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## Facts about Oil in Nebraska

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# FACTS ABOUT OIL

*in Nebraska*

Conservation & Survey  
Division

APR 1966

University of Nebraska

**NEBRASKA OIL and GAS ASSOCIATION**

*P.O. Box 4724*

*1320 J Street*

LINCOLN, NEBRASKA

## OIL IN NEBRASKA

With crude oil production averaging 48,000 barrels a day in 1965, Nebraska ranked 16th among the nation's 32 oil producing states last year.

Perhaps better known for beef, corn, and football teams, Nebraska nonetheless is an important element in the domestic petroleum industry. Its history as an oil producing state traces back to 1939.

During that 27-year period, nearly 250 million barrels of crude oil have been produced from Nebraska wells.

Last year alone, 464 wells were drilled in the State, searching for or developing Cornhusker reserves. These wells totaled nearly 2.3 million feet of hole drilled.

Facts such as these establish the economic importance to Nebraska and its citizens of the State's oil and gas industry.

In order to better acquaint Nebraskans with their petroleum industry, the Nebraska Oil and Gas Association has compiled this booklet, the second edition of its kind.

Petroleum is the State's principal mineral resource industry. Indeed, it must be credited with transforming Nebraska from a State solely dependent on soil and water as its chief sources of natural resource wealth.

In so doing, petroleum has brought diversity to the State's economy, in the form of employment, purchases of equipment and supplies, payment of lease bonuses and rentals, and a new source of tax revenues.

Thus, directly or indirectly, all of Nebraska's citizens have benefitted from petroleum activities.

Good conservation practice has been the watchword in the development

of Nebraska's oil and gas reserves. In 1959, the Legislature adopted a sound conservation law, one which established the Nebraska Oil & Gas Conservation Commission. Prior to that time, however, the State Geologist's office was responsible for following exploration and production activities.

These two agencies, plus the conscientious attitudes of oil operators, brought about the orderly development of Nebraska reserves.

Of more than passing interest is the importance of secondary recovery techniques to Nebraska's production. These techniques, which supplement the natural reservoir energy in an oilfield and thereby increase the recovery of oil from that field, are in wide use. Indeed, 42 percent of Nebraska's daily production is from secondary recovery projects.

Not content to rest on past laurels, however, the industry last year drilled 209 wildcat, or exploratory, wells in search of new reserves.

Only eight of these found new oil, a fact that emphasizes the tremendous risk element present in oil and gas exploration. So far as these eight are concerned, it will be some time before their full significance will be known.

Still, the industry's confidence in Nebraska's oil future is illustrated by the 11 million acres under lease.

Oil producers share with Nebraska's citizens the fond hopes that future exploratory drilling will unveil many more new oil and gas fields which will contribute further to the economic and industrial development of the State.

## THE FACTS ABOUT OIL IN NEBRASKA

The oil producing industry is 27 years old in Nebraska. Oil was discovered in Richardson County, November 2, 1939.

\*

The discovery of oil in Nebraska in 1939 ended over 50 fruitless years in abortive oil tests.

\*

THE FIRST RECORDED PETROLEUM EXPLORATION TEST MADE IN NEBRASKA WAS IN THE YEAR 1889. THIS TEST, SEARCHING FOR NATURAL GAS, WAS AT DANNEBROG. REPORTEDLY, THE DRILLER OF THE DANNEBROG TEST WAS AN IOWAN. TOTAL DEPTH OF THE TEST WAS 1,011 FEET.

\*

THE FIRST PRODUCING WELL IN NEBRASKA WAS KNOWN AS THE BOICE WELL. THIS WELL, HOWEVER, DID NOT PRODUCE CONSISTANTLY FOR 60 DAYS, AND THEREFORE, DID NOT QUALIFY FOR THE STATE'S \$15,000 BONUS AWARD.

\*

The second commercial producing oil well in Nebraska was known as the Bucholz well, and following discovery, produced the required consecutive 60 days, qualifying it for the \$15,000 bonus award offered by the State of Nebraska.

\*

The \$15,000 bonus award for Nebraska's first commercial producing oil well was paid to the Pawnee Royalty Company in 1940. This company was operated by the Guinn Brothers of O'Dessa, Texas.

\*

THE PANHANDLE OF NEBRASKA BECAME THE STATE'S PRINCIPAL OIL AND GAS PRODUCING PROVINCE WITH A DISCOVERY OF OIL IN CHEYENNE COUNTY IN 1949, 10 YEARS AFTER THE OIL BOOM IN RICHARDSON COUNTY.

\*

COMMERCIAL NATURAL GAS PRODUCTION WAS DISCOVERED IN 1950 IN CHEYENNE COUNTY, NEBRASKA AND SUBSEQUENTLY QUALIFIED ITS DISCOVERER FOR A \$10,000 BONUS FROM THE STATE.

\*

The earliest records kept on the state's exploration to January 1, 1966, reveals that 10,220 wells have been punched into the surface of the state in an attempt to find oil....failure often the result.

\*

Nebraska's all-time accumulative oil production (27 years) to January 1, 1966, amounted to 249,414,386 barrels.

\*

DURING THE TIME RECORDS HAVE BEEN KEPT ON OIL EXPLORATION IN NEBRASKA, 1961 WAS THE YEAR OF GREATEST ACTIVITY, WITH 1,000 TEST WELLS DRILLED, AND 1947 THE YEAR OF LEAST ACTIVITY, WITH JUST 5 TESTS.

\*

ON JANUARY 1, 1966, NEBRASKA HAD 1,620 WELLS LIFTING ITS CRUDE PETROLEUM WEALTH TO THE SURFACE FROM DEPTHS OF OVER 6,000 FEET IN SOME AREAS. IN ADDITION, THERE WERE ALSO 39 PRODUCING GAS WELLS.

\*

CRUDE OIL RESERVES IN NEBRASKA HAVE BEEN ESTIMATED AT 124,556,000 BARRELS. THIS RESERVES FIGURE INCLUDES OIL PRODUCIBLE BY BOTH PRIMARY AND SECONDARY METHODS.

\*

1962 was Nebraska's biggest oil producing year with nearly 25,000,000 barrels of crude produced in the 12 month period.

\*

NEBRASKA HAS THREE PRINCIPAL GEOLOGICAL OIL BASINS. THEY ARE THE FOREST CITY BASIN, THE CENTRAL NEBRASKA BASIN AND THE DENVER-JULESBERG BASIN.

\*

ONLY 9 COUNTIES OF NEBRASKA'S 93 HAVE NOT BEEN TEST DRILLED FOR THE POSSIBLE OCCURRENCE OF OIL. THESE COUNTIES ARE BOYD, CEDAR, DIXON, HAMILTON, NANCE, NUCHOLS, PIERCE, THURSTON AND WAYNE.

\*

-3-

Nebraska has a total land area of 49,031,680 acres. Of this total area, it is estimated that 74,620 acres is productive of oil and/or gas. Land area under oil and gas lease is estimated at 10,650,000 acres.

\*

Total crude oil production in Nebraska for 1965 was 17,213,786 barrels. Total gas production was 11,736,024 MCF.

\*

AVERAGE PER WELL PRODUCTION IN 1965 WAS 29.1 BARRELS IN NEBRASKA. AVERAGE DAILY PRODUCTION FROM TOTAL PRODUCING WELLS WAS 47,160 BARRELS.

\*

FIFTEEN OF NEBRASKA'S 93 COUNTIES WERE PRODUCING OIL AND/OR GAS ON JANUARY 1, 1965. THE TOP 4 PRODUCERS WERE KIMBALL, BANNER, CHEYENNE, AND RED WILLOW, IN THAT ORDER.

\*

The two largest oil producing reservoirs in Nebraska are the Sloss State and the Sleepy Hollow Fields. Sloss State has produced all-time to January 1, 1966, 15,104,380 barrels of oil, and Sleepy Hollow has produced all-time to January 1, 1966, 15,784,892 barrels of oil.

\*

The Nebraska Oil and Gas Conservation Commission estimates that 42% of Nebraska's oil production in 1965 was attributable to secondary recovery methods.

\*

ON JANUARY 1, 1966, 78 OIL RESERVOIRS IN NEBRASKA WERE EXPERIENCING SOME FORM OF SECONDARY RECOVERY, PREDOMINATELY WATER FLOODING.

\*

There are 82 oil and gas producing companies operating in Nebraska. The largest producer of crude oil in the state is the Pan American Petroleum Corporation. The Marathon Oil Company is number two.

\*

The cost of drilling the average oil well in the Panhandle of Nebraska to total depth runs from \$18,000 to \$20,000. If the well finds production, an additional \$30,000 to \$35,000 is needed to complete and equip the well.

\*

THE TOTAL VALUE OF OIL AND GAS PRODUCED IN NEBRASKA DURING THE YEAR 1965 WAS \$47,513,200. ONE-EIGHTH OF THIS TOTAL VALUE OR \$5,939,150 WAS PAID THE STATE'S LANDOWNERS AS ROYALTY.

\*

THE AVERAGE PRICE RECEIVED FOR A 42 GALLON BARREL OF NEBRASKA PRODUCED CRUDE OIL IN 1965 WAS \$2.66.

\*

The hazards of finding oil are demonstrated by the success ratio of one producer out of every twenty-nine wildcat attempts in Nebraska in 1965. The most successful year for exploration was 1958 when one out of every 9 wildcat attempts found oil.

\*

The total footage of all oil and gas wells drilled in Nebraska since 1939 would more than penetrate the diameter of the earth. The diameter of the earth is 7,918 miles. Total footage of oil tests amounts to more than 9,195 miles.

\*

THE DEEPEST OIL TEST MADE IN NEBRASKA REACHED TOTAL DEPTH AT 8,875 FEET.

\*

THERE ARE 32 OIL PRODUCING STATES IN THE UNITED STATES. NEBRASKA RANKS 16TH AMONG THESE STATES IN TOTAL PRODUCTION.

\*

Nebraska has one crude oil refinery. The Cooperative Refinery at Scottsbluff refines 3,000 barrels of crude per day.

\*

Nebraska has three natural gas cycling plants which produce 23,800,000 gallons of natural gas liquids annually. The plant products include propane, butane and raw gasoline.

\*

A SEVERANCE TAX ON OIL AND GAS PRODUCTION WAS FIRST APPLIED BY THE STATE IN 1956. SINCE THAT DATE, SEVERANCE TAX RECEIPTS ON NEBRASKA PRODUCTION TOTAL \$11,912,153.

\*

THE OIL INDUSTRY PAID TO THE STATE'S PERMANENT SCHOOL FUND IN 1965, \$950,264.70 SEVERANCE TAX ON OIL AND GAS PRODUCED DURING THE YEAR. THE SEVERANCE TAX IS COMPUTED AT 2% OF THE SALES PRICE.

\*

In addition to a 2% severance tax, Nebraska oil and gas production is also taxed as real estate. The ad valorem revenue on oil and gas production, the equipment and pipelines will amount to approximately \$1,066,000 in 1966.

\*

The State of Nebraska, through its ownership of 1,650,000 acres of school land, is the largest oil and gas lease lessor. The State has granted over 485 oil and gas leases covering nearly 200,000 acres of school land.

\*

THE STATE OF NEBRASKA RECEIVES A 1/8TH ROYALTY INTEREST IN THE PRODUCTION OF 64 OIL AND/OR GAS WELLS SITUATED ON STATE SCHOOL LAND. TO JANUARY 1, 1966, THE ACCUMULATED ROYALTIES OVER THE YEARS FROM THIS INTEREST HAS AMOUNTED TO \$3,511,377.

\*



THE STATE OF NEBRASKA IN ITS ROLE AS LESSOR OF STATE SCHOOL LANDS HAS COLLECTED ALL TIME TO JANUARY 1, 1966, \$5,176,805 IN LEASE RENTALS AND BONUSES.

\*

BONUS AND OIL LEASE RENTAL PAYMENTS ON NEBRASKA SCHOOL LAND ACCRUE TO THE TEMPORARY SCHOOL FUND. THE ROYALTIES ON SCHOOL LAND OIL PRODUCTION ACCRUE TO THE PERMANENT SCHOOL FUND.

\*

Nebraska produced crude oil goes to market through a total network of 1,061 miles of pipelines. This figure includes both gathering lines and trunk lines.

\*

There are over 1200 employees in Nebraska directly involved in the exploration, production, transportation, and refining phase of the oil industry. Total wages paid these employees annually amounts to \$7,680,000.

\*

ONE 42 GALLON BARREL OF CRUDE OIL PRODUCED IN NEBRASKA WILL REFINE: 18.8 GALLONS OF GASOLINE, 9.7 GALLONS OF LIGHT FUEL OIL AND 4.9 GALLONS OF HEAVY FUEL OIL.

\*

The exploration and production of oil and gas in Nebraska is regulated by the Nebraska Oil and Gas Conservation Commission, located at Sidney, Nebraska. The Commission is comprised of three persons appointed by the Governor.

\*

An extensive library of electric logs and core samples of wells drilled are kept by the State Geologist, Conservation and Survey Division at the University of Nebraska.

\*

## SO YOU WANT TO DRILL AN OIL WELL!

Ever think you'd like to own an oil well?

Lots of folks have. Some folks figure they'd be on easy street if they just had a well or two.

True, some fortunes have been made in the oil business. These are the stories you hear about. Rarely do you hear about the men who lost the family homestead, their shirts and everything else searching for that supposed pot of gold.

For the odds against finding a new oil or gas field are high: one chance in 13 of finding any oil or gas at all, and only one chance in 40 of finding a commercially profitable field--one that will pay out its costs and return a profit.

These odds are based on the industry's historical experience over periods of 20 and 30 years.

But if yours is a gambling spirit, maybe you'd like to try your luck. What do you do first?

If you own some acreage, maybe you'd care to drill there first. Unless you've sold or leased the mineral interests beneath your acreage, you're free to drill on your own land.

You will need a drilling permit from the Nebraska Oil and Gas Conservation Commission. You must be bondable, and you must pay a \$50 fee with your application. Beyond these two requirements, getting the permit is not a problem.

But let's say you don't own any acreage, but you still want to drill. In this case, the first step is to get a lease from a landowner who is willing for you to drill on his place.

Standard lease forms are available that set forth the terms and conditions of the deal.

A lease is generally drawn for a primary term of five or ten years. It gives you, as the lessee, the exclusive right to drill on the property during the primary term, in exchange for certain considerations granted the lessor.

First, there'll be a bonus payment. Depending on how close to proven production the land is, the bonus may range from 25 cents to several dollars an acre. The bonus is paid to the landowner at the time the lease is signed.

Then, there'll be a rental provision. This means that you, as lessee, will pay the landowner an annual rental (usually the same amount as the bonus) to keep the lease in effect until drilling actually begins. Failure to pay the rental on time automatically cancels the lease.

Next, there'll be a royalty provision. This means that if production is established, you'll pay the landowner 12½ percent of the wellhead value of the oil or gas, or both, for as long as production continues..

There may also be other provisions, such as compensation to the landowner for damages to crops on the surface acreage, the land-

owner's right to free gas if he wants it, and so forth. These are points that you negotiate with the landowner, or that he demands from you!

Lease in hand, you'll still need the drilling permit. These are generally not granted on tracts of less than 40 acres, because Nebraska's rules usually require a spacing pattern of one well to 40 acres.

Now you need capital.

How much? In the Panhandle of Nebraska, it costs from \$18,000 to \$20,000 to drill a well to test the "J" sand, the state's deepest oil-producing zone.

That much money will pay for preparing the location, bringing in the rig, drilling the hole to about 6,500 feet, setting surface casing to protect shallow fresh water sands, and running one drill-stem test to find out if there's oil or gas in the hole. It'll also pay for plugging the well if it's dry.

If you're lucky enough to make a well, then you'll need \$30,000 or \$35,000 more to put in treating and storage equipment to handle the oil production.

Maybe you've got that kind of money and are willing to gamble it on one hole. Fine -- go right ahead.

Or maybe you've got it but you don't want to risk it all on one venture. Or maybe you don't have it. What then?

In these latter two cases, you can sell "working interests" in your deal. This means you can

sell any fractional part, or several fractional parts, or even all of the 7/8 interest that your lease entitles you to. Remember that 1/8, or 12½ percent, is reserved to the landowner.

The working interest owners pay all of the costs of drilling and equipping the well. The landowner gets his 1/8 without any cost and without any risk.

That 1/8 royalty may not sound like much, but it may well return more net income than the 7/8 working interest, when all the investment costs are considered.

So now you've got your lease, your financing and your drilling permit.

All that remains is for you to find a competent drilling company and negotiate a contract for your well. He'll take over and in a week or so, he'll deliver to you a dry hole... or a new oil or gas field.

If he's competent, he'll also see that the Nebraska Conservation Commission's regulations governing drilling, completing or plugging a well are followed.

This is a simplified story of how to go about drilling an oil well. It doesn't take into account the reasoning behind why you might want to drill at a given place.

It doesn't, for example, mention the geophysical surveys that are frequently conducted. It doesn't talk about the detailed geological evaluations, both on a localized and on a regional basis, that precede a decision to drill.

For oil and gas exploration is

a business, a serious business. The successful operators and companies leave as little to chance as they can. And even their best efforts are all too frequently expensive dry holes.

If you don't want to take on the full responsibility of putting a drilling deal together, you might want to consider buying a working interest.

There are many companies selling such interests in drilling ventures to the public in Nebraska. Typically, a one-percent interest in a Nebraska venture might cost you \$400 or \$500, along with a commitment to invest an additional \$450 to \$550 in the event a producing well is completed.

As in any other business venture, however, you should investigate carefully before putting up your money. In an oil deal, you are buying a highly speculative interest. There is no guaranteed security.

You should pursue this kind of investment only if you can afford to lose, because the odds are 40 to 1 you won't get your money back with a profit.

Before buying into a drilling venture, ask yourself these questions:

1. What do I know about the company I am dealing with?
2. Is the deal clearly set forth in writing? Do I understand all of it?
3. Should I consult my lawyer?
4. How can I get additional information on the Nebraska oil industry?

On the last point, the Nebraska Oil and Gas Conservation Commission at Sidney, the State Geologist at The University of Nebraska in Lincoln can provide information.

An old driller once said, "You can have sawdust for brains in the oil business as long as you have luck." But lots of folks with brains and know-how turned out to be unlucky.