GEOLOGICAL LABORATORIES GEOLOGISTS

or 14, 1**98**7

Sunray Mid-Continent Oil Company 1101 Wiles Bldg. Midland, Texas

Back Prossure Test Pederal I No. 1 San Juan County, New Mexico October 9, 1957

E-11-

NOV 25 1957 OIL CON. COM. DIST. 3

Gentlemen:

29N-144 Attached are data sheets showing the results of the one point back pressure test on your Federal No. I-1 well, San Juan County, New Mexico.

The absolute open flow potential was calculated by New Mexico State reccommended methods and was found to be 1,360 Mcf per day. After being shutin fom 72 hours the bottom hole pressure was measured as 1151 psig with 805 paig on the tubing and 160 paig on the casing.

On October 3, 1957, an attempt was made to test the well by the regulation four point method with a pressure bomb in the hole. The pressure failed to level off and because there was considerable water production the test was discontinued. The well practically killed itself with water.

October 9th the one point back pressure test was taken by flowing through the tubing through a separator. The rate of flow was sufficiently large that it was not considered good practice to leave the bomb on bottom. Static pressure at this time checked the 1151 psig measured later. At the end of the three (3) hour flow period the bomb was lowered to datum (3500) within 15 minutes after flow was discontinued and pressure recorded at datum at that time was 687 psig. This pressure was used to calculate absolute volume. Gas volumes were measured with an orifice well tester from the separator.

Chemical & Geological Laboratories were happy to have been of service to you and your firm and trust the work was completed to your satisfaction.

Very truly yours,

CHEMICAL & GEOLOGICAL LABORATORIES

F. Ray Wheeler Manager, Engineering Department

Is Kay Evkelen

FRV: bb

521 South Center St. P. O. Box 279

Casper, Wyoming

### **GAS ANALYSIS REPORT**

Field	Wildcat, New Mexico	· · · · ·	Well No. New Mexico Feder	ral No. I-l	
Operator	Sunray Mid-Continent Oil		Location		
	SMR		Date October 15, 1957	_ Lab. No.	. 1505
Remarks			Dateoccoper io, ioo		
	Gas sample taker	before b	ack pressure tests 12 pm,	10-3-57	
			ವಾರ್ಯವಾಗಿ ಕಾರ್ಯ ಪರ್ಕಾಣ ಮಾಡಿಕೆ ಎಂದು ಪ್ರಾಥಾಗಿ ಪ್ರಕ್ಷಿಸಿಕೆ ಪ್ರಾರಂಭ ಪ್ರಕ್ಷಿಸಿಕೆ ಪ		
	ORSAT ANALYSIS		PODBIELN	II A W	
			Low Temperature 1		
		% by	·	% by	
_		Volume		Volume	G. P. N
Oxygen			Oxygen	00	
Nittoron			Nitrogen	2.00	
Nitrogen			Carbon dioxide	0.82	
Carbon dioxid	1		Hydrogen sulfide	0	
Carbon dioxid	le		Methane	82.76	
T7d	C 1.		Ethane ,	7.10	
Hydrogen sul	nde		Propa <b>ne</b>	4.34	-1.191
M -41.	•		Isobutane	1.00	0.326
Methane	•		N-butane	1.19	0.374
D.,	•		Isopentane	0.30	0.109
Ethane and hi	gner		N-pentane	0.33	0.119
			Hexanes & higher	0.16	
		* *		Williams	
Specific Gravi	ty (calculated)				
Specific Gravit	y (observed)		TOTAL	100.00	2.193
C D	(O CO C )		Gross B.t.u. at 60°F, and 14.7	nois has Dad	1177
Gross B.t.u. pe	r cu. ft. at 60° F. and 14.7 psia		Specific Gravity by Pod.		0.695
			Specific Gravity by Weight		0.694
			opecine dravity by weight		6.003
			G. P. M.		
1	HYDROGEN SULFIDE		Actual pentanes +		0.302
	(by Tutwiler Method)		Calculated at 12 lbs.		-
	(by futwher Method)		Calculated at 15 lbs.		0.305
	rogen sulfide per		Calculated at 22 lbs.		0.353
100 cu. ft. of g 1 <b>4.</b> 7 <b>ps</b> ia	gas at 60° F. and	·	Calculated at 26 lbs.		0.388
			Vapor pressure (calculated)	·f	
Percentage of	hydrogen sulfide		actual pentanes +		14,48
Damaska a 14	One also to una				
			V 100 - 100		

GLENDIVE

CASPER . FARMINGTON

**EDMONTON** 

**CALGARY** 

REGINA

### FIELD NOTES AND READINGS

Well No.:

Federal I - No. 1

Location:

Sen Juan County, New Mexico

Date:

October 9, 1957

Elevation: 5460 KB

Bar. Press.: 13.2 psi Top fm.: Perfs. - 3493 - 3505 T.D.: 3510

Time Hours	Orifice in.	Working Pressure psig. Tubing	Working Pressure psia Casing	Ps psia.	Choke T, F.	Remarks
0 1 1 1 2 2 2 2 3	8.I. 3/4 3/4 3/4 3/4 3/4 3/4	444 110 102 100 100 96 96	665 404 390 380 377 375 372	700.2	80 80 80 80 80 80	Open @ 10:45 am to sep. flowing gas and water. Flow meter was 2" size with 1½" orifice.  Well was flowing through 2" EUE tubing. Rate too large to keep bemb om bottom during flow.

Bomb was lowered to bottom within 15 minutes after shutting well in. Pressure recorded was 687 psig **3500.** 

After 72 hours S.I. time-BHP 1151 psig - 1164.2 psia

**GLENDIVE** 

CASPER

**FARMINGTON** 

**EDMONTON** 

CALGARY

REGINA

OME POINT

### GAS WELL BACK PRESSURE TEST

Field: Wildcat

County: San Juan

State:

New Mexico

Well Owner: Sunray Mid-Continent Oil Co. Lease: Federal I

Well No:

Location:

Date of Test: October 9, 1957

Elevation:

5460 KB

Top Formation:

P. T.D.: 3510

Date Completed:

Bottom Formation:

Midpoint: or datum - 3500

Perforations - 3493 - 3505

Formation: Point Lookout

53" O.D. Casing: Tubing:

2" EUE @ 3502

Average Gravity of gas:

0.650

Bottom-hole Temperature: 126° F.

### FIELD DATA

į	Run No.	Time of Run	Choke	Temperature	Stabilized Pressure psia	
	1	3	3/4	80°	109.2 on 385.2 on	

#### **VOLUME CALCULATIONS**

Run No.	Stabilized Pressure psia	Coefficient	Gravity Factor	Temperature Factor	Compressibility Factor	Volume Mcf per day
1	109.2 (	l¦" orifice -	14.7 psig	= 952.2 x .960	8 x .9813 -	897.8 MCF

### PRESSURE CALCULATIONS

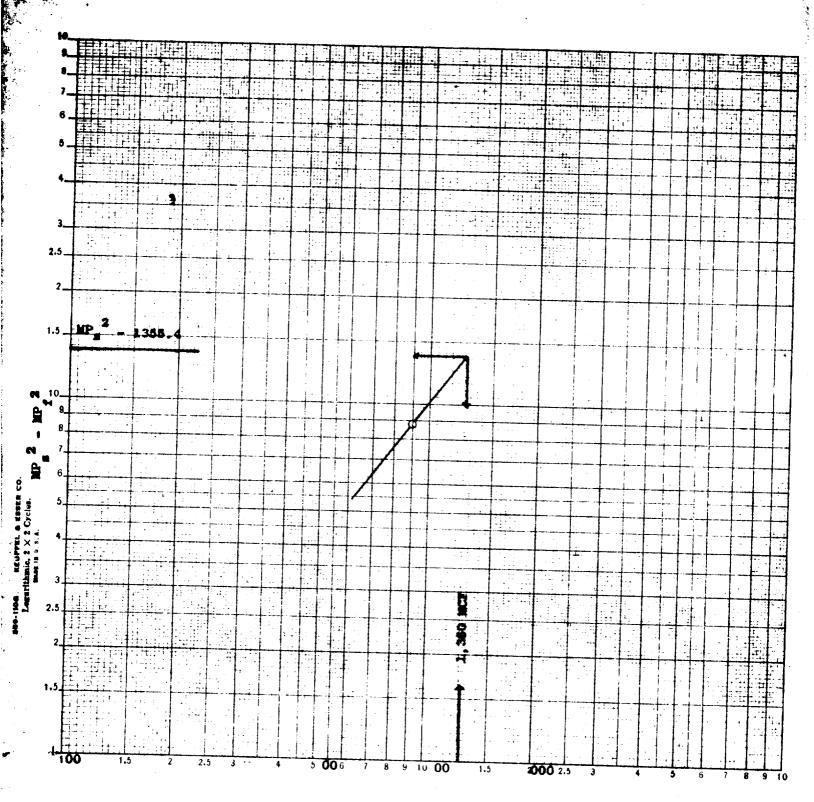
$P_{s}$	1164.2	$MPs^2$	1,355.4	•	
$\mathbf{Pf}_{1} \cdot$	700.2	$MPf_{i}^{-1}$	490.3	$\mathbf{MPs^{p}} \cdot \mathbf{MPf_{1}}^{p}$	865.1
$Pf_2$		$\mathbf{MPf}_2^{\mathrm{gg}}$		$MPs^2 \circ MPf_2^{(2)} =$	
Pf <sub>3</sub>		$\mathbf{MPf_3}^2$		$MPs^2 = MPf_n^{(2)}$	
$\mathbf{Pf}_{1}$		MPf <sub>1</sub> 2		MPs <sup>2</sup> MPf <sub>1</sub> <sup>2</sup>	

Absolute potential,

- 1,360 MCF

Shut-in well head pressure:

805 psig on tubing 160 psig on casing



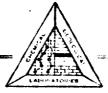
ولورين سطالة

Absolute Open Flow - 1,360 MCF Shut-in well head pressure: Tubing - 805 psig Casing - 160 psig

CHEMISTS

**GEOLOGISTS** 

**ENGINEERS** 



P. O. BOX 278 CASPER, WYOMING

October 14, 1957

Sunray Mid-Continent Oil Company 1101 Wilco Bldg. Midland, Texas

Re: Back Pressure Test

Federal I No. 1

San Juan County, New Mexico

October 9, 1957

NOV 25 1957 OIL CON. COM. DIST. ?

#### Gentlemen:

Attached are data sheets showing the results of the one point back pressure test on your Federal No.I-1 well, San Juan County, New Mexico.

The absolute open flow potential was calculated by New Mexico State recommended methods and was found to be 1,360 Mcf per day. After being shutin for 72 hours the bottom hole pressure was measured as 1151 psig with 805 psig on the tubing and 160 psig on the casing.

On October 3, 1957, an attempt was made to test the well by the regulation four point method with a pressure bomb in the hole. The pressure failed to level off and because there was considerable water production the test was discontinued. The well practically killed itself with water.

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Chemical & Geological Laboratories were happy to have been of service to you and your firm and trust the work was completed to your satisfaction.

Very truly yours,

CHEMICAL & GEOLOGICAL LABORATORIES

F. Ray Wheeler

Manager, Engineering Department

Is Kay Evkerler

FRW: bb

521 South Center St. P. O. Box 279
Casper, Wyoming

## GAS ANALYSIS REPORT

Field Wildcat, New Mexico Operator Sunray Mid-Continent Oil Company			Well No. New Mexico Federal No. I-1			
Pormation			Location		1505	
			Date October 15, 1957	Lab. No		
Remarks				*****		
			ack pressure tests 12 pm,			
URSAT ANA	1.1515		PODBIELN Low Temperature 1			
•		% by	•	% by		
0		Volume		Volume	G. P. M	
Oxygen			Oxygen	_0		
Nitrogen			Nitrogen	2.00		
Mittogen			Carbon dioxide	0.82		
Carbon dioxide			Hydrogen sulfide	.0		
Carbon dioxide			Methan <b>e</b>	82.76		
Hydrogen sulfide			Etha <b>ne</b>	7.10		
Hydrogen sunde		•	Propa <b>ne</b>	4.34	1.191	
Methane	•		Isobutane	1.00	0.326	
Methane	•		N-butane	1.19	0.374	
Ethane and higher			Isopentan <b>e</b>	0.30	0.109	
Ethane and ingher		•	N-pentane		0.119	
			Hexanes & higher	0.16		
Specific Gravity (calculated)						
Specific Gravity (observed)			TOTAL	100.00	2.193	
Gross B.t.u. per cu. ft. at 60° F.	and 14.7 psia		Gross B.t.u. at 60°F, and 14.7			
			Specific Gravity by Pod.		0.695	
			Specific Gravity by Weight	(	0.694	
			G. P. M	i.		
HVDDOCEN S	III EIDE		Actual pentanes +	(	0.302	
HYDROGEN S (by Tutwiler M			Calculated at 12 lbs.			
			Calculated at 15 lbs.		0.305	
<b>Grains of</b> hydrogen sulfide pe			Calculated at 22 lbs.	(	0.353	
100 cu. ft. of gas at 60° F. an 14.7 psia	d .		Calculated at 26 lbs.	(	0.388	
			Vapor pressure (calculated)	of		
Percentage of hydrogen sulfid	e .		actual pentanes +		14.48	
Remarks and Conclusions:		·				

## EMICAL & GEOLOGICAL L

GLENDIVE EDMONTON

CALGARY

CASPER . FARMINGTON

REGINA

# FIELD NOTES AND READINGS

Well No.:

Federal I - No. 1

Location:

San Juan County, New Mexico

Date:

October 9, 1957

Elevation: 5460 KB

Bar. Press.: 13.2 psi Top fm.: Perfs. - 3493 - 3505

T.D.: 3510

						₩
Time Hours	Orifice in.	Working Pressure psig Tubing	Working Pressure psia Casing	Ps psia.	Choke T, F.	Remarks
o	<b>\$.</b> I.	444	665		,	Open @ 10:45 am to sep.
1/2	3/4	110	404		80	flowing gas and water.
, <b>1</b>	3/4	102	390		80	Flow meter was 2" size
1 ½	3/4	100	<b>38</b> 0		80	with 11 orifice.
2	3/4	100	377		80	
2 1/2	3/4	96	<b>375</b>		80	Well was flowing through
3	3/4	96	3 <b>72</b>	700.2	80	2" EUE tubing. Rate too
	ſ					large to keep bomb om
	•		£			bottom during flow.

Bomb was lowered to bottom within 15 minutes after shutting well in. Pressure recorded was 687 paig **9** 3500.

After 72 hours S.I. time-BHP 1151 psig - 1164.2 psis

CALGARY

GLENDIVE **EDMONTON**  CASPER

**FARMINGTON** REGINA

ONE POINT

# GAS WELL BACK PRESSURE TEST

Field: Wildcat County: San Juan

October 9, 1957

State: New Mexico

Well Owner: Sunray Mid-Continent Oil Co. Lease: Federal I

Well No:

Location:

Elevation:

5460 KB

Top Formation:

P. T.D.: 3510

Date Completed.

Bottom Formation:

Midpoint: or datum - 3500

Date of Test:

**Perforations - 3493 - 3505** 

53" O.D.

Formation: Point Lookout

Casing: Tubing:

Average Gravity of gas: 0.650

2" TUE @ 3502 Bottom-hole Temperature: 126° F.

#### FIELD DATA

Run No.	Time of Run	Choke	Temperature	Stabilized Pressure psia	
1	3	3/4	80°	109.2 on 385.2 on	•

### **VOLUME CALCULATIONS**

Run No.	Stabilized Pressure psia	Coefficient	<b>G</b> ravity Factor	Temperature Factor	Compressibility Factor	Volume Mcf per day
1	<b>9</b> 109.2 (	ll" orifice -	14 7 naig	952 2 v 96		807 S

#### PRESSURE CALCULATIONS

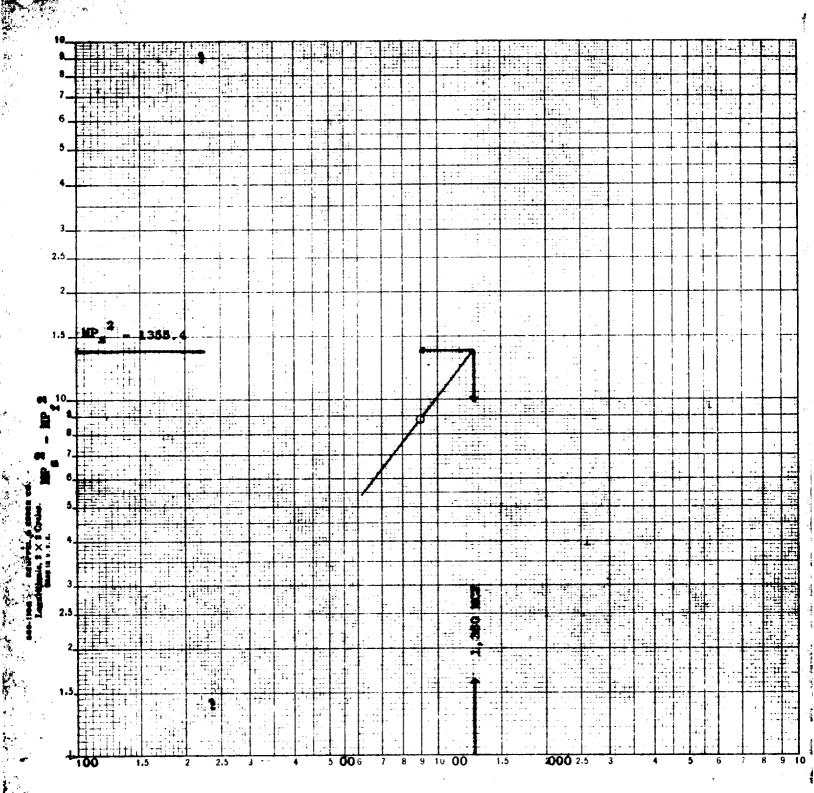
Ps	1164.2	$\mathbf{M}\mathbf{P}\mathbf{s}^2$	1,355.4	·	
$\mathbf{Pf}_i$	700.2	$\mathbf{MPf}_{i}^{(2)}$	490.3	$\mathbf{MP}\mathbf{S}^2 \cdot \mathbf{MP}\mathbf{f}_1^{-2}$	865.1
$Pf_2$		$\mathbf{M}\operatorname{Pf}_2^{\circ 2}$		$MPs^2 \cdot MPf_2{}^2 \cdot$	
$\mathbf{Pf_3}$		$\mathbf{M}\mathbf{P}\mathbf{f}_3^{(2)}$		$MPs^2 = MPf_3^{(2)}$	
Pf.		MPf.2		MPs <sup>2</sup> MPf <sub>3</sub> <sup>2</sup>	

Absolute potential,

- 1,360 MCF

Shut-in well head pressure:

805 psig on tubing 160 psig on casing



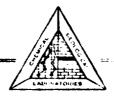
Absolute Open Flow - 1,360 MCF Shut-in well head pressure: Tubing - 805 psig Casing - 160 psig

والمستنفقين أشارا

CHEMISTS

**GEOLOGISTS** 

**ENGINEERS** 



October 14, 19

Sunray Mid-Continent Oil Company 1101 Wilco Bldg. Midland, Texas

Re: Back Pressure Test

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a state of

521 South Center St. P. O. Box 279
Casper, Wyoming

# GAS ANALYSIS REPORT

OperatorSunray Formation Analyzed by Remarks	y Mid-Continent Oll De	_Company pths	Well No. New Mexico Feder Location  Date October 15, 1957  Dack pressure tests 12 pm, 1  PODBIELN Low Temperature I	Lab. No. <sup>E</sup>	1505
ORS Oxygen  Nitrogen Carbon dioxide  Hydrogen sulfide  Methane	SMB  Gas sample taken	before t	Date October 15, 1957  Dack pressure tests 12 pm, 1	Lab. No.2	
Analyzed by Remarks  ORS  Oxygen  Nitrogen  Carbon dioxide  Hydrogen sulfide  Methane	SMB Gas sample taken	before t	Date October 15, 1857  Dack pressure tests 12 pm, 1	10-3- <b>57</b>	
ORS Oxygen Nitrogen Carbon dioxide Hydrogen sulfide Methane	Gas sample taken	before t	pack pressure tests 12 pm, 1	10-3-57	
ORS  Oxygen  Nitrogen  Carbon dioxide  Hydrogen sulfide  Methane			PODBIELN	IIAK	
ORS  Oxygen  Nitrogen  Carbon dioxide  Hydrogen sulfide  Methane	NI N		PODBIELN	IIAK	<u></u>
Oxygen Nitrogen Carbon dioxide Hydrogen sulfide Methane	SAT ANALYSIS	% by Volume	<b>=</b>		
Oxygen  Nitrogen  Carbon dioxide  Hydrogen sulfide  Methane		% by Volume	Low Temperature I	ractionation	
Oxygen  Nitrogen  Carbon dioxide  Hydrogen sulfide  Methane		% by Volume			
Nitrogen Carbon dioxide Hydrogen sulfide Methane		Volume		% by	G. P. M
Nitrogen Carbon dioxide Hydrogen sulfide Methane					G. P. M.
Carbon dioxide  Hydrogen sulfide  Methane			Oxygen	_0	
Carbon dioxide Hydrogen sulfide Methane			Nitrogen	2.00	
Hydrogen sulfide Methane		2 · * · · •	Carbon dioxide	0.82	
Hydrogen sulfide Methane			Hydrogen sulfide	0	
Methane			Methan <b>e</b>	82.76	
Methane			Ethane	7.10	
			Propane	4.34	1.191
			Isoburane	1.00	0.326
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			N-pentane	0.33	
·			Hexanes & higher	0.16	0.074
				and the second second second second	
Specific Gravity (ca	alculated)				
, ,	,		TOTAL	100.00	2.193
Specific Gravity (ob	served)		TOTAL		
			Gross B.t.u. at 60°F, and 14.	7 psia by Pod.	1177
Gross B.t.u. per cu. f	t. at 60° F. and 14.7 psia	1 100 110	Specific Gravity by Pod.	•	0.695
			Specific Gravity by Weight		0,694
			G. P. M	1	
				••	0.302
avn	ROGEN SULFIDE		Actual pentanes +		-
	Tutwiler Method)		Calculated at 12 lbs.		0.305
`-•			Calculated at 15 lbs.		0.353
Grains of hydrogen			Calculated at 22 lbs.		0.388
100 cu. ft. of gas at	60° F. and		Calculated at 26 lbs.		4.500
14.7 psia			17 / -1- 1	~ £	
			Vapor pressure (calculated)		14.4
Percentage of hydro	ogen sulfide		actual pentanes +		17, 30

GLENDIVE

CASPER . FARMINGTON

**EDMONTON** 

CALGARY

**REGINA** 

### FIELD NOTES AND READINGS

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Date:

October 9, 1957

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CALGARY

REGINA

ORE POINT

# GAS WELL BACK PRESSURE TEST

Field: Wildcat

County: San Juan

Date of Test:

State: New Mexico

Well Owner: Sunray Mid-Continent Oil Co. Lease: Federal I

Well No:

Location:

Elevation:

5460 KB

p. T.D.: 3510

October 9, 1957

Date Completed:

Top Formation: Bottom Formation:

Average Gravity of gas:

Midpoint: or datum - 3500

Perforations - 3493 - 3505

Formation: Point Lookout

5à" O.D. Casing: Tubing:

2" EUE @ 3502

0.650

Bottom-hole Temperature: 126° F.

### FIELD DATA

_	Stabilized Pressure psia	Temperature	Choke	Time of Run	Run No.
_	109.2 on 385.2 on	80°	3/4	3	1

### **VOLUME CALCULATIONS**

Run No.	Stabilized Pressure psia	Coefficient	<b>G</b> ravity Factor	Temperature Factor	Compressibility Factor	Volume Mcf per day
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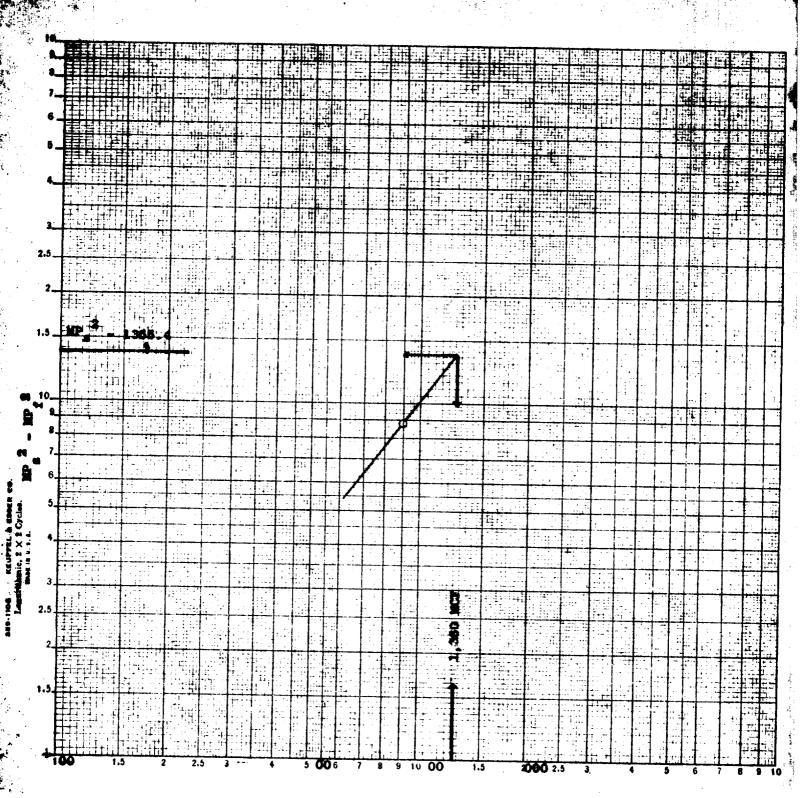
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$Pf_2$		$\mathbf{MPf}_2^{\mathcal{G}}$		$MPs^2 \circ MPf_2{}^2 \wedge \mathbb{I}$	
Pf <sub>a</sub> -		$\mathbf{MPf_3}^2$		$\mathbf{MPs^2}$ - $\mathbf{MPf_3^2}$ -	
Pf . =		MPf 2		MPs2-MPf <sub>4</sub> 2	

Absolute potential,

- 1,360 MCF

Shut-in well head pressure:

805 psig on tubing 160 psig on casing



Absolute Open Flow - 1,360 MCF Shut-in well head pressure: Tubing - 805 prig Casing - 160 prig