

458

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 10-11-85		RECEIVED BY NOV 12 1985 O. C. D. ARTESIA, OFFICE	
Company Read & Stevens, Inc.		Connection to air			
Pool NM-0115 Buffalo Valley Penn		Formation Morrow			
Completion Date 10-9-85		Total Depth 8998' <i>9040</i>			
Plug Back TD 8998'		Elevation 3629' <i>60</i>		Farm or Lease Name Toles Federal	
Csg. Size 4.50	Wt. 11.60	d 	Set At 9040 8765'	Perforations: From 8744' To 8762'	
Thp. Size 2.375	Wt. 4.70	d 	Set At 8683 8675'	Perforations: From To	
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single				Packer Set At 8683'	
Producing Thru Tubing		Reservoir Temp. °F 161 @ 8753'		Mean Annual Temp. °F 60	
Baro. Press. - P _a 13.20		State NM		County Chaves	
L 8753.	H 8753.	G _g 0.671	% CO ₂ 0.89	% N ₂ 4.87	% H ₂ S 0
Prover 0		Meter Run 3.1		Taps Flange	

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									2423	161	72
1.	3.07	x	0.750	390	4.0	92	0	0	1978	161	1
2.	3.07	x	0.750	400	8.0	95	0	0	1730	161	1
3.	3.07	x	0.750	400	17.0	95	0	0	1272	161	1
4.	3.07	x	0.750	400	12.0	93	0	0	674	161	1
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, Mcfd
1	2.67	40.16	403.2	0.9706	1.2208	1.0314	131
2	2.67	57.49	413.2	0.9680	1.2208	1.0315	187
3	2.67	83.81	413.2	0.9680	1.2208	1.0315	273
4	2.67	70.42	413.2	0.9697	1.2208	1.0319	230
5							

NO.	R _i	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	0.61	552	1.51	0.940	0	
2	0.62	555	1.52	0.940	0	
3	0.62	555	1.52	0.940	0.671	XXXXXX
4	0.62	553	1.51	0.939	XXXXX	0.671
5					664	664 P.S.I.A.
					366	366 R

NO.	P _i	P _w	P _w ²	P _c ² - P _w ²
1		1569	2460	1188
2		1379	1901	1747
3		1026	1053	2595
4		557	310	3338
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.4058$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.3748$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 375$

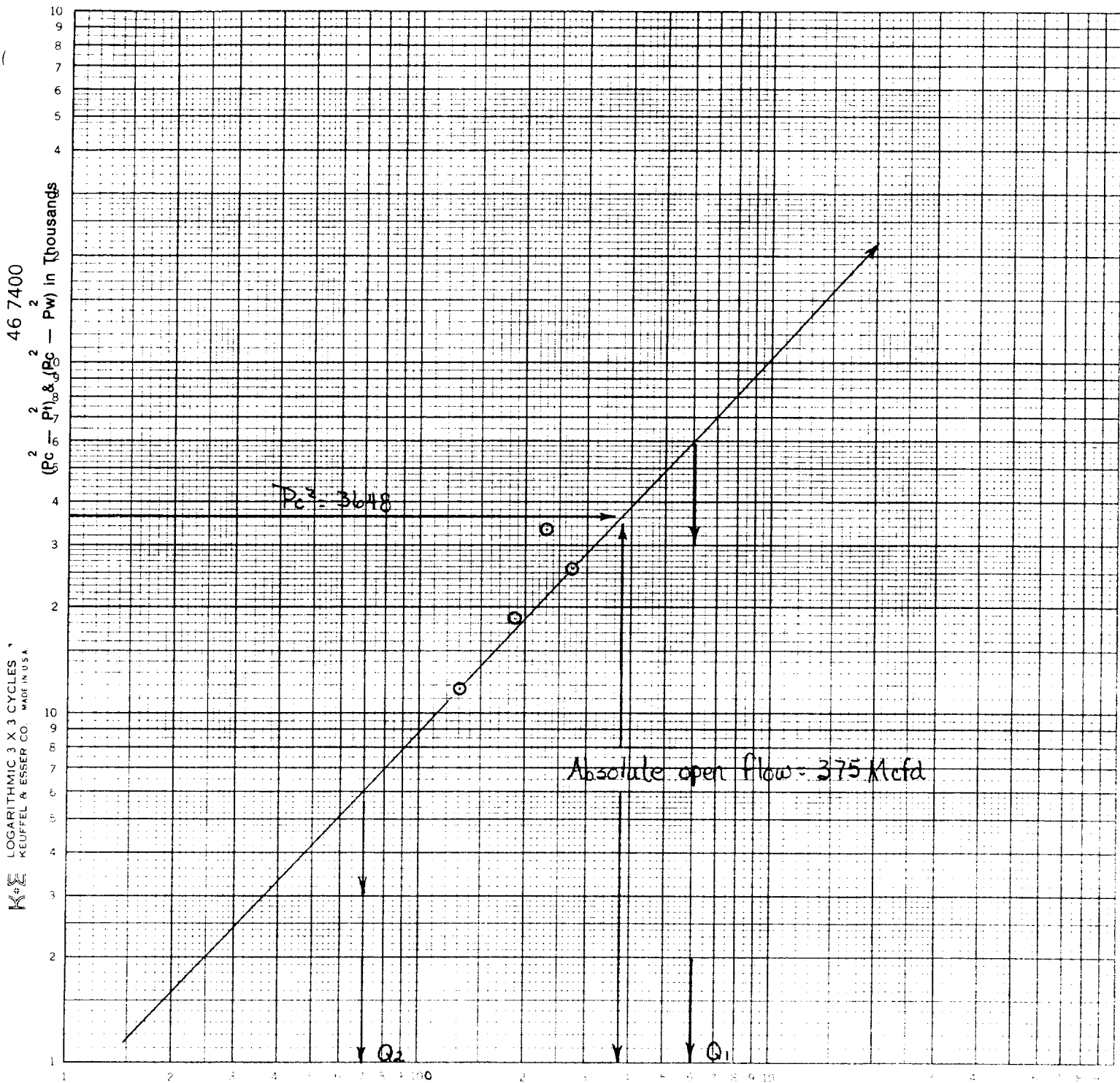
Post ID-2
11-22-85
Comp & BK

Absolute Open Flow	375	Mcf/d @ 15.025	Angle of Slope @	46.9	Slope, n	0.935
Remarks:						

Approved By Division	Conducted By:	Calculated By:	Checked By:
	Bennett-Cathey	Bennett-Cathey	

BACK PRESSURE CURVE

Operator Read & Stevens Inc. Lease Toles Federal Well No. 2
 County Chaves Field _____ Location 24 15S 27E
 Date of Test 10-11-85 Slope "n" 0.935 Angle of Slope 46.9
 Calc. Abs. Potential 375 MCF/D



$$\frac{\Delta P_1^2}{\Delta P_2^2} = \frac{P_c^2 - P_w^2}{P_c^2 - P_w^2} = \frac{6000}{600}$$

$$Q_1 = 602$$

$$Q_2 = 70$$

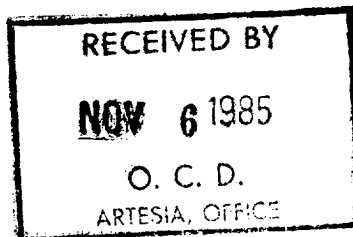
Q in MCF/Day

$$\text{LOG } Q_1 = 2.7796$$

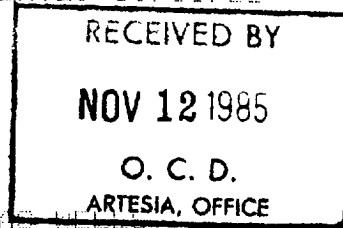
$$\text{LOG } Q_2 = 1.8446$$

$$n = 0.935$$

LEASE : TOLES FEDERAL
WELL : 2
S/T/R : 24 155 27E
COUNTY: CHAVES
STATE : NEW MEXICO



INITIAL
TEST DATE: 10/11/85



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

COMPANY: READ & STEVENS INC
FIELD: POOL: NM 0115
COMPLETED 10 9 85 TD = 8998.
CSG SIZE = 4.5000 WT = 11.60
TBG SIZE = 2.3750 WT = 4.70
TYPE COMPLETION: SINGLE
PRODUCING THROUGH: TUBING
RESERVOIR TEMP., F = 161. @ 8753. FT.
CONNECTION: TO AIR
RESERVOIR: MORROW
PBD = 8998. ELEV = 0.
SET AT 8998. PERF: 8744. - 8762.
SET AT 8675. PERF: 0. - 0.
PACKER SET AT: 8683.
BARO. PRESS = 13.20 PSIA
MEAN GROUND TEMP., F = 60.

L	H	G	% CO2	% N2	% H2S	PROVER	M-RUN	TAPS
8753.	8753.	0.671	0.89	4.87	0.	0.	3.1	FLANGE

NO.	LINE SIZE	ORI. SIZE	FLOW PSIG	HW IN.	FLOW TEMP	TBG. PSIG	TBG. TEMP	BHP PSIG	BH TEMP	FLOW HRS.
SI								2423.	161.	72.0
1	3.07 X 0.750		390.	4.0	92.	0.	0.	1978.	161.	1.0
2	3.07 X 0.750		400.	8.0	95.	0.	0.	1730.	161.	1.0
3	3.07 X 0.750		400.	17.0	95.	0.	0.	1272.	161.	1.0
4	3.07 X 0.750		400.	12.0	93.	0.	0.	674.	161.	1.0

NO.	COEFFICIENT (24 - HOUR)	SOFT. (HWPM)	PRESS. PM	T-FACTR F (T)	G-FACTR F (G)	SC-FACTR F (PV)	FLOW MCFD
1	2.67	40.16	403.2	0.9706	1.2208	1.0314	131.
2	2.67	57.49	413.2	0.9680	1.2208	1.0315	187.
3	2.67	83.81	413.2	0.9680	1.2208	1.0315	273.
4	2.67	70.42	413.2	0.9697	1.2208	1.0317	230.

NO.	P (R)	TEMP. R	T (R)	Z	GAS LIQ RATIO. MCF/BBL	API G OF HYDROCARBONS	FLOW
1	0.61	552.	1.51	0.940			0.
2	0.62	555.	1.52	0.940	SP G SEPARATOR GAS	0.671	XXXXX
3	0.62	555.	1.52	0.940	SP G FLOWING FLUID	XXXXX	0.671
4	0.62	553.	1.51	0.939	CRITICAL PRES., PSIA	664.	664.
					CRITICAL TEMP., R	366.	366.

NO.	PW	PW*PW	PC*PC-PW*PW	PC =	PC*PC =	PC*PC / (PC*PC - PW*PW) =	(PC*PC / (PC*PC - PW*PW)) * N =	AGF (MCF/DAY) =
1	1569.	2460.	1188.				1.4058	
2	1379.	1901.	1747.				1.3748	
3	1026.	1053.	2595.					
4	557.	310.	3338.					

UNIT :
LEASE : TOLES FEDERAL
WELL : 2
S/T/R : 24 15S 27E
COUNTY: CHAVES
STATE : NEW MEXICO

PE TESTS : 4 POINT
: INITIAL
TEST DATE: 10/11/85

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

PAGE 2

CALC WH OPEN FLOW= 375. MCFD @ 15.025, SLOPE ANGLE= 46.9, N= 0.935

APPROVED BY
COMMISSION: CONDUCTED BY: CALCULATED BY: CHECKED BY:

I, _____, BEING FIRST DULY SWORN ON OATH, STATE THAT
I AM FAMILIAR WITH FACTS AND FIGURES SET FORTH IN THIS REPORT,
AND THAT THE REPORT IS TRUE AND CORRECT.

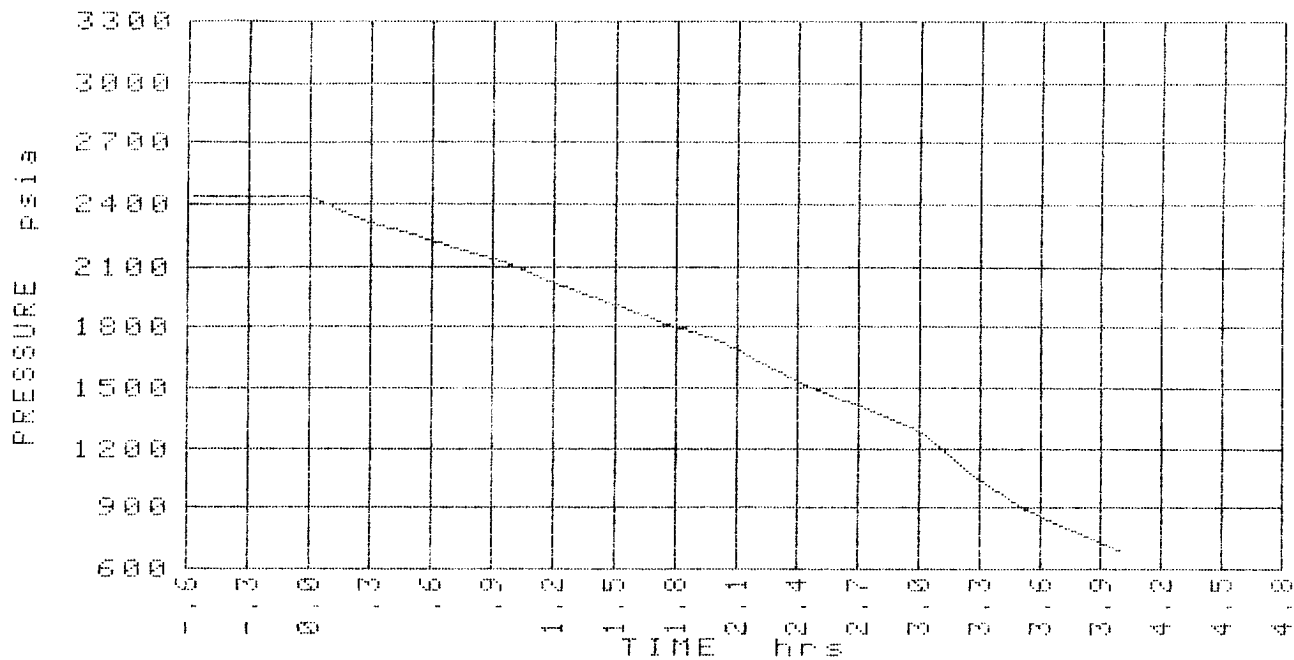
SIGNATURE AND TITLE OF AFFIANT

COMPANY

SUBSCRIBED AND SWORN TO BEFORE ME THIS DAY OF , 19

MY COMMISSION EXPIRES

NOTARY PUBLIC



COMPANY: READ & STEVENS
 LEASE: TOLES FEDERAL
 FIELD:
 COUNTY: CHAVES
 STATUS: FOUR POINT BACK PRESSURE TEST
 PERFORATIONS FROM: 8744 ft
 DEPTH: 8670 ft

CONTACT: DARRELL LOWDER
 WELL: #2
 ZONE: MORROW
 STATE: NEW MEXICO
 OPERATOR: RICHARD TOWNLEY
 TO: 8762 ft
 TEMPERATURE: 190°F

ELEMENT# RPG3#46632
 CLOCK# 21356
 ELEMENT# RPG3#22749
 CLOCK# 32160

ELEMENT RANGE: 7100 psig
 CLOCK RANGE: 24 hrs
 ELEMENT RANGE: 5150 psig
 CLOCK RANGE: 24 hrs

START CLOCK	10/11/85	07:24:00	1879 psig
SET ELEMENT	10/11/85	08:33:00	1879 psig
WELL SHUT IN	10/08/85	00:00:00	0 psig
TEST ENDED	10/11/85	13:15:00	560 psig

GAIN= 1
 FILE: 121-TOL:D701

BIAS= 6 psi
 BAROMETRIC PRESSURE= 13.2 psia

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

PRESSURE TRANSIENT TEST DATA

COMPANY: READ & STEVENS	CONTACT: DARRELL LOWDER
LEASE: TOLES FEDERAL	WELL: #2
FIELD:	ZONE: MORROW
COUNTY: CHAVES	STATE: NEW MEXICO
STATUS: FOUR POINT BACK PRESSURE TEST	OPERATOR: RICHARD TOWNLEY

PERFORATIONS FROM: 8,744.0'	TO: 8,762.0'
DEPTH: 8,670.0'	TEMPERATURE: 190.0°F

ELEMENT: RP63#46632	RANGE: 7100 psig
CLOCK: 21356	RANGE: 24 hrs
ELEMENT: RP63#22749	RANGE: 5150 psig
CLOCK: 32160	RANGE: 24 hrs

SURFACE PRESSURE MEASUREMENTS

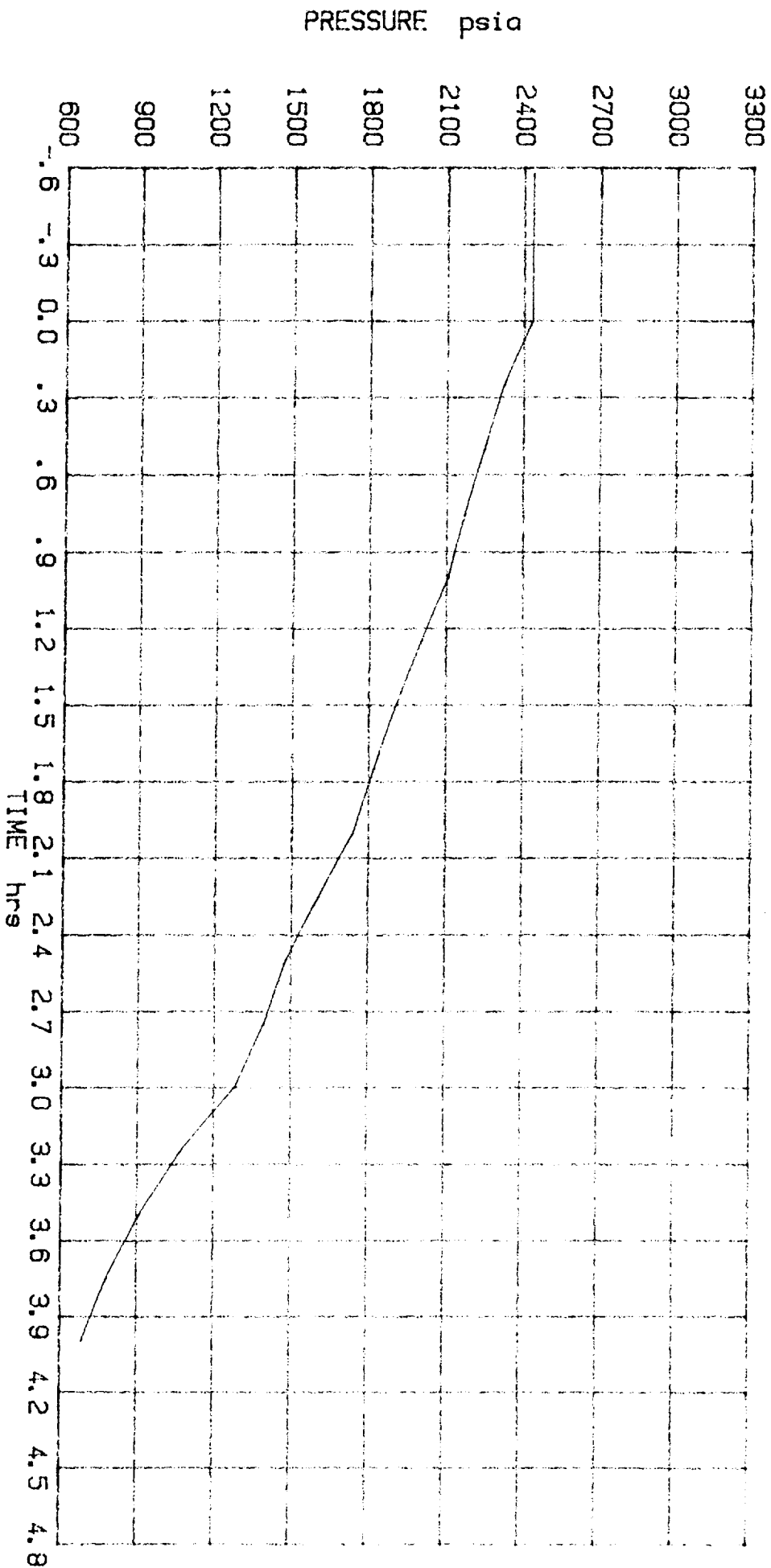
EVENT	DATE	TIME	DEAD WEIGHT PRESSURE
START CLOCK	10/11/85	07:24:00	1,879.0 psig
SET ELEMENT	10/11/85	08:33:00	1,879.0 psig
WELL SHUT IN	10/08/85	00:00:00	0.0 psig
TEST ENDED	10/11/85	13:15:00	560.0 psig

SUBSURFACE PRESSURE MEASUREMENTS

DATE	TIME	t hrs	GAUGE PRESSURE psig	ABSOLUTE PRESSURE psia	RESERVOIR PRESSURE psia
10/08/85	08:40:26	-.576	2,417.7	2,430.9	2,436.9
10/08/85	09:15:00	0.000	2,417.7	2,430.9	2,436.9
10/08/85	09:30:00	.250	2,306.5	2,319.7	2,325.7
10/08/85	09:45:01	.500	2,231.4	2,244.6	2,250.6
10/08/85	10:00:01	.750	2,155.3	2,168.5	2,174.5
10/08/85	10:14:59	1.000	2,090.6	2,103.8	2,109.8
10/08/85	10:30:00	1.250	1,987.4	2,000.6	2,006.6
10/08/85	10:45:00	1.500	1,890.1	1,905.3	1,909.3
10/08/85	11:00:00	1.750	1,803.4	1,816.6	1,822.6
10/08/85	11:15:01	2.000	1,724.2	1,737.4	1,743.4
10/08/85	11:30:01	2.250	1,589.5	1,602.7	1,608.7
10/08/85	11:44:59	2.500	1,462.3	1,475.5	1,481.5
10/08/85	12:00:00	2.750	1,379.0	1,392.2	1,398.2
10/08/85	12:15:00	3.000	1,265.5	1,278.7	1,284.7
10/08/85	12:30:00	3.250	1,054.4	1,067.6	1,073.6
10/08/85	12:45:01	3.500	891.1	904.3	910.3
10/08/85	13:00:01	3.750	765.2	778.4	784.4
10/08/85	13:14:59	4.000	668.0	681.2	687.2

TEST DATE: 10/11/85 TO 10/11/85
TEST DEPTH: 8670 ft
ELEMENT NO: RPC3#22749
RANGE: 5150 psig
CLOCK: 32160
RANGE: 24 hrs
OPERATOR: RICHARD TOWNLEY

DARRELL LOWDER
READ & STEVENS
TOLES FEDERAL #2
BENNETT-CATHEY WIRE LINE SERVICE
Box 787 Artesia, N.M. 88210 (505) 748-3354





BEN. JETT-CATHEY WIRE LINE SERVICE

P. O. BOX 787

ARTESIA, NEW MEXICO 88210

Phone (505) 746-3281



BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR READ & STEVENS
LEASE TOLES FEDERAL
WELL NO. 2
POOL FORMATION MORROW
DATE 10-11-85 TIME 0833 HOURS
CO. MAN DARRELL LOWDER
STATUS SHUT IN TEST DEPTH 8670'
TIME S.I. 10-08-85 LAST TEST DATE 9-22-85
 BHP LAST TEST 2553
TUB. PRES. 1892.2 BHP CHANGE - 117
CAS. PRES. FLUID TOP
DATUM PLANE WATER TOP
DATUM PSIA 2436.2 RUN BY LUIS PEREZ
TEMP 190° CLOCK # 32160
PRESSURE RANGE 5150#
ELEMENT NO. RPG3#22749

DEPTH	PSIA PRESSURE	LBS/100 FT GRADIENT
0	1892.2	
2000	1999.2	5.35
4000	2123.2	6.2
6000	2255.2	6.6
8520	2420.2	6.5
8670	2430.2	6.7
8753	2436.2	7.2

8753 FEET WAS EXTRAPOLATED

TIME B.H.P. MEASURED 0833 HOURS

LENGTH OF TIME WELL SHUT IN
72 HOURS

PERFORATIONS FROM 8744 TO 8762

1800 1900 2000 2100 2200 2300 2400 2500

Pressure

