810002120	8.7	67.2	2.9	31.4	1.5	0.3	10.6					12.6
SL,SH	75	810002121	9.1	77.2	2.5	27.2	1.1	0.6	29.5					29.7
SH,SL	82.9	810002122	7.5	50.6	2.3	39.7	1.8	0.4	37.9					35.3
SH,CO	88.4	810002123	6.6	56.8	5.2	56.4	1.3	0.9	53.8					43.9
SS	93.6	810002124	8.3	40.2	2.5	27.2	0.9	0.3	35.1					33.6
SH,CO	96	810002125	7.2	56.6	3.9	43.9	0.7	0.5	56.7					45.2
SS	101.2	810002126	8.2	38.1	2.8	27.2	3.6	3.3	14.6					16.9
SH	108.2	810002127	7	50.4	6.6	62.7	8.4	0.8	29.2					29.5
CO	113.4	COAL												
SH,SL	119.7	810002128	8.9	54.5	1.8	20.9	0.8	0.1	31.2					30.9
CO	125.4	COAL												
SH,SS,SL	137.2	810002129	7.2	42.1	3.2	23	11.3	0.6	9.4					11.2
CO,SH,SL,SS	143.5	810002130	7.2	46.7	3.5	35.5	2.3	1.4	26.1					27.1
SH,SL	152.2	810002131	8.6	46.6	2.2	23	2	1	18.8					20.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23147C
DATE CORED:06MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	810002106	13	5.4	106.4	0.01	0.31	4.75	.	4.44	27.6	29	43.4	20.1	13.8	6.3
SO	810002107	14	10.9	87.1	0.01	0.31	3.66	.	3.35	54.6	18	27.4	14.5	8.3	6.2
CO,SH	810002108	22	2.4	284.2	0.47	14.69	-9.51	24.2	.	63.6	17	19.4	29.5	19	10.5
CO,SH	810002109	102	2.1	278.3	0.57	17.81	-26.25	44.06	.	63.6	17	19.4	36.8	23.8	13
SL	810002110	44	0.9	91.4	0.23	7.19	-15.6	22.79	.	36.6	31	32.4	20.2	9.9	10.3
LOST	LOST														
MS	810002111	22	<0.1	62.6	0.33	10.31	-3.78	14.09	.	36.1	35.5	28.4	15.5	8.5	7
SS	810002112	8	3.3	32	0.25	7.81	33.68	.	25.87	61.6	26.9	11.5	14.5	4.6	9.9
SH,CO	810002113	7	10.2	63.8	1.71	53.44	1.04	52.4	.	41.6	38	20.4	17.4	8.3	9.1
SH	810002114	10	24.5	193.7	2.87	89.69	6.82	82.87	.	21.2	44.4	34.4	19.6	9.4	10.2
SL,SS,SH,CO	810002115	15	5.4	79.7	1.33	41.56	59.88	.	18.32	61.2	22.8	16	12	6.7	5.3
SS,SL	810002116	17	1.3	151.1	0.08	2.5	46.48	.	43.98	38.2	31.8	30	15.8	9.9	5.9
CO	COAL														
SH	810002117	22	4.6	80.2	2.22	69.38	-0.95	70.33	.	44.2	30.8	25	15.9	9.1	6.8
CO	COAL														
SH,SL	810002118	29	4.4	339	0.12	3.75	28.19	.	24.44	18.2	31.8	50	29.9	18	11.9
SH,SS	810002119	16	1.6	301.1	0.05	1.56	34.14	.	32.58	25.2	28.8	46	25.2	20	5.2
SH	810002120	24	1.7	374.1	0.17	5.31	12.73	.	7.42	9.2	34.8	56	45.6	32.5	13.1
SL,SH	810002121	14	1.6	310	0.12	3.75	53.72	.	49.97	22.2	30.8	47	41	34.2	6.8
SH,SL	810002122	9	1.4	154.6	0.19	5.94	13.01	.	7.07	41.2	30.8	28	21.7	10.1	11.6
SH,CO	810002123	12	2.6	177	0.75	23.44	7.92	15.52	.	30.8	38.2	31	21.1	8.9	12.2
SS	810002124	5	1.8	97	0.09	2.81	54.25	.	51.44	56.2	27.4	16.4	15.5	6.1	9.4
SH,CO	810002125	9	2.9	198.4	0.59	18.44	34.22	.	15.78	23.2	39.4	37.4	25.7	15.3	10.4
SS	810002126	6	1.4	37.5	0.06	1.88	77.98	.	76.1	74.2	16.4	9.4	11.8	3.6	8.2
SH	810002127	11	2.3	213.7	0.85	26.56	28.41	.	1.85	19.2	39.4	41.4	20.8	8.1	12.7
CO	COAL														
SH,SL	810002128	13	1	257.9	0.04	1.25	33.1	.	31.85	30.2	31.4	38.4	32.9	23.1	9.8
CO	COAL														
SH,SS,SL	810002129	4	0.9	40.6	0.28	8.75	74.31	.	65.56	54.2	33.4	12.4	15.1	4.1	11
CO,SH,SL,SS	810002130	4	0.9	148.7	0.59	18.44	16.8	1.64	.	55.2	20.8	24	16.8	8.8	8
SH,SL	810002131	7	1.3	315.5	0.05	1.56	63.61	.	62.05	25.2	31.8	43	29.7	20	9.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23147C
DATE CORED:06MAY1981
DATE REPORTED:27MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	810002106	0.6	0.09	0.02	<0.6	32	0.5	5.5	27.7	14.9	4.2		0.6
SO	810002107	0.4	0.03	0.03	<0.6	48	0.4	5	81.3	11.9	3.6		0.6
CO,SH	810002108	0.8	<0.01	0.02	<0.6	<10	2.5	3.5	462.2	5.4	11.8		1.9
CO,SH	810002109	1.4	0.03	<0.01	<0.6	<10	3.8	2.8	538.7	7.7	11		3.7
SL	810002110	1.4	<0.01	0.01	<0.6	<10	2.3	7.3	334.6	45.7	12.5		5.4
LOST	LOST												
MS	810002111	0.6	<0.01	0.01	<0.6	<10	3.6	6	439.7	19.6	17.8		4.5
SS	810002112	<0.1	<0.01	0.01	<0.6	<10	0.8	1.6	60.8	15.8	5.4		1.7
SH,CO	810002113	1.1	0.01	0.03	<0.6	<10	7.6	4.5	426.3	6.6	27.1		COAL
SH	810002114	1.2	0.03	0.04	<0.6	<10	11.7	5.9	312.4	8.4	28.3		7.7
SL,SS,SH,CO	810002115	1.1	<0.01	0.04	<0.6	<10	2.4	3.5	307.4	37.5	6.7		COAL
SS,SL	810002116	0.3	<0.01	0.13	<0.6	<10	1.6	5.3	43.8	4	14.6		2.2
CO	COAL												
SH	810002117	1	0.25	0.06	<0.6	<10	12.5	6.6	441.6	36.3	36.7		7.8
CO	COAL												
SH,SL	810002118	0.2	0.01	0.07	<0.6	18	1.9	9.3	43.3	11	12.9		2.9
SH,SS	810002119	0.2	0.07	0.01	<0.6	<10	1.5	4.2	47.6	8	9.8		4.4
SH	810002120	0.5	0.27	0.06	<0.6	17	1.6	7.7	26.1	1.5	14		2.1
SL,SH	810002121	<0.1	0.15	0.11	<0.6	<10	1.6	5.6	37.8	3.2	11.7		2.6
SH,SL	810002122	0.6	0.11	0.06	<0.6	<10	1.3	4.7	35.5	2	6.6		6.9
SH,CO	810002123	0.6	<0.01	0.02	<0.6	<10	3.4	4.7	129.5	4.4	8.6		COAL
SS	810002124	<0.1	0.12	0.04	1.2	<10	1.5	3	50.7	10.4	9.9		3.5
SH,CO	810002125	0.5	<0.01	0.03	0.6	<10	3.3	6.7	70.3	14.2	11.2		COAL
SS	810002126	<0.1	<0.01	0.01	<0.6	<10	0.7	1.3	74.4	5.4	4.2		1.6
SH	810002127	0.2	<0.01	0.07	<0.6	<10	3.4	5.7	61.1	14.1	14.9		3.9
CO	COAL												
SH,SL	810002128	0.2	0.17	0.17	<0.6	12	2.7	3.5	29.2	1.1	11.4		2.8
CO	COAL												
SH,SS,SL	810002129	0.1	<0.01	0.12	<0.6	<10	1.7	2.1	65	3.4	5.4		3.6
CO,SH,SL,SS	810002130	1.3	<0.01	0.14	<0.6	<10	1.7	5	57	1.4	6.3		COAL
SH,SL	810002131	0.7	0.09	0.16	<0.6	<10	2	4.9	60.2	1	7.1		4.1

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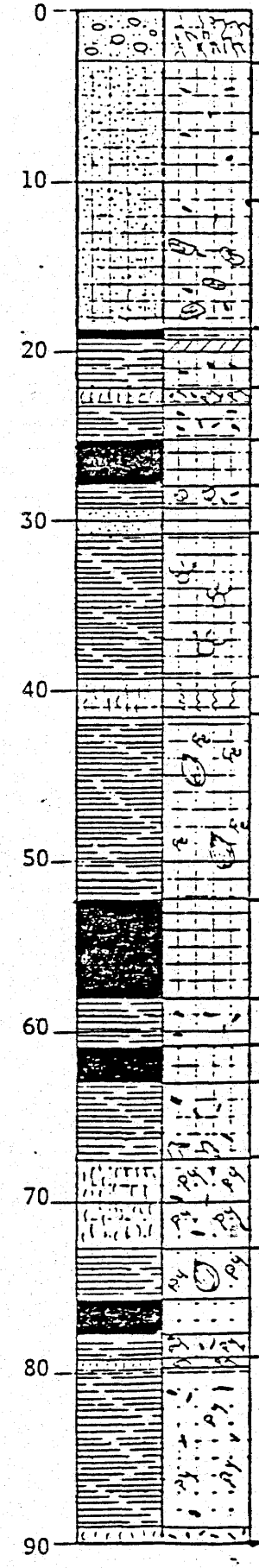
LOCATION S 19594.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 56313.0

ELEVATION 6782.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2132 R-81-2133 R-81-2134	51.8	4.6	6.5	1.1	2.7	0.02	8.3
R-81-2135	84.3	6.0	21.7	6.8	19.6	0.02	7.9
R-81-2136	50.5	3.1	12.5	5.9	25.8	0.05	7.9
R-81-2137	40.2	2.4	10.0	6.9	29.3	0.06	7.3
R-81-2138	57.9	2.5	17.6	24.1	74.9	1.75	2.9
R-81-2139	52.9	3.2	20.1	21.2	56.2	1.49	4.2
MXX	-	(7.16)	-	(12,543)	-	(1.42)	(6.2)
R-18-2140	44.4	21.5	44.3	4.9	3.6	0.49	7.1
R-81-2141	56.7	31.6	64.4	5.2	3.1	1.65	6.6
R-81-2142	44.2	12.5	49.3	20.8	10.3	0.91	6.6
R-81-2143	49.5	26.0	63.5	7.2	4.7	1.43	7.2
YOX	-	(5.8)	-	(12,837)	-	(0.68)	(6.6)
R-81-2144	57.9	4.1	19.2	23.1	19.9	1.18	6.9
YYX	-	(5.0)	-	(12,835)	-	(0.71)	7.9
R-18-2145	53.6	39.6	45.2	1.4	1.2	1.09	5.6
R-81-2146	40.1	13.6	39.3	10.5	6.2	0.33	7.3
R-81-2147	50.8	16.1	81.1	29.7	21.0	2.47	4.0
R-81-2148	52.6	26.9	84.5	13.7	6.1	2.03	6.7

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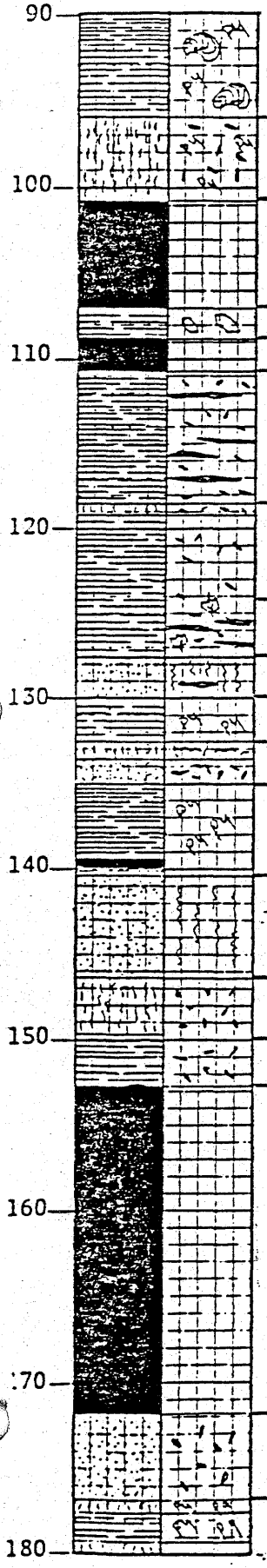
DRILLER J. Elliott PAGE 2

LOCATION S 19594.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 56313.0

ELEVATION 6782.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2149	52.6	40.3	78.6	1.5	6.1	2.96	6.7
R-81-2150	56.2	27.5	85.3	10.6	8.6	1.03	5.5
NOX	-	(11.9)	-	(12,107)	-	(0.94)	(8.0)
R-81-2151	60.8	40.4	61.9	3.1	1.6	2.20	7.0
N1X	-	(35.6)	-	(8,616)	-	(1.29)	(7.9)
R-81-2152	73.7	40.0	33.5	0.7	0.7	0.46	7.8
R-81-2153	75.3	34.5	40.1	2.0	0.7	0.35	8.2
R-81-2154	38.5	38.1	42.6	1.6	0.9	1.16	6.2
R-81-2155	58.3	25.9	21.7	0.6	0.8	0.08	8.7
R-81-2156	40.8	38.1	36.1	0.8	0.9	1.09	8.2
R-81-2157	38.3	19.0	21.7	0.9	1.7	0.09	8.7
R-81-2158	57.1	49.6	41.5	0.9	0.5	0.85	6.8
R-81-2159	36.6	25.7	24.4	0.8	1.0	0.07	8.4
R-81-2160	50.3	34.2	54.0	2.8	2.2	0.93	7.3
R-81-2161	64.9	48.9	48.1	1.4	2.0	1.09	7.1
EXX	-	(6.87)	-	(12,817)	-	(0.41)	(7.9)
R-81-2162	48.2	8.1	27.0	11.3	11.0	0.29	5.2

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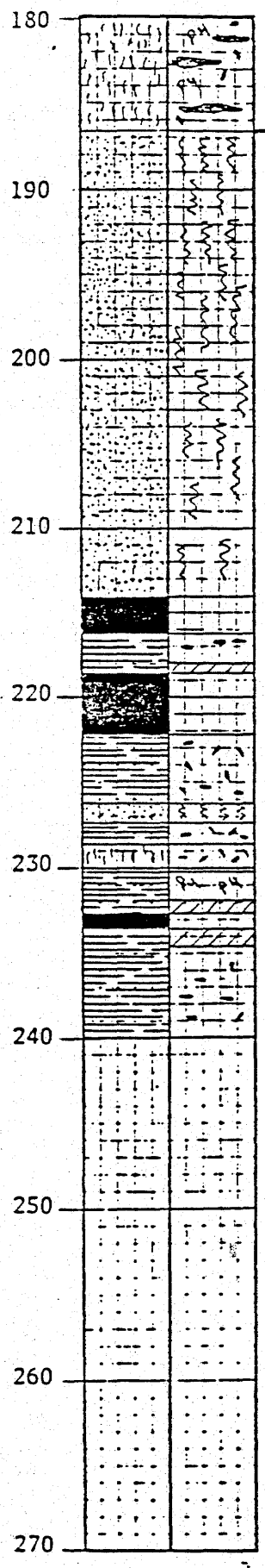
DRILL NO. 15148C DRILLER J. Elliott PAGE 3

LOCATION S 19594.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 56313.0

ELEVATION 6782.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2163	42.3	25.7	24.4	0.7	0.5	0.23	7.4
E3A							
E3B							

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23148C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	810002132	8	52.6	0.6	3.3	1.5	1.5	2.7					2.7
SO	1	810002133	8.5	46.3	0.7	5	0.8	2.1	4.2					4.7
SO	2	810002134	8.4	56.6	1.5	11.3	1	4.5	6.8					8.1
SS	3	810002135	7.9	48.3	4	21.7	6.8	19.6	6					7.1
SS	7	810002136	7.9	50.5	3.8	12.5	5.9	25.8	3.1					3.2
SS	11	810002137	7.3	40.2	3.8	10	6.9	29.3	2.4					2.2
CO,SH	18.7	810002138	2.9	57.9	9.5	17.6	24.1	74.9	2.5					2.4
SL,SH	22.1	810002139	4.2	52.9	6.8	20.1	21.2	56.2	3.2					3.4
CO	25.2	COAL												
SH,SS	28	810002140	7.1	44.4	4.8	44.3	4.9	3.6	21.5					23.3
SH	30.7	810002141	6.6	56.7	6.7	64.4	5.2	3.1	31.6					31.2
SL	39.2	810002142	6.6	44.2	6.5	49.3	20.8	10.3	12.5					14.7
SH	41.5	810002143	7.2	49.5	6.8	63.5	7.2	4.7	26					27.1
CO	52.2	COAL												
SH	58	810002144	6.9	57.9	4.7	19.2	23.1	19.9	4.1					4.6
CO	60.8	COAL												
SH	62.8	810002145	5.6	53.6	5.1	45.2	1.4	1.2	39.6					36.4
SL	67.3	810002146	7.3	40.1	4.8	39.3	10.5	6.2	13.6					15.8
SH,CO	72.7	810002147	4	50.8	10.8	81.1	29.7	21	16.1					18.4
SL,SH	79.2	810002148	6.7	52.6	8.5	84.5	13.7	6.1	26.9					27.8
SH	89.8	810002149	6.7	52.6	8.5	78.6	1.5	6.1	40.3					36.8
SL	95.9	810002150	5.5	56.2	9	85.3	10.6	8.6	27.5					28.2
CO	101.1	COAL												
SH	107	810002151	7	60.8	6.1	61.9	3.1	1.6	40.4					36.8
CO	108.9	COAL												
SH	110.7	810002152	7.8	73.7	3.7	33.5	0.7	0.7	40					36.6
SL,SH	118.5	810002153	8.2	75.3	4.2	40.1	2	0.7	34.5					33.2
SH	124.2	810002154	6.2	38.5	4.7	42.6	1.6	0.9	38.1					35.5
SS	127.6	810002155	8.7	58.3	2.3	21.7	0.6	0.8	25.9					27
SH	130	810002156	8.2	40.8	3.7	35.1	0.8	0.9	38.1					35.5
SL,SS	132.5	810002157	8.7	38.3	2	21.7	0.9	1.7	19					21.1
SH,CO	135	810002158	6.8	57.1	4	41.5	0.9	0.5	49.6					41.8
SS	140.3	810002159	8.4	36.6	2.3	24.4	0.8	1	25.7					26.8
SL	146.3	810002160	7.3	50.3	5.3	54	2.8	2.2	34.2					33
SH	149.8	810002161	7.1	64.9	4.6	48.1	1.4	2	48.9					41.5
CO	152.7	COAL												
SS	171.8	810002162	5.2	48.2	3.9	27	11.3	11	8.1					9.6
SL,SH	176.9	810002163	7.4	42.3	2.7	24.4	0.7	0.5	25.7					26.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23148C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	810002132	7	1.6	88.1	0.04	1.25	184.07	.	182.82	45.2	26.4	28.4	26.3	12	14.3
SO	810002133	4	1.2	53.3	<0.01	0.31	77.38	.	77.07	53.2	29.4	17.4	21.5	11.4	10.1
SO	810002134	7	1.4	88.1	0.03	0.94	65.08	.	64.14	39.2	33.4	27.4	22.7	4.4	18.3
SS	810002135	4	0.9	77.4	0.02	0.63	41.2	.	40.57	52.8	23.2	24	19	7.5	11.5
SS	810002136	7	2.2	68.5	0.05	1.56	71.22	.	69.66	55.2	25.8	19	16.3	7.8	8.5
SS	810002137	14	2	63.8	0.06	1.88	12.07	.	10.19	75.2	12.8	12	13.5	7.3	6.2
CO,SH	810002138	98	0.3	4.7	1.75	54.69	-7.95	-62.64	.	44.6	30.4	25	23.9	10.5	13.4
SL,SH	810002139	25	7.5	59.8	1.49	46.56	23.53	-23.03	.	39.6	32.4	28	18.1	8	10.1
CO	COAL														
SH,SS	810002140	8	2.7	109.6	0.49	15.31	43.13	.	27.82	50.6	28.8	20.6	14	6.9	7.1
SH	810002141	9	6.6	178.8	1.65	51.56	26.74	-24.82	.	13.6	48.4	38	18.9	9	9.9
SL	810002142	9	2.8	118.2	0.91	28.44	51.64	.	23.2	55.6	28.8	15.6	12	6	6
SH	810002143	12	5.3	172.6	1.43	44.69	46.88	.	2.19	32	36.4	31.6	17.7	8.9	8.8
CO	COAL														
SH	810002144	14	3.5	271.6	1.18	36.88	19.67	17.21	.	20	38.4	41.6	20.5	9.4	11.1
CO	COAL														
SH	810002145	16	1.2	111.9	1.09	34.06	8.78	25.28	.	45.6	29.8	24.6	19.7	9.3	10.4
SL	810002146	5	1.5	68.1	0.33	10.31	105.48	.	95.17	61	25.4	13.6	12.6	5.5	7.1
SH,CO	810002147	10	7.9	9.2	2.47	77.19	13.89	63.3	.	56	23.4	20.6	17.1	7.7	9.4
SL,SH	810002148	13	8	183.1	2.03	63.44	45.69	17.75	.	24.6	43.8	31.6	17.1	7.9	9.2
SH	810002149	11	18.4	132.6	2.96	92.5	8.49	84.01	.	13.6	48.8	37.6	19.5	8.8	10.7
SL	810002150	11	2.2	104.5	1.03	32.19	50	.	17.81	55.6	24.8	19.6	9.8	5.6	4.3
CO	COAL														
SH	810002151	12	1.1	201.7	2.2	68.75	7.78	60.97	.	19.6	45.2	35.2	21.1	9.9	11.2
CO	COAL														
SH	810002152	15	0.3	333.5	0.46	14.38	23.71	.	9.33	13.6	29.8	56.6	44.4	32.4	12
SL,SH	810002153	16	0.4	363.9	0.35	10.94	38.16	.	27.22	30	10.4	59.6	44.3	31.1	13.2
SH	810002154	16	0.9	192.8	1.16	36.25	5.36	30.89	.	20.6	45.8	33.6	21.1	10.1	11
SS	810002155	4	0.1	113.6	0.08	2.5	52.76	.	50.26	58.6	25.8	15.6	13.3	5.8	7.5
SH	810002156	10	3.3	254.2	1.09	34.06	8.28	25.78	.	20.6	37.8	41.6	31.1	15.9	15.2
SL,SS	810002157	11	1	193.7	0.09	2.81	46.68	.	43.87	50.1	26.3	23.6	18.5	7.2	11.3
SH,CO	810002158	12	2.3	208.4	0.85	26.56	12.32	14.24	.	18.4	45.2	36.4	33.3	9.9	23.4
SS	810002159	5	0.8	74.9	0.07	2.19	215.58	.	213.39	67.2	20.6	12.2	21	5.4	15.6
SL	810002160	8	0.8	185.3	0.93	29.06	38.45	.	9.39	25.6	40	34.4	25.2	7	18.2
SH	810002161	19	4.8	249.1	1.09	34.06	7.79	26.27	.	10.6	41.4	48	39	14.1	24.9
CO	COAL														
SS	810002162	<2	1.5	22	0.29	9.06	20.04	.	10.98	46.6	38.4	15	23.1	7.2	15.9
SL,SH	810002163	9	0.7	119.3	0.23	7.19	11.73	.	4.54	31.6	42.4	26	27.7	7.3	20.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23148C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	810002132	0.5	0.02	0.03	<0.6	22	0.3	1.8	15.7	13.5	1.3		1.1
SO	810002133	0.7	<0.01	0.02	<0.6	21	0.1	0.9	12.7	1	2.2		0.4
SO	810002134	0.4	<0.01	0.03	<0.6	<10	<0.1	1.7	9.9	1	1.6		0.6
SS	810002135	0.2	<0.01	<0.01	<0.6	23	<0.1	1.1	15	1	1.1		0.3
SS	810002136	<0.1	<0.01	<0.01	<0.6	<10	0.2	3.4	23.7	1	3		0.9
SS	810002137	<0.1	0.01	0.02	<0.6	15	0.2	1.6	39.2	1	1.2		1.4
CO,SH	810002138	2	0.26	0.03	<0.6	<10	8.3	5.9	422.1	1.5	24.6		COAL
SL,SH	810002139	0.6	<0.01	0.03	<0.6	<10	7.5	5.8	286.5	2.6	13		8.5
CO	COAL												
SH,SS	810002140	0.3	<0.01	0.06	<0.6	<10	2.9	6.5	139.2	1.8	8		7.2
SH	810002141	0.5	<0.01	<0.01	<0.6	<10	8.1	8	209.9	3.1	12.3		6.9
SL	810002142	0.3	<0.01	0.01	<0.6	<10	3.2	4.7	138.5	3.4	6.9		5
SH	810002143	0.4	<0.01	<0.01	<0.6	<10	2.7	5.5	164.5	60	10.4		8
CO	COAL												
SH	810002144	0.3	<0.01	<0.01	<0.6	<10	8.2	10.2	230.1	17.8	21.2		6.9
CO	COAL												
SH	810002145	1.1	<0.01	0.01	<0.6	<10	6.8	6.1	241.4	17.4	11.2		12.7
SL	810002146	0.1	<0.01	0.01	<0.6	<10	1.9	2.8	104.6	6.6	6.6		3.6
SH,CO	810002147	1	<0.01	0.03	<0.6	<10	8.2	3.9	444.2	43.1	13.5		COAL
SL,SH	810002148	0.3	<0.01	<0.01	<0.6	<10	8.8	6.4	272.9	40.2	10.1		7.4
SH	810002149	0.8	<0.01	0.04	<0.6	<10	10.8	6.2	314.5	43	15.2		8.3
SL	810002150	0.3	<0.01	0.03	<0.6	12	2.5	2.9	149.2	14.3	7.8		5.1
CO	COAL												
SH	810002151	1.1	0.04	0.06	<0.6	14	11.9	10.6	252.2	14.2	18.7		9.8
CO	COAL												
SH	810002152	1.3	0.31	0.16	<0.6	21	1.9	10.3	89	1	13		9.8
SL,SH	810002153	0.7	0.23	0.11	0.9	16	2.2	11.5	88.9	1	16.9		6.8
SH	810002154	2	0.02	0.07	0.6	13	5	5.3	214.4	1.5	8		12.8
SS	810002155	0.3	0.05	0.07	<0.6	<10	2	3.4	63.4	2	10.2		2.8
SH	810002156	1.4	<0.01	0.16	<0.6	18	6.3	11.5	189.9	3.8	11.6		11.4
SL,SS	810002157	0.4	0.09	0.04	<0.6	13	1.9	5.9	87.3	10.2	13.7		3.5
SH,CO	810002158	1.1	<0.01	0.04	<0.6	22	4.3	7.2	125.4	10.9	9.5		COAL
SS	810002159	0.5	0.01	0.06	<0.6	13	0.8	3.2	123.8	6.3	6.7		2.4
SL	810002160	0.4	0.01	0.09	<0.6	19	2.9	6.2	57.3	12.4	18.2		2.7
SH	810002161	0.6	<0.01	0.09	<0.6	26	6.2	7.3	201.3	7.4	16.6		5.2
CO	COAL												
SS	810002162	0.4	<0.01	<0.01	<0.6	28	3.3	1.6	60.7	2.3	10		3.1
SL,SH	810002163	0.7	0.05	0.06	<0.6	19	2.7	7	52.3	2.7	11.7		4.3

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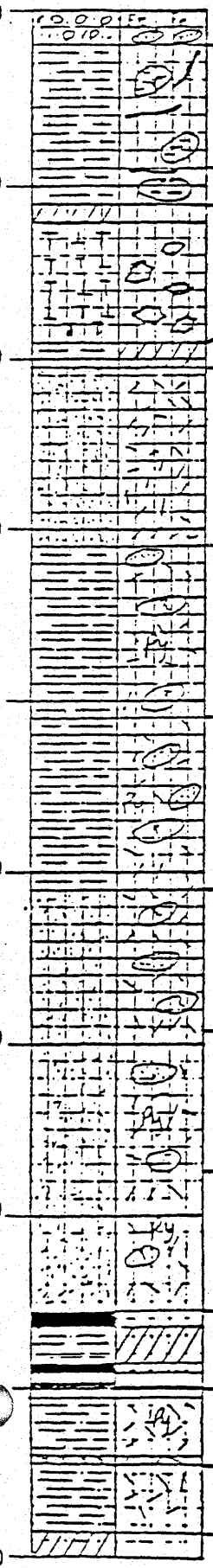
TION S 21106.0 DATE DRILLED 4/27/81 SUB AREA J-16

E 52138.0

ION 6781.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-1946 R-81-1947	52.3	4.4	4.0	3.9	1.7	0.20	7.6
R-81-1948	61.7	0.9	3.9	26.2	14.4	0.84	3.7
R-81-1949	49.5	0.8	3.4	32.8	8.0	0.56	6.3
R-81-1950	59.4	1.8	8.0	24.7	16.1	0.81	3.3
Lost							
R-81-1951	38.6	2.0	8.9	23.7	16.7	0.19	7.5
R-81-1952	55.5	7.1	15.2	7.4	1.7	0.06	8.4
R-81-1953	46.9	10.1	15.7	3.5	1.3	0.06	8.3
R-81-1954	38.2	5.3	11.8	5.6	4.3	0.03	8.0
R-81-1955	42.2	3.5	11.6	12.1	10.4	0.15	7.1
R-81-1956	38.1	2.6	10.1	21.2	10.1	0.41	6.3
R-81-1957	71.6	25.1	34.2	2.8	0.9	0.52	7.5
R-81-1958	109.4	39.2	29.1	0.3	0.8	0.35	8.4
R-81-1959	88.0	26.4	25.7	0.7	1.2	0.12	9.4

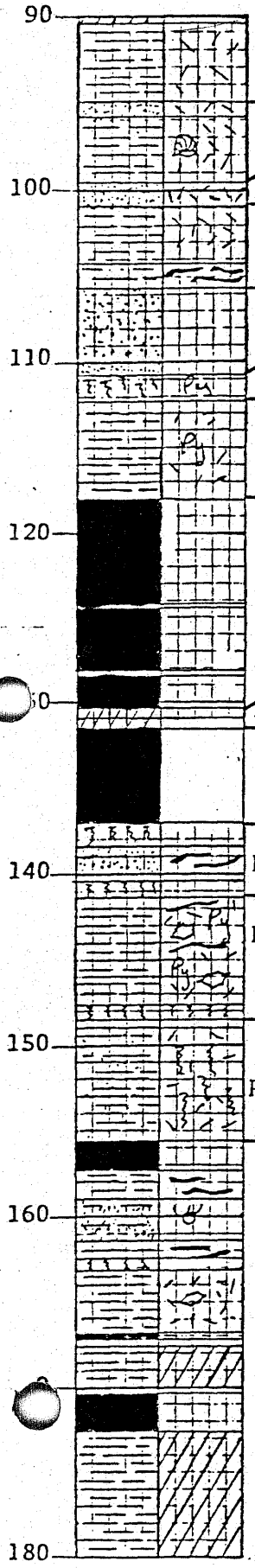
OCT 27 1986

E NO. 23325C DRILLER G. Hopkins PAGE 2

ATION S 21106.0 DATE DRILLED 4/27/81 SUB AREA J-16

E 52138.0

VA' 6781.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-1960	67.6	20.6	29.1	3.6	0.4	0.70	8.0
R-81-1961	61.0	35.2	37.7	2.0	0.3	0.96	8.0
R-81-1962	36.2	27.9	25.7	1.0	0.7	0.10	8.5
R-81-1963	69.4	19.6	27.4	3.5	0.4	0.70	8.3
R-81-1964	34.0	26.6	19.7	0.8	0.3	0.02	8.9
R-81-1965	36.1	31.6	27.4	1.0	0.5	0.13	8.5
R-81-1966	60.7	32.7	47.9	3.6	0.7	0.87	7.9
E01	-	11.71	-	12,028	-	0.58	8.1
R-81-1967	42.0	20.7	24.0	1.7	1.0	0.30	8.0
E2X	-	6.87	-	12,880	-	0.67	8.0
R-81-1968	48.1	7.7	21.4	12.1	3.2	0.33	6.9
R-81-1969	42.5	8.8	23.5	13.2	1.2	0.35	8.1
R-81-1970	56.9	13.1	48.5	19.3	8.3	1.74	6.0

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23325C

LOCATION S 21106.0

E 52138.0

ELEVATION 6781.8

DRILLER G. Hopkins

DATE DRILLED 4/27/81

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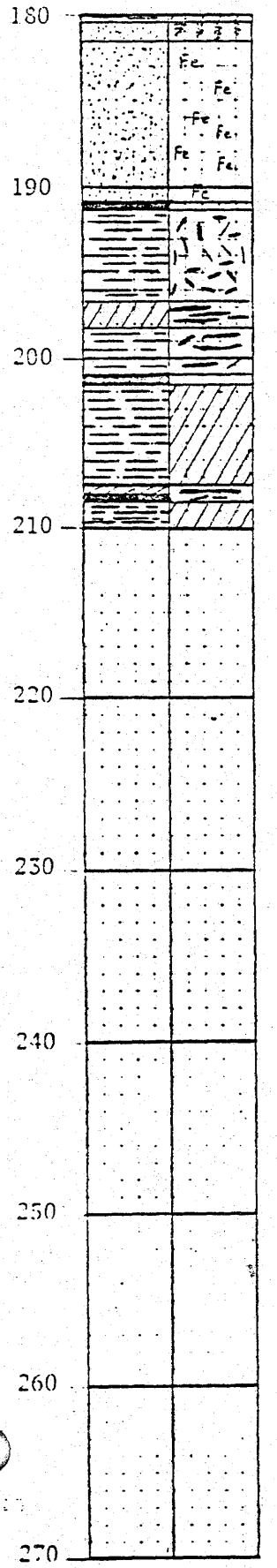
SUB AREA J-16



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

OCT 27 1986

SEP- 3 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23325C
DATE CORED:27APR1981
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	810001946	7.6	47.1	0.8	3.3	4.4	1.2	2					1.7
SO	1	810001947	7.5	57.5	0.8	4.8	3.5	2.2	2.8					2.8
SH	2	810001948	3.7	61.7	3.4	3.9	26.2	14.4	0.9					0.1
SH	9	810001949	6.3	49.5	4.2	3.4	32.8	8	0.8					-0.1
SH,MS	11	810001950	3.3	59.4	5.8	8	24.7	16.1	1.8					1.4
LOST	19.1	LOST												
SS	20.4	810001951	7.5	38.6	3.7	8.9	23.7	16.7	2					1.7
SH	31	810001952	8.4	55.5	2.2	15.2	7.4	1.7	7.1					8.4
SH	41	810001953	8.3	46.9	1.8	15.7	3.5	1.3	10.1					12
SS	51	810001954	8	38.2	1.9	11.8	5.6	4.3	5.3					6.2
SS	59.2	810001955	7.1	42.2	2.9	11.6	12.1	10.4	3.5					3.8
SS	67.4	810001956	6.3	38.1	4.7	10.1	21.2	10.1	2.6					2.5
CO,SH	75.6	810001957	7.5	71.6	3.8	34.2	2.8	0.9	25.1					26.3
SH	79.9	810001958	8.4	109.4	2.8	29.1	0.3	0.8	39.2					36.1
SL,SH	84	810001959	9.4	88	2.5	25.7	0.7	1.2	26.4					27.4
SH	88.5	810001960	8	67.6	3.1	29.1	3.6	0.4	20.6					22.6
SS,SH	95	810001961	8	61	3.7	37.7	2	0.3	35.2					33.6
SS	99.6	810001962	8.5	36.2	2.5	25.7	1	0.7	27.9					28.5
SH	100.9	810001963	8.3	69.4	2.9	27.4	3.5	0.4	19.6					21.7
SS	105.7	810001964	8.9	34	1.8	19.7	0.8	0.3	26.6					27.5
SL	110.8	810001965	8.5	36.1	2.8	27.4	1	0.5	31.6					31.2
SH	112.3	810001966	7.9	60.7	4.8	47.9	3.6	0.7	32.7					32
CO	118.1	COAL												
SH	130.4	810001967	8	42	2.3	24	1.7	1	20.7					22.6
CO	131.6	COAL												
SL,SS	137.1	810001968	6.9	48.1	3.1	21.4	12.1	3.2	7.7					9.2
SH,SL	141.3	810001969	8.1	42.5	4	23.5	13.2	1.2	8.8					10.5
SH	148.5	810001970	6	56.9	6.2	48.5	19.3	8.3	13.1					15.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23325C
DATE CORED:27APR1981
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	810001946	3	4.6	95.6	0.13	4.06	30.95	.	26.89	55.4	22.8	21.8	30.6	9.1	21.5
SO	810001947	<2	4	104.9	0.38	11.88	21.48	.	9.6	43.4	25.8	30.8	36.3	12.5	23.8
SH	810001948	2	25.8	108.7	0.84	26.25	3.88	22.37	.	41.4	29.8	28.8	25.5	14.7	10.8
SH	810001949	8	26.2	54.9	0.56	17.5	25.71	.	8.21	61	25.2	13.8	30.8	8.8	22
SH,MS	810001950	41	15.8	23.6	0.81	25.31	4.72	20.59	.	52	29.2	18.8	47.7	12.1	35.6
LOST	LOST														
SS	810001951	<2	1.8	67.8	0.19	5.94	25.76	.	19.82	77.4	13.8	8.8	28.6	3.1	25.5
SH	810001952	8	2	246.7	0.06	1.88	50.95	.	49.07	30	39.2	30.8	32.1	9.1	23
SH	810001953	6	1.5	145	0.06	1.88	21.49	.	19.61	52	26.2	21.8	26.4	5.6	20.8
SS	810001954	3	1.2	67.1	0.03	0.94	76.29	.	75.35	76	14.2	9.8	28.1	2.6	25.5
SS	810001955	<2	1.4	62.5	0.15	4.69	37.46	.	32.77	74	14.2	11.8	28.9	3.6	25.3
SS	810001956	<2	1.2	35.7	0.41	12.81	26.54	.	13.73	82	11.2	6.8	25.8	2.4	23.4
CO,SH	810001957	13	2.7	285.4	0.52	16.25	13.64	2.61	.	36	14.2	6.8	54.3	16.9	37.4
SH	810001958	21	0.7	412.8	0.35	10.94	8.44	2.5	.	4.4	30.8	64.8	84.7	28.4	56.3
SL,SH	810001959	18	0.8	363.9	0.12	3.75	33.63	.	29.88	14.4	28.8	56.8	53.4	1.9	51.5
SH	810001960	11	2.4	213.9	0.7	21.88	5.62	16.26	.	24.4	38.2	37.4	35.8	4	31.8
SS,SH	810001961	8	1.1	189.7	0.96	30	9.9	20.1	.	36.4	33.2	30.4	28	2.7	25.3
SS	810001962	3	0.8	129.6	0.1	3.13	81.74	.	78.61	64.4	19.2	16.4	12.4	3.8	8.6
SH	810001963	12	1.1	236	0.7	21.88	9.4	12.48	.	13.4	39.2	47.4	41.3	10.7	30.6
SS	810001964	3	<0.1	35.6	0.02	0.63	99.46	.	98.83	76.4	13.2	10.4	19.1	1.9	17.2
SL	810001965	7	0.7	124.8	0.13	4.06	100.95	.	96.89	66.4	19.2	14.4	17.2	5	12.2
SH	810001966	6	1.2	220.5	0.87	27.19	23.08	4.11	.	11.8	42.8	45.4	11.8	10.1	1.7
CO	COAL														
SH	810001967	4	0.9	200.7	0.3	9.38	12.49	.	3.11	71.4	7.2	21.4	19.3	10.6	8.7
CO	COAL														
SL,SS	810001968	3	0.4	55.7	0.33	10.31	16.5	.	6.19	45.4	37.8	16.8	20	6.4	13.6
SH,SL	810001969	11	1.3	174.2	0.35	10.94	30.62	.	19.68	26.2	35.2	38.6	21	4.1	16.9
SH	810001970	9	1.7	178.8	1.74	54.38	2.28	52.1	.	35.4	31	33.6	20.2	8.5	11.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23325C
DATE CORED:27APR1981
DATE REPORTED:27MAR1985

Dry Basis

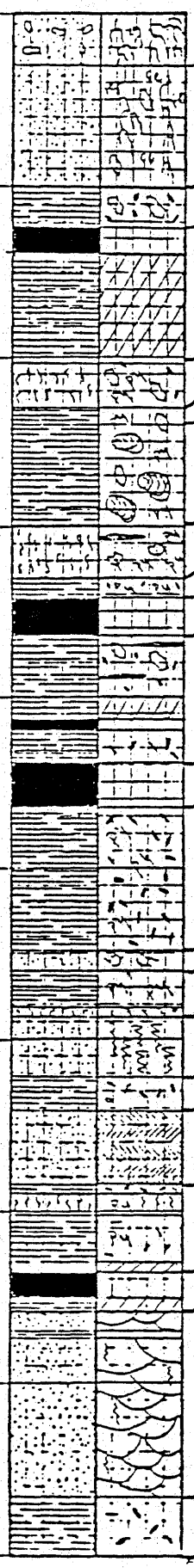
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	810001946	0.3	0.01	<0.01	<0.6	21	1.3	3.4	47.3	55.7	2		2.6
SO	810001947	0.5	0.02	<0.01	<0.6	50	1	4.9	47.6	35.1	3.8		1.5
SH	810001948	1.1	<0.01	<0.01	<0.6	78	1	6.1	390.8	17.7	2.9		1.8
SH	810001949	<0.1	<0.01	<0.01	<0.6	20	0.3	4.5	362.6	17.8	2.4		1.9
SH,MS	810001950	0.9	0.06	0.05	<0.6	22	5.1	4.5	423.2	16.6	43.8		5.4
LOST	LOST												
SS	810001951	0.1	<0.01	<0.01	<0.6	18	0.5	2.8	148.2	13.4	4.5		1.2
SH	810001952	0.7	0.02	0.04	1.3	18	1.9	7	156.7	14.3	15.1		2.2
SH	810001953	0.4	0.01	<0.01	<0.6	12	1.5	6.9	141.1	14.2	11.7		1.1
SS	810001954	0.3	<0.01	<0.01	<0.6	<10	1.1	3.4	136.8	6.5	6.9		0.6
SS	810001955	0.4	<0.01	<0.01	<0.6	10	1.4	3.7	117.9	7.2	5.9		1.6
SS	810001956	<0.1	<0.01	<0.01	<0.6	20	1.7	2.3	284.4	28.3	2.7		2.4
CO,SH	810001957	3.3	0.12	0.36	<0.6	<10	1.3	9.1	155.8	2.6	12		3.6
SH	810001958	1.4	0.16	0.4	<0.6	18	1.9	15	113	1.3	22.3		4.4
SL,SH	810001959	0.6	0.22	0.19	<0.6	19	1.9	9.8	71.7	2.3	12.3		2.1
SH	810001960	1.9	0.17	0.19	<0.6	<10	2.6	6.7	182.1	2.3	9.9		1.3
SS,SH	810001961	0.8	<0.01	0.08	<0.6	18	4.2	7.7	247.5	9.2	11.8		5.2
SS	810001962	0.2	0.12	0.04	0.6	<10	1.8	4.3	247.6	15	10.7		4.1
SH	810001963	1.1	0.51	0.18	0.9	24	4	11.5	106.3	9.2	17.3		4.5
SS	810001964	0.1	0.01	0.02	<0.6	<10	0.5	1.5	182.9	6.5	4.3		0.6
SL	810001965	0.2	0.14	0.09	<0.6	<10	3.5	7	241.5	14.1	13.7		3.8
SH	810001966	0.2	0.21	0.14	<0.6	<10	3.9	8	113.6	10.4	19.8		1.8
CO	COAL												
SH	810001967	2.4	0.04	0.25	<0.6	<10	0.5	9.1	62.9	1.5	6.2		2
CO	COAL												
SL,SS	810001968	0.3	<0.01	0.06	<0.6	16	3.5	2.9	109.3	4	8.3		2.9
SH,SL	810001969	0.2	0.1	0.1	<0.6	23	3.1	8.4	98.1	1.2	8.6		4.4
SH	810001970	0.6	0.01	<0.01	<0.6	17	10.7	11.6	315.6	21.2	19.4		10.2

JOB NO. 23328C DRILLER G. HOPKINS PAGE 1

LOCATION S 19668.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 57764.0

ELEVATION 6730.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	ES	pH
R-81-2011 R-81-2012 R-81-2013	75.2	11.9	70.1	21.7	107.1	.42	8.1
R-81-2014	44.4	3.6	25.2	29.2	69.7	0.38	6.4
R-81-2015	53.0	1.1	6.4	29.4	33.0	1.44	3.1
R-81-2016	55.5	5.9	31.8	25.2	33.0	2.03	4.9
R-81-2017	59.2	23.6	62.3	1.4	12.5	2.70	6.1
Lost							
R-81-2018	63.2	20.9	80.6	21.0	8.8	3.28	6.5
R-81-2019	42.4	11.4	50.1	24.7	14.0	1.03	7.1
R-81-2020	56.9	23.9	58.6	7.8	4.2	1.94	6.5
R-81-2021 NOA	75.6	25.0	44.0	3.9	2.3	2.01	5.5
R-81-2022	65.5	38.6	58.6	3.2	1.4	1.74	6.3
N1X R-81-2023	78.4	41.2	24.4	0.4	0.3	1.98	6.3
R-81-2024	71.2	60.1	40.3	0.5	0.4	0.45	7.1
R-81-2025	38.1	21.5	40.3	5.5	1.4	0.15	7.2
R-81-2026	54.6	37.3	39.1	0.7	1.5	0.59	7.2
R-81-2027	36.2	21.6	25.6	0.8	2.0	0.11	8.4
R-81-2028	66.9	40.7	46.4	1.6	1.0	1.11	6.1
R-81-2029	35.2	19.4	20.8	1.9	0.4	0.06	8.6
R-81-2030	58.8	39.3	40.3	1.6	0.5	0.94	8.1
R-81-2031	51.0	15.4	16.2	0.5	1.7	0.33	8.0
R-81-2032	28.1	28.6	21.2	0.5	0.6	0.03	8.8
R-81-2033	44.5	10.7	22.0	1.6	6.8	<0.01	9.2

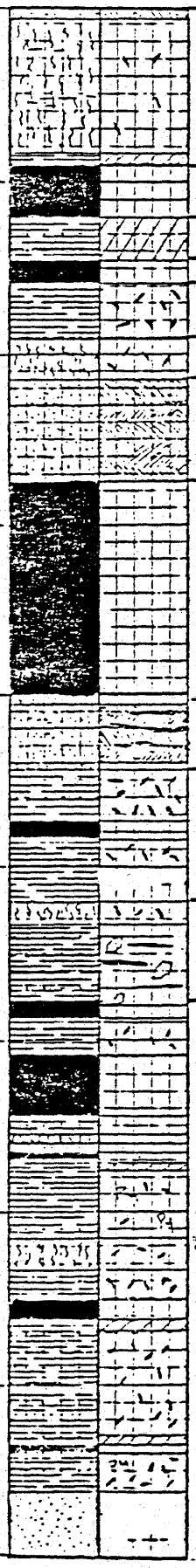
SEP 3 1986
OCT 27 1986

LE NO. 23328C DRILLER G. Hopkins PAGE 2

CATION S 19668.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 57764.0

ON 6730.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-81-2034	46.8	25.6	21.4	1.0	0.4	0.04	9.3
EOA -	-	(6.93)	-	(12,878)	-	(0.48)	(8.4)
R-81-2068	74.4	25.2	16.9	0.4	0.5	0.03	9.1
EOB -	-	(10.76)	-	-	-	(0.50)	(8.5)
R-81-2035	57.3	17.2	20.3	1.5	1.3	0.05	9.3
R-81-2036	40.5	17.2	19.6	1.6	1.0	0.03	9.0
R-81-2037	30.2	20.4	17.1	0.5	0.4	0.03	9.1
- E12	-	(5.07)	-	(12,082)	-	(0.48)	(8.1)
R-81-2038	42.2	5.9	25.9	28.3	10.3	0.37	7.1
R-81-2039	45.2	33.1	28.7	0.9	0.6	0.55	7.6
R-81-2040	36.8	30.3	28.7	1.2	0.6	0.60	8.2
E3A							
E3B							

OCT 27 1986
SEP 3 1986

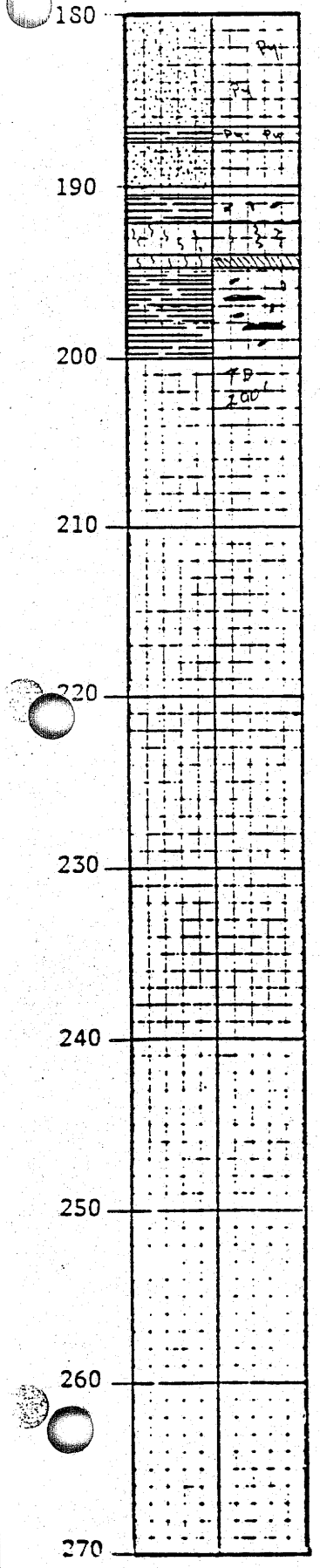
... NO. 233280 ... G. Hopkins PAGE 3

LOCATION S 19668.0 DATE DRILLED 5/11/81 SUB AREA J-16

E 57764.0

ELEVATION 6730.8

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



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SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23328C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	810002011	7.7	65.3	4.1	12.3	17.9	26.2	2.6					2.5
SO	1	810002012	8.9	69.8	13.2	46.6	24.4	150	5					5.7
SO	2	810002013	7.6	90.7	12.3	41.1	23	145.1	4.5					5.1
SS,SD	3	810002014	6.4	44.4	7.7	25.2	29.2	69.7	3.6					3.9
SH	10	810002015	3.1	53	6.1	6.4	29.4	33	1.1					0.4
CO,SH	12.2	810002016	4.9	55.5	6.5	31.8	25.2	33	5.9					6.9
SL	20.2	810002017	6.1	59.2	7.5	62.3	1.4	12.5	23.6					25.1
LOST	22.9	LOST												
SH	24	810002018	6.5	63.2	8.9	80.6	21	8.8	20.9					22.8
SL	29.9	810002019	7.1	42.4	7.2	50.1	24.7	14	11.4					13.5
SH	33.1	810002020	6.5	56.9	6.7	58.6	7.8	4.2	23.9					25.4
CO	34.2	810002021	5.5	75.6	5	44	3.9	2.3	25					26.3
SH,CO	36.4	810002022	6.3	65.5	6.1	58.6	3.2	1.4	38.6					35.8
CO	43.9	810002023	6.3	78.4	2.9	24.4	0.4	0.3	41.2					37.3
SH	46.4	810002024	7.1	71.2	4.3	40.3	0.5	0.4	60.1					46.6
SS	54.8	810002025	7.2	38.1	4.7	40.3	5.5	1.4	21.5					23.3
SH,SL	55.9	810002026	7.2	54.6	4.2	39.1	0.7	1.5	37.3					35
SS	58.7	810002027	8.4	36.2	2.8	25.6	0.8	2	21.6					23.4
SH	62.1	810002028	6.1	66.9	4.9	46.4	1.6	1	40.7					37
SS	64.2	810002029	8.6	36.2	2.6	20.8	1.9	0.4	19.4					21.5
MS,SL,SH	68.5	810002030	8.1	58.8	4.2	40.3	1.6	0.5	39.3					36.2
SH,CO	73.3	810002031	8	51	1.5	16.2	0.5	1.7	15.4					17.7
SS,SH	75.8	810002032	8.8	28.1	2.1	21.2	0.5	0.6	28.6					29
SH	86.5	810002033	9.2	44.5	2.2	22	1.6	6.8	10.7					12.7
SS,SL,SH	90	810002034	9.3	46.8	2	21.4	1	0.4	25.6					26.7
CO	98.9	COAL												
SH	102	810002068	9.1	74.4	1.5	16.9	0.4	0.5	25.2					26.4
CO	104.2	COAL												
SH	106	810002035	9.3	57.3	1.8	20.3	1.5	1.3	17.2					19.4
SL	109.2	810002036	9	40.5	1.8	19.6	1.6	1	17.2					19.4
SS	111.6	810002037	9.1	30.2	1.9	17.1	0.5	0.4	20.4					22.4
CO	117.3	COAL												
SL,SS	130.2	810002038	7.1	42.2	4.4	25.9	28.3	10.3	5.9					6.9
SH,CO	134.4	810002039	7.6	45.2	2.7	28.7	0.9	0.6	33.1					32.2
SL,SH	142	810002040	8.2	36.8	2.8	28.7	1.2	0.6	30.3					30.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23328C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	810002011	5	3.4	179.3	0.18	5.63	16.17	.	10.54	28	35.5	36.5	27.2	11.5	15.7
SO	810002012	18	8.9	85.5	0.41	12.81	24.7	.	11.89	30.5	31.7	37.8	28.1	16.1	12
SO	810002013	30	6.4	23.8	0.89	27.81	12.8	15.01	.	15.5	33	51.5	31.7	15.8	15.9
SS,SD	810002014	8	6.4	9.4	0.38	11.88	23.02	.	11.14	47.4	31.2	21.4	18.1	5.1	13
SH	810002015	11	17.9	60.6	1.44	45	3.61	41.39	.	28.8	47.8	23.4	18.9	7.9	11
CO,SH	810002016	11	10.3	125.2	2.03	63.44	8.09	55.35	.	28.6	44.6	26.8	17.9	7.7	10.2
SL	810002017	15	4.5	207.2	2.7	84.38	27.91	56.47	.	22.2	46	31.8	18.2	7.3	10.9
LOST	LOST														
SH	810002018	15	16.2	226.2	3.28	102.5	13.2	89.3	.	14.2	49.6	36.2	22.5	9.7	12.8
SL	810002019	4	3.8	100.8	1.03	32.19	92.79	.	60.6	63.6	22.2	14.2	12.5	4	8.5
SH	810002020	9	4.1	165	1.94	60.63	19.1	41.53	.	25.2	43.6	31.2	18.4	7.4	11
CO	810002021	8	6	10.2	2.01	62.81	7.87	54.94	.	88.2	8.6	3.2	13.7	12.7	1
SH,CO	810002022	14	2.7	217.6	1.74	54.38	9.98	44.4	.	34.2	30.6	35.2	26.2	11.9	14.3
CO	810002023	7	2.6	19.9	1.98	61.88	9.19	52.69	.	95.2	4.6	0.2	16.9	13.5	3.4
SH	810002024	15	2.2	270	0.45	14.06	16.74	.	2.68	25.2	28.6	46.2	39.9	20.4	39.9
SS	810002025	8	1.6	56.5	0.15	4.69	16.15	.	11.46	66.2	21.6	12.2	13.4	4.1	9.3
SH,SL	810002026	9	3.2	208.6	0.59	18.44	6.46	11.98	.	19.2	41.6	39.2	27.8	15	12.8
SS	810002027	12	1.9	113.1	0.11	34.38	74.2	.	39.82	59.2	22.6	18.2	23.2	6.2	17
SH	810002028	10	4.4	183.9	1.11	34.69	8.27	26.46	.	77.2	15.6	7.2	20.5	7.7	12.8
SS	810002029	5	1.8	75.4	0.06	1.88	269.72	.	267.84	15.6	47.2	37.2	10.1	3.7	6.4
MS,SL,SH	810002030	12	2.7	212.4	0.94	29.38	63.95	.	34.57	32.2	31.6	36.2	24.2	13.2	11
SH,CO	810002031	8	0.5	129.5	0.33	10.31	9.11	1.2	.	66.2	12.6	21.2	29.8	13.2	16.6
SS,SH	810002032	6	0.7	97.3	0.03	0.94	32.3	.	31.36	70.2	15.6	14.2	18.2	4.8	13.4
SH	810002033	6	0.8	195.8	<0.01	0.31	10.87	.	10.56	36.2	35.6	28.2	25	10.3	14.7
SS,SL,SH	810002034	9	1.2	247.9	0.04	1.25	43.27	.	42.02	34.2	67.4	34.2	33.1	24.1	9
CO	COAL														
SH	810002068	6	1.7	261.2	0.03	0.94	7.81	.	6.87	10.6	34.0	55.4	48.8	31.9	16.9
CO	COAL														
SH	810002035	8	1.2	281.2	0.05	1.56	4.13	.	2.57	15.2	44.6	40.2	38.8	20.5	18.3
SL	810002036	4	1	190	0.03	0.94	8.8	.	7.86	51.2	26.6	22.2	18.9	8.1	10.8
SS	810002037	5	0.8	84.3	0.03	0.94	92.65	.	91.71	78.7	11.1	10.2	8.9	3.7	5.2
CO	COAL														
SL,SS	810002038	4	0.5	53.2	0.37	11.56	50.02	.	38.46	47.4	37.6	15	13.9	3.8	10.1
SH,CO	810002039	11	1.3	181.4	0.55	17.19	7.82	9.37	.	44.2	26	29.8	17.9	7.7	10.2
SL,SH	810002040	9	0.5	204.2	0.6	18.75	85.11	.	66.36	45.6	22	32.4	16.8	7.3	9.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J-16
CORE NO:23328C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	810002011	1.6	<0.01	<0.01	<0.6	20	0.5	1.9	26.7	16.3	2.4		3.2
SO	810002012	1.5	<0.01	<0.01	<0.6	22	0.5	4.2	37.1	11	6.1		3.5
SO	810002013	1.4	<0.01	<0.01	<0.6	68	0.3	3.3	43.9	4.6	1.3		1
SS,SD	810002014	0.5	<0.01	<0.01	<0.6	<10	0.2	3.4	111.2	10	5.1		1.2
SH	810002015	1.4	0.03	0.04	<0.6	<10	8.6	8	365.1	91.2	22.5		7
CO,SH	810002016	0.7	0.01	<0.01	0.6	<10	9.2	6.2	271.2	5.5	23.2		8.5
SL	810002017	0.5	<0.01	<0.01	<0.6	<10	6.7	7	243.2	5.2	8.5		6.7
LOST	LOST												
SH	810002018	0.7	0.02	<0.01	<0.6	<10	9.7	6.4	263.1	5.5	16.9		6.6
SL	810002019	0.3	<0.01	<0.01	<0.6	<10	1.5	2.6	107.7	10.6	9.9		4.4
SH	810002020	0.4	<0.01	<0.01	0.6	12	6.2	6.9	211	40.5	13		7.5
CO	810002021	5.6	0.01	<0.01	0.7	<10	1.2	1	744.8	13.4	4.9		COAL
SH,CO	810002022	2.1	<0.01	0.13	<0.6	<10	4.1	7.1	258.9	5.4	10.8		10.1
CO	810002023	5	0.03	0.14	<0.6	<10	0.7	1.5	457.7	2.8	1.2		COAL
SH	810002024	0.9	0.31	0.22	<0.6	<10	2.3	7.9	69.3	1.4	10.7		7.2
SS	810002025	0.3	0.04	0.04	<0.6	<10	1.8	2.7	45.4	3.5	11		2
SH,SL	810002026	0.6	0.3	0.13	0.6	18	5.2	8.3	98.1	6.4	16.4		4.8
SS	810002027	0.3	0.17	0.07	<0.6	17	1.4	3.8	100.6	8.7	11.9		3.1
SH	810002028	0.5	0.02	0.03	0.9	14	9.1	7.9	203.9	22.6	17.5		4.7
SS	810002029	0.8	0.03	0.06	<0.6	<10	0.8	3.2	88.3	6.8	8.4		2.6
MS,SL,SH	810002030	0.4	0.19	0.11	<0.6	<10	2.4	5.5	82.9	9.3	16.5		4.7
SH,CO	810002031	3.2	0.07	0.22	<0.6	18	0.3	4.7	22.8	1	1.1		8.7
SS,SH	810002032	0.2	0.91	0.06	<0.6	<10	1.9	1.5	44.2	1.8	12.6		1.4
SH	810002033	0.3	0.96	0.12	<0.6	33	0.8	2.9	19.7	1	19.9		0.6
SS,SL,SH	810002034	0.4	0.2	0.16	<0.6	26	1.4	2.9	40.2	2.3	15.2		2.2
CO	COAL												
SH	810002068	0.5	0.20	0.18	<0.6	<10	1.6	9.3	28.2	<1	4.2		6.1
CO	COAL												
SH	810002035	0.4	0.88	0.19	<0.6	11	2	3.2	20.5	1	20.6		2.9
SL	810002036	0.4	0.64	0.15	<0.6	16	1.5	3.7	19	1	18.1		2.4
SS	810002037	<0.1	0.53	0.07	<0.6	12	1.5	2	80.5	2	11.7		1.2
CO	COAL												
SL,SS	810002038	0.2	<0.01	0.09	<0.6	<10	1.9	1.9	107.4	1.8	6.9		3
SH,CO	810002039	1	0.01	0.14	<0.6	<10	4.5	9.6	137.5	4	12.7		7.8
SL,SH	810002040	0.5	<0.01	0.13	<0.6	<10	2.2	6	150.1	4.5	9.9		8.1

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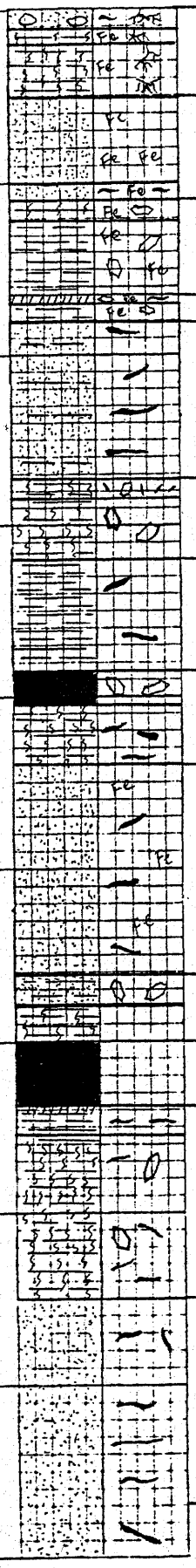
LOCATION S 24318.0 DATE DRILLED 6-14-85 SUB AREA J-16

E 56104.0

ELEVATION 6719.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001180	56.9	3.3	14.0	17.0	19.7	0.03	7.7
850001181	34.1	1.7	11.2	23.3	60.2	<0.01	7.8
850001182	41.1	1.7	12.9	23.8	88.3	0.35	5.2
850001183	54.3	4.7	28.8	21.6	53.2	0.43	3.6
850001184	38.2	7.1	15.2	2.7	6.5	<0.01	7.6
850001185	65.4	24.4	12.2	0.3	0.2	0.05	9.0
850001186	70.2	29.1	13.0	0.3	0.1	0.06	9.0
850001187	53.4	55.4	12.4	<0.1	< 0.1	0.08	8.9
850001188	32.2	57.7	12.9	0.1	< 0.1	<0.01	9.3
850001189	60.9	80.9	18.1	0.1	< 0.1	0.03	9.2
E1X	(N/A)	(7.06)		(12,777)		(0.43)	(8.1)
850001190	32.4	33.1	10.6	< 0.1	< 0.1	<0.01	9.0
850001191	36.7	7.2	13.5	3.7	3.4	0.01	8.2

SEP 3 1986

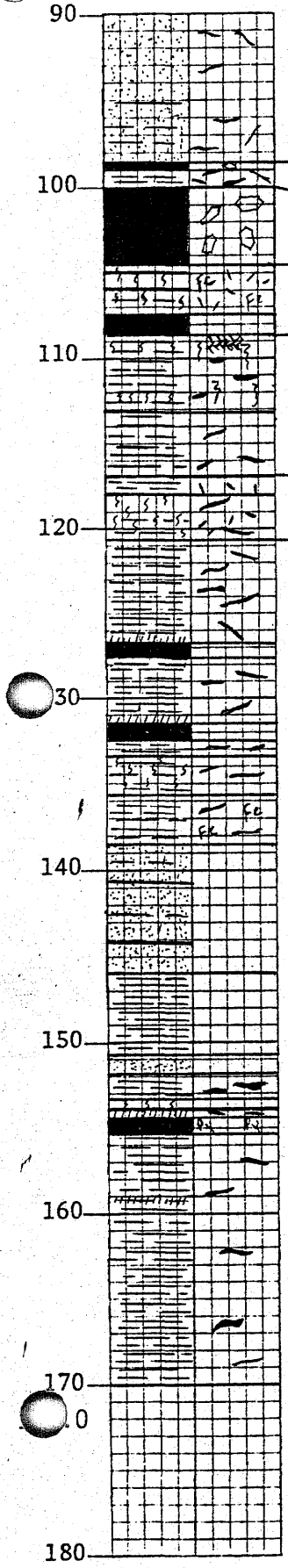
OCT 27 1986

HOLE NO. 26462C DRILLER D. Hopkins PAGE 2

LOCATION S 24318.0 DATE DRILLED 6-14-85 SUB AREA J-16

E 56104.0

ELEVATION 6719.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001192	36.9	4.9	9.8	3.7	4.4	< 0.01	8.2
850001193	53.7	40.6	13.0	< 0.1	< 0.1	0.32	8.7
E2X	(N/A)	(10.23)		(12,505)		(0.61)	(7.9)
850001194	34.8	21.1	14.9	0.7	0.3	0.23	7.6
850001195	43.8	14.7	25.1	4.5	1.3	0.48	8.1
850001196	32.7	29.4	9.3	0.2	< 0.1	0.03	8.6

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26462C
DATE CORED:14JUN1985
DATE REPORTED:15AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SURF,SL,SH	0	850001180	7.7	56.9	3.9	14	17	19.7	3.3	187	2.99	0	1.7	40	3.5
SS	5.1	850001181	7.8	34.1	6.2	11.2	23.3	60.2	1.7	140	1.27	0	0.9	84	1.2
SS	11	850001182	5.2	41.1	7.9	12.9	23.8	88.3	1.7	16	<1	0	5.9	91	1.2
SH	16.6	850001183	3.6	54.3	7.3	28.8	21.6	53.2	4.7	9	4.95	0	<0.1	123	5.4
SS	18.1	850001184	7.6	38.2	2.5	15.2	2.7	6.5	7.1	11	3.15	0	3.5	20	8.4
SH,SL	27.3	850001185	9	65.4	1.4	12.2	0.3	0.2	24.4	13	10.75	0	4.1	20	25.8
SH	32	850001186	9	70.2	1.3	13	0.3	0.1	29.1	8	11.52	0.3	7.1	7	29.4
CO,SH,SL	38.6	850001187	8.9	53.4	1.2	12.4	<0.1	<0.1	55.4	10	9.75	0.9	8.5	<5	44.6
SS	43.9	850001188	9.3	32.2	1.3	12.9	0.1	<0.1	57.7	12	13.02	0.1	8	<5	45.6
SS,SH,	56.2	850001189	9.2	60.9	1.6	18.1	0.1	<0.1	80.9	19	10.2	0.5	12.6	<5	54.1
CO	60	COAL													
SH,SL	63.81	850001190	9	32.4	1.1	10.6	<0.1	<0.1	33.1	14	13.2	0	4.2	8	32.2
SS	75	850001191	8.2	36.7	2.1	13.5	3.7	3.4	7.2	10	<1	0	1.8	20	8.6
SS	86.8	850001192	8.2	36.9	1.8	9.8	3.7	4.4	4.9	16	<1	0	2.1	17	5.6
CO,SH	98.6	850001193	8.7	53.7	1.3	13	<0.1	<0.1	40.6	10	10.9	0	8.4	<5	37
CO	100	COAL													
SL,CO	104.61	850001194	7.6	34.8	1.7	14.9	0.7	0.3	21.1	11	3.09	0	3.9	12	23
SH	108.6	850001195	8.1	43.8	2.6	25.1	4.5	1.3	14.7	9	3.96	0	3.0	23	.
SH,SL	116.9	850001196	8.6	32.7	1	9.3	0.2	<0.1	29.4	16	8.92	0	4.7	<5	29.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26462C
DATE CORED:14JUN1985
DATE REPORTED:15AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SURF,SL,SH	850001180				0.03	.	0.94	13.96	.	13.02	19.2	42.6	38.2			
SS	850001181				<0.01	.	0	133.12	.	133.12	64.2	25.6	10.2			
SS	850001182				0.35	.	10.94	23.68	.	12.74	39.6	29.2	31.2			
SH	850001183				0.43	0.3	13.44	5.34	8.1	.	20.6	31.2	48.2			
SS	850001184				<0.01	.	0	36.59	.	36.59	54.6	27.8	17.6			
SH,SL	850001185				0.05	.	1.56	22.99	.	21.43	21.6	39.2	39.2			
SH	850001186				0.06	.	1.88	34.17	.	32.29	19.6	37.2	43.2			
CO,SH,SL	850001187				0.08	.	2.5	8.97	.	6.47	32.6	38.2	29.2			
SS	850001188				<0.01	.	0	44.47	.	44.47	73.6	15.2	11.2			
SS,SH,	850001189				0.03	.	0.94	26.45	.	25.51	26	37.8	36.2			
CO	COAL															
SH,SL	850001190				<0.01	.	0	5.22	.	5.22	40.4	36.8	22.8			
SS	850001191				0.01	.	0.31	18.08	.	17.77	79.4	13.8	6.8			
SS	850001192				<0.01	.	0	21.86	.	21.86	81.4	11.8	6.8			
CO,SH	850001193				0.32	.	10	12.67	.	2.67	50.4	8.8	40.8			
CO	COAL															
SL,CO	850001194				0.23	0.1	7.19	5.58	1.61	.	48.4	42.8	8.8			
SH	850001195				0.48	0.39	15.00	11.76	3.24	.	27.4	25.8	46.8			
SH,SL	850001196				0.03	.	0.94	9.24	.	8.3	36.4	33.8	29.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26462C
DATE CORED:14JUN1985
DATE REPORTED:15AUG1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SURF,SL,SH	850001180		0.03		0.6	42	<0.1	4.5	8.5	1.1	<1		
SS	850001181		<0.01		<0.6	17	<0.1	0.7	12.6	3.4	1.1		
SS	850001182		0.01		<0.6	53	1.4	3.9	128.9	17	8.1		
SH	850001183		0.02		<0.6	36	1.4	6	138.3	10.5	10		
SS	850001184		0.06		0.9	13	0.4	2	21.7	2.1	6.1		
SH,SL	850001185		0.33		<0.6	31	1.2	2.6	13.5	1	5.4		
SH	850001186		0.11		0.6	18	1.3	2.4	24.5	5.4	4.3		
CO,SH,SL	850001187		0.42		0.6	<10	1.1	2.9	12.2	1	3.7		
SS	850001188		0.5		0.9	<10	0.7	0.8	30.2	2.1	2.8		
SS,SH,	850001189		0.49		<0.6	13	1.3	1.6	32.5	4.2	4.2		
CO	COAL												
SH,SL	850001190		0.89		0.6	12	1.1	2.1	13.5	1	2.9		
SS	850001191		0.03		<0.6	15	0.4	0.4	16.2	1	2		
SS	850001192		0.01		<0.6	13	0.3	0.4	21.4	1	<1		
CO,SH	850001193		0.18		<0.6	12	0.2	4.9	15.3	1	1.1		
CO	COAL												
SL,CO	850001194		0.09		0.6	12	0.7	1	17.2	1	1.5		
SH	850001195		0.30		0.6	22	1.4	5.0	30.6	<1	7.1		
SH,SL	850001196		0.45		<0.6	13	0.6	1.7	18.8	1	1.1		

J-19 AND J-21 MINING AREAS

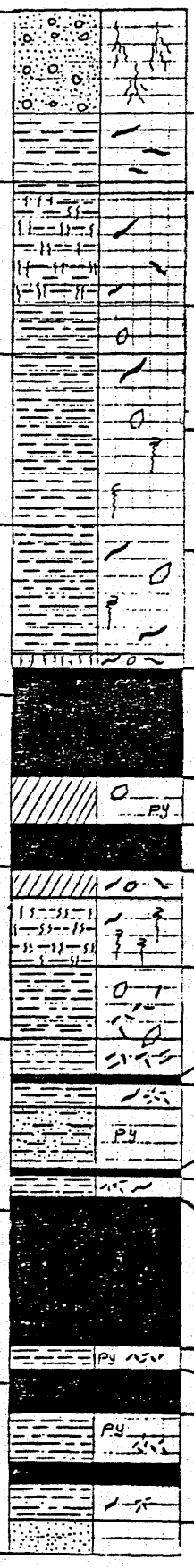
(DEEP CORES)

HOLE NO. 24292 C DRILLER G. Hopkins PAGE 1

LOCATION 32605 S DATE DRILLED 10/16/84 SUB AREA J-21

65280 E

ELEVATION 6956.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-84-2554	44.7	4.7	9.0	2.5	4.7	<0.01	8.2
R-84-2555	46.5	4.6	9.2	1.8	6.3	<0.01	8.2
R-84-2556	38.3	3.6	7.8	2.1	7.5	<0.01	7.9
R-84-2557	44.7	2.5	5.1	1.5	6.8	<0.01	8.0
R-84-2558	40.3	2.6	4.5	1.8	4.3	<0.01	8.1
R-84-2559	42.4	2.6	4.3	1.9	3.6	<0.01	8.0
GXX	----	10.84	----	12059	----	0.68	6.6
R-84-2560	51.4	7.3	8.8	1.6	1.3	0.73	8.0
BOX	----	16.28	----	11344	----	0.80	6.7
R-84-2561	39.0	34.3	18.8	0.4	0.2	0.18	8.2
R-84-2562	55.8	38.2	14.8	0.2	0.1	1.32	8.6
R-84-2563	68.4	31.3	9.9	0.1	<0.1	2.28	8.0
R-84-2564	32.4	42.2	23.1	0.4	0.2	0.82	8.2
R-84-2565	55.8	38.0	14.7	0.2	0.1	2.16	8.1
R-84-2566	44.9	55.2	21.4	0.2	0.1	1.30	8.2
RXX	----	5.34	----	12932	----	0.50	7.6
R-84-2567	40.6	47.8	23.9	0.4	0.1	1.25	7.7
R2X	----	18.92	----	10834	----	1.39	7.5
R-84-2568	39.1	48.7	15.4	<0.1	<0.1	0.88	8.0

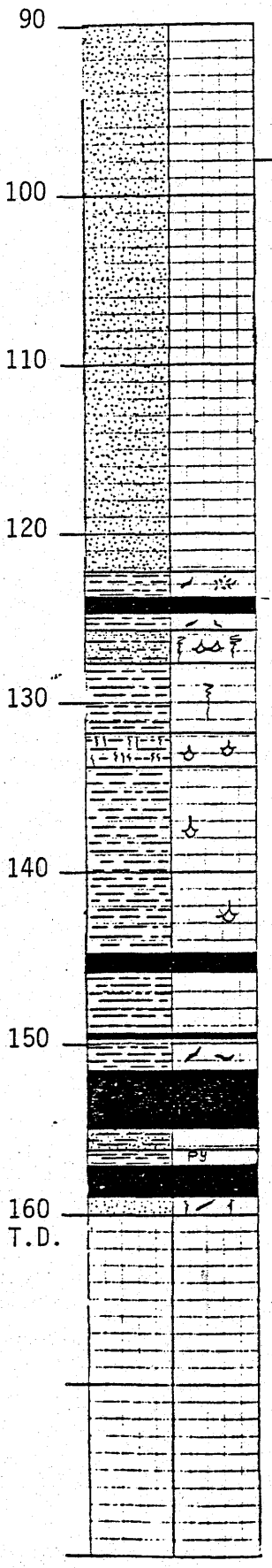
SEP 3 1986
OCT 27 1986

HOLE NO. 24292 C DRILLER G. Hopkins PAGE 2

LOCATION 32605 S DATE DRILLED 10/16/84 SUB AREA J-21

65280 E

ELEVATION 6956.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-84-2569	26.1	46.8	14.8	0.1	0.1	<0.01	9.0

65

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

DATE: [illegible] SEC: 11

DRILL No: [illegible] TWP: 35N

DATE COPIED: 10-15-84 RGE: 19E

DATE SAMPLED: 11-06-84

*Dry Basis

Lithology	Depth	Lab No.	Paste pH	Sat. % *	Saturated Paste Extract E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	SO4 meq/l	CO3 meq/l	HCO3 meq/l	Cl mg/l	ESP
Sur. Soil	0.0	R-84-2554	8.2	44.7	1.4	9.0	2.5	4.7	4.7	6.3	0	2.5	175	5.4
Shale	6.0	R-84-2555	8.2	46.5	1.5	9.2	1.8	6.3	4.6	8.2	0	2.7	170	5.3
Shale, Sl	10.6	R-84-2556	7.9	38.3	1.5	7.8	2.1	7.5	3.6	9.6	0	1.7	119	3.9
Shale	17.8	R-84-2557	8.0	44.7	1.2	5.1	1.5	6.8	2.5	6.8	0	3.3	33	2.4
Shale	24.63	R-84-2558	8.1	40.3	1.0	4.5	1.8	4.3	2.6	6.0	0	5.1	21	2.5
Shale, Sl	31.63	R-84-2559	8.0	42.4	0.8	4.3	1.9	3.6	2.6	7.2	0	5.2	11	2.6
Coal GRX	38.3	COAL												
Shale	44.8	R-84-2560	8.0	51.4	1.2	8.8	1.6	1.3	7.3	10.6	0	4.0	6	8.7
Coal BOX	47.4	COAL												
Shale, Sl	50.2	R-84-2561	8.2	39.0	1.8	18.8	0.4	0.2	34.3	7.5	0	12.9	11	33.0
Shale	55.8	R-84-2562	8.6	55.8	1.4	14.8	0.2	0.1	38.2	11.4	0.3	6.1	8	35.5
Coal	62.1	R-84-2563	8.0	68.4	1.0	9.9	0.1	<0.1	31.3	7.2	0	3.0	7	31.0
Shale, SS	62.7	R-84-2564	8.2	32.4	2.2	23.1	0.4	0.2	42.2	7.1	1.6	11.9	12	37.9
Coal	67.5	R-84-2565	8.1	55.8	1.4	14.7	0.2	0.1	38.0	<5.0	0.4	10.3	6	35.4
Shale	68.0	R-84-2566	8.2	44.9	2.0	21.4	0.2	0.1	55.2	10.0	1.0	9.8	8	44.5
Coal RYX	69.2	COAL												
Shale	77.8	R-84-2567	7.7	40.6	2.2	23.9	0.4	0.1	47.8	11.6	0.7	10.9	9	40.9
Coal RZX	79.2	COAL												
Shale, Co	81.7	R-84-2568	8.0	39.1	1.5	15.4	<0.1	<0.1	48.7	<5.0	0	5.9	27	41.4
Sandstone	88.0	R-84-2569	9.0	26.1	1.4	14.8	0.1	0.1	46.8	5.0	0.4	8.5	19	40.4
End of Analysis	98.0													

PEABODY COAL COMPANY

CENTRAL LABORATORY

[illegible] 252 SEC: 11

[illegible] TWP: 35N

DATE COLLED: 10-16-84 RGE: 19E

DATE ANALYZED: 11-06-84

*Dry Basis

Location	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	CaCO3 Eq Tons / 1000 Tons * Amount Req'd. from S	Amount Present	Amount Needed	Amount Excess	Particle Size Sand %	Silt %	Clay %	% Moisture * 1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
[illegible]	[illegible]-84-2554	7	2.1	74.9	<0.01	0.31	54.27		53.96	50.6	27.0	22.4	13.5	6.0	7.5
[illegible]	[illegible]-84-2555	8	1.4	85.7	<0.01	0.31	52.46		52.15	44.6	30.5	24.8	12.3	4.6	7.7
Shale, [illegible]	[illegible]-84-2556	11	1.4	55.7	<0.01	0.31	15.15		14.84	60.6	20.6	18.8	10.0	3.8	6.2
Shale	[illegible]-84-2557	11	1.3	127	<0.01	0.31	89.37		89.06	44.6	29.0	26.4	10.7	5.2	5.5
Shale	[illegible]-84-2558	12	2.4	104	<0.01	0.31	191.01		190.70	54.6	25.0	20.4	7.8	3.1	4.7
Shale, [illegible]	[illegible]-84-2559	8	1.7	108	<0.01	0.31	129.12		128.81	48.6	30.0	21.4	8.7	3.6	5.1
Coal [illegible]	COAL														
Shale	R-84-2560	18	1.2	263	0.73	22.81	29.25		6.44	19.6	42.4	38.0	14.2	7.9	6.3
Coal [illegible]	COAL														
Shale, Sl	R-84-2561	17	1.4	219	0.18	5.62	55.80		50.18	46.6	26.4	27.0	14.4	8.0	6.4
Shale	R-84-2562	14	1.8	291	1.32	41.25	13.51	27.74		21.6	42.4	36.0	17.7	13.2	4.5
Coal	R-84-2563	13	0.7	48.7	2.28	71.25	12.58	58.67		90.6	9.4	0	12.3	12.2	0.1
Shale, [illegible]	R-84-2564	5	1.4	87.6	0.82	25.62	57.69		32.07	58.6	28.4	13.0	9.4	3.4	6.0
Coal	R-84-2565	9	0.3	71.3	2.16	67.50	10.97	56.53		85.6	9.4	5.0	14.4	10.0	4.4
Shale	R-84-2566	16	1.3	190	1.30	40.62	11.11	29.51		21.4	44.8	33.8	23.0	5.6	17.4
Coal R[illegible]	COAL														
Shale	R-84-2567	7	0.8	86.2	1.25	39.06	8.21	30.85		60.4	30.8	8.8	11.6	6.8	4.8
Coal R[illegible]	COAL														
Shale, Co	R-84-2568	9	0.9	165	0.88	27.50	10.04	17.46		44.4	33.8	21.8	21.9	10.9	11.0
Sandstone	R-84-2569	5	2.1	64.8	<0.01	0.31	52.12		51.81	72.4	18.8	8.8	9.6	2.7	6.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 11

CORE No: 24292 TWP: 35N

DATE CORED: 10-16-84 RGE: 19E

DATE ANALYZED: 11-06-84

		Hot H2O Ext. *					AB-DTPA Extract *						*Dry Basis
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM *	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
Sur. Soil	R-84-2554	1.0	<0.01	<0.01	1.1	26	0.1	1.7	28.0	8.2	<1.0		0.5
Shale	R-84-2555	0.7	<0.01	<0.01	0.6	27	<0.1	3.4	24.0	5.6	<1.0		0.3
Shale, Sl	R-84-2556	0.7	<0.01	<0.01	<0.6	21	<0.1	3.0	23.0	6.4	<1.0		0.5
Shale	R-84-2557	1.1	<0.01	0.02	0.6	14	1.4	4.3	51.0	9.5	2.8		2.7
Shale	R-84-2558	1.5	<0.01	0.01	0.8	<10	1.7	2.2	92.6	5.7	2.0		2.3
Shale, Sl	R-84-2559	1.2	<0.01	0.02	0.6	13	1.8	2.2	121	7.3	2.6		3.4
Coal GOX	COAL												
Shale	R-84-2560	0.9	<0.01	0.11	0.6	<10	1.3	5.2	44.8	1.3	2.2		8.9
Coal BOX	COAL												
Shale, Sl	R-84-2561	0.3	0.06	0.04	0.8	<10	1.1	3.4	75.7	2.2	1.5		10.8
Shale	R-84-2562	0.2	0.19	0.10	0.6	<10	1.6	5.2	49.2	<1.0	1.3		12.4
Coal	R-84-2563	1.5	0.01	0.02	<0.6	<10	0.2	0.9	20.1	<1.0	<1.0		COAL
Shale, SS	R-84-2564	0.4	0.04	0.03	0.8	<10	1.2	2.5	68.8	1.1	1.4		11.0
Coal	R-84-2565	0.8	0.02	0.02	0.6	58	0.1	0.9	23.6	<1.0	<1.0		COAL
Shale	R-84-2566	0.6	0.20	0.12	0.6	<10	1.3	4.3	42.7	<1.0	<1.0		12.9
Coal ROX	COAL												
Shale	R-84-2567	0.9	0.11	0.14	0.6	55	1.4	2.1	38.6	<1.0	<1.0		14.0
Coal ROX	COAL												
Shale, Co	R-84-2568	1.1	0.17	0.08	<0.6	<10	1.2	3.5	29.2	<1.0	1.2		COAL
Sandstone	R-84-2569	0.5	0.08	0.01	0.6	<10	0.7	1.0	76.4	3.0	1.0		0.6

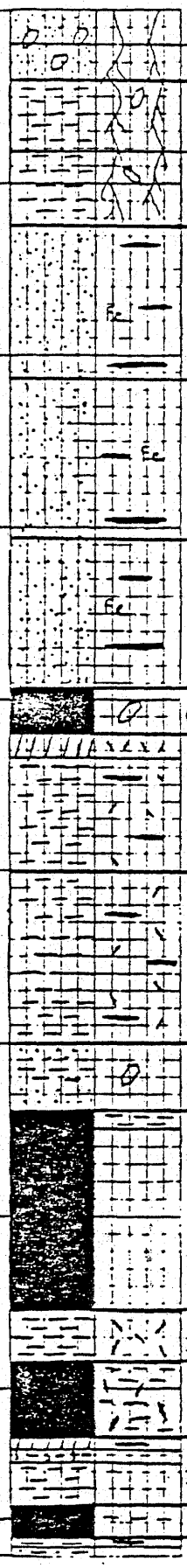
HOLE NO. X 24403-C DRILLER J. Elliott PAGE 1

LOCATION S 32249.0 DATE DRILLED 9-20-82 SUB AREA J-21

E 69680.0

ELEVATION 6984.6

SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4420	47.8	2.6	2.9	1.5	1.0	<0.01	8.3
R-82-4421	40.9	3.9	5.1	1.4	2.0	<0.01	8.5
R-82-4422	49.8	6.4	15.5	3.6	8.3	<0.01	8.3
R-82-4423	51.7	3.6	18.5	23.9	27.6	<0.01	8.1
R-82-4424	40.4	1.6	6.9	15.9	20.6	0.22	8.1
R-82-4425	38.3	0.8	3.3	9.5	23.8	<0.01	8.0
R-82-4426	38.2	0.6	3.3	23.9	41.1	<0.01	7.9
GOA (82-2383-R)		4.64		NA		.52	NA
R-82-4427	38.7	14.8	11.0	0.7	0.4	<0.01	8.6
R-82-4428	36.5	13.5	10.9	0.6	0.7	<0.01	8.4
R-82-4429	38.4	8.0	18.4	6.2	4.4	0.61	6.5
GXX (82-2384-R)		9.0		NA		0.4	NA
R-82-4430	56.0	19.3	16.7	0.5	1.0	0.89	8.4
BOX (82-2386-R)		8.55		NA		0.61	NA
R-82-4431	61.7	35.6	36.5	1.2	0.9	0.48	8.5
B1X (82-2387-R)		9.57		NA		0.57	NA
		69					



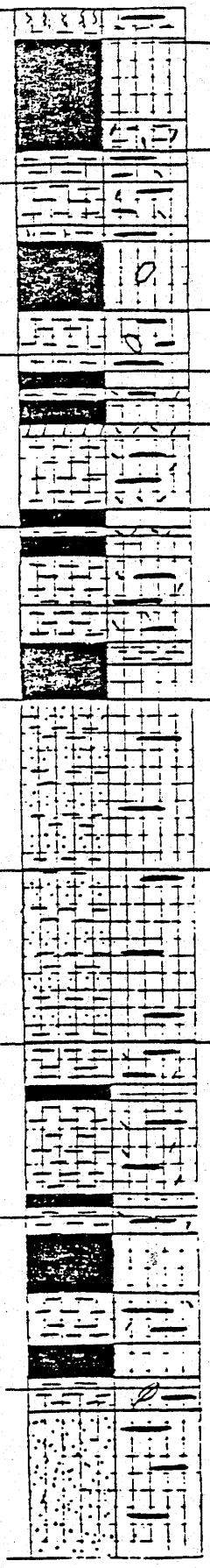
OCT 27 1986 SEP 3 1988

HOLE NO. 24403-C-7 DRILLER J. Elliott PAGE 2

LOCATION S 32249.0 DATE DRILLED 9-20-82 SUB AREA J-21

E-69680.0

ELEVATION 6984.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4432	40.2	33.6	31.0	0.9	0.8	0.47	7.7
ROX (82-2388-R)		10.6		NA		0.9	NA
R-82-4433	40.2	33.4	24.8	0.8	0.3	0.23	8.3
R1X (82-2390-R)				NA		0.52	NA
R-82-4434	42.2	31.6	35.3	1.5	1.0	1.3	7.0
R2X (82-2391-R)		13.4		NA		1.3	NA
R-82-4435	38.2	62.2	74.9	1.5	1.4	0.78	7.8
R-82-4436	44.8	35.7	22.6	0.6	0.2	1.16	7.3
MXX R-82-4437	45.1	37.4	34.5	1.2	0.5	1.51	7.5
R-82-4438	40.1	38.8	35.8	1.0	0.7	0.85	8.1
R-82-4439	38.2	31.8	25.6	0.6	0.7	1.06	8.4
YOA							
YOB							

SEP 3 1986
OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24403C
DATE CORED:20SEP1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001326	8.3	47.8	0.5	2.9	1.5	1	2.6						2.5
SO	2	850001327	8.5	40.9	0.9	5.1	1.4	2	3.9						4.3
SH	4	850001328	8.3	49.8	2.5	15.5	3.6	8.3	6.4						7.6
SH	8.2	850001329	8.1	51.7	5.1	18.5	23.9	27.6	3.6						3.9
SS	12.4	850001330	8.1	40.4	3.3	6.9	15.9	20.6	1.6						1.1
SS	21.4	850001331	8	38.3	2.8	3.3	9.5	23.8	0.8						-0.1
SS	30.4	850001332	7.9	38.2	4.3	3.3	23.9	41.1	0.6						-0.4
CO	39.2	COAL													
SH	42.1	850001333	8.6	38.7	1.3	11	0.7	0.4	14.8						17.1
SH	51.1	850001334	8.4	36.5	1.2	10.9	0.6	0.7	13.5						15.7
SH,SS	60	850001335	6.5	38.4	2.8	18.4	6.2	4.4	8						9.5
CO	64	COAL													
SH	75.6	850001336	8.4	56	1.8	16.7	0.5	1	19.3						21.4
CO	78.2	COAL													
SH,SL	82.8	850001337	8.5	61.7	3.7	36.5	1.2	0.9	35.6						33.9
CO	86.9	COAL													
SH,SL	88.9	850001338	7.7	40.2	3.1	31	0.9	0.8	33.6						32.6
CO	91.8	COAL													
SH,CO,SL	98.2	850001339	8.3	40.2	2.5	24.8	0.8	0.3	33.4						32.4
CO	103.2	COAL													
SH	107.5	850001340	7	42.2	3.7	35.3	1.5	1	31.6						31.2
CO	111	COAL													
SH	114	850001341	7.8	38.2	6.4	74.9	1.5	1.4	62.2						47.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24403C
DATE CORED:20SEP1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001326				<0.01		0.31	42.51	.	42.2	45.6	25	29.4			
SO	850001327				<0.01		0.31	46.81	.	46.5	62.6	18	19.4			
SH	850001328				<0.01		0.31	48.14	.	47.83	55.6	24	20.4			
SH	850001329				<0.01		0.31	57.81	.	57.5	43.6	35	21.4			
SS	850001330				<0.01		0.31	222.62	.	222.31	65.6	26	8.4			
SS	850001331				0.22		6.88	132.24	.	125.36	74.6	18	7.4			
SS	850001332				<0.01		0.31	173.85	.	173.54	77.6	16	6.4			
CO	COAL															
SH	850001333				<0.01		0.31	32.26	.	31.95	39.6	31	29.4			
SH	850001334				<0.01		0.31	48.83	.	48.52	50	28.6	21.4			
SH,SS	850001335				0.61		19.06	1.65	17.41	.	69	18.6	12.4			
CO	COAL															
SH	850001336				0.89		27.81	9.53	18.28	.	25	37.6	37.4			
CO	COAL															
SH,SL	850001337				0.48		15	36.59	.	21.59	22	35.6	42.4			
CO	COAL															
SH,SL	850001338				0.47		14.69	23.15	.	8.46	60	31.6	8.4			
CO	COAL															
SH,CO,SL	850001339				0.23		7.19	24.42	.	17.23	39	38.6	22.4			
CO	COAL															
SH	850001340				1.3		40.63	8.79	31.84	.	56	34.6	9.4			
CO	COAL															
SH	850001341				0.78		24.38	46.57	.	22.19	51	33.6	15.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24403C
DATE CORED:20SEP1982
DATE REPORTED:10SEP1985

Dry Basis

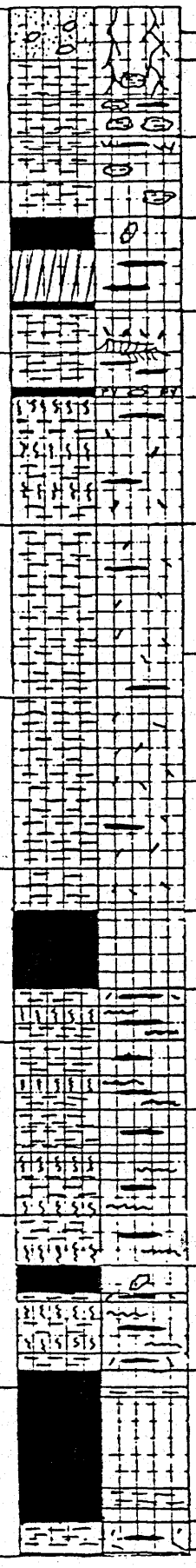
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001326		<0.01		<0.6		0.2	3.6	4.4	11			
SO	850001327		0.01		<0.6		<0.1	2.1	3.8	3.6			
SH	850001328		<0.01		<0.6		<0.1	1.5	5.6	3.4			
SH	850001329		<0.01		<0.6		<0.1	4	4.8	2.6			
SS	850001330		<0.01		<0.6		0.1	2	13	3.2			
SS	850001331		0.01		<0.6		0.1	2.6	14.8	1			
SS	850001332		<0.01		<0.6		0.1	1.1	14.8	1.8			
CO	COAL												
SH	850001333		0.04		<0.6		1.7	1.6	15.6	2.3			
SH	850001334		0.02		<0.6		2.4	1.6	40.6	3.5			
SH,SS	850001335		0.01		<0.6		5	2.5	78.4	7.3			
CO	COAL												
SH	850001336		0.28		<0.6		1.9	5.2	13.4	1.1			
CO	COAL												
SH,SL	850001337		0.25		<0.6		1.9	5.5	16.3	1			
CO	COAL												
SH,SL	850001338		0.03		<0.6		2.2	2.1	24.4	1			
CO	COAL												
SH,CO,SL	850001339		0.11		<0.6		1.8	2	15.5	1			
CO	COAL												
SH	850001340		0.02		0.7		5.7	3.1	108.6	9.2			
CO	COAL												
SH	850001341		0.04		0.7		1.6	1.9	34	1.4			

HOLE NO. 24404-C DRILLER J. Elliott PAGE 1

LOCATION S33188.0 DATE DRILLED 9-23-82 SUB AREA J-21

E72423.8

ELEVATION 7127.4



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4440	56.8	1.2	1.9	3.0	2.4	<0.01	8.0
R-82-4441	48.5	1.4	2.1	2.5	2.2	0.02	8.1
R-82-4442	40.2	1.2	2.6	4.2	6.0	<0.01	8.0
R-82-4443	48.4	1.6	4.8	7.5	10.8	0.06	6.7
R-82-4444	62.4	10.0	18.8	4.8	2.3	0.32	6.9
R-82-4445	42.6	18.3	16.9	0.8	0.9	0.17	7.7
R-82-4446	36.1	26.7	33.2	1.3	1.8	<0.01	8.7
R-82-4447	36.1	16.2	24.9	1.9	2.8	0.01	8.8
R-82-4448	36.1	26.2	21.1	0.7	0.6	<0.01	8.8
R-82-4449	34.2	19.7	21.1	1.3	1.0	0.26	8.7
VXX (82-2393-R)		13.7		NA		0.68	NA
R-82-4450	56.2	18.3	21.7	1.3	1.5	0.11	8.7
R-82-4451	38.1	17.7	18.6	0.9	1.3	<0.01	8.8
GOA R-82-4452	44.2	29.4	23.7	0.6	0.7	0.20	8.1
GOX (82-2396-R)		9.9		NA		0.55	NA
R-82-4453	46.6	42.0	23.0	0.4	0.2	0.15	8.1

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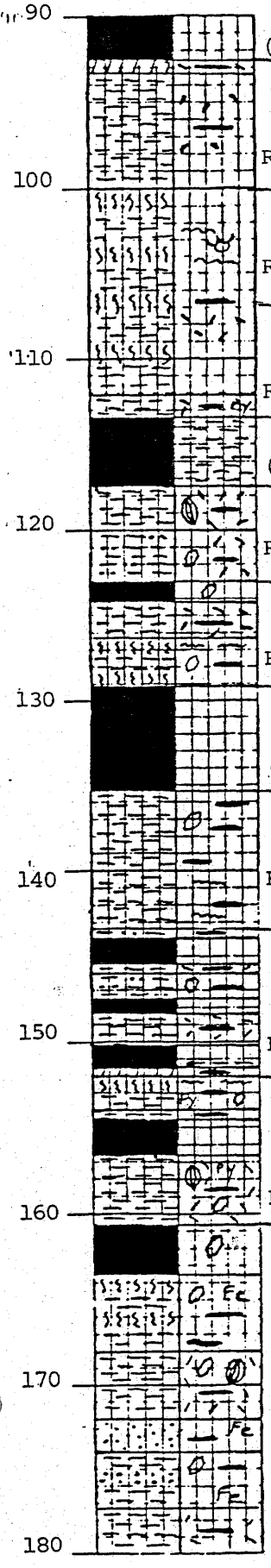
HOLE NO. 24404-E DRILLER J. Elliott PAGE 2

LOCATION S33188.0 DATE DRILLED 9-23-82 SUB AREA J-21

E72423.8

ELEVATION 7127.4



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
G1X (82-2398-R)		11.2		NA		0.67	NA
R-82-4454	42.2	26.2	24.9	0.5	1.3	<0.01	8.8
R-82-4455	34.1	21.6	23.7	0.7	1.7	<0.01	9.0
R-82-4456	36.2	26.8	27.5	0.8	1.3	0.26	8.1
BOX (82-2399-R)		5.5		NA		0.52	NA
R-82-4457	36.2	26.9	29.5	1.1	1.3	0.21	8.3
B1X R-82-4458	39.9	24.7	22.1	0.7	0.9	0.45	7.8
ROX (82-2400-R)		6.1		NA		0.45	NA
R-82-4459	44.6	40.4	28.6	0.5	0.5	0.70	7.0
R1X R-82-4460	46.1	36.9	22.3	0.7	0.5	1.23	7.4
R3X R-82-4461	43.4	59.1	51.2	0.9	0.6	1.55	7.5
MXX		75					

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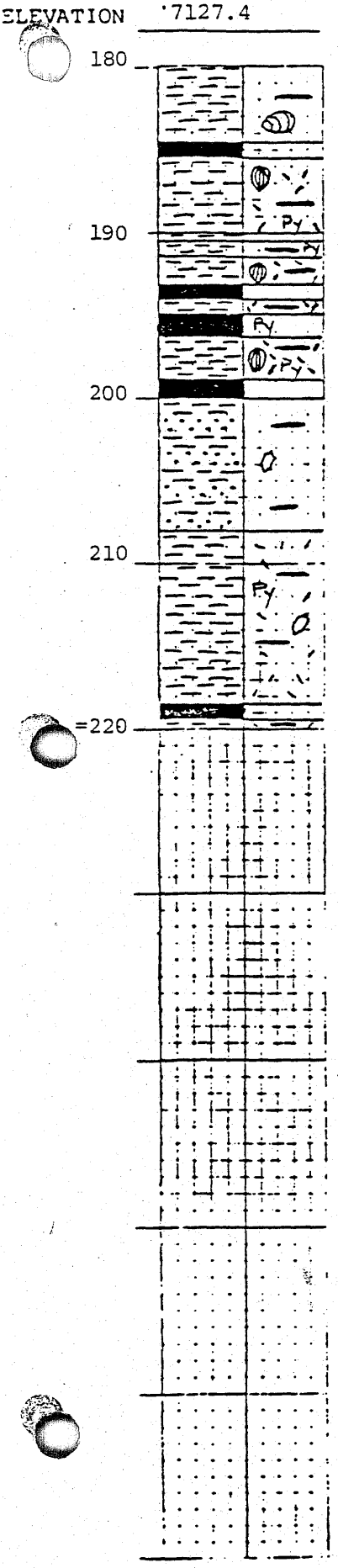
LOCATION S33188.0 DATE DRILLED 9-23-82 SUB AREA J-21

E72423.8

ELEVATION 7127.4



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

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24404C
DATE CORED:23SEP1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001342	8	56.8	0.7	1.9	3	2.4	1.2						0.5
SO	1.5	850001343	8.1	48.5	0.6	2.1	2.5	2.2	1.4						0.7
SH	3	850001344	8	40.2	1.2	2.6	4.2	6	1.2						0.5
SH,CO	7.4	850001345	6.7	48.4	1.8	4.8	7.5	10.8	1.6						1.1
SH,CO	12	850001346	6.9	62.4	2.4	18.8	4.8	2.3	10						11.9
SH,CO	17.3	850001347	7.7	42.6	1.6	16.9	0.8	0.9	18.3						20.5
SH.SL	22.6	850001348	8.7	36.1	3	33.2	1.3	1.8	26.7						27.6
SH	30	850001349	8.8	36.1	2.3	24.9	1.9	2.8	16.2						18.5
SH	37.5	850001350	8.8	36.1	2.1	21.1	0.7	0.6	26.2						27.2
SH	45	850001351	8.7	34.2	2	21.1	1.3	1	19.7						21.8
CO	52.4	COAL													
SH,SL	57	850001352	8.7	56.2	2.1	21.7	1.3	1.5	18.3						20.5
SH,SL	64	850001353	8.8	38.1	1.8	18.6	0.9	1.3	17.7						19.9
CO,SH,SL	72.8	850001354	8.1	44.2	2.2	23.7	0.6	0.7	29.4						29.6
CO	78.9	COAL													
SH	88.1	850001355	8.1	46.6	2.1	23	0.4	0.2	42						37.8
CO	89.8	COAL													
SH	92.6	850001356	8.8	42.2	2.3	24.9	0.5	1.3	26.2						27.2
SH,SL	100	850001357	9	34.1	2.1	23.7	0.7	1.7	21.6						23.4
SH,SL	106.7	850001358	8.1	36.2	2.7	27.5	0.8	1.3	26.8						27.7
CO	113.4	COAL													
SH	117.4	850001359	8.3	36.2	2.8	29.5	1.1	1.3	26.9						27.8
CO,SH,SL	123	850001360	7.8	39.9	2.2	22.1	0.7	0.9	24.7						26
CO	129.1	COAL													
SH	135.4	850001361	7	44.6	3	28.6	0.5	0.5	40.4						36.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24404C
DATE CORED:23SEP1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001342				<0.01		0.31	141.18	.	140.87	33.2	29	37.8			
SO	850001343				0.02		0.63	173.03	.	172.4	43.2	29	27.8			
SH	850001344				<0.01		0.31	294.52	.	294.21	69.2	15	15.8			
SH,CO	850001345				0.06		1.88	18.79	.	16.91	34.2	36.6	29.2			
SH,CO	850001346				0.32		10	8.67	1.33	.	47.2	16	36.8			
SH,CO	850001347				0.17		5.31	24.12	.	18.81	37.2	30	32.8			
SH.SL	850001348				<0.01		0.31	172.07	.	171.76	22.2	45	32.8			
SH	850001349				0.01		0.31	155.32	.	155.01	37.2	37	25.8			
SH	850001350				<0.01		0.31	115.22	.	114.91	34.2	38	27.8			
SH	850001351				0.26		8.13	116.63	.	108.5	42.2	32	25.8			
CO	COAL															
SH,SL	850001352				0.11		3.44	20.68	.	17.24	22.2	34	43.8			
SH,SL	850001353				<0.01		0.31	53.54	.	53.23	46.2	27	26.8			
CO,SH,SL	850001354				0.2		6.25	26.38	.	20.13	38.2	29	32.8			
CO	COAL															
SH	850001355				0.15		4.69	20.35	.	15.66	40.2	25	34.8			
CO	COAL															
SH	850001356				<0.01		0.31	31.04	.	30.73	22.2	43	34.8			
SH,SL	850001357				<0.01		0.31	52.86	.	52.55	50.2	31	18.8			
SH,SL	850001358				0.26		8.13	46.04	.	37.91	51.2	30	18.8			
CO	COAL															
SH	850001359				0.21		6.56	51.26	.	44.7	52.2	25	22.8			
CO,SH,SL	850001360				0.45		14.06	18.18	.	4.12	47.2	38	14.8			
CO	COAL															
SH	850001361				0.7		21.88	9.93	11.95	.	27.2	44	28.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24404C
DATE CORED:23SEP1982
DATE REPORTED:10SEP1985

Dry Basis

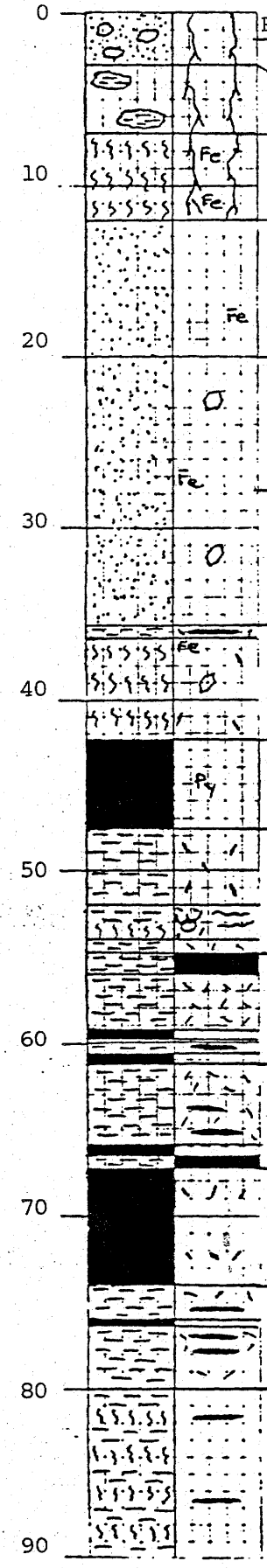
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001342		0.06		<0.6		0.2	5.5	8.4	14.2			
SO	850001343		0.05		<0.6		<0.1	3.3	6.6	9			
SH	850001344		<0.01		0.7		0.1	1.8	13	3.9			
SH,CO	850001345		0.07		<0.6		0.5	2.8	23.3	5.1			
SH,CO	850001346		0.07		<0.6		0.6	7.9	13.1	<1			
SH,CO	850001347		0.29		0.7		0.3	4.3	13.9	1.3			
SH.SL	850001348		0.61		0.7		0.4	6.4	32.1	6.6			
SH	850001349		0.39		0.7		1.4	1.3	57.5	8.2			
SH	850001350		0.56		<0.6		1.5	1.6	101.1	10.3			
SH	850001351		0.44		<0.6		1.2	1.5	53.8	8.9			
CO	COAL												
SH,SL	850001352		0.26		0.7		2.4	5.3	12	2.4			
SH,SL	850001353		0.25		<0.6		1.3	1.9	29.1	3.6			
CO,SH,SL	850001354		0.15		0.7		1.5	2.1	12.2	<1			
CO	COAL												
SH	850001355		0.02		<0.6		0.5	1.4	13.4	<1			
CO	COAL												
SH	850001356		0.11		<0.6		1	1.8	19.1	1.7			
SH,SL	850001357		0.09		<0.6		1.3	0.7	40.4	2.5			
SH,SL	850001358		0.08		<0.6		1.6	0.9	35.7	3.8			
CO	COAL												
SH	850001359		0.23		0.7		1.8	3	28	1.9			
CO,SH,SL	850001360		0.12		<0.6		2.8	3.2	22.8	1.8			
CO	COAL												
SH	850001361		0.02		<0.6		7	5.4	101.7	<1			

HOLE NO. 24405-C DRILLER J. Elliott PAGE 1

LOCATION S36191.0 DATE DRILLED 10-4-82 SUB AREA J-21

E67171.0

ELEVATION 7050.1



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4462	59.4	1.3	2.1	3.5	1.4	<0.01	7.4
R-82-4463	59.3	1.5	1.8	1.7	1.0	<0.01	7.9
R-82-4464	79.5	4.4	13.7	6.2	12.8	<0.01	8.3
R-82-4465	46.3	4.1	11.9	4.5	12.1	<0.01	8.3
R-82-4466	40.1	1.4	3.1	4.0	5.9	<0.01	8.2
R-82-4467	38.1	0.9	2.2	4.2	8.2	<0.01	8.2
R-82-4468	38.1	0.5	2.3	30.2	19.8	0.29	7.9
R-28-4469	52.5	0.8	4.5	21.5	38.8	0.10	7.0
VXX (82-2401-R)		7.7		12545		0.60	7.5
R-82-4470	57.2	28.5	18.0	0.5	0.3	0.06	8.7
R-82-4471	60.1	32.1	27.8	0.6	0.9	0.65	7.7
R-82-4472	44.9	19.1	20.9	1.6	0.8	0.25	8.0
GXX (82-2402-R)		8.4		12458		0.50	8.1
R-82-4473	47.2	19.4	13.0	0.2	0.7	0.29	7.8
R-82-4474	32.3	28.8	19.3	0.3	0.6	<0.01	8.5
		80					

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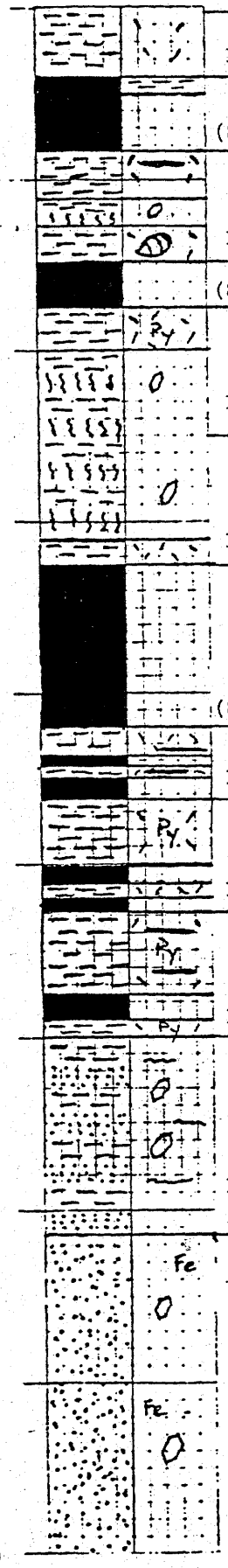
HOLE NO. 24405-C DRILLER J. Elliott PAGE 2

LOCATION S36191.0 DATE DRILLED 10-4-82 SUB AREA J-21

E67171.0

ELEVATION 7050.1



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4475	52.7	36.0	30.1	0.6	0.8	0.90	7.6
BOX (82-2403-R)		8.3		12462		0.62	8.4
R-82-4476	52.7	24.5	26.3	0.5	1.8	0.25	8.5
BIX (82-2405-R)		5.8		12695		0.66	NA
R-82-4477	40.4	19.6	25.6	2.8	0.6	0.29	7.6
R-82-4478	40.4	33.8	35.4	1.3	0.9	0.59	7.7
RXX (82-2406-R)		5.6		12918		0.48	8.1
R-82-4479	53.6	34.4	47.4	2.5	1.3	2.21	6.6
R-82-4480	47.4	38.1	40.9	1.6	0.7	1.08	7.4
R-82-4481	47.2	29.5	32.3	1.9	0.5	1.11	6.9
R-82-4482	32.3	38.9	30.1	0.5	0.7	<0.01	8.6

SEP 3 1986

OCT 27 1986

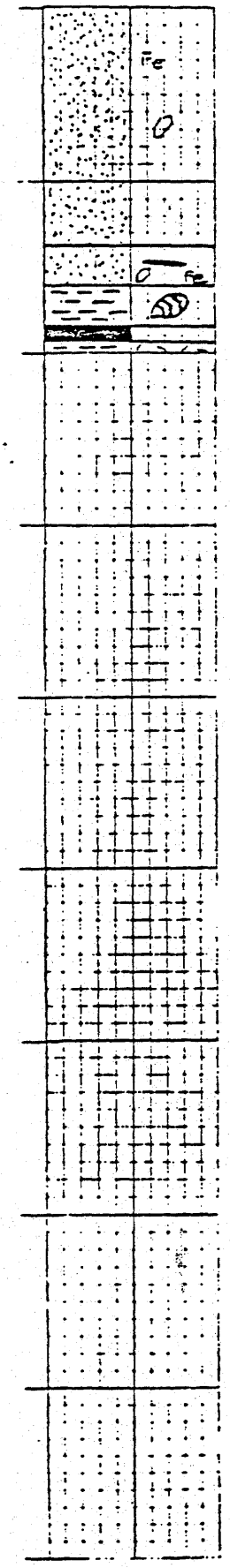
HOLE NO. 24405-C DRILLER J. Elliott PAGE 3

LOCATION S36191.0 DATE DRILLED 10-4-82 SUB AREA J-21

E67171.0

ELEVATION 7050.1

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24405C
DATE CORED:04OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001362	7.4	59.4	0.6	2.1	3.5	1.4	1.3						0.6
SO	1.5	850001363	7.9	59.3	0.4	1.8	1.7	1	1.5						0.9
SH	3	850001364	8.3	79.5	2.9	13.7	6.2	12.8	4.4						5
SL	6.9	850001365	8.3	46.3	2.6	11.9	4.5	12.1	4.1						4.6
SS	12	850001366	8.2	40.1	1.2	3.1	4	5.9	1.4						0.7
SS	19.9	850001367	8.2	38.1	3.1	2.2	4.2	8.2	0.9						0.1
SS	27.8	850001368	7.9	38.1	3.4	2.3	30.2	19.8	0.5						-0.5
SH,SL	35.6	850001369	7	52.5	4.2	4.5	21.5	38.8	0.8						-0.1
CO	67.2	COAL													
SH,SL	47.7	850001370	8.7	57.2	1.8	18	0.5	0.3	28.5						29
SH,CO	54.8	850001371	7.7	60.1	2.7	27.8	0.6	0.9	32.1						31.5
SH,CO	61.2	850001372	8	44.9	2.2	20.9	1.6	0.8	19.1						21.2
CO	67.2	COAL													
SH,CO	74	850001373	7.8	47.2	1.2	13	0.2	0.7	19.4						21.5
SH,SL	80	850001374	8.5	32.3	2	19.3	0.3	0.6	28.8						29.2
SH	90.2	850001375	7.6	52.7	3.1	30.1	0.6	0.8	36						34.1
CO	94.1	COAL													
SH,SL	98.3	850001376	8.5	52.7	2.1	26.3	0.5	1.8	24.5						25.9
CO	104.8	COAL													
SH,SL	107.6	850001377	7.6	40.4	2.9	25.6	2.8	0.6	19.6						21.7
SH,SL,CO	115.1	850001378	7.7	40.4	3.5	35.4	1.3	0.9	33.8						32.7
CO	122.5	COAL													
SH,CO	132	850001379	6.6	53.6	4.9	47.4	2.5	1.3	34.4						33.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24405C
DATE CORED:04OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001362				<0.01		0.31	12.91	.	12.6	32.6	35.6	31.8			
SO	850001363				<0.01		0.31	17.46	.	17.15	35.6	30.6	33.8			
SH	850001364				<0.01		0.31	141.69	.	141.38	18.6	33.6	47.8			
SL	850001365				<0.01		0.31	163.38	.	163.07	58.6	23.6	17.8			
SS	850001366				<0.01		0.31	79.41	.	79.1	78.6	13.6	7.8			
SS	850001367				<0.01		0.31	76.4	.	76.09	78.6	12.6	8.8			
SS	850001368				0.29		9.06	108.6	.	99.54	78.6	12.6	8.8			
SH,SL	850001369				0.1		3.13	13.76	.	10.63	56.6	23.6	19.8			
CO	COAL															
SH,SL	850001370				0.06		1.88	49.83	.	47.95	26.6	30.6	42.8			
SH,CO	850001371				0.65		20.31	12.87	7.44	.	28.6	22.6	48.8			
SH,CO	850001372				0.25		7.81	49.37	.	41.56	47.6	23.6	28.8			
CO	COAL															
SH,CO	850001373				0.29		9.06	11.59	.	2.53	44.6	24.6	30.8			
SH,SL	850001374				<0.01		0.31	54.2	.	53.89	58.6	25.6	15.8			
SH	850001375				0.9		28.13	16.6	11.53	.	20.6	39.6	39.8			
CO	COAL															
SH,SL	850001376				0.25		7.81	40.11	.	32.3	28.6	32.6	38.8			
CO	COAL															
SH,SL	850001377				0.29		9.06	27.48	.	18.42	47.6	38.6	13.8			
SH,SL,CO	850001378				0.59		18.44	37.79	.	19.35	51	33.2	15.8			
CO	COAL															
SH,CO	850001379				2.21		69.06	21.01	48.05	.	68	20.2	11.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24405C
DATE CORED:04OCT1982
DATE REPORTED:10SEP1985

Dry Basis

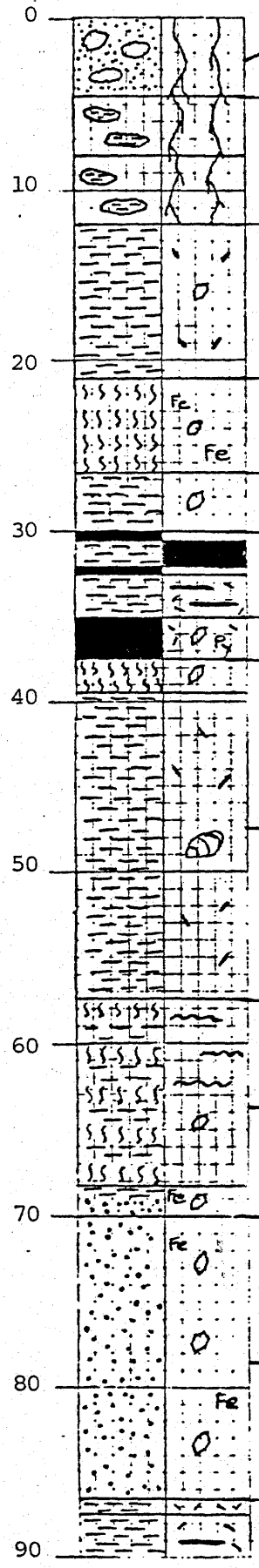
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001362		0.11		<0.6		0.4	14.6	5.2	33.4			
SO	850001363		0.04		<0.6		0.1	7	4.3	9.2			
SH	850001364		0.02		<0.6		<0.1	4.9	3.7	2			
SL	850001365		<0.01		0.7		<0.1	1.3	4.4	1.7			
SS	850001366		0.01		<0.6		<0.1	0.3	8.3	3.6			
SS	850001367		0.01		<0.6		<0.1	0.4	15.9	2.6			
SS	850001368		<0.01		<0.6		<0.1	0.2	8.3	1.8			
SH,SL	850001369		<0.01		0.7		0.1	1.7	24.9	8			
CO	COAL												
SH,SL	850001370		0.15		<0.6		0.9	6.7	24.1	1.6			
SH,CO	850001371		0.2		0.7		1.7	0.9	26.5	1.1			
SH,CO	850001372		0.06		<0.6		0.8	3.8	25.5	1.3			
CO	COAL												
SH,CO	850001373		0.17		<0.6		1.9	4.5	11	<1			
SH,SL	850001374		0.11		0.6		1.3	1.2	50.2	8.2			
SH	850001375		0.45		0.6		2.5	8.6	40.1	4.9			
CO	COAL												
SH,SL	850001376		0.19		0.6		2.2	3.9	30.6	<1			
CO	COAL												
SH,SL	850001377		0.09		<0.6		1.9	3.2	52.7	4.8			
SH,SL,CO	850001378		0.02		0.6		2	2.5	58.6	2.5			
CO	COAL												
SH,CO	850001379		0.02		<0.6		4.4	3.4	280.9	17.8			

HOLE NO. 24406-C DRILLER J. Elliott PAGE 1

LOCATION S28601.0 DATE DRILLED 10-8-82 SUB AREA J-19

E55389.0

ELEVATION 6793.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-27	45.1	1.6	1.8	1.6	0.8	0.14	8.0
R-83-28	49.3	4.8	16.9	12.6	12.0	0.22	7.8
R-83-29	55.7	3.4	18.4	41.0	17.3	0.24	5.8
R-83-30	49.0	1.9	10.0	22.7	31.0	0.15	6.2
R-83-31	36.2	3.5	7.8	4.9	4.9	0.08	7.9
R-83-32	53.2	7.1	21.7	5.5	13.0	1.04	7.4
R-83-33	80.3	26.7	18.9	0.6	0.4	0.16	8.7
(83-6-R) EOX		13.1		11877		0.69	7.6
R-83-34	79.8	22.0	21.4	0.3	1.6	0.12	9.2
R-83-35	70.5	17.6	15.2	0.3	1.2	0.08	9.3
R-83-36	44.4	31.6	15.8	0.3	0.2	0.03	9.1
R-83-37	40.3	16.5	15.7	0.4	1.4	0.03	9.0
R-83-38	30.1	28.6	18.1	0.4	0.4	0.04	8.6
R-83-39	32.1	30.6	16.8	0.3	0.4	0.04	8.8
R-83-40	74.4	18.1	17.6	0.4	1.5	0.13	9.1

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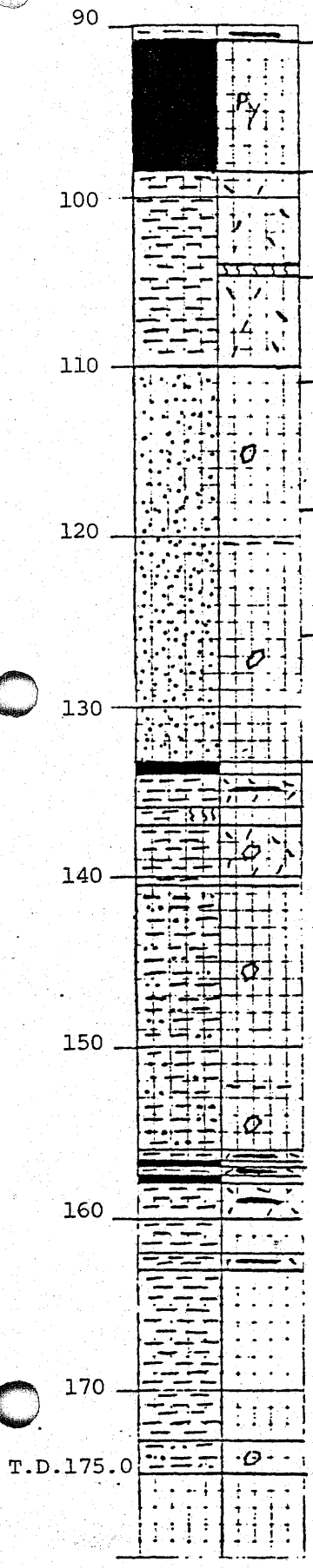
HOLE NO. 24406-C DRILLER J. Elliott PAGE 2

LOCATION S28601.0 DATE DRILLED 10-8-82 SUB AREA J-19

E55389.0

ELEVATION 6793.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
E12 (83-7-R)		11.1		12269		0.58	7.9
R-83-41	43.0	27.8	20.6	0.5	0.6	0.46	8.0
R-83-42	44.8	11.5	12.9	0.5	2.0	<0.01	9.0
R-83-43	32.4	16.3	11.5	0.3	0.7	<0.01	8.6
R-83-44	30.7	19.3	14.3	0.3	0.8	0.03	8.8
R-83-45	28.5	16.6	11.1	0.2	0.7	0.03	8.8

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24406C
DATE CORED:08OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001380	8	45.1	0.3	1.8	1.6	0.8	1.6						1.1
SO	2.3	850001381	7.8	49.3	3.5	16.9	12.6	12	4.8						5.5
SH	4.5	850001382	5.8	55.7	5.8	18.4	41	17.3	3.4						3.6
SH	12	850001383	6.2	49	4.3	10	22.7	31	1.9						1.5
SL	21.2	850001384	7.9	36.2	1.6	7.8	4.9	4.9	3.5						3.8
SH	26.5	850001385	7.4	53.2	4.3	21.7	5.5	13	7.1						8.4
CO,SH	30	850001386	8.7	80.3	2	18.9	0.6	0.4	26.7						27.6
CO	35.0	COAL													
SL,SH	37.6	850001387	9.2	79.8	2.1	21.4	0.3	1.6	22						23.8
SH	47.5	850001388	9.3	70.5	1.4	15.2	0.3	1.2	17.6						19.8
SH,SL	57.4	850001389	9.1	44.4	1.5	15.8	0.3	0.2	31.6						31.2
SH,SS	63.7	850001390	9	40.3	1.5	15.7	0.4	1.4	16.5						18.8
SS	70	850001391	8.6	30.1	1.9	18.1	0.4	0.4	28.6						29
SS	78.3	850001392	8.8	32.1	1.8	16.8	0.3	0.4	30.6						30.5
SH	86.6	850001393	9.1	74.4	1.7	17.6	0.4	1.5	18.1						20.3
CO	90.9	COAL													
SH	98.6	850001394	8	43	2.1	20.6	0.5	0.6	27.8						28.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24406C
DATE CORED:08OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001380				0.14		4.38	22.17	.	17.79	39.2	31.2	29.6			
SO	850001381				0.22		6.88	48.98	.	42.1	40.4	30.4	29.2			
SH	850001382				0.24		7.5	2.62	4.88	.	39.8	27	33.2			
SH	850001383				0.15		4.69	35.69	.	31	42	35.2	22.8			
SL	850001384				0.08		2.5	229.51	.	227.01	70.2	20	9.8			
SH	850001385				1.04		32.5	17.06	15.44	.	10.6	43.6	45.8			
CO,SH	850001386				0.16		5	13.56	.	8.56	20.6	19.6	59.8			
CO	COAL															
SL,SH	850001387				0.12		3.75	14.47	.	10.72	17	57.4	25.6			
SH	850001388				0.08		2.5	0.52	1.98	.	12.6	42	45.4			
SH,SL	850001389				0.03		0.94	36.08	.	35.14	38.6	42	19.4			
SH,SS	850001390				0.03		0.94	20.68	.	19.74	45.6	29	25.4			
SS	850001391				0.04		1.25	7.56	.	6.31	72.6	16	11.4			
SS	850001392				0.04		1.25	25.04	.	23.79	76.6	14	9.4			
SH	850001393				0.13		4.06	0.98	3.08	.	18.6	30	51.4			
CO	COAL															
SH	850001394				0.46		14.38	-1.68	16.06	.	40.6	30	29.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24406C
DATE CORED:08OCT1982
DATE REPORTED:10SEP1985

Dry Basis

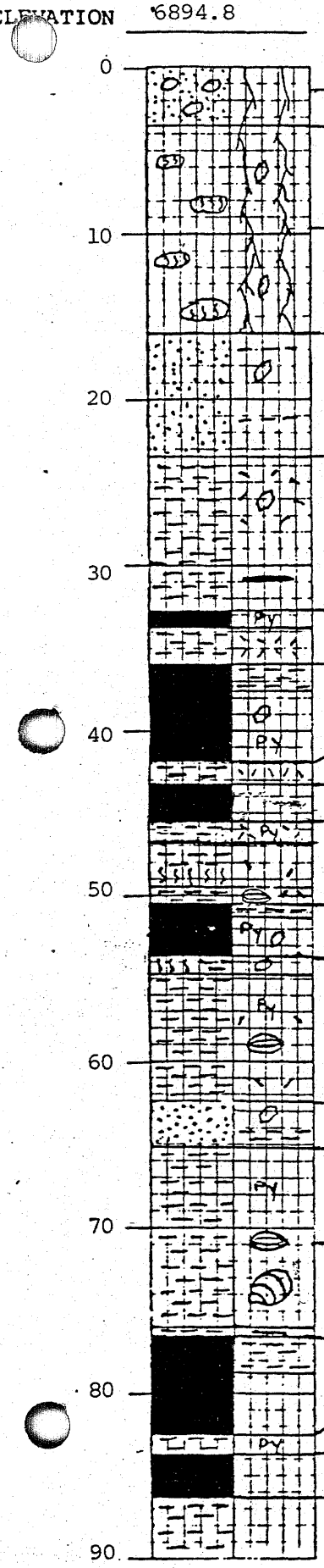
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001380		0.11		<0.6		0.2	3.1	12	6.5			
SO	850001381		0.02		<0.6		0.2	2	11.4	6.3			
SH	850001382		0.01		<0.6		0.9	3.7	344.2	14.8			
SH	850001383		<0.01		<0.6		1.1	4.9	101.5	12.2			
SL	850001384		<0.01		<0.6		0.9	2.1	80.9	5			
SH	850001385		0.02		0.6		2.3	7.9	27.3	9.7			
CO,SH	850001386		0.18		<0.6		0.5	8.7	24.5	1.3			
CO	COAL												
SL,SH	850001387		0.22		1		1	7.6	29.6	4.9			
SH	850001388		0.42		<0.6		1.2	8.2	16.7	1.1			
SH,SL	850001389		0.13		<0.6		1.5	2	61.8	4.6			
SH,SS	850001390		0.16		0.6		1.6	2.8	51.8	4.8			
SS	850001391		0.12		0.6		0.5	2.2	28	1.7			
SS	850001392		0.1		<0.6		0.5	1.5	33.1	1.6			
SH	850001393		0.44		<0.6		0.6	7.9	13.4	<1			
CO	COAL												
SH	850001394		0.18		<0.6		1.7	8.1	27.9	<1			

HOLE NO. 24407-C DRILLER J. Elliott PAGE 1

LOCATION S32762 DATE DRILLED 10-11-82 SUB AREA J-21

E57407

ELEVATION 6894.8



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-46	32.4	1.7	1.8	1.6	0.7	0.01	7.9
R-83-47	30.2	1.3	1.6	2.0	1.1	0.02	8.1
R-83-48	42.8	3.2	12.3	6.6	22.8	0.03	8.2
R-83-49	40.2	2.4	9.7	12.3	20.7	0.07	7.9
R-83-50	36.6	1.7	6.1	8.7	16.1	0.08	7.8
R-83-51	51.1	0.9	5.8	23.8	51.9	0.16	6.5
R-83-52	56.9	3.2	8.3	6.4	7.3	1.01	6.5
RXX (83-8-R)		4.4		13081		0.77	NA
R-83-53	52.3	21.4	35.8	3.6	2.0	2.81	6.7
R2X (83-9-R)		9.9		12331		0.95	7.6
R-83-54	42.6	36.3	37.2	1.1	1.0	0.67	7.5
MXX (83-10-R)		5.65		12900		1.41	7.2
R-83-55	44.6	43.0	37.2	0.9	0.6	1.22	8.1
R-83-56	30.1	26.0	19.3	0.6	0.5	0.06	8.8
R-83-57	46.7	38.1	29.5	0.6	0.6	0.89	8.4
R-83-58	50.9	41.0	40.0	1.0	0.9	1.64	7.9
YOA (83-11-R)		10.8		12147		1.27	7.3
R-83-59	65.6	10.7	8.3	0.3	0.9	0.15	8.9
YOB (83-12-R)		4.0		13115		0.63	7.7

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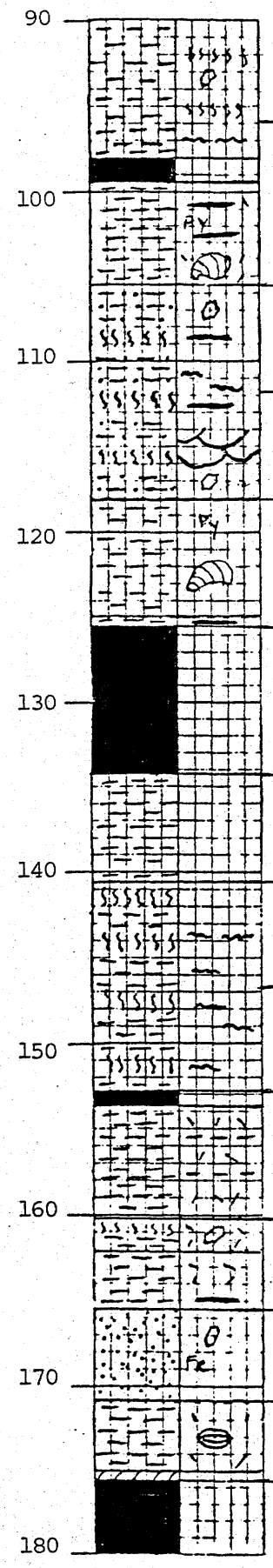
HOLE NO. 24407-C DRILLER J. Elliott PAGE 2

LOCATION S32762 DATE DRILLED 10-11-82 SUB AREA J-21

E57407

ELEVATION 6894.8



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-60	42.5	29.6	38.6	2.3	1.1	0.64	7.4
R-83-61	53.3	38.1	40.0	1.3	0.9	1.81	6.3
R-83-62	46.3	12.7	29.5	7.3	3.5	0.62	7.5
R-83-63	50.6	29.0	37.2	2.2	1.1	1.26	6.7
R-83-64	44.5	41.7	28.0	0.3	0.6	0.96	8.4
NXX (83-13-R)		8.3		12459		1.04	7.6
R-83-65	73.4	27.0	20.0	0.5	0.6	0.02	9.5
R-83-66	36.2	35.4	19.4	0.2	0.4	0.02	9.1
R-83-67	32.2	25.6	18.1	0.3	0.7	0.02	9.1
R-83-68	40.7	36.7	20.1	0.4	0.2	0.14	8.6
R-83-69	40.4	41.7	30.9	0.8	0.3	0.36	8.6
R-83-70	30.1	38.0	20.8	0.3	0.3	0.05	9.0
R-83-71	45.2	46.0	27.2	0.5	0.2	0.83	8.4
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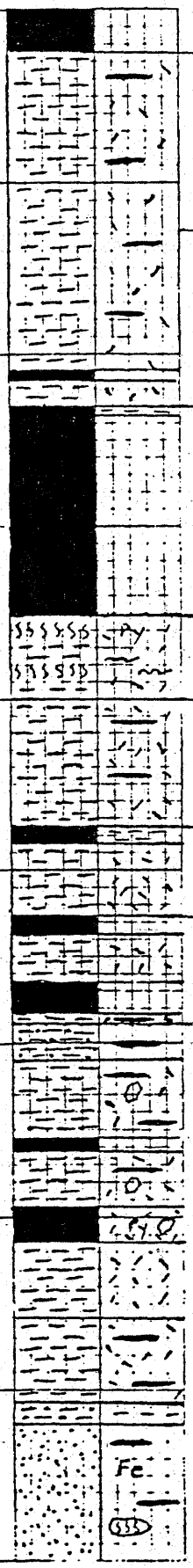
HOLE NO. 24407-C DRILLER J. Elliott PAGE 3

LOCATION S32762 E57407 DATE DRILLED 10-11-82 SUB AREA J-21

ELEVATION 6894.8



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
EOX (83-14-R)		5.2		12991		0.46	7.8
R-83-72	61.1	18.2	16.8	0.7	1.0	0.05	9.0
R-83-73	42.5	26.4	22.9	0.4	1.1	0.03	8.7
E12 (83-15-R)		8.3		12628		0.46	7.7
R-83-74	44.6	17.9	25.0	2.9	1.0	0.61	7.2
R-83-75	40.5	15.2	14.0	0.7	1.0	0.05	8.5
R-83-76	40.5	14.9	16.0	0.6	1.7	0.04	8.4
R-83-77	49.9	14.2	13.5	0.9	0.9	0.17	8.0

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OCT 27 1986

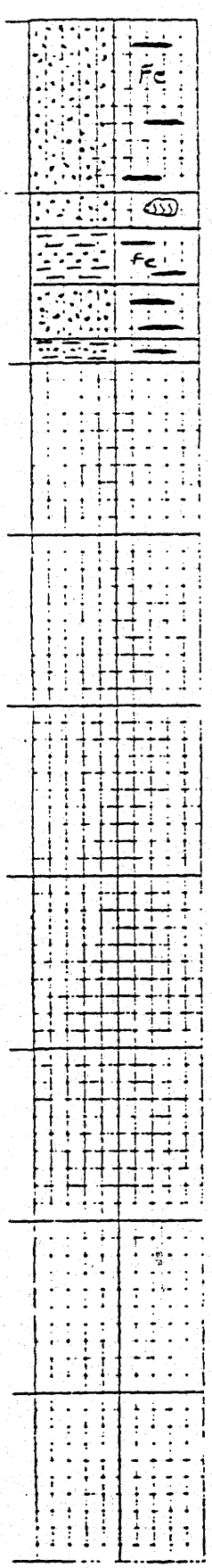
HOLE NO. 24407-C DRILLER J. Elliott PAGE 4

LOCATION S32762 DATE DRILLED 10-11-82 SUB AREA J-21

E57407

ELEVATION 6894.8

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24407C
DATE CORED:11OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001395	7.9	32.4	0.3	1.8	1.6	0.7	1.7						1.2
SO	1.7	850001396	8.1	30.2	0.4	1.6	2	1.1	1.3						0.6
SL	3.4	850001397	8.2	42.8	3.1	12.3	6.6	22.8	3.2						3.4
SL	9.7	850001398	7.9	40.2	3.3	9.7	12.3	20.7	2.4						2.2
SS	16	850001399	7.8	36.6	2.3	6.1	8.7	16.1	1.7						1.2
SH	23.4	850001400	6.5	51.1	5	5.8	23.8	51.9	0.9						0.1
CO,SH	32.7	850001401	6.5	56.9	1.9	8.3	6.4	7.3	3.2						3.4
CO	35.9	COAL													
SH	41.8	850001402	6.7	52.3	3.8	35.8	3.6	2	21.4						23.3
CO	43.3	COAL													
SH,SL	45.6	850001403	7.5	42.6	3.7	37.2	1.1	1	36.3						34.3
CO	50.5	COAL													
SH,SL	53.7	850001404	8.1	44.6	3.7	37.2	0.9	0.6	43						38.3
SS	62.4	850001405	8.8	30.1	1.8	19.3	0.6	0.5	26						27.1
SH	65.2	850001406	8.4	46.7	2.8	29.5	0.6	0.6	38.1						35.5
SH,CO	70.8	850001407	7.9	50.9	4.1	40	1	0.9	41						37.2
CO	76.4	COAL													
SH	82.5	850001408	8.9	65.6	1.5	8.3	0.3	0.9	10.7						12.7
CO	83.7	COAL													
SH	86.2	850001409	7.4	42.5	3.8	38.6	2.3	1.1	29.6						29.8
SH,CO	95.8	850001410	6.3	53.3	4	40	1.3	0.9	38.1						35.5
SH,SL	105.4	850001411	7.5	46.3	3.7	29.5	7.3	3.5	12.7						14.9
SH,SL	111.8	850001412	6.7	50.6	3.9	37.2	2.2	1.1	29						29.3
SH,CO	118.1	850001413	8.4	44.5	2.9	28	0.3	0.6	41.7						37.6
CO	125.5	COAL													
SH	134.2	850001414	9.5	73.4	2	20	0.5	0.6	27						27.8
SH,SS	140.7	850001415	9.1	36.2	1.9	19.4	0.2	0.4	35.4						33.8
SH,SS	146.8	850001416	9.1	32.2	1.8	18.1	0.3	0.7	25.6						26.7
CO,SH	152.9	850001417	8.6	40.7	2.1	20.1	0.4	0.2	36.7						34.6
SH,SL	160.2	850001418	8.6	40.4	2.9	30.9	0.8	0.3	41.7						37.6
SS	165.6	850001419	9	30.1	2	20.8	0.3	0.3	38						35.4
SH	170.9	850001420	8.4	45.2	2.8	27.2	0.5	0.2	46						40
CO	175.6	COAL													
SH	182.6	850001421	9	61.1	1.6	16.8	0.7	1	18.2						20.4
SH,CO	192.8	850001422	8.7	42.5	2.2	22.9	0.4	1.1	26.4						27.4
CO	203	COAL													
SH,SL	215.2	850001423	7.2	44.6	2.8	25	2.9	1	17.9						20.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24407C
DATE CORED:11OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001395				0.01		0.31	2.88	.	2.57	70.6	14	15.4			
SO	850001396				0.02		0.63	2.28	.	1.65	76.6	13	10.4			
SL	850001397				0.03		0.94	33.53	.	32.59	59.6	20	20.4			
SL	850001398				0.07		2.19	48.15	.	45.96	62.6	19	18.4			
SS	850001399				0.08		2.5	44.42	.	41.92	73.6	14.5	11.9			
SH	850001400				0.16		5	4.57	0.43	.	18.4	43.8	37.8			
CO,SH	850001401				1.01		31.56	3.55	28.01	.	81.8	7.8	10.4			
CO	COAL															
SH	850001402				2.81		87.81	1.77	.	86.04	73.8	12.2	14			
CO	COAL															
SH,SL	850001403				0.67		20.94	8.16	.	12.78	32.8	39.2	28			
CO	COAL															
SH,SL	850001404				1.22		38.13	35.6	2.53	.	27.8	43.2	29			
SS	850001405				0.06		1.88	128.24	.	126.36	60.8	24.2	15			
SH	850001406				0.89		27.81	31.36	.	3.55	16.8	50.2	33			
SH,CO	850001407				1.64		51.25	31.39	19.86	.	10.8	48.2	41			
CO	COAL															
SH	850001408				0.15		4.69	0.61	4.08	.	6.8	49.2	44			
CO	COAL															
SH	850001409				0.64		20	32.44	.	12.44	47.8	36.2	16			
SH,CO	850001410				1.81		56.56	1.51	55.05	.	45.8	35.2	19			
SH,SL	850001411				0.62		19.38	37.29	.	17.91	45.6	39.6	14.8			
SH,SL	850001412				1.26		39.38	20.19	19.19	.	42.2	40	17.8			
SH,CO	850001413				0.96		30	32.22	.	2.22	30.2	40	29.8			
CO	COAL															
SH	850001414				0.02		0.63	1.82	.	1.19	4	41.2	54.8			
SH,SS	850001415				0.02		0.63	32.97	.	32.34	53	23.6	23.4			
SH,SS	850001416				0.02		0.63	8.4	.	7.77	63	16.6	20.4			
CO,SH	850001417				0.14		4.38	2.85	1.53	.	41	28	31			
SH,SL	850001418				0.36		11.25	40.76	.	29.51	40	31	29			
SS	850001419				0.05		1.56	210.8	.	209.24	44	37	19			
SH	850001420				0.83		25.94	32.43	.	6.49	24.1	37.1	38.8			
CO	COAL															
SH	850001421				0.05		1.56	28.13	.	26.57	28.2	28.2	43.6			
SH,CO	850001422				0.03		0.94	48.31	.	47.37	45.2	25.6	29.2			
CO	COAL															
SH,SL	850001423				0.61		19.06	4	15.06	.	63.2	24	12.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24407C
DATE CORED:11OCT1982
DATE REPORTED:10SEP1985

Dry Basis

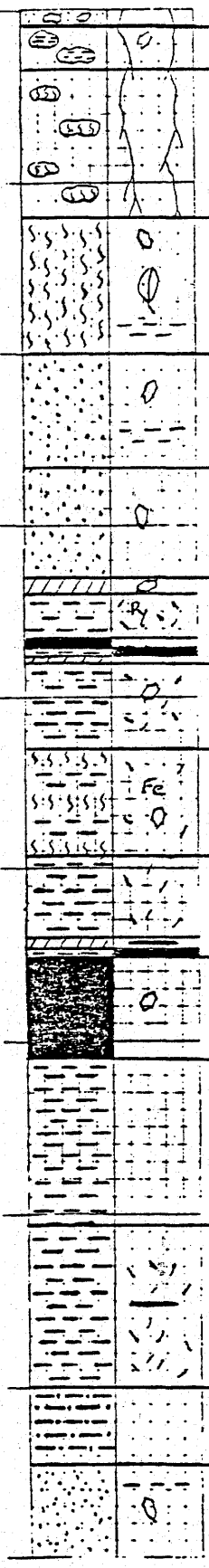
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001395		0.23		<0.6		0.1	2.5	10.5	8.7			
SO	850001396		0.19		<0.6		<0.1	0.8	5.9	4.1			
SL	850001397		<0.01		<0.6		<0.1	0.9	8.5	2.4			
SL	850001398		<0.01		<0.6		<0.1	1	22.3	4.5			
SS	850001399		0.01		0.6		<0.1	0.7	24.9	4.7			
SH	850001400		0.01		<0.6		1.8	7.7	82.1	17.6			
CO,SH	850001401		0.02		<0.6		2.2	3.5	162	1.7			
CO	COAL												
SH	850001402		0.22		<0.6		8	6.9	355.3	17.3			
CO	COAL												
SH,SL	850001403		<0.01		<0.6		2.6	4.2	56.4	2.2			
CO	COAL												
SH,SL	850001404		0.08		<0.6		3	4.7	41	3.2			
SS	850001405		0.03		0.6		1.5	1.7	59.8	4			
SH	850001406		0.04		<0.6		3.1	5.2	43.2	5			
SH,CO	850001407		0.02		<0.6		2.9	5.9	45.3	6.7			
CO	COAL												
SH	850001408		0.11		<0.6		2.2	5.2	12	<1			
CO	COAL												
SH	850001409		<0.01		<0.6		1.5	3.2	46.1	3.5			
SH,CO	850001410		0.09		0.6		7.2	4.7	224.3	24			
SH,SL	850001411		0.01		<0.6		1.1	2.3	45.9	3.7			
SH,SL	850001412		0.02		<0.6		6.5	6.2	177.8	39.8			
SH,CO	850001413		0.08		0.6		3	5.5	47	4.3			
CO	COAL												
SH	850001414		0.33		<0.6		0.9	3.6	10.7	<1			
SH,SS	850001415		0.31		0.6		1.6	1.4	30.9	<1			
SH,SS	850001416		0.62		<0.6		1.1	1.4	39.4	1.4			
CO,SH	850001417		0.23		<0.6		2.3	3.8	32.6	2.7			
SH,SL	850001418		0.18		<0.6		2	2.9	38.4	3.9			
SS	850001419		0.03		0.6		0.9	0.8	99.3	4.2			
SH	850001420		0.17		<0.6		2.8	3.9	44.6	6.1			
CO	COAL												
SH	850001421		0.44		<0.6		1.9	2.3	29.6	1.9			
SH,CO	850001422		0.17		<0.6		1.8	2.9	68.8	4.4			
CO	COAL												
SH,SL	850001423		0.06		0.9		4.7	4.9	121.4	1.9			

HOLE NO. 24408-C DRILLER J. Elliott PAGE 1

LOCATION S28062.0 DATE DRILLED 10-22-82 SUB AREA J-19

E60351.0

ELEVATION 6735.4



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-78	54.8	1.6	2.2	2.2	1.8	0.03	7.9
R-83-79	56.7	2.7	2.7	0.7	1.3	0.02	8.3
R-83-80	42.2	4.6	8.0	1.2	4.8	0.03	8.2
R-83-81	38.2	2.8	3.9	0.7	3.2	0.01	8.2
R-83-82	38.1	2.0	3.7	0.9	5.9	0.02	8.3
R-83-83	36.1	0.8	4.2	27.4	22.7	0.06	7.2
R-83-84	55.5	2.2	11.5	22.8	31.3	0.47	4.7
R-83-85	61.1	4.8	12.1	6.3	6.4	0.52	7.6
R-83-86	38.2	6.3	10.5	2.7	2.9	0.03	8.0
R-83-87	54.9	6.3	21.7	13.1	10.5	0.85	7.1
EOX (83-16-R)		6.81		12837		0.46	7.7
R-83-88	79.3	11.3	15.6	0.9	2.9	0.08	9.2
R-83-89	57.4	14.5	13.8	1.5	0.3	0.02	9.4
R-83-90	56.8	16.0	14.3	0.1	1.5	<0.01	9.3
R-83-91	30.2	22.7	26.4	0.5	2.2	0.02	9.1

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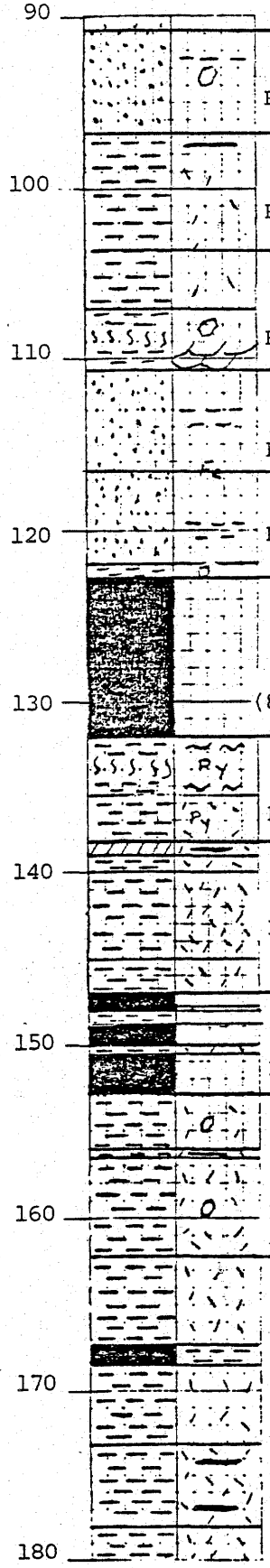
HOLE NO. 24408-C DRILLER J. Elliott PAGE 2

LOCATION S28062.0 DATE DRILLED 10-22-82 SUB AREA J-19

E60351.0

ELEVATION 6735.4



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-92	30.2	16.6	18.6	1.7	0.8	0.08	8.6
R-83-93	72.1	23.6	14.9	0.3	0.5	0.03	7.0
R-83-94	50.8	17.7	14.8	0.5	0.9	0.02	9.2
R-83-95	30.2	22.2	16.5	0.2	0.9	0.01	9.0
R-83-96	32.4	27.9	24.2	0.5	1.0	0.01	8.7
E12 (83-17-R)		6.41		13031		0.47	7.8
R-83-97	43.7	31.5	33.8	1.4	0.9	0.63	8.2
R-83-98	43.3	31.2	15.6	0.4	0.1	0.04	9.0
R-83-99 E3X	64.0	10.6	10.3	1.5	0.4	0.36	8.2
R-83-100	59.0	8.5	9.9	1.1	1.6	0.03	9.1

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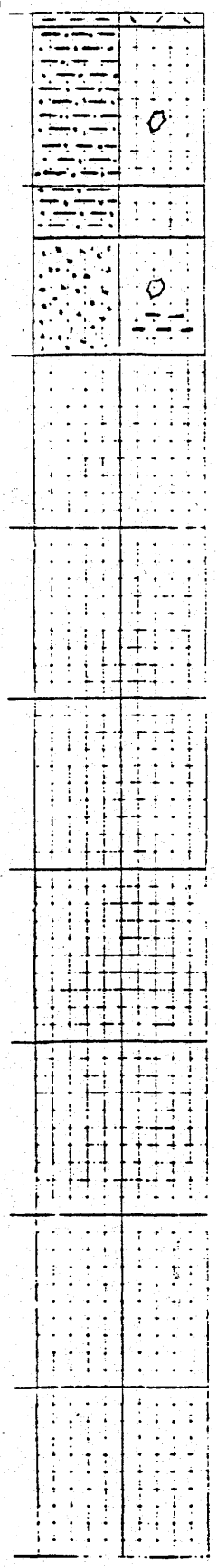
HOLE NO. 24408-C DRILLER J. Elliott PAGE 3

LOCATION S28062 DATE DRILLED 10-22-82 SUB AREA J-19

E60351

VATION 6735.4

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24408C
DATE CORED:22OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001424	7.9	54.8	0.6	2.2	2.2	1.8	1.6						1.1
SH	0.7	850001425	8.3	56.7	0.5	2.7	0.7	1.3	2.7						2.7
SL	3.4	850001426	8.2	42.2	1.7	8	1.2	4.8	4.6						5.3
SL	12	850001427	8.2	38.2	0.8	3.9	0.7	3.2	2.8						2.8
SS	20	850001428	8.3	38.1	1	3.7	0.9	5.9	2						1.7
SS	26.5	850001429	7.2	36.1	3.7	4.2	27.4	22.7	0.8						-0.1
SH,CO	33	850001430	4.7	55.5	4.6	11.5	22.8	31.3	2.2						1.9
SH	38	850001431	7.6	61.1	2.4	12.1	6.3	6.4	4.8						5.5
SH,SL3	43	850001432	8	38.2	1.6	10.5	2.7	2.9	6.3						7.4
SH,CO	49.2	850001433	7.1	54.9	3.9	21.7	13.1	10.5	6.3						7.4
CO	55.1	COAL													
SH	61	850001434	9.2	79.3	1.9	15.6	0.9	2.9	11.3						13.3
SH	70.5	850001435	9.4	57.4	1.6	13.8	1.5	0.3	14.5						16.8
SH	80	850001436	9.3	56.8	1.3	14.3	0.1	1.5	16						18.3
SS	84.5	850001437	9.1	30.2	3.2	26.4	0.5	2.2	22.7						24.4
SS	90.7	850001438	8.6	30.2	2.3	18.6	1.7	0.8	16.6						18.8
SH,SL	96.8	850001439	9.3	72.1	1.6	14.9	0.3	0.5	23.6						25.1
SH,SL	103.8	850001440	9.2	50.8	1.5	14.8	0.5	0.9	17.7						19.9
SS	110.7	850001441	9	30.2	1.7	16.5	0.2	0.9	22.2						23.9
SS,SH	116.7	850001442	8.7	32.4	2.4	24.2	0.5	1	27.9						28.5
CO	122.7	COAL													
SH,SL	132.1	850001443	8.2	43.7	3.4	33.8	1.4	0.9	31.5						31.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24408C
DATE CORED:22OCT1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001424				0.03		0.94	77.22	.	76.28	36.6	28.6	34.8			
SH	850001425				0.02		0.63	42.61	.	41.98	21.6	41.6	36.8			
SL	850001426				0.03		0.94	16.23	.	15.29	67.6	19.6	12.3			
SL	850001427				0.01		0.31	50.3	.	49.99	69	18.2	12.8			
SS	850001428				0.02		0.63	38.75	.	38.12	74	15.2	10.8			
SS	850001429				0.06		1.88	6.31	.	4.43	81.6	10.6	7.8			
SH,CO	850001430				0.47		14.69	6.71	7.98	.	45.6	32.6	21.8			
SH	850001431				0.52		16.25	6.91	9.34	.	6	49.2	44.8			
SH,SL3	850001432				0.03		0.94	161.18	.	160.24	64.6	23.6	11.8			
SH,CO	850001433				0.85		26.56	22.09	4.47	.	12	42.6	45.4			
CO	COAL															
SH	850001434				0.08		2.5	7.34	.	4.84	10	33.6	56.4			
SH	850001435				0.02		0.63	39.94	.	39.31	28	40.2	31.8			
SH	850001436				<0.01		0.31	33.35	.	33.04	30.6	36.6	32.8			
SS	850001437				0.02		0.63	46.21	.	45.58	73.6	14.6	11.8			
SS	850001438				0.08		2.5	46.17	.	43.67	77.2	12	10.8			
SH,SL	850001439				0.03		0.94	15.91	.	14.97	17.2	42	40.8			
SH,SL	850001440				0.02		0.63	39.2	.	38.57	30.2	39	30.8			
SS	850001441				0.01		0.31	15.07	.	14.76	59.6	25.6	14.8			
SS,SH	850001442				0.01		0.31	5.69	.	5.38	74.8	14.2	11			
CO	COAL															
SH,SL	850001443				0.63		19.69	9.89	9.8	.	47.2	27.6	25.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24408C
DATE CORED:22OCT1982
DATE REPORTED:10SEP1985

Dry Basis

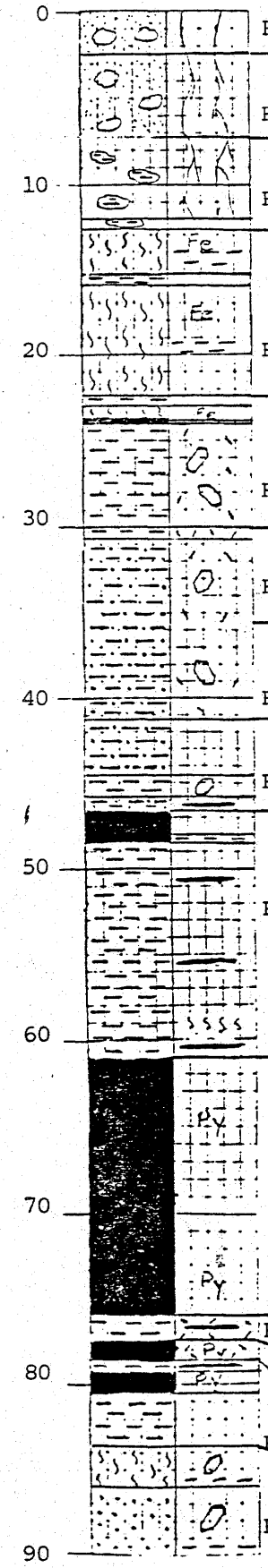
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001424		0.04		<0.6		0.2	2.2	12.3	5.7			
SH	850001425		0.14		<0.6		0.1	3.6	7.8	2.2			
SL	850001426		0.04		<0.6		<0.1	0.4	8.9	1.5			
SL	850001427		0.05		<0.6		0.2	0.7	15.3	3.7			
SS	850001428		0.03		<0.6		0.2	0.6	21	4.1			
SS	850001429		<0.01		<0.6		0.2	0.3	27.3	1.4			
SH,CO	850001430		<0.01		0.9		2.8	4.1	236.8	5.3			
SH	850001431		<0.01		0.9		3.7	6.9	22.8	7.5			
SH,SL3	850001432		<0.01		<0.6		1.4	2.1	89.9	7.4			
SH,CO	850001433		<0.01		0.9		2.7	6	303.8	12.5			
CO	COAL												
SH	850001434		0.26		<0.6		1.4	6.6	146.2	<1			
SH	850001435		0.03		0.9		1.6	3.1	408.9	3.8			
SH	850001436		0.32		<0.6		1.5	2.7	671.7	8.5			
SS	850001437		0.29		<0.6		1.2	1.1	448.3	3.6			
SS	850001438		0.19		<0.6		1	1	39.6	2.1			
SH,SL	850001439		0.11		<0.6		1.3	6.1	19.8	1.5			
SH,SL	850001440		0.17		<0.6		2.1	2.6	60.3	6.8			
SS	850001441		0.19		<0.6		1.4	1.6	38.9	4.1			
SS,SH	850001442		0.1		0.8		0.5	1.4	24.6	1.8			
CO	COAL												
SH,SL	850001443		0.3		<0.6		2.1	7.3	53.1	1.4			

HOLE NO. 24412-C DRILLER J. Elliott PAGE 1

LOCATION S45161.0 DATE DRILLED 12-4-82 SUB AREA J-21

E57674.0

ELEVATION 6980.5



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-480	50.2	1.8	2.5	2.4	1.4	0.01	8.2
R-83-481	62.7	6.5	8.1	1.4	1.7	<0.01	8.5
R-83-482	75.7	6.3	10.8	2.1	3.8	<0.01	8.7
R-83-483	48.9	6.3	10.5	1.8	3.8	0.01	8.4
R-83-484	72.6	9.1	33.2	9.8	16.6	0.09	4.9
R-83-485	50.6	15.9	17.4	0.8	1.6	<0.01	8.5
R-83-486	48.8	16.8	15.9	0.8	1.0	0.08	8.3
R-83-487	37.0	22.9	24.6	1.4	0.9	0.07	8.3
B1X R-83-488	37.2	20.1	24.6	2.6	0.4	0.33	8.2
RXX (83-348-R)		6.74		12803		0.42	7.9
R-83-489	41.1	24.4	18.1	0.7	0.4	0.44	8.1
MXX (83-349-R)		8.70		12372		0.62	8.0
R-83-490	44.8	22.0	11.0	0.3	0.2	0.17	8.3
R-83-491	27.6	19.1	14.2	0.8	0.3	0.13	8.9

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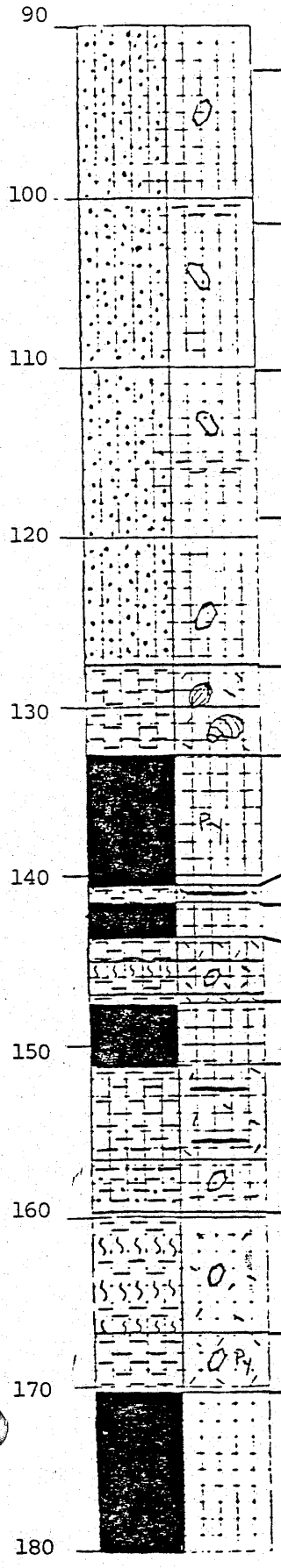
HOLE NO. 24412-C DRILLER J. Elliott PAGE 2

LOCATION S45161.0 DATE DRILLED 12-4-82 SUB AREA J-21

E57674.0

ELEVATION 6980.5



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-492	27.6	17.3	13.4	0.8	0.4	0.01	9.0
R-83-493	28.9	19.2	13.6	0.7	0.3	0.01	9.2
R-83-494	30.1	17.2	13.9	0.9	0.4	0.01	8.9
R-83-495	28.9	22.3	21.2	1.3	0.5	0.22	8.3
R-83-496	44.5	36.7	30.7	0.6	0.8	1.71	8.0
YOX (83-350-R)		10.42		12286		0.84	8.0
R-83-497	55.0	17.2	9.4	0.3	0.3	2.00	8.3
(83-351-R)		18.48		11035		6.40	5.5
R-83-498	48.9	37.7	43.0	1.8	0.8	1.91	6.8
Y1X (83-352-R)		11.04		12263		2.19	7.6
R-83-499	44.4	28.3	19.0	0.6	0.3	0.22	8.7
R-83-500	30.1	20.8	16.8	1.0	0.3	0.01	8.8
R-83-501	44.3	30.2	23.4	0.4	0.8	1.32	7.7
NXX (83-353-R)		7.59		12660		0.61	8.0

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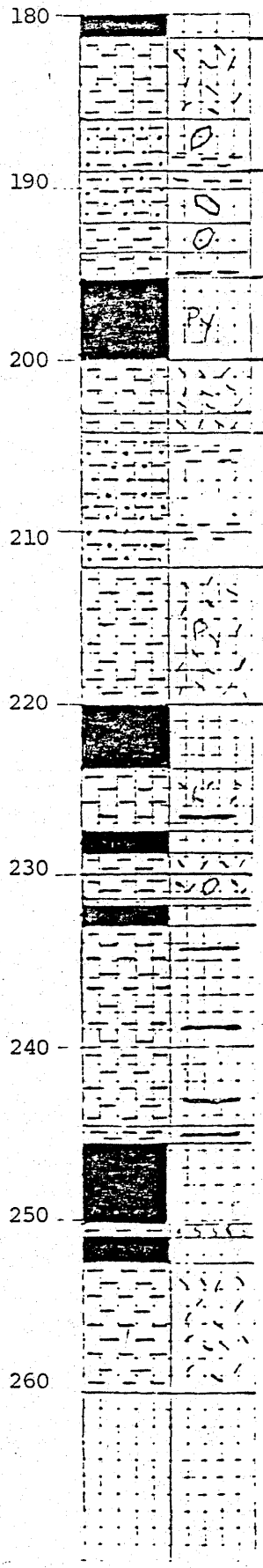
HOLE NO. 24412-C DRILLER J. Elliott PAGE 3

LOCATION S 45161.0 DATE DRILLED 12-4-82 SUB AREA J-21

E 57674.0

ELEVATION 6980.5



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL. Na.	SOL. Ca. (BTU)	SOL. Mg	%S	pH
R-83-502	32.8	25.8	19.1	0.7	0.4	0.32	8.5
R-83-503	36.2	26.4	17.7	0.7	0.2	0.50	8.3
EOX (83-354-R)		6.03		12977		0.48	8.1
R-83-504	63.0	38.7	17.3	0.3	0.1	0.11	8.8
R-83-505	36.2	27.8	15.2	0.4	0.2	0.03	8.8
R-83-506	71.2	28.0	14.0	0.3	0.2	0.08	9.0
E1A							
E1B							
E2X							

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24412C
DATE CORED:04DEC1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001444	8.2	50.2	0.5	2.5	2.4	1.4	1.8						1.4
CL	2.4	850001445	8.5	62.7	1.1	8.1	1.4	1.7	6.5						7.7
SH	7.2	850001446	8.7	75.7	1.5	10.8	2.1	3.8	6.3						7.4
SL,SH	12.7	850001447	8.4	48.9	1.4	10.5	1.8	3.8	6.3						7.4
SH,SL,CO	22.3	850001448	4.9	72.6	4.8	33.2	9.8	16.6	9.1						10.8
SH	30	850001449	8.5	50.6	1.9	17.4	0.8	1.6	15.9						18.2
SH	35.6	850001450	8.3	48.8	1.6	15.9	0.8	1	16.8						19
SH	41.2	850001451	8.3	37	2.8	24.6	1.4	0.9	22.9						24.5
CO,SH	46.6	850001452	8.2	37.2	2.5	24.6	2.6	0.4	20.1						22.1
CO	61.1	COAL													
SH	76	850001453	8.1	41.1	1.5	18.1	0.7	0.4	24.4						25.8
CO	77.3	COAL													
SH,CO	78.6	850001454	8.3	44.8	1.1	11	0.3	0.2	22						23.8
SL,SS	83.7	850001455	8.9	27.6	1.5	14.2	0.8	0.3	19.1						21.2
SL	92.5	850001456	9	27.6	1.5	13.4	0.8	0.4	17.3						19.5
SL	101.3	850001457	9.2	28.9	1.4	13.6	0.7	0.3	19.2						21.3
SL	110.1	850001458	8.9	30.1	1.6	13.9	0.9	0.4	17.2						19.4
SL	118.9	850001459	8.3	28.9	2.4	21.2	1.3	0.5	22.3						24
SH	127.5	850001460	8	44.5	3	30.7	0.6	0.8	36.7						34.6
CO	132.9	COAL													
SH	140.3	850001461	8.3	55	1	9.4	0.3	0.3	17.2						19.4
CO	141.6	COAL													
SH,SL	143.7	850001462	6.8	48.9	4.4	43	1.8	0.8	37.7						35.2
CO	147.6	COAL													
SH	151.3	850001463	8.7	44.4	1.9	19	0.6	0.3	28.3						28.8
SH,SL	159.8	850001464	8.8	30.1	1.8	16.8	1	0.3	20.8						22.7
SH	166.9	850001465	7.7	44.3	2.4	23.4	0.4	0.8	30.2						30.2
CO	170.3	COAL													
SH	181.6	850001466	8.5	32.8	1.9	19.1	0.7	0.4	25.8						26.9
SH	189	850001467	8.3	36.2	2	17.7	0.7	0.2	26.4						27.4
CO	195.2	COAL													
SH	200	850001468	8.8	63	1.8	17.3	0.3	0.1	38.7						35.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24412C
DATE CORED:04DEC1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001444				0.01		0.31	6.81	.	6.5	44.2	32.8	23			
CL	850001445				<0.01		0.31	41.06	.	40.75	48	20.4	31.6			
SH	850001446				<0.01		0.31	48.43	.	48.12	23	35.8	41.2			
SL,SH	850001447				0.01		0.31	19.78	.	17.47	56.4	25.4	18.2			
SH,SL,CO	850001448				0.09		2.81	3.49	.	1.68	16.8	32	51.2			
SH	850001449				<0.01		0.31	50.35	.	50.04	51.8	27	21.2			
SH	850001450				0.08		2.5	13.76	.	11.26	42.8	30	27.2			
SH	850001451				0.07		2.19	51.37	.	49.18	60.8	18	21.2			
CO,SH	850001452				0.33		10.31	28.97	.	18.66	41.8	33	25.2			
CO	COAL															
SH	850001453				0.44		13.75	7.43	6.32	.	33.8	29	37.2			
CO	COAL															
SH,CO	850001454				0.17		5.31	3.14	2.17	.	20.8	41	38.2			
SL,SS	850001455				0.13		4.06	8.77	.	4.71	66.8	20	13.2			
SL	850001456				0.01		0.31	13.57	.	13.26	73.8	15	11.2			
SL	850001457				0.01		0.31	46.15	.	45.84	76.8	13	10.2			
SL	850001458				0.01		0.31	68.55	.	68.24	77.8	12.6	9.6			
SL	850001459				0.22		6.88	18.03	.	11.15	69	17	14			
SH	850001460				1.71		53.44	12.86	40.58	.	20	48	32			
CO	COAL															
SH	850001461				2		62.5	6.93	55.57	.	92	6	2			
CO	COAL															
SH,SL	850001462				1.91		59.69	4.99	54.7	.	62	20	18			
CO	COAL															
SH	850001463				0.22		6.88	32.2	.	25.32	31	33	36			
SH,SL	850001464				0.01		0.31	38.66	.	38.35	50	32	18			
SH	850001465				1.32		41.25	4.65	36.6	.	24	46	30			
CO	COAL															
SH	850001466				0.32		10	83.89	.	73.89	39.5	32	28.5			
SH	850001467				0.5		15.63	110.06	.	94.43	44.8	31	24.2			
CO	COAL															
SH	850001468				0.11		3.44	26.25	.	22.81	23.8	27.4	48.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24412C
DATE CORED:04DEC1982
DATE REPORTED:10SEP1985

Dry Basis

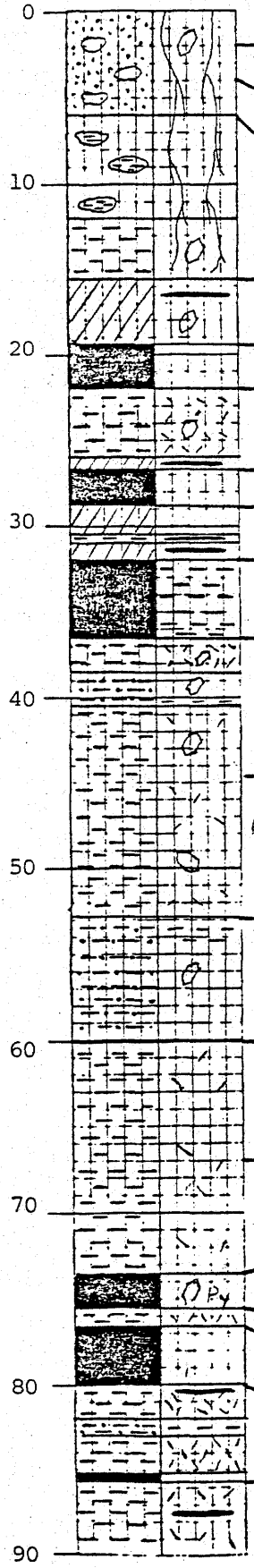
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001444		0.06		<0.6		0.1	6	114.9	10.4			
CL	850001445		<0.01		<0.6		<0.1	2.6	71.3	4.5			
SH	850001446		0.12		<0.6		0.2	5.8	84.4	2.1			
SL,SH	850001447		0.19		<0.6		<0.1	1.6	107	2.6			
SH,SL,CO	850001448		0.42		<0.6		1.2	10	118.5	17.6			
SH	850001449		0.21		<0.6		1.4	2.5	37.8	3.7			
SH	850001450		0.36		0.9		2.7	2.2	37.2	7.8			
SH	850001451		0.42		1.1		1.7	2	50.1	8.2			
CO,SH	850001452		0.06		<0.6		1.8	3.7	54.9	4.2			
CO	COAL												
SH	850001453		0.09		0.9		3.2	6.5	26.7	1.2			
CO	COAL												
SH,CO	850001454		0.22		<0.6		3.3	6.9	21	<1			
SL,SS	850001455		0.08		<0.6		1.2	1.2	25.2	<1			
SL	850001456		0.09		<0.6		1.1	1.1	36.7	1.2			
SL	850001457		0.07		<0.6		0.9	1.3	47.3	1.6			
SL	850001458		0.04		<0.6		0.7	1.6	43.5	1.8			
SL	850001459		<0.01		<0.6		1.1	3.4	43.6	2.3			
SH	850001460		0.06		<0.6		3.2	5.3	47.1	8.9			
CO	COAL												
SH	850001461		<0.01		<0.6		0.6	0.8	473.7	1.3			
CO	COAL												
SH,SL	850001462		0.04		<0.6		4.7	4.6	303.2	11.7			
CO	COAL												
SH	850001463		0.15		<0.6		2.5	6.4	34.9	1.2			
SH,SL	850001464		0.08		<0.6		2	2.3	60.6	1.9			
SH	850001465		<0.01		<0.6		8.4	7.2	169.7	35.4			
CO	COAL												
SH	850001466		0.33		<0.6		2.3	2.2	29.1	1.2			
SH	850001467		0.31		<0.6		1.8	3.4	50.5	3.4			
CO	COAL												
SH	850001468		0.2		<0.6		0.6	5.9	12.2	<1			

HOLE NO. 24413-C DRILLER J. Elliott PAGE

LOCATION S45056.0 DATE DRILLED 12-15-82 SUB AREA J-21

E61729.0

ELEVATION 7047.5



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-507	48.5	1.0	1.6	4.2	0.7	<0.01	8.0
R-83-508	40.2	1.1	1.4	2.7	0.7	<0.01	8.2
R-83-509	38.2	1.4	2.0	2.0	2.0	0.01	8.3
R-83-510	79.8	3.2	5.4	5.0	0.6	0.01	7.4
R-83-511	68.4	2.7	7.6	14.4	1.7	0.06	4.8
(83-355-R)		21.51		8349		0.75	3.2
R-83-512	58.1	1.1	6.3	30.0	38.1	0.29	4.7
VOX (83-356-R)		22.38		10324		0.71	6.4
R-83-513	58.1	5.3	10.2	4.6	2.9	0.88	6.4
V1X (83-357-R)		20.75		10679		0.93	6.9
R-83-514	45.2	30.5	19.3	0.5	0.3	0.10	8.4
R-83-515	66.2	18.4	16.5	0.6	1.0	0.13	9.0
R-83-516	34.6	30.7	22.8	0.5	0.6	0.17	8.5
R-83-517	66.0	17.7	17.3	1.1	0.8	0.11	8.9
R-83-518	81.2	23.7	15.0	0.3	0.5	0.14	8.9
BOX (83-358-R)		11.83		12201		0.55	8.2
R-83-519	56.7	49.5	29.0	0.3	0.4	1.80	7.8
B1X (83-359-R)		6.30		12868		0.56	8.1
R-83-520	47.3	34.1	20.2	0.4	0.3	0.29	8.5
R-83-521	52.2	32.6	19.3	0.5	0.2	0.38	8.3

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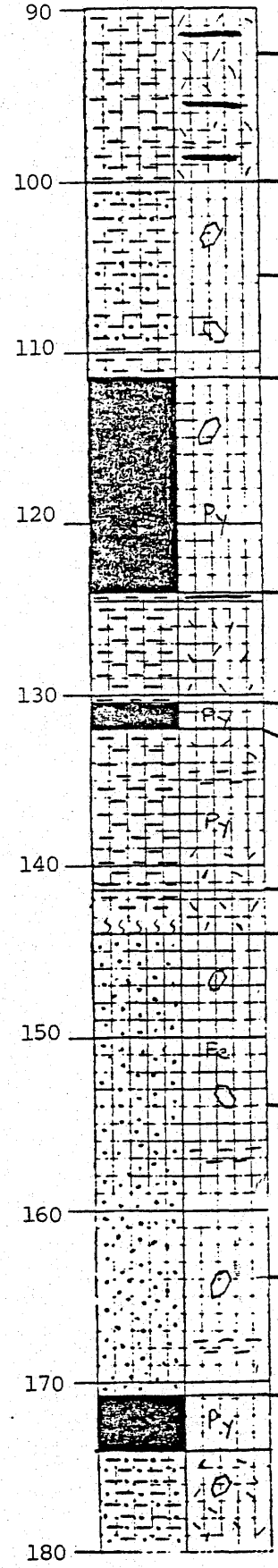
HOLE NO. 24413-C DRILLER J. Elliott PAGE

LOCATION S 45056.0 DATE DRILLED 12-15-82 SUB AREA J-21

E 61729.0

ELEVATION 7047.5



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-522	36.4	31.8	21.3	0.6	0.3	0.23	8.6
R-83-523	34.2	28.9	19.4	0.6	0.3	0.07	8.6
R-83-524	34.1	24.6	20.6	1.0	0.4	0.13	8.2
RXX (83-360-R)		9.79		12359		0.67	7.8
R-83-525	46.5	21.2	15.0	0.7	0.3	0.42	8.3
MXX (83-361-R)		5.30		13013		0.73	7.3
R-83-526	50.4	2.7	4.3	2.5	2.7	0.06	8.0
R-83-527	46.2	2.1	3.5	2.6	3.0	0.05	8.1
R-83-528	36.0	1.4	2.2	2.4	2.3	<0.01	8.3
R-83-529	38.0	1.6	2.6	2.7	2.4	0.01	8.2
R-83-530	36.1	1.3	3.1	6.5	5.6	0.15	7.6
YOA							

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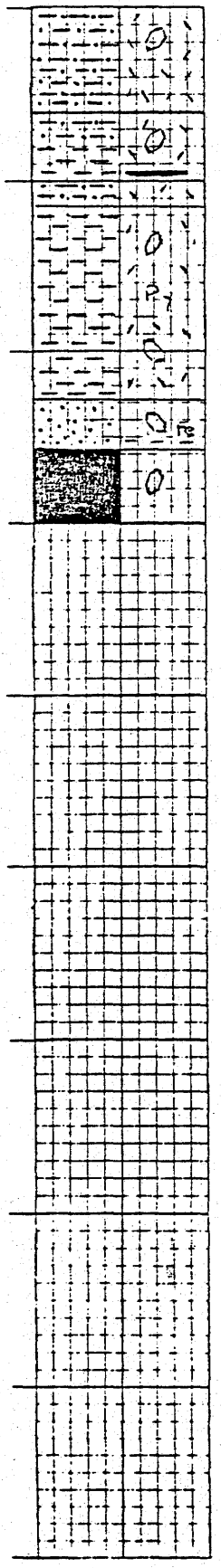
HOLE NO. 24413-C DRILLER J. Elliott PAGE 3

LOCATION S 45056.0 DATE DRILLED 12-15-82 SUB AREA J-21

E61729.0

ELEVATION 7047.5

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24413C
DATE CORED:15DEC1982
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001469	8	48.5	0.5	1.6	4.2	0.7	1						0.2
SO	2	850001470	8.2	40.2	0.4	1.4	2.7	0.7	1.1						0.3
SO	4	850001471	8.3	38.2	0.6	2	2	2	1.4						0.7
SH	6	850001472	7.4	79.8	1.6	5.4	5	0.6	3.2						3.4
SH	15.5	850001473	4.8	68.4	3	7.6	14.4	1.7	2.7						2.7
CO	19.4	COAL													
SH	22	850001474	4.7	58.1	4.9	6.3	30	38.1	1.1						0.3
CO	26.7	COAL													
SH	28.8	850001475	6.4	58.1	1.8	10.2	4.6	2.9	5.3						6.2
SH	36.7	850001476	8.4	45.2	2.2	19.3	0.5	0.3	30.5						30.4
SH	44.8	850001477	9	66.2	1.9	16.5	0.6	1	18.4						20.6
SH	52.9	850001478	8.5	34.6	2.9	22.8	0.5	0.6	30.7						30.5
SH	60.2	850001479	8.9	66	1.9	17.3	1.1	0.8	17.7						19.9
SH	66.9	850001480	8.9	81.2	1.5	15	0.3	0.5	23.7						25.2
CO	73.6	COAL													
SH	75.4	850001481	7.8	56.7	3.6	29.3	0.3	0.4	49.5						41.8
CO	76.6	COAL													
SH,CO	80.1	850001482	8.5	47.3	2.3	20.2	0.4	0.3	34.1						32.9
SH	85.7	850001483	8.3	52.2	2.2	19.3	0.5	0.2	32.6						31.9
SH	92.8	850001484	8.6	36.4	2.4	21.3	0.6	0.3	31.8						31.3
SH	100	850001485	8.6	34.2	2.2	19.4	0.6	0.3	28.9						29.3
SH	105.7	850001486	8.2	34.1	2.4	20.6	1	0.4	24.6						25.6
CO	111.4	COAL													
SH	124.1	850001487	8.3	46.5	1.7	15	0.7	0.3	21.2						23.1
CO	130.5	COAL													
SH	132	850001488	8	50.4	0.9	4.3	2.5	2.7	2.7						2.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24413C
DATE CORED:15DEC1982
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001469				<0.01		0.31	554.34	.	554.03	63.8	18.8	17.4			
SO	850001470				<0.01		0.31	212.06	.	211.75	68.2	18.4	13.4			
SO	850001471				0.01		0.31	89	.	88.69	68.2	20.4	11.4			
SH	850001472				0.01		0.31	7.7	.	6.39	2.6	41	56.4			
SH	850001473				0.06		1.88	3.26	1.38	.	9.6	23.4	67			
CO	COAL															
SH	850001474				0.29		9.06	1.52	7.54	.	20.6	41	38.4			
CO	COAL															
SH	850001475				0.88		27.5	7.56	19.94	.	54.6	13	32.4			
SH	850001476				0.1		3.13	33.36	.	30.23	32.6	41	26.4			
SH	850001477				0.13		4.06	29.15	.	25.09	19.6	43	37.4			
SH	850001478				0.17		5.31	24.59	.	19.28	61.6	20	18.4			
SH	850001479				0.11		3.44	35.11	.	31.67	31.6	32	36.4			
SH	850001480				0.14		4.38	21.96	.	17.58	16.6	39	44.4			
CO	COAL															
SH	850001481				1.8		56.25	7.64	58.61	.	38	27.6	34.4			
CO	COAL															
SH,CO	850001482				0.29		9.06	28.94	.	19.88	43	25.6	31.4			
SH	850001483				0.38		11.88	8.86	3.02	.	32	29.6	38.4			
SH	850001484				0.23		7.19	33.08	.	25.89	50	26.6	23.4			
SH	850001485				0.07		2.19	22.2	.	20.01	53	29	18			
SH	850001486				0.13		4.06	16.55	.	12.49	63	24	13			
CO	COAL															
SH	850001487				0.42		13.12	29.84	.	16.72	25.4	29.2	45.4			
CO	COAL															
SH	850001488				0.06		1.88	55.32	.	53.44	49.4	30.8	19.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24413C
DATE CORED:15DEC1982
DATE REPORTED:10SEP1985

Dry Basis

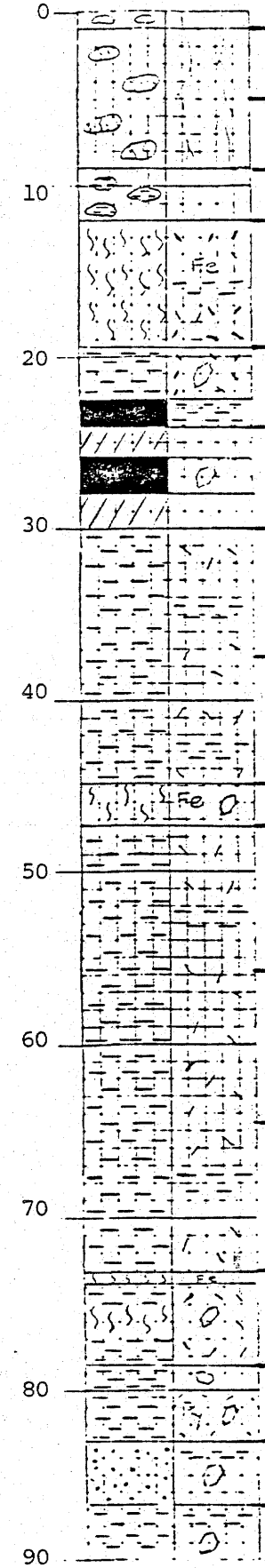
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001469		0.05		<0.6		0.1	1.4	12	17.4			
SO	850001470		0.05		<0.6		<0.1	0.7	7	12			
SO	850001471		0.06		<0.6		<0.1	0.7	5.7	3			
SH	850001472		0.07		<0.6		0.1	7.5	7.1	3.1			
SH	850001473		0.06		<0.6		0.4	10.2	64.3	1.4			
CO	COAL												
SH	850001474		0.09		<0.6		2.1	9.3	232.7	9.9			
CO	COAL												
SH	850001475		0.03		<0.6		1	6.6	127.2	1.6			
SH	850001476		0.08		<0.6		1.6	3.3	36.9	3.2			
SH	850001477		0.15		<0.6		1.7	7.1	56.6	6			
SH	850001478		0.2		<0.6		1	4.5	35.9	3.4			
SH	850001479		0.17		<0.6		1.9	6.8	55.9	7.9			
SH	850001480		0.12		0.7		1.2	5.4	17.5	1.5			
CO	COAL												
SH	850001481		0.68		1		5.7	7	351.3	18.4			
CO	COAL												
SH,CO	850001482		0.21		0.7		1.7	5.2	65.8	1.3			
SH	850001483		0.27		0.7		1.7	9.6	46.2	6			
SH	850001484		0.13		<0.6		2.5	3.1	72.6	3.4			
SH	850001485		0.08		<0.6		2	3.4	40.3	1.9			
SH	850001486		0.04		<0.6		2	2.3	33.3	2.7			
CO	COAL												
SH	850001487		0.15		<0.6		1.4	5.3	25.1	<1			
CO	COAL												
SH	850001488		0.03		1.3		2.6	2.8	112.4	5.6			

JE NO. 24415-C DRILLER J. Elliott 1

CATION S39997.0 DATE DRILLED 1-5-83 SUB AREA J-21

E65649.0

TION 7082.2



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na. (BIU)	SOL.Ca. (BIU)	SOL.Mg (BIU)	%S	pH
R-83-681	64.0	0.9	1.6	5.2	0.6	0.05	7.7
R-83-682	37.0	1.2	2.1	5.0	0.9	<0.01	8.3
R-83-683	46.2	5.2	11.6	2.3	7.6	<0.01	8.1
R-83-684	67.0	3.1	17.8	25.3	39.5	0.05	7.7
R-83-685	38.1	2.4	7.5	8.5	10.3	<0.01	8.0
R-83-686 VOX	64.8	1.4	8.0	27.6	37.4	0.44	5.0
R-83-687 V1X	58.8	29.6	25.6	0.7	0.8	0.54	7.3
R-83-688	97.1	31.2	15.6	0.2	0.3	0.06	9.2
R-83-689	34.4	37.1	20.3	0.3	0.3	0.04	9.0
R-83-690	31.8	27.4	17.3	0.5	0.3	0.03	8.6
R-83-691	85.1	34.4	17.2	0.3	0.2	0.29	9.1
R-83-692	70.0	27.8	15.2	0.2	0.4	0.10	9.3
R-83-693	61.0	34.0	17.0	0.2	0.3	0.04	9.3
R-83-694	40.3	35.3	23.7	0.5	0.4	0.06	8.6
R-83-695	40.3	31.0	25.0	0.6	0.7	<0.01	8.9
R-83-696	32.1	35.7	21.1	0.4	0.3	0.12	8.5

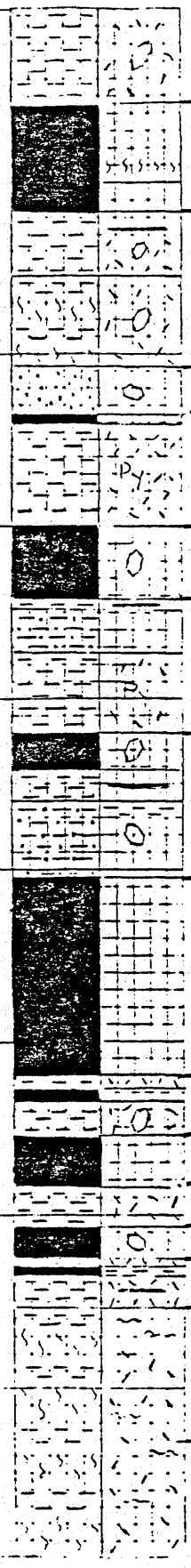
SEP 3 1986
OCT 27 1986

HOLE NO. 24415-C ENGINEER J. Elliott 2

LOCATION S39997.0 DATE DRILLED 1-5-83 SUB AREA J-21

E65649.0

LOCATION 7082.2



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-697	59.3	33.0	16.5	0.2	0.4	0.12	9.1
GXX (83-913-R)		14.84		11536		0.47	8.5
R-83-698	36.4	24.9	18.5	0.7	0.4	0.06	8.8
R-83-699	33.4	37.2	22.0	0.4	0.3	0.05	8.6
R-83-700	67.5	15.6	18.5	2.5	0.3	0.29	8.6
BOX (83-914-R)		6.89		12730		0.59	8.3
R-83-701	40.5	35.3	26.2	0.7	0.4	0.36	8.5
B1X R-83-702	40.7	37.3	30.1	0.8	0.5	0.72	7.8
RXX (83-915-R)		4.99		13053		0.44	8.1
R-83-703	46.9	21.1	33.1	3.4	1.5	1.30	7.2
R3X (83-916-R)		11.40		12146		0.51	8.3
R-83-704	46.7	29.5	21.9	0.6	0.5	0.72	6.8
MXX (83-917-R)		5.47		12952		0.67	8.2
R-83-705	41.4	17.6	17.2	1.5	0.4	0.54	7.6
R-83-706	34.2	21.7	16.1	0.6	0.5	0.13	8.6
R-83-707	32.2	23.0	15.4	0.3	0.6	0.08	8.8

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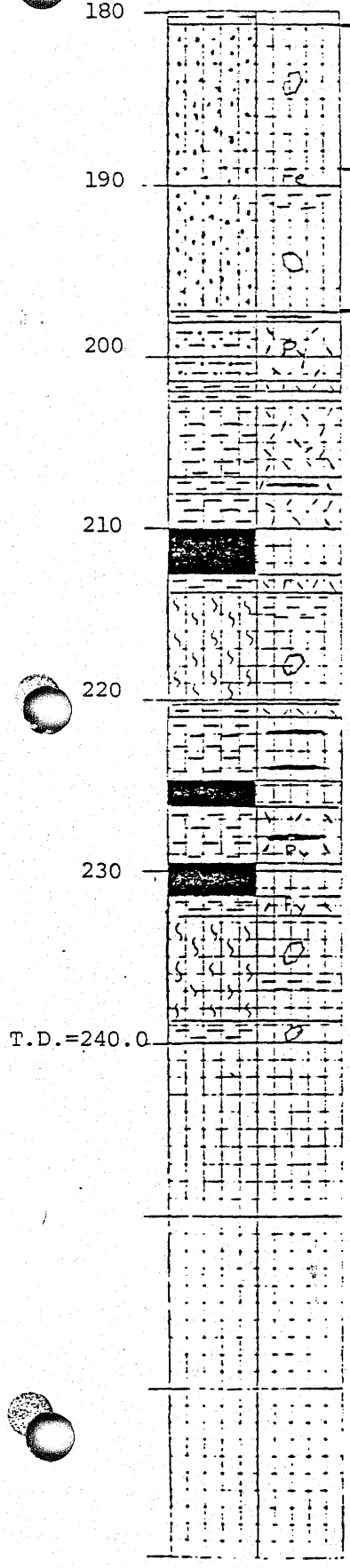
LOCATION S39997.0 DATE DRILLED 1-5-83 SUB AREA J-21

E65649.0

ELEVATION 7082.2



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-708	32.2	21.5	18.0	0.8	0.6	0.07	9.0
R-83-709	32.2	17.6	17.2	1.0	0.9	0.05	8.3

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24415C
DATE CORED:05JAN1983
DATE REPORTED:11SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001489	7.7	64	0.6	1.6	5.2	0.6	0.9						0.1
SL	1	850001490	8.3	37	0.4	2.1	5	0.9	1.2						0.5
SL	5	850001491	8.1	46.2	2	11.6	2.3	7.6	5.2						6
SH	9	850001492	7.7	67	5.3	17.8	25.3	39.5	3.1						3.2
SL	12	850001493	8	38.1	2.2	7.5	8.5	10.3	2.4						2.2
SH,CO	19.6	850001494	5	64.8	4.6	8	27.6	37.4	1.4						0.7
SH,CO	24.1	850001495	7.3	58.8	2.7	25.6	0.7	0.8	29.6						29.8
SH	30	850001496	9.2	97.1	1.6	15.6	0.2	0.3	31.2						30.9
SH	37.5	850001497	9	34.4	2	20.3	0.3	0.3	37.1						34.8
SL	44.9	850001498	8.6	31.8	1.8	17.3	0.5	0.3	27.4						28.1
SH	47.3	850001499	9.1	85.1	1.7	17.2	0.3	0.2	34.4						33.1
SH	55.9	850001500	9.3	70	1.4	15.2	0.2	0.4	27.8						28.4
SH	64.5	850001501	9.3	61	1.6	17	0.2	0.3	34						32.8
SL,SH	73.2	850001502	8.6	40.3	2.3	23.7	0.5	0.4	35.3						33.7
SH	78.5	850001503	8.9	40.3	2.2	25	0.6	0.7	31						30.8
SS	83.1	850001504	8.5	32.1	2.1	21.1	0.4	0.3	35.7						33.9
SH	86.8	850001505	9.1	59.3	1.6	16.5	0.2	0.4	33						32.2
CO	95.3	COAL													
SH,SL	101.7	850001506	8.8	36.4	1.8	18.5	0.7	0.4	24.9						26.2
SS	110.7	850001507	8.6	33.4	2.3	22	0.4	0.3	37.2						34.9
CO,SH	113.5	850001508	8.6	67.5	2.1	18.5	2.5	0.3	15.6						17.9
CO	120.1	COAL													
SH	124.2	850001509	8.5	40.5	2.6	26.2	0.7	0.4	35.3						33.7
CO,SH	132	850001510	7.8	40.7	3	30.1	0.8	0.5	37.3						35
CO	140.5	COAL													
SH,CO	152	850001511	7.2	46.9	3.4	33.1	3.4	1.5	21.1						23
CO	155.4	COAL													
SH	158.4	850001512	6.8	46.7	2.5	21.9	0.6	0.5	29.5						29.7
CO	160.7	COAL													
SH,CO	162.5	850001513	7.6	41.4	1.9	17.2	1.5	0.4	17.6						19.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24415C
DATE CORED:05JAN1983
DATE REPORTED:11SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001489				0.05		1.56	221.05	.	219.49	42	28	30			
SL	850001490				<0.01		0.31	65.76	.	65.45	66.4	19.6	14			
SL	850001491				<0.01		0.31	8.4	.	8.09	65.2	20.6	14.2			
SH	850001492				0.05		1.56	52.12	.	50.56	38.8	31	30.2			
SL	850001493				<0.01		0.31	249.24	.	248.93	74.8	18	7.2			
SH,CO	850001494				0.44		13.75	23.25	.	9.5	48.8	22	29.2			
SH,CO	850001495				0.54		16.88	8.84	8.04	.	54.8	13	32.2			
SH	850001496				0.06		1.88	31.69	.	29.81	14.8	26	59.2			
SH	850001497				0.04		1.25	46.62	.	45.37	43.8	33	23.2			
SL	850001498				0.03		0.94	28.26	.	27.32	74.8	16	9.2			
SH	850001499				0.29		9.06	11.61	.	2.55	14.8	42	43.2			
SH	850001500				0.1		3.12	26.64	.	23.52	21.8	39	39.2			
SH	850001501				0.04		1.25	36.29	.	35.04	28.8	36	35.2			
SL,SH	850001502				0.06		1.88	46.56	.	44.68	47.8	30	22.2			
SH	850001503				<0.01		0.31	215.46	.	215.15	43.8	36	20.2			
SS	850001504				0.12		3.75	42.42	.	38.67	66.8	22	11.2			
SH	850001505				0.12		3.75	29.1	.	25.35	23.8	36	40.2			
CO	COAL															
SH,SL	850001506				0.06		1.88	30.13	.	28.25	40.8	37	22.2			
SS	850001507				0.05		1.56	3.2	.	1.64	71.8	19	9.2			
CO,SH	850001508				0.29		9.06	15.06	.	6	14.8	45	40.2			
CO	COAL															
SH	850001509				0.36		11.25	42.17	.	30.92	44.8	32	23.2			
CO,SH	850001510				0.72		22.5	10.38	12.12	.	49.8	35	15.2			
CO	COAL															
SH,CO	850001511				1.3		40.62	10.56	30.06	.	73.8	20.5	5.7			
CO	COAL															
SH	850001512				0.72		22.5	3.3	19.2	.	67.8	22.6	9.6			
CO	COAL															
SH,CO	850001513				0.54		16.88	4.9	11.98	.	33.4	31	35.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24415C
DATE CORED:05JAN1983
DATE REPORTED:11SEP1985

Dry Basis

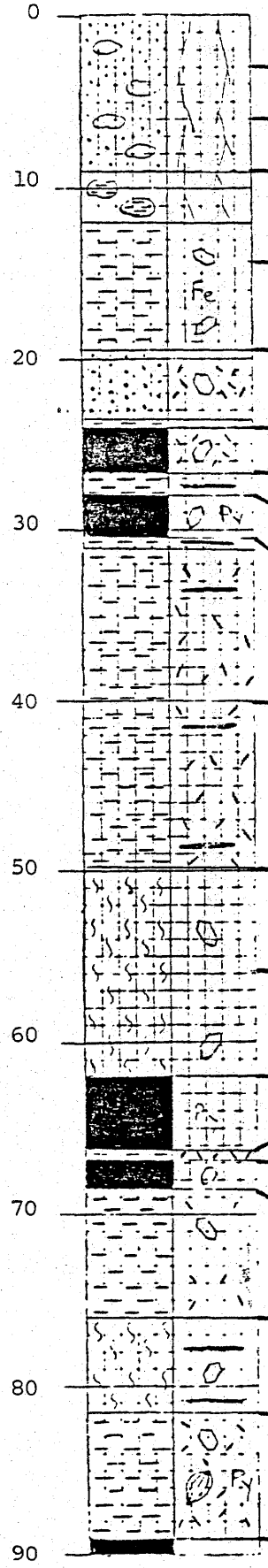
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001489		<0.01		<0.6		0.3	15.4	17.2	32			
SL	850001490		0.11		<0.6		<0.1	1.5	5.9	8.1			
SL	850001491		0.02		<0.6		<0.1	1.9	4.2	3			
SH	850001492		<0.01		<0.6		0.2	4.6	7.5	5.3			
SL	850001493		<0.01		0.6		<0.1	2.4	18	5.2			
SH,CO	850001494		<0.01		<0.6		2.2	5.8	86.3	21.4			
SH,CO	850001495		0.1		<0.6		0.7	6.2	56.5	1.7			
SH	850001496		0.11		0.7		1.4	12.8	28	3.4			
SH	850001497		0.26		<0.6		1.1	3.2	62.6	8			
SL	850001498		0.27		<0.6		0.4	1.7	38.5	2.9			
SH	850001499		0.36		<0.6		1.4	6.5	34.1	22			
SH	850001500		0.16		<0.6		1.2	5.1	33.2	6.9			
SH	850001501		0.16		<0.6		1.8	3.5	56.1	7.7			
SL,SH	850001502		0.28		0.6		1.8	3.6	74.4	9.3			
SH	850001503		0.14		0.9		1.4	2	174.8	12.7			
SS	850001504		0.14		<0.6		1.3	1.7	53.5	3.4			
SH	850001505		0.09		<0.6		0.9	7	36.9	5.4			
CO	COAL												
SH,SL	850001506		0.08		<0.6		1.1	2.4	28.9	<1			
SS	850001507		0.15		<0.6		0.6	1.6	18.6	1.1			
CO,SH	850001508		0.18		1		1.7	3.8	26.2	3			
CO	COAL												
SH	850001509		0.23		<0.6		1.2	3.2	26.4	2.5			
CO,SH	850001510		0.16		<0.6		0.2	3.2	31.6	<1			
CO	COAL												
SH,CO	850001511		<0.01		<0.6		4.2	5.5	199.3	17.4			
CO	COAL												
SH	850001512		0.13		<0.6		5.3	3.6	167.6	5.9			
CO	COAL												
SH,CO	850001513		0.07		0.7		3.5	17.4	63.2	<1			

HOLE NO. 24416-C DRILLER J. Elliott PAGE 1

LOCATION S48970.2 DATE DRILLED 1-15-83 SUB AREA J-21

E57145.0

ELEVATION 6972.9



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-710	65.2	1.5	5.2	7.3	15.8	0.04	7.8
R-83-711	54.7	2.4	12.8	12.1	42.9	0.04	7.1
R-83-712	54.8	3.1	21.1	18.5	75.0	0.12	7.0
R-83-713	57.0	2.2	11.3	10.0	42.9	0.07	8.0
R-83-714	57.0	1.6	4.9	3.1	14.7	0.01	8.0
R-83-715	40.3	1.2	3.6	4.0	13.7	0.01	7.5
(83-918-R) BOX		8.07		12461		0.61	5.4
R-83-716	62.4	1.5	4.0	7.7	5.8	0.87	6.3
B1X (83-919-R)		7.08		12848		0.69	6.5
R-83-717	54.8	5.7	10.6	1.1	5.8	0.26	7.8
R-83-718	47.2	9.8	11.8	1.6	1.3	0.09	8.1
R-83-719	32.1	9.0	9.5	0.8	1.4	0.04	8.5
R-83-720	40.1	15.0	10.6	0.4	0.6	0.03	8.2
(83-920-R) MXX		12.96		11918		0.62	7.7
R-83-721	51.5	23.0	13.6	0.3	0.4	0.11	8.5
MXX (83-922-R)		10.47		12288		0.63	7.9
R-83-722	48.8	34.0	20.1	0.4	0.3	0.77	7.7
R-83-723	34.0	26.2	15.5	0.4	0.3	0.09	8.8
R-83-724	44.4	33.6	23.8	0.6	0.4	1.28	8.1

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JOB NO. 24410-0 ... PROJ. NO. 211000 ...

LOCATION S48970.2 DATE DRILLED 1-15-83 SUB AREA J-21

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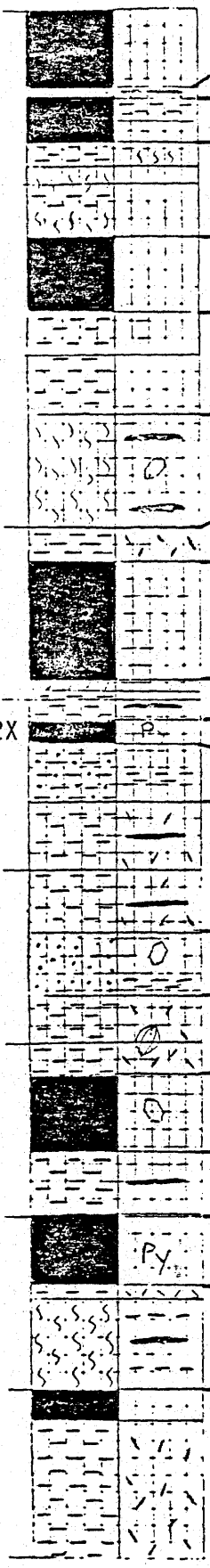
ELEVATION 6972.9



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
YOA (83-923-R)		7.73		12695		1.03	8.1
R-83-725	56.3	32.7	17.9	0.4	0.2	2.52	7.8
YOB (83-924-R)		15.43		11565		2.53	8.1
R-83-726	34.1	21.0	13.3	0.3	0.5	0.28	8.5
Y1X (83-925-R)		9.45		12820		0.75	8.4
R-83-727	44.8	30.2	15.1	0.3	0.2	0.06	8.8
R-83-728	34.1	16.3	12.1	0.7	0.4	0.04	8.8
R-83-729	44.3	33.1	26.7	1.0	0.3	1.68	7.7
NXX (83-926-R)		12.22		11996		0.76	8.0
R-83-730	36.8	17.3	16.9	0.6	1.3	0.24	8.4
(83-927-R)		8.84		12644		0.55	8.4
R-83-731	36.2	12.7	11.4	0.5	1.1	0.04	8.8
R-83-732	42.4	17.0	16.1	0.6	1.2	0.25	8.5
R-83-733	32.0	16.4	10.4	0.5	0.3	0.03	9.0
R-83-734	38.2	27.9	18.7	0.7	0.2	0.59	8.3
(83-928-R) E1A		7.54		12845		0.36	8.4
R-83-735	69.5	27.8	15.2	0.5	0.1	<0.01	8.7
E1B (83-929-R)		6.06		13094		0.38	8.2
R-83-736	32.1	14.1	10.0	0.5	0.5	0.02	8.7
E2A R-83-737	53.3	27.6	16.3	0.5	0.2	0.10	8.5

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LE NO. 24416-C DRILLER J. Elliott PAGE 3

CATION S48970.2 DATE DRILLED 1-15-83 SUB AREA J-21

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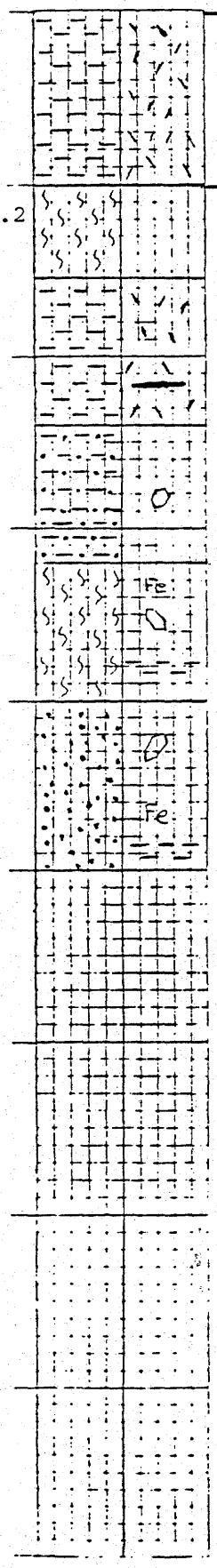

SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-738	44.4	14.7	15.8	0.8	1.5	0.05	9.0

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24416C
DATE CORED:15JAN1983
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001514	7.8	65.2	2.2	5.2	7.3	15.8	1.5						0.9
SO	3	850001515	7.1	54.7	4.7	12.8	12.1	42.9	2.4						2.2
SO	6	850001516	7	54.8	7.2	21.1	18.5	75	3.1						3.2
SH	9.1	850001517	8	57	4.5	11.3	10	42.9	2.2						1.9
SH	14.3	850001518	8	57	1.9	4.9	3.1	14.7	1.6						1.1
SS,SH	19.5	850001519	7.5	40.3	1.8	3.6	4	13.7	1.2						0.5
CO	23.9	COAL													
SH	26.8	850001520	6.3	62.4	1.4	4	7.7	5.8	1.5						0.9
CO	28.0	COAL													
SH,CO	30.4	850001521	7.8	54.8	1.3	10.6	1.1	5.8	5.7						6.7
SH,CO	40.1	850001522	8.1	47.2	1.4	11.8	1.6	1.3	9.8						11.7
SL	49.8	850001523	8.5	32.1	1.1	9.5	0.8	1.4	9						10.7
SL	55.9	850001524	8.2	40.1	1.1	10.6	0.4	0.6	15						17.3
CO	62	COAL													
SH	66.2	850001525	8.5	51.5	1.3	13.6	0.3	0.4	23						24.6
CO	66.8	COAL													
SH	68.6	850001526	7.7	48.8	2.2	20.1	0.4	0.3	34						32.8
SL	76.1	850001527	8.8	34	1.6	15.5	0.4	0.3	26.2						27.2
SH	81.4	850001528	8.1	44.4	2.5	23.8	0.6	0.4	33.6						32.6
CO	89.1	COAL													
SH	94.5	850001529	7.8	56.3	1.8	17.9	0.4	0.2	32.7						32
CO	95.1	COAL													
SH,SL	97.7	850001530	8.5	34.1	1.3	13.3	0.3	0.5	21						22.9
CO	103.1	COAL													
SH	107.5	850001531	8.8	44.8	1.5	15.1	0.3	0.2	30.2						33.2
SL	113.5	850001532	8.8	34.1	1.2	12.1	0.7	0.4	16.3						18.6
SH	120	850001533	7.7	44.3	2.7	26.7	1	0.3	33.1						32.2
CO	122	COAL													
SH	128.9	850001534	8.4	36.8	1.5	16.9	0.6	1.3	17.3						19.5
CO	131.2	COAL													
SH	132.6	850001535	8.8	36.2	1	11.4	0.5	1.1	12.7						14.9
SH	136	850001536	8.5	42.4	1.5	16.1	0.6	1.2	17						19.2
SS	143.7	850001537	9	32	1	10.4	0.5	0.3	16.4						18.6
SH	147.3	850001538	8.3	38.2	1.9	18.7	0.7	0.2	27.9						28.5
CO	151.9	COAL													
SH	156.2	850001539	8.7	69.5	1.4	15.2	0.5	0.1	27.8						28.4
CO	159.9	COAL													
SH,SL	164	850001540	8.7	32.1	1	10	0.5	0.5	14.1						16.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24416C
DATE CORED:15JAN1983
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001514				0.04		1.25	5.01	.	3.76	14.4	48	37.6			
SO	850001515				0.04		1.25	4.5	.	3.25	34.4	40	25.6			
SO	850001516				0.12		3.75	4.75	.	1	43.4	34	22.6			
SH	850001517				0.07		2.19	10.16	.	7.97	40.4	29.6	30			
SH	850001518				0.01		0.31	22.62	.	22.31	28.8	38.6	32.6			
SS,SH	850001519				0.01		0.31	4.52	.	4.21	63.4	21	15.6			
CO	COAL															
SH	850001520				0.87		27.19	6.2	20.99	.	83.4	9	7.6			
CO	COAL															
SH,CO	850001521				0.26		8.13	23.26	.	15.13	34.4	33	32.6			
SH,CO	850001522				0.09		2.81	99.03	.	96.22	48.4	30	21.6			
SL	850001523				0.04		1.25	45.61	.	44.36	74.4	15	10.6			
SL	850001524				0.03		0.94	9.77	.	8.83	56.4	29	14.6			
CO	COAL															
SH	850001525				0.11		3.44	7.05	.	3.61	32.4	28	39.6			
CO	COAL															
SH	850001526				0.77		24.06	7.07	16.99	.	43.4	36	20.6			
SL	850001527				0.09		2.81	38.34	.	35.53	64.4	22	13.6			
SH	850001528				1.28		40	29.98	10.02	.	20.4	47.6	32			
CO	COAL															
SH	850001529				2.52		78.75	8.02	70.73	.	91.4	4.6	4			
CO	COAL															
SH,SL	850001530				0.28		8.75	24.69	.	15.94	51.2	30	18.8			
CO	COAL															
SH	850001531				0.06		1.88	31.99	.	30.11	29.2	37.4	33.4			
SL	850001532				0.04		1.25	116.49	.	115.24	66.6	21	12.4			
SH	850001533				1.68		52.5	5	47.5	.	19.2	52.4	28.4			
CO	COAL															
SH	850001534				0.24		7.5	7.75	.	0.25	39.6	8.4	52			
CO	COAL															
SH	850001535				0.04		1.25	6.52	.	5.27	45.6	30.4	24			
SH	850001536				0.25		7.81	35.6	.	27.79	19.6	42.4	38			
SS	850001537				0.03		0.94	185.17	.	184.23	73.2	15.8	11			
SH	850001538				0.59		18.44	37.81	.	19.37	34.6	34.4	31			
CO	COAL															
SH	850001539				<0.01		0.31	7.1	.	6.79	21.6	24.4	54			
CO	COAL															
SH,SL	850001540				0.02		0.63	4.55	.	3.92	53.6	27.4	19			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24416C
DATE CORED:15JAN1983
DATE REPORTED:10SEP1985

Dry Basis

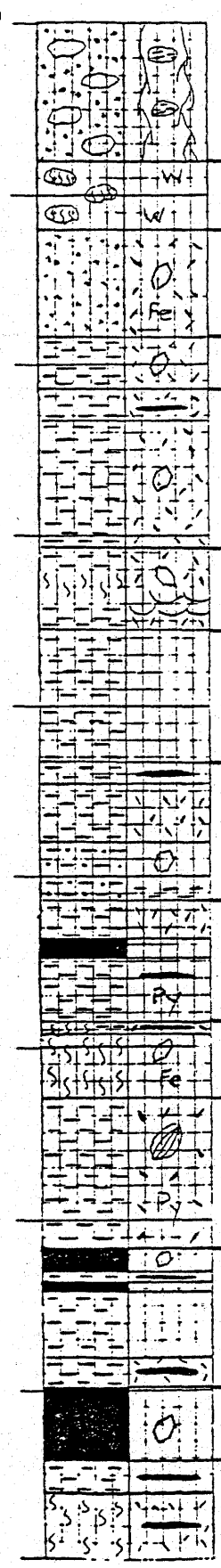
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001514		<0.01		<0.6		0.2	3.1	32	6.6			
SO	850001515		<0.01		<0.6		<0.1	3	40.3	6.4			
SO	850001516		<0.01		<0.6		0.1	2.9	14.6	10.5			
SH	850001517		<0.01		<0.6		0.2	3.3	23.7	7.4			
SH	850001518		<0.01		<0.6		0.5	5.1	34.8	13.3			
SS,SH	850001519		0.01		<0.6		0.3	2.8	17.9	11.8			
CO	COAL												
SH	850001520		0.04		<0.6		2.6	4.8	242.7	7.2			
CO	COAL												
SH,CO	850001521		<0.01		<0.6		1.4	6.1	50.2	29.2			
SH,CO	850001522		<0.01		<0.6		1.6	3.6	168.2	14.9			
SL	850001523		0.01		<0.6		0.7	1.7	66.6	2.9			
SL	850001524		0.11		<0.6		0.8	1.7	54.3	3			
CO	COAL												
SH	850001525		<0.01		<0.6		0.1	4.9	31.2	1.6			
CO	COAL												
SH	850001526		<0.01		<0.6		6.1	9.1	160.6	7.4			
SL	850001527		0.04		<0.6		1.2	1.9	116.8	6.6			
SH	850001528		0.23		<0.6		3.4	6.6	104.2	14.6			
CO	COAL												
SH	850001529		0.01		<0.6		1.3	1.3	573.4	6			
CO	COAL												
SH,SL	850001530		0.06		<0.6		1.6	2.2	59.8	<1			
CO	COAL												
SH	850001531		0.07		<0.6		2	5.2	75.6	1.8			
SL	850001532		0.02		<0.6		1.6	3.4	123.6	4			
SH	850001533		0.12		<0.6		11.3	8.4	205.9	45.4			
CO	COAL												
SH	850001534		0.41		<0.6		0.6	12.1	35.4	<1			
CO	COAL												
SH	850001535		0.34		0.6		1.8	3.4	30.3	<1			
SH	850001536		0.16		<0.6		3.5	6	106.2	6.4			
SS	850001537		0.01		<0.6		0.7	2.8	137.8	5			
SH	850001538		0.28		0.6		2.9	4.7	146.1	8.2			
CO	COAL												
SH	850001539		0.13		<0.6		0.8	12.8	33.8	<1			
CO	COAL												
SH,SL	850001540		0.52		<0.6		1.5	4.8	32.2	<1			

HOLE NO. 24417-C DRILLER J. Elliott. PAGE 1

LOCATION S 33006.2 DATE DRILLED 1-26-83 SUB AREA J-21

E 54792.2

ELEVATION 6953.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-817	40.3	3.3	4.3	2.2	1.2	<0.01	8.2
R-83-818	36.1	3.6	6.5	3.1	3.5	0.02	8.1
R-83-819	44.2	4.2	15.4	7.4	20.0	0.03	8.0
R-83-820	52.6	3.2	14.8	2.0	42.0	0.06	4.6
R-83-821	74.3	3.9	19.5	2.8	47.9	0.17	4.0
R-83-822	48.2	4.9	13.3	1.4	13.1	0.36	7.4
R-83-823	52.6	12.0	16.8	2.4	1.5	0.17	8.0
R-83-824	36.4	20.4	18.8	0.9	0.8	0.20	8.1
R-83-825	44.7	18.9	15.8	0.5	0.9	0.44	7.8
R-83-826	36.1	20.9	14.0	0.5	0.4	0.37	8.6
R-83-827	44.3	28.2	32.1	1.2	1.4	1.25	8.1
YOA R-83-828	57.8	23.6	16.7	0.6	0.4	0.85	8.0
YOB (83-877-R)		10.40		12367		0.74	8.3
R-83-829	36.1	16.9	13.1	0.7	0.5	<0.01	8.4

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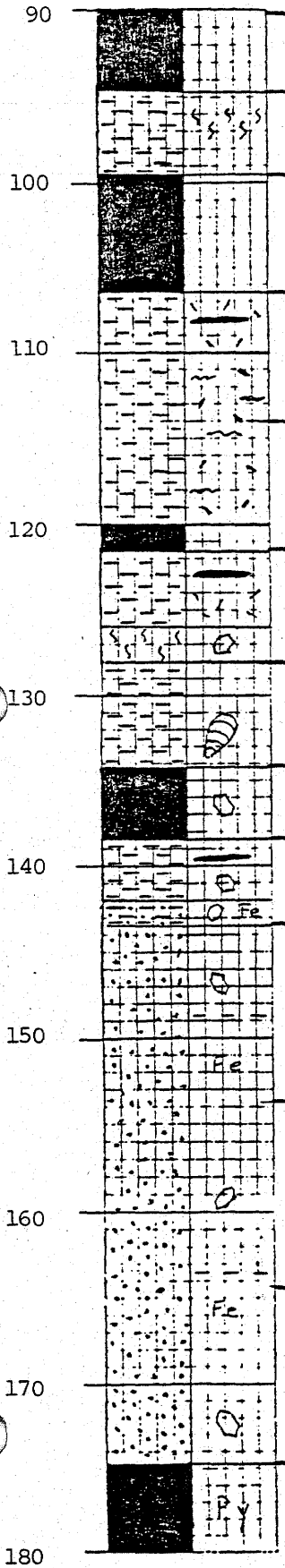
HOLE NO. 24417-C DRILLER J. Elliott PAGE 2

LOCATION S 33006.2 DATE DRILLED 1-26-83 SUB AREA J-21

E 54792.2

ELEVATION 6953.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
Y1X (83-878-R)		12.67		11986		0.58	8.3
R-83-830	44.3	21.9	18.3	0.9	0.5	0.65	8.5
NXX (83-879-R)		10.53		12296		0.84	8.0
R-83-831	77.2	17.4	12.3	0.5	0.5	<0.01	9.2
R-83-832	49.7	12.6	10.9	0.5	1.0	<0.01	9.0
N2X							
R-83-833	36.9	18.9	14.0	0.5	0.6	0.65	8.8
R-83-834	36.4	18.0	20.9	1.1	1.6	0.34	8.5
EOX (83-880-R)		7.78		12725		0.72	8.2
R-83-835	36.8	18.8	9.4	0.2	0.3	0.06	8.5
R-83-836	32.3	16.3	14.1	0.5	1.0	0.02	9.3
R-83-837	32.5	14.4	10.7	0.4	0.7	<0.01	9.0
R-83-838	30.1	16.0	11.3	0.3	0.7	0.01	8.9
E1X (83-881-R)		7.74		12784		0.56	8.3

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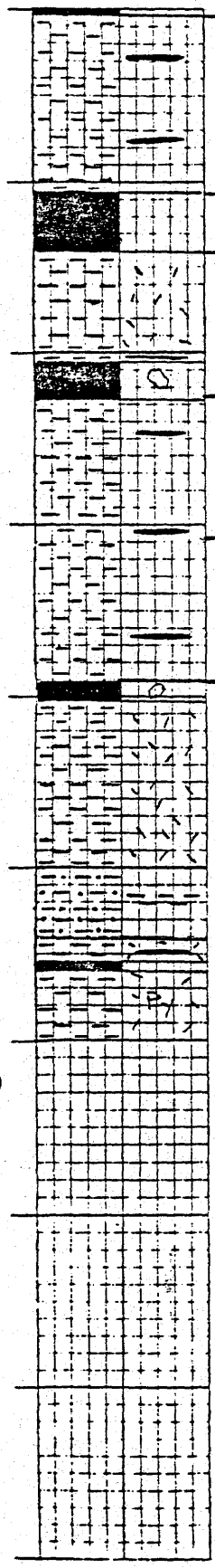
HOLE NO. 24417-C DRILLER J. Elliott PAGE 3

LOCATION S 33006.2 DATE DRILLED 1-26-83 SUB AREA J-21

E 54792.2

ELEVATION 6953.6



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-839	61.1	17.9	13.3	0.5	0.6	0.07	9.0
E2A (83-882-R)		12.85		12225		0.50	8.3
R-83-840 E2B	47.4	23.7	13.0	0.4	0.2	0.07	8.5
R-83-841	57.3	17.1	10.1	0.4	0.3	0.04	9.0
R-83-842	70.0	17.3	9.5	0.4	0.2	0.05	9.0

SEP 3 1986
OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24417C
DATE CORED:26JAN1983
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001541	8.2	40.3	0.7	4.3	2.2	1.2	3.3						3.5
SL	8	850001542	8.1	36.1	1.3	6.5	3.1	3.5	3.6						3.9
SS	12	850001543	8	44.2	3.6	15.4	7.4	20	4.2						4.7
SH	18.4	850001544	4.6	52.6	5.4	14.8	2	42	3.2						3.4
SH,CO	21.4	850001545	4	74.3	6.7	19.5	2.8	47.9	3.9						4.3
SH,SL	30.8	850001546	7.4	48.2	3.3	13.3	1.4	13.1	4.9						5.6
SH	35.5	850001547	8	52.6	2.1	16.8	2.4	1.5	12						14.1
SH,CO	43.2	850001548	8.1	36.4	2.1	18.8	0.9	0.8	20.4						22.4
SH,CO	51.5	850001549	7.8	44.7	1.7	15.8	0.5	0.9	18.9						21
SH,SL	58.6	850001550	8.6	36.1	1.6	14	0.5	0.4	20.9						22.8
SH	63	850001551	8.1	44.3	3.1	32.1	1.2	1.4	28.2						28.7
CO,SH	71.8	850001552	8	57.8	1.9	16.7	0.6	0.4	23.6						25.1
CO	79.9	COAL													
SH,SL	84.1	850001553	8.4	36.1	1.4	13.1	0.7	0.5	16.9						19.1
CO	90.1	COAL													
SH	94.6	850001554	8.5	44.3	2.1	18.3	0.9	0.5	21.9						23.7
CO	99.6	COAL													
SH	106.5	850001555	9.2	77.2	1.3	12.3	0.5	0.5	17.4						19.6
SH,CO	114.1	850001556	9	49.7	1	10.9	0.5	1	12.6						14.8
SH,SL	121.7	850001557	8.8	36.9	1.6	14	0.5	0.6	18.9						21
SH	128	850001558	8.5	36.4	2.3	20.9	1.1	1.6	18						20.2
CO	134.2	COAL													
SH	138.4	850001559	8.5	36.8	1	9.4	0.2	0.3	18.8						20.9
SS	143.3	850001560	9.3	32.3	1.5	14.1	0.5	1	16.3						18.6
SS	153.8	850001561	9	32.5	1.1	10.7	0.4	0.7	14.4						16.7
SS	164.3	850001562	8.9	30.1	1.2	11.3	0.3	0.7	16						18.3
CO	174.8	COAL													
SH	180.3	850001563	9	61.1	1.4	13.3	0.5	0.6	17.9						20.1
CO	190.4	COAL													
SH,CO	194.1	850001564	8.5	47.4	1.3	13	0.4	0.2	23.7						25.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24417C
DATE CORED:26JAN1983
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001541				<0.01		0.31	21.19	.	20.88	55	25	20			
SL	850001542				0.02		0.62	3.94	.	3.32	76.4	14.4	9.2			
SS	850001543				0.03		0.94	24.51	.	23.57	73.4	14.4	12.2			
SH	850001544				0.06		1.88	0.69	1.19	.	26.4	42.8	30.8			
SH,CO	850001545				0.17		5.31	1.19	4.12	.	8.8	31.4	59.8			
SH,SL	850001546				0.36		11.25	40.52	.	29.27	51.6	30.6	17.8			
SH	850001547				0.17		5.31	40.63	.	35.32	29.8	33.4	36.8			
SH,CO	850001548				0.2		6.25	48.43	.	42.18	38.8	32.4	28.8			
SH,CO	850001549				0.44		13.75	11.5	2.25	.	50.2	29	20.8			
SH,SL	850001550				0.37		11.56	49.98	.	38.42	67.2	20	12.8			
SH	850001551				1.25		39.06	39.14	.	0.08	26.2	47	26.8			
CO,SH	850001552				0.85		26.56	6.49	20.07	.	36.2	20	43.8			
CO	COAL															
SH,SL	850001553				<0.01		0.31	41.12	.	40.81	58.8	28.4	12.8			
CO	COAL															
SH	850001554				0.65		20.31	17.16	3.15	.	25.2	45	29.8			
CO	COAL															
SH	850001555				<0.01		0.31	5.25	.	4.94	5.2	39	55.8			
SH,CO	850001556				<0.01		0.31	12.08	.	11.77	36.2	31	32.8			
SH,SL	850001557				0.65		20.31	48.25	.	27.94	41.2	27	31.8			
SH	850001558				0.34		10.62	70.46	.	59.84	43.2	34	22.8			
CO	COAL															
SH	850001559				0.06		1.88	4.85	.	2.97	58.2	22	19.8			
SS	850001560				0.02		0.62	43.52	.	42.9	75.2	13	11.8			
SS	850001561				<0.01		0.31	27.04	.	26.73	75.6	12.6	11.8			
SS	850001562				0.01		0.31	31.16	.	30.85	76.8	13.4	9.8			
CO	COAL															
SH	850001563				0.07		2.19	29.21	.	27.02	26.7	26.5	46.8			
CO	COAL															
SH,CO	850001564				0.07		2.19	26.58	.	24.39	32.2	33.8	34			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24417C
DATE CORED:26JAN1983
DATE REPORTED:10SEP1985

Dry Basis

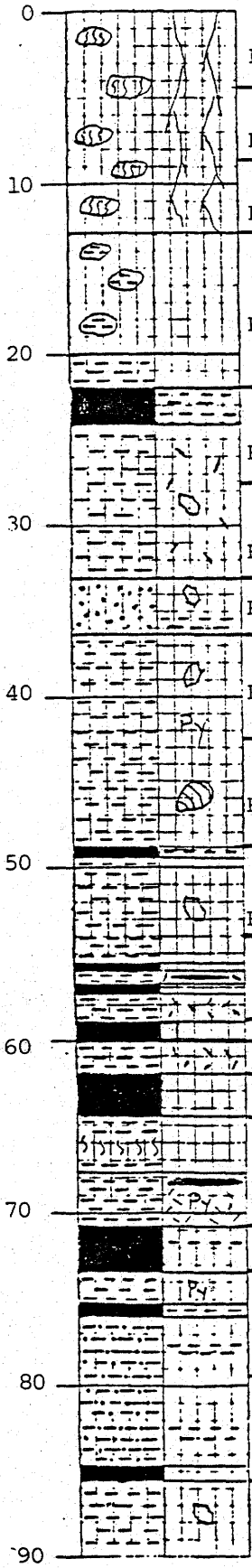
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001541		0.22		0.6		0.2	3.9	15.2	15.3			
SL	850001542		0.05		<0.6		0.5	7.6	31.5	8.7			
SS	850001543		<0.01		<0.6		0.2	1.6	19.7	20			
SH	850001544		0.04		<0.6		2	7.6	205.9	12.6			
SH,CO	850001545		0.02		<0.6		3.4	18.3	169.4	9.1			
SH,SL	850001546		<0.01		<0.6		1.5	4.1	69.2	4.4			
SH	850001547		<0.01		<0.6		3.4	7.7	86.7	4.3			
SH,CO	850001548		0.06		0.6		1.6	8	86.8	3.3			
SH,CO	850001549		0.09		0.6		2.5	6.1	61.6	4.7			
SH,SL	850001550		0.01		0.6		0.7	2.7	105.2	6			
SH	850001551		0.16		0.6		3.4	6.1	106.2	8.2			
CO,SH	850001552		0.07		<0.6		1.3	7.9	62.8	1.4			
CO	COAL												
SH,SL	850001553		0.1		0.6		2.1	2.1	70.3	1			
CO	COAL												
SH	850001554		0.32		0.9		3.9	6.6	55.7	<1			
CO	COAL												
SH	850001555		0.29		<0.6		0.9	8	26.2	<1			
SH,CO	850001556		0.18		0.6		1.3	2.6	37	<1			
SH,SL	850001557		0.18		1		1.6	3.4	34.5	1.3			
SH	850001558		0.27		0.6		1.7	3.1	64.7	4.4			
CO	COAL												
SH	850001559		0.56		<0.6		1.2	2.1	13.1	<1			
SS	850001560		0.8		0.6		0.7	1	41.1	1.6			
SS	850001561		0.34		0.6		0.7	1.2	56.3	2.9			
SS	850001562		0.31		<0.6		0.7	1.4	69.2	2.8			
CO	COAL												
SH	850001563		0.3		0.6		1.6	5	27.3	<1			
CO	COAL												
SH,CO	850001564		0.12		<0.6		1.6	7	32.7	<1			

HOLE NO. 24418-C DRILLER J. Elliott PAGE 1

LOCATION S 36079.7 DATE DRILLED 2-1-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-843	50.9	1.1	1.6	2.8	1.1	<0.01	7.9
R-83-844	40.3	6.7	11.2	1.7	3.9	<0.01	8.5
R-83-845	40.2	3.9	16.4	16.1	19.4	0.03	8.2
R-83-846	66.1	2.3	17.6	47.2	66.6	0.53	6.7
MXX							
R-83-847	57.7	1.4	5.7	18.8	11.7	0.36	6.4
R-83-848	61.1	2.0	7.0	10.2	13.2	1.41	7.2
R-83-849	48.2	2.1	4.7	5.3	4.8	0.05	8.1
R-83-850	56.6	3.7	10.8	9.4	7.6	0.85	7.3
R-83-851	54.8	3.1	13.6	20.9	17.3	1.49	7.0
R-83-852	63.3	6.8	16.7	6.9	5.3	1.08	7.1
R-83-853	61.9	36.4	34.5	1.0	0.8	1.45	7.6
Y0A (83-883-R)		8.37		12601		0.71	8.4
R-83-854	71.9	49.5	29.3	0.4	0.3	1.09	8.5
Y0B (83-884-R)		6.55		12915		0.61	8.2
R-83-855	42.5	42.7	38.2	1.1	0.5	0.68	8.0
Y1A (83-885-R)		11.53		12036		0.98	8.2
R-83-856	44.4	42.1	43.1	1.6	0.5	1.12	8.0
R-83-857	50.2	9.4	24.9	12.0	2.1	0.53	7.2
R-83-858	40.8	41.1	27.6	0.6	0.3	0.71	8.3

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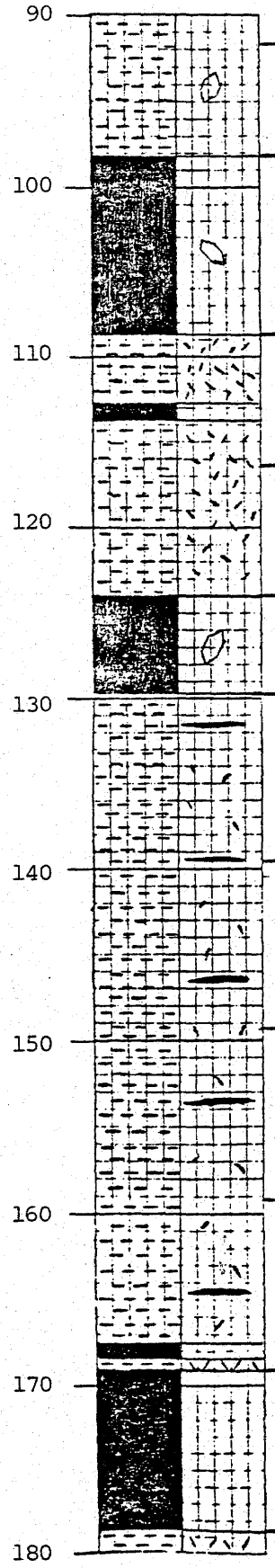
OCT 27 1986

HOLE NO. 24418-C DRILLER J. Elliott PAGE 2

LOCATION S 36079.7 DATE DRILLED 2-1-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-859	38.7	38.3	24.2	0.4	0.4	0.66	8.7
NXX (83-886-R)		10.01		12346		0.85	8.1
R-83-860	36.3	28.0	19.8	0.5	0.5	0.23	8.3
R-83-861	31.2	32.1	23.8	0.6	0.5	0.39	8.6
EOX (83-887-R)		5.79		12984		0.52	8.3
R-83-862	65.3	25.2	13.8	0.2	0.4	0.06	9.4
R-83-863	61.0	35.6	15.9	0.3	0.1	0.06	9.5
R-83-864	45.4	28.3	20.0	0.4	0.6	0.03	9.2
R-83-865	58.8	38.5	17.2	0.3	0.1	0.03	9.2
E12 (83-888-R)		7.74		12751		0.47	8.1
		135					

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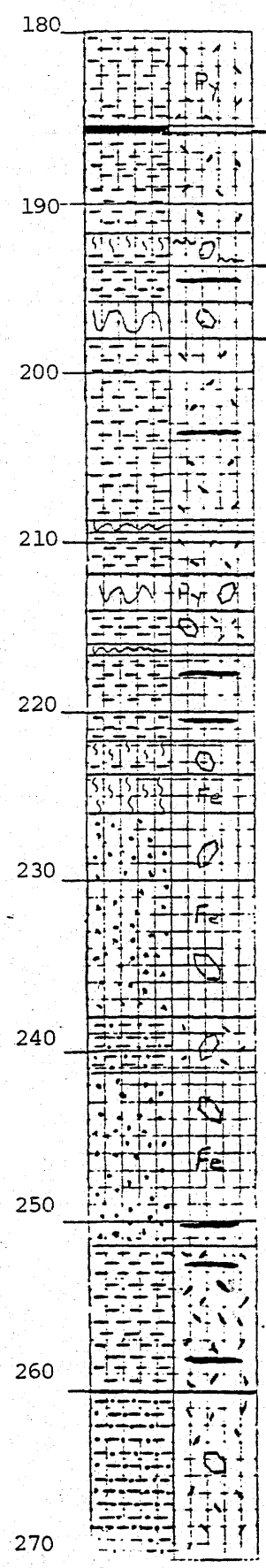
HOLE NO. 24418-C DRILLER J. Elliott PAGE 3

LOCATION S 36079.7 DATE DRILLED 2-1-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0



T.D.=270

SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-866	46.8	32.8	19.4	0.5	0.2	0.17	8.5
R-83-867	52.6	28.8	12.9	0.3	0.1	0.04	9.0
R-83-868	59.2	21.0	11.5	0.2	0.4	0.34	8.3

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24418C
DATE CORED:01FEB1983
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SL	0	850001565	7.9	50.9	0.4	1.6	2.8	1.1	1.1						0.3
SL	4.3	850001566	8.5	40.3	1.5	11.2	1.7	3.9	6.7						7.9
SL	8.6	850001567	8.2	40.2	4.5	16.4	16.1	19.4	3.9						4.3
SH	12.9	850001568	6.7	66.1	9	17.6	47.2	66.6	2.3						2.1
CO,SH	22	850001569	6.4	57.7	2.6	5.7	18.8	11.7	1.4						0.7
SH	27.6	850001570	7.2	61.1	2	7	10.2	13.2	2						1.7
SS	33.1	850001571	8.1	48.2	1.3	4.7	5.3	4.8	2.1						1.8
SH	36.2	850001572	7.3	56.6	2.2	10.8	9.4	7.6	3.7						4
SH	42.5	850001573	7	54.8	3.6	13.6	20.9	17.3	3.1						3.2
CO,SH	48.9	850001574	7.1	63.3	2.6	16.7	6.9	5.3	6.8						8.1
SH,CO	54	850001575	7.6	61.9	3.3	34.5	1	0.8	36.4						34.4
CO	59	COAL													
SH	60.1	850001576	8.5	71.9	2.7	29.3	0.4	0.3	49.5						41.8
CO	62	COAL													
SH,SL	64.5	850001577	8	42.5	3.6	38.2	1.1	0.5	42.7						38.2
CO	70.8	COAL													
SH,CO	73.4	850001578	8	44.4	3.9	43.1	1.6	0.5	42.1						37.8
SH,CO	79.5	850001579	7.2	50.2	3.3	24.9	12	2.1	9.4						11.2
SH	85.5	850001580	8.3	40.8	2.6	27.6	0.6	0.3	41.1						37.3
SH	91.8	850001581	8.7	38.7	2.2	24.2	0.4	0.4	38.3						35.6
CO	98.2	COAL													
SH,CO	108.7	850001582	8.3	36.3	2	19.8	0.5	0.5	28						28.6
SH	116.3	850001583	8.6	31.2	2.2	23.8	0.6	0.5	32.1						31.5
CO	124	COAL													
SH	129.8	850001584	9.4	65.3	1.2	13.8	0.2	0.4	25.2						26.4
SH	139.6	850001585	9.5	61	1.6	15.9	0.3	0.1	35.6						33.9
SH	149.4	850001586	9.2	45.4	1.8	20	0.4	0.6	28.3						28.8
SH,CO	159.2	850001587	9.2	58.8	1.6	17.2	0.3	0.1	38.5						35.7
CO	169.1	COAL													
SH,CO	178.7	850001588	8.5	46.8	2	19.4	0.5	0.2	32.8						32

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24418C
DATE CORED:01FEB1983
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SL	850001565				<0.01		0.31	32.78	.	32.47	47.8	29	23.2			
SL	850001566				<0.01		0.31	53.05	.	52.74	63.8	20.4	15.8			
SL	850001567				0.03		0.94	19.5	.	18.56	74	12.8	13.2			
SH	850001568				0.53		16.56	34.1	.	17.54	46	32.8	21.2			
CO,SH	850001569				0.36		11.25	40.48	.	29.23	45.4	35.4	19.2			
SH	850001570				1.41		44.06	19.12	24.94	.	21.8	45.4	32.8			
SS	850001571				0.05		1.56	50.7	.	49.14	57.2	28	14.8			
SH	850001572				0.85		26.56	27.36	.	0.8	16.2	55	28.8			
SH	850001573				1.49		46.56	42.64	3.92	.	19.2	46	34.8			
CO,SH	850001574				1.08		33.75	15.24	18.51	.	31.2	41	27.8			
SH,CO	850001575				1.45		45.31	12.68	32.63	.	46	22	32			
CO	COAL															
SH	850001576				1.09		34.06	13.94	20.12	.	13	44	43			
CO	COAL															
SH,SL	850001577				0.68		21.25	10.28	10.97	.	40.4	41.6	18			
CO	COAL															
SH,CO	850001578				1.12		35	41.16	.	6.16	41	45	14			
SH,CO	850001579				0.53		16.56	7.04	9.52	.	40.4	49.6	10			
SH	850001580				0.71		22.19	44.07	.	21.88	41.4	37.6	21			
SH	850001581				0.66		20.62	36.32	.	15.7	36.6	38.6	24.8			
CO	COAL															
SH,CO	850001582				0.23		7.19	50.06	.	42.87	41.6	32.2	26.2			
SH	850001583				0.39		12.19	141.67	.	129.48	49	31.8	19.2			
CO	COAL															
SH	850001584				0.06		1.88	26.66	.	24.78	23.6	29.9	46.5			
SH	850001585				0.06		1.88	22.98	.	21.1	30.2	30.6	39.2			
SH	850001586				0.03		0.94	36.37	.	35.43	40.2	30.6	29.2			
SH,CO	850001587				0.03		0.94	12.47	.	11.53	22.2	40.6	37.2			
CO	COAL															
SH,CO	850001588				0.17		5.31	15.79	.	10.48	32.2	28.6	39.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24418C
DATE CORED:01FEB1983
DATE REPORTED:10SEP1985

Dry Basis

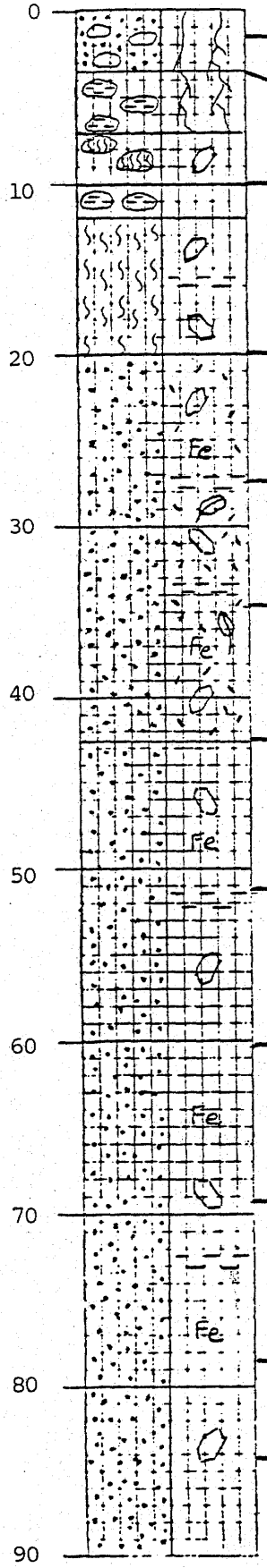
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SL	850001565		0.05		0.6		0.2	1.9	10.3	13.9			
SL	850001566		0.02		<0.6		<0.1	1.3	13.1	9			
SL	850001567		<0.02		<0.6		<0.1	1.5	10.9	4			
SH	850001568		<0.02		1		1	2.4	141	5.7			
CO,SH	850001569		<0.02		1		2.9	5.7	79.9	15.6			
SH	850001570		<0.02		1		4	6	79.3	26.8			
SS	850001571		<0.02		<0.6		1.1	1.5	57.1	6.7			
SH	850001572		<0.02		<0.6		4.1	7.9	47.5	20.2			
SH	850001573		0.05		0.6		2.6	6.3	61.7	10.8			
CO,SH	850001574		<0.02		<0.6		2	5.3	71.2	5.1			
SH,CO	850001575		<0.02		<0.6		3.4	6.1	254.2	7.9			
CO	COAL												
SH	850001576		0.3		0.6		2	9.1	27.5	<1			
CO	COAL												
SH,SL	850001577		0.02		<0.6		4.2	6.4	196.7	3.9			
CO	COAL												
SH,CO	850001578		0.17		<0.6		1.7	2	64.1	1.6			
SH,CO	850001579		<0.02		<0.6		2.5	1.9	76.3	11.3			
SH	850001580		0.06		<0.6		2.5	6.6	62.2	5.3			
SH	850001581		0.16		0.9		2.5	4.9	39.6	4.3			
CO	COAL												
SH,CO	850001582		0.23		0.6		2.3	2.7	46.1	2.9			
SH	850001583		0.42		<0.6		1.8	3.2	65.6	5			
CO	COAL												
SH	850001584		0.44		<0.6		2.4	4.4	21.7	<1			
SH	850001585		0.6		<0.6		1.5	3.5	16.1	<1			
SH	850001586		0.11		<0.6		1.2	2.3	38.2	1.4			
SH,CO	850001587		0.19		<0.6		1.6	2.7	16.1	<1			
CO	COAL												
SH,CO	850001588		0.54		<0.6		1.8	3.6	23.2	<1			

HOLE NO. 24419-C DRILLER J. Elliott PAGE 1

LOCATION S 36092.1 DATE DRILLED 2-15-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-869	48.8	2.4	3.2	2.4	1.3	<0.01	8.1
R-83-870	40.9	3.4	3.8	1.5	1.0	<0.01	8.3
R-83-871	60.9	4.4	10.9	7.7	4.8	0.01	7.9
R-83-872	40.4	3.6	5.2	2.4	1.8	<0.01	7.9
R-83-873	36.4	3.7	4.8	2.0	1.3	0.02	7.8
R-83-874	32.1	3.3	3.5	1.3	0.9	0.02	8.0
R-83-875	32.1	4.3	4.4	1.0	1.1	<0.01	8.2
R-83-876	34.0	3.0	4.0	1.9	1.7	<0.01	8.3
R-83-877	34.0	3.4	5.0	2.3	1.9	<0.01	8.3
R-83-878	34.0	4.1	5.1	1.6	1.5	<0.01	8.4
R-83-879	34.0	5.8	7.4	1.7	1.6	0.02	8.1
R-83-880	32.0	6.7	7.9	1.4	1.4	<0.01	8.2
R-83-881	32.0	8.2	7.6	0.9	0.8	<0.01	8.5

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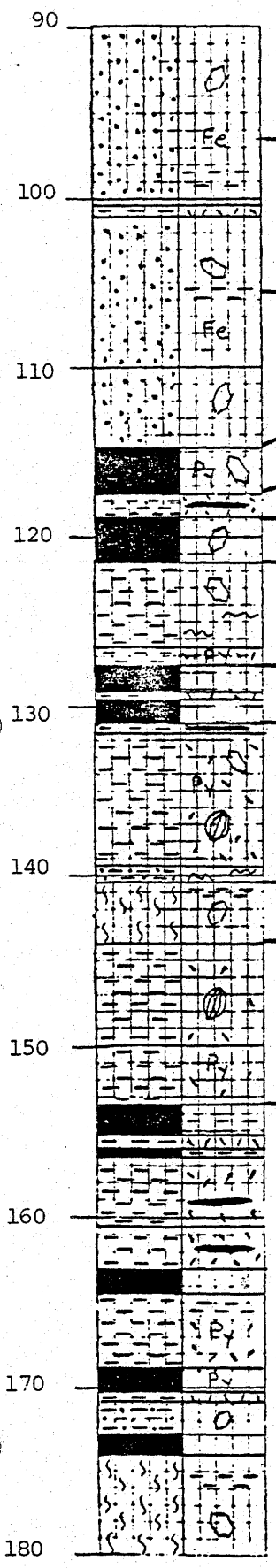
OCT 27 1986

HOLE NO. 24419-C DRILLER J. Elliott PAGE 2

LOCATION S 36092.1 DATE DRILLED 2-15-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-882	32.0	11.8	10.9	0.9	0.8	0.03	8.2
R-83-883	32.0	15.1	13.1	0.8	0.7	0.07	8.5
RXX (83-889-R)		5.52		12886		0.75	8.2
R-83-884	53.2	40.8	31.6	0.7	0.5	2.08	7.5
R3X (83-890-R)		8.00		12607		1.03	8.3
R-83-885	40.2	28.7	17.0	0.4	0.3	0.47	8.6
MXX (83-891-R)		7.52		12657		1.11	8.4
R-83-886	48.3	41.8	18.7	0.3	0.1	1.00	8.5
R-83-887	34.1	21.9	15.5	0.2	0.8	1.01	9.1
R-83-888	46.4	44.8	22.4	0.4	0.1	1.40	8.8
YOA							
YOB							

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OCT 27 1986

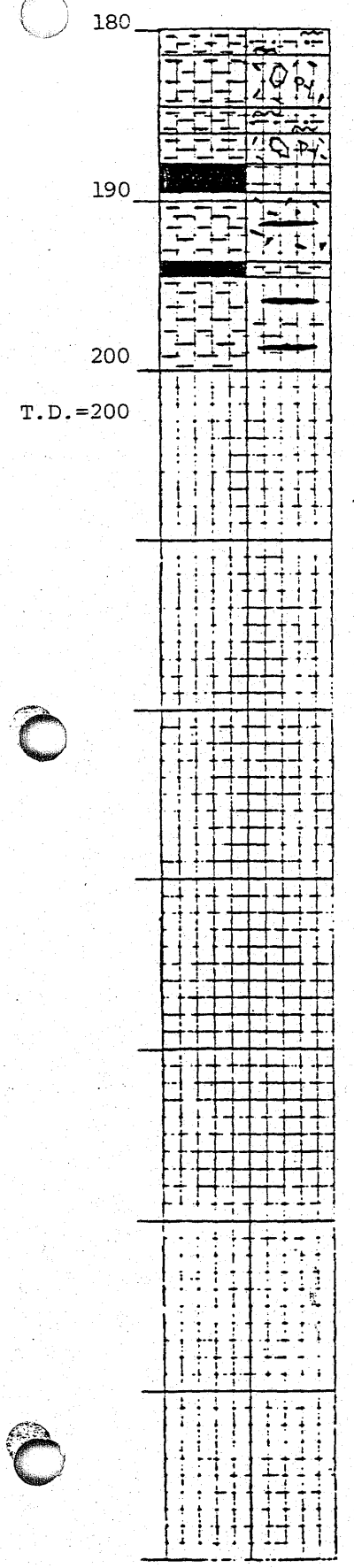
JOB NO. 24419-C DRILLER J. Elliott HOLE 3

LOCATION S 36092.1 DATE DRILLED 2-15-83 SUB AREA J-21

E 55310.5

ELEVATION 6871.0

SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
Y1A							
Y1B							



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24419C
DATE CORED:15FEB1983
DATE REPORTED:11SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001589	8.1	48.8	0.6	3.2	2.4	1.3	2.4						2.2
SO	1.6	850001590	8.3	40.9	0.5	3.8	1.5	1	3.4						3.6
SH,SL	3.3	850001591	7.9	60.9	2.1	10.9	7.7	4.8	4.4						5
SL	12	850001592	7.9	40.4	0.9	5.2	2.4	1.8	3.6						3.9
SS	20	850001593	7.8	36.4	0.8	4.8	2	1.3	3.7						4
SS	27.4	850001594	8	32.1	0.6	3.5	1.3	0.9	3.3						3.5
SS	34.8	850001595	8.2	32.1	0.6	4.4	1	1.1	4.3						4.8
SS	42.3	850001596	8.3	34	0.7	4	1.9	1.7	3						3.1
SS	51.3	850001597	8.3	34	0.8	5	2.3	1.9	3.4						3.6
SS	60.3	850001598	8.4	34	0.8	5.1	1.6	1.5	4.1						4.6
SS	69.3	850001599	8.1	34	1	7.4	1.7	1.6	5.8						6.8
SS	78.4	850001600	8.2	32	1	7.9	1.4	1.4	6.7						7.9
SS	87.5	850001601	8.5	32	0.9	7.6	0.9	0.8	8.2						9.8
SS,SH	96.6	850001602	8.2	32	1.2	10.9	0.9	0.8	11.8						13.9
SS	105.7	850001603	8.5	32	1.4	13.1	0.8	0.7	15.1						17.4
CO	114.8	COAL													
SH,CO	117.4	850001604	7.5	53.2	3.1	31.6	0.7	0.5	40.8						37.1
CO	118.8	COAL													
SH	121.6	850001605	8.6	40.2	1.7	17	0.4	0.3	28.7						29.1
CO	127.6	COAL													
SH,CO	131	850001606	8.5	48.3	1.9	18.7	0.3	0.1	41.8						37.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24419C
DATE CORED:15FEB1983
DATE REPORTED:11SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001589				<0.01		0.31	69.78	.	69.47	52.2	23.6	24.2			
SO	850001590				<0.01		0.31	65.14	.	64.83	56.2	17.6	26.2			
SH,SL	850001591				0.01		0.31	34.44	.	34.13	38.2	29.6	32.2			
SL	850001592				<0.01		0.31	1.91	.	1.6	54.2	23.6	22.2			
SS	850001593				0.02		0.62	1.48	.	0.86	60.2	17.6	22.2			
SS	850001594				0.02		0.62	0.32	0.3	.	73.3	16.5	10.2			
SS	850001595				<0.01		0.31	10.81	.	10.5	71.2	16.6	12.2			
SS	850001596				<0.01		0.31	138.22	.	137.91	74.2	16	9.8			
SS	850001597				<0.01		0.31	85.22	.	84.91	74.6	15.6	9.8			
SS	850001598				<0.01		0.31	139.41	.	139.1	76.6	13.6	9.8			
SS	850001599				0.02		0.62	38.92	.	38.3	69.6	16.6	13.8			
SS	850001600				<0.01		0.31	46.21	.	45.9	74.6	15.6	9.8			
SS	850001601				<0.01		0.31	47.12	.	46.81	78.6	13.6	7.8			
SS,SH	850001602				0.03		0.94	37.63	.	36.69	70.6	15.6	13.8			
SS	850001603				0.07		2.19	48.68	.	46.49	73.6	16.2	10.2			
CO	COAL															
SH,CO	850001604				2.08		65	5.54	59.46	.	65.4	21.2	13.4			
CO	COAL															
SH	850001605				0.47		14.69	15.36	.	0.67	38.4	45.6	16			
CO	COAL															
SH,CO	850001606				1		31.25	32.12	.	0.87	33.4	44	22.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24419C
DATE CORED:15FEB1983
DATE REPORTED:11SEP1985

Dry Basis

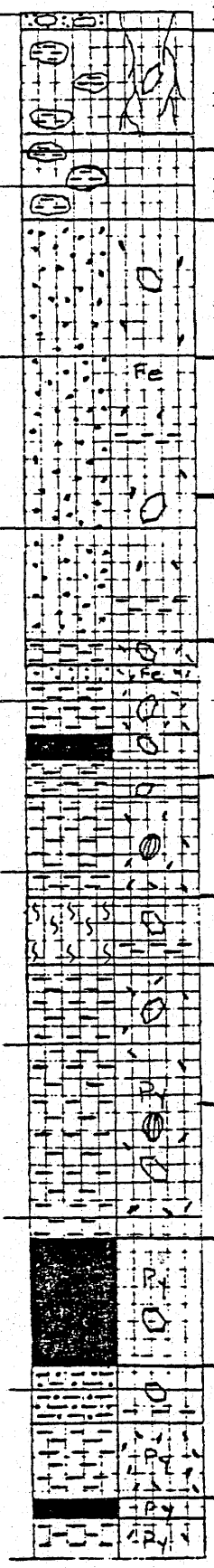
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001589		0.09		<0.6		0.2	3.2	6.8	14.1			
SO	850001590		0.09		0.6		<0.1	2.8	5.5	6.2			
SH,SL	850001591		<0.02		0.9		<0.1	3.4	6.6	3.5			
SL	850001592		0.36		0.9		<0.1	2	4.6	2.3			
SS	850001593		0.79		0.6		0.2	2.1	11.7	3.1			
SS	850001594		0.36		0.9		<0.1	2.3	17.2	<1			
SS	850001595		0.33		<0.6		0.1	2.2	7.5	3			
SS	850001596		0.05		<0.6		0.4	1.1	56.3	6.5			
SS	850001597		0.02		<0.6		0.6	1.3	69.3	2.1			
SS	850001598		0.03		<0.6		0.4	0.7	72.7	2.1			
SS	850001599		0.03		<0.6		0.8	1	77.7	2.9			
SS	850001600		0.03		0.9		0.6	0.8	78.2	2.6			
SS	850001601		0.04		<0.6		1.2	1.6	160.3	4.5			
SS,SH	850001602		0.04		0.6		1.5	2.5	165.9	6.4			
SS	850001603		0.02		<0.6		1.4	2.1	150.1	5.4			
CO	COAL												
SH,CO	850001604		0.42		0.9		6.7	9.6	308.3	16.4			
CO	COAL												
SH	850001605		0.31		0.6		3.5	4.2	124.9	1.3			
CO	COAL												
SH,CO	850001606		0.3		0.9		5.5	8.8	156.9	9.5			

HOLE NO. 24420-C DRILLER J. Elliott PAGE 1

LOCATION S 34939.1 DATE DRILLED 2-24-83 SUB AREA J-21

E 50501.0

ELEVATION 6918.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-889	40.4	3.7	4.1	1.8	0.6	0.02	8.0
R-83-890	60.6	6.9	16.8	3.8	7.9	0.04	8.1
R-83-891	60.7	10.4	18.9	5.0	1.6	0.05	7.9
R-83-892	42.3	5.1	8.6	4.5	1.2	0.02	7.9
R-83-893	38.1	2.9	4.2	3.1	1.1	0.02	8.2
R-83-894	36.1	1.0	5.4	29.4	35.0	0.06	8.0
R-83-895	57.2	2.6	11.0	9.7	24.7	0.09	7.6
R-83-896	48.8	11.1	20.3	5.2	1.5	1.00	8.1
R-83-897	36.1	18.2	13.5	0.5	0.6	0.17	8.4
R-83-898	44.4	30.2	19.1	0.5	0.3	0.70	8.6
R-83-899	50.9	30.7	29.1	1.1	0.7	1.50	8.1
YOX (83-892-R)		7.26		12736		0.67	8.3
R-83-900	48.7	49.4	41.3	1.0	0.4	1.42	8.0
Y1A							

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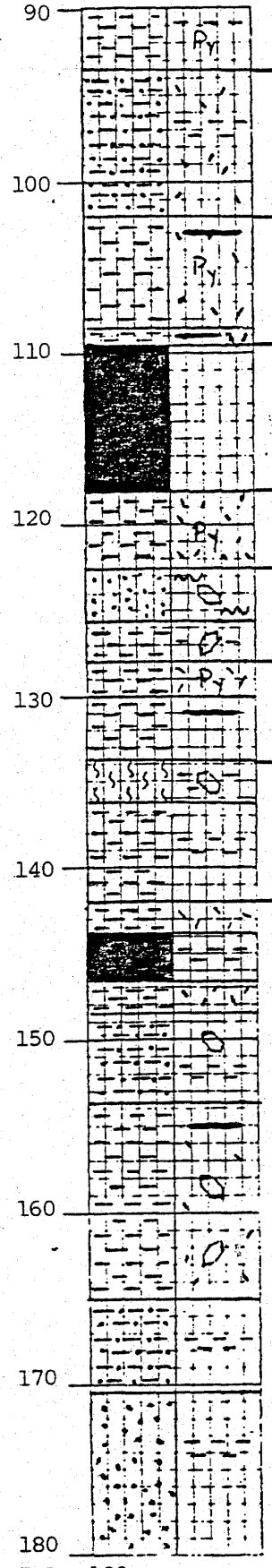
OLE NO. 24420-C DRILLER J. Elliott PAGE 2

OCATION S 34939.1 DATE DRILLED 2-24-83 SUB AREA J-21

E 50501.0

TION 6918.0



SAMPLE NO.	SATURATION %	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-901	46.8	48.1	30.4	0.5	0.3	1.25	7.7
R-83-902	42.1	29.6	28.5	0.8	0.7	0.66	8.1
R-83-903	57.1	52.5	35.2	0.4	0.5	1.51	8.2
NXX (83-893-R)		8.60		12516		0.72	8.2
R-83-904	56.9	16.3	14.1	0.2	0.2	0.40	9.0
R-83-905	30.1	24.0	18.6	0.6	0.6	0.04	9.1
R-83-906	57.1	29.7	18.8	0.4	0.4	0.50	9.1
R-83-907	55.2	21.2	15.0	0.4	0.6	0.05	9.6
EOX							

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24420C
DATE CORED:24FEB1983
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001607	8	40.4	0.4	4.1	1.8	0.6	3.7						4
SH	1	850001608	8.1	60.6	2.6	16.8	3.8	7.9	6.9						8.2
SH	8	850001609	7.9	60.7	3.6	18.9	5	1.6	10.4						12.4
SS	12	850001610	7.9	42.3	2.2	8.6	4.5	1.2	5.1						5.9
SS	20.1	850001611	8.2	38.1	1.5	4.2	3.1	1.1	2.9						3
SS	28.2	850001612	8	36.1	4.3	5.4	29.4	35	1						0.2
SH,SS,CO	36.4	850001613	7.6	57.2	3.3	11	9.7	24.7	2.6						2.5
SH	44.6	850001614	8.1	48.8	2.7	20.3	5.2	1.5	11.1						13.1
SL	51.4	850001615	8.4	36.1	1.4	13.5	0.5	0.6	18.2						20.4
SH	55.3	850001616	8.6	44.4	1.9	19.1	0.5	0.3	30.2						30.2
SH	63.3	850001617	8.1	50.9	2.9	29.1	1.1	0.7	30.7						30.5
CO	71.2	COAL													
SH	78.7	850001618	8	48.7	3.9	41.3	1	0.4	49.4						41.7
CO,SH	86.3	850001619	7.7	46.8	2.9	30.4	0.5	0.3	48.1						41.1
SH	93.3	850001620	8.1	42.1	2.8	28.5	0.8	0.7	29.6						29.8
SH	102	850001621	8.2	57.1	3.3	35.2	0.4	0.5	52.5						43.2
CO	109.5														
SH	118.2	850001622	9	56.9	1.5	14.1	0.2	0.2	16.3						18.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24420C
DATE CORED:24FEB1983
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001607				0.02		0.62	17.8	.	17.18	64.2	14.6	21.2			
SH	850001608				0.04		1.25	73.54	.	72.29	34.8	33	32.2			
SH	850001609				0.05		1.56	21.17	.	19.61	42.8	26	31.2			
SS	850001610				0.02		0.62	13.52	.	12.9	66.8	19	14.2			
SS	850001611				0.02		0.62	17.9	.	17.28	76.8	15	8.2			
SS	850001612				0.06		1.88	8.53	.	6.65	76.2	15.8	8			
SH,SS,CO	850001613				0.09		2.81	28.99	.	26.18	40.2	30.2	29.6			
SH	850001614				1		31.25	35.39	.	4.14	21.2	49.6	29.2			
SL	850001615				0.17		5.31	42.63	.	37.32	63.2	25.6	11.2			
SH	850001616				0.7		21.88	42.21	.	20.33	16.8	54	29.2			
SH	850001617				1.5		46.88	33.87	13.01	.	26.8	44.4	28.8			
CO	COAL															
SH	850001618				1.42		44.38	27.62	16.76	.	38.8	40.4	20.8			
CO,SH	850001619				1.25		39.06	11.05	28.01	.	42.4	41.2	16.4			
SH	850001620				0.66		20.63	9.19	11.44	.	41.4	45.4	13.2			
SH	850001621				1.51		47.19	5.18	42.01	.	23	47.8	29.2			
CO	COAL															
SH	850001622				0.4		12.5	4.25	8.25	.	12.6	48.2	39.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24420C
DATE CORED:24FEB1983
DATE REPORTED:10SEP1985

Dry Basis

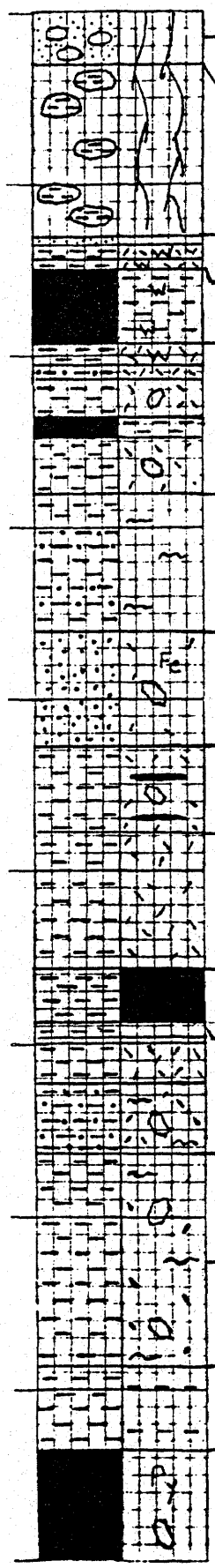
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001607		0.24		<0.6		0.9	2.5	21.5	39.9			
SH	850001608		0.02		<0.6		0.2	1.7	19	18			
SH	850001609		0.02		<0.6		0.1	2.6	25.3	13.2			
SS	850001610		0.03		0.6		0.2	1.6	21.3	7.6			
SS	850001611		0.03		0.6		0.2	1.3	33.1	9.4			
SS	850001612		<0.02		<0.6		0.2	1.9	26.9	2.2			
SH,SS,CO	850001613		<0.02		<0.6		1.7	7.1	111.2	21			
SH	850001614		0.04		0.6		4	8.5	126.2	7.4			
SL	850001615		0.11		0.6		2.1	2.2	88.3	5.2			
SH	850001616		0.23		<0.6		4.9	9.5	173.1	9.1			
SH	850001617		<0.02		<0.6		5	8.8	211	17.8			
CO	COAL												
SH	850001618		<0.02		0.9		3.8	5.5	268.6	18			
CO,SH	850001619		<0.02		0.6		6.1	5.5	216.5	30.3			
SH	850001620		<0.02		<0.6		4.3	4.4	171.5	27.2			
SH	850001621		0.13		0.6		10.5	8.5	216.6	63.6			
CO	COAL												
SH	850001622		1.12		0.6		5.5	8	73.7	<1			

HOLE NO. 24425 - C DRILLER J. Elliott PAGE 1

LOCATION S39233.0 DATE DRILLED 3-21-83 SUB AREA J21

E56636.9

ELEVATION 6926.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-1343	75.6	1.4	2.1	2.5	1.8	0.02	7.9
R-83-1344	71.7	3.5	5.2	1.7	2.6	0.02	8.2
R-83-1345	78.3	3.6	15.2	15.3	20.5	0.03	7.4
R-83-1346	44.4	1.2	5.3	25.9	9.9	0.13	5.9
BOX (83-1196-R)		10.14		9479		0.62	2.9
R-83-1347	54.0	1.0	4.4	20.6	20.9	0.37	5.7
R-83-1348	44.6	1.6	4.0	7.3	5.8	0.11	7.9
R-83-1349	40.3	1.1	5.1	24.2	16.4	0.08	7.5
R-83-1350	46.4	2.3	10.1	19.4	19.5	0.89	6.5
R-83-1351	36.3	22.2	18.0	0.6	0.7	0.10	8.5
R-83-1352	44.5	24.4	22.5	1.0	0.7	1.46	7.0
R-83-1353	36.2	20.4	13.7	0.5	0.4	0.04	8.6
R-83-1354	34.2	19.7	15.9	0.5	0.8	0.01	8.6
R-83-1355	32.2	22.7	17.6	0.6	0.6	0.04	8.7
R-83-1356	34.2	23.4	15.7	0.4	0.5	0.04	8.7

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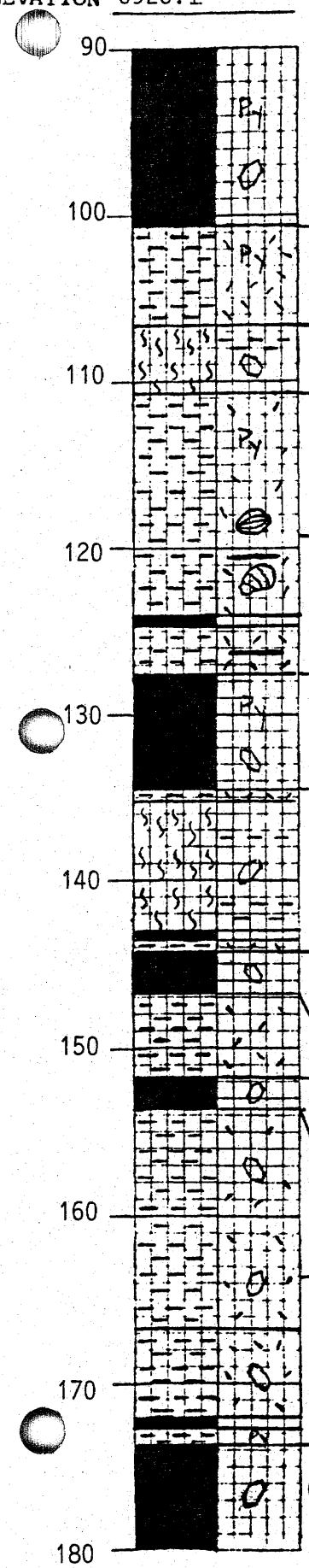
HOLE NO. 24423 - C DRILLER J. Elliott PAGE 2

LOCATION S39233.0 DATE DRILLED 3-21-83 SUB AREA J21

E56636.9

ELEVATION 6926.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
RMX (83-1197-R)		4.15		13101		0.49	7.3
R-83-1357	44.4	12.7	17.5	2.0	1.8	1.31	6.9
R-83-1358	32.1	16.7	13.5	0.7	0.6	0.19	8.5
R-83-1359	34.2	55.9	46.8	0.7	0.7	0.82	8.3
R-83-1360	42.8	33.9	29.4	0.9	0.6	1.35	7.6
YOX (83-1198-R)		6.78		12748		0.51	8.4
R-83-1361	34.2	28.0	17.7	0.4	0.4	0.32	8.5
Y1A (83-1199-R)		10.08		12224		0.68	8.5
R-83-1362	40.2	40.8	34.1	0.6	0.8	0.29	8.1
Y1B (83-1200-R)		5.95		12901		0.84	8.4
R-83-1363	34.3	23.3	18.8	0.4	0.9	0.26	8.6
R-83-1364	34.3	42.1	31.2	0.6	0.5	0.71	8.0
NXX (83-1201-R)		14.20		11635		1.05	8.0

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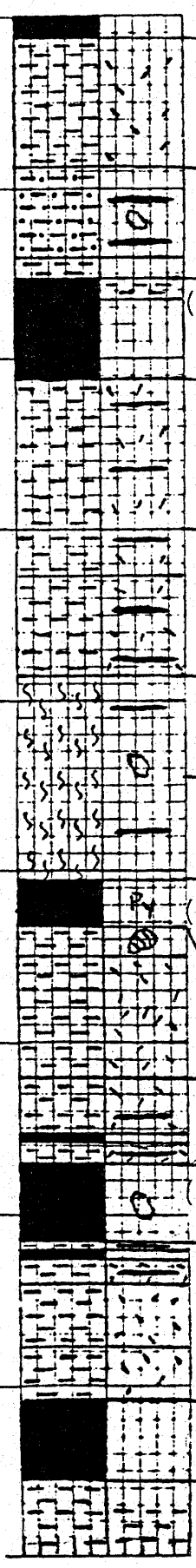
HOLE NO. 24423 - C DRILLER J. Elliott PAGE 3

LOCATION S39233.0 DATE DRILLED 3-21-83 SUB AREA J21

E56636.9

ELEVATION 6926.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-1365	34.5	23.3	20.2	0.6	0.9	0.28	8.6
R-83-1366	32.2	32.9	32.1	0.9	1.0	0.29	8.8
(83-1202-R) EOX		5.17		13012		0.42	8.4
R-83-1367	46.9	20.2	15.0	0.3	0.8	0.05	9.3
R-83-1368	45.0	22.8	18.4	0.4	0.9	0.05	9.2
R-83-1369	28.4	21.0	13.3	0.4	0.4	0.02	9.1
R-83-1370	32.1	22.3	13.2	0.4	0.3	<0.01	9.1
E1X (83-1203-R)		5.42		13011		0.57	8.3
R-83-1371	59.1	17.1	15.8	0.4	1.3	0.06	9.5
R-83-1372	49.5	29.2	18.5	0.3	0.5	0.12	9.1
(83-1204-R) E2X		8.30		12719		0.44	8.4
R-83-1373	45.3	22.2	15.7	0.4	0.6	0.27	9.0
E3X (83-1205-R)		9.51		12480		0.41	8.2

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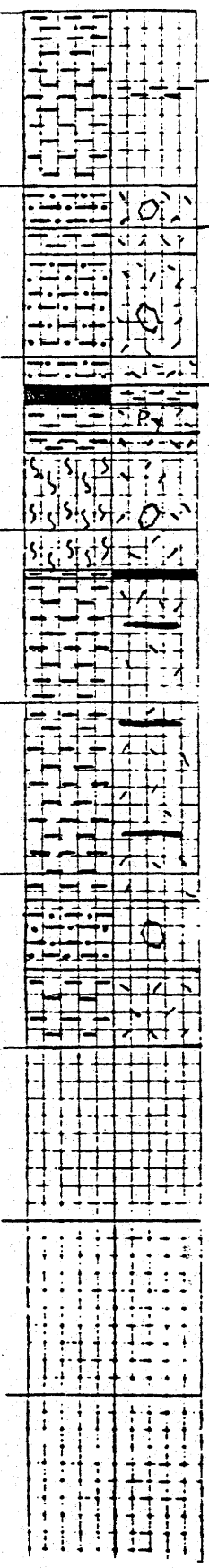
OCT 27 1986

HOLE NO. 24423 - C DRILLER J. Elliott PAGE 4

LOCATION S39233.0 DATE DRILLED 3-21-83 SUB AREA J21

E56636.9

ELEVATION 6926.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-83-1374	40.7	18.3	17.8	0.5	1.4	0.02	9.3
R-83-1375	32.2	20.0	13.4	0.4	0.5	0.01	9.1
R-83-1376	30.3	19.1	12.1	0.4	0.4	<0.01	9.1

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24423C
DATE CORED:21MAR1983
DATE REPORTED:10SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001623	7.9	75.6	0.5	2.1	2.5	1.8	1.4						0.7
SO	1.5	850001624	8.2	71.7	0.9	5.2	1.7	2.6	3.5						3.8
SH	3	850001625	7.4	78.3	3.9	15.2	15.3	20.5	3.6						3.9
SS,SH	13	850001626	5.9	44.4	3.1	5.3	25.9	9.9	1.2						0.5
CO	15	COAL													
SH	19.2	850001627	5.7	54	3.2	4.4	20.6	20.9	1						0.2
SH	28	850001628	7.9	44.6	1.5	4	7.3	5.8	1.6						1.1
SS	36	850001629	7.5	40.3	3.1	5.1	24.2	16.4	1.1						0.3
SH	42.9	850001630	6.5	46.4	3.5	10.1	19.4	19.5	2.3						2.1
SH	47.9	850001631	8.5	36.3	1.9	18	0.6	0.7	22.2						23.9
SH	55.7	850001632	7	44.5	2.5	22.5	1	0.7	24.4						25.8
SH	58.8	850001633	8.6	36.2	1.3	13.7	0.5	0.4	20.4						22.4
SH	66.2	850001634	8.6	34.2	1.5	15.9	0.5	0.8	19.7						21.8
SH	72.4	850001635	8.7	32.2	1.5	17.6	0.6	0.6	22.7						24.4
SH	78.6	850001636	8.7	34.2	1.5	15.7	0.4	0.5	23.4						24.9
CO	83.5	COAL													
SH	100.5	850001637	6.9	44.4	2.1	17.5	2	1.8	12.7						14.9
SL	106.6	850001638	8.5	32.1	1.5	13.5	0.7	0.6	16.7						18.9
SH	110.8	850001639	8.3	34.2	4.4	46.8	0.7	0.7	55.9						44.8
SH,CO	119.2	850001640	7.6	42.8	2.9	29.4	0.9	0.6	33.9						32.8
CO	127.5	COAL													
SH,SL,CO	134.3	850001641	8.5	34.2	1.8	17.7	0.4	0.4	28						28.6
CO	144.2	COAL													
SH	146.9	850001642	8.1	40.2	3.2	34.1	0.6	0.8	40.8						37.1
CO	151.8	COAL													
SH	153.6	850001643	8.6	34.3	1.9	18.8	0.4	0.9	23.3						24.9
SH,CO	163.6	850001644	8	34.3	3.1	31.2	0.6	0.5	42.1						37.8
CO	173.6	COAL													
SH	181.3	850001645	8.6	34.5	2	20.2	0.6	0.9	23.3						24.9
SH	188.6	850001646	8.8	32.2	2.9	32.1	0.9	1	32.9						32.1
CO	195.2	COAL													
SH	201.2	850001647	9.3	46.9	1.4	15	0.3	0.8	20.2						22.2
SH	209.9	850001648	9.2	45	1.7	18.4	0.4	0.9	22.8						24.5
SL	218.5	850001649	9.1	28.4	1.3	13.3	0.4	0.4	21						22.9
SL	224.5	850001650	9.1	32.1	1.3	13.2	0.4	0.3	22.3						24
CO	230.5	COAL													
SH	233.2	850001651	9.5	59.1	1.4	15.8	0.4	1.3	17.1						19.3
SH,CO	242	850001652	9.1	49.5	1.2	18.5	0.3	0.5	29.2						29.5
CO	246.9	COAL													
SH,CO	251.5	850001653	9	45.3	1.6	15.7	0.4	0.6	22.2						23.9
CO	260.9	COAL													
SH	265.6	850001654	9.3	40.7	1.3	17.8	0.5	1.4	18.3						20.5

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24423C
DATE CORED:21MAR1983
DATE REPORTED:10SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001623				0.02		0.62	41.17	.	40.55	24.2	26.6	49.2			
SO	850001624				0.02		0.62	21.59	.	20.97	15.6	29.6	54.8			
SH	850001625				0.03		0.94	13.46	.	12.52	22.6	22.6	54.8			
SS,SH	850001626				0.13		4.06	7.37	.	3.31	62.2	14	23.8			
CO	COAL															
SH	850001627				0.37		11.56	12.37	.	0.81	34	28.6	37.4			
SH	850001628				0.11		3.44	48.64	.	45.2	47	27.6	25.4			
SS	850001629				0.08		2.5	29.57	.	27.07	61	21.6	17.4			
SH	850001630				0.89		27.81	17.53	10.28	.	52.7	25.4	21.9			
SH	850001631				0.1		3.12	32.5	.	29.38	22.4	42.2	35.4			
SH	850001632				1.46		45.62	5.42	40.2	.	46	31.6	22.4			
SH	850001633				0.04		1.25	41.81	.	40.56	45	34.6	20.4			
SH	850001634				0.01		0.31	42.42	.	42.11	49	30.6	20.4			
SH	850001635				0.04		1.25	50.12	.	48.87	51	28.6	20.4			
SH	850001636				0.04		1.25	29.26	.	28.01	47.6	31.6	20.8			
CO	COAL															
SH	850001637				1.31		40.94	6.84	34.1	.	33.6	39.2	27.2			
SL	850001638				0.19		5.94	116.38	.	110.44	69.2	17.8	13			
SH	850001639				0.82		25.62	40.79	.	15.17	58.2	24.4	17.4			
SH,CO	850001640				1.35		42.19	18.75	23.44	.	51.2	23.8	25			
CO	COAL															
SH,SL,CO	850001641				0.32		10	39.14	.	29.14	61.6	22.4	16			
CO	COAL															
SH	850001642				0.29		9.06	18.73	.	9.67	47.2	38	14.8			
CO	COAL															
SH	850001643				0.26		8.12	38.69	.	30.57	37.6	34.8	27.6			
SH,CO	850001644				0.71		22.19	41.9	.	19.71	52.7	27.1	20.2			
CO	COAL															
SH	850001645				0.28		8.75	50.95	.	42.2	32	34.4	33.6			
SH	850001646				0.29		9.06	132.63	.	123.57	56	23.4	20.6			
CO	COAL															
SH	850001647				0.05		1.56	31.19	.	29.63	20	36.4	43.6			
SH	850001648				0.05		1.56	43.41	.	41.85	26	31.4	42.6			
SL	850001649				0.02		0.62	48.24	.	47.62	74	14.4	11.6			
SL	850001650				<0.01		0.31	50.58	.	50.27	78	12.4	9.6			
CO	COAL															
SH	850001651				0.06		1.88	32.05	.	30.17	28	30.4	41.6			
SH,CO	850001652				0.12		3.75	8.84	.	5.09	28	26.4	45.6			
CO	COAL															
SH,CO	850001653				0.27		8.44	18.94	.	10.5	44.7	21.2	34.1			
CO	COAL															
SH	850001654				0.02		0.62	8.41	.	7.79	41.4	28	30.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24423C
DATE CORED:21MAR1983
DATE REPORTED:10SEP1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001623		0.05		0.7		0.2	5	12.2	18.5			
SO	850001624		0.06		<0.6		<0.1	4.3	8	7.6			
SH	850001625		0.02		<0.6		0.2	5.1	10.6	7.1			
SS,SH	850001626		0.18		<0.6		0.4	3.3	428.1	32.7			
CO	COAL												
SH	850001627		0.02		<0.6		2	8.4	69.6	4.1			
SH	850001628		0.02		0.7		2.4	5.4	98.8	5.2			
SS	850001629		0.01		<0.6		1.4	3	49.6	5.7			
SH	850001630		0.01		<0.6		3.8	4.2	172.5	32.3			
SH	850001631		0.22		<0.6		2.5	6.5	93.8	2.9			
SH	850001632		0.1		<0.6		6.8	7	188.7	16.8			
SH	850001633		0.1		<0.6		2	2.8	88.3	5			
SH	850001634		0.11		<0.6		2.4	1.9	129.8	8.1			
SH	850001635		0.09		<0.6		1.9	1.6	135	10.7			
SH	850001636		0.13		<0.6		2.1	1.2	98.5	7.1			
CO	COAL												
SH	850001637		0.05		<0.6		9	8.6	187.9	17.2			
SL	850001638		0.05		<0.6		1.6	1.4	55.4	2.7			
SH	850001639		0.15		<0.6		3.8	6.1	66.6	9.3			
SH,CO	850001640		<0.01		0.7		3.6	4.9	184.4	17.6			
CO	COAL												
SH,SL,CO	850001641		0.11		0.7		2.2	1.8	58.7	1.9			
CO	COAL												
SH	850001642		0.22		0.7		3.5	3.2	59.5	<1			
CO	COAL												
SH	850001643		0.19		0.7		3.7	7.7	59.9	5.7			
SH,CO	850001644		0.07		0.7		2.4	3.7	93.9	12.2			
CO	COAL												
SH	850001645		0.37		<0.6		3	5.6	46.4	4.8			
SH	850001646		0.22		<0.6		2.3	2.8	103.8	5.5			
CO	COAL												
SH	850001647		0.21		<0.6		2.7	3.9	78.9	5.3			
SH	850001648		0.21		<0.6		1.9	3.5	147.5	11.8			
SL	850001649		1.2		<0.6		1.3	2.1	93.1	4.3			
SL	850001650		0.52		<0.6		0.7	1.3	103.3	4.5			
CO	COAL												
SH	850001651		0.21		0.7		2	3.6	26.9	<1			
SH,CO	850001652		0.34		<0.6		2.6	5.9	28.7	<1			
CO	COAL												
SH,CO	850001653		0.45		<0.6		2.5	4.2	69.9	1.2			
CO	COAL												
SH	850001654		1.03		<0.6		1.8	3.7	27.2	<1			

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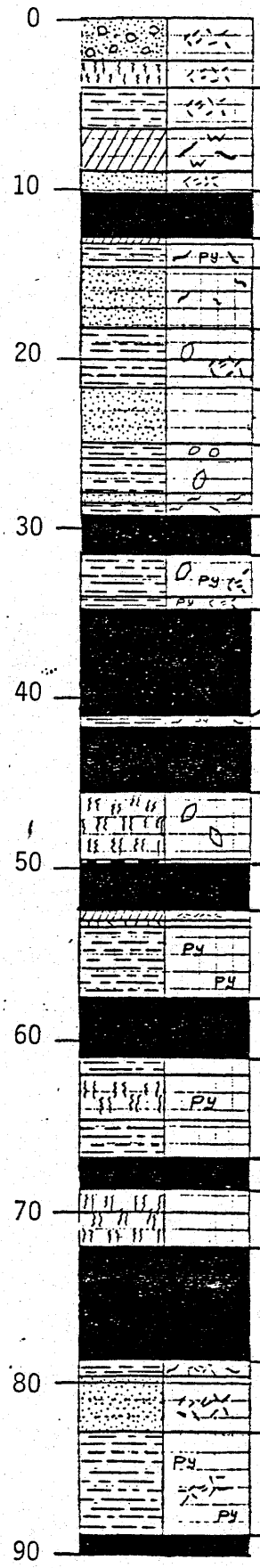
HOLE NO. 24589C DRILLER J. Elliott PAGE 1

LOCATION 30996 S DATE DRILLED 10/16/84 SUB AREA J-21

72518 E

ELEVATION 7083.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-84-2571	40.4	1.2	1.9	1.5	3.5	<0.01	8.0
R-84-2572	61.4	1.5	8.4	23.1	40.5	0.14	8.3
VXX	----	22.86	----	9016	----	0.52	3.4
R-84-2573	58.0	7.6	11.0	1.8	2.4	0.63	6.4
R-84-2574	36.4	13.2	13.2	1.0	1.0	0.04	8.1
R-84-2575	53.4	18.2	13.5	0.6	0.5	0.08	8.4
R-84-2576	28.2	22.1	14.8	0.5	0.4	<0.01	8.3
R-84-2577	42.9	28.0	12.5	0.3	0.1	0.08	8.5
GOA	----	7.74	----	12521	----	0.59	7.5
R-84-2578	51.6	32.9	10.4	<0.1	<0.1	0.04	8.8
GOX	----	4.35	----	13064	----	0.38	7.4
R-84-2579	48.9	34.1	13.2	0.2	0.1	1.64	8.0
G1X	----	22.13	----	10394	----	0.46	7.4
R-84-2580	32.4	24.8	9.6	0.2	<0.1	0.01	8.5
G2X	----	25.17	----	10092	----	0.93	7.6
R-84-2581	49.7	39.2	15.2	0.2	<0.1	0.41	8.7
BOX	----	8.34	----	12461	----	0.65	7.4
R-84-2582	40.9	50.6	19.6	0.2	0.1	0.63	8.7
B1X	----	11.63	----	12056	----	0.82	7.4
R-84-2583	34.4	31.8	18.8	0.5	0.2	0.58	7.8
ROX	----	8.52	----	12357	----	0.91	7.3
R-84-2584	32.3	38.3	21.0	0.4	0.2	0.48	8.2
R-84-2585	34.4	46.1	20.6	0.3	0.1	0.77	8.4

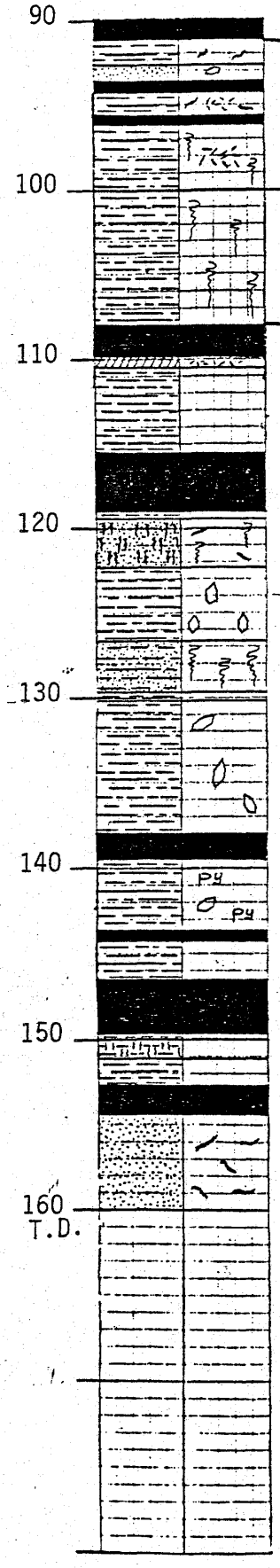
OCT 27 1986 SEP 3 1986

HOLE NO. 24589 C DRILLER J. Elliott PAGE 2

LOCATION 30996 S DATE DRILLED 10/16/84 SUB AREA J-21

72518 E

ELEVATION 7083.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R1X	----	18.46	----	11005	----	0.71	7.5
R-84-2586	35.0	45.5	14.4	0.1	<0.1	0.62	8.2
R-84-2587	32.4	51.9	16.4	<0.1	<0.1	0.02	8.8
R3X							
MXX							
YOA							
YOB							

159

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12

CORE No: 24589 TWP: 35N

DATE CORED: 10-16-84 RGE: 19E

DATE ANALYZED: 11-06-84

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	SO4 meq/l	CO3 meq/l	HCO3 meq/l	Cl mg/l	ESP
Sur. Soil	0.0	R-84-2571	8.0	40.4	0.6	1.9	1.5	3.5	1.2	<5.0	0	3.5	165	0.5
Shale, Co	4.0	R-84-2572	8.3	61.4	4.4	8.4	23.1	40.5	1.5	67.0	0	5.0	85	0.9
Coal VXX	1.01	COAL												
Shale	12.8	R-84-2573	6.4	58.0	1.6	11.0	1.8	2.4	7.6	13.3	0	1.5	28	9.0
Sandstone	14.5	R-84-2574	8.1	36.4	1.5	13.2	1.0	1.0	13.2	12.3	0	4.1	21	15.4
Shale	18.1	R-84-2575	8.4	53.4	1.5	13.5	0.6	0.5	18.2	10.4	0	3.2	12	20.4
Sandstone	21.6	R-84-2576	8.3	28.2	1.4	14.8	0.5	0.4	22.1	<5.0	0	1.6	12	23.9
Shale, SS	24.9	R-84-2577	8.5	42.9	1.2	12.5	0.3	0.1	28.0	<5.0	0	4.5	16	28.6
Coal G0A	29.3	COAL												
Shale	31.4	R-84-2578	8.8	51.6	0.9	10.4	<0.1	<0.1	32.9	<5.0	0.4	8.1	6	32.1
Coal G0X	34.7	COAL												
Shale	41.0	R-84-2579	8.0	48.9	1.2	13.2	0.2	0.1	34.1	<5.0	0.5	10.2	5	32.9
Coal G1X	41.7	COAL												
SL, Shale	45.5	R-84-2580	8.5	32.4	0.8	9.6	0.2	<0.1	24.8	<5.0	0	5.5	10	26.1
Coal G2X	49.8	COAL												
Shale, SL	52.3	R-84-2581	8.7	49.7	1.4	15.2	0.2	<0.1	39.2	13.3	0.2	8.1	13	36.1
Coal B0X	57.4	COAL												
Shale, SL	61.0	R-84-2582	8.7	40.9	1.8	19.6	0.2	0.1	50.6	<5.0	0.8	10.8	10	42.3
Coal B1X	66.8	COAL												
Siltstone	68.5	R-84-2583	7.8	34.4	1.8	18.8	0.5	0.2	31.8	9.1	0	7.4	10	31.3
Coal R0X	72.0	COAL												
Shale, SS	78.6	R-84-2584	8.2	32.3	2.0	21.0	0.4	0.2	38.3	<5.0	0.2	7.7	14	35.6
Shale	82.9	R-84-2585	8.4	34.4	1.9	20.6	0.3	0.1	46.1	14.6	1.1	11.2	6	40.0
Coal R1X	88.8	COAL												
SH, SS, CO	91.2	R-84-2586	8.2	35.0	1.4	14.4	0.1	<0.1	45.5	<5.0	0	6.0	8	39.7
Shale	100.0	R-84-2587	8.8	32.4	1.5	16.4	<0.1	<0.1	51.9	<5.0	0	2.7	11	43.0
End of Analysis	108.0													

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12

CORE No: 24589 TWP: 35N

DATE CORED: 10-16-84 RGE: 19E

DATE ANALYZED: 11-06-84

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Req'd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
Sur. Soil	R-84-2571	5	2.8	68.8	<0.01	0.31	151.16		150.85	55.4	25.8	18.8	15.8	2.4	13.4
Shale, CO	R-84-2572	14	2.3	89.7	0.14	4.38	11.85		7.47	32.4	21.8	45.8	27.4	12.9	14.5
Coal VX	COAL														
Shale	R-84-2573	118	2.7	172	0.63	19.69	9.38	10.31		58.4	12.8	28.8	22.5	3.9	18.6
Sandstone	R-84-2574	24	1.6	162	0.04	1.25	50.89		49.64	38.4	35.8	25.8	15.6	9.8	5.8
Shale	R-84-2575	22	2.7	292	0.08	2.50	12.16		9.66	9.4	34.8	55.8	26.7	14.7	12.0
Sandstone	R-84-2576	8	2.2	141	<0.01	0.31	145.74		145.43	64.4	20.8	14.8	11.1	6.8	4.3
Shale, SS	R-84-2577	15	1.4	243	0.08	2.50	9.69		7.19	18.4	40.4	41.2	25.4	13.8	11.6
Coal G0A	COAL														
Shale	R-84-2578	21	1.6	249	0.04	1.25	21.15		19.90	22.4	40.0	37.6	30.9	18.0	12.9
Coal G0X	COAL														
Shale	R-84-2579	16	1.1	126	1.64	51.25	12.88	38.37		92.4	4.0	3.6	20.3	9.2	11.1
Coal G1X	COAL														
SL, Shale	R-84-2580	6	1.3	118	0.01	0.31	6.72		6.41	35.4	41.0	23.6	18.8	7.7	11.1
Coal G2X	COAL														
Shale, SL	R-84-2581	13	1.0	262	0.41	12.81	22.04		9.23	17.4	47.0	35.6	29.1	12.7	16.4
Coal B0X	COAL														
Shale, SL	R-84-2582	11	1.8	228	0.63	19.69	56.83		37.14	33.0	35.4	31.6	22.9	8.3	14.6
Coal B1X	COAL														
Siltstone	R-84-2583	8	1.0	67.2	0.58	18.12	6.96	11.16		40.0	47.4	12.6	19.7	5.0	14.7
Coal R0X	COAL														
Shale, SS	R-84-2584	6	0.9	82.0	0.48	15.00	7.44	7.29		52.4	30.0	17.6	17.4	4.9	12.5
Shale	R-84-2585	12	1.0	123	0.77	24.06	53.41		29.35	38.4	41.0	20.6	17.8	6.0	11.8
Coal R1X	COAL														
SH, SS, CO	R-84-2586	7	1.2	140	0.62	19.38	21.87		2.49	44.4	33.0	22.6	22.1	7.9	14.2
Shale	R-84-2587	10	0.8	131	0.02	0.62	49.52		48.90	44.4	34.0	21.6	18.1	6.4	11.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12

CORE No: 24589 TWP: 35N

DATE CORED: 10-16-84 RGE: 19E

DATE ANALYZED: 11-06-84

		Hot H2O Ext. *					AB-DTPA Extract *					*Dry Basis
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM *	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM	Organic * Matter %
Sur. Soil	R-84-2571	0.5	<0.01	<0.01	<0.6	11	0.1	3.3	49.0	13.7	1.3	0.6
Shale, CO	R-84-2572	1.7	<0.01	0.01	<0.6	<10	0.8	6.2	23.1	18.3	16.1	10.3
Coal VXX	COAL											
Shale	R-84-2573	3.4	0.03	0.04	0.6	13	0.8	6.4	36.1	3.9	1.4	30.4
Sandstone	R-84-2574	0.7	0.02	0.04	0.6	10	2.2	3.3	53.2	2.7	2.8	2.0
Shale	R-84-2575	0.6	0.12	0.04	0.6	26	3.4	9.2	41.9	1.7	5.8	3.2
Sandstone	R-84-2576	0.6	<0.01	0.02	0.8	<10	1.4	2.7	125	3.7	1.7	2.3
Shale, SS	R-84-2577	0.5	0.22	0.07	0.6	21	1.9	8.4	38.6	1.2	4.5	5.2
Coal G0A	COAL											
Shale	R-84-2578	0.2	0.14	0.07	0.6	<10	0.9	5.8	38.4	<1.0	1.0	11.4
Coal G0X	COAL											
Shale	R-84-2579	0.8	0.22	0.26	<0.6	<10	0.4	1.7	26.4	<1.0	<1.0	19.4
Coal G1X	COAL											
SL, Shale	R-84-2580	0.4	0.19	0.07	0.6	12	0.8	3.8	22.5	<1.0	1.1	4.4
Coal G2X	COAL											
Shale, SL	R-84-2581	0.3	0.58	0.08	0.8	<10	1.2	7.4	42.0	<1.0	1.2	11.2
Coal B0X	COAL											
Shale, SL	R-84-2582	0.2	0.50	0.09	0.8	<10	2.0	5.8	68.5	1.8	1.2	6.8
Coal B1X	COAL											
Siltstone	R-84-2583	0.4	0.26	0.08	0.6	40	2.6	2.5	52.2	<1.0	<1.0	7.9
Coal R0X	COAL											
Shale, SS	R-84-2584	0.2	0.22	0.08	0.6	<10	2.4	4.2	45.1	<1.0	1.9	4.8
Shale	R-84-2585	1.5	0.20	0.06	0.6	10	2.4	5.0	85.1	<1.0	1.1	6.1
Coal R1X	COAL											
SH, SS, CO	R-84-2586	0.6	0.27	0.07	0.8	<10	1.6	6.9	48.2	1.1	1.3	COAL
Shale	R-84-2587	0.2	0.08	0.04	0.7	11	1.0	4.9	102	3.2	1.3	2.1

J-19 AND J-21 MINING AREAS

(SHALLOW CORES)

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26274C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002019	7.6		0.8	2.2	3.6	2	1.3						0.7
SS,SH	2.0	850002020	8		2.1	15.3	1.5	4.3	9						10.7
SH,SS	4.0	850002021	8		2.8	17.1	1.9	6	8.6						10.3
SH	6.0	850002022	8.1		2.5	16.1	1.9	6.1	8						9.5
SH	8.0	850002023	8		4.1	23.1	4.9	17.8	6.9						8.2
SS	10.0	850002024	8		4.1	24.4	3.7	15.4	7.9						9.4
SS	12.0	850002025	7.9		3.5	19.6	3.1	11.9	7.2						8.6
SS	14.0	850002026	7.9		2.8	15.6	2.5	9.1	6.5						7.7
SS	16.0	850002027	8.1		2.4	13.4	1.7	7.7	6.2						7.3
SS	18.0	850002028	8.2		2.1	10.7	2.1	7.8	4.8						5.5
SS	20.0	850002029	8.2		2.2	11.7	1.8	8.7	5.1						5.9
SS	22.0	850002030	8.2		2.2	10.9	1.9	9.7	4.5						5.1
SS	24.0	850002031	8		2.5	12.7	1.8	11.7	4.9						5.6
SS	26.0	850002032	8.2		2.3	10.3	1.7	11.8	4						4.4
SS,SH	28.0	850002033	8		2.7	12.7	2.6	14.1	4.4						5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26274C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002019	0.29			<0.01	.	0	36.22	.	36.22	32.8	38.6	28.6			
SS,SH	850002020	0.24			<0.01	.	0	31.96	.	31.96	27.8	36.6	35.6			
SH,SS	850002021	0.23			0.01	.	0.31	30.68	.	30.37	11.8	39	49.2			
SH	850002022	0.17			<0.01	.	0	331.08	.	331.08	52.8	23	24.2			
SH	850002023	0.23			<0.01	.	0	18.56	.	18.56	27.8	40	32.2			
SS	850002024	0.24			0.09	.	2.81	32.97	.	30.16	33.8	33	33.2			
SS	850002025	0.18			<0.01	.	0	13.98	.	13.98	34.8	30	35.2			
SS	850002026	0.19			0.01	.	0.31	43.97	.	43.66	38.8	28	33.2			
SS	850002027	0.28			0.03	.	0.94	53.07	.	52.13	38.2	27.6	34.2			
SS	850002028	0.08			<0.01	.	0	15.36	.	15.36	69.2	14	16.8			
SS	850002029	0.13			<0.01	.	0	10.36	.	10.36	63.2	18	18.8			
SS	850002030	0.13			<0.01	.	0	51.93	.	51.93	71.2	12	16.8			
SS	850002031	0.20			0.03	.	0.94	17.23	.	16.29	50.2	22	27.8			
SS	850002032	0.12			0.01	.	0.31	8.17	.	7.86	71.2	12	16.8			
SS,SH	850002033	0.15			0.17	.	5.31	15.61	.	10.3	66.2	13	20.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26275C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL,SS	0.0	850002034	8		0.4	0.3	3.2	1.1	0.2						-1
CL,SS	2.0	850002035	8		2.5	6.5	7.9	13.6	2						1.7
CL,SS	4.0	850002036	8.1		7.2	20.1	10.8	74	3.1						3.2
SH,SS	6.0	850002037	8.1		8.3	19.6	13.4	96.9	2.6						2.5
SH	8.0	850002038	6.2		8.5	20.1	27.4	90.7	2.6						2.5
SH	10.0	850002039	5.3		7.9	17.9	34.8	66.4	2.5						2.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26275C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL,SS	850002034	0.28			<0.01	.	0	349.01	.	349.01	69.2	14	16.8			
CL,SS	850002035	0.19			<0.01	.	0	327.63	.	327.63	70.2	13	16.8			
CL,SS	850002036	0.26			<0.01	.	0	144.04	.	144.04	70.2	13	16.8			
SH,SS	850002037	0.25			0.52	.	16.25	35.29	.	19.04	41.2	18	40.8			
SH	850002038	3.11			2.65	0.03	82.81	34.54	48.27	.	33.2	58	8.8			
SH	850002039	2.00			0.77	0.03	24.06	18.46	5.6	.	60.2	21	18.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26276C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL,SH	0.0	850002040	7.4		1	0.1	6.7	1.1	<0.1						<-1.1
CL,SH	2.0	850002041	7.6		1	2.3	4.6	2.7	1.2						0.5
CL,SH	4.0	850002042	7.7		1.3	4.2	4	3.5	2.2						1.9
SH,SS	6.0	850002043	7.3		2.5	7.4	11.7	6.3	2.5						2.4
SH,SS	8.0	850002044	6.9		2.1	6.4	10.1	4	2.4						2.2
SH	10.0	850002045	7		1.8	4.5	8.9	2.9	1.9						1.5
SH	12.0	850002046	7		1.7	3.9	8.1	2.3	1.7						1.2
SH	14.0	850002047	6.9		1.2	3	5.4	1.4	1.6						1.1
SH	16.0	850002048	7.6		0.8	2	4.5	0.9	1.2						0.5
SH	18.0	850002049	7.8		0.7	1.4	3.6	0.6	1						0.2
SH,SS	20.0	850002050	7.4		0.5	1.2	2.6	0.4	1						0.2
SH,SS	22.0	850002051	7.2		0.5	1	2.4	0.3	0.9						0.1
SH,SS	24.0	850002052	7.2		0.4	0.8	1.5	0.2	0.9						0.1
SH,SS	26.0	850002053	7.3		0.3	0.7	1.3	0.2	0.8						-0.1
SH,SS	28.0	850002054	7.2		0.3	0.7	1.2	0.2	0.8						-0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26276C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL,SH	850002040				<0.01	.	0	14.48	.	14.48	83.6	5.6	10.8			
CL,SH	850002041				0.16	.	5	13.2	.	8.2	81.2	11.2	7.6			
CL,SH	850002042				0.11	.	3.44	11	.	7.56	87.8	6.6	5.6			
SH,SS	850002043				0.05	.	1.56	11.63	.	10.07	80.8	11.6	7.6			
SH,SS	850002044				0.05	.	1.56	10.84	.	9.28	75.8	15.6	8.6			
SH	850002045				0.21	.	6.56	7.81	.	1.25	54.8	23.6	21.6			
SH	850002046				0.17	.	5.31	10.55	.	5.24	52.8	27.6	19.6			
SH	850002047				0.14	.	4.38	7.77	.	3.39	40.8	30.6	28.6			
SH	850002048				<0.01	.	0	26.79	.	26.79	63.8	22.6	13.6			
SH	850002049				<0.01	.	0	113.21	.	113.21	36.8	33.6	29.6			
SH,SS	850002050				0.03	.	0.94	8.04	.	7.1	10.8	55.6	33.6			
SH,SS	850002051				0.11	.	3.44	7.71	.	4.27	4.8	51.6	43.6			
SH,SS	850002052				0.23	.	7.19	8.71	.	1.52	6.8	47.6	45.6			
SH,SS	850002053				0.08	.	2.5	7.97	.	5.47	16.8	47.6	35.6			
SH,SS	850002054				<0.01	.	0	9.17	.	9.17	16.8	37.6	45.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26277C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS,SD	0.0	850002055	8.1		3.1	10.7	11.6	8.8	3.4						3.6
SS,SD	2.0	850002056	8.3		1.9	9.3	3.6	4.8	4.5						5.1
SS,SD	4.0	850002057	8.2		2.3	12	3	5.5	5.8						6.8
SS,SD	6.0	850002058	7.7		6.3	15	27.7	29.5	2.8						2.8
SS,SD	8.0	850002059	8.1		3.1	13.9	8.2	9.8	4.6						5.2
SH,SS	10.0	850002060	7.8		2.8	12.3	9	8.8	4.1						4.6
SS	12.0	850002061	7.8		2.4	8.9	8.4	7.3	3.2						3.3
SS	14.0	850002062	7.8		1.2	4.6	3.2	3.4	2.5						2.4
SS	16.0	850002063	7.9		1.5	3.5	6.8	5.6	1.4						0.8
SS	18.0	850002064	7.8		1.6	2.8	8.1	7.7	1						0.2
SS	20.0	850002065	7.8		2.4	2.9	16.3	12.4	0.8						-0.1
SS	22.0	850002066	7.5		2.1	2.8	9.8	13	0.8						-0.1
SS	24.0	850002067	7.2		1.9	2.9	6.9	12.4	0.9						0.1
SS	26.0	850002068	6.9		3.6	2.8	3	24.1	0.8						-0.1
SS	28.0	850002069	6		3.6	5.6	12.1	36.5	1.1						0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26277C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS,SD	850002055				<0.01	.	0	86.27	.	86.27	74.8	11.6	13.6			
SS,SD	850002056				<0.01	.	0	78.83	.	78.83	76.8	9.6	13.6			
SS,SD	850002057				<0.01	.	0	91.5	.	91.5	72.8	11.6	15.6			
SS,SD	850002058				0.11	.	3.44	45.9	.	42.46	60.8	11.6	27.6			
SS,SD	850002059				<0.01	.	0	49.76	.	49.76	76.8	9.6	13.6			
SH,SS	850002060				0.03	.	0.94	13.68	.	12.74	51.8	15.6	32.6			
SS	850002061				<0.01	.	0	8.58	.	8.58	59.8	18.6	21.6			
SS	850002062				<0.01	.	0	5.09	.	5.09	78.8	9.6	11.6			
SS	850002063				<0.01	.	0	25.36	.	25.36	77.6	12.4	10			
SS	850002064				<0.01	.	0	5.91	.	5.91	78.6	11.4	10			
SS	850002065				<0.01	.	0	11.91	.	11.91	74.6	12.4	13			
SS	850002066				0.02	.	0.62	9.68	.	9.06	75.6	11.4	13			
SS	850002067				<0.01	.	0	8.86	.	8.86	76.6	10.4	13			
SS	850002068				0.17	.	5.31	6.16	.	0.85	78.6	8.4	13			
SS	850002069				0.07	.	2.19	49.63	.	47.44	76.2	11.8	12			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26278C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002070	4.4		10.	19.9	26.6	130.3	2.2						1.9
SH	2.0	850002071	4		8.5	14.1	25.2	99.9	1.8						1.4
SH	4.0	850002072	3.7		6.8	7.6	19.8	70.3	1.1						0.4
SH	6.0	850002073	3.2		8.3	9.4	16.3	79.3	1.4						0.8
SH	8.0	850002074	3.2		9.9	9.6	21.8	99.3	1.2						0.5
SH	10.0	850002075	3.3		8	5	21.8	53.1	0.8						-0.1
SH	12.0	850002076	2.9		10.	4.9	23.8	48.9	0.8						-0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26278C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002070	2.07			1.6	0.07	50	-6.56	56.56	.	69.2	23.8	7			
SH	850002071	1.04			0.5	0.03	15.62	0.05	15.57	.	51.2	33.8	15			
SH	850002072	0.81			0.4	0.03	12.5	-0.58	13.08	.	54.2	29.8	16			
SH	850002073	1.04			0.87	0.08	27.19	-28.73	55.92	.	78.6	16.4	5			
SH	850002074	1.64			0.8	0.13	25	-13.14	38.14	.	64.6	13.4	22			
SH	850002075	0.29			0.17	0.04	5.31	2.17	3.14	.	32.6	40.4	27			
SH	850002076	0.64			0.94	0.08	29.38	-5.15	34.53	.	61.6	21.4	17			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26279C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL	0.0	850002077	7.7		0.4	0.2	2.9	0.7	0.1						<-1.1
CL	2.0	850002078	8		0.3	0.5	1.4	1.2	0.4						-0.7
GV,CL	4.0	850002079	8		0.7	2.5	2	1.5	1.9						1.5
SD,CL	6.0	850002080	7.9		1.6	6.6	5.4	3.4	3.1						3.2
SD,CL	8.0	850002081	7.9		2.4	10.3	8	4.4	4.1						4.6
SD	10.0	850002082	7.8		4.5	19.7	22.5	12	4.7						5.4
SH	12.0	850002083	7.8		6.4	33.8	22.5	20.6	7.3						8.7
SH	14.0	850002084	7.8		7.3	41.7	27.2	28.3	7.9						9.4
SH,SD	16.0	850002085	7.9		6.7	41.5	23.6	30.5	8						9.5
SD	18.0	850002086	8.4		8.9	54.7	24.4	54.3	8.7						10.4
SD	20.0	850002087	8.5		9.6	58.7	19.9	66.2	8.9						10.6
SS	22.0	850002088	7.9		7.6	46.9	22.9	43.1	8.2						9.8
SH,SS	24.0	850002089	7		4.1	16	20.7	19.3	3.6						3.9
SH,SS	26.0	850002090	7.7		2.2	13.1	3.6	7.9	5.5						6.4
SH,SS	28.0	850002091	8.1		3.1	18.4	5.2	13.3	6						7.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26279C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL	850002077	0.18			<0.01	.	0	47.07	.	47.07	62.6	16.4	21			
CL	850002078	0.19			<0.01	.	0	35.84	.	35.84	56.6	23.4	20			
GV,CL	850002079	0.24			<0.01	.	0	32.43	.	32.43	62.6	20.4	17			
SD,CL	850002080	0.21			<0.01	.	0	28.02	.	28.02	57.6	22.4	20			
SD,CL	850002081	0.09			<0.01	.	0	24.79	.	24.79	58.6	22.4	19			
SD	850002082	0.24			<0.01	.	0	26.86	.	26.86	62.6	18.4	19			
SH	850002083	0.40			0.26	.	8.12	18.46	.	10.34	15.6	37.4	47			
SH	850002084	0.27			0.16	.	5	18.8	.	13.8	13.6	37.4	49			
SH,SD	850002085	0.17			0.22	.	6.88	37.04	.	30.16	28.6	37	34.4			
SD	850002086	0.10			<0.01	.	0	159.02	.	159.02	36.6	36	27.4			
SD	850002087	0.19			<0.01	.	0	104.36	.	104.36	39.6	33	27.4			
SS	850002088	0.29			0.35	.	10.94	34.44	.	23.5	53.6	24	22.4			
SH,SS	850002089	0.06			0.07	.	2.19	10.82	.	8.63	48.6	27	24.4			
SH,SS	850002090	0.07			0.01	.	0.31	12.25	.	11.94	45.6	31	23.4			
SH,SS	850002091	0.24			<0.01	.	0	20.29	.	20.29	41.6	33	25.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26280C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD,CL	0.0	850002092	8.1		0.4	1.2	2.4	1.6	0.8						-0.1
SD,CL	2.0	850002093	8.5		0.8	5.3	0.9	1.5	4.8						5.5
SS	4.0	850002094	8.5		2.1	13.4	1.8	6.5	6.6						7.8
SS	6.0	850002095	8.4		2	10.9	2.1	7.4	5						5.8
SS	8.0	850002096	8.4		1.7	8.1	2.1	6.1	4						4.4
SS	10.0	850002097	8.2		1.4	6.6	3	4.3	3.5						3.8
SS,SH	12.0	850002098	7.8		1.8	8.8	5.1	4.5	4						4.4
SH	14.0	850002099	6.5		1.7	8.4	4	3.9	4.2						4.7
SH	16.0	850002100	4.6		2.6	10.1	8.4	8.4	3.5						3.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26280C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD,CL	850002092				<0.01	.	0	37.63	.	37.63	51.6	28	20.4			
SD,CL	850002093				<0.01	.	0	51.84	.	51.84	52.6	25	22.4			
SS	850002094				<0.01	.	0	58.2	.	58.2	65.2	16.4	18.4			
SS	850002095				<0.01	.	0	13.65	.	13.65	69.6	13	17.4			
SS	850002096				<0.01	.	0	54.86	.	54.86	73.6	11	15.4			
SS	850002097				<0.01	.	0	149.3	.	149.3	75.6	12	12.4			
SS,SH	850002098				<0.01	.	0	79.75	.	79.75	57.6	11	31.4			
SH	850002099				<0.01	.	0	12.42	.	12.42	40.6	25	34.4			
SH	850002100				0.01	.	0.31	11.43	.	11.12	21.6	43	35.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26285C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL,SH	0.0	850002101	7.7		0.3	0.2	2.9	0.7	0.1						<-1.1
SH	2.0	850002102	7.9		0.3	0.4	1.8	0.6	0.4						-0.7
SH	4.0	850002103	8.3		0.8	4.1	1	2.1	3.3						3.5
SH	6.0	850002104	8.4		1	6.6	1	2.7	4.9						5.6
SH	8.0	850002105	8.1		3.4	15.6	7.1	18.6	4.4						5
SH	10.0	850002106	8		5.2	18.1	17	40.9	3.4						3.6
SS	12.0	850002107	7.3		4.2	12.1	8.3	33.7	2.6						2.5
SS	14.0	850002108	7.7		3.1	8.4	4.3	21.3	2.3						2.1
SS	16.0	850002109	8		4.1	8.2	8	35.8	1.8						1.4
SS	18.0	850002110	7.9		4.6	8.5	7.5	43.3	1.7						1.2
SS	20.0	850002111	8.2		3.7	4.2	14.5	31	0.9						0.1
SS	22.0	850002112	8.1		4	4.4	10.9	37.1	0.9						0.1
SS	24.0	850002113	8.2		3.9	3.9	15.2	35.8	0.8						-0.1
SS	26.0	850002114	7.4		3.9	3.2	21	33	0.6						-0.4
SS,CO	28.0	850002115	4.9		4.7	3.6	27.6	39.2	0.6						-0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26285C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL,SH	850002101	0.21			<0.01	.	0	56.3	.	56.3	27.6	30	42.4			
SH	850002102	0.20			<0.01	.	0	45.59	.	45.59	31.6	26	42.4			
SH	850002103	0.36			<0.01	.	0	29.48	.	29.48	15.6	32	52.4			
SH	850002104	0.25			0.01	.	0.31	26.23	.	25.92	21.6	30	48.4			
SH	850002105	0.28			0.05	.	1.56	21.01	.	19.45	28.6	32	39.4			
SH	850002106	0.32			0.1	.	3.12	20.62	.	17.5	21.6	32.4	46			
SS	850002107	0.18			0.04	.	1.25	4.35	.	3.1	55.4	18.8	25.8			
SS	850002108	0.17			0.06	.	1.88	6.55	.	4.67	70.4	13.8	15.8			
SS	850002109	0.11			0.04	.	1.25	9.25	.	8	66.4	14.8	18.8			
SS	850002110	0.19			0.06	.	1.88	16.32	.	14.44	55.4	20.8	23.8			
SS	850002111	0.12			0.07	0.01	2.19	1.07	1.12	.	73.4	12.8	13.8			
SS	850002112	0.10			0.04	.	1.25	3.61	.	2.36	72.4	12.8	14.8			
SS	850002113	0.04			0.03	.	0.94	3.53	.	2.59	76.4	10.8	12.8			
SS	850002114	0.09			0.1	0.01	3.12	1.97	1.15	.	78.4	10.2	11.4			
SS,CO	850002115	0.15			0.19	<0.01	5.94	0.63	5.31	.	77.4	10.8	11.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26286C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,CL	0.0	850002116	8.1		0.3	0.3	1.7	1	0.3						-0.8
SH	2.0	850002117	8.3		0.4	1.2	1.2	1.1	1.1						0.4
SH	4.0	850002118	8.2		0.5	2.8	1.1	0.8	2.9						2.9
SH,SD	6.0	850002119	8.2		0.7	5.4	0.5	0.3	8.5						10.1
SD,SH	8.0	850002120	8.4		1.9	13.9	1.4	1.3	12						14.1
SH	10.0	850002121	8		7.1	46.7	18.9	24.8	10						11.9
SH	12.0	850002122	6.8		9.1	57.6	23.9	42.7	10						11.9
SH	14.0	850002123	6.8		7.3	46.7	17.4	29.6	9.6						11.4
SH	16.0	850002124	8.1		7.8	51.8	16	31	10.7						12.7
SH	18.0	850002125	8.3		4.5	36.5	2.6	8.3	15.6						17.9
SH	20.0	850002126	8.4		3.2	2.7	1.3	3.6	1.7						1.2
SH,SS	22.0	850002127	8.4		2.5	2	0.8	1.8	1.8						1.4
SS	24.0	850002128	8.4		1.7	12.6	1	1.5	11.3						13.4
SS	26.0	850002129	8.2		1.7	12.9	0.6	0.8	15.4						17.7
SS	28.0	850002130	8.7		1.3	10.1	0.2	0.1	26.1						27.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26286C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,CL	850002116				0.01	.	0.31	31.28	.	30.97	42.4	21.8	35.8			
SH	850002117				<0.01	.	0	33.09	.	33.09	29.4	27.8	42.8			
SH	850002118				<0.01	.	0	35.83	.	35.83	40.4	24.2	35.4			
SH,SD	850002119				<0.01	.	0	13.69	.	13.69	41.4	29.2	29.4			
SD,SH	850002120				<0.01	.	0	21.54	.	21.54	47.4	22.2	30.4			
SH	850002121				0.09	.	2.81	22.28	.	19.47	25.4	35.2	39.4			
SH	850002122				0.12	0.08	3.75	3.27	0.48	.	15.4	49.2	35.4			
SH	850002123				0.17	0.06	5.31	2.64	2.67	.	19.4	43.2	37.4			
SH	850002124				<0.01	.	0	22.62	.	22.62	26.4	38.2	35.4			
SH	850002125				0.01	.	0.31	5.14	.	4.83	18.4	43.2	38.4			
SH	850002126				<0.01	.	0	20.09	.	20.09	12.4	38.2	49.4			
SH,SS	850002127				0.03	.	0.94	49.32	.	48.38	44.4	26.2	29.4			
SS	850002128				0.13	.	4.06	5.56	.	1.5	74.4	14.2	11.4			
SS	850002129				0.03	.	0.94	12.63	.	11.69	76.8	14.8	8.4			
SS	850002130				0.11	.	3.44	3.76	.	0.32	61.4	22.2	16.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26287C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002131	8.1		0.2	0.2	1.7	0.5	0.2						-1
SH	2.0	850002132	8.4		0.5	1.6	1.4	1.9	1.2						0.5
SH	4.0	850002133	8.8		0.5	2.5	1	1.3	2.3						2.1
SS,SH	6.0	850002134	8.3		1.4	7.3	3.3	3.5	4						4.4
SS,SH	8.0	850002135	8		1.6	6.7	5.2	3.7	3.2						3.3
SS,SH	10.0	850002136	7.7		2.1	6	10.3	5.5	2.1						1.8
SH,SS	12.0	850002137	6.1		2.3	4.4	12.3	7.7	1.4						0.8
SH,SS	14.0	850002138	5.2		3.4	4.6	21	19	1						0.2
SH,SS	16.0	850002139	6.7		5.6	3.7	26.7	55.2	0.6						-0.4
SH,SS	18.0	850002140	6.1		6.9	6.7	35.6	74.1	0.9						0.1
SH,SS	20.0	850002141	6.2		8.8	2.4	26.1	127	0.3						-0.8
SH	22.0	850002142	4		13.	1.6	27.3	204.3	0.1						<-1.1
SH	24.0	850002143	3.2		15.	0.6	24.2	116.6	<0.1						<-1.1
SH	26.0	850002144	3.2		18.	0.3	24.2	183.6	<0.1						<-1.1
SH	28.0	850002145	4.3		22.	0.5	27.3	466	<0.1						<-1.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26287C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002131				<0.01	.	0	45.82	.	45.82	57	22.6	20.4			
SH	850002132				0.02	.	0.62	66.98	.	66.36	76.4	12.2	11.4			
SH	850002133				0.12	.	3.75	34.29	.	30.54	83	11.6	5.4			
SS,SH	850002134				0.05	.	1.56	32.65	.	31.09	55	20.6	24.4			
SS,SH	850002135				<0.01	.	0	6.98	.	6.98	44	29.6	26.4			
SS,SH	850002136				0.05	.	1.56	5.64	.	4.08	28	43.6	28.4			
SH,SS	850002137				<0.01	.	0	4.33	.	4.33	6	54.6	39.4			
SH,SS	850002138				0.03	.	0.94	2.87	.	1.93	19	42.6	38.4			
SH,SS	850002139				0.06	.	1.88	3.26	.	1.38	17	44.6	38.4			
SH,SS	850002140				0.19	.	5.94	28.81	.	22.87	37	32.6	30.4			
SH,SS	850002141				0.32	0.05	10	-0.37	10.37	.	57	24.6	18.4			
SH	850002142				0.56	.	17.5	39.15	.	21.65	64	19.6	16.4			
SH	850002143				1.26	0.28	39.38	-9.53	48.91	.	77	12.6	10.4			
SH	850002144				1.4	0.19	43.75	-9.69	53.44	.	69	16.6	14.4			
SH	850002145				1.44	0.47	45	39.14	5.86	.	66	31.6	2.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26288C
DATE CORED:19AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002146	7.7		4.8	7.2	26.1	34	1.3						0.7
SH	2.0	850002147	7		10.	23.4	26.7	117.5	2.8						2.8
SH	4.0	850002148	4.7		6.9	16.4	10.6	72.7	2.5						2.4
SH	6.0	850002149	4		5.1	10.5	13.3	43.9	2						1.7
SH	8.0	850002150	3.9		5.4	8.7	21	38.2	1.6						1.1
SH	10.0	850002151	3.8		4	7.1	18.6	31.3	1.4						0.8
SH	12.0	850002152	5		2	4.3	6.3	13	1.4						0.8
SH	14.0	850002153	7.2		4	3.2	27.2	28.5	0.6						-0.4
SH	16.0	850002154	7.2		2.4	2.8	10	17.5	0.8						-0.1
SH	18.0	850002155	7.3		2.9	2.5	15.5	20	0.6						-0.4
SH,SS	20.0	850002156	7.7		2.3	2.1	10.1	17.6	0.6						-0.4
SS,SH	22.0	850002157	7.5		2.7	2.8	14.2	19.6	0.7						-0.2
SH,SS	24.0	850002158	7.6		2.5	2.3	14.2	15.4	0.6						-0.4
SH,SS	26.0	850002159	7.3		2.3	3	12.4	13.1	0.8						-0.1
SH	28.0	850002160	6.6		4.1	3.7	27.8	28	0.7						-0.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26288C
DATE CORED:19AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002146				<0.01	.	0	29.62	.	29.62	26	56.6	17.4			
SH	850002147				0.12	.	3.75	5.99	.	2.24	30	53.6	16.4			
SH	850002148				0.04	.	1.25	0.98	0.27	.	24	61.6	14.4			
SH	850002149				0.05	.	1.56	-0.94	2.5	.	35	49.6	15.4			
SH	850002150				0.03	.	0.94	0.11	0.83	.	36.4	50.6	13			
SH	850002151				0.04	.	1.25	-2.64	3.89	.	47.4	41.4	11.2			
SH	850002152				0.26	0.19	8.12	2.41	5.71	.	25.4	47.4	27.2			
SH	850002153				0.12	.	3.75	50.86	.	47.11	62.4	22.4	15.2			
SH	850002154				0.08	.	2.5	35.87	.	33.37	59.4	27.4	13.2			
SH	850002155				0.08	.	2.5	19.72	.	17.22	56.4	30.4	13.2			
SH,SS	850002156				0.03	.	0.94	186.34	.	185.4	72.4	17.4	10.2			
SS,SH	850002157				0.59	.	18.44	168.51	.	150.07	65.4	21.4	13.2			
SH,SS	850002158				<0.01	.	0	46.76	.	46.76	44.4	33.4	22.2			
SH,SS	850002159				0.56	.	17.5	29.01	.	11.51	18.4	49.4	32.2			
SH	850002160				1.72	1.69	53.75	7.01	46.74	.	5.4	60.4	34.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26289C
DATE CORED:20AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002161	8.6		2.3	14	2	6.5	6.8						8.1
SH,SS	2.0	850002162	7.6		3.8	17.9	6	18.3	5.1						5.9
SH,SS	4.0	850002163	4.7		6.4	18	25.4	46.5	3						3.1
SH,SS	6.0	850002164	4.5		6.3	18.6	14.2	43.2	3.5						3.8
SH	8.0	850002165	4.5		7.7	13.7	29.7	48.9	2.2						1.9
SH	10.0	850002166	4.6		8.8	12	23.5	52.2	2						1.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26289C
DATE CORED:20AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002161				<0.01	.	0	15.92	.	15.92	20.4	22.8	56.8			
SH,SS	850002162				<0.01	.	0	6.19	.	6.19	22.4	46.8	30.8			
SH,SS	850002163				0.02	.	0.62	0.61	0.01	.	42.4	31.8	25.8			
SH,SS	850002164				0.05	.	1.56	0.11	1.45	.	47.4	22.8	29.8			
SH	850002165				0.12	0.04	3.75	0.48	3.27	.	49.4	19.8	30.8			
SH	850002166				0.09	0.03	2.81	1.23	1.58	.	46.4	20.8	32.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26371C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL	0.0	850002167	7.8		1.7	15.4	6.9	4.5	6.5						7.7
CL,SH	2.0	850002168	7.8		2.3	9.5	5.9	5.6	4						4.4
SH	4.0	850002169	7.7		3.4	13.7	12.3	11.9	3.9						4.3
SH	6.0	850002170	7.7		3.3	13.5	9.9	13	4						4.4
SH	8.0	850002171	7.3		5.5	13	17.3	45.6	2.3						2.1
SH	10.0	850002172	4.9		8.8	17.2	25.4	100.2	2.2						1.9
SH	12.0	850002173	4.7		6.4	12.1	23.2	95.7	1.6						1.1
SH	14.0	850002174	7.9		3.2	7.2	6.4	40.8	1.5						0.9
SH	16.0	850002175	7.8		3.3	5.9	8.9	43.5	1.2						0.5
SH	18.0	850002176	7.9		3.1	5.3	8.7	38.8	1.1						0.4
SH,SS	20.0	850002177	7.6		3.2	5	11.7	39.5	1						0.2
SS	22.0	850002178	8.3		1.4	2.1	3.2	14	0.7						-0.2
SS	24.0	850002179	7.9		1.2	1.9	2.5	12.9	0.7						-0.2
SS	26.0	850002180	7.9		1.3	2.1	2.7	13.9	0.7						-0.2
SS	28.0	850002181	8		1.2	1.7	2.2	12.2	0.6						-0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26371C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL	850002167				<0.01	.	0	39.1	.	39.1	48.4	18.8	32.8			
CL,SH	850002168				<0.01	.	0	16.91	.	16.91	22.4	22.8	54.8			
SH	850002169				<0.01	.	0	15.01	.	15.01	21.4	25.8	52.8			
SH	850002170				<0.01	.	0	8.57	.	8.57	12.4	26.8	60.8			
SH	850002171				0.03	.	0.94	5.92	.	4.98	18.4	24.8	56.8			
SH	850002172				0.26	0.05	8.12	2.13	5.99	.	19.4	27.8	52.8			
SH	850002173				0.31	0.02	9.69	2.25	7.44	.	41.2	27.8	31			
SH	850002174				0.04	.	1.25	14.33	.	13.08	29.2	28.8	42			
SH	850002175				0.07	.	2.19	10.88	.	8.69	33.2	31.8	35			
SH	850002176				0.01	.	0.31	36.04	.	35.73	58.6	20.4	21			
SH,SS	850002177				<0.01	.	0	69.17	.	69.17	53.6	21.4	25			
SS	850002178				<0.01	.	0	96.83	.	96.83	78.2	12.8	9			
SS	850002179				<0.01	.	0	35.97	.	35.97	81.2	10.8	8			
SS	850002180				0.02	.	0.62	13.3	.	12.68	79.2	10.8	10			
SS	850002181				<0.01	.	0	22.41	.	22.41	81.6	10.8	7.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26372C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002182	7.7		0.3	0.8	1.6	0.7	0.7						-0.2
SS	2.0	850002183	7.7		0.3	1.7	1.1	0.6	1.8						1.4
SS	4.0	850002184	7.9		0.3	1.8	1.3	0.4	2						1.7
SS	6.0	850002185	8		0.4	1.3	2.5	0.5	1.1						0.4
SS	8.0	850002186	7.8		0.4	0.9	2.8	0.6	0.7						-0.2
SS	10.0	850002187	7.6		0.3	0.4	2.2	0.5	0.3						-0.8
SS	12.0	850002188	7.6		0.4	0.4	2.5	0.7	0.3						-0.8
SS	14.0	850002189	7.5		0.4	0.5	2.7	1.3	0.4						-0.7
SS	16.0	850002190	7.3		0.8	1	5.9	3.8	0.5						-0.5
SH,SS	18.0	850002191	4		3.3	2	30.5	30.1	0.4						-0.7
SH	20.0	850002192	3.5		4.5	2.6	29.2	58.9	0.4						-0.7
SH	22.0	850002193	3.4		5.7	2.9	28.5	90.3	0.4						-0.7
SH	24.0	850002194	5.7		6.3	2.8	27.2	117.1	0.3						-0.8
SH	26.0	850002195	3.7		10.	2.2	22.7	147.2	0.2						-1
SH	28.0	850002196	3.2		11.	1.2	22.7	164.3	0.1						<-1.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26372C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002182				<0.01	.	0	23.76	.	23.76	76	12.4	11.6			
SS	850002183				0.07	.	2.19	8.17	.	5.98	76	13.4	10.6			
SS	850002184				<0.01	.	0	9.16	.	9.16	85	11.4	3.6			
SS	850002185				<0.01	.	0	64.49	.	64.49	88	8.4	3.6			
SS	850002186				<0.01	.	0	22.17	.	22.17	89	9.4	1.6			
SS	850002187				<0.01	.	0	5.97	.	5.97	92	6.4	1.6			
SS	850002188				0.03	.	0.94	5.99	.	5.05	91	7.4	1.6			
SS	850002189				0.06	.	1.88	4.11	.	2.23	90	9.4	0.6			
SS	850002190				0.12	.	3.75	6.15	.	2.4	80	10.4	9.6			
SH,SS	850002191				0.44	0.04	13.75	0.47	13.28	.	20	48.4	31.6			
SH	850002192				0.33	0.04	10.31	-2.14	12.45	.	26	44.4	29.6			
SH	850002193				0.7	0.06	21.88	-1.57	23.45	.	42	34.4	23.6			
SH	850002194				0.42	0.05	13.12	5.45	7.67	.	48	28.4	23.6			
SH	850002195				0.6	0.07	18.75	1.61	17.14	.	44	26.6	29.4			
SH	850002196				0.72	0.23	22.5	-3.45	25.95	.	53	27	20			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26373C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002197	7.4		0.2	<0.1	1.5	0.3	<0.1						<-1.1
SS	2.0	850002198	7.4		0.1	<0.1	0.7	0.2	<0.1						<-1.1
SS	4.0	850002199	7.7		0.3	0.2	1.9	0.8	0.2						-1
SS	6.0	850002200	7.8		0.3	0.2	1.7	0.8	0.2						-1
SS	8.0	850002201	7.8		0.3	0.3	1.2	0.8	0.3						-0.8
SS	10.0	850002202	7.9		0.2	0.2	0.8	0.5	0.2						-1
SS	12.0	850002203	7.7		0.2	0.2	0.5	0.5	0.3						-0.8
SS,SH	14.0	850002204	7.8		0.3	0.9	0.9	1.4	0.8						-0.1
SH	16.0	850002205	7.5		0.3	0.9	0.8	1.1	0.9						0.1
SH	18.0	850002206	6.3		0.5	1	1.2	1.6	0.8						-0.1
SH	20.0	850002207	3.6		3.1	1.6	18.8	18.6	0.4						-0.7
SH	22.0	850002208	3.2		4.1	1.6	23.7	27.1	0.3						-0.8
SH	24.0	850002209	3.6		6.2	1	24.7	67.1	0.1						<-1.1
SH	26.0	850002210	3.5		7.7	1.4	21.7	105.4	0.2						-1
SH	28.0	850002211	2.8		8.6	1.9	24.7	97.8	0.2						-1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26373C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002197	0.12			0.01	.	0.31	12.35	.	12.04	76.6	5.4	18			
SS	850002198	0.08			<0.01	.	0	12.52	.	12.52	78.6	11.4	10			
SS	850002199	0.09			<0.01	.	0	37.99	.	37.99	78	14	8			
SS	850002200	0.21			<0.01	.	0	32.66	.	32.66	82.6	11.4	6			
SS	850002201	0.17			0.01	.	0.31	12.97	.	12.66	83.6	11.4	5			
SS	850002202	0.04			<0.01	.	0	15.57	.	15.57	84	13.8	2.2			
SS	850002203	0.23			0.04	.	1.25	12.74	.	11.49	83.6	9.4	7			
SS,SH	850002204	1.14			0.11	.	3.44	9.55	.	6.11	65.6	16.4	18			
SH	850002205	0.25			0.07	.	2.19	8.29	.	6.1	31.6	38.8	29.6			
SH	850002206	0.49			0.21	.	6.56	7.16	.	0.6	41.6	28.8	29.6			
SH	850002207	1.24			0.02	.	0.62	-0.51	1.13	.	57.6	24.8	17.6			
SH	850002208	0.53			0.45	0.04	14.06	-3.84	17.9	.	63.6	19.8	16.6			
SH	850002209	0.60			0.78	.	24.38	41.26	.	16.88	55.6	24.8	19.6			
SH	850002210	0.97			1.96	1.58	61.25	1.46	59.79	.	71.6	19.8	8.6			
SH	850002211	0.19			2.71	1.98	84.69	-1.23	85.92	.	72	20.8	7.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26374C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002212	7.7		0.6	1.3	2.8	1.4	0.9						0.1
SS	2.0	850002213	7.9		0.3	1.5	1.2	0.4	1.7						1.2
SS	4.0	850002214	8		0.5	1.5	1.3	0.4	1.6						1.1
SS	6.0	850002215	7.5		1.4	6.1	5.2	1.7	3.3						3.5
SS	8.0	850002216	7.3		4.8	10.1	31.6	11.5	2.2						1.9
SS	10.0	850002217	6.7		3.1	3.4	19.9	7.1	0.9						0.1
SH,SS	12.0	850002218	6.9		1.7	1.3	12.3	3.9	0.5						-0.5
SS,SH	14.0	850002219	6.9		1.6	1	10.4	3.5	0.4						-0.7
SH	16.0	850002220	7		1.2	0.5	6.7	2.7	0.2						-1
SH,CO	18.0	850002221	7		1.1	1.1	5.7	2.6	0.5						-0.5
CO,SH,SS	20.0	850002222	7.2		0.8	0.7	3.8	2.1	0.4						-0.7
SH	22.0	850002223	7.4		1	1.1	4.8	3.4	0.5						-0.5
SH	24.0	850002224	7.6		1.4	1.4	6.7	6	0.6						-0.4
SH	26.0	850002225	7.6		1.3	1.3	5.3	6.5	0.5						-0.5
SH	28.0	850002226	7.5		1.5	1.3	6.1	8.7	0.5						-0.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26374C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002212				0.07	.	2.19	17.28	.	15.09	87.6	9.8	2.6			
SS	850002213				0.03	.	0.94	10.97	.	10.03	91.6	4.8	3.6			
SS	850002214				0.06	.	1.88	7.91	.	6.03	89.6	8.8	1.6			
SS	850002215				0.02	.	0.62	5.32	.	4.7	89.6	6.8	3.6			
SS	850002216				<0.01	.	0	14.89	.	14.89	75.6	14.8	9.6			
SS	850002217				0.1	.	3.12	8.3	.	5.18	81.4	10.8	7.8			
SH,SS	850002218				0.06	.	1.88	7.12	.	5.24	86.4	7.8	5.8			
SS,SH	850002219				0.03	.	0.94	10.14	.	9.2	68.4	15.8	15.8			
SH	850002220				<0.01	.	0	8.35	.	8.35	39.4	29.8	30.8			
SH,CO	850002221				0.08	.	2.5	9.51	.	7.01	11.4	38.8	49.8			
CO,SH,SS	850002222				0.11	.	3.44	6.08	.	2.64	22.4	32.8	44.8			
SH	850002223				<0.01	.	0	22.81	.	22.81	21.4	43.8	34.8			
SH	850002224				<0.01	.	0	73.49	.	73.49	40.8	28.4	30.8			
SH	850002225				<0.01	.	0	58.82	.	58.82	38.8	29.4	31.8			
SH	850002226				0.01	.	0.31	70.92	.	70.61	26.4	36.8	36.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26375C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002227	8.3		0.6	3.6	0.6	0.7	4.5						5.1
SD	2.0	850002228	8.4		1	8.1	0.5	1.1	9.1						10.8
SD,SH,SS	4.0	850002229	8.2		1	9.6	0.5	0.4	14.3						16.6
SS	6.0	850002230	8		1.7	10.9	2.7	1.5	7.5						8.9
SS,SH	8.0	850002231	7.7		2.3	11.8	6.8	3.3	5.3						6.2
SS	10.0	850002232	7.3		1.4	6	4.5	2.5	3.2						3.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26375C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002227				0.01	.	0.31	70.38	.	70.07	38.4	34.8	26.8			
SD	850002228				<0.01	.	0	25.4	.	25.4	60.8	18.4	20.8			
SD,SH,SS	850002229				<0.01	.	0	12.68	.	12.68	59.8	14.4	25.8			
SS	850002230				<0.01	.	0	32.55	.	32.55	59.8	17.4	22.8			
SS,SH	850002231				<0.01	.	0	21.28	.	21.28	32.8	26.4	40.8			
SS	850002232				0.01	.	0.31	2.16	.	1.85	80.8	8.4	10.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26376C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002233	7.9		0.4	1.9	2.4	1.6	1.3						0.7
SD	2.0	850002234	8		1.1	4.5	2.5	2.5	2.8						2.8
SD,CL	4.0	850002235	8		2.1	9.2	3.9	6.3	4.1						4.6
CL,SH	6.0	850002236	8		2.7	10.8	5.3	8.8	4.1						4.6
SH	8.0	850002237	8		1.8	8	3	4.8	4.1						4.6
SH	10.0	LOST													
SH	12.0	850002238	8		1.5	7.2	2.5	4.4	3.9						4.3
SH	14.0	850002239	8.1		1.1	5.9	2.5	2.8	3.6						3.9
SH,SS	16.0	850002240	7.9		1.4	5.9	5.3	6	2.5						2.4
SH	18.0	850002241	7.8		1.4	5.4	4.8	6.1	2.3						2.1
SS,SH	20.0	850002242	7.9		1.6	5	5	10.7	1.8						1.4
SH	22.0	850002243	7.7		1.4	4.5	4.4	10.2	1.7						1.2
SH,SS	24.0	850002244	8.1		0.9	2.3	3	5.5	1.1						0.4
SS	26.0	850002245	8		1.1	2.7	2.8	9.9	1.1						0.4
SS	28.0	850002246	8		1	2.6	2.5	9.4	1.1						0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26376C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002233				<0.01	.	0	11.63	.	11.63	56.8	21.4	21.8			
SD	850002234				<0.01	.	0	34.88	.	34.88	53.4	25.8	20.8			
SD,CL	850002235				0.02	.	0.62	37.94	.	37.32	45.4	31.8	22.8			
CL,SH	850002236				<0.01	.	0	42.82	.	42.82	35.4	27.8	36.8			
SH	850002237				<0.01	.	0	46.78	.	46.78	46.8	14.4	38.8			
SH	LOST															
SH	850002238				<0.01	.	0	47.07	.	47.07	60.8	12.4	26.8			
SH	850002239				<0.01	.	0	98.1	.	98.1	39.2	21.6	39.2			
SH,SS	850002240				<0.01	.	0	92.81	.	92.81	46.8	25	28.2			
SH	850002241				<0.01	.	0	89.73	.	89.73	43.2	29.6	27.2			
SS,SH	850002242				<0.01	.	0	123.45	.	123.45	31.2	34	34.8			
SH	850002243				<0.01	.	0	77.69	.	77.69	30.2	38	31.8			
SH,SS	850002244				<0.01	.	0	201.24	.	201.24	71.2	16	12.8			
SS	850002245				<0.01	.	0	120.81	.	120.81	62.2	20	17.8			
SS	850002246				<0.01	.	0	126.21	.	126.21	72.8	12.4	14.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26377C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002247	8		0.3	1	2.2	0.6	0.8						-0.1
SD	2.0	850002248	8.2		1	8.7	1.6	1.4	7.1						8.4
SD	4.0	850002249	8.2		2.5	19.5	4.1	7	8.3						9.9
SD,SS	6.0	850002250	8.1		5.6	33.3	25.5	33	6.2						7.3
SS	8.0	850002251	8.3		3.5	26	5.3	13.3	8.5						10.1
SS	10.0	850002252	8.1		3.4	25.2	4.3	13	8.6						10.3
SS	12.0	850002253	8		2.3	19.5	2.2	7.7	8.8						10.5
SS	14.0	850002254	7.8		2	12.5	3.5	8.7	5.1						5.9
SS	16.0	850002255	8.3		1.5	9.2	2.2	5.7	4.6						5.2
SS	18.0	850002256	8.3		1.3	7.5	2.4	5.4	3.8						4.2
SS	20.0	850002257	8.2		1.1	5.9	3	4.6	3						3.1
SS	22.0	850002258	7.8		1.2	5.7	3.2	5.1	2.8						2.8
SH	24.0	850002259	7.6		1.2	5.8	3.7	5.5	2.7						2.7
SS,SH	26.0	850002260	5.2		3.1	17.1	9.5	18	4.6						5.2
SH	28.0	850002261	4		6.7	22.7	20.3	45.8	3.9						4.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26377C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002247				<0.01	.	0	9.24	.	9.24	42.8	31.4	25.8			
SD	850002248				<0.01	.	0	9.93	.	9.93	46.4	28.4	25.2			
SD	850002249				0.01	.	0.31	55.66	.	55.35	41.4	27.4	31.2			
SD,SS	850002250				0.14	.	4.38	97.73	.	93.35	44.4	21.4	34.2			
SS	850002251				0.03	.	0.94	32.08	.	31.14	32.4	36.4	31.2			
SS	850002252				<0.01	.	0	7.66	.	7.66	29	37.8	33.2			
SS	850002253				<0.01	.	0	3.98	.	3.98	75.4	9.4	15.2			
SS	850002254				0.07	.	2.19	3.73	.	1.54	76.4	8.8	14.8			
SS	850002255				0.01	.	0.31	48.36	.	48.05	76.4	8.8	14.8			
SS	850002256				<0.01	.	0	255.14	.	255.14	82.4	8.8	8.8			
SS	850002257				<0.01	.	0	197.7	.	197.7	76.4	12.8	10.8			
SS	850002258				<0.01	.	0	3.68	.	3.68	75.4	11.8	12.8			
SH	850002259				<0.01	.	0	9.82	.	9.82	76.4	10.8	12.8			
SS,SH	850002260				<0.01	.	0	5.48	.	5.48	52.4	15.8	31.8			
SH	850002261				0.16	0.14	5	-0.56	5.56	.	6.8	9.2	84			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26378C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CL,SS	0.0	850002262	8.4		0.4	0.2	1.7	1.3	0.2						-1
SS	2.0	850002263	7.9		3	3.4	10.8	13.7	1						0.2
SS	4.0	850002264	7.8		4.9	5.3	19.7	26.1	1.1						0.4
SS	6.0	850002265	7.6		8.1	8.5	45	53.3	1.2						0.5
SS	8.0	850002266	7.6		11.	19.4	45.6	86	2.4						2.2
SS	10.0	850002267	8		12.	21.9	58.5	76.4	2.7						2.7
SS,SH	12.0	850002268	7.7		19	38.9	45	150.8	3.9						4.3
SH,SS	14.0	850002269	8		21.	42.1	38.8	227.3	3.6						3.9
SS	16.0	850002270	7.8		18.	30	33.9	187	2.9						2.9
SS	18.0	850002271	4.8		18.	19.4	32	242.3	1.7						1.2
SS	20.0	850002272	4.2		18.	18.6	30.2	260.4	1.5						0.9
SS,SH	22.0	850002273	4.1		17	27.5	33.9	242.3	2.3						2.1
SH,SS	24.0	850002274	6.4		8.4	37.3	41.3	42.2	5.8						6.8
SS	26.0	850002275	6.6		6.8	37.3	28.3	25.1	7.2						8.6
SS	28.0	850002276	6.6		6.9	33.2	22.2	26.1	6.8						8.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26378C
DATE CORED:09AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CL,SS	850002262				<0.01	.	0	134.46	.	134.46	40.8	3.2	56			
SS	850002263				<0.01	.	0	104.88	.	104.88	33.8	5.2	61			
SS	850002264				0.01	.	0.31	65.93	.	65.62	41.8	1.2	57			
SS	850002265				<0.01	.	0	52.34	.	52.34	55.4	<0.1	47			
SS	850002266				<0.01	.	0	51.42	.	51.42	73	<0.1	37.4			
SS	850002267				<0.01	.	0	26.43	.	26.43	71	<0.1	40.4			
SS,SH	850002268				0.16	0.06	5	3	2	.	29.4	5.6	65			
SH,SS	850002269				0.28	.	8.75	12.07	.	3.32	36.4	7.6	56			
SS	850002270				0.23	.	7.19	15.32	.	8.13	42.4	<0.1	59			
SS	850002271				0.71	0.03	22.19	-0.3	22.49	.	61.4	<0.1	51			
SS	850002272				0.95	0.05	29.69	-3.92	33.61	.	64.4	<0.1	37			
SS,SH	850002273				0.61	0.04	19.06	-0.25	19.31	.	65.4	<0.1	48			
SH,SS	850002274				<0.01	.	0	141.61	.	141.61	57.4	<0.1	47			
SS	850002275				0.03	.	0.94	82.17	.	81.23	63.4	<0.1	43			
SS	850002276				<0.01	.	0	61.53	.	61.53	59.8	<0.1	44			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26379C
DATE CORED:10AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002277	7.8		0.5	0.3	3.4	0.8	0.2						-1
SD	2.0	850002278	7.9		0.3	0.5	2.1	0.7	0.4						-0.7
SD,CL	4.0	850002279	8		0.4	1.1	1.4	0.7	1.1						0.4
CL	6.0	850002280	8.2		0.5	2.2	1	0.8	2.3						2.1
CL,SH	8.0	850002281	8.1		1.1	5.7	1.8	2.1	4.1						4.6
SH	10.0	850002282	8		2.4	11.7	3.4	7.8	4.9						5.6
SH,SS	12.0	850002283	8		2.5	11.7	3.8	9	4.6						5.2
SS,SH	14.0	850002284	5.7		4.5	18	18	22.5	4						4.4
SH	16.0	850002285	4		8	26.5	18.5	50.8	4.5						5.1
SH	18.0	850002286	7.9		3.4	16.8	3.7	16.2	5.3						6.2
SH,SS	20.0	850002287	8.2		2.8	16	2	9.3	6.7						7.9
SS	22.0	850002288	8.4		2	13.3	1	3.8	8.6						10.3
SS	24.0	850002289	8.7		1.4	10.7	0.6	1.3	11						13
SS	26.0	850002290	8.6		1.2	9.9	0.6	0.6	12.8						15
SS,SH,CO	28.0	850002291	8.2		1.2	9.6	0.4	0.4	15.2						17.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26379C
DATE CORED:10AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002277				0.02	.	0.62	20.87	.	20.25	41.8	2.2	56			
SD	850002278				<0.01	.	0	28.03	.	28.03	43.4	0.6	56			
SD,CL	850002279				<0.01	.	0	26.29	.	26.29	43.4	0.6	56			
CL	850002280				<0.01	.	0	63.95	.	63.95	15.8	9.2	75			
CL,SH	850002281				<0.01	.	0	42.9	.	42.9	44.4	1.6	54			
SH	850002282				<0.01	.	0	11.91	.	11.91	9.8	0.2	90			
SH,SS	850002283				0.06	.	1.88	46.64	.	44.76	35.8	22.6	41.6			
SS,SH	850002284				0.18	.	5.62	28.51	.	22.89	33.8	22	44.2			
SH	850002285				0.26	0.04	8.12	-3.05	11.17	.	21.2	32	46.8			
SH	850002286				0.05	.	1.56	6.62	.	5.06	19.2	36	44.8			
SH,SS	850002287				<0.01	.	0	42.61	.	42.61	53.2	20	26.8			
SS	850002288				<0.01	.	0	48.6	.	48.6	66.8	12.4	20.8			
SS	850002289				<0.01	.	0	114.46	.	114.46	72.8	10.4	16.8			
SS	850002290				<0.01	.	0	79.9	.	79.9	70.8	10.8	18.4			
SS,SH,CO	850002291				<0.01	.	0	7.71	.	7.71	47.2	17.4	35.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26380C
DATE CORED:11AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS,SH	0.0	850002292	8.4		0.8	3.1	1.3	3.8	1.9						1.5
SH	2.0	850002293	8.4		1.9	8.7	0.8	9	3.9						4.3
SH	4.0	850002294	8.4		1.7	8.3	0.5	7.6	4.1						4.6
SH,SS	6.0	850002295	8.4		1.8	7.5	0.9	8.9	3.4						3.6
SS	8.0	850002296	8.2		1.2	5	1.5	4.1	3						3.1
SS,SH	10.0	850002297	7.9		2.4	11.3	4.3	8.1	4.5						5.1
SH,SS	12.0	850002298	7.9		3.9	13.2	12.9	18.3	3.3						3.5
SH	14.0	850002299	4.6		3.5	12.3	10.4	15.3	3.4						3.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26380C
DATE CORED:11AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS,SH	850002292				<0.01	.	0	129.35	.	129.35	35.2	30.4	34.4			
SH	850002293				0.03	.	0.94	56.58	.	55.64	29.2	32.4	38.4			
SH	850002294				0.01	.	0.31	22.43	.	22.12	10.2	29.4	60.4			
SH,SS	850002295				<0.01	.	0	34.53	.	34.53	56.6	16	27.4			
SS	850002296				<0.01	.	0	20.27	.	20.27	61.2	18.4	20.4			
SS,SH	850002297				0.06	.	1.88	9.49	.	7.61	24.2	18.4	57.4			
SH,SS	850002298				<0.01	.	0	4.44	.	4.44	45.6	18	36.4			
SH	850002299				0.01	.	0.31	1.83	.	1.52	3.6	9	87.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26381C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002300	8.5		0.4	1.1	0.8	1.6	1						0.2
SH	2.0	850002301	8.5		0.7	4.9	0.5	2.3	4.1						4.6
SH,SS	4.0	850002302	8.5		0.6	2.8	0.5	1.8	2.6						2.5
SS,SH	6.0	850002303	8.5		0.6	2.6	0.6	1.8	2.4						2.2
SS	8.0	850002304	8.5		0.5	2	1	1.7	1.7						1.2
SS	10.0	850002305	8.4		0.6	2	1	1.8	1.7						1.2
SS	12.0	850002306	8.2		0.6	2	1.1	1.8	1.7						1.2
SS	14.0	850002307	8		0.6	1.8	1.4	1.9	1.4						0.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26381C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002300	0.34			<0.01	.	0	222.09	.	222.09	14.2	46.4	39.4			
SH	850002301	0.24			<0.01	.	0	259.99	.	259.99	38.2	30.4	31.4			
SH,SS	850002302	0.12			<0.01	.	0	102.8	.	102.8	27.6	39	33.4			
SS,SH	850002303	0.03			<0.01	.	0	69.04	.	69.04	29.2	39.4	31.4			
SS	850002304	0.12			0.01	.	0.31	115.99	.	115.68	69.2	14.4	16.4			
SS	850002305	0.25			<0.01	.	0	89.83	.	89.83	69.2	15.6	15.2			
SS	850002306	0.07			<0.01	.	0	52.07	.	52.07	61.2	21.6	17.2			
SS	850002307	0.10			<0.01	.	0	46.18	.	46.18	68.2	16	15.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26382C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002308	7.9		0.3	0.1	2	0.4	<0.1						<-1.1
SS,SH	2.0	850002309	8.1		0.2	0.2	1.7	0.4	0.2						-1
SH	4.0	850002310	8.1		0.4	0.8	1.4	1.4	0.7						-0.2
SH	6.0	850002311	8.2		1	3.1	1.8	4.5	1.7						1.2
SH	8.0	850002312	8.1		1.2	3.5	2	4.9	1.9						1.5
SH	10.0	850002313	7.7		1.6	5	3.8	7.3	2.1						1.8
SH	12.0	850002314	7.5		1.2	3.6	2.9	4.8	1.8						1.4
SH	14.0	850002315	7		1	3.3	2.4	3.6	1.9						1.5
SH	16.0	850002316	7.1		1	3.2	2.4	3.3	1.9						1.5
SH	18.0	850002317	7.5		1	2.4	2.8	4.1	1.3						0.7
SH,SS	20.0	850002318	7.5		3	3.5	17	17	0.8						-0.1
SS	22.0	850002319	8.1		2.2	3.7	7.2	14	1.1						0.4
SS	24.0	850002320	7.9		3.9	5.1	17.5	30.5	1						0.2
SS,SH	26.0	850002321	.		.	.	.	.	.						.
SH	28.0	850002322	7.4		5.4	8.1	25.1	44.8	1.4						0.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26382C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002308	0.20			<0.01	.	0	60.93	.	60.93	49.2	19	31.8			
SS,SH	850002309	0.04			<0.01	.	0	66.25	.	66.25	59.2	20	20.8			
SH	850002310	0.08			<0.01	.	0	77.17	.	77.17	16.2	27	56.8			
SH	850002311	0.17			<0.01	.	0	75.27	.	75.27	9.2	13	77.8			
SH	850002312	0.12			<0.01	.	0	22.13	.	22.13	5.2	36	58.8			
SH	850002313	0.28			<0.01	.	0	21.55	.	21.55	3.2	29	67.8			
SH	850002314	0.30			<0.01	.	0	12.11	.	12.11	15.2	35	49.8			
SH	850002315	0.04			<0.01	.	0	7.65	.	7.65	5.6	27.6	66.8			
SH	850002316	1.31			0.11	.	3.44	4.98	.	1.54	6.6	18	75.4			
SH	850002317	0.56			<0.01	.	0	3.62	.	3.62	3.6	38	58.4			
SH,SS	850002318	0.54			0.07	.	2.19	5.27	.	3.08	23.6	30	46.4			
SS	850002319	0.49			<0.01	.	0	38.26	.	38.26	49.6	28	22.4			
SS	850002320	0.30			<0.01	.	0	10.21	.	10.21	31.2	41.6	27.2			
SS,SH	850002321	0.40			.	.	.	.	.	.	.	.	.			
SH	850002322	.			0.42	0.05	13.12	2.25	10.87	.	13.2	46	40.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26383C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002323	7.9		0.5	0.1	3.8	0.6	<0.1						<-1.1
SD,SS	2.0	850002324	8.1		0.3	0.1	2.7	0.4	<0.1						<-1.1
SS	4.0	850002325	8.1		0.3	0.3	2.4	0.5	0.2						-1
SS	6.0	850002326	8.3		0.3	0.4	1.9	0.9	0.3						-0.8
SS	8.0	850002327	8		1.4	5.6	6.6	2.7	2.6						2.5
SS,SH	10.0	850002328	6.2		11.	19	60.2	61.1	2.4						2.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26383C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002323				0.02	.	0.62	18.78	.	18.16	67.2	14	18.8			
SD,SS	850002324				<0.01	.	0	29.04	.	29.04	71.6	10	18.4			
SS	850002325				<0.01	.	0	16.32	.	16.32	81.2	8	10.8			
SS	850002326				<0.01	.	0	8.72	.	8.72	82.2	7	10.8			
SS	850002327				<0.01	.	0	5.1	.	5.1	85.6	7	7.4			
SS,SH	850002328				0.44	0.07	13.75	5.7	8.05	.	70.6	14	15.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26384C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002329	8		0.5	0.4	4	0.8	0.3						-0.8
SD	2.0	850002330	8.1		0.3	1.1	1.7	0.5	1						0.2
SD	4.0	850002331	7.8		3.7	9.3	21.4	7.1	2.5						2.4
SD	6.0	850002332	7.7		6.7	11.1	41.5	16.1	2.1						1.8
SD,SS,SH	8.0	850002333	7.8		5.7	9	30.5	16.1	1.9						1.5
SH	10.0	850002334	7.8		12.	16.5	75.7	67.3	2						1.7
SH	12.0	850002335	6		15.	57	72.9	62.2	6.9						8.2
SH	14.0	850002336	5		11.	73.5	29.2	44.1	12.1						14.2
SH	16.0	850002337	5.6		13.	88.8	24.2	75.2	12.6						14.8
SH	18.0	850002338	4.3		9.8	69.1	21.4	38.5	12.6						14.8
SH	20.0	850002339	6.8		7	54.8	5.5	18.6	15.8						18.1
SH,SS	22.0	850002340	8.4		5.3	46	1	7.2	22.7						24.4
SH	24.0	850002341	8.3		4.7	40.6	0.9	4.6	24.5						25.9
SH,SS	26.0	850002342	8.5		4.4	40	0.9	3.5	27						27.8
SS	28.0	850002343	8.7		2.6	21.1	0.5	1.5	21.1						23

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26384C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002329				<0.01	.	0	21.19	.	21.19	58	21.6	20.4			
SD	850002330				<0.01	.	0	19.97	.	19.97	54	24.6	21.4			
SD	850002331				<0.01	.	0	30.45	.	30.45	55.2	21.4	23.4			
SD	850002332				<0.01	.	0	33.33	.	33.33	54.6	24	21.4			
SD,SS,SH	850002333				<0.01	.	0	110.5	.	110.5	71.6	13	15.4			
SH	850002334				<0.01	.	0	116.4	.	116.4	13.6	21	65.4			
SH	850002335				1.02	.	31.88	52.02	.	20.14	59.6	38	2.4			
SH	850002336				0.3	0.09	9.38	4.26	5.12	.	73.6	11	15.4			
SH	850002337				0.13	.	4.06	4.93	.	0.87	14.6	42	43.4			
SH	850002338				0.11	.	3.44	4.4	.	0.96	42	34.6	23.4			
SH	850002339				0.05	.	1.56	-1.89	3.45	.	37	36.6	26.4			
SH,SS	850002340				0.06	.	1.88	44.57	.	42.69	46	32.6	21.4			
SH	850002341				0.03	.	0.94	36.29	.	35.35	30	35.6	34.4			
SH,SS	850002342				<0.01	.	0	159.01	.	159.01	38	28.6	33.4			
SS	850002343				<0.01	.	0	47.76	.	47.76	73	12.6	14.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26385C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002344	8		0.3	0.2	2.8	0.6	0.2						-1
SD	2.0	850002345	7.9		0.6	0.7	4.7	1.2	0.4						-0.7
SD	4.0	850002346	7.8		1.6	1.4	11.8	2.6	0.5						-0.5
SD	6.0	850002347	7.7		1.1	1.4	7.7	1.6	0.6						-0.4
SD	8.0	850002348	7.8		0.7	1.2	4.3	1.4	0.7						-0.2
SD	10.0	850002349	7.6		0.5	0.9	2.3	1.1	0.7						-0.2
SD	12.0	850002350	7.8		0.4	0.9	1.6	0.9	0.8						-0.1
SD	14.0	850002351	7.9		0.4	1.1	1.5	0.9	1						0.2
SD	16.0	850002352	7.9		0.5	1.4	2.7	1.3	1						0.2
SD,SS	18.0	850002353	8.1		0.8	1.6	5.3	2.2	0.8						-0.1
SS	20.0	850002354	7.8		2.8	1.9	31.1	10.1	0.4						-0.7
SS	22.0	850002355	7.7		2.8	1.8	30.2	12.7	0.4						-0.7
SS	24.0	850002356	7.5		3.2	2.4	29.7	17.5	0.5						-0.5
SS,SH	26.0	850002357	4.2		3.4	4.4	27.5	21.2	0.9						0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26385C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002344				<0.01	.	0	16.9	.	16.9	50.6	27	22.4			
SD	850002345				<0.01	.	0	21.45	.	21.45	51.6	25	23.4			
SD	850002346				<0.01	.	0	7.61	.	7.61	43.6	32	24.4			
SD	850002347				<0.01	.	0	8.33	.	8.33	48.6	32	19.4			
SD	850002348				<0.01	.	0	16.37	.	16.37	47.6	32	20.4			
SD	850002349				<0.01	.	0	13.23	.	13.23	47	30.4	22.6			
SD	850002350				<0.01	.	0	7.01	.	7.01	45	34.4	20.6			
SD	850002351				<0.01	.	0	7.75	.	7.75	39	36.4	24.6			
SD	850002352				<0.01	.	0	6.73	.	6.73	42	36.4	21.6			
SD,SS	850002353				<0.01	.	0	53.34	.	53.34	52.4	27.4	20.2			
SS	850002354				<0.01	.	0	51.04	.	51.04	51.8	26	22.2			
SS	850002355				0.06	.	1.88	21.36	.	19.48	59.8	20	20.2			
SS	850002356				0.07	.	2.19	10.38	.	8.19	55.8	24	20.2			
SS,SH	850002357				0.14	0.07	4.38	1.18	3.2	.	53.8	20	26.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26386C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS,SH	0.0	850002358	7.9		0.3	0.4	2.7	0.8	0.3						-0.8
SS,SH	2.0	850002359	8.2		0.5	2.8	1.2	1	2.7						2.7
SH	4.0	850002360	8.1		1.1	7.3	1.7	1.3	6						7.1
SS	6.0	850002361	8.1		1.3	8.9	1.7	1	7.7						9.2
SS	8.0	850002362	8		1.7	10.5	3.9	1.7	6.3						7.4
SS,SH	10.0	850002363	7.8		2.5	10.6	12.1	5.4	3.6						3.9
SH	12.0	850002364	7.7		1.5	8.1	3.8	1.9	4.8						5.5
SH	14.0	850002365	7.1		1.3	6.9	3.1	1.6	4.5						5.1
SH	16.0	850002366	4.9		3.7	13.9	21.5	12	3.4						3.6
SH,SS	18.0	850002367	5.8		3.5	11.6	16	13.6	3						3.1
SS	20.0	850002368	7.1		2.3	11	5.5	9	4.1						4.6
SS	22.0	850002369	8		2	8.6	3.2	8.3	3.6						3.9
SS	24.0	850002370	8.2		1.3	5.3	1.6	5.2	2.9						2.9
SS	26.0	850002371	7.9		1.6	6.6	2.8	7.2	3						3.1
SS	28.0	850002372	8		1.6	9.2	2.7	5	4.7						5.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26386C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS,SH	850002358	0.21			0.18	.	5.62	28.66	.	23.04	30.2	38	31.8			
SS,SH	850002359	0.08			<0.01	.	0	20.29	.	20.29	30.8	37	32.2			
SH	850002360	0.04			<0.01	.	0	13.88	.	13.88	33.8	36.4	29.8			
SS	850002361	0.01			<0.01	.	0	9.33	.	9.33	37.2	34.6	28.2			
SS	850002362	0.09			0.02	.	0.62	19.62	.	19	36.2	30.6	33.2			
SS,SH	850002363	0.08			<0.01	.	0	51.87	.	51.87	46.2	28.6	25.2			
SH	850002364	0.21			0.01	.	0.31	5.65	.	5.34	21.2	38.6	40.2			
SH	850002365	0.21			0.02	.	0.62	6.62	.	6	4.2	25.6	70.2			
SH	850002366	0.06			0.03	.	0.94	3.58	.	2.64	8.2	42.6	49.2			
SH,SS	850002367	0.22			0.03	.	0.94	2	.	1.06	20.2	45.6	34.2			
SS	850002368	0.03			<0.01	.	0	3.69	.	3.69	31.6	42.6	25.8			
SS	850002369	0.07			<0.01	.	0	43.33	.	43.33	40.6	35.6	23.8			
SS	850002370	0.14			<0.01	.	0	59.92	.	59.92	59.6	25.6	14.8			
SS	850002371	0.05			<0.01	.	0	107.82	.	107.82	61.2	24	14.8			
SS	850002372	0.12			0.02	.	0.62	42.36	.	41.74	45.6	27.6	26.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26387C
DATE CORED:19AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002373	8.2		1.1	3.3	2.3	4.1	1.8						1.4
SS	2.0	850002374	8.3		3.3	15	2.4	15.2	5.1						5.9
SS	4.0	850002375	8		5.1	18.7	10.4	32.5	4						4.4
SS,SH	6.0	850002376	7.9		3.6	14.7	4.8	18.4	4.3						4.8
SH,SS	8.0	850002377	8		2.9	12.1	4.4	13	4.1						4.6
SS	10.0	850002378	8		3.9	14.8	9.9	21.4	3.7						4
SS	12.0	850002379	7.7		4.4	17.2	11.1	23.3	4.1						4.6
SH	14.0	850002380	6.2		9.9	63.7	17.2	60.7	10.2						12.1
SH,SS	16.0	850002381	7.7		10.	73.6	13.3	55.8	12.5						14.7
SS	18.0	850002382	8.1		6.3	47.2	7.2	13.8	14.6						16.9
SS	20.0	850002383	8.4		4.8	37.3	3.2	6.9	16.6						18.8
SH	22.0	850002384	8.4		6.1	49.4	3.2	8.1	20.8						22.7
SH,SS	24.0	850002385	8.4		6.1	49.4	3.9	10.6	18.3						20.5
SH	26.0	850002386	8		9.1	69.2	16.5	27	14.8						17.1
SH	28.0	850002387	7.8		11	95.5	14.6	24.5	21.6						23.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26387C
DATE CORED:19AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002373				<0.01	.	0	48.49	.	48.49	74.6	10.6	14.8			
SS	850002374				<0.01	.	0	36.5	.	36.5	74.6	10.6	14.8			
SS	850002375				<0.01	.	0	9.74	.	9.74	70.6	10.6	18.8			
SS,SH	850002376				<0.01	.	0	21.62	.	21.62	23	35.6	41.4			
SH,SS	850002377				<0.01	.	0	16.92	.	16.92	51	27	22			
SS	850002378				<0.01	.	0	30.96	.	30.96	43	27.6	29.4			
SS	850002379				0.01	.	0.31	12.17	.	11.86	25.6	38	36.4			
SH	850002380				0.11	.	3.44	8.88	.	5.44	30.6	31	38.4			
SH,SS	850002381				0.09	.	2.81	4.07	.	1.26	29	32.6	38.4			
SS	850002382				0.07	.	2.19	10.49	.	8.3	14	43	43			
SS	850002383				0.02	.	0.62	9.14	.	8.52	48	28	24			
SH	850002384				<0.01	.	0	8.53	.	8.53	14	41	45			
SH,SS	850002385				0.04	.	1.25	46.85	.	45.6	44	28	28			
SH	850002386				<0.01	.	0	34.96	.	34.96	29	38	33			
SH	850002387				0.08	.	2.5	26.92	.	24.42	35	28	37			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26388C
DATE CORED:20AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SD	0.0	850002388	6.7		0.2	0.2	1.3	0.4	0.2						-1
SD,SS	2.0	850002389	8.1		0.2	0.2	1.3	0.5	0.2						-1
SD	4.0	850002390	8.2		0.2	0.3	1.1	0.7	0.3						-0.8
SH	6.0	850002391	8.3		0.4	1.9	0.5	0.8	2.4						2.2
SD	8.0	850002392	8.2		0.7	3.9	0.9	1.5	3.6						3.9
SH	10.0	850002393	8.3		0.7	4.2	2.5	1.5	3						3.1
SH	12.0	850002394	8.3		0.8	4.6	1.1	1.8	3.8						4.2
SH,SS	14.0	850002395	8		1.7	7.7	3.3	5.4	3.7						4
SS,CO,SH	16.0	850002396	7.9		1.6	6.5	3.4	5.5	3.1						3.2
SH	18.0	850002397	7.7		2.3	8.1	7.1	10.6	2.7						2.7
SH,CO	20.0	850002398	6.5		2.9	9.1	9.1	15.2	2.6						2.5
SH	22.0	850002399	7.7		5.1	11.2	25.2	34.8	2						1.7
SH	24.0	850002400	8.3		1.8	6.6	3	8.4	2.8						2.8
SH	26.0	850002401	8.3		2	7.5	2.9	9.7	3						3.1
SH	28.0	850002402	8.1		2.3	9	3.7	11.8	3.2						3.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26388C
DATE CORED:20AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SD	850002388				0.06	.	1.88	5.14	.	3.26	57	19	24			
SD,SS	850002389				<0.01	.	0	53.41	.	53.41	61	16	23			
SD	850002390				<0.01	.	0	17.9	.	17.9	88	4	8			
SH	850002391				<0.01	.	0	41.93	.	41.93	56	11	33			
SD	850002392				<0.01	.	0	33.13	.	33.13	53	15	32			
SH	850002393				<0.01	.	0	44.91	.	44.91	14.6	33.6	51.8			
SH	850002394				<0.01	.	0	23.3	.	23.3	7.6	43	49.4			
SH,SS	850002395				<0.01	.	0	30.82	.	30.82	37.6	37	25.4			
SS,CO,SH	850002396				<0.01	.	0	8.56	.	8.56	37.2	35.4	27.4			
SH	850002397				<0.01	.	0	18.36	.	18.36	7.6	28	64.4			
SH,CO	850002398				0.01	.	0.31	20.85	.	20.54	16.6	29	54.4			
SH	850002399				<0.01	.	0	273.16	.	273.16	40.6	28	31.4			
SH	850002400				<0.01	.	0	535.75	.	535.75	71.6	16	12.4			
SH	850002401				<0.01	.	0	256.39	.	256.39	72.2	15.4	12.4			
SH	850002402				<0.01	.	0	159.88	.	159.88	45.2	25.4	29.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26469C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002403	8		2.4	6.5	7.5	9.3	2.2						1.9
SH,SS	2.0	850002404	8.2		2.1	5.9	5.9	7.8	2.3						2.1
SH,SS	4.0	850002405	8.2		2.7	7.6	7.9	13.2	2.3						2.1
SH,SS	6.0	850002406	8.2		4.7	10.9	17	37.2	2.1						1.8
SH,SS	8.0	850002407	8.1		4.1	9.8	9.9	36	2						1.7
SH	10.0	850002408	7		6.3	10.8	23.9	68.3	1.6						1.1
SH,SS	12.0	850002409	6.2		6.1	10.4	30.2	53.1	1.6						1.1
SS	14.0	850002410	5.6		4.6	3	37.8	26.2	0.5						-0.5
SS	16.0	850002411	3.4		5.5	4.5	25.2	38.4	0.8						-0.1
SS,SH	18.0	850002412	3.3		6.8	6.4	22.7	50.4	1						0.2
SH	20.0	LOST													
SH,SS	22.0	850002413	3.7		5.1	6	16.4	48.2	1.1						0.4
SH,SS	24.0	850002414	7.2		5.9	8.1	24.6	61	1.2						0.5
SH,SS	26.0	850002415	6.6		4.8	8.3	17.4	44.9	1.5						0.9
SH,SS	28.0	850002416	6.3		5.3	12.8	33.6	50.6	2						1.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26469C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002403				<0.01	.	0	76.58	.	76.58	54.6	18	27.4			
SH,SS	850002404				<0.01	.	0	73.22	.	73.22	44.6	22	33.4			
SH,SS	850002405				<0.01	.	0	52.53	.	52.53	52.6	20	27.4			
SH,SS	850002406				<0.01	.	0	24.6	.	24.6	58.6	19	22.4			
SH,SS	850002407				<0.01	.	0	14.35	.	14.35	7.6	51	41.4			
SH	850002408				0.11	.	3.44	4.89	.	1.45	7.2	46	46.8			
SH,SS	850002409				<0.01	.	0	55.9	.	55.9	35.6	32.6	31.8			
SS	850002410				0.23	.	7.19	20.16	.	12.97	48.2	31	20.8			
SS	850002411				0.2	0.03	6.25	-3.35	9.6	.	51.2	36	12.8			
SS,SH	850002412				0.27	0.09	8.44	-4.07	12.51	.	37.6	33.6	28.8			
SH	LOST															
SH,SS	850002413				0.09	0.03	2.81	-0.48	3.29	.	34.6	35	30.4			
SH,SS	850002414				0.17	.	5.31	58.99	.	53.68	41.6	30	28.4			
SH,SS	850002415				0.07	.	2.19	4.42	.	2.23	32.2	31.4	36.4			
SH,SS	850002416				0.23	0.17	7.19	5.42	1.77	.	25.2	32.4	42.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26483C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002417	6.2		0.4	0.2	3.6	0.6	0.1						<-1.1
SS	2.0	850002418	3.8		1.5	1.2	7.2	4.5	0.5						-0.5
SS	4.0	850002419	3.9		1.1	1	5.3	3.1	0.5						-0.5
SS	6.0	850002420	3.7		1.4	1	4.9	4.3	0.5						-0.5
SS	8.0	850002421	3.5		1.4	1	4.5	3.9	0.5						-0.5
SH	10.0	850002422	3		4.1	1	5.7	4.4	0.4						-0.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26483C
DATE CORED:05AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002417				<0.01	.	0	4.08	.	4.08	38.2	30.4	31.4			
SS	850002418				0.09	0.01	2.81	-0.72	3.53	.	52.2	34.4	13.4			
SS	850002419				0.01	.	0.31	-0.38	0.69	.	27.8	58.8	13.4			
SS	850002420				0.02	.	0.62	-0.48	1.1	.	30.2	57.4	12.4			
SS	850002421				0.05	.	1.56	-0.91	2.47	.	33.2	53.4	13.4			
SH	850002422				1.02	0.67	31.88	-2.85	34.73	.	54.2	32.4	13.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:264840
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002423	8		0.4	0.5	1	2.1	0.4						-0.7
SH	2.0	850002424	6.1		3	3.9	10.7	26.3	0.9						0.1
SH	4.0	850002425	3.6		7	7.9	12.9	85.3	1.1						0.4
SH	6.0	850002426	3.4		8.5	6.2	23.2	101.9	0.8						-0.1
SH	8.0	850002427	3.6		8.8	3.8	25.2	84.6	0.5						-0.5
SH	10.0	850002428	3.1		13.	3.4	27.8	89.7	0.4						-0.7
SH	12.0	850002429	2.9		10.	2.1	22.4	49.5	0.4						-0.7
SH	14.0	850002430	2.7		11.	2.3	17.5	48.5	0.4						-0.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26484C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002423				<0.01	.	0	25.43	.	25.43	39.8	32.8	27.4			
SH	850002424				0.05	.	1.56	10.13	.	8.57	22.8	35.8	41.4			
SH	850002425				0.2	0.04	6.25	-1.53	7.78	.	14.8	49.8	35.4			
SH	850002426				0.51	0.05	15.94	-3.37	19.31	.	22.8	41.8	35.4			
SH	850002427				1.08	0.05	33.75	23.11	10.64	.	39.8	56.8	3.4			
SH	850002428				1.2	0.07	37.5	-10.88	48.38	.	46.8	25.8	27.4			
SH	850002429				1.08	0.19	33.75	-11.19	44.94	.	67.8	18.8	13.4			
SH	850002430				1.12	0.17	35	-18.03	53.03	.	73.2	18.4	8.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26485C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002431	8.1		1.3	6.9	1.6	4.9	3.8						4.2
SH	2.0	850002432	8		2.1	10.8	2.5	7.8	4.8						5.5
SH	4.0	850002433	7.8		5.3	16.9	16.1	41	3.2						3.3
SH	6.0	850002434	8		5	15.3	9	43.6	3						3.1
SH	8.0	850002435	8.1		3.9	13.2	4.6	34.6	3						3.1
SS	10.0	850002436	8		4.5	12.8	5.1	41	2.7						2.7
SS	12.0	850002437	7.9		4.1	10.1	4.6	42.7	2.1						1.8
SS	14.0	850002438	8.2		2.9	5.6	5.6	27.2	1.4						0.8
SS	16.0	850002439	8.3		2.9	4.3	5.5	27.8	1.1						0.4
SS	18.0	850002440	8.2		3.6	4.5	3.6	42.7	0.9						0.1
SS	20.0	850002441	8.1		3.4	4.2	3.6	41.4	0.9						0.1
SS	22.0	850002442	8.2		2.8	3.7	2.7	33	0.9						0.1
SS	24.0	850002443	8.3		2.5	3.1	1.9	27.8	0.8						-0.1
SS	26.0	850002444	8.3		2.5	2.8	2.4	27.8	0.7						-0.2
SS,SH	28.0	850002445	7.8		3.5	4	6.5	38.8	0.8						-0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26485C
DATE CORED:06AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002431				<0.01	.	0	28.76	.	28.76	30.2	32.4	37.4			
SH	850002432				<0.01	.	0	10.37	.	10.37	37.2	26.4	36.4			
SH	850002433				<0.01	.	0	16.34	.	16.34	32.6	26	41.4			
SH	850002434				<0.01	.	0	29.39	.	29.39	35.6	28.4	36			
SH	850002435				<0.01	.	0	26.53	.	26.53	40.6	32.4	27			
SS	850002436				<0.01	.	0	47.54	.	47.54	38.6	28.4	33			
SS	850002437				<0.01	.	0	17.54	.	17.54	59	19	22			
SS	850002438				<0.01	.	0	219	.	219	79	12	9			
SS	850002439				<0.01	.	0	203.08	.	203.08	79.6	12.4	8			
SS	850002440				<0.01	.	0	18.44	.	18.44	78	10	12			
SS	850002441				0.01	.	0.31	10.4	.	10.09	73	13	14			
SS	850002442				<0.01	.	0	44.88	.	44.88	80	10	10			
SS	850002443				<0.01	.	0	43.07	.	43.07	80	11	9			
SS	850002444				<0.01	.	0	51.95	.	51.95	81.6	10.4	8			
SS,SH	850002445				<0.01	.	0	50.2	.	50.2	66.6	17.4	16			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26486C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002446	7.9		0.3	0.3	2.7	0.4	0.2						-1
SH,SS	2.0	850002447	7.8		0.5	1.2	3.2	0.7	0.9						0.1
SH,SS	4.0	850002448	7.6		0.5	1.4	2.8	0.7	1.1						0.4
SH,SS	6.0	850002449	7.7		0.7	1.9	3.8	0.9	1.2						0.5
SH,SS	8.0	850002450	7.4		0.8	1.7	4.4	1.3	1						0.2
SH	10.0	LOST													
SH	12.0	850002451	7.6		0.8	1.8	4.7	1.5	1						0.2
SH	14.0	850002452	7.1		0.7	1.4	3.6	1.2	0.9						0.1
SH	16.0	850002453	6.8		0.9	1.7	4.9	1.8	0.9						0.1
SH	18.0	850002454	6.8		1	1.7	5.7	2.5	0.8						-0.1
SH	20.0	LOST													
SH,SS	22.0	850002455	7		0.9	1.5	4.9	2.8	0.8						-0.1
SH,SS	24.0	850002456	7.7		1.4	1.5	6.8	7.4	0.6						-0.4
SH,SS	26.0	850002457	6.2		4.5	2.3	33.8	39.9	0.4						-0.7
SH,SS	28.0	850002458	3.3		10.	3.5	25.3	99.1	0.4						-0.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26486C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002446	0.27			<0.01	.	0	34.89	.	34.89	78.6	11.4	10			
SH,SS	850002447	0.35			<0.01	.	0	51.29	.	51.29	83.6	8.4	8			
SH,SS	850002448	0.17			0.07	.	2.19	14.91	.	12.72	80.6	8.4	11			
SH,SS	850002449	0.34			<0.01	.	0	5.96	.	5.96	21.6	41.4	37			
SH,SS	850002450	0.30			0.01	.	0.31	2.55	.	2.24	19.6	41.4	39			
SH	LOST															
SH	850002451	0.37			<0.01	.	0	3.02	.	3.02	9.6	34.4	56			
SH	850002452	0.79			<0.01	.	0	2.2	.	2.2	2.6	54.4	43			
SH	850002453	0.27			0.19	0.09	5.94	1.05	4.89	.	5.6	56.4	38			
SH	850002454	0.48			0.16	0.07	5	2.12	2.88	.	11.6	51.4	37			
SH	LOST															
SH,SS	850002455	0.36			0.06	.	1.88	1.92	.	0.04	40.2	36.8	23			
SH,SS	850002456	0.30			<0.01	.	0	49.58	.	49.58	67.2	20.8	12			
SH,SS	850002457	0.37			<0.01	.	0	114.24	.	114.24	35.2	33.8	31			
SH,SS	850002458	0.96			0.53	0.05	16.56	-8.11	24.67	.	52.6	26.4	21			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26487C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002459	7.4		0.5	0.2	4.7	1	0.1						<-1.1
SH	2.0	850002460	8		0.9	1.3	3.6	4.3	0.7						-0.2
SH	4.0	850002461	8		3.5	10.7	13.3	20.3	2.6						2.5
SH	6.0	850002462	7.9		2.4	10.9	3.5	13.5	3.7						4
SS	8.0	850002463	8.1		2.2	9	3.6	12.2	3.2						3.3
SH,SS	10.0	850002464	8.1		2.2	7.8	1.6	14.8	2.7						2.7
SH,SS	12.0	850002465	8.4		2.4	6.7	2.5	15.9	2.2						1.9
SH,SS	14.0	850002466	8.2		2.7	6.8	1.9	24.1	1.9						1.5
SH,SS	16.0	850002467	8.1		3.5	8.5	2.5	33	2						1.7
SH,SS	18.0	850002468	8.1		3.2	6.5	2.6	30.5	1.6						1.1
SS	20.0	850002469	8		3.7	6.5	3.1	39.3	1.4						0.8
SS	22.0	850002470	8.1		3.6	3	14.5	32.4	0.6						-0.4
SS	24.0	850002471	8		3.9	3.8	14.5	35.5	0.8						-0.1
SS	26.0	850002472	7.2		5.6	4.5	28.4	59.6	0.7						-0.2
SS,CO	28.0	850002473	4.1		5.2	3.5	27.8	45	0.6						-0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26487C
DATE CORED:07AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002459				<0.01	.	0	<-999	.	0	65	15.2	19.8			
SH	850002460				<0.01	.	0	11.99	.	11.99	56	25.2	18.8			
SH	850002461				<0.01	.	0	12.87	.	12.87	37	36.2	26.8			
SH	850002462				0.01	.	0.31	5.38	.	5.07	34	36.2	29.8			
SS	850002463				<0.01	.	0	6.23	.	6.23	55	21.6	23.4			
SH,SS	850002464				<0.01	.	0	6.55	.	6.55	52	25.6	22.4			
SH,SS	850002465				<0.01	.	0	263.48	.	263.48	68	20.6	11.4			
SH,SS	850002466				<0.01	.	0	7.97	.	7.97	55	24.6	20.4			
SH,SS	850002467				<0.01	.	0	14.93	.	14.93	41	30.6	28.4			
SH,SS	850002468				<0.01	.	0	7.74	.	7.74	59	21.6	19.4			
SS	850002469				0.06	.	1.88	17.46	.	15.58	51	24.6	24.4			
SS	850002470				<0.01	.	0	16.68	.	16.68	77	14.6	8.4			
SS	850002471				<0.01	.	0	16.12	.	16.12	75	15.6	9.4			
SS	850002472				<0.01	.	0	16.72	.	16.72	79	12.6	8.4			
SS,CO	850002473				0.12	0.01	3.75	0.39	3.36	.	77	14.6	8.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26488C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002474	7.8		0.5	1.2	3.1	0.8	0.9						0.1
SH,SS	2.0	850002475	7.4		3.8	15.9	15.6	6.8	4.8						5.5
SH,SS	4.0	850002476	5.4		4.7	20.8	19.1	8.2	5.6						6.5
SH,SS	6.0	850002477	4.6		4.7	15.6	25.5	8.4	3.8						4.2
SH,SS	8.0	850002478	4.4		3.4	10.2	17.4	5.9	3						3.1
SH	10.0	LOST													
SH	12.0	LOST													
SH,SS	14.0	850002479	5.2		2.3	5.8	13.9	3.7	2						1.7
SH,SS	16.0	850002480	5.7		2	3.8	15.6	3.2	1.2						0.5
SH,SS	18.0	850002481	6.1		1.4	2.5	10.6	2.2	1						0.2
SH,SS	20.0	850002482	4.8		1.4	1.7	11.2	2.4	0.7						-0.2
SH,SS	22.0	850002483	4.5		1.4	1.7	9.3	2	0.7						-0.2
SH,SS	24.0	850002484	4.5		1.5	1.6	11.3	2.3	0.6						-0.4
SH,SS	26.0	850002485	6.1		1.6	1.8	13.2	2.3	0.6						-0.4
SH,SS	28.0	850002486	6.3		2.8	2.5	31.5	4.5	0.6						-0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26488C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 fq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002474	0.50			0.01	.	0.31	25.95	.	25.64	81	11.6	7.4			
SH,SS	850002475	0.08			0.6	0.01	18.75	12.84	5.91	.	74	15.6	10.4			
SH,SS	850002476	0.64			0.37	0.02	11.56	1.88	9.68	.	70	19.6	10.4			
SH,SS	850002477	0.27			0.11	0.01	3.44	-0.94	4.38	.	75	19.6	5.4			
SH,SS	850002478	0.10			0.46	0.02	14.38	-1.19	15.57	.	58	26.6	15.4			
SH	LOST															
SH	LOST															
SH,SS	850002479	0.22			0.2	.	6.25	6.87	.	0.62	78	15.6	6.4			
SH,SS	850002480	0.46			0.19	.	5.94	9.24	.	3.3	78	16.6	5.4			
SH,SS	850002481	0.37			0.19	.	5.94	9.73	.	3.79	83	10.6	6.4			
SH,SS	850002482	0.57			0.66	0.03	20.62	0.16	20.46	.	67	16.6	16.4			
SH,SS	850002483	0.30			0.79	0.02	24.69	-1.8	26.49	.	70	20	10			
SH,SS	850002484	0.32			0.68	0.02	21.25	-1.09	22.34	.	78	13	9			
SH,SS	850002485	0.21			0.34	.	10.62	10.76	.	0.14	82	12	6			
SH,SS	850002486	0.24			0.57	0.03	17.81	5.51	12.3	.	84	11.6	4.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26489C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002487	6		4.2	3.9	37.3	24.2	0.7						-0.2
SH	2.0	850002488	3.5		6.6	10.5	26.4	61.2	1.6						1.1
SH	4.0	850002489	3.4		4.2	4	29.8	21	0.8						-0.1
SH	6.0	850002490	3.4		3.8	3.1	31	15.3	0.6						-0.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26489C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002487				0.81	0.03	25.31	10.5	14.81	.	66	18	16			
SH	850002488				1.62	0.03	50.62	-4.49	55.11	.	53.4	43.6	3			
SH	850002489				3.78	0.03	118.12	-3.14	121.26	.	58.4	39.6	2			
SH	850002490				2.05	0.03	64.06	-1.87	65.93	.	58.4	39.6	2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26490C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002491	8.1		0.9	2.2	1.8	4.9	1.2						0.5
SH,SS	2.0	850002492	8.1		2.3	8.7	4.2	14.5	2.8						2.8
SH,SS	4.0	850002493	8		2	9.7	2.6	9.6	3.9						4.3
SH,SS	6.0	850002494	6.8		4.8	14.7	16.1	37	2.9						2.9
SH,SS,CO	8.0	850002495	3.8		7	27.2	23.5	58.6	4.2						4.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENIA
CORE NO:26490C
DATE CORED:08AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002491				<0.01	.	0	72.89	.	72.89	24	39	37			
SH,SS	850002492				<0.01	.	0	83.68	.	83.68	44	34	22			
SH,SS	850002493				<0.01	.	0	31.15	.	31.15	15	34	51			
SH,SS	850002494				0.03	.	0.94	11	.	10.06	20	42	38			
SH,SS,CO	850002495				0.19	0.07	5.94	0.94	5	.	11	30	59			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26493C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002496	7.9		0.3	0.2	2.3	0.5	0.2						-1
SH	2.0	850002497	7.9		0.4	2.1	1.5	0.7	2						1.7
SH	4.0	850002498	8.2		1.1	7.6	1.2	0.9	7.4						8.8
SH	6.0	850002499	8.2		2.5	16.9	3.3	3.1	9.4						11.2
SH,SS	8.0	850002500	8		5.8	33.1	21.8	21	7.2						8.6
SH,SS	10.0	850002501	8.2		4.3	29.7	6.4	13.7	9.4						11.2
SH,SS	12.0	850002502	8		6.9	34.8	25.8	39.5	6.1						7.2
SH,SS	14.0	850002503	8		4.6	20.6	12.1	25.5	4.8						5.5
SH,SS	16.0	850002504	7.9		5.2	23.3	16.2	27.3	5						5.8
SH,SS	18.0	850002505	7.9		6.1	28	24.6	33.4	5.2						6
SH,SS	20.0	850002506	8.4		2.4	13.8	1.3	8.3	6.3						7.4
SH,SS	22.0	850002507	8.3		2.3	15.4	1.3	9.1	6.8						8.1
SH,SS	24.0	850002508	8.4		1.6	7.2	1	6.3	3.8						4.2
SH,SS	26.0	850002509	8.1		2	9.8	1.2	8.3	4.5						5.1
SH,SS	28.0	850002510	8		2	8.9	1.3	8.5	4						4.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26493C
DATE CORED:12AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002496				<0.01	.	0	17.93	.	17.93	36.4	37.6	26			
SH	850002497				<0.01	.	0	23.03	.	23.03	28	41	31			
SH	850002498				0.01	.	0.31	14.62	.	14.31	33	35	32			
SH	850002499				0.02	.	0.62	7.82	.	7.2	40	36	24			
SH,SS	850002500				<0.01	.	0	85.05	.	85.05	32	33	35			
SH,SS	850002501				<0.01	.	0	78.77	.	78.77	38.4	36.6	25			
SH,SS	850002502				<0.01	.	0	41.37	.	41.37	40.4	34.6	25			
SH,SS	850002503				0.05	.	1.56	5.6	.	4.04	34	35.8	30.2			
SH,SS	850002504				0.09	.	2.81	20.32	.	17.51	40	29.8	30.2			
SH,SS	850002505				0.12	.	3.75	33.71	.	29.96	52.6	22.2	25.2			
SH,SS	850002506				0.02	.	0.62	43.68	.	43.06	48.2	24.6	27.2			
SH,SS	850002507				<0.01	.	0	9.55	.	9.55	57.6	21.2	21.2			
SH,SS	850002508				0.01	.	0.31	7.45	.	7.14	74	12.8	13.2			
SH,SS	850002509				0.01	.	0.31	36.28	.	35.97	50	25.8	24.2			
SH,SS	850002510				0.13	.	4.06	6.09	.	2.03	73	12.8	14.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26494C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002511	7.8		0.4	0.5	2.7	1	0.4						-0.7
SH,SS	2.0	850002512	8.2		0.7	2	2	1.8	1.5						0.9
SS	4.0	850002513	8.2		1.5	8.9	1.5	3.4	5.7						6.7
SH	6.0	850002514	7.8		2	8.8	3	6.9	4						4.4
SH	8.0	850002515	7.8		1.8	7.6	2.8	6.1	3.6						3.9
SH	10.0	850002516	7.8		1.4	5.5	2.1	4.2	3.1						3.2
SH,SS	12.0	850002517	7.3		1.1	4.2	1.3	2.7	3						3.1
SH,SS	14.0	850002518	7.9		1.5	5.1	3.2	4.9	2.5						2.4
SH,SS	16.0	850002519	7.7		1.5	5.4	3	5.1	2.7						2.7
SH,SS	18.0	850002520	7.8		1.7	6.1	3.5	6.2	2.8						2.8
SH	20.0	850002521	7.6		1.7	6.8	4	7.2	2.9						2.9
SH	22.0	850002522	7.2		3.1	7.2	12.9	19.3	1.8						1.4
SH,SS	24.0	850002523	7.5		3.7	8.7	16.2	23.6	2						1.7
SH,SS	26.0	850002524	7.9		1.7	5.2	4.1	7.9	2.1						1.8
SH,SS	28.0	850002525	8		1.8	4.9	4.5	8.7	1.9						1.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26494C
DATE CORED:13AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002511				<0.01	.	0	15.88	.	15.88	53	23.8	23.2			
SH,SS	850002512				<0.01	.	0	45.76	.	45.76	55	23.8	21.2			
SS	850002513				<0.01	.	0	37.22	.	37.22	51.6	27.2	21.2			
SH	850002514				<0.01	.	0	23.31	.	23.31	16	6.8	77.2			
SH	850002515				0.02	.	0.62	14.94	.	14.32	21	23.8	55.2			
SH	850002516				0.03	.	0.94	17.51	.	16.57	12	31.8	56.2			
SH,SS	850002517				0.01	.	0.31	6.7	.	6.39	5.6	30.2	64.2			
SH,SS	850002518				0.02	.	0.62	29.42	.	28.8	14	36.8	49.2			
SH,SS	850002519				0.02	.	0.62	18.13	.	17.51	12	30.6	57.4			
SH,SS	850002520				<0.01	.	0	22.53	.	22.53	26	34.8	39.2			
SH	850002521				0.02	.	0.62	7.39	.	6.77	5	27.8	67.2			
SH	850002522				0.05	.	1.56	6.2	.	4.64	2	33.8	64.2			
SH,SS	850002523				0.08	.	2.5	18.12	.	15.62	16	39.2	44.8			
SH,SS	850002524				0.03	.	0.94	42.71	.	41.77	28	35.2	36.8			
SH,SS	850002525				<0.01	.	0	33.23	.	33.23	27.6	38.6	33.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26495C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002526	7.6		0.3	<0.1	2.5	3.7	<0.1						<-1.1
SH	2.0	850002527	8		0.3	0.6	1.5	0.9	0.5						-0.5
SH	4.0	850002528	8.1		0.8	3.5	1.6	1	3.1						3.2
SH	6.0	850002529	7.9		2	9.1	7.2	2.4	4.2						4.7
SH	8.0	850002530	7.9		2	9.5	7.7	2	4.3						4.8
SH	10.0	850002531	7.7		2.3	10.3	12.5	3.4	3.7						4
SH	12.0	850002532	7.7		2.6	10.9	15.6	3.4	3.5						3.8
SH	14.0	850002533	7.6		4.1	14.4	29.1	10.4	3.2						3.3
SH	16.0	850002534	7.7		3.3	13.1	21.3	6.2	3.5						3.8
SH	18.0	850002535	7.7		2.6	11.3	14.6	3	3.8						4.2
SH	20.0	850002536	7.6		4.2	15.8	27.4	12.1	3.6						3.9
SH	22.0	850002537	7.8		4.4	15.5	29.1	14.5	3.3						3.5
SS	24.0	850002538	7.6		3.5	17.4	11.2	12.3	5.1						5.9
SS	26.0	850002539	7.5		4.4	18.1	17.4	20.7	4.1						4.6
SS	28.0	850002540	7.4		5.3	20.2	24.6	29.1	3.9						4.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYLNIA
CORE NO:26495C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002526	0.20			<0.01	.	0	12	.	12	62.6	18.6	18.8			
SH	850002527	0.07			<0.01	.	0	19.88	.	19.88	72.6	12.6	14.8			
SH	850002528	0.10			<0.01	.	0	20.47	.	20.47	56.2	24	19.8			
SH	850002529	0.14			0.02	.	0.62	19.21	.	18.59	25.2	39	35.8			
SH	850002530	0.13			0.01	.	0.31	14.18	.	13.87	28.2	37	34.8			
SH	850002531	0.12			<0.01	.	0	7.56	.	7.56	54.2	25	20.8			
SH	850002532	0.15			0.01	.	0.31	10.02	.	9.71	36.2	27	36.8			
SH	850002533	0.19			0.03	.	0.94	6.42	.	5.48	55.2	25	19.8			
SH	850002534	0.10			0.02	.	0.62	8.6	.	7.98	54.2	24	21.8			
SH	850002535	0.21			0.02	.	0.62	9.53	.	8.91	31.2	32	36.8			
SH	850002536	0.15			0.05	.	1.56	10.28	.	8.72	48.2	25	26.8			
SH	850002537	0.13			<0.01	.	0	26.09	.	26.09	60.2	20	19.8			
SS	850002538	0.06			0.01	.	0.31	26.4	.	26.09	76.8	13.4	9.8			
SS	850002539	0.03			0.05	.	1.56	11.27	.	9.71	73.8	16.4	9.8			
SS	850002540	0.03			0.06	.	1.88	13.97	.	12.09	77.2	14	8.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26496C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002541	8.2		0.3	0.3	1.2	1.2	0.3						-0.8
SS	2.0	850002542	8.6		0.3	0.4	0.4	1.8	0.4						-0.7
SS	4.0	850002543	8.7		0.4	1.1	0.3	2.1	1						0.2
SS	6.0	850002544	8.7		0.5	1.6	0.4	2.6	1.3						0.7
SS	8.0	850002545	8.5		0.5	1.7	0.4	2.3	1.5						0.9
SH	10.0	850002546	7.6		1	4.2	2.1	4.4	2.3						2.1
SH	12.0	850002547	7.5		1	3.7	2.1	3.4	2.2						1.9
SH	14.0	850002548	7.4		1.1	3.6	3.2	4	1.9						1.5
SH	16.0	850002549	7.3		1.1	3.4	3.8	3.9	1.7						1.2
SH	18.0	850002550	7.4		1	2.6	3.6	3.5	1.4						0.8
SH	20.0	850002551	7.4		1.5	2.7	7.5	5.6	1.1						0.4
SH	22.0	850002552	6.8		1	1.8	4.3	3.4	0.9						0.1
SH	24.0	850002553	6.6		0.8	1.6	3.4	2.7	0.9						0.1
SH	26.0	850002554	6.8		0.7	1.3	2.7	2	0.8						-0.1
SH	28.0	850002555	6.8		0.6	1.2	2.1	1.5	0.9						0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26496C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002541				<0.01	.	0	44.6	.	44.6	81.2	8	10.8			
SS	850002542				<0.01	.	0	35.99	.	35.99	80.2	9	10.8			
SS	850002543				<0.01	.	0	91.86	.	91.86	78.2	10	11.8			
SS	850002544				<0.01	.	0	122.89	.	122.89	77.2	11	11.8			
SS	850002545				<0.01	.	0	32.65	.	32.65	78.2	10	11.8			
SH	850002546				0.01	.	0.31	7.14	.	6.83	10.2	31.4	58.4			
SH	850002547				0.01	.	0.31	6.14	.	5.83	18	44.8	37.2			
SH	850002548				0.01	.	0.31	7.07	.	6.76	38	32.8	29.2			
SH	850002549				0.04	.	1.25	6.14	.	4.89	16	41.8	42.2			
SH	850002550				<0.01	.	0	30.03	.	30.03	16	52.8	31.2			
SH	850002551				<0.01	.	0	59.03	.	59.03	28	44.8	27.2			
SH	850002552				0.24	0.1	7.5	6.14	1.36	.	5.6	21.2	73.2			
SH	850002553				0.01	.	0.31	6.57	.	6.26	9.6	39.2	51.2			
SH	850002554				0.01	.	0.31	6.44	.	6.13	19.6	43.2	37.2			
SH	850002555				<0.01	.	0	9.19	.	9.19	9.6	43.2	47.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26497C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH,SS	0.0	850002556	7.6		0.6	0.4	6	1.1	0.2						-1
SS	2.0	850002557	7.8		0.6	0.8	4.4	1.4	0.5						-0.5
SS	4.0	850002558	7.9		0.6	1.4	3.3	1.4	0.9						0.1
SS,SH	6.0	850002559	7.6		1.2	4.2	4.5	3.9	2						1.7
SH	8.0	850002560	6.7		1.3	3.5	5.9	5.3	1.5						0.9
SH,CO	10.0	850002561	5.2		6	6.6	29.8	58.4	1						0.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26497C
DATE CORED:14AUG1985
DATE REPORTED:15OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH,SS	850002556	0.09			<0.01	.	0	207.11	.	207.11	63.6	18.2	18.2			
SS	850002557	0.04			<0.01	.	0	318.1	.	318.1	75.6	11.2	13.2			
SS	850002558	0.12			<0.01	.	0	350.75	.	350.75	74.6	13.2	12.2			
SS,SH	850002559	0.39			<0.01	.	0	92.36	.	92.36	33.6	22.2	44.2			
SH	850002560	1.01			0.01	.	0.31	6.26	.	5.95	9.6	41.2	49.2			
SH,CO	850002561	0.54			0.29	.	9.06	14.97	.	5.91	15.6	36.2	48.2			

J-21 MINING AREA

(HIGHWALL CORES)

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:2EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
BN,SS,ST,CL	0	850000570	8	40.4	1.1	4.2	4.1	3.2	2.2					1.9
ST,SH	2	850000571	7.8	42.3	0.4	1	2.4	0.9	0.8					-0.1
SS	4	850000572	7.8	40.9	0.5	1.1	2.8	1.5	0.8					-0.1
SS	6	850000573	7.6	44.3	1.3	1.7	6.6	3.6	0.8					-0.1
SS	8	850000574	7.7	42.5	1.1	1.8	4.2	4.3	0.9					0.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:2EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
BN,SS,ST,CL	850000570				<0.01	0	105.92	.	105.92	70.6	20.4	9			
ST,SH	850000571				<0.01	0	31.14	.	31.14	74	21	5			
SS	850000572				<0.01	0	24.61	.	24.61	81	18	1			
SS	850000573				<0.01	0	27.42	.	27.42	81	16	3			
SS	850000574				<0.01	0	15.34	.	15.34	83	16	1			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:2EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
BN,SS,ST,CL	850000570	0.4		<0.01									
ST,SH	850000571	0.5		0.01									
SS	850000572	0.5		<0.01									
SS	850000573	0.3		<0.01									
SS	850000574	0.1		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:3EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS	0	850000575	8.3	40.1	2.7	12.3	3.8	13.8	4.1					4.6
SS	2	850000576	8.3	38.4	3.1	13.4	4.2	18.5	4					4.4
SS	4	850000577	8.1	40.1	5.2	18.4	12.6	40.9	3.6					3.9
SS	6	850000578	8	38.4	3.7	12.7	6.4	27.5	3.1					3.2
SS,SH	8	850000579	8.1	40.1	3.4	10	4.8	27.5	2.5					2.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:3EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS	850000575				<0.01	0	33.95	.	33.95	72	18	10			
SS	850000576				<0.01	0	21.05	.	21.05	79	13	8			
SS	850000577				<0.01	0	31.37	.	31.37	67	20	13			
SS	850000578				<0.01	0	17.89	.	17.89	71	17	12			
SS,SH	850000579				<0.01	0	18.84	.	18.84	73	16	11			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:3EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS	850000575	0.5		0.02									
SS	850000576	0.7		0.02									
SS	850000577	0.3		0.01									
SS	850000578	0.3		<0.01									
SS,SH	850000579	0.2		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:4EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS	0	850000580	8.6	36.7	2	11.1	2	7.9	5					5.8
SS	2	850000581	8.4	36.7	1	5.1	2.3	3.9	2.9					2.9
SS	4	850000582	8.3	40	0.5	1.1	1.5	1.9	0.8					-0.1
SS	6	850000583	8.4	40	0.3	0.8	1	1.1	0.8					-0.1
SS	8	850000584	8.5	40	0.2	0.7	1	0.9	0.7					-0.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:4EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS	850000580				<0.01	0	101.27	.	101.27	77	15	8			
SS	850000581				<0.01	0	77.88	.	77.88	74	16	10			
SS	850000582				<0.01	0	73.21	.	73.21	72	19	9			
SS	850000583				<0.01	0	38.26	.	38.26	75	16	9			
SS	850000584				<0.01	0	25.99	.	25.99	76	15	9			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:4EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS	850000580	0.5		<0.01									
SS	850000581	0.4		<0.01									
SS	850000582	0.5		0.02									
SS	850000583	0.2		<0.01									
SS	850000584	0.6		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:5EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	850000585	8.7	25.1	0.3	1.2	1.1	1.3	1.1					0.4
SH,ST,SS	2	850000586	8.6	28.4	1.1	6.7	0.9	4.8	4					4.4
ST,SS,SH	4	850000587	8.6	35.1	1.3	9.8	0.6	4.3	6.3					7.4
SH,SS	6	850000588	8.5	35.1	1.1	5.6	1	2.8	4.1					4.6
SS	8	850000589	8.7	36.7	0.6	3.4	0.6	1.5	3.3					3.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:5EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	850000585				<0.01	0	449.1	.	449.1	77	16	7			
SH,ST,SS	850000586				<0.01	0	429.34	.	429.34	56	27.6	16.4			
ST,SS,SH	850000587				<0.01	0	183.08	.	183.08	49	33.6	17.4			
SH,SS	850000588				<0.01	0	146.42	.	146.42	55	27.2	17.8			
SS	850000589				<0.01	0	115.09	.	115.09	63.2	23	13.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:5EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	850000585	0.3		<0.01									
SH,ST,SS	850000586	0.3		0.02									
ST,SS,SH	850000587	0.3		0.04									
SH,SS	850000588	0.5		<0.01									
SS	850000589	0.6		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:6EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000590	8.4	38.4	0.4	1.2	2	0.9	1					0.2
SH,SS	2	850000591	8.5	36.7	0.4	1.6	1	1	1.6					1.1
SS	4	850000592	8.5	36.7	0.4	2.2	0.8	1.5	2.1					1.8
SS,SH	6	850000593	8	43.6	0.7	3.3	1.6	2.2	2.4					2.2
SH,SS,BN	8	850000594	8.2	36.8	0.7	3.6	1.3	2.7	2.5					2.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:6EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000590				<0.01	0	86.93	.	86.93	76.2	14	9.8			
SH,SS	850000591				<0.01	0	147.18	.	147.18	78.4	12.2	9.4			
SS	850000592				<0.01	0	75.47	.	75.47	76.8	12.2	11			
SS,SH	850000593				<0.01	0	14.65	.	14.65	27.6	31.4	41			
SH,SS,BN	850000594				<0.01	0	13.71	.	13.71	37.6	32.4	30			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:6EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000590	0.5		<0.01									
SH,SS	850000591	0.3		<0.01									
SS	850000592	0.5		<0.01									
SS,SH	850000593	0.2		0.01									
SH,SS,BN	850000594	0.2		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:7EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
LO,SS	0	850000595	8.1	40	0.2	0.9	1.6	0.3	0.9					0.1
SS	2	850000596	8.2	38.4	0.2	0.8	1.3	0.6	0.8					-0.1
SS,SH	4	850000597	8	35	0.3	1.5	1.2	0.8	1.5					0.9
SH	6	850000598	8	33.6	0.7	4.8	1.3	1.2	4.3					4.8
SS,SH	8	850000599	7.8	36.9	1.1	5.3	1.9	0.7	4.6					5.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:7EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
LO,SS	850000595				<0.01	0	23.52	.	23.52	73.6	17.4	9			
SS	850000596				<0.01	0	46.81	.	46.81	74	18	8			
SS,SH	850000597				<0.01	0	34.99	.	34.99	68	18	14			
SH	850000598				<0.01	0	5.24	.	5.24	52	26	22			
SS,SH	850000599				<0.01	0	14.19	.	14.19	41	27	32			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:7EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
LO,SS	850000595	0.4		<0.01									
SS	850000596	0.2		<0.01									
SS,SH	850000597	0.3		<0.01									
SH	850000598	<0.1		<0.01									
SS,SH	850000599	0.2		0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:8EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS	0	850000600	8.3	40	0.9	4.4	1.8	2.4	3					3.1
SS	2	850000601	8.5	40	0.6	3.5	0.9	1.6	3.1					3.2
SS	4	850000602	8.5	40.1	1.3	6.2	2.2	5.4	3.2					3.3
SS	6	850000603	8.5	40	1.8	7.5	3.2	8.5	3.1					3.2
SS	8	850000604	8.3	40	1.3	6.4	1.7	5.6	3.3					3.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:8EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS	850000600				<0.01	0	28.44	.	28.44	72	16	12			
SS	850000601				<0.01	0	27.29	.	27.29	78	13	9			
SS	850000602				<0.01	0	16.74	.	16.74	78	12	10			
SS	850000603				0.03	0.94	21.55	.	20.61	76	13	11			
SS	850000604				<0.01	0	4.01	.	4.01	78	12	10			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:8EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS	850000600	0.5		<0.01									
SS	850000601	0.7		<0.01									
SS	850000602	0.8		<0.01									
SS	850000603	0.9		0.01									
SS	850000604	0.5		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:9EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000605	8.5	36.7	1.5	12.7	0.6	1.5	12.4					14.6
SH,SS	2	850000606	8.2	36.8	3	18.8	7	4.6	7.8					9.3
SS	4	850000607	8.2	40	2	13	2.9	3.9	7.1					8.4
SS,SH	6	850000608	7.8	38.3	2.2	14.2	2.4	4.8	7.5					8.9
SH,SS	8	850000609	7.7	36.7	2.4	14.8	3	6.2	6.9					8.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:9EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000605				<0.01	0	12.88	.	12.88	76	12	12			
SH,SS	850000606				<0.01	0	31.27	.	31.27	71	14	15			
SS	850000607				<0.01	0	18.81	.	18.81	82	10	8			
SS,SH	850000608				<0.01	0	3.42	.	3.42	79	9	12			
SH,SS	850000609				<0.01	0	4.83	.	4.83	70	12	18			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:9EO
DATE CORED:04MAY1985
DATE REPORTED:04JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000605	0.9		0.01									
SH,SS	850000606	0.4		<0.01									
SS	850000607	0.3		0.02									
SS,SH	850000608	0.3		0.02									
SH,SS	850000609	0.2		0.04									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:10EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	850000884	3.4	34.2	9.9	6	25.5	50.6	1					0.2
SH,CO	2	850000885	2.9	55.8	7.8	3.2	28.1	28.2	0.6					-0.4
CO	4	850000886	5.3	60.9	2.2	6.2	13.2	7.7	1.9					1.5
CO	6	850000887	6.9	82.8	0.8	5	1.1	0.8	5.1					5.9
CO,SH	8	850000888	7	55.5	1.4	11.3	0.6	0.5	15.2					17.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:10EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	850000884				0.61	19.06	-4.2	23.26	.	52.2	34.6	13.2			
SH,CO	850000885				1.06	33.12	-1.3	34.42	.	87	10.6	2.4			
CO	850000886				0.56	17.5	7.99	9.51	.	98	2	<0.1			
CO	850000887				0.5	15.62	8.51	7.11	.	97	3	<0.1			
CO,SH	850000888				0.61	19.06	4.8	14.26	.	68.4	18.6	13			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:10EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	850000884	1.6		0.02									
SH,CO	850000885	6.8		0.02									
CO	850000886	4.9		<0.01									
CO	850000887	2.7		<0.01									
CO,SH	850000888	2.3		0.05									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:11EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	850000889	8.2	37.5	1.9	10.6	4	3	5.7					6.7
SH	2	850000890	8.2	38.8	1.8	10.6	3.5	2.9	5.9					6.9
SH	4	850000891	8.1	39.2	2	11.1	4.7	3.4	5.5					6.4
SH	6	850000892	8.3	37.1	1.4	7.3	3.2	1.9	4.6					5.2
SH,SS	8	850000893	8.1	39.2	1.6	8.2	3.9	2.5	4.6					5.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:11EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	850000889				<0.01	0	218.26	.	218.26	42.4	35.6	22			
SH	850000890				0.01	0.31	170.08	.	169.77	36.4	41.6	22			
SH	850000891				<0.01	0	154.91	.	154.91	27.4	43.6	29			
SH	850000892				<0.01	0	169.06	.	169.06	43.4	38.6	18			
SH,SS	850000893				<0.01	0	164.54	.	164.54	36.4	40.6	23			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:11EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	850000889	3.7		0.02									
SH	850000890	1.2		<0.01									
SH	850000891	0.5		0.02									
SH	850000892	0.4		0.04									
SH,SS	850000893	0.6		0.02									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:12EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000894	8.5	38.9	2.4	7	1.5	16.2	2.4					2.2
SH,SS	2	850000895	8.6	40.4	2.1	7.5	1.1	12.5	2.9					2.9
SH,SS	4	850000896	8.4	35.5	2.5	8.7	3	14.5	2.9					2.9
SS	6	850000897	8.3	35.3	1.6	3.8	3.9	8	1.6					1.1
SS,SH	8	850000898	8.2	37.3	1.7	3.3	7.1	8.1	1.2					0.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:12EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000894				<0.01	0	129.17	.	129.17	68.4	18.6	13			
SH,SS	850000895				<0.01	0	72.78	.	72.78	76.4	13.6	10			
SH,SS	850000896				0.01	0.31	123.69	.	123.38	71.4	14.6	14			
SS	850000897				<0.01	0	108.28	.	108.28	76.4	14.6	9			
SS,SH	850000898				<0.01	0	111.25	.	111.25	68.4	18.6	13			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:12EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000894	0.6		<0.01									
SH,SS	850000895	0.6		<0.01									
SH,SS	850000896	0.8		0.05									
SS	850000897	0.7		<0.01									
SS,SH	850000898	0.3		0.03									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:13EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000899	8.6	38.6	1	3.7	0.6	4.4	2.3					2.1
SS	2	850000900	8.8	38.7	0.8	3.4	0.5	3.4	2.4					2.2
SS	4	850000901	8.8	37.4	0.7	5.1	0.4	1.5	5.2					6
SH	6	850000902	9	28.5	0.7	5.2	0.5	0.8	6.4					7.6
SH,SS	8	850000903	9	35.2	0.5	3.9	0.4	0.7	5.3					6.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:13EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000899				<0.01	0	51.7	.	51.7	59.4	24.6	16			
SS	850000900				<0.01	0	17.62	.	17.62	78.8	11.6	9.6			
SS	850000901				0.01	0.31	67.59	.	67.28	74.8	15.6	9.6			
SH	850000902				<0.01	0	337.64	.	337.64	77.8	15.2	7			
SH,SS	850000903				<0.01	0	231.57	.	231.57	75.4	14.6	10			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:13EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000899	0.7		<0.01									
SS	850000900	1.8		0.02									
SS	850000901	1.1		0.02									
SH	850000902	0.4		0.01									
SH,SS	850000903	0.5		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:14EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH,SS	0	850000904	8.2	35.3	0.9	1.7	4.1	2.8	0.9					0.1
SS	2	850000905	8.6	30.1	0.5	1.2	1.5	1.8	0.9					0.1
SS,SH	4	850000906	8.3	33.6	0.9	4.5	1.2	3.8	2.8					2.8
SH,SS	6	850000907	8.2	33.6	1.2	4.3	1.5	6.2	2.2					1.9
SS,SH	8	850000908	8.2	35.3	1	3.8	1.4	4.9	2.1					1.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:14EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH,SS	850000904				<0.01	0	118.18	.	118.18	72	11.8	16.2			
SS	850000905				<0.01	0	167.34	.	167.34	74	13.5	12.5			
SS,SH	850000906				<0.01	0	146.98	.	146.98	55	26	19			
SH,SS	850000907				<0.01	0	144.84	.	144.84	50.8	27.4	21.8			
SS,SH	850000908				<0.01	0	145.89	.	145.89	47.2	32.4	20.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:14EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH,SS	850000904	0.5		0.03									
SS	850000905	0.5		<0.01									
SS,SH	850000906	0.7		<0.01									
SH,SS	850000907	0.3		<0.01									
SS,SH	850000908	0.2		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:15EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000909	8	33.9	2	11.4	2.5	7.1	5.2					6
SH,SS	2	850000910	7.9	35.2	1.2	5.6	1.2	3.9	3.5					3.8
SS	4	850000911	7.7	36.8	1.1	4.9	1.4	3.9	3					3.1
SS,SH	6	850000912	7.6	37	1.3	5.2	2.1	5	2.8					2.8
SH,SS	8	850000913	7.7	36.7	0.7	1.9	2.1	2.7	1.2					0.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:15EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000909				<0.01	0	30.04	.	30.04	60.6	17.2	22.2			
SH,SS	850000910				<0.01	0	5.32	.	5.32	64.6	16	19.4			
SS	850000911				<0.01	0	5.59	.	5.59	70.6	12	17.4			
SS,SH	850000912				<0.01	0	4.55	.	4.55	59.6	15	25.4			
SH,SS	850000913				<0.01	0	5	.	5	81.6	7	11.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:15EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000909	0.1		<0.01									
SH,SS	850000910	0.1		<0.01									
SS	850000911	<0.1		0.02									
SS,SH	850000912	0.2		<0.01									
SH,SS	850000913	0.2		<0.01									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:16EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000914	7.7	35.9	3.9	10.6	8.7	37.4	2.2					1.9
SH	2	850000915	3.9	48.1	6.5	12.5	25.4	62.3	1.9					1.5
SH	4	850000916	3.2	45.7	10.3	10.8	24.2	94.1	1.4					0.8
SH	6	850000917	3.1	53.7	7.3	8.2	10.3	56.8	1.4					0.8
SH,CO	8	850000918	3.1	74.7	4.9	10	12.9	24.2	2.3					2.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:16EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000914				<0.01	0	104.06	.	104.06	62.6	13	24.4			
SH	850000915				0.72	22.5	6.98	15.52	.	40.6	16	43.4			
SH	850000916				0.61	19.06	-2.33	21.39	.	57.8	20	22.2			
SH	850000917				0.32	10	-1.7	11.7	.	60.8	14	25.2			
SH,CO	850000918				0.75	23.44	3.8	19.64	.	89.8	3	7.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:16EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000914	0.4		<0.01									
SH	850000915	1.1		<0.01									
SH	850000916	1.9		<0.01									
SH	850000917	1.4		0.02									
SH,CO	850000918	3.3		0.02									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:17EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH,SS	0	850000919	7.8	32.2	2	11.2	5.1	3.8	5.3					6.2
SH,SS	2	850000920	7.7	37.1	1.8	10.2	5.2	2.7	5.1					5.9
SH	4	850000921	7.5	62.1	1.9	9.8	6.8	2.6	4.5					5.1
SH,SM	6	850000922	6.9	67.4	2.6	11.7	13.2	4.2	4					4.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:17EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH,SS	850000919				<0.01	0	95.93	.	95.93	62.6	17	20.4			
SH,SS	850000920				0.01	0.31	10.79	.	10.48	62.6	14	23.4			
SH	850000921				0.02	0.62	11.32	.	10.7	23.6	22	54.4			
SH,SM	850000922				0.1	3.12	21.78	.	18.66	32.6	28	39.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:17EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH,SS	850000919	0.3		0.03									
SH,SS	850000920	<0.1		<0.01									
SH	850000921	0.4		0.02									
SH,SM	850000922	0.5		0.03									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:18EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS,SH	0	850000923	8.2	36.9	0.3	0.9	1.2	0.9	0.9					0.1
SH,SS	2	850000924	8.3	54.8	0.7	4.2	0.8	2.1	3.5					3.8
SS,SH	4	850000925	8.2	40.8	1.5	11.7	1	2.1	9.4					11.2
SH, SS	6	850000926	8.2	44.5	13.9	10.6	1.2	2.1	8.3					9.9
SS, SH	8	850000927	8	40.5	1.5	10.2	2.7	3.3	5.9					6.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:18EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS,SH	850000923				<0.01	0	82.06	.	82.06	71.6	15	13.4			
SH,SS	850000924				<0.01	0	100.31	.	100.31	24.6	30	45.4			
SS,SH	850000925				<0.01	0	31.76	.	31.76	40.6	25.4	34			
SH, SS	850000926				<0.01	0	67.23	.	67.23	60.6	14.4	25			
SS, SH	850000927				<0.01	0	49.82	.	49.82	51.6	22.4	26			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:18EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS,SH	850000923	0.4		<0.01									
SH,SS	850000924	0.6		0.04									
SS,SH	850000925	0.5		<0.01									
SH, SS	850000926	0.3		<0.01									
SS, SH	850000927	0.6		0.02									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:19EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	850000928	7.9	54.1	2.4	13.7	5.4	5.4	5.9					6.9
SH	2	850000929	7.9	49.5	2.4	13.1	5.3	5.3	5.7					6.7
SH, SS	4	850000930	8	41	2.6	13.4	7.6	7.5	4.9					5.6
SH	6	850000931	7.9	46.9	3.2	16.8	9.1	11.3	5.3					6.2
SH	8	850000932	7.8	50.2	3.6	16.1	11.7	15.7	4.3					4.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:19EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	850000928				<0.01	0	25.35	.	25.35	9.6	46.8	43.6			
SH	850000929				<0.01	0	24.3	.	24.3	17.6	40.8	41.6			
SH, SS	850000930				0.02	0.62	121.1	.	120.48	38.6	26.8	34.6			
SH	850000931				<0.01	0	31.11	.	31.11	19.6	42.6	37.8			
SH	850000932				<0.01	0	41.84	.	41.84	24.6	32.2	43.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:19EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	850000928	0.1		<0.01									
SH	850000929	<0.1		0.01									
SH, SS	850000930	0.2		<0.01									
SH	850000931	0.2		0.01									
SH	850000932	<0.1		0.08									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:20EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH, SS	0	850000933	8.1	36.5	2.2	11.6	2.6	8.6	4.9					5.6
SS, SH	2	850000934	8.5	36.2	1.5	10.1	0.8	3.3	7.1					8.4
SS	4	850000935	9	37.1	0.9	7.3	0.4	1	8.7					10.4
SS, SH	6	850000936	8.6	32.3	1.6	14.1	0.4	1.2	15.8					18.1
SH, SS	8	850000937	8.7	34.7	1.1	13	0.3	1.5	13.7					15.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:20EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH, SS	850000933				<0.01	0	19.33	.	19.33	55.6	19.2	25.2			
SS, SH	850000934				<0.01	0	46.99	.	46.99	68.6	16.2	15.2			
SS	850000935				<0.01	0	88.25	.	88.25	76.6	12.2	11.2			
SS, SH	850000936				<0.01	0	37.55	.	37.55	59.6	17.2	23.2			
SH, SS	850000937				<0.01	0	23.78	.	23.78	50.6	18.2	31.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:20EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH, SS	850000933	0.1		0.05									
SS, SH	850000934	0.2		0.03									
SS	850000935	0.3		0.03									
SS, SH	850000936	<0.1		0.04									
SH, SS	850000937	0.1		0.03									

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:21EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SS, SH	0	850000938	8.2	38.3	2	10.3	2.3	6.7	4.9					5.6
SH, SS	2	850000939	8.2	38.3	2	11.6	1.8	5.6	6					7.1
SS	4	850000940	8.4	40.3	1.9	10.9	1.7	4.9	6					7.1
SH, SS	6	850000941	8.4	40.5	3	19.3	1.7	6.4	9.6					11.4
SH, SS	8	850000942	8.9	34.2	1.5	11.6	0.8	1.9	10					11.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:21E0
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SS, SH	850000938				<0.01	0	44.01	.	44.01	59.6	17.2	23.2			
SH, SS	850000939				<0.01	0	10.73	.	10.73	57.6	19.6	22.8			
SS	850000940				0.01	0.31	26.43	.	26.12	60.6	20.6	18.8			
SH, SS	850000941				<0.01	0	31.34	.	31.34	42.6	24.6	32.8			
SH, SS	850000942				<0.01	0	63.6	.	63.6	62.6	17.6	19.8			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA J21
CORE NO:21EO
DATE CORED:07MAY1985
DATE REPORTED:25JUN1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SS, SH	850000938	0.3		0.02									
SH, SS	850000939	0.3		0.03									
SS	850000940	0.2		<0.01									
SH, SS	850000941	0.5		0.01									
SH, SS	850000942	0.5		<0.01									

N-6 MINING AREA

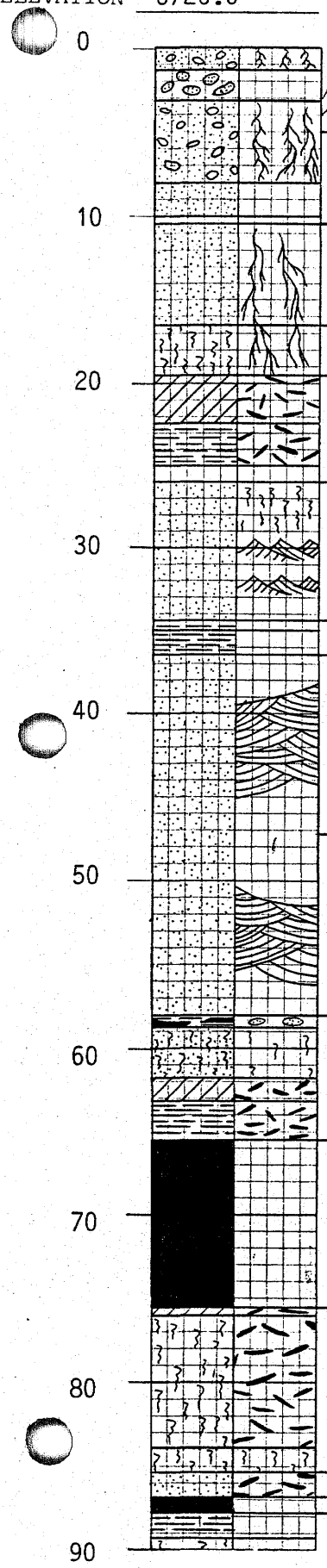
(DEEP CORES)

HOLE NO. 21104C DRILLER J. Elliott PAGE 1

LOCATION S 13111.0 DATE DRILLED 9-29-78 SUB AREA N-6

E 31605.0

ELEVATION 6726.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-80-715	34.4	4.2	5.1	2.0	0.9	<0.01	8.5
R-80-716	31.4	6.9	6.5	0.9	0.9	<0.01	8.5
R-80-717	38.4	4.8	10.2	4.6	4.4	<0.01	8.1
R-80-718	38.4	4.6	12.1	6.9	6.9	<0.01	8.2
R-80-719	53.1	2.8	13.4	27.9	17.1	0.06	7.8
R-80-720	77.3	3.1	12.1	16.7	14.0	0.07	6.9
R-80-721	42.4	2.8	9.6	7.7	16.6	0.02	7.4
R-80-722	57.2	5.4	10.2	22.3	5.3	0.05	8.2
R-80-723	38.3	2.5	7.9	7.9	11.3	0.02	7.1
R-80-724	34.1	3.6	7.3	4.8	3.5	0.10	7.4
R-80-725	49.0	34.3	41.3	1.7	1.2	0.14	7.6
(8-2457-R) GXX	(11.97)	(6.54)		(12,710)		(0.85)	(8.1)
R-80-726	48.8	14.8	19.0	1.9	1.4	0.06	8.5
R-80-727	34.1	4.1	15.8	19.1	10.0	0.42	7.3
R-80-728	77.9	22.3	14.1	0.4	0.4	0.75	7.4
R-80-729	53.1	31.8	39.6	1.8	1.3	0.22	7.1

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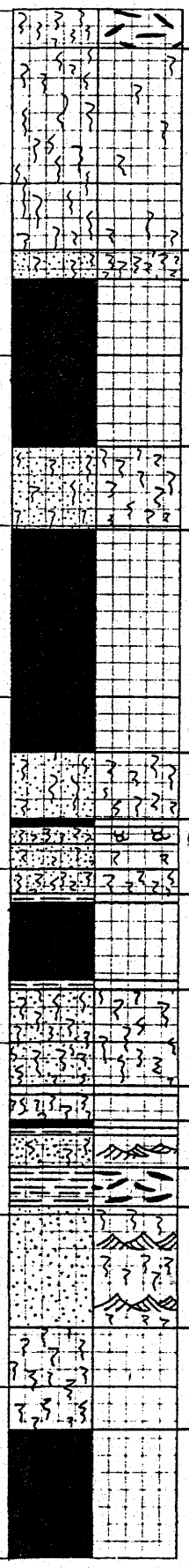
DRILLER G. ENGOOD PAGE 2

LOCATION S 13111.0 DATE DRILLED 9-29-78 SUB AREA N-6

E 31605.0

ELEVATION 6726.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-80-730	37.6	22.5	26.1	1.1	1.6	0.07	8.4
R-80-731	42.4	24.2	23.6	0.8	1.1	0.07	6.8
BXX (8-2458-R)	(12.26)	(6.05)		(12,867)		(0.53)	(8.4)
R-80-732	46.3	1.4	6.9	29.3	17.4	0.35	6.6
RXX (8-2459-R)	(12.17)	(4.72)		(13,026)		(0.44)	(8.2)
R-80-733	40.3	4.8	16.4	14.9	8.7	0.25	7.0
R-80-734	44.5	7.6	36.2	22.3	22.8	1.03	3.8
MXX (8-2460-R)	(11.75)	(9.79)		(12,339)		(0.78)	(8.5)
R-80-735	44.4	23.2	48.1	5.6	3.0	0.32	6.7
R-80-736	42.3	12.5	48.9	19.5	10.9	0.90	6.5
R-80-737	46.6	19.9	66.6	14.0	8.5	0.98	3.7
R-80-738	48.5	35.4	48.1	2.1	1.6	0.19	6.4
R-80-739	31,1	25.7	27.0	1.3	0.9	0.05	8.6
R-80-740	44.6	14.2	75.9	22.3	35.2	1.64	4.8
YXX (8-2461-R)	(12.60)	(6.60)		(12,803)		(0.87)	(8.8)

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DRILLER J. Elliott

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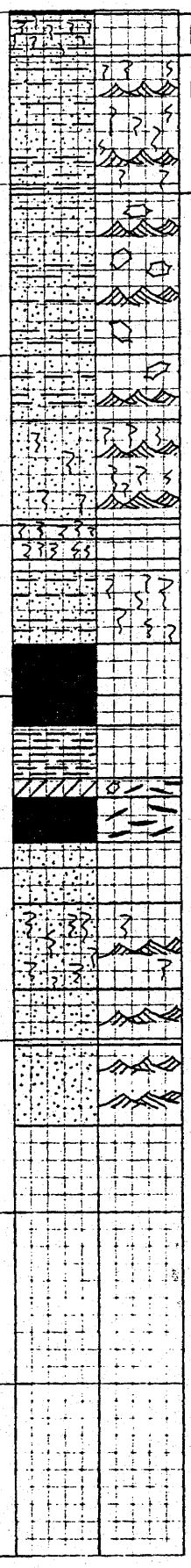
LOCATION S 13111.0

DATE DRILLED 9-29-78

SUB AREA N-6

E 31605.0

ELEVATION 6726.0



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-80-741	46.5	31.9	37.1	1.8	0.9	0.27	6.9
R-80-742	46.4	13.2	60.7	23.7	18.7	1.71	4.1
NOX							

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:21104C
DATE CORED:29SEP1978
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	800000711	7.5	34.4	0.4	1.5	1.7	0.8	1.3					0.6
SO	0.5	800000712	7.9	36.5	0.4	1.6	2.2	0.7	1.3					0.6
SO	1	800000713	8.1	36.5	0.4	1.8	2.2	1	1.4					0.7
SO	2	800000714	8.3	40.5	0.4	3	1.2	1.1	2.8					2.8
SO	3	800000715	8.5	34.4	0.6	5.1	2	0.9	4.2					4.7
SO	4	800000716	8.5	31.4	0.7	6.5	0.9	0.9	6.9					8.2
SS	5	800000717	8.1	38.4	1.7	10.2	4.6	4.4	4.8					5.5
(10.0 to 10.4 lost)														
SS	10.4	800000718	8.2	38.4	2.2	12.1	6.9	6.9	4.6					5.3
SL	16.5	800000719	7.8	53.1	4.2	13.4	27.9	17.1	2.8					2.8
SH	19.5	800000720	6.9	77.3	3.2	12.1	16.7	14	3.1					3.2
(25.0 to 26.0 lost)														
SS	26	800000721	7.4	42.4	2.5	9.6	7.7	16.6	2.8					2.8
SH,IS	34.4	800000722	8.2	57.2	1.6	10.2	22.3	5.3	5.4					6.3
SS	36.4	800000723	7.1	38.3	2.2	7.9	7.9	11.3	2.5					2.4
IS	47.2	800000724	7.4	34.1	1.4	7.3	4.8	3.5	3.6					3.9
SH,CO,SS	58	800000725	7.6	49	3.9	41.3	1.7	1.2	34.3					33
GREEN CO	65.5	COAL												
SH,SL	75.6	800000726	8.5	48.8	1.8	19	1.9	1.4	14.8					17.1
SS	85.3	800000727	7.3	34.1	3.3	15.8	19.1	10	4.1					4.6
CO	86.9	800000728	7.4	77.9	1.2	14.1	0.4	0.4	22.3					24
SH,SL,IS	87.9	800000729	7.1	53.1	3.8	39.6	1.8	1.3	31.8					31.3
SL	92.5	800000730	8.4	37.6	2.3	26.1	1.1	1.6	22.5					24.2
SS	103.8	800000731	6.8	42.4	2.3	23.6	0.8	1.1	24.2					25.6
BLUE CO	105.6	COAL												
SS	115.3	800000732	6.6	46.3	3.4	6.9	29.3	17.4	1.4					0.7
RED CO	120.2	COAL												
SS	133.2	800000733	7	40.3	3	16.4	14.9	8.7	4.8					5.5
CO,SL,SS	137.1	800000734	3.8	44.5	6.4	36.2	22.3	22.8	7.6					9
RED CO	141.4	COAL												
SL	146.9	800000735	6.7	44.4	4.9	48.1	5.6	3	23.2					24.8
IS,SL	152.5	800000736	6.5	42.3	6.1	48.9	19.5	10.9	12.5					14.7
CO,SH,SS	154.5	800000737	3.7	46.6	8.1	66.6	14	8.5	19.9					21.9
SH	157.2	800000738	6.4	48.5	4.8	48.1	2.1	1.6	35.4					33.8
SS	159.5	800000739	8.6	31.1	2.6	27	1.3	0.9	25.7					26.8
IS,SL	166.7	800000740	4.8	44.6	9.2	75.9	22.3	35.2	14.2					16.4
YEL CO	172.5	COAL												
SL	180.3	800000741	6.9	46.5	3.6	37.1	1.8	0.9	31.9					31.4
SS	182.7	800000742	4.1	46.4	7.8	60.7	23.7	18.7	13.2					15.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:21104C
DATE CORED:29SEP1978
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	800000711	17	11.5	499.1	<0.01	0.31	4.88	.	4.57	62	26	12	11	3.4	7.6
SO	800000712	2	1.6	180.7	<0.01	0.31	14.62	.	14.31	68	17	15	14.6	4.7	9.9
SO	800000713	2	1.9	171.5	<0.01	0.31	17.57	.	17.26	68	17.4	14.6	15.2	4.9	10.3
SO	800000714	2	1.5	185	<0.01	0.31	41.58	.	41.27	58	25.4	16.6	15.9	5.3	10.6
SO	800000715	<2	1.7	198.9	<0.01	0.31	36.98	.	36.67	59	28.4	12.6	14.1	4.7	9.4
SO	800000716	<2	3.3	217.3	<0.01	0.31	26.86	.	26.55	60	24.4	15.6	15.3	4.9	10.4
SS	800000717	<2	5.4	134	<0.01	0.31	22.62	.	22.31	64	23.4	12.6	13.3	4.4	8.9
SS	800000718	2	4.2	92.3	<0.01	0.31	93.07	.	92.76	61	25.4	13.6	13.6	4.7	8.9
SL	800000719	30	5.3	139.8	0.06	1.88	91.69	.	89.81	34	34.4	31.6	28.5	10.1	18.4
SH	800000720	61	2.6	195.7	0.07	2.19	8.6	.	6.41	13	21.4	65.6	43.6	17.7	25.9
SS	800000721	20	2.1	82.9	0.02	0.63	40.13	.	39.5	52	29.4	18.6	20	4.3	15.7
SH,IS	800000722	6	0.8	233.2	0.05	1.56	39.46	.	37.9	30	35.4	34.6	24.4	9	15.4
SS	800000723	2	1.3	64.2	0.02	0.63	12.44	.	11.81	59	27.4	13.6	16.9	3.2	13.7
IS	800000724	<2	0.9	54.9	0.1	3.13	13.18	.	10.05	61	28.4	10.6	27.2	4.3	22.9
SH,CO,SS	800000725	4	1.4	219	0.14	4.38	36.48	.	32.1	34	27.4	38.6	38.5	7.7	30.8
GREEN CO	COAL														
SH,SL	800000726	3	1	232.3	0.06	1.88	28.03	.	26.15	22	41.4	36.6	42.2	15.9	26.3
SS	800000727	<2	3.3	45.8	0.42	13.13	110.64	.	97.51	64	28.4	7.6	22.5	11.6	10.9
CO	800000728	<2	0.9	49.4	0.75	23.44	10.13	13.31	.	74	23.4	2.6	40.8	19.8	21
SH,SL,IS	800000729	6	1.7	274.9	0.22	6.88	40.09	.	33.21	23	35.4	41.6	42.1	18.4	23.7
SL	800000730	6	1.2	222.6	0.07	2.19	90.94	.	88.75	23	41	36	34.4	8.8	25.6
SS	800000731	<2	1	120	0.07	2.19	2.65	.	0.84	33	39	28	31.1	7.9	23.2
BLUE CO	COAL														
SS	800000732	<2	5.4	78.1	0.35	10.94	78.07	.	9.13	24	54	22	30.8	16.9	13.9
RED CO	COAL														
SS	800000733	3	1.2	98.6	0.25	7.81	78.2	.	70.39	39	36	25	26.6	6.7	19.9
CO,SL,SS	800000734	5	6.8	18.5	1.03	32.19	-1.77	33.96	.	25	55	20	28	6.5	21.5
RED CO	COAL														
SL	800000735	5	2	124.5	0.32	10	34.88	.	24.88	24	46	30	30.1	3.4	26.7
IS,SL	800000736	<2	9.4	110.3	0.9	28.13	37.76	.	9.63	39	37	24	23.8	5.1	18.7
CO,SH,SS	800000737	6	0.8	37	0.98	30.63	1.43	29.2	.	27	44	29	30.8	6.5	24.3
SH	800000738	7	2.8	166.2	0.19	5.94	33.83	.	27.89	15	44	41	30.9	9.1	21.8
SS	800000739	<2	1.7	87.1	0.05	1.56	109.23	.	107.67	34	45	21	23	6.1	16.9
IS,SL	800000740	7	26	60.2	1.64	51.25	30.39	20.86	.	18	46	36	29.2	8	21.2
YEL CO	COAL														
SL	800000741	7	3	175.3	0.27	8.44	4.49	3.95	.	14	49	37	37.6	10.6	27
SS	800000742	8	12.9	18.5	1.71	53.44	9.07	44.37	.	25	53	22	29	6.6	22.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:21104C
DATE CORED:29SEP1978
DATE REPORTED:16FEB1985

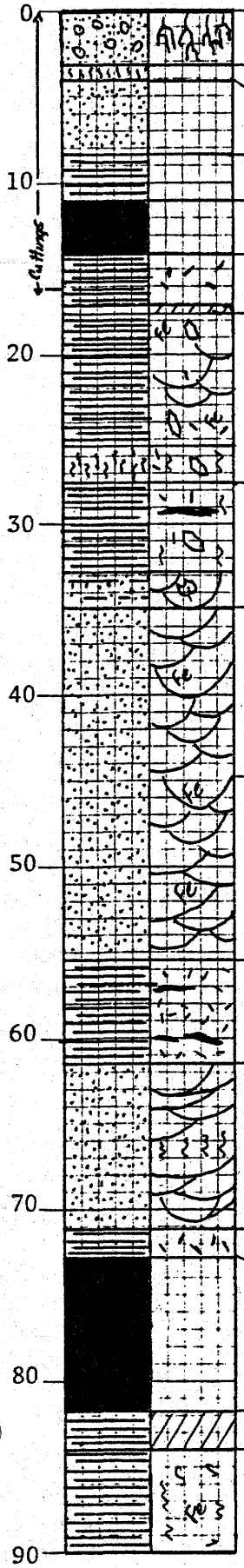
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	800000711	0.7	0.1	<0.01	<0.6	12	0.2	2	25.7	19.2	<1		0.6
SO	800000712	0.2	0.08	<0.01	<0.6	17	0.2	1.7	25	14.7	<1		0.6
SO	800000713	0.6	0.07	<0.01	<0.6	18	0.2	1.5	22.2	12.3	<1		0.4
SO	800000714	1.4	0.03	<0.01	<0.6	15	<0.1	1.2	16.4	9.4	<1		0.3
SO	800000715	1.4	0.08	<0.01	<0.6	13	0.2	1.1	17.1	6.9	<1		0.3
SO	800000716	1.2	0.16	<0.01	<0.6	<10	0.2	1.2	17.8	8.2	<1		0.7
SS	800000717	0.5	0.04	0.03	<0.6	<10	0.2	5	22.1	12.2	<1		0.2
SS	800000718	0.3	0.01	0.05	<0.6	<10	0.2	0.8	21.4	8.2	<1		0.4
SL	800000719	0.6	<0.01	0.2	<0.6	27	0.2	1.9	21.7	7.4	<1		0.3
SH	800000720	0.6	0.04	0.17	<0.6	96	0.8	11.4	74.6	1.8	11.7		2.2
SS	800000721	0.8	0.02	0.02	<0.6	21	0.2	2.6	45.4	3.2	2.3		0.5
SH,IS	800000722	0.3	<0.01	0.07	<0.6	18	1.1	4.4	41.3	5.7	8.2		2.6
SS	800000723	0.7	<0.01	<0.01	<0.6	<10	0.3	1.9	29.7	3.3	3.1		2.6
IS	800000724	0.3	<0.01	0.01	<0.6	<10	0.2	1.2	37	2.7	3.7		1.3
SH,CO,SS	800000725	1.1	0.14	0.07	<0.6	10	1.2	6.3	80	7.7	11.9		7.8
GREEN CO	COAL												
SH,SL	800000726	0.6	0.06	0.03	<0.6	10	2.1	4	41.1	4.5	13.7		3.4
SS	800000727	0.1	<0.01	<0.01	<0.6	<10	0.2	1	101	3.1	3.1		1.9
CO	800000728	8.6	0.04	0.09	<0.6	41	0.2	1.3	32.3	1.1	<1		COAL
SH,SL,IS	800000729	0.9	0.02	0.16	<0.6	<10	1.4	7.3	74.6	3.7	15.8		8.7
SL	800000730	0.3	0.08	0.13	<0.6	<10	1.5	6.4	67.9	8.2	13		5
SS	800000731	0.8	0.11	0.13	<0.6	<10	2.9	4.4	26.5	3.6	13.6		7.8
BLUE CO	COAL												
SS	800000732	0.4	<0.01	0.05	<0.6	<10	3	4.3	88.1	4.5	16.8		4.9
RED CO	COAL												
SS	800000733	0.4	<0.01	0.03	<0.6	<10	2.8	4.1	75.2	1.8	10.4		3.4
CO,SL,SS	800000734	1.4	0.03	0.02	<0.6	<10	5.7	4.2	225.2	3.6	19.7		9.5
RED CO	COAL												
SL	800000735	0.4	<0.01	0.08	<0.6	<10	3.6	6.7	76.2	7.3	13.7		5.7
IS,SL	800000736	0.2	<0.01	0.01	<0.6	<10	2.7	4.2	183.3	18.5	9.7		5.5
CO,SH,SS	800000737	1.4	0.02	0.04	<0.6	<10	9	6.2	328.3	45.4	23.7		9.6
SH	800000738	0.5	0.02	0.09	<0.6	<10	4.7	10.5	54.6	14.9	16.2		5.3
SS	800000739	0.2	0.04	0.04	2.4	<10	0.6	3.3	87.7	6.7	6.1		2.3
IS,SL	800000740	0.6	<0.01	<0.01	0.9	10	6.6	7.6	211.8	72.6	16.1		5.7
YEL CO	COAL												
SL	800000741	0.5	0.07	0.13	<0.6	<10	4.5	10	122.6	10.1	13.3		4.4
SS	800000742	0.3	<0.01	0.02	<0.6	10	9.8	4.6	265.5	24.7	19.7		7.7

LOCATION S 10515.0 DATE DRILLED 8-29-81 SUB AREA N-6

E 32971.0

ELEVATION 6807.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820001933	42.4	2.9	2.8	0.7	1.2	<0.01	8.4
820001934	40.4	0.6	0.9	4.3	0.8	<0.01	7.9
820001935	44.4	5.1	6.6	1.3	2.0	0.01	8.4
820001936	51.1	3.0	11.9	13.5	18.8	0.07	5.5
820001937	70.8	3.3	15.5	16.9	26.6	0.39	3.9
820001938	59.3	1.3	8.5	25.4	54.9	0.46	3.6
820001939	56.4	0.9	5.4	24.5	40.8	0.08	6.3
820001940	57.7	0.8	4.7	22.1	51.6	0.08	6.9
820001941	38.2	1.0	2.4	3.6	7.3	0.08	8.1
820001942	38.3	0.9	1.5	2.0	3.9	<0.01	8.2
820001943	81.6	0.9	1.9	5.0	4.1	0.08	8.5
820001944	42.4	0.8	1.6	4.3	3.6	0.01	8.1
820001945	66.7	0.8	2.1	7.3	6.6	0.15	7.9
GXX (82-884-R)	(N/A)	(5.74)		(12,876)		(0.49)	(7.4)
820001946	53.0	15.4	15.4	1.0	1.0	0.36	7.3
820001947	49.1	26.9	20.8	0.9	0.3	0.08	8.9

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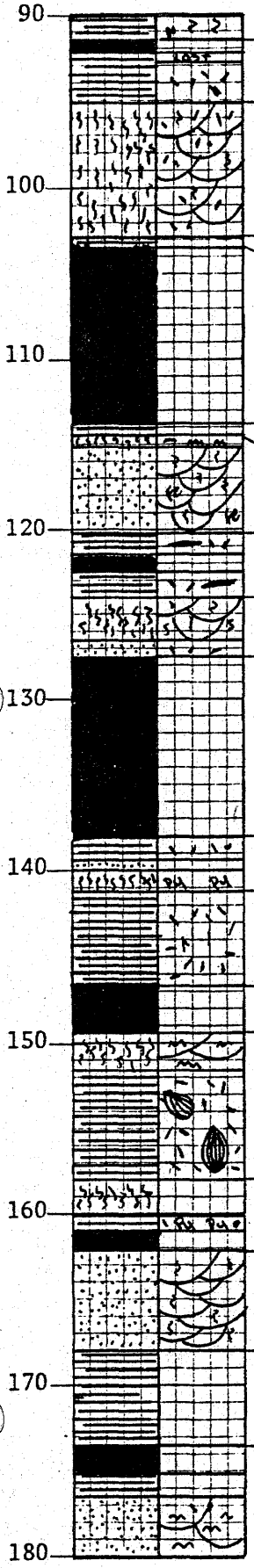
LOCATION S 10515.0 DATE DRILLED 8-29-81 SUB AREA N-6

E 32971.0

ELEVATION 6807.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820001948	49.3	43.0	33.3	0.6	0.6	0.39	8.2
820001962	28.4	19.9	17.8	0.5	1.1	0.06	8.7
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BXX (82-885-R)	(N/A)	(5.48)		(12,913)		(0.47)	(8.1)
820001963	30.5	17.0	21.9	1.8	1.5	0.29	7.2
820001964	36.4	12.5	14.8	1.4	1.4	0.15	8.1
820001965	37.6	26.2	21.1	0.5	0.8	0.78	7.4
820001966	28.2	14.3	15.7	1.1	1.3	0.04	8.7
RXX (82-886-R)	(N/A)	(8.44)		(12,480)		(0.42)	(8.3)
820001967	32.3	36.2	32.4	0.7	0.9	0.23	8.4
820001968	57.7	44.9	43.8	1.2	0.7	1.19	6.5
MXX (82-887-R)	(N/A)	(6.12)		(12,813)		(0.83)	(8.3)
820001969	39.0	44.7	31.6	0.4	0.6	0.58	7.7
820001970	32.9	40.2	42.2	1.3	0.9	0.92	7.9
820001971	30.3	24.6	31.6	2.0	1.3	0.44	8.6
820001972	50.9	44.8	64.9	2.6	1.6	2.30	7.0

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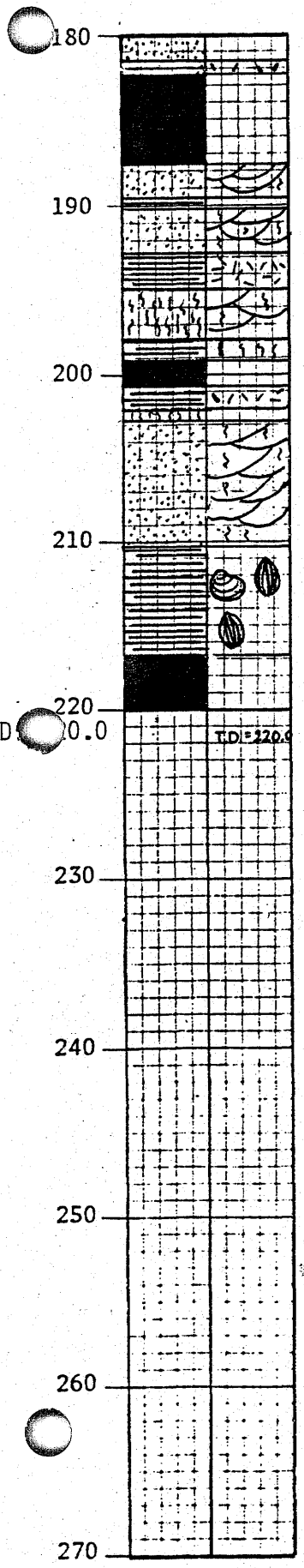
OCATION S 10515.0 DATE DRILLED 8-29-81 SUB AREA N-6

E 32971.0

LEVATION 6807.2

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
YXX							
		319					



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23160C
DATE CORED:29AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001933	8.4	42.4	0.5	2.8	0.7	1.2	2.9					3
SL	3.2	820001934	7.9	40.4	7.6	0.9	4.3	0.8	0.6					-0.4
SS	4	820001935	8.4	44.4	1.1	6.6	1.3	2	5.1					5.9
SH	8.5	820001936	5.5	51.1	3.7	11.9	13.5	18.8	3					3.1
CO	11	820001937	3.9	70.8	5.4	15.5	16.9	26.6	3.3					3.5
SH	14	820001938	3.6	59.3	7.1	8.5	25.4	54.9	1.3					0.6
SH,SL	17.4	820001939	6.3	56.4	5.2	5.4	24.5	40.8	0.9					0.1
SH,SS	27.4	820001940	6.9	57.7	5.4	4.7	22.1	51.6	0.8					-0.1
SS	34.8	820001941	8.1	38.2	1.2	2.4	3.6	7.3	1					0.2
SS	44.8	820001942	8.2	38.3	0.8	1.5	2	3.9	0.9					0.1
SH	55.5	820001943	8.5	81.6	1.1	1.9	5	4.1	4.1					0.9
SS	61.6	820001944	8.1	42.4	1	1.6	4.3	3.6	3.6					0.8
SH	71.1	820001945	7.9	66.7	1.5	2.1	7.3	6.6	6.6					0.8
CO	72.9	COAL												
SH,CO	81.8	820001946	7.3	53	1.9	15.4	1	1	1					15.4
SH	84	820001947	8.9	49.1	2.6	20.8	0.9	0.3	0.3					26.9
CO,SH	91.4	820001948	8.2	49.3	3.4	33.3	0.6	0.6	0.6					43
SL	95.2	820001962	8.7	28.4	1.6	17.8	0.5	1.1	19.9					21.9
LOST	102.9	LOST												
CO	103.5	COAL												
SH,SL	114	820001963	7.2	30.5	2.4	21.9	1.8	1.5	17					19.2
SS	115.1	820001964	8.1	36.4	1.7	14.8	1.4	1.4	12.5					14.7
SH,CO	120.2	820001965	7.4	37.6	2.2	21.1	0.5	0.8	26.2					27.2
SL,SS	124	820001966	8.7	28.2	1.5	15.7	1.1	1.3	14.3					16.6
CO	127.5	COAL												
SH,SS	138.2	820001967	8.4	32.3	3.1	32.4	0.7	0.9	36.2					34.3
SH	141.2	820001968	6.5	57.7	4.2	43.8	1.2	0.7	44.9					39.4
CO	146.7	COAL												
SL,SH	149.6	820001969	7.7	39	3.1	31.6	0.4	0.6	44.7					39.3
SL,SH,CO	158	820001970	7.9	32.9	4	42.2	1.3	0.9	40.2					36.7
SS	162.2	820001971	8.6	30.3	3.2	31.6	2	1.3	24.6					25.9
SH	168	820001972	7	50.9	6.1	64.9	2.6	1.6	44.8					39.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23160C
DATE CORED:29AUG1981
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001933	4	1.6	81.3	<0.01	0.31	53.66	.	53.35	48.4	27	24.6	23	19.3	13.7
SL	820001934	15	5.1	106.2	<0.01	0.31	124.73	.	124.42	63	22.4	14.6	19.5	5.7	13.8
SS	820001935	<2	1.6	61.7	0.01	0.31	26.6	.	26.29	52.4	25	22.6	22.2	7.2	15
SH	820001936	15	1.9	67.4	0.07	2.19	7.82	.	5.63	45	24.4	30.6	26.5	11	15.5
CO	820001937	265	3.1	110.7	0.39	12.19	10	2.19	.	81	8.4	10.6	32.8	27.9	4.9
SH	820001938	484	1	212.8	0.46	14.38	4.71	9.67	.	69	14.4	16.6	32.8	21.2	11.6
SH,SL	820001939	170	3.4	362.6	0.08	2.5	17.26	.	14.76	34	29.4	36.6	28.8	13	15.8
SH,SS	820001940	69	6.6	216.6	0.08	2.5	9.94	.	7.44	23.6	36.4	40	27.7	11.9	15.8
SS	820001941	12	0.9	51.8	0.08	2.5	19.21	.	16.71	71.8	18.8	9.4	15.7	3.2	12.5
SS	820001942	<2	1.1	51.9	<0.01	0.31	5.42	.	5.11	71.8	16	12.2	15.4	3.7	11.4
SH	820001943	5	0.1	292.2	0.08	2.5	15.51	.	13.01	13.8	38.6	47.6	36.7	19.1	18.6
SS	820001944	5	<0.1	108.3	0.01	0.31	30.33	.	30.02	66.8	20	13.2	12.5	4.5	8
SH	820001945	8	<0.1	277.1	0.15	4.69	8.3	.	3.61	2.8	28	69.2	28.6	13.2	15.4
CO	COAL														
SH,CO	820001946	24	17.7	172.7	0.36	11.25	8.73	2.52	.	72.8	9	18.2	18	12.6	5.4
SH	820001947	20	27.8	265.9	0.08	2.5	33.61	.	31.11	29	36	35	29.1	20.3	8.8
CO,SH	820001948	17	38.3	247.5	0.39	12.19	12.02	0.17	.	27.7	36.2	36.1	28.1	11.3	16.8
SL	820001962	7	0.5	172	0.06	1.88	51.95	.	50.07	57.2	22	20.8	11.6	5.2	6.4
LOST	LOST														
CO	COAL														
SH,SL	820001963	7	1.1	175.6	0.29	9.06	7.07	1.99	.	17.2	46.4	36.4	13.8	5.7	8.1
SS	820001964	2	0.1	95.4	0.15	4.69	46.56	.	41.87	61.2	23.8	15	9.9	4.4	5.5
SH,CO	820001965	8	0.9	151.4	0.78	24.38	4.91	19.47	.	45.6	24.4	30	20.5	4.4	16.1
SL,SS	820001966	2	0.4	116.2	0.04	1.25	47.74	.	46.19	49.6	29.4	21	12.8	5	7.8
CO	COAL														
SH,SS	820001967	<2	0.8	109.4	0.23	7.19	40.27	.	33.08	58.6	17.4	24	15.2	5.6	9.6
SH	820001968	6	2.8	174.6	1.19	37.19	28.33	8.86	.	29.6	36.4	34	18.2	7.3	10.9
CO	COAL														
SL,SH	820001969	5	1.2	120.1	0.58	18.13	12	6.13	.	39.6	32.4	28	17.5	7.3	10.2
SL,SH,CO	820001970	9	2.6	113	0.92	28.75	85.18	.	56.43	58.6	21.4	20	14.8	5.4	9.4
SS	820001971	8	0.8	128.8	0.44	13.75	51.35	.	37.6	46.6	33.4	24	11	5.4	5.6
SH	820001972	10	6	197.5	2.3	71.88	18.09	53.79	.	17.6	42.4	40	17.5	6.8	10.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

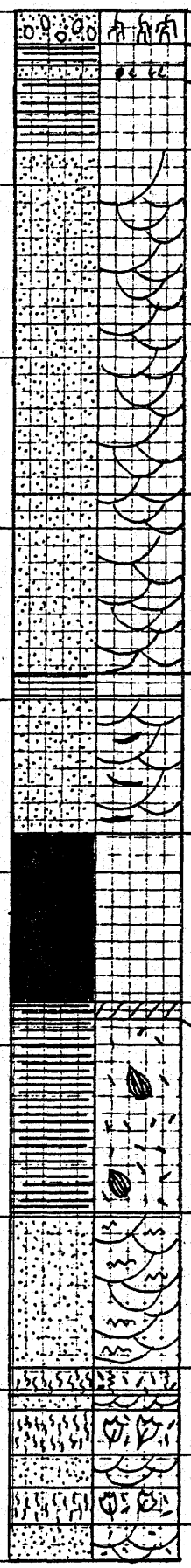
MINE:0250 BLACK MESA J-1/N-6
CORE NO:23160C
DATE CORED:29AUG1981
DATE REPORTED:16FEB1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001933	0.7	0.04	<0.01	<0.6	32	0.1	5.6	14.9	13.5	<1		0.6
SL	820001934	0.4	0.02	<0.01	<0.6	18	0.5	4.1	35.5	30.6	<1		2.1
SS	820001935	0.5	0.03	<0.01	<0.6	29	0.2	3	9.1	6.6	1		0.5
SH	820001936	0.8	0.03	<0.01	<0.6	<10	0.5	5	182.8	10.4	9.7		4.6
CO	820001937	2.7	0.06	<0.01	<0.6	25	1	3	477.4	4	10.3		COAL
SH	820001938	4.3	0.04	<0.01	<0.6	126	2.5	4.2	417.8	9.8	15.9		24.7
SH,SL	820001939	0.4	<0.01	0.1	<0.6	68	0.6	10.3	146.1	13.1	9.9		2.6
SH,SS	820001940	0.5	<0.01	0.05	<0.6	60	0.9	6.5	57.4	8.3	9.2		1
SS	820001941	0.2	<0.01	<0.01	<0.6	17	0.1	1.8	33.3	10.7	1.6		0.9
SS	820001942	<0.1	0.01	<0.01	<0.6	11	0.3	1.6	19.2	6.6	1.8		0.8
SH	820001943	0.2	<0.01	0.19	<0.6	26	1.3	7.1	23.6	2.3	11.3		2.3
SS	820001944	<0.1	0.03	0.02	<0.6	14	1.3	2.6	34.7	3.4	11.9		1.6
SH	820001945	1.4	0.01	0.39	<0.6	<10	2.4	12.8	26.3	1	20.1		5.7
CO	COAL												
SH,CO	820001946	2.8	0.02	0.21	<0.6	<10	0.6	6.2	40	1.1	1.7		COAL
SH	820001947	0.2	0.15	0.12	<0.6	<10	1.4	5.4	39.2	1	10.5		5.7
CO,SH	820001948	0.2	0.31	0.22	<0.6	<10	2.2	6.4	37.4	1.6	16		COAL
SL	820001962	<0.1	0.17	0.13	<0.6	<10	1.5	2.5	98.4	6.2	14.9		2.5
LOST	LOST												
CO	COAL												
SH,SL	820001963	0.2	<0.01	0.17	<0.6	<10	3.2	6.4	137.6	3.5	16.5		6
SS	820001964	<0.1	<0.01	0.05	<0.6	<10	1.5	3.9	52.1	1.6	13.9		3.5
SH,CO	820001965	2.7	0.04	0.11	<0.6	<10	4.7	5.8	255.7	13.8	16.4		COAL
SL,SS	820001966	0.1	0.19	0.13	<0.6	<10	2	1.8	53.8	3.6	11.7		COAL
CO	COAL												
SH,SS	820001967	0.2	0.13	0.08	<0.6	<10	2.5	4.5	59.1	1	11.4		3.6
SH	820001968	0.5	<0.01	<0.01	<0.6	15	3.6	6.2	238.5	38.2	7.5		12.1
CO	COAL												
SL,SH	820001969	0.6	<0.01	0.13	<0.6	<10	7	5.7	195.7	9.5	14.4		
SL,SH,CO	820001970	0.6	<0.01	0.07	<0.6	<10	2.3	4.5	133.3	11.4	8.9		COAL
SS	820001971	1.3	0.14	0.09	<0.6	<10	2.2	4.7	80.4	11.2	13.1		3.4
SH	820001972	1.8	<0.01	0.05	<0.6	<10	10.9	6.6	313.6	50.1	12.8		9

LOCATION S 10962.0 E 31383.0 DATE DRILLED 11-3-81 SUB AREA N-6

ELEVATION 6729.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-1973	53.3	1.2	1.5	2.2	1.2	0.02	8.2
R-82-1974	65.7	3.4	5.9	1.7	4.4	0.06	8.5
R-82-1975	65.9	5.3	27.6	15.8	37.6	0.10	8.1
R-82-1976	44.3	6.3	15.7	1.9	10.4	0.03	8.4
R-82-1977	40.2	4.7	8.2	1.2	4.8	<0.01	8.6
R-82-1978	46.6	4.8	9.3	1.4	6.1	0.03	8.3
R-82-1979	44.5	5.6	9.8	2.2	3.9	0.06	8.4
GXX (82-888R)	(N/A)	(8.57)		(12,487)		(0.49)	(8.1)
R-82-1980	50.3	17.8	12.6	0.2	0.8	0.12	8.6
R-82-1981	56.0	12.4	12.7	0.9	1.2	0.09	9.1
R-82-1982	30.2	16.4	14.2	0.3	1.2	0.01	9.1
R-82-1983	37.1	<0.10	14.6	0.1	< 0.1	0.02	9.1
R-82-1984	30.2	39.4	22.1	0.3	0.5	0.03	9.0
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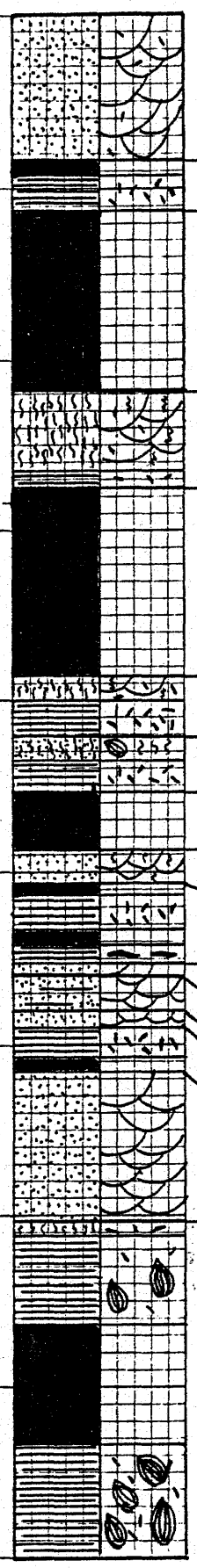
LOCATION S 10962.0 DATE DRILLED 11-3-81 SUB AREA N-6

E 31383.0

ELEVATION 6729.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-1985	30.5	40.2	29.8	0.6	0.5	0.08	8.5
R-82-1986	44.6	51.7	30.6	0.4	0.3	0.73	8.1
BXX (82-889-R)	(N/A)	(8.97)		(12,439)		(0.52)	(8.1)
R-82-1987	38.6	29.6	36.2	2.0	1.0	0.38	8.1
RXX (82-890-R)	(N/A)	(5.15)		(12,971)		(0.56)	(8.1)
R-82-1988	47.3	32.9	51.5	3.4	1.5	0.69	7.7
R-82-1989	38.4	18.5	42.7	6.7	4.0	0.87	7.3
MXX (82-891-R)	(N/A)	(5.60)		(12,909)		(0.70)	(8.3)
R-82-1990	42.4	21.6	25.1	2.2	0.5	0.11	6.9
R-82-1991	50.1	28.1	33.8	2.6	0.3	0.74	6.7
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-82-1992	34.3	33.8	21.4	0.3	0.5	0.04	8.6
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R-82-1993	41.2	23.1	51.5	7.7	2.2	1.39	7.3
R-82-1994	32.2	31.2	24.2	0.8	0.4	0.05	8.9
YXX		324					

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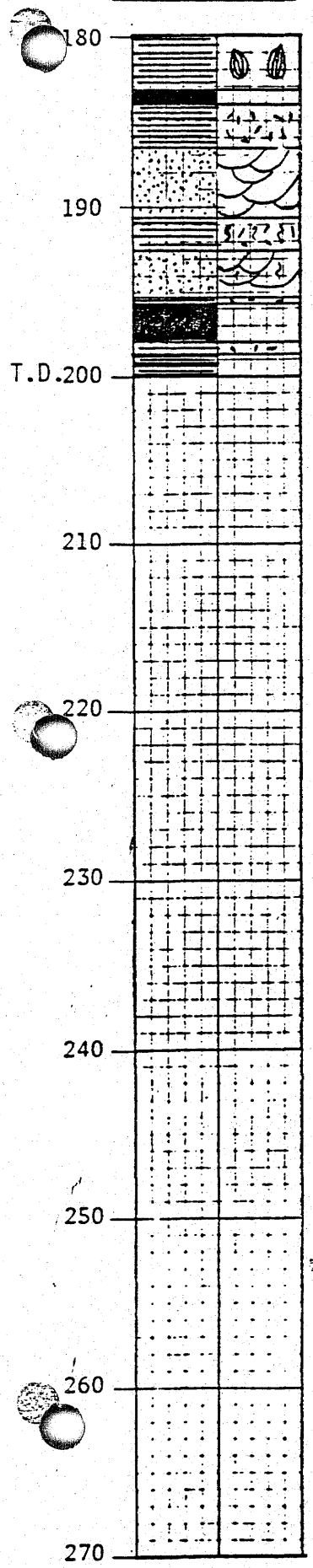
LOCATION S 10962.0 DATE DRILLED 11-3-81 SUB AREA N-6

E 31383.0

ELEVATION 6729.5

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



SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23161C
DATE CORED:12SEP1981
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001973	8.2	53.3	0.4	1.5	2.2	1.2	1.2					0.5
SH,SS	2	820001974	8.5	65.7	1.2	5.9	1.7	4.4	3.4					3.6
SH	4	820001975	8.1	65.9	5.8	27.6	15.8	37.6	5.3					6.2
SS	8	820001976	8.4	44.3	2.5	15.7	1.9	10.4	6.3					7.4
SS	18	820001977	8.6	40.2	1.4	8.2	1.2	4.8	4.7					5.4
SS	28	820001978	8.3	46.6	1.6	9.3	1.4	6.1	4.8					5.5
SH,SS	38.6	820001979	8.4	44.5	1.6	9.8	2.2	3.9	5.6					6.5
CO	47.8	COAL												
SH	57.6	820001980	8.6	50.3	1.2	12.6	0.2	0.8	17.8					20
SH	58.5	820001981	9.1	56	1.4	12.7	0.9	1.2	12.4					14.6
SS	69.8	820001982	9.1	30.2	1.4	14.2	0.3	1.2	16.4					18.6
SL,SS	78.9	820001983	9.1	37.1	1.4	14.6	0.1	<0.1	<0.1					<-1.1
SS,SL	83.8	820001984	9	30.2	2	22.1	0.3	0.5	39.4					36.3
SS	87.8	820001985	8.5	30.5	3.2	29.8	0.6	0.5	40.2					36.7
CO,SH	98.5	820001986	8.1	44.6	2.9	30.6	0.4	0.3	51.7					42.9
CO	101.2	COAL												
SL,SH	111.8	820001987	8.1	38.6	3.7	36.2	2	1	29.6					29.8
CO	117.3	COAL												
SL,SH	128.6	820001988	7.7	47.3	5	51.5	3.4	1.5	32.9					32.1
SS	132.1	820001989	7.3	38.4	4.8	42.7	6.7	4	18.5					20.7
CO	135.3	COAL												
SS	138.7	820001990	6.9	42.4	2.7	25.1	2.2	0.5	21.6					23.4
CO,SH	140.8	820001991	6.7	50.1	3.5	33.8	2.6	0.3	28.1					28.7
LOST	145.2	LOST												
SS	146	820001992	8.6	34.3	2.1	21.4	0.3	0.5	33.8					32.7
LOST	148	LOST												
SH,CO	149	820001993	7.3	41.2	5.4	51.5	7.7	2.2	23.1					24.7
SS	151.7	820001994	8.9	32.2	2.3	24.2	0.8	0.4	31.2					30.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23161C
DATE CORED:12SEP1981
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001973	17	2.3	216.6	0.02	0.63	66.18	.	65.55	35.6	32.4	32	23.4	10.1	13.3
SH,SS	820001974	<2	1.2	206.3	0.06	1.88	44.87	.	42.99	39.6	24.4	36	25.8	10.7	15.1
SH	820001975	<2	1.3	149.1	0.1	3.13	31.58	.	28.45	32.6	26.4	41	26.7	12.1	14.6
SS	820001976	8	1.8	61.6	0.03	0.94	13.91	.	12.97	59.6	18.4	22	16.3	5.7	10.6
SS	820001977	5	1.3	65	<0.01	0.31	87.52	.	87.21	73.6	14.4	12	11.4	2.9	8.5
SS	820001978	7	0.8	95.5	0.03	0.94	16.34	.	15.4	58.6	19.4	22	15.6	4.7	10.9
SH,SS	820001979	7	0.6	100.7	0.06	1.88	26.59	.	24.71	51.6	22.4	26	15.4	5	10.4
CO	COAL														
SH	820001980	9	1	80.4	0.12	3.75	10.5	.	6.75	33.6	20.4	46	26	12.3	13.7
SH	820001981	10	0.8	258.9	0.09	2.81	17	.	14.19	18.6	41.4	40	35.8	15.4	20.4
SS	820001982	5	0.8	80.8	0.01	0.31	47.04	.	46.73	53.6	30.4	16	18.2	4.7	13.5
SL,SS	820001983	5	1.2	135.5	0.02	0.63	13.01	.	12.38	32.3	40.9	26.8	22.8	8.6	14.2
SS,SL	820001984	8	1.8	92.1	0.03	0.94	45.13	.	44.19	54.6	26.8	18.6	23.8	6.4	17.4
SS	820001985	3	0.9	79.2	0.08	2.5	19.88	.	17.38	58.6	25	16.4	17.3	5.5	11.8
CO,SH	820001986	7	0.8	233.5	0.73	22.81	11.64	11.17	.	45.6	13	41.4	25.5	14.1	11.4
CO	COAL														
SL,SH	820001987	5	1.5	98.9	0.38	11.88	47.83	.	35.95	59.6	26	14.4	19.1	5.7	13.4
CO	COAL														
SL,SH	820001988	6	1.2	144.6	0.69	21.56	29.99	.	8.43	34.6	34.4	31	20.4	8.8	11.6
SS	820001989	8	1.5	94.8	0.87	27.19	36.08	.	8.89	70.6	19.4	10	13.6	4.4	9.2
CO	COAL														
SS	820001990	2	0.5	54.8	0.11	3.44	1.32	2.12	.	55.6	33.4	11	18.7	5.8	12.9
CO,SH	820001991	8	2.2	125.1	0.74	23.13	5.72	17.41	.	46.6	29.4	24	18.8	9.4	9.4
LOST	LOST														
SS	820001992	<2	0.8	95.9	0.04	1.25	32.05	.	30.8	52.6	29.8	17.6	18.1	5.8	12.3
LOST	LOST														
SH,CO	820001993	6	5.4	113.3	1.39	43.44	45.39	.	1.05	47.6	26.8	25.6	14.9	7.4	7.5
SS	820001994	<2	1	64.6	0.05	1.56	100.03	.	98.47	64.6	22.8	12.6	14.4	4.4	10

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23161C
DATE CORED:12SEP1981
DATE REPORTED:16FEB1985

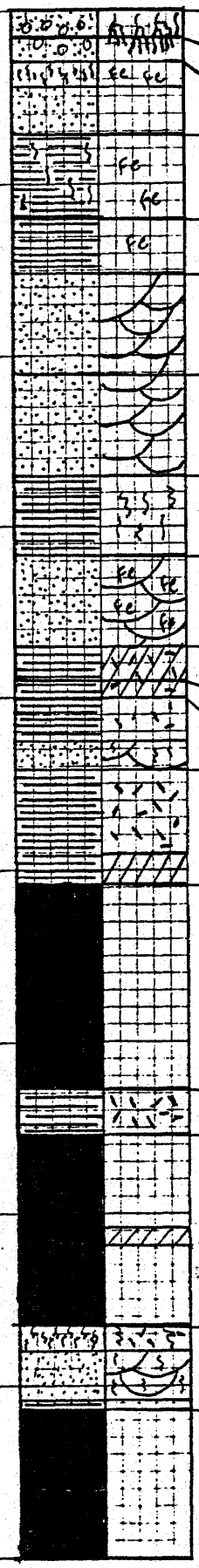
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001973	0.7	0.05	<0.01	<0.6	38	0.4	3.7	21.6	14.1	1.2		1.5
SH,SS	820001974	1.1	0.01	<0.01	<0.6	77	0.3	2.9	19.6	9.1	1.6		0.5
SH	820001975	1.8	<0.01	<0.01	<0.6	80	0.2	2.1	10.8	5	1.1		0.4
SS	820001976	2.2	<0.01	<0.01	<0.6	26	0.2	1.1	21.9	6.7	<1		0.4
SS	820001977	1.3	0.04	0.02	<0.6	19	0.2	2.7	45.7	10.2	1.5		0.4
SS	820001978	<0.1	<0.01	<0.01	<0.6	23	0.2	2.2	21.3	5.4	1.6		0.8
SH,SS	820001979	<0.1	<0.01	<0.01	<0.6	15	0.4	2.3	37.2	4	4.6		COAL
CO	COAL												
SH	820001980	0.9	0.08	0.16	<0.6	<10	0.2	4.6	57.8	7.6	12.3		16.7
SH	820001981	0.9	0.12	0.06	<0.6	<10	1	5.6	30.5	1.5	14.1		6
SS	820001982	<0.1	0.17	0.03	<0.6	<10	0.2	1.5	35.7	2.2	6.8		1.3
SL,SS	820001983	<0.1	0.11	<0.01	<0.6	11	1.6	1.8	35.2	4	9.5		1.4
SS,SL	820001984	<0.1	0.15	<0.01	<0.6	<10	1.1	1.6	70.9	6.7	7.2		1.3
SS	820001985	<0.1	<0.01	<0.01	<0.6	<10	0.8	4	48.5	9.8	6.6		0.7
CO,SH	820001986	4	0.25	0.28	<0.6	14	1.2	7.3	101.2	2.4	4.5		COAL
CO	COAL												
SL,SH	820001987	0.2	0.02	0.11	<0.6	<10	2.1	4.5	74	4.4	15.5		4.6
CO	COAL												
SL,SH	820001988	0.4	<0.01	0.11	<0.6	<10	2.6	6.8	132.4	2.7	10.3		9.8
SS	820001989	0.2	<0.01	<0.01	<0.6	<10	2.3	2.1	253.4	37.6	4		6.1
CO	COAL												
SS	820001990	0.5	0.02	0.02	<0.6	<10	3.1	1.4	108.3	7.5	6.1		3.7
CO,SH	820001991	2.2	<0.01	0.06	<0.6	<10	5.7	4.5	253.5	12.7	15		COAL
LOST	LOST												
SS	820001992	0.2	0.12	0.06	<0.6	<10	1.8	3.1	52.6	7.1	9.4		2.9
LOST	LOST												
SH,CO	820001993	1	<0.01	<0.01	<0.6	<10	3.8	5.2	228.9	23.9	10.8		COAL
SS	820001994	0.2	0.1	0.09	<0.6	<10	1.6	3	50.5	4.8	9.9		1.7

LOCATION S 14478.0 DATE DRILLED 9/21/81 SUB AREA N-6

E 30860.0

ELEVATION 6646.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820001995	48.9	0.8	1.0	2.7	0.6	<0.01	8.2
820001996	40.5	1.1	1.2	1.7	0.9	<0.01	8.3
820001997	50.6	7.7	15.9	4.1	4.4	0.5	8.4
820001998	74.6	11.2	39.5	5.7	19.1	0.06	8.3
820001999	69.4	16.4	50.7	2.5	16.7	0.08	8.3
820002000	36.1	9.1	9.1	0.5	1.5	0.01	8.6
820002001	34.1	4.6	5.8	1.4	1.8	0.01	8.3
820002002	56.8	4.8	6.7	1.6	2.3	0.04	8.3
820002003	36.1	4.2	6.9	1.9	3.4	<0.01	8.4
820002004	57.5	10.4	13.4	1.9	1.4	0.63	7.6
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
820002005	41.9	18.7	19.2	1.2	0.9	0.01	8.8
820002006	57.9	20.8	18.6	0.4	1.2	0.09	8.6
GXX (82-892-R)	(N/A)	(7.44)		(12,569)		(0.39)	(8.0)
820002007	42.0	29.6	14.8	0.2	0.3	0.29	8.3
BXX (82-893-R)	(N/A)	(13.13)		(11,747)		(0.57)	(7.9)
820002008	42.4	10.5	26.6	8.0	4.9	0.61	7.5
RXX (82-895-R)	(N/A)	(4.84)		(13,016)		(0.48)	(8.0)

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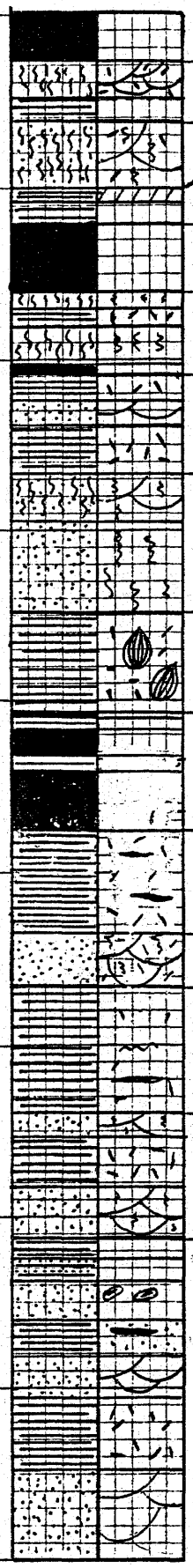
LOCATION S 14478.0 DATE DRILLED 9/21/81 SUB AREA N-6

E 30860.0

ELEVATION 6646.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820002009	41.1	27.1	37.3	2.5	1.3	0.67	7.7
820002010	44.2	10.9	29.8	9.8	5.1	0.30	7.5
820002011	41.0	54.1	32.0	0.4	0.3	0.62	7.1
MXX (82-896-R)	(N/A)	(5.79)		(12,911)		(0.73)	(8.3)
820002012	42.7	15.8	45.8	11.6	5.1	0.90	7.1
820002013	42.6	33.7	54.3	3.3	1.9	1.25	6.8
820002014	31.4	35.3	22.3	0.4	0.4	0.09	8.8
820002015	42.4	34.1	52.2	2.8	1.9	1.30	6.8
YXX							
820002016	40.4	54.1	32.0	0.4	0.3	0.71	7.4
820002017	48.2	20.8	44.8	5.0	4.3	0.83	4.8
820002018	48.8	51.2	45.8	1.0	0.6	0.85	6.1
820002019	36.0	30.7	20.6	0.5	0.4	0.08	9.0
		330					

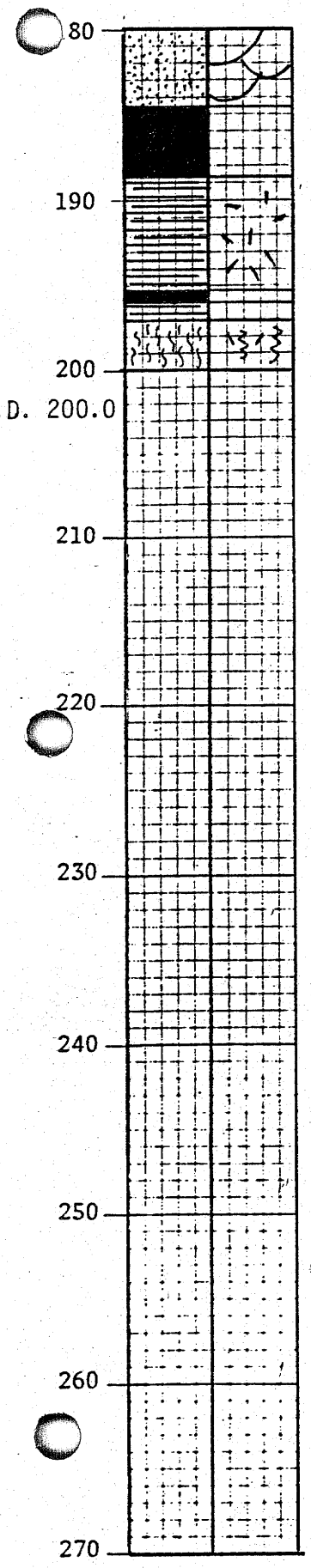
SEP 3 1986
OCT 27 1986

OCATION S 14478.0 DATE DRILLED 9/21/81 SUB AREA N-6

E 30860.0

LEVATION 6646.8

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



SEP 3 1986
OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23162C
DATE CORED:21SEP1981
DATE REPORTED:16FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820001995	8.2	48.9	0.4	1	2.7	0.6	0.8					-0.1
SO	1.5	820001996	8.3	40.5	0.4	1.2	1.7	0.9	1.1					0.3
SL,SS	3	820001997	8.4	50.6	2.3	15.9	4.1	4.4	7.7					9.2
SH	7.1	820001998	8.3	74.6	5.3	39.5	5.7	19.1	11.2					13.2
SH	12	820001999	8.3	69.4	5.6	50.7	2.5	16.7	16.4					18.6
SS	15.1	820002000	8.6	36.1	1.2	9.1	0.5	1.5	9.1					10.8
SS	21.1	820002001	8.3	34.1	1	5.8	1.4	1.8	4.6					5.3
SH	27	820002002	8.3	56.8	1.1	6.7	1.6	2.3	4.8					5.5
SS	31.6	820002003	8.4	36.1	1.3	6.9	1.9	3.4	4.2					4.7
SH	37	820002004	7.6	57.5	1.5	13.4	1.9	1.4	10.4					12.4
LOST	39	LOST												
SH,SS	40	820002005	8.8	41.9	1.9	19.2	1.2	0.9	18.7					20.8
SH	44.2	820002006	8.6	57.9	2	18.6	0.4	1.2	20.8					22.7
CO	50.9	COAL												
SH	62.7	820002007	8.3	42	1.4	14.8	0.2	0.3	29.6					29.8
CO	62.7	COAL												
SH	70.9	820002194	8.2	59.7	0.7	7.7	0.3	0.3	14.1					16.3
CO	71.8	COAL												
SL,SS,SH	76.5	820002008	7.5	42.4	3.7	26.6	8	4.9	10.5					12.5
CO	81.4	COAL												
SL,SH	92.7	820002009	7.7	41.1	4.1	37.3	2.5	1.3	27.1					27.9
SL	96.2	820002010	7.5	44.2	4	29.8	9.8	5.1	10.9					12.9
SH	100	820002011	7.1	41	3.5	32	0.4	0.3	54.1					44
CO	102	COAL												
SL,SH,CO	106	820002012	7.1	42.7	5.6	45.8	11.6	5.1	15.8					18.1
SH,SS	110.9	820002013	6.8	42.6	5.8	54.3	3.3	1.9	33.7					32.6
SL,SS	116.7	820002014	8.8	31.4	2.4	22.3	0.4	0.4	35.3					33.7
SH	124.9	820002015	6.8	42.4	5.6	52.2	2.8	1.9	34.1					32.9
CO	130.6	COAL												
SH	137.5	820002016	7.4	40.4	3.5	32	0.4	0.3	54.1					44
SS	143.4	820002017	4.8	48.2	5.3	44.8	5	4.3	20.8					22.7
SH	146.5	820002018	6.1	48.8	4.8	45.8	1	0.6	51.2					42.6
SS,SH	154	820002019	9	36	2.2	20.6	0.5	0.4	30.7					33.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23162C
DATE CORED:21SEP1981
DATE REPORTED:16FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820001995	5	2.8	176.9	<0.01	0.31	92.97	.	92.66	48.6	31.8	19.6	23.3	9.3	14
SO	820001996	<2	2.4	122.6	<0.01	0.31	85.53	.	85.22	55.6	25.8	18.6	19.7	7.4	12.3
SL,SS	820001997	<2	1.4	166.2	0.05	1.56	25.85	.	24.29	52.6	24.8	22.6	21.8	7.6	14.2
SH	820001998	8	1.8	83.1	0.06	1.88	18.63	.	16.75	50.6	9.8	39.6	27.6	14.2	13.4
SH	820001999	5	1.9	68.1	0.08	2.5	18.88	.	16.38	34.6	25.8	39.6	27.7	13.1	14.6
SS	820002000	6	0.4	37.1	0.01	0.31	11.71	.	11.4	67.6	16.8	15.6	20.4	4.1	16.3
SS	820002001	7	1	44.5	0.01	0.31	6.01	.	5.7	68.6	16.8	14.6	19	4.6	14.4
SH	820002002	11	3.3	146.4	0.04	1.25	40.93	.	39.68	31.6	32.4	36	22.7	9	13.7
SS	820002003	7	1.4	44.5	<0.01	0.31	196.04	.	195.73	73.6	15.8	10.6	13.6	3.4	10.2
SH	820002004	9	0.5	143.4	0.63	19.69	11.39	8.3	.	55.6	16.4	28	19.4	12.3	7.1
LOST	LOST														
SH,SS	820002005	7	1.4	187.4	0.01	0.31	53.99	.	53.68	42.7	26.4	30.9	23.8	11.9	11.9
SH	820002006	12	0.8	262.9	0.09	2.81	42.59	.	39.78	29.4	21.6	49	35.7	19	16.7
CO	COAL														
SH	820002007	9	1.4	198.2	0.29	9.06	42.54	.	33.48	65.8	6	28.2	19.9	11.4	8.5
CO	COAL														
SH	820002194	6	0.7	96.0	0.31	9.69	18.92	.	9.23	94.2	1.8	4.0	16.4	6.0	10.4
CO	COAL														
SL,SS,SH	820002008	5	1.2	81.2	0.61	19.06	40.46	.	21.4	51.8	30	18.2	15.9	8.2	7.7
CO	COAL														
SL,SH	820002009	4	1.3	95.8	0.67	20.94	42.89	.	21.95	64.2	16.6	19.2	14.4	7.9	6.5
SL	820002010	<2	0.8	55.6	0.3	9.38	41.84	.	32.46	60.2	25.6	14.2	19.4	8	11.4
SH	820002011	7	0.5	140.5	0.62	19.38	6.2	13.18	.	51.2	19.6	29.2	16.9	6	10.9
CO	COAL														
SL,SH,CO	820002012	6	2.3	93	0.9	28.13	46.22	.	18.09	67.2	14.6	18.2	14.9	7.5	7.4
SH,SS	820002013	8	4	140.8	1.25	39.06	45.4	.	6.34	59.2	15	25.8	11	7.1	3.9
SL,SS	820002014	5	0.9	88.7	0.09	2.81	124.92	.	122.11	65.8	16	18.2	9.3	5.7	3.6
SH	820002015	8	3	151	1.3	40.63	46.9	.	6.27	49.8	22	28.2	11.3	7.2	4.1
CO	COAL														
SH	820002016	9	1.8	137	0.71	22.19	28.77	.	6.58	47.8	26	26.2	22.4	9.7	12.7
SS	820002017	4	2.2	74	0.83	25.94	4.9	21.04	.	49.8	29	21.2	16.8	8.3	8.5
SH	820002018	7	3.3	130.3	0.85	26.56	16.83	9.73	.	51.8	20	28.2	21.5	11.3	10.2
SS,SH	820002019	3	1.6	125.6	0.08	2.5	49.44	.	46.94	53.8	20	26.2	21.7	12.1	9.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23162C
DATE CORED:21SEP1981
DATE REPORTED:16FEB1985

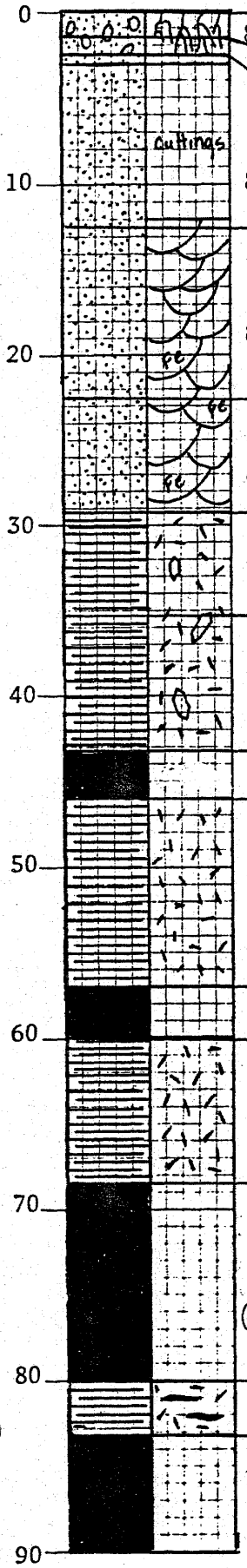
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820001995	0.4	0.04	0.01	<0.6	<10	0.3	1.9	20.6	20.1	<1		1.8
SO	820001996	0.7	0.08	<0.01	<0.6	10	0.2	1	26.4	13.7	<1		0.5
SL,SS	820001997	0.7	0.07	<0.01	<0.6	<10	<0.1	0.9	11.9	6.6	<1		0.2
SH	820001998	0.2	<0.01	0.01	<0.6	31	<0.1	1.9	10.1	4.5	1		0.3
SH	820001999	<0.1	<0.01	<0.01	<0.6	41	<0.1	4.5	16.1	3.6	<1		0.3
SS	820002000	0.2	0.23	<0.01	<0.6	<10	<0.1	0.9	19	5.7	<1		<0.1
SS	820002001	0.2	0.4	<0.01	<0.6	15	0.2	1.5	21	5.3	<1		0.2
SH	820002002	0.4	0.06	0.06	<0.6	16	1.1	2.7	83.7	10.7	9		1.7
SS	820002003	0.2	<0.01	<0.01	1.5	<10	0.2	1.3	48.4	5.3	3.9		1
SH	820002004	3.5	0.05	0.28	<0.6	14	1.1	5.6	47.4	2.6	6.8		33.8
LOST	LOST												
SH,SS	820002005	0.7	0.27	0.13	<0.6	15	1.3	3.9	38.5	6.2	12.2		2
SH	820002006	0.8	0.16	<0.01	<0.6	<10	1.5	10.5	38.4	5.4	20.5		3.6
CO	COAL												
SH	820002007	1	0.11	0.81	0.6	<10	0.7	5	31.6	1	14.4		15.1
CO	COAL												
SH	820002194	2.0	<0.01	0.05	<0.6	<10	1.1	<0.1	13.6	<1.0	<1.0		32.8
CO	COAL												
SL,SS,SH	820002008	0.3	<0.01	0.11	<0.6	<10	2.4	3.7	152.2	2.5	12		5.9
CO	COAL												
SL,SH	820002009	0.9	<0.01	0.12	0.6	271	2.8	4.5	55.5	1.6	8.3		13.8
SL	820002010	0.4	<0.01	0.03	<0.6	199	0.7	2	40.5	2.1	3.8		5.7
SH	820002011	1.6	<0.01	0.13	<0.6	203	5.5	5.6	175.4	2.2	13.1		12.2
CO	COAL												
SL,SH,CO	820002012	0.9	<0.01	0.04	<0.6	67	3.3	2.7	187.4	15.1	6.4		COAL
SH,SS	820002013	0.7	<0.01	<0.01	<0.6	<10	4.7	6.5	219.2	16	11.6		13.4
SL,SS	820002014	0.4	0.06	0.05	<0.6	<10	1.9	3.3	70	5.6	9.3		2.2
SH	820002015	0.5	<0.01	0.04	0.6	<10	3.9	7.3	198.8	33.2	11.7		5.8
CO	COAL												
SH	820002016	1.5	<0.01	<0.01	<0.6	16	5.4	5.4	179.4	10.6	7.5		6.9
SS	820002017	1	<0.01	<0.01	<0.6	19	6.2	3.4	133.7	9.9	13.7		4.2
SH	820002018	1.3	<0.01	<0.01	0.6	<10	35.1	5.8	160.8	17.9	6.4		COAL
SS,SH	820002019	0.7	0.09	0.07	<0.6	29	18.6	4.9	55.2	5	9.7		2

LOCATION S 14518.0 DATE DRILLED 9/28/81 SUB AREA N-6

E 29672.0

ELEVATION 6637.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820002136	57.0	0.7	1.3	6.5	1.1	<0.01	7.9
820002137	48.4	0.7	1.1	4.2	1.0	<0.01	8.1
820002138	40.1	5.6	10.3	2.1	4.6	<0.01	8.4
820002139	32.0	8.9	14.5	1.7	3.6	0.01	8.6
820002140	36.0	1.7	4.6	5.1	10.3	0.01	8.2
820002141	51.4	3.1	11.5	10.4	16.6	0.12	5.4
820002142	44.4	4.6	7.4	2.3	2.9	0.03	8.2
VOX 820002143	68.4	16.6	9.8	0.3	0.4	0.75	7.0
820002144	63.8	34.2	41.2	1.7	1.2	0.27	7.5
VIX 820002145	60.2	15.2	7.6	0.1	0.4	0.48	7.7
820002146	52.9	25.0	24.4	0.7	1.2	0.06	8.3
GXX (82-899-R)	(N/A)	(7.67)		(12,524)		(0.40)	(7.9)
820002147	43.5	26.6	18.8	0.5	0.5	0.24	7.8
BXX (82-900-R)	(N/A)	(7.96)		(12,512)		(0.53)	(7.8)

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SEP 3 1986

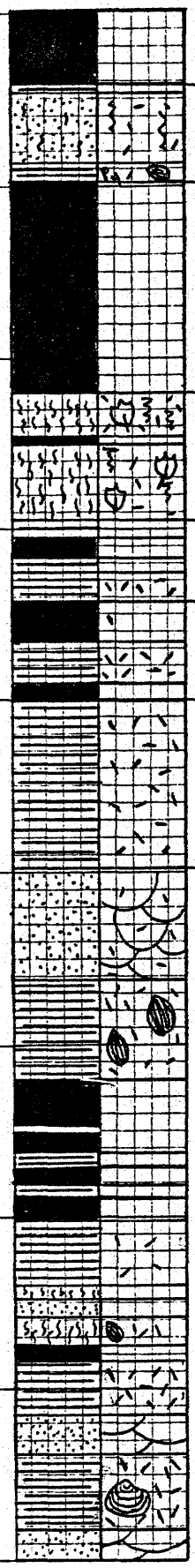
OCT 27 1986

HOLE NO. 23163C DRILLER Jim Elliott PAGE 2

LOCATION S 14518.0 DATE DRILLED 9/28/81 SUB AREA N-6

E 29672.0

ELEVATION 6637.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820002148	42.2	12.8	24.4	4.9	2.4	0.41	7.4
RXX (82-901-R)	(N/A)	(4.71)		(12,993)		(0.45)	(7.8)
820002149	42.4	23.3	51.5	6.7	3.1	0.62	6.9
820002150	41.4	35.0	37.5	1.7	0.6	0.69	7.4
820002151	45.8	56.3	35.6	0.5	0.3	0.72	6.9
820002152	40.5	42.3	41.2	1.2	0.7	0.72	6.9
YXX		336					

T.D. 180.0

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23163C
DATE CORED:28SEP1981
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820002136	7.9	57	0.7	1.3	6.5	1.1	0.7					-0.2
SO	1.5	820002137	8.1	48.4	0.5	1.1	4.2	1	0.7					-0.2
SS	2.5	820002138	8.4	40.1	1.7	10.3	2.1	4.6	5.6					6.5
SS	12.5	820002139	8.6	32	2.2	14.5	1.7	3.6	8.9					10.6
SS	22.5	820002140	8.2	36	2	4.6	5.1	10.3	1.7					1.2
SH	29.3	820002141	5.4	51.4	3.4	11.5	10.4	16.6	3.1					3.2
SH	35.3	820002142	8.2	44.4	1.4	7.4	2.3	2.9	4.6					5.3
CO	43.3	820002143	7	68.4	1	9.8	0.3	0.4	16.6					18.8
SH	46	820002144	7.5	63.8	4.1	41.2	1.7	1.2	34.2					33
CO	57	820002145	7.7	60.2	0.8	7.6	0.1	0.4	15.2					17.5
SH	60	820002146	8.3	52.9	2.5	24.4	0.7	1.2	25					26.3
CO	68.5	COAL												
SH	80	820002147	7.8	43.5	1.8	18.8	0.5	0.5	26.6					27.5
CO	83.1	COAL												
SH,SS	94.2	820002148	7.4	42.2	3	24.4	4.9	2.4	12.8					15
CO	99.7	COAL												
SL,CO	112	820002149	6.9	42.4	5.1	51.5	6.7	3.1	23.3					24.9
SH,CO	119.5	820002150	7.4	41.4	3.7	37.5	1.7	0.6	35					33.5
CO,SH	124.3	820002151	6.9	45.8	3.7	35.6	0.5	0.3	56.3					45
SH	130	820002152	6.9	40.5	4.3	41.2	1.2	0.7	42.3					37.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23163C
DATE CORED:28SEP1981
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820002136	18	7.1	186.5	<0.01	0.31	154.11	.	153.8	51.8	23	25.2	24	16.8	7.2
SO	820002137	7	3.9	93.8	<0.01	0.31	161.52	.	161.21	47.8	25	27.2	24	14.3	9.7
SS	820002138	<2	2.2	39.3	<0.01	0.31	42.93	.	42.62	65.8	14	20.2	15.9	6.2	9.7
SS	820002139	5	1.3	33.6	0.01	0.31	112.67	.	112.36	74.8	7	18.2	11.4	3.7	7.4
SS	820002140	6	1.2	15	0.01	0.31	43.57	.	43.26	77.8	7	15.2	13.7	2.8	10.9
SH	820002141	68	0.9	155.5	0.12	3.75	34.04	.	30.29	37.8	29	33.2	21.5	10.1	11.4
SH	820002142	11	1.8	135.7	0.03	0.94	45.09	.	44.15	51.8	20	28.2	11.9	6	5.9
CO	820002143	8	1.7	58.2	0.75	23.44	8.12	15.32	.	88.7	3.6	7.7	16	13.9	2.1
SH	820002144	8	1.6	286.2	0.27	8.44	13.26	.	4.82	15.6	30	54.4	35.9	17.7	18.2
CO	820002145	6	1.6	93.7	0.48	15	7.59	7.41	.	79	8	13	21.7	13.3	8.4
SH	820002146	10	3.9	254.8	0.06	1.88	51.15	.	49.27	12	29	59	36.1	16.4	19.7
CO	COAL														
SH	820002147	5	1.1	186.2	0.24	7.5	15.02	.	7.52	51	14	35	20.3	11.7	8.6
CO	COAL														
SH,SS	820002148	4	1.7	93.2	0.41	12.81	41.89	.	29.08	58	32	10	17.1	5.9	11.2
CO	COAL														
SL,CO	820002149	7	0.9	104.8	0.62	19.38	20.38	.	1	44	41	15	11.2	6.2	5
SH,CO	820002150	5	1.3	117.4	0.69	21.56	40.12	.	18.56	69	19	12	16.1	9.9	6.2
CO,SH	820002151	10	1.2	119.5	0.72	22.5	13.34	9.16	.	63	22	15	13.3	10.4	2.9
SH	820002152	5	2	141.4	0.72	22.5	33.52	.	11.02	71	7	22	10.7	7.5	3.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23163C
DATE CORED:28SEP1981
DATE REPORTED:27FEB1985

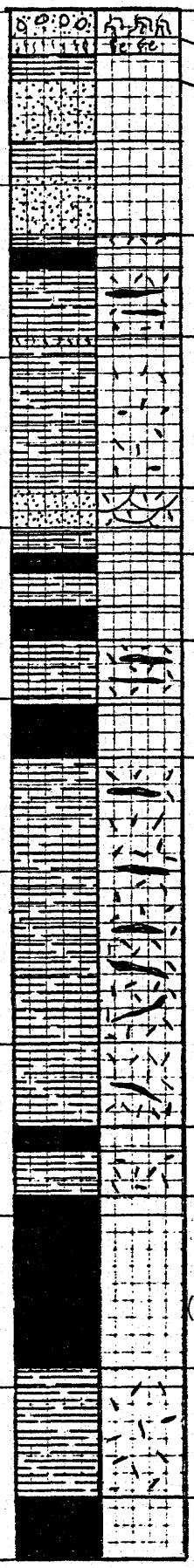
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820002136	1.3	0.02	0.01	<0.6	32	0.6	3.3	35.7	29.1	1.1		5.8
SO	820002137	1	0.02	0.03	<0.6	17	0.2	5	23.5	26.9	<1		1.8
SS	820002138	0.9	0.04	<0.01	<0.6	16	<0.1	2.2	25.4	18.6	<1		0.4
SS	820002139	0.6	<0.01	<0.01	<0.6	<10	0.2	1.1	46.5	21	<1		<0.1
SS	820002140	0.6	<0.01	<0.01	<0.6	<10	<0.1	1.1	45.1	20.4	<1		0.1
SH	820002141	1.8	<0.01	0.03	<0.6	14	2	6.3	80.2	22.6	11.2		7.8
SH	820002142	0.8	<0.01	0.07	<0.6	22	1.6	3.3	53.9	7.8	11.1		2
CO	820002143	5.5	<0.01	0.08	<0.6	<10	0.4	3.2	131.7	2.5	2.8		COAL
SH	820002144	1.1	0.23	0.23	<0.6	12	1	10.2	29.7	1	13.3		8.4
CO	820002145	3.9	0.03	0.18	<0.6	<10	<0.1	3.9	10.3	1	1.4		COAL
SH	820002146	0.2	0.16	0.4	0.6	48	2	10.1	31.5	1.1	22.5		3.4
CO	COAL												
SH	820002147	0.9	0.09	0.44	<0.6	<10	0.8	6.6	12.9	1	8.5		18.2
CO	COAL												
SH,SS	820002148	0.2	<0.01	0.11	<0.6	29	2.7	3.8	62.2	2	13.2		6
CO	COAL												
SL,CO	820002149	0.3	<0.01	0.08	<0.6	22	4.2	4.8	136.1	3.4	8.8		COAL
SH,CO	820002150	1.1	<0.01	0.07	<0.6	<10	2	4	76.9	3.4	6.7		COAL
CO,SH	820002151	2.1	<0.01	0.02	<0.6	<10	3.7	3.9	154.2	2.5	8.7		COAL
SH	820002152	0.6	<0.01	0.01	<0.6	<10	5.5	7.1	182	18.3	11.2		8.1

LOCATION S 14387.0 DATE DRILLED 10/7/81 SUB AREA N-6

E 27885.0

ELEVATION 6607.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820002153	52.7	1.7	2.1	1.4	1.6	0.01	8.1
820002154	40.4	4.0	9.2	3.0	7.6	<0.01	8.1
820002155	40.3	8.1	19.4	2.7	8.8	<0.01	8.0
820002156	51.8	2.2	11.9	25.0	31.1	0.37	4.7
820002157	53.3	5.3	17.4	12.3	9.0	0.28	6.5
820002158	33.5	7.6	9.3	1.8	1.2	<0.01	8.0
820002159	59.4	7.0	12.5	3.8	2.5	0.55	6.8
820002160	56.8	19.1	29.0	2.8	1.8	0.67	6.9
820002161	48.6	24.3	22.8	0.5	1.2	0.11	8.2
820002162	43.2	29.0	21.5	0.6	0.5	0.33	7.7
GXX (82-902-R)	(N/A)	(9.38)		(12,323)		(0.44)	(8.0)
820002163	40.5	28.4	22.0	0.5	0.7	0.15	8.2
		340					

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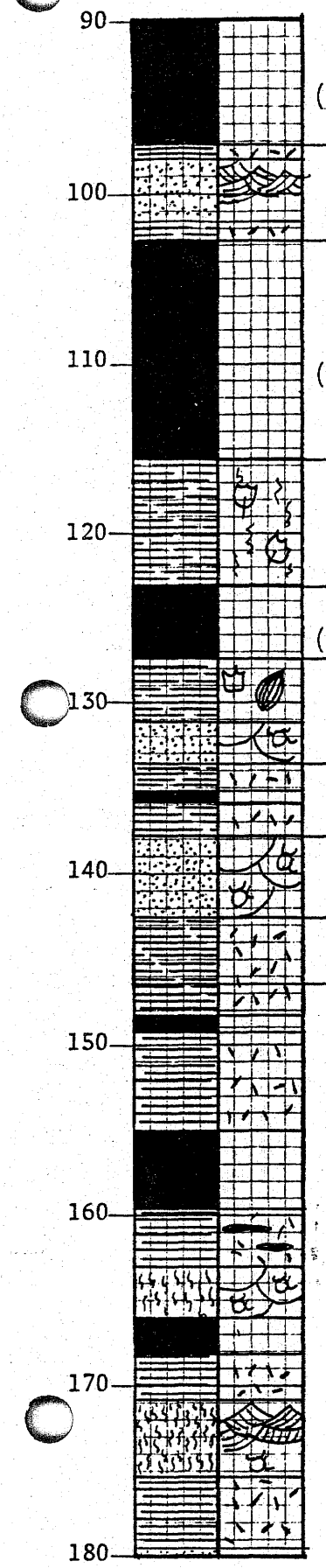
HOLE NO. 23164C DRILLER Jim Elliott PAGE 2

LOCATION S 14387.0 DATE DRILLED 10/7/81 SUB AREA N-6

E 27885.0

ELEVATION 6607.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
BXX (82-903-R)	(N/A)	(10.20)		(12,199)		(0.55)	(7.8)
820002164	40.1	14.6	25.3	3.9	2.1	0.49	7.4
RXX (82-904-R)	(N/A)	(5.65)		(12,807)		(0.49)	(7.8)
820002165	40.5	21.8	41.9	4.8	2.6	0.65	7.2
MXX (82-905-R)	(N/A)	(11.76)		(12,020)		(0.91)	(8.0)
820002166	36.7	59.1	41.8	0.6	0.4	0.50	7.5
820002167	48.8	37.6	58.8	3.2	1.7	1.37	6.9
820002168	32.1	40.8	32.9	0.7	0.6	0.08	8.5
820002169	46.6	44.7	51.9	1.6	1.1	1.59	7.0
YOX							
Y1X							

SEP 3 1986

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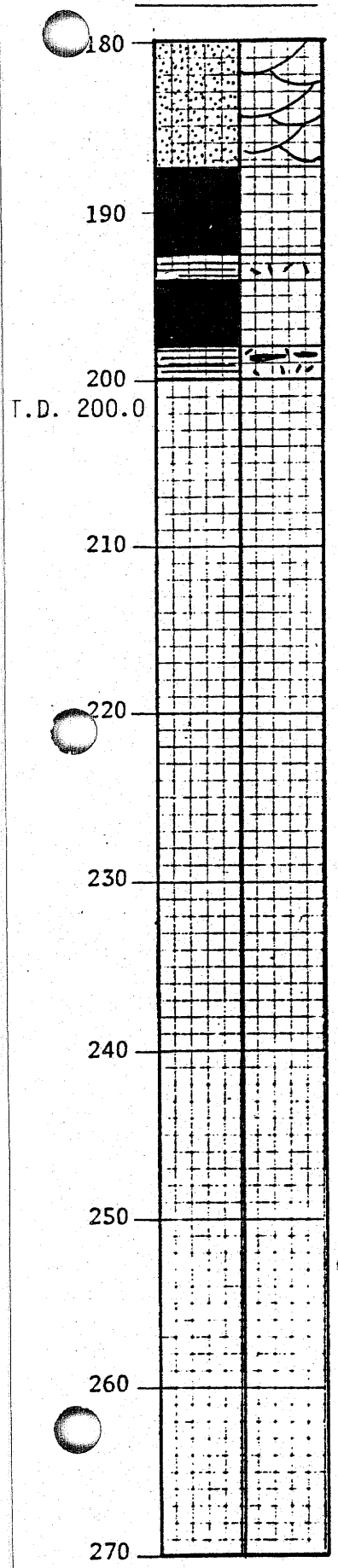
LOCATION S 14387.0
E 27885.0

DATE DRILLED 10/7/81

SUB AREA N-6

ELEVATION 6607.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
NOX							
N1X							
		342					

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23164C
DATE CORED:07OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820002153	8.1	52.7	0.5	2.1	1.4	1.6	1.7					1.2
SL,SH	1.5	820002154	8.1	40.4	1.8	9.2	3	7.6	4					4.4
SS,SH	4	820002155	8	40.3	2.8	19.4	2.7	8.8	8.1					9.6
SH,CO	12.8	820002156	4.7	51.8	4.7	11.9	25	31.1	2.2					1.9
SL,SH	18.8	820002157	6.5	53.3	3.4	17.4	12.3	9	5.3					6.2
SS,SH	27.6	820002158	8	33.5	1.3	9.3	1.8	1.2	7.6					9
CO,SH	31.5	820002159	6.8	59.4	1.9	12.5	3.8	2.5	7					8.3
SH,CO	36.6	820002160	6.9	56.8	3.3	29	2.8	1.8	19.1					21.2
SH	43.4	820002161	8.2	48.6	2.3	22.8	0.5	1.2	24.3					25.7
CO,SH	64.8	820002162	7.7	43.2	2.1	21.5	0.6	0.5	29					29.3
CO	68.8	COAL												
SH	78.8	820002163	8.2	40.5	2.2	22	0.5	0.7	28.4					28.9
CO	86.3	COAL												
SH,SS	97.1	820002164	7.4	40.1	3	25.3	3.9	2.1	14.6					16.9
CO	102.7	COAL												
SH	115.5	820002165	7.2	40.5	4.5	41.9	4.8	2.6	21.8					23.6
CO	123	COAL												
SH,SS	127.3	820002166	7.5	36.7	4.2	41.8	0.6	0.4	59.1					46.2
SH,CO	133.6	820002167	6.9	48.8	5.8	58.8	3.2	1.7	37.6					35.2
SS	137.8	820002168	8.5	32.1	3.2	32.9	0.7	0.6	40.8					37.1
SH	142.5	820002169	7	46.6	5.2	51.9	1.6	1.1	44.7					39.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23164C
DATE CORED:07OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820002153	3	2.3	70.1	0.01	0.31	28.82	.	28.51	37	31	32	22	14.5	7.5
SL,SH	820002154	<2	1.6	57.3	<0.01	0.31	50.78	.	50.47	60	23	17	15	10	5
SS,SH	820002155	<2	2.5	33.5	<0.01	0.31	19.05	.	18.74	64	19	17	14.1	9.7	4.4
SH,CO	820002156	35	1	132.9	0.37	11.56	14.77	.	3.21	54	22	24	23.3	17.7	5.6
SL,SH	820002157	6	2.9	232.6	0.28	8.75	38.49	.	29.74	19	35	46	23.4	14.2	9.2
SS,SH	820002158	<2	1.7	137.8	<0.01	0.31	58.78	.	58.47	60	22	18	8.7	5	3.7
CO,SH	820002159	5	2.4	143.9	0.55	17.19	10.6	6.59	.	66	12	22	17.3	13.9	3.4
SH,CO	820002160	10	1.7	222.7	0.67	20.94	20.61	0.33	.	67	12	21	19	15.8	3.2
SH	820002161	7	1.7	256.4	0.11	3.44	37.95	.	34.51	27	36	37	26	19.7	6.3
CO,SH	820002162	7	0.9	162.4	0.33	10.31	53.61	.	43.3	57	19	24	20.2	10.1	10.1
CO	COAL														
SH	820002163	6	1.2	237	0.15	4.69	56.46	.	51.77	42	28	30	23.9	14.8	9.1
CO	COAL														
SH,SS	820002164	4	1.3	88.9	0.49	15.31	97.4	.	82.09	71	23	6	14.2	4.7	9.5
CO	COAL														
SH	820002165	4	0.9	100	0.65	20.31	39.05	.	18.74	70.5	19.8	9.7	10.7	5.6	5.1
CO	COAL														
SH,SS	820002166	9	1.1	120.2	0.5	15.63	23.16	.	7.53	50.4	23.4	26.2	13	6.7	6.3
SH,CO	820002167	12	2.8	146.7	1.37	42.81	31.25	11.56	.	44.8	23	32.2	15.1	7.9	7.2
SS	820002168	5	1.2	85	0.08	2.5	57.39	.	54.89	68.8	14	17.2	8.2	3.9	4.3
SH	820002169	8	5.1	163.4	1.59	49.69	44.63	5.06	.	32.8	32.4	34.8	12	6.3	5.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23164C
DATE CORED:07OCT1981
DATE REPORTED:27FEB1985

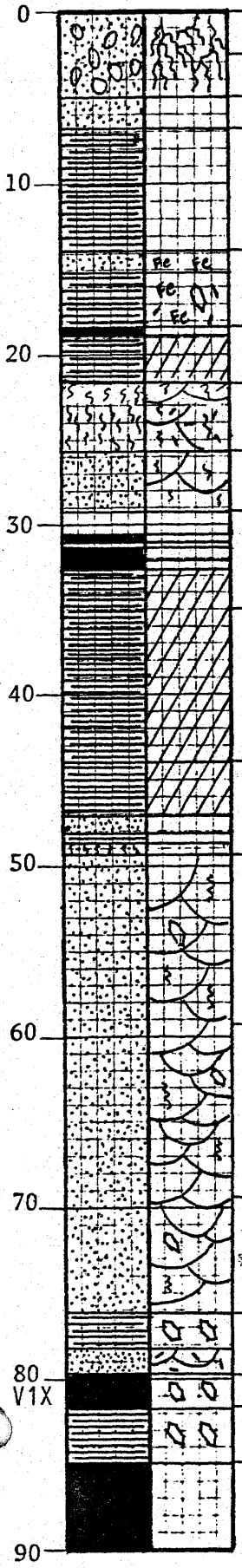
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820002153	0.4	<0.01	<0.01	0.6	68	0.2	6.2	13.3	7.3	1.2		1.1
SL,SH	820002154	0.7	<0.01	0.01	<0.6	28	0.2	2.7	25	5.7	1.4		0.8
SS,SH	820002155	0.4	<0.01	0.02	0.6	19	0.2	3.3	15.2	4.7	2.4		0.6
SH,CO	820002156	2.5	<0.01	0.06	<0.6	14	1.2	6.4	246.7	17.3	11.9		COAL
SL,SH	820002157	1	<0.01	0.2	<0.6	<10	2.1	10.3	53.1	2.3	15.2		7.9
SS,SH	820002158	0.5	<0.01	0.05	<0.6	12	1.5	2.7	72.1	5.3	9		3.2
CO,SH	820002159	2.6	<0.01	0.15	<0.6	<10	1.1	5.9	27.9	1.1	6.4		COAL
SH,CO	820002160	2.4	<0.01	0.15	<0.6	<10	1	7.6	47.5	1	4.6		COAL
SH	820002161	0.6	0.29	<0.01	<0.6	29	2.1	7.7	40.5	3.2	15		4.4
CO,SH	820002162	1.2	0.02	0.21	<0.6	<10	1.6	5	27.8	1	7.6		COAL
CO	COAL												
SH	820002163	0.5	0.12	0.27	<0.6	13	1.1	4.5	27.3	1	11.9		7.2
CO	COAL												
SH,SS	820002164	0.5	<0.01	0.08	<0.6	16	2.7	3.3	75.2	2.6	12.3		6.1
CO	COAL												
SH	820002165	0.6	<0.01	0.07	<0.6	<10	1.7	2.9	83.5	4.7	4.8		8.3
CO	COAL												
SH,SS	820002166	1	0.01	0.07	<0.6	<10	2.9	4.1	49.7	3.7	9.3		7.9
SH,CO	820002167	0.7	<0.01	0.04	<0.6	<10	7.9	7.6	222.1	15.9	12.6		COAL
SS	820002168	0.3	<0.01	0.05	<0.6	12	1.6	3.3	96.4	7.2	7.1		2.9
SH	820002169	0.3	<0.01	<0.01	<0.6	18	6.4	5.9	215.1	28.1	10.7		7.6

LOCATION S 12807.0 DATE DRILLED 10-21-81 SUB AREA N-6

E 29521.0

ELEVATION 6664.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820002170	50.7	0.9	1.0	1.4	1.0	<0.01	8.2
820002171	56.8	3.6	4.0	1.0	1.5	0.01	8.4
820002172	58.7	4.1	14.3	10.0	13.8	<0.01	8.0
820002173	71.8	3.5	11.9	10.9	12.3	<0.01	7.9
820002174	55.1	2.0	9.5	28.9	18.4	<0.01	7.0
820002175	56.5	3.0	16.2	26.6	31.8	0.22	4.0
820002176	48.7	2.6	10.1	9.7	20.5	<0.01	7.3
820002177	40.2	2.7	7.3	3.8	11.3	0.01	8.0
820002178	64.5	8.2	34.9	23.4	12.7	0.62	4.1
820002179	68.5	28.9	57.8	4.7	3.3	0.65	6.7
820002180	52.9	38.6	25.9	0.4	0.5	0.03	8.9
820002181	36.2	20.9	20.4	1.3	0.6	0.05	8.7
820002182	36.1	20.3	20.3	1.3	0.7	0.03	8.6
820002183	36.1	23.5	17.4	0.6	0.5	0.16	8.5
820002184	40.3	33.3	19.7	0.5	0.2	0.03	8.4
(82-906-R)	(N/A)	(4.83)		(13,014)		(0.68)	(8.1)
820002185	76.1	45.1	31.9	0.5	0.5	0.25	8.1
GXX		346					

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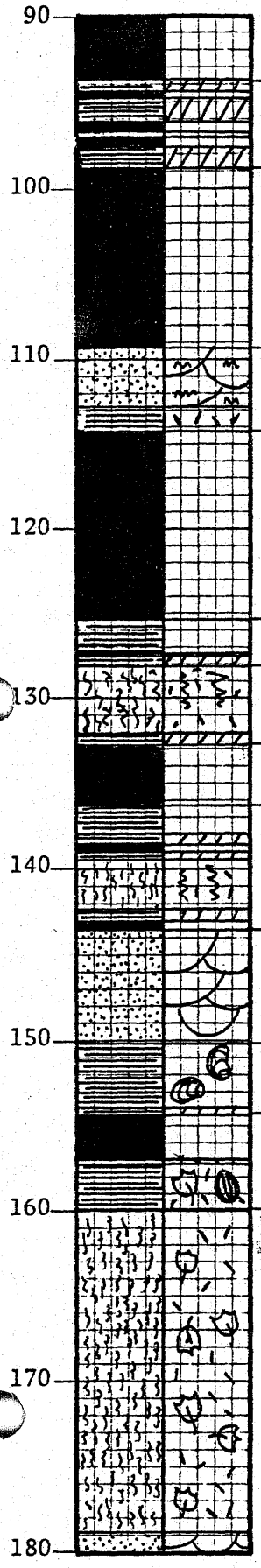
LOCATION S 12807.0 DATE DRILLED 10-21-81 SUB AREA N-6

E 29521.0

ELEVATION 6664.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
(82-907-R)	(N/A)	(6.97)		(12,643)		(0.48)	(8.0)
820002186	50.0	29.8	14.9	0.2	0.3	0.40	7.9
BXX (82-908-R)	(N/A)	(9.97)		(12,167)		(0.58)	(8.0)
820002187	47.3	13.2	31.4	7.5	3.8	0.51	7.4
RXX (82-909-R)	(N/A)	(5.85)		(12,766)		(0.43)	(8.0)
820002188	52.9	28.8	38.1	2.3	1.2	0.90	6.5
820002189	36.2	20.7	35.5	5.4	0.5	0.60	7.0
MXX (82-910-R)	(N/A)	(5.86)		(12,766)		(0.76)	(8.3)
820002190	38.4	47.1	39.4	0.9	0.5	0.37	7.6
820002191	36.2	31.1	30.3	1.1	0.8	0.33	8.0
820002192	40.3	49.0	46.5	1.1	0.7	1.36	7.5
820002193	59.3	60.9	45.2	0.8	0.3	1.06	7.3

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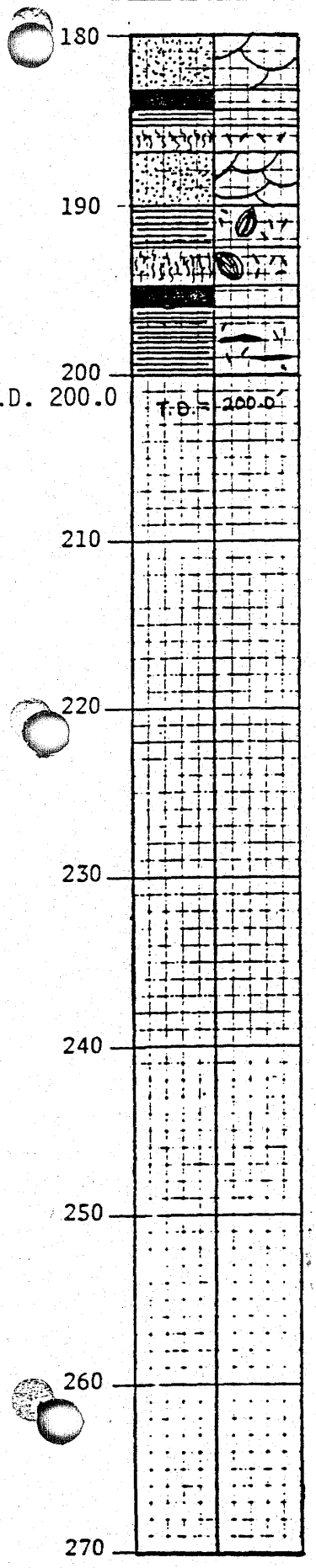
OCT 27 1986

LOCATION S 12807.0 E 29521.0 DATE DRILLED 10-21-81 SUB AREA N-6

ELEVATION 6664.7

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



SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23165C
DATE CORED:12OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820002170	8.2	50.7	0.3	1	1.4	1	0.9					0.1
SO	2.5	820002171	8.4	56.8	0.7	4	1	1.5	3.6					3.9
SS	5	820002172	8	58.7	3.2	14.3	10	13.8	4.1					4.6
SH	6.8	820002173	7.9	71.8	3	11.9	10.9	12.3	3.5					3.8
SS,SH	13.8	820002174	7	55.1	4.8	9.5	28.9	18.4	2					1.7
CO,SH	18.4	820002175	4	56.5	6.1	16.2	26.6	31.8	3					3.1
SH,SL	21.7	820002176	7.3	48.7	3.3	10.1	9.7	20.5	2.6					2.5
SS	25.7	820002177	8	40.2	2	7.3	3.8	11.3	2.7					2.7
SH,CO	29.3	820002178	4.1	64.5	6.2	34.9	23.4	12.7	8.2					9.8
SH	35.3	820002179	6.7	68.5	6	57.8	4.7	3.3	28.9					29.3
SH,SS	44	820002180	8.9	52.9	2.7	25.9	0.4	0.5	38.6					35.8
SS	49.4	820002181	8.7	36.2	2.4	20.4	1.3	0.6	20.9					22.8
SS	59.4	820002182	8.6	36.1	2.3	20.3	1.3	0.7	20.3					22.3
SS	69.4	820002183	8.5	36.1	1.9	17.4	0.6	0.5	23.5					25
SH,SS	76.1	820002184	8.4	40.3	2.1	19.7	0.5	0.2	33.3					32.4
CO	79.7	COAL												
SH	81.7	820002185	8.1	76.1	3.3	31.9	0.5	0.5	45.1					39.5
CO	85	COAL												
SH,CO	93.7	820002186	7.9	50	1.6	14.9	0.2	0.3	29.8					29.9
CO	98.9	COAL												
SS,SH	109.3	820002187	7.4	47.3	3.8	31.4	7.5	3.8	13.2					15.4
CO	114.3	COAL												
SH,CO	125.4	820002188	6.5	52.9	4.1	38.1	2.3	1.2	28.8					29.2
SL,SH	128.2	820002189	7	36.2	5.4	35.5	5.4	0.5	20.7					22.6
CO	132.9	COAL												
SH,SL,CO	136.4	820002190	7.6	38.4	3.9	39.4	0.9	0.5	47.1					40.6
SS	143.6	820002191	8	36.2	3.2	30.3	1.1	0.8	31.1					30.8
SH	150.1	820002192	7.5	40.3	4.7	46.5	1.1	0.7	49					41.5
SH,CO	154	820002193	7.3	59.3	4.5	45.2	0.8	0.3	60.9					47

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23165C
DATE CORED:12OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820002170	<2	1.2	85.9	<0.01	0.31	88.2	.	87.89	43.2	22	34.8	22.7	10.9	11.8
SO	820002171	<2	1.6	84.5	0.01	0.31	48.29	.	47.98	36.2	26	37.8	24	13.8	10.2
SS	820002172	3	3.2	45	<0.01	0.31	21.6	.	21.29	48.2	21	30.8	22.2	9.7	12.5
SH	820002173	7	4.5	79.8	<0.01	0.31	48.77	.	48.46	19.2	28	52.8	29.3	18.2	11.1
SS,SH	820002174	55	13.3	123.3	<0.01	0.31	152.06	.	151.75	37.2	26	36.8	17.5	12.8	4.7
CO,SH	820002175	207	1.8	283.1	0.22	6.88	7.52	.	0.64	41.2	16.4	42.4	24.7	8.7	16
SH,SL	820002176	63	5.1	191.7	<0.01	0.31	33.5	.	33.19	37.2	31.4	31.4	17.9	11.9	6
SS	820002177	25	1.9	81.1	0.01	0.31	13.31	.	13	68.2	13.4	18.4	12.9	9	3.9
SH,CO	820002178	98	6.7	180.5	0.62	19.38	10.57	8.81	.	75.6	5	19.4	21.7	15.3	6.4
SH	820002179	15	2	327.4	0.65	20.31	12.42	7.89	.	13.6	26	60.4	41.7	23.2	18.5
SH,SS	820002180	13	1.3	216.4	0.03	0.94	36.11	.	35.17	29.6	31	39.4	30.4	18.3	12.1
SS	820002181	8	0.8	93.5	0.05	1.56	28.35	.	26.79	52.6	24	23.4	20	6.3	13.7
SS	820002182	2	1.3	55.8	0.03	0.94	60.26	.	59.32	69.6	13	17.4	15.2	4.6	10.6
SS	820002183	2	1.2	57.1	0.16	5	32.87	.	27.87	67.6	15	17.4	14.4	4.4	10
SH,SS	820002184	6	1.3	133	0.03	0.94	43.75	.	42.81	35.6	28	36.4	24.5	10.6	13.9
CO	COAL														
SH	820002185	6	1.5	310.3	0.25	7.81	14.57	.	6.76	66.6	3	30.4	44.7	24.5	20.2
CO	COAL														
SH,CO	820002186	6	1.4	160.6	0.4	12.5	14.46	.	1.96	66.6	3	30.4	20.6	12.4	8.2
CO	COAL														
SS,SH	820002187	7	2.7	83.8	0.51	15.94	11.99	3.95	.	50	31.9	18.1	15.6	5.3	10.3
CO	COAL														
SH,CO	820002188	9	1.1	129.6	0.9	28.13	7.46	20.67	.	29.4	38.8	31.8	20.3	7.5	12.8
SL,SH	820002189	<2	2.6	62.8	0.6	18.75	49.29	.	30.54	56.4	30.2	13.4	16.6	4	12.6
CO	COAL														
SH,SL,CO	820002190	<2	0.9	113.7	0.37	11.56	37.29	.	25.73	49.8	25.8	24.4	13.9	5.4	8.5
SS	820002191	2	1.7	65.3	0.33	10.31	104.98	.	94.67	60.8	23.8	15.4	17.9	7	10.9
SH	820002192	6	5.5	146	1.36	42.5	37.61	4.89	.	25.2	41.4	33.4	11.6	7.1	4.5
SH,CO	820002193	<2	1.8	194.3	1.06	33.13	11.89	21.24	.	27.2	32.8	40	31.5	3.9	27.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23165C
DATE CORED:12OCT1981
DATE REPORTED:27FEB1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820002170	0.4	<0.01	<0.01	<0.6	29	0.2	1.8	21.7	12.6	<1		0.4
SO	820002171	1	<0.01	<0.01	<0.6	30	<0.1	1.9	17.8	7.4	<1		0.3
SS	820002172	0.5	<0.01	<0.01	<0.6	25	<0.1	1.9	22.2	7.7	3.2		1.1
SH	820002173	0.3	<0.01	0.06	<0.6	68	<0.1	6.5	21.8	4.7	6.8		1.5
SS,SH	820002174	0.3	<0.01	0.09	<0.6	44	0.5	5.4	13.1	13.2	8.8		1.8
CO,SH	820002175	2	<0.01	0.18	<0.6	25	2.6	9.1	20.2	8.5	24.1		COAL
SH,SL	820002176	0.3	<0.01	0.1	<0.6	41	0.5	7.1	46.5	8	6.7		1.8
SS	820002177	0.3	<0.01	0.01	<0.6	19	0.2	2	26.5	5.2	2.3		1.1
SH,CO	820002178	5.7	<0.01	0.18	<0.6	14	1.3	7	97.2	4.2	7.4		COAL
SH	820002179	5	<0.01	0.23	1.3	23	2.5	9.9	140.9	2.8	14.6		8.5
SH,SS	820002180	1.2	0.08	0.13	<0.6	25	1.4	4.7	42.6	1.7	11.8		2.2
SS	820002181	0.8	0.1	0.05	<0.6	14	0.9	1.9	46.5	3.7	9.3		1.3
SS	820002182	1.3	0.09	0.02	<0.6	<10	0.6	1.8	51.6	4.2	6.9		1.1
SS	820002183	1	<0.01	<0.01	<0.6	11	0.6	1.6	58.7	4.5	6.1		3.4
SH,SS	820002184	1.3	0.25	0.13	<0.6	19	2.6	3.4	38.4	4.6	13.7		4.5
CO	COAL												
SH	820002185	2.2	0.11	0.33	<0.6	12	1.4	16.5	35.2	1	16.8		13.1
CO	COAL												
SH,CO	820002186	3.7	0.03	0.17	<0.6	<10	0.5	5.8	19.6	1	7.2		COAL
CO	COAL												
SS,SH	820002187	0.5	<0.01	0.04	<0.6	37	4.5	5.5	75.8	4.9	13.8		7.2
CO	COAL												
SH,CO	820002188	2	<0.01	0.09	<0.6	25	6.4	7	125	1.9	10.3		14.1
SL,SH	820002189	0.1	<0.01	0.05	<0.6	21	2.5	2.2	135.8	3.6	8.3		6.6
CO	COAL												
SH,SL,CO	820002190	0.7	0.01	0.09	<0.6	13	3.2	5	91.2	3.7	12.8		COAL
SS	820002191	0.2	<0.01	0.03	<0.6	14	2.1	3.2	62.3	6.6	7.2		3.7
SH	820002192	0.2	<0.01	0.06	<0.6	<10	5.2	7.5	140.6	24.6	14		5.5
SH,CO	820002193	1.9	0.15	0.12	0.6	13	3.8	4.9	123.8	5.3	10.2		COAL

LOCATION S 8854.0 DATE DRILLED 12-10-81 SUB AREA N-6

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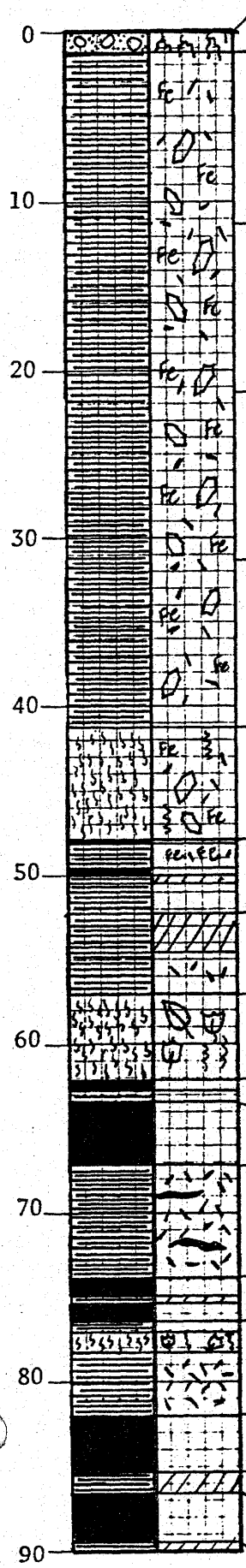
ELEVATION 6798.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-2195	52.6	0.7	0.9	2.7	1.1	0.01	8.2
R-82-2196	81.1	3.6	7.4	1.9	6.5	0.01	8.5
R-82-2197	77.1	3.2	6.5	2.7	5.7	0.01	8.0
R-82-2198	67.3	2.8	7.3	5.5	8.4	0.01	5.1
R-82-2199	63.0	1.9	6.8	9.6	14.8	0.01	6.9
R-82-2200	49.0	2.0	6.0	6.9	11.7	0.01	8.1
R-82-2201	63.0	4.9	9.0	3.6	3.2	0.14	7.5
R-82-2202	51.7	7.9	16.1	4.7	3.7	0.10	7.9
R-82-2203	38.3	5.4	6.9	1.9	1.4	0.01	8.3
R-82-2204	65.7	5.6	8.8	3.1	1.9	0.65	7.3
VOX (82-911-R)	(N/A)	(11.51)		(11,986)		(0.66)	(7.2)
R-82-2205	63.4	25.1	32.3	2.2	1.1	0.23	8.1
V1X (N/A)	(N/A)	(N/A)		(N/A)		(N/A)	(N/A)
R-82-2206	69.0	30.8	28.4	1.1	0.6	0.13	8.6
GOX (82-913-R)	(N/A)	(5.94)		(12,938)		(0.67)	(7.6)
R-82-2207	60.9	8.7	20.1	6.3	4.3	0.87	7.5
GTX (82-914-R)	(N/A)	(11.54)		(11,767)		(0.52)	(7.8)

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HOLE NO. 23166C DRILLER J. Elliott PAGE 2

LOCATION S 8854.0 DATE DRILLED 12-10-81 SUB AREA N-6

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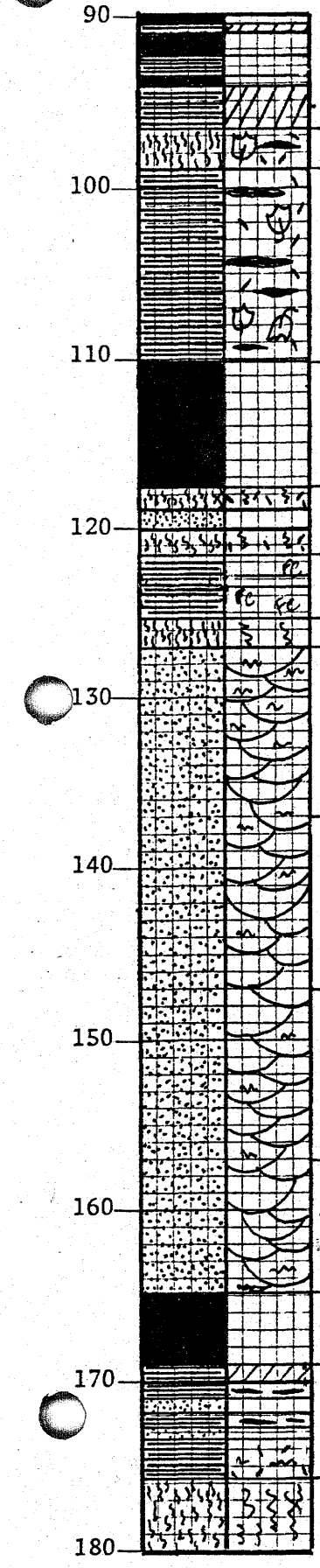
ELEVATION 6798.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-2208	50.5	24.7	17.1	0.6	0.4	0.34	8.3
R-82-2209	45.7	45.6	14.4	< 0.10	< 0.10	0.07	9.1
R-82-2210	51.6	24.1	19.4	0.5	0.8	0.08	9.1
BXX (82-915-R)	(N/A)	(5.10)		(12,821)		(0.57)	(7.5)
R-82-2211	46.3	3.4	9.4	8.3	6.7	0.23	6.7
R-82-2212	44.8	2.6	11.8	25.3	17.4	1.81	6.3
R-82-2213	40.3	3.0	5.8	4.4	3.1	0.14	7.9
R-82-2214	36.1	1.4	4.1	10.4	7.8	0.17	7.0
R-82-2215	36.0	0.7	2.4	17.4	8.7	0.04	7.4
R-82-2216	36.1	1.0	3.5	14.2	9.3	0.12	7.6
R-82-2217	36.0	1.0	2.5	7.2	6.3	0.17	7.7
RXX (82-916-R)	(N/A)	(3.84)		(13,155)		(0.61)	(8.0)
R-82-2218	32.2	67.4	36.9	0.4	0.2	0.23	7.9
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NO. 251000 DRILLER U. LITTLE PAGE

OCATION S 8854.0 DATE DRILLED 12-10-81 SUB AREA N-6

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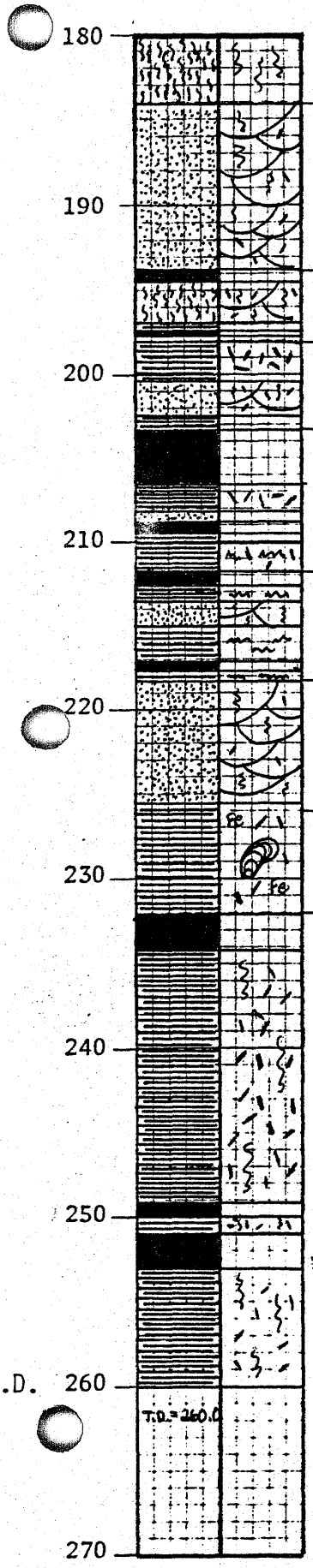
LEVATION 6798.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-2219	32.2	44.5	26.3	0.3	0.4	<0.01	8.9
R-82-2220	32.1	46.9	25.7	0.3	0.3	0.01	9.0
R-82-2221	44.7	54.7	45.8	1.0	0.4	0.87	6.6
R-82-2222	44.3	65.4	35.8	0.3	0.3	0.57	7.1
MXX R-82-2223	45.1	71.7	42.4	0.4	0.3	0.80	7.2
R-82-2224	40.6	58.5	41.4	0.6	0.4	0.85	7.6
R-82-2225	32.0	36.0	22.8	0.4	0.4	0.01	9.0
R-82-2226	40.5	61.6	56.8	1.0	0.7	1.47	7.3
R-82-2227	[illegible]	[illegible]					

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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23166C
DATE CORED:22OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820002195	8.2	52.6	0.4	0.9	2.7	1.1	0.7					-0.2
SH	1.3	820002196	8.5	81.1	1.5	7.4	1.9	6.5	3.6					3.9
SH	11.3	820002197	8	77.1	1.3	6.5	2.7	5.7	3.2					3.4
SH	21.3	820002198	5.1	67.3	2	7.3	5.5	8.4	2.8					2.8
SH	31.3	820002199	6.9	63	2.8	6.8	9.6	14.8	1.9					1.5
SL	41.3	820002200	8.1	49	2.1	6	6.9	11.7	2					1.7
CO,SH	48	820002201	7.5	63	1.4	9	3.6	3.2	4.9					5.6
SH	52.3	820002202	7.9	51.7	1.2	16.1	4.7	3.7	7.9					9.4
SL	57	820002203	8.3	38.3	1	6.9	1.9	1.4	5.4					6.3
CO,SH	62.2	820002204	7.3	65.7	1.3	8.8	3.1	1.9	5.6					6.5
CO	63.5	COAL												
SH	67.2	820002205	8.1	63.4	3.4	32.3	2.2	1.1	25.1					26.3
CO	74	COAL												
SH,SL	76.6	820002206	8.6	69	3	28.4	1.1	0.6	30.8					30.6
CO	82	COAL												
SH	85.4	820002207	7.5	60.9	2.7	20.1	6.3	4.3	8.7					10.4
CO	86.6	COAL												
SH,CO	89.5	820002208	8.3	50.5	1.6	17.1	0.6	0.4	24.7					25.6
SL	96.6	820002209	9.1	45.7	0.7	14.4	<0.1	<0.1	45.6					39.8
SH	98.9	820002210	9.1	51.6	1.9	19.4	0.5	0.8	24.1					25.5
CO	110.2	COAL												
SL,SS	117.5	820002211	6.7	46.3	2	9.4	8.3	6.7	3.4					3.6
SH	121.6	820002212	6.3	44.8	3.4	11.8	25.3	17.4	2.6					2.5
SL	125.3	820002213	7.9	40.3	1	5.8	4.4	3.1	3					3.1
SS	127.1	820002214	7	36.1	2.7	4.1	10.4	7.8	1.4					0.7
SS	137.1	820002215	7.4	36	2.1	2.4	17.4	8.7	0.7					-0.2
SS	147.1	820002216	7.6	36.1	2	3.5	14.2	9.3	1					0.2
SS	157.1	820002217	7.7	36	4.7	2.5	7.2	6.3	1					0.2
CO	164.8	COAL												
SH,SS	169.1	820002218	7.9	32.2	3.2	36.9	0.4	0.2	67.4					49.5
SL	175.7	820002219	8.9	32.2	2.1	26.3	0.3	0.4	44.5					39.2
SS,SH	184	820002220	9	32.1	2.2	25.7	0.3	0.3	46.9					40.5
CO,SL,SH	193.7	820002221	6.6	44.7	4.2	45.8	1	0.4	54.7					44.3
SH,SS	198	820002222	7.1	44.3	3.4	35.8	0.3	0.3	65.4					48.8
SH,SS,CO	206.8	820002223	7.2	45.1	3.9	42.4	0.4	0.3	71.7					51.1
SH,SS,CO	212.6	820002224	7.6	40.6	3.8	41.4	0.6	0.4	58.5					46
SS	218.3	820002225	9	32	2.1	22.8	0.4	0.4	36					34.1
SH	225.6	820002226	7.3	40.5	5.3	56.8	1	0.7	61.6					47.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23166C
DATE CORED:22OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820002195	2	1.2	131.5	<0.01	0.31	91.48	.	91.17	54.2	20.8	25	25.8	9.1	16.7
SH	820002196	<2	1.6	91.2	<0.01	0.31	197.9	.	197.59	20.2	31.8	48	27	10.4	16.6
SH	820002197	26	2.2	67.7	<0.01	0.31	16.31	.	16	9.2	37.8	53	26.1	8.1	18
SH	820002198	119	9	142	0.01	0.31	6.63	.	6.32	19.2	28.8	52	27.4	13.4	14
SH	820002199	122	5.8	173.2	<0.01	0.31	30.93	.	30.62	14.2	35.8	50	23.4	7.6	15.8
SL	820002200	38	1.7	119.9	0.01	0.31	158.9	.	158.59	43.2	25.8	31	13.8	10.7	3.1
CO,SH	820002201	13	0.5	220.6	0.14	4.38	10.69	.	6.31	22.2	25.8	52	21.4	6.9	14.5
SH	820002202	12	1.1	186	0.1	3.13	40.72	.	37.59	33.2	32.8	34	16.8	4.2	12.6
SL	820002203	8	1.6	118.6	<0.01	0.31	302.34	.	302.03	55.2	24.8	20	9	5.6	3.4
CO,SH	820002204	10	1	115	0.65	20.31	16.1	4.21	.	80.2	4.8	15	15.8	13.6	2.2
CO	COAL														
SH	820002205	10	0.4	282.7	0.23	7.19	23.85	.	16.66	18.2	30.8	51	25.6	18.1	7.5
CO	COAL														
SH,SL	820002206	11	0.8	305.6	0.13	4.06	49.41	.	45.35	22.2	22.8	55	26.7	17	9.7
CO	COAL														
SH	820002207	7	0.4	106.1	0.87	27.19	61.69	.	34.5	90.2	3.8	6	15.6	11.4	4.1
CO	COAL														
SH,CO	820002208	9	0.8	208.4	0.34	10.63	13.85	.	3.22	42.2	16.8	41	22.3	16.7	5.6
SL	820002209	9	0.3	189.5	0.07	2.19	37.9	.	35.71	30.2	36.8	33	27.2	15	12.2
SH	820002210	8	0.5	245.2	0.08	2.5	34.32	.	31.82	19.8	36.8	43.4	25.4	16.2	9.2
CO	COAL														
SL,SS	820002211	6	1	98.8	0.23	7.19	3.72	3.47	.	37	43	20	15.1	7	8.1
SH	820002212	10	1.9	130	1.81	56.56	31.67	24.89	.	44	30	26	12.5	7.8	4.7
SL	820002213	5	1	123.4	0.14	4.38	50.78	.	46.4	43	35	22	11	6.1	4.9
SS	820002214	2	0.6	46.6	0.17	5.31	16.3	.	10.99	70	18	12	14.1	4.1	10
SS	820002215	<2	3.1	33.6	0.04	1.25	130.79	.	129.54	80	10	10	12.2	1.3	10.9
SS	820002216	<2	0.7	41.4	0.12	3.75	52.2	.	48.45	76	13.4	10.6	15.4	1.7	13.7
SS	820002217	7	0.4	33.6	0.17	5.31	50.73	.	45.42	78	12.4	9.6	15.2	1.6	13.6
CO	COAL														
SH,SS	820002218	<2	0.7	135.2	0.23	7.19	35.64	.	28.45	50	29.4	20.6	15	5.4	9.6
SL	820002219	<2	1.1	125.8	<0.01	0.31	146.81	.	146.5	60	22.4	17.6	12.5	4.7	7.8
SS,SH	820002220	<2	0.8	76.2	0.01	0.31	106.4	.	106.09	73	15.4	11.6	12.9	2.2	10.7
CO,SL,SH	820002221	4	0.8	104.9	0.87	27.19	3.11	24.08	.	40	38.4	21.6	19.8	6.2	13.6
SH,SS	820002222	7	2.3	128.7	0.57	17.81	2.32	15.49	.	30	41.4	28.6	21.5	6.5	15
SH,SS,CO	820002223	6	0.6	123.1	0.8	25	8.14	16.86	.	47	29.4	23.6	15.8	8.2	7.6
SH,SS,CO	820002224	2	2.2	117.9	0.85	26.56	45.6	.	19.04	56	21.4	22.6	10.1	4.6	5.5
SS	820002225	<2	0.6	56.9	0.01	0.31	46.53	.	46.22	72	16.4	11.6	10.5	2.1	8.4
SH	820002226	6	3.7	162	1.47	45.94	36.37	9.57	.	32	36.9	31.1	15.7	5.2	10.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:23166C
DATE CORED:22OCT1981
DATE REPORTED:27FEB1985

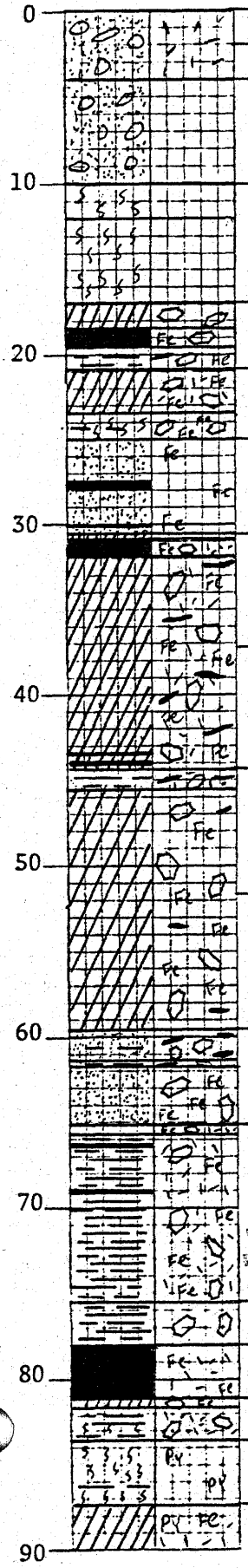
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820002195	0.6	0.03	<0.01	<0.6	24	<0.1	1.8	13.5	15.3	<1		0.9
SH	820002196	1.5	<0.01	0.01	<0.6	79	<0.1	4.2	12.2	16.8	1.7		0.8
SH	820002197	0.7	0.01	0.02	<0.6	96	<0.1	6.3	7.2	1.9	5.6		0.4
SH	820002198	0.5	0.04	0.06	<0.6	100	0.5	8.9	172.8	2.1	6.8		1.2
SH	820002199	0.2	<0.01	0.15	<0.6	52	<0.1	6.3	35	7.8	15.3		2.8
SL	820002200	0.7	<0.01	0.1	<0.6	35	0.6	6.6	48.9	14.1	13.6		3
CO,SH	820002201	1.5	<0.01	0.27	<0.6	20	1	13.2	17.9	2.7	18.9		COAL
SH	820002202	0.5	<0.01	0.1	<0.6	<10	1.3	8.4	27.4	10.9	15.6		9.3
SL	820002203	0.4	<0.01	0.03	0.6	<10	1	4.7	140.4	10.9	9.6		2.4
CO,SH	820002204	4.1	<0.01	0.22	<0.6	<10	0.4	4.9	37.5	2.4	1.7		COAL
CO	COAL												
SH	820002205	0.8	0.05	0.17	<0.6	13	0.3	0.9	41.1	1	11.8		9.7
CO	COAL												
SH,SL	820002206	0.4	0.1	0.28	0.6	26	1	13.1	37.5	3.1	20.9		3.9
CO	COAL												
SH	820002207	3.4	<0.01	0.23	<0.6	11	0.9	2.5	452.3	2.5	1.9		24.5
CO	COAL												
SH,CO	820002208	3.2	0.05	0.25	<0.6	<10	0.4	7.1	40.3	1.1	10.9		COAL
SL	820002209	0.9	<0.01	0.14	<0.6	20	0.7	5.6	37.8	1	19.1		6.2
SH	820002210	1	<0.01	0.21	<0.6	22	1.1	10.3	53	4.7	15.9		5.8
CO	COAL												
SL,SS	820002211	1.1	<0.01	0.04	<0.6	29	3.2	5.8	42	2.4	15		3.7
SH	820002212	1.4	<0.01	0.01	<0.6	15	7.3	6.4	342	19	18.7		12.2
SL	820002213	0.9	<0.01	0.08	<0.6	13	3.6	6.3	154.2	6.6	13.3		3.2
SS	820002214	0.7	<0.01	<0.01	<0.6	12	1.2	3.1	53.8	5.7	4.9		1.7
SS	820002215	<0.1	<0.01	<0.01	<0.6	<10	0.8	1.4	147	6.1	3.2		0.6
SS	820002216	0.3	<0.01	<0.01	<0.6	10	0.7	2.4	113.2	4.7	4.3		1.3
SS	820002217	0.3	<0.01	<0.01	<0.6	11	0.5	1.9	113.2	4.9	3.6		0.7
CO	COAL												
SH,SS	820002218	0.7	0.05	0.15	<0.6	18	2.2	5.9	119.9	6.2	12.9		4.8
SL	820002219	0.3	<0.01	0.1	<0.6	10	1.5	3.1	148	6.6	8		2.7
SS,SH	820002220	0.3	0.01	0.07	<0.6	<10	0.9	1.8	130.6	6.1	4.7		2.3
CO,SL,SH	820002221	1.5	<0.01	0.07	<0.6	23	8.4	5.8	230.3	6	12.3		COAL
SH,SS	820002222	1.3	<0.01	0.06	<0.6	16	6.8	6.8	194.1	7.4	11.2		3.7
SH,SS,CO	820002223	1.4	<0.01	<0.01	<0.6	13	4.3	4.9	186.5	3.5	8.6		COAL
SH,SS,CO	820002224	0.6	<0.01	0.1	<0.6	<10	3	6.4	144.2	7.9	9.8		COAL
SS	820002225	0.3	0.08	0.08	<0.6	<10	1.3	2.1	84.9	5.1	7.6		1.3
SH	820002226	0.3	<0.01	0.04	<0.6	<10	4.1	6.6	183.8	27.1	11.1		6.7

LOCATION S 10039.0 DATE DRILLED 6-7-82 SUB AREA N-6

E 29697.0

ELEVATION 6727.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820003055	43.6	0.6	0.8	2.6	0.8	0.01	8.1
820003056	44.7	0.9	1.0	1.4	0.9	0.01	8.4
820003057	49.8	8.5	10.8	1.2	2.0	0.01	8.6
820003058	46.8	3.8	9.4	6.3	6.1	0.01	8.1
820003059	62.3	2.2	12.6	31.4	32.6	0.29	3.6
820003060	53.8	1.0	6.3	33.3	41.0	0.39	6.9
820003061	36.4	0.6	3.3	31.4	39.5	0.41	7.6
820003062	65.7	7.4	30.1	19.9	13.0	0.21	5.6
820003063	71.6	23.6	24.2	1.3	0.8	0.15	8.6
820003064	67.7	33.0	27.6	0.8	0.6	0.21	8.3
820003065	70.5	26.9	21.7	0.8	6.5	0.13	8.6
820003066	32.2	17.6	22.6	2.2	1.1	0.04	8.0
820003067	63.1	32.6	24.2	0.4	0.7	0.20	8.5
820003068	57.5	20.9	16.2	0.4	0.8	0.14	8.8
VOX (82-1514-R)	(N/A)	(12.35)		(11,932)		(0.54)	(8.4)
820003069	52.8	19.2	12.9	0.3	0.6	0.08	8.9
820003070	40.4	23.7	17.6	0.3	0.8	0.03	9.2
		358					

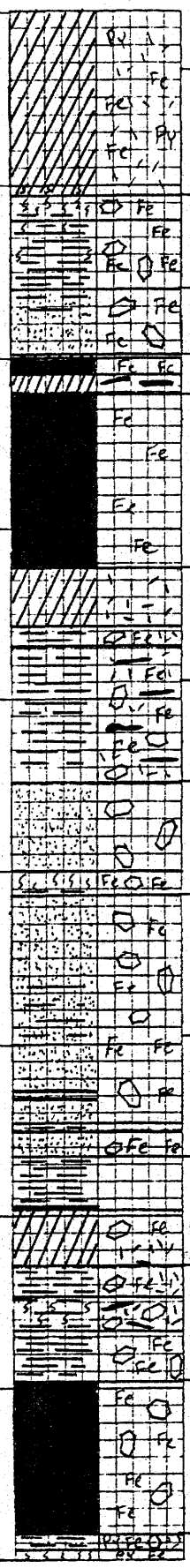
OCT 27 1986 SEP 3 1986

HOLE NO. 24093C DRILLER J. Elliott PAGE 2

LOCATION S 11039.0 DATE DRILLED 6-7-82 SUB AREA N-6

E 29697.0

ELEVATION 6727.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820003071	75.2	26.9	21.7	0.8	0.5	0.11	9.0
820003072	68.4	15.0	15.7	0.4	1.8	0.04	9.4
820003073	53.4	28.7	20.3	0.3	0.7	0.06	9.3
820003074	40.4	37.8	29.3	0.7	0.5	0.18	8.7
820003075	68.4	32.1	25.9	0.6	0.7	0.81	8.3
GXX (82-1515-R)	(N/A)	(11.74)		(12,045)		(0.54)	(8.4)
820003076	41.0	16.9	10.7	0.3	0.5	0.06	8.9
820003077	38.2	15.5	12.5	0.6	0.7	0.05	8.6
820003078	34.3	9.4	14.0	2.7	1.7	0.58	8.0
820003079	34.1	12.3	13.7	1.6	0.9	<0.01	8.1
820003080	36.1	13.5	17.3	2.3	1.0	0.13	7.9
820003081	57.2	28.0	19.8	0.6	0.4	0.21	8.4
820003082	38.3	29.0	20.5	0.5	0.5	<0.01	8.4
BXX (82-1516-R)	(N/A)	(6.29)		(12,874)		(0.50)	(8.4)
		359					

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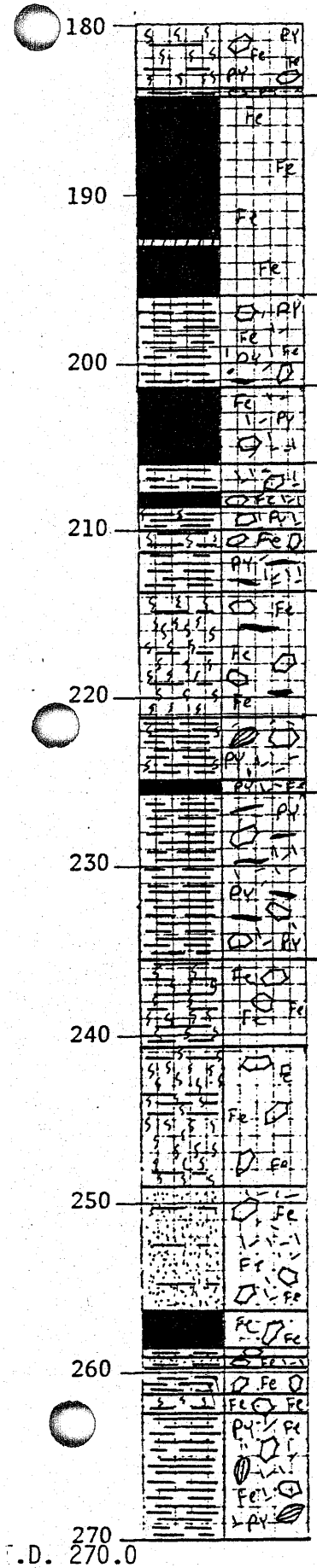
LOCATION S 11039.0 DATE DRILLED 6-7-82 SUB AREA N-6

E 29697.0

ELEVATION 6727.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820003083	38.2	32.9	29.4	1.0	0.6	0.38	8.0
RXX (82-1517-R)	(N/A)	(8.37)		(12,558)		(0.46)	(8.3)
820003084	52.5	58.7	60.1	1.3	0.8	0.84	7.0
MXX (82-1518-R)	(N/A)	(4.79)		(13,073)		(0.63)	(8.6)
820003085	46.6	57.9	36.6	0.5	0.3	0.35	7.5
820003086	48.5	55.3	37.1	0.5	0.4	1.59	7.6
820003087	34.1	41.1	24.3	0.3	0.4	<0.01	8.8
820003088	50.5	46.7	51.2	1.5	0.9	1.89	7.2
820003089	57.2	53.4	35.8	0.3	0.6	0.70	7.7
T.D. 270.0		360					

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24093C
DATE CORED:07JUN1982
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820003055	8.1	43.6	0.5	0.8	2.6	0.8	0.6					-0.4
SO	2	820003056	8.4	44.7	0.4	1	1.4	0.9	0.9					0.1
SO	4	820003057	8.6	49.8	1.4	10.8	1.2	2	8.5					10.1
SL	10	820003058	8.1	46.8	2	9.4	6.3	6.1	3.8					4.2
SH,CO	16.9	820003059	3.6	62.3	5.7	12.6	31.4	32.6	2.2					1.9
SH,SL	20.9	820003060	6.9	53.8	5.3	6.3	33.3	41	1					0.2
SS	25	820003061	7.6	36.4	4.6	3.3	31.4	39.5	0.6					-0.4
SH,CO	30.5	820003062	5.6	65.7	5	30.1	19.9	13	7.4					8.8
SH	37.3	820003063	8.6	71.6	2.7	24.2	1.3	0.8	23.6					25.1
SH	44.3	820003064	8.3	67.7	2.8	27.6	0.8	0.6	33					32.2
SH	51.6	820003065	8.6	70.5	2.3	21.7	0.8	0.5	26.9					27.8
SS,SH	59.6	820003066	8	32.2	2.6	22.6	2.2	1.1	17.6					19.8
SH	65.1	820003067	8.5	63.1	2.3	24.2	0.4	0.7	32.6					31.9
SH	75.5	820003068	8.8	57.5	1.6	16.2	0.4	0.8	20.9					22.8
CO	78	COAL												
SH	81.1	820003069	8.9	52.8	1.3	12.9	0.3	0.6	19.2					21.3
SL	83.6	820003070	9.2	40.4	1.6	17.6	0.3	0.8	23.7					25.2
SH	87.4	820003071	9	75.2	2.3	21.7	0.8	0.5	26.9					27.8
SH	93.4	820003072	9.4	68.4	1.4	15.7	0.4	1.8	15					17.3
SL,SH	100.6	820003073	9.3	53.1	1.9	20.3	0.3	0.7	28.7					29.1
SS	106	820003074	8.7	40.4	3	29.3	0.7	0.5	37.8					35.3
SH,CO	109.8	820003075	8.3	68.4	2.7	25.9	0.6	0.7	32.1					31.5
CO	112.1	COAL												
SH	122.3	820003076	8.9	41	1.1	10.7	0.3	0.5	16.9					19.1
SH	128.9	820003077	8.6	38.2	1.3	12.5	0.6	0.7	15.5					17.8
SS,SL	134.9	820003078	8	34.3	1.8	14	2.7	1.7	9.4					11.2
SS,SH	141.4	820003079	8.1	34.1	1.7	13.7	1.6	0.9	12.3					14.4
SS	149.4	820003080	7.9	36.1	2	17.3	2.3	1	13.5					15.7
SH	156.5	820003081	8.4	57.2	1.9	19.8	0.6	0.4	28					28.6
SH	162.9	820003082	8.4	38.3	2	20.5	0.5	0.5	29					29.3
CO	169.6	COAL												
SH,SL	178.6	820003083	8	38.2	3.4	29.4	1	0.6	32.9					32.1
CO	184.3	COAL												
SH	196	820003084	7	52.5	6	60.1	1.3	0.8	58.7					46
CO	201.4	COAL												
SH,CO,SL	206	820003085	7.5	46.6	3.5	36.6	0.5	0.3	57.9					45.7
SH	211.3	820003086	7.6	48.5	4.1	37.1	0.5	0.4	55.3					44.5
SL	213.7	820003087	8.8	34.1	2.7	24.3	0.3	0.4	41.1					37.3
SH,CO	221.2	820003088	7.2	50.5	5.3	51.2	1.5	0.9	46.7					40.3
SH	225.7	820003089	7.7	57.2	3.7	35.8	0.3	0.6	53.4					43.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24093C
DATE CORED:07JUN1982
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820003055	2	4.5	182.3	0.01	0.31	20.1	.	19.79	61.4	22.8	15.8	15.8	7.1	8.7
SO	820003056	<2	1.3	155.9	0.01	0.31	48.34	.	48.03	54.4	24.8	20.8	21.7	8.2	13.5
SO	820003057	<2	2.1	91.2	0.01	0.31	180.23	.	179.92	61.4	20.8	17.8	18.2	7.8	10.4
SL	820003058	9	1.8	32	0.01	0.31	51.01	.	50.7	58.4	22.8	18.8	15.4	6	9.4
SH,CO	820003059	192	6.3	154.9	0.29	9.06	0.03	9.03	.	40.4	19.8	39.8	30.1	17.1	13
SH,SL	820003060	82	6.9	155.6	0.39	12.19	68.09	.	55.9	34.4	31.8	33.8	18.4	9.4	9
SS	820003061	9	3.3	50.7	0.41	12.81	111.93	.	99.12	72	19.2	8.8	11.7	3.5	8.2
SH,CO	820003062	28	1	156.2	0.21	6.56	26.86	.	20.3	32.6	34.6	32.8	25.1	11	14.1
SH	820003063	5	0.7	326.9	0.15	4.69	13.47	.	8.78	8.6	39.6	51.8	32.2	16.1	16.1
SH	820003064	2	1.7	291.9	0.21	6.56	15.11	.	8.55	20.6	31.6	47.8	36.6	18.6	18
SH	820003065	9	1.2	302.4	0.13	4.06	9.16	.	5.1	9	41.2	49.8	37.1	22.4	14.7
SS,SH	820003066	<2	1.1	59.9	0.04	1.25	52.6	.	51.35	70.6	17.6	11.8	11.5	4.1	7.4
SH	820003067	2	0.3	263.8	0.2	6.25	15.67	.	9.42	24	28.2	47.8	37.8	17.7	20.1
SH	820003068	2	1.2	234.8	0.14	4.38	25.34	.	20.96	28.6	33.6	37.8	31.8	19.6	12.2
CO	COAL														
SH	820003069	<2	0.5	184.7	0.08	2.5	7.34	.	4.84	32	38.2	29.8	28.8	16.6	12.2
SL	820003070	<2	1.7	139.3	0.03	0.94	40.58	.	39.64	45	33.2	21.8	23.1	10.5	12.6
SH	820003071	<2	0.9	308	0.11	3.44	48.6	.	45.16	21	33.2	45.8	38.6	21.1	17.5
SH	820003072	<2	0.8	266.3	0.04	1.25	41.89	.	40.64	24	37.4	38.6	36.3	19.4	16.9
SL,SH	820003073	<2	1.3	211.3	0.06	1.88	48.76	.	46.88	37	26.4	36.6	30.4	16.8	13.6
SS	820003074	<2	1.1	117.1	0.18	5.63	35.95	.	30.32	56	20.4	23.6	18.4	7.7	10.7
SH,CO	820003075	3	1.4	268.2	0.81	25.31	11.43	13.88	.	36	12.4	51.6	34.3	19.5	14.8
CO	COAL														
SH	820003076	<2	0.9	186.5	0.06	1.88	40.09	.	38.21	38	34.8	27.2	19.7	7.8	11.9
SH	820003077	<2	0.5	149.3	0.05	1.56	30.83	.	29.27	40.1	33	26.9	19.4	8.4	11
SS,SL	820003078	<2	0.5	61.8	0.58	18.13	111.02	.	92.89	69.8	17.4	12.8	11.8	4.5	7.3
SS,SH	820003079	<2	0.4	55.4	<0.01	0.31	17.64	.	17.33	66.8	19.4	13.8	14	6.8	7.2
SS	820003080	<2	0.3	61.4	0.13	4.06	37.86	.	33.8	70.8	16.4	12.8	12.1	5.5	6.6
SH	820003081	2	0.4	280.6	0.21	6.56	10.65	.	4.09	20.8	32.8	46.4	30	20.4	9.6
SH	820003082	<2	0.9	152.2	<0.01	0.31	119.34	.	119.03	54.8	18.8	26.4	16.3	9.5	6.8
CO	COAL														
SH,SL	820003083	<2	1.1	103.6	0.38	11.88	140.1	.	128.22	59.8	26.8	13.4	12.3	6.7	5.6
CO	COAL														
SH	820003084	<2	1.1	134.1	0.84	26.25	6.27	19.98	.	30.8	42.8	26.4	20.5	10.6	9.9
CO	COAL														
SH,CO,SL	820003085	<2	0.5	113.4	0.35	10.94	34.51	.	23.57	54.2	25.4	20.4	19.1	10.3	8.8
SH	820003086	<2	2.1	159.9	1.59	49.69	21.76	27.93	.	31.2	34.4	34.4	20.6	11.8	8.8
SL	820003087	<2	1.1	50.8	<0.01	0.31	47.68	.	47.37	65.2	24.4	10.4	12.1	5.8	6.3
SH,CO	820003088	<2	3.2	177.9	1.89	59.06	27.28	31.78	.	24.2	45.4	30.4	19.1	10.7	8.4
SH	820003089	2	0.9	206	0.7	21.88	16.09	5.79	.	22.2	39.4	38.4	34.3	22.9	11.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24093C
DATE CORED:07JUN1982
DATE REPORTED:27FEB1985

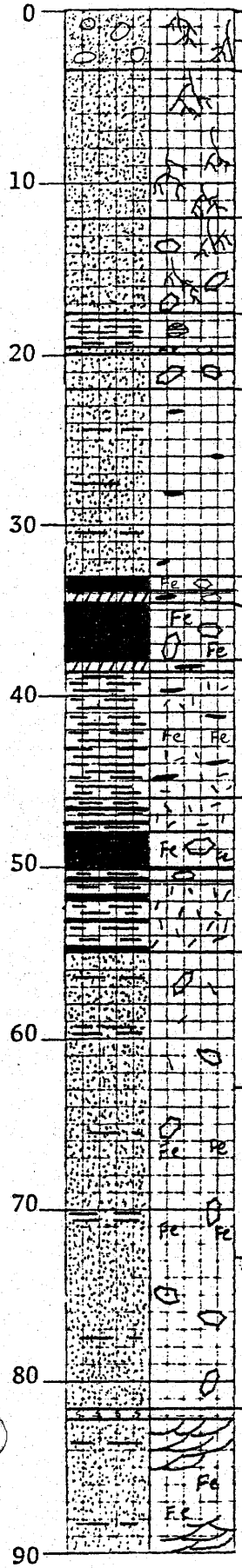
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820003055	0.1	0.04	<0.01	<0.6	17	0.3	1.6	14.5	13.8	1.3		1.7
SO	820003056	0.2	0.03	<0.01	<0.6	15	0.3	1.6	14.4	9.3	1.5		0.4
SO	820003057	0.7	<0.01	<0.01	<0.6	20	<0.1	1	10.5	5	<1		0.2
SL	820003058	<0.1	<0.01	0.02	<0.6	25	<0.1	1	10.9	6	<1		0.3
SH,CO	820003059	2.8	0.04	0.16	<0.6	28	2.2	8.5	205.5	20.3	22.3		COAL
SH,SL	820003060	0.1	<0.01	0.18	<0.6	46	0.9	7.4	99.1	3.8	14.9		3.4
SS	820003061	<0.1	<0.01	0.04	0.9	23	0.2	1.3	41.6	2.8	1.6		1.1
SH,CO	820003062	1.3	<0.01	<0.01	<0.6	10	0.6	5.4	63.1	6.2	5.1		COAL
SH	820003063	0.2	0.15	0.45	<0.6	26	1.5	13.2	4.8	1.3	2.5		4
SH	820003064	1.3	0.13	0.4	<0.6	<10	1.2	8.9	7.7	1	13.8		9.8
SH	820003065	<0.1	0.28	0.24	<0.6	15	1.1	10.7	5.7	1	14.9		5.9
SS,SH	820003066	<0.1	0.02	0.05	<0.6	<10	1.6	2.1	6.3	1.9	5.9		2.1
SH	820003067	0.3	0.3	0.38	<0.6	10	1.5	11.8	3.9	3.5	16.9		15
SH	820003068	0.3	0.82	0.22	<0.6	11	1.7	6.2	4.6	1	11.9		8.5
CO	COAL												
SH	820003069	0.2	0.85	0.19	<0.6	11	1.8	3	2.7	1	13.6		5.9
SL	820003070	<0.1	0.1	0.1	<0.6	19	1.6	2	4.2	2.6	13.1		1.4
SH	820003071	<0.1	0.25	0.13	<0.6	23	1.4	6.9	7.1	9.4	15		3.8
SH	820003072	<0.1	0.14	0.07	<0.6	43	2	7.8	6.4	5.1	13.3		2.1
SL,SH	820003073	<0.1	0.17	0.13	<0.6	16	2.1	6.8	7.4	5.4	12.1		1.7
SS	820003074	<0.1	0.31	0.06	<0.6	19	2.5	4.8	4.9	3.9	100.2		2
SH,CO	820003075	1.6	0.02	0.26	<0.6	15	1.8	11	180.4	2.4	4.6		COAL
CO	COAL												
SH	820003076	1.4	0.05	0.09	<0.6	15	1.4	3.3	4.5	2.8	11.4		6.2
SH	820003077	0.6	0.09	0.07	<0.6	<10	2.9	3.9	5.3	4.6	12.3		2.3
SS,SL	820003078	<0.1	<0.01	<0.01	<0.6	<10	0.5	2.5	7.1	4.3	3.5		1.8
SS,SH	820003079	<0.1	0.05	0.01	<0.6	<10	1.5	2	4	2.4	6		0.8
SS	820003080	<0.1	<0.01	<0.01	<0.6	12	1.2	2.6	5.9	2.2	4.4		1.3
SH	820003081	3.6	0.14	0.13	<0.6	<10	1.8	4.9	2.6	1	11.8		16.8
SH	820003082	1.4	0.03	0.12	<0.6	13	2.1	2.2	123.8	5	11.6		2.4
CO	COAL												
SH,SL	820003083	<0.1	0.08	0.16	<0.6	17	2.7	4.4	8.3	1.4	10		2.9
CO	COAL												
SH	820003084	0.5	0.01	0.13	<0.6	13	0.6	7.7	254	3.8	9.9		5.5
CO	COAL												
SH,CO,SL	820003085	0.6	<0.01	0.14	<0.6	<10	3.1	5.1	139.5	6	9.8		COAL
SH	820003086	0.4	<0.01	0.12	<0.6	<10	6.6	9.2	201.4	10	11.5		5.2
SL	820003087	<0.1	<0.01	0.05	<0.6	<10	1.7	2.3	132.3	9	8.1		1.7
SH,CO	820003088	0.2	<0.01	0.04	<0.6	<10	6.6	7.8	226.7	27.1	11.8		COAL
SH	820003089	0.9	<0.01	0.05	<0.6	<10	4.6	10.1	224.2	31.3	10.8		5.7

LOCATION S 11069.0 DATE DRILLED 6/18/82 SUB AREA N-6

E 25914.0

ELEVATION 6582.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820003090	49.1	0.7	1.8	10.8	3.5	0.12	6.3
820003091	56.9	1.4	2.3	3.7	2.0	<0.01	7.4
820003092	52.6	3.9	5.6	2.8	1.4	<0.01	8.1
820003093	52.6	3.2	10.3	13.7	6.8	<0.01	7.8
820003094	44.4	2.9	7.3	7.9	4.8	<0.01	7.8
820003095	36.1	1.3	2.0	3.3	1.5	<0.01	8.1
820003096	85.1	1.2	5.9	27.3	18.4	0.68	3.3
VTX (82-1519-R)	(N/A)	(8.75)		(12,419)		(0.75)	(7.1)
820003097	90.3	30.0	30.7	1.2	0.9	0.15	7.8
820003098	54.4	36.2	24.3	0.4	0.5	0.61	7.7
820003099	37.5	20.3	19.3	1.4	0.4	<0.01	8.8
820003100	32.1	22.8	16.9	0.6	0.5	<0.01	8.7
820003101	32.1	25.5	16.1	0.4	0.4	<0.1	8.8
820003102	32.0	11.0	15.1	3.5	0.3	0.01	8.8
		364					

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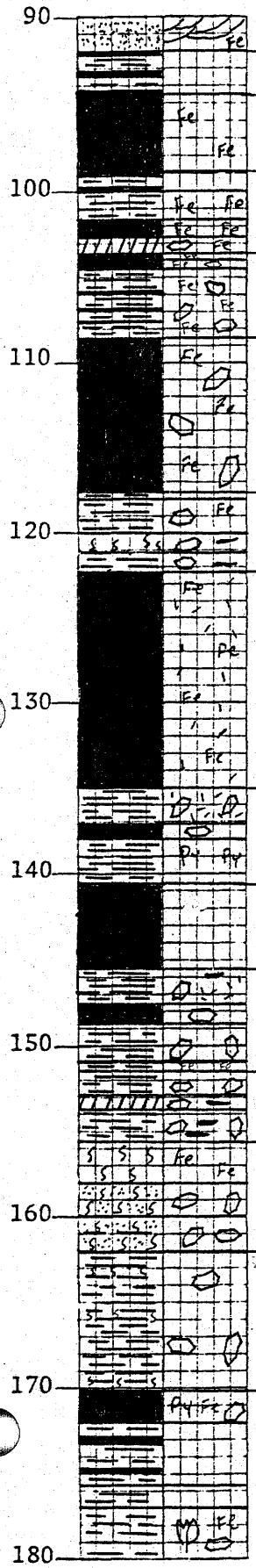
LOCATION S 11069.0 DATE DRILLED 6/18/82 SUB AREA N-6

E 25914.0

ELEVATION 6582.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820003103	58.5	19.2	12.9	0.3	0.6	0.35	8.5
G1X (82-1520-R)	(N/A)	(8.87)		(12,471)		(0.46)	(8.3)
820003104	52.3	33.5	22.5	0.3	0.6	0.12	8.6
820003105	54.7	27.8	29.8	1.9	0.4	0.24	8.4
BXX (82-1521-R)	(N/A)	(8.45)		(12,478)		(0.51)	(8.0)
820003106	48.4	24.9	33.8	2.5	1.2	0.65	7.6
RXX (82-1522-R)	(N/A)	(5.46)		(13,016)		(0.37)	(8.1)
820003107	40.8	46.7	46.7	0.8	1.2	0.77	8.2
MXX (82-1523-R)	(N/A)	(6.87)		(12,761)		(0.51)	(8.3)
820003108	40.9	45.5	32.2	0.4	0.6	0.36	8.4
820003109	44.7	67.5	42.7	0.3	0.5	0.75	7.6
820003110	32.1	24.9	18.5	0.8	0.3	<0.01	9.1
820003111	38.3	51.0	37.8	0.5	0.6	0.88	7.9

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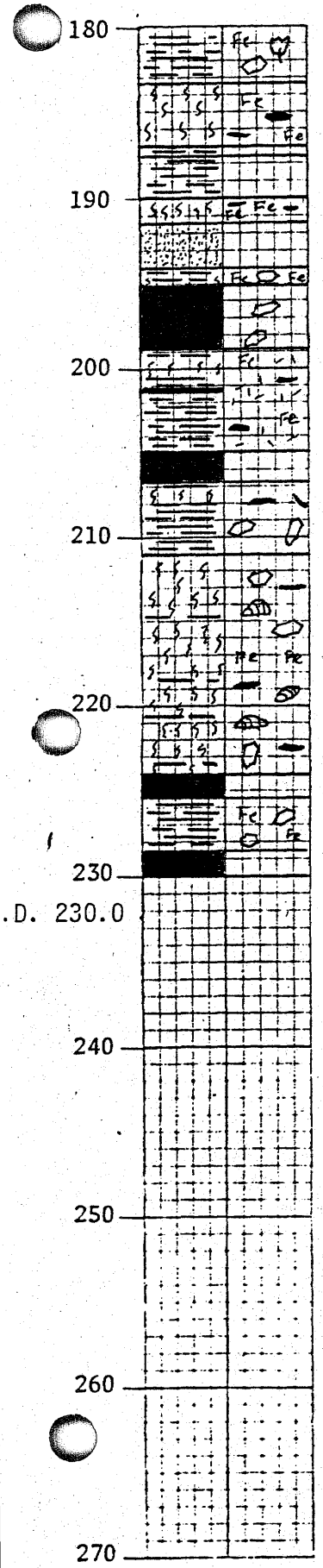
LOCATION S 11069.0 DATE DRILLED 6/18/82 SUB AREA N-6

E 25914.0

ELEVATION 6582.9



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

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24094C
DATE CORED:18JUN1982
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820003090	6.3	49.1	1.3	1.8	10.8	3.5	0.7					-0.2
SO	1.7	820003091	7.4	56.9	0.7	2.3	3.7	2	1.4					0.7
SD	3.4	820003092	8.1	52.6	1	5.6	2.8	1.4	3.9					4.3
SD	12	820003093	7.8	52.6	2.6	10.3	13.7	6.8	3.2					3.4
CL,SD,SS	17.5	820003094	7.8	44.4	1.9	7.3	7.9	4.8	2.9					3
SS	22	820003095	8.1	36.1	0.5	2	3.3	1.5	1.3					0.6
CO,SH	33	820003096	3.3	85.1	4.1	5.9	27.3	18.4	1.2					0.5
CO	34.6	COAL												
SH	38	820003097	7.8	90.3	3.5	30.7	1.2	0.9	30					30.1
SH,CO	46	820003098	7.7	54.4	2.7	24.3	0.4	0.5	36.2					34.3
SS	54.9	820003099	8.8	37.5	2	19.3	1.4	0.4	20.3					22.3
SS	62.9	820003100	8.7	32.1	1.7	16.9	0.6	0.5	22.8					24.5
SS	72.9	820003101	8.8	32.1	1.7	16.1	0.4	0.4	25.5					26.7
SL,SS	81.5	820003102	8.8	32	6.8	15.1	3.5	0.3	11					13
SH	92	820003103	8.5	58.5	1.2	12.9	0.3	0.6	19.2					21.3
CO	98.9	COAL												
SH,CO	98.9	820003104	8.6	52.3	2.4	22.5	0.3	0.6	33.5					32.5
CO,SH	103.6	820003105	8.4	54.7	6.7	29.8	1.9	0.4	27.8					28.4
CO	108.5	COAL												
SH,SL	117.6	820003106	7.6	48.4	3.8	33.8	2.5	1.2	24.9					26.2
CO	122.3	COAL												
SH,CO	135	820003107	8.2	40.8	4.3	46.7	0.8	1.2	46.7					40.3
CO	140.5	COAL												
SH,CO	145.5	820003108	8.4	40.9	3	32.2	0.4	0.6	45.5					39.7
SH	151.4	820003109	7.6	44.7	4.3	42.7	0.3	0.5	67.5					49.6
SL	155.6	820003110	9.1	32.1	2.3	18.5	0.8	0.3	24.9					26.2
SH	162.1	820003111	7.9	38.3	3.8	37.8	0.5	0.6	51					42.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24094C
DATE CORED:18JUN1982
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820003090	2	3.8	113.1	0.12	3.75	11.98	.	8.23	67.2	14.4	18.4	18.9	10.9	8
SO	820003091	2	3.4	138	<0.01	0.31	19.59	.	19.28	56.2	21.4	22.4	21.1	11.2	9.9
SD	820003092	<2	7.3	114.8	<0.01	0.31	79.75	.	79.44	59.2	17.4	23.4	20	8.4	11.6
SD	820003093	3	2.6	93.6	<0.01	0.31	35.81	.	35.5	60.2	16.4	23.4	20.1	8.9	11.2
CL,SD,SS	820003094	2	2.5	57.2	<0.01	0.31	50.29	.	49.98	66.2	15.4	18.4	17.9	8.2	9.7
SS	820003095	4	0.9	19.4	<0.01	0.31	26.91	.	26.6	81.2	10.4	8.4	11.4	5.8	5.6
CO,SH	820003096	334	1.3	73.1	0.68	21.25	-6.73	27.98	.	75.2	11.4	13.4	34.2	22.7	11.5
CO	COAL														
SH	820003097	9	1.2	340.1	0.15	4.69	9.16	.	4.47	5.2	30.4	64.4	43.8	20.4	23.4
SH,CO	820003098	<2	0.3	217.2	0.61	19.06	10.82	8.24	.	52.2	19.4	28.4	34.5	14.8	19.7
SS	820003099	<2	1.2	114.9	<0.01	0.31	152.56	.	152.25	47.5	32.8	19.7	19.4	6.5	12.9
SS	820003100	<2	1.4	75.1	<0.01	0.31	252.73	.	252.42	62.6	21.4	16	11.8	3.6	8.2
SS	820003101	<2	0.4	110.8	<0.01	0.31	50.47	.	50.16	73.6	12.4	14	12.7	2.9	9.8
SL,SS	820003102	<2	0.8	68.2	0.01	0.31	27.66	.	27.35	71.6	12.4	16	12.2	3.7	8.5
SH	820003103	2	0.9	239.9	0.35	10.94	10.05	0.89	.	59.6	7.4	33	27.4	15.9	11.5
CO	COAL														
SH,CO	820003104	<2	0.3	229.9	0.12	3.75	36.75	.	33	38	21	41	30.2	18.6	11.6
CO,SH	820003105	<2	0.8	270.6	0.24	7.5	16.18	.	8.68	45	11	44	31.2	17.7	13.5
CO	COAL														
SH,SL	820003106	<2	1.4	127	0.65	20.31	11.31	9	.	36	39	25	17.3	7.4	9.9
CO	COAL														
SH,CO	820003107	<2	0.8	173.6	0.77	24.06	40.92	.	16.86	41	32	27	18.7	8.4	10.3
CO	COAL														
SH,CO	820003108	<2	0.8	153	0.36	11.25	36	.	24.75	48	25	27	18.3	8.8	9.5
SH	820003109	<2	1.4	202.2	0.75	23.44	25.89	.	2.45	18	40	42	22.1	10.9	11.2
SL	820003110	<2	0.9	71.6	<0.01	0.31	169.47	.	169.16	71.4	16	12.6	9.5	4.1	5.4
SH	820003111	<2	2	152.6	0.88	27.5	39.21	.	11.71	44.4	27	28.6	13.6	6.6	7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24094C
DATE CORED:18JUN1982
DATE REPORTED:27FEB1985

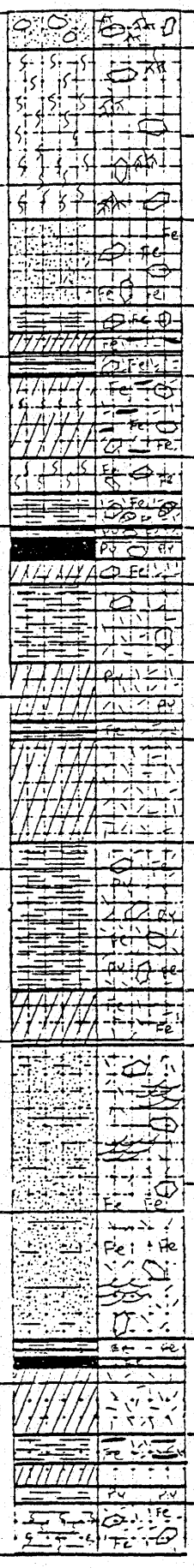
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820003090	2.2	<0.01	0.01	<0.6	<10	0.9	3.1	136.2	44.5	4		8.3
SO	820003091	0.7	<0.01	<0.01	<0.6	11	0.5	2.2	42.4	33.5	1.7		2.7
SD	820003092	0.2	<0.01	<0.01	<0.6	<10	0.3	1.5	26.8	12	<1		0.3
SD	820003093	<0.1	<0.01	<0.01	<0.6	17	0.3	2.6	36.1	14.1	2.5		0.3
CL,SD,SS	820003094	0.2	<0.01	<0.01	<0.6	27	0.3	1.1	52.9	20.9	<1		0.2
SS	820003095	0.2	<0.01	<0.01	<0.6	11	0.5	0.8	43.7	18.4	<1		0.1
CO,SH	820003096	9.9	0.02	0.09	<0.6	<10	0.8	4	306.7	18.9	2.3		COAL
CO	COAL												
SH	820003097	0.9	0.26	0.17	<0.6	23	1.7	11.7	66.4	1	15.2		2.7
SH,CO	820003098	3.4	0.12	0.11	<0.6	<10	1.8	8.3	72.6	4.9	10		COAL
SS	820003099	0.3	0.04	0.04	<0.6	<10	2.3	2.7	132.6	5.9	7.9		2.3
SS	820003100	0.3	0.01	0.02	<0.6	<10	1.1	2	127	5.5	4.1		1.8
SS	820003101	<0.1	0.04	0.01	<0.6	10	0.8	1.5	132	4.3	4.1		1
SL,SS	820003102	<0.1	0.14	<0.01	<0.6	11	0.9	1.7	101.6	3	3.3		1.8
SH	820003103	2.6	0.03	0.12	<0.6	<10	0.4	3.3	16.5	1	<1		30.7
CO	COAL												
SH,CO	820003104	0.6	0.02	0.04	<0.6	<10	0.2	3.5	24.8	1	2.1		COAL
CO,SH	820003105	0.7	0.07	0.15	<0.6	11	1	6	25.5	1	9.7		COAL
CO	COAL												
SH,SL	820003106	0.2	0.03	0.09	<0.6	12	3.6	4.2	45.4	1.9	12		8.3
CO	COAL												
SH,CO	820003107	0.5	0.04	0.09	<0.6	<10	3	5	114.7	1.1	8.6		COAL
CO	COAL												
SH,CO	820003108	0.7	0.07	0.06	<0.6	<10	3.2	4.8	130.4	7.3	10.6		COAL
SH	820003109	0.5	<0.01	0.01	<0.6	<10	7.3	9.6	290	15.8	11.7		9.7
SL	820003110	0.2	0.02	0.01	<0.6	<10	1.4	2.5	173.9	7.2	5.6		1.2
SH	820003111	0.2	<0.01	0.05	<0.6	<10	4.3	7.3	200.6	26.2	11.5		5.9

LOCATION S 11064.0 DATE DRILLED 7-13-82 SUB AREA N-6

E 27814.0

ELEVATION 6686.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-3112	46.7	0.9	1.3	3.7	0.8	<0.01	7.8
R-82-3113	40.2	3.4	4.0	1.7	1.0	<0.01	8.5
R-82-3114	36.1	4.7	5.4	1.4	1.2	<0.01	8.2
R-82-3115	38.1	2.4	4.2	4.0	2.3	<0.01	8.1
R-82-3116	75.0	2.1	9.0	20.8	17.5	0.10	4.2
R-82-3117	60.9	2.6	13.8	29.3	28.1	< 0.01	6.4
R-82-3118	56.5	3.2	9.1	6.3	9.7	<0.01	7.8
R-82-3119	50.7	22.2	25.8	1.8	0.9	0.36	7.3
R-82-3120	44.5	15.0	20.1	1.0	2.6	0.05	8.5
R-82-3121	64.7	38.3	30.9	0.6	0.7	0.29	8.1
R-82-3122	63.3	29.6	22.9	0.6	0.6	0.23	8.4
R-82-3123	56.6	27.9	18.7	0.3	0.6	0.03	9.1
R-82-3124	79.4	32.8	22.0	0.4	0.5	0.07	8.9
R-82-3125	33.4	32.6	26.3	0.5	0.8	0.09	8.8
R-82-3126	32.1	37.9	19.1	0.1	0.6	<0.01	8.7
R-82-3127	59.6	32.1	24.0	0.4	0.4	0.27	8.2
R-82-3128	60.2	31.1	20.3	0.3	0.5	0.31	8.4

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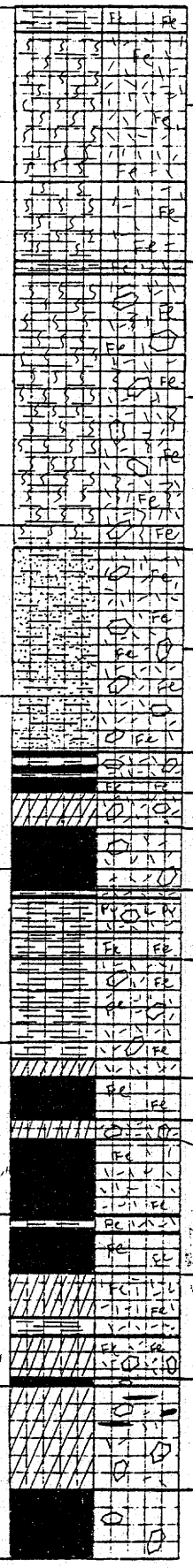
LOCATION S 11064.0 DATE DRILLED 7-13-82 SUB AREA N-6

E 27814.0

ELEVATION 6686.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-3129	32.1	31.1	22.0	0.4	0.6	<0.01	8.9
R-82-3130	32.7	33.6	24.9	0.4	0.7	<0.01	8.8
R-82-3131	40.2	33.8	21.4	0.3	0.5	<0.01	9.0
R-82-3132	40.3	32.5	25.2	0.6	0.6	<0.01	9.0
R-82-3133	32.1	30.9	22.9	0.4	0.7	<0.01	9.1
R-82-3134	32.2	21.9	17.0	0.4	0.8	<0.01	9.1
VOX (82-1524-R)	(N/A)	(16.02)		(11,256)		(0.65)	(8.2)
R-82-3135	54.5	32.6	26.3	0.8	0.5	0.74	8.1
V1X (82-1525-R)	(N/A)	(5.79)		(12,789)		(0.52)	(8.1)
R-82-3136	38.4	32.2	21.6	0.4	0.5	<0.01	8.9
R-82-3137	48.7	40.6	24.0	0.2	0.5	0.11	9.1
(82-1526-R)	(N/A)	(13.24)		(11,945)		(0.69)	(8.2)
R-82-3138	53.0	49.2	22.0	0.1	0.3	0.13	9.1
GXX (82-1527-R)	(N/A)	(15.99)		(11,457)		(0.68)	(8.2)
R-82-3139	49.6	61.5	27.5	0.1	0.3	0.31	8.8
R-82-3140	40.2	36.0	22.8	0.4	0.4	0.34	8.4
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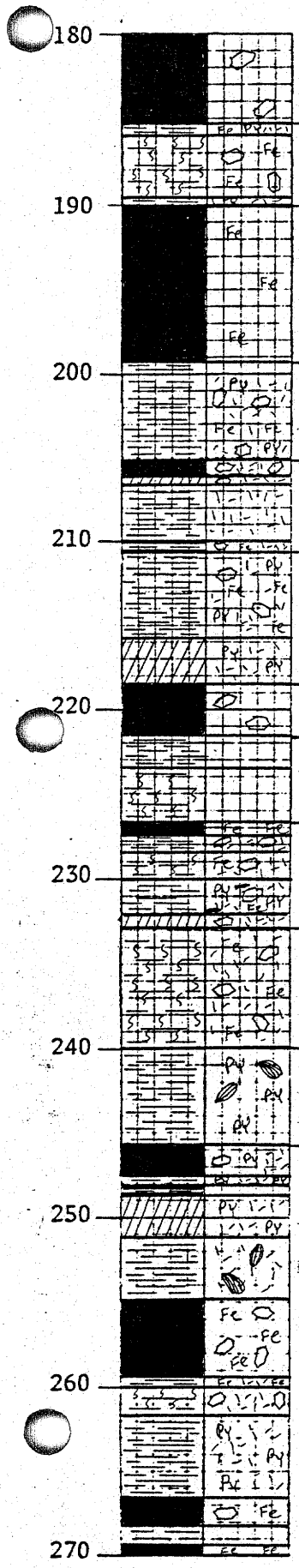
E 27814.0

ELEVATION 6686.2



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
BXX (82-1528-R)	(N/A)	(6.59)		(12,775)		(0.52)	(8.0)
R-82-3141	37.4	35.5	21.0	0.3	0.4	0.07	8.8
RXX (82-1529-R)	(N/A)	(4.98)		(13,088)		(0.44)	(8.2)
R-82-3142	45.1	55.0	21.3	0.1	0.2	0.78	7.9
R-82-3143	42.7	55.3	21.4	0.1	0.2	1.31	7.6
R-82-3144	36.3	25.2	13.8	0.1	0.5	0.13	8.7
MXX (82-1530-R)	(N/A)	(5.81)		(12,810)		(0.73)	(8.6)
R-82-3145	38.5	28.0	12.5	0.1	0.3	0.59	8.4
R-82-3146	36.7	48.0	24.0	0.2	0.3	1.07	8.2
R-82-3147	32.2	28.7	20.3	0.7	0.3	0.01	9.2
R-82-3148	36.4	59.4	29.7	0.1	0.4	1.35	8.4
YOX							

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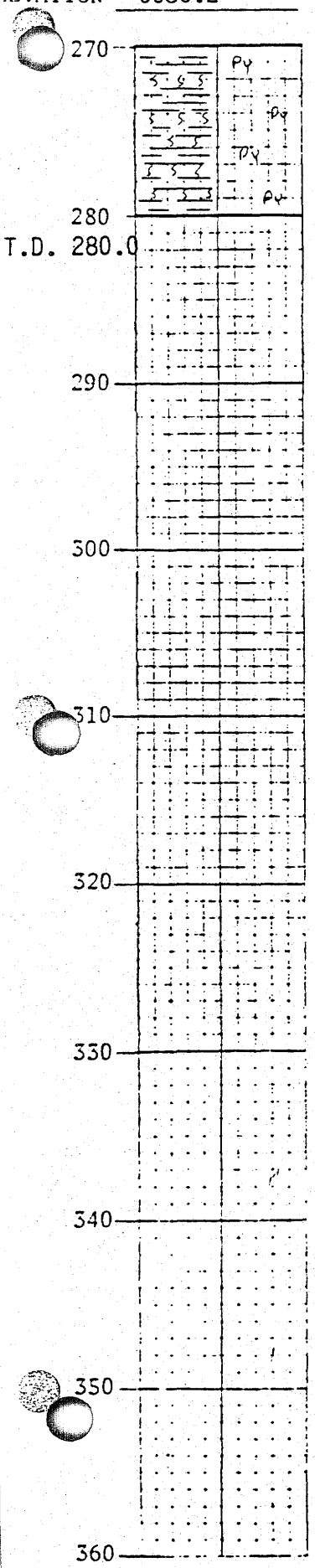
LOCATION S 11064.0 DATE DRILLED 7-13-82 SUB AREA N-6

E 27814.0

ELEVATION 6686.2

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



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PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820003112	7.8	46.7	0.4	1.3	3.7	0.8	0.9					0.1
SL	2.2	820003113	8.5	40.2	0.6	4	1.7	1	3.4					3.6
SL	7.2	820003114	8.2	36.1	0.9	5.4	1.4	1.2	4.7					5.4
SS	12	820003115	8.1	38.1	1	4.2	4	2.3	2.4					2.2
SH	17	820003116	4.2	75	3.6	9	20.8	17.5	2.1					1.8
SH	21.2	820003117	6.4	60.9	4.7	13.8	29.3	28.1	2.6					2.5
SL,SH	26	820003118	7.8	56.5	2.2	9.1	6.3	9.7	3.2					3.4
SH,CO	30.1	820003119	7.3	50.7	2.9	25.8	1.8	0.9	22.2					23.9
SH	33.4	820003120	8.5	44.5	2.1	20.1	1	2.6	15					17.3
SH	38	820003121	8.1	64.7	3.2	30.9	0.6	0.7	38.3					35.6
SH	42.5	820003122	8.4	63.3	2.5	22.9	0.6	0.6	29.6					29.8
SH	48.5	820003123	9.1	56.6	1.7	18.7	0.3	0.6	27.9					28.5
SH	57.1	820003124	8.9	79.4	2	22	0.4	0.5	32.8					32
SS	60.3	820003125	8.8	33.4	2.7	26.3	0.5	0.8	32.6					31.9
SS	68.4	820003126	8.7	32.1	1.7	19.1	0.1	0.6	32.3					31.7
SH,CO	77.4	820003127	8.2	59.6	2.5	24	0.4	0.4	37.9					35.3
SH	83	820003128	8.4	60.2	1.9	20.3	0.3	0.5	32.1					31.5
SL,SH	87	820003129	8.9	32.1	2	22	0.4	0.6	31.1					30.8
SL	95.5	820003130	8.8	32.7	2.2	24.9	0.4	0.7	33.6					32.6
SH,SL	104.5	820003131	9	40.2	1.9	21.4	0.3	0.5	33.8					32.7
SL	112.3	820003132	9	40.3	2.5	25.2	0.6	0.6	32.5					31.8
SS	121.3	820003133	9.1	32.1	2.4	22.9	0.4	0.7	30.9					30.7
SS	127.2	820003134	9.1	32.2	1.6	17	0.4	0.8	21.9					23.7
CO	133.2	COAL												
SH	135.6	820003135	8.1	54.5	2.8	26.3	0.8	0.5	32.6					31.9
CO	137.6	COAL												
SH	141.2	820003136	8.9	38.4	2	21.6	0.4	0.5	32.2					31.6
SH	145.2	820003137	9.1	48.7	2.5	24	0.2	0.5	40.6					37
CO	152.1	COAL												
SH	154.4	820003138	9.1	53	2.1	22	0.1	0.3	49.2					41.6
CO	155.7	COAL												
SH	163.4	820003139	8.8	49.6	2.7	27.5	0.1	0.3	61.5					47.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
CO,SH	169.5	820003140	8.4	40.2	2.5	22.8	0.4	0.4	36					34.1
CO	176	COAL												
SH,SL	185.2	820003141	8.8	37.4	2	21	0.3	0.4	35.5					33.8
CO	190.1	COAL												
SH	199.3	820003142	7.9	45.1	2	21.3	0.1	0.2	55					44.4
CO,SH	205.1	820003143	7.6	42.7	2.5	21.4	0.1	0.2	55.3					44.5
SH	210.5	820003144	8.7	36.3	1.5	13.8	0.1	0.5	25.2					26.4
CO	218.5	CO												
SH	221.6	820003145	8.4	38.5	1.4	12.5	0.1	0.3	28					28.6
CO,SH	226.7	820003146	8.2	36.7	2.6	24	0.2	0.3	48					41
SH	232.9	820003147	9.2	32.2	2.1	20.3	0.7	0.3	28.7					29.1
SH	240	820003148	8.4	36.4	3.2	29.7	0.1	0.4	59.4					46.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820003112	2	5.6	208.9	<0.01	0.31	73.81	.	73.5	51.4	24	24.6	22.8	10.7	12.1
SL	820003113	<2	1.7	59.8	<0.01	0.31	84.29	.	83.98	63.4	15	21.6	17.3	6.9	10.4
SL	820003114	<2	0.9	47.8	<0.01	0.31	21.16	.	20.85	65.4	14	20.6	15.6	5.6	10
SS	820003115	14	1.1	39.3	<0.01	0.31	47.3	.	46.99	72.4	11	16.6	14	6.2	7.8
SH	820003116	135	2.8	143.6	0.1	3.13	8.22	.	5.09	23.4	20	56.6	35	20.7	14.3
SH	820003117	45	5.9	178	<0.01	0.31	69.88	.	69.57	18.4	30	51.6	23.1	11.3	11.8
SL,SH	820003118	4	1.8	140.8	<0.01	0.31	219.25	.	218.94	36.4	30.6	33	18	8.1	9.9
SH,CO	820003119	<2	0.9	156.3	0.36	11.25	11.65	.	0.4	51.4	12.6	36	29.1	15.1	14
SH	820003120	<2	1.1	211.7	0.05	1.56	41.05	.	39.49	17.4	41.6	41	26.3	17.2	9.1
SH	820003121	<2	1	320.5	0.29	9.06	15.12	.	6.06	16.9	26.2	56.9	36.5	21.6	14.9
SH	820003122	<2	0.8	269.6	0.23	7.19	13.66	.	6.47	11	42.4	46.6	38.5	24.8	13.7
SH	820003123	<2	0.8	191	0.03	0.94	28.58	.	27.64	19	49.4	31.6	31.5	23.8	7.7
SH	820003124	<2	1.3	301.9	0.07	2.19	11.15	.	8.96	13	35.4	51.6	49.2	22.8	26.4
SS	820003125	<2	1.3	103.7	0.09	2.81	36.03	.	33.22	55	25.4	19.6	21.2	7.1	14.1
SS	820003126	<2	1.5	91.9	<0.01	0.31	35.61	.	35.3	53	27.4	19.6	14.8	6.1	8.7
SH,CO	820003127	<2	1.3	258	0.27	8.44	43.66	.	35.22	15	55.4	29.6	34.7	27.6	7.1
SH	820003128	<2	1.3	250.4	0.31	9.69	21.91	.	12.22	16	40.4	43.6	33.9	26.4	7.5
SL,SH	820003129	<2	1.7	124.5	<0.01	0.31	131.62	.	131.31	41	35.4	23.6	18.2	13.3	4.9
SL	820003130	<2	1.9	126.1	<0.01	0.31	109.95	.	109.64	42	33.4	24.6	16.3	13.9	2.4
SH,SL	820003131	<2	2.5	172.1	<0.01	0.31	45.13	.	44.82	40	27.4	32.6	21.1	17.5	3.6
SL	820003132	<2	1.3	145.6	<0.01	0.31	33.96	.	33.65	42	30.4	27.6	18.5	16	2.5
SS	820003133	<2	1.3	91.7	<0.01	0.31	97.52	.	97.21	44	37.4	18.6	14.4	11	3.4
SS	820003134	<2	1.2	108.3	<0.01	0.31	52.05	.	51.74	59	16.4	24.6	15.9	13.2	2.7
CO	COAL														
SH	820003135	<2	0.9	215.2	0.74	23.13	17.43	5.7	.	51	12.4	36.6	25.4	22.2	3.2
CO	COAL														
SH	820003136	<2	0.9	219.5	<0.01	0.31	95.82	.	95.51	53	14.4	32.6	17.2	15.2	2
SH	820003137	<2	1.1	260.5	0.11	3.44	40.71	.	37.27	36	14.4	49.6	27.9	22.8	5.1
CO	COAL														
SH	820003138	<2	1.1	242	0.13	4.06	46.24	.	42.18	17	41.4	41.6	31.4	24.9	6.5
CO	COAL														
SH	820003139	<2	0.8	250.2	0.31	9.69	40.72	.	31.03	22	36.4	41.6	28	23	5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
CO,SH	820003140	<2	1.5	103.7	0.34	10.63	46.29	.	35.66	36	44.4	19.6	14.3	8.9	5.4
CO	COAL														
SH,SL	820003141	<2	1.6	243.2	0.07	2.19	36.1	.	33.91	29	37.4	33.6	19.9	14.8	5.1
CO	COAL														
SH	820003142	<2	0.9	145.2	0.78	24.38	24.4	.	0.02	29	49.4	21.6	16.8	11.3	5.5
CO,SH	820003143	<2	1.4	130.5	1.31	40.94	5.04	35.9	.	63	21.8	15.2	13.3	7.4	5.9
SH	820003144	<2	0.5	175.5	0.13	4.06	4.02	0.04	.	30.4	33.4	36.2	21.5	16.5	5
CO	COAL														
SH	820003145	<2	0.7	175.1	0.59	18.44	5.48	12.96	.	39.4	32.4	28.2	18	11.6	6.4
CO,SH	820003146	<2	1.2	140.3	1.07	33.44	47.88	.	14.44	55	24.8	20.2	16.1	10.1	6
SH	820003147	<2	0.4	78.6	0.01	0.31	116.33	.	116.02	63	23.8	13.2	10	6.9	3.1
SH	820003148	<2	1.6	192.5	1.35	42.19	41	1.19	.	29	39.3	31.7	18.1	13	5.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820003112	0.5	0.01	<0.01	<0.6	11	0.5	3.7	39.1	39.5	<1		1.8
SL	820003113	0.7	0.03	<0.01	<0.6	15	0.5	0.9	73	58.5	<1		0.5
SL	820003114	0.4	0.03	<0.01	<0.6	11	0.3	0.6	35.4	15.6	1		0.4
SS	820003115	0.4	<0.01	<0.01	<0.6	11	0.4	0.8	54.8	24.9	<1		<0.1
SH	820003116	2.6	0.01	0.04	<0.6	18	1	8.1	101.7	6.4	12.3		16.5
SH	820003117	1.2	<0.01	0.09	<0.6	26	1.2	10.8	141.1	18.6	20.3		5.4
SL,SH	820003118	0.9	<0.01	0.08	<0.6	<10	1.2	4.5	144.6	9.5	7.1		5.5
SH,CO	820003119	4.3	0.2	0.16	<0.6	<10	0.8	8.2	102.9	1.8	9.1		COAL
SH	820003120	0.6	0.16	0.06	<0.6	22	2.9	10.7	118.9	5.6	7.9		2.3
SH	820003121	1.5	0.17	0.17	<0.6	11	1.6	14.6	95.8	3.5	11.9		3.2
SH	820003122	0.9	0.26	0.17	<0.6	11	1.4	12.8	77.2	1.7	10.2		8.5
SH	820003123	0.2	0.05	0.03	<0.6	22	1.7	6.6	72.4	3	7.7		2.1
SH	820003124	0.3	0.09	<0.01	<0.6	21	2.5	10	72.2	7.8	9.5		3.8
SS	820003125	0.2	0.72	0.01	<0.6	18	1.3	2.8	59.5	6.8	5.8		1.5
SS	820003126	0.2	0.38	0.02	<0.6	13	1.3	3.6	102.6	8.6	5.7		2.8
SH,CO	820003127	0.9	0.18	0.09	<0.6	<10	1.9	10.5	121.1	9.9	15.4		COAL
SH	820003128	0.9	0.39	0.12	<0.6	<10	2.8	9.3	46.8	3.7	13.4		10.4
SL,SH	820003129	0.3	0.12	0.05	<0.6	11	2.2	<0.2	95.1	5.1	10		1.7
SL	820003130	0.2	0.09	0.02	<0.6	<10	1.7	<0.2	124.5	10	6.8		1.5
SH,SL	820003131	0.1	0.12	<0.01	<0.6	17	1.8	0.9	107.1	10.6	10.6		1.4
SL	820003132	0.1	0.2	0.02	<0.6	22	2	<0.2	83.2	7.9	10.1		1.2
SS	820003133	0.2	0.28	0.01	<0.6	<10	1.3	<0.2	82.9	6.8	7.9		0.5
SS	820003134	<0.1	0.27	0.02	<0.6	14	1.8	<0.2	94.9	6.4	10.9		0.9
CO	COAL												
SH	820003135	2.5	0.1	0.13	<0.6	<10	1.3	5.8	93.4	1.2	2.8		14.8
CO	COAL												
SH	820003136	0.3	0.13	0.12	<0.6	16	2.2	0.8	71.8	2.7	13.2		4.7
SH	820003137	0.3	0.21	0.11	<0.6	18	2.6	8	61.3	2.1	14.5		1.8
CO	COAL												
SH	820003138	0.3	0.1	0.06	<0.6	<10	1.4	5.4	30.8	1	7.6		10.1
CO	COAL												
SH	820003139	0.6	0.07	0.15	<0.6	<10	1	3.8	31.2	1	7.8		5.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24095C
DATE CORED:13JUL1982
DATE REPORTED:27FEB1985

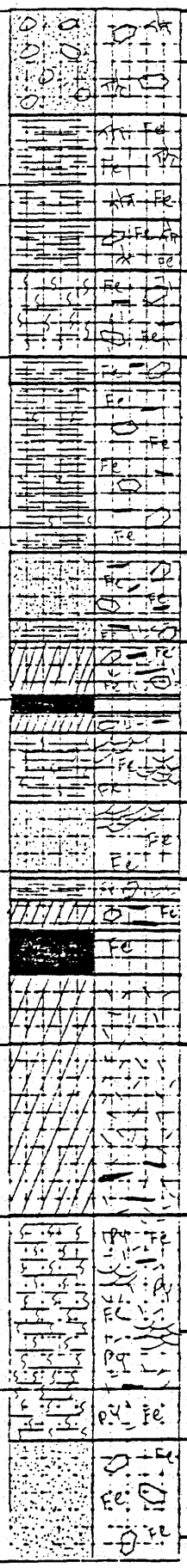
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *					
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM	Organic * Matter %
CO,SH	820003140	0.3	0.18	0.08	<0.6	<10	3.4	2.2	65.3	1.1	11.7	COAL
CO	COAL											
SH,SL	820003141	0.3	0.16	0.12	<0.6	<10	1.7	<0.2	55	2.4	12.6	5.7
CO	COAL											
SH	820003142	1.2	0.04	0.03	<0.6	<10	3	2.5	121.6	1.1	5.3	5.4
CO,SH	820003143	1.2	0.04	0.05	<0.6	<10	5.6	1.7	276.9	10.3	10.1	COAL
SH	820003144	0.5	0.07	0.06	<0.6	<10	2.7	1.9	25.6	1	7.5	5.5
CO	COAL											
SH	820003145	1	0.09	0.11	<0.6	<10	4.3	3.4	56.4	1	12.9	10.6
CO,SH	820003146	1	<0.01	0.04	<0.6	<10	3.6	4.4	162.8	9.5	11.6	COAL
SH	820003147	0.2	0.03	0.03	<0.6	<10	2.3	<0.2	100.8	6.6	10.2	2.2
SH	820003148	0.4	0.03	0.06	<0.6	<10	4.8	8.1	149.5	18.8	16.9	6.7

LOCATION S 12896.0 DATE DRILLED 7/19/82 SUB AREA N-6

E 27150.0

ELEVATION 6665.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4260	38.3	1.3	1.4	2.0	0.5	<0.01	8.2
R-82-4261	50.9	5.7	10.6	2.7	4.3	<0.01	8.1
R-82-4262	82.1	3.1	9.7	8.5	11.7	0.05	6.6
R-82-4263	62.5	2.2	7.7	11.8	12.3	<0.01	7.8
R-82-4264	57.7	2.6	8.8	10.4	11.8	<0.01	7.7
R-82-4265	42.3	1.4	7.2	28.0	23.2	0.18	7.4
R-82-4266	61.7	7.1	21.0	9.9	7.4	0.29	6.4
R-82-4267	31.5	24.1	26.9	1.7	0.8	<0.01	8.0
R-82-4268	32.1	20.1	18.5	0.9	0.8	0.01	8.5
R-82-4269	46.3	34.8	33.9	1.1	0.8	0.28	7.7
R-82-4270	61.3	32.0	23.7	0.4	0.7	0.12	8.8
R-82-4271	28.7	40.6	50.5	1.5	1.6	0.02	8.7
R-82-4272	32.1	24.5	20.5	0.8	0.6	0.01	8.6
R-82-4273	32.1	22.3	17.3	0.7	0.5	<0.01	8.8

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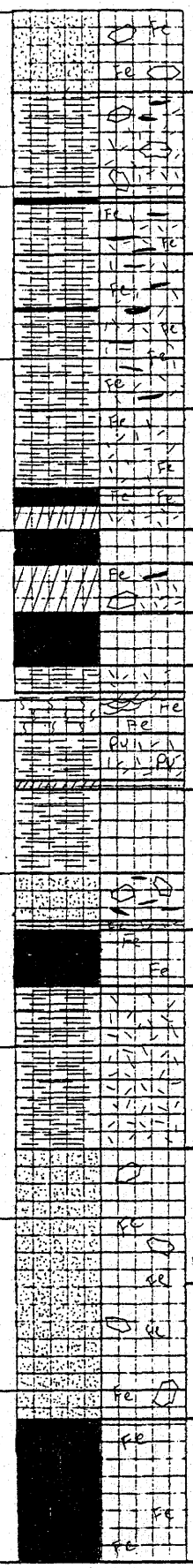
OCT 27 1986

HOLE NO. 24096C DRILLER Jim Elliott PAGE 2

LOCATION S 12896.0 DATE DRILLED 7/19/82 SUB AREA N-6

E 27150.0

ELEVATION 6665.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4274	32.1	24.4	21.1	0.8	0.7	0.01	8.6
R-82-4275	54.0	33.9	33.9	0.9	1.1	0.28	8.5
R-82-4276	58.6	32.1	24.9	0.6	0.6	0.29	8.3
R-82-4277	45.3	28.4	26.2	0.9	0.8	0.14	8.3
(82-2171-R)	(N/A)	(21.50)		(10,094)		(0.64)	(7.4)
R-82-4278	54.2	25.8	28.8	1.1	1.4	0.68	8.1
VIX (82-2172-R)	(N/A)	(19.08)		(10,575)		(0.64)	(7.3)
R-82-4279	34.4	28.4	26.2	0.9	0.8	0.01	8.7
R-82-4280	34.3	36.1	31.3	0.8	0.7	0.01	8.5
GOA (82-2173-R)	(N/A)	(23.68)		(9,953)		(0.93)	(6.8)
R-82-4281	34.5	32.8	24.3	0.7	0.4	0.05	8.5
R-82-4282	28.2	35.5	23.7	0.5	0.5	0.01	8.7
R-82-4283	30.1	36.8	27.3	0.6	0.5	0.08	8.6
GXX (82-2174-R)	(N/A)	(10.41)		(11,951)		(0.49)	(7.5)

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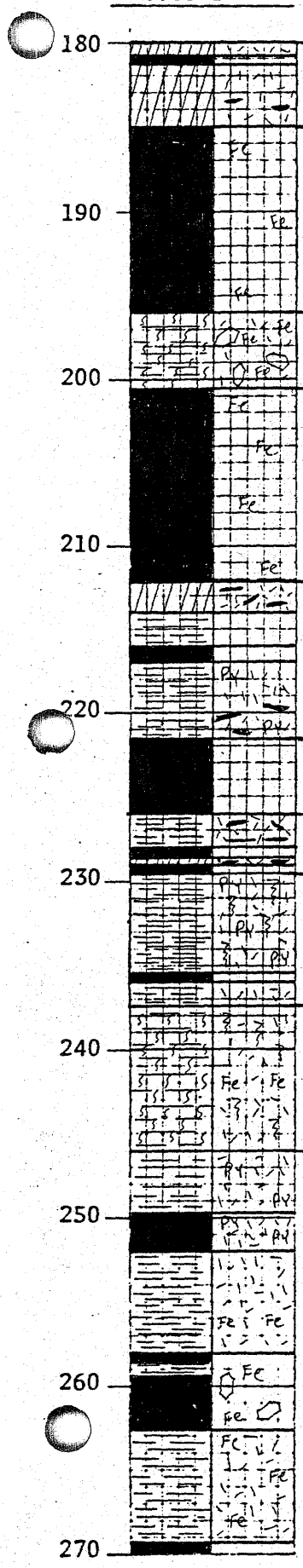
DRILLER Jim Elliott PAGE 3

LOCATION S 12896.0 DATE DRILLED 7/19/82 SUB AREA N-6

E 27150.0

ELEVATION 6665.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-82-4284	49.6	31.9	26.7	0.5	0.9.	0.24	8.1
BXX (82-2175-R)	(N/A)	(10.98)		(11,880)		(0.54)	(7.5)
R-82-4285	44.3	33.9	47.9	2.7	1.3	0.48	7.7
RXX (82-2176-R)	(N/A)	(6.94)		(12,459)		(0.43)	(7.4)
R-82-4286	43.1	28.0	41.0	2.5	1.8	1.27	7.3
MXX (82-2177-R)	(N/A)	(5.53)		(12,643)		(0.77)	(7.2)
R-82-4287	41.2	110.2	77.9	0.6	0.4	0.74	7.5
R-82-4288	38.5	81.2	94.3	1.6	1.1	0.90	7.7
R-82-4289	28.4	47.6	30.1	0.4	0.4	0.33	8.5
YOX		382					

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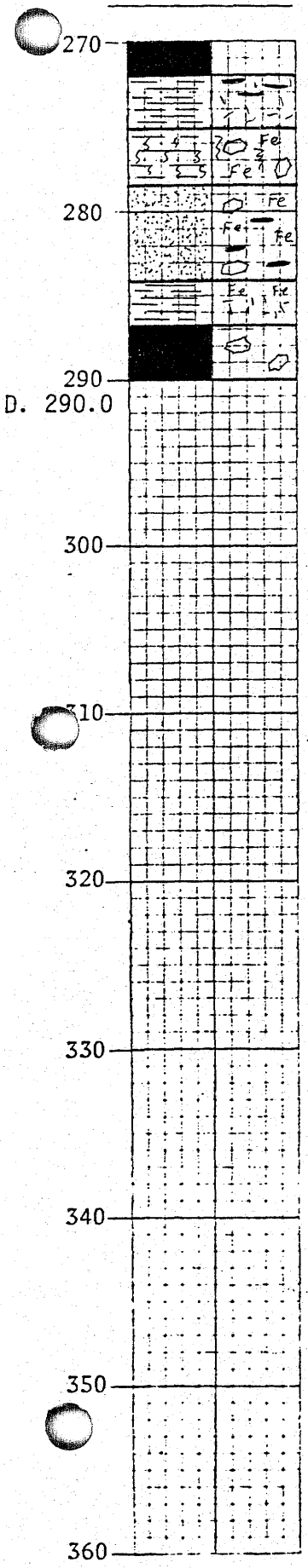
JOB NO. 240960 DRILLER Jim Elloitt PAGE 4

LOCATION S 12896.0 DATE DRILLED 7/19/82 SUB AREA N-6

E 27150.0

ELEVATION 6665.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
Y1X							
NOX							
		383					

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24096C
DATE CORED:19JUL1982
DATE REPORTED:19MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820004260	8.2	38.3	0.3	1.4	2	0.5	1.3					0.6
SO	3	820004261	8.1	50.9	1.2	10.6	2.7	4.3	5.7					6.7
SH	6	820004262	6.6	82.1	2.5	9.7	8.5	11.7	3.1					3.2
SL	14.9	820004263	7.8	62.5	2.6	7.7	11.8	12.3	2.2					1.9
SH	20	820004264	7.7	57.7	2.6	8.8	10.4	11.8	2.6					2.5
SS	31.4	820004265	7.4	42.3	3.9	7.2	28	23.2	1.4					0.7
SH,CO	36.7	820004266	6.4	61.7	3.4	21	9.9	7.4	7.1					8.4
SH	42	820004267	8	31.5	2.8	26.9	1.7	0.8	24.1					25.5
SS	46	820004268	8.5	32.1	2	18.5	0.9	0.8	20.1					22.1
SH,CO	50.4	820004269	7.7	46.3	3.3	33.9	1.1	0.8	34.8					33.4
SH	60	820004270	8.8	61.3	2.3	23.7	0.4	0.7	32					31.5
SH,SL	70	820004271	8.7	28.7	4.5	50.5	1.5	1.6	40.6					37
SH,SL	76.5	820004272	8.6	32.1	2.2	20.5	0.8	0.6	24.5					25.9
SS	83	820004273	8.8	32.1	1.8	17.3	0.7	0.5	22.3					24
SS	88.7	820004274	8.6	32.1	2.3	21.1	0.8	0.7	24.4					25.8
SH,CO	94.7	820004275	8.5	54	3.2	33.9	0.9	1.1	33.9					32.8
SH	104	820004276	8.3	58.6	2.2	24.9	0.6	0.6	32.1					31.5
SH,CO	113	820004277	8.3	45.3	2.6	26.2	0.9	0.8	28.4					28.9
CO	120	COAL												
SH	122	820004278	8.1	54.2	2.9	28.8	1.1	1.4	25.8					26.9
CO	124.9	COAL												
SH	128	820004279	8.7	34.4	2.5	26.2	0.9	0.8	28.4					28.9
SH,SS	135.2	820004280	8.5	34.3	3.1	31.3	0.8	0.7	36.1					34.2
CO	143.3	COAL												
SH	146.5	820004281	8.5	34.5	2.4	24.3	0.7	0.4	32.8					32
SS	156	820004282	8.7	28.2	2.5	23.7	0.5	0.5	35.5					33.8
SS	163.8	820004283	8.6	30.1	2.7	27.3	0.6	0.5	36.8					34.7
CO	171.7	COAL												
SH,CO	180	820004284	8.1	49.6	3.6	26.7	0.5	0.9	31.9					31.4
CO	185	COAL												
SH,SL	196	820004285	7.7	44.3	4.7	47.9	2.7	1.3	33.9					32.8
CO	200.5	COAL												
SH,CO	212.1	820004286	7.3	43.1	4.2	41	2.5	1.8	28					28.6
CO	221.5	COAL												
SH,CO	226	820004287	7.5	41.2	6	77.9	0.6	0.4	110.2					61.7
SH,CO	229.5	820004288	7.7	38.5	7.7	94.3	1.6	1.1	81.2					54.2
SL,SH	237.4	820004289	8.5	28.4	2.9	30.1	0.4	0.4	47.6					40.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24096C
DATE CORED:19JUL1982
DATE REPORTED:19MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820004260	4	1.9	80.4	<0.01	0.31	42.79	.	42.48	73.6	13.6	12.8	13.5	7.4	6.1
SO	820004261	4	1	101	<0.01	0.31	22.78	.	22.47	54	25.2	20.8	19.7	10.2	9.5
SH	820004262	5	0.9	149	0.05	1.56	10.47	.	8.91	15	33.2	51.8	36.8	23.8	13
SL	820004263	11	1.7	121	<0.01	0.31	14.04	.	13.73	29	39.2	31.8	22.7	13.2	9.5
SH	820004264	28	1.4	149	<0.01	0.31	18.36	.	18.05	31.4	30.8	37.8	17.7	12.8	4.9
SS	820004265	9	3.2	65.2	0.18	5.63	18.52	.	12.89	61.4	20.8	17.8	14.8	7.1	7.7
SH,CO	820004266	18	1.7	150	0.29	9.06	17.99	.	8.93	42.4	17.8	39.8	22.5	12.9	9.6
SH	820004267	5	0.8	90.1	<0.01	0.31	69.78	.	69.47	40.4	35.8	23.8	20.4	7.1	13.3
SS	820004268	3	0.4	60	0.01	0.31	196.91	.	196.6	67.4	22.8	9.8	10.8	4.1	6.7
SH,CO	820004269	10	0.8	199	0.28	8.75	18.52	.	9.77	37.4	22.8	39.8	31.4	13.4	17
SH	820004270	12	0.5	280	0.12	3.75	16.06	.	12.31	15.4	38.8	45.8	35	24.2	10.8
SH,SL	820004271	6	0.9	88.4	0.02	0.63	135.34	.	134.71	52.4	32.8	14.8	17.7	5.5	12.2
SH,SL	820004272	4	0.5	86.7	0.01	0.31	95.32	.	95.01	55.4	29.2	15.4	17.2	4.8	12.4
SS	820004273	3	0.9	44.9	<0.01	0.31	49.72	.	49.41	73.4	12.2	14.4	13	2.9	10.1
SS	820004274	2	0.5	48.3	0.01	0.31	52.02	.	51.71	72.4	17.2	10.4	13.6	3.3	10.3
SH,CO	820004275	11	0.9	259	0.28	8.75	18.28	.	9.53	21.4	34.2	44.4	33.3	15.1	18.2
SH	820004276	15	1.1	229	0.29	9.06	20.69	.	11.63	28.4	21.2	50.4	36.7	19	17.7
SH,CO	820004277	18	0.8	224	0.14	4.38	51.68	.	47.3	34.4	27.2	38.4	29.3	14.2	15.1
CO	COAL														
SH	820004278	17	0.6	286	0.68	21.25	13.35	7.9	.	44.4	14.2	41.4	34	15.5	18.5
CO	COAL														
SH	820004279	9	1	195	0.01	0.31	106.73	.	106.42	43.4	29.2	27.4	20.4	9.6	10.8
SH,SS	820004280	12	0.5	168	0.01	0.31	45.48	.	45.17	49.4	7.2	43.4	19.9	7.3	12.6
CO	COAL														
SH	820004281	13	0.4	194	0.05	1.56	36.26	.	34.7	26.4	41.2	32.4	21.8	9.6	12.2
SS	820004282	8	1	96	0.01	0.31	187.69	.	187.38	69.4	20.2	10.4	12.1	4.4	7.7
SS	820004283	8	1	73.1	0.08	2.5	150.71	.	148.21	68.9	20.2	10.9	11	5.5	5.5
CO	COAL														
SH,CO	820004284	7	1.3	307	0.24	7.5	32.6	.	25.1	33.8	25.2	41	30.6	14.6	16
CO	COAL														
SH,SL	820004285	5	1.2	113	0.48	15	2.48	12.52	.	51.8	35.8	12.4	14.5	5.3	9.2
CO	COAL														
SH,CO	820004286	11	1.2	172	1.27	39.69	40.49	.	0.8	69.8	39.6	9.4	18.9	5.8	13.1
CO	COAL														
SH,CO	820004287	10	1.4	191	0.74	23.13	1.6	21.53	.	55.8	25.2	19	18.2	9.1	9.1
SH,CO	820004288	7	1.7	216	0.9	28.13	51.23	.	23.1	63.8	23.2	13	13.9	5.6	8.3
SL,SH	820004289	3	1.3	125	0.33	10.31	53.11	.	42.8	65.8	23.2	11	14.6	4.1	10.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24096C
DATE CORED:19JUL1982
DATE REPORTED:19MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *					
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM	Organic * Matter %
SO	820004260	0.4	0.09	<0.01	<0.6	16	0.6	3.8	119.2	59.6	<1	0.7
SO	820004261	0.4	<0.01	<0.01	<0.6	40	0.3	1.6	60.7	22.3	<1	0.3
SH	820004262	0.5	0.01	0.04	<0.6	68	0.3	6.6	64.3	4.8	6.3	1.7
SL	820004263	0.5	<0.01	0.03	<0.6	65	0.3	3.2	26.9	11.4	1.5	0.5
SH	820004264	0.5	<0.01	<0.01	<0.6	66	0.4	4.2	33.3	20.9	2.2	0.8
SS	820004265	0.4	<0.01	<0.01	<0.6	24	0.2	2.6	31.5	8.7	2.8	0.5
SH,CO	820004266	4	0.03	0.13	<0.6	<10	1.1	10.3	66.2	18.1	9.6	COAL
SH	820004267	0.6	0.06	0.04	<0.6	20	1.9	7.2	89	3.1	9	1.3
SS	820004268	0.4	<0.01	0.01	<0.6	<10	0.6	2.5	112.3	3.6	3.7	1.3
SH,CO	820004269	3.4	0.08	0.21	<0.6	<10	1.6	10.9	71.2	5	17.7	COAL
SH	820004270	1.3	0.17	0.16	<0.6	29	1.9	9.6	48.7	2.8	15	4.9
SH,SL	820004271	0.5	0.06	0.03	<0.6	11	1.3	2.3	106.7	3.6	8.3	2
SH,SL	820004272	0.5	0.1	0.05	<0.6	13	1.9	2.4	77	3.9	11.6	2.2
SS	820004273	0.2	0.05	<0.01	<0.6	11	0.9	1.4	100.4	3.4	6.3	0.9
SS	820004274	0.2	0.04	0.01	<0.6	<10	1.2	1.3	82.8	2.9	5.7	1.6
SH,CO	820004275	1.6	0.35	0.16	<0.6	14	2.1	11.1	43.9	2.3	11.7	COAL
SH	820004276	2.1	0.14	0.22	<0.6	<10	1.8	12.4	36.4	1	17.5	5.8
SH,CO	820004277	0.8	0.12	0.17	<0.6	15	1.2	10	47.4	1	17.1	COAL
CO	COAL											
SH	820004278	1.8	0.11	0.22	<0.6	<10	2.2	8.2	71	1	5.8	5.7
CO	COAL											
SH	820004279	0.3	0.11	0.08	<0.6	20	1.9	5.2	83.5	5.7	13.7	2.6
SH,SS	820004280	0.1	0.27	0.09	<0.6	26	3.2	5.7	63.1	4.8	14.6	2.2
CO	COAL											
SH	820004281	0.3	0.12	<0.01	<0.6	24	3.1	5.8	59.8	9	16.4	3.5
SS	820004282	0.2	0.12	0.11	<0.6	<10	1.9	2.6	118.5	6.5	8.4	2.8
SS	820004283	0.1	0.13	0.09	<0.6	14	1.3	1.7	130.1	6.7	6.4	2.3
CO	COAL											
SH,CO	820004284	0.3	0.13	0.37	0.6	17	1.4	6.8	36.8	1	12.7	COAL
CO	COAL											
SH,SL	820004285	0.2	0.05	0.14	<0.6	21	3.4	4.5	45.7	1.6	10.9	6.4
CO	COAL											
SH,CO	820004286	0.8	0.01	0.12	<0.6	11	2.9	4.3	227.7	2.6	4.6	COAL
CO	COAL											
SH,CO	820004287	1.7	0.03	0.17	<0.6	<10	5.3	6.9	175.8	1	10.5	COAL
SH,CO	820004288	0.7	<0.01	0.1	0.6	<10	5.2	7.1	172.9	11	12.7	COAL
SL,SH	820004289	0.2	0.08	0.09	0.6	<10	3	6.4	108.8	9.5	12.9	3

LOCATION S 12932.0 DATE DRILLED 8/1/82 SUB AREA N-6

E 25313.0

ELEVATION 6649.1

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004290	106.5	7.3	21.2	11.1	5.9	0.08	7.7
820004291	83.5	9.6	30.1	2.2	17.3	0.11	6.4
820004292	67.9	11.3	45.1	2.5	29.4	0.17	4.7
820004293	59.2	10.9	53.3	2.6	45.6	0.36	5.6
820004294	75.3	22.2	47.9	4.8	4.5	0.04	5.1
820004295	75.9	25.3	22.6	0.7	0.9	0.12	6.5
820004296	49.3	17.5	17.1	0.7	1.2	0.04	8.9
820004297	28.4	23.7	19.1	0.9	0.4	<0.01	8.6
820004298	62.6	36.3	31.4	0.6	0.9	0.40	7.9
820004299	47.9	50.7	42.4	0.7	0.7	0.23	8.1
820004300	79.5	25.9	23.9	0.6	1.1	0.26	8.6
820004301	49.7	28.0	22.6	0.5	0.8	0.27	8.2
820004302	28.4	29.2	22.6	0.4	0.8	<0.01	8.7
820004303	41.3	47.4	33.5	0.5	0.5	0.28	8.1
820004304	31.3	26.7	21.5	0.6	0.7	<0.01	8.6
820004305	66.1	34.9	15.6	0.3	0.1	0.11	8.6
820004306	36.3	16.6	28.7	4.7	1.3	0.04	8.7

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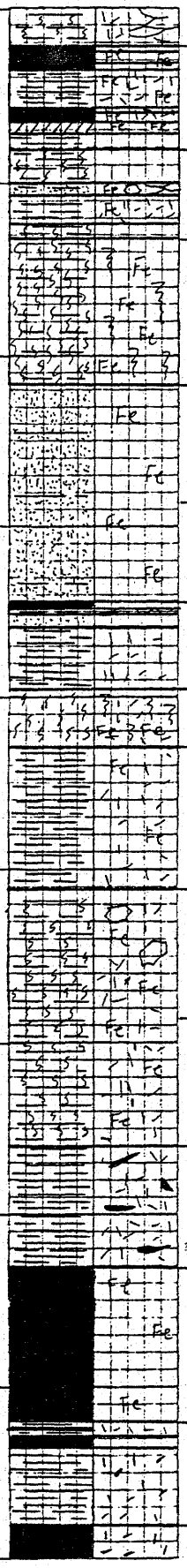
LOCATION S 12932.0 DATE DRILLED 8/1/82 SUB AREA N-6

E 25313.0

ELEVATION 6649.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004307	54.2	36.7	21.7	0.3	0.4	0.34	8.1
820004308	44.4	26.2	13.1	0.4	0.1	0.06	8.9
820004309	36.3	25.2	12.6	0.4	0.1	0.02	8.8
820004310	36.2	21.6	18.7	0.8	0.7	0.02	8.6
820004311	36.2	49.2	45.4	1.0	0.7	0.10	8.6
820004312	62.5	38.7	24.5	0.4	0.4	0.23	8.8
820004313	34.1	34.2	31.5	1.0	0.7	0.09	8.6
820004314	47.5	39.6	28.0	0.3	0.7	0.10	8.8
820004315	32.5	23.4	20.3	0.8	0.7	0.11	8.8
820004316	32.7	29.3	21.7	0.3	0.8	0.05	8.6
820004317	41.2	33.2	21.0	0.2	0.6	0.09	8.4
BXX (82-2180-R)	(N/A)	(12.57)		(11,574)		(0.79)	(7.4)
820004318	38.9	27.3	28.0	1.3	0.8	0.49	7.8
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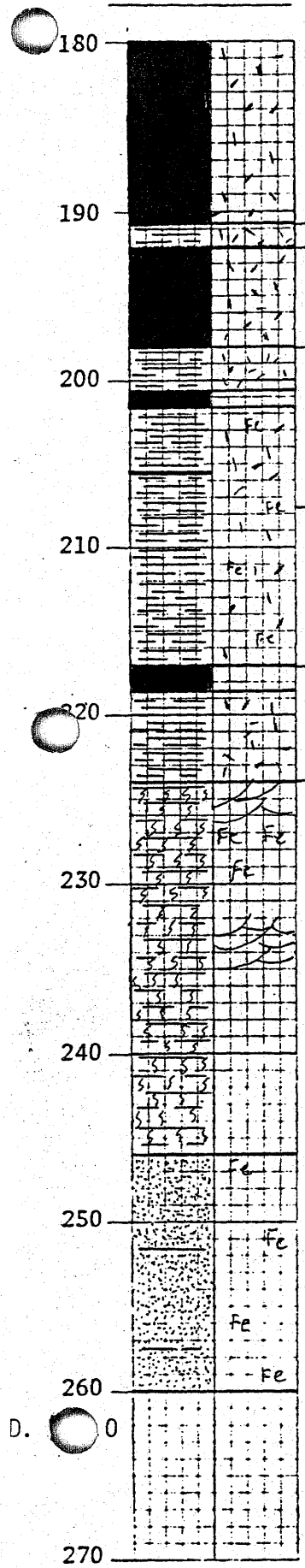
DRILL NO. 240970 DRILLER Jim Elliott PAGE 3

LOCATION S 12932.0 DATE DRILLED 8/1/82 SUB AREA N-6

E 25313.0

ELEVATION 6649.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
RXX (82-2179-R)	(N/A)	(4.88)		(12,834)		(0.39)	(7.3)
820004319	36.6	62.6	52.4	0.7	0.7	0.85	8.2
MXX (82-2178-R)	(N/A)	(7.14)		(12,462)		(0.46)	(7.5)
820004320	41.1	39.7	26.6	0.4	0.5	0.67	7.8
820004321	36.5	62.2	44.0	0.5	0.5	0.89	8.6
820004322	48.2	57.6	48.2	1.0	0.4	1.79	6.9

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24097C
DATE CORED:01AUG1982
DATE REPORTED:19MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	820004290	7.7	106.5	3.2	21.2	11.1	5.9	7.3					8.7
SH	4	820004291	6.4	83.5	4.9	30.1	2.2	17.3	9.6					11.4
SH	8	820004292	4.7	67.9	6.8	45.1	2.5	29.4	11.3					13.3
SH,CO	12	820004293	5.6	59.2	8.3	53.3	2.6	45.6	10.9					12.9
SH	16	820004294	5.1	75.3	5.1	47.9	4.8	4.5	22.2					23.9
CO,SH	20.6	820004295	6.5	75.9	2.2	22.6	0.7	0.9	25.3					26.5
SL	25.4	820004296	8.9	49.3	1.4	17.1	0.7	1.2	17.5					19.7
SS	36	820004297	8.6	28.4	1.9	19.1	0.9	0.4	23.7					25.2
CO,SH	39.9	820004298	7.9	62.6	2.8	31.4	0.6	0.9	36.3					34.3
CO,SH	46	820004299	8.1	47.9	2.7	42.4	0.7	0.7	50.7					42.4
SH	50.7	820004300	8.6	79.5	2.5	23.9	0.6	1.1	25.9					27
CO,SH	58.7	820004301	8.2	49.7	1.9	22.6	0.5	0.8	28					28.6
SL	64	820004302	8.7	28.4	1.9	22.6	0.4	0.8	29.2					29.5
SH,CO	68	820004303	8.1	41.3	3	33.5	0.5	0.5	47.4					40.7
SH,SL	74	820004304	8.6	31.3	2.4	21.5	0.6	0.7	26.7					27.6
CO,SH	78.4	820004305	8.6	66.1	1.5	15.6	0.3	0.1	34.9					33.4
SH,SL	83.1	820004306	8.7	36.3	3.1	28.7	4.7	1.3	16.6					18.8
CO,SH	92.2	820004307	8.1	54.2	2	21.7	0.3	0.4	36.7					34.6
SH,SS	98.1	820004308	8.9	44.4	1.3	13.1	0.4	0.1	26.2					27.2
SH,SL	103.2	820004309	8.8	36.3	1.3	12.6	0.4	0.1	25.2					26.4
SS	11.7	820004310	8.6	36.2	2	18.7	0.8	0.7	21.6					23.4
SS	118.05	820004311	8.6	36.2	4.4	45.4	1	0.7	49.2					41.6
CO,SH,SS	124.4	820004312	8.8	62.5	2.2	24.5	0.4	0.4	38.7					35.8
SL	129.5	820004313	8.6	34.1	3.2	31.5	1	0.7	34.2					33
SH	132.9	820004314	8.8	47.5	2.5	28	0.3	0.7	39.6					36.4
SL,SH	141.1	820004315	8.8	32.5	1.9	20.3	0.8	0.7	23.4					24.9
SL,SH	148.5	820004316	8.6	32.7	1.9	21.7	0.3	0.8	29.3					29.6
SH	156	820004317	8.4	41.2	1.9	21	0.2	0.6	33.2					32.3
CO	163.1	COAL												
SH,CO	172	820004318	7.8	38.9	2.8	28	1.3	0.8	27.3					28.1
CO	178	COAL												
SH	190.7	820004319	8.2	36.6	4.5	52.4	0.7	0.7	62.6					47.7
CO	192.1	COAL												
SH,CO	198	820004320	7.8	41.1	2.5	26.6	0.4	0.5	39.7					36.4
SH	207.5	820004321	8.6	36.5	4	44	0.5	0.5	62.2					47.5
CO,SH	217.1	820004322	6.9	48.2	4.6	48.2	1	0.4	57.6					45.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24097C
DATE CORED:01AUG1982
DATE REPORTED:19MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	820004290	7	3	54.6	0.08	2.5	31.58	.	29.08	18.8	22.2	59	44.8	24.9	19.9
SH	820004291	11	5.8	193	0.11	3.44	5.04	.	1.6	8.8	40.2	51	31.1	16.9	14.2
SH	820004292	95	0.8	207	0.17	5.31	1.49	3.82	.	15.8	25.2	59	31.6	18.6	13
SH,CO	820004293	169	1.3	216	0.36	11.25	31.14	.	19.89	43.8	33.2	23	23.2	13.2	10
SH	820004294	117	2.3	325	0.04	1.25	0.93	0.32	.	7.8	43.2	49	31.8	16.4	15.4
CO,SH	820004295	66	1.8	396	0.12	3.75	4.95	.	1.2	13.8	32.2	54	40.1	20.8	19.3
SL	820004296	17	2	202	0.04	1.25	31.66	.	30.41	29.8	40.2	30	26.9	11.9	15
SS	820004297	3	1.4	69.2	<0.01	0.31	95.42	.	95.11	63.8	25.2	11	17.2	5	12.2
CO,SH	820004298	19	1.5	275	0.4	12.5	28.3	.	15.8	29.8	25.2	45	39.5	16.8	22.7
CO,SH	820004299	16	1.5	193	0.23	7.19	42.71	.	35.52	52.8	17.8	29.4	39.3	15.2	24.1
SH	820004300	18	1	369	0.26	8.13	7.47	0.66	.	9.8	35.2	55	51	20.8	30.2
CO,SH	820004301	14	1.3	214	0.27	8.44	31.87	.	23.43	41.8	25.2	33	37.2	16.1	21.1
SL	820004302	7	1.4	98.9	<0.01	0.31	52.1	.	51.79	54.2	29.8	16	19.2	5.8	13.4
SH,CO	820004303	10	1.2	179	0.28	8.75	48.6	.	39.85	38.6	28.4	33	29.4	12.8	16.6
SH,SL	820004304	11	2	119	<0.01	0.31	199.99	.	199.68	58.6	25.4	16	26.5	9.6	16.9
CO,SH	820004305	6	1.2	265	0.11	3.44	2.82	0.62	.	18.6	34.4	47	41.6	29.2	12.4
SH,SL	820004306	9	1.7	149	0.04	1.25	53.75	.	52.5	46.6	32.4	21	34.1	13.3	20.8
CO,SH	820004307	6	0.9	227	0.34	10.63	6.82	3.81	.	48.1	21.9	30	35	23.3	11.7
SH,SS	820004308	3	1.3	163	0.06	1.88	17.83	.	15.95	38	30.6	31.4	28.1	17.6	10.5
SH,SL	820004309	3	1	106	0.02	0.63	5.14	.	4.51	45	31.6	23.4	20.9	12.3	8.6
SS	820004310	3	0.8	40.6	0.02	0.63	21.48	.	20.85	75	14.6	10.4	11.2	6.1	5.1
SS	820004311	2	0.7	73.1	0.1	3.13	33.21	.	30.08	63	19.6	17.4	14.6	8.8	5.8
CO,SH,SS	820004312	6	1.4	286	0.23	7.19	34.03	.	26.84	30	26.6	43.4	34.9	23.6	11.3
SL	820004313	<2	1	79.1	0.09	2.81	132.24	.	129.43	73	16.6	10.4	10.6	5.4	5.2
SH	820004314	5	1.4	250	0.1	3.13	47.48	.	44.35	22	41.6	36.4	25.1	18.8	6.3
SL,SH	820004315	2	1.4	109	0.11	3.44	158.13	.	154.69	58	25.6	16.4	20.7	8.4	12.3
SL,SH	820004316	4	1.4	148	0.05	1.56	97.36	.	95.8	50	27.6	22.4	15.7	8.5	7.2
SH	820004317	3	1	183	0.09	2.81	9.89	.	7.08	31	34.6	34.4	13.6	12.7	0.9
CO	COAL														
SH,CO	820004318	2	1.2	95	0.49	15.31	26.16	.	10.85	55	29.6	15.4	21.8	7.1	14.7
CO	COAL														
SH	820004319	5	1.2	138	0.85	26.56	35.1	.	8.54	30	42.6	27.4	14.2	7	7.2
CO	COAL														
SH,CO	820004320	7	1.3	164	0.67	20.94	8.92	12.02	.	43	30.6	26.4	13.2	9	4.2
SH	820004321	5	1.8	163	0.89	27.81	51.47	.	23.66	40	34.6	25.4	17.1	7.8	9.3
CO,SH	820004322	10	1.5	177	1.79	55.94	2.27	53.67	.	59	20.6	20.4	19.6	10	9.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24097C
DATE CORED:01AUG1982
DATE REPORTED:19MAR1985

Dry Basis

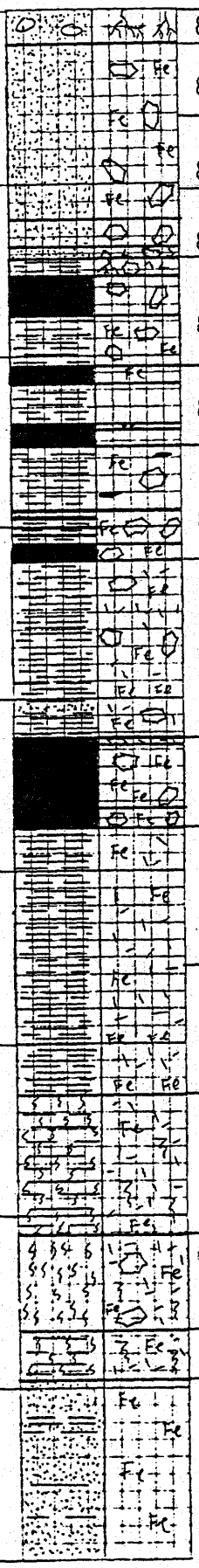
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	820004290	1.4	0.1	<0.01	<0.6	103	0.6	9.4	76.5	1.8	8.5		13.6
SH	820004291	1.3	0.01	0.13	<0.6	80	0.4	9.7	91.4	7	8.2		1.9
SH	820004292	1.3	0.03	0.09	<0.6	74	1.3	12.2	147.5	9.2	16.1		4.7
SH,CO	820004293	0.9	<0.01	0.06	<0.6	42	0.7	7.4	233.9	21.2	10.1		COAL
SH	820004294	1.1	0.15	0.14	<0.6	72	0.9	13.3	70.8	5.6	8.5		3.2
CO,SH	820004295	1.5	0.14	0.23	<0.6	27	1.2	9.8	41.2	2.1	13.4		COAL
SL	820004296	0.5	0.16	<0.01	<0.6	20	1.9	5.1	94.6	11	9.3		2.1
SS	820004297	0.3	0.24	0.03	<0.6	<10	1	2.2	93.1	7.5	5.1		1.2
CO,SH	820004298	1.7	0.15	0.36	0.6	<10	1.5	11.3	107.8	3.5	14.6		COAL
CO,SH	820004299	1.8	0.08	0.18	0.6	<10	0.9	6	140.3	2.2	10.1		COAL
SH	820004300	0.7	0.16	0.35	0.6	<10	1.1	9.3	96.9	1	10.4		8.1
CO,SH	820004301	1.3	0.2	0.2	<0.6	<10	0.8	6.2	107.2	3.4	11.3		COAL
SL	820004302	0.4	0.16	0.05	0.6	13	1.4	2.8	83	4.6	7.3		1.5
SH,CO	820004303	1.4	0.14	0.26	0.6	<10	2	6.8	74.8	7.3	12		COAL
SH,SL	820004304	0.3	0.24	0.08	0.6	11	1.5	2.5	135.1	6.7	8.3		2.8
CO,SH	820004305	1.1	0.21	0.24	<0.6	17	1.2	10	27.2	1.1	14.3		COAL
SH,SL	820004306	0.4	0.25	<0.01	<0.6	<10	1.5	3.2	92.2	7.8	8.4		2.6
CO,SH	820004307	3.2	0.1	0.14	<0.6	<10	1	5.7	38.2	2.3	4.8		COAL
SH,SS	820004308	0.7	0.21	0.08	<0.6	14	1.2	3.8	30.3	1	9.1		2.5
SH,SL	820004309	0.5	0.13	0.05	<0.6	<10	1.7	1.6	30.6	1.1	9.2		1.1
SS	820004310	0.2	0.1	<0.01	<0.6	<10	0.7	1.6	38.6	1.6	4.1		0.3
SS	820004311	0.3	0.11	0.02	<0.6	<10	1	2.1	44.8	1.3	6.1		0.9
CO,SH,SS	820004312	0.8	0.24	0.22	1	16	1.3	5.8	33.7	1.9	13.4		COAL
SL	820004313	0.3	0.07	0.02	<0.6	<10	0.6	1.5	61.1	2.7	3.9		0.7
SH	820004314	0.5	0.21	<0.01	0.6	24	1.7	6.8	103.9	9.1	15.4		4
SL,SH	820004315	0.6	0.08	0.02	<0.6	12	0.8	3.8	102.2	5.8	6.5		2.2
SL,SH	820004316	0.4	0.12	0.1	0.6	22	1.1	4.8	123.4	8.6	10.2		3.5
SH	820004317	0.9	0.14	0.21	<0.6	12	2.2	7.9	29.6	5.5	14.2		7.3
CO	COAL												
SH,CO	820004318	0.6	0.04	0.12	<0.6	<10	1.7	4.5	50.2	1.2	11.2		COAL
CO	COAL												
SH	820004319	0.4	0.3	0.34	<0.6	17	3.8	6.1	37.1	1	13.8		7.5
CO	COAL												
SH,CO	820004320	1.5	<0.01	0.03	<0.6	16	5.2	6.8	135.3	10.3	12.6		COAL
SH	820004321	0.7	0.13	0.14	0.6	<10	3.3	6.5	92.6	9	13.5		4.4
CO,SH	820004322	2.2	0.34	0.07	<0.6	<10	6	6.4	296.6	20	19.5		COAL

HOLE NO. 240980 DRILLER J. Elliott PAGE 1

LOCATION S 8597.0 DATE DRILLED 8-9-82 SUB AREA N-6

E 24529.0

ELEVATION 6589.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004323	36.2	1.3	1.5	2.0	0.6	<0.01	8.1
820004324	36.1	1.1	1.8	1.4	2.2	0.01	8.3
820004325	36.1	3.0	4.7	1.6	3.4	<0.01	8.3
820004326	39.4	2.5	6.9	7.6	7.5	0.01	7.8
820004327	54.0	0.8	5.3	27.3	63.3	0.45	3.2
820004328	53.4	0.5	4.2	29.5	89.2	0.48	5.1
820004329	53.2	0.8	5.6	30.9	62.1	0.29	5.3
820004330	49.8	2.4	11.9	19.4	30.1	0.15	6.6
G1X (82-2184-R)	(N/A)	(16.56)		(10,883)		(0.71)	(4.8)
820004331	74.7	29.4	25.5	0.5	1.0	0.08	6.5
820004332	63.2	36.0	19.7	0.1	0.5	0.05	8.9
820004333	60.7	25.5	25.5	0.4	1.6	0.05	9.2
820004334	42.2	32.2	43.8	1.0	2.7	0.01	8.8
820004335	42.3	17.4	21.0	0.6	2.3	0.05	8.7
820004336	34.2	11.1	19.1	1.1	4.8	0.02	8.7

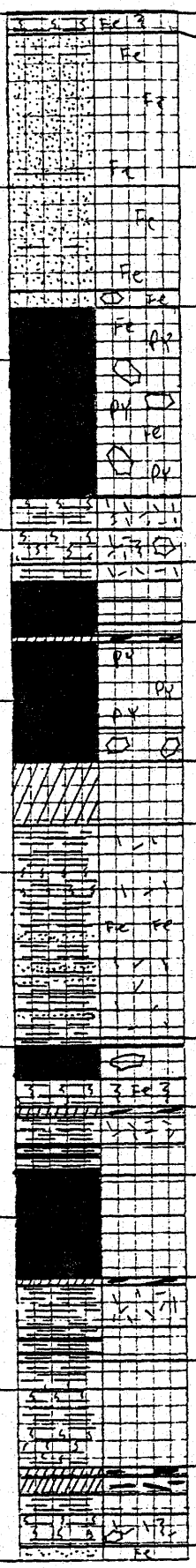
OCT 27 1986
SEP 3 1986

HOLE NO. 24098C DRILLER J. Elliott PAGE 2

LOCATION S 8597.0 DATE DRILLED 8-9-82 SUB AREA N-6

E 24529.0

ELEVATION 6589.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004337	38.3	11.5	20.9	1.3	5.3	0.06	8.4
820004338	38.2	7.6	17.1	2.2	8.0	0.01	8.5
820004339	36.2	4.9	17.0	11.3	12.7	0.02	8.1
BXX (82-2183-R)	(N/A)	(6.36)		(12,554)		(0.50)	(7.2)
820004340	40.5	14.9	24.7	3.3	2.2	0.28	7.9
820004341	52.6	25.2	38.2	2.9	1.7	1.82	6.3
RXX (82-2182-R)	(N/A)	(7.57)		(12,427)		(0.75)	(6.6)
820004342	40.8	17.7	11.2	0.6	0.2	0.06	8.7
820004343	40.8	26.0	19.3	0.4	0.7	0.08	9.0
820004344	41.7	40.3	38.2	1.1	0.7	0.69	7.9
820004345	45.2	35.2	33.4	1.3	0.5	0.84	7.1
MXX (82-2181-R)	(N/A)	(8.96)		(12,188)		(0.48)	(7.4)
820004346	41.3	41.8	24.7	0.3	0.4	0.61	8.0
820004347	38.6	52.3	42.2	0.8	0.5	0.99	7.8
820004348	34.6	45.1	24.7	0.3	0.3	0.09	8.8

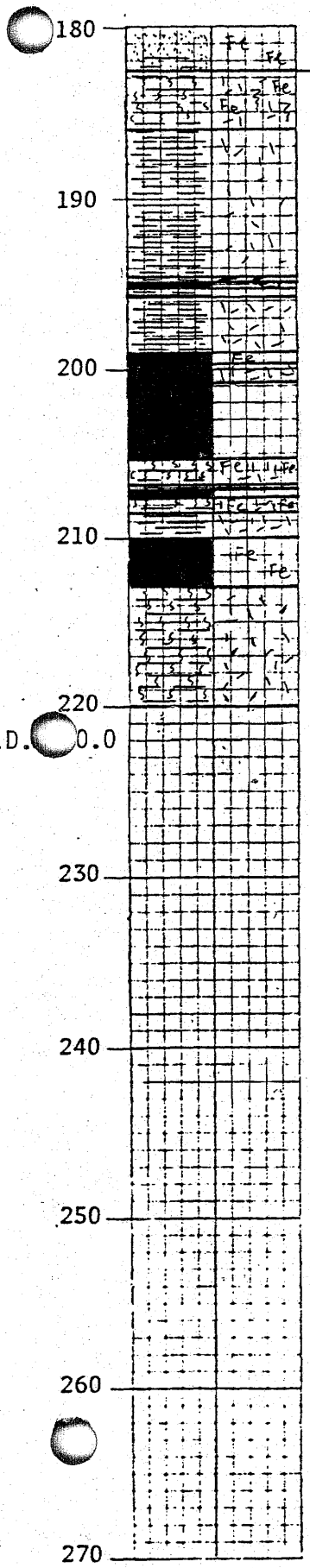
OCT 27 1986 SEP 3 1986

DRILLER J. Elliott PAGE 3

LOCATION S 8597.0 DATE DRILLED 8-9-82 SUB AREA N-6

E 245290

ELEVATION 6589.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004349	32.1	42.6	21.3	0.2	0.3	0.02	8.9
YOX							
Y1X							

395

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24098C
DATE CORED:09AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820004323	8.1	36.2	0.4	1.5	2	0.6	1.3					0.6
SS	2	820004324	8.3	36.1	0.5	1.8	1.4	2.2	1.1					0.3
SS	6.1	820004325	8.3	36.1	1	4.7	1.6	3.4	3					3.1
SS	10.2	820004326	7.8	39.4	1.9	6.9	7.6	7.5	2.5					2.4
SH,CO	14.3	820004327	3.2	54	6.9	5.3	27.3	63.3	0.8					-0.1
CO,SH	20.5	820004328	5.1	53.4	7	4.2	29.5	89.2	0.5					-0.5
SH,CO	25.3	820004329	5.3	53.2	6.1	5.6	30.9	62.1	0.8					-0.1
SH,CO	32	820004330	6.6	49.8	4.1	11.9	19.4	30.1	2.4					2.2
CO	42.6	COAL												
SH	47.5	820004331	6.5	74.7	2.5	25.5	0.5	1	29.4					29.6
SH	55.5	820004332	8.9	63.2	2	19.7	0.1	0.5	36					34.1
SH,SL	63	820004333	9.2	60.7	2.5	25.5	0.4	1.6	25.5					26.7
SL	71.1	820004334	8.8	42.2	4.1	43.8	1	2.7	32.2					31.6
SH,SL	76.7	820004335	8.7	42.3	2.3	21	0.6	2.3	17.4					19.6
SS	79.6	820004336	8.7	34.2	2.4	19.1	1.1	4.8	11.1					13.1
SH,SL	90.1	820004337	8.4	38.3	2.5	20.9	1.3	5.3	11.5					13.6
SS	91.3	820004338	8.5	38.2	2.5	17.1	2.2	8	7.6					9
SS	99	820004339	8.1	36.2	3.1	17	11.3	12.7	4.9					5.6
CO	107	COAL												
SH,SL	118.1	820004340	7.9	40.5	2.7	24.7	3.3	2.2	14.9					17.2
SH,CO	122	820004341	6.3	52.6	3.8	38.2	2.9	1.7	25.2					26.4
CO	125.5	COAL												
SH	133.7	820004342	8.7	40.8	1.2	11.2	0.6	0.2	17.7					19.9
SH	137.3	820004343	9	40.8	1.8	19.3	0.4	0.7	26					27.1
SH,CO	149.6	820004344	7.9	41.7	3.5	38.2	1.1	0.7	40.3					36.8
SH,CO	153.5	820004345	7.1	45.2	3.4	33.4	1.3	0.5	35.2					33.6
CO	157.6	COAL												
SH,CO	163.5	820004346	8	41.3	2.4	24.7	0.3	0.4	41.8					37.7
SH	168.4	820004347	7.8	38.6	3.9	42.2	0.8	0.5	52.3					43.1
SH,CO	174.6	820004348	8.8	34.6	2.3	24.7	0.3	0.3	45.1					39.5
SS	179.2	820004349	8.9	32.1	2.2	21.3	0.2	0.3	42.6					38.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24098C
DATE CORED:09AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820004323	4	2.3	26.4	<0.01	0.31	308.91	.	308.6	76	12.6	11.4	14.5	4.4	10.1
SS	820004324	<2	1.3	20.3	0.01	0.31	220.5	.	220.19	78	12.6	9.4	11.9	3.7	8.2
SS	820004325	3	1.4	18.2	<0.01	0.31	151.87	.	151.56	76.6	13	10.4	13.4	4.3	9.1
SS	820004326	34	2.3	35.7	0.01	0.31	102.63	.	102.32	69.6	17	13.4	16.1	5.8	10.3
SH,CO	820004327	594	3.8	341	0.45	14.06	-11.2	25.26	.	55.6	8	36.4	24.2	15.6	8.6
CO,SH	820004328	380	12	182	0.48	15	10.15	4.85	.	40.6	27.4	32	19.9	13.6	6.3
SH,CO	820004329	366	3.7	189	0.29	9.06	30.16	.	21.1	28.6	32.4	39	23.1	11.9	11.2
SH,CO	820004330	112	3.7	239	0.15	4.69	19.08	.	14.39	22.6	40.4	37	19.5	8.4	11.1
CO	COAL														
SH	820004331	61	3.2	347	0.08	2.5	1.88	0.62	.	20	34.6	45.4	38.2	24.5	13.7
SH	820004332	36	1.5	267	0.05	1.56	37.14	.	35.58	24	42.6	33.4	28.3	14.8	13.5
SH,SL	820004333	25	1	223	0.05	1.56	20.73	.	19.17	21.6	47.4	31	27.2	13.1	14.1
SL	820004334	19	1.4	111	0.01	0.31	21.24	.	20.93	48.6	33	18.4	17.3	5.7	11.6
SH,SL	820004335	16	1.5	129	0.05	1.56	21.55	.	19.99	39	38.6	22.4	17.6	6.5	11.1
SS	820004336	14	1.3	48.3	0.02	0.63	20.86	.	20.23	62	24.6	13.4	13.4	3.5	9.9
SH,SL	820004337	11	1.9	95.1	0.06	1.88	145.23	.	143.35	54	26.6	19.4	14.9	5.4	9.5
SS	820004338	8	0.6	34.2	0.01	0.31	18.76	.	18.45	72	16.6	11.4	15.8	2.7	13.1
SS	820004339	3	0.6	32.2	0.02	0.63	5.79	.	5.16	72	16.6	11.4	14.7	2.1	12.6
CO	COAL														
SH,SL	820004340	<2	1	113	0.28	8.75	41.66	.	32.91	52	32.6	15.4	13.9	4.8	9.1
SH,CO	820004341	13	2.2	128	1.82	56.88	2.35	54.53	.	64	18.6	17.4	19.4	10.1	9.3
CO	COAL														
SH	820004342	16	1.3	226	0.06	1.88	-0.54	2.42	.	8	47.6	44.4	33	20.2	9.8
SH	820004343	13	1	186	0.08	2.5	55.19	.	52.69	33	29.6	37.4	22.4	13.7	8.7
SH,CO	820004344	7	0.9	93.8	0.69	21.56	43.5	.	21.94	66	21.6	12.4	18	9.4	8.6
SH,CO	820004345	10	1	138	0.84	26.25	0	26.25	.	51	29.6	19.4	19.2	9.3	9.9
CO	COAL														
SH,CO	820004346	<2	1	140	0.61	19.06	1.68	17.38	.	62	23.6	14.4	18	9.7	8.3
SH	820004347	6	1.5	148	0.99	30.94	53.93	.	22.99	62	24.6	13.4	10.4	6	4.4
SH,CO	820004348	7	1	137	0.09	2.81	49.37	.	46.56	58.5	25.1	16.4	19.8	9	10.8
SS	820004349	4	0.3	54.9	0.02	0.63	42.67	.	42.04	70.6	18	11.4	13.9	5	8.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24098C
DATE CORED:09AUG1982
DATE REPORTED:25MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820004323	0.2	0.06	<0.01	<0.6	13	1.3	2	117	58.7	<1		0.7
SS	820004324	0.4	0.02	<0.01	<0.6	10	0.6	0.6	68.1	56.7	<1		0.1
SS	820004325	0.8	0.03	<0.01	<0.6	<10	<0.1	0.4	9.1	3.5	2.3		0.1
SS	820004326	0.5	0.02	<0.01	<0.6	14	0.2	0.5	46.8	27.9	<1		0.2
SH,CO	820004327	0.5	0.01	0.02	<0.6	10	0.2	2.1	20.8	9.3	1.9		COAL
CO,SH	820004328	3.3	0.03	0.09	<0.6	24	3.1	9.4	187.1	26.9	19.6		COAL
SH,CO	820004329	2	<0.01	0.1	0.7	24	1.1	8.4	267.6	18.2	10.1		COAL
SH,CO	820004330	1.3	0.01	0.06	<0.6	27	0.9	7.1	106.3	15.5	14.1		COAL
CO	COAL												
SH	820004331	<0.1	0.02	0.04	<0.6	36	1.3	7.4	42.1	17.1	10.4		8.8
SH	820004332	1.6	0.19	0.06	<0.6	19	2.2	9.1	35.8	4	17.6		2.3
SH,SL	820004333	0.4	0.1	0.03	<0.6	33	1.2	5.1	42.2	6.1	7		1.6
SL	820004334	0.6	0.15	0.13	<0.6	24	2.4	4	33.5	3.6	9.6		1.3
SH,SL	820004335	0.4	0.24	0.06	0.6	12	1	5	37.4	5.8	4.9		1.9
SS	820004336	0.2	0.24	0.05	<0.6	16	1.6	3.9	31.9	8	7		0.8
SH,SL	820004337	<0.1	0.06	0.03	<0.6	17	0.5	5.1	37.5	4.6	2.3		1.9
SS	820004338	<0.1	0.01	0.01	<0.6	12	0.2	1.3	22.1	3.3	<1		0.4
SS	820004339	0.2	<0.01	0.02	<0.6	11	0.2	1.1	20.7	2.3	1.2		0.4
CO	COAL												
SH,SL	820004340	0.5	0.02	0.14	0.6	15	2.6	5.6	47.3	2.4	16.9		4.9
SH,CO	820004341	1.9	0.79	0.18	<0.6	13	8	5.5	217.5	6	28.9		COAL
CO	COAL												
SH	820004342	0.4	0.31	0.18	<0.6	27	1.7	7.6	16	1	18		5
SH	820004343	0.1	0.1	0.04	<0.6	15	2.3	4.5	88.7	8.3	14.5		4
SH,CO	820004344	0.8	<0.01	0.03	<0.6	<10	2.3	4.2	100.4	3	7.8		COAL
SH,CO	820004345	1.1	0.1	0.03	<0.6	14	5.5	5.8	258.6	4.5	10.8		COAL
CO	COAL												
SH,CO	820004346	1.1	0.09	0.03	<0.6	<10	4	5.5	146.6	3	13.5		COAL
SH	820004347	0.4	<0.01	0.03	<0.6	<10	3.7	6.6	130.6	7.8	13.2		8.1
SH,CO	820004348	0.4	0.11	0.02	<0.6	<10	2.6	4.2	54.1	4.1	11.5		COAL
SS	820004349	<0.1	0.1	0.03	<0.6	<10	1.7	1.8	68.9	4.1	5.9		1.2

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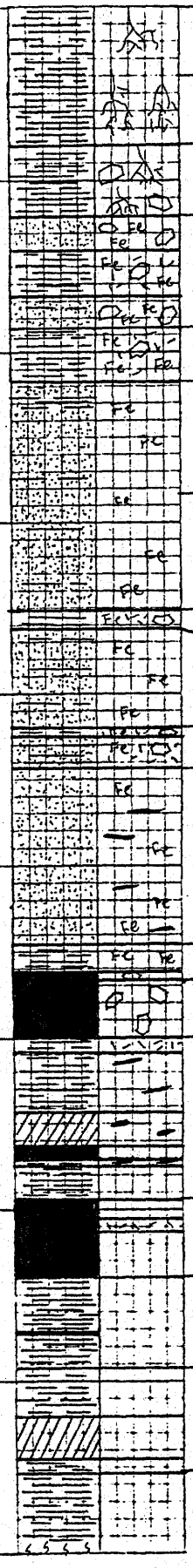
LOCATION S 9247.0 DATE DRILLED 8-16-82 SUB AREA N-6

E 28288.0

ELEVATION 6668.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004350	85.9	4.7	18.1	20.2	9.2	0.06	7.9
820004351	65.2	6.4	19.7	11.5	7.5	0.07	5.3
820004352	60.5	5.1	13.5	7.6	6.2	0.03	6.1
820004353	55.6	5.7	18.5	10.6	10.4	0.03	7.7
820004354	62.3	8.8	21.7	5.9	6.3	0.03	7.9
820004355	49.2	11.4	14.8	2.1	1.3	<0.01	8.4
820004356	53.4	52.8	16.7	< 0.1	0.1	<0.01	8.7
820004357	61.7	18.4	16.5	0.8	0.8	<0.01	8.7
820004358	42.5	15.7	15.3	1.1	0.8	0.01	8.3
820004359	52.8	19.7	19.7	1.0	1.0	0.02	8.6
820004360	42.2	6.8	21.1	9.6	9.8	0.06	7.5
820004361	61.7	29.4	31.5	1.2	1.1	0.15	8.2
V1X (82-2187-R)	(N/A)	(13.06)		(11,585)		(0.56)	(7.2)
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
G1X (82-2188-R)	(N/A)	(19.22)		(10,717)		(0.62)	(7.7)
820004362	49.7	47.8	18.5	< 0.1	0.2	0.51	8.3
820004363	76.9	26.4	18.7	0.1	0.9	0.24	9.0
820004364	48.8	21.9	20.2	0.2	1.5	0.04	9.1

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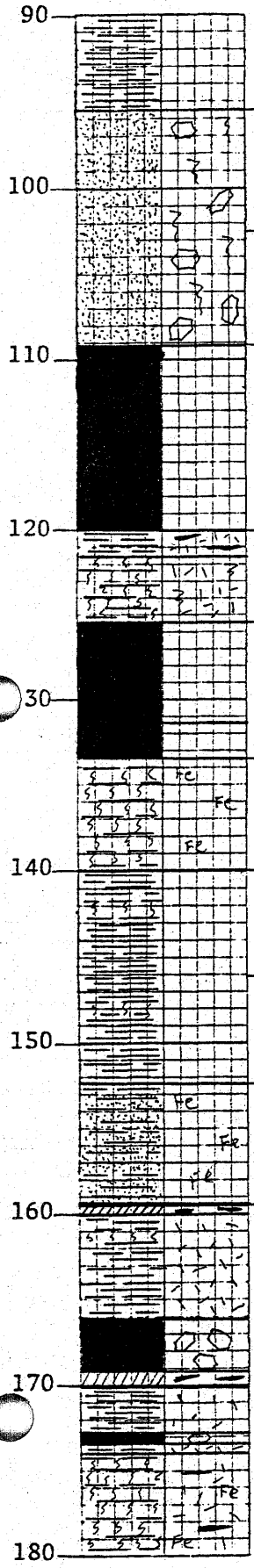
HOLE NO. 24099C DRILLER J. Elliott PAGE 2

LOCATION S 9247.0 DATE DRILLED 8-16-82 SUB AREA N-6

E 28288.0

ELEVATION 6668.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004365	33.6	13.4	19.2	3.0	1.1	0.03	9.1
820004366	32.2	31.1	26.9	0.7	0.8	0.06	8.6
BXX (82-2186-R)	(N/A)	(7.12)		(12,485)		(0.47)	(7.6)
820004367	40.3	23.6	28.9	2.1	0.9	0.31	8.6
RXX (82-2185-R)	(N/A)	(15.98)		(11,172)		(0.51)	(7.5)
820004368	32.2	37.7	22.3	0.5	0.2	0.10	8.5
820004369	34.2	27.7	26.3	0.5	1.3	0.06	8.7
820004370	32.0	40.4	23.9	0.5	0.2	0.08	8.8
820004371	30.2	27.0	29.0	1.1	1.2	0.09	8.7
MXX							

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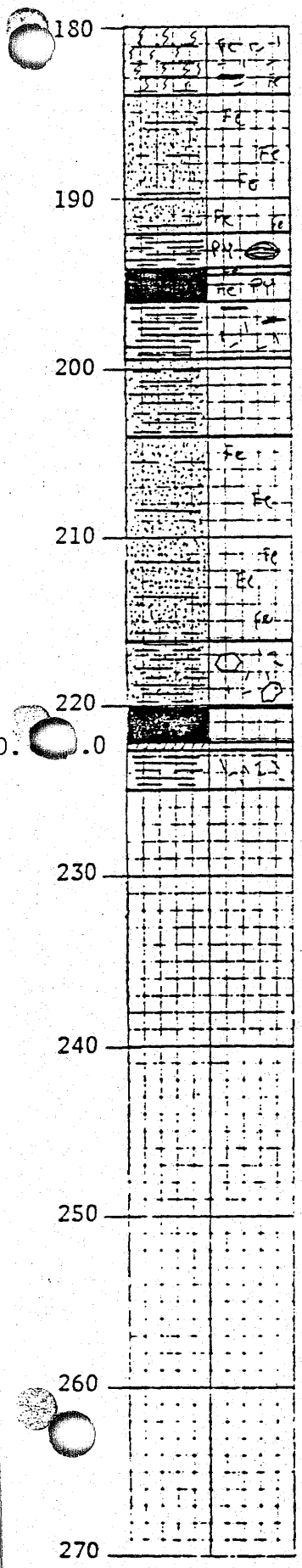
SEP 3 1986

OCT 27 1986

LOCATION S 9247.0 DATE DRILLED 8-16-82 SUB AREA N-6

E 28288.0

ELEVATION 6668.7



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

401

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24099C
DATE CORED:16AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	820004350	7.9	85.9	3.6	18.1	20.2	9.2	4.7					5.4
SH	4	820004351	5.3	65.2	3.2	19.7	11.5	7.5	6.4					7.6
SH	8	820004352	6.1	60.5	2.5	13.5	7.6	6.2	5.1					5.9
SS,SH	12	820004353	7.7	55.6	3.4	18.5	10.6	10.4	5.7					6.7
SH	18.6	820004354	7.9	62.3	3.1	21.7	5.9	6.3	8.8					10.5
SS	21.7	820004355	8.4	49.2	1.8	14.8	2.1	1.3	11.4					13.5
SS	28.4	820004356	8.7	53.4	1.6	16.7	<0.1	0.1	52.8					43.4
SH	35.1	820004357	8.7	61.7	1.8	16.5	0.8	0.8	18.4					20.6
SS	36.2	820004358	8.3	42.5	1.8	15.3	1.1	0.8	15.7					18
SH,SS	42	820004359	8.6	52.8	2.2	19.7	1	1	19.7					21.8
SS	44.4	820004360	7.5	42.2	3.5	21.1	9.6	9.8	6.8					8.1
SH,CO	54.6	820004361	8.2	61.7	3.1	31.5	1.2	1.1	29.4					29.6
CO	56.7	COAL												
SH	74	820004362	8.3	49.7	1.9	18.5	<0.1	0.2	47.8					40.9
SH	79.3	820004363	9	76.9	1.8	18.7	0.1	0.9	26.4					27.4
SH	85.4	820004364	9.1	48.8	1.8	20.2	0.2	1.5	21.9					23.7
SS	95.5	820004365	9.1	33.6	2.4	19.2	3	1.1	13.4					15.7
SS	102.5	820004366	8.6	32.2	2.7	26.9	0.7	0.8	31.1					30.8
CO	109.2	COAL												
SH	120	820004367	8.6	40.3	3	28.9	2.1	0.9	23.6					25.1
CO	125.4	COAL												
SH,SL	133.5	820004368	8.5	32.2	2.3	22.3	0.5	0.2	37.7					35.2
SH	140	820004369	8.7	34.2	2.4	26.3	0.5	1.3	27.7					28.4
SH	146.2	820004370	8.8	32	2.3	23.9	0.5	0.2	40.4					36.8
SS,SH	152.4	820004371	8.7	30.2	2.7	29	1.1	1.2	27					27.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24099C
DATE CORED:16AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	820004350	20	3.6	67.8	0.06	1.88	43.36	.	41.48	17.6	21	61.4	37.2	23.6	13.6
SH	820004351	81	0.9	96	0.07	2.19	1.14	1.05	.	16.6	23	60.4	33.2	24.2	9
SH	820004352	57	3.1	101	0.03	0.94	2.46	.	1.52	32.6	34	33.4	24.9	17.7	7.2
SS,SH	820004353	59	0.9	99.7	0.03	0.94	7.82	.	6.88	32.6	38	29.4	22.2	11.9	10.3
SH	820004354	61	1.2	168	0.03	0.94	16.61	.	15.67	13.6	51	35.4	27	17.2	9.8
SS	820004355	30	0.5	123	<0.01	0.31	24.53	.	24.22	41.6	36	22.4	21.2	9.6	11.6
SS	820004356	15	1.1	158	<0.01	0.31	31.46	.	31.15	42.6	32	25.4	24.2	12.7	11.5
SH	820004357	15	1.1	271	<0.01	0.31	31.98	.	31.67	20.6	32	47.4	33.4	20.9	12.5
SS	820004358	5	0.5	104	0.01	0.31	15.4	.	15.09	64.6	19	16.4	21.8	9.4	12.4
SH,SS	820004359	8	0.7	135	0.02	0.63	13.09	.	12.76	45.6	27	27.4	26	15.9	10.1
SS	820004360	4	3.8	42.3	0.06	1.88	15.52	.	13.64	70.6	16	13.4	17.9	8	9.9
SH,CO	820004361	13	1.3	264	0.15	4.69	27.68	.	22.99	35.5	27	37.4	30	19.8	10.2
CO	COAL														
SH	820004362	7	1.1	170	0.51	15.94	5.14	10.8	.	46.6	26	27.4	29.2	14.9	14.3
SH	820004363	10	1.2	304	0.24	7.5	16.77	.	9.27	13.6	36	50.4	51.7	30.1	21.6
SH	820004364	5	0.7	184	0.04	1.25	37.47	.	36.22	23.6	40	36.4	31.2	19.5	11.7
SS	820004365	3	1.1	111	0.03	0.94	40.75	.	39.81	52.6	25	22.4	18.6	10.6	8
SS	820004366	<2	0.7	67.8	0.06	1.88	27.6	.	25.72	67.6	17	15.4	16	7.7	8.3
CO	COAL														
SH	820004367	2	1.1	108	0.31	9.69	3.86	5.83	.	39.6	39	21.4	17.9	9.5	8.4
CO	COAL														
SH,SL	820004368	2	1.1	129	0.1	3.13	51.9	.	48.77	45.6	33	21.4	15.9	8.5	7.4
SH	820004369	9	1.1	142	0.06	1.88	51.82	.	49.94	38.6	33	28.4	19.5	13.9	5.6
SH	820004370	4	1.9	143	0.08	2.5	104.48	.	101.98	49.4	27.3	23.3	17.8	10.2	7.6
SS,SH	820004371	5	1.5	112	0.09	2.81	162.74	.	159.93	57.8	25.6	16.6	16.9	8.5	8.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24099C
DATE CORED:16AUG1982
DATE REPORTED:25MAR1985

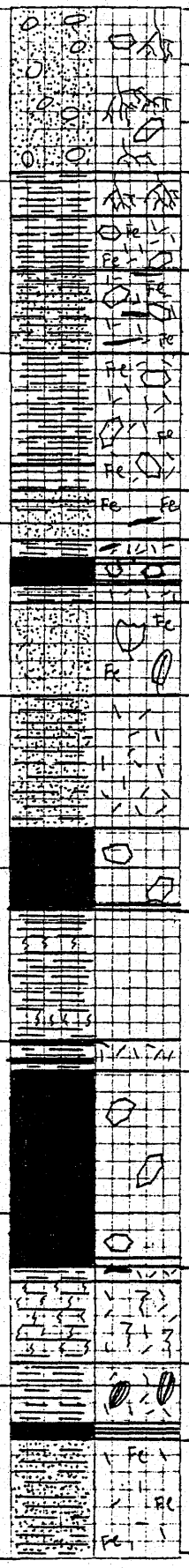
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	820004350	1.6	0.01	0.06	<0.6	76	0.6	12.7	22.5	4.1	2.6		2.7
SH	820004351	1.2	0.09	0.07	<0.6	99	1.2	8.3	342.5	1.7	10.7		<0.1
SH	820004352	1.1	0.28	0.07	<0.6	79	0.6	7	169.5	7.4	7.7		2
SS,SH	820004353	0.4	<0.01	0.04	0.6	34	0.2	7	22.1	7.1	1.4		0.7
SH	820004354	0.7	0.02	0.03	0.6	58	0.2	3.5	21.9	5.7	<1		0.9
SS	820004355	0.2	0.11	0.06	<0.6	13	0.2	2	23.3	6.2	2.3		1
SS	820004356	0.5	0.25	0.09	0.6	12	0.5	2.8	45.4	5.1	5.7		1.6
SH	820004357	1	0.14	0.17	<0.6	16	2.3	4	70.6	7.7	11		2.5
SS	820004358	0.5	0.28	0.03	<0.6	<10	0.2	1.5	26.9	3.1	2		1.7
SH,SS	820004359	1	0.19	0.07	<0.6	<10	0.4	2.2	35.4	4.1	5.5		1.6
SS	820004360	0.5	0.01	<0.01	0.6	<10	<0.1	0.9	30.7	4.2	<1		0.5
SH,CO	820004361	1.9	0.1	0.17	0.6	<10	1.3	4.5	55.5	4.8	8.7		COAL
CO	COAL												
SH	820004362	1.9	0.2	0.2	0.6	24	1.8	6.8	39.7	2	6.7		16.2
SH	820004363	1.7	0.25	0.19	<0.6	<10	1.7	7.2	28.2	1.4	15.3		8.5
SH	820004364	0.8	0.2	0.11	<0.6	26	2.1	4.8	43.7	3.9	12.9		3.2
SS	820004365	0.5	0.14	0.07	<0.6	13	1.5	1.7	54.2	5.6	10.6		1.6
SS	820004366	0.5	0.23	0.05	<0.6	17	0.9	2.1	43.6	3.4	5.5		1.5
CO	COAL												
SH	820004367	0.4	0.7	0.14	<0.6	29	3.4	5.5	30.8	1	11.9		5.1
CO	COAL												
SH,SL	820004368	0.4	0.17	0.15	<0.6	14	2	3.2	82.6	4.5	13.3		4.2
SH	820004369	0.3	0.09	0.08	<0.6	15	2.2	4.1	104.4	5.6	10.9		3.6
SH	820004370	0.4	0.13	0.06	<0.6	<10	2.3	4	100	6.4	11.1		3.8
SS,SH	820004371	0.3	0.09	0.08	<0.6	<10	2.4	2.3	134.4	7.8	8.7		3.9

LOCATION S 7433.0 DATE DRILLED 8-29-82 SUB AREA N-6

E 28414.0

ELEVATION 6614.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004372	42.6	1.9	2.3	1.8	1.0	<0.01	8.1
820004373	46.6	6.8	9.5	1.9	2.0	0.01	8.3
820004374	50.9	5.8	17.3	7.8	10.0	0.04	8.2
820004375	65.3	3.5	16.7	25.0	20.5	0.07	7.9
820004376	57.1	3.0	11.2	9.8	19.0	0.04	8.0
820004377	60.3	4.0	11.1	4.4	11.2	0.05	8.2
820004378	40.2	4.4	8.2	2.7	4.1	0.07	8.1
820004379	44.0	14.7	13.9	0.8	1.0	0.21	7.9
820004380	30.2	14.1	12.6	0.7	0.9	0.01	8.8
820004381	28.5	17.3	18.1	0.9	1.3	0.05	8.6
GXX (82-2191-R)	(N/A)	(9.89)		(12,063)		(0.67)	(7.3)
820004382	43.7	35.0	35.0	1.3	0.7	0.50	8.1
BXX (82-2190-R)	(N/A)	(5.35)		(12,658)		(0.48)	(7.5)
820004383	41.1	16.4	27.5	3.4	2.2	0.18	8.1
820004384	53.2	9.9	27.5	10.6	4.9	2.48	6.6
820004385	43.1	5.1	12.7	6.9	5.3	0.49	8.0

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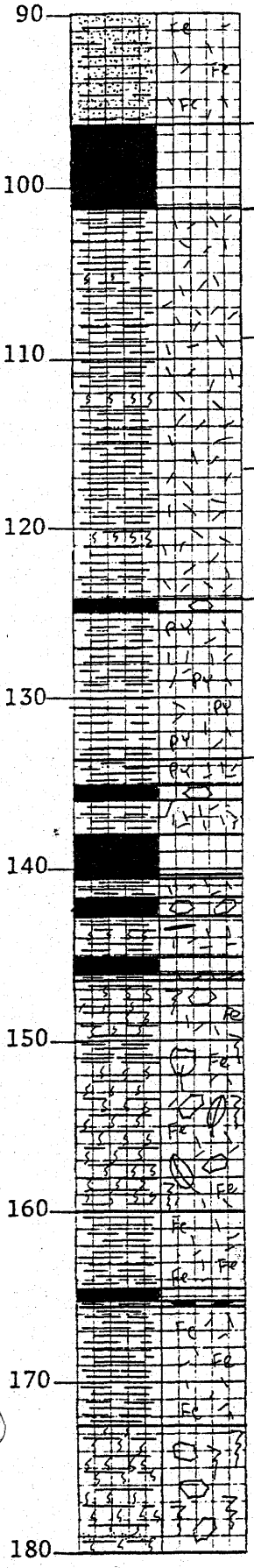
HOLE NO. 24400C DRILLER J. Elliott PAGE 2

LOCATION S 7433.0 DATE DRILLED 8-29-82 SUB AREA N-6

E 28414.0

ELEVATION 6614.8



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004386	40.9	5.9	11.7	4.5	3.4	0.26	7.7
RXX (82-2189-R)	(N/A)	(5.17)		(12,776)		(0.51)	(7.3)
820004387	33.5	18.0	29.0	3.9	1.3	0.08	8.9
820004388	32.6	32.7	17.9	0.4	0.2	0.02	9.1
820004389	30.6	24.4	20.4	0.6	0.8	0.04	9.1
820004390	45.4	52.2	38.7	0.6	0.5	0.92	6.8
MXX							

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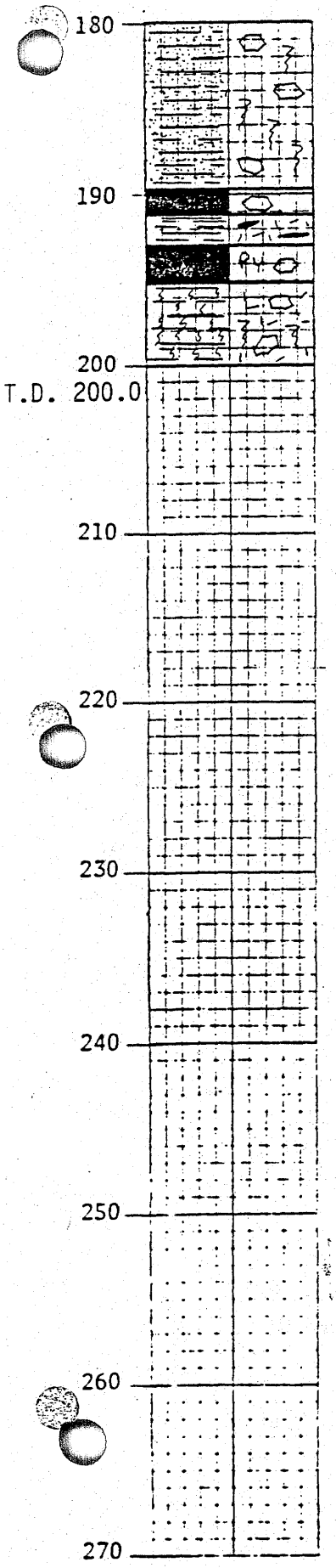
OCT 27 1986

LOCATION S 7433.0 DATE DRILLED 8-29-82 SUB AREA N-6

F 28414.0

ELEVATION 6614.8

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24400C
DATE CORED:29AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	820004372	8.1	42.6	0.4	2.3	1.8	1	1.9					1.5
SO	3.2	820004373	8.3	46.6	1.7	9.5	1.9	2	6.8					8.1
SO	6.4	820004374	8.2	50.9	3.3	17.3	7.8	10	5.8					6.8
SH	9.5	820004375	7.9	65.3	1.9	16.7	25	20.5	3.5					3.8
SH,SS	15.2	820004376	8	57.1	3.2	11.2	9.8	19	3					3.1
SH	20	820004377	8.2	60.3	2.4	11.1	4.4	11.2	4					4.4
SS	28	820004378	8.1	40.2	1.5	8.2	2.7	4.1	4.4					5
SH,CO	30.9	820004379	7.9	44	1.7	13.9	0.8	1	14.7					17
SS	34.6	820004380	8.8	30.2	1.4	12.6	0.7	0.9	14.1					16.3
SS,SH	40	820004381	8.6	28.5	1.9	18.1	0.9	1.3	17.3					19.5
CO	47.7	COAL												
SH,CO	52.4	820004382	8.1	43.7	3.4	35	1.3	0.7	35					33.5
CO	61.7	COAL												
SH,SL	73.1	820004383	8.1	41.1	3.2	27.5	3.4	2.2	16.4					18.6
SH,CO	78.8	820004384	6.6	53.2	3.8	27.5	10.6	4.9	9.9					11.8
SH,SS	883.1	820004385	8	43.1	2.3	12.7	6.9	5.3	5.1					5.9
SH,SS	89.7	820004386	7.7	40.9	2	11.7	4.5	3.4	5.9					6.9
CO	96.4	COAL												
SH	101.2	820004387	8.9	33.5	3	29	3.9	1.3	18					20.2
SH	108.8	820004388	9.1	32.6	1.8	17.9	0.4	0.2	32.7					32
SH	116.4	820004389	9.1	30.6	2.1	20.4	0.6	0.8	24.4					25.8
CO,SH	124.1	820004390	6.8	45.4	3.9	38.7	0.6	0.5	52.2					43.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24400C
DATE CORED:29AUG1982
DATE REPORTED:25MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	820004372	<2	3.2	151	<0.01	0.31	10.52	.	10.21	57.2	22.6	20.2	22	10.6	11.4
SO	820004373	<2	5.8	139	0.01	0.31	15.42	.	15.11	58.2	21	20.8	23.1	11.3	11.8
SO	820004374	19	5.3	114	0.04	1.25	45.95	.	44.7	51	23.2	25.8	23.1	12	11.1
SH	820004375	51	2.7	69.3	0.07	2.19	23.08	.	20.89	33	29.5	37.4	26	16.7	9.3
SH,SS	820004376	50	4.3	119	0.04	1.25	30.65	.	29.4	39	29	32	22.5	11.2	11.3
SH	820004377	33	4.6	235	0.05	1.56	107.04	.	105.48	21	35	44	23.5	13.8	9.7
SS	820004378	<2	2.3	81.8	0.07	2.19	85.71	.	83.52	67	17.6	15.4	18.3	6.3	12
SH,CO	820004379	5	2	195	0.21	6.56	51.66	.	45.05	36	30.6	33.4	15.8	10.6	5.2
SS	820004380	2	1.3	86.5	0.01	0.31	186.85	.	186.54	60.6	26	13.4	14.9	5.8	9.1
SS,SH	820004381	4	1.3	111	0.05	1.56	143.33	.	141.77	61.2	21.4	17.4	15	7.3	7.7
CO	COAL														
SH,CO	820004382	4	1.9	145	0.5	15.63	34.94	.	19.31	53	24	23	21.1	10.6	10.5
CO	COAL														
SH,SL	820004383	4	1	107	0.18	5.63	25.02	.	19.39	48.6	36	15.4	17	7.7	9.3
SH,CO	820004384	7	1.7	173	2.48	77.5	4.68	72.82	.	62	18.6	19.4	22	11	11
SH,SS	820004385	2	1.6	122	0.49	15.31	49.29	.	33.98	69	15.6	15.4	14.9	7.1	7.8
SH,SS	820004386	6	1.1	76	0.26	8.13	17.71	.	9.58	60.2	23	16.8	15.9	6.8	9.1
CO	COAL														
SH	820004387	3	1.3	158	0.08	2.5	47.3	.	44.8	43.2	33	23.8	21.1	11.8	9.3
SH	820004388	2	1.8	109	0.02	0.63	27.14	.	26.51	39.2	38	22.8	20	10	10
SH	820004389	<2	1.1	97.3	0.04	1.25	48.56	.	47.31	63.2	23	13.8	15.7	9.1	6.6
CO,SH	820004390	4	2	120	0.92	28.75	3.85	24.9	.	49.6	31.6	18.8	19.7	10.5	9.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24400C
DATE CORED:29AUG1982
DATE REPORTED:25MAR1985

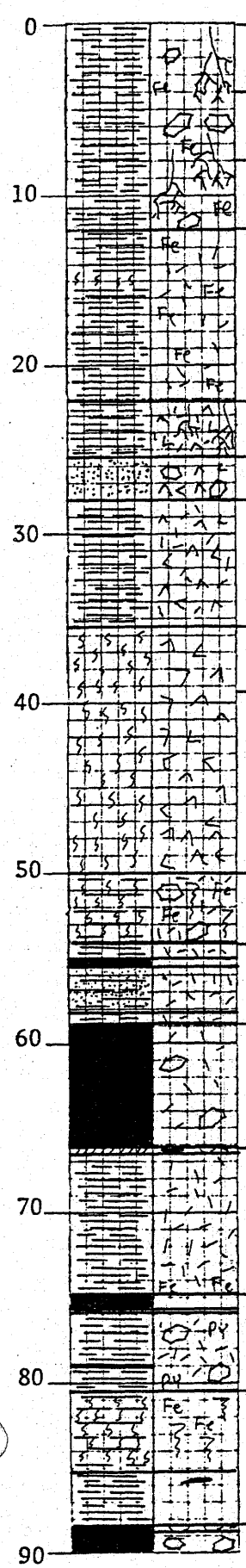
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	820004372	0.2	0.05	<0.01	<0.6	<10	0.2	4.3	27.5	14.3	<1		0.6
SO	820004373	0.5	0.03	0.06	<0.6	<10	0.1	1.8	22.9	10	<1		0.2
SO	820004374	0.6	0.01	0.2	<0.6	19	<0.1	2.5	20.9	7.6	<1		0.2
SH	820004375	0.2	<0.01	0.07	<0.6	52	<0.1	5.1	19.5	6.4	1.7		0.5
SH,SS	820004376	<0.1	<0.01	0.05	0.7	42	<0.1	8.9	24	10	2.4		1
SH	820004377	<0.1	<0.01	0.04	1	53	0.5	8.7	83.9	30.6	6.3		2.4
SS	820004378	0.2	0.01	0.03	0.7	20	1.1	2	80.9	11.7	6.9		2.4
SH,CO	820004379	1.3	<0.01	0.22	<0.6	<10	2.2	8	89.5	22.4	12.8		COAL
SS	820004380	0.2	0.05	0.09	0.6	<10	1.1	1.6	120.5	7.5	7.8		1.7
SS,SH	820004381	0.3	0.15	0.14	0.7	<10	1.4	5.3	121.6	22	9		0.1
CO	COAL												
SH,CO	820004382	0.9	0.01	0.16	<0.6	12	1.8	4.4	73.4	9.9	7.4		COAL
CO	COAL												
SH,SL	820004383	0.7	<0.01	0.1	1.3	19	1.3	6.4	52.8	2.4	14.3		4.9
SH,CO	820004384	2	0.4	0.13	0.7	15	9	5.6	377.9	57.6	34.7		COAL
SH,SS	820004385	0.6	<0.01	<0.01	0.7	<10	0.2	2.8	91.3	8.5	4		3.5
SH,SS	820004386	0.4	<0.01	<0.01	<0.6	<10	0.7	4	81.6	8.1	7.8		3
CO	COAL												
SH	820004387	0.4	0.11	<0.01	<0.6	<10	1.1	6.5	85.4	11.6	11.3		6.1
SH	820004388	<0.1	0.03	0.13	0.7	<10	1.1	5.3	81.8	4.5	13.5		1.9
SH	820004389	<0.1	0.05	0.07	1	<10	0.4	4.1	101	6	6.3		3.3
CO,SH	820004390	0.5	0.01	0.08	<0.6	<10	6.6	5.4	219.9	38.7	14.1		COAL

LOCATION S 5212.0 DATE DRILLED 9/7/82 SUB AREA N-6

E 28190.0

ELEVATION 6564.7



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004391	56.9	2.5	5.5	4.1	5.4	0.03	8.3
820004392	47.2	3.1	8.9	4.8	11.4	0.01	8.2
820004393	76.1	2.5	12.3	20.0	28.9	<0.01	7.3
820004394	57.8	2.6	9.1	9.9	14.9	<0.01	7.9
820004395	53.3	1.8	9.3	20.0	32.5	<0.01	7.7
820004396	44.6	1.5	8.9	28.8	38.1	<0.01	7.7
820004397	53.8	1.7	10.8	36.1	43.0	<0.01	7.4
820004398	48.4	2.3	16.0	29.6	63.9	<0.01	6.7
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
820004399	42.3	3.4	12.9	8.7	19.7	0.27	7.7
820004400	46.7	3.3	12.3	12.8	14.2	0.96	6.9
RXX (82-2192-R)	(N/A)	(4.41)		(12,906)		(0.52)	(7.4)
820004401	42.9	37.4	36.5	1.4	0.5	0.70	7.9
820004402	41.1	39.6	36.5	1.3	0.4	0.94	7.9
820004403	40.7	41.7	39.6	1.4	0.4	0.88	7.9
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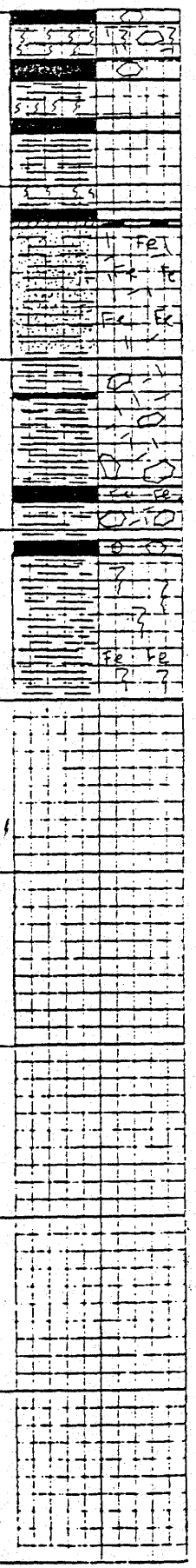
OCT 27 1986

LOCATION S 5212.0 DATE DRILLED 9/7/82 SUB AREA N-6

E 28190.0

ELEVATION 6564.7

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



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SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24401C
DATE CORED:07SEP1982
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	820004391	8.3	56.9	1.4	5.5	4.1	5.4	2.5					2.4
SH	4	820004392	8.2	47.2	2.3	8.9	4.8	11.4	3.1					3.2
SH	8	820004393	7.3	76.1	4.3	12.3	20	28.9	2.5					2.4
SH	12	820004394	7.9	57.8	3.2	9.1	9.9	14.9	2.6					2.5
SH	22.1	820004395	7.7	53.3	5.7	9.3	20	32.5	1.8					1.4
SS	25.4	820004396	7.7	44.6	6.6	8.9	28.8	38.1	1.5					0.9
SH	28	820004397	7.4	53.8	8	10.8	36.1	43	1.7					1.2
SL	35.5	820004398	6.7	48.4	9.5	16	29.6	63.9	2.3					2.1
LOST	39.3	LOST												
SH,SL	50	820004399	7.7	42.3	3.5	12.9	8.7	19.7	3.4					3.6
SH,CO,SS	54.1	820004400	6.9	46.7	3.2	12.3	12.8	14.2	3.3					3.5
CO	58.9	COAL												
SH	66.1	820004401	7.9	42.9	3.5	36.5	1.4	0.5	37.4					35
CO,SH	74.8	820004402	7.9	41.1	3.5	36.5	1.3	0.4	39.6					36.4
SH,SL	80.4	820004403	7.9	40.7	3.9	39.6	1.4	0.4	41.7					37.6

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24401C
DATE CORED:07SEP1982
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	820004391	<2	3.3	184	0.03	0.94	11.68	.	10.74	19.2	47	33.8	23.9	16.7	7.2
SH	820004392	<2	1.2	94.9	0.01	0.31	10.62	.	10.31	47.7	29.5	22.8	16.8	7.2	9.6
SH	820004393	4	0.5	151	<0.01	0.31	4.37	.	4.06	15.4	40.2	44.4	29.9	19.7	10.2
SH	820004394	197	3.6	128	<0.01	0.31	17.02	.	16.71	20.8	44.2	35	21.8	15	6.8
SH	820004395	584	2.3	175	<0.01	0.31	25.97	.	25.66	21.2	35.2	43.6	23.7	15.5	8.2
SS	820004396	496	1.3	128	<0.01	0.31	15.7	.	15.39	55.2	22.2	22.6	16.1	10.1	6
SH	820004397	802	9.1	201	<0.01	0.31	7.81	.	7.5	33.2	35.2	31.6	22.7	14.9	7.8
SL	820004398	758	4.3	64.7	<0.01	0.31	-3.23	3.54	.	34.2	53.2	12.6	21.6	7.5	14.1
LOST	LOST														
SH,SL	820004399	125	0.9	108	0.27	8.44	79.3	.	70.86	65.2	22.2	12.6	12.1	6.9	5.2
SH,CO,SS	820004400	22	1.1	101	0.96	30	16.54	13.46	.	61.2	20.2	18.6	14.3	9.2	5.1
CO	COAL														
SH	820004401	8	0.5	184	0.7	21.88	30.88	.	9	40.8	31.6	27.6	22	7.4	14.6
CO,SH	820004402	6	0.4	140	0.94	29.38	20.68	8.7	.	49.4	29	21.6	20.7	6.8	13.9
SH,SL	820004403	5	0.5	121	0.88	27.5	37.17	.	9.67	76.4	14	9.6	10.7	4.4	6.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24401C
DATE CORED:07SEP1982
DATE REPORTED:27MAR1985

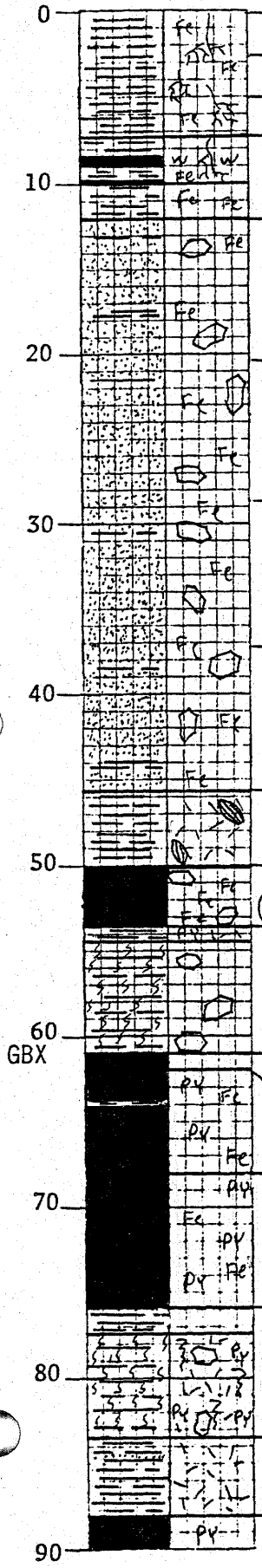
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *					
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM	Organic * Matter %
SH	820004391	0.5	<0.01	0.02	<0.6	46	0.6	21	14.7	9.1	1.5	0.8
SH	820004392	<0.1	<0.01	0.01	<0.6	25	<0.1	4.5	19.2	7.2	1	0.3
SH	820004393	<0.1	<0.01	0.06	<0.6	40	0.3	7.5	10.3	7.6	10.9	1.3
SH	820004394	<0.1	<0.01	0.05	0.3	76	<0.1	5.1	16.5	3.9	4	1.8
SH	820004395	0.1	<0.01	0.02	0.7	75	<0.1	5.8	17	3.8	8.3	0.1
SS	820004396	0.2	<0.01	0.04	0.3	30	0.1	2.4	19.8	3.1	3.5	<0.1
SH	820004397	0.2	<0.01	0.31	0.7	43	<0.1	5.7	19.1	3.8	12.1	0.2
SL	820004398	0.6	<0.01	0.15	0.3	13	0.1	2.6	24.2	4.2	3.4	0.1
LOST	LOST											
SH,SL	820004399	0.5	<0.01	0.07	1	15	1.5	4.5	74	5.1	12.8	4.2
SH,CO,SS	820004400	0.4	<0.01	0.04	0.7	<10	4.5	3.7	214.8	5.1	10.5	COAL
CO	COAL											
SH	820004401	0.6	<0.01	0.19	0.7	<10	2.5	5.1	128.4	5.5	8.7	11.6
CO,SH	820004402	0.7	<0.01	0.04	1	<10	3.9	6.1	185.3	3.6	8.1	COAL
SH,SL	820004403	0.5	<0.01	0.04	0.7	<10	1.9	3.1	188.8	6	3.8	12.9

LOCATION S 5322.0 DATE DRILLED 9/10/82 SUB AREA N-6

E 30673.0

ELEVATION 6668.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
820004404	82.4	3.5	13.1	7.5	20.9	<0.01	8.2
820004405	92.9	2.9	18.0	28.0	47.9	<0.01	7.9
820004406	84.6	0.2	1.1	28.0	37.5	0.28	4.9
820004407	44.7	1.2	5.5	17.6	23.3	<0.01	7.5
820004408	40.5	1.1	3.2	7.6	10.2	<0.01	8.2
820004409	38.4	1.3	3.8	7.5	9.4	<0.01	8.1
820004410	36.2	0.7	2.5	7.9	15.1	<0.01	8.2
820004411	50.6	1.0	1.9	3.8	3.1	0.04	7.9
820004412	52.5	0.7	2.3	8.9	10.3	0.26	6.8
GOX (82-2377-R)	(N/A)	(5.48)		(12,644)		(0.60)	(6.2)
820004413	48.4	2.0	4.5	4.0	6.5	0.14	7.9
GBX (82-2378-R)	(N/A)	(15.46)		(11,481)		(0.77)	(6.2)
GBX (82-2379-R)	(N/A)	(12.39)		(11,632)		(0.50)	(6.9)
GBX (8202380-R)	(N/A)	(6.84)		(12,422)		(0.52)	(6.9)
820004414	50.0	2.2	9.4	14.7	21.4	0.79	5.7
820004415	43.7	25.5	23.5	0.9	0.8	0.79	7.8
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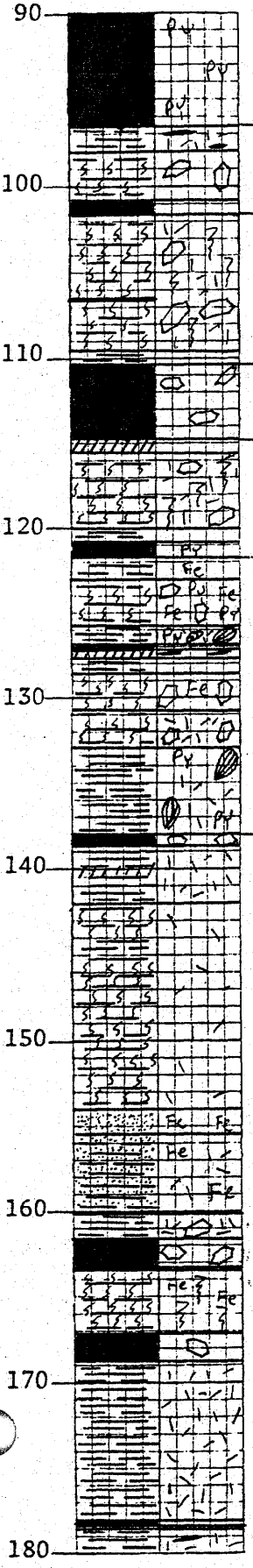
LOCATION S5322.0 DATE DRILLED 9/10/82 SUB AREA N-6

E 30673.0

ELEVATION 6668.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
RXX (82-2381-R)	(N/A)	(8.40)		(12,332)		(0.60)	(7.2)
820004416	41.0	34.9	42.7	1.8	1.2	0.71	7.7
820004417	41.4	33.6	26.0	0.5	0.7	0.78	7.4
MXX (82-2382-R)	(N/A)	(6.60)		(12,494)		(1.10)	(6.8)
820004418	36.9	41.6	32.2	0.9	0.3	0.75	8.3
820004419	36.5	48.2	34.1	0.7	0.3	0.87	8.4

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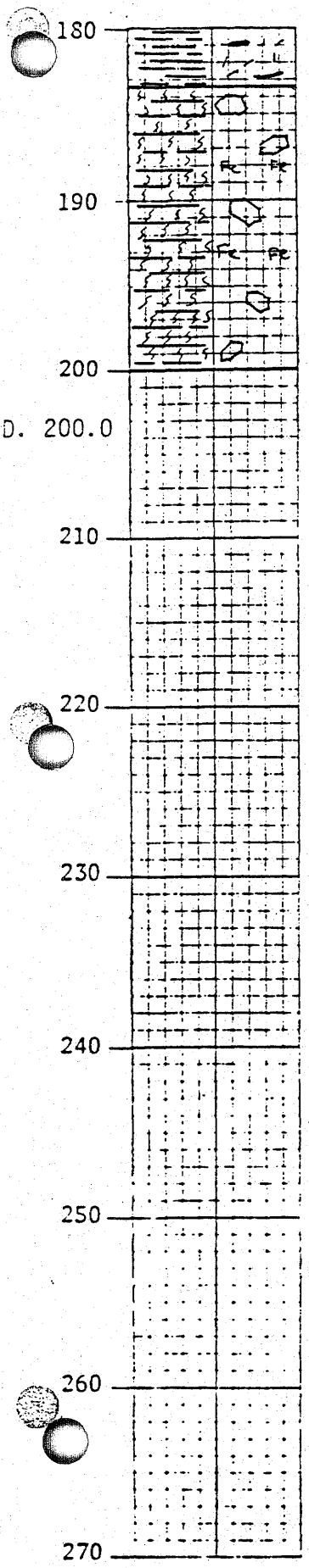
LOCATION S 5322.0 DATE DRILLED 9/10/82 SUB AREA N-6

E 30673.0

ELEVATION 6668.3

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



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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24402C
DATE CORED:10SEP1982
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SH	0	820004404	8.2	82.4	3.3	13.1	7.5	20.9	3.5					3.8
SH	2.5	820004405	7.9	92.9	5.8	18	28	47.9	2.9					3
SH	5	820004406	4.9	84.6	5.3	1.1	28	37.5	0.2					-1
SH,CO	7.3	820004407	7.5	44.7	3.4	5.5	17.6	23.3	1.2					0.5
SS	12	820004408	8.2	40.5	1.8	3.2	7.6	10.2	1.1					0.3
SS	20.4	820004409	8.1	38.4	1.6	3.8	7.5	9.4	1.3					0.6
SS	28.8	820004410	8.2	36.2	2	2.5	7.9	15.1	0.7					-0.2
SS	37.2	820004411	7.9	50.6	0.9	1.9	3.8	3.1	1					0.2
SH	45.7	820004412	6.8	52.5	1.7	2.3	8.9	10.3	0.7					-0.2
CO	50.1	COAL												
SH,SL	53.5	820004413	7.9	48.4	1.4	4.5	4	6.5	2					1.7
CO	61.0	COAL												
SH,SL	75.9	820004414	5.7	50	3.4	9.4	14.7	21.4	2.2					1.9
SH	83.5	820004415	7.8	43.7	2.6	23.5	0.9	0.8	25.5					26.7
CO	88	COAL												
SH,SL,CO	96.5	820004416	7.7	41	4.3	42.7	1.8	1.2	34.9					33.4
SH,SL	101.6	820004417	7.4	41.4	2.7	26	0.5	0.7	33.6					32.6
CO	110.3	COAL												
SH,SL,CO	114.8	820004418	8.3	36.9	3.2	32.2	0.9	0.3	41.6					37.5
SL,CO	121.7	820004419	8.4	36.5	3.5	34.1	0.7	0.3	48.2					41.1

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24402C
DATE CORED:10SEP1982
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SH	820004404	5	0.5	163	<0.01	0.31	55.29	.	54.98	15.4	29	55.6	35	17.2	17.8
SH	820004405	<2	2.5	175	<0.01	0.31	34.98	.	34.67	14.4	27	58.6	35.3	17.1	18.2
SH	820004406	40	4.9	185	0.28	8.75	5.08	3.67	.	27	27.6	45.4	36.7	18.1	18.6
SH,CO	820004407	5	2.6	124	<0.01	0.31	32.3	.	31.99	52.4	27.6	20	16.3	4.4	11.9
SS	820004408	3	0.3	94.4	<0.01	0.31	45.57	.	45.26	63.4	19	17.6	14.9	4.7	10.2
SS	820004409	4	0.8	81.3	<0.01	0.31	23.61	.	23.3	54.4	26	19.6	17	4.7	12.3
SS	820004410	<2	0.4	51.6	<0.01	0.31	35.37	.	35.06	71.4	16	12.6	14.3	2.9	11.4
SS	820004411	2	<0.1	125	0.04	1.25	14.23	.	12.98	27.4	41	31.6	17.6	5.8	11.8
SH	820004412	3	0.1	60.1	0.26	8.13	19.49	.	11.36	40.4	46	13.6	23.3	5.8	17.5
CO	COAL														
SH,SL	820004413	5	2.1	121	0.14	4.38	46.62	.	42.24	51.4	31	17.6	13.4	5	8.4
CO	COAL														
SH,SL	820004414	9	1.7	104	0.79	24.69	3.3	21.39	.	51.4	29	19.6	18.9	6.6	12.3
SH	820004415	9	0.5	151	0.79	24.69	12.58	12.11	.	39.2	33.4	27.4	16.8	7.7	9.1
CO	COAL														
SH,SL,CO	820004416	8	0.8	118	0.71	22.19	38.39	.	16.2	52.6	32	15.4	20.7	7.2	13.5
SH,SL	820004417	7	0.3	122	0.78	24.38	3.81	20.57	.	51.6	31	17.4	21.6	8.9	12.7
CO	COAL														
SH,SL,CO	820004418	6	0.7	109	0.75	23.44	90.31	.	66.87	64.6	24	11.4	16.9	6.5	10.4
SL,CO	820004419	8	0.8	132	0.87	27.19	80.73	.	53.54	54.6	28	17.4	15.5	6.7	8.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24402C
DATE CORED:10SEP1982
DATE REPORTED:27MAR1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SH	820004404	0.7	<0.01	0.01	0.3	98	<0.1	4.2	16.6	10.7	1.1		1.6
SH	820004405	0.4	<0.01	<0.01	0.3	97	0.1	5.5	19.8	8.6	1.3		1.4
SH	820004406	2	0.02	0.01	0.7	75	0.7	7	198.6	40.9	7.9		13
SH,CO	820004407	0.2	0.02	<0.01	0.7	13	1	4.1	44	5.7	6.6		1.5
SS	820004408	0.3	0.02	0.04	0.7	15	1.3	4	45.4	3.9	8		1.4
SS	820004409	0.1	<0.01	0.02	0.3	18	1.6	3.6	49.5	5.1	9.4		1.4
SS	820004410	0.1	0.01	<0.01	0.3	12	0.7	1.3	59.9	2.9	5.6		0.9
SS	820004411	0.4	<0.01	0.08	0.3	16	2.7	3	43.7	4.2	14.4		4.3
SH	820004412	0.2	0.02	0.03	0.3	19	3	3.6	76.4	10.2	8.9		5.7
CO	COAL												
SH,SL	820004413	0.3	0.02	0.05	0.7	22	2.5	4.2	67.2	1.9	12.9		3.4
CO	COAL												
SH,SL	820004414	1.1	<0.01	0.02	0.7	<10	6.1	4.8	203.7	6.9	14.3		10.1
SH	820004415	0.8	<0.01	0.03	0.7	11	5.6	5.3	148.7	18.2	10.7		9
CO	COAL												
SH,SL,CO	820004416	0.8	<0.01	0.04	<0.6	<10	3.5	5.6	166.7	4.5	8.1		COAL
SH,SL	820004417	2.7	0.04	0.16	0.6	12	5.9	5.9	229.1	7.6	13.5		18.9
CO	COAL												
SH,SL,CO	820004418	1	<0.01	0.05	1	<10	2.6	5.2	171.8	13	10.7		COAL
SL,CO	820004419	0.4	<0.01	0.21	1	12	3.3	6.1	150.3	23.5	12.1		COAL

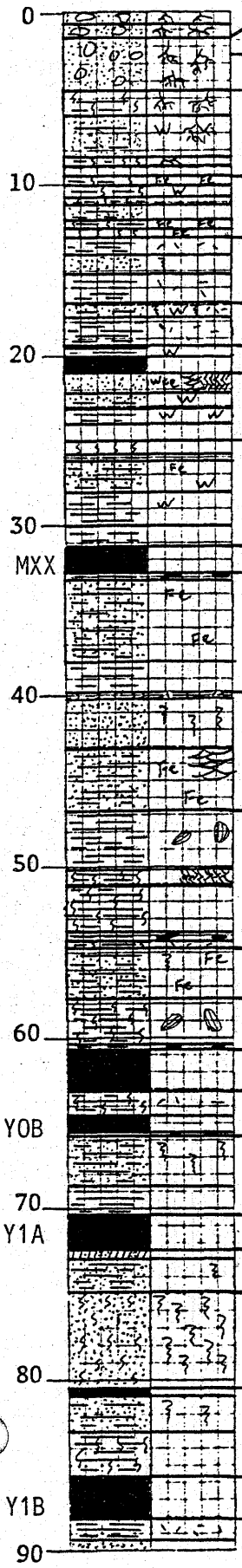
N-10 MINING AREA

(DEEP CORES)

LOCATION N 6479.0 DATE DRILLED 8/10/78 SUB AREA N-10

E 34267.0

ELEVATION 6852.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-998	38.9	1.6	2.0	2.2	1.0	<0.01	7.7
R-9-999	34.7	3.8	4.7	2.1	1.3	0.05	8.0
R-9-1000	36.7	5.2	12.9	5.0	9.5	0.09	7.7
R-9-1001	41.1	1.5	15.1	31.7	61.3	0.33	5.8
R-9-1002	49.3	0.6	6.3	24.9	107.1	0.67	5.7
R-9-1003	48.4	0.7	6.9	28.8	109.3	0.33	4.1
R-9-1004	71.0	0.6	6.2	28.3	66.5	0.77	3.4
R-9-1005	49.2	0.7	3.5	15.6	56.9	0.07	3.9
R-9-1006	47.4	0.5	4.5	23.4	78.3	0.46	4.2
R-9-1007	61.6	0.4	2.0	28.3	11.1	0.51	4.4
R-9-1008	46.5	0.6	3.0	32.2	31.8	0.67	6.0
R-9-1009	42.3	0.4	3.7	13.7	134.4	0.18	6.6
R-9-1010	46.9	0.6	6.2	26.9	119.6	3.34	4.0
R-9-1011	44.4	1.3	6.6	32.7	30.3	0.60	6.3
R-9-1012	51.0	0.9	8.5	27.3	91.6	2.48	4.2
R-9-1013	71.5	1.7	8.4	34.7	39.9	2.43	3.7
R-9-1014	52.0	0.8	8.2	30.8	64.2	1.68	3.0
R-9-1015	51.1	1.1	5.5	36.1	34.0	0.85	5.9
R-9-1016	78.5	0.6	2.9	27.3	15.4	1.18	5.5
R-9-1017	44.4	0.8	3.9	28.8	22.9	0.27	4.1
R-9-1018	34.2	0.4	2.9	24.7	79.4	0.90	5.1
R-9-1019	48.9	1.4	6.8	41.2	29.8	2.57	3.4
R-9-1020	68.2	3.0	14.8	61.7	10.1	2.99	5.8
		422					

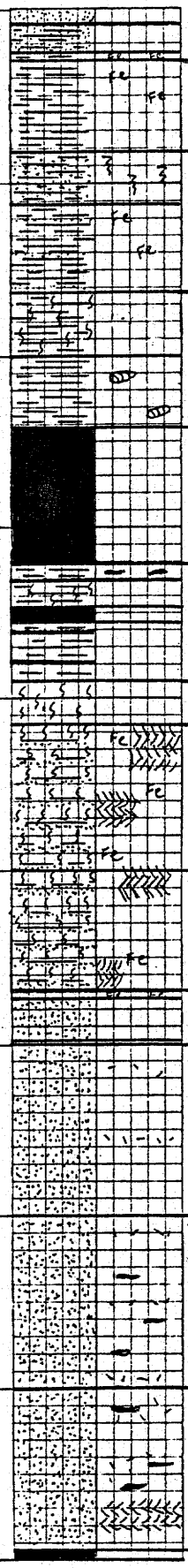
OCT 27 1986 SEP 3 1986

HOLE NO. 21099C DRILLER Jim Elliott PAGE 2

LOCATION N 6479.0 DATE DRILLED 8/10/78 SUB AREA N-10

E 34267.0

ELEVATION 6852.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1021	44.5	5.9	19.7	21.5	6.5	0.33	6.5
R-9-1022	55.0	5.5	27.7	29.5	8.0	0.69	5.3
R-9-1023	42.4	4.2	21.0	42.1	8.5	0.75	6.8
R-9-1024	50.9	6.3	31.5	40.3	12.5	1.87	6.1
NXX (8-2085-R)	(10.29)	(10.77)		(12,227)		(1.43)	(8.0)
R-9-1025	53.8	15.3	30.5	8.3	1.5	0.76	6.5
R-9-1026	48.6	6.5	21.6	19.7	5.1	0.31	4.9
R-9-1027	38.3	9.4	10.4	1.9	0.6	0.05	8.1
R-9-1028	36.3	6.8	8.5	2.6	0.8	0.06	8.1
R-9-1029	32.2	5.3	7.6	2.8	0.7	0.06	7.9
R-9-1030	40.1	3.7	5.3	3.1	1.2	<0.01	7.9
R-9-1031	42.1	2.4	6.0	10.3	4.9	0.06	7.4
R-9-1032	42.1	2.0	6.7	16.1	7.7	0.10	7.2
		423					

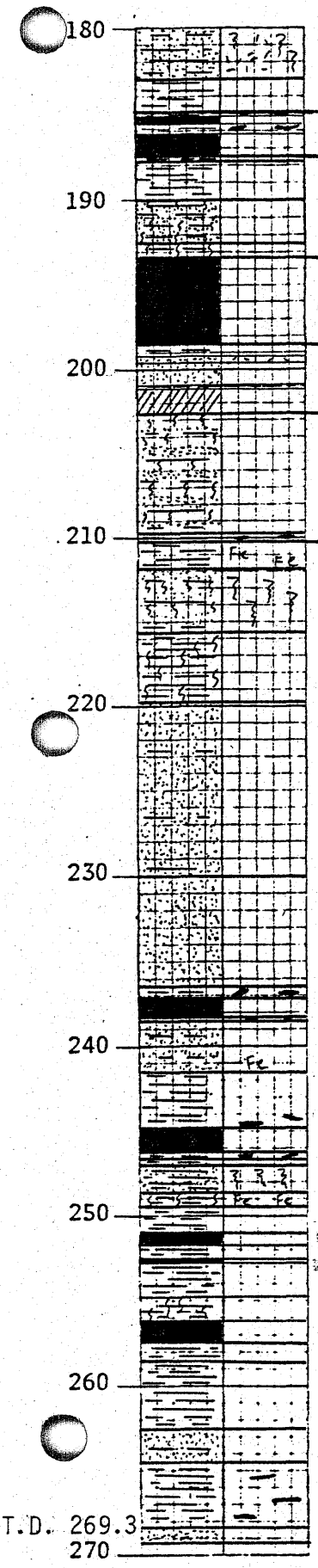
SEP 3 1986

OCT 27 1986

LOCATION N 6479.0 DATE DRILLED 8/10/78 SUB AREA N-10

E 34267.0

ELEVATION 6852.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1033	44.4	3.0	10.1	21.5	9.0	0.42	4.9
R-9-1034	58.2	19.4	32.4	5.5	1.1	0.62	6.2
R-9-1035	54.8	12.6	42.0	17.9	2.8	0.64	6.6
E1X (8-2086-R)	(10.02)	(5.56)		(13,097)		(0.52)	(8.3)
R-9-1036	46.8	24.6	22.4	1.6	0.2	0.09	7.7
R-9-1037	40.6	23.4	21.3	1.4	0.1	0.09	8.2

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SEP 3 1986

OCT 27 1986

Mine: Black Mesa N-10 Township: 37 N
Core: 21099-C Range: 18 E
Section: 35 Date Cored: August 10, 1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na* meq/l	Ca* meq/l	Mg* meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Surface Soil	0.0	0.1	R-9-995	7.0	0.5	36.4	1.8	3.3	1.1	1.3	0.6	7.8	156.4	**<3
Surface Soil	0.1	0.4	R-9-996	7.1	0.5	41.2	2.0	2.7	1.0	1.4	0.7	2.3	125.6	<2
Surface Soil	0.5	1.0	R-9-997	7.3	0.6	39.4	2.6	2.7	1.0	1.8	1.4	2.4	143.2	**<3
Surface Soil	1.5	1.0	R-9-998	7.7	0.4	38.9	2.0	2.2	1.0	1.6	1.1	0.9	141.6	<2
Surface Soil	2.5	2.1	R-9-999	8.0	0.9	34.7	4.7	2.1	1.3	3.8	4.2	1.6	182.6	<2
Clay, Sandstone, Siltstone	4.6	4.9	R-9-1000	7.7	2.5	36.7	12.9	5.0	9.5	5.2	6.0	3.2	124.3	<2
(8.9 to 9.5 Lost)														
Mudstone, Siltstone, Clay, Sandstone, Shale	9.5	3.5	R-9-1001	5.8	6.9	41.1	15.1	31.7	61.3	1.5	0.9	2.3	83.6	7
Shale, Sandstone, Mudstone	13.0	3.9	R-9-1002	5.7	7.6	49.3	6.3	24.9	107.1	0.6	-0.4	3.0	33.4	24
Sandstone, Shale	16.9	2.5	R-9-1003	4.1	8.2	48.4	6.9	28.8	109.3	0.7	-0.2	3.1	166.8	47
Shale, Coal	19.4	1.6	R-9-1004	3.4	6.4	71.0	6.2	28.3	66.5	0.6	-0.4	[illegible].5	168.5	140
Sandstone, Shale	21.0	4.0	R-9-1005	3.9	4.9	49.2	3.5	15.6	56.9	0.7	-0.2	[illegible].6	162.3	31
(24.0 to 25.0 Lost)														
Siltstone, Shale, Sandstone	25.0	6.2	R-9-1006	4.2	6.0	47.4	4.5	23.4	78.3	0.5	-0.5	[illegible].9	117.2	**<7
Coal	31.2	1.6	R-9-1007	4.4	2.8	61.6	2.0	28.3	11.1	0.4	-0.7	2.9	38.9	4
Shale, Sandstone	32.8	7.0	R-9-1008	6.0	4.5	46.5	3.0	32.2	31.8	0.6	-0.4	7.6	156.2	<2
Siltstone, Sandstone, Shale Siderite	39.8	7.0	R-9-1009	6.6	2.4	42.3	3.7	13.7	134.4	0.4	-0.7	1.4	94.1	3
Shale	46.8	7.9	R-9-1010	4.0	10.2	46.9	6.2	26.9	119.6	0.6	-0.4	6.5	132.6	20
Sandstone, Shale	54.7	3.0	R-9-1011	6.3	4.7	44.4	6.6	32.7	30.3	1.3	0.6	4.6	151.7	3
Shale	57.7	2.9	R-9-1012	4.2	7.5	51.0	8.5	27.3	91.6	0.9	0.1	8.7	211.5	10
Coal	60.7	2.5	R-9-1013	3.7	5.9	71.5	8.4	34.7	39.9	1.7	1.2	5.1	13.2	<2

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N <2ppm and NO_3 - N ≥ 1 ppm

Mine: Black Mesa N-10 Township: 37 N
Core: 210099-C Range: 18 E
Section: 35 Date Cored: August 10, 1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na* meq/l	Ca* meq/l	Mg* meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Shale, Coal	63.1	2.7	R-9-1014	3.0	7.4	52.0	8.2	30.8	64.2	0.8	−0.1	1.4	80.3	<2
Sandstone, Shale	65.8	4.6	R-9-1015	5.9	4.8	51.1	5.5	36.1	34.0	1.1	0.3	2.6	178.5	3
Coal	70.4	2.0	R-9-1016	5.5	3.1	78.5	2.9	27.3	15.4	0.6	−0.4	1.5	84.2	3
Shale, Sandstone	72.4	2.5	R-9-1017	4.1	3.8	44.4	3.9	28.8	22.9	0.8	−0.1	0.4	94.4	<2
Sandstone, Siltstone	74.9	5.5	R-9-1018	5.1	7.1	34.2	2.9	24.7	79.4	0.4	−0.7	15.5	47.0	10
Coal, Shale, Sandstone	80.4	5.3	R-9-1019	3.4	6.9	48.9	6.8	41.2	29.8	1.4	0.7	12.7	65.7	3
Coal	85.7	2.4	R-9-1020	5.8	4.7	68.2	14.8	61.7	10.1	3.0	3.1	0.9	38.7	4
Shale, Sandstone, Siderite	88.1	4.9	R-9-1021	6.5	6.1	44.5	19.7	21.5	6.5	5.9	6.9	<0.1	159.0	4
Shale	93.0	5.2	R-9-1022	5.3	4.8	55.0	27.7	29.5	8.0	5.5	6.4	0.3	205.2	2
Sandstone, Shale	98.2	8.1	R-9-1023	6.8	4.7	42.4	21.0	42.1	8.5	4.2	4.7	2.8	97.6	2
Shale	106.3	7.7	R-9-1024	6.1	5.9	50.9	31.5	40.3	12.5	6.3	7.4	5.5	213.4	16
Brown Coal Seam	114.0	8.3	Coal											
Shale, Underclay	122.3	6.7	R-9-1025	6.5	2.7	53.8	30.5	8.3	1.5	15.3	17.6	0.3	216.8	4
Coal														
Siltstone	129.0	2.5	R-9-1026	4.9	2.6	48.6	21.6	19.7	5.1	6.5	7.7	<0.1	220.6	4
Siltstone, Sandstone	131.5	8.5	R-9-1027	8.1	1.3	38.3	10.4	1.9	0.6	9.4	11.2	<0.1	134.1	<2
Shale, Siderite														
Siltstone, Sandstone	140.0	6.9	R-9-1028	8.1	1.2	36.3	8.5	2.6	0.8	6.8	8.1	0.5	126.0	3
Shale, Siderite														
Siderite, Sandstone	146.9	3.1	R-9-1029	7.9	1.6	32.2	7.6	2.8	0.7	5.3	6.2	<0.1	81.0	3
Shale														
Sandstone	150.0	10.0	R-9-1030	7.9	1.0	40.1	5.3	3.1	1.2	3.7	4.0	<0.1	52.5	3
Sandstone	160.0	10.0	R-9-1031	7.4	1.9	42.1	6.0	10.3	4.9	2.4	2.2	<0.1	28.3	30
Sandstone	170.0	9.5	R-9-1032	7.2	2.6	42.1	6.7	16.1	7.7	2.0	1.7	<0.1	64.7	40

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N < 2ppm and NO_3 - N ≥ 1 ppm

Mine: Black Mesa N-10 Township: 37N
Core: 21099 C Range: 18 E
Section: 35 Date Cored: August 10, 1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na* meq/l	Ca* meq/l	Mg* meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Coal	179.5	0.5	mixed	with	sample	R-9-1034	in transit							
Sandstone, Shale	180.0	4.9	R-9-1033	4.9	3.2	44.4	10.1	21.5	9.0	3.0	3.1	1.8	81.3	20
Shale, Coal	184.9	2.6	R-9-1034	6.2	3.7	58.2	32.4	5.5	1.1	19.4	21.5	2.1	234.8	4
(Coal 179.5 to 180.0)														
Underclay, Shale, Sandstone	187.5	5.6	R-9-1035	6.6	5.1	54.8	42.0	17.9	2.8	12.6	14.8	2.3	76.1	2
Violet Coal Seam	193.1	5.6	Coal											
Shale, Sandstone	198.7	4.0	R-9-1036	7.7	2.5	46.8	22.4	1.6	0.2	24.6	25.9	<0.1	225.6	4
Shale, Sandstone	202.7	7.5	R-9-1037	8.2	2.4	40.6	21.3	1.4	0.1	23.4	24.9	0.8	176.0	4
Sandstone														
	210.2													

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N < 2ppm and NO_3 - N ≥ 1 ppm

Core: 21009-C 35 Range: 18 F 9-10-78
Section: Date Cored:

	*Dry Basis			Tons of $CaCO_3$ Equivalent per 100 Tons Material				Central Laboratory						
			% 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	% Moisture 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-995			<0.01	0.31	5.68		5.37	1.3	54.0	33.4	12.6	22.3	4.0	18.3
R-9-996			0.02	0.63	6.02		5.39	2.0	49.0	24.4	26.6	28.9	7.6	21.3
R-9-997			<0.01	0.31	5.94		5.63	1.5	51.0	22.4	26.6	26.4	7.6	18.8
R-9-998			<0.01	0.31	38.46		38.15	0.6	54.6	22.8	22.6	23.5	6.3	17.2
R-9-999			0.05	1.56	57.16		55.60	0.6	60.0	18.4	21.6	23.6	6.3	17.3
R-9-1000			0.09	2.81	57.42		54.61	0.3	71.6	11.8	16.6	25.7	6.4	19.3
R-9-1001			0.33	10.31	6.53	3.78		0.9	67.6	19.8	12.6	30.1	6.6	23.5
R-9-1002			0.67	20.94	3.07	17.87		1.7	45.6	30.8	23.6	33.0	8.6	24.4
R-9-1003			0.33	10.31	4.45	5.86		7.8	70.0	16.8	13.2	40.7	11.3	29.4
R-9-1004			0.77	24.06	-27.20	51.26		Coal	78.0	13.8	8.2	41.3	24.8	16.5
R-9-1005			0.07	2.19	1.66	0.53		2.2	25.0	41.8	33.2	29.2	7.3	21.9
R-9-1006			0.46	14.38	2.69	11.69		5.2	41.0	29.8	29.2	33.0	8.3	24.7
R-9-1007			0.51	15.94	3.83	12.11		Coal	87.0	4.8	8.2	41.4	12.1	29.3
R-9-1008			0.67	20.94	55.36		34.42	5.4	41.0	31.4	27.6	28.0	6.9	21.1
R-9-1009			0.18	5.63	34.23		28.60	3.6	56.0	24.4	19.6	26.1	4.6	21.5
R-9-1010			3.34	104.38	31.89	72.49		10.3	44.0	26.4	29.6	31.4	8.8	22.6
R-9-1011			0.60	18.75	24.02		5.27	3.1	48.0	30.8	21.2	27.3	5.8	21.5
R-9-1012			2.48	77.50	8.78	68.72		8.6	16.0	43.8	40.2	33.2	9.6	23.6
R-9-1013			2.43	75.94	4.99	70.95		Coal	84.0	8.8	7.2	31.0	13.2	17.8

Section: 21099-C 35 Date Cored: 9-10-78

	*Dry Basis			100 Tons Material										
			% Sulfur	Max. Meq From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess $CaCo_3$ Equiv.	*% Organic Matter	Particle Size % Sand	% Silt	% Clay	% Moisture 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1014			1.68	52.50	0.64	51.86		Coal	59.0	23.8	17.2	37.3	8.9	28.4
R-9-1015			0.85	26.56	13.88	12.68		7.9	40.0	28.8	31.2	30.7	8.8	21.9
R-9-1016			1.18	36.88	12.09	24.79		Coal	86.0	7.8	6.2	28.0	13.0	15.0
R-9-1017			0.27	8.44	1.88	6.56		5.5	46.0	32.8	21.2	25.6	5.3	20.3
R-9-1018			0.90	28.13	3.38	24.75		2.7	77.0	9.8	13.2	14.8	3.5	11.3
R-9-1019			2.57	80.31	3.05	77.26		Coal	42.8	32.0	25.2	29.0	6.7	22.3
R-9-1020			2.99	93.44	7.66	85.78		Coal	88.0	2.8	9.2	22.8	11.3	11.5
R-9-1021			0.33	10.31	31.70		21.39	3.7	52.0	24.8	23.2	21.9	5.2	16.7
R-9-1022			0.69	21.56	6.55	15.01		3.8	18.4	40.4	41.2	29.6	8.5	21.1
R-9-1023			0.75	23.44	89.00		65.56	2.8	46.0	31.8	22.2	23.6	4.8	18.8
R-9-1024			1.87	58.44	34.33	24.11		5.4	22.0	36.8	41.2	26.2	8.4	17.8
Coal														
R-9-1025			0.76	23.75	7.87	15.88		Coal	44.0	17.8	38.2	29.1	10.3	18.8
R-9-1026			0.31	9.69	2.36	7.33		1.5	20.4	40.4	39.2	26.7	7.4	19.3
R-9-1027			0.05	1.56	37.03		35.47	2.0	52.8	25.0	22.2	21.4	4.6	16.8
R-9-1028			0.06	1.88	28.97		27.09	1.8	45.4	31.4	23.2	20.3	5.0	15.3
R-9-1029			0.06	1.88	44.71		42.83	1.4	62.4	22.4	15.2	17.0	3.9	13.1
R-9-1030			<0.01	0.31	19.58		19.27	0.3	78.8	10.0	11.2	13.5	2.0	11.5
R-9-1031			0.06	1.88	5.50		3.62	0.4	80.0	8.8	11.2	14.1	0.2	13.9
R-9-1032*			0.10	3.13	12.27		9.14	1.6	81.0	7.4	11.6	12.9	2.8	10.1

Core: 21099-C
Section: 35

Range: 18-E
Date Cored: 9-10-78

Tons of $CaCO_3$ Equivalent per 100 Tons Material

Central Laboratory

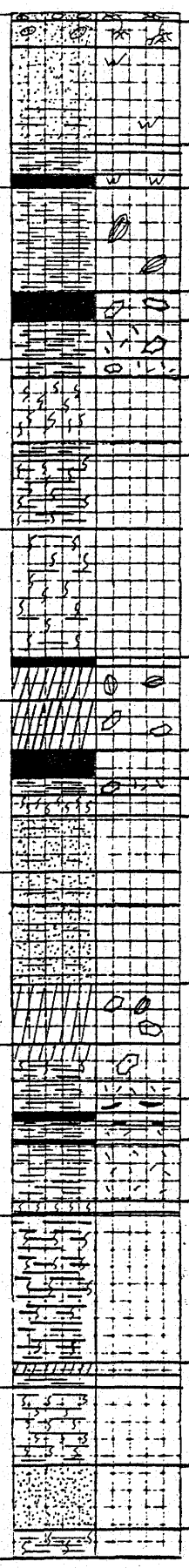
*Dry Basis

			% 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	% Moisture 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1033			0.42	13.13	8.05	5.08		3.6	50.0	24.8	25.2	16.6	5.8	10.8
R-9-1034			0.62	19.38	8.52	10.86		Coal	39.0	25.8	35.2	26.0	12.5	13.5
R-9-1035			0.64	20.00	19.54	0.46		4.7	22.8	45.6	31.6	19.5	7.5	12.0
Coal														
R-9-1036			0.09	2.81	4.31		1.50	3.9	36.8	20.0	43.2	28.6	13.7	14.9
R-9-1037			0.09	2.81	7.47		4.66	2.8	40.8	29.0	30.2	24.1	10.4	13.7

LOCATION N 4103.0 DATE DRILLED 9-20-78 SUB AREA N-10

E 36286.0

ELEVATION 6904.6



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1040	42.2	0.7	3.6	42.1	14.1	0.06	6.9
R-9-1041	60.7	2.0	9.8	38.5	46.7	1.37	3.4
R-9-1042	51.3	0.7	4.1	38.1	27.2	1.07	3.3
R-9-1043	64.3	0.5	2.2	22.4	20.4	2.85	2.3
R-9-1044	56.2	0.3	2.6	24.8	113.5	4.06	2.4
R-9-1045	50.8	1.0	3.8	7.7	23.7	0.16	7.5
R-9-1046	50.8	1.4	3.7	5.5	8.0	0.07	7.8
R-9-1047	55.5	0.7	3.9	26.8	31.6	1.14	5.0
R-9-1048	78.0	0.7	2.4	10.8	10.6	0.85	4.7
R-9-1049	52.9	0.7	3.8	22.9	30.4	0.47	3.3
R-9-1050	34.2	0.5	2.5	20.4	26.1	0.37	7.1
R-9-1051	53.2	0.6	3.6	25.8	52.8	2.14	3.3
R-9-1052	53.9	4.9	18.6	18.5	10.5	1.49	5.7
R-9-1053	61.7	9.0	28.7	13.0	7.5	0.40	5.5
R-9-1054	48.7	5.7	25.7	25.8	15.4	0.73	6.5
R-9-1055	53.2	6.4	34.6	25.3	32.8	1.89	3.1
R-9-1056	38.2	3.7	12.1	11.9	9.5	0.18	7.5
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LOCATION N 4103.0 DATE DRILLED 9-20-78 SUB AREA N-10

E 36286.0

ELEVATION 6904.6

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1057	49.0	5.5	30.6	25.8	37.0	2.03	5.2
NXX (8-2088-R)	(10.56)	(8.76)		(12,507)		(1.03)	(7.1)
R-9-1058	48.7	1.8	6.9	19.0	10.6	0.11	6.0
R-9-1059	36.2	1.4	3.2	4.7	5.5	0.05	7.7
R-9-1060	48.9	1.0	5.3	27.7	32.8	1.02	5.5
EOX (8-2089-R)	(11.87)	(8.24)		(12,536)		(0.51)	(7.6)
R-9-1061	49.0	19.9	14.2	3.1	1.0	0.04	8.1
R-9-1062	30.2	19.4	20.8	1.5	0.8	0.05	8.3
R-9-1063	56.2	23.3	51.4	5.4	4.3	1.28	4.8
R-9-1064	34.3	22.1	26.7	0.7	2.2	0.06	8.0
R-9-1065	76.9	4.7	3.3	0.6	0.4	0.47	7.4
R-9-1066	52.8	3.9	5.4	2.4	1.5	0.46	7.1
E1X (8-2090-R)	(10.25)	(8.43)		(12,753)		(0.59)	(8.4)
R-9-1067	38.6	0.3	27.0	1.1	1.5	0.09	8.3
R-9-1068	83.5	0.2	43.3	1.1	1.1	0.40	6.7
R-9-1069	40.5	2.8	29.4	13.9	4.1	0.04	8.7

SEP 3 1986
OCT 27 1986

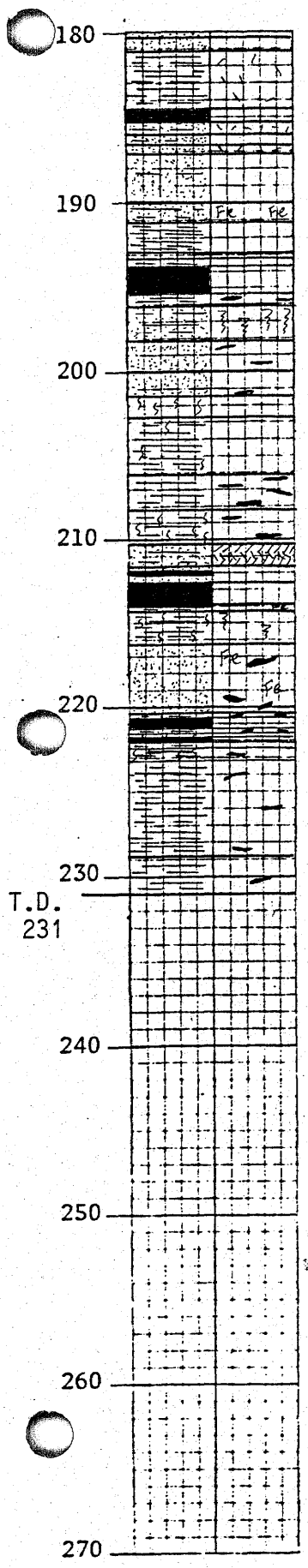
LOCATION N 4103.0
E 36286.0

DATE DRILLED 9-20-78

SUB AREA N-10

ELEVATION 6904.6

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



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SEP 3 1986

OCT 27 1986

Mine: Black Mesa N-10 Township: 36 N
Core: 21100 Range: 18 E
Section: 2 Date Cored: 9-20-1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na* meq/l	Ca meq/l	Mg* meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Surface Soil	0.0	0.1	R-9-1038	7.8	0.4	42.4	1.3	3.7	0.2	0.9	0.1	11.1	105.7	**<3
Surface Soil	0.1	0.4	R-9-1039	7.8	0.3	36.4	1.2	3.6	0.1	0.8	-0.1	3.3	85.6	2
Sand, Sandstone	0.4	7.1	R-9-1040	6.9	3.3	42.2	3.6	42.1	14.1	0.7	-0.2	18.3	77.0	2
Clay, Shale, Coal	7.5	2.5	R-9-1041	3.4	7.4	60.7	9.8	38.5	46.7	2.0	1.7	4.2	160.2	14
Shale	10.0	6.1	R-9-1042	3.3	6.8	51.3	4.1	38.1	27.2	0.7	-0.2	21.1	78.6	8
Coal	16.1	1.7	R-9-1043	2.3	6.2	64.3	2.2	22.4	20.4	0.5	-0.5	0.9	13.1	30
Claystone, Shale	17.8	3.3	R-9-1044	2.4	23.0	56.2	2.6	24.8	113.5	0.3	-0.8	5.9	110.1	30
Siltstone, Limestone	21.1	4.6	R-9-1045	7.5	1.5	50.8	3.8	7.7	23.7	1.0	0.2	2.3	190.2	<2
Shale	25.7	11.8	R-9-1046	7.8	0.8	50.8	3.7	5.5	8.0	1.4	0.7	1.3	206.9	<2
Coal, Shale	37.5	5.4	R-9-1047	5.0	2.3	55.5	3.9	26.8	31.6	0.7	-0.2	5.0	217.6	<2
Coal	42.9	1.7	R-9-1048	4.7	1.1	78.0	2.4	10.8	10.6	0.7	-0.2	0.1	44.1	3
Shale, Siltstone	44.6	2.2	R-9-1049	3.3	2.4	52.9	3.8	22.9	30.4	0.7	-0.2	0.3	107.7	<2
Sandstone, Siderite	46.8	9.7	R-9-1050	7.1	1.8	34.2	2.5	20.4	26.1	0.5	-0.5	7.3	49.1	<2
Shale	56.5	6.7	R-9-1051	3.3	3.5	53.2	3.6	25.8	52.8	0.6	-0.4	0.5	141.7	<2
Shale, Coal	63.2	2.6	R-9-1052	5.7	2.1	53.9	18.6	18.5	10.5	4.9	5.6	8.6	240.6	2
Shale	65.8	3.4	R-9-1053	5.5	2.3	61.7	28.7	13.0	7.5	9.0	10.7	1.0	310.0	2
Siltstone, Shale	69.2	9.3	R-9-1054	6.5	2.6	48.7	25.7	25.8	15.4	5.7	6.7	2.3	185.8	<2
Shale, Siltstone	78.5	6.0	R-9-1055	3.1	4.0	53.2	34.6	25.3	32.8	6.4	7.6	8.8	174.8	<2
Sandstone	84.5	3.8	R-9-1056	7.5	1.5	38.2	12.1	11.9	9.5	3.7	4.0	1.6	110.6	<2
Shale	88.3	7.9	R-9-1057	5.2	3.5	49.0	30.6	25.8	37.0	5.5	6.4	11.4	232.5	2
Brown Coal Seam	96.2	11.8	Coal											
Siltstone Shale	108.0	2.6	R-9-1058	6.0	0.9	48.7	6.9	19.0	10.6	1.8	1.4	0.3	152.9	3
Sandstone	110.6	6.0	R-9-1059	7.7	0.6	36.2	3.2	4.7	5.5	1.4	0.7	0.5	53.2	<2
Shale, Siltstone	116.6	4.1	R-9-1060	5.5	2.3	48.9	5.3	27.7	32.8	1.0	0.2	7.6	198.9	2
Siderite														

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N <2ppm and NO_3 - N ≥ 1 ppm

Mine: Black Mesa
Core: 21100-C
Section: 2

Township: 36 N
Range: 18 E
Date Cored: 9-20-1978

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na meq/l	Ca meq/l	Mg meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Violet Coal Seam	120.7	5.8	Coal											
Shale Siltstone	126.5	3.1	R-9-1061	8.1	76.1	49.0	14.2	3.1	1.0	9.9	11.8	0.3	245.0	3
Sandstone, Siltstone Shale	129.6	2.3	R-9-1062	8.3	1.3	30.2	20.8	1.5	0.8	19.4	21.5	<0.1	180.1	<2
Shale, Coal	131.9	3.0	R-9-1063	4.8	2.9	56.2	51.4	5.4	4.3	23.3	24.9	3.2	182.1	3
Sandstone, Shale	134.9	5.6	R-9-1064	8.0	1.4	34.3	26.7	0.7	2.2	22.1	23.9	0.3	147.9	4
Coal, Shale	140.5	2.1	R-9-1065	7.4	1.8	76.9	3.3	0.6	0.4	4.7	5.4	0.5	291.9	4
Siderite, Sandstone Siltstone, Shale	142.6	4.6	R-9-1066	7.1	2.9	52.8	5.4	2.4	1.5	3.9	4.3	2.4	171.4	4
Orange Coal Seam	147.2	5.6	Coal											
Shale, Underclay Siltstone, Sandstone	152.8	2.2	R-9-1067	8.3	2.5	38.6	27.0	1.1	1.5	0.3	-0.8	0.8	186.1	4
Coal, Shale	155.0	2.5	R-9-1068	6.7	4.8	83.5	43.3	1.1	1.1	0.2	-1.0	3.2	301.3	4
Siltstone, Siderite	157.5	5.7	R-9-1069	8.7	9.1	40.5	29.4	13.9	4.1	2.8	2.8	<0.1	203.4	<2
End of Core	163.2													

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N < 2ppm and NO_3 - N ≥ 1 ppm

Core: 2T100-C
Section:-
Range: 36N
Date Cored: 9-20-78

Tons of $CaCO_3$ Equivalent per 100 Tons Material

Central Laboratory

	*Dry Basis														
			% 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	% Moisture 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1038			0.05	1.56	13.10		11.54	1.1	72.8	12.0	15.2	15.3	4.9	10.4
R-9-1039			0.06	1.88	7.69		5.81	0.7	74.8	6.0	19.2	15.1	5.1	10.0
R-9-1040			0.06	1.88	6.02		4.14	0.1	76.8	10.0	13.2	12.1	3.7	8.4
R-9-1041			1.37	42.87	-2.69	45.56		Coal	52.8	19.0	28.2	28.1	18.6	9.5
R-9-1042			1.07	33.44	-3.91	37.35		3.5	40.9	28.5	30.6	18.2	10.2	8.0
R-9-1043			2.85	89.06	-11.79	100.85		Coal	80.6	7.4	12.0	17.5	12.2	5.3
R-9-1044			4.06	126.88	8.54	118.34		10.8	44.6	20.4	35.0	21.6	10.0	11.6
R-9-1045			0.16	5.00	102.07		97.07	1.8	36.2	32.8	31.0	15.8	5.7	10.1
R-9-1046			0.07	2.19	28.95		26.76	1.7	35.2	31.8	33.0	17.5	6.4	11.1
R-9-1047			1.14	35.63	13.58	22.05		Coal	28.2	32.8	39.0	21.6	8.6	13.0
R-9-1048			0.85	26.56	7.21	19.35		Coal	92.2	1.8	6.0	16.6	14.1	2.5
R-9-1049			0.47	14.69	-0.95	15.64		7.2	29.2	33.8	37.0	19.6	6.9	12.7
R-9-1050			0.37	11.56	41.65		30.09	2.3	73.2	10.8	16.0	12.9	2.7	10.2
R-9-1051			2.14	66.88	14.05	52.83		8.0	17.6	41.0	41.4	19.5	7.1	12.4
R-9-1052			1.49	46.56	5.20	41.36		Coal	43.2	21.4	35.4	21.7	8.8	12.9
R-9-1053			0.40	12.50	4.04	8.46		7.5	14.2	35.4	50.4	16.4	10.0	6.4
R-9-1054			0.73	22.81	35.10		12.29	3.6	37.2	30.4	32.4	34.2	5.5	28.7
R-9-1055			1.89	59.06	-2.08	61.14		6.5	10.2	46.4	43.4	16.6	8.7	7.9
R-9-1056			0.18	5.63	108.79		103.16	2.2	66.8	17.8	15.4	8.8	3.6	5.2
R-9-1057			2.03	63.44	31.07	32.37		6.1	23.8	34.8	41.4	14.7	7.8	6.9
R-9-1058			0.11	3.44	2.17	1.27		3.8	26.8	37.8	35.4	21.5	8.5	13.0
R-9-1059			0.05	1.56	103.94		102.38	1.5	73.2	13.4	13.4	16.1	4.7	11.4
R-9-1060			1.02	31.88	39.24		7.36	5.1	32.0	28.6	39.4	25.6	9.3	16.3

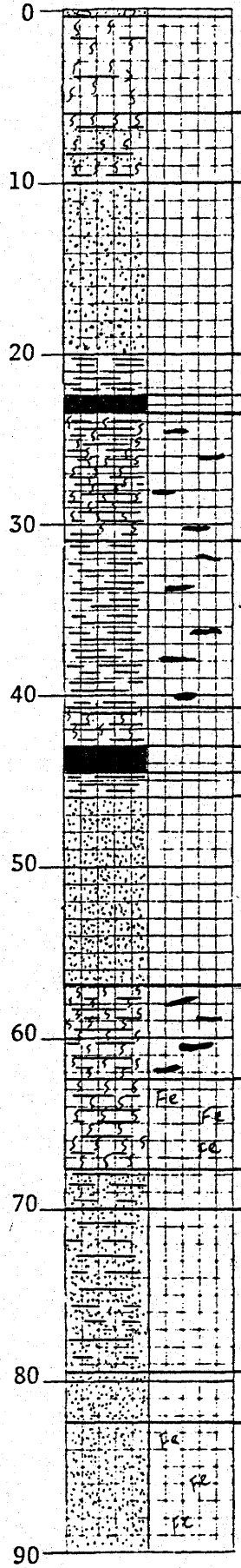
Core: 21100-C 2 Range: 18 E
Section: Date Cored: 9-20-78

	*Dry Basis			Tons of $CaCO_3$ Equivalent per 100 Tons Material				Central Laboratory						
			% 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	% Moisture 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1061			0.04	1.25	4.09		2.84	5.3	25.0	34.6	40.4	41.1	15.5	25.6
R-9-1062			0.05	1.56	38.21		36.65	1.9	67.0	17.6	15.4	19.1	6.1	13.0
R-9-1063			1.28	40.00	1.84	38.16		Coal	45.0	27.6	27.4	31.8	11.5	20.3
R-9-1064			0.06	1.88	25.80		23.92	3.5	71.0	12.6	16.4	21.6	7.5	14.1
R-9-1065			0.47	14.69	5.94	8.75		Coal	36.0	23.6	40.4	48.1	17.6	30.5
R-9-1066			0.46	14.38	36.08		21.70	3.7	45.5	29.1	25.4	27.4	9.3	18.1
Coal														
R-9-1067			0.09	2.81	10.12			3.6	47.6	21.6	30.8	25.6	9.6	16.0
R-9-1068			0.40	12.50	5.35			Coal	37.2	14.0	48.8	43.7	19.0	24.7
R-9-1069			0.04	1.25	29.80		28.55	1.2	39.6	29.6	30.8	26.2	6.0	20.2

LOCATION N 6434.9 DATE DRILLED 8/26/78 SUB AREA N-10

E 36947.0

ELEVATION 6970.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1765	61.4	5.1	30.5	26.7	45.0	0.33	8.0
R-9-1766	36.2	5.7	32.4	21.7	43.4	0.06	7.8
R-9-1767	32.1	2.5	12.5	28.8	20.9	0.10	7.3
R-9-1768	49.5	0.6	2.9	26.0	18.1	1.74	2.9
R-9-1769	69.6	0.5	2.6	30.9	32.9	2.91	2.7
R-9-1770	51.2	0.4	3.1	26.0	83.6	1.96	4.4
R-9-1771	49.5	0.5	3.6	29.2	94.8	2.23	2.8
R-9-1772	55.1	0.5	2.8	26.3	28.9	0.85	4.4
R-9-1773	78.3	0.8	2.5	17.1	10.5	0.99	4.8
R-9-1774	50.9	0.5	2.7	30.3	31.3	0.40	3.1
R-9-1775	32.1	0.2	1.1	29.2	9.8	0.38	7.0
R-9-1776	45.0	0.4	3.8	32.0	149.4	2.30	2.8
R-9-1777	46.8	0.3	1.8	25.3	59.4	0.88	3.9
R-9-1778	40.3	0.4	1.9	18.9	22.5	0.12	6.7
R-9-1779	40.4	0.6	1.6	6.3	6.0	0.05	7.6
R-9-1780	33.4	0.4	2.0	33.1	11.2	0.01	7.2
R-9-1781	34.1	0.5	2.1	18.5	17.9	0.08	6.9

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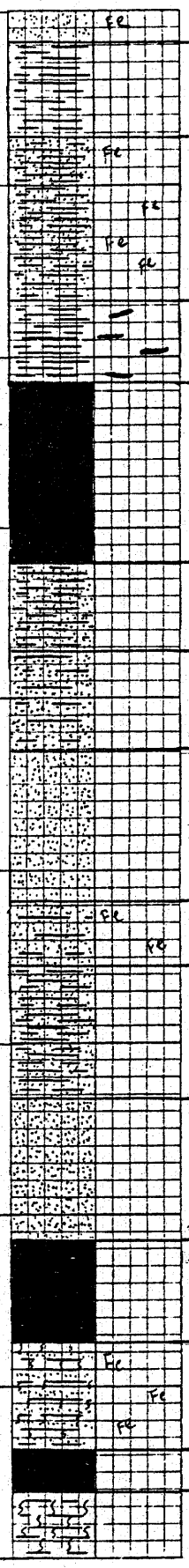
OCT 27 1986

HOLE NO. 21101C DRILLER Jim Elliott PAGE 2

LOCATION N 6434.0 DATE DRILLED 8/26/78 SUB AREA N-10

E 36947.0

ELEVATION 6970.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-1782	53.1	0.6	3.6	25.6	48.2	1.51	3.8
R-9-1783	44.6	0.6	3.7	28.5	56.2	0.82	6.8
R-9-1784	47.3	0.6	5.1	26.7	128.6	2.57	4.5
NXX (8-2091-R)	(11.86)	(9.09)		(12,460)		(0.90)	(7.5)
R-9-1785	51.0	3.5	16.3	25.3	17.0	0.49	4.8
R-9-1786	44.5	4.7	8.3	3.5	2.8	0.08	7.3
R-9-1787	36.2	1.3	5.7	21.8	19.4	0.30	5.2
R-9-1788	50.6	3.6	8.6	6.3	5.2	0.17	7.5
R-9-1789	44.5	4.9	8.4	3.6	2.3	0.10	7.9
R-9-1790	36.2	1.9	6.3	10.3	10.7	0.13	7.3
EOX (8-2092-R)	(11.07)	(4.77)		(13,166)		(0.58)	(7.7)
R-9-1791	52.7	20.4	40.6	5.0	2.9	0.30	6.8
R-9-1792	68.0	19.3	41.6	6.0	3.3	1.31	5.2
R-9-1793	53.0	32.2	44.4	2.4	1.4	0.46	7.4

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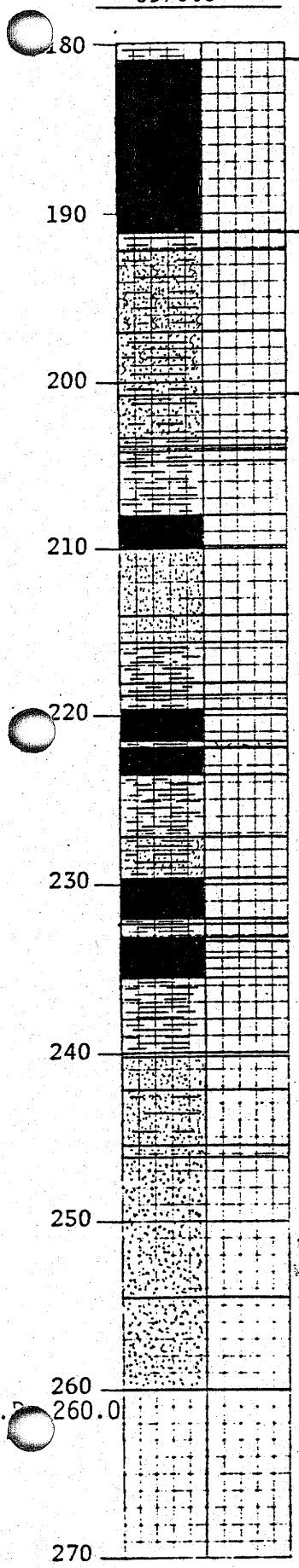
OCT 27 1986

DRILL HOLE NO. 21101C DRILLER JIM ELLIOTT PAGE 3

LOCATION N 6434.0 DATE DRILLED 8/26/78 SUB AREA N-10

E 36947.0

ELEVATION 6970.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
E12 (8-2093-R)	(10.35)	(7.88)		(12,741)		(0.53)	(8.3)
R-9-1794	46.5	10.3	26.5	8.3	5.0	0.31	4.5
E3A E3B							
		440					

SEP 3 1986

OCT 27 1986

Mine: 250 N 10
Core: 21101C
Section: 35

Township: 37N
Range: 18E
Date Cored: Aug. 26, 1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na meq/l	Ca meq/l	Mg meq/l	SAR	ESP	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Surface Soil	0.0	0.1	R-9-1763	7.7	0.3	36.2	0.6	2.6	0.3	0.5	-0.5	3.1	114.7	<2
Surface Soil	0.1	0.4	R-9-1764	7.8	0.7	38.3	0.8	5.3	0.4	0.5	-0.5	2.5	115.1	**<3
Siltstone, Silt, Clay, Shale	0.0	6.0	R-9-1765	8.0	7.2	61.4	30.5	26.7	45.0	5.1	5.9	8.1	173.7	**<3
Shale, Sandstone, Siltstone	6.0	4.0	R-9-1766	7.8	7.1	36.2	32.4	21.7	43.4	5.7	6.7	7.2	104.1	<2
Sandstone	10.0	10.0	R-9-1767	7.3	4.6	32.1	12.5	28.8	20.9	2.5	2.4	21.5	58.7	<2
Clay, Shale	20.0	2.5	R-9-1768	2.9	10.3	49.5	2.9	26.0	18.1	0.6	-0.4	18.8	136.6	5
Lost 20.0 - 20.2														
Coal	22.5	1.0	R-9-1769	2.7	11.5	69.6	2.6	30.9	32.9	0.5	-0.5	0.5	63.5	<2
Shale, Siltstone	23.5	7.4	R-9-1770	4.4	6.6	51.2	3.1	26.0	83.6	0.4	-0.7	10.8	190.2	<2
Coal														
Shale, Coal	30.9	9.9	R-9-1771	2.8	10.8	49.5	3.6	29.2	94.8	0.5	-0.5	4.7	156.0	7
Siltstone, Shale	40.8	2.2	R-9-1772	4.4	3.9	55.1	2.8	26.3	28.9	0.5	-0.5	5.4	257.3	3
Coal	43.0	1.5	R-9-1773	4.8	2.2	78.3	2.5	17.1	10.5	0.8	-0.1	2.5	69.2	<2
Shale	44.5	1.5	R-9-1774	3.1	5.6	50.9	2.7	30.3	31.3	0.5	-0.5	0.3	137.7	2
Sandstone	46.0	10.9	R-9-1775	7.0	2.8	32.1	1.1	29.2	9.8	0.2	-1.0	11.9	74.6	<2
Coal, Shale Siltstone	56.9	5.5	R-9-1776	2.8	15.2	45.0	3.8	32.0	149.4	0.4	-0.7	5.6	132.9	<2
Shale, Siltstone Siderite	62.4	5.3	R-9-1777	3.9	7.4	46.8	1.8	25.3	59.4	0.3	-0.8	0.9	140.2	34
Sandstone, Shale	67.7	2.3	R-9-1778	6.7	3.1	40.3	1.9	18.9	22.5	0.4	-0.7	2.8	136.1	<2
Sandstone, Shale	70.0	9.5	R-9-1779	7.6	1.3	40.4	1.6	6.3	6.0	0.6	-0.4	1.2	152.5	<2
Sandstone	79.5	2.9	R-9-1780	7.2	5.3	33.4	2.0	33.1	11.2	0.4	-0.7	1.0	95.9	<2
Saudstone, Siderite	82.4	9.5	R-9-1781	6.9	2.8	34.1	2.1	18.5	17.9	0.5	-0.5	2.2	103.9	<2
Breccia, Shale	91.9	5.4	R-9-1782	3.8	5.4	53.1	3.6	25.6	48.2	0.6	-0.4	11.2	211.3	5

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N <2ppm and NO_3 - N <1 ppm

Mine: 250 N 10
Core: 21101C
Section: 35

Township: 37N
Range: 18E
Date Cored: Aug. 26, 1978

PEABODY COAL COMPANY

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na meq/l	Ca meq/l	Mg meq/l	SAR	ESP	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N ppm
Sandstone, Shale, Siderite	97.3	9.4	R-9-1783	6.8	5.2	44.6	3.7	28.5	56.2	0.6	-0.4	2.7	177.4	<2
Shale, Coal	106.7	4.8	R-9-1784	4.5	9.5	47.3	5.1	26.7	128.6	0.6	-0.4	5.0	198.9	6
Brown, Coal Seam	111.5	10.6	Coal											
Shale, Sandstone	122.1	5.2	R-9-1785	4.8	4.4	51.0	16.3	25.3	17.0	3.5	3.8	1.5	238.0	4
Sandstone, Shale	127.3	5.8	R-9-1786	7.3	1.4	44.5	8.3	3.5	2.8	4.7	5.4	1.8	169.9	<2
Sandstone	133.1	8.7	R-9-1787	5.2	4.7	36.2	5.7	21.8	19.4	1.3	0.6	6.8	41.2	<2
Sandstone, Shale Siderite	141.8	3.6	R-9-1788	7.5	2.4	50.6	8.6	6.3	5.2	3.6	3.9	0.8	137.1	<2
Shale, Sandstone	145.4	7.9	R-9-1789	7.9	7.0	44.5	8.4	3.6	2.3	4.9	5.6	0.5	134.1	<2
Sandstone	153.3	8.2	R-9-1790	7.3	2.3	36.2	6.3	10.3	10.7	1.9	1.5	0.5	38.1	<2
Violet Coal Seam	161.5	5.9	Coal											
Lost 167.2 - 167.4														
Shale, Mudstone, Siltstone, Siderite Sandstone	167.4	6.4	R-9-1791	6.8	8.6	52.7	40.6	5.0	2.9	20.4	22.4	2.8	137.4	3
Coal	173.8	2.4	R-9-1792	5.2	4.9	68.0	41.6	6.0	3.3	19.3	21.4	1.0	58.8	3
Shale, Mudstone, Siltstone	176.2	4.8	R-9-1793	7.4	4.7	53.0	44.4	2.4	1.4	32.2	31.6	0.9	170.6	<2
Orange Coal Seam	181.0	10.1	Coal											
Siltstone, Shale	191.1	9.7	R-9-1794	4.5	3.8	46.5	26.5	8.3	5.0	10.3	12.2	2.2	73.4	<2

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N <2ppm and NO_3 - N ≥ 1 ppm

Line: 250 N 10
Core: 21101C
Section: 35

Township: 37N
Range: 18F
Date Cored: Aug. 26, 1978
*Dry Basis

Peabody Coal Company
Central Laboratory

			% Sulfur	*Tons of $CaCo_3$ Equivalent per 100 Tons Material: Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess $CaCo_3$ Equiv.	*% Organic Matter	Particle Size: % Sand	% Silt	% Clay	% Moisture: 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1763			<0.01	0.31	8.96		8.65	0.7	52.4	35.0	12.6	17.4	3.5	13.9
R-9-1764			<0.01	0.31	23.39		23.08	0.8	38.4	61.0	23.6	22.6	5.6	17.0
R-9-1765			0.33	10.31	51.48		41.17	1.3	36.4	30.0	33.6	30.0	11.8	18.2
R-9-1766			0.06	1.88	15.38		13.50	0.2	73.8	12.6	13.6	16.7	3.5	13.2
R-9-1767			0.10	3.13	90.11		86.98	<0.1	76.2	16.2	7.6	15.0	1.5	13.5
R-9-1768			1.74	54.38	-11.18	65.56		8.7	51.2	26.2	22.6	32.3	10.4	21.9
R-9-1769			2.91	90.94	-9.10	100.04		Coal	72.6	18.8	8.6	32.4	13.8	18.6
R-9-1770			1.96	61.25	17.41	43.84		Coal	29.6	40.8	29.6	29.3	8.8	20.5
R-9-1771			2.23	69.69	-0.67	70.36		Coal	40.6	35.8	23.6	30.7	8.8	21.9
R-9-1772			0.85	26.56	5.20	21.36		5.7	22.8	40.6	36.6	28.1	8.8	19.3
R-9-1773			0.99	30.94	5.73	25.21		Coal	77.2	21.2	1.6	19.3	5.9	13.4
R-9-1774			0.40	12.50	-2.35	14.85		8.9	32.2	32.2	35.6	27.7	8.9	18.8
R-9-1775			0.38	11.88	7.47	4.41		0.3	83.2	9.2	7.6	8.4	1.4	7.0
R-9-1776			2.30	71.88	-0.97	72.85		Coal	34.6	38.8	26.6	28.0	8.3	19.7
R-9-1777			0.88	27.50	33.31		5.81	5.0	29.2	43.2	27.6	24.5	6.5	18.0
R-9-1778			0.12	3.75	13.59		9.84	1.4	44.8	37.6	17.6	18.2	4.4	13.8
R-9-1779			0.05	1.56	36.00		34.44	1.4	47.6	32.8	19.6	19.2	5.0	14.2
R-9-1780			0.01	0.31	2.75		2.44	0.7	71.6	18.8	9.6	13.2	2.5	10.7
R-9-1781			0.08	2.50	22.56		20.06	1.5	68.4	21.6	10.0	14.6	2.7	11.9
R-9-1782			1.51	47.19	7.54	39.65		5.1	22.8	47.2	30.0	28.8	8.2	20.6

Mine: 205 N 10
Core: 21101C
Section: 35

Township: 37N
Range: 18E
Date Cored: Aug. 26, 1978
*Dry Basis

Peabody Coal Company
Central Laboratory

			% Sulfur	*Tons of $CaCo_3$ Equivalent per 100 Tons Material: Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess $CaCo_3$ Equiv.	*% Organic Matter	Particle Size: % Sand	% Silt	% Clay	% Moisture: 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15BAR)
R-9-1783			0.82	25.63	45.42		19.79	3.5	40.8	33.6	25.6	20.2	5.8	14.4
R-9-1784			2.57	80.31	40.53	34.89		Coal	36.2	36.2	27.6	25.1	16.2	8.9
Coal														
R-9-1785			0.49	15.31	2.88	12.43		4.6	29.6	38.8	31.6	25.5	8.4	17.1
R-9-1786			0.08	2.50	25.28		22.78	1.7				22.7	5.9	16.8
R-9-1787			0.30	9.38	17.28		7.90	1.7	66.6	21.8	11.6	15.7	2.9	12.8
R-9-1788			0.17	5.31	36.01		30.70	2.3	32.6	39.8	27.6	24.2	6.9	17.3
R-9-1789			0.10	3.13	31.89		28.76	1.7	43.6	28.8	27.6	23.5	7.0	16.5
R-9-1790			0.13	4.06	14.71		10.65	1.0	68.6	22.8	8.6	17.3	2.6	14.7
Coal														
R-9-1791			0.30	9.38	35.18		25.80	4.2	32.8	39.2	28.0	27.1	8.1	19.0
R-9-1792			1.31	40.94	6.96	33.98		Coal	72.8	19.2	8.0	30.1	13.9	16.2
R-9-1793			0.46	14.38	36.53		22.15	4.1	28.8	43.2	28.0	25.1	9.3	15.8
Coal														
R-9-1794			0.31	9.69	1.00	8.69		3.5	31.6	47.4	21.0	19.8	6.0	13.8

N-10 MINING AREA

(SHALLOW CORES)

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26530C
DATE CORED:03OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002736	5.3		3.6	1.9	50.8	7.6	0.4						-0.7
SH	2.0	850002737	3.3		2.7	2	10.9	6.5	0.7						-0.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26530C
DATE CORED:03OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002736				0.39	0.03	12.19	2.07	10.12	.	45.2	26.4	28.4			
SH	850002737				0.1	0.04	3.12	-4.22	7.34	.	32.2	67.8	<0.1			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26531C
DATE CORED:03OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002738	7.7		0.4	0.7	2	0.9	0.6						-0.4
SS	2.0	850002739	7.8		0.5	1.8	1.7	1.1	1.5						0.9
SS	4.0	850002740	7.7		4.8	12.8	25.7	20.1	2.7						2.7
SS	6.0	850002741	7.9		2.9	6.7	14.8	12.6	1.8						1.4
SS,SH	8.0	850002742	7.1		3.6	4.4	24.4	9	1.1						0.4
SH	10.0	850002743	6.8		2.2	2.6	14.8	4.7	0.8						-0.1
SH	12.0	850002744	6.9		1.7	1.8	9.2	6.2	0.6						-0.4
SH	14.0	850002745	6.8		2.3	2.6	11.1	11	0.8						-0.1
SH	16.0	850002746	6.7		6.2	4.3	33.4	60.3	0.6						-0.4
SH	18.0	850002747	6.8		2.6	2.2	16.1	11.9	0.6						-0.4
SH	20.0	850002748	5.9		7.2	2.4	25.7	88.1	0.3						-0.8
SH	22.0	850002749	4.9		8	2.2	27	109	0.3						-0.8
SH	24.0	850002750	7.4		7	2.2	16.7	100.1	0.3						-0.8
SH	26.0	850002751	3.5		10.1	2.3	25.7	107	0.3						-0.8
SH	28.0	850002752	3.3		9.7	2.2	25.7	78.6	0.3						-0.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26531C
DATE CORED:03OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002738	0.27			<0.01	.	0	89.55	.	89.55	82.2	9.8	8			
SS	850002739	0.31			<0.01	.	0	82.37	.	82.37	86.2	6.8	7			
SS	850002740	0.38			<0.01	.	0	107.56	.	107.56	85.2	8.8	6			
SS	850002741	0.35			<0.01	.	0	38.13	.	38.13	87.2	7.8	5			
SS,SH	850002742	0.62			0.38	.	11.88	41.23	.	29.35	79.2	7.8	13			
SH	850002743	1.16			0.3	.	9.38	14.18	.	4.8	39.2	30.8	30			
SH	850002744	0.38			0.31	0.02	9.69	3.24	6.45	.	45.2	33.8	21			
SH	850002745	0.73			0.97	0.04	30.31	4.03	26.28	.	23.2	34.8	42			
SH	850002746	1.90			1.43	0.05	44.69	27.12	17.57	.	36.2	31.8	32			
SH	850002747	0.35			0.27	0.02	8.44	6.83	1. 61	.	31.2	36.8	32			
SH	850002748	0.47			0.21	0.03	6.56	4.19	2.37	.	9.2	45.8	45			
SH	850002749	0.37			0.17	0.04	5.31	0.99	4.32	.	7.2	50.8	42			
SH	850002750	0.50			0.12	.	3.75	39.88	.	36.13	19.2	39.8	41			
SH	850002751	0.68			0.37	0.06	11.56	-2.72	14.28	.	37.6	27.4	35			
SH	850002752	0.92			0.52	0.08	16.25	-3.37	19.62	.	41.6	28.8	29.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26532C
DATE CORED:04OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002753	7.8		0.5	0.6	2.6	1.1	0.4						-0.7
SD,SH	2.0	850002754	7.9		1	4	2.3	2	2.7						2.7
SH	4.0	850002755	7.7		1.5	6	3.9	3.7	3.1						3.2
SH,SS	6.0	850002756	7.7		1.8	5.7	4.8	4.8	2.6						2.5
SS	8.0	850002757	7.6		1.8	5.9	4.8	4.9	2.7						2.7
SH,SS	10.0	850002758	7.6		1.8	5.3	6.3	7.2	2						1.7
SH,SS	12.0	850002759	7.5		3.2	6.1	17.3	18.8	1.4						0.8
SH,SS	14.0	850002760	7.5		3.7	6.2	17.3	27.8	1.3						0.7
SH,SS	16.0	850002761	7.6		6	5.3	29.5	59.2	0.8						-0.1
SH	18.0	850002762	7.6		4.9	4.1	28.2	43.5	0.7						-0.2
SH	20.0	850002763	7.9		6.3	4.5	12.2	85.5	0.6						-0.4
SH,CO	22.0	850002764	4.3		11.1	3.8	29.5	183.5	0.4						-0.7
SH	24.0	850002765	4.4		8.7	2.7	25.6	126.3	0.3						-0.8
SH	26.0	850002766	7.6		8	3.3	9.7	120.1	0.4						-0.7
SH	28.0	850002767	7.2		7.5	3.2	27.5	97	0.4						-0.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26532C
DATE CORED:04OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002753				<0.01	.	0	76.15	.	76.15	53.6	20.8	25.6			
SD,SH	850002754				<0.01	.	0	38.56	.	38.56	53.6	23.8	22.6			
SH	850002755				<0.01	.	0	8.59	.	8.59	9.6	44.4	46			
SH,SS	850002756				<0.01	.	0	6.18	.	6.18	33.6	41.8	24.6			
SS	850002757				<0.01	.	0	6.2	.	6.2	41.6	33.8	24.6			
SH,SS	850002758				<0.01	.	0	3.61	.	3.61	13.6	49.4	37			
SH,SS	850002759				<0.01	.	0	4.09	.	4.09	6.6	51.4	42			
SH,SS	850002760				<0.01	.	0	3.98	.	3.98	13.2	46.4	40.4			
SH,SS	850002761				<0.01	.	0	50.23	.	50.23	22.8	42.8	34.4			
SH	850002762				<0.01	.	0	45.17	.	45.17	34.8	19.2	46			
SH	850002763				<0.01	.	0	92.17	.	92.17	11.2	58.8	30			
SH,CO	850002764				0.39	0.05	12.19	0.4	11.79	.	47.2	27.8	25			
SH	850002765				0.11	0.02	3.44	1.1	2.34	.	46.2	31.8	22			
SH	850002766				<0.01	.	0	34.35	.	34.35	45.2	30.8	24			
SH	850002767				0.11	.	3.44	50.77	.	47.33	41.2	30.8	28			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26533C
DATE CORED:04OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SS	0.0	850002768	6.6		3.8	6.6	27.5	15.9	1.4						0.8
SS	2.0	850002769	6.8		5.7	9.7	32	44	1.6						1.1
SH	4.0	850002770	5.8		5.9	7.2	29.5	57.7	1.1						0.4
SH,SS	6.0	850002771	3.6		5.7	6.5	26.9	54.5	1						0.2
SS	8.0	850002772	3.8		3.8	2.5	29.5	21.5	0.5						-0.5
SH	10.0	850002773	3.9		4	1.8	28.2	23.6	0.4						-0.7
SH	12.0	850002774	4.8		3.9	1.7	31.4	27.3	0.3						-0.8
SS	14.0	850002775	6.1		3.3	1	24.3	25.7	0.2						-1
SS	16.0	850002776	6.8		3.1	1	26.9	21	0.2						-1
SS	18.0	850002777	5.8		3.3	1	33.3	15.5	0.2						-1
SH	20.0	850002778	6.4		4.3	1.1	29.5	34.6	0.2						-1
SS,SH	22.0	850002779	6.8		3.1	1.2	23.1	18.2	0.3						-0.8
SH	24.0	850002780	5.7		4.1	2.3	29.9	37.8	0.4						-0.7
SH,CO	26.0	850002781	7.8		1.6	1.7	10.3	7.3	0.6						-0.4
SH	28.0	850002782	6.3		3.3	2.2	28.6	20	0.4						-0.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26533C
DATE CORED:04OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SS	850002768	0.82			0.05	.	1.56	7.78	.	6.22	67.2	17.8	15			
SS	850002769	1.06			<0.01	.	0	77.94	.	77.94	42.2	33.8	24			
SH	850002770	0.92			0.44	.	13.75	25.73	.	11.98	25.2	35.8	39			
SH,SS	850002771	0.79			0.42	0.03	13.12	-2.41	15.53	.	55.2	25.8	19			
SS	850002772	0.61			0.26	0.03	8.12	0.27	7.85	.	43.2	34.8	22			
SH	850002773	0.28			0.89	0.15	27.81	0.51	27.3	.	24.8	36.2	39			
SH	850002774	0.27			0.18	.	5.62	10.86	.	5.24	39.8	34.2	26			
SS	850002775	0.23			0.12	.	3.75	20.17	.	16.42	80.8	8.2	11			
SS	850002776	0.32			<0.01	.	0	18.56	.	18.56	88.2	4.8	7			
SS	850002777	0.43			0.09	<0.01	2.81	2.13	0.68	.	90.2	3.8	6			
SH	850002778	0.52			0.87	.	27.19	40.63	.	13.44	72.2	13.8	14			
SS,SH	850002779	0.41			0.33	.	10.31	48.8	.	38.49	88.2	4.8	7			
SH	850002780	0.64			4.76	3.81	148.75	14.67	134.08	.	51.2	25.4	23.4			
SH,CO	850002781	0.36			0.25	.	7.81	49.29	.	41.48	46.2	33.4	20.4			
SH	850002782	0.43			2.08	1.53	65	12.64	52.36	.	38.2	37.4	24.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26534C
DATE CORED:05OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SH	0.0	850002783	7.4		0.6	0.8	3.8	1.8	0.5						-0.5
SH	2.0	850002784	8		4.1	10.2	12.5	36.7	2.1						1.8
SH,SS	4.0	850002785	7.9		5	12.2	19.1	43.8	2.2						1.9
SS	6.0	850002786	8.1		2.3	7.6	3.9	14.5	2.5						2.4
SS	8.0	850002787	8		2.3	7.3	4.8	16.1	2.3						2.1
SS	10.0	850002788	7.6		2.7	5.9	7.6	23	1.5						0.9
SS	12.0	850002789	8		1.9	3.3	3.7	14.5	1.1						0.4
SS	14.0	850002790	7.9		2	3.1	3.8	15.9	1						0.2
SS	16.0	850002791	8.1		1.8	2.6	4.4	15	0.8						-0.1
SS,SD	18.0	850002792	7.8		2.1	2.7	3.5	18.6	0.8						-0.1
SS	20.0	850002793	8		2.1	2	3.6	19.2	0.6						-0.4
SS	22.0	850002794	7.8		2.3	2.5	4.5	24.6	0.7						-0.2
SS	24.0	850002795	7.2		3	2	9.2	32.8	0.4						-0.7
SS	26.0	850002796	4.1		4.1	1.7	25.4	36.1	0.3						-0.8
SS,SH	28.0	850002797	3.2		4.7	1.4	26.1	29	0.3						-0.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26534C
DATE CORED:05OCT1985
DATE REPORTED:29OCT1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total Se PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SH	850002783	0.51			0.01	.	0.31	9.86	.	9.55	33.2	35.4	31.4			
SH	850002784	0.61			<0.01	.	0	11.79	.	11.79	16.2	41.4	42.4			
SH,SS	850002785	0.29			0.07	.	2.19	16.04	.	13.85	34.2	36.4	29.4			
SS	850002786	0.40			<0.01	.	0	8.59	.	8.59	36.2	32.4	31.4			
SS	850002787	0.50			<0.01	.	0	9.28	.	9.28	43.2	25.4	31.4			
SS	850002788	0.41			<0.01	.	0	5.08	.	5.08	53.2	22.4	24.4			
SS	850002789	0.56			<0.01	.	0	1.5	.	1.5	78.2	14.4	7.4			
SS	850002790	0.28			<0.01	.	0	2.62	.	2.62	78.2	14.4	7.4			
SS	850002791	0.38			<0.01	.	0	135.52	.	135.52	81.6	11	7.4			
SS,SD	850002792	0.55			<0.01	.	0	4.52	.	4.52	74.6	14	11.4			
SS	850002793	0.51			<0.01	.	0	4.31	.	4.31	75.6	15	9.4			
SS	850002794	0.43			<0.01	.	0	6.71	.	6.71	74.6	15	10.4			
SS	850002795	0.69			<0.01	.	0	3.47	.	3.47	76.6	12	11.4			
SS	850002796	0.34			0.07	<0.01	2.19	0.13	2.06	.	82.6	9	8.4			
SS,SH	850002797	0.76			0.83	0.38	25.94	-1.26	27.2	.	83.6	9	7.4			

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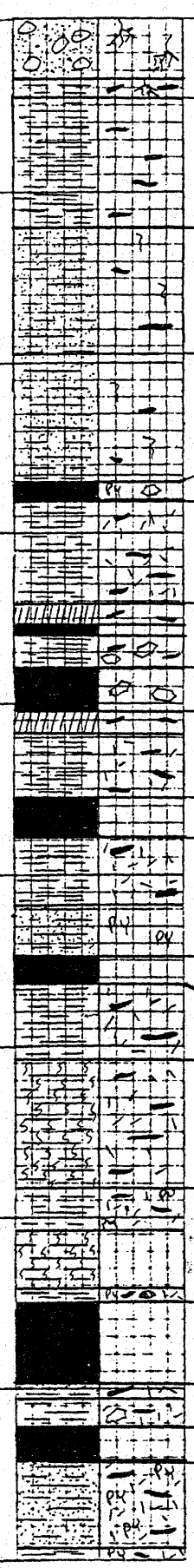
N-11 MINING AREA

(DEEP CORES)

LOCATION S 4775.0 DATE DRILLED 7-16-85 SUB-AREA N11

E 38579.0

ELEVATION 6969.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001907	34.8	4.2	4.7	1.6	0.9	0.12	3.8
850001908	45.3	2.3	7.6	7.2	15.5	0.02	6.2
850001909	36.2	2.8	7.9	3.5	12.3	<0.01	8.0
850001910	36.2	2.8	8.5	4.1	14.1	<0.01	7.8
850001911	81.2	6.8	5.5	0.7	0.6	0.83	6.8
850001912	36.3	3.9	9.8	6.6	5.9	<0.01	7.7
850001913	36.9	4.7	17.7	15.3	13.1	1.55	6.2
850001914	76.5	19.5	10.7	0.3	0.3	1.01	6.5
850001915	36.8	17.4	48.2	9.3	6.0	0.75	7.2
850001916	78.7	34.6	17.3	0.3	0.2	1.10	7.0
850001917	39.1	43.4	44.5	1.3	0.8	1.06	7.4
850001918	74.1	65.7	14.7	<0.1	< 0.1	1.49	7.5
850001919	30.6	63.2	40.0	0.5	0.3	0.29	8.2
850001920	<30	49.8	24.9	0.2	0.3	0.20	9.0
850001921	34.4	48.9	65.6	2.5	1.1	1.48	7.6
MXX	(N/A)	(5.30)		(12,767)		(0.98)	(7.70)
850001922	42.6	70.8	35.4	0.3	0.2	1.17	7.5
850001923	74.3	43.8	9.8	<0.1	<0.1	1.47	8.1
850001924	<30	52.5	40.7	0.7	0.5	0.61	8.0

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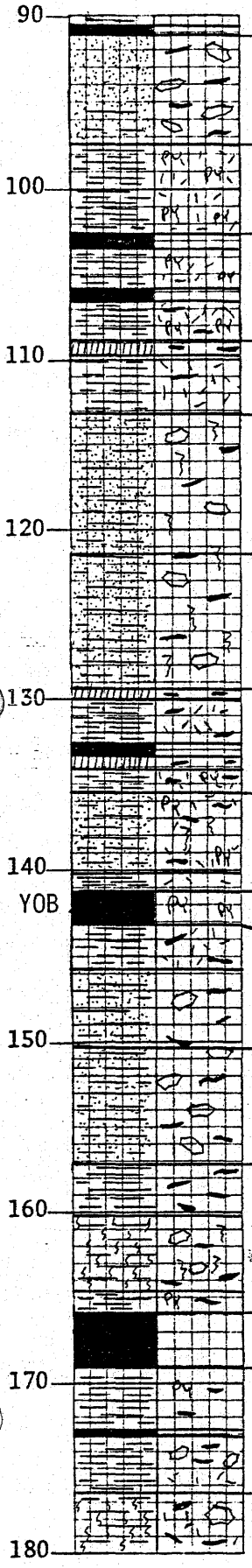
HOLE NO. 26272C DRILLER J. Elliott PAGE 2

LOCATION S 4775.0 DATE DRILLED 7-16-85 SUB AREA N11

E 38579.0

ELEVATION 6969.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001925	30.2	46.8	23.4	0.3	0.2	0.16	8.8
850001926	40.7	53.5	53.5	1.4	0.6	2.04	7.7
850001927	37.1	49.2	46.7	1.2	0.6	1.27	7.0
850001928	49.0	63.4	34.7	0.4	0.2	0.56	8.0
850001929	32.4	90.8	20.3	0.1	<0.1	0.06	8.9
850001930	28.1	46.8	23.4	0.3	0.2	<0.01	8.5
850001931	57.6	44.3	19.8	0.3	0.1	1.06	8.2
850001932	28.6	37.0	23.4	0.5	0.3	0.35	8.2
850001933	72.6	10.6	6.3	0.4	0.3	0.84	7.4
850001934	32.1	1.6	6.7	20.1	13.6	0.04	7.0
850001935	32.1	0.9	4.3	24.0	20.1	0.48	6.4
850001936	32.3	1.2	5.4	22.7	16.1	2.01	6.0
850001937 Y1A	67.4	12.1	15.3	1.9	1.3	2.09	6.1
850001938	32.3	49.0	45.2	1.1	0.6	1.24	6.9
850001939	32.1	36.0	27.9	0.8	0.4	0.39	8.1

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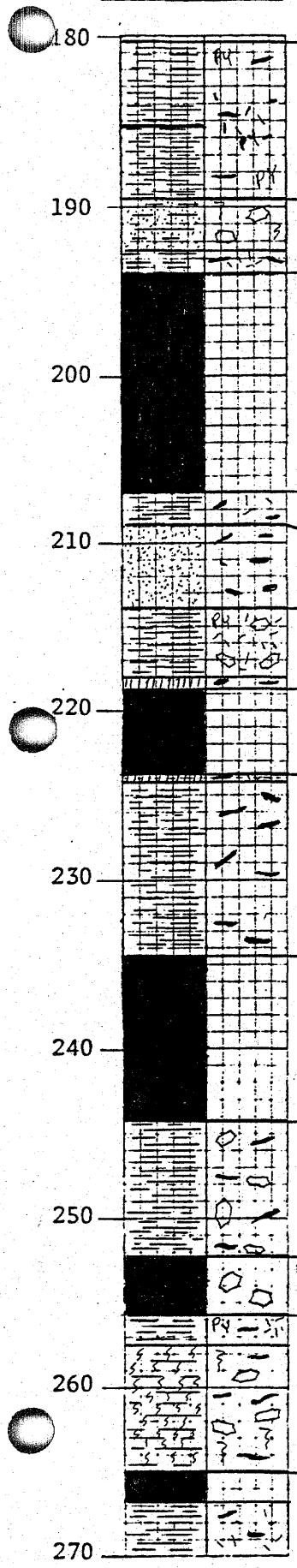
LOCATION S 4775.0 DATE DRILLED 7-16-85 SUB AREA N11

N 38579.0

ELEVATION 6969.1



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001940	32.4	72.0	27.9	0.3	<0.1	1.14	8.3
850001941	32.2	52.8	26.4	0.3	0.2	0.55	8.3
NXX	(N/A)	(7.54)		(12,563)		(0.61)	(8.0)
850001942	28.2	49.2	11.0	0.1	<0.1	0.03	8.6
850001943	40.1	52.3	11.7	<0.1	<0.1	0.05	9.2
850001944	32.3	52.5	33.2	0.5	0.3	0.86	7.9
EOX	(N/A)	(4.96)		(12,925)		(0.43)	(7.9)
850001945	30.3	64.0	14.3	<0.1	<0.1	0.03	8.9
E1X	(N/A)	(5.95)		(12,934)		(0.46)	(7.0)
850001946	56.9	51.9	11.6	<0.1	<0.1	0.06	9.0
E2X 850001947	68.9	22.4	5.0	<0.1	<0.1	0.64	8.0
850001948	28.2	19.8	22.6	1.7	0.9	0.62	7.6
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SEP 3 1986

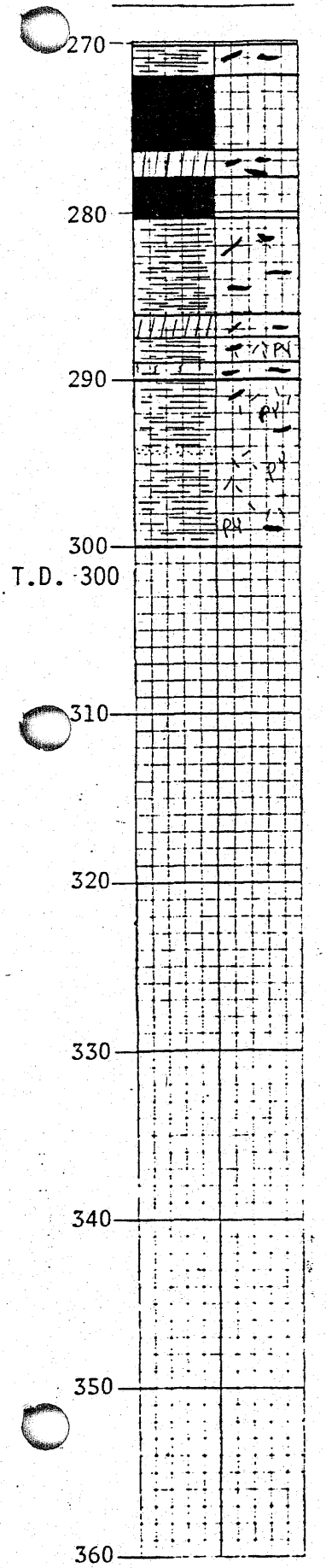
OCT 27 1986

LOCATION S 4775.0 DATE DRILLED 7-16-85 SUB AREA N11

N 38579.0

ELEVATION 6969.1

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
E3X							
		458					



SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
S.MAT,SH	0	850001907	3.8	34.8	0.4	4.7	1.6	0.9	4.2	17	2.62	0	<0.1	<5	4.7
SH	4.6	850001908	6.2	45.3	2.1	7.6	7.2	15.5	2.3	19	1.18	0.2	10.7	14	2.1
SH,SS	12	850001909	8	36.2	1.8	7.9	3.5	12.3	2.8	25	2.98	0	1.6	17	2.8
SH,SS	19.5	850001910	7.8	36.2	1.9	8.5	4.1	14.1	2.8	14	2.56	0	2.7	20	2.8
CO	27	850001911	6.8	81.2	0.3	5.5	0.7	0.6	6.8	9	1.33	0	0.9	<5	8.1
SH	28.1	850001912	7.7	36.3	1.7	9.8	6.6	5.9	3.9	12	2.64	0	3.2	14	4.3
SH,CO	34.1	850001913	6.2	36.9	3.6	17.7	15.3	13.1	4.7	10	1.42	0	1.2	46	5.4
CO	37.9	850001914	6.5	76.5	0.8	10.7	0.3	0.3	19.5	14	1.5	0	0.6	<5	21.6
SH	40.4	850001915	7.2	36.8	5.4	48.2	9.3	6	17.4	16	1.91	0	9.3	51	19.6
CO	45.4	850001916	7	78.7	1.9	17.3	0.3	0.2	34.6	10	1.55	0	3.2	14	33.2
SH,SS	47.8	850001917	7.4	39.1	4.6	44.5	1.3	0.8	43.4	18	3.2	0	7.2	36	38.6
CO	54.8	850001918	7.5	74.1	1.2	14.7	<0.1	<0.1	65.7	10	2.33	0	1.6	10	48.9
SH	56.4	850001919	8.2	30.6	4.3	40	0.5	0.3	63.2	18	5.3	0	13.6	23	47.9
SH,SL	60.7	850001920	9	<30	2.7	24.9	0.2	0.3	49.8	20	13.4	0	10.4	19	41.9
SH,SL	68.3	850001921	7.6	34.4	6.4	65.6	2.5	1.1	48.9	21	3.96	0	12.9	55	41.5
SH,SS	79.7	850001922	7.5	42.6	3.7	35.4	0.3	0.2	70.8	18	4.36	0	2.2	35	50.8
CO	82.2	850001923	8.1	74.3	1.1	9.8	<0.1	<0.1	43.8	10	4.89	0	2.2	6	38.8
SH,SS,CO	84.2	850001924	8	<30	4	40.7	0.7	0.5	52.5	23	5.7	0	14.2	26	43.2
SS	91.1	850001925	8.8	30.2	2.4	23.4	0.3	0.2	46.8	22	9.8	0	11.6	11	40.4
SH	97.4	850001926	7.7	40.7	5.4	53.5	1.4	0.6	53.5	13	3.75	0	8.2	48	43.7
CO,SH	102.4	850001927	7	37.1	4.9	46.7	1.2	0.6	49.2	18	3.72	0	3.2	48	41.6
SH	109.7	850001928	8	49	3.5	34.7	0.4	0.2	63.4	17	5.3	0	9.5	26	48
SH,SS	113.2	850001929	8.9	32.4	1.9	20.3	0.1	<0.1	90.8	19	8.5	1.1	9.3	<5	57
SH,SS	121.3	850001930	8.5	28.1	2.4	23.4	0.3	0.2	46.8	14	5.3	0.5	7.8	7	40.4
SH,CO	129.4	850001931	8.2	57.6	2.8	19.8	0.3	0.1	44.3	13	4.8	0	5.1	18	39.1
SH,SS	135.4	850001932	8.2	28.6	2.5	23.4	0.5	0.3	37	19	5.25	0.3	7.5	12	34.8
CO	141.3	850001933	7.4	72.6	0.7	6.3	0.4	0.3	10.6	8	1.88	0	3.8	<5	12.6
SH,SS	143.2	850001934	7	32.1	3.1	6.7	20.1	13.6	1.6	21	1.71	0	2.4	31	1.1
SH,SS	150.2	850001935	6.4	32.1	3.6	4.3	24	20.1	0.9	17	<1	0	3.1	41	0.1
SH,SL	157.2	850001936	6	32.3	3.3	5.4	22.7	16.1	1.2	11	<1	0	2.2	43	0.5
CO	165.9	850001937	6.1	67.4	1.9	15.3	1.9	1.3	12.1	8	<1	0	1.3	15	14.2
SH,CO	169.1	850001938	6.9	32.3	4.7	45.2	1.1	0.6	49	14	2.54	0	4.7	42	41.5
SH,SL	176.4	850001939	8.1	32.1	2.9	27.9	0.8	0.4	36	15	6.33	0.7	9.3	16	34.1
SH	180.3	850001940	8.3	32.4	3	27.9	0.3	<0.1	72	15	10.55	0.3	6.6	19	51.2
SH,SS	189.5	850001941	8.3	32.2	2.6	26.4	0.3	0.2	52.8	18	9.05	1.5	12.3	10	43.4
CO	193.9	COAL													
SH	206.9	850001942	8.6	28.2	11	11	0.1	<0.1	49.2	17	25.85	0	6.9	<5	41.6
SS	208.9	850001943	9.2	40.1	1.2	11.7	<0.1	<0.1	52.3	26	15.5	0.6	7.2	<5	43.1
SH	213.9	850001944	7.9	32.3	3.5	33.2	0.5	0.3	52.5	16	8.1	0.2	7.9	20	43.2
CO	218.7	COAL													
SH	223.7	850001945	8.9	30.3	1.4	14.3	<0.1	<0.1	64	21	24.45	0.9	8.3	<5	48.2

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
CO	234.4	COAL													
SH	244.2	850001946	9	56.9	1.2	11.6	<0.1	<0.1	51.9	19	20.31	0.5	6.5	<5	43
CO	252.2	850001947	8	68.9	0.5	5	<0.1	<0.1	22.4	14	3.54	0	3.6	<5	24.1
SH,SL	255.7	850001948	7.6	28.2	2.5	22.6	1.7	0.9	19.8	18	4.29	0.3	9	15	21.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
S.MAT,SH	850001907				0.12	.	3.75	4.51	.	0.76	41	38	21			
SH	850001908				0.02	.	0.62	18.05	.	17.43	21	38	41			
SH,SS	850001909				<0.01	.	0	13.77	.	13.77	51	28	21			
SH,SS	850001910				<0.01	.	0	26.99	.	26.99	57	22	21			
CO	850001911				0.83	.	25.94	117.66	.	91.72	97	2	1			
SH	850001912				<0.01	.	0	50.13	.	50.13	42	33	25			
SH,CO	850001913				1.55	1.29	48.44	11.14	37.3	.	34	37	29			
CO	850001914				1.01	.	31.56	116.63	.	85.07	94	3	3			
SH	850001915				0.75	.	23.44	127.76	.	104.32	31	28	41			
CO	850001916				1.1	.	34.38	119.54	.	85.16	90	5	5			
SH,SS	850001917				1.06	1	33.12	24	9.12	.	37	22	41			
CO	850001918				1.49	.	46.56	119.34	.	72.78	94.2	<0.1	42.4			
SH	850001919				0.29	.	9.06	58	.	48.94	51.2	21.4	27.4			
SH,SL	850001920				0.2	.	6.25	55.45	.	49.2	45	28	27			
SH,SL	850001921				1.48	1.33	46.25	45.63	0.62	.	35	36	29			
SH,SS	850001922				1.17	1.11	36.56	11.36	25.2	.	16	47	37			
CO	850001923				1.47	.	45.94	118.62	.	72.68	90.6	3.4	6			
SH,SS,CO	850001924				0.61	.	19.06	56.73	.	37.67	50.2	24.8	25			
SS	850001925				0.16	.	5	59.01	.	54.01	59	22	19			
SH	850001926				2.04	1.88	63.75	49.8	13.95	.	25	34	41			
CO,SH	850001927				1.27	1.12	39.69	13.04	26.65	.	39	31	30			
SH	850001928				0.56	.	17.5	44.95	.	27.45	19	38	43			
SH,SS	850001929				0.06	.	1.88	52.36	.	50.48	44.6	32.2	23.2			
SH,SS	850001930				<0.01	.	0	57.21	.	57.21	65.6	9.2	25.2			
SH,CO	850001931				1.06	0.96	33.12	13.85	19.27	.	29.6	31.2	39.2			
SH,SS	850001932				0.35	.	10.94	44.64	.	33.7	52.6	23.2	24.2			
CO	850001933				0.84	0.15	26.25	19.92	6.33	.	89.6	6.2	4.2			
SH,SS	850001934				0.04	.	1.25	55.89	.	54.64	65.6	19.2	15.2			
SH,SS	* 850001935				0.48	.	15	56.66	.	41.66	83.2	10.6	6.2			
SH,SL	850001936				2.01	1.83	62.81	19.99	42.82	.	33.2	39.6	27.2			
CO	850001937				2.09	0.89	65.31	14.01	51.3	.	87.2	8.6	4.2			
SH,CO	850001938				1.24	1.22	38.75	21.21	17.54	.	36.2	38.6	25.2			
SH,SL	850001939				0.39	.	12.19	96.7	.	84.51	64.2	24.6	11.2			
SH	850001940				1.14	1.14	35.62	34.21	1.41	.	21.2	40.6	38.2			
SH,SS	850001941				0.55	.	17.19	54.64	.	37.45	47.2	30.6	22.2			
CO	COAL															
SH	850001942				0.03	.	0.94	11.24	.	10.3	23.2	43.6	33.2			
SS	850001943				0.05	.	1.56	55.58	.	54.02	76.2	12.6	11.2			
SH	850001944				0.86	.	26.88	55.1	.	28.22	34.6	31.2	34.2			
CO	COAL															
SH	850001945				0.03	.	0.94	46.1	.	45.16	30.6	32.2	37.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
CO	COAL															
SH	850001946				0.06	.	1.88	16.99	.	15.11	13.6	37.2	49.2			
CO	850001947				0.64	0.06	20	14.58	5.42	.	95.6	3.2	1.2			
SH,SL	850001948				0.62	.	19.38	48.6	.	29.22	47.6	31.2	21.2			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
S.MAT,SH	850001907		0.15		<0.6	49	0.2	6	470.3	1	2		
SH	850001908		0.03		0.6	52	0.5	5.6	258.6	6.5	5.3		
SH,SS	850001909		<0.01		<0.6	27	0.1	2.3	12.8	3	1.8		
SH,SS	850001910		0.02		<0.6	23	0.7	2.5	24.8	11.2	4.7		
CO	850001911		0.05		<0.6	<10	<0.1	<0.2	8.2	1.5	<1		
SH	850001912		0.03		<0.6	<10	1.7	2	43.4	5.5	3.8		
SH,CO	850001913		0.02		<0.6	12	2.7	3.2	47.8	2.6	4		
CO	850001914		0.04		<0.6	<10	0.2	0.2	30.7	1	1		
SH	850001915		0.01		<0.6	<10	1.8	3.8	100.4	3.4	9.7		
CO	850001916		0.03		<0.6	<10	0.4	1	22.6	1	4.2		
SH,SS	850001917		0.07		<0.6	<10	1.6	3.8	49.3	3.2	3.3		
CO	850001918		0.07		<0.6	11	0.2	0.5	21.1	1	<1		
SH	850001919		0.06		0.6	<10	1.4	3.9	72.3	1.9	3		
SH,SL	850001920		0.07		<0.6	11	1.6	4.7	60.6	2.4	2.3		
SH,SL	850001921		0.22		<0.6	12	2.4	4	79.9	2.9	3.2		
SH,SS	850001922		0.29		<0.6	10	2.9	4.2	43.7	1	2.7		
CO	850001923		0.1		<0.6	<10	0.3	1	15.4	1	<1		
SH,SS,CO	850001924		0.1		0.9	<10	2.3	1.5	93	4.4	2.3		
SS	850001925		0.04		<0.6	<10	1.5	1.5	62.8	6.1	1.7		
SH	850001926		0.17		<0.6	12	2.7	4.6	77	6.4	2.3		
CO,SH	850001927		0.2		<0.6	<10	2.5	3.4	51.2	1.9	3		
SH	850001928		0.12		<0.6	10	2.6	5.9	77.6	5.3	3.5		
SH,SS	850001929		0.05		<0.6	12	2.1	5.1	86.1	8.5	2.4		
SH,SS	850001930		0.1		0.6	<10	2	2.7	69.6	5.3	1.9		
SH,CO	850001931		0.68		0.6	<10	2.9	4.8	52.1	1	3.6		
SH,SS	850001932		0.39		<0.6	<10	2.1	2.8	49.7	1.4	2.1		
CO	850001933		0.03		<0.6	<10	0.2	0.5	7.8	1	<1		
SH,SS	850001934		0.03		0.6	<10	0.9	1.4	49.5	2	1.1		
SH,SS	850001935		0.03		<0.6	<10	0.7	1	78.3	2.3	<1		
SH,SL	850001936		0.03		<0.6	<10	2.2	2.1	67.6	1.9	3.5		
CO	850001937		0.02		<0.6	<10	0.5	0.7	68.1	1	1.8		
SH,CO	850001938		0.17		<0.6	<10	2.8	5	47.4	3.4	2.1		
SH,SL	850001939		0.04		0.6	<10	1.5	3.1	93.8	8.2	<1		
SH	850001940		0.17		<0.6	13	1.9	5.5	52.8	3.5	2.6		
SH,SS	850001941		0.17		<0.6	<10	1.6	2.8	79.6	5.1	2.1		
CO	COAL												
SH	850001942		0.41		<0.6	<10	1	1.3	7.6	1	2.2		
SS	850001943		0.1		<0.6	<10	0.6	0.4	76	1.3	1.8		
SH	850001944		0.3		0.6	19	2.3	3.4	51.6	1.9	2.8		
CO	COAL												
SH	850001945		0.25		<0.6	<10	1.3	3.4	37.6	1	4.2		

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26272C
DATE CORED:16JUL1985
DATE REPORTED:26SEP1985

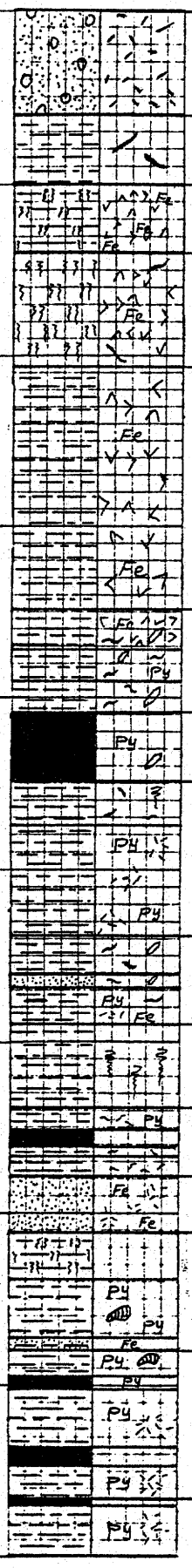
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
CO	COAL												
SH	850001946		0.56		0.6	22	1.9	4.5	44	1	3.3		
CO	850001947		0.02		<0.6	<10	<0.1	0.5	8.3	1	<1		
SH,SL	850001948		0.16		<0.6	15	2.5	3.6	61.5	2.5	2.2		

LOCATION S 2965.0 DATE DRILLED 7/27/85 SUB AREA N-11

E 37093.0

ELEVATION 6939.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001988	34.3	5.2	14.2	5.4	9.8	<0.01	8.1
850001989	31.3	2.4	6.3	9.0	4.8	0.03	7.2
850001990	30.7	0.8	0.8	1.3	0.6	0.03	7.6
850001991	32.5	0.6	0.7	2.1	0.9	<0.01	8.1
850001992	34.6	0.4	0.8	6.4	2.8	0.03	6.6
850001993	32.7	0.4	2.4	25.9	65.7	0.82	3.6
MXX	(N/A)	(8.86)		(12,117)		(1.87)	(4.2)
850001994	32.4	0.4	1.5	15.3	9.8	0.22	6.0
850001995	34.6	0.4	1.4	12.3	8.0	0.21	6.7
850001996	< 30	0.5	1.3	6.7	5.1	<0.01	7.8
850001997	36.9	0.8	4.1	27.8	18.9	1.15	6.5
850001998	32.1	1.3	3.5	7.8	7.1	<0.01	8.0
850001999	32.3	1.7	9.1	31.2	28.9	0.96	7.3
850002000	36.7	3.7	20.1	29.9	29.5	1.76	6.2
850002001	41.3	33.0	56.6	3.9	2.0	1.81	7.0

SEP 3 1986

OCT 27 1986

HOLE NO. 26364C DRILLER G. Hopkins PAGE 2

LOCATION S 2965.0 DATE DRILLED 7/27/85 SUB AREA N-11

E 37093.0

ELEVATION 6939.3

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850002002	36.7	50.0	53.6	1.6	0.7	1.32	7.6
850002003	37.0	79.2	17.7	<0.1	<0.1	0.31	8.5
850002004	30.1	43.0	36.0	0.7	0.7	0.18	7.9
850002005	38.7	48.3	78.6	5.0	0.3	2.71	5.9
Y1A 850002006	83.8	59.5	13.3	<0.1	<0.1	2.05	6.9
850002007	34.2	37.4	53.6	2.7	1.4	0.86	6.8
850002008	<30	34.9	19.1	0.2	0.4	< 0.01	8.7
850002009	32.4	57.8	44.8	0.7	0.5	1.72	8.0
850002010	34.2	70.2	27.2	0.1	0.2	0.37	8.3
NXX	(N/A)	(7.11)		(12,600)		(0.52)	(8.0)
850002011	34.2	55.9	33.1	0.4	0.3	0.44	8.3
EOX	(N/A)	(10.97)		(12,092)		(0.44)	(7.9)
850002012	<30	60.8	13.6	<0.1	<0.1	<0.01	9.0
850002013	<30	48.0	18.6	0.2	0.1	<0.01	8.0

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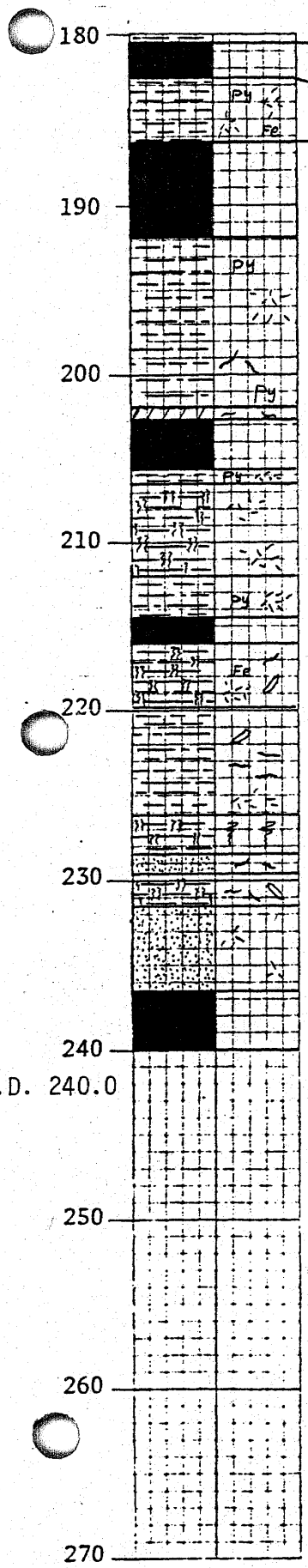
G. HOPKINS

LOCATION S 2965.0 DATE DRILLED 7/27/85 SUB AREA N-11

E 37093.0

ELEVATION 6939.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850002014	85.5	36.7	8.2	<0.1	<0.1	0.80	8.1
850002015	30.4	29.5	21.9	0.7	0.4	0.27	8.1
E1X							
E2X							
E3X							

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26364C
DATE CORED:27JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
S.MAT.	0	850001988	8.1	34.3	3	14.2	5.4	9.8	5.2	519	9.6	0	1.8	13	6
SH	6	850001989	7.2	31.3	2.1	6.3	9	4.8	2.4	483	2.03	0	0.7	<5	2.2
SH	10	850001990	7.6	30.7	0.3	0.8	1.3	0.6	0.8	22	2.68	0	1	<5	-0.1
SL	13.9	850001991	8.1	32.5	0.4	0.7	2.1	0.9	0.6	18	2.75	0	2.2	<5	-0.4
SH	20.6	850001992	6.6	34.6	0.9	0.8	6.4	2.8	0.4	12	<1	0	1.1	<5	-0.7
SH	34.8	850001993	3.6	32.7	6.2	2.4	25.9	65.7	0.4	7	9.06	0	<0.1	106	-0.7
CO	40.8	COAL													
SH	44.9	850001994	6	32.4	2.1	1.5	15.3	9.8	0.4	5	<1	0	1.5	22	-0.7
SH,SS	53.8	850001995	6.7	34.6	1.7	1.4	12.3	8	0.4	6	<1	0	1.7	18	-0.7
SH	59	850001996	7.8	<30	1.1	1.3	6.7	5.1	0.5	10	<1	0.1	4	8	-0.5
SH,CO	63.8	850001997	6.5	36.9	3.4	4.1	27.8	18.9	0.8	8	<1	0	1.7	46	-0.1
SS	67.8	850001998	8	32.1	1.6	3.5	7.8	7.1	1.3	15	<1	0	2.6	13	0.7
SL,SH	71.2	850001999	7.3	32.3	4.6	9.1	31.2	28.9	1.7	18	<1	0	3.1	62	1.2
SH,CO	77.9	850002000	6.2	36.7	5.6	20.1	29.9	29.5	3.7	13	<1	0	2.5	81	4
CO,SH	86.5	850002001	7	41.3	5.8	56.6	3.9	2	33	8	<1	0	2.6	60	32.2
SH,CO	92.9	850002002	7.6	36.7	5.3	53.6	1.6	0.7	50	11	1.36	0.6	12.1	44	42
SH,CO	99	850002003	8.5	37	1.8	17.7	<0.1	<0.1	79.2	28	3.54	0.5	10	5	53.6
SL	105.9	850002004	7.9	30.1	3.4	36	0.7	0.7	43	10	<1	0.6	7.6	28	38.3
SH	108.7	850002005	5.9	38.7	7.5	78.6	5	0.3	48.3	14	<1	0	1.1	86	41.2
CO	113.5	850002006	6.9	83.8	1.5	13.3	<0.1	<0.1	59.5	7	<1	0	1.1	11	46.4
SH,SL,SS	116.3	850002007	6.8	34.2	5.6	53.6	2.7	1.4	37.4	15	<1	0.1	6.4	53	35
SS,SH	125.5	850002008	8.7	<30	2.3	19.1	0.2	0.4	34.9	18	4.1	0.6	9.4	12	33.4
SH	130.3	850002009	8	32.4	4.6	44.8	0.7	0.5	57.8	9	2.21	0	3.6	44	45.7
SL,SH	135.7	850002010	8.3	34.2	2.7	27.2	0.1	0.2	70.2	12	5.82	0.5	7.3	18	50.6
CO	140.3	COAL													
SH,SL	152.7	850002011	8.3	34.2	3.2	33.1	0.4	0.3	55.9	12	7.41	1.2	10.2	23	44.8
CO	162.6	COAL													
SH	168	850002012	9	<30	1.4	13.6	<0.1	<0.1	60.8	12	24.93	1.3	7.6	<5	46.9
SH	174.2	850002013	8	<30	2.1	18.6	0.2	0.1	48	14	12.27	0.3	8.8	11	41
CO,SH	180.4	850002014	8.1	85.5	0.5	8.2	<0.1	<0.1	36.7	7	2	0	1.6	<5	34.6
SH	182.6	850002015	8.1	30.4	2.8	21.9	0.7	0.4	29.5	26	4.86	0.2	8	20	29.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26364C
DATE CORED:27JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
S.MAT.	850001988				<0.01.		0	17.25	.	17.25	71.2	24.4	4.4			
SH	850001989				0.03 .		0.94	18.56	.	17.62	81.2	12.4	6.4			
SH	850001990				0.03 .		0.94	13.09	.	12.15	79.2	15.4	5.4			
SL	850001991				<0.01.		0	141.92	.	141.92	72.2	21.4	6.4			
SH	850001992				0.03 .		0.94	12.93	.	11.99	28.2	38.4	33.4			
SH	850001993				0.82	0.53	25.62	5.3	20.32	.	41.2	33.4	25.4			
CO	COAL															
SH	850001994				0.22 .		6.88	56.19	.	49.31	33.2	34.4	32.4			
SH,SS	850001995				0.21 .		6.56	37.31	.	30.75	35.2	28.4	36.4			
SH	850001996				<0.01.		0	222.92	.	222.92	56.2	24.4	19.4			
SH,CO	850001997				1.15	1.14	35.94	18.45	17.49	.	35.2	34.4	30.4			
SS	850001998				<0.01.		0	201.84	.	201.84	63.2	22.4	14.4			
SL,SH	850001999				0.96 .		30	50.64	.	20.64	31.2	34.4	34.4			
SH,CO	850002000				1.76	1.46	55	40.44	14.56	.	31.2	34.4	34.4			
CO,SH	850002001				1.81	1.35	56.56	13.62	42.94	.	49.2	21.4	29.4			
SH,CO	850002002				1.32	1.09	41.25	36.19	5.06	.	46.2	24.4	29.4			
SH,CO	850002003				0.31 .		9.69	36.69	.	27	39.2	30.4	30.4			
SL	850002004				0.18 .		5.62	50.64	.	45.02	54.2	28.4	17.4			
SH	850002005				2.71	1.23	84.69	10.41	74.28	.	21.2	39.4	39.4			
CO	850002006				2.05	0.73	64.06	15.08	48.98	.	93.2	2.4	4.4			
SH,SL,SS	850002007				0.86 .		26.88	28.45	.	1.57	37.2	33.4	29.4			
SS,SH	850002008				<0.01.		0	204.33	.	204.33	71.2	15.8	13			
SH	850002009				1.72	1.63	53.75	18.75	35	.	11.2	40.8	48			
SL,SH	850002010				0.37 .		11.56	36.17	.	24.61	37.2	31.8	31			
CO	COAL															
SH,SL	850002011				0.44 .		13.75	53.59	.	39.84	35.2	29.8	35			
CO	COAL															
SH	850002012				<0.01.		0	19.56	.	19.56	28.2	33.8	38			
SH	850002013				<0.01.		0	49.18	.	49.18	60.2	20.8	19			
CO,SH	850002014				0.8	0.1	25	13.9	11.1	.	96.2	1.8	2			
SH	850002015				0.27 .		8.44	9.67	.	1.23	50.2	32.8	17			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26364C
DATE CORED:27JUL1985
DATE REPORTED:26SEP1985

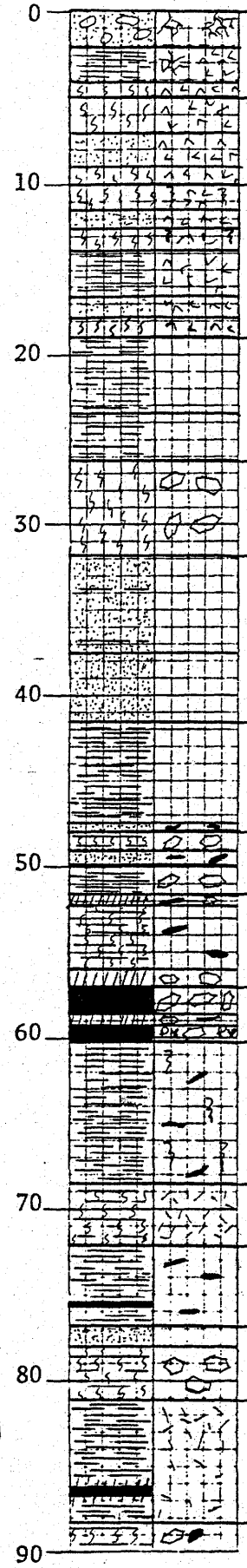
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
S.MAT.	850001988		0.05		<0.6	<10	<0.1	0.3	9.6	2.6	<1		
SH	850001989		0.03		<0.6	12	0.2	0.7	22.3	2.2	4.7		
SH	850001990		0.06		<0.6	13	0.2	0.4	16.2	1.7	3.7		
SL	850001991		0.04		0.6	38	0.3	0.5	25.7	8.5	5.1		
SH	850001992		0.14		<0.6	27	0.2	5.7	25	3.1	3.3		
SH	850001993		0.03		<0.6	<10	2.9	5.1	215.5	18.9	11.5		
CO	COAL												
SH	850001994		0.08		<0.6	<10	3.7	3.1	98.4	9.7	7.3		
SH,SS	850001995		<0.01		<0.6	<10	3.5	4.7	115.3	9.7	8.3		
SH	850001996		<0.01		0.6	<10	2.5	4.4	130.4	6.6	3.9		
SH,CO	850001997		<0.01		<0.6	<10	3.1	6.4	66.4	4.6	6.1		
SS	850001998		<0.01		0.6	<10	1.5	1.6	81.3	4.8	3.4		
SL,SH	850001999		<0.01		0.6	<10	2.5	7.7	98.2	11.5	5		
SH,CO	850002000		<0.01		<0.6	<10	2.4	6.1	99	4	6.4		
CO,SH	850002001		0.02		<0.6	<10	1.9	3.7	83.7	1.2	3.8		
SH,CO	850002002		0.21		0.6	<10	2.3	4.1	85.7	1.2	4		
SH,CO	850002003		0.02		<0.6	<10	1.9	5.5	81.8	3.3	2.9		
SL	850002004		<0.01		<0.6	<10	2.3	3.6	146.5	8.4	3.4		
SH	850002005		<0.01		<0.6	<10	2.3	3.7	165	3.3	4.8		
CO	850002006		<0.01		<0.6	<10	<1	0.3	51.3	1.1	1.4		
SH,SL,SS	850002007		<0.01		<0.6	<10	2.8	7.4	114.2	3.8	5.7		
SS,SH	850002008		<0.01		<0.6	<10	1.2	3.1	97.4	7.5	1.4		
SH	850002009		0.23		<0.6	<10	2.9	9.4	83.3	5.7	4.1		
SL,SH	850002010		<0.01		0.6	13	2.3	5.6	81.5	7.8	3.1		
CO	COAL												
SH,SL	850002011		0.16		<0.6	18	3.2	5.2	81.9	2.2	4		
CO	COAL												
SH	850002012		0.2		0.6	14	1.9	5.1	37.4	1	4.8		
SH	850002013		0.2		<0.6	12	1.4	1.8	114.8	3.3	3.3		
CO,SH	850002014		<0.01		<0.6	<10	<1	<0.2	27.1	1	<1		
SH	850002015		0.29		<0.6	16	2.9	2.8	70.7	1.1	2.3		

LOCATION S 3559.0 DATE DRILLED 7/11/85 SUB AREA N-11

E 34114.0

ELEVATION 6862.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001949	48.2	3.2	4.8	2.9	1.6	<0.01	8.0
850001950	40.1	6.6	8.3	1.3	1.9	<0.01	8.3
850001951	40.1	3.1	4.6	2.8	1.6	<0.01	7.7
850001952	35.1	0.6	0.8	2.4	1.2	<0.01	7.8
850001953	30.8	0.5	0.7	2.0	1.5	<0.01	8.0
850001954	32.1	0.5	0.7	2.1	1.4	<0.01	8.0
850001955	32.4	0.6	1.5	6.8	4.3	<0.01	7.5
850001956	36.4	0.4	2.0	22.9	32.7	<0.01	6.4
850001957	36.4	0.3	1.5	28.1	40.7	0.47	3.4
850001958	52.4	0.2	0.9	27.7	16.2	2.46	3.1
850001959	48.8	0.4	2.0	28.1	21.3	1.15	4.0
850001960	36.2	0.3	1.0	17.2	12.3	<0.01	6.5
850001961	34.4	0.3	1.7	31.5	34.2	0.71	5.6
850001962	34.2	0.4	1.4	12.6	14.4	0.20	7.4
850001963	36.6	0.3	2.0	26.7	42.2	1.81	5.3
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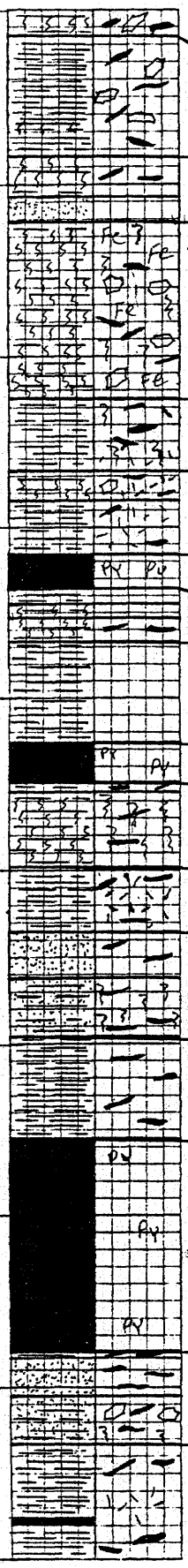
HOLE NO. 26367C DRILLER G. Hopkins PAGE 2

LOCATION S 3559.0 DATE DRILLED 7/11/85 SUB AREA N-11

E 34114.0

ELEVATION 6862.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001964	34.4	0.4	2.3	28.6	31.3	0.55	6.2
850001965	34.5	0.5	2.0	19.6	18.4	0.25	6.5
850001966	36.3	0.6	1.8	9.8	11.1	0.06	7.3
850001967	36.3	0.6	2.6	20.5	19.0	0.29	6.7
850001968	42.9	1.0	4.4	20.0	16.7	1.08	6.5
850001969	38.9	1.1	6.3	30.0	31.3	0.84	5.6
850001970	73.5	2.2	2.7	1.6	1.5	0.97	6.5
850001971	28.3	1.6	5.9	13.8	13.1	0.29	7.0
850001972	36.7	2.2	13.3	26.7	45.8	2.90	3.9
850001973	66.3	4.7	12.9	8.2	6.6	2.09	4.9
850001974	34.3	16.5	31.0	3.9	3.2	0.55	6.3
850001975	34.6	18.5	37.6	3.3	5.0	0.72	6.5
850001976	28.5	16.1	19.0	1.2	1.6	<0.01	8.0
850001977	44.7	18.8	46.2	7.8	4.3	1.41	6.3
NXX	(N/A)	(6.18)		(12,819)	-	(0.49)	(7.9)
850001978	26.1	36.8	18.4	0.3	0.2	0.05	8.5
850001979	36.6	63.9	20.1	0.1	0.1	0.58	8.3

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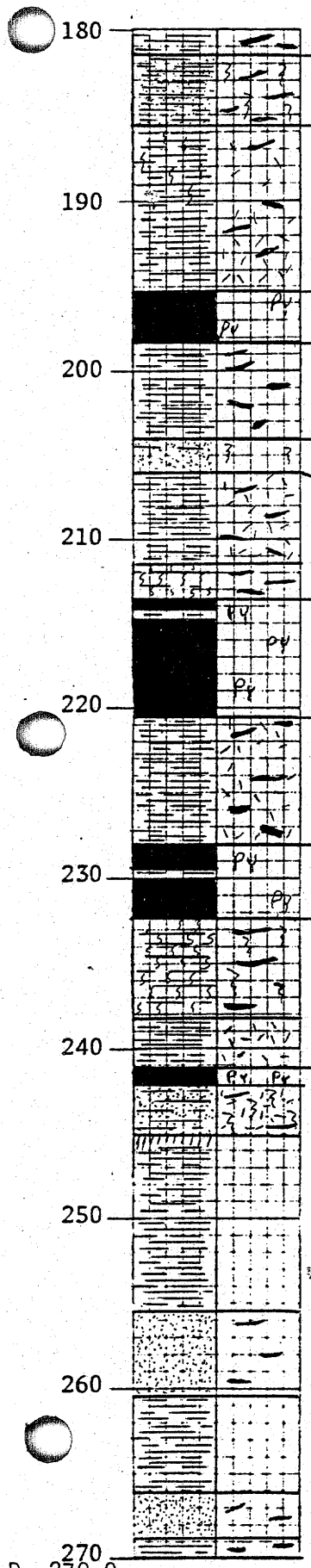
LOCATION S 3559.0 DATE DRILLED 7/11/85 SUB AREA N-11

E 34114.0

ELEVATION 6862.9



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001980	30.2	77.4	17.3	<0.1	<0.1	<0.01	8.9
850001981	48.9	85.0	19.0	<0.1	<0.1	<0.01	8.7
EOX	(N/A)	(6.09)		(12,976)		(0.49)	(8.1)
850001982	67.1	55.0	12.3	<0.1	<0.1	0.01	9.1
850001983	28.1	64.4	14.4	<0.1	<0.1	<0.01	8.9
850001984	48.6	70.7	15.8	<0.1	<0.1	0.09	8.9
E1X	(N/A)	(11.28)		(12,218)		(0.58)	(8.0)
850001985	57.0	57.2	12.8	<0.1	<0.1	0.04	9.3
E2X 850001986	69.0	26.8	6.0	<0.1	<0.1	0.97	7.9
850001987	24.2	31.8	20.1	0.5	0.3	0.45	8.5

T.D. 270.0

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OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26367C
DATE CORED:11JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
S.MAT,SH,SL	0	850001949	8	48.2	1.1	4.8	2.9	1.6	3.2	127	1.76	0	2.1	<5	3.3
SL,SS	4.9	850001950	8.3	40.1	1.3	8.3	1.3	1.9	6.6	185	1.9	0	1.3	<5	7.8
SL,SS,SH	10	850001951	7.7	40.1	0.9	4.6	2.8	1.6	3.1	182	1.17	0	1	<5	3.2
SH	19	850001952	7.8	35.1	0.4	0.8	2.4	1.2	0.6	17	1.8	0	2.8	<5	-0.4
SL	26.2	850001953	8	30.8	0.4	0.7	2	1.5	0.5	13	2.45	0	2	<5	-0.5
SS	31.8	850001954	8	32.1	0.4	0.7	2.1	1.4	0.5	13	2.27	0	1.6	<5	-0.5
SH	41.5	850001955	7.5	32.4	1.1	1.5	6.8	4.3	0.6	7	2.35	0	1.8	8	-0.4
SS,SH,SL	47.4	850001956	6.4	36.4	3.6	2	22.9	32.7	0.4	8	1.1	0	3.8	49	-0.7
SH,SL	51.6	850001957	3.4	36.4	5.2	1.5	28.1	40.7	0.3	8	4.32	0	<0.1	105	-0.8
CO,SH	57	850001958	3.1	52.4	4.3	0.9	27.7	16.2	0.2	13	4.02	0	<0.1	77	-1
SH	60.2	850001959	4	48.8	3.6	2	28.1	21.3	0.4	7	<1	0	0.2	54	-0.7
SL,SH	68.5	850001960	6.5	36.2	2.1	1	17.2	12.3	0.3	10	1.33	0	3.2	26	-0.8
SH	72.1	850001961	5.6	34.4	4.1	1.7	31.5	34.2	0.3	7	<1	0	2.6	63	-0.8
SS,SH,SL	76.8	850001962	7.4	34.2	2.2	1.4	12.6	14.4	0.4	9	2.58	0	2.7	26	-0.7
SH	81.1	850001963	5.3	36.6	4.3	2	26.7	42.2	0.3	10	<1	0	1.9	71	-0.8
SH,SL	88.2	850001964	6.2	34.4	3.9	2.3	28.6	31.3	0.4	10	<1	0	1.6	61	-0.7
SH	91.5	850001965	6.5	34.5	2.8	2	19.6	18.4	0.5	8	1.06	0	3.2	38	-0.5
SL,SH,SS	98.4	850001966	7.3	36.3	1.8	1.8	9.8	11.1	0.6	9	1.67	0	2.8	18	-0.4
SL,SH	102.2	850001967	6.7	36.3	2.9	2.6	20.5	19	0.6	9	1.47	0	3	29	-0.4
SH	112.4	850001968	6.5	42.9	3	4.4	20	16.7	1	10	<1	0	1.4	41	0.2
SH,SL	116.7	850001969	5.6	38.9	4.2	6.3	30	31.3	1.1	9	<1	0	2.6	62	0.4
CO	121.6	850001970	6.5	73.5	0.6	2.7	1.6	1.5	2.2	7	<1	0	0.8	<5	1.9
SH,SL	123.6	850001971	7	28.3	2.6	5.9	13.8	13.1	1.6	12	1.47	0	4	29	1.1
SH	126.7	850001972	3.9	36.7	5.6	13.3	26.7	45.8	2.2	10	3.39	0	0.1	87	1.9
CO	132.6	850001973	4.9	66.3	2.5	12.9	8.2	6.6	4.7	7	<1	0	0.6	26	5.4
SH,SL	134.9	850001974	6.3	34.3	3.7	31	3.9	3.2	16.5	7	<1	0	4.9	36	18.8
SH	139.8	850001975	6.5	34.6	4.5	37.6	3.3	5	18.5	7	<1	0	1.1	48	20.7
SS,SH	143.4	850001976	8	28.5	2.3	19	1.2	1.6	16.1	9	3.18	0.6	6.4	15	18.4
SH	149.6	850001977	6.3	44.7	5.5	46.2	7.8	4.3	18.8	8	<1	0	3.8	58	20.9
CO	155.4	COAL													
SH,SS	167.9	850001978	8.5	26.1	2	18.4	0.3	0.2	36.8	14	11.43	0.8	10	7	34.6
SH	173.3	850001979	8.3	36.6	2.3	20.1	0.1	0.1	63.6	20	10.4	0.2	6.7	13	48.1
SS,SH	181.6	850001980	8.9	30.2	1.8	17.3	<0.1	<0.1	77.4	13	20.9	1	11.9	<5	53
SH	185.7	850001981	8.7	48.9	2	19	<0.1	<0.1	85	11	14.4	1.7	12.8	<5	55.4
CO	195.3	COAL													
SH	198.3	850001982	9.1	67.1	1.3	12.3	<0.1	<0.1	55	11	20.4	0.2	9	<5	44.4
SS	203.9	850001983	8.9	28.1	1.6	14.4	<0.1	<0.1	64.4	15	16.2	0.8	11	<5	48.4
SH,SL	206	850001984	8.9	48.6	1.6	15.8	<0.1	<0.1	70.7	12	16.15	0.4	9	<5	50.7
CO	213.5														
SH	220.5	850001985	9.3	57	1.4	12.8	<0.1	<0.1	57.2	16	18.15	0.2	7.9	<5	45.4
CO	228	850001986	7.9	69	0.7	6	<0.1	<0.1	26.8	13	4.02	0	3	<5	27.7
SL,SH	232.3	850001987	8.5	24.2	2.2	20.1	0.5	0.3	31.8	19	7.2	0.2	8	11	31.3

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26367C
DATE CORED:11JUL1985
DATE REPORTED:26SEP1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
S.MAT,SH,SL	850001949				<0.01.		0	47.29	.	47.29	86.6	9.2	4.2			
SL,SS	850001950				<0.01.		0	16.34	.	16.34	79.6	17.2	3.2			
SL,SS,SH	850001951				<0.01.		0	9.83	.	9.83	80	17.6	2.4			
SH	850001952				<0.01.		0	50.32	.	50.32	88	9.2	2.8			
SL	850001953				<0.01.		0	197.05	.	197.05	74	19.2	6.8			
SS	850001954				<0.01.		0	320.59	.	320.59	76	14.2	9.8			
SH	850001955				<0.01.		0	222.16	.	222.16	35.4	32.2	32.4			
SS,SH,SL	850001956				<0.01.		0	18.93	.	18.93	51.4	22.2	26.4			
SH,SL	850001957				0.47	0.23	14.69	4.46	10.23	.	61.4	22.2	16.4			
CO,SH	850001958				2.46	0.93	76.88	11.64	65.24	.	88.4	5.2	6.4			
SH	850001959				1.15	1	35.94	16.83	19.11	.	33	38.2	28.8			
SL,SH	850001960				<0.01.		0	121.18	.	121.18	54	31.2	14.8			
SH	850001961				0.71	.	22.19	54.16	.	31.97	30	39.6	30.4			
SS,SH,SL	850001962				0.2	.	6.25	53.97	.	47.72	51.4	30.2	18.4			
SH	850001963				1.81	1.55	56.56	43.77	12.79	.	25.4	42.2	32.4			
SH,SL	850001964				0.55	.	17.19	26.36	.	9.17	24.4	47.2	28.4			
SH	850001965				0.25	.	7.81	48.86	.	41.05	28.4	36.2	35.4			
SL,SH,SS	850001966				0.06	.	1.88	43.74	.	41.86	48.4	25.2	26.4			
SL,SH	850001967				0.29	.	9.06	45.59	.	36.53	59.4	18.2	22.4			
SH	850001968				1.08	0.95	33.75	11.02	22.73	.	38.4	30.2	31.4			
SH,SL	850001969				0.84	.	26.25	31.67	.	5.42	26.4	37.2	36.4			
CO	850001970				0.97	0.13	30.31	14.09	16.22	.	94.4	5.6	<0.1			
SH,SL	850001971				0.29	.	9.06	52.57	.	43.51	54.4	27.6	18			
SH	850001972				2.9	1.27	90.62	15.9	74.72	.	25.4	41.6	33			
CO	850001973				2.09	0.78	65.31	14.22	51.09	.	90.8	6.8	2.4			
SH,SL	850001974				0.55	.	17.19	29.43	.	12.24	48.8	29.8	21.4			
SH	850001975				0.72	0.67	22.5	8.73	13.77	.	15.8	45.8	38.4			
SS,SH	850001976				<0.01.		0	152.87	.	152.87	62.8	21.8	15.4			
SH	850001977				1.41	1.32	44.06	15.16	28.9	.	25.8	37.8	36.4			
CO	COAL															
SH,SS	850001978				0.05	.	1.56	52.88	.	51.32	57.8	24.8	17.4			
SH	850001979				0.58	.	18.12	37.95	.	19.83	32.8	30.8	36.4			
SS,SH	850001980				<0.01.		0	56.94	.	56.94	46.8	28.8	24.4			
SH	850001981				<0.01.		0	172.88	.	172.88	35.8	28.8	35.4			
CO	COAL															
SH	850001982				0.01	.	0.31	23.09	.	22.78	13.8	39.8	46.4			
SS	850001983				<0.01.		0	54.36	.	54.36	61.2	22.4	16.4			
SH,SL	850001984				0.09	.	2.81	27.72	.	24.91	26.2	36.4	37.4			
SH	850001985				0.04	.	1.25	50.61	.	49.36	24.2	29.4	46.4			
CO	850001986				0.97	0.22	30.31	15.23	15.08	.	92.2	4.4	3.4			
SL,SH	850001987				0.45	.	14.06	88.11	.	74.05	40.2	38.4	21.4			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26367C
DATE CORED:11JUL1985
DATE REPORTED:26SEP1985

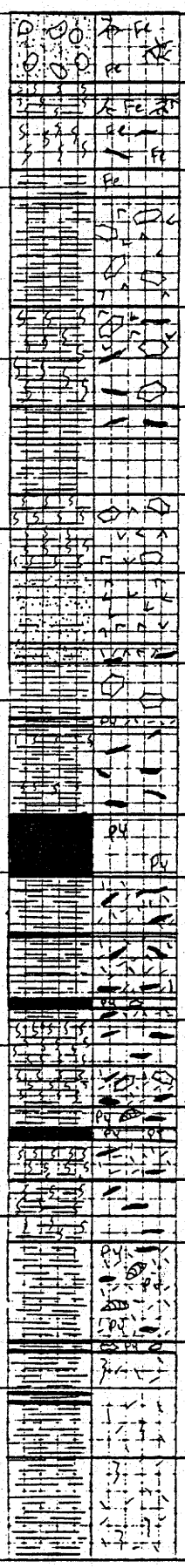
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
S.MAT,SH,SL	850001949		0.05		<0.6	11	0.1	0.9	39.3	18.1	<1		
SL,SS	850001950		0.04		<0.6	<10	<0.1	<0.2	8.9	1.8	<1		
SL,SS,SH	850001951		0.03		<0.6	<10	0.2	0.4	9.5	5.7	<1		
SH	850001952		0.05		0.7	<10	0.2	0.7	45.8	8.6	4.2		
SL	850001953		0.04		<0.6	<10	0.3	1.7	38.2	10.1	2.7		
SS	850001954		<0.01		<0.6	<10	0.3	1.1	54.8	25.5	<1		
SH	850001955		0.01		<0.6	<10	0.2	6.5	20	10.6	4.4		
SS,SH,SL	850001956		0.03		0.7	<10	0.2	5.4	39.3	7.6	4.8		
SH,SL	850001957		<0.01		<0.6	<10	1.3	6.6	213	9.4	6.4		
CO,SH	850001958		0.1		<0.6	<10	4.2	2.2	373.4	3.1	12.2		
SH	850001959		<0.01		<0.6	<10	5.6	3.2	197.5	10.6	13.3		
SL,SH	850001960		0.03		<0.6	<10	2.4	2.6	130.2	9.3	8.4		
SH	850001961		0.02		0.6	<10	5.6	3.7	229.2	20.8	16.3		
SS,SH,SL	850001962		<0.01		0.6	<10	1.7	2.1	68.5	21.6	4.4		
SH	850001963		<0.01		<0.6	<10	3.2	3.7	164.6	18.5	7.2		
SH,SL	850001964		<0.01		<0.6	<10	2.9	4.1	76.1	15.7	6.9		
SH	850001965		0.03		<0.6	<10	2.7	3.5	65.8	12.7	7.4		
SL,SH,SS	850001966		<0.01		<0.6	<10	1.7	2.8	71.1	19.3	4.6		
SL,SH	850001967		<0.01		<0.6	<10	1.5	3.3	75	16.6	6		
SH	850001968		<0.01		<0.6	<10	1.4	4.9	53.3	2.6	5.6		
SH,SL	850001969		<0.01		0.7	<10	3.5	3.2	99.5	3.9	12		
CO	850001970		0.02		1	<10	<0.1	0.3	22.2	1	<1		
SH,SL	850001971		<0.01		0.6	<10	2	2.6	79.9	3.3	3.9		
SH	850001972		0.03		0.7	<10	3.8	2.8	148.5	3.6	12.4		
CO	850001973		0.02		<0.6	<10	0.5	0.3	86.7	1.6	2.6		
SH,SL	850001974		0.05		0.6	<10	2.5	3.7	63.9	1.4	4.8		
SH	850001975		0.06		<0.6	<10	3.1	8.8	58	1.6	7.6		
SS,SH	850001976		0.04		0.6	<10	1.6	3.2	81.4	4.8	2		
SH	850001977		0.07		<0.6	<10	3.5	5.2	82.3	3.9	5.3		
CO	COAL												
SH,SS	850001978		0.13		<0.6	<10	2.1	1.6	72.4	2.6	4		
SH	850001979		0.51		0.6	60	2.2	4.5	34.6	1.8	2.6		
SS,SH	850001980		0.22		0.6	<10	1.7	1.6	45.5	2.5	3.1		
SH	850001981		0.12		<0.6	<10	1.4	2.8	47.6	3.6	1.7		
CO	COAL												
SH	850001982		0.26		<0.6	21	1.4	4.5	24.2	1	3.6		
SS	850001983		0.17		0.9	<10	1	1.5	49.3	1	3.5		
SH,SL	850001984		0.37		0.6	16	1.5	3.5	32.8	1	3.3		
CO	COAL												
SH	850001985		0.23		0.6	19	1.3	3.9	33	1	3.6		
CO	850001986		0.04		<0.6	<10	0.3	0.5	10.2	1	<1		
SL,SH	850001987		0.18		<0.6	<10	2.1	3.3	58.3	2.9	2.2		

LOCATION S 4917.0 DATE DRILLED 7-9-85 SUB AREA N-11

E 36443.0

ELEVATION 6912.4



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001778	48.6	5.6	25.9	15.9	27.5	0.10	7.7
850001779	40.2	3.6	20.0	23.4	39.5	<0.01	7.7
850001780	36.3	0.9	2.1	3.4	6.8	<0.01	7.7
850001781	32.1	0.5	0.8	1.4	3.6	<0.01	8.2
850001782	36.1	0.6	1.5	4.1	8.4	0.01	8.0
850001783	34.1	0.5	0.6	2.0	1.3	<0.01	8.0
850001784	36.1	0.4	0.6	2.2	1.4	<0.01	7.9
850001785	36.3	0.3	1.8	32.6	21.3	0.73	6.4
MXX	(N/A)	(13.24)		(11,603)		(1.79)	(3.4)
850001786	34.4	1.1	5.7	22.6	29.3	0.72	4.4
850001787	36.1	1.5	4.6	8.4	11.6	<0.01	7.2
850001788	32.2	1.9	8.1	15.9	19.0	0.96	5.9
85001789	36.1	3.3	8.9	6.6	7.8	0.07	7.5
850001790	34.4	3.2	18.2	26.8	38.1	2.04	6.0
850001791	38.6	16.4	41.2	5.7	6.9	0.91	6.3
850001792	32.3	32.0	14.3	0.2	0.2	0.01	8.4
		477					

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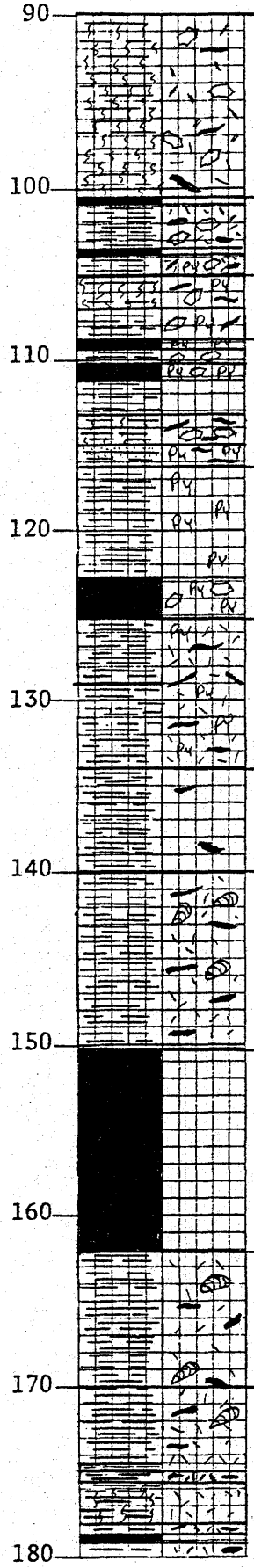
OCT 27 1986

HOLE NO. 26463C DRILLER D. Hopkins PAGE 2

LOCATION S 4917.0 DATE DRILLED 7-9-85 SUB AREA N-11

E 36443.0

ELEVATION 6912.4



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001793	32.2	30.8	18.2	0.3	0.4	0.01	8.4
850001794	38.7	16.5	42.5	6.3	7.0	1.23	6.4
850001795	32.3	17.7	24.1	1.8	1.9	0.31	7.3
850001796	34.5	6.2	15.7	6.4	6.5	0.70	7.1
850001797 Y1A	38.7	4.8	20.9	18.4	19.4	2.57	6.0
850001798	34.3	22.6	46.5	4.9	3.6	1.10	6.2
850001799	35.3	43.8	32.5	0.7	0.4	0.45	8.3
850001800	32.7	45.0	39.0	1.0	0.5	1.23	7.5
NXX	(N/A)	(8.46)		(12,542)		(0.52)	(8.6)
850001801	32.4	61.2	23.7	0.2	0.1	0.03	8.6
850001802	34.7	76.8	24.3	0.1	0.1	0.42	8.4

SEP 3 1986

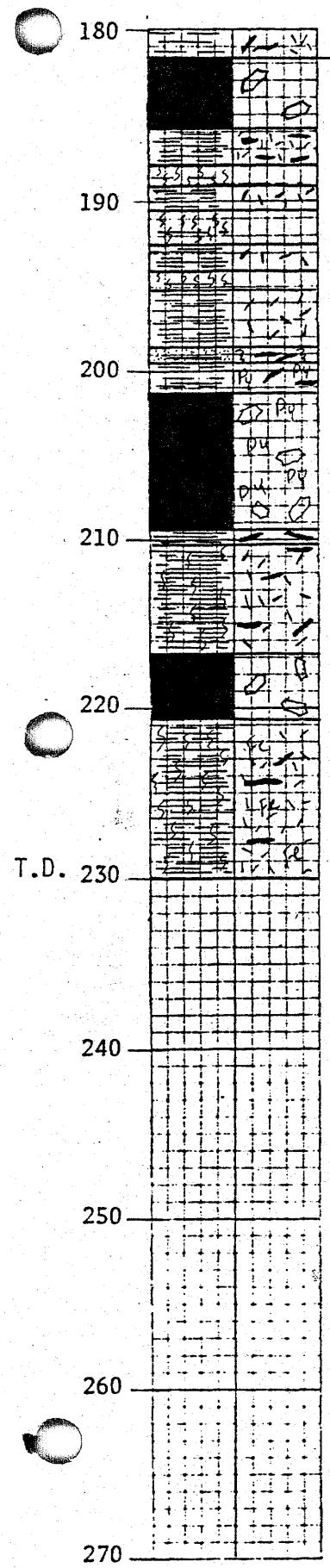
OCT 27 1986

LOCATION S 4917.0
E 36443.0

DATE DRILLED 7-9-85

SUB AREA N-11

ELEVATION 6912.4



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
EOX							
E1X							
E2X							
		479					

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26463C
DATE CORED:09JUL1985
DATE REPORTED:30AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SUR.MAT.	0	850001778	7.7	48.6	5.3	25.9	15.9	27.5	5.6	200	8.28	0	1.7	62	6.5
SL,SH	4	850001779	7.7	40.2	6	20	23.4	39.5	3.6	642	3.3	0	1.1	66	3.9
SH	9	850001780	7.7	36.3	1.2	2.1	3.4	6.8	0.9	84	3.24	0	2.7	<5	0.1
SH	16.9	850001781	8.2	32.1	0.6	0.8	1.4	3.6	0.5	13	3.15	0	2.7	<5	-0.5
SH	22.8	850001782	8	36.1	1.2	1.5	4.1	8.4	0.6	21	1.23	0	3	9	-0.4
SL,SH	28	850001783	8	34.1	0.4	0.6	2	1.3	0.5	20	2.43	0	1.9	<5	-0.5
SS,SH	32.5	850001784	7.9	36.1	0.4	0.6	2.2	1.4	0.4	14	1.95	0	1.8	<5	-0.7
SH,CO	37.8	850001785	6.4	36.3	3.6	1.8	32.6	21.3	0.3	6	<1	0	6.9	48	-0.8
CO	46.7	COAL													
SH,CO	50.3	850001786	4.4	34.4	4.1	5.7	22.6	29.3	1.1	5	<1	0	0.2	62	0.4
SL,SH	58.6	850001787	7.2	36.1	2.2	4.6	8.4	11.6	1.5	10	1.47	0	3.8	22	0.9
SH,CO,SL	63.6	850001788	5.9	32.2	3.4	8.1	15.9	19	1.9	6	<1	0	2.6	42	1.5
SH	68	850001789	7.5	36.1	2.1	8.9	6.6	7.8	3.3	9	1.83	0	3.9	19	3.5
SH	71.5	850001790	6	34.4	5.8	18.2	26.8	38.1	3.2	7	<1	0	5.8	83	3.3
SH,CO	77.3	850001791	6.3	38.6	5.1	41.2	5.7	6.9	16.4	5	<1	0	2.5	55	18.7
SH	84	850001792	8.4	32.3	1.5	14.3	0.2	0.2	32	8	6.65	0.6	8.9	<5	31.5
SH,SL	90	850001793	8.4	32.2	2.1	18.2	0.3	0.4	30.8	11	7.26	0.4	8.4	12	30.6
CO,SH	100.5	850001794	6.4	38.7	5.1	42.5	6.3	7	16.5	5	1.14	0	3.9	54	18.8
SL,SH	105.1	850001795	7.3	32.3	3	24.1	1.8	1.9	17.7	9	1.95	0	4.2	23	19.9
CO,SH,SS	108.9	850001796	7.1	34.5	2.7	15.7	6.4	6.5	6.2	10	<1	0	4.6	23	7.3
SH,CO	116.3	850001797	6	38.7	4.7	20.9	18.4	19.4	4.8	5	<1	0	2.2	62	5.5
SH	125.2	850001798	6.2	34.3	5.4	46.5	4.9	3.6	22.6	5	<1	0	2.8	56	24.3
SH	134	850001799	8.3	35.3	3.4	32.5	0.7	0.4	43.8	10	3.4	0.3	8.3	25	38.8
SH	140	850001800	7.5	32.7	4	39	1	0.5	45	9	3.78	0.3	6.3	39	39.4
CO	150.3	COAL													
SH	162.2	850001801	8.6	32.4	2	23.7	0.2	0.1	61.2	11	16.9	2.3	14.7	7	47.1
CO,SH	170	850001802	8.4	34.7	2.3	24.3	0.1	0.1	76.8	11	13.3	0.5	8.3	17	52.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26463C
DATE CORED:09JUL1985
DATE REPORTED:30AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SUR.MAT.	850001778				0.1	.	3.12	5.19	.	2.07	25	31.6	43.4			
SL,SH	850001779				<0.01	.	0	14.72	.	14.72	57	20.6	22.4			
SH	850001780				<0.01	.	0	192.8	.	192.8	29	36.6	34.4			
SH	850001781				<0.01	.	0	237.24	.	237.24	66	21.6	12.4			
SH	850001782				0.01	.	0.31	265.17	.	264.86	62	24	14			
SL,SH	850001783				<0.01	.	0	236.46	.	236.46	67.4	18.6	14			
SS,SH	850001784				<0.01	.	0	99.21	.	99.21	72.4	15.6	12			
SH,CO	850001785				0.73	.	22.81	37.49	.	14.68	44.4	28.6	27			
CO	COAL															
SH,CO	850001786				0.72	0.6	22.5	6.02	16.48	.	43.4	28.6	28			
SL,SH	850001787				<0.01	.	0	50.28	.	50.28	59.4	23.6	17			
SH,CO,SL	850001788				0.96	0.88	30	11.07	18.93	.	40.4	32.6	27			
SH	850001789				0.07	.	2.19	44.41	.	42.22	55.8	27.2	17			
SH	850001790				2.04	1.65	63.75	32.07	31.68	.	25.8	38.2	36			
SH,CO	850001791				0.91	0.7	28.44	8.14	20.3	.	20.8	43.2	36			
SH	850001792				0.01	.	0.31	28.05	.	27.74	38.8	30.2	31			
SH,SL	850001793				0.01	.	0.31	39.54	.	39.23	60.8	21.2	18			
CO,SH	850001794				1.23	0.97	38.44	8.21	30.23	.	40.8	29.2	30			
SL,SH	850001795				0.31	.	9.69	131.86	.	122.17	43.8	30.2	26			
CO,SH,SS	850001796				0.7	0.44	21.88	12.22	9.66	.	59.8	23.2	17			
SH,CO	850001797				2.57	1.84	80.31	7.44	72.87	.	35.8	35.2	29			
SH	850001798				1.1	0.96	34.38	7.99	26.39	.	48.8	31.2	20			
SH	850001799				0.45	.	14.06	35.36	.	21.3	56.8	24.2	19			
SH	850001800				1.23	1.02	38.44	17.86	20.58	.	22.6	39.4	38			
CO	COAL															
SH	850001801				0.03	.	0.94	36.74	.	35.8	43.2	26.8	30			
CO,SH	850001802				0.42	.	13.12	34.11	.	20.99	41.2	24.8	34			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26463C
DATE CORED:09JUL1985
DATE REPORTED:30AUG1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *					
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM	Organic * Matter %
SUR.MAT.	850001778		0.01		0.6	19	0.2	3.9	9.6	1	3.8	
SL,SH	850001779		<0.01		<0.6	37	<0.1	2.1	8	2.2	2.3	
SH	850001780		0.04		<0.6	12	0.2	5.8	25.6	7.8	5.5	
SH	850001781		<0.01		0.6	<10	0.5	1	95.4	54	<1	
SH	850001782		<0.01		0.6	<10	0.9	1.6	150.9	20.7	3.2	
SL,SH	850001783		<0.01		<0.6	<10	0.4	0.9	70	34.2	<1	
SS,SH	850001784		<0.01		<0.6	<10	0.1	1.3	22.3	6.9	<1	
SH,CO	850001785		<0.01		<0.6	<10	2.5	6.7	78.3	10	6.8	
CO	COAL											
SH,CO	850001786		<0.01		<0.6	<10	5	3.1	76.2	8.9	12.6	
SL,SH	850001787		<0.01		<0.6	<10	1.4	1.9	75.6	5.2	2.5	
SH,CO,SL	850001788		<0.01		<0.6	<10	2.6	2.1	66.2	2.3	5.6	
SH	850001789		<0.01		0.6	<10	1.3	1.2	75.6	4.5	3.4	
SH	850001790		<0.01		<0.6	<10	2.8	3.4	112.4	10	5.1	
SH,CO	850001791		0.07		<0.6	<10	1.9	2.9	67.6	2.5	4.9	
SH	850001792		0.04		<0.6	<10	0.8	2.4	88.1	5	2	
SH,SL	850001793		0.08		<0.6	<10	1.2	1.6	95.7	6.7	2.1	
CO,SH	850001794		0.06		<0.6	<10	1.7	2.7	96.9	1.3	3.7	
SL,SH	850001795		0.36		<0.6	<10	1.3	1.7	79.3	1.7	2.5	
CO,SH,SS	850001796		0.01		0.6	<10	1.4	1.3	73.9	5.5	1.7	
SH,CO	850001797		0.02		<0.6	<10	1.8	1.4	104.9	2.7	3.6	
SH	850001798		0.07		<0.6	<10	2.1	2.9	75.9	10.4	2	
SH	850001799		0.04		<0.6	<10	1.3	2.7	112	9.6	1.5	
SH	850001800		0.18		0.6	<10	2	3.4	61.4	5.6	2.9	
CO	COAL											
SH	850001801		0.08		0.6	<10	1.7	1.5	84.6	3.4	1.5	
CO,SH	850001802		0.29		<0.6	<10	1.4	2.6	35.7	1.7	1.6	

N-14 MINING AREA

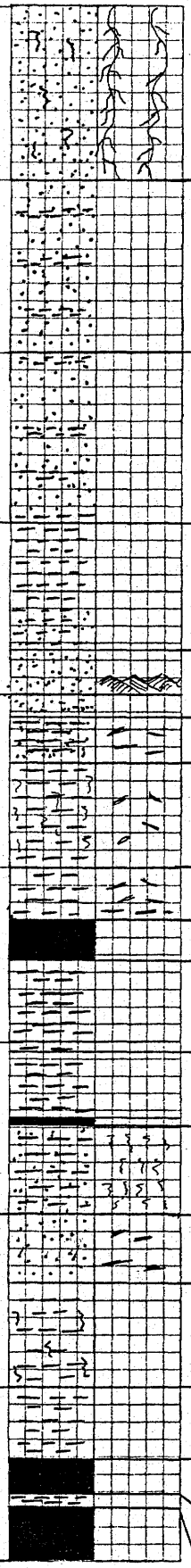
(DEEP CORES)

HOLE NO. 20257 C DRILLER D. Hopkins PAGE

LOCATION S 9448 DATE DRILLED 10-12-77 SUB AREA N-14

E 50327

ELEVATION 6809.4'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-1912	58.4	4.1	22.4	26.9	31.5	.05	7.7
R-8-1913	42.8	2.8	11.2	6.7	26.4	.04	7.9
R-8-1914	42.8	1.4	8.7	29.3	43.9	.17	7.2
R-8-1915	51.9	0.7	6.2	29.3	114.9	1.24	2.7
R-8-1916	38.0	0.3	2.3	24.4	68.8	1.02	3.0
R-8-1917	37.9	0.4	3.3	30.8	144.2	1.01	5.8
R-8-1918	63.0	3.5	18.1	29.8	23.4	1.01	4.3
R-8-1919	57.7	8.0	18.1	6.8	3.5	.25	7.4
NOB 7-1993-R)	(12.84)	(7.5)		(12655)		(0.99)	(7.7)
R-8-1920	56.6	21.3	77.8	17.6	9.2	1.18	5.1
R-8-1921	56.8	35.3	74.4	5.8	3.1	.68	6.5
R-8-1922	35.3	65.3	50.6	0.6	0.6	.07	8.5
R-8-1923	33.6	6.3	18.9	0.9	0.6	.02	8.8
R-8-1924	45.5	26.9	87.0	12.9	8.0	.55	7.1
R-8-1925	48.5	37.1	75.0	5.5	2.8	.86	6.8
EOA (7-1994-R)	(11.40)	(12.9)		(11882)		(1.31)	(8.1)
R-8-1926	78.3	25.3	20.4	0.5	0.8	.18	8.2
EOB		483					

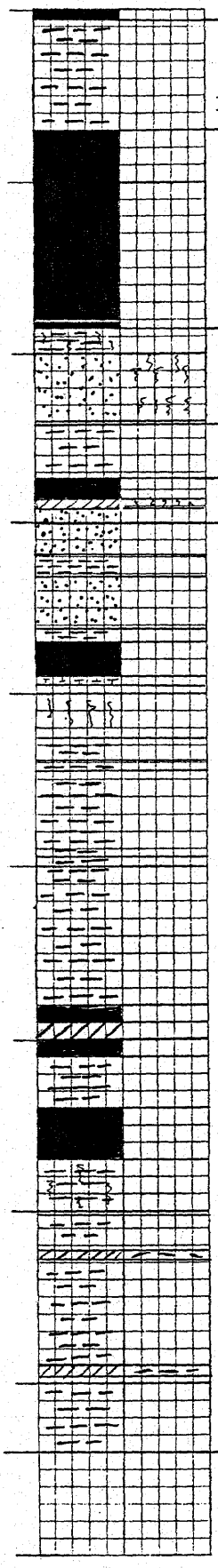
SEP - 3 1986
OCT 27 1986

HOLE NO. 20257 - C DRILLER D. Hopkins PAGE

LOCATION S 9448 DATE DRILLED 10-12-77 SUB AREA N -14

E 50327

ELEVATION ' 6809.4'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-1927	90.5	57.8	48.4	0.9	0.5	.12	57.8
E12							
(7-1996-R)	(9.51)	(7.6)		(12801)		(0.54)	(8.2)
R-8-1928	35.1	9.5	38.4	22.8	9.8	.31	6.8
R-8-1929	40.4	8.2	43.5	32.7	24.2	1.35	4.7
R-8-1930	46.4	15.4	46.9	17.6	0.9	.54	4.6
E3B							
		484					

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA N-14
CORE NO:20257C
DATE CORED:12OCT1977
DATE REPORTED:27MAR1985

*Dry Basis

					Saturated Paste Extract									
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR					ESP
SO	0	780001907	7.1	35.3	0.5	2.6	4	0.9	1.7					1.2
SO	0.1	780001908	7.8	30.2	0.2	4.4	2.1	0.3	4					4.4
SO	0.5	780001909	7.9	30.2	0.6	3.8	1.8	0.3	3.7					4
SO	1	780001910	8	51.2	1.2	7.3	8.5	6.6	2.7					2.7
SO	2	780001911	8	53.3	3.5	6.1	28.8	30.7	1.1					0.3
SL,SH	3	780001912	7.7	58.4	4.7	22.4	26.9	31.5	4.1					4.6
SS	10	780001913	7.9	42.8	3.1	11.2	6.7	26.4	2.8					2.8
SS	20	780001914	7.2	42.8	4.5	8.7	29.3	43.9	1.4					0.7
SH	30	780001915	2.7	51.9	8.5	6.2	29.3	114.9	0.7					-0.2
SS,SH,CO	37.3	780001916	3	38	9.1	2.3	24.4	68.8	0.3					-0.8
SS	41.3	780001917	5.8	37.9	7	3.3	30.8	144.2	0.4					-0.7
SH	44	780001918	4.3	63	4.2	18.1	29.8	23.4	3.5					3.8
SH	50	780001919	7.4	57.7	2.2	18.1	6.8	3.5	8					9.5
CO	52.8	COAL												
SH,SL	55.5	780001920	5.1	56.6	7.7	77.8	17.6	9.2	21.3					23.2
SH,CO	60.5	780001921	6.5	56.8	6	74.4	5.8	3.1	35.3					33.7
SS,SH	64.9	780001922	8.5	35.3	2.2	19.8	0.6	0.6	25.6					26.7
SS	70	780001923	8.8	33.6	1.6	18.9	0.9	0.6	6.3					7.4
SH	74	780001924	7.1	45.5	6	87	12.9	8	26.9					27.8
MS,SH	80	780001925	6.8	48.5	5.3	75	5.5	2.8	37.1					34.8
CO	84	COAL												
UC,SH	86.2	780001926	8.2	78.3	1.7	20.4	0.5	0.8	25.3					26.5
CO	86.9	COAL												
SH	90.6	780001927	8.8	90.5	1.6	19	0.9	0.5	22.7					24.4
CO	96.8	COAL												
SL,SH,SS	108.7	780001928	6.8	35.1	3.5	16.6	22.8	9.8	4.1					4.6
SH	114.2	780001929	4.7	40.4	5.2	43.5	32.7	24.2	8.2					9.8
CO,SH,SS	117.3	780001930	4.6	46.4	4.4	46.9	17.6	0.9	15.4					17.7

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA N-14
CORE NO:20257C
DATE CORED:12OCT1977
DATE REPORTED:27MAR1985

*Dry Basis

						CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O H2O Cap.
SO	780001907	<2	9.6	112	0.02	0.63	5.81	.	5.18	70.2	14.6	15.2	6.7	3	3.7
SO	780001908	<2	3.2	51.2	<0.01	0.31	6.41	.	6.1	80.2	7.6	12.2	3.4	2.5	0.9
SO	780001909	<2	3	56	<0.01	0.31	6.3	.	5.99	79.2	7.2	13.6	3.7	2.1	1.6
SO	780001910	<2	2.6	52.1	0.04	1.25	14.54	.	13.29	54.2	16.2	29.6	13	7.7	5.3
SO	780001911	<2	2.5	47	0.08	2.5	17.43	.	14.93	51.6	19.8	28.6	12.5	6	6.5
SL,SH	780001912	<2	6.3	61.2	0.05	1.56	9.58	.	8.02	43.2	24.2	32.6	14.7	7.4	7.3
SS	780001913	<2	5.8	46.6	0.04	1.25	20.19	.	18.94	59.2	19.2	21.6	10.5	4.1	6.4
SS	780001914	3	2.8	46.7	0.17	5.31	15.06	.	9.75	61.2	17.2	21.6	9.8	3.6	6.2
SH	780001915	4	2.6	33.6	1.24	38.75	-4.72	43.47	.	34.4	25	40.6	18.1	9.9	8.2
SS,SH,CO	780001916	3	6.8	9.4	1.02	31.88	0.59	31.29	.	44	34.4	21.6	9.8	5.3	4.5
SS	780001917	6	6.3	18.7	1.01	31.56	33.96	.	2.4	68	13.4	18.6	8.5	4.3	4.2
SH	780001918	3	3.2	243	1.01	31.56	3.96	27.6	.	30	27.4	42.6	19.1	11.8	7.3
SH	780001919	2	1.9	330	0.25	7.81	13.32	.	5.51	25.4	21	53.6	28.4	17.7	10.7
CO	COAL														
SH,SL	780001920	3	4.6	171.5	1.18	36.88	7.2	29.68	.	28	36.4	35.6	23.4	16.2	7.2
SH,CO	780001921	3	4.1	234.2	0.68	21.25	22.36	.	1.11	23	34.4	42.6	22.6	18.2	4.4
SS,SH	780001922	3	2.3	121.4	0.07	2.19	46.26	.	44.07	35	36.4	28.6	15.7	7	8.7
SS	780001923	2	1.2	46.4	0.02	0.63	44.9	.	44.27	55	28.4	16.6	19.6	11.9	7.7
SH	780001924	3	2.3	168.7	0.55	17.19	37.99	.	20.8	25	38.4	36.6	18.1	9.4	8.7
MS,SH	780001925	3	3.1	222.3	0.86	26.88	36.2	.	9.32	28	30.4	41.6	22.9	16.9	6
CO	COAL														
UC,SH	780001926	2	1.3	357.8	0.18	5.63	8.48	.	2.85	18	18.4	63.6	60.2	46.2	14
CO	COAL														
SH	780001927	2	1.8	325.6	0.12	3.75	7.78	.	4.03	15	26.4	58.6	60.2	46.3	13.9
CO	COAL														
SL,SH,SS	780001928	<2	1.3	55.8	0.31	9.69	28.85	.	19.16	37	43.4	19.6	25	11.4	13.6
SH	780001929	4	7.6	65.5	1.35	42.19	2.81	39.38	.	15	53.4	31.6	17.2	8	9.2
CO,SH,SS	780001930	3	1.2	57.3	0.54	16.88	1.91	14.97	.	52	16.4	21.6	28.3	20.4	7.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA N-14
CORE NO:20257C
DATE CORED:12OCT1977
DATE REPORTED:27MAR1985

Dry Basis

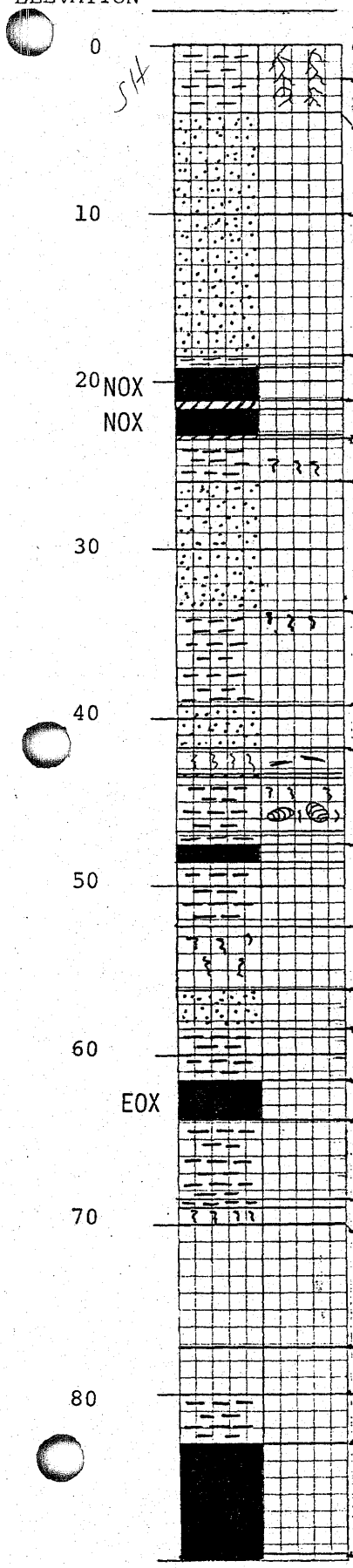
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	780001907	0.2	0.08	0.02	0.6	<10	0.2	1.2	19.5	17.7	<1		1.1
SO	780001908	<0.1	0.11	<0.01	<0.6	<10	<0.1	1	12.1	10.1	<1		0.4
SO	780001909	0.3	0.07	0.01	<0.6	<10	<0.1	1.1	12.1	9.2	<1		0.3
SO	780001910	0.4	<0.01	<0.01	<0.6	19	0.2	1.1	5.7	4.9	<1		0.3
SO	780001911	0.7	<0.01	<0.01	<0.6	15	<0.1	1.3	6.5	1.2	<1		0.2
SL,SH	780001912	0.4	<0.01	0.01	<0.6	23	<0.1	4	8.2	6.3	16.8		0.1
SS	780001913	0.2	<0.01	<0.01	<0.6	16	<0.1	2.7	12.1	4.8	2.8		0.3
SS	780001914	0.4	<0.01	<0.01	<0.6	16	<0.1	1.8	16.2	3.2	1.3		0.2
SH	780001915	1.8	0.13	<0.01	0.6	<10	8.3	5.5	323.1	39.9	50.7		4.4
SS,SH,CO	780001916	1.8	0.09	<0.01	1.2	<10	7.3	4	351	53.7	23.9		COAL
SS	780001917	0.6	<0.01	<0.01	1.2	<10	0.4	1.2	132.8	7.3	1.6		2.4
SH	780001918	2.3	0.05	0.19	0.9	<10	4.7	7.4	273.8	8.2	23.8		10.3
SH	780001919	3.2	<0.01	0.15	<0.6	<10	0.4	7.8	44.5	1	6.2		7.4
CO	COAL												
SH,SL	780001920	2.8	0.01	0.11	0.6	<10	5.2	6.6	159.4	35	14.5		8.5
SH,CO	780001921	2.2	<0.01	0.06	<0.6	<10	1.5	6.8	78.6	14.8	9.9		COAL
SS,SH	780001922	0.8	0.06	0.14	0.6	<10	1	3.9	108.4	11.1	13.2		2.6
SS	780001923	0.4	0.03	0.02	<0.6	<10	0.2	1.2	74.1	5.8	4.6		1
SH	780001924	0.7	<0.01	0.04	0.6	<10	1.7	5.3	57.7	14.8	14.1		2.5
MS,SH	780001925	1	<0.01	0.07	0.6	<10	1.5	4.9	48.5	1	14		6
CO	COAL												
UC,SH	780001926	.	0.01	0.34	<0.6	<10	------INSUFFICIENT SAMPLE------						8.9
CO	COAL												
SH	780001927	0.5	0.05	0.25	0.6	<10	1.3	6.1	20.9	1	14.7		5.7
CO	COAL												
SL,SH,SS	780001928	0.2	<0.01	0.09	<0.6	<10	2.5	2.6	43.6	3.8	7.4		3.6
SH	780001929	0.4	0.03	0.02	<0.6	<10	9.7	4.3	133	70.7	22.3		2.9
CO,SH,SS	780001930	5.5	0.03	0.05	<0.6	<10	5.5	3.8	63.8	4.1	11.1		COAL

HOLE NO. 20259 - C DRILLER D. Hopkins PAGE

LOCATION S 10202 DATE DRILLED 10-20-77 SUB AREA N-14

E 57699

ELEVATION 6807.9'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-2255	67.2	2.5	18.8	25.8	83.4	.24	7.7
R-8-2256	38.3	2.2	16.2	26.2	77.9	.21	7.7
R-8-2257	36.1	1.7	10.2	25.3	45.8	.10	7.1
R-8-2258	58.8	1.8	12.1	25.8	60.1	.90	3.9
R-8-2259	74.3	2.9	16.0	25.3	36.2	1.16	3.8
R-8-2260	52.9	15.3	28.7	3.0	4.0	.12	7.4
R-8-2261	38.2	9.2	27.7	12.3	5.7	.12	7.4
R-8-2262	54.7	14.6	49.4	14.3	8.6	.45	6.5
R-8-2263	34.1	14.1	14.1	1.0	1.0	.02	8.7
R-8-2264	52.7	25.4	65.2	8.6	4.6	.76	7.2
R-8-2265	76.1	45.7	44.5	1.3	0.6	.41	7.1
R-8-2266	58.7	33.1	28.7	1.1	0.4	.02	9.0
R-8-2267	34.2	34.2	24.2	0.6	0.4	.05	8.8
R-8-2268	98.7	15.1	12.2	1.0	0.3	.15	8.7
(7-2064-R)	(9.82)	(10.8)		(12505)		(0.73)	(8.2)
R-8-2269	73.1	18.9	23.1	1.5	1.5	.01	9.0
R-8-2270	40.2	12.3	24.2	6.7	1.0	.04	9.0
R-8-2271	60.9	35.8	27.7	0.9	0.3	.02	9.1
R-8-2272	116.3	10.4	21.6	7.8	0.9	.05	9.2
R-8-2273	135.9	14.0	20.1	3.6	0.5	.06	9.3
E12 (7-2065-R)	(10.95)	(5.7)		(13134)		(0.58)	8.0

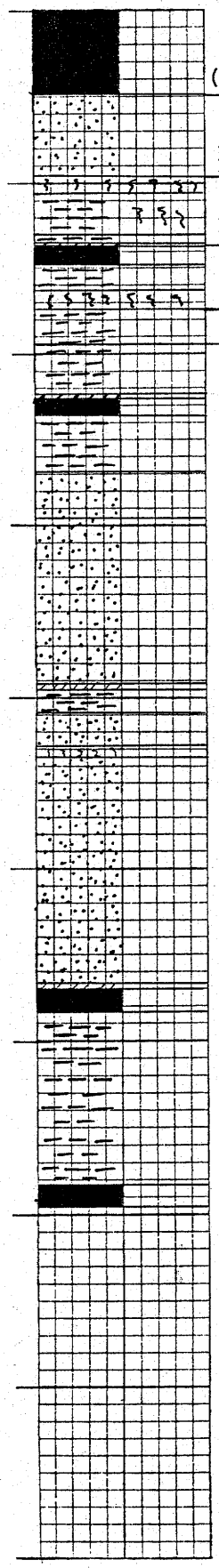
SEP 3 1986
OCT 27 1986

HOLE NO. 20259 - C DRILLER D. Hopkins PAGE

LOCATION S 10202 DATE DRILLED 10-20-77 SUB AREA N-14

E 57699

ELEVATION 6807.9'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
(7-2065-R)	(10.95)	(5.7)		(13134)		(0.58)	(8.0)
R-8-2274	48.2	10.0	25.4	9.5	3.3	.19	6.6
R-8-2275	52.5	8.5	42.3	32.2	16.9	1.54	6.2
R-8-2276	55.7	10.4	36.2	16.3	8.0	.69	4.6
R-8-2277	54.7	16.6	43.5	9.6	4.1	.73	6.2
		489					

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20259C
DATE CORED:26OCT1977
DATE REPORTED:15AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001197	7.8	56.9	5.8	13.3	27.7	67.7	1.9	6	4.44	0	0.7	52	1.5
SH	2	850001198	7.7	67.2	6.7	18.8	25.8	83.4	2.5	10	6.21	0	0.9	72	2.4
SS	4	850001199	7.7	38.3	6.5	16.2	26.2	77.9	2.2	98	5.55	0	0.4	120	1.9
SS	10	850001200	7.1	36.1	6.1	10.2	25.3	45.8	1.7	106	<1	0	0.2	99	1.2
SH,CO	18.5	850001201	3.9	58.8	5.8	12.1	25.8	60.1	1.8	69	2.2	0	<0.1	93	1.4
MS,CO	21.1	850001202	3.8	74.3	4.9	16	25.3	36.2	2.9	39	<1	0	0.3	46	2.9
SH	23.2	850001203	7.4	52.9	2.8	28.7	3	4	15.3	12	5.01	0	2	15	17.6
SS	26	850001204	7.4	38.2	3	27.7	12.3	5.7	9.2	15	2.86	0	4.3	18	11
SH	33.6	850001205	6.5	54.7	5	49.4	14.3	8.6	14.6	14	1.31	0.4	6.8	25	16.9
SS	39.2	850001206	8.7	34.1	2	14.1	1	1	14.1	19	1.34	0.4	6.9	8	16.3
SL,SH,QT	41.85	850001207	7.2	52.7	5.5	65.2	8.6	4.6	25.4	11	5.01	0.7	7.1	19	26.6
CO,SH	47.5	850001208	7.1	76.1	3.7	44.5	1.3	0.6	45.7	12	14.7	0.4	6.7	<5	39.8
SL	52.4	850001209	9	58.7	2.2	28.7	1.1	0.4	33.1	11	16.3	2	11.2	<5	32.2
SS	56.1	850001210	8.8	34.2	2.6	24.2	0.6	0.4	34.2	13	13.8	1.3	12.9	<5	33
SH	58.5	850001211	8.7	98.7	2.1	12.2	1	0.3	15.1	10	18.85	1.4	4.1	<5	17.4
CO	61.2	COAL													
SH	64.1	850001212	9	73.1	2	23.1	1.5	1.5	18.9	13	14.35	2	5.8	<5	21
CS,SL	68.5	850001213	9	40.2	2.3	24.2	6.7	1	12.3	6	11.73	2.2	11.6	<5	14.4
SH	70	850001214	9.1	60.9	2	27.7	0.9	0.3	35.8	12	15.1	1.5	6.5	<5	34
SL	77.1	850001215	9.2	116.3	2.6	21.6	7.8	0.9	10.4	29	13.7	1.7	3.6	<5	12.4
SH	80	850001216	9.3	135.9	1.6	20.1	3.6	0.5	14	6	12.9	2.2	5.7	<5	16.2
CO	82.8	COAL													
SS	95.1	850001217	6.6	48.2	2.8	25.4	9.5	3.3	10	18	5.82	0	4.7	10	11.9
SL,SH	99.6	850001218	6.2	52.5	5.8	42.3	32.2	16.9	8.5	11	1.77	0.4	7.5	60	10.1
CO,SH	103.6	850001219	4.6	55.7	4.3	36.2	16.3	8	10.4	8	1.95	0	2.5	22	12.4
SL,SH	106.25	850001220	6.2	54.7	4.5	43.5	9.6	4.1	16.6	14	5.7	0.5	5.8	22	18.8

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20259C
DATE CORED:26OCT1977
DATE REPORTED:15AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001197	<2	2.1	204.2	0.21		6.56	9.67	.	3.11	32	24.8	43.2	24.7	13.5	11.2
SH	850001198	<2	2.3	114.7	0.24		7.5	11.38	.	3.88	37.6	22.6	39.8	25.6	14.8	10.8
SS	850001199	3	21.1	64.1	0.21		6.56	4.1	2.46	.	75.6	10	14.4	18.1	6.8	11.3
SS	850001200	10	8.5	34.4	0.1		3.12	1.4	1.72	.	79.6	7	13.4	13.8	5.7	8.1
SH,CO	850001201	3	1.4	51.4	0.9		28.12	-0.34	28.46	.	78.6	6	15.4	19.8	11.8	8
MS,CO	850001202	<2	1.9	37.5	1.16		36.25	2.11	34.14	.	81.6	6	12.4	21.7	15.3	6.4
SH	850001203	<2	1	189.6	0.12		3.75	2.7	1.05	.	17.6	39.6	42.8	26.2	12.9	13.3
SS	850001204	<2	1	152.7	0.12		3.75	28.49	.	24.74	60.4	19.8	19.8	16.1	6.5	9.6
SH	850001205	<2	5.5	228.4	0.45		14.06	41.93	.	27.87	18.2	45	36.8	17.5	8.6	8.9
SS	850001206	<2	1.2	93.3	0.02		0.62	44.07	.	43.45	73.4	14.8	11.8	9.9	2.9	7
SL,SH,QT	850001207	<2	2.5	208.6	0.76		23.75	40.72	.	16.97	25.4	35.8	38.8	18.6	9.5	9.1
CO,SH	850001208	<2	1.6	292.3	0.41		12.81	2.71	10.1	.	16.4	40.8	42.8	41.1	19	22.1
SL	850001209	<2	1	228.3	0.02		0.62	31.35	.	30.73	9.8	53	37.2	31.3	12.8	18.5
SS	850001210	<2	1	128.2	0.05		1.56	34.46	.	32.9	62.8	20.6	16.6	13	5.8	7.2
SH	850001211	<2	0.7	423.3	0.15		4.69	5.77	.	1.08	6.8	32	61.2	63.8	26.9	36.9
CO	COAL															
SH	850001212	<2	1.3	258.9	0.01		0.31	5.93	.	5.62	16.8	39.6	43.6	45.5	22.5	23
CS,SL	850001213	<2	0.6	152.9	0.04		1.25	36.26	.	35.01	11	67	22	26.2	8.2	18
SH	850001214	<2	0.8	233.7	0.02		0.63	27.78	.	27.15	30	34	36	38.4	14.9	23.6
SL	850001215	<2	1.1	468.5	0.05		1.56	8.91	.	7.35	2.8	33.3	63.9	77.3	30.5	46.8
SH	850001216	4	1	353.4	0.06		1.88	15.14	.	13.26	5.8	42	52.2	80.5	32.6	47.9
CO	COAL															
SS	850001217	<2	2.9	54.5	0.19		5.94	8.01	.	2.07	40.4	39.2	20.4	21.5	5.6	15.9
SL,SH	850001218	2	11.5	82.1	1.54		48.13	40.42	7.71	.	29.6	40.6	29.8	12.9	6.3	6.6
CO,SH	850001219	2	5.1	70	0.69		21.56	-1.31	22.87	.	48	28	24	17.2	8.1	9.1
SL,SH	850001220	<2	5	183.3	0.73		22.81	9.39	13.42	.	26	43	31	15	8.1	6.9

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20259C
DATE CORED:26OCT1977
DATE REPORTED:15AUG1985

Dry Basis

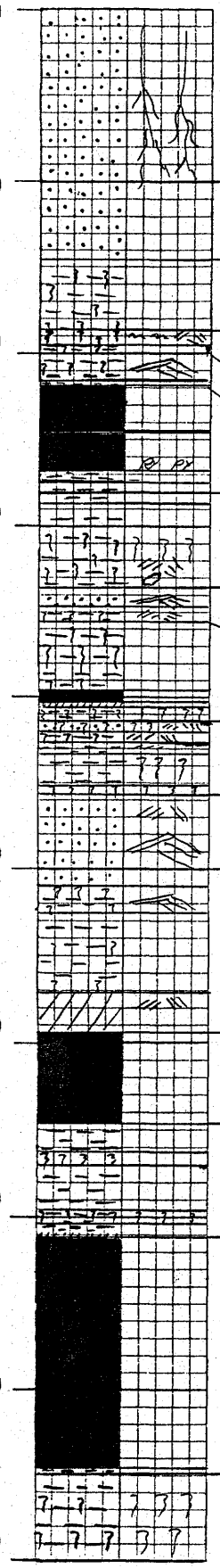
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001197		<0.01		<0.6	47	<0.1	1.8	6.9	1.2	1.3		0.3
SH	850001198		<0.01		<0.6	51	<0.1	0.9	4.5	1	<1		0.6
SS	850001199		<0.01		<0.6	40	<0.1	0.5	4.7	1	1.3		0.2
SS	850001200		0.04		<0.6	40	<0.1	0.6	79.1	1	<1		0.3
SH,CO	850001201		0.78		<0.6	36	5.4	3.5	235.7	2.1	16.9		COAL
MS,CO	850001202		0.02		<0.6	<10	0.4	0.3	14	1	<1		COAL
SH	850001203		0.19		<0.6	17	1.6	4	12.9	1	5.8		5.1
SS	850001204		0.07		0.6	12	2	1.9	23.8	2.3	3.7		0.9
SH	850001205		0.07		<0.6	11	1.4	1.1	33.9	3.9	2.8		3.5
SS	850001206		0.02		<0.6	<10	0.2	2.4	52	2.8	3.4		0.4
SL,SH,QT	850001207		0.17		0.6	13	1.3	2.1	25.7	3.8	3		3.6
CO,SH	850001208		0.26		<0.6	21	0.4	2.6	11.3	1	3.5		COAL
SL	850001209		0.2		<0.6	15	0.4	0.7	23	2.5	1.9		1.6
SS	850001210		0.25		<0.6	<10	0.3	1.5	27.1	2.5	1.8		1.2
SH	850001211		0.61		<0.6	47	0.8	4.1	17.5	1	8.4		6.4
CO	COAL												
SH	850001212		0.18		<0.6	22	0.5	3	13	1	2		2
CS,SL	850001213		0.04		<0.6	11	0.2	1.5	55.4	2.4	1.5		1.1
SH	850001214		0.09		<0.6	25	0.4	1.7	18.9	1	2.4		1.5
SL	850001215		0.26		<0.6	37	0.5	4.5	14.1	1	4.1		3
SH	850001216		0.27		1	35	0.7	1.6	16.6	1	3.4		2.5
CO	COAL												
SS	850001217		0.32		<0.6	17	2.2	1.2	15.3	1	2.4		3.1
SL,SH	850001218		0.15		<0.6	19	2.8	2	38.6	6.6	3.9		5.3
CO,SH	850001219		0.28		<0.6	13	1.3	1.4	13.1	1	1.7		COAL
SL,SH	850001220		0.21		<0.6	17	1.2	2.6	18	1	2		6

HOLE NO. 20268 - C DRILLER D. Clements PAGE

LOCATION S 8708 DATE DRILLED 10-25-77 SUB AREA N-14

E 54417

ELEVATION 6829.7'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-2285	34.2	1.6	8.1	26.9	21.3	.05	7.4
R-8-2286	38.3	2.5	12.0	16.8	29.4	.05	6.9
R-8-2287	59.1	1.6	8.7	26.0	36.7	.03	5.2
R-8-2288	52.8	0.9	5.0	29.3	27.3	.45	3.8
R-8-2289	44.2	5.2	13.8	8.7	5.5	.10	6.8
NOX (7-2058-R)	(12.39)	(8.1)		(12644)		(0.73)	(5.9)
R-8-2290	57.3	5.2	29.0	26.9	35.0	1.62	3.3
R-8-2291	40.2	6.8	21.7	12.0	8.2	.23	7.0
R-8-2292	56.9	12.9	49.5	18.7	10.6	.64	5.3
R-8-2293	36.3	28.0	26.6	1.1	0.7	.04	8.2
R-8-2294	28.5	16.6	19.3	1.4	1.3	.05	8.3
R-8-2295	52.6	22.0	51.9	7.0	4.1	.79	6.8
EOX (7-2059-R)	(10.99)	(11.9)		(12342)		(0.54)	(8.2)
R-8-2296	79.7	28.8	19.3	0.6	0.3	.15	8.7
E12 (7-2060-R)	(11.23)	(5.5)		(13127)		(0.56)	(8.2)
		493					

SEP 3 1986

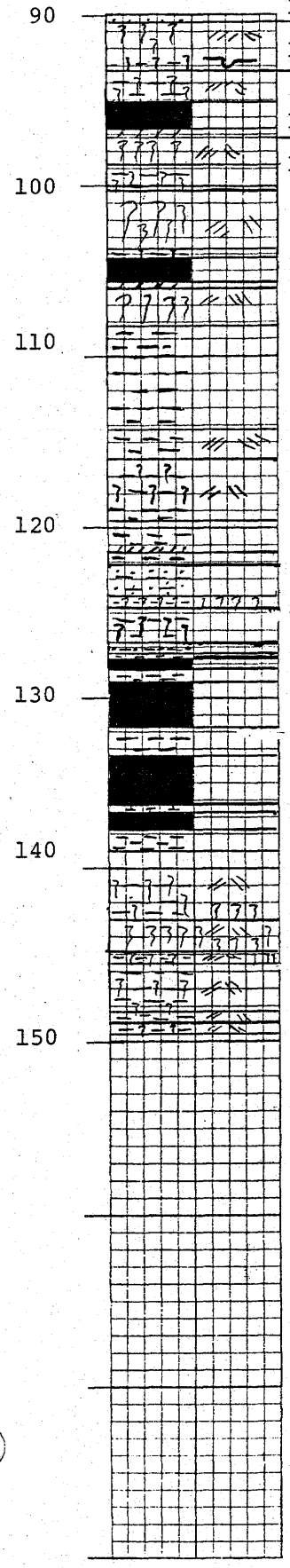
OCT 27 1986

HOLE NO. 20268 - C DRILLER D. Clements PAGE

LOCATION S 8708 DATE DRILLED 10-25-77 SUB AREA N-14

E 54417

ELEVATION '6829.7'



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-8-2297	44.2	10.2	22.9	5.5	4.6	.25	6.7
R-8-2298	44.2	4.8	20.5	21.2	15.3	.45	6.5
R-8-2299	49.4	7.7	37.4	26.4	20.6	1.68	3.7
R-8-2300	50.5	15.3	39.9	8.7	4.9	.51	4.8
E3A							
E3B							

SEP 3 1986
OCT 27 1986

Mine: Black Mesa N-14 Township:
Core: 20268-C Range:
Section: Date Cored:

Central Laboratory

Lithology	Depth Ft.	Thickness Ft.	Lab No.	Paste pH	Conductivity Paste	Sat.* %	Saturation Extract Na* meq/l	Ca* meq/l	Mg* meq/l	SAR*	ESP*	$NaHCO_3$* P ppm	NH_4OAc* K ppm	Total[1] N PPM
Surface Soil	0.0	0.1	R-8-2278	7.0	0.5	38.3	0.5	0.1	0.1	1.6	1.1	12.7	141.1	<2
Surface Soil	0.1	0.4	R-8-2279	7.6	0.4	38.3	1.4	3.1	0.4	1.1	0.3	6.3	86.6	<2
Surface Soil	0.5	0.5	R-8-2280	7.8	0.4	38.2	1.9	3.2	0.5	1.4	0.7	2.3	50.1	<2
Surface Soil	1.0	1.0	R-8-2281	7.8	0.5	34.2	1.9	3.2	1.6	1.2	0.5	3.1	50.1	<2
Surface Soil	2.0	1.0	R-8-2282	7.8	0.4	34.2	1.9	2.3	0.8	1.5	0.9	2.6	50.1	<2
Surface Soil	3.0	1.0	R-8-2283	7.8	0.4	34.2	2.3	1.8	1.0	1.9	1.5	3.7	54.6	<2
Surface Soil	4.0	1.0	R-8-2284	7.7	0.7	32.2	1.9	2.0	1.4	1.5	0.9	4.0	63.6	<2
Sand (Drill Cuttings)	0.0	10.0	R-8-2285	7.4	3.2	34.2	8.1	26.9	21.3	1.6	1.1	3.7	77.3	[illegible]
Sand (Drill Cuttings)	10.0	4.7	R-8-2286	6.9	3.5	38.3	12.0	16.8	29.4	2.5	2.4	9.2	95.8	<2
Shale (Drill Cuttings)	14.7	3.9	R-8-2287	5.2	4.1	59.1	8.7	26.0	36.7	1.6	1.1	5.8	161.5	<2
Siltstone, Shale	18.6	1.4	R-8-2288	3.8	4.1	52.8	5.0	29.3	27.3	0.9	0.1	2.3	105.8	<2**
Siltstone, Shale	20.0	2.4	R-8-2289	6.8	2.1	44.2	13.8	8.7	5.5	5.2	6.0	2.0	90.0	<2
Blue Coal Seam	22.4	5.7												
Shale	28.1	5.4	R-8-2290	3.3	6.2	57.3	29.0	26.9	35.0	5.2	6.0	12.3	166.6	[illegible]
Sandstone, Siltstone, Shale	33.5	2.2	R-8-2291	7.0	3.2	40.2	21.7	12.0	8.2	6.8	8.1	2.0	95.5	<2
Shale, Coal	35.7	5.6	R-8-2292	5.3	5.6	56.9	49.5	18.7	10.6	12.9	15.0	9.3	193.1	[illegible]
Siltstone, Shale, Argillite	41.3	4.55	R-8-2293	8.2	2.6	36.3	26.6	1.1	0.7	28.0	28.6	2.9	123.1	<2
Sandstone	45.85	4.15	R-8-2294	8.3	1.6	28.5	19.3	1.4	1.3	16.6	18.8	2.0	49.9	<2
Siltstone, Shale	50.0	9.2	R-8-2295	6.8	5.1	52.6	51.9	7.0	4.1	22.0	23.8	3.7	196.7	[illegible]
Yellow Coal Seam	59.2	5.6												
Shale, Siltstone	64.8	6.1	R-8-2296	8.7	1.9	79.7	19.3	0.6	0.3	28.8	29.2	1.7	291.3	<2
Brown Coal Seam	70.9	13.9												
Shale, Siltstone	84.8	5.5	R-8-2297	6.7	2.9	44.2	22.9	5.5	4.6	10.2	12.1	1.7	68.2	<2
Siltstone	90.3	2.9	R-8-2298	6.5	4.0	44.2	20.5	21.2	15.3	4.8	5.5	6.6	100.0	<2
Shale, Coal	93.2	3.9	R-8-2299	3.7	6.6	49.4	37.4	26.4	20.6	7.7	9.2	34.7	88.4	[illegible]
Siltstone, Shale	97.1	2.9	R-8-2300	4.8	4.3	50.5	39.9	8.7	4.9	15.3	17.6	8.1	155.2	[illegible]

*Dry Basis
[1]Total -N is Sum of NH_4-N and NO_3-N
**NH_4 - N <2ppm and NO_3 - N ≥ 1 ppm

Mine: Black Mesa/ Township:
Core: 20268-C N-14 Range:
Section: Date Cored:

Peabody Coal Company
Central Laboratory

*Dry Basis

Lab No.				% Sulfur	*Tons of $CaCO_3$ Equivalent per 100 Tons Material: Max. Req From Total Sulfur	Amount Present By Titration	Amount Needed for Neutrality	Excess $CaCO_3$ Equiv.	% Organic Matter	Particle Size: % Sand	% Silt	% Clay	% Moisture: 1/3 BAR	15 BAR	Available H_2O Hold. Capacity (1/3-15 BAR)
R-8-2278				<0.01	0.31	4.33		4.02	1.3	75.2	11.0	13.8	16.2	4.2	12.0
R-8-2279				0.02	0.63	17.21		16.58	0.9	83.6	2.4	14.0	9.3	3.7	5.6
R-8-2280				<0.01	0.31	11.51		11.20	0.5	82.8	6.0	11.2	8.2	2.9	5.3
R-8-2281				0.02	0.63	8.97		8.34	0.3	88.2	1.0	10.8	7.6	2.6	5.0
R-8-2282				<0.01	0.31	5.27		4.96	0.1	90.0	2.0	8.0	8.6	2.6	6.0
R-8-2283				<0.01	0.31	4.81		4.50	0.1	89.6	0.0	10.4	6.8	2.7	4.1
R-8-2284				0.01	0.31	3.61		3.30	0.1	90.4	1.6	8.0	4.0	1.3	1.7
R-8-2285 (Drill Cuttings)				0.05	1.56	2.36		0.80	<0.1	86.4	2.6	11.0	5.1	2.6	2.5
R-8-2286 (Drill Cuttings)				0.05	1.56	4.38		2.82	0.1	68.4	11.6	20.0	25.6	3.9	21.7
R-8-2287 (Drill Cuttings)				0.03	0.94	3.54		2.60	1.1	16.0	59.0	25.0	34.0	10.3	23.7
R-8-2288				0.45	14.06	-0.91	14.97		5.5	18.0	64.0	18.0	25.0	7.5	17.5
R-8-2289 Coal				0.10	3.13	26.22		23.09	1.9	16.0	64.0	20.0	27.2	4.7	22.5
R-8-2290				1.62	50.63	-0.92	51.55		9.8	19.6	50.4	30.0	25.6	9.7	15.9
R-8-2291				0.23	7.19	20.88		13.69	0.2	45.2	35.8	19.0	24.2	4.2	20.0
R-8-2292				0.64	20.00	17.37	2.63		Coal	13.2	51.8	35.0	21.8	7.8	14.0
R-8-2293 Argillite				0.04	1.25	43.61		42.36	2.7	27.6	42.8	29.6	19.2	5.1	14.1
R-8-2294				0.05	1.56	43.23		41.67	0.8	51.6	30.8	17.6	22.5	2.9	19.6
R-8-2295 Coal				0.79	24.69	38.66		13.97	4.9	19.6	41.8	38.6	25.0	7.7	17.3
R-8-2296 Coal				0.15	4.69	17.34		12.65	4.1	9.6	33.8	56.6	63.6	20.4	43.2
R-8-2297				0.25	7.81	18.59		10.78	3.2	23.6	56.8	19.6	28.3	5.4	22.9
R-8-2298				0.45	14.06	41.36		27.30	2.7	25.6	51.8	22.6	19.0	4.8	14.2
R-8-2299				1.68	52.50	0.78	51.72		Coal	40.6	33.8	25.6	21.2	8.3	12.9
R-8-2300				0.51	15.94	2.44	13.50		4.0	31.6	38.8	29.6	19.0	7.0	12.0

HOLE NO. 20346 - C DRILLER G. Hopkins PAGE

LOCATION S 8120 (est) DATE DRILLED 10-29-77 SUB AREA N 14

E 57000 (est)

ELEVATION 6875 (est)

SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-116	34.1	2.9	4.2	2.2	2.1	.06	6.6
R-9-117	32.1	2.2	5.4	3.7	7.5	.41	6.1
R-9-118	63.7	1.7	8.6	27.3	41.3	.99	3.2
R-9-119	42.6	0.4	3.5	26.7	137.9	1.29	3.0
R-9-120	82.0	1.1	5.5	32.4	28.0	2.20	3.8
R-9-121	48.8	0.7	3.5	30.7	43.8	1.48	3.2
R-9-122	51.0	1.4	7.0	30.7	46.4	1.95	4.3
R-9-123	44.4	0.9	4.5	36.9	38.1	1.46	6.1
R-9-124	50.5	1.3	6.7	33.5	36.2	1.27	6.4
R-9-125	42.3	0.3	2.5	27.8	108.0	.95	4.8
R-9-126	55.7	2.4	12.2	29.0	57.8	1.72	3.2
R-9-127	62.1	2.7	13.5	29.5	36.9	2.02	3.4
R-9-128	56.9	2.4	7.9	10.6	6.8	.14	6.9
R-9-129	46.4	3.1	6.2	4.8	3.3	.03	7.7
R-9-130	40.2	2.1	5.2	8.2	4.2	<.01	7.6
R-9-131	36.1	1.6	5.4	14.8	8.5	.43	6.9

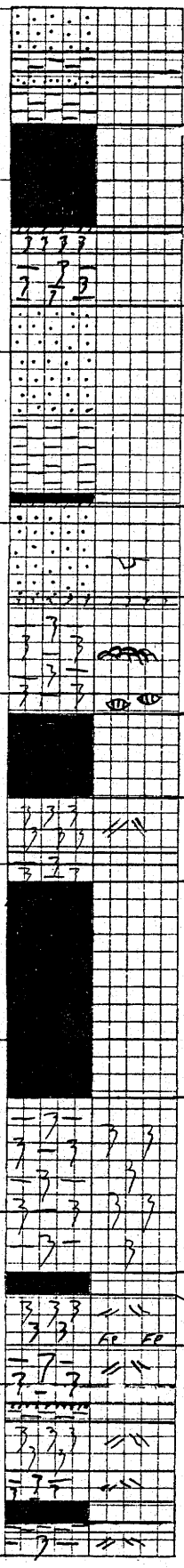
SEP 3 1986
OCT 27 1986

HOLE NO. 20346 - C DRILLER G. Hopkins PAGE

LOCATION S 8120 (est) DATE DRILLED 10-29-77 SUB AREA N-14

E 57000 (est)

ELEVATION 6875 (est)



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
R-9-132	38.1	1.4	4.7	14.8	11.2	.07	7.3
R-9-133	54.9	2.8	9.3	6.2	19.4	.32	7.1
R-9-134	70.2	3.9	9.7	6.2	4.8	.29	7.9
NOX (7-2140-R)	(12.37)	(8.8)		(12438)		(1.11)	6.8
R-9-135	54.7	16.9	72.8	24.4	12.8	1.17	4.1
R-9-136	40.1	16.0	22.8	2.4	1.7	.06	7.2
R-9-137	50.1	16.0	53.3	14.2	8.7	.91	4.9
R-9-138	36.1	8.3	12.0	2.1	2.1	.05	8.0
R-9-139	46.4	4.1	5.8	1.4	0.7	.65	7.4
EOX (7-2141-R)	(10.55)	(6.3)		(13015)		(0.84)	(7.2)
R-9-140	75.5	13.4	6.1	0.2	0.1	.16	8.4
E12 (7-2142-R)	(11.16)	(5.5)		(12068)		(0.51)	(7.9)
R-9-141	44.1	7.1	23.6	21.4	8.9	.44	6.8
R-9-142	53.6	10.6	52.8	26.4	20.9	1.41	4.3
R-9-143	44.2	8.4	28.0	17.0	8.3	.26	6.5
R-9-144	57.1	20.5	68.3	19.2	8.5	1.06	6.3

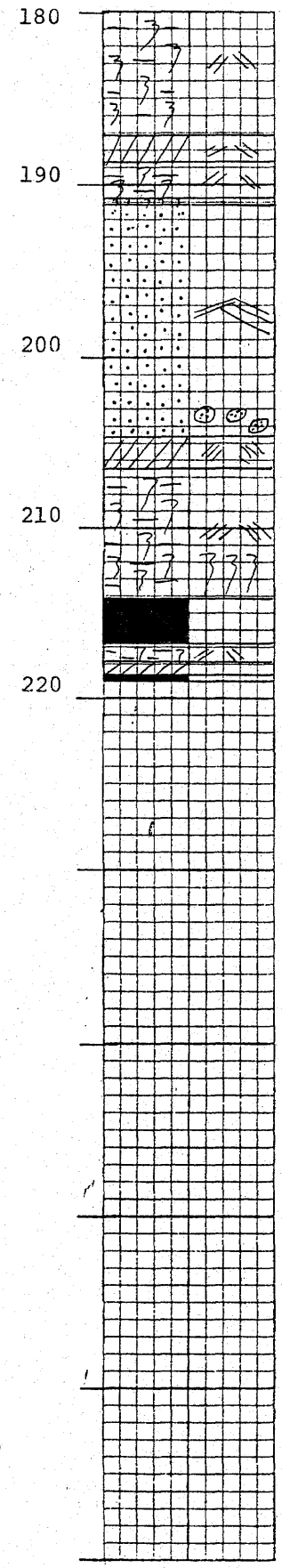
SEP 3 1986
OCT 27 1986

HOLE NO. 20346 - C DRILLER G. Hopkins PAGE

LOCATION S 8120 (est) DATE DRILLED 10-29-77 SUB AREA N-14

E 57000 (est)

ELEVATION 6875 (est)



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
E3B							

499

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20346C
DATE CORED:29OCT1977
DATE REPORTED:15AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SO	0	850001222	.	.	.	.	.	.	.	12	1.1	0	3.4	<5	.
SS	1.5	850001223	6.6	34.1	1	4.2	2.2	2.1	2.9	12	3.33	0	1.6	39	3
SS	9.6	850001224	6.1	32.1	2.5	5.4	3.7	7.5	2.2	24	0.36	0	<0.1	13	1.9
SH	13.6	850001225	3.2	63.7	6.8	8.6	27.3	41.3	1.7	68	3.15	0	<0.1	135	1.2
SL,SH,SS	19.2	850001226	3	42.6	13.6	3.5	26.7	137.9	0.4	25	14.55	0	<0.1	172	-0.7
CO	23.6	850001227	3.8	82	4.9	5.5	32.4	28	1.1	6	2.58	0	0.4	81	0.3
SH,SS	25.7	850001228	3.2	48.8	7.5	3.5	30.7	43.8	0.7	6	0.99	0	<0.1	112	-0.2
SH	28.2	850001229	4.3	51	5.7	7	30.7	46.4	1.4	11	0.87	0	3.1	104	0.7
SL	37.6	850001230	6.1	44.4	5.3	4.5	36.9	38.1	0.9	9	1.26	0	3.1	50	0.1
SH	41.3	850001231	6.4	50.5	5	6.7	33.5	36.2	1.3	15	1.2	0	3	54	0.6
SS	43.4	850001232	4.8	42.3	9.7	2.5	27.8	108	0.3	12	0.54	0	2.5	114	-0.8
SL,SH	45.7	850001233	3.2	55.7	7.2	12.2	29	57.8	2.4	11	0.48	0	1.2	108	2.2
MS	50.9	850001234	3.4	62.1	6.4	13.5	29.5	36.9	2.7	7	<1	0	0.3	54	2.7
SH,SL	52.9	850001235	6.9	56.9	2.2	7.9	10.6	6.8	2.4	4	1.6	0	2.8	14	2.2
SS	57.4	850001236	7.7	46.4	1.4	6.2	4.8	3.3	3.1	4	1.68	0	1.7	14	3.2
SS	66.9	850001237	7.6	40.2	1.6	5.2	8.2	4.2	2.1	5	<1	0	2.4	9	1.8
SS	76.6	850001238	6.9	36.1	2.4	5.4	14.8	8.5	1.6	7	<1	0	1.5	14	1.1
SS	86.1	850001239	7.3	38.1	2.3	4.7	14.8	11.2	1.4	10	<1	0	1.4	18	0.7
SH,SS,AR	92.5	850001240	7.1	54.9	5	9.3	6.2	19.4	2.8	4	1.49	0	1.3	15	2.8
SH	94.6	850001241	7.9	70.2	1.8	9.7	6.2	4.8	3.9	4	2.4	0	1	9	4.3
CO	96.6	COAL													
SL,SH	102.9	850001242	4.1	54.7	8.4	72.8	24.4	12.8	16.9	7	1.46	0	2.1	38	19.1
SS	107.3	850001243	7.2	40.1	2.7	22.8	2.4	1.7	16	11	3.18	0	5.5	10	18.3
SH,CO	113.6	850001244	4.9	50.1	6.4	53.3	14.2	8.7	16	16	2.48	0.2	4.5	25	18.3
SS	119	850001245	8	36.1	1.6	12	2.1	2.1	8.3	14	2.15	0	6.3	7	9.9
SL,SH	124.3	850001246	7.4	46.4	3.5	5.8	1.4	0.7	4.1	11	4.84	0	3.3	21	4.6
CO	131	COAL													
MS,SH	136.3	850001247	8.4	75.5	3	6.1	0.2	0.1	13.4	25	14.75	1.6	5.2	<5	15.7
CO	140.8	COAL													
SL	153.5	850001248	6.8	44.1	4.3	23.6	21.4	8.9	7.1	20	4.95	0	6.1	14	8.4
SH,CO	162.1	850001249	4.3	53.6	7.7	52.8	26.4	20.9	10.6	10	3.62	0	4.6	13	12.6
SL	164.8	850001250	6.5	44.2	4.4	28	17	8.3	8.4	13	6.3	0	7.9	13	10
SH,CO	167.8	850001251	6.3	57.1	7.7	68.3	19.2	8.5	20.5	9	7.05	0	3.9	24	22.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20346C
DATE CORED:29OCT1977
DATE REPORTED:15AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SO	850001222	.	.	.	.		.	.	.	.	.	.	.	.	.	.
SS	850001223	6	20.4	61.7	0.06		1.88	0.18	1.7	.	88.4	2	9.6	4.6	2.7	1.9
SS	850001224	<2	25.3	61.7	0.41		12.81	-0.4	13.21	.	86.4	3	10.6	7.9	2.7	5.2
SH	850001225	4	2.1	102.2	0.99		30.94	-6.41	37.35	.	48.4	25	26.6	22.7	15.1	7.6
SL,SH,SS	850001226	<2	5.5	81.8	1.29		40.31	-4.73	45.04	.	44.4	26	29.6	21.2	7.3	13.9
CO	850001227	<2	3.9	66.5	2.2		68.75	2.99	65.76	.	87.8	2.6	9.6	14.7	13	1.7
SH,SS	850001228	2	7.4	81.9	1.48		46.25	-4.49	50.74	.	47.4	26	26.6	17.5	7.6	9.9
SH	850001229	<2	23.5	198.2	1.95		60.94	23.03	37.91	.	26	32.8	41.2	21.8	8.7	13.1
SL	850001230	<2	35.8	114.8	1.46		45.63	49.93	.	4.3	64	15.8	20.2	12.2	5.4	6.8
SH	850001231	2	8.9	172.4	1.27		39.69	36.32	3.37	.	36	33.8	30.2	15.6	6.8	8.8
SS	850001232	<2	18	76.4	0.95		29.69	1.93	27.76	.	68	12.2	19.8	18.4	6.7	11.7
SL,SH	850001233	<2	5.6	166.1	1.72		53.75	-1.03	54.78	.	44	21.2	34.8	22.4	9.8	12.6
MS	850001234	<2	0.5	284.5	2.02		63.13	3.44	59.69	.	18	29.2	52.8	26.2	12.8	13.4
SH,SL	850001235	2	3.2	236	0.14		4.38	5.4	.	1.02	24	36.8	39.2	19.1	8.1	11
SS	850001236	2	2.7	162.4	0.03		0.94	42.96	.	42.02	42	29.8	28.2	12.8	7.8	5
SS	850001237	2	1.9	128.6	<0.01		0.31	30	.	29.69	60	20	20	11.2	6.3	4.9
SS	850001238	<2	3.6	90.3	0.43		13.44	16.91	.	3.47	73	12	15	10.5	6.1	4.4
SS	850001239	<2	1.4	90.2	0.07		2.19	46.25	.	44.06	73	12	15	10.6	5.4	5.2
SH,SS,AR	850001240	<2	1.9	289.1	0.32		10	34.55	.	24.55	44	11	45	15.4	10.3	5.1
SH	850001241	<2	2.7	425.3	0.29		9.06	16.52	.	7.46	11.6	22	66.4	23.5	15.8	7.7
CO	COAL															
SL,SH	850001242	2	1.5	216.1	1.17		36.56	1.27	.	35.29	32.6	27	40.4	14.5	10	4.5
SS	850001243	2	2	109.3	0.06		1.88	41.52	.	39.64	69.6	14	16.4	9.7	5.9	3.8
SH,CO	850001244	2	4.8	227.8	0.91		28.44	22.95	5.49	.	25.6	37	37.4	13.9	10.5	3.4
SS	850001245	<2	1.1	97.1	0.05		1.56	47.91	.	46.35	71.2	16	12.8	10.3	5.2	5.1
SL,SH	850001246	2	1.2	239.8	0.65		20.31	36.6	.	16.29	26.8	38	35.2	13	8.2	4.8
CO	COAL															
MS,SH	850001247	<2	0.7	320.8	0.16		5	15.52	.	10.52	6.8	38	55.2	44.1	25	19.1
CO	COAL															
SL	850001248	2	2.7	72.8	0.44		13.75	36.7	.	22.95	52.2	30.6	17.2	10.2	6.2	4
SH,CO	850001249	3	11	66.4	1.41		44.06	1.35	42.71	.	54.8	20	25.2	12.7	9.4	3.3
SL	850001250	2	0.7	93.2	0.26		8.13	31.08	.	22.95	61.8	23	15.2	9.5	6.1	3.4
SH,CO	850001251	3	1.3	258.8	1.06		33.13	9.11	24.02	.	25.8	35	39.2	16.9	10.5	6.4

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20346C
DATE CORED:29OCT1977
DATE REPORTED:15AUG1985

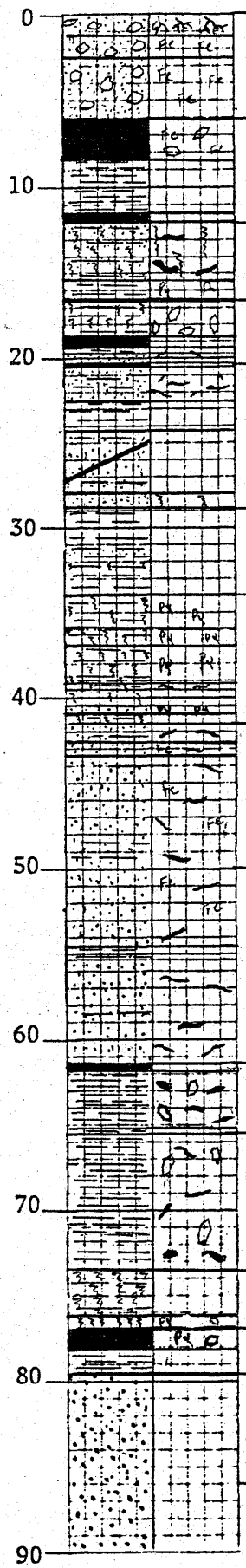
Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SO	850001222		0.1		<0.6	25	<0.1	2.8	6.9	2	<1		.
SS	850001223		0.03		<0.6	16	<0.1	0.4	6.1	1	<1		0.1
SS	850001224		<0.01		<0.6	11	<0.1	0.4	54.3	2.6	<1		0.1
SH	850001225		<0.01		1	30	1.7	2.9	227.3	53.2	8.2		9.6
SL,SH,SS	850001226		0.04		<0.6	17	3.8	1.9	78.8	65.1	8		6
CO	850001227		<0.01		<0.6	<10	0.7	<0.2	43.7	7.6	<1		COAL
SH,SS	850001228		<0.01		<0.6	<10	3.1	1.6	44.7	16.7	6.1		7.8
SH	850001229		<0.01		0.6	14	1.9	2	31.8	12.1	3		6.9
SL	850001230		<0.01		<0.6	<10	1	0.8	39.6	6.3	1.6		4.9
SH	850001231		0.01		<0.6	13	1.1	1.2	17.1	5.8	2.3		4.8
SS	850001232		<0.01		<0.6	11	1.7	1	46.8	8.4	1.6		3.2
SL,SH	850001233		<0.01		<0.6	<10	1	1.3	28.9	2.7	2.2		16.7
MS	850001234		<0.01		<0.6	20	3.3	4.2	109.9	2	7.6		12
SH,SL	850001235		<0.01		<0.6	20	1.6	2.3	51.6	5.7	3.6		2.7
SS	850001236		<0.01		<0.6	11	1.6	2.2	53.3	5.9	3.9		1.4
SS	850001237		<0.01		<0.6	12	1.5	1.7	35.3	5.4	4.2		1.1
SS	850001238		0.01		<0.6	11	1.2	0.9	47.1	6.4	2.6		1.3
SS	850001239		0.01		<0.6	14	1.9	1.9	35	3.5	3		1.2
SH,SS,AR	850001240		<0.01		<0.6	28	1.9	6.8	38	4	6.7		2.4
SH	850001241		<0.01		<0.6	32	1.1	6	36.4	3.4	3.5		3.2
CO	COAL												
SL,SH	850001242		0.21		<0.6	12	2.6	2.8	29.3	1	3.7		11.1
SS	850001243		0.13		<0.6	12	1	0.6	48.8	5.1	2.6		1.9
SH,CO	850001244		0.2		<0.6	18	2	3.3	32.4	4.9	2.7		COAL
SS	850001245		<0.01		<0.6	<10	1.2	0.6	71.1	6.8	1.9		1.1
SL,SH	850001246		0.07		<0.6	17	1.8	3.7	30.6	3.7	3.4		3.4
CO	COAL												
MS,SH	850001247		0.46		<0.6	23	0.7	4.3	26.5	1	2.1		4.6
CO	COAL												
SL	850001248		0.16		<0.6	20	3.2	2	40.7	1.7	1.8		3.6
SH,CO	850001249		0.38		<0.6	14	1.2	1.9	21.4	1.2	1.1		COAL
SL	850001250		0.2		<0.6	16	2	2.5	32.9	1	2.4		3.5
SH,CO	850001251		0.48		<0.6	24	1.8	5.4	19.1	1	2.3		COAL

LOCATION S 7402.0 DATE DRILLED 6-10-85 SUB AREA N-14

E 52417.0

ELEVATION 6969.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001146	41.3	0.4	1.8	37.5	11.2	0.30	5.9
850001147	60.3	0.4	2.1	25.2	18.6	0.81	3.5
850001148	45.5	3.1	14.6	17.9	26.6	0.80	6.8
850001149	41.8	4.8	19.0	19.5	12.5	0.96	6.1
850001150	36.5	5.1	21.0	22.3	11.0	0.71	7.2
850001151	41.4	5.0	23.4	26.9	16.3	1.74	6.7
850001152	43.0	6.8	12.3	3.8	2.8	0.12	8.2
850001153	38.3	6.3	11.0	2.9	3.2	<0.01	8.3
850001154	36.5	3.9	9.2	5.5	5.7	0.01	8.0
850001155	50.1	14.5	24.1	3.8	1.7	3.25	8.3
850001156	56.4	27.9	10.8	0.2	0.1	0.08	9.1
850001157	36.8	30.2	13.5	0.2	0.2	0.12	8.9
850001158	45.7	3.0	7.0	7.4	3.6	0.50	6.9
850001159	38.1	0.6	2.5	22.8	8.8	0.41	3.9
		503					

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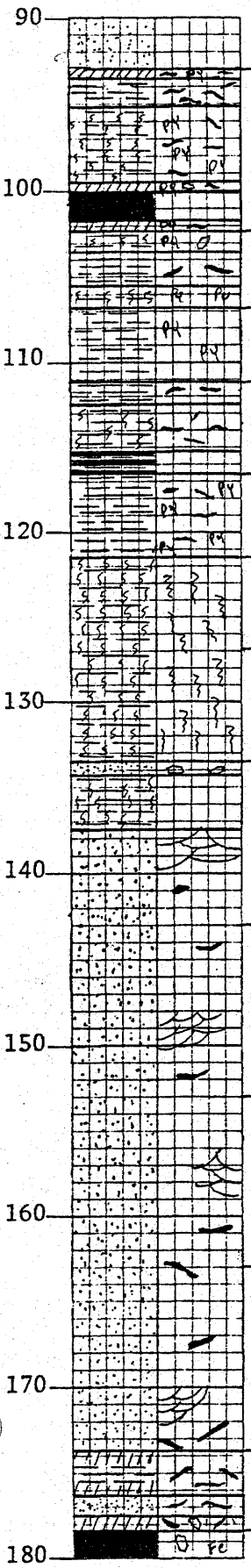
OCT 27 1986

HOLE NO. 26269C DRILLER J. Elliott PAGE 2

LOCATION S 7402.0 DATE DRILLED 6-10-85 SUB AREA N-14

E 52417.0

ELEVATION 6969.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001160	36.2	0.4	1.9	26.1	25.1	0.28	6.4
850001161	41.3	1.5	7.1	26.1	18.6	1.93	5.4
850001162	36.7	13.3	40.5	13.0	5.6	1.98	7.0
850001163	49.6	17.8	47.3	8.3	5.8	2.75	7.7
850001164	38.8	7.5	32.7	26.1	11.7	1.97	6.6
850001165	37.1	24.8	31.9	2.5	0.8	1.81	7.8
850001166	28.3	27.4	17.3	0.5	0.3	0.03	8.6
850001167	28.4	35.6	23.9	0.5	0.4	0.04	8.4
850001168	30.2	18.0	12.1	0.6	0.3	<0.01	8.1
850001169	36.1	6.2	9.0	2.3	1.9	<0.01	7.8
850001170	36.1	3.5	6.6	3.7	3.6	<0.01	7.7
850001171	36.2	1.6	4.1	7.1	6.4	0.02	7.5
850001172	38.7	5.0	14.5	8.7	8.3	2.21	7.0

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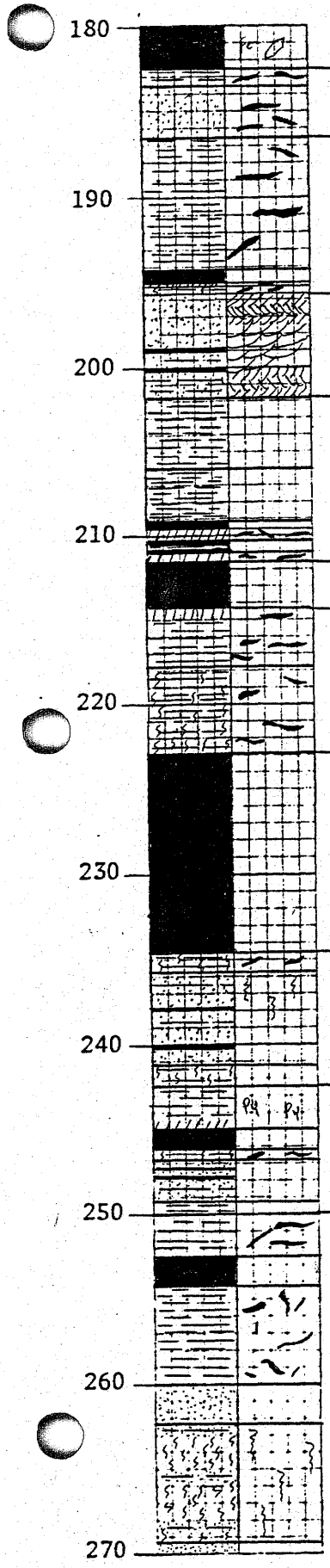
LOCATION S 7402.0 DATE DRILLED 6-10-85 SUB AREA N-14

E 52417.0

ELEVATION 6969.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
NOX	(N/A)	(7.61)		(12,663)		(0.75)	(7.5)
850001173	36.5	66.1	20.9	0.2	<0.1	0.11	8.5
850001174	42.7	49.5	27.1	0.5	0.1	0.85	8.2
850001175	28.1	48.3	18.7	0.2	0.1	<0.01	8.4
850001176	38.8	53.5	29.3	0.5	0.1	0.80	8.2
EOB	(N/A)	(6.22)		(12,976)		(0.59)	(7.8)
850001177	86.2	20.6	11.3	<0.1	<0.1	0.09	9.4
E12	(N/A)	(5.95)		(12,912)		(0.41)	(8.0)
850001178	30.1	25.1	21.7	1.0	0.5	0.25	8.0
850001179	28.3	35.0	28.2	0.9	0.4	0.56	7.8
		505					

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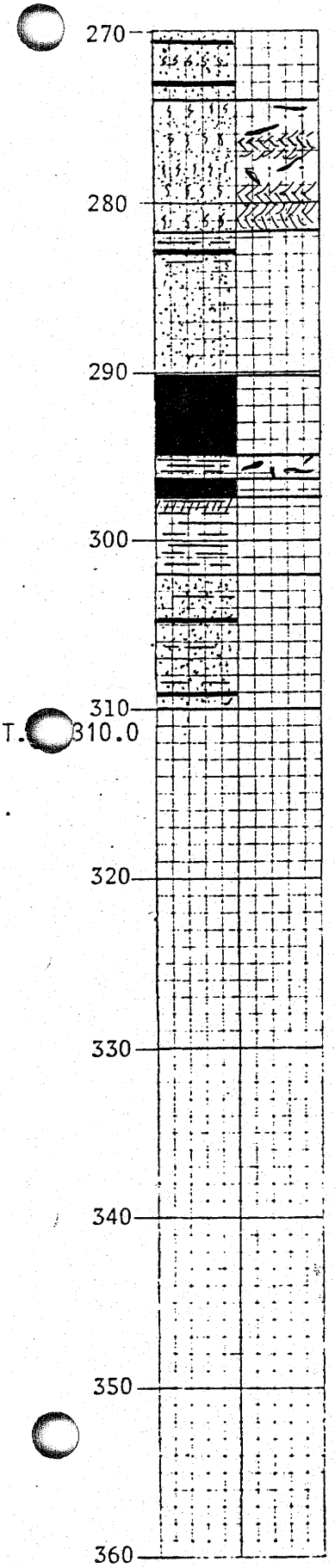
LOCATION S 7402.0 DATE DRILLED 6-10-85 SUB AREA N-14

E 52417.0

ELEVATION 6969.3



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
E3X							
		506					

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26269C
DATE CORED:10JUN1985
DATE REPORTED:15AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SUR.MAT.	0	850001146	5.9	41.3	3.1	1.8	37.5	11.2	0.4	17	1.3	0	2.1	40	-0.7
CO,SH	6.2	850001147	3.5	60.3	3.6	2.1	25.2	18.6	0.4	13	2.75	0	<0.1	37	-0.7
SL,SH,SS	12	850001148	6.8	45.5	4	14.6	17.9	26.6	3.1	10	<1	0	1.3	62	3.2
CO,SH,SL,SS	16.5	850001149	6.1	41.8	3.7	19	19.5	12.5	4.8	6	<1	0	1.6	53	5.5
SS,SH	20.4	850001150	7.2	36.5	3.5	21	22.3	11	5.1	13	<1	0	2.1	37	5.9
SH	28.9	850001151	6.7	41.4	4.4	23.4	26.9	16.3	5	9	<1	0	1.7	63	5.8
SH,SL	34	850001152	8.2	43	1.7	12.3	3.8	2.8	6.8	8	1.5	0	1.7	11	8.1
SS,SH	41.5	850001153	8.3	38.3	1.2	11	2.9	3.2	6.3	14	1.52	0	1.6	14	7.4
SS,SH	50	850001154	8	36.5	1.8	9.2	5.5	5.7	3.9	15	1.22	0	1.5	16	4.3
CO,SH	61.3	850001155	8.3	50.1	2.8	24.1	3.8	1.7	14.5	9	2.01	0	1.7	23	16.8
SH,	65.6	850001156	9.1	56.4	1.2	10.8	0.2	0.1	27.9	7	10.32	0	1.9	<5	28.5
SH,SL,	73.6	850001157	8.9	36.8	1.2	13.5	0.2	0.2	30.2	33	7.24	0	1.1	<5	30.2
CO,SH	76.9	850001158	6.9	45.7	1.5	7	7.4	3.6	3	6	<1	0	1.3	14	3.1
SS	79.6	850001159	3.9	38.1	3.2	2.5	22.8	8.8	0.6	8	8.04	0	<0.1	53	-0.4
SS	86	850001160	6.4	36.2	3.6	1.9	26.1	25.1	0.4	37	1.15	0	1.8	51	-0.7
SH,SL,CO	93	850001161	5.4	41.3	3.6	7.1	26.1	18.6	1.5	7	<1	0	1.5	57	0.9
SH,SL	102.2	850001162	7	36.7	4.9	40.5	13	5.6	13.3	8	<1	0	2.3	56	15.5
SH	106.8	850001163	7.7	49.6	4.6	47.3	8.3	5.8	17.8	9	2.09	0	1.7	53	20
SH,CO	111.1	850001164	6.6	38.8	5.1	32.7	26.1	11.7	7.5	11	<1	0	2.7	65	8.9
SH	116.5	850001165	7.8	37.1	3.3	31.9	2.5	0.8	24.8	7	1.62	0	2	25	26.1
SL,SH	121.4	850001166	8.6	28.3	1.6	17.3	0.5	0.3	27.4	9	3.09	0.2	3	<5	28.1
SL,SH	126.8	850001167	8.4	28.4	1.7	23.9	0.5	0.4	35.6	7	2.37	0.3	3.3	<5	33.9
SS	133.4	850001168	8.1	30.2	1.4	12.1	0.6	0.3	18	17	1.64	0	5.3	10	20.2
SS	143	850001169	7.8	36.1	1.4	9	2.3	1.9	6.2	11	<1	0	2.9	7	7.3
SS,SL,SH	153	850001170	7.7	36.1	1.4	6.6	3.7	3.6	3.5	10	<1	0	2.8	9	3.8
SS	163	850001171	7.5	36.2	1.6	4.1	7.1	6.4	1.6	8	<1	0	1.4	<5	1.1
SH,SS	173.7	850001172	7	38.7	2.8	14.5	8.7	8.3	5	8	<1	0.1	3.8	32	5.8
CO	178.3	COAL													
SH,SS	182.61	850001173	8.5	36.5	1.9	20.9	0.2	<0.1	66.1	21	8.15	0.2	5.8	15	49
SH,CO	186.6	850001174	8.2	42.7	2.7	27.1	0.5	0.1	49.5	12	5.95	0.4	7.2	25	41.8
SS	195.6	850001175	8.4	28.1	1.7	18.7	0.2	0.1	48.3	17	7.4	0.4	10.3	29	41.2
SH,CO	201.8	850001176	8.2	38.8	2.9	29.3	0.5	0.1	53.5	10	6.1	0.1	6	27	43.7
CO	211.6	COAL													
SH	214.21	850001177	9.4	86.2	1.2	11.3	<0.1	<0.1	20.6	11	12.85	0.2	8.1	11	22.6
CO	222.9	COAL													
SH,SS	234.71	850001178	8	30.1	2.5	21.7	1	0.5	25.1	52	4.72	0.1	7.3	15	26.3
SH,CO,SS	242.4	850001179	7.8	28.3	2.9	28.2	0.9	0.4	35	28	4.6	0.4	8.1	14	33.5

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26269C
DATE CORED:10JUN1985
DATE REPORTED:15AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SUR.MAT.	850001146				0.3	.	9.38	20.87	.	11.49	37.6	33.8	28.6			
CO,SH	850001147				0.81	0.18	25.31	3.59	21.72	.	28.6	28.8	42.6			
SL,SH,SS	850001148				0.8	0.51	25	9.46	15.54	.	17.6	48.8	33.6			
CO,SH,SL,SS	850001149				0.96	0.47	30	8.59	21.41	.	41.6	34.8	23.6			
SS,SH	850001150				0.71	.	22.19	42.68	.	20.49	39.6	37.8	22.6			
SH	850001151				1.74	1.4	54.38	22.14	32.24	.	23.6	38.8	37.6			
SH,SL	850001152				0.12	.	3.75	23.62	.	19.87	31.6	36.8	31.6			
SS,SH	850001153				<0.01	.	0	17.64	.	17.64	67.6	14.8	17.6			
SS,SH	850001154				0.01	.	0.31	39.57	.	39.26	71.6	12.8	15.6			
CO,SH	850001155				3.25	0.37	101.56	27.51	74.05	.	25.6	33.8	40.6			
SH,	850001156				0.08	.	2.5	19.67	.	17.17	11.6	40.8	47.6			
SH,SL,	850001157				0.12	.	3.75	27.48	.	23.73	34.6	31.8	33.6			
CO,SH	850001158				0.5	0.31	15.62	5.27	10.35	.	31.6	34.8	33.6			
SS	850001159				0.41	0.34	12.81	2.59	10.22	.	90.6	3.8	5.6			
SS	850001160				0.28	.	8.75	41.3	.	32.55	85.6	7.8	6.6			
SH,SL,CO	850001161				1.93	1.43	60.31	8.84	51.47	.	29.6	39.8	30.6			
SH,SL	850001162				1.98	1.44	61.88	32.01	29.87	.	43.6	28.8	27.6			
SH	850001163				2.75	1.84	85.94	22.81	63.13	.	12.6	42.8	44.6			
SH,CO	850001164				1.97	1.3	61.56	37.87	23.69	.	53.6	26.8	19.6			
SH	850001165				1.81	0.39	56.56	9	47.56	.	12.6	43.8	43.6			
SL,SH	850001166				0.03	.	0.94	48.08	.	47.14	40.6	30.8	28.6			
SL,SH	850001167				0.04	.	1.25	46.36	.	45.11	33.6	31.8	34.6			
SS	850001168				<0.01	.	0	43.73	.	43.73	66.2	20.2	13.6			
SS	850001169				<0.01	.	0	44.81	.	44.81	74.2	16.2	9.6			
SS,SL,SH	850001170				<0.01	.	0	46.93	.	46.93	78.2	15.2	6.6			
SS	850001171				0.02	.	0.62	13.02	.	12.4	83.2	12.2	4.6			
SH,SS	850001172				2.21	0.5	69.06	33.83	35.23	.	43.2	30.2	26.6			
CO	COAL															
SH,SS	850001173				0.11	.	3.44	12.35	.	8.91	35.2	39.2	25.6			
SH,CO	850001174				0.85	0.84	26.56	20.26	6.3	.	25.2	41.2	33.6			
SS	850001175				<0.01	.	0	136.52	.	136.52	61.2	26.8	12			
SH,CO	850001176				0.8	.	25	34.64	.	9.64	29.2	35.2	35.6			
CO	COAL															
SH	850001177				0.09	.	2.81	29.79	.	26.98	12.2	40.2	47.6			
CO	COAL															
SH,SS	850001178				0.25	.	7.81	34.39	.	26.58	53.2	35.2	11.6			
SH,CO,SS	850001179				0.56	.	17.5	26.68	.	9.18	46.2	36.2	17.6			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26269C
DATE CORED:10JUN1985
DATE REPORTED:15AUG1985

Dry Basis

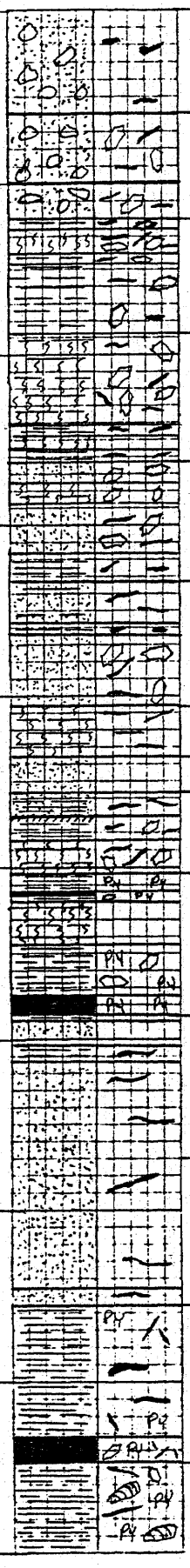
		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SUR.MAT.	850001146		<0.01		<0.6	32	0.2	5.1	236.1	3.9	3		
CO,SH	850001147		0.02		<0.6	<10	4.5	6.1	457.1	11.6	26		
SL,SH,SS	850001148		<0.01		<0.6	<10	3	3.1	27	9.7	6.4		
CO,SH,SL,SS	850001149		<0.01		0.6	<10	3	3.6	53.2	3	6.2		
SS,SH	850001150		0.01		<0.6	<10	2.2	3.6	63.2	15	5.9		
SH	850001151		0.01		0.6	<10	2.9	5.1	58.8	11.4	6.3		
SH,SL	850001152		0.05		0.6	<10	2.4	4.3	42.1	4.9	6.6		
SS,SH	850001153		0.05		<0.6	<10	1	1.4	23	5.1	4.8		
SS,SH	850001154		0.02		<0.6	<10	1	1.5	38.4	3.3	4.5		
CO,SH	850001155		0.18		<0.6	15	1.8	4	38.8	3.3	4.9		
SH,	850001156		0.12		<0.6	24	1.7	5.2	34.1	6.2	4.9		
SH,SL,	850001157		0.25		<0.6	19	1.8	4.2	34.7	3.5	5.6		
CO,SH	850001158		0.05		0.6	<10	2.3	7	33.9	2.2	5.1		
SS	850001159		0.03		<0.6	12	1.4	1.4	275	1.4	5.3		
SS	850001160		0.01		<0.6	12	0.3	0.9	105	5.1	<1		
SH,SL,CO	850001161		<0.01		<0.6	14	1.8	4	134.7	3.9	3.8		
SH,SL	850001162		0.03		0.6	<10	2.6	3.1	82.4	6.3	4.7		
SH	850001163		0.12		<0.6	<10	2.3	4.6	48.5	6.9	3.3		
SH,CO	850001164		0.01		<0.6	13	2	2.1	106.7	9.9	3.4		
SH	850001165		0.21		<0.6	15	2.8	5.3	37.7	1.3	4.4		
SL,SH	850001166		0.06		0.6	11	2.4	3.9	65.4	5.7	3.2		
SL,SH	850001167		0.06		<0.6	13	2.5	4.7	59.5	6.5	3.5		
SS	850001168		0.12		0.6	10	1.3	2.7	48.4	4.2	2.4		
SS	850001169		0.03		<0.6	<10	0.9	1.5	47.6	3.3	3.2		
SS,SLSH	850001170		0.03		0.6	<10	0.7	0.8	38.4	2.9	1.8		
SS	850001171		0.02		<0.6	<10	0.4	0.8	33.7	2.6	2.1		
SH,SS	850001172		0.02		0.6	<10	2	3.9	45.4	3.8	2.3		
CO	COAL												
SH,SS	850001173		0.13		0.6	11	2.5	3.6	22.6	3.3	3.6		
SH,CO	850001174		0.25		0.6	12	1.8	3.6	30.5	4.1	2.8		
SS	850001175		0.08		0.6	<10	1.3	1.1	62.9	7.3	1.4		
SH,CO	850001176		0.23		<0.6	<10	1.5	3.7	26.3	3.1	3.7		
CO	COAL												
SH	850001177		0.22		0.6	17	0.7	4.4	19.3	1	4		
CO	COAL												
SH,SS	850001178		0.25		<0.6	15	2.6	2.3	41.3	1.4	1.4		
SH,CO,SS	850001179		0.24		0.6	<10	1.9	3.1	39.5	2.5	2.3		

206710 PREPARED BY O. ELLIOTT PAGE 1

LOCATION S 8969.0 DATE DRILLED 7-10-85 SUB-AREA N-14

E 51987.0

ELEVATION 6916.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001803	63.1	0.9	4.8	25.5	36.6	0.24	7.5
850001804	51.2	1.2	8.1	24.0	60.8	0.57	4.4
850001805	51.4	0.9	5.0	21.1	40.9	0.50	4.4
850001806	51.0	1.4	4.8	9.8	14.5	0.07	7.8
850001807	40.4	1.6	5.5	9.3	14.3	0.07	7.8
850001808	42.3	1.4	5.5	15.2	17.2	0.07	7.7
850001809	42.6	2.7	6.1	4.9	5.3	<0.01	8.1
850001810	40.3	2.8	7.4	6.8	7.5	0.03	7.9
850001811	49.0	2.8	9.1	12.1	9.5	0.40	7.3
850001812	50.5	4.8	17.4	16.6	9.5	0.90	6.9
850001813	36.4	0.5	2.7	27.4	33.9	<0.01	6.5
850001814	38.3	0.4	2.1	26.4	28.0	0.01	7.3
850001815	37.1	1.0	5.1	26.4	25.8	1.36	5.4
		510					

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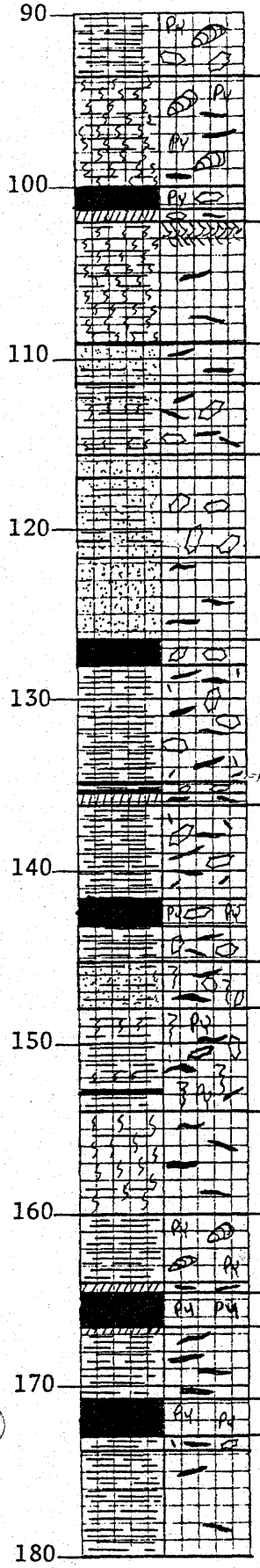
OCT 27 1986

HOLE NO. 26271C DRILLER J. Elliott PAGE 2

LOCATION S 8969.0 DATE DRILLED 7-10-85 SUB AREA N-14

E 51987.0

ELEVATION 6916.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001816	41.2	20.7	49.5	8.2	3.2	2.50	7.3
850001817	39.2	10.2	35.1	17.1	6.4	1.82	6.3
850001818	32.4	5.7	6.6	1.9	0.8	<0.01	8.1
850001819	36.3	2.5	6.1	7.8	3.9	0.06	7.7
850001820	36.7	3.8	5.8	3.3	1.4	0.13	8.1
850001821	36.5	1.7	4.5	9.3	5.1	0.13	7.7
850001822	32.2	0.7	2.3	14.7	10.3	0.04	7.4
850001823	44.3	53.7	38.0	0.8	0.2	1.75	7.8
850001824	66.8	41.7	13.2	<0.1	<0.1	0.20	9.0
850001825	32.3	52.8	16.7	<0.1	<0.1	0.06	8.8
850001826	57.7	107.3	24.0	0.1	<0.1	1.21	8.5
850001827	32.2	50.3	19.5	0.1	0.2	<0.01	8.9
850001828	61.3	59.1	18.7	<0.1	<0.1	0.98	9.1
EOA	(N/A)	(20.43)		(10,843)		(1.91)	(8.1)
850001829	107.3	35.4	11.2	<0.1	<0.1	0.12	9.3
EOB	(N/A)	(11.33)		(12,446)		(0.56)	(8.6)
850001830	75.5	30.4	9.6	<0.1	<0.1	0.03	9.5
		511					

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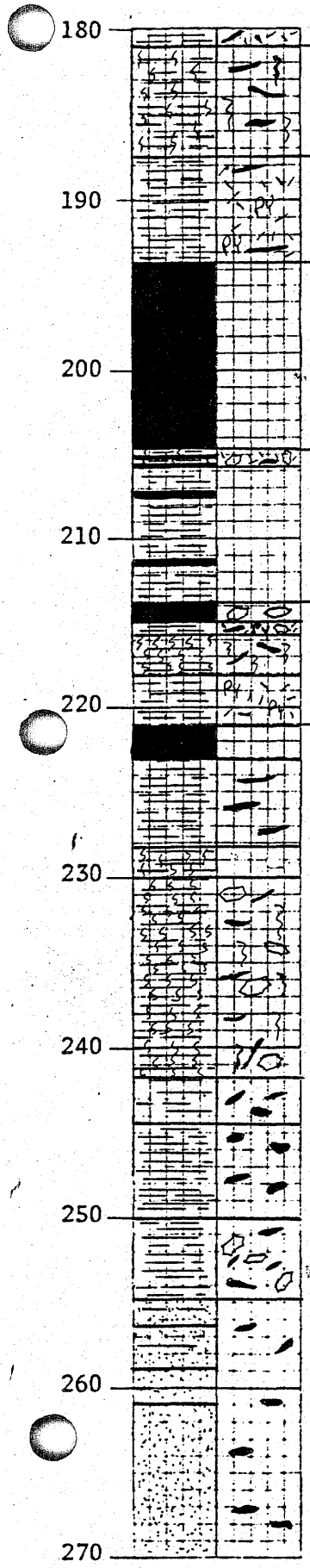
LOCATION S 8969.0 DATE DRILLED 7-10-85 SUB AREA N-14

E 51987.0

ELEVATION 6916.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
850001831	46.6	39.2	12.4	<0.1	<0.1	0.01	9.4
850001832	80.2	36.4	11.5	<0.1	<0.1	0.07	9.4
E12	(N/A)	(5.92)		(13,135)		(0.42)	(8.7)
850001833	30.2	30.4	26.3	1.0	0.5	0.69	8.3
850001834	34.7	34.3	28.7	1.0	0.4	0.55	8.0

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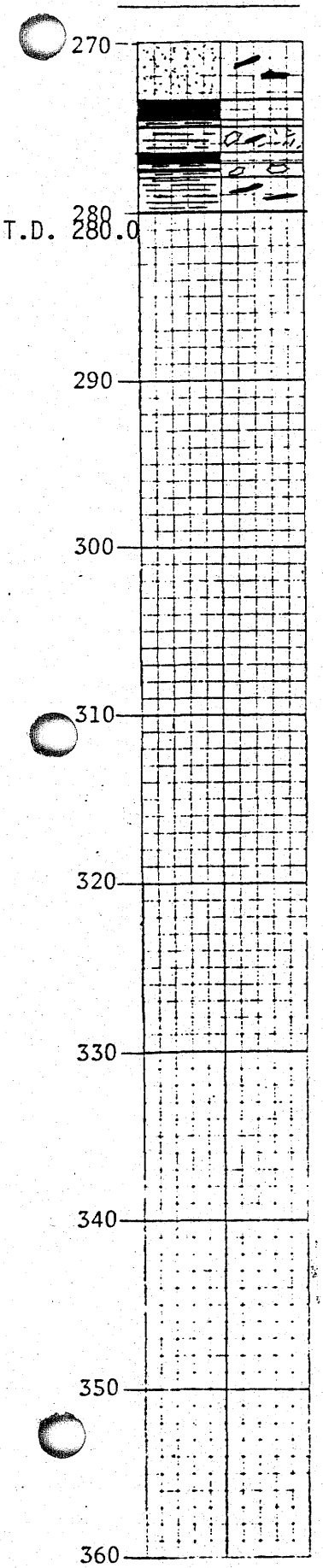
OCT 27 1986

LOCATION S 8969.0 DATE DRILLED 7-10-85 SUB AREA N-14

E 51987.0

ELEVATION 6916.5



SAMPLE NO.	SATURATION % (MOISTURE)	SAR (ASH)	SOL.Na.	SOL.Ca. (BTU)	SOL.Mg	%S	pH
		513					

SEP 3 1986

OCT 27 1986

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26271C
DATE CORED:10JUL1985
DATE REPORTED:30AUG1985

*Dry Basis

					Saturated Paste Extract										
Lithology	Depth	Lab No.	Paste pH	Sat. % *	E.C. mmho/cm	Na meq/l	Ca meq/l	Mg meq/l	SAR	Cl mg/l	F mg/l	CO3 meq/l	HCO3 meq/l	SO4 meq/l	ESP
SUR.MAT.	0	850001803	7.5	63.1	4.2	4.8	25.5	36.6	0.9	44	2.22	0	1.2	66	0.1
SUR.MAT.	6	850001804	4.4	51.2	5.6	8.1	24	60.8	1.2	91	1.03	0	0.2	97	0.5
SH,SL	12	850001805	4.4	51.4	4.5	5	21.1	40.9	0.9	40	1.24	0	0.1	72	0.1
SL,SH	18.8	850001806	7.8	51	2.2	4.8	9.8	14.5	1.4	16	1.92	0	2.1	28	0.8
SS,SL,SH	26.3	850001807	7.8	40.4	2.2	5.5	9.3	14.3	1.6	12	1.45	0	1.8	28	1.1
SS,SH	33.3	850001808	7.7	42.3	3	5.5	15.2	17.2	1.4	13	1.36	0	1.2	45	0.8
SH,SL	40.6	850001809	8.1	42.6	1.4	6.1	4.9	5.3	2.7	8	1.97	0	2.5	13	2.7
SS	43.6	850001810	7.9	40.3	1.8	7.4	6.8	7.5	2.8	8	1.34	0	2.3	20	2.8
SH,SS,SL	45.7	850001811	7.3	49	2.5	9.1	12.1	9.5	2.8	8	<1	0	1.9	31	2.8
SH,CO,SL	50.3	850001812	6.9	50.5	3.5	17.4	16.6	9.5	4.8	8	<1	0	2.8	43	5.5
SS	58.9	850001813	6.5	36.4	4	2.7	27.4	33.9	0.5	17	1.97	0	3.4	62	-0.5
SS	67	850001814	7.3	38.3	3.6	2.1	26.4	28	0.4	32	1.52	0	0.6	56	-0.7
SH,CO	75.7	850001815	5.4	37.1	3.7	5.1	26.4	25.8	1	9	<1	0	1.5	58	0.2
SH	84.8	850001816	7.3	41.2	5.3	49.5	8.2	3.2	20.7	11	<1	0	4.4	61	22.6
SL,SH	93.7	850001817	6.3	39.2	5.3	35.1	17.1	6.4	10.2	7	<1	0	5	66	12.1
SH,SL	102	850001818	8.1	32.4	1	6.6	1.9	0.8	5.7	7	1.5	0	2.9	6	6.7
SS	109.2	850001819	7.7	36.3	1.6	6.1	7.8	3.9	2.5	14	<1	0	2.3	17	2.4
SH	111.5	850001820	8.1	36.7	1	5.8	3.3	1.4	3.8	7	1.42	0	2.4	8	4.2
SS,SH	115.7	850001821	7.7	36.5	1.6	4.5	9.3	5.1	1.7	9	1.12	0	2.4	17	1.2
SS	121.7	850001822	7.4	32.2	2.2	2.3	14.7	10.3	0.7	15	1.01	0	4.3	26	-0.2
CO,SH	126.4	850001823	7.8	44.3	4.3	38	0.8	0.2	53.7	17	2.28	0	2.1	38	43.8
SH,CO	136.2	850001824	9	66.8	1.5	13.2	<0.1	<0.1	41.7	7	12.15	0.8	5.1	7	37.6
SS,SH	145.3	850001825	8.8	32.3	1.7	16.7	<0.1	<0.1	52.8	18	9.8	0.7	7.7	10	43.4
SH	148	850001826	8.5	57.7	2.6	24	0.1	<0.1	107.3	12	7.65	1	7.6	15	61.1
SL	154	850001827	8.9	32.2	2	19.5	0.1	0.2	50.3	24	7.7	1.2	11.5	6	42.2
SH	160	850001828	9.1	61.3	2	18.7	<0.1	<0.1	59.1	12	16.8	1.3	5.8	10	46.2
CO	164.6	COAL													
SH	166.4	850001829	9.3	107.3	1.2	11.2	<0.1	<0.1	35.4	7	16.11	2	4.4	6	33.8
CO	170.7	COAL													
SH	172.9	850001830	9.5	75.5	1	9.6	<0.1	<0.1	30.4	15	15.12	3.1	4.3	<5	30.4
SH	181.1	850001831	9.4	46.6	1.3	12.4	<0.1	<0.1	39.2	28	13.85	1.5	7.7	<5	36.1
SH	187.4	850001832	9.4	80.2	1.2	11.5	<0.1	<0.1	36.4	11	15.25	2.1	6.9	<5	34.4
CO	193.5	COAL													
SH,CO	204.7	850001833	8.3	30.2	3	26.3	1	0.5	30.4	58	5.1	0.3	6.6	22	30.4
CO,SL,SH	213.8	850001834	8	34.7	3.3	28.7	1	0.4	34.3	24	4.19	0.5	5.2	28	33

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26271C
DATE CORED:10JUL1985
DATE REPORTED:30AUG1985

*Dry Basis

							CaCO3 Eq Tons / 1000 Tons *				Particle Size			% Moisture *		
Lithology	Lab No.	* Total N PPM	* NaHCO3 P PPM	* NH4OAc K PPM	* Total S %	* Pyr. S %	Amount Reqd. from S	Amount Present	Amount Needed	Amount Excess	Sand %	Silt %	Clay %	1/3 BAR	15 BAR	Avail. H2O Hold. Cap.
SUR.MAT.	850001803				0.24	.	7.5	40.92	.	33.42	14.2	49.8	36			
SUR.MAT.	850001804				0.57	0.08	17.81	6.38	11.43	.	29.2	33.8	37			
SH,SL	850001805				0.5	0.25	15.62	5.22	10.4	.	31.2	32.8	36			
SL,SH	850001806				0.07	.	2.19	22.16	.	19.97	31.2	34.8	34			
SS,SL,SH	850001807				0.07	.	2.19	21.56	.	19.37	50.8	25.2	24			
SS,SH	850001808				0.07	.	2.19	7.89	.	5.7	66.2	14.8	19			
SH,SL	850001809				<0.01	.	0	49.46	.	49.46	40.2	27.8	32			
SS	850001810				0.03	.	0.94	21.38	.	20.44	68.2	13.8	18			
SH,SS,SL	850001811				0.4	0.33	12.5	6.44	6.06	.	31.2	34.8	34			
SH,CO,SL	850001812				0.9	0.77	28.12	15.65	12.47	.	35.2	31.8	33			
SS	850001813				<0.01	.	0	32.73	.	32.73	75.2	11.8	13			
SS	850001814				0.01	.	0.31	5.69	.	5.38	93.2	2.8	4			
SH,CO	850001815				1.36	1.36	42.5	10	32.5	.	27.2	42.8	30			
SH	850001816				2.5	2.46	78.12	20.17	57.95	.	27.2	36.8	36			
SL,SH	850001817				1.82	1.41	56.88	18.84	38.04	.	54.2	26.8	19			
SH,SL	850001818				<0.01	.	0	36.75	.	36.75	43.2	30.8	26			
SS	850001819				0.06	.	1.88	24.92	.	23.04	59.2	20.8	20			
SH	850001820				0.13	.	4.06	13.26	.	9.2	23.2	41.8	35			
SS,SH	850001821				0.13	.	4.06	20.31	.	16.25	45.2	26.8	28			
SS	850001822				0.04	.	1.25	9.76	.	8.51	82	7	11			
CO,SH	850001823				1.75	1.47	54.69	9.76	44.93	.	41	28	31			
SH,CO	850001824				0.2	.	6.25	14.06	.	7.81	20	36	44			
SS,SH	850001825				0.06	.	1.88	16.44	.	14.56	57	25	18			
SH	850001826				1.21	0.9	37.81	11.48	26.33	.	24	37	39			
SL	850001827				<0.01	.	0	54.4	.	54.4	60	26	14			
SH	850001828				0.98	.	30.62	48.99	.	18.37	12	45	43			
CO	COAL															
SH	850001829				0.12	.	3.75	15.89	.	12.14	<0.1	34	66			
CO	COAL															
SH	850001830				0.03	.	0.94	14.51	.	13.57	16.4	41.6	42			
SH	850001831				0.01	.	0.31	31.72	.	31.41	39.4	33.6	27			
SH	850001832				0.07	.	2.19	13.43	.	11.24	4.4	43.6	52			
CO	COAL															
SH,CO	850001833				0.69	0.69	21.56	20.26	1.3	.	32.4	45.6	22			
CO,SL,SH	850001834				0.55	0.49	17.19	17.15	0.04	.	33.4	34.6	32			

PEABODY COAL COMPANY

CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26271C
DATE CORED:10JUL1985
DATE REPORTED:30AUG1985

Dry Basis

		Hot H2O Ext. *					AB-DTPA Extract *						
Lithology	Lab No.	B PPM	As PPM	Se PPM	TAMM Mo PPM	* Hg PPB	Co PPM	Cu PPM	Fe PPM	Mn PPM	Zn PPM		Organic * Matter %
SUR.MAT.	850001803		<0.01		<0.6	40	<0.1	3.4	27.1	1.2	<1		
SUR.MAT.	850001804		<0.01		<0.6	25	0.5	5.2	248.9	19.9	3.8		
SH,SL	850001805		<0.01		<0.6	<10	3.5	4.7	187.6	17.7	6.5		
SL,SH	850001806		0.02		<0.6	<10	1.5	3.9	33.3	5.2	4.5		
SS,SL,SH	850001807		<0.01		0.6	<10	0.7	2.8	26.1	8	2.7		
SS,SH	850001808		0.01		0.9	<10	0.7	2.1	16.8	3.9	2.1		
SH,SL	850001809		0.01		<0.6	<10	0.7	2.8	40.1	3.8	2.5		
SS	850001810		0.01		<0.6	<10	0.7	1	29.1	2.8	3.1		
SH,SS,SL	850001811		0.02		<0.6	<10	1.7	2.3	31.1	1.7	3		
SH,CO,SL	850001812		0.02		1	<10	1.8	4.2	39.2	4.2	4.4		
SS	850001813		0.02		0.9	<10	1.4	1.8	192	3.2	4.8		
SS	850001814		<0.01		<0.6	<10	0.1	0.3	27.6	2.5	<1		
SH,CO	850001815		0.02		<0.6	<10	2.2	2.7	94	4.8	3.6		
SH	850001816		0.06		0.6	<10	2.3	3.3	55.6	6.1	2.6		
SL,SH	850001817		0.03		1	<10	1.9	1.8	73.7	6.4	2.8		
SH,SL	850001818		0.02		<0.6	<10	1.2	1.4	47	3.9	2.4		
SS	850001819		0.01		<0.6	<10	1.2	1.3	45.2	4	2.6		
SH	850001820		0.01		<0.6	<10	1.2	3.1	50.4	4.7	2.4		
SS,SH	850001821		<0.01		<0.6	<10	1.4	2.6	47	5.6	2.8		
SS	850001822		0.01		<0.6	<10	0.5	0.6	36.9	4.6	1.5		
CO,SH	850001823		0.23		0.6	<10	1	2.4	44.4	1.2	1.3		
SH,CO	850001824		0.25		<0.6	<10	1.2	5.3	32.7	1.4	2		
SS,SH	850001825		0.08		<0.6	<10	1.2	1.5	40.8	3.9	1.7		
SH	850001826		0.22		<0.6	<10	1.6	3.8	37	3.3	2.1		
SL	850001827		0.05		<0.6	<10	1	0.7	84.6	6.9	<1		
SH	850001828		0.17		0.6	<10	1.3	4.4	34.4	2.5	1.7		
CO	COAL												
SH	850001829		0.27		0.6	<10	0.8	5.2	41.8	1	2.4		
CO	COAL												
SH	850001830		0.12		<0.6	<10	0.3	3.5	26.5	1	1		
SH	850001831		0.09		<0.6	<10	0.5	2.1	34.8	1	1.3		
SH	850001832		0.22		<0.6	<10	0.9	5.3	29.8	1	2.3		
SH,CO	850001833		0.35		<0.6	<10	2.2	2.6	33.9	1.3	1.1		
CO,SL,SH	850001834		0.19		<0.6	<10	1.8	4.3	31.2	1	2.4		

2003 DRILLING AREAS

(DEEP CORES)

DEC 2004
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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

DEC 2004
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LITHOLOGIC SYMBOLS AND DESCRIPTORS

(2003 DRILLING)

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

B0X - BLUE 0

B1X - BLUE 1

BXX - BLUE

E0X - 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

APPROVED
DEC 2004

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 (N0X)	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	

DEC 2004 APPROVED

Revised 01/23/04

HOLE NUMBER: 30351EO*
MINE AREA: N99
DATE: 7/8-10/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
38	255.7-263.6	7.9	SH, SL, SS	DGR	
39	263.6-272.9	9.3	SL, SS, SH	DGR	LC: 270.0-271.1
**	272.9-277.7	4.8	CO (E0X)	BLK	
40+	277.7-280.6	2.9	SH	DGR	
**	280.6-289.1	8.5	CO (E1X)	BLK	
41+	289.1-295.7	6.6	SH	VDGR	LC: 290.0-291.4
42	295.7-297.7	2.0	CO (E2X), SH	BLK	NONMINEABLE
43	297.7-300.0	2.3	SS	GR	

* Core boxes 1 through 30, 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: 130.2-130.5, 213.0-213.3, 232.0-232.3, 236.5-236.8, 277.7-278.0, & 289.1-289.4.

APPROVED DEC 2004

DEC 2004
APPROVED

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	CO		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	48	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	N0X													
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	8.0	1.4	0.3	0.1	13.0	27.2	60	12	28	0.40			13.20
297.70	2.30	SS		7.1	3.1	17.0	3.1	17.0	5.4	44	34	22	0.20			5.50

Revised 01/23/04

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	44.50	31.30	0.07	0.12	1.20	0.70
297.70	2.30	SS		22.10	16.60	<0.05	0.09	0.20	0.40

APPROVED DEC 2004

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.

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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	Y0A													
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	N0X													
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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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	N0X						
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

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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

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Revised 01/23/04

HOLE NUMBER: 30353EO*
MINE AREA: N99
DATE: 7/13-14/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
**	275.0-280.0	5.0	CO (EOX)	BLK	LC: 275.0-278.2
40#	280.0-290.0	10.0	SL, SH	VDGR	LC: 280.0-282.0
**	290.0-298.6	8.6	CO (E1X)	BLK	LC: 290.0-297.0
41+	298.6-303.0	4.4	SH	VDGR, BLK	LC: 300.0-302.0
**	303.0-305.4	2.4	CO (E2X)	BLK	
42+	305.4-307.6	2.2	SH	VDGR	
43	307.6-310.0	2.4	SS	GR	

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* Core boxes 1 through 31, 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: 217.20-217.25, 219.6-219.9, 244.6-244-9, 256.4-256.7, 298.6-298.9, & 305.4-305.7.

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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	N0X													
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	7.6	0.8	0.1	0.1	9.7	30.0	57	21	22	0.60	0.10	0.40	4.34
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

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	N0X						
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	13.50	9.17	<0.05	0.13	1.30	0.74
260.60	7.40	SS		127.00	127.00	<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

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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	

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HOLE NUMBER: 30368EO*
MINE AREA: N99
DATE: 8/6/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS

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

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: 87.6-87.9, 132.4-132.7, 146.0-146.8, 147.5-147.8, & 157.0-157.3.

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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 Ratio (SAR)	Sand (%)	Silt (%)	Clay (%)	Sulfur Total (%)	Sulfur Pyritic (%)	Sulfur Organic (%)	Acidity Potential (TN/1000TN)
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	N0X													
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	E0X													
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

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 ABDTPA (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	N0X						
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

APPROVED DEC 2004

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	

DEC 2004

HOLE NUMBER: 30369EO*
MINE AREA: N99
DATE: 8/7-8/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
** +	228.6-243.0	14.4	CO (EO1)	BLK	LC: 240.0-240.5
36+	243.0-252.0	9.0	SH, CO	VDGR, BLK	CO: 247.5-247.8, 250.2-250.8, SILTY
37	252.0-260.0	8.0	SL, SS	GR, DGR	

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* Core boxes 1 through 26, 10 foot of core per box.

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: 86.7-87.0, 154.59-154.62, 156.69-156.73, 157.3-157.6, 177.35-177.38, 178.0-178.3, 181.10-181.18, 182.4-182.7, 235.63-235.71, & 243.0-243.3.

DEC 2004
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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	N0X													
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

Revised 01/23/04

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	N0X						
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

APPROVED DEC 2004

Revised 01/23/04

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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	

APPROVED DEC 2004

HOLE NUMBER: 30370EO*
MINE AREA: N99
DATE: 8/8-9/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
**	220.0-223.0	3.0	CO (E2X)	BLK	LC: 221.0-223.0
34	223.0-235.8	12.8	SL, SS	GR, DGR	LC: 223.0-231.0
35	235.8-237.8	2.0	SH	VDGR	
**	237.8-239.8	2.0	CO (NONE)	BLK	
36#+	239.8-246.0	6.2	SL	DGR	
37	246.0-250.0	4.0	SH, CO	VDGR, BLK	CO: 247.7-248.0, 248.4-248.6, & 249.8-250.0

* Core boxes 1 through 25, 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: 114.1-114.2, 127.8-128.1, 155.80-155.86, 156.50-156.58, 157.10-157.15, 163.3-163.6, 197.0-197.3, 218.4-218.7, & 239.8-240.1.

APPROVED DEC 2004

DEC 2004
APPROVED

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

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	EOX						
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

APPROVED DEC 2004

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	

APPROVED DEC 2004

HOLE NUMBER: 30381EO*
MINE AREA: N99
DATE: 8/9-10/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS

* Core boxes 1 through 21, 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: 90.6-90.9, 126.7-126.8, 129.1-129.2, 129.4-129.7, 147.5-147.9, 151.1-151.4, 156.1-156.6, 158.3-158.6, 176.5-176.8, & 194.6-194.9.

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Revised 01/23/04

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CORE NO: 30381EO

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

Depth	Thick	RType	Rem	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

CORE NO: 30381EO

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

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	10.00	SS		149.00	149.00	<0.05	<0.05	<0.10	0.15
10.00	8.00	SS		83.40	83.40	<0.05	<0.05	0.10	0.12
18.00	3.70	SS		15.50	15.40	<0.05	<0.05	<0.10	0.13
21.70	3.10	SH		5.60	4.96	<0.05	0.06	0.40	0.30
24.80	4.20	SL		-1.61	-27.10	<0.05	0.06	0.40	0.27
29.00	1.80	SH		1.69	-82.70	<0.05	0.08	1.30	1.25
30.80	6.90	SS		20.00	16.20	0.05	0.07	0.20	0.29
37.70	10.00	SS		10.80	10.20	<0.05	<0.05	<0.10	0.22
47.70	6.30	SS		83.70	83.70	<0.05	<0.05	<0.10	0.16
54.00	5.30	SS		18.40	17.20	<0.05	<0.05	<0.10	0.17
59.30	5.70	SS		38.60	30.20	<0.05	0.07	0.20	0.36
65.00	5.00	SL		6.51	-31.60	<0.05	0.08	0.80	0.88
70.00	5.20	SS		85.40	70.80	<0.05	0.12	0.60	0.42
75.20	2.30	SH		8.14	-58.70	<0.05	0.05	1.00	1.66
77.50	7.40	SS		37.80	28.30	<0.05	0.10	0.30	0.54
84.90	3.00	SH		36.40	-31.10	<0.05	0.09	0.60	0.97
87.90	2.70	CO	Y0A						
90.60	1.90	SS		7.57	-8.02	0.06	0.10	0.60	0.75
92.50	3.00	CO		8.87	-14.30	<0.05	0.08	1.80	1.27
95.50	2.20	SS		12.70	7.83	0.07	0.11	0.40	0.66
97.70	2.30	SH		6.03	-23.70	0.06	0.09	1.00	1.17
100.00	4.90	SS		35.40	15.10	0.08	0.13	0.60	0.71
104.90	3.50	SH		7.13	3.57	0.06	0.10	1.00	0.68
108.40	7.40	SS		89.20	77.80	<0.05	<0.05	0.20	0.25
115.80	2.50	SH		5.64	-89.50	<0.05	0.06	0.70	0.58
118.30	8.10	SS		52.00	26.20	<0.05	0.06	0.30	0.38
126.40	3.00	CO	Y1A						
129.40	10.00	SL		34.90	-14.80	<0.05	0.07	0.40	0.63
139.40	5.20	SS		26.80	-4.27	<0.05	0.07	0.40	0.57
144.60	6.50	CO	N0X						
151.10	3.40	SL		15.30	-35.50	0.06	0.11	1.60	0.36
154.50	3.80	CO	N1X						
158.30	2.30	SS		47.80	44.40	<0.05	0.06	0.30	0.24
160.60	1.80	CO		9.70	-8.61	0.05	0.10	1.20	0.55
162.40	7.60	SS		140.00	140.00	<0.05	0.08	0.40	0.20
170.00	2.00	SL		11.70	-23.80	0.09	0.13	0.70	0.24
172.00	4.50	CO	E0X						
176.50	10.20	SS		58.70	58.60	0.05	0.07	0.20	0.18
186.70	7.90	CO	E1X						
194.60	5.40	SH		9.26	6.32	0.17	0.20	0.60	0.21
200.00	8.60	SS		47.80	45.00	0.07	0.10	0.40	0.20
208.60	1.40	SH		21.00	17.10	0.10	0.13	0.60	0.21

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HOLE NUMBER: 30355EO*
MINE AREA: N9
DATE: 7/16,21/03 ELEVATION: 6,772.80'

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

APPROVED SEP 2005

HOLE NUMBER: 30355EO*
MINE AREA: N9
DATE: 7/16, 21/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS

* Core boxes 1 through 21, 10 foot of core per box.

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: 42.6-42.9, 94.5-94.8, 122.15-122.25, 125.0-125.3, 170.05-170.25, 172.7-173.0, 201.1-201.4, & 206.3-206.6.

APPROVED SEP 2005

Revised 01/28/05

SEP 2005
APPROVED

CORE NO: 30355EO

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

Depth	Thick	Lith	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	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	YOX	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	EOX													
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

Revised 01/28/05

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

APPROVED SEP 2005

HOLE NUMBER: 30356EO*
MINE AREA: N9
DATE: 7/21-22/03 ELEVATION: 7,078.54'

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

SEP 2005 APPROVED

HOLE NUMBER: 30356EO*
MINE AREA: N9
DATE: 7/21-22/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS

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

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: 41.5-41.8, 54.9-55.2, 65.1-65.4, 109.4-109.7, 114.0-114.3, 178.4-178.5, 181.1-181.4, & 204.6-204.9.

APPROVED SEP 2005

SEP 2005
APPROVED

CORE NO: 30356EO

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

Depth	Thick	Type	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	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	SL		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	M0X													
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

Revised 01/28/05

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

APPROVED SEP 2005

HOLE NUMBER: 30357EO*
MINE AREA: N9
DATE: 7/22-23/03 ELEVATION: 7,017.15'

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	

APPROVED SEP 2006

HOLE NUMBER: 30357EO*
MINE AREA: N9
DATE: 7/22-23/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
32+	210.0-216.0	6.0	SS	GR	
33	216.0-220.0	4.0	SH, CO	VDGR, BLK	LC: 218.8-219.4
34	220.0-222.0	2.0	SL	DGR	
**	222.0-225.6	3.6	CO (EOX)	BLK	LC: 224.0-225.3
35+	225.6-229.8	4.2	SS, SL	DGR	SHALEY
**	229.8-232.4	2.6	CO (E1A)	BLK	LC: 229.8-230.5
36+	232.4-236.2	3.8	SL	VDGR	
37	236.2-244.9	8.7	SS, SL	GR	LC: 240.6-242.0
38	244.9-250.0	5.1	SS	GR	

* Core boxes 1 through 25, 10 foot of core per box.

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: 37.8-38.1, 67.6-67.9, 115.4-115.7, 118.8-119.1, 159.1-159.4, 174.7-175.0, 210.0-210.3, 225.6-225.9, & 232.4-232.7.

APPROVED SEP 2005

SEP 2005
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CORE NO: 30357EO

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

Depth	Thick	Type	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	YOX													
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	EOX													
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

Revised 01/28/05

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	B0X						
37.80	5.70	CO	B0X	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

Revised 01/28/05

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APPROVED SEP 2005

HOLE NUMBER: 30358EO*
MINE AREA: N9
DATE: 7/24/03 ELEVATION: 6,885.72'

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	SHALE CONCRETIONS
4	26.3-34.2	7.9	SS	YBR, DGRBR	LC: 30.0-31.1, SHALE CONCRETIONS
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 (M1X)	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

APPROVED SEP 2005

HOLE NUMBER: 30358EO*
MINE AREA: N9
DATE: 7/24/03

SAMPLE NO.	DEPTH INCREMENT	THICKNESS	LITHOLOGY	COLOR	COMMENTS
33	191.1-194.0	2.9	SL	DGR	LC: 191.1-191.4
34	194.0-197.6	3.6	SH, CO	VDGR, BLK	
35	197.6-200.0	2.4	SL	GR	

* Core boxes 1 through 20, 10 foot of core per box.

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: 79.4-79.7, 84.1-84.4, 114.5-114.8, 156.15-156.25, 158.1-158.4, 165.2-165.5, & 183.7-184.0.

APPROVED SEP 2005

SEP 2005
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CORE NO: 30358EO

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

Depth	Thick	Rock Type	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	6.30	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	M0X													
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	Y0X													
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

Revised 01/28/05

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	M0X						
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	Y0X						
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

APPROVED
SEP 2005

APPENDIX C

Solid Waste (Non-Coal) Disposal Plan

APPROVED
APR 2000

Solid Waste Disposal

PWCC operated a solid waste landfill at the J-3 coal resource area until it was closed in 1997. The J-3 Landfill Closure reclamation plan was submitted to the regulatory authority in 1998 and subsequently approved. The reclamation plan permit revision is located in AZ-0001 Permit, Volume 54c, Item 31, J-3 Solid Waste Landfill Closure Permit Revision. PWCC has contracted with a solid waste vendor to haul the solid waste off-site to a regulated landfill. PWCC is also working with the EPA and the Tribe on a final J-3 solid waste closure plan. A Solid Waste (Non-Coal) Disposal Plan for the landfill is contained in Appendix C, Volume 12. The plan addresses the kinds of non-coal wastes that were disposed of at the site, the methods used to prevent leachate or surface runoff from degrading surface or ground water, fire prevention, landfill operations, and reclamation. Non-coal wastes shall not be placed within eight feet of any coal outcrop or coal storage area.

No hazardous chemical wastes, radioactive materials, hazardous sludges and liquids, or any other type of hazardous waste will be disposed of within the permit area. All hazardous materials as defined by the Resource Conservation and Recovery Act (RCRA) will be disposed off-site in accordance with applicable Federal and State regulations. Rinse water that is the result of washing blasting agent residue off explosive trucks will be disposed of in active mine pits in a manner such that ground water quality is not degraded and revegetation efforts are not hindered. Currently these active pits are at the J-7, J-16, J-19, J-21, N-6, N-11, and N-14 coal resource areas. As resource areas are reclaimed and mining progresses, an additional active pit will be developed at the N-10 coal resource area. Disposal sites within the active mine pit will be above the ground water table, and away from ponded water. The rinsing will occur on benches in the pit that will be blasted. Residue will therefore be mixed with the shot overburden, coal, or parting material. Chapter 22, Minesoil Reconstruction (Volume 11) describes the procedures used to determine the thickness of suitable plant growth material to be placed on top of the graded spoil. As a worst case, four feet will be placed. To prevent a public hazard, the pits are secured by a combination of fencing, security personnel patrolling the mine site, or mine personnel inspecting the active pit area during work shifts.

APPROVED APR 2000

Equipment tires will be buried in the spoil of active pits at the J-16, J-19, J-21, N-10, N-11, and N-14 coal resource areas. The tires will be buried sufficiently deep in the spoil to ensure the tires never end up in the surface four feet of regraded spoil material. The tires will not be placed in burning material, nor will burning materials be placed above the tires. The burial of tires will not affect the reclamation efforts.

Solid Waste (Non-Coal) Disposal Plan

Introduction

The operation and reclamation plan for the solid waste disposal facility that services the Black Mesa and Kayenta Mines is contained herein. The plan was originally presented in a permit application package submitted to the regulatory authority in January of 1981 which resulted in the issuance of Mining Permit AZ-0001. In the process of preparing the plan, Peabody contracted F.M. Fox and Associates in 1981 to evaluate the use of a portion of the J-3 mining pit as a solid waste disposal site and suggest an operational plan for the facility. The final report resulting from that contract was submitted to the regulatory authority as an Attachment to Peabody's original landfill plan (Volume 22, Tab C, 1981-1985 Mine Plan). The Fox report may be referenced as support for the choice of the J-3 area as a suitable landfill site and because the report recommendations were considered when preparing the operation plan. The plan contained herein includes revisions only to the extent that they update the original plan and make it compatible with pertinent information contained elsewhere in this Permit Application Package.

Site Location

The waste disposal site occupies approximately nine acres within the Navajo Reservation, Navajo County, Arizona, and is located approximately 20 miles southwest of the Town of Kayenta. Specifically, the site is situated within the northeast 1/4, Section 33, Township 36N, Range 17E, GMS. The site is centrally located within the lease area, a mined-out strip-mine pit designated as J-3.

The landfill site is located on the divide between two major drainages; Moenkopi Wash and Coal Mine Wash. It is approximately 1 3/4 miles distance from each drainage. Surface drainage is generally away from the landfill site, with the exception of areas along the eastern and western pit walls (see Drawing No. 85400, Map K-9, and Drawing No. 85405). The disposal area consists of a strip mine pit having a rim elevation ranging from 6575 to 6600 feet and an approximate pit-bottom elevation ranging from 6480 to 6525 feet. The majority of the area surrounding the strip mine pit has been reclaimed and supports vegetation consisting of perennial grasses, forbs, and shrubs.

Geology, Hydrology and Climate

The bedrock at the site of the solid waste landfill is the Wepo Formation of the Mesa Verde Group (Upper Cretaceous Age). The Wepo Formation contains the economically recoverable coal on Black Mesa, and removal of the surface mineable coal has created the void or pit used for non-coal solid waste disposal. This formation consists of intercalated sandstones, siltstones, carbonaceous shales, and coal. These units display a great degree of intertonguing, and both vertical and lateral facies changes occur; characteristics consistent with an inner deltaic environment of deposition.

The Wepo Formation was mined to a depth of 100 to 140 feet in the immediate vicinity of the waste disposal area, and the resulting excavation was partially backfilled with 15 to 20 feet of spoil material. The north side of the landfill site was constructed against undisturbed bedrock (Wepo), while the south side of the landfill was constructed against overburden material (spoil) produced by the previous mining activity.

The Wepo Formation ranges in thickness from 200 to 600 feet within the lease area. It is underlain by the Toreva Formation, also part of the Mesa Verde Group. The Toreva Formation contains upper and lower sandstone members, and a middle member consisting of interbedded carbonaceous shales, variegated siltstones, thin coal beds and some poorly sorted, fine to coarse grained sandstones. The lower sandstone member grades downward into a mudstone which conformably overlies the Mancos Shale (Upper Cretaceous Age). The Toreva Formation is approximately 300 feet thick within the lease area. The surface drainage networks in the lease area cover those portions of the Wepo and Toreva Formations with a thin mantle of alluvium which, along with thin colluvial deposits, are the most recent formations on Black Mesa. The geologic setting at the landfill site is summarized in Figure 1.

As previously discussed, the Mesa Verde Group underlies the landfill site and includes, in ascending order, the Toreva Formation, the Wepo Formation, and the Yale Point Sandstone. The Yale Point Sandstone and part of the Wepo Formation have been eroded away and are not present within the landfill area.

Underlying the Mesa Verde Group is the Mancos Shale which, due to an overall lack of porosity and permeability and its thickness in the lease area (approximately 670 feet), effectively prevents hydraulic connection between the localized aquifers in the Mesa Verde

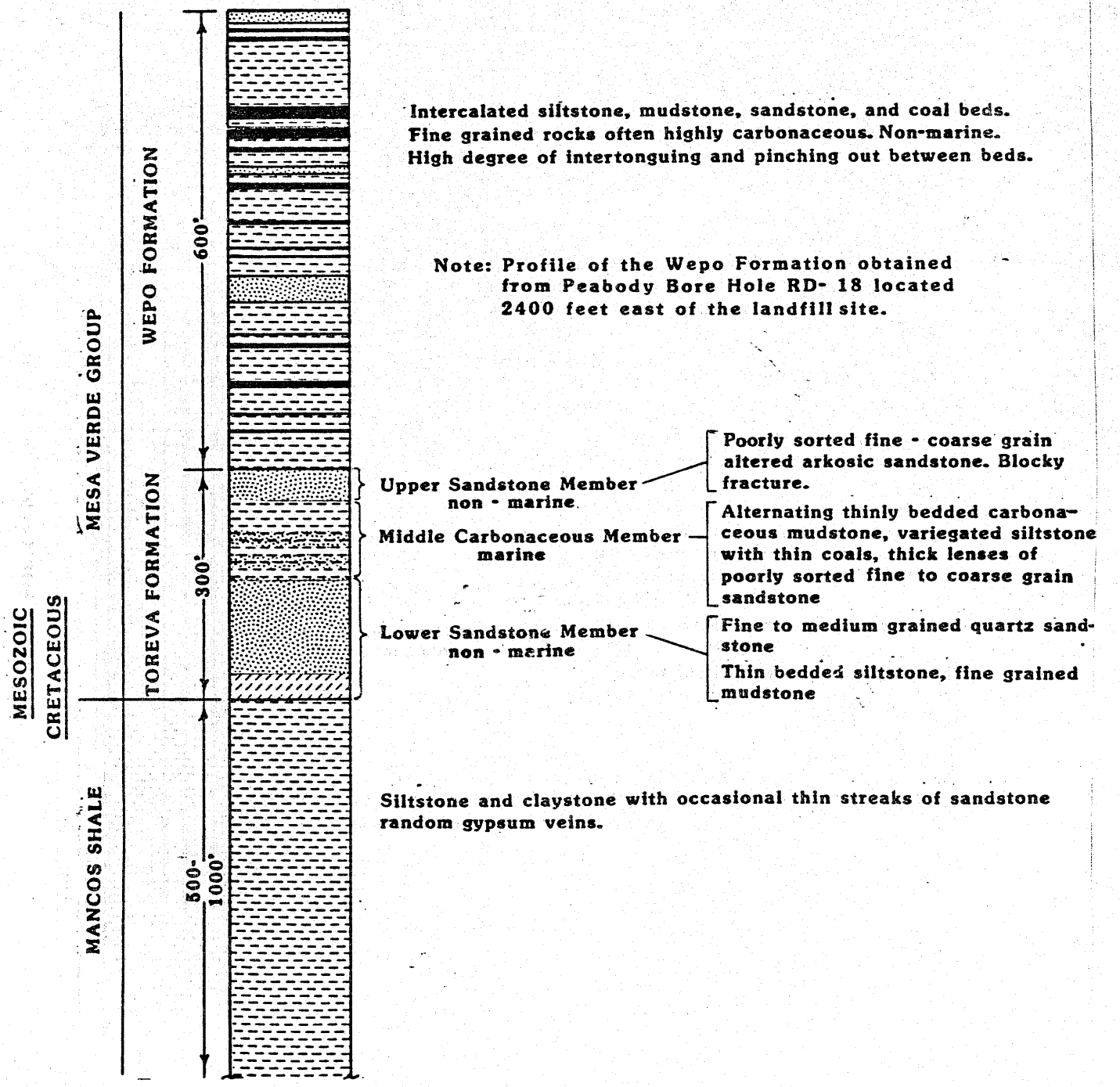


Figure 1. GENERALIZED GEOLOGIC CROSS SECTION

Group and the regional aquifers below the Mancos Shale. The regional aquifers range in depth from 1,100 to 5,000 feet below the surface.

The Wepo Formation (the surficial bedrock at the landfill site) consists of a thick sequence of interbedded and laterally discontinuous shales, mudstones, siltstones, sandstones, and coal beds. The capability of any particular porous and permeable unit in the Wepo Formation as a regional aquifer is very limited due to a lack of vertical hydraulic communication (except for minor fracture communication) and the lack of lateral continuity. The total thickness of sandstone in the formation is small relative to the amount of mudstone, siltstone, and coal.

The sandstone units in the Toreva Formation, generally in the upper and lower parts of the Formation, may have a capability as local or regional aquifers, depending on their degree of lensing and intertonguing with the shales, mudstones, and siltstones. The ground water quality in the parts of the Mesa Verde Group where wells have been completed is generally poor, limiting suitability for drinking, irrigating, or livestock use (Chapters 15 and 16).

Ground water, where found in the Mesa Verde Group, is both under water-table and confined states. Artesian conditions frequently occur in these formations away from the outcrop ringing the Mesa with unconfined conditions occurring near the Mesa rim. Due to the high degree of sandstone bedrock intertonguing, water levels may be variable from place to place. Perched water tables may exist in the Wepo Formation. In areas where the contact between the basal sandstone of the Toreva Formation and Mancos Shale is exposed, ground water discharges as springs. Ground water movement in the Mesa Verde Group is generally in a westerly to southwesterly direction in the Black Mesa area. Structural deformations, synclinal and anticlinal, within the Mesa Verde Group affect ground water flow areally. Recharge to the Mesa Verde Group is from both rainfall and snowmelt. Conduits of recharge to the sandstone aquifers in the group are represented by permeable or fractured and jointed units exposed at the surface, particularly in areas of extensive clinker and along the edges of the Mesa and in the valleys where recharge can occur through stream beds.

Aquifer tests performed on the lease indicate transmissivity values in the Wepo Formation range from .1 to 1,990 gallons per day per foot. Storage values range from 10^{-4} to 10^{-5} which are indicative of confined conditions. The wells that were tested ranged in total depth from 220-350 feet and have multiple perforated intervals opposite the more permeable

zones in the Wepo Formation.

Ground water quality in the Mesa Verde Group and the overlying alluvium is generally poor due to high TDS, sulfate, and alkalinity values. Water in the Mesa Verde Group can be classified as a calcium-sodium bicarbonate or calcium-sodium and calcium-magnesium sulfate water (Chapters 15 and 16). Water in the alluvium can be classified as a calcium-magnesium sulfate, or calcium-magnesium bicarbonate.

The potential for the landfill to impact the ground water systems in the lease area and beyond is extremely low. The support for the above statement is summarized as follows:

1. The bedrock units are discontinuous laterally and vary in composition with depth. This creates a situation of minimal hydraulic connection horizontally and vertically between individual permeable beds.
2. The potential for leachate generation will be limited by site conditions; principally low annual precipitation rates, and low moisture infiltration rates.
3. The Mancos Shale effectively seals off any hydraulic connection between the Mesa Verde Group and the regional aquifers below the Mancos.

A number of test holes and ground water monitoring wells were placed in the vicinity of the site in order to obtain geologic and hydrologic data originally required for the 1981-1985 Mine Plan. Although this information was used for characterizing the site in general, five additional test holes were drilled in March of 1981 by F.M. Fox for the purpose of obtaining site specific data to confirm the existing subsoil and bedrock characterization data and to obtain additional permeability data. The holes were logged by a qualified soils engineer at the time of drilling. All test holes were advanced with a 4 1/2-inch rotary bit drilling with air. Samples of the cuttings were selected for laboratory classification and verification of the test hole logs.

Constant head "stand pipe" and packer type permeability tests were conducted in all test holes drilled at the site. These tests were conducted to determine mass permeability information and the permeability of individual soil or bedrock types. All tests were run for a sufficient time period to allow permeability measurements to be made under nearly saturated conditions. Refer to Table 1 for a summary of the field permeability test results.

The bedrock at the site consists of interbedded shales, siltstones, sandstones, and coals.

TABLE 1

SUMMARY OF FIELD PERMEABILITY TEST RESULTS

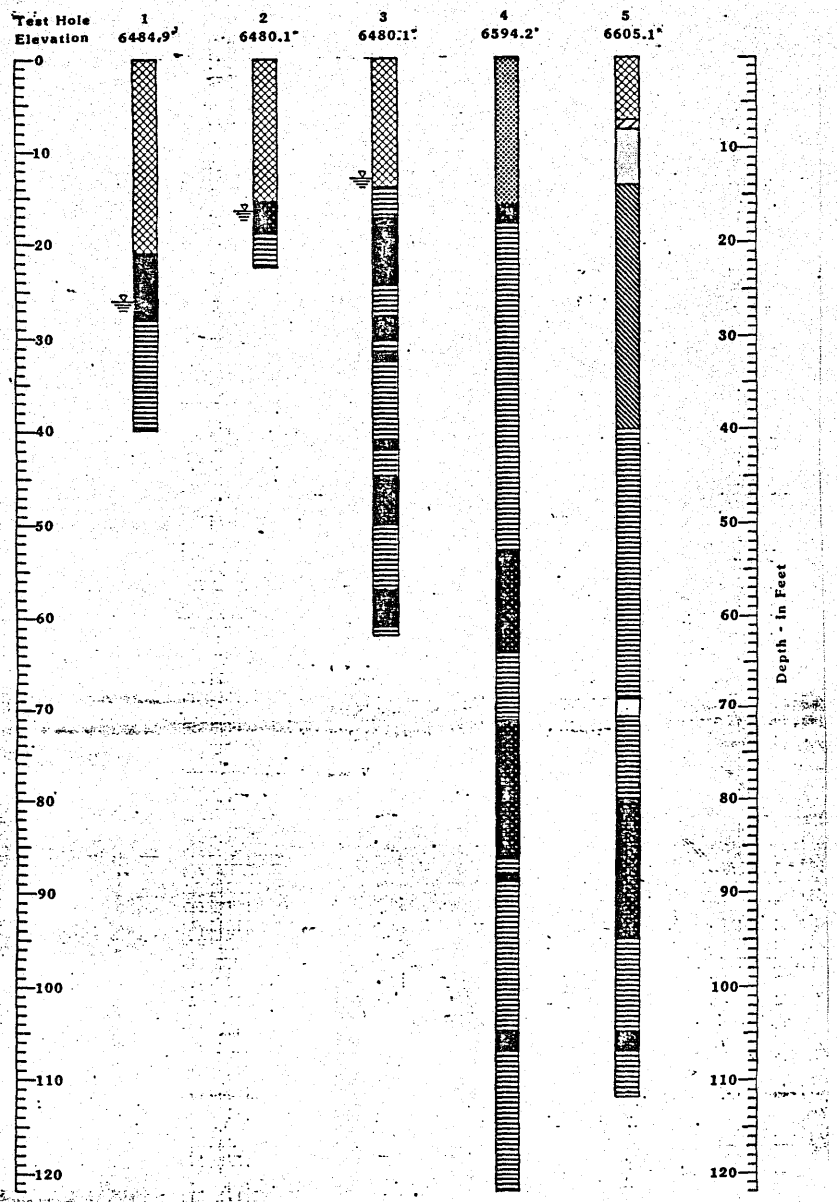
Test Type	Bedrock Type	Interval (ft.)	Test Type	Permeability (cm/sec)
TH1	Shale	35-40	Packer	1.0×10^{-7}
TH2	Spoil	2	Stand Pipe	2.3×10^{-5}
TH3	Carbonaceous Shale and Coal	24-29	Packer	2.7×10^{-5}
TH3	Shale	14	Stand Pipe	1.7×10^{-7}
TH3	Shale, Coal, Sandstone	38-62	Packer	3.4×10^{-6}
TH3	Spoil	2	Stand Pipe	6.6×10^{-3}
TH4	Sandstone (fine grained)	67-81	Packer	1.0×10^{-5}
TH4	Shale, Coal, Sandstone	85-122	Packer	1.8×10^{-6}
TH5	Sandstone (coarse grained)	26-42	Packer	1.5×10^{-4}
TH5	Shale, Coal, Sandstone	67-112	Packer	3.1×10^{-6}

The strata vary with depth and are frequently discontinuous across the site. Refer to Logs of Test Holes (Figure 2) and subsurface strata section (Figure 1) for further information. Field permeability tests conducted at the site indicate varying permeabilities for the different strata encountered (see Table 1).

Test Holes 1, 2, and 3 (see Plate I, Attachment 1) were drilled along the pit floor. Logs of these test holes indicate approximately 15 to 20 feet of spoil material have been placed in the pit. The constant head in-situ permeability tests performed in the spoil material (mixture of shale, sandstone, siltstone, and coal) indicate permeability coefficients of 2.3×10^{-5} cm/sec and 6.6×10^{-3} cm/sec. In-situ permeability tests conducted in the underlying strata indicated permeability coefficients on the order of 10^{-5} to 10^{-6} cm/sec for the sandstone, carbonaceous shale, and coals, and 1×10^{-7} cm/sec permeability coefficients for the underlying shales. Water was encountered in all three test holes in the pit bottom with water elevations ranging from 6460.1 to 6467.1; approximately in the same elevation of the shale with the underlying shale being dry.

In addition to the three test holes placed along the pit floor, two test holes were placed along the northern edge or highwall side (Plate 1, Attachment 1). The two test holes were drilled to a depth of 122 feet and 112 feet. Two types of sandstone encountered during drilling exhibit the highest permeabilities of the bedrocks tested. One sandstone type is fine grained with a permeability coefficient of 1.0×10^{-5} cm/sec; and the other sandstone type (found only in test Hole 5 between 14 and 40 feet below the top of the highwall) is coarser grained and exhibiting a permeability of 1.5×10^{-4} cm/sec. Mass permeability tests conducted over large test intervals involving several bedrock types indicate an average permeability of 2.8×10^{-6} cm/sec.

Water was not encountered at the time of drilling in either test holes 4 or 5. However, the bore holes were not held open to allow for future monitoring of water table conditions. Test hole 4 is located directly between MW86 and MW90, approximately 100 feet west of MW86 and 240 feet east of MW90. Test hole 5 is located approximately 300 feet northeast of MW86. From surveyed elevations and water table depths obtained in January 1981, it was established that the water level elevation is 6497.01 for MW90 and 6479.47 for MW86 (MW86 and MW90 are located 340 feet apart). As previously stated, test holes 4 and 5 were advanced to a bore hole bottom elevation of 6471.2 and 6491.1, respectively, without encountering ground water. These site specific ground water conditions (variable water levels) are consistent with the general hydrologic conditions characteristic of



LEGEND

- Spoil, mixtures of SHALE, SANDSTONE, SILTSTONE and COAL
- COAL
- SHALE with interbedded SANDSTONE and SILTSTONE, small coal lenses (< 1/2), slightly moist to moist, hard to very hard, grey
- SANDSTONE BEDROCK, fine grained, silty, slightly moist to moist, very hard to extremely hard, grey
- CLAYSTONE BEDROCK, medium moist to moist, medium hard, yellow brown to brown
- CLAY, medium moist, medium stiff, brown to grey (CL)
- SAND, silty, slightly moist to medium moist, medium dense to dense, yellow-brown to red brown (SM)
- SANDSTONE BEDROCK, medium grained, slightly moist, very hard, yellow brown

NOTES:

1. All test holes drilled with air with rotary drill rig between 3/23/81 and 3/26/81.
2. ▽ Water level at time of drilling.

Figure 2. LOGS OF TEST HOLES

existing at the landfill site location have very limited or no hydrologic connection.

While the five F.M. Fox test holes were valuable for obtaining permeability information, they were not left open long enough to define actual water table elevations. To check this assumption, three additional test holes were drilled by Peabody Coal Company in June of 1981. These holes were located at the present pit bottom of the proposed landfill, approximately on the east and west ends, with one drilled near the middle of the pit. These holes showed a variable depth to water from the present pit bottom when checked three days after drilling; however, they showed a consistent elevation of local water table, between 6470 and 6475 feet. This compares reasonably well with the water level in MW86. The closest water to the surface of the pit bottom was 8.65 feet in depth, on the west end of the pit.

Some of the shallow ground water could be attributed to the 3 to 4 feet of standing surface drainage water that was in the pit prior to backfilling of the pit in 1980. The presence of this water does not appear to preclude the use of the pit as a landfill.

A complete discussion of the climate on Black Mesa, Peabody's meteorological monitoring network, and lease area specific weather data is contained in Chapter 11.

Landfill Design

The site has direct access from a well-maintained paved roadway running along the western boundary. An unpaved road presently extends from the paved road to the western portion of the strip mine pit. A ramp has been constructed that extends into the pit bottom.

The operational life of the landfill will coincide with the life of mining activities which are scheduled for approximately 25 years. Based upon the waste volume calculations, only 527 yd^3 of uncompacted waste materials will be disposed of each month. Assuming a final in-place density (compacted) of 740 lbs/yd^3, a total volume of 42,730 yd^3 of refuse will be deposited in the strip mine pit which can accommodate approximately 420,000 yd^3 of refuse.

The results of geologic and hydrologic investigations, soils, and waste analyses, aquifer tests and climatology considerations indicate a low potential for the proposed landfill to impact the ground water systems in the lease area and beyond. Based on these facts, no

leachates should be generated, and lining of the pit with a low permeable material was considered unnecessary. The soil required for the landfill construction is obtained from the existing spoil area constituting the south wall of the pit. Specific locations of excavations into the spoil wall will be determined in the field by a qualified engineer.

The landfill site will be constructed using the area fill method. In general, incoming waste materials will be deposited at designated areas of the strip mine pit bottom to create a working face. The waste will be spread on the working face and subsequently compacted. Soils required for weekly and final cover are obtained from the existing spoil material located along the southern wall of the pit. The placement of incoming refuse will generally progress from east to west. The specific filling plan and the sequence of operation are discussed in the Landfill Operation section.

Upland surface drainage controls have been designed in order to minimize water inflow directly into the pit bottom. The only moisture to enter the landfilling area will be that amount of precipitation falling directly into the pit itself.

Because the majority of landfill activity occurs within the pit, windblown trash has not been a problem. Windblown trash escaping from the pit will be periodically collected and returned to the pit as necessary.

Landfill Operation

A number of site development features were constructed. Construction activities include impoundments to receive water from overland flow, a retention/evaporation pond capable of accumulating that amount of precipitation falling directly into the pit itself, and an access road approximately ten feet above the pit floor along the spoil wall. Design plans and calculations for each required pond are presented in Chapter 6, Attachment H (i.e., Pond LF-1, LF-2, and LF-3).

The bottom of the pit has been prepared prior to refuse disposal. Spoil material has been placed in the pit bottom so that runoff will flow westerly along the pit floor and northerly along the highwall before going into the retention/evaporation pond.

Access will be off a well-maintained paved roadway running along the west border of the landfill. An unpaved road extends from the paved road to the landfill. A ramp extending

into the pit bottom will have a downhill grade less than 10 percent and a minimum road width of 24 feet to accommodate two-way traffic.

Waste materials accepted at the site will be limited to individual household trash, packaging wastes, and specified mining wastes such as scrap metal, air cleaners, drained oil filters, oily rags, empty bulk oil drums, and assorted packaging and container wastes. Placement of non-coal wastes within eight feet of any coal outcrop or coal storage area is prohibited. No chemical wastes, radioactive materials, sludges, liquids, or any type of hazardous waste will be disposed of at this facility. A permanent sign will be posted listing nonacceptable wastes for disposal. Additional signs will be placed in the pit to direct vehicles to dumping points.

The disposal lifts will begin in the east central portion of the strip mined pit and progress in a westerly direction until it joins with the incoming access ramp. After these series of lifts are completed and two feet of fill material have been placed on top of the refuse material and compacted, a new series of lifts will begin at the eastern end of the pit and again progress towards the west end of the pit (refer to Figure 3).

Incoming refuse vehicles will approach the working face along the access road extending to the base of the pit and along the spoil wall. The working face to be developed will be a minimum of 30-foot wide and will be constructed from the access road in a northerly direction terminating at the pit highwall. Each individual lift is then oriented north-south. The refuse lift will have an average height of 8 to 10 feet, and the working face will slope approximately 25 degrees. The incoming waste is unloaded from the top of the access road onto the working face, spread by a dozer into approximately two-foot layers and compacted by running the dozer over the last layer. The dozer then removes soil from the spoil area and applies six inches of top cover weekly. Two feet of top cover is then applied upon completion of each lift.

The majority of wastes generated at the site are non-putrescible and will not contribute to problems with the vector control.

Measures which will be taken to control potential vectors include the covering of the wastes, fencing to keep out large animals, and prevention of water ponding in the fill area.

Signs will be posted which state that no trash burning will be allowed. If a fire occurs

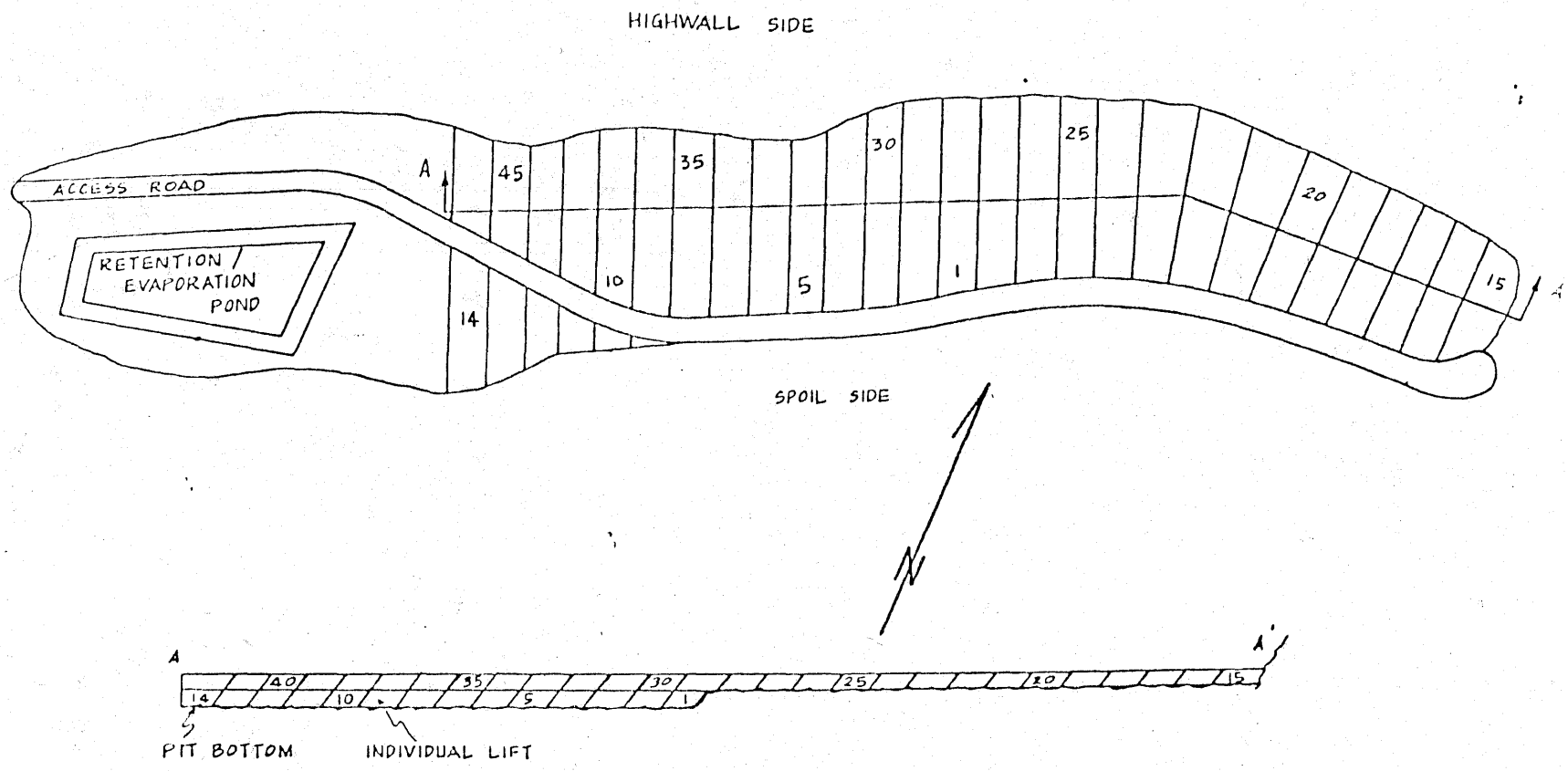


Figure 3. OPERATIONS SEQUENCE PLAN

at the landfill site, it will be controlled by application of a spoil material cover. Spoil material stockpiled adjacent to the site will be used for this purpose. All equipment operators keep working fire extinguishers on their machines which may also be used to control small fires. Range fires, should they be ignited, will be controlled by standard range fire control techniques.

Dust resulting from landfilling operations will be controlled by wetting down the access roads and operational areas with water. The wetting will be done daily or as deemed necessary by the landfill supervisor.

The landfill will be open five days a week, 7:30 a.m. to 5:30 p.m., except on holidays.

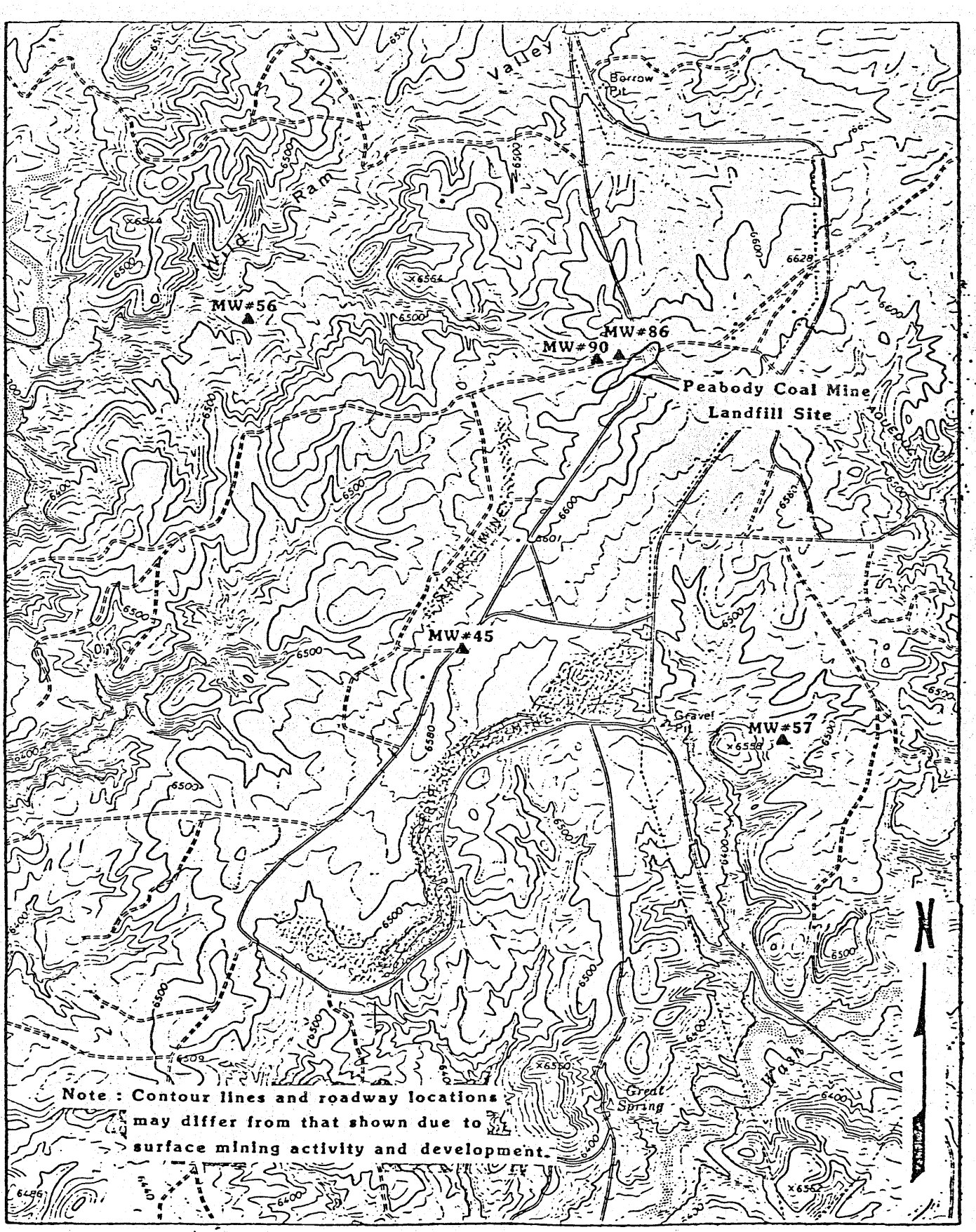
Environmental Monitoring

Ground water quality in the Mesa Verde Group and the overlying alluvium, although highly variable, is generally of limited use for drinking, irrigation, or livestock watering due to high total dissolved solids, sulfate and alkalinity values. Water in the Mesa Verde Group can be classified as a calcium-sodium sulfate water. The variability in water quality can probably be attributed to the limited hydraulic connection between permeable units comprising the aquifers.

As previously indicated, the hydraulic conductivity between water bearing units is limited geologically (i.e., generally by anticlines, synclines, and monoclines, and specifically by noncontinuous interbedded sandstones, siltstones, coals, and shales).

Water quality in the vicinity of the landfill site will be observed by monitoring five existing monitoring wells. The five existing wells, MW-45, 56, 57, 86, and 90 were completed during 1979 and 1980 and are sampled according to provisions outlined in Chapter 16, Hydrological Monitoring Program in the 1981-1985 Mining Plan. All monitoring wells are located within a one mile radius of the site and are shown on Figure 4. The absence of leachate found within the landfill mass itself will be verified by observing three monitoring wells to be installed following landfill construction and placement of the final backfilling and reclamation materials.

All monitoring wells are installed in the Wepo Formation to maximum depths ranging from 252 to 347 feet and perforated where the drillers log indicated first ground water was



Source: U.S.G.S. Great Spring Quadrangle (Topo 7.5 Series) Scale: 1" - 2000

Figure 4. WATER QUALITY MONITORING WELL LOCATIONS

encountered and opposite the more permeable rock units indicated on the geophysical logs. The wells are gravel packed with peak gravel and sealed at the surface with a concrete plug to prevent surface water infiltration.

The five monitoring wells were sampled on a quarterly basis to establish baseline water quality. Thereafter, water quality parameters have been monitored on a semi-annual basis. Water quality parameters analyzed for are indicated on Table 2. Two additional parameters, toluene and dissolved organic carbon, will be determined because of the deposition of drained oil filters in the landfill. Analyses for pH, conductivity, and temperature as well as a water level are performed in the field at the time the water samples are collected. All sample collection, preservation, and analyses is performed in accordance with accepted EPA procedures. Within six months of detection of leachate, or other liquid pollutants, Peabody will develop, submit to OSMRE and implement, following approval, a plan containing appropriate mitigation measures.

Due to a number of factors, i.e., low refuse moisture, relatively low organic content and low refuse volumes, decomposition and subsequent methane gas generation at the site will proceed at a very slow rate. The methane gas pressures that may develop with the landfill mass will be relieved by venting the gases into the atmosphere. Venting will be accomplished by the installation of three interior wells (see Plate 3, Attachment 1). Details pertaining to monitoring vent well construction are indicated in Figure 5. The vent wells will be installed after reclamation down to the base of the landfill mass. These wells will also be utilized to confirm the presence or absence of leachate. The monitoring frequency will be on a semi-annual basis. No methane gas monitoring has been recommended at the site. However, no permanent building or subsurface utility line will be constructed within 1000 feet without first checking for methane gas migration.

Landfill Closure and Reclamation Plan

The life expectancy of the solid waste landfill is approximately 25 years. Upon the completion of refuse placement, a final cover of spoil and topsoil material will be applied in accordance with the Minesoil Reconstruction Plans contained in Chapter 22 (Volume 11). The final lifts will be placed at the site in such a manner that the reclaimed elevations result in a configuration which insures that water cannot pond directly above the area.

The landfill is included in the current disturbance area statistics for the leasehold (Volume 11, Chapter 22, Page 21). It therefore has been included in the topsoil liability

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TABLE 2

Water Quality Parameters to be Analyzed as Part of the Hydrologic Monitoring Program

Total Hardness
pH
Dissolved Oxygen (stream samples only)
Biological Oxygen Demand (BOD)
Chemical Oxygen Demand (COD)
Acidity
Conductivity
Alkalinity
Bicarbonate
Calcium
Magnesium
Sodium
Chloride
Fluoride
Sulfate
Aluminum
Potassium
Silica
Iron (Dissolved)
Iron (Total)
Ammonia N
Nitrate N
Nitrite N
Phosphate
Turbidity
Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Boron
Cyanide
Manganese (Dissolved)
Mangangese (Total)
Barium
Arsenic
Selenium
Mercury
Chromium
Copper
Lead
Silver
Zinc
Antimony
Cadmium
Molybdenum
Nickel
Vanadium
Temperature
Toluene
Dissolved Organic Carbon

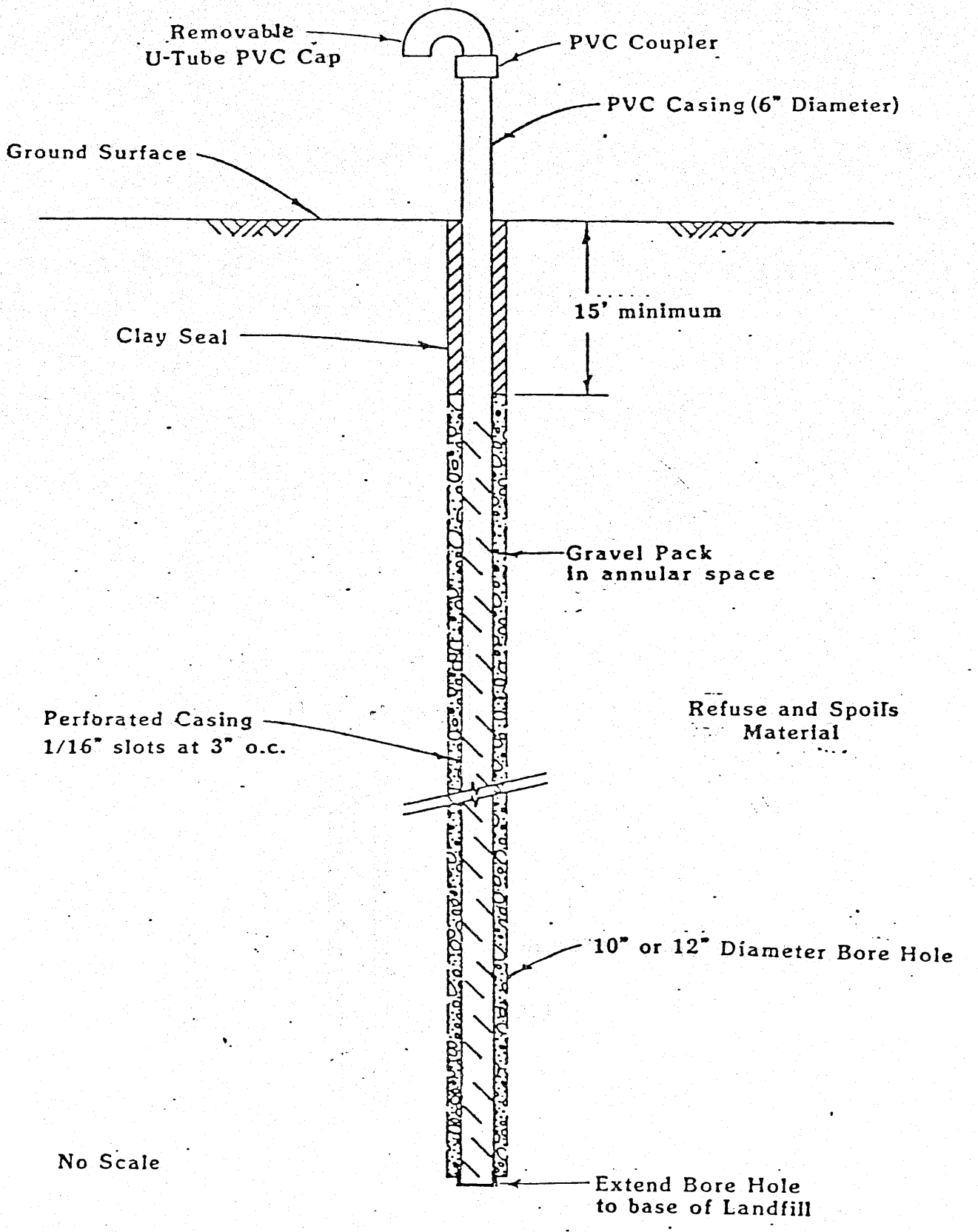

Figure 5. TYPICAL CROSS SECTION OF METHANE GAS VENT WELL

acreage. The J3-2 topsoil material stockpile (Volume 11, Chapter 22, Page 5) is the source for the topsoil material needed to reclaim the site.

Reclamation will begin immediately following the completion of refuse placement to encourage rapid establishment of a minesoil and perennial vegetation cover. This is important with regard to minimizing the amount of infiltration of precipitation into the landfill mass. The revegetation and associated methods (mulching, fertilization, and stabilization) will be consistent with those presented in the Revegetation Plan (Volume 11, Chapter 23).

91/04/15-07

FOX Consulting Engineers and Geologists

F. M. FOX & ASSOCIATES, INC.
4765 INDEPENDENCE STREET
WHEAT RIDGE, COLORADO 80033
(303) 424-5578

August 20, 1981

Peabody Coal Company
Arizona Division
1300 South Yale
Flagstaff, Arizona 86001

Attention: Mr. Fred W. Fest, III
Manager, Compliance Engineering

Subject: Design and Operational Plan for a Landfill Disposal Site Servicing Black Mesa and Kayanta Mines Located in Navajo County, Arizona

Dear Mr. Fest:

Enclosed for your review are fifteen (15) copies of our report entitled: "Design and Operational Plan for the Proposed Peabody Coal Disposal Site, Black Mesa Area, Navajo County, Colorado".

Should you have any questions regarding the contents of the report and plan, please contact us at your convenience.

Sincerely,

John D. Fawcett
Senior Staff Environmental Scientist

Donald R. Clark
Principal Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO. 12548
DONALD R. CLARK
Date Signed 8-20-81
ARIZONA, U.S.A.

Regan A. Heath, P.E.
Principal Geological Engineer

JDF/DRC/RAH/rd

NOV 1991
APPROVED