

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Geophysical Log Suite from Drill Hole No. 8
Mariano Lake-Lake Valley Drilling Project, McKinley County,
New Mexico

by

U.S. Geological Survey

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

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INTRODUCTION

In the fall of 1980, the U.S. Geological Survey contracted with Longman Drilling Company of Albuquerque New Mexico to rotary drill and core twelve holes along a north-south line from Mariano Lake to the vicinity of Lake Valley, New Mexico. This report incorporates the logs from drill hole no. 8. Similar reports on holes no. 1, 2, 3, 4, 5, 6, 7, and 7a were released by the U.S. Geological Survey (1981a-g).

The drilling project is funded under a reimbursable interagency agreement between the U.S. Bureau of Indian Affairs (BIA) and the U.S. Geological Survey (USGS). The program was designed by representatives of the BIA, USGS, and the Minerals Department of the Navajo Tribe.

PURPOSE

The principal objective of this project was to provide core samples and geophysical logs for petrologic, sedimentologic, geophysical, and geochemical studies of the Upper Jurassic Morrison Formation. Other objectives included the following: stratigraphic and coal studies of Upper Cretaceous rocks; hydrologic and water monitoring of well no. 2; control for a proposed seismic study of the same geographic area; and development of water wells by the Navajo Tribal Water and Sanitation Department.

GENERAL DRILLING PLAN

The locations of all twelve drill holes are shown on figure 1, which is a portion of the Gallup 1⁰ x 2⁰ Quadrangle. The general drilling plan called for most holes to be rotary drilled into the Upper Cretaceous Dakota Sandstone and then cored into or through the Recapture Member of the Morrison Formation. The interval to be cored in each hole was about 600 ft.

Exceptions to the general drilling were as follows: Hole No. 2, rotary drilled, surface to Jurassic Entrada Sandstone; Hole No 4A, cored 21-218 feet, to test an observed near-surface I. P. anomaly; Hole No. 6, deepened after coring by rotary drilling into the Jurassic Entrada Sandstone; Hole No. 7A, cored only the Westwater Canyon Member of the Morrison Formation; Hole No. 8, abandoned in lower part of Westwater Canyon Member of the Morrison Formation; and Holes No. 9 and 10, abandoned in Upper Cretaceous rocks.

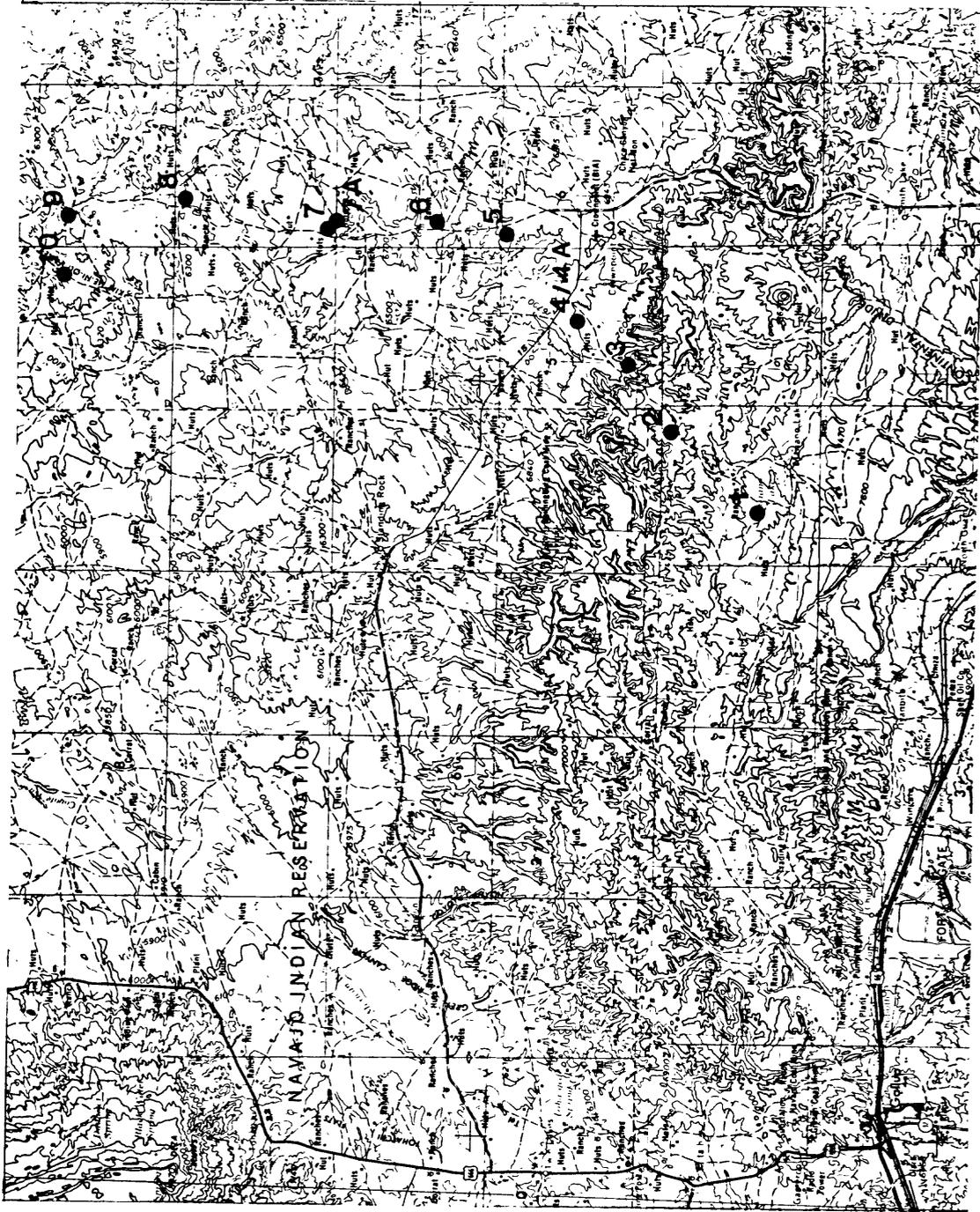


Figure 1. - Location of USGS Drill Holes, Gallup 1° x 2° Quadrangle.

DRILL HOLE NO. S-8

The location of this well is shown on figure 2.

The vital statistics of this well are:

Spud date: February 12, 1981.

Location: T. 19 N., R. 12 W., CS/2 sec. 5

Lat. 35°53'10" Long. 108°08'12"

Collar Elevation: 6195 ft. (topo)

Core Point Top: 3060 ft. (depth) Dakota Sandstone
(Cretaceous)

Bottom cored interval: 3520 ft. (depth) Westwater Canyon Member
Morrison Formation
(Jurassic)

Total depth: 3520 ft. (depth) Westwater Canyon Member
Morrison Formation
(Jurassic)

Completion of well: Cemented and abandoned March 6, 1981.

65 feet of 7 inch surface casing was set in this hole.

The hole was drilled with barite mud to a depth of about 1700 feet (Cretaceous Gallup Sandstone) at which point the well began to flow. The remainder of the hole was drilled with clear water, core runs were drilled with Supergel and Drispac. Flow at TD was estimated to be 350-400 gallons per minute.

Logging could not be completed because of unstable hole conditions and pipe in the hole. Maximum depth reached 778 feet. The following suite of geophysical logs were run on this hole and accompany this report: natural gamma, self potential and resistance.

Coals were encountered in the cuttings at the following intervals: 120-200, 240-260, 440-480, 780-800, and 1200-1220.

No uranium mineralization was found in core recovered.

This hole was abandoned 180 feet into the Westwater Canyon Member of the Jurassic Morrison Formation because of unstable hole conditions and 180 feet of pipe in the hole.

References

- U.S. Geological Survey, 1981a, Geophysical Log Suite from Drill Hole Nos. 1 and 2, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 81-172.
- U.S. Geological Survey, 1981b, Geophysical Log Suite From Drill Hole No. 3, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 81-439.
- U.S. Geological Survey, 1981c, Geophysical Log Suite from Drill Hole No. 4, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 81-969.
- U.S. Geological Survey 1981d, Geophysical Log Suite from Drill Hole No. 5, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 970.
- U.S. Geological Survey, 1981f, Geophysical Log Suite from Drill Hole No. 7, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 81-972.
- U.S. Geological Survey, 1981g, Geophysical Log Suite from Drill Hole No. 7a, Mariano Lake - Lake Valley Drilling Project, McKinley County, New Mexico: U.S. Geological Survey Open-File Report 81-973.