

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

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10/23/82		JAN 03 1983	
Company Yates Petroleum Corporation				Connection Transwestern Pipeline				O. C. D.	
Pool Pecos Slope - Abo Gas				Formation Abo				Unit ARTESIA, OFFICE	
Completion Date 4/28/82		Total Depth 4250'		Plug Back TD 4159'		Elevation 3915 GL		Farm or Lease Name Powers "OL" Federal	
Csg. Size 4 1/2"	Wt. 9.5#	Id 4.090	Set At 4250	Perforations: From 3707 To 3867		Well No. 5			
Tbg. Size 2 3/8"	Wt. 4.7#	Id 1.995	Set At 3662	Perforations: From To		Unit Sec. Twp. Rge. A 10 6S 25E			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At 3662		County Chaves	
Producing Thru Tubing		Reservoir Temp. °F 102 @ 3662'		Mean Annual Temp. °F 62		Baro. Press. - P _a 13.2 psi		State New Mexico	
L 3662	H 3662	Gg .641	% CO ₂ .04	% N ₂ 4.90	% H ₂ S 0	Prover --	Meter Run 2"	Type Flanged	

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.		Temp. °F
SI							991				
1.	2.067 x 1.375			395	15.9	72	909	62			24 hr.
2.	2.067 x 1.375			400	16.8	72	901	62			24 hr.
3.	2.067 x 1.375			415	19.5	72	894	62			24 hr.
4.	2.067 x 1.375			480	20.0	72	880	62			24 hr.
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft	Gravity Factor Fg	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	10.20	80.5	408.2	.9887	1.249	1.034	1049
2	10.20	83.3	413.2	.9887	1.249	1.034	1085
3	10.20	91.3	428.2	.9887	1.249	1.035	1190
4	10.20	99.3	493.2	.9887	1.249	1.041	1302
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio Dry Mcf/bbl.
1	.62	532	1.49	.935	A.P.I. Gravity of Liquid Hydrocarbons -- Deg.
2	.63	532	1.49	.935	Specific Gravity Separator Gas .641 X X X X X X X X
3	.65	532	1.49	.933	Specific Gravity Flowing Fluid X X X X X .641
4	.75	532	1.49	.923	Critical Pressure 661 P.S.I.A. 661 P.S.I.A.
5					Critical Temperature 358 R 358 R

P _c 1004.2 P _c ² 1008.4				
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²
1	850.5		864.2	144.2
2	835.8		850.5	157.9
3	823.0		840.8	167.6
4	797.8		819.1	189.3
5				

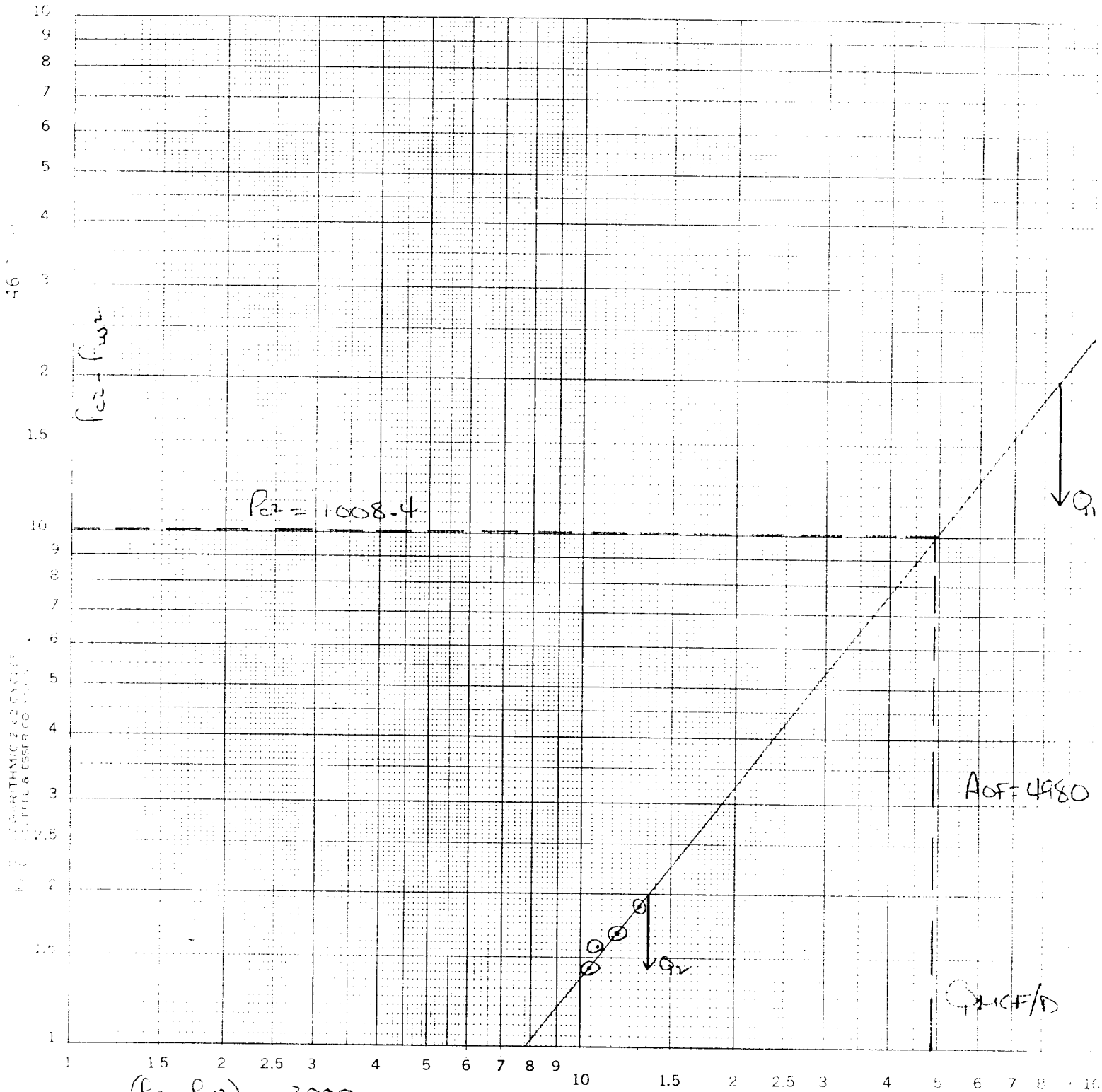
(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 5.327$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.825$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4980$

Absolute Open Flow 4980 Mcfd @ 15.025	Angle of Slope 0	Slope, n .802
Remarks: -		

Approved By Commission:	Conducted By: David Weaver	Calculated By: Andie Alderson	Checked By:
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Green Petroleum Corp
 Brown "C.S." Federal #5
 Unit A 10-65-106
 Chaves County



$$\begin{aligned}
 (P_2 - P_{w2})_1 &= 2000 \\
 (P_2 - P_{w2})_2 &= 200 \\
 Q_1 &= 890 \\
 Q_2 &= 1355
 \end{aligned}$$

$$\begin{aligned}
 \log Q_1 &= 3.9487 \\
 \log Q_2 &= 3.1319
 \end{aligned}$$

$$\log \frac{2000}{200} = 0.3010$$

COMPANY Agri-Ind Services, Inc. LEASE 830001001-1-0000 WELL NO. 2 DATE 12/10/82

LOCATION: Unit A Section 10 Township 6S Range 24E

L 3662 H 3662 L/H 1 C 341 %CO₂ 0.4 %N₂ 4.70 %H₂S 0

d 1.495 F₁ .01872 GH 2347 P_{cr} 3.0 T_{cr} 208

TABLE IX A

LINE	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22nd	23rd
1 Q _m	1.0417	1.085	1.190	1.302	1.421	1.547	1.680	1.820	1.967	2.121	2.282	2.450	2.625	2.807	2.996	3.191	3.393	3.602	3.818	4.041	4.271	4.508	4.752
2 T _w (W.H. °R)	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522	522
3 T _g (B.H. °R)	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502	502
4 T = ($\frac{1}{T_w} + \frac{1}{T_g}$)	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542	542
5 Z (Est.)	.445	.446	.467	.486	.504	.521	.538	.555	.572	.589	.606	.623	.640	.657	.674	.691	.708	.725	.742	.759	.776	.793	.810
6 T ₂	468.85	469.37	469.91	470.45	471.00	471.55	472.10	472.65	473.20	473.75	474.30	474.85	475.40	475.95	476.50	477.05	477.60	478.15	478.70	479.25	479.80	480.35	480.90
7 G ₁ /T ₂	5.006	5.000	4.995	4.990	4.985	4.980	4.975	4.970	4.965	4.960	4.955	4.950	4.945	4.940	4.935	4.930	4.925	4.920	4.915	4.910	4.905	4.900	4.895
8 e ^s (Table XIV)	1.207	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206	1.206
9 1-e ^s (Table XIV)	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171	.171
10 P ₂	922.2	914.2	905.2	895.2	885.2	875.2	865.2	855.2	845.2	835.2	825.2	815.2	805.2	795.2	785.2	775.2	765.2	755.2	745.2	735.2	725.2	715.2	705.2
11 P ₁ ² /1000	850.5	835.8	823.0	810.2	797.8	785.8	773.8	761.8	749.8	737.8	725.8	713.8	701.8	689.8	677.8	665.8	653.8	641.8	629.8	617.8	605.8	593.8	581.8
12 F ₁ (Table XVI)	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423
13 F ₂ = F ₁ T ₂	8.547	8.557	8.567	8.577	8.587	8.597	8.607	8.617	8.627	8.637	8.647	8.657	8.667	8.677	8.687	8.697	8.707	8.717	8.727	8.737	8.747	8.757	8.767
14 F ₂ Q _m	8.966	9.284	10.134	11.179	12.416	13.848	15.476	17.301	19.324	21.546	23.968	26.590	29.412	32.434	35.656	39.078	42.700	46.522	50.544	54.766	59.188	63.810	68.622
15 L/H (F ₂ Q _m) ²	80.581	86.192	103.921	124.134	147.771	174.848	205.376	239.354	276.782	317.660	362.988	412.766	467.994	528.672	594.800	666.378	743.506	826.184	914.512	1008.590	1108.518	1214.396	1326.224
16 F _w = L/H (F ₂ Q _m) ² (1-e ^{-s})	13.745	14.739	17.771	20.848	24.071	27.448	31.079	34.964	39.104	43.499	48.149	53.054	58.214	63.624	69.284	75.194	81.354	87.764	94.424	101.334	108.494	115.904	123.554
17 P _w ² = P ₁ ² + F _w	84.412	850.5	840.8	823.0	797.8	761.8	713.8	653.8	581.8	497.8	401.8	293.8	173.8	43.8	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18 F _s ² = e ^s P _w ²	12.151	12.537	13.010	13.570	14.217	14.950	15.769	16.674	17.666	18.744	19.908	21.168	22.524	23.976	25.524	27.168	28.908	30.744	32.676	34.704	36.828	39.048	41.364
19 F _s	10.113	10.128	10.050	9.876	9.604	9.234	8.767	8.204	7.546	6.794	5.948	4.999	3.948	2.794	1.534	0.174	0.004	0.000	0.000	0.000	0.000	0.000	0.000
20 F = ($\frac{F_1}{T_1} + \frac{F_s}{T_s}$)	171.8	163.8	155.0	145.0	133.0	118.0	100.0	80.0	57.0	32.0	15.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21 F ₂ = F ₁ (F ₂ /F ₁)	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
22 T ₂ = (T ₁ /T ₂)	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
23 Z (Table XI)	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423	.1423