

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 9617
ORDER NO. R-8917

APPLICATION OF CURRY AND THORNTON
FOR AN UNORTHODOX OIL WELL LOCATION
AND A NON-STANDARD PRORATION UNIT,
CHAVES COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 1, 1989, at Santa Fe, New Mexico, before Examiner Victor T. Lyon.

NOW, on this 19th day of April, 1989, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) The applicant, Curry and Thornton, owns the leasehold on the W/2 of Section 9, Township 14 South, Range 29 East, NMPM, Chaves County, New Mexico and desires to drill a well thereon for a non-standard unit consisting of the E/2 W/2 of said Section 9 at an unorthodox location 1980 feet from the South line and 2475 feet from the West line (Unit K) of said Section 9 in the King Camp-Devonian Pool.

(3) Santa Fe Exploration and Exxon USA appeared at the hearing and opposed the subject application on the basis that the unorthodox location would impair correlative rights; and, if granted, a penalty should be assessed based upon an estimate of pool reserves under each tract.

(4) The discovery well was drilled by Santa Fe Exploration at a standard location 1980 feet from the South and East lines of said Section 9.

(5) Special pool rules for said pool were promulgated by Order No. R-8806 after the hearing held in November, 1988 in Case No. 9529, and provided for 160-acre spacing and proration units consisting of a governmental quarter section with the well to be located not less than 660 feet from the unit boundary, nor less than 330 feet from an inner quarter-quarter section line, nor less than 1320 feet from the nearest well completed in said pool.

(6) Evidence was introduced in Case No. 9529 that there is a fault, down-thrown to the west, which traverses the W/2 of said Section 9 in generally a north-south direction continuing southward across Section 16. Additional evidence was introduced in this case which substantiates the existence of the fault.

(7) Santa Fe Exploration drilled a well east of the fault described above which was dry at a standard location 660 feet from the North line and 1980 feet from the East line of Section 16, one-half mile south of the discovery well. The revised geologic interpretation shows a second fault separating the second well from the first.

(8) Evidence indicates that approximately 60 acres east of the fault in the E/2 W/2 of Section 9 is potentially productive, and the applicant is entitled to drill a well to recover the reserves.

(9) A non-standard proration unit consisting of the E/2 W/2 would permit applicant to drill a single well to recover the oil under his lease, whereas two wells drilled for the NW/4 and SW/4 would be uneconomic, unnecessary and would cause waste from drilling an unnecessary well.

(10) There is inadequate data available to make an estimate of reserves with sufficient precision upon which a penalty could be assessed.

(11) Applicant requests an exception to two of the spacing requirements - the minimum distance from the outer boundary of the proration unit and the minimum distance between wells.

(12) Evidence at the hearing indicated that it is necessary to crowd the east line of the proration unit in order to avoid the fault but that a well could be drilled at the minimum distance from the nearest well.

(13) A penalty (P_1) should be assessed for crowding the east line of the unit in proportion to the distance moved from a standard location toward that line or $495/660 = 0.75$.

(14) A further penalty (P_2) should be assessed for crowding the nearest well in proportion to the distance the well is moved toward the nearest well from the minimum distance permitted, or $495/1320 = 0.375$.

(15) The combined penalties should be cumulative so that the proportion of the top allowable assigned at the proposed location would be $(1-P_1) \times (1-P_2)$, or $.25 \times .625 = .15625$.

(16) The distance moved toward the offsetting lease together with the depth of the well indicates a strong possibility the well may encroach even closer to the Santa Fe Exploration lease or even trespass on that lease, and therefore a continuous directional survey should be run on the well and a copy thereof filed with the Division so that the true location of the well at the productive interval can be determined.

(17) The penalty should be based upon the bottomhole location of the well using the procedure described in Finding Paragraphs (13) through (15), above.

(18) The drilling of the well with appropriate penalty as described above will afford the applicant the opportunity to produce its just and equitable share of the oil in the affected pool, 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 THAT:

(1) The application of Curry and Thornton for an unorthodox oil well location for the North King Camp-Devonian Pool is hereby approved for a well to be located at a point 1980 feet from the South line and 2475 feet from the West line of Section 9, Township 14 South, Range 29 East, NMPM, Chaves County, New Mexico.

(2) The E/2 W/2 of said Section 9 shall be dedicated to the above-described well forming a 160-acre non-standard oil spacing and proration unit for said pool.

(3) A continuous directional survey shall be run on the well and filed with the Division so that the bottomhole location at the producing interval may be determined.

(4) The depth bracket allowable for the well shall be penalized by using the following formula, based on the bottomhole location of the well:

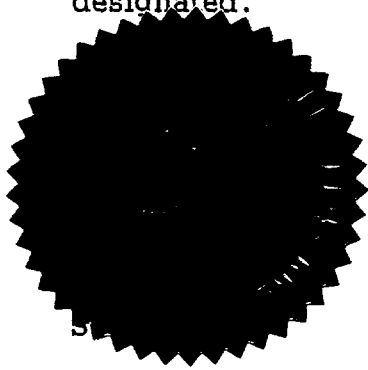
- a. a penalty (P_1) based on the proportion of distance the actual location is moved toward the boundary from the standard location;

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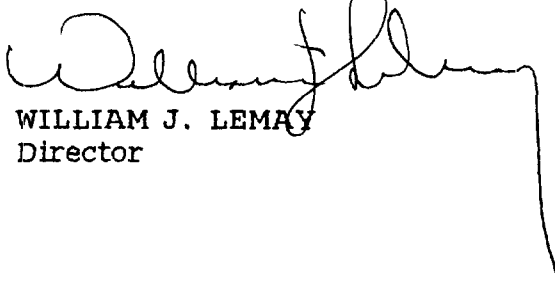
- b. a penalty (P_1) based on the proportion of distance the actual location is moved toward the nearest well from the minimum distance under the pool rules; and
- c. the product of $(1-P_1) \times (1-P_2)$.

(5) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

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

DE NOVO

APPLICATION OF CURRY AND THORNTON
FOR AN UNORTHODOX OIL WELL LOCATION
AND A NON-STANDARD PRORATION UNIT,
CHAVES COUNTY, NEW MEXICO.

CASE NO. 9617

APPLICATION OF STEVENS OPERATING
CORPORATION TO AMEND DIVISION ORDER
NO. R-8917, DIRECTIONAL DRILLING AND
AN UNORTHODOX OIL WELL LOCATION,
CHAVES COUNTY, NEW MEXICO.

CASE NO. 9670

Order No. R-9035

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on October 19, 1989, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 2nd day of November, 1989, 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 THAT:

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

(2) The applicant, Curry and Thornton and Stevens Operating Corporation, own the leasehold on the W/2 of Section 9, Township 14 South, Range 29 East, NMPM, Chaves County, New Mexico and desire to dedicate their directionally-drilled Deemar Federal Well No. 1 to a non-standard unit consisting of

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Order No. R-9035

the E/2 W/2 of said Section 9 at an unorthodox bottomhole location 1948 feet from the South line and 2562 feet from the West line (Unit K) of said Section 9 in the North King Camp-Devonian Pool.

(3) Santa Fe Exploration and Exxon USA appeared at the hearing and opposed the subject application on the basis that the unorthodox location would impair correlative rights; and, if granted, a penalty should be assessed based upon an estimate of recoverable pool reserves under each tract or the ratio penalty formula set forth in Division Order No. R-8917 and R-8917-A.

(4) The discovery well, the No. 1 Holmstrom, was drilled by Santa Fe Exploration at a standard location 1980 feet from the South and East lines of said Section 9.

(5) Special pool rules for said pool were promulgated by Order No. R-8806 after the hearing held November 22, 1988 in Case No. 9529, which provided for 160-acre spacing and proration units consisting of a governmental quarter section with the well to be located not less than 660 feet from the unit boundary, nor less than 330 feet from an inner quarter-quarter section line, nor less than 1320 feet from the nearest well completed in said pool.

(6) Pursuant to Order R-8917-A, Stevens Operating Corporation ("Stevens") re-entered the Philtex Oil Company Honolulu Federal Well No. 1 in Unit K of said Section 9 and directionally drilled the Deemar Federal Well No. 1 to the approved bottomhole location and encountered only water. After notifying the Division, Stevens plugged back said well bore and deviated a second hole at a higher angle to the east, which they completed as a producer.

(7) Timely applications for hearing de novo before the Commission were filed by both Stevens Operating Corporation and Santa Fe Exploration and the hearing date was extended to October 19, 1989 with the concurrence of all parties.

(8) After reviewing the Eastman Christensen "Report of Subsurface Directional Survey" for the Stevens Operating Corporation Deemar Federal Well No. 1, which showed the bottom-most perforated interval of the wellbore to be at 1948 feet from the South line and 2562 feet from the West line of Section 9, or 78 feet from the East line of the proration unit, the Director assigned a daily oil allowable of 35 barrels per day in accordance with Decretory Paragraph (5) of Order No. R-8917-A.

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(9) Both sides presented testimony that was in substantial agreement as to the geometry, the geology field and the producing reservoir characteristics, of the reservoir differing in their interpretations of the rate of north dip and to a minor degree, the trace of the major trapping fault at the west boundary.

(10) In unorthodox location cases, the Commission has generally endorsed a penalty formula using ratios based upon the proportional distance a well crowds the proration unit boundary and nearest producing well as in Division Order R-8917-A, but in cases where there is substantial evidence and agreement as to productive acreage and recoverable reserves, the Commission is obligated under the Oil and Gas Act to set allowables which allow operators to recover the oil and gas underlying their respective tracts while preventing waste.

(11) The geological witness for Stevens presented testimony that the pool oil-water contact was estimated at subsea elevation of -6055 feet which was not refuted by subsequent witnesses.

(12) The same witness established the major fault trace based upon a Formation Micro Scanner survey run in the Deemar Federal No. 1.

(13) Santa Fe Exploration's geophysicist presented a seismic interpretation showing a rate of north dip steeper than that presented by the Stevens' witness who relied upon a geological interpretation of the Micro Scanner survey. That survey only shows the rate of dip within the No. 1 Deemar wellbore.

(14) Based upon the oil-water contact and the major fault trace established by Stevens' geologist, the rate of north dip established by the Santa Fe geophysicist, and other geologic and engineering criteria which was in substantial agreement, the relative percentages of oil productive rock volume calculated under each tract are as follows:

- (a) Within the total field there is approximately 10,714 acre-feet of Devonian oil pay or oil saturated rock volume.
- (b) Underlying the E/2 W/2 of Section 9, there is approximately 2,246 acre-feet of Devonian oil pay or 21% of the pool total.

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Order No. R-9035

- (c) Underlying the SE/4 of Section 9 there is approximately 5,688 acre-feet of Devonian oil pay or 53% of the pool total.
- (d) Underlying the NE/4 of Section 9 there is approximately 2,780 acre-feet of Devonian oil pay or 26% of the pool total.

(15) The North King Camp-Devonian Pool has an active water drive and the relative percentages of oil pay or oil-saturated rock volume under each tract are the same approximate percentages as the recoverable oil reserves under each tract, provided wells are positioned to permit the recovery.

(16) Productive surface area is calculated to be approximately 177 acres and expert engineering testimony has established that one well located at the highest part of the North King Camp structure could effectively and efficiently drain all of the recoverable oil reserves under this 177 acre pool.

(17) The Stevens' Deemar Federal No. 1 well occupies the highest portion of the structure and could effectively drain the entire pool. Only well locations that are unorthodox, such as the Stevens' well, could drain the upper portion (attic) of this oil reservoir and prevent the waste of unrecoverable oil reserves.

(18) Producing the Stevens' well at top allowable rates would eliminate waste but would violate the correlative rights of interest owners in the SE/4 of Section 9 unless all interest owners in Section 9 agreed to operate the pool and share oil and gas production and costs in some equitable fashion.

(19) The Santa Fe Exploration No. 1 Holmstrom Federal, the only other producing well in the pool, is located 55 feet lower structurally than the No. 1 Deemar.

(20) Testimony did establish that Santa Fe Exploration is producing their No. 1 Holmstrom well at a rate of 200 barrels of oil per day plus 10 barrels of water so as to minimize the effects of coning water.

(21) In the absence of unitized operations, in order to prevent waste and protect the correlative rights of all interest owners in a pool, allowables must be established which reflect the relative percentages established in Finding (14), encourage voluntary unitization and discourage the

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drilling of additional wells which are not needed and would constitute waste.

(22) Penalized allowables for the Stevens well that are tied to the producing rates of the No. 1 Holmstrom would be indefinite and violate Stevens' correlative rights. Allowables which would encourage drilling additional wells would cause waste.

(23) In order to protect correlative rights, total pool allowable should be the current pool production rate which includes the penalized rate of 35 barrels of oil per day for the Stevens' well, and the producing rate of 200 barrels of oil per day from the Santa Fe well. Said pool allowable of 235 barrels of oil per day should be allocated according to the percentages established in Finding (14) which are:

- (a) The E/2 W/2 of Section 9 should have an allowable of 49 ($.21 \times 235$) barrels of oil per day.
- (b) The SE/4 of Section 9 should have an allowable of 125 ($.53 \times 235$) barrels of oil per day.
- (c) the NE/4 of Section 9 should have an allowable of 61 ($.26 \times 235$) barrels of oil per day if it is drilled.

(24) The allowables established in Finding (23) should become effective December 1, 1989 and should remain in effect unless voluntary agreement is reached by all interest parties in the field at which time the pool allowable should be increased to 1,030 barrels of oil per day which is the top allowable rate for the two producing wells currently in the pool and which new pool allowable could be produced in any proportion between the two existing wells.

(25) The tract allowables established in Finding (23) should protect correlative rights by honoring the percentages established in Finding (14) and prevent waste by discouraging the drilling of additional wells which are not necessary to effectively and efficiently drain the subject pool.

(26) Should all interest owners in this pool reach voluntary agreement subsequent to the entry of this order, operators of the pool wells should file with the Director of the Division application for approval of the unit agreement and, upon approval, this order should thereafter be of no further effect and the new pool allowable should take effect on the first day of the month following approval of said unit agreement by the Director.

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IT IS THEREFORE ORDERED THAT:

(1) Effective December 1, 1989, the pool allowable for the North King Camp-Devonian field shall be 235 barrels of oil per day which shall be shared by the below listed proration units in the amounts shown:

- (a) The E/2 W/2 of Section 9, Township 14 South, Range 29 East, shall have a top allowable of 49 barrels of oil per day.
- (b) The SE/4 of Section 9, Township 14 South, Range 29 East, shall have a top allowable of 125 barrels of oil per day.
- (c) The NE/4 of Section 9, Township 14 South, Range 29 East, shall have a top allowable of 61 barrels of oil per day if a well is drilled and completed in the Devonian.

(2) Said allowable shall remain in effect unless all interest owners in the pool reach voluntary agreement to provide for unitized operation of its pool.

(3) Should all interest owners reach voluntary agreement subsequent to entry of this order, this order shall thereafter be of no further effect.

(4) The operators of the pool wells shall file with the Director of the Division an application for approval of the unit agreement and this order shall then terminate on the first day of the month following approval of said unit. A new pool allowable of 1,030 barrels of oil per day shall then take effect; said new pool allowable can be produced in any proportion between existing pool wells.

(5) Jurisdiction of this case is retained for the entry of such further orders as the Commission may deem necessary.

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Order No. R-9035

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

WILLIAM R. HUMPHRIES, Member

William W. Weiss

WILLIAM W. WEISS, Member

William J. Lemay

WILLIAM J. LEMAY, Chairman
and Secretary

S E A L

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

CARRUTHERS
GOVERNOR

November 2, 1989

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Mr. William F. Carr
Campbell & Black
Attorneys at Law
Post Office Box 2208
Santa Fe, New Mexico

Re: CASE NO. 9617 and 9670
ORDER NO. R-9035

Applicant:
Curry and Thornton and
Stevens Operating Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced
Commission order recently entered in the subject case.

Sincerely,

Florence Davidson

FLORENE DAVIDSON
OC Staff Specialist

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other Thomas Kellahin, Ernest L. Padilla, Patty Matthews,
Paul Cooter, Deborah Dunigan

STEVENS OPERATING CORPORATION

1250 UNITED BANK PLAZA

P. O. BOX 2408

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RECEIVED

OCT 24 1989

October 23, 1989

OIL CONSERVATION DIVISION

State of New Mexico
Energy & Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504

Attention: Division Director

Re: De Novo Cases No. 9617, 9676, 9697

Gentlemen:

At the captioned De Novo Hearing on October 19, 1989, testimony by Santa Fe Exploration Witness Sipes was to the effect that drillstem test data indicated the top porosity in the Holmstrom #1 well was tight and non-productive. In violation of Oil Conservation Division Rule 1105 this drillstem test data was not submitted by Santa Fe Exploration on Division Completion Form 105 and was unavailable to Applicant for cross-examination or preparation of its case. On the basis of anecdotal information and electric log analysis, Applicant believes the well is not tight, the first test might have flowed if left open more than one hour, and the testimony of Witness Sipes is in error. It is our understanding the Commission will be furnished copies of these tests and confirm the productivity of the behind the pipe pay.

Behind the pipe reserves were credited to the Holmstrom well and pool reserves in the analysis of the ratio of reserves the Deemar well bears to the pool reserves. Since these behind the pipe reserves were not tight, speculation on the motive for not completing in the upper zone can be that Santa Fe Exploration wished our well be granted a lower allowable than is required by a reserves analysis on the basis that their well could produce only 250 barrels per day. Upon the Division's receipt of the withheld drillstem test information we believe the Division will affirm that Santa Fe has the opportunity to produce its fair share of the reserves at top allowable by properly completing its well and that the Deemar well should not have its allowable penalized by the Operator's failure to produce the Holmstrom well at a higher rate.

Yours very truly,

STEVENS OPERATING CORPORATION



Donald G. Stevens
President

DGS/sp