

**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. 10653
Order No. R-9842**

**APPLICATION OF ARMSTRONG ENERGY
CORPORATION FOR SPECIAL POOL
RULES, LEA COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on January 7, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 8th day of February, 1993, 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, Armstrong Energy Corporation, seeks an order promulgating special rules and regulations for the Northeast Lea-Delaware Pool, Lea County, New Mexico, including a provision for a special oil allowable of 300 barrels per day.

(3) The Northeast Lea-Delaware Pool, created and defined by Division Order No. R-8233 on May 29, 1986, currently comprises the SE/4 of Section 35, Township 19 South, Range 34 East, NMPM, and the E/2 of Section 2, Township 20 South, Range 34 East, NMPM, Lea County, New Mexico.

(4) The discovery well for the Northeast Lea-Delaware Pool is the Spectrum 7 Exploration Company Mobil State Well No. 1 located in Unit J of said Section 2, which was completed in the Delaware formation through perforations from 5,626 feet to 5,695 feet.

(5) The Northeast Lea-Delaware Pool is currently governed by general statewide rules and regulations, including a daily oil allowable of 107 barrels and a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil.

(6) According to Division records, there are two wells currently producing from the subject pool, these being the aforesaid Mobil State Well No. 1, currently operated by Harken Exploration Company, and the Mescalero Ridge Unit Well No. 3 located in Unit P of Section 35 and operated by Pennzoil Exploration & Production Company. The Mobil State Well No. 1 and the Mescalero Ridge Unit Well No. 3 are currently producing approximately 16.0 and 5.5 barrels of oil per day, respectively.

(7) The applicant has recently drilled its Mobil Lea State Well No. 1 located in Unit K of Section 2, Township 20 South, Range 34 East, NMPM. The subject well has been completed in the Northeast Lea-Delaware Pool through perforations from 5,890 feet to 5,931 feet.

(8) According to applicant's evidence and testimony, the Mobil Lea State Well No. 1 is capable of oil production far in excess of 300 barrels per day.

(9) Geologic evidence and testimony presented by the applicant indicate that:

- a) the Delaware producing interval in this area consists of four distinct and separate zones each capable of oil production;
- b) the Mobil Lea State Well No. 1 is currently completed in the third sand member only. The Mobil State Well No. 1 and the Mescalero Ridge Unit Well No. 3 are currently completed in the first sand member and the carbonate interval stratigraphically equivalent to the second sand member, respectively;
- c) the geographic productive area of the third and fourth sand members is likely limited to Section 2 and the E/2 of Section 10; the geographic productive area of the first and second sand members comprises at least portions of Sections 2, 3 and 10;
- d) the four producing intervals appear to be continuous and correlatable to wells producing from the Quail Ridge-Delaware Pool.

(10) The Quail Ridge-Delaware Pool currently comprises the SW/4 of Section 3, the SE/4 of Section 4, the NE/4 of Section 9 and the W/2 of Section 10, all of Township 20 South, Range 34 East, NMPM. The allowable for the Quail Ridge-Delaware Pool is currently 107 barrels of oil per day.

(11) According to Division records, there are seven wells currently producing from the Quail Ridge-Delaware Pool operated by two different operators. Several of the wells in the Quail Ridge-Delaware Pool are currently capable or could be capable of production in excess of top allowable.

(12) The applicant submitted engineering evidence in the form of a 69-day production test run on the Mobil Lea State Well No. 1. During this production test, the subject well was produced at various rates ranging from 100 to 300 barrels per day. The results of the test indicate that the water cut and the gas-oil ratio remained fairly constant over various producing rates.

(13) The applicant seeks a higher oil allowable for the Northeast Lea-Delaware Pool for the following reasons:

- a) accelerated oil recovery will result in more favorable economics and reduced operating costs which in turn will result in quicker development of the pool;
- b) accelerated oil recovery will lessen the chance for reduced recovery due to mechanical failures which have occurred in certain wells in this area due to the corrosive nature of fluids in the Seven Rivers Reef zone;
- c) higher allowables will result in accelerated development of additional productive zones in the Delaware formation within the pool.

(14) There is no evidence to indicate that mechanical well failures in this area have caused premature abandonment of wellbores and resultant loss of oil and gas reserves.

(15) There is no currently available data which would conclusively demonstrate that oil production at the proposed rate of 300 barrels per day will not cause reduced ultimate oil recovery from the third sand member due to excessive expenditure of reservoir energy.

(16) The applicant presented no evidence as to the nature or characteristics of the remaining three producing intervals within the Northeast Lea-Delaware Pool.

(17) There is no currently available data which would demonstrate that oil production at the proposed rate of 300 barrels per day will not cause reduced ultimate oil recovery from the first, second and fourth sand members due to excessive expenditure of reservoir energy.

(18) There is ample evidence in the record of this case to suggest that the Northeast Lea-Delaware Pool and the Quail Ridge-Delaware Pool should be developed as a single common source of supply, and any proposed special rules applicable to only the Northeast Lea-Delaware Pool would result in the violation of correlative rights of those operators in the Quail Ridge-Delaware Pool without relief which may or may not be subsequently approved by the Division.

(19) The evidence presented in this case does not establish that a special oil allowable of 300 barrels per day will prevent waste and protect correlative rights.

(20) The application of Armstrong Energy Corporation for special rules and regulations for the Northeast Lea-Delaware Pool should be denied.

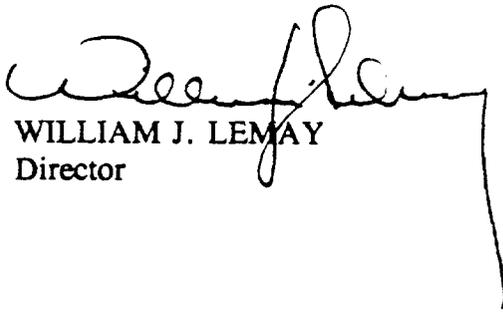
IT IS THEREFORE ORDERED THAT:

(1) The application of Armstrong Energy Corporation for the establishment of special rules and regulations for the Northeast Lea-Delaware Pool, Lea County, New Mexico, including a provision for an oil allowable of 300 barrels per day is hereby denied.

(2) Jurisdiction is hereby 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

S E A L

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:

IN THE MATTER OF CASE 10653
BEING REOPENED PURSUANT TO
THE PROVISIONS OF DIVISION
ORDER NO. R-9842-A, WHICH
ORDER ESTABLISHED A TEMPORARY
OIL ALLOWABLE OF 300 BARRELS
OF OIL PER DAY FOR THE NORTH-
EAST LEA-DELAWARE POOL IN LEA
COUNTY, NEW MEXICO.

Reopened Case No. 10653

APPLICATION OF ARMSTRONG
ENERGY CORPORATION FOR A
SPECIAL GAS/OIL RATIO FOR THE
NORTHEAST LEA-DELAWARE POOL,
LEA COUNTY, NEW MEXICO.

Case No. 11225

Order No. R-9842-B

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 16, 1995, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 24th day of July, 1995, 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 in each of these caused and the subject matter thereof.

(2) By Order No. R-8233 issued on May 29, 1986, the Division created and defined the Northeast Lea-Delaware Pool which currently comprises the following acreage in Lea County, New Mexico:

Township 19 South, Range 34 East, N.M.P.M.

Section 34: E/2
Section 35: SE/4

Township 20 South, Range 34 East, N.M.P.M.

Section 2: All
Section 3: NE/4 and S/2
Section 4: SE/4
Section 9: NE/4
Section 10: NE/4 and W/2

(3) By Order No. R-9842-A issued in de novo Case No. 10653 on March 10, 1994, the New Mexico Oil Conservation Commission, upon the application of Armstrong Energy Corporation ("Armstrong") established a temporary special oil allowable of 300 barrels of oil per day for the Northeast Lea-Delaware Pool.

(4) Pursuant to the provisions of Order No. R-9842-A, Case 10653 is being reopened at this time in order to allow the operators in the Northeast Lea-Delaware Pool to appear and show cause why the oil allowable for the pool should not revert back to the statewide depth bracket allowable of 107 barrels of oil per day.

(5) Mallon Oil Company ("Mallon"), another operator in the Northeast Lea-Delaware Pool, appeared at the hearing and presented evidence in support of adopting a permanent oil allowable of 300 barrels per day.

(6) At the time of hearing Case 10653 was consolidated with Case 11225 which was called on the application of Armstrong for adoption of a Special Gas-Oil Ratio for the Northeast Lea-Delaware Pool of 3000 cubic feet of gas per barrel of oil produced.

(7) Since the temporary oil allowable for this pool was adopted, additional wells have been drilled in this pool, additional production history and additional bottomhole pressure data from this pool has been obtained and certain production tests have been conducted on wells in this pool.

(8) The evidence established the Northeast Lea-Delaware Pool produces oil from two primary reservoirs, the "first" sand and the "third" sand, that are separated by the "second" sand which contains water. Although the sands below the "third" sand show some potential for development, they are not significant current oil producers.

(9) Geologic and engineering evidence shows the "first" sand to be the main pay in the pool. This sand has a strong edge water drive as evidenced by constant low GOR's, good reservoir pressure and flat production curves, which shows that current production rates result in the efficient displacement of oil.

(10) The evidence shows that the "third" sand exhibits a strong water drive as evidenced by constant GOR's, stable bottomhole pressures, a definable oil-water contact, flat production curves and prolific producing wells.

(11) The two primary reservoirs in the pool have the capacity to exceed the statewide depth bracket allowable of 107 BOPD.

(12) Without the special 300 BOPD allowable and corresponding 3000 to 1 GOR, operators will be restricted to producing from only one of the two primary reservoirs while the offsetting well could produce from the other primary reservoir thereby causing the violation of correlative rights.

(13) The continuation of the special 300 BOPD oil allowable with a corresponding 3000 to 1 GOR will afford the operators in the pool the opportunity to protect correlative rights by concurrently producing both of the two primary reservoirs in the pool in order to prevent uncompensated drainage by offsetting wells.

(14) Mallon presented petroleum engineering evidence which demonstrates that a 300 BOPD allowable is needed to ensure that all producing zones are effectively fracture stimulated, cleaned up and efficiently produced thereby significantly increasing ultimate recovery and preventing waste.

(15) Armstrong's engineering data demonstrates that without pressure drawdown in the reservoir and the development of a secondary gas cap to force updip edge oil into downdip producing wells, approximately 200,000 barrels of oil could be wasted. This additional attic oil can be recovered by increasing the allowable which will cause pressure reduction in the reservoir and a secondary gas cap to form, thus forcing the updip oil downdip to be captured by producing wells.

(16) Continuing to produce wells in this pool under the special oil allowable and the higher rate which will result from the approval of a gas-oil ratio of 3000 cubic feet of gas per barrel of oil produced will not result in the coning of water and will not result in the waste of hydrocarbons.

(17) Unless the requested higher allowable rates are approved, wells in the "first" sand cannot currently be produced and reserves will be drained from this interval thereby impairing the correlative rights of interest owners in this pool.

(18) A permanent special oil allowable of 300 barrels of oil per day for the Northeast Lea-Delaware Pool and a special gas-oil ratio of 3000 cubic feet of gas per barrel of oil produced therefrom are necessary to permit operators to manage this pool to produce it at its maximum efficient rate thereby preventing waste and protecting correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The Special Oil Allowable of 300 barrels of oil per day for the Northeast Lea-Delaware Pool, Lea County, New Mexico, as promulgated by Commission Order No. R-9842-A, is hereby continued in full force and effect until further order of the Division.

(2) The application of Armstrong Energy Corporation in Case No. 11225 is hereby approved. Special rules and regulations for the Northeast Lea-Delaware Pool in Lea County, New Mexico, previously defined and classified, are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS
FOR THE
NORTHEAST LEA-DELAWARE POOL**

RULE 1. Each well completed or re-completed within designated boundary of the Northeast Lea-Delaware Pool shall be produced in accordance with the Special Rules herein set forth.

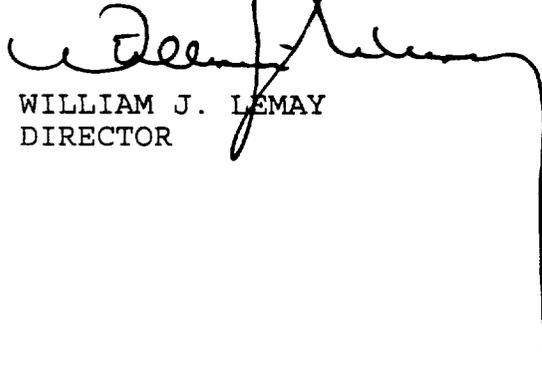
RULE 2. The limiting gas/oil ratio for said Northeast Lea-Delaware Pool shall be 3,000 cubic feet of gas per barrel of oil produced; each proration unit in said pool shall produce only that volume of gas equivalent to 3,000 multiplied by the top unit depth bracket allowable set for the pool (which remains to be 300 barrels of oil per day).

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

Case Nos. 10653 (Reopened) and 11225
Order No. R-9842-B
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DONE at Santa Fe, New Mexico, on the day and year
hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in black ink, appearing to read 'William J. Lemay', is written over the typed name. The signature is fluid and cursive, with a long, sweeping tail that extends downwards and to the right.

WILLIAM J. LEMAY
DIRECTOR

SEAL