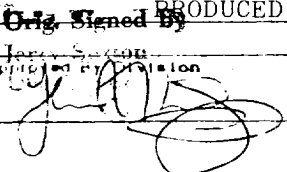
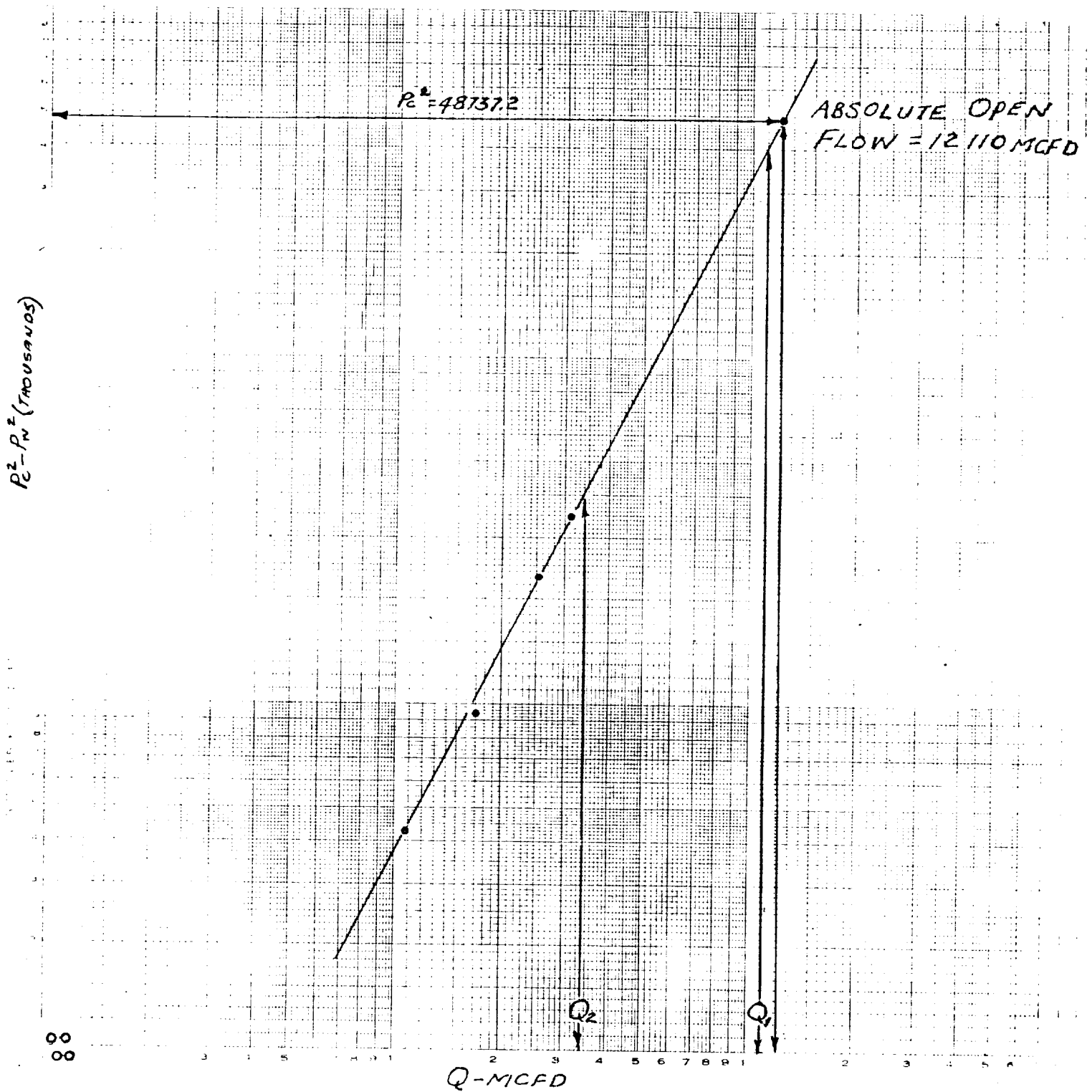


MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10/21/81	
Company Tenneco Oil Company				Connection None			
Field Kemnitz				Formation Morrow			
Completion Date 10/21/81		Total Depth 13350'		Plug Back TD 13303'		Elevation 4165' KB	
Casing Size 5 1/2"		WT. 17.0		Set At 13303'		Perforations: From 13250' To 13266'	
Tubing Size 2 7/8"		WT. 6.5		Set At 12990'		Perforations: Open Ended	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At 12990'	
Producing Thru Tubing		Reservoir Temp. °F 60		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
L 13258'		H -		G _g 0.6751		Prover 2.900"	
				% CO ₂ 0.650		% N ₂ 0.735	
				% H ₂ S -		Meter Run F	
FLOW DATA				TUBING DATA		CASING DATA	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g. DWT
1	2.900	6/64	1.500	590	10	90	4541
2	2.900	8/64	1.500	600	24	87	4500
3	2.900	12/64	2.00	640	13	90	4414
4	2.900	16.5/64	2.00	650	19	80	4320
5							
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (4 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{spv}	Rate of Flow Q, MCFD
1	11.23	77.67	603.2	0.9723	1.217	1.054	1087.84
2	11.23	121.31	613.2	0.9750	1.217	1.055	1705.39
3	21.90	92.15	653.2	0.9723	1.217	1.057	2524.09
4	21.90	112.25	663.2	0.9813	1.217	1.063	3120.73
5							
NO.	F ₁	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 9.632 Mcf/Lb.		
1	0.90	550	1.46	0.901	A.P.I. Gravity of Liquid Hydrocarbons 50.6		
2	0.91	547	1.45	0.898	Specific Gravity Separator Gas 0.6751		
3	0.97	550	1.46	0.895	Specific Gravity Flowing Fluid X X X X X		
4	0.99	540	1.43	0.885	Critical Pressure 672 P.S.I.A		
5					Critical Temperature 378 °R		
P _c 6981.2 P _c ² 48737.2							
NO.	P _w *	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 112.84$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 11.13$			
1	6950.2	48305.3	431.9				
2	6913.2	47792.3	944.9				
3	6813.2	46419.7	2317.5				
4	6726.2	45241.8	3495.4	AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 12110$			
5							
Absolute Open Flow 12110				Mcf @ 15.025		Angle of Slope @ 62° 59'	
				Slope, n 0.510			
Remarks: * BOTTOM HOLE PRESSURE @ (-9093) 13258' USED FOR PRESSURE CALCULATIONS							
PRODUCED 36.5 BD IN 4 HOURS = 219 BD/D							
Original Signed By 				Conducted By: BARREL WELL TESTING, INC			
Applied by Division				Calculated By: Joe A. Coleman		Checked By: PE#2208 Joe A. Coleman	

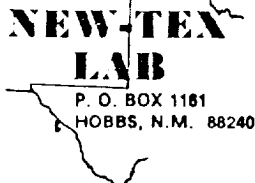
COMPANY: Tenneco Oil Company
 WELL: State LF 30, No. 2
 LOCATION: K 30 - 16s - 34e
 COUNTY: Lea
 DATE: October 21, 1981



$$Q_1 = 11000 \text{ MCFD}; \text{LOG } Q_1 = 4.04139$$

$$Q_2 = 3400 \text{ MCFD}; \text{LOG } Q_2 = 3.53148$$

$$\eta = 0.50991 = 0.510$$



No. 5886
Run No.
Date of Run 10-22-81
Date Secured 10-21-81

CERTIFICATE OF ANALYSIS

A Sample of Tenneco Kemnitz State 30 #2
Secured from Jarrel Well Testing
At Box 1654 Secured by _____
Hobbs, NM 88240 Time _____ Date _____
Sampling conditions _____ Press _____
Temp. _____ Station No. _____

FRACTIONAL ANALYSIS

Percentage Composition

MOL % LIQ. % G.P.M.

Carbon Dioxide	.650	
Air		
Nitrogen	.733	
Oxygen		
Hydrogen sulfide		
Hydrogen		
Methane	84.165	
Ethane	8.876	2.367
Propane	3.517	.965
Butanes		
Iso-Butane	.488	.159
N-Butane	.865	.272
Pentanes		
Iso-Pentane	.229	.084
N-Pentane	.208	.075
Hexanes	Plus 2.69	.110
Heptanes		
Octanes		
TOTAL	100.000	4.032

Calc. Sp. Gr. 0.6751
Calc. A.P.I. _____
Calc. Vapor Press. _____ PSIA
Sp. Gr. _____
Mol. Wt. 19.55

LIQUID CONTENT (GAL./MCF)

Propane Calc. G.P.M. .965
Butanes Calc. G.P.M. .431
Pentanes Plus. G.P.M. .269
Ethane Calc. G.P.M. 2.67 2.367
RVP Gasoline G.P.M. _____

B.T.U./Cu. Ft. @ 14.696 P.S.I.A.

Dry Basis 1171
Wet Basis 1151

Sulfur Analysis by Titration
Gr./100 Cu. Ft.

Hydrogen Sulfide

Mercaptans

Sulfides

Residual Sulfur

Total Sulfur

Run by Deane Simpson Checked by _____ Approved by [Signature]

Additional Data and Remarks

JARREL SERVICES, INC.

POST OFFICE BOX 1654

PHONE 505 393.5396

HOBBS, NEW MEXICO 88240

COMPANY: Tenneco Oil Company

WELL: State LF 30, No. 2

FIELD: Kemnitz - Morrow

CHRONOLOGICAL PRESSURE DATA

DATE	STATUS OF WELL	TIME	ELAPSED TIME HRS.	MIN.	SURFACE PRESSURE TBG	CSG	BHP @ (-9093) 13003'	13258' PSI
1981								
10/20	Shut in 16.5 hrs. Run Static Gradient w/Tandem Bombs & Set Bombs off @ 13003'.	4:00 PM	16	30	4586 DWT	PKR	6910	6956
	Shut in	5:00	17	30	-	-	6910	6956
	"	6:00	18	30	-	-	6910	6956
	"	7:00	19	30	-	-	6910	6956
	"	8:00	20	30	-	-	6910	6956
	"	9:00	21	30	-	-	6910	6956
	"	10:00	22	30	-	-	6916	6962
	"	11:00	23	30	-	-	6916	6962
	"	12:00 MN	24	30	-	-	6916	6962
10/21	"	1:00 AM	25	30	-	-	6916	6962
	"	2:00	26	30	-	-	6916	6962
	"	3:00	27	30	-	-	6916	6962
	"	4:00	28	30	-	-	6916	6962
	"	5:00	29	30	-	-	6922	6968
	"	6:00	30	30	-	-	6922	6968
	"	7:00	31	30	-	-	6922	6968
	"	8:00	32	30	-	-	6922	6968
	"	9:00	33	30	-	-	6922	6968
	Started 1st Rate Flowing	10:00	34	30	4595 DWT		6922	6968
	Finished 1st Rate & Started 2nd Rate	11:00	1	00	4541	MCF/D 1087.84	6891	6937
	Finished 2nd Rate Started 3rd Rate	12:00	1	00	4500	1705.39	6854	6900
	Finished 3rd Rate Started 4th Rate	1:00 PM	1	00	4414	2524.09	6754	6800
	Finished 4th Rate & Shut in	2:00	1	00	4320	3120.73	6667	6713
	Shut in	2:15	0	15	-	-	6735	6781
	"	2:30	0	30	-	-	6754	6800
	"	3:00	1	00	-	-	6773	6819
	"	4:00	2	00	-	-	6798	6844
	"	5:00	3	00	-	-	6810	6856
	"	6:00	4	00	-	-	6822	6868
	"	7:00	5	00	-	-	6829	6875
	"	8:00	6	00	-	-	6829	6875
	"	9:00	7	00	-	-	6835	6881
	"	10:00	8	00	-	-	6841	6887
	"	11:00	9	00	-	-	6847	6893
	"	12:00 MN	10	00	-	-	6847	6893
10/22	"	1:00 AM	11	00	-	-	6854	6900
	"	2:00	12	00	-	-	6854	6900
	"	3:00	13	00	-	-	6854	6900

WELL: State LF 30, No. 2
 PAGE: 2

DATE	STATUS OF WELL	TIME	ELAPSED TIME		SURFACE PRESSURE		BHP @ (-9093)	
			HRS.	MIN.	TBG	CSG	13003'	13258' PSI
10/23	Shut in	4:00	14	00	-	-	6854	6900
	"	5:00	15	00	-	-	6854	6900
	"	6:00	16	00	-	-	6860	6906
	"	7:00	17	00	-	-	6860	6906
	"	8:00	18	00	-	-	6860	6906
	"	9:00	19	00	-	-	6860	6906
	"	10:00	20	00	-	-	6860	6906
	"	11:00	21	00	-	-	6860	6906
	"	12:00 N	22	00	-	-	6860	6906
	"	1:00 PM	23	00	-	-	6860	6906
	"	2:00	24	00	-	-	6860	6906
	"	3:00	25	00	-	-	6866	6912
	"	4:00	26	00	-	-	6866	6912
	"	5:00	27	00	-	-	6866	6912
	"	6:00	28	00	-	-	6866	6912
	"	7:00	29	00	-	-	6866	6912
	"	8:00	30	00	-	-	6866	6912
	"	9:00	31	00	-	-	6866	6912
	"	10:00	32	00	-	-	6866	6912
	"	11:00	33	00	-	-	6866	6912
	"	12:00 MN	34	00	-	-	6866	6912
	"	1:00 AM	35	00	-	-	6872	6918
	"	2:00	36	00	-	-	6872	6918
	"	3:00	37	00	-	-	6872	6918
	"	4:00	38	00	-	-	6872	6918
	"	5:00	39	00	-	-	6872	6918
	"	6:00	40	00	-	-	6872	6918
	"	7:00	41	00	-	-	6872	6918
	"	8:00	42	00	-	-	6879	6925
	"	9:00	43	00	-	-	6879	6925
	"	10:00	44	00	-	-	6879	6925
	"	11:00	45	00	-	-	6879	6925
	"	12:00	46	00	-	-	6879	6925
	Fished Bombs & Ran Static Gradient	1:00 PM	47	00	4578 DWT	-	6879	6925

JARREL SERVICES, INC.

POST OFFICE BOX 1654

PHONES 505 393-5396 — 393-8274

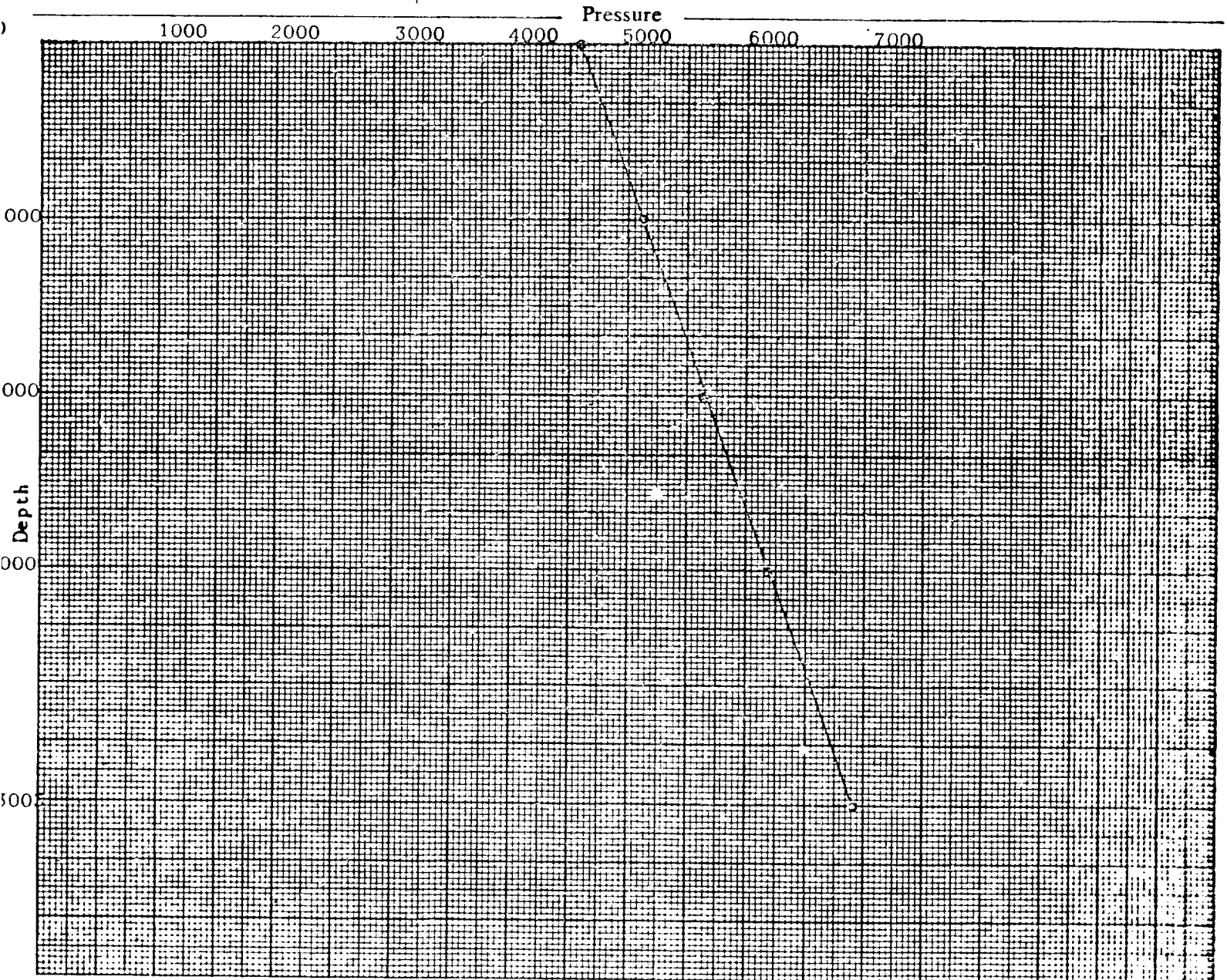
HOBBS, NEW MEXICO 88240

OPERATOR Tenneco Oil Company
 FIELD Kemnitz
 FORMATION Morrow
 LEASE State LF 3D WELL #2
 COUNTY Lea STATE New Mexico
 DATE 10/20/81 TIME 4:00 PM
 Status Shut in
 Test Depth 13003'
 Time S. I. 16.5 hrs Last test date -
 Tub Pres. 4586 DWT BHP last test -
 Cas. Pres. PKR BHP change -
 Elev. 4165' KB Fluid top None
 Datum (-9093) ** Water top None
 Temp. @ - Run by JSI #20
 Cal. No. A13682N Chart No. 1

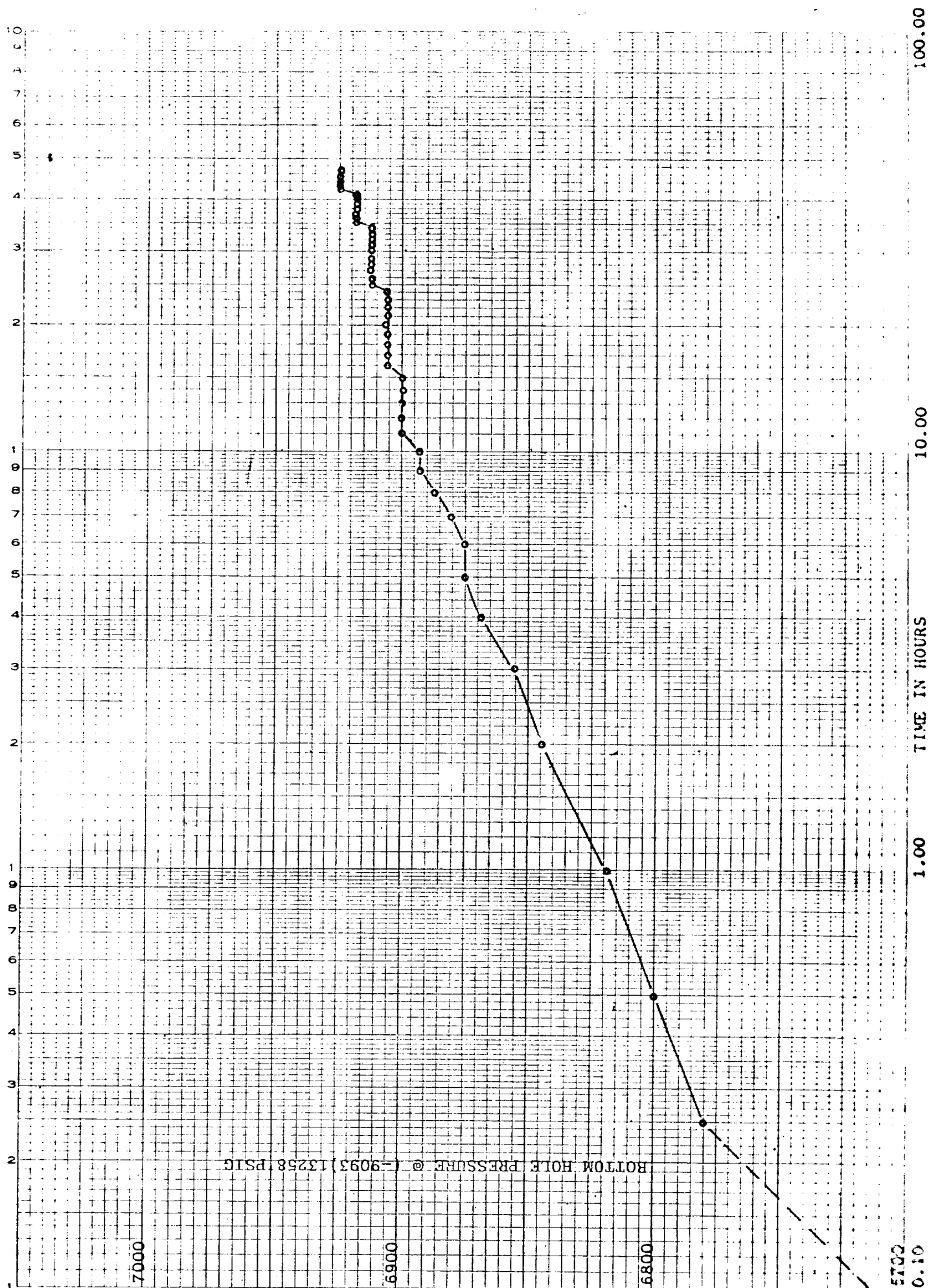
BOTTOM HOLE PRESSURE RECORD

Depth	Pressure	Gradient
0	4586	-
3000	5110	.175
6000	5647	.179
9000	6187	.180
13003	6910	.181
13258 (-9093)	6956 * **	(.181)

* EXTRAPOLATED PRESSURE
 ** MIDPOINT OF CASING PERFORATIONS



JARREL SERVICES, INC.



JARREL SERVICES, INC.

POST OFFICE BOX 1654

PHONES 505 393-5396 — 393-8274

HOBBS, NEW MEXICO 88240

OPERATOR Tenneco Oil Company
 FIELD Kemnitz
 FORMATION Morrow
 LEASE State LF 30 WELL #2
 COUNTY Lea STATE New Mexico
 DATE 10/23/81 TIME 1:00 PM
 Status Shut in
 Test Depth 13003'
 Time S. I. 47.0 hrs. Last test date 10/21/81
 Tub Pres. 4578 B BHP last test 6968
 Cas. Pres. PKR BHP change 43# Loss
 Elev. 4165' KB Fluid top None
 Datum (-9093)** Water top None
 Temp. @ - Run by JSI #16
 Cal. No. A13682N Chart No. 2

BOTTOM HOLE PRESSURE RECORD

Depth	Pressure	Gradient
0	4578	-
3000	5090	.171
6000	5621	.177
9000	6158	.179
13003	6879	.180
13258 (-9093)	6925 * **	(.180)

* EXTRAPOLATED PRESSURE

** MIDPOINT OF CASING PERFORATIONS

