

BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA

CASE NO. 8152  
ORDER NO. 9579

IN THE MATTER OF A HEARING CALLED ON A MOTION OF THE COMMISSION TO CONSIDER THE APPLICATION OF JOLETTE OIL (USA), LLC FOR AN ORDER TO CREATE AND ESTABLISH A 640-ACRE SPACING AND/OR DRILLING UNIT, COMPRISED OF ALL OF SECTION 17, T.161N., R.95W., SADLER FIELD, DIVIDE COUNTY, NORTH DAKOTA, AUTHORIZING THE DRILLING OF A HORIZONTAL WELL NOT LESS THAN 660 FEET FROM THE SPACING AND/OR DRILLING UNIT BOUNDARY AS AN EXCEPTION TO ANY PREVIOUS SPACING ORDERS AND THE PROVISIONS OF SECTION 43-02-03-18 OF THE NORTH DAKOTA ADMINISTRATIVE CODE AND/OR SUCH OTHER AND FURTHER RELIEF AS THE COMMISSION DEEMS APPROPRIATE.

ORDER OF THE COMMISSION

THE COMMISSION FINDS:

- (1) This cause came on for hearing at 9:00 a.m. on the 3rd day of December, 2003.
- (2) The Commission, on November 18, 2003, authorized the Director to sign this order on their behalf if the Director was satisfied that there was no substantial opposition to the request and the record supports granting the relief requested.
- (3) Order No. 4915 entered in Case No. 4276 established proper spacing for the development of the Sadler-Madison Pool at one well per 160 acres and Order No. 7123 entered in Case No. 6153 established proper spacing for the development of the Sadler-Bakken Pool at one well per 160 acres. Only the Madison and Bakken Pools are currently spaced in the Sadler Field.
- (4) Jollette Oil (USA), LLC (Jollette) made application to the Commission for an order to create and establish a 640-acre spacing and/or drilling unit, comprised of all of Section 17, Township 161 North, Range 95 West, Sadler Field, Divide County, North Dakota (Section 17), authorizing the drilling of a horizontal well not less than 660 feet from the spacing and/or drilling

unit boundary as an exception to any previous spacing orders and the provisions of Section 43-02-03-18 of the North Dakota Administrative Code (NDAC) and/or such other and further relief as the Commission deems appropriate.

(5) Jollette requested that 640-acre spacing units be established for spaced pools in Section 17, and 640-acre drilling units be established for any unspaced pools.

(6) There are no wells currently permitted to or producing from any pool in Section 17.

(7) NDAC Section 43-02-03-18 requires horizontal oil wells drilled in unspaced pools projected to a depth not deeper than the Mission Canyon Formation to be drilled upon a tract described as two adjacent governmental quarter-quarter sections within the same section or equivalent lots, located not less than five hundred feet to the outside boundary of such tract.

(8) NDAC Section 43-02-03-18 requires horizontal oil wells drilled in unspaced pools projected to a depth deeper than the Mission Canyon Formation to be drilled upon a tract described as two adjacent governmental quarter sections within the same section or equivalent lots, located not less than six hundred sixty feet to the outside boundary of such tract.

(9) Jollette intends to drill a vertical well in the SE/4 SE/4 of Section 17 to test the Sadler-Madison Pool. Jollette then intends to plug back and utilize horizontal drilling technology to drill a horizontal lateral diagonally across Section 17 through the Sadler-Madison Pool. Utilization of this drilling technology in this manner may result in the well being completed at a location or locations not in compliance with current applicable spacing orders for the Sadler-Madison Pool.

(10) Jollette also requested the flexibility to drill horizontally through any unspaced pool. Utilization of this technology may result in the well being completed at a location or locations not in compliance with applicable spacing requirements.

(11) In order to effectively utilize horizontal drilling technology, it is essential that greater flexibility be afforded in locating the well bore of a horizontal hole than is allowed under the 80-acre or 320-acre drilling units pursuant to NDAC Section 43-02-03-18.

(12) Evidence and testimony presented to the Commission indicates that the proposed horizontal well will produce oil that might otherwise not be produced.

(13) Flexibility with respect to spacing unit size and the location of wells in the Sadler-Madison and Bakken Pools is essential to efficiently produce as much recoverable oil and gas as economically possible.

(14) Pursuant to Section 38-08-07 of the North Dakota Century Code, spacing units must be of uniform size and shape for the entire pool, except when found necessary to prevent waste, avoid the drilling of unnecessary wells, or to protect correlative rights, the Commission is authorized to divide any pool into zones and establish spacing units for each zone, which units may differ in size and shape from those established in any other zone.

(15) Zones of different spacing within the Sadler-Madison and Bakken Pools will allow the flexibility needed for utilization of horizontal drilling.

(16) Granting maximum flexibility in spacing unit size and in locating and drilling horizontal wells will result in economic and efficient development of the oil and gas resources in a manner that prevents waste and protects correlative rights.

(17) If the proposed well is productive from any unspaced pool, the Commission will establish spacing for the development of the pool as provided by statutes and rules of the Commission.

(18) If Jolette'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.

(19) There were no objections to this application.

(20) Approval of this application will prevent waste, avoid the drilling of unnecessary wells, and protect correlative rights.

(21) The Director has authority to sign this order on behalf of the Commission since there was no opposition and the record supports the requested relief.

**IT IS THEREFORE ORDERED:**

(1) Section 17, Township 161 North, Range 95 West, Divide County, North Dakota, is hereby established as a 640-acre spacing unit for the exclusive purpose of drilling a horizontal well within said spacing unit within the Sadler-Madison Pool and Zone III is hereby created to include said spacing unit.

(2) Section 17, Township 161 North, Range 95 West, Divide County, North Dakota, is hereby established as a 640-acre spacing unit for the exclusive purpose of drilling a horizontal well within said spacing unit within the Sadler-Bakken Pool and Zone II is hereby created to include said spacing unit.

(3) Section 17, Township 161 North, Range 95 West, Divide County, North Dakota, is hereby established as a 640-acre drilling unit for the exclusive purpose of drilling a horizontal well within said drilling unit within any unspaced pool.

(4) 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 determine whether a horizontal well proposed or drilled upon any 640-acre spacing unit or drilling unit herein established, has justified the creation of such unit.

(5) For the purposes of any drilling unit established by this order, the pool definition shall coincide with current customary pool definitions issued by the Commission.

(6) All portions of the well bore not isolated by cement of any horizontal well drilled within a drilling unit established pursuant to this order shall be no closer than 660 feet to the boundary of the drilling unit. Measurement inaccuracies in the directional survey equipment shall be considered when determining compliance with the 660-foot setback.

(7) The operator of a horizontally drilled well in Section 17 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.

(8) No horizontal well shall be drilled or produced in any pool in Section 17, except in conformity with the regulations here set forth, without special order of the Commission after due notice and hearing.

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

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
ALL OF SECTIONS 16 AND 17, THE SW/4 OF SECTION 4, THE SE/4 OF SECTION 5,  
THE S/2 OF SECTION 8, THE S/2 AND NW/4 OF SECTION 9, AND THE N/2 OF  
SECTIONS 20 AND 21,

together with those additional quarter sections or governmental lots corresponding thereto as may be proven productive by wells drilled on lands within one mile of 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.

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

ZONE I

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
ALL OF SECTIONS 16 AND 17, THE SE/4 OF SECTION 5, THE S/2 OF SECTION 8,  
THE S/2 AND NW/4 OF SECTION 9, AND THE N/2 OF SECTIONS 20 AND 21.

ZONE II

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
THE SW/4 OF SECTION 4.

ZONE III (Exclusively for horizontal wells)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
ALL OF SECTION 17.

(11) The Sadler-Madison Pool is hereby redefined as that accumulation of oil and gas found in the interval from below the base of the Last Charles Salt to above the top of the Lodgepole Formation within the limits of the field as set forth above.

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

(13) All wells hereafter drilled in Zone I in the Sadler-Madison 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-Madison Pool shall consist of a governmental quarter section or governmental lots corresponding thereto.

(15) The proper spacing for the development of Zone II in the Sadler-Madison Pool is hereby set at up to two wells per 160 acres.

(16) All wells hereafter drilled in Zone II in the Sadler-Madison Pool shall be located not less than 500 feet from a spacing unit boundary. However, the second well allowed in the SW/4 of Section 4, Township 161 North, Range 95 West, Divide County, North Dakota, shall be located in the SW/4 of the SW/4. Wells presently permitted to or producing from the pool that do not conform to this spacing pattern shall be considered exceptions.

(17) Spacing units in Zone II in the Sadler-Madison Pool shall consist of a governmental quarter section or governmental lots corresponding thereto.

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

(19) Provisions established herein for Zone III in the Sadler-Madison 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-Madison Pool.

(20) The proper spacing for the development of Zone III in the Sadler-Madison Pool is hereby set at one horizontal well per 640 acres.

(21) All portions of the well bore not isolated by cement of any horizontal well hereafter drilled in Zone III in the Sadler-Madison Pool shall be no closer than 660 feet to the boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment shall be considered when determining compliance with the 660-foot setback.

(22) Spacing units in Zone III in the Sadler-Madison Pool shall consist of a governmental section or governmental lots corresponding thereto.

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

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

(25) The operator of any horizontally drilled well in the Sadler-Madison 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.

(26) 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-Madison 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-Madison Pool as the Commission deems appropriate.

(27) The following rules concerning the casing, tubing and equipping of wells shall apply to the subsequent drilling and operation of wells in the Sadler-Madison 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;
- (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 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; and,

- (d) All wells shall be equipped with tubing and all flowing wells shall be equipped with tubing and tubing packer; 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.

(28) 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 within 45 days in all wells hereinafter completed in the Sadler-Madison Pool. Drill stem test pressures are acceptable for determining reservoir pressure. Pressure measurements shall be made at or adjusted to a subsea datum of 5065 feet after the well has been shut in for a minimum of 48 hours. 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 therefor can be demonstrated to his satisfaction. All additional gas-oil ratio and reservoir pressure determinations conducted on any well, but not specifically required herein, shall be reported to the Director within 15 days following the end of the month in which they are determined.

(29) 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.

(30) All wells in the Sadler-Madison Pool shall be allowed to produce at an unrestricted 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.

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

(32) This order shall cover all of the Sadler-Madison 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.

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

ZONE I

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
ALL OF SECTIONS 16 AND 17, THE SW/4 OF SECTION 4, THE SE/4 OF SECTION 5, THE S/2 OF SECTION 8, THE S/2 AND NW/4 OF SECTION 9, AND THE N/2 OF SECTIONS 20 AND 21.

ZONE II (Exclusively for horizontal wells)

TOWNSHIP 161 NORTH, RANGE 95 WEST, 5TH PM  
ALL OF SECTION 17.

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

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

(36) All wells hereafter drilled 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.

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

(38) 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 (33) above shall conform to the applicable spacing requirements for the orderly development of Zone I in the Sadler-Bakken Pool.

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

(40) All portions of the well bore not isolated by cement of any horizontal well hereafter drilled in Zone II in the Sadler-Bakken Pool shall be no closer than 660 feet to the boundary of the spacing unit. Measurement inaccuracies in the directional survey equipment shall be considered when determining compliance with the 660-foot setback.

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

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

(43) 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.

(44) 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.



(45) 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.

(46) 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;
- (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 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; and,
- (d) All wells shall be equipped with tubing and all flowing wells shall be equipped with tubing and tubing packer; 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.

(47) 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 within 45 days in all wells hereinafter completed in the Sadler-Bakken Pool. 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 after the well has been shut in for a minimum of 48 hours. 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 therefor can be demonstrated to his satisfaction. All additional gas-oil ratio and reservoir pressure determinations conducted on any well, but not specifically required herein, shall be reported to the Director within 15 days following the end of the month in which they are determined.

(48) 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.

(49) All wells in the Sadler-Bakken Pool shall be allowed to produce at an unrestricted 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.

(50) 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.

(51) 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.

(52) All provisions of this order pertaining to the creation of 640-acre drilling units shall remain in full force and effect until further order of the Commission.

Dated this 5th day of December, 2003.

INDUSTRIAL COMMISSION  
STATE OF NORTH DAKOTA

By the Director, on behalf of the Commission

/s/ Lynn D. Helms, Director