

BEFORE THE INDUSTRIAL COMMISSION
OF THE STATE OF NORTH DAKOTA

IN THE MATTER OF A HEARING CALLED ON A
MOTION OF THE COMMISSION TO CONSIDER THE
TEMPORARY SPACING FOR THE DEVELOPMENT OF
THE SHORT CREEK FIELD IN BURKE COUNTY, NORTH
DAKOTA, PRESCRIBE THE LIMITS OF THE FIELD
AND SUCH SPECIAL FIELD RULES AS MAY BE
NECESSARY.

CASE NO. 239
ORDER NO. 264

TEMPORARY ORDER OF THE COMMISSION

BY THE COMMISSION:

Pursuant to legal notice this cause came on for hearing at 9:30 a.m. on the 16th of September, 1958, at Bismarck, North Dakota, before the Industrial Commission of North Dakota, hereinafter referred to as the "Commission".

NOW, on this 25 day of Sept., 1958, the Commission, a quorum being present, having considered the testimony adduced, and the exhibits received, at said hearing and being fully advised in the premises,

FINDS:

(1) That due public notice having been given, as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That geological and engineering evidence presented to the Commission bearing on the matter of well spacing indicates that the Madison pool, as classified and defined by this temporary order should, for a period not to exceed four (4) months from this date, be developed on a pattern of one well to eighty (80) acres in order to drain efficiently the recoverable oil from said pool, assure orderly and uniform development, avoid the drilling of unnecessary wells, and prevent waste in a manner to protect correlative rights.

(3) That temporary eighty (80) acre spacing in the Madison pool in this field will result in the efficient and economical development of the Madison pool as a whole and will operate so as to prevent waste and provide maximum ultimate recovery, will avoid the drilling of unnecessary wells, and will protect correlative rights.

(4) That certain special field rules are necessary to prevent waste and protect against the pollution of surface waters.

IT IS THEREFORE ORDERED:

(1) That the Short Creek Madison pool is hereby classified and defined as that common source of supply of crude oil and natural gas found in the Madison formation in and under the following described tracts of land in Burke County, North Dakota, to wit:

Township 164 North, Range 93 West, 5th PM
The S/2 of the S/2 of section 25, and all of section 36.

Township 163 North, Range 93 West, 5th PM
All of Section 1.

Township 164 North Range 92 West, 5th PM
The S/2 of the S/2 of section 30, and all
of section 31.

Township 163 North, Range 92 West, 5th PM
All of Section 6.

together with those additional quarter-quarter sections or governmental lots corresponding thereto as may be proven productive by wells drilled as direct offsets to wells included in the limits as set forth above, provided further, that such extensions of the field boundaries shall include only sufficient acreage to form a spacing unit for such wells.

(2) That, effective this day, temporary 80 acre spacing is hereby established for the Short Creek Field in Burke County, North Dakota

(3) That all wells drilled in the Short Creek Field, as described above, shall be located in the approximate center of the northwest and southeast quarters of each quarter section or governmental lots corresponding thereto.

(4) That no well shall be drilled or produced in the above described field except in conformity with the spacing pattern set forth above without special order of the Commission after due notice and hearing.

(5) That all operators, presently producing oil and gas from wells in the Short Creek Field, shall, within thirty (30) days from the date of this order, submit plats showing spacing units for each well, and thereafter a plat showing acreage contained in each spacing unit shall accompany the application to drill on such spacing unit.

(6) That the following special field rules, be and the same are hereby enacted and shall apply to the subsequent drilling and operation of wells in the Short Creek Field.

(a) The casing program of all wells drilled hereafter in said field shall include at least two strings of pipe set in accordance with the following program:

(i) The surface string shall consist of new or reconditioned pipe that has been previously tested to one thousand pounds (1000) per square inch. The casing shall be set and cemented at a point not higher than four hundred (400) feet below the surface of the ground. Cementing shall be by the pump and plug method, and sufficient cement shall be used to fill the annular space back of the pipe, to the surface of the ground, or the bottom of the cellar. Cement shall be allowed to stand a minimum of twelve (12) hours before drilling the plug or initiating tests.

(ii) The producing or oil string, shall consist of new or reconditioned pipe that has been previously tested to three thousand (3000) pounds per square inch. Cementing shall be by the pump and plug method and sufficient cement shall be used to fill one and one-half (1 1/2) times the annular space between the shoe and a point one thousand feet (1000) above the shoe, and the cement shall be allowed to stand twenty-four (24) hours before drilling the plug or initiating tests.

(b) The producing or oil string, shall be set below the top of the producing formation and the string shall be tested by either lowering the fluid level or by application of pump pressure. If the test is made by lowering the fluid level, the well shall be bailed dry or at least to a point midway to the bottom of the string and the top of the cement behind the string, and shall be allowed to stand a minimum of two (2) hours.

If, after that period the fluid level shows a rise equivalent to two (2) per cent of the distance bailed, the string shall be repaired so as to exclude water. Thereafter the casing shall again be tested in the same manner. If the test is made by application of pump pressure, a pressure of at least fifteen hundred (1500) pounds per square inch shall be applied. If at the end of thirty (30) minutes this pressure drops one hundred and fifty (150) pounds per square inch or more, the string shall be repaired so as to exclude water. Thereafter the casing shall again be tested in the same manner. Further work shall not proceed until a satisfactory test has been obtained.

(c) All christmas tree fittings and well-head connections shall have a working pressure of at least two thousand (2000) pounds per square inch or a test pressure of at least four thousand (4000) pounds per square inch.

(d) The gas-oil ratio of each well in the field shall be determined four times annually during the months of March, June September, and December, and reported to the State Geologist within 15 days after the end of the month in which they are determined. All measurements shall be made under the supervision of the State Geologist or his designated representative.

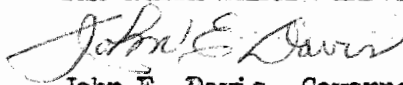
(e) Any well with a gas-oil ratio of over two thousand (2000) cubic feet per barrel shall have the allowable oil production adjusted in accordance with Rule 506 in Industrial Commission's Order No. 1 General Rules and Regulations for the Conservation of Crude Oil and Natural Gas in the State of North Dakota.

(f) The reservoir pressure of all flowing wells, and the static and working fluid levels of all pumping wells, shall be determined semi-annually during the months of March and September. The results thereof shall be reported to the State Geologist on or before the 15th of the month following the month in which the measurements are made. All pressure determinations shall be measured at, or adjusted to a datum of four thousand feet (4000) below sea level and after the well has been shut in for a period of approximately forty-eight (48) hours. All reservoir pressure measurements or fluid level determinations, shall be made under the supervision of the State Geologist or his designated representative, and by methods approved by the State Geologist.

(7) That this order shall cover all of the Short Creek Field, as classified and defined above, and shall continue in force until 1 January 1959.

DONE, at Bismarck, North Dakota, this 25 day of Sept., 1958.

THE NORTH DAKOTA INDUSTRIAL COMMISSION


John E. Davis, Governor


Math Dahl, Commissioner of Agriculture and Labor


Leslie R. Burgum, Attorney General



NORTHWEST OIL DRILLING CO.

A North Dakota Corporation

MINOT, NORTH DAKOTA

The North Dakota Industrial Commission,
Bismarck, North Dakota.

Re: Temporary spacing and special field rules
for Oil Pool discovered by the drilling of
Northwest Oil Drilling Co. Bonnie "B" No. 1
SE SE Sec. 36: - Twp. 164N - Range 93 West.

Dear Sirs:

We wish to recommend for your consideration that the oil pool discovered by the drilling and re-evaluating of the Bonnie "B" No. 1 well, be given a temporary spacing unit of 80 acres within the area as proposed on the accompanying plat.

Twp. 164 North - Range 93 West
Sec. 25: S $\frac{1}{2}$ S $\frac{1}{2}$; Sec. 36 (All)
Twp. 163 North - Range 93 West
Section 1 (All)
Twp. 164 North - Range 92 West
Sec. 30: S $\frac{1}{2}$ S $\frac{1}{2}$; Sec. 31 (All)
Twp. 163 North - Range 92 West
Section 6 (all)

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

SEP 16 1958

Case No. 239

Date _____

Introduced by N.W. Drlg

Exhibit _____

Identified by _____

All wells drilled in the proposed area to be located in the approximate center of the South East and Northwest quarters of each section or corresponding governmental lots. The temporary spacing units to be rectangular in shape and consist of approximate 80 acres.

While the area proposed for this field is small we feel it will be of adequate size to evaluate the possibilities of a pool around the Bonnie "B" well. Further development will be necessary to arrive at any definite conclusion for permanent spacing.

WELL HISTORY:

The Bonnie "B" No. 1 was drilled by the Northwest Oil Drilling Co., and the Northern Pump Company on a joint venture.

This well was spudded on January 15, 1957, drilled to a total depth of 6,393 feet. No cores taken, four drill stem tests were taken in the Midale and Nesson sections with no significant shows to warrant setting pipe. These tests gave similar results to tests taken in other wells in the area which to that time had not been considered worthy of running pipe.

After drilling the discovery Bunting well and other wells in the Lignite area under different drilling conditions we felt the Bonnie "B" had some of the same possibilities we found in the discovery well and that it was feasible to go back in it and try to complete it as a producing well.



NORTHWEST OIL DRILLING CO.

A North Dakota Corporation

MINOT, NORTH DAKOTA

WELL HISTORY CONTINUED:

Our partners Northern Pump Company were contacted regarding such a proposal and after considering it, declined to participate. They assigned all their interest in Sec. 36-163-94 to Northwest Oil Drilling Co.

Northwest Oil Drilling Co. moved their rig back on the Bonnie "B" in July 1958 drilled out the cement plugs, conditioned the hole and set 6,033 feet of 5 $\frac{1}{2}$ inch 15.5 lb. casing. Cemented casing with 200 sacks cement. The drilling rig was then moved off site and a work over rig moved on to complete the well.

The well was conditioned and perforated from 5928 to 5931 and from 5933 to 5939 with 4 shots per foot. Swabbing indicated inadequate cement bond with an apparent channel from above. Perforations were squeezed with 200 sacks cement with no pressure build up. After setting 24 hours the perforations were again squeezed and pressured up with 42 sacks cement. Formation was again perforated in the same interval with 8 shots per foot.

Formation was washed with 250 gallons mud acid and swabbed recovery approximately 50% oil and 50% water. It was then given a 2,000 gallon Petro Frac and swabbed further. This was followed with 6,000 gallon Petro Frac and 300 gallon mud acid. Continued swabbing of approximately 50% oil and 50% water and from these results it indicated the oil was apparently coming from an upper zone. The zone from 5,900 to 5,906 and 5,910 to 5,914 was perforated with 4 shots per foot. This section was washed with 250 gallons mud acid and swabbed. Better results were obtained from this interval and it appeared this was the zone production was coming from and the lower zone was apparently plugged off with mud and cement.

5,958 feet of 2 inch tubing was set. Rods, pump, treater and tank battery was installed. It has been on pump since in January 1958 producing from 3 to 10 barrels per day of oil and approximately the same of water. The well produces sufficient gas to operate pump motor, treater and burn a good flare.

GEOLOGICAL COMMENTS:

The productive interval of this well is confined to the lower Charles Section of the Madison groupe, and in principal the Midale-Messon interval.

The Midale interval of porosity from 5900 thru 5928 is composed of three porosity zones for a total of 15 feet with an over all average of 12 to 20 percent. The two upper most zones show good hydrocarbon saturation while the lower connate water. Porosity is evident thru argillaceous granulated dolomitic limestone.



NORTHWEST OIL DRILLING CO. Page 3.

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MINOT, NORTH DAKOTA

GEOLOGICAL COMMENTS CONTINUED:

The Nesson interval 5,930 thru 5,980 shows good to fair porosity for the upper nine feet of oolitic and pelletoidal lime with micro-vug porosity and again showing good hydrocarbon saturation of the porosity. This porosity interval is underlain with a massive anhydrite mottled in part with dense brown lime.

The following log surveys were taken and have been released to the industry:

Schlumberger - Latero Log, Gamma Ray
Micro-Laterolog
Wire Line - Radioactivity Log

Accompanying this report is a plat of the proposed field showing lease owners as taken off a recent Petroleum Information Map.

Respectfully submitted,

NORTHWEST OIL DRILLING COMPANY,

By Ivan Goheen
Ivan Goheen, Secretary.

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter

NL = Night Letter

International
Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

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1958 SEP 15 PM 4 51

K BRA219 DL PD=WUX BARTLESVILLE OKLA 15 441PMC=

Case 239

NORTH DAKOTA INDUSTRIAL COMMISSION=

HEARING ROOM STATE CAPITAL BISMARCK NDAK=

REFERENCE HEARING SEPTEMBER 16TH CASE 239 SHORT CREEK
FIELD BURKE COUNTY. AS AN OFFSET LEASE OWNER WE RECOMMEND
TEMPORARY SPACING OF NOT LESS THAN 160 ACRES BE ESTABLISHED
FOR MADISON FORMATION PRODUCING AND NORTHWEST DRILLING
COMPANYS BONNIE B WELL NO 1=

PHILLIPS PETROLEUM CO L E FITZJARRALD=

16 239 160 B 1=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

R-93-W

CANADA

R-92-W

26	HUNT OIL	Bublife 25' AND GENRE	STANOLIND 30	STANOLIND 29	
NORTHERN NATURAL GAS PROD CO.	NORTHWEST OIL		NORTHWEST OIL DRILLING CO AND NORTHERN PUMP CO.	STANOLIND	T 164 N
35	BRITISH AMERICAN STATE 1/2 MIN	36 DRILLING CO	31 STANOLIND	32 STANOLIND GLEN WILSON	
SUN OIL CO	SUN OIL CO	PHILLIPS	STANOLIND KERR MCGEE BK OF ND 1/2 MIN	STANOLIND STANOLIND	
2	JOHN W MECOM	1. NORTHWEST OIL DRILLING CO 1/2 HARPER-TURNER 1/2	STANOLIND STANOLIND	STANOLIND -5- 1	T 163 N
SKELLY	SKELLY	BRITISH-	CITIES SERVICE	KERR MCGEE	
11	MOBIL PROD Co.	12 AMERICAN SUN OIL CO.	7 STANOLIND	BK OF N.D 1/2 MIN	NORTH COLUMBUS AREA NORTH DAKOTA
	MOBIL PROD Co. STATE 1/2 MIN INT.				TEMPORARY SPACING OUTLINE
SUN OIL CO	SUN OIL CO	SMITH PETRO CO 1/2 HARPER-TURNER 1/2	ATLANTIC REF CO.		
14		13	15		NORTHWEST OIL DRILLING CO.