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

40 acres – 1420' FNL & 150' FEL
Section 8, 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 A #19** 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.

				CUM B-T-D	DAILY B-T-D	CURRENT
OPER	WELL	LOC	RESRVR	O/G/W	O/G/W	POOL
Apache	Hawk A #8	8-A	B-D	72/773/172	3/8/3	Blinebry Oil and Gas **AND** Drinkard
Apache	Hawk A #5	9-D	B-D	58/511/12	0/0/0	Eumont, YTES, SVRV, QUEN
Apache	Hawk A #9	9-E	B-D	259/2335/	2/8/2	Blinebry Oil and Gas **AND** Drinkard
Apache	Hawk A #2	8-H	B-T-D	158/1228/28	1/8/1	Blinebry Oil and Gas **AND** Tubb Oil and Gas

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

3. The proposed **Hawk A #19** unorthodox Blinebry, Tubb, and Drinkard location of 1420' from north line and 150' from east 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 (PhiA), using only modern logs from which a average porosity could be calculated,
6. Porosity*Feet (PhiH) which was either calculated from modern logs or calculated by multiplying the net pay (h) grid by the average porosity (PhiA) grid.

Reservoir engineering used the four PhiH 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			
SEC	TWP	LEASE NAME	WELL	PROD ZONE NAME	OIL	WATER	GAS	ACRES
8		HAWK A	2	BLINEBRY GAS CAP	29,371	14,133	413,890	25
9			5		28,554	7,847	255,303	5
8			8		40,639	83,247	676,163	40
9			9		48,247	44,249	530,119	15
8		HAWK A	2	BLINEBRY OIL LEG	29,371	14,133	413,890	11
9			5		28,554	7,847	255,303	9
8			8		40,639	83,247	676,163	50
9			9		48,247	44,249	530,119	15
8		HAWK A	2	TUBB	1677	4300	20381	1
8		HAWK A	2	DRINKARD	127,522	9,395	794,010	30
8			8		32,020	88,698	98,056	14
9			9		19,321	22,308	100,972	4

Volumetrics for the proposed location are as follows:

			RESERVOIR	DRAINAGE	EUR	
		PROD ZONE NAME	**PRESSURE**	**ACRES**	**OIL**	**GAS**
HAWK A	**19**	BLINEBRY GAS CAP	1100	15	520	52
		BLINEBRY OIL LEG	1300	20	41,659	271
		TUBB	2500	20	3,030	303
		DRINKARD	1900	20	60,406	393
		TOTAL			**105,616**	**1,018**

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 2.3'.

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 3.4'.

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 2.7'.

d. Drinkard (Exhibit 7)

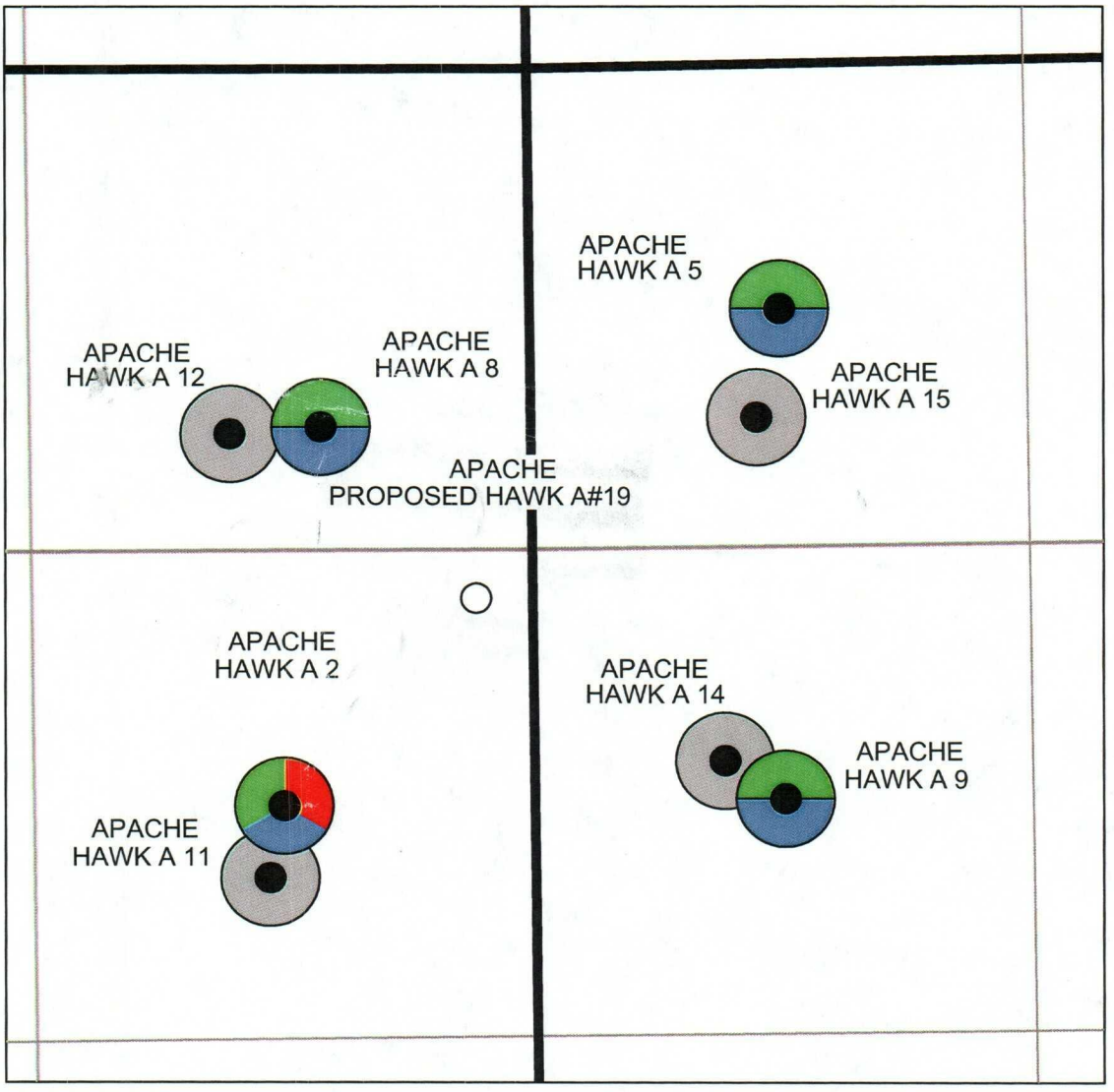
The thickness of the Drinkard is also related to its subsea position, the higher the top, the thicker the interval. Using a 5% threshold, porosity averages 9.3% in 128 wells selected for analysis. PhiH at this location is expected to be 5.9'.

e. B-T-D (Exhibit 8)

The expected PhiH in the combined interval is 14.3'.

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.



BLINEBRY PRODUCER
TUBB PRODUCER
DRINKARD PRODUCER
GRAYBURG PRODUCER

WELL SYMBOLS

○ Location Only

● Oil Well

0 500 1000

FEET

Apache CORPORATION CENTRAL REGION

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

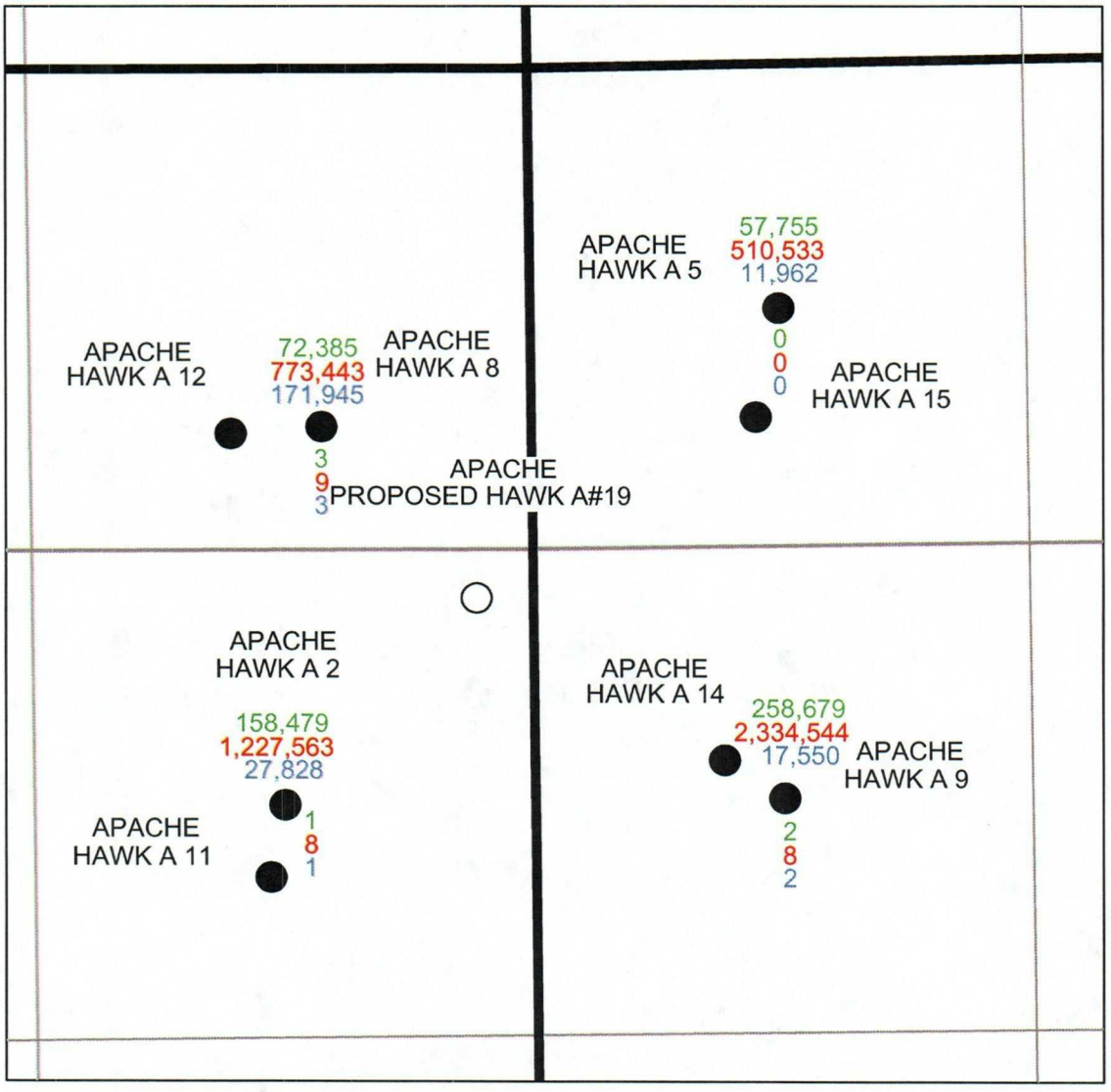
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 1

WELL INFORMATION

DATE: 4-16-03 DWG: HAWK A19 (CURTIS)



POSTED WELL DATA

CUM OIL
CUM GAS
CUM WATER

DAILY OIL
DAILY GAS
DAILY WATER

WELL SYMBOLS

- Location Only
- Oil Well

0 500 1000

FEET

Apache CORPORATION CENTRAL REGION

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

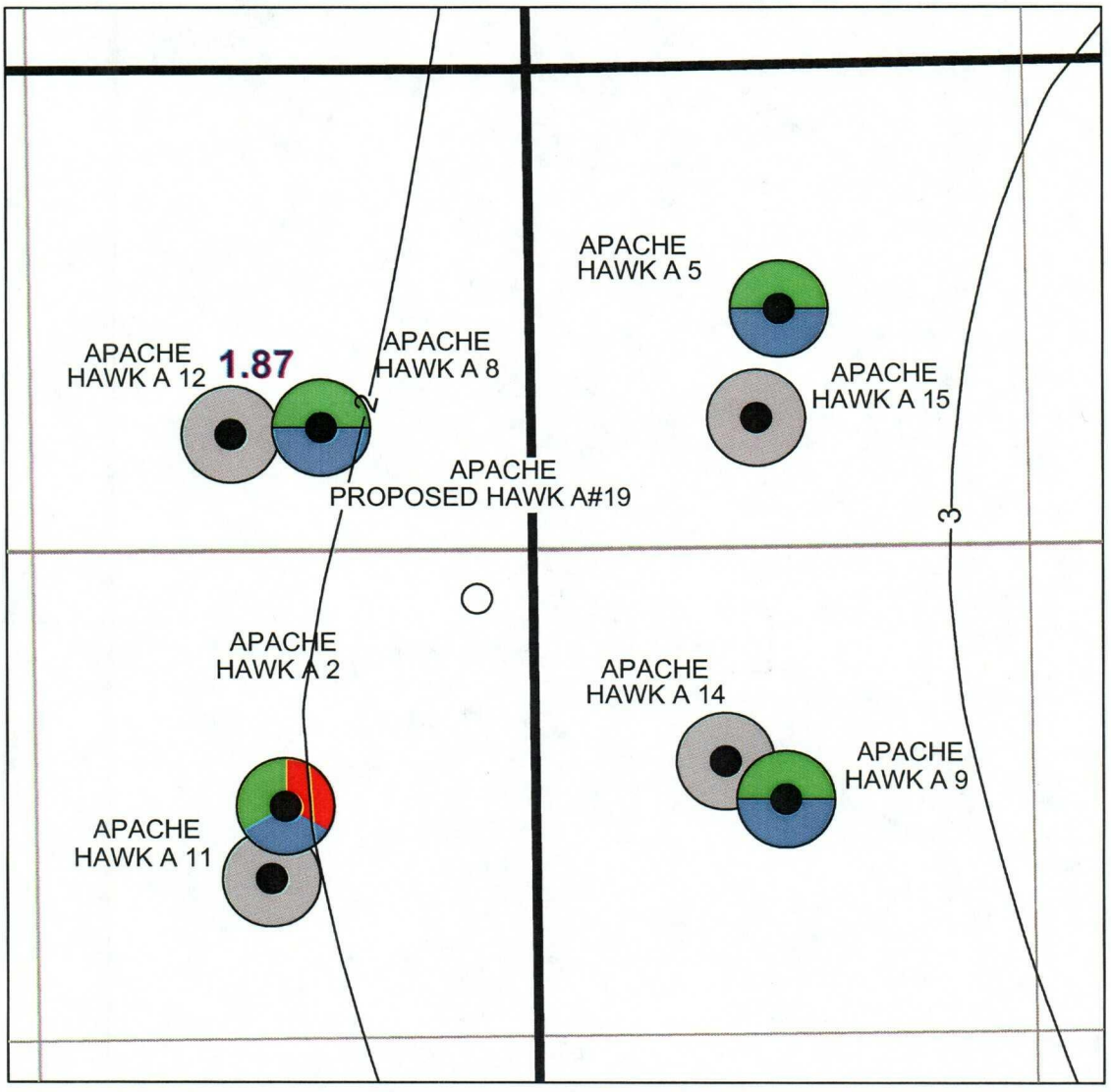
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 2

PRODUCTION

DATE: 4-16-03 DWG: HAWK A19 EX2 (CURTIS)



POSTED WELL DATA

PHIH ●

WELL SYMBOLS

○ Location Only

● Oil Well

BLINEBRY PRODUCER
TUBB PRODUCER
DRINKARD PRODUCER
GRAYBURG PRODUCER

0 500 1000

FEET

Apache CORPORATION CENTRAL REGION

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

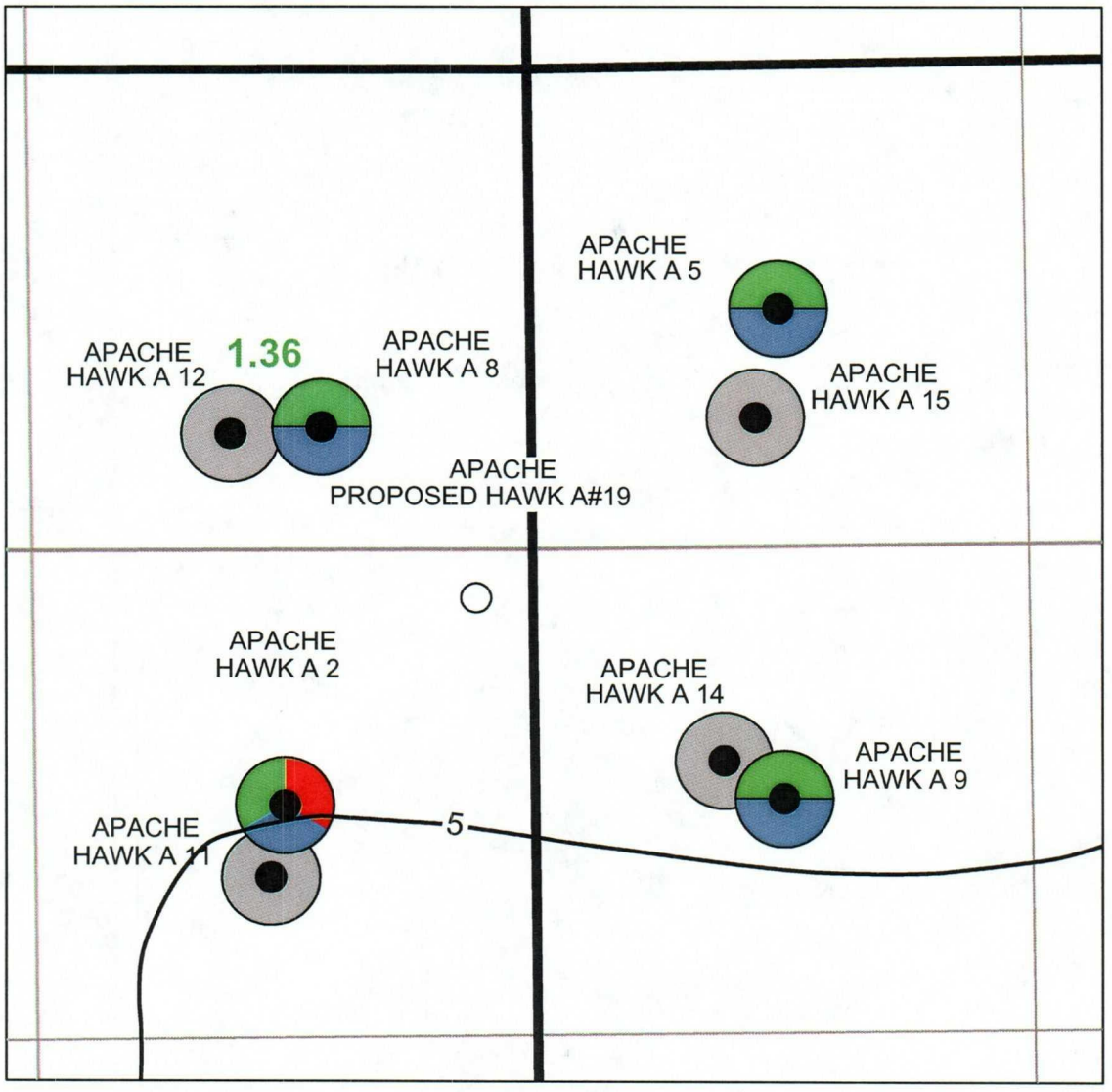
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 4

BLBY GAS CAP
CUTOFF: 5% DOLOMITE

DATE: 4-16-03 DWG: HAWK A19 EX3 (CURTIS)



POSTED WELL DATA

PHIH ●

WELL SYMBOLS

○ Location Only

● Oil Well

BLINEBRY PRODUCER
TUBB PRODUCER
DRINKARD PRODUCER
GRAYBURG PRODUCER

0 500 1000

FEET

Apache CORPORATION CENTRAL REGION

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

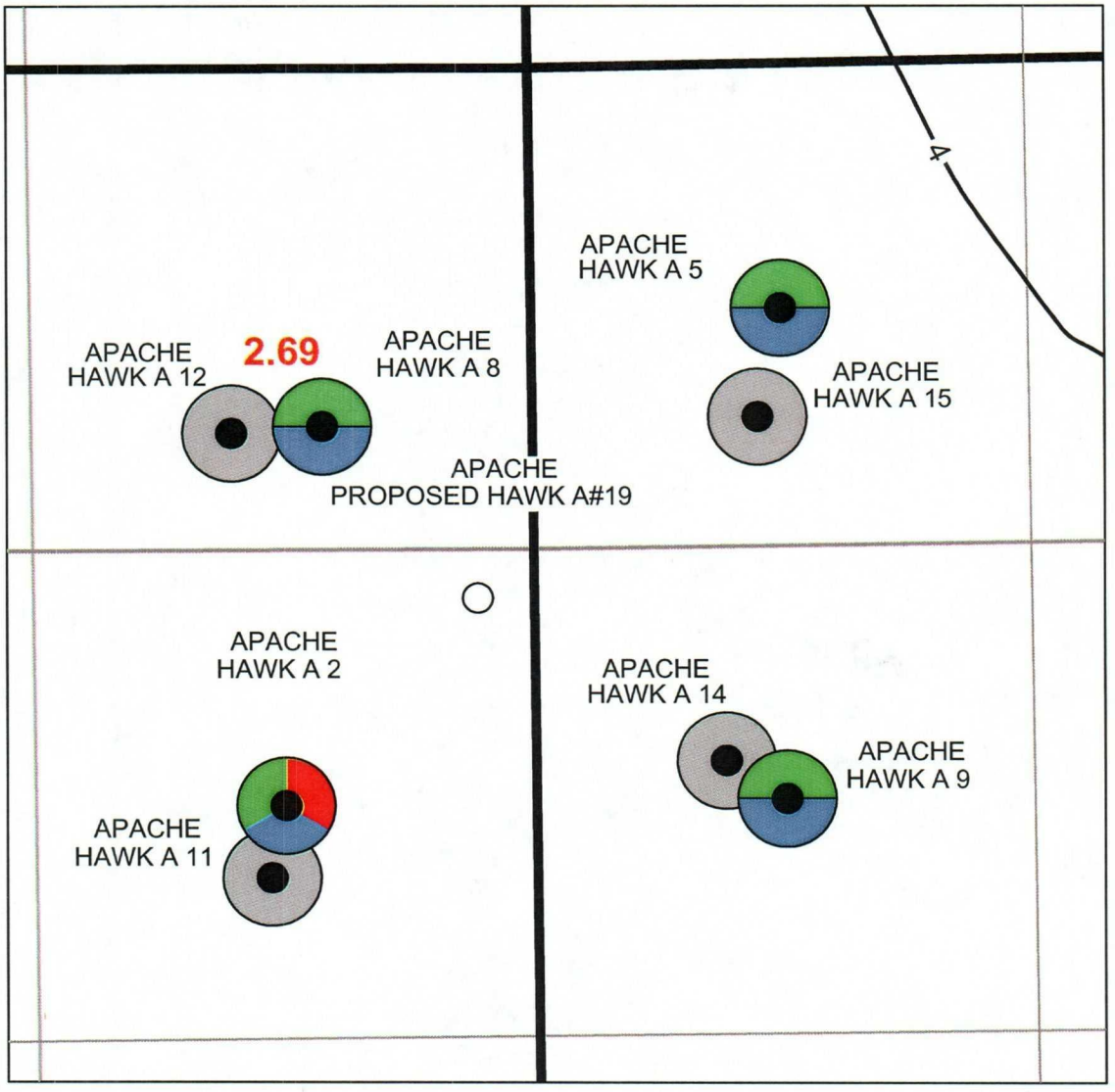
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 5

BLBY OIL LEG
CUTOFF: 5% DOLOMITE

DATE: 4-16-03 DWG: HAWK A19 EX3 (CURTIS)



POSTED WELL DATA

PHIH

WELL SYMBOLS

- Location Only
- Oil Well

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

0 500 1000

FEET

Apache CORPORATION
CENTRAL REGION

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

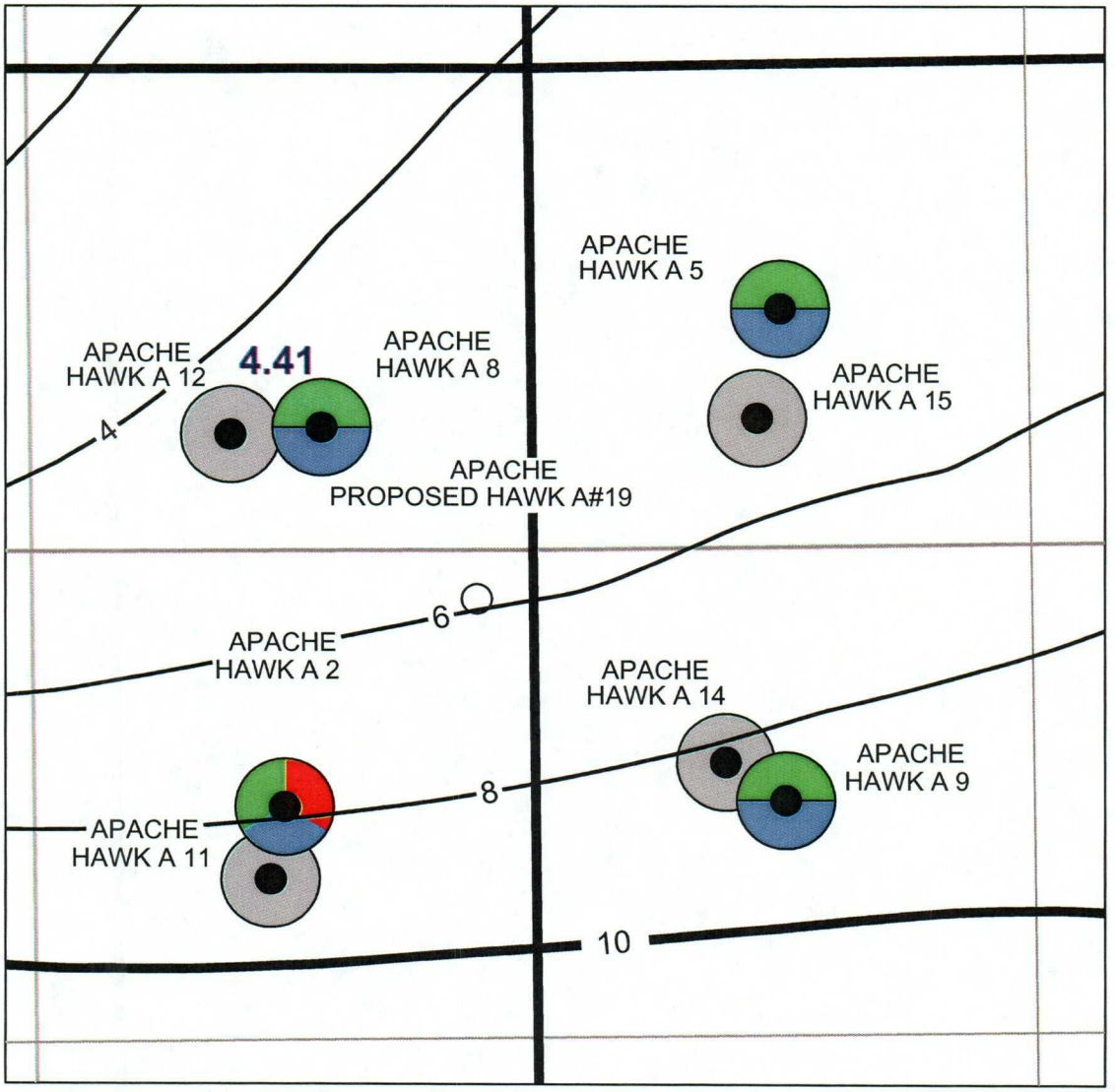
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 6

TUBB PHIH
CUTOFF: 5% DOLOMITE

DATE: 4-16-03 DWG: HAWK A19 EX3 (CURTIS)



POSTED WELL DATA

PHIH ●

WELL SYMBOLS

○ Location Only

● Oil Well

BLINEBRY PRODUCER
TUBB PRODUCER
DRINKARD PRODUCER
GRAYBURG PRODUCER

0 500 1000

FEET

Apache CORPORATION
CENTRAL REGION

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

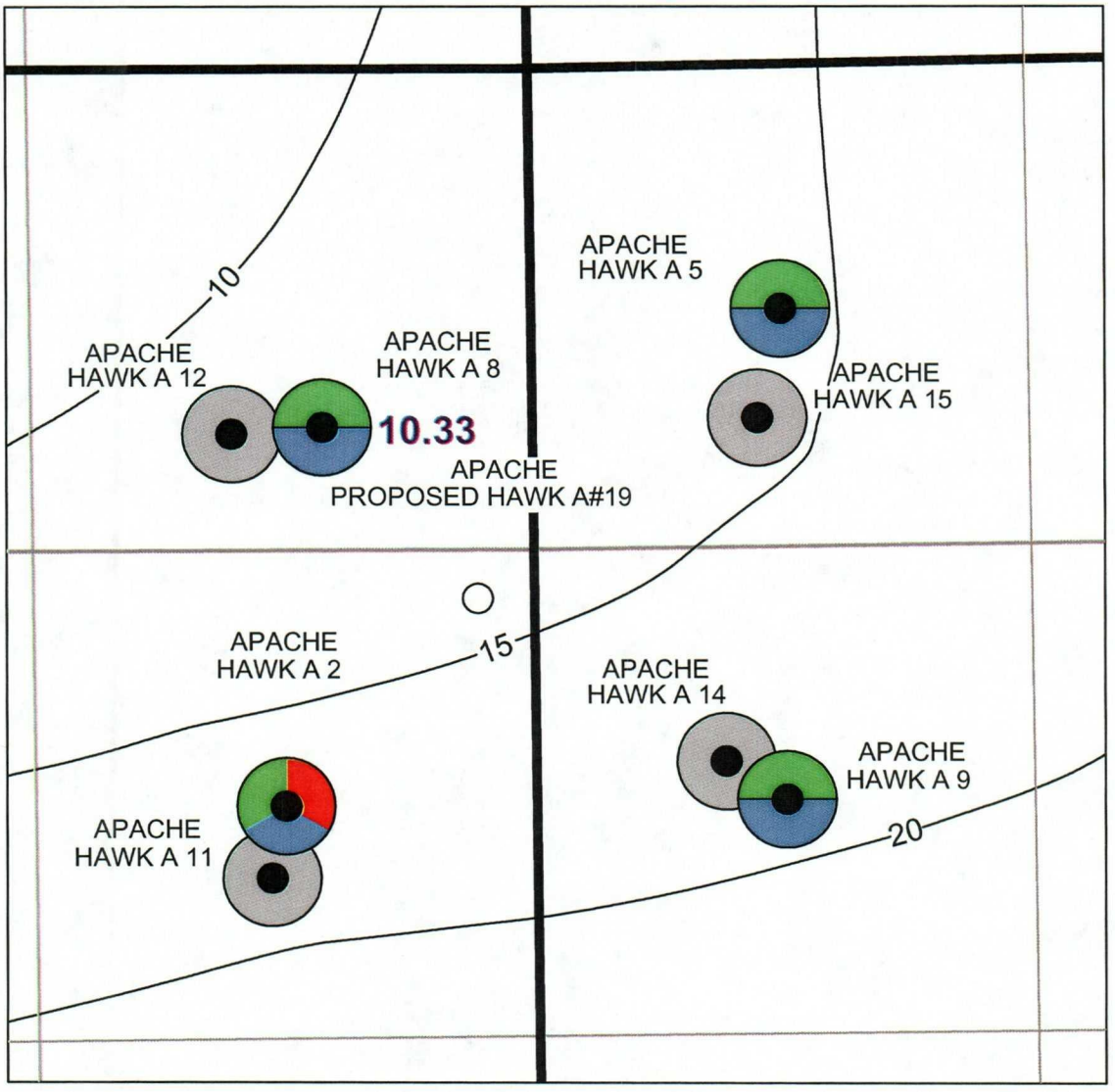
HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 7

DRKD PHIH
CUTOFF: 5% DOLOMITE

DATE: 4-16-03 DWG: HAWK A19 EX3 (CURTIS)



POSTED WELL DATA

PHIH ●

WELL SYMBOLS

○ Location Only

● Oil Well

BLINEBRY PRODUCER
TUBB PRODUCER
DRINKARD PRODUCER
GRAYBURG PRODUCER

0 500 1000

FEET

Apache CORPORATION
CENTRAL REGION

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

HAWK A #19

SEC 9-T21S-R37E
LEA COUNTY, NEW MEXICO

EXHIBIT 8

B-T-D PHIH
CUTOFF: 5% DOLOMITE

DATE: 4-16-03 DWG: HAWK A19 EX3 (CURTIS)

ATTENTION: KEVIN MAYES

FROM: DEBBIE MCKELVEY

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

API	Well	Section	Unit	Original Well Classific	Current Well Classific	Comments
3002506629	State C Tract 12 #7	16	D		OIL	
3002506627	State C Tract 12 #6	16	C		OIL	Not currently producing
3002506628	State C Tract 12 #6 X&Y	16	C		OIL	
3002506626	State C Tract 12 #4	16	F		OIL	
3002506625	State C Tract 12 #3	16	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
3002506441	Hawk B-1 #9	9	M		OIL	
3002526967	Hawk A #8	8	A		OIL	
3002521225	Hawk A #5	9	D		OIL	Not currently producing
3002506440	Hawk A #9	9	E		OIL	
3002506432	Hawk A #2	8	H		OIL	
3002506445	Southland Royalty A #7	9	A		OIL	
3002506443	Southland Royalty A #2	9	B		OIL	
3002506396	Southland Royalty A #4	4	X		OIL	Not currently producing
3002520069	Southland Royalty A #8	4	W		OIL	
3002506442	Southland Royalty A #1	9	G		GAS	
3002506444	Southland Royalty A #6	9	H		OIL	

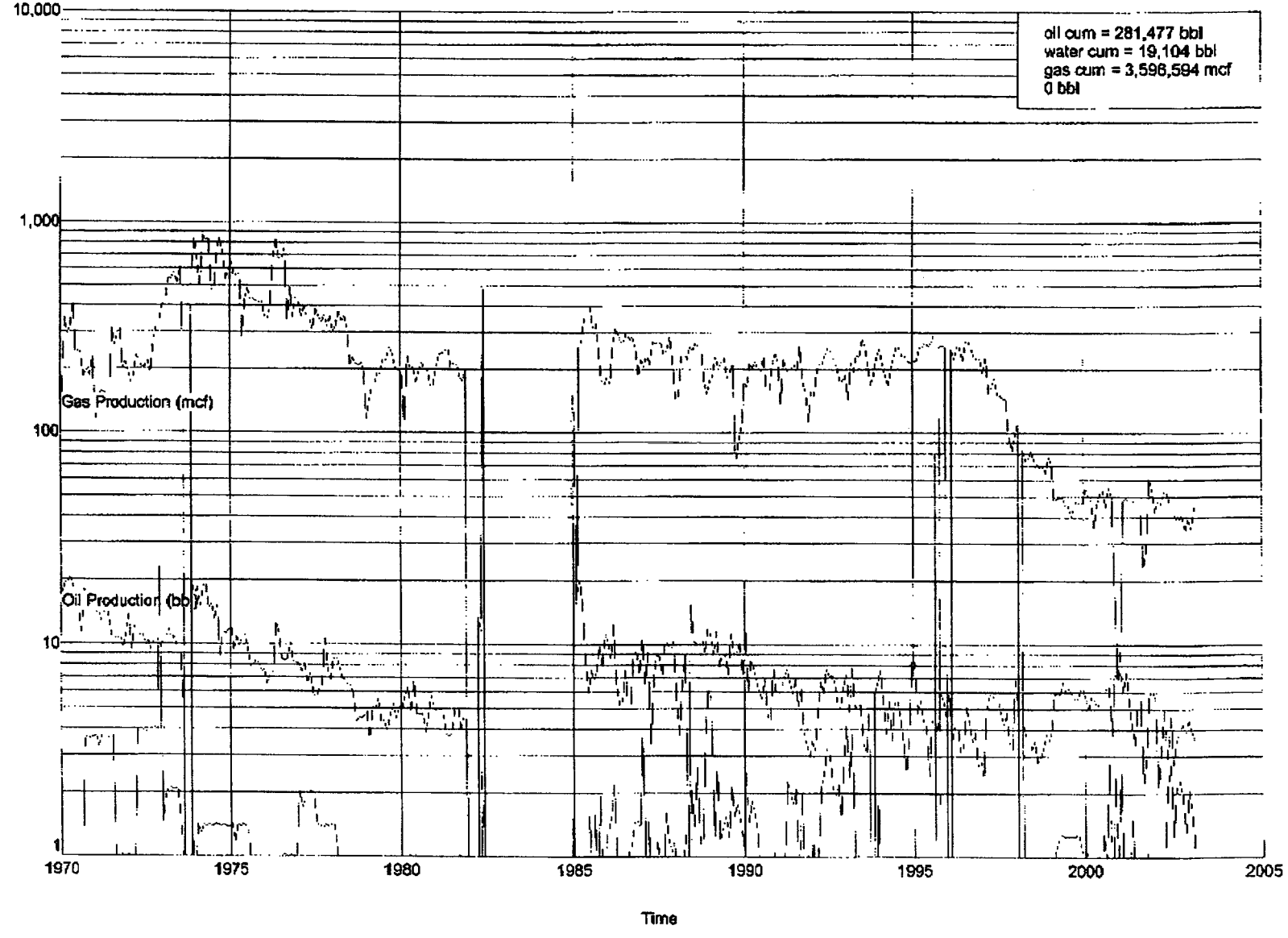
Dual completion B-T-D is 0.1

EXHIBIT B

Blumberg No. 5208

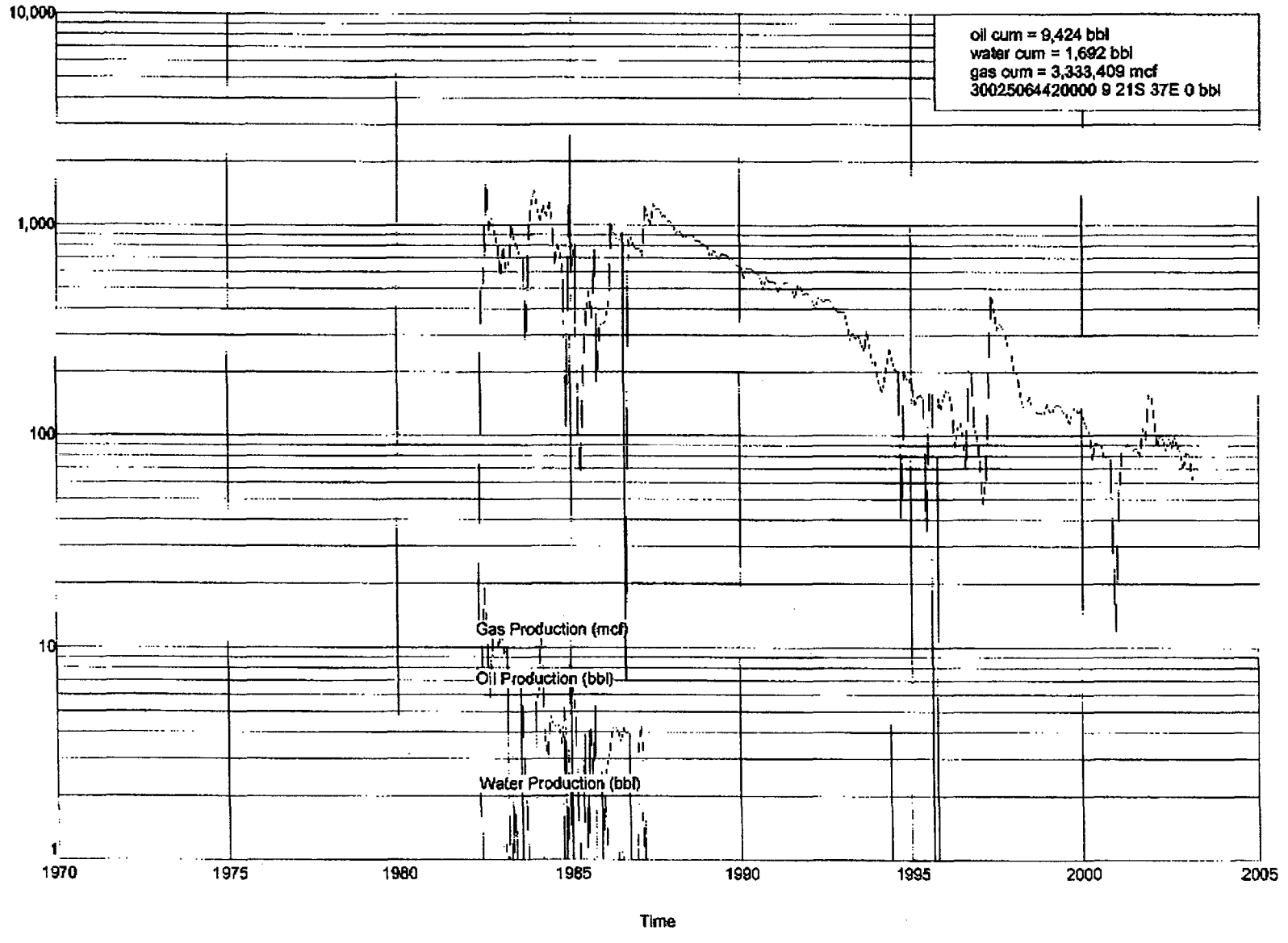
Lease Name: SOUTHLAND ROYALTY A
County, State: LEA, NM
Operator: APACHE CORPORATION
Field: MULTIPLE
Reservoir: MULTIPLE
Location:

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/



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

NEW MEXICO ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT

ADMINISTRATIVE ORDER DHC-2477

RECEIVED

OCT 18 1999

WEST... DIVISION
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.
Blinebry 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 Blinebry 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:

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 by DRC

LORI WROTENBERY
Director

SEAL

LW/DRC

cc: Oil Conservation Division - Hobbs