

**KELLAHIN & KELLAHIN**  
**Attorney at Law**

**W. Thomas Kellahin**  
New Mexico Board of Legal  
Specialization Recognized Specialist  
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oil and gas law

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January 21, 2003

HAND DELIVERED

Ms. Lori Wrotenbery, Director  
Oil Conservation Division  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505

Re: Administrative Application of Apache Corporation  
for approval of a unorthodox well location for its  
Hawk B-1 Well No. 32, Unit I,  
NE/4SE/4 dedication, Section 8  
T21S, R37E, Lea County, New Mexico  
Penrose Skelly-Grayburg Pool.

Dear Ms. Wrotenbery:

On behalf of Apache Corporation, please find enclosed our referenced application that is being filed in accordance with Division Rule 104.D(2)(b)). This location crowds the interior quarter-quarter lines within the SE/4 with the well located in the NE/4SE/4 (Unit I).

Very truly yours,

  
W. Thomas Kellahin

CC: Apache Corporation  
Attn: Kevin Mayes

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**APPLICATION OF APACHE CORPORATION  
FOR APPROVAL OF AN UNORTHODOX WELL LOCATION  
LEA COUNTY, NEW MEXICO**

**ADMINISTRATIVE APPLICATION**

Comes now Apache Corporation ("Apache") and by and through its attorneys, Kellahin & Kellahin, and in accordance with Division General Rule 104.F, applies to the New Mexico Oil Conservation Division ("Division") for approval of an unorthodox oil well location for its Hawk B-1 Well No. 32, to be located 1365 feet FSL and 1310 feet FEL line (Unit I) of Section 8, T21S, R37E, Lea County, New Mexico to be dedicated to a standard 40-acre oil spacing unit consisting of the NE/4SE/4 of this section for production from the Penrose Skelly-Grayburg Pool and simultaneously dedicated with the Hawk B-1 Well No 21.

In support, Apache states:

1. Apache is the operator of this SE/4 of this section which contains 7 wells:
  - (a) NW/4SE/4 (Unit J)  
Hawk B-1 Well No. 22 and  
Hawk B-1 Well No. 14
  - (b) SW/4SE/4 (Unit O)  
Hawk B-1 Well No. 12
  - (c) SE/4SE/4 (Unit P)  
Hawk B-1 Well No. 10 and  
Hawk B-1 Well No. 18
  - (d) NE/4SE/4 (Unit I)  
Hawk B-1 Well No. 11  
Hawk B-1 Well No. 21
2. The SE/4 of Section 8 is within the current boundary of the Penrose Skelly-Grayburg Pool and is subject to Division Rule 104.

3. In order to better drain the SE/4 of Section 8, Apache proposes to drill its Hawk B-1 Well No. 32 in Unit I by as close to the center of the quarter-section as possible and still be located within a specified 40-acre spacing unit.

#### TECHNICAL EVIDENCE

4. Apache would like to test the Grayburg formation based upon the following geologic and petroleum engineering evidence:

See Exhibit 2: geological summary

See Exhibit 3: production data

See Exhibit 4: portion of log of subject well

See Exhibit 5: Grayburg isopach

See Exhibit 6: oil in place/EUR calculations/drainage estimated

5. Apache's proposed unorthodox well location encroached on an internal boundary of the common acreage in the SE/4 of this section.

#### NOTIFICATION

6. The SE/4 of this Section is part of the same federal oil & gas Lease (NM 90161, dated March 1, 1958) and has common working interest owners and overriding royalty owners.

7. Notice has been sent to all of the interest owners in the SE/4 of Section 8.  
**See Exhibit 7**

8. All of the interest owners in SE/4 Section 8 are the same.

9. Approval of this application will afford the owners and the applicant the opportunity to produce their just and equitable share of the gas in the Atoka formation, will promote the orderly development in this area, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells and will otherwise prevent waste and protect correlative rights.

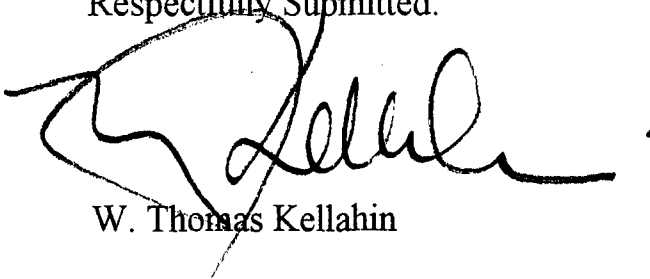
NMOCD Administrative Application

Apache Corporation

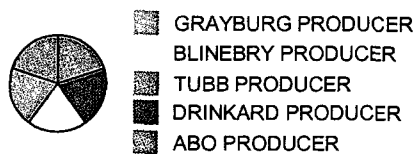
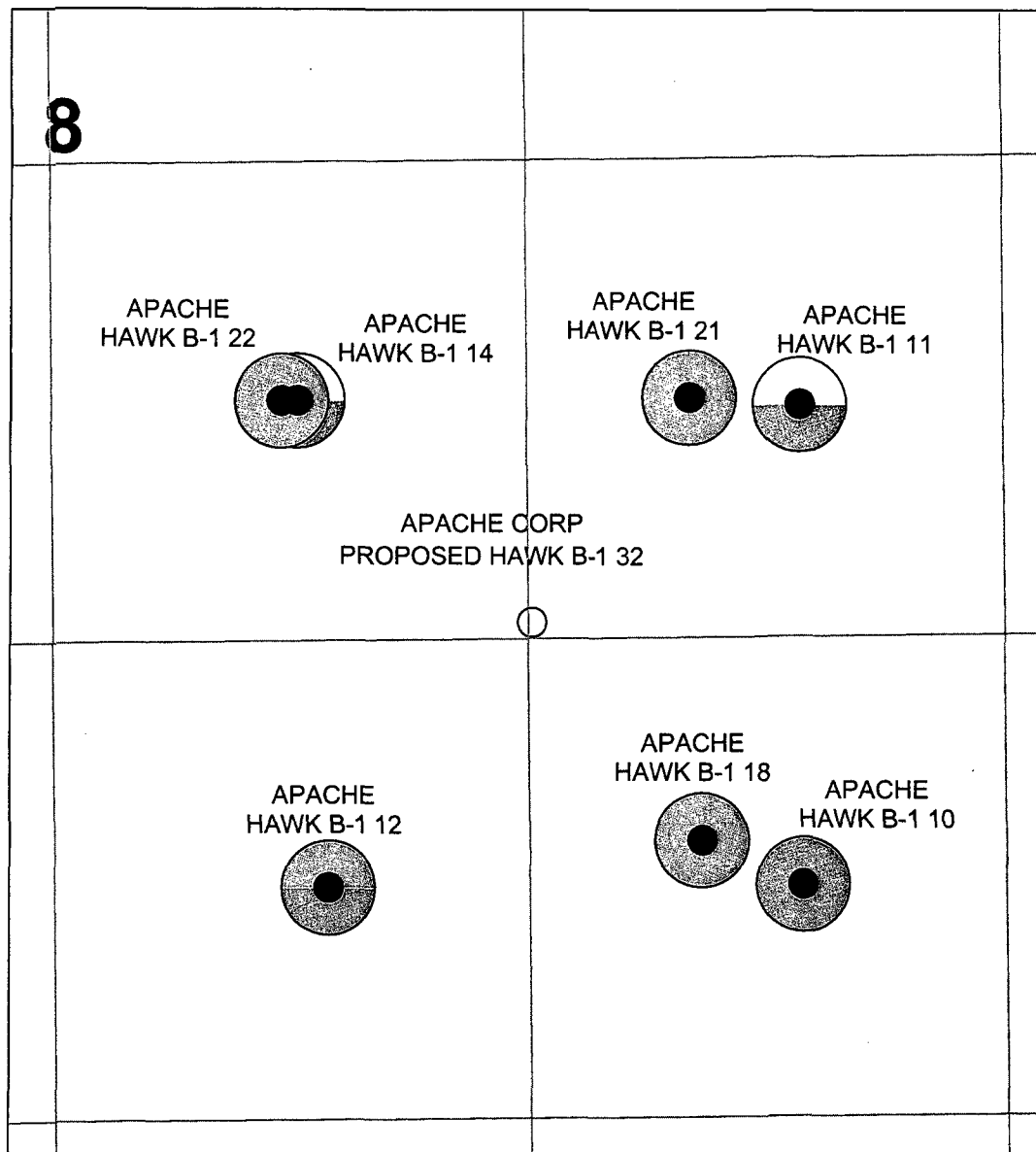
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WHEREFORE, Applicant requests that this application be approve by the Division.

Respectfully Submitted:

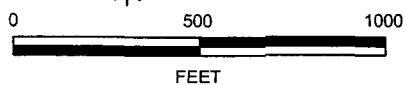
A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', written over a horizontal line.

W. Thomas Kellahin



#### WELL SYMBOLS

- Location Only
- Oil Well
- ✱ Oil & Gas Well



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	<b>HAWK B-1 #32</b>
SEC. 8-T21S-R37E LEA COUNTY, NEW MEXICO	
<b>EXHIBIT 2-A</b> <b>WELL INFORMATION</b>	
DATE: 1-14-03      DWG: HAWK B-1 EX2 (CURTIS/OCD-NM)	

## DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

## DISTRICT II

P.O. Drawer DD, Artesia, NM 88211-0719

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

P.O. BOX 2088, SANTA FE, N.M. 87504-2088

## State of New Mexico

Energy, Minerals and Natural Resources Department

## OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

Form C-102

Revised February 10, 1994

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 HAWK B-1	Well Number 32
OGRID No.	Operator Name APACHE CORPORATION	Elevation 3517'

## Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	8	21-S	37-E		1365'	SOUTH	1310'	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

<p><u>GEODETIC COORDINATES</u></p> <p>NAD 27 NME</p> <p>Y = 543829.2</p> <p>X = 855514.5</p> <p>LAT= 32°29'23.33"N</p> <p>LONG= 103°10'49.27"W</p>		<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p>Signature _____</p> <p>Printed Name _____</p> <p>Title _____</p> <p>Date _____</p>
		<p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>OCTOBER 12, 2002</p> <p>Date Surveyed _____ AWB</p> <p>Signature and Seal of Professional Surveyor _____</p> <p>Certification No. RONALD JOHNSON 3239</p> <p>NEW MEXICO 12641</p>

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

20 acres – 1,365' FSL & 1310' FEL  
Section 8, Township 21 South, Range 37 East, NMPM  
Lea County, New Mexico



PRIMARY OBJECTIVE: **Grayburg**

SECONDART OBJECTIVE: None

In support:

1. Apache Corporation (Apache) is the operator of the proposed Hawk B-1 #32 well. **Exhibit 1**
2. The proposed unorthodox Grayburg location encroaches toward the NW/4, SE/4; the SW/4, SE/4; and the SE/4, SE/4 which contains the Apache Hawk B-1 #22, 12 and 18 wells. The Hawk B-1 #21 in the same spacing unit also produces from the Grayburg and with which the proposed well will share an allowable. There are also 4 wells which have produced from the Blinebry, Tubb and/or Drinkard formations. The proposed well will not be drilled deep enough to encounter the Blinebry, Tubb and/or Drinkard reservoirs. **Exhibit 2**
3. All the wells producing from the Grayburg are placed in the Penrose Skelly (Grayburg) pool.
4. The proposed unorthodox Grayburg location is based on geological necessity and drainage considerations:

a. **Grayburg Geology (Exhibit 4)**

The Upper Grayburg Hydrocarbon Pore Volume (HCPV) map was abstracted from a larger map. Hydrocarbon pore volume is the footage of oil saturated porosity. HCPV is the product of h (feet of porosity above a 6% cutoff), PhiA (average porosity) across the Grayburg reservoir, and So (oil saturation). The h value was picked from all available porosity logs, regardless of vintage. PhiA was calculated from "modern" porosity logs when both neutron and density values are available to calculate a lithology dependent "cross plot" porosity. So was calculated from the current production stream.

The Hawk B-1 #12 has only produced from the upper Grayburg (**Exhibit 5**). Recent Apache activity in offsetting sections has demonstrated that commercial reserves are also present in the lower Grayburg (**Exhibit 6**). Sufficient lower Grayburg HCPV can be encountered in the SW/4, SE/4 of Section 8 to support drilling a well. However, the risk of depletion in the upper Grayburg is greatest in the same SW/4, SE/4 (**Exhibit 3**). Thus, a well located approximately equi-distant between the older producers

should minimize depletion risk in the upper Grayburg and encounter comparable amounts of lower Grayburg HCPV to maximize Apache's return on its investment.

5. Notice

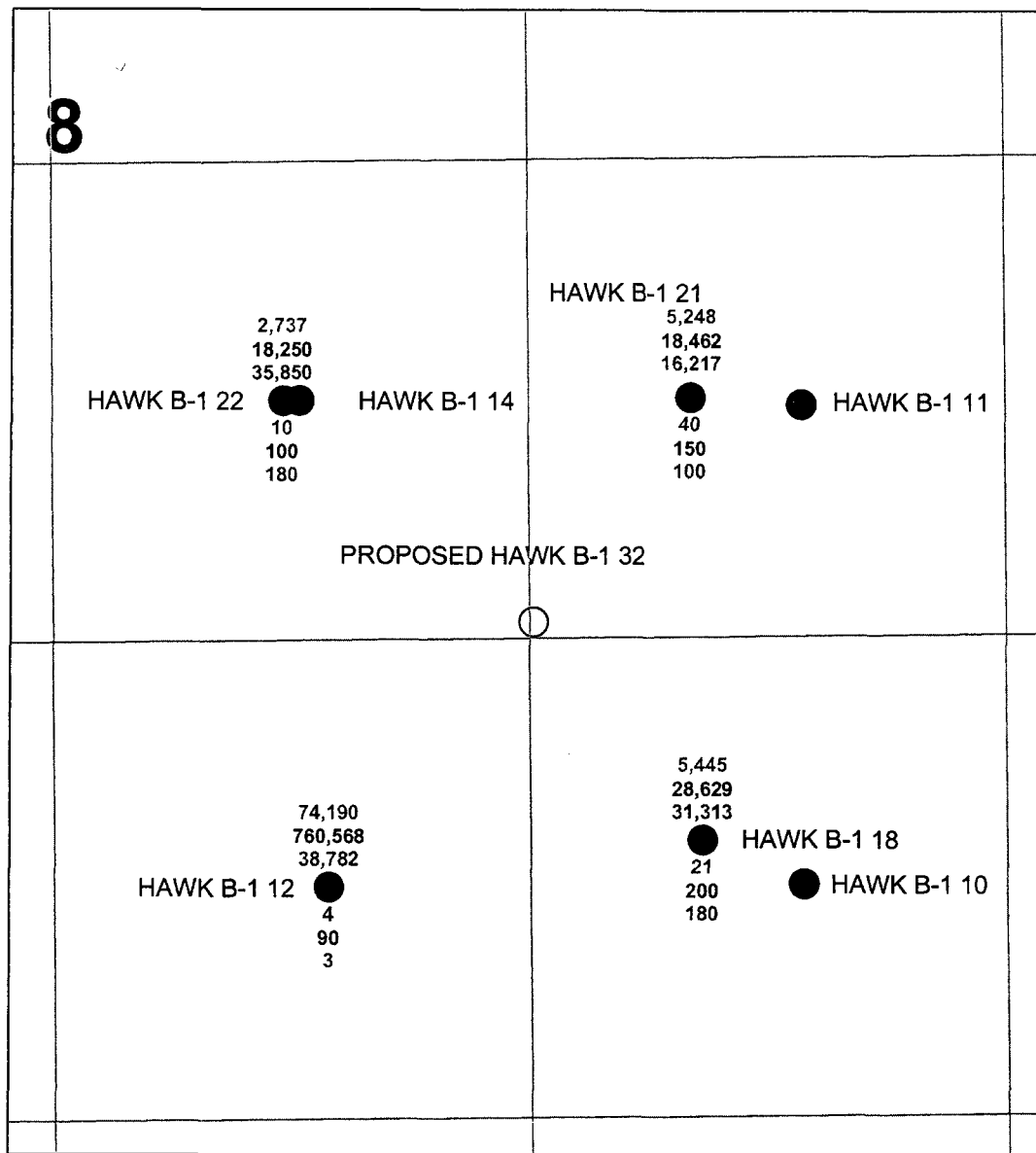
Apache is the operator of the Grayburg wells toward which the proposed well will encroach. All of the working interest owners in those wells have been notified, being:

Chevron/Texaco  
15 Smith Road  
Midland, TX 79705  
Attn: Ms. Denise Beckham

BP America Production Co.  
501 Westlake Park Blvd  
WL1- Room 6.199  
Houston, Texas 77079  
Attn: Mr. Lee Scarborough

Minerals Management Service  
P. O. Box 5810 TA  
Denver, CO 80217-5810





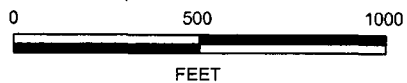
#### POSTED WELL DATA

CUM OIL  
CUM GAS  
CUM WATER

DAILY OIL  
DAILY GAS  
DAILY WATER

#### WELL SYMBOLS

- Location Only
- Oil Well
- ⊛ Oil & Gas Well



TWO WARREN PLACE, SUITE 1500  
6120 SOUTH YALE  
TULSA, OKLAHOMA 74138-4224

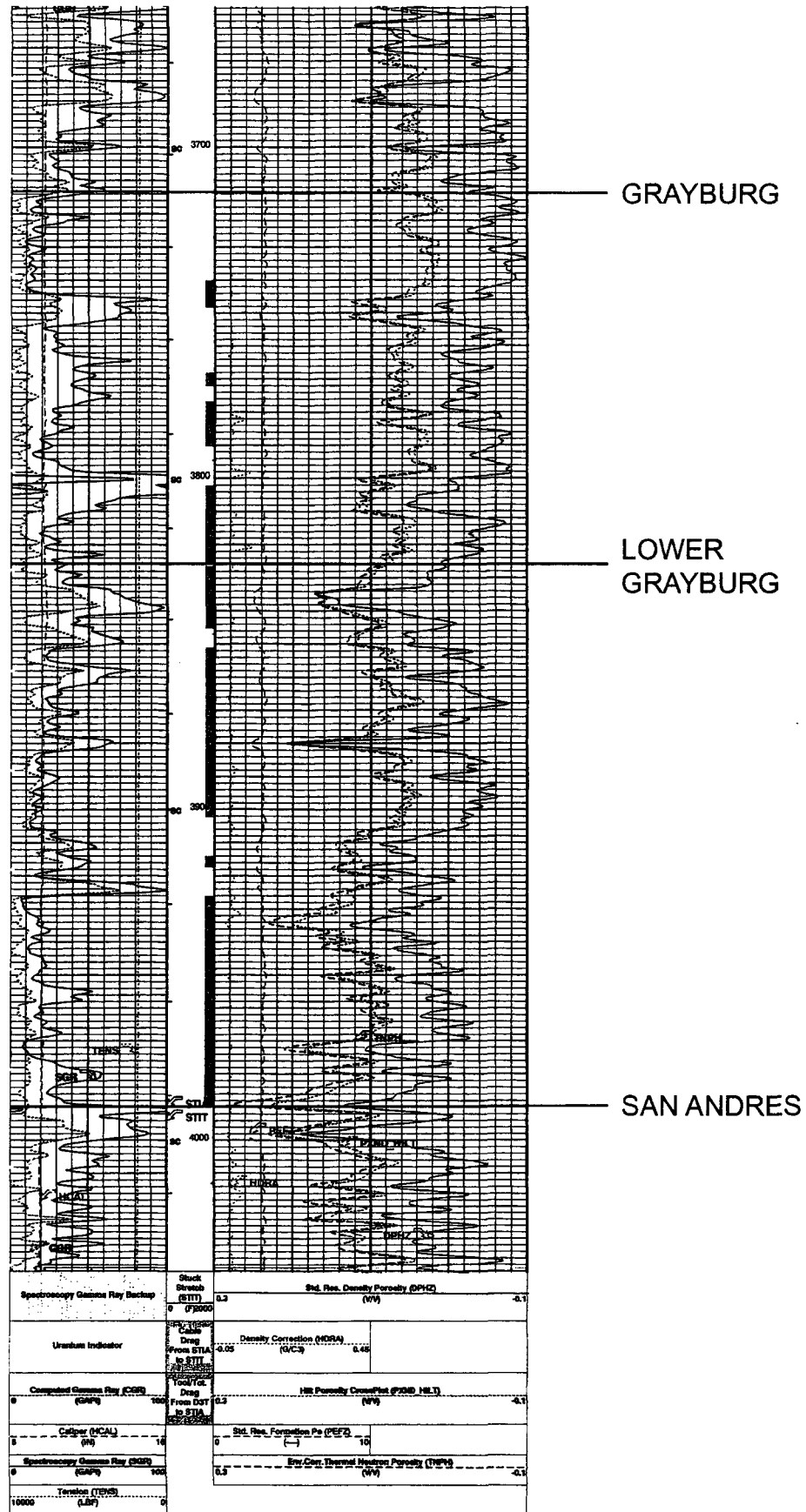
**HAWK B-1 #32**

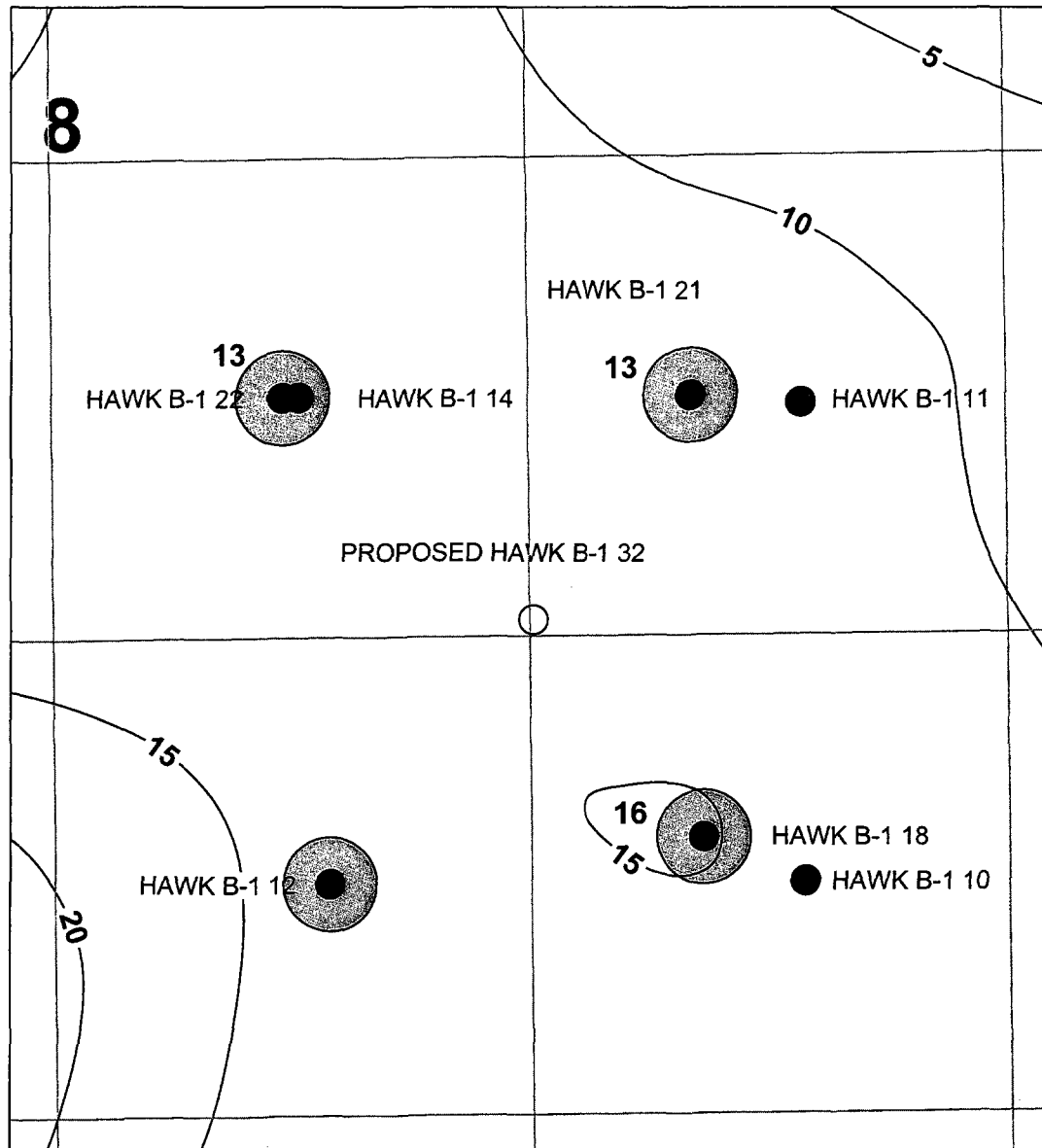
**SEC. 8-T21S-R37E  
LEA COUNTY, NEW MEXICO**

**EXHIBIT 3  
GRAYBURG PRODUCTION**

DATE: 1-14-03 DWG: HAWK B-1 32 PROD (CURTIS/OCD-NM)

APACHE CORP.  
 STATE "C" TRACT 12 11  
 Sec. 16 T21S R37E  
 LEA COUNTY, NEW MEXICO

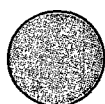




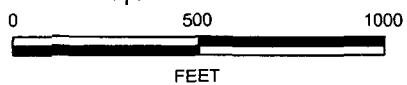
POSTED WELL DATA  
UPPER GRAYBURG PAY ●

**WELL SYMBOLS**

- Location Only
- Oil Well
- ★ Oil & Gas Well



U. GRAYBURG PRODUCER



TWO WARREN PLACE, SUITE 1500  
6120 SOUTH YALE  
TULSA, OKLAHOMA 74138-4224

**HAWK B-1 #32**

**SEC. 8-T21S-R37E  
LEA COUNTY, NEW MEXICO**

**EXHIBIT 5  
GRAYBURG A PAY  
CUTOFF: 6% DOLOMITE**

DATE: 1-14-03

DWG: HAWK B-1 32 EX5 (CURTIS/OCD-NM)

APPLICATION OF APACHE CORPORATION  
UNORTHODOX WELL LOCATION  
HAWK B-1 #32  
OFFSET ULTIMATE RECOVERIES AND DRAINAGE AREAS IN THE GRAYBURG FORMATION

WELL NAME	NET PAY (FT)	AVG POROSITY	AVG WATER SAT	Boi	DRAINAGE ACRES	OOIP	Bo ABANDON	Rs INITIAL	Rs ABANDON	Rs CUMULATIVE	Bg ABANDON	RECOVERY FACTOR	RECOVERABLE RESERVES (STBO)	RECOVERABLE RESERVES (MCF)
HAWK B-1 12	14	12	40	1.38	160	906,674	1.05	1000	125	10250	0.05	0.09	81,601	836,407
HAWK B-1 18	90	8	70	1.38	14	170,001	1.05	1000	125	12000	0.05	0.07	11,900	142,801
HAWK B-1 21	93	8	60	1.38	12	200,764	1.05	1000	125	12000	0.05	0.07	14,053	168,641
HAWK B-1 22	121	8	70	1.38	5	81,628	1.05	1000	125	15000	0.05	0.06	4,898	73,465



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January 22, 2003

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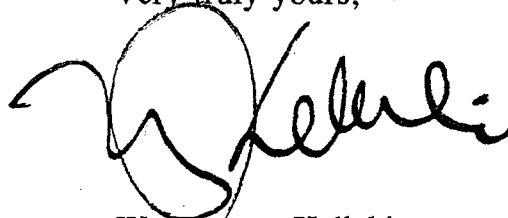
**CERTIFIED MAIL-RETURN RECEIPT REQUESTED**

**NOTICE OF THE FOLLOWING NEW MEXICO OIL CONSERVATION  
DIVISION ADMINISTRATIVE CASE:**

*Re: Administrative Application of Apache  
Corporation for approval of unorthodox Grayburg  
location for its Hawk B-1 Well No. 32,  
NE/4SE/4 Section 8, T21S, R37E,  
Lea County, New Mexico.*

On behalf of Apache Corporation, please find enclosed a copy of its referenced administrative application. If you have no objection, then there is nothing for you to do. However, should you have any objection to the Division approving this application, then it will be necessary for you to file a written objection with the New Mexico Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505 within twenty (20) days of the date of this letter. Failure to file a timely objection will preclude you from objecting at a later date.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', with a large, stylized initial 'W'.

W. Thomas Kellahin

## NOTIFICATION LIST

Application of Apache Corporation for Administrative  
Approval of an unorthodox well location:

**Hawk B-1 # 32 Well**  
1365' FSL & 1310' FEL  
Section 8, Township 21 South, Range 37 East, NMPM  
Lea County, New Mexico

### OFFSET OPERATOR, WORKING INTEREST OWNERS, ROYALTY OWNER OVERRIDE OWNERS, SE/4 SECTION 5

1. Apache Corporation                      WI                      50 %  
Two Warren Place, Suite 1500  
6120 South Yale Avenue  
Tulsa, Oklahoma 74136
2. Chevron/Texaco                      WI                      25 %  
15 Smith Road  
Midland, Texas  
Attn: Ms Denise Beckham
3. BP America Production Co.                      WI                      25 %  
501 Westlake Park Blvd  
WL1- Room 6.199  
Houston, Texas 77079  
Attn: Mr. Lee Scarborough
4. Minerals Management Service                      RI                      1/8  
P O Box 5810 TA  
Denver, CO 80217-5810
5. Apache Corporation                      OR  
2000 Post Oak Blvd, Suite 100  
Houston, Texas 77056