

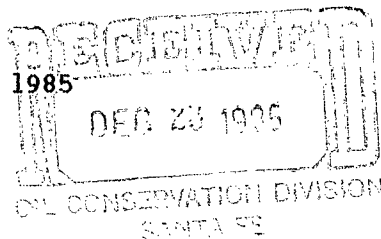
Tenneco Oil
Exploration and Production
A Tenneco Company

6162 South Willow Drive
P.O. Box 3249
Englewood, Colorado 80155
(303) 740-4800



Western Rocky Mountain Division

December 17, 1985



New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Gilbert Quintana

Re: Jicarilla A9
835' FWL, 980' FNL
Sec. 20, T26N, R5W
Rio Arriba County, New Mexico

Gentlemen:

We have enclosed all necessary data for administrative approval to commingle production in the referenced well.

Questions concerning this request can be directed to Mr. Robert Sagle (303) 740-2482.

Very truly yours,

TENNECO OIL COMPANY

PAO

Paul A. Doyle
Division Production Engineer

PAD/BS/dw:710

Enclosures

cc: Mr. Jerry Hertzler
Mr. Robert Sagle

*11 Sent not sufficient to
Sent to Arroyo } Dec. 17, 1985
El Paso }*
*100% Mesavieja Cond.
59 MCF/d. - Chacra 1-1-85
July 22, 1985 - 90 MCF/d*



Western Rocky Mountain Division

JICARILLA A 9

The Jicarilla A9 is a Chacra-Mesaverde dual well completed in September, 1980. Since the well has 4-1/2" casing, only one string of tubing can be run (see the attached wellbore schematic). It has been necessary to produce the Mesaverde through tubing and to flow the Chacra up the tubing-casing annulus. The purpose of commingling the Chacra and Mesaverde Zones is to 1) increase total production by increasing flow velocity up the tubing and 2) reduce operating costs thus increasing the production life of the well.

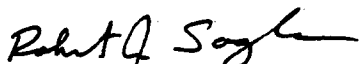
By commingling the two productive zones, gas from both zones will flow up the tubing. This increased volume through the same diameter tubing will result in increased flow velocity. The increased velocity will more efficiently lift any produced fluid resulting in increased gas production. By removing unnecessary production equipment (i.e. separator, dehydrator) routine operating costs will be reduced thus lengthening the economic life of the well and increasing recoverable gas reserves.

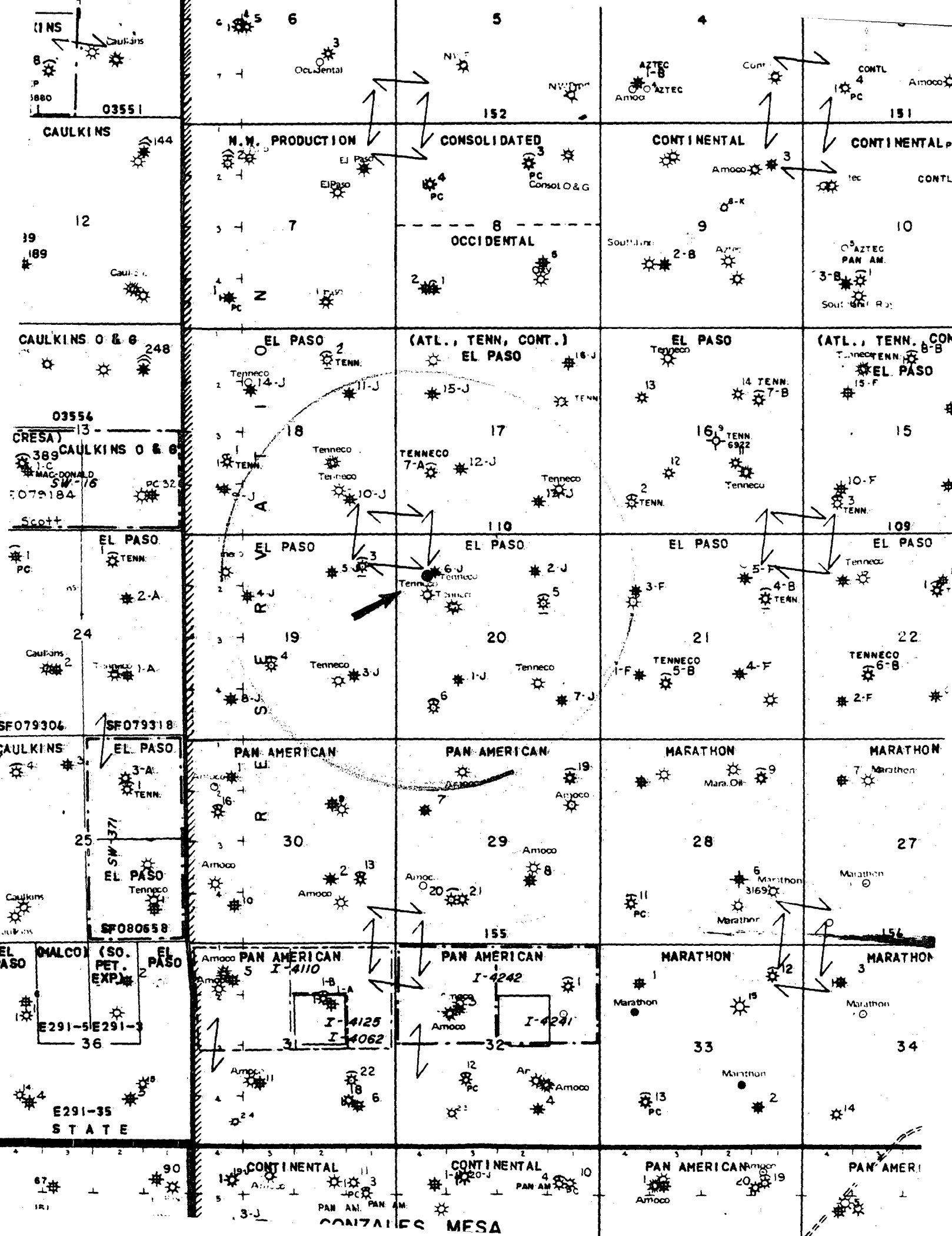
To satisfy pressure requirements both zones were shut in for eight days. A bottom hole pressure bomb was run to determine the pressure of the Mesaverde Formation which was 924 PSIG. Since a bomb could not be run in the tubing-casing annulus the Chacra surface pressure was recorded with a dead weight tester and fluid level was measured. The resulting bottom hole pressure was found to be 476 PSIG. A common datum of 3969 feet, mid point of the Chacra perforations, was chosen for comparison of the two formation pressures. The Chacra pressure of 476 PSIG need not be adjusted. The Mesaverde pressure adjusted to this depth is 893 PSIG. Therefore the ratio of the Upper Zone (Chacra) to the lower zone (Mesaverde) is $476/893$ or .533. All pressure data are attached.

A water compatibility test was performed using produced water from the Mesaverde zone in the Jicarilla A 9 well and from the Chacra zone in the offset Jicarilla A1 well. A water sample from the Chacra Zone in the A 9 could not be obtained since no fluid was being produced. The attached test results indicate no problems should occur as a result of the commingling.

Allocation of production to each zone has been determined from the attached material balance calculations. Based on this data, reserves are estimated to be 46 MMSCF for the Mesaverde Zone and 8 MMSCF for the Chacra zone. Allocation is therefore approximately 15% to the Chacra and 85% to the Mesaverde.

If you need additional information, please call me at (303) 740-2482.


Robert J. Sagle
Petroleum Engineer



0150/2

WELL NAME: Jicarilla A 9

COMPLETION, STIMULATION, AND WORKOVER RECORD

<u>DATE</u>	<u>DESCRIPTION</u>	<u>REMARKS</u>
10/13/78	Spot 250 Gal. 15% MCA. Perforate Gallup 6710'-39' with 1 HPF. Acidize with 1000 Gal. 15% MCA and 40 Ball sealers. Frac. with 44000 Gal. 40# XL Gel and 47000# 20/40 sand. Rate: 32 BPM and 1200 PSI.	
4/79	Acidize Gallup with 2500 gal. Foamed 15% HCL.	
9/16/80	Set Baker Model K Retainer at 5476'. Squeeze Gallup with 150 sx. cement.	
9/17/80	Spot 500 gal. 7 1/2% HCL. Perforate Mesaverde 5066'-67', 5118'-19', 5200'-01', 5234'-35', 5238'-51', 5258'-60', 5268'-70' with 2 HPF. Acidize with 1000 gal. 15% HCL and 63 ball sealers. Frac. with 52500 gal. water and 52500# 20/40 sand. Rate: 59 BPM and 2150 PSI. Set Baker Model D Packer at 4950'.	
9/21/80	Pressure test packer. Plug, and casing to 3000 psi. Spot 250 gal. 15% HCL. Perforate Chacra 3923'-27', 3935'-36', 4004'-14' with 2 HPF. Acidize with 500 gal. 15% HCL and 30 Ball Sealers. Frac. with 77600 gal. 70% quality nitrogen foam and 80000# 20/40 sand. Frac rate: 26 BPM and 2100 PSI.	

0150z

276'

ast jt.

oposed
perfs

ast jt.

6843'

perfs @ 3923-4014'

SN @ 4908'

Model "D" @ 4950'

perfs @ 5066-5270'

perfs @ 6610-39'
squeezed

0424/3

LEASE Jicarilla A

WELL NO. 9

CASING:

8 5/8" OD, 32 LB, K-55 CSG.W/ 225 SX

TOC @ Surf . HOLE SIZE 12 1/4 DATE

REMARKS

4 1/2" OD, 10.5 LB, K-55 CSG.W/ 825 SX

TOC @ 3900 . HOLE SIZE 7 7/8 DATE

REMARKS DV @ 5709'

"OD, LB, CSG.W/ SX

TOC @ . HOLE SIZE DATE

REMARKS

TUBING:

2 3/8" OD, 4.7 LB, J-55 GRADE, 8 RD, EUE CPLG

LANDED @ 4961 . SN, PACKER, ETC. SN @ 4908.

"OD, LB, GRADE, RD, CPLG

LANDED @ . SN, PACKER, ETC. PKR @ 4950

PUMP RODS ANCHOR

DETAILED PROCEDURE:

1. Lubricate in hole w/tbg gun and collar locator on wireline.
2. Locate blast joints from 3902'-3943'.
3. Perforate 2-3/8" tbg with 5 shots @ 1 JSPF from 3970-3975'.
4. Return well to production.

Note: 41' blast joints @ 3902-3943'
31' blast joints @ 3987-4018'

CALCULATION OF PRESSURES

1. Chacra formation @ 3969 feet (midpoint of Chacra perforations)
 - Surface pressure = 384 PSIG
 - Gas Gravity = .691
 - Surface Temp = 64° F
 - Fluid Level - 3844 ft.
 - Temp. @ Fluid Level = 105°F
 - Pressure @ Fluid Level = 421 PSIG
 - Ft. of fluid = 125 ft.
 - Fluid density = 1.02
 - Fluid gradient = .4417 PSI/Ft.
 - Pressure due to fluid = 55 PSI

Pressure at Chacra Perforations =

$$421 + 55 \text{ Psia} = 476 \text{ Psig}$$

2. Mesaverde Formation @ 3969 ft. (Common datum)
 - From pressure bomb gradient stops,
 - pressure = 893 Psig
3. Pressure ratio (Chacra/Mesaverde) = .533

B & R SERVICE, INC.

P. O. Box 1048

Farmington, New Mexico 87401

(505) 325-2393

Company TENNECO OIL CO. Lease JICARILLA Well A-9
County RIO ARriba State NEW MEXICO Date 7-24-85
Shut-In 8 DAYS Zero Point K.B. Tbg. Pressure 790
Casing Pressure PACKER Tbg. Depth _____ Casing Perf. _____
Max. Temp. _____ Fluid Level _____

<u>DEPTH</u>	<u>PSIG</u>	<u>GRADIENT</u>
0	790	----
1000	814	.024
2000	842	.028
3000	871	.029
4000	897	.026
4865	921	.028
4965	923	.020

Mesaverde:

Casing Pressure = 384 PSIG

124 Joints to fluid



SMITH ENERGY SERVICES

Division of Smith International, Inc.

2198 East Bloomfield Highway
Farmington, New Mexico 87401
Phone (505) 327-7281

July 12, 1985

Tenneco Oil Co.
Western Rocky Mtn. Div.
P.O. Box 3249
Englewood, Co. 80155

ATTN: Dave Balusek

Dear Mr. Balusek:

Water analysis & compatability studies were conducted using the following formation water samples.

- | | |
|------------------|----------------------|
| 1. Jicarilla A-1 | Chacra Formation |
| 2. Jicarilla A-9 | Mesa Verde Formation |

A small amount of reddish orange precipitate formed, but this is to be expected when oxygen is admitted to a water sample containing even a trace of iron. This percipitate should pose no problems in a closed system. No solid precipitates of any other types were noted and these samples should be considered to be compatible.

Sincerely,

SMITH ENERGY SERVICES

Loren L. Diede
District Engineer

LLD/kr

(16) SUCCESSFUL CONNECTION

Company: TENNECO
Address:
Attention: DAVE BALUSEK
Date Sampled:

Report No:
Date: 6-28-85
County:
Field:
Formation: CHACRA
Lease: JICARILLA
Well: A-1

WATER ANALYSIS

Specific Grav:	1.020	pH:	7.50
Chloride:	15.936 mg/l	Calcium:	321 mg/l
Bicarbonate:	1.831 mc/l	Magnesium:	n d
Sulfate:	0	Total Iron:	20
Sulfide:	0	Sodium:	10.602 mc/l
Total Hardness		Total Dissolved	
(as CaCO3):	800 mg/l	Solids:	28.900 mc/l
Resistivity:	0.36	Ohm Meters @:	70 F
Potassium:	150 mc/l	Carbonate:	n d

Sample Source:

Remarks:

Analyst: LOREN L. DIEDE
Smith Representative:

Company: TENNECO
Address:
Attention: DAVE BALUSEK
Date Sampled:

Report No:
Date: 6-28-85
County:
Field:
Formation: MESA VERDE
Lease: JICARILLA
Well: A-9

WATER ANALYSIS

Specific Grav:	1.015	pH:	7.00
Chloride:	12.997 mg/l	Calcium:	120 mg/l
Bicarbonate:	1.098 mc/l	Magnesium:	24 mc/l
Sulfate:	0	Total Iron:	20
Sulfide:	0	Sodium:	8.596 mc/l
Total Hardness		Total Dissolved	
(as CaCO3):	400 mc/l	Solids:	22.936 mc/l
Resistivity:	0.40	Ohm Meters @:	70 F
Potassium:	100 mc/l	Carbonate:	n d

Sample Source:

Remarks:

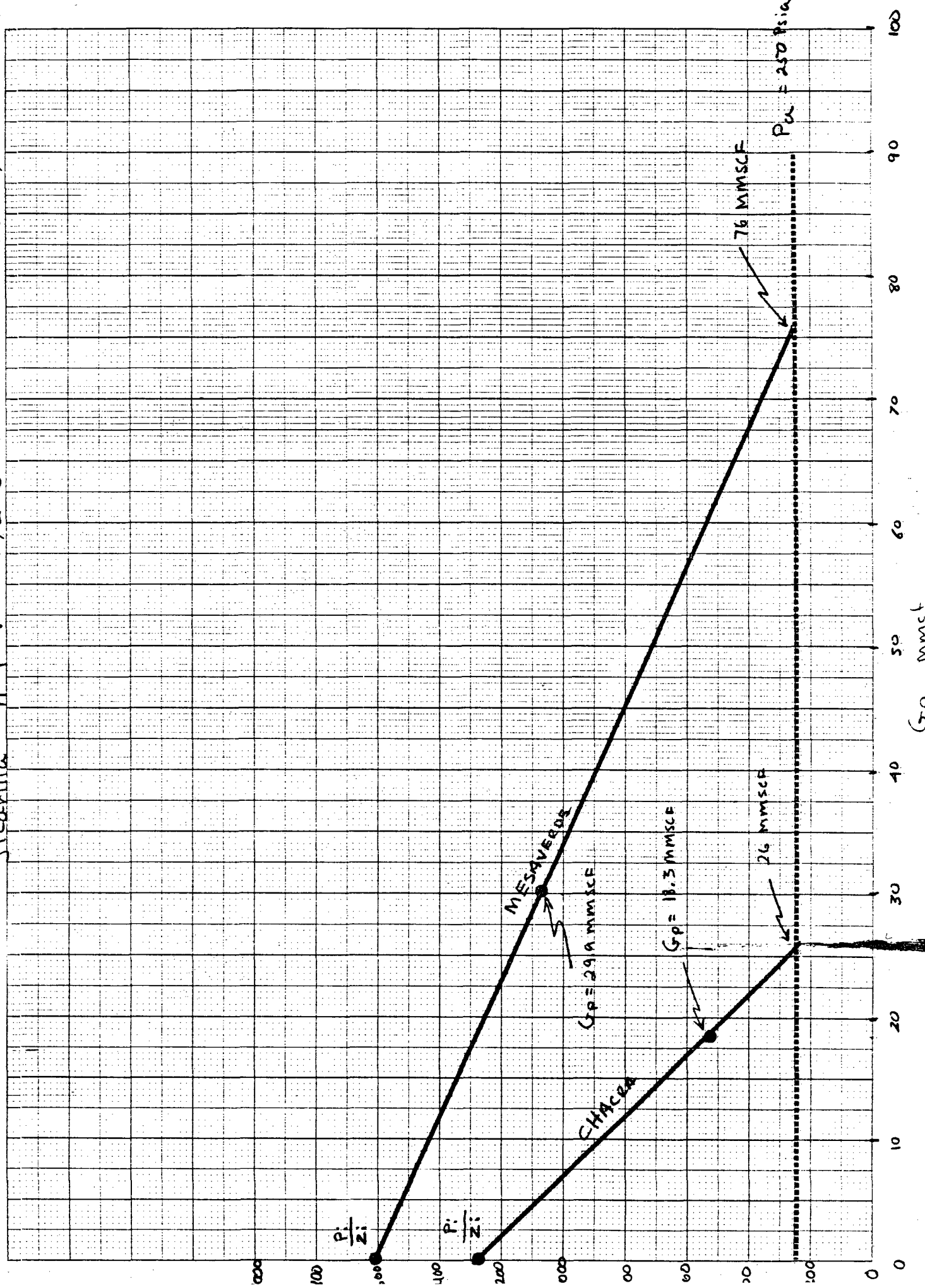
Analyst: LOREN L. DIEDER
Smith Representative:

RSS 7/85

P/Z DATA

A-9 :

Jicarilla



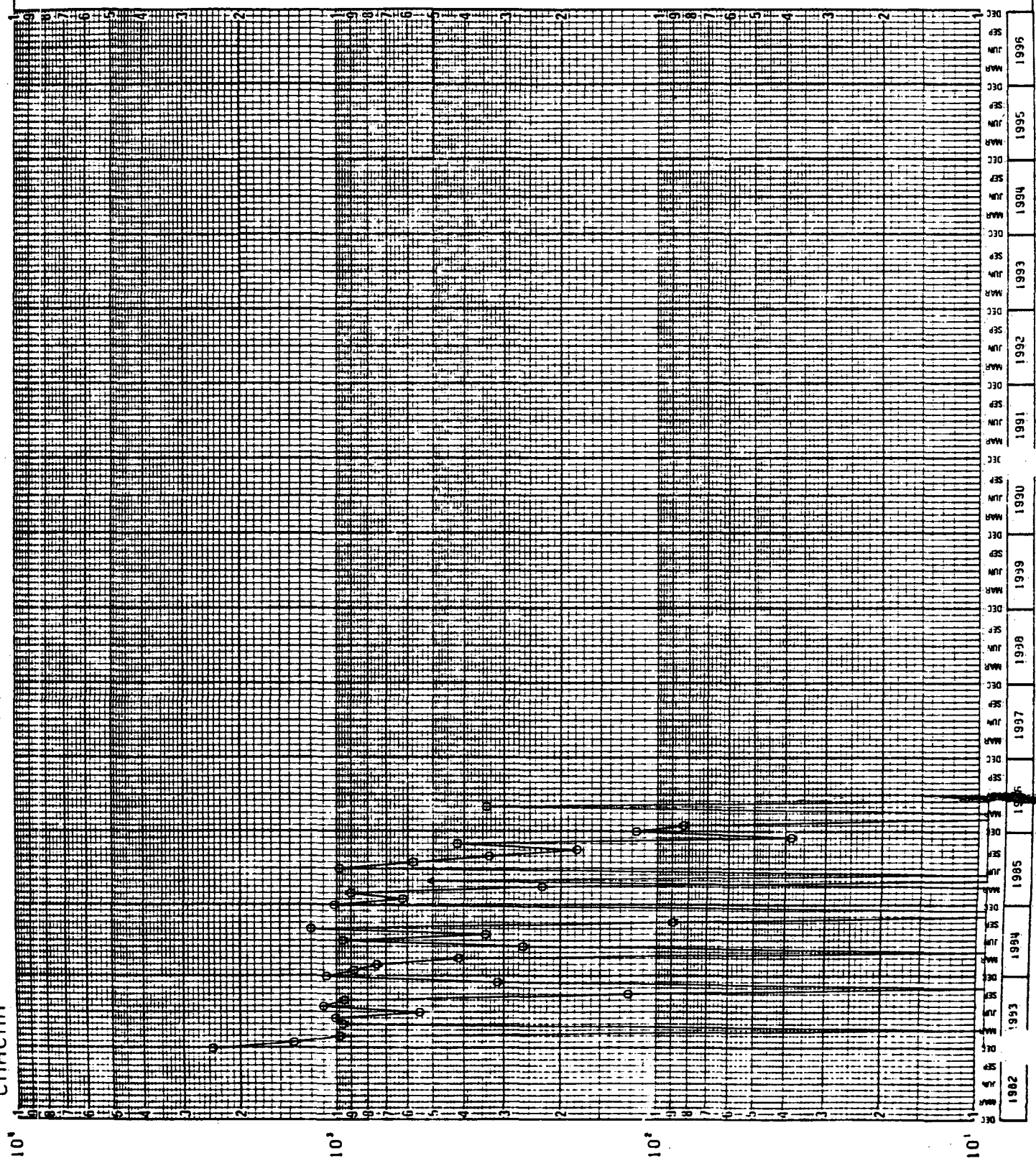
NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-85

Operator		Pool		County		San Juan	
Ienneco Oil Company		Mesaverde		Completion ☐		Special ☐	
Address		TYPE OF TEST - (X)		SCHEDULED ☒		Special ☐	
P. O. Box 3249, Englewood, CO 80155		DATE OF TEST		CHOKES SIZE		TBG. PRESS.	
WELL NO.		LOCATION		DAILY ALLOWABLE		LENGTH OF TEST HOURS	
LEASE NAME		WELL NO.		DATE OF TEST		CHOKES SIZE	
Jicarilla		A9		6/30/85		P N/A	
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		D					
		5W		705			
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JICARILLA A 9
026N005W20D
CHACRA

LEGEND
○ GAS PRODUCTION (MCF/D)
▲ OIL PRODUCTION (BOPM)



PILOT IN I MOUNT

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

C-116
Revised 1-1-65

Operator Tenneco Oil Company		Pool Chacra		County San Juan										
Address P. O. Box 3249, Englewood, CO 80155		TYPE OF TEST - (X)		Completion ☐ Special ☐										
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT./BBL
		U	S	T						R	WATER BBL'S	GRAV. OIL	OIL BBL'S	
Jicarilla	A9	D	20	26N	5W	6/30/85	P	N/A	230	24	0	0	0	0

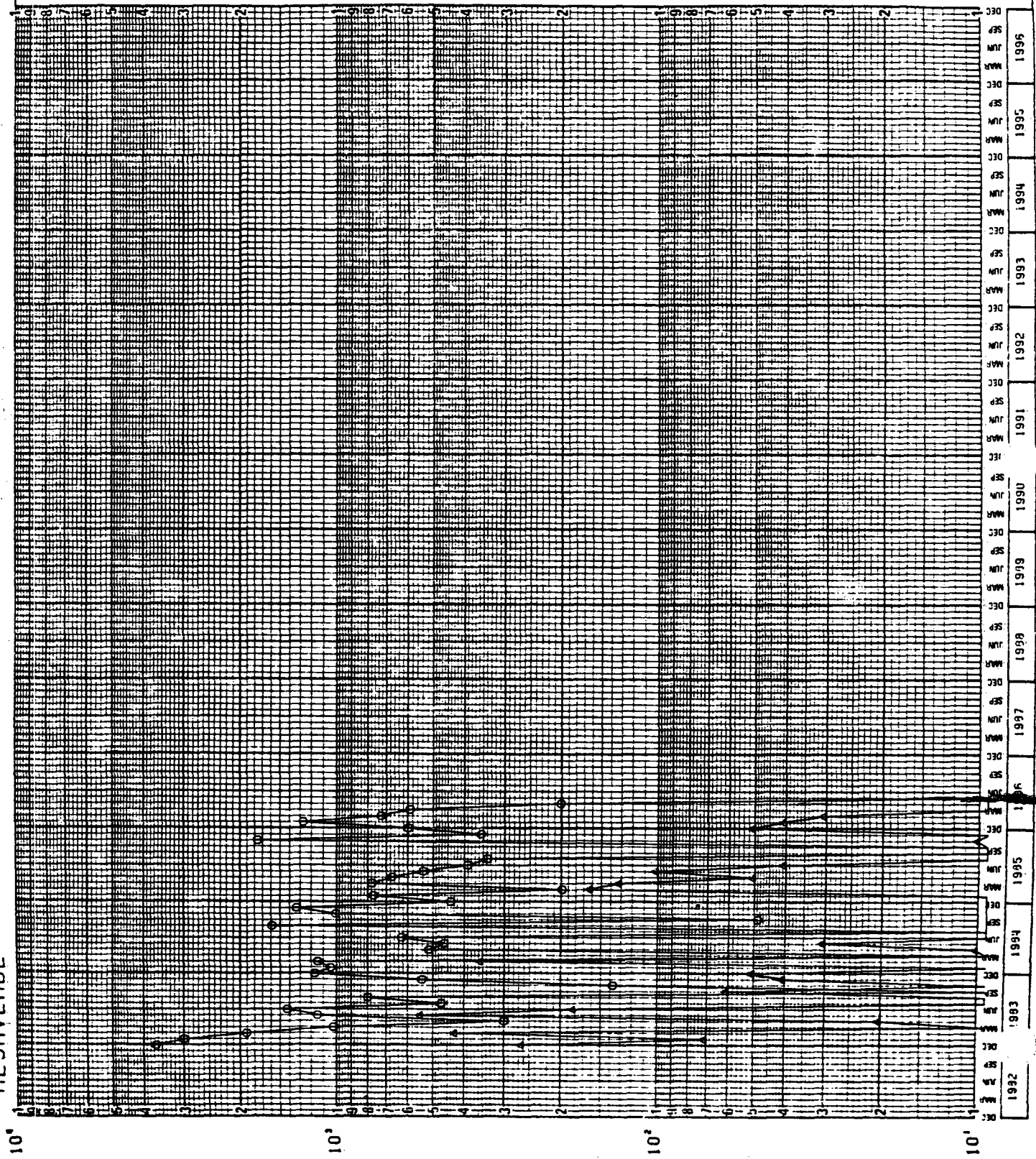
I hereby certify that the above information is true and complete to the best of my knowledge and belief.

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 Commission.
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 Commission in accordance with Rule 301 and appropriate pool rules.

Vivela Sulzbach *ms*
(Signature)
Administrative Supervisor
August 1, 1988
(Date)

JICARILLA A 9
026N005W200
MESAVERDE

LEGEND
○ GAS PRODUCTION (MCF/D)
▲ OIL PRODUCTION (BOPD)



UNIT IN MILLION

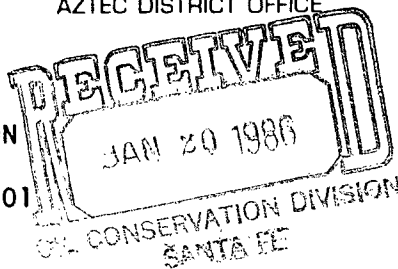


STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501



DATE 1/16/86

RE: Proposed MC _____
Proposed DHC ✓ _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated Jan 15, 1986
for the San Juan Picurillo A #9 D-20-26A-5W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Frank D. [Signature]