GEOLOGIC REPORT
PROPOSED FRENCH UNIT
CATRON COUNTY, NEW MEXICO

## I. ENCLOSURES

Exhibit A. French Unit Area Geological Summary Map

## II. LOCATION

The proposed French Unit is located in western Catron County, New Mexico. The unit area lies in Townships 1 and 2 North, Ranges 16, 17 and 18 West, south of the Zuni Mountains, in the western portion of the Zuni Basin. Elevations average 7,500' in the semi-arid region, 7 miles west of the town of Quemado, New Mexico.

## III. GEOLOGICAL SUMMARY

### A. Stratigraphy

Pennsylvanian tectonics were such that no Pennsylvanian or older rocks are present in the area, however, regional geological studies reveal that attractive oil and gas potential exists in the Permian and Cretaceous rocks.

During Permian times subtle tectonic remnants from the Pennsylvanian period affected the area. A Yeso Dolomitic-Biogeneric depositional zone, controlled by these tectonic forces, was deposited in a northwest-southeast trend. Northeast of the Dolomitic-Biogeneric zone, tite siltstones, shales and micritic limestones comprise the Yeso formations. Southwest of the Dolomitic-Biogeneric zone lies an anhydrite, halite saline basin silled by the Dolomitic-Biogeneric zone. Cretaceous rocks of the Gallup through Dakota age were deposited in a near shore environment with a northwest-southeast elongate orientation.

### B. Structure

Surface mapping data shows that Laramide tectonics created a minimum of four northeast-southwest trending low relief, en echelon anticlines in the French Unit Area. The structural attitude of the features suggest that they are not independent structural features but members of a larger tectonic feature called the Quemado Anticlinal Complex.

## IV. BASIS FOR PROPOSED UNIT

The east, north and northwest boundaries of the unit are defined by the +5450' contour line drawn on the base of the Cretaceous. The southwest termination of the unit is defined by a facies change in the Permian-Yeso Formation. The Dolomitic-Biogeneric zone of the Yeso, northeast of the facies change, is a potential reservoir zone, and is terminated by salts, black shales and anhydrites which act as updip seals southwest of the facies change.

V. INITIAL TEST WELL

The initial test well will be drilled to a depth of 4500' or 30' into the basement complex, whichever is the lesser depth. Drill depth for an average well in the French Unit Area are as follows:

Surface, Cretaceous - 7000-7500' Ground Elevation
Dakota - 1500'
Yeso - 3000'
Basement - 4500'

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