BEFORE THE INDUSTRIAL COMMISSION

OF THE STATE OF NORTH DAKOTA

CASE NO. 318
ORDER NO. 348

IN THE MATTER OF THE HEARING CALLED ON A MOTION OF THE COMMISSION TO CONSIDER THE PROPER SPACING FOR THE DEVELOPMENT OF THE DICKINSON-HEATH POOL IN STARK COUNTY, NORTH DAKOTA, REDEFINE THE LIMITS OF SAID POOL, AND ENACT SUCH SPECIAL FIELD RULES AS MAY BE NECESSARY.

ORDER OF THE COMMISSION

BY THE COMMISSION:

Pursuant to legal notice this cause came on for hearing at 9:30 a.m. on September 22, 1959, at Bismarck, North Dakota, before the Industrial Commission of North Dakota, hereinafter referred to as the "Commission".

NOW, on this 28th day of September, 1959, 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 Dickinson-Heath Pool, as classified and defined by this order should, be developed on a pattern of one well to 160 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 160 acre spacing in the Heath 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 certain special field rules are necessary to prevent waste and protect against the pollution of surface waters.

IT IS THEREFORE ORDERED:

(1) The Dickinson-Heath Pool discovered by the Atlantic Refining Company's Kadrmas #1 well, located in the NE SE Section 31, Township 140 North, Range 96 West, is hereby classified and defined as that common source of supply of oil found below the bottom of the Minnelusa and above the Otter Formations in and under the following described tracts of land in Stark County, North Dakota, to wit:

TOWNSHIP 140 NORTH, RANGE 96 WEST, 5TH PM
ALL OF SECTIONS 31 AND 32, AND THE S/2 OF SECTIONS 29 AND 30,

TOWNSHIP 139 NORTH, RANGE 96 WEST, 5TH PM
THE N/2 OF SECTIONS 5 AND 6,

together with those additional 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 pool boundaries shall include only sufficient acreage to form a spacing unit for such wells.

(2) That effective this date 160 acres per well is established as the spacing for the development of the Dickinson-Heath Pool.

(3) That all wells drilled in the Dickinson-Heath Pool shall be located approximately in the center of the northeast quarter-quarter sections (or governmental lots corresponding thereto), except that the proper location for a well in the NW/4 of Section 32, Township 140 North, Range 96 West, shall be in the SW/4 of that quarter section.

(4) That spacing units consist of any quarter section (or governmental lots corresponding thereto) containing not less than 140 acres as determined by, or in accordance with, governmental survey.

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

(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 Dickinson-Heath Pool.

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

(i) That surface string shall consist of new or reconditioned pipe that has been previously tested to one thousand (1000) pounds per square inch. The casing shall be set and cemented at a point not higher than six hundred (600) 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 instituting 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 the top of the Amsden Formation, but not less than 300 sacks of cement shall be used, 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 at least as low as the top of the producing formation. 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 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) percent of the distance bailed the string shall be repaired so as to exclude water. Thereafter the casing shall be again 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 greater than any to which they are expected to be subjected.

(d) The gas-oil ratio of each well in the field shall be determined four times annually during the months of February, May, August, and November, and reported to the State Geologist within fifteen (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 for 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 annually during the month of May. The results thereof shall be reported to the State Geologist on or before the 15th of June. All pressure determinations shall be measured at or adjusted to a datum of five thousand three hundred (5300) feet 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.

(g) Wells in this pool shall be allowed to produce at the rate shown on the gas-oil ratio tests submitted to the State Geologist, provided a market exists for the oil so produced, unless otherwise stated in the applicable proration schedules.

(7) That this order shall cover all the Dickinson-Heath Pool, common source of supply of crude oil and natural gas, as hereinabove defined, and shall continue in full force and effect until further order of the Commission.

DONE, in Bismarck, North Dakota, this 28th day of September, 1959.

THE NORTH DAKOTA
INDUSTRIAL COMMISSION

/s/ John E. Davis
John E. Davis, Governor

/s/ Leslie R. Burgum
Leslie R. Burgum, Attorney General

/s/ Math Dahl
Math Dahl, Commissioner of Agriculture & Labor