

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 PROPER SPACING FOR THE
DEVELOPMENT OF THE WRITING ROCK-RED RIVER POOL, DIVIDE
COUNTY, NORTH DAKOTA, REDEFINE THE LIMITS OF THE FIELD,
AND ENACT SUCH SPECIAL FIELD RULES AS MAY BE NECESSARY.

CASE NO. 2023
ORDER NO. 2263

ORDER OF THE COMMISSION

BY THE COMMISSION:

Pursuant to legal notice this cause came on for hearing at 9:00 a.m. on the 20th day of November, 1980, in Bismarck, North Dakota, before the Industrial Commission of North Dakota, hereinafter referred to as the "Commission."

NOW, on this 18th day of December, 1980, 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 relative to the matter of well spacing indicated that the Writing Rock-Red River Pool, as classified and defined in this order, should be developed on a pattern of one well to 320 acres in order to drain efficiently the recoverable oil from said pool, assure rapid development, avoid the drilling of unnecessary wells, and prevent waste in a manner that will protect correlative rights.

(3) That 320-acre proper spacing in the Writing Rock-Red River Pool in this field will result in the efficient and economical development of the field 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 the unrestricted flaring of gas produced from the Writing Rock-Red River Pool could be considered waste, and in order to minimize such, production from the pool should be restricted until the wells producing therefrom are connected to a gas gathering and processing facility.

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

IT IS THEREFORE ORDERED:

(1) That the following described tracts of land in Divide County, North Dakota, be, and the same are hereby designated the Writing Rock Field:

Township 161 North, Range 101 West, 5th PM
All of Sections 3 and 4,

together with those additional quarter sections or governmental lots corresponding thereto as may be proven productive by wells drilled on lands adjacent to the boundaries of the field 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, and any intervening lands.

(2) That the Writing Rock-Red River Pool be, and the same is hereby defined as that accumulation of oil and gas found below the base of the Stony Mountain Formation and above the top of the Winnipeg Formation within the limits of the field as set forth above.

(3) That effective this date, the proper spacing for the development of the Writing Rock-Red River Pool be, and the same is hereby set at one well to 320 acres.

(4) That all wells hereafter drilled to said pool shall be located not less than 660 feet from a spacing unit boundary nor closer than 1980 feet to a well permitted to or producing from the pool. Wells presently permitted to or producing from the pool that do not conform to this spacing pattern shall be considered exceptions.

(5) That spacing units in Section 3, T161N, R101W, Divide County, North Dakota, shall consist of the N/2 and S/2 of the Section.

(6) That spacing units in the remainder of the Writing Rock-Red River Pool shall consist of any two adjacent quarter sections or governmental lots corresponding thereto within the same section, and hereafter such spacing units shall be determined by the location of the well; the spacing units shall be in a direction so as to allow the first well in a section to be nearest to the center of the spacing unit; spacing units for wells being equi-distant from mid-section lines shall be designated by the operator; however, the Commission shall have continuing jurisdiction, and in the event that spacing units hereafter formed by this policy do not coincide with the geological and physical nature of the reservoir, the Commission may alter specific spacing units upon application by any interested party, after due notice and hearing.

(7) That no well shall be drilled hereafter in the Writing Rock-Red River Pool except in conformity with the regulations above without special order of the Commission after due notice and hearing.

(8) That the following rules concerning the casing, tubing and equipping of wells shall apply to the subsequent drilling and operation of wells in the Writing Rock-Red River Pool:

(a) The surface casing shall consist of new or reconditioned pipe that has been previously tested to 1000 pounds per square inch. The casing shall be set and cemented at a point not less than 50 feet below the base of any fresh water aquifer in the area, but not less than 600 feet. Sufficient cement shall be used to fill the annular space outside the pipe to the surface of the ground or the bottom of the cellar, and sufficient scratchers and centralizers shall be used to assure a good cement job. Cement shall be allowed to stand a minimum of 12 hours before drilling the plug or initiating tests.

(b) The producing or oil string shall consist of new or reconditioned pipe that has been previously tested to 3000 pounds per square inch. Casing shall be set and cemented at a point not higher than the top of the producing formation. Sufficient cement shall be used and applied in such manner as to adequately protect and isolate all formations containing oil and/or gas, protect the pipe through salt sections encountered, and to isolate the Dakota-Lakota Series. The cement shall be allowed to stand a minimum of 24 hours before drilling the plug or initiating tests. After cementing, the casing shall be tested by application of pump pressure of at least 2000 pounds per square inch. If, at the end of 30 minutes this pressure shall have dropped 150 pounds per square inch or more, the casing shall be repaired. 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 well-head fittings and connections shall have a working pressure in excess of that to which they are expected to be subjected.

(d) All wells shall be equipped with tubing; all tubing shall be of sufficient internal diameter to allow the passage of a bottom-hole pressure gauge for the purpose of obtaining bottom-hole pressure measurements.

(9) That the gas-oil ratio of each well shall be measured during the months of May and November, and the reservoir pressure of flowing wells and the fluid level in pumping wells shall be measured in the month of May and reported to the State Geologist within 15 days following the end of the month in which they are determined. Pressure measurements shall be made at or adjusted to a subsea datum of 9,000 feet after the well has been shut in for 48 hours. All gas-oil ratio and reservoir pressure determinations shall be made under the supervision of and by methods approved by the State Geologist. The State Geologist is authorized to waive these requirements if the necessity therefore can be demonstrated to his satisfaction.

(10) That no salt water shall be stored in unlined pits in this field. Material used to line pits must be approved by the State Geologist.

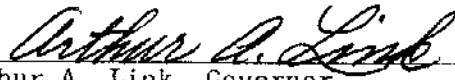
(11) The Dakota-Lakota Series in and under the Writing Rock field, is hereby designated a disposal reservoir, and the State Geologist is authorized to approve requests to utilize wells in the field, as herein defined, for salt water disposal purposes.

(12) That all wells in the Writing Rock-Red River Pool shall be allowed to produce at an unrestricted rate for a period of 60 days commencing on the first day oil is produced through well-head equipment into tanks from the ultimate producing interval after casing has been run; after that, oil production from such wells shall not exceed an average of 200 barrels per day for a period of 60 days; after that, oil production from such wells shall not exceed an average of 150 barrels per day for a period of 60 days, thereafter, oil production from such wells shall not exceed an average of 100 barrels of oil per day; if and when such wells are connected to a gas gathering and processing facility the foregoing restrictions shall be removed, and the wells shall be allowed to produce at a maximum efficient rate.

(13) That this order shall cover all of the Writing Rock-Red River Pool, common source of supply of crude oil and/or natural gas as herein defined, and shall continue in full force and effect until further order of the Commission, or until the last well in the pool is plugged and abandoned.

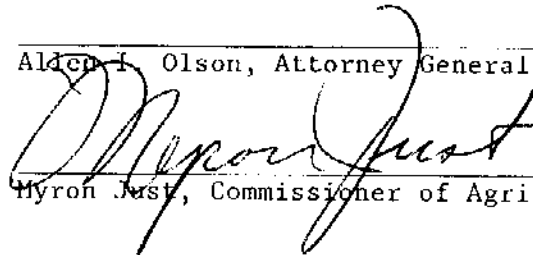
DONE, in Bismarck, North Dakota, this 15th day of December, 1980.

THE NORTH DAKOTA INDUSTRIAL COMMISSION

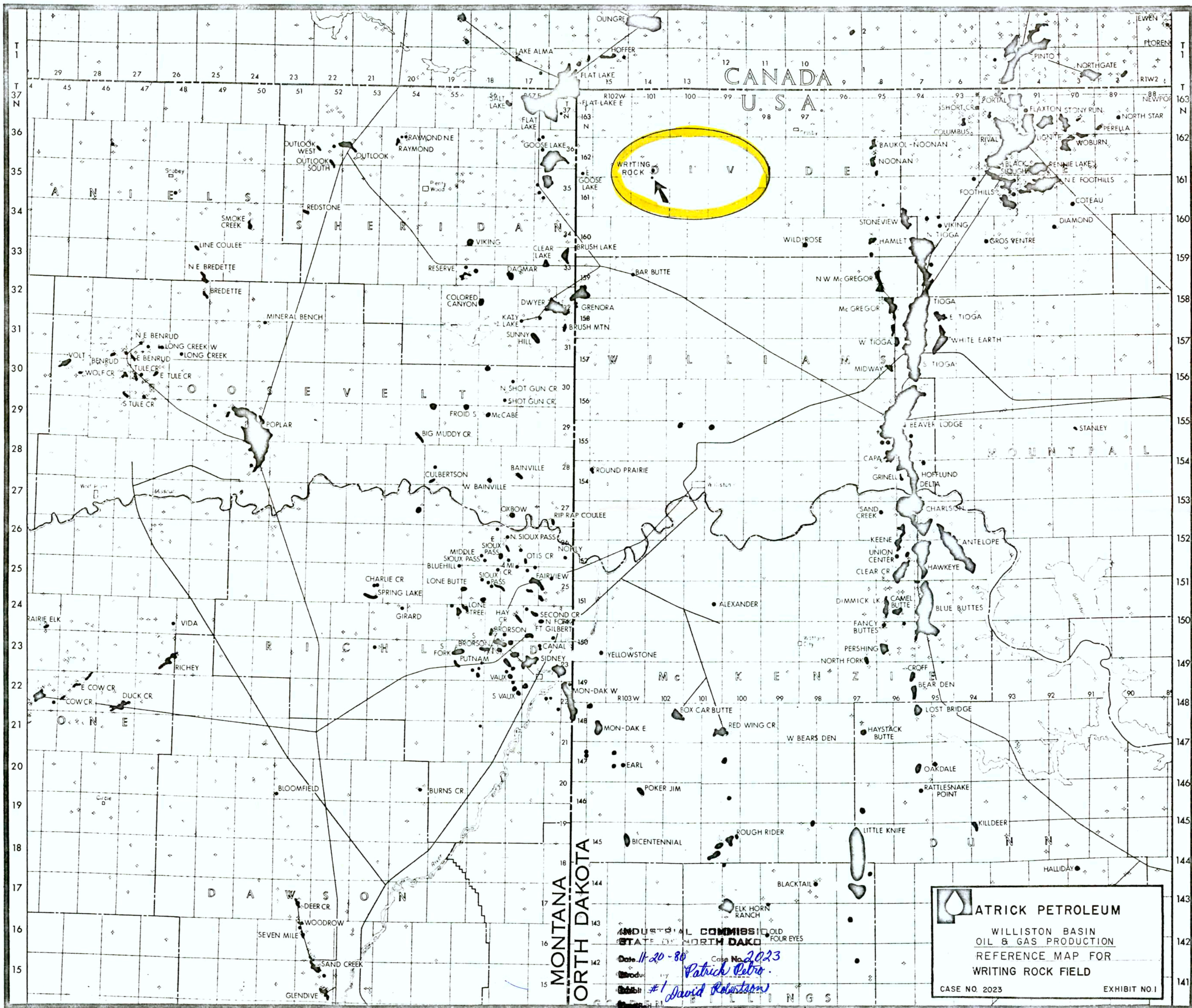


Arthur A. Link, Governor

Alfred Olson, Attorney General

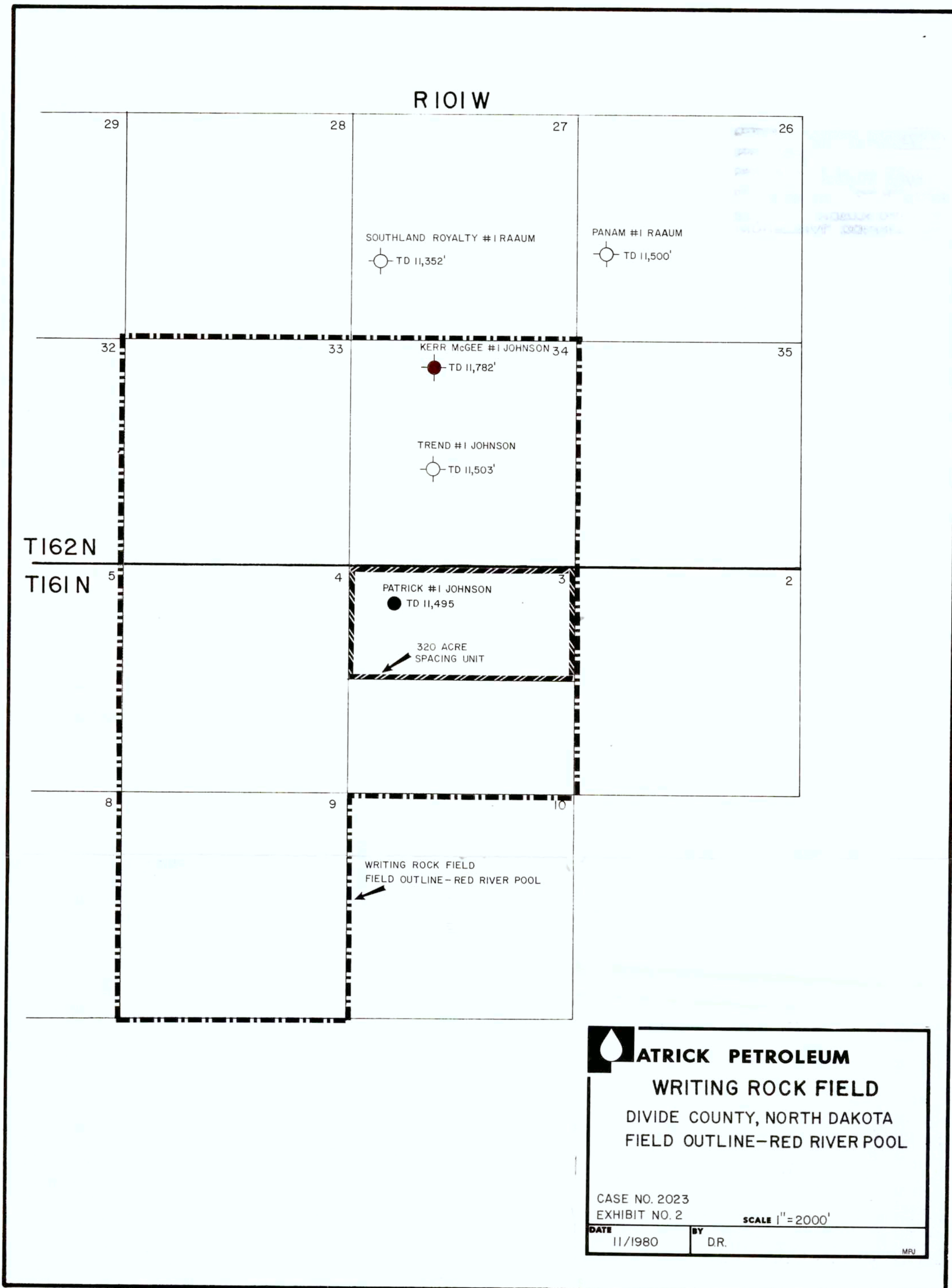


Myron Just, Commissioner of Agriculture



INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date 11-20-80
Produced by Patrick Petro
Map #1 David Robertson
Case No. 2023

ATRICK PETROLEUM
WILLISTON BASIN
OIL & GAS PRODUCTION
REFERENCE MAP FOR
WRITING ROCK FIELD
CASE NO. 2023 EXHIBIT NO. 1





WRITING ROCK FIELD
DIVIDE COUNTY, NORTH DAKOTA

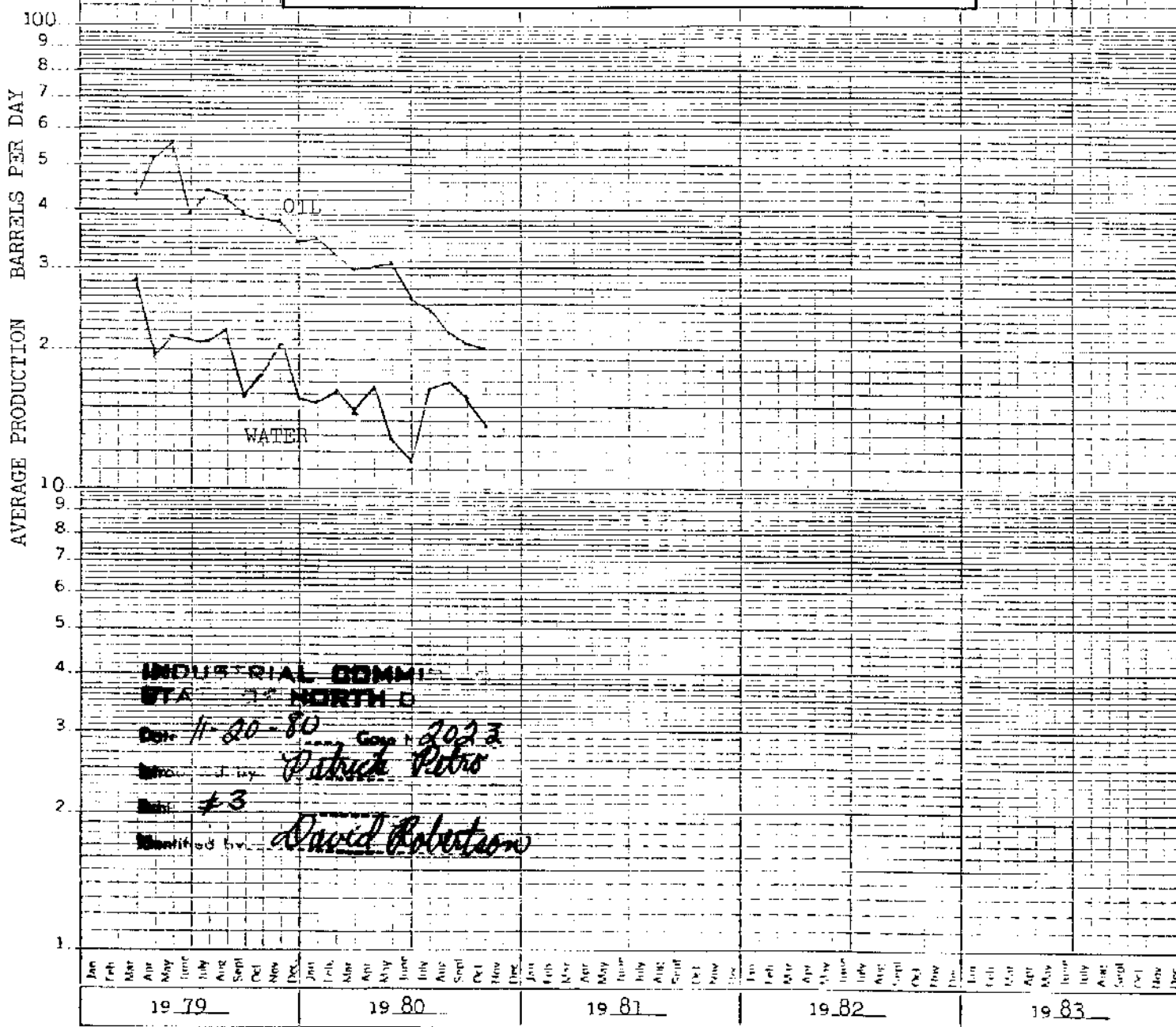
PRODUCTION HISTORY

JOHNSON # 1

NW¹ NW¹ SEC.3, T161N, R101W

CASE NO. 2023

EXHIBIT NO. 3





Patrick Petroleum Company

HOME OFFICE
JACKSON, MICHIGAN

DIVISION OFFICES

BILLINGS, MONTANA
BLOOMFIELD HILLS, MICHIGAN
CHARLESTON, WEST VIRGINIA
HOUSTON, TEXAS
DENVER, COLORADO
JACKSON, MISSISSIPPI
LAFAYETTE, LOUISIANA
LEXINGTON, KENTUCKY
MIDLAND, TEXAS
NEW YORK, NEW YORK
OKLAHOMA CITY, OKLAHOMA
WICHITA, KANSAS

Suite 111, 1004 Division
Billings, Montana 59101

Area Code 406
Telephone 245-8444

November 12, 1980



North Dakota Geological Survey
University Station
Grand Forks, North Dakota 58202

Attn: Mr. F. E. Wilborn

Re: N.D.I.C. Case No. 2023

Dear Jack:

Attached for your perusal are three copies of the exhibits which we will be presenting relative to Case No. 2023 before the NDIC on November 20, 1980. This case will be to consider the proper spacing, field limits, and field rules for the Writing Rock - Red River Pool in Divide County, North Dakota.

There has been no further development in this field since the hearing for temporary spacing in June last year, and we will be requesting that the temporary rules enacted by Order No. 1851 be adopted as permanent.

If you desire any further information, please do not hesitate to call.

Yours very truly,

D. L. Robertson
Petroleum Engineer

DLR/dw

Attachment