

GEOLOGIC REPORT
NORTH CEDAR HILLS AREA
EDDY COUNTY, NEW MEXICO

HUMBLE OIL & REFINING COMPANY
ROSWELL, NEW MEXICO

GEOLOGIC REPORT ACCOMPANYING
APPLICATION FOR STATE AND FEDERAL APPROVAL
OF THE NORTH CEDAR HILLS UNIT

The proposed North Cedar Hills Unit covers an area of 8,499.94 acres, located four to eight miles north of Carlsbad, New Mexico, and includes all of the following acreage: Sections 28, 29, 30, 31, 32, and 33 of Township 20 South, Range 28 East, and Sections 4, 5, 6, 7, 8, and 9 of Township 21 South, Range 27 East. It is proposed that all formations below the top of Bone Spring limestone be unitized. For this purpose, the top of Bone Spring shall be at a depth of 5332 feet (-2063 feet subsea) in the Harvey Yates No. 1 Cedar Hills States (formerly the Humble No. 1 Cedar Hills Unit), located in Section 15, Township 21 South, Range 27 East. Forty-one shallow tests have been drilled within the unit outline; some of these produce from the Yates at 600 feet but will not be affected by the proposed unit operation. Exhibit A shows the proposed unit outline, with lease ownerships. Within the unit are 5,273.03 acres (62.0%) of federal land, 2,626.91 acres (30.91%) of state land, and 600 acres (7.09%) of fee land.

Humble Oil & Refining Company acting as unit operator proposes to drill an 11,500-foot Morrow test, located in Section 5, Township 21 South, Range 27 East. The proposed test is designed to evaluate the Strawn porosity encountered in the previously mentioned Yates No. 1 Cedar Hills State, at a structurally higher position, where gas and condensate accumulation is expected to result from an updip failure of this porosity across a southeast plunging nose. Flat I shows Humble's structural interpretation, and illustrates the trap. Structural interpretation is

based upon a combination of seismic, gravity and shallow subsurface data. Flat II is a northwest-southeast cross section across the proposed unit, and illustrates the expected updip porosity failure. Secondary objectives include the lower Morrow sands, and the Wolfcamp; both of which produce in the Yates well.

The following formation tops are expected using an approximate ground elevation of 3260 feet:

Delaware sands	2,600'±
Bone Spring	4,800'
Wolfcamp	8,450'
Strawn	9,750'
Atoka	10,200'
Lower Morrow sands	11,100'

It is felt that petroleum exploration in this area can best be accomplished by the means of a state and federal approved unit, and that such a unit is in the best interests of conservation and development. Should a commercial discovery of oil or gas be made, Humble will further develop and produce the unit area in a manner consistent with proper modern techniques.

Respectfully submitted,

HUMBLE OIL & REFINING COMPANY

By: *Paul H. Dudley, Jr.*
Paul H. Dudley, Jr.

KRO/dlm
Encls.