

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Undesignated Formation Morrow County Lea

Initial X Annual Special Date of Test 10-17/10-19-61

Company El Paso Natural Gas Company Lease Mescalero Ridge Unit Well No. 1

Unit D Sec. 21 Twp. 19-8 Rge. 34-E Purchaser None

Casing 7 Wt. 32.0 I.D. Set at 13,709 Perf. 13,328 To 13,340

Tubing 2 1/16 Wt. 3.25 I.D. 1.693 Set at 13,415 Perf. None To

Gas Pay: From 13,328 To 13,340 L 13,415 xG Mix 0.734 -GL 9,847 Bar.Press. 13.2

Producing Thru: Casing Tubing X Type Well G. O. Dual

Date of Completion: 9-27-61 Packer 13,325 Single-Bradenhead-G. G. or G.O. Dual

Reservoir Temp. 180° F

OBSERVED DATA T. D. 13,972
P.B.T.D. 13,652

Tested Through (250000) (250000) (Meter) Type Taps Flange

No.	Flow Data					Tubing Data		Flow Data		Duration of Flow Hr.
	(Line) Size	(Orifice) Size	Press. psig	Diff. h _w	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						4577				
1.	3.000	1.500	240	10		2701		10/64		3
2.	3.000	1.500	240	19		1911		12/64		3
3.	3.000	1.500	245	25		1395		14/64		3
4.	3.000	1.500	245	27		1220		16/64		3
5.	3.000	1.500	245	29		1256		16/64		24

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_{wP_f}}$	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	50.32	253.2	0.9813	0.9608	1.022	696.3
2.	14.36	69.36	253.2	.9850	.9608	1.022	963.3
3.	14.36	80.34	258.2	.9971	.9608	1.024	1132
4.	14.36	83.49	258.2	.9896	.9608	1.023	1166
5.	14.36	86.53	258.2	.9850	.9608	1.022	1201

Gas Fluid Ratio 33,181 cf/bbl.

Gas Water Ratio 305,000 cf/bbl.

Gas Liquid Hydrocarbon Ratio 37,231 cf/bbl.

Gravity of Liquid Hydrocarbons 56.5 deg.

P_c 15.255 * (1-e^{-s}) 0.492

PRESSURE CALCULATIONS

Specific Gravity Water 1.079

Specific Gravity Separator Gas 650 Est.

Specific Gravity Flowing Fluid .7527

P_c 4690.2 P_c^2 21998.0

No.	XXX P _t (psia)	P _t ²	F _c Q	(F _c) ²	(F _c Q) ² (1-e ^{-s})	P _w ²	P _c ² -P _w ²	Cal. P _w	P _w / P _c
1.	2714.2	7366.9	10.63	113.0	55.6	7422.5	14575.5	2724.4	0.9809
2.	1924.2	3702.5	14.70	216.1	106.3	3808.8	18189.2	1951.6	.4161
3.	1408.2	1983.0	17.28	298.6	146.9	2129.9	19868.1	1459.4	.3111
4.	1233.2	1520.8	17.80	316.8	155.9	1676.7	20321.3	1294.9	.2761
5.	1269.2	1610.9	18.33	336.0	165.3	1776.2	20221.8	1332.7	.2841

Absolute Potential: 1,300 MCFPD; n 1.000000

COMPANY El Paso Natural Gas Company

ADDRESS P. O. Box 1384 - Jal, New Mexico

AGENT and TITLE Peyton W. Randolph *Peyton W. Randolph*

WITNESSED R. A. Mikal - Dale Southern - David Dyer

COMPANY El Paso Natural Gas Company

INSTRUCTIONS

This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable. Three copies of this form and the back pressure curve shall be filed with the Commission at Box 871, Santa Fe.

The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

NOMENCLATURE

- Q = Actual rate of flow at end of flow period at W. H. working pressure (P_w).
MCF/da. @ 15.025 psia and 60° F.
- P_c = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater.
psia
- P_w = Static wellhead working pressure as determined at the end of flow period.
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- P_t = Flowing wellhead pressure (tubing if flowing through tubing, casing if
flowing through casing.) psia
- P_f = Meter pressure, psia.
- h_w = Differential meter pressure, inches water.
- F_g = Gravity correction factor.
- F_t = Flowing temperature correction factor.
- F_{pv} = Supercompressability factor.
- n = Slope of back pressure curve.

Note: If P_w cannot be taken because of manner of completion or condition of well, then P_w must be calculated by adding the pressure drop due to friction within the flow string to P_t .