Resume of oil and gas exploration of the Sacramento Mountains area

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to be small closures, upon the main Capitan Reef, the reservoir rock being a porous dolomite.

The Tansill lime bank is only a few miles wide and the dolomite phase is usually a very fine grained lithographic rock with no hint of porosity. Right at the reef front it is sometimes porous and when drilling through the section a puff of gas often is detected. It would seem that since this Tansill dolomite is the top of the Capitan reef and since the lithographic dolomite facies would serve as a barrier to the migration of oil, that it would be an oil trap. This is likewise true of the older Yates and Seven Rivers reefs, however, many wells have been drilled along the reef front and have produced only water. Undoubtedly the porous reef front has been flushed out with water. There are no sand bodies within the Tansill to act as traps or reservoirs for the accumulation of oil. The possibliity of production from the Tansill would be from small mounds of porous dolomite built up on the main barrier reef. Many wells have been drilled along the trend but most have possibly been slightly too far lagoonward for maximum Tansill potentiality.

RESUME OF OIL & GAS EXPLORATION OF THE SACRAMENTO MOUNTAIN AREA

by

David A. Dunn

In that portion of Lincoln, Chaves, and Otero Counties lying south of U.S. Highway No. 70 and west of Longitude 105 a number of tests for oil have been drilled. Sixteen of these tests are shown on the Index Map accompanying this Guide Book. The following tabulation gives the name of the well, the elevation, total depth, the depth to the top of the pre-Mississippian if pre-Mississippian formations were encountered, and the formation at total depth.

	ELEVATION	T.D.	TOP PRE-MISS.	
NAME	ELEVATION	T.D.	DEPTH TO TOP PRE-MISS	FORMATION AT T.D.
Stanolind #1 Picacho	5958	2843	None	Granite Pre-C.?
Humble #1 N State	5733	4014	None	Metamorphics
Southern Prod. #1 Cloudcroft	9370	4701	3490	Granite Pre-C.
Texas Prod. #1 Wilson	5340	4900	4860?	Miss. or Fusselman
Gulf #1 Chaves	6264	3147	?	Granite Pre-C.?
Kewanee #1 4-mile Unit	5169	6562	6424	Fusselman
Sun #1 Pinon	6544	1911	None	Granite Pre-C.?
Sun #2 Pinon	6314	1650	None	Granite Pre-C ?
Plymouth #1 Federal	–	–	–	–
Stanolind #1 Thorne	6310	4646	–	Pennsylvanian
Standard of Texas #1 Scarp Unit	5340	2664	1090	Granite Pre-C.
Turner #1 Everett	4715	3945	2310	Bliss
Turner #1 Evans	5002	3763	1890	El Paso
F.W. & Y. #1 Donahue	4275	1692	–	Intrusive?
Union #1 McMillan	4990	5215	3487	El Paso
Hunt #1 McMillan-Turner	4165	2175	–	Granite Wash

No attempt has been made to correlate the surface exposures at the locations or to make a breakdown of all of the formations encountered since so many formational changes occur that correlation over this wide area is extremely difficult and controversial. In general from north to south the pre-Mississippian formations, i.e. Percha, Fusselman, Montoya, El Paso, and Bliss formations of the Devonian, Silurian, Ordovician, and Cambrian thicken rather uniformly. Control is scattered and many of the indicated granite tops are questionable in age.

Of the many wells drilled only a few encountered shows of oil and gas. These include the Southern Production No. 1 Cloudcroft which encountered a minor show in the Pennsylvanian, the Turner No. 1 Evans which encountered minor shows in the Pennsylvanian, the Kewanee No. 1 Four Mile Unit which encountered a show in the Fusselman and the Union No. 1 McMillan which encountered minor shows in the Pennsylvanian and El Paso formations.

Very favorable sections of Pennsylvanian, containing some reef masses, are exposed in the Sacramento Mountains; however, no well drilled to date has found a complete section of Pennsylvanian in this area. The Mississippian formations contains many bioherms which under favorable conditions should contain petroleum. Favorable conditions in the Fusselman, Montoya, and El Paso formations exist over a large part of the area and all of these offer excellent reservoir characteristics. Major unconformities between the Permian and Mississippian are indicated by both surface and sub-surface control. Folds in the area of sufficient age to be of interest are known to exist; however, the masking effect of more recent movements makes the location of test wells difficult. Many dikes, sills, and plugs in the area makes the identification of the basement difficult. The Plymouth No. 1 Federal located south of Escondida is drilling at the time this is written at 2300 feet in the Pennsylvanian. This test encountered a sill from 1380 to 1790 feet.

A complete study of this area is justified in the exploration for petroleum and while many problems exist, the writer feels that the Tularosa Basin, the southern extension of the Sacramento Mountains, and the Hueco Mountain areas offer an excellent opportunity for the petroleum prospector.

SUMMARY OF EXPLORATION IN THE SEVEN RIVERS EMBAYMENT AREA EDDY COUNTY, NEW MEXICO

by

R. E. Murphy and Phil D. Helmig

The region involved in this discussion of exploration activities is defined as the area lying south of the Artesia-Cloudcroft Highway and between the Pecos River on the east across the Huapache Monocline to the Dog Canyon escarpment on the west. Southward the area extends across the state line to Guadalupe Peak, elevation 8751, the highest point in Texas.

The Seven Rivers embayment, as shown on the Index Map, is a physiographic feature expressed as a broad shallow valley developed between the Seven Rivers escarpment on the east and the Huapache Monocline on the west. The rim of the embayment converges to the south, terminating to form a bayhead at the point where the Huapache Monocline joins the Hess Hills. Here the Queen road climbs out of the valley and extends westward across the Guadalupe Hills toward Dog Canyon.

The Upper Permian rocks outcropping in the area range from Capitan Reef type limestones to the red bed evaporite type of back reef equivalents and they occupy the north-west shelf area of the Delaware Basin. The type locality of the Seven Rivers formation is located on the east side of the embayment where it was first described and differentiated by Meinzer, Renick and Bryan 1926, U.S.G.S. Water Supply Paper 580-A. Later more detailed description of the surface exposures were made by Fiedler and Nye 1933, U.S.G.S. Water Supply Paper 639 and by Lang 1937, AAPG Bulletin, Vol. 21. No. 7.

The surface rocks exposed from east to west across the Seven Rivers embayment are upper Permian in age. The following section taken from King 1942, AAPG Bull., Vol. 26, No. 4 and King 1948, U.S.G.S. Prof. Paper 215, is arranged in accordance with the position from reef to back reef area.