

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Revised 12-1-55

Pool Bell Lake Formation Devonian County Lea
 Initial X Annual _____ Special _____ Date of Test 3/23-27/65
 Company Continental Oil Company Lease Bell Lake Unit Well No. 10
 Unit F Sec. 19 Twp. 23S Rge. 34E Purchaser Transwestern
 Casing 9 5/8 Wt. 43.5 I.D. 8.755 Set at 12,172 Perf. _____ To _____
 Tubing 2 3/8 Wt. 4.7 I.D. 1.995 Set at 14,826 Perf. Open Ended To _____
 Gas Pay: From 14745 To 14820 L 14826 xG * -GL * Bar.Press. 13.2 psia
 Producing Thru: Casing _____ Tubing X Type Well Single
 Date of Completion: 3-6-65 Packer 14,700' Single-Bradenhead-G. G. or G.O. Dual
 Reservoir Temp. 216°F

OBSERVED DATA

Tested Through (Prover) (~~Choke~~) (Meter)Type Taps Flange

No.	Flow Data					Tubing Data		Casing Data		Duration of Flow Hr.
	(Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h _w	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						4337	60			72 hr. SI
1.	3"	1.50	775	3.0	92	3829	77			24 hr.
2.	3"	1.50	776	21.5	94	3206	83			24 hr.
3.	3"	1.50	700	40.0	67	2460	64			24 hr.
4.	3"	1.75	700	33.0	95	1274	74			24 hr.
5.										

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_w p_f}$	Pressure psia	Flow Temp. Factor F _t	Gravity Factor F _g	Compress. Factor F _{pv}	Rate of Flow Q-MCFPD @ 15.025 psia
1.	14.36 ✓	48.6 ✓	788	.9706 ✓	.9885 ✓	1.058 ✓	708.4 101.1
2.	14.36	130.4 ✓	789	.9688 ✓	.9885	1.058 ✓	1,897.3 17.7
3.	14.36	169.4 ✓	713	.9933 ✓	.9885	1.061 ✓	2,534.2 25.1
4.	20.15 ✓	153.4	713	.9680 ✓	.9885	1.051 ✓	3,108.5 16.6
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio * cf/bbl.
 Gravity of Liquid Hydrocarbons Water deg.
 F_c 9.936 (1-e^{-s}) *

Specific Gravity Separator Gas .614
 Specific Gravity Flowing Fluid *
 P_c 4753 P_c 22,591 (x1000)

No.	P _w P _t (psia)	P _t ² (x1000)	F _c Q	(F _c Q) ²	(F _c Q) ² (1-e ^{-s})	P _w ² (x1000)	P _c ² -P _w ²	Cal. P _w	P _w / P _c
1.	3842	14,761	7.04	49.56	27	14,788	7,803	3845	
2.	3219	10,362	18.85	355.32	209	10,571	12,020	3250	
3.	2473	6,116	25.18	634.03	405	6,521	16,070	2554	
4.	1287	1,656	30.89	954.19	629	2,285	20,306	1512	
5.									

Absolute Potential: 3,448 MCFPD; n 0.972COMPANY Continental Oil CompanyADDRESS P. O. Box 460, Hobbs, New MexicoAGENT and TITLE R. L. Freeborn, Supervising EngineerWITNESSED Harold HearnCOMPANY Transwestern Pipeline Company

REMARKS

*See supplemental calculations

Liner: 5 1/2" 23# 4.67" ID set @11,918-14,930 Perf. 14,747-14,811

MOCC-SANTA FE(3) JPM RGP FILE

Company: Continental Oil Company
 Well: Bell Lake Unit No. 10
 Location: F, Sec. 19-23S-34E
 County: Lea County, New Mexico
 Date: 3/23-27/65

SUPPLEMENTARY CALCULATIONS

Date	C	Psia	T	hw	$\sqrt{hw_{pf}}$	Ft	Fg	Fpv	Q-MCFPD @ 15.025 psia
3-24-65	14.36	793	82°F	4.6	60.4	.9795	.9885	1.061	891
3-25-65	14.36	788	83°F	22.3	132.6	.9786	.9885	1.061	1954
3-26-65	14.36	753	82°F	46.7	187.5	.9795	.9885	1.059	2761
3-27-65	20.15	703	87°F	47.1	182.0	.9750	.9885	1.052	3718

$$Q = C \sqrt{hw_{pf}} \times F_t \times F_g \times F_{pv}$$

Q-MCFPD	BWPD	CF/Bbl(R)
891	40	22,275
1954	121	16,149
2761	288	9,587
3718	456	8,154
9324	905	10,303

G ₁	$\frac{4591G_2}{R}$	$\frac{1123}{R}$	G _{mix}	GL	S	e ^{-s}	1 - e ^{-s}
.614	.2143	.0504	0.788	11,683	.804	.448	.552
.614	.2957	.0429	0.872	12,928	.889	.412	.588
.614	.4981	.1171	0.996	14,767	1.016	.362	.638
.614	.5855	.1377	1.054	15,627	1.075	.341	.659

$$G_{mix} = \frac{G_1 + \frac{4591(G_2)}{R}}{1 + \frac{1123}{R}}, \quad G_2 \text{ (water)} = 1.04$$

$$S = \frac{0.0375 GL}{T^2}, \quad T = 545, \quad Z = 1.00, \quad L = 14,826'$$

Check calculation:

$$AP = Q \left\{ \frac{P_c^2}{P_c^2 - p_w^2} \right\}^n = 3108.5 \frac{(22,591)^{.972}}{(20,306)}$$

$$AP = 3108.5 (1.1091) = 3448 \text{ (Fourth Data Point)}$$