

RECEIVED

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

JUL 5 1977

OF
File

122 file

Type Test ☒ X.D.C.C. ☐ Annual ☐ Special						Test Date 5-12-77	
Company Yates Petroleum Corp.						Connection	
Pool Linda (S.A.) gas						Unit NM 2357	
Formation San Andres							
Completion Date 4-25-77		Total Depth 1767' KB		Plug Back TD 1135' KB		Elevation 3672' KB	
Farm or Lease Name Federal "HJ" #1							
Csg. Size 4 1/2"	Wt. 9.5#	d 1.995	Set At 1654 KB	Perforations: From 963 To 997 KB		Well No. 1	
Tbg. Size 2-3/8"	Wt. 4.7#	d 1.995	Set At 948 KB	Perforations: From 963 To 997 KB		Unit Sec. Twp. Rge. A 31 6S 26E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At None	
County Chaves							
Producing Thru tbg & annulus 68° 980 KB		Reservoir Temp. °F 62		Mean Annual Temp. °F 62		Baro. Press. - P _g 13.2	
State New Mexico							
L -980	H 980	Gg	% CO ₂ 3.02	% N ₂ 7.01	% H ₂ S 3.11	Prover	Meter Run 2
Taps Flange							

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	
1.	2.067 x 1.375		10	56.5	68	310	66	72 hrs		
2.						10+	68	24 hrs		
3.										
4.										
5.										

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super. Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	10.20	36.20	23.2	.9924	1.146	1.0025	421
2.							
3.							
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1.	.033	528	1.354	.995	57.14 Mcf/bbl.	32.0 Deg.	.761	.822	706 P.S.I.A.	390 R
2.										
3.										
4.										
5.										

NO.	P _r ²	P _w	P _w ²	P _r ² - P _w ²	(1) $\frac{P_r^2}{P_r^2 - P_w^2} =$	(2) $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n =$
1.		44.8	2.01	122.46	1.0164	1.0164
2.						
3.						
4.						
5.						

AOFP = Q $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 428 \text{ MCFPD}$

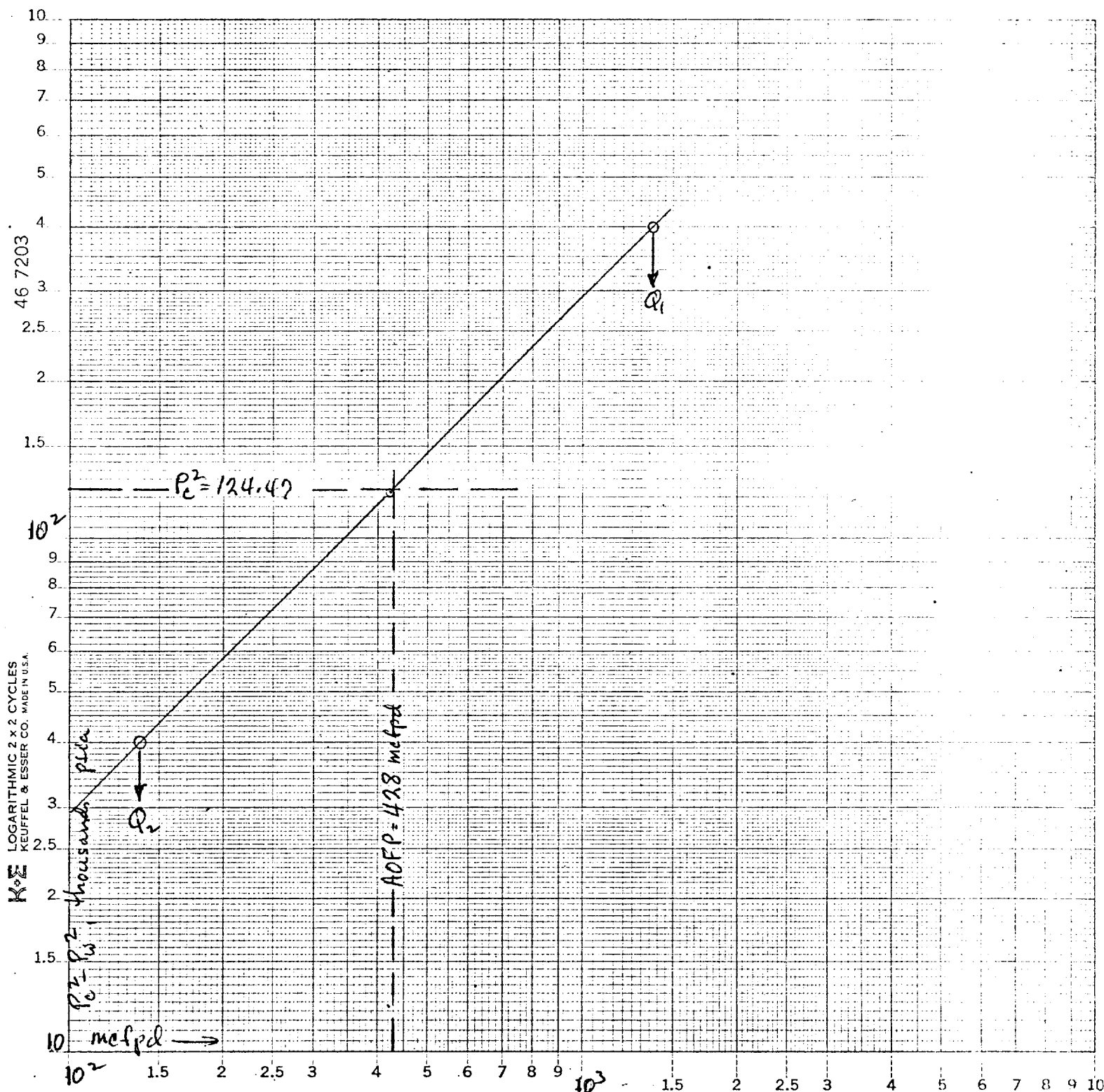
Absolute Open Flow	428	Mcf/d @ 15.025	Angle of Slope @	45 deg.	Slope, n	1.000
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Remarks: **Pressures by dead weight tester and echometer. Calculations sheet attached.**

Approved By Commission:	Conducted By: Matt Lee	Calculated By: Eddie Mahfood	Checked By:
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YPC- Federal HJ No.1

330/N 330/E See 31-65-26E, Chaves County, N.Mex



$$Q_1 = 1370 \text{ mcfpd}$$

$$\log Q_1 = 3.1367$$

$$Q_2 = 137 \text{ mcfpd}$$

$$\log Q_2 = 2.1367$$

$$n = 1.0000$$

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Adopted 9-1-65

COMPANY

Yates Petroleum Co.

LEASE

Federal HT

WELL NO.

1

DATE

May 12, 1969

LOCATION: Unit

A

Section

21

Township

6S

Range

26E

L 980

H 938

L/H 1.0448

G 0.822

% CO₂ 3.02

% N₂ 7.07

% H₂S 3.11

$$W_{sw} = (980 - 938) (4434) (1.13554) / 1.0448 = 19.9 \text{ psi}$$

P_{cl}

704

T_{cl}

400

TABLE IX & X

LINE	1	2	1	2					
1 Q _m	51	0.421			51	0.421			
2 T _w (W.H. °R)	526	528							
3 T _s (B.H. °R)	528	528							
4 T = $(\frac{T_w + T_s}{2})$	527	528			527	528			
5 Z (Est.)	0.92	0.99			0.928	0.993			
6 T _Z	484.84	522.92			489.06	524.3			
7 GH/TZ	1.5902	1.4750			1.5765	1.4705			
8 e ^s (Table XIV)	1.0614	1.0569			1.0609	1.0567			
9 1-e ^s (Table XIV)		0.0538			0.0594	0.0536			
10 P _t	323.2	23.5			323.2	23.5			
11 P _t 2/1000	104.458	0.552			104.458	0.552			
12 F _t (Table XV)	0.5963	0.5531			0.5912	0.5514			
3 F _c = F _t TZ		9.0849				9.1122			
14 F _c Q _m		3.824				3.836			
15 (F_c Q_m) 2		14.629				14.717			
16 F _w = $(F_c Q_m)^2 (1-e^s)$		0.787				0.789			
17 P _w ² = P _t ² + F _w + W _{sw}		1.735				1.737			
18 P _s ² = e ^s P _w ²	110.876	1.828			110.819	1.835			
19 P _s @ 938'	333.0	42.8			332.9	42.8			
20 P = $(\frac{P_t + P_s}{2})$	328.1	33.15			328.05	33.15			
21 P _t = (P/P _{cl})	0.466	0.047			0.466	0.047			
22 T _t = (T/T _{cl})	1.3175	1.320			1.3175	1.320			
23 Z (Table XI)	0.928	0.993			0.928	0.993			

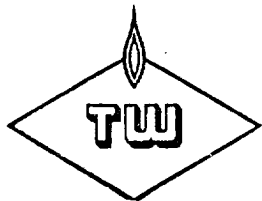
980

352.0

44.7

352.8

44.8



GAS QUALITY TEST REPORT

COMPANY SELLER VATES PET. Co
FIELD OR LOCATION LINDA FIELD Sec 31, 6S, 26E
CHAVEZ COUNTY
SOURCE OR RESERVOIR SAN ANDREAS
WELL OR STATION NAME COTTONWOOD RANCH #1

STA. NO. —
CONTRACT NO. —
TEST DATE 05/12/77
LAB 4

COMPOUND COMPONENTS	COMPONENT SPECIFIC GRAVITY	COMPONENT MOLE FRACTION	LIQUEFIABLE HYDROCARBONS	COMPONENT G. P. M.	MOLE FRACTION	G. P. M. CONTENT
NITROGEN	.9672	.0723	PROPANE	27.514	.	
CARBON DIOXIDE	1.5195	.0312	ISO-BUTANE	32.698	.	
HELIUM	.1382	.	N-BUTANE	31.510	.	
OXYGEN	1.1048	.0005	LPG - - - - -			
HYDROGEN SULFIDE	1.1766	.0321	ISO-PENTANE	36.582	.	
WATER VAPOR	.6220	.	N-PENTANE	36.213	.	
HYDROCARBON DILUENTS		(.1040)	HEXANES	41.111	.	
			HEPTANES +	46.126	.	
METHANE	.5539	.7344	NATURAL GASOLINE - - - - -			
ETHANE	1.0382	.0949	TOTAL LIQUEFIABLE GPM			
PROPANE	1.5225	.0420	WATER VAPOR CONTENT: Gas Mixture Static Pressure PSI _____ Hydrocarbon Dew Point °F _____ Water Vapor Dew Point °F _____ Lbs Water Vapor per MMCF _____ Conversion Constant <u>X 0.000021</u> Water Vapor Mole Fraction _____ Moisture recorder reading _____ Make or type _____			
ISO-BUTANE	2.0068	.0045				
N-BUTANE	2.0068	.0088				
ISO-PENTANE	2.4910	.0022				
N-PENTANE	2.4910	.0024				
HEXANES	2.9753	.0037				
HEPTANES +	3.7018	.0030				
		1.0320				

COMPOSITION - - - - - 1.0000

MIXTURE SPECIFIC GRAVITY:

Calculated From Analysis .747Determined by Test Instrument .750Instrument Make or Type Ranney

MIXTURE HEATING VALUE:

(Btu/cf at 14.73 Psia, 60°F, Sat.)

Calculated From Analysis 1099

Determined by Calorimeter

Calorimeter Verified ()

SULFUR CONTENT:

H₂S - Hydrogen Sulfide, Gr./100 cf 2000+

RSH - Mercaptans " "

RSR - Sulfides " "

RSSR - Residuals " "

Total Sulfur, Gr./100 cf

H₂S Grains to fraction conversion

X 0.0000157

H₂S Mole Fraction

Critical Pressure

Critical Temperature

REMARKS

Well Flowing To Atmosphere 10# Flowing Pressure
At Meter Tube

MEASUREMENT

AREA

Roswell

GAS

ANALYST

Aspen