

Entered October 4, 1960
A.P.P.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 2049
Order No. R-1670-B

APPLICATION OF THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION TO PERMIT
INTERESTED PARTIES TO APPEAR AND PRESENT
TESTIMONY RELATIVE TO THE DRILLING, SPAC-
ING, AND PRODUCTION OF WELLS IN THE
DEVILS FORK-GALLUP POOL, RIO ARRIBA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 17, 1960, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 28th day of September, 1960, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That by Order No. R-1641-A, the Commission promulgated temporary special rules and regulations governing the drilling, spacing, and production of wells in the Devils Fork-Gallup Pool, Rio Arriba County, New Mexico, which Rules provided, among other things, for 40-acre oil proration units and for 320-acre gas units.
- (3) That while the Devils Fork-Gallup Pool is presently classified as a gas pool, the evidence adduced at this hearing as well as at previous hearings clearly indicates that it is in fact an "associated" reservoir, producing oil from an oil-saturated sand overlain by a gas-cap being contained in a common and contiguous gas-saturated sand.
- (4) That the parties appearing at the hearing on August 17, 1960, proposed that 80-acre proration units be established for wells in the pool which would be classified as oil wells, and

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that operators be permitted to assign up to 320 acres to wells which would be classified as gas wells. Further, the parties proposed that the limiting gas-liquid ratio for the pool be set at 2000 to 1.

(5) That the parties also proposed that any well in the pool producing with a gas-liquid ratio of 30,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, or any well which produces liquid hydrocarbons with a gravity of $\overline{60}^{\circ}$ API or greater be classified as a gas well, and that any well producing with a gas-liquid ratio of less than 30,000 cubic feet of gas per barrel of liquid hydrocarbons and which produces liquid hydrocarbons with a gravity of less than $\overline{60}^{\circ}$ API be classified as an oil well.

(6) That the parties proposed that both the gas area and the oil area be prorated, and certain of the parties appearing proposed that the gas allocation formula be based on 75 percent acreage times deliverability plus 25 percent acreage. Other parties advocated a straight-acreage gas proration formula.

(7) That the evidence establishes that the gas area in the pool can be efficiently and economically drained and developed on 320-acre gas proration units, and it further establishes that the oil area in the pool can be efficiently and economically drained and developed on 80-acre oil proration units.

(8) That the volumetric withdrawal formula proposed by the parties is designed to keep the gas-oil contact substantially constant, thereby preventing waste and protecting correlative rights.

(9) That the top unit allowable for the oil wells in the Devils Fork-Gallup Pool should be determined by multiplying Northwest New Mexico Normal Unit Allowable by the appropriate 80-acre proportional (depth) factor (2.33). Further, that the allowable assigned to the gas area of said pool should be determined by an equivalent volumetric withdrawal formula, based on the total production from the oil area, and calculated each six months, the purpose of which would be to limit the withdrawals from the gas area to the volumetric equivalent of withdrawals from the oil area.

(10) That the parties proposing the inclusion of a deliverability factor in the gas proration formula failed to prove that there is a general correlation between the deliverabilities of the gas wells in the Devils Fork-Gallup Pool and the recoverable gas in place under the tracts dedicated to such gas wells.

IT IS THEREFORE ORDERED:

(1) That Commission Order No. R-1641-A be and the same is hereby superseded, effective November 1, 1960.

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(2) That special rules and regulations governing the Devils Fork-Gallup Pool, Rio Arriba County, New Mexico, be and the same are hereby promulgated as hereinafter set forth, effective November 1, 1960.

(3) That the General Rules for prorated gas pools in Northwest New Mexico as set forth in Order No. R-1670 are not applicable unless specifically so stated, and where it is stated that said General Rules are applicable such stipulation refers only to gas wells.

(4) That a case is hereby docketed for the Regular Commission Hearing in April, 1962, in order that the Commission can determine at that time whether the special rules and regulations hereinafter set forth have been effective in preventing significant movement of the gas-oil contact. Should conditions warrant such action, the Commission might decide to re-examine these special rules and regulations prior to April, 1962.

SPECIAL RULES AND REGULATIONS FOR THE
DEVILS FORK-GALLUP POOL

A. WELL LOCATION AND ACREAGE REQUIREMENTS

SPECIAL RULE 1. Each well completed or recompleted in the Devils Fork-Gallup Pool or in the Gallup formation within one mile of the Devils Fork-Gallup Pool, and not nearer to nor within the limits of another designated Gallup pool, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

SPECIAL RULE 2. Each well, oil or gas, completed or recompleted in the Devils Fork-Gallup Pool shall be located no nearer than 790 feet to any quarter section line and each such well shall be located no nearer than 330 feet to a governmental quarter-quarter section line or subdivision inner boundary line. Any well drilled to and producing from the Devils Fork-Gallup Pool prior to the effective date of this Order at a location conforming to the well location requirements in effect at the time the well was drilled shall be considered to be located in conformance with this Rule.

SPECIAL RULE 3. The Secretary-Director shall have authority to grant an exception to Special Rule 2 without notice and hearing when the application has been filed in due form and the Secretary-Director determines that good cause exists for granting such exception. However, such an unorthodox location, if approved, may necessitate an allowable adjustment.

Applicants shall furnish all offset operators
and all operators within the section in which the subject well

is located a copy of the application to the Commission, and the applicant shall include with his application a list of the names and addresses of all such operators together with a stipulation that proper notice has been given said operators at the addresses listed. The Secretary-Director may approve the unorthodox location twenty days after receipt of the application in the absence of objection by the parties mentioned above.

SPECIAL RULE 4(a). Each gas well completed or recompleted in the Devils Fork-Gallup Pool shall be located on a tract which can reasonably be presumed to be productive of gas from said pool and which consists of approximately 320 acres, comprising any two contiguous quarter sections of a single governmental section, being a legal subdivision (half section) of the United States Public Lands Survey. For purposes of these Rules, a unit consisting of between 316 and 324 surface contiguous acres shall be considered a standard gas unit. Nothing contained herein shall be construed as prohibiting the drilling of a gas well on each quarter section in the 320-acre unit.

SPECIAL RULE 4(b). For good cause shown, the Secretary-Director may grant an exception to the requirements of Rule 4(a) without notice and hearing where an application has been filed in due form and where the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey, or where the following facts exist and the following provisions are complied with:

(1) The non-standard unit consists of contiguous quarter-quarter sections or lots.

(2) The non-standard unit consists of not more than 324 acres and lies wholly within a single governmental section.

(3) The entire non-standard unit may reasonably be presumed to be productive of gas from said pool.

(4) The applicant presents written consent in the form of waivers from all offset operators, and from all operators owning interests in the section in which any part of the non-standard unit is situated and which acreage is not included in the non-standard unit.

(5) In lieu of Paragraph 4 of this Rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if, after a period of 30 days, no such operator has entered an objection to the formation of the non-standard unit.

SPECIAL RULE 4(c). The District Supervisor shall have authority to approve non-standard gas proration units without notice and hearing and without administrative approval by the Secretary-Director if such unit consists of less than 316 surface contiguous acres and the non-standard unit is necessitated by a variation in the United States Public Lands Survey.

SPECIAL RULE 4(d). The allowable assigned to any non-standard gas proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 320 acres.

SPECIAL RULE 5(a). Each oil well completed or recompleted in the Devils Fork-Gallup Pool shall be located on a unit containing approximately 80 acres which can reasonably be presumed to be productive of oil from said pool and which consists of the N/2, S/2, E/2 or W/2 of a single governmental quarter section. For purposes of these Rules, a unit containing of between 79 and 81 surface contiguous acres shall be considered a standard unit. Nothing contained herein shall be construed as prohibiting the drilling of an oil well on each of the quarter-quarter sections in the 80-acre unit.

SPECIAL RULE 5(b). For good cause shown, the Secretary-Director may grant an exception to the requirements of Rule 5(a) above without notice and hearing where an application has been filed in due form, and where the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey, or where the following facts exist and the following provisions are complied with:

(1) The non-standard unit is to consist of a single quarter-quarter section or lot.

(2) The non-standard unit contains less than 81 acres.

(3) The entire non-standard unit may reasonably be presumed to be productive of oil from said pool.

(4) The applicant presents written consent in the form of waivers from all offset operators.

(5) In lieu of Paragraph 4 of this Rule, the applicant may furnish proof of the fact that all of the offset operators were notified by registered mail of his intent to form such non-standard unit. The Secretary-Director may approve the application if, after a period of 30 days, no operator has entered an objection to the formation of such non-standard unit.

SPECIAL RULE 5(c). The District Supervisor shall have authority to approve non-standard oil proration units without notice and hearing and without administrative approval by the Secretary-Director if such unit consists of two quarter-quarter sections or lots and is less than 79 surface contiguous acres and the

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non-standard unit is necessitated by a variation in the United States Public Lands Survey.

SPECIAL RULE 5(d). The allowable assigned to any non-standard oil proration unit shall bear the same ratio to a standard allowable in said pool as the acreage in the unit bears to 80 acres.

B. NOMINATIONS AND PRORATION SCHEDULE

RULE 6(A). (General Rules applicable) Also see Rule 8.

RULE 6(B). (General Rules applicable)

RULE 7(A). (General Rules applicable)

RULE 7(B). (General Rules applicable)

C. ALLOCATION AND GRANTING OF ALLOWABLES

SPECIAL RULE 8. The total tentative gas allowable to be allocated to the pool shall be equal to the sum of the preliminary or supplemental nominations together with necessary adjustments. The pool gas allowable remaining each month after deducting the total allowable assigned to marginal wells shall be allocated among the non-marginal wells entitled to an allowable in the proportion that each well's acreage factor bears to the total of the acreage factors for all non-marginal wells in the pool.

The total tentative gas allowable to be allocated to the pool during the initial three-month gas proration period defined in Special Rule 13 shall be the sum of the three supplemental nominations which shall be filed at least 5 days prior to the Regular Commission Allowable Hearings in October, November, and December, 1960. These nominations shall each indicate the market demand for gas during the ensuing month and shall be subject to any necessary adjustments.

The provisions of Special Rule 13(a) relating to the determination of final gas allowable for a six-months proration period on the volumetric equivalent of production from the oil area shall also apply to the initial three-months gas proration period and the final gas allowable for said period shall be the volumetric equivalent of production from the oil area during November and December, 1960, and January, 1961.

Preliminary nominations for the first full six-months gas proration period shall be filed with the Commission at least five days prior to the December hearing.

SPECIAL RULE 8(a). No well shall be assigned an allowable until Form C-104, Form C-110, and Form C-116 have been filed, together with a plat (Form C-128) showing the acreage dedicated to the well

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and the location of all wells on the unit. Form C-116 shall show, in addition to the information required thereon, the gravity of the liquid hydrocarbons produced on the test.

The District Supervisor of the Commission's Aztec District Office is hereby authorized to assign a temporary gas allowable to wells connected to a gas transportation facility during the recovery of load oil, which allowable shall not exceed the number of cubic feet of gas obtained by multiplying the daily top unit allowable for the pool by 2000.

SPECIAL RULE 8(b). Oil well allowables shall be determined in accordance with the provisions of Statewide Rule 505.

SPECIAL RULE 9(a). A gas well's "Acreage Factor" shall be determined to the nearest hundredth of a unit by dividing the acreage assigned to the well by 320 acres. An oil well's acreage factor shall be determined to the nearest hundredth of a unit by dividing the acreage assigned to the well by 80 acres.

SPECIAL RULE 9(b). The allowable to be assigned to each marginal gas well shall be equal to the maximum production of such well during any month of the preceding gas proration period.

SPECIAL RULE 9(c). Each oil well on an 80-acre oil proration unit shall be permitted to produce an amount of gas determined by multiplying the top unit oil allowable for the pool by the limiting gas-oil ratio for the pool (2000). In the event there is more than one oil well on an 80-acre oil proration unit, the operator may produce the allowable assigned to the unit from said wells in any proportion.

SPECIAL RULE 9(d). Allowables to wells whose classification has changed from oil to gas or from gas to oil as the result of a gas-liquid ratio test shall commence on the first day of the month following the month in which such test was reported, provided that a plat (Form C-128) showing the acreage dedicated to the well and the location of all wells on the dedicated acreage has been filed.

RULE 10(A). (General Rules applicable)

RULE 11. (General Rules applicable)

SPECIAL RULE 12. The full production of gas from each well, including drilling gas, shall be charged against the well's allowable regardless of the disposition of the gas; provided, however, that gas used in maintaining the producing ability of the well shall not be charged against the allowable.

D. BALANCING OF PRODUCTION

SPECIAL RULE 13. The initial gas proration period shall be from 7 o'clock a.m. on November 1, 1960, to 7 o'clock a.m. on February 1, 1961. Subsequently, the dates 7 o'clock a.m. February 1st and 7 o'clock a.m. August 1st shall be known as balancing dates, and the periods of time bounded by these dates shall be known as the gas proration periods for the Devils Fork-Gallup Pool.

SPECIAL RULE 13(a).

(1) The top 80-acre unit allowable for oil wells in the Devils Fork-Gallup Pool shall be determined each month by multiplying the Northwest New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.33). The final allowable for the gas area of said pool shall be determined for the preceding six-months period on February 1st and on August 1st of each year in accordance with the following formula:

$$(a) \quad V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

where:

- V = the gas allowable for the gas area for the preceding six months period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding six months period expressed in cubic feet rounded off to the nearest MCF.
- Q = total oil production from the oil area during the preceding six months period, barrels.
- (A + ΔA) = total acres dedicated to gas wells during preceding six months period.
- (a + Δa) = total acres dedicated to oil wells during preceding six months period.

(Note: "A" and "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire six months period. ΔA and Δa represent acreage so dedicated for only a portion of the six months period. In the

event a well is completed or reclassified during a six months period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right) \quad \Delta a = a \left(\frac{d}{D} \right)$$

where:

- ΔA or Δa = acreage to be added to gas or oil area, respectively.
- A or a = acreage dedicated to the well
- d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.
- D = total number of days in proration period.)
- r_1 = average producing GOR for oil area during preceding six months period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)
- r_2 = Solution GOR for the oil area at P_{res} . (r_2 determined from Solution GOR Tabulation in Special Rule 13(b).)
- T_{sc} = Temperature at standard conditions = 60° F or 520° R.
- T_{res} = Initial bottom-hole temperature, assumed to remain constant at 147° F or 607° R.
- P_{res} = Average reservoir pressure based on most recent bottom-hole pressure survey as provided in Special Rule 28.
- P_{sc} = Pressure at standard conditions = 15.025 psia.
- Z = Deviation factor for gas at P_{res} and at 147° F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13(b).)
- B_o = Oil reservoir volume factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(b).)

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900	498	.876	1.309
800	463	.889	1.295
700	429	.902	1.280
600	396	.915	1.262
500	365	.927	1.245
400	335	.941	1.227
300	300	.954	1.208
200	255	.968	1.190
100	195	.982	1.160

RULE 14(A). (General Rules applicable)

RULE 14(B). (General Rules applicable)

RULE 15(A). (General Rules applicable)

SPECIAL RULE 15(b). If, at any time, a well is overproduced an amount equalling three times its current monthly allowable, it shall be shut-in during that month and each succeeding month until the well is overproduced less than three times its current monthly allowable.

RULE 15(C). (General Rules applicable)

RULE 15(D). (General Rules applicable)

RULE 15(E). (General Rules applicable)

E. CLASSIFICATION OF WELLS

RULE 16(A). (General Rules applicable)

RULE 16(B). (General Rules applicable)

RULE 17. (General Rules applicable)

SPECIAL RULE 18. If, at the end of a proration period, a marginal gas well has produced more than the total allowable assigned a non-marginal unit of corresponding size for that period, the marginal well shall be reclassified as a non-marginal well and its allowable and net status shall be adjusted accordingly.

RULE 19. (General Rules applicable)

RULE 20. (General Rules applicable)

F. REPORTING OF PRODUCTION

RULE 21(A). (General Rules applicable)

RULE 21(B). (General Rules applicable)

RULE 21(C). (General Rules applicable)

RULE 21(D). (General Rules applicable)

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G. GENERAL

SPECIAL RULE 22. No gas, either dry gas or casinghead gas, produced from the Devils Fork-Gallup Pool shall be flared or vented except as otherwise provided in these Special Rules and Regulations.

RULE 23. (General Rules applicable)

SPECIAL RULE 24. All transporters or users of gas shall file gas well connection notices with the Commission as soon as possible after the date of connection or reconnection.

H. MISCELLANEOUS SPECIAL POOL RULES

SPECIAL RULE 25. A gas well in the Devils Fork-Gallup Pool shall be a well producing with a gas-liquid ratio of 30,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, or any well which produces liquid hydrocarbons with a gravity of 60° API or greater. An oil well in the Devils Fork-Gallup Pool shall be a well producing with a gas-liquid ratio of less than 30,000 cubic feet of gas per barrel of liquid hydrocarbons and which produces liquid hydrocarbons with a gravity of less than 60° API.

SPECIAL RULE 26. The operator of each newly completed well in the Devils Fork-Gallup Pool shall cause a gas-liquid ratio test to be taken on said well upon recovery of all load oil from the well, provided, however, that in no event shall the test be commenced later than 30 days from the date of first production unless the well is connected to a gas-gathering facility and is producing under a temporary gas allowable assigned in accordance with Rule 8(a) above. Provided, however, that any well which is shut-in shall be exempted from the aforesaid gas-liquid ratio test requirement so long as it remains shut-in. The initial gas-liquid ratio test shall be taken in the manner prescribed by Special Rule 27 below. If the gas-liquid ratio is 30,000 cubic feet of gas per barrel of liquid hydrocarbons, or more, or the gravity of the liquid hydrocarbons is 60° API or greater, the operator shall not produce the well until beneficial use can be made of the gas.

No gas shall be flared or vented from any well classified as an oil well more than 60 days after the well begins to produce. Exceptions may be granted administratively by the Secretary-Director if the request sets forth facts and circumstances justifying such exception.

SPECIAL RULE 27. Gas-liquid ratio tests shall be taken on all wells in the Devils Fork-Gallup Pool and on all wells producing from the Gallup formation within one mile of the boundaries of the Devils Fork-Gallup Pool which are not within another designated Gallup pool during the months of January, April, July, and October of each year. The initial gas-liquid ratio test shall suffice as the first quarterly test. Tests shall be 24-hour tests,

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being the final 24 hours of a 72-hour period during which the well shall be produced at a constant normal rate of production. Results of such tests shall be filed on Commission Form C-116 on or before the 10th day of the following month. At least 72 hours prior to commencement of any such gas-liquid ratio test, each operator shall file with the Aztec District Office of the Commission a test schedule for its wells specifying the time each of its wells is to be tested. Copies of the test schedule shall also be furnished to all offset operators.

Special tests shall also be taken at the request of the Secretary-Director and may also be taken at the option of the operator. Such special tests shall be taken in accordance with the procedures outlined hereinabove, including notification to the Commission and offset operators.

SPECIAL RULE 28. The average reservoir pressure shall be determined during December, 1960, and thereafter during the months of April and October each year after the well has been shut-in for a minimum of 3 days. Pressures shall be calculated to a common datum, which shall be the approximate depth of the gas-oil contact (1025 feet above sea level). The pressure on individual wells shall be determined in the following manner:

- (1) Subsurface pressure tests shall be taken on all flowing wells, gas and oil (pumping wells are exempted) in accordance with the procedure outlined in Statewide Rule 302, except with respect to shut-in time and datum as provided above.
- (2) Information obtained on these tests shall be reported on Form C-124 in accordance with the provisions of Statewide Rules 302 and 1123, and the Commission shall use the arithmetic average of the pressures so reported for the pressure, P_{res} , in the calculations as provided in Special Rule 13(a).

SPECIAL RULE 29. The gas-oil ratio limitation for the Devils Fork-Gallup Pool shall be 2000 cubic feet of gas per barrel of liquid hydrocarbons produced.


SPECIAL RULE 30. No acreage shall be simultaneously dedicated to an oil well and to a gas well in the Devils Fork-Gallup Pool.

SPECIAL RULE 31. The vertical limits of the Devils Fork-Gallup Pool shall be the Gallup formation.

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DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


JOHN BURROUGHS, Chairman


MURRAY E. MORGAN, Member


A. L. PORTER, Jr., Member & Secretary

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