

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Lithologic and Geophysical Log of Drill Hole BCR 1

Sec. 32, T. 20 S., R. 6 E.

Emery County, Utah

By

J. D. Sanchez and M. P. Kubatz

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

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One hole (BCR 1) was drilled in sec. 32, T. 20 S., R. 6 E., in the Flagstaff Peak quadrangle, Utah. The main purpose of the drilling was to obtain cores of coal beds for comprehensive analysis and to relate the analytical data to depositional environments previously worked out on nearby outcrops. Other objectives were to test new concepts of coal-bed correlations and to improve coal-resource appraisals.

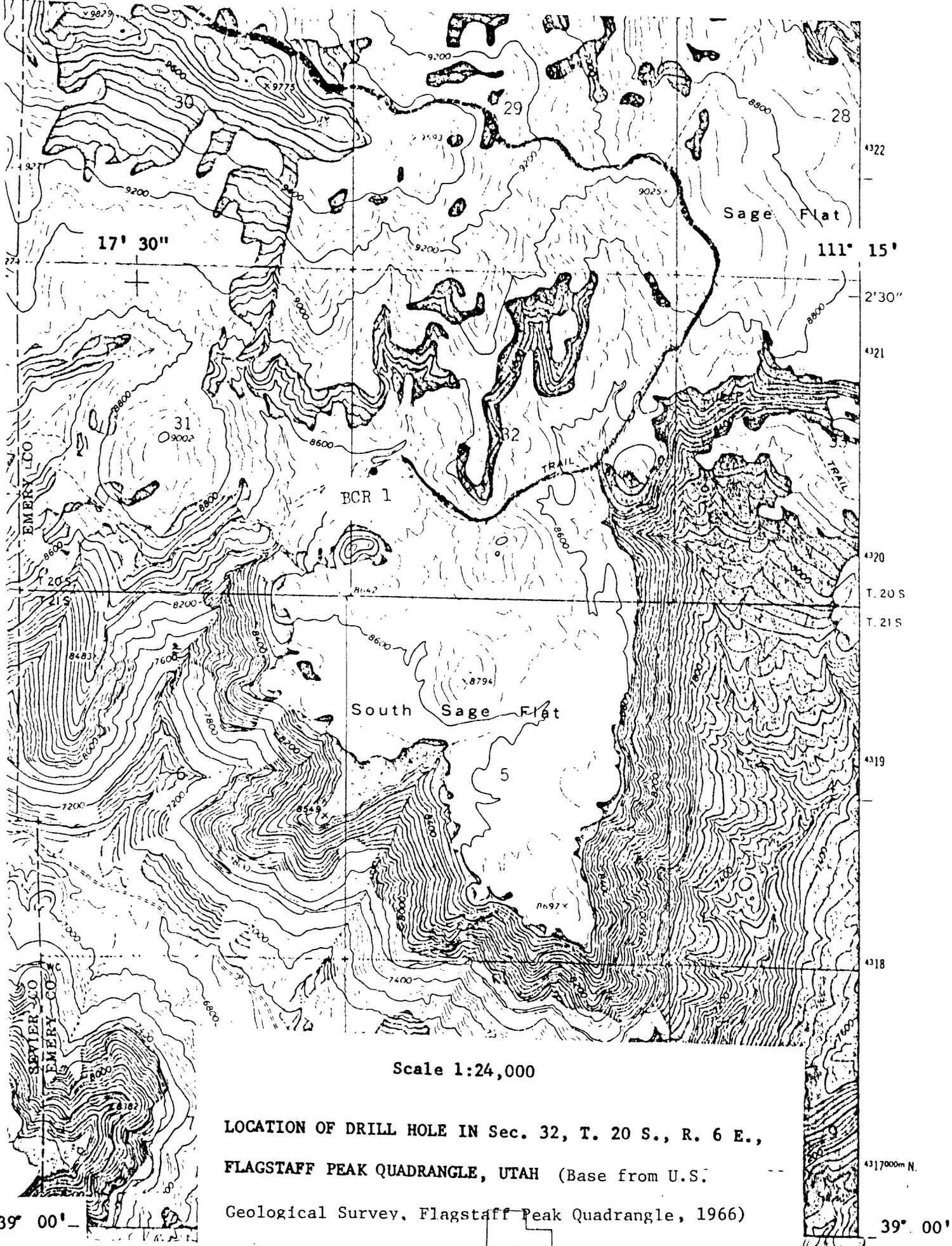
Samples of cores of coal beds were collected and submitted for comprehensive analysis. Samples of roof rock and partings were also collected and submitted for hydrologic studies, physical-property tests, and trace-element analysis.

The geophysical properties of the hole were logged; this includes focused density, gamma ray, resistivity, and drift survey properties.

Descriptions of rock colors were made using the Geological Society of America rock color chart, 1970, The Geological Society of America, Inc., P.O. Box 1719, Boulder, Colorado 80302. This method of color description was used to establish uniformity and to allow the reader to relate the colors of the descriptions back to the color chart.

Cuttings descriptions are based on samples taken every 5 and 10 ft. These descriptions are very general.

Core descriptions are based on the actual core sample.



Scale 1:24,000

LOCATION OF DRILL HOLE IN Sec. 32, T. 20 S., R. 6 E.,
 FLAGSTAFF PEAK QUADRANGLE, UTAH (Base from U.S.
 Geological Survey, Flagstaff Peak Quadrangle, 1966)



QUADRANGLE LOCATION

U.S. Geological Survey

Project Wasatch Plateau Coal Field

Hole No. BCR 1 Geologist J. D. Sanchez and M. P. Kubatz

Type log. Cuttings and core Elev. 8600 ft. Total depth 973.6 ft.

Location 300 ft. F.W.L., 2000 ft. F.S.L. Sec. 32 T. 20 S. R. 6 E.

Nearest town Ferron County Emery State Utah Quad. Flagstaff Peak

Drilled by: K & K Drilling

Driller(s): Neil Hendrickson (Rotary Drilling), Rick Kuchler & Dick Kuchler (Core Drl

Drill: Frank (Rotary), Joy 22 (Core) Date start 7/7/78 Complete 8/16/78

Non-core intervals and size hole: 0-750 ft., 6 1/8 in. - 380 ft., 5 5/8 in. - 750 ft.

Cored intervals and size: 750 ft. - 973.6 ft., NC wireline

Remarks: Hole was drilled to a total depth of 973.6 ft., and bottomed in the Star Point Sandstone. Four log types were run; these included Focused Density (in lower Blackhawk Formation), Gamma Ray, Resistivity, Drift Survey. Logging was run at 20 ft. per minute.

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
0'	4'	4'	Top soil, dark yellowish brown (10 YR 4/2) (Sample R B #1), slightly calcareous				
4'	10'	6'	Sandstone, yellowish gray (5 Y 8/1) and very fine grained, mostly quartz, calcareous interbedded with shale, dark yellowish brown (10 YR 4/2) (Sample R B #2)				
10'	20'	10'	Sandstone, yellowish gray (5 Y 8/1), very fine grained, mostly quartz, calcareous feldspathic in part (Sample R B #3 & 4)				
20'	30'	10'	Sandstone, yellowish gray (5 Y 8/1), very fine grained, mostly quartz, calcareous.				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
			silty. (Sample R B #5 & 6)				
30'	35'	5'	Sandstone, yellowish gray (5 Y 8/1), very fine grained, mostly quartz, calcareous silty (Sample R B #7)				
35'	40'	5'	Sandstone, light brown gray (5 YR 6/1), fine to medium grained, mostly quartz, feldspathic, some pebbles 2 mm to 8 mm included (Sample R B #8)				
40'	45'	5'	Sandstone, light gray (N 7), fine to medium grained, subrounded to subangular; calcareous friable (Sample R B #9)				
45'	60'	15'	Sandstone, light gray (N 7), fine to medium grained, subrounded to subangular, calcareous friable (Sample R B #10)				
60'	70'	10'	Sandstone, light gray (N 7), fine to very fine grained, rounded, calcareous (Sample R B #11)				
70'	80'	10'	Sandstone, light gray (N 7), fine to very fine grained, rounded, calcareous (Sample R B #12)				
80'	90'	10'	Sandstone, light gray (N 7) and pale yellowish brown (10 YR 6/2) particles, very fine grained, calcareous (Sample R B #13)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	Z Rec'd
90'	100'	10'	Sandstone, medium gray (N 5), very fine grained, calcareous (Sample R B #14)				
100'	110'	10'	Sandstone, very light gray (N 8) to light gray (N 7), very fine grained to fine; subrounded grains, calcareous (Sample R B #15)				
110'	120'	10'	Sandstone, brownish gray (5 YR 4/1), shale in part, very fine to fine grain, particles of coal, calcareous (Sample R B #16)				
120'	130'	10'	Sandstone, very light gray (N 8), medium grain, subrounded (R B #17)				
130'	140'	10'	Sandstone, white (N 9), fine grained, subrounded (R B #18)				
140'	150'	10'	Sandstone, white (N 9), fine to medium grain, subrounded (Sample R B #19)				
150'	160'	10'	No Sample				
160'	170'	10'	Conglomerate, varying sizes of quartz, and shale < 2 mm with coarse grain, quartz, subrounded (Sample R B #20)				
170'	180'	10'	Conglomerate; contains dark gray (N 3) to white, quartz fragments and sandstone; calcareous sandstone, < 2 mm, medium to coarse quartz grain matrix, white, subrounded (Sample R B #21)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	I Rec'd
180'	190'	10'	Conglomerate, contains light gray (N-8) to white (9) sandstone fragments, calcareous, medium to coarse grained quartz matrix, white, subrounded to subangular (Sample R B #22)				
190'	200'	10'	Shale, very light gray (N 8), interbedded with quartz pebbles and calcareous sandstone with very fine to fine, subangular quartz grains (Sample R B #23)				
200'	210'	10'	Sandstone, very light gray (N 8) to light gray (N 7), very fine grain, calcareous (Sample R B #24)				
210'	220'	10'	Sandstone, very light gray (N 8) to light gray (N 7), very fine grain, calcareous (Sample R B #25)				
220'	230'	10'	Shale, very light gray (N 8); incorporated siltstone, grayish purple (5 P 4/2) < 1 1/2 mm, subangular, calcareous (Sample R B #26)				
230'	240'	10'	Sandstone, light gray (N 8), very fine grained, several fragments sandstone, white, very fine grained, calcareous, coal fragment (Sample R B #27)				
240'	250'	10'	Sandstone, light gray (N 8), very fine grain, several fragments sandstone, white, very fine grained, calcareous, coal				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
			fragment (Sample R B #28)				
250'	260'	10'	Sandstone, light gray (N 8), very fine grained, several fragments of sandstone, white (N 9), very fine grained, calcareous, coal fragment (Sample R B #29)				
260'	270'	10'	Sandstone, light gray (N 8), very fine to fine grain, calcareous; fragment, sandstone, white (9), very fine grained, carbonaceous (Sample R B #30)				
270'	280'	10'	Sandstone, light gray (N 8), very fine grained, calcareous (Sample R B #31)				
280'	290'	10'	Sandstone, light brown gray (5 YR 6/1), fine to very fine grained, subangular to subrounded, calcareous-interbedded shale, light brown gray (5 YR 6/1), calcareous (Sample R B #32)				
290'	300'	10'	Sandstone, light brown gray (5 YR 6/1), fine to very fine grained, subangular to subrounded, calcareous-interbedded shale, light brown gray (5 YR 6/1), calcareous (Sample R B #33)				
300'	310'	10'	Shale, light gray (N 8), calcareous (Sample R B #34)				
310'	320'	10'	Sandstone, light gray (N 7), very fine				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
			grained, calcareous (Sample R B #35)				
320'	330'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, medium gray (N 5), calcareous (Sample R B #36)				
330'	340'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, light gray (N 7), calcareous, small amount of organic matter (Sample R B #37)				
340'	350'	10'	Sandstone, very light gray (N 8) to dark gray (N 3), very fine grained, calcareous (Sample R B #38)				
350'	360'	10'	Sandstone, very light gray (N 8), very fine to medium grain, subangular to subrounded, calcareous; shale, light gray (N 7), calcareous (Sample R B #39)				
360'	370'	10'	Sandstone, medium light gray (N 6), medium to very fine grain, subangular to subrounded, calcareous; shale, medium gray (N 5), calcareous (Sample R B #40)				
370'	380'	10'	Shale, medium gray (N 5), calcareous (Sample R B #41)				
380'	390'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, medium light gray (N 6) (Sample R B #42)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
390'	400'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, medium dark gray (N 4) (Sample R B #43)				
400'	410'	10'	Sandstone, very light gray (N 8), very fine grained, calcareous; shale, medium dark gray (N 4) (Sample R B #44)				
410'	420'	10'	Sandstone, very light gray (N 8), very fine grained, calcareous; shale, medium dark gray (N 4) (Sample R B #45)				
420'	430'	10'	Sandstone, pale yellowish brown (10 YR 6/2), very fine grained, calcareous, shale, medium dark gray (N 4), calcareous (Sample R B #46)				
430'	440'	10'	Shale, very light gray (N 8) to dark gray (N 3), calcareous; sandstone, very light gray (N 8), medium grain, subrounded, calcareous (Sample R B #47)				
440'	450'	10'	Shale, very light gray (N 8) to dark gray (N 3), calcareous (Sample R B #48)				
450'	460'	10'	Sandstone, pale yellowish brown (10 YR 6/2) very fine grained, calcareous; shale, dark gray (N 3) (Sample R B #49)				
460'	470'	10'	Sandstone, pale yellowish brown (10 YR 6/2) very fine grained, calcareous; shale, dark gray (N 3) (Sample R B #50)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	X Rec'd
470'	480'	10'	Sandstone, pale yellowish brown (10 YR 6/2), very fine grained, calcareous; shale, dark gray (N 3) (Sample R B #51)				
480'	490'	10'	Sandstone, light gray (N 7), fine grained, calcareous; shale, medium dark gray (N 4) (Sample R B #52)				
490'	500'	10'	Sandstone, light gray (N 7), fine grained, calcareous; shale, light gray (N 7) and medium dark gray (N 4) (Sample R B #53)				
500'	510'	10'	Sandstone, white (N 9), medium gray, subrounded to subangular, calcareous; sandstone, light gray (N 7), fine grained, calcareous; shale, light gray (N 7) and medium dark gray (N 4), small fragments of coal (Sample R B #54)				
510'	520'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, light gray (N 7), carbonaceous shale (Sample R B #55)				
520'	530'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, light gray (N 7), carbonaceous shale (Sample R B #56)				
530'	540'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, light gray (N 7) to medium dark gray (N 4) (Sample R B #57)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
540'	550'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, light gray (N 7); carbonaceous shale and coal fragments (Sample R B #58)				
550'	560'	10'	Sandstone, light gray (N 7), fine grained, calcareous; shale, light gray (N 7) to medium dark gray (N 4) (Sample R B #59)				
560'	570'	10'	Shale, light gray (N 7) to medium dark gray (N 4) (Sample R B #60)				
570'	580'	10'	Sandstone, light gray (N 7), very fine to fine grain, calcareous (Sample R B #61)				
580'	590'	10'	Sandstone, very light gray (N 8) to medium gray (N 5), fine to very fine grained, calcareous; shale, very light gray (N 8) and medium gray (N 5) (Sample R B #62)				
590'	600'	10'	Sandstone, very light gray (N 8) to medium gray (N 5), fine to very fine grained, calcareous; shale, very light gray (N 8) and medium gray (N 5) (Sample R B #63)				
600'	610'	10'	Shale, medium gray (N 5) to grayish black (N 2), sandstone, light gray (N 7), very fine grained, calcareous (Sample R B #64)				
610'	620'	10'	Sandstone, light gray (N 7), very fine grained, calcareous; shale, very light gray (N 8) to grayish black (N 2) (Sample R B #65)				

LOG				CORE			
From	To	Length	Description	No.	From To	Foot Rec'd	% Rec'd
620'	630'	10'	Shale, very light gray (N 8) to medium dark gray (N 4); sandstone, very light gray (N 8) very fine grained, calcareous; clay (Sample R B #66)				
630'	640'	10'	Shale, light gray (N 7) to medium dark gray (N 4), calcareous; sandstone, very light gray (N 8), very fine grained, calcareous (Sample R B #67)				
640'	650'	10'	Shale, medium light gray (N 6), calcareous; carbonaceous shale; sandstone, medium light gray (N 6), very fine grained, calcareous (Sample R B #68)				
650'	660'	10'	Shale, medium light gray (N 6), calcareous; carbonaceous shale; sandstone, medium light gray (N 6), very fine grained, calcareous (Sample R B #69)				
660'	670'	10'	Shale, medium gray (N 5), calcareous; carbonaceous shale; coal; sandstone, very light gray (N 8), very fine grained, calcareous (Sample R B #70)				
670'	680'	10'	Shale, light gray (N 7); siltstone; sandstone, light gray (N 7), very fine grained, calcareous; carbonaceous shale (Sample R B #71)				
680'	690'	10'	Siltstone, light gray (N 7), calcareous; shale, medium dark gray (N 4) to grayish black (N 2), calcareous; sandstone, light				

LOG				CORE			
From (ft.)	To (ft.)	Length (ft.)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			gray (N 7), very fine grained, calcareous (Sample R B #72)				
690'	700'	10'	Shale, very light gray (N 8) to grayish black (N 2) (Sample R B #73)				
700'	710'	10'	Shale, very light gray (N 8) to grayish black (N 2), sandstone, light gray (N 7), very fine grained, calcareous (Sample R B #74)				
710'	720'	10'	Shale, very light gray (N 8) to grayish black (N 2), calcareous (Sample R B #75)				
720'	730'	10'	Shale, very light gray (N 8) to grayish black (N 2), calcareous (Sample R B #76)				
730'	740'	10'	Shale, very light gray (N 8) to grayish black (N 2), calcareous (Sample R B #77)				
740'	748.9	8.9	Shale, light gray (N 7) to medium gray (N 5), calcareous (Sample R B #78)				
748.9	750.4	1.5	Siltstone, medium gray (N 5), bioturbated, calcareous	1	748.9 750.4	1.5	100
750.4	750.7	0.3	Clay, medium gray (N 5), silty, calcareous	2	750.4 759.7	9.3	100
750.7	751.0	0.3	Sandstone, medium light gray (N 6), fine grained, calcareous				
751.0	751.2	0.2	Clay, medium gray (N 5), silty, calcareous				

Log Continuation:

Hole No.:

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Project: Wasatch Plateau Coal Field

LOG				CORE			
From (ft.)	To (ft.)	Length (ft.)	Description	Run No.	From To	Foot Rec'd	% Rec'd
751.2	759.2	8.0	Sandstone, medium light gray (N 6), medium grain, subrounded to subangular, calcareous				
759.2	759.5	0.3	Siltstone, dark gray (N 3), contains pyrite				
759.5	759.7	0.2	Siltstone, light gray (N 7)				
759.7	762.0	2.3	Claystone, light gray (N 7), silty, calcareous	3	759.7 762.0	2.3	100
762.0	763.9	1.9	Siltstone, medium light gray (N 6)	4	762.0 767.0	5.0	100
763.9	765.1	1.2	Siltstone, medium light gray (N 6) to medium dark gray (N 4), bioturbated				
765.1	766.6	1.5	Siltstone, medium light gray (N 6) grading into sandstone				
766.6	767.0	0.4	Sandstone, medium light gray (N 6), very fine grained				
767.0	768.7	1.7	Sandstone, medium light gray (N 6), very fine grained, silty	5	767.0 770.5	3.5	100
768.7	769.3	0.6	Siltstone, light gray (N 7), sandy (very fine grained)				
769.3	770.5	1.2	Siltstone, light gray (N 7), bioturbated				
770.5	771.8	1.3	Siltstone, very light gray (N 8), sandy bioturbated	6	770.5 771.8	1.3	100
771.8	774.9	3.1	Siltstone, very light gray (N 8) to medium	7	771.8 778.5	6.7	100

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			gray (N 5), fossiliferous	7	771.8 778.5	6.7	100
774.9	775.1	0.2	Shale, grayish black (N 2), carbonaceous				
775.1	776.3	1.2	Siltstone, light gray (N 7), contains plant fragments				
776.3	776.8	0.5	Siltstone, medium light gray (N 6), carbonaceous, bioturbated				
776.8	777.0	0.2	Shale, dark gray (N 3), carbonaceous				
777.0	778.5	1.5	Siltstone, medium dark gray (N 4), contains plant fragments				
778.5	779.1	0.6	Siltstone, dark gray (N 3), fragments of coal	8	778.5 782.3	3.8	100
779.1	779.2	0.1	Siltstone, grayish black (N 2), carbonaceous				
779.2	781.5	2.3	Siltstone, medium gray (N 5), contains plant fragments, fragments of amber				
781.5	782.3	0.8	Sandstone, medium gray (N 5); with bands of white (N 9), sandstone, very fine grained, plant fragments				
782.3	783.1	0.8	Siltstone, medium light gray (N 6), plant fragments, pebbles of very light gray (N 8) siltstone	9	782.3 790.1	7.8	100
783.1	784.6	1.5	Sandstone, light gray (N 7), fine grained				
784.6	789.8	5.2	Sandstone, light gray (N 7) to medium dark				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			gray (N 4), increasing bioturbation downward, grading from fine grained to medium grain downward, subangular				
789.8	790.1	0.3	Sandstone, very light gray (N 8), fine grained				
790.1	790.3	0.2	Sandstone, very light gray (N 8), fine grained, subrounded	10	790.1 790.3	.2	13
790.3	791.6	1.3	Core loss				
791.6	795.8	4.2	Sandstone, very light gray (N 8), fine grained, subrounded, calcareous	11	791.6 801.8	10.2	100
795.8	801.8	6.0	Sandstone, very light gray (N 8), fine grained, subrounded, calcareous				
801.8	804.4	2.6	Sandstone, very light gray (N 8), fine grained, subrounded, calcareous	12	801.8 804.4	2.6	100
804.4	805.1	0.7	Sandstone, very light gray (N 8), fine grained, subrounded, calcareous	13	804.4 811.8	7.4	100
805.1	805.9	0.8	Coal, mostly vitrain, clayey at top, some fusain ??				
805.9	806.7	0.8	Siltstone, dark gray (N 3) to medium light gray (N 5); some interbedded, mudstone dark gray (N 3)				
806.7	809.3	2.6	Siltstone, light gray (N 7), highly				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			calcareous, fracture zone 806.9-808.2-				
809.3	811.8	2.5	Siltstone, very light gray (N 8), highly calcareous				
811.8	817.1	5.3	Siltstone, light gray (N 7), highly calcareous, some coaly streaks, small amount of bioturbation	14	811.8 821.8	10.0	100
817.1	817.8	0.7	Mudstone, medium dark gray (N 4), silty, carbonaceous, bioturbated at base				
817.8	819.4	1.6	Mudstone, medium dark gray (N 4), very silty, carbonaceous				
819.4	821.8	2.4	Siltstone, light gray (N 7), highly calcareous, carbonaceous, bioturbated				
821.8	824.0	2.2	Siltstone, very light gray (N 8), with medium-light-gray (N 6) streaks, calcareous	15	821.8 831.8	10	100
824.0	826.4	2.4	Shale, medium-dark-gray (N 4)				
826.4	831.8	5.4	Siltstone, very-light-gray (N 8) with medium light gray (N 6) streaks, calcareous				
831.8	838.8	7.0	Siltstone, very-light-gray (N 8) with medium light gray (N 6) streaks, calcareous	16	831.8 842.0	10.2	100
838.8	839.6	0.8	Shale, grayish black (N 2), carbonaceous, contains yellow particles (possible sulfur)				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
839.6	842.0	2.4	Sandstone, light gray (N 7), very fine grained, calcareous, bioturbation, contains pyrite				
842.0	843.9	1.9	Siltstone, light gray (N 7), calcareous, bioturbation	17	842.0 853.1	11.1	100
843.9	844.3	0.4	Shale, grayish black (N 2), carbonaceous; contains reworked siltstone pebbles, light gray (N 7), calcareous				
844.3	846.3	2.0	Siltstone, light gray (N 7), calcareous				
846.3	848.0	1.7	Siltstone, medium gray (N 5), calcareous				
848.0	848.2	0.2	Sandstone, light gray (N 7), very fine grained, calcareous, contains plant fragments				
848.2	850.0	1.8	Siltstone, medium gray (N 5), calcareous				
850.0	850.1	0.1	Shale, dark gray (N 3), carbonaceous				
850.1	850.5	0.4	Siltstone, medium gray (N 5), calcareous, bioturbation				
850.5	850.8	0.3	Siltstone, dark gray (N 3), carbonaceous				
850.8	853.1	2.3	Siltstone, medium gray (N 5), calcareous				
853.1	853.9	.8	Siltstone, medium gray (N 5), laminated, calcareous, grades into coal, silty in part	18	853.1 862.6	9.5	100

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
853.9	854.5	.6	Coal, black (N 1) with pyrite and amber included throughout. Cannel type coal				
854.5	855.1	.6	Mudstone, medium dark gray (N 4), silty, carbonaceous				
855.1	857.6	2.5	Siltstone, very light gray (N 8) to medium gray (N 6), laminated, and bioturbated throughout, highly calcareous, carbonaceous in upper part due to rooting				
857.6	860.6	3	Siltstone, medium gray (5), laminated bioturbated, highly calcareous				
860.6	862.1	2.5	Siltstone, light gray (7) to medium dark gray (4), laminated, bioturbated, highly calcareous				
862.1	862.6	.5	Siltstone, medium dark gray (N 4), laminated, highly calcareous, carbonaceous				
862.6	863.5	.9	Siltstone, light olive gray (5 Y 6/1),	19	862.6 872.6	10	100
863.5	863.9	.4	Mudstone, medium gray (N 5)				
863.9	865.9	2.0	Siltstone, very light gray (N 8) to grayish black (N 2), calcareous, laminated and bioturbation in lower one foot, Sample R-1 (864.5-865.9)				
865.9	872.6	6.7	Coal, black (N 1), amber throughout,				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			gypsiferous, pyritic				
			Sample C-1 (865.9-867.1)				
			Sample C-1 (867.1-868.6)				
			Sample C-1 (868.6-870.2)				
			Sample C-1 (870.2-872.6)				
872.6	874.9	2.3	Siltstone, light gray (7), calcareous Sample FR-1 (872.6-874.1)	20	872.6 882.9	10.3	100
874.9	875.5	0.6	Siltstone, medium gray (N 5), calcareous, bioturbated; coal, grayish black (N 2)				
875.5	875.7	0.2	Mudstone, dark gray (3), coal, black (N 1), siltstone, light gray (N 7), calcareous, sandy, (very fine grained)				
875.7	876.5	0.8	Siltstone, light gray (N 7), calcareous, some bioturbation				
876.5	876.8	0.3	Siltstone, medium dark gray (4), calcareous, some bioturbation, carbonaceous streaks				
876.8	877.3	0.5	Siltstone, light gray (7), calcareous, some bioturbation				
877.3	877.8	0.5	Sandstone, very light gray (8), very fine grained, calcareous, some carbonaceous streaks				
877.8	878.2	0.4	Siltstone, light gray (N 7) to dark gray				

LOG				CORE			
From (ft.)	To (ft.)	Length (ft.)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			(3), calcareous, highly bioturbated, coal				
878.2	879.9	1.7	Siltstone, very light gray (N 8), calcareous, laminated and bioturbation				
879.9	880.0	0.1	Mudstone, dark gray (3), calcareous, carbonaceous streaks				
880.0	880.9	0.9	Siltstone, light gray (7) to medium, dark gray (4), calcareous, laminated and bioturbated				
880.9	881.3	0.4	Mudstone, medium dark gray (N 4), slightly calcareous, contains plant fragments				
881.3	882.9	1.6	Siltstone, light gray (7), sandy, (very fine grained)				
882.9	884.7	1.8	Siltstone, light gray (N 7), slightly calcareous	21	882.9 893.5	10.6	100
884.7	885.2	0.5	Siltstone, light gray (N 7), slightly calcareous, laminated				
885.2	885.7	0.5	Mudstone, dark gray (N 3), pockets of sandstone, very fine grained				
885.7	886.3	0.6	Siltstone, light gray (N 7), slightly calcareous, laminated				
886.3	887.0	0.7	Mudstone, dark gray (N 3), coal, contains amber				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
887.0	887.8	0.8	Mudstone, medium dark gray (N 4), contains carbonaceous streaks				
887.8	893.5	5.7	Sandstone, light gray (N 7), very fine grained, calcareous, lower 1.6 feet bioturbated				
893.5	895.5	2.0	Sandstone, light gray (N 7), very fine grained, calcareous, bioturbated	22	893.5 903.9	10.4	100
895.5	896.5	1.0	Siltstone, medium gray (N 5), calcareous, laminated, contains plant fragments				
896.5	897.3	0.8	Coal, black (1), contains amber				
897.3	900.1	2.8	Siltstone, light gray (7), calcareous, some pyrite				
900.1	900.7	0.6	Siltstone, light gray (7), calcareous, bioturbated				
900.7	900.8	0.1	Coal, black (1), silty				
900.8	901.7	0.9	Siltstone, medium light gray (N 5), highly calcareous, bioturbated, contains coal fragments				
901.7	903.9	2.2	Siltstone, light gray (7), calcareous bioturbated				
903.9	905.7	1.8	Siltstone, medium dark gray (4), contains plant fragments, Sample RR-2 (903.9-905.7)	23	903.9 913.2	9.3	100

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
905.7	907.7	2.0	Coal, black (1)				
907.7	909.2	1.5	Siltstone, light gray (N 7), calcareous, carbonaceous streaks. Sample FR-2 (907.7-909.2)				
909.2	910.2	1.0	Sandstone, very light gray (N 8), very fine grained, calcareous, carbonaceous streaks				
910.2	911.1	0.9	Siltstone, medium dark gray (N 4), calcareous, bioturbated, carbonaceous streaks				
911.1	913.2	2.1	Sandstone, very light gray (8), very fine grained, calcareous				
913.2	915.5	2.3	Sandstone, very light gray (8), very fine grained, calcareous, carbonaceous streaks	24	913.2 923.5	10.3	100
915.5	917.2	1.7	Sandstone, very light gray (8), very fine grained, calcareous				
917.2	917.7	0.5	Siltstone, medium gray (5), bioturbated				
917.7	920.8	3.1	Sandstone, very light gray (8), very fine grained, calcareous, some bioturbation				
920.8	922.3	1.5	Siltstone, light gray (7) interlaminated with sandstone, very light gray (N 8) and mudstone, medium dark gray (N 4), bioturbated, some streaks of coal				
922.3	923.2	0.9	Siltstone, light gray (7), calcareous				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
923.2	923.5	0.3	Mudstone, dark gray (N 3), silty				
923.5	923.9	0.4	Siltstone, medium dark gray (N 4), carbonaceous streaks	25	923.5 933.6	10.1	100
923.9	926.6	2.7	Siltstone, light gray (N 7), some bioturbation				
926.6	928.1	1.5	Siltstone, medium dark gray (N 4), some bioturbation				
928.1	929.3	1.2	Siltstone, light gray (N 7), laminated				
929.3	929.6	0.3	Mudstone, grayish black (2), carbonaceous				
929.6	930.1	0.5	Siltstone, light gray (N 7), calcareous				
930.1	931.1	1.0	Shale, grayish black (N 2), carbonaceous				
931.1	932.4	1.3	Siltstone, light gray (N 7), laminated, calcareous				
932.4	933.0	0.6	Mudstone, dark gray (N 3), carbonaceous				
933.0	933.6	0.6	Siltstone, medium gray (4), calcareous, carbonaceous				
933.6	934.6	1.0	Siltstone, medium gray (4), calcareous	26	933.6 943.6	10	100
934.6	935.4	0.8	Coal, grayish black (2), silty				
935.4	938.3	2.9	Siltstone, medium gray (4), calcareous,				

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			some bioturbation				
938.3	939.0	0.7	Mudstone, grayish black (2) carbonaceous				
939.0	941.5	2.5	Siltstone, light gray (7) to dark gray (N 3), calcareous, slightly bioturbated Sample RR-3 (940.0-941.5)				
941.5	943.6	2.1	Coal, black (1)				
943.6	947.8	4.2	Coal, black (1), gypsiferous, amber throughout, rotten egg smell (hydrogen sulfide?) Sample C-4 943.6-945.1 Sample C-4 945.1-946.6 Sample C-4 946.6-947.8	27	943.6 953.6	10	100
947.8	948.2	0.4	Siltstone, grayish black (2), carbonaceous streak, Sample P-4 (947.8-949.5)				
948.2	950.4	2.2	Siltstone, alternating bands of light gray (7) and dark gray (3), bioturbated Sample P-4 (949.5-951.3)				
950.4	951.3	0.9	Siltstone, grayish black (2), pyritic				
951.3	953.6	2.3	Coal, black (1), gypsiferous, contains amber throughout, rotten egg smell Sample C-5 (951.3-953.6)				
953.6	958.2	4.6	Coal, black (1), amber throughout, pyritic rotten egg smell (hydrogen sulfide?)	28	953.6 963.8	10.2	100

LOG				CORE			
From (ft)	To (ft)	Length (ft)	Description	Run No.	From To	Foot Rec'd	% Rec'd
			Sample C-5 953.6-955.1				
			Sample C-5 955.1-956.6				
			Sample C-5 956.6-958.2 pyrite nodules				
958.2	963.8	5.6	Sandstone, grayish brown (5 YR 3/2) to dark yellowish brown (10 YR 4/2) fine grained, rounded to subrounded, fossil plant roots, 0.2 in. coal near top				
			Sample FR-5 (958.2-959.7)				
963.8	968.3	4.5	Sandstone, light gray (N 7), medium grained to fine grained, subrounded to subangular, calcareous	29	963.8 968.3	4.5	100
968.3	969.1	0.8	Core Loss	30	968.3 973.6	4.5	87
969.1	973.6	4.5	Sandstone, light gray (N 7), medium grained to fine grained, subrounded to subangular, calcareous				
			Total		748.9 973.6	222.6	99%

U.S. GEOLOGICAL SURVEY

DRILL-HOLE LOG

Project Wasatch Plateau Coal Field

Hole No. BCR 1 Quadrangle Flagstaff Peak, Utah

Elevation 8600 ft Bottom logged interval 965 ft

Type fluid in hole Water with micatex, quik-gel, hyseal

Location T. 20 S., R. 6 E., Sec. 32, 2000 ft FSL 300 ft FWL

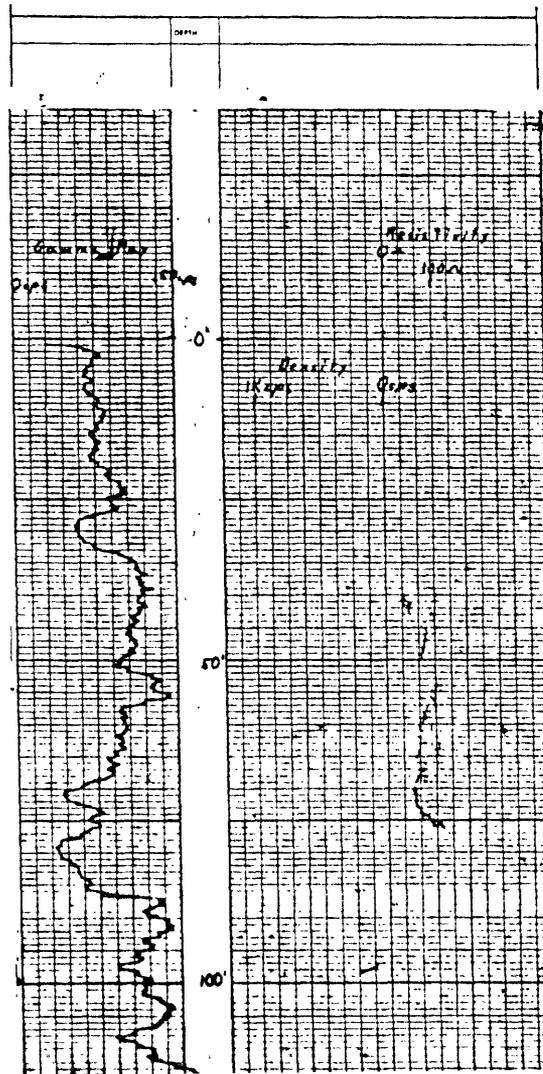
Logged by: Strata Surveys Recorded by: Mark Spitzer

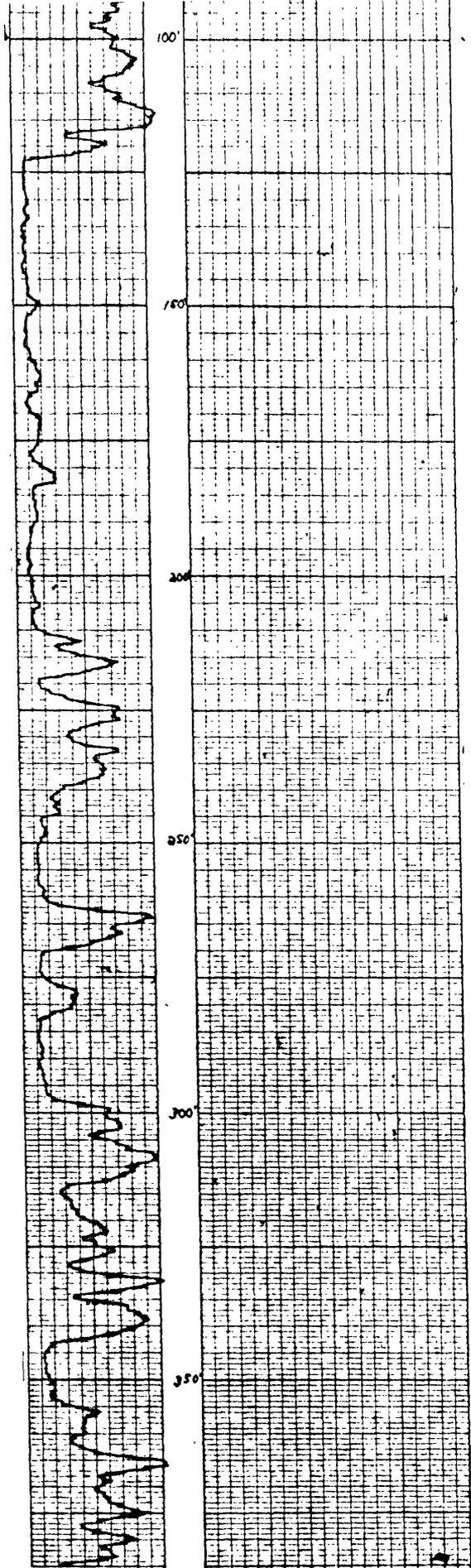
Witnessed by: J.D. Sanchez Date 8/18/78 Drill depth 971 ft

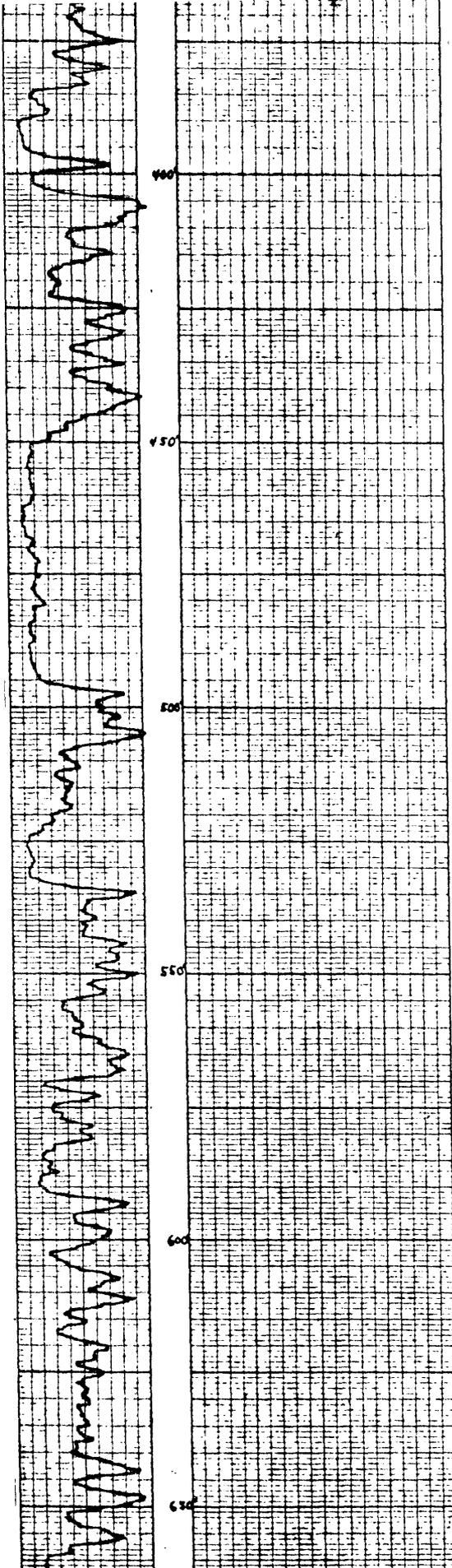
Logging speed 20 ft/min

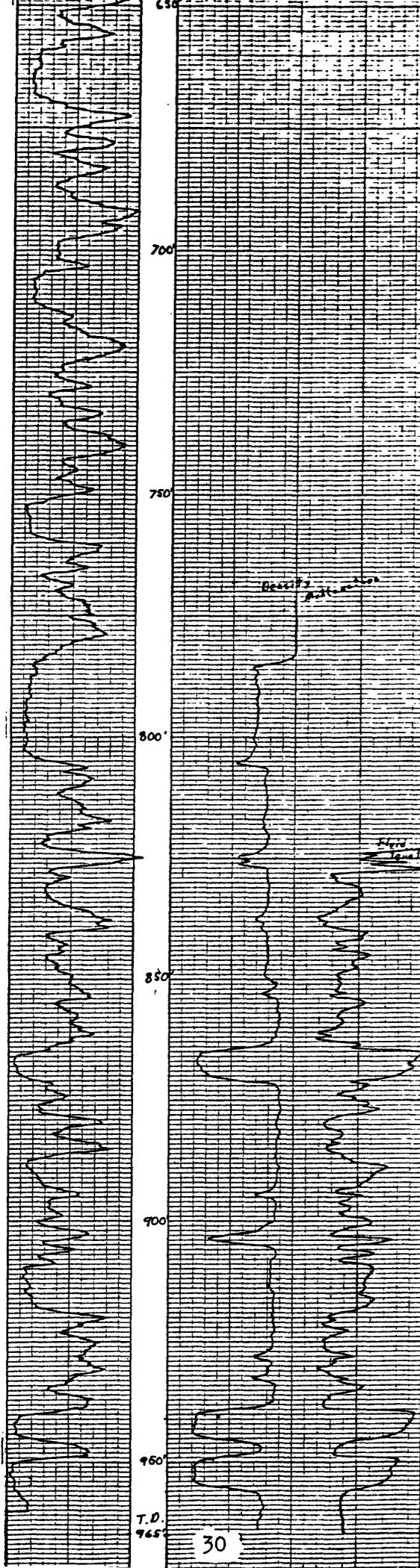
Geophysical logs: Gamma Ray, Focused Density (in lower Blackhawk),

Resistivity, Drift Survey









T.D.
965'