

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 5/16/82	
Company Tenneco Oil Company		Connection Transwestern	
Well Kemnitz		Formation Morrow	
Completion Date 2/17/82		Total Length 13128'	
Plug Back TD 13083'		Elevation 4128'GL	
Casing Size 5 1/2"		Well No. 1	
Casing Weight 20.0		Perforations From 12844' To 12852'	
Tubing Size 2 3/8"		Perforations Open Ended	
Tubing Weight 4.7		From To	
1.995		12747'	
Type Well - Single - Prodenhead - G.G. or G.O. Multiple Single		Packer Set At 12747'	
Producing thru Tubing		Reservoir Temp. °F 186° 12700'	
Mean Annual Temp. °F 60°		Base Press. - P _g 13.2	
L 12848		H -	
Cg 0.6984		% CO ₂ 0.499	
% N ₂ 1.547		% H ₂ S -	
Prover 4		Meter Run 2.067	
County Lea		State New Mexico	
Flow Data		Tubing Data	
Casing Data		Duration of Flow	
NO	Prover Line Size	X	Orifice Size
1	2.067	4/64	1.125
2	2.067	5/64	1.125
3	2.067	6/64	1.125
4	2.067	8/64	1.125
5			
RATE OF FLOW CALCULATIONS			
NO	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m
1	6.393	37.68	473.2
2	6.393	43.51	473.2
3	6.393	61.53	473.2
4	6.393	75.36	473.2
5			
NO	R ₁	Temp. °R	T _r
1	0.71	558	1.46
2	0.71	558	1.46
3	0.71	560	1.47
4	0.71	560	1.47
5			
Gas Liquid Hydrocarbon Ratio 6.43			
A.P.L. Gravity of Liquid Hydrocarbons 53.6			
Specific Gravity Separator Gas 0.6984			
Specific Gravity Flowing Fluid X X X X X			
Critical Pressure 670 P.S.I.A			
Critical Temperature 381 °R			
P _c 6592.2 * P _c ² 43457.1			
NO	P _c ²	P _w *	P _w ²
1	5867.2	34424.0	9033.1
2	5725.2	32777.9	10679.2
3	5268.2	27753.9	15703.2
4	4728.2	22355.9	21101.2
5			
(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.767$			
(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.456$			
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1159$			
Absolute Open Flow 1159		Mcf @ 15.025	
Angle of Slope 48°34'		Slope, n 0.883	
Remarks: * BOTTOM HOLE PRESSURE @ (-8720)12848' USED FOR PRESSURE CALCULATIONS			
WELL PRODUCED 10.3 BD IN 3.75 HRS. = 65.92 BD/D			
Approved By Division		Conducted By	
Calculated By		Checked By	
JARREL WELL SERVICES INC. D. Dickerson		PE #2208 Joe A. Coleman	

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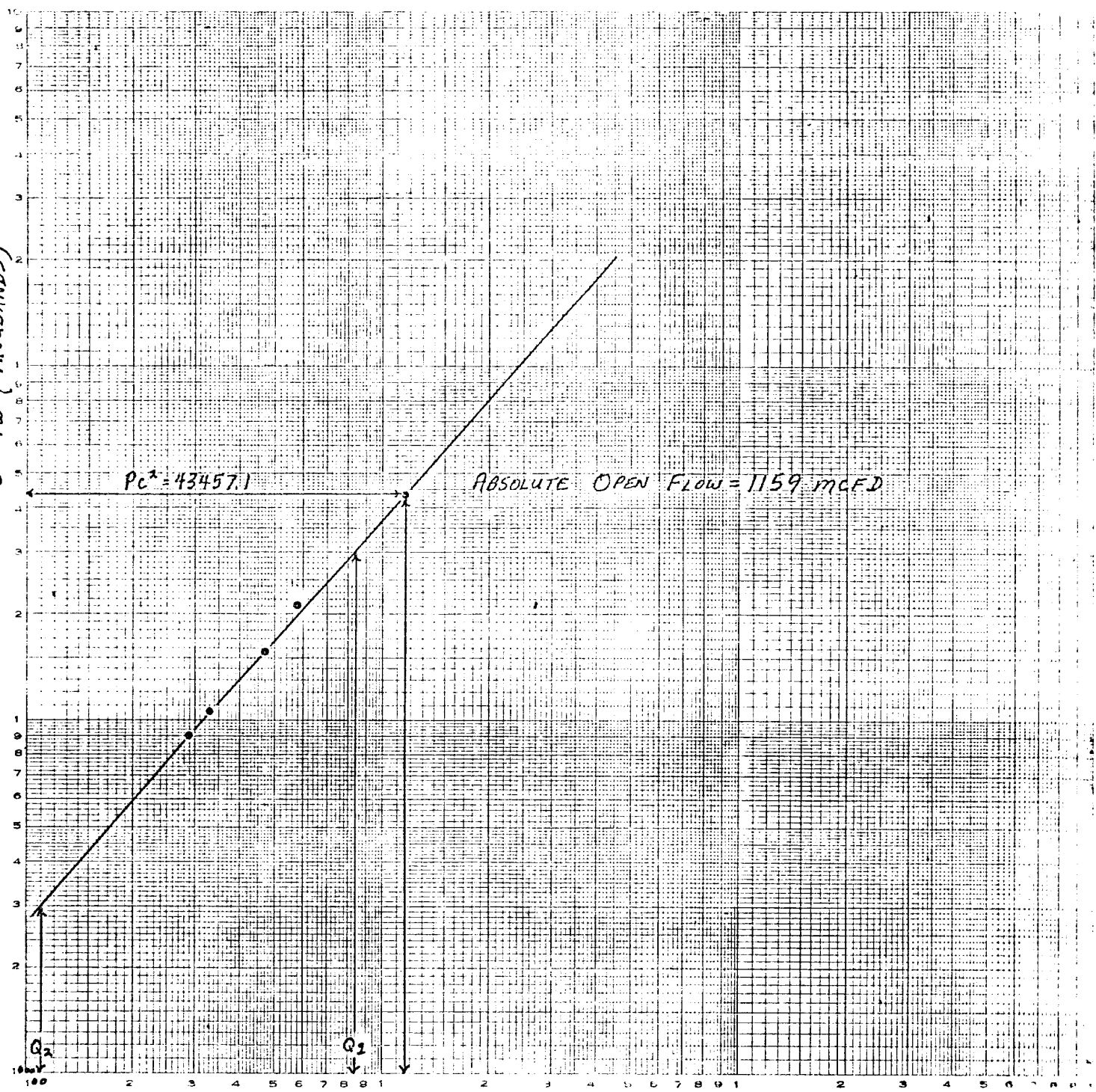
JUN 1 - 1982

O.C.D.
HOBBS OFFICE

COMPANY: Pemco Oil Company
 WELL: State LE 20, No. 1
 LOCATION: Unit M Sec. 20 16s 34e
 COUNTY: Lea
 DATE: May 16, 1982

NO. 340-L33 DIETZGEN GRAPH PAPER
 LOGARITHMIC
 3 CYCLES X 3 CYCLES
 DIETZGEN CORPORATION
 MADE IN U.S.A.

$P_c^2 - P_w^2$ (THOUSANDS)



$Q = \text{mCFD}$
 $Q_1 = 840 \text{ mCFD}; \text{LOG } Q_1 = 2.92428$
 $Q_2 = 110 \text{ mCFD}; \text{LOG } Q_2 = 2.04139$
 $n = 0.88289 = 0.883$

NEW-TEN
LAB

PHONE 505/393-3561

P. O. BOX 1161

611 W. SNYDER

HOBBS, NEW MEXICO 88240

ANALYSIS CERTIFICATE

CLIENT: JARREL WELL TESTING INC.
ADDRESS: BOX 1457
CITY, STATE: HOBBS NM 88240

ANALYSIS NUMBER : 7431
DATE OF RUN : 05/17/82
DATE SECURED : 05/16/82

SAMPLE IDENT: TENNECO OIL COMPANY - ST LF 1-20
SAMPLING PRESS: 460 PSIG
SAMPLING TEMP:

***** GAS ANALYSIS *****

	MOLE PERCENT	GAL/ MCF
NITROGEN	1.547	
CARBON DIOXIDE	0.499	
METHANE	81.398	
ETHANE	9.399	2.507
PROPANE	4.549	1.249
ISO-BUTANE	0.720	0.235
NORMAL BUTANE	1.096	0.345
ISO-PENTANE	0.269	0.098
NORMAL PENTANE	0.191	0.069
HEXANES	0.128	0.053
HEPTANES PLUS	0.204	0.094
TOTAL	100.000	4.650

PROPANE GPM: 1.25 BUTANES GPM: 0.58
ETHANE GPM: 2.51 PENTANES PLUS GPM: 0.31

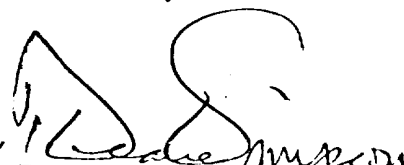
SPECIFIC GRAV (CALC): 0.6984
MOLE WEIGHT: 20.25

HHV-BTU/CU FT	PRESSURE (PSIA)	WET	DRY
14.696		1177	1198
14.650		1173	1194
14.730		1180	1201
14.735		1180	1201

R H HAMILTON

ANALYZED BY: _____

APPROVED BY



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JANREL SERVICES, INC.

POST OFFICE BOX 1654

PHONE 505 393-5396

HOBBS, NEW MEXICO 88240

COMPANY: Tenneco Oil Company

WELL: State LF 20, No. 1

FIELD: Kemnitz - Morrow

CHRONOLOGICAL PRESSURE DATA

DATE	STATUS OF WELL	TIME	ELAPSED TIME		SURFACE PRESSURE		BHP @ (-8720)	
			HRS.	MIN.	TBG	CSG	12700'	12848' PSIG
1982								
5/16	Shut in 67.0 hrs.							
	Run Static Gradient w/ Tandem Bombs & hung Bombs @ 12700'				DWT			
	Started 1st Rate	11:30 AM	0	00	4436	PKR	6554	6579
	Flowing	12:00 N	0	30	4436	-	6554	6579
	Finished 1st Rate & Started 2nd Rate	1:00 PM	1	00	3785	MCF/D	5830	5854
	Finished 2nd Rate	1:45	0	45	3632	334.58	5688	5712
	Started 3rd Rate	2:45	1	00	3240	471.86	5232	5255
	Finished 3rd Rate	3:45	1	00	2820	577.92	4693	4715
	Started 4th Rate							
	Finished 4th Rate & Pulled Bombs							

JARRIS SERVICES, INC.

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PHONES 505 393-5396 — 393-8274

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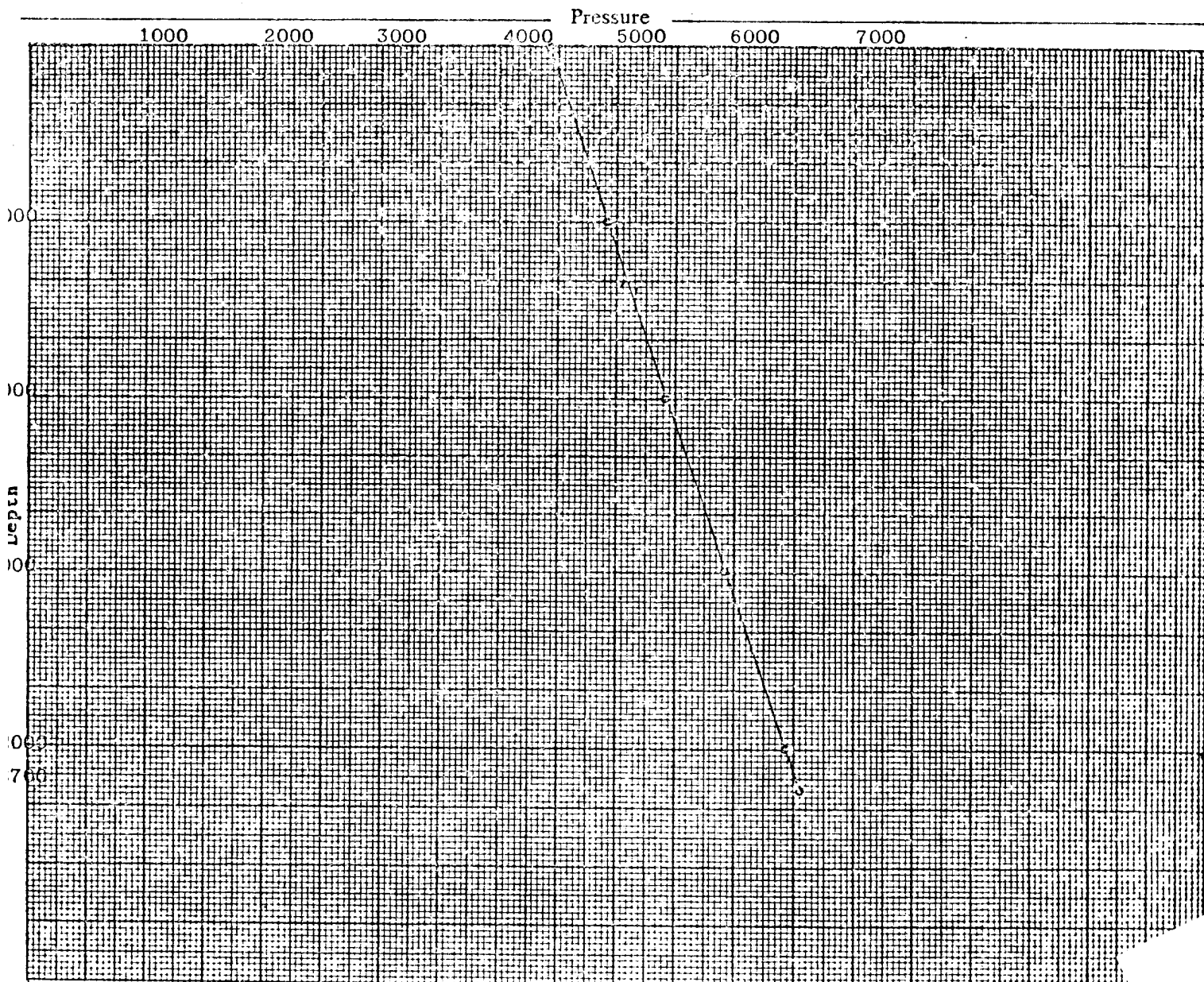
BOTTOM HOLE PRESSURE RECORD

OPERATOR Tenneco Oil Company
 FIELD Kemnitz
 FORMATION Morrow
 LEASE State LF 20 WELL # 1
 COUNTY Lea STATE New Mexico
 DATE 5/16/82 TIME 11:30 AM
 Status Shut in
 Test Depth 12700'
 Time S. I. 67.0 hrs. Last test date 3/25/82
 Tub Pres. 4436 DWT BHP last test 6317
 Cas. Pres. PKR BHP change 262# Gain
 Elev. 4128' GL + 13' Fluid top None
 Datum (-8720)** Water top None
 Temp. @ 186°F Run by JSI # 10
 Cal. No. A 18473N Chart No. 1

Depth	Pressure	Gradient
0	4436 DWT	-
3000	4931	.165
6000	5426	.165
9000	5927	.167
12000	6434	.169
12700	6554	.171
12848 (-8720)	6579 * **	(.171)

* EXTRAPOLATED PRESSURE

** MIDPOINT OF CASING PERFORATIONS



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