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EXPLORATORY DRILLING DURING 1979 IN THE McCALLUM COAL FIELD, JACKSON COUNTY, COLORADO

By

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CONTENTS

ILLUSTRATIONS

[figures 3-8 in pocket]

CONVERSION TABLE

To convert ENGLISH UNITS	Multiply by	To obtain METRIC UNITS
Feet	0.3048	Meters
Miles	1.609	Kilometers

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INTRODUCTION

Rotary drilling of two drill holes in the McCallum coal field, Jackson County, Colorado, was completed by the United States Geological Survey (USGS) in July 1979. The holes are within the area of the short-term lease application C-27931 held by Wyoming Fuels of Lakewood, Colorado.

Drill-hole GNW1 is located in T. 3 N., R. 78 W., sec. 10, SW¼NE¼, in the Gould NW quadrangle, and drill-hole JMM2 is located in T. 8 N., R. 78 W., sec. 10, SE¼NE¼, in the Johnny Moore Mountain quadrangle (fig. 1). The area is part of the McCallum Known Recoverable Coal Resource Area (KRCRA).

The purpose of the drilling was to gather additional data concerning depth, thickness, and extent of the Sudduth coal bed in order to calculate a reserve base for the area of the lease application. USGS personnel chose the drill-hole sites, conducted the geophysical logging, and recorded the descriptions of cuttings at 5-foot intervals.

COAL GEOLOGY

The Sudduth coal bed is located within the Coalmont Formation of Paleocene and Eocene ages. The formation is of predominantly freshwater origin and is a heterogeneous mixture of rock types including conglomerate, conglomeratic sandstone, claystone, and carbonaceous shale. Its coarse, detrital constituents are mostly quartz, feldspar, dark minerals, and other rock fragments derived from Precambrian granitic and metamorphic rocks found in the adjacent highlands.

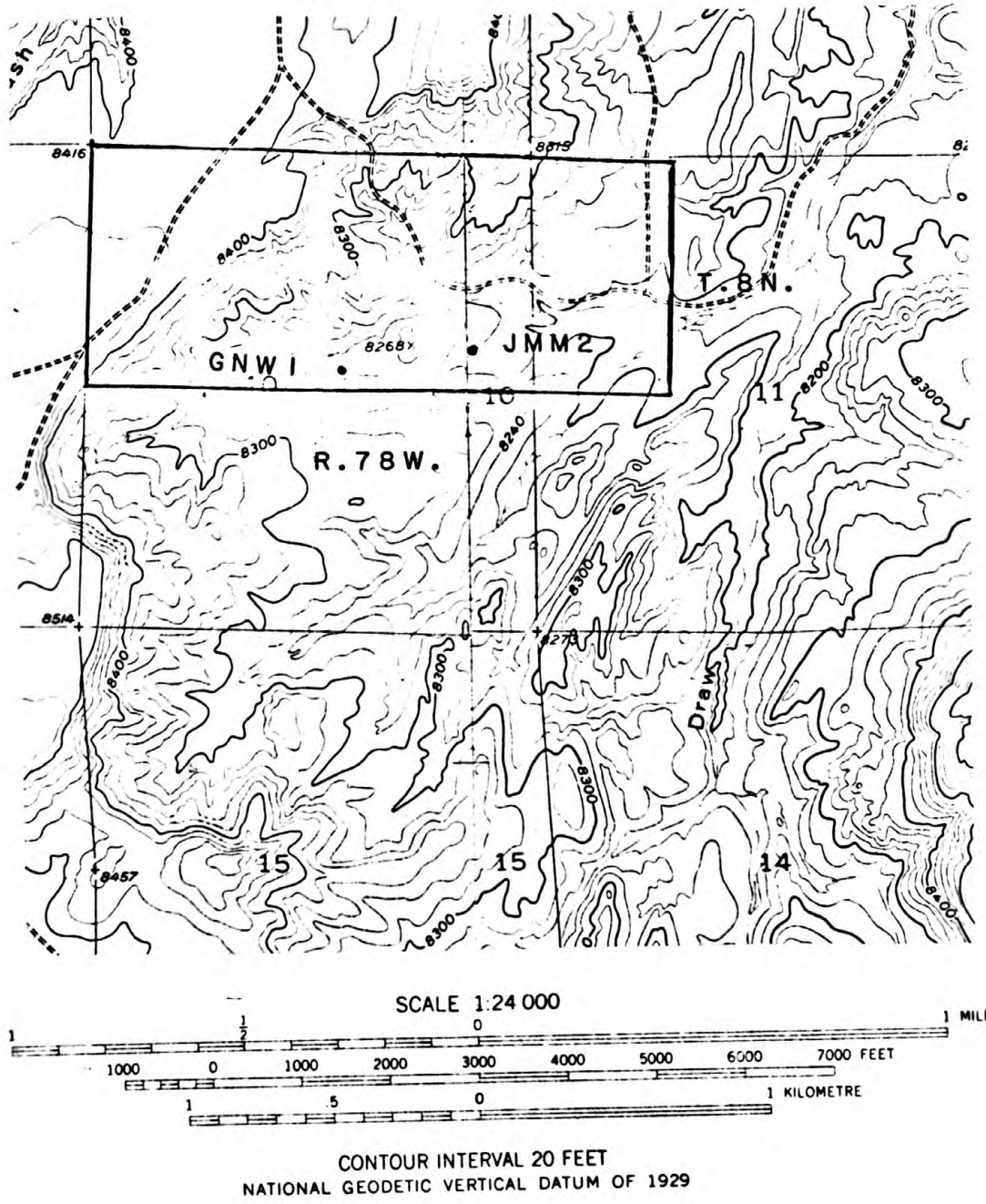

Figure 1.--Location of drill holes in the McCallum coal field, Jackson County, Colo.

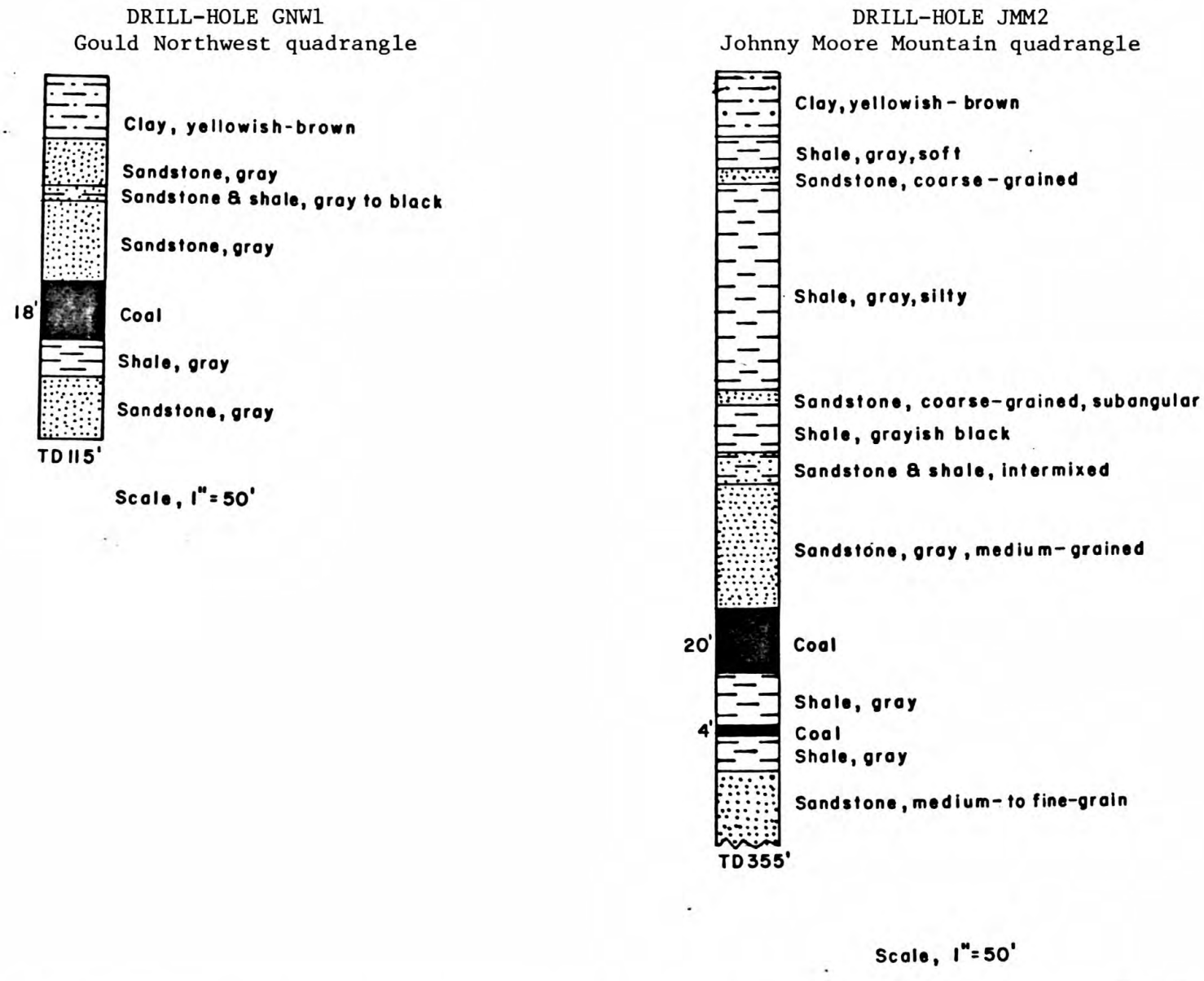

Figure 2.--Lithologic logs for drill-holes GNW1 and JMM2, McCallum coal field, Jackson County, Colo.

The Sudduth coal bed occurs within the bottom 200 feet of the Coalmont Formation. Coal thickness, which is corrected for dip, is 18 feet at hole JMM2 and 17 feet at hole GNW1. The outcrop of the Sudduth bed curves around the southern nose of the southeast-trending, doubly plunging South McCallum anticline. This asymmetrical anticline dips approximately 21° southwest at drill-hole GNW1 and 22° southeast at drill-hole JMM2. Faults shown by T. R. Carpen (1957, p. 113) were not observed in the field.

DRILL-HOLE DEPTHS AND DIAMETERS

Depth of drill-hole GNW1 is 115 feet and the top of the Sudduth coal bed is at 65 feet; depth of drill-hole JMM2 is 355 feet and the Sudduth bed is at 169 feet. The diameter of each drill hole is 4-3/4 inches.

LITHOLOGIC AND GEOPHYSICAL LOGS

Lithologic logs were prepared by comparing and correlating the descriptions of cuttings with the geophysical logs. Sample cuttings were taken at 5-foot intervals.

Three geophysical logs were run for each hole: natural gamma, neutron, and density. The natural gamma and neutron logs were measured with the same probe. The logs are arranged with the resistivity and lower rock-density readings recorded on the right.

REFERENCES

Carpen, T. R., 1957, South McCallum anticline, Jackson County, Colorado, in Rocky Mountain Association of Geologists, Guidebook 1957, p. 113-114.

Madden, D. H., 1977, Exploratory drilling in McCallum coal field, Jackson County, Colorado, August-November 1977: U.S. Geological Survey Open-File Report 77-88, 80 p., 12 figs., 1 table.