ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 684 0149

Jerry L. Tweed
District Engineer

March 30, 1983

CERTIFIED
RETURN RECEIPT
REQUESTED

Mr. Joe D. Ramey
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Application for Downhole Commingling of the Jalmat and
Langlie Mattix Pools
Duthie Andrews WN No. 4
Section 19B, T23S, R37E
Lea County, New Mexico

ARCO oil and Gas Company respectfully requests administrative approval under the provisions of Rule 303-C to downhole commingle the Jalmat and Langlie Mattix pools of the Duthie Andrews WN No. 4. This well is located in Section 19, T-23-S, R-37-E, of Lea County, New Mexico.

In 1975 the Duthie Andrews WN No. 4 was initially completed in the Jalmat pool; however, insufficient test rates (post frac maximum - 108 MCFD) resulted in squeezing the Jalmat and completing in the Langlie Mattix. ARCO Oil and Gas Company would like to re-enter the Jalmat and requests approval to downhole commingle the Jalmat with the Langlie Mattix pool. The option to dual complete the well is unacceptable since the GOR of the Langlie Mattix makes pumping below a packer very difficult. Thus, the downhole commingling is necessary to permit efficient, economical production from both zones. The Duthie Andrews WN Nos. 1 and 4 are simultaneously dedicated to a 320-acre non-standard Jalmat gas proration unit by Administrative Order No. NSP-999.

Since the Jalmat formation produces no oil or water, the Langlie Mattix oil production will continue to be rod-pumped up the tubing with the gases from the Jalmat and Langlie Mattix being commingled in the annulus. Since only the gases will actually be downhole commingled, the small liquid production from the Langlie Mattix should not damage the Jalmat zone. Results from an offset, E. L. Steeler No. 5, show no problem with fluid incompatibility when commingling the Jalmat and Langlie Mattix. The E. L. Steeler No. 5 has downhole commingled the Jalmat and Langlie Mattix for over a year and is located 2640 feet south of the Duthie Andrews WN No. 4.

No crossflow between zones is expected. Based on a pressure survey performed in June, 1981 on the offset, E. L. Steeler No. 5, the Langlie Mattix bottom hole pressure is 183 psig. When the Jalmat gas zone of Duthie Andrews WN No. 4 was first tested in 1975, the shut in tubing pressure was 175 psig. This corrects to a bottom hole pressure of 193 psig at -130 feet subsea, the measurement depth of the Langlie Mattix. The current bottom hole pressure of the Jalmat is expected to be between 120-150 psig.

Ownership of the zones to be commingled is common, including working interest, royalty, and overriding royalty. Attached is the information requested by Rule 303-C for downhole commingling applications. Offsets are being notified by registered mail with a copy of this application. We believe this request is justified in the interest of conservation, to prevent offset drainage, and to protect correlative rights. Thank you for your consideration.

Yours very truly,

J. L. Tweed

JLT/PR:dmm
Attachments

ARCO Oil and Gas Company
Permian District
Post Office Box 1610
Midland. Texas 79702
Telephone 915 684 0149

Jerry L. Tweed
District Engineer

March 30, 1983

OFFSET OPERATORS
(See Attached List)

Dear Sirs:

Application for Downhole Commingling of the Jalmat
and Langlie Mattix Pools
Duthie Andrews WN No. 4
Section 19B, T23S, R37E
Lea County, New Mexico

ARCO Oil and Gas Company respectfully requests your waiver of the attached application to the New Mexico Oil Conservation Commission. We applied for downhole commingling of the Jalmat and Langlie Mattix pools of the Duthie Andrews WN No. 4.

If you have no objections to this application, please indicate your approval of our intentions by signing both copies of this request. Kindly return one copy to ARCO and forward the other to Mr. Joe Ramey in the addressed envelopes enclosed.

We appreciate your prompt reply to this request.

Yours very truly,

J. L. Tweed

JLT/PR:dmm
Atts.

Agreed to this _____ day of _____, 1983.

Signed _____

Title _____

Information for Downhole Commingling

(a) Operator: ARCO Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

(b) Lease, Well, Location, and Pools:

Duthie Andrews WN No. 4
660' FNL & 1980' FEL
Section 19, T23S, R37E

Commingled Pools: Jalmat and Langlie Mattix

(c) Acreage Dedication and Offset Ownership:

(See Attachments)

(d) 24-hour Productivity Test:

(See Attached C-116)

(e) Decline Curves and Completion Resume:

(See Attachments)

(f) Bottom Hole Pressures:

Based on offset measurements, the bottom hole pressure of the Langlie Mattix is approximately 183 psig. The bottom hole pressure of the Jalmat is expected to be between 120-150 psig.

(g) Fluid Incompatibility:

Since the Jalmat produces no oil or water, only the gases from the two zones are actually downhole commingled. The gases have similar compositions. No fluid incompatibility has been observed from an offset, E. L. Steeler No. 5, which has downhole commingled the Jalmat and Langlie Mattix for over a year.

(h) Value of Commingled Fluids:

The Jalmat and Langlie Mattix gases are classified under the same pricing category. Combined gas streams will have the same value as separated gas streams. Also, the gas purchaser is common.

(i) Allocation of Production:

Jalmat Gas	67%
Langlie Mattix Gas	33%
Langlie Mattix Oil	100%

The gas allocation was based on an expected 200 MCFD from the Jalmat combined with 100 MCFD from the Langlie Mattix. All oil production will be allocated to the Langlie Mattix.

(j) All offset operators have been notifed by registered mail of the proposed commingling and given a copy of this application.

OFFSET OPERATORS

Conoco, Inc.
P. O. Box 1959
Midland, Texas 79702

Samedan Oil Company
900 Wall Towers East
Midland, Texas 79702

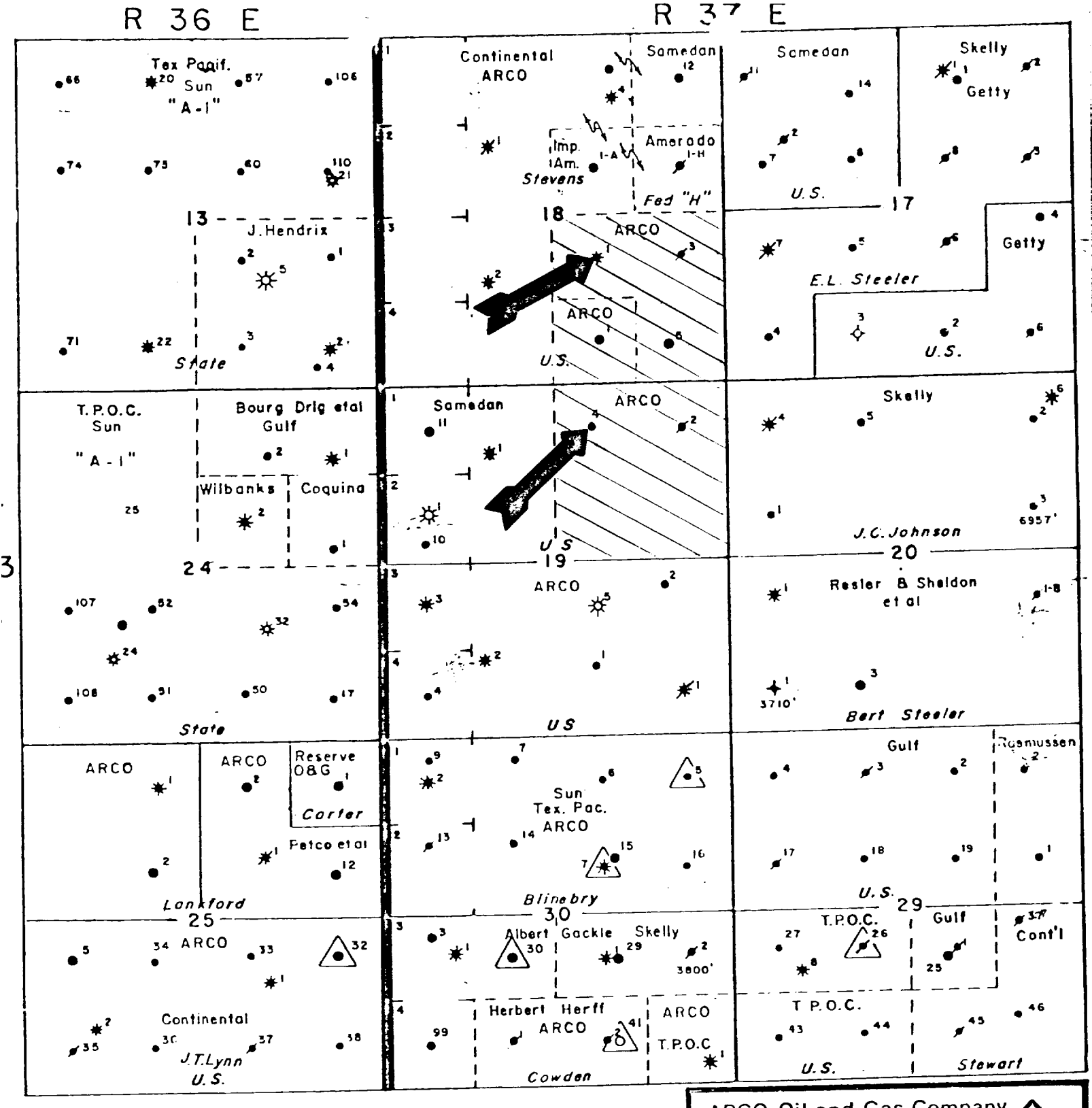
James L. Evans
P. O. Box 1125
Eunice, New Mexico 88231

Getty Oil Company
P. O. Box 1231
Midland, Texas 79702

Doyle Hartman
500 N. Main
Midland, Texas 79702

John H. Hendrix Corporation
525 Midland Tower
Midland, Texas 79702

Imperial American Management Company
215 Mid-America Building
Midland, Texas 79701



320-acre non-standard Jalmat gas proration unit dedicated to Duthie Andrews WN Nos. 1 and 4

ARCO Oil and Gas Company
Division of Atlantic Richfield Company
Permian District Midland, Texas

JALMAT GAS ZONE

LEA COUNTY, NEW MEXICO

SCALE 1" = 2000'

By P. RICHMOND	Drawn By	Date 6 - 82
Date 6 - 82	Revised By	Date
For WEST AREA ENGR.	Dwg No.	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-116
Revised 10-1-78

GAS-OIL RATIO TESTS

Operator: ARCO Oil and Gas Company
Division of Atlantic Richfield Co.

Pool: Langlie Mattix 7R Qn

County: Lea

Address: P.O. Box 1710, Hobbs, New Mexico 88240

TYPE OF TEST - (X): Scheduled [ ] Completion [ ] Special [X]

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BB
Duthie Andrews WN	4	B	19	23S	37E	4-3-83	P			4	24	2	37.5	4	75	18,750

Productivity test for commingling down hole per Rule 303-C.

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

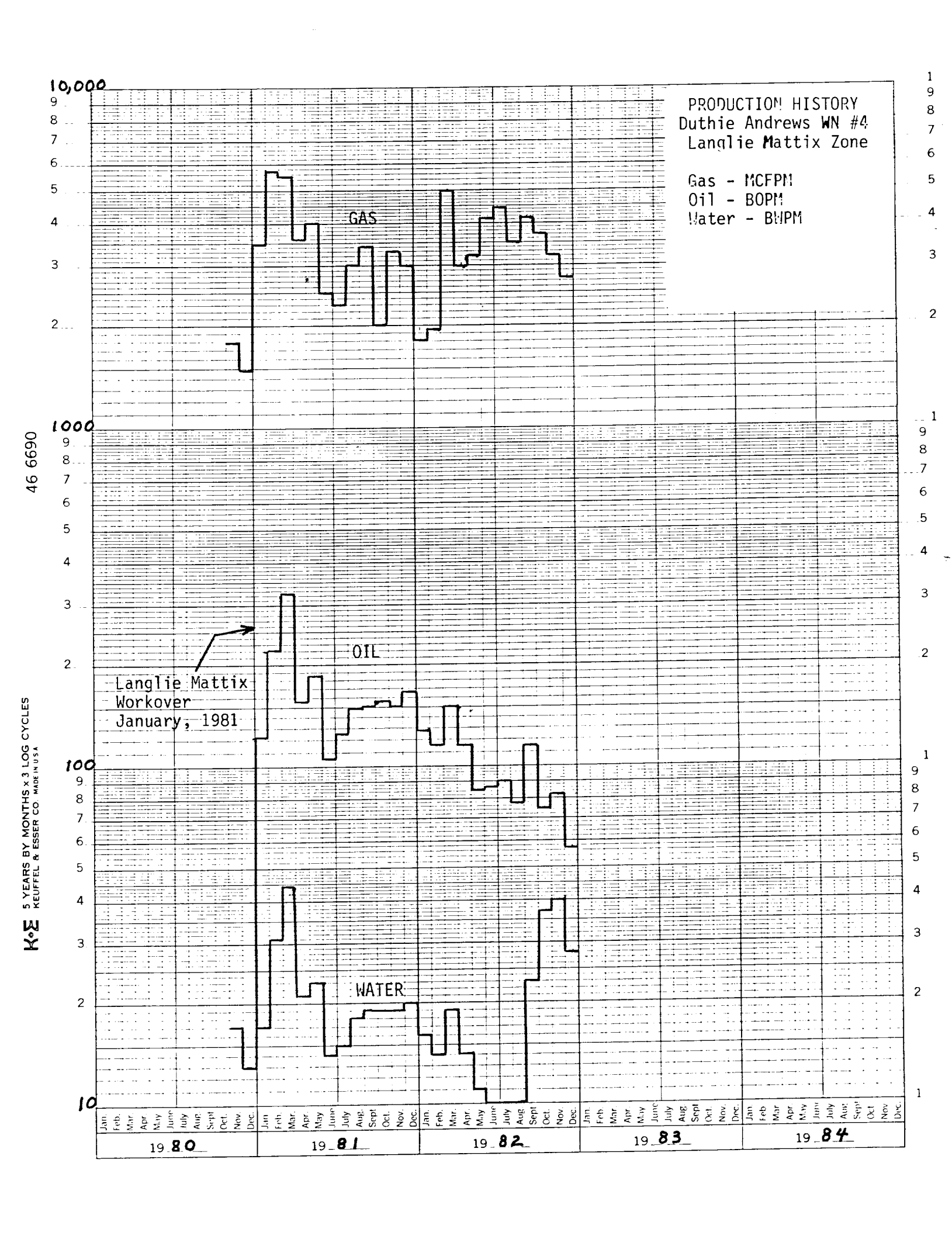
Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

I hereby certify that the above informa
is true and complete to the best of my k
ledge and belief.

D. L. Shackelford
(Signature)

Engrg. Tech. Spec.
(Title)

4/4/83
(Date)


PRODUCTION HISTORY
Duthie Andrews WN #4
Langlie Mattix Zone
Gas - MCFPM
Oil - BOPM
Water - BWPM
GAS
OIL
WATER
Langlie Mattix
Workover
January, 1981
10,000
1000
100
10
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
19 80
19 81
19 82
19 83
19 84
46 6690
5 YEARS BY MONTHS x 3 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.
K&E

WELL DATA

Field Jalmat and Langlie Mattix
Company ARCO Oil and Gas Company
Lease Duthie Andrews WN
Well No. 4

County Lea
Location 660 FNL & 1980' FEL of Sec. 19, T23S, R37E

TD 3710
Casing 8 5/8
4 1/2

PBD 3695
@ 418
@ 3710

Elevation 3328
Logs GR-CNL-CDL-DLL

Completion Date 3-2-76
Completion Interval
3463-3606'

Initial or Workover initial
Completion Zone
Langlie Mattix-Queen

Initial Potential
3 BOPD + 3 BWPD + 574 MCFD (Queen)

Remarks
The Jalmat-Yates (2895-3035') was intially perforated and stimulated; however, it was later squeezed after unsatisfactory test rates.

Porosity Interval:

Loco Hills
Metex
Square Lake
Premier
Vacuum
Lovington
Jackson

Interval Open:

History

Date	
8/3/75	Spudded
8/14/75	Acidize Jalmat (2895-3035) w/1500 gals 7½% HCl
8/15/75	Acidize Jalmat (2895-3035) w/2500 gals. 12% HCl and 6% HF mud acid overflushed w/2000 gals. 3% HCl.
8/20/75	Fracture Jalmat (2895-3035) w/20,000 gals. gelled water (3% HCl) + 40,000 lbs. 20/40 sand.
8/21-9/8	Tested Jalmat w/maximum rate of 108 MCFD.
11/11/75	Squeezed Jalmat (2895-3035)
11/17/75	Acidize Langlie Mattix (3463-3606) w/1500 gals. 15% HCl.
	Fracture Langlie Mattix (3463-3606) w/15,000 gallons gelled water and 37,500 lbs. 20/40 sd.
1/6/81	Perforate additional Langlie Mattix zones.
1/7/81	Acidize Langlie Mattix (3386-3684 OA) w/3000 gals. MCA acid.

History Date	
1/08/81	Fracture Langlie Mattix (3386-3684 OA) w/15,000 gals. x-link gel + 15,000 gals. CO_2 + 27,000 lbs. 20/40 sand + 30,000 lbs. 10/20 sand.