

Indiana Geological Survey

Petroleum Topic Report

A Brief Overview of the History of the Petroleum Industry in Indiana

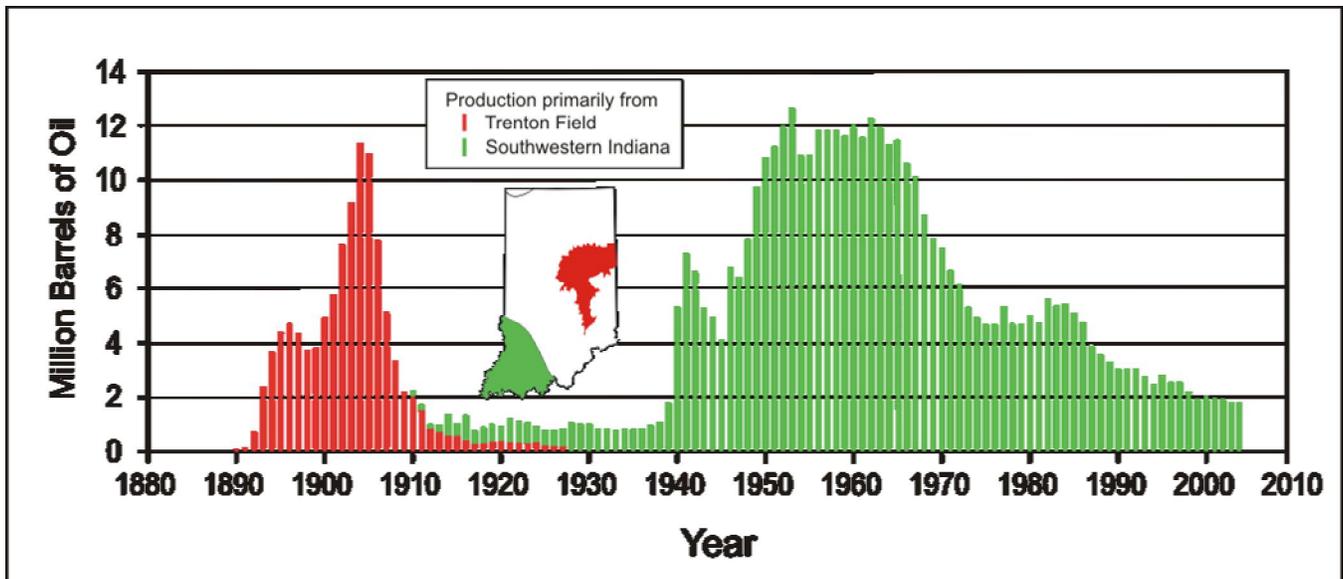
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Trenton Field

The history of oil and gas development in the state of Indiana officially began in the mid-1800s with the early settlers' practice of drilling for salt water. Salt was a necessity for the preservation of foodstuffs and critical to the early state's agricultural industry; shallow wells were sunk in many parts of the state to obtain salt water that could be evaporated to produce salt. Drilling was probably accomplished by using a "spring pole" method. Early settlers also became aware of gas springs and oil seeps along the Ohio River in Harrison and Crawford Counties.



Following the news of the success of Colonel Edmond Drake's oil well in Titusville, Pennsylvania in 1859, oil exploration moved westward into Ohio and Indiana. Between 1862 and 1869, wells were drilled in Pulaski County and Vigo County and gas and oil were discovered but not further developed. Gas was discovered in what would become the Trenton Field near Eaton in Delaware County in 1876. Beginning in 1886 and continuing into the first decade of the 20th century, gas and then oil were discovered and developed in east central Indiana. A wild untethered boom ensued that ultimately resulted in thousands of wells being drilled; this was one of America's first giant oil fields (greater than 100 million barrels of oil). The gas was used to attract and then fuel numerous industries in the region. In fact, the existence of Muncie, Anderson, Marion, and Kokomo as manufacturing centers can be directly attributed to the development of the Trenton Field. In addition to these industrial complexes, the oil boom led to the development of refining and petrochemical industries in the Calumet region. The boom quickly ended in the beginning of the 20th century because wasted practices and unregulated drilling caused a precipitous drop in production. Unfortunately much of the resource was wasted or lost through the burning of gas at the surface and the contamination of oil by fresh water within the subsurface reservoir.



Oil production in Indiana. Modified from Carpenter and others, 1995.

Current Activity and Future Prospects

Since the early 1960s, the amount of oil produced in Indiana has declined. Close examination of this decline reveals that changes in the price of oil are directly related to the number of wells drilled and consequently, the volume of oil produced. For instance, the reversal of the steep decline in the 1960s and 70s can be attributed to the energy crisis of 1973 and Iranian crisis of 1979. After 1986 a steep decline resumed, resulting from a dramatic lowering in the price of crude oil. In this same time frame, the number of holes drilled within the state has declined from over 1,200 in the early 1980s to around 200 in recent years. Most of these recent holes are drilled as development wells in existing fields in attempts to extract additional oil. Exploration activities are low when crude oil prices are low; conversely, when the price of oil is high, exploration is more extensive.

There is a fair potential for the discovery of significant new reserves in the state. Much of the state has been drilled; however, this drilling reached only the first few thousand feet of depth. A considerable portion of the subsurface remains unexplored, and many thousands of feet of potential reservoir exist, especially in the southern portion of the state. Although the deep subsurface geology of the state is unknown, the thermal maturity, migration pathways, and trapping mechanisms may prove to be favorable for oil and gas accumulation. In addition to untested geology, the application of new technologies to explore for and produce oil and gas could hold the key to unlocking some of Indiana's resource potential. These new technologies, some of which are being used in the development of the New Albany Shale as an unconventional gas source, include the application of advanced seismic acquisition and processing techniques, new drilling technologies including horizontal drilling, and complex completion techniques such as liquid CO₂ stimulation.

References

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