NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Wildcat Formation Morrow Penn. County Lea

Initial X Annual Special Date of Test 12/27-12/30 1962

Company Sinclair Oil & Gas Co. Lease Mahaffey Federal Well No. 1

Unit G Sec. 14 Twp. 20S Rge. 33E Purchaser None

Casing 7 Wt. I.D. 6.004 Set at Perf. To

Tubing 2 Wt. 4.7 I.D. 1.995 Set at 13,062 Perf. 13,294 To 13,543

Gas Pay: From 13,294 To 13,543 L 13,294 xG .667 =GL 8,867 Bar.Press. 13.2

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

Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: Packer Set @ 13,062 Reservoir Temp.

OBSERVED DATA

Tested Through ~~(Prover)(Choke)~~ (Meter) Type Taps Flg.

No.	Flow Data (Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h_w	Temp. °F.	Tubing Data Press. psig	Tubing Data Temp. °F.	Casing Data Press. psig	Casing Data Temp. °F.	Duration of Flow Hr.
SI						4403				72
1.	3	1.500	325	22	79	3479				3
2.	3	"	325	43	84	3209				3
3.	3	"	330	70	56	2912				3
4.	3	"	460	67	61	2794				3
5.	3	"	440	22	62	3422				22

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	86.86	338.2	.9882	.9393	1.033	1,181
2.	"	185.58	338.2	.9962	.9393	1.037	1,600
3.	" 1550	350.00	343.2	1.0039	.9393	1.040	2,222 2122
4.	"	178.06	473.2	.9990	.9393	1.056	2,534
5.	"	99.85	453.2	.9981	.9393	1.053	1,416

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 30,167 cf/bbl.

Gravity of Liquid Hydrocarbons 53 deg.

F_c 9.936 $(1-e^{-s})$ .457

Specific Gravity Separator Gas .680

Specific Gravity Flowing Fluid .667

P_c 4416.2 P_c^2 19502.8

No.	P_w P_t (psia)	P_t^2	F_cQ	$(F_cQ)^2$	$\frac{(F_cQ)^2}{(1-e^{-s})}$	P_w^2	$P_c^2-P_w^2$	Cal. P_w	$\frac{P_w}{P_c}$
1.	3498.2	12195.5	11.73	137.59	68.878	12250.34	7244.5	3501.2	79.28
2.	3322.2	10988.6	16.49	271.56	127.302	10509.87	8992.9	3241.8	73.41
3.	2985.2	8956.8	22.38	500.18	234.153	8757.95	10744.8	2959.4	67.01
4.	2807.2	7880.4	15.18	634.03	289.752	8170.12	11332.7	2858.4	64.73
5.	3435.2	11800.6	14.07	197.96	90.468	11891.07	7611.27	3448.4	78.09

Absolute Potential: 3,628 MCFPD; n 1.000 (Drawn Through 22 Hr. Point.)

COMPANY Sinclair Oil & Gas Co.

ADDRESS Box 1470 Midland Texas Mr. Fred Rogers

AGENT and TITLE W.R. Lord Gas Analyst Box 2351 Hobbs New Mexico

WITNESSED None

COMPANY (3) 2169 470.46 215.00 877.8 15.2 14 2117 6.20

REMARKS

Sample Shipped to Research Lab. Seminole, Okla. prior to this test.

WRL

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.