

DATE 4/28/06	SUSPENSE	ENGINEER MIKE STOGNER	LOGGED IN 4/28/06	TYPE NSL	APP NO. PTD50611844520
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [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 - Simultaneous Dedication
☒ NSL ☐ NSP ☒ SD

Check One Only for [B] or [C]

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

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

- [D] Other: Specify _____

[2] 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] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

James Bruce
 Print or Type Name

Signature

Attorney for applicant
 Title

Date

jamesbruc@aol.com
 e-mail Address

2006 APR 28 PM 12 10

4/28/06

JAMES BRUCE
ATTORNEY AT LAW

POST OFFICE BOX 1056
SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213
SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone)
(505) 660-6612 (Cell)
(505) 982-2151 (Fax)

jamesbruce@aol.com

April 28, 2006

Hand Delivered

Michael E. Stogner
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Mr. Stogner:

Pursuant to Division Rule 104.F(2), Apache Corporation applies for administrative approval of an unorthodox oil well location for the following well:

<u>Well Name:</u>	Southland Royalty A Well No. 25
<u>Well Location:</u>	170 feet FNL & 1260 FEL
<u>Well Unit:</u>	NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 9 Township 21 South, Range 37 East, N.M.P.M., Lea County, New Mexico

The well will test the Grayburg formation (Penrose Skelly Pool) and San Andres formation (it is believed that the San Andres will be an oil zone). The formations are developed on statewide rules, with 40 acre spacing, and wells to be located no closer than 330 feet to a quarter-quarter section line.

The application is based on engineering reasons. A complete discussion, with exhibits, is attached as Exhibit A (which includes a Form C-102). The well is located approximately equidistant between four existing Grayburg wells. The well data shows that wells in the Grayburg drain less than 40 acres. Therefore, the proposed location will recover undrained reserves in the Grayburg. **The NE $\frac{1}{4}$ NE $\frac{1}{4}$ will be simultaneously dedicated, in the Grayburg formation, to the proposed well and to the existing Southland Royalty A Well No. 7.**

There is less data in the San Andres, but it is economic to drill to the San Andres to recover its reserves, since it immediately underlies the Grayburg.

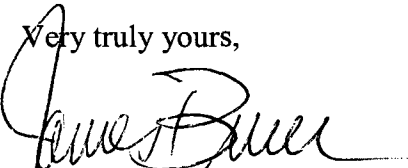
30-025-06445

660'FNL - 585'FE

Exhibit B is a land plat. The Southland Royalty A (fee) lease, which has common ownership in the Grayburg and San Andres formations, covers, among other acreage, the S $\frac{1}{2}$ SE $\frac{1}{4}$ of Section 4 and the NE $\frac{1}{4}$ of Section 9. No offset owner is adversely affected by the application, and notice has not been provided to anyone.

Please call me if you need any further information on this matter.

Very truly yours,



James Bruce

Attorney for Apache Corporation

Application of Apache Corporation for administrative
approval of an unorthodox well location:

40 acres – 170' FNL & 1260' FEL
Section 9, Township 21 South, Range 37 East, NMPM
Lea County, New Mexico

PRIMARY OBJECTIVE: GRAYBURG

SECONDARY OBJECTIVE: SAN ANDRES

In support:

1. Apache Corporation (Apache) is the operator of the proposed **Southland Royalty A #25** well (**Exhibit 1**). The proposed total depth is 4400' in the San Andres formation.
2. The location encroaches toward the following Penrose Skelly; Grayburg oil wells (**Exhibit 2**)

OPER	WELL	LOC	RESERVOIR	CUM O/GW	DAILY O/GW
Apache	So. Royalty A #4	04-X	Grayburg	9/54/51	3/21/117
Apache	So. Royalty A #13	04-W	Grayburg	14/64/14	6/38/27
Apache	So. Royalty A #11	09-B	Grayburg	23/117/53	7/50/13
Apache	So. Royalty A #7	09-A	Grayburg	10/44/38	3/24/14

Oil in MBO BOPD
Gas in MMCFG MCFGPD
Water in MBW BWPD

3. The proposed **Southland Royalty A #25** unorthodox Grayburg location of 170' from north line and 1260' from east line is based on drainage considerations.

a) **Grayburg Reservoir**

The Grayburg is a series of alternating subtidal and supratidal dolomites, with the subtidal rock having porosity and hydrocarbons and the supratidal rock being tight. The Grayburg environments varied rapidly so that porous and tight intervals do not necessarily correlate well-to-well. Tight dolomite and/or anhydrite intervals within the Grayburg additionally create vertical hydraulic barriers between different zones of porosity. Average porosity of the Grayburg is less than 10%, and average permeability is less than 1 millidarcy. Grayburg wells are thus not capable of draining the 40 Acre Spacing Unit.

— **Exhibit A** —

The reservoir was analyzed by mapping hydrocarbon pore volume (SoPhiH) (**Exhibit 3**). SoPhiH is the product of feet of net pay (H) times average porosity (PhiA) times oil saturation (So). The values were obtained as follows:

1. Net Pay was read from modern neutron-density logs which have contractor calculated cross-plotted porosity (XPhi) using a minimum of 6% and a maximum of 18%. Additionally, gamma ray (40 APIU) and water saturation (10% - 50%, using a standard equation with $a=1$ and $m=n=2$) cutoffs were also employed.
2. Average Porosity was calculated for intervals meeting those criteria.
3. Oil Saturation is the additive inverse of water saturation.

The following table provides drainage areas calculated from the SoPhiH map and reserves of the offsetting wells.

OPER	WELL	LOC	AREA A	EUR MBO	EUR MMCFG
Apache	So. Royalty A #4	04-X	11	18	123
Apache	So. Royalty A #13	04-W	44	44	249
Apache	So. Royalty A #11	09-B	20	39	585
Apache	So. Royalty A #7	09-A	16	19	137

The intent of the well is to recover reserves that cannot be recovered by the existing wells. The location was placed in the center of the vacant area between the existing wells. The location was then moved due to surface conditions and cultural obstructions.

Reserves for the proposed location were calculated by planimetry of the undrained area of the SoPhiH isopach which lies under a drainage circle (the size of which is the average of the direct offset drainage areas) centered on the proposed location. Any competitive drainage is shared between the proposed well and the existing offset wells. The results are as follows:

WELL	LOC	SoPhiH	AREA A	EUR MBO	EUR MMCFG
Southland Royalty A #25	04-A	2.25	18.0	21	172

b) **San Andres Reservoir**

- a. Oil production from the San Andres is newly established in the immediate area, in fact, no well within the 4 affected drilling and spacing units has produced from or tested the San Andres. It is the secondary objective in the **Southland Royalty A #25** wellbore

and probably does not possess enough reserve potential to justify drilling a separate well.

- b. Apache targets only the upper 200'-300' of San Andres for oil production. Like the overlying Grayburg, it is a shallow shelf carbonate but has better porosity and permeability.
- c. San Andres Net Pay is defined as reservoir with less than 30 APIU gamma ray, 5% to 20% cross-plotted porosity and 10%-40% water saturation, using a standard equation. **Exhibit 4** illustrates that reservoir is present to contain and produce sufficient amounts of hydrocarbons to exploit it as a secondary objective.
- d. Volumetrics and reserves for the **Southland Royalty A #25** are:

WELL	LOC	Pay	AREA A	EUR MBO	EUR MMCFG
Southland Royalty A #25	04-A	27	20	6	233

4. Notice

Apache is the operator and only working interest owner of the Grayburg and San Andres wells toward which the proposed well will encroach. It is contained within one oil and gas lease (Southland Royalty A Lease which includes, among other acreage, all of SE/4SW/4, S/2SE/4, NE/4SE/4 §4 and all of NE/4 §9) with common revenue interest owners. Therefore, there are no adversely affected parties and no one was notified of the application.

- 5. Approval of this application will afford the interest owners in this spacing unit an opportunity to recover oil and gas which would not otherwise be recovered.

DISTRICT I
1626 N. FRENCH DR., BOBBIS, NM 80240State of New Mexico
Energy, Minerals and Natural Resources DepartmentDISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name SOUTHLAND ROYALTY A	Well Number 25
OGRID No.	Operator Name APACHE CORPORATION	Elevation 3472'

Surface Location

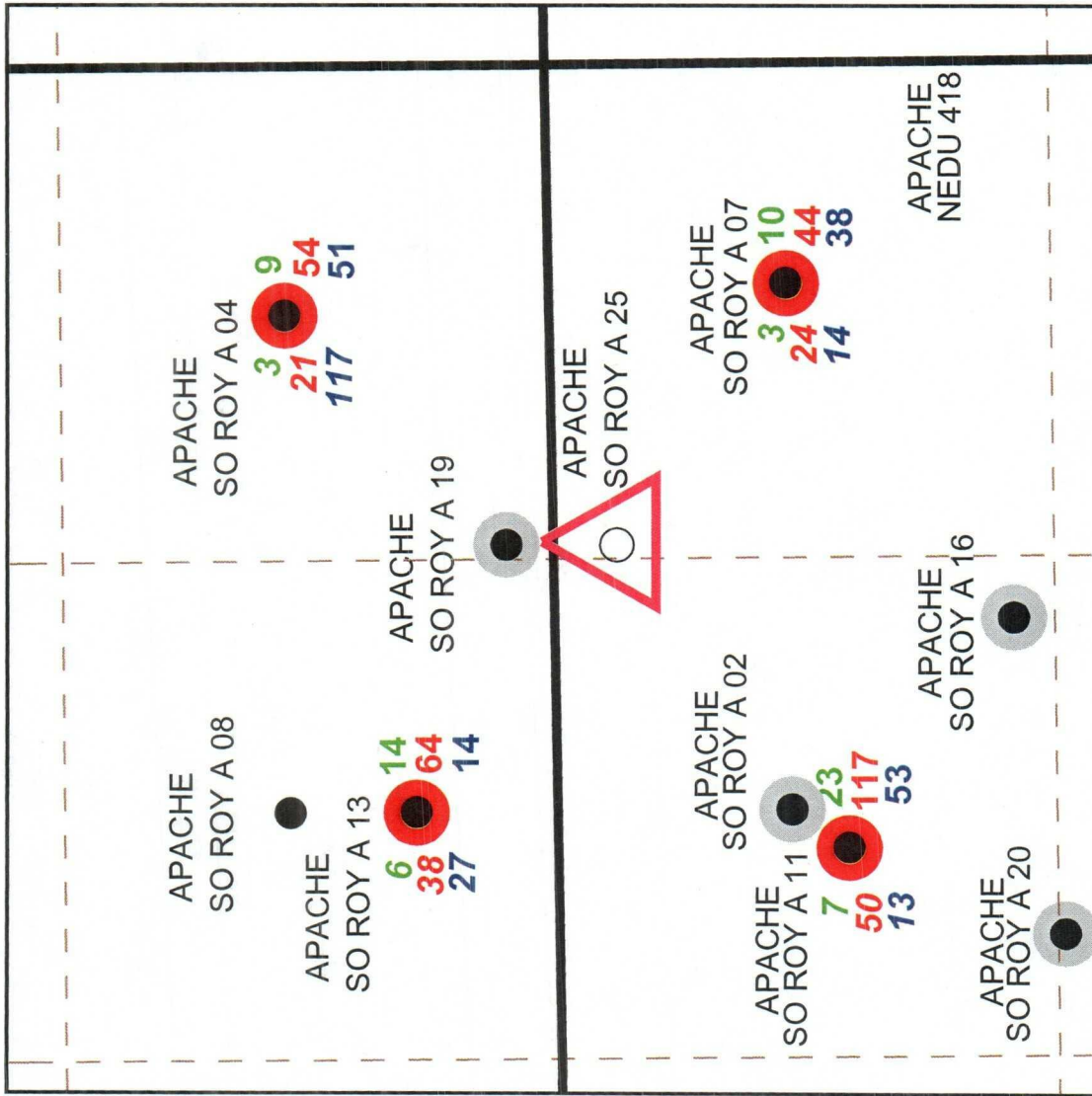
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	9	21-S	37-E		170	NORTH	1260	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. Signature _____ Printed Name _____ Title _____ Date _____
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief. NOVEMBER 30, 2005 Date Surveyed _____ JR Signature & Seal _____ Professional Surveyor Certificate No. RONALD J. EIDSON 3239 GARY EIDSON 12841



WELL SYMBOLS

- Location Only
- Oil Well
- ☀ Gas Well
- Dry

POSTED WELL DATA

OPERATOR
WELL LABEL
CURRENT BOPD
CURRENT MCFD
CURRENT BWPD

MBO
MMCFG
MBW



TWO WARREN PLACE, SUITE 1500
6120 SOUTH YALE
TULSA, OKLAHOMA 74136-4224

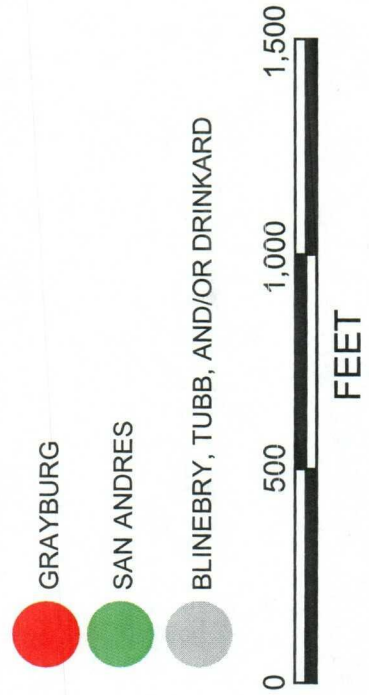
SO. ROYALTY A 25

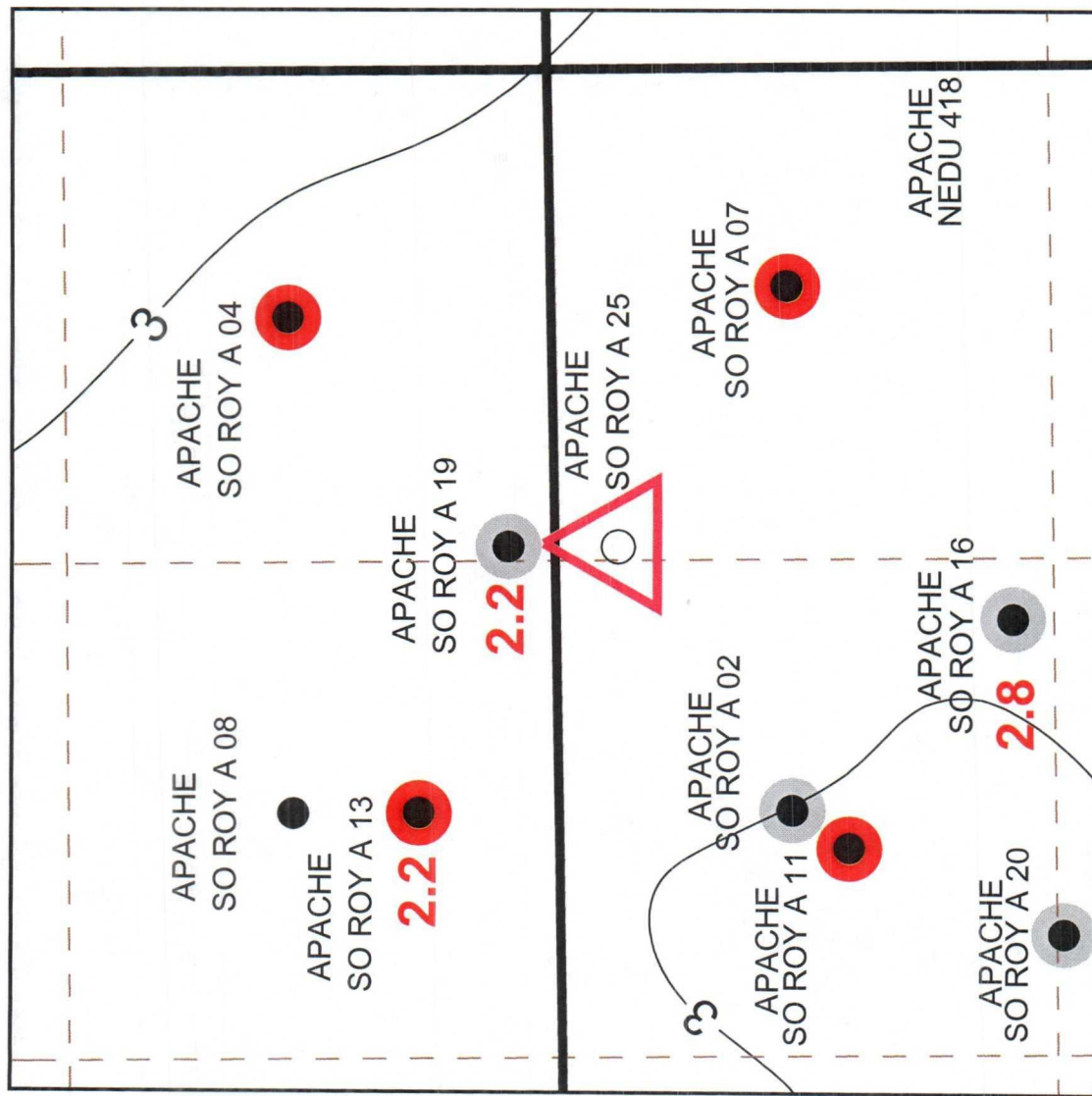
SEC 9-T21S-R37E

LEA COUNTY, NEW MEXICO

EXHIBIT 2
WELL INFORMATION

DATE: 7/22/04 DWG: CURTISIGBSA-NSL/ISO ROY A 25 (EX2)





WELL SYMBOLS

○ Location Only

Oil Well

☼ Gas Well

○ Dry

POSTED WELL DATA

OPERATOR
WELL LABEL

GRAYBURG SOPHIH ●



TWO WARREN PLACE, SUITE 1500
6120 SOUTH YALE
TULSA, OKLAHOMA 74136-4224

SO. ROYALTY A 25

SEC 9-T21S-R37E

LEA COUNTY, NEW MEXICO

EXHIBIT 3

GRAYBURG SOPHIH



GRAYBURG



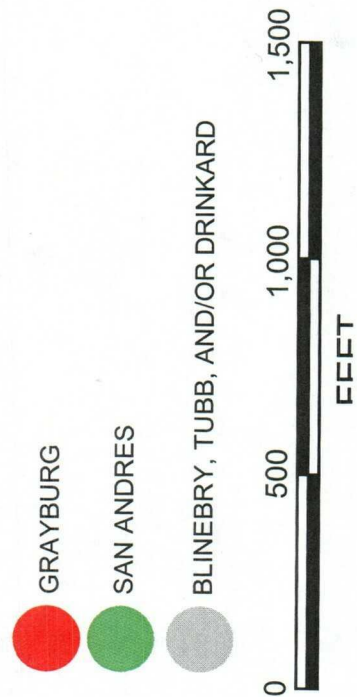
SAN ANDRES



BLINEBRY, TUBB, AND/OR DRINKARD

0 500 1,000 1,500

FEET



○ Location Only
● Oil Well
☼ Gas Well
⊖ Dry

OPERATOR
WELL LABEL

SAN ANDRES PAY



TWO WARREN PLACE, SUITE 1500
6120 SOUTH YALE
TULSA, OKLAHOMA 74136-4224

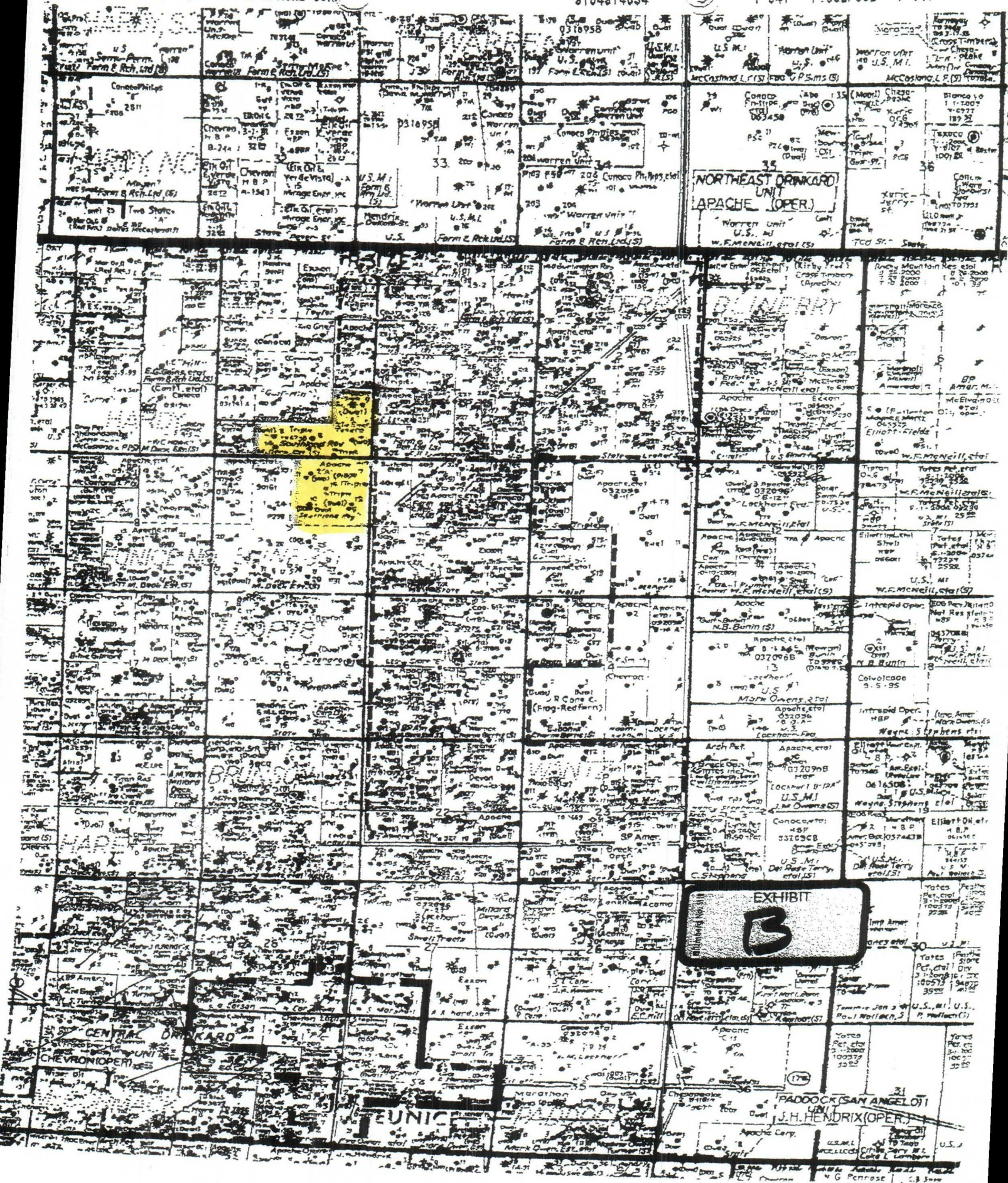
SO. ROYALTY A 25

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 4

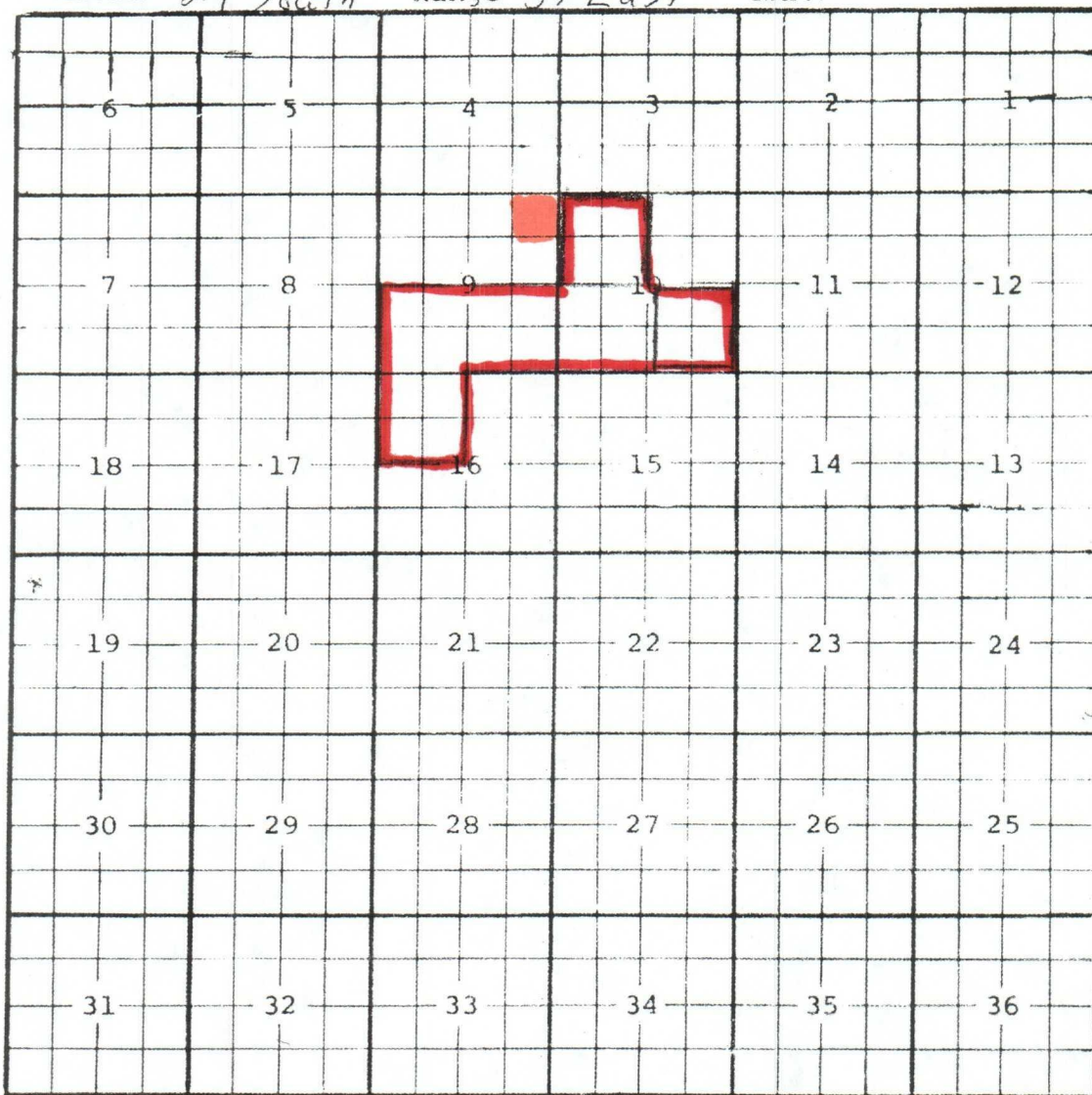
SAN ANDRES PAY

DATE: 12/1/05 DWG: CURTIS\GBSA-NSL\SO ROY A 25 (EX4



County Lea Pool East Hare-San Andres

TOWNSHIP 21 South Range 37 East NMPM

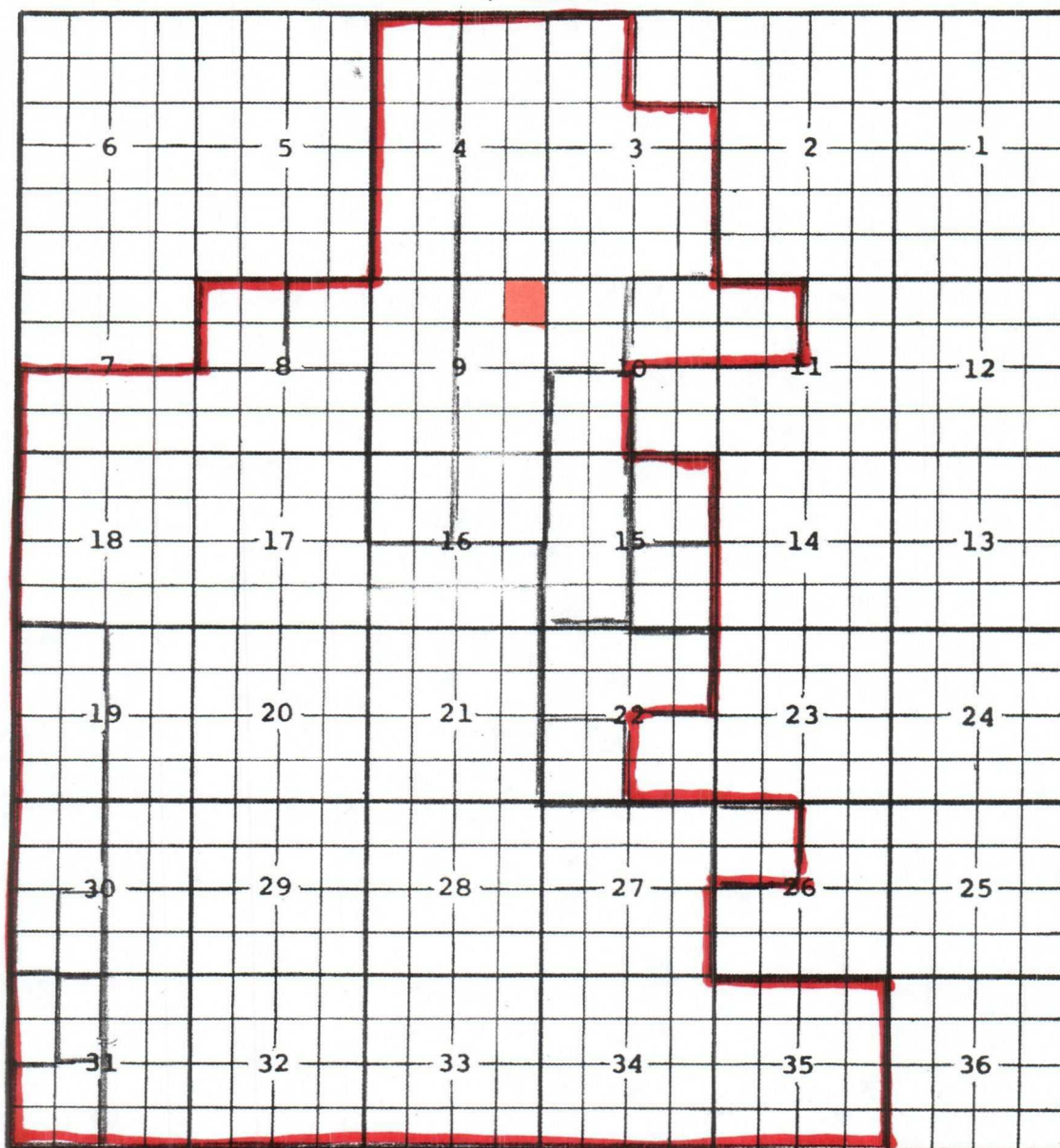


Description: SE 1/4 Sec. 10 (R-10776, 2-28-97)

Ext: SE 1/4 Sec. 9, SW 1/4 Sec. 10, NW 1/4 Sec. 16 (R-12190, 8-12-94) Ext: NW 1/4 Sec. 10 (R-12531, 3-30-06)

COUNTY *Lea*POOL *Penrose - Skelly*TOWNSHIP *21 South*RANGE *37 East*

NMPM



Description: $\frac{S}{2}$ Sec. 7; $\frac{S}{2}$ Sec. 8; $\frac{S}{2}$ Sec. 16; All Sec. 17 & 18; $\frac{E}{2}$ Sec. 19;
 All Sec. 20, 21, 22, 28 & 29; $\frac{E}{2}$ Sec. 30; $\frac{E}{2}$ Sec. 31; All Sec. 32 thru 35; Vertical
 limits contracted to Garryburg Formation only (R-767-A 4-1-56)
 Ext: $\frac{W}{2}$ Sec. 4; $\frac{NE}{4}$ Sec. 8; $\frac{W}{2}$ Sec. 9; $\frac{NW}{4}$ Sec. 16 (R-947, 1-30-57) - $\frac{E}{2}$ $\frac{NW}{4}$ Sec. 31 (R-1017, 6-28-57)
 - $\frac{E}{2}$ $\frac{SW}{4}$ Sec. 30 (R-1105, 12-30-57) - $\frac{W}{2}$ Sec. 19; $\frac{NW}{4}$ & $\frac{W}{2}$ $\frac{SW}{4}$ Sec. 30 (R-1129, 2-20-58)
 - $\frac{SW}{4}$ Sec. 31 (R-1143, 3-25-58) - $\frac{W}{2}$ $\frac{NW}{4}$ Sec. 31 (R-1312, 1-1-59)
 Ext: $\frac{SW}{4}$ Sec. 22 (R-7396, 12-8-83) Ext: $\frac{SW}{4}$ Sec. 10, $\frac{W}{2}$ Sec. 15, $\frac{NW}{4}$ Sec. 26 (R-10091,
 3-28-94) Ext: $\frac{N}{2}$ Sec. 22 (R-10776, 2-28-97)
 Ext: Lots 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16 and $\frac{S}{2}$ Sec. 3, Lots 1, 2, 7, 8, 9, 10, 13, 16 and $\frac{SE}{4}$ Sec. 4, $\frac{E}{2}$ Sec. 9
 $\frac{NW}{4}$ Sec. 10, $\frac{SE}{4}$ Sec. 15, $\frac{NE}{4}$ Sec. 16 (R-11633, 5-10-01) Ext: $\frac{NE}{4}$ Sec. 10, $\frac{NW}{4}$ Sec. 11 (R-11728, 2-20-02)
 Ext: $\frac{NW}{4}$ Sec. 8, $\frac{NE}{4}$ Sec. 15 (R-12046, 11-3-02)