

Entered October 2, 1981
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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

Case No. 7304
Order No. R-6792

APPLICATION OF ARCO OIL AND GAS
COMPANY FOR DIRECTIONAL DRILLING
AND AN UNORTHODOX GAS WELL LOCATION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on July 15, 1981, and on August 12, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 2nd day of October, 1981, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, ARCO Oil and Gas Company, seeks authority to directionally drill its Custer Wells Well No. 1, the surface location of which is 1810 feet from the North line and 2164 feet from the West line of Section 6, Township 25 South, Range 37 East, Custer Field, in such a manner as to penetrate the Devonian formation at an unorthodox location within 100 feet of a point approximately 1800 feet from the North line and 1480 feet from the West line of said Section 6, and to bottom said well at a standard location in the Ellenburger formation within 100 feet of a point approximately 1650 feet from the North line and 760 feet from the West line of said Section 6, but in no event closer than 660 feet to said line. The N/2 of said Section 6 would be dedicated to each of said formations.

(3) That the offset operator to the west, Conoco, Inc., appeared at the hearing and objected to the unorthodox Devonian location on grounds that it would cause drainage of hydrocarbons from under the E/2 of Section 1, Township 25 South, Range 36 East, NMPM, being the spacing and proration unit dedicated to Conoco's wells Federal B-1 Well No. 5, located 1650 feet from the North line and 660 feet from the East line of said Section 1, and would therefore impair Conoco's correlative rights.

(4) That the Custer-Devonian Gas Pool appears to be of very limited lateral extent, being bounded on the north and east by a northwest/southeast trending fault and on the south and west by a productive limit based on reservoir rock quality and structure.

(5) That from the best information available, it would appear that because of the size and shape of the reservoir, none of the wells presently completed in said reservoir, nor the subject well, has dedicated thereto a fully productive 320-acre tract.

(6) That the Division, in determining the appropriate penalty for wells drilled at unorthodox locations or on tracts which are shown to be only partially productive, most often relies on a straight acreage determination of drainage impingement onto offsetting tracts or of productive areas.

(7) That inasmuch as each well in the Custer-Devonian Gas Pool appears to have less than 320 productive acres dedicated thereto, and no well's production has been penalized heretofore, determination of a penalty factor based on straight acreage in the instant case would be arbitrary and unjust and would not protect correlative rights.

(8) That Section 70-2-33 H, NMSA, 1978 Compilation, defines correlative rights as being "...the opportunity afforded, so far as it is practicable to do so, to the owner of each property in a pool to produce without waste his just and equitable share of the oil or gas, or both, in the pool...."

(9) That the protection of correlative rights in this particular case can best be served by not utilizing the usual methods of straight acreage penalty determination, but by utilizing a formula involving net acre-feet of pay.

(10) That the only offsetting well to applicant's Custer Wells Well No. 1 which would be adversely affected by said well is the Conoco Wells Federal B-1 Well No. 5, located as described in Finding No. (3) above.

(11) That according to the best available evidence at the hearing, said Conoco Wells Federal B-1 Well No. 5 has some 16,514

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acre-feet of Devonian pay within its dedicated spacing and proration unit (the E/2 of Section 1, Township 25 South, Range 36 East, NMPM) which it can presumably drain.

(12) That according to the best available evidence at the hearing, the proposed well, ARCO's Custer Wells Well No. 1, would have some 15,387 acre feet of Devonian pay within its dedicated spacing and proration unit (the N/2 of Section 6, Township 25 South, Range 37 East, NMPM) which it would presumably drain.

(13) That inasmuch as said ARCO Custer Wells Well No. 1 would have less acre-feet of Devonian pay available to the well-bore than does the Conoco Wells Federal B-1 Well No. 5, said ARCO Custer Wells Well No. 1 should be penalized to offset any advantage it might gain over the Conoco well by reason of its unorthodox location.

(14) That such penalty should be based on the ratio of productive acre-feet dedicated to one well to productive acre feet dedicated to the other well and calculated as follows:

Production limitation factor =

$$\frac{\text{net acre-feet of Devonian pay dedicated to ARCO well}}{\text{net acre-feet of Devonian pay dedicated to Conoco well}} =$$

$$\frac{15,387}{16,514} = .93$$

(15) That in the absence of any special rules and regulations for the prorationing of production from the Devonian formation, the aforesaid production limitation factor should be applied against said well's ability to produce into the pipeline as determined by periodic well tests.

(16) That the minimum calculated allowable for the subject well should be reasonable, and 1,000,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(17) That the applicant should be required to determine the subsurface location of the kick-off point in the subject well prior to directional drilling, and to determine the subsurface location of the Devonian pay and the Ellenburger pay by means of a continuous multi-shot directional survey conducted subsequent to said directional drilling, if said well is to be completed as a producing well.

(18) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject reservoir or other productive zones found, will

prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, ARCO Oil and Gas Company, is hereby authorized to directionally drill its Custer Wells Well No. 1, the surface location of which is 1810 feet from the North line and 2164 feet from the West line of Section 6, Township 25 South, Range 37 East, NMPM, Custer Field, Lea County, New Mexico, in such a manner as to penetrate the Devonian formation at an unorthodox location within 100 feet of a point 1800 feet from the North line and 1480 feet from the west line of said Section 6, and to bottom said well in the Ellenburger formation within 100 feet of a point 1650 feet from the North line and 760 feet from the West line of said Section 6, and in no event closer than 660 feet to said west line of said Section 6.

(2) That the N/2 of the aforesaid Section 6 shall be dedicated to said well in both the Custer-Devonian Gas Pool and the Custer-Ellenburger Gas Pool.

(3) That prior to directional drilling of said well, the operator shall determine the subsurface location of the kick-off point.

(4) That subsequent to the above-described directional drilling, should said well be a producer, a continuous multi-shot directional survey shall be made of the wellbore of the well from total depth to the kick-off point with shot points not more than 100 feet apart; that the operator shall cause the surveying company to forward a copy of the survey report directly to the Santa Fe Office of the Division, P. O. Box 2088, Santa Fe, New Mexico, and that the operator shall notify the Division's Hobbs District Office of the date and time said survey is to be commenced.

(5) That Form C-105 shall be filed in accordance with Division Rule 1105 and the operator shall indicate thereon true vertical depth in addition to measured depth.

IT IS FURTHER ORDERED:

(1) That the ARCO Custer Wells Well No. 1 is hereby assigned a Production Limitation Factor of 0.93 in the Devonian formation.

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(2) That in the absence of any Special Rules and Regulations prorating gas production in said Devonian formation, the special rules hereinafter promulgated shall apply.

(3) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL

APPLICATION OF RULES

RULE 1. These rules shall apply to the Devonian formation completion of the ARCO Oil and Gas Company Custer Wells Well No. 1, the surface location of which is 1810 feet from the North line and 2164 feet from the West line of Section 6, Township 25 South, Range 37 East, NMPM, Lea County, New Mexico, which well's Production Limitation Factor of 0.93 shall be applied to the well's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production.

RULE 2. The allowable period for the subject well shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the well the operator shall determine the open flow capacity of the well in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well

has been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The well's allowable shall commence upon the date of connection to a pipeline and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The well's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The well's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the well shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the well receive an allowable of less than one million cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the well has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce

such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the well shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the well has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the well is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the well, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would cause undue hardship, provided however, such permission shall be rescinded for the well if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well.

GENERAL

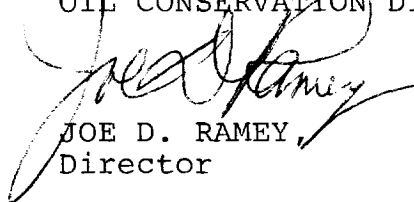
RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the well. No further allowable shall be assigned to the well until all rules and regulations are complied with. The Division shall notify the operator of the well and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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DONE at Santa Fe, New Mexico, on the day and year
hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


JOE D. RAMEY
Director

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