

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 2-28-85	
Company Southland Royalty Company				Connection To Air		
Pool Pitchfork Ranch (Atoka)				Formation Atoka		Unit
Completion Date 2/22/85		Total Depth 15,600'		Plug Back TD 14600		Elevation 3565 GL
Csg. Size 7 5/8	Wt. 39.0	d 6.625	Set At 14,705'	Perforations: From 14284 To 14294		Well No. 1
Tub. Size 2 7/8	Wt. 7.90	d 2.323	Set At 14,211'	Perforations: From To		Unit Sec. Twp. Rge. J 24 24S 33E
Type Well - Single - Dradhead - G.C. or G.O. Multiple Single				Packer Set At 14174		County Lea
Producing Thru Tubing		Reservoir Temp. °F 220° @ 14139'		Mean Annual Temp. °F 70		Baro. Press. - P _a 13.2
State New Mexico						
L 14289	H 14289	Cg 0.627	% CO ₂ 0.22	% N ₂ 0.96	% H ₂ S	Prover Meter Run 4.026"
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	143.5 hours										
1.	4.026 x 1.000			470	3.5	102	7540	64	"	-	60 min.
2.	4.026 x 1.000			600	17.0	101	6898	65	"	-	60 min.
3.	4.026 x 1.000			610	53.0	80	5770	63	"	-	60 min.
4.	4.026 x 1.625			600	18.0	78	4090	62	"	-	60 min.
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, Mscf
1	4.753	41.124	483.2	0.9619	1.263	1.034	245.537
2	4.753	102.100	613.2	0.9628	1.263	1.043	615.485
3	4.753	181.740	623.2	0.9813	1.263	1.051	1125.191
4	12.790	105.060	613.2	0.9831	1.263	1.050	1751.855
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	0.72	562	1.55	0.936	80.657	
2	0.91	561	1.55	0.920	52.6	
3	0.93	540	1.49	0.906		
4	0.91	538	1.49	0.907		
5						

NO.	P _r	P _s	P _s ²	P _f ² - P _s ²	(1) $\frac{P_f^2}{P_f^2 - P_s^2} =$	(2) $\left[\frac{P_f^2}{P_f^2 - P_s^2} \right]^n =$
1	9945.2	98907	9782800	7337	1.42365	1.36172
2	8852.2	78361	6139600	20546		
3	7558.2	57126	3263200	41781		
4	5425.2	29433	866000	69474		
5						

Absolute Open Flow		2385.538	Mcf @ 15.025	Angle of Slope @	48.8	Slope, n	0.87409
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Remarks: Bottomhole pressure measured with Amerada gauges downhole.

Approved By Division	Conducted By: Tefteller, Inc.	Calculated By: Chuck Avery	Checked By: Darrell Roberts
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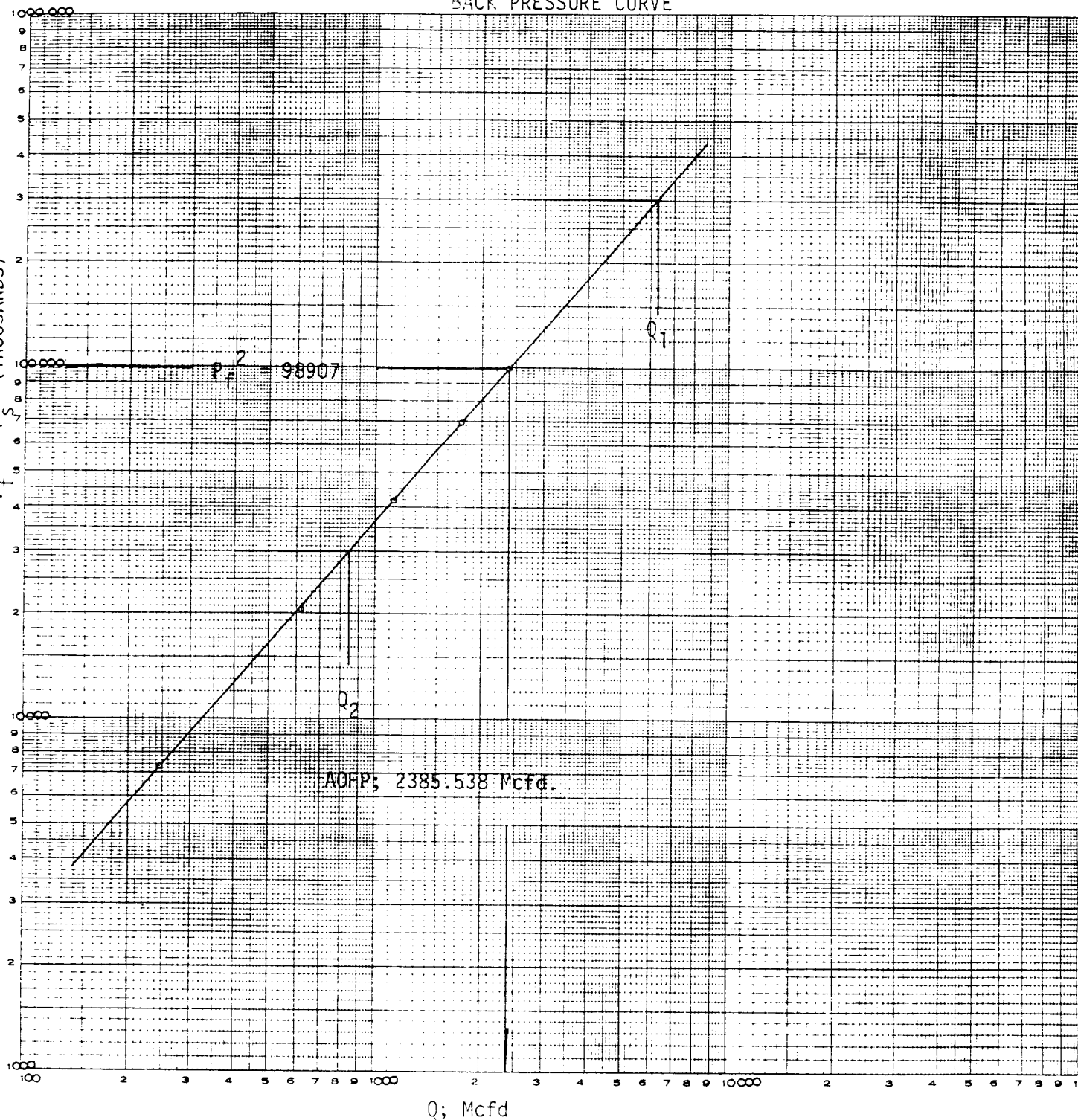
10-11
K-100 10-13

COMPANY : SOUTHLAND ROYALTY COMPANY
 WELL : MADERA RIDGE "24" NO. 1
 FIELD : PITCHFORK RANCH (ATOKA)
 COUNTY : LEA
 STATE : NEW MEXICO
 DATE : FEBRUARY 28, 1985

BACK PRESSURE CURVE

DIETZEN CORPORATION
 MADE IN U.S.A.
 $P_f^2 - P^2$ (THOUSANDS)

NO. 340R-133 DIETZEN GRAPH PAPER
 LOGARITHMIC
 3 CYCLES X 3 CYCLES



$$Q_1 = 6292.240; \text{LOG } Q_1 = 3.79881$$

$$Q_2 = 840.844; \text{LOG } Q_2 = 2.92472$$

$$n = 0.87409$$

$$\theta = 48.8^\circ$$

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HOLMES OFFICE



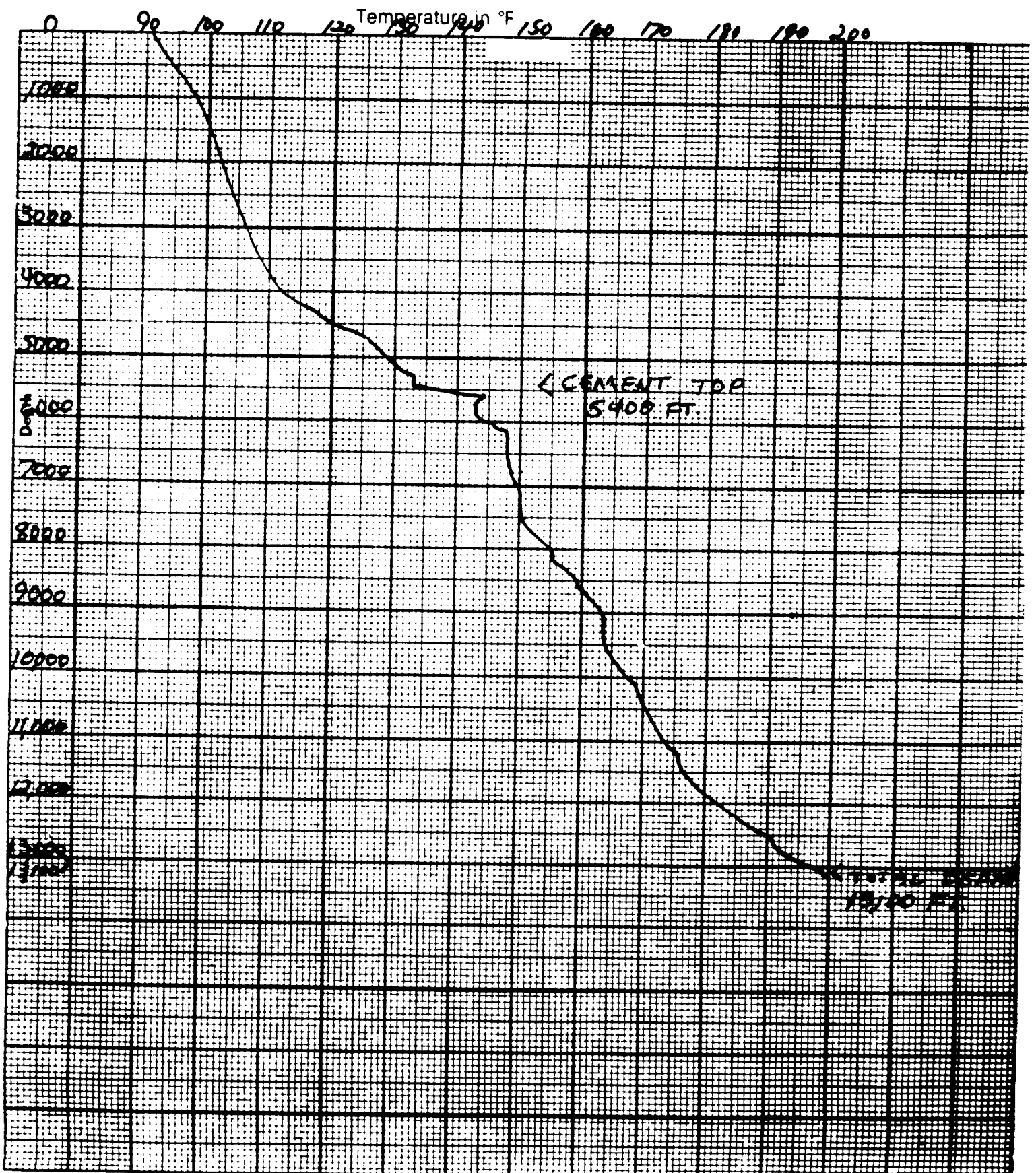
BENNETT-CATHEY WIRE LINE SERVICE

P. O. BOX 787 / ARTESIA, NEW MEXICO 88210 / PHONE 746-3281

TEMPERATURE SURVEY



OPERATOR SOUTHLAND ROYALTY
LEASE MADERA RIDGE "24"
WELL NO. #1
COMPANY REPRESENTATIVE JOHNNY ELLIS
DATE & TIME CEMENT JOB COMPLETED 0330 HOUR 1-5-85
DATE & TIME SURVEY MADE 1300 HOUR 1-5-85
SURVEY RUN BY LARRY MOSSBARGER
WELL DATA CEMENT TOP 5400 FEET
TOTAL DEPTH 13,100 FEET
MEASURED FROM GROUND LEVEL



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