

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 6-13-91			
Company MEWBOURNE OIL CO.				Connection PIPE LINE					
Pool N/A Kennedy Farms Mor.				Formation MORROW				Unit N/A	
Completion Date 4-22-91		Total Depth 8710		Plug Back TD 8670		Elevation 3324 GL		Form or Lease Name HALDEMAN	
Coq. Size 4.500	Wi. 11.6	d 4.000	Set At 8710	Perforations: From 8496 To 8526				Well No. #1	
Thg. Size 2.375	Wi. 4.7	d 1.995	Set At 8395	Perforations: From 0 To 0				Unit Sec. Twp. Rge. E 14 17S 26E	
Type Well - Single - Brdenhead - G.G. or G.O. Multiple SINGLE(GAS)						Packer Set At 8388		County EDDY	
Producing Thru TBG. (GAS)		Reservoir Temp. °F 146° 8511		Mean Annual Temp. °F 60.0		Baro. Press. - P _a 13.2		State NEW MEXICO	
L 8511	H 8511	G _g 0.632	% CO ₂ 0.97	% N ₂ 0.60	% H ₂ S 0.00	Prover .0	Meter Run 3.0	Taps FLG.	

FLOW DATA						TUBING DATA		BHP DATA		Duration	
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	of Flow
SI									2634	146	72.0
1.	3.00 x 0.750			460	17.0	94	0	0	2512	146	1.0
2.	3.00 x 0.750			460	32.0	80	0	0	2412	146	1.0
3.	3.00 x 0.750			460	42.0	69	0	0	2321	146	1.0
4.	3.00 x 0.750			465	95.0	70	0	0	2130	146	1.0
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 Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	2.67	89.69	473.2	0.9688	1.2579	1.0354	303
2	2.67	123.05	473.2	0.9813	1.2579	1.0391	422
3	2.67	140.98	473.2	0.9915	1.2579	1.0422	490
4	2.67	213.14	478.2	0.9905	1.2579	1.0424	740
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
1	0.70	554	1.52	0.933	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2	0.70	540	1.48	0.926	Specific Gravity Separator Gas _____ 0.632
3	0.70	529	1.45	0.921	Specific Gravity Flowing Fluid _____ XXXXX
4	0.71	530	1.45	0.920	Critical Pressure _____ 674 P.S.I.A.
5					Critical Temperature _____ 365 R

P _c 2107.5 P _c ² 4441				
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²
1	6377	2011	4044	398
2	5882	1932	3734	708
3	5448	1861	3463	979
4	4593	1711	2929	1512
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.9368$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1525$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.0607$

Absolute Open Flow _____ 1525 _____ Mcfd @ 15.025	Angle of Slope @ _____ 56.1 _____	Slope, n _____ 0.671 _____
Remarks: CHOKE SIZES 8/64, 9.5/64, 11.5/64, 19.5/64		
Approved By Division	Conducted By: BENNETT-CATHEY	Calculated By: JIM SMITH
Checked By:		

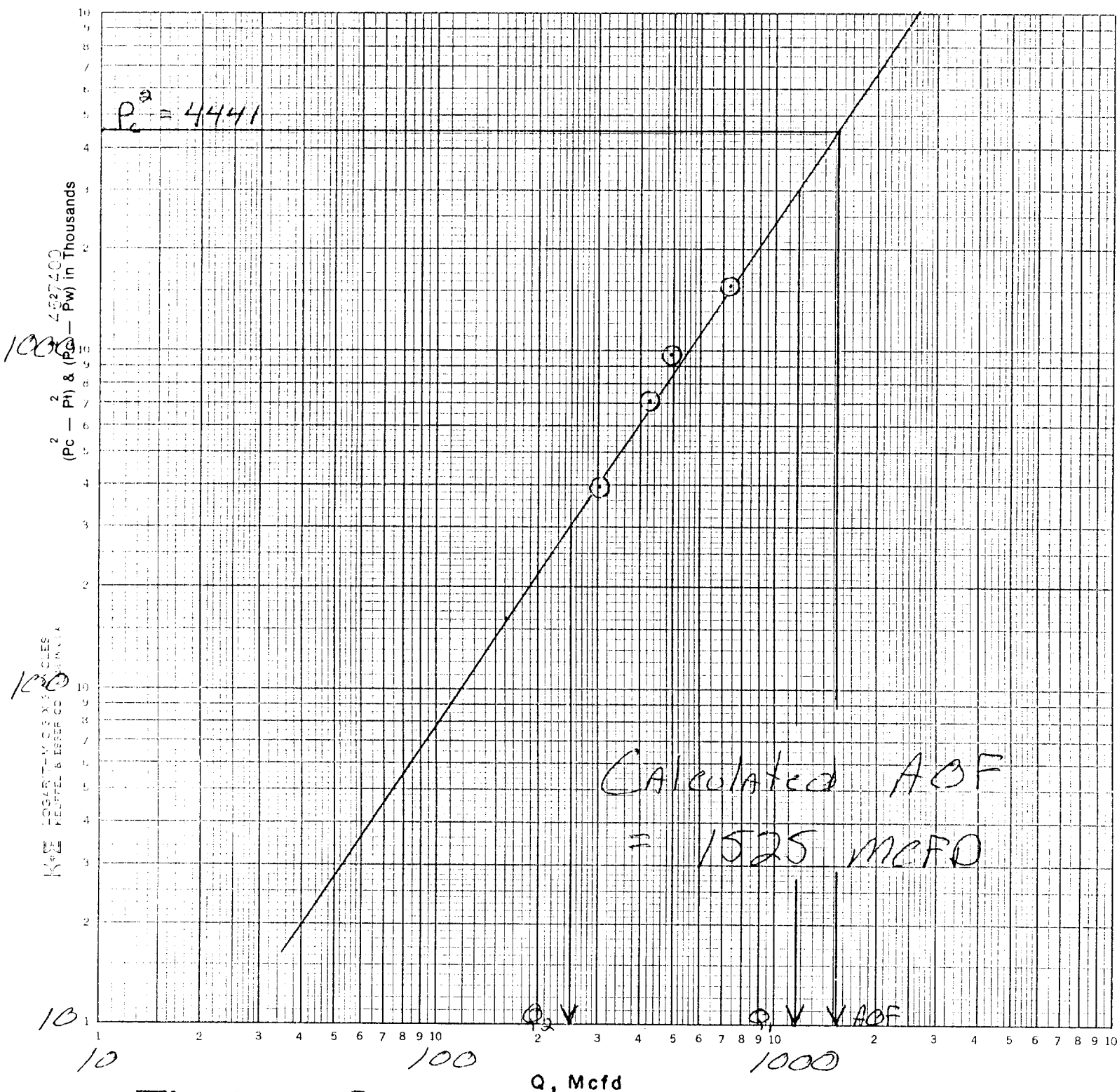
C & W RELINE, INC. d/b/a BENNETT-CATHEY WELL TESTING
BACK PRESSURE CURVE

Operator Newbourne Oil Co. Lease Haldeman Well No. #1
 County Eddy Field N/A Location S14-T17S-R26E
 Date of Test 6-13-91 Slope "n" 0.671 Angle of Slope 56.1

Calc. Abs. Potential

1525

MCF/D



$$\overline{\Delta P}_1^2 \quad P_c^2 - P_w^2 = 3000$$

$$\overline{\Delta P}_2^2 \quad P_c^2 - P_w^2 = 300$$

$$Q_1 = 1172$$

$$Q_2 = 250$$

$$\text{LOG } Q_1 = 3.069$$

$$\text{LOG } Q_2 = 2.398$$

$$n = 0.671$$

Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR:

Bennett & Carthey
Attention: Mr. Monty Randolph
P. O. Box 1784
Hobbs, New Mexico 88241

SAMPLE

IDENTIFICATION: Haldeman #1
COMPANY: Mowbourne Oil Co.
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED: 6/12/91 5:35PM	GAS (XX)	LIQUID ()
	ANALYSIS DATE: 06-14-91	SAMPLED BY:	Rich Cook B & C
	PRESSURE - PSIG 465.00	ANALYSIS BY:	Rolland Perry
	SAMPLE TEMP. °F 70.00		
	ATMOS. TEMP. °F 80.00		

REMARKS:

COMPONENT ANALYSIS

COMPONENT		MOL PERCENT	GPM	
Oxygen	(O2)			
Hydrogen Sulfide	(H2S)			
Nitrogen	(N2)	0.60		
Carbon Dioxide	(CO2)	0.97		
Methane	(C1)	90.11		
Ethane	(C2)	8.57	1.433	
Propane	(C3)	1.68	0.462	
I-Butane	(IC4)	0.23	0.075	
N-Butane	(NC4)	0.39	0.123	
I-Pentane	(IC5)	0.15	0.055	
N-Pentane	(NC5)	0.10	0.036	
Hexane	(C6)	0.10	0.164	
Heptanes Plus	(C7+)	0.00	0.000	
		100.00	2.348	
BTU/CU.FT. - DRY		1097	MOLECULAR WT	18.2897
AT 14.650 DRY		1093		
AT 14.650 WET		1074	26# GASOLINE -	0.296
AT 15.025 DRY		1121		
AT 15.025 WET		1102		
SPECIFIC GRAVITY -				
CALCULATED		0.632		
MEASURED		0.000		

COMPANY: BENNETT-CATHEY
CLIENT: NEWBOURNE OIL CO.
GAGE NUMBER: 12772
WELL NAME: HALDEMAN
WELL NUMBER: #1
TEST NUMBER: 2
LOCATION: S14-T17S-R26E
TEST OPERATOR: JIM SMITH
COMMENTS: 1 PT. AFTER BUILD-UP

GAUGE START DATE: 6/13/91

GAUGE S/N: 17772

GAUGE FILE: 1

GAUGE POINT	REAL TIME	DELTA TIME HRS	DEFLECTION IN	PRESSURE PSIG	COMMENTS
1	13:30:00	0.000	1.3626	2634.46	START 4 PT.
2	13:31:26	0.024	1.3548	2619.35	
3	13:35:45	0.096	1.3438	2598.04	
4	13:36:38	0.144	1.3380	2586.80	
5	13:42:57	0.216	1.3310	2573.24	
6	13:46:07	0.269	1.3274	2566.26	
7	13:48:43	0.312	1.3244	2560.45	
8	13:51:18	0.355	1.3222	2556.19	
9	13:55:05	0.418	1.3190	2549.99	
10	13:58:30	0.475	1.3158	2543.77	
11	14:00:49	0.547	1.3122	2536.81	
12	14:03:26	0.624	1.3102	2532.94	
13	14:12:37	0.710	1.3064	2525.57	
14	14:16:57	0.816	1.3036	2520.15	
15	14:24:25	0.907	1.3014	2515.86	
16	14:29:54	0.998	1.2998	2512.78	END FIRST RATE
17	14:32:47	1.046	1.2924	2498.44	
18	14:37:58	1.133	1.2852	2484.49	
19	14:41:42	1.195	1.2816	2477.52	
20	14:46:36	1.277	1.2772	2468.99	
21	14:50:21	1.339	1.2730	2460.85	
22	14:53:31	1.392	1.2714	2457.75	
23	14:57:33	1.457	1.2676	2450.38	
24	15:00:44	1.546	1.2634	2442.24	
25	15:03:20	1.622	1.2600	2435.66	
26	15:10:31	1.709	1.2564	2428.68	
27	15:18:00	1.800	1.2538	2423.64	
28	15:21:27	1.858	1.2518	2419.76	
29	15:26:55	1.949	1.2502	2416.66	END SECOND RATE
30	15:30:05	2.001	1.2480	2412.40	
31	15:32:58	2.049	1.2466	2398.06	
32	15:36:43	2.112	1.2350	2387.20	
33	15:41:19	2.189	1.2284	2374.41	
34	15:45:21	2.256	1.2240	2365.86	
35	15:48:46	2.313	1.2202	2358.51	
36	15:53:42	2.395	1.2174	2353.09	
37	15:59:11	2.486	1.2148	2348.05	
38	16:04:56	2.582	1.2118	2342.23	
39	16:11:16	2.688	1.2078	2334.48	
40	16:17:03	2.818	1.2048	2328.66	
41	16:25:23	2.923	1.2028	2324.78	
42	16:30:00	3.000	1.2010	2321.30	END THIRD RATE
43	16:33:44	3.062	1.1892	2298.42	
44	16:39:30	3.158	1.1792	2271.28	
45	16:42:23	3.206	1.1660	2253.44	
46	16:46:24	3.273	1.1574	2236.77	
47	16:50:44	3.346	1.1494	2221.26	
48	16:53:54	3.398	1.1436	2210.61	
49	16:57:38	3.461	1.1353	2194.89	
50	17:00:49	3.547	1.1299	2189.00	

PAGE START DATE: 5/13/91

GAUGE S/N: 17772

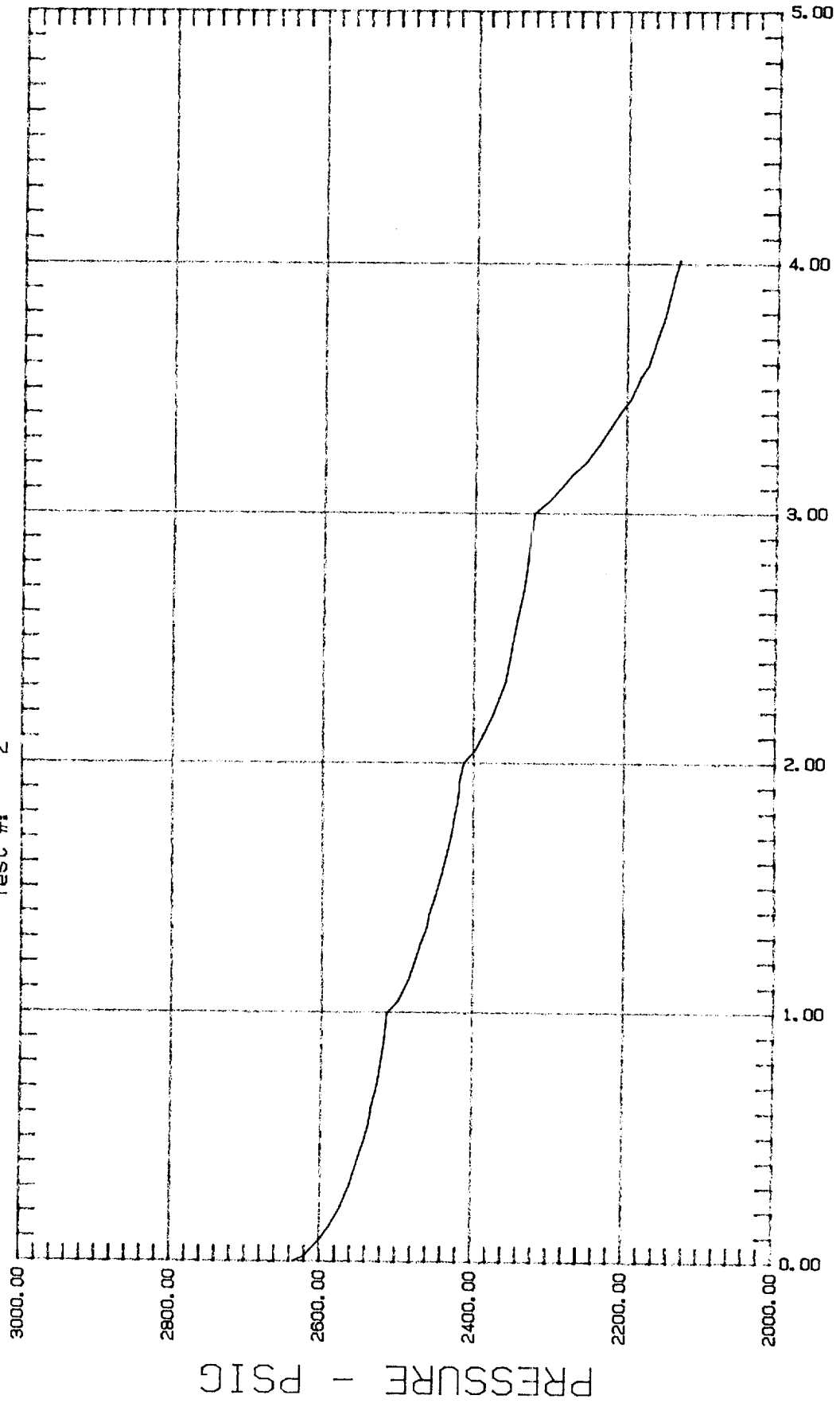
DATA FILE: 1

DATA PATH	REAL TIME	DELTA TIME HRS	DEFLECTION IN	PRESSURE PSIG	COMMENTS
51	17: 9:42	3.595	1.1238	2171.62	
52	17:12:20	3.706	1.1176	2159.59	
53	17:16:56	3.782	1.1128	2150.29	
54	17:21:50	3.864	1.1094	2143.69	
55	17:27: 1	3.950	1.1058	2136.71	
56	17:30:46	4.013	1.1026	2130.51	END FOURTH RATE

Plot starting date: 6/13/91
time: 13:30: 0
Gauge S/N 17772

Company: BENNETT-CATHEY
Client: MEWBOURNE OIL CO.
Well name: HALDEMAN
Well #: #1
Test #: 2

Location: S14-T17S-R26E
Operator: JIM SMITH
Comments: 4 PT. AFTER BUILD-UP



DELTA TIME - HRS