9. W. T. NIGHTINGALE, Mountain Fuel Supply Company, Rock Springs, Wyoming
Petroleum and Natural Gas in the Non-Marine Wasatch Formation of Northwest Colorado and Southwest Wyoming

The development during the past few years of commercial volumes of petroleum and natural gas in the Wasatch formation of northwest Colorado and southwest Wyoming has aroused considerable geological comment.

The Wasatch formation is of Eocene age and fluvio-terrestrial in origin. Geological field studies have established Wasatch sedimentation as of the continental type and definitely non-marine.

Petroleum and natural gas have been developed in and are now being produced from the Hiawatha member of the lower Wasatch. The production is believed to be indigenous to the Wasatch formation and not migratory from other formations. The occurrence of hydrocarbons in large volumes in a non-marine formation, and apparently indigenous thereto, is most unusual geologically.

The commercial accumulation of both petroleum and natural gas in the Wasatch formation appears to be controlled, in the main, by structural folding. However, the extreme lenticularity of the Wasatch sands and the resulant stratigraphic traps formed by sand lensing are of more importance locally than structural position in determining successful well locations. Over 25 separate gas productive lenses and five separate oil-productive lenses of variable sizes and shapes are already known to occur in the Hiawatha member of the Wasatch formation.

Four fields, namely, East Hiawatha, West Hiawatha, Powder Wash, and Canyon Creek have found commercial volumes of natural gas in Wasatch sand lenses. Two of them, East Hiawatha and Powder Wash, are productive of commercial quantities of petroleum, as well as natural gas, from the same Wasatch formation.

The economical development of petroleum and natural gas fields in the lenticular and somewhat erratic sands of the continental Wasatch formation involves production problems and hazards not common to the more regular sand-reservoir fields.

10. ALBERT F. BARRETT, General Petroleum Corporation, Casper, Wyoming
Developments in the Rocky Mountain Region in 1941

The year 1941 was marked by continuation of a relatively active drilling campaign. In Wyoming the major development of light oil production was in the Lance Creek field of eastern Wyoming; Cole Creek in central Wyoming; and in the Wertz, Lost Soldier, and Mahoney fields in the Lost Soldier District of south-central Wyoming. The major black-oil development was in the Oregon Basin, Frannie, and Byron fields in the Big Horn Basin district of northern Wyoming and in the Maverick Springs field in the Wind River Basin of central Wyoming. In Montana the active development was confined to the two major fields of the state, Cut Bank and Kevin Sunburst in the northern part of the state, both light-oil producers. In Colorado the active development was in the Wilson Creek field and in the Rangely shale-oil field, all light oil.

In several cases the development work resulted in extensions of oil productive areas, in particular at Lost Soldier, Wertz, Cole Creek, and Frannie in Wyoming; at Cut Bank and Kevin Sunburst in Montana; and at Wilson Creek in Colorado. Two relatively important extensions of gas areas resulted from 1941 drilling; at Elk Basin in northern Wyoming and at Hiawatha in southwestern Wyoming.

At Wilson Creek in Colorado a new oil-producing zone (Sundance sand) was definitely proved to be commercially productive, which discovery, along with extensions of the higher Morrison sand area, added considerably to the estimated reserves for the field.

There were no important discoveries of new oil- or gas-producing areas in the Rocky Mountain states during 1941. Results or three wildcat tests indicated discovery of new gas fields of as yet unknown importance at the following locations: Canyon Creek structure, Sweetwater County, southwestern Wyoming; Sherard Dome, Carbon County, south-central Wyoming; and the Reagan structure on the Twin Rivers structural nose, Glacier County, northern Montana.

There were ten important wildcat tests in Wyoming in 1941, of which four had been abandoned as failures prior to end of year. In Montana three important wildcats were drilled and abandoned as failures during 1941. In Colorado two important wildcats were still active at the end of 1941. There were numerous other wildcats, not considered as important tests, drilled or drilling during 1941.

All Rocky Mountain producing states, Colorado, Wyoming, and Montana, showed