

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

Form C-122
Revised 9-1-63

*C/SF
File*

Test Type: ☒ Initial ☐ Annual ☐ Special Test Date: 1-28-83					
Company: Transwestern Gas Supply				Connection: Air	
Well: <i>Wind Hole</i>				Formation: ABO	
Completion Date: 1-23-83		Total Depth: 3550		Elevation: 4187	
Casing Size: 4 1/2 Wt. 10.5		Set At: 3319		Perforations: From 2998 To 3102	
Tubing Size: 2 3/8 Wt. 10.5		Set At: 2871		Perforations: From To	
Type Well - Single - Prodenhead - G.O. or G.O. Multiple: Single Gas				Packer Set At: none	
Producing Thru: Tbg.		Reservoir Temp. °F: 105° 3050		Mean Annual Temp. °F: 60°	
Baro. Press. - P _a : 13.2		State: NM		County: Chaves	
L: 3050	H: 3050	G _g : .6172	% CO ₂ : 0	% N ₂ : 8.265	% H ₂ S:
Prover:		Meter Run: 4"		Taps: Flg.	

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
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	
51							705		705		
1.	4	x	.500	150	4.0	60	330		410		4 hrs.
2.	4	x	.250	250	25.0	62	340		520		4 hrs.
3.	4	x	.250	40	20.0	40	460		570		4 hrs.
4.	4	x	.250	150	2.0	60	500		595		4 hrs.
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, Mscf/d
1	1.182	25.55	163.2	1.000	1.273	1.012	39
2	.2984	81.12	263.2	.9981	1.273	1.020	31
3	.2984	32.62	53.2	1.020	1.273	nil	13
4	.2984	18.07	163.2	1.000	1.273	1.012	7
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	.25	520	1.52	.976	dry		.6172		657	343
2	.40	522	1.52	.961						
3	.08	500	1.46	nil						
4	.25	520	1.52	.976						
5										

NO.	BHP	P _w	P _w ²	P _e ² - P _w ²
1	569.2	531.5	282.4	333.2
2	658.2	614.1	377.1	238.5
3	739.2	689.3	475.1	140.5
4	775.2	722.6	522.2	93.4
5	842.2	S.I.P.		

(1) $\frac{P_e^2}{P_e^2 - P_w^2} = 1.848$

ACF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = .072$

(2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 1.848$

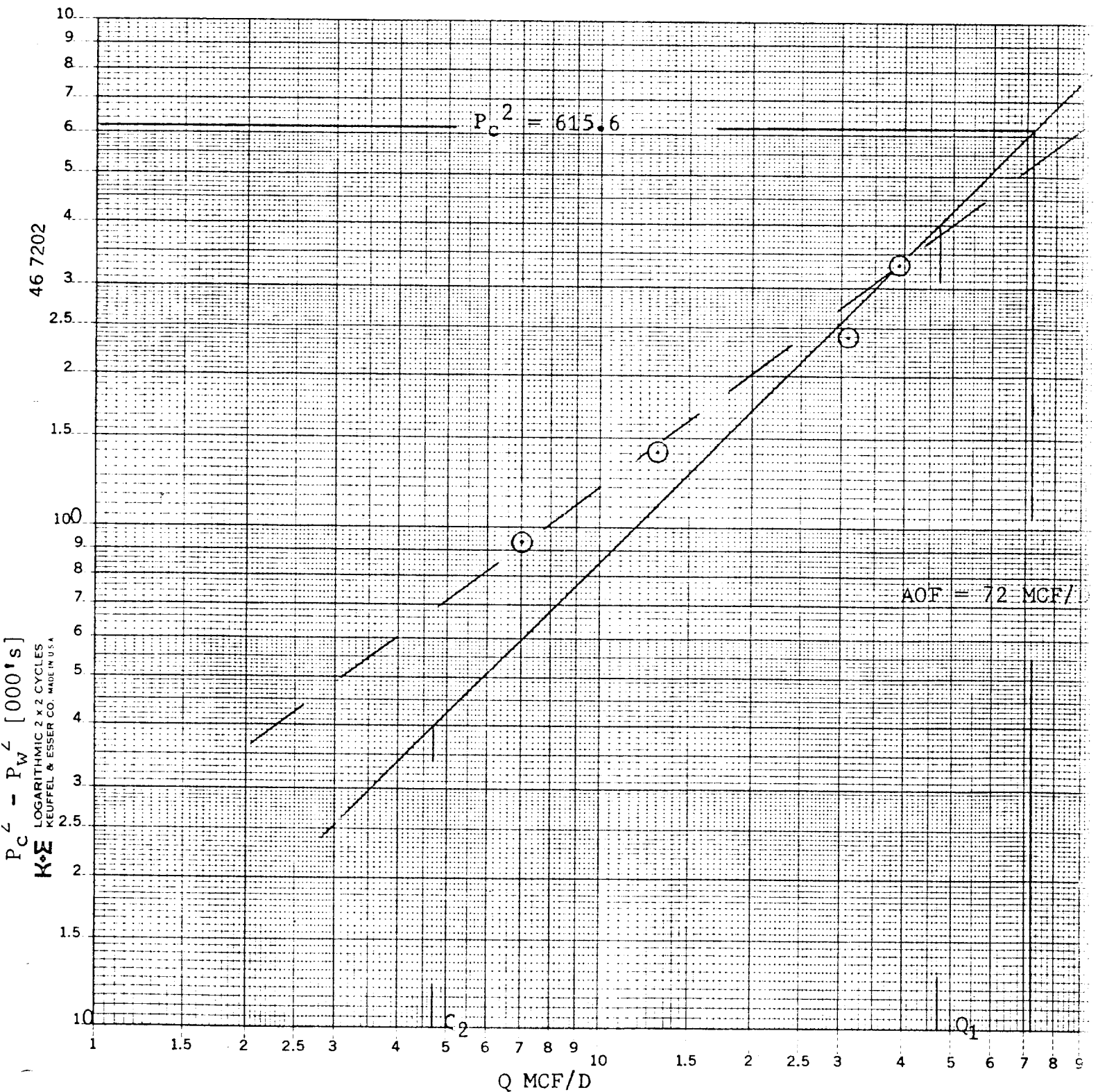
*Post FD-2
3-11-83
Comp & BK*

Absolute Gas Flow: 72 Mscf/d @ 15.025	Angle of Slope: 45°	Slope, n: 1.000
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Remarks: ***Calculated from B.H.P.**

Approved by Commission:	Conducted By: Davis Services, Inc	Calculated By: Rick Pagan	Checked By:
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COMPANY : TRANSWESTERN GAS SUPPLY CO.
 L SE : MILLER FEDERAL #.
 LOCATION : SEC. 7, TWP. 6s, RGE. 23e
 DATE : 1/28/83
 AOF : 72 MCF/D
 SLOPE : 1.000



$$\begin{aligned}
 Q_1 \text{ LOG } 47 &= 1.672098 \\
 -Q_2 \text{ LOG } 4.7 &= .672098 \\
 \hline
 n &= 1.000 \\
 \theta &= 45^\circ
 \end{aligned}$$

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WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_w)

Form G-122F
Adopted 9-1-65

FROM KNOWN BOTTOM HOLE PRESSURE (or P_s)

COMPANY Transwestern Gas LEASE Miller Fed. WELL NO. 1 DATE 1-28-83

LOCATION: Unit 7 Section 7 Township 6S Range 23E

L 3050 H 3050 L/H 1.000 G .6172 % CO₂ 0 % N₂ 8.265 % H₂S

GH 1882 P_{cr} 657 T_{cr} 343

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate				
	1	2	3	4	5	6	7	8
1	T _w (W.H. °R)	534	534	534	534	534	534	534
2	T _s (B.H. °R)	565	565	565	565	565	565	565
3	T = ($\frac{T_w + T_s}{2}$)	549.5	549.5	549.5	549.5	549.5	549.5	549.5
4	Z (Est.)	.933	.936	.923	.925	.915	.918	.914
5	TZ	512.7	514.3	507.2	508.3	502.8	504.4	502.2
6	GH/TZ	3.671	3.659	3.711	3.703	3.743	3.731	3.747
7	e ^S (Table XIV)	1.148	1.147	1.149	1.149	1.151	1.150	1.151
8	P _f or P _s	569.2	569.2	658.2	658.2	739.2	739.2	775.2
9	P _f ² or P _s ²	324.0	324.0	433.2	433.2	546.4	546.4	600.9
10	P _c ² = P _f ² /e ^S or P _w ² = P _s ² /e ^S	282.3	282.4	376.9	377.1	474.9	475.1	522.2
11	P _c or P _w	531.3	531.5	614.0	614.1	689.1	689.3	722.4
12	P = ($\frac{P_w + P_s}{2}$) or ($\frac{P_c + P_f}{2}$)	550.3	550.3	636.1	636.1	714.2	714.2	748.9
13	P _r = (P/P _{cr})	.84	.84	.97	.97	1.09	1.09	1.14
14	T _r = (T/T _{cr})	1.60	1.60	1.60	1.60	1.60	1.60	1.60
15	Z (Table XI)	.936	.936	.925	.925	.918	.918	.914

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or)

FROM KNOWN BOTTOM HOLE PRESSURE (P_f or)

COMPANY Transwestern Gas LEASE Miller Fed WELL NO. 1 DATE 1-28-83

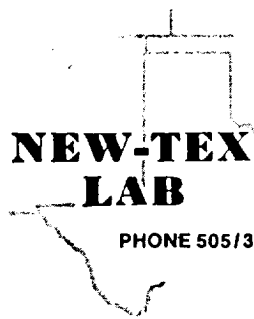
LOCATION: Unit Section 7 Township 6S Range 23E

L 3050 H 3050 L/H 1.000 G .6172 % CO₂ 0 % N₂ 8.265 % H₂S

GH 1882 P_{cr} 657 T_{cr} 343

SIP

LINE	1	2	3	4	5	6	7	8
1	T _w (W.H. °R)	534	534					
2	T _s (B.H. °R)	565	565					
3	T = ($\frac{T_w + T_s}{2}$)	549.5	549.5					
4	Z (Est.)	.903	.906					
5	TZ	496.2	497.8					
6	GH/TZ	3.793	3.780					
7	e ^S (Table XIV)	1.153	1.152					
8	P _f or P _s	842.2	842.2					
9	P _f ² or P _s ²	709.3	709.3					
10	P _c ² = P _f ² /e ^S or P _w ² = P _s ² /e ^S	615.3	615.6					
11	P _c or P _w	784.4	784.6					
12	P = ($\frac{P_w + P_s}{2}$) or ($\frac{P_c + P_f}{2}$)	813.3	813.4					
13	P _r = (P/P _{cr})	1.24	1.24					
14	T _r = (T/T _{cr})	1.60	1.60					
15	Z (Table XI)	.906	.906					



NEW-TEX LAB

PHONE 505/393-3561

P. O. BOX 1161

611 W. SNYDER

HOBBS, NEW MEXICO 88240

ANALYSIS CERTIFICATE

CLIENT: DAVIS SERVICES INC
ADDRESS: P O BOX 2033
CITY, STATE: HOBBS NM 88240

ANALYSIS NUMBER: 9102
DATE OF RUN: 01/31/83
DATE SECURED: 01/29/83

SAMPLE IDENT: TRANSWESTERN - MILLER FEDERAL #1
SAMPLING PRESS: SAMPLING TEMP:

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

	MOLE PERCENT	GAL/ MCF
NITROGEN	8.265	
CARBON DIOXIDE	0.000	
METHANE	89.109	
ETHANE	0.998	0.266
PROPANE	0.635	0.174
ISO-BUTANE	0.135	0.044
NORMAL BUTANE	0.361	0.113
ISO-PENTANE	0.104	0.038
NORMAL PENTANE	0.174	0.063
HEXANES	0.096	0.039
HEPTANES PLUS	0.123	0.057
TOTAL	100.000	0.794

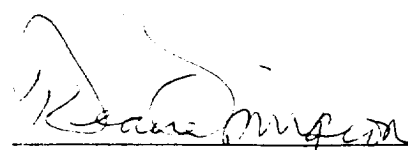
PROPANE GPM:	0.17	BUTANES GPM:	0.16
ETHANE GPM:	0.27	PENTANES PLUS GPM:	0.20

SPECIFIC GRAV (CALC): 0.6172
MOLE WEIGHT: 17.89

HHV-BTU/CU FT	PRESSURE (PSIA)	WET	DRY
14.696		955	972
14.650		952	969
14.730		956	975
14.735		958	975

ANALYZED BY: R H HAMILTON

APPROVED BY



UNICHEM INTERNATIONAL

401 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : DAVIS FEDERAL
DATE : 2-7-83
FIELD LEASES WELL : MILLER FEDERAL #1
SAMPLING POINT :
DATE SAMPLED : 1-31-83

SPECIFIC GRAVITY = 1.058
TOTAL DISSOLVED SOLIDS = 86591
PH = 5.04

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	466.	9352
MAGNESIUM	(MG)+2	123.	1499.
SODIUM	(NA).CALC.	926.	21305.
ANIONS			
BICARBONATE	(HCO3)-1	2.2	134.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	48.1	2312
CHLORIDES	(CL)-1	1466.	51988.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
-			
IRON(TOTAL)	(FE)		219
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP	Rw	.089 @ 73°F
	30C		
	86F		
CARBONATE INDEX	-1.5		
CALCIUM CARBONATE SCALING	UNLIKELY		
SULFATE INDEX	23.9		
CALCIUM SULFATE SCALING	LIKELY		


11.

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : DAVIS SERVICE
DATE : 2-7-83
FIELD LEASE & WELL : MILLER FEDERAL #1
SAMPLING POINT:
DATE SAMPLED : 1-30-83

SPECIFIC GRAVITY = 1.057
TOTAL DISSOLVED SOLIDS = 84951
PH = 4.73

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	440	8817.
MAGNESIUM	(MG)+2	140	1701.
SODIUM	(NA), CALC.	910.	20921.
ANIONS			
BICARBONATE	(HCO3)-1	2.4	146.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	49.4	2375
CHLORIDES	(CL)-1	1438.	50988.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
-			
IRON(TOTAL)	(FE)		435
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	
SCALING INDEX	TEMP	Rw	.089 @ 73°F
	30C		
	86F		
CARBONATE INDEX	-1.8		
CALCIUM CARBONATE SCALING	UNLIKELY		
SULFATE INDEX	23.9		
CALCIUM SULFATE SCALING	LIKELY		

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KELTIC SERVICES INC

COMPANY TRANWESTERN
LEASE MILLER FED.
FIELD NA
DEPTH 3052 FEET
TUBING PRESSURE 638 PSIG
BOMB NUMBER 162

DATE JAN 28-FEB 2 83
WELL NUMBER #1
FORMATION ABO
CASING PRESSURE 0 PSIG
OPERATOR CHUCK

TIME	HOURS	PRESSURE	PSIA
0.00		500.20	
.25		530.20	
.50		550.20	
.75		570.20	
1.00		585.20	
1.25		601.20	
1.50		611.20	
1.75		617.20	
2.00		627.20	
2.50		632.20	
3.00		649.20	
3.50		657.20	
4.00		664.20	
4.50		673.20	
5.00		678.20	
6.00		687.20	
7.00		693.20	
8.00		704.20	
9.00		709.20	
10.00		719.20	
15.00		734.20	
20.00		755.20	
30.00		775.20	
40.00		787.20	
50.00		801.20	
60.00		816.20	
70.00		821.20	

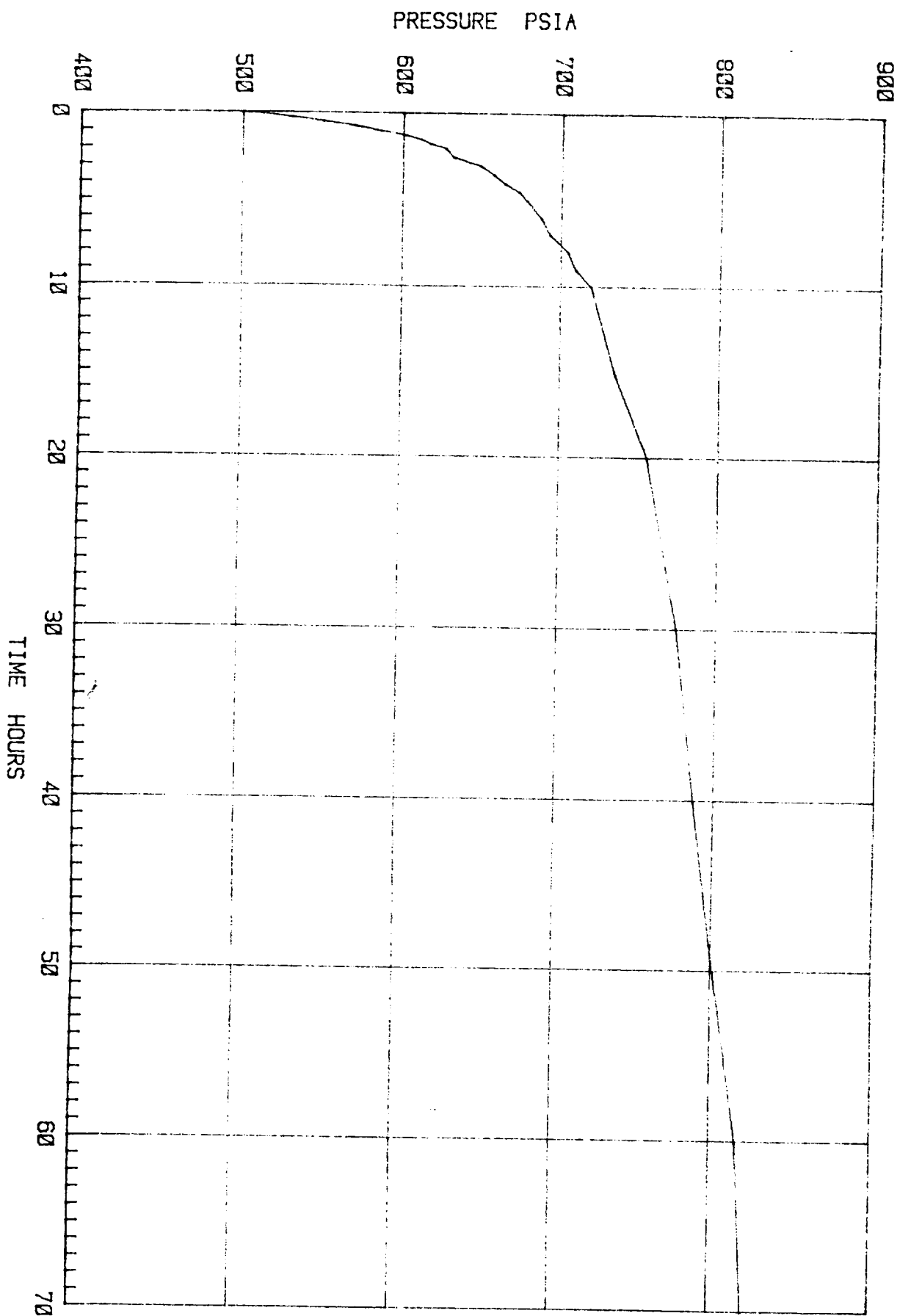
THANK YOU

TRANWESTERN

MILLER FED. #1

JAN 28-FEB 2 83

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KELTIC SERVICES

KELTIC SERVICES INC

COMPANY TRANWESTERN
LEASE MILLER FED.
FIELD NA
DEPTH 3052 FEET
TUBING PRESSURE 638 PSIG
BOMB NUMBER 162

DATE JAN 28-FEB 2 83
WELL NUMBER #1
FORMATION ABO

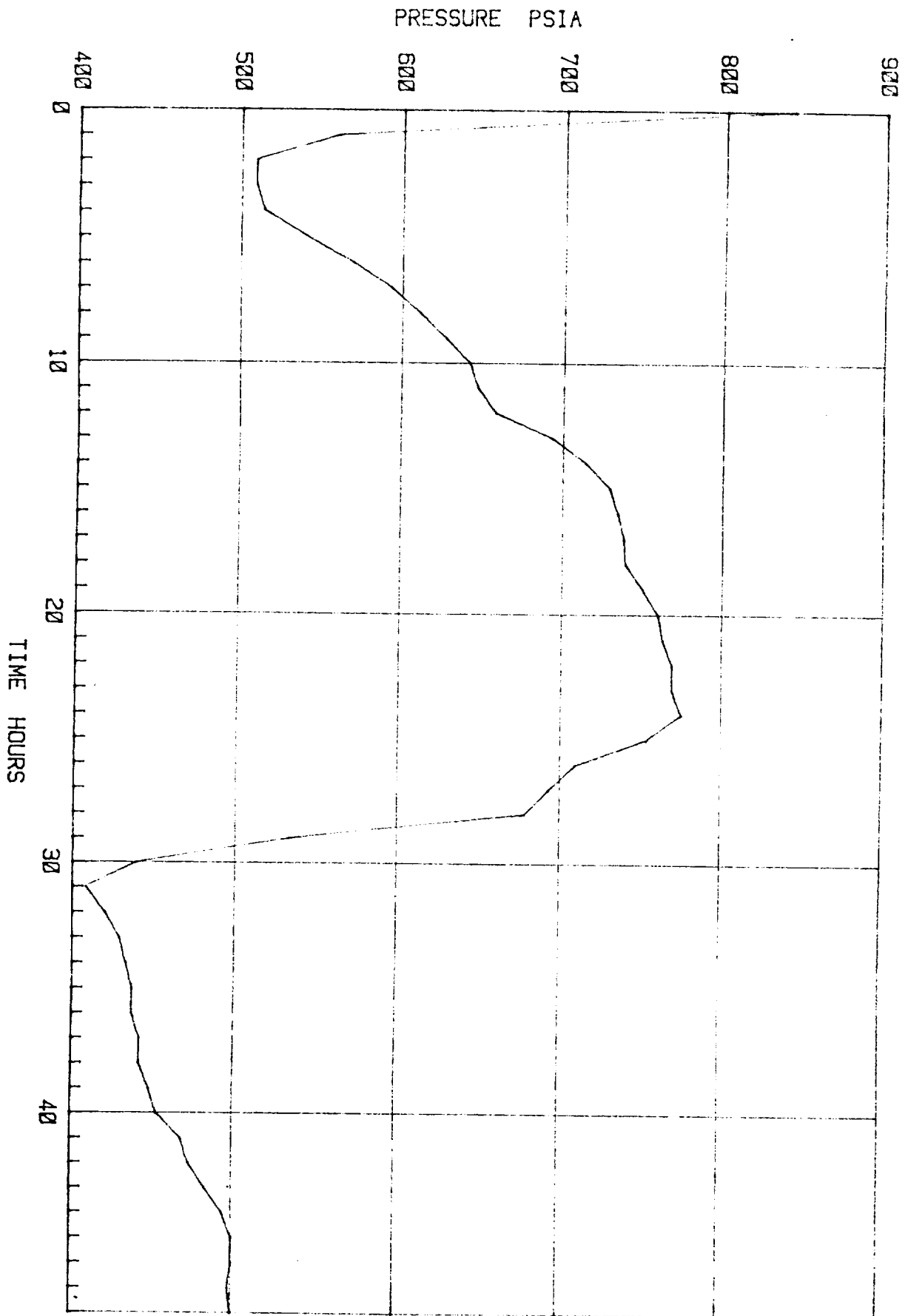
CASING PRESSURE 0 PSIG
OPERATOR CHUCK

TIME	HOURS	PRESSURE	PSIA
0.00		842.20	
1.00		560.20	
2.00		509.20	
3.00		509.20	
4.00		514.20	
5.00		540.20	
6.00		569.20	
7.00		593.20	
8.00		611.20	
9.00		627.20	
10.00		642.20	
11.00		647.20	
12.00		658.20	
13.00		693.20	
14.00		714.20	
15.00		729.20	
16.00		734.20	
17.00		738.20	
18.00		739.20	
19.00		750.20	
20.00		760.20	
21.00		763.20	
22.00		769.20	
23.00		769.20	
24.00		775.20	
25.00		753.20	
26.00		709.20	
27.00		693.20	
28.00		678.20	
29.00		534.20	
30.00		439.20	
31.00		408.20	
32.00		420.20	
33.00		429.20	
34.00		433.20	
35.00		437.20	
36.00		437.20	
37.00		442.20	
38.00		442.20	
39.00		448.20	
40.00		453.20	
41.00		468.20	
42.00		473.20	
43.00		483.20	
44.00		494.20	
45.00		500.20	
46.00		500.20	
47.00		498.20	
48.00		500.20	

TRANWESTERN

MILLER FED. #1

JAN 28-FEB 2 83



KELTIC SERVICES