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LLEDGE

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OIL and GAS PROPERTY MANAGEMENT

February 12, 1981

Cotton Petroleum Corporation

Apache #27

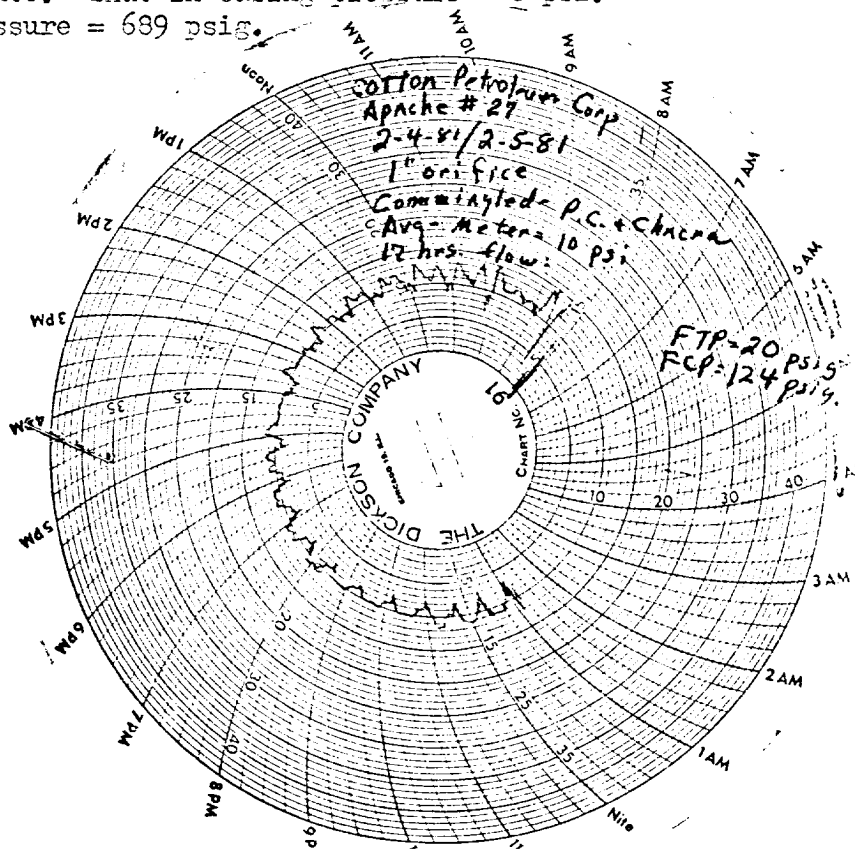
I-24-24N-4W

So. Blanco Pictured Cliff & Un. Chacra Commingled
Rio Arriba County, New Mexico



- 2-4-81: Rig up flow tester and install a 1" orifice plate.
- 2-5-81: Flow well for 17 hours. Average meter pressure = 10 psi.
Flow rate = 472 MCF/D. Flowing tubing pressure = 21 psig.
Flowing casing pressure = 0 psi. Shut-in well for the
state required 7 day shut-in test.
- 2-12-81: Rig up deadweight tester for the shut-in pressure as
required by the state. Shut-in casing pressure = 0 psi.
Shut-in tubing pressure = 689 psig.

All test complete.





MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 1-26/2-12-81			
Company Cotton Petroleum Corporation				Connection El Paso					
Pool Indesignated So. Blanco				Formation Chacra P.C. Commingled				Unit	
Completion Date 2-5-81		Total Depth 4111		Plug Back TD 4057		Elevation		Farm or Lease Name Apache	
Csq. Size 4.500	Wt. 10.5	d 4.052	Set At	Perforations: From 2966 To 3929		Well No. 27			
Tbg. Size 2.375	Wt. 4.7	d 1.995	Set At 4104	Perforations: From open To ended		Unit I		Sec. 24	Twp. 24
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single/ Commingled						Packer Set At 2894		County Rio Arriba	
Producing Thru Tubing		Reservoir Temp. °F p		Mean Annual Temp. °F		Baro. Press. - P _a 11.5 (est)		State New Mexico	
L	H	Cq	% CO ₂	% N ₂	% H ₂ S	Prover	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	7 days		*1.000	2" orifice tester			689		0		No Flow
1.											
2.	*Tested P.C. on 1-26-81 through orifice tester:										749 MCF/D
3.	*Tested P.C./Chacra commingled on 2-5-81:										472 MCF/D
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.							
2.							
3.							
4.							
5.							

NO.	R _g	Temp. °R	T _g	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure P.S.I.A.	Critical Temperature R
1.										
2.										
3.										
4.										
5.										

NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$
1.						
2.						
3.						
4.						
5.						

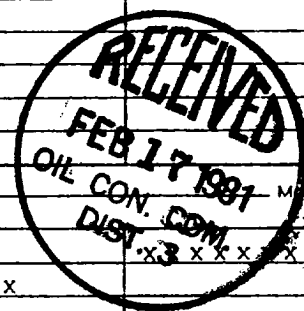
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$

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

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

Absolute Open Flow _____ Mcfd @ 15.025	Angle of Slope θ _____	Slope, n _____
Remarks: _____		

Approved By Division	Conducted By: Joe Elledge	Calculated By: Joe Elledge	Checked By: Mr. Butch Curmins
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Type Test		☒ Initial		☐ Annual		☐ Special		Test Date		1-26/2-12-81					
Company				Connection											
Cotton Petroleum Corporation				El Paso											
Pool Undesignated				Formation				Unit							
So. Blanco				Chacara				Commingled							
Completion Date				Total Depth		Plug Back TD		Elevation		Farm or Lease Name					
2-5-81				4111		4057				Apache					
Csg. Size		Wt.		d		Set At		Perforations:		Well No.					
4.500		10.5		4.052				From 2966 To 3929		27					
Thq. Size		Wt.		d		Set At		Perforations:		Unit Sec. Twp. Rge.					
2.375		4.7		1.995		4104		From open To ended		I 24 24 4					
Type Well - Single - Brodenhead - G.C. or G.O. Multiple								Packer Set At		County					
Single/ Commingled								2894		Rio Arriba					
Producing Thru Tubing		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press. - P _a		State							
		8				11.5 (est)		New Mexico							
L		H		Cg		% CO ₂		% N ₂		% H ₂ S					
										Prover					
										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	7 days		#1.000	2" orifice tester			689		0			No Flow			
1.															
2.	Tested P.C. on 1-26-81 through orifice tester:											719 MCF/			
3.	Tested P.C./Chacara commingled on 2-5-81:											472 MCF/			
4.															
5.															
RATE OF FLOW CALCULATIONS															
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd								
1															
2															
3															
4															
5															
NO.	R _t	Temp. °R	T _f	Z	Gas Liquid Hydrocarbon Ratio _____										
1					A.P.I. Gravity of Liquid Hydrocarbons _____										
2					Specific Gravity Separator Gas _____										
3					Specific Gravity Flowing Fluid _____										
4					Critical Pressure _____ P.S.I.A.										
5					Critical Temperature _____ R										
P _c					Gas Liquid Hydrocarbon Ratio _____										
NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$ _____										
1					(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ _____										
2															
3															
4															
5															
Absolute Open Flow _____ Mcfd @ 15.025					Angle of Slope θ _____				Slope, n _____						
Remarks: _____															
Approved By Division				Conducted By: Joe Elledge				Calculated By: Joe Elledge				Checked By: Mr. Butch Cummins			

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 1-26/2-12-81	
Company Cotton Petroleum Corporation				Connection El Paso			
Pool Undesignated So. Blanco				Formation Chacra P.O. Commingled		Unit	
Completion Date 2-5-81		Total Depth 4111		Plug Back TD 4057		Elevation	
Farm or Lease Name Apache		Well No. 27		Perforations: From 2966 To 3929		Set At	
Csg. Size 4.500		Wt. 10.5		d 4.052		Perforations: From open To ended	
Thq. Size 2.375		Wt. 4.7		d 1.995		Set At 4104	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single/ Commingled						Packer Set At 2894	
Producing Thru Tubing		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press. - P _a 11.5 (est)	
State New Mexico		L		H		G _g	
% CO ₂		% N ₂		% H ₂ S		Prover	
Meter Run		Taps		Prover		Meter Run	

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	7 days		*1.000	2" orifice tester			689		0		No Flow
1.											
2.	Tested P.C. on 1-26-81 through orifice tester:										740 MCF/
3.	Tested P.C./Chacra commingled on 2-5-81:										472 MCF/
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1							
2							
3							
4							
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.										
2.										
3.										
4.										
5.										

NO.	P _t ²	P _w ²	P _c ²	P _c ² - P _w ²
1				
2				
3				
4				
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$ _____

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

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ _____

Absolute Open Flow _____ Mcfd @ 15.025		Angle of Slope @ _____		Slope, n _____	
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Remarks:

Approved By Division	Conducted By: Joe Elledge	Calculated By: Joe Elledge	Checked By: Mr. Butch Cummins
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