Apache

DATE IN 4/28/06	SUSPENSE	ENGINEER MIKE STOGNER	LOGGED IN 4/28/06	TYPE NSL	APP NO. pTDS0611844159

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 _____

2006 APR 28 PM 12 10

[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		Attorney for applicant	4/28/06
Print or Type Name	Signature	Title	Date

jamesbruc@aol.com
e-mail Address

JAMES BRUCE
ATTORNEY AT LAW

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SANTA FE, NEW MEXICO 87504

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SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone)
(505) 660-6612 (Cell)
(5050 982-2151 (Fax)

jamesbruc@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:

Well Name:	Hawk B-1 Well No. 52
Well Location:	1150 feet FNL & 330 FEL
Well Unit:	SE¼SE¼ 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 (East Hare-San Andres Pool). The pools 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 three Grayburg wells in the E½SE¼ of Section 9. 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 SE¼SE¼ will be simultaneously dedicated, in the Grayburg, to the proposed well and to the existing Hawk B-1 Well Nos. *27 and 36.**

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. **The SE¼SE¼ will be simultaneously dedicated, in the San Andres, to the proposed well and to the existing Hawk B-1 Well No. 36.**

*27 - 30-025-35806: 830'FSL & 900'FEL (Penrose Skelly Produc
* 36 - 30-025-36530: 1310'FSL & EL (Dual Penrose Skelly & San Andres produces)

*Hawk B-1 #35 (30-025-36662) 160'FSL - 1310'FEL (Penrose Skelly Produces)

Exhibit B is a land plat. The Hawk B-1 (federal) lease, which has common ownership in the Grayburg and San Andres formations, covers, among other acreage, the E½SE¼ 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 – 1150' FSL & 330' 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 **Hawk B-1 #52** well (**Exhibit 1**). The proposed total depth is 4400' in the San Andres formation.

2. The location encroaches toward Apache Hawk B-1 #30, #36, and #27 and is a standard offset distance from the drilling and spacing unit boundary line toward ExxonMobil New State V #5 in the Penrose Skelly; Grayburg Pool. The location encroaches toward Apache Hawk B-1 #36 in East Hare-San Andres (Oil) Pool and is a standard offset distance from the drilling and spacing unit boundary line toward ExxonMobil New State V #10. (**Exhibit 2**)

OPER	WELL	LOC	RESERVOIR	CUM O/G/W	DAILY O/G/W
Apache	Hawk B-1 #30	09-I	Grayburg	19/90/43	8/79/30
Apache	Hawk B-1 #36	09-P	Grayburg	14/41/27	24/149/36
Apache	Hawk B-1 #36	09-P	San Andres	5/10/14	0/0/0
Apache	Hawk B-1 #27	09-P	Grayburg	28/94/91	13/55/43
Exxon	NM State V #10	10-M	San Andres	7/827/632	1/168/159
Exxon	NM State V #5	10-M	Grayburg	32/128/26	5/24/15

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

The NMOCD deleted S/2, §10 from the Hare-San Andres Gas Pool and added S/2, §9 and SW/4, §10 to the East Hare San Andres (Oil) Pool by **Order R-12190** dated August 9, 2004.

3. The proposed **Hawk B-1 #52** unorthodox Grayburg location of 1150' from south line and 330' from east line is based on drainage considerations.

   a) **Grayburg Reservoir**

Exhibit A

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.

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	Hawk B-1 #30	09-I	26	59	615
Apache	Hawk B-1 #36	09-P	14	62	883
Apache	Hawk B-1 #27	09-P	30	111	977
Exxon	NM State V #5	10-M	25	56	245

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 planimetering 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
Hawk B-1 #52	09-P	3.36	15.0	37	293

b) **San Andres Reservoir**

1. Oil production from the San Andres is newly established in the immediate area. It is the secondary objective in the **Hawk B-1 #52** wellbore and does not possess enough reserve potential in this wellbore to justify drilling a separate well. The expected reserves are interpreted as unrecoverable by existing wells and also as rate acceleration.
2. Apache targets only the upper 200-300" of San Andres for oil production. Like the overlying Grayburg, it is a shallow shelf carbonate but it has better porosity and permeabilty.
3. 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.
4. Volumetrics and reserves for the **Hawk B-1 #52** are:

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

OPER	WELL	LOC	AREA A	EUR MBO	EUR MMCFG
Apache	Hawk B-1 #36	09-P	62	16	800
Exxon	NM State V #10	10-M	215	12	1440

Reserves for the proposed location were calculated by planimetering the undrained area of the net pay 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	Pay	AREA A	EUR MBO	EUR MMCFG
Hawk B-1 #52	09-P	18	140	7	300

4. Notice

Apache is the operator of the Grayburg and San Andres wells toward which the proposed well will encroach. It is contained within one oil and gas lease (Hawk

B-1 Federal Lease NM 90161) which includes, among other acreage, all of SE/4 §9) with common working and revenue interest owners. Therefore, there are no adversely affected parties and no one was notified of the application.

The location is a standard offset toward the eastern drilling and spacing unit line, so no party with Grayburg and San Andres rights in SW/4 §10 needs to be notified.

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.

EXHIBIT 1
ok

State of New Mexico
Energy, Minerals and Natural Resources Department

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form 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	Well Number
	HAWK B-1	52
OGRID No.	Operator Name	Elevation
	APACHE CORPORATION	3471'

Surface Location

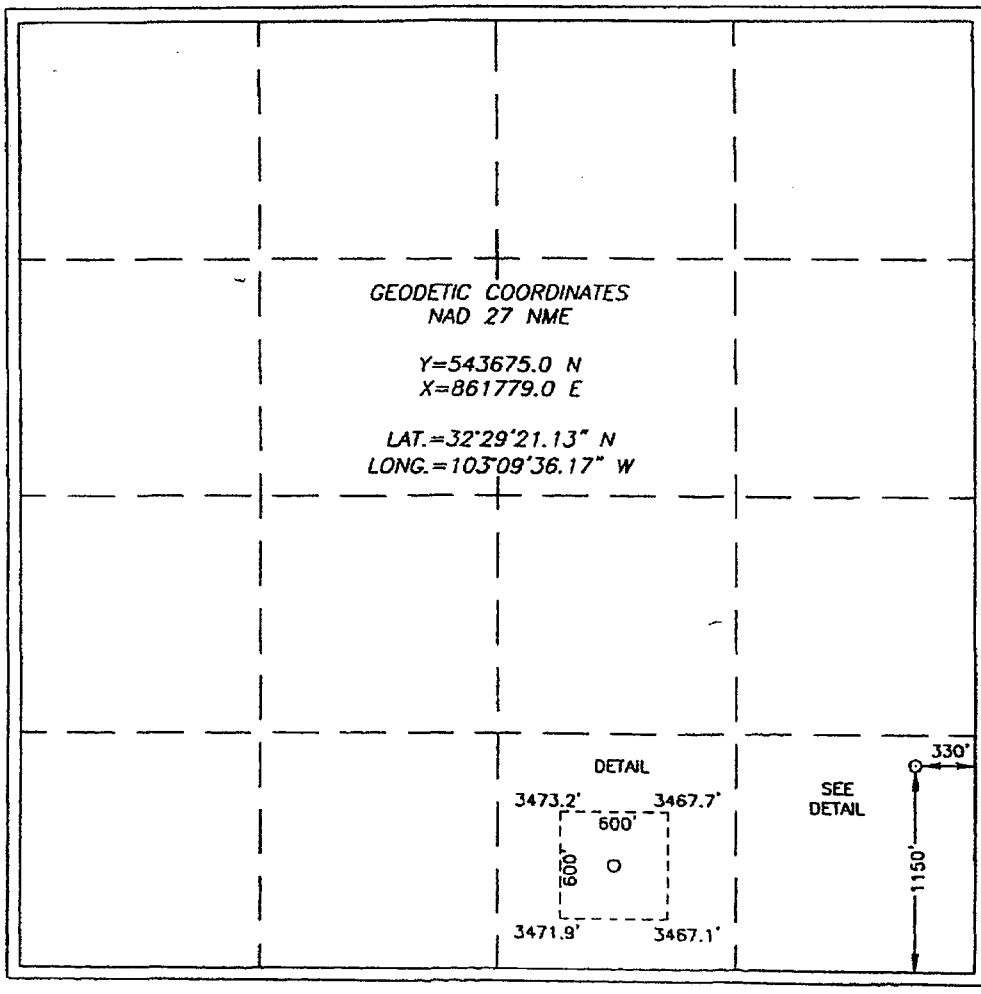
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	9	21-S	37-E		1150	SOUTH	330	EAST	LEA

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 supervison, and that the same is true and correct to the best of my belief.

NOVEMBER 30, 2005

Date Surveyed JR

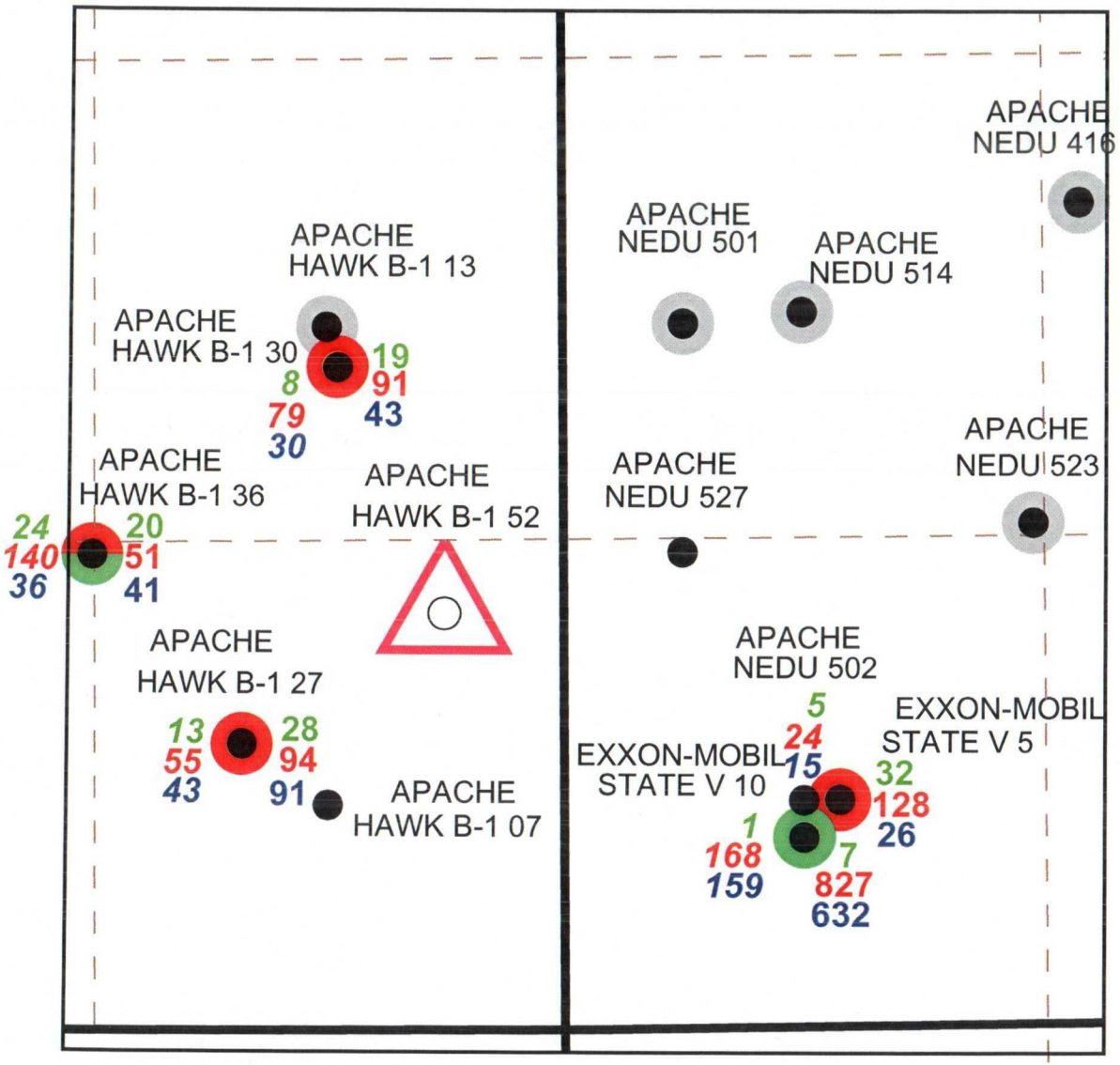
Signature & Seal of Professional Surveyor

RONALD J. EIDSON
NEW MEXICO
PROFESSIONAL SURVEYOR

Gary L. Eidson 12/12/05

05.11.1818

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 • MBO
CURRENT MCFD MMCFG
CURRENT BWPD MBW

GRAYBURG

SAN ANDRES

BLINEBRY, TUBB, AND/OR DRINKARD

0 500 1,000 1,500

FEET

Apache CORPORATION
CENTRAL REGION

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

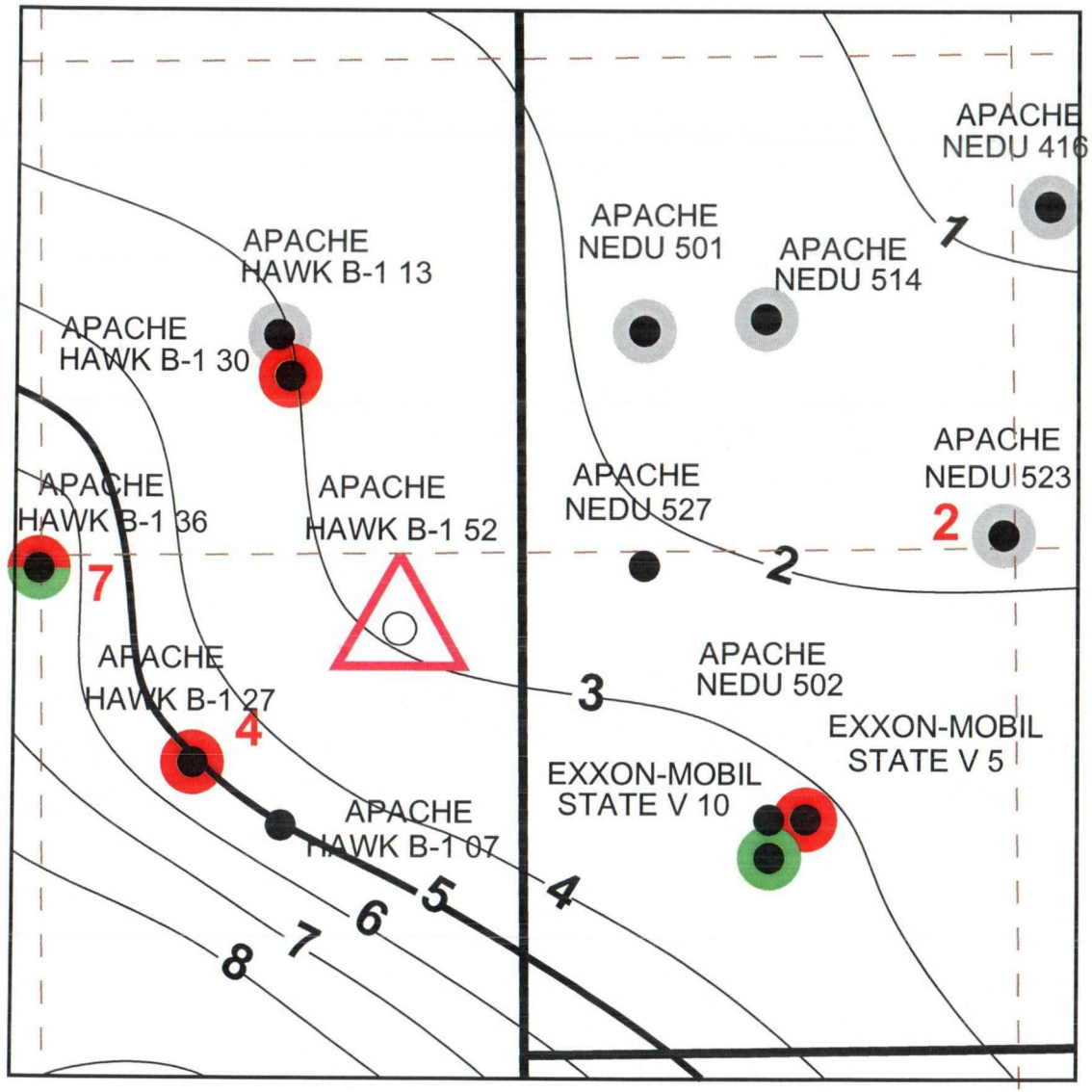
HAWK B-1 52

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 2

WELL INFORMATION

DATE: 12/1/05 DWG:CURTIS\GBSA-NSL\WELL (EX2)



WELL SYMBOLS

- Location Only
- Oil Well
- Gas Well
- Dry

POSTED WELL DATA

OPERATOR
WELL LABEL

GRAYBURG SOPHIH

GRAYBURG

SAN ANDRES

BLINEBRY, TUBB, AND/OR DRINKARD

0 500 1,000 1,500

FEET

Apache CORPORATION CENTRAL REGION

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

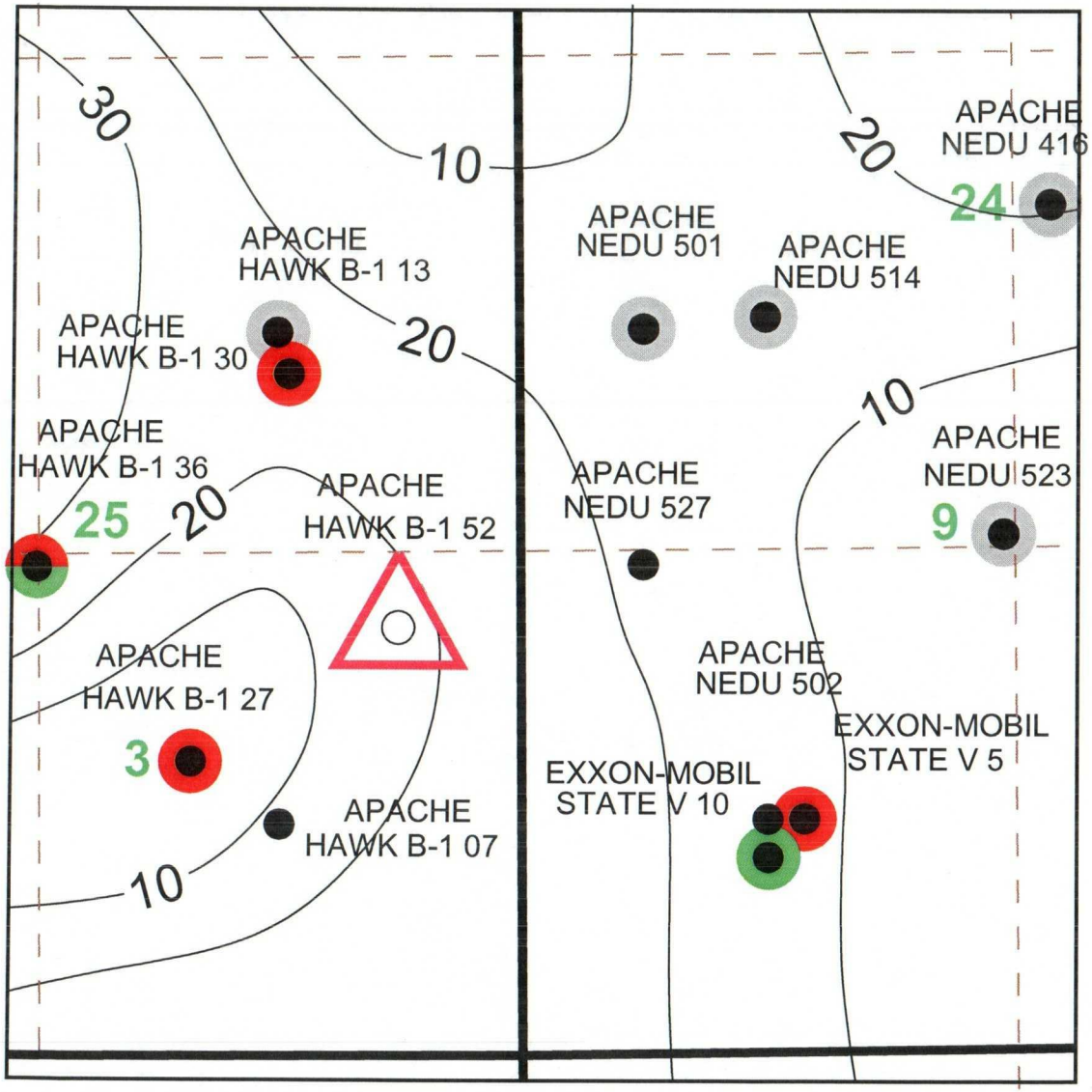
HAWK B-1 52

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 3

GRAYBURG SOPHIH

DATE: 12/1/05 DWG: CURTIS\GBSA-NSL\WELL (EX3)



GRAYBURG

SAN ANDRES

BLINEBRY, TUBB, AND/OR DRINKARD

0 500 1,000 1,500

FEET

WELL SYMBOLS

- Location Only
- Oil Well
- Gas Well
- Dry

POSTED WELL DATA

OPERATOR
WELL LABEL

SAN ANDRES PAY

Apache CORPORATION CENTRAL REGION

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

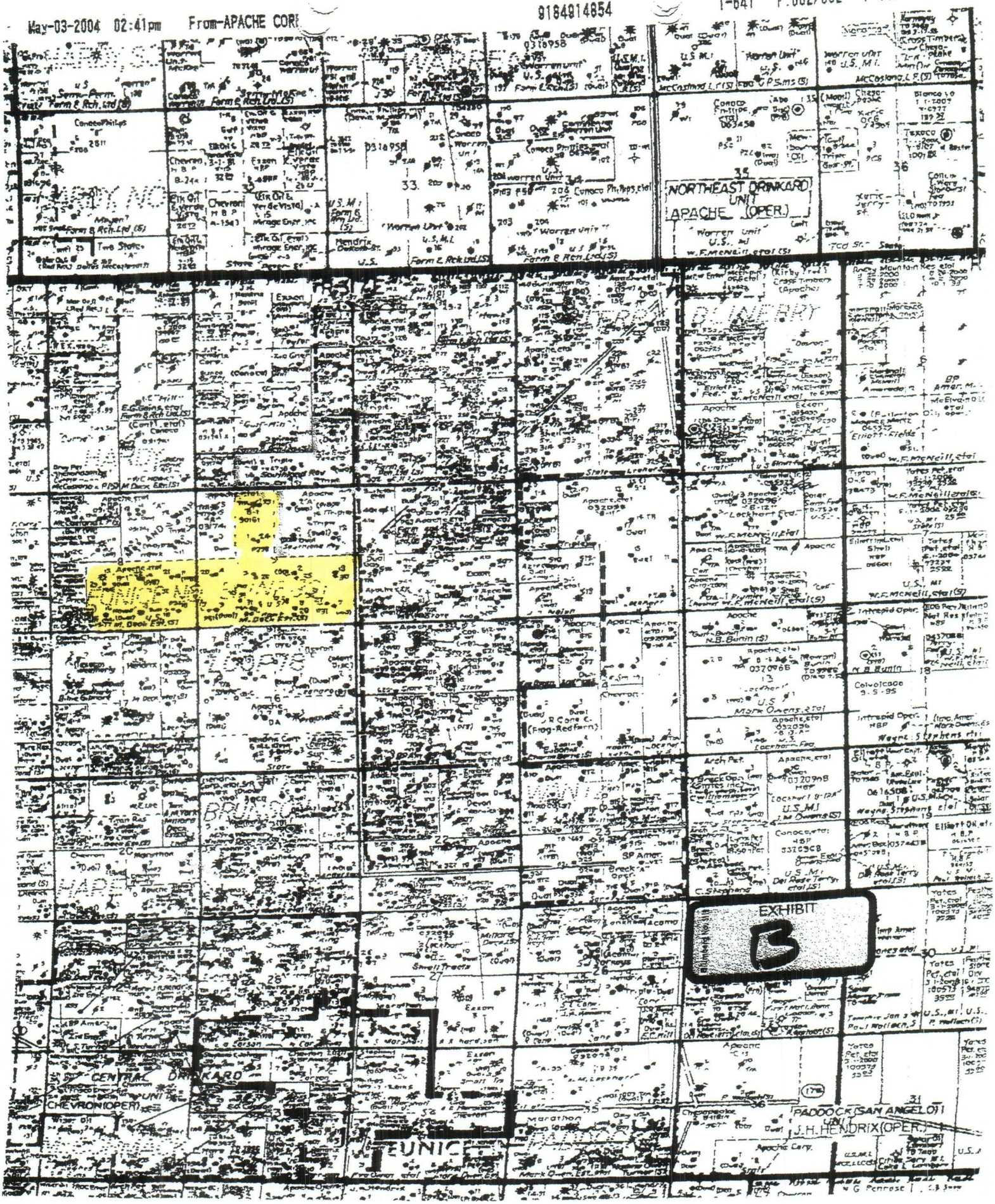
HAWK B-1 52

SEC 94-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 4

SAN ANDRES PAY

DATE: 12/1/05 DWG: CURTIS\GBSA-NSL\WELL (EX4)


NORTHEAST DRINKARD UNIT
APACHE (OPER.)
EXHIBIT
B
CENTRAL DRINKARD UNIT
CHEVRON (OPER.)
PADDOCK (SAN ANGELO) UNIT
J.H. HENDRIX (OPER.)