

5/28/03	SUSPENSE NA	ENGINEER MS	LOGGED IN NW	TYPE NSL	APP NO. KRV0-313329552
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ABOVE THIS LINE FOR DIVISION USE ONLY

Hawk B-1 #34

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

jamesbruc@aol.com

e-mail Address

Date

RECEIVED

MAY 28 2003

Oil Conservation Division

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

May 28, 2003

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

Re: Revised application
Administrative application reference no. pKRV0-313329552

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. 34
<u>Location:</u>	1040 feet FSL & 1470 feet FWL ¹
<u>Well Unit:</u>	SE¼SW¼ 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 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 SE¼SW¼ of Section 9 will be **simultaneously dedicated** to the proposed well and to the Hawk B-1 Well No. 6, 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

¹The original footage for this location was 1270 feet FSL & 1220 feet FWL, but the location had to be moved due to surface obstructions.

Exhibit A. Existing wells in the SW¼ of Section 9 are located in the approximate center of each quarter-quarter section. 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.

Attached as Exhibit B is a listing of the Blinebry/Tubb/Drinkard wells in the NW¼ of Section 9 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 C is a land plat, highlighting the proposed well's location. The S¼ of Section 9 (and other acreage) is covered by a single lease (Federal Lease NM 90161), 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,

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

James Bruce

Attorney for Apache Corporation

NOTE: A complete set of full-sized geological plats is also enclosed.

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

40 acres – 1040' FSL & 1470' FWL
Section 9, Township 21 South, Range 37 East, NMPM
Lea County, New Mexico

PRIMARY OBJECTIVE: Blinebry, Tubb and Drinkard

In support:

1. Apache Corporation (Apache) is the operator of the proposed **Hawk B-1 #34** well (**Exhibit 1**).
2. The proposed unorthodox location encroaches toward the following wells which are, or have been productive from various combinations of the Blinebry, Tubb, and Drinkard (**Exhibit 2**). All four units are contained within one oil and gas lease, with common working and revenue interest owners. The unit in which the well is proposed does not have a currently productive Blinebry, Tubb, and/or Drinkard well.

OPER	WELL	LOC	CURRENT RESRVOIR	CUM B-T-D O/G/W	DAILY B-T-D O/G/W	CURRENT POOL
Apache	Hawk B-1 #4	9-L	B-D	319/3792/20	4/61/2	Blinebry Oil and Gas AND Drinkard
Apache	Hawk B-1 #5	9-K	B-T-D	268/3138/16	6/44/1	Blinebry Oil and Gas AND Tubb Oil and Gas AND Drinkard
Apache	Hawk B-1 #6	9-N	B-D	251/2231/4	0/0/0	Blinebry Oil and Gas AND Drinkard
Apache	Hawk B-1 #9	9-M	B-T-D	248/3016/14	6/166/3	Blinebry Oil and Gas AND Tubb Oil and Gas AND Drinkard

Oil in MBO
Gas in MMCFG
Water in MBW

BOPD
MCFGPD
BWPD

3. The proposed **Hawk B-1 #34** unorthodox Blinebry, Tubb, and Drinkard location of 1040' from south line and 1470' from west line is necessitated by geological and drainage considerations, as well as to prevent waste:

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 have also been used here.

All three formations are shallow marine carbonates, consisting primarily of dolomite. The Tubb can have appreciable clastic content and the Drinkard becomes limey toward its base. Anhydrite can occur throughout the interval. Structure is significant in that it controls the fluid distribution. Any oil water contacts in these formations occur miles from this location.

Apache approached its evaluation by mapping the following on each of the four major reservoirs (Blinebry Gas Cap, Blinebry Oil Leg, Tubb, and Drinkard):

1. Structure (primarily to locate fluid contacts on logs and cross sections),
2. Clean carbonate (less than 40 APIU gamma ray),
3. Net to gross ratio using only modern logs from which a cross plotted porosity could be calculated,
4. Net pay (h) which was either picked from modern logs or calculated by multiplying the clean carbonate grid by the net to gross ratio grid (thus estimating net pay for wells without modern logging suites),
5. Average porosity (Φ_iA), using only modern logs from which a average porosity could be calculated,
6. Porosity*Feet (Φ_iH) which was either calculated from modern logs or calculated by multiplying the net pay (h) grid by the average porosity (Φ_iA) grid.

Reservoir engineering used the four Φ_iH 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:

SEC	LEASE NAME	WELL	PROD ZONE NAME	EUR			ACRES
				OIL	WATER	GAS	
9	HAWK B-1	4	BLINEBRY GAS CAP	84,198	17,195	2,034,523	123
		5		1,057	490	11,474	1
		6		79,772	0	1,840,720	80
		9		31,550	4,352	1,113,186	70
9	HAWK B-1	4	BLINEBRY OIL LEG	84,198	17,195	2,034,523	18
		5		1,057	490	11,474	1
		6		79,772	0	1,840,720	17
		9		31,550	4,352	1,113,186	6
9	HAWK B-1	5	TUBB	36,563	5,539	719,637	30
		9		872	653	44,232	1
9	HAWK B-1	4	DRINKARD	235,203	2,898	1,763,348	32
		5		230,767	10,013	2,410,788	34
		6		171,296	392	389,814	24
		9		215,719	8,614	1,873,996	25

Volumetrics for the proposed location are as follows:

		PROD ZONE NAME	RESERVOIR	DRAINAGE	EUR	
			PRESSURE	ACRES	OIL	GAS
HAWK B-1	34	BLINEBRY GAS CAP	500	20	0	0
		BLINEBRY OIL LEG	2500	10	37,493	244
		TUBB	2100	20	6,840	684
		DRINKARD	1900	20	156,223	1,015
		TOTAL			200,556	1,943

Exhibit 3 is a stratigraphic cross section, hung on the top of the Blinebry, trending north to south; passing near several wells Apache is considering drilling. It illustrates several critical points:

1. Wireline logging suites vary greatly. Many wells do not have reliable gamma ray or porosity logs.
2. Tops are easily correlated, but the presence of tight dolomite/anhydrite and shale **compartmentalizes** the reservoir.
3. All the reservoirs are low porosity.

b. Blinebry Gas Cap (Exhibit 4)

Thickness of the Blinebry Gas Cap is related to the subsea top of the Blinebry. The higher the top, the thicker the gas cap. Using a 5% threshold, porosity averages 10.2% in 118 wells selected for analysis. PhiH at this location is expected to be 2.7'.

c. Blinebry Oil Leg (Exhibit 5)

Thickness of the Blinebry Leg is related to the subsea top of the Blinebry, the higher the top, the thinner the gas cap. Using a 5% threshold, porosity averages 8.4% in 146 wells selected for analysis. PhiH at this location is expected to be 9.0'.

c. Tubb (Exhibit 6)

Thickness of the Tubb varies little in the area, ranging mostly from 300' to 360'. Using a 5% threshold, porosity averages 8.4% in 145 wells selected for analysis. PhiH at this location is expected to be 7.8'.

d. Drinkard (Exhibit 7)

The thickness of the Drinkard is also related to its subsea position, the higher the top, the thicker the interval. Using a 5% threshold, porosity averages 9.3% in 128 wells selected for analysis. PhiH at this location is expected to be 14.9'.

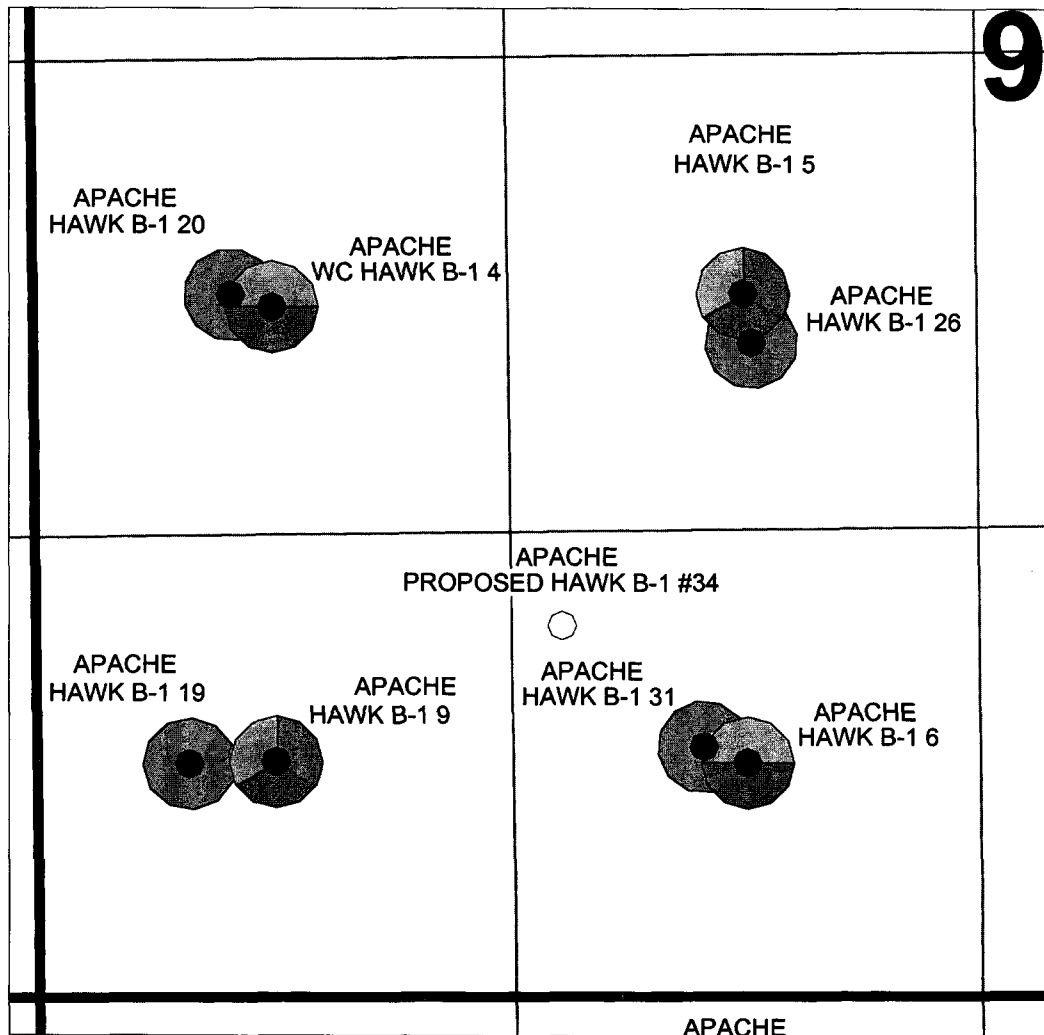
e. B-T-D (Exhibit 8)

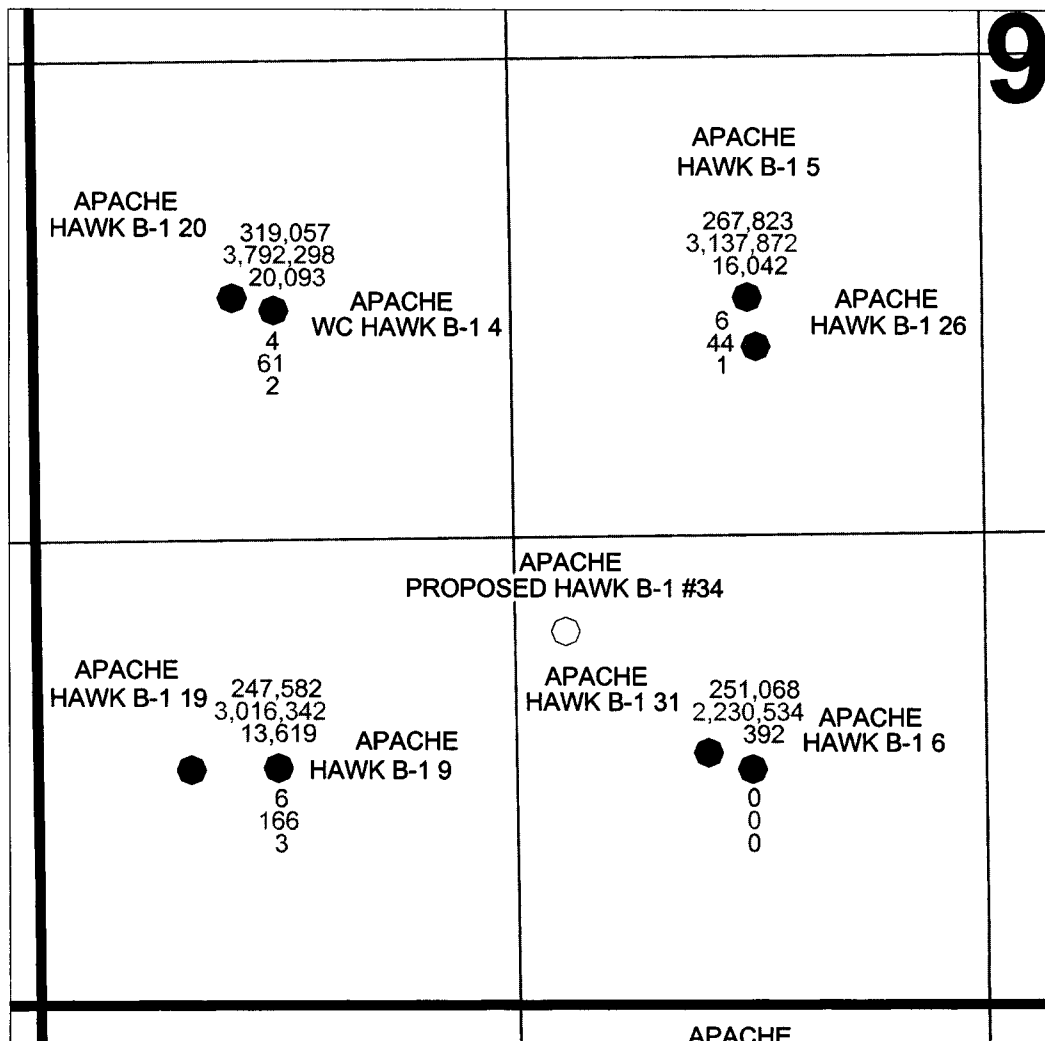
The expected PhiH in the combined interval is 34.4'.

f. Recoverable reserves for this location are:

4. Notice

- 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.**





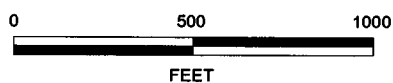
POSTED WELL DATA

CUM OIL
CUM GAS
CUM WATER

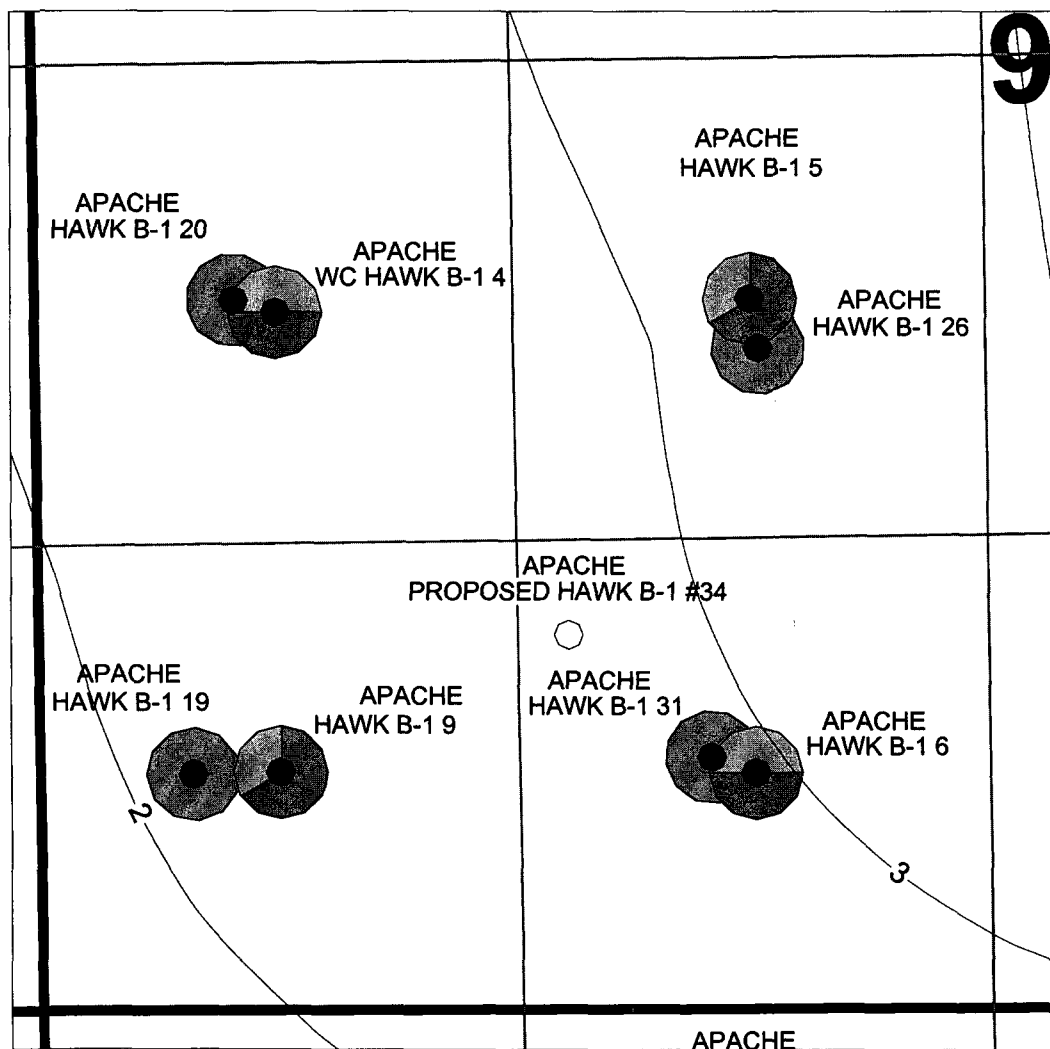
DAILY OIL
DAILY GAS
DAILY WATER

WELL SYMBOLS

- Location Only
- Oil Well



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	CENTRAL REGION
HAWK B-1 # 3 4	
SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO	
EXHIBIT 2 PRODUCTION	
DATE: 4-16-03	DWG: HAWK B1 34 EX2 (CURTIS)



POSTED WELL DATA

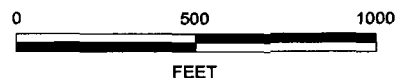
PHIH .

WELL SYMBOLS

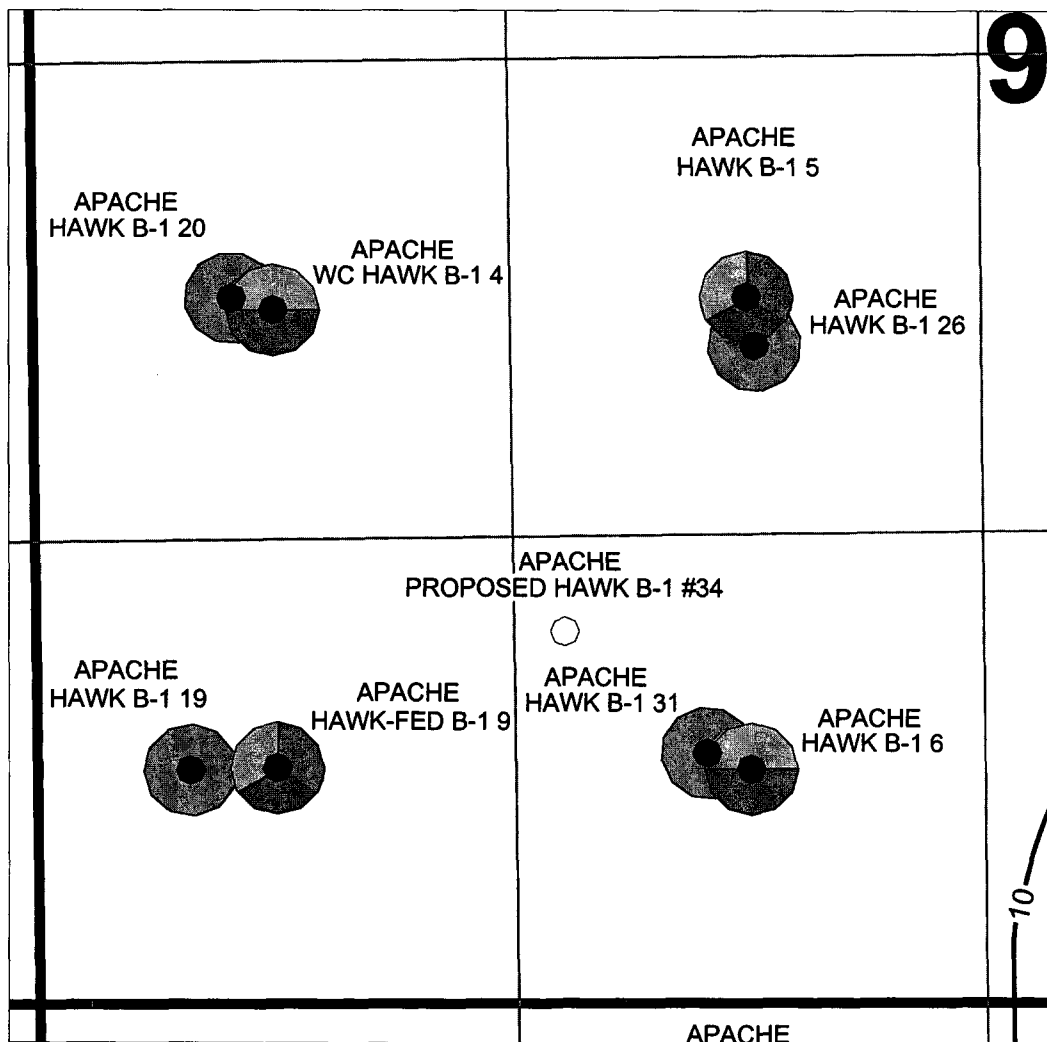
- Location Only
- Oil Well



- BLINEBRY PRODUCER
- TUBB PRODUCER
- DRINKARD PRODUCER
- GRAYBURG PRODUCER



 APACHE CORPORATION CENTRAL REGION	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
HAWK B-1 # 3 4	
SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO	
EXHIBIT 4 BLBY GAS CAP CUTOFF: 6% DOLOMITE	
DATE: 4-16-03	DWG: HAWK B1 34 EX3 (CURTIS)



POSTED WELL DATA

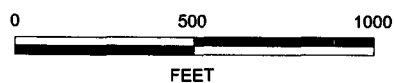
PHIH •

WELL SYMBOLS

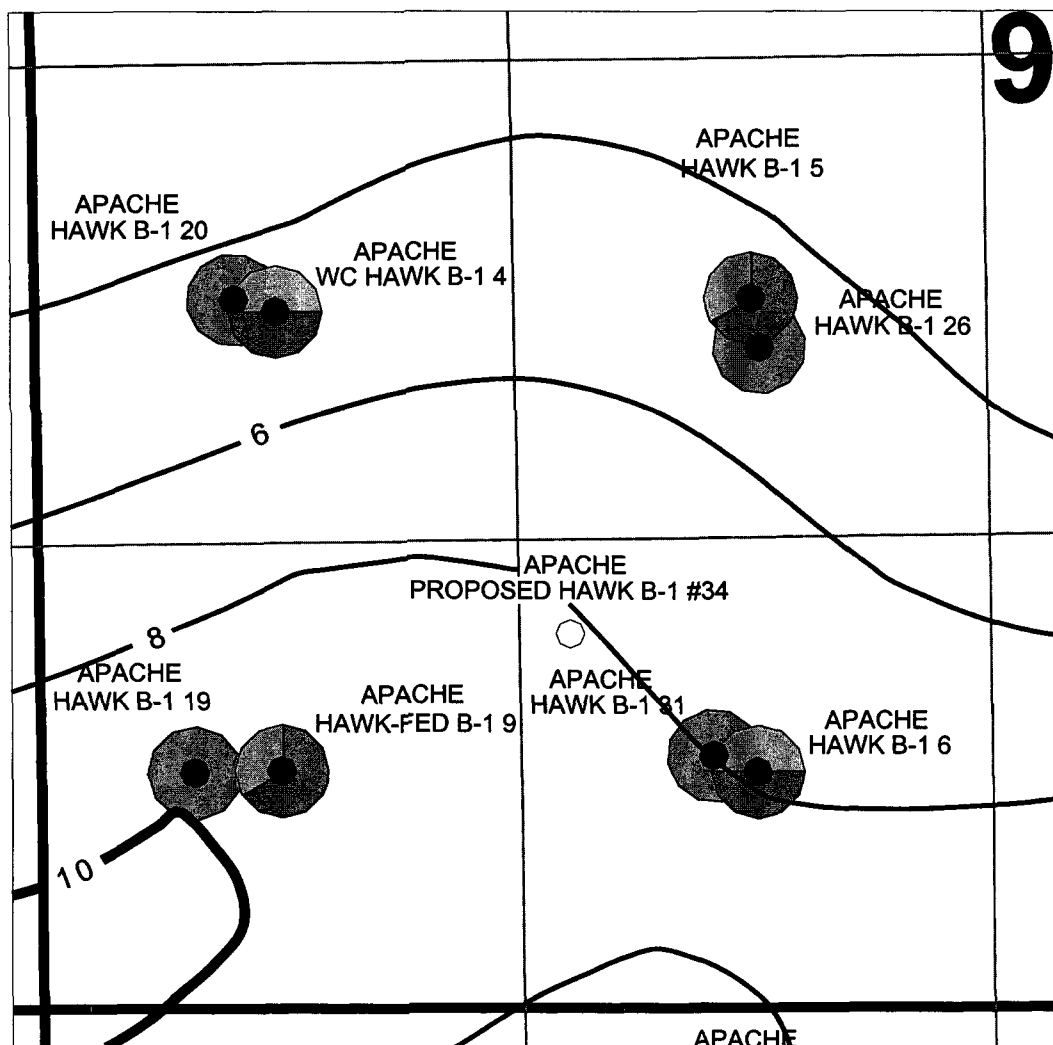
- Location Only
- Oil Well



- BLINEBRY PRODUCER
- TUBB PRODUCER
- DRINKARD PRODUCER
- GRAYBURG PRODUCER



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	HAWK B-1 #34 SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO
EXHIBIT 5 BLBY OIL LEG CUTOFF: 6% DOLOMITE	
DATE: 4-16-03	DWG: HAWK B1 34 EX3 (CURTIS)



POSTED WELL DATA

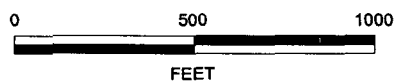
PHIH .

WELL SYMBOLS

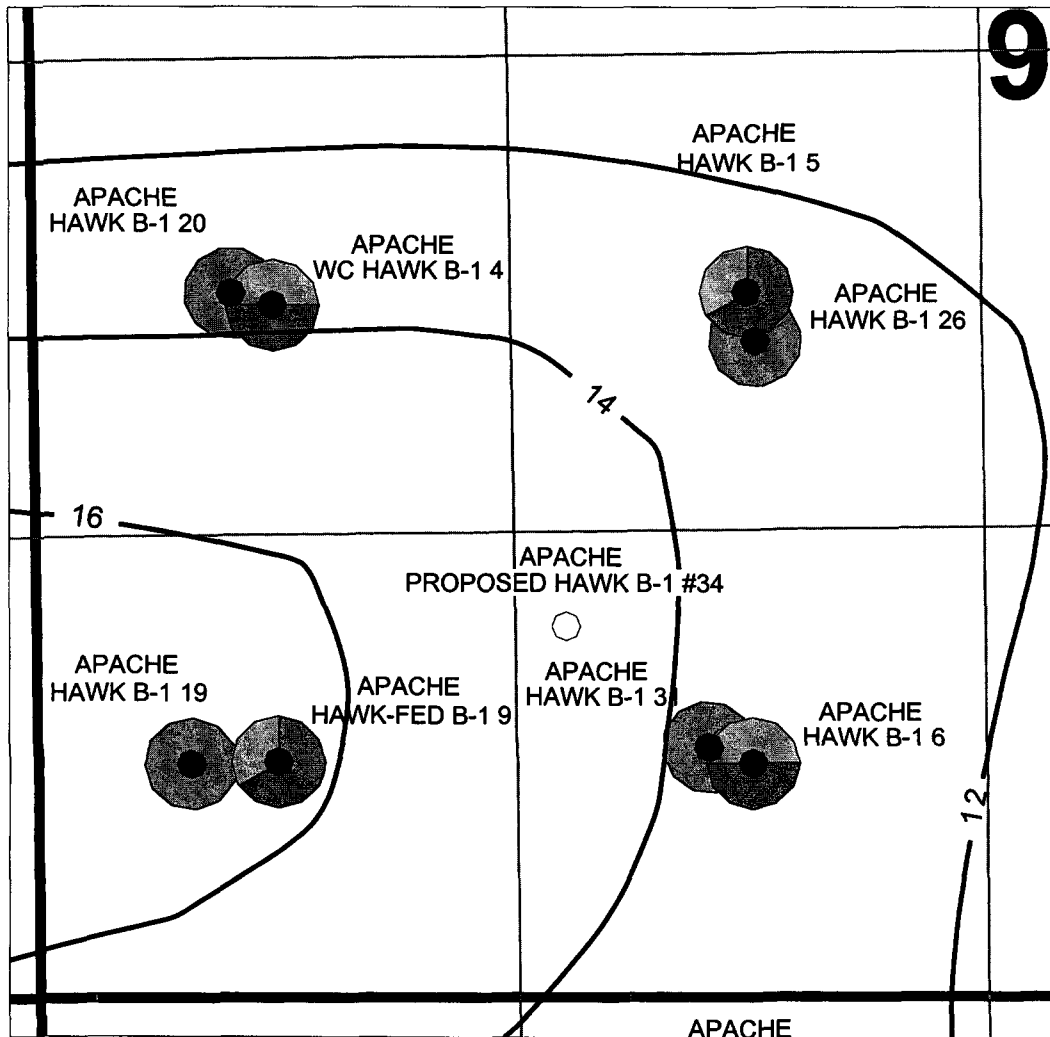
- Location Only
- Oil Well



- BLINEBRY PRODUCER
- TUBB PRODUCER
- DRINKARD PRODUCER
- GRAYBURG PRODUCER



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	CORPORATION CENTRAL REGION
HAWK B-1 # 3 4	
SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO	
EXHIBIT 6	
TUBB PHIH CUTOFF: 6% DOLOMITE	
DATE: 4-16-03	DWG: HAWK B1 34 EX3 (CURTIS)



POSTED WELL DATA

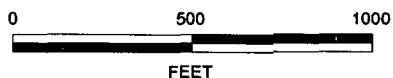
PHIH •

WELL SYMBOLS

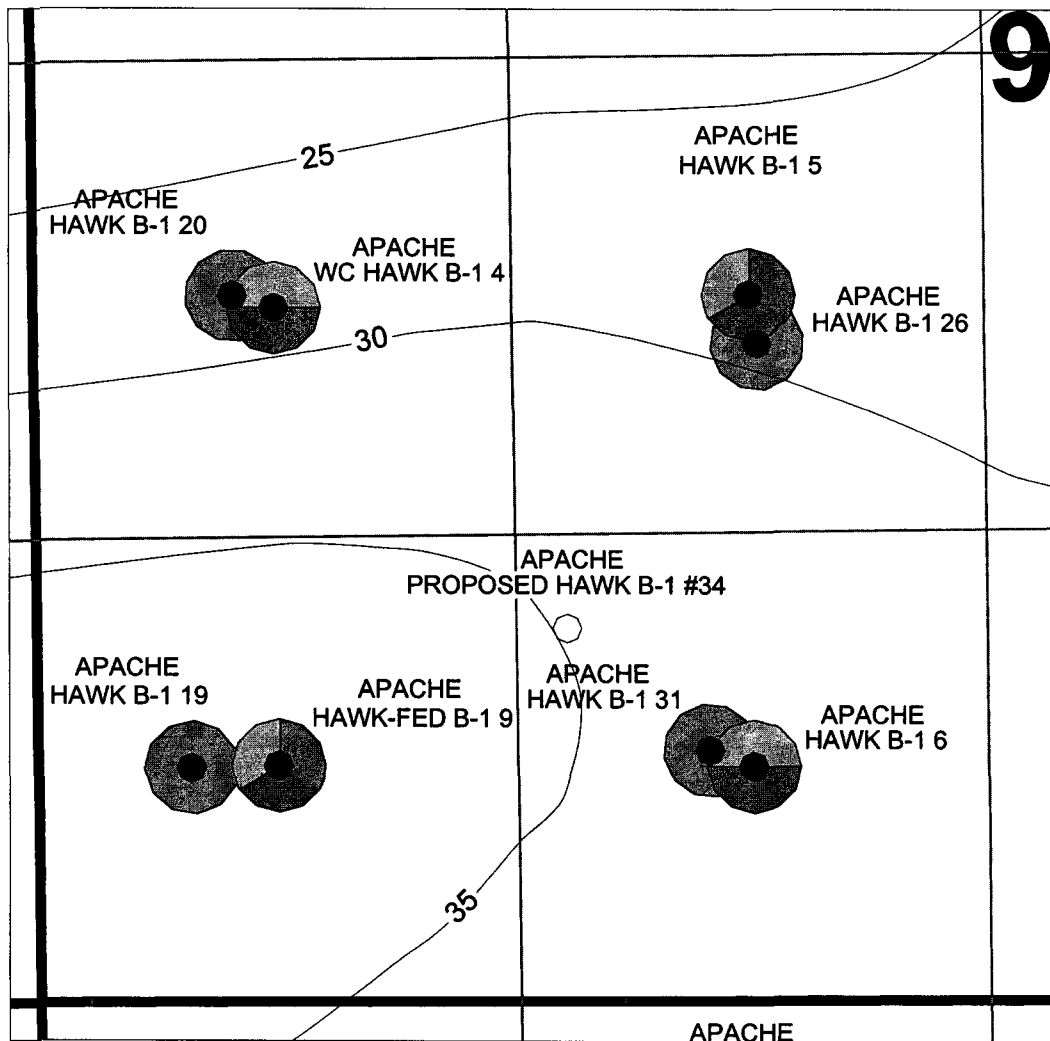
- Location Only
- Oil Well



- BLINEBRY PRODUCER
- TUBB PRODUCER
- DRINKARD PRODUCER
- GRAYBURG PRODUCER



	TWO WARREN PLACE, SUITE 1500 6120 SOUTH YALE TULSA, OKLAHOMA 74136-4224
	HAWK B-1 # 3 4 SEC 9-T21S-R37E LEA COUNTY, NEW MEXICO
EXHIBIT 7 DRKD PHIH CUTOFF: 6% DOLOMITE	
DATE: 4-16-03	DWG: HAWK B1 34 EX3 (CURTIS)



POSTED WELL DATA

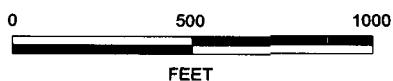
PHIH •

WELL SYMBOLS

- Location Only
- Oil Well



- BLINEBRY PRODUCER
- TUBB PRODUCER
- DRINKARD PRODUCER
- GRAYBURG PRODUCER



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

HAWK B-1 #34

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 8

B-T-D PHIH
CUTOFF: 6% DOLOMITE

DATE: 4-16-03

DWG: HAWK B1 34 EX3 (CURTIS)

ATTENTION: KEVIN MAYES
 FROM: DEBBIE MCKELVEY

The current well classification according to the OGD's ONGRD system is listed below.

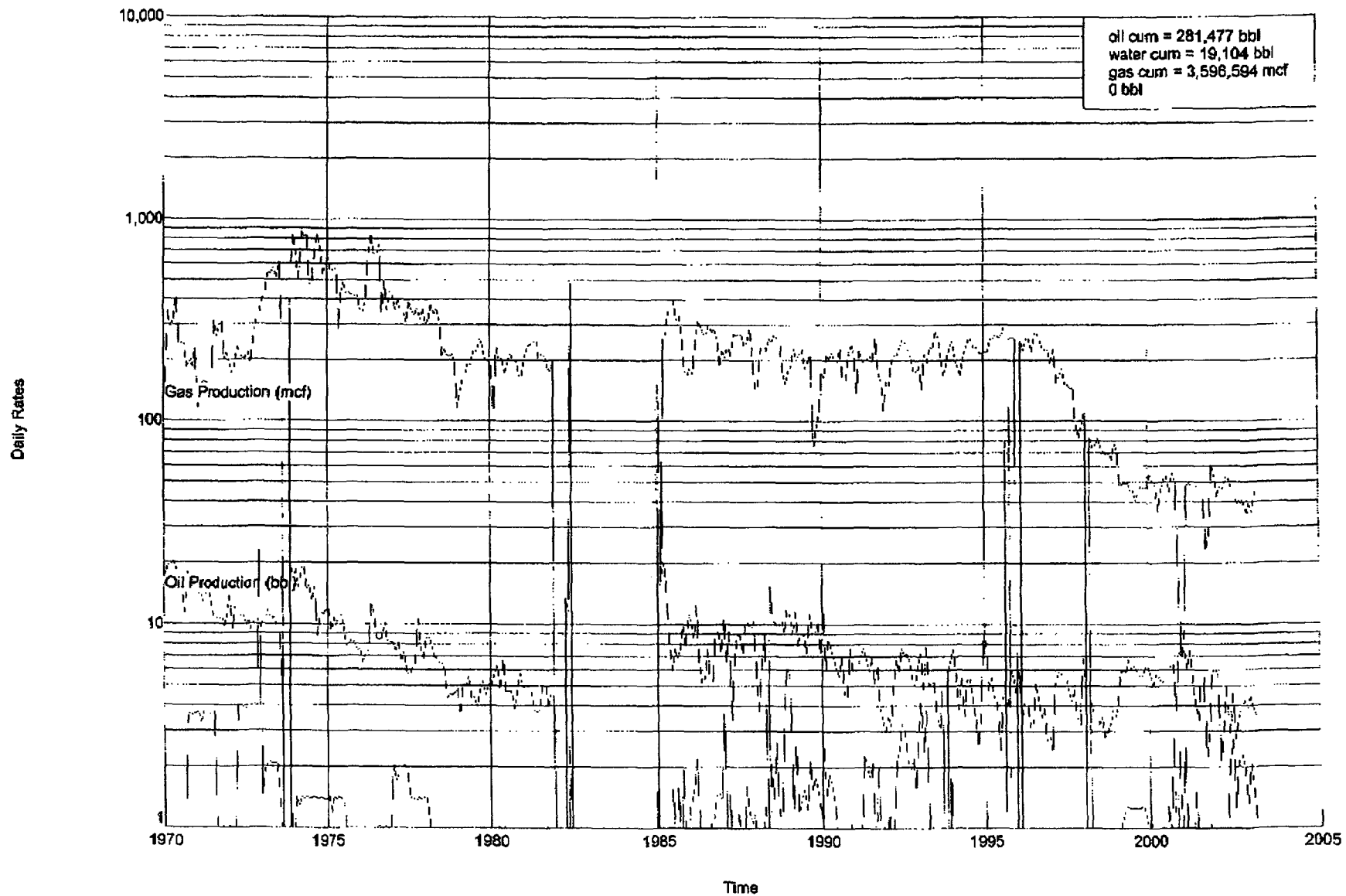
API	Well	Section	Unit	Original Well Classification	Current Well Classification	Comments
3002508629	State C Tract 12 #7	18	D		OIL	
3002508627	State C Tract 12 #6	18	C		OIL	Not currently producing
3002508628	State C Tract 12 #5 X&Y	18	C		OIL	
3002508628	State C Tract 12 #4	18	F		OIL	
3002508625	State C Tract 12 #3	18	E		OIL	
3002509910	Hawk B-1 #4	9	L		OIL	
3002509908	Hawk B-1 #5	9	K		OIL	
3002509907	Hawk B-1 #6	9	N		OIL	Not currently producing
3002508441	Hawk B-1 #9	9	M		OIL	
3002526967	Hawk A #8	8	A		OIL	
3002521225	Hawk A #5	9	D		OIL	Not currently producing
3002508440	Hawk A #9	9	E		OIL	
3002508432	Hawk A #2	8	H		OIL	
3002508445	Southland Royalty A #7	9	A		OIL	
3002508443	Southland Royalty A #2	9	B		OIL	
3002508396	Southland Royalty A #4	4	X		OIL	Not currently producing
3002520069	Southland Royalty A #8	4	W		OIL	
3002508442	Southland Royalty A #1	9	G		GAS	
3002508444	Southland Royalty A #6	9	H		OIL	

Dual completion
 B-T-D is oil



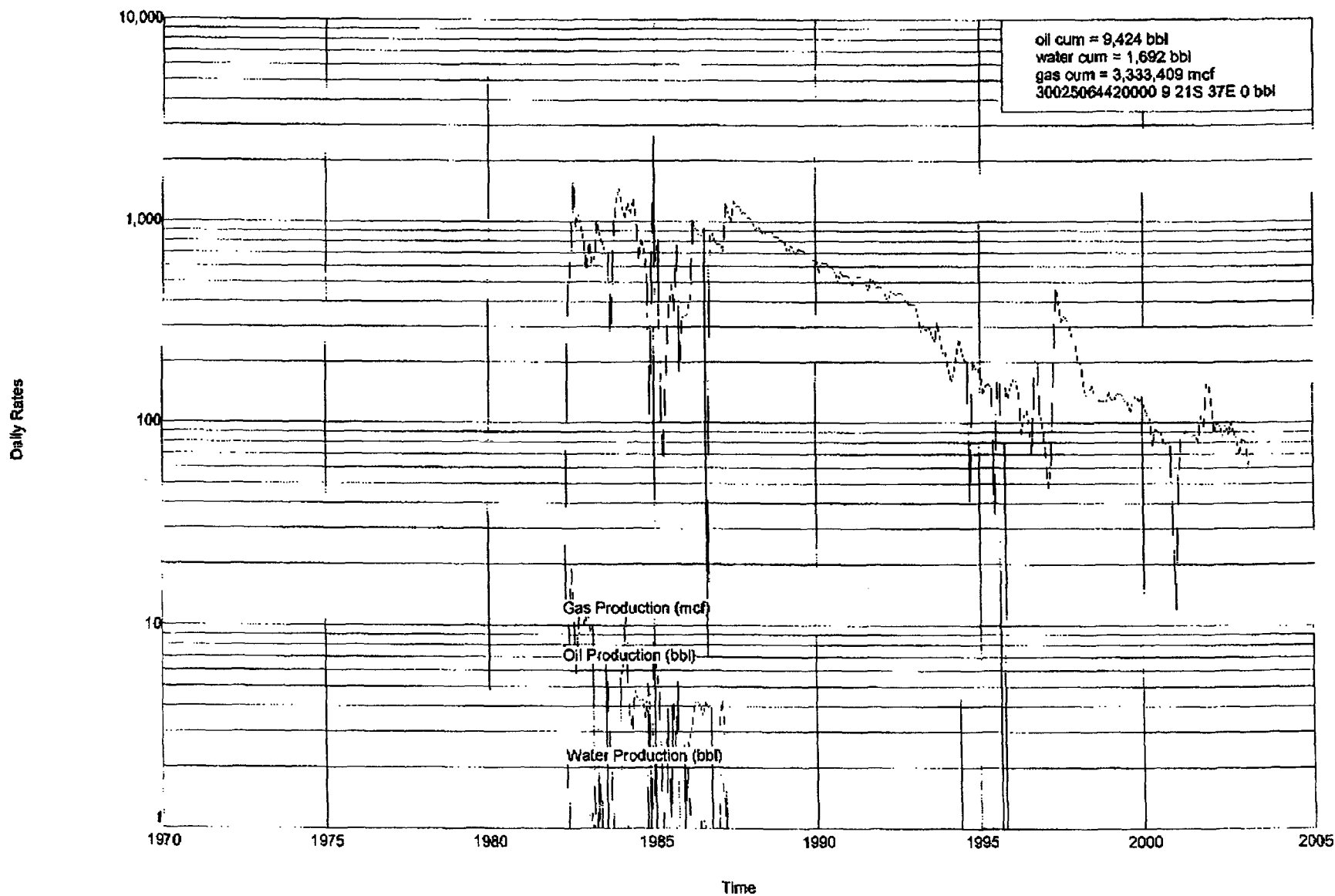
Lease Name: SOUTHLAND ROYALTY A
County, State: LEA, NM
Operator: APACHE CORPORATION
Field: MULTIPLE
Reservoir: MULTIPLE
Location:

Southland Royalty A #1 - Blinebry, Tubb & Drinkard



Lease Name: SOUTHLAND ROYALTY A
County, State: LEA, NM
Operator: APACHE CORPORATION
Field: WANTZ
Reservoir: ABO
Location: 9 21S 37E

SOUTHLAND ROYALTY A #1 - ABO /SH/





**NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

ADMINISTRATIVE ORDER DHC-2477

RECEIVED

OCT 18 1999

**WESTERN REGION
PRODUCTION DEPT**

Apache Corporation
2000 Post Oak Blvd.
Suite 100
Rm. 365A
Houston, Texas 77056-4400

Attention: Ms. Debra J. Anderson

*Southland Royalty "A" No. 1
API No. 30-025-06442
Unit G, Section 9, Township 21 South, Range 37 East, NMPM,
Lea County, New Mexico.
Blincy Oil & Gas (Oil - 06660),
Tubb Oil & Gas (Oil - 60240),
Drinkard (Oil - 19190) and
Wantz-Abo (Oil - 62700) Pools*

Dear Ms. Anderson:

Reference is made to your recent application for an amendment to Division Order No. R-7537, which order authorized the downhole commingling of Blincy Oil & Gas, Tubb Oil & Gas, and Drinkard Pool production within the Southland Royalty "A" Well No. 1. It is our understanding that the Wantz-Abo Pool is proposed to be added as the fourth commingled zone within the wellbore.

It appearing that the subject well qualifies for approval for such amendment pursuant to the provisions of Rule 303.C., and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion and required separation of the zones is hereby placed in abeyance.

In accordance with the provisions of Rule 303.C., the daily allowable producing rates from the well are hereby established as follows:

Oil 107 B/D

Gas 428 MCF/D

Water 214 B/D

Assignment of allowable to the well and allocation of production from the well shall be on the following basis:

Administrative Order DHC-2477

Apache Corporation

October 12, 1999

Page 2

Blinebry Oil & Gas Pool	Oil-44%	Gas-15%
Tubb Oil & Gas Pool	Oil-13%	Gas-12%
Drinkard Pool	Oil-43%	Gas-7%
Wantz-Abo Pool	Oil-0%	Gas-66%

REMARKS: The operator shall notify the Hobbs District Office of the Division upon implementation of the commingling process.

Pursuant to Rule 303.H., the commingling authority granted herein may be rescinded by the Division Director if conservation is not being best served by such commingling.

Approved at Santa Fe, New Mexico on this 12th day of October, 1999.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



LORI WROTENBERY
Director

SEAL

LW/DRC

cc: Oil Conservation Division - Hobbs

[illegible]

JAMES BRUCE
Attorney at Law
Post Office Box 1056
Santa Fe, New Mexico 87504
Telephone: (505) 982-2043
Fax: (505) 982-2151

FAX COVER SHEET

DELIVER TO: Michael E. Stogner

COMPANY: Oil Conservation Division

CITY: Santa Fe, New Mexico

FAX NUMBER: (505) 476-3162

NUMBER OF PAGES: 1 (Including Cover Sheet)

DATE SENT: 6/4/03

MEMO: Mike: Regarding the 5 unorthodox location applications I submitted on behalf of Apache Corporation, the first wells to be drilled will be the State C Tract 12 Well No. 14 and the two Southland Royalty wells. The other two are on federal land, so it will take another couple weeks to get the APDs for those well approved by the BLM.

CONFIDENTIALITY NOTICE

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