10-26-09 DATE IN	SUSPENSE	ENGINEER	LOGGED IN 10-27-04	TYPE NSL	APP NO. pSEM0430130955

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 _____

2004 OCT 26 PM 3 59

[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
PO BOX 1056
SANTA FE NM 87504
Print or Type Name

James Bruce
Signature

Attorney
Title

10/26/04
Date

jamesbruce@aol.com
e-mail Address

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)

jamesbruc@aol.com

October 26, 2004

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:	Hawk B-1 Well No. 42
Location:	1365 feet FSL & 1420 feet FEL
Well Unit:	NW¼SE¼ of Section 8, Township 21 South, Range 37 East, N.M.P.M., Lea County, New Mexico

The well will be drilled to test the Blinebry formation (Blinebry Oil & Gas Pool), Tubb formation (Tubb Oil & Gas Pool), and Drinkard formation (Drinkard Pool). The Blinebry Oil & Gas Pool and Tubb Oil & Gas Pool are prorated pools, and the special rules of each pool provide for (1) oil well units of 40 acres, (2) gas well units of 160 acres, and (3) a well unit may not be simultaneously dedicated to an oil well and a gas well. The Drinkard Pool is spaced on statewide rules.

The NW¼SE¼ of Section 4 will be **simultaneously dedicated** to the proposed well and to the Hawk B-1 Well No. 8, and applicant requests approval of the simultaneous dedication.

The application is based on geologic and engineering reasons. A complete discussion, with appropriate exhibits, is attached as Exhibit A. The proposed well is located in the approximate center of several producing wells, or wells which have produced. The reservoirs in the three pools are compartmentalized, and applicant believes that drilling the infill wells will recover reserves which will not be recovered by existing wells. This theory has been tested in applicant's Northeast Drinkard Unit, located to the east of the proposed well. In addition, applicant desires to complete

in all three zones to enhance project economics.

Part of Exhibit A is a listing of the Blinebry/Tubb/Drinkard wells offsetting the proposed well. It shows that the existing wells are oil wells. Thus, the infill well will not violate the special pool rules for the Blinebry Oil & Gas Pool and Tubb Oil & Gas Pool.

Attached as Exhibit B is a land plat, highlighting the proposed well's location. The SE¼ of Section 8 is part of a single federal lease, which has **common royalty, overriding royalty, and working interest ownership.** Therefore, there are no offset interest owners or adversely affected parties to notify of this application.

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 – 1365' FSL & 1420' FEL
Section 8, Township 21 South, Range 37 East, NMPM
Lea County, New Mexico

PRIMARY OBJECTIVES: Blinebry, Tubb, and Drinkard

In support:

1. Apache Corporation (Apache) is the operator of the proposed **Hawk B-1 #42** well (**Exhibit 1**).

2. The proposed unorthodox location is offset by the following wells which are, or have been productive from various combinations of the Blinebry, Tubb, and/or Drinkard (**Exhibit 2**).

				CUM B-T-D	DAILY B-T-D	CURRENT
OPER	WELL	LOC	RESRVR	O/G/W	O/G/W	POOL
Conoco	Hawk B-1 #14	8-J	BLBY	102/1682/104	0/0/0	
Apache	Hawk B-1 #11	8-I	B-T-D	225/1794/10	3/57/2	Blinebry Oil and Gas **AND** Drinkard
Apache	Hawk B-1 #10	8-P	DKRD	355/2118/36	6/40/3	Drinkard
Apache	Hawk B-1 #12	8-0	DRKD	76/0/	0/0/0	Penrose Skelly Grayburg

MBO BOPD
MMCFG MCFGPD
MBW BWPD

3. The proposed **Hawk B-1 # 42** unorthodox Blinebry, Tubb, and Drinkard location of 1365' from south line and 1420' from east line is predicated by geological, and drainage considerations:

a. Blinebry, Tubb and Drinkard

The Blinebry, Tubb, and Drinkard Formations are members of the Yeso Group, Permian Leonardian in age. Portions of the Eunice area were unitized by Shell in 1987 into the Northeast Drinkard Unit for waterflood operations. The unit is governed by the North Eunice Blinebry-Tubb-Drinkard Field Rules. The stratigraphic relationships, specifically top of Blinebry being 75' above the Blinebry Marker, and fluid contacts, specifically Blinebry GOC at –2255 and Drinkard OWC at -3225, employed by Shell in the unitization hearings have been used here.

All three formations are shallow marine carbonates, consisting primarily of dolomite. The Tubb has appreciable clastic content and the Drinkard becomes limey toward its base. Anhydrite can occur throughout the interval. Porosity and permeability are low. Distribution and continuity of individual zones of porosity and permeability are erratic. Wells are not capable of draining a full 40 Acre Spacing Unit. In fact, Apache's calculations indicate drainage area is approximately 20 Acres.

Structure is significant in that it controls the fluid distribution and amount of pay above and below the Blinebry and Drinkard oil-gas contacts.

Apache approached its evaluation by mapping log derived SoPhiH for each of the four major reservoirs (Blinebry Gas Cap, Blinebry Oil Leg, Tubb, and Drinkard). This analysis required modern neutron-density and resistivity logs for any well to be used. Many wells thus had to be excluded from analysis because of the vintage of downhole logs or lack of a full logging suite. Sufficient new well control exists in and near the Northeast Drinkard Unit to allow this interpretation. In this case, well control is just outside the mapped.

Reservoir engineering used the four SoPhiH maps to estimate drainage of each offsetting well in each reservoir. Recoverable reserves for this location are calculated as the volumetrics under a 20 A radius (less if the direct offsets were not capable of draining 20 A) with reduced reservoir pressure where drainage has occurred. Drainage offsetting this location is as follows:

				EUR			DRAINED
SEC	LEASE NAME	WELL	PROD ZONE NAME	OIL	WATER	GAS	ACRES
8	Hawk B-1	10	BLINEBRY GAS CAP	0	0	0	0
8	Hawk B-1	11	BLINEBRY GAS CAP	3	4	341	30
8	Hawk B-1	12	BLINEBRY GAS CAP	0	0	0	0
8	Hawk B-1	14	BLINEBRY GAS CAP	7	12	690	85
8	Hawk B-1	10	BLINEBRY OIL LEG	0	0	0	0
8	Hawk B-1	11	BLINEBRY OIL LEG	12	4	76	3
8	Hawk B-1	12	BLINEBRY OIL LEG	0	0	0	0
8	Hawk B-1	14	BLINEBRY OIL LEG	77	90	504	16
8	Hawk B-1	10	TUBB	0	0	0	0
8	Hawk B-1	11	TUBB	0	0	0	0
8	Hawk B-1	12	TUBB	0	0	0	0
8	Hawk B-1	14	TUBB	0	0	0	0
8	Hawk B-1	10	DRINKARD	354	36	2301	40
8	Hawk B-1	11	DRINKARD	214	7	1391	30
8	Hawk B-1	12	DRINKARD	72	0	468	8
8	Hawk B-1	14	DRINKARD	23	2	150	3

Volumetrics for the proposed location are as follows:

			RESERVOIR	DRAINAGE	EUR	
		PROD ZONE NAME	PRESSURE	ACRES	OIL	GAS
HAWK B-1	**42**	BLINEBRY GAS CAP	1500	20	8	75
		BLINEBRY OIL LEG	2500	20	83	542
		TUBB	2500	20	8	812
		DRINKARD	1900	20	135	878
		TOTAL			**227**	**2306**

b. Blinebry Gas Cap (Exhibit 3)

Thickness of the Blinebry Gas Cap is partially related to the subsea top of the Blinebry. The higher the top, the thicker the gas cap can be. Using a 5% threshold, porosity averages 10.5% and water saturation averages 29% in 92 wells selected for analysis. SoPhiH at this location is expected to be 1.3'.

c. Blinebry Oil Leg (Exhibit 4)

Thickness of the Blinebry Leg is partially related to the subsea top of the Blinebry, the higher the top, the thinner the oil leg might be. Using a 5% threshold, porosity averages 8.7% and water saturation averages 32% in 92 wells selected for analysis. SoPhiH at this location is expected to be 2.5'.

d. Tubb (Exhibit 5)

The Tubb is generally considered to be a gas reservoir. No gas-oil or gas water contact has been suggested. Using a 5% porosity threshold and a 50 APIU Gamma ray threshold because of the greater amount of clastic material, porosity averages 8.4% and water saturation averages 30% in 91 wells selected for analysis. SoPhiH at this location is expected to be 3.0'.

e. Drinkard (Exhibit 6)

The thickness of the Drinkard pay is also related to its subsea position, the higher the top, the thicker the interval can be. Using a 5% threshold, porosity averages 9.1% and water saturation averages 25% in 82 wells selected for analysis. SoPhiH at this location is expected to be 6.3'.

f. Drainage

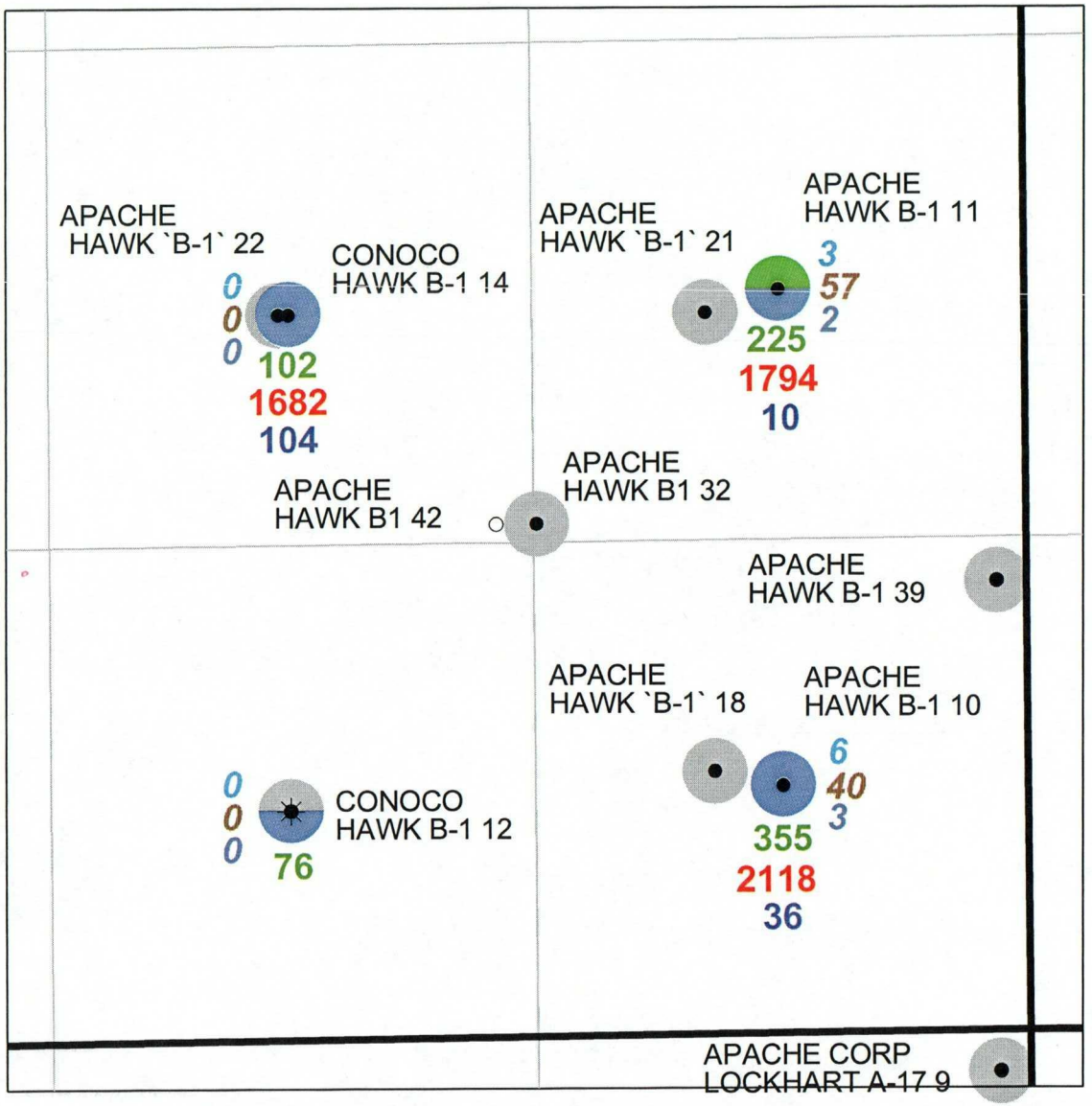
The proposed **Hawk B-1 #42** is a 20 Acre infill location between the older Blinebry, Tubb, Drinkard producers and is approximately equidistant from those wells. It will be in Unit "J" which does not have an active Blinebry, Tubb, Drinkard producer. Additionally, all three reservoirs are contained

within one oil and gas lease, with common working and revenue interest owners.

4. **Notice**

   a. Apache is the operator of the Blinebry, Tubb, and Drinkard wells toward which the proposed well will encroach. All three reservoirs are contained within one oil and gas lease (Hawk Federal which includes, among other acreage, all of SE¼ §8) with common working and 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 and to do so without violating correlative rights.



WELL SYMBOLS

- ○ Location Only
- ● Oil Well
- ☼ Gas Well
- ☼ Dry

POSTED WELL DATA

CURRENT BOPD
CURRENT MCFD
CURRENT BWPD

● OPERATOR WELL LABEL

MBO
MMCFG
MBW

Apache CORPORATION
CENTRAL REGION

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

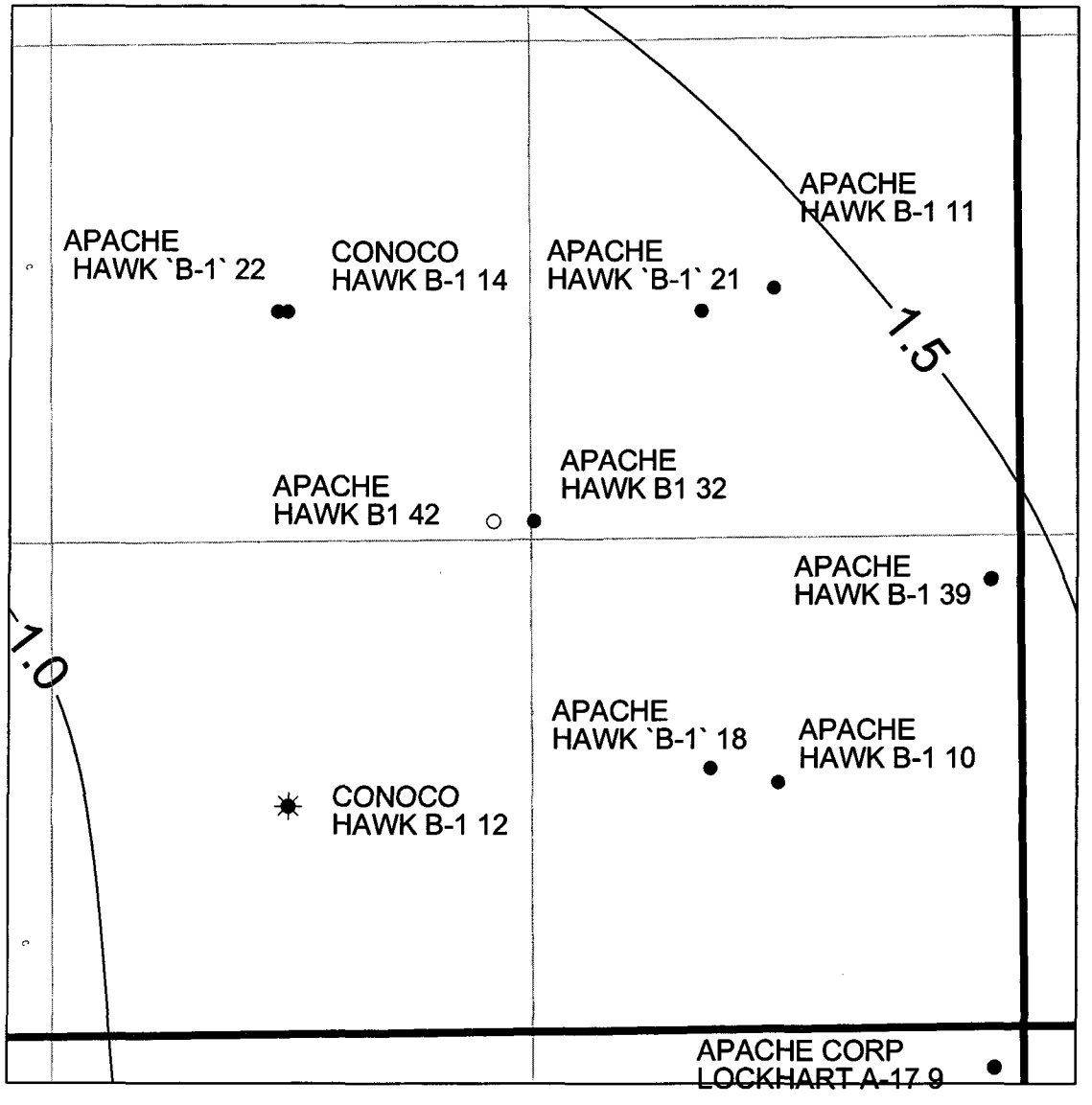
HAWK B-1 #42

SEC 8-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 2

WELL INFORMATION

DATE: 7/22/04 DWG: PROD (CURTIS\OCD-NM\2004 BTD)



0 500 1,000 1,500

FEET

GAMMA RAY LTE 40 APIU
XPHI GTE 5%
SW LTE 50%

WELL SYMBOLS

- ○ Location Only
- ● Oil Well
- ☼ Gas Well
- ⊖ Dry

POSTED WELL DATA

BLBY GAS CAP
SOPHIH ● OPERATOR WELL LABEL

Apache Corporation
Central Region
TWO WARREN PLACE, SUITE 1500
6120 SOUTH YALE
TULSA, OKLAHOMA 74136-4224

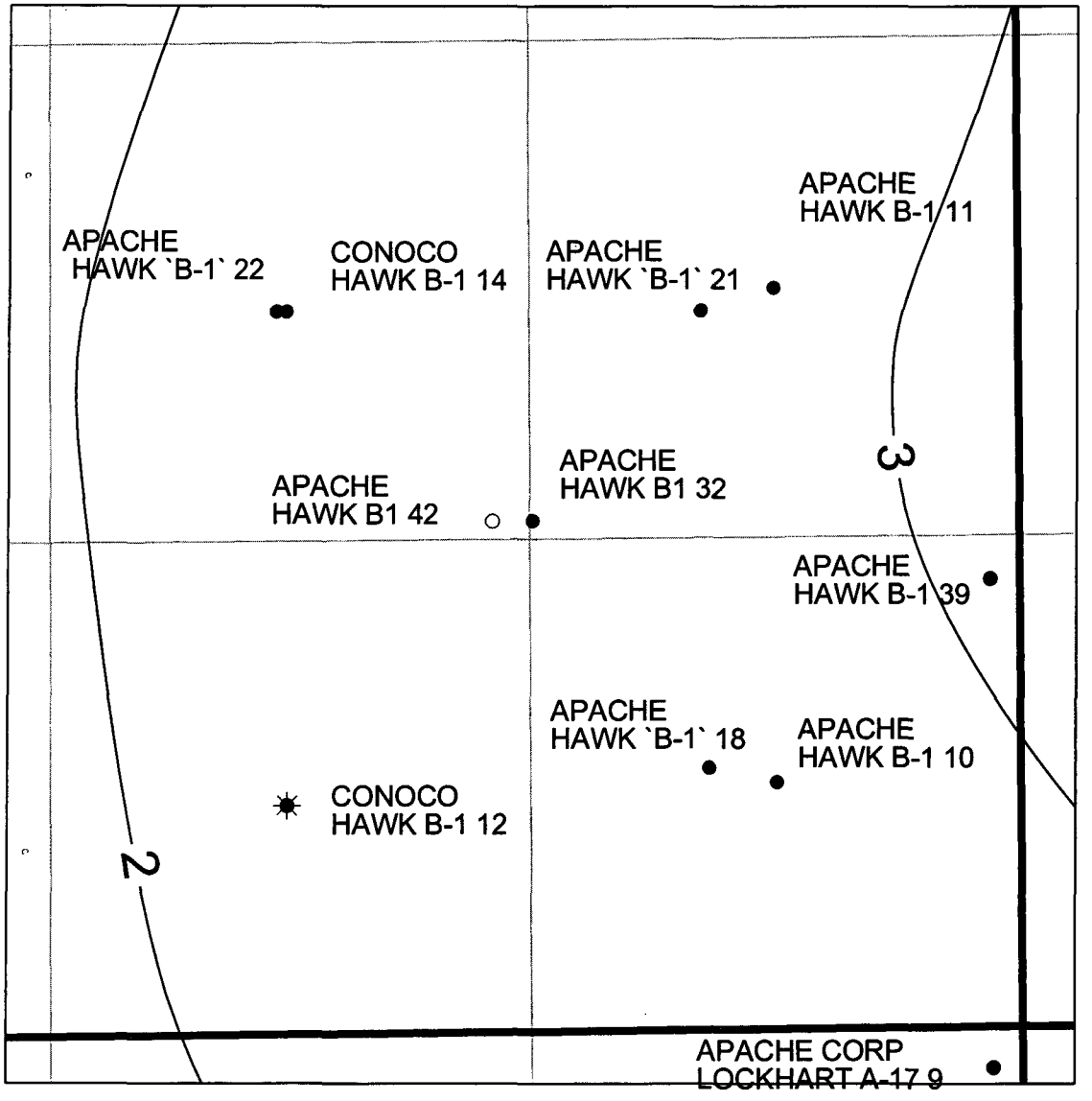
HAWK B-1 #42

SEC 8-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 3

BLBY GAS CAP SOPHIH

DATE: 7/22/04 DWG: PROD (CURTIS\OCD-NM\2004 BTD)



0 500 1,000 1,500

FEET

GAMMA RAY LTE 40 APIU
XPHI GTE 5%
SW LTE 50%

WELL SYMBOLS

- ○ Location Only
- ● Oil Well
- ☼ Gas Well
- ⊹ Dry

POSTED WELL DATA

BLBY OIL LEG SOPHIH ● OPERATOR WELL LABEL

Apache CORPORATION CENTRAL REGION

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

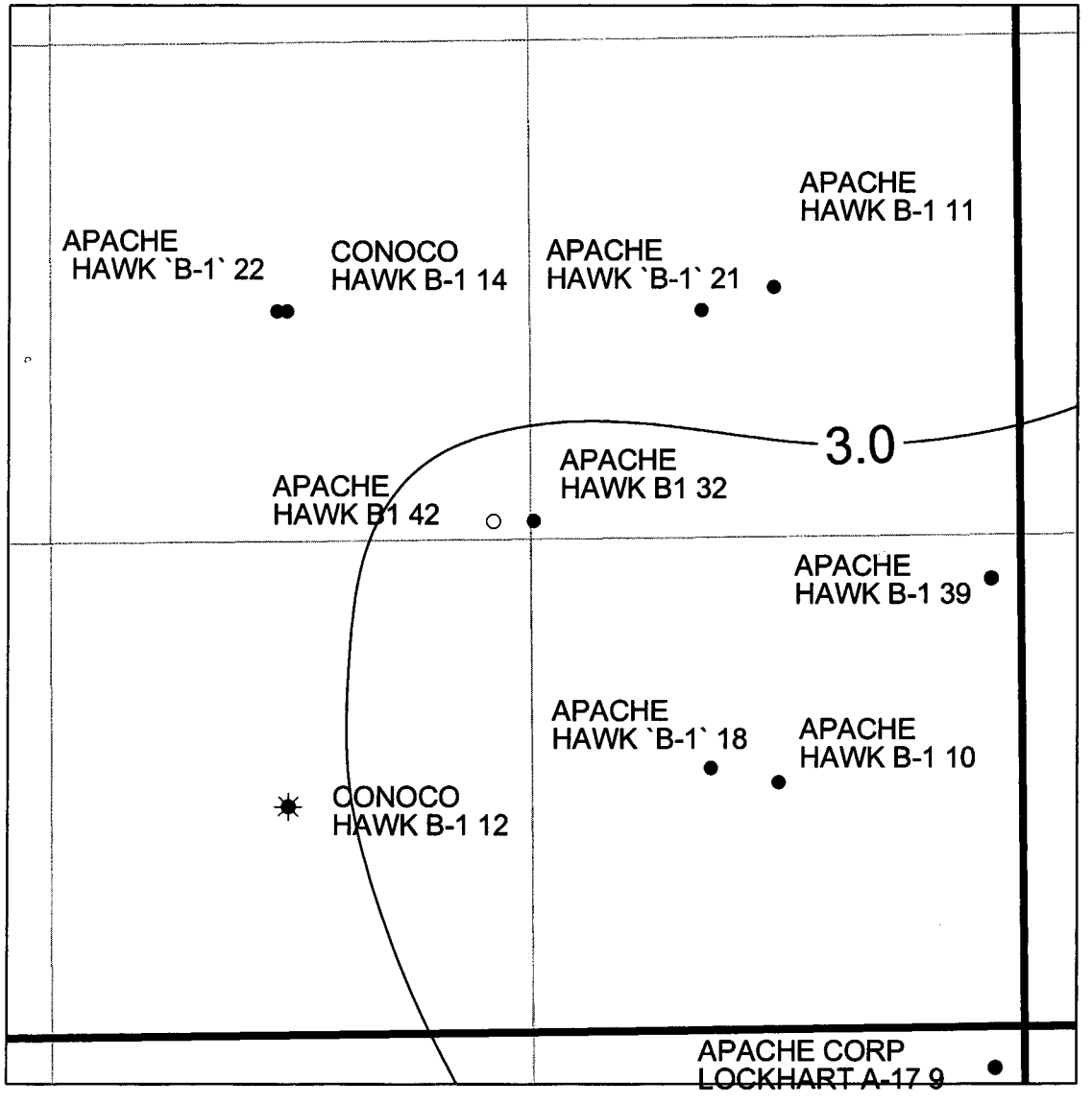
HAWK B-1 #42

SEC 8-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 4

BLBY OIL LEG SOPHIH

DATE: 7/22/04 DWG: PROD (CURTIS\OCD-NM\2004 BTD)



0 500 1,000 1,500

FEET

GAMMA RAY LTE 50 APIU
XPHI GTE 5%
SW LTE 50%

WELL SYMBOLS

- ○ Location Only
- ● Oil Well
- ☼ Gas Well
- ⊖ Dry

POSTED WELL DATA

TUBB
SOPHIH ● OPERATOR WELL LABEL

Apache CORPORATION CENTRAL REGION

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

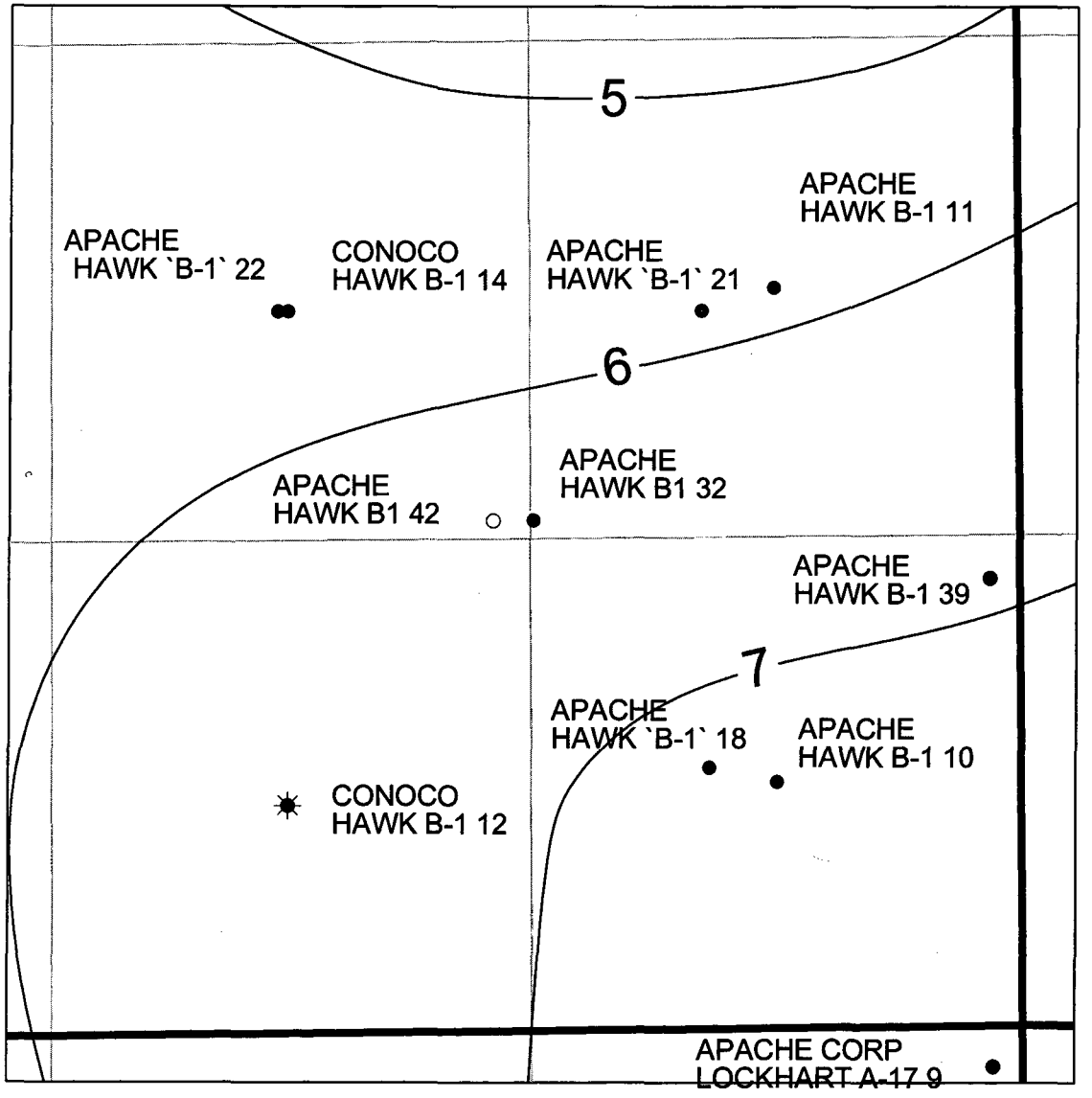
HAWK B-1 #42

SEC 8-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 5

TUBB SOPHIH

DATE: 7/22/04 DWG: PROD (CURTIS\OCD-NM\2004 BTD)



0 500 1,000 1,500

FEET

GAMMA RAY LTE 40 APIU
XPHI GTE 5%
SW LTE 50%

WELL SYMBOLS

- ○ Location Only
- ● Oil Well
- ☼ Gas Well
- ⊖ Dry

POSTED WELL DATA

DRKD
SOPHIH ● OPERATOR WELL LABEL

Apache CORPORATION CENTRAL REGION
TWO WARREN PLACE, SUITE 1500
6120 SOUTH YALE
TULSA, OKLAHOMA 74136-4224

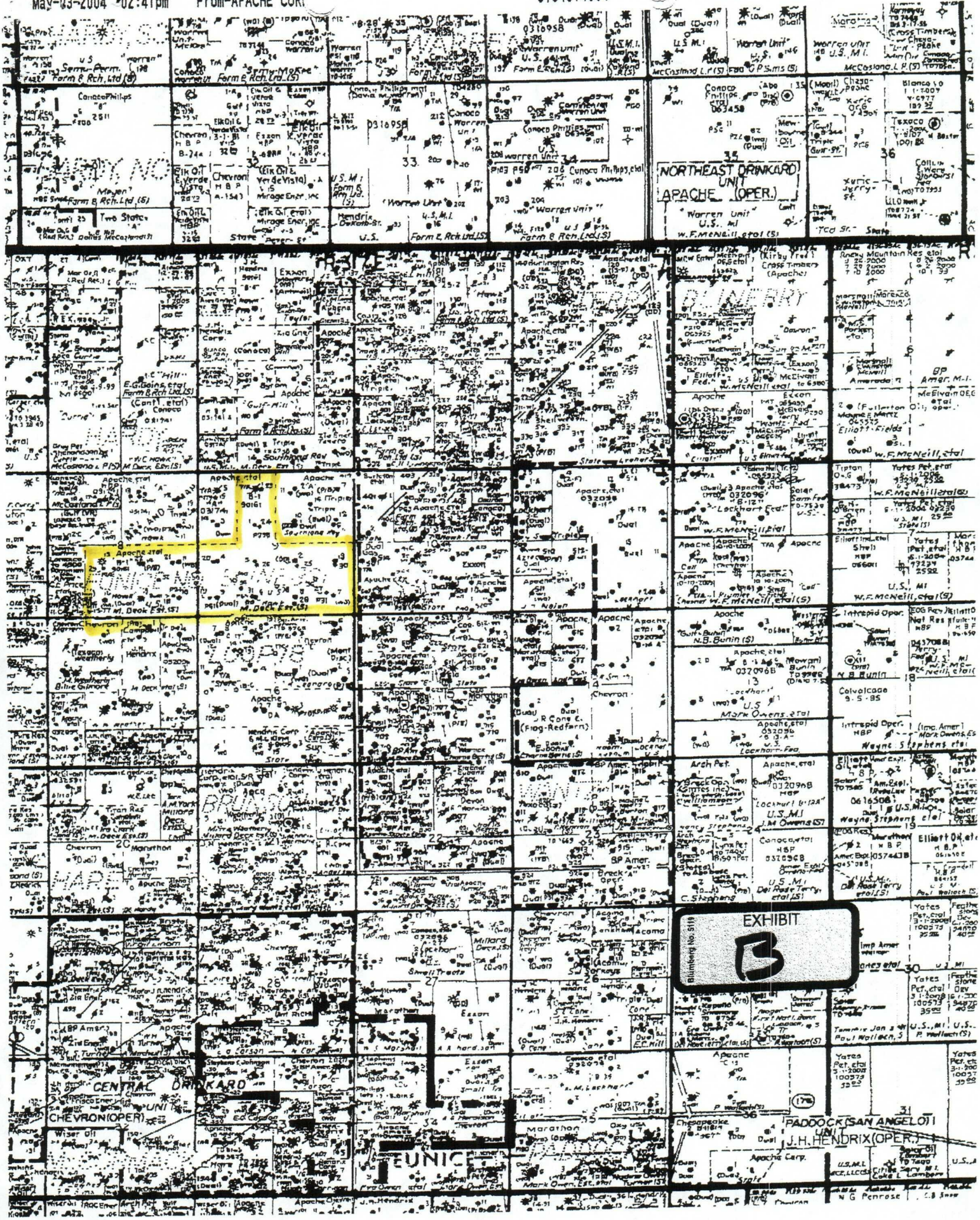
HAWK B-1 #42

SEC 8-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 6

DRKD SOPHIH

DATE: 7/22/04 DWG: PROD (CURTIS\OCD-NM\2004 BTD)


NORTHEAST DRINKARD UNIT
APACHE (OPER.)
EXHIBIT
B
Blumberg No. 5119
CENTRAL DRINKARD UNIT
CHEVRON (OPER)
EUNICE
PADDOCK (SAN ANGELO) UNIT
J.H. HENDRIX (OPER.)
R37E
R36E

Stogner, Michael

From: Stogner, Michael
Sent: Friday, December 03, 2004 8:13 AM
To: 'JamesBruc@aol.com'
Cc: Ezeanyim, Richard
Subject: RE: Apache Corp./NSL applications in 21S-37E

Your request is duly noted and I will make every effort to accommodate Apache's needs.

-----Original Message-----
From: JamesBruc@aol.com [mailto:JamesBruc@aol.com]
Sent: Friday, December 03, 2004 7:41 AM
To: mstogner@state.nm.us
Subject: Apache Corp./NSL applications in 21S-37E

Mike: I know you have approximately one billion other things on your desk, but Apache is really bothering me for another NSL approval, so they can drill this month. I think there are three pending. As always, anything you can do will help. Thanks.

If you want to call and scream at me to relieve the pressure, I'm at your service (982-2043).

Jim