

BEFORE THE INDUSTRIAL COMMISSION
OF THE STATE OF NORTH DAKOTA

CASE NO. 18846
ORDER NO. 21147

IN THE MATTER OF A HEARING CALLED ON A MOTION OF THE COMMISSION TO CONSIDER THE APPLICATION OF CONTINENTAL RESOURCES, INC. FOR AN ORDER AMENDING THE FIELD RULES FOR THE SADLER-BAKKEN POOL TO CREATE TWO OVERLAPPING 2560-ACRE SPACING UNITS COMPRISED OF SECTIONS 15, 22, 27, AND 34; AND SECTIONS 16, 21, 28, AND 33, T.161N., R.95W., DIVIDE COUNTY, ND, AUTHORIZING THE DRILLING OF MULTIPLE HORIZONTAL WELLS FROM SAID WELL PAD WITHIN EACH OVERLAPPING 2560-ACRE SPACING UNIT, ELIMINATING ANY TOOL ERROR REQUIREMENTS, 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 25th day of October, 2012.
- (2) The witnesses for Continental Resources, Inc. (Continental) provided telephonic testimony in this matter pursuant to North Dakota Administrative Code (NDAC) Section 43-02-03-88.2. Telephonic Communication Affidavits were received on October 30, 2012; therefore, such testimony may be considered evidence.
- (3) Continental made application to the Commission for an order amending the field rules for the Sadler-Bakken Pool to create two overlapping 2560-acre spacing units comprised of Sections 15, 22, 27, and 34; and Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota (Sections 15, 22, 27, 34, 16, 21, 28, and 33), authorizing the drilling of multiple horizontal wells from well pads within each overlapping 2560-acre spacing unit, eliminating any tool error requirements, and such other relief as is appropriate.
- (4) Order No. 15619 entered in Case No. 13342, the most recent spacing order for the Sadler-Bakken Pool, established proper spacing for the development of Zone I at one well per 160 acres, Zone II at one horizontal well per 640 acres, and Zone III at up to seven horizontal wells per 1280 acres.

(5) Sections 15 and 22; Sections 16 and 21; Sections 27 and 34; and Sections 28 and 33 are currently standup 1280-acre spacing units in Zone III in the Sadler-Bakken Pool.

(6) The Continental #1-15H Shonna well (File No. 17235) is a horizontal well completed in the middle member of the Bakken Formation in the standup 1280-acre spacing unit described as Sections 15 and 22 from a surface location 150 feet from the north line and 1050 feet from the west line of Section 15 to a bottom hole location in the SE/4 SW/4 of Section 22. The Continental #2-15H Shonna well (File No. 18879) is a horizontal well completed in the upper Three Forks Formation in the standup 1280-acre spacing unit described as Sections 15 and 22 from a surface location 375 feet from the north line and 630 feet from the west line of Section 15 to a bottom hole location in the SW/4 SW/4 of Section 22. The Continental #1-16H Bliss well (File No. 16869) is a horizontal well completed in the middle member of the Bakken Formation in the standup 1280-acre spacing unit described as Sections 16 and 21 from a surface location 135 feet from the north line and 1680 feet from the west line of Section 16 to a bottom hole location in the SE/4 SW/4 of Section 21. The Continental #1-34H Arvid well (File No. 17283) is a horizontal well completed in the upper Three Forks Formation in the standup 1280-acre spacing unit described as Sections 27 and 34 from a surface location 375 feet from the south line and 1625 feet from the east line of Section 34 to a bottom hole location in the NW/4 NE/4 of Section 27. The Continental #2-34H Arvid well (File No. 18370) is a horizontal well completed in the middle member of the Bakken Formation in the standup 1280-acre spacing unit described as Sections 27 and 34 from a surface location 250 feet from the south line and 2025 feet from the east line of Section 34 to a bottom hole location in the NW/4 NE/4 of Section 27. The Continental #1-33H Elveida well (File No. 17275) is a horizontal well completed in the upper Three Forks Formation in the standup 1280-acre spacing unit described as Sections 28 and 33 from a surface location 220 feet from the south line and 1450 feet from the east line of Section 33 to a bottom hole location in the NW/4 NE/4 of Section 28. Continental requested these wells remain on their existing 1280-acre spacing units.

(7) Sections 16 and 21; and Sections 28 and 33 should be moved to a zone of 1280-acre spacing with one horizontal well allowed.

(8) Sections 15 and 22; and Sections 27 and 34 should be moved to a zone of 1280-acre spacing with two horizontal wells allowed.

(9) Continental proposes to further develop the middle member of the Bakken Formation and the upper Three Forks Formation in the Sadler-Bakken Pool underlying Sections 15, 22, 27, and 34 by drilling ten additional horizontal wells. Four horizontal wells will be drilled from a common drilling pad near the midpoint of the north line of Section 27, with a horizontal well drilled in the upper Three Forks Formation 1980 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 15, a horizontal well drilled in the middle member of the Bakken Formation 2640 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 15, a horizontal well drilled in the middle member of the Bakken Formation 1980 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 34, and a horizontal well drilled in the upper Three Forks Formation 2640 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 34. Four horizontal wells will be drilled from a common drilling pad in the SE/4 of Section 22, with a horizontal well drilled in the upper Three Forks Formation 1980 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 15, a

horizontal well drilled in the middle member of the Bakken Formation 1320 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 15, a horizontal well drilled in the upper Three Forks Formation 660 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 15, and a horizontal well drilled in the middle member of the Bakken Formation 660 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 34. Two horizontal wells will be drilled from a common drilling pad in the NW/4 of Section 27, with a horizontal well drilled in the upper Three Forks Formation 1320 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 34, and a horizontal well drilled in the middle member of the Bakken Formation 660 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 34.

Continental proposes to further develop the middle member of the Bakken Formation and the upper Three Forks Formation in the Sadler-Bakken Pool underlying Sections 16, 21, 28, and 33 by drilling twelve additional horizontal wells. Six horizontal wells will be drilled from a common drilling pad near the midpoint of the south line of Section 21, with a horizontal well drilled in the upper Three Forks Formation 1980 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, a horizontal well drilled in the middle member of the Bakken Formation 2640 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, a horizontal well drilled in the upper Three Forks Formation 1980 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, a horizontal well drilled in the middle member of the Bakken Formation 1980 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33, a horizontal well drilled in the upper Three Forks Formation 2640 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33, and a horizontal well drilled in the middle member of the Bakken Formation 1980 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33. Three horizontal wells will be drilled from a common drilling pad in the SE/4 of Section 21, with a horizontal well drilled in the middle member of the Bakken Formation 1320 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, a horizontal well drilled in the upper Three Forks Formation 660 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, and a horizontal well drilled in the middle member of the Bakken Formation 660 feet from the east spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33. Three horizontal wells will be drilled from a common drilling pad in the NW/4 of Section 28, with a horizontal well drilled in the upper Three Forks Formation 660 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the north line of Section 16, a horizontal well drilled in the upper Three Forks Formation 1320 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33, and a horizontal well drilled in the middle member of the Bakken Formation 660 feet from the west spacing unit boundary to a bottom hole location approximately 200 feet from the south line of Section 33.

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 Sadler-Bakken Pool. The horizontal well designs 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.

(10) The Commission will take administrative notice of the testimony given in Case No. 12244 which was scheduled on a motion of the Commission to consider the establishment of 2560-acre drilling or spacing units in the Bakken Pool for future horizontal wells in North Dakota, and such other relief as is appropriate, heard on March 23, 2010. Order No. 14496 entered in Case No. 12244 established criteria for the Commission to consider when determining whether establishment of a 2560-acre drilling or spacing unit is justified.

(11) One of the criteria listed in Order No. 14496 was that a minimum of six horizontal wells must be drilled and completed in a reasonable time-frame. Development must occur with horizontal wells placed in the E/2 and W/2 of each former or potential 1280-acre drilling or spacing unit. Due to this constraint, Continental must drill the first horizontal wells in the proposed 2560-acre spacing unit described as Sections 15, 22, 27, and 34; and Sections 16, 21, 28, and 33 from the center common drilling pad.

(12) Continental requested any tool error in the directional survey equipment when calculating the bottom hole location of any horizontal lateral drilled in the proposed spacing units be waived. The Commission enforces a tool error 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 well drilled in spacing units which allow multiple horizontal wells will allow said spacing units to be more efficiently developed.

(13) Allowing the Shonna #1-15H, Shonna #2-15H, Bliss #1-16H, Arvid #1-34H, Arvid #2-34H, and Elveida #1-33H wells to produce on their existing spacing units, will provide maximum ultimate recovery from the Sadler-Bakken Pool in a manner that will protect correlative rights.

(14) Continental testified the geology throughout each proposed 2560-acre spacing unit is similar.

(15) Continental will utilize multi-well drilling pads to drill the proposed horizontal wells on each common drilling pad in each proposed 2560-acre spacing unit in succession and the proposed development plan is such that each 2560-acre spacing unit will be fully developed.

(16) Continental estimates construction of one common drilling pad instead of four individual drilling pads results in approximately 8 acres less surface disturbance, and will reduce the expenditure of funds on drilling pad construction and surface facilities and enhance the economics of production, thereby preventing economic waste and promoting the greatest ultimate recovery of oil and gas from the Sadler-Bakken Pool. Continental plans to drill the four or six surface casing well bores and set and cement surface casing in all, then drill the intermediate casing well bores and set and cement intermediate casing in all, then drill the horizontal laterals on each common drilling pad. Continental estimates a common drilling pad and the batch drilling process results in a \$700,000 savings per well. Common drilling pads will improve the timing and economics of connecting wells to gas gathering systems thereby reducing gas flaring and will minimize surface

disturbance and enhance the aesthetic values resulting from fewer or concentrated production facilities.

(17) Continental predicts a 2560-acre spacing unit will allow them to recover an additional 10,000 barrels-of-oil-equivalent per well due to additional productive lateral in the pool.

(18) Continental owns approximately 48.11% of the leasehold estate in Sections 15 and 22, approximately 47.42% of the leasehold estate in Sections 27 and 34, and approximately 47.76% of the leasehold estate in the proposed 2560-acre spacing unit described as Sections 15, 22, 27, and 34. Continental is the largest leasehold estate owner in both 1280-acre spacing units and the 2560-acre spacing unit.

Continental owns approximately 51.16% of the leasehold estate in Sections 16 and 21, approximately 50.29% of the leasehold estate in Sections 28 and 33, and approximately 50.72% of the leasehold estate in the proposed 2560-acre spacing unit described as Sections 16, 21, 28, and 33.

(19) Establishment of each 2560-acre spacing unit will provide for orderly development and protect correlative rights.

(20) There were no objections to this application.

(21) If Continental'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.

IT IS THEREFORE ORDERED:

(1) Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby established as a standup 2560-acre spacing unit for the exclusive purpose of drilling a minimum of four horizontal wells, up to ten horizontal wells, within said spacing unit within the Sadler-Bakken Pool and Zone VI is hereby created to include said spacing unit. Existing and future vertical and directional wells drilled within the spacing unit herein established shall conform to the applicable spacing requirements providing for the orderly development of Zone I in the Sadler-Bakken Pool.

(2) Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby established as a standup 2560-acre spacing unit for the exclusive purpose of drilling a minimum of four horizontal wells, up to twelve horizontal wells, within said spacing unit within the Sadler-Bakken Pool and Zone VII is hereby created to include said spacing unit. Existing and future vertical and directional wells drilled within the spacing unit herein established shall conform to the applicable spacing requirements providing for the orderly development of Zone I in the Sadler-Bakken Pool.

(3) The first horizontal wells drilled in each standup 2560-acre spacing unit described as Sections 15, 22, 27, and 34; and Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, shall be drilled from the center common drilling pad.

(4) Four horizontal wells shall be drilled and completed in the standup 2560-acre spacing unit described as Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, within 12 months of each other, two in Sections 15 and 22 and two in Sections 27 and 34. If this condition is not met, the Commission shall schedule the matter for hearing to consider the appropriate spacing unit size.

(5) Four horizontal wells shall be drilled and completed in the standup 2560-acre spacing unit described as Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, within 12 months of each other, two in Sections 16 and 21 and two in Sections 28 and 33. If this condition is not met, the Commission shall schedule the matter for hearing to consider the appropriate spacing unit size.

(6) Sections 16 and 21; and Sections 28 and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby established as standup 1280-acre spacing units for the exclusive purpose of drilling one horizontal well within each said spacing unit within the Sadler-Bakken Pool and Zone III is hereby redefined to include said spacing units. Existing and future vertical and directional wells drilled within the spacing units herein established shall conform to the applicable spacing requirements providing for the orderly development of Zone I in the Sadler-Bakken Pool.

(7) Sections 15 and 22; and Sections 27 and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby established as standup 1280-acre spacing units for the exclusive purpose of drilling up to two horizontal wells within each said spacing unit within the Sadler-Bakken Pool and Zone IV is hereby created to include said spacing units. Existing and future vertical and directional wells drilled within the spacing units herein established shall conform to the applicable spacing requirements providing for the orderly development of Zone I in the Sadler-Bakken Pool.

(8) The Director is hereby authorized to exercise continuing jurisdiction in this matter to determine whether a horizontal well proposed or drilled upon the 1280 or 2560-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.

(9) The Sadler Field is hereby defined as the following described tracts of land in Divide County, North Dakota:

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM
ALL OF SECTIONS 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 21, 22, 23, 26, 27, 28, 33,
34 AND 35, AND THE N/2 OF SECTION 20.

(10) The Sadler-Bakken Pool is hereby redefined as the following described tracts of land in Divide County, North Dakota:

ZONE I (160)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 21, 22, 23, 26, 27, 28, 33, 34 AND 35, AND THE N/2 OF SECTION 20*.

*Note Section 20 is part of a 1280-acre spacing unit consisting of Sections 17 and 20, Township 161 North, Range 95 West, Divide County, North Dakota, in the Dolphin-Bakken Pool.

ZONE II (640H)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTION 17.

ZONE III (1280H-STANDUP)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 16, 21, 28 AND 33.

ZONE IV (2/1280H-STANDUP)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 14, 15, 22, 23, 26, 27, 34 AND 35.

ZONE V (7/1280H-STANDUP)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 2, 3, 4, 5, 6, 7, 8, 9, 10 AND 11.

ZONE VI (4-10/2560H-STANDUP)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 14, 15, 22, 23, 26, 27, 34 AND 35.

ZONE VII (4-12/2560H-STANDUP)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM

ALL OF SECTIONS 16, 21, 28 AND 33.

(11) The Sadler-Bakken Pool is hereby defined as that accumulation of oil and gas found in the interval from 50 feet above the top of the Bakken Formation to 50 feet below the top of the Three Forks Formation within the limits of the field as set forth above.

(12) The proper spacing for the development of Zone I in the Sadler-Bakken Pool is hereby set at one well per 160-acre spacing unit.

(13) All wells in Zone I in the Sadler-Bakken Pool shall be located not less than 500 feet from a spacing unit boundary. Wells presently permitted to or producing from the pool that do not conform to this spacing pattern shall be considered exceptions.

(14) Spacing units in Zone I in the Sadler-Bakken Pool shall consist of a governmental quarter section or governmental lots corresponding thereto.

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

(16) Provisions established herein for Zone II in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined as Zone II in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(17) The proper spacing for the development of Zone II in the Sadler-Bakken Pool is hereby set at one horizontal well per 640-acre spacing unit.

(18) All portions of the well bore not isolated by cement of any horizontal well in Zone II in the Sadler-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.

(19) Section 17, Township 161 North, Range 95 West, Divide County, North Dakota, is hereby designated a 640-acre spacing unit in Zone II in the Sadler-Bakken Pool.

(20) Spacing units in Zone II in the Sadler-Bakken Pool shall consist of a governmental section.

(21) Sections 17 and 20, Township 161 North, Range 95 West, Divide County, North Dakota, are also designated a 1280-acre spacing unit in the Dolphin-Bakken Pool.

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

(23) Provisions established herein for Zone III in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined as Zone III in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(24) The proper spacing for the development of Zone III in the Sadler-Bakken Pool is hereby set at one horizontal well per standup 1280-acre spacing unit.

(25) All portions of the well bore not isolated by cement of any horizontal well in Zone III in the Sadler-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.

(26) Sections 16 and 21; and Sections 28 and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby designated standup 1280-acre spacing units in Zone III in the Sadler-Bakken Pool.

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

(28) Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are also designated a standup 2560-acre spacing unit in Zone VII in the Sadler-Bakken Pool.

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

(30) Provisions established herein for Zone IV in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined as Zone IV in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(31) The proper spacing for the development of Zone IV in the Sadler-Bakken Pool is hereby set at up to two horizontal wells per standup 1280-acre spacing unit.

(32) All portions of the well bore not isolated by cement of any horizontal well in Zone IV in the Sadler-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.

(33) Sections 14 and 23; Sections 15 and 22; Sections 26 and 35; and Sections 27 and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby designated standup 1280-acre spacing units in Zone IV in the Sadler-Bakken Pool.

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

(35) Sections 14, 23, 26, and 35; and Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are also designated standup 2560-acre spacing units in Zone VI in the Sadler-Bakken Pool.

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

(37) Provisions established herein for Zone V in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells

drilled within the area defined as Zone V in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(38) The proper spacing for the development of Zone V in the Sadler-Bakken Pool is hereby set at up to seven horizontal wells per standup 1280-acre spacing unit.

(39) All portions of the well bore not isolated by cement of any horizontal well in Zone V in the Sadler-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.

(40) Sections 2 and 11; Sections 3 and 10; Sections 4 and 9; Sections 5 and 8; and Sections 6 and 7, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby designated standup 1280-acre spacing units in Zone V in the Sadler-Bakken Pool.

(41) Spacing units hereafter created in Zone V in the Sadler-Bakken Pool shall be standup spacing units consisting of two adjacent governmental sections.

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

(43) Provisions established herein for Zone VI in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined as Zone VI in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(44) The proper spacing for the development of Zone VI in the Sadler-Bakken Pool is hereby set at a minimum of four horizontal wells, up to ten horizontal wells, per standup 2560-acre spacing unit.

(45) All portions of the well bore not isolated by cement of any horizontal well in Zone VI in the Sadler-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.

(46) Sections 14, 23, 26, and 35; and Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby designated standup 2560-acre spacing units in Zone VI in the Sadler-Bakken Pool.

(47) A second horizontal well shall be completed in the standup 1280-acre spacing unit described as Sections 14 and 23, Township 161 North, Range 95 West, Divide County, North Dakota, prior to completing any horizontal well in the standup 2560-acre spacing unit described as Sections 14, 23, 26, and 35, Township 161 North, Range 95 West, Divide County, North Dakota.

(48) The first horizontal wells drilled in each standup 2560-acre spacing unit described as Sections 14, 23, 26, and 35; and Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, shall be drilled from the center common drilling pad.

(49) Four horizontal wells shall be drilled and completed in the standup 2560-acre spacing unit described as Sections 14, 23, 26, and 35, Township 161 North, Range 95 West, Divide County, North Dakota, within 12 months of each other, two in Sections 14 and 23 and two in Sections 26 and 35. If this condition is not met, the Commission shall schedule the matter for hearing to consider the appropriate spacing unit size.

(50) Four horizontal wells shall be drilled and completed in the standup 2560-acre spacing unit described as Sections 15, 22, 27, and 34, Township 161 North, Range 95 West, Divide County, North Dakota, within 12 months of each other, two in Sections 15 and 22 and two in Sections 27 and 34. If this condition is not met, the Commission shall schedule the matter for hearing to consider the appropriate spacing unit size.

(51) Spacing units hereafter created in Zone VI in the Sadler-Bakken Pool shall be standup spacing units consisting of four adjacent governmental sections.

(52) Sections 14 and 23; Sections 15 and 22; Sections 26 and 35; and Sections 27 and 34, Township 161 North, Range 95 West, Divide County, North Dakota, are also designated standup 1280-acre spacing units in Zone IV in the Sadler-Bakken Pool.

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

(54) Provisions established herein for Zone VII in the Sadler-Bakken Pool are for the exclusive purpose of drilling horizontal wells. Existing and future vertical and directional wells drilled within the area defined as Zone VII in paragraph (10) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

(55) The proper spacing for the development of Zone VII in the Sadler-Bakken Pool is hereby set at a minimum of four horizontal wells, up to twelve horizontal wells, per standup 2560-acre spacing unit.

(56) All portions of the well bore not isolated by cement of any horizontal well in Zone VII in the Sadler-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.

(57) Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are hereby designated a standup 2560-acre spacing unit in Zone VII in the Sadler-Bakken Pool.

(58) The first horizontal wells drilled in the standup 2560-acre spacing unit described as Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, shall be drilled from the center common drilling pad.

(59) Four horizontal wells shall be drilled and completed in the standup 2560-acre spacing unit described as Sections 16, 21, 28, and 33, Township 161 North, Range 95 West, Divide County, North Dakota, within 12 months of each other, two in Sections 16 and 21 and two in Sections 28 and 33. If this condition is not met, the Commission shall schedule the matter for hearing to consider the appropriate spacing unit size.

(60) Spacing units hereafter created in Zone VII in the Sadler-Bakken Pool shall be standup spacing units consisting of four adjacent governmental sections.

(61) Sections 16 and 21; and Sections 28 and 33, Township 161 North, Range 95 West, Divide County, North Dakota, are also designated standup 1280-acre spacing units in Zone III in the Sadler-Bakken Pool.

(62) Zone VII in the Sadler-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 Sadler-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 Sadler-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 Sadler-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 Sadler-Bakken Pool as the Commission deems appropriate.

(66) No well shall be hereafter drilled or produced in the Sadler-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 Sadler-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 Sadler-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 6280 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) All wells in the Sadler-Bakken Pool shall be allowed to produce at a maximum efficient rate for a period of 30 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; 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 90 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.

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

(72) This order shall cover all of the Sadler-Bakken Pool common source of supply of crude oil and/or natural gas as herein defined, and all provisions of the pool 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.

Dated this 2nd day of October, 2013.

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

By the Director, on behalf of the Commission

/s/ Lynn D. Helms, Director