

BEFORE THE INDUSTRIAL COMMISSION
OF THE STATE OF NORTH DAKOTA

CASE NO. 16610
ORDER NO. 18879

IN THE MATTER OF A HEARING CALLED ON
A MOTION OF THE COMMISSION TO
CONSIDER THE APPLICATION OF WHITING
OIL & GAS CORP. FOR AN ORDER AMENDING
THE APPLICABLE ORDERS FOR ZONE II OF
THE DUTCH HENRY BUTTE-BAKKEN POOL,
STARK COUNTY, ND, TO ALLOW UP TO 4
HORIZONTAL WELLS TO BE DRILLED ON
EACH SPACING UNIT CONTAINED WITHIN
THE POOL, AND SUCH OTHER RELIEF AS IS
APPROPRIATE.

ORDER OF THE COMMISSION

THE COMMISSION FINDS:

- (1) This cause came on for hearing at 9:00 a.m. on the 18th day of January, 2012.
- (2) Whiting Oil & Gas Corporation (Whiting) provided exhibits and testimony in this matter by sworn affidavits.
- (3) Whiting made application to the Commission for an order amending the applicable orders for Zone II of the Dutch Henry Butte-Bakken Pool, Stark County, North Dakota, to allow up to four horizontal wells to be drilled on each spacing unit contained within the pool, and such other relief as is appropriate.
- (4) Order No. 16336 entered in Case No. 14061, the most recent spacing order for the Dutch Henry Butte-Bakken Pool, established proper spacing for the development of Zone I at one horizontal well per 640 acres, Zone II at one horizontal well per 1280 acres, and Zone III at up to two horizontal wells per 1280 acres.
- (5) Whiting operates the following 1280-acre spacing units in Zone II the Dutch Henry Butte-Bakken Pool: Sections 1 and 12; Sections 3 and 10; Sections 4 and 9; Sections 7 and 18; Sections 8 and 17; Sections 15 and 22; and Sections 16 and 21, Township 140 North, Range 97 West, Stark County, North Dakota. These lands comprise Zone II in its entirety.
- (6) Whiting's idealized development plan for the standup 1280-acre spacing units identified in paragraph (5) above is to drill four horizontal wells parallel to the long axis of the spacing unit. Utilization of horizontal drilling technology as proposed would result in the wells being completed at a location or locations not in compliance with current applicable spacing orders for the Dutch Henry Butte-Bakken Pool. The horizontal well design proposed may be preliminary and could be

changed for various reasons which is permissible as long as the horizontal well design still justifies the spacing unit.

(7) The Commission enforces a policy which requires measurement inaccuracies in the directional survey equipment be considered when the angle between the horizontal lateral and the corresponding spacing unit boundary is ten degrees or less. Waiving potential tool error in the directional survey equipment when calculating the bottom hole location of any horizontal lateral in spacing units which allow multiple horizontal wells will allow said spacing units to be more efficiently developed.

(8) Whiting estimates the additional oil and gas to be recovered by each additional well will pay for the cost of drilling and completing the well and yield a profit, hence, each additional well will be economic.

(9) There were no objections to this application.

(10) If Whiting's activities are successful, greater ultimate recovery of oil and gas from the pool will be achieved which will prevent waste and the drilling of unnecessary wells in a manner which will not have a detrimental effect on correlative rights.

(11) Case No. 16305, heard on the December 14, 2011 docket, is an application by Burlington Resources Oil & Gas Company LP for an order extending the outline and amending the applicable orders for the South Heart Field and such other fields as may be appropriate so as to designate Sections 25 and 36; Sections 26 and 35; Sections 27 and 34; Sections 28 and 33, Township 140 North, Range 97 West; Sections 1 and 12; Sections 2 and 11; Sections 3 and 10, Township 139 North, Range 97 West; Sections 18 and 19; and Sections 30 and 31, Township 139 North, Range 96 West, Stark County, North Dakota, as 1280-acre drilling or spacing units, eliminating the 1220-foot setback policy for wells drilled on such units, extending the stratigraphic interval included within any pool in which said units may be included to include to depth of 100 feet below the top of the Three Forks Formation, and such other relief as is appropriate. Order No. 18570 entered in Case No. 16305, established the Dickinson-Bakken Pool and included Sections 15 and 22, Township 140 North, Range 97 West, Stark County, North Dakota, in the Dickinson Field.

(12) In order to prevent waste, avoid the drilling of unnecessary wells, and protect correlative rights, this application should be approved.

IT IS THEREFORE ORDERED:

(1) Sections 1 and 12; Sections 3 and 10; Sections 4 and 9; Sections 7 and 18; Sections 8 and 17; and Sections 16 and 21, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby established as standup 1280-acre spacing units for the exclusive purpose of drilling up to four horizontal wells within each said spacing unit within the Dutch Henry Butte-Bakken Pool and Zone IV is hereby redefined to include said spacing units. Existing and future vertical and directional wells drilled within the spacing units herein established shall not be subject to this order.

(2) Sections 15 and 22, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby established as a standup 1280-acre spacing unit for the exclusive purpose of drilling up to four horizontal wells within said spacing unit within the Dickinson-Bakken Pool and Zone II is

hereby created to include said spacing unit. Existing and future vertical and directional wells drilled within the spacing unit herein established shall not be subject to this order.

(3) The Director is hereby authorized to exercise continuing jurisdiction in this matter to determine whether a horizontal well proposed or drilled upon the 1280-acre spacing units herein established has justified the creation of such unit, to require amendments or modifications to the permit to drill for such horizontal well, and to deny a permit to drill in the event a well is proposed to be drilled in a manner inconsistent with the evidence that justified such spacing unit.

(4) Provisions established herein for the Dutch Henry Butte-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined in paragraph (6) below shall not be subject to this order.

(5) In any horizontal well drilled or well re-entered to drill a horizontal lateral in the Dutch Henry Butte-Bakken Pool, in which a window is cut in the casing and the Lodgepole Formation is to be open to the well bore, appropriate geological information (drill time, estimated porosity, oil shows, total gas, etc.) shall be gathered while drilling through the Lodgepole Formation and the Commission shall be notified immediately of any significant shows encountered.

(6) The Dutch Henry Butte Field is hereby redefined as the following described tracts of land in Stark County, North Dakota:

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18, 19, 20 AND 21.

(7) The Dutch Henry Butte-Bakken Pool is hereby redefined as the following described tracts of land in Stark County, North Dakota:

ZONE I (640H)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 2, 5, 6 AND 11.

ZONE II (1280H-STANDUP)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 2 AND 11.

ZONE III (2/1280H-LAYDOWN)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 19 AND 20.

ZONE IV (4/1280H-STANDUP)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 1, 3, 4, 7, 8, 9, 10, 12, 16, 17, 18 AND 21.

(8) The Dutch Henry Butte-Bakken Pool is hereby defined as that accumulation of oil and gas found in the interval from 100 feet above the top of the Bakken Formation to 100 feet below the top of the Three Forks Formation within the limits of the field as set forth above.

(9) The proper spacing for the development of Zone I in the Dutch Henry Butte-Bakken Pool is hereby set at one horizontal well per 640-acre spacing unit.

(10) All portions of the well bore not isolated by cement of any horizontal well in Zone I in the Dutch Henry Butte-Bakken Pool shall be no closer than 500 feet to the boundary of the spacing unit the lateral is most nearly parallel to and 200 feet to the boundary of the spacing unit the lateral is most nearly perpendicular to. Measurement inaccuracies in the directional survey equipment need not be considered except when deemed necessary by the Director.

(11) Spacing units hereafter created in Zone I in the Dutch Henry Butte-Bakken Pool shall consist of a governmental section.

(12) Sections 2 and 11, Township 140 North, Range 97 West, Stark County, North Dakota, are also designated a standup 1280-acre spacing unit in Zone II in the Dutch Henry Butte-Bakken Pool.

(13) A horizontal well shall be drilled in the W/2 of the 640-acre spacing unit described as Section 2, Township 140 North, Range 97 West, Stark County, North Dakota, prior to drilling a horizontal well in the standup 1280-acre spacing unit in Zone II described as Sections 2 and 11, Township 140 North, Range 97 West, Stark County, North Dakota.

(14) Zone I in the Dutch Henry Butte-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(15) The proper spacing for the development of Zone II in the Dutch Henry Butte-Bakken Pool is hereby set at one horizontal well per standup 1280-acre spacing unit.

(16) All portions of the well bore not isolated by cement of any horizontal well in Zone II in the Dutch Henry Butte-Bakken Pool shall be no closer than 500 feet to the east or west boundary and 200 feet to the north or south boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment need not be considered except when deemed necessary by the Director.

(17) Sections 2 and 11, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby designated a standup 1280-acre spacing unit in Zone II in the Dutch Henry Butte-Bakken Pool.

(18) Spacing units hereafter created in Zone II in the Dutch Henry Butte-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

(19) Section 2; and Section 11, Township 140 North, Range 97 West, Stark County, North Dakota, are also designated 640-acre spacing units in Zone I in the Dutch Henry Butte-Bakken Pool.

(20) A horizontal well shall be drilled in the W/2 of the 640-acre spacing unit described as Section 2, Township 140 North, Range 97 West, Stark County, North Dakota, prior to drilling a horizontal well in the standup 1280-acre spacing unit in Zone II described as Sections 2 and 11, Township 140 North, Range 97 West, Stark County, North Dakota.

(21) Zone II in the Dutch Henry Butte-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(22) The proper spacing for the development of Zone III in the Dutch Henry Butte-Bakken Pool is hereby set at up to two horizontal wells per laydown 1280-acre spacing unit.

(23) All portions of the well bore not isolated by cement of any horizontal well in Zone III in the Dutch Henry Butte-Bakken Pool shall be no closer than 500 feet to the north or south boundary and 200 feet to the east or west boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment when calculating the bottom hole location in a horizontal well need not be considered.

(24) Sections 19 and 20, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby designated a laydown 1280-acre spacing unit in Zone III in the Dutch Henry Butte-Bakken Pool.

(25) Spacing units hereafter created in Zone III in the Dutch Henry Butte-Bakken Pool shall be laydown spacing units consisting of two adjacent governmental sections.

(26) Zone III in the Dutch Henry Butte-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(27) The proper spacing for the development of Zone IV in the Dutch Henry Butte-Bakken Pool is hereby set at up to four horizontal wells per standup 1280-acre spacing unit.

(28) All portions of the well bore not isolated by cement of any horizontal well in Zone IV in the Dutch Henry Butte-Bakken Pool shall be no closer than 500 feet to the east or west boundary and 200 feet to the north or south boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment when calculating the bottom hole location in a horizontal well need not be considered.

(29) Sections 1 and 12; Sections 3 and 10; Sections 4 and 9; Sections 7 and 18; Sections 8 and 17; and Sections 16 and 21, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby designated standup 1280-acre spacing units in Zone IV in the Dutch Henry Butte-Bakken Pool.

(30) Spacing units hereafter created in Zone IV in the Dutch Henry Butte-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

(31) Zone IV in the Dutch Henry Butte-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(32) The operator of any horizontally drilled well in the Dutch Henry Butte-Bakken Pool shall cause to be made a directional survey of the well bore. The directional survey contractor shall file a certified survey with the Commission within 30 days after completion of the well in accordance with North Dakota Administrative Code (NDAC) Section 43-02-03-25. The survey shall be of sufficient quality to enable the Commission to determine the entire completion location of the well and its terminus.

(33) The Director is hereby authorized to exercise continuing jurisdiction to determine whether any well proposed or drilled upon any spacing unit herein established has justified the creation of such unit, to require amendments or modifications to the permit to drill for such well, and to deny a permit to drill in the event a well is proposed to be drilled in a manner inconsistent with the evidence that justified the spacing requirements in the Dutch Henry Butte-Bakken Pool.

(34) The Commission shall have continuing jurisdiction in this matter and specifically reserves the authority, upon its own motion or the motion of any interested party, to: (1) review the spacing requirements for the Dutch Henry Butte-Bakken Pool; (2) determine whether the separate zones of spacing established herein are warranted; and, (3) make such further amendments or modifications to the spacing requirements for the Dutch Henry Butte-Bakken Pool as the Commission deems appropriate.

(35) No well shall be hereafter drilled or produced in the Dutch Henry Butte-Bakken Pool, as defined herein, except in conformity with the regulations above without special order of the Commission after due notice and hearing.

(36) The following rules concerning the casing, tubing and equipping of wells shall apply to the subsequent drilling and operation of wells in the Dutch Henry Butte-Bakken 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 the Fox Hills Formation. 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. The quality of cement shall conform to the standards provided under NDAC Section 43-02-03-21. After cementing, the casing shall be tested by application of pump pressure of at least 1500 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;
- (b) The producing or oil string shall consist of new or reconditioned pipe that has been previously tested to 2000 pounds per square inch. Casing shall be set and cemented at a point not higher than the top of the producing formation, or at a point approved by the Director. However, any wells re-entered for the purpose of drilling a horizontal lateral within the Bakken Pool, shall be allowed to be completed open hole no higher than the top of the Lodgepole Formation.

Sufficient cement shall be used and applied in such manner to 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 15 hours before drilling the plug or initiating tests. The quality of cement shall conform to the standards provided under NDAC Section 43-02-03-21. After cementing, the casing shall be tested by application of pump pressure of at least 1500 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; and,
- (d) All wells shall be equipped with tubing; a tubing packer must also be utilized in flowing wells unless a waiver is obtained from the Director after demonstrating the casing will not be subjected to excessive pressure or corrosion; 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.

(37) The gas-oil ratio of all wells not connected to a gas gathering system shall be measured annually during the month of May. The reservoir pressure shall be measured in any well completed in the Dutch Henry Butte-Bakken Pool if deemed necessary by the Director. Drill stem test pressures are acceptable for determining reservoir pressure. Pressure measurements shall be made at or adjusted to a subsea datum of 7800 feet. All gas-oil ratio and reservoir pressure determinations shall be made by methods approved by the Director and reported to the Director within 15 days following the end of the month in which they are determined. The Director is authorized to waive these requirements if the necessity therefore can be demonstrated to his satisfaction. All additional gas-oil ratio and reservoir pressure determinations conducted on any well, but not specially required herein, shall be reported to the Director within 15 days following the end of the month in which they are determined.

(38) No saltwater, drilling mud, crude oil, or waste oil shall be stored in pits in this field, except in an emergency, and approved by the Director.

(39) The Eleanore #1-5 well, located in the SW/4 SW/4 of Section 5, Township 140 North, Range 97 West, Stark County, North Dakota, shall be allowed to produce at a maximum efficient rate.

(40) All other wells in the Dutch Henry Butte-Bakken Pool shall be allowed to produce at a maximum efficient 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. The Director is authorized to issue an administrative order allowing unrestricted production at a maximum efficient rate for a period not to exceed 120 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, if the necessity therefor can be demonstrated to his satisfaction.

(41) If the flaring of gas produced with crude oil from the Dutch Henry Butte-Bakken Pool causes, or threatens to cause, degradation of ambient air quality, production from the pool shall be further restricted.

(42) This portion of this order shall cover all of the Dutch Henry Butte-Bakken 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 has been plugged and abandoned.

(43) The operator of the first producing well in the Dickinson-Bakken Pool shall submit exhibits to be included in the record for Case No. 16305, similar to those typically submitted in a temporary spacing hearing. Such exhibits shall be submitted within 120 days after completing said well.

(44) Provisions established herein for the Dickinson-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined in paragraph (45) below shall not be subject to this order.

(45) The Dickinson Field is hereby redefined as the following described tracts of land in Stark County, North Dakota:

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 13, 14, 15, 22, 23, 24, 25, 26, 27, 33, 34, 35 AND 36,

TOWNSHIP 140 NORTH, RANGE 96 WEST, 5TH PM

ALL OF SECTIONS 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 27, 28, 29, 30, 31, 32 AND 33,

TOWNSHIP 139 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 1, 2*, 3* AND 10*,

*The SW/4 SE/4, the S/2 SW/4, and the S/2 NW/4 SW/4 of Section 2, the E/2 SE/4 of Section 3, and the E/2 E/2 of Section 10 are also within the Eland Field.

TOWNSHIP 139 NORTH, RANGE 96 WEST, 5TH PM

ALL OF SECTIONS 5 AND 6.

(46) The Dickinson-Bakken Pool is hereby defined as the following described tracts of land in Stark County, North Dakota:

ZONE I (1280H-STANDUP)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 13, 14, 23, 24, 25, 26, 27, 34, 35 AND 36,

TOWNSHIP 140 NORTH, RANGE 96 WEST, 5TH PM

ALL OF SECTIONS 6, 7, 14, 15, 16, 17, 18, 19, 20, 21, 22 AND 23,

TOWNSHIP 139 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 3* AND 10*.

*The E/2 SE/4 of Section 3, and the E/2 E/2 of Section 10 are also within the Eland Field.

ZONE II (4/1280H-STANDUP)

TOWNSHIP 140 NORTH, RANGE 97 WEST, 5TH PM

ALL OF SECTIONS 15 AND 22.

ZONE III (6/1280H-STANDUP)

TOWNSHIP 140 NORTH, RANGE 96 WEST, 5TH PM

ALL OF SECTIONS 5 AND 8.

(47) The Dickinson-Bakken Pool is hereby defined as that accumulation of oil and gas found in the interval from below the base of the Lodgepole Formation to 100 feet below the top of the Three Forks Formation within the limits of the field as set forth above.

(48) The temporary spacing for the development of Zone I in the Dickinson-Bakken Pool is hereby set at one horizontal well per standup 1280-acre spacing unit.

(49) All portions of the well bore not isolated by cement of any horizontal well in Zone I in the Dickinson-Bakken Pool shall be no closer than 500 feet to the east or west boundary and 200 feet to the north or south boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment need not be considered except when deemed necessary by the Director.

(50) Sections 13 and 24; Sections 14 and 23; Sections 25 and 36; Sections 26 and 35; Sections 27 and 34, Township 140 North, Range 97 West; Sections 6 and 7; Sections 14 and 23; Sections 15 and 22; Sections 16 and 21; Sections 17 and 20; Sections 18 and 19, Township 140 North, Range 96 West; and Sections 3* and 10*, Township 139 North, Range 97 West, Stark County, North Dakota, are hereby designated standup 1280-acre spacing units in Zone I in the Dickinson-Bakken Pool.

*The E/2 SE/4 of Section 3, and the E/2 E/2 of Section 10 are also within the Eland Field.

(51) Spacing units hereafter created in Zone I in the Dickinson-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

(52) Zone I in the Dickinson-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(53) The temporary spacing for the development of Zone II in the Dickinson-Bakken Pool is hereby set at up to four horizontal wells per standup 1280-acre spacing unit.

(54) All portions of the well bore not isolated by cement of any horizontal well in Zone II in the Dickinson-Bakken Pool shall be no closer than 500 feet to the east or west boundary and 200 feet to the north or south boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment when calculating the bottom hole location in a horizontal well need not be considered.

(55) Sections 15 and 22, Township 140 North, Range 97 West, Stark County, North Dakota, are hereby designated a standup 1280-acre spacing unit in Zone II in the Dickinson-Bakken Pool.

(56) Spacing units hereafter created in Zone II in the Dickinson-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

(57) Zone II in the Dickinson-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(58) The temporary spacing for the development of Zone III in the Dickinson-Bakken Pool is hereby set at up to six horizontal wells per standup 1280-acre spacing unit.

(59) All portions of the well bore not isolated by cement of any horizontal well in Zone III in the Dickinson-Bakken Pool shall be no closer than 500 feet to the east or west boundary and 200 feet to the north or south boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment when calculating the bottom hole location in a horizontal well need not be considered.

(60) Sections 5 and 8, Township 140 North, Range 96 West, Stark County, North Dakota, are hereby designated a standup 1280-acre spacing unit in Zone III in the Dickinson-Bakken Pool.

(61) Spacing units hereafter created in Zone III in the Dickinson-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

(62) Zone III in the Dickinson-Bakken Pool shall not be extended except by further order of the Commission after due notice and hearing.

(63) The operator of any horizontally drilled well in the Dickinson-Bakken Pool shall cause to be made a directional survey of the well bore. The directional survey contractor shall file a certified survey with the Commission within 30 days after completion of the well in accordance with NDAC Section 43-02-03-25. The survey shall be of sufficient quality to enable the Commission to determine the entire completion location of the well and its terminus.

(64) The Director is hereby authorized to exercise continuing jurisdiction to determine whether any well proposed or drilled upon any spacing unit herein established has justified the creation of such unit, to require amendments or modifications to the permit to drill for such well, and to deny a permit to drill in the event a well is proposed to be drilled in a manner inconsistent with the evidence that justified the spacing requirements in the Dickinson-Bakken Pool.

(65) The Commission shall have continuing jurisdiction in this matter and specifically reserves the authority, upon its own motion or the motion of any interested party, to: (1) review the spacing requirements for the Dickinson-Bakken Pool; (2) determine whether the separate zones of spacing established herein are warranted; and, (3) make such further amendments or modifications to the spacing requirements for the Dickinson-Bakken Pool as the Commission deems appropriate.

(66) No well shall be hereafter drilled or produced in the Dickinson-Bakken Pool, as defined herein, except in conformity with the regulations above without special order of the Commission after due notice and hearing.

(67) The following rules concerning the casing, tubing and equipping of wells shall apply to the subsequent drilling and operation of wells in the Dickinson-Bakken 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 the Fox Hills Formation. 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. The quality of cement shall conform to the standards provided under NDAC Section 43-02-03-21. After cementing, the casing shall be tested by application of pump pressure of at least 1500 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;
- (b) The producing or oil string shall consist of new or reconditioned pipe that has been previously tested to 2000 pounds per square inch. Casing shall be set and cemented at a point not higher than the top of the producing formation, or at a point approved by the Director. Sufficient cement shall be used and applied in such manner to 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 15 hours before drilling the plug or initiating tests. The quality of cement shall conform to the standards provided under NDAC Section 43-02-03-21. After cementing, the casing shall be tested by application of pump pressure of at least 1500 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; and,

- (d) All wells shall be equipped with tubing; a tubing packer must also be utilized in flowing wells unless a waiver is obtained from the Director after demonstrating the casing will not be subjected to excessive pressure or corrosion; 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.

(68) The gas-oil ratio of all wells not connected to a gas gathering system shall be measured annually during the month of May. The reservoir pressure shall be measured in any well completed in the Dickinson-Bakken Pool if deemed necessary by the Director. Drill stem test pressures are acceptable for determining reservoir pressure. Pressure measurements shall be made at or adjusted to a subsea datum of 7450 feet. All gas-oil ratio and reservoir pressure determinations shall be made by methods approved by the Director and reported to the Director within 15 days following the end of the month in which they are determined. The Director is authorized to waive these requirements if the necessity therefore can be demonstrated to his satisfaction. All additional gas-oil ratio and reservoir pressure determinations conducted on any well, but not specially required herein, shall be reported to the Director within 15 days following the end of the month in which they are determined.

(69) No saltwater, drilling mud, crude oil, or waste oil shall be stored in pits in this field, except in an emergency, and approved by the Director.

(70) For the purposes of division of production to owners of interests in spacing units established by this order, and proven productive prior to the date hereof, this order shall be retroactive to the date of first production.

(71) All wells completed in the Dickinson-Bakken Pool shall be allowed to produce at a maximum efficient rate through August 31, 2012.

(72) After August 31, 2012, all wells in the Dickinson-Bakken Pool shall be allowed to produce at a maximum efficient 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. The Director is authorized to issue an administrative order allowing unrestricted production at a maximum efficient rate for a period not to exceed 120 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, if the necessity therefor can be demonstrated to his satisfaction.

(73) If the flaring of gas produced with crude oil from the Dickinson-Bakken Pool causes, or threatens to cause, degradation of ambient air quality, production from the pool shall be further restricted.

(74) This portion of this order shall cover all of the Dickinson-Bakken Pool, common source of supply of crude oil and/or natural gas as herein defined, and shall continue in full force and effect

until the 31st day of May, 2015. If the Dickinson-Bakken Pool is still producing, the proper spacing for the pool will be considered by the Commission on or before its regularly scheduled hearing date in April, 2015. If, however, the Dickinson-Bakken Pool is no longer producing when the proper spacing is to be considered, the Commission, at its own discretion, may refrain from scheduling a proper spacing hearing and may, without further notice, enter an order dismissing the proper spacing matter.

Dated this 18th day of May, 2012.

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

By the Director, on behalf of the Commission

/s/ Lynn D. Helms, Director