

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

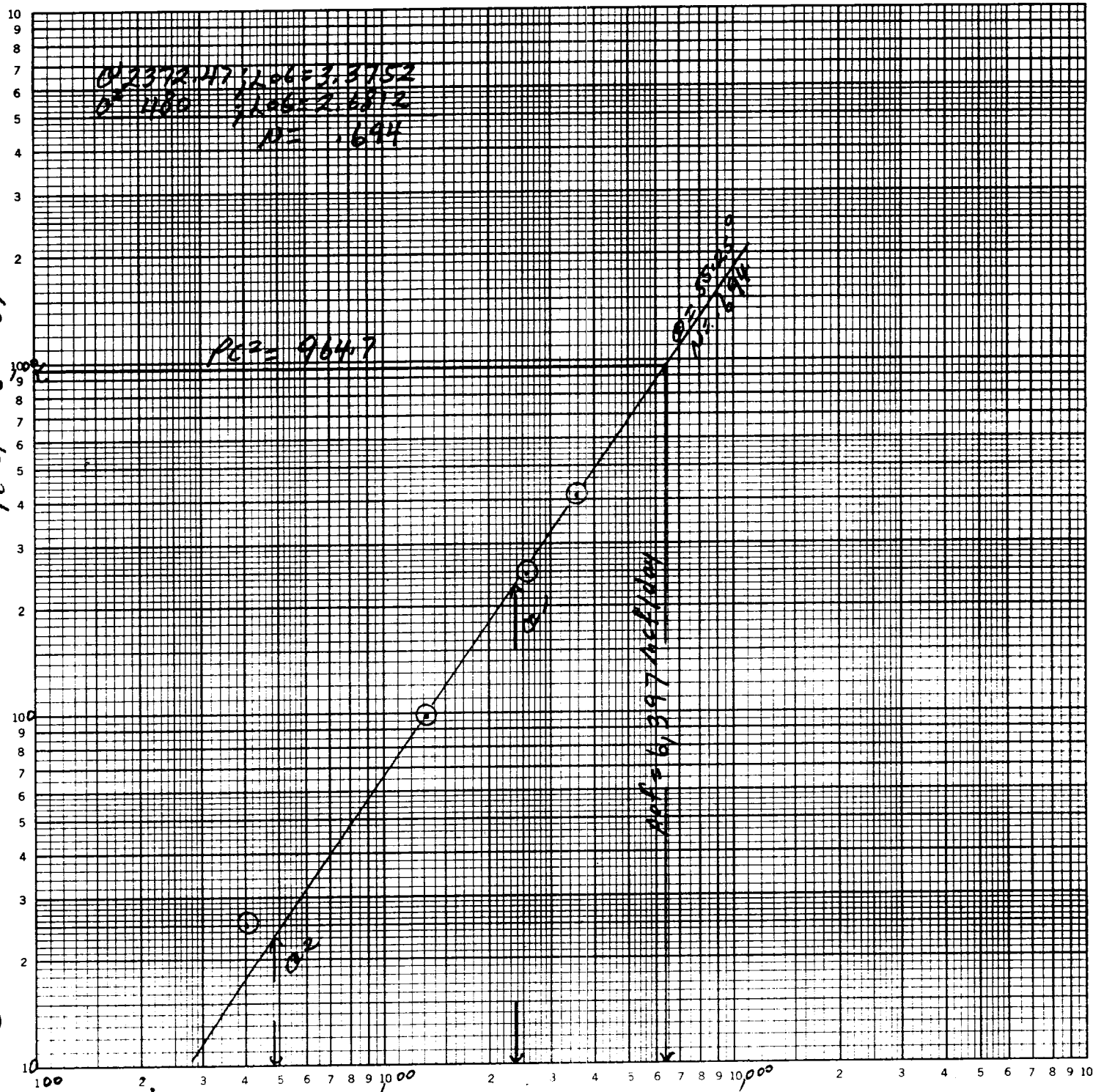
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Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 2/23/82			
Company WESTERN RESERVES OIL CO.				Connection TO ATMOSPHERE		ARTESIA, OFFICE	
Well PECOS SLOPE				Formation ABO		Unit	
Completion Date 2/10/82		Total Depth 3938		Plug Back TD 3900		Elevation 3946 K.B;	
Farm or Lease Name BEVMOR 24 Feb.		Well No. #3					
Cog. Size 4 1/2"	Wt. 12.7	d 3.958	Set At 3950	Perforations: From 3824 To 3854		Unit Sec. Twp. Rge. 13 5-S 24-E	
Tub. Size 2 3/8"	Wt. 4.7	d 1.995	Set At 3700	Perforations: From open To ended			
Type Well - Single - Drivenhead - G.C. or G.O. Multiple SINGLE				Packer Set At NONE		County CHAVES	
Producing Thru TUBING		Reservoir Temp. °F 98° 3839		Mean Annual Temp. °F 60°		Baro. Press. - P _a 13.2	
State NEW MEXICO							
L 3700	H 3700	Cg .682	% CO ₂ 3.93	% N ₂ 6.26	% H ₂ S .NIL	Prover 2"	Meter Run ---
FLOW DATA				TUBING DATA		CASING DATA	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Duration of Flow
1.	2" X.250			280	---	50	1 hr.
2.	2" X.500			230	---	49	1 hr.
3.	2" X.750			205	---	59	1 hr.
4.	2" X.750			290	---	65	1 hr.
5.							
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compres. Factor, F _{pv}	Rate of Flow Q, Mscf
1	1.087	---	293.2	1.010	1.211	1.028	401
2	4.297	---	243.2	1.011	1.211	1.023	1309
3	9.453	---	218.2	1.001	1.211	1.019	2548
4	9.453	---	303.2	.9952	1.211	1.027	3548
5							
NO.	P _i	Temp. °R	T _i	Z	Gas Liquid Hydrocarbon Ratio None Mscf/bbl.		
1	.43	510	1.41	.946	A.P.I. Gravity of Liquid Hydrocarbons Deg.		
2	.36	509	1.41	.955	Specific Gravity Separator Gas .682 X X X X X X X X		
3	.32	519	1.44	.963	Specific Gravity Flowing Fluid X X X X X		
4	.45	525	1.45	.948	Critical Pressure 675 P.S.I.A. P.S.I.A.		
5					Critical Temperature 361 R R		
$P_c = 982.2$ $P_r = 967.7$					$(1) \frac{P_c^2}{P_c^2 - P_r^2} = 2.338$ $(2) \left[\frac{P_c^2}{P_c^2 - P_r^2} \right]^n = 1.803$		
NO.	P _i	P _w	P _c	P _c - P _w	$AOI = 0 \left[\frac{P_c^2}{P_c^2 - P_r^2} \right]^n = 6.397$		
1		969.3	939.6	25.1			
2		930.7	866.2	98.5			
3		847.3	718.0	246.7			
4		743.0	552.1	412.6			
5							
Absolute Open Flow 6,397 Mscf @ 15.025				Angle of Slope 55.25°		Slope 694	
Remarks: MADE NO FLUID DURING TEST							
Approved By Division		Conducted By: BABER WELL TESTING		Calculated By: BOB McMURRAIN		Checked By:	

K₀Σ LOGARITHMIC 3 X 3 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

$P_{12} - P_{w2} (0.003)$



$Q = \text{mcf/day}$

WORKSHEET FOR CALCULATION OF ST. C COLUMN WELLHEAD PRESSURE (P_w)

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COMPANY WESTERN RESERVES OIL CO. LEASE BEUMER 24 FEO. WELL NO. #3 DATE 2-29-82

LOCATION: Unit 3700 Section 13 Township 5-S Range 24-E

H. 3700 L/H 1.000 G. 6.82 % CO₂ 3.93 % N₂ 6.26 % H₂S NIL

d 1.495 F₁ 0.018231 GH 2523 P_{CT} 675 T_{CT} 361

TABLE 1 & 2

NE	Rate 1	Rate 2	Rate 3	Rate 4		
Q _m	.401	.401	1.309	1.309	2.548	3.548
T _w (3.H.°R)	534	534	534	534	534	534
T (3.H.°R)	558	558	558	558	558	558
T = (L _w + L _s)	546	546	546	546	546	546
Z (Est.)	.866	.858	.871	.865	.886	.878
TZ	473	468	476	472	484	479
GH/TZ	5.3354	5.3856	5.3053	5.3421	5.2154	5.2629
es (Table XIV)	1.2215	1.2238	1.2201	1.2218	1.2160	1.2182
1-e ^s (Table XIV)	.181347	.182873	.180406	.181537	.177641	.179105
P ₁	968.2	968.2	918.2	918.2	793.2	793.2
P ₁ 2/1000	937.4	937.4	843.1	843.1	629.2	629.2
F ₁ (Table XV)	.018231	.018231	.018231	.018231	.018231	.018231
F ₁ F ₁ TZ	8.6203	8.5406	8.6700	8.6103	8.8193	8.7397
F ₁ Q _m	3.4567	3.4248	11.3491	11.2709	22.4717	22.2688
L/H (F ₁ Q _m) ²	11.949	11.7292	128.802	127.033	504.978	495.900
F _w = L/H (F ₁ Q _m) ² (1-e ^s)	2.1669	2.1449	23.2367	23.613	89.7051	88.8186
P _w ² = P ₁ ² + F _w	939.6	(939.6)	866.3	(866.2)	718.9	(718.0)
P _s ² = e ^s P _w ²	1147.7	1149.8	1057.0	1058.3	874.2	874.6
P _s	1071.3	1072.3	1028.1	1028.7	934.9	935.2
P = (P ₁ + P _s)	1019.7	1020.3	973.2	973.5	864.1	864.2
P ₁ = (P/P _{CT})	1.51	1.51	1.44	1.44	1.28	1.28
T ₁ = (T/T _{CT})	1.51	1.51	1.51	1.51	1.51	1.51
Z (Table XI)	.858	.858	.865	.865	.878	.878

NEW-TEX LAB
 P.O. BOX 1161
 HOBBE NM 88241-1161
 505-493-1161

ANALYSIS NUMBER: 6746
 DATE OF RUN: 02/13/81
 D-1 REC'D: 02/12/81

ANALYSIS CERTIFICATE

SAMPLE IDENT: WESTERN RESOURCES - PAVLOR 24 FEB 81

CLIENT: CALIFORNIA AIRPORTS
 ADDRESS: P.O. BOX 1161
 CITY/STATE: HOBBE NM 88241

BUYING PRESENT: PS16 BAR LINE: 11/11/80
 CATCH NUMBER:

***** ANALYSIS *****

COMPONENT	WGT %	WGT %
NITROGEN	5.248752	
CARBON DIOXIDE	3.914722	
SETHANE	12.547320	
ETHANE	4.130520	1.109400
PROPANE	1.547999	0.421030
ISOBUTANE	2.240414	0.381047
NORMAL BUTANE	3.114097	0.161253
ISOPENTANE	2.105471	0.261001
NORMAL PENTANE	2.113182	0.061011
HEXANES	0.115978	0.074911
HEPTANES PLUS	0.248685	0.108010
TOTAL	100.789207	1.097040

PROPANE SPMT	1.1	300.000000	0.00
ETHANE GF	1.1	300.000000	0.21

SPECIFIC GRAV (CA. 70) 1.014
 MOLE FRACTION 0.11

ISOBUT/VA	PROPANE	PS16	WGT	GRV
1.100	1.100	1.100	1.100	1.100
1.100	1.100	1.100	1.100	1.100
1.100	1.100	1.100	1.100	1.100
1.100	1.100	1.100	1.100	1.100

ANALYZED BY:

CORRECTED BY:

[Signature]