



**NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT**

Santa Fe, New Mexico 87505
(505) 827-7131

September 7, 1999

**Mallon Oil Company
P. O. Box 2797
Durango, Colorado 81302
Attention: Chirsty Serrano**

Telefax No. (970) 382-7650

Administrative Order NSL-4355

Dear Ms. Serrano:

Reference is made to the following: (i) your meeting in Santa Fe, New Mexico on Thursday, May 20, 1999 with the New Mexico Oil Conservation Division's ("Division") Chief Hearing Officer/Engineer, Mr. Michael E. Stogner; (ii) your application submitted at that time for four unorthodox gas well locations on Jicarilla Apache Tribal Lands in Rio Arriba County, New Mexico to be applicable to any and all formations and/or pools developed on 160-acre spacing from the surface to the base of the Pictured Cliffs formation, which presently includes but is not necessarily limited to the Cabresto Canyon-San Jose Pool, Cabresto Canyon-Nacimiento Pool, Cabresto Canyon-Ojo Alamo, East Blanco-Pictured Cliffs, and Undesignated Choza Mesa-Pictured Cliffs Pool; (iii) two similar applications filed with the Division on January 25, 1999; (iv) the Division's initial response to these two particular applications by letter from Mr. Stogner dated February 3, 1999; (v) Mallon Oil Company's ("Mallon") request, also submitted on May 20, 1999, for a procedure allowing for future gas wells to be drilled to those potential gas bearing intervals from the surface to the base of the Pictured Cliffs formation within a particular area operated by Mallon on Jicarilla Apache Tribal Lands; (vi) your telephone conversation with Mr. Stogner on Monday, June 7, 1999; (vii) your supplemental technical data submitted to the Division on July 15, 1999; (viii) the records of the Division in Santa Fe including the files on Division Administrative Orders NSP-1786, NSP-1787, NSP-1788, NSP-1788-A, NSL-2377, NSL-2377-A, NSL-2518, NSL-2518-A, NSL-2575, NSL-2575-A, NSL-2576, NSL-2576-A, NSL-2831, NSL-2831-A, NSL-2831-B, NSL-3981, NSL-3981-A, NSL-3992, NSL-3992-A, NSL-3993, NSL-3993-A, NSL-3994, NSL-3994-A, NSL-3995, NSL-3995-A, NSL-3995-B, NSL-4109, NSL-4109-A, NSL-4110, NSL-4111, NSL-4199, NSL-4200, NSL-4201, NSL-4202, NSL-4229, NSL-4230, NSL-4231, and NSL-4244; and (ix) the record in New Mexico Oil Conservation Commission Case No. 12119, which resulted in Order No. R-11231 on August 12, 1999, that served to amend Division Rule 104.

The Division Director Finds That:

- (1) Mallon is the sole owner and operator of oil and gas mineral rights under Indian Mineral Development Agreement ("IMDA") No. 701-98-0013 with the Jicarilla Apache Tribe to a contract area in Rio Arriba County, New Mexico comprising the following described 39,360.00 acres, more or less:

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 13816 Exhibit No. 2
Submitted by:
BLACK HILLS EXPLORATION & PROD., INC.
Hearing Date: November 30, 2006

TOWNSHIP 28 NORTH, RANGE 2 WEST, NMPPM

Sections 1 through 18: All

Sections 21 through 24: All

TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPPM

Sections 4 through 9: All

Sections 15 through 23: All

Sections 26 through 36: All

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPPM

Sections 1 and 2: All

Sections 11 through 14: All

Sections 24: All

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPPM

Section 25: All

Section 27: All

Section 28: E/2

Sections 33 through 36: All;

- (2) Mallon however is a partial owner but sole operator of oil and gas mineral rights underlying all or portions of ten other offsetting contract areas within Jicarilla Apache Tribal Lands all in Rio Arriba County, New Mexico, as further described below:

- (a) a portion of IMDA No. 701-90-0002 covering a 640.00-acre area, more or less, comprising:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPPM

Section 28: W/2

TOWNSHIP 31 NORTH, RANGE 3 WEST, NMPPM

Section 32: S/2;

- (b) Jicarilla Contract No. 451 covering 2536.29 acres, more or less, of the following described lands:

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPPM

Sections 3 and 4: All

Sections 9 and 10: All;

- (c) Jicarilla Contract No. 452 covering 2235.53 acres, more or less, of the following described lands:

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 5 through 8: All;

- (d) Jicarilla Contract No. 457 covering 2532.97 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 3 and 4: All

Sections 9 and 10: All;

- (e) Jicarilla Contract No. 458 covering 2249.19 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 5 through 8: All;

- (f) Jicarilla Contract No. 459 covering 2267.20 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 17 through 20: All;

- (g) Jicarilla Contract No. 460 covering 1999.99 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 15 and 16: All

Section 21: All;

- (h) Jicarilla Contract No. 461 covering 1972.12 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 13 and 14: All

Section 24: All;

- (i) Jicarilla Contract No. 462 covering 1920.00 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 22 and 23: All
Section 26: All; and

- (j) Jicarilla Contract No. 464 covering 2454.35 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 29 through 32: All.

- (3) At the time these applications were filed the applicable rules and regulations for gas producing intervals developed on 160-acre spacing in northwest New Mexico required: (i) that wells be located no closer than 790 feet to any outer boundary of such tract nor closer than 130 feet to any quarter-quarter section or subdivision inner boundary; and (ii) limited the number of wells for each 160-acre drilling tract to only one;
- (4) On August 31, 1999, certain amendments to Division Rule 104 became effective; therefore, those gas bearing zones developed on 160-acre spacing that are the subject of this application (surface to the base of the Pictured Cliffs formation, including but not necessarily limited to the Cabresto Canyon-San Jose Pool, Cabresto Canyon-Nacimiento Pool, Cabresto Canyon-Ojo Alamo, East Blanco-Pictured Cliffs, and Undesignated Choza Mesa-Pictured Cliffs Pool) within the boundary formed by combining all of the above-described Jicarilla Apache Tribal contract areas, are subject to the current statewide rules for gas wells, which provides for: (i) 160-acre gas spacing and proration units, or drilling units; (ii) requires that wells be located no closer than 660 feet to any outer boundary of such tract nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary; and (iii) limits the number of wells for each 160-acre drilling tract to only one;
- (5) Mallon's applications, having been duly filed with the Division, meet the provisions of Division Rules: (i) 104.F, revised by Division Order No. R-11231, issued by the New Mexico Oil Conservation Commission in Case No. 12119 on August 12, 1999; and (ii) 1207.A(2), revised by Division Order No. R-11205, issued by the New Mexico Oil Conservation Commission in Case No. 12177 on June 17, 1999;
- (6) All oil and gas mineral interests within this combined area have been notified and no objections to Mallon's requests have been filed with the Division;
- (7) Approval of Mallon's existing or proposed:
- (i) Jicarilla "28-2-11" Well No. 1 (API No. 30-039-26038),

- located at an unorthodox gas well location 950 feet from the North line and 2050 feet from the West line (Unit C) of Section 11, Township 28 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, within a standard 160-acre gas spacing and proration unit comprising the NW/4 of Section 11;
- (ii) Jicarilla "28-2-4" Well No. 1 (API No. 30-039-26037), located at an unorthodox gas well location 1135 feet from the North line and 1400 feet from the East line (Unit G) of Section 4, Township 28 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, within a standard 140.73-acre gas spacing and proration unit comprising Lots 1 and 2 and the S/2 NE/4 (NE/4 equivalent) of Section 4;
- (iii) Jicarilla "28-2-10" Well No. 1 (API No. 30-039-26097), to be drilled at an unorthodox gas well location 754 feet from the North line and 824 feet from the West line (Unit D) of Section 10, Township 28 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, within a standard 160-acre gas spacing and proration unit comprising the NW/4 of Section 10;
- (iv) Jicarilla "29-2-16" Well No. 2 (API No. 30-039-26109), to be drilled at an unorthodox gas well location 1761 feet from the North line and 602 feet from the East line (Unit H) of Section 16, Township 29 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, within a standard 160-acre gas spacing and proration unit comprising the NE/4 of Section 16;
- (v) Jicarilla "29-2-29" Well No. 1 (API No. 30-039-26115), to be drilled at an unorthodox gas well location 1768 feet from the South line and 437 feet from the West line (Unit L) of Section 29, Township 29 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, within a standard 160-acre gas spacing and proration unit comprising the SW/4 of Section 29;
- (vi) Jicarilla "30-3-36" Well No. 1 (API No. 30-039-26103), to be drilled at an unorthodox gas well location 673 feet from the North line and 580 feet from the West line (Unit D) of Section 36, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico, within a standard 160-acre gas

spacing and proration unit comprising the NE/4 of Section 36:

are necessary for topographic and/or geological reasons;

- (8) As gas exploration and development on these Jicarilla Apache Tribal contract areas progresses it is anticipated by Mallon that additional unorthodox gas well locations will be necessary in order to: (i) avoid archeological sites; (ii) minimize disturbance to forested and wildlife habitats; (iii) minimize construction of wellpads by avoiding rugged terrain when practical; and (iv) position wellbores within geologically more favorable locations in order to maximize the likelihood of obtaining commercial gas production;
- (9) A procedure allowing Mallon to drill future gas wells to those gas bearing intervals from the surface to the base of the Pictured Cliffs formation that are developed on 160-acre spacing within the above-listed Jicarilla Apache Tribal contract areas at locations that are unorthodox based on the current well location requirements of Division Rule 104.C(3) without further administrative review by the Division Director should be adopted, provided that any such unorthodox location within that area formed by the combining the surface areas of the above-described contract areas is no closer than the required minimum orthodox distance (660 feet) to: (i) the outer boundary of this combined area; (ii) nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary;
- (10) Approval of this application is in the best interest of conservation, will serve to prevent waste, protects correlative rights, exhibits sound engineering principles, and will allow Mallon to develop its gas reserves within those gas producing intervals from the surface to the base of the Pictured Cliffs formation developed on 160-acre spacing underlying the above-described contracted areas; and
- (11) The provisions of this order should be amended if: (i) the operator within this area changes in any way; or (ii) significant changes are made to the oil and gas mineral interest ownership within any of these contracted areas.

It Is Therefore Ordered That:

(1) By the authority granted me under the provisions of Division Rule 104 F(2), revised by Division Order No. R-11231, issued by the New Mexico Oil Conservation Commission in Case No. 12119 on August 12, 1999, Mallon Oil Company ("Mallon") is hereby authorized to complete or drill the following six wells at unorthodox gas well locations to be applicable to any and all formations and/or pools developed on 160-acre spacing from the surface to the base of the Pictured Cliffs formations, all in Rio Arriba County, New Mexico:

<i>Well Name and No.</i>	<i>API Number</i>	<i>Footage Location Section-Township-Range</i>	<i>Unit</i>	<i>Dedicated 160- Acre Tract</i>
<i>Jicarilla "28-2-11" Well No. 1</i>	<i>30-039-26038</i>	<i>950' FNL & 2050' FWL 11-T28N-R2W</i>	<i>C</i>	<i>NW/4</i>
<i>Jicarilla "28-2-4" Well No. 1</i>	<i>30-039-26037</i>	<i>1135' FNL & 1400' FEL 4-T28N-R2W</i>	<i>G</i>	<i>NE/4 equivalent</i>
<i>Jicarilla "28-2-10" Well No. 1</i>	<i>30-039-26097</i>	<i>754' FNL & 824' FWL 10-T28N-R2W</i>	<i>D</i>	<i>NW/4</i>
<i>Jicarilla "29-2-16" Well No. 2</i>	<i>30-039-26109</i>	<i>1761' FNL & 602' FEL 16-T29N-R2W</i>	<i>H</i>	<i>NE/4</i>
<i>Jicarilla "29-2-29" Well No. 1</i>	<i>30-039-26115</i>	<i>1768' FSL & 437' FWL 29-T29N-R2W</i>	<i>L</i>	<i>SW/4</i>
<i>Jicarilla "30-3-36" Well No. 1</i>	<i>30-039-26103</i>	<i>673' FNL & 580' FWL 36-T30N-R3W</i>	<i>D</i>	<i>NE/4</i>

It Is Further Ordered That:

(2) Within the following described 60,167.64 acres, more or less, within Jicarilla Apache Tribal Lands all in Rio Arriba County, New Mexico, hereinafter referred to as the *Mallon/Jicarilla Consolidated Contract Area*, Mallon is hereby authorized to recomplete existing wells and drill new wells on Jicarilla Apache Tribal Lands in Rio Arriba County, New Mexico to be applicable to any and all formations and/or pools developed on 160-acre spacing from the surface to the base of the Pictured Cliffs formation, which presently includes but is not necessarily limited to the Cabresto Canyon-San Jose Pool, Cabresto Canyon-Nacimiento Pool, Cabresto Canyon-Ojo Alamo, East Blanco-Pictured Cliffs, and Undesignated Choza Mesa-Pictured Cliffs Pool that are unorthodox based on the well location requirements of Division Rule 104.C(3), provided however that any such unorthodox location is no closer than the required minimum orthodox distance (330 feet) to the outer boundary of the Mallon/Jicarilla Consolidated Contract Area nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary:

TOWNSHIP 28 NORTH, RANGE 2 WEST, NMPM

Sections 1 through 18: All

Sections 21 through 24: All

TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM

Sections 4 through 9: All

Sections 15 through 23: All

Sections 26 through 36: All

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 1 through 14: All

Sections 24: All

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 4 through 10: All

Sections 13 through 36: All

TOWNSHIP 31 NORTH, RANGE 3 WEST, NMPM

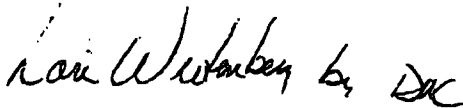
Section 32: S/2.

(3) Any unorthodox location authorized by Ordering Paragraph (2) shall require the submission of a Division Form C-102, in accordance with Division Rules 1101 and 1102, and the approval of the Supervisor of the Division's District Office in Aztec. The Form C-102 for any such well shall include the following additional information: (i) the boundary of the Mallon/Jicarilla Consolidated Contract Area must be outlined; (ii) the designated 160 acres to be dedicated to the well is to be highlighted or outlined; and, (iii) this administrative order (NSL-4355) must be referenced.

(4) The provisions of this order shall be amended if: (i) the operator within this area changes in any way; or (ii) significant changes are made to the oil and gas mineral interest ownership within any of these contracted areas.

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

Sincerely,



Lori Wrotenbery
Director

LW/MES/kv

cc: New Mexico Oil Conservation Division - Aztec
U. S. Bureau of Land Management - Albuquerque



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor
Betty Rivera
Cabinet Secretary

October 29, 2002

Lori Wrotenbery
Director
Oil Conservation Division

Mallon Oil Company
c/o Holland & Hart LLP
Post Office Box 2208
Santa Fe, New Mexico 87504-2208
Attention: William F. Carr

Telefax No. (505) 983-6043

Corrected
Administrative Order NSL-4355

Dear Mr. Carr:

Due to inadvertence, Ordering Paragraph No. (2) on pages 7 and 8 of Division Administrative Order NSL-4355, dated September 7, 1999, is incorrect and shall therefore be amended to read in its entirety as follows:

*"(2) Within the following described 60,167.64 acres, more or less, within Jicarilla Apache Tribal Lands all in Rio Arriba County, New Mexico, hereinafter refereed to as the **Mallon/Jicarilla Consolidated Contract Area**, Mallon is hereby authorized to recomplete existing wells and drill new wells on Jicarilla Apache Tribal Lands in Rio Arriba County, New Mexico to be applicable to any and all formations and/or pools developed on 160-acre spacing from the surface to the base of the Pictured Cliffs formation, which presently includes but is not necessarily limited to the Cabresto Canyon-San Jose Pool, Cabresto Canyon-Nacimiento Pool, Cabresto Canyon-Ojo Alamo, East Blanco-Pictured Cliffs, and Undesignated Choza Mesa-Pictured Cliffs Pool that are unorthodox based on the well location requirements of Division Rule 104.C(3), provided however that any such unorthodox location is no closer than the required minimum orthodox distance (660 feet) to the outer boundary of the Mallon/Jicarilla Consolidated Contract Area nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary:*

TOWNSHIP 28 NORTH, RANGE 2 WEST, NMPM

Sections 1 through 18: All
Sections 21 through 24: All

TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM

Sections 4 through 9: All
Sections 15 through 23: All
Sections 26 through 36: All

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NOV 01 2002

HOLLAND & HART LLP

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 1 through 14: All

Sections 24: All

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 4 through 10: All

Sections 13 through 36: All

TOWNSHIP 31 NORTH, RANGE 3 WEST, NMPM

Section 32: S/2."

The corrections set forth in this order shall be entered retroactively as of September 7, 1999; all other provisions of Division Administrative Order NSL-4355 shall remain in full force and effect until further notice.

Jurisdiction of this matter shall be further retained for the entry of any such subsequent orders, as the Division may deem necessary.

Sincerely,



Lori Wrotenbery
Director

LW/MES/kv

cc: New Mexico Oil Conservation Division - Aztec
U. S. Bureau of Land Management – Albuquerque
File: Case No. 12892
NSL-4355



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

BETTY RIVERA

Cabinet Secretary

Lori Wrotenbery

Director

Oil Conservation Division

September 23, 2002

**Mallon Oil Company
c/o Holland & Hart LLP
P. O. Box 2208
Santa Fe, New Mexico 87504-2208
Attention: William F. Carr**

Telefax No. (505) 983-6043

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SEP 25 2002

HOLLAND & HART LLP

Administrative Order SD-02-03

Dear Mr. Carr:

Reference is made to the following: (i) your meeting in Santa Fe, New Mexico on August 22, 2002 with the New Mexico Oil Conservation Division's ("Division") Chief Hearing Officer/Engineer, Mr. Michael E. Stogner; (ii) the application submitted for Mallon Oil Company ("Mallon") at that time for approval of the simultaneous dedication of wells to seventeen spacing and proration units on Jicarilla Apache Tribal Lands in Rio Arriba County, New Mexico for wells completed in the San Jose, Nacimiento and Ojo Alamo intervals of the Cabresto Canyon-Tertiary Pool; (iii) the record of the July 11, 2002 examiner hearing held in Aztec, New Mexico in New Mexico Oil Conservation Division Case No. 12892 concerning an infill pilot project for the area in which the subject spacing and proration units and wells are located and, in particular, the geological and engineering evidence concerning the separation between the producing intervals of the Tertiary formation; (iv) your supplemental technical data submitted to the Division on August 21, 2002; (v) the records of the Division in Santa Fe including the files on Division Administrative Orders NSL-2576A, NSL-3993/3993A, and NSL-4355; (vi) the record in New Mexico Oil Conservation Division Case No. R-11231 on August 12, 1999, that served to amend Division Order No. 104; and (vii) the record in New Mexico Oil Conservation Division Case No. 12481 on September 5, 2000, that served to consolidate the Cabresto Canyon-San Jose Pool and the Cabresto Canyon-Nacimiento Pool and the Cabresto Canyon-Ojo Alamo Pool into one pool named the Cabresto Canyon-Tertiary Pool.

The Division Director Finds That:

(1) Mallon is the sole owner and operator of oil and gas mineral rights under the following four contract areas within the Jicarilla Apache Lands in Rio Arriba County, New Mexico:

- (a) Indian Mineral Development Agreement ("IMDA") No. 701-98-0013 currently comprising the following described 29,789.51 acres, more or less:

TOWNSHIP 28 NORTH, RANGE 2 WEST, NMPM

Sections 3 through 9:	All
Section 10:	NW/4
Sections 17 and 18:	All

TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM

Sections 4 through 9:	All
Sections 15 through 23:	All
Sections 26 through 34:	All

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 1 and 2:	All
Sections 11 through 14:	All
Section 24:	All

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Section 25:	All
Sections 27:	All
Section 28:	E/2
Sections 33 through 36:	All

- (b) IMDA 701-90-0002 currently comprising the following described 1219.02 acres, more or less:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Section 28:	W/2
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TOWNSHIP 31 NORTH, RANGE 3 WEST, NMPM

Section 5:	W/2
Section 6:	S/2
Section 32:	S/2

- (c) Jicarilla Contract No. 451 currently comprising 2536.29 acres, more or less, of the following described lands:

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 3 and 4: All
Sections 9 and 10: All

- (d) Jicarilla Contract No. 452 currently comprising 2235.53 acres, more or less, of the following described lands:

TOWNSHIP 29 NORTH, RANGE 3 WEST, NMPM

Sections 5 through 8: All

(2) Mallon is partial owner but sole operator of oil and gas mineral rights underlying all or portions of seven other offsetting contract areas within the Jicarilla Apache Lands in Rio Arriba County, New Mexico as further described below

- (a) Jicarilla Contract No. 457 currently comprising 2532.97 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 3 and 4: All
Sections 9 and 10: All

- (b) Jicarilla Contract No. 458 currently comprising 2249.19 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 5 through 8: All

- (c) Jicarilla Contract No. 459 currently comprising 2267.20 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 17 through 20: All

- (d) Jicarilla Contract No. 460 currently comprising 1999.99 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 15 and 16: All
Section 21: All

- (e) Jicarilla Contract No. 461 currently comprising 1972.12 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 13 and 14:	All
Section 24:	All

- (f) Jicarilla Contract No. 462 currently comprising 1920.00 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 22 and 23:	All
Section 26:	All

- (g) Jicarilla Contract No. 464 currently comprising 2409.62 acres, more or less, of the following described lands:

TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM

Sections 29 through 32:	All
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(3) At the time this application was filed the applicable rules and regulations for gas producing intervals developed on 160-acre spacing in northwest New Mexico allow only one well on each spacing unit in a defined gas pool.

(4) On September 5, 2000, the Division entered Nomenclature Order No. R-11445, which consolidated the Cabresto Canyon-San Jose Pool, the Cabresto Canyon-Nacimiento Pool and the Cabresto Canyon-Ojo Alamo Pool in to one pool, called the Cabresto Canyon-Tertiary Pool.

(5) The San Jose, Nacimiento and Ojo Alamo intervals of the Cabresto Canyon-Tertiary pool are separate sources of supply in the Tertiary formation and are not in communication with each other.

(6) Mallon's application, having been duly filed with the Division, meets the provisions of Division Rules: (i) 104.D(3), revised by Division Order No. R-11231, issued by the New Mexico Oil Conservation Commission in Case No. 12119 on August 12, 1999; and (ii) 1207.A(2), revised by Division Order No. R-11205, issued by the New Mexico Oil Conservation Commission in Case No. 12177 on June 17, 1999.

(7) All affected persons within this combined area have been notified and no objections to Mallon's requests have been filed with the Division.

(8) Approval of Mallon's application for the simultaneous dedication of the wells to each of 17 spacing proration units located on Jicarilla Apache contract lands located in Rio Arriba County, New Mexico will not result in more than one well producing from any separate producing interval in the Tertiary formation, Cabresto Canyon-Tertiary Pool and should be approved.

(9) Approval of this application is in the best interest of conservation, will serve to prevent waste, protects correlative rights, exhibits sound geological and engineering principals and will allow Mallon to develop its gas reserves within the separate producing intervals of the Tertiary formation, Cabresto Canyon-Tertiary Pool, developed on 160-acre spacing underlying each of the subject spacing and proration units.

It Is Therefore Ordered That:

(1) By authority granted me under the provisions of the Division Rule 104(D)(3), revised by Division Order No. R-11231, issued by the New Mexico Oil Conservation Commission in Case No. 12119 on August 12, 1999, Mallon Oil Company ("Mallon") is hereby authorized to simultaneously dedicated the following wells to the seventeen spacing and proration units in the Tertiary formation. Cabresto Canyon-Tertiary Pool, located on the hereinafter-described Jicarilla Apache Contract Lands located in Rio Arriba, County, New Mexico:

(a). To the standard gas spacing and proration unit comprised of the SE/4 of Section 7, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:

- (1) the Jicarilla "458" SJ Well No. 2 (API No. 30-039-26182) located 864' from the South line and 1345 feet from the East line (Unit O) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated intervals 1452' to 1646'), and
- (2) the Jicarilla "458" Well No. 2 (API No. 30-039-2486) located 782 feet from the South line and 1446 feet from the East line (Unit O) which is completed in the the Ojo Alamo interval of Cabresto Canyon-Tertiary Pool (perforated intervals 3088'to 3174'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.

- (b) To the standard gas spacing and proration unit comprised of the SW/4 of Section 8, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "458-8" SJ Well No. 9 (**API No. 30-039-26233**) located 1450 feet from the South line and 1350 feet from the West line (Unit K) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated intervals 1480' to 1745'), and
 - (2) the Jicarilla "458-8" Well No. 9 (**API No. 30-039-25758**) located 1450 feet from the South and West lines (Unit K) which is completed in the the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3080' to 3126').
- (c) To the standard gas spacing and proration unit comprised of the SE/4 of Section 8, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "458-8" SJ Well No. 10 (**API No. 30-039-26178**) located 784 feet from the South line and 1286 feet from the East line (Unit P) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1462' to 1562'), and
 - (2) the Jicarilla "458-8" Well No. 10 (**API No. 30-039-25862**) located 800 feet from the South line and 1190 feet from the East line (Unit P) which is dually completed in the Nacimiento interval of the Cabresto Canyon-Tertiary Pool (perforated interval 2741' to 2960') and the Ojo Alamo interval of the Cabresto Canyon- Tertiary Pool (perforated interval 3099' to 3150'), however, the Nacimiento interval is currently shut-in.
- (d) To the 151.31-acre standard gas spacing and proration unit comprised of the NE/4 of Section 8, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:

- (1) the Jicarilla "458-8" SJ Well No. 7 (**API No. 30-039-26271**) located at an approved unorthodox well location (Division Administrative Order NSL-4355) 2301 feet from the North line and 868 feet from the East line (Unit H) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1417' to 1538'), and
 - (2) the Jicarilla "458-8" Well No. 7 (**API No. 30-039- 25759**) located at an approved unorthodox well location (Division Administrative Order NSL-3993/3993A) 2270 feet from the North line and 795 feet from the East line (Unit H) which is downhole commingled in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3133' to 3200') and the Nacimiento interval of the Cabresto Canyon-Tertiary Pool (perforated interval 2920'-3046').
- (e) To the standard 152.12-acre gas spacing and proration unit comprised of the NW/4 of Section 9, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "457-9" SJ Well No. 2 (**API No. 30-039-25905**) located 719 feet from the North line and 802 feet from the West line (Unit D) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1030' to 1703'), and
 - (2) the Jicarilla "457-9" Well No. 2 (**API No. 30-039-26064**) located 695 feet from the North line and 731 feet from the West line (Unit D) which is downhole commingled in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3205' to 3282') and the Nacimiento interval of the Cabresto Canyon-Tertiary Pool (perforated interval 2372'-2392').
- (f) To the standard gas spacing and proration unit comprised of the SW/4 of Section 9, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "457" SJ Well No. 1 (**API No. 30-039-26245**) located 1498 feet from the South line and 1244 feet from the

West line (Unit L) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1451' to 1622'), and

- (2) the Jicarilla "457" Well No. 1 (**API No. 30-039-24106**) located 1450 feet from the South line and 1190 feet from the West line (Unit L) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3146' to 3247'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (g) To the standard gas spacing and proration unit comprised of the NW/4 of Section 16, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "460-16" SJ Well No. 1 (**API No. 30-039-25942**) located 1940 feet from the North line and 734 feet from the West line (Unit E) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1520' to 1778'), and
 - (2) the Jicarilla "460-16" Well No. 1 (**API No. 30-039-25760**) located 1850 feet from the North line and 690 feet from the West line (Unit E) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3164' to 3208').
- (h) To the standard gas spacing and proration unit comprised of the SW/4 of Section 16, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "460-16" SJ Well No. 4 (**API No. 30-039-26238**) located 771 feet from the south line and 1198 feet from the West line (Unit M) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1618' to 1682'), and
 - (2) the Jicarilla "460-16" Well No. 4 (**API No. 30-039-257845**) located 840 feet from the South line and 1180 feet from the West line (Unit M) which is completed in the Ojo Alamo

interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3247' to 3291').

- (i) To the standard gas spacing and proration unit comprised of the NW/4 of Section 17, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "459 SJ" Well No. 8 (**API No. 30-039-26230**) Administrative Order NSL-4355) 286 feet from the North line and 1173 feet from the West line (Unit D) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1473' to 1622'), and
 - (2) the Jicarilla "459" Well No. 8 (**API No. 30-039- 24305**) located at an approved unorthodox well location (Division Administrative Order NSL-2576A) 287 feet from the North line and 1072 feet from the West line (Unit C) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3124' to 3222'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (j) To the standard gas spacing and proration unit comprised of the SE/4 of Section 18, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "459" SJ Well No. 1 (**API No. 30-039-26241**) located 1572 feet from the South line and 896 feet from the East line (Unit I) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1502' to 1722'), and
 - (2) the Jicarilla "459" Well No. 1 (**API No. 30-039-24087**) located 1665 feet from the South line and 940 feet from the East line (Unit I) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3136' to 3194'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.

- (k) To the standard gas spacing and proration unit comprised of the NW/4 of Section 20, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "459" SJ Well No. 2 (**API No. 30-039-26232**) located 1648 feet from the North line and 700 feet from the West line (Unit E) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1549' to 1592'), and
 - (2) the Jicarilla "459" Well No. 2 (**API No. 30-039-24157**) located 1648 feet from the North line and 800 feet from the West line (Unit E) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3228' to 3252'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (l) To the standard gas spacing and proration unit comprised of the SE/4 of Section 20, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "459-20" SJ Well No. 12 (**API No. 30-039-25941**) located 849 feet from the South line and 1888 feet from the East line (Unit O) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1059' to 1790'), and
 - (2) the Jicarilla "459-20" Well No. 12 (**API No. 30-039-25855**) located 790 feet from the South line and 1845 feet from the East line (Unit O) which is downhole commingled in the Pictured Cliffs formation, East Blanco-Pictured Cliffs Pool (perforated interval 3778' to 3848') and the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3276' to 3312').
- (m) To the standard 175.86-acre gas spacing and proration unit comprised of the SW/4 of Section 21, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:

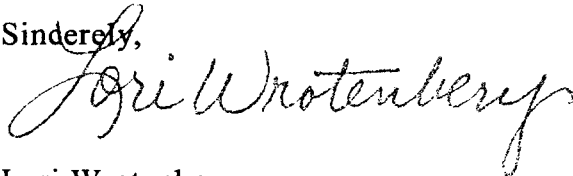
- (1) the Jicarilla "460" SJ Well No. 2 (**API No. 30-039-26229**) located 787 feet from the south line and 987 feet from the West line (Unit M) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1577' to 1726'), and
 - (2) the Jicarilla "460" Well No. 2 (**API No. 30-039-24112**) located 790 feet from the South line and 890 feet from the West line (Unit M) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3224' to 3286'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (n) To the standard gas spacing and proration unit comprised of the SW/4 of Section 28, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "30-03-28" SJ Well No. 1 (**API No. 30-039-26239**) located 1195 feet from the South line and 873 feet from the West line (Unit M) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1537' to 1579'), and
 - (2) the Jicarilla "30-03-28" Well No. 1 (**API No. 30-039-25130**) located 1195 feet from the South line and 773 feet from the West line (Unit M) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3149' to 3231'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (o) To the standard 177.32-acre gas spacing and proration unit comprised of the SW/4 of Section 29, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
- (1) the Jicarilla "464" SJ Well No. 8 (**API No. 30-039-26234**) located 1844 feet from the south line and 1345 feet from the West line (Unit K) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1600' to 1642'), and

- (2) the Jicarilla "464" Well No. 8 (**API No. 30-039-24253**) located 1850 feet from the South line and 1450 feet from the West line (Unit K) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3256' to 3308'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (p) To the standard gas spacing and proration unit comprised of the NW/4, Section 29, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "464" SJ Well No. 7 (**API No. 30-039-26244**) located 1282 feet from the North line and 1152 feet from the West line (Unit D) which is completed (currently shut-in) in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1701' to 1720'), and
 - (2) the Jicarilla "464" Well No. 7 (**API No. 30-039-24301**) located 1190 feet from the North line and 1194 feet from the West line (Unit D) which is completed in the Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool (perforated interval 3286' to 3334'). In this well the Pictured Cliffs formation is isolated below a cast iron bridge plug.
- (q) To the standard gas spacing and proration unit comprised of the SE/4, Section 34, Township 30 North, Range 3 West, NMPM, Mallon seeks approval of the simultaneous dedication of:
 - (1) the Jicarilla "30-03-34" SJ Well No. 4 (**API No. 30-039-26326**) located 2039 feet from the south line and 1977 feet from the East line (Unit J) which is completed in the San Jose interval of the Cabresto Canyon-Tertiary Pool (perforated interval 1648' to 1806'), and
 - (2) the Jicarilla "30-03-34" Well No. 4 (**API No. 30-039-26733**) located 2066 feet from the South line and 2018 feet from the East line (Unit J) which is downhole commingled in the Nacimiento interval of the Cabresto Canyon-Tertiary Pool (perforated interval 2647' to 2667') and in the Pictured Cliffs formation, East Blanco-Pictured Cliffs Pool and the

Ojo Alamo interval of the Cabresto Canyon-Tertiary Pool
(perforated interval 3168' to 3234').

- (2) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

Sincerely,



Lori Wrotenbery
Director

cc: New Mexico Oil Conservation Division - Aztec
U. S. Bureau of Land Management - Albuquerque
File: Case No. 12892
Mallon Oil Company
Attention: Patti L. Davis, CPL
999 18th Street, Suite 1700
Denver, Colorado 80202

**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. 12892
ORDER NO. R-11858**

APPLICATION OF MALLON OIL COMPANY FOR APPROVAL OF A PILOT (INFILL DEVELOPMENT) PROJECT INCLUDING UNORTHODOX GAS WELL LOCATIONS AND, WHERE APPLICABLE, EXCEPTION PURSUANT TO DIVISION RULE 104.D (3), FOR THE PURPOSE OF ESTABLISHING A PILOT (INFILL DEVELOPMENT) PROGRAM IN THE PICTURED CLIFFS FORMATION AND TERTIARY SYSTEM TO DETERMINE PROPER WELL DENSITY REQUIREMENTS FOR PICTURED CLIFFS AND TERTIARY GAS WELLS, RIO ARriba COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 11, 2002 at Aztec, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 1st day of November, 2002, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The applicant, Mallon Oil Company ("Mallon"), pursuant to Division Rules 104.C (3) and 104.D (3) seeks approval for a 25-well pilot program, including unorthodox locations, in the Pictured Cliffs formation, which may include the East Blanco-Pictured Cliffs Pool (72400), and/or the Tertiary system [Cabresto Canyon-Tertiary Pool (97037) or La Jara Canyon-Tertiary Pool (97036)] in order to gather data to determine proper well density requirements for the Pictured Cliffs formation and Tertiary system.

(3) The applicant has identified four separate areas in Townships 29 and 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico, as further described below, in which to gather information on the complex geology and reservoir characteristics of each

of the producing intervals in the Pictured Cliffs formation and the Ojo Alamo, Nacimiento, and San Jose formations of the Tertiary system to determine proper well density and if regulatory changes are needed to efficiently develop these reserves. Mallon also seeks flexibility in locating its proposed 25 wells to allow for topographic, cultural, and archeological considerations. The four areas are:

- (a) PILOT AREA NO. 1, which comprises Sections 6, 8, 17, and 18, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico;
- (b) PILOT AREA NO. 2, which comprises Sections 19, 20, 29, and 30, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico;
- (c) PILOT AREA NO. 3, which comprises Sections 33, 34, and 35, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico; and
- (d) PILOT AREA NO. 4, which comprises Sections 4, 5, 8, and 9, Township 29 North, Range 2 West, NMPM, Rio Arriba County, New Mexico.

(4) The Pictured Cliffs and Tertiary zones within the proposed areas are "unprorated" and are therefore not subject to Part H of the Division's statewide rules entitled "*Gas Proration and Allocation*" (Rules 601 through 605). However, both intervals are currently governed by Division Rules 104.C (3) and D (3), which provides for 160-acre spacing units, requires wells to be no closer than 660 feet to the outer boundary of their assigned units nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary, and precludes the drilling, recompletion, and production of a second gas well within a single 160-acre gas spacing unit.

(5) Mallon operates all acreage in and contiguous to the proposed pilot areas and all producing wells in the areas covered by this application and offsetting tracts. Mallon has identified 25 spacing units in which to conduct its infill program in the Pictured Cliffs formation and/or Tertiary system:

- (a) PILOT AREA NO. 1 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
 - (i) the 113.01 acres, being a non-standard gas spacing unit, comprising Lots 9 and 10 of

Irregular Section 6;

- (ii) the 151.31 acres comprising Lots 1 and 2 and the S/2 NE/4 (NE/4 equivalent) of Section 8;
- (iii) the 160 acres comprising the SE/4 of Section 8;
- (iv) the 160 acres comprising the NE/4 of Section 17;
- (v) the 160 acres comprising the SW/4 of Section 17; and
- (vi) the 160 acres comprising the NE/4 of Irregular Section 18.

(b) PILOT AREA NO. 2 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):

- (i) the 160 acres comprising the NE/4 of Irregular Section 19;
- (ii) the 160 acres comprising the SE/4 of Section 20;
- (iii) the 160 acres comprising the SW/4 of Section 20;
- (iv) the 175.15 acres comprising Lots 1 and 2 and the W/2 NE/4 (NE/4 equivalent) of Section 29;
- (v) the 160 acres comprising the NW/4 of Section 29;
- (vi) the 177.31 acres comprising Lots 4 and 5 and the N/2 SW/4 (SW/4 equivalent) of Section 29; and

- (vii) the 160 acres comprising the NE/4 of Irregular Section 30.
- (c) PILOT AREA NO. 3 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
- (i) the 160 acres comprising the NE/4 of Section 33;
 - (ii) the 160 acres comprising the NW/4 of Section 34;
 - (iii) the 160 acres comprising the SE/4 of Section 34;
 - (iv) the 160 acres comprising the SW/4 of Section 35;
 - (v) the 160 acres comprising the SE/4 of Section 35; and
 - (vi) the 160 acres comprising the NE/4 of Section 35.
- (d) PILOT AREA NO. 4 (TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
- (i) the 160 acres comprising the SW/4 of Section 4;
 - (ii) the 160 acres comprising the SE/4 of Section 5;
 - (iii) the 160 acres comprising the SW/4 of Section 5;
 - (iv) the 160 acres comprising the SW/4 of Section 8;
 - (v) the 160 acres comprising the SE/4 of Section 8; and

- (vi) the 160 acres comprising the SW/4 of Section 9.

(6) Representatives of the Division's Aztec District Office and the U. S. Bureau of Land Management appeared at the hearing, questioned witnesses and made statements, but did not present evidence.

(7) By Order No. R-11445, issued in Case No. 12481 on September 5, 2000, the Division combined the Cabresto Canyon-Ojo Alamo Pool, the Cabresto Canyon-Nacimiento Pool and the Cabresto Canyon-San Jose Pool into the Cabresto Canyon-Tertiary Pool covering lands in Townships 29 and 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico. Mallon operated wells that produced from each of these Tertiary intervals and, after pool consolidation, had certain spacing units (160 acres being a single quarter section) on which there was more than one well, although producing from separate intervals, produced from the new Cabresto Canyon-Tertiary Pool. At the hearing, Mallon was directed to file appropriate applications to obtain administrative authorizations to bring these wells into compliance with Division Rule 104.D (3). By Administrative Order SD-02-03 dated September 23, 2002, the Division approved Mallon's application for the simultaneous dedication of multiple wells on 17 spacing units in the Cabresto-Canyon Tertiary Pool.

(8) The following five (5) spacing units in the Cabresto Canyon-Tertiary Pool that were approved by Division Administrative Order SD-02-03 also appear in this application:

- (a) the 151.31 acres comprising Lots 1 and 2 and the S/2 NE/4 (NE/4 equivalent) of Section 8, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico;
- (b) the 160 acres comprising the SE/4 of Section 8, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico;
- (c) the 160 acres comprising the SE/4 of Section 20, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico;
- (d) the 160 acres comprising the NW/4 of Section 29, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico; and
- (e) the 177.31 acres comprising Lots 4 and 5 and the N/2 SW/4

(SW/4 equivalent) of Section 29, Township 30 North, Range 3 West, NMPM, Rio Arriba County, New Mexico.

(9) Another order issued by the Division that affects Pictured Cliffs and Tertiary gas production within the area that is the subject of this application is Division Administrative Order NSL-4355, dated September 7, 1999, as corrected by order dated October 29, 2002. This order:

- (a) identified 60,167.64 acres of Jicarilla Apache lands of which Mallon is the operator of the oil and gas mineral rights ("Mallon/Jicarilla Consolidated Contract Area");
- (b) recognized that as gas exploration and development on these lands progressed unorthodox gas well locations would be necessary to (i) avoid archeological sites; (ii) minimize disturbance to forested and wildlife habitats; (iii) minimize construction of well pads by avoiding rugged terrain when practical; and (iv) position wellbores within geologically more favorable locations in order to maximize the likelihood of obtaining commercial gas production; and
- (c) authorized Mallon to recomplete existing wells and drill new wells on the Mallon/Jicarilla Consolidated Contract Area to any and all formations and/or pools developed on 160-acre spacing from the surface to the base of the Pictured Cliffs formation, which presently include the East Blanco-Pictured Cliffs Pool and the Cabresto Canyon-Tertiary Pool (as to Townships 29 and 30 North, Range 3 West, NMPM) and the Undesignated East Blanco-Pictured Cliffs Pool and the La Jara Canyon-Tertiary Pool (as to Township 29, North, Range 2 West, NMPM), at locations that are unorthodox based on the location requirements of Division Rule 104.C (3), provided that any such unorthodox well location is no closer than the required minimum orthodox distance (660 feet) from the outer boundary of the Mallon/Jicarilla Consolidated Contract Area nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary.

(10) Because of the surface topography, cultural and archeological concerns and geological considerations addressed by Administrative Order NSL-4355, the exact location of each of the 25 proposed pilot wells has not been identified, and flexibility in locating the

pilot wells is needed.

(11) The four pilot areas as described above are located within the Mallon/Jicarilla Consolidated Contract Area, and there has been no significant change in the oil and gas mineral ownership since Administrative Order NSL-4355, as amended, was entered.

(12) The provisions of Administrative Order NSL-4355 governing unorthodox gas well locations also govern the pilot infill wells proposed by Mallon within the Mallon/Jicarilla Consolidated Contract Area, and the portions of this application that relate to unorthodox gas well locations are therefore unnecessary and should be dismissed.

(13) Testimony presented by Mallon at this hearing indicates that:

- (a) each of the four pilot areas demonstrates different geological and reservoir characteristics in the four zones to be tested with the proposed pilot project;
- (b) through the proposed pilot project, Mallon will gather data on the geological characteristics of the reservoirs, and pressure data and historical production information from wells therein which will enable it to study well performance and the effectiveness of current well density to efficiently drain these reservoirs in each of the pilot areas;
- (c) all proposed wells within the 25 spacing units identified above may not be drilled because the data collected from the initial wells will be used to modify the pilot project as it progresses; and
- (d) Mallon sent notice to all parties affected by this application and none of the parties objected to the program, well locations, or increased well density.

(14) Mallon presented geological evidence, which supports the following findings.

- (a) The Pictured Cliffs, Ojo Alamo, Nacimiento and San Jose formations within the proposed pilot areas consist of multiple, stacked, separate sandstone reservoirs with lateral stratigraphic discontinuities and sealing faults, which result in multiple no-flow boundaries in the subject formations. The drilling of pilot wells is needed to determine the well-density

requirements for optimum recovery efficiency of reserves in these producing intervals.

- (b) The Pictured Cliffs formation consists of a fine-grained sandstone in north-south oriented marginal marine sandbars, which are unlikely to communicate without permeability enhancement from fracturing. Drainage areas are thought to be elongated along the primary, north-south fracture orientation. The areas where there is evidence of communication between wells in the Pictured Cliffs formation are where the wells are located north-south of each other and therefore parallel to the primary fracture orientation. Undrained reservoir may be encountered with east-west step-out development perpendicular to the general orientation of this formation.
- (c) The Ojo Alamo formation of the Tertiary system is comprised of fine-grained to medium-grained sandstone and, as a relatively tight sand, relies on permeability enhancement through fracturing for economic production. The primary, north-south fracture orientation suggests the possibility of encountering undrained reservoir by step-out development east and west from the current wells in this interval. The formation varies in thickness from well to well and drainage areas may be irregular and limited by lateral porosity and permeability variations due to fracture orientations and depositional and lithologic discontinuities and sealing faults.
- (d) The Nacimiento formation of the Tertiary system is comprised of discontinuous fluvial sandstone reservoirs with limited aerial extent due to rapid lateral depositional changes, which suggests that increased well density may be needed to produce the reserves in this portion of the Tertiary system.
- (e) The San Jose formation of the Tertiary system is comprised of stacked alluvial and fluvial sandstones with lateral discontinuities where additional reserves may be recoverable with increased well density.

(15) Mallon presented engineering evidence, which supports the following findings.

- (a) The producing intervals in the Pictured Cliffs formation and/or Tertiary system to be tested in the proposed pilot areas demonstrate substantial variations from zone to zone in water resistivities, clay contents and permeability; and the average recovery factor for wells in all zones in the pilot project areas is approximately 25 percent of the gas in place.
- (b) The average well performance in the Pictured Cliffs formation is typical for a tight reservoir with fracturing, showing an early rapid decline and a very long period of shallow decline. Wells in this formation are recovering approximately 20 percent of the gas in place.
- (c) There is a wide variation in well performance in the Ojo Alamo formation, and the wells produce water that does not appear to be associated with a gas-water contact but instead is migrating through fractures. Ojo Alamo wells demonstrate an average recovery efficiency of approximately 20 percent.
- (d) While there is limited data on the Nacimiento formation, a recovery factor of 80 percent or more should be obtained from wells in this formation. However, due to the lenticular nature of the sands that do not exist over full 160-acre units, recovery factors for these wells are averaging approximately 23 percent.
- (e) There is a wide variation in the well performance in the San Jose formation that appears to result from individual layers declining at different rates. Wells in this formation produce water in volumes that vary from well to well. Recovery factors in the San Jose formation average approximately 40 percent although half of the wells recover less than this volume suggesting that there may be recoverable reserves in adjoining 80-acre tracts not being drained by existing wellbores.

(16) There are sufficient differences in the performance of each of the Tertiary producing formations that each should be tested and studied separately.

(17) Approval of the proposed pilot wells will afford an opportunity to gather the

additional data to further study the reservoir and determine if increased well density is needed to efficiently produce the reserves from the Pictured Cliffs formation and/or Tertiary system.

(18) The geologic complexity of the formations observed in each pilot area well in each producing interval will dictate the number of wells drilled and the data needed to ultimately determine the appropriate well density needed to efficiently drain these reservoirs.

(19) Approval of Mallon's application will serve to provide data for reservoir engineering and geological studies for the ultimate purposes of determining proper well density within the Pictured Cliffs formation, which may include the East Blanco-Pictured Cliffs Pool (72400), and/or the Tertiary system [Cabresto Canyon-Tertiary Pool (97037) or La Jara Canyon-Tertiary Pool (97036)], is in the best interest of conservation, and will serve to protect correlative rights and prevent waste.

(20) The five existing spacing units within the Cabresto Canyon-Tertiary Pool, as described in Finding Paragraph No. (8) above, were previously approved by Division Administrative Order SD-02-03, for the simultaneous dedication of two wells within a single 160-acre, more or less, spacing unit; the portion of the application pertaining to these units can therefore be **dismissed**.

IT IS THEREFORE ORDERED THAT:

(1) As an exception to Division Rule 104.D (3), which restricts the number of producing wells within a single gas spacing unit within non-prorated gas pools to only one, the applicant, Mallon Oil Company ("Mallon"), is hereby authorized to conduct a pilot infill drilling program within the following described twenty-five (25) 160-acre, more or less, spacing units in the Pictured Cliffs formation, which may include the East Blanco-Pictured Cliffs Pool (72400), by drilling and producing one infill gas well (two producing gas wells) per unit:

- (a) PILOT AREA NO. 1 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
 - (i) the 113.01 acres, being a non-standard gas spacing unit, comprising Lots 9 and 10 of Irregular Section 6;
 - (ii) the 151.31 acres comprising Lots 1 and 2 and the S/2 NE/4 (NE/4 equivalent) of Section 8;

- (iii) the 160 acres comprising the SE/4 of Section 8;
 - (iv) the 160 acres comprising the NE/4 of Section 17;
 - (v) the 160 acres comprising the SW/4 of Section 17; and
 - (vi) the 160 acres comprising the NE/4 of Irregular Section 18.
- (b) PILOT AREA NO. 2 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
- (i) the 160 acres comprising the NE/4 of Irregular Section 19;
 - (ii) the 160 acres comprising the SE/4 of Section 20;
 - (iii) the 160 acres comprising the SW/4 of Section 20;
 - (iv) the 175.15 acres comprising Lots 1 and 2 and the W/2 NE/4 (NE/4 equivalent) of Section 29;
 - (v) the 160 acres comprising the NW/4 of Section 29;
 - (vi) the 177.31 acres comprising Lots 4 and 5 and the N/2 SW/4 (SW/4 equivalent) of Section 29; and
 - (vii) the 160 acres comprising the NE/4 of Irregular Section 30.
- (c) PILOT AREA NO. 3 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):

Section 9.

- (2) As an exception to Division Rule 104.D (3), Mallon is also authorized to

- (i) the 160 acres comprising the NE/4 of Section 33;
 - (ii) the 160 acres comprising the NW/4 of Section 34;
 - (iii) the 160 acres comprising the SE/4 of Section 34;
 - (iv) the 160 acres comprising the SW/4 of Section 35;
 - (v) the 160 acres comprising the SE/4 of Section 35; and
 - (vi) the 160 acres comprising the NE/4 of Section 35.
- (d) PILOT AREA NO. 4 (TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM, RIO ARriba COUNTY, NEW MEXICO):
- (i) the 160 acres comprising the SW/4 of Section 4;
 - (ii) the 160 acres comprising the SE/4 of Section 5;
 - (iii) the 160 acres comprising the SW/4 of Section 5;
 - (iv) the 160 acres comprising the SW/4 of Section 8;
 - (v) the 160 acres comprising the SE/4 of Section 8; and
 - (vi) the 160 acres comprising the SW/4 of Section 9.

- (2) As an exception to Division Rule 104.D (3), Mallon is also authorized to

conduct a pilot infill drilling program within the following-described twenty (20) 160-acre, more or less, spacing units in the Tertiary system [Cabresto Canyon-Tertiary Pool (97037) or La Jara Canyon-Tertiary Pool (97036)], by drilling and producing one infill gas well (two producing gas wells) per unit:

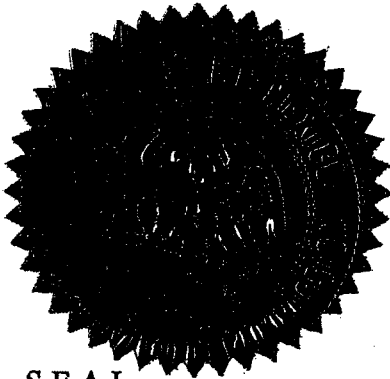
- (a) PILOT AREA NO. 1 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARriba COUNTY, NEW MEXICO):
 - (i) the 113.01 acres, being a non-standard gas spacing unit, comprising Lots 9 and 10 of Irregular Section 6;
 - (ii) the 160 acres comprising the NE/4 of Section 17;
 - (iii) the 160 acres comprising the SW/4 of Section 17; and
 - (iv) the 160 acres comprising the NE/4 of Irregular Section 18.
- (b) PILOT AREA NO. 2 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARriba COUNTY, NEW MEXICO):
 - (i) the 160 acres comprising the NE/4 of Irregular Section 19;
 - (ii) the 160 acres comprising the SW/4 of Section 20;
 - (iii) the 175.15 acres comprising Lots 1 and 2 and the W/2 NE/4 (NE/4 equivalent) of Section 29; and
 - (iv) the 160 acres comprising the NE/4 of Irregular Section 30.
- (c) PILOT AREA NO. 3 (TOWNSHIP 30 NORTH, RANGE 3 WEST, NMPM, RIO ARriba COUNTY, NEW MEXICO):

- (i) the 160 acres comprising the NE/4 of Section 33;
 - (ii) the 160 acres comprising the NW/4 of Section 34;
 - (iii) the 160 acres comprising the SE/4 of Section 34;
 - (iv) the 160 acres comprising the SW/4 of Section 35;
 - (v) the 160 acres comprising the SE/4 of Section 35; and
 - (vi) the 160 acres comprising the NE/4 of Section 35.
- (d) PILOT AREA NO. 4 (TOWNSHIP 29 NORTH, RANGE 2 WEST, NMPM, RIO ARRIBA COUNTY, NEW MEXICO):
- (i) the 160 acres comprising the SW/4 of Section 4;
 - (ii) the 160 acres comprising the SE/4 of Section 5;
 - (iii) the 160 acres comprising the SW/4 of Section 5;
 - (iv) the 160 acres comprising the SW/4 of Section 8;
 - (v) the 160 acres comprising the SE/4 of Section 8; and
 - (vi) the 160 acres comprising the SW/4 of Section 9.
- (3) The provisions of Division Administrative Order NSL-4355, dated September

7, 1999, as corrected by order dated October 29, 2002, governing unorthodox gas well locations, shall also govern the pilot infill wells proposed by Mallon within the Mallon/Jicarilla Consolidated Contract Area, and the portions of this application which relate to unorthodox gas well locations are therefore unnecessary.

(4) Jurisdiction of this case 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.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery
LORI WROTENBERY
Director