

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

MAR 5 '90

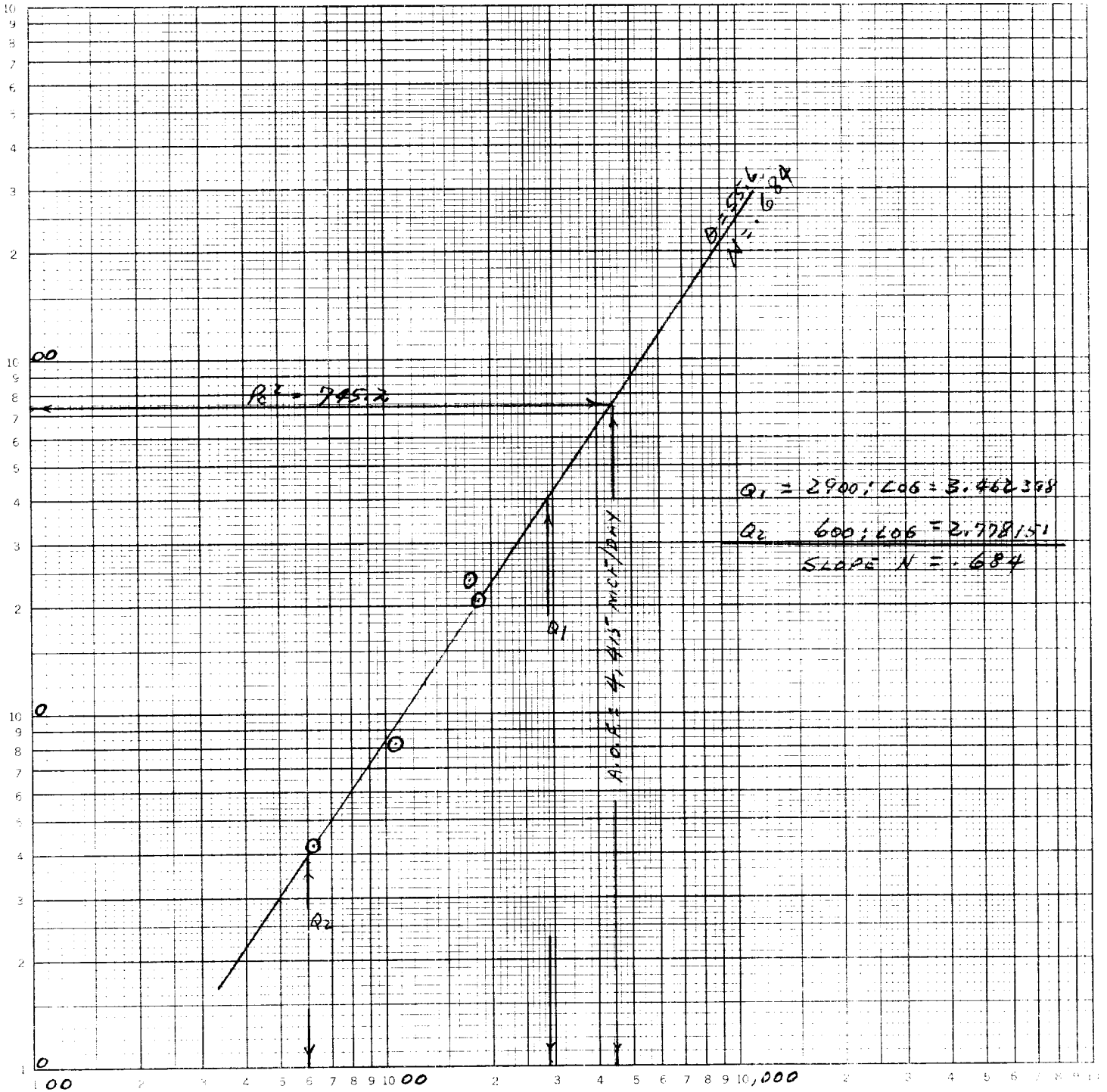
Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 1-6-90									
Company Great Western Drilling Company		Connection No									
Pool Pecos Slope Abo		Formation Abo									
Completion Date 12-4-89		Total Depth 4120									
Plug Back TD 4,057		Elevation GL 3,923'									
Form or Lease Name Quail Federal COM.											
Csg. Size 4 1/2	Wt. 10.5	Set At 4120	Perforations: From 3714 To 4005	Well No. 7							
Tbg. Size 2 3/8	Wt. 4.7	Set At 3994'	Perforations: From open To end	Unit Sec. Twp. Rge. 0 10 6S 25E							
Type Well - Single - Brdenhead - G.G. or G.O. Multiple Single			Packer Set At None	County Chaves							
Producing Thru Tbg.		Reservoir Temp. °F 99 @ 3714	Mean Annual Temp. °F 60	Baro. Press. - P _a 13.2							
State NM											
L 3714	H 3714	G _g .665	% CO ₂ .07	% N ₂ 4.66	% H ₂ S --	Prover 2"	Meter Run	Taps			
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
SI							670		850		72 hrs.
1.	2	x	3/16	752		50	752		825		1 1/2 hrs.
2.	2	x	1/4	744		58	744		800		1 hr.
3.	2	x	3/8	582		60	582		720		1 hr.
4.	2	x	3/8	550		60	550		700		1 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 Compress. Factor, F _{pv}	Rate of Flow Q, Mcf/d				
1	.6082		765.2	1.010	1.226	1.094	630				
2.	1.087		757.2	1.002	1.226	1.080	1,092				
3.	2.378		595.2	1.000	1.226	1.061	1,841				
4.	2.378		563.2	1.000	1.226	1.058	1,737				
5.											
NO.	R _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio <u>Dry Gas</u> Mcf/bbl.						
					A.P.I. Gravity of Liquid Hydrocarbons <u>Dry</u> Deg.						
1.	1.15	510	1.38	.836	Specific Gravity Separator Gas <u>.665</u> X X X X X X X X						
2.	1.14	518	1.41	.857	Specific Gravity Flowing Fluid <u>X X X X X</u>						
3.	.89	520	1.41	.888	Critical Pressure <u>* 663</u> P.S.I.A. P.S.I.A.						
4.	.84	520	1.41	.894	Critical Temperature <u>* 367</u> R R						
5.											
P _c 863.2 P _c ² 745.1											
NO	P _c ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.591$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.398$						
1		838.2	702.6	42.5	AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4.415$ Post FO-2 8-3-90 camp & BK						
2		813.2	661.3	83.8							
3		733.2	537.6	207.5							
4		713.2	508.7	236.4							
5											
Absolute Open Flow <u>4,415</u> Mcf/d @ 15.025					Angle of Slope <u>55.6</u>					Slope, n <u>.684</u>	
Remarks: * = corrected to 4.66% N2 AOF calculated using casing pressures											
Approved By Division			Conducted By: John West Engineering			Calculated By: JBM			Checked By: JBM		

GREAT WESTERN DRILLING CO.
Quail Fed. No. 7

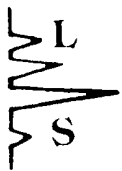
0 - 10 - 6S - 25E.
Chaves Co., NM
1-6-90

Pc2 - Pw2 (Thsnds.)
46 7400

LOGARITHMIC 3 X 3 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.



Q - MCF/DAY



LABORATORY SERVICES

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: John West Engineering
Attention: Mr. Buz Thomason
412 N. Dal Paso
Hobbs, New Mexico 88240

SAMPLE
IDENTIFICATION: Quail Fed. #7
COMPANY: Great Western
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 1/6/90 GAS (xx) LIQUID ()
ANALYSIS DATE: 1/7/90 SAMPLED BY: West Eng.
PRESSURE — PSIG ANALYSIS BY: Rolland Perry
SAMPLE TEMP. °F:
ATMOS. TEMP. °F:

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	LIQ. VOL. PERCENT
Hydrogen Sulfide (H2S)	--		
Nitrogen (N2)	4.66		
Carbon Dioxide (CO2)	0.07		
Methane (C1)	85.42		
Ethane (C2)	4.53	1.156	
Propane (C3)	1.88	0.615	
I-Butane (IC4)	0.39	0.128	
N-Butane (NC4)	0.83	0.262	
I-Pentane (IC5)	0.39	0.143	
N-Pentane (NC5)	0.42	0.152	
Hexane (C6)	1.41	0.651	
Heptanes Plus (C7 +)			
	100.00	3.107	

BTU/CU. FT.—DRY 1133
AT 14.650 WET 1110

SPECIFIC GRAVITY—CALCULATED 0.665
MEASURED

VAPOR PRESSURE (ABSOLUTE)—CALCULATED

26# GASOLINE— 1.038

CU. FT./GAL. —

TEST DATE:
TEST DEPTH:

JANUARY 6, 1990
3,850 FEET

ELEMENT NO.:
RANGE:
CLOCK NO.:
RANGE:

54429
0-2050 PSI
27521
0-24 HOUR

GREAT WESTERN DRILLING COMPANY

Quail Federal No. 7

B H P to use for calculating A O F Test

DATE
1-6-90

TIME
9:25 AM
10:30 AM

CUM HRS/MIN

00 Hrs 00 Min
00 15
00 30
00 45
01 00
01 15
01 30

11:45 AM
12:00noon

12:15 PM

1:00 PM

PSIG @ 3,850 FEET

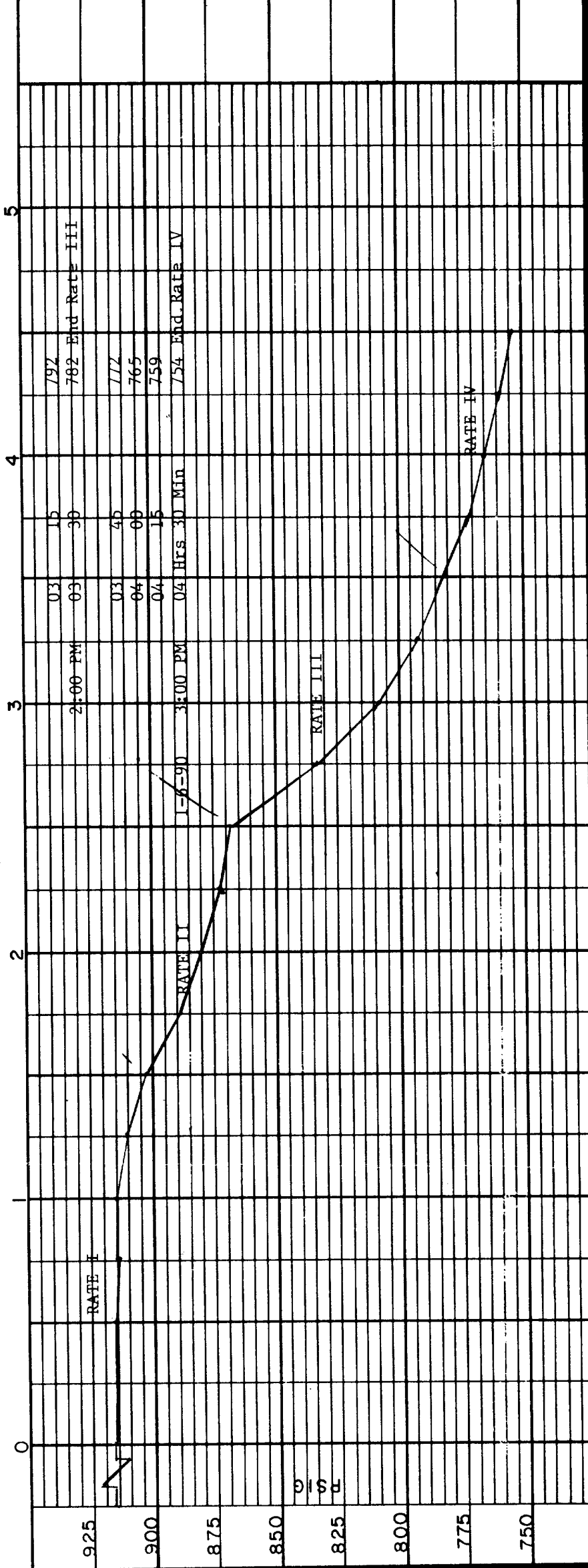
916 Gauge reached 3,850 Feet
916 Open choke, begin test
916
916
915
915
911
903 End Rate I

888
880

873
869 End Rate II

833
808

TIME-IN HOURS



JOHN W. WEST ENGINEERING CO., HOBBS, NEW MEXICO

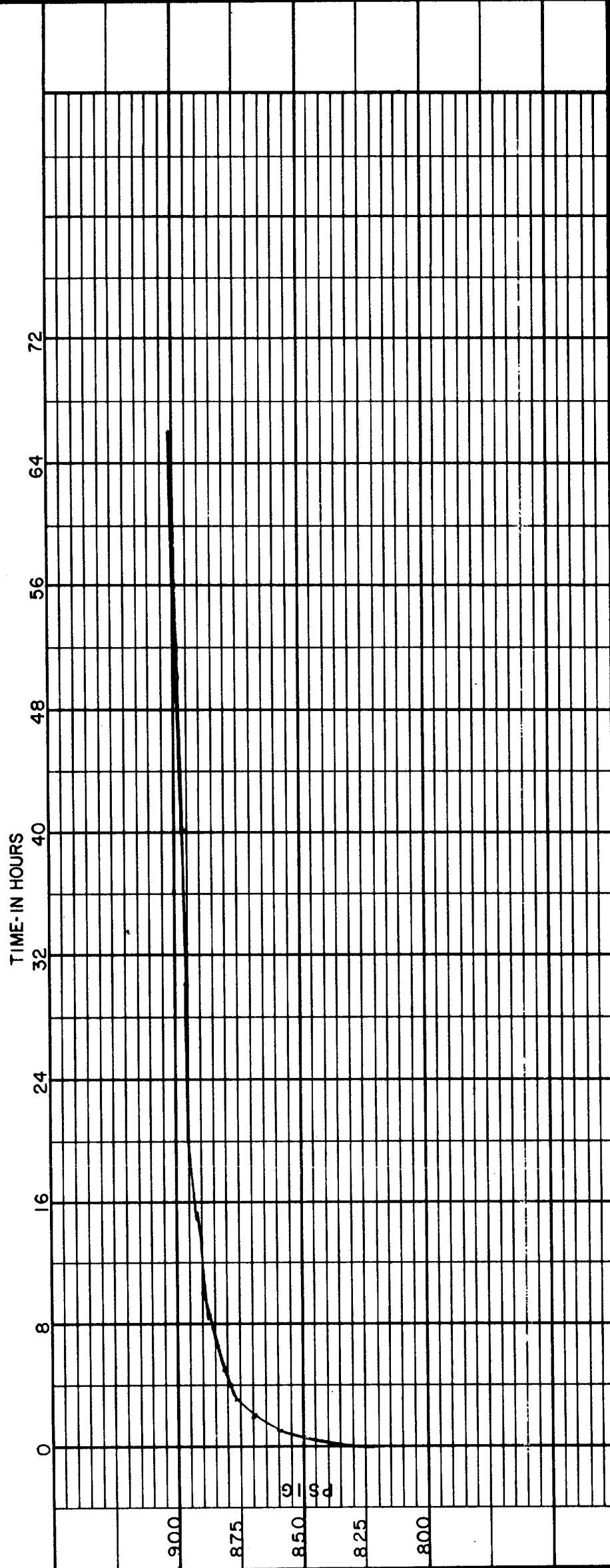
Date: 1-15-90 Drawn By: MCT

Scale: AS SHOWN

GREAT WESTERN DRILLING COMPANY
Quail Federal No. 7
Bottom Hole Pressure Build-up Curve

TEST DATE: JANUARY 6 to 9, 1990
TEST DEPTH: 3,850 FEET
ELEMENT NO.: 54429
RANGE: 0-2050 PSI
CLOCK NO.: 26609
RANGE: 0-72 HOUR

NOTE: SEE TABULATION OF PRESSURE AND TIME ON ATTACHED SHEET.



GREAT WESTERN DRILLING COMPANY
 QUAIL FEDERAL NO. 7
 BOTTOM HOLE PRESSURE BUILD-UP TEST
 TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
 JOHN WEST ENGINEERING

TEST DATE: January 6 - 9, 1990
 TEST DEPTH: 3850 Feet
 ELEMENT NO.: 54429 (0 - 2000 PSI)
 OPERATOR: B. Thomason

<u>DATE</u>	<u>TIME</u>	<u>CUM. HRS./MIN.</u>	<u>PSIG @ 3850 FEET</u>
1-6-90	3:45 PM	00 Hrs. 00 Min.	822, gauge reached 3850'
		00 15	839
		00 30	851
		00 45	855
	4:45 PM	01 00	859
		01 30	866
	5:45 PM	02 00	869
		02 30	873
	6:45 PM	03 00	876
		03 30	878
	7:45 PM	04 00	879
1-6-90	8:45 PM	05 00	882
1-7-90	1:45 AM	10 00	890
	6:45 AM	15 00	892
	11:45 AM	20 00	895
1-7-90	9:45 PM	30 00	896
1-8-90	7:45 AM	40 00	897
1-8-90	5:45 PM	50 00	898
1-9-90	9:45 AM	66 00	901, gauge out, end test