

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

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FOR GAS WELL

JUN 08 1984

Form C-122e
Revised 9-1-65

Type Test 4 POINT ☒ Initial ☐ Annual ☐ Special						Test Date 5-21-84		O. C. D. ARTESIA, OFFICE	
Company SOUTHLAND ROYALTY				Connection AIR NEW WELL					
Pool WILDCAT <i>Morrow</i>				Formation MORROW				Unit <i>18"</i>	
Completion Date 5-16-84		Total Depth 11670		Plug Back To 11623		Elevation 3515		Farm or Lease Name HOLLY FEDERAL "18"	
Test. Size 5.500	Wt. 17.0	d 4.892	Set At 11670	Perforations: <i>11320</i> From <i>11340</i> To 11340		Well No. #1			
Thy. Size 2.375	Wt. 4.7	d 1.995	Set At 11241	Perforations: From OPEN To ENDED		Unit <i>G</i>		Sec. 8	Twp. 18S
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE						Packer Set At 11241		County EDDY	
Producing Thru TUBING		Reservoir Temp. °F 170. • 11330.		Mean Annual Temp. °F 60.0		Baro. Press. - P _a 13.2		State NEW MEXICO	
L 11330.	H 11330.	Gg 0.660	% CO ₂ 0.52	% N ₂ 0.51	% H ₂ S 0.	Provar 0.	Motor Run 4.0	Taps FLANGE	

FLOW DATA						TUBING DATA		B.H.P. 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.		CHOKE
51							3233.		4501.		73.0
1.	4.03 X 1.750			400.	2.0	92.	2947.	72.	4294.	6/64	1.0
2.	4.03 X 1.750			400.	4.0	76.	2860.	74.	4193.	8/64	1.0
3.	4.03 X 1.750			410.	14.0	80.	2527.	75.	3765.	10/64	1.0
4.	4.03 X 1.750			410.	22.0	72.	2407.	75.	3589.	12/64	1.0
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, Mc/d
1	14.93	28.75	413.2	0.9706	1.2309	1.0353	531.
2	14.93	40.65	413.2	0.9850	1.2309	1.0392	765.
3	14.93	76.97	423.2	0.9813	1.2309	1.0392	1442.
4	14.93	96.49	423.2	0.9887	1.2309	1.0410	1825.
5							

NO.	R	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	0.62	552.	1.47	0.933	0	
2	0.62	536.	1.43	0.926	0	
3	0.63	540.	1.44	0.926		
4	0.63	532.	1.42	0.923		
5						

$P_c = 3395.9$ $P_c^2 = 11532.$				Gas Liquid Hydrocarbon Ratio $\frac{P_c^2}{P_b^2 - P_w^2} = 2.5720$		$\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.3422$	
NO.	P_c^2	P_w^2	$P_c^2 - P_w^2$	$AOR = Q \left[\frac{h_w^2}{P_c^2 - P_w^2} \right]^n = 4273.$		<i>Post ID-2 6-15-84 Camp & BK</i>	
1	18552.	3224.	10393.				
2	17692.	3140.	9861.				
3	14275.	2794.	7809.				
4	12976.	2655.	7048.				
5							

Absolute Open Flow $\frac{4273.}{15.025}$		Mcf/d @ 15.025		Angle of Slope $\phi = 48.0$		Slope, n 0.901	
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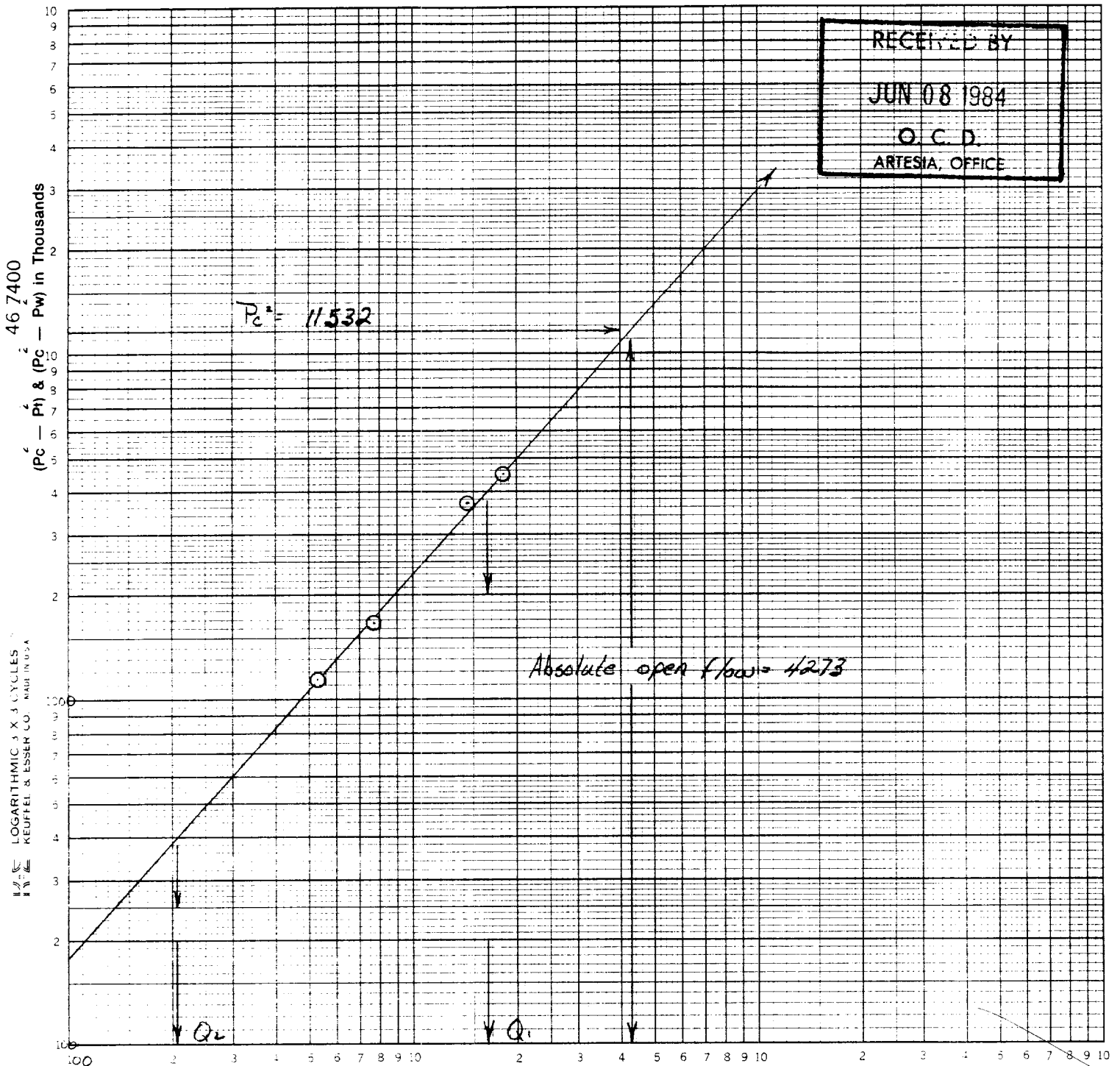
Remarks: BOTTOM HOLE PRESSURES MEASURED WITH AMERADA PRESSURE ELEMENTS.

Approved by Commission:	Conducted By: RICHARD TOWNLEY	Calculated By: BENNETT & CATHEY, INC.	Checked By: <i>Danell Roberts</i>
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BENNETT & CATHEY PRODUCTION TESTING BACK PRESSURE CURV

Operator Southland Royalty Lease Holly Federal 8 Well No. 1
 County Eddy Field Wildcat Location 8-185-30E
 Date of Test 5-21-84 Slope "n" 0.901 Angle of Slope 48.0

Calc. Abs. Potential 4273 MCF/D



$$\overline{\Delta P_1^2} \quad P_c^2 - P_w^2 = \underline{4000}$$

$$\overline{\Delta P_2^2} \quad P_c^2 - P_w^2 = \underline{400}$$

$$Q_1 = \underline{1656}$$

$$Q_2 = \underline{208}$$

Q in MCF/Day

$$\text{LOG } Q_1 = \underline{3.2191}$$

$$\text{LOG } Q_2 = \underline{2.3181}$$

$$n = \underline{0.901}$$

BENNETT-CATHEY WIRE LINE SERVICE
 PHONE (505) 748-3354
 ARTESIA, NEW MEXICO, 88210

PRESSURE TRANSIENT TEST DATA

COMPANY: SOUTHLAND ROYALTY	CONTACT: ED JACKSON
LEASE: HOLLY FEDERAL "8"	WELL: #1
FIELD: WILDCAT	ZONE: MORROW
COUNTY: EDDY	STATE: NEW MEXICO
STATUS: FOUR POINT BACK PRESSURE TEST	OPERATOR: RICHARD TOWNLEY

PERFORATIONS FROM: 11,320.0' TO: 11,340.0'
 ELEMENT DEPTH: 11,230.0' TEMPERATURE: 170.0°F

ELEMENT: RPG3#46332	RANGE: 7000 psig
CLOCK: 31768	RANGE: 48 hrs
ELEMENT: RPG3#46950	RANGE: 7250 psig
CLOCK: B3443	RANGE: 12 hrs

SURFACE PRESSURE MEASUREMENTS

EVENT	DATE	TIME	DEAD WEIGHT PRESSURE
START CLOCK	05/21/84	07:51:00	3,224.0 psig
SET ELEMENT	05/21/84	09:36:00	3,233.0 psig
WELL SHUT IN	05/18/84	09:00:00	0.0 psig
END OF TEST	05/21/84	14:15:00	2,407.0 psig

SUBSURFACE PRESSURE MEASUREMENTS

DATE	TIME	t hrs	GAUGE PRESSURE psig	ABSOLUTE PRESSURE psia	RESERVOIR PRESSURE psia
05/21/84	10:15:00	0.000	4,489.5	4,502.7	4,514.7
05/21/84	10:30:00	.250	4,283.2	4,296.4	4,308.4
05/21/84	10:45:00	.500	4,258.6	4,271.8	4,283.8
05/21/84	11:00:00	.750	4,265.4	4,278.6	4,290.6
05/21/84	11:15:00	1.000	4,281.7	4,294.9	4,306.9
05/21/84	11:30:00	1.250	4,202.8	4,216.0	4,228.0
05/21/84	11:45:00	1.500	4,202.8	4,216.0	4,228.0
05/21/84	12:00:00	1.750	4,169.5	4,182.7	4,194.7
05/21/84	12:15:00	2.000	4,180.7	4,193.9	4,205.9
05/21/84	12:30:00	2.250	4,001.2	4,014.4	4,026.4
05/21/84	12:45:00	2.500	3,855.7	3,868.9	3,880.9
05/21/84	13:00:00	2.750	3,773.9	3,787.1	3,799.1
05/21/84	13:15:00	3.000	3,752.9	3,766.1	3,778.1
05/21/84	13:30:00	3.250	3,600.1	3,613.3	3,625.3
05/21/84	13:45:00	3.500	3,515.7	3,528.9	3,540.9
05/21/84	14:00:00	3.750	3,529.9	3,543.1	3,555.1
05/21/84	14:15:00	4.000	3,576.6	3,589.8	3,601.8

TEST DATE: 5-21-84
TEST DEPTH: 11,250 FEET
ELEMENT NO.: RPG3#46332
RANGE: 7000 LBS.
CLOCKS: 31768
RANGE: 48 HOUR
OPERATOR: RICHARD TOWNLEY

RPG3#46950
7250 LBS.

B-3443
12 HOUR

Note: See Attached Sheet for Tabulation of Pressure
And Time.

FOUR POINT BACK PRESSURE TEST

ED JACKSON

SOUTHLAND ROYALTY

HOLLY FEDERAL "8"
WELL NO. 1

BENNETT-CATHEY WIRE LINE SERVICE
Box 787
Artesia, N.M. 88210

Drawn By Scale: As Shown

BENNETT-
CATHEY
WELL SERVICES

TIME IN HOURS

0 1/4 1/2 3/4 1 1 1/4 1 1/2 2 2 1/4 3 3 1/4 4

