

## CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: ARCO PERMIAN Well: WEST RED LAKE '4' FLD No. 1  
Contact: GARY SMALLWOOD Title: O/A ENG. Phone: 915-688-5359  
DATE IN 10-20-97 RELEASE DATE 11-4-97 DATE OUT 12-12-97

Proposed Injection Application is for: WATERFLOOD Expansion Initial

Original Order: R- Secondary Recovery Pressure Maintenance

### SENSITIVE AREAS

X **SALT WATER DISPOSAL** Commercial Well

WIPP Capitan Reef

Data is complete for proposed well(s)? YES Additional Data Req'd \_\_\_\_\_

### AREA of REVIEW WELLS

13 Total # of AOR

1 # of Plugged Wells

YES Tabulation Complete

YES Schematics of P & A's

YES Cement Tops Adequate

NO AOR Repair Required

### INJECTION FORMATION

Injection Formation(s) CRBG-SA Compatible Analysis YES

Source of Water or Injectate AREA PRODUCTION

### PROOF of NOTICE

✓ Copy of Legal Notice

✓ Information Printed Correctly

✓ Correct Operators

✓ Copies of Certified Mail Receipts

NO Objection Received

Set to Hearing \_\_\_\_\_ Date

### NOTES:

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL? YES

### COMMUNICATION WITH CONTACT PERSON:

1st Contact: Telephoned Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_

2nd Contact: Telephoned Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_

3rd Contact: Telephoned Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_

10/20/97	11/4/97	BS	MV	<del>SWD</del> SWD
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ABOVE THIS LINE FOR DIVISION USE ONLY

## NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

### ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

#### Application Acronyms:

[NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]  
 [DD-Directional Drilling] [SD-Simultaneous Dedication]  
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]  
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]  
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]  
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]  
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

#### [1] TYPE OF APPLICATION - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Directional Drilling  
☐ NSL ☐ NSP ☐ DD ☐ SD

OCT 20 1997

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement  
☐ DHC ☐ CTB ☐ FLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
☒ WFX ☐ PMX ☐ SWD ☒ IPI ☐ EOR ☐ PPR

#### ] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☒ Application is One Which Requires Published Legal Notice

[D] ☒ Notification and/or Concurrent Approval by BLM or SLO  
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

#### [3] INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

Gary Smallwood  
 Print or Type Name

Gary B Smallwood  
 Signature

O/A Engineer  
 Title

10/1/97  
 Date



ARCO Permian  
West Red Lake 4 Federal No. 1  
Sec. 4-18S-27E, Eddy Co. NM  
Permian Basin  
Arco Permian  
West Red Lake 4 Federal No. 1  
Sec. 4-18S-27E, Eddy Co. NM

October 2, 1997

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 88505

Attention: Mr. Bill Lemay

**RE: Request for Administrative Approval for  
Drill for Injection  
Arco Permian  
West Red Lake 4 Federal No. 1  
Sec. 4-18S-27E, Eddy Co. NM**

Gentlemen:

**Please find attached our Application for Authorization to Inject in the Arco Permian West Red Lake 4 Fed. No. 1. We respectfully request Administrative Approval.** Included in our attachment are copies of the Proof of Notice and an Affidavit of Publication and the actual legal notice. Arco Permian intends to drill this well for injection of produced Grayburg / San Andres water.

Our maximum injection pressure request is higher than 0.2 psi per foot of depth to the upper most perforation. Our request is based on the Attached Table 1. Table 1 has been presented by Devon Energy in other applications and accepted as justification for higher injection pressures as evidenced by Administrative Order WFX - 708.

Please call me at 915-688-5359 with any questions.

Sincerely,

*Gary B. Smallwood*  
Gary B. Smallwood  
Sr. Engineer

**Table 1**

**INJECTION WELLHEAD PRESSURE GRADIENTS**

**WEST RED LAKE UNIT**

**DEVON ENERGY CORPORATION - OPERATOR**

<b>WEST RED LAKE UNIT WELL NO.</b>	<b>DEPTH TO TOP PERF (FT)</b>	<b>FRAC GRADIENT (PSI/FT)</b>	<b>WELLHEAD PRESSURE GRADIENT (PSI/FT)</b>
<b>18</b>	<b>1690</b>	<b>1.15</b>	<b>0.68</b>
<b>25</b>	<b>1750</b>	<b>1.07</b>	<b>0.60</b>
<b>35</b>	<b>1863</b>	<b>1.09</b>	<b>0.62</b>
<b>50</b>	<b>1644</b>	<b>1.35</b>	<b>0.88</b>
<b>62</b>	<b>1894</b>	<b>1.09</b>	<b>0.62</b>
<b>72</b>	<b>1208</b>	<b>1.20</b>	<b>0.73</b>

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: ARCO Permian  
Address: 600 N. Marienfeld, Midland, Texas, 79702  
Contact party: Gary B. Smallwood Phone: (915)688-5359
- 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: Gary B. Smallwood Title: O/A Engineer  
Signature: Gary B. Smallwood Date: 10/1/97
- \* 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.

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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

ARCO Permian OPERATOR		West Red Lake "4" Federal No. 1 LEASE	
WELL NO.	660' FWL & 660' FNL FOOTAGE LOCATION	4 SECTION	18S 27E TOWNSHIP RANGE

Schematic

See Attached Well Diagram

Tabular DataSurface CasingSize 8-5/8" " Cemented with \_\_\_\_\_ sx.TOC Surface feet determined by CirculatedHole size 11"Intermediate Casing

Size \_\_\_\_\_ " Cemented with \_\_\_\_\_ sx.

TOC \_\_\_\_\_ feet determined by \_\_\_\_\_

Hole size \_\_\_\_\_

Long stringSize 5-1/2" " Cemented with \_\_\_\_\_ sx.TOC Surface feet determined by Circulated

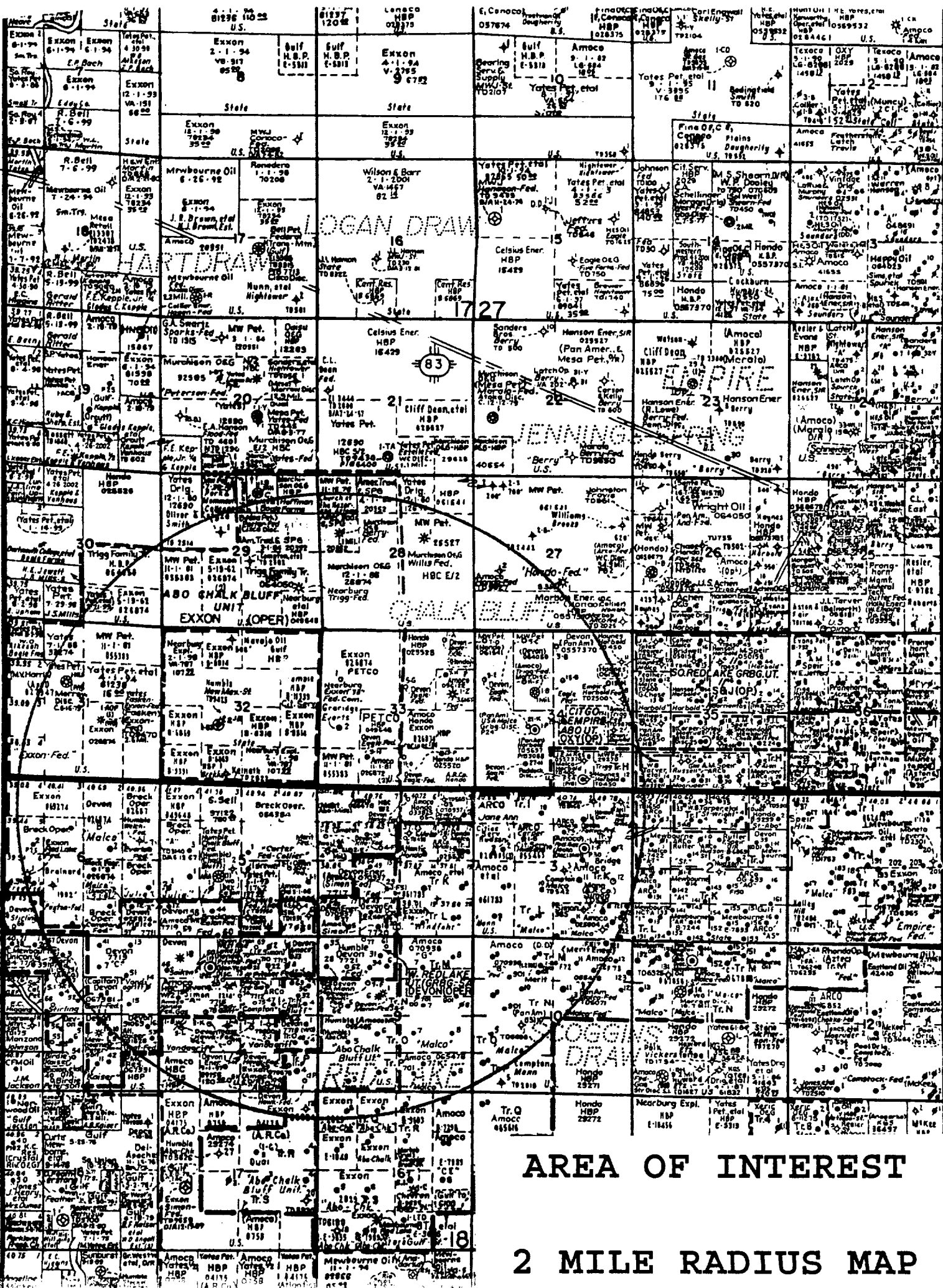
Hole size \_\_\_\_\_

Total depth 3000'Injection interval - Perforated1700' feet to 2800' feet  
(perforated or open-hole, indicate which)Tubing size 2-7/8" lined with IPC set in a  
(material)Baker Loc-Set packer at 1650 feet  
(brand and model)

(or describe any other casing-tubing seal).

Other Data

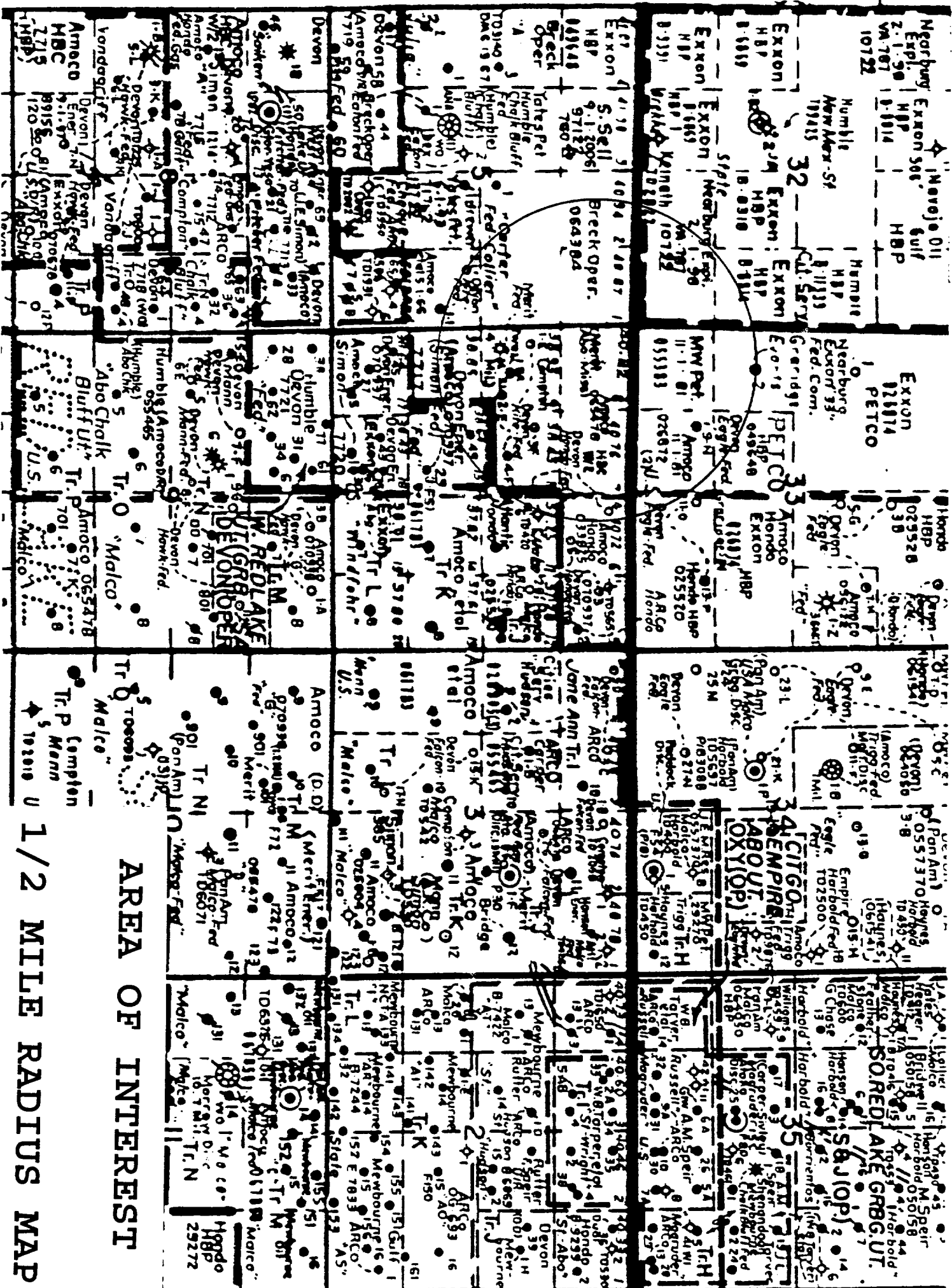
- Name of the injection formation San Andres
- Name of Field or Pool (if applicable) Red Lake (Queen - Grayburg - San Andres)
- Is this a new well drilled for injection? ☒ Yes ☐ No  
If no, for what purpose was the well originally drilled? \_\_\_\_\_
- Has the well ever been perforated in any other zone(s)? 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. Red Lake (Q-G-SA, 1750'); Logan Draw (Morrow, 9330'); Empire (Abo, 5500'); Red Lake (Und. Eddy, 2870'); Red Lake (Penn, 9440'); Scoggin Draw (Morrow, 9590'); Chalk Bluff (Wolfcamp, 6220'); Eddy (Und. Gpl, 2740')



AREA OF INTEREST

2 MILE RADIUS MAP





ARCO Permian  
West Red Lake "4" Federal No. 1  
660' FNL & 660' FWL  
Section 4, 18S, 27E  
Eddy County, New Mexico

**Form C-108**  
**Part VII**

**Proposed Operation:**

1. Plans are to inject 5000 barrels of produced water per day.
2. The injection system will be a closed system.
3. The proposed injection pressure is 1462 psig. Maximum pressure will be 0.86 psi/ft of depth to the top perforation (see attached memo).
4. The injection fluid will be Grayburg/San Andres produced water.
5. Zone of injection produces within 1 mile.

**Form C-108**  
**Part VIII**  
**Geological Data**

Injection zones are dolomite porosity zones within the San Andres formations at an average depth of  $\pm$  1700'-2800' Specifically they are:

Grayburg  
San Andres

Base of near surface aquifer is 500'. No fresh water zones exist below the proposed injection interval.

**Part IX**  
**Proposed Stimulation**

The zone of injection will be treated with a spearhead acid job and fractured with gelled water and sand if necessary.

**Part X**  
**Logging Data**

Well logs will be filed when the well is drilled.

**Part XI**  
**Fresh Water Analysis**

There are no known fresh water wells in the area.

**Part XII**  
**Disposal Wells**

There is no evidence of fault communication between the shallow aquifers and the zone of injection.

# WELLBORE SCHEMATIC

**PETROLEUM CORPORATION  
OF TEXAS**

**EVARTS-FEDERAL NO. 2**

**1980' FSL & 650' FWL (L)**

**Sec. 33, T-17-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-00605**

**Spudded: 05/29/1960**

**Completed: 07/01/1960**

**KB: 3548'**

10 sx. cement plug (60'-surface)

Surface Casing 7" Cmt'd w/185 sx.  
Cement Top Calculated @ 151' from Surface  
Shoe @ 1025'

4-1/2" Casing cut @ 870.44'

25 sx. cement plug (1100'-1000')

25 sx. cement plug (Total Depth-1653')

**Perforations :**

Perfs @ 2,000'-2,016'

Production Casing 4-1/2"  
Cement w/125 sx, Shoe @ 2051'  
Cement Top Calculated @ 1253' from Surface

TD @ 2051'

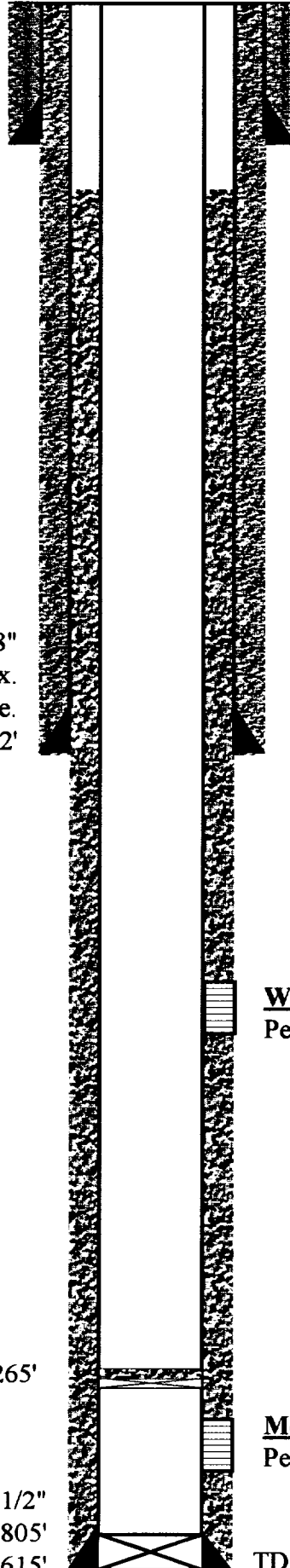
# WELLBORE SCHEMATIC

Intermediate Casing 13-3/8"  
Cmt'd w/950 sx.  
Cement Calculated to Surface.  
Shoe @ 996'

Intermediate Casing 8-5/8"  
Cmt'd w/2750 sx.  
Cement Calculated to Surface.  
Shoe @ 5982'

P&A plug @ 9265'

Production Casing 5-1/2"  
Cement w/1075 sx, Shoe @ 9805'  
Cement Calculated to 1615'



**MERIT ENERGY CORP.**  
**FEDERAL BA GAS COM NO. 4**  
**(FEDERAL BA GAS COM NO. 1)**

1980' FNL & 760' FWL (E)  
Sec. 04, T-18-S, R-27-E,  
Eddy County, NM  
API: 30-015-23542  
Spudded: 12/26/1980  
Completed: 02/17/1980  
Recompleted: 12/08/82

**KB: 3601'**

**Wolfcamp Completion:**  
Perfs @ 6,222'-7550'

**Morrow Completion:**  
Perfs @ 9,586'-9,634'

TD @ 9805'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
KITE 5I FEDERAL NO. 2**

**1825' FSL & 325' FEL (I)**

**Sec. 05, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29067**

**Spudded: 09/20/1996**

**Completed: 10/27/1996**

**KB: 3517'**

Surface Casing 8-5/8"  
Cmt'd w/500 sx.  
Cement Calculated to Surface.  
Shoe @ 1081'

Production Casing 5-1/2"  
Cement w/450 sx, Shoe @ 2349'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,684'-2,123'

TD @ 2350'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
KITE 5I FEDERAL NO. 1**

**1825' FSL & 325' FEL (I)**

**Sec. 05, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29023**

**Spudded: 08/26/1996**

**Completed: 10/03/1996**

**KB: 3508'**

Surface Casing 8-5/8"  
Cmt'd w/600 sx.  
Cement Calculated to Surface.  
Shoe @ 1021'

Production Casing 5-1/2"  
Cement w/525 sx, Shoe @ 2349'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,625'-2,110'

TD @ 2350'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.**  
**WEST RED LAKE UNIT NO. 49**

**2310' FSL & 1750' FWL (K)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-28286**

**Spudded: 02/10/1995**

**Completed: 05/07/1995**

**KB: 3589'**

Surface Casing 8 5/8"  
Cmt'd w/600 sx.  
Cement Calculated to Surface.  
Shoe @ 1248'

Production Casing 5-1/2"  
Cement w/425 sx, Shoe @ 2329'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,414'-2,180'

TD @ 2329'



# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
HONDO FEDERAL NO. 6**

**1650' FNL & 1650' FWL (F)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29066**

**Spudded: 10/12/1996**

**Completed: 12/04/1996**

**KB: 3565'**

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1094'

Production Casing 5-1/2"  
Cement w/450 sx, Shoe @ 2399'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,410'-2,228'

TD @ 2400'

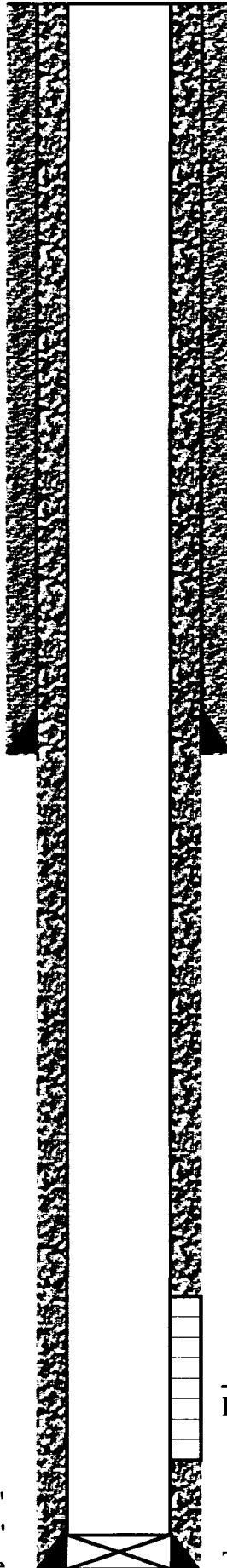
# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
KITE 4F FEDERAL NO. 4**

**2050' FNL & 2500' FWL (F)  
Sec. 04, T-18-S, R-27-E,  
Eddy County, NM  
API: 30-015-29030  
Spudded: 09/09/1996  
Completed: 10/15/1996**

**KB: 3576'**

Surface Casing 8 5/8"  
Cmt'd w/400 sx.  
Cement Calculated to Surface.  
Shoe @ 1087'



**Perforations :**  
Perfs @ 1,730'-2,220'

Production Casing 5-1/2"  
Cement w/475 sx, Shoe @ 2399'  
Cement Calculated to Surface

TD @ 2400'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
HONDO FEDERAL NO. 6**

**1650' FNL & 2310' FEL (G)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

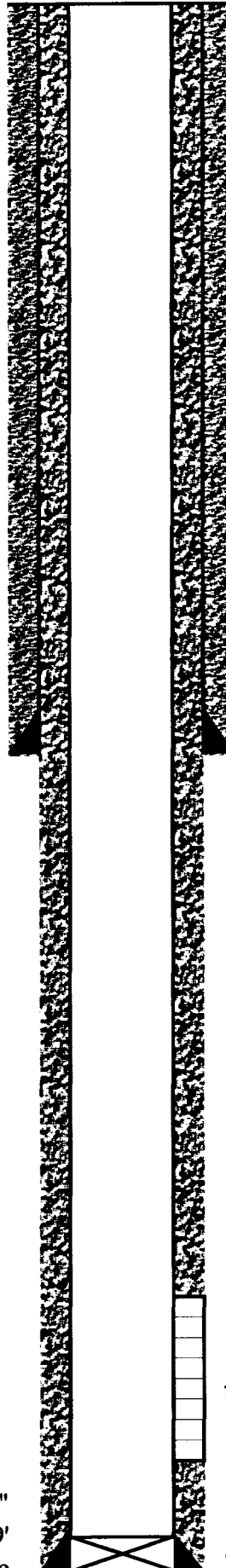
**API: 30-015-29053**

**Spudded: 09/15/1996**

**Completed: 10/14/1996**

**KB: 3572'**

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1104'



**Perforations :**  
Perfs @ 1,780'-2,229'

Production Casing 5-1/2"  
Cement w/475 sx, Shoe @ 2449'  
Cement Calculated to Surface

TD @ 2450'

# WELLBORE SCHEMATIC

## DEVON ENERGY CORP. KITE 4E FEDERAL NO. 2

2100' FNL & 1090' FWL (E)

Sec. 04, T-18-S, R-27-E,

Eddy County, NM

API: 30-015-29024

Spudded: 09/03/1996

Completed: 10/14/1996

KB: 3583'

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1097'

Production Casing 5-1/2"  
Cement w/500 sx, Shoe @ 2399'  
Cement Calculated to Surface

Perforations :  
Perfs @ 1,723'-2,220'

TD @ 2400'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
HONDO FEDERAL NO. 5**

**990' FNL & 1750' FEL (B)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29052**

**Spudded: 10/01/1996**

**Completed: 11/05/1996**

**KB: 3583'**

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1096'

Production Casing 5-1/2"  
Cement w/550 sx, Shoe @ 2449'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,809'-2,230'

TD @ 2450'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
HONDO FEDERAL NO. 4**

**330' FNL & 2210' FEL (B)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

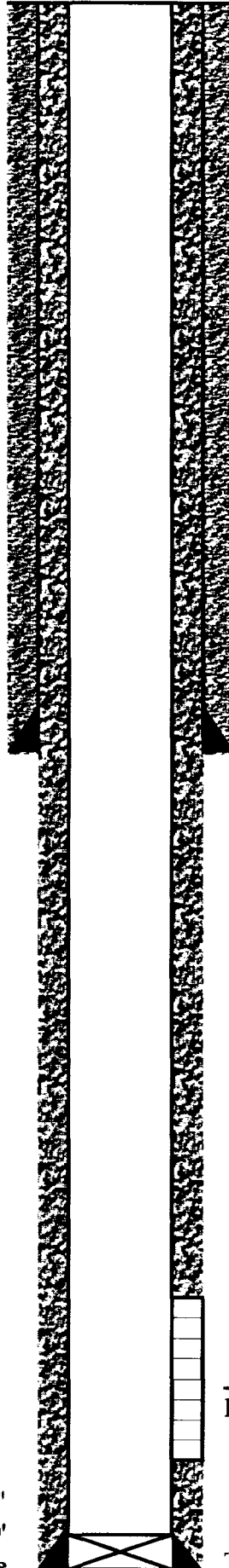
**API: 30-015-29051**

**Spudded: 10/29/1996**

**Completed: 12/08/1996**

**KB: 3549'**

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1118'



**Perforations :**  
Perfs @ 1,421'-2,196'

Production Casing 5-1/2"  
Cement w/575 sx, Shoe @ 2399'  
Cement Calculated to Surface

TD @ 2400'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
KITE 4E FEDERAL NO. 1**

**1650' FNL & 280' FWL (E)**

**Sec. 04, T-18-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29087**

**Spudded: 10/07/1996**

**Completed: 11/11/1996**

**KB: 3578'**

Surface Casing 8 5/8"  
Cmt'd w/ 500 sx.  
Cement Calculated to Surface.  
Shoe @ 1097'

Production Casing 5-1/2"  
Cement w/525 sx, Shoe @ 2499'  
Cement Calculated to Surface

**Perforations :**  
Perfs @ 1,416'-2,210'

TD @ 2500'

# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.**  
**EAGLE 33 FEDERAL NO. 9**

**XXXX' FSL & XXXX' FEL (N)**

**Sec. 33, T-17-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29080**

**Spudded:**

**Completed:**

**KB: XXXX'**

**GL: XXXX'**

Surface Casing 8 5/8"  
Cmt'd w/ 650 sx, Circ.  
Shoe @ 1059'

Production Casing 5-1/2"  
Cement w/450 sx, Shoe @ 2499'  
Cement Circulated to Surface

## Perforations :

Perfs @ 1,758'-1,886' (2 spf)

Perfs @ 1,953'-2,015' (2 spf)

Perfs @ 2,036'-2,094' (2 spf)

Perfs @ 2,112'-2,162' (2 spf)

Perfs @ 2,178'-2,222' (2 spf)

TD @ 2499'



# WELLBORE SCHEMATIC

**DEVON ENERGY CORP.  
EAGLE 33 FEDERAL NO. 11**

**XXXX' FSL & XXXX' FEL (O)**

**Sec. 33, T-17-S, R-27-E,**

**Eddy County, NM**

**API: 30-015-29081**

**Spudded:**

**Completed:**

**KB: XXXX'**

**GL: XXXX'**

Surface Casing 8 5/8"  
Cmt'd w/ 650 sx, Circ.  
Shoe @ 1072'

Production Casing 5-1/2"  
Cement w/550 sx, Shoe @ 2499'  
Cement Circulated to Surface

## Perforations :

Perfs @ 1,737'-1,875' (2 spf)

Perfs @ 1,933'-2,007' (2 spf)

Perfs @ 2,023'-2,079' (2 spf)

Perfs @ 2,111'-2,143' (2 spf)

Perfs @ 2,162'-2,276' (2 spf)

TD @ 2499'



**ARCO Permian**  
600 N Marienfeld  
Midland TX 79701  
Post Office Box 1610  
Midland TX 79702  
Telephone 915 688 5200

October 2, 1997

Merit Energy Co.  
12222 Merit Drive Ste. 1500  
Dallas, Texas 75251-2217

Attn. Terry Gottberg

Re: West Red Lake 4 Federal No. 1  
660 FN&WL Sec 4-18S-27E  
Eddy Co. NM

Dear Sir:

Please consider this letter official notification that Arco Permian is in the process of filing an application to complete the above listed drill well as a Grayburg/San Andres injection well. Our records indicate that you are an offset operator. As an offset operator you must be notified by Arco Permian and you must file any objections or requests for hearing of administrative applications with the Oil Conservation Division of New Mexico within fifteen days of receiving this notification. Attached is a copy of the application filed with the New Mexico Oil Conservation.

Please call Gary Smallwood at 915-688-5359 with any questions.

Sincerely,

Gary B. Smallwood  
Sr. Engineer



**ARCO Permian**  
600 N Marienfeld  
Midland TX 79701  
Post Office Box 1610  
Midland TX 79702  
Telephone 915 688 5200

October 2, 1997

Devon Energy  
20 N. Broadway Ste. 1500  
Oklahoma City, Oklahoma 73102

Attn. E. L. Buttress Jr.

Re: West Red Lake 4 Federal No. 1  
660 FN&WL Sec 4-18S-27E  
Eddy Co. NM

Dear Sir:

Please consider this letter official notification that Arco Permian is in the process of filing an application to complete the above listed drill well as a Grayburg/San Andres injection well. Our records indicate that you are an offset operator. As an offset operator you must be notified by Arco Permian and you must file any objections or requests for hearing of administrative applications with the Oil Conservation Division of New Mexico within fifteen days of receiving this notification. Attached is a copy of the application filed with the New Mexico Oil Conservation.

Please call Gary Smallwood at 915-688-5359 with any questions.

Sincerely,

Gary B. Smallwood  
Sr. Engineer



**ARCO Permian**  
600 N. Marienfeld  
Midland TX 79701  
Post Office Box 1610  
Midland TX 79702  
Telephone 915 688 5200

October 2, 1997

United States Department of the Interior  
Bureau of Land Management  
171 W. 2nd Street  
Roswell, New Mexico 88201

Gentlemen,

ARCO Permian proposes to drill and complete for water injection the West Red Lake 4 Federal No. 1. The well is located 660' FN&WL of section 4-18S-27E in Eddy Co., New Mexico. It is our understanding that you are the owner of the surface areage. We are therefore supplying you with this copy of our application seeking administrative approval for conversion of the well to water injection.

Thank you very much for your review in this matter. If you have any questions please call me at 915-688-5359.

Sincerely,

Gary B. Smallwood  
Sr. Engineer

# Affidavit of Publication

No. 16013

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

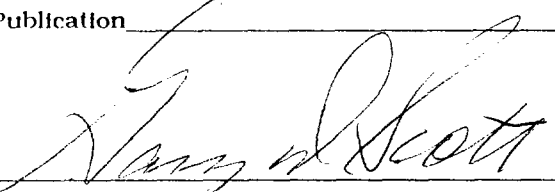
was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 consecutive weeks on the same day as follows:

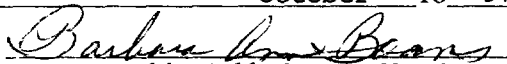
First Publication October 3, 1997

Second Publication \_\_\_\_\_

Third Publication \_\_\_\_\_

Fourth Publication \_\_\_\_\_

  
Subscribed and sworn to before me this 9th day of October 19 97

  
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1999

# Copy of Publication

## LEGAL NOTICE

ARCO Permian proposes to drill the West Red Lake 4 Federal No. 1. The well is located 600' FWL and 660' FNL of section 4-18S-27E in Eddy Co., New Mexico. The zone of injection is the Grayburg/San Andres at 1700-2800'. The maximum expected injection rate and pressure is 5000 BWPD and 1462 psig. respectively. For information contact: Gary B. Smallwood  
ARCO Permian  
PO Box 1610  
Midland, TX 79702  
phone: 915-688-5359

Interested parties must file any objections or requests for hearing with the:  
Oil Conservation Division  
PO Box 2088  
Santa Fe, New Mexico 87501  
Filings must be made within 15 days.  
Published in the Artesia Daily Press, Artesia, N.M. October 3, 1997.

Legal 16013

Return to G. Smallwood - 23 MEO  
P 429 452 894



**Receipt for  
Certified Mail**

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to <i>Attn: E.L. Buttress, Jr.</i> <i>Devon Energy</i>	
Street and No. <i>20 N. Broadway, Ste. 1500</i>	
P.O., State and ZIP Code <i>Oklahoma City OK 73102</i>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$ <i>3.92</i>
Postmark or Date  <i>10/02/97</i>	

PS Form 3800, June 1991

West Red Lake 4 Fed. #1

# FedEx USA Airbill

Tracking Number **1646649723**

## 1 From (please print)

Date **10-9-97** Sender's FedEx Account Number **1007-6502-0**

Sender's Name **Cary Swafford** Phone **(915) 688-5359**

Company **ARCO PERMIAN**

Address **600 N MARIENFELD/LTS ARCO**

City **MIDLAND** State **TX** Zip **79701**

## 2 Your Internal Billing Reference Information

## 3 To (please print)

Recipient's Name **Mike Menger Asst. Dist. Mgr.**  
 Company **United States Department of the Interior  
 Bureau of Land Management**

Address **1717 W. 9th Street**  
 City **Roswell** State **NM** Zip **88201**

☐ For HOLD at FedEx Location check here  
☐ Hold Weekend ☐ Hold Saturday (Not available at all locations)  
☐ Not available with FedEx First Overnight or FedEx Standard Overnight

☐ For Saturday Delivery check here  
☐ Extra Charge (Not available at all locations)  
☐ Not available with FedEx First Overnight or FedEx Standard Overnight

Service Conditions, Declared Value, and Limit of Liability - By using this Airbill, you agree to the service conditions in our current Service Guide or U.S. Government Service Guide. Both are available on request. SEE BACK OF SENDER'S COPY OF THIS AIRBILL FOR INFORMATION AND ADDITIONAL TERMS. We will not be responsible for any claim in excess of \$100 per package whether the result of loss, damage, or delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss in a timely manner. Your right to recover from us for any loss includes intrinsic value of the package, loss of sales, interest, profit, attorney's fees, costs, and other forms of damage, whether direct, incidental, consequential, or special, and is limited to the greater of \$100 or the declared value but cannot exceed actual documented loss. The maximum declared value for any FedEx Letter and FedEx Pak is \$500. Federal Express may, upon your request, and with some limitations, refund all transportation charges paid. See the FedEx Service Guide for further details.

Questions?  
 Call 1-800-Go-FedEx (1-800-463-3339)

*The World On Time*

Sender's Copy  
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## 4a Express Package Service Packages under 150 lbs.

☒ FedEx Priority Overnight ☐ FedEx Standard Overnight ☐ FedEx 2Day\*  
 (Next business morning) (Next business afternoon) (Next business day)  
☐ FedEx Government Overnight  
 (Authorized use only)  
☐ Next Business First Overnight  
 (Next business morning delivery to select locations)  
 (Higher rates apply)

## 4b Express Freight Service Packages over 150 lbs.

☐ FedEx Overnight Freight ☐ FedEx 2Day Freight ☐ FedEx Express Saver Freight  
 (Next business morning) (Next business afternoon) (Next business day)  
 (Call for delivery schedule. See back for detailed descriptions of freight products.)

## 5 Packaging

☒ FedEx ☐ FedEx ☐ FedEx ☐ FedEx ☐ Other  
 (Enter value limit \$500) (Enter value limit \$500) (Enter value limit \$500) (Enter value limit \$500) (Enter value limit \$500)

## 6 Special Handling

Does this shipment contain dangerous goods? ☐ Yes ☐ No  
 Dry Ice ☐ Dry Ice, 3, UN 1845 III ☐ Yes ☐ No  
 (Dangerous Goods Shipper's Declaration not required) (kg, ggs) (CA) ☐ Cargo Aircraft Only

## 7 Payment

Bill ☐ Sender ☐ Recipient ☐ Third Party ☒ Credit Card ☐ Cash/  
 to: (Account no. in section 1 will be billed) (Enter FedEx account no. or Credit Card no. below) ☐ Check  
**American Express**

FedEx Account No. **3787 33224 01002** Exp. Date **01/98**  
 Total Packages **1** Total Weight **1.00** Total Declared Value **\$** Total Charges **\$**

## 8 Release Signature

When declaring a value higher than \$100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY section for further information.

Your Signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

**238**

WCSL 0998  
 No. Line 1/98  
 01/98A 06/1998  
 PRINTED IN U.S.A.

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:  
Boyle Farms, Ltd.  
P.O. Box 460  
Dexter, NM 88230

4. Article Number  
P 429 452 893

Type of Service:  
☐ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail ☒ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee  
X

6. Signature — Agent  
X K Wagon

7. Date of Delivery  
10-3-97

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Apr. 1989

U.S.G.P.O. 1989-232-815

DOMESTIC RETURN RECEIPT

West Red Lake 4 Fed. #1

Return to G. Smallwood - 23 MEO  
P 429 452 891

Return to G. Smallwood - 23 MEO  
P 429 452 893



### Receipt for Certified Mail

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to Attn: Terry Gottberg  
Merit Energy Co.  
Street and No.  
12222 Merit Dr, Ste. 1500  
P.O., State and ZIP Code  
Dallas, TX 75251-1117

Postage \$

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, and Addressee's Address

TOTAL Postage & Fees \$ 3.92

Postmark or Date  
10/02/97

PS Form 3800, June 1991

West Red Lake 4 Fed. #1



### Receipt for Certified Mail

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to Boyle Farms, Ltd.  
Street and No.  
P.O. Box 460  
P.O., State and ZIP Code  
Dexter, NM 88230

Postage \$

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, and Addressee's Address

TOTAL Postage & Fees \$ 3.92

Postmark or Date  
10/02/97

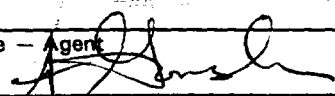
PS Form 3800, June 1991

West Red Lake 4 Fed. #1



**SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.**  
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

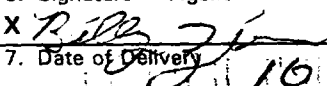
1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to: Attn: Terry Gottberg Merit Energy Co. 12222 Merit Dr., Ste. 1500 Dallas, TX 75251-2217	4. Article Number P 429 452 891
5. Signature — Addressee X	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input checked="" type="checkbox"/> Return Receipt for Merchandise
6. Signature — Agent X 	Always obtain signature of addressee or agent and <b>DATE DELIVERED</b> .
7. Date of Delivery 10-6-97	8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Apr. 1989 *West Real Lake & Feed #1* U.S.G.P.O. 1989-232-915 **DOMESTIC RETURN RECEIPT**

**SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.**  
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to: Attn: E.L. Buttress, Jr. Devon Energy 20 N. Broadway, Ste. 1500 Oklahoma City, OK 73102	4. Article Number P 429 452 894
5. Signature — Addressee X	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input checked="" type="checkbox"/> Return Receipt for Merchandise
6. Signature — Agent X 	Always obtain signature of addressee or agent and <b>DATE DELIVERED</b> .
7. Date of Delivery 10-6-97	8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Apr. 1989 *West Real Lake & Feed #1* U.S.G.P.O. 1989-232-915 **DOMESTIC RETURN RECEIPT**

MATADOR PETROLEUM CORPORATION

415 W. WALL, SUITE 1101  
MIDLAND, TX 79701  
(915) 687-5955

October 7, 1997

Chevron USA Production Company  
P.O. Box 1150  
Midland, TX 79702

RECEIVED

OCT 15 1997

PERMIAN BASIN LAND UNIT  
MIDLAND, TX

RE: Lea AP St. #3  
Lea County  
Sec. 30, T19S, R35E  
Application To Inject

Gentlemen:

Please find within a copy of the Application For Authorization To Inject.

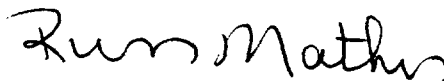
In compliance with the requirements of Form C-108 this application has been sent to you because you are the operator within one-half mile of the injection well.

Please read the application carefully.

If there are no objections to the application please acknowledge below and mail to Matador Petroleum Co. at the above address or you may fax to 915-687-4809. Any objection must be filed with the Oil Conservation Division, 2040 South Pacheco, Santa Fe, NM 87505 within 15 days from the date this application was mailed.

Should you have any questions or comments please do not hesitate to call me in Midland, Texas at 915-687-5955.

Sincerely,



Russ Mathis  
Production Manager

Chevron U.S.A. Production Co. has no objection to Matador's Application for Authorization to Inject into the AP St. #3 well located in S30, T19S, R35E, Lea Co., NM.

  
cc: Oil Conservation Division ✓