Twenty-eight exploratory holes were drilled in Sheridan and Campbell Counties, Wyoming, and Big Horn County, Montana, from July 11 to October 24, 1973. The drilling was done under a U. S. Geological Survey grant to Montana Bureau of Mines and Geology, (U.S.G.S. Grant No. 14-08-0001-G-55). Field work was carried out by John W. Blumer, geological engineer, Montana Bureau of Mines and Geology, Butte, Montana, assisted by Mel Granberg and Russ Stiefel, student assistants from Montana College of Mineral Science and Technology. Coordination and technical guidance was provided by Robert E. Matson, Montana Bureau of Mines and Geology, and Elmer M. Schell, U. S. Geological Survey, Casper, Wyoming.

The drilling was undertaken to gather data on the thickness, quality, recoverability, and extent of coal beds, and the lithologic characteristics of the rocks in the Fort Union and Wasatch Formations in the Powder River basin. This information is in support of a geologic quadrangle mapping program and as part of a program of mineral land evaluation and classification currently in progress by the U. S. Geological Survey.

Included herein are the driller's logs, corrected to geophysical logs where available, proximate analyses of the coal beds that were cored, chemical analyses of the ash, and trace-element analyses. Driller's logs and coal analyses from three drill holes are not included in this preliminary report, in deference to one of the surface landowners.

The location of a drill hole within a section is based on a letter-designated tract system. Each section is subdivided into four quadrants, with the northeast quadrant designated as "a" and continuing counterclockwise to "d". Each quadrant is then subdivided into four equal parts with a similar letter designation. This is repeated until a section is subdivided into 256 units. Using this system the largest subdivision in a section is listed first. For example, a tract designation of "abcd" would be located in the SE¼SW¼NW¼NE¼ of the section.

Laurence A. Wegelin, chemist in charge of coal analysis, Montana Bureau of Mines and Geology, Butte, Montana, performed the analytical work on the coal cores to obtain the proximate analyses, Btu values, and sulfur forms. All methods used are in accordance with the American Society of Testing Materials, Laboratory Sampling and Analysis of Coal and Coke (1967), and U.S. Bureau of Mines (1967) methods of analyzing and testing coal and coke.

The chemical analyses on the ash and the trace-element analyses were made on 21 split-samples of the coal cores at the U.S. Geological Survey laboratories, Denver, Colo. The analysts were P. J. Aruscavage, Jr., E. J. Fennelly, J. C. Hamilton, A. W. Haubert, A. E. Hubert, Claude Huffman, Jr., V. M. Merritt, H. T. Millard, Jr., John Moreland, H. G. Neiman, R. L. Rahill, V. E. Shaw, J. A. Thomas, J. H. Turner, J. S. Wahlberg, and F. N. Ward. Vernon E. Swanson and Claude Huffman, Jr., coordinated this part of the analytical study. The

methods used to obtain the Geological Survey's chemical analyses on trace elements are reviewed in a report by Swanson (1972); queries on the methods may be directed to either Claude Huffman, Jr., or Vernon E. Swanson, U.S. Geological Survey, Building 25, Federal Center, Lakewood, Colo., 80225.

The user of this chemical information is cautioned on the meaning of some of the trace-element data. Some anomalous values, for example 1,660 and 1,360 parts per million lead and some of the high barium values, might possibly be a result of some drill-pipe or drilling-fluid contamination.

References Cited

1. American Society for Testing and Materials, 1967, Laboratory sampling and analysis of coal and coke (ASTM Designation D 271-64), in Gaseous fuels; coal and coke: Am. Soc. Testing Materials, pt. 19, p. 16-47.
2. Swanson, V. E., 1972, Composition and trace-element content of coal and power-plant ash, Pt. 2, in Appendix J of Southwest Energy Study: U.S. Geol. Survey open-file report, 61 p.
3. U.S. Bureau of Mines, 1967, Methods of analyzing and testing coal and coke: U.S. Bur. Mines Bull. 638, 85 p.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: M. Granberg Source of data: MBMG Date: 11 July 72 Map: Decker Quad Photo No.: 12 BB-11

	STATE	COUNTY	LATITUDE DEG	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	T	R.	R	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	MT	BH										9	S	41	E	19	bddc	BME	7	2	1	2	3	7	6	5			1	C		600	3	F	P			A

Column 1-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Dietz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

Sheet 1 of 2

UNCODED INVENTORY DATA

Surface owner: G. Holmes
Address: Decker, Montana

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, Gamma, ER Sp
Geophysical logs erratic

Log index numbers:

Lithologic samples: at 10' intervals below 20'

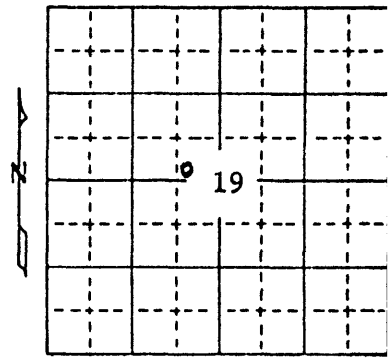
How stored: paper sacks

Hydrologic data:

DRILL LOG

DEPTH FEET From	To	Material
0	8	Sand
8	9	Sandstone
9	24	Sandy clay
24	30	Clay
30	35	Clay-(coquinal zone)& Carb. sh
35	40	Grey clay
40	55	Sandy clay
55	65	Sand
65	72	Sandy clay w/Carb sh strks
72	80	Sand
80	91	Coal
91	94	Sand
94	96	Carb shale
96	105	Grey sandy clay
105	115	Grey clay w/ carb sh strks
115	125	Grey clay
125	130	Grey clay w/ carb sh strks
130	142	Grey clay
142	153	Grey clay w/ coal strks
153	160	Carb shale & coal
160	198	Sand w/ carb. sh. strks
198	209	Sandy clay
209	211	Sandstone
211	235	Sandy clay w/carb sh strks
235	260	Carb sh w/ ss strks & bentonite
260	275	Sandy clay w/carb sh strks
275	276	Sandstone strks
276	293	Grey clay
293	297	Grey clay w/carb sh strks
297	310	Sand
310	312	Sandstone
312	330	Sand w/coal streaks
330	340	Carb shale w/ss strks
340	344	Carb shale
344	349	Coal (scft)
349	352	Grey clay
352	363	Coal (soft)
363	374	Grey clay w/ss strks
374	375	Sandstone
		CONTINUED

REMARKS & SKETCH



T. 9 N. R. 41 E. Sec. 19
TRACT bddc

Gamma, Er-Sp are not good logs. Driller's log is accurate. Hole caved at 475'-could not log bottom of hole.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by R. Stiefel Source of data MBMG Date 14 July 72 Map Decker Quad Photo No. 10 BB-267

A

STATE	COUNTY	LATITUDE DEG	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE OEG.	LONGITUDE MIN.	LONGITUDE SEC	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
M T	B H										8 S	4 1 E	3 0	c ab d	B M E 7 2 2 3		3 6 5 5						5 0	3	S	S			A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat And Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deits
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner State

Address

Driller's name Charles Kelly Drilling Co.

Address Roundup, Montana

(Marshell Christian - Driller)

Log data Drillers

Log index numbers

Lithologic samples Below 20' @ 10'

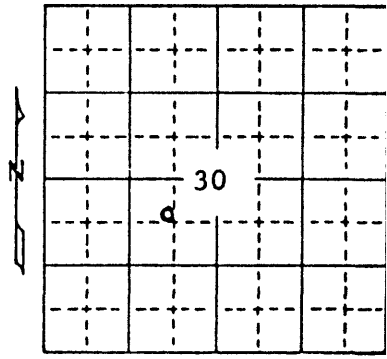
How stored

Hydrologic data

DRILL LOG

DEPTH FEET From	To	Material
0	20	Red clay
20	30	Sandstone
30	50	Clinker

REMARKS & SKETCH



T. 8 N. R. 41 E. Sec. 30

TRACT cabd

Lost circulation at 37' - could not regain circ. - drilled Blind to 50 ft. Hole caved on drill pipe at 50 ft.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: M. Granberg Source of data: MBMG Date: 15 July 72 Map: Decker Quad Photo No. 10 BB-266

A	STATE	COUNTY	LATITUDE DEG	LAT MIN	LAT SEC.	N or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
	M	T	BH									8S	41E	30	bddc	BME 722	3	4359.1					458 459	600	3	S	S			A

Column 1-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½' quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mon

Sheet 1 of 2

UNCODED INVENTORY DATA

Surface owner: State
Address:

Driller's name: M. Christian
Address: Kelly Drilling
Roundup, Montana

Log data: Drillers, Gamma, ER-SP
geophysical logs erratic

Log index numbers:

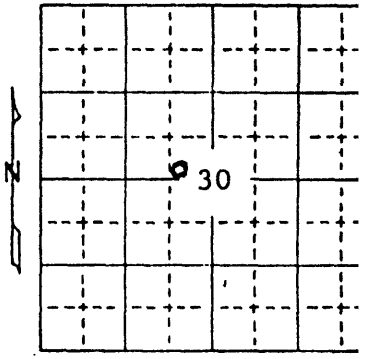
Lithologic samples: at 10' int below 20'
How stored: paper envelopes

Hydrologic data:

DRILL LOG

Depth in Feet From	To	Material
0	15	Sand w/ss str
15	16	Sandstone
16	19	Grey clay w/ss str
19	20	Sandstone
20	25	Grey clay w/ss strk
25	26	Sandstone
26	30	Sandy clay
30	34	Sandstone
34	95	Sandy clay w/ss str
95	112	Coal
112	113	Sandy clay
113	115	Sandstone
115	123	Grey clay
123	145	Sandy clay w/ss str
145	169	Sandy clay w/coal strks
169	171	Sandstone
171	204	Sandy clay w/ss str
204	205	Sandstone
205	255	Sandy clay w/ss strks
255	315	Sandstone (firm & compacted)
315	320	Sandstone
320	341	Sandy clay w/bentonite
341	380	Sand
380	410	Sand
410	411	Sandstone
411	413	Bentonite
413	430	Grey clay
430	439	Coal
439	445	Grey clay
445	446	Sandstone
446	467	Sandy clay w/ss stringers
467	485	Sandy clay w/carb sh str
485	495	Sandy clay w/ss stringers
495	496	Sandstone
496	516	Sandy clay
516	518	Carb sh
518	530	Sandy clay w/ss strks
		CONTINUED

REMARKS & SKETCH



T. 8 N., R. 41 E., Sec. 30
TRACT bddc

Core 100-112; Lab sample No. 458-459
Hole was spudded in the bottom of a coal be
approx. 15' thick. The clinker zone of BME
722 is the same coal bed that this hole was
spudded into.

Elv: Jacob staff & Brunton Compass. Possi
coal bed at 263' to 280' from erratic ER-SP
log and regional correlation.

Recorded by: M. Granberg Source of data: MBMG Date: 15 July 72 Map: Decker Quad Photo No.: 10 BE-266

A

STATE	COUNTY	LATITUDE DEG	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
MT	BH										8S	41E	30	bddc	BME 72343		5591					458	600	3	SS		A

459

Column 3-4 - County
See Appendix A-4 for Code

Column 10 - Sequential Number
Number 1 used for first hole in quadrangle designated by latitude and longitude. All coal holes with same latitude and longitude enter in numbered sequence

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
"No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mon

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Sheet 2 of 2

UNCODED INVENTORY DATA

Surface owner: State

Address:

Driller's name: M. Christian

Address: Kelly Drilling

Roundup, Montana

Log data: Drillers, Gamma, ER-SP

geophysical logs erratic

Log index numbers:

Lithologic samples: at 10' int below 20'

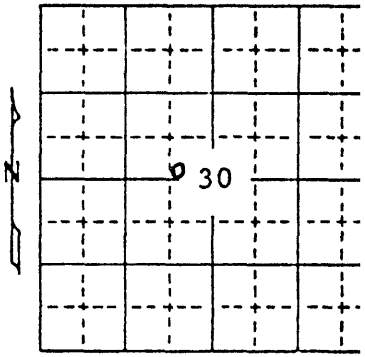
How stored: paper envelopes

Hydrologic data:

DRILL LOG

DEPTH FEET From	To	Material
530	536	Grey clay w/coal streaks
536	550	Coal
550	551	Sandstone
551	555	Sandy clay w/ss strks
555	565	Sand
565	580	Grey clay
580	600	Sand

REMARKS & SKETCH



T. 8 S R. 41 E Sec. 30

TRACT bddc

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 15 Aug. 72 Map: Decker Quad Photo No.: 10 BB-263

A	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
	MT	BH										8S	40E	22	bbcc	BME 7 24	2	3635						414	3	F	F			A

Column 1-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Durley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner: Federal

Address:

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, ER, SP, gamma

Log index numbers:

Lithologic samples: None

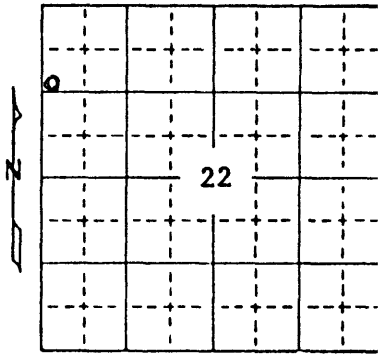
How stored:

Hydrologic data: Water within 40' of surface

DRILL LOG

DEPTH FEET From	To	Material
0	115	Clinker
115	150	Sandstone
150	151	Siltstone
151	164	Sand
164	167	Hard sandstone
167	170	Siltstone
170	182	Sandstone
182	185	Siltstone
185	200	Sandstone w/coal & carb. stk
200	212	Gray clay w/ss stks.
212	215	Siltstone
215	216	Gray clay
216	217	Siltstone
217	239	Gray clay w/ss stks
239	241	Black clay (carb. sh.)
241	257	Sand w/coal stks.
257	259	Coal (smutty)
259	265	Sandstone
265	270	Sandy gray clay w/coal &ss stks.
270	325	Sand
325	326	Siltstone
326	349	Sand
349	361	Coal
361	362	Siltstone
362	380	Sandstone
380	413	Sand
413	414	Sandstone

REMARKS & SKETCH



T. 8 S. R. 40 E. W. Sec. 22

TRACT bbcc

Drilled 20' could not hold circulation - redrilled 20' from original location. Footages corrected w/ER-SP log. Gamma log erratic

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 8 Aug 72 Map: Bar V Ranch Quad Photo No.: 11 BB-36

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	MT	BH										8S	38E	36	cdbd	BME 72724012							462	580	3	S	S		A

Column 1-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Well, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Wolf or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway C

Column 67-70 - Geologic Code for Monta

UNCODED INVENTORY DATA

Surface owner: State

Address: Coal leased by Decker Coal Co.

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Mont.

Log data: Drillers, Gamma - Gamma log
erratic

Log index numbers:

Lithologic samples: at 10' int. below 20'

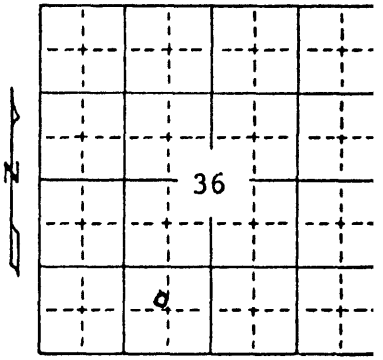
How stored: paper envelopes

Hydrologic data:

DRILL LOG

Depth Feet From	To	Material
0	40	Brn clay (clinker gravel)
40	80	Yellow sand
80	90	Sand w/coal stks
90	91	Siltstone
91	150	Sand/wss stks
150	235	Sandy clay w/ss stks
235	237	Grey clay w/carb stks
237	290	Coal
290	297	Grey clay w/bentonite layers
297	304	Siltstone
304	320	Sandstone
320	334	Grey clay
334	335	Siltstone
335	339	Grey clay w/ss strks
339	345	Grey clay w/coal streaks
345	375	Sandy clay w/ss & Ben. strks
375	377	Coal & Carb. shale
377	390	Coal
390	394	Sand
394	396	Coal
396	415	Sand/w/siltstone strks
415	417	Siltstone
417	426	Sand w/sandstone strks
426	429	Siltstone
429	435	Grey clay w/ss strks
435	471	Sand w/hard strks
471	473	Siltstone
473	508	Sandstone w/siltstone layers
508	580	Grey clay w/coal strks

REMARKS & SKETCH



T. 8 S. R. 38 E. W. Sec. 36
TRACT cdbd

Cored interval 240'-247'
Lost circulation at 580.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 22 Aug 72 Map: Pearl School Quad Photo No.: 12 BB-271

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1-2	3-4	5-6	7-8	9-10	11	12-13	14-15	16-17	18-19	20	21-23	24-26	27-29	30-32	33-39	40	41-44	45-48	49-52	53-54	55	56-59	60-63	64	65	66	67-70	80
A	MT	BH										9S	39E	25	cdad	BME 7282	2	3580					463	400	3	F	P		A

Column 1-4 - County
See Appendix A1-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoendel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Hurley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner: Claris Foss
Address: Decker, Montana

Driller's name: Kelly Drilling (M. Christian)
Address: Roundup, Montana

Log data: Drillers & ER-SP

Log index numbers:

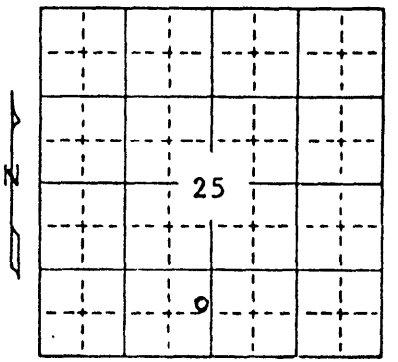
Lithologic samples: 10' int. below 20'
How stored: paper envelopes

Hydrologic data:

DRILL LOG

Depth Feet From	To	Material
0	50	Yellow Sand
50	91	Gray clay
91	92	Sandstone
92	96	Gray sandy clay
96	98	Sandstone
98	110	Sandy clay
110	158	Gray clay
158	159	Sandstone
159	163	Gray clay
163	164	Sandstone
164	165	Gray clay
165	166	Siltstone
166	173	Gray clay
173	174	Sandstone
174	176	Sandy clay w/ss strk.
176	177	Siltstone
177	180	Sandy clay
180	182	Siltstone
182	190	Gray clay
190	191	Siltstone
191	205	Gray clay
205	206	Sandstone
206	226	Carb shale
226	302	Coal
302	303	Siltstone
303	318	Sandy clay w/ss stk
318	320	Siltstone
320	325	Sand w/ss stks
325	327	Siltstone
327	329	Sand
329	331	Siltstone
331	350	Sandy clay
350	351	Siltstone
351	356	Sand
356	360	Siltstone
360	365	Sandstone
365	385	Coal
385	395	Sandy clay w/ss stks
395	396	Hard sandstone
396	400	Sandy clay

REMARKS & SKETCH



T. 9 S. R. 39 E. Sec. 25
TRACT cdad

Hole booted off forcing water into the formation. Pulled a rod reaming from 50'-60' ending water loss.
Moved over and cored 231'-232' fractured coal losing circulation - regained circulati and tried again to core and lost it. Drille another 10' - had good circulation but lost in attempting to core again. Drilled to 260 lost circulation and abandoned hole.

MONTANA BUREAU OF MINES AND GEOLOGY

COAL BED DATA

COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 24 Aug. 72 Map: Pearl School Quad Photo No.: 12BB-260

	STATE	COUNTY	LATITUDE DEG	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
A	M T	B H										9 S	3 9 E	2 9	c c a d	B M E	7	2 9 3	3 8 3	2			4 6 4 4 6 5 4 6 6	3 7 4	3	F	F			A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner: Federal

Address:

Driller's name: M. Christian (Kelly Drilling Co. - Roundup, Montana

Log data: Drillers logs

Log index numbers:

Lithologic samples: 10' int. below 20'

How stored: paper envelopes

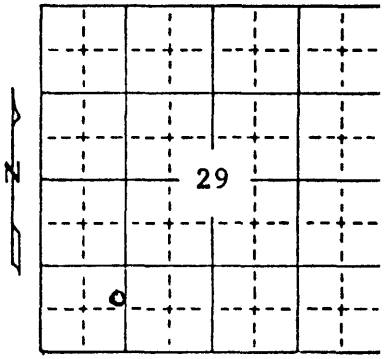
Hydrologic data:

DRILL LOG

Depth Feet From	To	Material
0	5	Yellow sand
5	10	Carb. sh. w/coal stks.
10	20	Gray clay w/ss stks
20	25	Coal w/carb. stks.
25	34	Gray clay w/ss stks.
34	35	Sandstone
35	45	Gray clay
45	47	Siltstone
47	50	Gray clay
50	51	Sandstone
51	56	Gray clay
56	57	Siltstone
57	73	Gray clay w/ss stk
73	74	Carb. sh. w/coal stk
74	105	Gray clay w/carb. stk.
105	112	Gray clay w/coal & carb. stk.
112	115	Gray clay
115	150	Coal
150	151	Gray clay
151	153	Siltstone
153	165	Gray clay/w/coal & carb stks.
165	166	Sandstone
166	176	Gray sandy clay
176	182	Sandy clay w/carb stks
182	200	Gray clay w/carb & ss stks
200	205	Sandy clay w/coal & carb. stks.
205	207	Sandstone
207	214	Coal w/ss stks.
214	220	Coal
220	222	Sandstone
222	242	Coal
242	243	Sandstone
243	255	Coal
255	258	Sandstone
258	260	Sandy clay w/bentonite stks
260	272	Gray clay w/ss stks
272	279	Sandstone
279	283	Siltstone
		(CONTINUED)

REMARKS & SKETCH

Moved over and drilled to 116', cored from 116-140
Sample No. 464
465
466
24' of core.



T. 9 N. R. 39 E., Sec. 29
TRACT ccad

Bottom 10' of coal from 140 to 150 was filled with many stringers of sand & carb. shale

12

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 24 Aug. 72 Map: Pearl School Quad Photo No. 12BB-268

	STATE	COUNTY	LATITUDE DEG	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	M	TB	H									9S	39E	29	ccad	BME 729	2	3832					464	3743	F	F		A

Column 1-4 – County
See Appendix A3-4 for Code

Column 19 – Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 – Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 – Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 – Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deits
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Wrewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Hurley
60. Other

Column 55 – Correlation Interval
465
466
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 – Accuracy of Hole Depth
0. Measured, accurate within 1 ft
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 – Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 – Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 – Geologic Code for Montana

Sheet 2 of 2

UNCODED INVENTORY DATA

Surface owner: Federal

Address:

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers log

Log index numbers:

Lithologic samples: 10' int. below 20'

How stored: paper envelopes

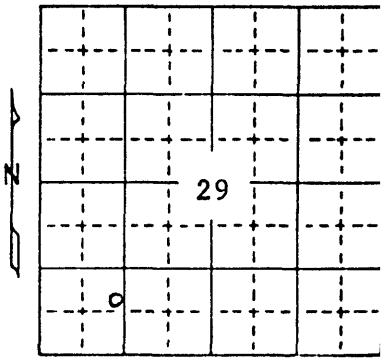
Hydrologic data:

DRILL LOG

DEPTH FEET From	To	Material
283	294	Gray clay w/ss stks
294	295	Hard sandstone
295	297	Gray clay
297	299	Sandstone
299	307	Gray clay
307	311	Sandy clay w/coal & carb. stks
311	312	Hard sandstone
312	315	Gray clay w/ss stks
315	319	Siltstone
319	322	Gray clay w/ss stks
322	337	Gray clay w/coal & carb stks
337	338	Siltstone
338	340	Bentonitic clay w/coal & carb. stks.
340	364	Coal (soft, smutty, woody, gassy)
364	374	Gray clay w/silt stks
374		Siltstone

REMARKS & SKETCH

Moved over 3'
Core 116-140



T. 9 S. R. 39 E. Sec. 29
TRACT ccad

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: R. Stiefel Source of data: MBMG Date: 28 Aug. 72 Map: Monarch Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	WY	SH										57N	84W	4	bbac	BME72102	4	1620					400	0	3	F	P	A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deits
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schowdel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner: William Welch
Address: Ranchester, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers

Log index numbers:

Lithologic samples:

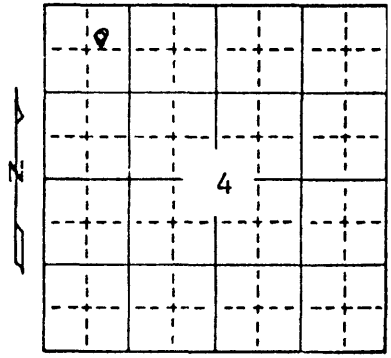
How stored:

Hydrologic data:

DRILL LOG

Depth Feet From	To	Material
0	20	Clinker
20	32	Gray clay
32	37	Carb sh
37	63	Gray clay
63	71	Coal (top 2' very smutty)
71	95	Yellow sandy clay
95	97	Sandstone
97	130	Yellow clay (sandy)
130	132	Sandstone
132	202	Gray clay w/ss stk
202	203	Sandstone
203	222	Sandy clay w/ss stk
222	226	Sandstone
226	250	Sandy clay w/coal stk
250	265	Coal
265	270	Clay
270	271	Sandstone
271	277	Gray clay
277	285	Coal
285	335	Clay w/ss stk
335	340	Coal
340	342	Siltstone
342	385	Sandy clay (gray)
385	386	Siltstone
385	388	Sandy clay
388	400	Gray clay

REMARKS & SKETCH



T. 57 N., R. 84 W., Sec. 4
TRACT bbac

130' FNL and 200' FWL

41

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 4 Sept. 72 Map: Ranchester Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	80
A	W.Y	S.H										5.8.N	8.5.W	1.7	c.d.c.d	6.M.E.	7.2.1.1.A	3.4.7.7.3					4.8.0	2.4.0	3	F	P		A

Column 2-4 - County
See Appendix A-4 for Code

Column 19 - Sequential Number
Enter 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

UNCODED INVENTORY DATA

Surface owner: Flying V Ranch
Address: Dayton, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Driller, ER-SP
Gamma-erratic

Log index numbers:

Lithologic samples: 10' int. beyond 20'
How stored: paper envelopes

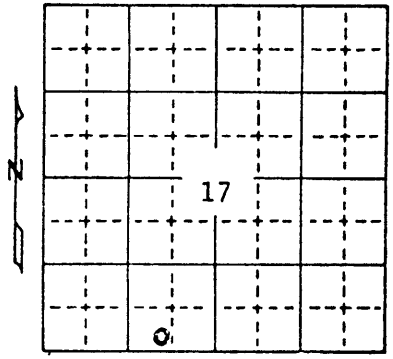
Hydrologic data: Made app. 5 GPM @ 160'-
water height = 100'

DRILL LOG

Depth Feet From	To	Material
0	7	Sand
7	12	Gray clay
12	15	Sand
15	30	Gray clay
30	31	Sandstone
31	35	Gray clay
35	36	Sandstone
36	83	Gray clay w/ss stks
83	84	Siltstone
84	86	Gray clay
86	88	Coal
88	95	Sand
95	130	Coal
130	134	Gray clay
134	139	Coal
139	147	Clay
147	149	Sandstone
149	151	Gray clay w/ss stks.
151	198	Coal
198	208	Sandstone
208	215	Gray clay
215	226	Coal
226	240	Clay

REMARKS & SKETCH

Elev. - Jacob staff & hand level



T. 58 N. R. 85 W. Sec. 17
TRACT cdcd

BME- 7211
Drilled to 95', lost circulation - could not regain, moved over and redrilled.

Chip sampled from 110-120 while air drilling.

5

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by J. Blumer Source of data MBMG Date 5 Sept. 72 Map Ranchester Quad Photo No.

	STATE	COUNTY	LATITUDE DEG.	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES
	1 2	3 4	5 6 7 8	9 10	11		12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	80
A	WY	SH										58N	85W	20	bada	BME 72 12	3	4819						3332	3	F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carnay, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or U
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

UNCODED INVENTORY DATA

Surface owner Flying V Ranch

Address Dayton, Wyoming

Driller's name M. Christian

Address Kelly Drilling Co.
Roundup, Montana

Log data Drillers, ER-SP

Log index numbers

Lithologic samples at 10' int. below 50'

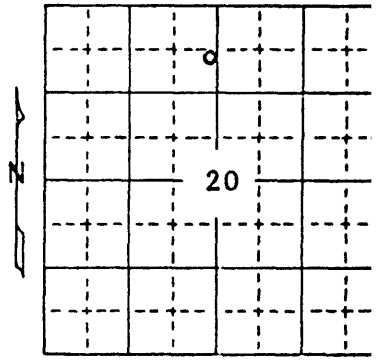
How stored

Hydrologic data

DRILL LOG

DEPTH FEET From	To	Material
0	45	Clinker
45	59	Gray clay w/ss stks
59	68	Coal
68	110	Gray clay w/bentonite
110	111	Siltstone
111	120	Gray clay
120	121	Sandstone
121	155	Gray sandy clay
155	156	Sandstone
156	173	Gray clay w/ss strks
173	175	Siltstone
175	176	Gray clay
176	178	Siltstone
178	185	Gray clay
185	186	Siltstone
186	206	Gray, sandy clay
206	208	Sandstone
208	236	Gray clay w/ss strks
236	239	Coal
239	240	Gray clay
240	246	Coal
246	254	Coal & numerous Ss stringers
254	256	Bentonitic clay
256	297	Sand w/coal strks
297	300	Siltstone
300	304	Sand
304	305	Siltstone
305	312	Sandy clay
312	313	Coal
313	315	Gray clay w/carb sh
315	320	Gray clay w/ss strks
320	332	Gray sandy clay w/bent strks

REMARKS & SKETCH



T. 58 N., R. 85 W., Sec. 20
TRACT bada

Elev. by Jacob Staff & hand level

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 6 Sept. 72 Map: Monarch Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	WY	SH										58N	85W	27	aadaB	ME	7	213	240	409			105	3	F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Roseloud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 - Geologic Code for Montana

UNCODED INVENTORY DATA

Surface owner: Flying V Cattle Co.

Address: Dayton, Wyoming

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers

Log index numbers:

Lithologic samples: None

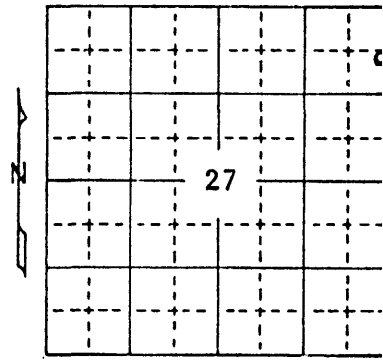
How stored:

Hydrologic data: Made app. 2 GPM @ 50'

DRILL LOG

DEPTH FEET From	To	Material
0	59	Clinker
59	61	Coal
61	77	Gray clay
77	79	Sandstone
79	86	Gray clay
86	92	Coal
92	95	Sand
95	99	Clay
99	105	Sandstone

REMARKS & SKETCH



T. 58 N. R. 85 W. Sec. 27
TRACT aada

MONTANA BUREAU OF MINES AND GEOLOGY

COAL BED DATA

COAL DIVISION

Recorded by J. Blumer Source of data MBMG Date 7 Sept. 72 Map Monarch Quad Photo No.

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13	14 15	16 17	18 19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79 80
A	W.Y	S.H										5 8 N	8 5 W	2 5	c d d b	B M E 7 2 1 4 2	4	3 4 5						1 2 4	3	F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½' quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deits
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

UNCODED INVENTORY DATA

Surface owner G. Buszkiewic

Address Ranchester, Wyo.

Driller's name M. Christian

Address Kelly Drilling Co.
Roundup, Montana

Log data Drillers

Log index numbers

Lithologic samples

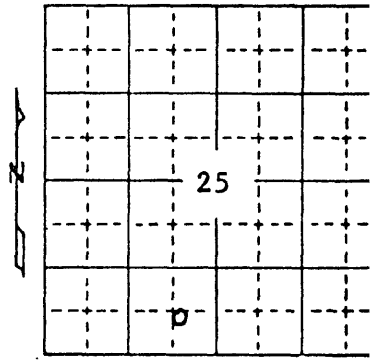
How stored

Hydrologic data Made app. 2 GPM @ 95'

DRILL LOG

Depth Feet From	To	Material
0	105	Clinker
105	123	Gray clay
123	124	Hard sandstone

REMARKS & SKETCH



T. 58 N. R. 85 W. Sec. 25

TRACT cddb

Drag bit would not cut hard sandstone @ 123'
Could not get rock bit back into hole.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: M. Granberg Source of data: MBMG Date: 9 Sept 72 Map: Monarch Quad Photo No.:

	STATE	COUNTY	LAT DEG	LAT MIN	LAT SEC	N. or S.	LONG DEG	LONG MIN	LONG SEC	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1-2	3-4	5-6	7-8	9-10	11	12-13-14	15-16	17-18	19	20	21-22	23-24-25	26-27	28-29-30-31-32	33-34-35-36-37-38-39	40	41-42-43-44	45-46-47-48	49-50-51-52	53-54	55	56-57-58-59	60-61-62-63	64	65	66	67-68-69-70	71-72-73-74-75-76-77-78-79-80
A	WY	S.H										57N	85W	10	bdac	BME7215240	15						467	2203		F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schordel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 - Geologic Code for Montan

UNCODED INVENTORY DATA

Surface owner: Flying V. Cattle Co.
Address: Dayton, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers

Log index numbers:

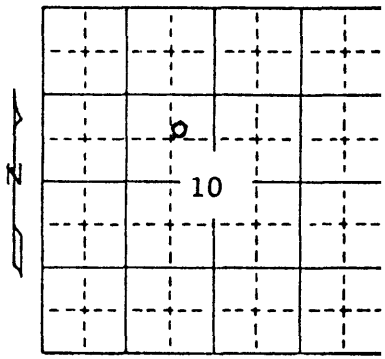
Lithologic samples: 10' int. after 20'
How stored: paper envelopes

Hydrologic data: No water encountered in hole

DRILL LOG

Depth Feet From	To	Material
0	15	Yellow sand
15	16	Sand
16	20	Coal
20	22	Yellow sand
22	25	Coal
25	36	Gray clay
36	40	Sand
40	47	Gray clay
47	48	Sand
48	55	Clay
55	58	Carb. sh. w/coal st.
58	66	Clay w/carb. stks.
66	68	Clay w/coal stks.
68	71	Coal w/clay stks.
71	73	Clay
73	74	Sandstone
74	75	Clay
75	98	Sand
98	105	Coal
105	157	Clay w/ss stks.
157	163	Coal
163	168	Clay & carb. sh. stks.
168	169	Siltstone
169	171	Gray clay
171	174	Clay w/coal stks.
174	179	Clay
179	184	Sandstone
184	186	Sand
186	220	Clay w/coal stks.

REMARKS & SKETCH



T. 57 N. R. 85 W. Sec. 10
TRACT bdac

Drilled w/air
Cored 100'-107'
bottom 3' was clay
coal cored 100'-104'
Lab. Sample No. 467

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 11 Sept. 72 Map: Monarch Quad Photo No.:

A	State (1-2)	County (3-4)	Latitude Deg. (5-6)	Lat. Min. (7-8)	Lat. Sec. (9-10)	N. or S. (11)	Longitude Deg. (12-13)	Long. Min. (14-15)	Long. Sec. (16-17)	Seq. No (18-19)	Accuracy (20)	T. (21-23)	R. (24-26)	Sec. (27-28)	Tract (29-32)	Drill Hole Number (33-39)	Accuracy (40)	Collar Elev. (41-44)	Depth to Top of Bed (45-48)	Depth to Bottom of Bed (49-52)	Bed No. (53-54)	Cor. (55)	Lab Sample Number (56-59)	Total Depth (60-63)	Accuracy (64)	Ownership (65)	Surface (66)	Geologic Code (67-70)	(71-79)	Card Des (80)
	WY	SH										57N	85W	28	aada	BME7216	2	3987						300	3	F	P			A

Column 3-4 – County
See Appendix A3-4 for Code

Column 19 – Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 – Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 – Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 – Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 – Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 – Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 – Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 – Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 – Geologic Code for Montan

UNCODED INVENTORY DATA

Surface owner: William Welch
Address: Ranchester, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers

Log index numbers:

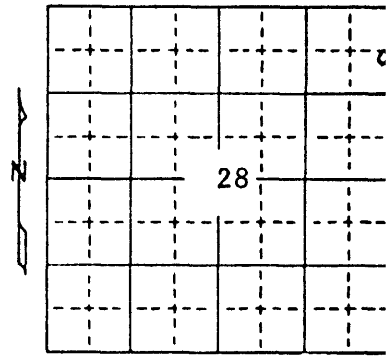
Lithologic samples: 10' int. below 20'
How stored: paper envelopes

Hydrologic data: No water

DRILL LOG

Depth Feet From	To	Material
0	10	Yellow gray clay
10	20	Sandy clay
20	21	Carb. shale
21	35	Sand
35	54	Gray clay w/coal st.
54	57	Sand
57	58	Sandstone
58	61	Clay
61	63	Coal
63	64	Carb. shale
64	65	Coal
65	66	Carb. shale
66	79	Clay
79	80	Sandstone
80	94	Clay
94	96	Coal
96	105	Clay
105	106	Sandstone
106	114	Clay
114	120	Carb. shale
120	155	Clay
155	157	Siltstone
157	172	Sand
172	173	Coal
173	174	Clay
174	180	Coal
180	208	Clay
208	216	Sand
216	217	Sandstone
217	220	Carb. shale
220	230	Coal
230	235	Clay w/carb shale
235	239	Clay
239	250	Coal
250	265	Clay
265	266	Siltstone
266	300	Sandy clay

REMARKS & SKETCH



T. 57 N., R. 85 W., Sec. 28
TRACT aada

Drilled with air - Moved over 10' to core - drilled with air to 174 - could not core as too much carb shale mixed in with coal.

20

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 12 Sept. 72 Map: Monarch Quad Photo No.

A	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCUPACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53	54	55 56 57 58 59	60 61 62 63	64	65	66	67 60 69 70	71 72 73 74 75 76 77 78 79	80
	WY	SH										5 8 N	8 4 W	2 9	a b a a	B M E 7 2 1 7	3	4 1 0 4					4 6 8	4 6 0	3	F	P			A

469

Column 3-4 - County
See Appendix A-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Hurley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co

Column 67-70 - Geologic Code for Montan

Sheet 1 of 2

UNCODED INVENTORY DATA

Surface owner: I. V. States
Address: Ash Creek, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Company
Roundup, Montana

Log data: Drillers, ER-SP

Log index numbers:

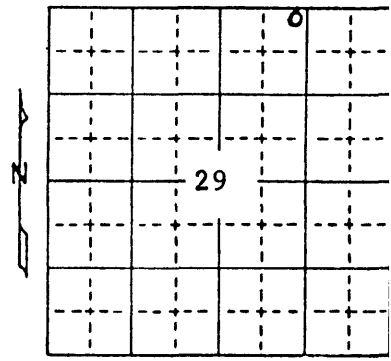
Lithologic samples: at 10' int. below 20'
How stored: paper envelopes

Hydrologic data: No water

DRILL LOG

DEPTH FEET From	To	Material
0	19	Gray clay
19	24	Coal
24	27	Gray clay
27	33	Carb. shale
33	38	Red clay
38	49	Gray clay
49	53	Coal w/clay strks.
53	55	Gray clay
55	69	Coal
69	91	Gray clay
91	94	Sandstone
94	96	Gray clay
96	97	Sandstone
97	98	Gray clay
98	99	Siltstone
99	101	Sandstone
101	113	Gray clay
113	117	Siltstone
117	118	Sandstone
118	120	Sandy clay
120	135	Sand
135	140	Carb. sh.
140	153	Sandy clay
153	154	Sandstone
154	159	Sandy clay w/ss strks
159	174	Coal
174	180	Brn. sandy clay
180	201	Gray clay w/ss strks
201	202	Siltstone
202	210	Gray sandy clay w/bentonite
210	214	Sandstone
214	215	Sandy clay
215	218	Siltstone
218	242	Bentonitic clay
242	243	Siltstone
243	265	Gray clay w/ss strks.
265	275	Bentonite
275	280	Gray clay w/ss strks.
		CONTINUED

REMARKS & SKETCH



T. 58 N., R. 84 W., Sec. 29
TRACT abaa

Cored 166 to 176
moved over and drilled to 60', cored from 60-68' - 25% recovery. Top of bed weathered

E-log shows a 2' parting at 64' in coal bed from 55-69.

Elev: by Jacob staff & hand level
Lab sample No's. 468 & 469.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 12 Sept. 72 Map: Monarch Quad Photo No.

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	WY	SH										58N	84W	29	abaa	BME 72 178		4104					4688		4603		FP		A

469

Column 1-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map, 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

Sheet 2 of 2

UNCODED INVENTORY DATA

Surface owner _____

Address _____

_____

Driller's name _____

Address _____

_____

Log data _____

_____

Log index numbers _____

_____

Lithologic samples _____

How stored _____

Hydrologic data _____

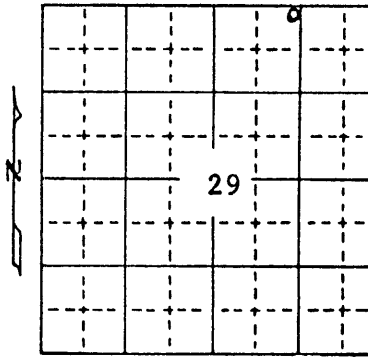
_____

_____

DRILL LOG

DEPTH FEET From	To	Material
280	300	Sand
300	323	Sandy clay
323	325	Coal
325	326	Sand & siltstone strks.
326	344	Gray clay
344	360	Sand & sandy coal
360	370	Sandy clay
370	375	Sandy clay & coal strks.
375	387	Sandy clay w/ss strks.
387	388	Hard sandstone
388	430	Sandy clay
430	440	Bentonite
440	455	Sandy clay w/carb. shale strks.
455	460	Clay w/ss strks.

REMARKS & SKETCH



T. 58 (N) S, R. 84 (E) W, Sec. 29

TRACT abaa

22

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 18 Sept. 72 Map: Acme Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES
A																												
	1 2	3 4	5 6	7 8	9 10	11	12 13	14 15	16 17	18 19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
	W	Y	S H									57 N	84 W	24	d a c a	B M E 7 2 1 9 3		3 8 8 5					471	4 7 0	3 7 1	3	F	P			A

Column 3-4 - County
See Appendix A3-4 for Code

Column 10 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mon

UNCODED INVENTORY DATA

Surface owner: J. Wilson
Address: Kirby Star Route
Sheridan, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, ER-SP

Log index numbers:

Lithologic samples: at 10' int. below 20'

How stored: paper envelopes

Hydrologic data: No water

DRILL LOG

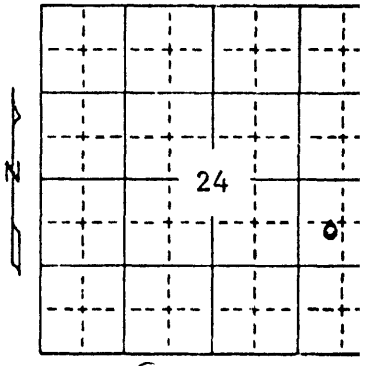
DEPTH FEET From	To	Material
0	15	Sand
15	23	Brown clay
23	25	Sandstone
25	40	Gray clay w/ss strks.
40	41	Coal
41	53	Gray clay
53	55	Sandstone
55	61	Sand
61	80	Gray clay
80	81	Sandstone
81	107	Gray clay
107	118	Coal
118	136	Gray clay
136	137	Siltstone
137	179	Gray clay
179	186	Sandstone, hard
186	214	Gray clay
214	226	Coal
226	235	Carb. shale
235	293	Clay
293	294	Sandstone
294	323	Sand
323	335	Coal
335	340	Sandstone
340	370	Sand
370	371	Siltstone

REMARKS & SKETCH

Elev: Jacob staff & hand level

Cored "Arzy" bed from 108-118 - sample No. 470

Cored Roland bed from 216-226 sample No. 471



T. 57 N., R. 84 W., Sec. 24
TRACT daca
Loc: 950 FEL
1900 FSL

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 15 Sept. 72 Map: Acme Quad Photo No.

A

STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
1 2	3 4	5 6	7 8	9 10	11	12 13	14 15	16 17	18 19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
W Y	S H										5 8 N	8 4 W	2 8	a c b c	B M E 7 2 1 8	2	4 0 1 8						2 5 0	3	F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Serial Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 52-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Pepham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Cranmm or O
51. N
54. Robinson, M, or Colman
57. Burley
00. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

UNCODED INVENTORY DATA

Surface owner: J. V. States

Address: Ash Creek, Wyoming

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, ER-SP

Log index numbers:

Lithologic samples: at 10' int. below 20'

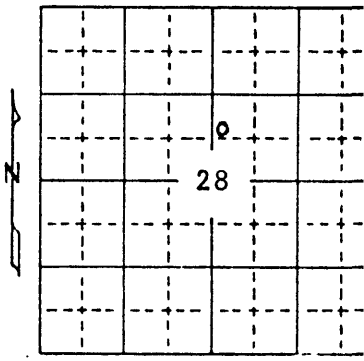
How stored: paper envelopes

Hydrologic data: No water

DRILL LOG

DEPTH FEET From	To	Material
0	16	Yellow & gray clay
16	17	Siltstone
17	21	Sandstone
21	23	Yellow clay
23	30	Sandstone
30	31	Siltstone
31	35	Yellow sandy clay
35	55	Gray sandy clay
55	56	Siltstone
56	75	Gray clay and bentonite
75	80	Coal
80	90	Gray clay and coal stringers
90	103	Gray clay w/coal strks.
103	110	Coal w/many clay strks.
110	115	Gray clay
115	116	Siltstone
116	123	Gray clay
123	152	Coal w/some clay strks.
152	160	Gray clay w/coal strks.
160	167	Sand
167	168	Sandstone
168	173	Sandy clay
173	176	Siltstone
176	186	Sandy clay w/coal strks.
186	187	Sandstone
187	195	Sand
195	199	Siltstone
199	225	Sandy clay
225	235	Coal-grainy & smutty
235	243	Coal w/some clay partings
243	250	Gray clay
250	--	Siltstone

REMARKS & SKETCH



T. 58 N., R. 84 E., Sec. 23
TRACT acbc

Very good E-log
Cored from 80-90 - got clay with coal strin
not analyzed.

This hole contained much hard clay with coa
stringers thereby making it difficult for t
driller to determine the lithology

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 19 Sept. 72 Map: Sheridan 2 SW Quad Photo No.:

A

STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEC. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
WY	SH										57N	84W	36	caaa	BME7220	3	3862						400	3	S	S		A

Column 1-4 - County
See Appendix A3-4 for Code

Column 10 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 30 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deits
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Tavis, Carney, Hall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

UNCODED INVENTORY DATA

Surface owner: State of Wyoming

Address:

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, ER-SP

Log index numbers:

Lithologic samples: at 10' int. below 20'

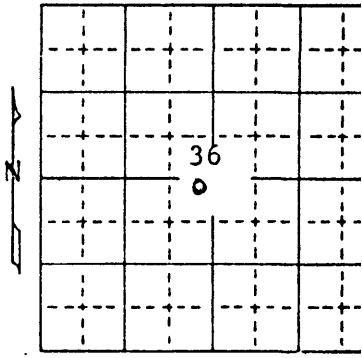
How stored: paper envelopes

Hydrologic data: no water

DRILL LOG

DEPTH FEET From	To	Material
0	20	Brown clay
20	35	Clay w/ss & carb. shale stks.
35	45	Sand
45	80	Gray clay
80	120	Clay w/carb sh. & coal stks.
120	140	Gray clay
140	147	Carb. shale
147	165	Clay w/coal strks.
165	167	Sandstone
167	185	Sandy clay w/coal strks.
185	210	Gray clay
210	219	Coal (soft)
219	279	Gray clay
279	281	Sandstone
281	358	Gray clay
358	359	Sandstone
359	361	Gray clay
361	370	Coal
370	384	Clay
384	385	Sandstone
385	400	Clay

REMARKS & SKETCH



T. 57 N., R. 84 W., Sec. 36
TRACT caaa

Elev: by Jacob Staff & hand level.

Bed at 210' was too soft to core.

25

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Elumer Source of data: MBMG Date: 4 Oct. 72 Map: Echeta 1 NW Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO	ACCUPACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	SOURCE	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	WY	CA										52N	73W	18	acac	E.ME.72.21	3	42.12				472	3603		FS			A

Column 3-4 - County
See Appendix A1-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway C

Column 67-70 - Geologic Code for Monta

UNCODED INVENTORY DATA

Surface owner: State

Address: Lessee - James R. Daly

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers, Gamma

Log index numbers:

Lithologic samples: at 10' int. after 20'

How stored: paper envelopes

Hydrologic data:

DRILL LOG

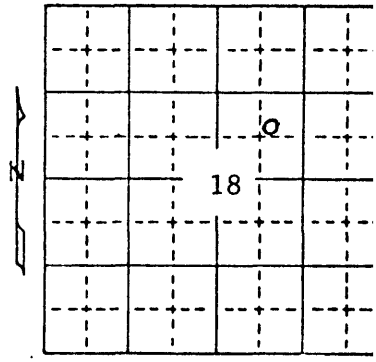
DEPTH FEET From	To	Material
0	35	Brown clay
35	37	Gravel
37	63	Gray clay
63	72	Coal
72	170	Gray clay
170	171	Hard sandstone
171	194	Sandy clay
194	208	Coal (soft)
208	243	Sand
243	255	Bentonite
255	265	Sandy clay
265	285	Bentonite
285	289	Coal
289	293	Clay
293	303	Coal
303	305	Clay
305	328	Coal
328	360	Clay w/ss stks.

REMARKS & SKETCH

Cored 71-72
Elev: Jacob staff & hand level

Hole blocked @ 275' could not get gamma source below.

Circulation problems below 300'.



T. 52 N., R. 73 W., Sec. 18
TRACT acac

Drillers log corrected to match geophysical log.

MONTANA BUREAU OF MINES AND GEOLOGY

COAL BED DATA

COAL DIVISION

Recorded by J. Blumer Source of data MBMG Date 10 Oct. 72 Map Echeta 1 NW Quad Photo No.

	STATE	COUNTY	LATITUDE DEG	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES
A																												
	1 2	3 4	5 6	7 8	9 10	11	12 13	14 15	16 17	18 19	20	21 22	23 24	25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
	W	C A										5 1 N	7 4 W		3	b d c b	B M E 7 2 2 2	3	4 5 8 4					6 0 0	3	F	F			A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Kimblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Durley
60. Other

Column 55 - Correlation Interval
Letter designation used to suppplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway C

Column 67-70 - Geologic Code for Monta

UNCODED INVENTORY DATA

Surface owner Federal

Address Lessee - Daly

Driller's name M. Christian

Address Kelly Drilling Co.
Roundup, Montana

Log data Drillers, ER, SP, Gamma

Log index numbers

Lithologic samples None

How stored

Hydrologic data

DRILL LOG

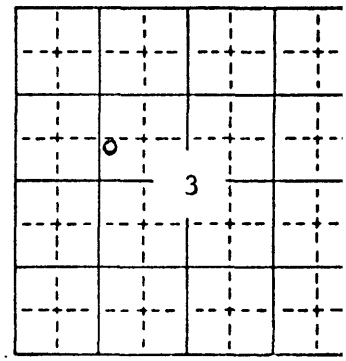
DEPTH FEET From	To	Material
0	8	Sand
8	9	Coal
9	29	Gray clay
29	31	Coal
31	75	Blue clay
75	76	Sandstone
76	96	Gray clay
96	99	Coal
99	127	Gray clay (sandy)
127	130	Hard sandstone
130	135	Sandy clay w/ss stk
135	149	Sand w/ss stks
149	150	Coal (?)
150	161	Gray clay
161	279	Sand w/ss stks
279	298	Coal
298	335	Sandy clay w/ss stks
335	350	Gray sandy clay w/ss stk.
350	360	Green sandy clay
360	415	Green sand
415	600	Green sandy clay

REMARKS & SKETCH

High back pressure in last 200' of hole.

Small coal stringer (1') @ 580'

Drillers log corrected to match geophysical log to 480'



T. 51 N/S, R. 74 E/W, Sec. 3

TRACT bdcb

27

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 12 Oct. 72 Map: Croton 4 SE Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	80
A	W Y	C A										5 2 N	7 3 W	3	c a a c	B M E 7 2 2 3 4	4	1 2 7					4 7 3	4 6 0 3	F	F P			A

Column 1-4 - County
See Appendix A3-4 for Code

Column 10 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 52-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoengel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57 Burley
60. Other

Column 55 - Correlation Interval
474
475
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

UNCODED INVENTORY DATA

Surface owner: Wm. Landeck
Address: Clearmont, Wyoming

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Mont.

Log data: Drillers - Gamma to 450
ER-SP to 215

Log index numbers:

Lithologic samples: at 10' int. below 20'
How stored: paper envelopes

Hydrologic data:

DRILL LOG

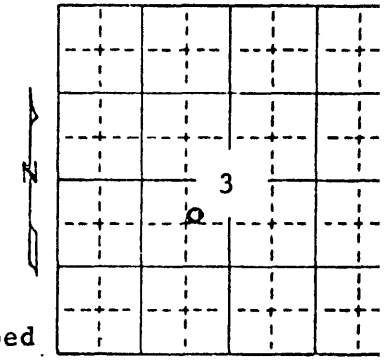
DEPTH FEET From	To	Material
0	58	Gray clay
58	63	Sandstone
63	70	Sandstone w/coal stk.
70	71	Sandstone (hard)
71	78	Clay
78	94	Coal
94	110	Carb. sh.
110	134	Sand w/siltstone stk.
134	136	Coal
136	139	Sand
139	174	Coal
174	190	Sandy clay
190	192	Sandstone
192	197	Gray clay
197	208	Sand
208	216	Gray clay
216	217	Sandstone
217	220	Sandy clay
220	228	Sand
228	233	Sandy clay
233	235	Sandstone
235	375	Sandy clay w/ss stk
375	380	Siltstone
380	408	Clay w/carb & coal strk.
408	450?	Coal
450	460	Sand

REMARKS & SKETCH

Elev. Jacob staff & Brunton compass

Samples:
No. 473: 80-88'
No. 474: 88-98'
No. 475: 143-150'

Cored 143'-150' developed circulation problem and pulled core.



T. 52 N., R. 73 W., Sec. 3
TRACT caac

Drillers log corrected to geophysical log to 445' - could not get to bottom of coal. Ended in sand.

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by M. Granberg Source of data MBMG Date 18 Oct 72 Map Croton 4 SE Quad Photo No.

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEC. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	80
A	WY	C A										53N	72W	33	c d b b	B M E 7 2 2 4 4		4234					476 477 478	280	3	F	R		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway C

Column 67-70 - Geologic Code for Monta

UNCODED INVENTORY DATA

Surface owner McGee

Address Gillette, Wyoming

Driller's name M. Christian

Address Kelly Drilling Co.
Roundup, Mont.

Log data Drillers; ER-SP, Gamma

Log index numbers

Lithologic samples @ 10' int. below 20'

How stored paper envelopes

Hydrologic data

DRILL LOG

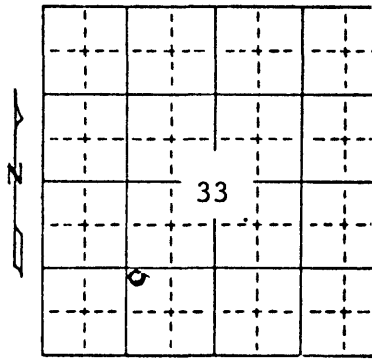
DEPTH FEET From	To	Material
0	30	Yellow clay
30	91	Gray clay
91	93	Coal
93	97	Clay
97	121	Coal
121	128	Clay w/coal stk.
128	151	Coal
151	170	Gray clay
170	171	Sandstone
171	182	Clay
182	206	Coal
206	208	Clay
208	216	Coal
216	260	Clay
260	280	Sand

REMARKS & SKETCH

Elev. by Jacob staff and hand level

Cored: 92'-107'
Sample Nos. 476 & 477

Cored: 140'-147'
Sample No. 478



T. 53 N., R. 72 W., Sec. 33
TRACT cdbb

Drillers log corrected to geophysical log to depth of 275'

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: M. Granberg Source of data: MBMG Date: 19 Oct 72 Map: Croton 4 SE Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	GEO. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	T	R.	R	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
A	1 2	3 4	5 6	7 8	9 10	11	12 13 14	15 16	17 18	19	20	21 22 23	24	25 26		27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70 71 72 73 74 75 76 77 78 79	80
	WY	C A										52N	72W			4	c d b b	B M E 7 2 2 5 3	4	2 6 5						2 8 0	3	F	P		A

Column 3-4 - County
See Appendix A3-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Dietz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M. or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

Drilled w/air & foam

UNCODED INVENTORY DATA

Surface owner: McGee

Address:

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Mont.

Log data: Drillers & Gamma

Log index numbers:

Lithologic samples: None

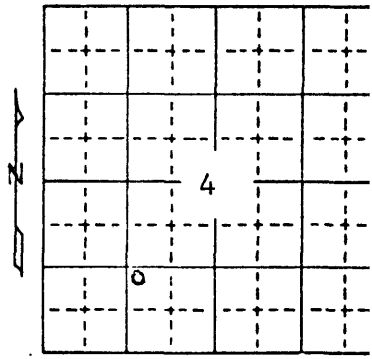
How stored:

Hydrologic data: Coal made a small amount of water

DRILL LOG

DEPTH FEET From	To	Material
0	10	Yellow sand
10	33	Gray sand
33	110	Clay
110	113	Coal
113	116	Clay
116	137	Coal
137	147	Clay
147	213	Coal
213	217	Clay
217	229	Coal
229	280	Gray clay

REMARKS & SKETCH



T. 52 N. R. 72 W. Sec. 4
TRACT cdbb

Drillers logs has been corrected to match geophysical log

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by M. Granberg Source of data MBMG Date 19 Oct 72 Map Croton 4 SE Quad Photo No.

	STATE	COUNTY	LATITUDE DEG.	LAT MIN.	LAT SEC.	N. or S.	LONGITUDE DEG.	LONG MIN.	LONG SEC.	SEC. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13	14 15	16 17	18 19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
A	WY	CA										53N	72W	21	cdba	BME7226	3	4274					4790	180	3	F	P		A

Column 3-4 – County
See Appendix A 3-4 for Code

Column 19 – Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 – Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 – Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½' quadrangle
4. Other

Column 52-54 – Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 – Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 – Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 – Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 – Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 – Geologic Code for Mont

UNCODED INVENTORY DATA

Surface owner Wm. Landeck

Address Clearmont, Wyo.

Driller's name M. Christian

Address Kelly Drilling Co.
Roundup, Mont.

Log data Drillers, Gamma

Log index numbers

Lithologic samples @ 10' int. below 20'

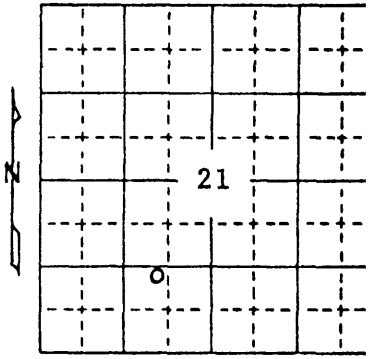
How stored paper envelopes

Hydrologic data

DRILL LOG

DEPTH FEET From	To	Material
0	8	Sand
8	9	Sandstone
9	18	Sand
18	40	Clay
40	50	Carb. shale
50	75	Clay
75	100	Clay w/ss. stks.
100	105	Coal
105	120	Clay
120	126	Coal w/clay part.
126	140?	Coal
140	180	Clay
180	-	Coal (highly fract.)
		T.D.I.C.

REMARKS & SKETCH



T. 53 N. R. 72 W. Sec. 21
TRACT cdba

Cored 100'-110', last 7' clay

Lost circulation @ 120' - regained it. Drilled w/very thick mud - had trouble calling lithology. Lost hole @ 180' and could not regain. Could not get gamma probe below 128'.

Recorded by: M. Granberg Source of data: MBMG Date: 23 Oct. 72 Map: Croton 1 SE Quad Photo No.:

	STATE	COUNTY	LATITUDE DEG	LATITUDE MIN.	LATITUDE SEC.	N. or S.	LONGITUDE DEG.	LONGITUDE MIN.	LONGITUDE SEC.	SEQ. NO	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
	1 2	3 4	5 6	7 8	9 10	11	12 13	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	71 72 73 74 75 76 77 78 79	80
A	WY	CA										5 6 N	7 2 W	3 2	a c b c	B M E 7 2 2 7	3	4 2 3 7						2 8 0	3	F	F			A

Column 3-4 - County
See Appendix A-4 for Code

Column 19 - Sequential Number
Number 1 used for first hole in quadrangle determined by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½' quadrangle
4. Other

Column 52-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Proctor
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoudel
39. Roseland or Q
42. Holt or McKay
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Hurley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 67-70 - Geologic Code for Montana

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

UNCODED INVENTORY DATA

Surface owner: Federal

Address: Leased by Morse Ranch

Driller's name: M. Christian

Address: Kelly Drilling Co.
Roundup, Mont.

Log data: Drillers, Gamma

Log index numbers:

Lithologic samples: at 10' int below 20'

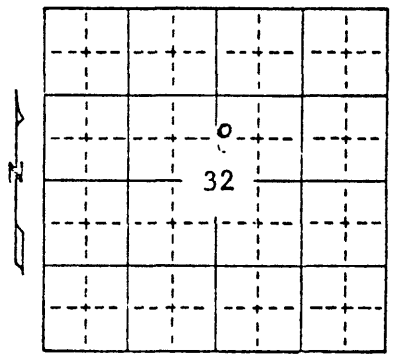
How stored: paper envelopes

Hydrologic data: made app 5 gpm in coal

DRILL LOG

DEPTH FEET From	To	Material
0	35	Sand
35	50	Gray clay
50	55	Sand
55	169	Clay
169	171	Coal
171	184	Clay
184	186	Coal (?)
186	194	Sand
194	230	Coal
230	236	Clay
236	240	Coal
240	243	Clay
243	264	Coal
264	280	Clay

REMARKS & SKETCH



T. 56 N. R. 72 W. Sec. 32

TRACT acbc

Drillers log has been corrected to match geophysical log to 276'

MONTANA BUREAU OF MINES AND GEOLOGY — COAL BED DATA — COAL DIVISION

Recorded by: J. Blumer Source of data: MBMG Date: 24 Oct. 72 Map: Croton 1 SE Quad Photo No.:

A	STATE	COUNTY	LATITUDE DEG.	MIN.	SEC.	N. or S.	LONGITUDE DEG.	MIN.	SEC.	SEQ. NO.	ACCURACY	LOCATION BY TOWNSHIP AND RANGE T.	R.	SEC.	TRACT	DRILL HOLE NUMBER	ACCURACY	COLLAR ELEV.	DEPTH TO TOP OF BED	DEPTH TO BOTTOM OF BED	BED NO.	COR.	LAB SAMPLE NUMBER	TOTAL DEPTH	ACCURACY	OWNERSHIP	SURFACE	GEOLOGIC CODE	CARD DES.
1	2	3 4	5 6 7 8	9 10	11		12 13 14	15 16	17 18	19	20	21 22 23	24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39	40	41 42 43 44	45 46 47 48	49 50 51 52	53 54	55	56 57 58 59	60 61 62 63	64	65	66	67 68 69 70	80
	WY	CA										5 6 N	7 3 W	2 6	d d c c	B ME 7 2 2 8	3	4 1 1 3						2 0 0	3	F	F		A

Column 1-4 - County
See Appendix A1-4 for Code

Column 10 - Sequential Number
Number 1 used for first hole in quadrangle designated by lat-long. Additional holes with same lat-long enter in numbered sequence.

Column 20 - Accuracy of Lat and Long
1. Nearest second
2. Within 10 seconds
3. Nearest 10 seconds
4. Nearest minute

Column 40 - Accuracy of Collar Elev.
1. Transit or level
2. Altimeter
3. Topographic map 7½" quadrangle
4. Other

Column 53-54 - Bed Number
1. Roland
3. Smith
6. Powers
9. Anderson
12. Deitz
No. 1
No. 2
No. 3
15. Canyon
18. Monarch
21. Davis, Carney, Wall, or Richard
24. Carlson or Procter
27. Brewster-Arnold
30. Popham
33. Knoblock or Lee
36. Schoedel
39. Rosebud or Q
42. Holt or Money
45. Stocker Creek or P
48. Graham or O
51. N
54. Robinson, M, or Colman
57. Burley
60. Other

Column 55 - Correlation Interval
Letter designation used to supplement bed number to index stratigraphic position of other coal beds:
A. About 100 ft. above listed bed
B. About 50 ft. above
C. About the same interval
D. 50 ft. below
E. 100 ft. below

Column 64 - Accuracy of Hole Depth
0. Measured, accurate within 1 ft.
1. Measured, less accurate than 1 ft.
3. From driller's log
4. From elec. log
5. Estimated
6. Reported

Column 65 - Ownership of Coal
F. Federal government
P. Private
S. State
N. Northern Pacific Railway Co.

Column 66 - Surface Owner
F. Federal government
P. Private
S. State
N. Northern Pacific Railway

Column 67-70 - Geologic Code for Mont

Drilled w/air and foam

UNCODED INVENTORY DATA

Surface owner: Federal
Address: leased by Morse Ranch

Driller's name: M. Christian
Address: Kelly Drilling Co.
Roundup, Montana

Log data: Drillers & Gamma

Log index numbers:

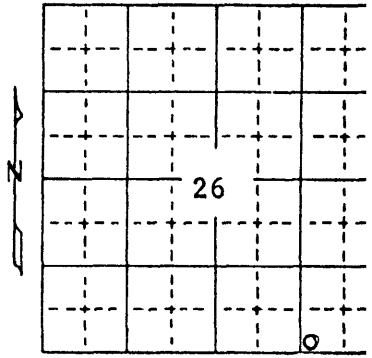
Lithologic samples:
How stored:

Hydrologic data: Making about 20 GPM in the coal

DRILL LOG

DEPTH FEET From	To	Material
0	5	Clay
5	8	Sand
8	11	Sandstone
11	18	Sand
18	20	Coal (?)
20	55	Clay
55	56	Sandstone
56	78	Clay
78	90	Carb shale
90	118	Clay
118	138	Carb. shale
138	175	Coal
175	200	Clay

REMARKS & SKETCH



T. 56 N., R. 73 E., Sec. 26
TRACT ddcc

Drillers log corrected to match geophysical log to depth of 134'. Could not get probe below 134'. Hole making too much water to drill below 200

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T 8S R41E S30 TBDDC ELV3591 DTB 95 DBB112 BED-

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 723 SAMPLE OF CORE 100- 109

RUN FOR PROJECT BMC DATE - 15JUL72

LAB. NUMBER - 458

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	4.780	24.840		
VOLATILE MATTER	39.480	31.163	41.462	42.922
FIXED CARBON	52.500	41.440	55.135	57.078
ASH	3.240	2.557	3.403	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.380	.300	.399	.413
ASH				
BRITISH THERMAL UNITS	12114	9561	12722	13170
SULFUR FORMS				
SULFATE	.020	.016	.021	.022
PYRITIC	.040	.032	.042	.043
ORGANIC	.320	.253	.336	.348

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T 8S R41E S30 TRDDC FLV3591 DTB 95 DBB112 BED-

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 723 SAMPLE OF CORE 109- 112

RUN FOR PROJECT BMC DATE - 15JUL72

LAB. NUMBER - 459

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	4.300	25.350		
VOLATILE MATTER	39.890	31.116	41.682	44.785
FIXED CARBON	49.180	38.362	51.390	55.215
ASH	6.630	5.172	6.928	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.930	.725	.972	1.044
ASH				
BRITISH THERMAL UNITS	11720	9142	12247	13158
SULFUR FORMS				
SULFATE	.010	.008	.010	.011
PYRITIC	.190	.148	.199	.213
ORGANIC	.730	.569	.763	.820

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 8S R38E S36 TCDBD ELV4012 DTB237 DBB290 BED-

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 727 SAMPLE OF CORE 240- 247

RUN FOR PROJECT BMC DATE - 8AUG72

LAB. NUMBER - 462

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.030	25.910		
VOLATILE MATTER	40.530	31.619	42.677	44.392
FIXED CARBON	50.770	39.608	53.459	55.608
ASH	3.670	2.863	3.864	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.390	.304	.411	.427
ASH				
BRITISH THERMAL UNITS	11927	9305	12559	13064
SULFUR FORMS				
SULFATE	.010	.008	.011	.011
PYRITIC	.070	.055	.074	.077
ORGANIC	.310	.242	.326	.340

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 9S R39E S25 TCDAD ELV3580 DTB230 DBB309 BED-ANDERSON

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER S8- 728 SAMPLE OF CORE 231- 232

RUN FOR PROJECT BMC DATE - 22AUG72

LAB. NUMBER - 463

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	4.650	21.730		
VOLATILE MATTER	39.700	32.589	41.636	43.935
FIXED CARBON	50.660	41.585	53.131	56.065
ASH	4.990	4.096	5.233	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.300	.246	.315	.332
ASH				
BRITISH THERMAL UNITS	11899	9768	12479	13168
SULFUR FORMS				
SULFATE	.010	.008	.010	.011
PYRITIC	.020	.016	.021	.022
ORGANIC	.270	.222	.283	.299

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 9S R39E S29 TCDBD ELV3832 DTB115 DBB150 BED-ANDERSON

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 729 SAMPLE OF CORE 137- 140

RUN FOR PROJECT BMC DATE - 24AUG72

LAB. NUMBER - 466

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.680	25.300		
VOLATILE MATTER	36.870	29.200	39.090	42.629
FIXED CARBON	49.620	39.298	52.608	57.371
ASH	7.830	6.201	8.302	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.810	.642	.859	.937
ASH				
BRITISH THERMAL UNITS	10992	8705	11654	12709
SULFUR FORMS				
SULFATE	.030	.024	.032	.035
PYRITIC	.100	.079	.106	.116
ORGANIC	.680	.539	.721	.786

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 9S R39E S29 TCDBD ELV3832 DTB115 DBB150 BED-ANDERSON

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 729 SAMPLE OF CORE 127- 137

RUN FOR PROJECT BMC DATE - 24AUG72

LAB. NUMBER - 465

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.880	25.150		
VOLATILE MATTER	38.370	30.514	40.767	42.426
FIXED CARBON	52.070	41.409	55.323	57.574
ASH	3.680	2.927	3.910	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.290	.231	.308	.321
ASH				
BRITISH THERMAL UNITS	11584	9212	12308	12808
SULFUR FORMS				
SULFATE	.020	.016	.021	.022
PYRITIC	.040	.032	.042	.044
ORGANIC	.230	.183	.244	.254

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 9S R39E S29 TCDBD ELV3832 DTB115 DBB150 BED-ANDERSON

COUNTY-BIG HORN STATE-MONTANA

SAMPLE NUMBER SH- 729 SAMPLE OF CORE 116- 127

RUN FOR PROJECT BMC DATE - 24AUG72

LAB. NUMBER - 464

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.850	24.040		
VOLATILE MATTER	38.220	30.836	40.595	42.780
FIXED CARBON	51.120	41.243	54.296	57.220
ASH	4.810	3.881	5.109	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.310	.250	.329	.347
ASH				
BRITISH THERMAL UNITS	11535	9306	12252	12911
SULFUR FORMS				
SULFATE	.020	.016	.021	.022
PYRITIC	.050	.040	.053	.056
ORGANIC	.240	.194	.255	.269

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.

NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 57N R85W S10 TRDAC ELV4015 DTB 98 DRB105 BED-MASTERS

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH- 7215 SAMPLE OF CORE 100- 104

RUN FOR PROJECT BMC DATE - 9SEP72

LAB. NUMBER - 467

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.000	26.010		
VOLATILE MATTER	38.480	30.289	40.936	45.233
FIXED CARBON	46.590	36.672	49.564	54.767
ASH	8.930	7.029	9.500	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.320	.252	.340	.376
ASH				
BRITISH THERMAL UNITS	10718	8436	11402	12599
SULFUR FORMS				
SULFATE	.020	.016	.021	.024
PYRITIC	.040	.031	.043	.047
ORGANIC	.260	.205	.277	.306

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T58N R84W S29 TABAC ELV4104 DTB163 DPB176 BED-

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH- 7217 SAMPLE OF CORE 166- 176

RUN FOR PROJECT BMC DATE - 12SEP72

LAB. NUMBER - 469

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.100	25.220		
VOLATILE MATTER	39.120	31.154	41.661	44.084
FIXED CARBON	49.620	39.516	52.843	55.916
ASH	5.160	4.109	5.495	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.730	.581	.777	.823
ASH				
BRITISH THERMAL UNITS	11229	8943	11958	12654
SULFUR FORMS				
SULFATE	.030	.024	.032	.034
PYRITIC	.180	.143	.192	.203
ORGANIC	.520	.414	.554	.586

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T58N R84W S29 TABAC ELV4104 DTB 55 DBB 71 BED-

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH- 7217 SAMPLE OF CORE 60- 68

RUN FOR PROJECT BMC DATE - 12SEP72

LAB. NUMBER - 468

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.970	25.430		
VOLATILE MATTER	39.650	31.444	42.167	46.014
FIXED CARBON	46.520	36.892	49.474	53.986
ASH	7.860	6.233	8.359	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.740	.587	.787	.859
ASH				
BRITISH THERMAL UNITS	10737	8515	11419	12460
SULFUR FORMS				
SULFATE	.030	.024	.032	.035
PYRITIC	.110	.087	.117	.128
ORGANIC	.600	.476	.638	.696

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 53N R72W 533 TCORB ELV4234 DTB128 DBB151 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7224 SAMPLE OF CORE 140- 147

RUN FOR PROJECT BMC DATE - 18OCT72

LAB. NUMBER - 478

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.640	34.110		
VOLATILE MATTER	37.640	26.565	40.317	42.627
FIXED CARBON	50.660	35.754	54.263	57.373
ASH	5.060	3.571	5.420	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.240	.169	.257	.272
ASH				
BRITISH THERMAL UNITS	10879	7678	11653	12320
SULFUR FORMS				
SULFATE	.020	.014	.021	.023
PYRITIC	0.000	0.000	0.000	0.000
ORGANIC	.220	.155	.236	.249

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 53N R72W S21 TCOBA ELV4274 DTB100 DBB105 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7226 SAMPLE OF CORE 100- 110

RUN FOR PROJECT BMC DATE - 190CT72

LAB. NUMBER - 479

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.280	29.050		
VOLATILE MATTER	37.050	28.048	39.533	47.763
FIXED CARBON	40.520	30.675	43.235	52.237
ASH	16.150	12.226	17.232	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.720	.545	.768	.928
ASH				
BRITISH THERMAL UNITS	9415	7128	10046	12137
SULFUR FORMS				
SULFATE	.020	.015	.021	.026
PYRITIC	0.000	0.000	0.000	0.000
ORGANIC	.700	.530	.747	.902

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 58N R85W S17 TCDCD ELV4773 DTB 95 DBB130 BED-

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH-7211A SAMPLE OF OTHER 110- 120 (GRAB SAMPLE

RUN FOR PROJECT BMC DATE - 4SEP72

LAB. NUMBER - 480

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.330	26.510		
VOLATILE MATTER	39.260	30.802	41.913	46.683
FIXED CARBON	44.840	35.180	47.870	53.317
ASH	9.570	7.508	10.217	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.330	.259	.352	.392
ASH				
BRITISH THERMAL UNITS	10305	8085	11001	12253
SULFUR FORMS				
SULFATE	.050	.039	.053	.059
PYRITIC	.010	.008	.011	.012
ORGANIC	.270	.212	.288	.321

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 53N R72W S33 TCDPB FLV4234 DTB 91 DBB121 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7224 SAMPLE OF CORE 92- 101

RUN FOR PROJECT BMC DATE - 18OCT72

LAB. NUMBER - 476

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	5.980	28.160		
VOLATILE MATTER	40.080	30.625	42.629	51.385
FIXED CARBON	37.920	28.974	40.332	48.615
ASH	16.020	12.241	17.039	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.990	.756	1.053	1.269
ASH				
BRITISH THERMAL UNITS	10399	7946	11060	13332
SULFUR FORMS				
SULFATE	.040	.031	.043	.051
PYRITIC	.130	.099	.138	.167
ORGANIC	.820	.627	.872	1.051

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 53N R72W S33 TCDRB ELV4234 DTB 91 DBB121 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7224 SAMPLE OF CORE 101- 106

RUN FOR PROJECT BMC DATE - 18OCT72

LAB. NUMBER - 477

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.850	32.070		
VOLATILE MATTER	36.280	26.457	38.948	41.420
FIXED CARBON	51.310	37.418	55.083	58.580
ASH	5.560	4.055	5.969	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.600	.438	.644	.685
ASH				
BRITISH THERMAL UNITS	10755	7843	11546	12279
SULFUR FORMS				
SULFATE	.020	.015	.021	.023
PYRITIC	0.000	0.000	0.000	0.000
ORGANIC	.580	.423	.623	.662

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 52N R73W S 3 TCAAC EL4127 DTB 78 DBB 94 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7223 SAMPLE OF CORE 80- 88

RUN FOR PROJECT BNC DATE - 120CT72

LAB. NUMBER - 473

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.780	31.290		
VOLATILE MATTER	36.660	27.021	39.326	43.415
FIXED CARBON	47.780	35.217	51.255	56.585
ASH	8.780	6.472	9.419	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.970	.715	1.041	1.149
ASH				
BRITISH THERMAL UNITS	10814	7971	11601	12807
SULFUR FORMS				
SULFATE	.050	.037	.054	.059
PYRITIC	.190	.140	.204	.225
ORGANIC	.730	.538	.783	.865

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 52N R73W S 3 TCAAC EL4127 DTB 78 DBB 94 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7223 SAMPLE OF CORE 88- 98

RUN FOR PROJECT BMC DATE - 12OCT72

LAB. NUMBER - 474

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.650	31.070		
VOLATILE MATTER	38.090	28.126	40.803	44.260
FIXED CARBON	47.970	35.421	51.387	55.740
ASH	7.290	5.383	7.809	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.980	.724	1.050	1.139
ASH				
BRITISH THERMAL UNITS	11077	8179	11866	12871
SULFUR FORMS				
SULFATE	.020	.015	.021	.023
PYRITIC	.240	.177	.257	.279
ORGANIC	.720	.532	.771	.837

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 52N R73W S 3 TCAAC ELV4127 DTB139 DBB174 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7223 SAMPLE OF CORE 143- 150

RUN FOR PROJECT BMC DATE - 130CT72

LAB. NUMBER - 475

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.490	31.930		
VOLATILE MATTER	40.080	29.176	42.862	46.266
FIXED CARBON	46.550	33.886	49.781	53.734
ASH	6.880	5.008	7.358	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.590	.429	.631	.681
ASH				
BRITISH THERMAL UNITS	10972	7987	11734	12665
SULFUR FORMS				
SULFATE	.020	.015	.021	.023
PYRITIC	0.000	0.000	0.000	0.000
ORGANIC	.570	.415	.610	.658

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L. 52N R73W S18 TACAC ELV4212 DTB 63 DOB 72 BED-

COUNTY-CAMPBELL STATE-WYOMING

SAMPLE NUMBER SH-7221 SAMPLE OF CORE 71- 72

RUN FOR PROJECT BMC DATE - 40CT72

LAB. NUMBER - 472

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	7.530	31.770		
VOLATILE MATTER	38.920	28.718	42.089	45.198
FIXED CARBON	47.190	34.820	51.033	54.802
ASH	6.360	4.693	6.878	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.850	.627	.919	.987
ASH				
BRITISH THERMAL UNITS	10830	7991	11712	12577
SULFUR FORMS				
SULFATE	.040	.030	.043	.046
PYRITIC	.060	.044	.065	.070
ORGANIC	.750	.553	.811	.871

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

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COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T57N R84W S24 TDACA ELV3885 DTB107 DBB118 BED-ARZY

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH- 7219 SAMPLE OF CORE 108- 118

RUN FOR PROJECT BMC DATE - 18SEP72

LAB. NUMBER - 470

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.700	26.100		
VOLATILE MATTER	36.970	29.283	39.625	43.757
FIXED CARBON	47.520	37.639	50.932	56.243
ASH	8.810	6.978	9.443	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	.670	.531	.718	.793
ASH				
BRITISH THERMAL UNITS	10600	8396	11361	12546
SULFUR FORMS				
SULFATE	.090	.071	.096	.107
PYRITIC	.080	.063	.086	.095
ORGANIC	.500	.396	.536	.592

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

MONTANA BUREAU OF MINES AND GEOLOGY
COAL ANALYSIS REPORT

L.T57N R84W S24 TDACA ELV3885 DTB214 DBB226 BED-ROLAND

COUNTY-SHERIDAN STATE-WYOMING

SAMPLE NUMBER SH-7219 SAMPLE OF CORE 216- 226

RUN FOR PROJECT BMC DATE - 18SEP72

LAB. NUMBER - 471

	COAL 1	COAL 2	COAL 3	COAL 4
PROXIMATE ANALYSIS				
MOISTURE	6.760	23.380		
VOLATILE MATTER	38.420	31.572	41.205	44.540
FIXED CARBON	47.840	39.313	51.308	55.460
ASH	6.980	5.736	7.486	
ULTIMATE ANALYSIS				
HYDROGEN				
CARBON				
NITROGEN				
OXYGEN				
SULFUR	1.420	1.167	1.523	1.646
ASH				
BRITISH THERMAL UNITS	11110	9130	11915	12880
SULFUR FORMS				
SULFATE	.030	.025	.032	.035
PYRITIC	.600	.493	.644	.696
ORGANIC	.790	.649	.847	.916

NOTE - ALL DECIMAL NUMBERS ARE PERCENTAGES.
NOTE - 0 ENTERED WHERE PERCENTAGES LESS THAN 0.01

COAL 1 - AIR DRIED
COAL 2 - AS RECEIVED
COAL 3 - MOISTURE FREE
COAL 4 - MOISTURE FREE AND ASH FREE

Table 1.--Percent ash, and major oxide composition of ash (in percent), of drill-core coal samples, Powder River basin.

Blank space indicates analysis not completed at time of report preparation.

Field-Lab. Sample Nos.	Ash	SiO_2	Al_2O_3	Na_2O	K_2O	CaO	MgO	P_2O_5	Fe_2O_3	SO_3
458-D160662	3.20	31.	15.	2.4	0.4	16.	9.6	1.7	5.8	20.
459-D160663	6.80	35.	22.	1.2	.4	7.9	4.6	1.1	4.7	14.
462-D160666	3.25	16.	13.	2.3	.6	24.	8.7	.2	4.1	20.
463-D160667	4.56	37.	10.	6.1	.3	14.	3.3	.3	4.2	12.
464-D160668	4.56	41.	10.	1.8	.3	18.	9.3	.7	3.9	13.
465-D160669	3.43	14.	14.	1.9	.4	23.	12.3	4.4	5.5	16.
466-D160670	7.12	25.	18.	.9	1.3	11.	5.7	3.8	4.1	16.
467-D160671	6.92	37.	21.	2.7	1.2	8.8	5.4	.9	4.6	8.
468-D160672	8.16	34.	18.	.2	1.0	12.	3.4	.1	4.1	15.
469-D160673	4.87	18.	10.	.8	.3	18.	8.3	1.5	6.4	22.
470-D161073	8.08	32.	12.	1.4	.4	17.	5.0	1.6	5.6	16.
471-D161074	7.30	27.	11.	2.5	.9	16.	4.0	1.3	7.8	23.
472-D161075	6.42	8.	7.	1.9	.2	30.	4.6	.4	8.4	29.
473-D161076	8.24	27.	8.	.9	<.1	22.	4.2	2.3	4.9	23.
474-D161077	5.40	8.	5.	1.5	.1	29.	5.8	<.1	8.6	34.
475-D161078	6.20	25.	10.	1.8	.1	25.	4.8	.5	4.9	21.
476-D161079	11.3	34.	19.	.9	.6	13.	2.7	1.5	4.8	15.
477-D161080	5.67	15.	13.	2.1	.1	28.	5.6	.5	4.9	21.
478-D161081	5.00	19.	11.	2.3	.4	28.	6.3	3.5	3.7	10.
479-D161082	14.8	42.	23.	.8	1.5	9.3	2.6	.9	4.0	9.
480-D161083	6.52	40.	14.	.2	1.3	14.	7.1	.6	3.2	9.

Table 2.--Quantitative analyses (in ppm) for 13 trace elements in drill-core coal samples, Powder River basin. Blank space indicates analysis not completed at time of report preparation.

Drill-hole No.	Sample interval (ft)	Drill-core sample No.	Laboratory No.	ppm, coal								ppm, ash					Ash %
				As	F	Hg	Sb	Se	Te	Tl	U	Cd	Cu	Li	Pb	Zn	
723	100-109	458	D160662	2.	40	0.035	0.92	<0.1	0.1	<0.2	<0.2	-	335	27	-	185	3.20
"	109-112	459	D160663	2.	30	.082	.62	.4	.1	<.2	.8	1.5	385	130	275	180	6.80
727	240-247	462	D160666	2.	10	.037	.08	< .1	< .02	<.2	< .2	<1.0	420	50	545	175	3.25
728	231-232	463	D160667	3.	10	.051	.12	< .1	.02	<.2	.4	<1.0	605	93	1660	195	4.56
729	116-127	464	D160668	1.	30	.044	.04	.2	< .02	<.2	< .2	<1.0	245	31	300	83	4.56
"	127-137	465	D160669	1.	20	.030	.04	< .1	< .02	<.2	< .2	<1.0	180	28	195	93	3.43
"	137-140	466	D160670	3.	30	.106	.06	.6	< .02	<.2	1.2	1.5	145	44	120	240	7.12
7215	100-104	467	D160671	2.	30	.035	.08	< .1	< .02	<.2	.9	<1.0	100	50	100	185	6.92
7217	60-68	468	D160672	2.	60	.049	.04	.5	.1	<.2	.8	1.5	130	43	105	350	8.16
"	166-176	469	D160673	2.	10	.099	<.04	.2	.05	<.2	< .2	<1.0	120	27	80	115	4.87
7219	108-118	470	D161073	3.		.043		.6			.9	<1.0	140	33	140	72	8.08
"	216-226	471	D161074	4.		.065		.5			.3	1.0	224	34	420	100	7.30
7221	71-72	472	D161075	5.		.039		.9			.5	1.0	316	16	220	160	6.42
7223	80-88	473	D161076	3.		.035		.5			.4	<1.0	80	20	110	24	8.24
"	88-98	474	D161077	2.		.021		.3			< .2	<1.0	90	11	130	32	5.40
"	143-150	475	D161078	3.		.058		1.0			< .2	<1.0	180	21	120	42	6.20
7224	92-101	476	D161079	5.		.181		1.5			1.7	1.5	180	57	87	480	11.3
"	101-106	477	D161080	3.		.048		.5			.5	<1.0	105	27	100	122	5.67
"	140-147	478	D161081	4.		.028		.6			.3	<1.0	105	16	100	104	5.00
7226	100-110	479	D161082	4.		.041		1.2			1.5	<1.0	92	45	79	232	14.8
7211A	110-120	480	D161083	3.		.035		.3			.4	<1.0	84	25	69	224	6.52

Not determined

Not determined

Table 3.--Semiquantitative 6-step spectrographic analyses (in ppm) of drill-core coal samples, Powder River basin. [1/]

Drill-core Lab. sample Nos.	B	Ba	Be	Co	Cr	Ga	Ge	La	Mn	Mo	Nb	Ni	Sc	Sn	Sr	Ti	V	Y	Yb	Zr
458-D160662	1,500	15,000	-	30	70	30	-	-	500	70	20	30	30	30	7,000	5,000	200	30	3	200
459-D160663	300	3,000	7	30	70	30	-	70	200	70	20	30	30	-	3,000	7,000	300	50	5	150
462-D160666	1,000	5,000	-	20	70	30	-	-	500	100	-	20	30	20	15,000	5,000	300	30	3	150
463-D160667	700	10,000	-	15	50	20	-	-	500	200	20	20	20	30	7,000	5,000	150	30	3	200
464-D160668	700	7,000	-	15	50	20	-	-	100	50	20	15	15	-	5,000	5,000	150	30	3	200
465-D160669	700	10,000	-	15	50	30	-	-	150	30	-	15	15	-	7,000	3,000	150	20	2	100
466-D160670	300	7,000	3	15	70	30	-	70	100	50	-	70	15	-	3,000	3,000	150	50	3	100
467-D160671	1,500	3,000	15	70	100	30	-	70	70	50	-	150	30	-	300	3,000	200	70	7	150
468-D160672	500	3,000	3	15	70	30	-	70	150	15	20	50	15	-	500	3,000	200	50	5	150
469-D160673	700	5,000	-	7	30	20	-	-	500	7	-	15	15	-	3,000	3,000	150	30	3	100
470-D161073	500	3,000	-	10	50	20	-	-	200	20	-	30	20	-	3,000	3,000	150	20	2	100
471-D161074	700	3,000	-	15	50	15	-	-	200	50	-	70	15	20	3,000	2,000	150	30	3	70
472-D161075	700	3,000	30	50	50	70	30	-	2,000	50	-	100	30	20	5,000	1,000	100	150	10	50
473-D161076	700	3,000	-	-	20	15	-	-	500	10	-	10	-	20	3,000	3,000	70	-	-	150
474-D161077	1,000	3,000	3	-	20	10	-	-	300	15	-	20	10	-	3,000	1,500	70	20	2	70
475-D161078	700	5,000	-	20	50	15	-	-	300	7	-	70	20	-	3,000	5,000	150	30	3	150
476-D161079	300	3,000	5	30	100	20	-	100	200	7	-	100	30	-	3,000	3,000	300	50	5	150
477-D161080	500	5,000	-	30	70	15	-	70	100	7	-	100	20	-	5,000	3,000	150	70	7	100
478-D161081	700	7,000	-	10	30	15	-	-	70	10	-	50	15	-	7,000	2,000	100	20	2	100
479-D161082	300	3,000	7	30	100	30	-	-	100	7	-	50	30	-	2,000	3,000	300	30	3	100
480-D161083	500	3,000	-	15	70	20	-	-	150	-	-	50	15	-	1,000	3,000	150	20	2	150

[1/] Elements looked for, but below limit of detection: Ag, Au, Bi, Ce, Pd, Pt, and W.

United States Department of Interior
Geological Survey

Preliminary report of coal drill-hole data and chemical analyses of coal beds in Sheridan and Campbell Counties, Wyoming, and Big Horn County, Montana

by

U. S. Geological Survey

and

Montana Bureau of Mines and Geology

Open-file report
1973

This report is preliminary and has not been edited or reviewed for conformity with U. S. Geological Survey standards or nomenclature.