

DATE IN 11-24-03	SUSPENSE NA	ENGINEER MES	LOGGED IN ms	TYPE NSL	APP NO. 331137733
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NOV 04 2003
NEW MEXICO OIL CONSERVATION DIVISION
 - Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505
OIL CONSERVATION DIVISION

NSL-4959

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

11/1/03

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) 982-2151 (FAX)

jamesbruc@aol.com

November 1, 2003

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:</u>	Hawk B-1 Well No. 38
<u>Location:</u>	1080 feet FSL & 2551 feet FEL
<u>Well Units:</u>	SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 9, Township 21 South, Range 37 East, N.M.P.M., Lea County, New Mexico

The well will be drilled to test the Grayburg formation (Penrose Skelly (Grayburg) Pool). The Penrose Skelly (Grayburg) Pool is an oil pool spaced on 40 acres.

The SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 9 will be **simultaneously dedicated** in the Grayburg formation to the proposed well and to the existing Hawk B-1 Well No. 28, and applicant requests approval of the simultaneous dedication.

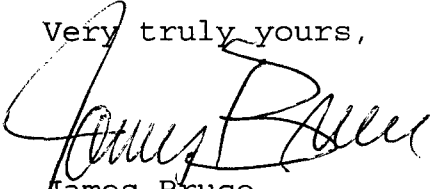
The application is based on geologic and engineering reasons. A complete discussion, with appropriate exhibits, is attached as Exhibit A. There are four existing Grayburg wells in the E $\frac{1}{2}$ SW $\frac{1}{4}$ and W $\frac{1}{2}$ SE $\frac{1}{4}$ of Section 9, and the proposed well will be located in the approximate center of those wells. Based on drainage calculations and the low permeability in the reservoir, applicant believes that drilling the infill well will recover reserves which will not be recovered by the existing Grayburg wells.

Attached as Exhibit B is a land plat, highlighting the proposed well's location. The S $\frac{1}{2}$ of Section 9 (and other acreage) is covered by a single federal lease (NM 90161), which has **common royalty, overriding royalty, and working interest ownership.**

Although the well is very unorthodox, there are no adversely affected interest owners. No one has been notified of this application.

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

Very truly yours,

A handwritten signature in cursive script, appearing to read "James Bruce".

James Bruce

Attorney for Apache Corporation

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

40 acres – 1080' FSL & 2551' FEL
Section 9, Township 21 South, Range 37 East, NMPM
Lea County, New Mexico

PRIMARY OBJECTIVE: GRAYBURG

In support:

1. Apache Corporation (Apache) is the operator of the proposed **Hawk B-1 #38** well (**Exhibit 1**). The proposed total depth is 4150' in the San Andres formation.
2. The location is in the Penrose Skelly; Grayburg Oil Pool and encroaches toward the following wells (**Exhibit 2**).

OPER	WELL	LOC	RESERVOIR	CUM O/G/W	DAILY O/G/W
Apache	Hawk B-1 #26	09-K	Grayburg	13/44/19	21/89/33
Apache	Hawk B-1 #25	09-J	Grayburg	16/113/19	28/249/34
Apache	Hawk B-1 #28	09-O	Grayburg	30/54/22	75/109/33
Apache	Hawk B-1 #31	09-N	Grayburg	11/37/23	18/68/27

Oil in MBO
Gas in MMCFG
Water in MBW

BOPD
MCFGPD
BWPD

3. The proposed **Hawk B-1 #38** unorthodox Grayburg location of 1080' from south line and 2551' 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 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 usually capable of draining the 40 Acre proration unit.

Exhibit A

The reservoir was analyzed by mapping Hydrocarbon Pore Volume (HCPV) (**Exhibit 3**). HCPV is the product of feet of pay (h) times average porosity (PhiA) times oil saturation (So). The map is the arithmetic product of grids interpreted from those values. The values were obtained as follows:

1. Net Pay was read either from modern neutron-density logs or estimated from a map developed from gross pay (clean dolomite) times net to gross ratio.
2. Average Porosity was calculated from modern well logs using a minimum of 6% crossplot porosity and a maximum of 20%.
3. Oil Saturation was calculated from a fractional flow curve using recent water cut values.

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

OPER	WELL	LOC	AREA A	EUR MBO	EUR MMCFG
Apache	Hawk B-1 #26	09-K	20	54	350
Apache	Hawk B-1 #25	09-J	31	75	480
Apache	Hawk B-1 #28	09-O	24	100	600
Apache	Hawk B-1 #31	09-N	38	48	250

Reserves for the proposed location were calculated by planimetering the undrained area of the HCPV 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	HCPV	AREA A	EUR MBO	EUR MMCFG
Hawk B-1 #38	09-O	3.02	28	58	348

DISTRICT I

P.O. Box 1000, Hobbs, NM 88241-1000

DISTRICT II

P.O. Drawer 22, 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

EXHIBIT 1

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 38
OGRID No.	Operator Name APACHE CORPORATION	ELEVATION 3492'

Surface Location

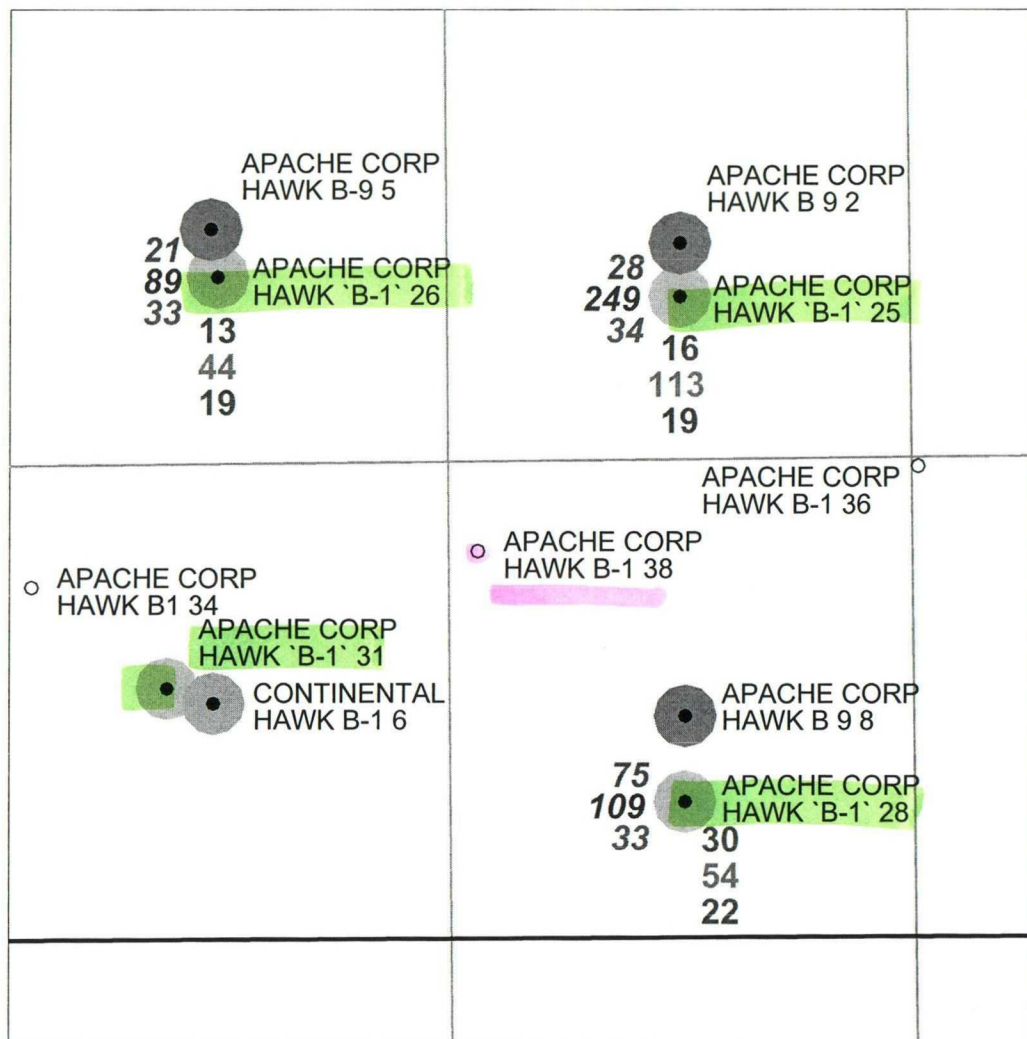
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	9	21-S	37-E		1080'	SOUTH	2551'	EAST	LEA

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**

GEODETC COORDINATES NAD 27 NME Y = 543580.1 N X = 859849.6 E LAT. 32°29'20.44"N LONG. 103°10'02.20"W			OPERATOR CERTIFICATION I hereby certify that 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. August 06, 2003 Date Surveyed _____ A.W.B. Signature _____ Professional Surveyor NEW MEXICO 8/18/03 03.17.0846		
	Certificate No. RONALD J. EIDSON 3238 GARY EIDSON 12641		
	PROFESSIONAL SURVEYOR		



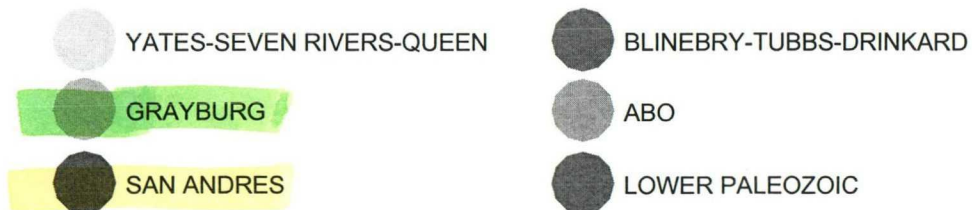
WELL SYMBOLS

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

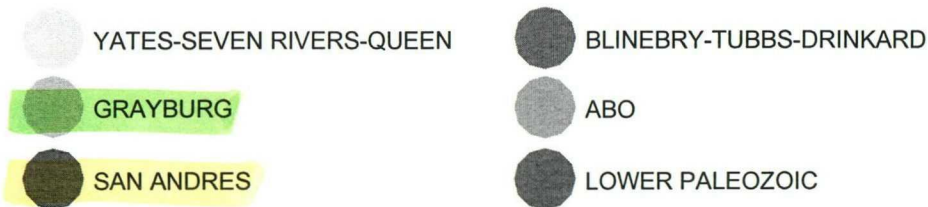
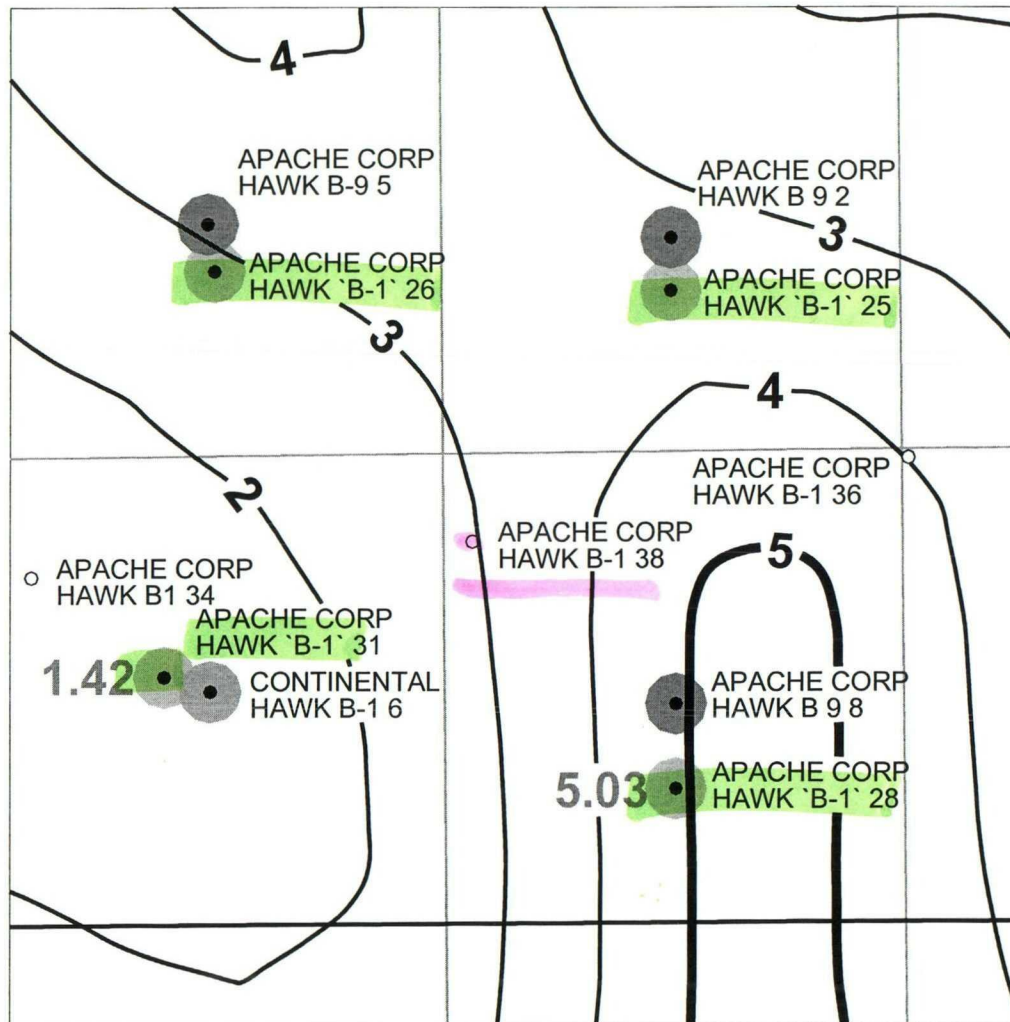
POSTED WELL DATA

CURRENT BOPD
CURRENT MCFD
CURRENT BWPD

● OPERATOR WELL LABEL
MBO
MMCFG
MBW



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	HAWK B-1 3 8
SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO	
EXHIBIT 2 WELL INFORMATION	
DATE: 9-15-03	DWG: PROD (CURTIS/OCD-NM/2004 GRYBRG)



WELL SYMBOLS

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

POSTED WELL DATA

GRAYBURG HCPV ● OPERATOR WELL LABEL

	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	HAWK B-1 38
SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO	
EXHIBIT 3	
GRAYBURG HCPV	
DATE: 9-17-03	DWG: PROD (CURTIS\OCD-NM\2004 GRYBRG)

