

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

BEFORE EXAMINER STOPPERS OIL CONSERVATION DIVISION	
TCO	EXHIBIT NO. 4
CASE NO.	8765

RE: Florance 6
990' FSL, 990' FWL
Sec. 23, T30N, R9W
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

PA Doyle
Paul Doyle
Division Production Engineer

SMc:st

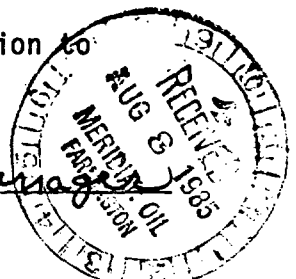
WAIVER

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

Name: Donald R. Reed

Title: District Manager

Date: 8-9-85



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A Tenneco Company

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Western Rocky Mountain Division

July 31, 1985

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

Attention: Gilbert Quintana

RE: Florance 6
990' FSL, 990' FWL
Sec. 23, T30N, R9W
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 "PA Doyle", with a stylized flourish at the end.

Paul Doyle
Division Production Engineer

SMc:st

Enclosures

cc: Mr. Jerry Hertzler
Mr. Frank Weiss

**Tenneco Oil
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Western Rocky Mountain Division

August 1, 1985

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TENNECO OIL COMPANY

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Paul Doyle
Division Production Engineer

SMc:st

WAIVER

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Name: _____ Title: _____

Date: _____

Tenneco Oil
Exploration and Production
A Tenneco Company

6162 South Willow Drive
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Englewood, Colorado 80155
(303) 740-4800



Western Rocky Mountain Division

August 1, 1985

Amoco Production Company
1670 Broadway
Denver, CO 80202

Attention: R. C. Burke, Jr.

RE: Florance 6
990' FSL, 990' FWL
Sec. 23, T30N, R9W
San Juan County, New Mexico

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Very truly yours,

TENNECO OIL COMPANY

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Paul Doyle
Division Production Engineer

SMc:st

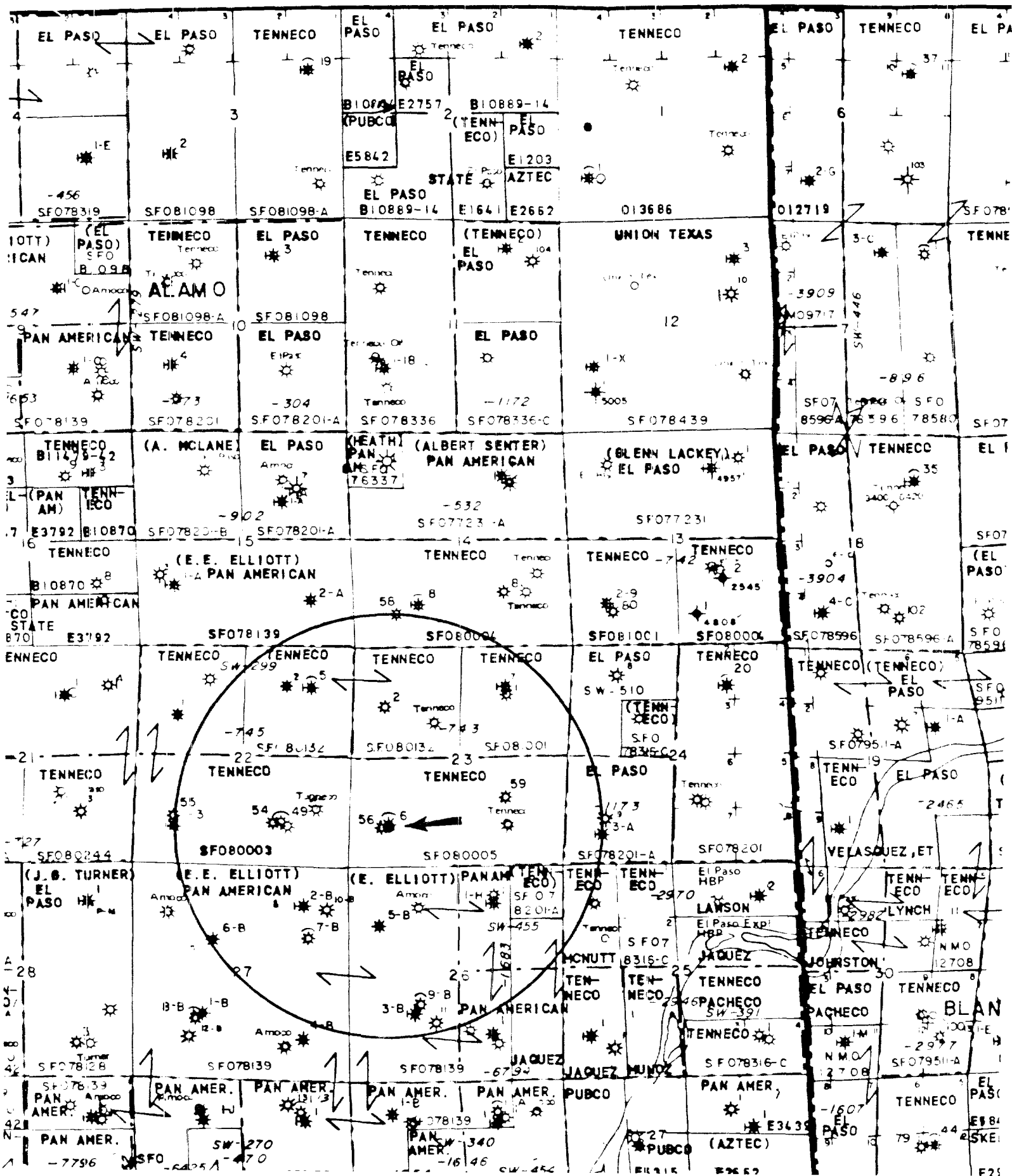
WAIVER

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Name: _____ Title: _____

Date: _____

R 9 W



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

The Florance 6 was completed as a Mesaverde-Dakota dual in June of 1965 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 679 psig at 7100' after 8 days of shut in. This Dakota pressure corrected to a datum of 5000' was 651 psig. A pressure bomb could not be run for the Mesaverde since this zone produces up the annulus.


A dead weight surface pressure of 378 psig was recorded for the Mesaverde after 8 days of shut in. The fluid level was found at 4526'. The bottom-hole pressure for the Mesaverde was then calculated to be 640 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 Dakota formation water from the Florance 6 and Mesaverde water from the offset Florance 7A. 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 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 81% assigned to the Mesaverde and 19% 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

FLORANCE 6 MV/DK
MESAVERDE DAKOTA COMMINGLING
2-3/8X4-1/2 ANNULUS

DATE: 7/10/85
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	0.695	CRITICAL TEMPERATURE	388.
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 M/D——	WH TEMP DEG F—	WELLHEAD PSIG——	BOTTOMHOLE PSIG——	P/Z PSIG —	CONDENSATE STB/MMCF—	WATER BW/MMCF—
0.	60.	378	425 AT 4526 FEET 640 AT 5000 FEET	(MEAS) (MEAS)	FLUID LEVEL (WTR)	

0350

B & R SERVICE, INC.

P. O. Box 1048
Farmington, New Mexico 87401
(505) 325-2393

Company TENNECO OIL COMPANY Lease FLORANCE Well #6
County SAN JUAN State NEW MEXICO Date 5-15-85
Shut-In _____ Zero Point G.L. Tbg. Pressure 580
Casing Pressure PACKER Tbg. Depth _____ Casing Perf. _____
Max. Temp. _____ Fluid Level _____

<u>DEPTH</u>	<u>PSIG</u>	<u>GRADIENT</u>
0	580	----
1000	595	.015
2000	609	.014
3000	625	.016
4000	639	.014
5000	651	.012
6000	663	.012
7000	677	.014
7100	679	.020

MESAVERDE

8 DAY SHUT IN PRESSURE TEST

DEAD WEIGHT SURFACE PRESSURE TEST 378 PSIG

ANNULUS FLUID LEVEL 4526 FT

SOUTHERN UNION GATHERING COMPANY
REPORT OF BTU TEST RESULTS

TO: TENNECO OIL CO (B46)

REF: FLORANCE 6
4065
NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 6/28/83
DATE OF LAST TEST: 6/06/82
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6952
BTU/CF @ 14.73/60F/DRY: 1209.7

	MOL %	G. P. M.
CARBON DIOXIDE	0.895	0.0000
NITROGEN	0.117	0.0000
METHANE	84.320	0.0000
ETHANE	8.090	2.1650
PROPANE	3.548	0.9770
ISOBUTANE	0.672	0.2190
N-BUTANE	0.942	0.2970
ISOPENTANE	0.340	0.1240
N-PENTANE	0.260	0.0940
HEXANE +	0.843	0.3710
	-----	-----
TOTAL	100.027	4.2470

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:

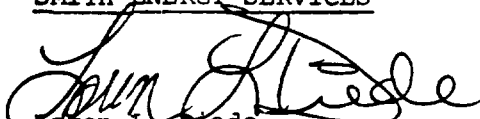
1. Dawson A#1 Mesa Verde formation water
 Dawson A#1 Dakota formation water
 (Mesa Verde sample may show scaling tendency, but no incompatibility was
 seen between the two samples.)
2. Florance #19A Mesa Verde formation water
 Florance #19 Dakota formation water
3. Riddle A #1 Mesa Verde formation water
 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: DAKOTA
Lease: FLORANCE
Well: #6

WATER ANALYSIS

Specific Grav:	1.000	oni	6.50
Chloride:	2.599 mg/l	Calcium:	203 mg/l
Bicarbonate:	61 mg/l	Magnesium:	n d
Sulfate:	0	Total Iron:	22 mg/l
Sulfide:	0	Sodium:	1.460 mg/l
Total Hardness		Total Dissolve	
(as CaCO3):	500 mg/l	Solids:	4.343 mg/l
Resistivity:	2.40	Ohm Meters @:	60 F
Potassium:	0	Carbonate:	n d

Sample Source:

Remarks:

Analyst: LOREN L. DIEDE
Smith Representative:

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

Report No:
Date: 6-3-85
County:
Field:
Formation: MESA VERDE
Lease: FLORANCE
Well: #7A

WATER ANALYSIS

Specific Grav:	1.000	on:	7.00
Chloride:	200 mg/l	Calcium:	120 mg/l
Bicarbonate:	61 mg/l	Magnesium:	49 mg/l
Sulfate:	0	Total Iron:	20
Sulfide:	0	Sodium:	n a
Total Hardness		Total Dissolve	
(as CaCO ₃):	500 mg/l	Solids:	430 mg/l
Resistivity:	10.00	Ohm Meters @:	80 F
Potassium:	0	Carbonate:	n a

Sample Source:

Remarks:

Analyst: LOREN L. DIEDER
Smith Representative:

- TENNECO WELL HISTORY -

2504/25

Well Name	Florance #6	Unit	M	Sec	23	T	30N	R	9W
TD	7455	PBTD	7422	County	San Juan	State	N.M.	WI	.50
Drig Cost		Re-Comp Cost	\$69,612	Re-Comp Date	6-23-65	Trn On Date			
Dakota-Recomp IP	BOPD		1304	MCFD		BWPD	3	Hours	SIWHP
MV-Recomp	IP	BOPD	1107	MCFD		BWPD	---	Hours	SIWHP

- TUBULAR RECORD -

Size	Weight	Grade	Depth	Cement	Top Cement	Hole Size	Remarks
13-3/8	48#	H-40	202'	220 sx	Surface	17-1/4"	
7"	20&23	K-55	4426	250 sx	---	8-3/4"	Lost circn
4-1/2	10.5611.6	K-55	7455	400 sx/260	---	6-1/4"	DV @ 4111'
2-3/8	4.6#	J-55	7120				Circ. cmt to surf. on 1st stage.

Packer? Yes ☒ No ☐ Type Model D Depth 7120
 Anchor? Yes ☐ No ☒ Type Depth
 Pump Type Flowing gas

- COMPLETION & WORKOVER RECORD -

Zone #1 - Formation MV Date 10-11-54 Perfs w/JSPF open hole:
4426-4650 1st stage, then open hole: 5037-5204 2nd stage
 Press Tstd 2000 PSI, Spot Acid - Type Gallons BDISIP
 Acid: Volume & Type # balls , Rate BPM, Press. PSI
 Frac: Fluid Volume & Type 8800 gal diesel #, Sand: 4100 # --- Mesh
 Frac Rate 6.2 BPM Frac Pressure 2100 PSI ISIP PSI
 Comments *Above is 1st frac stage, 2nd stage: 10,000 gal diesel & 7200 # sand - no rate given, AIP: 2000 psi - IP = 17 MMCFPD

Zone #2 - Formation Dakota Date 6-18-65 Perfs w/JSPF 7399-93,
4 HPF; 7380-74, 7372-68, 7357-55, 2 HPF; 7298-96, 7289-85, 4 HPF (72 holes).
 Press Tstd 4000 PSI, Spot Acid - Type 500 Gallons --- BDISIP
 Volume & Type water, # balls , Rate 4 BPM, Press. 2200 PSI
 Frac: Fluid Volume & Type 87,000 gal, then drop balls Sand: 65,000 # 20/40 Mesh
Sand: 2,500 # 20/40 Mesh
 Frac Rate 50 BPM Frac Pressure 3000 PSI ISIP 1300, 2000 PSI
 Comments 2nd Dak frac: Perf: 2 HPF, 7196-76, frac'd w/65,520 gals wtr & 45,000# 20/40 & 10/20. AIR: 45 BPM AIP: 3400 psi ISIP: 2000 psi

Zone #3 - Formation MV-PLO Date 6-20-65 Perfs w/JSPF 2 HPF: 5221, 5193,
5184, 5173, 5159, 5150, 5136, 5122, 5109, 5104, 5080, 5070, 5056, 5048, 5041,
5035, 5026, 4892, 4888, 4858, 4855.
 Press Tstd PSI, Spot Acid - Type 500 Gallons BDISIP
 Acid: Volume & Type # balls , Rate BPM, Press. PSI
 Frac: Fluid Volume & Type 92,400 g/wtr (2 stg) Sand: 60,000 # 10/20 Mesh
Sand: 20,000 # 8/12 Mesh
 Frac Rate 75 BPM Frac Pressure 20 PSI ISIP -0- PSI
 Comments 2nd MV frac - CH: perf'd : 2 HPF: 4813, 4807, 4802, 4792, 4786,
4618, 4610, 4606, 4596, 4594, 4580, 4578, 4572, 4566, 4560, 4548, 4546, 4464,
4461, 4454, 4453, 4447; frac w/80,000 # 10/20 & 8/12, 96,180 gal wtr. AIR =
62 BPM, AIP = 2500 psi. ISIP = 0 psi - 2 stages, dropped balls.

- CASING REPAIR RECORD -

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

Comments Well drilled in 1950. Completed open hole in MV in 1954 and
recompletion in 1965 w/4-1/2" csg through Dakota.

Prepared By: PAE Date: 1-23-84 Verified By: 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 allowable 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.

Martha Hughes
(Signature)

Administrative Supervisor

(Date)

**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				TEST - (X) <input checked="" type="checkbox"/> TEST - (X) <input type="checkbox"/> Scheduled <input checked="" type="checkbox"/> Special <input type="checkbox"/>													
LEASE NAME Florange	WELL NO. 6	LOCATION U S T R			DATE OF TEST 5/28/85	CHOKE SIZE N/A	TBG. PRESS. 370	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	Completion <input type="checkbox"/> Special <input type="checkbox"/>							
		<table border="1"> <tr> <th colspan="4">PROD. DURING TEST</th> <th rowspan="2">GAS - OIL RATIO CU.FT./BBL</th> </tr> <tr> <th>WATER BBL.</th> <th>GRAV. OIL BBL.</th> <th>GAS M.C.F.</th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>								PROD. DURING TEST				GAS - OIL RATIO CU.FT./BBL	WATER BBL.	GRAV. OIL BBL.	GAS M.C.F.
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I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Therese J. Weeks
(Signature)
Administrative Supervisor
(Title)

(Date)

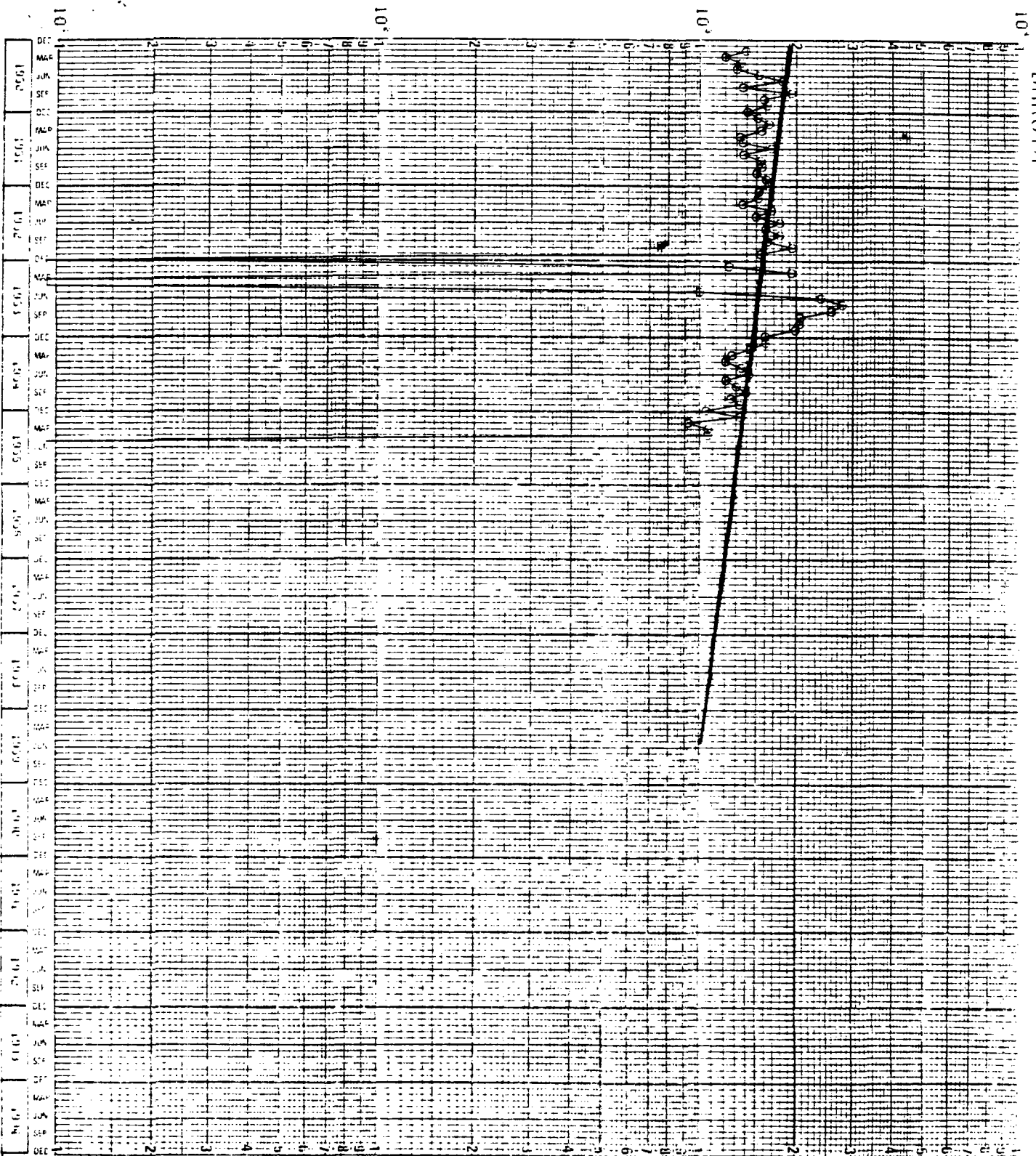
FLORANCE 6

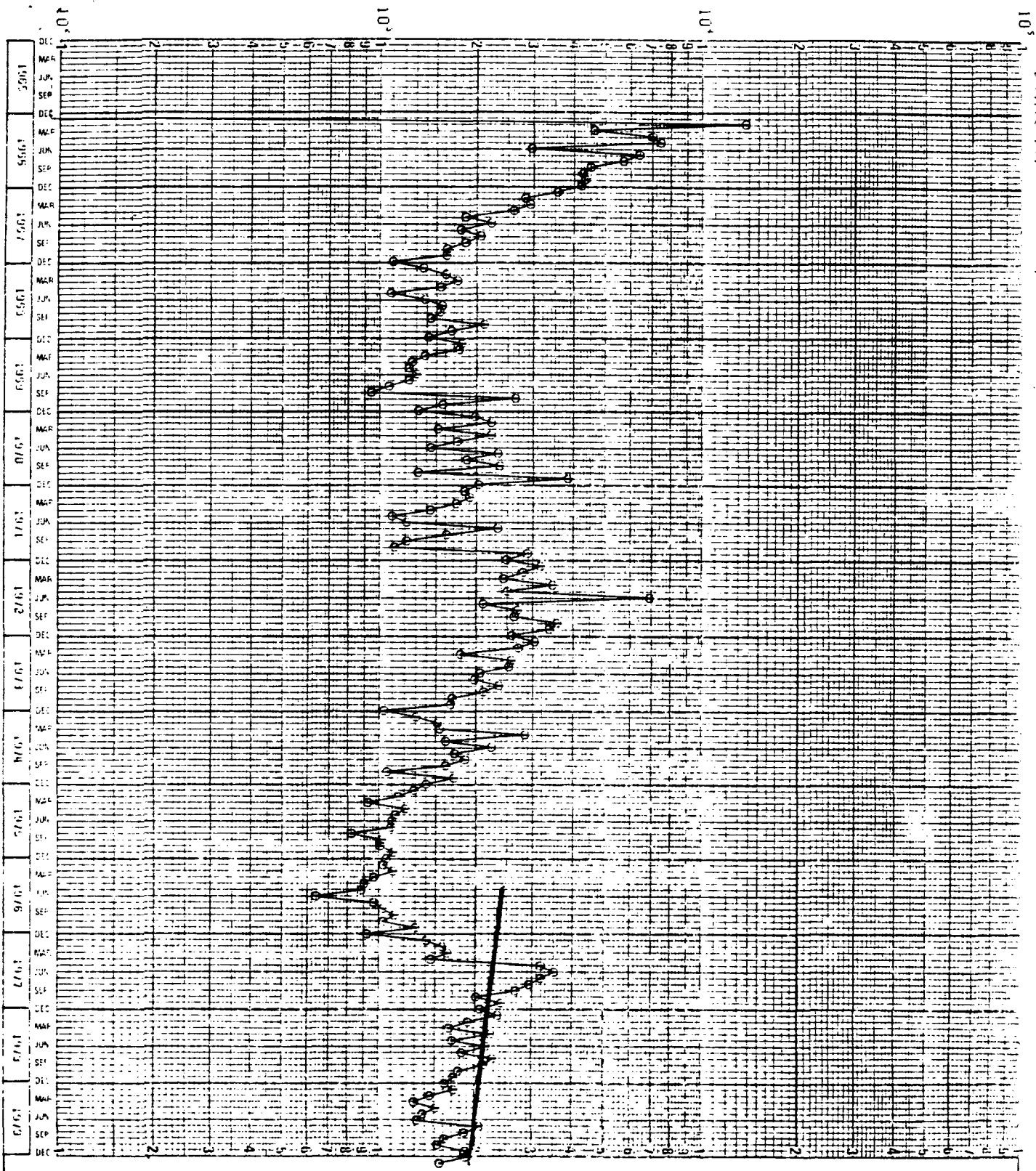
DETERMINATION OF ALLOCATION PERCENTAGES

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

	<u>DECLINE PERCENTAGE</u>	<u>REMAINING RESERVES</u>
MESAVERDE	10%	754 MMCF
DAKOTA	8%	174 MMCF

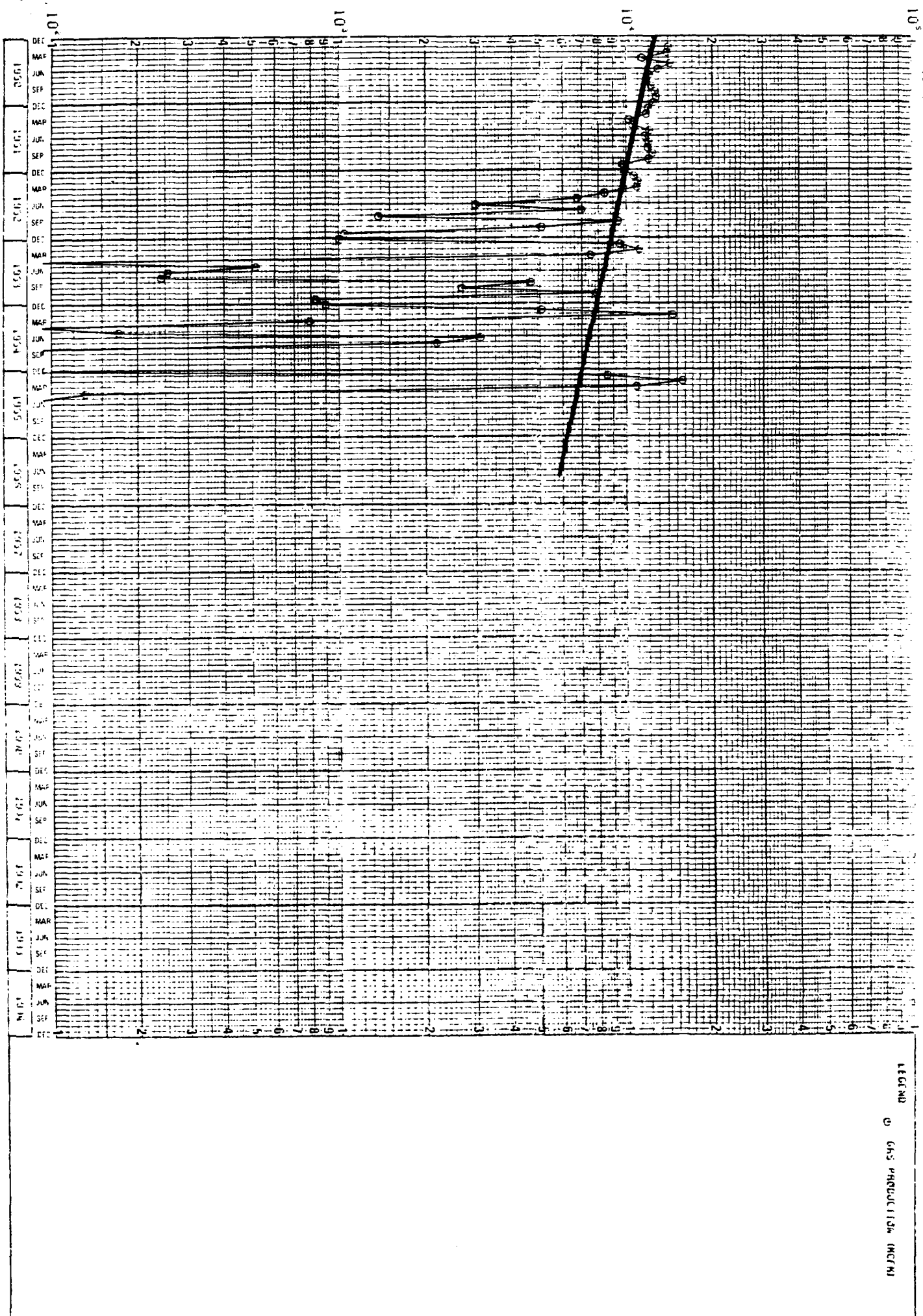
DAK014



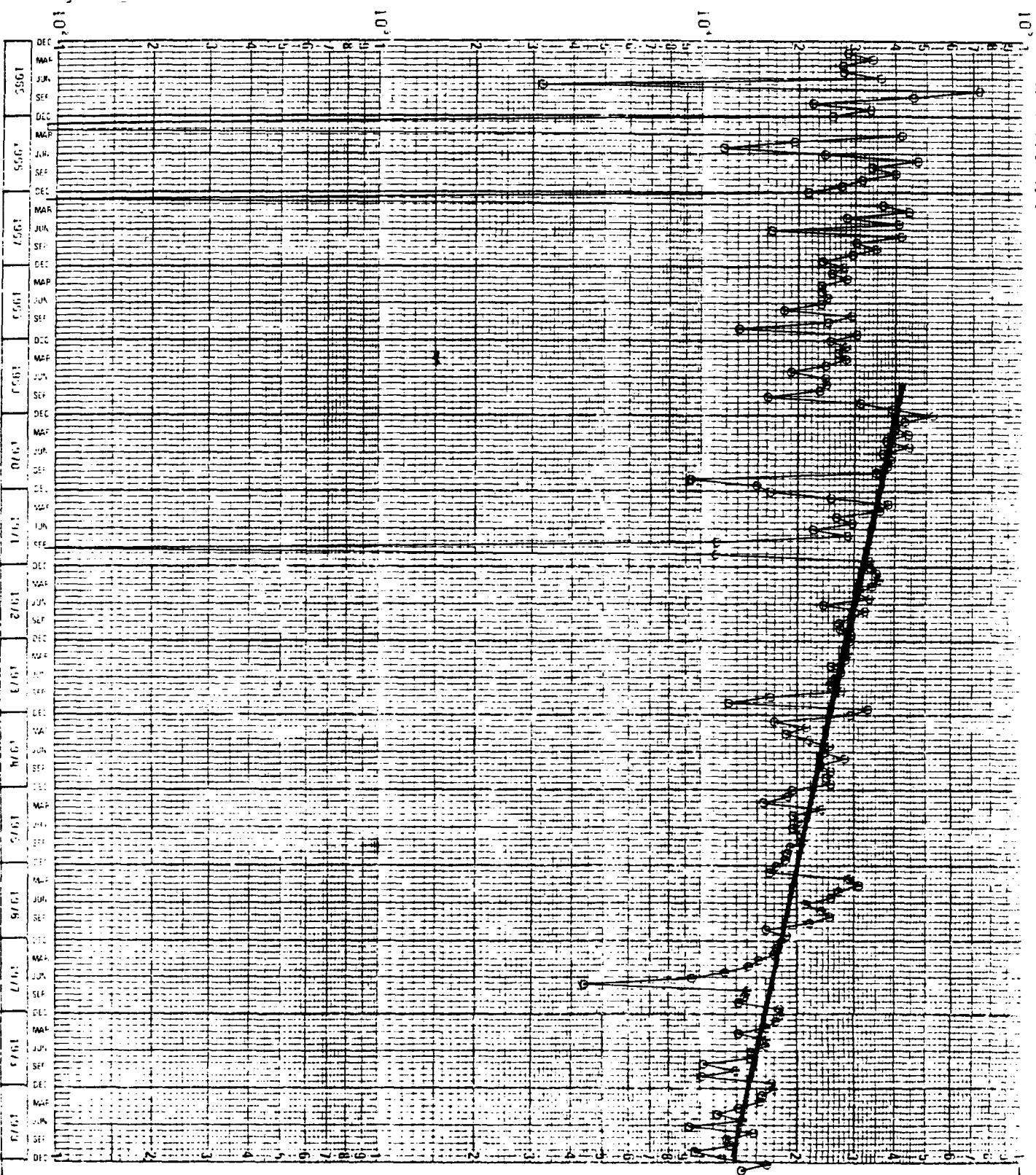


LEGEND
G GAS PRODUCTION (MCFM)

FLORANCE G
030ND09W23M
MFSAVEHDF



FLORHIDE 5
0300009M23M
MESHAVE ROT



LEGEND
O GAS PRODUCTION (MLT/M)