# CAMPBELL, CARR, BERGE

# & SHERIDAN, P.A.

LAWYERS

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March 24, 1995

### HAND-DELIVERED

William J. LeMay, Director Oil Conservation Division New Mexico Department of Energy, Minerals and Natural Resources 2040 South Pacheco Street Santa Fe, New Mexico 87505

Attn: Michael E. Stogner, Chief Engineer

Re: Application of Yates Petroleum Corporation for Administrative Approval of an Unorthodox Gas well Location for its Catterson "SS" Federal No. 7 Well, located 2310 feet from the South line and 660 feet from the East line of Section 21, Township 7 South, Range 26 East, N.M.P.M., Chaves County, New Mexico

Gentlemen:

Yates Petroleum Corporation hereby requests administrative approval of an unorthodox gas well location for its Catterson "SS" Federal No. 7 Well in the Pecos Slope-Abo Gas Pool at a point 2310 feet from the South line and 660 feet from the East line of Section 21, Township 7 South, Range 26 East, N.M.P.M., Chaves County, New Mexico. The NE/4 SE/4 of Section 21 is dedicated to the well.

An unorthodox location for this well was previously approved by Division Order No. R-9976-A at 2310 feet from the South line and 790 feet from the East line of said Section 21. However, the Bureau of Land Management has required that this location be moved to avoid the drainage area shown on Exhibit A to this application.

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Oil Conservation Division

Case 1/283

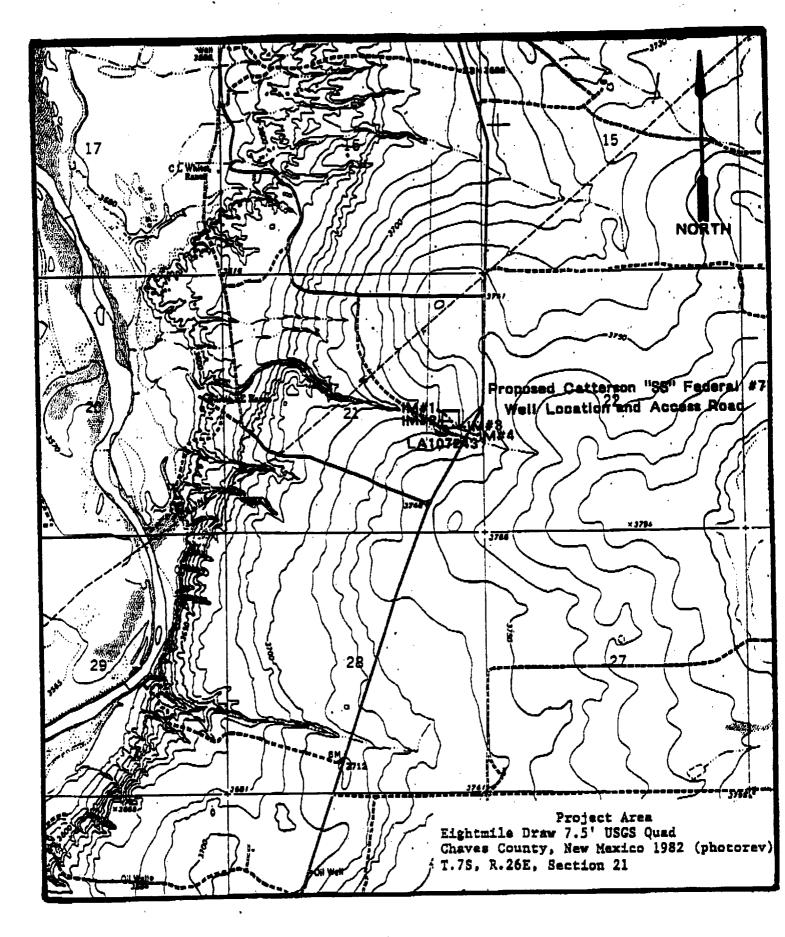
William J. LeMay, Director Oil Conservation Division New Mexico Department of Energy, Minerals and Natural Resources March 24, 1995 Page 2

Yates Petroleum Corporation operates all offsetting tracts affected by this unorthodox location except for Sanders Petroleum Corporation an offsetting operator of the West half of Section 22 and Merit Energy Company an offsetting operator of the North half of Section 21. A copy of the application and a request for waiver have been provided on this date to both Sanders Petroleum Corporation and Merit Energy Company by certified mail. Attached hereto as Exhibit B is a plat showing the ownership of all leases offsetting the same unit for which the unorthodox location is sought and all wells completed thereon. Also enclosed is a copy of OCD Form C-102 which shows the survey location for this well.

Your consideration of this administrative application is appreciated.

Very truly yours,

WILLIAM F. CARR ATTORNEY FOR YATES PETROLEUM CORPORATION WFC:mlh Enclosures cc: Tim Gum, Supervisor New Mexico Oil Conservation Division Post Office Drawer DD Artesia, New Mexico 88210



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OIL CONSERVATION DIVISION PO Box 2088 Santa Fe, NM 87504-2088

	Form C-102
	Revised February 10, 1994
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# WELL LOCATION AND ACREAGE DEDICATION PLAT

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### 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. 10793 Order No. R-9976

# APPLICATION OF YATES PETROLEUM CORPORATION FOR A PILOT GAS ENHANCED RECOVERY PROJECT, CHAVES COUNTY, NEW MEXICO.

#### ORDER OF THE DIVISION

#### **BY THE DIVISION:**

This cause came on for hearing at 8:15 a.m. on August 12, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 24th day of September, 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, Yates Petroleum Corporation, seeks authority to implement a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, by drilling an additional gas well within the following described standard 160-acre gas spacing and proration units in order to gather data to determine if additional infill drilling is necessary to effectively and efficiently drain the Abo formation:

TOWNSHI	P 6 SOUTH, 1	RANGE 25	EAST. NMPM
Section 8:	NE/4		
Section 11:	SE/4		
Section 15:	SW/4		
Section 24:	SW/4		
Section 26:	NE/4		
Section 35:	NE/4		

(3) In addition, the applicant seeks to include all of Irregular Section 1, Township 6 South, Range 25 East, NMPM, within the proposed pilot infill drilling area. Section 1 is a non-standard gas spacing and proration unit comprising some 201.29 acres.

(4) Within the subject gas proration units, the applicant proposes to produce both wells unrestricted for a temporary period of two years in order to gather geologic and engineering data.

(5) At the time of the hearing the applicant requested that the SW/4 of Section 15, Township 6 South, Range 25 East, NMPM, not be included within the proposed pilot infill drilling area.

(6) The Pecos Slope-Abo Gas Pool is currently governed by Division General Rules and Regulations which require 160-acre standard gas proration units and designated well locations. In addition, Division Rules and/or Policy currently generally prohibit the drilling of additional gas wells within standard proration units in non-prorated gas pools.

(7) According to evidence and testimony, Yates Petroleum Corporation drilled a number of infill wells in the Pecos Slope-Abo Gas Pool during 1992. Several of the wells encountered bottomhole pressures in the Abo formation in the range of 85-90 percent of original bottomhole reservoir pressure.

(8) Geologic evidence presented by the applicant indicates that the Abo formation in this area is comprised of three producing zones, each containing numerous distinct sand intervals. The sand intervals are generally vertically segregated and some are laterally discontinuous.

(9) Because of the nature of the sand intervals in this area, the applicant contends that some of the existing wells in the pool cannot efficiently and effectively drain the gas reserves in the Abo formation underlying their proration units.

(10) Engineering evidence presented by the applicant indicates that the drainage area for wells within the Pecos Slope-Abo Gas Pool varies considerably, and the average drainage area for wells within the specific area analyzed by the applicant is approximately 120 acres.

(11) The preliminary geologic and engineering evidence presented by the applicant indicates that there may be some areas within the Pecos Slope-Abo Gas Pool where infill drilling would be appropriate or necessary in order to efficiently and effectively recover gas reserves which would otherwise not be recovered.

(12) In selecting the proration units and well locations for the pilot project area, the applicant utilized the following criteria:

- a) the location must have good sand thickness as per Yates' geologic interpretation;
- b) the location must be on trend with good cumulative production; and,
- c) the location must be outside the calculated drainage areas of the existing wells.

(13) All of the proration units proposed to be included in the pilot project area, with the exception of the NE/4 of Section 8 and the SW/4 of Section 24, are completely offset by acreage owned or controlled by Yates Petroleum Corporation.

(14) The NE/4 of Section 8 is offset to the northeast by the Quail Federal Well No. 8, and the SW/4 of Section 24 is offset to the northwest by the Quail Federal Well No. 2, both Pecos Slope-Abo Gas Pool producing wells currently operated by Great Western Drilling Company.

(15) Notice of this application was provided to all operators in the Pecos Slope-Abo Gas Pool, including Great Western Drilling Company, and no operator and/or interest owner appeared in opposition to the application.

(16) Approval of the application will afford the applicant the opportunity to gather geologic and engineering data to:

- a) confirm its geologic interpretation of the reservoir;
- b) determine the extent of drainage within each respective proration unit by analyzing reservoir pressure and production data.

(17) Approval of the application should further enable the applicant to determine if the criteria it is using to select infill well locations is effective.

(18) Approval of the subject application and the implementation of the proposed pilot infill drilling project should result in the acquisition of information about the Pecos Slope-Abo Gas Pool which may aid in the ultimate determination as to the most effective method of developing the reservoir, thereby preventing waste.

(19) This case should be reopened at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant should be required to appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

### **IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Yates Petroleum Corporation, is hereby authorized to implement a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, by drilling an additional gas well within each of the following described standard 160-acre gas spacing and proration units:

TOWNSHI	<u>P 6 SOUTH.</u>	RANGE	25 EAST.	<u>NMPM</u>
Section 8:	NE/4			
Section 11:	SE/4			
Section 24:	SW/4			
Section 26:	NE/4			
Section 35:	NE/4			

(2) In addition, the applicant is authorized to include within the pilot project area and drill an additional well within Irregular Section 1, Township 6 South, Range 25 East, NMPM, being a non-standard gas spacing and proration unit comprising some 201.29 acres.

(3) The applicant is further authorized to produce both wells within each of the proration units described above unrestricted for a temporary period of two years for the purpose of gathering geologic and engineering data.

(4) This case shall be reopened at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon the motion of the Division, at which time the applicant shall appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

(5) Jurisdiction of this cause 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 *PIVISION* 00 WILLIAM J. LEMAY Director

SEAL

# 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 NOS. 10981 and 11004 Order No. R-9976-A

# APPLICATION OF YATES PETROLEUM CORPORATION TO AMEND DIVISION ORDER NO. R-9976 TO EXPAND ITS PILOT GAS ENHANCED RECOVERY PROJECT WITHIN PORTIONS OF THE PECOS SLOPE-ABO GAS POOL, CHAVES COUNTY, NEW MEXICO.

# APPLICATION OF YATES PETROLEUM CORPORATION FOR THIRTEEN UNORTHODOX INFILL GAS WELL LOCATIONS, CHAVES COUNTY, NEW MEXICO.

### ORDER OF THE DIVISION

#### **<u>BY THE DIVISION</u>**:

Case No. 10981 came on for hearing at 8:15 a.m. on May 26, 1994, at Santa Fe, New Mexico, before Examiner David R. Catanach.

Case No. 11004 came on for hearing at 8:15 a.m. on June 23, 1994, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 26th day of July, 1994, the Division Director, having considered the testimony, the record, and the recommendations of the Examiners, 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-9976 issued in Case No. 10793 on September 24, 1993, the Division, upon application of Yates Petroleum Corporation, approved a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, for the purpose of allowing the applicant the opportunity to gather data to determine if infill drilling is necessary to effectively and efficiently drain the Abo formation.

(3) The applicant was initially authorized by said Order No. R-9976 to drill an infill gas well within each of the following described 160-acre standard gas proration units, and within a non-standard 201.29-acre gas spacing and proration unit comprising all of Irregular Section 1, Township 6 South, Range 25 East, NMPM:

<u>TOWNSHIP</u>	<u>6 SOUTH,</u>	RANGE	25	EAST,	<u>NMPM</u>
Section 8:	NE/4				
Section 11:	SE/4				
Section 24:	SW/4				
Section 26:	NE/4				
Section 35:	NE/4				

(4) Order No. R-9976 further authorized the applicant to produce both wells within each of the proration units described above unrestricted for a temporary period of two years for the purpose of gathering geologic and engineering data.

(5) The applicant in Case No. 10981, Yates Petroleum Corporation, seeks to amend Division Order No. R-9976 to expand its pilot infill drilling program within the Pecos Slope-Abo Gas Pool by drilling an additional gas well on each of the following existing 160-acre standard gas proration units, and on a 166.0-acre non-standard gas proration unit comprising all of Irregular Section 5, Township 6 South, Range 26 East, NMPM:

TOWNSHIP 5 SC	DUTH, RANGE 25 EAST, NMPM
Section 16: NE/	4
Section 32: SW	/4
TOWNSHIP 6 SO	<u>DUTH, RANGE 26 EAST, NMPM</u>
Section 7: NE/	4
Section 18: SE/	4
Section 19: SE/	4
Section 31: NE/	4
TOWNSHIP 7 SO	UTH, RANGE 25 EAST, NMPM
TOWNSHIP 7 SO Section 3: SE/4	
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Section 3: SE/4 Section 10: NW Section 11: SE/4 Section 13: NW Section 15: NW	4 4 /4 /4 /4
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#### TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM

Section 6: NE/4 Section 18: SE/4 Section 19: SW/4 Section 21: SE/4

(6) The applicant further seeks authority to produce both wells within the abovedescribed proration units unrestricted until August, 1995, at which time Case No. 10793 is to be reopened pursuant to the provisions of Order No. R-9976, to allow the applicant to appear and present the results of the pilot infill drilling program and make recommendations, if applicable, to the rules which currently govern the Pecos-Slope Abo Gas Pool.

(7) In companion Case No. 11004, Yates Petroleum Corporation, seeks approval of thirteen unorthodox gas well locations within the existing or proposed expanded pilot infill drilling area in the Pecos Slope-Abo Gas Pool.

(8) Inasmuch as the subject matter of Case Nos. 10981 and 11004 are related, one order should be entered for both cases.

(9) The applicant presented the initial geologic and engineering results it obtained in the drilling of the six infill wells approved by Order No. R-9976. According to applicant's evidence and testimony, five of the six wells were deemed to have been geologically successful in terms of predicting and encountering sufficient sand thickness so as to establish commercial gas production.

(10) The engineering evidence and testimony presented by the applicant indicates that:

- a) all six wells encountered a reservoir pressure higher than the reservoir pressure within the existing well on the proration unit. Of the six, four wells encountered significantly higher reservoir pressures;
- b) four of the wells are currently producing at rates significantly higher than the average rate of the wells offsetting the proration unit;
- c) four of the wells should recover an average of 570 MMCF of gas reserves which would otherwise not be recovered by the existing well on the proration unit.

(11) The geologic and engineering data presented by the applicant indicates that four of the subject wells have encountered pay sands or low permeability portions of the reservoir which were not encountered and/or drained by the original well on the proration unit.

(12) The applicant contends that the results of the infill drilling conducted thus far are very encouraging but are inconclusive in determining whether infill drilling is necessary in the Pecos Slope-Abo Gas Pool.

(13) Division records indicate that the Pecos Slope-Abo Gas Pool embraces a substantially large area in portions of Townships 4 and 5 South, Ranges 24 and 25 East, and Townships 6, 7 and 8 South, Ranges 24, 25, 26 and 27 East, NMPM.

(14) The initial pilot infill drilling program was limited to areas within Township 6 South, Range 25 East, NMPM.

(15) The applicant's proposed expanded infill drilling program will encompass a much broader area of the pool than was tested in the initial pilot area.

(16) The reservoir characteristics are generally not consistent within the Pecos Slope-Abo Gas Pool and therefore additional geologic and engineering data reflecting a larger cross sectional area of the pool will be beneficial in determining the necessity of infill drilling.

(17) All of the proration units proposed to be included within the expanded pilot project area, with the exception of the SE/4 of Section 21, are completely offset by acreage owned or controlled by Yates Petroleum Corporation.

(18) The Catterson "SS" Federal Well No. 7, proposed to be drilled at an unorthodox location in the SE/4 of Section 21, will encroach on a tract owned by Merit Energy Company. The applicant presented, as evidence, a waiver of objection to the drilling of this infill well at the unorthodox location from Merit Energy Company.

(19) Notice of this application was provided to all operators in the Pecos Slope-Abo Gas Pool, and no operator and/or interest owner appeared in opposition to the application.

(20) Approval of the expansion of the pilot infill drilling program should result in the acquisition of additional and more thorough geologic and engineering data regarding the Pecos Slope-Abo Gas Pool which may ultimately aid in the determination as to the most effective method of developing the reservoir, thereby preventing waste.

(21) The applicant further seeks unorthodox location approval for the following described wells which are located within the original infill drilling pilot area:

#### WELL NAME & NUMBER

#### WELL LOCATION

 Kilgore "SO" No. 3
 2310' FSL &

 Sacra "SA" Com No. 11
 2310' FNL &

2310' FSL & 1980' FWL (Unit K) 24-6S-25E 2310' FNL & 2310' FEL (Unit G) 35-6S-25E

(22) In addition, the applicant seeks unorthodox location approval for the following eleven wells to be located within the expanded infill drilling pilot area:

#### WELL NAME & NUMBER

Paulette "PV" State No. 5 Dee "OQ" State No. 5 Hansel "ANH" Federal Com No. 1 Savage "NI" Federal No. 5 Federal "HJ" No. 11 Thorpe "MI" Federal No. 15 Federal "HY" No. 13 Crandall "UD" No. 2 Leeman "OC" Federal No. 5 Nickey "RF" Federal No. 3 Catterson "SS" Federal No. 7

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#### WELL LOCATION

2310' FNL & 1650' FEL (Unit G) 16-5S-25E 2310' FSL & 2310' FWL (Unit K) 32-5S-25E 2110' FNL & 790' FEL (Unit H) 7-6S-26E

2310' FSL & 990' FEL (Unit I) 19-6S-26E 2080' FNL & 1650' FEL (Unit G) 31-6S-26E 990' FNL & 2310' FWL (Unit C) 22-7S-25E 2310' FSL & 460' FEL (Unit I) 33-7S-25E 510' FNL & 1980' FEL (Unit B) 6-7S-26E 2310' FSL & 1980' FEL (Unit J) 18-7S-26E 2310' FSL & 2310' FWL (Unit K) 19-7S-26E 2310' FSL & 790' FEL (Unit I) 21-7S-26E

(23) Applicant's testimony indicates that the above-described unorthodox gas well locations are geologically necessary in order to maximize sand thickness within the various pay intervals. In addition, the unorthodox locations are adjacent to and on trend with existing gas wells exhibiting substantial cumulative production.

(24) All of the affected offset acreage to the proposed unorthodox gas well locations is owned and controlled by Yates Petroleum Corporation with the exception of the SE/4 of Section 21 as described in Finding No. (18) above.

(25) No offset operator and/or interest owner appeared at the hearing(s) in opposition to the proposed unorthodox locations.

(26) The proposed unorthodox gas well locations should be approved.

(27) Case No. 10981 should be reopened in conjunction with Case No. 10793 at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant should be required to appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

### **IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Yates Petroleum Corporation, is hereby authorized to expand its pilot infill drilling program within the Pecos Slope-Abo Gas Pool by drilling an additional gas well on each of the following existing 160-acre standard gas proration units, and on a 166.0-acre non-standard gas proration unit comprising all of Irregular Section 5, Township 6 South, Range 26 East, NMPM:

TOWNSHIP 5 SOUTH, RANGE 25 EAST, NMPM
Section 16: NE/4
Section 32: SW/4
TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPM
Section 7: NE/4
Section 18: SE/4
Section 19: SE/4
Section 31: NE/4
TOWNSHIP 7 SOUTH, RANGE 25 EAST, NMPM
Section 3: SE/4
Section 10: NW/4
Section 11: SE/4
Section 13: NW/4
Section 15: NW/4
Section 22: NW/4
Section 25: NW/4
Section 27: SE/4
Section 33: SE/4
TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM
Section 6: NE/4
Section 18: SE/4
Section 19: SW/4
Section 21: SE/4

(2) Each of the gas proration units described above shall be simultaneously dedicated to the existing well and to an infill well to be drilled by the applicant.

(3) The applicant is further authorized to produce both wells within the abovedescribed proration units unrestricted until August, 1995.

(4) This case shall be reopened in conjunction with Case No. 10793 at an examiner hearing in August, 1995 unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant shall appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

(5) The applicant is further authorized to drill the following infill gas wells at unorthodox locations:

WELL LOCATION

WELL NAME & NUMBER 2310' FSL & 1980' FWL (Unit F 24-6S-25E Kilgore "SO" No. 3 Sacra "SA" Com No. 11 2310' FNL & 2310' FEL (Unit G, 35-6S-25E) 2310' FNL & 1650' FEL (Unit G) 16-5S-25E Paulette "PV" State No. 5 Dee "OO" State No. 5 2310' FSL & 2310' FWL (Unit K) 32-5S-25E Hansel "ANH" Federal 2110' FNL & 790' FEL (Unit H) 7-6S-26E Com No. 1 2310' FSL & 990' FEL (Unit I) 19-6S-26E Savage "NI" Federal No. 5 2080' FNL & 1650' FEL (Unit G) 31-6S-26E Federal "HJ" No. 11 Thorpe "MI" Federal No. 15 990' FNL & 2310' FWL (Unit C) 22-7S-25E Federal "HY" No. 13 2310' FSL & 460' FEL (Unit I) 33-7S-25E Crandall "UD" No. 2 510' FNL & 1980' FEL (Unit B) 6-7S-26E Leeman "OC" Federal No. 5 2310' FSL & 1980' FEL (Unit J) 18-7S-26E Nickey "RF" Federal No. 3 2310' FSL & 2310' FWL (Unit K) 19-7S-26E Catterson "SS" Federal 2310' FSL & 790' FEL (Unit I) 21-7S-26E No. 7

(6) Jurisdiction of this cause 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

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