

NEW MEXICO OIL CONSERVATION COMMISSION
 MULTIPOL. AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

45F
 Form C-122
 Revised 9-1-83
 File

RECEIVED BY
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O. C. D.
UNARTESIA OFFICE

Type Test: 4-POINT Initial Annual Special Test Date: 12-8-83

Company: CHAMA PETROLEUM Connection: TO AIR

Completion Date: 12-4-83 Total Depth: 8600 Plug Hole: 8566 Elevation: 3277'

Form or Lease Name: CRUSADER RABBIT

Well No.: #1

Unit: Sec. Twp. Rge. 2 8 17 16

Type Well - Single - Bradenhead - G.G. or G.O. Multiple: SINGLE

Producing thru: TUBING Reservoir Temp. °F: 176 @ 8395 Mean Annual Temp. °F: 60.0

Baro. Press. - P_a: 13.2

State: NEW MEXICO

Motor Run: 3.1

Temp: FLANGE

FLOW DATA							TUBING DATA		B.H.P. DATA		Direction of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	CHOKE	
51							2244	37	2831		72.0
1.	3.07 X 1.000			130	6.0	80	2077	39	2650	3/64	1.0
2.	3.07 X 1.000			130	18.0	80	1965	39	2509	4/64	1.0
3.	3.07 X 1.000			130	30.0	73	1857	38	2367	4.75/64	1.0
4.	3.07 X 1.000			140	40.0	60	1494	38	1901	6/64	1.0
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. Compres. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	4.79	29.31	143.2	0.9813	1.2208	1.0122	170.
2	4.79	50.77	143.2	0.9813	1.2208	1.0122	295.
3	4.79	65.54	143.2	0.9877	1.2208	1.0128	383.
4	4.79	78.28	153.2	1.000	1.2208	1.0146	464.
5							

NO.	η	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	0.21	540.	1.47	0.976	0	0	0.671	XXXXXX	674.	368.
2	0.21	540.	1.47	0.976						
3	0.21	533.	1.45	0.975						
4	0.23	520.	1.41	0.971						
5										

NO.	P ₁ ²	P _w	P ₂ ²	P ₂ ² - P _w ²
1	7093.	2114.	4471.	631.
2	6361.	2003.	4014.	1088.
3	5665.	1892.	3581.	1521.
4	3664	1530.	2342.	2760.
5				

(1) $\frac{P_c^2}{P_2^2 - P_w^2} = 3.3543$ (2) $\left[\frac{P_c^2}{P_2^2 - P_w^2} \right]^n = 3.0596$

AOI = 0 $\left[\frac{P_c^2}{P_2^2 - P_w^2} \right]^n = 1172.$

Post FD 2
 4-20-84
 Camp + BK

Absolute Open Flow: 1172. Mcfd @ 15.025 Angle of Slope: 47.25 Slope, n: 0.924

Remarks: BOTTOM HOLE PRESSURES MEASURED WITH AMERADA PRESSURE ELEMENTS.

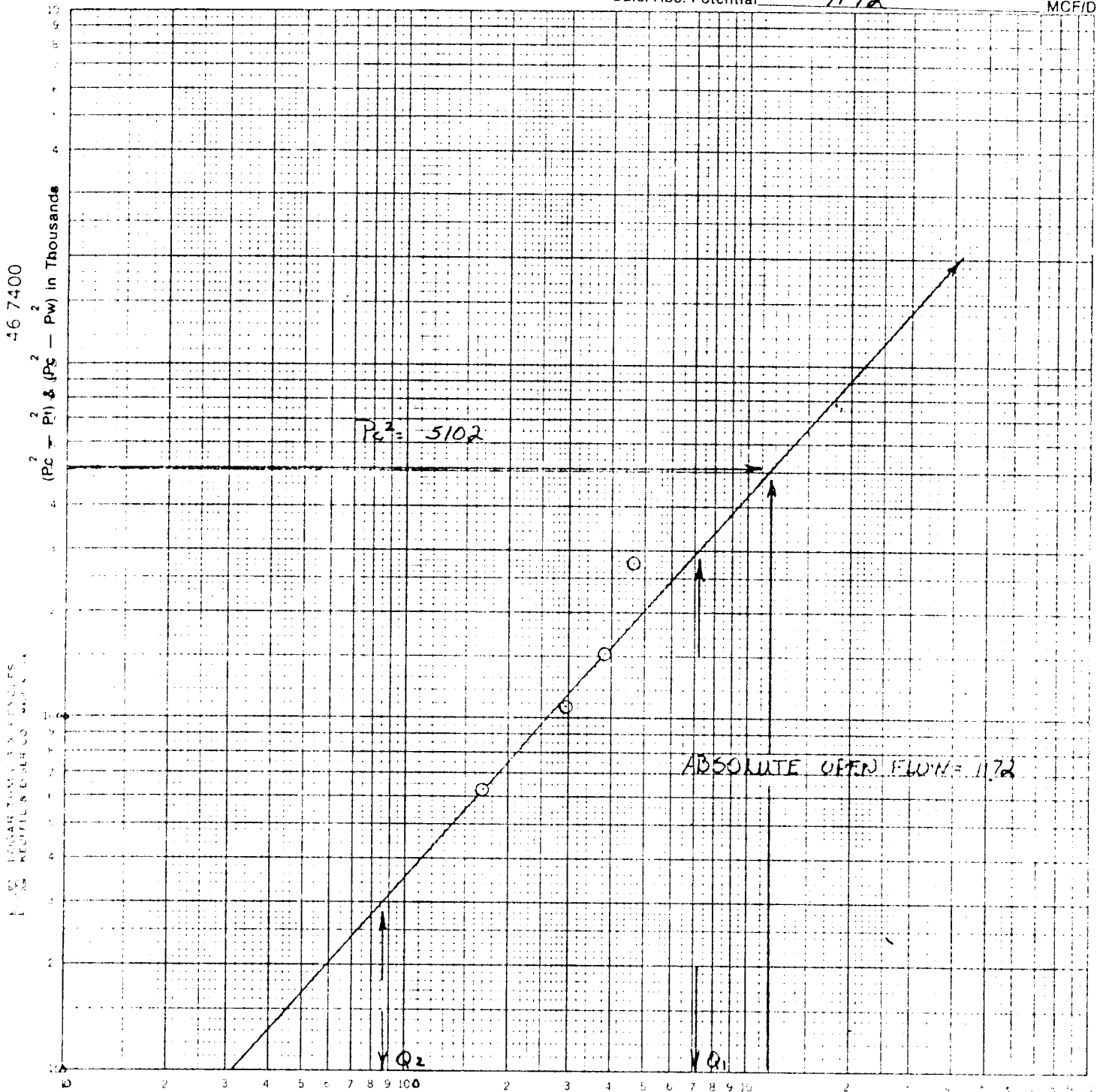
Approved By Commission: Conducted By: RICHARD TOWNLEY Calculated By: BENNETT & CATHEY Checked By:

BENNETT & CATHEY PRODUCTION TESTING
BACK PRESSURE CURVE

Operator Chama Pet. Lease Crusader Rabbit Well No. 1
 County Eddy Field _____ Location _____
 Date of Test 12-8-83 Slope "n" 0.924 Angle of Slope 47.25

Calc. Abs. Potential 1172

MCF/D



$$\frac{\Delta \bar{P}_1^2}{\Delta \bar{P}_2^2} = \frac{P_c^2 - P_w^2}{P_c^2 - P_w^2} = \frac{3000}{300}$$

$$Q_1 = \frac{722}{1}$$

$$Q_2 = \frac{86}{1}$$

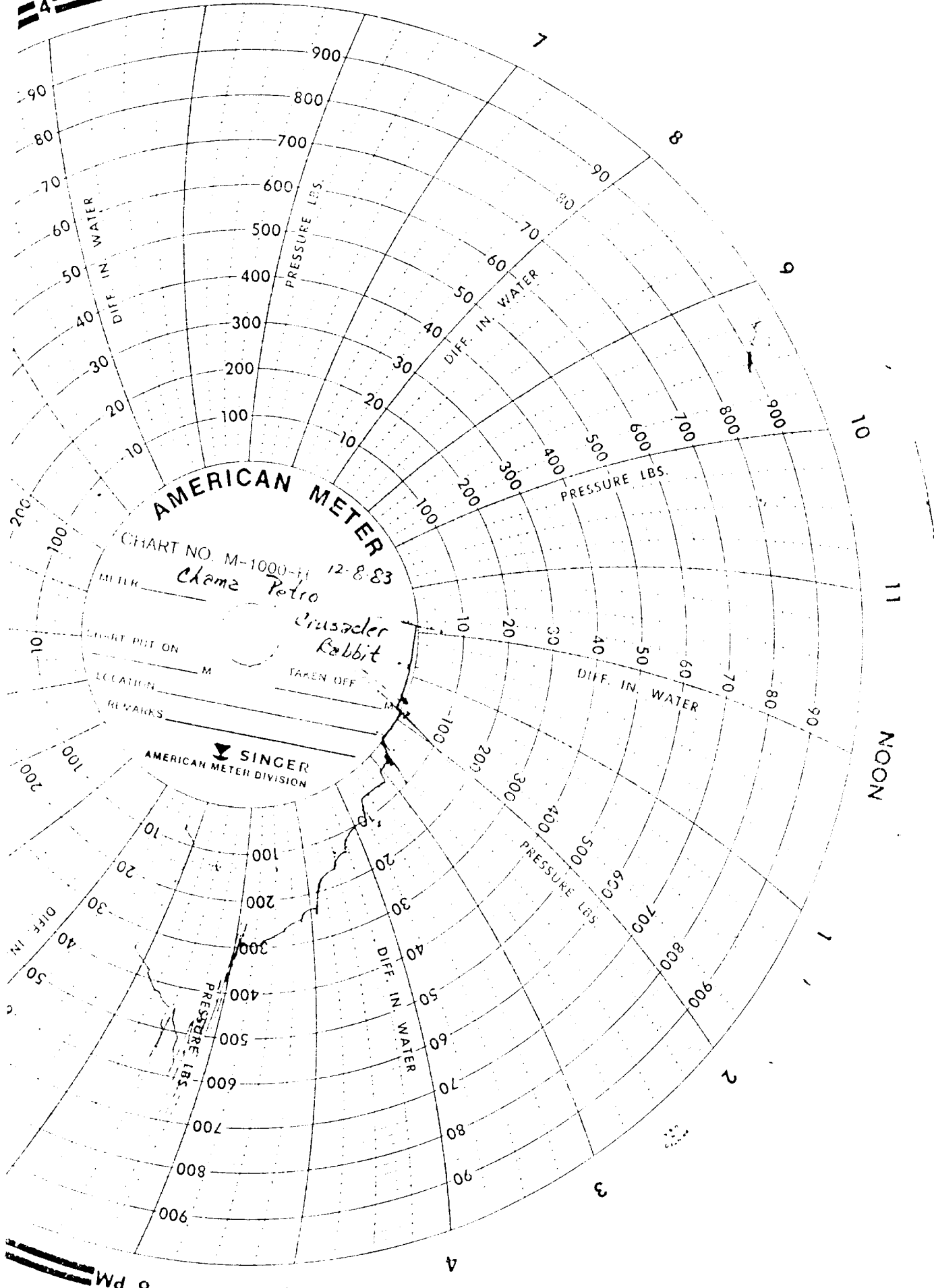
Q In MCF/Day

$$\text{LOG } Q_1 = \frac{2.8585}{1}$$

$$\text{LOG } Q_2 = \frac{1.9345}{1}$$

$$n = \frac{0.924}{1}$$

A 5 6 AM



AMERICAN METER

CHART NO. M-1000-H 12-8-83

MILK *Chame Petro*
Crusader
Rabbit

START PUT ON _____ M
LOCATION _____ M
TAKEN OFF _____ M

REMARKS

SINGER
AMERICAN METER DIVISION

6 PM

5

4

3

2

1

NOON

11

10

9

8

7



PRECISION SERVICE INC.
 Flow Measurement Engineers
 Analysis Results Summary
 Casper, WY 82601

Run No. 1216-1
 Date Run 12/16/83
 Date Sampled 12/15/83

Analysis For BENNETT & CATHEY WRLN.
 Well Name Crusader Rabbit

Producer Chama
 County Eddy State New Mexico
 Well Test
 Sampled By B & C WRLN.
 Well Temp 30 °F Atmos Temp. _____ °F
 Formation _____
 Pressure on Bomb 2 PSIG; Line Pressure 15.2 PSIA PSIG

Gas Component Analysis Press. Base: 14.73

Gas Component	Mol. %	Liq. %	GPM Per MCF		
Carbon Dioxide CO ₂	2.400			BTU Dry	1081
Oxygen O ₂	.090			BTU Wet	1053
Nitrogen N ₂	3.110			Calc. Specific Gravity	.671
Sulfur Dioxide H ₂ S					
@ Std. Press. 14.696					
Ethane C ₂	85.644		14.483	BTU Dry	1079
Propane C ₃	4.946		1.320	BTU Wet	1060
Isobutane IC ₄	1.860		.511		
Normal Butane NC ₄	.408		.133	Calc. Vap. Press. #/Sq. In.	
	.528		.166	Reid Vap. Press. #/Sq. In.	
Normal Pentane IC ₅	.256		.093	Z Factor	.9974
Normal Pentane NC ₅	.197		.072	N Value	1.3006
Hexanes plus	.551		.239	Ave Mol Wt	19.3915
Heptanes C ₇				Ave Cu Ft/Gal	
Octanes Plus C ₇₊				Run by <u>Jeffrey A. Propp</u>	
Total	100.000		17.017	Calculated By <u>Jeffrey A. Propp</u>	
Normal Pentane + GPM			.404		
Propane + GPM			1.214	Ethane + GPM	2.534
1b Gasoline			.986		

Notes: RTU Wet adjusted to flowing conditions as established by FERC Order #93/93-A and calculated per GPA Reference Bulletin 181-B2.

Distribution

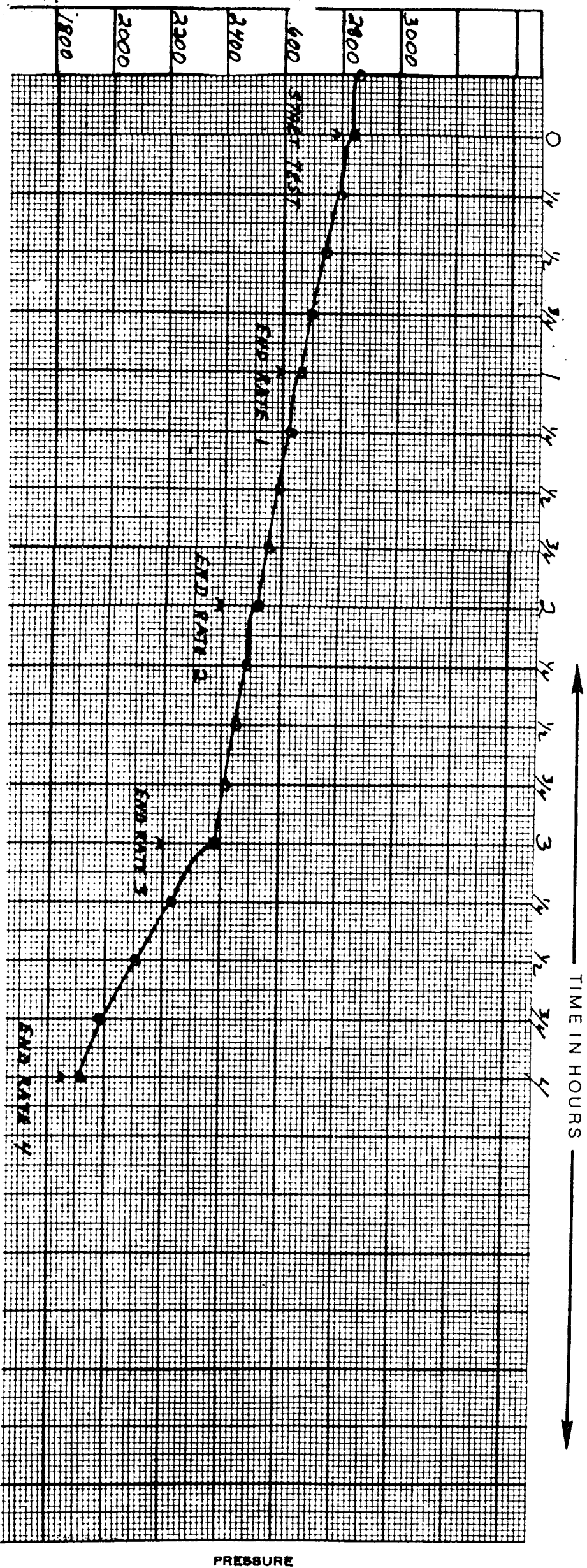
TEST DATE: 12-18-83
 TEST DEPTH: 8073 FT.
 ELEMENT NO.: RFG3#46950
 RANGE: 7250 LBS.
 CLOCKS: R-3443
 RANGE: 12 HOUR
 OPERATOR: RICHARD TOWNLEY

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

FOUR POINT BACK PRESSURE TEST

BURL REYNOLDS
CHAWA PETROLEUM CO. CRUSADER RABBIT #1
BENNETT-CATHEY WIRE LINE SERVICE Box 787 Artesia, N.M. 88210 505/746-3281 Scale: As Shown

BENNETT-CATHEY
WELL SERVICES



PRESSURE

BENNETT - CATHEY

(505) 746-3354 / Artesia, New Mexico 88210

SUBSURFACE PRESSURE MEASUREMENTS

COMPANY CHAMA PETROLEUM CO. WELL NAME CRUSADER RABBIT #1
DATE OF TEST 12-15-83 TO 12-18-83 FORMATION PAGE 1 OF 2
COMPANY MAN BURL REYNOLDS

CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

ELEMENT NUMBER RPG3#46950 RANGE 7250 LBS.
CLOCK NUMBER 30336 RANGE 72 HOUR
ELEMENT NUMBER RANGE
CLOCK NUMBER RANGE
TIME WELL SHUT IN 1406 HOUR 12-15-83
TIME CLOCK STARTED 1319 HOUR 12-15-83
DEAD WEIGHT ELEMENT ON SURFACE TLTM LBS.
TIME ELEMENT REACHED BOTTOM 1359 HOUR 12-15-83
DEAD WEIGHT ELEMENT ON BOTTOM TLTM LBS.
ELEMENT SET AT 8073 FEET
TEMPERATURE 8073 FT. 176° °F.
2257.2 PSIA DEAD WEIGHT AT THE END OF 72 HOURS 9 MINUTES

DATE	HOUR	TIME	DEFLECTION in/inches	CALCULATED PRESSURE psig	CORRECTION P ± PC psig	CORRECTED PRESSURE psia	PRESSURE AT MID-POINT OF PERFORATIONS psia
12-15-83	0	1406		351	13.2	364.2	
	1/4	1421		494	13.2	507.2	
	1/2	1436		615	13.2	628.2	
	3/4	1451		699	13.2	712.2	
	1	1506		764	13.2	777.2	
	1 1/4	1521		854	13.2	867.2	
	1 1/2	1536		907	13.2	920.2	
	1 3/4	1551		981	13.2	994.2	
	2	1606		1061	13.2	1074.2	
	2 1/4	1621		1115	13.2	1128.2	
	2 1/2	1636		1162	13.2	1175.2	
	2 3/4	1651		1220	13.2	1284.2	
	3	1706		1271	13.2	1342.2	
	3 1/4	1721		1329	13.2	1396.2	
	3 1/2	1736		1383	13.2	1436.2	
	3 3/4	1751		1423	13.2	1436.2	
	4	1806		1470	13.2	1483.2	
	4 1/4	1821		1520	13.2	1533.2	
	4 1/2	1836		1557	13.2	1570.2	
	4 3/4	1851		1600	13.2	1613.2	
	5	1906		1636	13.2	1649.2	
	5 1/4	1921		1680	13.2	1693.2	
	5 1/2	1936		1720	13.2	1733.2	
	5 3/4	1951		1756	13.2	1769.2	
	6	2006		1788	13.2	1801.2	
	6 1/4	2021		1821	13.2	1834.2	
	6 1/2	2036		1853	13.2	1866.2	
	6 3/4	2051		1875	13.2	1888.2	
	7	2106		1901	13.2	1914.2	
	7 1/4	2121		1926	13.2	1939.2	
	7 1/2	2136		1955	13.2	1968.2	
	7 3/4	2151		1980	13.2	1993.2	
	8	2206		2001	13.2	2014.2	
	8 1/4	2221		2024	13.2	2037.2	
	8 1/2	2136		2042	13.2	2055.2	
	8 3/4	2151		2063	13.2	2076.2	
	9	2306		2085	13.2	2098.2	

TEST DATE: 12-15-83 TO 12-18-83

TEST DEPTH: 8073 FEET

ELEMENT NO.: RPG3#46950

RANGE: 7250 LBS.

CLOCKS: 30336

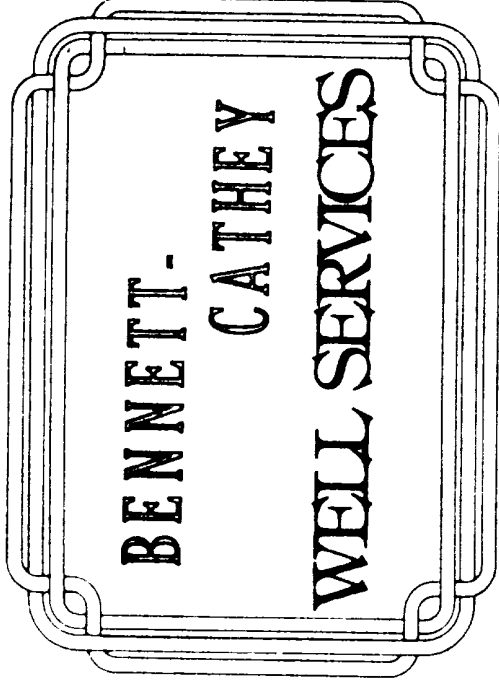
RANGE: 72 HOUR

OPERATOR: DAVID SPENCER

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

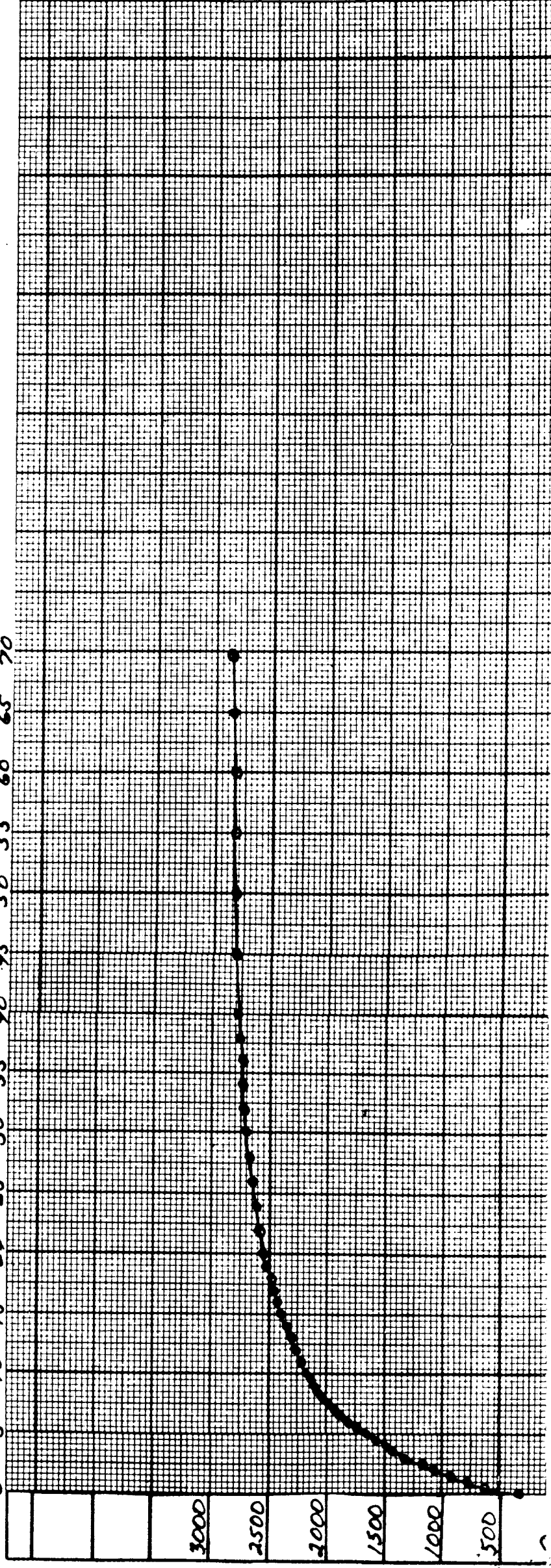
69 3/4 HOUR BUILD UP TEST

BURL REYNOLDS
CHAMA PETROLEUM CO.
CRUSADER RABBIT #1
BENNETT-CATHEY WIRE LINE SERVICE Box 787 Artesia, N.M. 88210 Drawn By _____ Scale: As Shown



TIME IN HOURS

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70





BENNETT-CATHEY WIRE LINE SERVICE

P. O. BOX 787
ARTESIA, NEW MEXICO 88210
Phone (505) 746-3281



BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR CHAMA PETROLEUM CO.
 LEASE CRUSADER RABBIT
 WELL NO. #1
 POOL _____ FORMATION _____
 DATE 12-18-83 TIME 1415 HR
 CO. MAN BURL REYNOLDS
 STATUS SHUT IN TEST DEPTH 8073 FT.
 TIME S.I. 1406 HR LAST TEST DATE 12-3-83
12-15-83 BHP LAST TEST 3085.2#
 TUB. PRES. 2257.2# BHP CHANGE 219#
 CAS. PRES. _____ FLUID TOP _____
 DATUM PLANE _____ WATER TOP _____
 DATUM PSIA 2866.2# RUN BY DAVID SPENCER
 TEMP 176° CLOCK # B-3443
 PRESSURE RANGE 7250 LBS.
 ELEMENT NO. RPG3#46950

DEPTH	PRESSURE	GRADIENT
0	2257.2	
2000	2409.2	7.6
4000	2554.2	7.3
6000	2713.2	7.9
7923	2853.2	7.4
8073	2866.2	8.7

TIME B.H.P. MEASURED 1415 HOUR.
 LENGTH OF TIME WELL SHUT IN 72HR 9MIN.
 PERFORATIONS FROM 8257 TO 8533 FEET.

