

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:

NOMENCLATURE
CASE NO. 11089
Order No. R-46-A

APPLICATION OF MERIDIAN OIL INC. TO
CONTRACT THE VERTICAL LIMITS OF THE
BARKER CREEK-PARADOX (PENNSYLVANIAN)
POOL, THE AMENDMENT OF DIVISION ORDER
NO. R-46, AND THE CONCOMITANT CREATION
OF THREE GAS POOLS EACH WITH SPECIAL
RULES AND REGULATIONS THEREFOR, SAN
JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on November 10, 1994, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 13th day of February, 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 of this cause and the subject matter thereof.

(2) By Order No. R-13 issued in Case No. 213 on March 15, 1950, the Division created and defined the Barker Creek-Paradox (Pennsylvanian) Gas Pool, San Juan County, New Mexico.

(3) By Order No. R-46 issued in Case No. 237 on December 29, 1950, the Division promulgated Special Rules and Regulations for the Barker Creek-Paradox (Pennsylvanian) Gas Pool including 640-acre gas spacing with wells to be located no closer than 1650 feet from the outer boundary of the proration unit nor closer than 330 feet from the center of the proration unit. The vertical limits of the Barker Creek-Paradox (Pennsylvanian) Gas Pool currently comprise all of the Pennsylvanian formation.

(4) The Barker Creek-Paradox (Pennsylvanian) Gas Pool currently comprises the following described area in San Juan County, New Mexico all as projected into the unsurveyed Ute Mountain Indian Reservation:

TOWNSHIP 32 NORTH, RANGE 14 WEST, NMPM

Sections 9 through 11: All
Sections 14 through 16: All
Section 17: E/2
Sections 19 through 22: All
Section 23: NW/4
Section 27: NW/4
Section 28: N/2
Section 29: All

(5) The applicant, Meridian Oil Inc., seeks to contract the vertical limits of the Barker Creek-Paradox (Pennsylvanian) Gas Pool to include only the Lower Barker Creek and Alkali Gulch members of the Paradox interval, and the concomitant creation of three new gas pools comprising, respectively, the Upper and Lower Ismay members, the Desert Creek member, and the Akah and Upper Barker Creek members of the Paradox interval.

(6) The applicant further seeks:

- a) to expand the pool boundaries of the Barker Creek-Paradox (Pennsylvanian) Gas Pool to include the following described area as projected into the unsurveyed Ute Mountain Indian Reservation in San Juan County, New Mexico:

TOWNSHIP 32 NORTH, RANGE 14 WEST, NMPM

Sections 7 and 8: All
Section 17: W/2
Section 18: All
Section 28: S/2
Section 30: All

- b) to establish pool boundaries for the three proposed new gas pools similar to those for the Barker Creek-Paradox (Pennsylvanian) Gas Pool;
- c) to promulgate special rules and regulations for the proposed gas pools as follows:

<u>PROPOSED POOL</u>	<u>WELL SPACING</u>	<u>SETBACK REQUIREMENTS</u>
Ismay	160-acres	No closer than 330 feet from the outer boundary of the spacing unit nor closer than 20 feet from any governmental quarter-quarter section line or subdivision inner boundary.
Desert Creek	320-acres	No closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.
Akah/Upper Barker Creek	320-acres	No closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

- d) to amend the well location requirements for the Barker Creek-Paradox (Pennsylvanian) Gas Pool such that wells can be located no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

(7) The applicant proposes that the vertical limits of each of the subject pools comprise the following described intervals as found on the log run on the Meridian Oil Inc. Ute Well No. 16 located in Unit I, Section 22, Township 32 North, Range 13 1/2 West, La Plata County, Colorado:

<u>INTERVAL</u>	<u>VERTICAL LIMITS</u>
Ismay (Includes Upper and Lower Ismay)	8502'-8693'
Desert Creek	8693'-8809'
Akah/Upper Barker Creek	8809'-9134'
Barker Creek (Includes Lower Barker Creek and Alkali Gulch)	9134'-9430'

(8) According to applicant's evidence, there have been eleven wells drilled in the subject pool subsequent to its discovery in 1945. The vast majority of the cumulative gas production from the subject pool, which according to applicant's testimony is some 230 BCFG, has originated from the Lower Barker Creek interval.

(9) Within the subject pool, there are currently eight active wells, four of which are producing from the Lower Barker Creek/Alkali Gulch interval, two of which are producing from the Desert Creek interval, and two of which are producing from the Ismay interval.

(10) The applicant's geologic evidence and testimony in this case indicates that there are four separate and distinct intervals within the Paradox member of the Pennsylvanian formation each of which constitutes one or more separate productive reservoirs.

(11) The Pennsylvanian formation in this area is characterized by occasionally porous limestone and dolomite, anhydrides and black shales.

(12) Meridian presented geologic and engineering evidence and testimony which indicates that each of the proposed pools are:

- a) associated with a structural dome centered approximately in the center of Section 15 which is of limited extent. The trap of each reservoir is formed by a down-dip structural limit of effective porosity;
- b) a single structure feature geologically separated both vertically and horizontally from any other pool;
- c) a single source of common supply ("reservoir") separated from and not in communication with any other pool in this area.

(13) The applicant has grouped the producing intervals into the four proposed pools based upon their similar geologic characteristics. In addition, the proposed gas pools appear to be continuous and correlatable across the entire proposed pool boundaries.

(14) Meridian's engineering evidence and testimony indicates that each of the proposed pools are gas pools, and that while this is a complex reservoir with limited data, there is a reasonable engineering probability that the behavior of the gas wells will be similar to the established behavior of the gas wells in the existing Barker Creek-Paradox (Pennsylvanian) Gas Pool.

(15) The evidence presented in this case indicates that the vertical limits and the Special Rules and Regulations for the Barker Creek-Paradox (Pennsylvanian) Gas Pool are not conducive to continuous and orderly development of the pool for the following reasons:

- a) long term production of the Lower Barker Creek/Alkali Gulch interval has resulted in a significant pressure differential between this interval and the Ismay and Desert Creek intervals. This significant pressure differential precludes downhole commingling of these intervals at the present time;
- b) depletion of the Lower Barker Creek/Alkali Gulch interval in those wells producing from this interval will not occur for several years;
- c) the Special Rules and Regulations for the Barker Creek- Paradox (Pennsylvanian) Gas Pool and current Division policy (Division Memorandum dated July 27, 1988) severely limit the ability of an operator to drill and operate more than one well on a standard gas proration unit in this non-prorated gas pool;

(16) Applicant's plan of development for the subject pool(s) includes the drilling of additional conventional, downhole commingled and/or dually completed wells, whichever is applicable, in order to maximize the recovery of gas from each of the subject reservoirs.

(17) The evidence indicates that Meridian Oil Inc. is the only leasehold owner in the Barker Creek-Paradox (Pennsylvanian) Gas Pool, and that the royalty interest ownership is owned entirely by the Ute Mountain Ute Tribe.

(18) No other offset operators and/or interest owners appeared at the hearing in opposition to the application.

(19) Approval of the contraction of the Barker Creek-Paradox (Pennsylvanian) Gas Pool and concomitant creation of three new gas pools will allow the applicant the opportunity to drill additional wells and recover additional gas reserves from the Ismay, Desert Creek and Akah/Upper Barker Creek intervals, will prevent the premature abandonment of production within the Lower Barker Creek/Alkali Gulch interval, thereby preventing waste, and will not violate correlative rights.

(20) The Barker Creek-Paradox (Pennsylvanian) Gas Pool should be redesignated the Barker Dome-Paradox Pool. The remaining pools should be designated the Barker Dome-Akah/Upper Barker Creek Pool, the Barker Dome-Desert Creek, and the Barker Dome-Ismay Pools. The vertical limits of the subject pools should comprise those intervals as described in Finding No. (7) above.

(21) The applicant's proposed pool boundaries, which include an extension of the Barker Creek-Paradox (Pennsylvanian) Gas Pool, are not reasonable inasmuch as the proposed extension area does not currently contain production.

(22) The horizontal boundaries of the Barker Dome-Paradox, Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools should comprise the area currently contained within the Barker Creek-Paradox (Pennsylvanian) Gas Pool.

(23) The engineering evidence indicates that 640-acre spacing is appropriate for the Barker Creek-Paradox (Pennsylvanian) Gas Pool (Barker Dome-Paradox Pool).

(24) The engineering evidence currently available indicates that wells in the Barker Dome-Akah/Upper Barker Creek and Barker Dome-Desert Creek Pools should be capable of draining an area of approximately 320 acres. The preliminary evidence further indicates that the Barker Dome-Ismay Pool should be spaced on 160 acres.

(25) In order to 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, prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, special rules and regulations should be promulgated for the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools.

(26) The applicant proposed that the well setback requirements for the Barker Creek-Paradox (Pennsylvanian) Gas Pool (Barker Dome-Paradox Pool) be amended such that a well can be located no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary. In addition, the applicant requested that the well setback requirements for the Barker Dome-Ismay Pool be established such that a well can be located no closer than 330 feet from the outer boundary of the spacing unit nor closer than 20 feet from any governmental quarter-quarter section line or subdivision inner boundary.

(27) The setback requirements described above are significantly more flexible than the normal setback requirements for 640-acre and 160-acre gas pools. According to applicant's testimony, this flexibility is needed due to the topography in this area and due to the numerous archaeologic sites thus far encountered in this area.

(28) The Division's rules and procedures for obtaining approval of unorthodox locations due to topography, including archaeologic sites, are flexible and do not represent an excessive burden on the applicant. In addition, setback requirements are necessary in order to assure that wells are situated on their proration units such that effective and efficient drainage of gas occurs.

(29) Applicant's request to amend the well location requirements for the Barker Creek-Paradox (Pennsylvanian) Gas Pool (Barker Dome-Paradox Pool) should be denied.

(30) The Special Rules and Regulations for the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek, and Barker Dome-Ismay Pools should provide for designated well locations such that a well cannot be located closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

(31) At the request of the applicant, the Special Rules and Regulations for the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools should be established for a temporary period of two years in order to allow the operators in the subject pools the opportunity to gather sufficient reservoir information to show that the spacing established herein for the subject pools is appropriate.

(32) This case should be reopened at an examiner hearing in February, 1997, at which time the operators in the subject pools should be prepared to appear and show cause why the Temporary Special Rules and Regulations for the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools should not be rescinded.

IT IS THEREFORE ORDERED THAT:

(1) The Barker Creek-Paradox (Pennsylvanian) Gas Pool, created by Division Order No. R-13, is hereby redesignated the Barker Dome-Paradox Pool.

(2) The vertical limits of the Barker Dome-Paradox Pool are hereby contracted to include only the Lower Barker Creek and Alkali Gulch intervals of the Paradox formation as found from a depth of 9134 feet to 9430 feet on the log run on the Meridian Oil Inc. Ute Well No. 16 located in Unit I of Section 22, Township 32 North, Range 13 1/2 West, La Plata County, Colorado.

(3) Three new gas pools for the production of gas from the Paradox member of the Pennsylvanian formation are hereby created and designated the Barker Dome-Akah/Upper Barker Creek Pool, the Barker Dome-Desert Creek Pool, and the Barker Dome-Ismay Pool.

(4) The vertical limits of the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools shall comprise the following described intervals as found on the log run on the Meridian Oil Inc. Ute Well No. 16 located in Unit I of Section 22, Township 32 North, Range 13 1/2 West, La Plata County, Colorado.

<u>POOL</u>	<u>VERTICAL LIMITS</u>
Barker Dome-Akah/Upper Barker Creek Pool	8809'-9134'
Barker Dome-Desert Creek Pool	8693'-8809'
Barker Dome-Ismay Pool	8502'-8693'

(5) The horizontal limits of the Barker Dome-Paradox, Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools shall comprise the following described area in San Juan County, New Mexico all as projected into the unsurveyed Ute Mountain Indian Reservation:

TOWNSHIP 32 NORTH, RANGE 14 WEST, NMPM

Sections 9 through 11: All
Sections 14 through 16: All
Section 17: E/2
Sections 19 through 22: All
Section 23: NW/4
Section 27: NW/4
Section 28: N/2
Section 29: All

(6) Temporary Special Rules and Regulations for the Barker Dome-Akah/Upper Barker Creek Pool are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS
FOR THE
BARKER DOME-AKAH/UPPER BARKER CREEK POOL**

RULE 1. Each well completed in or recompleted in the Barker Dome-Akah/Upper Barker Creek Pool or in the equivalent vertical limits thereof within one mile of the pool boundary, shall be spaced, drilled, operated, and produced in accordance with the Special Rules hereinafter set forth.

RULE 2. Each well completed or recompleted in the Barker Dome-Akah/Upper Barker Creek Pool shall be located on a unit containing 320 acres, more or less, which consists of the N/2, S/2, E/2 or W/2 of a single governmental section.

RULE 3. The Director of the Oil Conservation Division, hereinafter referred to as the "Division" may grant an exception to the requirements of Rule 2 without hearing when an application has been filed for a non-standard unit consisting of less than 320 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey. All operators offsetting the

proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located no closer than 790 feet from the outer boundary of the proration unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to a deeper horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

(7) Temporary Special Rules and Regulations for the Barker Dome-Desert Creek Pool are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
BARKER DOME-DESERT CREEK POOL

RULE 1. Each well completed in or recompleted in the Barker Dome-Desert Creek Pool or in the equivalent vertical limits thereof within one mile of the pool boundary, shall be spaced, drilled, operated, and produced in accordance with the Special Rules hereinafter set forth.

RULE 2. Each well completed or recompleted in the Barker Dome-Desert Creek Pool shall be located on a unit containing 320 acres, more or less, which consists of the N/2, S/2, E/2 or W/2 of a single governmental section.

RULE 3. The Director of the Oil Conservation Division, hereinafter referred to as the "Division" may grant an exception to the requirements of Rule 2 without hearing when an application has been filed for a non-standard unit consisting of less than 320 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified

mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located no closer than 790 feet from the outer boundary of the proration unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to a deeper horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

(8) Temporary Special Rules and Regulations for the Barker Dome-Ismay Pool are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS
FOR THE
BARKER DOME-ISMAY POOL**

RULE 1. Each well completed in or recompleted in the Barker Dome-Ismay Pool or in the equivalent vertical limits thereof within one mile of the pool boundary, shall be spaced, drilled, operated, and produced in accordance with the Special Rules hereinafter set forth.

RULE 2. Each well completed or recompleted in the Barker Dome-Ismay Pool shall be located on a unit containing 160 acres, more or less, which consists of the NE/4, SE/4, NW/4 or SW/4 of a single governmental section.

RULE 3. The Director of the Oil Conservation Division, hereinafter referred to as the "Division", may grant an exception to the requirements of Rule 2 without hearing when an application has been filed for a non-standard unit consisting of less than 160 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified

mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 4. Each well shall be located no closer than 790 feet from the outer boundary of the proration unit nor closer than 130 feet from any governmental quarter-quarter section line or subdivision inner boundary.

RULE 5. The Division Director may grant an exception to the requirements of Rule 4 without hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to a deeper horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

IT IS FURTHER ORDERED THAT:

(9) The location of all wells presently drilling to or completed in the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek, or Barker Dome-Ismay Pool or in the respective vertical limits thereof within one mile thereof are hereby approved; the operator of any well having an unorthodox location shall notify the Aztec District Office of the Division in writing of the name and location of the well within 30 days from the date of this order.

(10) Pursuant to Paragraph A of Section 70-2-18, N.M.S.A. 1978 Comp., contained in Laws of 1969, Chapter 271, existing gas wells in the Barker Dome-Akah/Upper Barker Creek and Barker Dome-Desert Creek Pool shall have dedicated thereto 320 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 320 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable until a non-standard spacing unit has been approved and, subject to said 60-day limitation, each well presently drilling to or completed in the Barker Dome-Akah/Upper Barker Creek or Barker Dome-Desert Creek Pool or in its corresponding vertical limits as described in Ordering Paragraph No. (4) above, or within one mile thereof, shall receive no more than one-fourth of a standard allowable for said pool(s)

(11) Pursuant to Paragraph A of Section 70-2-18, N.M.S.A. 1978 Comp., contained in Laws of 1969, Chapter 271, existing gas wells in the Barker Dome-Ismay Pool shall have dedicated thereto 160 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 160 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this order shall subject the well to cancellation of allowable until a non-standard spacing unit has been approved and, subject to said 60-day limitation, each well presently drilling to or completed in the Barker Dome-Ismay Pool or in its corresponding vertical limits as described in Ordering Paragraph No. (4) above, or within one mile thereof, shall receive no more than one-fourth of a standard allowable for said pool.

(12) The applicant's request to amend the Special Rules and Regulations for the Barker Dome-Paradox Pool, as promulgated by Division Order No. R-46, is hereby denied.

(13) The Barker Dome-Paradox Pool shall continue to be subject to the Special Rules and Regulations as contained within Division Order No. R-46 until further order of the Division.

(14) The applicant's request to extend the horizontal boundaries of the Barker Dome-Paradox Pool to include the acreage described in Finding No. (6) above, is hereby denied. In addition, the applicant's request to include this acreage within the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools is hereby denied.

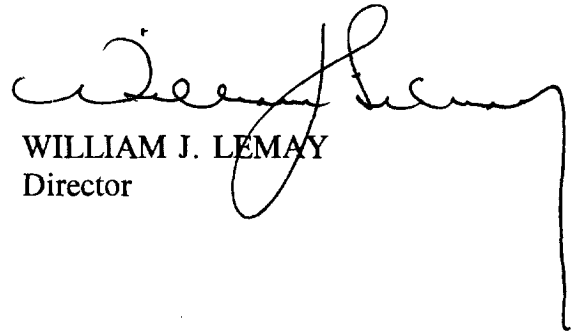
(15) This case shall be reopened at an examiner hearing in February, 1997, at which time the operators in the subject pools should be prepared to appear and show cause why the Temporary Special Rules and Regulations for the Barker Dome-Akah/Upper Barker Creek, Barker Dome-Desert Creek and Barker Dome-Ismay Pools should not be rescinded.

(16) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

Nomenclature
Case No. 11089
Order No. R-46-A
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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', with a long vertical line extending downwards from the end of the signature.

WILLIAM J. LEMAY
Director

S E A L