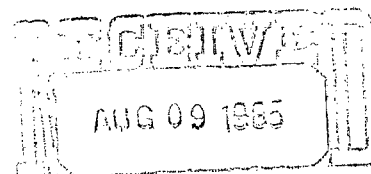


Tenneco Oil
Exploration and Production
A Tenneco Company

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



Western Rocky Mountain Division



July 31, 1985

NEW MEXICO OIL CONSERVATION DIVISION
SANTA FE

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

Attention: Gilbert Quintana

RE: Florance 31
890' FNL, 890' FEL
Sec. 12, T29N, R8W
San Juan 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. Frank Weiss (303) 740-4836.

Very truly yours,

TENNECO OIL COMPANY

A handwritten signature in dark ink, appearing to read "PAO" followed by a stylized flourish.

Paul Doyle
Division Production Engineer

SMc:st

Enclosures

cc: Mr. Jerry Hertzler
Mr. Frank Weiss

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

August 1, 1985

El Paso Natural Gas
Post Office Box 4990
Farmington, NM 87499

Attention: Don Reed

RE: Florance 31
890' FNL, 890' FEL
Sec. 12, T29N, R8W
San Juan County, New Mexico

Gentlemen:

Tenneco has applied for administrative approval to commingle production from the Mesaverde and Dakota zones in the above referenced well. If you as an offset operator have no objection to the proposed commingling, please sign the waiver at the bottom of this page and forward to:

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501
Attention: Gilbert Quintana

We would appreciate your returning one copy to the undersigned.

Very truly yours,

TENNECO OIL COMPANY

A handwritten signature in dark ink, appearing to read "P. Doyle".

Paul Doyle
Division Production Engineer

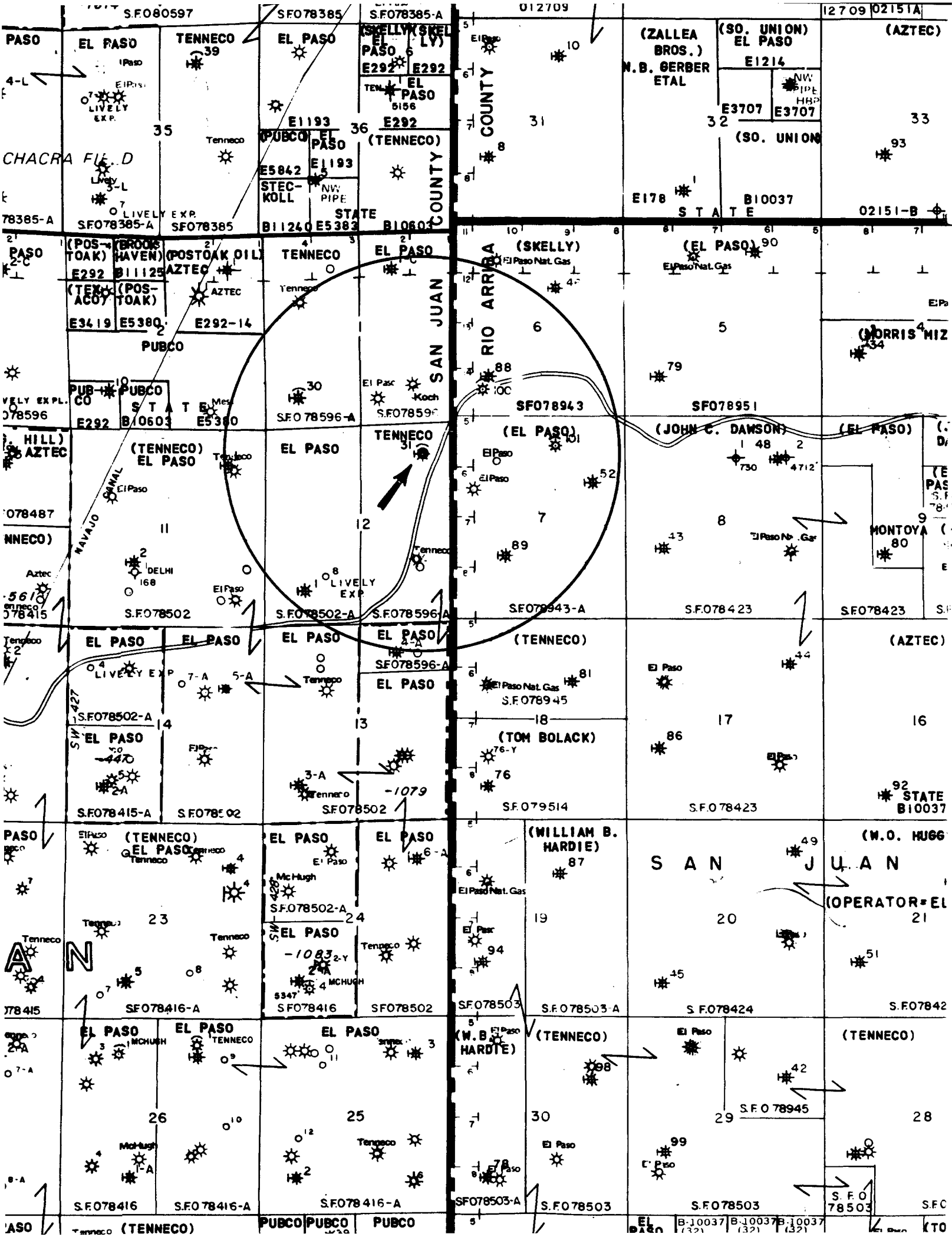
SMc:st

WAIVER

We hereby waive any objections to Tenneco Oil Company's application to commingle production as set forth above.

Name: _____ Title: _____

Date: _____



Tenneco Oil
Exploration and Production
A Tenneco Company

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



Western Rocky Mountain Division

The Florance 31 was completed as a Mesaverde-Dakota dual in November of 1964 with 4-1/2" casing and one string of 2-3/8" tubing. The Dakota produces up the tubing and the Mesaverde flows up the casing-tubing annulus. Because of the large flow area in the annulus, the Mesaverde is experiencing liquid loading problems which are restricting the production from that zone.

Enclosed are decline curves for both the Mesaverde and Dakota zones.

The bottom-hole pressure of the Dakota was measured with a pressure bomb and found to be 868 psig at 7255' after 8 days of shut in. This Dakota pressure corrected to a datum of 5000' was 828 psig. A pressure bomb could not be run for the Mesaverde since this zone produces up the annulus.

A dead weight surface pressure of 505 psig was recorded for the Mesaverde after 8 days of shut in. The fluid level was found at 4681'. The bottom-hole pressure for the Mesaverde was then calculated to be 717 psig at a datum of 5000'. The requirement that the lower pressured zone have a pressure that is greater than 50% of the pressure of the higher pressured zone corrected to a common datum is; therefore, satisfied.

Compatibility tests were conducted using formation water from both the Dakota and Mesaverde. The testing indicates that no scale or precipitate problems should result from the commingling of produced waters from these formations. In addition, the salinities of the two zones are similar enough that no formation damage should occur in either zone.

The intent of commingling these two zones is to increase the total production from the well. This will be accomplished by increasing the flow velocity by flowing both zones up the tubing. The cross-sectional area of the tubing is 3.13 square inches, as opposed to 11.27 square inches for the tubing and annulus. Even if no production increase were realized, a 3.6 fold increase in average flow velocity would result from this commingling. This velocity increase will enable the well to unload produced fluids and will result in increased gas production from each zone. This greater production rate will increase the velocity in the tubing, yielding even more liquid lifting capacity.

Based upon the decline curves and reserve estimates for these zones, I recommend that the production be allocated on a strict percentage basis with 67% assigned to the Mesaverde and 33% assigned to the Dakota.

If you need any additional information, feel free to call me at (303) 740-4836.


Frank G. Weiss III
Senior Production Engineer - WRMD

MESAVERDE

FLODRANCE 31 MV/DK
MESAVERDE DAKOTA COMMINGLING
2-3/8X4-1/2 ANNULUS

DATE: 07/10/85
FILE: FILE102
PROJ: 0

G A S W E L L P R E S S U R E S

MEASURED DEPTH, FEET	5000.	FLOW STREAM ID, INCHES	2.375
TRUE VERTICAL DEPTH, FEET	5000.	FLOW STREAM OD, INCHES	6.456
GAS GRAVITY	0.703	CRITICAL TEMPERATURE	391.
BOTTOM HOLE TEMPERATURE	150.	CRITICAL PRESSURE	666.
NITROGEN, MOL %	0.	CONDENSATE GRAVITY, DEG API	50.0
CARBON DIOXIDE, MOL %	0.	WATER GRAVITY	1.047
HYDROGEN SULFIDE, MOL %	0.	PIPE ROUGHNESS, INCHES	0.00060

GAS RATE	WH TEMP	WELLHEAD	BOTTOMHOLE	P/Z	CONDENSATE	WATER
M/D-----	DEG F--	PSIG-----	PSIG-----	PSIG-----	STB/MMCF--	BM/MMCF--
0.	60.	505.	572.♦	AT	4681. FEET (MEAS)	FLUID LEVEL
			717.♦	AT	5000. FEET (MEAS)	(WTR)

B & R SERVICE, INC.

P. O. Box 1048

Farmington, New Mexico 87401

(505) 325-2393

Company TENNECO OIL COMPANY Lease FLORANCE Well 31
County SAN JUAN State NEW MEXICO Date 5-16-85
Shut-In _____ Zero Point G.L. Tbg. Pressure 736
Casing Pressure PACKER Tbg. Depth _____ Casing Perf. _____
Max. Temp. _____ Fluid Level _____

<u>DEPTH</u>	<u>PSIG</u>	<u>GRADIENT</u>
0	736	----
1000	756	.020
2000	774	.018
3000	793	.019
4000	811	.018
5000	828	.017
6000	847	.019
7000	864	.017
7255	868	.016

MESAVERDE

8 DAY SHUT IN PRESSURE TEST

DEAD WEIGHT SURFACE PRESSURE TEST 505 PSIG

ANNULUS FLUID LEVEL 4681 FT

SOUTHERN UNION GATHERING COMPANY
REPORT OF BTU TEST RESULTS

TO: TENNECO OIL CO (846)

REF: FLORANCE 31
4056
NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 7/12/83
DATE OF LAST TEST: 5/08/81
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.7029
BTU/CF @ 14.73/60F/DRY: 1221.6

	MOL %	G. P. M.
CARBON DIOXIDE	0.877	0.0000
NITROGEN	0.188	0.0000
METHANE	82.330	0.0000
ETHANE	9.450	2.5290
PROPANE	4.203	1.1580
ISOBUTANE	0.698	0.2280
N-BUTANE	1.118	0.3520
ISOPENTANE	0.363	0.1330
N-PENTANE	0.269	0.0970
HEXANE +	0.523	0.2300
	-----	-----
TOTAL	100.019	4.7270

- TENNECO WELL HISTORY -

Well Name Florance 31 Unit A Sec 12 T 29 R 8
 TD 7565 PBDT 7538 County San Juan State New Mex WI 50 RI 34.5
 Drlg Cost _____ Comp Cost _____ Comp Date 9-11-55 Trn On Date _____
 MV-1955 IP _____ BOPD 5447 MCFD _____ BHPD _____ Hours 1030 SIWHP _____
 IP _____ BOPD _____ MCFD _____ BHPD _____ Hours _____ SIWHP _____

- TUBULAR RECORD -

Size	Weight	Grade	Depth	Cement	Top Cement	Hole Size	Remarks
10-3/4			181	190			
7			4720	150			
4-1/2	10.5&11.6	J-55	7555	100/175/	6800&	6-1/4	DV's @ 4470' &
				270	1850		& 5454'.
2-3/8	4.7	J-55	7275				

Packer? Yes X No _____ Type Model D Depth 7275
 Anchor? Yes _____ No X Type _____ Depth _____
 Pump Type _____

- COMPLETION & WORKOVER RECORD -

Zone #1 - Formation MV Date 8-31-55 Perfs w/JSPF Open hole
4720-4900

Press Tstd _____ PSI, Spot Acid - Type _____ Gallons _____ BDISIP _____
 Acid: Vol. & Type _____, # balls _____, Rate _____ BPM, Press. _____ PSI
 Frac: Fluid Volume & Type 12,300 diesel, Sand: 10,000 # Mesh _____
 Frac Rate 7.6 BPM Frac Pressure 1000-1500 PSI ISIP _____ PSI
 Comments Pkr set @ 4650 for frac

Zone # 2 - Formation MV Date 9-4-55 Perfs w/JSPF Open hole
4720-5350

Press Tstd _____ PSI, Spot Acid - Type _____ Gallons _____ BDISIP _____
 Acid: Vol. & Type _____, # balls _____, Rate _____ BPM, Press. _____ PSI
 Frac: Fluid Volume & Type 123 00 diesel, Sand: 10,000 # Mesh _____
 Frac Rate 10.5 BPM Frac Pressure 1200-1500 PSI ISIP _____ PSI
 Comments Open hole fr 5213-5350 was frac'd under an open hole retainer.

Zone # 3 - Formation Dakota Date 11-23-64 Perfs w/JSPF 4 JSPF @ 7327, 32
7404, 07, 36, 37, 57, 84, 7515; 36

Press Tstd _____ PSI, Spot Acid - Type _____ Gallons _____ BDISIP _____
 Acid: Vol. & Type _____, # balls _____, Rate _____ BPM, Press. _____ PSI
 Frac: Fluid Volume & Type 78,000 gal, Sand: 75,000 # Mesh _____
 Frac Rate 40 BPM Frac Pressure 3300 PSI ISIP _____ PSI
 Comments PS balls in frac. Screened out on flush.

- CASING REPAIR RECORD -

Depth of Leak _____, # of squeezes required _____, # of sx used _____
 Cathodic Protection? Yes _____ No _____ Date Installed _____

Comments Drilled out to 7565 and ran 4-1/2 csg in 1964. Bowen casing patch
used to repair casing @ 261'. 2-3/8" tbq has 1.85 "F" nipple &
sliding sleeve.

Prepared By: GWC Date: _____ Verified By: _____ Date: _____
J.W. Cook
PAO

- TENNECO WELL HISTORY -

2437/4

-2-

Well Name Florance 31 Unit A Sec 12 T 29 R 8

- COMPLETION & WORKOVER RECORD -

Zone #4 - Formation MV Date 11-26-64 Perfs w/JSPF 4 JSPF @
5143, 5214, 26, 35, 45, 58, 75, 94, 5327; 41

Press Tstd Yes PSI, Spot Acid - Type 7-1/2% HCl Gallons BDISIP
 Acid: Vol. & Type , # balls , Rate BPM, Press. PSI
 Frac: Fluid Volume & Type 100,000 SW, Sand: 100,000# 10/20 Mesh
 Frac Rate 70 BPM Frac Pressure 2200 PSI ISIP PSI
 Comments Dropped 15 balls in frac. 20 gal/1000 gal of 15% HCl in frac.

Zone # 5 - Formation MV Date 11-26-64 Perfs w/JSPF 4 JSPF @
4750, 65, 4778, 97, 4817, 50, 4919; 35, 86, 5006

Press Tstd Yes PSI, Spot Acid - Type 7-1/2% HCl Gallons 504 BDISIP
 Acid: Vol. & Type , # balls , Rate BPM, Press. PSI
 Frac: Fluid Volume & Type 100,000 SW, Sand: 100,000# 10/20 Mesh
 Frac Rate 55 BPM Frac Pressure 2900 PSI ISIP PSI
 Comments Dropped 15 balls in frac. 20 gal/1000 gal of 15% HCl in frac.

Zone # 6 - Formation Date Perfs w/JSPF

Press Tstd PSI, Spot Acid - Type Gallons BDISIP
 Acid: Vol. & Type , # balls , Rate BPM, Press. PSI
 Frac: Fluid Volume & Type , Sand: # Mesh
 Frac Rate BPM Frac Pressure PSI ISIP PSI
 Comments

Comments

Prepared By: Date: Verified By: Date:

J. W. Cook

SMITH ENERGY SERVICES

Division of Smith International, Inc.

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

June 5, 1985

Tenneco Oil Co.
Western Rocky Mtn. Div.
P.O. Box 3249
Englewood, Co. 80155
ATTN: Frank Weiss

Dear Mr. Weiss:

Water analysis and compatibility studies were conducted using the following formation water samples:

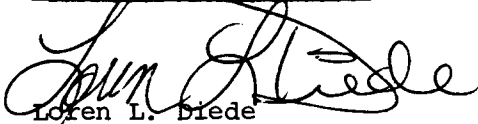
1. Dawson A#1 Mesa Verde formation water
 Dawson A#1 Dakota formation water
 (Mesa Verde sample may show scaling tendency, but no incompatibility was
 seen between the two samples.)
2. Florance #19A Mesa Verde formation water
 Florance #19 Dakota formation water
3. Riddle A #1 Mesa Verde formation water
 Riddle A #1 Dakota formation water
4. Moore #1A Mesa Verde formation water
 Moore #6E Dakota formation water
5. State Com #1A Mesa Verde formation water
 State Com #1 Dakota formation water
6. Florance #31 Mesa Verde formation water
 Florance #31 Dakota formation water
7. Florance #7A Mesa Verde formation water
 Florance #6 Dakota formation water
8. Florance #36 Mesa Verde formation water
 Florance #36 Dakota formation water

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.

Tenneco, water analysis con't June 5, 1985

This precipitate 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 for mixing as per the listing above.

Sincerely,
SMITH ENERGY SERVICES


Loren L. Biede
District Engineer

LLD/kr

Company: TENNECO
Address:

Attention: FRANK WEISS
Date Sampled:

Report No:
Date: 6-3-85
County:
Field:
Formation: MESA VERDE
Lease: FLORANCE
Well: #31

WATER ANALYSIS

Specific Grav:	1.000	pH:	7.00
Chloride:	320 mg/l	Calcium:	40 mg/l
Bicarbonate:	122 mg/l	Magnesium:	49 mg/l
Sulfate:	0	Total Iron:	3 mg/l
Sulfide:	0	Sodium:	100 mg/l
Total Hardness		Total Dissolved	
(as CaCO ₃):	300 mg/l	Solids:	614 mg/l
Resistivity:	10.00	Ohm Meters @:	60 F
Potassium:	0	Carbonate:	n.d.

Sample Source:

Remarks:

Analyst: LOREN L. DIEDER
Smith Representative:

Company: TENNECO
Address:
Attention: FRANK WEISS
Date Sampled:

Report No:
Date: 5-3-65
County:
Field:
Formation: DAKOTA
Lease: FLORANCE
Well: #31

WATER ANALYSIS

Specific Grav:	1.000	pH:	7.00
Chloride:	4,358 mg/l	Calcium:	381 mg
Bicarbonate:	366 mg/l	Magnesium:	194 mg
Sulfate:	0	Total Iron:	3 mg
Sulfide:	0	Sodium:	2,252 mg
Total Hardness		Total Dissd	
(as CaCO ₃):	1,601 mg/l	Solids:	7,535 mg
Resistivity:	1.20	Ohm Meters @:	60 F
Potassium:	0	Carbonate:	n d

Sample Source:

Remarks:

Analyst: LOREN L. DIEDER
Smith Representative:

**NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS**

C-116
Revised 1-1-65

Operator Tenneco Oil Company		Pool Mesaverde		County San Juan												
Address P.O. Box 3249, Englewood, CO 80155				TYPE OF TEST - (X)	Scheduled ☒ Special ☐											
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	Completion ☐ Special ☐					
		U	S	T							R	WATER BBLs.	PROD. GRAV. OIL BBLs.	DURING OIL BBLs.	TEST GAS M.C.F.	GAS - OIL RATIO CU. FT./BBL.
Florance	31	A	12	29	8	5/22/85	F	N/A	430		24	0	52.6	0	290	0

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.

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

Veranda J. Lugo
(Signature)
Administrative Supervisor
(Title)

(Date)

C-116
Revised 1-1-65

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.

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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.

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

Niraj Singh
(Signature)
Administrative Supervisor

(Date)

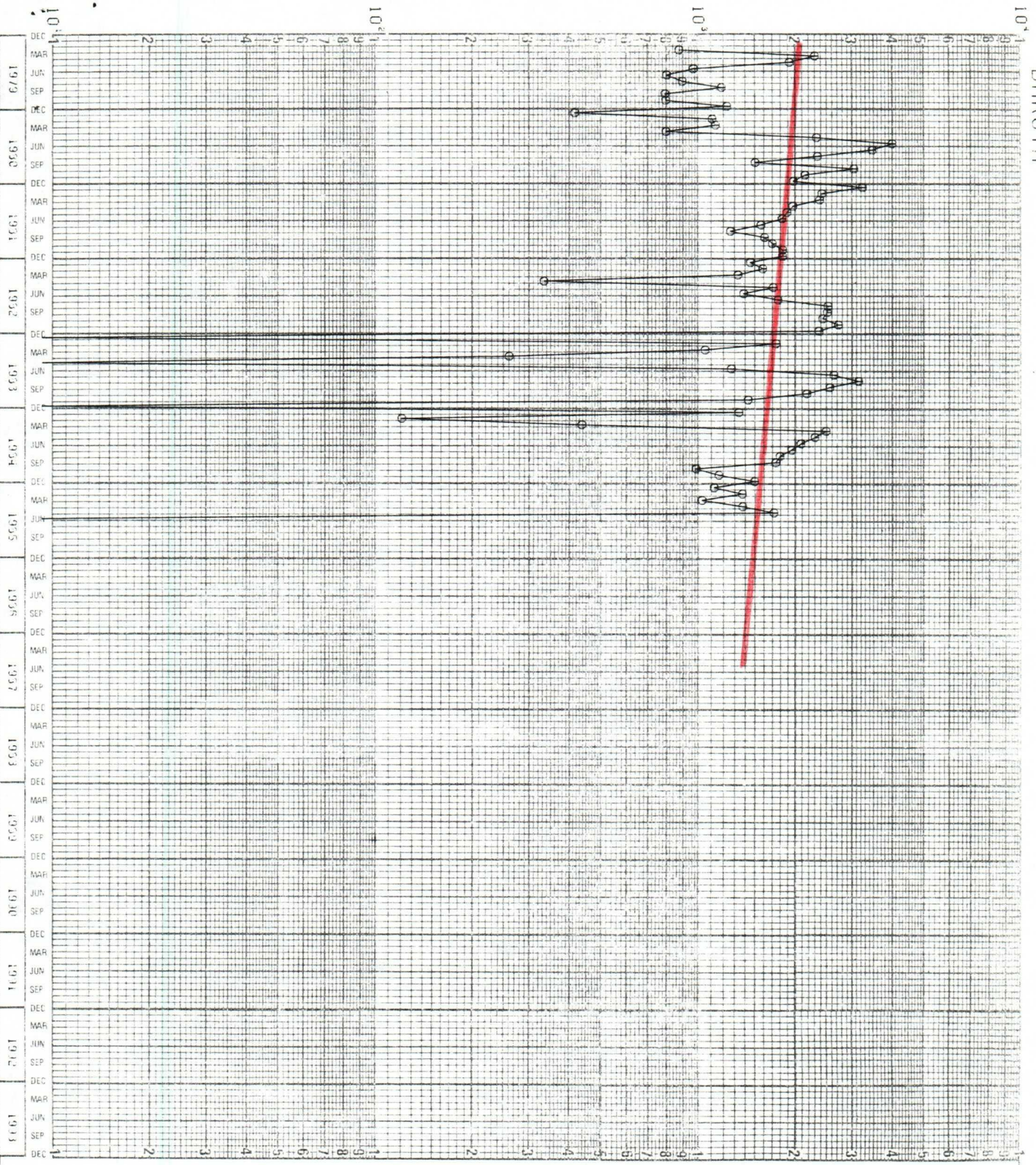
FLORANCE 31

DETERMINATION OF ALLOCATION PERCENTAGES

The decline rates and reserve estimate for the Mesaverde and Dakota are indicated below:

	<u>DECLINE PERCENTAGE</u>	<u>REMAINING RESERVES</u>
MESAVERDE	9%	549 MMCF
DAKOTA	6%	271 MMCF

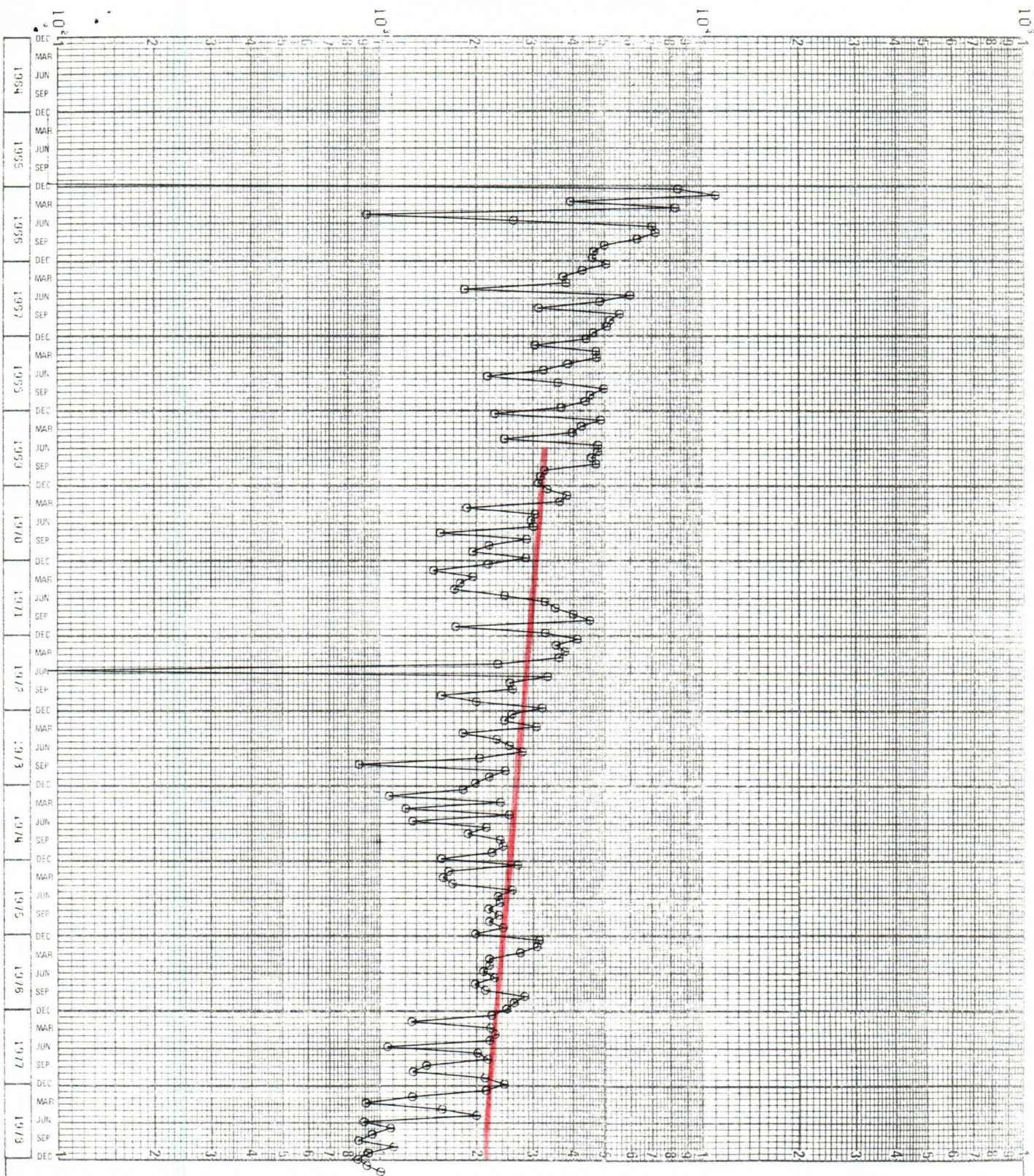
FLOHRANCE 31
029N008W12H
DAKOTA



LEGEND
○ GAS PRODUCTION (MCFM)

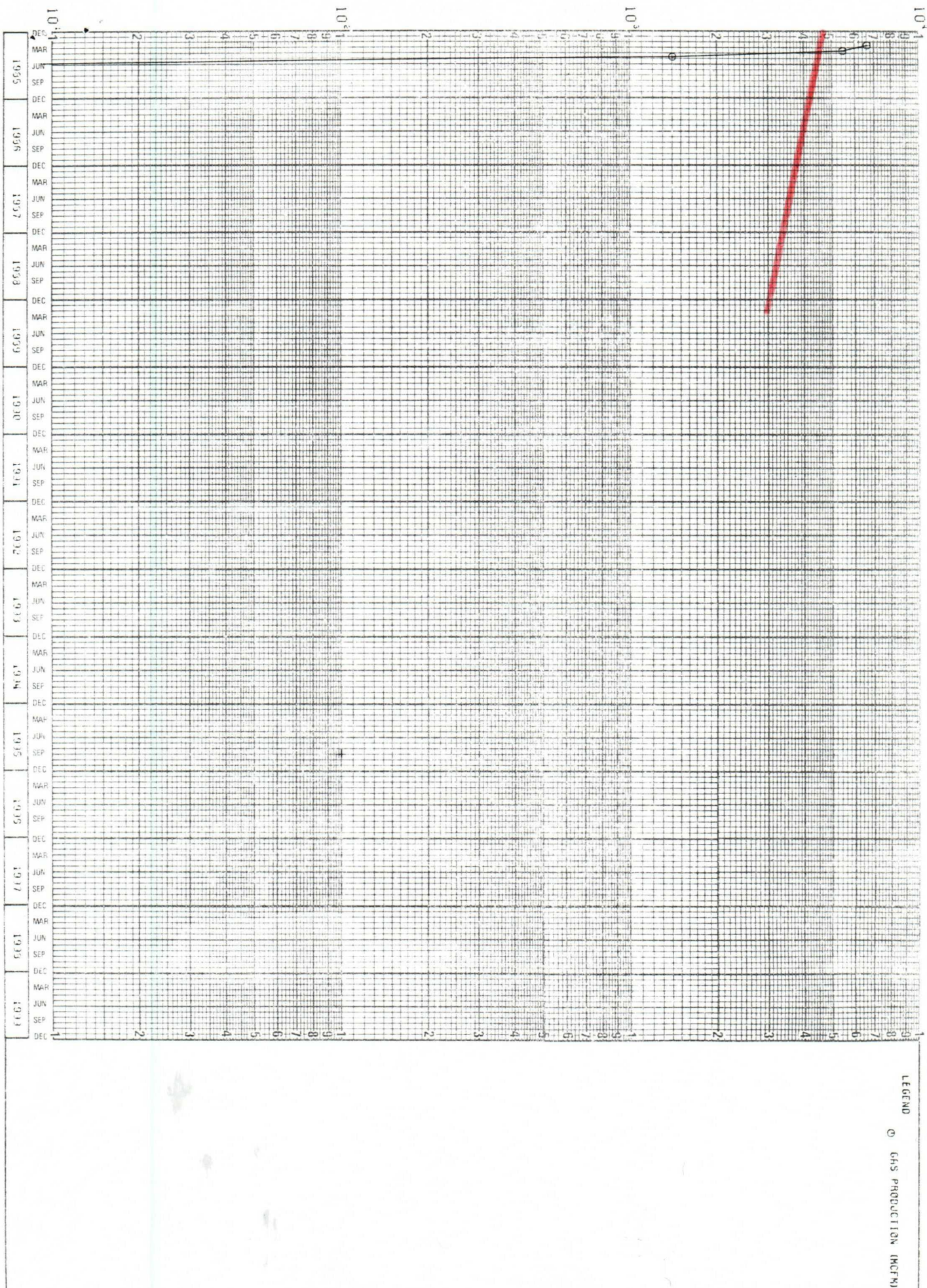
PL01-1D LMH001

FLORENCE 31
029N008W12A
DAKOTA



LEGEND
① GAS PRODUCTION (MCFM)

FLORANCE 31
029N008W12A
MESAVEERDF



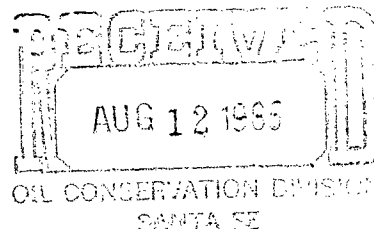
PLOT-10 LM4001

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



August 1, 1985

El Paso Natural Gas
Post Office Box 4990
Farmington, NM 87499

Attention: Don Reed

RE: Florance 31
890' FNL, 890' FEL
Sec. 12, T29N, R8W
San Juan County, New Mexico

Gentlemen:

Tenneco has applied for administrative approval to commingle production from the Mesaverde and Dakota zones in the above referenced well. If you as an offset operator have no objection to the proposed commingling, please sign the waiver at the bottom of this page and forward to:

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501
Attention: Gilbert Quintana

We would appreciate your returning one copy to the undersigned.

Very truly yours,

TENNECO OIL COMPANY

Paul Doyle
Division Production Engineer

SMc:st

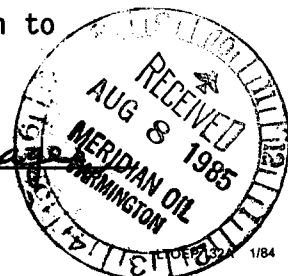
WAIVER

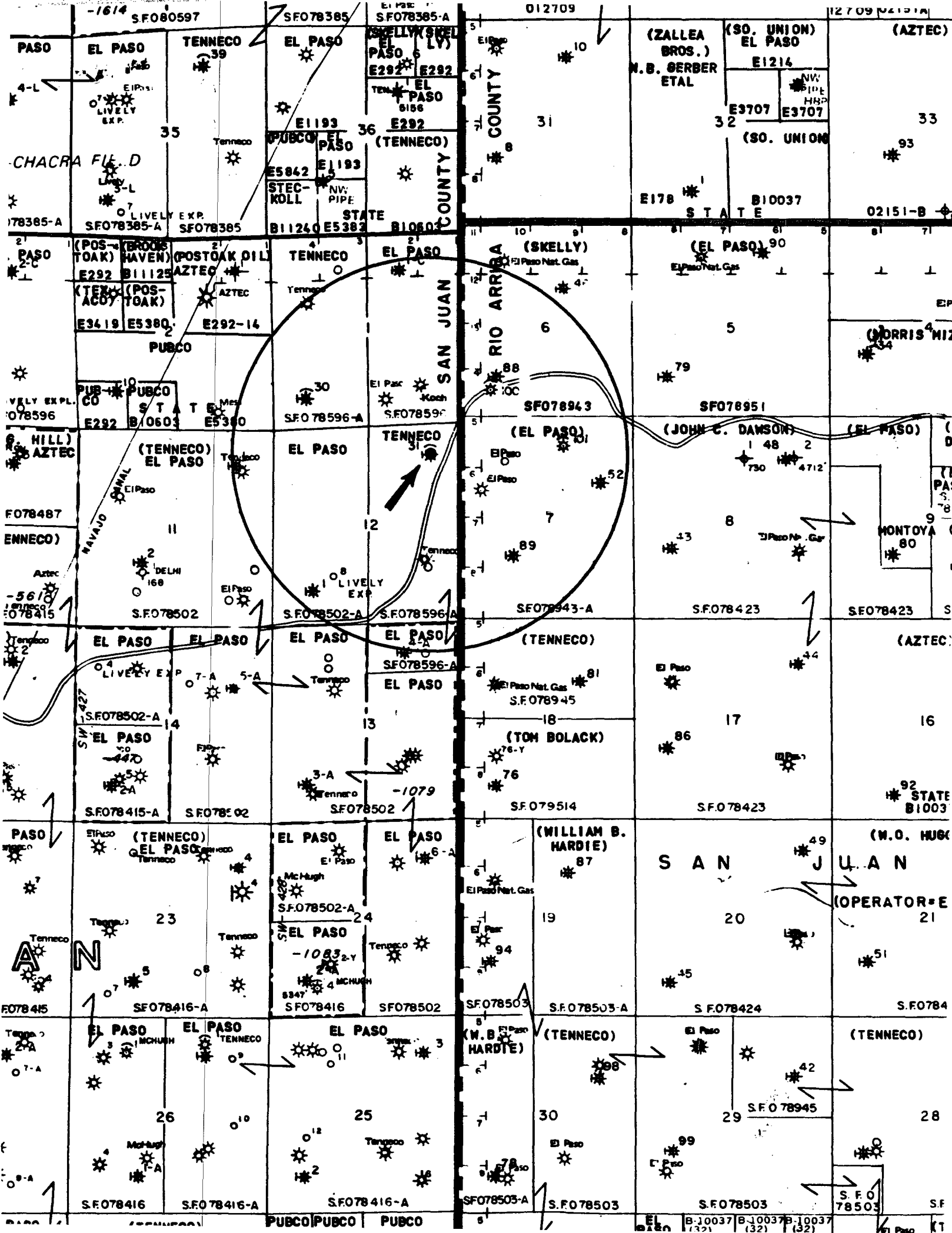
We hereby waive any objections to Tenneco Oil Company's application to commingle production as set forth above.

Name: Donald R. Reed

Title: District Manager

Date: 8-9-85







STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

DHC-566

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

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE Sept 24, 1985

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

Gentlemen:

I have examined the application dated Sept. 9, 1985
for the Barnew Lease #21 A-128N-8W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Frank D. Gray