INTRODUCTION

The Oak Creek Field is located about 19 miles southwest of Steamboat Springs, 2 miles west of the town of Oak Creek, in Section 2, Township 3 North, Range 86 West, Routt County, Colorado. The field is in fairly rugged, mountainous and wooded terrain with elevations ranging from 7500 feet at Oak Creek Townsite to over 9000 feet on the producing lease. The field produces oil from the Shinarump Sand of Triassic age from a depth of 6260 feet on a small anticlinal feature of questionable closure. To date the field has produced about 48,000 barrels of oil.

HISTORY OF DEVELOPMENT

Surface work by the Colorado Geological Survey and others, as early as 1920 motivated drilling on the Oak Creek Anticline and the discovery of oil in the Shinarump Sand. In 1949 the Havenstrite Oil Company of Los Angeles drilled the discovery well, Prentiss #1 (Ryles #2) well in the NW/4 SW/4 NE/4 of Section 2, Township 3 North, Range 86 West. The well encountered oil in the Shinarump Sand in a 29 foot interval between 6670 and 6699 feet. A drill stem test recovered 5700 feet of 37.9 API gravity oil and the well was completed "barefoot" for an initial pump potential of 250-300 barrels of oil per day. Since 1949, four wells have been drilled on the Oak Creek structure; only one resulted in oil production.

The second and third tests were drilled by Havenstrite Oil Company in 1950; both were dry. The Prentiss #2, drilled in NW/4 NE/4, Section 2, ¾ mile northeast of the discovery well, encountered the pay section 65 feet lower structurally than the discovery well. The sand was tight and the well was abandoned at a total depth of 6970 and 6099 feet. A drill stem test recovered 5700 feet of 37.9 API gravity oil and the well was completed "barefoot" for an initial pump potential of 250-300 barrels of oil per day. Since 1949, four wells have been drilled on the Oak Creek structure; only one resulted in oil production.

The third well, the Havenstrite Oil Company Prentiss #3, located ¾ mile west of the initial well, in SE/4 SW/4 NW/4 of Section 2, found the sand 104 feet higher structurally than the Prentiss #1 well. The pay sand was found to be tight. There was apparently no conclusive drill stem test taken in the pay sand and the well was abandoned at 6853 feet.

The fourth well drilled on the structure was the Intex Oil Company's Routt County Fuel #1 well in NW/4 NW/4 Section 2. That well was spudded in October 1958 and abandoned in April, 1959. The well was drilled with cable tools to a depth of 5116 feet in the Dakota Sandstone. A rotary rig was then moved in and the well deepened to a depth of 6021 feet in the Moenkopi formation. The Shinarump Sand was encountered 16 feet low to the discovery well and cored 18 feet of spotty oil stained sand. A drill stem test of the interval recovered only 900 feet of fresh water with a skim of oil.

The most recent well was drilled by Midwest Oil Corporation and Jack Grynberg in 1961 and 1962. The well was located in center of SE/4 NW/4 of Section 2, a west offset to the discovery well, and resulted in oil production at 6260 feet in the Shinarump Sand. The pay sand was encountered 82 feet higher structurally than the Prentiss #1 well. Net pay in the well is 16 feet. The well was completed for an initial pump potential of 235 barrels of oil per day with the fluid level at 500 feet.

STRUCTURE

The Oak Creek feature is exposed on the surface in the upper Cretaceous Illes formation of the Mesaverde group. However, poor exposures due to the heavy vegetation in the critical crestal area of the feature precludes any accurate measurement of closure at the surface. It is questionable that any closure at all might be exhibited in the Illes rocks. There is, however, a pronounced reversal apparent from west to east across Section 2, indicating a strong north trending asymmetrical feature, with the steep flank on the west, and a bulge which at least suggests closure.

Subsurface control and seismograph work indicate a more pronounced structure with depth, and probable closure in the neighborhood of 75 feet. Well data alone has not proven closure at the Shinarump level, but does show a reversal at least of some 200 feet in less than a mile with the crest near the western margin of the high.

Some northwest trending high-angle faults are evident on the surface, and some minor faults are present in some of the wells in the Mancos Shale. It is conjectural that any of these faults affect the structural configuration at Shinarump level. There is no apparent