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CONFIDENTIAL

Geological Report

Proposed Ranch Road Unit

Location:

Township 19 South, Ranges 19 and 20 East

Chaves County, New Mexico

Prospective Formations:

Primary - Strawn

Secondary - Cisco, Canyon, Atoka, Morrow

Introduction:

The Ranch Road Unit is proposed as a result of subsurface mapping by Phoenix Resources Company of the lower Strawn formation over approximately 150 square miles in northwestern Eddy and southwestern Chaves Counties, New Mexico in portions of Townships 18 through 20 South and Ranges 19 through 21 East. Purpose of the proposed Unit is to test the hydrocarbon potential of the Pennsylvanian rocks, particularly the clastic reservoirs of the Strawn, Atoka, and Morrow formations.

General Geological Discussion:

The proposed Ranch Road Unit Area (the "Unit") lies in a sparsely drilled portion of Chaves County. San Andres formation of Permian (Guadalupian) Age crops out over the entire area of the proposed unit. The Unit's southern boundary lies approximately six miles north of the northwesterly striking Huapache monocline and its western boundary is approximately nine miles southeast of the Y-O fault zone.

The Unit is west of and adjacent to the Gardner Draw Unit in which Morrow gas production has been discovered in early 1978.

The deepest structural horizon mapped for this report is that of the Mississippian Chester (Exhibit I). That formation is considered to be economic basement for this prospect at this time. The Chester is one of the most reliable log markers in the area and, where it has not been removed by early Pennsylvanian erosion, is easily recognized on well logs. It is present in both the wells that lie within the proposed limits of the Unit.

The most recent well drilled within the general area is the Phoenix Resources Company No. 1 Buckhorn Canyon Unit, located in SE¼ Sec. 18, T 19S, R 20 E. The results of that well have indicated that the Chester structure is more complex than has previously been envisioned. Whereas this location had previously been mapped approximately 50 feet high to the Texas Oil and Gas No. 1-A Federal, one half mile east, the top of Chester was found 302 feet high. Excellent dipmeter data indicate

12 degree northeast dip at the Chester horizon. These differences have led to a re-evaluation of gravity data available in the Unit area. It is upon this stronger reliance of gravity information that the enclosed structural interpretation is based. Rather than the broad, simple, southeastward plunging nose that was previously envisioned the Chester structure within the unit area is believed to be a southeastward plunging anticline separated from the Texas Oil and Gas and Phoenix wells by a southeastward plunging syncline. Those wells lie on the east flank of a separate closure that lies partially within the proposed unit.

The Strawn structure map is shown on Exhibit II. Within the propsoed unit it is drawn as a broad southeastward plunging nose over most of the area. That feature, as well, is separated from the Texas Oil and Gas and Phoenix wells by a southeastward plunging syncline.

Distribution of porous Strawn sandstone is indicated by the Net Sandstone Isopach Map (Exhibit III). For purposes of netting reservoir-quality sandstones a porosity cut-off of ten percent was used.

The Strawn sandstones are believed to be thickest, and thus most prospective, in those areas that were topograhically low during their deposition and which today are structurally high to the lowest strucutural contour that closes against the edge of the sandstone deposit. That structural contour lies at approximately -1700' and is shown on the Strawn Structure Map (Exhibit II).

The Ranch Road Strawn Prospect and the Proposed Ranch Road Unit boundary are shown on Exhibit IV. The Ranch Road Prospect is defined as that area in Township 19 South, Ranges 19 and 20 East which lies above the -1700' contour on the Strawn Structure map and which has greater than five feet of mapped porous sandstone.

Lowermost Atoka and Morrow rocks are present in Northwestern Eddy County only in those areas which were topographically low during their deposition. That scattered occurrences of those rocks are also present in southwestern Chaves County is likely. In cross section A-A' (Exhibit V) the Morrow clastic facies is interpreted to extend west of Gardner Draw unit into the Ranch Road Area. It is for this reason that we propose that a test well be drilled through the full Pennsylvanian section at the Ranch Road Unit.

Using an assumed surface elevation of 4725' above mean sea level, the expected formation tops are as follows:

Formation Top	Expected Depth
San Andres	Surface
Abo	3150
Cisco **	5320
Canyon **	5720
Strawn *	6070
Atoka **	6400
Morrow **	6590
Mississippian Chester	6650

Total depth will be approximately 50' below the top of Mississippian.

* - Primary Objectives

** - Secondary Objectives

Enclosures:

Exhibit I	Mississippian Chester Structure Map
Exhibit II	Strawn Formation Structure Map
Exhibit III	Strawn Formation Net Sandstone Isopach Map
Exhibit IV	Strawn Prospect and Proposed Ranch Road Unit Boundary
Exhibit V	Stratigraphic Cross Section A-A' (Datum-Top Canyon)
Appendix	A. Discussion of Previous Drilling Within Proposed Ranch Road Unit
	B. Test and Completion Data for Phoenix Resources Co. No. 1 Buckhorn Canyon Unit.

1. Summary of Drill Stem Tests
2. Chronological Well History 3-1-79 to 3-22-79
3. Partial Detail log Showing test and perforation intervals of Strawn formation

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