

MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
 Revised 6-1-65

Type Test ☒ Initial ☐ Annual ☐ Special		Test No. 10-31-81	
Company POGO PRODUCING COMPANY		Connection None	
Field Bootleg Ridge		Formation Morrow	
Completion Date 10-27-81	Total Depth 15270'	Plug Back TD 14765	Elevation 3623KB-21
Form or Lease Name EBR Federal		Well No. 1	
Tool Joint 5" Liner	WT. 18.0	d 4.276	Set At 11737 B 14813
Flow Line 2 3/8	WT. 4.7	d 1.995	Set At 14002
Type Well - Single - Underhead - G.C. or G.O. Multiple Single		Packer Set At 14002'	
Producing thru Tubing		Reservoir Temp. °F 194	Mean Annual Temp. °F 60
L 14390'		H -	Gg 0.6224
%		% CO ₂ 0.985	% N ₂ 0.389
Prover		Meter Run 2.900	Flow F

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. in. hw	Temp. °F	Press. p.s.i.g. DWT	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							5270	60	PACKER		1 WEEK
1	2.900	5/64	1.250	500	3	85	4030				1.0 Hr.
2	2.900	6/64	1.000	500	10	82	3285				1.0 Hr.
3	2.900	7/64	1.000	505	17	82	2610				1.0 Hr.
4	2.900	8 1/64	1.000	520	25	83	1910				1.0 Hr.
5											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super. Comp. Factor F _{sp}	Rate of Flow Q, Mhd
1	7.615	39.24	513.2	0.9768	1.268	1.039	384.54
2	4.801	71.64	513.2	0.9795	1.268	1.040	444.27
3	4.801	93.86	518.2	0.9795	1.268	1.041	582.62
4	4.801	115.46	533.2	0.9786	1.268	1.042	716.73
5							

NO.	P _r	Temp. °F	T _r	Z	Gas Liquid-Hydrocarbon Ratio	Dry Gas	Mcf/Lb.
1	0.76	545	1.51	0.926	A.P.I. Gravity of Liquid Hydrocarbons		
2	0.76	542	1.50	0.924	Specific Gravity Separator Gas	0.6224	
3	0.77	542	1.50	0.923	Specific Gravity Flowing Fluid	X X X X X	
4	0.79	543	1.50	0.921	Critical Pressure	674	P.S.I.A.
5					Critical Temperature	361	°R

NO.	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.236$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.183$
1	5438.2	29574.0	18176.9		
2	4570.2	20886.7	26864.2		
3	4165.2	17348.9	30402.0		
4	3020.2	9121.6	38629.3		
5					

NO.	P _w	P _w ²	P _c ² - P _w ²	ADP = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 848$
1	5438.2	29574.0	18176.9	
2	4570.2	20886.7	26864.2	
3	4165.2	17348.9	30402.0	
4	3020.2	9121.6	38629.3	
5				

ADP = 848	Mold = 15.625	Angle of Slope = 51° 38'	Slope, n = 0.792
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Remarks: * BHP (-10767)' 11390' Used for Pressure Calculations

Approved by Commission:	Conducted By:	Calculated By:	Checked By: <i>[Signature]</i> DE #2208
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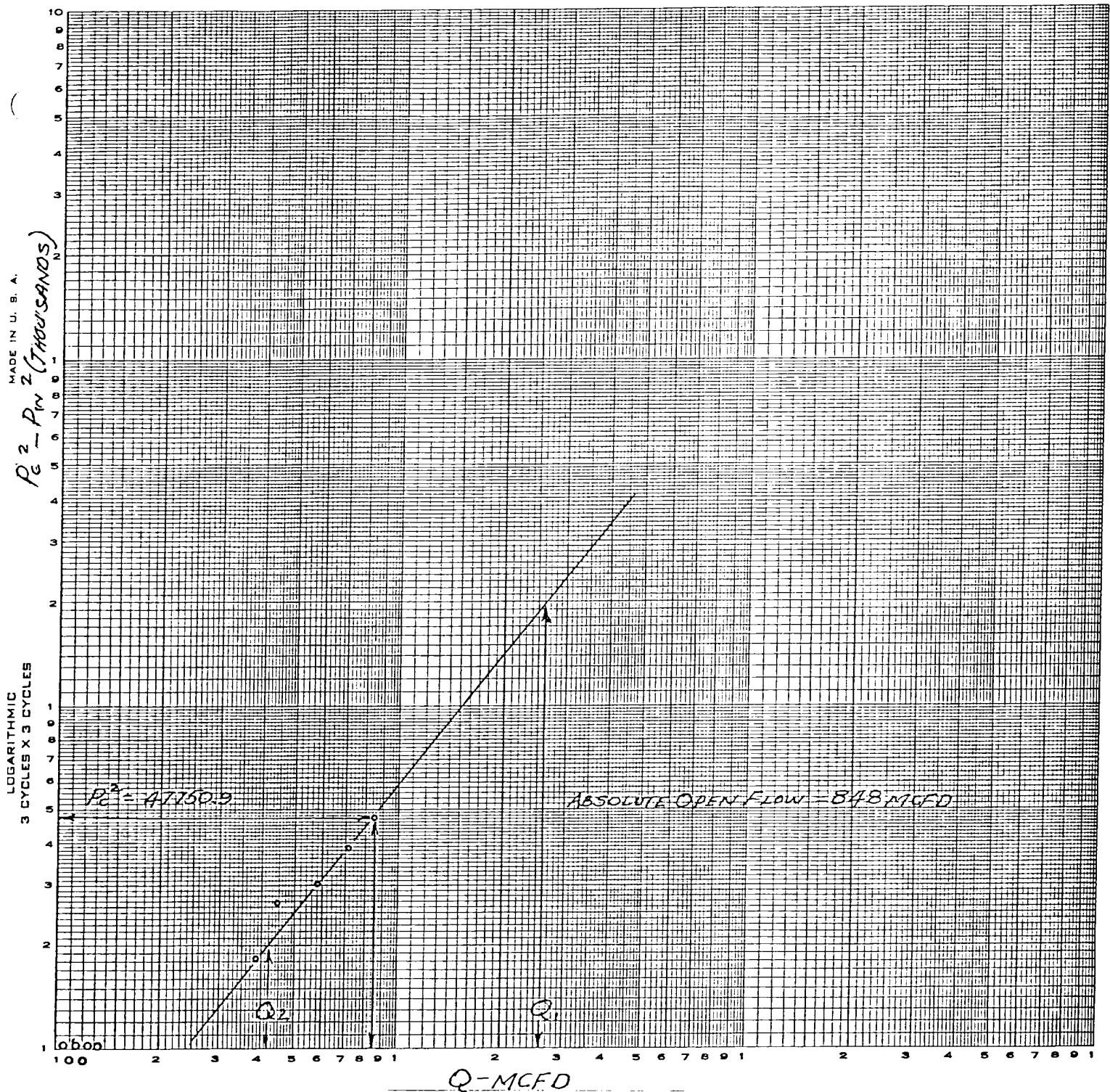
(PANY: POGO PRODUCING COMPANY

WELL: EBR FEDERAL, NO.1

LOCATION: L 17 22s 33e

COUNTY: LEA

DATE: OCTOBER 31, 1981



$$Q_1 = 2600 \text{ MCFD}; \text{LOG } Q_1 = 3.41497$$

$$Q_2 = 420 \text{ MCFD}; \text{LOG } Q_2 = 2.62325$$

$$n = 0.79172 = 0.792$$

NEW-TEX LAB

P. O. BOX 1161
HOBBS, N.M. 88240

CERTIFICATE OF ANALYSIS

No. 5971
Run No. _____
Date of Run 11-03-81
Date Secured 10-31-81

A Sample of Pogo Production EBR - Federal #1
Secured from Jarrel Well Testing
At Box 1654 Secured by _____
Hobbs, New Mexico 88240 Time _____ Date _____
Sampling conditions _____ Press _____
Temp. _____ Station No. _____

FRACTIONAL ANALYSIS

Percentage Composition

MOL % LIQ. % G.P.M.

Carbon Dioxide	.985		
Air			
Nitrogen	.389		
Oxygen			
Hydrogen sulfide			
Hydrogen			
Methane	91.314		
Ethane	4.873	1.300	
Propane	1.384	.380	
Butanes			
Iso-Butane	.229	.075	
N-Butane	.284	.089	
Pentanes			
Iso-Pentane	.111	.041	
N-Pentane	.083	.030	
Hexanes	.073	.030	
Heptanes Plus	.275	.127	
Octanes			
TOTAL	100.000	2.072	

Calc. Sp. Gr. — 0.6224
Calc. A.P.I. — _____
Calc. Vapor Press. — _____ PSIA
Sp. Gr. — _____
Mol. Wt. — 18.05

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M.	.380
Butanes Calc. G.P.M.	.164
Pentanes Plus. G.P.M.	.228
Ethane Calc. G.P.M.	1.300
RVP Gasoline G.P.M.	
B.T.U./Cu. Ft. @ 14.696 P.S.I.A.	
Dry Basis	1087
Wet Basis	1068
Sulfur Analysis by Titration	
Gr./100 Cu. Ft.	
Hydrogen Sulfide	
Mercaptans	
Sulfides	
Residual Sulfur	
Total Sulfur	

Run by R. H. Hamilton Checked by Deane Simpson Approved by Deane Simpson

Additional Data and Remarks

JAREL SERVICES, INC.

POST OFFICE BOX 1654

PHONES 505 393-5396 — 393-8274

HOBBS, NEW MEXICO 88240

COMPANY: Pogo Producing Company

WELL: EBR Federal - No. 1

FIELD: Bootleg Ridge - Morrow

CHRONOLOGICAL PRESSURE DATA

DATE	STATUS OF WELL	TIME	ELAPSED TIME		SURFACE PRESSURE		BHP @ (-10767)
			HRS.	MIN.	TBG	CSG	14330'
							PSIG
1981							
0/31	Shut in 1 week.						
	Run static gradient & set bombs off @ 14002'	10:00AM	-	-	5260B	PKR	6879
	Shut In	11:00	1	00	-	-	6884
	"	12:00 N	2	00	-	-	6388
	"	1:00	3	00	-	MCF/D	6893
	Started first rate	2:00	4	00	5270 DWT	-	6897
	Finished First rate	3:00	1	00	4030	384.54	5425
	& started 2nd rate						
	Finished 2nd rate	4:00	1	00	3285	444.27	4557
	& started 3rd rate						
	Finished 3rd rate	5:00	1	00	2610	582.62	4152
	& started 4th rate						
	Finished 4th rate	6:00	1	00	1910	716.73	3007
	& shut in for build up.						
	Shut in	6:02	0	02	-	-	3059
	"	6:04	0	04	-	-	3081
	"	6:06	0	06	-	-	3112
	"	6:08	0	08	-	-	3130
	"	6:10	0	10	-	-	3161
	"	6:12	0	12	-	-	3179
	"	6:14	0	14	-	-	3201
	"	6:16	0	16	-	-	3236
	"	6:18	0	18	-	-	3263
	"	6:20	0	20	-	-	3285
	"	6:22	0	22	-	-	3307
	"	6:24	0	24	-	-	3325
	"	6:26	0	26	-	-	3356
	"	6:28	0	28	-	-	3387
	"	6:30	0	30	-	-	3404
	"	6:35	0	35	-	-	3462
	"	6:40	0	40	-	-	3515
	"	6:45	0	45	-	-	3564
	"	6:50	0	50	-	-	3621
	"	6:55	0	55	-	-	3670
	"	7:00	1	00	-	-	3736
	"	7:15	1	15	-	-	3891
	"	7:30	1	30	-	-	4046
	"	7:45	1	45	-	-	4213
	"	8:00	2	00	-	-	4379
	"	8:15	2	15	-	-	4541
	"	8:30	2	30	-	-	4699
	"	8:45	2	45	-	-	4857

WELL: EBR Federal, . 1
 PAGE: 2

DATE	STATUS OF WELL	TIME	ELAPSED TIME		SURFACE PRESSURE		BHP @ (-10767)
			HRS.	MIN.	TBG	CSG	
	Shut in	9:00	3	00	-	-	5010
	"	9:30	3	30	-	-	5289
	"	10:00	4	00	-	-	5528
	"	11:00	5	00	-	-	5924
	"	12:00 MN	6	00	-	-	6190
11/1	"	1:00 AM	7	00	-	-	6364
	"	2:00	8	00	-	-	6432
	"	3:00	9	00	-	-	6503
	"	4:00	10	00	-	-	6539
	"	5:00	11	00	-	-	6580
	"	6:00	12	00	-	-	6593
	"	7:00	13	00	-	-	6607
	"	8:00	14	00	-	-	6620
	"	9:00	15	00	-	-	6642
	"	10:00	16	00	-	-	6665
	"	11:00	17	00	-	-	6687
	"	12:00 N	18	00	-	-	6701
	"	1:00 PM	19	00	-	-	6710
	"	2:00	20	00	-	-	6723
	"	3:00	21	00	-	-	6732
	"	4:00	22	00	-	-	6741
	"	5:00	23	00	-	-	6755
	"	6:00	24	00	-	-	6759
	"	7:00	25	00	-	-	6768
	"	8:00	26	00	-	-	6777
	"	9:00	27	00	-	-	6781
	"	10:00	28	00	-	-	6786
	"	11:00	29	00	-	-	6795
11/2	"	12:00 MN	30	00	-	-	6799
	"	1:00	31	00	-	-	6804
	"	2:00	32	00	-	-	6808
	"	3:00	33	00	-	-	6813
	"	4:00	34	00	-	-	6817
	"	5:00	35	00	-	-	6822
	"	6:00	36	00	-	-	6826
	"	7:00	37	00	-	-	6831
	"	8:00	38	00	-	-	6835
	"	9:00	39	00	-	-	6835
	"	10:00	40	00	-	-	6840
	"	11:00	41	00	-	-	6844
	"	12:00 N	42	00	-	-	6844
	"	1:00 PM	43	00	-	-	6844
	"	2:00	44	00	-	-	6844
	"	3:00	45	00	-	-	6849
	"	4:00	46	00	-	-	6853
	"	5:00	47	00	-	-	6853
	"	6:00	48	00	-	-	6858
	"	7:00	49	00	-	-	6858
	"	8:00	50	00	-	-	6862
	"	9:00	51	00	-	-	6862
	"	10:00	52	00	-	-	6862
	"	11:00	53	00	-	-	6862
	"	12:00 MN	54	00	-	-	6867
11/3	"	1:00 AM	55	00	-	-	6867
	"	2:00	56	00	-	-	6867
	"	3:00	57	00	-	-	6867

WELL: EBR Federal 0. 1PAGE: 3

DATE	STATUS OF WELL	TIME	ELAPSED TIME		SURFACE PRESSURE		BHP @ (-10767)
			HRS.	MIN.	TBG	CSG	14330' PSIG
	Shut in	4:00	58	00	-	-	6871
	"	5:00	59	00	-	-	6871
	"	6:00	60	00	-	-	6871
	"	7:00	61	00	-	-	6871
	"	8:00	62	00	-	-	6876
	"	9:00	63	00	-	-	6876
	"	10:00	64	00	-	-	6876
	"	11:00	65	00	-	-	6876
	"	12:00 N	66	00	-	-	6880
	"	1:00 PM	67	00	-	-	6880
	"	2:00	68	00	-	-	6880
	Fished Bombs & Run static gradient	3:00	69	00	5212	-	6885

JA .REL SERVICES, / C.

POST OFFICE BOX 1654

PHONES 505 393-5396 — 393-8274

HOBBS, NEW MEXICO 88240

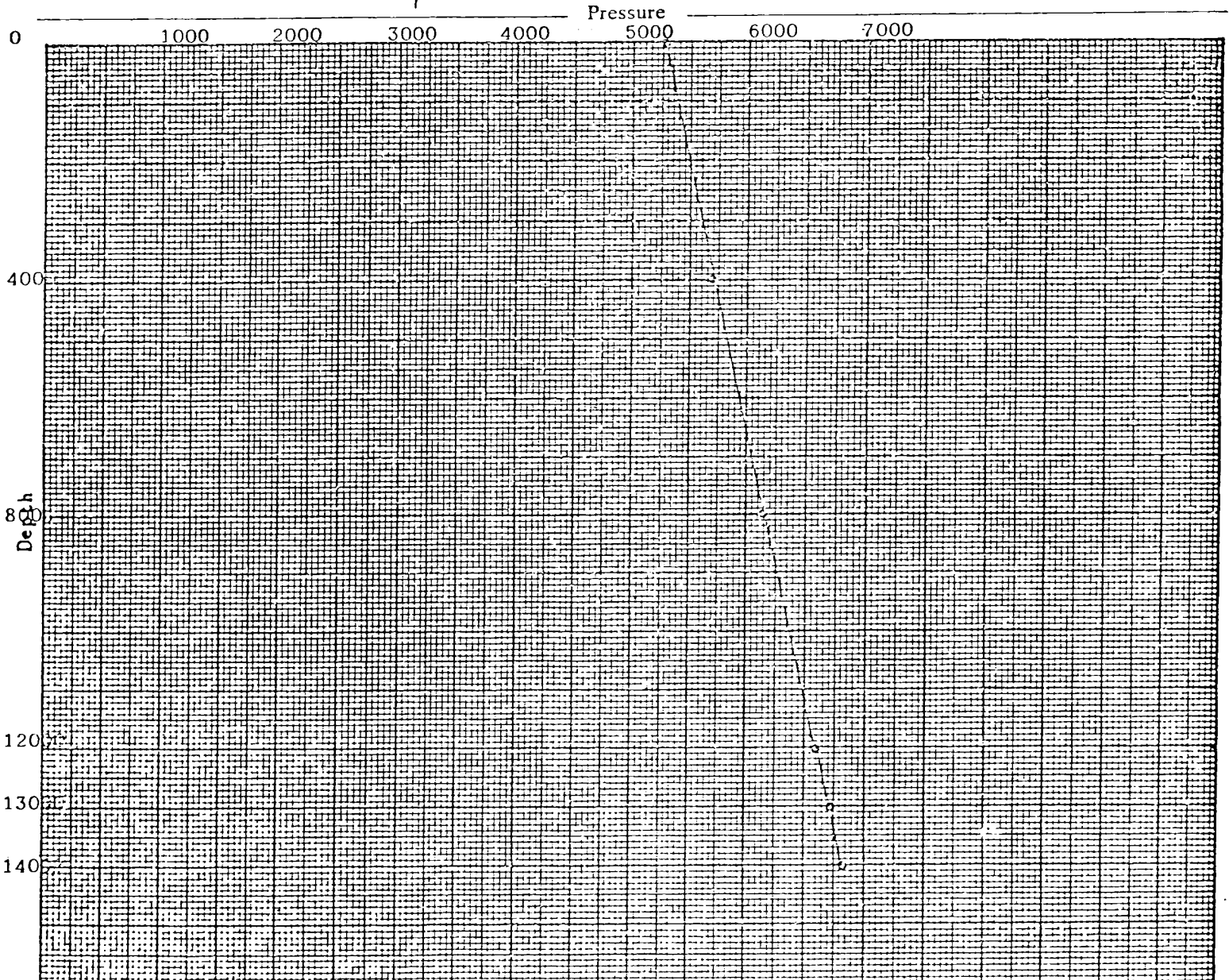
BOTTOM HOLE PRESSURE RECORD

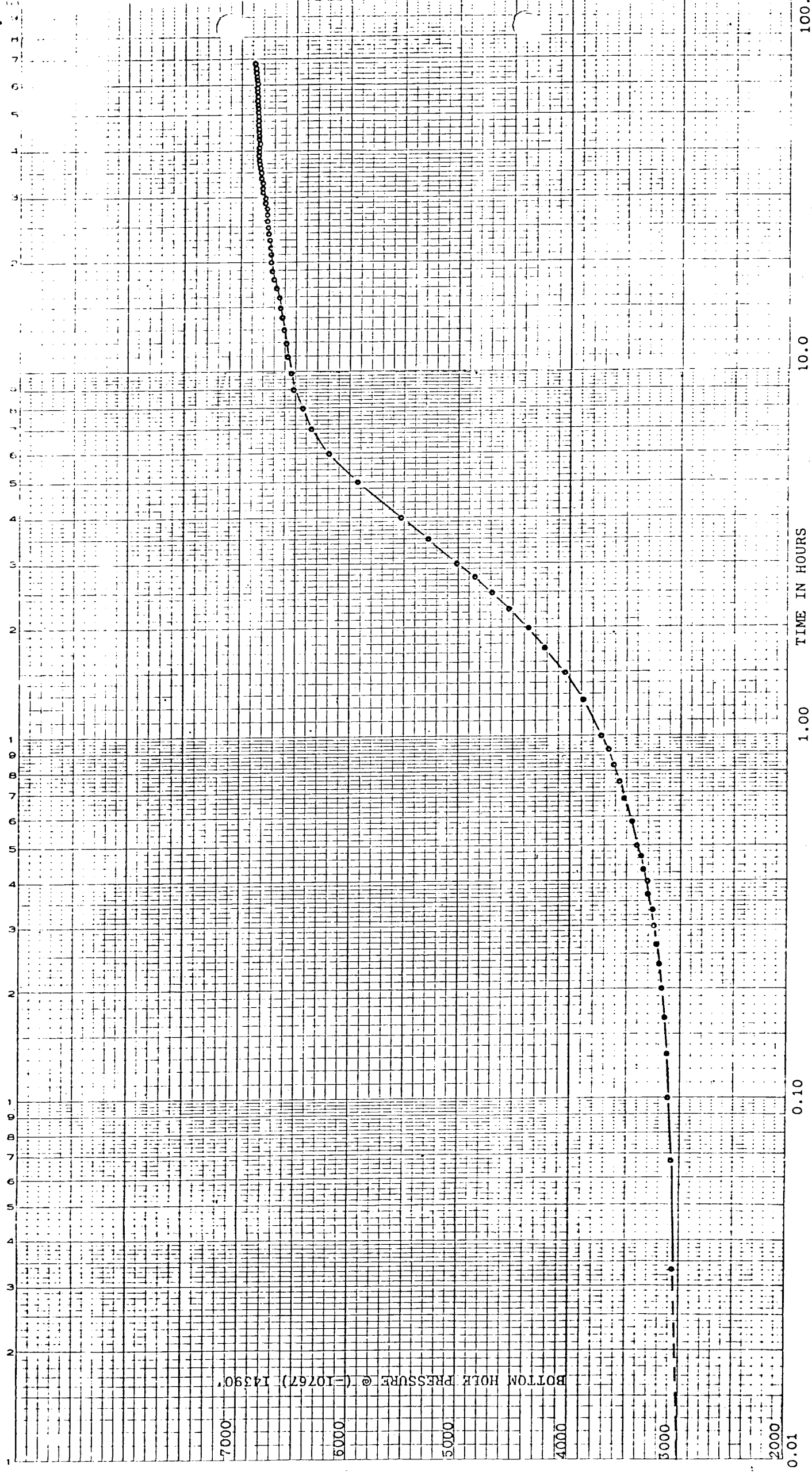
OPERATOR Pogo Producing Company
 FIELD Bootleg Ridge
 FORMATION Morrow
 LEASE EBR Federal WELL No. 1
 COUNTY Lea STATE N. Mex.
 DATE October 31, 1981 TIME 10:00 AM
 Status Shut In
 Test Depth 14002'
 Time S. I. 1 Week Last test date -
 Tub Pres. 5270 DWT BHP last test -
 Cas. Pres. PKR BHP change -
 Elev. 3623' KB-21 Fluid top None
 Datum (-10767) ** Water top None
 Temp. @ 194°F Run by JSI #13
 Cal. No. A14419N Chart No. 1

Depth	Pressure	Gradient
0	5260	-
4000	5686	.107
8000	6142	.114
12000	6602	.115
13000	6718	.116
14002	6834	.116
14390 (-10767)	6879 * **	(.116)

* EXTRAPOLATED PRESSURE

** MIDPOINT OF CASING PERFORATIONS





JA REL SERVICES, INC.

POST OFFICE BOX 1654

PHONES 505 393-5396 — 393-8274

HOBBS, NEW MEXICO 88240

BOTTOM HOLE PRESSURE RECORD

OPERATOR Pogo Producing Company
 FIELD Bootleg Ridge
 FORMATION Morrow
 LEASE EBR Federal WELL No. 1
 COUNTY Lea STATE N. Mex.
 DATE November 3, 1981 TIME 3:00 PM
 Status Shut in
 Test Depth 14002'
 Time S. I. 69.0 HRS. Last test date 10-31-81
 Tub Pres. 5212 BHP last test 6897
 Cas. Pres. PKR BHP change 12# Loss
 Elev. 3623' KB-21 Fluid top None
 Datum (-10767) ** Water top None
 Temp. @ 194°F Run by JSI #13
 Cal. No. A14419N Chart No. 2

Depth	Pressure	Gradient
0	5212	-
4000	5661	.112
8000	6129	.117
12000	6601	.118
13000	6720	.119
14002	6839	.119
14390 (-10767)	6885 * 88	(.119)

* EXTRAPOLATED PRESSURE

** MIDPOINT OF CASING PERFORATIONS

