

GEOLOGICAL REPORT

SNAKE EYES FEDERAL UNIT

CHAVES COUNTY, NEW MEXICO

By

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BEFORE EXAMINER QUINTANA OIL CONSERVATION DIVISION
EXHIBIT NO. 6
CASE NO. 8426

Introduction:

Harper Oil Company proposes the designation of the Snake Eyes Federal exploratory unit covering 9,946.34 acres of land in S.W. Chaves County, New Mexico, as outlined on Exhibit I hereto.

Harper Oil Company is designated unit operator for the Snake Eyes Unit.

Purpose of the proposed unit is to test for commercial quantities of oil and/or gas in any formation encountered above the Precambrian basement. It is estimated that the Initial Test Well will penetrate the Precambrian basement at approximately 5,500' and that a well to this depth will adequately test all beds and formations lying above such basement.

Tentative location for the Initial Test Well is 1,980' FSL & 1,980' FWL, Section 20, T-14-S, R-21-E, NMPM.

Geology:

The southwestern "panhandle" of Chaves County appears, geologically, to represent a shovel-end or subbasinal shelf of the Northwest Shelf of the Delaware Basin. From published and scattered subsurface data it is established that a relatively complete Paleozoic section is present throughout most of the area (Exhibit II). Thus, except for the odds of encountering Precambrian basement rocks at an extremely shallow depth, the Federal unit proposed herein should test 5,000-5,500 feet of Paleozoic rocks (Exhibit V, E-W Cross Section A-A').

The accompanying structure map (Exhibit III) is contoured on top of the Tubb Formation, which reflects deeper structural anomalies fairly well. An example is the Peterson Field of southern Roosevelt County, which produces from Pennsylvanian (Cisco) and Silurian (Fusselman) rocks deposited over an irregular Precambrian terrain. A Tubb structure map over the Peterson Field depicts these deeper structures.

Exhibits II, IV and V were prepared on a regional basis and therefore cover and include, in addition to this Snake Eyes Unit, the proposed Flying "H" Ranch Unit to be operated by McClellan Oil Corporation.

Exhibits I and III are confined to the immediate Unit Area for this Snake Eyes Unit.

As shown on the accompanying structural cross section (Exhibit V) the McClellan Oil Company Gragg Federal "B" No. 1 encountered granite wash at the base of the Pennsylvanian (?), and was abandoned after losing the hole due to lost circulation problems. Whether additional Paleozoic section is present or not beneath the granite wash in this well is unknown. This would depend upon whether Precambrian rocks were more or less continuously exposed to erosional forces throughout the Paleozoic. There is a strong possibility that this was indeed the case, so that granite wash might be encountered at most any position in the geological section.

In a joint venture, Harper Oil Company and McClellan Oil Company have obtained high sensitivity aeromagnetic data (residual magnetite) accompanied by depth-to-basement information covering this proposed Federal Unit. These data have been integrated with surface and subsurface well data in developing the accompanying Tubb structure map (Exhibits III, IV). Lack of closer well control in the area inhibits to some extent close prediction of the true structural configuration. It is believed, however, that the present map expresses a fairly accurate picture.

The Unit Area was chosen to cover and include all lands lying within the 2,700' closing contour. All half-sections (320.00 acres) of land lying 50% or more within this 2,700' closing contour were included within the Unit Area.

All lands having more than 50% outside this 2,700' closing structural contour were eliminated and it is felt that the unit area covers all, or substantially all, of the geological feature involved.