

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

MAR - 5 '90

dis file

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 1-3-90									
Company Great Western Drilling Company		Connection No									
Well Pecos Slope Abo		Formation Abo									
Completion Date 11-15-89		Total Depth 4100									
Plug Back TD 4,007'		Elevation GL 3933									
Farm or Lease Name Quail Federal		Well No. 4									
Casing Size 5 1/2		Wt. 17#									
Set At 4,096'		Perforations: From 3721 To 3932									
Tbg. Size 2 3/8		Wt. 4.7									
Set At 3,914'		Perforations: From open To end									
Type Well - Single - Brdenhead - G.C. or G.O. Multiple Single		Packer Set At None									
Producing Thru Tbg.		Reservoir Temp. °F 101 @ 3925									
Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2									
State NM		County Chaves									
L **3925		H 3925									
G _g .657		% CO ₂ 0									
% N ₂ 4.89		% H ₂ S ---									
Prover 2"		Meter Run Taps									
FLOW DATA											
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	Duration of Flow
SI							735		680		72 hrs.
1.	2	x	1/8	729		56	729		680		45 min.
2.	2	x	3/16	707		54	707		660		1 hr.
3.	2	x	1/4	677		53	677		660		1 hr.
4.	2	x	5/16	625		52	625		635		1 1/4 hr.
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, Mc/d				
1	.2648		742.2	1.004	1.234	1.078	262				
2	.6082		720.2	1.006	1.234	1.075	585				
3	1.087		690.2	1.007	1.234	1.072	999				
4	1.672		638.2	1.008	1.234	1.066	1,415				
5											
NO.	R _f	Temp. °R	T _f	Z	Gas Liquid Hydrocarbon Ratio Dry Gas Mcf/bbl.						
1	1.11	516	1.41	.861	A.P.I. Gravity of Liquid Hydrocarbons Dry						
2	1.08	514	1.41	.865	Specific Gravity Separator Gas .657						
3	1.04	513	1.40	.870	Specific Gravity Flowing Fluid						
4	.96	512	1.40	.880	Critical Pressure * 663 P.S.I.A.						
5					Critical Temperature * 364 R						
*** P _c 746.0 P _c ² 556.5					A.P.I. Gravity of Liquid Hydrocarbons Dry						
NO.	P _c ²	P _w	R _w ²	P _c ² - R _w ²	(1) $\frac{P_c^2}{P_c^2 - R_w^2} = 4.427$						
1	***	740.6	548.5	8.0	(2) $\left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 2.611$						
2	***	724.6	525.0	31.5							
3	***	697.6	486.7	69.8							
4	***	656.3	430.8	125.7							
5											
Absolute Open Flow 3,695 Mc/d @ 15.025					Angle of Slope @ 57.2		Slope, n .645				
Remarks: * = corrected to 4.89% N ₂ . No fluid produced											
** = BHP instrument set @ this depth											
*** = P _c & P _w were obtained with Amerada PRG-3 instrument & cal. to surface											
Approved By Division		Conducted By:		Calculated By:		Checked By:					
		John West Engineering		JBM		JBM					

GREAT WESTERN DRILLING CO.

Quail Fed. No. 4

D - 22 - 6S - 25E

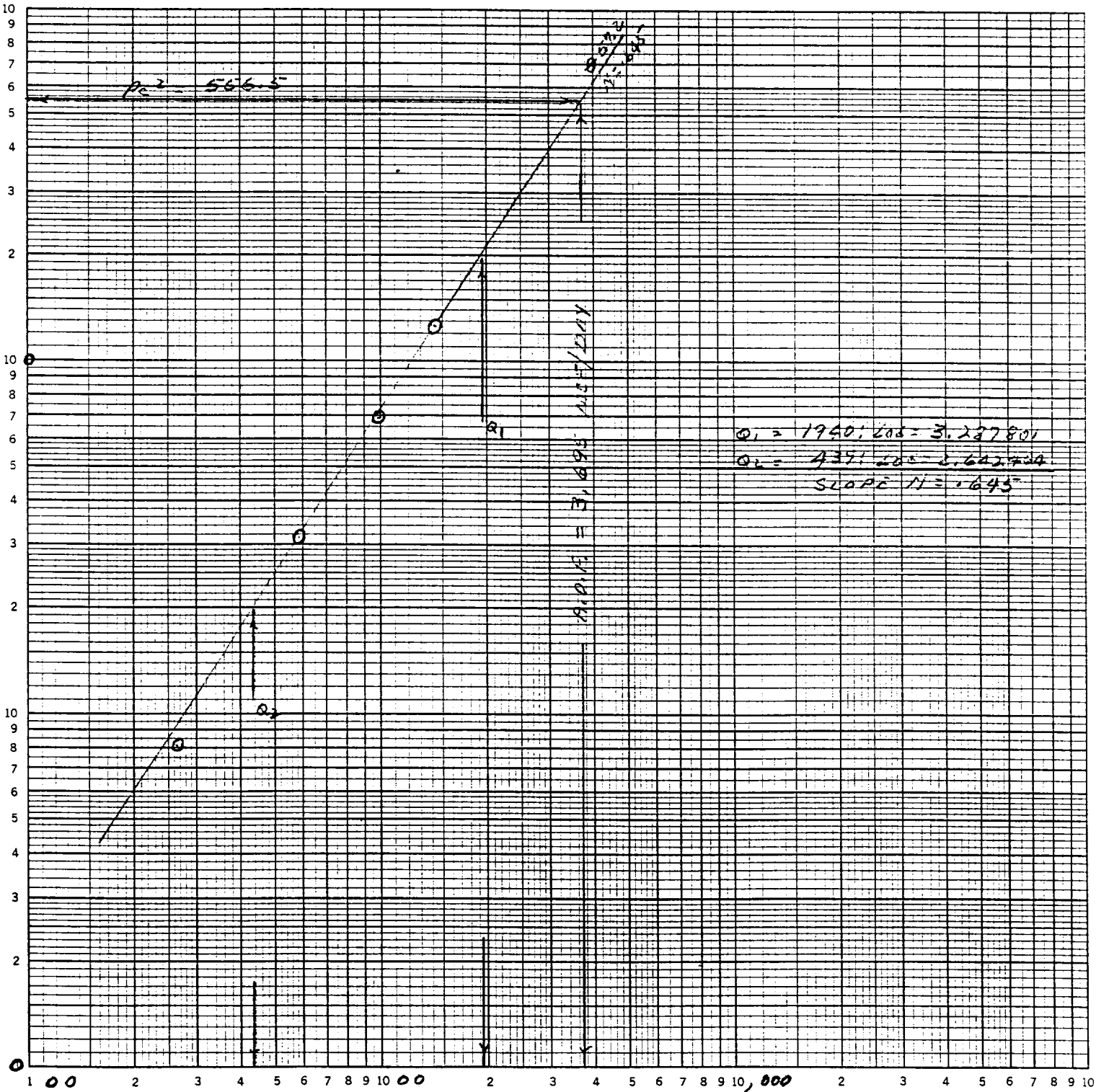
Chaves Co., NM

1-3-90

PCZ - FWZ (INSIDE.)

46 7400

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



Q - MCF/DAY

SHUT-IN STATIC (BNP)

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_g)

Form C-122F
Adopted 9-1-65

FROM KNOWN BOTTOM HOLE PRESSURE (P_1 or P_g)

COMPANY SKAT Petroleum Industries Ltd. BOHIL FCD WELL NO. 4 DATE 1-3-90
 LOCATION: Unit D Section 22 Township 6-S Range 25-E
 * L 3925 H 3925 L/H 1000 G 657 % CO₂ 0 % N₂ 4.89 % H₂S
 * BNP 2000 CGS 2000 DEPTH 2578.03 PC 663 TC 344
 TABLE B.1 TABLE B.1

LINE		1	2	3	4	5	6	7	8
1	$T_w(W.H. \cdot R)$	534	534						
2	$T_g(B.H. \cdot R)$	521	521						
3	$T = \frac{T_w + T_g}{2}$	527.5	527.5						
4	Z (Est.)	.881	.886						
5	TZ	482.3	485.0						
6	GH/TZ	5.346	5.376						
7	e^s (Table XIV)	1.221	1.220						
8	P_1 or P_g	824.2	824.2						
9	P_1^2 or P_g^2	679.3	679.3						
10	$P_c^2 = P_1^2/e^s$ or $P_w^2 = P_g^2/e^s$	555.8	556.5						
11	P_c or P_w	745.5	746.0	$= P_c$					
12	$P_c \cdot \left(\frac{P_w + P_g}{2} \right)$ or $\left(\frac{P_c + P_f}{2} \right)$	784.8	785.1						
13	$P_f = (P/P_{gr})$	1.18	1.18						
14	$T_f = (T/T_{gr})$	1.50	1.50						
15	Z (Table XI)	.886	.886						

Flowing (ENP'S)

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_{wf} or P_w)
FROM KNOWN BOTTOM HOLE PRESSURE (P_{res})

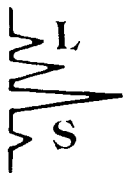
Form C-132F
Adopted 9-1-89

COMPANY Green Mountain Drilling Co. LEASE Quail Field WELL NO. 4 DATE 1-3-90
LOCATION: Unit D Section 22 Township 6.5 Range 25-E
L 3925 H 3925 L/H 1.000 G .617 % CO₂ 0 % N₂ 4.89 % H₂S —
* ENP JMSM 517 4115 DRPH GH 2598.73 P_{cr} 663 T_{cr} 364
TABLE B X TABLE B X

LINE		1	2	3	4	5	6	7	8
1	$T_w(W.H. \cdot R)$	534	534	534	534	534	534	534	534
2	$T_g(B.H. \cdot R)$	561	561	561	561	561	561	561	561
3	$T = \frac{T_w + T_g}{2}$	547.5	547.5	547.5	547.5	547.5	547.5	547.5	547.5
4	Z (Est.)	.882	.887	.884	.890	.888	.893	.894	.898
5	TZ	482.3	485.6	483.9	487.2	486.1	488.9	489.4	491.6
6	GH/TZ	5.340	5.310	5.328	5.292	5.304	5.274	5.268	5.244
7	e^s (Table XIV)	1.221	1.220	1.221	1.219	1.220	1.218	1.218	1.217
8	B_{pr} or P_g	819.2	818.2	800.2	800.2	770.2	770.2	729.2	724.2
9	P_{pr} or P_g^2	669.5	669.5	640.3	640.3	593.2	593.2	524.5	524.5
10	$P_c^2 = P_{pr}^2/e^s$ or $P_w^2 = P_g^2/e^s$	547.9	548.5	524.1	525.0	486.2	486.7	430.4	430.8
11	P_{cr} or P_w	740.2	740.6	724.1	724.6	697.2	697.6	656.0	656.3
12	$P_r = \frac{P_w + P_g}{2}$ or $\frac{P_c + P_{pr}}{2}$	779.2	779.4	762.1	762.4	733.7	733.9	690.1	690.2
13	$P_r = (P/P_{cr})$	1.17	1.17	1.14	1.14	1.10	1.10	1.04	1.04
14	$T_r = (T/T_{cr})$	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
15	Z (Table XI)	.887	.887	.890	.890	.893	.893	.898	.898

*X = P_{wf}

One copy to be filed in District Office (Work copy acceptable)



LABORATORY SERVICES

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

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

SAMPLE
IDENTIFICATION: Quail Fed. #4
COMPANY: Great Western
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 1/03/90 4:30 PM GAS (xx) LIQUID ()
ANALYSIS DATE: 1/04/90 SAMPLED BY: J. 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)	4.89		
Carbon Dioxide (CO2)	-0-		
Methane (C1)	86.56		
Ethane (C2)	4.54	1.158	
Propane (C3)	1.73	0.477	
I-Butane (IC4)	0.30	0.098	
N-Butane (NC4)	0.60	0.189	
I-Pentane (IC5)	0.21	0.077	
N-Pentane (NC5)	0.24	0.087	
Hexane (C6)	0.93	0.429	
Heptanes Plus (C7 +)			
	<u>100.00</u>	<u>2.515</u>	

BTU/CU. FT.—DRY 1092
AT 14.650 WET 1070

SPECIFIC GRAVITY—CALCULATED 0.657
MEASURED

VAPOR PRESSURE (ABSOLUTE)—CALCULATED

26# GASOLINE— 0.659

CU. FT./GAL. —