

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

APPENDIX B

RECEIVED
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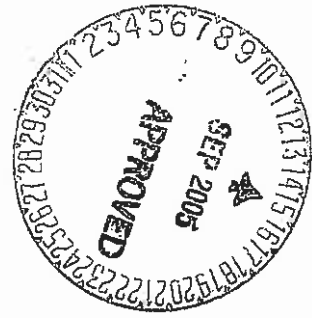
APPENDIX B

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 B5613 and B5613A.

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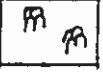
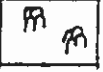
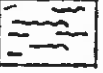
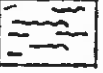
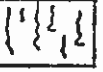
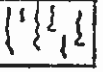


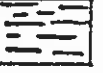
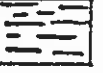
















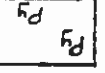
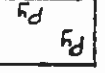
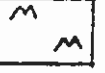
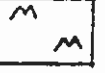
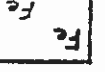
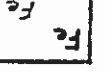




LITHOLOGIC SYMBOLS AND DESCRIPTORS

EXPLANATION

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

| | | | |
|--|--|-------------------------|--|
| COMBINATION SHALE MIXED LITHOLOGIES e.g. SANDY SHALE | | MUDSTONE (MS) | |
| COAL (CO) | | SILTSTONE (SL) | |
| CARBONACEOUS SHALE (CAR SH) | | SHALE (SH) | |
| LIMESTONE (LS) | | SANDSTONE (SS) | |
| | | SURFICIAL MATERIAL (SO) | |

| | | | |
|-------------------------------------|---|-------------------------------------|---|
| SEED PODS |  | SEED PODS |  |
| CROSS-STRATIFICATIONS |  | CROSS-STRATIFICATIONS |  |
| RIPPLE MARKS |  | RIPPLE MARKS |  |
| WORM BURROWS |  | WORM BURROWS |  |
| HORIZONTAL BIOTURBATION |  | HORIZONTAL BIOTURBATION |  |
| BIOTURBATION |  | BIOTURBATION |  |
| PELEPOD OR BRACHIOPOD FRAGMENTS |  | PELEPOD OR BRACHIOPOD FRAGMENTS |  |
| COAL STRINGERS |  | COAL STRINGERS |  |
| LEAF IMPRESSIONS |  | LEAF IMPRESSIONS |  |
| CYCAD IMPRESSIONS |  | CYCAD IMPRESSIONS |  |
| CARBONACEOUS FRAGMENTS |  | CARBONACEOUS FRAGMENTS |  |
| BURN |  | BURN |  |
| SILTSTONE CLASTS (PEBBLES) |  | SILTSTONE CLASTS (PEBBLES) |  |
| SHALE CLASTS (PEBBLES) |  | SHALE CLASTS (PEBBLES) |  |
| SANDSTONE CLASTS (PEBBLES) |  | SANDSTONE CLASTS (PEBBLES) |  |
| GYPSUM |  | GYPSUM |  |
| PYRITE |  | PYRITE |  |
| WEATHERING |  | WEATHERING |  |
| IRON STAINING |  | IRON STAINING |  |
| SMUT (WEATHERED COAL OR HUMIC ZONE) |  | SMUT (WEATHERED COAL OR HUMIC ZONE) |  |
| ROOT FRAGMENTS |  | ROOT FRAGMENTS |  |

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:

J-7 MINING AREA
(DEEP CORES)

REPLACEMENT DEEP CORE HOLE
LOGS FOR APPENDIX B, VOLUME 12





Peabody Correlations

VOX
 VIX
 GXX
 BXX
 BOX
 BIX
 ROX
 ROA
 ROB
 RXX
 RIX
 RIA
 RIB

Geological Correlations

GOX
 GIX
 BXX
 RXX
 ROX
 RIX
 YOX
 YOA
 YOB
 YNX
 YIN
 YIX
 NXX

HOLE NO. 15418 - C

LOCATION S 48263

E 30144

ATION 6538.1'

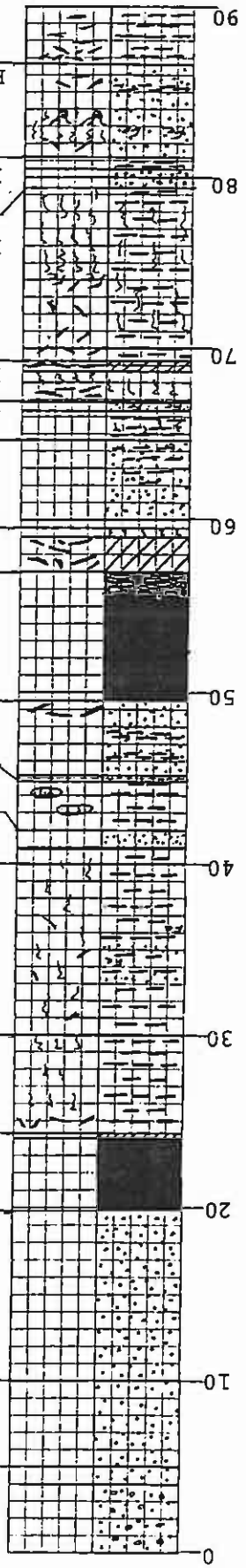
DRILLER M. Venter

DATE DRILLED Nov. 23, 1977

PAGE

SUB AREA

J-7



| WT. Ave | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | %S | pH |
|---------|--------------------|--------------|--------|----------|----------|---------|-------|------|-------|
| | 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) | | <.06 | (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) | | <.06 | (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 |

SEP 8 1986

HOLE NO. 15418 - C

LOCATION S 48263

E 30144

ELEVATION 6538.1'

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DATE DRILLED Nov. 23, 1977

PAGE

SUB AREA J-7

90

R-8-494

52.5 18.4 27.6 2.9 1.6 .83 7.9

100

R-8-495

35.0 33.3 29.8 .4 1.2 <.06 8.6

110

R-8-496

30.0 38.5 29.8 .4 .8 <.06 8.8

120

R-8-497

35.0 8.9 28.7 .9 1.2 .15 8.2

130

R-8-498

45.0 25.1 21.0 .4 1.0 .32 8.1

140

R-8-499

40.0 22.7 22.1 1.4 .5 .18 8.1

150

R-8-500

37.5 12.3 18.3 2.8 1.6 .18 8.0

160

R-8-501

32.5 25.9 26.5 1.2 .9 .14 8.2

170

(8-126-R) BOX

(11.13) (17.1) (1133) 1.8 .12 8.2

180

R-8-502

60.0 18.2 19.9 .6 1.8 .12 8.9

B1X

(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

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

SEP 3 1986

4

HOLE NO. 15418 - C.

LOCATION S 48263

F 30144

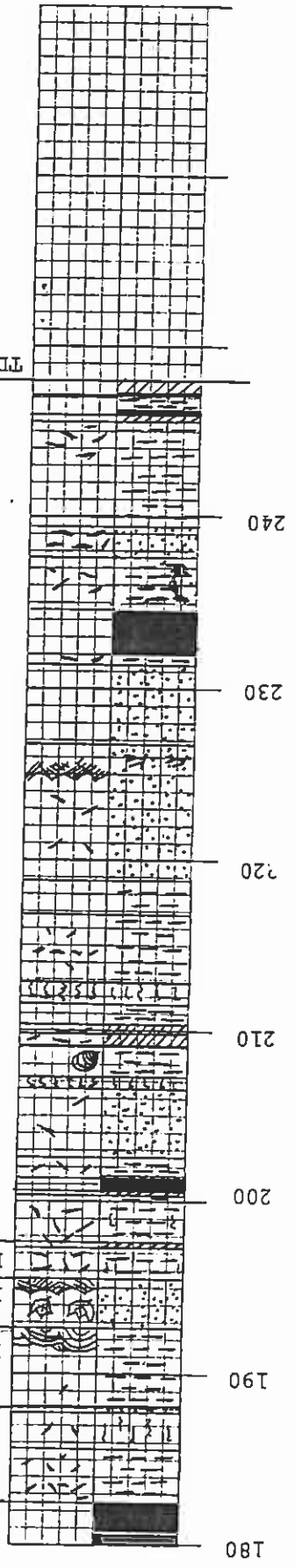
ELEVATION 6538.1'

DRILLER M. Venier

DATE DRILLED Nov. 23, 1977

PAGE

SUB AREA J-7



| SAMPLE NO. | SATURATION & (MOISTURE) | SAR | SOL.Na. (BTU) | SOL.Ca. 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 | 8.9 |
| R-8-510 | 57.5 | 16.9 | 22.1 | .9 | 2.5 | 9.2 |
| R-8-511 | 35.0 | 27.5 | 35.3 | 2.4 | .9 | 8.9 |
| R-8-512 | 70.0 | 37.9 | 25.4 | .8 | .1 | 8.9 |

5

SEP 3 1986

PEABODY COAL IPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste PH | Sat. % * | 1:5 Extract F.C. mmho/cm | Saturated Paste Extract | | | | | ESP |
|-----------|-------|------------|-------------|-------------|-----------------------------------|-------------------------|-------------|-------------|------|------|-----|
| | | | | | | Na meq/l | Ca meq/l | Mg meq/l | SAR | | |
| SO | 0 | 7800000473 | 7.7 | 37.5 | 0.6 | 2.4 | 3.8 | 0.9 | 1.6 | 1.1 | |
| SO | 0.1 | 7800000474 | 7.9 | 45 | 0.6 | 2.4 | 3.3 | 0.9 | 1.7 | 1.3 | |
| SO | 0.5 | 7800000475 | 8 | 50 | 0.6 | 2.4 | 4.5 | 1.9 | 1.3 | 0.6 | |
| SO | 1 | 7800000476 | 8.1 | 42.5 | 0.6 | 2.9 | 2 | 1.1 | 2.3 | 2.1 | |
| LOST | 1.5 | LOST | | | | | | | | | |
| SO | 2 | 7800000477 | 8.2 | 37.5 | 0.6 | 4 | 1.7 | 1 | 3.4 | 3.6 | |
| SO | 3 | 7800000478 | 8.4 | 35 | 0.7 | 6.6 | 1.4 | 2.3 | 4.9 | 5.6 | |
| SO | 4 | 7800000479 | 8.5 | 35 | 1 | 8.6 | 0.7 | 0.9 | 9.6 | 11.4 | |
| SS | 5 | 7800000480 | 8.4 | 50 | 1.9 | 13 | 2.2 | 5.7 | 6.5 | 7.7 | |
| SS | 10 | 7800000481 | 8.1 | 37.5 | 1.5 | 4.7 | 2.6 | 5.1 | 2.4 | 2.2 | |
| CO | 19.6 | COAL | | | | | | | | | |
| SH | 24.2 | 7800000482 | 7.1 | 47.5 | 1.5 | 13.1 | 1.9 | 1.6 | 9.9 | 11.8 | |
| SH | 30 | 7800000483 | 8.3 | 40 | 1.2 | 12.6 | 2.1 | 1.1 | 10 | 11.9 | |
| SH,SS | 40 | 7800000484 | 8.3 | 35 | 0.9 | 14.5 | 1.1 | 1.1 | 13.8 | 16 | |
| SH | 42 | 7800000485 | 8.3 | 37.5 | 1.1 | 10.5 | 7.1 | 1.9 | 4.9 | 5.6 | |
| SS,SH | 44.8 | 7800000486 | 8.1 | 35 | 0.7 | 6.7 | 0.7 | 0.7 | 8 | 9.5 | |
| CO | 49.3 | COAL | | | | | | | | | |
| SH,SL | 57.2 | 7800000487 | 8.3 | 50 | 1.5 | 22.5 | 1.3 | 1.5 | 19 | 21.1 | |
| SS | 59.5 | 7800000488 | 8.4 | 37.5 | 1 | 19.2 | 0.8 | 0.8 | 21.5 | 23.3 | |
| SH,SD | 64.7 | 7800000489 | 8.5 | 40 | 1.9 | 22.1 | 1.1 | 0.8 | 22.7 | 24.4 | |
| SL,SH | 66.8 | 7800000490 | 8.8 | 42.5 | 1.6 | 26.5 | 1.1 | 1.1 | 25.3 | 26.5 | |
| SH | 69.3 | 7800000491 | 8.8 | 52.5 | 2.2 | 15.4 | 1.1 | 0.3 | 18.4 | 20.6 | |
| SS,SH | 79.3 | 7800000492 | 8.7 | 35 | 2.3 | 18 | 0.9 | 1.3 | 17.2 | 19.4 | |
| SS | 81.2 | 7800000493 | 8.6 | 35 | 2 | 25.4 | 2.9 | 1.4 | 18.4 | 20.6 | |
| SH | 86.7 | 7800000494 | 7.9 | 52.5 | 1.8 | 27.6 | 2.9 | 1.6 | 18.4 | 20.6 | |
| SL | 91 | 7800000495 | 8.6 | 35 | 1.1 | 29.8 | 0.4 | 1.2 | 33.3 | 32.3 | |
| SS | 95.2 | 7800000496 | 8.8 | 30 | 1.7 | 29.8 | 0.4 | 0.8 | 38.5 | 35.7 | |
| SS | 99.5 | 7800000497 | 8.2 | 35 | 1.3 | 28.7 | 0.9 | 1.2 | 8.9 | 10.6 | |
| SH | 102.9 | 7800000498 | 8.1 | 45 | 1.2 | 21 | 0.4 | 1 | 25.1 | 26.3 | |
| SS | 104.8 | 7800000499 | 8.1 | 40 | 1.6 | 22.1 | 1.4 | 0.5 | 22.7 | 24.4 | |
| SS | 109.5 | 7800000500 | 8.1 | 37.5 | 1.6 | 18.3 | 2.8 | 1.6 | 12.3 | 14.4 | |
| SS | 119.5 | 7800000501 | 8.2 | 32.5 | 1.6 | 26.5 | 1.2 | 0.9 | 25.9 | 27 | |
| CO | 123.7 | COAL | | | | | | | | | |
| SH,CO | 128.3 | 7800000502 | 8.9 | 60 | 2.5 | 19.9 | 0.6 | 1.8 | 18.2 | 20.4 | |
| CO | 130.9 | COAL | | | | | | | | | |
| SH,SL,CO | 135.4 | 7800000503 | 6.6 | 50 | 2 | 27.6 | 0.5 | 0.4 | 41.1 | 37.2 | |
| SH,SL | 137.7 | 7800000504 | 8.4 | 42.5 | 4 | 27.6 | 0.4 | 0.4 | 43.6 | 38.7 | |
| SL | 139.8 | 7800000505 | 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | 1:5 Extract E.C. mmho/cm | Saturated Paste Extract | | | | | ESP |
|-----------|-------|-----------|-------------|-------------|-----------------------------------|-------------------------|-------------|-------------|------|--|------|
| | | | | | | Na meq/l | Ca meq/l | Mg meq/l | SAR | | |
| 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | | % Moisture * | | Avail. H2O Cap. |
|-----------|------------|-------------|--------------|--------------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|---------|--------------|------|-----------------|
| | | | | | | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SO | 7800000473 | 9 | 9.6 | 272.6 | <0.06 | 1.88 | 7.06 | 0 | 5.18 | 57.4 | 19.4 | 23.2 | 20.8 | 6.5 | 14.3 | |
| SO | 7800000474 | 6 | 2.4 | 190 | <0.06 | 1.88 | 21.11 | 0 | 19.23 | 54.4 | 16.4 | 29.2 | 25 | 8.9 | 16.1 | |
| SO | 7800000475 | 3 | 2.1 | 171.8 | <0.06 | 1.88 | 55.17 | 0 | 53.29 | 47.4 | 18.4 | 34.2 | 32.5 | 11 | 21.5 | |
| SO | 7800000476 | <2 | 1.7 | 157.1 | <0.06 | 1.88 | 34.78 | 0 | 32.9 | 51.4 | 21.4 | 27.2 | 24.6 | 8 | 16.6 | |
| LOST | LOST | | | | | | | | | | | | | | | |
| SO | 7800000477 | <2 | 1.3 | 157.2 | <0.06 | 1.88 | 22.21 | 0 | 20.33 | 55.4 | 22.4 | 22.2 | 25.3 | 6.9 | 18.4 | |
| SO | 7800000478 | 3 | 1.3 | 142.9 | <0.06 | 1.88 | 17.86 | 0 | 15.98 | 56.4 | 32.4 | 11.2 | 28.5 | 2.9 | 25.6 | |
| SO | 7800000479 | 3 | 1.7 | 165.6 | <0.06 | 1.88 | 17.99 | 0 | 16.11 | 59.4 | 29.4 | 11.2 | 20.5 | 5.8 | 14.7 | |
| SS | 7800000480 | 4 | 1.7 | 87.1 | <0.06 | 1.88 | 32.34 | 0 | 30.46 | 39.4 | 31.4 | 29.2 | 29.5 | 9.5 | 20 | |
| SS | 7800000481 | 13 | 0.7 | 68.6 | <0.06 | 1.88 | 47.27 | 0 | 45.39 | 53 | 27.4 | 19.6 | 30.4 | 6.7 | 23.7 | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 7800000482 | 19 | 4 | 260.1 | <0.06 | 1.88 | 4.9 | 0 | 3.02 | 18 | 42.4 | 39.6 | 26.5 | 12.3 | 14.2 | |
| SH | 7800000483 | 5 | 2.2 | 170 | <0.06 | 1.88 | 30.41 | 0 | 28.53 | 30 | 38.4 | 31.6 | 34.7 | 11.4 | 23.3 | |
| SH,SS | 7800000484 | 3 | 1.4 | 123.4 | <0.06 | 1.88 | 28.48 | 0 | 26.6 | 44 | 30.4 | 25.6 | 34.6 | 5.9 | 28.7 | |
| SH | 7800000485 | 3 | 1.8 | 151.4 | <0.06 | 1.88 | 29.08 | 0 | 27.2 | 34.4 | 32 | 33.6 | 24.6 | 7.3 | 17.7 | |
| SS,SH | 7800000486 | 3 | 1.4 | 73 | <0.06 | 1.88 | 6.94 | 0 | 5.06 | 54.4 | 26 | 19.6 | 15.3 | 3.6 | 11.7 | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL | 7800000487 | 3 | 1.8 | 240.3 | 1.06 | 33.13 | 1.37 | 0 | 31.76 | 40 | 26.4 | 33.6 | 35 | 12.5 | 22.5 | |
| SS | 7800000488 | <2 | 2.1 | 128.2 | 0.08 | 2.5 | 2.71 | 0 | 0.21 | 34 | 38.4 | 27.6 | 22.6 | 7.3 | 15.3 | |
| SH,SD | 7800000489 | 3 | 1.8 | 178.9 | <0.06 | 1.88 | 35.93 | 0 | 34.05 | 37 | 32.2 | 30.8 | 28.9 | 8.5 | 20.4 | |
| SL,SH | 7800000490 | 3 | 2.1 | 116.1 | 0.85 | 26.56 | 4.42 | 0 | 22.14 | 52 | 27.2 | 20.8 | 21.9 | 7.3 | 14.6 | |
| SH | 7800000491 | <2 | 2.7 | 258.4 | 0.09 | 2.81 | 40.92 | 0 | 38.11 | 18.4 | 42.8 | 38.8 | 39.8 | 11.8 | 28 | |
| SS,SH | 7800000492 | 2 | 3.8 | 165.1 | <0.06 | 1.88 | 49.79 | 0 | 47.91 | 36.4 | 38.8 | 24.8 | 19 | 4.9 | 14.1 | |
| SS | 7800000493 | 2 | 2.4 | 123.5 | 0.07 | 2.19 | 39.62 | 0 | 37.43 | 40.4 | 36.4 | 23.2 | 19.1 | 5.3 | 13.8 | |
| SH | 7800000494 | 2 | 2.8 | 234.4 | 0.83 | 25.94 | 5.7 | 0 | 20.24 | 22.8 | 37.4 | 39.8 | 37.7 | 12.5 | 25.2 | |
| SL | 7800000495 | 3 | 2.4 | 119.4 | <0.06 | 1.88 | 39.33 | 0 | 37.45 | 28.8 | 43.8 | 27.4 | 23.6 | 5.7 | 17.9 | |
| SS | 7800000496 | <2 | 1.7 | 82.3 | <0.06 | 1.88 | 42 | 0 | 40.12 | 54.4 | 23.2 | 22.4 | 18.9 | 7.2 | 15.2 | |
| SS | 7800000497 | 3 | 2 | 120.8 | 0.15 | 4.69 | 34.39 | 0 | 29.7 | 41.6 | 30.2 | 30 | 21.6 | 7.2 | 14.4 | |
| SH | 7800000498 | 3 | 2.3 | 154.4 | 0.32 | 10 | 4.14 | 5.86 | 32.32 | 33.6 | 30.2 | 36.2 | 24.7 | 11.1 | 13.6 | |
| SS | 7800000499 | <2 | 1.2 | 60.1 | 0.18 | 5.63 | 37.95 | 0 | 12.71 | 59.6 | 22 | 18.4 | 25.9 | 3.2 | 22.7 | |
| SS | 7800000500 | <2 | 1.5 | 69.8 | 0.18 | 5.63 | 18.34 | 0 | 3.17 | 61.6 | 24 | 14.4 | 12.5 | 3.3 | 9.9 | |
| SS | 7800000501 | 3 | 2.3 | 79 | 0.14 | 4.38 | 7.55 | 0 | 3.17 | 51.6 | 28 | 20.4 | 14.9 | 5.3 | 9.6 | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,CO | 7800000502 | 5 | 2.6 | 321.6 | 0.12 | 3.75 | 11.84 | 0 | 8.05 | 15.6 | 38 | 46.4 | 46.2 | 16.3 | 29.9 | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL,CO | 7800000503 | 4 | 2.8 | 90.8 | 0.82 | 25.63 | 3.02 | 22.61 | 27.33 | 33.6 | 52 | 14.4 | 14.5 | 8.2 | 6.3 | |
| SH,SL | 7800000504 | 4 | 2.5 | 159.7 | 0.36 | 11.25 | 38.58 | 0 | 15.58 | 25.6 | 46 | 28.4 | 32.6 | 6.3 | 26.3 | |
| SL | 7800000505 | <2 | 2 | 111.9 | 0.56 | 17.5 | 33.08 | 0 | 15.58 | 23.4 | 54.8 | 21.8 | 26.2 | 7.1 | 19.1 | |

PEABODY COAL JMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | | Avail. H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | 21 | |
| SH | 780000506 | 3 | 2.5 | 173.1 | 0.96 | 30 | 34.39 | 77.44 | 4.39 | 22.4 | 48.8 | 28.8 | 28.5 | 7.5 | 21 | 10.8 |
| 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 | 25.8 |
| CO | COAL | <2 | 2.8 | 113.6 | 1.11 | 34.69 | 35.61 | . | 0.92 | 36.4 | 47.8 | 15.8 | 28 | 6.5 | 21.5 | 12.3 |
| 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 | 12.3 |
| 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 | 12.3 |
| SS | 780000511 | 3 | 2 | 191 | 0.06 | 1.88 | 36.26 | . | 35.67 | 39.4 | 35.8 | 24.8 | 26 | 13.7 | 12.3 | 25.8 |
| SH | 780000512 | <2 | 2.5 | 333.5 | 0.09 | 2.81 | 27.03 | . | 24.22 | 21.4 | 24.8 | 53.8 | 55 | 29.5 | 25.8 | 25.8 |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

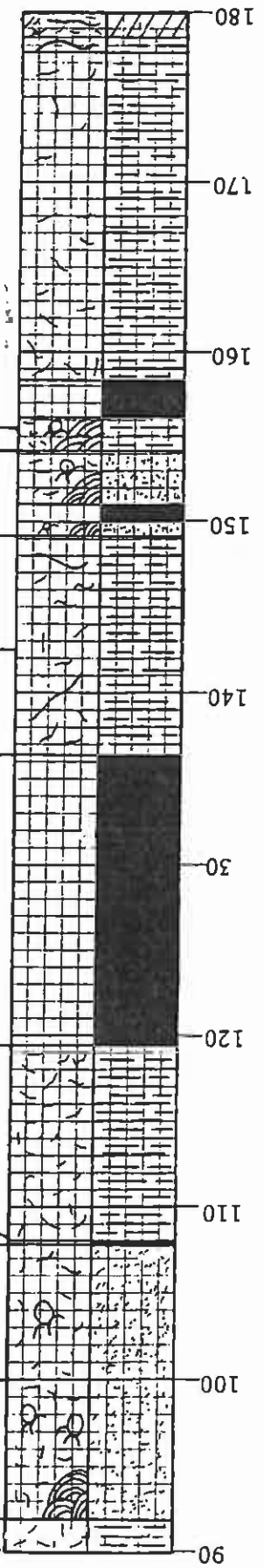
| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | 2.6 | 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 | 0.1 | | |
| SS | 780000480 | 1.3 | 0.04 | <0.01 | <0.6 | 29 | 0.1 | 3.3 | 15.2 | 1.8 | <1 | 0.2 | | |
| SS | 780000481 | 0.5 | <0.01 | <0.01 | <0.6 | 16 | 0.2 | 1.6 | 51.2 | 13.1 | <1 | 0.5 | | |
| CO | COAL | | | | | | | | | | | 0.6 | | |
| 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 | 17.8 | 2.3 | | |
| SH | 780000494 | 1.2 | 0.03 | 0.1 | <0.6 | 25 | 6.9 | 8.7 | 301.3 | 30.1 | 10.1 | 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 | 13 | 1.5 | 2.1 | 76.3 | 3.2 | 6.8 | 1.8 | | |
| SS | 780000497 | <0.1 | 0.1 | 0.05 | <0.6 | 14 | 1.2 | 2.5 | 62.9 | 2.1 | 9.4 | 1.8 | | |
| SH | 780000498 | 0.3 | 0.14 | <0.01 | <0.6 | 15 | 2.1 | 4.7 | 36.1 | 8 | 11.6 | 1.9 | | |
| SS | 780000499 | <0.1 | 0.02 | <0.01 | <0.6 | 20 | 1.1 | 2.4 | 37.1 | 4.3 | 5.1 | 2.7 | | |
| SS | 780000500 | <0.1 | <0.01 | <0.01 | <0.6 | 19 | 1.1 | 1.9 | 46.6 | 2.2 | 4.2 | 0.9 | | |
| SS | 780000501 | <0.1 | 0.02 | 0.02 | <0.6 | 16 | 0.3 | 2.6 | 41.3 | 9.1 | 6.1 | 2.1 | | |
| 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

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic # Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|-------------------|-----------|-----------|-----------|-----------|-----------|------|-----------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SH | 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 | |

Dry Basis

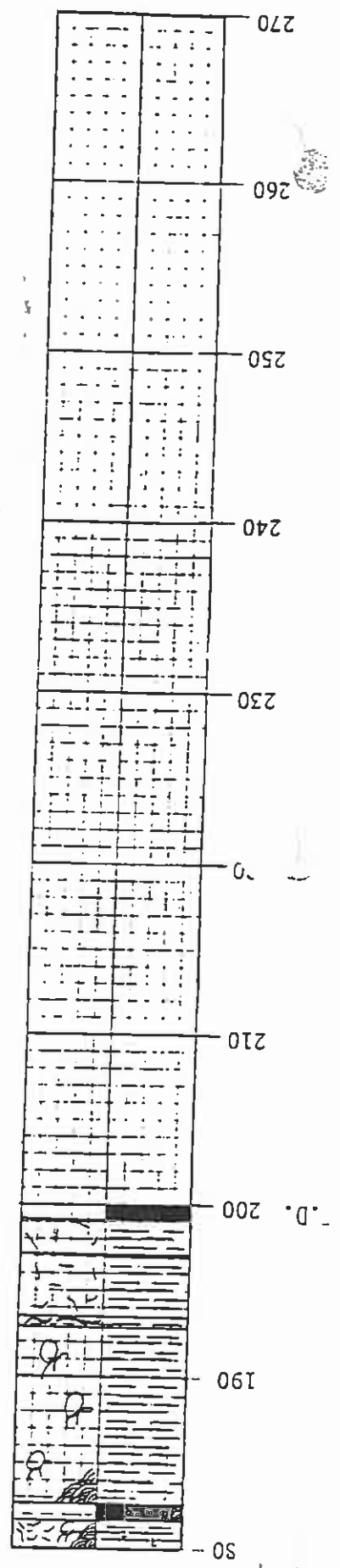


BORE NO. 23154C
 LOCATION S 50340.0
 E 26689.0
 TELEPHONE 6463.6

| DEPTH (FT) | SAMPLE NO. | SATURATION & SAR | ASH (ASH) | SOL. Na. (BTU) | SOL. Ca. SOL. Mg | % S | pH |
|------------|----------------|------------------|-----------|----------------|------------------|--------|-------|
| 90 | R-82-1791 | 40.3 | 25.7 | 20.7 | 0.7 | 0.6 | 8.9 |
| 100 | R-82-1792 | 28.7 | 19.6 | 21.0 | 0.6 | 1.7 | 8.7 |
| 110 | R-82-1793 | 32.1 | 18.9 | 12.7 | 0.5 | 0.4 | 9.0 |
| 110 | R-82-1794 | 45.8 | 26.0 | 15.4 | 0.3 | 0.4 | 8.2 |
| 120 | R-82-1795 | 83.1 | 4.7 | 19.2 | 1.1 | 3.2 | 9.3 |
| 130 | (82-873-R) RXX | (N/A) | (9.77) | (12,392) | | (0.44) | (8.4) |
| 140 | R-82-1796 | 68.2 | 30.0 | 36.1 | 2.0 | 0.9 | 7.7 |
| 150 | R-82-1797 | 63.7 | 11.7 | 13.6 | 1.7 | 1.0 | 9.1 |
| 155 | R-82-1798 | 31.6 | 16.3 | 15.5 | 1.0 | 0.8 | 8.5 |
| 160 | R-82-1799 | 43.1 | 27.1 | 34.3 | 2.3 | 0.9 | 7.5 |

DRILLER J. Elliott
 DATE DRILLED 7-31-81
 SUB AREA J-7
 PAGE 2

SEP 3 1986



LOCATION S 50340.0
 E 26689.0
 ELEVATION 6463.6

23154C

DATE DRILLED 7-31-81
 SUB AREA J-7
 SATURATION & SVR SOL. Na. SOL. Ca. SOL. Mg (BTU)
 SAMPLE NO. (MOISTURE) (ASH)
 piii is

SEP 3 1986

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PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

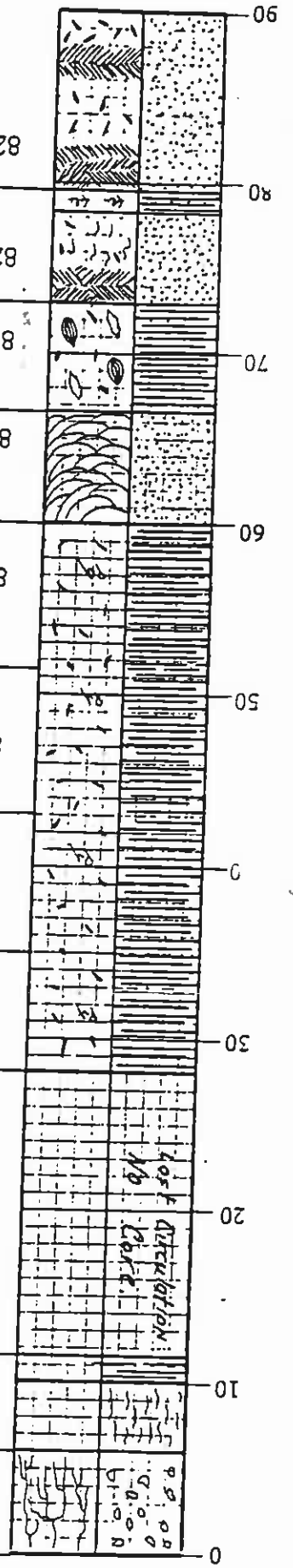
| Lithology | Lab No. | GAC03 | | | | | Eq Tons / 1000 Tons * | | | | | Particle Size | | | | | % Moisture * | | Avail. H2O Cap. |
|-----------|-----------|-------------------|--------------------|--------------------|-----------------|---------------------------|-----------------------|------------------|------------------|-----------|-----------|---------------|------------|-----------|-----------|-------------|--------------|--|-----------------------|
| | | 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 | 15 BAR | 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 | 0.31 | 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 | 74 | 64 | 10.2 | 13.6 | 3.9 | 9.7 | | | | |
| SL | 820001784 | 102 | 1.2 | 74.5 | 0.05 | 1.56 | 65.6 | . | 64.04 | 56.6 | 16.8 | 9.2 | 10.6 | 4.6 | 6 | | | | |
| SS | 820001785 | 73 | 4.1 | 70.7 | 0.1 | 3.13 | 6.43 | . | 12.87 | 43.6 | 28.2 | 15.2 | 13.7 | 5.6 | 8.1 | | | | |
| SH | 820001786 | 145 | 3.2 | 290.2 | 0.43 | 13.44 | 50.78 | . | 48.9 | 24 | 44.8 | 25.2 | 16.5 | 8.1 | 8.4 | | | | |
| SH | 820001787 | 34 | 1.7 | 296.2 | 0.06 | 1.88 | 44.47 | . | 42.28 | 19.6 | 51.2 | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | TANN Mo PPM | * Hg PPB | AB-DIPA Extract * | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|------|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | <0.1 | <0.01 | 0.02 | <0.6 | <10 | 0.4 | 3.9 | 4.2 | 5.2 | 1.1 | 0.2 | |
| SS | 820001785 | <0.1 | <0.01 | 0.05 | <0.6 | <10 | 1.1 | 4.2 | 124.1 | 31.8 | 9.2 | 0.8 | |
| 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 | COAL | |
| 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 | |

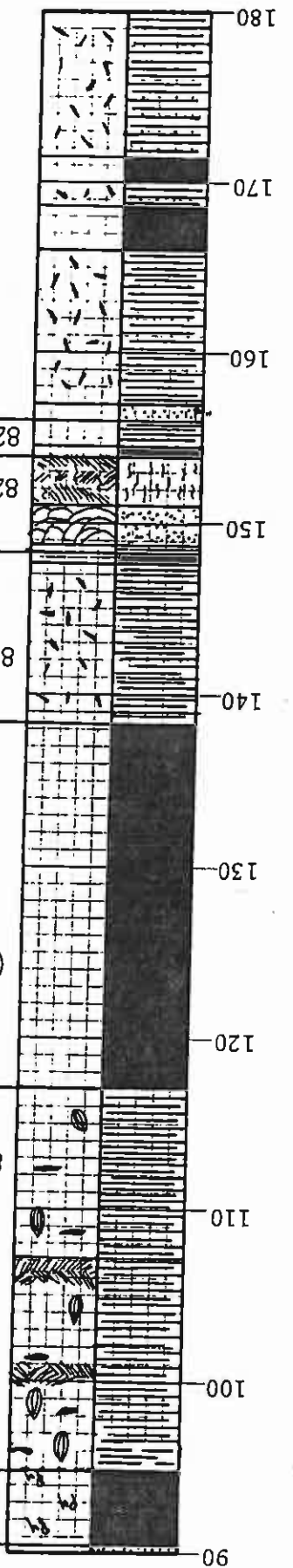


| Sample No. | SAR | SOL. Na. | SOL. Ca. | (BTU) | ES | pH |
|------------|------|----------|----------|-------|------|-----|
| 820001800 | 48.8 | 2.0 | 5.6 | 10.1 | 5.2 | 7.8 |
| 820001801 | 40.4 | 1.9 | 9.9 | 37.5 | 17.0 | 7.9 |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 820001802 | 42.5 | 25.3 | 154.3 | 28.0 | 46.4 | 5.9 |
| 820001803 | 40.3 | 25.0 | 104.0 | 15.3 | 19.3 | 8.0 |
| 820001804 | 44.7 | 28.8 | 224.4 | 29.8 | 91.7 | 7.6 |
| 820001805 | 42.7 | 26.6 | 194.0 | 25.7 | 80.9 | 7.5 |
| 820001806 | 40.2 | 14.5 | 77.1 | 23.9 | 32.4 | 8.2 |
| 820001807 | 46.8 | 21.8 | 79.5 | 8.4 | 18.1 | 7.0 |
| 820001808 | 36.3 | 34.9 | 66.6 | 2.7 | 4.6 | 8.1 |
| 820001809 | 34.2 | 31.2 | 30.4 | 0.8 | 1.1 | 8.7 |

LOCATION S 49601.0
 E 28283.0
 ELEVATION 6467.1
 DATE DRILLED 8-14-81
 SUB AREA J-7
 PAGE 1

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg
 SAMPLE NO. (MOISTURE) (ASH) (BTU) ES pH
 18

SEP 3 1986



LOCATION S 49601.0
 E 28283.0
 ELEVATION 6467.0
 23156C

DATE DRILLED 8-14-81
 J. Elliott

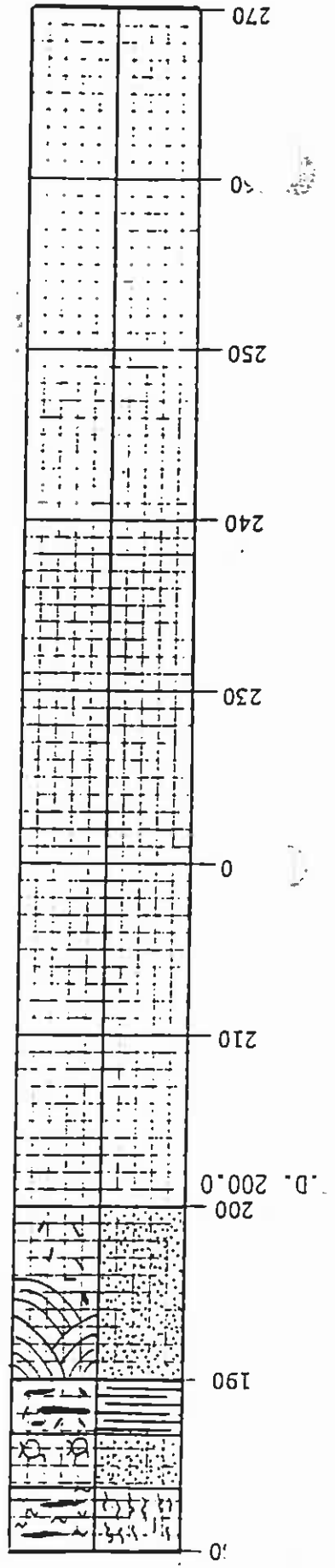
SUB AREA J-7
 PAGE 2

| ELEVATION | SAMPLE NO. | SATURATION % (MOISTURE) | SAR | SOL. Na. (BTU) | SOL. Ca. (BTU) | SOL. Mg | ps | pH |
|-----------|-------------------|-------------------------|--------|----------------|----------------|---------|------|-----|
| 90 | B1X (82-874-R) | (N/A) | (5.84) | (12,851) | (0.66) | (8.3) | | |
| 100 | 820001810 | 40.3 | 32.3 | 40.9 | 1.9 | 1.3 | 0.61 | 7.6 |
| 120 | RXX (82-875-R) | (N/A) | (9.69) | (12,370) | (0.38) | (8.5) | | |
| 140 | 820001811 | 74.2 | 18.2 | 17.7 | 0.5 | 1.4 | 0.18 | 8.6 |
| 150 | 820001812 | 32.2 | 18.7 | 20.5 | 1.3 | 1.1 | 0.08 | 8.5 |
| 180 | 820001813 | 52.3 | 24.2 | 29.2 | 1.7 | 1.2 | 0.28 | 8.1 |

SEP 3 1986

SEP 3 1986

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LOCATION S 49601.0
 E 28283.0
 ELEVATION 6467.1
 23156C

DATE DRILLED 8-14-81
 SUB AREA J-7
 SOL. Na. SOL. Ca. SOL. Mg (BTU)
 SAR SOL. Na. SOL. Ca. SOL. Mg
 SATURATION & (MOISTURE) (ASH)
 SAMPLE NO. (BTU)
 pH

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | F.C. mmho/cm | Na meq/l | Ca meq/l | Mg mcq/l | SAR | | | |
| 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 | | | | | | | | | | |
| SII | 28 | 820001802 | 5.9 | 42.5 | 17.3 | 154.3 | 28 | 46.4 | 25.3 | | | 26.5 |
| SII | 35 | 820001803 | 8 | 40.3 | 11.3 | 104 | 15.3 | 19.3 | 25 | | | 26.3 |
| LOST | 42 | LOST | | | | | | | | | | |
| SII | 43 | 820001804 | 7.6 | 44.7 | 23.9 | 224.4 | 29.8 | 91.7 | 28.8 | | | 29.2 |
| SII | 51.5 | 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 |
| SII | 66.6 | 820001807 | 7 | 46.8 | 8.5 | 79.5 | 8.4 | 18.1 | 21.8 | | | 23.6 |
| SD, SII | 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 | | | | | | | | | | |
| SII | 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 |
| SII, CO | 153.4 | 820001813 | 8.1 | 52.3 | 3.1 | 29.2 | 1.7 | 1.2 | 24.2 | | | 25.6 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Law No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAC K PPM | # Total S % | CAC03 | | | | Particle Size | | | | % Moisture | | Avail. H2O Cap. |
|-----------|-----------|---------------|----------------|----------------|-------------|----------------------|----------------|---------------|------------------|---------------|--------|--------|---------|------------|------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount F. excess | Sand % | Silt % | Clay % | 1/3 BAR | 1/2 BAR | | |
| 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 | 25.22 | 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 | 7.6 | 44.6 | 29.4 | 26 | 12.3 | 6.5 | 5.8 | |
| SH | 820001805 | 552 | 2.4 | 316.7 | 0.27 | 8.43 | 16.03 | . | 81.05 | 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 | . | 22.1 | 17.6 | 41.8 | 40.6 | 22.7 | 9.0 | 12.9 | |
| SD, SH | 820001808 | 13 | 1.2 | 138.8 | 0.03 | 0.94 | 23.04 | . | 71.76 | 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

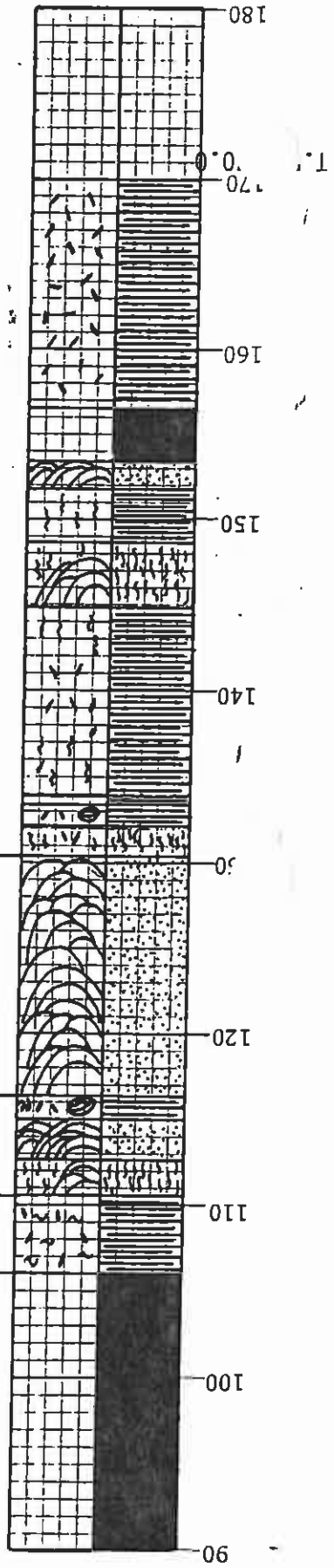
MINE:0250 BLACK MESA J-7
CORE NO:23156C
DATE CORED:02AUG1981
DATE REPORTED:16FEB1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|--------------|------------|-------------------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | TA/MH Mo PPM | * lig P/PB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | 20.2 | 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 | 60 | 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 | | |

| WELL NO. | DATE DRILLED | SUB AREA | ELEVATION | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (MOISTURE) | (ASH) | (BTU) | %S | pH |
|----------------|--------------|----------|-----------|------------|--------------|---------|----------|----------|---------|------------|-------|-------|--------|-------|
| R-82-1891 | 8-31-81 | | 6459.0 | | 40.4 | 1.2 | 2.2 | 5.7 | 1.5 | 0.01 | | | 0.01 | 7.9 |
| R-82-1892 | 8-31-81 | | 6459.0 | | 42.1 | 1.6 | 4.0 | 9.3 | 3.0 | <0.01 | | | <0.01 | 7.8 |
| R-82-1893 | 8-31-81 | | 6459.0 | | 40.3 | 1.7 | 10.5 | 58.6 | 16.1 | 0.01 | | | 0.01 | 7.4 |
| R-82-1894 | 8-31-81 | | 6459.0 | | 59.5 | 3.1 | 18.3 | 49.8 | 20.9 | 0.23 | | | 0.23 | 4.7 |
| R-82-1895 | 8-31-81 | | 6459.0 | | 63.9 | 3.5 | 22.7 | 37.0 | 46.5 | 0.20 | | | 0.20 | 6.8 |
| R-82-1896 | 8-31-81 | | 6459.0 | | 43.7 | 7.5 | 47.4 | 32.4 | 47.2 | 0.13 | | | 0.13 | 4.7 |
| R-82-1897 | 8-31-81 | | 6459.0 | | 45.5 | 7.3 | 44.5 | 30.7 | 43.8 | 0.22 | | | 0.22 | 5.8 |
| (N/A) | | | | | (N/A) | (N/A) | (N/A) | (N/A) | (N/A) | (N/A) | | | (N/A) | (N/A) |
| R-82-1898 | 8-31-81 | | 6459.0 | | 47.0 | 19.9 | 81.0 | 13.3 | 19.8 | 0.07 | | | 0.07 | 6.7 |
| (82-880-R) B1X | | | | | (N/A) | (6.58) | (12,195) | | | (0.57) | | | (0.57) | (6.2) |
| R-82-1899 | 8-31-81 | | 6459.0 | | 42.0 | 19.3 | 39.5 | 5.0 | 3.4 | 0.31 | | | 0.31 | 7.3 |
| R-82-1900 | 8-31-81 | | 6459.0 | | 46.9 | 22.0 | 41.5 | 4.4 | 2.7 | 1.21 | | | 1.21 | 7.0 |
| R-82-1901 | 8-31-81 | | 6459.0 | | 47.9 | 10.5 | 37.5 | 23.3 | 2.0 | 0.62 | | | 0.62 | 7.6 |
| (82-881-R) B0A | | | | | (N/A) | (21.06) | (10,722) | | | (0.73) | | | (0.73) | (8.7) |
| R-82-1902 | 8-31-81 | | 6459.0 | | 64.5 | 19.1 | 19.6 | 0.5 | 1.6 | 0.08 | | | 0.08 | 8.7 |

SEP 3 1986



HOLE NO. 23158C
 LOCATION S 50476.0 E 29640.0
 LEVEL ON 6459.0

| SAMPLE NO. | SATURATION & SAR | (MOISTURE) | (ASH) | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | % S | pH |
|-------------------|------------------|------------|----------|----------|----------|----------|-------|--------|-------|
| (82-882-R) RXX | (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 | | 0.08 | 8.8 |
| R-82-1904 | 40.3 | 33.6 | 34.4 | 1.2 | 0.9 | 0.10 | | 0.10 | 7.8 |
| R-82-1905 | 32.2 | 32.6 | 19.3 | 0.3 | 0.4 | <0.01 | | <0.01 | 8.4 |

DRILLER J. Elliott
 DATE DRILLED 8-31-81
 SUB AREA
 PAGE 2
 J-7

SEP 3 1986

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PEABODY COAL JIMpany
CENTRAL LABORATORY

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

| 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 | Particle Size | | | | % Moisture # | | |
|------------|-----------|---------------|----------------|----------------|-------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|--------|--------|--------------|---------|--------|
| | | | | | | | | | | CACO3 | Eq Tons / 1000 tons * | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR |
| 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 | . | . | 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 | 821001902 | 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 | 47.28 | . | 1.78 | 7 | 29 | 64 | 40 | 24.1 | 15.9 | |
| SH | 820001904 | 8 | 1.4 | 164.6 | 0.1 | 3.13 | 7.26 | . | 4.13 | 41 | 29 | 30 | 21.5 | 14.2 | 7.3 | |
| SL, SS, SH | 820001905 | <2 | 0.7 | 85.3 | <0.01 | 0.31 | 55.44 | . | 55.13 | 76 | 13 | 11 | 13.2 | 7.2 | 6 | |

#Dry Basis

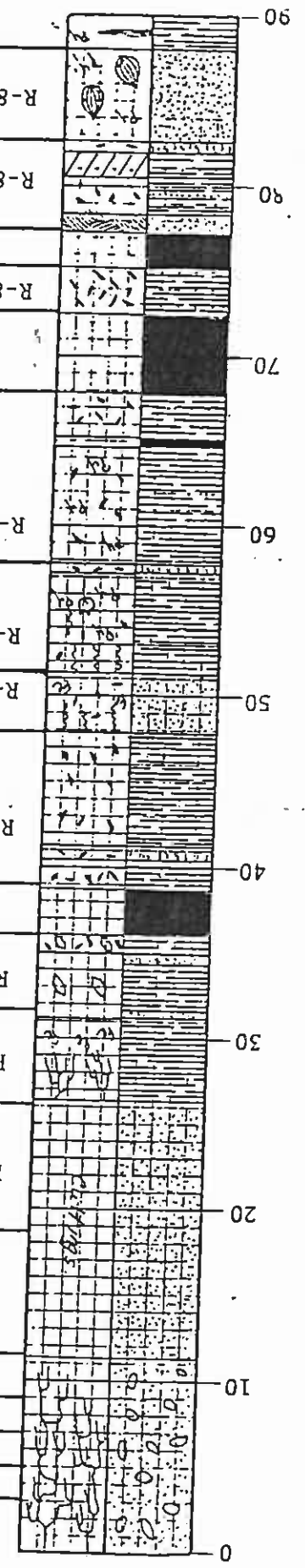
PEABODY COAL COMPANY
CENTRAL LABORATORY

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

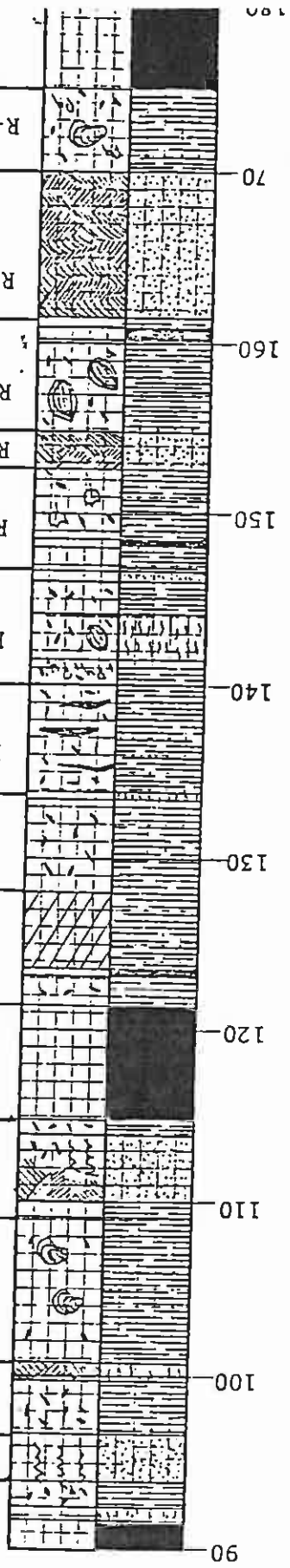
Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | T/Al/Fe Mo PPM | # Hg PPB | Air-Dil PA Extract # | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|----------------|----------------------|----------------|----------------------|-----------|-----------|-----------|-----------|------------------------|
| | | B PPM | As PPM | Sg PPM | <0.01 <0.01 | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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, SII | 820001895 | 0.6 | 0.03 | 0.08 | <0.6 | 229 | 0.2 | 5.2 | 78.6 | 1.6 | 21.7 | 1.2 | |
| SII, SL | 820001896 | 1.1 | 0.03 | 0.05 | <0.6 | <10 | 0.8 | 3.4 | 96.1 | 2.8 | 19 | 6.9 | |
| SII | 820001897 | 0.9 | <0.01 | 0.04 | <0.6 | <10 | 0.6 | 3.6 | 171.4 | 4.5 | 22.5 | COAL | |
| CO | COAL | | | | | | | | | | | | |
| SII | 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 | 10.0 | 5.5 | |
| SII | 820001900 | <0.1 | 0.07 | 0.02 | <0.6 | <10 | 5.1 | 6.5 | 146 | 22.4 | 12.7 | 11.2 | |
| CO, SII | 820001901 | 0.7 | 0.28 | 0.35 | <0.6 | <10 | 2.3 | 11.2 | 74.3 | 1.5 | 8.9 | COAL | |
| CO | COAL | | | | | | | | | | | | |
| SII | 820001902 | 0.2 | 0.27 | 0.98 | <0.6 | 51 | 1.5 | 26.5 | 30.5 | 1 | 23.7 | COAL | |
| CO | COAL | | | | | | | | | | | | |
| SII | 820001903 | 0.3 | 0.49 | 0.3 | <0.6 | 22 | 1 | 12.7 | 15.5 | 1 | 5.5 | COAL | |
| SII | 820001904 | 0.4 | 0.51 | 0.14 | <0.6 | <10 | 3.4 | 5.2 | 26.4 | 1 | 14.9 | COAL | |
| SS | 820001905 | 0.2 | 0.63 | 0.06 | <0.6 | 12 | 1.3 | 2.6 | 54.4 | 2.3 | 6.5 | 3.1 | |

J-16 MINING AREA
(DEEP CORES)



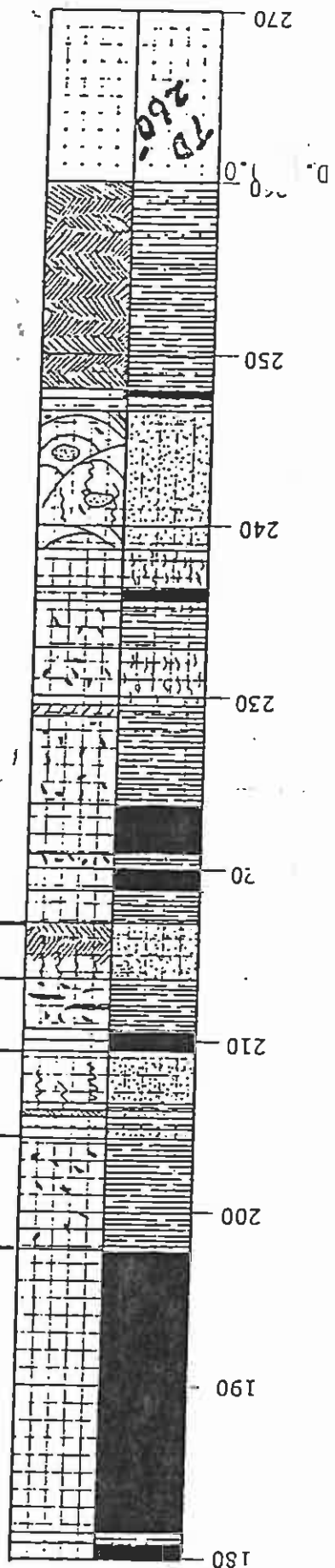
| SAMPLE NO. | SATURATION & SAR | (MOISTURE) | (VSH) | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | PH |
|------------|------------------|------------|-------|---------|---------|--------|-------|----|
| R-81-2070 | 64.0 | 2.1 | 3.3 | 3.5 | 1.8 | 0.01 | 7.3 | |
| R-81-2071 | | | | | | | | |
| R-81-2072 | | | | | | | | |
| 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 | |
| MX | - | 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 | |
| YOX | - | 6.7 | - | 12,621 | - | 1.15 | 5.8 | |
| R-81-2085 | 55.5 | 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 | |



| SAMPLE NO. | SATURATION & (MOISTURE) | SAR | SOL.Na. | SOL.Ca. | (BTU) | %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 |

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SEP 3 1986



ELEVATION 6792.8
 S 21117.0
 E 54610.0
 23146C

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

SFB 3 1096

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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 | 0.6 | 0.5 | 31.5 | 31.1 |
| SS | 152.6 | 810002098 | 9 | 30.2 | 2.7 | 33.1 | 0.8 | 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 |
| SH, 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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture | | Avail. H2O Cap. |
|-------------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|------------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 35 | 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 | <0.01 | 0.31 | 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 | 5.5 | 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 | . | 22.1 | 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 | 7.4 |
| MS | 810002079 | 11 | 9.1 | 81.6 | 0.4 | 12.5 | 0.17 | . | 1.17 | 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 | . | 1.46 | 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 | 68.16 | 16.6 | 16.4 | 37 | 16.5 | 7.7 | 8.8 |
| SS | 810002082 | <2 | 3.5 | 65.2 | 0.37 | 11.56 | 79.72 | . | 53.6 | 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 | 39.08 | 28.6 | 37.4 | 34 | 18 | 7.9 | 10.1 |
| SS | 810002087 | 5 | 0.9 | 50.2 | 0.41 | 12.81 | 51.89 | . | 58.8 | 49.1 | 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 | 40.05 | 50.2 | 37 | 20.5 | 14 | 7 | 7.7 |
| SS | 810002089 | <2 | 1.2 | 86.7 | 0.34 | 10.63 | 50.68 | . | 45.47 | 50.6 | 30.4 | 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 | 153.4 | 75.66 | 20.09 | 7.6 | 51 | 41.4 | 20.2 | 4.7 | 11.5 |
| SH,SS | 810002092 | 3 | 11.9 | 110.2 | 0.97 | 30.31 | 50.4 | . | 54.6 | 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 | 29.93 | 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 | 3.28 | 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 | . | 6.6 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | TANN Mo PPM | * Hg PPB | AB-DTPA Extract * | | | | | | | Organic Matter % |
|----------------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|------|--|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | 20.5 | 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 | | |
| 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 | | |
| COAL | | | | | | | | | | | | | | |
| SH | 810002085 | 1 | <0.01 | 0.02 | <0.6 | <10 | 4.8 | 9.7 | 178.7 | 16.3 | 14.4 | 8.6 | | |
| 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 | | |
| 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 | | |
| 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 | 1.2 | <0.01 | 0.03 | <0.6 | <10 | 2.1 | 4.5 | 136.5 | 7.4 | 6.1 | 1.8 | | |
| SH, CO | 810002104 | 0.2 | 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 | | |

23147C

SECTION S 22806.0

E 53745.0

SECTION . 6765.0

DATE DRILLED 5/6/81

SUB AREA J-16

PAGE 1

| DEPTH | SAMPLE NO. | SATURATION & SAR (MOISTURE) (ASH) | SOL. Na. SOL. Ca. SOL. Mg (BTU) | ES | pH | | | |
|-------|------------|-----------------------------------|---------------------------------|------|----------|------|--------|-------|
| 0 | R-81-2106 | 50.6 | 5.0 | 9.1 | 4.4 | 2.5 | 0.01 | 7.0 |
| 0 | R-81-2107 | | | | | | | |
| 0 | R-81-2108 | 61.1 | 0.2 | 1.0 | 27.4 | 14.8 | 0.47 | 3.2 |
| 0 | R-81-2109 | 73.9 | 2.3 | 16.4 | 25.6 | 70.0 | 0.57 | 2.9 |
| 0 | R-81-2110 | 54.9 | 1.4 | 7.7 | 26.0 | 33.2 | 0.23 | 3.2 |
| 0 | R-81-2111 | 51.7 | 1.0 | 4.4 | 23.0 | 18.1 | 0.33 | 3.2 |
| 0 | R-81-2112 | 42.3 | 0.6 | 3.8 | 29.2 | 35.5 | 0.25 | 6.7 |
| 0 | R-81-2113 | 53.3 | 0.8 | 5.4 | 27.7 | 73.8 | 1.71 | 3.4 |
| 0 | R-81-2114 | 57.1 | 0.8 | 6.5 | 25.6 | 56.0 | 2.87 | 4.8 |
| 0 | R-81-2115 | 49.1 | 0.5 | 3.1 | 32.0 | 39.6 | 1.33 | 6.3 |
| 0 | R-81-2116 | 54.6 | 2.7 | 8.6 | 12.4 | 8.6 | 0.08 | 7.3 |
| 0 | NIX | - | (7.46) | - | (12.563) | - | (1.13) | (4.7) |
| 0 | R-81-2117 | 53.5 | 1.0 | 6.7 | 27.7 | 54.6 | 2.22 | 3.0 |
| 0 | | - | (14.38) | - | (11.671) | - | (1.06) | (4.2) |
| 60 | R-81-2118 | 71.9 | 12.5 | 22.2 | 3.6 | 2.7 | 0.12 | 7.0 |
| 60 | R-81-2119 | 52.9 | 19.2 | 18.2 | 1.2 | 0.6 | 0.05 | 8.5 |
| 60 | R-81-2120 | 67.2 | 10.6 | 31.4 | 1.5 | 0.3 | 0.17 | 8.7 |
| 70 | R-81-2121 | 77.2 | 29.5 | 27.2 | 1.1 | 0.6 | 0.12 | 9.1 |
| 70 | R-81-2122 | 50.6 | 37.9 | 39.7 | 1.8 | 0.4 | 0.19 | 7.5 |

SEP 3 1981

2317C

STATION S 22806.0

E 53745.0

6765.0

90

100

110

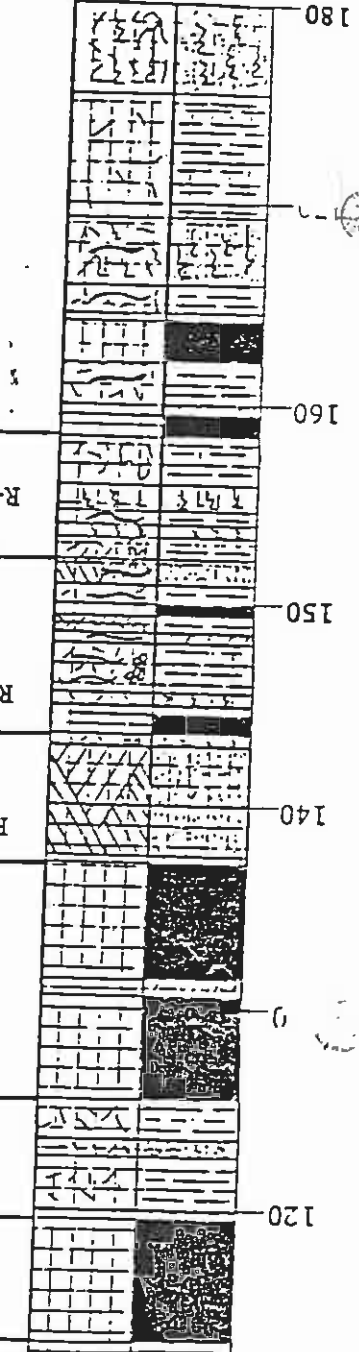
120

140

150

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180

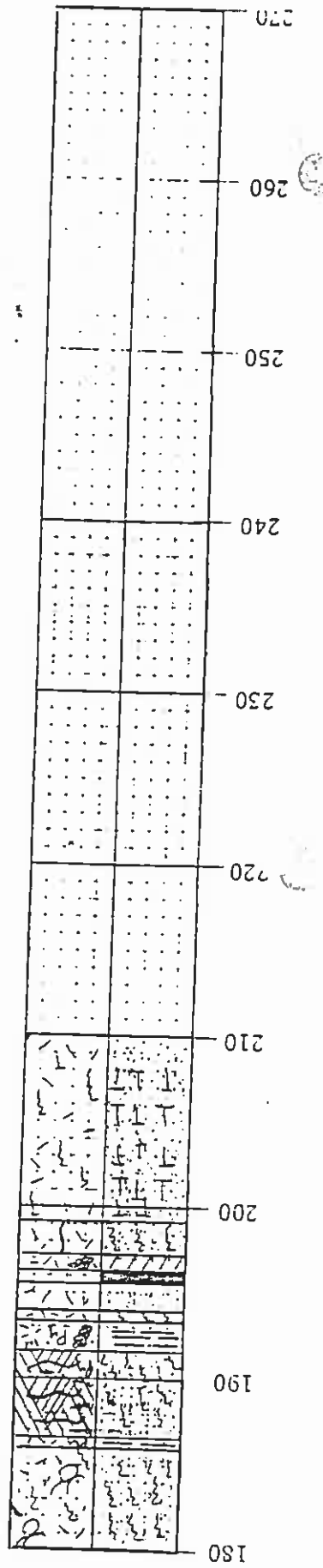


| SAMPLE NO. | SATURATION & SVR | (MOISTURE) | (ASH) | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | PH |
|------------|------------------|------------|-------|----------|----------|---------|-------|----|
| R-81-2123 | 56.8 | 53.8 | 56.4 | 1.3 | 0.9 | 0.75 | 6.6 | |
| R-81-2124 | 40.2 | 35.1 | 27.2 | 0.9 | 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 | |
| EIX | - | (7.0) | - | (12,862) | - | (0.54) | (7.9) | |
| E2X | - | - | - | - | - | - | - | |
| 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 8 1986

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DATE DRILLED 5/6/81
 SUB AREA J-16
 PAGE 2



LOCATION S 22806.0
 E 53745.0
 ELEVATION 6765.0
 23147C

37

SEP 3 1986

DATE DRILLED 5/6/81
 DRILLER J. Elliott
 SOL. NO. SOL. CO. SOL. NO. (BTR)
 S
 PH

3
 SUB AREA J-16

PEARBODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J-16
CORE NO: 2314/C
DATE CORED: 06MAY1981
DATE REPORTED: 27MAR1985

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | ESP |
|----------------|-------|-----------|-------------|------------|-------------------------|-------------|-------------|-------------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 | 40.2 | 5.2 | 56.4 | 0.9 | 0.9 | 53.8 | | | 43.9 |
| SS | 93.6 | 810002124 | 8.3 | 56.6 | 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 | 35.7 | | | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture | | AVANTI- H2O Cap. | |
|-------------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|------------|------------|------------------------|-----------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| 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 | 31 | 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 | 15.52 | . | 41.2 | 30.8 | 28 | 21.7 | 10.1 | 11.6 |
| SH,CO | 810002123 | 12 | 2.6 | 177 | 0.75 | 23.44 | 7.92 | . | 7.07 | 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 | 20.8 | 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 | 1.64 | 65.56 | 54.2 | 33.4 | 12.4 | 15.1 | 4.1 | 11 |
| CO,SH,SL | 810002130 | 4 | 0.9 | 148.7 | 0.59 | 18.44 | 16.8 | . | 25.2 | 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 |

PEARBODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

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

23148C

LOCATION S 19594.0

E 56313.0

ELEVATION 6782.1

DATE DRILLED 5/11/81

SOB AREA J-16

1

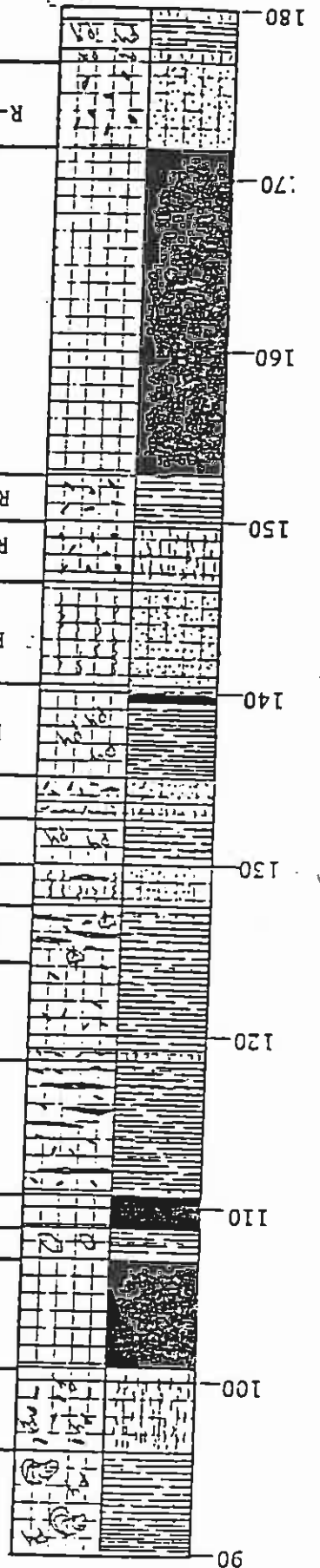
SATURATION & SVR SOL. HA. SOL. Ca. SOL. MG (MOISTURE) (ASH) (BTU)

PH IS

| SAMPLE NO. | (MOISTURE) | (ASH) | (BTU) | SOL. HA. | SOL. Ca. | SOL. MG | PH |
|------------|------------|--------|-------|----------|----------|---------|-------|
| R-81-2152 | 51.8 | 4.6 | 6.5 | 1.1 | 2.7 | 0.02 | 8.3 |
| R-81-2135 | | | | | | | |
| R-81-2134 | | | | | | | |
| 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) | - | (12,545) | - | (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 |
| Y1X | - | (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 |

SEP 3 1986

41



DATE DRILLED: 5/11/81
 SUB AREA: J-16
 PAGE: 2
 CRILLER: J. HILLIOTT
 LOCATION: S 19594.0
 E 56313.0
 IN: 6782.1

| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | % 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 | 0.55 | 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 |

SEP 3 1986

42

LOCATION S 19594.0

E 56313.0

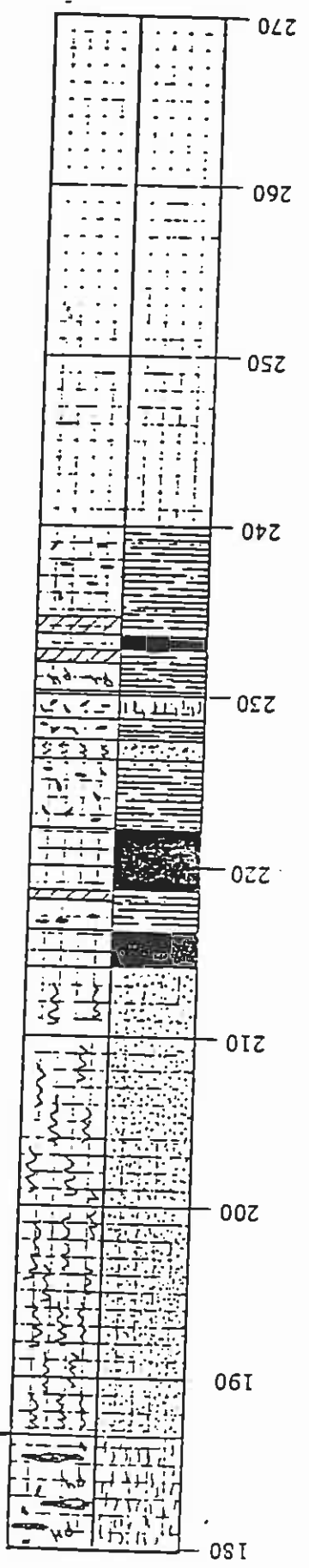
ELEVATION 6782.1

DRILLER J. HILLIOTT

DATE DRILLED 5/11/81

SUB AREA J-16

3



R-81-2165

42.5

25.7

24.4

0.7

0.5

0.23

7.4

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

pH 15

SEP 3 1986

43

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 02552 KAYENTA J-16
CORE NO: 23148C
DATE CORED: 11MAY1981
DATE REPORTED: 27MAR1985

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|------------|----------|---------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| SO | 0 | 8100021332 | 8 | 52.6 | 0.6 | 3.3 | 1.5 | 1.5 | 2.7 | | | 2.7 |
| SO | 1 | 8100021333 | 8.5 | 46.3 | 0.7 | 5 | 0.8 | 2.1 | 4.2 | | | 4.7 |
| SO | 2 | 8100021334 | 8.4 | 56.6 | 1.5 | 11.3 | 1 | 4.5 | 6.8 | | | 8.1 |
| SS | 3 | 8100021335 | 7.9 | 48.3 | 4 | 21.7 | 6.8 | 19.6 | 6 | | | 7.1 |
| SS | 7 | 8100021336 | 7.9 | 50.5 | 3.8 | 12.5 | 5.9 | 25.8 | 3.1 | | | 3.2 |
| SS | 11 | 8100021337 | 7.3 | 40.2 | 3.8 | 10 | 6.9 | 29.3 | 2.4 | | | 2.2 |
| CO, SH | 18.7 | 8100021338 | 2.9 | 57.9 | 3.8 | 17.6 | 24.1 | 74.9 | 2.5 | | | 2.2 |
| CO | 22.1 | 8100021339 | 4.2 | 52.9 | 6.8 | 20.1 | 21.2 | 56.2 | 3.2 | | | 3.4 |
| SH, SS | 25.2 | COAL | | | | | | | | | | |
| SH | 28 | 8100021400 | 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 |
| SH | 39.2 | 810002142 | 6.6 | 44.2 | 6.5 | 49.3 | 20.8 | 10.3 | 12.5 | | | 14.7 |
| CO | 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 |
| SH | 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 |
| SH, 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 |
| SH | 118.5 | 810002153 | 8.2 | 75.5 | 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 | | | 33.5 |
| 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 | 49.6 | | | 21.1 |
| SH, CO | 135 | 810002158 | 6.8 | 57.1 | 4 | 41.5 | 0.9 | 0.5 | 25.7 | | | 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 | | | | | | | | | | |
| SH | 171.8 | 810002162 | 5.2 | 48.2 | 3.9 | 27 | 11.3 | 11 | 8.1 | | | 9.6 |
| SS | 176.9 | 810002163 | 7.4 | 42.3 | 2.7 | 24.4 | 0.7 | 0.5 | 25.7 | | | 26.8 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture # | | Avail. H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 51.69 | -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 | 24.82 | 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 | 23.2 | 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 | . | 21.19 | 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 | 95.17 | 45.6 | 29.8 | 24.6 | 19.7 | 9.3 | 10.4 |
| SH | 810002146 | 5 | 1.5 | 68.1 | 0.33 | 10.31 | 105.48 | 63.3 | 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 | 17.75 | . | 56 | 23.4 | 20.6 | 17.1 | 7.7 | 9.4 |
| SH, SH | 810002148 | 13 | 8 | 183.1 | 2.03 | 63.44 | 45.69 | 84.01 | . | 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 | . | 17.81 | 55.6 | 48.8 | 37.6 | 19.5 | 8.8 | 10.7 |
| SL | 810002150 | 11 | 2.2 | 104.5 | 1.03 | 32.19 | 50 | . | 17.81 | 24.8 | 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 |
| SH, 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 | 27.22 | 20.6 | 45.8 | 33.6 | 21.1 | 10.1 | 11 |
| SS | 810002155 | 4 | 0.1 | 113.6 | 0.08 | 2.5 | 52.76 | 25.78 | 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 | 43.87 | 20.6 | 37.8 | 41.6 | 31.1 | 15.2 | 15.2 |
| SH, SS | 810002157 | 11 | 1 | 193.7 | 0.09 | 2.81 | 46.68 | 14.24 | 213.39 | 50.1 | 20.3 | 23.6 | 18.5 | 7.2 | 23.4 |
| SH, CO | 810002158 | 12 | 2.3 | 208.4 | 0.85 | 26.56 | 12.32 | 14.24 | 213.39 | 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 | . | 9.39 | 67.2 | 20.6 | 12.2 | 21 | 5.4 | 15.6 |
| SH | 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 | 10.98 | 10.6 | 41.4 | 48 | 39 | 14.1 | 24.9 |
| CO | COAL | | | | | | | | | | | | | | |
| SS | 810002162 | <2 | 1.5 | 22 | 0.29 | 9.06 | 20.04 | . | 4.54 | 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 KAYENTIA J-16
CORE NO:23148C
DATE CORED:11MAY1981
DATE REPORTED:27MAR1985

DRY BASIS

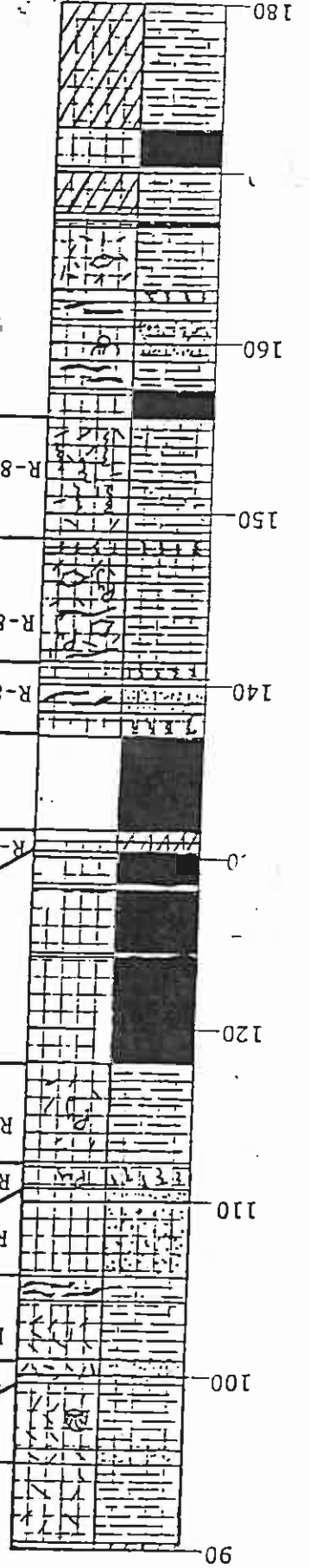
| Lithology | Lab No. | Hot H2O Ext. # | | | TANM Mo PPM | # Hg PPB | AB-DTPA Extract # | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|-------------|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | 2.2 | 0.6 | |
| SS | 810002135 | 0.2 | <0.01 | <0.01 | <0.6 | 23 | <0.1 | 1.1 | 15 | 1 | 1.6 | 0.6 | |
| SS | 810002136 | <0.1 | <0.01 | <0.01 | <0.6 | <10 | 0.2 | 3.4 | 23.7 | 1 | 1.1 | 0.3 | |
| SS | 810002137 | <0.1 | 0.01 | 0.02 | <0.6 | 15 | 0.2 | 1.6 | 39.2 | 1 | 3 | 0.9 | |
| CO,SH | 810002138 | 2 | 0.26 | 0.03 | <0.6 | <10 | 8.3 | 5.9 | 422.1 | 1.5 | 24.6 | 1.4 | |
| CO,SH | 810002139 | 0.6 | <0.01 | 0.03 | <0.6 | <10 | 7.5 | 5.8 | 286.5 | 2.6 | 13 | COAL 8.5 | |
| 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 | 6.9 | |
| SH | 810002143 | 0.4 | <0.01 | <0.01 | <0.6 | <10 | 2.7 | 5.5 | 164.5 | 60 | 10.4 | 5 | |
| CO | COAL | 0.3 | <0.01 | <0.01 | <0.6 | <10 | 8.2 | 10.2 | 230.1 | 17.8 | 21.2 | 6.9 | |
| 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 | 0.3 | <0.01 | <0.01 | <0.6 | <10 | 8.2 | 10.2 | 230.1 | 17.8 | 21.2 | 6.9 | |
| 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 | |
| SL,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 | 8.3 | |
| CO | COAL | 0.3 | <0.01 | 0.03 | <0.6 | 12 | 2.5 | 2.9 | 149.2 | 14.3 | 7.8 | 8.3 | |
| 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 | 1.1 | 0.04 | 0.06 | <0.6 | 14 | 11.9 | 10.6 | 252.2 | 14.2 | 18.7 | 9.8 | |
| 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 | 9.8 | |
| SH | 810002154 | 2 | 0.02 | 0.07 | 0.6 | 13 | 5 | 5.3 | 214.4 | 1.5 | 8 | 6.8 | |
| SS | 810002155 | 0.3 | 0.05 | 0.07 | <0.6 | <10 | 2 | 3.4 | 63.4 | 2 | 10.2 | 12.8 | |
| SH | 810002156 | 1.4 | <0.01 | 0.16 | <0.6 | 18 | 6.3 | 11.5 | 189.9 | 3.8 | 11.6 | 2.8 | |
| SL,SS | 810002157 | 0.4 | 0.09 | 0.04 | <0.6 | 13 | 3.3 | 5.9 | 87.3 | 10.2 | 11.6 | 11.4 | |
| SH,CO | 810002158 | 1.1 | <0.01 | 0.04 | <0.6 | 22 | 4.3 | 7.2 | 125.4 | 10.9 | 13.7 | 3.5 | |
| SS | 810002159 | 0.5 | 0.01 | 0.06 | <0.6 | 13 | 0.8 | 3.2 | 123.8 | 6.3 | 9.5 | COAL | |
| SL | 810002160 | 0.4 | 0.01 | 0.09 | <0.6 | 19 | 2.9 | 6.2 | 57.3 | 12.4 | 6.7 | 2.4 | |
| SH | 810002161 | 0.6 | <0.01 | 0.09 | <0.6 | 26 | 6.2 | 7.3 | 201.3 | 7.4 | 18.2 | 2.7 | |
| CO | COAL | 0.6 | <0.01 | 0.09 | <0.6 | 26 | 6.2 | 7.3 | 201.3 | 7.4 | 18.2 | 2.7 | |
| 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 | |

SAMPLE NO. SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU) pH

| | | | | | | | | |
|----|-----------|------|-----|-----|------|------|------|-----|
| 0 | R-81-1946 | 52.5 | 4.4 | 4.0 | 3.9 | 1.7 | 0.20 | 7.6 |
| 10 | R-81-1948 | 61.7 | 0.9 | 3.9 | 26.2 | 14.4 | 0.84 | 3.7 |
| 10 | R-81-1949 | 49.5 | 0.8 | 3.4 | 32.8 | 8.0 | 0.56 | 6.3 |
| 20 | R-81-1950 | 59.4 | 1.8 | 8.0 | 24.7 | 16.1 | 0.81 | 3.3 |
| 20 | Lost | | | | | | | |

| | | | | | | | | |
|----|-----------|------|------|------|------|------|------|-----|
| 30 | R-81-1951 | 38.6 | 2.0 | 8.9 | 23.7 | 16.7 | 0.19 | 7.5 |
| 30 | R-81-1952 | 55.5 | 7.1 | 15.2 | 7.4 | 1.7 | 0.06 | 8.4 |
| 50 | R-81-1953 | 46.9 | 10.1 | 15.7 | 3.5 | 1.3 | 0.06 | 8.3 |
| 50 | R-81-1954 | 38.2 | 5.5 | 11.8 | 5.6 | 4.3 | 0.03 | 8.0 |
| 60 | R-81-1955 | 42.2 | 3.5 | 11.6 | 12.1 | 10.4 | 0.15 | 7.1 |

| | | | | | | | | |
|----|-----------|-------|------|------|------|------|------|-----|
| 70 | R-81-1956 | 38.1 | 2.6 | 10.1 | 21.2 | 10.1 | 0.41 | 6.3 |
| 70 | R-81-1957 | 71.6 | 25.1 | 34.2 | 2.8 | 0.9 | 0.52 | 7.5 |
| 70 | R-81-1958 | 109.4 | 39.2 | 29.1 | 0.3 | 0.8 | 0.35 | 8.4 |
| 90 | R-81-1959 | 88.0 | 26.4 | 25.7 | 0.7 | 1.2 | 0.12 | 9.4 |

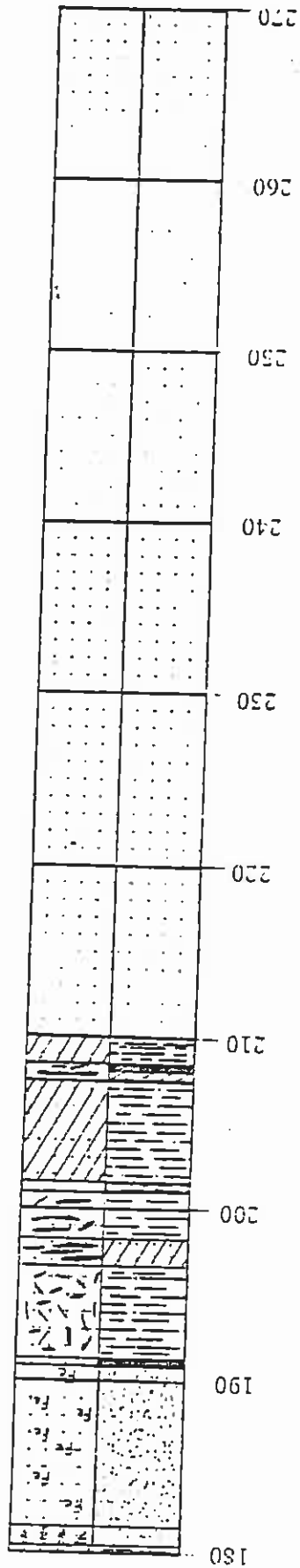


| DEPTH (ft) | SAMPLE NO. | SATURATION & SAR | (MOISTURE) (ASH) | SOL. Na. SOL. Ca. SOL. Mg | (BTU) | TS | pH |
|------------|------------|------------------|------------------|---------------------------|--------|-----|-----|
| 90 | R-81-1960 | 67.6 | 20.6 | 29.1 | 3.6 | 0.4 | 8.0 |
| 95 | R-81-1961 | 61.0 | 35.2 | 37.7 | 2.0 | 0.3 | 8.0 |
| 100 | R-81-1962 | 36.2 | 27.9 | 25.7 | 1.0 | 0.7 | 8.5 |
| 105 | R-81-1963 | 69.4 | 19.6 | 27.4 | 3.5 | 0.4 | 8.3 |
| 110 | R-81-1964 | 34.0 | 26.6 | 19.7 | 0.8 | 0.3 | 8.9 |
| 115 | R-81-1965 | 36.1 | 31.6 | 27.4 | 1.0 | 0.5 | 8.5 |
| 120 | R-81-1966 | 60.7 | 32.7 | 47.9 | 3.6 | 0.7 | 7.9 |
| 125 | E01 | - | 11.71 | - | 12,028 | - | 8.1 |
| 130 | R-81-1967 | 42.0 | 20.7 | 24.0 | 1.7 | 1.0 | 8.0 |
| 135 | E2X | - | 6.87 | - | 12,880 | - | 8.0 |
| 140 | R-81-1968 | 48.1 | 7.7 | 21.4 | 12.1 | 3.2 | 6.9 |
| 145 | R-81-1969 | 42.5 | 8.8 | 23.5 | 13.2 | 1.2 | 8.1 |
| 150 | R-81-1970 | 56.9 | 13.1 | 48.5 | 19.3 | 8.3 | 6.0 |
| 155 | | | | | | | |
| 160 | | | | | | | |
| 165 | | | | | | | |
| 170 | | | | | | | |
| 175 | | | | | | | |
| 180 | | | | | | | |

SEP 3 1986

SEP-3 1986

49



LOCATION: S 21106.0
 E 52138.0
 ELEVATION: 6781.8
 23325C

INVESTIGATOR: G. Hopkins
 DATE COLLECTED: 4/27/81
 SITE NO.: J-16
 PROJECT: 3
 SAMPLE NO. (NORTH) :
 SWR (ASH):
 STRONG. SOLID. SOLING (RTG):
 PH:

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|------|--|
| | | | | | F.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 | |
| SH | 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,MS | 9 | 810001949 | 6.3 | 49.5 | 4.2 | 3.4 | 32.8 | 8 | 0.8 | -0.1 | |
| LOST | 11 | 810001950 | 3.3 | 59.4 | 5.8 | 8 | 24.7 | 16.1 | 1.8 | 1.4 | |
| SS | 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 | 8.4 | |
| SS | 51 | 810001954 | 8 | 38.2 | 1.9 | 11.8 | 5.6 | 4.3 | 5.3 | 12 | |
| SS | 59.2 | 810001955 | 7.1 | 42.2 | 2.9 | 11.6 | 12.1 | 10.4 | 3.5 | 6.2 | |
| SS | 67.4 | 810001956 | 6.3 | 38.1 | 2.9 | 10.1 | 21.2 | 10.1 | 2.6 | 3.8 | |
| CO,SH | 75.6 | 810001957 | 7.5 | 71.6 | 3.8 | 34.2 | 2.8 | 0.9 | 25.1 | 2.5 | |
| SH | 79.9 | 810001958 | 8.4 | 109.4 | 2.8 | 29.1 | 0.3 | 0.8 | 39.2 | 36.3 | |
| SL,SH | 84 | 810001959 | 9.4 | 88 | 2.5 | 25.7 | 0.7 | 1.2 | 26.4 | 27.4 | |
| SH,SH | 88.5 | 810001960 | 8 | 67.6 | 2.5 | 29.1 | 3.6 | 0.4 | 20.6 | 22.6 | |
| SS,SH | 95 | 810001961 | 8 | 61 | 3.1 | 37.7 | 2 | 0.3 | 35.2 | 22.6 | |
| SS | 99.6 | 810001962 | 8.5 | 36.2 | 3.7 | 25.7 | 0.7 | 0.3 | 27.9 | 33.6 | |
| SH | 100.9 | 810001963 | 8.3 | 69.4 | 2.5 | 27.4 | 1 | 0.7 | 19.6 | 28.5 | |
| SS | 105.7 | 810001964 | 8.9 | 34 | 2.9 | 19.7 | 0.8 | 0.4 | 26.6 | 21.7 | |
| SL | 110.8 | 810001965 | 8.5 | 36.1 | 2.8 | 27.4 | 1 | 0.3 | 31.6 | 27.5 | |
| SH | 112.3 | 810001966 | 7.9 | 60.7 | 2.8 | 47.9 | 3.6 | 0.5 | 32.7 | 31.2 | |
| CO | 118.1 | COAL | | | 4.8 | | | 0.7 | | 32 | |
| SH | 130.4 | 810001967 | 8 | 42 | 2.3 | 24 | 1.7 | 1 | 20.7 | 22.6 | |
| CO | 137.1 | COAL | | | 3.1 | 21.4 | 12.1 | 3.2 | 7.7 | 9.2 | |
| SL,SS | 141.3 | 810001968 | 6.9 | 48.1 | 4 | 23.5 | 13.2 | 1.2 | 8.8 | 10.5 | |
| SH,SL | 141.3 | 810001969 | 8.1 | 42.5 | 6.2 | 48.5 | 19.3 | 8.3 | 13.1 | 15.3 | |
| SH | 148.5 | 810001970 | 6 | 56.9 | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | GAC03 Eq Tons / 1000 Tons * | | | | Particle Size | | | | | % Moisture * | |
|----------------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|------------|-----------|-----------------------|--|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. | |
| SO | 810001946 | 3 | 4.6 | 95.6 | 0.13 | 0.06 | 30.95 | . | 26.89 | 55.4 | 22.8 | 21.8 | 30.6 | 9.1 | 21.5 | |
| SH | 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 LOST | 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 | |
| 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 | 82 | 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 | 33.63 | 2.5 | . | 44 | 30.8 | 64.8 | 84.7 | 28.4 | 56.3 | |
| SL, SH | 810001959 | 18 | 0.8 | 363.9 | 0.12 | 3.75 | 8.44 | 16.26 | 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 | 33.63 | 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 | 78.61 | 36.4 | 33.2 | 30.4 | 28 | 2.7 | 25.3 | |
| SS | 810001962 | 3 | 0.8 | 129.6 | 0.1 | 3.13 | 81.74 | 12.48 | 98.83 | 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 | 98.83 | 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 | . | 96.89 | 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 | 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 | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

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

DATE DRILLED S/11/S1

SUB AREA J-16

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU) pH

SAMPLE NO. (MOISTURE) (ASH)

R-81-2011

R-81-2012

R-81-2013

R-81-2014

R-81-2015

R-81-2016

R-81-2017

R-81-2018

R-81-2019

R-81-2020

R-81-2021

R-81-2022

R-81-2023

R-81-2024

R-81-2025

R-81-2026

R-81-2027

R-81-2028

R-81-2029

R-81-2030

R-81-2031

R-81-2032

R-81-2033

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R-81-2249

R-81-2250

R-81-2251

R-81-2252

R-81-2253

R-81-2254

R-81-2255

R-81-2256

R-81-2257

R-81-2258

R-81-2259

R-81-2260

R-81-2261

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R-81-2289

R-81-2290

R-81-2291

R-81-2292

R-81-2293

R-81-2294

R-81-2295

R-81-2296

R-81-2297

SAMPLE NO. (MOISTURE) SAR SOL. No. SOL. Ca. SOL. Mg (BTU) PH

90

| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| 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 - | - | (10.79) | - | - | - | (0.50) | (8.5) |
|-------|---|---------|---|---|---|--------|-------|

| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| R-81-2035 | 57.3 | 17.2 | 20.3 | 1.5 | 1.3 | 0.05 | 9.5 |
|-----------|------|------|------|-----|-----|------|-----|

| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| R-81-2036 | 40.5 | 17.2 | 19.6 | 1.6 | 1.0 | 0.03 | 9.0 |
|-----------|------|------|------|-----|-----|------|-----|

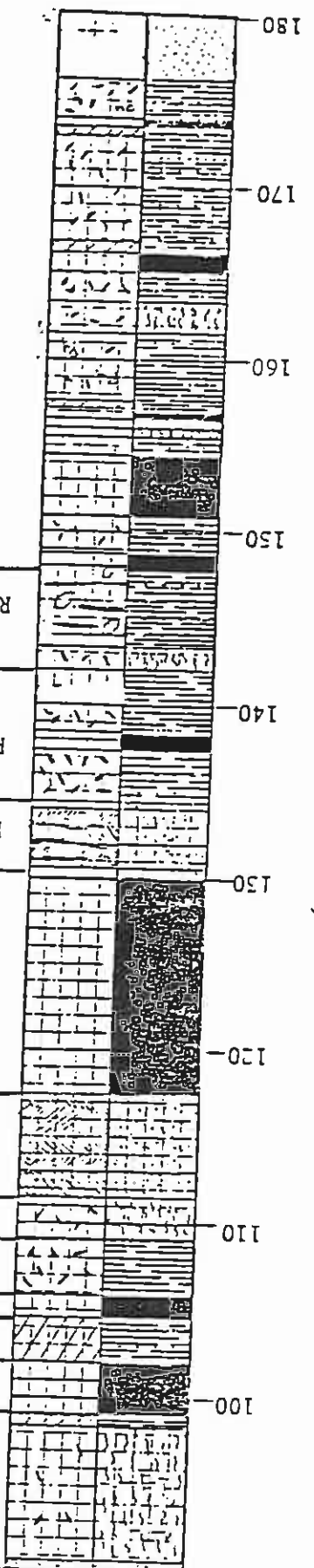
| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| R-81-2037 | 30.2 | 20.4 | 17.1 | 0.5 | 0.4 | 0.05 | 9.1 |
|-----------|------|------|------|-----|-----|------|-----|

| | | | | | | | |
|-----|---|--------|---|---------|---|--------|-------|
| E12 | - | (5.07) | - | (2,082) | - | (0.48) | (8.1) |
|-----|---|--------|---|---------|---|--------|-------|

| | | | | | | | |
|-----------|------|-----|------|------|------|------|-----|
| R-81-2038 | 42.2 | 5.9 | 25.9 | 28.3 | 10.3 | 0.57 | 7.1 |
|-----------|------|-----|------|------|------|------|-----|

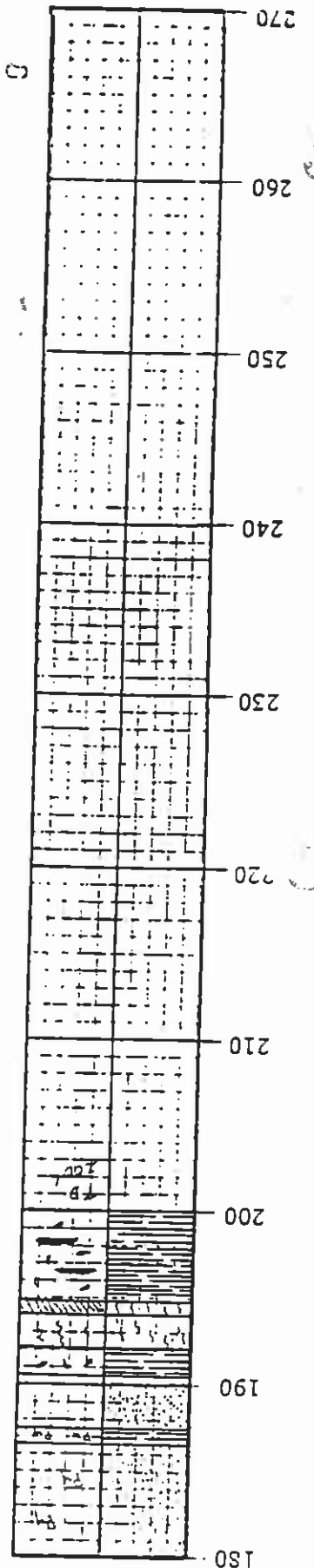
| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| R-81-2039 | 45.2 | 33.1 | 28.7 | 0.9 | 0.6 | 0.55 | 7.6 |
|-----------|------|------|------|-----|-----|------|-----|

| | | | | | | | |
|-----------|------|------|------|-----|-----|------|-----|
| R-81-2040 | 36.8 | 30.3 | 28.7 | 1.2 | 0.6 | 0.60 | 8.2 |
|-----------|------|------|------|-----|-----|------|-----|



SEP 3 1986

54



LOCATION S 19668.0
 E 57764.0
 SECTION 6730.8

55

SEP 3 1986

G. Hopkins
 DATE DRILLED 5/17/87
 SUB AREA J-16
 JOB 3
 SATURATION & SVR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 SAMPLE NO. (MOISTURE) (ASH) pH

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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, SD | 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 | | | 0.4 |
| SL | 20.2 | 810002017 | 6.1 | 59.2 | 7.5 | 62.3 | 1.4 | 12.5 | 23.6 | | | 6.9 |
| LOST | 22.9 | LOST | | | | | | | | | | 25.1 |
| SH | 24 | 810002018 | 6.5 | 63.2 | 8.9 | 80.6 | 21 | 8.8 | 20.9 | | | 22.8 |
| SH | 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 | 0.3 | 38.6 | | | 35.8 |
| CO | 43.9 | 810002023 | 6.3 | 78.4 | 2.9 | 24.4 | 0.4 | 0.4 | 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 | 4.2 | 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 |
| SS | 62.1 | 810002028 | 6.1 | 66.9 | 4.9 | 46.4 | 1.6 | 1 | 40.7 | | | 37 |
| MS, SL, SH | 64.2 | 810002029 | 8.6 | 36.2 | 2.6 | 20.8 | 1.9 | 0.4 | 19.4 | | | 21.5 |
| SH, CO | 68.5 | 810002030 | 8.1 | 58.8 | 4.2 | 40.3 | 1.6 | 0.5 | 39.3 | | | 36.2 |
| SS, SH | 73.3 | 810002031 | 8 | 51 | 1.5 | 16.2 | 0.5 | 1.7 | 15.4 | | | 17.7 |
| SH | 75.8 | 810002032 | 8.8 | 28.1 | 2.1 | 21.2 | 0.5 | 0.6 | 28.6 | | | 12.7 |
| SS, SL, SH | 86.5 | 810002033 | 9.2 | 44.5 | 2.2 | 22 | 1.6 | 6.8 | 10.7 | | | 12.7 |
| CO | 90 | 810002034 | 9.3 | 46.8 | 2 | 21.4 | 1 | 0.4 | 25.6 | | | 26.7 |
| SH | 98.9 | COAL | | | | | | | | | | |
| CO | 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

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture | | |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|------------|-----------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 | 15.01 | 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 | 11.89 | 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 | 41.39 | 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 | 55.35 | . | 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 | 56.47 | . | 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 | 60.6 | 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 | 41.53 | 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 | 54.94 | . | 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 | 52.69 | . | 34.2 | 30.6 | 35.2 | 26.2 | 11.9 | 14.3 |
| CO | 810002023 | 7 | 2.2 | 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 | 11.98 | 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 | 11.46 | 19.2 | 41.6 | 39.2 | 27.8 | 15 | 12.8 |
| SS | 810002027 | 12 | 1.9 | 113.1 | 1.11 | 34.38 | 74.2 | 26.46 | 39.82 | 59.2 | 22.6 | 18.2 | 23.4 | 4.1 | 12.8 |
| SH | 810002028 | 10 | 4.4 | 183.9 | 1.11 | 34.38 | 8.27 | 26.46 | 39.82 | 19.2 | 41.6 | 12.2 | 13.4 | 4.1 | 12.8 |
| SS | 810002029 | 5 | 1.8 | 75.4 | 0.06 | 1.88 | 269.72 | 26.46 | 267.84 | 15.6 | 15.6 | 7.2 | 20.5 | 7.7 | 12.8 |
| MS, SL, SH | 810002030 | 12 | 2.7 | 212.4 | 0.94 | 29.38 | 63.95 | 1.2 | 34.57 | 66.2 | 12.6 | 37.2 | 10.1 | 3.7 | 6.4 |
| SH, CO | 810002031 | 8 | 0.5 | 129.5 | 0.33 | 10.31 | 9.11 | 1.2 | 31.36 | 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 | 43.87 | . | 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 | 9.37 | 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 | 66.36 | 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 | 9.37 | 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

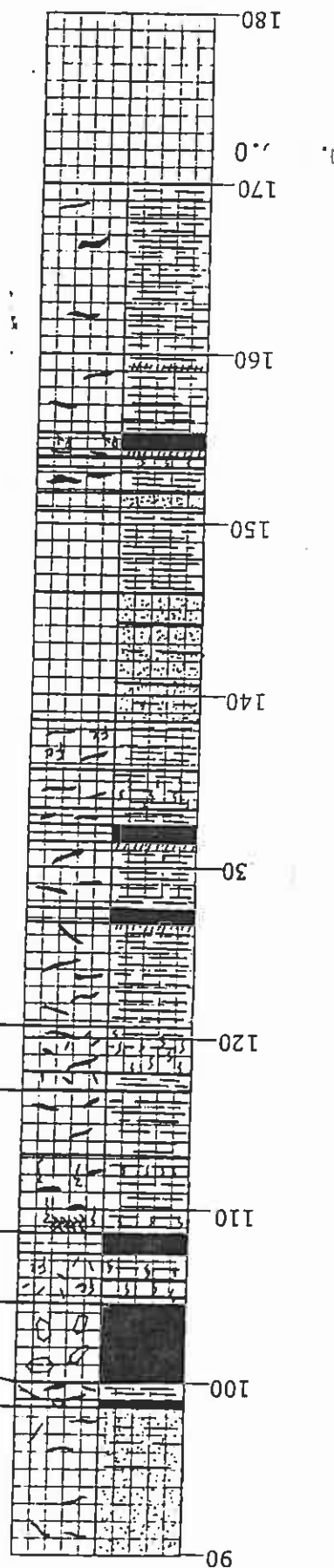
Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | |

SAMPLE NO. SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU) pH

| ELEVATION | SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | pH |
|-----------|------------|------------------|----------|----------|---------|----------|--------|
| 0 | 850001180 | 56.9 | 3.3 | 14.0 | 17.0 | 19.7 | 0.03 |
| 10 | 850001181 | 34.1 | 1.7 | 11.2 | 23.3 | 60.2 | <0.01 |
| 10 | 850001182 | 41.1 | 1.7 | 12.9 | 23.8 | 88.3 | 0.35 |
| 20 | 850001183 | 54.3 | 4.7 | 28.8 | 21.6 | 53.2 | 0.43 |
| 20 | 850001184 | 38.2 | 7.1 | 15.2 | 2.7 | 6.5 | <0.01 |
| 30 | 850001185 | 65.4 | 24.4 | 12.2 | 0.3 | 0.2 | 0.05 |
| 30 | 850001186 | 70.2 | 29.1 | 13.0 | 0.3 | 0.1 | 0.06 |
| 40 | 850001187 | 53.4 | 55.4 | 12.4 | <0.1 | <0.1 | 0.08 |
| 50 | 850001188 | 32.2 | 57.7 | 12.9 | 0.1 | <0.1 | <0.01 |
| 60 | 850001189 | 60.9 | 80.9 | 18.1 | 0.1 | <0.1 | 0.03 |
| 60 | E1X | (N/A) | (7.06) | | | (12,777) | (0.43) |
| 70 | 850001190 | 32.4 | 33.1 | 10.6 | <0.1 | <0.1 | <0.01 |
| 80 | 850001191 | 36.7 | 7.2 | 13.5 | 3.7 | 3.4 | 0.01 |
| 90 | | | | | | | 8.2 |

SEP 3 1986



FILE NO. 26462C
 OCCATION S 24318.0
 E 56104.0
 LEV. ON 6719.5

| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | PH |
|------------|--------------|---------|----------|----------|---------|--------|
| 850001192 | 36.9 | 4.9 | 9.8 | 3.7 | 4.4 | < 0.01 |
| 850001193 | 53.7 | 40.6 | 13.0 | < 0.1 | < 0.1 | 0.32 |
| EZX | (N/A) | (10.23) | | (12.505) | | (0.61) |
| 850001194 | 34.8 | 21.1 | 14.9 | 0.7 | 0.3 | 0.23 |
| 850001195 | 43.8 | 14.7 | 25.1 | 4.5 | 1.3 | 0.48 |
| 850001196 | 32.7 | 29.4 | 9.3 | 0.2 | < 0.1 | 0.03 |

60

SEP 3 1986

DRILLER D. Hopkins
 DATE DRILLED 6-14-85
 SUB AREA J-16
 PAGE 2

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | |
|--------------|--------|-----------|-------------|-----------|-------------------------|-------------|-------------|-------------|------|------------|-----------|--------------------------|---------------------------|--------------------------|------|--|--|
| | | | | | E.C. mho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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 | 44.6 | | |
| 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 | | |

*DRY Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CAC03 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture * | | |
|--------------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | 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 | | | 0.03 | | 0.94 | 13.96 | | 13.02 | 19.2 | 42.6 | 38.2 | | | |
| SS | 850001181 | <0.01 | | | <0.01 | | 0 | 133.12 | | 133.12 | 64.2 | 25.6 | 10.2 | | | |
| SS | 850001182 | 0.35 | | | 0.35 | | 10.94 | 23.68 | | 12.74 | 39.6 | 29.2 | 31.2 | | | |
| SH | 850001183 | 0.43 | | | 0.43 | 0.3 | 13.44 | 5.34 | 8.1 | | 20.6 | 31.2 | 48.2 | | | |
| SS | 850001184 | <0.01 | | | <0.01 | | 0 | 36.59 | | | 54.6 | 27.8 | 17.6 | | | |
| SH, SL | 850001185 | 0.05 | | | 0.05 | | 1.56 | 22.99 | | 21.43 | 21.6 | 39.2 | 39.2 | | | |
| SH | 850001186 | 0.06 | | | 0.06 | | 1.88 | 34.17 | | 32.29 | 19.6 | 37.2 | 43.2 | | | |
| CO, SH, SL | 850001187 | 0.08 | | | 0.08 | | 2.5 | 8.97 | | 6.47 | 32.6 | 38.2 | 29.2 | | | |
| SS | 850001188 | <0.01 | | | <0.01 | | 0 | 44.47 | | 44.47 | 73.6 | 15.2 | 11.2 | | | |
| SS, SH, | 850001189 | 0.03 | | | 0.03 | | 0.94 | 26.45 | | 25.51 | 26 | 37.8 | 36.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH, SL | 850001190 | <0.01 | | | <0.01 | | 0 | 5.22 | | 5.22 | 40.4 | 36.8 | 22.8 | | | |
| SS | 850001191 | 0.01 | | | 0.01 | | 0.31 | 18.08 | | 17.77 | 79.4 | 13.8 | 6.8 | | | |
| SS | 850001192 | <0.01 | | | <0.01 | | 0 | 21.86 | | 21.86 | 81.4 | 11.8 | 6.8 | | | |
| CO, SH | 850001193 | 0.32 | | | 0.32 | | 10 | 12.67 | | 2.67 | 50.4 | 8.8 | 40.8 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SL, CO | 850001194 | 0.23 | | | 0.23 | 0.1 | 7.19 | 5.58 | 1.61 | | 48.4 | 42.8 | 8.8 | | | |
| SH | 850001195 | 0.48 | | | 0.48 | 0.39 | 15.00 | 11.76 | 3.24 | | 27.4 | 25.8 | 46.8 | | | |
| SH, SL | 850001196 | 0.03 | | | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | TARIN Mo PPM | * Hg PPB | AB-DIPA Extract * | | | | | | | Organic # Matter % |
|--------------|-----------|----------------|-----------|-----------|--------------------|----------------|-------------------|-----------|-----------|-----------|-----------|--|--|--------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | 0.7 | 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, SH, | 850001188 | | 0.5 | | 0.9 | <10 | 0.7 | 0.8 | 30.2 | 2.1 | 2.8 | | | |
| CO | 850001189 | | 0.49 | | <0.6 | 13 | 1.3 | 1.6 | 32.5 | 4.2 | 4.2 | | | |
| 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 | 4.4 | 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, CO | 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

LOCATION 32605 S

65280 E

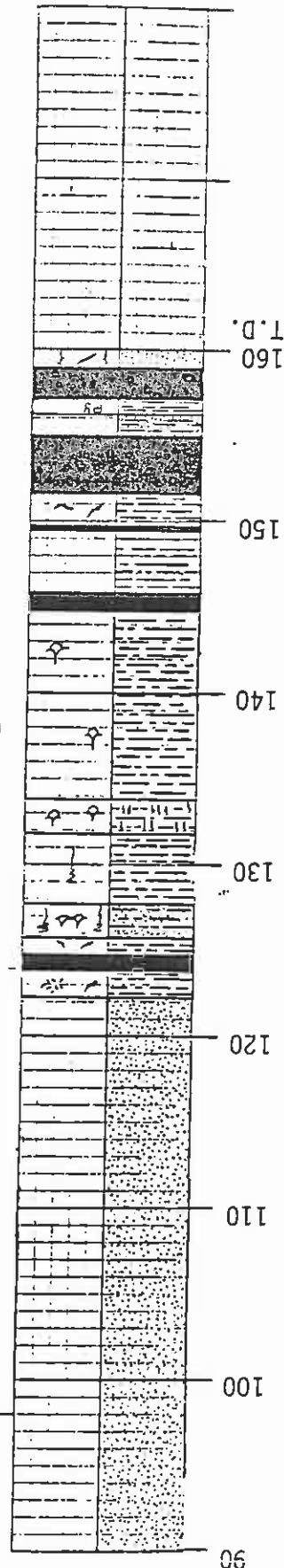
ELEVATION 6956.7

DRILLER G. Hopkins

PAGE 2

DATE DRILLED 10/16/84

SUB AREA J-21



YOA
YOB

T.D.
160

150

140

130

120

110

100

90

R-84-2569

26.1

46.8

14.8

0.1

0.1

<0.01

9.0

SAMPLE NO.

SATURATION %
(MOISTURE)

SAR
(ASH)

SOL. Na.
(BTU)

SOL. Ca.
(BTU)

% S

PH

65

SEP

3

1986

PEARBODY COAL CL. ANY
CENTRAL LABORATORY

SG: 11
TWP: 39N
RGL: 19E
11-06-89

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | |
|-----------------|-------|------------|----------|----------|-------------------------|----------|----------|----------|------|-----------|-----------|------------|---------|------|--|
| | | | | | E.G. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | Sar | Sul meq/l | CO3 meq/l | HCO3 meq/l | Cl mg/l | ESP | |
| Silt, Soil | 0.0 | R-84-25594 | 8.2 | 44.7 | 1.4 | 9.0 | 2.5 | 4.7 | 1.7 | 6.3 | 0 | 2.5 | 1.75 | 5.4 | |
| Shale | 6.0 | R-84-25595 | 8.2 | 46.5 | 1.5 | 9.2 | 1.8 | 6.3 | 4.6 | 8.2 | 0 | 2.7 | 1.70 | 5.3 | |
| Shale, Sl | 10.6 | R-84-25596 | 7.9 | 38.3 | 1.5 | 7.8 | 2.1 | 7.5 | 1.6 | 9.6 | 0 | 1.7 | 1.19 | 3.9 | |
| Shale | 17.8 | R-84-25597 | 8.0 | 40.7 | 1.2 | 5.1 | 1.5 | 6.8 | 2.5 | 6.8 | 0 | 3.3 | 33 | 2.4 | |
| Shale | 24.63 | R-84-25598 | 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-84-25599 | 8.0 | 42.4 | 0.8 | 4.3 | 1.9 | 3.6 | 2.6 | 7.2 | 0 | 5.2 | 11 | 2.6 | |
| Coal GXX | 38.3 | COAL | | | | | | | | | | | | | |
| Shale | 44.8 | R-84-25600 | 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-84-25601 | 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-84-25602 | 8.6 | 55.8 | 1.4 | 14.8 | 0.2 | 0.1 | 34.2 | 11.4 | 0.3 | 6.1 | 8 | 35.5 | |
| Coal | 62.1 | R-84-25603 | 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-84-25604 | 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-84-25605 | 8.1 | 52.8 | 1.4 | 14.7 | 0.2 | 0.1 | 39.0 | 7.0 | 0.4 | 10.3 | 6 | 25.4 | |
| Shale | 68.0 | R-84-25606 | 8.2 | 44.9 | 2.0 | 21.4 | 0.2 | 0.1 | 59.2 | 10.0 | 1.0 | 9.8 | 8 | 44.5 | |
| Coal RXX | 69.2 | COAL | | | | | | | | | | | | | |
| Shale | 77.8 | R-84-25607 | 7.7 | 40.6 | 2.2 | 23.9 | 0.4 | 0.1 | 47.8 | 11.6 | 0.7 | 10.9 | 9 | 40.2 | |
| Coal RXX | 79.2 | COAL | | | | | | | | | | | | | |
| Shale, Co | 81.7 | R-84-25608 | 8.0 | 39.1 | 1.5 | 15.4 | <0.1 | <0.1 | 49.7 | <5.0 | 0 | 5.9 | 27 | 11.4 | |
| Sandstone | 88.0 | R-84-25609 | 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 | | | | | | | | | | | | | | |

#Dry Basis

PIABODY COAL COMPANY
CENTRAL LABORATORY

REPORT OF ANALYSIS
 Sample No: 2007
 Date of Analysis: 10-16-80
 Sigs: 11
 EMP: JNR
 KCF: 19F
 Date of Report: 11-06-80

| Sample No. | Total PPM | MnCO ₃ PPM | NiPOAc K PPM | Total S % | Amount Req'd. from S | CaCO ₃ Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture * | | Avail. H ₂ O Hold. Cap. |
|------------|-----------|-----------------------|--------------|-----------|----------------------|---|---------------|---------------|---------------|--------|--------|--------------|--------|------------------------------------|
| | | | | | | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 1-24-20594 | 7 | 2.1 | 44.9 | <0.01 | 0.31 | 54.27 | | 53.96 | 50.6 | 27.0 | 22.4 | 13.5 | 6.0 | 7.5 |
| 1-24-20595 | 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 |
| 1-24-20596 | 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 |
| 1-24-20597 | 11 | 1.3 | 127 | <0.01 | 0.31 | 89.37 | | 89.06 | 44.6 | 29.0 | 26.4 | 10.7 | 5.2 | 5.5 |
| 1-24-20598 | 12 | 2.4 | 104 | <0.01 | 0.31 | 191.01 | | 190.70 | 54.6 | 25.0 | 20.4 | 7.8 | 3.1 | 4.7 |
| 1-24-20599 | 8 | 1.7 | 108 | <0.01 | 0.31 | 129.12 | | 128.81 | 48.6 | 30.0 | 21.4 | 8.7 | 3.6 | 5.1 |
| 1-24-20600 | 18 | 1.2 | 263 | 0.73 | 22.81 | 29.25 | | 6.44 | 19.6 | 42.4 | 38.0 | 14.2 | 7.9 | 6.3 |
| 1-24-20601 | 17 | 1.4 | 219 | 0.18 | 5.62 | 55.80 | | 50.18 | 46.6 | 26.4 | 27.0 | 14.4 | 8.0 | 6.4 |
| 1-24-20602 | 14 | 1.8 | 291 | 1.32 | 41.25 | 13.51 | | 27.74 | 21.6 | 42.4 | 36.0 | 17.7 | 13.2 | 4.5 |
| 1-24-20603 | 13 | 0.7 | 48.7 | 2.28 | 71.25 | 12.58 | | 58.67 | 90.6 | 9.4 | 0 | 12.3 | 12.2 | 0.1 |
| 1-24-20604 | 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 |
| 1-24-20605 | 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 |
| 1-24-20606 | 16 | 1.3 | 190 | 1.30 | 40.62 | 11.11 | | 29.51 | 21.4 | 44.8 | 33.8 | 23.0 | 5.6 | 17.4 |
| 1-24-20607 | 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 |
| 1-24-20608 | 9 | 0.9 | 165 | 0.88 | 27.50 | 10.04 | | 17.46 | 44.4 | 33.8 | 21.8 | 21.9 | 10.9 | 11.0 |
| 1-24-20609 | 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 |

*Dry Basis

PFABODY COAL Co., ANY
CENTRAL LABORATORY

Field : Fagunda 292 Site : 11
 Core No: 24992 WPT: 35N
 Date Col'd: 10-16-84 RCL: 191
 Date Anal'd: 11-06-84

| Lithology | Lab No. | Hol H ₂ O Exl. * | | | | All-DIPA Fraction * | | | | | | | Organic Matter % |
|------------|------------|-----------------------------|-----------|-----------|-----------|---------------------|-----------|-----------|-----------|-----------|------|--|------------------|
| | | B ppm | As ppm | Se ppm | Li ppm | Ca ppm | Cu ppm | Fe ppm | Mn ppm | Zn ppm | | | |
| Surf. Soil | R-84-25594 | 1.0 | <0.01 | <0.01 | 1.1 | 0.1 | 1.7 | 28.0 | 3.2 | <1.0 | 0.5 | | |
| Shale, SI | R-84-25595 | 0.7 | <0.01 | <0.01 | 0.6 | <0.1 | 3.4 | 24.0 | 5.6 | <1.0 | 0.3 | | |
| Shale, SI | R-84-25596 | 0.7 | <0.01 | <0.01 | <0.6 | <0.1 | 3.0 | 23.0 | 6.4 | <1.0 | 0.5 | | |
| Shale, SI | R-84-25597 | 1.1 | <0.01 | 0.02 | 0.6 | 1.4 | 4.3 | 51.0 | 9.5 | 2.8 | 2.7 | | |
| Shale, SI | R-84-25598 | 1.2 | <0.01 | 0.01 | 0.8 | 1.7 | 2.2 | 92.6 | 5.7 | 2.0 | 2.3 | | |
| Coal G-X | R-84-25599 | 1.2 | <0.01 | 0.02 | 0.6 | 1.8 | 2.2 | 1.21 | 7.3 | 2.6 | 3.4 | | |
| Shale | R-84-25601 | 0.9 | <0.01 | 0.11 | 0.6 | 1.3 | 5.2 | 44.8 | 1.3 | 2.2 | 8.9 | | |
| Coal Bog | COAL | | | | | | | | | | | | |
| Shale, SI | R-84-25601 | 0.3 | 0.06 | 0.04 | 0.8 | 1.1 | 3.4 | 75.7 | 2.2 | 1.5 | 10.8 | | |
| Shale, SI | R-84-25602 | 0.2 | 0.19 | 0.10 | 0.6 | 1.6 | 5.2 | 49.2 | <1.0 | 1.3 | 12.4 | | |
| Coal | R-84-25603 | 1.5 | 0.01 | 0.02 | <0.6 | 0.2 | 0.9 | 20.1 | <1.0 | <1.0 | COAL | | |
| Shale, SS | R-84-25604 | 0.4 | 0.04 | 0.03 | 0.8 | 1.2 | 2.5 | 68.8 | 1.1 | 1.4 | 11.0 | | |
| Coal | R-84-25605 | 0.8 | 0.02 | 0.02 | 0.6 | 0.1 | 0.9 | 23.6 | <1.0 | <1.0 | COAL | | |
| Shale | R-84-25606 | 0.6 | 0.20 | 0.12 | 0.6 | 1.3 | 4.3 | 42.7 | <1.0 | <1.0 | 12.9 | | |
| Coal K-X | COAL | | | | | | | | | | | | |
| Shale | R-84-25607 | 0.9 | 0.11 | 0.14 | 0.6 | 1.4 | 2.1 | 38.6 | <1.0 | <1.0 | 14.0 | | |
| Coal K-X | COAL | | | | | | | | | | | | |
| Shale, Co | R-84-25608 | 1.1 | 0.17 | 0.08 | <0.6 | 1.2 | 3.5 | 29.2 | <1.0 | 1.2 | COAL | | |
| Sandstone | R-84-25609 | 0.5 | 0.08 | 0.01 | 0.6 | 0.7 | 1.0 | 76.4 | 3.0 | 1.0 | 0.6 | | |

HOLE NO. 14403-C

LOCATION S 32249.0

E 69680.0

ELEVATION 6984.6

DATE DRILLED 9-20-82

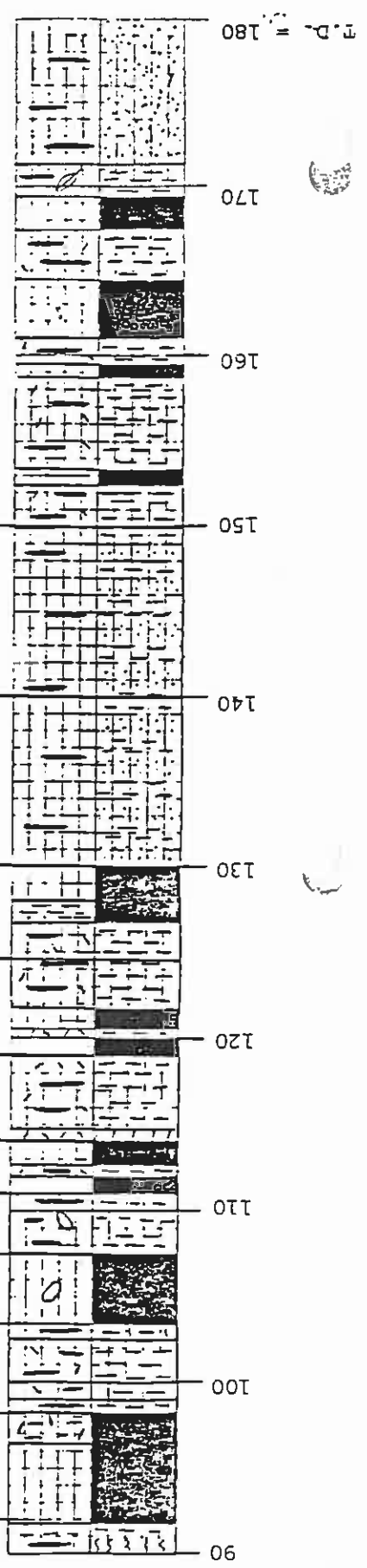
SUB-AREA J-21

SAR SOL.Na. SOL.Ca. SOL.Mg

(BTU) %S pH

| DEPTH | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|-------|------|---------|---------|--------|-------|-------|-----|
| 0 | 47.8 | 2.6 | 2.9 | 1.5 | 1.0 | <0.01 | 8.3 |
| | 40.9 | 3.9 | 5.1 | 1.4 | 2.0 | <0.01 | 8.5 |
| | 49.8 | 6.4 | 15.5 | 3.6 | 8.3 | <0.01 | 8.3 |
| 10 | 51.7 | 3.6 | 18.5 | 23.9 | 27.6 | <0.01 | 8.1 |
| 20 | 40.4 | 1.6 | 6.9 | 15.9 | 20.6 | 0.22 | 8.1 |
| 30 | 38.3 | 0.8 | 3.3 | 9.5 | 23.8 | <0.01 | 8.0 |
| 40 | 38.2 | 0.6 | 3.3 | 23.9 | 41.1 | <0.01 | 7.9 |
| 40 | NA | NA | NA | NA | NA | .52 | NA |
| 50 | 38.7 | 14.8 | 11.0 | 0.7 | 0.4 | <0.01 | 8.6 |
| 60 | 36.5 | 13.5 | 10.9 | 0.6 | 0.7 | <0.01 | 8.4 |
| 70 | 9.0 | NA | NA | NA | NA | 0.4 | NA |
| 80 | 56.0 | 19.3 | 16.7 | 0.5 | 1.0 | 0.89 | 8.4 |
| 90 | 61.7 | 35.6 | 36.5 | 1.2 | 0.9 | 0.48 | 8.5 |
| | 9.57 | NA | NA | NA | NA | 0.57 | NA |

SEP 13 1986



LOCATION S 32249.0
 E-69680.0
 ELEVATION 6984.6
 SAMPLE NO.

| DEPTH | SAMPLE NO. | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | pH |
|-------|-----------------|------|---------|---------|--------|------|
| 90 | R-82-4432 | 40.2 | 33.6 | 31.0 | 0.9 | 0.47 |
| 100 | (82-2388-R) ROX | 10.6 | NA | NA | 0.9 | NA |
| 100 | R-82-4433 | 40.2 | 33.4 | 24.8 | 0.8 | 0.23 |
| 110 | R-82-4434 | 42.2 | 31.6 | 35.3 | 1.5 | 1.3 |
| 110 | (82-2390-R) R1X | | | | NA | 0.52 |
| 110 | (82-2391-R) R2X | | 13.4 | | NA | 1.3 |
| 120 | R-82-4435 | 38.2 | 62.2 | 74.9 | 1.5 | 0.78 |
| 120 | R-82-4436 | 44.8 | 35.7 | 22.6 | 0.6 | 1.16 |
| 130 | R-82-4437 MX | 45.1 | 37.4 | 34.5 | 1.2 | 1.51 |
| 140 | R-82-4438 | 40.1 | 38.8 | 35.8 | 1.0 | 0.85 |
| 150 | R-82-4439 | 38.2 | 31.8 | 25.6 | 0.6 | 1.06 |

DATE DRILLED 9-20-82
 SUB AREA J-21
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 pH

SEP-3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | 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 |
| SH | 111 | COAL | | | | | | | | | | | | | | | | |
| CO | 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

| Lithology | Lab No. | * Total N PPM | * NH4CO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | GAC03 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SO | 850001326 | <0.01 | | | <0.01 | 0.31 | 42.51 | . | 42.2 | 45.6 | 25 | 29.4 | | | | |
| SO | 850001327 | <0.01 | | | <0.01 | 0.31 | 46.81 | . | 46.5 | 62.6 | 18 | 19.4 | | | | |
| SH | 850001328 | <0.01 | | | <0.01 | 0.31 | 48.14 | . | 47.83 | 55.6 | 24 | 20.4 | | | | |
| SH | 850001329 | <0.01 | | | <0.01 | 0.31 | 57.81 | . | 57.5 | 43.6 | 35 | 21.4 | | | | |
| SS | 850001330 | <0.01 | | | <0.01 | 0.31 | 222.62 | . | 222.31 | 65.6 | 26 | 8.4 | | | | |
| SS | 850001331 | 0.22 | | | 0.22 | 6.88 | 132.24 | . | 125.36 | 74.6 | 18 | 7.4 | | | | |
| CO | 850001332 | <0.01 | | | <0.01 | 0.31 | 173.85 | . | 173.54 | 77.6 | 16 | 6.4 | | | | |
| SH | 850001333 | <0.01 | | | <0.01 | 0.31 | 32.26 | . | 31.95 | 39.6 | 31 | 29.4 | | | | |
| SH | 850001334 | <0.01 | | | <0.01 | 0.31 | 48.83 | . | 48.52 | 50 | 28.6 | 21.4 | | | | |
| SH, SS | 850001335 | 0.61 | | | 0.61 | 19.06 | 1.65 | 17.41 | . | 69 | 18.6 | 12.4 | | | | |
| CO | 850001336 | | | | | 27.81 | 9.53 | 18.28 | . | 25 | 37.6 | 37.4 | | | | |
| CO | 850001337 | | | | | 15 | 36.59 | . | 21.59 | 22 | 35.6 | 42.4 | | | | |
| SH, SL | 850001338 | | | | | 14.69 | 23.15 | . | 8.46 | 60 | 31.6 | 8.4 | | | | |
| CO | 850001339 | | | | | 7.19 | 24.42 | . | 17.23 | 39 | 38.6 | 22.4 | | | | |
| SH, CO, SL | 850001340 | | | | 0.23 | 40.63 | 8.79 | 31.84 | . | 56 | 34.6 | 9.4 | | | | |
| CO | 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

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

| DEPTH | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | pH | CORRECTION | |
|-------|-----------------|--------------|------|----------|----------|----------|-------|------------|-------|
| | | | | | | | | (ASH) | (BTU) |
| 0 | R-82-4440 | 56.8 | 1.2 | 1.9 | 3.0 | 2.4 | <0.01 | 8.0 | |
| 10 | R-82-4441 | 48.5 | 1.4 | 2.1 | 2.5 | 2.2 | 0.02 | 8.1 | |
| 10 | R-82-4442 | 40.2 | 1.2 | 2.6 | 4.2 | 6.0 | <0.01 | 8.0 | |
| 10 | R-82-4443 | 48.4 | 1.6 | 4.8 | 7.5 | 10.8 | 0.06 | 6.7 | |
| 10 | R-82-4444 | 62.4 | 10.0 | 18.8 | 4.8 | 2.3 | 0.32 | 6.9 | |
| 20 | R-82-4445 | 42.6 | 18.3 | 16.9 | 0.8 | 0.9 | 0.17 | 7.7 | |
| 30 | R-82-4446 | 36.1 | 26.7 | 33.2 | 1.3 | 1.8 | <0.01 | 8.7 | |
| 30 | R-82-4447 | 36.1 | 16.2 | 24.9 | 1.9 | 2.8 | 0.01 | 8.8 | |
| 40 | R-82-4448 | 36.1 | 26.2 | 21.1 | 0.7 | 0.6 | <0.01 | 8.8 | |
| 50 | R-82-4449 | 34.2 | 19.7 | 21.1 | 1.3 | 1.0 | 0.26 | 8.7 | |
| 50 | VXX (82-2393-R) | 13.7 | NA | NA | NA | 0.68 | NA | NA | |
| 60 | R-82-4450 | 56.2 | 18.3 | 21.7 | 1.3 | 1.5 | 0.11 | 8.7 | |
| 70 | R-82-4451 | 38.1 | 17.7 | 18.6 | 0.9 | 1.3 | <0.01 | 8.8 | |
| 80 | G0A R-82-4452 | 144.2 | 29.4 | 23.7 | 0.6 | 0.7 | 0.20 | 8.1 | |
| 80 | G0X (82-2396-R) | 9.9 | NA | NA | NA | 0.55 | NA | NA | |
| 90 | R-82-4453 | 46.6 | 42.0 | 23.0 | 0.4 | 0.2 | 0.15 | 8.1 | |

SEP 3 1986

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

G1X (82-2398-R) 11.2 NA 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 NA 0.52 NA

R-82-4457 36.2 26.9 29.5 1.1 1.3 0.21 8.3

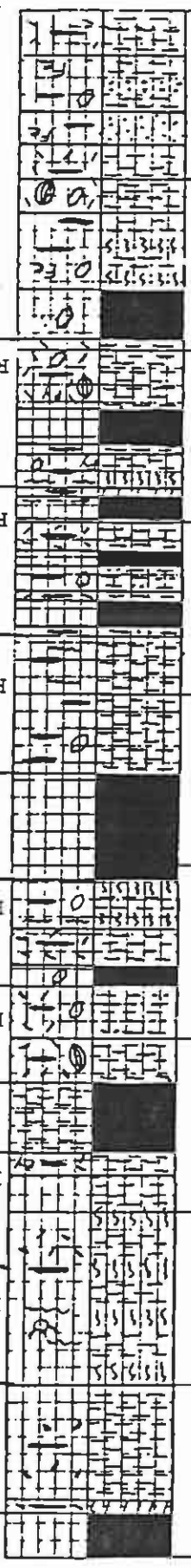
R-82-4458 39.9 24.7 22.1 0.7 0.9 0.45 7.8

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

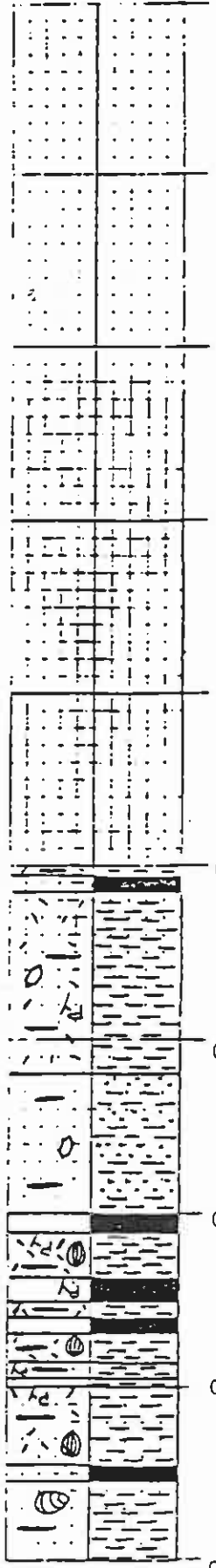
R3X R-82-4461 43.4 59.1 51.2 0.9 0.6 1.55 7.5

MX



180
170
160
150
140
130
120
110
100
90

SEP 3 1986



ELEVATION = 220

210

200

190

180

ELEVATION 7127.4

E72423.8

LOCATION S33188.0

24404 C

SAMPLE NO.

SATURATION 3 SAR SOL.Na. SOL.Ca. SOL.Mg

(ASH)

(BTU)

SS

PH

DATE DRILLED 9-23-82

SUB AREA J-21

76

SEP

3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | 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

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * PYR. S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | Avail. H2O Hold. Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SO | 850001342 | <0.01 | | | | | 0.31 | 141.18 | | 140.87 | 33.2 | 29 | 37.8 | | | |
| SH | 850001343 | 0.02 | | | | | 0.63 | 173.03 | | 172.4 | 43.2 | 29 | 27.8 | | | |
| SH,CO | 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,SL | 850001347 | 0.17 | | | | | 5.31 | 24.12 | | 18.81 | 37.2 | 30 | 32.8 | | | |
| SH | 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 | | | |
| 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 | 850001355 | | | | | | 4.69 | 20.35 | | 15.66 | 40.2 | 25 | 34.8 | | | |
| 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 | 850001359 | | | | | | 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 | 36 | 14.8 | | | |
| CO | 850001361 | | | | | | 21.88 | 9.93 | 11.95 | | 27.2 | 44 | 28.8 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24H04C
DATE CORED:23SEP1982
DATE REPORTED:10SEP1985

DRY Basis

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

HOLE NO. 24405-C

DRILLER J. Elliott

DATE DRILLED 10-4-82

SUB AREA J-21

PAGE 1

LOCATION S36191.0
E67171.0
ELEVATION 7050.1

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

(82-2401-R) VXX 7.7 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

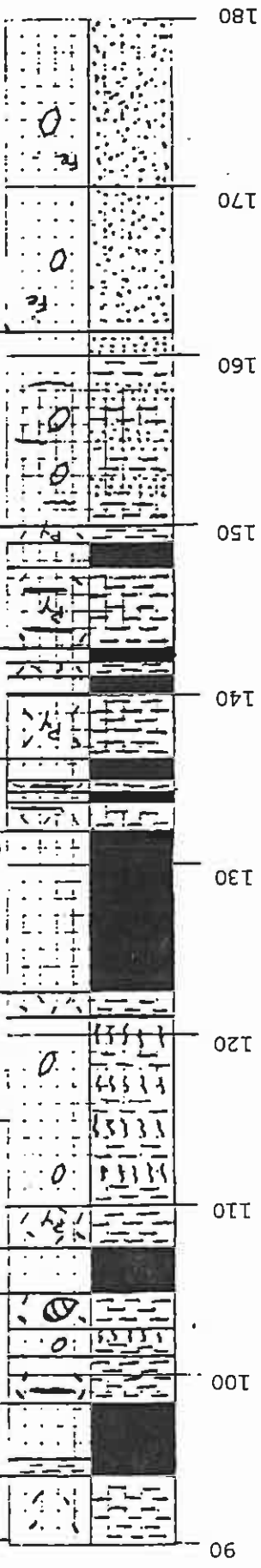
(82-2402-R) GXX 8.4 8.4 12458 0.50 8.1

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

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SEP 3 1986



| ELEVATION | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | (BTU) | % S | pH |
|-----------|-------------|--------------|------|----------|----------|-------|-------|-----|
| 90 | R-82-4475 | 52.7 | 36.0 | 30.1 | 0.6 | | 0.90 | 7.6 |
| | BOX | | 8.3 | 12462 | | | 0.62 | 8.4 |
| 100 | R-82-4476 | 52.7 | 24.5 | 26.3 | 0.5 | | 0.25 | 8.5 |
| | (82-2405-R) | | 5.8 | 12695 | | | 0.66 | NA |
| 110 | R-82-4477 | 40.4 | 19.6 | 25.6 | 2.8 | | 0.29 | 7.6 |
| 120 | R-82-4478 | 40.4 | 33.8 | 35.4 | 1.3 | | 0.59 | 7.7 |
| 130 | RXX | | 5.6 | 12918 | | | 0.48 | 8.1 |
| | (82-2406-R) | | | | | | | |
| 140 | R-82-4479 | 53.6 | 34.4 | 47.4 | 2.5 | | 2.21 | 6.6 |
| | R-82-4480 | 47.4 | 38.1 | 40.9 | 1.6 | | 1.08 | 7.4 |
| 150 | R-82-4481 | 47.2 | 29.5 | 32.3 | 1.9 | | 1.11 | 6.9 |
| 160 | R-82-4482 | 32.3 | 38.9 | 30.1 | 0.5 | | <0.01 | 8.6 |
| 170 | | | | | | | | |
| 180 | | | | | | | | |

81

SEP

3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24405C
DATE CORED:040CT1982
DATE REPORTED:10SEP1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|-----|--|------|
| | | | | | 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, GO | 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, GO | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 24405C
DATE CORED: 04OCT1982
DATE REPORTED: 10SEPT1985

*Dry Basis

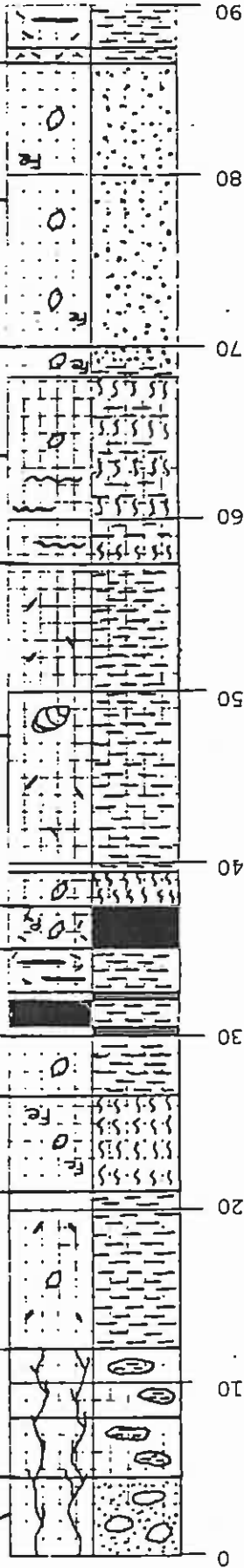
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. | |
|--------------|-------------------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|---------------|-----------|------------|-----------|--------------|--|--------------------------------|--|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | | |
| 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 CO | 850001369 COAL | 0.1 | | | | | 3.13 | 13.76 | . | 10.63 | 56.6 | 23.6 | 19.8 | | | | | | |
| 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 | 41.56 | 28.6 | 22.6 | 48.8 | | | | | | |
| SH, CO | 850001372 | 0.25 | | | | | 7.81 | 49.37 | . | 47.6 | 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, SL | 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

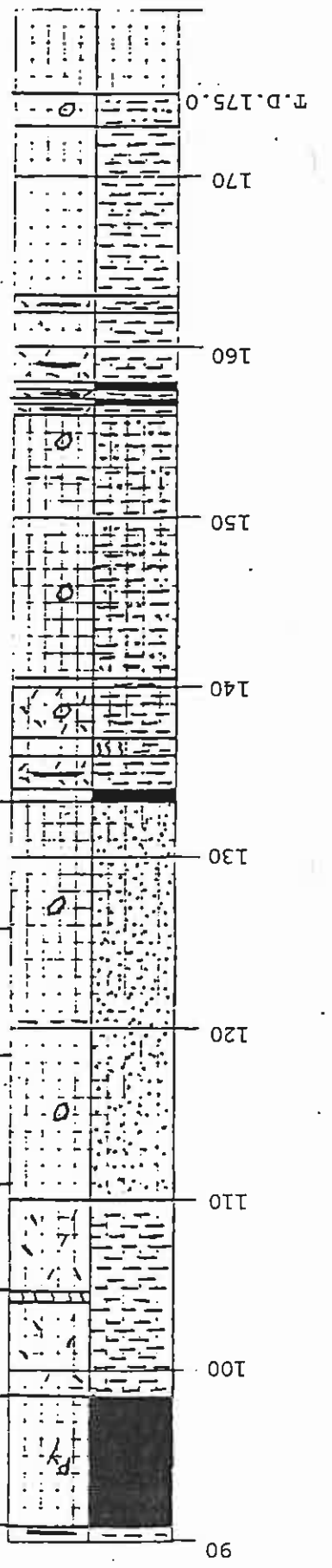
Dry Basis

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



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

SEP 3 1986



HOLE NO. 24406-C
 LOCATION S28601.0
 E55389.0
 Elevation 6793.6

| DEPTH (cm) | SAMPLE NO. | SATURATION % | SAR | SOL. Na. (ASH) | SOL. Ca. (BTU) | % S | pH |
|------------|--------------|--------------|------|----------------|----------------|-------|-----|
| 90-100 | E12 (83-7-R) | | 11.1 | | 12269 | 0.58 | 7.9 |
| 100-110 | R-83-41 | 43.0 | 27.8 | 20.6 | 0.5 | 0.46 | 8.0 |
| 110-120 | R-83-42 | 44.8 | 11.5 | 12.9 | 0.5 | <0.01 | 9.0 |
| 120-130 | R-83-43 | 32.4 | 16.3 | 11.5 | 0.3 | <0.01 | 8.6 |
| 130-140 | R-83-44 | 30.7 | 19.3 | 14.3 | 0.3 | 0.03 | 8.8 |
| 140-150 | R-83-45 | 28.5 | 16.6 | 11.1 | 0.2 | 0.03 | 8.8 |

DRILLER J. ELLIOTT
 DATE DRILLED 10-8-82
 SUB AREA J-19
 PAGE 2

SEP 3 1986

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PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*DRY BASIS

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

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | Hg PPB | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|-----------|-------------------|-----------|-----------|-----------|-----------|--|--|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 850001380 | | 0.11 | | <0.6 | | 0.2 | 3.1 | 12 | 6.5 | | | | |
| SO | 850001381 | | 0.02 | | <0.6 | | 0.2 | 3.1 | 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, 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 | | | | |

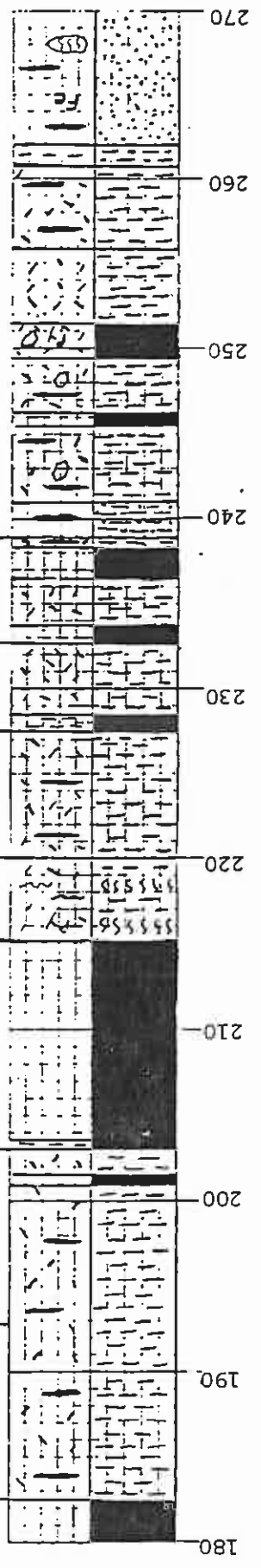
HOLE NO. 24407-C
 LOCATION S32762
 E57407
 ELEVATION 6894.8

DRILLER J. Elliott
 DATE DRILLED 10-11-82
 SUB AREA J-21
 PAGE 1

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

| ELV | SAMPLE NO. | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | & | pH |
|-----|------------------|------|---------|---------|--------|-------|------|-----|
| 0 | R-83-46 | 32.4 | 1.7 | 1.8 | 1.6 | 0.7 | 0.01 | 7.9 |
| 0 | R-83-47 | 30.2 | 1.3 | 1.6 | 2.0 | 1.1 | 0.02 | 8.1 |
| 10 | R-83-48 | 42.8 | 3.2 | 12.3 | 6.6 | 22.8 | 0.03 | 8.2 |
| 15 | R-83-49 | 40.2 | 2.4 | 9.7 | 12.3 | 20.7 | 0.07 | 7.9 |
| 20 | R-83-50 | 36.6 | 1.7 | 6.1 | 8.7 | 16.1 | 0.08 | 7.8 |
| 30 | R-83-51 | 51.1 | 0.9 | 5.8 | 23.8 | 51.9 | 0.16 | 6.5 |
| 35 | R-83-52 | 56.9 | 3.2 | 8.3 | 6.4 | 7.3 | 1.01 | 6.5 |
| 40 | RXX (83-8-R) | 4.4 | | 13081 | | | 0.77 | NA |
| 40 | R-83-53 | 52.3 | 21.4 | 35.8 | 3.6 | 2.0 | 2.81 | 6.7 |
| 40 | RZX (83-9-R) | 9.9 | | 12331 | | | 0.95 | 7.6 |
| 50 | R-83-54 | 42.6 | 36.3 | 37.2 | 1.1 | 1.0 | 0.67 | 7.5 |
| 50 | MX (83-10-R) | 5.65 | | 12900 | | | 1.41 | 7.2 |
| 60 | R-83-55 | 44.6 | 43.0 | 37.2 | 0.9 | 0.6 | 1.22 | 8.1 |
| 65 | R-83-56 | 30.1 | 26.0 | 19.3 | 0.6 | 0.5 | 0.06 | 8.8 |
| 70 | R-83-57 | 46.7 | 38.1 | 29.5 | 0.6 | 0.6 | 0.89 | 8.4 |
| 75 | R-83-58 | 50.9 | 41.0 | 40.0 | 1.0 | 0.9 | 1.64 | 7.9 |
| 80 | YOA (83-11-R) | 10.8 | | 12147 | | | 1.27 | 7.3 |
| 80 | R-83-59 | 65.6 | 10.7 | 8.3 | 0.3 | 0.9 | 0.15 | 8.9 |
| 85 | YOB (83-12-R) | 4.0 | | 13115 | | | 0.63 | 7.7 |
| 90 | | | | | | | | |

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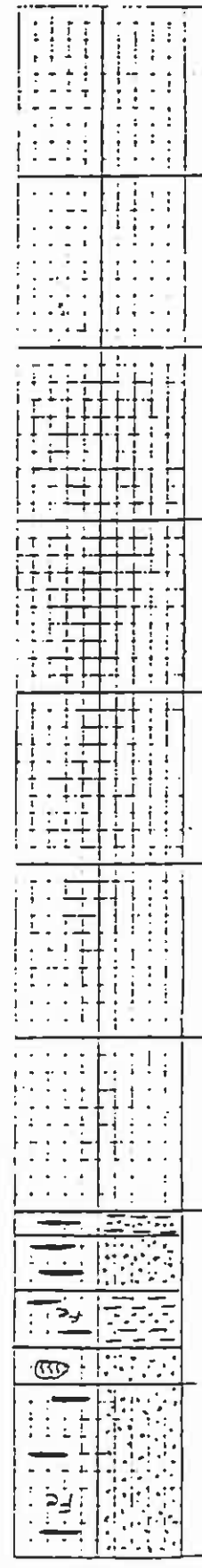
HOLE NO. 24407-C
 LOCATION S32762
 E57407
 ELEVATION 6894.8
 SAMPLE NO.

| DEPTH (cm) | SAMPLE NO. | SATURATION & SAR | SOL. Na. (BTU) | SOL. Ca. (BTU) | % S | pH |
|------------|---------------|------------------|----------------|----------------|------|-----|
| 180 | FOx (83-14-R) | 5.2 | 12991 | | 0.46 | 7.8 |
| 190 | R-83-72 | 61.1 | 18.2 | 16.8 | 0.7 | 9.0 |
| 200 | R-83-73 | 42.5 | 26.4 | 22.9 | 0.4 | 8.7 |
| 210 | E12 (83-15-R) | 8.3 | 12628 | | 0.46 | 7.7 |
| 220 | R-83-74 | 44.6 | 17.9 | 25.0 | 2.9 | 7.2 |
| 230 | R-83-75 | 40.5 | 15.2 | 14.0 | 0.7 | 8.5 |
| 240 | R-83-76 | 40.5 | 14.9 | 16.0 | 0.6 | 8.4 |
| 250 | R-83-77 | 49.9 | 14.2 | 13.5 | 0.9 | 8.0 |

DRILLER J. Elliott
 DATE DRILLED 10-11-82
 SOB AREA
 PAGE 3

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T.D.=290

280

270

HOLE NO. 24407-C
 LOCATION S32762
 EST7407
 VATION 6894.8

DRILLER J. Elliott
 DATE DRILLED 10-11-82
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg
 PH 8S

PAGE 4
 SUB AREA C-21

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PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | GAC03 Eq Tons / 1000 Tons * | | | | | | Particle Size | | | | | % Moisture * | | | |
|-----------|-----------|-----------------------------|--------------|--------------|-----------|-----------|----------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------------|
| | | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. |
| SO | 850001395 | 0.01 | | | 0.01 | | 0.31 | 2.88 | | 2.57 | 70.6 | 14 | 15.4 | | | |
| SO | 850001396 | 0.02 | | | 0.02 | | 0.63 | 2.28 | | 1.65 | 76.6 | 13 | 10.4 | | | |
| SL | 850001397 | 0.03 | | | 0.03 | | 0.94 | 33.53 | | 32.59 | 59.6 | 20 | 20.4 | | | |
| SL | 850001398 | 0.07 | | | 0.07 | | 2.19 | 48.15 | | 45.96 | 62.6 | 19 | 18.4 | | | |
| SS | 850001399 | 0.08 | | | 0.08 | | 2.5 | 44.42 | | 41.92 | 73.6 | 14.5 | 11.9 | | | |
| SH | 850001400 | 0.16 | | | 0.16 | | 5 | 4.57 | | 18.4 | 18.4 | 43.8 | 37.8 | | | |
| CO,SH | 850001401 | 1.01 | | | 1.01 | | 31.56 | 3.55 | | 28.01 | 81.8 | 7.8 | 10.4 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001402 | 2.81 | | | 2.81 | | 87.81 | 1.77 | | 86.04 | 73.8 | 12.2 | 14 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL | 850001403 | 0.67 | | | 0.67 | | 20.94 | 8.16 | | 12.78 | 32.8 | 39.2 | 28 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL | 850001404 | 1.22 | | | 1.22 | | 38.13 | 35.6 | 2.53 | 126.36 | 27.8 | 43.2 | 29 | | | |
| SS | 850001405 | 0.06 | | | 0.06 | | 1.88 | 128.24 | | 3.55 | 60.8 | 24.2 | 15 | | | |
| SH | 850001406 | 0.89 | | | 0.89 | | 27.81 | 31.36 | | | 16.8 | 50.2 | 33 | | | |
| SH,CO | 850001407 | 1.64 | | | 1.64 | | 51.25 | 31.39 | 19.86 | | 10.8 | 48.2 | 41 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001408 | 0.15 | | | 0.15 | | 4.69 | 0.61 | 4.08 | | 6.8 | 49.2 | 44 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001409 | 0.64 | | | 0.64 | | 20 | 32.44 | | 12.44 | 47.8 | 36.2 | 16 | | | |
| SH,CO | 850001410 | 1.81 | | | 1.81 | | 56.56 | 1.51 | 55.05 | 17.91 | 45.8 | 35.2 | 19 | | | |
| SH,SL | 850001411 | 0.62 | | | 0.62 | | 19.38 | 37.29 | | 17.91 | 45.6 | 39.6 | 14.8 | | | |
| SH,SL | 850001412 | 1.25 | | | 1.25 | | 39.38 | 20.19 | 19.19 | | 42.2 | 40 | 17.8 | | | |
| SH,CO | 850001413 | 0.96 | | | 0.96 | | | 32.22 | | 2.22 | 30.2 | 40 | 29.8 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001414 | 0.02 | | | 0.02 | | 0.63 | 1.82 | | 1.19 | 4 | 41.2 | 54.8 | | | |
| SH,SS | 850001415 | 0.02 | | | 0.02 | | 0.63 | 32.97 | | 32.34 | 53 | 23.6 | 23.4 | | | |
| SH,SS | 850001416 | 0.02 | | | 0.02 | | 0.63 | 8.4 | | 7.77 | 63 | 16.6 | 20.4 | | | |
| CO,SH | 850001417 | 0.14 | | | 0.14 | | 4.38 | 2.85 | 1.53 | | 41 | 28 | 31 | | | |
| SH,SL | 850001418 | 0.36 | | | 0.36 | | 11.25 | 40.76 | | 29.51 | 40 | 31 | 29 | | | |
| SS | 850001419 | 0.05 | | | 0.05 | | 25.94 | 210.8 | | 209.24 | 44 | 37 | 19 | | | |
| SH | 850001420 | 0.83 | | | 0.83 | | | 32.43 | | 6.49 | 24.1 | 37.1 | 38.8 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001421 | 0.05 | | | 0.05 | | 1.56 | 28.13 | | 26.57 | 28.2 | 28.2 | 43.6 | | | |
| SH,CO | 850001422 | 0.03 | | | 0.03 | | 0.94 | 48.31 | | 47.37 | 45.2 | 25.6 | 29.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL | 850001423 | 0.61 | | | 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

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo ppm | * Hg ppb | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|--|--|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | | | | |

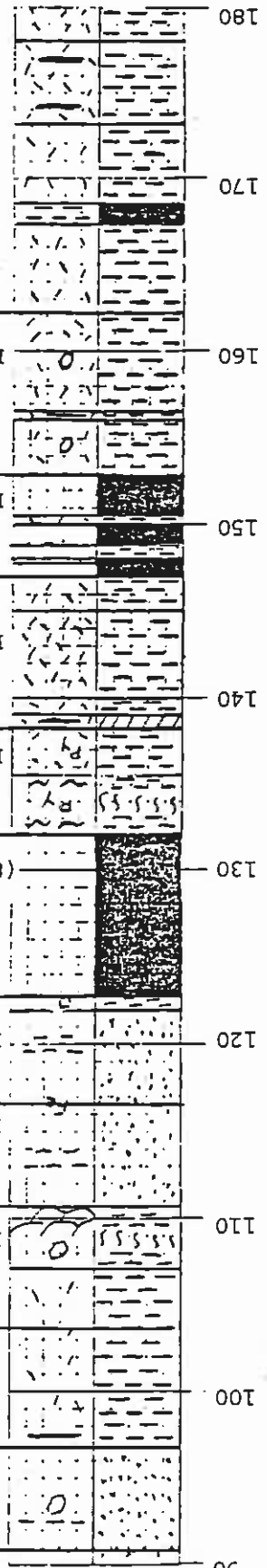
HOLE NO. 24408-C
 LOCATION S28062.0
 E60351.0
 ELEVATION 6735.4

DRILLER J. Elliott
 DATE DRILLED 10-22-82
 SUB AREA J-19
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SATURATION % SAR SOL. Na. SOL. Ca. SOL. Mg. (ASH) (BTU) % S pH
 SAMPLE NO.

| | | | | | | | | |
|----|------------------|------|--------------------|------|-------|------|-------|-----|
| 0 | R-83-78 | 54.8 | 1.6 | 2.2 | 2.2 | 1.8 | 0.03 | 7.9 |
| 0 | R-83-79 | 56.7 | 2.7 | 2.7 | 2.7 | 1.3 | 0.02 | 8.3 |
| 10 | R-83-80 | 42.2 | 4.6 | 8.0 | 1.2 | 4.8 | 0.03 | 8.2 |
| 20 | R-83-81 | 38.2 | 2.8 | 3.9 | 0.7 | 3.2 | 0.01 | 8.2 |
| 20 | R-83-82 | 38.1 | 2.0 | 3.7 | 0.9 | 5.9 | 0.02 | 8.3 |
| 30 | R-83-83 | 36.1 | 0.8 | 4.2 | 27.4 | 22.7 | 0.06 | 7.2 |
| 30 | R-83-84 | 55.5 | 2.2 | 11.5 | 22.8 | 31.3 | 0.47 | 4.7 |
| 40 | R-83-85 | 61.1 | 4.8 | 12.1 | 6.3 | 6.4 | 0.52 | 7.6 |
| 40 | R-83-86 | 38.2 | 6.3 | 10.5 | 2.7 | 2.9 | 0.03 | 8.0 |
| 50 | R-83-87 | 54.9 | 6.3 | 21.7 | 13.1 | 10.5 | 0.85 | 7.1 |
| 60 | (83-16-R) FOX | 6.81 | | | 12837 | | 0.46 | 7.7 |
| 70 | R-83-88 | 79.3 | 11.3 | 15.6 | 0.9 | 2.9 | 0.08 | 9.2 |
| 80 | R-83-89 | 57.4 | 14.5 | 13.8 | 1.5 | 0.3 | 0.02 | 9.4 |
| 80 | R-83-90 | 56.8 | 16.0 | 14.3 | 0.1 | 1.5 | <0.01 | 9.3 |
| 90 | R-83-91 | 30.2 | 22.7 ⁹⁸ | 26.4 | 0.5 | 2.2 | 0.02 | 9.1 |

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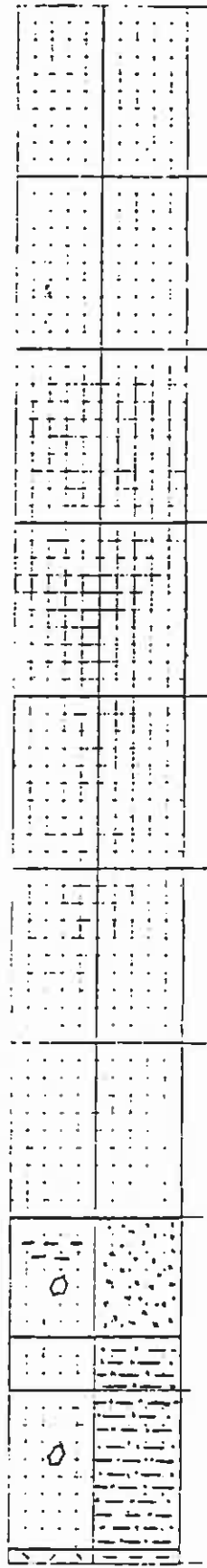
| DEPTH (cm) | SAMPLE NO. | SAR | SOL. NO. | SOL. CA. SOL. NO. | (BTU) | %S | pH |
|------------|---------------|------|----------|-------------------|-------|-----|-----|
| 90 | R-83-92 | 30.2 | 16.6 | 18.6 | 1.7 | 0.8 | 8.6 |
| 100 | R-83-93 | 72.1 | 23.6 | 14.9 | 0.3 | 0.5 | 7.0 |
| 110 | R-83-94 | 50.8 | 17.7 | 14.8 | 0.5 | 0.9 | 9.2 |
| 120 | R-83-95 | 30.2 | 22.2 | 16.5 | 0.2 | 0.9 | 9.0 |
| 130 | (83-17-R) E12 | 6.41 | 13031 | | | | 7.8 |
| 140 | R-83-97 | 43.7 | 31.5 | 33.8 | 1.4 | 0.9 | 8.2 |
| 150 | R-83-98 | 43.3 | 31.2 | 15.6 | 0.4 | 0.1 | 9.0 |
| 160 | R-83-99 | 64.0 | 10.6 | 10.3 | 1.5 | 0.4 | 8.2 |
| 170 | R-83-100 | 59.0 | 8.5 | 9.9 | 1.1 | 1.6 | 9.1 |
| 180 | | | | | | | |

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HOLE NO. 24408-C
 LOCATION S28062.0
 E60351.0
 VATION 6735.4
 SAMPLE NO.

DRILLER J. Elliott
 DATE DRILLED 10-22-82
 SUB AREA
 PAGE 2
 SATURATION ? SAR SOL. NO. SOL. CA. SOL. NO. (BTU) %S pH



P.D. = 200

190

180

HOLE NO. 24408-C
 LOCATION S28062
 E60351
 SATURATION 6735.4

100

SEP 3 1986

DRILLER J. Elliott
 DATE DRILLED 10-22-88
 SUB AREA
 PAGE 3
 SATURATION % SAR SOL. Na. SOL. Ca. SOL. Mg (BTU)
 SAMPLE NO. PH

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|-----|--|--|------|
| | | | | | E.C. mho/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 | 8.3 | 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 | | | | | | | | | 2.8 |
| 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 | | | | | | | | | 18.3 |
| SS | 90.7 | 850001438 | 8.6 | 30.2 | 2.3 | 18.6 | 1.7 | 0.8 | 16.6 | | | | | | | | | 24.4 |
| SS | 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 | 0.3 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 24408C
DATE CORED: 22OCT1982
DATE REPORTED: 10SEPT1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * PYR. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture * | | Avail. H2O Hold. Cap. | |
|-----------|------------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|--------------------------------|-----------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| SO | 8500001424 | 0.03 | | | 0.03 | | 0.94 | 77.22 | . | 76.28 | 36.6 | 28.6 | 34.8 | | | |
| SH | 8500001425 | 0.02 | | | 0.02 | | 0.63 | 42.61 | . | 41.98 | 21.6 | 41.6 | 36.8 | | | |
| SL | 8500001426 | 0.03 | | | 0.03 | | 0.94 | 16.23 | . | 15.29 | 67.6 | 19.6 | 12.3 | | | |
| SL | 8500001427 | 0.01 | | | 0.01 | | 0.31 | 50.3 | . | 49.99 | 69 | 18.2 | 12.8 | | | |
| SS | 8500001428 | 0.02 | | | 0.02 | | 0.63 | 38.75 | . | 38.12 | 74 | 15.2 | 10.8 | | | |
| SS | 8500001429 | 0.06 | | | 0.06 | | 1.88 | 6.31 | . | 4.43 | 81.6 | 10.6 | 7.8 | | | |
| SH, CO | 8500001430 | 0.47 | | | 0.47 | | 14.69 | 6.71 | 7.98 | . | 45.6 | 32.6 | 21.8 | | | |
| SH | 8500001431 | 0.52 | | | 0.52 | | 16.25 | 6.91 | 9.34 | . | 6 | 49.2 | 44.8 | | | |
| SH, SL3 | 8500001432 | 0.03 | | | 0.03 | | 0.94 | 161.18 | 4.47 | 160.24 | 64.6 | 23.6 | 11.8 | | | |
| SH, CO | 8500001433 | 0.85 | | | 0.85 | | 26.56 | 22.09 | 4.47 | . | 12 | 42.6 | 45.4 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001434 | 0.08 | | | 0.08 | | 2.5 | 7.34 | . | 4.84 | 10 | 33.6 | 56.4 | | | |
| SH | 8500001435 | 0.02 | | | 0.02 | | 0.63 | 39.94 | . | 39.31 | 28 | 40.2 | 31.8 | | | |
| SH | 8500001436 | <0.01 | | | <0.01 | | 0.31 | 33.35 | . | 33.04 | 30.6 | 36.6 | 32.8 | | | |
| SS | 8500001437 | 0.02 | | | 0.02 | | 0.63 | 46.21 | . | 45.58 | 73.6 | 14.6 | 11.8 | | | |
| SS | 8500001438 | 0.08 | | | 0.08 | | 2.5 | 15.17 | . | 43.67 | 77.2 | 12 | 10.8 | | | |
| SH, SL | 8500001439 | 0.03 | | | 0.03 | | 0.94 | 15.91 | . | 14.97 | 17.2 | 42 | 40.8 | | | |
| SH, SL | 8500001440 | 0.02 | | | 0.02 | | 0.63 | 39.2 | . | 38.57 | 39 | 30.2 | 30.8 | | | |
| SS | 8500001441 | 0.01 | | | 0.01 | | 0.31 | 15.07 | . | 14.76 | 59.6 | 25.6 | 14.8 | | | |
| SS, SH | 8500001442 | 0.01 | | | 0.01 | | 0.31 | 5.69 | . | 5.38 | 74.8 | 14.2 | 11 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH, SL | 8500001443 | 0.63 | | | 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: 220CT1982
DATE REPORTED: 10SEPT1985

Dry Basis

| Lithology | Lab No. | Hot H2O Exc. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SO | 850001424 | 0.04 | 0.14 | | <0.6 | | 0.2 | 2.2 | 12.3 | 5.7 | | | |
| SH | 850001425 | 0.14 | 0.04 | | <0.6 | | 0.1 | 3.6 | 7.8 | 2.2 | | | |
| SL | 850001426 | 0.05 | 0.05 | | <0.6 | | <0.1 | 0.4 | 8.9 | 1.5 | | | |
| SS | 850001427 | 0.03 | 0.03 | | <0.6 | | 0.2 | 0.7 | 15.3 | 3.7 | | | |
| SS | 850001428 | <0.01 | <0.01 | | <0.6 | | 0.2 | 0.6 | 21 | 4.1 | | | |
| SS, CO | 850001429 | <0.01 | <0.01 | | <0.6 | | 0.2 | 0.3 | 27.3 | 1.4 | | | |
| SH, CO | 850001430 | <0.01 | <0.01 | | 0.9 | | 2.8 | 4.1 | 236.8 | 5.3 | | | |
| SH, SL, 3 | 850001431 | <0.01 | <0.01 | | 0.9 | | 3.7 | 6.9 | 22.8 | 7.5 | | | |
| SH, CO | 850001432 | <0.01 | <0.01 | | <0.6 | | 1.4 | 2.1 | 89.9 | 7.4 | | | |
| CO | 850001433 | | | | 0.9 | | 2.7 | 6 | 303.8 | 12.5 | | | |
| COAL | | | | | | | | | | | | | |
| SH | 850001434 | 0.26 | 0.03 | | <0.6 | | 1.4 | 6.6 | 146.2 | <1 | | | |
| SH | 850001435 | 0.32 | 0.29 | | 0.9 | | 1.6 | 3.1 | 408.9 | 3.8 | | | |
| SH | 850001436 | 0.19 | 0.17 | | <0.6 | | 1.5 | 2.7 | 671.7 | 8.5 | | | |
| SS | 850001437 | 0.19 | 0.19 | | <0.6 | | 1.2 | 1.1 | 448.3 | 3.6 | | | |
| SS | 850001438 | 0.11 | 0.11 | | <0.6 | | 1 | 1.1 | 39.6 | 2.1 | | | |
| SH, SL | 850001439 | 0.17 | 0.17 | | <0.6 | | 1.3 | 6.1 | 19.8 | 1.5 | | | |
| SH, SL | 850001440 | 0.19 | 0.19 | | <0.6 | | 2.1 | 2.6 | 60.3 | 6.8 | | | |
| SS, SH | 850001441 | 0.1 | 0.1 | | <0.6 | | 1.4 | 1.6 | 38.9 | 4.1 | | | |
| CO | 850001442 | | | | 0.8 | | 0.5 | 1.4 | 24.6 | 1.8 | | | |
| COAL | | | | | | | | | | | | | |
| SH, SL | 850001443 | 0.3 | | | <0.6 | | 2.1 | 7.3 | 53.1 | 1.4 | | | |

WELL NO. 24412-C

LOCATION: S45161.0

E57674.0

WATION 6980.5

DRILLER J. Elliott

DATE DRILLED 12-4-82

PAGE 1

SUB AREA

SATURATION & SOL. NO. SAR SOL. NA. SOL. Ca. SOL. Mg

(ASH) (BTU)

PH

| | | | | | | | | |
|----|----------------|------|------|-------|-----|------|-------|-----|
| 0 | R-83-480 | 50.2 | 1.8 | 2.5 | 2.4 | 1.4 | 0.01 | 8.2 |
| 5 | R-83-481 | 62.7 | 6.5 | 8.1 | 1.4 | 1.7 | <0.01 | 8.5 |
| 10 | R-83-482 | 75.7 | 6.3 | 10.8 | 2.1 | 3.8 | <0.01 | 8.7 |
| 15 | R-83-483 | 48.9 | 6.3 | 10.5 | 1.8 | 3.8 | 0.01 | 8.4 |
| 20 | R-83-484 | 72.6 | 9.1 | 33.2 | 9.8 | 16.6 | 0.09 | 4.9 |
| 25 | R-83-485 | 50.6 | 15.9 | 17.4 | 0.8 | 1.6 | <0.01 | 8.5 |
| 30 | R-83-486 | 48.8 | 16.8 | 15.9 | 0.8 | 1.0 | 0.08 | 8.3 |
| 35 | R-83-487 | 37.0 | 22.9 | 24.6 | 1.4 | 0.9 | 0.07 | 8.3 |
| 40 | R-83-488 | 37.2 | 20.1 | 24.6 | 2.6 | 0.4 | 0.33 | 8.2 |
| 45 | R-83-489 | 41.1 | 24.4 | 18.1 | 0.7 | 0.4 | 0.44 | 8.1 |
| 50 | (83-348-R) RXX | 6.74 | | 12803 | | 0.42 | | 7.9 |
| 55 | (83-349-R) RXX | 8.70 | | 12372 | | 0.62 | | 8.0 |
| 60 | R-83-490 | 44.8 | 22.0 | 11.0 | 0.3 | 0.2 | 0.17 | 8.3 |
| 65 | R-83-491 | 27.6 | 19.1 | 14.2 | 0.8 | 0.3 | 0.13 | 8.9 |

SEP 3 1986

FILE NO. 24412-C
 LOCATION S45161.0
 E57674.0
 SECTION 6980.5

ANALYST J. Elliott
 DATE DRILLED 12-4-82
 SUB AREA J-21

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) PH
 SAMPLE NO.

| DEPTH | SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg (BTU) | PH |
|-------|----------------|------------------|---------|---------|--------------|-----|
| 90 | | | | | | |
| 100 | R-83-492 | 27.6 | 17.3 | 13.4 | 0.8 | 9.0 |
| 110 | R-83-493 | 28.9 | 19.2 | 13.6 | 0.7 | 9.2 |
| 120 | R-83-494 | 30.1 | 17.2 | 13.9 | 0.9 | 8.9 |
| 130 | R-83-496 | 44.5 | 36.7 | 30.7 | 0.6 | 8.0 |
| 140 | R-83-497 | 55.0 | 17.2 | 9.4 | 0.3 | 8.3 |
| 140 | (83-350-R) YOX | 10.42 | | 12286 | | 8.0 |
| 140 | R-83-498 | 48.9 | 37.7 | 43.0 | 1.8 | 6.8 |
| 140 | (83-351-R) Y1X | 18.48 | | 11035 | | 5.5 |
| 150 | (83-352-R) | 11.04 | | 12263 | | 7.6 |
| 160 | R-83-499 | 44.4 | 28.3 | 19.0 | 0.6 | 8.7 |
| 170 | R-83-500 | 30.1 | 20.8 | 16.8 | 1.0 | 8.8 |
| 170 | R-83-501 | 44.3 | 30.2 | 23.4 | 0.4 | 7.7 |
| 180 | (83-353-R) NXX | 7.59 | | 12660 | | 8.0 |

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | 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 | | | | | | | | | |
| CL | 2.4 | 850001445 | 8.5 | 62.7 | 1.1 | 8.1 | 1.4 | 1.7 | 6.5 | | | | | | | | | 1.4 |
| SH | 7.2 | 850001446 | 8.7 | 75.7 | 1.5 | 10.8 | 2.1 | 3.8 | 6.3 | | | | | | | | | 7.7 |
| 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 |
| SH | 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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CAC03 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | 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 | | | 0.01 | | 0.31 | 6.81 | . | 6.5 | 44.2 | 32.8 | 23 | | | |
| GL | 850001445 | <0.01 | | | <0.01 | | 0.31 | 41.06 | . | 40.75 | 48 | 20.4 | 31.6 | | | |
| SH | 850001446 | <0.01 | | | <0.01 | | 0.31 | 48.43 | . | 48.12 | 23 | 35.8 | 41.2 | | | |
| SL,SH | 850001447 | 0.01 | | | 0.01 | | 0.31 | 19.78 | . | 17.47 | 56.4 | 25.4 | 18.2 | | | |
| SH,SL,CO | 850001448 | 0.09 | | | 0.09 | | 2.81 | 3.49 | . | 1.68 | 16.8 | 32 | 51.2 | | | |
| SH | 850001449 | <0.01 | | | <0.01 | | 0.31 | 50.35 | . | 50.04 | 51.8 | 27 | 21.2 | | | |
| SH | 850001450 | 0.08 | | | 0.08 | | 2.5 | 13.76 | . | 11.26 | 42.8 | 30 | 27.2 | | | |
| SH | 850001451 | 0.07 | | | 0.07 | | 2.19 | 51.37 | . | 49.18 | 60.8 | 18 | 21.2 | | | |
| CO,SH | 850001452 | 0.33 | | | 0.33 | | 10.31 | 28.97 | . | 18.66 | 41.8 | 33 | 25.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001453 | 0.44 | | | 0.44 | | 13.75 | 7.43 | 6.32 | . | 33.8 | 29 | 37.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,CO | 850001454 | 0.17 | | | 0.17 | | 5.31 | 3.14 | 2.17 | . | 20.8 | 41 | 38.2 | | | |
| SH,CO | 850001455 | 0.13 | | | 0.13 | | 4.06 | 8.77 | . | 4.71 | 66.8 | 20 | 13.2 | | | |
| SL,SS | 850001456 | 0.01 | | | 0.01 | | 0.31 | 13.57 | . | 13.26 | 73.8 | 15 | 11.2 | | | |
| SL | 850001457 | 0.01 | | | 0.01 | | 0.31 | 46.15 | . | 45.84 | 76.8 | 13 | 10.2 | | | |
| SL | 850001458 | 0.01 | | | 0.01 | | 0.31 | 68.55 | . | 68.24 | 77.8 | 12.6 | 9.6 | | | |
| SL | 850001459 | 0.22 | | | 0.22 | | 6.88 | 18.03 | . | 11.15 | 69 | 17 | 12.6 | | | |
| SH | 850001460 | 1.71 | | | 1.71 | | 53.44 | 12.86 | 40.58 | . | 20 | 48 | 32 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001461 | 2 | | | 2 | | 62.5 | 6.93 | 55.57 | . | 92 | 6 | 2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH,SL | 850001462 | 1.91 | | | 1.91 | | 59.69 | 4.99 | 54.7 | . | 62 | 20 | 18 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001463 | 0.22 | | | 0.22 | | 6.88 | 32.2 | . | 25.32 | 31 | 33 | 36 | | | |
| SH,SL | 850001464 | 0.01 | | | 0.01 | | 0.31 | 38.66 | . | 38.35 | 50 | 32 | 18 | | | |
| SH | 850001465 | 1.32 | | | 1.32 | | 41.25 | 4.65 | 36.6 | . | 24 | 46 | 30 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001466 | 0.32 | | | 0.32 | | 10 | 83.89 | . | 73.89 | 39.5 | 32 | 28.5 | | | |
| SH | 850001467 | 0.5 | | | 0.5 | | 15.63 | 110.06 | . | 94.43 | 44.8 | 31 | 24.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001468 | 0.11 | | | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | TANM Mo PPM | Hg PPB | AB-DTPA Extract * | | | | | | | Organic Matter % |
|------------|-----------|----------------|-----------|-----------|-------------------|-----------|-------------------|-----------|-----------|-----------|-----------|--|--|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 850001444 | 0.06 | <0.01 | <0.6 | 0.1 | 6 | 114.9 | 10.4 | | | | | | |
| CL | 850001445 | <0.01 | <0.01 | <0.6 | <0.1 | 2.6 | 71.3 | 4.5 | | | | | | |
| SH | 850001446 | 0.12 | 0.12 | <0.6 | 0.2 | 5.8 | 84.4 | 2.1 | | | | | | |
| SL, SH | 850001447 | 0.19 | 0.19 | <0.6 | <0.1 | 1.6 | 107 | 2.6 | | | | | | |
| SH, SL, CO | 850001448 | 0.42 | 0.42 | <0.6 | 1.2 | 10 | 118.5 | 17.6 | | | | | | |
| SH | 850001449 | 0.21 | 0.21 | <0.6 | 1.4 | 2.5 | 37.8 | 3.7 | | | | | | |
| SH | 850001450 | 0.36 | 0.36 | 0.9 | 2.7 | 2.2 | 37.2 | 7.8 | | | | | | |
| SH | 850001451 | 0.42 | 0.42 | 1.1 | 1.7 | 2 | 50.1 | 8.2 | | | | | | |
| CO, SH | 850001452 | 0.06 | 0.06 | <0.6 | 1.8 | 3.7 | 54.9 | 4.2 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001453 | 0.09 | 0.09 | 0.9 | 3.2 | 6.5 | 20.7 | 1.2 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH, CO | 850001454 | 0.22 | 0.22 | <0.6 | 3.3 | 6.9 | 21 | <1 | | | | | | |
| SL, SS | 850001455 | 0.08 | 0.08 | <0.6 | 1.2 | 1.2 | 25.2 | <1 | | | | | | |
| SL | 850001456 | 0.09 | 0.09 | <0.6 | 1.1 | 1.1 | 36.7 | 1.2 | | | | | | |
| SL | 850001457 | 0.07 | 0.07 | <0.6 | 0.9 | 1.3 | 47.3 | 1.6 | | | | | | |
| SL | 850001458 | 0.04 | 0.04 | <0.6 | 0.7 | 1.6 | 43.5 | 1.8 | | | | | | |
| SL | 850001459 | <0.01 | <0.01 | <0.6 | 1.1 | 3.4 | 43.6 | 2.3 | | | | | | |
| SH | 850001460 | 0.06 | 0.06 | <0.6 | 3.2 | 5.3 | 47.1 | 8.9 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001461 | <0.01 | <0.01 | <0.6 | 0.6 | 0.8 | 473.7 | 1.3 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH, SL | 850001462 | 0.04 | 0.04 | <0.6 | 4.7 | 4.6 | 303.2 | 11.7 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001463 | 0.15 | 0.15 | <0.6 | 2.5 | 6.4 | 34.9 | 1.2 | | | | | | |
| SH, SL | 850001464 | 0.08 | 0.08 | <0.6 | 2 | 2.3 | 60.6 | 1.9 | | | | | | |
| SH | 850001465 | <0.01 | <0.01 | <0.6 | 8.4 | 7.2 | 169.7 | 35.4 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001466 | 0.33 | 0.33 | <0.6 | 2.3 | 2.2 | 29.1 | 1.2 | | | | | | |
| SH | 850001467 | 0.31 | 0.31 | <0.6 | 1.8 | 3.4 | 50.5 | 3.4 | | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001468 | 0.2 | 0.2 | <0.6 | 0.6 | 5.9 | 12.2 | <1 | | | | | | |

USE NO. 24413-C

LOCATION S45056.0

E61729.0

ELEVATION 7047.5

DRILLER J. ELLIOTT

DATE DRILLED 12-15-82

SUB AREA

5-21

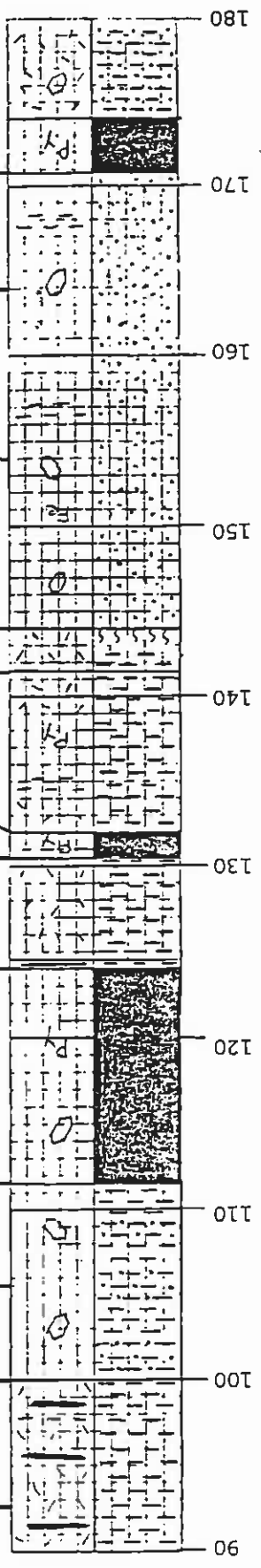
SATURATION & SAR SOL.NA. SOL.Ca. SOL.Mg

(BTU) %S pH

| DEPTH (ft) | SAMPLE NO. | SAR | SOL.NA. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|------------|------------|-------|---------|---------|--------|-------|-----|-----|
| 0 | R-83-507 | 1.0 | 1.6 | 4.2 | 0.7 | <0.01 | 8.0 | 8.0 |
| 10 | R-83-508 | 1.1 | 1.4 | 2.7 | 0.7 | <0.01 | 8.2 | 8.2 |
| 10 | R-83-509 | 1.4 | 2.0 | 2.0 | 2.0 | 0.01 | 8.3 | 8.3 |
| 10 | R-83-510 | 3.2 | 5.4 | 5.0 | 0.6 | 0.01 | 7.4 | 7.4 |
| 20 | R-83-511 | 2.7 | 7.6 | 14.4 | 1.7 | 0.06 | 4.8 | 4.8 |
| 20 | (83-355-R) | 21.51 | 8349 | | | 0.75 | 3.2 | 3.2 |
| 20 | R-83-512 | 1.1 | 6.3 | 30.0 | 38.1 | 0.29 | 4.7 | 4.7 |
| 20 | VOX | 22.38 | 10324 | | | 0.71 | 6.4 | 6.4 |
| 30 | R-83-513 | 5.3 | 10.2 | 4.6 | 2.9 | 0.88 | 6.4 | 6.4 |
| 30 | (83-356-R) | 20.75 | 10679 | | | 0.93 | 6.9 | 6.9 |
| 30 | VIX | 30.5 | 19.3 | 0.5 | 0.3 | 0.10 | 8.4 | 8.4 |
| 40 | R-83-514 | 18.4 | 16.5 | 0.6 | 1.0 | 0.13 | 9.0 | 9.0 |
| 40 | R-83-515 | 30.7 | 22.8 | 0.5 | 0.6 | 0.17 | 8.5 | 8.5 |
| 50 | R-83-516 | 17.7 | 17.3 | 1.1 | 0.8 | 0.11 | 8.9 | 8.9 |
| 60 | R-83-517 | 23.7 | 15.0 | 0.3 | 0.5 | 0.14 | 8.9 | 8.9 |
| 70 | R-83-518 | 11.83 | 12201 | | | 0.55 | 8.2 | 8.2 |
| 70 | BOX | 49.5 | 29.0 | 0.3 | 0.4 | 1.80 | 7.8 | 7.8 |
| 70 | R-83-519 | 6.30 | 12868 | | | 0.56 | 8.1 | 8.1 |
| 70 | (83-359-R) | 34.1 | 20.2 | 0.4 | 0.3 | 0.29 | 8.5 | 8.5 |
| 80 | R-83-520 | 52.2 | 32.6 | 19.3 | 0.5 | 0.38 | 8.3 | 8.3 |
| 90 | R-83-521 | 110 | | | | | | |

SEP

3 1986



| DEPTH (cm) | SAMPLE NO. | SATURATION & SAR | SOL. Na. (BTU) | SOL. Ca. (BTU) | SOL. Mg (BTU) | % S | pH |
|------------|----------------|------------------|----------------|----------------|---------------|-----|-----|
| 90 | | | | | | | |
| 100 | R-83-522 | 36.4 | 31.8 | 21.3 | 0.6 | 0.3 | 8.6 |
| 105 | R-83-523 | 34.2 | 28.9 | 19.4 | 0.6 | 0.3 | 8.6 |
| 110 | R-83-524 | 34.1 | 24.6 | 20.6 | 1.0 | 0.4 | 8.2 |
| 115 | (83-360-R) RXX | 9.79 | | 12359 | | | 7.8 |
| 120 | R-83-525 | 46.5 | 21.2 | 15.0 | 0.7 | 0.3 | 8.3 |
| 125 | (83-361-R) MX | 5.30 | | 13013 | | | 7.3 |
| 130 | R-83-526 | 50.4 | 2.7 | 4.3 | 2.5 | 2.7 | 8.0 |
| 135 | R-83-527 | 46.2 | 2.1 | 3.5 | 2.6 | 3.0 | 8.1 |
| 140 | R-83-528 | 36.0 | 1.4 | 2.2 | 2.4 | 2.3 | 8.3 |
| 145 | R-83-529 | 38.0 | 1.6 | 2.6 | 2.7 | 2.4 | 8.2 |
| 150 | R-83-530 | 36.1 | 1.3 | 3.1 | 6.5 | 5.6 | 7.6 |
| 155 | YOA | | | | | | |

CORE NO. 24413-C
 LOCATION S45056.0
 E61729.0
 EATION 7047.5

DRILLER J. ELLIOTT
 DATE DRILLED 12-15-82
 SUB AREA 5-21

SEP 3 1986

111

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | 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 | | | | | | | | | | | |
| SO | 2 | 850001470 | 8.2 | 40.2 | 0.4 | 1.4 | 2.7 | 0.7 | 1.1 | | | | | | | | | | | 0.2 |
| SO | 4 | 850001471 | 8.3 | 38.2 | 0.6 | 2 | 2 | 0.7 | 1.4 | | | | | | | | | | | 0.3 |
| SH | 6 | 850001472 | 7.4 | 79.8 | 1.6 | 5.4 | 5 | 0.6 | 3.2 | | | | | | | | | | | 0.7 |
| SH | 15.5 | 850001473 | 4.8 | 68.4 | 3 | 7.6 | 14.4 | 1.7 | 2.7 | | | | | | | | | | | 3.4 |
| CO | 19.4 | COAL | | | | | | | | | | | | | | | | | | 2.7 |
| 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 | 0.6 | 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 |
| CO | 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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | |
|-----------|------------|---------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. |
| SO | 8500001469 | <0.01 | | | 0.31 | 554.34 | | | 554.03 | 63.8 | 18.8 | 17.4 | | | | |
| SO | 8500001470 | 0.31 | | | 0.31 | 212.06 | | | 211.75 | 68.2 | 18.4 | 13.4 | | | | |
| SO | 8500001471 | 0.01 | | | 0.31 | 89 | | | 88.69 | 68.2 | 20.4 | 11.4 | | | | |
| SH | 8500001472 | 0.01 | | | 0.31 | 7.7 | | | 6.39 | 2.6 | 41 | 56.4 | | | | |
| SH | 8500001473 | 0.06 | | | 1.88 | 3.26 | 1.38 | | | 9.6 | 23.4 | 67 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001474 | 0.29 | | | 9.06 | 1.52 | 7.54 | | | 20.6 | 41 | 38.4 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001475 | 0.88 | | | 27.5 | 7.56 | 19.94 | | | 54.6 | 13 | 32.4 | | | | |
| SH | 8500001476 | 0.1 | | | 3.13 | 33.36 | | | 30.23 | 32.6 | 41 | 26.4 | | | | |
| SH | 8500001477 | 0.13 | | | 4.06 | 29.15 | | | 25.09 | 19.6 | 43 | 37.4 | | | | |
| SH | 8500001478 | 0.17 | | | 5.31 | 24.59 | | | 19.28 | 61.6 | 20 | 18.4 | | | | |
| SH | 8500001479 | 0.11 | | | 3.44 | 35.11 | | | 31.67 | 31.6 | 32 | 36.4 | | | | |
| SH | 8500001480 | 0.14 | | | 4.38 | 21.96 | | | 17.58 | 16.6 | 39 | 44.4 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001481 | 1.8 | | | 56.25 | 7.64 | 58.61 | | | 38 | 27.6 | 34.4 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH, CO | 8500001482 | 0.29 | | | 9.06 | 28.94 | | | 19.88 | 43 | 25.6 | 31.4 | | | | |
| SH | 8500001483 | 0.38 | | | 11.88 | 8.86 | 3.02 | | 25.89 | 32 | 29.6 | 38.4 | | | | |
| SH | 8500001484 | 0.23 | | | 7.19 | 33.08 | | | 20.01 | 50 | 26.6 | 23.4 | | | | |
| SH | 8500001485 | 0.07 | | | 2.19 | 22.2 | | | 12.49 | 53 | 29 | 18 | | | | |
| SH | 8500001486 | 0.13 | | | 4.06 | 16.55 | | | | 63 | 24 | 13 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001487 | 0.42 | | | 13.12 | 29.84 | | | 16.72 | 25.4 | 29.2 | 45.4 | | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 8500001488 | 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

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

SATURATION & SVR SOL. NO. SOL. CA. SOL. HA. (ASH) (BU) ES PH

| SAMPLE NO. | SATURATION & SVR | SOL. NO. | SOL. CA. | SOL. HA. | (ASH) | (BU) | ES | 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 | 64.8 | 1.4 | 8.0 | 27.6 | 37.4 | 0.44 | 5.0 | |
| R-83-687 | 58.8 | 29.6 | 25.6 | 0.7 | 0.8 | 0.54 | 7.3 | VIX |
| 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

116

NO. 24415-C

LOCATION S39997.0

E65649.0

SECTION 7082.2

J. Elliott

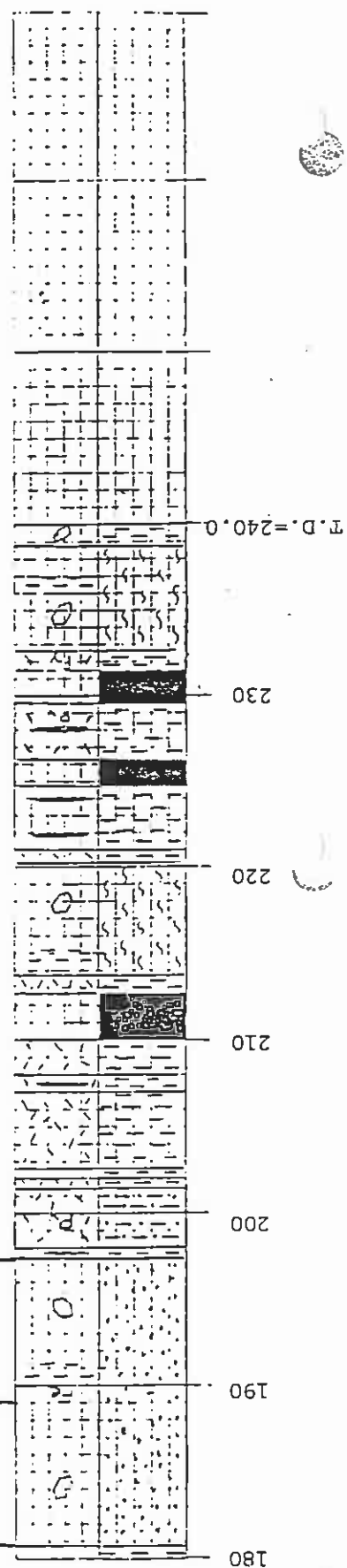
DATE DRILLED 1-5-83

SOC AREA J-21

SATURATION & SAR SOLUTION SOL. CA. CORRECT (BRU) IS PH

| | | | | | | | | |
|-----|----------------|-------|-------|------|-----|-----|------|-----|
| 180 | R-83-707 | 32.2 | 23.0 | 15.4 | 0.3 | 0.6 | 0.08 | 8.8 |
| 170 | R-83-706 | 34.2 | 21.7 | 16.1 | 0.6 | 0.5 | 0.13 | 8.6 |
| 160 | R-83-705 | 41.4 | 17.6 | 17.2 | 1.5 | 0.4 | 0.54 | 7.6 |
| | (83-917-R) RX | 5.47 | 12952 | | | | 0.67 | 8.2 |
| | R-83-704 | 46.7 | 29.5 | 21.9 | 0.6 | 0.5 | 0.72 | 6.8 |
| | (83-916-R) RX | 11.40 | 12146 | | | | 0.51 | 8.3 |
| | R-83-703 | 46.9 | 21.1 | 33.1 | 3.4 | 1.5 | 1.30 | 7.2 |
| 150 | | | | | | | | |
| | RXX (83-915-R) | 4.99 | 13053 | | | | 0.44 | 8.1 |
| 140 | | | | | | | | |
| | R-83-702 | 40.7 | 37.3 | 30.1 | 0.8 | 0.5 | 0.72 | 7.8 |
| | BIX | | | | | | | |
| 130 | | | | | | | | |
| | R-83-701 | 40.5 | 35.3 | 26.2 | 0.7 | 0.4 | 0.36 | 8.5 |
| 120 | | | | | | | | |
| | (83-914-R) BUX | 6.89 | 12730 | | | | 0.59 | 8.3 |
| | R-83-700 | 67.5 | 15.6 | 18.5 | 2.5 | 0.3 | 0.29 | 8.6 |
| 110 | | | | | | | | |
| | R-83-699 | 33.4 | 37.2 | 22.0 | 0.4 | 0.3 | 0.05 | 8.6 |
| 100 | | | | | | | | |
| | R-83-698 | 36.4 | 24.9 | 18.5 | 0.7 | 0.4 | 0.06 | 8.8 |
| | | | | | | | | |
| | (83-913-R) GXX | 14.84 | 11536 | | | | 0.47 | 8.5 |
| 90 | | | | | | | | |
| | R-83-697 | 59.3 | 33.0 | 16.5 | 0.2 | 0.4 | 0.12 | 9.1 |

SEP 3 1986



| DEPTH (cm) | SAMPLE NO. | SATURATION & SAR | SOL. NA. (BTU) | SOL. CA. | SOL. Mg | PH | | |
|------------|------------|------------------|----------------|----------|---------|-----|------|-----|
| 180 | R-83-708 | 32.2 | 21.5 | 18.0 | 0.8 | 0.6 | 0.07 | 9.0 |
| 190 | R-83-709 | 32.2 | 17.6 | 17.2 | 1.0 | 0.9 | 0.05 | 8.3 |

| | | | | | | | | |
|-----|--|--|--|--|--|--|--|--|
| 118 | | | | | | | | |
|-----|--|--|--|--|--|--|--|--|

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | 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 | 0.9 | | | | | | | | 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 | | | | | | | | | 2.2 |
| SH,CO | 24.1 | 850001495 | 7.3 | 58.8 | 2.7 | 25.6 | 0.8 | 0.7 | 1.4 | | | | | | | | | 0.7 |
| SH | 30 | 850001496 | 9.2 | 97.1 | 1.6 | 15.6 | 0.2 | 0.3 | 29.6 | | | | | | | | | 29.8 |
| SH | 37.5 | 850001497 | 9 | 34.4 | 2 | 20.3 | 0.3 | 0.3 | 31.2 | | | | | | | | | 30.9 |
| SH | 44.9 | 850001498 | 8.6 | 31.8 | 1.8 | 17.3 | 0.3 | 0.3 | 27.1 | | | | | | | | | 34.8 |
| SH | 47.3 | 850001499 | 9.1 | 85.1 | 1.7 | 17.2 | 0.5 | 0.2 | 34.4 | | | | | | | | | 28.1 |
| 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

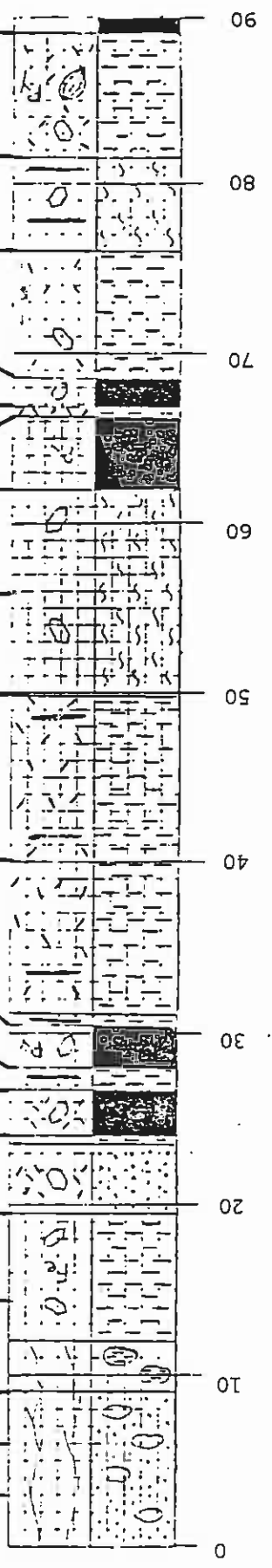
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | | | Particle Size | | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|---------------|-----------|------------|-----------|--|--------------|--|--------------------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | | |
| SO | 850001489 | 0.05 | | | 0.05 | | 1.56 | 221.05 | . | 219.49 | 42 | 28 | 30 | | | | | | |
| SL | 850001490 | <0.01 | | | <0.01 | | 0.31 | 65.76 | . | 65.45 | 66.4 | 19.6 | 14 | | | | | | |
| SL | 850001491 | <0.01 | | | <0.01 | | 0.31 | 8.4 | . | 8.09 | 65.2 | 20.6 | 14.2 | | | | | | |
| SH | 850001492 | 0.05 | | | 0.05 | | 1.36 | 52.12 | . | 50.56 | 38.8 | 31 | 30.2 | | | | | | |
| SL | 850001493 | <0.01 | | | <0.01 | | 0.31 | 249.24 | . | 248.93 | 74.8 | 18 | 7.2 | | | | | | |
| SH, CO | 850001494 | 0.44 | | | 0.44 | | 13.75 | 23.25 | . | 9.5 | 48.8 | 22 | 29.2 | | | | | | |
| SH, CO | 850001495 | 0.54 | | | 0.54 | | 16.88 | 8.84 | 8.04 | 29.81 | 54.8 | 13 | 32.2 | | | | | | |
| SH | 850001496 | 0.06 | | | 0.06 | | 1.88 | 31.69 | . | 14.8 | 14.8 | 26 | 59.2 | | | | | | |
| SH | 850001497 | 0.04 | | | 0.04 | | 1.25 | 46.62 | . | 45.37 | 43.8 | 33 | 23.2 | | | | | | |
| SL | 850001498 | 0.03 | | | 0.03 | | 0.94 | 28.26 | . | 27.32 | 74.8 | 16 | 9.2 | | | | | | |
| SH | 850001499 | 0.29 | | | 0.29 | | 9.06 | 11.61 | . | 2.55 | 14.8 | 42 | 43.2 | | | | | | |
| SH | 850001500 | 0.1 | | | 0.1 | | 3.12 | 26.64 | . | 23.52 | 21.8 | 39 | 35.2 | | | | | | |
| SH | 850001501 | 0.04 | | | 0.04 | | 1.25 | 36.29 | . | 35.04 | 28.8 | 36 | 35.2 | | | | | | |
| SL, SH | 850001502 | 0.06 | | | 0.06 | | 1.88 | 46.56 | . | 44.68 | 47.8 | 30 | 22.2 | | | | | | |
| SH | 850001503 | <0.01 | | | <0.01 | | 0.31 | 215.46 | . | 215.15 | 43.8 | 36 | 20.2 | | | | | | |
| SS | 850001504 | 0.12 | | | 0.12 | | 3.75 | 42.42 | . | 38.67 | 66.8 | 22 | 11.2 | | | | | | |
| SH | 850001505 | 0.12 | | | 0.12 | | 3.75 | 29.1 | . | 25.35 | 23.8 | 36 | 40.2 | | | | | | |
| CO | COAL | | | | | | | | | | | | | | | | | | |
| SH, SL | 850001506 | 0.06 | | | 0.06 | | 1.88 | 30.13 | . | 28.25 | 40.8 | 37 | 22.2 | | | | | | |
| SS | 850001507 | 0.05 | | | 0.05 | | 1.56 | 3.2 | . | 1.64 | 71.8 | 19 | 9.2 | | | | | | |
| CO, SH | 850001508 | 0.29 | | | 0.29 | | 9.06 | 15.06 | . | 6 | 14.8 | 45 | 40.2 | | | | | | |
| CO | COAL | | | | | | | | | | | | | | | | | | |
| SH | 850001509 | 0.36 | | | 0.36 | | 11.25 | 42.17 | 12.12 | 30.92 | 44.8 | 32 | 23.2 | | | | | | |
| CO, SH | 850001510 | 0.72 | | | 0.72 | | 22.5 | 10.38 | . | | 49.8 | 35 | 15.2 | | | | | | |
| CO | COAL | | | | | | | | | | | | | | | | | | |
| SH, CO | 850001511 | 1.3 | | | 1.3 | | 40.62 | 10.56 | 30.06 | . | 73.8 | 20.5 | 5.7 | | | | | | |
| CO | COAL | | | | | | | | | | | | | | | | | | |
| SH | 850001512 | 0.72 | | | 0.72 | | 22.5 | 3.3 | 19.2 | . | 67.8 | 22.6 | 9.6 | | | | | | |
| CO | COAL | | | | | | | | | | | | | | | | | | |
| SH, CO | 850001513 | 0.54 | | | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DTPA Extract * | | | | | | | Organic # Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------|
| | | B PPM | As PPM | Se PPM | TAM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| SO | 850001489 | <0.01 | <0.01 | <0.01 | <0.6 | | 0.3 | 15.4 | 17.2 | 32 | | |
| SL | 850001490 | 0.11 | 0.11 | 0.11 | <0.6 | | <0.1 | 1.5 | 5.9 | 8.1 | | |
| SL | 850001491 | 0.02 | 0.02 | 0.02 | <0.6 | | <0.1 | 1.9 | 4.2 | 3 | | |
| SH | 850001492 | <0.01 | <0.01 | <0.01 | <0.6 | | 0.2 | 4.6 | 7.5 | 5.3 | | |
| SL | 850001493 | <0.01 | <0.01 | <0.01 | 0.6 | | <0.1 | 2.4 | 18 | 5.2 | | |
| SH, CO | 850001494 | <0.01 | <0.01 | <0.01 | <0.6 | | 2.2 | 5.8 | 85.3 | 21.4 | | |
| SH, CO | 850001495 | 0.1 | 0.1 | 0.1 | <0.6 | | 0.7 | 6.2 | 56.5 | 1.7 | | |
| SH | 850001496 | 0.11 | 0.11 | 0.11 | 0.7 | | 1.4 | 12.8 | 28 | 3.4 | | |
| SH | 850001497 | 0.26 | 0.26 | 0.26 | <0.6 | | 1.1 | 3.2 | 62.6 | 8 | | |
| SL | 850001498 | 0.27 | 0.27 | 0.27 | <0.6 | | 1.1 | 1.7 | 38.5 | 2.9 | | |
| SH | 850001499 | 0.36 | 0.36 | 0.36 | <0.6 | | 0.4 | 6.5 | 34.1 | 22 | | |
| SH | 850001500 | 0.16 | 0.16 | 0.16 | <0.6 | | 1.4 | 5.1 | 33.2 | 6.9 | | |
| SH | 850001501 | 0.16 | 0.16 | 0.16 | <0.6 | | 1.2 | 3.5 | 56.1 | 7.7 | | |
| SH | 850001502 | 0.28 | 0.28 | 0.28 | 0.6 | | 1.8 | 3.6 | 74.4 | 9.3 | | |
| SH, SH | 850001503 | 0.14 | 0.14 | 0.14 | 0.9 | | 1.4 | 2 | 174.8 | 12.7 | | |
| SS | 850001504 | 0.14 | 0.14 | 0.14 | <0.6 | | 1.3 | 1.7 | 53.5 | 3.4 | | |
| SH | 850001505 | 0.09 | 0.09 | 0.09 | <0.6 | | 0.9 | 7 | 36.9 | 5.4 | | |
| CO | COAL | | | | | | | | | | | |
| SH, SL | 850001506 | 0.08 | 0.08 | 0.08 | <0.6 | | 1.1 | 2.4 | 28.9 | <1 | | |
| SS | 850001507 | 0.15 | 0.15 | 0.15 | <0.6 | | 0.6 | 1.6 | 18.6 | 1.1 | | |
| CO, SH | 850001508 | 0.18 | 0.18 | 0.18 | 1 | | 1.7 | 3.8 | 26.2 | 3 | | |
| CO | COAL | | | | | | | | | | | |
| SH | 850001509 | 0.23 | 0.23 | 0.23 | <0.6 | | 1.2 | 3.2 | 26.4 | 2.5 | | |
| CO, SH | 850001510 | 0.16 | 0.16 | 0.16 | <0.6 | | 0.2 | 3.2 | 31.6 | <1 | | |
| CO | COAL | | | | | | | | | | | |
| SH, CO | 850001511 | <0.01 | <0.01 | <0.01 | <0.6 | | 4.2 | 5.5 | 199.3 | 17.4 | | |
| CO | COAL | | | | | | | | | | | |
| SH | 850001512 | 0.13 | 0.13 | 0.13 | <0.6 | | 5.3 | 3.6 | 167.6 | 5.9 | | |
| CO | COAL | | | | | | | | | | | |
| SH, CO | 850001513 | 0.07 | 0.07 | 0.07 | 0.7 | | 3.5 | 17.4 | 63.2 | <1 | | |



| SAMPLE NO. | SAR | SOL. NA. | SOL. CA. | SOL. MG. | (LTV) | PH |
|----------------|-------|----------|----------|----------|-------|------|
| R-83-710 | 65.2 | 1.5 | 5.2 | 7.3 | 15.8 | 0.04 |
| R-83-711 | 54.7 | 2.4 | 12.8 | 12.1 | 42.9 | 0.04 |
| R-83-712 | 54.8 | 3.1 | 21.1 | 18.5 | 75.0 | 0.12 |
| R-83-713 | 57.0 | 2.2 | 11.3 | 10.0 | 42.9 | 0.07 |
| R-83-714 | 57.0 | 1.6 | 4.9 | 3.1 | 14.7 | 0.01 |
| R-83-715 | 40.3 | 1.2 | 3.6 | 4.0 | 13.7 | 0.01 |
| (83-918-R) BOX | 8.07 | | | 12461 | | 0.61 |
| R-83-716 | 62.4 | 1.5 | 4.0 | 7.7 | 5.8 | 0.87 |
| (83-919-R) BOX | 7.08 | | | 12848 | | 0.69 |
| R-83-717 | 54.8 | 5.7 | 10.6 | 1.1 | 5.8 | 0.26 |
| R-83-718 | 47.2 | 9.8 | 11.8 | 1.6 | 1.3 | 0.09 |
| R-83-719 | 32.1 | 9.0 | 9.5 | 0.8 | 1.4 | 0.04 |
| R-83-720 | 40.1 | 15.0 | 10.6 | 0.4 | 0.6 | 0.03 |
| (83-920-R) BOX | 12.96 | | | 11918 | | 0.62 |
| R-83-721 | 51.5 | 23.0 | 13.6 | 0.3 | 0.4 | 0.11 |
| (83-922-R) BOX | 10.47 | | | 12288 | | 0.63 |
| R-83-722 | 48.8 | 34.0 | 20.1 | 0.4 | 0.3 | 0.77 |
| R-83-723 | 34.0 | 26.2 | 15.5 | 0.4 | 0.3 | 0.09 |
| R-83-724 | 44.4 | 33.6 | 23.8 | 0.6 | 0.4 | 1.28 |

SEP 3 1986

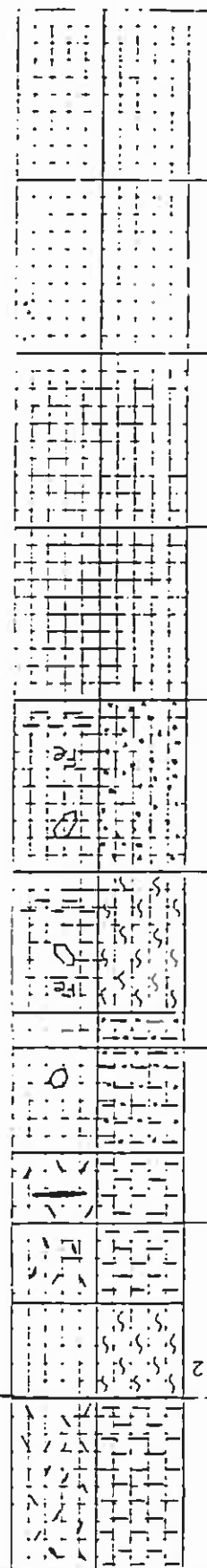
LOCATION 24416-C
 DATE COLLECTED 1-15-83
 COLLECTOR J. Elliott
 LOCATION S48970.2
 ELEVATION 57145.0
 SAMPLE NO. 6972.9
 SATURATION & SAR SOL. NA. SOL. CA. SOL. MG. (LTV) PH

SATURATION & SAR SOLUTIONS SOL. Ca. SOLUTIONS (BTU) PH SAMPLE NO. 6972.9

| DEPTH | YOA | (83-923-R) | R-83-725 | (83-924-R) | R-83-726 | Y1X | (83-925-R) | R-83-727 | R-83-728 | R-83-729 | NXX | (83-927-R) | R-83-731 | R-83-732 | R-83-733 | R-83-734 | (83-928-R) | E1A | R-83-735 | E1B | (83-929-R) | R-83-736 | E2A | R-83-737 |
|-------|-----|------------|----------|------------|----------|-----|------------|----------|----------|----------|-------|------------|----------|----------|----------|----------|------------|------|----------|-------|------------|----------|-------|----------|
| 90 | 7.3 | 12695 | 0.4 | 0.2 | 2.52 | 7.8 | 17.9 | 32.7 | 56.3 | 7.73 | 12695 | 0.4 | 0.2 | 2.52 | 7.8 | 17.9 | 32.7 | 56.3 | 7.73 | 12695 | 0.4 | 0.2 | 2.52 | 7.8 |
| 100 | 8.1 | 11565 | 0.3 | 0.5 | 2.53 | 8.1 | 13.3 | 21.0 | 34.1 | 15.43 | 11565 | 0.3 | 0.5 | 2.53 | 8.1 | 13.3 | 21.0 | 34.1 | 15.43 | 11565 | 0.3 | 0.5 | 2.53 | 8.1 |
| 110 | 8.8 | 0.06 | 0.2 | 0.4 | 0.04 | 8.8 | 15.1 | 30.2 | 44.8 | 12.1 | 0.06 | 0.2 | 0.4 | 0.04 | 8.8 | 15.1 | 30.2 | 44.8 | 12.1 | 0.06 | 0.2 | 0.4 | 0.04 | 8.8 |
| 120 | 7.7 | 1.68 | 0.3 | 1.0 | 1.68 | 7.7 | 26.7 | 33.1 | 44.3 | 26.7 | 1.68 | 0.3 | 1.0 | 1.68 | 7.7 | 26.7 | 33.1 | 44.3 | 26.7 | 1.68 | 0.3 | 1.0 | 1.68 | 7.7 |
| 130 | 8.4 | 0.24 | 1.3 | 0.6 | 0.24 | 8.4 | 16.9 | 17.3 | 36.8 | 8.84 | 0.24 | 1.3 | 0.6 | 0.24 | 8.4 | 16.9 | 17.3 | 36.8 | 8.84 | 0.24 | 1.3 | 0.6 | 0.24 | 8.4 |
| 140 | 8.5 | 0.25 | 1.2 | 0.6 | 0.25 | 8.5 | 16.1 | 17.0 | 42.4 | 11.4 | 0.25 | 1.2 | 0.6 | 0.25 | 8.5 | 16.1 | 17.0 | 42.4 | 11.4 | 0.25 | 1.2 | 0.6 | 0.25 | 8.5 |
| 150 | 8.3 | 0.59 | 0.2 | 0.7 | 0.59 | 8.3 | 18.7 | 27.9 | 38.2 | 12644 | 0.59 | 0.2 | 0.7 | 0.59 | 8.3 | 18.7 | 27.9 | 38.2 | 12644 | 0.59 | 0.2 | 0.7 | 0.59 | 8.3 |
| 160 | 8.7 | <0.01 | 0.1 | 0.5 | <0.01 | 8.7 | 15.2 | 27.8 | 69.5 | 13094 | <0.01 | 0.1 | 0.5 | <0.01 | 8.7 | 15.2 | 27.8 | 69.5 | 13094 | <0.01 | 0.1 | 0.5 | <0.01 | 8.7 |
| 170 | 8.7 | 0.02 | 0.5 | 10.0 | 0.02 | 8.7 | 14.1 | 14.1 | 32.1 | 6.06 | 0.02 | 0.5 | 10.0 | 0.02 | 8.7 | 14.1 | 14.1 | 32.1 | 6.06 | 0.02 | 0.5 | 10.0 | 0.02 | 8.7 |
| 180 | 8.5 | 0.10 | 0.2 | 16.3 | 0.10 | 8.5 | 27.6 | 27.6 | 53.3 | 123 | 0.10 | 0.2 | 16.3 | 0.10 | 8.5 | 27.6 | 27.6 | 53.3 | 123 | 0.10 | 0.2 | 16.3 | 0.10 | 8.5 |

SEP 3 1986

124



P.D.=190.2

190

180

SECTION

6972.9

E57145.0

S48970.2

24416-C

LS NO.

LABLER

J. Elliott

DATE DRILLED

1-15-83

SUB AREA

D-21

SAMPLE NO.

R-83-738

SATURATION & SAR

44.4

(ASH)

14.7

SOL.Na. SOL.Ca. SOL.Mg

15.8

(BTU)

0.8

ES

1.5

PH

9.0

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|------------|-----------|--------------|---------------|--------------|-----|--|------|
| | | | | | 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 |
| SM | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture * | | Avail. H2O Hold. Cap. | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|--------------------------------|-----------|--|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR | |
| 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 | 35.53 | 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

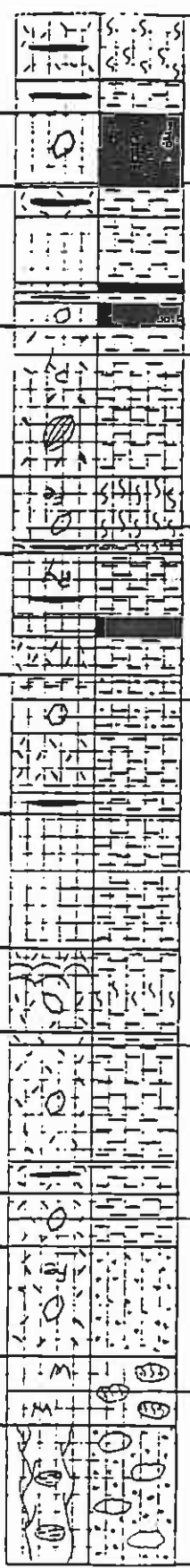
| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|--|--|------------------------|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

HOLE NO. 24417-C
 LOCATION S 33006.2 E 54792.2
 ELEVATION 6953.6

DRILLER J. Elliott.
 DATE DRILLED 1-26-83
 SUB AREA J-21
 PAGE 1

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) %S PH
 SAMPLE NO.

| | | | | | | | | |
|----|-------------------------------|------|------|------|-----|------|-------|-----|
| 90 | R-83-829 | 36.1 | 16.9 | 13.1 | 0.7 | 0.5 | 0.74 | 8.3 |
| 80 | YOB R-83-828 (83-877-R) | 57.8 | 23.6 | 16.7 | 0.6 | 0.4 | 0.85 | 8.0 |
| 70 | YOA R-83-827 | 44.3 | 28.2 | 32.1 | 1.2 | 1.4 | 1.25 | 8.1 |
| 60 | R-83-826 | 36.1 | 20.9 | 14.0 | 0.5 | 0.4 | 0.37 | 8.6 |
| 50 | R-83-825 | 44.7 | 18.9 | 15.8 | 0.5 | 0.9 | 0.44 | 7.8 |
| 40 | R-83-824 | 36.4 | 20.4 | 18.8 | 0.9 | 0.8 | 0.20 | 8.1 |
| 30 | R-83-823 | 52.6 | 12.0 | 16.8 | 2.4 | 1.5 | 0.17 | 8.0 |
| 20 | R-83-822 | 48.2 | 4.9 | 13.3 | 1.4 | 13.1 | 0.36 | 7.4 |
| 10 | R-83-821 | 74.3 | 3.9 | 19.5 | 2.8 | 47.9 | 0.17 | 4.0 |
| 0 | R-83-820 | 52.6 | 3.2 | 14.8 | 2.0 | 42.0 | 0.06 | 4.6 |
| | R-83-819 | 44.2 | 4.2 | 15.4 | 7.4 | 20.0 | 0.03 | 8.0 |
| | R-83-818 | 36.1 | 3.6 | 6.5 | 3.1 | 3.5 | 0.02 | 8.1 |
| | R-83-817 | 40.3 | 3.3 | 4.3 | 2.2 | 1.2 | <0.01 | 8.2 |



SEP 3 1986
 <0.01 8.4

SOLE NO. 24417-C

LOCATION S 33006.2

E 54792.2

E 6953.6

DRILLER J. Elliott

DATE DRILLED 1-26-83

SUB AREA J-21

PAGE 2

| | | | | | | | |
|--------------|-----|----------|----------|---------|-------|----|----|
| SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | %S | pH |
|--------------|-----|----------|----------|---------|-------|----|----|

| | | | | | | | |
|----|-----|------------|-------|-------|------|-----|--|
| 90 | Y1X | (83-878-R) | 12.67 | 11986 | 0.58 | 8.3 | |
|----|-----|------------|-------|-------|------|-----|--|

| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|------|-----|
| 100 | R-83-830 | | 44.3 | 21.9 | 18.3 | 0.9 | 0.5 | 0.65 | 8.5 |
|-----|----------|--|------|------|------|-----|-----|------|-----|

| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|-------|-----|
| 110 | R-83-831 | | 77.2 | 17.4 | 12.3 | 0.5 | 0.5 | <0.01 | 9.2 |
|-----|----------|--|------|------|------|-----|-----|-------|-----|

| | | | | | | | | | |
|-----|----------|-----|------|------|------|-----|-----|-------|-----|
| 120 | R-83-832 | N2X | 49.7 | 12.6 | 10.9 | 0.5 | 1.0 | <0.01 | 9.0 |
|-----|----------|-----|------|------|------|-----|-----|-------|-----|

| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|------|-----|
| 130 | R-83-833 | | 36.9 | 18.9 | 14.0 | 0.5 | 0.6 | 0.65 | 8.8 |
|-----|----------|--|------|------|------|-----|-----|------|-----|

| | | | | | | | | | |
|-----|----------|-----|------|------|------|-----|-----|------|-----|
| 140 | R-83-834 | EOX | 36.4 | 18.0 | 20.9 | 1.1 | 1.6 | 0.34 | 8.5 |
|-----|----------|-----|------|------|------|-----|-----|------|-----|

| | | | | | | | | | |
|-----|----------|--|------|------|-----|-----|-----|------|-----|
| 150 | R-83-835 | | 36.8 | 18.8 | 9.4 | 0.2 | 0.3 | 0.06 | 8.5 |
|-----|----------|--|------|------|-----|-----|-----|------|-----|

| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|------|-----|
| 160 | R-83-836 | | 32.3 | 16.3 | 14.1 | 0.5 | 1.0 | 0.02 | 9.3 |
|-----|----------|--|------|------|------|-----|-----|------|-----|

| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|-------|-----|
| 170 | R-83-837 | | 32.5 | 14.4 | 10.7 | 0.4 | 0.7 | <0.01 | 9.0 |
|-----|----------|--|------|------|------|-----|-----|-------|-----|

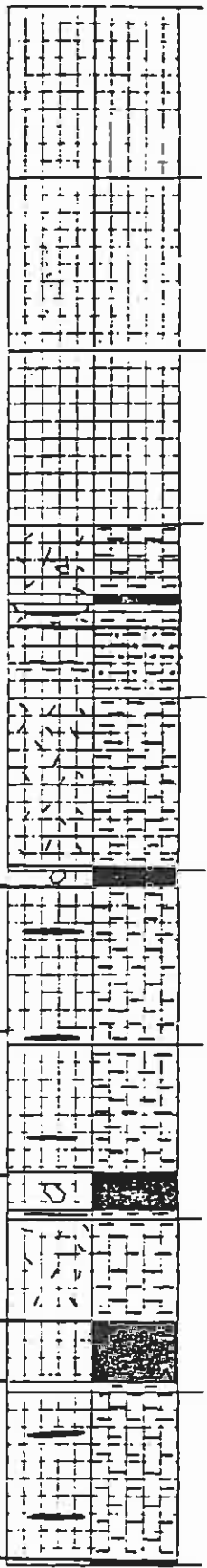
| | | | | | | | | | |
|-----|----------|--|------|------|------|-----|-----|------|-----|
| 180 | R-83-838 | | 30.1 | 16.0 | 11.3 | 0.3 | 0.7 | 0.01 | 8.9 |
|-----|----------|--|------|------|------|-----|-----|------|-----|

| | | | | | | | | | |
|--|--|-----|------------|------|-------|------|-----|--|--|
| | | E1X | (83-881-R) | 7.74 | 12784 | 0.56 | 8.3 | | |
|--|--|-----|------------|------|-------|------|-----|--|--|

| | | | | | | | | | |
|--|--|--|--|-----|--|--|--|--|--|
| | | | | 129 | | | | | |
|--|--|--|--|-----|--|--|--|--|--|

SEP

3 1986



T.D.=240

240

230

220

210

200

190

180

| DEPTH | SAMPLE NO. | SATURATION % | SAR | SOL.Na. (BTU) | SOL.Ca. SOL.Mg | % S | pH |
|-------|-------------------|--------------|------|---------------|----------------|------|-----|
| 180 | R-83-839 | 61.1 | 17.9 | 13.3 | 0.5 | 0.6 | 9.0 |
| 190 | E2A (83-882-R) | 12.85 | | 12225 | | 0.50 | 8.3 |
| 200 | R-83-840 E2B | 47.4 | 23.7 | 13.0 | 0.4 | 0.2 | 8.5 |
| 210 | R-83-841 | 57.3 | 17.1 | 10.1 | 0.4 | 0.3 | 9.0 |
| 220 | R-83-842 | 70.0 | 17.3 | 9.5 | 0.4 | 0.2 | 9.0 |

130

SEP 3 1986

HOLE NO. 24417-C
 LOCATION S 33006.2
 E 54792.2
 ELEVATION 6953.6

DRILLER J. Elliott
 DATE DRILLED 1-26-83
 SUB AREA J-21
 PAGE 3

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

DRY Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|----------|-------------------|--------|--------|--------|--------|--|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 850001541 | 0.22 | 0.22 | 0.6 | 0.2 | 3.9 | 15.2 | 15.3 | | | | | | |
| SL | 850001542 | 0.05 | <0.01 | <0.6 | 0.5 | 7.6 | 31.5 | 8.7 | | | | | | |
| SS | 850001543 | <0.01 | 0.04 | <0.6 | 0.2 | 1.6 | 19.7 | 20 | | | | | | |
| SH | 850001544 | 0.06 | 0.02 | <0.6 | 2 | 7.6 | 205.9 | 12.6 | | | | | | |
| SH, CO | 850001545 | <0.01 | <0.01 | <0.6 | 3.4 | 16.3 | 169.4 | 9.1 | | | | | | |
| SH, SL | 850001546 | <0.01 | <0.01 | <0.6 | 1.5 | 4.1 | 69.2 | 4.4 | | | | | | |
| SH | 850001547 | 0.06 | 0.06 | 0.6 | 3.4 | 7.7 | 86.7 | 4.3 | | | | | | |
| SH, CO | 850001548 | 0.09 | 0.09 | 0.6 | 1.6 | 8 | 86.8 | 3.3 | | | | | | |
| SH, CO | 850001549 | 0.01 | 0.01 | 0.6 | 2.5 | 6.1 | 61.6 | 4.7 | | | | | | |
| SH, SL | 850001550 | 0.16 | 0.16 | 0.6 | 0.7 | 2.7 | 105.2 | 6 | | | | | | |
| CO, SH | 850001551 | 0.07 | 0.07 | <0.6 | 3.4 | 6.1 | 106.2 | 8.2 | | | | | | |
| CO | 850001552 | 0.1 | 0.1 | 0.6 | 1.3 | 7.9 | 62.8 | 1.4 | | | | | | |
| SH, SL | 850001553 | 0.32 | 0.32 | 0.9 | 2.1 | 2.1 | 70.3 | 1 | | | | | | |
| CO | 850001554 | 0.29 | 0.18 | <0.6 | 3.9 | 6.6 | 55.7 | <1 | | | | | | |
| CO | 850001555 | 0.18 | 0.18 | 0.6 | 0.9 | 8 | 26.2 | <1 | | | | | | |
| SH, CO | 850001556 | 0.27 | 0.27 | 0.6 | 1.3 | 2.6 | 37 | <1 | | | | | | |
| SH, SL | 850001557 | 0.56 | 0.8 | 0.6 | 1.6 | 3.4 | 34.5 | 1.3 | | | | | | |
| SH | 850001558 | 0.34 | 0.31 | <0.6 | 1.7 | 3.1 | 64.7 | 4.4 | | | | | | |
| CO | 850001559 | 0.6 | 0.6 | <0.6 | 1.2 | 2.1 | 13.1 | <1 | | | | | | |
| SH | 850001560 | 0.6 | 0.6 | 0.6 | 0.7 | 1 | 41.1 | 1.6 | | | | | | |
| SS | 850001561 | 0.31 | 0.31 | <0.6 | 0.7 | 1.2 | 56.3 | 2.9 | | | | | | |
| SS | 850001562 | 0.3 | 0.3 | 0.6 | 1.4 | 1.4 | 69.2 | 2.8 | | | | | | |
| CO | 850001563 | 0.12 | 0.12 | 0.6 | 1.6 | 5 | 27.3 | <1 | | | | | | |
| SH, CO | 850001564 | 0.6 | 0.6 | <0.6 | 1.6 | 7 | 32.7 | <1 | | | | | | |

SOLE NO. 24418-C

LOCATION S 36079.7

E 55310.5

ELEVATION 6871.0

DRILLER J. Elliott

DATE DRILLED 2-1-83

SUB AREA J-21

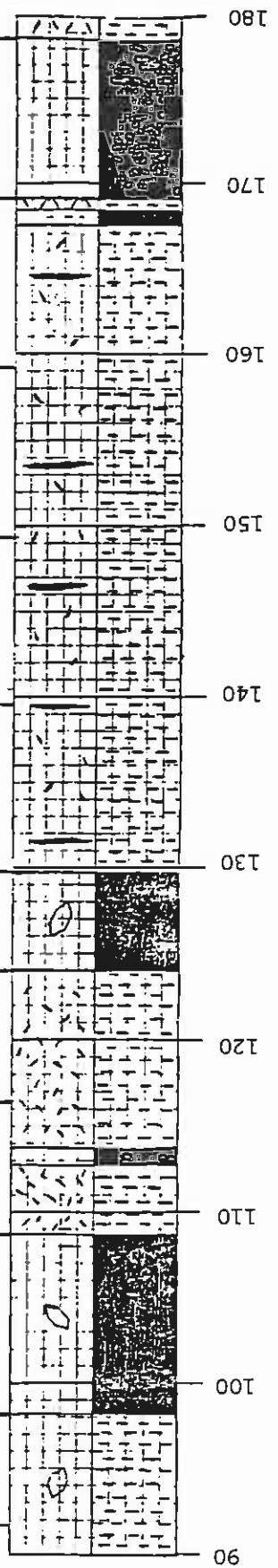
PAGE 1

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU) % pH

SAMPLE NO.

| | | | | | | | |
|------------|-------|-------|------|------|------|-------|-----|
| 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 |
| 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 |
| (83-883-R) | 8.37 | 12601 | 0.71 | 8.4 | 1.09 | 8.5 | |
| R-83-854 | 71.9 | 49.5 | 29.3 | 0.4 | 0.3 | 1.09 | 8.5 |
| (83-884-R) | 6.55 | 12915 | 0.61 | 8.2 | 0.68 | 8.0 | |
| R-83-855 | 42.5 | 42.7 | 38.2 | 1.1 | 0.5 | 0.68 | 8.0 |
| (83-885-R) | 11.53 | 12036 | 0.98 | 8.2 | 1.12 | 8.0 | |
| 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 |

SEP 3 1986

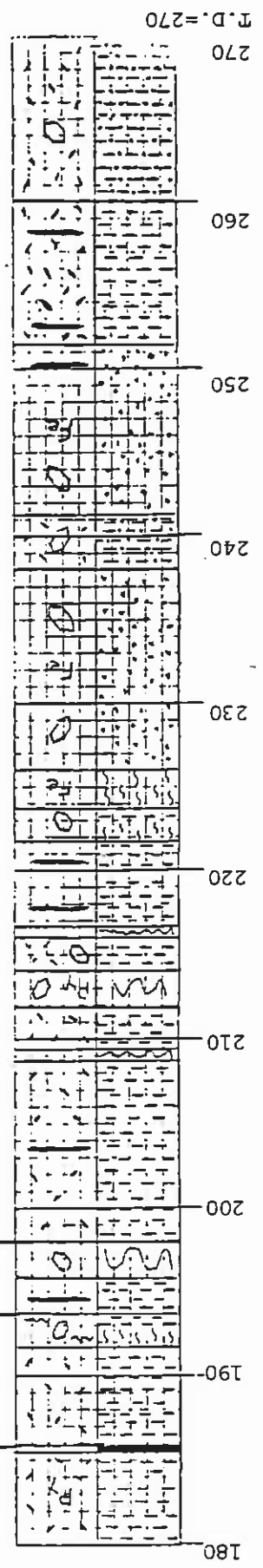


| DEPTH (ft) | SAMPLE NO. | SATURATION % | SAR | SOL. Na. (ASH) | SOL. Ca. (BTU) | SOL. Mg | PH |
|------------|----------------|--------------|------|----------------|----------------|---------|-----|
| 90 | R-83-859 | 38.7 | 38.3 | 24.2 | 0.4 | 0.4 | 8.7 |
| 100 | (83-886-R) NXX | 10.01 | | | 12346 | | 8.1 |
| 110 | R-83-860 | 36.3 | 28.0 | 19.8 | 0.5 | 0.5 | 8.3 |
| 120 | R-83-861 | 31.2 | 32.1 | 23.8 | 0.6 | 0.5 | 8.6 |
| 130 | R-83-862 | 65.3 | 25.2 | 13.8 | 0.2 | 0.4 | 9.4 |
| 140 | R-83-863 | 61.0 | 35.6 | 15.9 | 0.3 | 0.1 | 9.5 |
| 150 | R-83-864 | 45.4 | 28.3 | 20.0 | 0.4 | 0.6 | 9.2 |
| 160 | R-83-865 | 58.8 | 38.5 | 17.2 | 0.3 | 0.1 | 9.2 |
| 170 | E12 (83-888-R) | 7.74 | | | 12751 | | 8.1 |
| 180 | | | | | | | |

HOLE NO. 24418-C
 LOCATION S 36079.7
 E 55310.5
 ELEVATION 6871.0

DRILLER J. Elliott
 DATE DRILLED 2-1-83
 SUB AREA J-21
 PAGE 2

SEP 3 1986



| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | PH |
|------------|------------------|---------|---------|--------|-------|-----|
| R-83-868 | 59.2 | 21.0 | 11.5 | 0.2 | 0.4 | 8.3 |
| R-83-867 | 52.6 | 28.8 | 12.9 | 0.3 | 0.1 | 9.0 |
| R-83-866 | 46.8 | 32.8 | 19.4 | 0.5 | 0.2 | 8.5 |

DATE DRILLED: 2-1-83
 SUB AREA: J-21
 LOCATION: S 36079.7
 E 55310.5
 JLE NO. 24418-C
 DRILLER: J. Elliott
 PAGE: 3

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 02552 KAYENTA
CORE NO: 24418C
DATE CORED: 01FEB1983
DATE REPORTED: 10SEP1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|-----|--|------|
| | | | | | 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 | 6.7 | | | | | | | 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 | 3.1 | | | | | | | | 8.1 |
| CO, SH | 54 | 850001575 | 7.6 | 61.9 | 3.3 | 34.5 | 1 | 0.8 | 6.8 | | | | | | | | 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, CO | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:24418C
DATE CORED:01FEB1983
DATE REPORTED:10SEPT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons * | | | | | | | | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|-----------|-----------|-----------------------------|--------------------|--------------------|-----------------|-----------------|---------------------------|-------------------|------------------|------------------|-----------|---------------|-----------|------------|-----------|--------------|--|--------------------------------|
| | | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | |
| 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 | 3.92 | 0.8 | 16.2 | 55 | 28.8 | | | | | | |
| CO, SH | 850001573 | 1.49 | | | | 46.56 | 42.64 | 18.51 | . | 19.2 | 46 | 34.8 | | | | | | |
| SH, CO | 850001574 | 1.08 | | | | 33.75 | 15.24 | 18.51 | . | 31.2 | 41 | 27.8 | | | | | | |
| CO | 850001575 | 1.45 | | | | 45.31 | 12.68 | 32.63 | . | 46 | 22 | 32 | | | | | | |
| 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 | 9.52 | 6.16 | 41 | 45 | 14 | | | | | | |
| SH, CO | 850001579 | 0.53 | | | | 16.56 | 7.04 | | 21.88 | 40.4 | 49.6 | 10 | | | | | | |
| SH | 850001580 | 0.71 | | | | 22.19 | 44.07 | . | 15.7 | 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: 01 FEB 1983
DATE REPORTED: 10 SEP 1985

Dry Basis

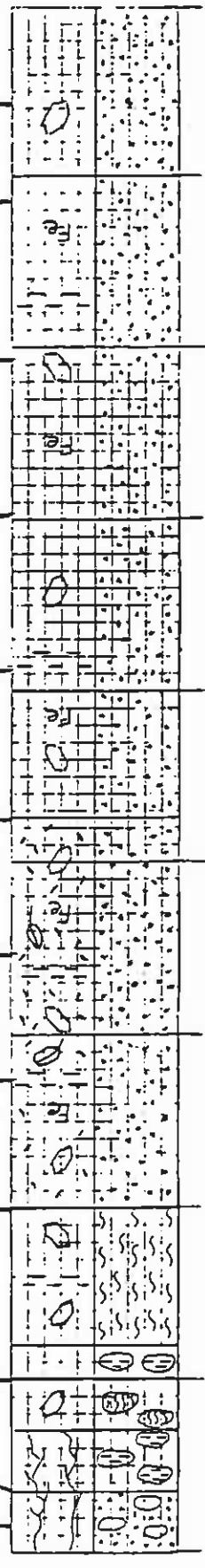
| Lithology | Lab No. | Hot H2O Ext. # | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| SL | 850001565 | 0.05 | 0.02 | 0.6 | 0.6 | 0.2 | 1.9 | 10.3 | 13.9 | | | |
| SL | 850001566 | <0.02 | <0.02 | <0.6 | <0.6 | <0.1 | 1.3 | 13.1 | 9 | | | |
| SL | 850001567 | <0.02 | <0.02 | <0.6 | <0.6 | <0.1 | 1.5 | 10.9 | 4 | | | |
| SH | 850001568 | <0.02 | <0.02 | 1 | 1 | 1 | 2.4 | 14.1 | 5.7 | | | |
| CO, SH | 850001569 | <0.02 | <0.02 | 1 | 1 | 2.9 | 5.7 | 79.9 | 15.6 | | | |
| SH | 850001570 | <0.02 | <0.02 | <0.6 | <0.6 | 4 | 6 | 79.3 | 26.8 | | | |
| SS | 850001571 | <0.02 | <0.02 | <0.6 | <0.6 | 4 | 6 | 57.1 | 6.7 | | | |
| SH | 850001572 | <0.02 | <0.02 | <0.6 | <0.6 | 1.1 | 1.5 | 47.5 | 20.2 | | | |
| SH | 850001573 | 0.05 | 0.05 | 0.6 | 0.6 | 4.1 | 7.9 | 61.7 | 10.8 | | | |
| CO, SH | 850001574 | <0.02 | <0.02 | <0.6 | <0.6 | 2.6 | 6.3 | 71.2 | 5.1 | | | |
| SH, CO | 850001575 | <0.02 | <0.02 | <0.6 | <0.6 | 2 | 5.3 | 254.2 | 7.9 | | | |
| CO | 850001576 | 0.3 | 0.3 | 0.6 | 0.6 | 3.4 | 6.1 | | | | | |
| SH | 850001577 | 0.02 | 0.02 | <0.6 | <0.6 | 2 | 9.1 | 27.5 | <1 | | | |
| SH, SL | 850001578 | 0.17 | <0.02 | <0.6 | <0.6 | 4.2 | 6.4 | 196.7 | 3.9 | | | |
| CO | 850001579 | <0.06 | 0.06 | <0.6 | <0.6 | 1.7 | 2 | 64.1 | 1.6 | | | |
| SH, CO | 850001580 | 0.16 | 0.16 | <0.6 | <0.6 | 2.5 | 1.9 | 76.3 | 11.3 | | | |
| SH | 850001581 | 0.9 | 0.9 | 0.9 | 0.9 | 2.5 | 6.6 | 62.2 | 5.3 | | | |
| CO | 850001582 | 0.23 | 0.23 | 0.6 | 0.6 | 2.5 | 4.9 | 39.6 | 4.3 | | | |
| SH, CO | 850001583 | 0.42 | 0.42 | <0.6 | <0.6 | 2.3 | 2.7 | 46.1 | 2.9 | | | |
| CO | 850001584 | 0.44 | 0.44 | <0.6 | <0.6 | 1.8 | 3.2 | 65.6 | 5 | | | |
| SH | 850001585 | 0.6 | 0.6 | <0.6 | <0.6 | 2.4 | 4.4 | 21.7 | <1 | | | |
| SH | 850001586 | 0.11 | 0.11 | <0.6 | <0.6 | 1.5 | 3.5 | 16.1 | <1 | | | |
| SH, CO | 850001587 | 0.19 | 0.19 | <0.6 | <0.6 | 1.2 | 2.3 | 38.2 | 1.4 | | | |
| CO | 850001588 | 0.54 | 0.54 | <0.6 | <0.6 | 1.6 | 2.7 | 16.1 | <1 | | | |
| SH, CO | 850001589 | | | | | 1.8 | 3.6 | 23.2 | <1 | | | |

HOLE NO. 24419-C
 LOCATION S 36092.1
 E 55310.5
 ELEVATION 6871.0

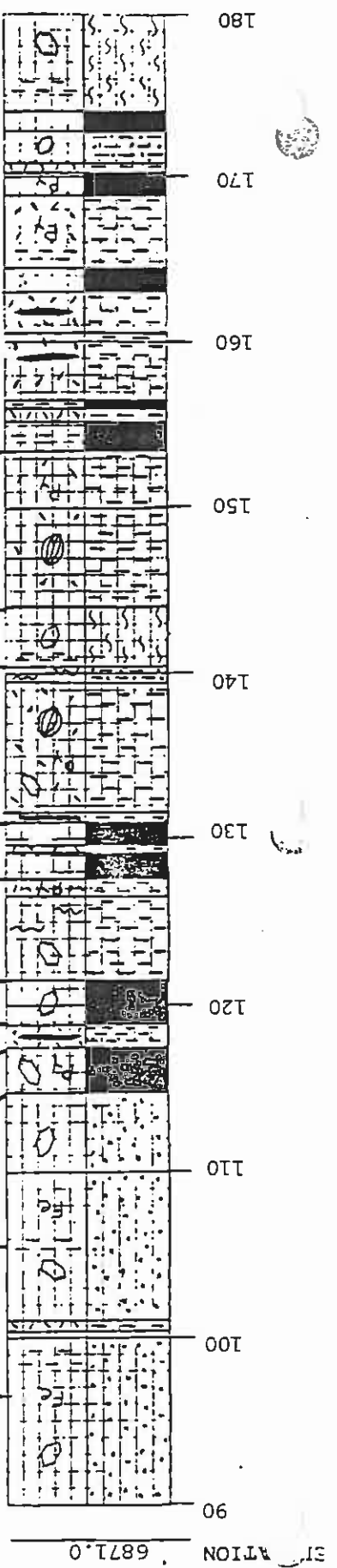
DATE DRILLED 2-15-83
 SUB AREA J-21

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU)
 SAMPLE NO. (ASH) PH

| DEPTH (ft) | SAMPLE NO. | SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU) | (ASH) | PH | | | | |
|------------|------------|--|-------|------|-----|-----|-------|-----|
| 0 | R-83-869 | 48.8 | 2.4 | 3.2 | 2.4 | 1.3 | <0.01 | 8.1 |
| 10 | R-83-870 | 40.9 | 3.4 | 3.8 | 1.5 | 1.0 | <0.01 | 8.3 |
| 10 | R-83-871 | 60.9 | 4.4 | 10.9 | 7.7 | 4.8 | 0.01 | 7.9 |
| 20 | R-83-872 | 40.4 | 3.6 | 5.2 | 2.4 | 1.8 | <0.01 | 7.9 |
| 20 | R-83-873 | 36.4 | 3.7 | 4.8 | 2.0 | 1.3 | 0.02 | 7.8 |
| 30 | R-83-874 | 32.1 | 3.3 | 3.5 | 1.3 | 0.9 | 0.02 | 8.0 |
| 40 | R-83-875 | 32.1 | 4.3 | 4.4 | 1.0 | 1.1 | <0.01 | 8.2 |
| 50 | R-83-876 | 34.0 | 3.0 | 4.0 | 1.9 | 1.7 | <0.01 | 8.3 |
| 60 | R-83-877 | 34.0 | 3.4 | 5.0 | 2.3 | 1.9 | <0.01 | 8.3 |
| 70 | R-83-878 | 34.0 | 4.1 | 5.1 | 1.6 | 1.5 | <0.01 | 8.4 |
| 70 | R-83-879 | 34.0 | 5.8 | 7.4 | 1.7 | 1.6 | 0.02 | 8.1 |
| 80 | R-83-880 | 32.0 | 6.7 | 7.9 | 1.4 | 1.4 | <0.01 | 8.2 |
| 90 | R-83-881 | 32.0 | 8.2 | 7.6 | 0.9 | 0.8 | <0.01 | 8.5 |



SEP 3 1986



SOLE NO. 24419-C
 LOCATION S 36092.1
 E 55310.5
 STATION 6871.0

| DEPTH (FT) | SAMPLE NO. | SATURATION % | SAR | SOL. Na. (ASH) | SOL. Ca. (BTU) | SOL. Mg | PH |
|------------|------------|--------------|------|----------------|----------------|---------|-----|
| 100 | R-83-882 | 32.0 | 11.8 | 10.9 | 0.9 | 0.8 | 8.2 |
| 110 | R-83-883 | 32.0 | 15.1 | 13.1 | 0.8 | 0.7 | 8.5 |
| 120 | R-83-884 | 53.2 | 40.8 | 31.6 | 0.7 | 0.5 | 7.5 |
| 130 | R-83-885 | 40.2 | 28.7 | 17.0 | 0.4 | 0.3 | 8.6 |
| 140 | R-83-886 | 48.3 | 41.8 | 18.7 | 0.3 | 0.1 | 8.5 |
| 150 | R-83-887 | 34.1 | 21.9 | 15.5 | 0.2 | 0.8 | 9.1 |
| 160 | R-83-888 | 46.4 | 44.8 | 22.4 | 0.4 | 0.1 | 8.8 |
| 170 | | | | | | | |
| 180 | | | | | | | |

DATE DRILLED 2-15-83
 SUB AREA 1-21
 CORE NO. 2
 OPERATOR J. Elliott

SEP 3 1986

141

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|-----|------|
| | | | | | 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 | 1.3 | 3.4 | | | | | 2.2 |
| SH, SL | 1.6 | 850001590 | 8.3 | 40.9 | 0.5 | 3.8 | 1.5 | 1 | 3.4 | 1.3 | 3.4 | | | | | 3.6 |
| SL | 3.3 | 850001591 | 7.9 | 60.9 | 2.1 | 10.9 | 7.7 | 4.8 | 4.4 | 1.8 | 3.6 | | | | | 5 |
| SS | 12 | 850001592 | 7.9 | 40.4 | 0.9 | 5.2 | 2.4 | 1.8 | 3.7 | 1.3 | 3.3 | | | | | 3.9 |
| SS | 20 | 850001593 | 7.8 | 36.4 | 0.8 | 4.8 | 2 | 0.9 | 3.7 | 0.9 | 3.3 | | | | | 4 |
| SS | 27.4 | 850001594 | 8 | 32.1 | 0.6 | 3.5 | 1.3 | 1.1 | 4.3 | 1.1 | 3.3 | | | | | 3.5 |
| SS | 34.8 | 850001595 | 8.2 | 32.1 | 0.6 | 4.4 | 1 | 1.1 | 4.3 | 1.1 | 3.3 | | | | | 4.8 |
| SS | 42.3 | 850001596 | 8.3 | 34 | 0.7 | 4 | 1.9 | 1.7 | 3 | 1.7 | 3.4 | | | | | 3.1 |
| SS | 51.3 | 850001597 | 8.3 | 34 | 0.8 | 5 | 2.3 | 1.9 | 3.4 | 1.9 | 3.4 | | | | | 3.6 |
| SS | 60.3 | 850001598 | 8.4 | 34 | 0.8 | 5.1 | 1.7 | 1.5 | 4.1 | 1.6 | 5.8 | | | | | 4.6 |
| SS | 69.3 | 850001599 | 8.1 | 34 | 1 | 7.4 | 1.7 | 1.6 | 5.8 | 1.4 | 6.7 | | | | | 6.8 |
| SS | 78.4 | 850001600 | 8.2 | 32 | 1 | 7.9 | 1.4 | 1.4 | 6.7 | 1.4 | 6.7 | | | | | 7.9 |
| SS | 87.5 | 850001601 | 8.5 | 32 | 0.9 | 7.6 | 0.9 | 0.8 | 8.2 | 0.8 | 8.2 | | | | | 9.8 |
| SS, SH | 96.6 | 850001602 | 8.2 | 32 | 1.2 | 10.9 | 0.9 | 0.8 | 11.8 | 0.8 | 11.8 | | | | | 13.9 |
| SS | 105.7 | 850001603 | 8.5 | 32 | 1.4 | 13.1 | 0.8 | 0.7 | 15.1 | 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 | 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 | 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 | 0.1 | 41.8 | | | | | 37.7 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

#Dry Basis

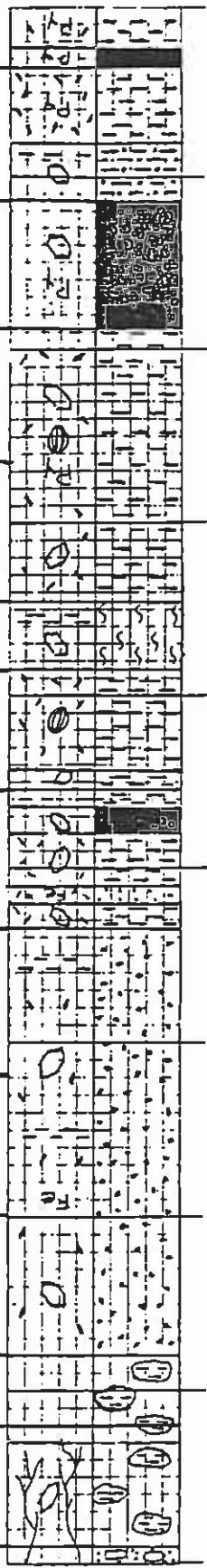
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * PYR. S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture # | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | 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 | | | | |
| SH, SL | 850001590 | <0.01 | | | | 0.31 | 65.14 | . | 64.83 | 56.2 | 17.6 | 26.2 | | | | |
| SL | 850001591 | 0.01 | | | | 0.31 | 34.44 | . | 34.13 | 38.2 | 29.6 | 32.2 | | | | |
| SS | 850001592 | <0.01 | | | | 0.31 | 1.91 | . | 1.6 | 54.2 | 23.6 | 22.2 | | | | |
| SS | 850001593 | 0.02 | | | | 0.62 | 1.48 | 0.3 | 0.86 | 60.2 | 17.6 | 22.2 | | | | |
| SS | 850001594 | 0.02 | | | | 0.31 | 10.81 | . | 10.5 | 73.3 | 16.5 | 10.2 | | | | |
| SS | 850001595 | <0.01 | | | | 0.31 | 138.22 | . | 137.91 | 71.2 | 16.6 | 12.2 | | | | |
| SS | 850001596 | <0.01 | | | | 0.31 | 85.22 | . | 84.91 | 74.2 | 16 | 9.8 | | | | |
| SS | 850001597 | <0.01 | | | | 0.31 | 139.41 | . | 139.1 | 74.6 | 15.6 | 9.8 | | | | |
| SS | 850001598 | <0.01 | | | | 0.31 | 38.92 | . | 38.3 | 69.6 | 16.6 | 13.8 | | | | |
| SS | 850001599 | 0.02 | | | | 0.62 | 46.21 | . | 45.9 | 74.6 | 15.6 | 9.8 | | | | |
| SS | 850001600 | <0.01 | | | | 0.31 | 47.12 | . | 46.81 | 78.6 | 13.6 | 7.8 | | | | |
| SS, SH | 850001601 | <0.01 | | | | 0.31 | 37.63 | . | 36.69 | 70.6 | 15.6 | 13.8 | | | | |
| SS | 850001602 | 0.03 | | | | 0.94 | 48.68 | . | 46.49 | 73.6 | 16.2 | 10.2 | | | | |
| CO | 850001603 | 0.07 | | | | 2.19 | | | | | | | | | | |
| CO | 850001604 | | | | | 65 | 5.54 | 59.46 | . | 65.4 | 21.2 | 13.4 | | | | |
| SH, CO | 850001605 | 0.47 | | | | 14.69 | 15.36 | . | 0.67 | 38.4 | 45.6 | 16 | | | | |
| 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: 11SEPT1985

Dry Basis

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



90
80
70
60
50
40
30
20
10
0

HOLE NO. 24420-C
LOCATION S 34939.1
E 50501.0
DATE DRILLED 2-24-83
DRILLER J. Elliott
SUB AREA J-21
PAGE 1

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |

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SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 24420C
DATE CORED: 24 FEB 1983
DATE REPORTED: 10 SEP 1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * Na/KCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyrr. S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture # | | Avail. H2O Hold. Cap. |
|------------|-----------|------------------------|--------------------------|-------------------------|----------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SO | 850001607 | 0.02 | | | 0.02 | | 0.62 | 17.8 | . | 17.18 | 64.2 | 14.6 | 21.2 | | | |
| SH | 850001608 | 0.04 | | | 0.04 | | 1.25 | 73.54 | . | 72.29 | 34.8 | 33 | 32.2 | | | |
| SH | 850001609 | 0.05 | | | 0.05 | | 1.56 | 21.17 | . | 19.61 | 42.8 | 26 | 31.2 | | | |
| SS | 850001610 | 0.02 | | | 0.02 | | 0.62 | 13.52 | . | 12.9 | 66.8 | 19 | 14.2 | | | |
| SS | 850001611 | 0.02 | | | 0.02 | | 0.62 | 17.9 | . | 17.28 | 76.8 | 15 | 8.2 | | | |
| SS | 850001612 | 0.06 | | | 0.06 | | 1.88 | 8.53 | . | 6.65 | 76.2 | 15.8 | 8 | | | |
| SH, SS, CO | 850001613 | 0.09 | | | 0.09 | | 2.81 | 28.99 | . | 26.18 | 40.2 | 30.2 | 29.6 | | | |
| SH | 850001614 | 1 | | | 1 | | 31.25 | 35.39 | . | 4.14 | 21.2 | 49.6 | 29.2 | | | |
| SL | 850001615 | 0.17 | | | 0.17 | | 5.31 | 42.63 | . | 37.32 | 63.2 | 25.6 | 11.2 | | | |
| SH | 850001616 | 0.7 | | | 0.7 | | 21.88 | 42.21 | . | 20.33 | 16.8 | 54 | 29.2 | | | |
| SH | 850001617 | 1.5 | | | 1.5 | | 46.88 | 33.87 | . | | 26.8 | 44.4 | 28.8 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001618 | 1.42 | | | 1.42 | | 44.38 | 27.62 | 16.76 | . | 38.8 | 40.4 | 20.8 | | | |
| CO, SH | 850001619 | 1.25 | | | 1.25 | | 39.06 | 11.05 | 28.01 | . | 42.4 | 41.2 | 16.4 | | | |
| SH | 850001620 | 0.66 | | | 0.66 | | 20.63 | 9.19 | 11.44 | . | 41.4 | 45.4 | 13.2 | | | |
| SH | 850001621 | 1.51 | | | 1.51 | | 47.19 | 5.18 | 42.01 | . | 23 | 47.8 | 29.2 | | | |
| CO | COAL | | | | | | | | | | | | | | | |
| SH | 850001622 | 0.4 | | | 0.4 | | 12.5 | 4.25 | 8.25 | . | 12.6 | 48.2 | 39.2 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

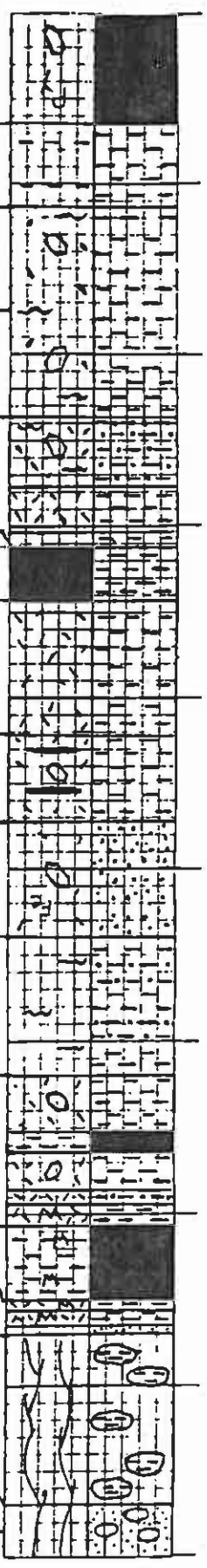
MINE:0252 KAYENTA
CORE NO:24H20C
DATE CORED:24FEB1983
DATE REPORTED:10SEPT1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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 | | |

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

| | | | | | | | |
|--------------------|-------|------|------|------|------|------|-----|
| 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 |
| (83-1196-R) BOX | 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 |
| | | 151 | | | | | |



SEP 3 1986

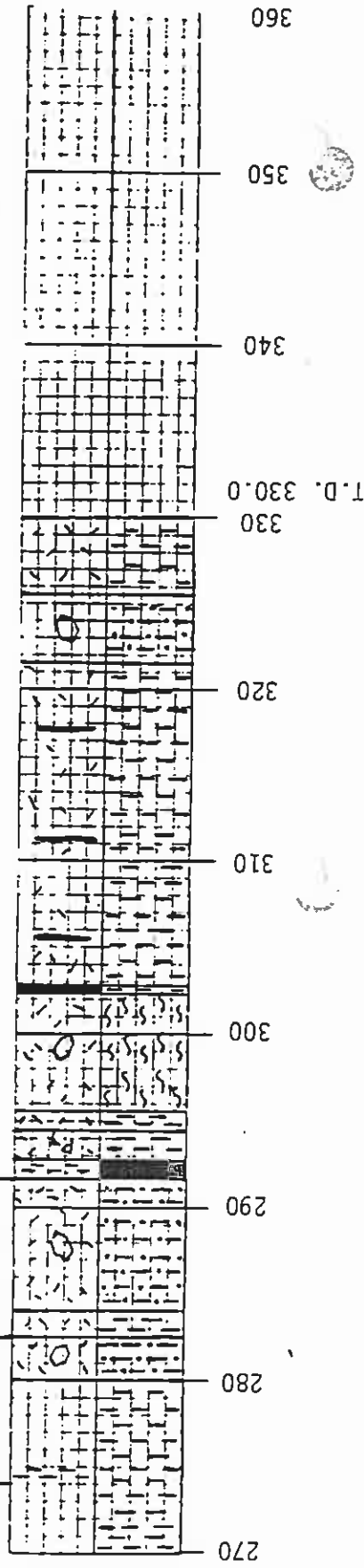
| HOLE NO. | LOCATION | ELEVATION |
|-----------|----------|-----------|
| 24423 - C | S39233.0 | 6926.1 |
| | | E56636.9 |

| SAMPLE NO. | SATURATION % | SAR | SOL. No. | SOL. Ca. | SOL. Mg. | (BTU) | %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 | |
| (83-1203-R) FIX | 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 | |
| (83-1205-R) E3X | 9.51 | | 12480 | | | 0.41 | 8.2 | |

DRILLER J. Elliott
 DATE DRILLED 3-21-83
 SUB AREA J21
 PAGE 3

SEP 3 1986

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OLE NO. 24423 - C
 LOCATION S39233.0
 E56636.9
 ATION .6926.1

| DEPTH | SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg | PH | | |
|-------|------------|------------------|----------|----------|---------|-----|-------|-----|
| | (MOISTURE) | (ASII) | (BTU) | | | | | |
| 270 | R-83-1374 | 40.7 | 18.3 | 17.8 | 0.5 | 1.4 | 0.02 | 9.3 |
| 280 | R-83-1375 | 32.2 | 20.0 | 13.4 | 0.4 | 0.5 | 0.01 | 9.1 |
| 290 | R-83-1376 | 30.3 | 19.1 | 12.1 | 0.4 | 0.4 | <0.01 | 9.1 |

DRILLER J. E1110tt
 DATE DRILLED 3-21-83
 SUB AREA J21
 PAGE 4

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 24423C
DATE CORED: 21MAY1983
DATE REPORTED: 10SEP1985

DRY BASIS

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | Hg PPB | AB-DTPA EXTRACT # | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|--------|-------------------|--------|--------|--------|--------|--|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 850001623 | 0.05 | 0.06 | 0.02 | 0.7 | 0.2 | 5 | 12.2 | 18.5 | | | | | |
| SO | 850001624 | 0.06 | 0.02 | 0.02 | <0.6 | <0.1 | 4.3 | 8 | 7.6 | | | | | |
| SH | 850001625 | 0.02 | 0.18 | 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 | 0.02 | 0.02 | <0.6 | 2 | 8.4 | 69.6 | 4.1 | | | | | |
| SH | 850001628 | 0.02 | 0.01 | 0.01 | 0.7 | 2.4 | 5.4 | 98.8 | 5.2 | | | | | |
| SS | 850001629 | 0.01 | 0.01 | 0.01 | <0.6 | 1.4 | 3 | 49.6 | 5.7 | | | | | |
| SH | 850001630 | 0.01 | 0.22 | 0.22 | <0.6 | 3.8 | 4.2 | 172.5 | 32.3 | | | | | |
| SH | 850001631 | 0.22 | 0.1 | 0.1 | <0.6 | 2.5 | 6.5 | 93.8 | 2.9 | | | | | |
| SH | 850001632 | 0.1 | 0.1 | 0.1 | <0.6 | 6.8 | 7 | 188.7 | 16.8 | | | | | |
| SH | 850001633 | 0.1 | 0.11 | 0.11 | <0.6 | 2 | 2.8 | 88.3 | 5 | | | | | |
| SH | 850001634 | 0.11 | 0.09 | 0.09 | <0.6 | 2.4 | 1.9 | 129.8 | 8.1 | | | | | |
| SH | 850001635 | 0.09 | 0.13 | 0.13 | <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 | 0.05 | 0.05 | <0.6 | 9 | 8.6 | 187.9 | 17.2 | | | | | |
| SL | 850001638 | 0.05 | 0.15 | 0.15 | <0.6 | 1.6 | 1.4 | 55.4 | 2.7 | | | | | |
| SH | 850001639 | 0.15 | <0.01 | <0.01 | <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 | 0.11 | 0.11 | 0.7 | 2.2 | 1.8 | 58.7 | 1.9 | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001642 | 0.22 | 0.19 | 0.19 | 0.7 | 3.5 | 3.2 | 59.5 | <1 | | | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001643 | 0.19 | 0.07 | 0.07 | 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 | 0.22 | 0.22 | <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 | 0.21 | 0.21 | <0.6 | 2.7 | 3.9 | 78.9 | 5.3 | | | | | |
| SH | 850001648 | 0.21 | 0.21 | 0.21 | <0.6 | 1.9 | 3.5 | 147.5 | 11.8 | | | | | |
| SH | 850001649 | 1.2 | 0.52 | 0.52 | <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 | 0.34 | 0.34 | 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 | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture | | * Avail. H2O Hold. Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|------------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|------------|-----------|-------------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SO | 850001623 | 0.02 | | | 0.02 | | 0.62 | 41.17 | | 40.55 | 24.2 | 26.6 | 49.2 | | | |
| SH | 850001624 | 0.02 | | | 0.02 | | 0.62 | 21.59 | | 20.97 | 15.6 | 29.6 | 54.8 | | | |
| SS,SH | 850001625 | 0.03 | | | 0.03 | | 0.94 | 13.46 | | 12.52 | 22.6 | 22.6 | 54.8 | | | |
| CO | 850001626 | 0.13 | | | 0.13 | | 4.06 | 7.37 | | 3.31 | 62.2 | 14 | 23.8 | | | |
| SH | 850001627 | 0.37 | | | 0.37 | | 11.56 | 12.37 | | 0.81 | 34 | 28.6 | 37.4 | | | |
| SH | 850001628 | 0.11 | | | 0.11 | | 3.44 | 48.64 | | 45.2 | 47 | 27.6 | 25.4 | | | |
| SS | 850001629 | 0.08 | | | 0.08 | | 2.5 | 29.57 | | 27.07 | 61 | 21.6 | 17.4 | | | |
| SH | 850001630 | 0.89 | | | 0.89 | | 27.81 | 17.53 | 10.28 | | 52.7 | 25.4 | 21.9 | | | |
| SH | 850001631 | 0.1 | | | 0.1 | | 3.12 | 32.5 | | 29.38 | 22.4 | 42.2 | 35.4 | | | |
| SH | 850001632 | 1.46 | | | 1.46 | | 45.62 | 5.42 | 40.2 | | 46 | 31.6 | 22.4 | | | |
| SH | 850001633 | 0.04 | | | 0.04 | | 1.25 | 41.81 | | 40.56 | 45 | 34.6 | 20.4 | | | |
| SH | 850001634 | 0.01 | | | 0.01 | | 0.31 | 42.42 | | 42.11 | 49 | 30.6 | 20.4 | | | |
| SH | 850001635 | 0.04 | | | 0.04 | | 1.25 | 50.12 | | 48.87 | 51 | 28.6 | 20.4 | | | |
| CO | 850001636 | 0.04 | | | 0.04 | | 1.25 | 29.26 | | 28.01 | 47.6 | 31.6 | 20.8 | | | |
| SH | 850001637 | 1.31 | | | 1.31 | | 40.94 | 6.84 | 34.1 | | 33.6 | 39.2 | 27.2 | | | |
| SL | 850001638 | 0.19 | | | 0.19 | | 5.94 | 116.38 | | 110.44 | 69.2 | 17.8 | 13 | | | |
| SH | 850001639 | 0.82 | | | 0.82 | | 25.62 | 40.79 | | 15.17 | 58.2 | 24.4 | 17.4 | | | |
| SH,CO | 850001640 | 1.35 | | | 1.35 | | 42.19 | 18.75 | 23.44 | | 51.2 | 23.8 | 25 | | | |
| CO | 850001641 | 0.32 | | | 0.32 | | 10 | 39.14 | | 29.14 | 61.6 | 22.4 | 16 | | | |
| SH | 850001642 | 0.29 | | | 0.29 | | 9.06 | 18.73 | | 9.67 | 47.2 | 38 | 14.8 | | | |
| SH | 850001643 | 0.26 | | | 0.26 | | 8.12 | 38.69 | | 30.57 | 37.6 | 34.8 | 27.6 | | | |
| SH,CO | 850001644 | 0.71 | | | 0.71 | | 22.19 | 41.9 | | 19.71 | 52.7 | 27.1 | 20.2 | | | |
| CO | 850001645 | 0.28 | | | 0.28 | | 8.75 | 50.95 | | 42.2 | 32 | 34.4 | 33.6 | | | |
| SH | 850001646 | 0.29 | | | 0.29 | | 9.06 | 132.63 | | 123.57 | 56 | 23.4 | 20.6 | | | |
| CO | 850001647 | 0.05 | | | 0.05 | | 1.56 | 31.19 | | 29.63 | 20 | 36.4 | 43.6 | | | |
| SH | 850001648 | 0.05 | | | 0.05 | | 1.56 | 43.41 | | 41.85 | 26 | 31.4 | 42.6 | | | |
| SL | 850001649 | 0.02 | | | 0.02 | | 0.62 | 48.24 | | 47.62 | 74 | 14.4 | 11.6 | | | |
| SL | 850001650 | <0.01 | | | <0.01 | | 0.31 | 50.58 | | 50.27 | 78 | 12.4 | 9.6 | | | |
| CO | 850001651 | 0.06 | | | 0.06 | | 1.88 | 32.05 | | 30.17 | 28 | 30.4 | 41.6 | | | |
| SH,CO | 850001652 | 0.12 | | | 0.12 | | 3.75 | 8.84 | | 5.09 | 28 | 26.4 | 45.6 | | | |
| CO | 850001653 | 0.27 | | | 0.27 | | 8.44 | 18.94 | | 10.5 | 44.7 | 21.2 | 34.1 | | | |
| CO | 850001654 | 0.02 | | | 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: 21MAY1983
DATE REPORTED: 10SEP1985

*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 | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ meq/l | ESP | | |
| SO | 0 | 850001623 | 7.9 | 75.6 | 0.5 | 2.1 | 2.5 | 1.8 | 20.9 | 1 | 1.4 | | | | | | 0.7 |
| SH | 1.5 | 850001624 | 8.2 | 71.7 | 0.9 | 5.2 | 1.7 | 2.6 | 5.8 | 1.6 | 3.5 | | | | | | 3.8 |
| SH | 3 | 850001625 | 7.4 | 78.3 | 3.9 | 15.2 | 15.3 | 20.5 | 16.4 | 1.1 | 3.6 | | | | | | 3.9 |
| SS, SH | 13 | 850001626 | 5.9 | 44.4 | 3.1 | 5.3 | 25.9 | 9.9 | 19.5 | 2.3 | 1.2 | | | | | | 0.5 |
| CO | 15 | COAL | | | | | | | | | | | | | | | |
| SH | 19.2 | 850001627 | 5.7 | 54 | 3.2 | 4.4 | 20.6 | 20.9 | 20.9 | 1 | | | | | | | 0.2 |
| SH | 28 | 850001628 | 7.9 | 44.6 | 1.5 | 4 | 7.3 | 5.8 | 7.3 | 1.6 | | | | | | | 1.1 |
| SH | 36 | 850001629 | 7.5 | 40.3 | 3.1 | 5.1 | 24.2 | 16.4 | 16.4 | 1.1 | | | | | | | 0.3 |
| SH | 42.9 | 850001630 | 6.5 | 46.4 | 3.5 | 10.1 | 19.4 | 19.5 | 19.5 | 2.3 | | | | | | | 2.1 |
| SH | 47.9 | 850001631 | 8.5 | 36.3 | 1.9 | 18 | 0.6 | 0.7 | 0.7 | 22.2 | | | | | | | 23.9 |
| SH | 55.7 | 850001632 | 7 | 44.5 | 2.5 | 22.5 | 1 | 0.7 | 0.7 | 24.4 | | | | | | | 25.8 |
| SH | 58.8 | 850001633 | 8.6 | 36.2 | 1.3 | 13.7 | 0.5 | 0.4 | 0.4 | 20.4 | | | | | | | 22.4 |
| SH | 66.2 | 850001634 | 8.6 | 34.2 | 1.5 | 15.9 | 0.5 | 0.8 | 0.8 | 19.7 | | | | | | | 21.8 |
| SH | 72.4 | 850001635 | 8.7 | 32.2 | 1.5 | 17.6 | 0.6 | 0.6 | 0.6 | 22.7 | | | | | | | 24.4 |
| SH | 78.6 | 850001636 | 8.7 | 34.2 | 1.5 | 15.7 | 0.4 | 0.5 | 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 | 28 | | | | | | | 28.6 |
| SL | 106.6 | 850001638 | 8.5 | 32.1 | 1.5 | 13.5 | 0.7 | 0.6 | 16.7 | | | | | | | | 14.9 |
| SH | 110.8 | 850001639 | 8.3 | 34.2 | 4.4 | 46.8 | 0.7 | 0.7 | 55.9 | | | | | | | | 18.9 |
| SH, CO | 119.2 | 850001640 | 7.6 | 42.8 | 2.9 | 29.4 | 0.9 | 0.6 | 33.9 | | | | | | | | 44.8 |
| CO | 127.5 | COAL | | | | | | | | | | | | | | | 32.8 |
| SH, SL, CO | 134.3 | 850001641 | 8.5 | 34.2 | 1.8 | 17.7 | 0.4 | 0.4 | 23.4 | | | | | | | | 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 | | | | | | | | 22.2 |
| 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 |

HOLE NO. 24589C

LOCATION 30996 S

72518 E

ELEVATION 7083.5

DRILLER J. E1101t

PAGE 1

DATE DRILLED 10/16/84

SUB AREA

J-21

SAMPLE NO. SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) %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

SEP 3 1986

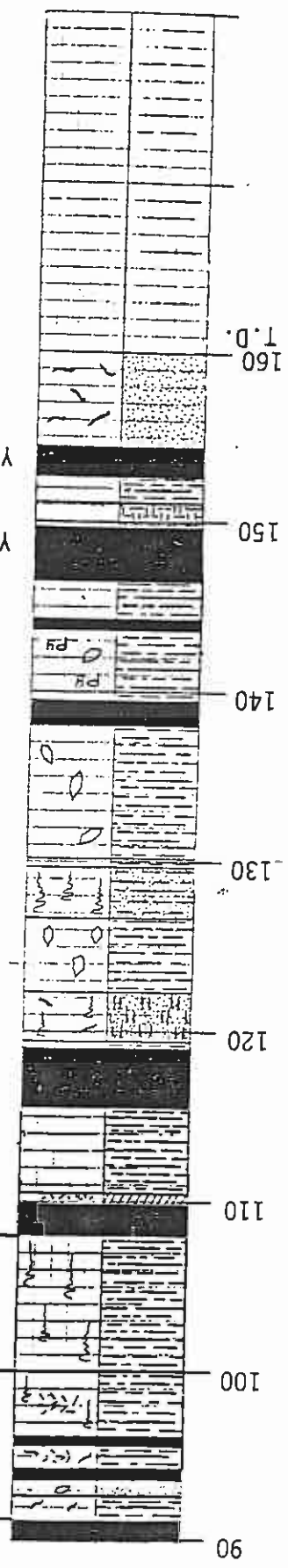
158

HOLE NO. 24589 C

LOCATION 30996 S

72518 E

ELEVATION 7083.5



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

DRILLER J. Ellioott

DATE DRILLED 10/16/84

SUB AREA

J-21

PAGE

2

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12
 CORE No: 24589 TMP: 35N
 DATE CORED: 10-16-84 RGE: 19E
 DATE ANALYZED: 11-05-84

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | |
|-----------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|-----------------------|-----------------------|------------------------|---------|------|--|
| | | | | | L.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | SO ₄ meq/l | CO ₃ meq/l | HCO ₃ meq/l | Cl mg/l | Esp | |
| Surf. 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 | 14.0 | 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 GUA | 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 GUX | 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 GIX | 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 G'X | 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 BUX | 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 BIX | 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 RUX | 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 RIX | 88.8 | COAL | | | | | | | | | | | | | |
| Silt. 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 | |
| Lrd or Analysis | 100.0 | | | | | | | | | | | | | | |

*Dry Basis

PEARBODY COAL JANU
CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12
CORE No: 24589 TWP: 35N
DATE COR'D: 10-16-84 RGE: 19E
DATE ANALYZED: 11-06-84

| Lithology | Lab No. | * # | | | CaCO ₃ Eq. Ions / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H ₂ O Hold. Cap. |
|------------|-----------|-------------|-------------|-------------|--|----------------|---------------|---------------|--------|--------|--------|--------------|--------|------------------------------------|
| | | Total N PPM | Total P PPM | Total K PPM | Amount Req'd. From S. | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| Surf. Soil | R-84-2571 | 5 | 2.8 | 68.8 | <0.01 | 0.31 | 151.16 | 150.85 | 29.8 | 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 GVA | 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 GUX | 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 BUX | 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 D1X | 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 RUX | COAL | | | | | | | | | | | | | |
| Shale, SS | R-84-2584 | 6 | 0.9 | 82.0 | 0.49 | 15.00 | 7.44 | 7.29 | 52.4 | 30.0 | 17.6 | 17.4 | 4.9 | 12.5 |
| Shale, SS | 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 |

*Dry Basis

PEABODY COAL PANNY
CENTRAL LABORATORY

MINE: Kayenta 252 SEC: 12
 CORE No: 24589 TMP: 35N
 DATE COLLID: 10-16-84 RGE: 19E
 DATE ANALYZED: 11-06-84

| Lithology | Lab No. | Hot H ₂ O Ext. * | | | | Ab-DIPA Extract * | | | | | | | *Dry Basis |
|--------------|-----------|-----------------------------|-----------|-----------|-----------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------|------------------------|------------|
| | | H PPM | As PPM | Sa PPM | TAMP H ₂ O PPM * | * Hg PPM | 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 GVA | 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 GXX | 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 GXX | 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 BXX | 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 R1X | 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 | | | | | | | | | | | | |
| Silt, 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: 2627HC
DATE CORED: 05AUG1985
DATE REPORTED: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | ESP |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|--------------|-------------|-----|------------|-----------|--------------|---------------|--------------|--|------|
| | | | | | F.C. mtho/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 | | |
| 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 | | | | | | | 8.4 |
| 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 | 6.2 | | | | | | | 7.7 |
| SS | 16.0 | 850002027 | 8.1 | | 2.4 | 13.4 | 2.1 | 7.7 | 4.8 | | | | | | | 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 | | | | | | | 5.1 |
| SS | 26.0 | 850002032 | 8.2 | | 2.3 | 10.3 | 1.7 | 11.8 | 4.9 | | | | | | | 5.6 |
| SS,SH | 28.0 | 850002033 | 8 | | 2.7 | 12.7 | 2.6 | 14.1 | 4.4 | | | | | | | 4.4 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyrr. S % | CaCO3 Eq Tons / 1000 tons # | | | Particle Size | | | % Moisture | | Avail. H2O Hold. Cap. | |
|-----------|-----------|----------------|----------------|----------------|-------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|------------|---------|-----------------------|--------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| 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 | 35.6 | 35.6 | | | |
| Sll, 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 | | | |
| SS | 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

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | | | | | | | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|-----|--|--|--|--|--|--|
| | | | | | 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 | | | | | | | | | | | | |
| CL, SH | 2.0 | 850002041 | 7.6 | | 1 | 2.3 | 4.6 | 2.7 | 1.2 | | | | | | | | | | | | |
| CL, SH | 4.0 | 850002042 | 7.7 | | 1.3 | 4.2 | 4 | 3.5 | 2.2 | | | | | | | | | | | | |
| SH, SS | 6.0 | 850002043 | 7.3 | | 2.5 | 7.4 | 11.7 | 6.3 | 2.5 | | | | | | | | | | | | |
| SH, SS | 8.0 | 850002044 | 6.9 | | 2.1 | 6.4 | 10.1 | 4 | 2.4 | | | | | | | | | | | | |
| SH | 10.0 | 850002045 | 7 | | 1.8 | 4.5 | 8.9 | 2.9 | 1.9 | | | | | | | | | | | | |
| SH | 12.0 | 850002046 | 7 | | 1.7 | 3.9 | 8.1 | 2.3 | 1.7 | | | | | | | | | | | | |
| SH | 14.0 | 850002047 | 6.9 | | 1.2 | 3 | 5.4 | 1.4 | 1.6 | | | | | | | | | | | | |
| SH | 16.0 | 850002048 | 7.6 | | 0.8 | 2 | 4.5 | 0.9 | 1.2 | | | | | | | | | | | | |
| SH | 18.0 | 850002049 | 7.8 | | 0.7 | 1.4 | 4.5 | 0.6 | 1 | | | | | | | | | | | | |
| SH, SS | 20.0 | 850002050 | 7.4 | | 0.5 | 1.2 | 3.6 | 0.4 | 0.9 | | | | | | | | | | | | |
| SH, SS | 22.0 | 850002051 | 7.2 | | 0.5 | 1 | 2.4 | 0.3 | 0.9 | | | | | | | | | | | | |
| SH, SS | 24.0 | 850002052 | 7.2 | | 0.4 | 0.8 | 1.5 | 0.2 | 0.9 | | | | | | | | | | | | |
| SH, SS | 26.0 | 850002053 | 7.3 | | 0.3 | 0.7 | 1.3 | 0.2 | 0.8 | | | | | | | | | | | | |
| SH, SS | 28.0 | 850002054 | 7.2 | | 0.3 | 0.7 | 1.2 | 0.2 | 0.8 | | | | | | | | | | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

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

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|------------|-------------------------|-------------|-------------|-------------|-----|------------|-----------|--------------|---------------|--------------|-----|--|--|------|
| | | | | | 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 | 27.7 | 5.5 | 5.8 | | | | | | | | | 6.8 |
| SS, SD | 6.0 | 850002058 | 7.7 | | 6.3 | 15 | 13.9 | 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 | 8.4 | 8.8 | 4.1 | | | | | | | | | 4.6 |
| SS | 12.0 | 850002061 | 7.8 | | 2.4 | 8.9 | 3.2 | 7.3 | 3.2 | | | | | | | | | 3.3 |
| SS | 14.0 | 850002062 | 7.8 | | 1.2 | 4.6 | 8.1 | 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 | 24.4 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total S PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture | | AVAIL. H2O Hold. Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|------------|------------|--------------------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | |
| 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|-----|---------|--------|-----------|------------|-----------|-----|--|--|------|
| | | | | | 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 | | | | | | | | | |
| SH | 2.0 | 850002071 | 4 | | 8.5 | 14.1 | 25.2 | 99.9 | 1.8 | | | | | | | | | 1.9 |
| SH | 4.0 | 850002072 | 3.7 | | 6.8 | 7.6 | 19.8 | 70.3 | 1.1 | | | | | | | | | 1.4 |
| SH | 6.0 | 850002073 | 3.2 | | 8.3 | 9.4 | 16.3 | 79.3 | 1.4 | | | | | | | | | 0.4 |
| SH | 8.0 | 850002074 | 3.2 | | 9.9 | 9.6 | 21.8 | 99.3 | 1.2 | | | | | | | | | 0.8 |
| SH | 10.0 | 850002075 | 3.3 | | 8 | 5 | 21.8 | 53.1 | 0.8 | | | | | | | | | 0.5 |
| SH | 12.0 | 850002076 | 2.9 | | 10. | 4.9 | 23.8 | 48.9 | 0.8 | | | | | | | | | -0.1 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total S PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * PYR. S % | GAC03 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|-----------|--------------------------------|
| | | | | | | | 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

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | Amount Reqd. From S | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|---------------------|-----------------------------|---------------|---------------|---------------|--------|--------|---------|--------------|-----------------------|--|
| | | | | | | | | 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 | 47 | | | |
| SH, SD | 850002085 | 0.17 | | | 0.22 | | 6.88 | 37.04 | | 30.16 | | 28.6 | 37 | 49 | | | |
| 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

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------------|
| | | | | | | | Amount Req'd. 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

| Lithology | Lab No. | * Total Se PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. |
|-----------|-----------|-------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | . | 2.19 | 1.07 | . | 1.12 | 73.4 | 12.8 | 13.8 | | | |
| SS | 850002112 | 0.10 | | | 0.04 | . | 1.25 | 3.61 | . | . | 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 | . | 3.12 | 1.97 | . | 1.15 | 78.4 | 10.2 | 11.4 | | | |
| SS, CO | 850002115 | 0.15 | | | 0.19 | . | 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

| Lithology | Lab No. | # Total Sg PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR |
| Sll, 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 | 0.4 | | | |
| 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

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | | | Particle Size | | | | % Moisture # | |
|-----------|------------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------|-----------------------|--|
| | | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. | |
| SH | 8500002131 | <0.01 | | | <0.01 | 0 | 45.82 | | 45.82 | | 57 | 22.6 | 20.4 | | | | |
| SH | 8500002132 | 0.02 | | | 0.02 | 0.62 | 66.98 | | 66.36 | | 76.4 | 12.2 | 11.4 | | | | |
| SH | 8500002133 | 0.12 | | | 0.12 | 3.75 | 34.29 | | 30.54 | | 83 | 11.6 | 5.4 | | | | |
| SS, SH | 8500002134 | 0.05 | | | 0.05 | 1.56 | 32.65 | | 31.09 | | 55 | 20.6 | 24.4 | | | | |
| SS, SH | 8500002135 | <0.01 | | | <0.01 | 0 | 6.98 | | 6.98 | | 44 | 29.6 | 26.4 | | | | |
| SS, SH | 8500002136 | 0.05 | | | 0.05 | 1.56 | 5.64 | | 4.08 | | 28 | 43.6 | 28.4 | | | | |
| SH, SS | 8500002137 | <0.01 | | | <0.01 | 0 | 4.33 | | 4.33 | | 6 | 54.6 | 39.4 | | | | |
| SH, SS | 8500002138 | 0.03 | | | 0.03 | 0.94 | 2.87 | | 1.93 | | 19 | 42.6 | 38.4 | | | | |
| SH, SS | 8500002139 | 0.06 | | | 0.06 | 1.88 | 3.26 | | 1.38 | | 17 | 44.6 | 38.4 | | | | |
| SH, SS | 8500002140 | 0.19 | | | 0.19 | 5.94 | 28.81 | | 22.87 | | 37 | 32.6 | 30.4 | | | | |
| SH, SS | 8500002141 | 0.32 | | | 0.32 | 10 | -0.37 | | 10.37 | | 57 | 24.6 | 18.4 | | | | |
| SH | 8500002142 | 0.56 | | | 0.56 | 17.5 | 39.15 | | 48.91 | | 64 | 19.6 | 16.4 | | | | |
| SH | 8500002143 | 1.26 | | | 1.26 | 39.38 | -9.53 | | 53.44 | | 77 | 12.6 | 10.4 | | | | |
| SH | 8500002144 | 1.4 | | | 1.4 | 43.75 | -9.69 | | 53.44 | | 69 | 16.6 | 14.4 | | | | |
| SH | 8500002145 | 1.44 | | | 1.44 | 45 | 39.14 | | 5.86 | | 66 | 31.6 | 2.4 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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 | | 4 | 4.3 | 6.3 | 13 | 1.4 | | | | | | | | 0.8 |
| SH | 14.0 | 850002153 | 7.2 | | 4 | 3.2 | 27.2 | 17.5 | 0.6 | | | | | | | | -0.4 |
| SH | 16.0 | 850002154 | 7.2 | | 4 | 2.8 | 10 | 28.5 | 0.8 | | | | | | | | -0.1 |
| SH | 18.0 | 850002155 | 7.3 | | 2.4 | 2.5 | 15.5 | 17.5 | 0.6 | | | | | | | | -0.1 |
| SH, SS | 20.0 | 850002156 | 7.7 | | 2.9 | 2.1 | 10.1 | 20 | 0.6 | | | | | | | | -0.4 |
| SS, SH | 22.0 | 850002157 | 7.5 | | 2.3 | 2.8 | 14.2 | 19.6 | 0.7 | | | | | | | | -0.4 |
| SH, SS | 24.0 | 850002158 | 7.6 | | 2.7 | 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

| Lithology | Lab No. | Total Se PPM | NaAlCO3 P PPM | NH4OAc K PPM | Total S % | Pyr. S % | GAC03 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|-----------|-----------|--------------|---------------|--------------|-----------|----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | | | 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 | | | 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 | 42.4 | 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, SS | 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

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|------------|-------------------------|-------------|-------------|-------------|-----|------------|-----------|--------------------------|---------------------------|--------------------------|-----|--|--|-----|
| | | | | | E.C. mho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total S PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | 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 | | | <0.01 | 0 | 15.92 | | 15.92 | 20.4 | 22.8 | 56.8 | | | | |
| SH, SS | 850002162 | 0.02 | | | 0.02 | 0 | 6.19 | 0.01 | 6.19 | 22.4 | 46.8 | 30.8 | | | | |
| SH, SS | 850002163 | 0.05 | | | 0.05 | 0.62 | 0.61 | 1.45 | | 42.4 | 31.8 | 25.8 | | | | |
| SH, SS | 850002164 | 0.12 | | | 0.12 | 3.75 | 0.48 | 3.27 | | 47.4 | 22.8 | 29.8 | | | | |
| SH | 850002165 | 0.09 | | | 0.09 | 2.81 | 1.23 | 1.58 | | 49.4 | 19.8 | 30.8 | | | | |
| SH | 850002166 | | | | | | | | | 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|-----|------------|-----------|--------------------------|---------------------------|--------------------------|-----|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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 | 850002166 | 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 |
| SII | 6.0 | 850002170 | 7.7 | | 3.3 | 13.5 | 9.9 | 13 | | | | | | | | | | 4.4 |
| SII | 8.0 | 850002171 | 7.3 | | 5.5 | 13 | 17.3 | 45.6 | 2.3 | | | | | | | | | 4.4 |
| SH | 10.0 | 850002172 | 4.9 | | 8.8 | 17.2 | 25.4 | 100.2 | 2.2 | | | | | | | | | 2.1 |
| SH | 12.0 | 850002173 | 4.7 | | 6.4 | 12.1 | 23.2 | 95.7 | 1.6 | | | | | | | | | 1.9 |
| SH | 14.0 | 850002174 | 7.9 | | 3.2 | 7.2 | 6.4 | 40.8 | 1.5 | | | | | | | | | 1.1 |
| SH | 16.0 | 850002175 | 7.9 | | 3.3 | 5.9 | 8.9 | 43.5 | 1.2 | | | | | | | | | 0.9 |
| SH | 18.0 | 850002176 | 7.9 | | 3.1 | 5.3 | 8.7 | 38.8 | 1.1 | | | | | | | | | 0.5 |
| SH, SS | 20.0 | 850002177 | 7.6 | | 3.2 | 5 | 11.7 | 39.5 | 1 | | | | | | | | | 0.4 |
| SS | 22.0 | 850002178 | 7.9 | | 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

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

| Lithology | Lab No. | * Total Se PPM | * Na/CO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons | | | Particle Size | | | % Moisture | | | * Avail. H2O Hold. Cap. | |
|-----------|-----------|-------------------------|-------------------------|-------------------------|----------------------|---------------------|---------------------------|-------------------|------------------|------------------|-----------|-----------|------------|------------|-----------|-------------------------------------|--|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SS | 850002182 | <0.01 | | | 0 | 0 | 23.76 | 23.76 | 0 | 0 | 0 | 76 | 12.4 | 11.6 | | | |
| SS | 850002183 | 0.07 | | | 0 | 0 | 8.17 | 8.17 | 0 | 0 | 0 | 76 | 13.4 | 10.6 | | | |
| SS | 850002184 | <0.01 | | | 0 | 0 | 9.16 | 9.16 | 0 | 0 | 0 | 85 | 11.4 | 3.6 | | | |
| SS | 850002185 | <0.01 | | | 0 | 0 | 64.49 | 64.49 | 0 | 0 | 0 | 88 | 8.4 | 3.6 | | | |
| SS | 850002186 | <0.01 | | | 0 | 0 | 22.17 | 22.17 | 0 | 0 | 0 | 89 | 9.4 | 1.6 | | | |
| SS | 850002187 | <0.01 | | | 0 | 0 | 5.97 | 5.97 | 0 | 0 | 0 | 92 | 6.4 | 1.6 | | | |
| SS | 850002188 | 0.03 | | | 0 | 0.94 | 5.99 | 5.99 | 0 | 0 | 0 | 91 | 7.4 | 1.6 | | | |
| SS | 850002189 | 0.06 | | | 0 | 1.88 | 4.11 | 4.11 | 0 | 0 | 0 | 90 | 9.4 | 0.6 | | | |
| SS | 850002190 | 0.12 | | | 0 | 3.75 | 6.15 | 6.15 | 0 | 0 | 0 | 80 | 10.4 | 9.6 | | | |
| SH,SS | 850002191 | 0.44 | | | 0 | 13.75 | 0.47 | 13.28 | 0 | 0 | 0 | 20 | 48.4 | 31.6 | | | |
| SH | 850002192 | 0.33 | | | 0 | 10.31 | -2.14 | 12.45 | 0 | 0 | 0 | 26 | 44.4 | 29.6 | | | |
| SH | 850002193 | 0.7 | | | 0 | 21.88 | -1.57 | 23.45 | 0 | 0 | 0 | 42 | 34.4 | 23.6 | | | |
| SH | 850002194 | 0.42 | | | 0 | 13.12 | 5.45 | 7.67 | 0 | 0 | 0 | 48 | 28.4 | 23.6 | | | |
| SH | 850002195 | 0.6 | | | 0 | 18.75 | 1.61 | 17.14 | 0 | 0 | 0 | 44 | 26.6 | 29.4 | | | |
| SH | 850002196 | 0.72 | | | 0 | 22.5 | -3.45 | 25.95 | 0 | 0 | 0 | 53 | 27 | 20 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 263/3C
DATE CORLD: 06AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons * | | | | | | | | | | Particle Size | | % Moisture | | Avail. H2O Hold. Cap. |
|-----------|-----------|-----------------------------|--------------------------|---------------------------|-----------|-----------|----------------------|----------------|---------------|---------------|--------|---------------|--------|------------|--------|-----------------------|
| | | Total S _e PPM | NaHCO ₃ P PPM | NH ₄ OAc K PPM | Total S % | Pyrr. S % | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 9.35 | | 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 | | 61.25 | 1.46 | | | 71.6 | 19.8 | 8.6 | | | |
| SH | 850002211 | 0.19 | | | 2.71 | | 84.69 | -1.23 | | | 72 | 20.8 | 7.2 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sab. % # | Saturated Paste Extract | | | | | | | | | | | | |
|------------|-------|------------|----------|----------|-------------------------|----------|----------|----------|-----|---------|--------|-----------------------|------------------------|-----------------------|-----|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ meq/l | ESP | | |
| SS | 0.0 | 8500022212 | 7.7 | | 0.6 | 1.3 | 2.8 | 1.4 | 0.9 | | | | | | | | 0.1 |
| SS | 2.0 | 8500022213 | 7.9 | | 0.3 | 1.5 | 1.2 | 0.4 | 1.7 | | | | | | | | 1.2 |
| SS | 4.0 | 8500022214 | 8 | | 0.5 | 1.5 | 1.3 | 0.4 | 1.6 | | | | | | | | 1.1 |
| SS | 6.0 | 8500022215 | 7.5 | | 1.4 | 6.1 | 5.2 | 1.7 | 3.3 | | | | | | | | 3.5 |
| SS | 8.0 | 8500022216 | 7.3 | | 4.8 | 10.1 | 31.6 | 11.5 | 2.2 | | | | | | | | 1.9 |
| SS | 10.0 | 8500022217 | 6.7 | | 3.1 | 3.4 | 19.9 | 7.1 | 0.9 | | | | | | | | 0.1 |
| SH, SS | 12.0 | 8500022218 | 6.9 | | 1.7 | 1.3 | 12.3 | 3.9 | 0.5 | | | | | | | | -0.5 |
| SS, SH | 14.0 | 8500022219 | 6.9 | | 1.6 | 1 | 10.4 | 3.5 | 0.4 | | | | | | | | -0.7 |
| SH | 16.0 | 8500022220 | 7 | | 1.2 | 0.5 | 6.7 | 2.7 | 0.2 | | | | | | | | -1 |
| SH, CO | 18.0 | 8500022221 | 7 | | 1.1 | 1.1 | 5.7 | 2.6 | 0.5 | | | | | | | | -0.5 |
| CO, SH, SS | 20.0 | 8500022222 | 7.2 | | 0.8 | 0.7 | 3.8 | 2.1 | 0.4 | | | | | | | | -0.7 |
| SH | 22.0 | 8500022223 | 7.4 | | 1 | 1.1 | 4.8 | 3.4 | 0.5 | | | | | | | | -0.5 |
| SH | 24.0 | 8500022224 | 7.6 | | 1.4 | 1.4 | 6.7 | 6 | 0.6 | | | | | | | | -0.4 |
| SH | 26.0 | 8500022225 | 7.6 | | 1.3 | 1.3 | 5.3 | 6.5 | 0.5 | | | | | | | | -0.4 |
| SH | 28.0 | 8500022226 | 7.5 | | 1.5 | 1.3 | 6.1 | 8.7 | 0.5 | | | | | | | | -0.5 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total Sg PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. |
|------------|------------|-------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SS | 8500002212 | 0.07 | | | 0.07 | | 2.19 | 17.28 | | 15.09 | 87.6 | 9.8 | 2.6 | | | |
| SS | 8500002213 | 0.03 | | | 0.03 | | 0.94 | 10.97 | | 10.03 | 91.6 | 4.8 | 3.6 | | | |
| SS | 8500002214 | 0.06 | | | 0.06 | | 1.88 | 7.91 | | 6.03 | 89.6 | 8.8 | 1.6 | | | |
| SS | 8500002215 | 0.02 | | | 0.02 | | 0.62 | 5.32 | | 4.7 | 89.6 | 6.8 | 3.6 | | | |
| SS | 8500002216 | <0.01 | | | <0.01 | | 0 | 14.89 | | 14.89 | 75.6 | 14.8 | 9.6 | | | |
| SS | 8500002217 | 0.1 | | | 0.1 | | 3.12 | 8.3 | | 5.18 | 81.4 | 10.8 | 7.8 | | | |
| SH, SS | 8500002218 | 0.06 | | | 0.06 | | 1.88 | 7.12 | | 5.24 | 86.4 | 7.8 | 5.8 | | | |
| SS, SII | 8500002219 | 0.03 | | | 0.03 | | 0.94 | 10.14 | | 9.2 | 68.4 | 15.8 | 15.8 | | | |
| SH | 8500002220 | <0.01 | | | <0.01 | | 0 | 8.35 | | 8.35 | 39.4 | 29.8 | 30.8 | | | |
| SH, CO | 8500002221 | 0.08 | | | 0.08 | | 2.5 | 9.51 | | 7.01 | 11.4 | 38.8 | 49.8 | | | |
| CO, SH, SS | 8500002222 | 0.11 | | | 0.11 | | 3.44 | 6.08 | | 2.64 | 22.4 | 32.8 | 44.8 | | | |
| SH | 8500002223 | <0.01 | | | <0.01 | | 0 | 22.81 | | 22.81 | 21.4 | 43.8 | 34.8 | | | |
| SH | 8500002224 | <0.01 | | | <0.01 | | 0 | 73.49 | | 73.49 | 40.8 | 28.4 | 30.8 | | | |
| SH | 8500002225 | <0.01 | | | <0.01 | | 0 | 58.82 | | 58.82 | 38.8 | 29.4 | 31.8 | | | |
| SH | 8500002226 | 0.01 | | | 0.01 | | 0.31 | 70.92 | | 70.61 | 26.4 | 36.8 | 36.8 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26375C
DATE CORED: 08AUG:1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. |
|-------------|------------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Recd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SD | 8500022227 | 0.01 | . | . | . | . | 0.31 | 70.38 | . | 70.07 | 38.4 | 34.8 | 26.8 | | | |
| SD | 8500022228 | <0.01 | . | . | . | . | 0 | 25.4 | . | 25.4 | 60.8 | 18.4 | 20.8 | | | |
| SD, sil, SS | 8500022229 | <0.01 | . | . | . | . | 0 | 12.68 | . | 12.68 | 59.8 | 14.4 | 25.8 | | | |
| SS, SH | 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

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|------------|-------------------------|-------------|-------------|-------------|-----|------------|-----------|--------------------------|---------------------------|--------------------------|-----|--|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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, SS | 22.0 | 850002243 | 7.7 | | 1.4 | 4.5 | 4.4 | 10.2 | 1.7 | | | | | | | | 1.4 |
| 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

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq | | | Particle Size | | | % Moisture * | | | |
|-----------|------------|----------------|----------------|----------------|-------------|------------|---------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. |
| SD | 8500002233 | <0.01 | | | <0.01 | 0 | 11.63 | | | 11.63 | 56.8 | 21.4 | 21.8 | | | |
| SD | 8500002234 | <0.01 | | | <0.01 | 0 | 34.88 | | | 34.88 | 53.4 | 25.8 | 20.8 | | | |
| SD, CL | 8500002235 | 0.02 | | | 0.02 | 0.62 | 37.94 | | | 37.32 | 45.4 | 31.8 | 22.8 | | | |
| CL, SII | 8500002236 | <0.01 | | | <0.01 | 0 | 42.82 | | | 42.82 | 35.4 | 27.8 | 36.8 | | | |
| SH | 8500002237 | <0.01 | | | <0.01 | 0 | 46.78 | | | 46.78 | 46.8 | 14.4 | 38.8 | | | |
| SII | LOST | | | | | | | | | | | | | | | |
| SII | 8500002238 | <0.01 | | | <0.01 | 0 | 47.07 | | | 47.07 | 60.8 | 12.4 | 26.8 | | | |
| SH | 8500002239 | <0.01 | | | <0.01 | 0 | 98.1 | | | 98.1 | 39.2 | 21.6 | 39.2 | | | |
| SH, SS | 8500002240 | <0.01 | | | <0.01 | 0 | 92.81 | | | 92.81 | 46.8 | 25 | 28.2 | | | |
| SH | 8500002241 | <0.01 | | | <0.01 | 0 | 89.73 | | | 89.73 | 43.2 | 29.6 | 27.2 | | | |
| SS, SII | 8500002242 | <0.01 | | | <0.01 | 0 | 123.45 | | | 123.45 | 31.2 | 34 | 34.8 | | | |
| SH | 8500002243 | <0.01 | | | <0.01 | 0 | 77.69 | | | 77.69 | 30.2 | 38 | 31.8 | | | |
| SH, SS | 8500002244 | <0.01 | | | <0.01 | 0 | 201.24 | | | 201.24 | 71.2 | 16 | 12.8 | | | |
| SS | 8500002245 | <0.01 | | | <0.01 | 0 | 120.81 | | | 120.81 | 62.2 | 20 | 17.8 | | | |
| SS | 8500002246 | <0.01 | | | <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

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 02252 KAYENTA
CORE NO: 26378C
DATE CORED: 09AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | * Total Se PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture * | | Avail. H2O Hold. Cap. | | |
|-----------|-----------|-------------------------|-------------------------|-------------------------|----------------------|---------------------|-------------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|--------------------------------|-----------|--|
| | | | | | | | Amount Reqd. from SI | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR | |
| 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 | | | 57.4 | <0.1 | 48 | | | |
| SH, SS | 850002274 | <0.01 | | | | | 0 | 141.61 | | | 141.61 | 63.4 | <0.1 | 43 | | | |
| 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 KAYENTIA
CORE NO: 26379C
DATE CORED: 10AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 02252 KAYENTIA
CORE NO: 26380C
DATE CORED: 11AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. | | |
|-----------|------------|-----------------------------|--------------------|--------------------|-----------------|-----------------|---------------------------|-------------------|------------------|------------------|-----------|--------------|-----------|--------------------------------|------------|-----------|
| | | Total Se PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | | 1/3 BAR | 15 BAR |
| SS, SH | 8500022292 | | | | <0.01 | | 0 | 129.35 | | 129.35 | 35.2 | 30.4 | 34.4 | | | |
| SH | 8500022293 | | | | 0.03 | | 0.94 | 56.58 | | 55.64 | 29.2 | 32.4 | 38.4 | | | |
| SH | 8500022294 | | | | 0.01 | | 0.31 | 22.43 | | 22.12 | 10.2 | 29.4 | 60.4 | | | |
| SH, SS | 8500022295 | | | | <0.01 | | 0 | 34.53 | | 34.53 | 56.6 | 16 | 27.4 | | | |
| SS | 8500022296 | | | | <0.01 | | 0 | 20.27 | | 20.27 | 61.2 | 18.4 | 20.4 | | | |
| SS, SH | 8500022297 | | | | 0.06 | | 1.88 | 9.49 | | 7.61 | 24.2 | 18.4 | 57.4 | | | |
| SH, SS | 8500022298 | | | | <0.01 | | 0 | 4.44 | | 4.44 | 45.6 | 18 | 36.4 | | | |
| SH | 8500022299 | | | | 0.01 | | 0.31 | 1.83 | | 1.52 | 3.6 | 9 | 87.4 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*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 | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ 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 | | | | | | | 2.2 |
| 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

| Lithology | Lab No. | Total Se PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture | | Avail. H2O Hold. Cap. |
|-----------|-----------|--------------|--------------|--------------|-----------|----------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|------------|--------|-----------------------|
| | | | | | | | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 KAYENIA
CORE NO: 26382C
DATE CORED: 12AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | * Total Sg PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyrr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture | | | |
|-----------|-----------|-------------------------|-------------------------|-------------------------|----------------------|----------------------|-------------------------------|-------------------|------------------|------------------|-----------|-----------|------------|------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. From SI | 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 | | 7.65 | | 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 | | | 0.42 | 0.05 | 13.12 | 2.25 | 10.87 | | 13.2 | 46 | 40.8 | | | |
| SH | 850002322 | . | | | . | . | . | . | . | . | . | . | . | . | . | . |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26303C
DATE CORID: 13AUG1985
DATE REPORTED: 15OCT1985

#Dry Basis

| Lithology | Lab No. | # Total Se PPM | # Mallico3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq | | Tons / 1000 Tons # | | Particle Size | | | % Moisture # | | |
|-----------|------------|----------------|------------------|----------------|-------------|------------|---------------------|----------------|--------------------|---------------|---------------|--------|--------|--------------|--------|----------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avg. 1120 Hold. Cap. |
| SD | 8500023323 | 0.02 | | | 0.02 | | 0.62 | 18.78 | | 18.16 | 67.2 | 14 | 18.8 | | | |
| SD, SS | 850002324 | <0.01 | | | <0.01 | | 0 | 29.04 | | 29.04 | 71.6 | 10 | 18.4 | | | |
| SS | 850002325 | <0.01 | | | <0.01 | | 0 | 16.32 | | 16.32 | 81.2 | 8 | 10.8 | | | |
| SS | 850002326 | <0.01 | | | <0.01 | | 0 | 8.72 | | 8.72 | 82.2 | 7 | 10.8 | | | |
| SS, SH | 850002327 | <0.01 | | | <0.01 | | 0 | 5.1 | | 5.1 | 85.6 | 7 | 7.4 | | | |
| | 850002328 | 0.44 | | | 0.44 | | 13.75 | 5.7 | 8.05 | | 70.6 | 14 | 15.4 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26364C
DATE CORED: 13AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | # Total Sg PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Particle Size | | | % Moisture | | Avail. H2O Hold. Cap. |
|-------------|------------|----------------|----------------|----------------|-------------|------------|---------------------|----------------|---------------|---------------|---------------------------|--------|--------|------------|---------|-----------------------|
| | | | | | | | | | | | CaCO3 Eq Tons / 1000 Tons | Sand % | Silt % | Clay % | 1/3 BAR | |
| SD | 8500023329 | <0.01 | | | | | 0 | 21.19 | | 21.19 | 58 | 21.6 | 20.4 | | | |
| SD | 8500023330 | <0.01 | | | | | 0 | 19.97 | | 19.97 | 54 | 24.6 | 21.4 | | | |
| SD | 8500023331 | <0.01 | | | | | 0 | 30.45 | | 30.45 | 55.2 | 21.4 | 23.4 | | | |
| SD | 8500023332 | <0.01 | | | | | 0 | 33.33 | | 33.33 | 54.6 | 24 | 21.4 | | | |
| SD, SS, SII | 8500023333 | <0.01 | | | | | 0 | 110.5 | | 110.5 | 71.6 | 13 | 15.4 | | | |
| SH | 8500023334 | <0.01 | | | | | 0 | 116.4 | | 116.4 | 13.6 | 21 | 65.4 | | | |
| SH | 8500023335 | 1.02 | | | | | 31.88 | 52.02 | | 20.14 | 59.6 | 38 | 2.4 | | | |
| SH | 8500023336 | 0.3 | | | | 0.09 | 9.38 | 41.26 | 5.12 | | 73.6 | 11 | 15.4 | | | |
| SH | 8500023337 | 0.13 | | | | | 41.06 | 41.93 | | 0.87 | 14.6 | 42 | 43.4 | | | |
| SH | 8500023338 | 0.11 | | | | | 3.44 | 41.4 | | 0.96 | 42 | 34.6 | 23.4 | | | |
| SH, SS | 8500023339 | 0.05 | | | | | 1.56 | -1.89 | 3.45 | | 37 | 36.6 | 26.4 | | | |
| SH, SS | 8500023440 | 0.06 | | | | | 1.88 | 44.57 | | 42.69 | 46 | 32.6 | 21.4 | | | |
| SH, SS | 8500023441 | 0.03 | | | | | 0.94 | 36.29 | | 35.35 | 30 | 35.6 | 34.4 | | | |
| SH, SS | 8500023442 | <0.01 | | | | | 0 | 159.01 | | 159.01 | 38 | 28.6 | 33.4 | | | |
| SS | 8500023443 | <0.01 | | | | | 0 | 47.76 | | 47.76 | 73 | 12.6 | 14.4 | | | |

PIABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26305C
DATE CORED: 11AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lnlb No. | Total Se PPM | Na/CO3 P PPM | NH4OAc K PPM | Total S % | Fyr. S % | CaCO3 Eq | | Particle Size | | % Moisture | | | | |
|-----------|------------|--------------|--------------|--------------|-----------|----------|---------------------|----------------|---------------|---------------|------------|--------|--------|---------|--------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR |
| SD | 8540002344 | <0.01 | | | | 0 | 16.9 | 16.9 | 16.9 | 50.6 | 27 | 22.4 | | | |
| SD | 850002345 | <0.01 | | | | 0 | 21.45 | 21.45 | 21.45 | 51.6 | 25 | 23.4 | | | |
| SD | 850002346 | <0.01 | | | | 0 | 7.61 | 7.61 | 7.61 | 43.6 | 32 | 24.4 | | | |
| SD | 850002347 | <0.01 | | | | 0 | 8.33 | 8.33 | 8.33 | 48.6 | 32 | 19.4 | | | |
| SD | 850002348 | <0.01 | | | | 0 | 16.37 | 16.37 | 16.37 | 47.6 | 32 | 20.4 | | | |
| SD | 850002349 | <0.01 | | | | 0 | 13.23 | 13.23 | 13.23 | 47 | 30.4 | 22.6 | | | |
| SD | 850002350 | <0.01 | | | | 0 | 7.01 | 7.01 | 7.01 | 45 | 34.4 | 20.6 | | | |
| SD | 850002351 | <0.01 | | | | 0 | 7.75 | 7.75 | 7.75 | 39 | 36.4 | 21.6 | | | |
| SD | 0540002352 | <0.01 | | | | 0 | 6.73 | 6.73 | 6.73 | 42 | 36.4 | 21.6 | | | |
| SD, SS | 850002353 | <0.01 | | | | 0 | 53.34 | 53.34 | 53.34 | 52.4 | 27.4 | 20.2 | | | |
| SS | 850002354 | <0.01 | | | | 0 | 51.04 | 51.04 | 51.04 | 51.8 | 26 | 22.2 | | | |
| SS | 850002355 | 0.06 | | | | 1.88 | 21.36 | 19.48 | 19.48 | 59.8 | 20 | 20.2 | | | |
| SS | 850002356 | 0.07 | | | | 2.19 | 10.38 | 8.19 | 8.19 | 55.8 | 24 | 20.2 | | | |
| SS, SII | 8540002357 | 0.14 | | | | 4.38 | 1.18 | 3.2 | | 53.8 | 20 | 26.2 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYLINA
CORE NO: 26386G
DATE CORED: 14AUG1985
DATE REPORTED: 15OCT1985

| Lithology | Lab No. | # Total Sg PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. |
| SS, Sll | 850002358 | 0.21 | | | 0.18 | | 5.62 | 28.66 | | 23.04 | 30.2 | 38 | 31.8 | | | |
| SS, Sll | 850002359 | 0.08 | | | <0.01 | | 0 | 20.29 | | 20.29 | 30.8 | 37 | 32.2 | | | |
| SS, Sll | 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, Sll | 850002363 | 0.08 | | | <0.01 | | 0 | 51.87 | | 51.87 | 46.2 | 38.6 | 25.2 | | | |
| Sll | 850002364 | 0.21 | | | 0.01 | | 0.31 | 5.65 | | 5.34 | 21.2 | 25.6 | 40.2 | | | |
| Sll | 850002365 | 0.21 | | | 0.02 | | 0.62 | 6.62 | | 6 | 4.2 | 25.6 | 70.2 | | | |
| Sll | 850002366 | 0.06 | | | 0.03 | | 0.94 | 3.58 | | 2 | 8.2 | 42.6 | 49.2 | | | |
| SH, SS | 850002367 | 0.22 | | | 0.03 | | 0 | 0.94 | | 1.06 | 20.2 | 45.6 | 31.2 | | | |
| 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 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYEHLIA
CORE NO: 2618/G
DATE CORED: 19AUG1985
DAIF REPORTED: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|------------|-----------|--------------------------|---------------------------|--------------------------|-----|--|--|--|--|--|------|
| | | | | | F. C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ meq/l | ESP | | | | | | |
| SS | 0.0 | 850002373 | 8.2 | | 1.1 | 3.3 | 2.3 | 4.1 | 1.8 | | | | | | | | | | | | |
| SS | 2.0 | 850002374 | 8.3 | | 3.3 | 15 | 2.4 | 15.2 | 5.1 | | | | | | | | | | | | 1.4 |
| SS | 4.0 | 850002375 | 8 | | 5.1 | 18.7 | 10.4 | 32.5 | 4.4 | | | | | | | | | | | | 5.9 |
| SS, SH | 6.0 | 850002376 | 7.9 | | 3.6 | 14.7 | 4.8 | 18.4 | 4.3 | | | | | | | | | | | | 4.4 |
| SH, SS | 8.0 | 850002377 | 8 | | 2.9 | 12.1 | 4.4 | 13 | 4.1 | | | | | | | | | | | | 4.8 |
| SS | 10.0 | 850002378 | 8 | | 3.9 | 14.8 | 9.9 | 21.4 | 3.7 | | | | | | | | | | | | 4.6 |
| SS | 12.0 | 850002379 | 7.7 | | 4.4 | 17.2 | 11.1 | 23.3 | 4.1 | | | | | | | | | | | | 4 |
| SH | 14.0 | 850002380 | 6.2 | | 9.9 | 63.7 | 17.2 | 60.7 | 4.1 | | | | | | | | | | | | 4.6 |
| SH, SS | 16.0 | 850002381 | 7.7 | | 10. | 73.6 | 13.3 | 60.7 | 10.2 | | | | | | | | | | | | 12.1 |
| SS | 18.0 | 850002382 | 7.7 | | 10. | 47.2 | 7.2 | 55.8 | 12.5 | | | | | | | | | | | | 14.7 |
| SS | 20.0 | 850002383 | 8.1 | | 6.3 | 47.2 | 3.2 | 13.8 | 14.6 | | | | | | | | | | | | 16.9 |
| SH, SS | 22.0 | 850002384 | 8.4 | | 4.8 | 37.3 | 3.2 | 6.9 | 16.6 | | | | | | | | | | | | 18.9 |
| SH | 24.0 | 850002385 | 8.4 | | 6.1 | 49.4 | 3.2 | 8.1 | 20.8 | | | | | | | | | | | | 22.7 |
| SH, SS | 26.0 | 850002386 | 8.4 | | 6.1 | 49.4 | 3.9 | 10.6 | 18.3 | | | | | | | | | | | | 20.5 |
| SH | 28.0 | 850002387 | 7.8 | | 9.1 | 69.2 | 16.5 | 27 | 14.8 | | | | | | | | | | | | 17.1 |
| SH | | | | | 11 | 95.5 | 14.6 | 24.5 | 21.6 | | | | | | | | | | | | 23.4 |

*Dry Basis

PEABODY COAL COMPANY
GENERAL LABORATORY

MINE: 0252 KAYTINIA
CORE NO: 26387C
DATE COKEID: 19AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | % Moisture # | |
|-----------|-----------|-----------------------------|--------------|--------------|-----------|----------|----------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------------|-----------------------|
| | | Total S Se PPM | Na/C03 P PPM | NH4OAc K PPM | Total S % | Pyr. S % | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O hold. Cap. |
| SS | 850002373 | <0.01 | | | <0.01 | 0 | 48.49 | | 48.49 | | 74.6 | 10.6 | 14.8 | | | |
| SS | 850002374 | <0.01 | | | <0.01 | 0 | 36.5 | | 36.5 | | 74.6 | 10.6 | 14.8 | | | |
| SS | 850002375 | <0.01 | | | <0.01 | 0 | 9.74 | | 9.74 | | 70.6 | 10.6 | 18.8 | | | |
| SS, SH | 850002376 | <0.01 | | | <0.01 | 0 | 21.62 | | 21.62 | | 23 | 35.6 | 41.4 | | | |
| Sill, SS | 850002377 | <0.01 | | | <0.01 | 0 | 16.92 | | 16.92 | | 51 | 27 | 22 | | | |
| SS | 850002378 | <0.01 | | | <0.01 | 0 | 30.96 | | 30.96 | | 43 | 27.6 | 29.4 | | | |
| SS | 850002379 | 0.01 | | | 0.01 | 0.31 | 12.17 | | 11.86 | | 25.6 | 38 | 36.4 | | | |
| SH | 850002380 | 0.11 | | | 0.11 | 3.44 | 8.88 | | 5.44 | | 30.6 | 31 | 38.4 | | | |
| Sill, SS | 850002381 | 0.09 | | | 0.09 | 2.81 | 4.07 | | 1.26 | | 29 | 32.6 | 38.4 | | | |
| SS | 850002382 | 0.07 | | | 0.07 | 2.19 | 10.49 | | 8.3 | | 14 | 43 | 43 | | | |
| SS | 850002383 | 0.02 | | | 0.02 | 0 | 9.14 | | 8.52 | | 14 | 28 | 24 | | | |
| Sill | 850002384 | <0.01 | | | <0.01 | 0 | 8.53 | | 8.53 | | 48 | 41 | 45 | | | |
| Sill, SS | 850002385 | 0.04 | | | 0.04 | 1.25 | 46.85 | | 45.6 | | 44 | 28 | 28 | | | |
| Sill | 850002386 | <0.01 | | | <0.01 | 0 | 34.96 | | 34.96 | | 29 | 38 | 33 | | | |
| Sill | 850002387 | 0.08 | | | 0.08 | 2.5 | 26.92 | | 24.42 | | 35 | 28 | 37 | | | |

PLABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26188C
DATE CORED: 20AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | # Total Se PPM | # Ni/CO3 P PPM | # Ni/HOAc K PPM | # Total S % | # Pyr. S % | CaCO3 | | Particle Size | | % Moisture | | Avail. H2O Hold. Cap. | |
|-----------|-----------|----------------|----------------|-----------------|-------------|------------|---------------------|----------------|---------------|---------------|------------|--------|-----------------------|--------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Sill % | | Clay % |
| SD, SS | 850002388 | 0.06 | | | | 1.88 | 5.14 | | 3.26 | 57 | 19 | 24 | | |
| SD | 850002389 | <0.01 | | | | 0 | 53.41 | | 53.41 | 61 | 16 | 23 | | |
| SD | 850002390 | <0.01 | | | | 0 | 17.9 | | 17.9 | 88 | 4 | 8 | | |
| SD | 850002391 | <0.01 | | | | 0 | 41.93 | | 41.93 | 56 | 11 | 33 | | |
| SD | 850002392 | <0.01 | | | | 0 | 33.13 | | 33.13 | 53 | 15 | 32 | | |
| SD | 850002393 | <0.01 | | | | 0 | 44.91 | | 44.91 | 44.6 | 33.6 | 51.8 | | |
| SD | 850002394 | <0.01 | | | | 0 | 23.3 | | 23.3 | 7.6 | 43 | 49.4 | | |
| SD, SS | 850002395 | <0.01 | | | | 0 | 30.82 | | 30.82 | 37.6 | 37 | 25.4 | | |
| SD, SS | 850002396 | <0.01 | | | | 0 | 8.56 | | 8.56 | 37.2 | 35.4 | 27.4 | | |
| SD, SS | 850002397 | <0.01 | | | | 0 | 10.36 | | 10.36 | 7.6 | 28 | 64.4 | | |
| SD, CO | 850002398 | <0.01 | | | | 0.31 | 20.85 | | 20.85 | 16.6 | 29 | 54.4 | | |
| SD, CO | 850002399 | <0.01 | | | | 0 | 273.16 | | 273.16 | 40.6 | 28 | 31.4 | | |
| SD, CO | 850002400 | <0.01 | | | | 0 | 535.75 | | 535.75 | 71.6 | 16 | 12.4 | | |
| SD, CO | 850002401 | <0.01 | | | | 0 | 256.39 | | 256.39 | 72.2 | 15.4 | 12.4 | | |
| SD, CO | 850002402 | <0.01 | | | | 0 | 159.88 | | 159.88 | 45.2 | 25.4 | 29.4 | | |

PCABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYLINA
CORE NO: 26069C
DATE CORE D: 05AUG1985
DATE REPORTED: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|---------|--------|-----------------------|------------------------|-----------------------|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | Cl mg/l | F mg/l | CO ₃ meq/l | HCO ₃ meq/l | SO ₄ meq/l | ESP | |
| SIL, SS | 0.0 | 8500002401 | 8 | | 2.4 | 6.5 | 7.5 | 9.3 | 2.2 | | | | | | | 1.9 |
| SIL, SS | 2.0 | 8500002404 | 8.2 | | 2.1 | 5.9 | 5.9 | 7.8 | 2.3 | | | | | | | 2.1 |
| SIL, SS | 4.0 | 8500002405 | 8.2 | | 2.7 | 7.6 | 7.9 | 13.2 | 2.3 | | | | | | | 2.1 |
| SIL, SS | 6.0 | 8500002406 | 8.2 | | 4.7 | 10.9 | 17 | 37.2 | 2.1 | | | | | | | 1.8 |
| SIL, SS | 8.0 | 8500002407 | 8.1 | | 4.1 | 9.8 | 9.9 | 36 | 2 | | | | | | | 1.7 |
| SIL, SS | 10.0 | 8500002408 | 7 | | 6.3 | 10.8 | 23.9 | 68.3 | 1.6 | | | | | | | 1.7 |
| SIL, SS | 12.0 | 8500002409 | 6.2 | | 6.1 | 10.4 | 30.2 | 53.1 | 1.6 | | | | | | | 1.1 |
| SS | 14.0 | 8500002410 | 5.6 | | 4.6 | 3 | 37.8 | 26.2 | 0.5 | | | | | | | -0.5 |
| SS | 16.0 | 8500002411 | 3.4 | | 5.5 | 4.5 | 25.2 | 38.4 | 0.8 | | | | | | | -0.1 |
| SS, SIL | 18.0 | 8500002412 | 3.3 | | 6.8 | 6.4 | 22.7 | 20.4 | 1 | | | | | | | 0.2 |
| SIL | 20.0 | LOSI | | | | | | | | | | | | | | |
| SIL, SS | 22.0 | 8500002413 | 3.7 | | 5.1 | 6 | 16.4 | 48.2 | 1.1 | | | | | | | 0.4 |
| SIL, SS | 24.0 | 8500002414 | 7.2 | | 5.9 | 8.1 | 24.6 | 61 | 1.2 | | | | | | | 0.5 |
| SIL, SS | 26.0 | 8500002415 | 6.6 | | 4.8 | 8.3 | 17.4 | 44.9 | 1.5 | | | | | | | 0.9 |
| SIL, SS | 28.0 | 8500002416 | 6.3 | | 5.3 | 12.8 | 33.6 | 50.6 | 2 | | | | | | | 1.7 |

*Dry Basis

PLAIBODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KATYRIA
CORE NO: 26469C
DATE COL'D: 05AUG1985
DATE REPT'D: 15OCT1985

| Lithology | Lab No. | # Total So PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | Avail. H2O Hold. Cap. |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|-----------------------|
| | | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | |
| SII, SS | 850002403 | <0.01 | | | | 0 | 76.58 | | 76.58 | 54.6 | 18 | 27.4 | | | |
| SII, SS | 850002404 | <0.01 | | | | 0 | 73.22 | | 73.22 | 44.6 | 22 | 33.4 | | | |
| SII, SS | 850002405 | <0.01 | | | | 0 | 52.53 | | 52.53 | 52.6 | 20 | 27.4 | | | |
| SII, SS | 850002406 | <0.01 | | | | 0 | 24.6 | | 24.6 | 58.6 | 19 | 22.4 | | | |
| SII, SS | 850002407 | <0.01 | | | | 0 | 14.35 | | 14.35 | 7.6 | 51 | 41.4 | | | |
| SII, SS | 850002408 | 0.11 | | | | 3.44 | 4.89 | | 1.45 | 7.2 | 46 | 46.8 | | | |
| SII, 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 | | | | 6.25 | -3.35 | 9.6 | | 51.2 | 36 | 12.8 | | | |
| SS, SI | 850002412 | 0.27 | | | | 8.44 | -4.07 | 12.51 | | 37.6 | 33.6 | 28.8 | | | |
| SS | LO51 | | | | | | | | | | | | | | |
| SII, SS | 850002413 | 0.09 | | | | 2.81 | -0.48 | 3.29 | | 34.6 | 35 | 30.4 | | | |
| SII, SS | 850002414 | 0.17 | | | | 5.31 | 58.99 | | 53.68 | 41.6 | 30 | 28.4 | | | |
| SII, SS | 850002415 | 0.07 | | | | 2.19 | 4.42 | | 2.23 | 32.2 | 31.4 | 36.4 | | | |
| SII, SS | 850002416 | 0.23 | | | | 7.19 | 5.42 | 1.77 | | 25.2 | 32.4 | 42.4 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 264B3C
DATE CORRID: 05AUG1985
DATE REPPRIED: 15OCT1985

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | | Moisture # | |
|-----------|-----------|-----------------------------|--------------|--------------|-----------|-----------|---------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------|-----------------------|--|
| | | Total Se PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. 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 | 3.53 | 4.08 | 38.2 | 30.4 | 31.4 | | | | | |
| SS | 850002418 | 0.09 | | | 0.01 | 2.81 | -0.72 | 0.69 | | 52.2 | 34.4 | 13.4 | | | | | |
| SS | 850002419 | 0.01 | | | | 0.31 | -0.38 | 1.1 | | 27.8 | 58.8 | 13.4 | | | | | |
| SS | 850002420 | 0.02 | | | | 0.62 | -0.48 | 2.47 | | 30.2 | 57.4 | 12.4 | | | | | |
| SS | 850002421 | 0.05 | | | | 1.56 | -0.91 | 34.73 | | 33.2 | 53.4 | 13.4 | | | | | |
| SH | 850002422 | 1.02 | | | 0.67 | 31.88 | -2.05 | | | 54.2 | 32.4 | 13.4 | | | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MIN: 0292 KAYMIA
CORE NO: 26484C
DATE COR'D: 06AUG1985
DATE REPORT'D: 15OCT1985

*Dry Basis

| Lithology | Lab No. | * Total S PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | | Moisture # | | Avail. H2O Hold. Cap. |
|-----------|------------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|------------|------------|--|--------------------------------|
| | | | | | | | Amount Reqd. From | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SII | 8500024123 | <0.01 | . | . | 0 | 0 | 25.43 | 10.13 | . | 25.43 | 39.8 | 32.8 | 27.4 | | | | |
| SII | 8500024124 | 0.05 | 0.04 | . | 1.56 | 1.56 | 10.13 | -1.53 | 7.78 | 8.57 | 22.8 | 35.8 | 41.4 | | | | |
| SII | 8500024125 | 0.2 | 0.05 | . | 6.25 | 6.25 | -3.37 | 19.31 | . | . | 14.8 | 49.8 | 35.4 | | | | |
| SII | 8500024126 | 0.51 | 0.05 | . | 15.94 | 15.94 | 23.11 | 10.64 | . | . | 22.8 | 41.8 | 35.4 | | | | |
| SII | 8500024127 | 1.08 | 0.07 | . | 33.75 | 33.75 | -10.88 | 48.38 | . | . | 39.8 | 56.8 | 3.4 | | | | |
| SII | 8500024128 | 1.2 | 0.19 | . | 33.75 | 33.75 | -11.19 | 44.94 | . | . | 46.8 | 25.8 | 27.4 | | | | |
| SII | 8500024129 | 1.08 | 0.17 | . | 35 | 35 | -18.03 | 53.03 | . | . | 67.8 | 18.8 | 13.4 | | | | |
| SII | 8500024130 | 1.12 | 0.17 | . | 35 | 35 | -18.03 | 53.03 | . | . | 73.2 | 18.4 | 8.4 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MIHE: 0252 KAYLENIA
CORE NO: 26485C
DATE CORED: 06AUG1985
DATE REPORTED: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | | | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|---------|--------|-----------|------------|-----------|-----|--|------|
| | | | | | F.C. mililo/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 | 0 | | 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 | | | | | | | | 2.7 |
| SS | 14.0 | 850002438 | 8.2 | | 2.9 | 5.6 | 5.6 | 27.2 | 1.4 | | | | | | | | 1.8 |
| SS | 16.0 | 850002439 | 8.3 | | 2.9 | 4.3 | 5.5 | 27.8 | 1.1 | | | | | | | | 0.8 |
| SS | 18.0 | 850002440 | 8.2 | | 3.6 | 4.5 | 3.6 | 42.7 | 0.9 | | | | | | | | 0.4 |
| 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 | 27.0 | 0.8 | | | | | | | | -0.1 |
| SS | 26.0 | 850002444 | 8.3 | | 2.5 | 2.8 | 2.4 | 27.8 | 0.7 | | | | | | | | -0.1 |
| SS, SH | 28.0 | 850002445 | 7.8 | | 3.5 | 4 | 6.5 | 38.8 | 0.8 | | | | | | | | -0.2 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYLINA
CORE NO: 264B5C
DATE CORLD: 06AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | Total Sg PPM | | Mn/CO3 PPM | | NH4OAc PPM | | Total S % | | Pyrt. S % | | CaCO3 Eq Tons / 1000 Tons * | | Particle Size | | | % Moisture | | Avail. H2O Hold. Cap. |
|-----------|-----------|--------------|---|------------|--------|------------|--------|-----------------------|----------------|---------------|---------------|-----------------------------|--------|---------------|---------|--------|------------|---|-----------------------|
| | | # | # | # | # | # | # | Amount Reqd. from Sil | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | |
| SH | 850002131 | <0.01 | . | 0 | 28.76 | . | 28.76 | 28.76 | 30.2 | 32.4 | 37.4 | . | . | . | . | . | . | . | . |
| SH | 850002132 | <0.01 | . | 0 | 10.37 | . | 10.37 | 10.37 | 37.2 | 26.4 | 36.4 | . | . | . | . | . | . | . | . |
| SH | 850002133 | <0.01 | . | 0 | 16.34 | . | 16.34 | 16.34 | 32.6 | 26 | 41.4 | . | . | . | . | . | . | . | . |
| SH | 850002134 | <0.01 | . | 0 | 29.39 | . | 29.39 | 29.39 | 35.6 | 28.4 | 36 | . | . | . | . | . | . | . | . |
| SH | 850002135 | <0.01 | . | 0 | 26.53 | . | 26.53 | 26.53 | 40.6 | 32.4 | 27 | . | . | . | . | . | . | . | . |
| SS | 850002136 | <0.01 | . | 0 | 47.54 | . | 47.54 | 47.54 | 38.6 | 28.4 | 33 | . | . | . | . | . | . | . | . |
| SS | 850002137 | <0.01 | . | 0 | 17.54 | . | 17.54 | 17.54 | 59 | 19 | 22 | . | . | . | . | . | . | . | . |
| SS | 850002138 | <0.01 | . | 0 | 219 | . | 219 | 219 | 79 | 12 | 9 | . | . | . | . | . | . | . | . |
| SS | 850002139 | <0.01 | . | 0 | 203.08 | . | 203.08 | 203.08 | 79.6 | 12.4 | 8 | . | . | . | . | . | . | . | . |
| SS | 850002140 | <0.01 | . | 0 | 18.44 | . | 18.44 | 18.44 | 78 | 10 | 12 | . | . | . | . | . | . | . | . |
| SS | 850002141 | 0.01 | . | 0.31 | 10.4 | . | 10.4 | 10.09 | 73 | 13 | 14 | . | . | . | . | . | . | . | . |
| SS | 850002142 | <0.01 | . | 0 | 44.88 | . | 44.88 | 44.88 | 80 | 10 | 10 | . | . | . | . | . | . | . | . |
| SS | 850002143 | <0.01 | . | 0 | 43.07 | . | 43.07 | 43.07 | 80 | 11 | 9 | . | . | . | . | . | . | . | . |
| SS | 850002144 | <0.01 | . | 0 | 51.95 | . | 51.95 | 51.95 | 81.6 | 10.4 | 8 | . | . | . | . | . | . | . | . |
| SS, SH | 850002145 | <0.01 | . | 0 | 50.2 | . | 50.2 | 50.2 | 66.6 | 17.4 | 16 | . | . | . | . | . | . | . | . |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINI: 0252 KAYEHA
CORE NO: 26406C
DATE CORED: 07/AUG1985
DATE REPORIED: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | | | | | | |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|-----|------------|-----------|--------------|---------------|--------------|-----|--|--|--|--|--|------|
| | | | | | F.C. ml/100/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 | | | | | | |
| Sil, SS | 0.0 | 850002446 | 7.9 | | 0.3 | 0.3 | 2.7 | 0.4 | 0.2 | | | | | | | | | | | | |
| Sil, SS | 2.0 | 850002447 | 7.8 | | 0.5 | 1.2 | 3.2 | 0.7 | 0.9 | | | | | | | | | | | | -1 |
| Sil, SS | 4.0 | 850002448 | 7.6 | | 0.5 | 1.4 | 2.8 | 0.7 | 1.1 | | | | | | | | | | | | 0.1 |
| Sil, SS | 6.0 | 850002449 | 7.7 | | 0.7 | 1.9 | 3.8 | 0.9 | 1.2 | | | | | | | | | | | | 0.4 |
| Sil, SS | 8.0 | 850002450 | 7.4 | | 0.8 | 1.7 | 4.4 | 1.3 | 1 | | | | | | | | | | | | 0.5 |
| Sil | 10.0 | 10S1 | | | | | | | | | | | | | | | | | | | 0.2 |
| Sil | 12.0 | 850002451 | 7.6 | | 0.8 | 1.8 | 4.7 | 1.5 | 1 | | | | | | | | | | | | 0.2 |
| Sil | 14.0 | 850002452 | 7.1 | | 0.7 | 1.4 | 3.6 | 1.2 | 0.9 | | | | | | | | | | | | 0.1 |
| Sil | 16.0 | 850002453 | 6.8 | | 0.9 | 1.7 | 4.9 | 1.8 | 0.9 | | | | | | | | | | | | 0.1 |
| Sil | 18.0 | 850002454 | 6.8 | | 1 | 1.7 | 5.7 | 2.5 | 0.8 | | | | | | | | | | | | -0.1 |
| Sil | 20.0 | 10S1 | | | | | | | | | | | | | | | | | | | |
| Sil, SS | 22.0 | 850002455 | 7 | | 0.9 | 1.5 | 4.9 | 2.8 | 0.8 | | | | | | | | | | | | -0.1 |
| Sil, SS | 24.0 | 850002456 | 7.7 | | 1.4 | 1.5 | 6.8 | 7.4 | 0.6 | | | | | | | | | | | | -0.4 |
| Sil, SS | 26.0 | 850002457 | 6.2 | | 4.5 | 2.3 | 33.8 | 39.9 | 0.4 | | | | | | | | | | | | -0.7 |
| Sil, SS | 28.0 | 850002458 | 3.3 | | 10. | 3.5 | 25.3 | 99.1 | 0.4 | | | | | | | | | | | | -0.7 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 MAYLINA
CORE NO: 26486C
DATE CORED: 07/AUG/1985
DATE REPORTED: 15/OCT/1985

*Dry Basis

| Lithology | Lith. No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 | | | Particle Size | | | % Moisture | | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|---------------------|----------------|---------------|---------------|--------|--------|------------|---------|--------|-------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 | 050002451 | 0.37 | | | <0.01 | | 0 | 3.02 | | 3.02 | 9.6 | 34.4 | 56 | | | |
| SH | 050002452 | 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 KAYLENIA
CORE NO: 26087C
DATE CORED: 07AUG1985
DATE REPORTED: 15OCT1985

| Lithology | Lab No. | # Total Sg PPM | # HdlCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Particle Size | | | | % Moisture # | | |
|-----------|------------|----------------|----------------|----------------|-------------|------------|---------------------|----------------|---------------|---------------|---------------|---------------------|--------|--------|--------------|--------|---------|
| | | | | | | | | | | | CaCO3 | Iq Tons / 1000 Tons | Tons # | Sand % | Silt % | Clay % | 1/3 BAR |
| SII | 8500024459 | <0.01 | | | <0.01 | 0 | <-999 | 0 | 11.99 | 0 | 65 | 15.2 | 19.8 | | | | |
| SII | 8500024460 | <0.01 | | | <0.01 | 0 | 11.99 | 0 | 12.87 | 11.99 | 56 | 25.2 | 18.8 | | | | |
| SII | 8500024461 | <0.01 | | | <0.01 | 0 | 12.87 | 0 | 5.30 | 12.87 | 37 | 36.2 | 26.8 | | | | |
| SH | 8500024462 | 0.01 | | | 0.01 | 0.31 | 6.23 | 5.07 | 6.23 | 5.07 | 34 | 29.8 | 23.4 | | | | |
| SS | 8500024463 | <0.01 | | | <0.01 | 0 | 6.55 | 6.55 | 6.55 | 6.55 | 55 | 21.6 | 23.4 | | | | |
| SII, SS | 8500024464 | <0.01 | | | <0.01 | 0 | 263.48 | 263.48 | 263.48 | 263.48 | 52 | 20.6 | 11.4 | | | | |
| SII, SS | 8500024465 | <0.01 | | | <0.01 | 0 | 7.97 | 7.97 | 7.97 | 7.97 | 68 | 20.6 | 11.4 | | | | |
| SII, SS | 8500024466 | <0.01 | | | <0.01 | 0 | 14.93 | 14.93 | 14.93 | 14.93 | 55 | 24.6 | 20.4 | | | | |
| SII, SS | 8500024467 | <0.01 | | | <0.01 | 0 | 7.74 | 7.74 | 7.74 | 7.74 | 41 | 30.6 | 28.4 | | | | |
| SII, SS | 8500024468 | <0.01 | | | <0.01 | 0 | 17.46 | 17.46 | 17.46 | 17.46 | 59 | 21.6 | 19.4 | | | | |
| SS | 8500024469 | 0.06 | | | 0.06 | 1.88 | 16.68 | 16.68 | 16.68 | 16.68 | 51 | 24.6 | 24.4 | | | | |
| SS | 8500024470 | <0.01 | | | <0.01 | 0 | 16.12 | 16.12 | 16.12 | 16.12 | 77 | 14.6 | 8.4 | | | | |
| SS | 8500024471 | <0.01 | | | <0.01 | 0 | 16.72 | 16.72 | 16.72 | 16.72 | 75 | 15.6 | 9.4 | | | | |
| SS | 8500024472 | <0.01 | | | <0.01 | 0 | 0.39 | 0.39 | 0.39 | 0.39 | 79 | 12.6 | 8.4 | | | | |
| SS, CO | 8500024473 | 0.12 | | | 0.12 | 3.75 | 3.36 | 3.36 | 3.36 | 3.36 | 77 | 14.6 | 8.4 | | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 26488C
DATE COR'D: 08AUG1985
DATE REFOR'D: 15OCT1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | | | | | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|---------|--------|-----------|------------|-----------|-----|--|--|--|------|
| | | | | | 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 | | | | | | | | | | |
| SH, SS | 2.0 | 850002475 | 7.4 | | 3.8 | 15.9 | 15.6 | 6.8 | 4.8 | | | | | | | | | | 0.1 |
| SH, SS | 4.0 | 850002476 | 5.4 | | 4.7 | 20.8 | 19.1 | 8.2 | 5.6 | | | | | | | | | | 5.5 |
| SH, SS | 6.0 | 850002477 | 4.6 | | 4.7 | 15.6 | 25.5 | 8.4 | 3.8 | | | | | | | | | | 6.5 |
| SH, SS | 8.0 | 850002478 | 4.4 | | 3.4 | 10.2 | 17.4 | 5.9 | 3 | | | | | | | | | | 4.2 |
| SH | 10.0 | LOST | | | | | | | | | | | | | | | | | 3.1 |
| 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 | 2.4 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | | Moisture # | | Avail. H2O Hold. Cap. |
|-----------|-----------|-----------------------------|---------------|---------------|-----------|-----------|---------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------|------------|--|-----------------------|
| | | Total Sg PPM | MalicO3 P PPM | NIHIOAc K PPM | Total S % | Pyrr. S % | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | |
| SIL, SS | 850002474 | 0.50 | | | 0.01 | | 0.31 | 25.95 | | | 25.64 | 81 | 11.6 | 7.4 | | | | |
| SIL, SS | 850002475 | 0.08 | | | 0.01 | | 18.75 | 12.84 | | | 5.91 | 74 | 15.6 | 10.4 | | | | |
| SIL, SS | 850002476 | 0.64 | | | 0.37 | | 11.56 | 1.88 | | | 9.68 | 70 | 19.6 | 10.4 | | | | |
| SIL, SS | 850002477 | 0.27 | | | 0.11 | | 3.44 | -0.94 | | | 4.38 | 75 | 19.6 | 5.4 | | | | |
| SIL, SS | 850002478 | 0.10 | | | 0.46 | | 14.38 | -1.19 | | | 15.57 | 58 | 26.6 | 15.4 | | | | |
| SIL | LOSI | | | | | | | | | | | | | | | | | |
| SIL, SS | 850002479 | 0.22 | | | 0.2 | | 6.25 | 6.87 | | | 0.62 | 78 | 15.6 | 6.4 | | | | |
| SIL, SS | 850002480 | 0.46 | | | 0.19 | | 5.94 | 9.24 | | | 3.3 | 78 | 16.6 | 5.4 | | | | |
| SIL, SS | 850002481 | 0.37 | | | 0.19 | | 5.94 | 9.73 | | | 3.79 | 83 | 10.6 | 6.4 | | | | |
| SIL, SS | 850002482 | 0.57 | | | 0.66 | | 20.62 | 0.16 | | | 20.46 | 67 | 16.6 | 16.4 | | | | |
| SIL, SS | 850002483 | 0.30 | | | 0.79 | | 24.69 | -1.8 | | | 26.49 | 70 | 20 | 10 | | | | |
| SIL, SS | 850002484 | 0.32 | | | 0.68 | | 21.25 | -1.09 | | | 22.34 | 78 | 13 | 9 | | | | |
| SIL, SS | 850002485 | 0.21 | | | 0.34 | | 10.62 | 10.76 | | | 0.14 | 82 | 12 | 6 | | | | |
| SIL, SS | 850002486 | 0.24 | | | 0.57 | | 17.81 | 5.51 | | | 12.3 | 84 | 11.6 | 4.4 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | # Total Se PPM | # MalicCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 | | Particle Size | | % Moisture # | | | | |
|------------|-----------|----------------|------------------|----------------|-------------|------------|----------------------|----------------|---------------|---------------|--------------|--------|--------|---------|--------|
| | | | | | | | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR |
| SH, SS | 850002491 | <0.01 | | | 0 | 0 | 72.89 | | 72.89 | 24 | 39 | 37 | | | |
| SH, SS | 850002492 | <0.01 | | | 0 | 0 | 83.68 | | 83.68 | 44 | 34 | 22 | | | |
| SH, SS | 850002493 | 0.03 | | | 0.94 | 0 | 31.15 | | 31.15 | 15 | 34 | 51 | | | |
| SH, SS | 850002494 | 0.19 | | | 5.94 | 0.07 | 11 | | 10.06 | 20 | 42 | 38 | | | |
| SH, SS, CO | 850002495 | | | | | | 0.94 | 5 | | 11 | 30 | 59 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYLINA
CORE NO: 26493C
DATE COR'D: 12AUG1985
DATE REPORT'D: 15OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | % Moisture | | Avail. H2O Hold. Cap. |
|-----------|-----------|-----------------------------|--------------------|--------------------|-----------------|-----------------|---------------------------|-------------------|------------------|------------------|-----------|---------------|-----------|------------|------------|--|--------------------------------|
| | | Total Se PPM | NaHCO3 P PPM | MH2OAc K PPM | Total S % | Pyrr. S % | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SH | 850002496 | <0.01 | | | <0.01 | 0 | 17.93 | | 17.93 | 36.4 | 37.6 | 26 | | | | | |
| SH | 850002497 | <0.01 | | | 0.01 | 0 | 23.03 | | 23.03 | 28 | 41 | 31 | | | | | |
| SH | 850002498 | 0.01 | | | 0.01 | 0.31 | 14.62 | | 14.31 | 33 | 35 | 32 | | | | | |
| SH, SS | 850002499 | 0.02 | | | <0.01 | 0.62 | 7.82 | | 7.2 | 40 | 36 | 24 | | | | | |
| SH, SS | 850002500 | <0.01 | | | <0.01 | 0 | 85.05 | | 85.05 | 32 | 33 | 35 | | | | | |
| SH, SS | 850002501 | <0.01 | | | <0.01 | 0 | 78.77 | | 78.77 | 38.4 | 36.6 | 25 | | | | | |
| SH, SS | 850002502 | <0.01 | | | <0.01 | 0 | 41.37 | | 41.37 | 40.4 | 34.6 | 25 | | | | | |
| SH, SS | 850002503 | 0.05 | | | 0.05 | 1.56 | 5.6 | | 4.04 | 34 | 35.8 | 30.2 | | | | | |
| SH, SS | 850002504 | 0.09 | | | 0.09 | 2.81 | 20.32 | | 17.51 | 40 | 29.8 | 30.2 | | | | | |
| SH, SS | 850002505 | 0.12 | | | 0.12 | 3.75 | 33.71 | | 29.96 | 52.6 | 22.2 | 25.2 | | | | | |
| SH, SS | 850002506 | 0.02 | | | 0.02 | 0.62 | 43.68 | | 43.06 | 48.2 | 24.6 | 27.2 | | | | | |
| SH, SS | 850002507 | <0.01 | | | <0.01 | 0 | 9.55 | | 9.55 | 57.6 | 21.2 | 21.2 | | | | | |
| SH, SS | 850002508 | 0.01 | | | 0.01 | 0.31 | 7.45 | | 7.14 | 74 | 12.8 | 13.2 | | | | | |
| SH, SS | 850002509 | 0.01 | | | 0.01 | 0.31 | 36.28 | | 35.97 | 50 | 25.8 | 24.2 | | | | | |
| SH, SS | 850002510 | 0.13 | | | 0.13 | 4.06 | 6.09 | | 2.03 | 73 | 12.8 | 14.2 | | | | | |

PLABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 PAYENIA
CORE NO: 2649HC
DATE CORED: 13AUG1985
DATE REFORID: 15OC11985

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

*Dry Basis

PEARBODY COAL COMPANY
GENERAL LABORATORY

HAIR: 0252 VARGENIA
CORE NO: 2649HC
DATE CORED: 13AUG1985
HAIR REPORT ID: 15OCT1985

*Dry Basis

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyrr. S % | CaCO3 Eq Ions / 1000 Ions # | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|----------------|----------------|----------------|-------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Hold. Cap. |
| SH, SS | 850002511 | | | | <0.01 | | 0 | 15.88 | | 15.88 | 53 | 23.8 | 23.2 | | | |
| SS | 850002512 | | | | <0.01 | | 0 | 45.76 | | 45.76 | 55 | 23.8 | 21.2 | | | |
| SH | 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, SS | 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, SS | 850002522 | | | | 0.05 | | 1.56 | 6.2 | | 4.64 | 2 | 33.8 | 44.8 | | | |
| 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: 02252 KAYLENIA
CORE NO: 26495C
DATE CORED: 14AUG1985
DATE REPORTED: 15OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq | | | | | | | | | | Particle Size | | | % Moisture | | |
|-----------|-----------|--------------|--------------|--------------|-----------|-----------|----------------------|----------------|---------------|---------------|--------|---------------|--------|---------|------------|-----------------------|--|
| | | Total Sp PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | Amount Req'd. 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 | 851002528 | 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
GENERAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|-----------------------------|----------------|----------------|-------------|------------|---------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------|-----------------------|--|--|
| | | # 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 | | | <0.01 | 0 | 44.6 | | 44.6 | 81.2 | 8 | 10.8 | | | | | | |
| SS | 850002542 | <0.01 | | | <0.01 | 0 | 35.99 | | 35.99 | 80.2 | 9 | 10.8 | | | | | | |
| SS | 850002543 | <0.01 | | | <0.01 | 0 | 91.86 | | 91.86 | 78.2 | 10 | 11.8 | | | | | | |
| SS | 850002544 | <0.01 | | | <0.01 | 0 | 122.89 | | 122.89 | 77.2 | 11 | 11.8 | | | | | | |
| SS | 850002545 | <0.01 | | | <0.01 | 0 | 32.65 | | 32.65 | 78.2 | 10 | 11.8 | | | | | | |
| SH | 850002546 | 0.01 | | | 0.01 | 0.31 | 7.14 | | 6.83 | 10.2 | 31.4 | 58.4 | | | | | | |
| SH | 850002547 | 0.01 | | | 0.01 | 0.31 | 6.14 | | 5.83 | 18 | 44.8 | 37.2 | | | | | | |
| SH | 850002548 | 0.01 | | | 0.01 | 0.31 | 7.07 | | 6.76 | 38 | 32.8 | 29.2 | | | | | | |
| SH | 850002549 | 0.04 | | | 0.04 | 1.25 | 6.14 | | 4.89 | 16 | 41.8 | 42.2 | | | | | | |
| SH | 850002550 | <0.01 | | | <0.01 | 0 | 30.03 | | 30.03 | 28 | 52.8 | 31.2 | | | | | | |
| SH | 850002551 | <0.01 | | | <0.01 | 0 | 59.03 | 1.36 | 59.03 | 28 | 44.8 | 27.2 | | | | | | |
| SH | 850002552 | 0.24 | | | 0.1 | 7.5 | 6.14 | | 6.26 | 5.6 | 21.2 | 73.2 | | | | | | |
| SH | 850002553 | 0.01 | | | 0.01 | 0.31 | 6.57 | | 6.13 | 9.6 | 39.2 | 51.2 | | | | | | |
| SH | 850002554 | 0.01 | | | 0.01 | 0.31 | 6.44 | | 6.13 | 19.6 | 43.2 | 37.2 | | | | | | |
| SH | 850002555 | <0.01 | | | <0.01 | 0 | 9.19 | | 9.19 | 9.6 | 43.2 | 47.2 | | | | | | |

PEABODY CO., JAPAN
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | Total Se PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | CaCO3 | | Particle Size | | % Moisture # | | | | | |
|-----------|-----------|--------------|--------------|--------------|-----------|-----------|---------------------|----------------|---------------|---------------|--------------|--------|--------|---------|--------|-----------------------|
| | | | | | | | 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 KAYENIA
CORE NO: 2FO
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP | |
|----------------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|--|--|-----|------|
| | | | | | E.C. mho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| DN, 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 2E0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Lab No. | Hot H2O Ext. * | | | TAMM Mo PPM | * Hg PPB | AB-DIPA Extract * | | | | | Organic Matter % |
|----------------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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 | | | | | | | | |

DRY Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|-----|--|--|-----|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | Avail. H2O H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|------------------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SS | 0 | 850000580 | 8.6 | 36.7 | 2 | 11.1 | 2 | 7.9 | 5 | | | | 5.8 |
| SS | 2 | 850000581 | 8.4 | 40 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture # | | Avail. H2O H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|------------------------------|
| | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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: 5EO
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP | |
|------------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|--|--|-----|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 |

*Dry Basis

PEARBODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|-----------------------|
| | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYNITA
CORE NO: 5ED
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|------------|------------|----------------|--------|--------|------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Sb PPM | TAM Mo PPM | lig PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SH | 8500000585 | 0.3 | | <0.01 | | | | | | | | | |
| SH, ST, SS | 8500000586 | 0.3 | | 0.02 | | | | | | | | | |
| ST, SS, SH | 8500000587 | 0.3 | | 0.04 | | | | | | | | | |
| SH, SS | 8500000588 | 0.5 | | <0.01 | | | | | | | | | |
| SS | 8500000589 | 0.6 | | <0.01 | | | | | | | | | |

Dry Basis

PEABODY COA JMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | |
|------------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|-----|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | |
| SS, SH | 0 | 8500000590 | 8.4 | 38.4 | 0.4 | 1.2 | 2 | 0.9 | 1 | 1 | 0.2 |
| SH, SS | 2 | 8500000591 | 8.5 | 36.7 | 0.4 | 1.6 | 1 | 1 | 1.6 | | 1.1 |
| SS | 4 | 8500000592 | 8.5 | 36.7 | 0.4 | 2.2 | 0.8 | 1.5 | 2.1 | | 1.8 |
| SS, SH | 6 | 8500000593 | 8 | 43.6 | 0.7 | 3.3 | 1.6 | 2.2 | 2.4 | | 2.2 |
| SH, SS, BN | 8 | 8500000594 | 8.2 | 36.8 | 0.7 | 3.6 | 1.3 | 2.7 | 2.5 | | 2.4 |

*Dry Basis

PEABODY COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * # | | | | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture * | | | |
|------------|------------|-------------|--------------|--------------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------|
| | | 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 Cap. |
| SS, SH | 8500000590 | | | | <0.01 | 0 | 86.93 | . | 86.93 | 76.2 | 14 | 9.8 | | | |
| SH, SS | 8500000591 | | | | <0.01 | 0 | 147.18 | . | 147.18 | 78.4 | 12.2 | 9.4 | | | |
| SS | 8500000592 | | | | <0.01 | 0 | 75.47 | . | 75.47 | 76.8 | 12.2 | 11 | | | |
| SS, SH | 8500000593 | | | | <0.01 | 0 | 14.65 | . | 14.65 | 27.6 | 31.4 | 41 | | | |
| SH, SS, BN | 8500000594 | | | | <0.01 | 0 | 13.71 | . | 13.71 | 37.6 | 32.4 | 30 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 6E0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic # Matter % |
|------------|-----------|----------------|-----------|-----------|-------------------|-------------------|-----------|-----------|-----------|-----------|-----------|--|-----------------------|
| | | B PPM | As PPM | Se PPM | TaMM Mo PPM | * Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | | | | | | | | | |

Dry Basis

PEABODY COP JAPAN
CENTRAL LABORATORY

MINE: 0252 KAYENTIA
CORE NO: 7FO
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|------|--|
| | | | | | F.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | |
| LO, SS | 0 | 8500000595 | 8.1 | 40 | 0.2 | 0.9 | 1.6 | 0.3 | 0.9 | 0.1 | |
| SS | 2 | 8500000596 | 8.2 | 38.4 | 0.2 | 0.8 | 1.3 | 0.6 | 0.8 | -0.1 | |
| SS, SH | 4 | 8500000597 | 8 | 35 | 0.3 | 1.5 | 1.2 | 0.8 | 1.5 | 0.9 | |
| SH | 6 | 8500000598 | 8 | 33.6 | 0.7 | 4.8 | 1.3 | 1.2 | 4.3 | 4.8 | |
| SS, SH | 8 | 8500000599 | 7.8 | 36.9 | 1.1 | 5.3 | 1.9 | 0.7 | 4.6 | 5.2 | |

#Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 7E0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | Avail. H2O Cap. | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|-----------------------|-----------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| 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: 7E0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYJNTA
CORE NO: BEO
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|-----|--|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | |
| SS | 0 | 8500000600 | 8.3 | 40 | 0.9 | 4.4 | 1.8 | 2.4 | 3 | 3.1 | |
| SS | 2 | 8500000601 | 8.5 | 40 | 0.6 | 3.5 | 0.9 | 1.6 | 3.1 | 3.2 | |
| SS | 4 | 8500000602 | 8.5 | 40.1 | 1.3 | 6.2 | 2.2 | 5.4 | 3.2 | 3.3 | |
| SS | 6 | 8500000603 | 8.5 | 40 | 1.8 | 7.5 | 3.2 | 8.5 | 3.1 | 3.2 | |
| SS | 8 | 8500000604 | 8.3 | 40 | 1.3 | 6.4 | 1.7 | 5.6 | 3.3 | 3.5 | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYINTA
CORE NO: 8E0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture # | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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: 810
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DIPA Extract * | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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 | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYLINTA
CORE NO: 9FCO
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|-----|------|
| | | | | | F.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENIA
CORE NO: 9FC
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

*Dry Basis

| Lithology | Lab No. | * # | | | | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | | Avail. H2O H2O Cap. |
|-----------|------------|-------------------|-------------------|--------------------|-----------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--|------------------------------|
| | | Total N PPM | NHCO3 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 | | |
| SS, Sll | 8500000605 | | | | <0.01 | 0 | 12.88 | . | 12.88 | 76 | 12 | 12 | | | | |
| SH, SS | 8500000606 | | | | <0.01 | 0 | 31.27 | . | 31.27 | 71 | 14 | 15 | | | | |
| SS | 8500000607 | | | | <0.01 | 0 | 18.81 | . | 18.81 | 82 | 10 | 8 | | | | |
| SS, SH | 8500000608 | | | | <0.01 | 0 | 3.42 | . | 3.42 | 79 | 9 | 12 | | | | |
| SH, SS | 8500000609 | | | | <0.01 | 0 | 4.83 | . | 4.83 | 70 | 12 | 18 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 9L0
DATE CORED: 04MAY1985
DATE REPORTED: 04JUN1985

Dry Basis

| Lithology | Lab No. | Hot H ₂ O Ext. # | | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|-----------------------------|--------|--------|-----------|--------|-------------------|--------|--------|--------|--------|--|--|------------------|
| | | B PPM | As PPM | Se PPM | Ta/Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|------------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SH | 0 | 8500000884 | 3.4 | 34.2 | 9.9 | 6 | 25.5 | 50.6 | 1 | | | | 0.2 |
| SH, CO | 2 | 8500000885 | 2.9 | 55.8 | 7.8 | 3.2 | 28.1 | 28.2 | 0.6 | | | | -0.4 |
| CO | 4 | 8500000886 | 5.3 | 60.9 | 2.2 | 6.2 | 13.2 | 7.7 | 1.9 | | | | 1.5 |
| CO | 6 | 8500000887 | 6.9 | 82.8 | 0.8 | 5 | 1.1 | 0.8 | 5.1 | | | | 5.9 |
| CO, SH | 8 | 8500000888 | 7 | 55.5 | 1.4 | 11.3 | 0.6 | 0.5 | 15.2 | | | | 17.5 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * # | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Particle Size | | | | % Moisture # | | |
|-----------|------------|-------------|--------------|--------------|----------------------|----------------|---------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------|
| | | Total N PPM | Na/CO3 P PPM | NH4OAc K PPM | | | | | Total S % | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. |
| SH | 8500000884 | | | | 19.06 | -4.2 | 23.26 | . | 52.2 | 34.6 | 13.2 | | | | |
| SH, CO | 8500000885 | | | | 33.12 | -1.3 | 34.42 | . | 87 | 10.6 | 2.4 | | | | |
| CO | 8500000886 | | | | 17.5 | 7.99 | 9.51 | . | 98 | 2 | <0.1 | | | | |
| CO | 8500000887 | | | | 15.62 | 8.51 | 7.11 | . | 97 | 3 | <0.1 | | | | |
| CO, SH | 8500000888 | | | | 19.06 | 4.8 | 14.26 | . | 68.4 | 18.6 | 13 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|------------|----------------|--------|--------|-------------------|----------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Md PPM | * Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| SH | 8500000884 | 1.6 | | 0.02 | | | | | | | | |
| SH, CO | 8500000885 | 6.8 | | 0.02 | | | | | | | | |
| CO | 8500000886 | 4.9 | | <0.01 | | | | | | | | |
| CO | 8500000887 | 2.7 | | <0.01 | | | | | | | | |
| CO, SH | 8500000888 | 2.3 | | 0.05 | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 11E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|--|--|-----|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SH | 0 | 8500000889 | 8.2 | 37.5 | 1.9 | 10.6 | 4 | 3 | 5.7 | | | | 6.7 |
| SH | 2 | 8500000890 | 8.2 | 38.8 | 1.8 | 10.6 | 3.5 | 2.9 | 5.9 | | | | 6.9 |
| SH | 4 | 8500000891 | 8.1 | 39.2 | 2 | 11.1 | 4.7 | 3.4 | 5.5 | | | | 6.4 |
| SH | 6 | 8500000892 | 8.3 | 37.1 | 1.4 | 7.3 | 3.2 | 1.9 | 4.6 | | | | 5.4 |
| SH, SS | 8 | 8500000893 | 8.1 | 39.2 | 1.6 | 8.2 | 3.9 | 2.5 | 4.6 | | | | 5.2 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 02522 KAYENTA J21
CORE NO: 11E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | | % Moisture # | | |
|-----------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|-----------------|--|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. | |
| SH | 8500000889 | | | | <0.01 | 0 | 218.26 | . | 218.26 | 42.4 | 35.6 | 22 | | | | |
| SH | 8500000890 | | | | 0.01 | 0.31 | 170.08 | . | 169.77 | 36.4 | 41.6 | 22 | | | | |
| SH | 8500000891 | | | | <0.01 | 0 | 154.91 | . | 154.91 | 27.4 | 43.6 | 29 | | | | |
| SH | 8500000892 | | | | <0.01 | 0 | 169.06 | . | 169.06 | 43.4 | 38.6 | 18 | | | | |
| SH, SS | 8500000893 | | | | <0.01 | 0 | 164.54 | . | 164.54 | 36.4 | 40.6 | 23 | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 11E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|------------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SH | 8500000889 | 3.7 | | 0.02 | | | | | | | | | |
| SH | 8500000890 | 1.2 | | <0.01 | | | | | | | | | |
| SH | 8500000891 | 0.5 | | 0.02 | | | | | | | | | |
| SH | 8500000892 | 0.4 | | 0.04 | | | | | | | | | |
| SH, SS | 8500000893 | 0.6 | | 0.02 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTIA J21
CORE NO: 12E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | |
|-----------|-------|------------|----------|----------|-------------------------|----------|----------|----------|-----|-----|--|--|--|--|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | | | | | |
| SS, SH | 0 | 8500000894 | 8.5 | 38.9 | 2.4 | 7 | 1.5 | 16.2 | 2.4 | | | | | | 2.2 |
| SH, SS | 2 | 8500000895 | 8.6 | 40.4 | 2.1 | 7.5 | 1.1 | 12.5 | 2.9 | | | | | | 2.9 |
| SH, SS | 4 | 8500000896 | 8.4 | 35.5 | 2.5 | 8.7 | 3 | 14.5 | 2.9 | | | | | | 2.9 |
| SS | 6 | 8500000897 | 8.3 | 35.3 | 1.6 | 3.8 | 3.9 | 8 | 1.6 | | | | | | 1.1 |
| SS, SH | 8 | 8500000898 | 8.2 | 37.3 | 1.7 | 3.3 | 7.1 | 8.1 | 1.2 | | | | | | 0.5 |

#Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | |
|-----------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. |
| SS, SH | 8500000891 | | | | <0.01 | 0 | 129.17 | . | 129.17 | 68.4 | 18.6 | 13 | | | |
| SH, SS | 8500000895 | | | | <0.01 | 0 | 72.78 | . | 72.78 | 76.4 | 13.6 | 10 | | | |
| SH, SS | 8500000896 | | | | 0.01 | 0.31 | 123.69 | . | 123.38 | 71.4 | 14.6 | 14 | | | |
| SS | 8500000897 | | | | <0.01 | 0 | 108.28 | . | 108.28 | 76.4 | 14.6 | 9 | | | |
| SS, SH | 8500000898 | | | | <0.01 | 0 | 111.25 | . | 111.25 | 68.4 | 18.6 | 13 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO.: 12E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Lab No. | Hot H ₂ O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|------------|-----------------------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SS, SH | 8500000894 | 0.6 | | <0.01 | | | | | | | | | |
| SH, SS | 8500000895 | 0.6 | | <0.01 | | | | | | | | | |
| SH, SS | 8500000896 | 0.8 | | 0.05 | | | | | | | | | |
| SS | 8500000897 | 0.7 | | <0.01 | | | | | | | | | |
| SS, SH | 8500000898 | 0.3 | | 0.03 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|-----|-----|
| | | | | | 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 | | |
| SS | 2 | 850000900 | 8.8 | 38.7 | 0.8 | 3.4 | 0.5 | 3.4 | 2.4 | | 2.1 |
| SS | 4 | 850000901 | 8.8 | 37.4 | 0.7 | 5.1 | 0.4 | 1.5 | 5.2 | | 2.2 |
| SH | 6 | 850000902 | 9 | 28.5 | 0.7 | 5.2 | 0.5 | 0.8 | 6.4 | | 6 |
| SH, SS | 8 | 850000903 | 9 | 35.2 | 0.5 | 3.9 | 0.4 | 0.7 | 5.3 | | 7.6 |
| | | | | | | | | | | | 6.2 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|------------------------------|
| | | | | | | 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

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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: 14E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|--|--|-----|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SH, SS | 0 | 8500000904 | 8.2 | 35.3 | 0.9 | 1.7 | 4.1 | 2.8 | 0.9 | | | | 0.1 |
| SS | 2 | 8500000905 | 8.6 | 30.1 | 0.5 | 1.2 | 1.5 | 1.8 | 0.9 | | | | 0.1 |
| SS, SH | 4 | 8500000906 | 8.3 | 33.6 | 0.9 | 4.5 | 1.2 | 3.8 | 2.8 | | | | 2.8 |
| SH, SS | 6 | 8500000907 | 8.2 | 33.6 | 1.2 | 4.3 | 1.5 | 6.2 | 2.2 | | | | 1.9 |
| SS, SH | 8 | 8500000908 | 8.2 | 35.3 | 1 | 3.8 | 1.4 | 4.9 | 2.1 | | | | 1.8 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | | % Moisture * | | |
|-----------|-----------|-------------|--------------|--------------|-----------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|-----------------|--|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 | | | | |
| SS, 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 | | | | |

PEARBODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|-----|--|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | |
| SS, SH | 0 | 8500000909 | 8 | 33.9 | 2 | 11.4 | 2.5 | 7.1 | 5.2 | 6 | |
| SH, SS | 2 | 8500000910 | 7.9 | 35.2 | 1.2 | 5.6 | 1.2 | 3.9 | 3.5 | 3.8 | |
| SS | 4 | 8500000911 | 7.7 | 36.8 | 1.1 | 4.9 | 1.4 | 3.9 | 3 | 3.1 | |
| SS, SH | 6 | 8500000912 | 7.6 | 37 | 1.3 | 5.2 | 2.1 | 5 | 2.8 | 2.8 | |
| SH, SS | 8 | 8500000913 | 7.7 | 36.7 | 0.7 | 1.9 | 2.1 | 2.7 | 1.2 | 0.5 | |

#Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 15E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture # | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|------------------------------|
| | | | | | | 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 KAYENTIA J21
CORE NO: 15EO
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

Dry Basis

| Lithology | Lab No. | Hot H ₂ O Ext. # | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|-----------------------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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

Saturated Paste Extract

*Dry Basis

| 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 | 8500000914 | 7.7 | 35.9 | 3.9 | 10.6 | 8.7 | 37.4 | 2.2 | 1.9 |
| SH | 2 | 8500000915 | 3.9 | 48.1 | 6.5 | 12.5 | 25.4 | 62.3 | 1.9 | 1.5 |
| SH | 4 | 8500000916 | 3.2 | 45.7 | 10.3 | 10.8 | 24.2 | 94.1 | 1.4 | 0.8 |
| SH | 6 | 8500000917 | 3.1 | 53.7 | 7.3 | 8.2 | 10.3 | 56.8 | 1.4 | 0.8 |
| SH, CO | 8 | 8500000918 | 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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | | % Moisture # | | | Avail. H2O Cap. |
|-----------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|--|--|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | |
| SS, SH | 8500009114 | | | | <0.01 | 0 | 104.06 | 15.52 | 104.06 | 62.6 | 13 | 24.4 | | | | | |
| SH | 8500009115 | | | | 0.72 | 22.5 | 6.98 | 15.52 | 40.6 | 40.6 | 16 | 43.4 | | | | | |
| SH | 8500009116 | | | | 0.61 | 19.06 | -2.33 | 21.39 | 57.8 | 20 | 22.2 | | | | | | |
| SH | 8500009117 | | | | 0.32 | 10 | -1.7 | 11.7 | 60.8 | 14 | 25.2 | | | | | | |
| SH, CO | 8500009118 | | | | 0.75 | 23.44 | 3.8 | 19.64 | 89.8 | 3 | 7.2 | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 16E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract # | | | | | Organic # Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|--------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-----|-----|--|
| | | | | | 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 | |

#Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 17E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | Avail. H2O H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|------------------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 17E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM No PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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: 18E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|-----|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SS, SH | 0 | 8500000923 | 8.2 | 36.9 | 0.3 | 0.9 | 1.2 | 0.9 | 0.9 | | | | 0.1 |
| SH, SS | 2 | 8500000924 | 8.3 | 50.8 | 0.7 | 4.2 | 0.8 | 2.1 | 3.5 | | | | 3.8 |
| SS, SH | 4 | 8500000925 | 8.2 | 40.8 | 1.5 | 11.7 | 1 | 2.1 | 9.4 | | | | 11.2 |
| SH, SS | 6 | 8500000926 | 8.2 | 44.5 | 13.9 | 10.6 | 1.2 | 2.1 | 8.3 | | | | 9.9 |
| SS, SH | 8 | 8500000927 | 8 | 40.5 | 1.5 | 10.2 | 2.7 | 3.3 | 5.9 | | | | 6.9 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | CACO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | | % Moisture * | | | | | |
|-----------|------------|-----------------------------|--------------|--------------|-----------|----------------------|----------------|---------------|---------------|--------------|--------|--------|---------|--------|-----------------|
| | | 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 Cap. |
| SS, SH | 8500000923 | | | | <0.01 | 0 | 82.06 | . | 82.06 | 71.6 | 15 | 13.4 | | | |
| SH, SS | 8500000924 | | | | <0.01 | 0 | 100.31 | . | 100.31 | 24.6 | 30 | 45.4 | | | |
| SS, SH | 8500000925 | | | | <0.01 | 0 | 31.76 | . | 31.76 | 40.6 | 25.4 | 34 | | | |
| SH, SS | 8500000926 | | | | <0.01 | 0 | 67.23 | . | 67.23 | 60.6 | 14.4 | 25 | | | |
| SS, SH | 8500000927 | | | | <0.01 | 0 | 49.82 | . | 49.82 | 51.6 | 22.4 | 26 | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 18E0
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | |
|-----------|-------|------------|----------|----------|-------------------------|----------|----------|----------|-----|-----|--|--|--|--|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | | | | | |
| SH | 0 | 8500000928 | 7.9 | 54.1 | 2.4 | 13.1 | 5.4 | 5.4 | 5.9 | | | | | | 6.9 |
| SH | 2 | 8500000929 | 7.9 | 49.5 | 2.4 | 13.1 | 5.3 | 5.3 | 5.7 | | | | | | 6.7 |
| SH, SS | 4 | 8500000930 | 8 | 41 | 2.6 | 13.4 | 7.6 | 7.5 | 4.9 | | | | | | 5.6 |
| SH | 6 | 8500000931 | 7.9 | 46.9 | 3.2 | 16.0 | 9.1 | 11.3 | 5.3 | | | | | | 6.2 |
| SH | 8 | 8500000932 | 7.8 | 50.2 | 3.6 | 16.1 | 11.7 | 15.7 | 4.3 | | | | | | 4.8 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

#Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | | % Moisture # | | |
|-----------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|-----------------|--|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. | |
| SH | 850000928 | | | | <0.01 | 0 | 25.35 | . | 25.35 | 9.6 | 116.8 | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------------|-----------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | * Iig PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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 | | | | | | | | |

Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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, SH | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA J21
CORE NO: 2010
DATE CORED: 07MAY1985
DATE REPORTED: 25JUN1985

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | % Moisture # | | |
|-----------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|--------------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. |
| SH, SS | 8500000933 | | | | <0.01 | 0 | 19.33 | . | 19.33 | 55.6 | 19.2 | 25.2 | | | |
| SS, SH | 8500000934 | | | | <0.01 | 0 | 46.99 | . | 46.99 | 68.6 | 16.2 | 15.2 | | | |
| SS | 8500000935 | | | | <0.01 | 0 | 88.25 | . | 88.25 | 76.6 | 12.2 | 11.2 | | | |
| SS, SH | 8500000936 | | | | <0.01 | 0 | 37.55 | . | 37.55 | 59.6 | 17.2 | 23.2 | | | |
| SH, SS | 8500000937 | | | | <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

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

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|-----|--|--|------|
| | | | | | E.C. mho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 |

#Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture # | | | |
|-----------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. |
| SS, SH | 8500000938 | | | | <0.01 | 0 | 44.01 | . | 44.01 | 59.6 | 17.2 | 23.2 | | | |
| SH, SS | 8500000939 | | | | <0.01 | 0 | 10.73 | . | 10.73 | 57.6 | 19.6 | 22.8 | | | |
| SS | 8500000940 | | | | 0.01 | 0.31 | 26.43 | . | 26.12 | 60.6 | 20.6 | 18.8 | | | |
| SH, SS | 8500000941 | | | | <0.01 | 0 | 31.34 | . | 31.34 | 42.6 | 24.6 | 32.8 | | | |
| SH, SS | 8500000942 | | | | <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

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|------------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg # PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SS, SH | 8500000938 | 0.3 | | 0.02 | | | | | | | | | |
| SH, SS | 8500000939 | 0.3 | | 0.03 | | | | | | | | | |
| SS | 8500000940 | 0.2 | | <0.01 | | | | | | | | | |
| SH, SS | 8500000941 | 0.5 | | 0.01 | | | | | | | | | |
| SH, SS | 8500000942 | 0.5 | | <0.01 | | | | | | | | | |

N-6 MINING AREA
(DEEP CORES)

HOLE NO. 21104C

LOCATION S 13111.0

E 31605.0

ELEVATION 6726.0

DRILLER J. Elliott

DATE DRILLED 9-29-78

PAGE 1

SUB AREA N-6

| ELEVATION | SAMPLE NO. | SATURATION & SAR | | SOL. Na. | | SOL. Ca. | | pH |
|-----------|----------------|------------------|--------|----------|-------|----------|--------|-------|
| | | (MOISTURE) | (ASH) | (BTU) | (BTU) | SOL. Mg | %S | |
| 90 | R-80-729 | 53.1 | 31.8 | 39.6 | 1.8 | 1.3 | 0.22 | 7.1 |
| 89 | R-80-728 | 34.1 | 4.1 | 15.8 | 19.1 | 10.0 | 0.42 | 7.3 |
| 80 | R-80-726 | 48.8 | 14.8 | 19.0 | 1.9 | 1.4 | 0.06 | 8.5 |
| 70 | (8-2457-R) GXX | (11.97) | (6.54) | (12,710) | | | (0.85) | (8.1) |
| 60 | R-80-725 | 49.0 | 34.3 | 41.3 | 1.7 | 1.2 | 0.14 | 7.6 |
| 50 | R-80-724 | 34.1 | 3.6 | 7.3 | 4.8 | 3.5 | 0.10 | 7.4 |
| 40 | R-80-723 | 38.3 | 2.5 | 7.9 | 7.9 | 11.3 | 0.02 | 7.1 |
| 30 | R-80-722 | 57.2 | 5.4 | 10.2 | 22.3 | 5.3 | 0.05 | 8.2 |
| 30 | R-80-721 | 42.4 | 2.8 | 9.6 | 7.7 | 16.6 | 0.02 | 7.4 |
| 20 | R-80-720 | 77.3 | 3.1 | 12.1 | 16.7 | 14.0 | 0.07 | 6.9 |
| 20 | R-80-719 | 53.1 | 2.8 | 13.4 | 27.9 | 17.1 | 0.06 | 7.8 |
| 10 | R-80-718 | 38.4 | 4.6 | 12.1 | 6.9 | 6.9 | <0.01 | 8.2 |
| 10 | R-80-717 | 38.4 | 4.8 | 10.2 | 4.6 | 4.4 | <0.01 | 8.1 |
| 0 | R-80-716 | 31.4 | 6.9 | 6.5 | 0.9 | 0.9 | <0.01 | 8.5 |
| 0 | R-80-715 | 34.4 | 4.2 | 5.1 | 2.0 | 0.9 | <0.01 | 8.5 |

SEP 6 1978

| ELEVATION | LOCATION | DATE DRILLED | SUB AREA | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | PH |
|-----------|----------|--------------|----------|----------------|--------------|--------|----------|----------|---------|-------|
| | | | | | (MOISTURE) | (VSH) | (BTU) | | | |
| 180 | | | | (8-2461-R) YXX | (12.60) | (6.60) | (12,803) | | | (8.8) |
| 170 | | | | R-80-740 | 44.6 | 14.2 | 22.3 | 35.2 | 1.64 | 4.8 |
| 160 | | | | R-80-739 | 31.1 | 25.7 | 27.0 | 1.3 | 0.9 | 8.6 |
| 160 | | | | R-80-738 | 48.5 | 35.4 | 48.1 | 2.1 | 1.6 | 6.4 |
| 160 | | | | R-80-737 | 46.6 | 19.9 | 66.6 | 14.0 | 8.5 | 3.7 |
| 150 | | | | R-80-736 | 42.3 | 12.5 | 48.9 | 19.5 | 10.9 | 6.5 |
| 150 | | | | R-80-735 | 44.4 | 23.2 | 48.1 | 5.6 | 3.0 | 6.7 |
| 140 | | | | (8-2460-R) MXX | (11.75) | (9.79) | (12,339) | | | (8.5) |
| 140 | | | | R-80-734 | 44.5 | 7.6 | 36.2 | 22.3 | 22.8 | 3.8 |
| 140 | | | | R-80-733 | 40.3 | 4.8 | 16.4 | 14.9 | 8.7 | 7.0 |
| 130 | | | | | | | | | | |
| 120 | | | | (8-2459-R) RXX | (12.17) | (4.72) | (13,026) | | | (8.2) |
| 120 | | | | R-80-732 | 46.3 | 1.4 | 6.9 | 29.3 | 17.4 | 6.6 |
| 110 | | | | (8-2458-R) BXX | (12.26) | (6.05) | (12,867) | | | (8.4) |
| 100 | | | | R-80-731 | 42.4 | 24.2 | 23.6 | 0.8 | 1.1 | 6.8 |
| 100 | | | | R-80-730 | 37.6 | 22.5 | 26.1 | 1.1 | 1.6 | 8.4 |
| 90 | | | | | | | | | | |

SEP 3 1986

21104C

LOCATION S 13111.0

E 31605.0

ELEVATION 6726.0

DATE DRILLED 9-29-78

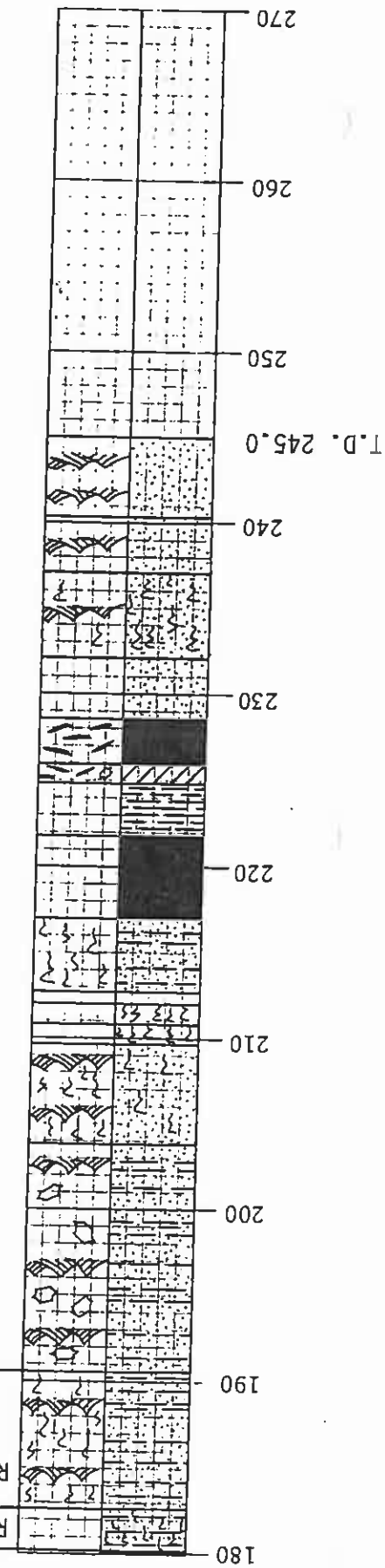
J. FILLIOLT

SUB AREA N-6

PAGE 3

| SAMPLE NO. | SATURATION & (MOISTURE) | SAR | SOL. Na. | SOL. Ca. | 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

PEABODY CO. COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 2110HC
DATE CORED: 29SEP1978
DATE REPORTED: 16FEB1985

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP |
|---------------------|-------|------------|----------|----------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| SO | 0 | 8000007111 | 7.5 | 34.4 | 0.4 | 1.5 | 1.7 | 0.8 | 1.3 | | | 0.6 |
| SO | 0.5 | 8000007112 | 7.9 | 36.5 | 0.4 | 1.6 | 2.2 | 0.7 | 1.3 | | | 0.6 |
| SO | 1 | 8000007113 | 8.1 | 36.5 | 0.4 | 1.8 | 2.2 | 1 | 1.4 | | | 0.7 |
| SO | 2 | 8000007114 | 8.3 | 40.5 | 0.4 | 3 | 1.2 | 1.1 | 2.8 | | | 2.8 |
| SO | 3 | 8000007115 | 8.5 | 34.4 | 0.6 | 5.1 | 2 | 0.9 | 4.2 | | | 4.7 |
| SO | 4 | 8000007116 | 8.5 | 31.4 | 0.7 | 6.5 | 0.9 | 0.9 | 6.9 | | | 8.2 |
| SS | 5 | 8000007117 | 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 | 8000007118 | 8.2 | 38.4 | 2.2 | 12.1 | 6.9 | 6.9 | 4.6 | | | 5.3 |
| SL | 16.5 | 8000007119 | 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 | 31.4 | 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: 29SEFP1978
DATE REPORTED: 16FEB1985

*Dry Basis

| Lithology | Lab No. | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O H2O Cap. |
|------------|-----------|-------------|--------------|--------------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|---------------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SS | 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 |
| SS | 800000738 | 7 | 2.8 | 166.2 | 0.19 | 5.94 | 33.83 | . | 27.89 | 15 | 45 | 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 |
| VEL 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 COP. COMPANY
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|------------|------------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SO | 8000007111 | 0.7 | 0.1 | <0.01 | <0.6 | 12 | 0.2 | 2 | 25.7 | 19.2 | <1 | 0.6 | |
| SO | 8000007112 | 0.2 | 0.08 | <0.01 | <0.6 | 17 | 0.2 | 1.7 | 25 | 14.7 | <1 | 0.6 | |
| SO | 8000007113 | 0.6 | 0.07 | <0.01 | <0.6 | 18 | 0.2 | 1.5 | 22.2 | 12.3 | <1 | 0.4 | |
| SO | 8000007114 | 1.4 | 0.03 | <0.01 | <0.6 | 15 | <0.1 | 1.2 | 16.4 | 9.4 | <1 | 0.3 | |
| SO | 8000007115 | 1.4 | 0.08 | <0.01 | <0.6 | 13 | 0.2 | 1.1 | 17.1 | 6.9 | <1 | 0.3 | |
| SO | 8000007116 | 1.2 | 0.16 | <0.01 | <0.6 | <10 | 0.2 | 1.2 | 17.8 | 8.2 | <1 | 0.3 | |
| SS | 8000007117 | 0.5 | 0.04 | 0.03 | <0.6 | <10 | 0.2 | 5 | 22.1 | 12.2 | <1 | 0.7 | |
| SS | 8000007118 | 0.3 | 0.01 | 0.05 | <0.6 | <10 | 0.2 | 0.8 | 21.4 | 8.2 | <1 | 0.4 | |
| SL | 8000007119 | 0.6 | <0.01 | 0.2 | <0.6 | 27 | 0.2 | 1.9 | 21.7 | 7.4 | <1 | 0.3 | |
| SH | 8000007220 | 0.6 | 0.04 | 0.17 | <0.6 | 96 | 0.8 | 11.4 | 74.6 | 1.8 | 11.7 | 2.2 | |
| SS | 8000007221 | 0.8 | 0.02 | 0.02 | <0.6 | 21 | 0.2 | 2.6 | 45.4 | 3.2 | 2.3 | 0.5 | |
| SH, IS | 8000007222 | 0.3 | <0.01 | 0.07 | <0.6 | 18 | 1.1 | 4.4 | 41.3 | 5.7 | 8.2 | 2.6 | |
| SS | 8000007223 | 0.7 | <0.01 | <0.01 | <0.6 | <10 | 0.3 | 1.9 | 29.7 | 3.3 | 3.1 | 2.6 | |
| IS | 8000007224 | 0.3 | <0.01 | 0.01 | <0.6 | <10 | 0.2 | 1.2 | 37 | 3.7 | 3.7 | 1.3 | |
| SH, CO, SS | 8000007225 | 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 | 8000007226 | 0.6 | 0.06 | 0.03 | <0.6 | 10 | 2.1 | 4 | 41.1 | 4.5 | 13.7 | 3.4 | |
| SS | 8000007227 | 0.1 | <0.01 | <0.01 | <0.6 | <10 | 0.2 | 1 | 101 | 3.1 | 3.1 | 1.9 | |
| CO | 8000007228 | 8.6 | 0.04 | 0.09 | <0.6 | 41 | 0.2 | 1.3 | 32.3 | 1.1 | <1 | COAL | |
| SH, SL, IS | 8000007229 | 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 | 145.4 | 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 | <0.6 | <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

E 32971.0

ELEVATION 6807.2

DATE DRILLED 8-29-81

SUB AREA

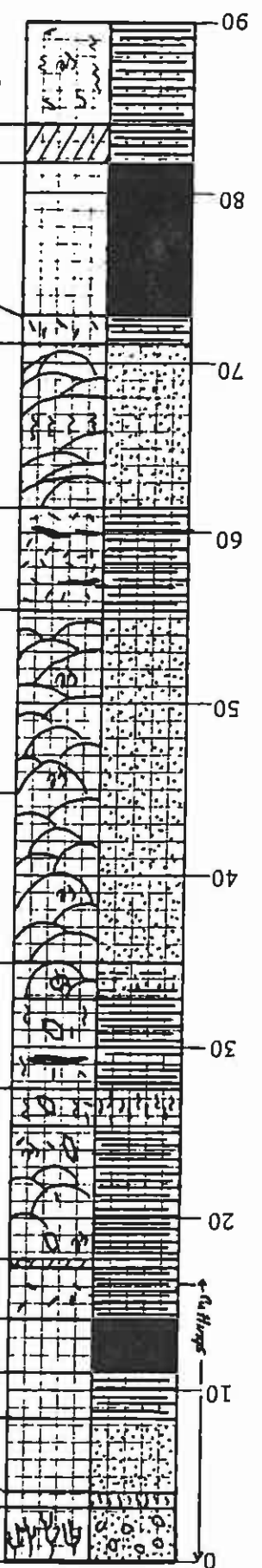
N-6

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg

SAMPLE NO. (MOISTURE) (VSH) (BTU)

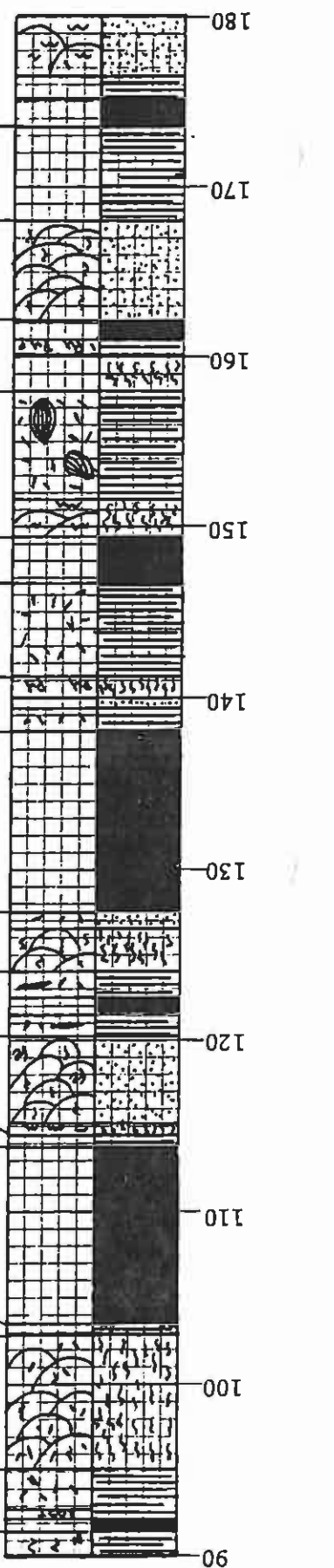
SS

pH



| SAMPLE NO. | (MOISTURE) | (VSH) | (BTU) | SOL. Na. | SOL. Ca. | SOL. Mg | SS | pH |
|-------------------|------------|--------|----------|----------|----------|---------|-----|-----|
| 820001933 | 42.4 | 2.9 | 2.8 | 0.7 | 1.2 | <0.01 | 8.4 | 8.4 |
| 820001934 | 40.4 | 0.6 | 0.9 | 4.3 | 0.8 | <0.01 | 7.9 | 8.4 |
| 820001935 | 44.4 | 5.1 | 6.6 | 1.3 | 2.0 | 0.01 | 8.4 | 8.4 |
| 820001936 | 51.1 | 3.0 | 11.9 | 13.5 | 18.8 | 0.07 | 5.5 | 5.5 |
| 820001937 | 70.8 | 3.3 | 15.5 | 16.9 | 26.6 | 0.39 | 3.9 | 3.9 |
| 820001938 | 59.3 | 1.3 | 8.5 | 25.4 | 54.9 | 0.46 | 3.6 | 3.6 |
| 820001939 | 56.4 | 0.9 | 5.4 | 24.5 | 40.8 | 0.08 | 6.3 | 6.3 |
| 820001940 | 57.7 | 0.8 | 4.7 | 22.1 | 51.6 | 0.08 | 6.9 | 6.9 |
| 820001941 | 38.2 | 1.0 | 2.4 | 3.6 | 7.3 | 0.08 | 8.1 | 8.1 |
| 820001942 | 38.3 | 0.9 | 1.5 | 2.0 | 3.9 | <0.01 | 8.2 | 8.2 |
| 820001943 | 81.6 | 0.9 | 1.9 | 5.0 | 4.1 | 0.08 | 8.5 | 8.5 |
| 820001944 | 42.4 | 0.8 | 1.6 | 4.3 | 3.6 | 0.01 | 8.1 | 8.1 |
| 820001945 | 66.7 | 0.8 | 2.1 | 7.3 | 6.6 | 0.15 | 7.9 | 7.9 |
| (82-884-R) GXX | (N/A) | (5.74) | (12.876) | | | | | |
| 820001946 | 53.0 | 15.4 | 15.4 | 1.0 | 1.0 | 0.36 | 7.3 | 7.3 |
| 820001947 | 49.1 | 26.9 | 20.8 | 0.9 | 0.3 | 0.08 | 8.9 | 8.9 |

SEP 3 1986



FILE NO. 231600
 LOCATION S 10515.0 E 32971.0
 ELEVATION 6807.2

DRILLER J. Elliott
 DATE DRILLED 8-29-81
 SUB AREA N-6
 PAGE 2

| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | 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 |
| (82-885-R) BXX | (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 |
| (82-886-R) RXX | (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 |
| (82-887-R) MXX | (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 |

SEP 3 1986

318

SEP 3 1986

319

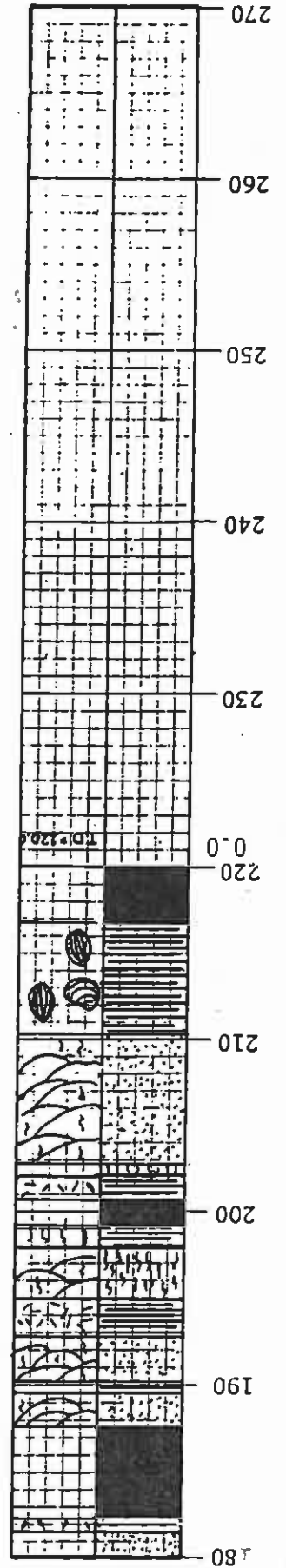
SAMPLE NO. SATURATION & SVR SOL.Na. SOL.Ca. SOL.Mg (BTU) %S PH

DATE DRILLED

8-29-81

SUB AREA

N-6



LOCATION S 10515.0 E 32971.0
 ELEVATION 6807.2
 23160C

PEABODY COAL PANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP |
|------------|-------|------------|----------|----------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| SO | 0 | 8200019333 | 8.4 | 42.4 | 0.5 | 2.8 | 0.7 | 1.2 | 2.9 | | | 3 |
| SL | 3.2 | 8200019334 | 7.9 | 40.4 | 7.6 | 0.9 | 4.3 | 0.8 | 0.6 | | | -0.4 |
| SS | 4 | 8200019335 | 8.4 | 44.4 | 1.1 | 6.6 | 1.3 | 2 | 5.1 | | | 5.9 |
| SH | 8.5 | 8200019336 | 5.5 | 51.1 | 3.7 | 11.9 | 13.5 | 18.8 | 3 | | | 3.1 |
| CO | 11 | 8200019337 | 3.9 | 70.8 | 5.4 | 15.5 | 16.9 | 26.6 | 3.3 | | | 3.5 |
| SH | 14 | 8200019338 | 3.6 | 59.3 | 7.1 | 8.5 | 54.4 | 40.8 | 1.3 | | | 0.6 |
| SH, SL | 17.4 | 8200019339 | 6.3 | 56.4 | 5.2 | 4.7 | 24.5 | 51.6 | 0.9 | | | 0.1 |
| SH, SS | 27.4 | 820001940 | 6.9 | 57.7 | 5.4 | 2.4 | 22.1 | 7.3 | 0.8 | | | -0.1 |
| SS | 34.8 | 820001941 | 8.1 | 38.2 | 1.2 | 4.7 | 3.6 | 3.9 | 1 | | | 0.2 |
| SS | 44.8 | 820001942 | 8.2 | 38.3 | 0.8 | 1.5 | 1.9 | 4.1 | 0.9 | | | 0.1 |
| SH | 55.5 | 820001943 | 8.5 | 81.6 | 1.1 | 1.9 | 4.1 | 3.6 | 4.1 | | | 0.9 |
| SS | 61.6 | 820001944 | 8.1 | 42.4 | 1 | 1.6 | 3.6 | 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

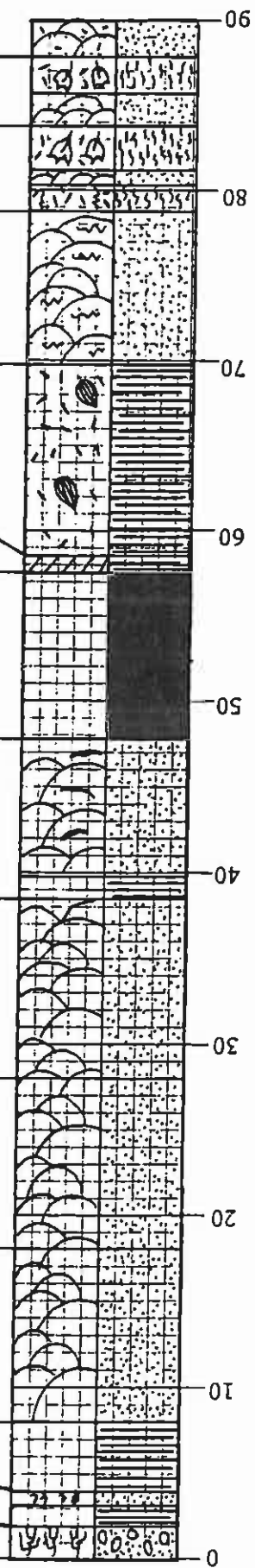
| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture * | | Avail. H2O Cap. | |
|------------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|-----------------|--------|
| | | | | | | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| SO | 8200019333 | 4 | 1.6 | 81.3 | <0.01 | 0.31 | 53.66 | . | 53.35 | 48.4 | 27 | 24.6 | 23 | 19.3 | 13.7 |
| SL | 8200019334 | 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 | 8200019335 | <2 | 1.6 | 61.7 | 0.01 | 0.31 | 26.6 | . | 26.29 | 52.4 | 25 | 22.6 | 22.2 | 7.2 | 15 |
| SH | 8200019336 | 15 | 1.9 | 67.4 | 0.07 | 2.19 | 7.82 | . | 5.63 | 45 | 24.4 | 30.6 | 26.5 | 11 | 15.5 |
| CO | 8200019337 | 265 | 3.1 | 110.7 | 0.39 | 12.19 | 10 | 2.19 | . | 81 | 8.4 | 10.6 | 32.8 | 27.9 | 4.9 |
| SH | 8200019338 | 484 | 1 | 212.8 | 0.46 | 14.38 | 17.26 | 9.67 | 14.76 | 69 | 14.4 | 16.6 | 32.8 | 21.2 | 11.6 |
| SH, SL | 8200019339 | 170 | 3.4 | 362.6 | 0.08 | 2.5 | 9.94 | . | 7.44 | 34 | 29.4 | 36.6 | 28.8 | 13 | 15.8 |
| SH, SS | 820001940 | 69 | 6.6 | 216.6 | 0.08 | 2.5 | 19.21 | . | 16.71 | 23.6 | 36.4 | 18.8 | 15.7 | 11.9 | 15.8 |
| SS | 820001941 | 12 | 0.9 | 51.8 | 0.08 | 2.5 | 5.42 | . | 5.11 | 71.8 | 16 | 12.2 | 15.4 | 3.2 | 12.5 |
| SH | 820001942 | <2 | 1.1 | 51.9 | <0.01 | 0.31 | 15.51 | . | 13.01 | 13.8 | 38.6 | 47.6 | 36.7 | 19.1 | 11.4 |
| SH | 820001943 | 5 | <0.1 | 108.3 | 0.01 | 0.31 | 30.33 | . | 30.02 | 66.8 | 20 | 13.2 | 12.5 | 4.5 | 18.6 |
| SH | 820001944 | 5 | <0.1 | 277.1 | 0.01 | 0.31 | 8.3 | . | 3.61 | 2.8 | 28 | 69.2 | 28.6 | 13.2 | 8 |
| CO | 820001945 | 8 | <0.1 | 172.7 | 0.36 | 11.25 | 8.73 | 2.52 | 31.11 | 72.8 | 9 | 18.2 | 18 | 12.6 | 5.4 |
| SH, CO | 820001946 | 24 | 17.7 | 265.9 | 0.08 | 2.5 | 33.61 | 0.17 | 50.07 | 29 | 36 | 35 | 29.1 | 20.3 | 8.8 |
| SH | 820001947 | 20 | 27.8 | 247.5 | 0.39 | 12.19 | 12.02 | . | 57.2 | 27.7 | 36.2 | 36.1 | 28.1 | 11.3 | 16.8 |
| CO, SH | 820001948 | 17 | 38.3 | 172 | 0.06 | 1.88 | 51.95 | . | 3.61 | 57.2 | 22 | 20.8 | 11.6 | 5.2 | 6.4 |
| SL | 820001962 | 7 | 0.5 | 175.6 | 0.29 | 9.06 | 7.07 | 1.99 | 41.87 | 46.4 | 36.4 | 36.4 | 13.8 | 5.7 | 8.1 |
| LOST | LOST | | | 95.4 | 0.15 | 4.69 | 46.56 | 19.47 | 4.91 | 61.2 | 23.8 | 15 | 9.9 | 4.4 | 5.5 |
| CO | 820001963 | 7 | 1.1 | 151.4 | 0.78 | 24.38 | 47.74 | . | 46.19 | 45.6 | 24.4 | 30 | 20.5 | 4.4 | 16.1 |
| SH, SL | 820001964 | 2 | 0.9 | 116.2 | 0.04 | 1.25 | 7.19 | 8.86 | 33.08 | 49.6 | 29.4 | 21 | 12.8 | 5 | 7.8 |
| SH, CO | 820001965 | 2 | 0.8 | 109.4 | 0.23 | 7.19 | 40.27 | 6.13 | 56.43 | 58.6 | 17.4 | 24 | 15.2 | 5.6 | 9.6 |
| SH, SS | 820001966 | <2 | 2.8 | 174.6 | 1.19 | 37.19 | 28.33 | . | 37.6 | 29.6 | 36.4 | 34 | 18.2 | 7.3 | 10.9 |
| CO | 820001967 | 6 | 0.8 | 120.1 | 0.58 | 18.13 | 12 | 5.379 | 37.6 | 39.6 | 32.4 | 28 | 17.5 | 7.3 | 10.2 |
| SH, SL | 820001968 | 5 | 1.2 | 113 | 0.92 | 28.75 | 85.18 | . | 56.43 | 58.6 | 21.4 | 20 | 14.8 | 5.4 | 9.4 |
| SL, SH | 820001969 | 9 | 2.6 | 128.8 | 0.44 | 13.75 | 51.35 | . | 37.6 | 46.6 | 33.4 | 24 | 11 | 5.4 | 5.6 |
| SL, SH, CO | 820001970 | 8 | 0.8 | 197.5 | 2.3 | 18.88 | 18.09 | . | 37.6 | 17.6 | 42.4 | 40 | 17.5 | 6.8 | 10.7 |
| SS | 820001971 | 8 | 0.8 | 197.5 | 2.3 | 18.88 | 18.09 | . | 37.6 | 17.6 | 42.4 | 40 | 17.5 | 6.8 | 10.7 |
| SH | 820001972 | 10 | 6 | 197.5 | 2.3 | 18.88 | 18.09 | . | 37.6 | 17.6 | 42.4 | 40 | 17.5 | 6.8 | 10.7 |

PEABODY COAL CO., IPANY
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | COAL | |
| SH, SL | 820001939 | 0.4 | <0.01 | 0.1 | <0.6 | 68 | 0.6 | 10.3 | 146.1 | 13.1 | 9.9 | 24.7 | |
| SH, SS | 820001940 | 0.5 | <0.01 | <0.01 | <0.6 | 60 | 0.9 | 0.5 | 57.4 | 8.3 | 9.2 | 2.6 | |
| SS | 820001941 | 0.2 | <0.01 | <0.01 | <0.6 | 17 | 0.1 | 6.5 | 33.3 | 10.7 | 1.6 | 1 | |
| SS | 820001942 | <0.1 | 0.01 | <0.01 | <0.6 | 11 | 0.3 | 1.8 | 19.2 | 6.6 | 1.8 | 0.9 | |
| 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 | 2.3 | |
| SH | 820001945 | 1.4 | 0.01 | 0.39 | <0.6 | <10 | 2.4 | 12.8 | 26.3 | 1 | 20.1 | 1.6 | |
| CO | COAL | | | | | | | | | | | 5.7 | |
| 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, SL | 820001969 | 0.6 | <0.01 | 0.13 | <0.6 | <10 | 7 | 5.7 | 195.7 | 9.5 | 14.4 | COAL | |
| SL, SL | 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 | COAL | |
| SH | 820001972 | 1.8 | <0.01 | 0.05 | <0.6 | <10 | 10.9 | 6.6 | 313.6 | 50.1 | 12.8 | 9 | |



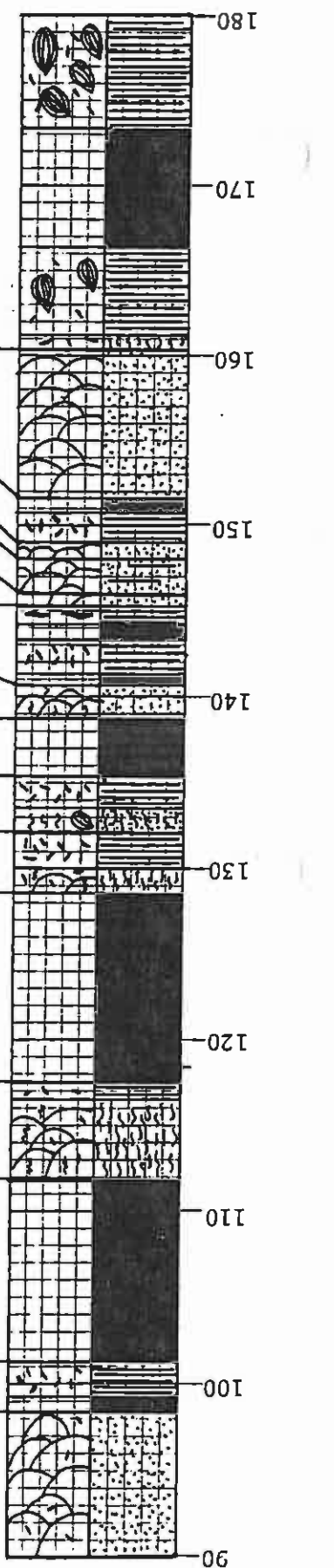
LOCATION S 10962.0
 E 31383.0
 ELEVATION . 6729.5
 -23161C-

DATE DRILLED 11-3-81

SUB AREA N-6

| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | PH |
|---------------|------------------|----------|----------|----------|-------|-------|
| R-82-1973 | 53.3 | 1.2 | 1.5 | 2.2 | 1.2 | 8.2 |
| R-82-1974 | 65.7 | 3.4 | 5.9 | 1.7 | 4.4 | 8.5 |
| R-82-1975 | 65.9 | 5.3 | 27.6 | 15.8 | 37.6 | 8.1 |
| R-82-1976 | 44.3 | 6.3 | 15.7 | 1.9 | 10.4 | 8.4 |
| R-82-1977 | 40.2 | 4.7 | 8.2 | 1.2 | 4.8 | 8.6 |
| R-82-1978 | 46.6 | 4.8 | 9.3 | 1.4 | 6.1 | 8.3 |
| R-82-1979 | 44.5 | 5.6 | 9.8 | 2.2 | 3.9 | 8.4 |
| (82-888R) GXX | (N/A) | (8.57) | | (12.487) | | (8.1) |
| R-82-1980 | 50.3 | 17.8 | 12.6 | 0.2 | 0.8 | 8.6 |
| R-82-1981 | 56.0 | 12.4 | 12.7 | 0.9 | 1.2 | 9.1 |
| R-82-1982 | 30.2 | 16.4 | 14.2 | 0.3 | 1.2 | 9.1 |
| R-82-1983 | 37.1 | <0.10 | 14.6 | 0.1 | <0.1 | 9.1 |
| R-82-1984 | 30.2 | 39.4 | 22.1 | 0.3 | 0.5 | 9.0 |
| | | 323 | | | | |

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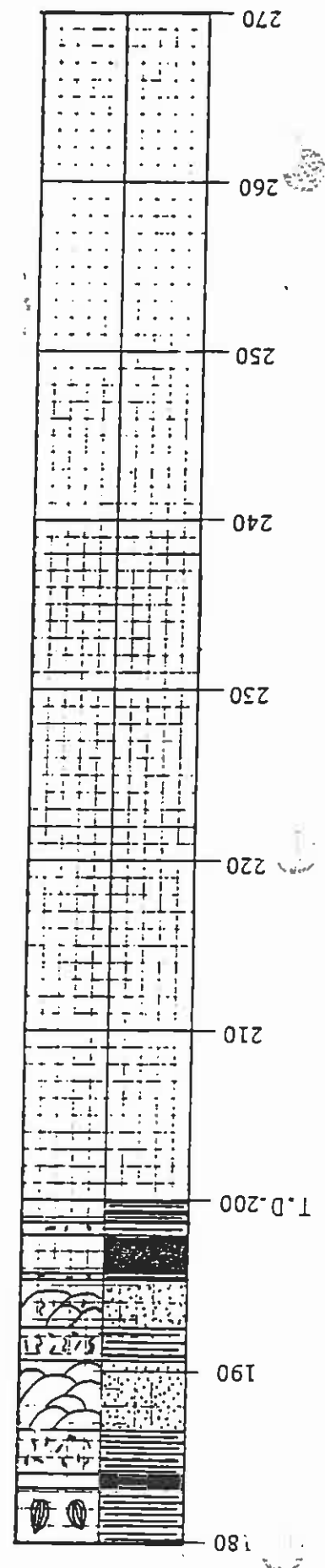
FILE NO. 23161C
 LOCATION S 10962.0 E 31383.0
 ELEVATION 6729.5

| DEPTH (cm) | SAMPLE NO. | SATURATION & SAR | SOL. Na. (ASH) | SOL. Ca. (BTU) | SOL. Mg | %S | pH |
|------------|-------------------|------------------|----------------|----------------|---------|--------|-------|
| 90 | R-82-1985 | 30.5 | 40.2 | 29.8 | 0.6 | 0.5 | 8.5 |
| 100 | R-82-1986 | 44.6 | 51.7 | 30.6 | 0.4 | 0.3 | 8.1 |
| 110 | (82-889-R) BXX | (N/A) | (8.97) | (12,439) | | (0.52) | (8.1) |
| 120 | (82-890-R) RXX | (N/A) | (5.15) | (12,971) | | (0.56) | (8.1) |
| 130 | R-82-1988 | 47.3 | 32.9 | 51.5 | 3.4 | 1.5 | 7.7 |
| 135 | R-82-1989 | 38.4 | 18.5 | 42.7 | 6.7 | 4.0 | 7.3 |
| 140 | (82-891-R) MXX | (N/A) | (5.60) | (12,909) | | (0.70) | (8.3) |
| 145 | R-82-1990 | 42.4 | 21.6 | 25.1 | 2.2 | 0.5 | 6.9 |
| 150 | R-82-1991 | 50.1 | 28.1 | 33.8 | 2.6 | 0.3 | 6.7 |
| 155 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 155 | R-82-1992 | 34.3 | 33.8 | 21.4 | 0.3 | 0.5 | 8.6 |
| 155 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 155 | R-82-1993 | 41.2 | 23.1 | 51.5 | 7.7 | 2.2 | 7.3 |
| 160 | R-82-1994 | 32.2 | 31.2 | 24.2 | 0.8 | 0.4 | 8.9 |
| 170 | YXX | | | | | | |
| 180 | | | | | | | |

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DRILLER J. Elliott
 DATE DRILLED 11-3-81
 SUB AREA N-6
 PAGE 2



LOCATION S 10962.0
 E 31383.0
 ELEVATION 6729.5
 23161C

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SEP 3 1986

DATE DRILLED 11-3-81
 SUB AREA N-6
 SAMPLE NO. (MOISTURE) SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) &S pH

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|--|--|-----|-------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 | | | | 5.4 |
| 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

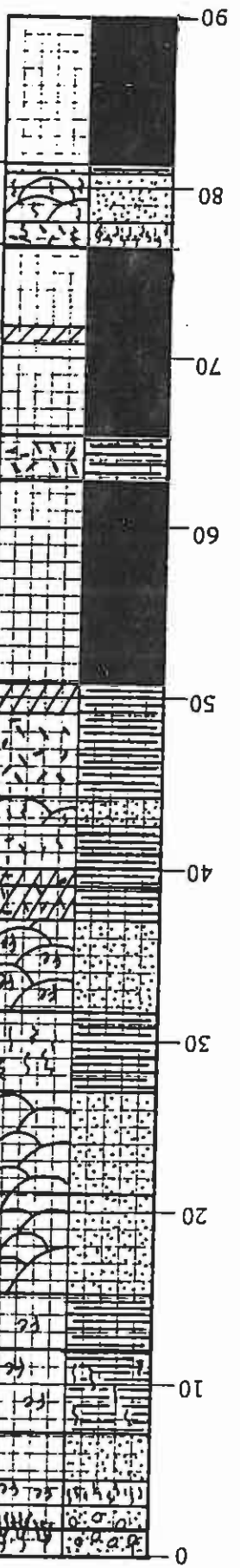
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | | % Moisture | | Avail. H2O Cap. |
|-----------|------------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|------------|------------|------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SO | 8200019773 | 17 | 2.3 | 216.6 | 0.02 | 0.63 | 66.18 | 10.5 | 6.75 | 35.6 | 32.4 | 32 | 23.4 | 10.1 | 13.3 | |
| SH,SS | 8200019774 | <2 | 1.2 | 206.3 | 0.06 | 1.88 | 44.87 | 17 | 14.19 | 39.6 | 24.4 | 36 | 25.8 | 10.7 | 15.1 | |
| SH | 8200019775 | <2 | 1.3 | 149.1 | 0.1 | 3.13 | 31.58 | 17 | 28.45 | 32.6 | 26.4 | 41 | 26.7 | 12.1 | 14.6 | |
| SS | 8200019776 | 8 | 1.8 | 61.6 | 0.03 | 0.94 | 13.91 | 13.01 | 12.97 | 59.6 | 18.4 | 22 | 16.3 | 5.7 | 10.6 | |
| SS | 8200019777 | 5 | 1.3 | 65 | <0.01 | 0.31 | 87.52 | 13.13 | 87.21 | 73.6 | 14.4 | 12 | 11.4 | 2.9 | 8.5 | |
| SS | 8200019778 | 7 | 0.8 | 95.5 | 0.03 | 0.94 | 16.34 | 19.88 | 15.4 | 58.6 | 19.4 | 22 | 15.6 | 4.7 | 10.9 | |
| SH,SS | 8200019779 | 7 | 0.6 | 100.7 | 0.06 | 1.88 | 26.59 | 11.64 | 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 COR'D: 12SEP1981
DATE REPORTED: 16FEB1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|----------|-------------------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | | |
| SH, SS | 820001978 | <0.1 | <0.01 | <0.01 | <0.6 | 23 | 0.2 | 2.2 | 21.3 | 5.4 | 1.6 | 0.8 | | |
| CO | 820001979 | <0.1 | <0.01 | <0.01 | <0.6 | 15 | 0.4 | 2.3 | 37.2 | 4 | 4.6 | 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 | 820001987 | 0.2 | 0.02 | 0.11 | <0.6 | <10 | 2.1 | 4.5 | 74 | 4.4 | 15.5 | 4.6 | | |
| 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 | | |

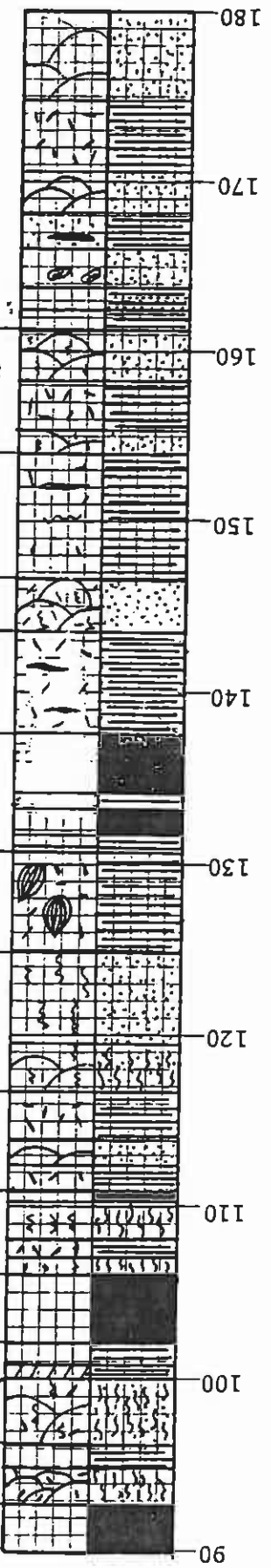


LOCATION S 1478.0
 E 30860.0
 ELEVATION 6646.8
 DATE DRILLED 9/21/81
 SUB AREA N-6

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |
| (82-892-R) GXX | (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 |
| (32-893-R) BXX | (N/A) | (13.13) | (11,747) | | | (0.52) | (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) |

3 1986
 SEP

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| ELEVATION | SAMPLE NO. | SATURATION % | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | pH |
|-----------|-------------------|--------------|--------|---------|----------|--------|--------|
| | | (MOISTURE) | (ASH) | (BTU) | | | |
| 90 | | | | | | | |
| | 820002009 | 41.1 | 27.1 | 37.3 | 2.5 | 1.3 | 0.67 |
| | 820002010 | 44.2 | 10.9 | 29.8 | 9.8 | 5.1 | 0.30 |
| 100 | 820002011 | 41.0 | 54.1 | 32.0 | 0.4 | 0.3 | 0.62 |
| | (82-896-R) MXX | (N/A) | (5.79) | | (12,911) | | (0.73) |
| 110 | 820002012 | 42.7 | 15.8 | 45.8 | 11.6 | 5.1 | 0.90 |
| | 820002013 | 42.6 | 33.7 | 54.3 | 3.3 | 1.9 | 1.25 |
| 120 | 820002014 | 31.4 | 35.3 | 22.3 | 0.4 | 0.4 | 0.09 |
| | 820002015 | 42.4 | 34.1 | 52.2 | 2.8 | 1.9 | 1.30 |
| | YXX | | | | | | |
| 140 | 820002016 | 40.4 | 54.1 | 32.0 | 0.4 | 0.3 | 0.71 |
| | 820002017 | 48.2 | 20.8 | 44.8 | 5.0 | 4.3 | 0.83 |
| 150 | 820002018 | 48.8 | 51.2 | 45.8 | 1.0 | 0.6 | 0.85 |
| | 820002019 | 36.0 | 30.7 | 20.6 | 0.5 | 0.4 | 0.08 |
| 160 | | | | | | | 9.0 |
| 170 | | | | | | | |
| 180 | | | | | | | |

FILE NO. 23162C

LOCATION S 14478.0

E 30860.0

ELEVATION 6646.8

DRILLER Jim Elliott

DATE DRILLED 9/21/81

SUB AREA N-6

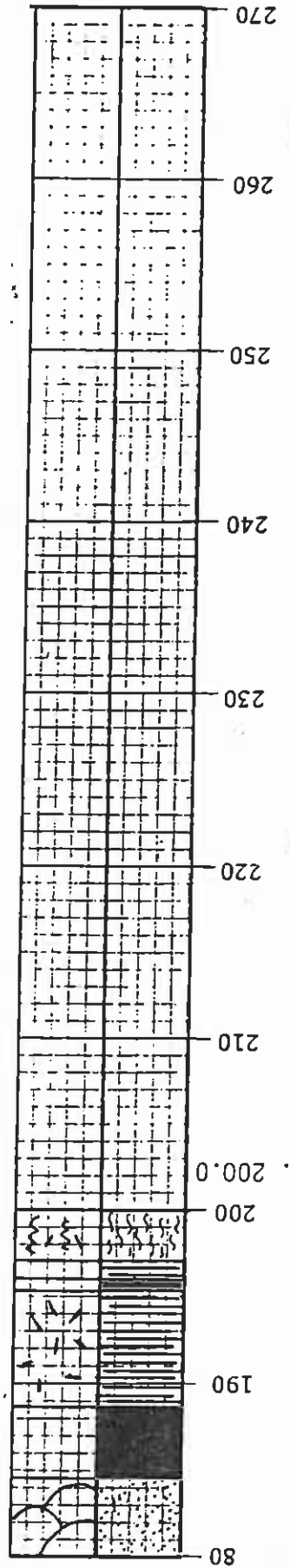
PAGE 2

SEP 3 1986

SEP 3 1986

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NOX



LOCATION S 14478.0
 E 30860.0
 ELEVATION 6646.8

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

DATE DRILLED 9/21/81 SUB AREA N-6

PEABODY COAL JAPAN
CENTRAL LABORATORY

MINE: 025U BLACK MESA J-1/N-6
CORE NO: 23162C
DATE CORED: 21SEP1981
DATE REPORTED: 16FEB1985

#Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP |
|------------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| SO | 0 | 820001995 | 8.2 | 48.9 | 0.4 | 1 | 2.7 | 0.6 | 0.8 | | | -0.1 |
| SL, SS | 1.5 | 820001996 | 8.3 | 40.5 | 0.4 | 1.2 | 1.7 | 0.9 | 1.1 | | | 0.3 |
| SH | 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 | 0.5 | 0.5 | 1.5 | 9.1 | | | 10.8 |
| SH | 21.1 | 820002001 | 8.3 | 34.1 | 1 | 1.4 | 1.4 | 1.8 | 4.6 | | | 5.3 |
| SS | 27 | 820002002 | 8.3 | 56.8 | 1.1 | 5.8 | 1.6 | 2.3 | 4.8 | | | 5.5 |
| SH | 31.6 | 820002003 | 8.4 | 36.1 | 1.3 | 6.7 | 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 | 70.9 | 820002194 | 8.2 | 59.7 | 0.7 | 7.7 | 0.3 | 0.3 | 14.1 | | | 16.3 |
| SH | 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 |
| SH | 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

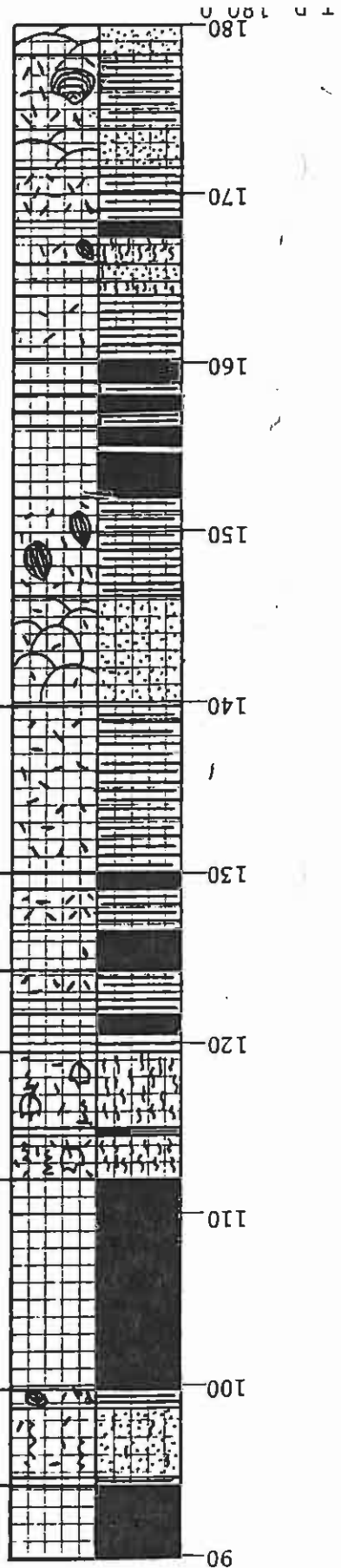
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|-----------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 | 21.8 | 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 |
| SH | 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 |
| SH,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 | 21.04 | 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 | 9.73 | . . . | 49.8 | 29 | 21.2 | 16.8 | 8.3 | 8.5 |
| SH | 820002018 | 7 | 3.3 | 130.3 | 0.85 | 26.56 | 16.83 | . . . | . . . | 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 - JAPAN
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TANM Mo PPM | * Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | <0.6 | <10 | 0.2 | 1.3 | 48.4 | 5.3 | 3.9 | 1.7 | |
| 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 | COAL | |
| 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 | |



OLE NO. 23163C
 LOCATION S 14518.0
 E 29672.0
 ELEVATION 6637.9

DRILLER Jim Elliott

DATE DRILLED 9/28/81

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SUB AREA N-6

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

| DEPTH (FEET) | SAMPLE NO. | (MOISTURE) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | %S | pH |
|--------------|------------|------------|--------|---------|----------|--------|--------|-------|
| 90 | | | | | | | | |
| 100 | 820002148 | 42.2 | 12.8 | 24.4 | 4.9 | 2.4 | 0.41 | 7.4 |
| 105 | RXX | | | | | | | |
| 110 | (82-901-R) | (N/A) | (4.71) | | (12,993) | | (0.45) | (7.8) |
| 120 | 820002149 | 42.4 | 23.3 | 51.5 | 6.7 | 3.1 | 0.62 | 6.9 |
| 130 | 820002150 | 41.4 | 35.0 | 37.5 | 1.7 | 0.6 | 0.69 | 7.4 |
| 140 | 820002151 | 45.8 | 56.3 | 35.6 | 0.5 | 0.3 | 0.72 | 6.9 |
| 150 | 820002152 | 40.5 | 42.3 | 41.2 | 1.2 | 0.7 | 0.72 | 6.9 |
| 160 | | | | | | | | |
| 170 | | | | | | | | |
| 180 | | | | | | | | |

SEP 3 1986

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PEABODY COAL, JAPAN
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CACO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture | | Avail. H2O H2O Cap. | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|------------|------------|------------------------------|-----------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| 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 | 23 | 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 | 11 | 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 | 8 | 1.8 | 135.7 | 0.03 | 0.94 | 45.09 | 15.32 | 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 | 4.82 | 4.82 | 15.6 | 30 | 7.7 | 16 | 13.9 | 2.1 |
| SH | 820002144 | 8 | 1.6 | 286.2 | 0.27 | 8.44 | 13.26 | 7.41 | 7.41 | 79 | 8 | 54.4 | 35.9 | 17.7 | 18.2 |
| CO | 820002145 | 6 | 1.6 | 93.7 | 0.48 | 15 | 7.59 | . | 7.59 | 12 | 29 | 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 | 5 | 1.1 | 186.2 | 0.24 | 7.5 | 15.02 | . | 7.52 | 51 | 14 | 35 | 20.3 | 11.7 | 8.6 |
| 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 | 7 | 0.9 | 104.8 | 0.62 | 19.38 | 20.38 | . | 18.56 | 44 | 41 | 15 | 11.2 | 6.2 | 5 |
| SH, CO | 820002150 | 5 | 1.3 | 117.4 | 0.69 | 21.56 | 40.12 | . | 69 | 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 | 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 REFORIED: 27FEB1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg # PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | COAL | |
| 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 | |

23164C

LOCATION S 14387.0

E 27885.0

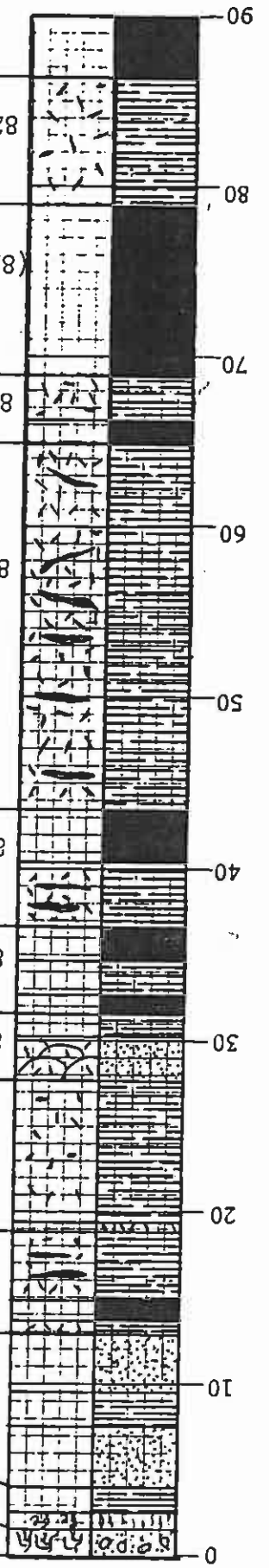
ELEVATION 6607.2

DATE DRILLED 10/7/81

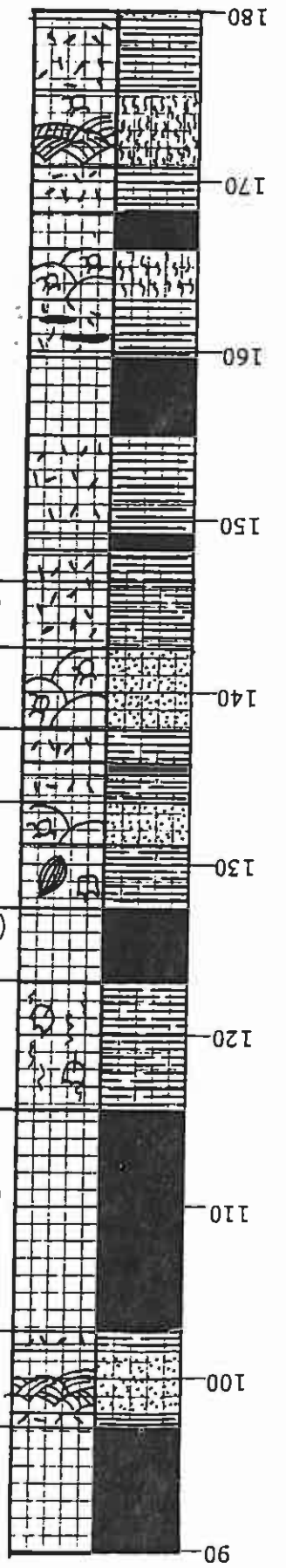
SUB AREA N-6

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

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |
| (82-902-R) GXX | (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 |



SEP 3 1986



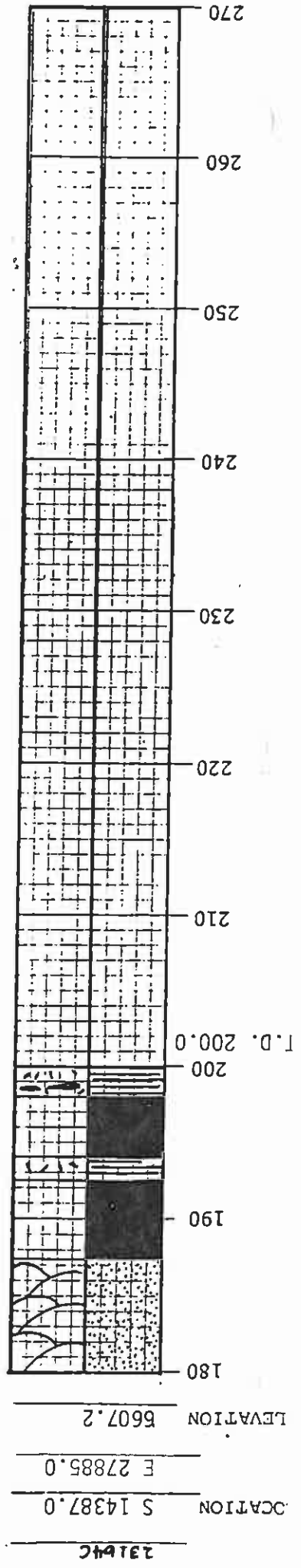
HOLE NO. 23164C
 LOCATION S 14387.0 E 27885.0
 ELEVATION 6607.2

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

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SEP 3 1986

DRILLER Jim Elliott
 DATE DRILLED 10/7/81
 SUB AREA N-6
 PAGE 2



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SEP 3 1986

| | |
|--------------|---------|
| DATE DRILLED | 10/7/81 |
| SUB AREA | N-6 |
| SAMPLE NO. | 6607.2 |
| SATURATION % | |
| SAR | |
| SOL.Na. | |
| SOL.Ca. | |
| SOL.Mg | |
| (BTU) | |
| % | |
| pH | |

LOCATION S 14387.0
 E 27885.0
 LEAVATION 6607.2

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| SO | 0 | 820002153 | 8.1 | 52.7 | 0.5 | 2.1 | 1.4 | 1.6 | 1.7 | | | | 1.2 |
| SL, SII | 1.5 | 820002154 | 8.1 | 40.4 | 1.8 | 9.2 | 3 | 7.6 | 4 | | | | 4.4 |
| SS, SII | 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 |
| CO, SH | 43.4 | 820002161 | 8.2 | 48.6 | 2.3 | 22.8 | 0.5 | 1.2 | 24.3 | | | | 25.7 |
| SH | 64.8 | 820002162 | 7.7 | 43.2 | 2.1 | 21.5 | 0.6 | 0.5 | 29 | | | | 29.3 |
| CO, SH | 68.8 | COAL | | | | | | | | | | | |
| SH | 79.8 | 820002163 | 8.2 | 40.5 | 2.2 | 22 | 0.5 | 0.7 | 28.4 | | | | 28.9 |
| CO | 86.3 | COAL | | | | | | | | | | | |
| CO | 86.3 | 820002164 | 7.4 | 40.1 | 3 | 25.3 | 3.9 | 2.1 | 14.6 | | | | 16.9 |
| SH, SS | 97.1 | COAL | | | | | | | | | | | |
| CO | 102.7 | 820002165 | 7.2 | 40.5 | 4.5 | 41.9 | 4.8 | 2.6 | 21.8 | | | | 23.6 |
| SH | 115.5 | COAL | | | | | | | | | | | |
| CO | 123 | 820002166 | 7.5 | 36.7 | 4.2 | 41.8 | 0.6 | 0.4 | 59.1 | | | | 46.2 |
| SH, SS | 127.3 | 820002167 | 6.9 | 48.8 | 5.8 | 58.8 | 3.2 | 1.7 | 37.6 | | | | 35.2 |
| SS | 133.6 | 820002168 | 8.5 | 32.1 | 3.2 | 32.9 | 0.7 | 0.6 | 40.8 | | | | 37.1 |
| SH, CO | 137.8 | 820002169 | 7 | 46.6 | 5.2 | 51.9 | 1.6 | 1.1 | 44.7 | | | | 39.3 |
| SH | 142.5 | | | | | | | | | | | | |

PEABODY COAL IPANY
CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:2316HC
DATE CORLD:07OCT1981
DATE REPORTED:27FEB1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture # | | Avail. H2O H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|------------------------------|
| | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | |
| 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 | 5.5 |
| SS, SH | 820002155 | <2 | 2.5 | 33.5 | <0.01 | 0.31 | 19.05 | 18.74 | 64 | 19 | 17 | 14.1 | 9.7 | 5.4 |
| 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 | . | 66 | 12 | 22 | 17.3 | 13.9 | 3.4 |
| CO, SH | 820002160 | 10 | 1.7 | 222.7 | 0.67 | 20.94 | 20.61 | 0.33 | 67 | 12 | 21 | 19 | 15.8 | 3.2 |
| SH, CO | 820002161 | 7 | 1.7 | 256.4 | 0.11 | 3.44 | 37.95 | . | 27 | 36 | 37 | 26 | 19.7 | 6.3 |
| CO, SH | 820002162 | 7 | 0.9 | 162.4 | 0.33 | 10.31 | 53.61 | . | 57 | 19 | 24 | 20.2 | 10.1 | 10.1 |
| CO | COAL | 6 | 1.2 | 237 | 0.15 | 4.69 | 56.46 | 51.77 | 42 | 28 | 30 | 23.9 | 14.8 | 9.1 |
| SH | COAL | 4 | 1.3 | 88.9 | 0.49 | 15.31 | 97.4 | 82.09 | 71 | 23 | 6 | 14.2 | 4.7 | 9.5 |
| SH, SS | 820002164 | 4 | 0.9 | 100 | 0.65 | 20.31 | 39.05 | . | 70.5 | 19.8 | 9.7 | 10.7 | 5.6 | 5.1 |
| CO | 820002165 | 4 | 0.9 | 100 | 0.65 | 20.31 | 39.05 | . | 70.5 | 19.8 | 9.7 | 10.7 | 5.6 | 5.1 |
| SH, CO | COAL | 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, SS | 820002166 | 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 | 820002167 | 5 | 1.2 | 85 | 0.08 | 2.5 | 57.39 | 54.89 | 68.8 | 14 | 17.2 | 8.2 | 3.9 | 4.3 |
| SH | 820002168 | 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 MPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 23164C
DATE CORLD: 070CT1981
DATE REPORTED: 27FEB1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DIPA Extract * | | | | | | | Organic * Matter % |
|-----------|-----------|----------------|-----------|-----------|-------------------|-------------------|-----------|-----------|-----------|-----------|-----------|------|-----------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | # Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | COAL | |
| SS, SH | 820002158 | 0.5 | <0.01 | 0.05 | <0.6 | 12 | 1.5 | 2.7 | 72.1 | 5.3 | 9 | 7.9 | |
| CO, SH | 820002159 | 2.6 | <0.01 | 0.15 | <0.6 | <10 | 1.1 | 5.9 | 27.9 | 1.1 | 4.6 | COAL | |
| SH, CO | 820002160 | 2.4 | <0.01 | 0.15 | <0.6 | <10 | 1 | 7.6 | 47.5 | 1 | 4.6 | COAL | |
| SH, CO | 820002161 | 0.6 | 0.29 | <0.01 | <0.6 | 29 | 2.1 | 7.7 | 40.5 | 3.2 | 15 | COAL | |
| CO, SH | 820002162 | 1.2 | 0.02 | 0.21 | <0.6 | <10 | 1.6 | 5 | 27.8 | 1 | 7.6 | COAL | |
| SH | 820002163 | 0.5 | 0.12 | 0.27 | <0.6 | 13 | 1.1 | 4.5 | 27.3 | 1 | 11.9 | 7.2 | |
| CO | 820002164 | 0.5 | <0.01 | 0.08 | <0.6 | 16 | 2.7 | 3.3 | 75.2 | 2.6 | 12.3 | 6.1 | |
| SH, SS | 820002165 | 0.6 | <0.01 | 0.07 | <0.6 | <10 | 1.7 | 2.9 | 83.5 | 4.7 | 4.8 | 8.3 | |
| CO | 820002166 | 1 | 0.01 | 0.07 | <0.6 | <10 | 2.9 | 4.1 | 49.7 | 3.7 | 9.3 | 7.9 | |
| SH, SS | 820002167 | 0.7 | <0.01 | 0.04 | <0.6 | <10 | 7.9 | 7.6 | 222.1 | 15.9 | 12.6 | COAL | |
| SH, CO | 820002168 | 0.3 | <0.01 | 0.05 | <0.6 | 12 | 1.6 | 3.3 | 96.4 | 7.2 | 7.1 | 2.9 | |
| SS | 820002169 | 0.3 | <0.01 | <0.01 | <0.6 | 18 | 6.4 | 5.9 | 215.1 | 28.1 | 10.7 | 7.6 | |

23195C

LOCATION S 12807.0

E 29521.0

ELEVATION 6664.7

DATE DRILLED 10-21-81

SUB-AREA N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (MOISTURE) (ASH) (BTU)

pH

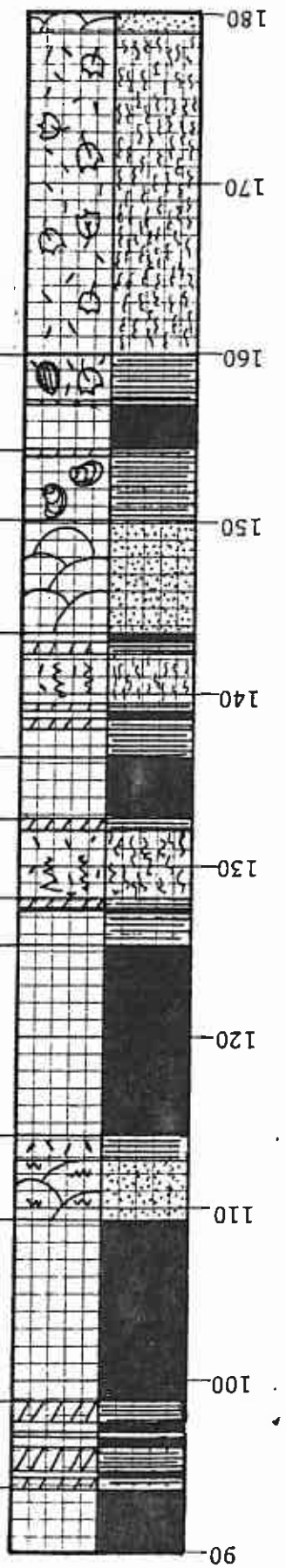
| SAMPLE NO. | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (MOISTURE) | (ASH) | (BTU) | pH |
|------------|-------|---------|----------|--------|------------|-------|--------|-------|
| 820002170 | 50.7 | 1.0 | 1.4 | 1.0 | 0.9 | 1.0 | 1.0 | 8.2 |
| 820002171 | 56.8 | 4.0 | 1.0 | 1.5 | 3.6 | 1.0 | 1.5 | 8.4 |
| 820002172 | 58.7 | 4.1 | 14.3 | 10.0 | 4.1 | 14.3 | 13.8 | 8.0 |
| 820002173 | 71.8 | 3.5 | 11.9 | 10.9 | 3.5 | 11.9 | 12.3 | 7.9 |
| 820002174 | 55.1 | 2.0 | 9.5 | 28.9 | 2.0 | 9.5 | 18.4 | 7.0 |
| 820002175 | 56.5 | 3.0 | 16.2 | 26.6 | 3.0 | 16.2 | 31.8 | 4.0 |
| 820002176 | 48.7 | 2.6 | 10.1 | 9.7 | 2.6 | 10.1 | 20.5 | 7.3 |
| 820002177 | 40.2 | 2.7 | 7.3 | 3.8 | 2.7 | 7.3 | 11.3 | 8.0 |
| 820002178 | 64.5 | 8.2 | 34.9 | 23.4 | 8.2 | 34.9 | 12.7 | 4:1 |
| 820002179 | 68.5 | 28.9 | 57.8 | 4.7 | 28.9 | 57.8 | 3.3 | 6.7 |
| 820002180 | 52.9 | 38.6 | 25.9 | 0.4 | 38.6 | 25.9 | 0.5 | 8.9 |
| 820002181 | 36.2 | 20.9 | 20.4 | 1.3 | 20.9 | 20.4 | 0.6 | 8.7 |
| 820002182 | 36.1 | 20.3 | 20.3 | 1.3 | 20.3 | 20.3 | 0.7 | 8.6 |
| 820002183 | 36.1 | 23.5 | 17.4 | 0.6 | 23.5 | 17.4 | 0.5 | 8.5 |
| 820002184 | 40.3 | 33.3 | 19.7 | 0.5 | 40.3 | 19.7 | 0.2 | 8.4 |
| (82-906-R) | (N/A) | (4.83) | (13,014) | | | | (0.68) | (8.1) |
| 820002185 | 76.1 | 45.1 | 31.9 | 0.5 | 76.1 | 31.9 | 0.25 | 8.1 |

GXX

VIX

SEP 3 1986

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HOLE NO. 23165C
 LOCATION S 12807.0 E 29521.0
 TELEPHONE 6664.7

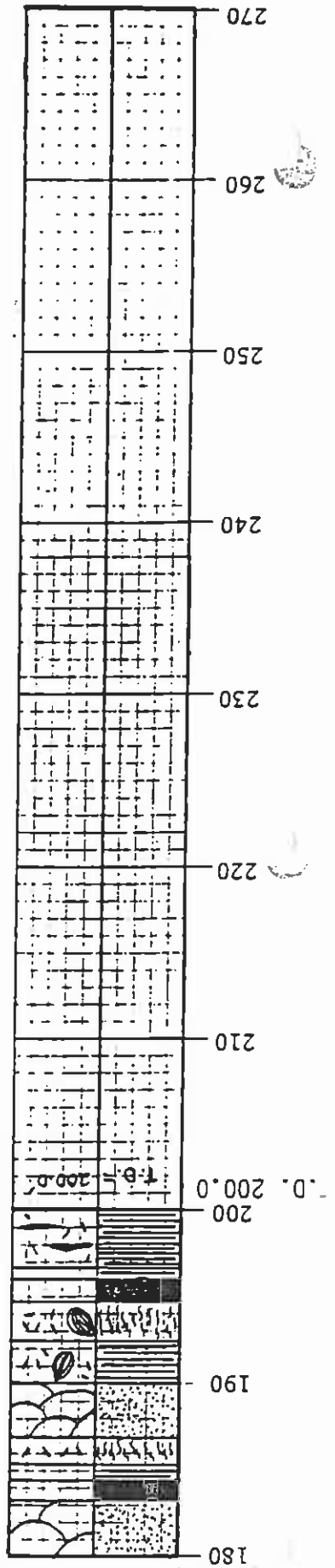
DRILLER J. Elliott
 DATE DRILLED 10-21-81
 SUB AREA N-6
 PAGE 2

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

| | | | | | | | | |
|------------|-------|--------|----------|-----|-----|--------|-----|-------|
| 820002186 | 50.0 | 29.8 | 14.9 | 0.2 | 0.3 | 0.40 | 7.9 | (8.0) |
| (82-907-R) | (N/A) | (6.97) | (12,643) | | | (0.48) | | (8.0) |
| 820002187 | 47.3 | 13.2 | 31.4 | 7.5 | 3.8 | 0.51 | 7.4 | |
| (82-908-R) | (N/A) | (9.97) | (12,167) | | | (0.58) | | (8.0) |
| RXX | (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 | |
| (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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SEP 3 1986



LOCATION S 12807.0
 23165C
 DATE DRILLED 10-21-81
 SUB AREA N-6
 LOCATION E 29521.0
 DEPTH 6664.7
 SAMPLE NO.

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg
 (MOISTURE) (ASH) (BTU)

pH &

SEP 3 1986

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PEABODY COAL COMPANY
CENTRAL LABORATORY

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

#Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 |
| SS, SH | 6.8 | 820002173 | 7.9 | 71.8 | 3 | 11.9 | 10.9 | 12.3 | 3.5 | | | | 3.8 |
| SH, SHI | 13.8 | 820002174 | 7 | 55.1 | 4.8 | 9.5 | 28.9 | 18.4 | | | | | 1.7 |
| CO, SH | 18.4 | 820002175 | 4 | 56.5 | 6.1 | 16.2 | 26.6 | 31.8 | 2 | | | | 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 | | | | 2.7 |
| SH | 35.3 | 820002179 | 6.7 | 68.5 | 6 | 57.8 | 4.7 | 3.3 | 28.9 | | | | 9.8 |
| SH, SS | 44 | 820002180 | 8.9 | 52.9 | 2.7 | 25.9 | 0.4 | 0.5 | 38.6 | | | | 29.3 |
| SS | 49.4 | 820002181 | 8.7 | 36.2 | 2.4 | 20.4 | 1.3 | 0.6 | 20.9 | | | | 35.8 |
| SS | 59.4 | 820002182 | 8.6 | 36.1 | 2.3 | 20.3 | 1.3 | 0.7 | 20.3 | | | | 22.8 |
| SS, SS | 69.4 | 820002183 | 8.5 | 36.1 | 1.9 | 17.4 | 0.6 | 0.5 | 23.5 | | | | 22.3 |
| SH, SS | 76.1 | 820002184 | 8.4 | 40.3 | 2.1 | 19.7 | 0.5 | 0.2 | 33.3 | | | | 25 |
| CO | 79.7 | COAL | | | | | | | | | | | 32.4 |
| 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

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CACO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture # | | |
|------------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|---------------------|
| | | | | | | Amount Req'd. 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 | 0.65 | 19.38 | 10.57 | . | 8.81 | 75.6 | 5 | 19.4 | 21.7 | 15.3 | 6.4 |
| SH | 820002179 | 15 | 2 | 327.4 | 0.03 | 20.31 | 12.42 | 7.89 | 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 | 37.6 | 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 |
| 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 | 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 |
| SH, CO | 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 |
| SS, SH | 820002188 | 9 | 1.1 | 129.6 | 0.9 | 28.13 | 7.46 | 20.67 | 30.54 | 29.4 | 38.8 | 31.8 | 20.3 | 7.5 | 12.8 |
| SH, CO | 820002189 | <2 | 2.6 | 62.8 | 0.6 | 18.75 | 49.29 | . | 49.29 | 56.4 | 30.2 | 13.4 | 16.6 | 4 | 12.6 |
| 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 |
| SH, SL, CO | 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 | 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 COR'D: 12OCT1981
DATE REPORTED: 27FEB1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------------|----------|--------|--------|--------|--------|--------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | * Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| 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 | COAL |
| SS | 820002177 | 0.3 | <0.01 | 0.01 | <0.6 | 19 | 0.2 | 2 | 26.5 | 5.2 | 2.3 | 1.8 |
| SH,CO | 820002178 | 5.7 | <0.01 | 0.18 | <0.6 | 14 | 1.3 | 7 | 97.2 | 4.2 | 7.4 | 1.1 |
| SH,CO | 820002179 | 5 | <0.01 | 0.23 | <0.6 | 23 | 1.3 | 7 | 26.5 | 5.2 | 2.3 | COAL |
| SH,SS | 820002180 | 1.2 | 0.08 | 0.13 | <0.6 | 25 | 2.5 | 9.9 | 140.9 | 2.8 | 14.6 | 8.5 |
| SS | 820002181 | 0.8 | 0.1 | 0.05 | <0.6 | 14 | 1.4 | 4.7 | 42.6 | 1.7 | 11.8 | 2.2 |
| SS | 820002182 | 1.3 | 0.09 | 0.02 | <0.6 | <10 | 0.9 | 1.9 | 46.5 | 3.7 | 9.3 | 1.3 |
| SS | 820002183 | 1 | <0.01 | <0.01 | <0.6 | 11 | 0.6 | 1.8 | 51.6 | 4.2 | 6.9 | 1.1 |
| SH,SS | 820002184 | 1.3 | 0.25 | 0.13 | <0.6 | 19 | 2.6 | 3.4 | 58.7 | 4.5 | 6.1 | 3.4 |
| CO | COAL | | | | | | | | 38.4 | 4.6 | 13.7 | 4.5 |
| 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 | COAL |
| 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 |

23166c

LOCATION S 8854.0

E 3209.0

ELEVATION 6798.6

DATE DRILLED

12-10-81

SUB AREA N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)

SAMPLE NO. (MOISTURE) (ASH)

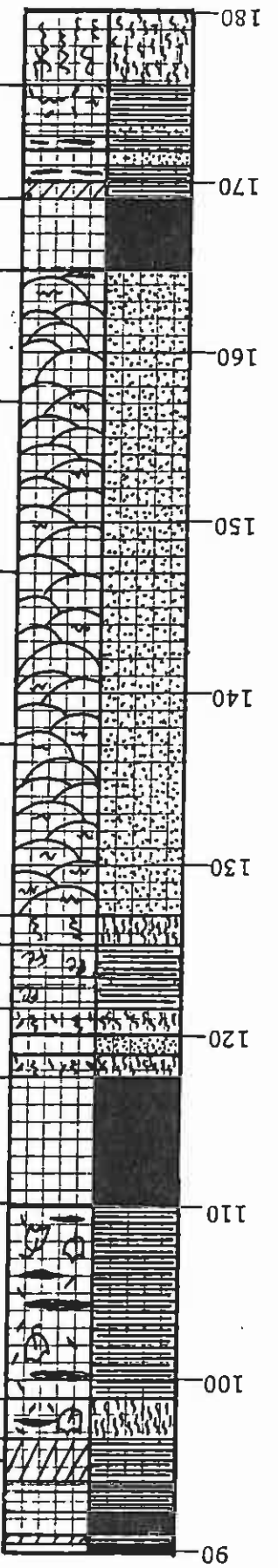
SS pH

| | | | | | | | | |
|----|------------|-------|---------|------|----------|------|--------|-------|
| 90 | (82-914-R) | (N/A) | (11.54) | | (11,767) | | (0.52) | (7.8) |
| | G1X | | | | | | | |
| | R-82-2207 | 60.9 | 8.7 | 20.1 | 6.3 | 4.3 | 0.87 | 7.5 |
| | (82-913-R) | (N/A) | (5.94) | | (12,938) | | (0.67) | (7.6) |
| | G0X | | | | | | | |
| 80 | R-82-2206 | 69.0 | 30.8 | 28.4 | 1.1 | 0.6 | 0.13 | 8.6 |
| | (N/A) | (N/A) | (N/A) | | (N/A) | | (N/A) | (N/A) |
| | V1X | | | | | | | |
| 70 | R-82-2205 | 63.4 | 25.1 | 32.3 | 2.2 | 1.1 | 0.23 | 8.1 |
| | (82-911-R) | (N/A) | (11.51) | | (11,986) | | (0.66) | (7.2) |
| | VOX | | | | | | | |
| | R-82-2204 | 65.7 | 5.6 | 8.8 | 3.1 | 1.9 | 0.65 | 7.3 |
| | R-82-2203 | 38.3 | 5.4 | 6.9 | 1.9 | 1.4 | 0.01 | 8.3 |
| 60 | R-82-2202 | 51.7 | 7.9 | 16.1 | 4.7 | 3.7 | 0.10 | 7.9 |
| | R-82-2201 | 63.0 | 4.9 | 9.0 | 3.6 | 3.2 | 0.14 | 7.5 |
| 50 | R-82-2200 | 49.0 | 2.0 | 6.0 | 6.9 | 11.7 | 0.01 | 8.1 |
| | R-82-2199 | 63.0 | 1.9 | 6.8 | 9.6 | 14.8 | 0.01 | 6.9 |
| 40 | R-82-2198 | 67.3 | 2.8 | 7.3 | 5.5 | 8.4 | 0.01 | 5.1 |
| 30 | R-82-2197 | 77.1 | 3.2 | 6.5 | 2.7 | 5.7 | 0.01 | 8.0 |
| 20 | R-82-2196 | 81.1 | 3.6 | 7.4 | 1.9 | 6.5 | 0.01 | 8.5 |
| 10 | R-82-2195 | 52.6 | 0.7 | 0.9 | 2.7 | 1.1 | 0.01 | 8.2 |
| 0 | | | | | | | | |

SEP 8 1986

HOLE NO. 23166C
 LOCATION S 8854.0
 E 32009.0
 ELEVATION 6798.6

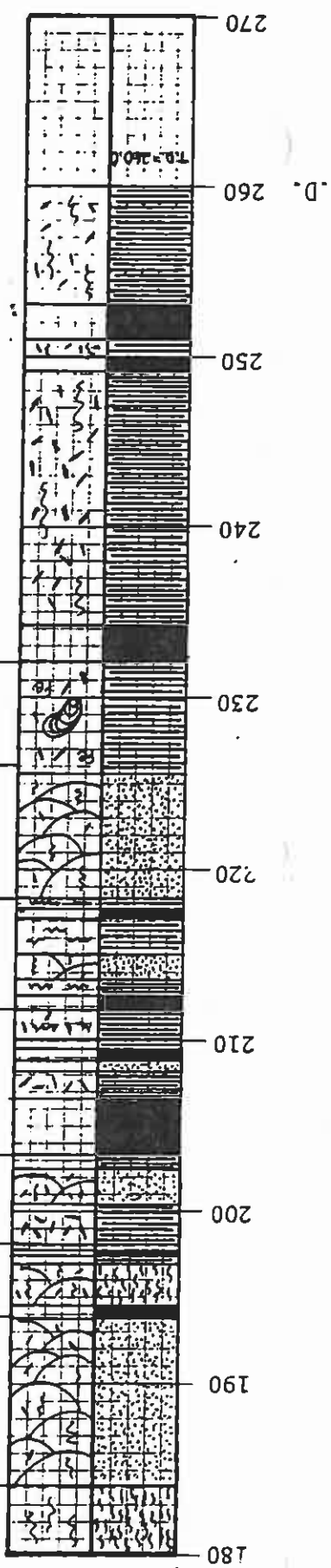
DRILLER J. Elliott
 DATE DRILLED 12-10-81
 SUB AREA N-6
 PAGE 2



| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | %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 |
| (82-915-R) BXX | (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 |
| (82-916-R) RXX | (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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SEP 3 1986



23166C
 SECTION S 8854.0
 E 32009.0
 ELEVATION 6798.6

| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | %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 | |
| 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 | |

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SEP 3 1986

DATE DRILLED 12-10-81
 SUB AREA N-6

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | GAC03 Eq Tons / 1000 Tons # | | | | Particle Size | | | | | % Moisture # | | Avail. H2O H2O Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|------------|-----------|--------------|--|------------------------------|
| | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | | |
| SH | 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 | 35.8 | 52 | 27.4 | 13.4 | 14 | | |
| SH | 820002199 | 122 | 5.8 | 173.2 | <0.01 | 0.31 | 30.93 | . | 30.62 | 43.2 | 35.8 | 50 | 23.4 | 7.6 | 15.8 | | |
| SH | 820002200 | 38 | 1.7 | 119.9 | 0.01 | 0.31 | 158.9 | . | 158.59 | 22.2 | 25.8 | 31 | 13.8 | 10.7 | 3.1 | | |
| SH | 820002201 | 13 | 0.5 | 220.6 | 0.14 | 0.31 | 10.69 | . | 6.31 | 33.2 | 32.8 | 52 | 21.4 | 6.9 | 14.5 | | |
| SH | 820002202 | 12 | 1.1 | 186 | 0.1 | 0.31 | 40.72 | . | 37.59 | 55.2 | 24.8 | 34 | 16.8 | 4.2 | 12.6 | | |
| SH | 820002203 | 8 | 1.6 | 118.6 | <0.01 | 0.31 | 302.34 | . | 302.03 | 80.2 | 4.8 | 15 | 15.8 | 13.6 | 2.2 | | |
| SH | 820002204 | 10 | 0.4 | 282.7 | 0.23 | 7.19 | 23.85 | . | 16.66 | 18.2 | 30.8 | 51 | 25.6 | 18.1 | 7.5 | | |
| SH | 820002205 | 11 | 0.8 | 305.6 | 0.13 | 4.06 | 49.41 | . | 45.35 | 22.2 | 22.8 | 55 | 26.7 | 17 | 9.7 | | |
| SH | 820002206 | 7 | 0.4 | 106.1 | 0.87 | 27.19 | 61.69 | . | 34.5 | 90.2 | 3.8 | 6 | 15.6 | 11.4 | 4.1 | | |
| SH | 820002207 | 9 | 0.8 | 208.4 | 0.34 | 10.63 | 13.85 | . | 3.22 | 42.2 | 16.8 | 41 | 22.3 | 16.7 | 5.6 | | |
| SH | 820002208 | 9 | 0.3 | 189.5 | 0.07 | 2.19 | 37.9 | . | 35.71 | 30.2 | 36.8 | 33 | 27.2 | 15 | 12.2 | | |
| SH | 820002209 | 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 | | |
| SH | 820002210 | 6 | 1 | 98.8 | 0.23 | 7.19 | 3.72 | 3.47 | . | 37 | 43 | 20 | 15.1 | 7 | 8.1 | | |
| SH | 820002211 | 10 | 1.9 | 130 | 1.81 | 56.56 | 31.67 | 24.89 | 46.4 | 44 | 30 | 26 | 12.5 | 7.8 | 4.7 | | |
| SH | 820002212 | 5 | 1 | 123.4 | 0.14 | 4.38 | 50.78 | . | 46.4 | 43 | 35 | 22 | 11 | 6.1 | 4.9 | | |
| SH | 820002213 | 2 | 0.6 | 46.6 | 0.17 | 5.31 | 16.3 | . | 10.99 | 70 | 18 | 12 | 14.1 | 4.1 | 10 | | |
| SH | 820002214 | <2 | 3.1 | 33.6 | 0.04 | 1.25 | 130.79 | . | 129.54 | 80 | 10 | 10 | 12.2 | 1.3 | 10.9 | | |
| SH | 820002215 | <2 | 0.7 | 41.4 | 0.12 | 3.75 | 52.2 | . | 48.45 | 76 | 13.4 | 10 | 15.4 | 1.7 | 13.7 | | |
| SH | 820002216 | 7 | 0.4 | 33.6 | 0.17 | 5.31 | 50.73 | . | 45.42 | 78 | 12.4 | 9.6 | 15.2 | 1.6 | 13.6 | | |
| SH | 820002217 | <2 | 0.7 | 135.2 | 0.23 | 7.19 | 35.64 | . | 28.45 | 50 | 29.4 | 20.6 | 15 | 5.4 | 9.6 | | |
| SH | 820002218 | <2 | 1.1 | 125.8 | <0.01 | 0.31 | 146.81 | . | 146.5 | 60 | 22.4 | 17.6 | 12.5 | 4.7 | 7.8 | | |
| SH | 820002219 | <2 | 0.8 | 76.2 | 0.01 | 0.31 | 106.4 | . | 106.09 | 73 | 15.4 | 11.6 | 12.5 | 4.7 | 7.8 | | |
| SH | 820002220 | 4 | 0.8 | 104.9 | 0.87 | 27.19 | 3.11 | 24.08 | 19.09 | 40 | 38.4 | 21.6 | 19.8 | 6.2 | 10.7 | | |
| SH | 820002221 | 7 | 2.3 | 123.7 | 0.57 | 17.81 | 2.32 | 15.49 | . | 47 | 29.4 | 28.6 | 21.5 | 6.5 | 15 | | |
| SH | 820002222 | 6 | 0.6 | 128.1 | 0.8 | 25 | 8.14 | 16.86 | 19.04 | 47 | 29.4 | 23.6 | 15.8 | 8.2 | 7.6 | | |
| SH | 820002223 | 2 | 2.2 | 117.9 | 0.85 | 26.56 | 45.6 | . | 46.22 | 56 | 21.4 | 22.6 | 10.5 | 2.1 | 5.5 | | |
| SH | 820002224 | <2 | 0.6 | 56.9 | 0.01 | 0.31 | 46.53 | . | 46.22 | 72 | 16.4 | 11.6 | 10.5 | 2.1 | 5.5 | | |
| SH | 820002225 | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | COAL | |
| SL | 820002203 | 0.4 | <0.01 | 0.03 | 0.6 | <10 | 1 | 4.7 | 140.4 | 10.9 | 9.6 | COAL | |
| 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 | |
| SS | 820002226 | 0.3 | <0.01 | 0.04 | <0.6 | <10 | 4.1 | 6.6 | 183.8 | 27.1 | 11.1 | 6.7 | |

24093C

LOCATION S 10039.0

DATE DRILLED 6-7-82

SUB AREA N-6

E 29697.0

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) pH

ELEVATION 6727.8

SAMPLE NO.

| ELEVATION | SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|-----------|--------------------|------------------|---------|----------|--------|-------|-------|
| 0 | 820003055 | 43.6 | 0.6 | 0.8 | 2.6 | 0.8 | 8.1 |
| | 820003056 | 44.7 | 0.9 | 1.0 | 1.4 | 0.9 | 8.4 |
| 10 | 820003057 | 49.8 | 8.5 | 10.8 | 1.2 | 2.0 | 8.6 |
| | 820003058 | 46.8 | 3.8 | 9.4 | 6.3 | 6.1 | 8.1 |
| 20 | 820003059 | 62.3 | 2.2 | 12.6 | 31.4 | 32.6 | 3.6 |
| | 820003060 | 53.8 | 1.0 | 6.3 | 33.3 | 41.0 | 6.9 |
| 30 | 820003061 | 36.4 | 0.6 | 3.3 | 31.4 | 39.5 | 7.6 |
| | 820003062 | 65.7 | 7.4 | 30.1 | 19.9 | 13.0 | 5.6 |
| 40 | 820003063 | 71.6 | 23.6 | 24.2 | 1.3 | 0.8 | 8.6 |
| | 820003064 | 67.7 | 33.0 | 27.6 | 0.8 | 0.6 | 8.3 |
| 50 | 820003065 | 70.5 | 26.9 | 21.7 | 0.8 | 6.5 | 8.6 |
| | 820003066 | 32.2 | 17.6 | 22.6 | 2.2 | 1.1 | 8.0 |
| 70 | 820003067 | 63.1 | 32.6 | 24.2 | 0.4 | 0.7 | 8.5 |
| | 820003068 | 57.5 | 20.9 | 16.2 | 0.4 | 0.8 | 8.8 |
| 80 | (82-1514-R) VOX | (N/A) | (12.35) | (11.932) | | | (8.4) |
| | 820003069 | 52.8 | 19.2 | 12.9 | 0.3 | 0.6 | 8.9 |
| | 820003070 | 40.4 | 23.7 | 17.6 | 0.3 | 0.8 | 9.2 |
| 90 | | | 358 | | | | |

SEP 3 1986

HOLE NO. 24093C

LOCATION S 11039.0

E 29697.0

ELEVATION 6727.8

DRILLER J. Elliott

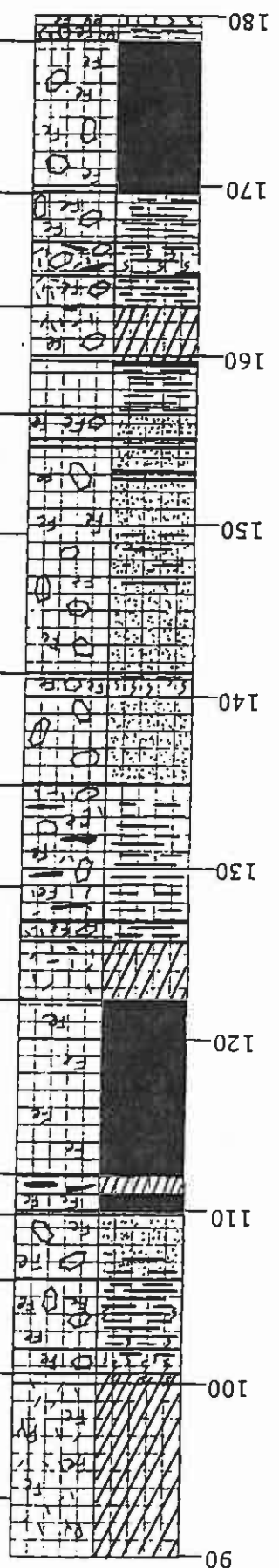
DATE DRILLED 6-7-82

SUB AREA

N-6

PAGE

2



| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | pH |
|-----------------|------------------|----------|----------|----------|-------|--------|
| 820003071 | 75.2 | 26.9 | 21.7 | 0.8 | 0.5 | 9.0 |
| 820003072 | 68.4 | 15.0 | 15.7 | 0.4 | 1.8 | 9.4 |
| 820003073 | 53.4 | 28.7 | 20.3 | 0.3 | 0.7 | 9.3 |
| 820003074 | 40.4 | 37.8 | 29.3 | 0.7 | 0.5 | 8.7 |
| 820003075 | 68.4 | 32.1 | 25.9 | 0.6 | 0.7 | 8.3 |
| (82-1515-R) GXX | (N/A) | (11.74) | (12,045) | | | (8.4) |
| 820003076 | 41.0 | 16.9 | 10.7 | 0.3 | 0.5 | 8.9 |
| 820003077 | 38.2 | 15.5 | 12.5 | 0.6 | 0.7 | 8.6 |
| 820003078 | 34.3 | 9.4 | 14.0 | 2.7 | 1.7 | 8.0 |
| 820003079 | 34.1 | 12.3 | 13.7 | 1.6 | 0.9 | 8.1 |
| 820003080 | 36.1 | 13.5 | 17.3 | 2.3 | 1.0 | 7.9 |
| 820003081 | 57.2 | 28.0 | 19.8 | 0.6 | 0.4 | 8.4 |
| 820003082 | 38.3 | 29.0 | 20.5 | 0.5 | 0.5 | 8.4 |
| (82-1516-R) BXX | (N/A) | (6.29) | (12,874) | | | (8.4) |
| | | | | | | (0.50) |
| | | | | | | < 0.01 |
| | | | | | | 0.21 |
| | | | | | | 0.13 |
| | | | | | | < 0.01 |
| | | | | | | 0.9 |
| | | | | | | 1.6 |
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| | | | | | | 17.3 |
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| | | | | | | 13.5 |
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LOCATION S 11039.0

E 29697.0

LEVATION 6727.8

2493C

DATE DRILLED 6-7-82

SUB AREA N-6

SAMPLE NO. (MOISTURE) SATURATION & SVR SOL.Na. SOL.Ca. SOL.Mg (BTU) %S pH

| LEVATION | SAMPLE NO. | (MOISTURE) | SATURATION & SVR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|----------|-------------|------------|------------------|----------|---------|--------|-------|--------|-------|
| 180 | 820003083 | RXX | 38.2 | 32.9 | 29.4 | 1.0 | 0.6 | 0.38 | 8.0 |
| 190 | (82-1517-R) | (N/A) | (8.37) | (12,558) | | | | (0.46) | (8.3) |
| 200 | 820003084 | MX | 52.5 | 58.7 | 60.1 | 1.3 | 0.8 | 0.84 | 7.0 |
| 210 | 820003085 | | 46.6 | 57.9 | 36.6 | 0.5 | 0.3 | 0.35 | 7.5 |
| 220 | 820003086 | | 48.5 | 55.3 | 37.1 | 0.5 | 0.4 | 1.59 | 7.6 |
| 230 | 820003087 | | 34.1 | 41.1 | 24.3 | 0.3 | 0.4 | <0.01 | 8.8 |
| 240 | 820003088 | | 50.5 | 46.7 | 51.2 | 1.5 | 0.9 | 1.89 | 7.2 |
| 250 | 820003089 | | 57.2 | 53.4 | 35.8 | 0.3 | 0.6 | 0.70 | 7.7 |
| 260 | | | | | | | | | |
| 270 | | | | | | | | | |

SEP 3 1986

360

D. 270.0

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|------|--|-----|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 | 2.2 | 1.9 | | |
| SS | 25 | 820003061 | 7.6 | 36.4 | 4.6 | 3.3 | 31.4 | 39.5 | 1 | 0.2 | | |
| SH, CO | 30.5 | 820003062 | 5.6 | 65.7 | 5 | 30.1 | 19.9 | 13 | 0.6 | -0.4 | | |
| SH | 37.3 | 820003063 | 8.6 | 71.6 | 2.7 | 24.2 | 1.3 | 0.8 | 7.4 | 8.8 | | |
| SH | 44.3 | 820003064 | 8.3 | 67.7 | 2.8 | 27.6 | 0.8 | 0.6 | 23.6 | 25.1 | | |
| SH | 51.6 | 820003065 | 8.6 | 70.5 | 2.3 | 21.7 | 0.8 | 0.5 | 26.9 | 32.2 | | |
| SS, SH | 59.6 | 820003066 | 8 | 32.2 | 2.6 | 22.6 | 2.2 | 1.1 | 17.6 | 27.8 | | |
| SH | 65.1 | 820003067 | 8.5 | 63.1 | 2.3 | 24.2 | 0.4 | 0.7 | 32.6 | 19.8 | | |
| SH | 75.5 | 820003068 | 8.8 | 57.5 | 1.6 | 16.2 | 0.4 | 0.8 | 20.9 | 31.9 | | |
| CO | 78 | COAL | | | | | | | | 22.8 | | |
| 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 | 0.5 | 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 | 0.5 | 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, SL | 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 COR'D: 07JUN1982
DATE REPORTED: 27FEB1985

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O Cap. |
|------------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 55.9 | 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 | . | 99.12 | 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 | 34.4 | 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 | 72 | 19.2 | 32.8 | 25.1 | 11 | 14.1 |
| SH | 820003063 | 5 | 0.7 | 326.9 | 0.15 | 4.69 | 13.47 | . | 8.78 | 32.6 | 34.6 | 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 | 39.6 | 31.6 | 36.6 | 18.6 | 18.1 |
| 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 | 4.25 | 15.67 | . | 20.96 | 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 |
| SH | 820003070 | <2 | 1.7 | 139.3 | 0.03 | 0.94 | 40.58 | . | 39.64 | 45 | 33.2 | 45.8 | 33.1 | 10.5 | 17.5 |
| SH | 820003071 | <2 | 0.9 | 308 | 0.11 | 3.44 | 48.6 | . | 45.16 | 21 | 33.2 | 21.8 | 28.1 | 10.5 | 12.6 |
| 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 | 70.8 | 19.4 | 13.3 | 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 | 7.2 |
| 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 | 27.93 | 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 | 31.78 | 47.37 | 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 | 31.78 | 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 | 5.79 | 16.09 | 22.2 | 39.4 | 30.4 | 19.1 | 10.7 | 8.4 |
| SH | 820003089 | 2 | 0.9 | 206 | 0.7 | 21.88 | 16.09 | . | 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

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

2494C

LOCATION S 11069.0

E 25914.0

ELEVATION 6582.9

DATE DRILLED 6/18/82

SUB AREA N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg

SAMPLE NO. (MOISTURE) (ASH)

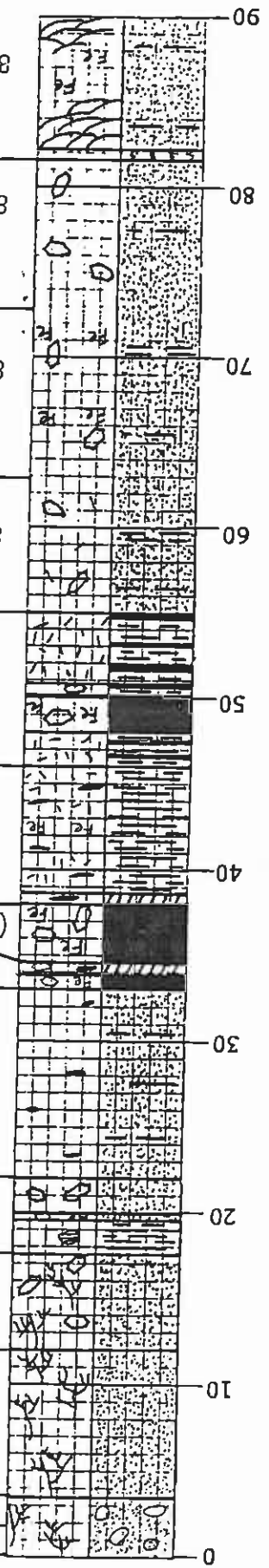
(BTU)

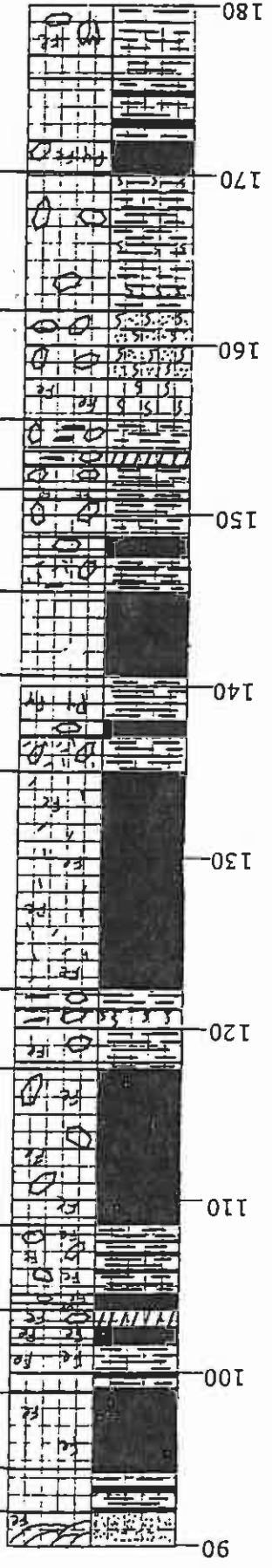
%S

pH

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

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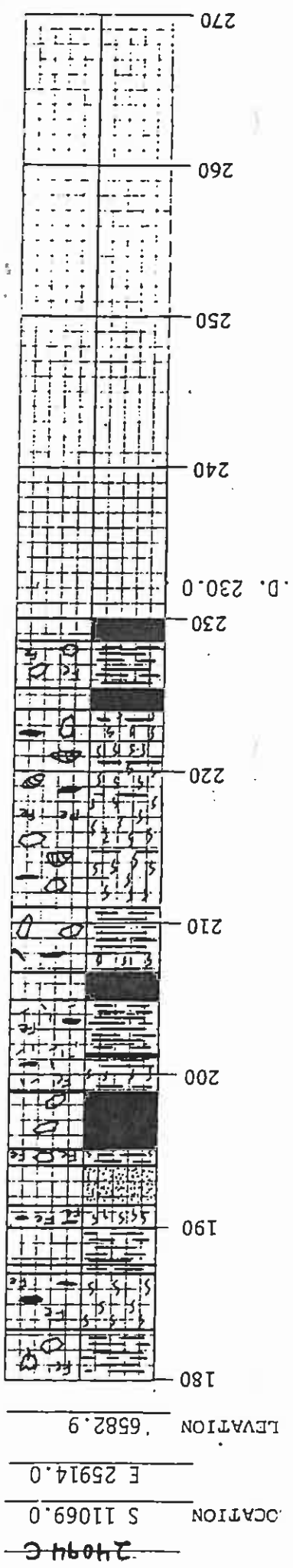
HOLE NO. 24094C
 LOCATION S 11069.0 E 25914.0
 ELEVATION 6582.9

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | (ASH) | (MOISTURE) | (PH) |
|-----------------|------------------|---------|----------|--------|-------|--------|------------|------|
| 820003103 | 58.5 | 19.2 | 12.9 | 0.3 | 0.6 | 0.35 | 8.5 | |
| 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 | |
| (82-1521-R) BXX | (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 | |
| (82-1522-R) RXX | (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 | |
| (82-1523-R) MXX | (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 | |

DATE DRILLED 6/18/82
 DRILLER Jim Elliott
 SUB AREA N-6
 PAGE 2

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LOCATION S 11069.0 E 25914.0

ELEVATION 6582.9

YOX

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

DATE DRILLED 6/18/82

SUB AREA N-6

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|------|--|
| | | | | | E.C. ml/100/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 | |
| SD | 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, SII | 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 | | | | | | | | | |
| SII, 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

| Lithology | Lau No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | GAC03 Eq Tons / 1000 Tons # | | | | Particle Size | | | | % Moisture # | | Avail. H2O H2O Cap. |
|------------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|------|---------------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| 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 | |
| SD | 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 | |
| CL, SD, SS | 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 | |
| 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 | |
| CO, SH | 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 | 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 | |
| SH, CO | 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 | 820003104 | <2 | 0.3 | 229.9 | 0.12 | 3.75 | 36.75 | . | 33 | 38 | 21 | 41 | 30.2 | 18.6 | 11.6 | |
| SH, CO | 820003105 | <2 | 0.8 | 270.6 | 0.24 | 7.5 | 16.18 | . | 8.68 | 45 | 11 | 44 | 31.2 | 17.7 | 13.5 | |
| CO | 820003106 | <2 | 1.4 | 127 | 0.65 | 20.31 | 11.31 | 9 | . | 36 | 39 | 25 | 17.3 | 7.4 | 9.9 | |
| SH, SL | 820003107 | <2 | 0.8 | 173.6 | 0.77 | 24.06 | 40.92 | . | 16.86 | 41 | 32 | 27 | 18.7 | 8.4 | 10.3 | |
| CO | 820003108 | <2 | 0.8 | 153 | 0.36 | 11.25 | 36 | . | 24.75 | 48 | 25 | 27 | 18.3 | 8.8 | 9.5 | |
| SH, CO | 820003109 | <2 | 1.4 | 202.2 | 0.75 | 23.44 | 25.89 | . | 2.45 | 18 | 40 | 42 | 22.1 | 10.9 | 11.2 | |
| SH | 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 | |
| SL | 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

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

2495C

LOCATION S 11064.0

E 27814.0

ELEVATION 6686.2

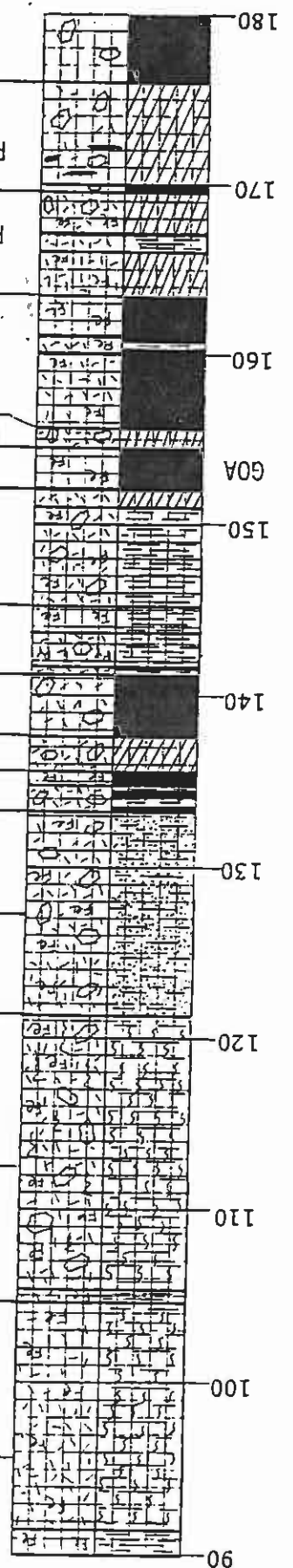
DATE DRILLED 7-13-82

SUB AREA N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (ASH) (BTU) pH

| DEPTH | SAMPLE NO. | (MOISTURE) | (ASH) | (BTU) | pH |
|-------|------------|------------|-------|-------|-----|
| 0 | R-82-3112 | 46.7 | 0.9 | 1.3 | 7.8 |
| 10 | R-82-3113 | 40.2 | 3.4 | 4.0 | 8.5 |
| 10 | R-82-3114 | 36.1 | 4.7 | 5.4 | 8.2 |
| 10 | R-82-3115 | 38.1 | 2.4 | 4.2 | 8.1 |
| 20 | R-82-3116 | 75.0 | 2.1 | 9.0 | 4.2 |
| 20 | R-82-3117 | 60.9 | 2.6 | 13.8 | 6.4 |
| 30 | R-82-3118 | 56.5 | 3.2 | 9.1 | 7.8 |
| 30 | R-82-3119 | 50.7 | 22.2 | 25.8 | 7.3 |
| 30 | R-82-3120 | 44.5 | 15.0 | 20.1 | 8.5 |
| 40 | R-82-3121 | 64.7 | 38.3 | 30.9 | 8.1 |
| 40 | R-82-3122 | 63.3 | 29.6 | 22.9 | 8.4 |
| 50 | R-82-3123 | 56.6 | 27.9 | 18.7 | 9.1 |
| 60 | R-82-3124 | 79.4 | 32.8 | 22.0 | 8.9 |
| 60 | R-82-3125 | 33.4 | 32.6 | 26.3 | 8.8 |
| 70 | R-82-3126 | 32.1 | 37.9 | 19.1 | 8.7 |
| 80 | R-82-3127 | 59.6 | 32.1 | 24.0 | 8.2 |
| 90 | R-82-3128 | 60.2 | 31.1 | 20.3 | 8.4 |

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ELEVATION 6686.2

LOCATION S 11064.0 E 27814.0

HOLE NO. 24095C

DRILLER J. Elliott

DATE DRILLED 7-13-82

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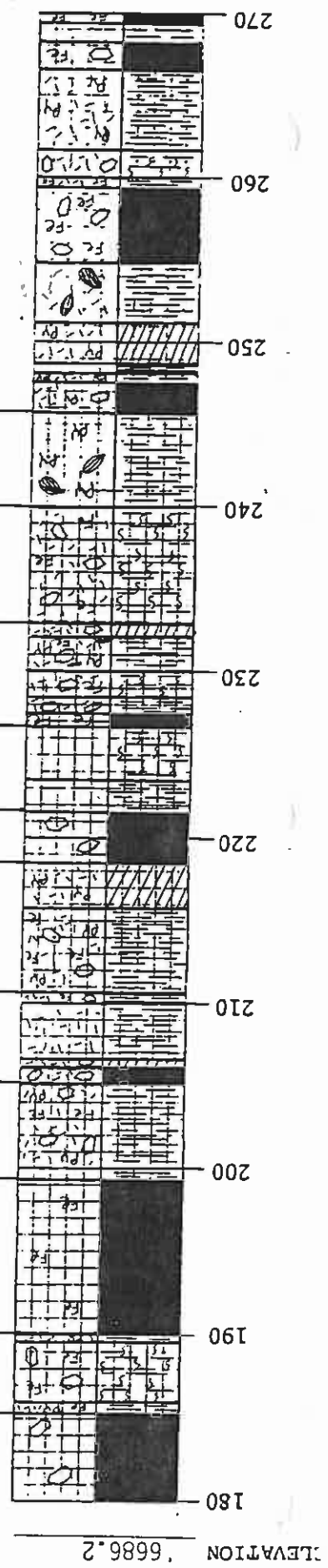
SUB AREA N-6

SAMPLE NO. (MOISTURE) SAR SOL.Na. SOL.Ca. SOL.Mg pH

| SAMPLE NO. | (MOISTURE) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | pH |
|--------------------|------------|---------|----------|---------|--------|-------|
| R-82-3129 | 32.1 | 31.1 | 22.0 | 0.4 | 0.6 | <0.01 |
| R-82-3130 | 32.7 | 33.6 | 24.9 | 0.4 | 0.7 | <0.01 |
| R-82-3131 | 40.2 | 33.8 | 21.4 | 0.3 | 0.5 | <0.01 |
| R-82-3132 | 40.3 | 32.5 | 25.2 | 0.6 | 0.6 | <0.01 |
| R-82-3133 | 32.1 | 30.9 | 22.9 | 0.4 | 0.7 | <0.01 |
| R-82-3134 | 32.2 | 21.9 | 17.0 | 0.4 | 0.8 | <0.01 |
| (82-1524-R) VOX | (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 |
| (82-1525-R) VIX | (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 |
| R-82-3137 | 48.7 | 40.6 | 24.0 | 0.2 | 0.5 | 0.11 |
| (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 |
| (82-1527-R) GXX | (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 |
| R-82-3140 | 40.2 | 36.0 | 22.8 | 0.4 | 0.4 | 0.34 |

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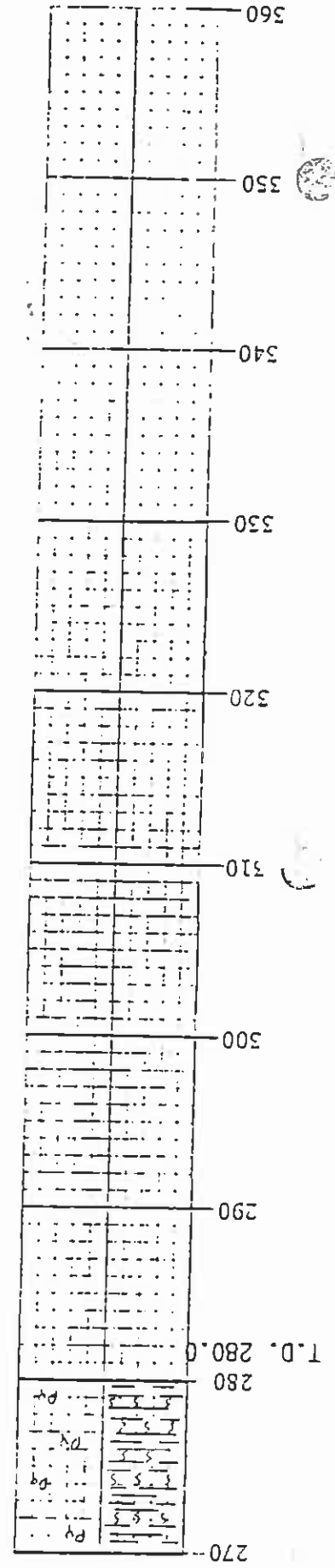
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LOCATION S 11064.0
 E 27814.0
 ELEVATION 6686.2

| DEPTH (FEET) | SAMPLE NO. | SATURATION & SAR | (MOISTURE) | (ASH) | SOL. Na. | SOL. Ca. | SOL. Mg | pH |
|--------------|-------------|------------------|------------|----------|----------|----------|---------|----|
| 180 | (82-1528-R) | (N/A) | (6.59) | (12,775) | | (0.52) | (8.0) | |
| 190 | R-82-3141 | 37.4 | 35.5 | 21.0 | 0.3 | 0.07 | 8.8 | |
| 190 | (82-1529-R) | (N/A) | (4.98) | (13,088) | | (0.44) | (8.2) | |
| 200 | R-82-3142 | 45.1 | 55.0 | 21.3 | 0.1 | 0.78 | 7.9 | |
| 210 | R-82-3143 | 42.7 | 55.3 | 21.4 | 0.1 | 1.31 | 7.6 | |
| 220 | R-82-3144 | 36.3 | 25.2 | 13.8 | 0.1 | 0.13 | 8.7 | |
| 220 | (82-1530-R) | (N/A) | (5.81) | (12,810) | | (0.73) | (8.6) | |
| 240 | R-82-3145 | 38.5 | 28.0 | 12.5 | 0.1 | 0.59 | 8.4 | |
| 250 | R-82-3146 | 36.7 | 48.0 | 24.0 | 0.2 | 1.07 | 8.2 | |
| 260 | R-82-3147 | 32.2 | 28.7 | 20.3 | 0.7 | 0.01 | 9.2 | |
| 270 | R-82-3148 | 36.4 | 59.4 | 29.7 | 0.1 | 1.35 | 8.4 | |

DATE DRILLED 7-13-82
 SUB AREA N-6
 SEP 3 1986



LOCATION S 11064.0
 24095C

E 27814.0

LOCATION 6686.2

DATE DRILLED 7-13-82
 SUB AREA N-6
 SATURATION 2 SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 SAMPLE NO. (MOISTURE) (ASH)
 IS PH

SEP 3 1986

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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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|-----|--|--|--|------|
| | | | | | 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 | | | | | |
| SL | 2.2 | 820003113 | 8.5 | 40.2 | 0.6 | 4 | 1.7 | 1 | 3.4 | | | | | 0.1 |
| SL | 7.2 | 820003114 | 8.2 | 36.1 | 0.9 | 5.4 | 1.4 | 1.2 | 4.7 | | | | | 3.6 |
| SS | 12 | 820003115 | 8.1 | 38.1 | 1 | 4.2 | 4 | 2.3 | 2.4 | | | | | 5.4 |
| SH | 17 | 820003116 | 4.2 | 75 | 3.6 | 9 | 20.8 | 17.5 | 2.1 | | | | | 2.2 |
| SH | 21.2 | 820003117 | 6.4 | 60.9 | 4.7 | 9 | 29.3 | 28.1 | 2.6 | | | | | 1.8 |
| SL, SH | 26 | 820003118 | 7.8 | 56.5 | 2.2 | 13.8 | 6.3 | 9.7 | 3.2 | | | | | 2.5 |
| SH, CO | 30.1 | 820003119 | 7.3 | 50.7 | 2.9 | 25.8 | 1.8 | 0.9 | 3.2 | | | | | 3.4 |
| SH | 33.4 | 820003120 | 8.5 | 50.7 | 2.1 | 20.1 | 1 | 0.9 | 2.2 | | | | | 23.9 |
| SH | 38 | 820003121 | 8.1 | 44.5 | 2.1 | 30.9 | 0.6 | 2.6 | 15 | | | | | 17.3 |
| SH | 42.5 | 820003122 | 8.4 | 63.3 | 3.2 | 30.9 | 0.6 | 0.7 | 38.3 | | | | | 35.6 |
| SH | 48.5 | 820003123 | 9.1 | 56.6 | 2.5 | 22.9 | 0.6 | 0.6 | 29.6 | | | | | 29.8 |
| SH | 57.1 | 820003124 | 8.9 | 79.4 | 1.7 | 18.7 | 0.3 | 0.6 | 27.9 | | | | | 28.5 |
| SS | 60.3 | 820003125 | 8.8 | 33.4 | 2 | 22 | 0.4 | 0.5 | 32.8 | | | | | 32 |
| SS | 68.4 | 820003126 | 8.7 | 32.1 | 2.7 | 26.3 | 0.5 | 0.8 | 32.6 | | | | | 31.9 |
| SH, CO | 77.4 | 820003127 | 8.2 | 59.6 | 1.7 | 19.1 | 0.1 | 0.4 | 37.9 | | | | | 31.7 |
| SH | 83 | 820003128 | 8.4 | 60.2 | 2.5 | 24 | 0.4 | 0.4 | 31.1 | | | | | 35.3 |
| SL, SH | 87 | 820003129 | 8.9 | 32.1 | 1.9 | 20.3 | 0.3 | 0.5 | 32.1 | | | | | 31.5 |
| SL | 95.5 | 820003130 | 8.8 | 32.7 | 2 | 22 | 0.4 | 0.6 | 31.1 | | | | | 30.8 |
| SH, SL | 104.5 | 820003131 | 9 | 40.2 | 2.2 | 24.9 | 0.4 | 0.7 | 33.6 | | | | | 32.6 |
| SL | 112.3 | 820003132 | 9 | 40.3 | 1.9 | 21.4 | 0.3 | 0.5 | 33.8 | | | | | 32.7 |
| SS | 121.3 | 820003133 | 9.1 | 32.1 | 2.5 | 25.2 | 0.6 | 0.6 | 32.5 | | | | | 31.8 |
| SS | 127.2 | 820003134 | 9.1 | 32.2 | 2.4 | 22.9 | 0.4 | 0.7 | 30.9 | | | | | 30.7 |
| CO | 133.2 | COAL | | | 1.6 | 17 | 0.4 | 0.8 | 21.9 | | | | | 23.7 |
| SII | 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 COR'D: 13 JUL 1982
DATE REPORTED: 27 FEB 1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | ESP | |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|--|--|-----|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | |
| 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24095C
DATE CORED: 13 JUL 1982
DATE REPORTED: 27 FEB 1985

*Dry Basis

| Lithology | Lab No. | CaCO3 | | | | | Particle Size | | | | | Avail. H2O Cap. | | | |
|-----------|-----------|-------------------|--------------------|--------------------|-----------------|---------------------------|-------------------|------------------|------------------|-----------|-----------|-----------------------|-----------|------------|-----------|
| | | Total N PPM | HAlCO3 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 |
| 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 | 81.29 | | 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 | 156.1 | 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 | 269.5 | 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 | 13 | 49.4 | 31.6 | 31.5 | 23.0 | 7.7 |
| SH | 820003124 | <2 | 1.3 | 301.7 | 0.07 | 2.19 | 11.15 | | 8.96 | 13 | 42.4 | 51.6 | 49.2 | 22.8 | 26.4 |
| SS | 820003125 | <2 | 1.3 | 103.7 | 0.09 | 2.81 | 36.03 | | 35.3 | 53 | 25.4 | 19.6 | 21.2 | 7.1 | 14.1 |
| SS | 820003126 | <2 | 1.5 | 91.9 | <0.01 | 0.31 | 35.61 | | 35.22 | 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, CO | 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 | 13.3 | 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 | 44 | 30.4 | 27.6 | 18.5 | 11 | 3.6 |
| SS | 820003133 | <2 | 1.3 | 91.7 | <0.01 | 0.31 | 97.52 | | 97.21 | 44 | 37.4 | 18.6 | 14.4 | 11 | 2.5 |
| SS | 820003134 | <2 | 1.2 | 108.3 | <0.01 | 0.31 | 52.05 | | 51.74 | 59 | 16.4 | 24.6 | 15.9 | 13.2 | 3.4 |
| CO | COAL | | | | | | | | | | | | | | 2.7 |
| 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
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MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24095C
DATE CORED: 13JUL1982
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| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq. ions / 1000 Tons # | | | | Particle Size | | | | % Moisture | | Avail. H2O Cap. |
|-----------|-----------|---------------|----------------|----------------|-------------|------------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|------------|-----|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| 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 | | | | | 2.19 | 36.1 | . | 33.91 | 29 | 37.4 | 33.6 | 19.9 | 14.8 | 5.1 | |
| SH, SL | 820003141 | <2 | 1.6 | 243.2 | 0.07 | | | | | | | | | | | |
| CO | COAL | | | | | 24.38 | 24.4 | . | 0.02 | 29 | 49.4 | 21.6 | 16.8 | 11.3 | 5.5 | |
| SH | 820003142 | <2 | 0.9 | 145.2 | 0.78 | | | | | | | | | | | |
| CO, SH | 820003143 | <2 | 1.4 | 130.5 | 1.31 | 40.94 | 5.04 | . | . | 63 | 21.8 | 15.2 | 13.3 | 7.4 | 5.9 | |
| SH | 820003144 | <2 | 0.5 | 175.5 | 0.13 | 4.06 | 4.02 | . | . | 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 | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | # Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | 26 | 1.2 | 4.5 | 144.6 | 9.5 | 7.1 | 5.4 | |
| SH, CO | 820003119 | 4.3 | 0.2 | 0.16 | <0.6 | <10 | 0.8 | 8.2 | 102.9 | 1.8 | 9.1 | 5.5 | |
| SH | 820003120 | 0.6 | 0.16 | 0.06 | <0.6 | 22 | 2.9 | 10.7 | 118.9 | 5.6 | 7.9 | COAL | |
| SH | 820003121 | 1.5 | 0.17 | 0.17 | <0.6 | 11 | 1.6 | 14.6 | 95.8 | 3.5 | 11.9 | 2.3 | |
| SH | 820003122 | 0.9 | 0.26 | 0.17 | <0.6 | 11 | 1.4 | 12.8 | 77.2 | 1.7 | 10.2 | 3.2 | |
| SH | 820003123 | 0.2 | 0.05 | 0.03 | <0.6 | 22 | 1.7 | 6.6 | 72.4 | 3 | 7.7 | 8.5 | |
| SH | 820003124 | 0.3 | 0.09 | <0.01 | <0.6 | 21 | 2.5 | 10 | 59.5 | 7.8 | 9.5 | 2.1 | |
| SS | 820003125 | 0.2 | 0.72 | 0.01 | <0.6 | 18 | 1.3 | 2.8 | 72.2 | 6.8 | 5.8 | 3.8 | |
| SH, CO | 820003126 | 0.2 | 0.38 | 0.02 | <0.6 | 13 | 1.9 | 3.6 | 102.6 | 8.6 | 5.7 | 1.5 | |
| SH | 820003127 | 0.9 | 0.18 | 0.09 | <0.6 | <10 | 2.8 | 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 | 1.7 | |
| SL, SL | 820003131 | 0.1 | 0.12 | <0.01 | <0.6 | 17 | 1.8 | 0.9 | 107.1 | 10.6 | 10.6 | 1.5 | |
| SL | 820003132 | 0.1 | 0.2 | 0.02 | <0.6 | 22 | 2 | <0.2 | 83.2 | 7.9 | 10.1 | 1.4 | |
| SS | 820003133 | 0.2 | 0.28 | 0.01 | <0.6 | <10 | 1.3 | <0.2 | 82.9 | 6.8 | 7.9 | 1.2 | |
| SS | 820003134 | <0.1 | 0.27 | 0.02 | <0.6 | 14 | 1.8 | <0.2 | 94.9 | 6.4 | 10.9 | 0.5 | |
| 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: 13 JUL 1982
DATE REPORTED: 27 FEB 1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | AS PPM | Se PPM | TAMI Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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

E 27150.0

ELEVATION 6665.1

24096C

DATE DRILLED 7/19/82

SUB AREA

N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) ES pH

SAMPLE NO.

(ASH)

(BTU)

pH

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| R-82-4260 | R-82-4261 | R-82-4262 | R-82-4263 | R-82-4264 | R-82-4265 | R-82-4266 | R-82-4267 | R-82-4268 | R-82-4269 |
| 38.3 | 50.9 | 82.1 | 62.5 | 57.7 | 42.3 | 61.7 | 31.5 | 32.1 | 46.3 |
| 1.3 | 5.7 | 3.1 | 2.2 | 2.6 | 1.4 | 7.1 | 24.1 | 20.1 | 34.8 |
| 1.4 | 10.6 | 9.7 | 7.7 | 8.8 | 7.2 | 21.0 | 26.9 | 18.5 | 33.9 |
| 2.0 | 2.7 | 8.5 | 11.8 | 10.4 | 28.0 | 9.9 | 1.7 | 0.9 | 1.1 |
| 0.5 | 4.3 | 11.7 | 12.3 | 11.8 | 23.2 | 7.4 | 0.8 | 0.8 | 0.8 |
| <0.01 | <0.01 | 0.05 | <0.01 | <0.01 | 0.18 | 0.29 | <0.01 | 0.01 | 0.28 |
| 8.2 | 8.1 | 6.6 | 7.8 | 7.7 | 7.4 | 6.4 | 8.0 | 8.5 | 7.7 |
| R-82-4271 | R-82-4272 | R-82-4273 | | | | | | | |
| 28.7 | 32.1 | 32.1 | | | | | | | |
| 40.6 | 24.5 | 22.3 | | | | | | | |
| 50.5 | 20.5 | 17.3 | | | | | | | |
| 1.5 | 0.8 | 0.7 | | | | | | | |
| 1.6 | 0.6 | 0.5 | | | | | | | |
| 0.02 | 0.01 | <0.01 | | | | | | | |
| 8.7 | 8.6 | 8.8 | | | | | | | |
| R-82-4270 | | | | | | | | | |
| 61.3 | | | | | | | | | |
| 32.0 | | | | | | | | | |
| 23.7 | | | | | | | | | |
| 0.4 | | | | | | | | | |
| 0.7 | | | | | | | | | |
| 0.12 | | | | | | | | | |
| 8.8 | | | | | | | | | |

SEP 3 1986

380

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

| | | | | | | | | |
|-----|--------------------|-------|---------|----------|-----|-----|--------|-------|
| 180 | R-82-4284 | 49.6 | 31.9 | 26.7 | 0.5 | 0.9 | 0.24 | 8.1 |
| 190 | (82-2175-R) BXX | (N/A) | (10.98) | (11,880) | | | (0.54) | (7.5) |
| 200 | R-82-4285 | 44.3 | 33.9 | 47.9 | 2.7 | 1.3 | 0.48 | 7.7 |
| 210 | (82-2176-R) RXX | (N/A) | (6.94) | (12,459) | | | (0.43) | (7.4) |
| 220 | R-82-4286 | 43.1 | 28.0 | 41.0 | 2.5 | 1.8 | 1.27 | 7.3 |
| 230 | (82-2177-R) MXX | (N/A) | (5.53) | (12,643) | | | (0.77) | (7.2) |
| 240 | R-82-4287 | 41.2 | 110.2 | 77.9 | 0.6 | 0.4 | 0.74 | 7.5 |
| 240 | R-82-4288 | 38.5 | 81.2 | 94.3 | 1.6 | 1.1 | 0.90 | 7.7 |
| 240 | R-82-4289 | 28.4 | 47.6 | 30.1 | 0.4 | 0.4 | 0.33 | 8.5 |
| 250 | | | | | | | | |
| 260 | | | | | | | | |
| 270 | | | | | | | | |

YOX

SEP 3 1986

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SEP 3 1986

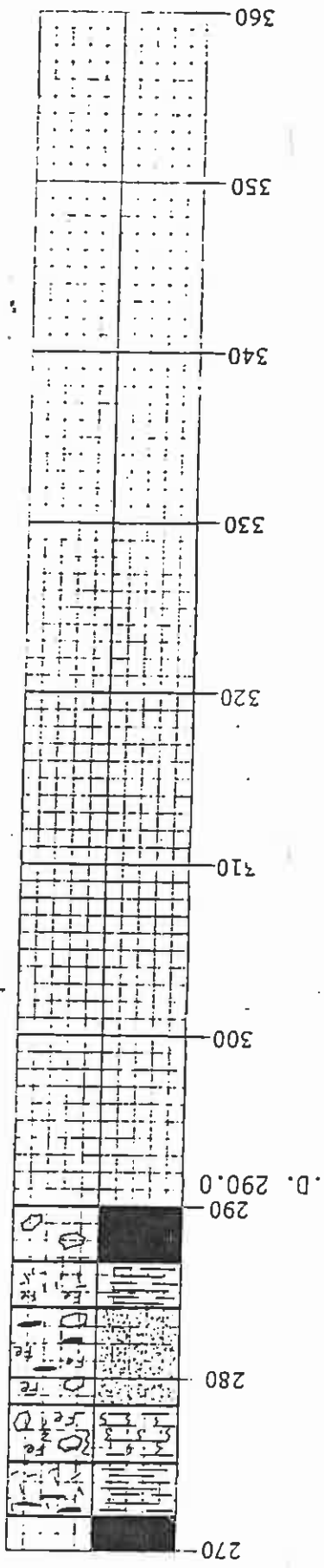
383

DATE DRILLED 7/19/82
SUB AREA N-6
PH 25

SAURATION 3 SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
SAR SOL.Na. (ASH)

NOX

Y1X



ELEVATION 6665.1

E 27150.0

LOCATION S 12896.0

24096C

Jim Elliott

4

PEABODY COAL COMPANY
CENTRAL LABORATORY

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

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|-------|--|--|------|
| | | | | | F.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 | 0.7 | 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 | 0.6 | 0.6 | 24.5 | | | 25.9 |
| SS | 83 | 820004273 | 8.8 | 32.1 | 1.8 | 17.3 | 0.8 | 0.5 | 22.3 | | | 24.8 |
| SS | 88.7 | 820004274 | 8.6 | 32.1 | 2.3 | 21.1 | 0.7 | 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 | 195 | 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: 244096C
DATE CORED: 19JUL1982
DATE REPORTED: 19MAR1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | | | |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|------------|-----------|-----------------------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. 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 |
| SH | 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 |
| SH | 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 | 20.4 | 7.1 | 13.3 | 6.7 |
| SS | 820004268 | 3 | 0.4 | 60 | 0.01 | 0.31 | 196.91 | . | 196.6 | 67.4 | 22.8 | 9.8 | 10.8 | 4.1 | 17.7 |
| SH, CO | 820004269 | 10 | 0.8 | 199 | 0.28 | 8.75 | 18.52 | . | 16.06 | 37.4 | 22.8 | 39.8 | 31.4 | 13.4 | 10.8 |
| SH | 820004270 | 12 | 0.5 | 280 | 0.12 | 3.75 | 16.06 | . | 9.77 | 15.4 | 38.8 | 45.8 | 17.7 | 5.5 | 12.2 |
| SH, SL | 820004271 | 6 | 0.9 | 83.4 | 0.02 | 0.63 | 134.71 | . | 12.31 | 52.4 | 29.2 | 15.4 | 17.2 | 4.8 | 10.1 |
| SH, SL | 820004272 | 4 | 0.5 | 86.7 | 0.01 | 0.31 | 49.72 | . | 95.01 | 73.4 | 12.2 | 14.4 | 13 | 3.3 | 10.3 |
| SS | 820004273 | 3 | 0.9 | 44.9 | <0.01 | 0.31 | 49.72 | . | 49.41 | 21.4 | 34.2 | 50.4 | 36.7 | 19 | 17.7 |
| SS | 820004274 | 2 | 0.5 | 48.3 | 0.01 | 0.31 | 52.02 | . | 51.71 | 28.4 | 21.2 | 38.4 | 29.3 | 14.2 | 15.1 |
| SH, CO | 820004275 | 11 | 0.9 | 259 | 0.28 | 8.75 | 18.28 | . | 11.63 | 34.4 | 27.2 | 41.4 | 34 | 15.5 | 18.5 |
| SH, CO | 820004276 | 15 | 1.1 | 229 | 0.29 | 9.06 | 20.69 | . | 47.3 | 44.4 | 14.2 | 41.4 | 20.4 | 9.6 | 10.8 |
| SH, CO | 820004277 | 18 | 0.8 | 224 | 0.14 | 4.38 | 51.68 | . | 106.42 | 43.4 | 29.2 | 27.4 | 20.4 | 9.6 | 10.8 |
| SH | 820004278 | 17 | 0.6 | 286 | 0.68 | 21.25 | 13.35 | 7.9 | 45.17 | 49.4 | 7.2 | 43.4 | 19.9 | 7.3 | 12.6 |
| CO | COAL | 9 | 1 | 195 | 0.01 | 0.31 | 106.73 | . | 106.42 | 29.2 | 27.4 | 20.4 | 9.6 | 10.8 | 10.8 |
| SH | 820004279 | 9 | 1 | 168 | 0.01 | 0.31 | 45.48 | . | 45.17 | 7.2 | 43.4 | 19.9 | 7.3 | 12.6 | 12.6 |
| SH, SS | 820004280 | 12 | 0.5 | 194 | 0.05 | 1.56 | 36.26 | . | 34.7 | 26.4 | 41.2 | 32.4 | 21.8 | 9.6 | 12.2 |
| CO | COAL | 13 | 0.4 | 96 | 0.01 | 0.31 | 187.69 | . | 187.38 | 20.2 | 20.2 | 10.4 | 12.1 | 4.4 | 7.7 |
| SH | 820004281 | 8 | 1 | 73.1 | 0.08 | 2.5 | 150.71 | . | 148.21 | 68.9 | 20.2 | 10.9 | 11 | 5.5 | 5.5 |
| SS | 820004282 | 8 | 1 | 307 | 0.24 | 7.5 | 32.6 | . | 25.1 | 33.8 | 25.2 | 41 | 30.6 | 14.6 | 16 |
| CO | *COAL | 7 | 1.3 | 113 | 0.48 | 15 | 2.48 | 12.52 | 0.8 | 69.8 | 39.6 | 9.4 | 18.9 | 5.8 | 13.1 |
| SH, CO | 820004284 | 5 | 1.2 | 172 | 1.27 | 39.69 | 40.49 | . | 51.8 | 25.2 | 35.8 | 12.4 | 14.5 | 5.3 | 9.2 |
| SH, SL | 820004285 | 11 | 1.2 | 191 | 0.74 | 23.13 | 51.23 | 21.53 | 63.8 | 25.2 | 19 | 18.2 | 9.1 | 9.1 | 9.1 |
| CO | COAL | 10 | 1.4 | 216 | 0.9 | 28.13 | 53.11 | . | 65.8 | 23.2 | 13 | 13.9 | 5.6 | 8.3 | 8.3 |
| SH, CO | 820004286 | 7 | 1.7 | 125 | 0.33 | 10.31 | . | 42.8 | 55.8 | 23.2 | 11 | 14.6 | 4.1 | 10.5 | 10.5 |
| SH, CO | 820004287 | 3 | 1.3 | 191 | 0.74 | 23.13 | 51.23 | 21.53 | 65.8 | 23.2 | 11 | 14.6 | 4.1 | 10.5 | 10.5 |
| SH, CO | 820004288 | 7 | 1.4 | 216 | 0.9 | 28.13 | 53.11 | . | 65.8 | 23.2 | 13 | 13.9 | 5.6 | 8.3 | 8.3 |
| SL, SH | 820004289 | 3 | 1.3 | 125 | 0.33 | 10.31 | . | 42.8 | 55.8 | 23.2 | 11 | 14.6 | 4.1 | 10.5 | 10.5 |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 240966C
DATE CORED: 19JUL1982
DATE REPORTED: 19MAR1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | 0.3 | |
| SL | 820004263 | 0.5 | <0.01 | 0.03 | <0.6 | 65 | 0.3 | 3.2 | 26.9 | 11.4 | 1.5 | 1.7 | |
| SH | 820004264 | 0.5 | <0.01 | <0.01 | <0.6 | 66 | 0.4 | 4.2 | 33.3 | 20.9 | 2.2 | 0.5 | |
| SS | 820004265 | 0.4 | <0.01 | <0.01 | <0.6 | 24 | 0.2 | 2.6 | 31.5 | 8.7 | 2.8 | 0.8 | |
| SH, CO | 820004266 | 4 | 0.03 | 0.13 | <0.6 | <10 | 1.1 | 10.3 | 66.2 | 18.1 | 9.6 | 0.5 | |
| SH | 820004267 | 0.6 | 0.06 | 0.04 | <0.6 | 20 | 1.9 | 7.2 | 89 | 3.1 | 9 | COAL | |
| 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 | 1.9 | 10.9 | 71.2 | 5 | 17.7 | COAL | |
| SH | 820004270 | 1.3 | 0.17 | 0.16 | <0.6 | 29 | 1.6 | 9.6 | 48.7 | 2.8 | 15 | COAL | |
| SH, SL | 820004271 | 0.5 | 0.06 | 0.03 | <0.6 | 11 | 1.9 | 2.3 | 106.7 | 3.6 | 8.3 | 4.9 | |
| SH, SL | 820004272 | 0.5 | 0.1 | <0.01 | <0.6 | 13 | 1.3 | 2.4 | 77 | 3.9 | 11.6 | 2 | |
| SS | 820004273 | 0.2 | 0.05 | <0.01 | <0.6 | 11 | 0.9 | 1.4 | 100.4 | 3.4 | 6.3 | 2.2 | |
| SH, CO | 820004274 | 0.2 | 0.04 | 0.01 | <0.6 | <10 | 1.2 | 1.3 | 82.8 | 2.9 | 5.7 | 0.9 | |
| SH, CO | 820004275 | 1.6 | 0.35 | 0.16 | <0.6 | 14 | 2.1 | 11.1 | 43.9 | 2.3 | 11.7 | 1.6 | |
| SH, CO | 820004276 | 2.1 | 0.14 | 0.22 | <0.6 | <10 | 1.8 | 12.4 | 36.4 | 1 | 17.5 | COAL | |
| CO | 820004277 | 0.8 | 0.12 | 0.17 | <0.6 | 15 | 1.2 | 10 | 47.4 | 1 | 17.1 | 5.8 | |
| 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 | 0.4 | 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

E 25313.0

ELEVATION 6649.1

24097C

DATE DRILLED

8/1/82

SUB AREA

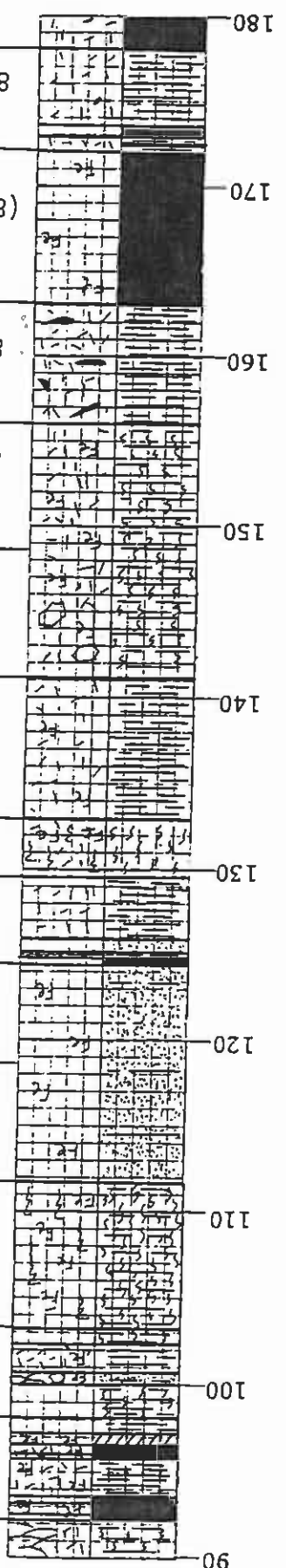
N-6

SAMPLE NO. SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) pH

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|------------|------------------|---------|---------|--------|-------|-------|
| 820004290 | 106.5 | 7.3 | 21.2 | 11.1 | 5.9 | 0.08 |
| 820004291 | 83.5 | 9.6 | 30.1 | 2.2 | 17.3 | 0.11 |
| 820004292 | 67.9 | 11.3 | 45.1 | 2.5 | 29.4 | 0.17 |
| 820004293 | 59.2 | 10.9 | 53.3 | 2.6 | 45.6 | 0.36 |
| 820004294 | 75.3 | 22.2 | 47.9 | 4.8 | 4.5 | 0.04 |
| 820004295 | 75.9 | 25.3 | 22.6 | 0.7 | 0.9 | 0.12 |
| 820004296 | 49.3 | 17.5 | 17.1 | 0.7 | 1.2 | 0.04 |
| 820004297 | 28.4 | 23.7 | 19.1 | 0.9 | 0.4 | <0.01 |
| 820004298 | 62.6 | 36.3 | 31.4 | 0.6 | 0.9 | 0.40 |
| 820004299 | 47.9 | 50.7 | 42.4 | 0.7 | 0.7 | 0.23 |
| 820004300 | 79.5 | 25.9 | 23.9 | 0.6 | 1.1 | 0.26 |
| 820004301 | 49.7 | 28.0 | 22.6 | 0.5 | 0.8 | 0.27 |
| 820004302 | 28.4 | 29.2 | 22.6 | 0.4 | 0.8 | <0.01 |
| 820004303 | 41.3 | 47.4 | 33.5 | 0.5 | 0.5 | 0.28 |
| 820004304 | 31.3 | 26.7 | 21.5 | 0.6 | 0.7 | <0.01 |
| 820004305 | 66.1 | 34.9 | 15.6 | 0.3 | 0.1 | 0.11 |
| 820004306 | 36.3 | 16.6 | 28.7 | 4.7 | 1.3 | 0.04 |

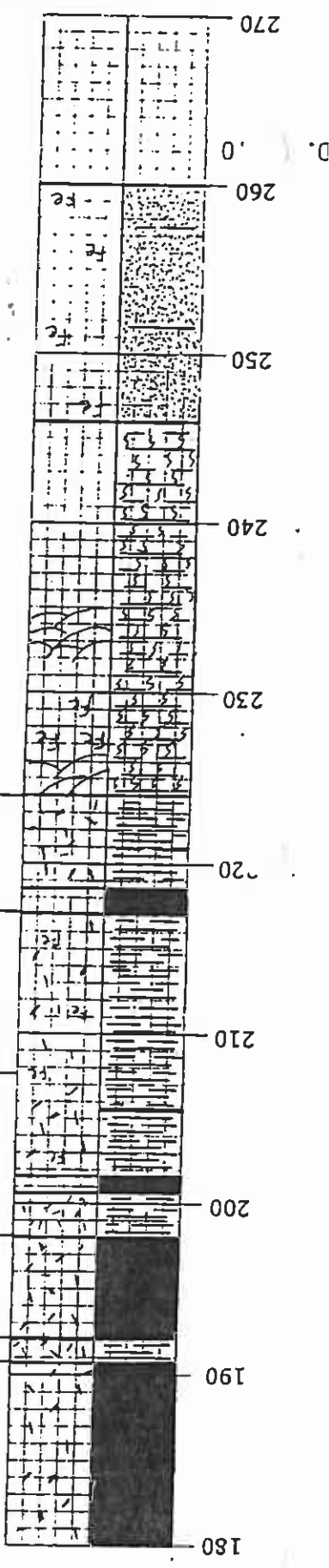
SEP 3 1986

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| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | %S | pH |
|--------------------|--------------|---------|----------|----------|----------|--------|-------|----|
| 820004318 | 38.9 | 27.3 | 28.0 | 1.3 | 0.8 | 0.49 | 7.8 | |
| (82-2180-R) BXX | (N/A) | (12.57) | | (11,574) | | (0.79) | (7.4) | |
| 820004317 | 41.2 | 33.2 | 21.0 | 0.2 | 0.6 | 0.09 | 8.4 | |
| 820004316 | 32.7 | 29.3 | 21.7 | 0.3 | 0.8 | 0.05 | 8.6 | |
| 820004315 | 32.5 | 23.4 | 20.3 | 0.8 | 0.7 | 0.11 | 8.8 | |
| 820004314 | 47.5 | 39.6 | 28.0 | 0.3 | 0.7 | 0.10 | 8.8 | |
| 820004313 | 34.1 | 34.2 | 31.5 | 1.0 | 0.7 | 0.09 | 8.6 | |
| 820004312 | 62.5 | 38.7 | 24.5 | 0.4 | 0.4 | 0.23 | 8.8 | |
| 820004311 | 36.2 | 49.2 | 45.4 | 1.0 | 0.7 | 0.10 | 8.6 | |
| 820004310 | 36.2 | 21.6 | 18.7 | 0.8 | 0.7 | 0.02 | 8.6 | |
| 820004309 | 36.3 | 25.2 | 12.6 | 0.4 | 0.1 | 0.02 | 8.8 | |
| 820004308 | 44.4 | 26.2 | 13.1 | 0.4 | 0.1 | 0.06 | 8.9 | |
| 820004307 | 54.2 | 36.7 | 21.7 | 0.3 | 0.4 | 0.34 | 8.1 | |

HOLE NO. 24097C
 LOCATION S 12932.0
 E 25313.0
 ELEVATION 6649.1
 DRILLER Jim Elliott
 DATE DRILLED 8/1/82
 SUB AREA N-6
 PAGE 2



24097C
 LOCATION S 12932.0 E 25313.0
 ELEVATION 6649.1

| DEPTH (ft) | SAMPLE NO. | SATURATION & (MOISTURE) | SAR | SOL.Na. (ASH) | SOL.Ca. (BTU) | SOL.Mg | SS | PII |
|------------|-----------------|-------------------------|--------|---------------|---------------|--------|-----|-----|
| 180-190 | (82-2179-R) RXX | (N/A) | (4.88) | (12,834) | (0.39) | (7.3) | | |
| 190-195 | 820004319 MXX | 36.6 | 62.6 | 52.4 | 0.7 | 0.85 | 8.2 | |
| 195-200 | (82-2178-R) | (N/A) | (7.14) | (12,462) | (0.46) | (7.5) | | |
| 200-210 | 820004320 | 41.1 | 39.7 | 26.6 | 0.4 | 0.67 | 7.8 | |
| 210-220 | 820004321 | 36.5 | 62.2 | 44.0 | 0.5 | 0.89 | 8.6 | |
| 220-230 | 820004322 | 48.2 | 57.6 | 48.2 | 1.0 | 1.79 | 6.9 | |

DATE DRILLED 8/1/82
 SUB AREA N-6
 PAGE 3
 DRILLER Jim Elliott

389
 SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24097C
DATE CORED: 01AUG1982
DATE REPORTED: 19MART1985

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP |
|------------|--------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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, CO | 8 | 820004292 | 4.7 | 67.9 | 6.8 | 45.1 | 2.5 | 29.4 | 11.3 | | | 13.3 |
| SH | 12 | 820004293 | 5.6 | 59.2 | 8.3 | 53.3 | 2.6 | 45.6 | 10.9 | | | 12.9 |
| CO, 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 |
| SS | 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 |
| CO, SH | 50.7 | 820004300 | 8.6 | 79.5 | 2.5 | 23.9 | 0.6 | 0.7 | 25.9 | | | 27.2 |
| CO, SH | 58.7 | 820004301 | 8.2 | 49.7 | 1.9 | 22.6 | 0.5 | 0.8 | 28 | | | 28.6 |
| SL, SH | 64 | 820004302 | 8.7 | 28.4 | 1.9 | 22.6 | 0.5 | 0.8 | 29.2 | | | 29.5 |
| SH, CO | 68 | 820004303 | 8.1 | 41.3 | 3 | 33.5 | 0.4 | 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 | 0.7 | 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 | 25.2 | | | 27.2 |
| SH, SL | 103.2 | 820004309 | 8.8 | 36.3 | 1.3 | 12.6 | 0.4 | 0.1 | 21.6 | | | 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 | 2 | 45.4 | 0.8 | 0.7 | 49.2 | | | 41.6 |
| CO, SH, SS | 124.4 | 820004312 | 8.8 | 62.5 | 4.4 | 24.5 | 1 | 0.7 | 38.7 | | | 43.1 |
| SL | 129.5 | 820004313 | 8.6 | 34.1 | 3.2 | 31.5 | 0.4 | 0.4 | 34.2 | | | 35.8 |
| SH | 132.9 | 820004314 | 8.8 | 47.5 | 2.5 | 28 | 0.7 | 0.7 | 39.6 | | | 33 |
| SL, SH | 141.1 | 820004315 | 8.8 | 32.5 | 1.9 | 20.3 | 0.3 | 0.7 | 23.4 | | | 36.4 |
| SL, SH | 148.5 | 820004316 | 8.6 | 32.7 | 1.9 | 21.7 | 0.3 | 0.8 | 29.3 | | | 24.9 |
| SH | 156 | 820004317 | 8.4 | 41.2 | 1.9 | 21 | 0.2 | 0.6 | 33.2 | | | 29.6 |
| CO | 163.1 | COAL | | | | | | | | | | 32.3 |
| 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: 19MARI985

| Lithology | Lab No. | * CaCO3 | | | | Eq Tons / 1000 Tons * | | | | Particle Size | | | | % Moisture * | | Avail. H2O Cap. |
|------------|-----------|-------------------|--------------------|--------------------|-----------------|---------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|------------|--------------|------|-----------------------|
| | | 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 | | |
| 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 | 19.89 | 15.8 | 25.2 | 59 | 31.6 | 18.6 | 13 | |
| SH, CO | 820004293 | 169 | 1.3 | 216 | 0.36 | 11.25 | 31.14 | 0.32 | 19.89 | 43.8 | 33.2 | 23 | 23.2 | 13.2 | 10 | |
| SH | 820004294 | 117 | 2.3 | 325 | 0.04 | 1.25 | 0.93 | . | 1.2 | 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 | 29.8 | 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 | |
| CO, SH | 820004300 | 18 | 1 | 369 | 0.26 | 8.13 | 7.47 | 0.66 | 23.43 | 9.8 | 35.2 | 33 | 51 | 20.8 | 30.2 | |
| CO, SH | 820004301 | 14 | 1.3 | 214 | 0.27 | 8.44 | 31.87 | . | 51.79 | 41.8 | 25.2 | 16 | 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 | 33 | 29.4 | 12.8 | 13.4 | |
| SH, CO | 820004303 | 10 | 1.2 | 179 | 0.28 | 0.75 | 48.6 | . | 39.85 | 18.6 | 32.4 | 21 | 41.6 | 29.2 | 12.4 | |
| SH, SL | 820004304 | 11 | 2 | 119 | <0.01 | 0.31 | 199.99 | 0.62 | 52.5 | 46.6 | 21.9 | 30 | 35 | 23.3 | 11.7 | |
| CO, SH | 820004305 | 6 | 1.2 | 265 | 0.04 | 3.44 | 2.82 | . | 15.95 | 38 | 30.6 | 31.4 | 28.1 | 17.6 | 10.5 | |
| SH, SL | 820004306 | 9 | 1.7 | 149 | 0.04 | 1.25 | 53.75 | 3.81 | 4.51 | 48.1 | 31.6 | 23.4 | 20.9 | 12.3 | 8.6 | |
| CO, SH | 820004307 | 6 | 0.9 | 227 | 0.34 | 10.63 | 6.82 | . | 20.85 | 45 | 14.6 | 17.4 | 11.2 | 6.1 | 5.1 | |
| SH, SS | 820004308 | 3 | 1.3 | 163 | 0.06 | 1.88 | 17.83 | . | 30.08 | 75 | 19.6 | 17.4 | 14.6 | 8.8 | 5.8 | |
| SH, SL | 820004309 | 3 | 1 | 106 | 0.02 | 0.63 | 5.14 | . | 26.84 | 30 | 26.6 | 43.4 | 34.9 | 23.6 | 11.3 | |
| SS | 820004310 | 3 | 0.8 | 40.6 | 0.02 | 0.63 | 21.48 | . | 129.43 | 30 | 16.6 | 10.4 | 10.6 | 5.4 | 5.2 | |
| CO, SH, SS | 820004311 | 2 | 0.7 | 73.1 | 0.1 | 3.13 | 33.21 | . | 44.35 | 22 | 41.6 | 36.4 | 25.1 | 18.8 | 6.3 | |
| SL | 820004312 | 6 | 1.4 | 286 | 0.09 | 7.19 | 34.03 | . | 158.13 | 58 | 25.6 | 16.4 | 20.7 | 8.4 | 12.3 | |
| SH | 820004313 | 5 | 1 | 79.1 | 0.23 | 2.81 | 132.24 | . | 95.8 | 50 | 27.6 | 22.4 | 15.7 | 8.5 | 7.2 | |
| SL, SH | 820004314 | 5 | 1.4 | 250 | 0.11 | 3.13 | 47.48 | . | 7.08 | 31 | 34.6 | 34.4 | 13.6 | 12.7 | 0.9 | |
| SL, SH | 820004315 | 4 | 1.4 | 109 | 0.11 | 3.44 | 158.13 | . | 10.85 | 55 | 29.6 | 15.4 | 21.8 | 7.1 | 14.7 | |
| SH | 820004316 | 2 | 1.4 | 148 | 0.05 | 1.56 | 97.36 | . | 8.54 | 30 | 42.6 | 27.4 | 14.2 | 7 | 7.2 | |
| CO | 820004317 | 3 | 1 | 183 | 0.09 | 2.81 | 9.89 | . | 23.66 | 59 | 20.6 | 20.4 | 19.6 | 10 | 9.6 | |
| SH, CO | 820004318 | 2 | 1.2 | 95 | 0.49 | 15.31 | 26.16 | . | 53.67 | 59 | 20.6 | 20.4 | 19.6 | 10 | 9.6 | |
| CO | 820004319 | 5 | 1.2 | 138 | 0.85 | 26.56 | 35.1 | . | 23.66 | 59 | 20.6 | 20.4 | 19.6 | 10 | 9.6 | |
| SH | 820004320 | 7 | 1.3 | 164 | 0.67 | 20.94 | 8.92 | 12.02 | 23.66 | 43 | 30.6 | 26.4 | 13.2 | 9 | 4.2 | |
| CO | 820004321 | 5 | 1.8 | 163 | 0.89 | 27.81 | 51.47 | . | 53.67 | 59 | 20.6 | 20.4 | 19.6 | 10 | 9.6 | |
| SH, CO | 820004322 | 10 | 1.5 | 177 | 1.79 | 55.94 | 2.27 | 53.67 | 53.67 | 59 | 20.6 | 20.4 | 19.6 | 10 | 9.6 | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24097C
DATE CORED:01AUG1982
DATE REPORTED:19MAR1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DTPA Extract * | | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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, CO | 820004292 | 1.3 | 0.03 | 0.09 | <0.6 | 74 | 1.3 | 12.2 | 147.5 | 9.2 | 8.2 | 1.9 | | |
| SH, CO | 820004293 | 0.9 | <0.01 | 0.06 | <0.6 | 42 | 0.7 | 7.4 | 233.9 | 21.2 | 16.1 | 4.7 | | |
| SH, CO | 820004294 | 1.1 | 0.15 | 0.14 | <0.6 | 72 | 0.9 | 13.3 | 70.8 | 5.6 | 10.1 | COAL | | |
| CO, SH | 820004295 | 1.5 | 0.14 | 0.23 | <0.6 | 27 | 1.2 | 9.8 | 41.2 | 2.1 | 8.5 | 3.2 | | |
| SL | 820004296 | 0.5 | 0.16 | <0.01 | <0.6 | 20 | 1.9 | 5.1 | 94.6 | 11 | 13.4 | COAL | | |
| SS | 820004297 | 0.3 | 0.24 | 0.03 | <0.6 | <10 | 1 | 2.2 | 93.1 | 7.5 | 9.3 | 2.1 | | |
| CO, SH | 820004298 | 1.7 | 0.15 | 0.36 | 0.6 | <10 | 1.5 | 11.3 | 107.8 | 3.5 | 5.1 | 1.2 | | |
| CO, SH | 820004299 | 1.8 | 0.08 | 0.18 | 0.6 | <10 | 0.9 | 6 | 140.3 | 2.2 | 14.6 | COAL | | |
| SH | 820004300 | 1.7 | 0.16 | 0.35 | 0.6 | <10 | 1.1 | 9.3 | 96.9 | 1 | 10.1 | COAL | | |
| CO, SH | 820004301 | 1.3 | 0.2 | 0.2 | <0.6 | <10 | 0.8 | 6.2 | 107.2 | 3.4 | 11.3 | 8.1 | | |
| CO, SH | 820004302 | 0.4 | 0.16 | 0.05 | 0.6 | 13 | 1.4 | 2.8 | 83 | 4.6 | 7.3 | COAL | | |
| SH, CO | 820004303 | 1.4 | 0.14 | 0.26 | 0.6 | <10 | 2 | 6.8 | 74.8 | 7.3 | 12 | 1.5 | | |
| SH, SL | 820004304 | 0.3 | 0.24 | 0.08 | 0.6 | 11 | 1.5 | 2.5 | 135.1 | 6.7 | 8.3 | COAL | | |
| CO, SH | 820004305 | 1.1 | 0.21 | 0.24 | <0.6 | <10 | 1.5 | 10 | 27.2 | 7.8 | 14.3 | 2.8 | | |
| SH, SL | 820004306 | 0.4 | 0.25 | 0.14 | <0.6 | <10 | 1 | 3.2 | 92.2 | 1.1 | 8.4 | COAL | | |
| CO, SH | 820004307 | 0.7 | 0.21 | 0.08 | <0.6 | 14 | 1.2 | 5.7 | 38.2 | 2.3 | 9.1 | COAL | | |
| SH, SS | 820004308 | 0.5 | 0.13 | <0.01 | <0.6 | <10 | 1.7 | 1.6 | 30.6 | 1.1 | 9.2 | 2.5 | | |
| SH, SL | 820004309 | 0.2 | 0.11 | 0.02 | <0.6 | <10 | 0.7 | 1.6 | 38.6 | 1.3 | 6.1 | 0.3 | | |
| SS | 820004310 | 0.3 | 0.11 | <0.01 | <0.6 | <10 | 1 | 2.1 | 44.8 | 1.9 | 4.1 | 0.9 | | |
| CO, SH, SS | 820004311 | 0.8 | 0.24 | 0.22 | 1 | 16 | 1.3 | 5.8 | 33.7 | 1.9 | 13.4 | COAL | | |
| SL | 820004312 | 0.3 | 0.07 | 0.02 | <0.6 | 24 | 0.6 | 1.5 | 61.1 | 2.7 | 3.9 | 0.7 | | |
| SH | 820004313 | 0.5 | 0.21 | <0.01 | <0.6 | 24 | 0.7 | 6.8 | 103.9 | 9.1 | 15.4 | 4 | | |
| SL, SH | 820004314 | 0.6 | 0.08 | 0.02 | <0.6 | 12 | 0.8 | 3.8 | 102.2 | 5.8 | 6.5 | 2.2 | | |
| SL, SH | 820004315 | 0.4 | 0.12 | 0.1 | <0.6 | 22 | 1.1 | 4.8 | 123.4 | 8.6 | 10.2 | 3.5 | | |
| SH | 820004316 | 0.9 | 0.14 | 0.21 | <0.6 | 12 | 2.2 | 7.9 | 29.6 | 5.5 | 14.2 | 7.3 | | |
| CO | 820004317 | 0.6 | 0.04 | 0.12 | <0.6 | <10 | 1.7 | 4.5 | 50.2 | 1.2 | 11.2 | COAL | | |
| SH, CO | 820004318 | 0.4 | 0.3 | 0.34 | <0.6 | 17 | 3.8 | 6.1 | 37.1 | 1 | 13.8 | 7.5 | | |
| CO | 820004319 | 1.5 | <0.01 | 0.03 | <0.6 | 16 | 5.2 | 6.8 | 135.3 | 10.3 | 12.6 | COAL | | |
| SH, CO | 820004320 | 0.7 | 0.13 | 0.14 | <0.6 | <10 | 3.3 | 6.5 | 92.6 | 9 | 13.5 | 4.4 | | |
| SH, CO | 820004321 | 2.2 | 0.34 | 0.07 | <0.6 | <10 | 6 | 6.4 | 296.6 | 20 | 19.5 | COAL | | |
| CO, SH | 820004322 | | | | | | | | | | | | | |

2498C

LOCATION S 8597.0

E 24529.0

ELEVATION 6589.1

DATE DRILLED 8-9-82

SUB AREA

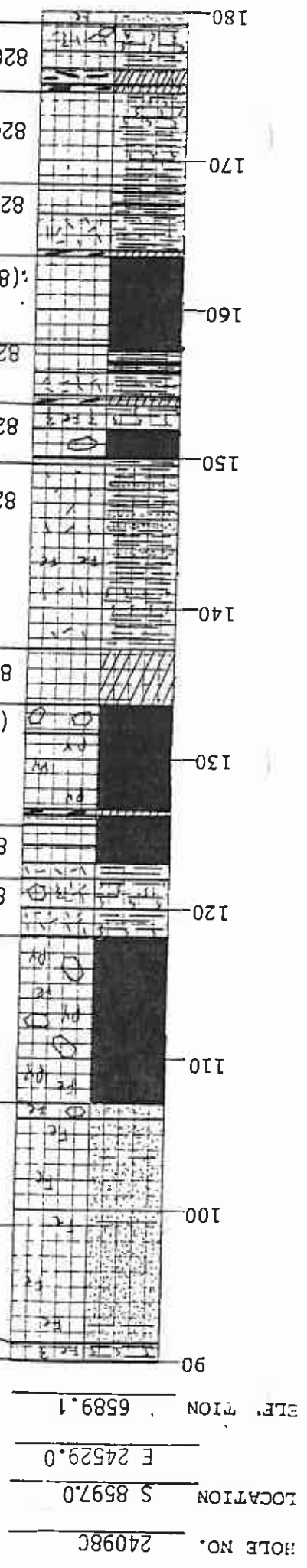
N-6

PAGE 1

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

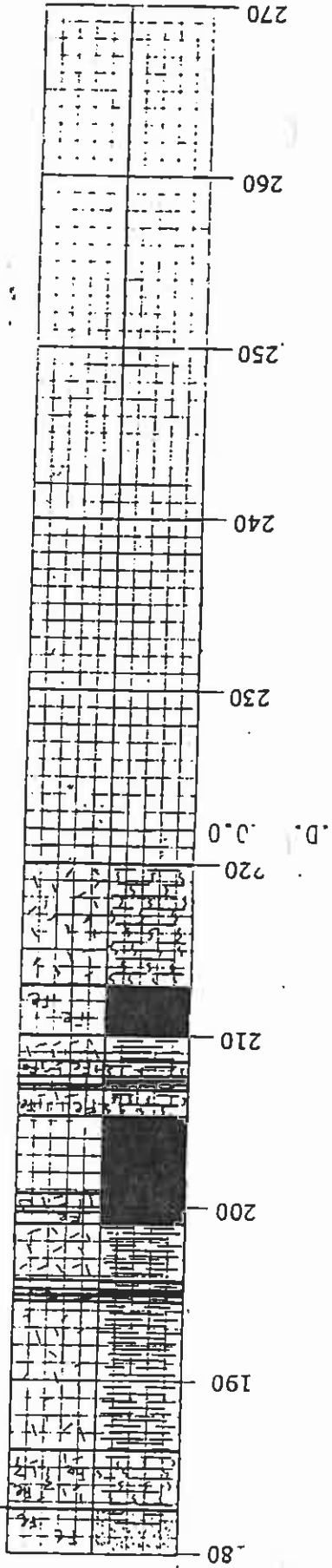
| ELEVATION | SAMPLE NO. | SATURATION & SAR (MOISTURE) | SOL. Na. (ASH) | SOL. Ca. (BTU) | SOL. Mg (%S) | pH |
|-----------|-----------------|-----------------------------|----------------|----------------|--------------|--------|
| 0 | 820004323 | 36.2 | 1.3 | 1.5 | 2.0 | <0.01 |
| 0 | 820004324 | 36.1 | 1.1 | 1.8 | 1.4 | 0.01 |
| 0 | 820004325 | 36.1 | 3.0 | 4.7 | 1.6 | <0.01 |
| 0 | 820004326 | 39.4 | 2.5 | 6.9 | 7.6 | 0.01 |
| 0 | 820004327 | 54.0 | 0.8 | 5.3 | 27.3 | 0.45 |
| 0 | 820004328 | 53.4 | 0.5 | 4.2 | 29.5 | 0.48 |
| 0 | 820004329 | 53.2 | 0.8 | 5.6 | 30.9 | 0.29 |
| 0 | 820004330 | 49.8 | 2.4 | 11.9 | 19.4 | 0.15 |
| 0 | (82-2184-R) G1X | (N/A) | (16.56) | | (10,883) | (0.71) |
| 0 | 820004331 | 74.7 | 29.4 | 25.5 | 0.5 | 0.08 |
| 0 | 820004332 | 63.2 | 36.0 | 19.7 | 0.1 | 0.05 |
| 0 | 820004333 | 60.7 | 25.5 | 25.5 | 0.4 | 0.05 |
| 0 | 820004334 | 42.2 | 32.2 | 43.8 | 1.0 | 0.01 |
| 0 | 820004335 | 42.3 | 17.4 | 21.0 | 0.6 | 0.05 |
| 0 | 820004336 | 34.2 | 11.1 | 19.1 | 1.1 | 0.02 |

SEP 3 1986



| DEPTH | SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | PH |
|-------|------------|------------------|----------|----------|----------|-------|-----|
| 90 | 820004337 | 38.3 | 11.5 | 20.9 | 1.3 | 5.3 | 8.4 |
| 100 | 820004338 | 38.2 | 7.6 | 17.1 | 2.2 | 8.0 | 8.5 |
| 110 | 820004339 | 36.2 | 4.9 | 17.0 | 11.3 | 12.7 | 8.1 |
| 120 | 820004340 | 40.5 | 14.9 | 24.7 | 3.3 | 2.2 | 7.9 |
| 130 | 820004341 | 52.6 | 25.2 | 38.2 | 2.9 | 1.7 | 6.3 |
| 140 | 820004342 | 40.8 | 17.7 | 11.2 | 0.6 | 0.2 | 8.7 |
| 150 | 820004343 | 40.8 | 26.0 | 19.3 | 0.4 | 0.7 | 9.0 |
| 160 | 820004344 | 41.7 | 40.3 | 38.2 | 1.1 | 0.7 | 7.9 |
| 170 | 820004345 | 45.2 | 35.2 | 33.4 | 1.3 | 0.5 | 7.1 |
| 180 | 820004346 | 41.3 | 41.8 | 24.7 | 0.3 | 0.4 | 8.0 |
| 170 | 820004347 | 38.6 | 52.3 | 42.2 | 0.8 | 0.5 | 7.8 |
| 180 | 820004348 | 34.6 | 45.1 | 24.7 | 0.3 | 0.3 | 8.8 |

SEP 3 1985



LOCATION S 8597.0
 E 245290
 ELEVATION . 6589.1
 24998C

SAMPLE NO. 820004349
 SATURATION & (MOISTURE) 32.1
 SAR 42.6
 SOL.Na. 21.3
 SOL.Ca. 0.2
 SOL.Mg 0.3
 %S 0.02
 PH 8.9

DATE DRILLED 8-9-82

J. ELLIOTT

SUB AREA N-6

AGE 3

SEP 3 1986

395

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24098C
DATE CORED: 09AUG1982
DATE REPORTED: 25MAR1985

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | Esp |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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:25MART1985

*Dry Basis

| 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 | Particle Size | | | | % Moisture | | Avail. H2O Cap. |
|-----------|-----------|---------------|----------------|----------------|-------------|----------------------|----------------|---------------|---------------|---------------|--------|--------|---------|------------|------|-----------------|
| | | | | | | | | | | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| 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 | 34.1 | 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 | 34.7 | 0.08 | 2.5 | 1.88 | 0.62 | 35.58 | 20 | 34.6 | 45.4 | 38.2 | 24.5 | 13.7 | |
| SH | 820004332 | 36 | 1.5 | 26.7 | 0.05 | 1.56 | 37.14 | . | 19.17 | 24 | 42.6 | 33.4 | 28.3 | 14.8 | 13.5 | |
| SH, SL | 820004333 | 25 | 1 | 22.3 | 0.05 | 1.56 | 20.73 | . | 20.93 | 21.6 | 47.4 | 31 | 27.2 | 13.1 | 14.1 | |
| SH, SL | 820004334 | 19 | 1.4 | 11.1 | 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 | 12.9 | 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 | 52.69 | 8 | 47.6 | 44.4 | 33 | 20.2 | 9.8 | |
| SH | 820004343 | 13 | 1 | 186 | 0.08 | 2.5 | 55.19 | . | 21.94 | 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 | 22.99 | 62 | 23.6 | 14.4 | 18 | 9.7 | 8.3 | |
| SH, CO | 820004347 | 6 | 1.5 | 148 | 0.99 | 30.94 | 53.93 | . | 46.56 | 62 | 24.6 | 13.4 | 10.4 | 6 | 4.4 | |
| SH, CO | 820004348 | 7 | 1 | 137 | 0.09 | 2.81 | 49.37 | . | 42.04 | 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

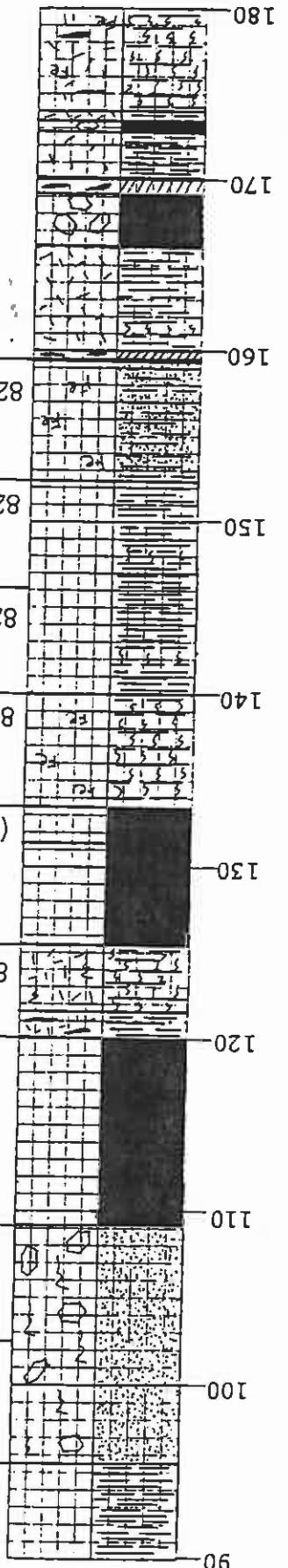
MINE:0250 BLACK MESA J-1/N-6
CORE NO:24098C
DATE CORED:09AUG1982
DATE REPORTED:25MARI1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | 0.1 | |
| SH, CO | 820004327 | 0.5 | 0.01 | 0.02 | <0.6 | 10 | 0.2 | 2.1 | 20.8 | 9.3 | 1.9 | 0.2 | |
| 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 | 120.4 | 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 | COAL | |
| 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 | |

| ELEVATION | SAMPLE NO. | SATURATION & SAR (MOISTURE) | (ASH) | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | pH |
|-----------|-----------------|-----------------------------|---------|----------|----------|---------|--------|-------|
| 6668.7 | 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 |
| | (82-2187-R) VIX | (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 |
| | (82-2188-R) GIX | (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 |

SEP 8 1986



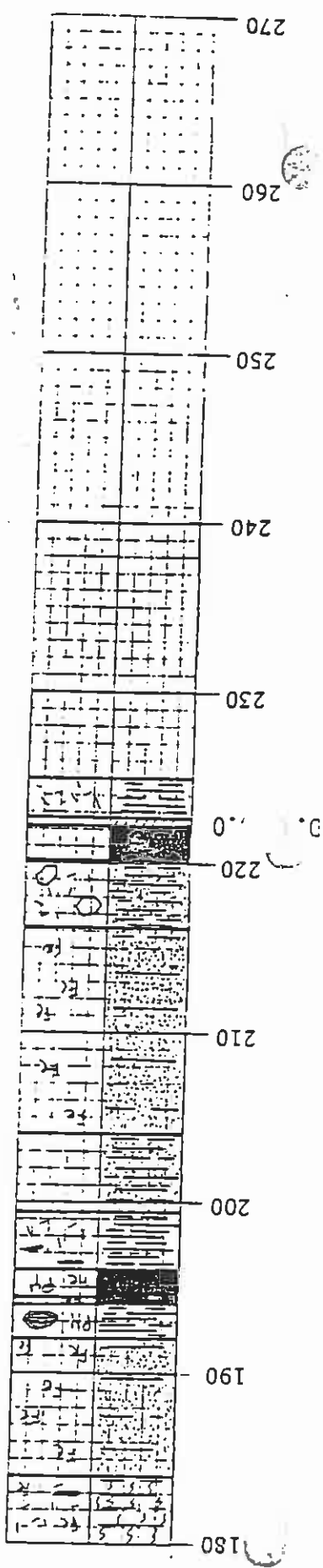
HOLE NO. 24099C
 LOCATION S 9247.0 E 28288.0
 DEPTH 6668.7

| DEPTH (cm) | SAMPLE NO. | SATURATION & SAR | (MOISTURE) (ASH) | SOL.Na. SOL.Ca. SOL.Mg (BTU) | %S | pH |
|------------|-----------------|------------------|------------------|------------------------------|-----|-------|
| 180 | | | | | | |
| 170 | | | | | | |
| 160 | 820004371 | 30.2 | 27.0 | 29.0 | 1.1 | 8.7 |
| 150 | 820004370 | 32.0 | 40.4 | 23.9 | 0.5 | 8.8 |
| 140 | 820004369 | 34.2 | 27.7 | 26.3 | 0.5 | 8.7 |
| 140 | 820004368 | 32.2 | 37.7 | 22.3 | 0.5 | 8.5 |
| 130 | (82-2185-R) RXX | (N/A) | (15.98) | (11,172) | | (7.5) |
| 120 | 820004367 | 40.3 | 23.6 | 28.9 | 2.1 | 8.6 |
| 120 | (82-2186-R) BXX | (N/A) | (7.12) | (12,485) | | (7.6) |
| 110 | 820004366 | 32.2 | 31.1 | 26.9 | 0.7 | 8.6 |
| 100 | 820004365 | 33.6 | 13.4 | 19.2 | 3.0 | 9.1 |
| 90 | | | | | | |

DRILLER J. Elliott
 DATE DRILLED 8-16-82
 SUB AREA N-6
 PAGE 2

SEP 3 1986

400



LOCATION S 9247.0 E 28288.0
 LOCATION 6668.7

24099C

DATE DRILLED 8-16-82

SUB AREA N-6

SATURATION & SVR SOL.Na. SOL.Ca. SOL.Mg (BTU) PH
 SAMPLE NO. (MOISTURE) (ASH)

SEP 3 1986

401

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24099C
DATE CORED: 16AUG1982
DATE REPORTED: 25MAR1985

#Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | |
|-----------|-------|------------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|------|--|
| | | | | | F.C. mho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | ESP | |
| SH | 0 | 8200041350 | 7.9 | 85.9 | 3.6 | 18.1 | 20.2 | 9.2 | 4.7 | 5.4 | |
| SH | 4 | 8200041351 | 5.3 | 65.2 | 3.2 | 19.7 | 11.5 | 7.5 | 6.4 | 7.4 | |
| SH | 8 | 8200041352 | 6.1 | 60.5 | 2.5 | 13.5 | 7.6 | 6.2 | 5.1 | 5.9 | |
| SS, SH | 12 | 8200041353 | 7.7 | 55.6 | 3.4 | 18.5 | 10.6 | 10.4 | 5.7 | 6.7 | |
| SH | 18.6 | 8200041354 | 7.9 | 62.3 | 3.1 | 21.7 | 5.9 | 6.3 | 8.8 | 10.5 | |
| SS | 21.7 | 8200041355 | 8.4 | 49.2 | 1.8 | 14.8 | 2.1 | 1.3 | 11.4 | 13.5 | |
| SS | 28.4 | 8200041356 | 8.7 | 53.4 | 1.6 | 16.7 | <0.1 | 0.1 | 52.8 | 43.4 | |
| SH | 35.1 | 8200041357 | 8.7 | 61.7 | 1.8 | 15.5 | 0.8 | 0.8 | 18.4 | 20.6 | |
| SS | 36.2 | 8200041358 | 8.3 | 42.5 | 1.8 | 15.3 | 1.1 | 0.8 | 15.7 | 18 | |
| SH, SS | 42 | 8200041359 | 8.6 | 52.8 | 2.2 | 19.7 | 1 | 1 | 19.7 | 21.8 | |
| SS | 44.4 | 8200041360 | 7.5 | 42.2 | 3.5 | 21.1 | 9.6 | 9.8 | 6.8 | 8.1 | |
| SH, CO | 54.6 | 8200041361 | 8.2 | 61.7 | 3.1 | 31.5 | 1.2 | 1.1 | 29.4 | 29.6 | |
| CO | 56.7 | COAL | | | | | | | | | |
| SH | 74 | 8200041362 | 8.3 | 49.7 | 1.9 | 18.5 | <0.1 | 0.2 | 47.8 | 40.9 | |
| SH | 79.3 | 8200041363 | 9 | 76.9 | 1.8 | 18.7 | 0.1 | 0.9 | 26.4 | 27.4 | |
| SH | 85.4 | 8200041364 | 9.1 | 48.8 | 1.8 | 20.2 | 0.2 | 1.5 | 21.9 | 23.7 | |
| SS | 95.5 | 8200041365 | 9.1 | 33.6 | 2.4 | 19.2 | 3 | 1.1 | 13.4 | 15.7 | |
| SS | 102.5 | 8200041366 | 8.6 | 32.2 | 2.7 | 26.9 | 0.7 | 0.8 | 31.1 | 30.8 | |
| CO | 109.2 | COAL | | | | | | | | | |
| SH | 120 | 8200041367 | 8.6 | 40.3 | 3 | 28.9 | 2.1 | 0.9 | 23.6 | 25.1 | |
| CO | 125.4 | COAL | | | | | | | | | |
| SH, SL | 133.5 | 8200041368 | 8.5 | 32.2 | 2.3 | 22.3 | 0.5 | 0.2 | 37.7 | 35.2 | |
| SH | 140 | 8200041369 | 8.7 | 34.2 | 2.4 | 26.3 | 0.5 | 1.3 | 27.7 | 28.4 | |
| SH | 146.2 | 8200041370 | 8.8 | 32 | 2.3 | 23.9 | 0.5 | 0.2 | 40.4 | 36.8 | |
| SS, SH | 152.4 | 8200041371 | 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

| Lithology | Lab No. | * Total | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Particle Size | | | % Moisture | | Avail. H2O Cap. |
|-----------|-----------|---------|--------------|--------------|----------------------|----------------|---------------|---------------|---------------|--------|--------|------------|---------|-----------------|
| | | N PPM | NaHCO3 P PPM | NH4OAc K PPM | | | | | S % | Sand % | Silt % | Clay % | 1/3 BAR | |
| SII | 820004350 | 20 | 3.6 | 67.8 | 1.88 | 43.36 | 1.05 | 41.48 | 17.6 | 21 | 61.4 | 37.2 | 23.6 | 13.6 |
| SII | 820004351 | 81 | 0.9 | 96 | 2.19 | 1.14 | 1.05 | 1.52 | 16.6 | 23 | 60.4 | 33.2 | 24.2 | 9 |
| SII | 820004352 | 57 | 3.1 | 101 | 0.94 | 2.46 | 1.05 | 6.88 | 32.6 | 34 | 33.4 | 24.9 | 17.7 | 7.2 |
| SS, SH | 820004353 | 59 | 0.9 | 99.7 | 0.94 | 7.82 | 1.05 | 6.88 | 32.6 | 38 | 29.4 | 22.2 | 11.9 | 10.3 |
| SH | 820004354 | 61 | 1.2 | 168 | 0.94 | 16.61 | 1.05 | 15.67 | 13.6 | 51 | 35.4 | 27 | 9.6 | 11.6 |
| SS | 820004355 | 30 | 0.5 | 123 | 0.31 | 24.53 | 1.05 | 24.22 | 41.6 | 36 | 22.4 | 21.2 | 9.6 | 11.6 |
| SS | 820004356 | 15 | 1.1 | 158 | 0.31 | 31.46 | 1.05 | 31.15 | 42.6 | 32 | 25.4 | 24.2 | 12.7 | 11.5 |
| SH | 820004357 | 15 | 1.1 | 271 | 0.31 | 15.4 | 1.05 | 15.09 | 20.6 | 32 | 47.4 | 33.4 | 20.9 | 12.5 |
| SS | 820004358 | 5 | 0.5 | 104 | 0.31 | 15.4 | 1.05 | 15.09 | 64.6 | 19 | 16.4 | 21.8 | 9.4 | 10.1 |
| SH, SS | 820004359 | 8 | 0.7 | 135 | 0.63 | 13.09 | 1.05 | 12.76 | 45.6 | 27 | 27.4 | 26 | 15.9 | 10.1 |
| SS, SS | 820004360 | 4 | 3.8 | 42.3 | 1.88 | 15.52 | 1.05 | 13.64 | 70.6 | 16 | 13.4 | 17.9 | 8 | 9.9 |
| SII, CO | 820004361 | 13 | 1.3 | 264 | 4.69 | 27.68 | 1.05 | 22.99 | 35.5 | 27 | 37.4 | 30 | 19.8 | 10.2 |
| COAL | 820004362 | 7 | 1.1 | 170 | 15.94 | 5.14 | 10.8 | 46.6 | 26 | 27 | 27.4 | 29.2 | 14.9 | 14.3 |
| SH | 820004363 | 10 | 1.2 | 304 | 7.5 | 16.77 | 10.8 | 9.27 | 46.6 | 26 | 50.4 | 51.7 | 30.1 | 21.6 |
| SII | 820004364 | 5 | 0.7 | 184 | 1.25 | 37.47 | 10.8 | 36.22 | 23.6 | 36 | 36.4 | 31.2 | 19.5 | 11.7 |
| SS | 820004365 | 3 | 1.1 | 111 | 0.94 | 40.75 | 10.8 | 39.81 | 52.6 | 25 | 22.4 | 18.6 | 10.6 | 8 |
| SS | 820004366 | <2 | 0.7 | 67.8 | 1.88 | 27.6 | 10.8 | 25.72 | 67.6 | 17 | 15.4 | 16 | 7.7 | 8.3 |
| COAL | 820004367 | 2 | 1.1 | 108 | 9.69 | 3.86 | 5.83 | 39.6 | 39 | 39 | 21.4 | 17.9 | 9.5 | 8.4 |
| COAL | 820004368 | 2 | 1.1 | 129 | 3.13 | 51.9 | 5.83 | 48.77 | 45.6 | 33 | 21.4 | 15.9 | 8.5 | 7.4 |
| SH, SL | 820004369 | 9 | 1.1 | 142 | 1.88 | 51.82 | 5.83 | 49.94 | 38.6 | 33 | 28.4 | 19.5 | 13.9 | 5.6 |
| SH | 820004370 | 4 | 1.9 | 143 | 2.5 | 104.48 | 5.83 | 101.98 | 49.4 | 27.3 | 23.3 | 17.8 | 10.2 | 7.6 |
| SS, SH | 820004371 | 5 | 1.5 | 112 | 2.81 | 162.74 | 5.83 | 159.93 | 57.8 | 25.6 | 16.6 | 16.9 | 8.5 | 8.4 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24099C
DATE COR'D: 16AUG1982
DATE REPORTED: 25MAR1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract * | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|------|------------------------|
| | | B PPM | As PPM | Se PPM | Co PPM | | | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SH | 820004350 | 1.6 | 0.01 | 0.06 | 0.6 | <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 | <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 | 0.6 | 79 | 0.6 | 7 | 169.5 | 7.4 | 7.7 | 2 |
| SS, SH | 820004353 | 0.4 | <0.01 | 0.04 | 0.6 | 0.6 | 34 | 0.2 | 7 | 22.1 | 7.1 | 1.4 | 0.7 |
| SH | 820004354 | 0.7 | 0.02 | 0.03 | 0.6 | 0.6 | 58 | 0.2 | 3.5 | 21.9 | 5.7 | <1 | 0.9 |
| SS | 820004355 | 0.2 | 0.11 | 0.06 | <0.6 | <0.6 | 13 | 0.2 | 2 | 23.3 | 6.2 | 2.3 | 1 |
| SS | 820004356 | 0.5 | 0.25 | 0.09 | 0.6 | 0.6 | 12 | 0.5 | 2.8 | 45.4 | 5.1 | 5.7 | 1.6 |
| SH | 820004357 | 1 | 0.14 | 0.17 | <0.6 | <0.6 | 16 | 0.2 | 4 | 70.6 | 7.7 | 11 | 2.5 |
| SS | 820004358 | 0.5 | 0.28 | 0.03 | <0.6 | <0.6 | <10 | 0.2 | 1.5 | 26.9 | 3.1 | 2 | 1.7 |
| SH, SS | 820004359 | 1 | 0.19 | 0.07 | <0.6 | <0.6 | <10 | 0.4 | 2.2 | 35.4 | 4.1 | 5.5 | 1.6 |
| SS | 820004360 | 1.5 | 0.01 | <0.01 | 0.6 | 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 | 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 | 0.6 | 24 | 1.8 | 6.8 | 39.7 | 2 | 6.7 | 16.2 |
| SH | 820004363 | 1.7 | 0.25 | 0.19 | <0.6 | <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 | <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 | <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 | <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 | <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 | <0.6 | 14 | 2 | 3.2 | 82.6 | 4.5 | 13.3 | 4.2 |
| SH | 820004369 | 0.3 | 0.09 | 0.08 | <0.6 | <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 | <0.6 | <10 | 2.3 | 4 | 100 | 6.4 | 11.1 | 3.8 |
| SS, SH | 820004371 | 0.3 | 0.09 | 0.08 | <0.6 | <0.6 | <10 | 2.4 | 2.3 | 134.4 | 7.8 | 8.7 | 3.9 |

LOCATION S 7433.0

E 28414.0

ELEVATION 6614.8

24400C

DATE DRILLED

8-29-82

SUB AREA N-6

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)

SAMPLE NO. (MOISTURE) (ASH)

pH

0

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

(82-2191-R) GXX (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

(82-2190-R) BXX (N/A) (5.35) (12,658) (0.48) (7.5)

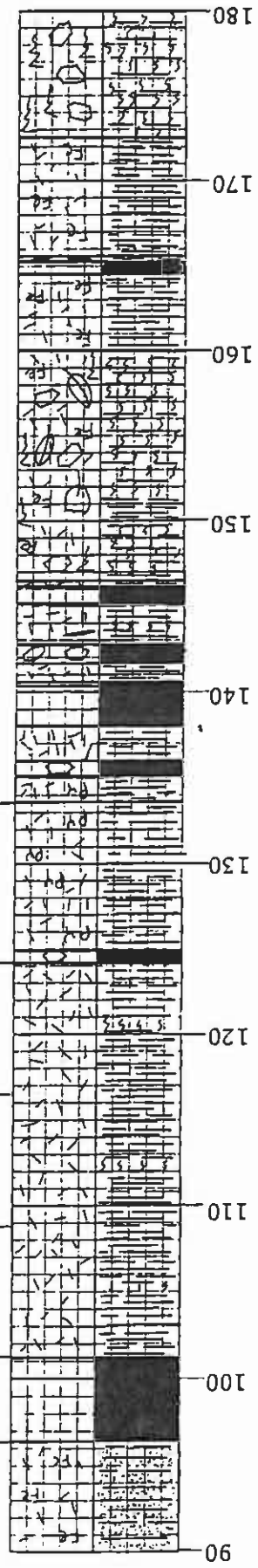
820004383 41.1 16.4 27.5 3.4 2.2 0.18 8.1

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

SEP 3 1986

405



HOLE NO. 24400C
 LOCATION S 7433.0 E 28414.0
 ELEVATION 6614.8

DRILLER J. Elliott
 DATE DRILLED 8-29-82
 SUB AREA N-6
 PAGE 2

| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | (BTU) | % S | pH |
|-----------------|------------------|----------|----------|----------|-------|--------|-------|
| 820004386 | 40.9 | 5.9 | 11.7 | 4.5 | 3.4 | 0.26 | 7.7 |
| (82-2189-R) RXX | (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 |

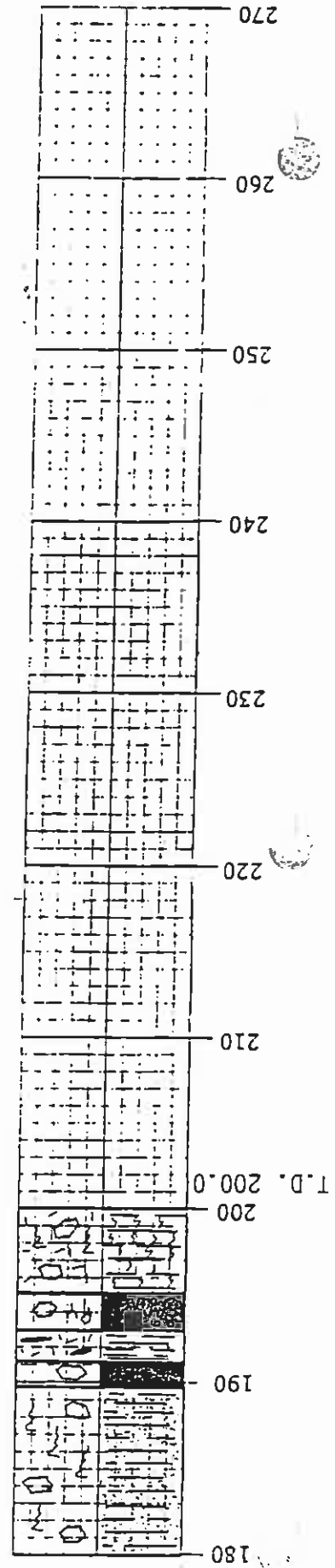
MXX

406

SEP 3 1986

SEP 3 1986

407



LOCATION S 7433.0
 E 28414.0
 ELEVATION 6614.8

DATE DRILLED 8-29-82
 SUB AREA N-6
 SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg
 (MOISTURE) (VSH) (BTU)
 SAMPLE NO. 35
 pH

24400C

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0250 BLACK MESA J-1/N-6
CORE NO:24400C
DATE CORED:29AUG1982
DATE REPORTED:25MARR1985

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | ESP | | | | | | | | |
|-----------|-------|------------|----------|--------|-------------------------|----------|----------|----------|------|--|--|-----|--|--|--|--|--|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | | | | | | | | | |
| SO | 0 | 8200004372 | 8.1 | 42.6 | 0.4 | 2.3 | 1.8 | 1 | 1.9 | | | | | | | | | | | |
| SO | 3.2 | 8200004373 | 8.3 | 46.6 | 1.7 | 9.5 | 1.9 | 2 | 6.8 | | | | | | | | | | | 1.5 |
| SO | 6.4 | 8200004374 | 8.2 | 50.9 | 3.3 | 17.3 | 7.8 | 10 | 5.8 | | | | | | | | | | | 8.1 |
| SH | 9.5 | 8200004375 | 7.9 | 65.3 | 1.9 | 16.7 | 25 | 20.5 | 3.5 | | | | | | | | | | | 6.8 |
| SH,SS | 15.2 | 8200004376 | 8 | 57.1 | 3.2 | 11.2 | 9.8 | 19 | 3.1 | | | | | | | | | | | 3.8 |
| SH | 20 | 8200004377 | 8.2 | 60.3 | 2.4 | 11.1 | 8.2 | 11.2 | 3 | | | | | | | | | | | 3.1 |
| SS | 28 | 8200004378 | 8.1 | 40.2 | 1.5 | 8.2 | 4.4 | 4.1 | 4.4 | | | | | | | | | | | 4.4 |
| SH,CO | 30.9 | 8200004379 | 7.9 | 44 | 1.7 | 13.9 | 2.7 | 1 | 14.7 | | | | | | | | | | | 5 |
| SS | 34.6 | 8200004380 | 8.8 | 30.2 | 1.4 | 12.6 | 0.8 | 0.9 | 14.1 | | | | | | | | | | | 17 |
| SS,SH | 40 | 8200004381 | 8.6 | 28.5 | 1.9 | 18.1 | 0.9 | 1.3 | 17.3 | | | | | | | | | | | 16.3 |
| CO | 47.7 | COAL | | | | | | | | | | | | | | | | | | 19.5 |
| SH,CO | 52.4 | 8200004382 | 8.1 | 43.7 | 3.4 | 35 | 1.3 | 0.7 | 35 | | | | | | | | | | | 33.5 |
| CO | 61.7 | COAL | | | | | | | | | | | | | | | | | | |
| SH,SL | 73.1 | 8200004383 | 8.1 | 41.1 | 3.2 | 27.5 | 3.4 | 2.2 | 16.4 | | | | | | | | | | | 18.6 |
| SH,CO | 78.8 | 8200004384 | 6.6 | 53.2 | 3.8 | 27.5 | 10.6 | 4.9 | 9.9 | | | | | | | | | | | 11.8 |
| SH,SS | 883.1 | 8200004385 | 8 | 43.1 | 2.3 | 12.7 | 6.9 | 5.3 | 5.1 | | | | | | | | | | | 5.9 |
| SH,SS | 89.7 | 8200004386 | 7.7 | 40.9 | 2 | 11.7 | 4.5 | 3.4 | 5.9 | | | | | | | | | | | 6.9 |
| CO | 96.4 | COAL | | | | | | | | | | | | | | | | | | |
| SH | 101.2 | 8200004387 | 8.9 | 33.5 | 3 | 29 | 3.9 | 1.3 | 18 | | | | | | | | | | | 20.2 |
| SH | 108.8 | 8200004388 | 9.1 | 32.6 | 1.8 | 17.9 | 0.4 | 0.2 | 32.7 | | | | | | | | | | | 32 |
| SH | 116.4 | 8200004389 | 9.1 | 30.6 | 2.1 | 20.4 | 0.6 | 0.8 | 24.4 | | | | | | | | | | | 25.8 |
| CO,SH | 124.1 | 8200004390 | 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

| Lithology | Lab No. | CAC03 Eq Tons / 1000 Tons * | | | | | | | | | | Particle Size | | | | % Moisture * | |
|-----------|-----------|-----------------------------|--------------|--------------|-----------|----------------------|----------------|---------------|---------------|--------|--------|---------------|---------|--------|-----------------|--------------|--|
| | | 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 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 | 5.6 | 139 | 0.01 | 0.31 | 15.42 | . | 15.11 | 58.2 | 21 | 20.8 | 23.1 | 11.3 | 11.8 | | |
| SH | 820004374 | 19 | 5.3 | 114 | 0.04 | 1.25 | 45.95 | . | 44.7 | 51 | 23.2 | 25.8 | 23.1 | 12 | 11.1 | | |
| SH,SS | 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 | 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 | 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 | 46.56 | . | 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

| Lithology | Lab No. | Hot H2O Ext. # | | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------|-----------|----------------|--------|--------|-------------|--------|-------------------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | | |
| SH | 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 | COAL | | |
| 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

E 28190.0

ELEVATION 6564.7

24401c

DATE DRILLED 9/7/82

SUB AREA N-6

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

pH

| ELEVATION | SAMPLE NO. | (MOISTURE) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|-----------|-----------------|------------|--------|----------|---------|--------|-------|-------|----|
| 0 | 820004391 | 56.9 | 2.5 | 5.5 | 4.1 | 5.4 | 0.03 | 8.3 | |
| 5 | 820004392 | 47.2 | 3.1 | 8.9 | 4.8 | 11.4 | 0.01 | 8.2 | |
| 10 | 820004393 | 76.1 | 2.5 | 12.3 | 20.0 | 28.9 | <0.01 | 7.3 | |
| 20 | 820004394 | 57.8 | 2.6 | 9.1 | 9.9 | 14.9 | <0.01 | 7.9 | |
| 25 | 820004395 | 53.3 | 1.8 | 9.3 | 20.0 | 32.5 | <0.01 | 7.7 | |
| 30 | 820004396 | 44.6 | 1.5 | 8.9 | 28.8 | 38.1 | <0.01 | 7.7 | |
| 35 | 820004397 | 53.8 | 1.7 | 10.8 | 36.1 | 43.0 | <0.01 | 7.4 | |
| 40 | 820004398 | 48.4 | 2.3 | 16.0 | 29.6 | 63.9 | <0.01 | 6.7 | |
| 45 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | |
| 50 | 820004399 | 42.3 | 3.4 | 12.9 | 8.7 | 19.7 | 0.27 | 7.7 | |
| 55 | 820004400 | 46.7 | 3.3 | 12.3 | 12.8 | 14.2 | 0.96 | 6.9 | |
| 60 | (82-2192-R) RXR | (N/A) | (4.41) | (12,906) | | (0.52) | | (7.4) | |
| 70 | 820004401 | 42.9 | 37.4 | 36.5 | 1.4 | 0.5 | 0.70 | 7.9 | |
| 80 | 820004402 | 41.1 | 39.6 | 36.5 | 1.3 | 0.4 | 0.94 | 7.9 | |
| 90 | 820004403 | 40.7 | 41.7 | 39.6 | 1.4 | 0.4 | 0.88 | 7.9 | |

SEP 3 1986

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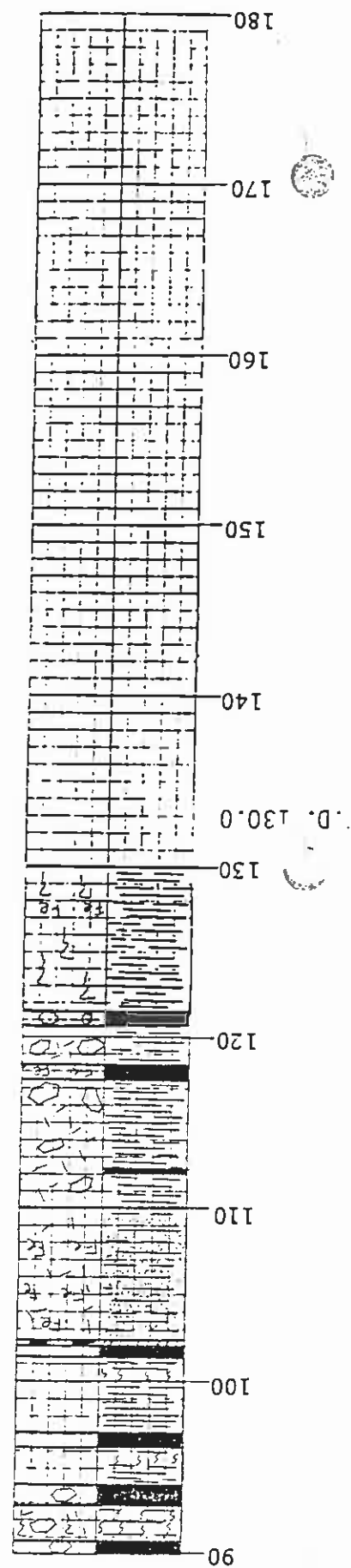
SEP 3 1986

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

DATE DRILLED 9/7/82 SUB AREA N-6

24401C



ELEVATION 6564.7
 LOCATION S 5212.0
 E 28190.0

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO.: 24401C
DATE CORED: 07SEP1982
DATE REPORTED: 27MAR1985

| Lithology | Depth | Lab No. | Paste pH | Sat. %* | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|-----------|-------------|------------|-------------------------|-------------|-------------|-------------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 | 7.4 | 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 |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24401G
DATE CORED: 07SEP1982
DATE REPORTED: 27MAR1985

*Dry Basis

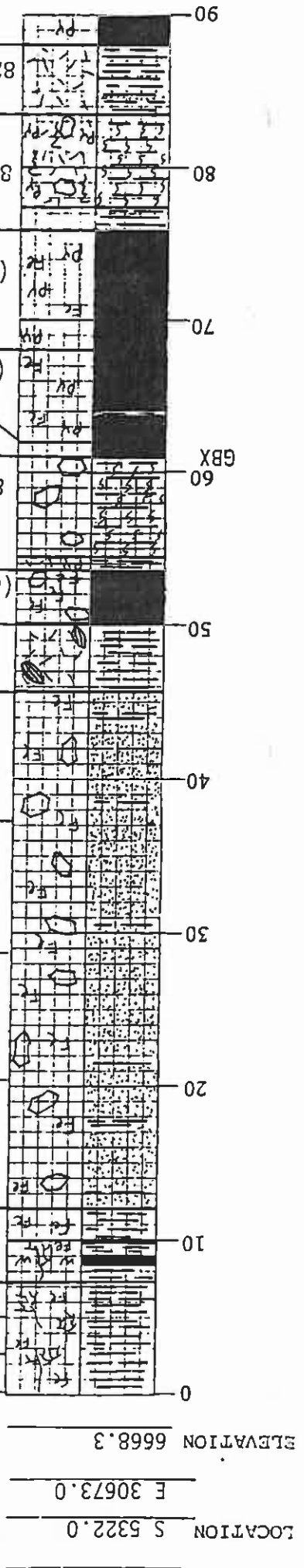
| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture * | | Avail. H2O Cap. |
|------------|-----------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 13.46 | 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 | . | . | 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 | 8.7 | 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 | . | . | 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:27MART1985

Dry Basis

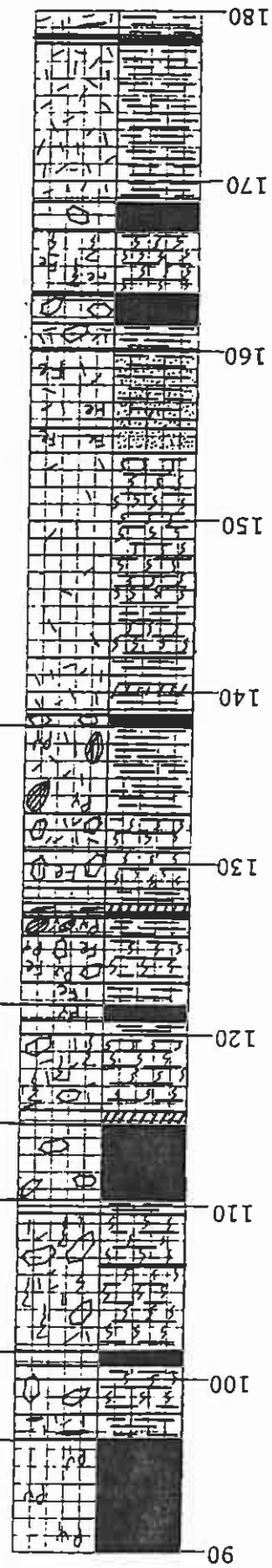
| Lithology | Lab No. | Hot H2O Ext. * | | | | TAMM Mo PPM | * Hg PPB | AB-DTPA Extract * | | | | | | Organic Matter % |
|-----------|-----------|----------------|-----------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|------|--|------------------------|
| | | B PPM | As PPM | Se PPM | Co PPM | | | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| 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 | <0.1 | 25 | <0.1 | 4.5 | 19.2 | 7.2 | 1 | 0.3 | | |
| SH | 820004393 | <0.1 | <0.01 | 0.06 | 0.3 | 40 | 0.3 | 7.5 | 10.3 | 7.6 | 10.9 | 0.3 | | |
| SH | 820004394 | <0.1 | <0.01 | 0.05 | <0.1 | 76 | <0.1 | 5.1 | 16.5 | 3.9 | 4 | 1.3 | | |
| 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 | <0.1 | 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 | C.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 | | |



| DEPTH (ft) | SAMPLE NO. | SATURATION % | SAR | (MOISTURE) (VSH) | SOL. Na. (BTU) | SOL. Ca. SOL. Mg | %S | pH |
|------------|-----------------|--------------|---------|------------------|----------------|------------------|--------|-------|
| 0 | 820004404 | 82.4 | 3.5 | 13.1 | 7.5 | 20.9 | <0.01 | 8.2 |
| 1 | 820004405 | 92.9 | 2.9 | 18.0 | 28.0 | 47.9 | <0.01 | 7.9 |
| 2 | 820004406 | 84.6 | 0.2 | 1.1 | 28.0 | 37.5 | 0.28 | 4.9 |
| 3 | 820004407 | 44.7 | 1.2 | 5.5 | 17.6 | 23.3 | <0.01 | 7.5 |
| 4 | 820004408 | 40.5 | 1.1 | 3.2 | 7.6 | 10.2 | <0.01 | 8.2 |
| 5 | 820004409 | 38.4 | 1.3 | 3.8 | 7.5 | 9.4 | <0.01 | 8.1 |
| 6 | 820004410 | 36.2 | 0.7 | 2.5 | 7.9 | 15.1 | <0.01 | 8.2 |
| 7 | 820004411 | 50.6 | 1.0 | 1.9 | 3.8 | 3.1 | 0.04 | 7.9 |
| 8 | 820004412 | 52.5 | 0.7 | 2.3 | 8.9 | 10.3 | 0.26 | 6.8 |
| 9 | (82-2377-R) GOX | (N/A) | (5.48) | | (12,644) | | (0.60) | (6.2) |
| 10 | 820004413 | 48.4 | 2.0 | 4.5 | 4.0 | 6.5 | 0.14 | 7.9 |
| 11 | (82-2378-R) GBX | (N/A) | (15.46) | | (11,481) | | (0.77) | (6.2) |
| 12 | (82-2379-R) GBX | (N/A) | (12.39) | | (11,632) | | (0.50) | (6.9) |
| 13 | (8202380-R) | (N/A) | (6.84) | | (12,422) | | (0.52) | (6.9) |
| 14 | 820004414 | 50.0 | 2.2 | 9.4 | 14.7 | 21.4 | 0.79 | 5.7 |
| 15 | 820004415 | 43.7 | 25.5 | 23.5 | 0.9 | 0.8 | 0.79 | 7.8 |

LOCATION S 5322.0 DATE DRILLED 9/10/82 SUB AREA N-6 ELEVATION 6668.3 E 30673.0

SEP 3 1986



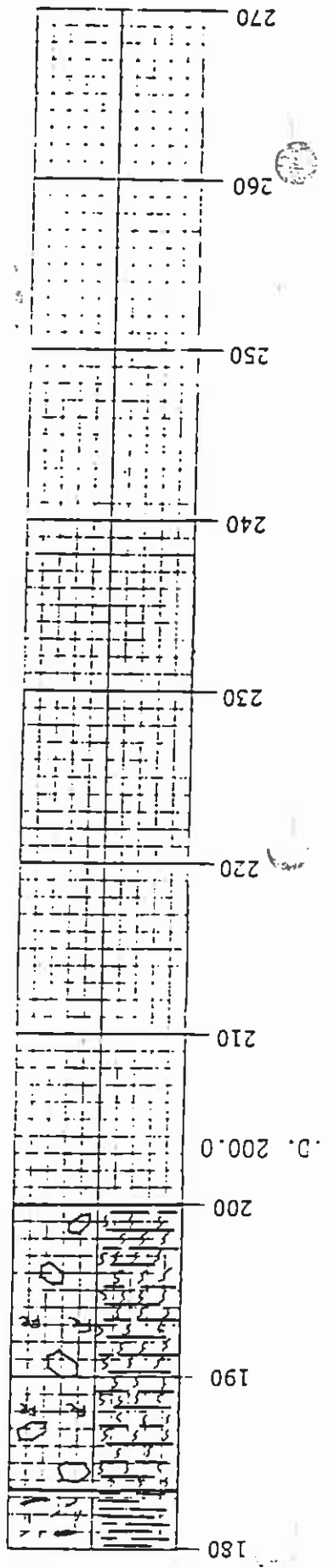
HOLE NO. 24402C
 LOCATION S5322.0
 E 30673.0
 ELEVATION 6668.3

| SAMPLE NO. | SATURATION & SAR | SOL. Na. | SOL. Ca. | SOL. Mg | PH |
|-----------------|------------------|----------|----------|---------|-------|
| (82-2381-R) RXX | (N/A) | (8.40) | (12,332) | (0.60) | (7.2) |
| 820004416 | 41.0 | 34.9 | 42.7 | 1.8 | 0.71 |
| 820004417 | 41.4 | 33.6 | 26.0 | 0.5 | 0.78 |
| (82-2382-R) MXX | (N/A) | (6.60) | (12,494) | (1.10) | (6.8) |
| 820004418 | 36.9 | 41.6 | 32.2 | 0.9 | 0.75 |
| 820004419 | 36.5 | 48.2 | 34.1 | 0.7 | 0.87 |

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SEP 3 1985

DRILLER Jim Elliott
 DATE DRILLED 9/10/82
 SUB AREA N-6
 PAGE 2



ELEVATION 6668.3
 E 30673.0
 S 5322.0

DATE DRILLED 9/10/82
 SUB AREA N-6
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg
 (MOISTURE) (ASH) (BTU)
 SAMPLE NO. 85
 p11

SEP 8 1986

418

2440ac

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24402C
DATE CORED: 10SEP1982
DATE REPORTED: 27MAR1985

#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 | 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 | 10.2 | 9.4 | 1.1 | 0.3 | |
| SS | 20.4 | 820004409 | 8.1 | 38.4 | 1.6 | 3.8 | 10.2 | 7.5 | 1.3 | 0.6 | |
| SS | 28.8 | 820004410 | 8.2 | 36.2 | 2 | 2.5 | 15.1 | 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 | |
| SH, CO | 121.7 | 820004419 | 8.4 | 36.5 | 3.5 | 34.1 | 0.7 | 0.3 | 48.2 | 41.1 | |

PEABODY CO. COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24402C
DATE CORED: 10SEP1982
DATE REPORTED: 27MAR1985

*Dry Basis

| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | | |
|------------|------------|---------------|----------------|----------------|-------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------|
| | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | Avail. H2O Cap. |
| SH | 8200004404 | 5 | 0.5 | 163 | <0.01 | 0.31 | 55.29 | . | 54.98 | 15.4 | 29 | 55.6 | 35 | 17.2 | 17.8 |
| SH | 8200004405 | <2 | 2.5 | 175 | <0.01 | 0.31 | 34.98 | . | 34.67 | 14.4 | 27 | 58.6 | 35.3 | 17.1 | 18.2 |
| SH | 8200004406 | 40 | 4.9 | 185 | 0.28 | 8.75 | 5.08 | 3.67 | 31.99 | 27 | 27.6 | 45.4 | 36.7 | 18.1 | 18.6 |
| SH, CO | 8200004407 | 5 | 2.6 | 124 | <0.01 | 0.31 | 32.3 | . | 45.26 | 52.4 | 19 | 20 | 16.3 | 4.4 | 11.9 |
| SS | 8200004408 | 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 | 8200004409 | 4 | 0.8 | 81.3 | <0.01 | 0.31 | 23.61 | . | 23.3 | 54.4 | 26 | 19.6 | 17 | 4.7 | 12.3 |
| SS | 8200004410 | <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 | 8200004411 | 2 | <0.1 | 125 | 0.04 | 1.25 | 14.23 | . | 12.98 | 27.4 | 41 | 31.6 | 17.6 | 5.8 | 11.8 |
| SH | 8200004412 | 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 | 8200004413 | 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 | 8200004414 | 9 | 1.7 | 104 | 0.79 | 24.69 | 3.3 | 21.39 | . | 51.4 | 29 | 19.6 | 18.9 | 6.6 | 12.3 |
| SH | 8200004415 | 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 | 8200004416 | 8 | 0.8 | 118 | 0.71 | 22.19 | 38.39 | 20.57 | 16.2 | 52.6 | 32 | 15.4 | 20.7 | 7.2 | 13.5 |
| SH, SL | 8200004417 | 7 | 0.3 | 122 | 0.78 | 24.38 | 3.81 | . | . | 51.6 | 31 | 17.4 | 21.6 | 8.9 | 12.7 |
| CO | COAL | | | | | | | | | | | | | | |
| SH, SL, CO | 8200004418 | 6 | 0.7 | 109 | 0.75 | 23.44 | 90.31 | . | 66.87 | 64.6 | 24 | 11.4 | 16.9 | 6.5 | 10.4 |
| SH, CO | 8200004419 | 8 | 0.8 | 132 | 0.87 | 27.19 | 80.73 | . | 53.54 | 54.6 | 28 | 17.4 | 15.5 | 6.7 | 8.8 |

PEABODY CO. COMPANY
CENTRAL LABORATORY

MINE: 0250 BLACK MESA J-1/N-6
CORE NO: 24402C
DATE CORED: 10SEP1982
DATE REPORTED: 27MAR1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. * | | | | AB-DIPA Extract * | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|------|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg # PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| 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 | 1.4 | |
| SH, CO | 820004407 | 0.2 | 0.02 | <0.01 | 0.7 | 13 | 4.1 | 4.1 | 44 | 5.7 | 6.6 | 1.3 | |
| SS | 820004408 | 0.3 | 0.02 | 0.04 | 0.7 | 15 | 1.3 | 4 | 45.4 | 3.9 | 8 | 1.5 | |
| 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 | |
| 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 | |

LOCATION N 6479.0

E 34267.0

ELEVATION 6852.1

21099C

DATE DRILLED 8/10/78

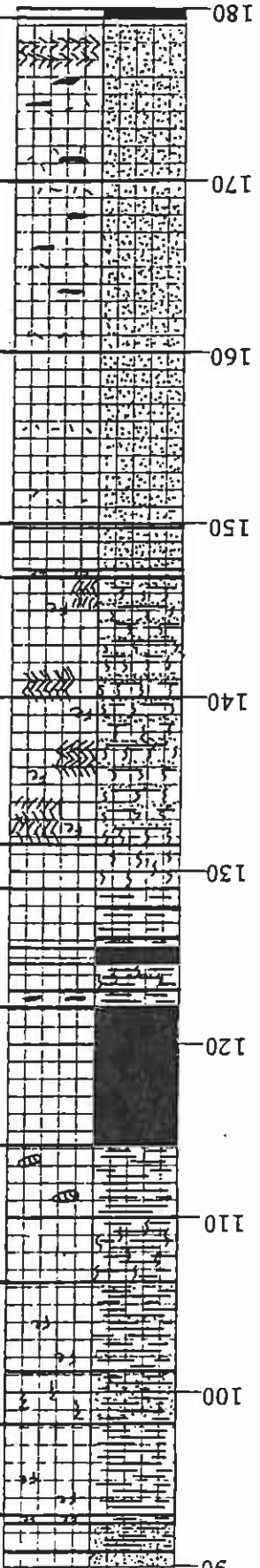
SUB AREA N-10

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) pH

| ELEVATION | SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|-----------|------------|------------------|---------|---------|--------|-------|-------|
| 0 | R-9-998 | 38.9 | 1.6 | 2.0 | 2.2 | 1.0 | <0.01 |
| | R-9-999 | 34.7 | 3.8 | 4.7 | 2.1 | 1.3 | 0.05 |
| 10 | R-9-1000 | 36.7 | 5.2 | 12.9 | 5.0 | 9.5 | 0.09 |
| | R-9-1001 | 41.1 | 1.5 | 15.1 | 31.7 | 61.3 | 0.33 |
| | R-9-1002 | 49.3 | 0.6 | 6.3 | 24.9 | 107.1 | 0.67 |
| 20 | R-9-1003 | 48.4 | 0.7 | 6.9 | 28.8 | 109.3 | 0.33 |
| | R-9-1004 | 71.0 | 0.6 | 6.2 | 28.3 | 66.5 | 0.77 |
| | R-9-1005 | 49.2 | 0.7 | 3.5 | 15.6 | 56.9 | 0.07 |
| 30 | R-9-1006 | 47.4 | 0.5 | 4.5 | 23.4 | 78.3 | 0.46 |
| MX | R-9-1007 | 61.6 | 0.4 | 2.0 | 28.3 | 11.1 | 0.51 |
| 40 | R-9-1008 | 46.5 | 0.6 | 3.0 | 32.2 | 31.8 | 0.67 |
| | R-9-1009 | 42.3 | 0.4 | 3.7 | 13.7 | 134.4 | 0.18 |
| 50 | R-9-1010 | 46.9 | 0.6 | 6.2 | 26.9 | 119.6 | 3.34 |
| | R-9-1011 | 44.4 | 1.3 | 6.6 | 32.7 | 30.3 | 0.60 |
| 60 | R-9-1012 | 51.0 | 0.9 | 8.5 | 27.3 | 91.6 | 2.48 |
| | R-9-1013 | 71.5 | 1.7 | 8.4 | 34.7 | 39.9 | 2.43 |
| | R-9-1014 | 52.0 | 0.8 | 8.2 | 30.8 | 64.2 | 1.68 |
| 70 | R-9-1015 | 51.1 | 1.1 | 5.5 | 36.1 | 34.0 | 0.85 |
| | R-9-1016 | 78.5 | 0.6 | 2.9 | 27.3 | 15.4 | 1.18 |
| | R-9-1017 | 44.4 | 0.8 | 3.9 | 28.8 | 22.9 | 0.27 |
| 80 | R-9-1018 | 34.2 | 0.4 | 2.9 | 24.7 | 79.4 | 0.90 |
| | R-9-1019 | 48.9 | 1.4 | 6.8 | 41.2 | 29.8 | 2.57 |
| | R-9-1020 | 68.2 | 3.0 | 14.8 | 61.7 | 10.1 | 2.99 |
| 90 | | | | | | | 5.8 |

SEP 3 1988

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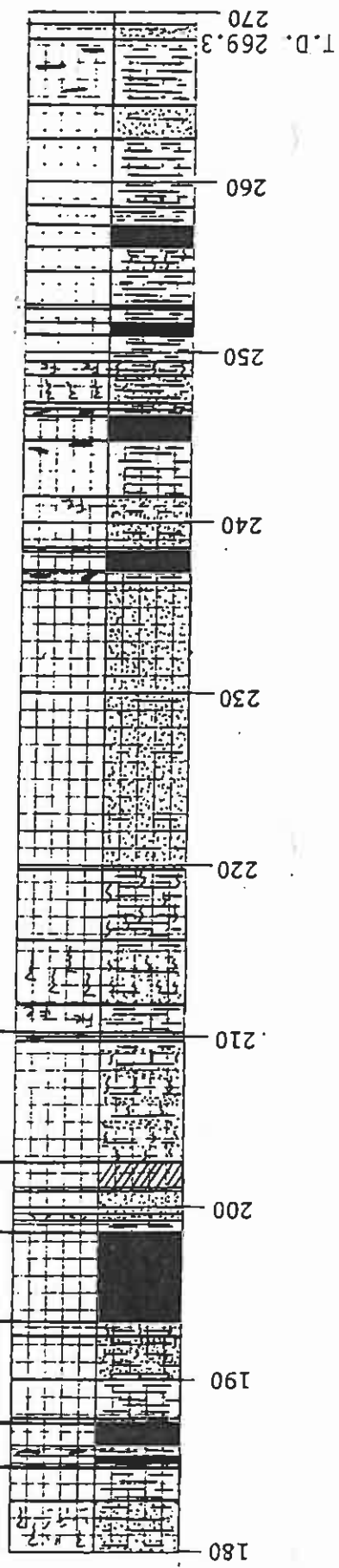
HOLE NO. 21099C
 LOCATION N 6479.0 E 34267.0
 ELEVATION 6852.1
 SAMPLE NO.

DRILLER Jim Elliott
 DATE DRILLED 8/10/78
 SUB AREA N-10
 PAGE 2

| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | pH |
|------------|--------------|---------|----------|----------|----------|--------|
| (MOISTURE) | (ASH) | (BTU) | | | | |
| R-9-1021 | 44.5 | 5.9 | 19.7 | 21.5 | 6.5 | 0.33 |
| R-9-1022 | 55.0 | 5.5 | 27.7 | 29.5 | 8.0 | 0.69 |
| R-9-1023 | 42.4 | 4.2 | 21.0 | 42.1 | 8.5 | 0.75 |
| R-9-1024 | 50.9 | 6.3 | 31.5 | 40.3 | 12.5 | 1.87 |
| (8-2085-R) | (10.29) | (10.77) | (12,227) | | | (1.43) |
| R-9-1025 | 53.8 | 15.3 | 30.5 | 8.3 | 1.5 | 0.76 |
| R-9-1026 | 48.6 | 6.5 | 21.6 | 19.7 | 5.1 | 0.31 |
| R-9-1027 | 38.3 | 9.4 | 10.4 | 1.9 | 0.6 | 0.05 |
| R-9-1028 | 36.3 | 6.8 | 8.5 | 2.6 | 0.8 | 0.06 |
| R-9-1029 | 32.2 | 5.3 | 7.6 | 2.8 | 0.7 | 0.06 |
| R-9-1030 | 40.1 | 3.7 | 5.3 | 3.1 | 1.2 | <0.01 |
| R-9-1031 | 42.1 | 2.4 | 6.0 | 10.3 | 4.9 | 0.06 |
| R-9-1032 | 42.1 | 2.0 | 6.7 | 16.1 | 7.7 | 0.10 |

SEP 3 1986

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LOCATION N 6479.0
 E 34267.0
 ELEVATION 6852.1
 SAMPLE NO. 6852.1

| DATE DRILLED | SUB AREA | SATURATION % | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | PH |
|----------------|----------|--------------|--------|---------|----------|--------|-------|
| 8/10/78 | N-10 | (MOISTURE) | (ASH) | (BTU) | | | |
| R-9-1033 | | 44.4 | 3.0 | 10.1 | 21.5 | 9.0 | 4.9 |
| R-9-1034 | | 58.2 | 19.4 | 32.4 | 5.5 | 1.1 | 6.2 |
| R-9-1035 | | 54.8 | 12.6 | 42.0 | 17.9 | 2.8 | 6.6 |
| (8-2086-R) E1X | | (10.02) | (5.56) | | (13,097) | | (8.3) |
| R-9-1036 | | 46.8 | 24.6 | 22.4 | 1.6 | 0.2 | 7.7 |
| R-9-1037 | | 40.6 | 23.4 | 21.3 | 1.4 | 0.1 | 8.2 |

SEP 3 1986

424

Mine: Black Mesa N-10 Township: 37 N
 Core: 2109-C Range: 18 E
 Section: 35 Date Corred: August 10, 1978

PEABODY COAL COMPANY
 Central Laboratory

| Lithology | Depth ft. | Thickness ft. | Lab No. | Paste pH | Conduc- tivity Paste | Sat. % | Saturation Extract | | | SVR _a | ESP _a | NaHCO ₃ ppm | NH ₄ ⁺ ppm | Total N ppm |
|--|--------------|------------------|------------|-------------|----------------------------|-----------|---------------------------|---------------------------|-------|------------------|------------------|---------------------------|-------------------------------------|-------------------|
| | | | | | | | Ca ⁺⁺ meq/l | Mg ⁺⁺ meq/l | meq/l | | | | | |
| 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 | 30.9 | 2.0 | 2.2 | 1.0 | 1.6 | 1.1 | 3.9 | 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 | 6.6 | 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 | 7.2 | 124.3 | <2 |
| (0.9 to 9.5 foot) | | | | | | | | | | | | | | |
| Indstone, Siltstone, Clay, Sandstone, Shale | 9.5 | 3.5 | R-9-1001 | 5.0 | 6.9 | 41.1 | 15.1 | 31.7 | 61.3 | 1.5 | 0.9 | 4.3 | 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 | 2.1 | 166.8 | 47 |
| Shale, Coal | 19.4 | 1.6 | R-9-1004 | 3.4 | 6.4 | 71.0 | 6.2 | 26.3 | 66.5 | 0.6 | -0.4 | 2.5 | 168.5 | 140 |
| Sandstone, Shale (24.0 to 25.0 foot) | 21.0 | 4.0 | R-9-1005 | 3.9 | 4.9 | 49.2 | 3.5 | 15.6 | 56.9 | 0.7 | -0.2 | 5.6 | 162.3 | 31 |
| 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 | 5.9 | 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 | 32.0 | 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 | 27.1 | 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
 Total - N is Sum
 of NH₄-N and NO₃-N
 ppm
 *pH₁ - N < 2ppm and pH₂ - N > 1

Mine: Black Mesa N-10 Township: 37 N
 Core: 21009-C Range: 18 E
 Section: 35 Date Cor'd: August 10, 1978

Central Laboratory

| Lithology | Depth Ft. | Thickness Ft. | Lab No. | Waste M | Conduc- tivity Partic | Sat. % | Saturation Na+ meq/l | Ca+ meq/l | Extrac- t-NO ₃ ⁻ meq/l | SAR _s | ESP _s | Hard- ness ppm | NO ₃ ⁻ ppm | NO ₂ ⁻ ppm | NO ₃ ⁻ + NO ₂ ⁻ ppm |
|-------------------------------|--------------|------------------|------------|------------|-----------------------------|--------|----------------------------|--------------|--|------------------|------------------|----------------------|-------------------------------------|-------------------------------------|---|
| Shale, Coal | 63.1 | 2.7 | R-9-1014 | 3.0 | 7.4 | 52.0 | R-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 | 170.5 | | 1 |
| 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 | | 1 |
| 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 | | 1 |
| 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 | 10.1 | 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 | 11.5 | 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 | 8.3 | 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 | 42.2 | 6.0 | 10.3 | 4.9 | 2.4 | 2.2 | <0.1 | 28.3 | | 10 |
| 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 | | 10 |

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

Mine: Black Mesa N-10 Township: 37N
 Core: 21099 C Range: 18 E
 Section: 35 Date Core'd: August 10, 1978

PLANTARY COAL CONTRACT
 Central Laboratory

| Lithology | Depth Ft. | Thickness Ft. | Lab No. | Paste pH | Conduc-tivity Paste | Sact. % | Saturation Extract | | | SAR _s | ESP _s | CaCO ₃ ppm | NH ₄ OAc ppm | pH |
|-----------------------------|-----------|---------------|----------|----------|---------------------|----------|--------------------|-------|-------|------------------|------------------|-----------------------|-------------------------|----|
| | | | | | | | meq/l | meq/l | meq/l | | | | | |
| Coal | 179.5 | 0.5 | mixed | with | sample | R-9-1034 | in transit | | | | | | | |
| Sandstone, Shale | 180.0 | 4.9 | R-9-1031 | 4.9 | 3.2 | 44.4 | 19.1 | 21.5 | 9.0 | 3.0 | 3.1 | 1.0 | 21.3 | 2 |
| Shale, Coal | 184.9 | 2.6 | R-9-1034 | 6.2 | 3.7 | 58.2 | 12.4 | 5.5 | 1.1 | 19.4 | 21.5 | 2.1 | 214.0 | 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 | 14.0 | 2.1 | 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
 Total-N is Sum of NH₄-N and NO₃-N
 NH₄ - N < 2ppm and NO₃ - N < 1 ppm

| Sample Number Specimen | Range: 18" to Date Cored: 9-10-78 | Tests for Sulfur Equivalence per 100 Tons Material | | | | Central Laboratory | | | | | |
|---------------------------|--------------------------------------|---|------------------------------|--|---------------------------------------|--------------------|---------------|--------|---------|---|------|
| | | Max. Sulfur | Avg. from Total Sulfur | Amount Required for Neutral- ity | Excess CaCO ₃ Equiv. | Organic Matter | Particle Size | | | Available Moisture Capacity (1/3-15BA) | |
| | | | | | | % Sand | % Silt | % Clay | 1/3 BAR | 15 BAR | |
| R-9-1000 | | <0.01 | 0.11 | 5.69 | 5.17 | 54.5 | 11.4 | 12.6 | 22.3 | 4.0 | 18.3 |
| R-9-1001 | | 0.02 | 6.61 | 6.02 | 5.39 | 49.0 | 21.4 | 29.6 | 28.9 | 7.6 | 21.3 |
| R-9-1002 | | <0.01 | 0.11 | 4.04 | 5.63 | 51.0 | 23.4 | 25.6 | 27.3 | 7.6 | 18.8 |
| R-9-1003 | | <0.01 | 0.31 | 10.40 | 14.15 | 51.6 | 22.8 | 23.6 | 24.5 | 6.3 | 17.2 |
| R-9-1004 | | 0.05 | 1.56 | 57.15 | 56.69 | 46.0 | 18.4 | 21.6 | 21.6 | 6.3 | 17.3 |
| R-9-1005 | | 0.09 | 2.81 | 57.42 | 54.61 | 21.6 | 11.8 | 16.6 | 25.7 | 6.4 | 19.3 |
| R-9-1006 | | 0.33 | 19.11 | 6.53 | 1.78 | 67.5 | 19.8 | 12.6 | 30.1 | 6.6 | 23.5 |
| R-9-1007 | | 0.67 | 20.94 | 3.07 | 17.87 | 15.0 | 30.8 | 24.6 | 11.0 | 8.6 | 14.4 |
| R-9-1008 | | 0.33 | 10.31 | 4.45 | 5.86 | 70.0 | 16.8 | 13.2 | 40.7 | 11.3 | 22.4 |
| R-9-1009 | | 0.77 | 24.06 | -27.20 | 51.26 | 78.0 | 13.8 | 8.2 | 41.1 | 24.8 | 16.5 |
| R-9-1010 | | 0.07 | 2.19 | 1.66 | 0.53 | 25.0 | 41.8 | 31.2 | 29.2 | 7.3 | 21.9 |
| R-9-1011 | | 0.46 | 14.38 | 2.69 | 11.69 | 41.0 | 29.8 | 29.2 | 33.0 | 8.3 | 26.7 |
| R-9-1012 | | 0.51 | 15.94 | 3.83 | 12.11 | 47.0 | 4.6 | 8.2 | 41.4 | 12.1 | 29.3 |
| R-9-1013 | | 0.67 | 20.94 | 55.36 | 34.42 | 41.0 | 11.1 | 27.6 | 28.0 | 6.9 | 21.1 |
| R-9-1014 | | 0.18 | 5.63 | 34.21 | 28.60 | 56.0 | 24.4 | 19.6 | 26.1 | 4.6 | 21.5 |
| R-9-1015 | | 3.34 | 104.38 | 31.89 | 72.49 | 44.0 | 26.4 | 24.6 | 31.6 | 8.8 | 22.6 |
| R-9-1016 | | 0.60 | 18.75 | 24.02 | 5.27 | 48.0 | 10.8 | 21.2 | 27.3 | 5.8 | 21.5 |
| R-9-1017 | | 2.48 | 77.50 | 8.78 | 68.72 | 16.0 | 43.8 | 40.2 | 33.2 | 9.6 | 23.6 |
| R-9-1018 | | 2.43 | 75.94 | 4.99 | 70.95 | 84.0 | 8.8 | 7.2 | 31.0 | 13.2 | 17.8 |

| Section: 2109A-C35 | Date Corred: 19-10-71 | 100 Tons Material | | | | | | | | | | | |
|--------------------|-----------------------|-------------------|------------------|--------------|---------------------------|-------------------------------|---------------------------------|----------------|---------------|------|---------|----------|------|
| | | *Dry Basis | Reqd From Sulfur | Total Sulfur | Amount Present by Filters | Amount Needed for Neutral-ity | EXCESS CaCO ₃ Equiv. | Organic Matter | Particle Size | | | Holsture | |
| | | Sulfur | | | | | | Sand | Silt | CLAY | 1/3 BAR | 15 BAR | |
| R-9-1014 | | 1.68 | 52.50 | 0.64 | 51.06 | | 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 | 29.0 | 13.0 | 15.0 |
| R-9-1017 | | 0.27 | 8.44 | 1.88 | 6.56 | | 5.5 | 46.0 | 12.9 | 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 | 12.9 | 25.2 | 29.0 | 6.7 | 22.3 |
| R-9-1020 | | 2.99 | 91.44 | 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 |
| 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 | 0.11 | 19.56 | | 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 |

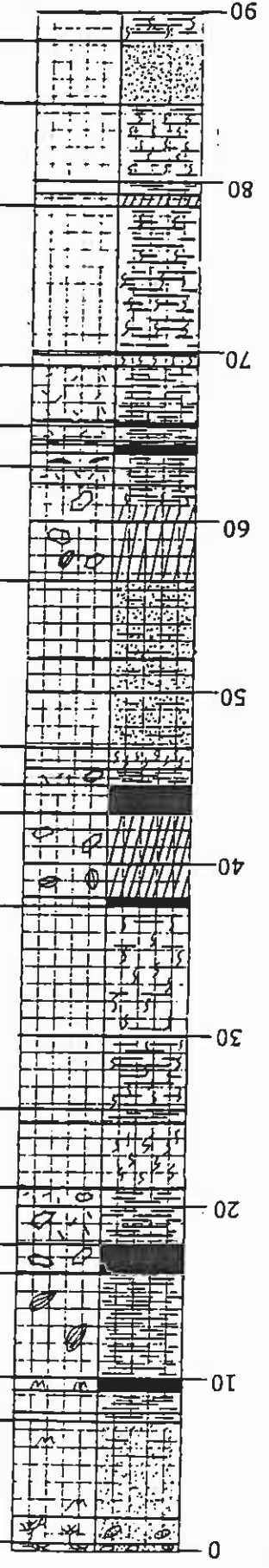
Core 21099-C
Section: 35

Sample
Date Cored: 8-F-78
Dry Basis

100 Tons Material

Central Laboratory

| Sample No. | Sulfur | Max. Total Sulfur | Amount By Filtration | Amount for Neutrality | Excess CaCO ₃ Equiv. | Organic Matter | Particle Size | | | Moisture | | Available Capacity (1/3-15BAU) |
|--------------------|--------|-------------------|----------------------|-----------------------|---------------------------------|----------------|---------------|------|------|----------|--------|--------------------------------|
| | | | | | | | Sand | Silt | Clay | 1/3 BAR | 15 BAR | |
| R-9-1033 | 0.42 | 13.13 | 8.05 | 5.01 | | 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 (Coal) | 0.64 | 20.00 | 19.54 | 0.46 | | 4.7 | 22.0 | 45.6 | 31.6 | 19.5 | 7.5 | 12.0 |
| 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 |



ELEVATION 6904.6

E 36286.0

LOCATION N 4103.0

21100c

DATE DRILLED 9-20-78

SUB AREA N-10

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) pH

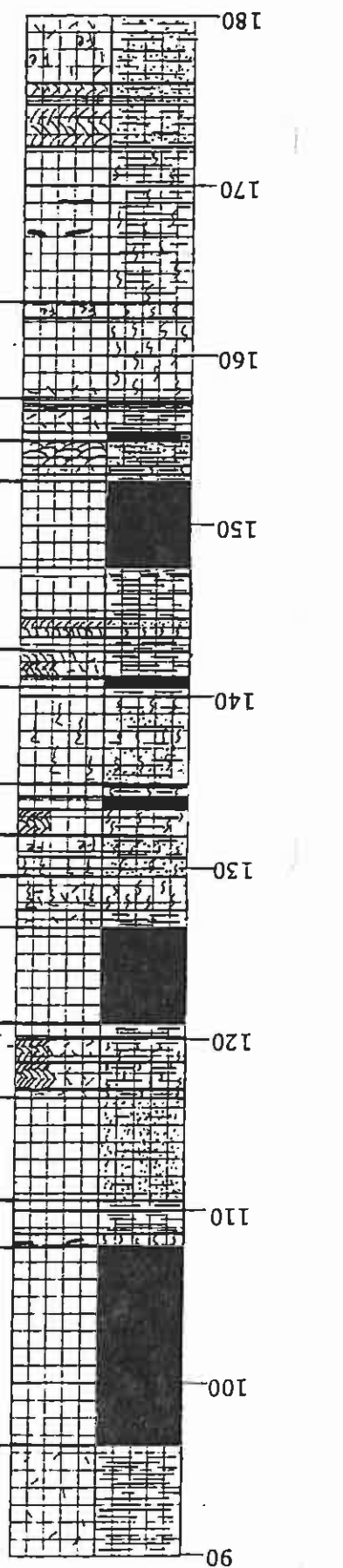
SAMPLE NO. (MOISTURE) (ASH)

pH

| SAMPLE NO. | (MOISTURE) | (ASH) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|------------|------------|-------|------|---------|---------|--------|-------|-----|
| R-9-1056 | 38.2 | 3.7 | 12.1 | 11.9 | 9.5 | 0.18 | 7.5 | 7.5 |
| R-9-1055 | 53.2 | 5.4 | 34.6 | 25.3 | 32.8 | 1.89 | 3.1 | 3.1 |
| R-9-1054 | 48.7 | 5.7 | 25.7 | 25.8 | 15.4 | 0.73 | 6.5 | 6.5 |
| R-9-1053 | 61.7 | 9.0 | 28.7 | 13.0 | 7.5 | 0.40 | 5.5 | 5.5 |
| R-9-1052 | 53.9 | 4.9 | 18.6 | 18.5 | 10.5 | 1.49 | 5.7 | 5.7 |
| R-9-1051 | 53.2 | 0.6 | 3.6 | 25.8 | 52.8 | 2.14 | 3.3 | 3.3 |
| R-9-1050 | 34.2 | 0.5 | 2.5 | 20.4 | 26.1 | 0.37 | 7.1 | 7.1 |
| R-9-1049 | 52.9 | 0.7 | 3.8 | 22.9 | 30.4 | 0.47 | 3.3 | 3.3 |
| R-9-1048 | 78.0 | 0.7 | 2.4 | 10.8 | 10.6 | 0.85 | 4.7 | 4.7 |
| R-9-1047 | 55.5 | 0.7 | 3.9 | 26.8 | 31.6 | 1.14 | 5.0 | 5.0 |
| R-9-1046 | 50.8 | 1.4 | 3.7 | 5.5 | 8.0 | 0.07 | 7.8 | 7.8 |
| R-9-1045 | 50.8 | 1.0 | 3.8 | 7.7 | 23.7 | 0.16 | 7.5 | 7.5 |
| R-9-1044 | 56.2 | 0.3 | 2.6 | 24.8 | 113.5 | 4.06 | 2.4 | 2.4 |
| R-9-1043 | 64.3 | 0.5 | 2.2 | 22.4 | 20.4 | 2.85 | 2.3 | 2.3 |
| R-9-1042 | 51.3 | 0.7 | 4.1 | 38.1 | 27.2 | 1.07 | 3.3 | 3.3 |
| R-9-1041 | 60.7 | 2.0 | 9.8 | 38.5 | 46.7 | 1.37 | 3.4 | 3.4 |
| R-9-1040 | 42.2 | 0.7 | 3.6 | 42.1 | 14.1 | 0.06 | 6.9 | 6.9 |

431

SEP 3 1986



HOLE NO. 21100C
 LOCATION N 4103.0
 E 36286.0
 ELEVATION 6904.6

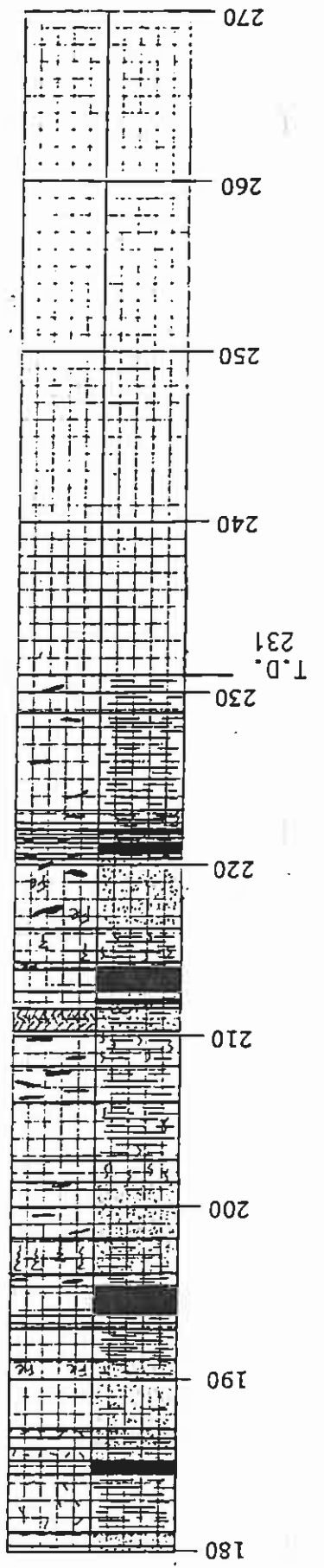
DRILLER Jim Elliott
 DATE DRILLED 9-20-78
 SUB AREA N-10
 PAGE 2

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

| | | | | | | | |
|-------------------|---------|--------|----------|------|--------|------|-------|
| R-9-1057 | 49.0 | 5.5 | 30.6 | 25.8 | 37.0 | 2.03 | 5.2 |
| (8-2088-R) NXX | (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 |
| (8-2089-R) EOX | (11.87) | (8.24) | (12,536) | | (0.51) | | (7.6) |
| R-9-1061 | 49.0 | 9.9 | 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 |
| (8-2090-R) EIX | (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 |

432

SEP 3 1986



LOCATION N 4103.0
 E 36286.0
 LEVATION 6904.6
 211006

DATE DRILLED 9-20-78
 SUB AREA N-10
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 (MOISTURE) (ASH) %S pH
 SAMPLE NO.

SEP 3 1986

433

Mine: Black Mesa N-10
 Core: 21160
 Section: 2

Township: 36 N
 Range: 18 E
 Date Col'd: 9-20-1978

FEDERAL COAL COMPANY
 Central Laboratory

| Lithology | Depth ft. | Thickness ft. | Lith. No. | Particle Size | Conductivity Ppm | Sat. % | Saturation Extract | | | SAR* | ESP* | Ni ₂ CO ₃ Ppm | Ni ₂ OAc ₄ Ppm | Total Ppm |
|----------------------|--------------|------------------|-----------|------------------|---------------------|--------|-------------------------|--------------------------|--------------------------|------|------|--|---|--------------|
| | | | | | | | Na ⁺ mg/l | Ca ²⁺ mg/l | Mg ²⁺ mg/l | | | | | |
| Surface Soil | 0.0 | 0.1 | R-9-1038 | 7.8 | 0.4 | 42.4 | 1.1 | 3.7 | 0.2 | 0.9 | 0.1 | 11.1 | 105.7 | 117.8 |
| 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 | 89.9 |
| Sand, Sandstone | 0.4 | 7.1 | R-9-1040 | 6.9 | 1.3 | 42.2 | 3.6 | 42.1 | 14.1 | 0.7 | -0.2 | 16.3 | 77.0 | 93.3 |
| 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 | 164.4 |
| 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 | 99.7 |
| Coal | 16.1 | 1.7 | R-9-1043 | 2.1 | 6.2 | 64.3 | 2.2 | 22.4 | 20.4 | 0.5 | -0.5 | 0.9 | 13.1 | 14.0 |
| Claystone, Shale | 17.8 | 3.3 | R-9-1044 | 2.4 | 21.0 | 56.2 | 2.6 | 24.8 | 113.5 | 0.3 | -0.8 | 5.9 | 110.1 | 116.0 |
| 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 | 192.5 |
| 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 | 208.2 |
| Coal, Shale | 17.5 | 5.4 | R-9-1047 | 5.0 | 2.3 | 55.5 | 3.9 | 26.8 | 11.6 | 0.7 | -0.2 | 5.0 | 217.6 | 222.6 |
| Coal | 42.9 | 1.7 | R-9-1048 | 4.7 | 1.1 | 78.0 | 2.4 | 10.8 | 10.6 | 0.7 | -0.2 | 3.1 | 44.1 | 47.2 |
| 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 | 108.0 |
| 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 | 56.4 |
| Shale | 56.5 | 6.7 | R-9-1051 | 3.3 | 3.5 | 53.2 | 3.6 | 25.8 | 52.8 | 0.6 | -0.4 | 8.5 | 141.7 | 148.2 |
| 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 | 249.2 |
| 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 | 317.0 |
| 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 | 192.1 |
| 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 | 183.6 |
| 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 | 112.2 |
| 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 | 243.9 |
| 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 | 153.2 |
| Sandstone | 110.6 | 6.0 | R-9-1059 | 7.7 | 0.6 | 36.2 | 3.2 | 4.7 | 5.5 | 1.4 | 0.7 | 3.5 | 53.2 | 56.7 |
| 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 | 5.6 | 198.9 | 204.5 |

ADP BASIS
 Total N to Sum of NH₄-N and NO₃-N
 *Total N - N < 2ppm and plus - N < 1 ppm

Site: Black Mesa
 Section: 21100-C
 Township: 36 N
 Range: 19 E
 Date Collected: 9-20-1978

Central Laboratory

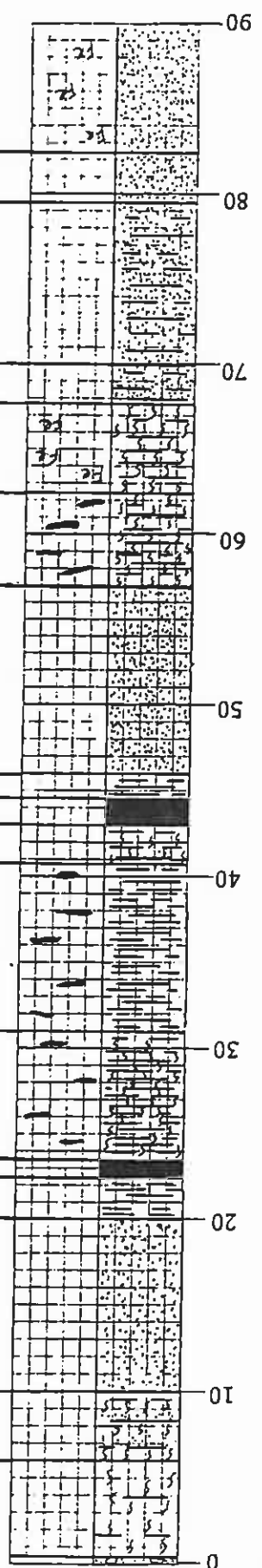
| Lithology | Depth Ft. | Thickness Ft. | Lab No. | Paste pH | Conduc- tivity Paste | Sat. % | Saturation Extract | | | SAR* | ESP* | NaHCO ₃ * ppm | NH ₄ OAc ppm | TOTAL ppm |
|----------------------|--------------|------------------|------------|-------------|----------------------------|-----------|--------------------|---------------------------|-------------|------|------|-----------------------------|----------------------------|--------------|
| | | | | | | | Na meq/l | Ca ⁺⁺ meq/l | Mg meq/l | | | | | |
| Violent Coal Seam | 120.7 | 5.8 | Coal | | | | | | | | | | | |
| Shale siltstone | 120.5 | 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 | 120.0 | 2.3 | R-9-1062 | 8.3 | 1.1 | 30.2 | 20.8 | 1.5 | 0.8 | 19.4 | 21.5 | <0.1 | 180.1 | <2 |
| Shale | | | | | | | | | | | | | | |
| Siltstone, 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 | 14.3 | 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 | 1.0 | 76.9 | 3.3 | 0.6 | 0.4 | 4.7 | 5.4 | 0.5 | 291.9 | 4 |
| Siderite, Sandstone | 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 |
| Siltstone, Shale | | | | | | | | | | | | | | |
| Orange Coal Seam | 147.2 | 5.6 | Coal | | | | | | | | | | | |
| Shale, Underclay | | | | | | | | | | | | | | |
| Siltstone, Sandstone | 152.8 | 2.2 | R-9-1067 | 8.3 | 2.5 | 18.6 | 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 | 81.5 | 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 |
| Kind of Core | 163.2 | | | | | | | | | | | | | |

ADRY Basis
 Total-N is Sum of NH₄-N and NO₃-N
 *NH₄ - R-21ppm and NO₃ - R-21 ppm

| Sample Section | Revised Date | Revised Date | Tons of Stock Equivalent per 100 Tons Material | | General Laboratory | | Particle Size | | | Moisture | | Available Capacity (1/3-15RH) | |
|----------------|--------------|--------------|--|---------------------------|---------------------------------|----------------------------------|----------------|------|------|----------|---------|-------------------------------|--------|
| | | | Max. Total Sulfur | Amount Present by Element | Amount Included for Neutral-ity | Excess CaCO ₃ Liquiv. | Organic Matter | Sand | Silt | Clay | 1/3 BAR | | 15 BAR |
| R-9-1030 | | | 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 | | Coal | 52.8 | 19.0 | 28.2 | 28.1 | 18.6 | 9.5 |
| R-9-1042 | | | 1.07 | 33.41 | -3.91 | | Coal | 40.9 | 20.5 | 30.6 | 18.2 | 10.2 | 8.0 |
| R-9-1043 | | | 2.85 | 89.06 | -11.79 | | Coal | 00.6 | 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 | | Coal | 28.2 | 32.8 | 39.0 | 21.6 | 8.6 | 13.0 |
| R-9-1048 | | | 0.85 | 26.56 | 7.21 | | Coal | 92.2 | 1.8 | 6.0 | 16.6 | 14.1 | 2.5 |
| R-9-1049 | | | 0.47 | 14.69 | -0.95 | | Coal | 29.2 | 31.8 | 17.0 | 19.6 | 6.9 | 12.7 |
| R-9-1050 | | | 0.37 | 11.56 | 41.65 | 30.09 | 7.2 | 73.2 | 10.8 | 16.0 | 12.9 | 2.7 | 10.2 |
| R-9-1051 | | | 2.14 | 66.80 | 14.05 | | 8.0 | 17.6 | 41.0 | 41.4 | 19.5 | 7.1 | 12.4 |
| R-9-1052 | | | 1.49 | 46.56 | 5.20 | | Coal | 43.2 | 21.4 | 35.4 | 21.7 | 8.8 | 12.9 |
| R-9-1053 | | | 0.40 | 12.50 | 4.04 | | 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 | | | 1.09 | 59.06 | -2.08 | | 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 | | 6.1 | 23.8 | 34.8 | 41.4 | 14.7 | 7.8 | 6.9 |
| R-9-1058 | | | 0.11 | 3.44 | 2.17 | | 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 | 3.5 | 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 |

Section 106-C 2 Date Corred: 9-20-74
 Name: H. J. ...
 Date Corred: 9-20-74
 100 TONS MATERIAL
 TONS OF LEAD EQUIVALENT per
 Central Laboratory

| Sample No. | Dry Basis | Sulfur % | Max. Total Sulfur | Amount by Filter-Lign | Amount Needed for Neutral-Lign | Excess CaCo ₃ Equiv. | Organic Matter | Particle Size | | | Moisture | | Available H ₂ O Hold. Capacity (11/3-15BAH) |
|------------|-----------|----------|-------------------|-----------------------|--------------------------------|---------------------------------|----------------|---------------|--------|--------|----------|--------|--|
| | | | | | | | | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| K-9-1061 | | 0.04 | 1.25 | 4.09 | | 2.04 | 5.3 | 25.0 | 34.6 | 40.4 | 41.1 | 15.5 | 25.6 |
| K-9-1062 | | 0.05 | 1.56 | 38.21 | | 36.65 | 1.9 | 67.0 | 17.6 | 15.4 | 19.1 | 6.1 | 13.0 |
| K-9-1063 | | 1.28 | 40.00 | 1.84 | 38.16 | | Coal | 45.0 | 27.6 | 27.4 | 31.8 | 11.5 | 20.3 |
| K-9-1064 | | 0.06 | 1.80 | 25.80 | | 23.92 | 3.5 | 71.0 | 12.6 | 16.4 | 21.6 | 7.5 | 14.1 |
| K-9-1065 | | 0.47 | 14.69 | 5.94 | 8.75 | | Coal | 36.0 | 23.6 | 40.4 | 48.1 | 17.6 | 30.5 |
| K-9-1066 | | 0.46 | 14.38 | 36.08 | | 21.70 | 1.7 | 45.5 | 29.1 | 25.4 | 27.4 | 9.3 | 18.1 |
| Coal | | | | | | | | | | | | | |
| K-9-1067 | | 0.09 | 2.81 | 10.12 | | | 3.6 | 47.6 | 21.6 | 30.8 | 25.6 | 9.6 | 16.0 |
| K-9-1068 | | 0.40 | 12.50 | 5.35 | | | Coal | 37.2 | 14.0 | 48.8 | 43.7 | 19.0 | 24.7 |
| K-9-1069 | | 0.04 | 1.25 | 29.80 | | 28.55 | 1.2 | 39.6 | 29.6 | 30.8 | 26.2 | 6.0 | 20.2 |



ELEVATION 6970.5

E 36947.0

LOCATION N 6434.9

21101C

DATE DRILLED 8/26/78

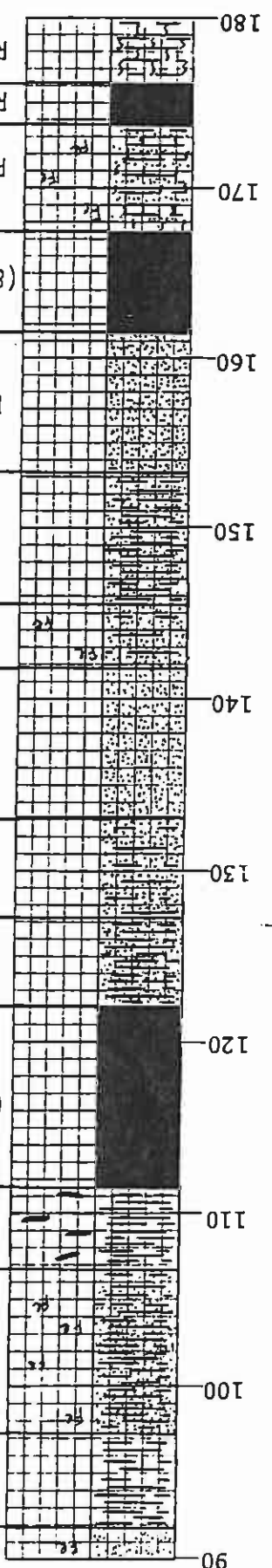
SUB AREA N-10

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

| SAMPLE NO. | SATURATION & SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|------------|----------------------|---------|--------|-------|-------|------|
| R-9-1765 | 61.4 | 5.1 | 30.5 | 26.7 | 45.0 | 0.33 |
| R-9-1766 | 36.2 | 5.7 | 32.4 | 21.7 | 43.4 | 0.06 |
| R-9-1767 | 32.1 | 2.5 | 12.5 | 28.8 | 20.9 | 0.10 |
| R-9-1768 | 49.5 | 0.6 | 2.9 | 26.0 | 18.1 | 1.74 |
| R-9-1770 | 51.2 | 0.4 | 3.1 | 26.0 | 83.6 | 1.96 |
| R-9-1771 | 49.5 | 0.5 | 3.6 | 29.2 | 94.8 | 2.23 |
| R-9-1772 | 55.1 | 0.5 | 2.8 | 26.3 | 28.9 | 0.85 |
| R-9-1773 | 78.3 | 0.8 | 2.5 | 17.1 | 10.5 | 0.99 |
| R-9-1774 | 50.9 | 0.5 | 2.7 | 30.3 | 31.3 | 0.40 |
| R-9-1775 | 32.1 | 0.2 | 1.1 | 29.2 | 9.8 | 0.38 |
| R-9-1776 | 45.0 | 0.4 | 3.8 | 32.0 | 149.4 | 2.30 |
| R-9-1777 | 46.8 | 0.3 | 1.8 | 25.3 | 59.4 | 0.88 |
| R-9-1778 | 40.3 | 0.4 | 1.9 | 18.9 | 22.5 | 0.12 |
| R-9-1779 | 40.4 | 0.6 | 1.6 | 6.3 | 6.0 | 0.05 |
| R-9-1780 | 33.4 | 0.4 | 2.0 | 33.1 | 11.2 | 0.01 |
| R-9-1781 | 34.1 | 0.5 | 2.1 | 18.5 | 17.9 | 0.08 |

SEP 8 1986

438



HOLE NO. 21101C
 LOCATION N 6434.0
 E 36947.0
 ELEVATION 6970.5

DRILLER Jim Elliott
 DATE DRILLED 8/26/78
 SUB AREA N-10
 PAGE 2
 SATURATION % SAR SOL.Na. SOL.Ca. SOL.Mg
 SAMPLE NO. (MOISTURE) (ASH) (BTU) %S pH

| ELEVATION | SAMPLE NO. | (MOISTURE) | (ASH) | (BTU) | %S | pH |
|-----------|----------------|------------|--------|----------|------|-------|
| 180 | R-9-1793 | 53.0 | 32.2 | 44.4 | 2.4 | 7.4 |
| 170 | R-9-1791 | 52.7 | 20.4 | 40.6 | 5.0 | 6.8 |
| 160 | (8-2092-R) EOX | (11.07) | (4.77) | (13,166) | . | (7.7) |
| 150 | R-9-1789 | 44.5 | 4.9 | 8.4 | 3.6 | 7.9 |
| 140 | R-9-1787 | 36.2 | 1.3 | 5.7 | 21.8 | 5.2 |
| 130 | R-9-1786 | 44.5 | 4.7 | 8.3 | 3.5 | 7.3 |
| 120 | (8-2091-R) NXX | (11.86) | (9.09) | (12,460) | . | (7.5) |
| 110 | R-9-1784 | 47.3 | 0.6 | 5.1 | 26.7 | 4.5 |
| 100 | R-9-1783 | 44.6 | 0.6 | 3.7 | 28.5 | 6.8 |
| 90 | R-9-1782 | 53.1 | 0.6 | 3.6 | 25.6 | 3.8 |

SEP 3 1978
 7.4

Core: 290 N 10
 Core: 2110C
 Section: 35

Well: 372
 Hole: 18F
 Date Corred: Apr. 26, 1958

FIELD NO. CORE NO.
 Central Laboratory

| 1 | Geology | Depth ft. | Thickness ft. | Lab No. | Tests pH | Conduc- tivity micro- mhos/cm | Sat. % | Saturation Extraction Na meq/l | Ca meq/l | Mg meq/l | SO ₄ meq/l | ESP | pHCO ₃ ⁻ ppm | Milli Osmal per liter | 1 1 1 |
|---|---------------------------------|--------------|------------------|------------|-------------|--|--------|---|-------------|-------------|--------------------------|------|---------------------------------------|--------------------------|-------------|
| 1 | 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 | 0.6 | R-9-1765 | 7.8 | 0.7 | 88.3 | 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 | 61.6 | 30.5 | 26.7 | 45.0 | 5.1 | 5.9 | 8.1 | 173.7 | <1 |
| | Shale, Sandstone, Siltstone | 6.0 | 4.0 | R-9-1766 | 7.8 | 7.1 | 36.2 | 32.6 | 21.7 | 43.4 | 5.7 | 6.7 | 7.2 | 104.1 | <2 |
| | Sandstone | 10.0 | 10.0 | R-9-1767 | 7.1 | 5.6 | 12.1 | 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 |
| | Just 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 | 61.5 | <2 |
| | Shale, Siltstone Coal | 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 |
| | 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 Siltstone | 62.6 | 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 | 33.6 | 2.0 | 33.1 | 11.2 | 0.4 | -0.7 | 1.0 | 95.9 | <2 |
| | Sandstone, Siderite | 82.4 | 9.5 | R-9-1781 | 6.9 | 2.8 | 36.1 | 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 |

4Dry Basis
 Total-N is Sum of NH₄-N and NO₃-N
 *mmHg - N < 2ppm and NO₃ - N < 1ppm

Site: 250 N 10
 Core: 21101C
 Section: 30

Township: 37N
 Range: 18E
 Date Collected: Aug. 26, 1978

Central Laboratory

| Lithology | Depth Ft. | Thickness Ft. | Lab No. | pH | Conduc- tivity µmhos/cm | Sat. % | Saturation Extract | | | SAR | TSP | Na/CO ₃ ⁺ ppm | NH ₄ ⁺ ppm | Total P ppm |
|---|--------------|------------------|------------|-----|-------------------------------|-----------|--------------------|-------------|---------------------------------------|------|------|--|-------------------------------------|-------------------|
| | | | | | | | Ca meq/l | Mg meq/l | SO ₄ ⁻ meq/l | | | | | |
| Sandstone, Shale, Siderite | 97.3 | 9.4 | R-9-1793 | 6.8 | 5.2 | 44.6 | 1.7 | 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 | 16.1 | 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 | | | | | | | | | | | |
| Last 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 | 51.0 | 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
 Total-N is Sum of NH₄-N and NO₃-N
 NH₄ - N < 2 ppm and NO₃ - N < 1 ppm

Lane: 250 R 10 Township: 17N
 Core: 2101C Range: 18E
 Section: 35 Date Cored: Aug. 26, 1978
 *Dry Basals

*Tons of CaCO₃ Equivalent per
 100 Tons Material

Lehigh Valley Coal Company
 Central Laboratory

| Sample No. | Sulfur | Max. % Total Sulfur | Amount Present (H ₂ O - free) | Amount for Neutralization | Excess CaCO ₃ Equiv. | Organic Matter | Particle Size | | | Moisture | | Available H ₂ O Hold. Capacity (1/3-15BAR) |
|------------|--------|---------------------|--|---------------------------|---------------------------------|----------------|---------------|------|------|----------|--------|---|
| | | | | | | | Sand | Silt | Clay | 1/3 BAR | 15 BAR | |
| R-0-1763 | <0.01 | 0.31 | 8.96 | | 8.65 | 0.7 | 53.6 | 75.0 | 12.6 | 17.6 | 1.5 | 13.9 |
| R-0-1764 | <0.01 | 0.31 | 23.39 | | 23.08 | 0.8 | 38.6 | 61.0 | 23.6 | 22.6 | 5.6 | 17.0 |
| R-0-1765 | 0.33 | 10.31 | 51.68 | | 41.17 | 1.3 | 16.6 | 10.0 | 33.6 | 30.0 | 11.8 | 19.2 |
| R-9-1766 | 0.06 | 1.88 | 15.38 | | 13.50 | 0.2 | 71.8 | 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 | 10.6 | 21.9 |
| R-9-1769 | 2.91 | 90.94 | -9.10 | 100.04 | | Coal | 72.6 | 18.8 | 8.6 | 32.6 | 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 | 92.8 | 40.6 | 36.6 | 28.1 | 8.8 | 19.3 |
| R-9-1773 | 0.99 | 30.96 | 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 | 4.6 | 13.8 |
| R-9-1779 | 0.05 | 1.56 | 36.00 | | 34.64 | 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: 17N
 Range: 18E
 Date Corred: Aug. 26, 1978
 * Dry Basis

*Tons of CaCO₃ Equivalent per
 100 Tons Material

Peabody Coal Company
 Central Laboratory

| Sample No. | Sulfur % | Total Sulfur | Amount by Filter-Lion | Amount for Neutralization | Excess CaCO ₃ Equiv. | Organic Matter % | Particle Size | | | Moisture | | Available H ₂ O Hold. Capacity (17.3-150AH) |
|------------|----------|--------------|-----------------------|---------------------------|---------------------------------|------------------|---------------|--------|--------|----------------------|---------------------|--|
| | | | | | | | Sand % | Silt % | Clay % | 1/2 H ₂ O | 15 H ₂ O | |
| R-9-1781 | 0.82 | 25.63 | 45.42 | 34.89 | 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 |
| 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 | 26.2 | 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 |
| 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 | 31.98 | | 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 |
| 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 COPPER COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26530C
DATE CORED: 03OCT1985
DATE REPORTED: 29OCT1985

*Dry Basis

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons * | | | | | | | | | | Particle Size | | | % Moisture * | | |
|-----------|-----------|-----------------------------|----------------|----------------|-------------|-------------|----------------------|----------------|---------------|---------------|--------|---------------|--------|---------|--------------|-----------------------|--|
| | | Total Se PPM # | NaHCO3 P PPM # | NH4OAc K PPM # | Total S % # | Pyrr. S % # | Amount Req'd. 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 | | | | | | | | |

MINE:0252 KAYENTA
 CORE NO:26531C
 DATE CORED:03OCT1985
 DATE REPORTED:29OCT1985

PEABODY COAL COMPANY
 CENTRAL LABORATORY

| Lithology | Lab No. | CaCO3 Eq Tons / 1000 Tons # | | | | | | | | | | Particle Size | | | % Moisture * | | AVAIL. H2O Hold. Cap. |
|-----------|-----------|-----------------------------|--------------------|--------------------|-----------------|-----------------|---------------------------|-------------------|------------------|------------------|-----------|---------------|-----------|------------|--------------|--|--------------------------------|
| | | Total Se PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/2 BAR | 15 BAR | | |
| 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 | 0.06 | 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 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26532C
DATE CORED: 04OCT1985
DATE REPORTED: 29OCT1985

*Dry Basis

| Lithology | Lab No. | * Total Se PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | | % Moisture | | * Avail. H2O Hold. Cap. | |
|-----------|-----------|-------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|------------|-----------|-------------------------------------|--|
| | | | | | | | Amount Reqd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| 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 | 4.6 | | | |
| 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 | 13.6 | 51.4 | 42 | | | |
| SH, SS | 850002760 | <0.01 | | | | | 0 | 3.98 | | | 3.98 | 13.2 | 46.4 | 40.4 | | | |
| SH | 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 | 4.6 | | | |
| SH, CO | 850002763 | <0.01 | | | | | 0 | 92.17 | | | 92.17 | 47.2 | 58.8 | 30 | | | |
| SH | 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

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | |
|-----------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|-----|---------|--------|-----------|------------|-----------|-----|------|
| | | | | | 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 | | 3.9 | 1.8 | 28.2 | 23.6 | 0.4 | | | | | | | -0.7 |
| SH | 12.0 | 850002774 | 4.8 | | 4 | 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 CO., COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26533C
DATE CORED: 04OCT1985
DATE REPORTED: 29OCT1985

*Dry Basis

| Lithology | Lab No. | # Total Sg PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq | | | Particle Size | | | % Moisture | | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|----------------------|----------------|---------------|---------------|--------|--------|------------|---------|--------|-----------------------|
| | | | | | | | Amount Req'd. 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 | 88.2 | 8.2 | 11 | | | |
| SS | 850002776 | 0.32 | | | <0.01 | | 0 | 18.56 | | 18.56 | 80.8 | 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

| Lithology | Lab No. | # Total Se PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture # | | | |
|-----------|-----------|----------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|-----------------------|
| | | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAF | 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 | 22.4 | 31.4 | | | |
| SS | 850002788 | 0.41 | | | <0.01 | | 0 | 5.08 | | 5.08 | 53.2 | 24.4 | 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 | | 2.19 | 0.13 | | 2.06 | 82.6 | 9 | 8.4 | | | |
| SS, SH | 850002797 | 0.76 | | | 0.83 | | 25.94 | -1.26 | | 27.2 | 83.6 | 9 | 7.4 | | | |

N-11 MINING AREA
(DEEP CORES)

LOCATION S 4775.0 E 38579.0

Abatac

DATE DRILLED 7-16-85

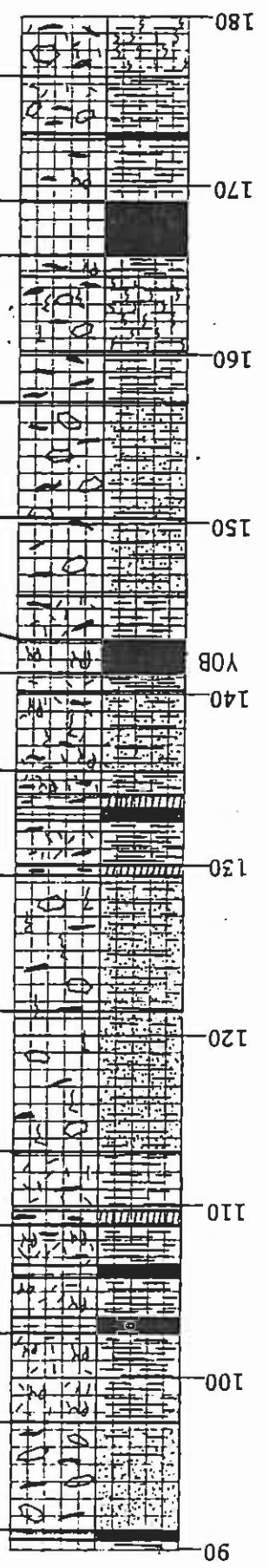
SUB-AREA N11

ELEVATION . 6969.1

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

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |
| 950001911 | 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 |
| MX | (N/A) | (5.30) | (12,767) | | | | (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 |

SEP 3 1986



| DEPTH (ELEVATION) | SAMPLE NO. | SATURATION % | SAR | SOL. Na. (ASH) | SOL. Ca. (BTU) | SOL. Mg | PH |
|-------------------|------------|--------------|------|----------------|----------------|---------|-----|
| 180 | 850001939 | 32.1 | 36.0 | 27.9 | 0.8 | 0.4 | 8.1 |
| 170 | 850001938 | 32.3 | 49.0 | 45.2 | 1.1 | 0.6 | 6.9 |
| 160 | 850001937 | 67.4 | 12.1 | 15.3 | 1.9 | 1.3 | 6.1 |
| 150 | 850001936 | 32.3 | 1.2 | 5.4 | 22.7 | 16.1 | 6.0 |
| 140 | 850001935 | 32.1 | 0.9 | 4.3 | 24.0 | 20.1 | 6.4 |
| 130 | 850001934 | 32.1 | 1.6 | 6.7 | 20.1 | 13.6 | 7.0 |
| 120 | 850001933 | 72.6 | 10.6 | 6.3 | 0.4 | 0.3 | 7.4 |
| 110 | 850001932 | 28.6 | 37.0 | 23.4 | 0.5 | 0.3 | 8.2 |
| 100 | 850001931 | 57.6 | 44.3 | 19.8 | 0.3 | 0.1 | 8.2 |
| 90 | 850001930 | 28.1 | 46.8 | 23.4 | 0.3 | 0.2 | 8.5 |
| | 850001929 | 32.4 | 90.8 | 20.3 | 0.1 | <0.1 | 8.9 |
| | 850001928 | 49.0 | 63.4 | 34.7 | 0.4 | 0.2 | 8.0 |
| | 850001927 | 37.1 | 49.2 | 46.7 | 1.2 | 0.6 | 7.0 |
| | 850001926 | 40.7 | 53.5 | 53.5 | 1.4 | 0.6 | 7.7 |
| | 850001925 | 30.2 | 46.8 | 23.4 | 0.3 | 0.2 | 8.8 |

HOLE NO. 26272C
 LOCATION S 4775.0
 E 38579.0
 ELEVATION 6969.1

DRILLER J. Elliott
 DATE DRILLED 7-16-85
 SUB AREA N11
 PAGE 2

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

LOCATION S 4775.0

N 38579.0

LEVATION 6969.1

26720C

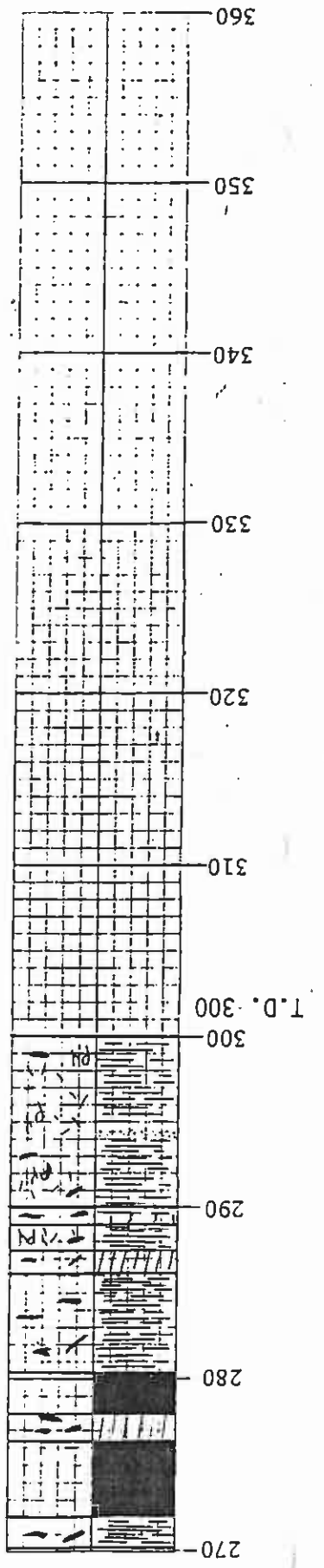
DATE DRILLED 7-16-85

SUB AREA N11

| DEPTH (ft) | SAMPLE NO. | SATURATION % | SVR | SOL. Na. (BTU) | SOL. Ca. (BTU) | SOL. Mg (BTU) | RES | PH |
|------------|------------|--------------|--------|----------------|----------------|---------------|--------|-------|
| 180 | | | | | | | | |
| 185 | 850001940 | 32.4 | 72.0 | 27.9 | 0.3 | < 0.1 | 1.14 | 8.3 |
| 190 | 850001941 | 32.2 | 52.8 | 26.4 | 0.3 | 0.2 | 0.55 | 8.3 |
| 195 | NXX | (N/A) | (7.54) | (12,563) | | | (0.61) | (8.0) |
| 200 | 850001942 | 28.2 | 49.2 | 11.0 | 0.1 | < 0.1 | 0.03 | 8.6 |
| 205 | 850001943 | 40.1 | 52.3 | 11.7 | < 0.1 | < 0.1 | 0.05 | 9.2 |
| 210 | 850001944 | 32.3 | 52.5 | 33.2 | 0.5 | 0.3 | 0.86 | 7.9 |
| 215 | EOX | (N/A) | (4.96) | (12,925) | | | (0.43) | (7.9) |
| 220 | 850001945 | 30.3 | 64.0 | 14.3 | < 0.1 | < 0.1 | 0.03 | 8.9 |
| 225 | E1X | (N/A) | (5.95) | (12,934) | | | (0.46) | (7.0) |
| 230 | 850001946 | 56.9 | 51.9 | 11.6 | < 0.1 | < 0.1 | 0.06 | 9.0 |
| 235 | EZX | 850001947 | 68.9 | 22.4 | 5.0 | < 0.1 | 0.64 | 8.0 |
| 240 | 850001948 | 28.2 | 19.8 | 22.6 | 1.7 | 0.9 | 0.62 | 7.6 |
| 245 | | | | | | | | |
| 250 | | | | | | | | |
| 255 | | | | | | | | |
| 260 | | | | | | | | |
| 265 | | | | | | | | |
| 270 | | | | | | | | |

SEP 3 1986

457



LOCATION S 4775.0 N 38579.0
 ELEVATION 6969.1
 26272c

E3X

458

SEP 3 1986

SAMPLE NO. (MOISTURE) SAR SOL. Na. SOL. Ca. SOL. Mg
 SATURATION %
 PH

DATE DRILLED 7-16-85
 SUB AREA N11

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26272C
DATE CORED: 16JUL1985
DATE REPORTED: 26SEP1985

#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 | Cl mg/l | F mg/l | CO3 meq/l | HCO3 meq/l | SO4 meq/l | ESr | |
| S. MAT, SH | 0 | 8500001907 | 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 | 8500001908 | 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 | 8500001909 | 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 | 8500001910 | 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 | 8500001911 | 6.0 | 81.2 | 0.3 | 5.5 | 0.7 | 0.6 | 6.8 | 9 | 1.33 | 0 | 0.9 | <5 | 8.1 | |
| SH | 28.1 | 8500001912 | 7.7 | 36.3 | 1.7 | 9.8 | 5.9 | 5.9 | 3.9 | 12 | 2.64 | 0 | 3.2 | 14 | 4.3 | |
| SH, CO | 34.1 | 8500001913 | 6.2 | 36.9 | 3.6 | 17.7 | 13.1 | 13.1 | 4.7 | 10 | 1.42 | 0 | 1.2 | 46 | 5.4 | |
| CO | 37.9 | 8500001914 | 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 | 8500001915 | 7.2 | 36.8 | 5.4 | 48.2 | 6 | 6 | 17.4 | 16 | 1.91 | 0 | 9.3 | 51 | 19.6 | |
| CO | 45.4 | 8500001916 | 7.2 | 76.5 | 1.9 | 17.3 | 0.2 | 0.2 | 34.6 | 10 | 1.55 | 0 | 3.2 | 14 | 33.2 | |
| SH, SS | 47.8 | 8500001917 | 7.4 | 39.1 | 4.6 | 44.5 | 0.8 | 0.8 | 43.4 | 18 | 3.2 | 0 | 7.2 | 36 | 48.9 | |
| CO | 54.8 | 8500001918 | 7.5 | 74.1 | 1.2 | 14.7 | <0.1 | <0.1 | 65.7 | 10 | 2.33 | 0 | 1.6 | 23 | 47.9 | |
| SH, SS | 56.4 | 8500001919 | 8.2 | 30.6 | 4.3 | 40 | 0.3 | 0.3 | 49.8 | 20 | 13.4 | 0 | 10.4 | 19 | 41.5 | |
| SH, SL | 60.7 | 8500001920 | 9 | <30 | 2.7 | 24.9 | 0.5 | 0.2 | 49.8 | 21 | 3.96 | 0 | 12.9 | 55 | 50.8 | |
| SH, SL | 68.3 | 8500001921 | 7.6 | 34.4 | 6.4 | 65.6 | 1.1 | 1.1 | 70.8 | 18 | 4.36 | 0 | 2.2 | 35 | 38.8 | |
| SH, SS | 79.7 | 8500001922 | 7.5 | 42.6 | 3.7 | 35.4 | 0.2 | 0.2 | 49.8 | 18 | 4.89 | 0 | 14.2 | 26 | 40.4 | |
| CO | 82.2 | 8500001923 | 8.1 | 74.3 | 1.1 | 9.8 | <0.1 | <0.1 | 52.5 | 23 | 5.7 | 0 | 11.6 | 11 | 43.7 | |
| SH, SS, CO | 84.2 | 8500001924 | 8 | <30 | 4 | 40.7 | 0.7 | 0.5 | 46.8 | 22 | 9.8 | 0 | 8.2 | 48 | 41.6 | |
| SS | 91.1 | 8500001925 | 8.8 | 30.2 | 2.4 | 23.4 | 0.3 | 0.2 | 46.8 | 22 | 9.8 | 0 | 11.6 | 26 | 43.2 | |
| SH | 97.4 | 8500001926 | 7.7 | 40.7 | 4.9 | 53.5 | 0.6 | 0.6 | 53.5 | 13 | 3.75 | 0 | 8.2 | 48 | 43.7 | |
| CO, SH | 102.4 | 8500001927 | 7 | 37.1 | 4.9 | 46.7 | 0.6 | 0.6 | 49.2 | 18 | 3.72 | 0 | 3.2 | 26 | 48 | |
| SH | 109.7 | 8500001928 | 8 | 49 | 3.5 | 34.7 | 0.4 | 0.2 | 63.4 | 17 | 5.3 | 0 | 9.5 | 48 | 57 | |
| SH, SS | 113.2 | 8500001929 | 8.5 | 32.4 | 1.9 | 20.3 | <0.1 | <0.1 | 90.8 | 19 | 8.5 | 1.1 | 9.3 | <5 | 40.4 | |
| SH, SS | 121.3 | 8500001930 | 8.5 | 28.1 | 2.4 | 23.4 | 0.3 | 0.2 | 46.8 | 14 | 5.3 | 0.5 | 7.8 | 7 | 39.1 | |
| SH, CO | 129.4 | 8500001931 | 8.2 | 57.6 | 2.8 | 19.8 | 0.3 | 0.1 | 44.3 | 13 | 4.8 | 0 | 5.1 | 18 | 34.8 | |
| SH, SS | 135.4 | 8500001932 | 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 | 8500001933 | 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 | 8500001934 | 7.7 | 32.1 | 3.1 | 6.7 | 13.6 | 13.6 | 10.6 | 21 | 1.71 | 0 | 3.8 | <5 | 12.6 | |
| SH, SS | 150.2 | 8500001935 | 6.4 | 32.1 | 3.6 | 4.3 | 20.1 | 20.1 | 1.6 | 21 | 1.71 | 0 | 2.4 | 31 | 1.1 | |
| SH, SL | 157.2 | 8500001936 | 6 | 32.3 | 3.3 | 5.4 | 16.1 | 16.1 | 0.9 | 17 | <1 | 0 | 3.1 | 43 | 0.1 | |
| CO | 165.9 | 8500001937 | 6.1 | 67.4 | 1.9 | 15.3 | 1.3 | 1.3 | 12.1 | 8 | <1 | 0 | 2.2 | 43 | 0.5 | |
| SH, CO | 169.1 | 8500001938 | 6.9 | 32.3 | 4.7 | 45.2 | 0.6 | 0.4 | 36 | 15 | 6.33 | 0.7 | 4.7 | 42 | 14.2 | |
| SH, SL | 176.4 | 8500001939 | 8.1 | 32.1 | 2.9 | 27.9 | 0.4 | 0.4 | 36 | 15 | 10.55 | 0.3 | 9.3 | 16 | 34.1 | |
| SH, SS | 189.5 | 8500001940 | 8.3 | 32.4 | 3 | 27.9 | <0.1 | <0.1 | 72 | 15 | 9.05 | 1.5 | 6.6 | 19 | 51.2 | |
| CO | 193.9 | COAL | 8.3 | 32.2 | 2.6 | 26.4 | 0.2 | 0.2 | 52.8 | 18 | 9.05 | 1.5 | 12.3 | 10 | 43.4 | |
| SH | 206.9 | 8500001942 | 8.6 | 28.2 | 1.1 | 11 | <0.1 | <0.1 | 49.2 | 17 | 25.85 | 0 | 6.9 | <5 | 41.6 | |
| SS | 208.9 | 8500001943 | 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 | 8500001944 | 7.9 | 32.3 | 3.5 | 33.2 | 0.3 | 0.3 | 52.5 | 16 | 8.1 | 0.2 | 7.9 | 20 | 43.2 | |
| CO | 218.7 | COAL | | | | | | | | | | | | | | |
| SH | 223.7 | 8500001945 | 8.9 | 30.3 | 1.4 | 14.3 | <0.1 | <0.1 | 64 | 21 | 24.45 | 0.9 | 8.3 | <5 | 48.2 | |

PEABODY CORP. COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTIA
CORE NO: 26272C
DATE CORRD: 16JUL1985
DATE REPORTED: 26SEP1985

*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 | Cl mg/l | F mg/l | CO3 meq/l | IC03 meq/l | SO4 meq/l | Esp | |
| CO | 234.4 | COAL | 9 | 56.9 | 1.2 | 11.6 | <0.1 | <0.1 | 51.9 | 19 | 20.31 | 0.5 | 6.5 | <5 | 43 | |
| SH | 244.2 | 850001946 | 8 | 68.9 | 0.5 | 5 | <0.1 | <0.1 | 22.4 | 14 | 3.54 | 0 | 3.6 | <5 | 24.1 | |
| CO | 252.2 | 850001947 | 7.6 | 28.2 | 2.5 | 22.6 | 1.7 | 0.9 | 19.8 | 18 | 4.29 | 0.3 | 9 | <5 | 21.8 | |
| SH, SL | 255.7 | 850001948 | | | | | | | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26272C
DATE CORED: 16 JUL 1985
DATE REPORTED: 26 SEPT 1985

*Dry Basis

| Lithology | Lab No. | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | Total S % | Pyrr. S % | CaCO3 Eq Tons / 1000 Tons # | | | Particle Size | | | % Moisture * | | |
|------------|-----------|-------------|--------------|--------------|-----------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------------|---------|--------|
| | | | | | | | Amount Req'd. From | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR |
| 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 | 21 | | | | | |
| SH | 850001912 | <0.01 | | | 0 | 50.13 | 50.13 | 42 | 33 | 1 | | | | | |
| SH, CO | 850001913 | 1.55 | | | 48.44 | 11.14 | 85.07 | 34 | 37 | 29 | | | | | |
| CO | 850001914 | 1.01 | | | 31.56 | 116.63 | 104.32 | 31 | 28 | 3 | | | | | |
| SH | 850001915 | 0.75 | | | 23.44 | 127.76 | 85.16 | 90 | 5 | 41 | | | | | |
| CO | 850001916 | 1.1 | | | 34.38 | 119.54 | 72.78 | 37 | 22 | 5 | | | | | |
| CO | 850001917 | 1.06 | | | 33.12 | 24 | 48.94 | 94.2 | 21.4 | 41 | | | | | |
| SH, SS | 850001918 | 0.29 | | | 46.56 | 119.34 | 49.2 | 45 | 28 | 27.4 | | | | | |
| CO | 850001919 | 1.49 | | | 9.06 | 58 | 72.78 | 35 | 29 | 37 | | | | | |
| CO | 850001920 | 0.2 | | | 6.25 | 55.45 | 51.2 | 45 | 28 | 27 | | | | | |
| SH, SL | 850001921 | 1.48 | | | 46.25 | 45.63 | 49.2 | 16 | 47 | 37 | | | | | |
| SH, SL | 850001922 | 1.17 | | | 36.56 | 11.36 | 72.68 | 50.2 | 24.8 | 25 | | | | | |
| SH, SS | 850001923 | 1.47 | | | 45.94 | 118.62 | 37.67 | 39 | 34 | 30 | | | | | |
| SH, SS, CO | 850001924 | 0.61 | | | 19.06 | 56.73 | 54.01 | 25 | 31 | 43 | | | | | |
| SS | 850001925 | 0.16 | | | 5 | 59.01 | 27.45 | 59 | 22 | 41 | | | | | |
| SH | 850001926 | 2.04 | | | 63.75 | 49.8 | 37.67 | 39 | 38 | 30 | | | | | |
| CO, SH | 850001927 | 1.27 | | | 39.69 | 13.04 | 57.21 | 65.6 | 31.2 | 25.2 | | | | | |
| SH, SS | 850001928 | 0.56 | | | 17.5 | 44.95 | 50.48 | 44.6 | 9.2 | 39.2 | | | | | |
| SH, SS | 850001929 | 0.06 | | | 1.88 | 52.36 | 27.45 | 39 | 31 | 43 | | | | | |
| SH, CO | 850001930 | <0.01 | | | 0 | 57.21 | 57.21 | 65.6 | 23.2 | 25.2 | | | | | |
| SH, CO | 850001931 | 1.06 | | | 33.12 | 13.85 | 33.7 | 52.6 | 23.2 | 24.2 | | | | | |
| SH, SS | 850001932 | 0.35 | | | 10.94 | 44.64 | 33.7 | 89.6 | 6.2 | 15.2 | | | | | |
| SH, SS | 850001933 | 0.84 | | | 26.25 | 19.92 | 54.64 | 65.6 | 19.2 | 6.2 | | | | | |
| CO | 850001934 | 0.04 | | | 1.25 | 55.89 | 41.66 | 33.2 | 39.6 | 27.2 | | | | | |
| SH, SS | 850001935 | 0.48 | | | 15 | 56.66 | 41.66 | 87.2 | 8.6 | 25.2 | | | | | |
| SH, SL | 850001936 | 2.01 | | | 62.81 | 19.99 | 54.64 | 65.6 | 19.2 | 6.2 | | | | | |
| CO | 850001937 | 2.09 | | | 65.31 | 14.01 | 42.82 | 36.2 | 24.6 | 11.2 | | | | | |
| SH, CO | 850001938 | 1.24 | | | 38.75 | 21.21 | 84.51 | 21.2 | 40.6 | 38.2 | | | | | |
| SH, SL | 850001939 | 0.39 | | | 12.19 | 96.7 | 47.2 | 21.2 | 30.6 | 22.2 | | | | | |
| SH | 850001940 | 1.14 | | | 35.62 | 34.21 | 37.45 | 47.2 | 30.6 | 22.2 | | | | | |
| SH, SS | 850001941 | 0.55 | | | 17.19 | 54.64 | 37.45 | 23.2 | 12.6 | 11.2 | | | | | |
| COAL | 850001942 | 0.03 | | | 0.94 | 11.24 | 10.3 | 76.2 | 31.2 | 34.2 | | | | | |
| SH | 850001943 | 0.05 | | | 1.56 | 55.58 | 54.02 | 34.6 | 31.2 | 34.2 | | | | | |
| SH | 850001944 | 0.86 | | | 26.88 | 55.1 | 28.22 | 30.6 | 32.2 | 37.2 | | | | | |
| COAL | 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: 16 JUL 1985
DATE REPORTED: 26 SEP 1985

*Dry Basis

| Lithology | Lab No. | * # | | | Total S % | PYR. S % | CaCO3 Eq Tons / 1000 Tons # | | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. |
|-----------|-----------|-------------|--------------|--------------|-----------|----------|-----------------------------|----------------|---------------|---------------|---------------|--------|--------|---------|--------------|--|-----------------------|
| | | Total N PPM | NaHCO3 P PPM | NH4OAc K PPM | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| CO | COAL | | | | 0.06 | | 1.88 | 16.99 | 5.42 | 15.11 | 13.6 | 37.2 | 49.2 | | | | |
| SH | 850001946 | | | | 0.64 | 0.06 | 20 | 14.58 | | 29.22 | 95.6 | 3.2 | 1.2 | | | | |
| CO | 850001947 | | | | | | 19.38 | 48.6 | | | 47.6 | 31.2 | 21.2 | | | | |
| SH, SL | 850001948 | | | | 0.62 | | | | | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26272C
DATE CORED: 16JUL1985
DATE REPORTED: 26SEP1985

Dry Basis

| Lithology | Lab No. | Ilot H2O Ext. # | | | TAMM Mo PPM | # Hg PPB | AB-DIPA Extract # | | | | | | | Organic Matter % |
|------------|-----------|-----------------|--------|--------|-------------|----------|-------------------|--------|--------|--------|--------|--|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| S. MAT, SH | 850001907 | 0.15 | 0.03 | | <0.6 | 49 | 0.2 | 6 | 470.3 | 1 | 2 | | | |
| SH | 850001908 | <0.01 | 0.02 | | 0.6 | 52 | 0.5 | 5.6 | 258.6 | 6.5 | 5.3 | | | |
| SH, SS | 850001909 | 0.02 | 0.05 | | <0.6 | 27 | 0.1 | 2.3 | 12.8 | 3 | 1.8 | | | |
| SH, SS | 850001910 | 0.05 | 0.03 | | <0.6 | 23 | 0.7 | 2.5 | 24.8 | 11.2 | 4.7 | | | |
| CO | 850001911 | 0.02 | 0.04 | | <0.6 | <10 | <0.1 | <0.2 | 8.2 | 1.5 | <1 | | | |
| SH, CO | 850001912 | 0.01 | 0.07 | | <0.6 | 12 | 1.7 | 3.2 | 43.4 | 5.5 | 3.8 | | | |
| CO | 850001913 | 0.01 | 0.07 | | <0.6 | <10 | 0.2 | 0.2 | 47.8 | 2.6 | 4 | | | |
| SH | 850001914 | 0.03 | 0.07 | | <0.6 | <10 | 1.8 | 3.8 | 30.7 | 1 | 1 | | | |
| CO | 850001915 | 0.07 | 0.07 | | <0.6 | <10 | 0.4 | 1 | 100.4 | 3.4 | 9.7 | | | |
| SH, SS | 850001916 | 0.06 | 0.07 | | <0.6 | <10 | 1.6 | 3.8 | 22.6 | 1 | 4.2 | | | |
| CO | 850001917 | 0.07 | 0.07 | | <0.6 | 11 | 0.2 | 0.5 | 49.3 | 3.2 | 3.3 | | | |
| SH | 850001918 | 0.07 | 0.07 | | <0.6 | 11 | 1.4 | 3.9 | 21.1 | 1.9 | <1 | | | |
| SH, SL | 850001919 | 0.07 | 0.07 | | <0.6 | <10 | 1.6 | 4.7 | 72.3 | 2.4 | 3 | | | |
| SH, SL | 850001920 | 0.22 | 0.17 | | <0.6 | 12 | 2.4 | 4 | 60.6 | 2.9 | 2.3 | | | |
| SH, SS | 850001921 | 0.29 | 0.1 | | <0.6 | 10 | 2.9 | 4.2 | 79.9 | 1 | 3.2 | | | |
| SH, SS | 850001922 | 0.1 | 0.04 | | <0.6 | <10 | 0.3 | 1.5 | 43.7 | 1 | 2.7 | | | |
| CO | 850001923 | 0.1 | 0.04 | | <0.6 | <10 | 2.3 | 1.5 | 15.4 | 4.4 | <1 | | | |
| SH, SS, CO | 850001924 | 0.17 | 0.04 | | <0.6 | <10 | 1.5 | 4.8 | 93 | 1.9 | 2.3 | | | |
| SS | 850001925 | 0.2 | 0.05 | | <0.6 | <10 | 2.7 | 5.1 | 62.8 | 6.1 | 1.7 | | | |
| SH | 850001926 | 0.05 | 0.05 | | <0.6 | 12 | 1.5 | 4.6 | 77 | 6.4 | 2.3 | | | |
| SH | 850001927 | 0.12 | 0.05 | | <0.6 | <10 | 2.5 | 3.4 | 51.2 | 1.9 | 3 | | | |
| CO, SH | 850001928 | 0.05 | 0.05 | | <0.6 | 10 | 2.6 | 5.1 | 77.6 | 5.3 | 3.5 | | | |
| SH | 850001929 | 0.1 | 0.05 | | <0.6 | 12 | 2.1 | 5.9 | 86.1 | 8.5 | 2.4 | | | |
| SH, SS | 850001930 | 0.68 | 0.03 | | <0.6 | <10 | 2.9 | 2.7 | 69.6 | 5.3 | 1.9 | | | |
| SH, SS | 850001931 | 0.39 | 0.03 | | <0.6 | <10 | 2.1 | 4.8 | 52.1 | 1.4 | 3.6 | | | |
| SH, CO | 850001932 | 0.03 | 0.03 | | <0.6 | <10 | 0.2 | 0.5 | 49.7 | 1 | 2.1 | | | |
| SH, SS | 850001933 | 0.03 | 0.03 | | <0.6 | <10 | 0.9 | 1.4 | 7.8 | 2.3 | <1 | | | |
| SH, SS | 850001934 | 0.03 | 0.03 | | <0.6 | <10 | 0.7 | 1.4 | 49.5 | 1.9 | 1.1 | | | |
| SH, SS | 850001935 | 0.03 | 0.03 | | <0.6 | <10 | 0.7 | 1 | 78.3 | 2.3 | <1 | | | |
| SH, SL | 850001936 | 0.02 | 0.02 | | <0.6 | <10 | 2.2 | 2.1 | 67.6 | 1.9 | 3.5 | | | |
| CO | 850001937 | 0.17 | 0.04 | | <0.6 | <10 | 0.5 | 0.7 | 68.1 | 1 | 1.8 | | | |
| SH, CO | 850001938 | 0.04 | 0.04 | | <0.6 | <10 | 2.8 | 5 | 47.4 | 3.4 | 2.1 | | | |
| SH, SL | 850001939 | 0.17 | 0.17 | | <0.6 | <10 | 1.5 | 3.1 | 93.8 | 8.2 | <1 | | | |
| SH | 850001940 | 0.17 | 0.17 | | <0.6 | 13 | 1.9 | 5.5 | 52.8 | 3.5 | 2.6 | | | |
| SH, SS | 850001941 | 0.41 | 0.1 | | <0.6 | <10 | 1.6 | 2.8 | 79.6 | 5.1 | 2.1 | | | |
| CO | 850001942 | 0.1 | 0.3 | | <0.6 | <10 | 1 | 1.3 | 7.6 | 1 | 2.2 | | | |
| SH | 850001943 | 0.6 | 0.6 | | <0.6 | 19 | 0.6 | 0.4 | 76 | 1.3 | 1.8 | | | |
| SH | 850001944 | 0.25 | 0.25 | | <0.6 | <10 | 2.3 | 3.4 | 51.6 | 1.9 | 2.8 | | | |
| COAL | 850001945 | | | | <0.6 | <10 | 1.3 | 3.4 | 37.6 | 1 | 4.2 | | | |

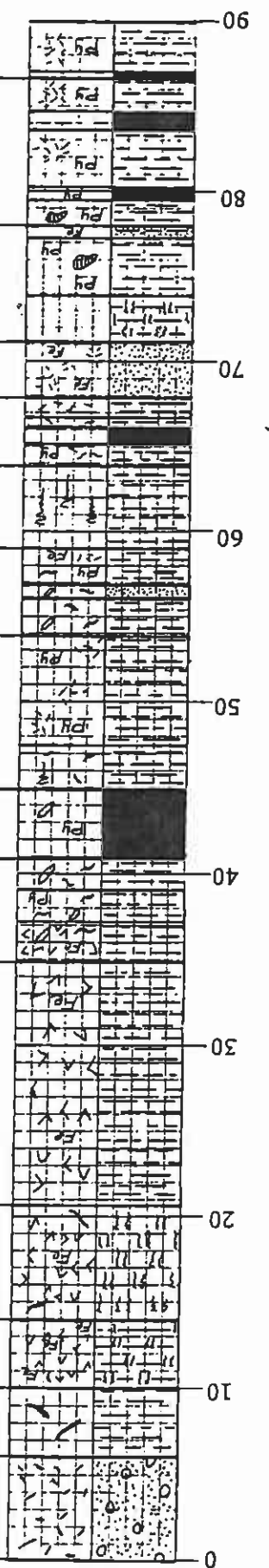
PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26272C
DATE CORED: 16 JUL 1985
DATE REPORTED: 26 SEP 1985

Dry Basis

| Lithology | Lab No. | Hot H ₂ O Ext. # | | | TAMM Mo PPM | # Hg PPB | AB-DIPA Extract # | | | | | Organic Matter % |
|-----------|-----------|-----------------------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | |
| CO | COAL | | | | 0.6 | 22 | 1.9 | 4.5 | 44 | 1 | 3.3 | |
| SH | 850001946 | | 0.56 | | <0.6 | <10 | <0.1 | 0.5 | 8.3 | 1 | <1 | |
| CO | 850001947 | | 0.02 | | <0.6 | 15 | 2.5 | 3.6 | 61.5 | 2.5 | <1 | |
| SH, SL | 850001948 | | 0.16 | | | | | | | | 2.2 | |

N-10 MINING AREA
(DEEP CORES)



LOCATION S 2965.0
 E 37093.0
 ELEVATION 6939.3

26364C

DATE DRILLED 7/27/85

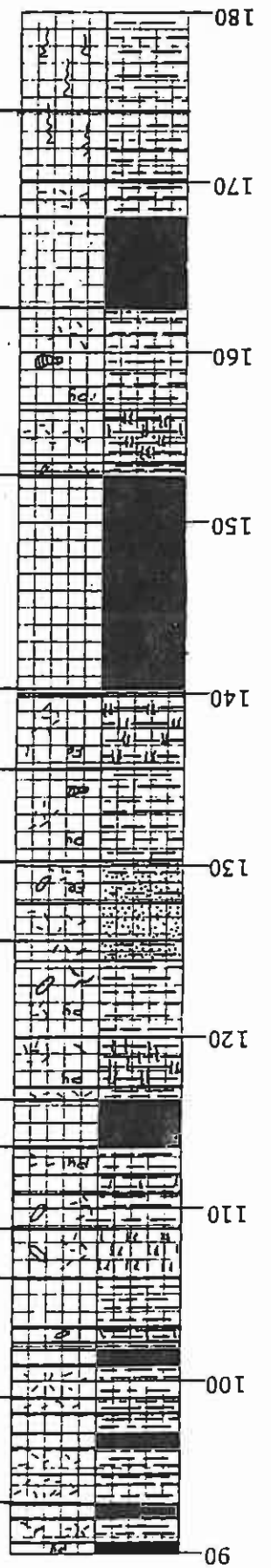
SUB AREA

N-11

SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg
 SAMPLE NO. (MOISTURE) (ASH) (BTU) %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 |
| MX | (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



OLE NO. 26364C
 LOCATION S 2965.0 E 37093.0
 ELEVATION 6939.3

DRILLER G. Hopkins
 DATE DRILLED 7/27/85
 SUB AREA N-11

PAGE 2
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) %S
 SAMPLE NO. (MOISTURE) (ASH) pH

| DEPTH | SAMPLE NO. | (MOISTURE) | (ASH) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %S | pH |
|-------|------------|------------|--------|----------|---------|---------|--------|-------|--------|-------|
| 180 | 850002013 | <30 | 48.0 | 18.6 | 0.2 | 0.1 | <0.01 | 0.1 | <0.01 | 8.0 |
| 170 | 850002012 | <30 | 60.8 | 13.6 | <0.1 | <0.1 | <0.01 | <0.1 | <0.01 | 9.0 |
| 160 | 850002011 | 34.2 | 55.9 | 33.1 | 0.4 | 0.3 | 0.44 | 0.3 | 0.44 | 8.3 |
| 150 | NXX | (N/A) | (7.11) | (12,600) | | | (0.52) | | (0.52) | (8.0) |
| 140 | 850002010 | 34.2 | 70.2 | 27.2 | 0.1 | 0.2 | 0.37 | 0.2 | 0.37 | 8.3 |
| 130 | 850002009 | 32.4 | 57.8 | 44.8 | 0.7 | 0.5 | 1.72 | 0.5 | 1.72 | 8.0 |
| 120 | 850002008 | <30 | 34.9 | 19.1 | 0.2 | 0.4 | <0.01 | 0.4 | <0.01 | 8.7 |
| 110 | 850002007 | 34.2 | 37.4 | 53.6 | 2.7 | 1.4 | 0.86 | 1.4 | 0.86 | 6.8 |
| 100 | 850002006 | 83.8 | 59.5 | 13.3 | <0.1 | <0.1 | 2.05 | <0.1 | 2.05 | 6.9 |
| 90 | 850002005 | 38.7 | 48.3 | 78.6 | 5.0 | 0.3 | 2.71 | 0.3 | 2.71 | 5.9 |
| | 850002004 | 30.1 | 43.0 | 36.0 | 0.7 | 0.7 | 0.18 | 0.7 | 0.18 | 7.9 |
| | 850002003 | 37.0 | 79.2 | 17.7 | <0.1 | <0.1 | 0.31 | <0.1 | 0.31 | 8.5 |
| | 850002002 | 36.7 | 50.0 | 53.6 | 1.6 | 0.7 | 1.32 | 0.7 | 1.32 | 7.6 |

SEP 3 1986

LOCATION S 2965.0

E 37093.0

LEVATION 6939.3

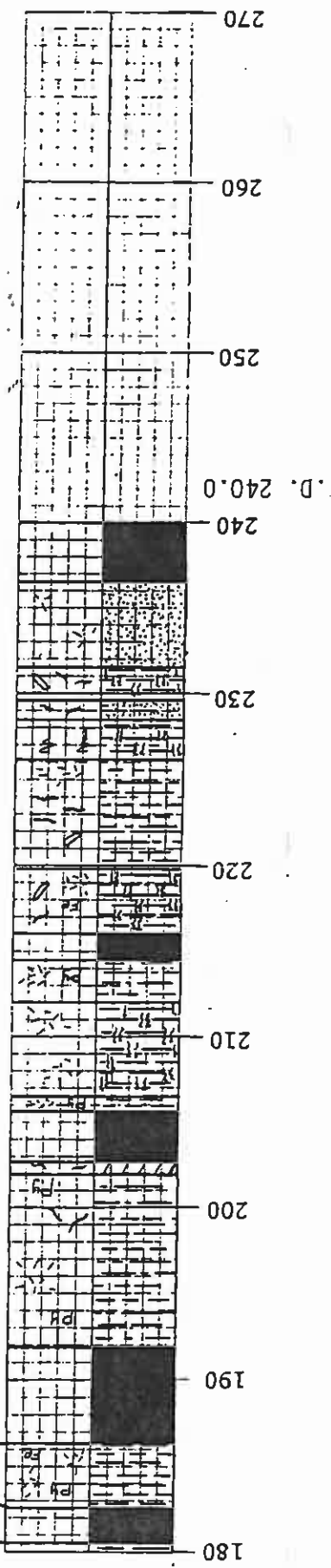
DATE DRILLED 7/27/85

SUB AREA N-11

SAMPLE NO. SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg

(MOISTURE) (ASH) (BTU) %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 |



467

SEP

3 1986

PEARBODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26364C
DATE CORED: 27JUL1985
DATE REPORTED: 26SEP1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | |
|------------|-------|-----------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|--|
| | | | | | 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 | 9.8 | 0.4 | 0.4 | 5 | <1 | 0 | 1.5 | 22 | -0.7 | | |
| SH, SS | 53.8 | 850001995 | 6.7 | 34.6 | 1.7 | 1.4 | 8 | 0.4 | 0.4 | 6 | <1 | 0 | 1.7 | 18 | -0.7 | | |
| SH | 59 | 850001996 | 7.8 | <30 | 1.1 | 1.3 | 5.1 | 0.5 | 0.5 | 10 | <1 | 0 | 4 | 8 | -0.5 | | |
| SH, CO | 63.8 | 850001997 | 6.5 | 36.9 | 3.4 | 4.1 | 18.9 | 8 | 0.8 | 8 | <1 | 0 | 1.7 | 46 | -0.1 | | |
| SS | 67.8 | 850001998 | 8 | 32.1 | 1.6 | 3.5 | 7.1 | 1.3 | 1.3 | 15 | <1 | 0 | 2.6 | 13 | 0.7 | | |
| SL, SH | 71.2 | 850001999 | 7.3 | 32.3 | 4.6 | 9.1 | 28.9 | 1.7 | 1.7 | 18 | <1 | 0 | 3.1 | 62 | 1.2 | | |
| SH, CO | 77.9 | 850002000 | 6.2 | 36.7 | 5.6 | 20.1 | 56.6 | 3.9 | 3.7 | 13 | <1 | 0 | 2.5 | 81 | 1.2 | | |
| CO, SH | 86.5 | 850002001 | 7 | 41.3 | 5.8 | 56.6 | 29.9 | 33 | 3.7 | 8 | <1 | 0 | 2.6 | 60 | 32.2 | | |
| SH, CO | 92.9 | 850002002 | 7.6 | 36.7 | 5.3 | 53.6 | 2 | 33 | 3.7 | 11 | <1 | 0 | 2.6 | 44 | 42 | | |
| SH, CO | 99 | 850002003 | 8.5 | 37 | 1.8 | 17.7 | 0.7 | 50 | 79.2 | 28 | 1.36 | 0.6 | 12.1 | 44 | 42 | | |
| SL | 105.9 | 850002004 | 7.9 | 30.1 | 3.4 | 36 | <0.1 | 43 | 4.3 | 10 | <1 | 0.5 | 10 | 5 | 53.6 | | |
| SH | 108.7 | 850002005 | 5.9 | 38.7 | 7.5 | 78.6 | 0.7 | 48.3 | 7.2 | 14 | <1 | 0.6 | 7.6 | 28 | 38.3 | | |
| CO | 113.5 | 850002006 | 6.9 | 83.8 | 1.5 | 13.3 | 0.3 | 48.3 | 7.2 | 14 | <1 | 0 | 1.1 | 86 | 41.2 | | |
| SH, SL, SS | 116.3 | 850002007 | 6.8 | 34.2 | 5.6 | 53.6 | <0.1 | 59.5 | 7 | 15 | <1 | 0 | 1.1 | 11 | 46.4 | | |
| SS, SH | 125.5 | 850002008 | 8.7 | <30 | 2.3 | 19.1 | 1.4 | 37.4 | 3.7 | 18 | <1 | 0.1 | 6.4 | 53 | 35 | | |
| SH | 130.3 | 850002009 | 8.7 | <30 | 4.6 | 44.8 | 0.4 | 34.9 | 9 | 18 | 4.1 | 0.6 | 9.4 | 12 | 33.4 | | |
| SL, SH | 135.7 | 850002010 | 8.3 | 34.2 | 2.7 | 27.2 | 0.5 | 57.8 | 8 | 12 | 2.21 | 0 | 3.6 | 44 | 45.7 | | |
| CO | 140.3 | COAL | | | | | | 70.2 | 12 | | 5.82 | 0.5 | 7.3 | 18 | 50.6 | | |
| SH, SL | 152.7 | 850002011 | 8.3 | 34.2 | 3.2 | 33.1 | 0.3 | 55.9 | 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 | 60.8 | 8 | 12 | 24.93 | 1.3 | 7.6 | <5 | 46.9 | | |
| SH | 174.2 | 850002013 | 8.1 | <30 | 2.1 | 18.6 | 0.2 | 48 | 14 | 14 | 12.27 | 0.3 | 8.8 | 11 | 41 | | |
| CO, SH | 180.4 | 850002014 | 8.1 | 85.5 | 0.5 | 8.2 | <0.1 | 36.7 | 7 | 7 | 2 | 0 | 1.6 | <5 | 34.6 | | |
| SH | 182.6 | 850002015 | 8.1 | 30.4 | 2.8 | 21.9 | 0.7 | 29.5 | 26 | 26 | 4.86 | 0.2 | 8 | 20 | 29.7 | | |

*Dry Basis

PEARBODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26364C
DATE CORED: 27JUL1985
DATE REPORTED: 26SEPT1985

*Dry Basis

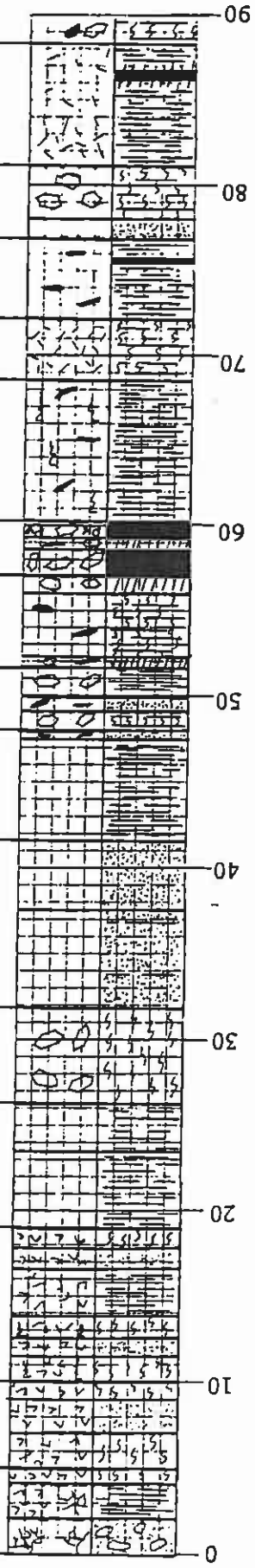
| Lithology | Lab No. | # Total N PPM | # NaHCO3 P PPM | # NH4OAc K PPM | # Total S % | # Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. | |
|------------|------------|---------------|----------------|----------------|-------------|------------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|--|
| | | | | | | | Amount Req'd. From S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| S. MAT. | 8500001988 | <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 | 850002000 | 0.96 | | | | | 30 | 50.64 | | | 20.64 | 31.2 | 34.4 | 34.4 | | | |
| SH, CO | 850002001 | 1.76 | | | 1.46 | | 55 | 40.44 | | 14.56 | | 49.2 | 21.4 | 29.4 | | | |
| CO, SH | 850002002 | 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 | 54.2 | 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 | 41.4 | | | |
| 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 KAYENTIA
CORE NO: 2636HC
DATE CORED: 27JUL1985
DATE REPORTED: 26SEP1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | TANM Mo PPM | # Hg PPB | AB-DIPA Extract # | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|----------|-------------------|--------|--------|--------|--------|--|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| S. MAT. | 850001988 | 0.05 | 0.03 | <0.01 | <0.6 | <10 | <0.1 | 0.3 | 9.6 | 2.6 | <1 | | | |
| SH | 850001989 | 0.06 | 0.04 | <0.01 | <0.6 | 12 | 0.2 | 0.7 | 22.3 | 2.2 | 4.7 | | | |
| SH | 850001990 | 0.06 | 0.04 | <0.01 | <0.6 | 13 | 0.2 | 0.4 | 16.2 | 1.7 | 3.7 | | | |
| SL | 850001991 | 0.14 | 0.14 | <0.01 | <0.6 | 38 | 0.3 | 0.5 | 25.7 | 8.5 | 5.1 | | | |
| SH | 850001992 | 0.03 | 0.03 | <0.01 | <0.6 | 27 | 0.2 | 5.7 | 25 | 3.1 | 3.3 | | | |
| SH | 850001993 | 0.08 | 0.08 | <0.01 | <0.6 | <10 | 2.9 | 5.1 | 215.5 | 18.9 | 11.5 | | | |
| COAL | 850001994 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3.7 | 3.1 | 98.4 | 9.7 | 7.3 | | | |
| SH, SS | 850001995 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3.5 | 4.7 | 115.3 | 9.7 | 8.3 | | | |
| SH | 850001996 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 2.5 | 4.4 | 130.4 | 6.6 | 3.9 | | | |
| SH, CO | 850001997 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3.1 | 6.4 | 66.4 | 4.6 | 6.1 | | | |
| SS | 850001998 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.5 | 1.6 | 81.3 | 4.8 | 3.4 | | | |
| SL, SH | 850001999 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 2.5 | 7.7 | 98.2 | 11.5 | 5 | | | |
| SH, CO | 850002000 | 0.02 | 0.02 | <0.01 | <0.6 | <10 | 2.4 | 6.1 | 99 | 4 | 6.4 | | | |
| SH, CO | 850002001 | 0.21 | 0.21 | <0.01 | <0.6 | <10 | 1.9 | 3.7 | 83.7 | 1.2 | 3.8 | | | |
| SH, CO | 850002002 | 0.02 | 0.02 | <0.01 | <0.6 | <10 | 2.3 | 4.1 | 85.7 | 1.2 | 3.8 | | | |
| SH, CO | 850002003 | 0.02 | 0.02 | <0.01 | <0.6 | <10 | 1.9 | 4.1 | 81.8 | 3.3 | 2.9 | | | |
| SH | 850002004 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 2.3 | 5.5 | 146.5 | 8.4 | 3.4 | | | |
| SH | 850002005 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 2.3 | 3.6 | 165 | 3.3 | 4.8 | | | |
| CO | 850002006 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | <1 | 3.7 | 51.3 | 3.3 | 4.8 | | | |
| SH, SL, SS | 850002007 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 2.8 | 7.4 | 114.2 | 3.8 | 5.7 | | | |
| SS, SH | 850002008 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.2 | 3.1 | 97.4 | 7.5 | 1.4 | | | |
| SH | 850002009 | 0.23 | 0.23 | <0.01 | <0.6 | <10 | 2.9 | 9.4 | 83.3 | 5.7 | 4.1 | | | |
| SL, SH | 850002010 | <0.01 | <0.01 | <0.01 | 0.6 | 13 | 2.3 | 5.6 | 81.5 | 7.8 | 3.1 | | | |
| COAL | 850002011 | 0.16 | 0.16 | <0.01 | <0.6 | 18 | 3.2 | 5.2 | 81.9 | 2.2 | 4 | | | |
| SH, SL | 850002012 | 0.2 | 0.2 | <0.01 | 0.6 | 14 | 1.9 | 5.1 | 37.4 | 1 | 4.8 | | | |
| CO | 850002013 | 0.2 | 0.2 | <0.01 | <0.6 | 12 | 1.4 | 1.8 | 114.8 | 3.3 | 3.3 | | | |
| SH | 850002014 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | <1 | <0.2 | 27.1 | 1 | <1 | | | |
| CO, SH | 850002015 | 0.29 | 0.29 | <0.01 | <0.6 | 16 | 2.9 | 2.8 | 70.7 | 1.1 | 2.3 | | | |

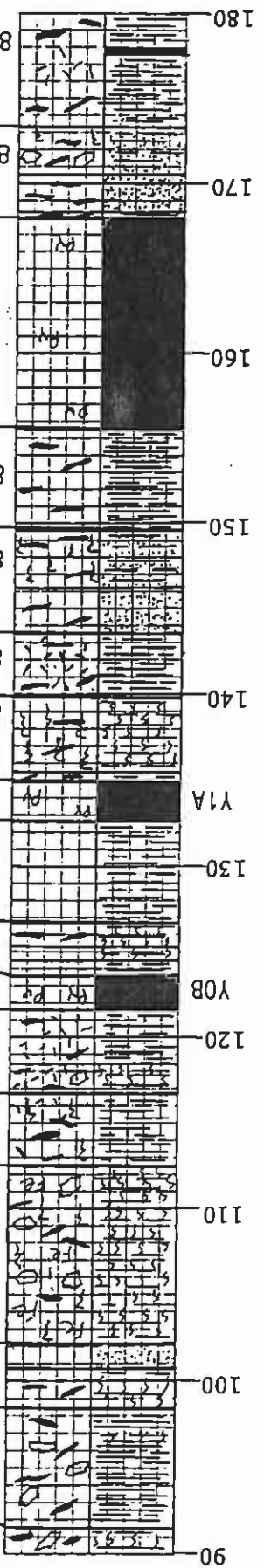


| SAMPLE NO. | SATURATION % | SAR | SOL.Na. SOL.Ca. SOL.Mg (BTU) | %S | pH | | |
|------------|--------------|-----|------------------------------|------|------|-------|-----|
| 850001949 | 48.2 | 3.2 | 4.8 | 2.9 | 1.6 | <0.01 | 8.0 |
| 850001950 | 40.1 | 6.6 | 8.3 | 1.3 | 1.9 | <0.01 | 8.3 |
| 850001951 | 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 |

LOCATION S 3559.0
 E 34114.0
 ELEVATION 6862.9

DATE DRILLED 7/11/85
 SUB AREA N-11
 SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 %S
 pH

471
 SEP 3 1986

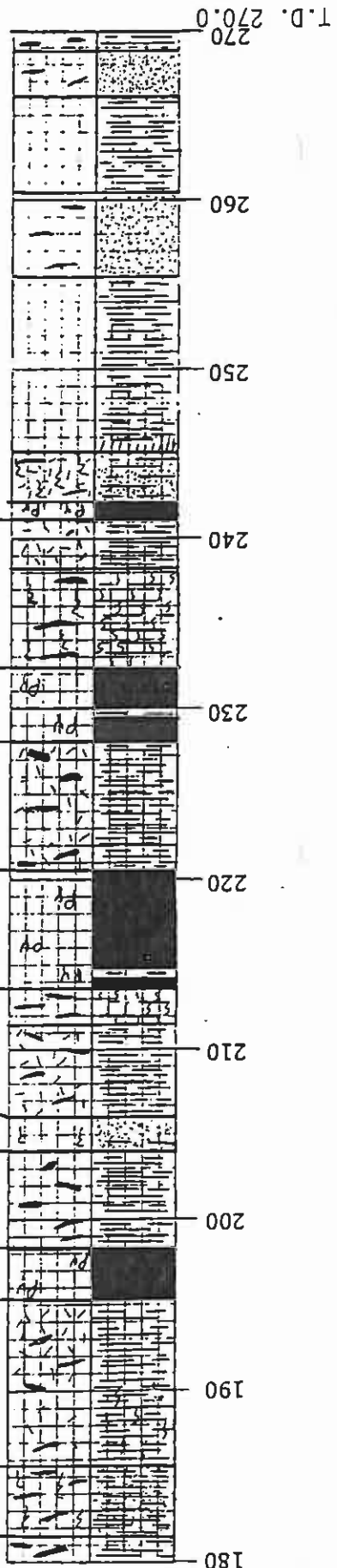


FILE NO. 26367C
 LOCATION S 3559.0 E 34114.0
 ELEVATION 6862.9

DRILLER G. Hopkins
 DATE DRILLED 7/11/85
 SUB AREA N-11
 PAGE 2

| SAMPLE NO. | SATURATION % | SAR | SOL.Na. (ASH) | SOL.Ca. (BTU) | SOL.Mg | %S | pH |
|------------|--------------|--------|---------------|---------------|--------|--------|-------|
| 850001979 | 36.6 | 63.9 | 20.1 | 0.1 | 0.1 | 0.58 | 8.3 |
| 850001978 | 26.1 | 36.8 | 18.4 | 0.3 | 0.2 | 0.05 | 8.5 |
| NXX | (N/A) | (6.18) | (12,819) | | | (0.49) | (7.9) |
| 850001977 | 44.7 | 18.8 | 46.2 | 7.8 | 4.3 | 1.41 | 6.3 |
| 850001976 | 28.5 | 16.1 | 19.0 | 1.2 | 1.6 | <0.01 | 8.0 |
| 850001975 | 34.6 | 18.5 | 37.6 | 3.3 | 5.0 | 0.72 | 6.5 |
| 850001974 | 34.3 | 16.5 | 31.0 | 3.9 | 3.2 | 0.55 | 6.3 |
| 850001973 | 66.3 | 4.7 | 12.9 | 8.2 | 6.6 | 2.09 | 4.9 |
| 850001972 | 36.7 | 2.2 | 13.3 | 26.7 | 45.8 | 2.90 | 3.9 |
| 850001971 | 28.3 | 1.6 | 5.9 | 13.8 | 13.1 | 0.29 | 7.0 |
| 850001970 | 73.5 | 2.2 | 2.7 | 1.6 | 1.5 | 0.97 | 6.5 |
| 850001969 | 38.9 | 1.1 | 6.3 | 30.0 | 31.3 | 0.84 | 5.6 |
| 850001968 | 42.9 | 1.0 | 4.4 | 20.0 | 16.7 | 1.08 | 6.5 |
| 850001967 | 36.3 | 0.6 | 2.6 | 20.5 | 19.0 | 0.29 | 6.7 |
| 850001966 | 36.3 | 0.6 | 1.8 | 9.8 | 11.1 | 0.06 | 7.3 |
| 850001965 | 34.5 | 0.5 | 2.0 | 19.6 | 18.4 | 0.25 | 6.5 |
| 850001964 | 34.4 | 0.4 | 2.3 | 28.6 | 31.3 | 0.55 | 6.2 |

SEP 3 1986



LOCATION S 3559.0 E 34114.0
 ELEVATION .6862.9

| ELEVATION | SAMPLE NO. | SATURATION & SAR | | SOL. Na. | | SOL. Ca. | | SOL. Mg. | | pH |
|-----------|------------|------------------|---------|----------|-------|----------|--------|----------|-----|----|
| | | (MOISTURE) | (ASH) | (BTU) | (BTU) | (BTU) | (BTU) | | | |
| 180 | 850001980 | 30.2 | 77.4 | 17.3 | <0.1 | <0.1 | <0.01 | <0.01 | 8.9 | |
| 190 | 850001981 | 48.9 | 85.0 | 19.0 | <0.1 | <0.1 | <0.01 | <0.01 | 8.7 | |
| 200 | 850001982 | 67.1 | 55.0 | 12.3 | <0.1 | <0.1 | 0.01 | 0.01 | 9.1 | |
| 210 | 850001983 | 28.1 | 64.4 | 14.4 | <0.1 | <0.1 | <0.01 | <0.01 | 8.9 | |
| 220 | E1X | (N/A) | (11.28) | (12,218) | | | (0.58) | (8.0) | | |
| 230 | 850001985 | 57.0 | 57.2 | 12.8 | <0.1 | <0.1 | 0.04 | 0.04 | 9.3 | |
| 240 | 850001986 | 69.0 | 26.8 | 6.0 | <0.1 | <0.1 | 0.97 | 0.97 | 7.9 | |
| 250 | 850001987 | 24.2 | 31.8 | 20.1 | 0.5 | 0.3 | 0.45 | 0.45 | 8.5 | |
| 260 | | | | | | | | | | |
| 270.0 | | | | | | | | | | |

DATE DRILLED 7/11/85
 SUB AREA N-11

SEP 8 1986

473

26367C

T.D. 270.0

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26367C
DATE CORED:11JUL1985
DATE REPORTED:26SEP1985

| Lithology | Depth | Lab No. | Paste pill | Sat. % | Saturated Paste Extract | | | | | | | | | | | | *Dry Basis |
|---------------|-------|------------|------------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|------------|
| | | | | | E.C. mtho/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 | 8500001949 | 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 | 0.3 | 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 | 1.6 | 3.1 | 3.1 | 182 | 1.17 | 0 | 1 | <5 | 3.2 | | |
| SH | 19 | 850001952 | 7.8 | 35.1 | 0.4 | 0.8 | 1.2 | 0.6 | 0.6 | 17 | 1.8 | 0 | 2.8 | <5 | -0.4 | | |
| SL | 26.2 | 850001953 | 8 | 30.8 | 0.4 | 0.7 | 1.5 | 1.5 | 0.5 | 13 | 2.45 | 0 | 1.6 | <5 | -0.5 | | |
| SS | 31.8 | 850001954 | 8 | 32.1 | 0.4 | 0.7 | 1.5 | 2.1 | 0.5 | 13 | 2.27 | 0 | 1.6 | <5 | -0.5 | | |
| SH | 41.5 | 850001955 | 7.5 | 32.4 | 1.1 | 1.5 | 4.3 | 0.6 | 0.6 | 7 | 2.35 | 0 | 1.8 | 8 | -0.4 | | |
| SS, SH, SL | 47.4 | 850001956 | 6.4 | 36.4 | 3.6 | 2 | 32.7 | 0.4 | 0.3 | 8 | 4.32 | 0 | 3.8 | 49 | -0.7 | | |
| SH, SL | 51.6 | 850001957 | 3.4 | 36.4 | 5.2 | 1.5 | 40.7 | 0.4 | 0.3 | 8 | 4.02 | 0 | <0.1 | 105 | -0.8 | | |
| CO, SH | 57 | 850001958 | 3.1 | 52.4 | 4.3 | 0.9 | 16.2 | 0.2 | 0.2 | 13 | 4.02 | 0 | <0.1 | 77 | -1 | | |
| SH | 60.2 | 850001959 | 4 | 40.8 | 3.6 | 2 | 21.3 | 0.4 | 0.4 | 10 | 1.33 | 0 | 0.2 | 54 | -0.7 | | |
| SL, SH | 68.5 | 850001960 | 5.6 | 36.2 | 2.1 | 1 | 12.3 | 0.3 | 0.3 | 7 | 1.33 | 0 | 3.2 | 26 | -0.8 | | |
| SH | 72.1 | 850001961 | 5.6 | 34.4 | 4.1 | 1.7 | 34.2 | 0.3 | 0.3 | 10 | 2.58 | 0 | 2.6 | 63 | -0.8 | | |
| SS, SH, SL | 76.8 | 850001962 | 7.4 | 34.2 | 2.2 | 1.4 | 14.4 | 0.4 | 0.4 | 9 | <1 | 0 | 2.7 | 26 | -0.7 | | |
| SH | 81.1 | 850001963 | 5.3 | 36.6 | 4.3 | 2.3 | 42.2 | 0.4 | 0.4 | 10 | <1 | 0 | 1.9 | 71 | -0.8 | | |
| SH | 88.2 | 850001964 | 6.2 | 34.4 | 3.9 | 2.3 | 31.3 | 0.5 | 0.5 | 8 | 1.06 | 0 | 3.2 | 38 | -0.5 | | |
| SS, SH, SL | 91.5 | 850001965 | 7.3 | 34.5 | 2.8 | 2.2 | 18.4 | 0.6 | 0.6 | 9 | 1.47 | 0 | 2.8 | 29 | -0.4 | | |
| SH | 98.4 | 850001966 | 6.5 | 36.3 | 1.8 | 1.8 | 11.1 | 0.6 | 0.6 | 9 | 1.67 | 0 | 2.8 | 18 | -0.4 | | |
| SL, SH, SS | 102.2 | 850001967 | 6.7 | 36.3 | 2.9 | 2.6 | 16.7 | 0.6 | 0.6 | 10 | <1 | 0 | 1.4 | 41 | 0.2 | | |
| SH | 112.4 | 850001968 | 6.5 | 38.9 | 3 | 4.4 | 16.7 | 1 | 1.1 | 9 | <1 | 0 | 2.6 | 62 | 0.4 | | |
| SH, SL | 116.7 | 850001969 | 5.6 | 38.9 | 4.2 | 2.6 | 13.3 | 0.6 | 0.6 | 10 | <1 | 0 | 0.8 | 29 | 1.9 | | |
| CO | 121.6 | 850001970 | 6.5 | 73.5 | 0.6 | 6.3 | 30 | 1.1 | 1.1 | 9 | <1 | 0 | 0.8 | 29 | 1.1 | | |
| SH, SL | 123.6 | 850001971 | 7 | 28.3 | 2.6 | 5.9 | 13.1 | 2.2 | 2.2 | 12 | 1.47 | 0 | 4 | 87 | 1.9 | | |
| SH | 126.7 | 850001972 | 3.9 | 36.7 | 5.6 | 13.3 | 45.8 | 2.2 | 2.2 | 10 | 3.39 | 0 | 0.1 | 26 | 5.4 | | |
| CO | 132.6 | 850001973 | 4.9 | 66.3 | 2.5 | 12.9 | 6.6 | 4.7 | 4.7 | 7 | <1 | 0 | 0.6 | 36 | 18.8 | | |
| SH, SL | 134.9 | 850001974 | 6.3 | 34.3 | 3.7 | 31 | 3.2 | 16.5 | 18.5 | 7 | <1 | 0 | 1.1 | 48 | 20.7 | | |
| SH | 139.8 | 850001975 | 6.5 | 34.6 | 4.5 | 37.6 | 3.9 | 15.1 | 16.1 | 7 | <1 | 0 | 1.1 | 15 | 18.4 | | |
| SS, SH | 143.4 | 850001976 | 8 | 28.5 | 2.3 | 19 | 1.6 | 15.1 | 15.1 | 9 | 3.18 | 0.6 | 6.4 | 15 | 20.9 | | |
| SH | 149.6 | 850001977 | 6.3 | 44.7 | 5.5 | 46.2 | 4.3 | 18.8 | 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 | 0.2 | 36.8 | 8 | 14 | 11.43 | 0.8 | 10 | 7 | 34.6 | | |
| SH | 173.3 | 850001979 | 8.3 | 30.6 | 2.3 | 20.1 | 0.1 | 63.6 | 20 | 15 | 10.4 | 0.2 | 6.7 | 13 | 48.1 | | |
| SS, SH | 181.6 | 850001980 | 8.9 | 30.2 | 1.8 | 17.3 | <0.1 | 77.4 | 13 | 13 | 20.9 | 1 | 11.9 | <5 | 53 | | |
| SH | 185.7 | 850001981 | 8.7 | 48.9 | 2 | 19 | <0.1 | 85 | 11 | 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 | 55 | 11 | 15 | 20.4 | 0.2 | 9 | <5 | 44.4 | | |
| SS | 203.9 | 850001983 | 8.9 | 28.1 | 1.6 | 14.4 | <0.1 | 64.4 | 15 | 11 | 16.2 | 0.8 | 11 | <5 | 44.4 | | |
| SH, SL | 206 | 850001984 | 8.9 | 48.6 | 1.6 | 15.8 | <0.1 | 70.7 | 12 | 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 | 57.2 | 16 | 16 | 18.15 | 0.2 | 7.9 | <5 | 45.4 | | |
| CO | 228 | 850001986 | 7.9 | 69 | 0.7 | 6 | <0.1 | 26.8 | 13 | 13 | 4.02 | 0 | 3 | <5 | 27.7 | | |
| SL, SH | 232.3 | 850001987 | 8.5 | 24.2 | 2.2 | 20.1 | 0.5 | 31.8 | 19 | 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

| Lithology | Lab No. | Total N PPM | Na/CO3 P PPM | NH4NO3 K PPM | Total S % | Pyrr. S % | CaCO3 Eq Tons / 1000 tons # | | | Particle Size | | | | % Moisture # | | Avail. H2O Hold. Cap. |
|---------------|-----------|-------------|--------------|--------------|-----------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|--------------|--------|-----------------------|
| | | | | | | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| S.MAT, SH, SL | 850001949 | <0.01 | <0.01 | <0.01 | 0 | 0 | 47.29 | 16.34 | 10.23 | 47.29 | 86.6 | 9.2 | 4.2 | | | |
| SL, SS | 850001950 | <0.01 | <0.01 | <0.01 | 0 | 0 | 16.34 | 9.83 | 16.24 | 16.34 | 79.6 | 17.2 | 3.2 | | | |
| SL, SS, SH | 850001951 | <0.01 | <0.01 | <0.01 | 0 | 0 | 9.83 | 50.32 | 19.11 | 9.83 | 80 | 17.6 | 2.4 | | | |
| SH | 850001952 | <0.01 | <0.01 | <0.01 | 0 | 0 | 50.32 | 197.05 | 320.59 | 197.05 | 88 | 9.2 | 2.8 | | | |
| SL | 850001953 | <0.01 | <0.01 | <0.01 | 0 | 0 | 197.05 | 320.59 | 222.16 | 320.59 | 74 | 19.2 | 6.8 | | | |
| SS | 850001954 | <0.01 | <0.01 | <0.01 | 0 | 0 | 320.59 | 222.16 | 18.93 | 222.16 | 76 | 14.2 | 9.8 | | | |
| SH | 850001955 | <0.01 | <0.01 | <0.01 | 0 | 0 | 222.16 | 18.93 | 10.23 | 18.93 | 35.4 | 32.2 | 32.4 | | | |
| SS, SH, SL | 850001956 | <0.01 | <0.01 | <0.01 | 0 | 0 | 18.93 | 10.23 | 65.24 | 18.93 | 51.4 | 22.2 | 16.4 | | | |
| SH, SL | 850001957 | 0.47 | 0.23 | 0.47 | 14.69 | 4.46 | 4.46 | 11.64 | 19.11 | 4.46 | 61.4 | 22.2 | 16.4 | | | |
| CO, SH | 850001958 | 2.46 | 0.93 | 2.46 | 76.88 | 16.83 | 16.83 | 65.24 | 121.18 | 16.83 | 88.4 | 5.2 | 6.4 | | | |
| SH | 850001959 | 1.15 | 1 | 1.15 | 35.94 | 121.18 | 121.18 | 19.11 | 121.18 | 33 | 33 | 38.2 | 28.8 | | | |
| SL, SH | 850001960 | <0.01 | <0.01 | <0.01 | 0 | 0 | 121.18 | 19.11 | 47.72 | 121.18 | 54 | 31.2 | 14.8 | | | |
| SH | 850001961 | 0.71 | 1.55 | 0.71 | 22.19 | 54.16 | 54.16 | 12.79 | 47.72 | 31.97 | 30 | 30.2 | 18.4 | | | |
| SS, SH, SL | 850001962 | 0.2 | 1.81 | 0.2 | 6.25 | 43.77 | 43.77 | 12.79 | 47.72 | 51.4 | 25.4 | 47.2 | 28.4 | | | |
| SH, SL | 850001963 | 0.55 | 1.55 | 0.55 | 56.56 | 26.36 | 26.36 | 9.17 | 41.05 | 47.72 | 24.4 | 47.2 | 32.4 | | | |
| SH | 850001964 | 0.25 | 1.81 | 0.25 | 17.19 | 43.77 | 43.77 | 41.05 | 41.86 | 24.4 | 28.4 | 36.2 | 35.4 | | | |
| SL, SH, SS | 850001965 | 0.06 | 0.29 | 0.06 | 1.88 | 43.74 | 43.74 | 41.86 | 36.53 | 48.86 | 48.4 | 25.2 | 22.4 | | | |
| SH | 850001966 | 0.29 | 1.08 | 0.29 | 9.06 | 45.59 | 45.59 | 36.53 | 41.86 | 59.4 | 18.2 | 22.4 | 31.4 | | | |
| SH, SL | 850001967 | 1.08 | 0.95 | 1.08 | 33.75 | 11.02 | 11.02 | 22.73 | 43.51 | 38.4 | 30.2 | 31.4 | 36.4 | | | |
| SH, SL | 850001968 | 0.84 | 0.13 | 0.84 | 30.31 | 31.67 | 31.67 | 16.22 | 5.42 | 26.4 | 26.4 | 30.2 | 31.4 | | | |
| CO | 850001970 | 0.29 | 1.27 | 0.29 | 90.62 | 15.9 | 15.9 | 74.72 | 43.51 | 94.4 | 5.6 | 27.6 | 18 | | | |
| SH, SL | 850001971 | 2.9 | 1.27 | 2.9 | 90.62 | 15.9 | 15.9 | 74.72 | 43.51 | 25.4 | 54.4 | 41.6 | 33 | | | |
| SH | 850001972 | 2.09 | 0.78 | 2.09 | 65.31 | 14.22 | 14.22 | 51.09 | 12.24 | 90.8 | 6.8 | 2.4 | 2.4 | | | |
| CO | 850001973 | 0.55 | 0.55 | 0.55 | 17.19 | 29.43 | 29.43 | 13.77 | 12.24 | 48.8 | 29.8 | 21.4 | 21.4 | | | |
| SH, SL | 850001974 | 0.72 | 0.67 | 0.72 | 22.5 | 8.73 | 8.73 | 13.77 | 152.87 | 15.8 | 45.8 | 38.4 | 38.4 | | | |
| SH, SH | 850001975 | <0.01 | <0.01 | <0.01 | 0 | 0 | 152.87 | 28.9 | 152.87 | 62.8 | 21.8 | 15.4 | 15.4 | | | |
| SH | 850001976 | 1.41 | 1.32 | 1.41 | 44.06 | 15.16 | 15.16 | 28.9 | 152.87 | 25.8 | 37.8 | 36.4 | 36.4 | | | |
| CO | 850001977 | 0.05 | 0.58 | 0.05 | 1.56 | 52.88 | 52.88 | 51.32 | 19.83 | 57.8 | 24.8 | 17.4 | 17.4 | | | |
| SH, SS | 850001978 | 0.58 | 0.58 | 0.58 | 18.12 | 37.95 | 37.95 | 19.83 | 56.94 | 32.8 | 30.8 | 36.4 | 36.4 | | | |
| SH | 850001979 | <0.01 | <0.01 | <0.01 | 0 | 0 | 56.94 | 172.88 | 172.88 | 46.8 | 28.8 | 24.4 | 24.4 | | | |
| SS, SH | 850001980 | <0.01 | <0.01 | <0.01 | 0 | 0 | 172.88 | 22.78 | 22.78 | 35.0 | 28.8 | 35.4 | 35.4 | | | |
| SH | 850001981 | 0.01 | <0.01 | 0.01 | 0.31 | 23.09 | 23.09 | 22.78 | 54.36 | 13.8 | 39.0 | 46.4 | 46.4 | | | |
| CO | 850001982 | <0.01 | <0.01 | <0.01 | 0 | 0 | 54.36 | 27.72 | 24.91 | 61.2 | 22.4 | 16.4 | 16.4 | | | |
| SH | 850001983 | 0.09 | 0.09 | 0.09 | 2.81 | 27.72 | 27.72 | 24.91 | 49.36 | 26.2 | 36.4 | 37.4 | 37.4 | | | |
| SH, SL | 850001984 | 0.04 | 0.04 | 0.04 | 1.25 | 50.61 | 50.61 | 49.36 | 74.05 | 24.2 | 29.4 | 46.4 | 46.4 | | | |
| SH | 850001985 | 0.97 | 0.22 | 0.97 | 30.31 | 15.23 | 15.23 | 15.08 | 74.05 | 92.2 | 4.4 | 3.4 | 3.4 | | | |
| CO | 850001986 | 0.45 | 0.45 | 0.45 | 14.06 | 88.11 | 88.11 | 74.05 | 40.2 | 40.2 | 38.4 | 21.4 | 21.4 | | | |
| SL, SH | 850001987 | | | | | | | | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAVENIA
CORE NO: 26367C
DATE CORED: 11JUL1985
DATE REPORTED: 26SEPI1985

Dry Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | | AB-DIPA Extract # | | | | | | | Organic Matter % |
|-----------------|-----------|----------------|--------|--------|-------------|-------------------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | AS PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| S, MAT, SII, SL | 850001949 | 0.05 | <0.01 | <0.01 | <0.6 | 11 | 0.1 | 0.9 | 39.3 | 18.1 | <1 | | |
| SL, SS | 850001950 | 0.04 | <0.01 | <0.01 | <0.6 | <10 | <0.1 | <0.2 | 8.9 | 1.8 | <1 | | |
| SL, SS, SH | 850001951 | 0.03 | <0.01 | <0.01 | <0.6 | <10 | 0.2 | 0.4 | 9.5 | 5.7 | <1 | | |
| SH | 850001952 | 0.05 | 0.04 | <0.01 | 0.7 | <10 | 0.2 | 0.7 | 45.8 | 8.6 | 4.2 | | |
| SL | 850001953 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 0.3 | 1.1 | 38.2 | 10.1 | 2.7 | | |
| SS | 850001954 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 0.3 | 1.1 | 54.8 | 25.5 | <1 | | |
| SH | 850001955 | 0.01 | 0.03 | 0.03 | <0.6 | <10 | 0.2 | 6.5 | 20 | 10.6 | 4.4 | | |
| SS, SH, SL | 850001956 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 0.2 | 5.4 | 39.3 | 7.6 | 4.4 | | |
| SH, SL | 850001957 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.3 | 6.6 | 213 | 9.4 | 6.4 | | |
| CO, SH | 850001958 | 0.1 | <0.01 | <0.01 | <0.6 | <10 | 4.2 | 6.6 | 373.4 | 3.1 | 12.2 | | |
| SH | 850001959 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 5.6 | 3.2 | 197.5 | 10.6 | 13.3 | | |
| SL, SH | 850001960 | 0.03 | 0.03 | 0.02 | <0.6 | <10 | 2.4 | 2.6 | 130.2 | 9.3 | 8.4 | | |
| SH | 850001961 | 0.6 | <0.01 | <0.01 | 0.6 | <10 | 5.6 | 3.7 | 229.2 | 20.8 | 16.3 | | |
| SS, SII, SL | 850001962 | <0.01 | <0.01 | <0.01 | 0.6 | <10 | 1.7 | 2.1 | 68.5 | 21.6 | 4.4 | | |
| SH | 850001963 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3.2 | 3.7 | 164.6 | 18.5 | 7.2 | | |
| SH, SL | 850001964 | <0.01 | 0.03 | <0.01 | <0.6 | <10 | 2.9 | 4.1 | 76.1 | 15.5 | 7.2 | | |
| SH | 850001965 | 0.03 | <0.01 | <0.01 | <0.6 | <10 | 2.7 | 3.5 | 65.8 | 12.7 | 6.9 | | |
| SL, SH, SS | 850001966 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.7 | 2.8 | 71.1 | 19.3 | 7.4 | | |
| SL, SH | 850001967 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.5 | 3.3 | 75 | 16.6 | 4.6 | | |
| SH | 850001968 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.4 | 4.9 | 53.3 | 2.6 | 6 | | |
| SH, SL | 850001969 | <0.01 | <0.01 | <0.01 | 0.7 | <10 | 3.5 | 3.2 | 99.5 | 3.9 | 5.6 | | |
| CO | 850001970 | 0.02 | 0.02 | 0.02 | 1 | <10 | <0.1 | 0.3 | 22.2 | 1 | 12 | | |
| SII, SL | 850001971 | <0.01 | <0.01 | <0.01 | 0.6 | <10 | 2 | 2.6 | 79.9 | 3.3 | 3.9 | | |
| SH | 850001972 | 0.03 | 0.02 | 0.02 | 0.7 | <10 | 3.8 | 2.8 | 148.5 | 3.6 | 12.4 | | |
| CO | 850001973 | 0.02 | 0.05 | 0.05 | <0.6 | <10 | 0.5 | 0.3 | 86.7 | 1.6 | 2.6 | | |
| SII, SL | 850001974 | 0.05 | 0.06 | 0.06 | 0.6 | <10 | 2.5 | 3.7 | 63.9 | 1.4 | 4.8 | | |
| SH | 850001975 | 0.06 | 0.04 | 0.04 | <0.6 | <10 | 3.1 | 8.8 | 58 | 1.6 | 7.6 | | |
| SS, SH | 850001976 | 0.04 | 0.07 | 0.07 | <0.6 | <10 | 1.6 | 3.2 | 81.4 | 4.9 | 2 | | |
| SII | 850001977 | 0.07 | 0.13 | 0.13 | <0.6 | <10 | 3.5 | 5.2 | 82.3 | 3.9 | 5.3 | | |
| CO | 850001978 | 0.13 | 0.51 | 0.51 | <0.6 | <10 | 2.1 | 1.6 | 72.4 | 2.6 | 4 | | |
| SH, SS | 850001979 | 0.51 | 0.22 | 0.22 | 0.6 | 60 | 2.2 | 4.5 | 34.6 | 1.8 | 2.6 | | |
| SS, SH | 850001980 | 0.22 | 0.12 | 0.12 | 0.6 | <10 | 1.7 | 1.6 | 45.5 | 2.5 | 3.1 | | |
| SII | 850001981 | 0.12 | 0.26 | 0.26 | <0.6 | <10 | 1.4 | 2.8 | 47.6 | 3.6 | 1.7 | | |
| CO | 850001982 | 0.26 | 0.17 | 0.17 | <0.6 | 21 | 1.4 | 4.5 | 24.2 | 1 | 3.6 | | |
| SH | 850001983 | 0.17 | 0.37 | 0.37 | 0.9 | <10 | 1 | 1.5 | 49.3 | 1 | 3.5 | | |
| SII, SL | 850001984 | 0.37 | 0.6 | 0.6 | 0.6 | 16 | 1.5 | 3.5 | 32.8 | 1 | 3.3 | | |
| CO | COAL | | 0.23 | 0.23 | 0.6 | 19 | 1.3 | 3.9 | 33 | 1 | 3.6 | | |
| SH | 850001985 | 0.23 | 0.04 | 0.04 | <0.6 | <10 | 0.3 | 0.5 | 10.2 | 1 | <1 | | |
| CO | 850001986 | 0.04 | 0.18 | 0.18 | <0.6 | <10 | 2.1 | 3.3 | 58.3 | 2.9 | 2.2 | | |
| SL, SH | 850001987 | 0.18 | | | | | | | | | | | |

LOCATION S 4917.0 E 36443.0

ELEVATION 6912.4

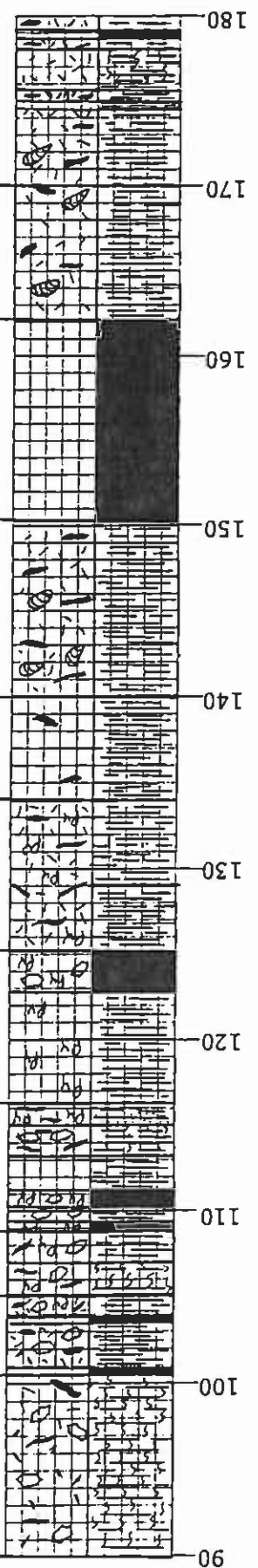
SAMPLE NO. 26463 C DATE DRILLED 7-9-85 SUB AREA N-11

SAR SOL.Na. SOL.Ca. SOL.Mg (BTU) pH

| DEPTH (ft) | SAMPLE NO. | SATURATION % | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|------------|------------|--------------|---------|----------|---------|--------|-------|-----|
| 0 | 850001778 | 48.6 | 5.6 | 25.9 | 15.9 | 27.5 | 0.10 | 7.7 |
| 10 | 850001779 | 40.2 | 3.6 | 20.0 | 23.4 | 39.5 | <0.01 | 7.7 |
| 20 | 850001781 | 32.1 | 0.5 | 0.8 | 1.4 | 3.6 | <0.01 | 8.2 |
| 30 | 850001782 | 36.1 | 0.6 | 1.5 | 4.1 | 8.4 | 0.01 | 8.0 |
| 40 | 850001783 | 34.1 | 0.5 | 0.6 | 2.0 | 1.3 | <0.01 | 8.0 |
| 50 | 850001784 | 36.1 | 0.4 | 0.6 | 2.2 | 1.4 | <0.01 | 7.9 |
| 60 | 850001785 | 36.3 | 0.3 | 1.8 | 32.6 | 21.3 | 0.73 | 6.4 |
| 70 | 850001786 | (N/A) | (13.24) | (11.603) | (1.79) | (3.4) | | |
| 80 | 850001787 | 36.1 | 1.5 | 4.6 | 8.4 | 11.6 | <0.01 | 7.2 |
| 90 | 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 |

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SEP 3 1985



HOLE NO. 26463C
 LOCATION S 4917.0
 ELEVATION 6912.4

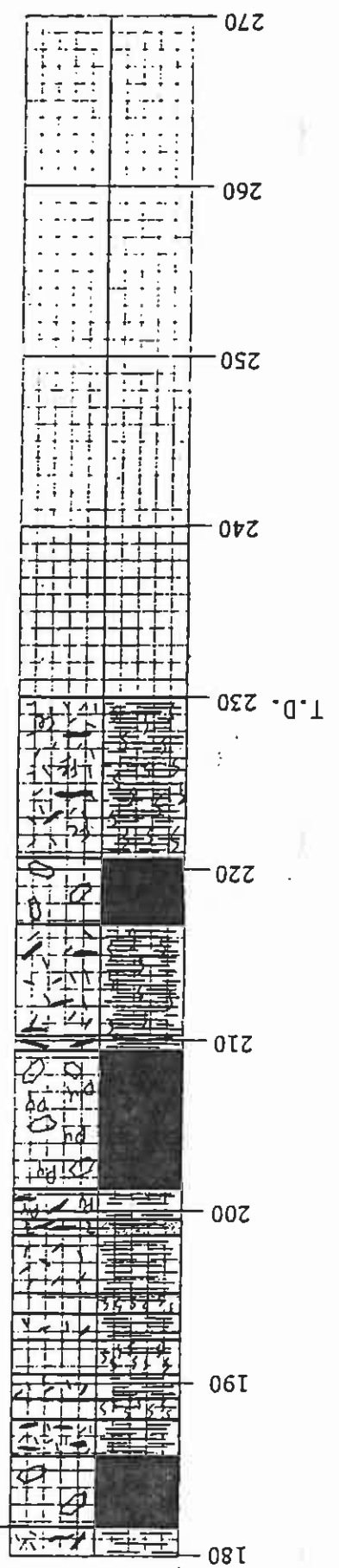
DRILLER D. Hopkins
 DATE DRILLED 7-9-85
 SUB AREA N-11

PAGE 2
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 SAMPLE NO. (MOISTURE) (ASH) pH

| SAMPLE NO. | (MOISTURE) | (ASH) | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | 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 | 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

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LOCATION S 4917.0
 E 36443.0
 ELEVATION 6912.4

26463C

DATE DRILLED 7-9-85
 SUB AREA N-11
 SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (BTU)
 SAMPLE NO. (MOISTURE) (ASH) %S pH

SEP 3 1986

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PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26463C
DATE CORED: 09JUL1985
DATE REPORTED: 30AUG1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | | | # Dry Basis |
|------------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|--|-------------|
| | | | | | 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 | 8.4 | 8.4 | 0.6 | 21 | 1.23 | 0 | 3 | 9 | -0.4 | | | |
| SL, SH | 28 | 850001783 | 8 | 34.1 | 0.4 | 0.6 | 1.3 | 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 | 1.4 | 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 | 21.3 | 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 | 29.3 | 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 | 11.6 | 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 | 19 | 7.8 | 1.9 | 6 | <1 | 0 | 2.6 | 42 | 1.5 | | | |
| SH | 68 | 850001789 | 7.5 | 36.1 | 2.1 | 8.9 | 19 | 7.8 | 3.3 | 9 | 1.83 | 0 | 3.9 | 19 | 3.5 | | | |
| SH | 71.5 | 850001790 | 6 | 34.4 | 5.8 | 18.2 | 38.1 | 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 | 6.9 | 6.9 | 16.4 | 5 | <1 | 0 | 2.5 | 55 | 18.7 | | | |
| SH | 84 | 850001792 | 8.4 | 32.3 | 1.5 | 14.3 | 6.9 | 6.9 | 3.2 | 8 | 6.65 | 0.6 | 8.9 | <5 | 31.5 | | | |
| SH, SL | 90 | 850001793 | 8.4 | 32.2 | 1.1 | 18.2 | 0.2 | 0.2 | 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 | 0.4 | 0.4 | 16.5 | 5 | 1.14 | 0 | 3.9 | 54 | 18.8 | | | |
| SL, SH | 105.1 | 850001795 | 7.3 | 32.3 | 3 | 24.1 | 7 | 7 | 17.7 | 10 | 1.95 | 0 | 4.2 | 23 | 19.9 | | | |
| CO, SH, SS | 108.9 | 850001796 | 7.1 | 34.5 | 2.7 | 15.7 | 1.9 | 6.5 | 6.2 | 5 | <1 | 0 | 4.6 | 23 | 7.3 | | | |
| SH, CO | 116.3 | 850001797 | 6 | 38.7 | 4.7 | 20.9 | 19.4 | 19.4 | 4.8 | 10 | <1 | 0 | 4.6 | 62 | 5.5 | | | |
| SH | 125.2 | 850001798 | 6.2 | 34.3 | 5.4 | 46.5 | 3.6 | 3.6 | 22.6 | 5 | <1 | 0 | 2.8 | 56 | 24.3 | | | |
| SH | 134 | 850001799 | 8.3 | 35.3 | 3.4 | 32.5 | 4.4 | 4.4 | 43.8 | 10 | 3.4 | 0.3 | 8.3 | 25 | 38.8 | | | |
| SH | 140 | 850001800 | 7.5 | 32.7 | 4 | 39 | 0.5 | 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 | 2.3 | 23.7 | 0.1 | 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:02522 KAYENTA
CORE NO:26463C
DATE CORED:09JUL1985
DATE REPORTED:30AUG1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAC K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/2 BAF | 15 BAR | |
| SUR, MAT. | 850001778 | 0.1 | . | . | 0.72 | 0.6 | 22.5 | 6.02 | 16.48 | 50.28 | 43.4 | 28.6 | 28 | | | |
| SL, SH | 850001779 | <0.01. | | | <0.01. | | 0 | 14.72 | . | 14.72 | 57 | 20.6 | 17 | | | |
| SH | 850001780 | <0.01. | | | 0.96 | 0.88 | 30 | 11.07 | 18.93 | 50.28 | 59.4 | 23.6 | 17 | | | |
| SH | 850001781 | <0.01. | | | 0.07 | | 2.19 | 44.41 | 42.22 | 42.22 | 40.4 | 32.6 | 27 | | | |
| SH | 850001782 | 0.01 | | | 2.04 | 1.65 | 63.75 | 32.07 | 31.68 | 31.68 | 55.8 | 27.2 | 17 | | | |
| SL, SH | 850001783 | <0.01. | | | 0.91 | 0.7 | 28.44 | 8.14 | 20.3 | 20.3 | 25.8 | 38.2 | 36 | | | |
| SS, SH | 850001784 | <0.01. | | | 0.31 | | 0.31 | 28.05 | . | 27.74 | 38.8 | 43.2 | 31 | | | |
| SH, CO | 850001785 | 0.73 | . | . | 0.01 | | 0.31 | 39.54 | 30.23 | 39.23 | 60.8 | 21.2 | 18 | | | |
| COAL | | | | | 0.01 | | 0.31 | 39.54 | 30.23 | 39.23 | 40.8 | 29.2 | 30 | | | |
| SH, CO | 850001786 | 0.72 | 0.6 | | 1.23 | 0.97 | 38.44 | 8.21 | 30.23 | 122.17 | 43.8 | 30.2 | 30 | | | |
| SL, SH | 850001787 | <0.01. | | | 0.7 | 0.44 | 21.88 | 12.22 | 9.66 | 9.66 | 59.8 | 23.2 | 26 | | | |
| SH, CO, SL | 850001788 | 0.96 | 0.88 | | 2.57 | 1.84 | 80.31 | 7.44 | 72.87 | 72.87 | 35.8 | 35.2 | 29 | | | |
| SH | 850001789 | 2.04 | 1.65 | | 1.1 | 0.96 | 34.38 | 7.99 | 26.39 | 26.39 | 48.8 | 31.2 | 20 | | | |
| SH | 850001790 | 0.91 | 0.7 | | 0.45 | | 14.06 | 35.36 | 21.3 | 21.3 | 56.8 | 24.2 | 19 | | | |
| SH, CO | 850001791 | 0.01 | | | 1.23 | | 38.44 | 17.86 | 20.58 | 20.58 | 22.6 | 39.4 | 38 | | | |
| SH | 850001792 | 0.01 | | | 0.03 | | 0.94 | 36.74 | . | 35.8 | 43.2 | 26.8 | 30 | | | |
| SH, SL | 850001793 | 0.01 | | | 0.42 | | 13.12 | 34.11 | . | 20.99 | 41.2 | 24.8 | 34 | | | |
| CO, SH | 850001794 | 0.72 | 0.6 | | | | | | | | | | | | | |
| SL, SH | 850001795 | 0.96 | 0.88 | | | | | | | | | | | | | |
| CO, SH | 850001796 | 2.04 | 1.65 | | | | | | | | | | | | | |
| SH, CO | 850001797 | 0.91 | 0.7 | | | | | | | | | | | | | |
| SH | 850001798 | 0.01 | | | | | | | | | | | | | | |
| SH | 850001799 | 0.45 | | | | | | | | | | | | | | |
| SH | 850001799 | 1.23 | | | | | | | | | | | | | | |
| CO | 850001800 | 0.03 | | | | | | | | | | | | | | |
| COAL | | | | | | | | | | | | | | | | |
| SH | 850001801 | 0.42 | | | | | | | | | | | | | | |
| CO, SH | 850001802 | | | | | | | | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26463C
DATE CORED: 09 JUL 1985
DATE REPORTED: 30 AUG 1985

DRY BASIS

| Lithology | Lab No. | Hot H2O Ext. * | | | TAMM Mo PPM | * lig PPB | AB-DIPA Extract * | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|-----------|-------------------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SUR. MAT. | 850001778 | 0.01 | <0.01 | | 0.6 | 19 | 0.2 | 3.9 | 9.6 | 1 | 3.8 | | |
| SL, SH | 850001779 | <0.01 | <0.01 | | <0.6 | 37 | <0.1 | 2.1 | 8 | 2.2 | 2.3 | | |
| SH | 850001780 | 0.04 | <0.01 | | <0.6 | 12 | 0.2 | 5.8 | 25.6 | 7.8 | 5.5 | | |
| SH | 850001781 | <0.01 | <0.01 | | 0.6 | <10 | 0.5 | 1 | 95.4 | 54 | <1 | | |
| SL, SH | 850001782 | <0.01 | <0.01 | | <0.6 | <10 | 0.9 | 1.6 | 150.9 | 20.7 | 3.2 | | |
| SS, SH | 850001783 | <0.01 | <0.01 | | <0.6 | <10 | 0.4 | 0.9 | 70 | 34.2 | <1 | | |
| SH, CO | 850001784 | <0.01 | <0.01 | | <0.6 | <10 | 0.1 | 1.3 | 22.3 | 6.9 | <1 | | |
| CO | 850001785 | <0.01 | <0.01 | | <0.6 | <10 | 2.5 | 6.7 | 74.3 | 10 | 6.8 | | |
| SH, CO | 850001786 | <0.01 | <0.01 | | <0.6 | <10 | 5 | 3.1 | 76.2 | 8.9 | 12.6 | | |
| SL, SH | 850001787 | <0.01 | <0.01 | | <0.6 | <10 | 1.4 | 1.9 | 75.6 | 5.2 | 2.5 | | |
| SH, CO, SL | 850001788 | <0.01 | <0.01 | | <0.6 | <10 | 2.6 | 2.1 | 66.2 | 2.3 | 5.6 | | |
| SH | 850001789 | <0.01 | <0.01 | | 0.6 | <10 | 1.3 | 1.2 | 75.6 | 4.5 | 3.4 | | |
| SH | 850001790 | <0.01 | <0.01 | | <0.6 | <10 | 2.8 | 3.4 | 112.4 | 10 | 5.1 | | |
| SH, CO | 850001791 | 0.07 | 0.04 | | <0.6 | <10 | 1.9 | 2.9 | 67.6 | 2.5 | 4.9 | | |
| SH | 850001792 | 0.04 | 0.08 | | <0.6 | <10 | 0.8 | 2.4 | 88.1 | 5 | 2 | | |
| SH, SL | 850001793 | 0.08 | 0.06 | | <0.6 | <10 | 1.2 | 1.6 | 95.7 | 6.7 | 2.1 | | |
| CO, SH | 850001794 | 0.06 | 0.06 | | <0.6 | <10 | 1.7 | 2.7 | 96.9 | 1.3 | 3.7 | | |
| SL, SH | 850001795 | 0.36 | 0.03 | | <0.6 | <10 | 1.3 | 1.7 | 79.3 | 1.7 | 2.5 | | |
| CO, SH, SS | 850001796 | 0.01 | 0.01 | | 0.6 | <10 | 1.4 | 1.3 | 73.9 | 5.5 | 1.7 | | |
| SH, CO | 850001797 | 0.02 | 0.07 | | <0.6 | <10 | 1.8 | 1.4 | 104.9 | 2.7 | 3.6 | | |
| SH | 850001798 | 0.07 | 0.04 | | <0.6 | <10 | 2.1 | 2.9 | 75.9 | 10.4 | 2.2 | | |
| SH | 850001799 | 0.04 | 0.18 | | <0.6 | <10 | 1.3 | 2.7 | 112 | 9.6 | 1.5 | | |
| CO | 850001800 | 0.18 | | | 0.6 | <10 | 2 | 3.4 | 61.4 | 5.6 | 2.9 | | |
| 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. 2027

LOCATION S 948

E 50327

ELEVATION 6809.4'

DRILLER D. Hopkins

DATE DRILLED 10-12-77

SUB AREA N-14

PAGE

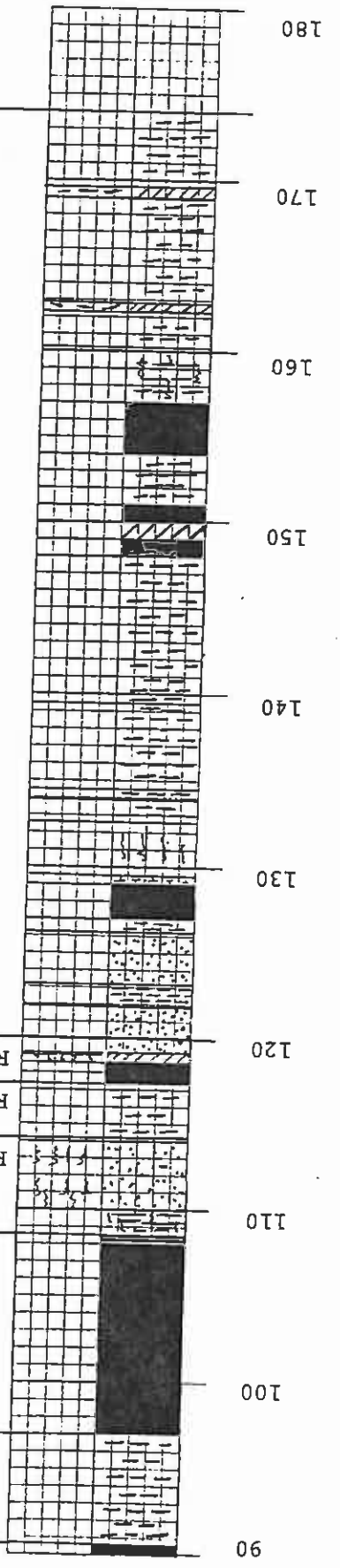
| ELEVATION | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | pH |
|-----------|----------------|--------------|--------|----------|----------|----------|-------|
| 90 | R-8-1926 | 78.3 | 25.3 | 20.4 | 0.5 | 0.8 | 8.2 |
| | (7-1994-R) EOA | (11.40) | (12.9) | (11882) | | | (8.1) |
| | R-8-1925 | 48.5 | 37.1 | 75.0 | 5.5 | 2.8 | 6.8 |
| 80 | R-8-1924 | 45.5 | 26.9 | 87.0 | 12.9 | 8.0 | 7.1 |
| | R-8-1923 | 33.6 | 6.3 | 18.9 | 0.9 | 0.6 | 8.8 |
| 70 | R-8-1922 | 35.3 | 65.3 | 50.6 | 0.6 | 0.6 | 8.5 |
| | R-8-1921 | 56.8 | 35.3 | 74.4 | 5.8 | 3.1 | 6.5 |
| 60 | R-8-1920 | 56.6 | 21.3 | 77.8 | 17.6 | 9.2 | 5.1 |
| | 7-1993-R) | (12.84) | (7.5) | (12655) | | | (7.7) |
| NOB | R-8-1919 | 57.7 | 8.0 | 18.1 | 6.8 | 3.5 | 7.4 |
| 50 | R-8-1918 | 63.0 | 3.5 | 18.1 | 29.8 | 23.4 | 4.3 |
| | R-8-1917 | 37.9 | 0.4 | 3.3 | 30.8 | 144.2 | 5.8 |
| 40 | R-8-1916 | 38.0 | 0.3 | 2.3 | 24.4 | 68.8 | 2.0 |
| | R-8-1915 | 51.9 | 0.7 | 6.2 | 29.3 | 114.9 | 2.7 |
| 30 | R-8-1914 | 42.8 | 1.4 | 8.7 | 29.3 | 43.9 | 7.2 |
| 20 | R-8-1913 | 42.8 | 2.8 | 11.2 | 6.7 | 26.4 | 7.9 |
| 10 | R-8-1912 | 58.4 | 4.1 | 22.4 | 26.9 | 31.5 | 7.7 |

SEP - 3 1986

483

EOB

HOLE NO. 20257 - C
 LOCATION S 9448
 E 50327
 ELEVATION 6809.4'



484

SEP 3 1986

| SAMPLE NO. | SATURATION % (MOISTURE) | SAR | SOL.Na. (BTU) | SOL.Ca. SOL.Mg | %S | pH |
|----------------|-------------------------|-------|---------------|----------------|------|--------------|
| R-8-1927 | 90.5 | 57.8 | 48.4 | 0.9 | 0.5 | .12 57.8 |
| (7-1996-R) E12 | (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 |

DRILLER D. Hopkins
 DATE DRILLED 10-12-77
 SUB AREA N-14
 PAGE

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA N-14
CORE NO:20257C
DATE CORED:12OCT1977
DATE REPORTED:27MAR1985

*Dry Basis

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | ESP |
|-----------|-------|-----------|-------------|-------------|-------------------------|-------------|-------------|-------------|------|--|--|------|
| | | | | | E.C. mmho/cm | Na meq/l | Ca meq/l | Mg meq/l | SAR | | | |
| 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 | | | 4.4 |
| 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 | | | -0.7 |
| 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

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | % Moisture * | | Avail. H2O Cap. | |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|--------------|------------|-----------------------|-----------|
| | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | | 15 BAR |
| 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 | 3 | 0.9 |
| SO | 780001909 | <2 | 3 | 56 | <0.01 | 0.31 | 6.3 | . | 5.99 | 79.2 | 7.2 | 13.6 | 3.7 | 2.5 | 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 | 7.7 | 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 | 4.1 | 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 | 6 | 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 | 3 | 6.3 | 18.7 | 1.01 | 31.56 | 33.96 | 27.6 | 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 | . | 2.4 | 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 | 28.4 | 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 | 30.4 | 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 |
| SH | 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 | 26.3 | 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

| Lithology | Lab No. | Hot H2O Ext. # | | | | | AB-DTPA Extract # | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|--------|-------------------|--------------------------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPM | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 780001907 | 0.2 | 0.08 | 0.02 | 0.6 | <10 | 0.2 | 1.2 | 19.5 | 17.7 | <1 | 1.1 | | |
| SO | 780001906 | <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 | <1 | 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 | 0.2 | | |
| SS, SH, CO | 780001916 | 1.8 | 0.09 | <0.01 | 1.2 | <10 | 7.3 | 4 | 351 | 53.7 | 23.9 | 4.4 | | |
| 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 | COAL | | |
| SS | 780001923 | 0.4 | 0.03 | 0.02 | <0.6 | <10 | 0.2 | 1.2 | 74.1 | 5.8 | 4.6 | 2.6 | | |
| SH | 780001924 | 0.7 | <0.01 | 0.04 | 0.6 | <10 | 1.7 | 5.3 | 57.7 | 14.8 | 14.1 | 1 | | |
| MS, SH | 780001925 | 1 | <0.01 | 0.07 | 0.6 | <10 | 1.5 | 4.9 | 48.5 | 1 | 14 | 2.5 | | |
| 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

LOCATION S 10202
E 57699

ELEVATION 6807.9'

DRILLER D. Hopkins

DATE DRILLED 10-20-77

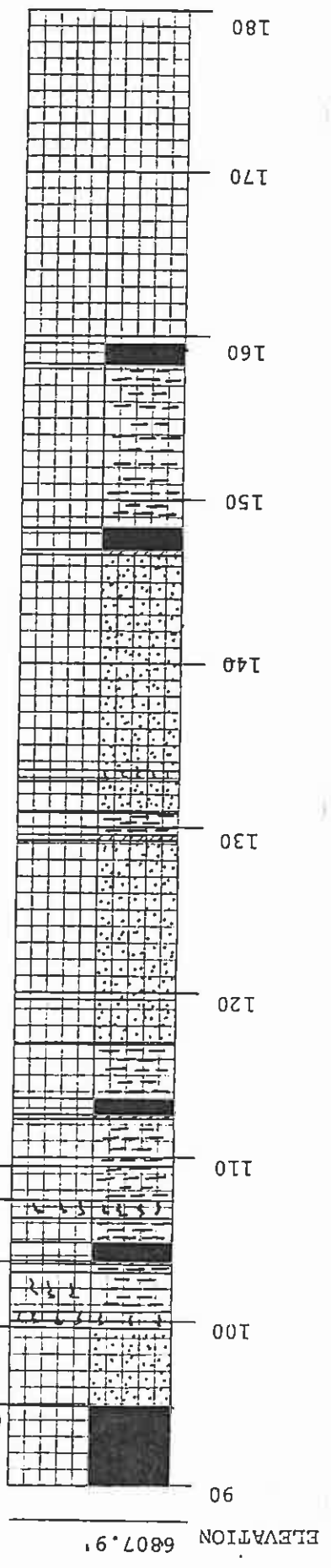
SUB AREA N-14

PAGE

| ELEVATION | SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg. | pH | NOX | | EOX | |
|-----------|------------|--------------|--------|----------|----------|----------|--------|-------|---|-------|---|
| | | | | | | | | (BTU) | % | (BTU) | % |
| 0 | | | | | | | | | | | |
| 10 | R-8-2256 | 38.3 | 2.2 | 16.2 | 26.2 | 77.9 | .21 | 7.7 | | | |
| | R-8-2255 | 67.2 | 2.5 | 18.8 | 25.8 | 83.4 | .24 | 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 | | | |
| 30 | 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 | | | |
| 40 | 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 | | | |
| 50 | 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 | | | |
| 60 | 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 | | | |
| 70 | 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 | | | |
| 80 | R-8-2273 | 135.9 | 14.0 | 20.1 | 3.6 | 0.5 | .06 | 9.3 | | | |
| | E12 | (10.95) | (5.7) | | (13134) | | (0.58) | 8.0 | | | |

SEP 3 1986

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HOLE NO. 20259 - C
 LOCATION S 10202
 E 57699
 ELEVATION 6807.9'

| SAMPLE NO. | SATURATION % | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |

DRILLER D. Hopkins
 DATE DRILLED 10-20-77
 SUB AREA N-14
 PAGE

489
 SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 20259C
DATE CORED: 26OCT1977
DATE REPORTED: 15AUG1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % # | Saturated Paste Extract | | | | | | | | | | | | |
|------------|--------|-----------|----------|----------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|--|
| | | | | | 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 | 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 | 0 | 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 | 12.3 | 4 | 15.3 | 12 | 5.01 | 0 | 2 | 46 | 17.6 | | |
| SS | 26 | 850001204 | 7.4 | 38.2 | 3 | 27.7 | 14.3 | 5.7 | 9.2 | 15 | 2.86 | 0 | 4.3 | 15 | 11 | | |
| SH | 33.6 | 850001205 | 6.5 | 54.7 | 5 | 49.4 | 14.3 | 8.6 | 14.6 | 14 | 1.31 | 0.4 | 4.3 | 25 | 16.9 | | |
| SS | 39.2 | 850001206 | 8.7 | 34.1 | 2 | 14.1 | 1 | 1 | 14.1 | 19 | 1.34 | 0.4 | 6.8 | 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 | 0.6 | 0.6 | 45.7 | 11 | 14.7 | 0.4 | 11.2 | 19 | 39.8 | | |
| SL | 52.4 | 850001209 | 9 | 58.7 | 2.2 | 28.7 | 1.1 | 0.4 | 33.1 | 11 | 16.3 | 2 | 6.7 | <5 | 32.2 | | |
| SH | 56.1 | 850001210 | 8.8 | 34.2 | 2.6 | 24.2 | 0.4 | 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 | 0.3 | 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 | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 20259C
DATE CORED: 26OCT1977
DATE REPORTED: 15AUG1985

*Dry Basis

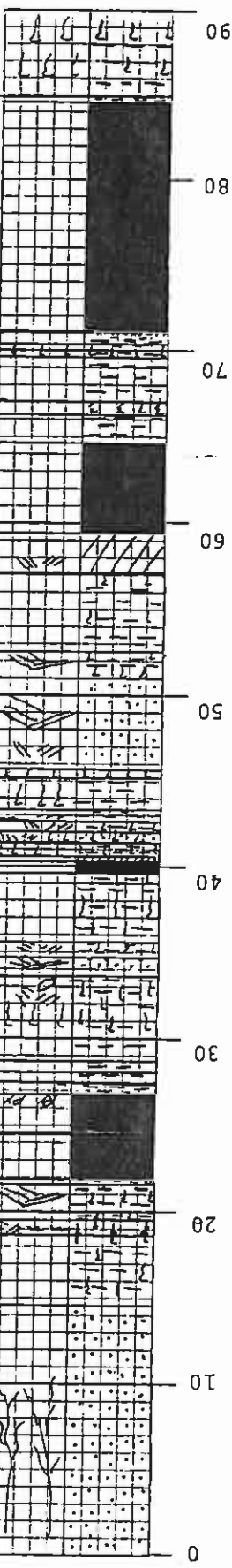
| Lithology | Lab No. | * Total | | | Pyrr. S % | CACO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture | | AVAIL. H2O Hold. Cap. |
|------------|-----------|---------|--------------|--------------|-----------|-----------------------------|----------------|---------------|---------------|--------|--------|--------|------------|--------|-----------------------|
| | | N PPM | NaHCO3 P PPM | NH4OAc K PPM | | Amount Req'd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| 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 | 26.12 | -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 | 0.45 | 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 | 0.02 | 14.06 | 41.93 | . | 27.87 | 18.2 | 45 | 36.8 | 17.5 | 8.6 | 8.9 |
| SS | 850001206 | <2 | 1.2 | 93.3 | 0.62 | 4.07 | 44.07 | . | 43.45 | 73.4 | 14.8 | 11.8 | 9.9 | 2.9 | 8.9 |
| 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 | 0.05 | 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 | 46.13 | 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

| Lithology | Lab No. | Hot H2O Ext. # | | | TAMM Mo PPM | # Hg PPB | AB-DIPA Extract # | | | | | | | Organic Matter % |
|------------|-----------|----------------|--------|--------|-------------|----------|-------------------|--------|--------|--------|--------|------|--|------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SO | 850001197 | <0.01 | <0.01 | | <0.6 | 47 | <0.1 | 1.8 | 6.9 | 1.2 | 1.3 | 0.3 | | |
| SH | 850001198 | <0.01 | <0.01 | | <0.6 | 51 | <0.1 | 0.9 | 4.5 | 1 | <1 | 0.6 | | |
| SS | 850001199 | <0.01 | <0.01 | | <0.6 | 40 | <0.1 | 0.5 | 4.7 | 1 | 1.3 | 0.2 | | |
| SS | 850001200 | 0.04 | 0.78 | | <0.6 | 40 | <0.1 | 0.6 | 79.1 | 1 | <1 | 0.3 | | |
| SH, CO | 850001201 | 0.02 | 0.02 | | <0.6 | 36 | 5.4 | 3.5 | 235.7 | 2.1 | 16.9 | COAL | | |
| MS, CO | 850001202 | 0.19 | 0.19 | | <0.6 | <10 | 0.4 | 0.3 | 14 | 1 | <1 | COAL | | |
| SH | 850001203 | 0.07 | 0.07 | | 0.6 | 17 | 1.6 | 4 | 12.9 | 1 | 5.8 | 5.1 | | |
| SS | 850001204 | 0.07 | 0.07 | | <0.6 | 12 | 2 | 1.9 | 23.8 | 1 | 3.7 | 0.9 | | |
| SH | 850001205 | 0.02 | 0.02 | | <0.6 | 11 | 1.4 | 1.1 | 33.9 | 2.3 | 3.7 | 3.5 | | |
| SL, SH, QT | 850001206 | 0.17 | 0.17 | | 0.6 | <10 | 0.2 | 2.4 | 52 | 3.9 | 2.8 | 0.4 | | |
| SL, SH, QT | 850001207 | 0.26 | 0.26 | | <0.6 | 13 | 1.3 | 2.1 | 25.7 | 3.8 | 3.4 | 3.6 | | |
| CO, SH | 850001208 | 0.2 | 0.2 | | <0.6 | 21 | 0.4 | 2.6 | 11.3 | 1 | 3.5 | COAL | | |
| SL | 850001209 | 0.25 | 0.25 | | <0.6 | 15 | 0.4 | 0.7 | 23 | 1 | 1.9 | 1.6 | | |
| SS | 850001210 | 0.61 | 0.61 | | <0.6 | <10 | 0.3 | 1.5 | 27.1 | 2.5 | 1.8 | 1.2 | | |
| SH | 850001211 | | | | <0.6 | 47 | 0.8 | 4.1 | 17.5 | 1 | 8.4 | 6.4 | | |
| CO | COAL | | | | <0.6 | | | | | | | | | |
| SH | 850001212 | 0.18 | 0.18 | | <0.6 | 22 | 0.5 | 3 | 13 | 1 | 2 | 2 | | |
| CS, SL | 850001213 | 0.04 | 0.04 | | <0.6 | 11 | 0.2 | 1.5 | 55.4 | 2.4 | 1.5 | 1.1 | | |
| SH | 850001214 | 0.09 | 0.09 | | <0.6 | 25 | 0.4 | 1.7 | 18.9 | 1 | 2.4 | 1.5 | | |
| SL | 850001215 | 0.26 | 0.26 | | <0.6 | 37 | 0.5 | 4.5 | 14.1 | 1 | 4.1 | 3 | | |
| SH | 850001216 | 0.27 | 0.27 | | 1 | 35 | 0.7 | 1.6 | 16.6 | 1 | 3.4 | 2.5 | | |
| CO | COAL | | | | <0.6 | | | | | | | | | |
| SS | 850001217 | 0.32 | 0.32 | | <0.6 | 17 | 2.2 | 1.2 | 15.3 | 1 | 2.4 | 3.1 | | |
| SL, SH | 850001218 | 0.15 | 0.15 | | <0.6 | 19 | 2.8 | 2 | 38.6 | 6.6 | 3.9 | 5.3 | | |
| CO, SH | 850001219 | 0.28 | 0.28 | | <0.6 | 13 | 1.3 | 1.4 | 13.1 | 1 | 1.7 | 3.3 | | |
| SL, SH | 850001220 | 0.21 | 0.21 | | <0.6 | 17 | 1.2 | 2.6 | 18 | 1 | 1.2 | 6 | | |



HOLE NO. 20268 - C
 LOCATION S 8708
 E 54417
 ELEVATION 6829.7'

| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | 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 |
| (7-2058-R) NOX | (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 |
| (7-2059-R) EOX | (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 | (11.23) | (5.5) | | (13127) | | (0.56) | (8.2) |
| (7-2060-R) | | | | | | | |

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DRILLER D. Clements
 DATE DRILLED 10-25-77
 SUB AREA N-14

PAGE

N-14

SEP 3 1986

HOLE NO. 20268 - C

LOCATION S 8708

E 54417

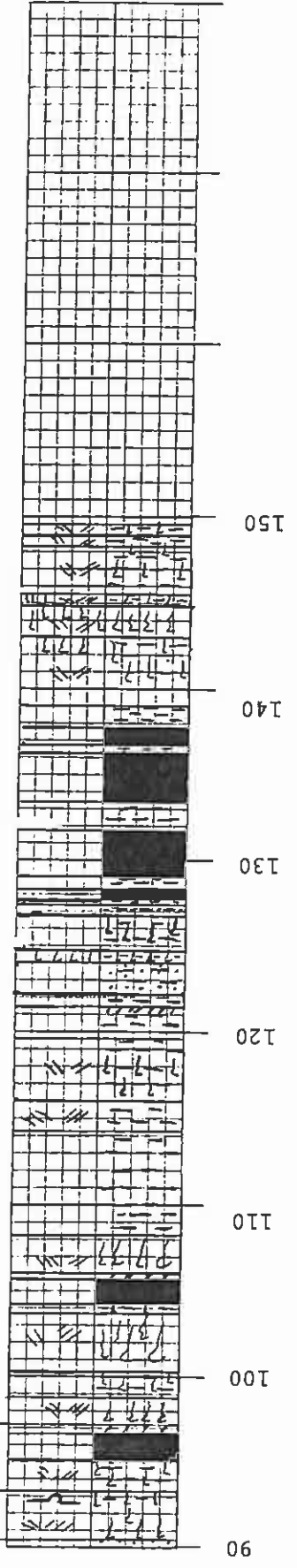
ELEVATION 6829.7'

DRILLER D. Clements

DATE DRILLED 10-25-77

PAGE

SUB AREA N-14



| SAMPLE NO. | SATURATION % | SAR | SOL.No. | SOL.Ca. | SOL.Mg | PH |
|------------|--------------|------|---------|---------|--------|-----|
| R-8-2297 | 44.2 | 10.2 | 22.9 | 5.5 | 4.6 | 6.7 |
| R-8-2298 | 44.2 | 4.8 | 20.5 | 21.2 | 15.3 | 6.5 |
| R-8-2299 | 49.4 | 7.7 | 37.4 | 26.4 | 20.6 | 3.7 |
| R-8-2300 | 50.5 | 15.3 | 39.9 | 8.7 | 4.9 | 4.8 |

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SEP

3 1986

Mineblach Meas N-170000011
 Core L 20265-C
 Section: Range 1
 Date Corred:

Central Laboratory

| Lithology | Depth Ft. | Thickness Ft. | Lab No. | Paste pH | Conduca- tivity paste | Sacc. % | Saturation Extract | | | SAR _e | ESP _e | HARCO ₃ P ppm | NH ₄ CNC ppm | Total N ppm |
|--------------------------------------|--------------|------------------|------------|-------------|-----------------------------|------------|--------------------------|---------------------------|---------------------------|------------------|------------------|--------------------------------|-------------------------------|-------------------|
| | | | | | | | Na ⁺ meq/l | Ca ²⁺ meq/l | Mg ²⁺ meq/l | | | | | |
| Surface Soil | 0.0 | 0.1 | R-8-2274 | 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-8-2275 | 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 | 0.3 | 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 | 1.3 | 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 | 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 | < 2 |
| 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 (Drill Cuttings) | 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 Shale | 22.4 | 5.7 | R-8-2290 | 28.1 | 6.2 | 57.3 | 29.0 | 26.9 | 35.0 | 5.2 | 6.0 | 12.3 | 166.6 | < 2 |
| 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 | 5.8 | R-8-2292 | 5.3 | 5.6 | 56.9 | 49.5 | 18.7 | 10.6 | 12.9 | 15.0 | 9.3 | 193.1 | < 2 |
| Siltstone, Shale, Argillite | 41.3 | 4.55 | R-8-2293 | 8.2 | 2.6 | 36.3 | 36.6 | 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 | 32.6 | 51.9 | 7.0 | 4.1 | 22.0 | 23.8 | 3.7 | 196.7 | < 2 |
| Yellow Coal Seam Shale, Siltstone | 59.2 | 9.6 | 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 Shale, Siltstone | 64.8 | 5.1 | 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 | 70.9 | 13.9 | 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 | 84.8 | 2.9 | R-8-2299 | 3.7 | 6.6 | 49.4 | 37.4 | 26.4 | 20.6 | 7.7 | 9.2 | 34.7 | 88.4 | < 2 |
| Siltstone, Shale | 93.2 | 3.9 | R-8-2299 | 4.8 | 4.3 | 50.5 | 39.9 | 8.7 | 4.9 | 15.3 | 17.6 | 8.1 | 155.2 | < 2 |
| 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 | < 2 |

ODY Data
 Total - W to sum of NH₄-N and NO₃-N
 ppm - $\times 10^3$ and $\times 10^4$ - $\times 10^2$ ppm

Mine/Black Mesa / Tonahilpi
 Geoc:20260-C N-M Range
 Section: Date Corred:

Dry Balls

| Lab No. | Sulfur | Tons of CaCO ₃ Equivalent per 100 Tons Material | | | Organic Matter | Particle Size | | | | | | | Available 20 Hole Capacity 11/3-12/3 |
|------------------|--------|--|--------------------------|-------------------------------|----------------|---------------------------------|------|------|------|---------|--------|--|--------------------------------------|
| | | Req From Total Sulfur | Amount Present by Filter | Amount Needed for Neutral-ity | | Excess CaCO ₃ Equiv. | Sand | Silt | Clay | 1/3 BAR | 15 BAR | | |
| R-8-2278 | <0.01 | 0.31 | 4.33 | | | | | | | | | | |
| R-8-2279 | 0.02 | 0.63 | 17.21 | | 1.3 | 75.2 | 11.0 | 13.8 | 16.2 | 4.2 | 12.0 | | |
| R-8-2280 | <0.01 | 0.31 | 11.51 | | 0.9 | 83.6 | 2.4 | 14.0 | 9.3 | 4.2 | 5.6 | | |
| R-8-2281 | 0.02 | 0.63 | 8.97 | | 0.5 | 82.8 | 6.0 | 11.2 | 8.2 | 3.7 | 5.2 | | |
| R-8-2282 | <0.01 | 0.31 | 5.27 | | 0.3 | 88.2 | 1.0 | 10.8 | 7.6 | 2.9 | 5.2 | | |
| R-8-2283 | <0.01 | 0.31 | 4.81 | | 0.1 | 90.0 | 2.0 | 8.0 | 8.6 | 2.6 | 5.0 | | |
| R-8-2284 | 0.01 | 0.31 | 3.61 | | 0.1 | 89.6 | 0.0 | 10.4 | 6.8 | 2.6 | 6.0 | | |
| R-8-2285 | 0.05 | 1.56 | 2.36 | | 0.1 | 90.4 | 1.6 | 8.0 | 4.0 | 2.7 | 4.1 | | |
| (Drill Cuttings) | | | | | <0.1 | 86.4 | 2.6 | 11.0 | 5.1 | 2.3 | 2.7 | | |
| R-8-2286 | 0.05 | 1.56 | 4.38 | | 0.1 | 68.4 | 11.6 | 20.0 | 25.6 | 3.9 | 21.7 | | |
| (Drill Cuttings) | | | | | | | | | | | | | |
| R-8-2287 | 0.03 | 0.94 | 3.54 | | 1.1 | 16.0 | 59.0 | 25.0 | 34.0 | 11.3 | 23.1 | | |
| (Drill Cuttings) | | | | | | | | | | | | | |
| R-8-2288 | 0.49 | 14.06 | -0.91 | 14.97 | 5.5 | 10.0 | 64.0 | 18.0 | 25.0 | 7.5 | 17.5 | | |
| R-8-2289 | 0.10 | 3.13 | 26.22 | | 1.9 | 16.0 | 64.0 | 20.0 | 27.2 | 4.7 | 22.5 | | |
| Coal | | | | | | | | | | | | | |
| 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 | | 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 | 0.04 | 1.25 | 43.61 | | 2.7 | 27.6 | 42.0 | 29.6 | 19.2 | 5.1 | 14.1 | | |
| Asfillite | | | | | | | | | | | | | |
| R-8-2294 | 0.05 | 1.56 | 43.23 | | 0.8 | 51.6 | 30.8 | 17.6 | 22.5 | 2.9 | 19.6 | | |
| R-8-2295 | 0.79 | 24.69 | 38.66 | | 4.9 | 19.6 | 41.8 | 38.6 | 25.0 | 7.7 | 17.3 | | |
| Coal | | | | | | | | | | | | | |
| R-8-2296 | 0.15 | 4.69 | 17.34 | | 4.1 | 9.6 | 33.8 | 56.6 | 63.6 | 20.4 | 43.2 | | |
| R-8-2297 | 0.25 | 7.81 | 18.59 | | 3.2 | 23.6 | 56.8 | 19.6 | 28.3 | 5.4 | 22.9 | | |
| R-8-2298 | 0.45 | 14.06 | 41.36 | | 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 | 12.8 | | |
| 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 | | |

Peabody Coal Company
 Central Laboratory

HOLE NO. 20346 - C

DRILLER G. Hopkins

PAGE

LOCATION S 8120 (est)

DATE DRILLED 10-29-77

SUB AREA N 14

E 57000 (est)

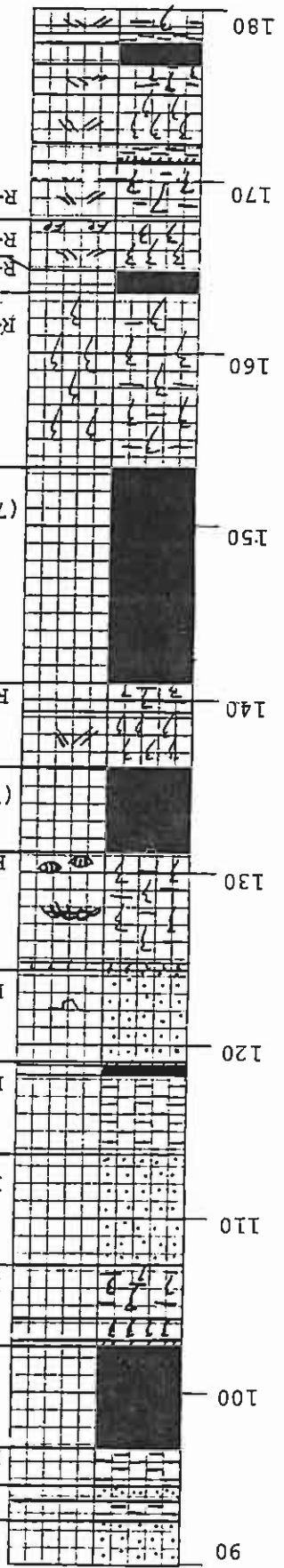
ELEVATION 6875 (est)

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

| DEPTH | SAMPLE NO. | MOISTURE | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | pH |
|-------|------------|----------|-----|---------|---------|--------|-------|-----|
| 0 | | | | | | | | |
| 10 | R-9-116 | 34.1 | 2.9 | 4.2 | 2.2 | 2.1 | | 6.6 |
| 10 | R-9-117 | 32.1 | 2.2 | 5.4 | 3.7 | 7.5 | | 6.1 |
| 20 | R-9-118 | 63.7 | 1.7 | 8.6 | 27.3 | 41.3 | | 3.2 |
| 20 | R-9-119 | 42.6 | 0.4 | 3.5 | 26.7 | 137.9 | | 3.0 |
| 20 | R-9-120 | 82.0 | 1.1 | 5.5 | 32.4 | 28.0 | | 3.8 |
| 30 | R-9-121 | 48.8 | 0.7 | 3.5 | 30.7 | 43.8 | | 3.2 |
| 30 | R-9-122 | 51.0 | 1.4 | 7.0 | 30.7 | 46.4 | | 4.3 |
| 40 | R-9-123 | 44.4 | 0.9 | 4.5 | 36.9 | 38.1 | | 6.1 |
| 40 | R-9-124 | 50.5 | 1.3 | 6.7 | 33.5 | 36.2 | | 6.4 |
| 40 | R-9-125 | 42.3 | 0.3 | 2.5 | 27.8 | 108.0 | | 4.8 |
| 50 | R-9-126 | 55.7 | 2.4 | 12.2 | 29.0 | 57.8 | | 3.2 |
| 50 | R-9-127 | 62.1 | 2.7 | 13.5 | 29.5 | 36.9 | | 3.4 |
| 60 | R-9-128 | 56.9 | 2.4 | 7.9 | 10.6 | 6.8 | | 6.9 |
| 60 | R-9-129 | 46.4 | 3.1 | 6.2 | 4.8 | 3.3 | | 7.7 |
| 70 | R-9-130 | 40.2 | 2.1 | 5.2 | 8.2 | 4.2 | | 7.6 |
| 80 | R-9-131 | 36.1 | 1.6 | 5.4 | 14.8 | 8.5 | | 6.9 |
| 90 | | | | | | | | |

SEP 3 1986

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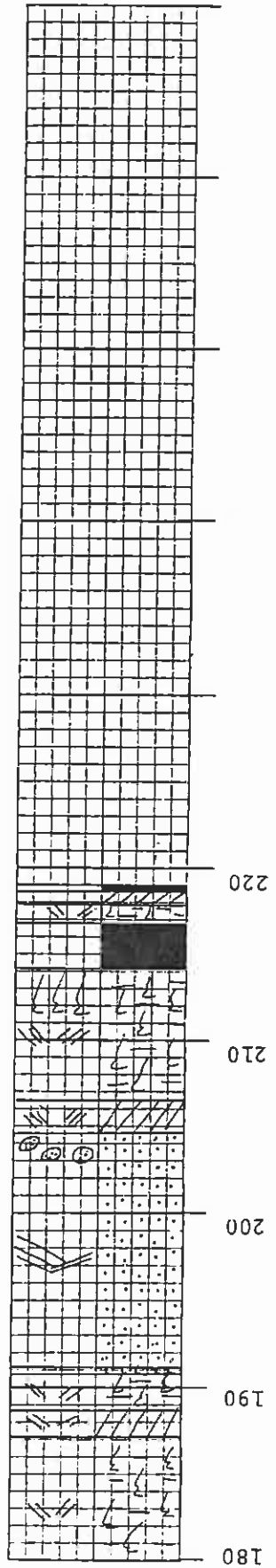
HOLE NO. 20346 - C
 LOCATION S 8120 (est)
 E 57000 (est)
 ELEVATION 6875 (est)

| SAMPLE NO. | SATURATION % | SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |
| (7-2140-R) NOX | (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 |
| (7-2141-R) EOX | (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 |
| (7-2142-R) E12 | (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 |

DRILLER G. Hopkins
 DATE DRILLED 10-29-77
 SUB AREA N-14
 PAGE

SEP 3 1986

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E3B

HOLE NO. 20346 - C
 LOCATION S 8120 (est)
 E 57000 (est)
 ELEVATION 6875 (est)

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DRILLER G. Hopkins
 DATE DRILLED 10-29-77
 SUB AREA N-14
 PAGE
 SATURATION & SAR SOL.Na. SOL.Ca. SOL.Mg (BTU)
 & S
 PH
 SAMPLE NO. (MOISTURE) (ASH)

SEP 3 1986

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20346C
DATE CORED:29OCT1977
DATE REPORTED:15AUG1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % * | Saturated Paste Extract | | | | | | | | | | | | | ESP |
|------------|-------|-----------|----------|----------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|--|-----|
| | | | | | 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 | | | | |
| SO | 0 | 850001222 | 6.6 | 34.1 | 1 | 4.2 | 2.2 | 2.1 | 2.9 | 12 | 1.1 | 0 | 3.4 | <5 | 3 | | | |
| SS | 1.5 | 850001223 | 6.1 | 32.1 | 2.5 | 5.4 | 3.7 | 7.5 | 2.2 | 12 | 0.33 | 0 | 1.6 | 39 | 3 | | | |
| SS | 9.6 | 850001224 | 6.1 | 63.7 | 6.8 | 8.6 | 41.3 | 137.9 | 1.7 | 68 | 3.15 | 0 | <0.1 | 13 | 1.9 | | | |
| SH | 13.6 | 850001225 | 3.2 | 42.6 | 13.6 | 26.7 | 14.5 | 0.4 | 0.4 | 25 | 14.55 | 0 | <0.1 | 135 | 1.2 | | | |
| SL, SH, SS | 19.2 | 850001226 | 3.8 | 82 | 4.9 | 32.4 | 28 | 1.1 | 1.1 | 6 | 2.58 | 0 | 0.4 | 172 | -0.7 | | | |
| CO | 23.6 | 850001227 | 3.2 | 48.8 | 7.5 | 30.7 | 43.8 | 0.7 | 0.7 | 6 | 0.99 | 0 | <0.1 | 81 | 0.3 | | | |
| SH, SS | 25.7 | 850001228 | 4.3 | 51 | 5.7 | 30.7 | 46.4 | 1.4 | 1.4 | 11 | 0.87 | 0 | 3.1 | 112 | -0.2 | | | |
| SH | 28.2 | 850001229 | 6.1 | 50.5 | 5.3 | 36.9 | 38.1 | 0.9 | 0.9 | 9 | 1.26 | 0 | 3.1 | 104 | 0.7 | | | |
| SL | 37.6 | 850001230 | 4.8 | 42.3 | 9.7 | 27.8 | 108 | 1.3 | 1.3 | 15 | 1.2 | 0 | 2.5 | 54 | 0.6 | | | |
| SH | 41.3 | 850001231 | 6.4 | 55.7 | 6.7 | 29.5 | 57.8 | 0.3 | 0.3 | 12 | 0.54 | 0 | 1.2 | 114 | 0.6 | | | |
| SL, SH | 43.4 | 850001232 | 3.2 | 62.1 | 7.2 | 13.5 | 12.2 | 2.4 | 2.4 | 7 | 0.48 | 0 | 0.3 | 108 | -0.8 | | | |
| MS | 50.9 | 850001234 | 3.4 | 56.9 | 6.4 | 29.5 | 36.9 | 2.7 | 2.7 | 7 | <1 | 0 | 1.2 | 54 | 2.2 | | | |
| SH, SL | 52.9 | 850001235 | 6.9 | 46.4 | 1.4 | 10.6 | 6.8 | 2.4 | 2.4 | 4 | 1.6 | 0 | 2.8 | 14 | 2.2 | | | |
| SS | 57.4 | 850001236 | 7.7 | 40.2 | 1.6 | 4.8 | 3.3 | 3.1 | 3.1 | 4 | 1.68 | 0 | 1.7 | 14 | 3.2 | | | |
| SS | 66.9 | 850001237 | 7.6 | 38.1 | 2.4 | 5.2 | 4.2 | 2.1 | 2.1 | 5 | <1 | 0 | 2.4 | 9 | 1.8 | | | |
| SS | 76.6 | 850001238 | 6.9 | 34.9 | 1.6 | 14.8 | 8.5 | 1.6 | 1.6 | 7 | <1 | 0 | 1.5 | 14 | 1.1 | | | |
| SH, SS, AR | 86.1 | 850001239 | 7.3 | 38.1 | 2.3 | 14.8 | 11.2 | 1.4 | 1.4 | 10 | <1 | 0 | 1.4 | 18 | 0.7 | | | |
| SH | 92.5 | 850001240 | 7.1 | 54.9 | 5 | 6.2 | 19.4 | 2.8 | 2.8 | 4 | 1.49 | 0 | 1.4 | 15 | 2.8 | | | |
| SH | 94.6 | 850001241 | 7.9 | 70.2 | 1.8 | 6.2 | 4.8 | 3.9 | 3.9 | 4 | 2.4 | 0 | 1.3 | 9 | 4.3 | | | |
| CO | 96.6 | COAL | 8.4 | 75.5 | 3 | 6.1 | 0.2 | 0.1 | 13.4 | 25 | 14.75 | 1.6 | 5.2 | <5 | 15.7 | | | |
| SL, SH | 102.9 | 850001242 | 4.1 | 54.7 | 8.4 | 24.4 | 12.8 | 16.9 | 16.9 | 7 | 1.46 | 0 | 2.1 | 38 | 19.1 | | | |
| SS | 107.3 | 850001243 | 7.2 | 40.1 | 2.7 | 22.8 | 1.7 | 16 | 16 | 11 | 3.18 | 0 | 5.5 | 10 | 18.3 | | | |
| SH, CO | 113.6 | 850001244 | 4.9 | 50.1 | 6.4 | 14.2 | 8.7 | 8.3 | 8.3 | 16 | 2.48 | 0.2 | 4.5 | 25 | 18.3 | | | |
| SS | 119 | 850001245 | 8 | 36.1 | 1.6 | 12 | 2.1 | 4.1 | 4.1 | 14 | 2.15 | 0 | 6.3 | 7 | 9.9 | | | |
| SL, SH | 124.3 | 850001246 | 7.4 | 46.4 | 3.5 | 5.8 | 0.7 | 4.1 | 4.1 | 11 | 4.84 | 0 | 3.3 | 21 | 4.6 | | | |
| CO | 131 | COAL | 8.4 | 75.5 | 3 | 6.1 | 0.2 | 0.1 | 13.4 | 25 | 14.75 | 1.6 | 5.2 | <5 | 15.7 | | | |
| 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 | 8.4 | 75.5 | 3 | 6.1 | 0.2 | 0.1 | 13.4 | 25 | 14.75 | 1.6 | 5.2 | <5 | 15.7 | | | |
| SL | 153.5 | 850001248 | 6.8 | 44.1 | 4.3 | 23.6 | 8.9 | 7.1 | 10.6 | 20 | 4.95 | 0 | 6.1 | 14 | 8.4 | | | |
| SH, CO | 162.1 | 850001249 | 4.3 | 53.6 | 7.7 | 52.8 | 20.9 | 10.6 | 10.6 | 10 | 3.62 | 0 | 4.6 | 13 | 12.6 | | | |
| SL | 164.8 | 850001250 | 6.5 | 44.2 | 4.4 | 28 | 8.3 | 8.4 | 8.4 | 13 | 6.3 | 0 | 7.9 | 13 | 10 | | | |
| SH, CO | 167.8 | 850001251 | 6.3 | 57.1 | 7.7 | 68.3 | 8.5 | 20.5 | 20.5 | 9 | 7.05 | 0 | 3.9 | 24 | 22.5 | | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:20346C
DATE CORED:29OCT1977
DATE REPORTED:15AUG1985

*Dry Basis

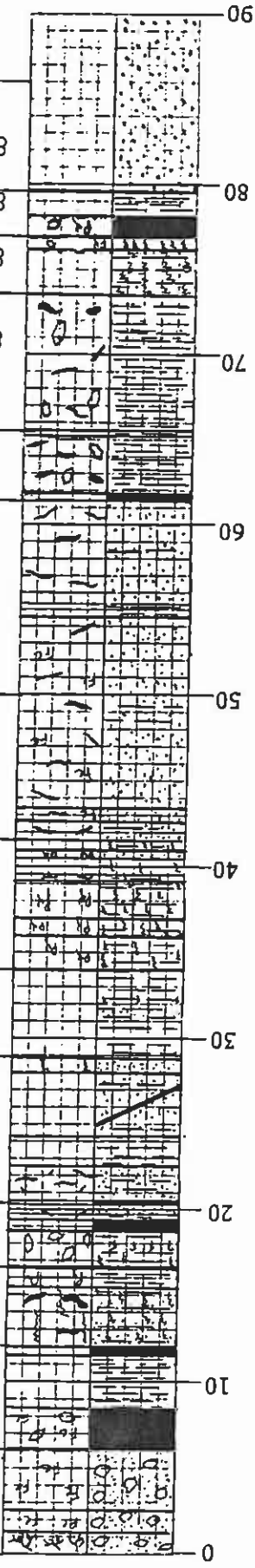
| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAC K PPM | * Total S % | * Py'r. S % | CacO3 Eq Tons / 1000 Tons * | | | | Particle Size | | | % Moisture * | | Avail. H2O Hold. Cap. |
|-----------|-----------|------------------------|-------------------------|-------------------------|----------------------|----------------------|-----------------------------|-------------------|------------------|------------------|---------------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | |
| SO | 850001222 | 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 | 850001223 | <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 | 850001224 | 4 | 2.1 | 102.2 | 0.99 | 30.91 | -6.44 | 37.35 | | | 48.4 | 25 | 26.6 | 22.7 | 15.1 | 7.6 |
| SL,SH,SS | 850001225 | <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 | 850001226 | <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 | 850001227 | <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 | 5.4 | 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,SH | 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 | 1.9 | 128.4 | <0.01 | 0.94 | 42.96 | | 42.02 | | 42 | 29.8 | 28.2 | 12.8 | 7.8 | 5 |
| SS | 850001237 | 2 | 3.6 | 90.3 | 0.43 | 0.31 | 16.91 | | 29.69 | | 60 | 20 | 20 | 11.2 | 6.3 | 4.9 |
| SS | 850001238 | <2 | 1.4 | 289.1 | 0.07 | 13.44 | 46.25 | | 3.47 | | 73 | 12 | 15 | 10.5 | 6.1 | 4.4 |
| SH,SS,AR | 850001239 | <2 | 1.9 | 289.1 | 0.32 | 2.19 | 34.55 | | 44.06 | | 73 | 12 | 15 | 10.6 | 5.4 | 5.2 |
| SH | 850001240 | <2 | 2.7 | 425.3 | 0.29 | 10 | 16.52 | | 24.55 | | 44 | 11 | 45 | 15.4 | 10.3 | 5.1 |
| COAL | 850001241 | <2 | 0.7 | | | 9.06 | | | 7.46 | | 11.6 | 22 | 66.4 | 23.5 | 15.8 | 7.7 |
| 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 | 850001247 | <2 | 0.7 | 320.8 | 0.16 | | 15.52 | | 10.52 | | 6.8 | 38 | 55.2 | 44.1 | 25 | 19.1 |
| MS,SH | COAL | | | | | 5 | | | | | | | | | | |
| 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

| Lithology | Lab No. | Hot H2O Ext. # | | | AB-DTPA Extract # | | | | | | | | Organic # Matter % |
|------------|------------|----------------|-----------|-----------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|--|-----------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SO | 8500012222 | 0.1 | 0.03 | | <0.6 | 25 | <0.1 | 2.8 | 6.9 | 2 | <1 | | |
| SS | 8500012223 | <0.01 | <0.01 | | <0.6 | 16 | <0.1 | 0.4 | 6.1 | 1 | <1 | | 0.1 |
| SH | 8500012224 | <0.01 | <0.01 | | <0.6 | 11 | <0.1 | 0.4 | 54.3 | 2.6 | <1 | | 0.1 |
| SL, SH, SS | 8500012225 | 0.04 | 0.04 | | 1 | 30 | 1.7 | 2.9 | 227.3 | 53.2 | 8.2 | | 9.6 |
| CO | 8500012226 | <0.01 | <0.01 | | <0.6 | 17 | 3.8 | 1.9 | 78.8 | 65.1 | 8 | | 6 |
| SH, SS | 8500012227 | <0.01 | <0.01 | | <0.6 | <10 | 0.7 | <0.2 | 43.7 | 7.6 | <1 | | COAL |
| SH | 8500012228 | <0.01 | <0.01 | | <0.6 | <10 | 3.1 | 1.6 | 44.7 | 16.7 | 6.1 | | 7.8 |
| SL | 8500012229 | <0.01 | <0.01 | | 0.6 | 14 | 1.9 | 2 | 31.8 | 12.1 | 3 | | 6.9 |
| SH | 850001230 | <0.01 | <0.01 | | <0.6 | <10 | 1.9 | 0.8 | 44.7 | 16.7 | 3 | | 4.9 |
| SH | 850001231 | 0.01 | <0.01 | | <0.6 | 13 | 1.1 | 1.2 | 39.6 | 5.8 | 1.6 | | 4.8 |
| SS | 850001232 | <0.01 | <0.01 | | <0.6 | 11 | 1.7 | 1 | 17.1 | 8.4 | 2.3 | | 4.8 |
| SL, SH | 850001233 | <0.01 | <0.01 | | <0.6 | <10 | 1.1 | 1.3 | 46.8 | 2.7 | 1.6 | | 3.2 |
| MS, SL | 850001234 | <0.01 | <0.01 | | <0.6 | 20 | 3.3 | 4.2 | 28.9 | 8.4 | 1.6 | | 16.7 |
| SH, SL | 850001235 | <0.01 | <0.01 | | <0.6 | 20 | 1.6 | 4.2 | 109.9 | 2.7 | 2.2 | | 12 |
| SS | 850001236 | <0.01 | <0.01 | | <0.6 | 11 | 1.6 | 2.3 | 51.6 | 5.7 | 3.6 | | 2.7 |
| SS | 850001237 | <0.01 | <0.01 | | <0.6 | 11 | 1.6 | 2.2 | 53.3 | 5.9 | 3.9 | | 1.4 |
| SS | 850001238 | 0.01 | 0.01 | | <0.6 | 12 | 1.5 | 1.7 | 35.3 | 5.4 | 4.2 | | 1.1 |
| SS | 850001239 | 0.01 | 0.01 | | <0.6 | 11 | 1.2 | 0.9 | 47.1 | 6.4 | 2.6 | | 1.1 |
| SH, SS, AR | 850001240 | <0.01 | <0.01 | | <0.6 | 14 | 1.9 | 1.9 | 3.1 | 3.5 | 3 | | 1.3 |
| SH | 850001241 | <0.01 | <0.01 | | <0.6 | 28 | 1.9 | 6.8 | 38 | 4 | 6.7 | | 2.4 |
| CO | COAL | | | | <0.6 | 32 | 1.1 | 6 | 36.4 | 3.4 | 3.5 | | 3.2 |
| SL, SH | 850001242 | 0.21 | 0.13 | | <0.6 | 12 | 2.6 | 2.8 | 29.3 | 1 | 3.7 | | 11.1 |
| SS | 850001243 | 0.13 | 0.2 | | <0.6 | 12 | 1 | 0.6 | 48.8 | 5.1 | 2.6 | | 1.9 |
| SH, CO | 850001244 | <0.01 | <0.01 | | <0.6 | 18 | 2 | 3.3 | 32.4 | 4.9 | 2.7 | | 1.9 |
| SS | 850001245 | 0.07 | 0.07 | | <0.6 | <10 | 1.2 | 0.6 | 71.1 | 6.8 | 1.9 | | COAL |
| SL, SH | 850001246 | 0.46 | 0.46 | | <0.6 | 17 | 1.8 | 3.7 | 30.6 | 3.7 | 3.4 | | 1.1 |
| CO | COAL | | | | <0.6 | 23 | 0.7 | 4.3 | 26.5 | 1 | 2.1 | | 3.4 |
| MS, SH | 850001247 | 0.16 | 0.38 | | <0.6 | 20 | 3.2 | 2 | 40.7 | 1.7 | 1.8 | | 4.6 |
| SL | 850001248 | 0.2 | 0.2 | | <0.6 | 14 | 1.2 | 1.9 | 21.4 | 1.2 | 1.1 | | 3.6 |
| SH, CO | 850001249 | 0.48 | 0.48 | | <0.6 | 16 | 2 | 2.5 | 32.9 | 1 | 2.4 | | COAL |
| SL | 850001250 | | | | <0.6 | 24 | 1.8 | 5.4 | 19.1 | 1 | 2.3 | | 3.5 |
| SH, CO | 850001251 | | | | <0.6 | 24 | 1.8 | 5.4 | 19.1 | 1 | 2.3 | | COAL |



| SAMPLE NO. | SATURATION % | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | % 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 | |

ELEVATION 6969.3

E 52417.0

LOCATION S 7402.0

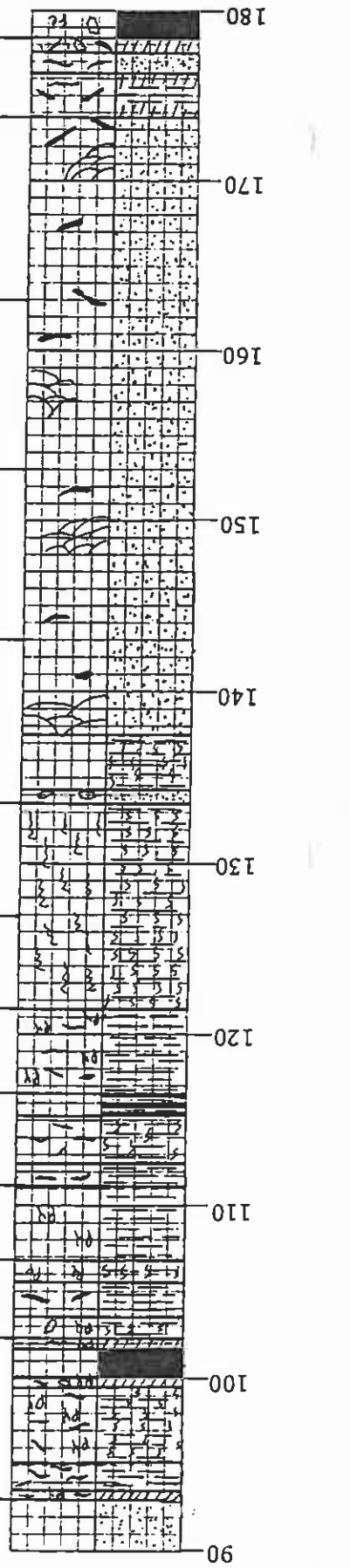
26269C

DATE DRILLED

6-10-85

SUB AREA N-14

SEP 3 1986



HOLE NO. 26269C
 LOCATION S 7402.0 E 52417.0
 ELEVATION 6969.3

| SAMPLE NO. | SATURATION & SAR | SOL.Na. | SOL.Ca. | SOL.Mg | (BTU) | %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 |

DRILLER J. Elliott
 DATE DRILLED 6-10-85
 SUB AREA N-14
 PAGE 2

SEP 3 1986

504

LOCATION S 7402.0 E 52417.0

DATE DRILLED 6-10-85

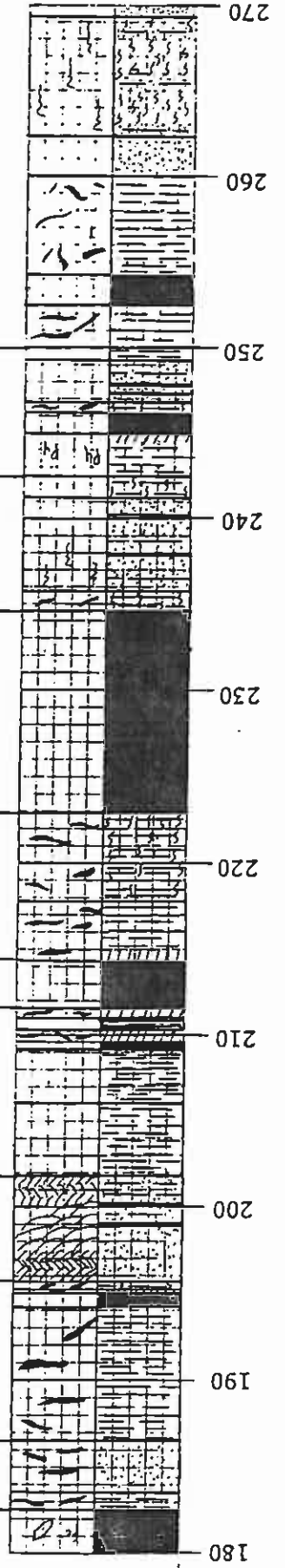
SUB AREA N-14

ELEVATION 6969.3

SAMPLE NO. 6969.3

SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg (MOISTURE) (ASH) (BTU)

26229C

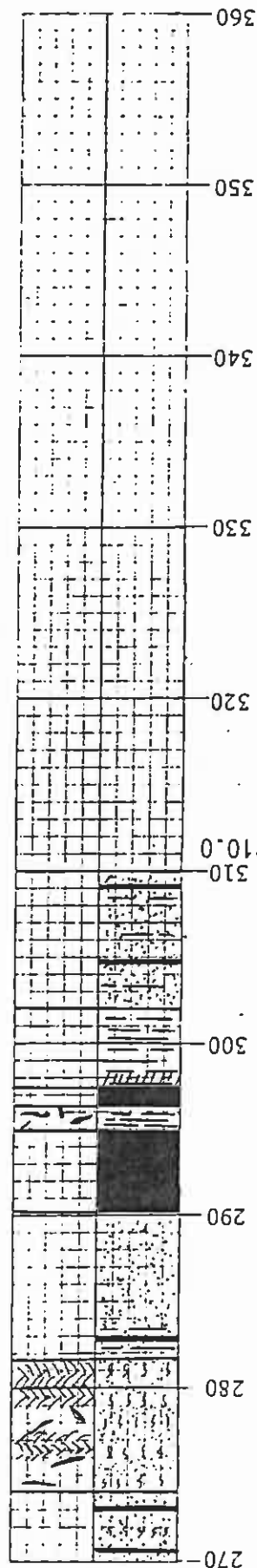


| Elevation | Sample No. | SAR | SOL. Na. | SOL. Ca. | SOL. Mg | (BTU) | (MOISTURE) | (ASH) | (pH) |
|-----------|------------|-------|----------|----------|----------|----------|------------|--------|--------------|
| 180 | NOX | (N/A) | (7.61) | 66.1 | 20.9 | (12,663) | 0.2 | <0.1 | (0.75) (7.5) |
| 185 | 850001173 | 36.5 | 66.1 | 20.9 | 0.2 | | <0.1 | 0.11 | 8.5 |
| 190 | 850001174 | 42.7 | 49.5 | 27.1 | 0.5 | | 0.1 | 0.85 | 8.2 |
| 200 | 850001175 | 28.1 | 48.3 | 18.7 | 0.2 | | 0.1 | <0.01 | 8.4 |
| 210 | 850001176 | 38.8 | 53.5 | 29.3 | 0.5 | | 0.1 | 0.80 | 8.2 |
| 215 | EOB | (N/A) | (6.22) | | (12,976) | | | (0.59) | (7.8) |
| 220 | 850001177 | 86.2 | 20.6 | 11.3 | <0.1 | | <0.1 | 0.09 | 9.4 |
| 230 | E12 | (N/A) | (5.95) | | (12,912) | | | (0.41) | (8.0) |
| 240 | 850001178 | 30.1 | 25.1 | 21.7 | 1.0 | | 0.5 | 0.25 | 8.0 |
| 250 | 850001179 | 28.3 | 35.0 | 28.2 | 0.9 | | 0.4 | 0.56 | 7.8 |
| 260 | | | | | | | | | |
| 270 | | | | | | | | | |

SEP 3 1986

SEP 3 1986

506



E3X

LOCATION S 7402.0
 E 52417.0
 ELEVATION 6969.3
 26269C

DATE DRILLED 6-10-85
 SUB AREA N-14
 SATURATION & SAR SOL. Na. SOL. Ca. SOL. Mg
 (MOISTURE) (ASH) (BTU) %S pH
 SAMPLE NO.

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 25269C
DATE CORED: 10JUN1985
DATE REPORTED: 15AUG1985

| Lithology | Depth | Lab No. | Paste pH | Sat. % | Saturated Paste Extract | | | | | | | | | | | | |
|----------------|--------|------------|----------|--------|-------------------------|----------|----------|----------|------|---------|--------|-----------|------------|-----------|------|--|--|
| | | | | | 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 | 8500001146 | 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 | 8500001147 | 3.5 | 60.3 | 3.6 | 2.1 | 25.2 | 18.6 | 0.4 | 17 | 2.75 | 0 | <0.1 | 37 | -0.7 | | |
| SL, SH, SS | 12 | 8500001148 | 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 | 8500001149 | 6.1 | 41.8 | 3.7 | 19 | 19.5 | 12.5 | 4.8 | 6 | <1 | 0 | 1.6 | 53 | 3.5 | | |
| SS, SH | 20.4 | 8500001150 | 7.2 | 36.5 | 3.5 | 21 | 22.3 | 11 | 5.1 | 13 | <1 | 0 | 2.1 | 37 | 5.9 | | |
| SH | 28.9 | 8500001151 | 6.7 | 41.4 | 4.4 | 23.4 | 16.3 | 5 | 5.1 | 9 | <1 | 0 | 1.7 | 63 | 5.8 | | |
| SH, SL | 34 | 8500001152 | 8.2 | 43 | 1.7 | 12.3 | 2.8 | 6.8 | 6.8 | 8 | 1.5 | 0 | 1.7 | 11 | 8.1 | | |
| SS, SH | 41.5 | 8500001153 | 8.3 | 38.3 | 1.2 | 11 | 3.2 | 3.2 | 6.3 | 14 | 1.52 | 0 | 1.6 | 14 | 7.4 | | |
| SS, SH | 50 | 8500001154 | 8.3 | 36.5 | 1.8 | 9.2 | 5.7 | 5.5 | 3.9 | 15 | 1.22 | 0 | 1.5 | 16 | 4.3 | | |
| CO, SH | 61.3 | 8500001155 | 8.3 | 50.1 | 2.8 | 24.1 | 1.7 | 1.7 | 14.5 | 9 | 2.01 | 0 | 1.7 | 23 | 16.8 | | |
| SH, SL | 65.6 | 8500001156 | 9.1 | 56.4 | 1.2 | 10.8 | 0.1 | 0.1 | 27.9 | 33 | 10.32 | 0 | 1.9 | <5 | 28.5 | | |
| SH, SL | 73.6 | 8500001157 | 8.9 | 36.8 | 1.2 | 13.5 | 0.2 | 0.2 | 30.2 | 6 | 7.24 | 0 | 1.1 | <5 | 30.2 | | |
| CO, SH | 76.9 | 8500001158 | 6.9 | 45.7 | 1.5 | 7 | 3.6 | 3.6 | 3 | 3 | <1 | 0 | 1.3 | 14 | 3.1 | | |
| SS | 79.6 | 8500001159 | 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 | 8500001160 | 6.4 | 36.2 | 3.6 | 1.9 | 25.1 | 18.6 | 0.4 | 37 | 1.15 | 0 | 1.8 | 51 | -0.7 | | |
| SH, SL, CO | 93 | 8500001161 | 5.4 | 41.3 | 3.6 | 7.1 | 13 | 5.6 | 1.5 | 7 | <1 | 0 | 1.5 | 57 | 0.9 | | |
| SH, SL | 102.2 | 8500001162 | 7.7 | 49.6 | 4.9 | 40.5 | 11.7 | 17.8 | 7.5 | 9 | 2.09 | 0 | 2.3 | 56 | 15.5 | | |
| SH, CO | 111.1 | 8500001164 | 6.6 | 36.7 | 4.6 | 32.7 | 5.8 | 13.3 | 17.8 | 9 | <1 | 0 | 1.7 | 53 | 20 | | |
| SH, CO | 116.5 | 8500001165 | 7.8 | 37.1 | 5.1 | 31.9 | 11.7 | 7.5 | 24.4 | 11 | 1.62 | 0 | 2.7 | 65 | 8.9 | | |
| SL, SH | 121.4 | 8500001166 | 8.6 | 28.3 | 3.3 | 17.3 | 0.8 | 0.5 | 27.4 | 7 | 3.09 | 0.2 | 2 | 25 | 26.1 | | |
| SL, SH | 126.8 | 8500001167 | 8.4 | 28.4 | 1.6 | 23.9 | 0.4 | 0.4 | 35.6 | 9 | 2.37 | 0.3 | 3 | <5 | 28.1 | | |
| SS | 133.4 | 8500001168 | 8.1 | 30.2 | 1.4 | 12.1 | 0.3 | 0.3 | 18 | 7 | 1.64 | 0 | 3.3 | <5 | 33.9 | | |
| SS | 143 | 8500001169 | 7.0 | 36.1 | 1.4 | 9 | 1.9 | 3.6 | 6.2 | 17 | <1 | 0 | 5.3 | 10 | 20.2 | | |
| SS, SL, SH | 153 | 8500001170 | 7.7 | 36.1 | 1.4 | 6.6 | 3.9 | 1.6 | 3.5 | 11 | <1 | 0 | 2.9 | 7 | 7.3 | | |
| SS | 163 | 8500001171 | 7.5 | 36.2 | 1.6 | 4.1 | 6.4 | 3.7 | 1.6 | 10 | <1 | 0 | 2.8 | 9 | 3.8 | | |
| SH, SS | 173.7 | 8500001172 | 7 | 38.7 | 2.8 | 14.5 | 8.3 | 5 | 1.6 | 8 | <1 | 0.1 | 3.8 | <5 | 1.1 | | |
| CO | 178.3 | COAL | | | | | | | | | | | | 32 | 5.8 | | |
| SH, SS | 182.61 | 8500001173 | 8.5 | 36.5 | 1.9 | 20.9 | <0.1 | 66.1 | 0.1 | 21 | 8.15 | 0.2 | 5.8 | 15 | 49 | | |
| SH, CO | 186.6 | 8500001174 | 8.2 | 42.7 | 2.7 | 27.1 | 0.1 | 49.5 | 0.1 | 12 | 5.95 | 0.4 | 7.2 | 25 | 41.8 | | |
| SS | 195.6 | 8500001175 | 8.4 | 28.1 | 1.7 | 18.7 | 0.1 | 48.3 | 0.1 | 17 | 7.4 | 0.4 | 10.3 | 29 | 41.2 | | |
| SH, CO | 201.8 | 8500001176 | 8.2 | 38.8 | 2.9 | 29.3 | 0.1 | 53.5 | 0.1 | 10 | 6.1 | 0.1 | 6 | 27 | 43.7 | | |
| CO | 211.6 | COAL | | | | | | | | | | | | | | | |
| SH | 214.21 | 8500001177 | 9.4 | 86.2 | 1.2 | 11.3 | <0.1 | 20.6 | 11 | 11 | 12.85 | 0.2 | 8.1 | 11 | 22.6 | | |
| CO | 222.9 | COAL | | | | | | | | | | | | | | | |
| SH, SS | 234.71 | 8500001178 | 8 | 30.1 | 2.5 | 21.7 | 0.5 | 25.1 | 35 | 52 | 4.72 | 0.1 | 7.3 | 15 | 26.3 | | |
| SH, CO, SS | 242.4 | 8500001179 | 7.8 | 28.3 | 2.9 | 28.2 | 0.4 | 28.2 | 1 | 28 | 4.6 | 0.4 | 8.1 | 14 | 33.5 | | |

*Dry Basis

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTIA
CORE NO: 26269C
DATE CORED: 10JUN1985
DATE REPORTED: 15AUG1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | % Moisture * | | |
|----------------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|--------------|-----------|--------------------------------|
| | | | | | | | 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 | 0.18 | 9.38 | 20.87 | 21.72 | 11.49 | 37.6 | 33.8 | 28.6 | | | | | | |
| CO, SH | 850001147 | 0.81 | 0.51 | 25.31 | 3.59 | 21.72 | 11.49 | 28.6 | 28.8 | 42.6 | | | | | | |
| SL, SH, SS | 850001148 | 0.8 | 0.47 | 25 | 9.46 | 15.54 | 17.6 | 17.6 | 48.8 | 33.6 | | | | | | |
| CO, SH, SL, SS | 850001149 | 0.96 | 0.47 | 30 | 8.59 | 21.41 | 20.49 | 41.6 | 34.8 | 23.6 | | | | | | |
| SS, SH | 850001150 | 0.71 | 1.4 | 22.19 | 42.68 | 32.24 | 19.87 | 39.6 | 37.8 | 22.6 | | | | | | |
| SH | 850001151 | 1.74 | 1.4 | 3.75 | 23.14 | 32.24 | 19.87 | 23.6 | 38.8 | 37.6 | | | | | | |
| SH, SL | 850001152 | 0.12 | <0.01 | 0 | 17.64 | 17.64 | 17.64 | 31.6 | 36.8 | 31.6 | | | | | | |
| SS, SH | 850001153 | <0.01 | 0.01 | 0.31 | 39.57 | 39.26 | 17.64 | 31.6 | 36.8 | 31.6 | | | | | | |
| SS, SH | 850001154 | 0.01 | 0.37 | 101.56 | 27.51 | 74.05 | 39.26 | 67.6 | 14.8 | 17.6 | | | | | | |
| CO, SH | 850001155 | 3.25 | 0.37 | 2.5 | 19.67 | 10.35 | 17.17 | 25.6 | 33.8 | 40.6 | | | | | | |
| SH, SL | 850001156 | 0.08 | 0.12 | 3.75 | 27.48 | 10.35 | 23.73 | 11.6 | 40.8 | 47.6 | | | | | | |
| SH, SL, CO, SH | 850001157 | 0.12 | 0.31 | 15.62 | 5.27 | 10.22 | 32.55 | 34.6 | 31.8 | 33.6 | | | | | | |
| CO, SH | 850001158 | 0.5 | 0.34 | 12.81 | 2.59 | 10.22 | 32.55 | 31.6 | 34.8 | 33.6 | | | | | | |
| SS | 850001159 | 0.41 | 0.34 | 8.75 | 2.59 | 10.22 | 32.55 | 31.6 | 34.8 | 33.6 | | | | | | |
| SH, SL, CO | 850001160 | 0.28 | 1.43 | 60.31 | 8.84 | 51.47 | 32.55 | 85.6 | 7.8 | 6.6 | | | | | | |
| SH, SL, CO | 850001161 | 1.93 | 1.43 | 61.88 | 32.01 | 29.87 | 32.55 | 29.6 | 39.8 | 30.6 | | | | | | |
| SH, SL | 850001162 | 1.98 | 1.44 | 85.94 | 22.81 | 63.13 | 32.55 | 43.6 | 28.8 | 27.6 | | | | | | |
| SH, CO | 850001163 | 2.75 | 1.84 | 61.56 | 37.87 | 23.69 | 32.55 | 12.6 | 42.8 | 44.6 | | | | | | |
| SH, CO | 850001164 | 1.97 | 1.3 | 56.56 | 9 | 47.56 | 32.55 | 53.6 | 26.8 | 19.6 | | | | | | |
| SH, SH | 850001165 | 1.81 | 0.39 | 0.94 | 48.08 | 47.14 | 47.14 | 40.6 | 30.8 | 28.6 | | | | | | |
| SL, SH | 850001166 | 0.03 | 0.04 | 1.25 | 46.36 | 45.11 | 45.11 | 40.6 | 31.8 | 34.6 | | | | | | |
| SL, SH | 850001167 | <0.01 | <0.01 | 0 | 43.73 | 43.73 | 43.73 | 33.6 | 20.2 | 13.6 | | | | | | |
| SS | 850001168 | <0.01 | <0.01 | 0 | 44.81 | 44.81 | 44.81 | 66.2 | 16.2 | 9.6 | | | | | | |
| SS, SL, SH | 850001169 | <0.01 | <0.01 | 0 | 46.93 | 46.93 | 46.93 | 74.2 | 15.2 | 6.6 | | | | | | |
| SS | 850001170 | <0.01 | <0.01 | 0.62 | 13.02 | 12.4 | 12.4 | 83.2 | 12.2 | 4.6 | | | | | | |
| SS, SL, SH | 850001171 | 0.02 | 0.5 | 69.06 | 33.83 | 35.23 | 35.23 | 43.2 | 30.2 | 26.6 | | | | | | |
| SH, SS | 850001172 | 2.21 | 0.5 | 3.44 | 12.35 | 8.91 | 8.91 | 35.2 | 39.2 | 25.6 | | | | | | |
| CO | 850001173 | 0.11 | 0.84 | 26.56 | 20.26 | 6.3 | 136.52 | 25.2 | 41.2 | 33.6 | | | | | | |
| SH, SS | 850001174 | 0.85 | 0.84 | 0 | 136.52 | 6.3 | 136.52 | 61.2 | 26.8 | 12 | | | | | | |
| SH, CO | 850001175 | <0.01 | 0.8 | 25 | 34.64 | 9.64 | 9.64 | 29.2 | 35.2 | 35.6 | | | | | | |
| SH, CO | 850001176 | 0.8 | 0.8 | 2.81 | 29.79 | 26.98 | 26.98 | 40.2 | 40.2 | 47.6 | | | | | | |
| CO | 850001177 | 0.09 | 0.09 | 7.81 | 34.39 | 26.58 | 26.58 | 12.2 | 40.2 | 47.6 | | | | | | |
| SH, SS | 850001178 | 0.25 | 0.25 | 17.5 | 26.68 | 9.18 | 9.18 | 53.2 | 35.2 | 11.6 | | | | | | |
| SH, CO, SS | 850001179 | 0.56 | 0.56 | 0 | 0 | 0 | 0 | 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

| Lithology | Lab No. | Hot H2O Ext. * | | | AB-DTPA Extract * | | | | | | | | Organic Matter % |
|----------------|-----------|----------------|--------|--------|-------------------|--------|--------|--------|--------|--------|--------|--|------------------|
| | | B PPM | As PPM | Se PPM | TAMM Mo PPM | Hg PPB | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | |
| SUR. MAT. | 850001146 | <0.01 | 0.02 | <0.01 | <0.6 | 32 | 0.2 | 5.1 | 236.1 | 3.9 | 3 | | |
| CO, SH | 850001147 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 4.5 | 6.1 | 457.1 | 11.6 | 26 | | |
| SL, SH, SS | 850001148 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3 | 3.1 | 27 | 9.7 | 6.4 | | |
| CO, SH, SL, SS | 850001149 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3 | 3.6 | 53.2 | 3 | 6.2 | | |
| SS, SH | 850001150 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 2.2 | 3.6 | 63.2 | 15 | 5.9 | | |
| SH | 850001151 | 0.01 | 0.01 | 0.01 | 0.6 | <10 | 2.9 | 5.1 | 58.8 | 11.4 | 6.3 | | |
| SH, SL | 850001152 | 0.05 | 0.05 | 0.05 | <0.6 | <10 | 2.4 | 4.3 | 42.1 | 4.9 | 6.6 | | |
| SS, SH | 850001153 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 1 | 1.4 | 23 | 5.1 | 4.8 | | |
| SS, SH | 850001154 | 0.18 | 0.18 | 0.18 | <0.6 | <10 | 1 | 1.5 | 38.4 | 3.3 | 4.5 | | |
| CO, SH | 850001155 | 0.12 | 0.12 | 0.12 | <0.6 | 15 | 1.8 | 5.2 | 38.8 | 3.3 | 4.9 | | |
| SH | 850001156 | 0.25 | 0.25 | 0.25 | <0.6 | 24 | 1.7 | 4.2 | 34.1 | 6.2 | 4.9 | | |
| SH, SL | 850001157 | 0.03 | 0.03 | 0.03 | <0.6 | 19 | 1.8 | 4.2 | 34.7 | 3.5 | 5.6 | | |
| CO, SH | 850001158 | 0.03 | 0.03 | 0.03 | <0.6 | <10 | 2.3 | 7 | 33.9 | 2.2 | 5.1 | | |
| SS | 850001159 | 0.01 | 0.01 | 0.01 | <0.6 | 12 | 1.4 | 1.4 | 27.5 | 1.4 | <1 | | |
| SS | 850001160 | <0.01 | <0.01 | <0.01 | <0.6 | 14 | 0.3 | 0.9 | 105 | 5.1 | 5.3 | | |
| SH, SL, CO | 850001161 | 0.03 | 0.03 | 0.03 | <0.6 | <10 | 1.8 | 4 | 134.7 | 3.9 | 3.8 | | |
| SH, SL | 850001162 | 0.12 | 0.12 | 0.12 | <0.6 | <10 | 2.6 | 3.1 | 82.4 | 6.3 | 4.7 | | |
| SH | 850001163 | 0.01 | 0.01 | 0.01 | <0.6 | 13 | 2.3 | 4.6 | 48.5 | 6.9 | 3.3 | | |
| SH, CO | 850001164 | 0.06 | 0.06 | 0.06 | <0.6 | 13 | 2 | 2.1 | 106.7 | 9.9 | 3.4 | | |
| SH | 850001165 | 0.06 | 0.06 | 0.06 | <0.6 | 15 | 2.8 | 5.3 | 37.7 | 1.3 | 4.4 | | |
| SL, SH | 850001166 | 0.06 | 0.06 | 0.06 | <0.6 | 11 | 2.4 | 3.9 | 65.4 | 5.7 | 3.2 | | |
| SL, SH | 850001167 | 0.12 | 0.12 | 0.12 | <0.6 | 13 | 2.5 | 4.7 | 59.5 | 6.5 | 3.5 | | |
| SS | 850001168 | 0.03 | 0.03 | 0.03 | <0.6 | 10 | 1.3 | 2.7 | 48.4 | 4.2 | 2.4 | | |
| SS | 850001169 | 0.03 | 0.03 | 0.03 | <0.6 | <10 | 0.9 | 1.5 | 47.6 | 3.3 | 3.2 | | |
| SS, SL, SH | 850001170 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 0.4 | 0.8 | 38.4 | 2.9 | 1.8 | | |
| SS | 850001171 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 2 | 0.9 | 33.7 | 2.6 | 2.1 | | |
| SH, SS | 850001172 | 0.13 | 0.13 | 0.13 | 0.6 | <10 | 2 | 3.9 | 45.4 | 3.8 | 2.3 | | |
| CO | COAL | 0.25 | 0.25 | 0.25 | 0.6 | 11 | 2.5 | 3.6 | 22.6 | 3.3 | 3.6 | | |
| SH, SS | 850001173 | 0.08 | 0.08 | 0.08 | 0.6 | 12 | 1.8 | 3.6 | 30.5 | 4.1 | 2.8 | | |
| SH, CO | 850001174 | 0.23 | 0.23 | 0.23 | 0.6 | <10 | 1.3 | 1.1 | 62.9 | 7.3 | 1.4 | | |
| SS | 850001175 | 0.22 | 0.22 | 0.22 | 0.6 | <10 | 1.5 | 3.7 | 26.3 | 3.1 | 3.7 | | |
| SH, CO | COAL | 0.25 | 0.25 | 0.25 | 0.6 | 17 | 0.7 | 4.4 | 19.3 | 1 | 4 | | |
| SH | 850001177 | 0.24 | 0.24 | 0.24 | 0.6 | 15 | 2.6 | 2.3 | 41.3 | 1.4 | 1.4 | | |
| CO | COAL | | | | | <10 | 1.9 | 3.1 | 39.5 | 2.5 | 2.3 | | |
| SH, SS | 850001178 | | | | | | | | | | | | |
| SH, CO, SS | 850001179 | | | | | | | | | | | | |

26271C

LOCATION

S 8969.0

DATE DRILLED

7-10-85

SUB-AREA

N-14

ELEVATION

6916.5

SAMPLE NO.

SATURATION %
 SOL.NA. SOL.Ca. SOL.Mg
 SAR (ASH)
 (BTU)
 pH



0

850001803

63.1

0.9

4.8

25.5

36.6

0.24

7.5

10

850001804

51.2

1.2

8.1

24.0

60.8

0.57

4.4

20

850001805

51.4

0.9

5.0

21.1

40.9

0.50

4.4

30

850001807

40.4

1.6

5.5

9.3

14.3

0.07

7.8

40

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

50

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

SEP 9 1986

HOLE NO. 26271C

LOCATION S 8969.0

E 51987.0

ELEVATION 6916.5

DRILLER J. Elliott

DATE DRILLED 7-10-85

PAGE 2

SUB AREA N-14

PH 8.5

SATURATION & SOL. NO. (MOISTURE) SAR SOL. Na. SOL. Ca. SOL. Mg (BTU)

6916.5

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

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

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

850001828

61.3

59.1

18.7

<0.1

<0.1

0.98

9.1

850001829

107.3

35.4

11.2

<0.1

<0.1

0.12

9.3

850001830

75.5

30.4

9.6

<0.1

<0.1

0.03

9.5

850001830

EOB

(N/A)

(11.33)

(12,446)

(0.56)

850001830

75.5

30.4

9.6

<0.1

<0.1

0.03

9.5

850001830

EOB

(N/A)

(11.33)

(12,446)

(0.56)

(8.6)

850001829

107.3

35.4

11.2

<0.1

<0.1

0.12

9.3

850001828

61.3

59.1

18.7

<0.1

<0.1

0.98

850001827

32.2

50.3

19.5

0.1

0.2

<0.01

8.9

850001826

57.7

107.3

24.0

0.1

<0.1

1.21

8.5

850001825

32.3

52.8

16.7

<0.1

<0.1

0.06

8.8

850001824

66.8

41.7

13.2

<0.1

<0.1

850001823

44.3

53.7

38.0

0.8

0.2

1.75

7.8

850001822

32.2

0.7

2.3

14.7

10.3

0.04

7.4

850001821

36.5

1.7

4.5

9.3

5.1

0.13

7.7

850001820

36.7

3.8

5.8

3.3

1.4

850001819

36.3

2.5

6.1

7.8

3.9

0.06

7.7

850001818

32.4

5.7

6.6

1.9

0.8

<0.01

8.1

850001817

39.2

10.2

35.1

17.1

6.4

1.82

6.3

850001816

41.2

20.7

49.5

8.2

3.2

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

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

850001824

66.8

41.7

13.2

<0.1

<0.1

0.20

9.0

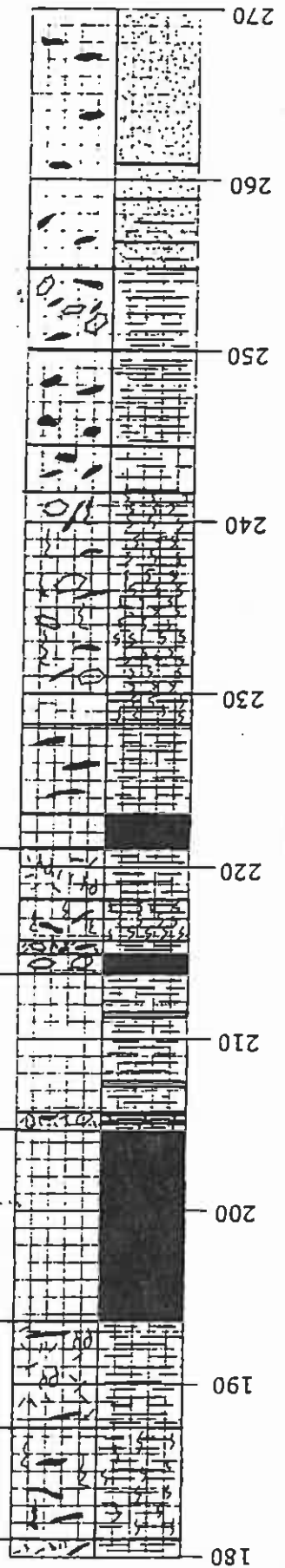
850001825

32.3

52.8

16.7

<0



LOCATION S 8969.0
 DATE DRILLED 7-10-85
 SUB AREA N-14
 E 51987.0
 ELEVATION 6916.5

| SAMPLE NO. | SATURATION % | SAR | SOL.Na. (BTU) | SOL.Ca. SOL.Mg | %S | pH |
|------------|--------------|--------|---------------|----------------|--------|-------|
| 850001831 | 46.6 | 39.2 | 12.4 | <0.1 | <0.1 | 9.4 |
| 850001832 | 80.2 | 36.4 | 11.5 | <0.1 | <0.1 | 9.4 |
| E12 | (N/A) | (5.92) | (13,135) | | (0.42) | (8.7) |
| 850001833 | 30.2 | 30.4 | 26.3 | 1.0 | 0.5 | 8.3 |
| 850001834 | 34.7 | 34.3 | 28.7 | 1.0 | 0.4 | 8.0 |

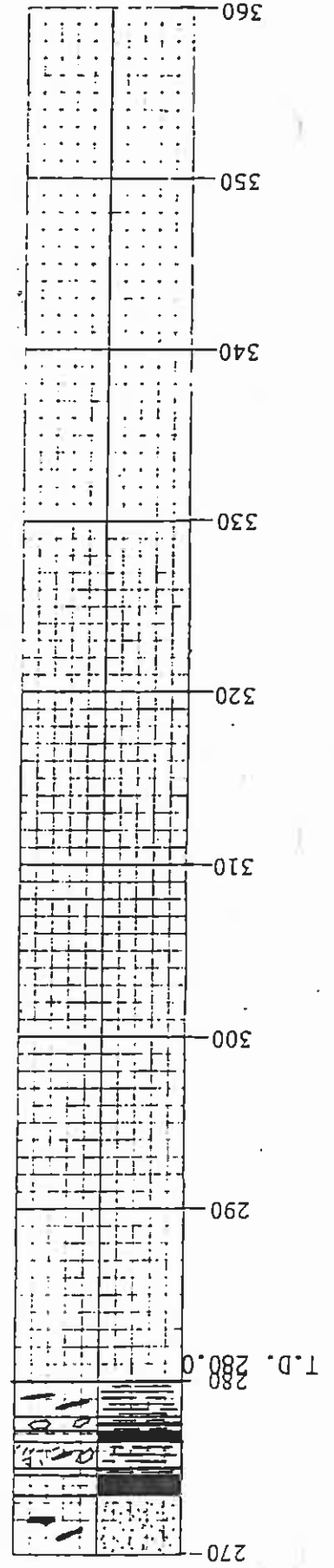
512

SEP 3 1985

26271C

SEP 3 1986

513



LEVATION 6916.5

E 51987.0

S 8969.0 LOCATION

26271C

DATE DRILLED

7-10-85

SUB AREA

N-14

SAMPLE NO. (MOISTURE) SAR SOL.Na. SOL.Ca. SOL.Mg

PH

(BTU)

(ASH)

SATURATION %

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE:0252 KAYENTA
CORE NO:26271C
DATE CORED:10JUL1985
DATE REPORTED:30AUG1985

*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 | 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 | 7.7 | 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 | 28 | 0.8 | |
| SH,SL | 40.6 | 850001809 | 8.1 | 42.6 | 1.4 | 4.9 | 5.3 | 17.2 | 2.7 | 8 | 1.97 | 0 | 2.5 | 13 | 1.1 | |
| 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 | 2.7 | |
| SH,SS,SL | 45.7 | 850001811 | 7.3 | 49 | 2.5 | 9.1 | 12.1 | 9.5 | 2.8 | 8 | <1 | 0 | 2.3 | 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 | 2.8 | |
| SS | 58.9 | 850001813 | 7.3 | 36.4 | 4 | 2.7 | 33.9 | 4.5 | 0.5 | 17 | 1.97 | 0 | 3.4 | 31 | 5.5 | |
| SS | 67 | 850001814 | 7.3 | 36.4 | 3.7 | 2.1 | 28 | 10.2 | 10.2 | 7 | 1.52 | 0 | 0.6 | 56 | -0.5 | |
| SH,CO | 75.7 | 850001815 | 5.4 | 37.1 | 3.6 | 5.1 | 25.8 | 0.4 | 0.4 | 32 | <1 | 0 | 1.5 | 58 | 0.2 | |
| SH,SH | 84.8 | 850001816 | 7.3 | 41.2 | 5.3 | 49.5 | 35.1 | 1 | 20.7 | 11 | <1 | 0 | 4.4 | 61 | 12.1 | |
| SL,SH | 93.7 | 850001817 | 6.3 | 39.2 | 5.3 | 35.1 | 8.2 | 6.4 | 5.7 | 7 | 1.5 | 0 | 2.9 | 66 | 6.7 | |
| SH,SL | 102 | 850001818 | 8.1 | 32.4 | 1 | 6.6 | 17.1 | 0.8 | 10.2 | 7 | <1 | 0 | 4.4 | 66 | 22.6 | |
| SS | 109.2 | 850001819 | 7.7 | 36.3 | 1.6 | 6.1 | 3.2 | 6.4 | 5.7 | 14 | 1.5 | 0 | 2.9 | 6 | 6.7 | |
| SH | 111.5 | 850001820 | 8.1 | 36.7 | 1 | 5.8 | 5.1 | 3.9 | 2.5 | 7 | 1.42 | 0 | 2.4 | 17 | 2.4 | |
| SS,SH | 115.7 | 850001821 | 7.7 | 36.5 | 1.6 | 4.5 | 1.4 | 1.4 | 3.8 | 14 | 1.12 | 0 | 2.4 | 8 | 4.2 | |
| SS,SH | 121.7 | 850001822 | 7.4 | 32.2 | 2.2 | 2.3 | 10.3 | 0.2 | 1.7 | 15 | 1.01 | 0 | 4.3 | 17 | 1.2 | |
| CO,SH | 126.4 | 850001823 | 7.8 | 44.3 | 4.3 | 3.8 | 5.1 | 0.7 | 0.7 | 17 | 2.28 | 0 | 2.1 | 26 | -0.2 | |
| CO,SH | 136.2 | 850001824 | 9 | 66.8 | 1.5 | 13.2 | <0.1 | <0.1 | 53.7 | 7 | 12.15 | 0.8 | 5.1 | 38 | 43.8 | |
| SS,SH | 145.3 | 850001825 | 8.8 | 32.3 | 1.7 | 13.2 | <0.1 | <0.1 | 41.7 | 7 | 9.8 | 0.7 | 7.7 | 7 | 37.6 | |
| SH | 148 | 850001826 | 8.5 | 57.7 | 2.6 | 24 | 0.1 | <0.1 | 52.8 | 18 | 7.65 | 1 | 7.6 | 10 | 43.4 | |
| SH | 154 | 850001827 | 8.9 | 32.2 | 2 | 19.5 | 0.1 | 0.2 | 107.3 | 12 | 7.7 | 1.2 | 7.6 | 15 | 42.1 | |
| SH | 160 | 850001828 | 9.1 | 61.3 | 2 | 18.7 | <0.1 | <0.1 | 50.3 | 24 | 7.7 | 1.5 | 11.5 | 6 | 42.2 | |
| CO | 164.6 | COAL | 9.3 | 107.3 | 1.2 | 11.2 | <0.1 | <0.1 | 59.1 | 12 | 16.8 | 1.3 | 5.8 | 10 | 46.2 | |
| 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 | 9.5 | 75.5 | 1 | 9.6 | <0.1 | <0.1 | 30.4 | 15 | 15.12 | 3.1 | 4.3 | 6 | 30.4 | |
| SH | 172.9 | 850001830 | 9.4 | 46.6 | 1.3 | 12.4 | <0.1 | <0.1 | 39.2 | 28 | 13.85 | 1.5 | 7.7 | <5 | 30.4 | |
| SH | 181.1 | 850001831 | 9.4 | 80.2 | 1.2 | 11.5 | <0.1 | <0.1 | 36.4 | 11 | 15.25 | 2.1 | 6.9 | <5 | 36.1 | |
| CO | 187.4 | 850001832 | 8.3 | 30.2 | 3.3 | 26.3 | 0.5 | 0.4 | 34.3 | 58 | 4.19 | 0.5 | 5.2 | 22 | 30.4 | |
| CO | 193.5 | COAL | 8.3 | 34.7 | 3.3 | 28.7 | 0.4 | 0.4 | 34.3 | 24 | 4.19 | 0.5 | 5.2 | 28 | 33 | |
| SH,CO | 204.7 | 850001833 | 8.3 | 30.2 | 3.3 | 26.3 | 0.5 | 0.4 | 34.3 | 24 | 4.19 | 0.5 | 5.2 | 28 | 33 | |
| CO,SL,SH | 213.8 | 850001834 | 8.3 | 34.7 | 3.3 | 28.7 | 0.4 | 0.4 | 34.3 | 24 | 4.19 | 0.5 | 5.2 | 28 | 33 | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26271G
DATE CORED: 10JUL1985
DATE REPORTED: 30AUG1985

*Dry Basis

| Lithology | Lab No. | * Total N PPM | * NaHCO3 P PPM | * NH4OAc K PPM | * Total S % | * Pyr. S % | CaCO3 Eq Tons / 1000 Tons * | | | Particle Size | | | | | % Moisture * | | Avail. H2O Hold. Cap. |
|------------|-----------|------------------------|-------------------------|-------------------------|----------------------|---------------------|-----------------------------|-------------------|------------------|------------------|-----------|-----------|-----------|------------|--------------|--|--------------------------------|
| | | | | | | | Amount Reqd. from S | Amount Present | Amount Needed | Amount Excess | Sand % | Silt % | Clay % | 1/3 BAR | 15 BAR | | |
| SUR. MAT. | 850001803 | 0.24 | 0.08 | 7.5 | 0.57 | 0.08 | 7.5 | 40.92 | 11.43 | 33.42 | 14.2 | 49.8 | 36 | | | | |
| SH, SL | 850001804 | 0.5 | 0.25 | 17.81 | 0.57 | 0.08 | 17.81 | 6.38 | 10.4 | 19.97 | 29.2 | 33.8 | 37 | | | | |
| SS, SL, SH | 850001805 | 0.07 | 0.07 | 15.62 | 0.5 | 0.25 | 15.62 | 22.16 | 19.97 | 19.97 | 31.2 | 32.8 | 36 | | | | |
| SS, SL, SH | 850001807 | 0.07 | 0.07 | 2.19 | 0.07 | 0.07 | 2.19 | 21.56 | 7.89 | 5.7 | 50.8 | 25.2 | 24 | | | | |
| SS, SL, SH | 850001808 | <0.01 | 0.03 | 0.94 | <0.01 | 0.03 | 0.94 | 49.46 | 6.06 | 20.44 | 66.2 | 14.8 | 19 | | | | |
| SS, SL | 850001809 | 0.03 | 0.33 | 12.5 | 0.4 | 0.33 | 12.5 | 21.38 | 12.47 | 32.73 | 40.2 | 27.8 | 32 | | | | |
| SH, SS, SL | 850001810 | 0.9 | 0.77 | 28.12 | 0.9 | 0.77 | 28.12 | 15.65 | 32.73 | 5.38 | 68.2 | 13.8 | 18 | | | | |
| SH, CO, SL | 850001811 | <0.01 | 0.01 | 0.31 | <0.01 | 0.01 | 0.31 | 5.69 | 32.5 | 23.04 | 31.2 | 34.8 | 34 | | | | |
| SS | 850001812 | 0.01 | 1.36 | 42.5 | 0.01 | 1.36 | 42.5 | 20.17 | 57.95 | 9.2 | 27.2 | 36.8 | 36 | | | | |
| SS | 850001813 | 2.5 | 2.46 | 78.12 | 2.5 | 2.46 | 78.12 | 18.84 | 38.04 | 43.2 | 54.2 | 26.8 | 19 | | | | |
| SH, CO | 850001814 | 1.82 | 1.41 | 56.88 | 1.82 | 1.41 | 56.88 | 36.75 | 36.75 | 36.75 | 43.2 | 30.8 | 26 | | | | |
| SH, SL | 850001815 | <0.01 | 0.06 | 1.88 | <0.01 | 0.06 | 1.88 | 24.92 | 23.04 | 59.2 | 59.2 | 20.8 | 20 | | | | |
| SH, SL | 850001816 | 0.13 | 0.13 | 4.06 | 0.13 | 0.13 | 4.06 | 13.26 | 9.2 | 23.2 | 27.2 | 36.8 | 36 | | | | |
| SH, SL | 850001817 | 0.04 | 0.04 | 20.31 | 0.13 | 0.13 | 20.31 | 20.31 | 16.25 | 45.2 | 54.2 | 41.8 | 35 | | | | |
| SS, SH | 850001818 | 0.04 | 1.47 | 9.76 | 0.04 | 1.47 | 9.76 | 9.76 | 8.51 | 8.51 | 45.2 | 26.8 | 28 | | | | |
| SS | 850001819 | 0.06 | 0.06 | 1.88 | 0.06 | 0.06 | 1.88 | 14.06 | 7.81 | 14.56 | 82 | 7 | 11 | | | | |
| SS, SH | 850001820 | 0.13 | 0.13 | 4.06 | 0.13 | 0.13 | 4.06 | 13.26 | 9.2 | 23.2 | 20 | 36 | 31 | | | | |
| SS, SH | 850001821 | 0.06 | 0.06 | 1.88 | 0.06 | 0.06 | 1.88 | 16.44 | 14.56 | 57 | 59.2 | 20.8 | 20 | | | | |
| SS, SH | 850001822 | 0.06 | 0.06 | 1.88 | 0.06 | 0.06 | 1.88 | 11.48 | 26.33 | 54.4 | 24 | 37 | 18 | | | | |
| CO, SH | 850001823 | 1.75 | 1.47 | 54.69 | 1.75 | 1.47 | 54.69 | 9.76 | 44.93 | 7.81 | 45.2 | 26.8 | 39 | | | | |
| SH, CO | 850001824 | 0.2 | 0.2 | 6.25 | 0.2 | 0.2 | 6.25 | 14.06 | 7.81 | 14.56 | 20 | 36 | 31 | | | | |
| SS, SH | 850001825 | 0.06 | 0.06 | 1.88 | 0.06 | 0.06 | 1.88 | 16.44 | 14.56 | 57 | 59.2 | 20.8 | 20 | | | | |
| SH | 850001826 | 1.21 | 0.9 | 37.81 | 1.21 | 0.9 | 37.81 | 11.48 | 26.33 | 54.4 | 24 | 37 | 14 | | | | |
| SL | 850001827 | <0.01 | 0.98 | 0 | <0.01 | 0.98 | 0 | 54.4 | 18.37 | 18.37 | 60 | 26 | 14 | | | | |
| CO | 850001828 | 0.12 | 0.12 | 30.62 | 0.12 | 0.12 | 30.62 | 48.99 | 12.14 | 12.14 | 12 | 45 | 43 | | | | |
| SH | 850001829 | 0.03 | 0.03 | 0.94 | 0.03 | 0.03 | 0.94 | 14.51 | 13.57 | 16.4 | <0.1 | 34 | 66 | | | | |
| CO | 850001830 | 0.01 | 0.01 | 0.31 | 0.01 | 0.01 | 0.31 | 31.72 | 31.41 | 39.4 | 16.4 | 41.6 | 42 | | | | |
| SH | 850001831 | 0.07 | 0.07 | 2.19 | 0.07 | 0.07 | 2.19 | 13.43 | 11.24 | 4.4 | 4.4 | 43.6 | 27 | | | | |
| CO | 850001832 | 0.69 | 0.69 | 21.56 | 0.69 | 0.69 | 21.56 | 20.26 | 1.3 | 32.4 | 32.4 | 45.6 | 22 | | | | |
| SH, CO | 850001833 | 0.55 | 0.49 | 17.19 | 0.55 | 0.49 | 17.19 | 17.15 | 0.04 | 33.4 | 33.4 | 34.6 | 32 | | | | |
| CO, SL, SH | 850001834 | | | | | | | | | | | | | | | | |

PEABODY COAL COMPANY
CENTRAL LABORATORY

MINE: 0252 KAYENTA
CORE NO: 26271C
DATE CORED: 10JUL1985
DATE REPORTED: 30AUG1985

DRY Basis

| Lithology | Lab No. | Hot H2O Ext. # | | | TANM No PPM | * Hg PPB | AB-DIPA Extract # | | | | | | | Organic # Matter % |
|------------|-----------|----------------|-----------|-----------|-------------------|----------------|-------------------|-----------|-----------|-----------|-----------|--|--|--------------------------|
| | | B PPM | As PPM | Se PPM | | | Co PPM | Cu PPM | Fe PPM | Mn PPM | Zn PPM | | | |
| SUR. MAT. | 850001803 | <0.01 | <0.01 | <0.01 | <0.6 | 40 | <0.1 | 3.4 | 27.1 | 1.2 | <1 | | | |
| SUR. MAT. | 850001804 | <0.01 | <0.01 | <0.01 | <0.6 | 25 | 0.5 | 5.2 | 248.9 | 19.9 | 3.8 | | | |
| SH, SL | 850001805 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 3.5 | 4.7 | 187.6 | 17.7 | 6.5 | | | |
| SL, SH | 850001806 | 0.02 | <0.01 | <0.01 | <0.6 | <10 | 1.5 | 3.9 | 33.3 | 5.2 | 4.5 | | | |
| SS, SL, SH | 850001807 | <0.01 | <0.01 | <0.01 | 0.6 | <10 | 0.7 | 2.8 | 26.1 | 8 | 2.7 | | | |
| SS, SH | 850001808 | 0.01 | 0.01 | 0.01 | 0.9 | <10 | 0.7 | 2.1 | 16.8 | 3.9 | 2.1 | | | |
| SH, SL | 850001809 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 0.7 | 2.8 | 40.1 | 3.8 | 2.5 | | | |
| SS | 850001810 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 0.7 | 1 | 29.1 | 2.8 | 3.1 | | | |
| SH, SS, SL | 850001811 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 1.8 | 2.3 | 31.1 | 4.2 | 4.4 | | | |
| SH, CO, SL | 850001812 | 0.02 | 0.02 | 0.02 | 1 | <10 | 1.4 | 4.2 | 39.2 | 1.7 | 4.4 | | | |
| SS | 850001813 | <0.01 | <0.01 | <0.01 | 0.9 | <10 | 0.1 | 1.8 | 192 | 3.2 | 4.8 | | | |
| SS | 850001814 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 2.2 | 2.7 | 27.6 | 2.5 | <1 | | | |
| SH, CO | 850001815 | 0.06 | 0.06 | 0.06 | <0.6 | <10 | 2.3 | 3.3 | 94 | 4.8 | 3.6 | | | |
| SL, SH | 850001816 | 0.03 | 0.03 | 0.03 | 0.6 | <10 | 1.9 | 1.8 | 55.6 | 6.1 | 2.6 | | | |
| SH, SL | 850001817 | 0.02 | 0.02 | 0.02 | <0.6 | <10 | 1.2 | 1.4 | 73.7 | 3.9 | 2.8 | | | |
| SS | 850001818 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 1.2 | 1.4 | 47 | 4.7 | 2.4 | | | |
| SH | 850001819 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 1.2 | 1.3 | 45.2 | 4 | 2.6 | | | |
| SS | 850001820 | <0.01 | <0.01 | <0.01 | <0.6 | <10 | 1.4 | 3.1 | 50.4 | 4.7 | 2.4 | | | |
| SS, SH | 850001821 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 0.5 | 2.6 | 47 | 5.6 | 2.8 | | | |
| SS | 850001822 | 0.01 | 0.01 | 0.01 | <0.6 | <10 | 1.2 | 0.6 | 36.9 | 4.6 | 1.5 | | | |
| CO, SH | 850001823 | 0.23 | 0.23 | 0.23 | 0.6 | <10 | 1 | 2.4 | 44.4 | 1.2 | 1.3 | | | |
| SH, CO | 850001824 | 0.25 | 0.25 | 0.25 | <0.6 | <10 | 1.2 | 5.3 | 32.7 | 1.4 | 1.7 | | | |
| SS, SH | 850001825 | 0.08 | 0.08 | 0.08 | <0.6 | <10 | 1.2 | 1.5 | 40.8 | 3.9 | 2.1 | | | |
| SH | 850001826 | 0.22 | 0.22 | 0.22 | <0.6 | <10 | 1.6 | 3.8 | 37 | 3.3 | 2.1 | | | |
| SL | 850001827 | 0.05 | 0.05 | 0.05 | <0.6 | <10 | 1 | 0.7 | 84.6 | 6.9 | <1 | | | |
| SH | 850001828 | 0.17 | 0.17 | 0.17 | 0.6 | <10 | 1.3 | 4.4 | 34.4 | 2.5 | 1.7 | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001829 | 0.27 | 0.27 | 0.27 | 0.6 | <10 | 0.8 | 5.2 | 41.8 | 1 | 2.4 | | | |
| CO | COAL | | | | | | | | | | | | | |
| SH | 850001830 | 0.12 | 0.12 | 0.12 | <0.6 | <10 | 0.3 | 3.5 | 26.5 | 1 | 1 | | | |
| SH | 850001831 | 0.09 | 0.09 | 0.09 | <0.6 | <10 | 0.5 | 2.1 | 34.8 | 1 | 1.3 | | | |
| SH | 850001832 | 0.22 | 0.22 | 0.22 | <0.6 | <10 | 0.9 | 5.3 | 29.8 | 1 | 2.3 | | | |
| SH, CO | 850001833 | 0.35 | 0.35 | 0.35 | <0.6 | <10 | 2.2 | 2.6 | 33.9 | 1.3 | 1.1 | | | |
| CO, SL, SH | 850001834 | 0.19 | 0.19 | 0.19 | <0.6 | <10 | 1.8 | 4.3 | 31.2 | 1 | 2.4 | | | |



2003 DRILLING AREAS
(DEEP CORES)

LITHOLOGIC SYMBOLS AND DESCRIPTORS
(2003 DRILLING)

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

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

LBGR - light brownish gray

TGR - 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

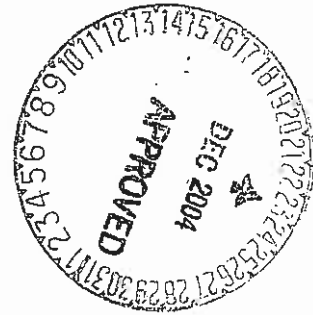
RDGR - reddish gray

RGR - reddish gray

RDR - reddish yellow

VDGR - very dark gray

YBR - yellowish brown



LITHOLOGIC SYMBOLS AND DESCRIPTORS

(2003 DRILLING)

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

- BOX 0 - BLUE 0
- B1X 1 - BLUE 1
- BXX - BLUE
- EOX - ORANGE 0
- EO1 - ORANGE 0 & 1 MERGE
- E1X - ORANGE 1
- E1A - ORANGE 1 A
- E2X - ORANGE 2
- E3X - ORANGE 3
- EXX - ORANGE
- G1X - GREEN 1
- GXX - GREEN
- MOX - BOTTOM RED 0
- M1X - BOTTOM RED 1
- MXX - BOTTOM RED
- NOX - BROWN 0
- N1X - BROWN 1
- N2X - BROWN 2
- NXX - BROWN
- ROX - 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 -





| HOLE NUMBER: 30351EO* MINE AREA: N99 DATE: 7/8-10/03 | | | | | |
|--|-----------------|-----------|------------|-----------|--------------------------|
| SAMPLE NO. | DEPTH INCREMENT | THICKNESS | LITHOLOGY | COLOR | COMMENTS |
| 1 | 0.0-15.0 | 15.0 | SS | YBR | LC: 0.0-6.3, 10.0-12.0 |
| 2 | 15.0-20.0 | 5.0 | CS | BRGR | |
| 3 | 20.0-30.0 | 10.0 | SH | GR | LC: 20.0-24.0 |
| 4 | 30.0-40.0 | 10.0 | SS | BRGR | LC: 30.0-33.5 |
| 5# | 40.0-53.0 | 13.0 | SS | BRGR | LC: 40.0-43.4, 50.0-52.0 |
| 6 | 53.0-63.0 | 10.0 | SS | BRGR | LC: 55.0-57.0, 62.0-63.0 |
| 7 | 63.0-68.1 | 5.1 | SH | BLK | |
| 8 | 68.1-75.0 | 6.9 | SL, SS | GR | |
| 9 | 75.0-79.2 | 4.2 | MS | VDGR | LC: 75.0-76.0 |
| 10 | 79.2-82.0 | 2.8 | CO | BLK | WEATHERED |
| 11 | 82.0-89.1 | 7.1 | MS, CO | VDGR/BLK | |
| 12 | 89.1-98.3 | 9.2 | SS | GR | |
| 13 | 98.3-108.0 | 9.7 | SS | GR | SHALEY |
| 14 | 108.0-117.6 | 9.6 | SS | GR | |
| 15# | 117.6-127.5 | 9.9 | SH, MS, CO | DGR-BLK | |
| ** | 127.5-130.2 | 2.7 | CO (MXX) | BLK | |
| 16+ | 130.2-137.9 | 7.7 | SH | DGR/GR | LC: 131.6-136.0 |
| 17 | 137.9-142.2 | 4.3 | SS | GR | |
| 18 | 142.2-144.9 | 2.7 | SH, CO | DGR, BLK | |
| 19 | 144.9-150.0 | 5.1 | SS | GR | |
| 20 | 150.0-154.8 | 4.8 | SH | DGR, VDGR | |
| 21 | 154.8-156.5 | 1.7 | CO | BLK | |
| 22 | 156.5-161.8 | 5.3 | MS, SH | GR, DGR | |
| 23 | 161.8-171.6 | 9.8 | MS, SNDY | GR | LC: 170.0-170.9 |
| 24 | 171.6-181.6 | 10.0 | SH, SL | GR | |
| 25# | 181.6-184.7 | 3.1 | SS | GR | |
| 26 | 184.7-187.4 | 2.7 | SH, CO, SS | VDGR, BLK | |
| 27 | 187.4-192.5 | 5.1 | MS | DGR | |
| 28 | 192.5-194.3 | 1.8 | CO | BLK | |
| 29 | 194.3-198.4 | 4.1 | MS | DGR | |
| 30 | 198.4-204.0 | 5.6 | SS | GR | |
| 31 | 204.0-209.5 | 5.5 | SH | VDGR | |
| ** | 209.5-213.0 | 3.5 | CO (Y1A) | BLK | LC: 210.0-210.9 |
| 32+ | 213.0-220.0 | 7.0 | SL, SH | DGR | |
| 33 | 220.0-226.8 | 6.8 | SH, MS | VDGR, DGR | |
| ** | 226.8-232.0 | 5.2 | CO (NOX) | BLK | |
| 34+ | 232.0-233.5 | 1.5 | SH | VDGR-BLK | |
| ** | 233.5-236.5 | 3.0 | CO (N1X) | BLK | |
| 35#+ | 236.5-243.0 | 6.5 | SH | VDGR | |
| 36 | 243.0-249.8 | 6.8 | SL | DGR | |
| 37 | 249.8-255.7 | 5.9 | SS | GR | |



CORE NO: 30351E0
 Mine Area: N99, Peabody Coordinates: 38440.07E, -7976.75N

| Depth | Thick Type | 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 (mV/100DM) |
|--------|---------------|-----|-----------------|--------------------|----------------------|-------------------|--|-------------|-------------|-------------|------------------------|--------------------------|--------------------------|------------------------------------|
| 0.00 | 15.00 | 7.9 | 1.4 | 1.9 | 1.3 | 9.3 | 7.4 | 68 | 14 | 18 | <0.01 | | | 0.25 |
| 15.00 | 5.00 | 7.5 | 1.1 | 3.5 | 3.0 | 2.1 | 2.1 | 1 | 43 | 56 | 0.03 | | | 1.00 |
| 20.00 | 10.00 | 7.4 | 0.6 | 1.4 | 1.3 | 2.5 | 2.1 | 1 | 53 | 46 | <0.01 | | | 0.28 |
| 30.00 | 10.00 | 7.7 | 1.9 | 1.2 | 1.1 | 2.0 | 1.8 | 37 | 35 | 28 | <0.01 | | | 0.04 |
| 40.00 | 13.00 | 7.7 | 1.9 | 1.6 | 1.2 | 1.5 | 1.3 | 62 | 20 | 18 | <0.01 | | | 0.08 |
| 53.00 | 10.00 | 7.4 | 0.6 | 2.3 | 1.1 | 1.6 | 1.2 | 20 | 20 | 18 | 0.03 | | | 0.08 |
| 63.00 | 5.10 | 7.0 | 1.1 | 5.4 | 2.2 | 2.4 | 1.2 | 6 | 34 | 60 | 0.02 | | | 0.98 |
| 68.10 | 6.90 | 6.7 | 1.5 | 9.6 | 3.1 | 2.4 | 0.9 | 39 | 37 | 24 | 0.07 | | | 0.55 |
| 75.00 | 4.20 | 5.2 | 2.0 | 14.0 | 4.6 | 2.4 | 0.8 | 37 | 35 | 28 | 0.20 | | | 2.04 |
| 79.20 | 2.80 | 4.0 | 3.5 | 31.0 | 13.0 | 3.1 | 0.6 | 72 | 20 | 8 | 0.70 | <0.01 | 0.60 | 4.91 |
| 82.00 | 7.10 | 3.7 | 4.3 | 31.0 | 23.0 | 3.9 | 0.8 | 31 | 37 | 32 | 0.60 | 0.02 | 0.40 | 0.09 |
| 89.10 | 9.20 | 6.7 | 1.5 | 9.3 | 4.5 | 2.3 | 0.9 | 59 | 17 | 24 | 0.06 | | | 0.56 |
| 98.30 | 9.70 | 7.0 | 1.0 | 5.4 | 5.8 | 2.3 | 1.1 | 56 | 22 | 22 | 0.06 | | | 1.94 |
| 108.00 | 9.60 | 6.9 | 1.5 | 9.3 | 5.8 | 2.4 | 0.9 | 68 | 16 | 16 | 0.30 | | | 9.31 |
| 117.60 | 9.90 | 6.2 | 4.2 | 21.0 | 18.0 | 15.0 | 3.4 | 29 | 42 | 29 | 1.40 | 1.00 | 0.30 | 2.30 |
| 127.50 | 7.70 | 7.2 | 3.4 | 1.2 | 0.7 | 40.0 | 41.8 | 19 | 49 | 32 | 0.90 | | 0.30 | 32.20 |
| 130.20 | 7.70 | 8.0 | 3.2 | 0.8 | 0.5 | 33.0 | 40.4 | 48 | 28 | 24 | 0.07 | | | 27.20 |
| 137.90 | 4.30 | 7.5 | 4.3 | 0.8 | 0.5 | 41.0 | 51.1 | 35 | 35 | 30 | 1.10 | | | 2.30 |
| 142.20 | 2.70 | 8.2 | 2.2 | 0.3 | 0.1 | 21.0 | 46.2 | 41 | 31 | 28 | 0.10 | | | 34.40 |
| 144.90 | 5.10 | 7.2 | 5.7 | 2.6 | 1.2 | 60.0 | 44.0 | 5 | 57 | 38 | 2.20 | 1.70 | 0.30 | 3.19 |
| 150.00 | 4.80 | 7.2 | 6.8 | 5.5 | 2.2 | 78.0 | 39.7 | 67 | 15 | 18 | 3.70 | 2.20 | 0.30 | 53.10 |
| 154.80 | 1.70 | 5.9 | 3.4 | 0.9 | 0.4 | 34.0 | 41.2 | 16 | 48 | 36 | 1.20 | 0.90 | 0.20 | 69.40 |
| 156.50 | 5.30 | 7.2 | 1.7 | 0.4 | 0.2 | 16.0 | 30.2 | 61 | 17 | 22 | <0.01 | | | 28.60 |
| 161.80 | 9.80 | 8.7 | 2.0 | 0.2 | 0.1 | 12.0 | 27.4 | 62 | 18 | 20 | <0.01 | | | 0.11 |
| 171.60 | 10.00 | 8.8 | 2.5 | 0.4 | 0.2 | 15.0 | 33.5 | 24 | 40 | 36 | 0.06 | 0.80 | 0.60 | 0.12 |
| 181.60 | 3.10 | 7.4 | 1.7 | 0.4 | 0.1 | 23.0 | 45.8 | 45 | 25 | 30 | 1.30 | | | 2.03 |
| 184.70 | 2.70 | 7.5 | 3.5 | 0.8 | 0.3 | 37.0 | 50.4 | 36 | 30 | 34 | 0.50 | | | 23.70 |
| 187.40 | 5.10 | 7.2 | 0.7 | 0.2 | 0.1 | 6.7 | 18.2 | 83 | 7 | 10 | 0.70 | 0.06 | 0.60 | 16.50 |
| 192.50 | 1.80 | 7.4 | 1.0 | 5.0 | 3.8 | 3.5 | 1.7 | 22 | 44 | 34 | 0.10 | | | 1.84 |
| 194.30 | 4.10 | 7.4 | 3.7 | 3.1 | 2.0 | 4.1 | 0.8 | 73 | 11 | 16 | 0.70 | | | 4.13 |
| 198.40 | 5.60 | 6.7 | 4.2 | 31.0 | 28.0 | 8.3 | 1.5 | 16 | 52 | 32 | 2.90 | 2.30 | 0.60 | 21.80 |
| 204.00 | 5.50 | 5.6 | 5.9 | 34.0 | 29.0 | | | | | | | | | 71.60 |
| 209.50 | 3.50 | 7.3 | 5.9 | 5.8 | 2.5 | 60.0 | 29.3 | 17 | 47 | 36 | 1.40 | | | 35.20 |
| 213.00 | 7.00 | 7.4 | 5.1 | 4.1 | 1.6 | 55.0 | 32.7 | 27 | 39 | 34 | 1.30 | 1.10 | 0.20 | 39.70 |
| 220.00 | 6.80 | 7.4 | 2.4 | 0.5 | 0.2 | 24.0 | 41.5 | 76 | 10 | 14 | 1.00 | 0.50 | 0.50 | 15.00 |
| 226.80 | 5.20 | 7.6 | 1.7 | 0.2 | 0.1 | 18.0 | 46.5 | 12 | 48 | 40 | 0.20 | | | 7.78 |
| 232.00 | 1.50 | 8.4 | 1.7 | 0.3 | 0.1 | 17.0 | 37.3 | 31 | 35 | 34 | 0.05 | | | 1.65 |
| 236.50 | 6.50 | 8.6 | 1.8 | 0.3 | 0.1 | 19.0 | 39.3 | 42 | 28 | 30 | <0.01 | | | 0.06 |
| 243.00 | 5.90 | 8.5 | 1.9 | 0.3 | 0.2 | 20.0 | 43.0 | 33 | 33 | 34 | 0.06 | | | 1.91 |
| 249.80 | 7.90 | 8.6 | 1.5 | 0.2 | 0.1 | 14.0 | 36.6 | 54 | 23 | 23 | 0.03 | | | 0.99 |
| 255.70 | 9.30 | 9.0 | 1.0 | 0.2 | 0.1 | 11.0 | 34.1 | 2 | 54 | 44 | 0.05 | | | 1.61 |
| 263.60 | 4.80 | 8.7 | 1.5 | 0.2 | 0.1 | 11.0 | 34.1 | 7 | 41 | 52 | 0.10 | | | 3.66 |
| 272.90 | 2.90 | 8.0 | 1.5 | 0.3 | 0.1 | 13.0 | 27.2 | 60 | 12 | 28 | 0.40 | | | 13.20 |
| 277.70 | 8.50 | 8.0 | 3.1 | 0.3 | 0.1 | 17.0 | 5.4 | 44 | 34 | 22 | 0.20 | | | 5.50 |
| 289.10 | 6.60 | 7.1 | 3.1 | 17.0 | | | | | | | | | | |
| 295.70 | 2.00 | | | | | | | | | | | | | |
| 297.70 | 2.30 | | | | | | | | | | | | | |

Revised 01/23/04

Mine Area: N99, Peabody Coordinates: 38440.07E, -7976.75N
 CORE NO: 3035IEO

| Depth | Thick | RTtype | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABRTPA (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 | 9.82 | <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 |
| 73.00 | 4.20 | MS | | 10.70 | 5.75 | <0.05 | <0.05 | 1.40 | 0.45 |
| 75.20 | 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 |
| 88.10 | 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 | SR | | 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 | | 47.40 | 45.40 | <0.05 | <0.05 | 0.10 | 0.47 |
| 181.60 | 3.10 | SS | | 21.10 | -13.40 | 0.05 | <0.05 | 0.20 | 0.85 |
| 184.70 | 2.70 | SH | | 9.40 | 4.58 | 0.07 | 0.07 | 0.90 | 1.50 |
| 187.40 | 5.10 | MS | | 18.90 | 7.56 | <0.05 | 0.08 | 0.60 | 0.98 |
| 192.50 | 1.80 | CO | | 46.10 | 42.00 | <0.05 | <0.05 | 1.40 | 2.10 |
| 194.30 | 4.10 | MS | | 65.00 | 43.20 | <0.05 | 0.05 | 0.40 | 0.50 |
| 198.40 | 5.60 | SS | | 10.70 | -60.90 | <0.05 | <0.05 | 0.10 | 0.40 |
| 204.00 | 5.50 | SH | | | | | | 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 | NOX | | | | | | |
| 232.00 | 1.50 | SH | | 16.80 | 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 | EOX | | | | | | |
| 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 |



HOLE NUMBER: 303522E0*

MINE AREA: N99

DATE: 7/11-12/03

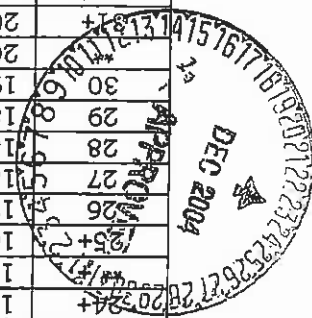
| SAMPLE NO. | DEPTH | INCREMENT | THICKNESS | LITHOLOGY | COLOR | COMMENTS |
|------------|-------------|-----------|-----------|------------|-----------|-------------------|
| 1 | 0.0-10.0 | | 10.0 | SS, SHALEY | YBR | LC: 0.0-2.0 |
| 2# | 10.0-14.0 | | 4.0 | SS | YBR | |
| 3 | 14.0-20.0 | | 6.0 | 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 (YOA) | 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 (YIA) | 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 (NOX) | BLK | |
| 24+ | 154.0-160.8 | | 6.8 | SH | VDGR, BLK | |
| 25+ | 160.8-164.4 | | 3.6 | CO (NIX) | BLK | |
| 26 | 164.4-170.9 | | 6.5 | SL | DGR, VDGR | SHALEY, COAL |
| 27 | 170.9-181.0 | | 10.1 | SS | GR | LC: 173.7-180.0 |
| 28 | 181.0-184.4 | | 3.4 | SH | DGR | SANDY |
| 29 | 184.4-186.8 | | 2.4 | SH, CO | VDGR, BLK | CO: 185.9-186.9 |
| 30 | 186.8-196.8 | | 10.0 | SL | DGR | LC: 190.0-191.5 |
| 31 | 196.8-201.9 | | 5.1 | SL, SH | DGR, VDGR | LC: 200.0-201.9 |
| 32# | 201.9-209.5 | | 7.6 | CO (BIX) | BLK | LC: 201.9-208.0 |
| | 209.5-216.0 | | 6.5 | SH | DGR, VDGR | LC: 210.0-213.0 |
| | 216.0-220.0 | | 4.0 | SL, SH | GR, DGR | |

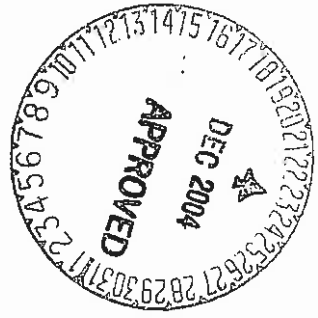
* Core boxes 1 through 22, 10 foot of core per box.

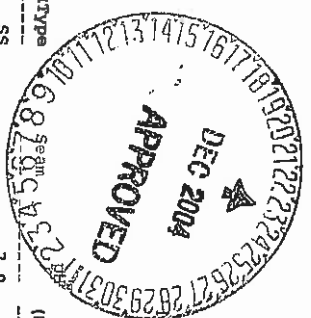
Designated duplicate sample, process core, send representative split to GAL.

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

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







CORE NO: 30352EO
 Core Area: N99, Peabody Coordinates: 44572.08E, -9148.39N

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

Revised 01/23/04

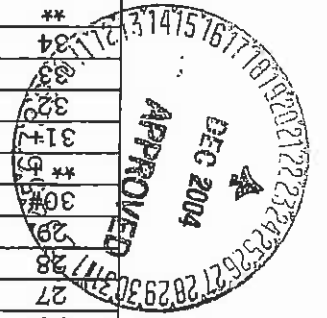
Mine Area: N99, Peabody Coordinates: 44572.08E, -9148.39N
 CORE NO: 30352EO

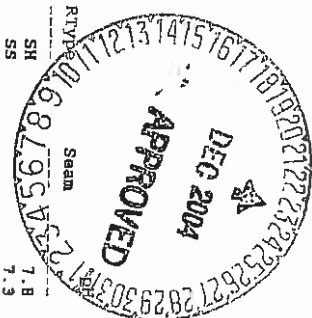
| Depth | Thick | RTYPE | Seam | Neutralization Potential (TN/100FTN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDPPA (PPM) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 0.00 | 10.00 | SS | | 17.60 | 17.50 | <0.05 | <0.05 | <0.10 | 0.40 |
| 4.00 | 4.00 | SS | | 7.40 | 7.39 | <0.05 | <0.05 | <0.10 | 0.33 |
| 14.00 | 6.00 | SH | | 20.40 | 18.40 | <0.05 | <0.05 | 0.40 | 0.55 |
| 20.00 | 6.10 | SH | | 23.40 | 20.40 | <0.05 | <0.05 | 0.30 | 0.52 |
| 26.10 | 8.40 | SH | | 11.50 | -8.22 | 0.05 | 0.05 | 0.40 | 0.78 |
| 34.50 | 5.30 | SH | | 7.43 | -15.90 | 0.06 | 0.06 | 0.40 | 1.40 |
| 39.80 | 9.80 | SL | | 52.10 | 52.10 | <0.05 | <0.05 | 0.30 | 0.89 |
| 49.60 | 9.70 | SS | | 32.10 | 29.90 | <0.05 | <0.05 | <0.10 | 0.47 |
| 59.30 | 5.70 | SS | | 37.30 | 35.90 | <0.05 | <0.05 | 0.10 | 0.54 |
| 65.00 | 9.90 | SS | | 40.70 | 37.30 | <0.05 | 0.06 | 0.40 | 0.89 |
| 74.90 | 5.40 | CO | MXX | -55.00 | 7.40 | <0.05 | 0.06 | 1.40 | 3.70 |
| 80.30 | 6.20 | SS | | 52.90 | 50.20 | <0.05 | 0.06 | 0.20 | 0.87 |
| 86.50 | 4.60 | SH | | 28.50 | -29.30 | <0.05 | 0.06 | 0.70 | 1.60 |
| 91.10 | 2.90 | CO | Y0A | | | | | | |
| 94.00 | 2.60 | SH | | 18.90 | 0.23 | 0.08 | 0.08 | 0.50 | 1.70 |
| 96.60 | 1.90 | CO | | 9.77 | -4.04 | <0.05 | <0.05 | 1.70 | 4.30 |
| 98.50 | 3.50 | SH | | 13.50 | 2.72 | 0.09 | 0.11 | 0.50 | 1.50 |
| 102.00 | 9.00 | SH | | 22.00 | -3.43 | 0.08 | 0.10 | 0.90 | 1.80 |
| 111.00 | 5.00 | SS | | 32.50 | 24.10 | <0.05 | <0.05 | <0.10 | 0.37 |
| 116.00 | 6.50 | SS | | 73.30 | 54.00 | <0.05 | <0.05 | 0.20 | 0.37 |
| 122.50 | 2.10 | SH | | 2.38 | -91.90 | <0.05 | 0.08 | 0.80 | 0.73 |
| 124.60 | 5.40 | SL | | 10.50 | -18.30 | <0.05 | 0.05 | 0.40 | 0.49 |
| 130.00 | 3.10 | CO | Y1A | | | | | | |
| 133.10 | 9.10 | SH | | 19.60 | -41.30 | <0.05 | 0.06 | 0.60 | 1.40 |
| 142.20 | 6.60 | SS | | 30.40 | 3.59 | <0.05 | <0.05 | 0.30 | 1.00 |
| 148.80 | 5.20 | CO | NOX | | | | | | |
| 154.00 | 6.80 | SH | | 15.90 | -27.10 | 0.09 | 0.12 | 0.80 | 0.76 |
| 160.80 | 3.60 | CO | N1X | | | | | | |
| 164.40 | 6.50 | SL | | -1.08 | -11.70 | 0.07 | 0.10 | 0.50 | 0.58 |
| 170.90 | 10.10 | SS | | 75.60 | 75.60 | <0.05 | 0.06 | 0.40 | 0.39 |
| 181.00 | 3.40 | SH | | 58.20 | 38.50 | <0.05 | 0.08 | 0.40 | 0.47 |
| 184.40 | 2.40 | SH | | 17.60 | -6.72 | 0.05 | 0.07 | 0.90 | 0.89 |
| 186.80 | 10.00 | SL | | 33.80 | 33.80 | 0.09 | 0.10 | 0.30 | 0.38 |
| 196.80 | 5.10 | SL | | 9.43 | 6.47 | 0.15 | 0.17 | 1.40 | 0.42 |
| 201.90 | 7.60 | CO | E1X | | | | | | |
| 209.50 | 6.50 | SH | | 12.30 | 10.60 | 0.08 | 0.09 | 0.40 | 0.45 |
| 216.00 | 4.00 | SL | | 15.30 | 13.80 | 0.05 | 0.05 | 0.20 | 0.46 |



HOLE NUMBER: 30353EO*
 MINE AREA: N99
 DATE: 7/13-14/03

| SAMPLE NO. | DEPTH INCREMENT | THICKNESS | LITHOLOGY | COLOR | COMMENTS |
|------------|-----------------|-----------|------------|-----------|--------------------------|
| 1 | 0.0-10.0 | 10.0 | SH | GR | LC: 0.0-8.0 |
| 2 | 10.0-20.0 | 10.0 | SS | LGR, YBR | LC: 10.0-16.0 |
| 3 | 20.0-30.0 | 10.0 | SL | GR | LC: 20.0-24.0 |
| 4 | 30.0-36.5 | 6.5 | SS | GRBR | LC: 30.0-34.0 |
| 5 | 36.5-46.0 | 9.5 | SH | VDGR, BLK | |
| 6 | 46.0-56.0 | 10.0 | SL | GR | LC: 47.7-48.3, 51.0-53.0 |
| 7 | 56.0-63.1 | 7.1 | SH, CO-MXX | VDGR, BLK | NONMINNEABLE |
| 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 | LC: 140.0-140.6 SANDY, |
| 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 |
| 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 |
| 31+ | 216.4-219.6 | 3.2 | CO (YIA) | BLK | |
| 32# | 219.6-222.8 | 3.2 | SL | GR | 220.0-220.4 |
| 33# | 222.8-230.0 | 7.2 | SH | DGR | |
| 34 | 230.0-233.7 | 3.7 | SH | VDGR, BLK | LC: 230.0-231.3 |
| ** | 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 (NIX) | 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 | NONMINNEABLE |
| 38 | 260.6-268.0 | 7.4 | SS | GR | |
| 39 | 268.0-275.0 | 7.0 | SH | DGR | LC: 274.0-275.0 |





Mine Area: N99, Peabody Coordinates: 43460.10E, -5874.13N

CORE NO: 30353EO

| Depth | Thick | RType | Seam | EC | 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 | | 1.7 | 3.1 | 1.5 | 15.0 | 9.8 | 25 | 39 | 36 | <0.01 | | | <0.00 |
| 10.00 | 10.00 | SS | | 1.5 | 6.7 | 3.4 | 7.7 | 3.4 | 65 | 21 | 14 | 0.01 | | | 0.31 |
| 20.00 | 10.00 | SL | | 2.9 | 13.0 | 27.0 | 3.6 | 0.8 | 24 | 43 | 33 | <0.01 | | | <0.00 |
| 30.00 | 6.50 | SS | | 1.6 | 3.9 | 15.0 | 2.4 | 0.8 | 46 | 35 | 19 | 0.02 | | | 0.63 |
| 36.50 | 9.50 | SH | | 5.8 | 26.0 | 33.0 | 3.3 | 0.6 | 16 | 48 | 36 | 0.50 | 0.20 | 0.20 | 6.06 |
| 46.00 | 10.00 | SL | | 2.0 | 15.0 | 12.0 | 3.2 | 0.9 | 34 | 43 | 23 | 0.60 | | 0.20 | 18.40 |
| 56.00 | 7.10 | SH | | 3.2 | 17.0 | 12.0 | 16.0 | 4.1 | 36 | 34 | 30 | 0.60 | 0.90 | 0.40 | 18.40 |
| 63.10 | 8.10 | SH | | 1.3 | 1.4 | 0.7 | 13.0 | 12.4 | 23 | 51 | 26 | 0.10 | | | 3.41 |
| 71.20 | 5.20 | SH | | 7.6 | 1.4 | 1.2 | 27.0 | 17.3 | 17 | 53 | 30 | 0.60 | | | 18.70 |
| 76.40 | 9.50 | SL | | 7.4 | 3.5 | 1.2 | 17.0 | 16.8 | 14 | 57 | 29 | 0.06 | | | 1.94 |
| 85.90 | 10.50 | SL | | 8.2 | 1.3 | 0.6 | 17.0 | 17.3 | 17 | 53 | 30 | 0.60 | | | 10.40 |
| 96.40 | 5.70 | SH | | 2.8 | 2.7 | 0.9 | 27.0 | 19.9 | 33 | 42 | 25 | 0.30 | 1.80 | 0.40 | 54.80 |
| 102.30 | 5.90 | SH | | 5.3 | 19.0 | 5.5 | 46.0 | 13.2 | 30 | 50 | 20 | 2.20 | | | 2.50 |
| 108.00 | 7.60 | SS | | 0.8 | 2.7 | 0.9 | 8.1 | 9.4 | 12 | 57 | 31 | 0.08 | | | 0.78 |
| 115.60 | 6.60 | SS | | 0.9 | 1.1 | 1.2 | 7.6 | 5.8 | 46 | 34 | 20 | 0.08 | | | 2.53 |
| 122.20 | 7.80 | SS | | 7.8 | 2.3 | 1.8 | 5.7 | 3.6 | 67 | 21 | 12 | 0.02 | | | 0.78 |
| 130.00 | 10.00 | SS | | 1.0 | 6.8 | 4.8 | 5.3 | 3.6 | 70 | 19 | 11 | 0.04 | 0.30 | 0.04 | 1.41 |
| 140.00 | 4.90 | SL | | 1.3 | 19.0 | 12.0 | 16.0 | 1.1 | 78 | 16 | 6 | 0.30 | 0.30 | 0.04 | 8.15 |
| 144.90 | 3.10 | SH | | 8.0 | 1.2 | 0.6 | 4.4 | 1.1 | 40 | 38 | 22 | 0.06 | 0.70 | 0.20 | 1.94 |
| 148.00 | 7.60 | SS | | 7.6 | 3.9 | 4.1 | 31.0 | 19.4 | 40 | 38 | 22 | 0.90 | 0.05 | 0.20 | 20.80 |
| 155.60 | 3.20 | SL | | 1.5 | 5.8 | 1.2 | 17.2 | 17.2 | 72 | 18 | 10 | 0.05 | 0.30 | 0.30 | 1.56 |
| 158.80 | 5.70 | SL | | 7.3 | 4.2 | 2.6 | 7.7 | 3.5 | 72 | 29 | 21 | 0.60 | 0.30 | 0.30 | 9.91 |
| 164.50 | 5.50 | SH | | 7.9 | 1.7 | 0.6 | 8.2 | 4.4 | 50 | 29 | 21 | 0.60 | 0.30 | 0.30 | 3.28 |
| 170.00 | 10.00 | SH | | 6.8 | 1.4 | 5.3 | 18.0 | 18.3 | 49 | 33 | 18 | 0.10 | 0.30 | 0.50 | 56.10 |
| 180.00 | 4.60 | SS | | 6.6 | 5.6 | 2.0 | 45.0 | 14.2 | 36 | 36 | 28 | 2.50 | 1.80 | 0.50 | 33.70 |
| 184.60 | 7.80 | SH | | 6.9 | 7.2 | 3.6 | 42.0 | 21.4 | 42 | 32 | 26 | 1.60 | 1.10 | 0.50 | 12.40 |
| 192.40 | 6.60 | SS | | 3.5 | 2.6 | 3.0 | 35.0 | 15.2 | 60 | 22 | 18 | 0.90 | | | 18.20 |
| 199.00 | 2.30 | SH | | 7.1 | 6.1 | 3.0 | 13.0 | 6.1 | 29 | 43 | 28 | 0.60 | 0.40 | 0.50 | 18.20 |
| 201.30 | 8.70 | SH | | 6.1 | 34.0 | 15.0 | 1.9 | 0.4 | 85 | 9 | 6 | 3.40 | 2.90 | 0.50 | 89.30 |
| 210.00 | 6.40 | SL | | 7.0 | 11.0 | 6.9 | 4.1 | 0.8 | 34 | 38 | 28 | 0.20 | | | 5.44 |
| 216.40 | 3.20 | SL | | 7.3 | 6.2 | 4.3 | 1.8 | 0.8 | 46 | 36 | 18 | 0.10 | | | 3.06 |
| 219.60 | 3.20 | CO | Y1A | 6.9 | 4.3 | 5.0 | 39.0 | 12.7 | 49 | 35 | 16 | 0.60 | | | 18.90 |
| 222.80 | 7.20 | SH | | 7.2 | 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 | 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 | 3.9 | 1.7 | 34.0 | 20.2 | 49 | 31 | 20 | 0.90 | | | 27.40 |
| 238.00 | 6.60 | CO | NOX | 7.4 | 4.1 | 1.0 | 51.0 | 42.9 | 42 | 36 | 22 | 1.40 | 1.00 | 0.30 | 32.20 |
| 244.60 | 8.40 | SH | | 7.9 | 0.5 | 0.2 | 23.0 | 41.0 | 24 | 46 | 30 | 0.70 | 0.40 | 0.10 | 13.90 |
| 253.00 | 3.40 | CO | N1X | 7.6 | 0.8 | 0.1 | 9.7 | 30.0 | 57 | 21 | 22 | 0.60 | 0.10 | 0.40 | 4.34 |
| 256.40 | 2.60 | CO | N2X | 8.4 | 1.6 | 0.2 | 18.0 | 31.0 | 57 | 27 | 16 | <0.01 | | | 0.07 |
| 260.60 | 7.40 | SS | | 8.1 | 0.5 | 0.2 | 30.0 | 49.4 | 30 | 40 | 30 | 0.60 | | | 19.70 |
| 268.00 | 5.00 | CO | EOX | 8.5 | 1.3 | 0.1 | 16.0 | 36.9 | 27 | 39 | 34 | 0.07 | | | 2.30 |
| 275.00 | 10.00 | SL | | 8.3 | 0.4 | 0.2 | 19.0 | 34.1 | 8 | 42 | 50 | 0.30 | | | 7.84 |
| 280.00 | 8.60 | CO | E1X | 7.4 | 1.4 | 0.4 | 18.0 | 27.0 | 20 | 50 | 30 | 0.30 | 0.20 | 0.08 | 6.96 |
| 290.00 | 4.40 | SH | | 7.9 | 1.4 | 0.4 | 13.0 | 17.7 | 54 | 30 | 16 | 0.07 | | | 2.06 |
| 298.60 | 2.40 | CO | E2X | 7.9 | 1.4 | 0.4 | 13.0 | 17.7 | 54 | 30 | 16 | 0.07 | | | 2.06 |
| 303.00 | 2.20 | SH | | | | | | | | | | | | | |
| 305.40 | 2.40 | SH | | | | | | | | | | | | | |
| 307.60 | 2.40 | SH | | | | | | | | | | | | | |

Revised 01/23/04

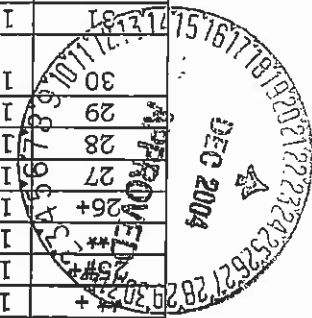
529

Mine Area: N99, Peabody Coordinates: 43480.10E, -5874.13N
 CORE NO: 30353EO



| Depth | Thick | RTYPE | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDPPA (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 | 8.18 | 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 | | 16.00 | -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 | | 45.60 | 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 |
| 195.00 | 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 | CO | | 22.00 | 3.16 | <0.05 | 0.09 | 0.50 | 1.00 |
| 222.80 | 7.20 | SH | | 22.40 | -32.90 | <0.05 | 0.06 | 0.60 | 1.20 |
| 230.00 | 3.70 | SH | | 18.60 | -55.60 | <0.05 | <0.05 | 0.70 | 1.50 |
| 233.70 | 4.30 | SS | | 40.40 | 13.00 | <0.05 | <0.05 | 0.50 | 0.98 |
| 238.00 | 6.60 | CO | NOX | | | | | | |
| 244.60 | 8.40 | SH | | 31.40 | -0.85 | 0.07 | 0.15 | 1.20 | 0.68 |
| 253.00 | 3.40 | CO | N1X | | | | | | |
| 256.40 | 2.60 | SL | | 8.52 | -5.35 | 0.07 | 0.18 | 0.70 | 0.44 |
| 259.00 | 1.60 | CO | N2X | 13.50 | 9.17 | <0.05 | 0.13 | 1.30 | 0.74 |
| 260.60 | 7.40 | SS | | 127.00 | 127.00 | <0.05 | 0.08 | 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 | EOX | | | | | | |
| 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 | | 10.60 | 8.77 | <0.05 | 0.07 | 0.10 | 0.34 |

| HOLE NUMBER: 30368EO* MINE AREA: N99 DATE: 8/6/03 | | | | | |
|---|-----------------|-----------|--------------|------------|----------------------------------|
| SAMPLE NO. | DEPTH INCREMENT | THICKNESS | LITHOLOGY | COLOR | COMMENTS |
| 1 | 0.0-10.0 | 10.0 | SS | LBRGR | LC: 0.0-1.3 |
| 2 | 10.0-18.1 | 8.1 | SS | LBRGR | |
| 3 | 18.1-22.0 | 3.9 | SS | LGR, LBRGR | LC: 20.0-20.7, SHALEY |
| 4 | 22.0-24.0 | 2.0 | SS | PBR | |
| 5# | 24.0-34.0 | 10.0 | SS | LGR | LC: 30.0-31.5 |
| 6 | 34.0-44.0 | 10.0 | SS | LGR | LC: 40.0-40.5 |
| 7 | 44.0-53.4 | 9.4 | SS | LGR | LC: 50.0-50.5 |
| 8 | 53.4-56.5 | 3.1 | SS | GR | |
| 9 | 56.5-59.5 | 3.0 | SH | VDGR | |
| 10 | 59.5-62.0 | 2.5 | SS | GR | |
| 11 | 62.0-65.5 | 3.5 | CO (Y1A), SH | VDGR, BLK | CO: 63.2-65.0, NONMINABLE |
| 12 | 65.5-67.7 | 2.2 | SS | GR | |
| 13 | 67.7-77.5 | 9.8 | SL, SS | DGR, VDGR | SHALEY |
| 14 | 77.5-81.0 | 3.5 | SS, SL | GR | |
| ** | 81.0-87.6 | 6.6 | CO (NOX) | BLK | LC: 81.0-82.2 |
| 15#+ | 87.6-93.0 | 5.4 | SL | VDGR | LC: 90.0-90.3 |
| 16 | 93.0-100.0 | 7.0 | SH, CO | VDGR, BLK | LC: 97.8-98.2 |
| 17 | 100.0-102.9 | 2.9 | CO (N1X), SH | BLK, VDGR | CO: 100.4-101.7, NONMINABLE |
| 18 | 102.9-106.0 | 3.1 | SS | GR | |
| 19 | 106.0-108.0 | 2.0 | SL, CO | VDGR, BLK | SHALEY |
| 20 | 108.0-114.0 | 6.0 | SS | GR | |
| 21 | 114.0-115.6 | 1.6 | CO, SH | VDGR, BLK | |
| 22 | 115.6-125.3 | 9.7 | SS | GR, DGR | SILTY |
| 23 | 125.3-128.0 | 2.7 | SH | VDGR, BLK | |
| ** | 128.0-132.4 | 4.4 | CO (EOX) | BLK | |
| 24+ | 132.4-138.6 | 6.2 | SL | DGR | SHALEY |
| + | 138.6-147.5 | 8.9 | CO (E1X) | BLK | SH: 146.0-146.8 |
| 25# | 147.5-154.0 | 6.5 | SL, SH | DGR, VDGR | LC: 147.8-148.4 |
| 26+ | 154.0-157.0 | 3.0 | CO (E2X) | BLK | LC: 154.0-154.5 |
| 27 | 157.0-164.0 | 7.0 | SS, SL | GR, DGR | |
| 28 | 164.0-166.4 | 2.4 | CO, SH | VDGR, BLK | CO: 164.5-165.7 |
| 29 | 166.4-171.1 | 4.7 | SS | GR | |
| 30 | 171.1-175.1 | 4.0 | CO, SH | VDGR, BLK | CO: 172.8-174.1 |
| 31 | 175.1-181.0 | 5.9 | SS | GR | LC: 180.0-180.4, SILTY |
| 32 | 181.0-190.3 | 9.3 | SS | LGR | |
| 33 | 190.3-198.4 | 8.1 | SH, SL | VDGR, DGR | SANDY |
| 34 | 198.4-208.4 | 10.0 | SS, SL | DGR, GR | |
| 35# | 208.4-215.9 | 7.5 | CO, SH | VDGR, BLK | CO: 210.8-211.1, CO: 214.4-215.7 |
| | 215.9-220.0 | 4.1 | SL | DGR | |





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

CORE NO: 303688EO

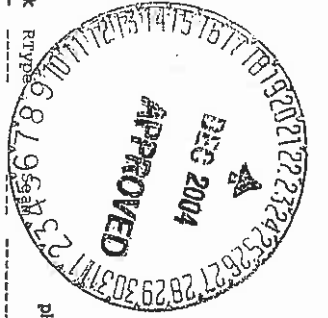
| Depth | Mtlx | RTP | pH | EC (MHMO/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sodium Absorption Ratio (SNR) | | | Sand (%) | Silt (%) | Clay (%) | Sulfur Total (%) | Sulfur Pyritic (%) | Sulfur Organic (%) | Acidity Potential (TN/1000TN) |
|--------|-------|-----|-----|--------------|-----------------|-------------------|----------------|-------------------------------|-----|-----|----------|----------|----------|------------------|--------------------|--------------------|-------------------------------|
| | | | | | | | | Ratio | SNR | SNR | | | | | | | |
| 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 | 0.20 | | | 1.19 | | |
| 53.40 | 3.10 | SS | 6.8 | 4.0 | 27.9 | 29.5 | 3.6 | 0.7 | 79 | 13 | 9 | 0.04 | | | 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 | | 0.64 | 27.53 | | |
| 62.00 | 3.50 | CO | 6.5 | 6.4 | 5.0 | 2.6 | 2.7 | 29.7 | 45 | 34 | 21 | 1.51 | | 1.46 | 47.14 | | |
| 65.50 | 2.20 | SS | 7.0 | 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 | | | | | | | | | | | | | | | |
| 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 | 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 | | 1.05 | 1.42 | | |
| 106.00 | 2.00 | SS | 7.4 | 2.7 | 0.5 | 0.3 | 22.4 | 37.3 | 54 | 31 | 15 | 1.32 | | 0.17 | 41.36 | | |
| 108.00 | 6.00 | SS | 7.0 | 2.5 | 0.6 | 0.3 | 20.1 | 29.5 | 51 | 39 | 10 | 0.17 | | 0.46 | 5.23 | | |
| 114.00 | 1.60 | CO | 8.0 | 1.0 | 0.1 | 0.1 | 22.2 | 27.3 | 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 | | 1.19 | 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 | | | | | | | | | | | | | | | |
| 132.40 | 6.20 | SL | 8.9 | 1.0 | 0.1 | 0.1 | 9.4 | 29.1 | 18 | 50 | 33 | 0.04 | | 0.04 | 1.35 | | |
| 136.60 | 8.90 | CO | | | | | | | | | | | | | | | |
| 147.50 | 6.50 | SL | | | | | | | | | | | | | | | |
| 154.00 | 3.00 | CO | | | | | | | | | | | | | | | |
| 157.00 | 7.00 | CO | | | | | | | | | | | | | | | |
| 164.00 | 2.40 | CO | 7.3 | 3.8 | 8.0 | 3.1 | 26.4 | 11.3 | 30 | 26 | 44 | 0.13 | | 0.13 | 4.18 | | |
| 166.40 | 4.70 | CO | 7.3 | 1.4 | 0.5 | 0.2 | 11.4 | 11.3 | 50 | 34 | 16 | 0.73 | | 0.73 | 22.06 | | |
| 171.10 | 4.00 | SH | 8.1 | 1.9 | 0.9 | 0.2 | 11.4 | 20.2 | 61 | 25 | 14 | 0.78 | | 0.49 | 24.22 | | |
| 175.10 | 5.90 | SS | 7.9 | 1.6 | 0.6 | 0.4 | 14.9 | 18.3 | 49 | 31 | 20 | 0.28 | | 0.28 | 8.83 | | |
| 181.00 | 9.30 | SS | 8.5 | 1.0 | 0.3 | 0.2 | 21.4 | 21.4 | 48 | 26 | 26 | 0.75 | | 0.43 | 23.46 | | |
| 181.00 | 8.10 | SS | 8.2 | 1.5 | 0.9 | 0.3 | 8.3 | 15.6 | 35 | 33 | 33 | 0.06 | | 0.06 | 1.98 | | |
| 190.30 | 8.10 | SH | 8.3 | 1.2 | 0.3 | 0.4 | 11.6 | 14.3 | 74 | 14 | 13 | 0.02 | | 0.02 | 0.56 | | |
| 198.40 | 10.00 | SH | 8.3 | 1.2 | 0.8 | 0.1 | 9.9 | 20.1 | 29 | 34 | 38 | 0.17 | | 0.17 | 5.30 | | |
| 208.40 | 7.50 | SS | 8.3 | 2.2 | 0.8 | 0.3 | 10.7 | 15.0 | 53 | 29 | 19 | 0.03 | | 0.03 | 0.87 | | |
| 215.90 | 4.10 | SL | 8.0 | 0.9 | 1.2 | 0.4 | 18.2 | 20.3 | 40 | 25 | 35 | 0.59 | | 0.59 | 18.32 | | |
| | | SL | 8.6 | 0.9 | 0.2 | 0.4 | 7.5 | 13.1 | 13 | 54 | 34 | 0.03 | | 0.40 | 1.06 | | |

Revised 01/23/04

Mine Area: N99, Peabody Coordinates: 44724.68E, -11246.06N
 CORE NO: 30368EO

| Depth | Thick | RTYPE | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDTGA (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 | | 22.04 | -25.10 | 0.10 | | 0.77 | 2.85 |
| 65.50 | 2.20 | SS | Y1A | 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 | M0X | | | | | | |
| 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 |
| 136.60 | 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 | | 3.75 | 2.73 | 0.12 | | 0.55 | 2.10 |





Mine Area: N99, Peabody Coordinates: 37996.63E, -12529.23N
CORE NO: 30369EO

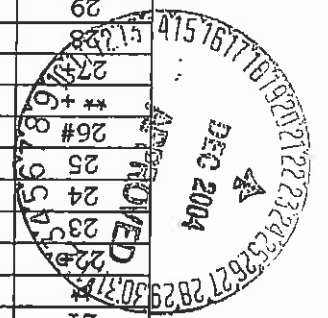
| Depth | Thick | RTYPE | pH | EC (MHRO/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sodium Absorption Ratio (SAR) | Sand (%) | Silt (%) | Clay (%) | Sulfur Total (%) | Sulfur Pyritic (%) | Sulfur Organic (%) | Acidity Potential (M/1000DM) |
|--------|-------|-------|-----|--------------|-----------------|-------------------|----------------|-------------------------------|----------|----------|----------|------------------|--------------------|--------------------|------------------------------|
| 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 | 2.0 | 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 |
| 75.50 | 6.10 | SS | 7.9 | 0.9 | 2.7 | 2.7 | 2.8 | 1.7 | 55 | 28 | 18 | 0.07 | | | 2.03 |
| 84.00 | 2.70 | CO | 6.9 | 3.6 | 4.0 | 3.0 | 28.0 | 15.0 | 35 | 40 | 25 | 1.35 | 1.00 | | 42.30 |
| 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 | SH | 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 | 31.5 | 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 | 7.1 | 4.8 | 1.8 | 0.7 | 43.5 | 39.0 | 18 | 49 | 34 | 1.52 | 1.35 | | 47.45 |
| 157.30 | 3.10 | SL | 7.7 | 3.3 | 2.1 | 1.3 | 27.9 | 21.3 | 60 | 25 | 15 | 0.23 | | | 7.31 |
| 160.40 | 6.00 | SS | 7.7 | 4.8 | 2.0 | 0.9 | 42.1 | 35.2 | 18 | 50 | 33 | 2.49 | 2.17 | | 77.79 |
| 166.40 | 5.80 | CO | 7.2 | 3.6 | 0.9 | 0.3 | 32.3 | 40.5 | 76 | 15 | 9 | 1.51 | 1.04 | | 47.33 |
| 172.20 | 1.40 | SH | 7.8 | 1.2 | 0.2 | 0.1 | 10.3 | 29.9 | 44 | 19 | 36 | 0.64 | 0.41 | | 20.00 |
| 179.40 | 3.00 | CO | 8.6 | 2.0 | 0.5 | 0.2 | 17.4 | 28.3 | 55 | 25 | 20 | 0.03 | | | 1.68 |
| 184.20 | 7.40 | SS | 9.0 | 2.0 | 0.4 | 0.2 | 16.1 | 28.8 | 75 | 11 | 14 | 0.03 | | | 0.80 |
| 191.60 | 10.00 | SS | 8.8 | 2.2 | 0.7 | 0.3 | 18.7 | 26.1 | 63 | 20 | 18 | 0.05 | | | 1.41 |
| 201.60 | 8.00 | SS | 8.8 | 1.2 | 0.1 | 0.1 | 10.5 | 32.4 | 28 | 40 | 33 | 0.06 | 0.47 | | 1.91 |
| 209.60 | 6.10 | SL | 9.3 | 0.6 | 0.1 | 0.1 | 5.1 | 14.8 | 90 | 8 | 3 | 0.60 | 0.47 | | 18.73 |
| 215.70 | 1.90 | CO | 8.3 | 1.9 | 0.5 | 0.2 | 16.4 | 26.7 | 60 | 28 | 13 | 0.04 | | | 1.15 |
| 217.60 | 9.10 | SS | 9.0 | 1.4 | 0.1 | 0.1 | 11.7 | 31.1 | 15 | 40 | 45 | 1.44 | 1.24 | | 44.89 |
| 226.70 | 1.90 | SL | 8.9 | 1.1 | 0.3 | 0.2 | 8.8 | 17.1 | 23 | 26 | 51 | 0.24 | 0.06 | | 7.50 |
| 228.60 | 14.40 | CO | 8.7 | 1.4 | 0.9 | 0.4 | 11.7 | 14.8 | 35 | 35 | 30 | 0.06 | | | 1.76 |
| 252.00 | 8.00 | SL | 8.7 | 1.4 | 0.9 | 0.4 | 11.7 | 14.8 | 35 | 35 | 30 | 0.06 | | | 1.76 |

Mine Area: N99, Peabody Coordinates: 37996.63E, -12529.23N
 CORE NO: 30369EO

| Depth | Thick | RTType | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium AEDTFA (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 | | 9.16 | 7.58 | 0.04 | | 0.28 | <0.50 |
| 59.50 | 10.00 | SS | | 10.65 | 9.48 | 0.03 | | <0.15 | <0.50 |
| 69.50 | 6.10 | SS | | 36.38 | 34.34 | 0.03 | | <0.15 | <0.50 |
| 75.60 | 8.40 | SL | | 4.78 | -37.52 | 0.08 | | 0.90 | 1.40 |
| 84.00 | 2.70 | CO | MXX | | | | | | |
| 86.70 | 1.90 | SH | | 4.78 | -99.22 | 0.10 | | 1.17 | 1.70 |
| 88.60 | 2.40 | SL | | 5.26 | -6.90 | 0.14 | | 0.57 | 0.75 |
| 91.00 | 4.40 | SH | | 6.25 | -23.71 | 0.13 | | 1.17 | 1.40 |
| 95.40 | 4.60 | SS | | 105.45 | 98.98 | 0.14 | | 0.65 | 0.55 |
| 100.00 | 2.20 | SH | | 13.60 | -76.13 | 0.14 | | 1.02 | 1.90 |
| 102.20 | 5.60 | SS | | 135.83 | 134.19 | 0.07 | | 0.38 | 0.75 |
| 107.80 | 4.00 | SL | | 27.80 | -23.21 | 0.10 | | 0.85 | 1.50 |
| 111.80 | 3.10 | CO | | 10.16 | -113.83 | 0.05 | | 1.83 | 3.60 |
| 114.90 | 9.10 | SS | | 6.25 | 1.21 | 0.07 | | 0.28 | 1.40 |
| 124.00 | 9.60 | SS | | 30.37 | 26.67 | 0.05 | | 0.20 | 0.90 |
| 133.60 | 7.90 | SH | | 5.26 | -31.44 | 0.13 | | 1.27 | 3.55 |
| 141.50 | 6.50 | SS | | 24.98 | 6.14 | 0.05 | | 0.30 | 1.10 |
| 148.00 | 6.40 | SL | | 4.78 | -73.17 | 0.04 | | 0.70 | 3.45 |
| 154.40 | 2.90 | CO | Y1A | | | | | | |
| 157.30 | 3.10 | SL | | 3.79 | -43.66 | 0.10 | | 0.63 | 2.50 |
| 160.40 | 6.00 | SS | | 112.44 | 105.13 | 0.04 | | <0.15 | 0.70 |
| 166.40 | 5.80 | SL | | 9.68 | -68.11 | 0.09 | | 0.60 | 2.20 |
| 172.20 | 5.80 | CO | NOX | | | | | | |
| 178.00 | 1.40 | SH | | 6.74 | -40.59 | 0.18 | | 2.55 | 4.35 |
| 179.40 | 3.00 | CO | N1X | | | | | | |
| 182.40 | 1.80 | SH | | 5.75 | -14.24 | 0.24 | | 1.77 | 4.00 |
| 184.20 | 7.40 | SS | | 13.47 | 11.79 | 0.09 | | 0.28 | 0.90 |
| 191.60 | 10.00 | SS | | 7.22 | 6.43 | 0.04 | | <0.15 | <0.50 |
| 201.60 | 8.00 | SS | | 24.74 | 23.33 | 0.06 | | <0.15 | 0.65 |
| 209.60 | 6.10 | SL | | 13.60 | 11.68 | 0.07 | | 0.32 | 1.25 |
| 215.70 | 1.90 | CO | | 8.70 | -10.03 | 0.05 | | 1.25 | 3.85 |
| 217.60 | 9.10 | SS | | 81.94 | 80.78 | 0.06 | | 0.20 | <0.50 |
| 226.70 | 1.90 | SL | | 5.26 | -39.63 | 0.41 | | 2.72 | 2.10 |
| 228.60 | 14.40 | CO | FO1 | | | | | | |
| 243.00 | 9.60 | SH | | 7.22 | -0.27 | 0.14 | | 1.10 | 1.30 |
| 252.00 | 8.00 | SL | | 29.76 | 21.99 | 0.06 | | 0.35 | 0.75 |

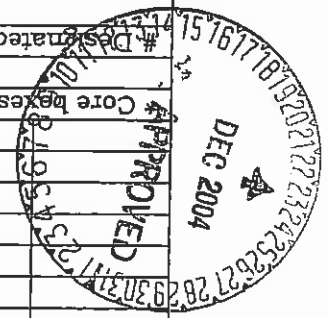


| SAMPLE NO. | DEPTH INCREMENT | THICKNESS | LITHOLOGY | COLOR | COMMENTS |
|------------|-----------------|-----------|------------|------------|-------------------------------------|
| 1 | 0.0-10.0 | 10.0 | SC | RD, RDY | LC: 0.0-8.0 |
| 2 | 10.0-19.3 | 9.3 | SS | GR | LC: 10.0-12.0, VERY HARD |
| 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 | LC: 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 (YIA) | BLK | |
| | 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 |
| | 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 (BOX) | 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 (FIX) | BLK | |
| 33+ | 218.4-220.0 | 1.6 | SH | VDGR, BLK | |



HOLE NUMBER: 30370E*
MINE AREA: N99
DATE: 8/8-9/03

| 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. | | | | | | |



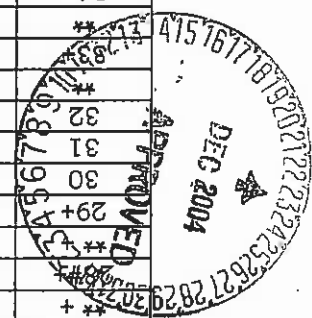


CORR NO: 30370EO
 Mine Area: N12, Peabody Coordinates: 33431.01E, -6154.81N

| Depth | Thick | RYD | pH | EC (MEMO/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sulfur 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 | 0.7 | 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 | | | 11.80 |
| 44.90 | 5.10 | SS | 7.0 | 1.9 | 13.0 | 8.2 | 2.0 | 0.6 | 41 | 41 | 18 | 0.20 | 0.40 | | 7.19 |
| 50.00 | 6.40 | SS | 6.8 | 2.6 | 20.0 | 11.0 | 2.9 | 0.7 | 44 | 36 | 20 | 0.20 | | | 33.10 |
| 56.40 | 3.60 | CO | | | | | | | | | | | | | |
| 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 | 2.1 | 0.6 | 17.0 | 24.0 | 64 | 22 | 14 | 0.02 | | | 0.74 |
| 82.20 | 5.80 | SL | 7.8 | 2.1 | 0.6 | 0.4 | 48.0 | 64.5 | 28 | 43 | 29 | 1.80 | 1.50 | 0.20 | 45.70 |
| 88.00 | 2.00 | CO | 5.5 | 5.4 | 0.7 | 0.4 | 48.0 | 28.6 | 76 | 15 | 9 | 4.20 | 2.70 | 1.20 | 83.10 |
| 90.00 | 10.00 | SL | 8.3 | 8.0 | 9.0 | <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 | 4.2 | 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 | | | | | | | | | | | | | |
| 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 | SS | 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 |
| 186.40 | 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 |

541
 Received 01/23/04

| 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 (YA) | 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 (NIX) | 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 | |
| ** | 176.5-186.7 | 10.2 | SS | LGR | |
| ** | 186.7-194.6 | 7.9 | CO (EIX) | 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 | |



HOLE NUMBER: 30381EO*
 MINE AREA: N99
 DATE: 8/9-10/03



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

| Depth | Thick | RType | PH | EC | Calcium | Magnesium | Sodium | Sodium | Sand | Silt | Clay | Sulfur | Sulfur | Sulfur | Acidity |
|--------|-------|-------|-----------|---------|---------|-----------|---------|--------|------|------|------|--------|---------|---------|------------|
| | | | (MMHO/cm) | (MEQ/L) | (MEQ/L) | (MEQ/L) | (MEQ/L) | Ratio | (%) | (%) | (%) | Total | Pyritic | Organic | (TN/100TN) |
| | | | | | | | | (SR) | | | | (%) | (%) | (%) | |
| 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 | 9.7 | 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 | | 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | |
| 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 | 6.60 | 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 |

Revised 01/23/04

U45

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



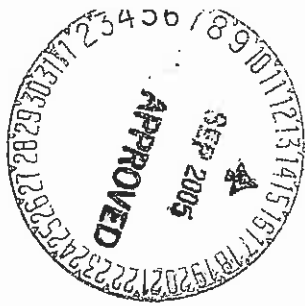
| Depth | Thick | RType | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDFPA (PPM) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 0.00 | 10.00 | SS | | 149.00 | 149.00 | <0.05 | <0.05 | <0.10 | 0.15 |
| 8.00 | 8.00 | SS | | 83.40 | 83.40 | <0.05 | <0.05 | 0.10 | 0.12 |
| 16.00 | 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 | | | | | | |
| 128.40 | 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 | NOX | | | | | | |
| 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 |

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 (VOX), 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 (YX) | 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 (EIX) | BLK | |
| 34+ | 201.1-203.3 | 2.2 | SH | DGR, VDGR | SANDY |
| ** | 203.3-206.3 | 3.0 | CO (EZX) | BLK | |
| 35+ | 206.3-210.0 | 3.7 | SL | GR | SANDY |





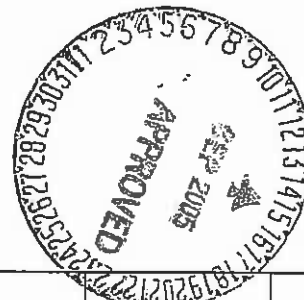
Core No: 30355E0
 Mine Area: N09, Peabody Coordinates: 21746.43E, 5480.15N

| Depth | Thick | SS | SH | SL | CO | PH | EC (MHM/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sulfur Absorption Ratio (SAR) | Sand (%) | Silt (%) | Clay (%) | Sulfur Total (%) | Sulfur Pyritic (%) | Sulfur Organic (%) | Acidity Potential (TM/100TM) |
|--------|-------|----|----|----|----|-----|-------------|-----------------|-------------------|----------------|-------------------------------|----------|----------|----------|------------------|--------------------|--------------------|------------------------------|
| 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 | | | 27.64 |
| 31.40 | 4.30 | SL | | | | 7.6 | 1.0 | 2.8 | 2.2 | 4.9 | 3.1 | 28 | 44 | 29 | 0.49 | 0.06 | 0.37 | 15.27 |
| 35.70 | 6.90 | CO | | | | | | | | | | | | | | | | |
| 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 | | | 40.58 |
| 51.40 | 4.90 | SS | | | | 8.3 | 2.2 | 0.5 | 0.2 | 22.3 | 38.0 | 63 | 25 | 13 | 0.08 | 1.12 | | 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 | 0.34 | | 16.32 |
| 76.90 | 2.80 | CO | | | | 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 | 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 | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | |
| 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 |
| 166.00 | 4.70 | CO | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | |
| 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 |

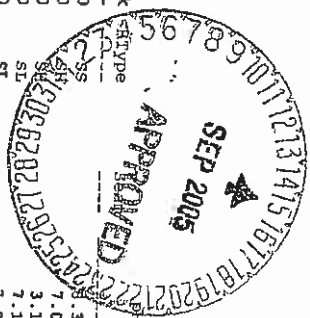


CORE NO: 3035550
 Mine Area: N09, Peabody Coordinates: 21746.43E, 5480.15N

| Depth | Thick | RType | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium AMDTEA (PPM) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 0.00 | 12.20 | SS | | 217.08 | 216.31 | <0.02 | | 0.43 | 0.81 |
| 4.50 | 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 | MOX | | | | | | |
| 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 | | 63.91 | 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 | | 13.97 | 0.66 | 0.14 | | 0.95 | 2.45 |
| 168.00 | 4.70 | CO | E0X | | | | | | |
| 172.70 | 7.30 | SL | | 4.78 | 3.66 | 0.14 | | 0.57 | 1.11 |
| 180.00 | 10.00 | SL | | 16.54 | 15.46 | 0.06 | | 0.45 | 1.13 |
| 190.00 | 4.20 | SH | | 9.68 | -14.48 | 0.09 | | 0.93 | 1.52 |
| 194.20 | 4.50 | SH | | 28.30 | 20.44 | 0.17 | | 1.23 | 1.40 |
| 198.70 | 2.40 | CO | E1X | | | | | | |
| 201.10 | 2.20 | SH | | 20.46 | 15.45 | 0.13 | | 1.30 | 2.02 |
| 203.30 | 3.00 | CO | E2X | | | | | | |
| 206.30 | 3.70 | SL | | 7.23 | -6.15 | 0.12 | | 0.52 | 0.69 |



| HOLE NUMBER: 30356EO* MINE AREA: N9 DATE: 7/21-22/03 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 (BIX) | 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 (RIX) | 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 (MIX) | 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 (YIX) | 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 |



CORE NO: 30356EO
 Mine Area: N09, Peabody Coordinates: 24738.00E, 13702.75N

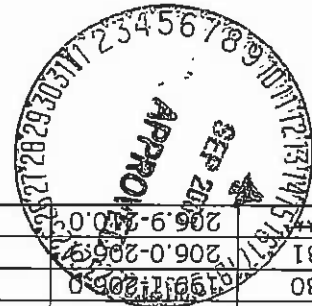
| Depth | Thick | Stype | EC (MHQ/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sodium Absorption Ratio (SNR) | Sand (%) | Silt (%) | Clay (%) | Sulfur Total (%) | Sulfur Pyritic (%) | Sulfur Organic (%) | Acidity Potential (TN/1000TN) |
|--------|-------|-------|-------------|-----------------|-------------------|----------------|-------------------------------|----------|----------|----------|------------------|--------------------|--------------------|-------------------------------|
| 0.00 | 5.10 | SS | 0.7 | 1.3 | 2.9 | 2.9 | 2.0 | 60 | 26 | 14 | 0.01 | | | 0.14 |
| 5.10 | 7.80 | SH | 2.1 | 7.7 | 13.7 | 7.2 | 2.2 | 10 | 41 | 49 | 0.04 | | | 1.17 |
| 12.90 | 2.90 | SL | 6.0 | 25.0 | 48.8 | 10.3 | 1.7 | 33 | 25 | 43 | 0.38 | | | 11.72 |
| 13.80 | 5.00 | SL | 2.2 | 6.4 | 12.9 | 5.7 | 1.8 | 26 | 41 | 33 | 0.07 | | | 2.04 |
| 20.80 | 9.20 | SL | 1.9 | 9.1 | 7.4 | 5.5 | 1.9 | 38 | 35 | 28 | 0.41 | | | 12.95 |
| 30.00 | 4.70 | SL | 1.7 | 8.7 | 5.4 | 6.0 | 2.2 | 31 | 41 | 28 | 1.46 | | | 45.61 |
| 34.70 | 4.80 | SH | 0.5 | 1.8 | 1.3 | 2.6 | 2.1 | 58 | 20 | 23 | 0.45 | | | 14.18 |
| 39.50 | 2.00 | CO | | | | | | | | | | | | |
| 41.50 | 2.00 | SH | | | | | | | | | | | | |
| 43.50 | 6.40 | SS | 2.7 | 3.5 | 3.2 | 22.8 | 12.5 | 68 | 14 | 19 | 3.32 | | | 103.69 |
| 49.90 | 5.00 | CO | 3.1 | 9.3 | 5.9 | 22.7 | 8.2 | 54 | 31 | 15 | 0.58 | | | 18.04 |
| 54.90 | 4.10 | SS | 2.9 | 1.8 | 0.9 | 29.8 | 25.8 | 46 | 35 | 19 | 0.43 | | | |
| 59.00 | 1.90 | SH | 4.8 | 3.8 | 2.1 | 47.0 | 27.1 | 33 | 39 | 29 | 2.51 | | | |
| 60.90 | 4.20 | CO | | | | | | | | | | | | |
| 65.10 | 6.90 | SH | | | | | | | | | | | | |
| 72.00 | 2.70 | SH | 6.7 | 4.2 | 1.9 | 42.2 | 35.0 | 40 | 34 | 26 | 0.97 | | | |
| 74.70 | 8.10 | SL | 7.3 | 2.4 | 0.8 | 22.5 | 30.6 | 34 | 34 | 33 | 1.38 | | | 30.16 |
| 82.80 | 9.00 | SS | 8.3 | 1.3 | 0.5 | 13.2 | 21.3 | 44 | 33 | 24 | 0.07 | | | 42.96 |
| 91.80 | 8.20 | SS | 1.2 | 0.7 | 0.3 | 12.3 | 16.8 | 43 | 31 | 26 | 0.05 | | | 2.10 |
| 100.00 | 1.20 | CO | 1.8 | 0.7 | 0.3 | 17.8 | 24.8 | 56 | 23 | 23 | 0.08 | | | 1.57 |
| 101.20 | 5.10 | SS | 1.0 | 0.3 | 0.1 | 9.1 | 20.2 | 81 | 10 | 9 | 1.21 | | | 2.55 |
| 106.30 | 3.10 | CO | 3.2 | 4.4 | 2.5 | 26.3 | 14.1 | 56 | 28 | 16 | 0.81 | | | 37.71 |
| 109.40 | 2.70 | SL | | | | | | | | | | | | 25.38 |
| 112.10 | 1.90 | CO | 1.8 | 3.9 | 2.6 | 13.4 | 7.4 | 40 | 40 | 20 | 0.76 | | | 23.59 |
| 114.00 | 4.60 | SL | | | | | | | | | | | | |
| 118.60 | 2.10 | SH | 7.1 | 1.2 | 4.6 | 3.8 | 1.8 | 53 | 29 | 19 | 0.15 | | | 4.78 |
| 120.70 | 5.10 | SL | 6.9 | 1.3 | 5.5 | 4.2 | 1.8 | 45 | 30 | 25 | 2.13 | | | 66.45 |
| 125.80 | 4.20 | SS | 6.3 | 1.7 | 9.8 | 8.7 | 0.8 | 30 | 21 | 49 | 0.55 | | | 17.11 |
| 130.00 | 9.30 | SS | 3.2 | 24.2 | 20.6 | 1.7 | 0.4 | 85 | 9 | 6 | 0.44 | | | 13.61 |
| 139.30 | 10.70 | SH | 6.9 | 22.7 | 24.6 | 2.0 | 0.4 | 83 | 13 | 5 | 0.38 | | | 11.84 |
| 150.00 | 8.50 | SS | 7.1 | 1.9 | 9.5 | 4.2 | 1.4 | 20 | 50 | 30 | 1.52 | | | 47.61 |
| 158.50 | 3.90 | CO | 6.1 | 3.5 | 29.5 | 4.0 | 0.8 | 54 | 34 | 13 | 0.85 | | | 26.71 |
| 162.40 | 4.10 | SS | | | | | | | | | | | | |
| 166.50 | 2.50 | CO | 8.8 | 1.4 | 0.1 | 14.7 | 46.2 | 40 | 35 | 25 | 0.16 | | | 5.00 |
| 169.00 | 8.50 | SS | 7.9 | 1.8 | 0.2 | 17.5 | 43.5 | 73 | 15 | 13 | 2.04 | | | 63.60 |
| 177.50 | 3.60 | CO | 7.1 | 3.7 | 2.8 | 36.8 | 25.3 | 64 | 24 | 13 | 0.52 | | | 16.27 |
| 181.10 | 8.40 | SS | | | | | | | | | | | | |
| 189.50 | 2.90 | SS | 7.8 | 2.9 | 0.6 | 28.8 | 41.3 | 51 | 30 | 19 | 0.84 | | | 26.25 |
| 192.40 | 6.40 | SH | 8.0 | 1.8 | 0.6 | 17.7 | 22.9 | 73 | 19 | 9 | 0.08 | | | 2.41 |
| 198.80 | 5.80 | CO | 7.7 | 3.1 | 1.1 | 33.3 | 37.7 | 35 | 39 | 26 | 1.99 | | | 62.14 |
| 204.60 | 5.40 | SS | | | | | | | | | | | | |
| 210.00 | 4.10 | SH | 7.6 | 2.8 | 0.7 | 27.2 | 38.8 | 48 | 34 | 19 | 1.06 | | | 33.24 |
| 214.10 | 3.90 | SS | 7.9 | 0.7 | 0.3 | 7.1 | 15.4 | 74 | 16 | 10 | 0.78 | | | 24.30 |
| | | SS | 7.5 | 3.1 | 1.0 | 33.8 | 39.4 | 58 | 28 | 15 | 0.27 | | | 8.29 |

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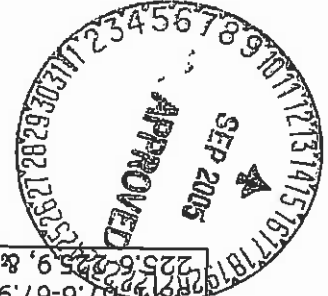


Mine Area: N09, Peabody Coordinates: 24738.00E, 13702.75N
 CORE NO: 30356EO

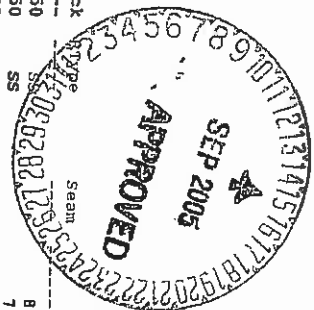
| Depth | Thick | RType | Seam | Neutralization Potential (TN/100FTN) | Acid Base Potential (TN/100FTN) | Selenium H2O (PPH) | Selenium ABDPPA (PPH) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 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 | MOX | | | | | | |
| 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 | N0X | | | | | | |
| 204.60 | 5.40 | SS | | 4.29 | -28.95 | 0.11 | | 0.93 | 1.96 |
| 210.00 | 4.10 | SH | | 6.74 | -17.56 | 0.05 | | 2.70 | 2.02 |
| 214.10 | 3.90 | SS | | 15.56 | 7.27 | 0.11 | | 0.63 | 0.79 |



| HOLE NUMBER: 30357EO* MINE AREA: N9 DATE: 7/22-23/03 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 | SANDY |
| 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 (RIX) | BLK | |
| 11+ | 67.6-76.9 | 9.3 | SH, CO | VDGR, BLK | LC: 70.0-70.9 |
| 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, SANDY |
| 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 (YIX) | 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 | 199.1-205.0 | 6.9 | SS | GR, DGR | LC: 199.1-204.7 |
| 31 | 205.0-206.9 | 0.9 | SH | VDGR | |
| ** | 206.9-210.0 | 3.1 | CO (N2X) | BLK | |



| 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 (BOX) | BLK | LC: 224.0-225.3 |
| 35+ | 225.6-229.8 | 4.2 | SS, SL | DGR | SHALBY |
| ** | 229.8-232.4 | 2.6 | CO (EIA) | 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: 37.8-225.6-225.9, & 232.4-232.7. | | | | | |



CORE NO: 3035780
 Mine Area: N09, Peabody Coordinates: Z2964.71E, 11496.07N

| Depth | Thick | Type | Seam | pH | EC (µMHO/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) |
|--------|-------|------|------|------|--------------|-----------------|-------------------|----------------|-------------------------------|----|----|----------|----------|----------|------------------|--------------------|--------------------|-------------------------------|
| | | | | | | | | | Ca | Mg | Na | | | | | | | |
| 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 | 6.5 | 1.5 | 10.9 | 6.3 | 1.5 | 0.5 | 76 | 13 | 11 | 1.82 | 0.88 | | 56.76 | | |
| 37.80 | 5.70 | CO | | 7.0 | 2.3 | 21.7 | 9.7 | 1.8 | 0.5 | 46 | 36 | 18 | 0.46 | 0.88 | | 14.34 | | |
| 43.50 | 5.50 | SS | | 9.20 | 1.8 | 12.8 | 7.7 | 2.1 | 0.7 | 68 | 19 | 14 | 1.49 | 1.05 | | 46.39 | | |
| 49.00 | 9.20 | SH | | 5.10 | 2.6 | 22.1 | 12.3 | 2.6 | 0.6 | 48 | 31 | 21 | 0.96 | | | 30.10 | | |
| 58.20 | 5.10 | SL | RLX | 7.1 | 2.2 | 16.0 | 11.7 | 2.4 | 0.7 | 31 | 38 | 31 | 0.74 | 0.63 | | 23.00 | | |
| 63.30 | 4.30 | CO | | 6.4 | 1.3 | 6.7 | 6.4 | 1.9 | 0.7 | 53 | 25 | 23 | 0.08 | | | 2.39 | | |
| 67.60 | 9.30 | SH | | 7.3 | 1.3 | 6.5 | 8.2 | 1.8 | 0.6 | 71 | 18 | 11 | 0.07 | | | 2.21 | | |
| 76.90 | 9.80 | SL | | 7.8 | 1.4 | 5.7 | 5.7 | 1.7 | 0.6 | 61 | 19 | 11 | 0.04 | | | 1.13 | | |
| 86.70 | 10.00 | SS | | 5.6 | 2.5 | 13.6 | 16.5 | 3.4 | 0.9 | 59 | 24 | 18 | 1.22 | 0.87 | | 38.14 | | |
| 96.70 | 9.90 | SS | MXX | 7.2 | 1.4 | 6.7 | 6.8 | 2.6 | 1.0 | 49 | 29 | 23 | 0.14 | 0.63 | | 4.41 | | |
| 106.60 | 6.00 | SH | | 6.6 | 2.4 | 14.8 | 12.4 | 4.3 | 1.2 | 34 | 38 | 29 | 1.62 | 1.65 | | 50.70 | | |
| 112.60 | 6.20 | CO | | 7.1 | 3.4 | 7.6 | 3.9 | 3.5 | 14.6 | 28 | 43 | 30 | 1.94 | 1.65 | | 60.73 | | |
| 118.80 | 4.40 | SS | | 7.1 | 3.4 | 25.9 | 19.7 | 4.4 | 0.9 | 80 | 11 | 9 | 0.70 | | | 21.93 | | |
| 123.20 | 9.60 | SH | | 7.3 | 3.1 | 6.3 | 3.7 | 23.7 | 10.6 | 55 | 29 | 16 | 0.43 | | | 13.36 | | |
| 132.80 | 7.00 | SS | | 7.4 | 2.4 | 2.4 | 0.6 | 22.0 | 21.9 | 84 | 8 | 9 | 1.58 | 1.16 | | 49.23 | | |
| 139.80 | 9.20 | SS | | 8.7 | 2.2 | 0.8 | 0.4 | 23.3 | 30.4 | 51 | 26 | 23 | 0.22 | | | 6.78 | | |
| 149.00 | 6.10 | SL | | 7.8 | 2.0 | 0.3 | 0.1 | 20.1 | 46.1 | 58 | 26 | 16 | 1.11 | 0.72 | | 34.61 | | |
| 155.10 | 1.00 | SH | | 8.5 | 1.7 | 1.7 | 1.0 | 39.9 | 34.1 | 59 | 26 | 15 | 0.56 | 0.47 | | 17.38 | | |
| 156.10 | 3.00 | SH | Y0X | 5.6 | 8.5 | 9.6 | 5.6 | 82.2 | 29.8 | 68 | 19 | 14 | 3.62 | 2.98 | | 113.00 | | |
| 159.10 | 4.20 | SL | | 8.4 | 2.9 | 0.5 | 0.3 | 31.4 | 49.1 | 61 | 23 | 16 | 0.12 | | | 3.69 | | |
| 163.30 | 2.10 | SH | | 8.2 | 4.8 | 0.8 | 0.4 | 50.9 | 67.4 | 24 | 48 | 29 | 1.59 | 1.21 | | 49.77 | | |
| 165.40 | 4.60 | SS | | 8.5 | 2.7 | 0.5 | 0.4 | 30.8 | 47.9 | 61 | 23 | 16 | 0.05 | | | 1.60 | | |
| 170.00 | 1.00 | SH | | 7.6 | 6.2 | 1.8 | 1.2 | 70.0 | 58.1 | 34 | 39 | 28 | 2.35 | 2.48 | | 73.29 | | |
| 171.00 | 3.70 | CO | Y1X | 7.2 | 3.9 | 0.8 | 0.4 | 40.4 | 52.2 | 49 | 33 | 19 | 0.54 | 0.40 | | 16.73 | | |
| 174.70 | 3.50 | SS | | 7.1 | 4.4 | 0.8 | 0.5 | 40.6 | 50.4 | 29 | 49 | 23 | 1.55 | 0.99 | | 48.55 | | |
| 178.20 | 3.00 | SH | | 8.6 | 2.1 | 0.6 | 0.3 | 19.9 | 30.7 | 63 | 24 | 14 | 0.07 | | | 2.18 | | |
| 181.20 | 7.50 | SS | | 8.7 | 1.0 | 0.2 | 0.1 | 22.3 | 51.6 | 35 | 35 | 30 | 1.08 | | | 33.71 | | |
| 188.70 | 4.20 | SH | | 9.4 | 2.2 | 0.1 | 0.1 | 11.3 | 40.0 | 19 | 43 | 39 | 0.08 | | | 2.64 | | |
| 192.90 | 6.20 | CO | NXX | 8.4 | 1.6 | 0.1 | 0.1 | 16.8 | 52.4 | 50 | 30 | 20 | 0.36 | | | 11.12 | | |
| 199.10 | 6.90 | SS | | 8.6 | 1.4 | 0.2 | 0.1 | 14.3 | 41.3 | 55 | 28 | 18 | 0.41 | 0.41 | | 12.77 | | |
| 206.00 | 0.90 | SH | | 8.6 | 1.8 | 0.8 | 0.4 | 18.0 | 22.9 | 56 | 28 | 16 | 0.07 | | | 2.28 | | |
| 206.90 | 3.10 | CO | NZX | 7.7 | 1.4 | 4.5 | 4.3 | 6.6 | 3.1 | 76 | 15 | 9 | 0.03 | | | 0.78 | | |
| 210.00 | 6.00 | CO | | | | | | | | | | | | | | | | |
| 216.00 | 4.00 | SH | | | | | | | | | | | | | | | | |
| 220.00 | 2.00 | SL | | | | | | | | | | | | | | | | |
| 222.00 | 3.60 | CO | EOX | | | | | | | | | | | | | | | |
| 225.60 | 4.20 | SS | | | | | | | | | | | | | | | | |
| 229.80 | 2.60 | CO | E1A | | | | | | | | | | | | | | | |
| 232.40 | 3.80 | CO | | | | | | | | | | | | | | | | |
| 236.20 | 8.70 | SS | | | | | | | | | | | | | | | | |
| 244.90 | 5.10 | SS | | | | | | | | | | | | | | | | |

557

Revised 01/28/05

Mine Area: N09, Peabody Coordinates: 22964.71E, 11496.07N
 CORE NO: 30357EO

| Depth | Thick | RType | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDTEA (PPM) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 0.00 | 11.50 | Ss | | 105.11 | 104.70 | <0.02 | | 0.52 | 0.58 |
| 8.50 | 8.50 | SH | | 4.29 | 4.09 | <0.02 | | <0.15 | <0.50 |
| 20.00 | 6.20 | SS | | 8.70 | 7.40 | 0.06 | | 0.57 | 0.97 |
| 26.20 | 1.20 | CO | | 1.35 | -48.32 | <0.02 | | 1.35 | 4.70 |
| 27.40 | 6.30 | SH | | 18.01 | 9.95 | 0.07 | | 0.65 | 1.16 |
| 33.70 | 2.10 | SH | | 7.72 | -57.42 | 0.08 | | 1.48 | 1.85 |
| 35.80 | 2.00 | CO | BOX | | | | | | |
| 37.80 | 5.70 | CO | BOX | | | | | | |
| 43.50 | 5.50 | SS | | 19.85 | 5.51 | 0.06 | | 2.03 | 1.91 |
| 49.00 | 9.20 | SH | | 3.80 | -42.59 | 0.06 | | 0.28 | <0.50 |
| 58.20 | 5.10 | SL | | 41.90 | 11.80 | 0.08 | | 0.98 | 2.20 |
| 63.30 | 4.30 | CO | R1X | | | | | 0.77 | 0.98 |
| 67.60 | 9.30 | SH | | 8.70 | -14.30 | 0.09 | | 1.08 | 2.43 |
| 76.90 | 9.80 | SH | | 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 | HXX | | | | | | |
| 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 | | 9.70 | 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 |





CORE NO: 30358EO
 Mine Area: N09, Peabody Coordinates: 24657.14E, 8684.30N

| Depth | Thick | Sample | pH | EC (MHQ/CM) | Calcium (MEQ/L) | Magnesium (MEQ/L) | Sodium (MEQ/L) | Sodium Absorption Ratio | | | Sand (%) | silt (%) | Clay (%) | Sulfur Total (%) | Sulfur Pyritic (%) | Sulfur Organic (%) | Acidity Potential (TN/1000PPM) |
|--------|-------|--------|-----|-------------|-----------------|-------------------|----------------|-------------------------|-------------|-------------|----------|----------|----------|------------------|--------------------|--------------------|--------------------------------|
| | | | | | | | | Ratio (SAR) | Ratio (SAR) | Ratio (SAR) | | | | | | | |
| 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 | | | | 4.83 | |
| 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 | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | |
| 84.10 | 3.00 | SS | | | | | | | | | | | | | | | |
| 87.10 | 3.70 | SH | 8.4 | 2.2 | 0.3 | 0.2 | 10.8 | 39.1 | 38 | 36 | 26 | 0.20 | | | | 6.22 | |
| 90.80 | 3.70 | SS | 7.8 | 2.5 | 0.5 | 0.3 | 23.6 | 36.8 | 40 | 35 | 25 | 1.51 | | 1.12 | | 47.11 | |
| 94.50 | 5.50 | SH | 8.6 | 1.9 | 0.4 | 0.2 | 18.3 | 34.0 | 55 | 30 | 15 | 0.07 | | | | 2.16 | |
| 100.00 | 3.80 | SH | 8.0 | 3.6 | 0.8 | 0.5 | 35.8 | 44.6 | 29 | 43 | 29 | 1.44 | | 0.89 | | 45.05 | |
| 103.80 | 3.50 | SL | 8.8 | 2.7 | 0.2 | 0.2 | 25.9 | 36.3 | 25 | 41 | 34 | 2.21 | | 1.71 | | 69.01 | |
| 107.30 | 2.30 | SH | 8.8 | 1.5 | 0.2 | 1.1 | 15.0 | 38.5 | 31 | 39 | 30 | 0.32 | | | | 9.88 | |
| 109.60 | 4.90 | CO | 7.6 | 5.0 | 1.9 | 1.1 | 49.6 | 41.0 | 11 | 56 | 33 | 3.34 | | 2.87 | | 104.25 | |
| 114.50 | 4.80 | SS | | | | | | | | | | | | | | | |
| 119.30 | 2.70 | SH | 8.7 | 2.2 | 0.2 | 0.1 | 21.1 | 47.9 | 54 | 26 | 20 | 0.23 | | | | 7.19 | |
| 122.00 | 4.00 | SS | 8.6 | 1.1 | 0.1 | 0.1 | 10.4 | 30.3 | 25 | 43 | 33 | 0.77 | | 0.53 | | 23.92 | |
| 126.00 | 6.20 | SH | 7.4 | 3.4 | 2.0 | 1.3 | 32.7 | 25.4 | 60 | 26 | 14 | 0.84 | | 0.62 | | 26.28 | |
| 132.20 | 3.80 | SS | 8.2 | 2.1 | 0.5 | 0.2 | 30.5 | 44.3 | 76 | 16 | 8 | 1.59 | | 1.49 | | 62.14 | |
| 136.00 | 4.00 | SH | 8.2 | 2.1 | 0.5 | 0.2 | 19.9 | 32.3 | 56 | 28 | 16 | 0.31 | | | | 9.61 | |
| 140.00 | 8.00 | SS | 7.1 | 4.1 | 1.0 | 0.6 | 40.1 | 44.8 | 35 | 40 | 25 | 2.26 | | 2.30 | | 70.54 | |
| 148.00 | 4.00 | SH | 8.5 | 2.3 | 0.3 | 0.2 | 20.1 | 42.0 | 56 | 26 | 18 | 0.28 | | | | 8.77 | |
| 152.00 | 6.10 | CO | 7.5 | 3.3 | 0.5 | 0.4 | 32.0 | 47.1 | 41 | 35 | 24 | 2.77 | | 2.34 | | 86.60 | |
| 158.10 | 1.90 | SH | | | | | | | | | | | | | | | |
| 160.00 | 1.80 | SS | 7.9 | 1.3 | 0.3 | 0.2 | 11.9 | 23.5 | 75 | 14 | 11 | 0.62 | | 0.33 | | 19.51 | |
| 161.80 | 3.40 | CO | 7.4 | 3.6 | 2.5 | 0.8 | 35.0 | 27.0 | 51 | 36 | 13 | 0.32 | | 0.14 | | 9.93 | |
| 165.20 | 1.50 | SH | | | | | | | | | | | | | | | |
| 166.70 | 6.60 | SS | 8.7 | 1.0 | 0.1 | 0.1 | 9.3 | 26.6 | 16 | 45 | 39 | 0.23 | | 0.07 | | 7.24 | |
| 173.30 | 4.10 | SL | 9.0 | 1.3 | 0.3 | 0.1 | 12.4 | 28.4 | 79 | 13 | 9 | 0.06 | | | | 1.73 | |
| 177.40 | 1.70 | SH | 8.5 | 2.6 | 0.4 | 0.2 | 24.9 | 45.1 | 49 | 30 | 21 | 0.81 | | | | 25.35 | |
| 179.10 | 4.60 | CO | 8.6 | 1.6 | 0.2 | 0.1 | 15.4 | 40.2 | 25 | 43 | 33 | 1.29 | | 0.88 | | 40.39 | |
| 183.70 | 5.10 | SH | | | | | | | | | | | | | | | |
| 188.80 | 2.30 | CO | 9.4 | 1.3 | 0.1 | 0.1 | 12.5 | 40.3 | 18 | 45 | 38 | 0.34 | | | | 10.73 | |
| 191.10 | 2.90 | SL | | | | | | | | | | | | | | | |
| 194.00 | 3.60 | SH | 8.4 | 1.5 | 0.5 | 0.2 | 14.0 | 22.7 | 45 | 34 | 21 | 0.59 | | 0.50 | | 18.33 | |
| 197.60 | 2.40 | SH | 8.8 | 1.1 | 0.1 | 0.1 | 10.6 | 34.4 | 48 | 26 | 26 | 0.34 | | 0.09 | | 10.49 | |
| | | SL | 9.2 | 1.1 | 0.1 | 0.1 | 11.1 | 36.1 | 15 | 58 | 28 | 0.14 | | | | 4.27 | |

CORE NO: 30358EO
 Mine Area: N09, Peabody Coordinates: 24657.14E, 8684.30N



| Depth | Thick | RType | Seam | Neutralization Potential (TN/1000TN) | Acid Base Potential (TN/1000TN) | Selenium H2O (PPM) | Selenium ABDTPA (PPM) | Selenium Total (PPM) | Boron (PPM) |
|--------|-------|-------|------|--------------------------------------|---------------------------------|--------------------|-----------------------|----------------------|-------------|
| 0.00 | 6.30 | SH | | 52.80 | 52.40 | <0.02 | | 0.55 | 0.69 |
| 6.30 | 10.00 | SS | | 149.09 | 148.86 | <0.02 | | 0.17 | <0.50 |
| 16.30 | 10.00 | SS | | 132.43 | 132.14 | 0.03 | | 0.80 | <0.50 |
| 26.30 | 7.90 | SS | | 195.52 | 195.19 | 0.06 | | 0.38 | <0.50 |
| 34.20 | 9.80 | SH | | 139.78 | 135.57 | 0.08 | | 1.05 | 1.56 |
| 44.00 | 10.00 | SL | | 153.99 | 151.55 | 0.04 | | 1.05 | 1.46 |
| 54.00 | 9.60 | SL | | 241.95 | 240.14 | 0.04 | | 0.85 | 1.44 |
| 63.60 | 8.80 | SS | | 64.93 | 60.50 | 0.03 | | 0.60 | 1.31 |
| 72.40 | 3.60 | SH | | 5.27 | -29.41 | 0.11 | | 1.17 | 2.06 |
| 76.00 | 3.40 | CO | MOX | | | | | | |
| 79.40 | 2.40 | SL | | 4.29 | -12.54 | 0.08 | | 0.75 | 1.66 |
| 81.80 | 2.30 | CO | MIX | | | | | | |
| 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 | | 2.20 | 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 |