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# FROM THE STATE GEOLOGIST

## THE 50<sup>TH</sup> ANNIVERSARY OF THE DISCOVERY OF OIL IN NORTH DAKOTA

by John P. Bluemle



We recently observed the fiftieth anniversary of the discovery of oil in North Dakota. It was on April 4, 1951, that the Clarence Iverson #1 Well officially came in near Tioga in Williams County. It seems appropriate to mark this Golden Anniversary by reflecting on what the discovery of oil has meant to our State.

For 28 years, that one well, the Clarence Iverson, produced oil – 585,000 barrels of it. Since 1951, another 13,500 wells have been drilled in North Dakota, and about 3,300 wells are currently producing in the State. North Dakota has been the 9<sup>th</sup> ranking oil-producing state for many years. Last year alone, we produced nearly 33 million barrels of oil valued at more than \$750 million. In fact, in the 50 years since oil was discovered in North Dakota, our petroleum industry has produced over 1.3 billion barrels of oil worth over \$20 billion.

How valuable has North Dakota's oil production been? It's not really possible to know the exact amount of oil tax revenues the State has received over the past 50 years – I estimate nearly \$2 billion. Since about 1970, oil tax revenues have ranged from as little as \$3.1 million (1973) to as much as \$177 million (1984). In recent years, they have been between about \$30 and \$60 million a year.

The reason that tax revenues have fluctuated so widely is that the price of oil itself has varied widely. Beginning at about \$2.00 a barrel in the 1950s, oil prices rose sharply in the early 1970s (from about \$4.00 a barrel in 1973 to about \$9.00 in 1974, at the time of the first Middle East oil embargo), to over \$30.00 in the early 1980s. Prices fell to about \$10.00 in the late 1980s, peaking briefly again at over \$30.00 during the Gulf War (1990), then falling to below \$20.00 during most of the 1990s (to below \$7.00 early in 1999) and, most recently, rising again to over \$20.00 a barrel.

In addition to tax revenues, the State of North Dakota has received more than \$500 million from oil and gas leases, bonuses, royalties, and rentals on state lands. I couldn't begin to guess how much could be added to that total if taxes collected from landowners from leasing revenue were included.

Crude oil and refined petroleum products are among our most important exports and revenue producers. The oil industry is one of North Dakota's largest employers with nearly 3,000 people at work in the oil patch. These are the kind of "high-paying jobs" we need in our State.

As I write this, approximately 20 oil rigs are drilling in North Dakota. The high point of working rigs was 147 in 1983. Each rig results in 120 direct and indirect jobs, providing an annual payroll of more than \$2.6 million per drilling rig.

On a per-capita basis, North Dakotans are among our nation's biggest users of petroleum products. We drive long distances. We like to keep warm in the winters. Our farmers rely mainly on gasoline and diesel fuel to do their jobs. The increasing numbers of tourists who visit us use oil products to get here.

Where does the North Dakota Geological Survey fit in? The NDGS was the state agency responsible for both regulation and research during the first 30 years following the discovery of oil in North Dakota, the years when the industry was young and when much of its growth took place. In 1981, responsibility for enforcing North Dakota's oil and gas conservation law was transferred from the NDGS to a new Oil and Gas Division (the exception was core and sample regulation, which remained with the NDGS). Even though we have not had a direct role in regulation or production for the past 20 years, our geologists continue to study the rocks that produce hydrocarbons.

The North Dakota Geological Survey's role, although quite different from when oil was discovered in North Dakota, is a vital one. Our studies of the State's oil-producing formations enable us to respond to questions from industry and advise other state agencies about petroleum geology in North Dakota. We help oil explorationists in their search for oil and sometimes our studies lead the way to new discoveries. We continue to maintain the Wilson M. Laird Core and Sample Library as part of our regulatory responsibilities. The cores and samples stored there are valuable scientific resources, used by NDGS and industry geologists to learn about the geology and reservoir rocks for exploration, unitization, and other purposes.

Rising energy costs, supply shortages, environmental restrictions that limit access to drilling, OPEC's changing production policies – all of these and other unknowns make it

somewhere between difficult and impossible to forecast the future. For example, a significant part of the Little Missouri National Grassland in western North Dakota may soon be off limits to drilling because of increased U.S. Forest Service restrictions. So-called "roadless" areas and other restrictions will deny surface occupancy to important federal lands where oil and gas might be found.

The wildly fluctuating prices for oil and gas over the past three years have proven again that the industry is very price-sensitive. Current events in our nation, as we have seen recently in California, have shown us the real value of energy resources, the impact energy has on both the local and national economies, and the need to properly administer the production and distribution of these resources.

Even with these problems, the future for North Dakota's oil industry is definitely bright. A huge amount of oil remains in the ground in areas that haven't been explored. New technologies, new discoveries, and new work in older oil fields have vastly increased both the odds of finding oil and the efficiency of getting it out of the ground. Over the past 50 years, even in areas where we have production, many wells

have left five to ten barrels of oil in the ground for every barrel extracted. The recovery rate is improving today. With new technologies such as horizontal drilling and better methods of enhanced recovery we will get more of the oil out of the ground.

As a kind of tribute to the Golden Anniversary of oil in North Dakota, the NDGS recently published a short volume of writings and anecdotes, many of them dating to the time the Clarence Iverson #1 was drilled (this publication, *The 50<sup>th</sup> Anniversary of the Discovery of Oil in North Dakota* – NDGS Miscellaneous Series 89, is listed in the "New Publications" section of this issue of the NDGS Newsletter).

*Note: Governor John Hoeven proclaimed April 4, 2001, "Oil Discovery Day" in North Dakota. In recognition of that event, a reception was held at the Capitol, with remarks by Governor Hoeven. Also on that day, Representative Robert Skarphol and Senator John Andrist provided pertinent comments in the North Dakota House of Representatives and Senate, respectively. This article summarizes and somewhat expands on these three gentlemen's remarks. –JPB]*

