



207 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210

TELEPHONE (505) 748-1331

S. P. YATES
PRESIDENT
MARTIN YATES, III
VICE PRESIDENT
JOHN A. YATES
VICE PRESIDENT
B. W. HARPER
SEC. TREAS.

December 13, 1985

Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

Sil. Ken. Lanning
Case 8818

Dear Sir:

Attached please find your copy of Yates Petroleum Corporation's application for authorization to inject for pressure maintenance in the Avalon Delaware Field.

If you have any questions regarding the application, please do not hesitate to call me.

Sincerely yours,

David Lanning
Petroleum Engineer

DL:rj

Attachments

APPLICATION FOR AUTHORIZATION TO INJECT

Case 8818

- I. Purpose: ☐ Secondary Recovery ☒ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: Yates Petroleum Corporation
Address: 207 S. 4th Street; Artesia, N.M. 88210
Contact party: David Lanning Phone: (505) 748-1331
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- * VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- * X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- * XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: David L. Lanning Title Engineer
Signature: *David L. Lanning* Date: *December 13, 1985*
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

Yates Petroleum Corporation		Stonewall "YE" State	
OPERATOR	LEASE		
#1	1650' FSL & 1980' FEL	30	20S 28E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP RANGE

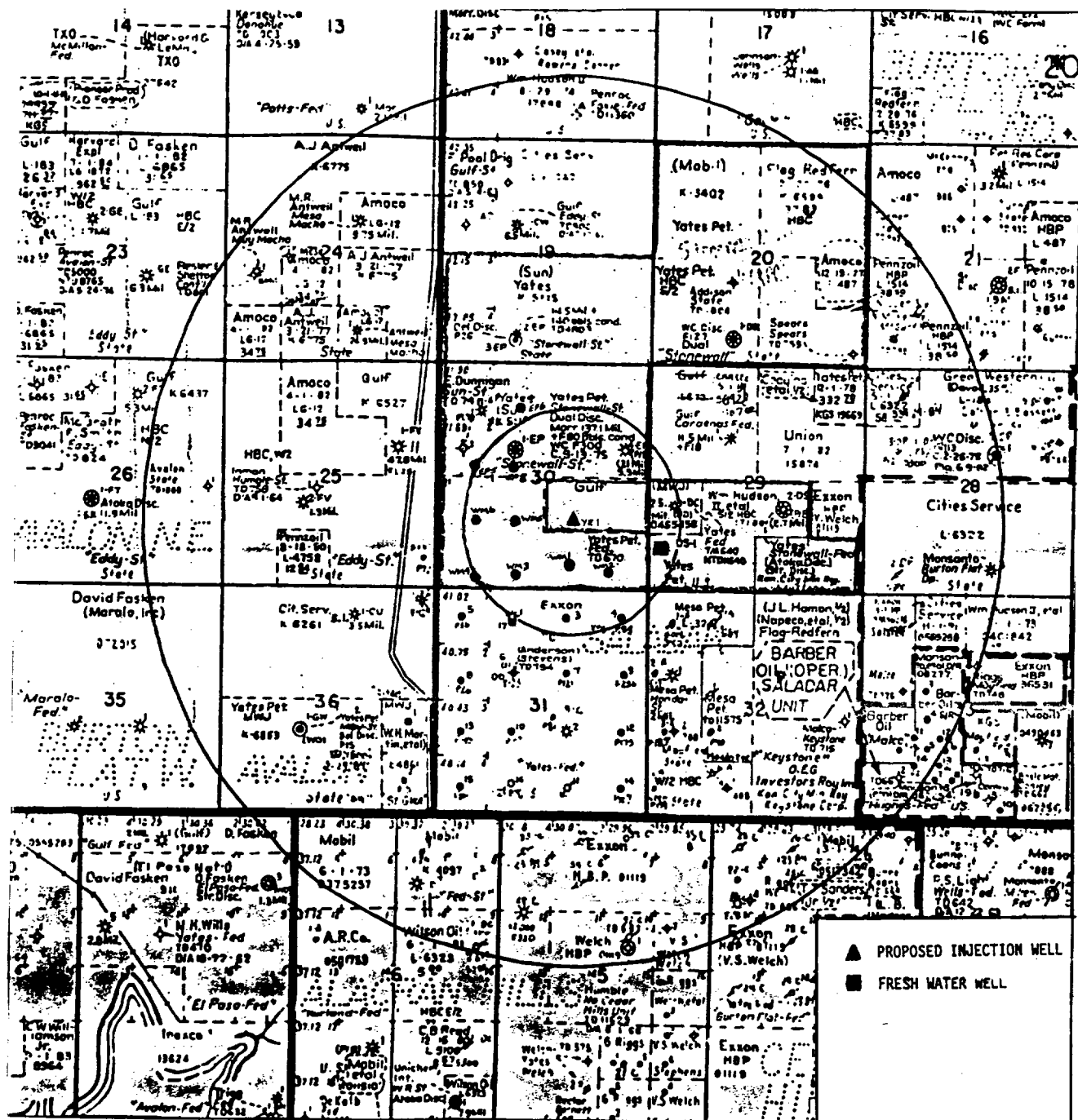
Schematic		Tubular Data	
	13 3/8" 543' 550' sx (circ.)	<u>Surface Casing</u> Size <u>13 3/8"</u> Cemented with <u>550</u> sx. TOC <u>Surface</u> feet determined by <u>circulated</u> Hole size <u>17 1/2"</u>	
	8 5/8" 2415' 900 sx (circ.)	<u>Intermediate Casing</u> Size <u>8 5/8"</u> Cemented with <u>900</u> sx. TOC <u>Surface</u> feet determined by <u>circulated</u> Hole size <u>12 1/4"</u>	
	2595-2732'	<u>Long string</u> Size <u>5 1/2"</u> Cemented with <u>750</u> sx. TOC <u>2000</u> feet determined by <u>calculation</u> Hole size <u>7 7/8"</u> Total depth <u>4950'</u>	
	3677-3685'	<u>Injection interval</u> <u>2595</u> feet to <u>3685</u> feet (<u>perforated</u> or open-hole, indicate which)	
	5 1/2" 4950' 750 sx		

Tubing size 2 3/8" lined with Plastic set in a
 (material)
Baker AD-1 Tension (or equivalent) packer at 2500 feet
 (brand and model)
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation Delaware
- Name of field or Pool (if applicable) Avalon
- Is this a new well drilled for injection? ☐ Yes ☒ No
 If no, for what purpose was the well originally drilled? Producer
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Saladar Yates - 600'; Avalon Bone Springs - 4900'; Avalon Wolfcamp - 8600'; Burton Flat Atoka - 10,500'; Burton Flat Morrow - 11,000'

T20S-R28E



PART VI C-108
DETAILS OF WELLS WITHIN ONE-HALF MILE OF PROPOSED INJECTION WELL

WELL NAME & LOCATION	SPUD DATE	COMPLETION DATE	TYPE	TD	CONSTRUCTION	COMPLETION RECORD
Federal DS #1 29-205-28E 990' FSL & 330' FML	8-28-74	11-01-74	Abn.	670'	8 5/8" 285'/200 sx	Released to rancher for water well. Temporarily abandoned.
Federal DC #1 29-205-28E 1980' FSL & 660' FML	Re-Spud 4-16-78	9-02-78 5-14-84	Gas Shut-In	OTD 640' 11,540'	8 5/8" 285'/200 sx 13 3/8" 585'/550 sx 8 5/8" 2845'/1840 sx 5 1/2" 11,495'/650 sx	Perf. 10,524-10,634', A/1500 gal. Sg2. 10674-10634' R/C 11227-11276', A/2500 gal.
Stonewall WM State #1 30-205-28E 560' FSL & 1980' FEL	2-16-83	6-02-83	Oil Producer	4,953'	20" 40'/set 10 3/4" 545'/500 sx 8 5/8" 2485'/1350 sx 5 1/2" 4953'/700 sx	Perf. 2587-2680', A/3000 gal. SWF 40000 gal. + 52000#
Stonewall WM State #2 30-205-28E 480' FSL & 990' FEL	9-20-83	8-07-84	Gas Shut-In	5,450'	13 3/8" 546'/550 sx 8 5/8" 2410'/1050 sx 5 1/2" 4960'/750 sx	PB OH 5216', A/2000 gal. SWF 40000 gal. + 80000#
Stonewall WM State #3 30-205-28E 330' FSL & 1980' FML	6-14-83	7-22-83	Oil Shut-In	4,865'	13 3/8" 545'/650 sx 8 5/8" 2470'/550 sx 5 1/2" 4864'/500 sx	Perf. 2530-2622', 3422-3602' A/15500 gal., SWF 27000 gal. + 1621 MCF N2 + 117500#
Stonewall WM State #4 30-205-28E 330' FSL & 990' FML	8-29-83	11-28-83	Oil Producer	4,866'	13 3/8" 535'/500 sx 8 5/8" 2642'/1300 sx 5 1/2" 4860'/750 sx	Perf. 2524-3671', A/4500 gal. SWF 36000 gal. + 45000# SWF 40000 gal. + 52000#
Stonewall WM State #5 30-205-28E 1650' FSL & 1980' FML	9-15-83	11-10-83	Oil Shut-In	4,900'	13 3/8" 535'/600 sx 8 5/8" 2404'/1355 sx 5 1/2" 4900'/700 sx	Perf. 3360-3367', 3487-3515', 3570-3576' A/10000 gal., Frac 10000 gal. wtr. + 9000 gal. Meth + 70000 gal. N2 Foam + 91000#
Stonewall WM State #6 30-205-28E 1650' FSL & 990' FML	11-04-83	12-27-83	Oil Producer	4,860'	20" 40'/set 13 3/8" 535'/550 sx 8 5/8" 2410'/800 sx 5 1/2" 4860'/800 sx	Perf. 3349-3527', A/8500 gal. SWF 60000 gal. + 78000#

DETAILS OF WELLS
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<u>WELL NAME & LOCATION</u>	<u>SPUD DATE</u>	<u>COMPLETION DATE</u>	<u>TYPE</u>	<u>TD</u>	<u>CONSTRUCTION</u>	<u>COMPLETION RECORD</u>
Stonewall EP State Com #1 30-20S-28E 1980' FNL & 1980' FNL	7-17-75	9-25-75	Gas Producer	11,478'	13 3/8" 612'/550 sx 8 5/8" 2799'/1650 sx 5 1/2" 11,380'/1300 sx	Perf. 11250-11258', Natural 9/75 Perf. 8880-8908', 9/75 Perf. 11054-11226', A/4000 gal. Sgz. 8880-8908' 7/82
Stonewall EP State Com #4 30-20S-28E 1980' FNL & 660' FEL	5-28-78 R/C 10-19-81	7-20-78	Gas Producer	11,572'	13 3/8" 626'/500 sx 8 5/8" 2800'/1840 sx 5 1/2" 11,525'/475 sx	Perf. 11136-11181', Natural Perf. 10553-10575'
Stonewall EP State #5 30-20S-28E 2310' FNL & 990' FNL	11-20-83	3-14-84	Oil Shut-In	4,870'	13 3/8" 553'/500 sx 8 5/8" 2420'/1600 sx 5 1/2" 4870'/800 sx	Perf. 4336-4346', A/1500 gal. Perf. 4252-4304', A/4000 gal. Perf. 4142-4183', A/3500 gal. Frac 70000 gal. 70% Foam + 97500# Perf. 3361-3730', A/10000 gal. Frac 160000 gal. 75% Foam + 222000#
Stonewall EP State #8 30-20S-28E 2310' FNL & 1980' FNL	2-26-84	4-04-84	Oil Producer	5,300'	13 3/8" 540'/425 sx 8 5/8" 2404'/950 sx 5 1/2" 5303'/750 sx	Perf. 3384-3688', A/6700 gal. Frac 60000 gal. 75% Foam + 195000#
Yates Federal C #1 31-20S-28E 660' FNL & 1980' FNL	3-25-82	6-19-82	Gas Producer	11,470'	13 3/8" 584'/950 sx 9 5/8" 3154'/985 sx 7" 10,395'/550 sx 5" 9901-11,467'/160 sx	Perf. 11040-11110', Natural
Yates Federal C #3 31-20S-28E 660' FNL & 1980' FEL	9-21-82	10-20-82	Oil Producer	4,702'	8 5/8" 605'/425 sx 5 1/2" 4702'/1050 sx	Perf. 3400-3608', A/6000 gal. SNF 23000 gal. + 106000#, CIBP @ 3350' w/ 30' cmt. Perf. 2546-2626', Frac 64000 gal. 75% Foam + 68000# Sgz. 2546-2626', CO to 3900' Prod. thru 3400-3608'
Yates Federal C #4 31-20S-28E 660' FNL & 660' FEL	12-01-82	1-06-83	Oil Producer	4,701'	8 5/8" 618'/400 sx 5 1/2" 4701'/1050 sx	Perf. 2574-2818' SNF 78000 gal. + 102000#

DETAILS OF WELLS
Page -3-

<u>WELL NAME & LOCATION</u>	<u>SPUD DATE</u>	<u>COMPLETION DATE</u>	<u>TYPE</u>	<u>TD</u>	<u>CONSTRUCTION</u>	<u>COMPLETION RECORD</u>
Yates Federal C #17 31-205-28E 760' FNL & 1980' FNL	8-28-83	9-13-83	Oil Producer	3,897'	13 3/8" 606'/1050 sx 8 5/8" 2482'/930 sx 5 1/2" 3887'/775 sx	Perf. 3562-3626', A/2500 gal., SWF 32000 gal. + 34000# CIBP @ 3500' w/30' cmt. Perf. 2568-2605', A/2500 gal., Frac 32000 gal. 75% Foam + 34000#

FORM C-108 SUPPLEMENT
STONEWALL "YE" STATE #1

VII. Proposed Operation.

This application is for the conversion of the Stonewall "YE" State well No. 1 from a producer to an injection well for the purpose of pressure maintenance in the Avalon Delaware pool.

Data on the proposed operation include:

- (1) The average injection rate will be approximately 400 BWPd and the maximum rate will be 1000 BWPd. The total volume of injected water is approximately 2,000,000 bbl.
- (2) A closed water system will be used.
- (3) The maximum injection pressure will be 735 psi (.2 psi/ft.). Higher pressures will be utilized if necessary, contingent upon the NMOCD's acceptance of step-rate injectivity tests.
- (4) The proposed injection water is produced formation water from the Delaware formation. A water analysis is attached (see Attachment 1).
- (5) Not applicable.

VIII. Geological Data on the Injection Zone.

Water will be injected into two porous intervals of the Delaware formation which are productive of oil and gas. The Delaware formation in the Avalon pool is approximately 2300 feet thick and the top of the Delaware sand is at approximately 2550' (\approx 700 feet SEA LEVEL elevation). The Delaware formation is primarily a light gray to tan, very fine grained, and loosely consolidated sandstone.

Underground Sources of Drinking Water.

The only known source of fresh water in the area of concern occurs in the Rustler formation at depths up to approximately 250'.

IX. No stimulation program is proposed.

X. Well logs have been filed with the Division district office in Artesia.

XI. The only fresh water well in the area, located in Sec.29-20S-28E, 990' FSL & 330' FWL, is not producing.



P. O. Box 423
Artesia, N. M. 88210

WATER ANALYSIS REPORT

Company Yates Petroleum Corp. Date 4-26-83

Field Delaware County Eddy State N.M.

Lease and Well No. Stonewall WM #1 Prod. Formation _____

Source of Sample wellhead

Sample of Prod. Water ☒ Inj. Water ☐ Other ☐

Date Collected _____ 4-26-83 Analyst N. Weed

WATER ANALYSIS PATTERN

(NUMBER BESIDE ION SYMBOL INDICATES me/l* SCALE UNIT)

Na ⁺ 20	15	10	5	0	5	10	15	20 Cl ⁻
Ca ⁺⁺								HCO ₃ ⁻
Mg ⁺⁺								SO ₄ ⁼
Fe ⁺⁺⁺								CO ₃ ⁼

Dissolved Solids
Constituent

MG/L (PPM)

EPM

Calcium 21,920 mg/l
Magnesium 58,080 mg/l
Sodium -
Iron -
Chloride 107,000 mg/l
Bicarbonate -
Carbonate 408 mg/l
Sulfate 1,550 mg/l

1096
4761
3014
14
32

ph 8.0
Sp. Gravity _____

Total Hardness 80,000 mg/l
Total Dissolved Solids 188,958 mg/l
Hydrogen Sulfide 0
Oxygen 0

Remarks:

KCL = 0

- XII. Yates petroleum Corporation has examined available geologic and engineering data and finds no evidence that there is any hydrologic connection between the Delaware zone and any fresh water aquifer in the area.

PART XIII C-108

IN THE MATTER OF THE APPLICATION OF :
YATES PETROLEUM CORPORATION FOR :
AUTHORIZATION TO INJECT FOR PRESSURE :
MAINTENANCE IN THE AVALON DELWARE :
FIELD, EDDY COUNTY, NEW MEXICO :
_____ :

AFFIDAVIT OF MAILING

STATE OF NEW MEXICO)
 :
COUNTY OF EDDY)

The undersigned, being first duly sworn, upon oath, states that on the 13th day of December, 1985, the undersigned did mail in the United States Post Office at Artesia, New Mexico, a true copy of the Application for Authorization to Inject, to the following named surface owner and offset operators within a one-half mile radius of the subject well, in a securely sealed, certified mail, return receipt requested, postage prepaid envelope addressed to the following named parties:

State of New Mexico
Commissioner of Public Lands
P. O. Box 1148
Santa Fe, NM 87504-1148

Exxon Co., U.S.A.
Box 1700
Midland, TX 79702

Mesa Petroleum Co.
Box 1432
Amarillo, TX 79101


David L. Lanning

SUBSCRIBED AND SWORN TO before me this 13th day of December, 1985.

My Commission expires:

11/31/89


Notary Public