

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Reconnaissance drilling in the Yampa coal field,
Hayden-Williams Fork Mountains area (Yampa No. 3),
Moffat and Routt Counties, Colorado, during 1976

by

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This report has not been edited
for conformity with Geological
Survey editorial standards or
stratigraphic nomenclature.

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RECONNAISSANCE DRILLING IN THE YAMPA COAL FIELD, HAYDEN-WILLIAMS
FORK MOUNTAINS AREA (YAMPA NO. 3), MOFFAT AND ROUTT COUNTIES,
COLORADO, DURING 1976

By Gary Prost

INTRODUCTION

Under Contract No. 14-08-0001-15727, awarded by the U.S. Geological Survey, Jim Feighny, of Loveland, Colo., drilled 42 test holes in the Williams Fork Mountains near Hayden, Colo., in September 1976. The area is referred to in the Contract as Yampa No. 3, which includes the Bureau of Land Management's (BLM) tracts WF-10, WF-12, WF-16, and WF-17. The purpose of the drilling was to obtain information on the quality and extent of the coal in the area. All holes were logged using either Gamma-Gamma (density), Natural Gamma, Caliper, Resistivity, or spontaneous-potential (SP) geophysical logs. The logging was done by the U.S. Geological Survey, the Birdwell Division of Seismograph Service Corp., Century Geophysical, and Geodynamics, Inc. The water level is indicated in table 1 for each drill hole at the time the hole was logged. All holes were drilled on private surface, and surface ownership is shown in table 1.

PROCEDURE

Drill-hole locations, selected by Geologic Survey personnel, met the following requirements:

1. Areas geologically favorable for coal occurrence within 500 ft (154 meters) of the surface (arbitrary stripping depth cutoff);
2. Federally owned coal;
3. Accessibility by existing roads or trails;
4. The lack of archeological or historic sites;

5. A near-level drill site with minimal reclamation problems; and
6. The permission of the surface land owner.

Several properties were under option to W. R. Grace Coal Company, and permission for access was obtained through Homer Wilson, agent for the landowners and coal company, at Western United Realty of Craig, Colo. Reclamation was performed in accordance with BLM specifications.

GEOLOGY

The geology of the drilling area has been described and mapped by the U.S. Geological Survey (Bass and others, 1955). Units within the drilling area include the Iles and Williams Fork Formations of the Mesaverde Group and the Lewis Shale. The Lewis Shale is an Upper Cretaceous marine shale, gray to green in color. The Williams Fork Formation consists of Upper Cretaceous sandstone, siltstone, shale, and coal. Coal in the Williams Fork Formation is separated into an upper coal group and a lower coal group by the Twentymile Sandstone Member. The Iles Formation is an Upper Cretaceous sequence of sandstone, siltstone, shale, and coal topped by the Trout Creek Sandstone. Coal in the Iles Formation is known as the lower coal group. Stratigraphic sections from U.S. Geological Survey Bulletin 1027-D are shown in figure 2. Dips are generally to the north or north-northeast, and range from 7° to 14°, except on the eastern edge of the area, where strata dip from 8° to 12° to the west.

REFERENCE CITED

Bass, N. W., Eby, J. B., and Campbell, M. R., 1955, Geology and mineral fuels of parts of Routt and Moffat Counties, Colorado: U.S. Geol. Survey Bull. 1027-D, p. 143-250 [1956].

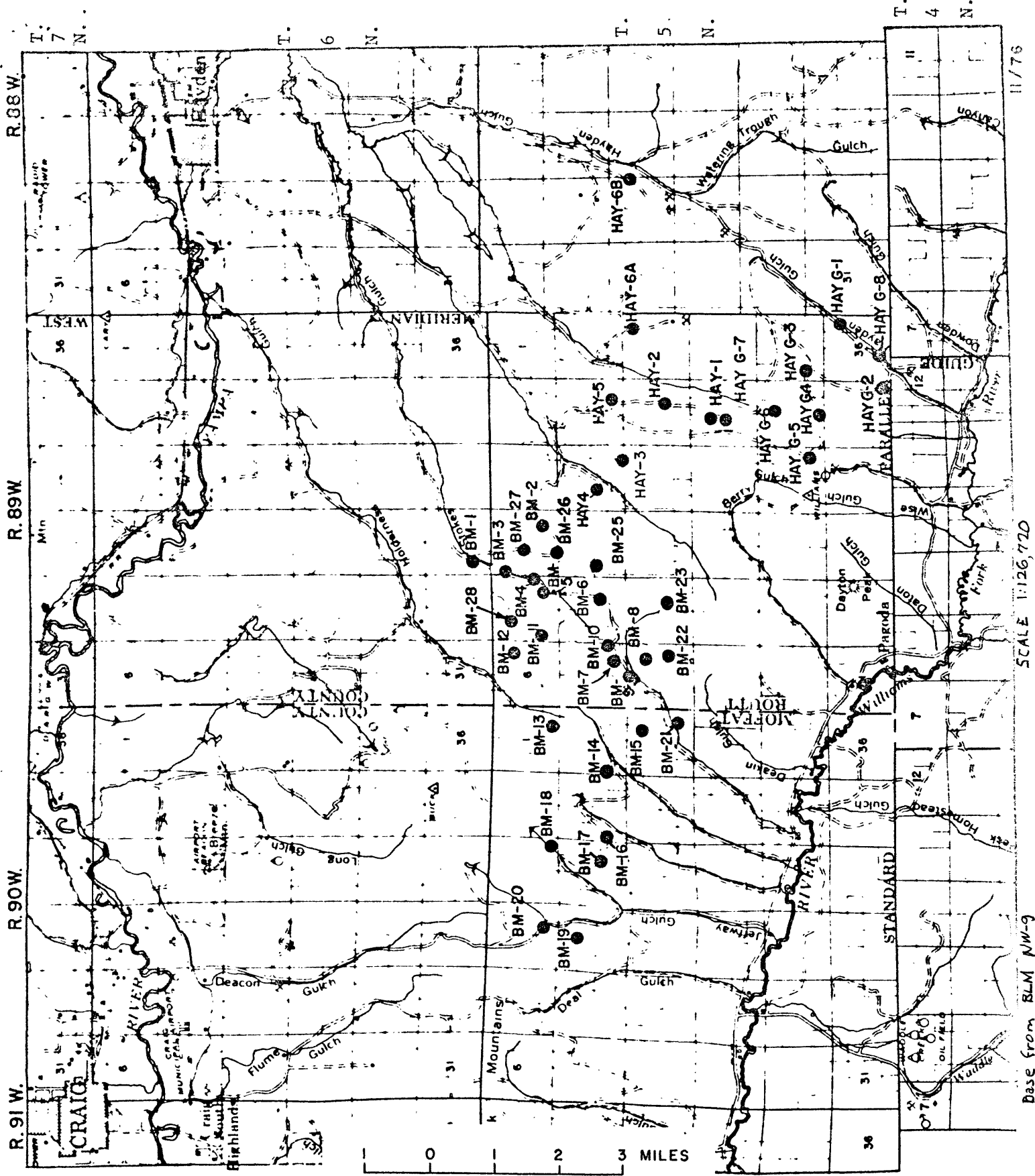


FIGURE 1. -- HAYDEN-WILLIAMS FORK MOUNTAINS DRILLING AREA, COLORADO

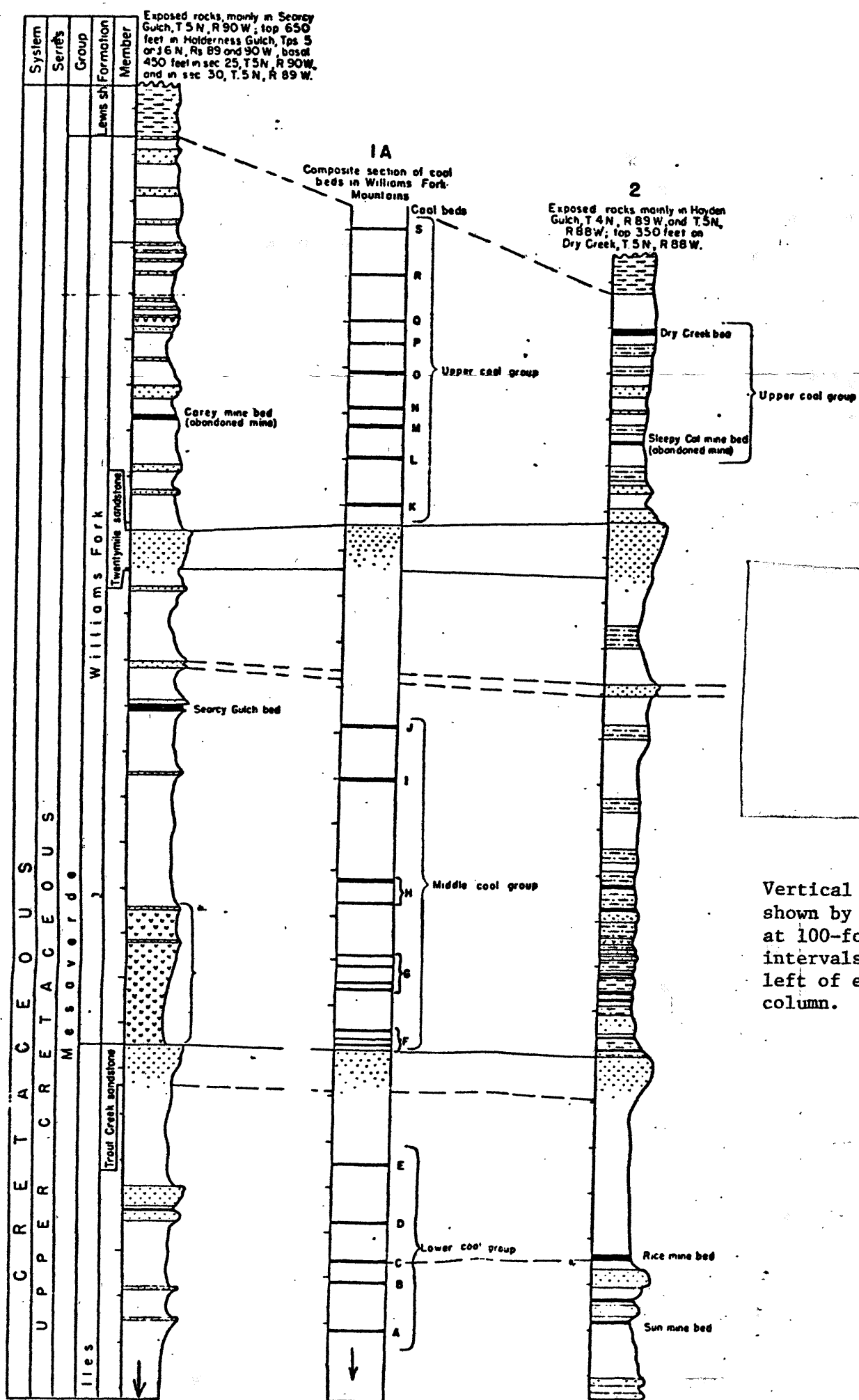


Figure 2. -- Stratigraphic Sections in the Hayden-Williams Fork Mountains
Drilling Area. [From Bass and others, 1955]

Table 1.--Summary of drill-hole information in the Hayden-Williams Fork Mountains

(Yampa No. 3) drilling area, Moffat and Routt Counties, Colorado

[All measurements are in feet; to convert to meters, multiply by 0.3048]

Drill-hole No.	Location	Surface elev.	Total depth drilled	Total depth logged	Water level	Surface owner
BM-1	T. 6 N., R. 89 W., sec. 33, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	6,850	572	570.5	8	B. Tuttle (leased by O. Lyons)
BM-2	T. 5 N., R. 89 W., sec. 4, NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7,400	580	580	452.5	Circle Bar Ranch
BM-3	T. 5 N., R. 89 W., sec. 4, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	6,950	580	559.5	22.5	B. Tuttle
BM-4	T. 5 N., R. 89 W., sec. 5, SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	7,070	580	571	116	B. Tuttle
BM-5	T. 5 N., R. 89 W., sec. 5, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	7,190	580	574	185	B. Tuttle
BM-6	T. 5 N., R. 89 W., sec. 8, NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	7,520	581	581	527.5	B. Tuttle
BM-7	T. 5 N., R. 89 W., sec. 7, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	7,700	580.5	580.5	541	B. Tuttle
BM-8	T. 5 N., R. 89 W., sec. 18, SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	7,820	580	576.5	499	B. Tuttle
BM-9	T. 5 N., R. 89 W., sec. 18, NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	7,440	581.5	581	331	B. Tuttle
BM-10	T. 5 N., R. 89 W., sec. 7, NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	7,830	440	438.5	395	B. Tuttle
BM-11	T. 5 N., R. 89 W., sec. 5., NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	7,600	460	459	325	B. Tuttle
BM-12	T. 5 N., R. 89 W., sec. 6, NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	7,120	580	525	103	B. Tuttle
BM-13	T. 5 N., R. 90 W., sec. 1, SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7,800	545	543.5	177.5	E. Self
BM-14	T. 5 N., R. 90 W., sec. 12, SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	7,480	580.5	580	262	B. Tuttle

Table 1.--Summary of drill-hole information in the Hayden-Williams Fork Mountains(Yampa No. 3) drilling area, Moffat and Routt Counties, Colorado.--Continued

Drill-hole No.	Location	Surface elev.	Total depth drilled	Total depth logged	Water level	Surface owner
BM-15	T. 5 N., R. 90 W., sec. 13, SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	7,800	581	580.5	522	B. Tuttle
BM-16	T. 5 N., R. 90 W., sec. 11, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	7,540	560	560	582.5	E. Self
BM-17	T. 5 N., R. 90 W., sec. 10, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	7,480	580	580	499.5	J. Hamill
BM-18	T. 5 N., R. 90 W., sec. 3, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	7,280	580	579.5	108	J. Hamill
BM-19	T. 5 N., R. 90 W., sec. 9, SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	6,970	570	569	215.5	J. Hamill
BM-20	T. 5 N., R. 90 W., sec. 4, NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7,040	580	579	39	Utah International
BM-21	T. 5 N., R. 90 W., sec. 13, NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7,120	581	581	157	B. Tuttle
BM-22	T. 5 N., R. 89 W., sec. 18, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	7,925	580	580	546.5	B. Tuttle
BM-23	T. 5 N., R. 89 W., sec. 17, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	7,850	580	567	48.5	B. Tuttle
BM-25	T. 5 N., R. 89 W., sec. 9, NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	7,830	500	500	418.5	B. Tuttle
BM-26	T. 5 N., R. 89 W., sec. 4, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	7,570	580	574	531	Circle Bar Ranch
BM-27	T. 5 N., R. 89 W., sec. 4, SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$	7,370	580	579	503.5	Circle Bar Ranch
BM-28	T. 5 N., R. 89 W., sec. 5, NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$	7,560	580	579	481	B. Tuttle
HAY-1	T. 5 N., R. 89 W., sec. 23, NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$	7,520	400	395	346	Circle Bar Ranch

Table 1.--Summary of drill-hole information in the Hayden-Williams Fork Mountains

(Yampa No. 3) drilling area, Moffat and Routt Counties, Colorado.--Continued

Drill-hole No.	Location	Surface elev.	Total depth drilled	Total depth logged	Water level	Surface owner
HAY-2	T. 5 N., R. 89 W., sec. 14, NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	7,300	580	580	219	Circle Bar Ranch
HAY-3	T. 5 N., R. 89 W., sec. 10, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	6,900	530	524	340	Circle Bar Ranch
HAY-4	T. 5 N., R. 89 W., sec. 10, Center NE $\frac{1}{4}$ SW $\frac{1}{4}$	6,920	580	580	Artesian at surface	Circle Bar Ranch
HAY-5	T. 5 N., R. 89 W., sec. 11, Center SW $\frac{1}{4}$ SE $\frac{1}{4}$	6,850	580	577	Artesian at surface	Circle Bar Ranch
HAY-6A	T. 5 N., R. 89 W., sec. 13, NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	6,820	555	551	23.5	J. Dinwiddi (leased by M. Barnes)
HAY-6B	T. 5 N., R. 88 W., sec. 17, NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	7,160	260	234.5	none	Holland (leased by D. Zehner)
HAYG-1	T. 5 N., R. 89 W., sec. 36, SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	7,260	580	575	115	S. Preece
HAYG-2	T. 5 N., R. 89 W., sec. 35, NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	7,100	520	510.5	15	Circle Bar Ranch
HAYG-3	T. 5 N., R. 89 W., sec. 25, NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	7,270	560	560	full	S. Preece
HAYG-4	T. 5 N., R. 89 W., sec. 26, SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7,660	560	559	431.5	Circle Bar Ranch
HAYG-5	T. 5 N., R. 89 W., sec. 27, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	7,870	580	578	320	E&W Agency; L. Wyman
HAYG-6	T. 5 N., R. 89 W., sec. 26, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	7,960	580	575	475.5	Circle Bar Ranch
HAYG-7	T. 5 N., R. 89 W., sec. 23, NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	7,720	400	398	375	Circle Bar Ranch
HAYG-8	T. 5 N., R. 89 W., sec. 36, Center SE $\frac{1}{4}$ SW $\frac{1}{4}$	7,100	580	578	120	S. Preece