

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

458 F. 1e
Form C-122
Revised 9-1-65

RECEIVED BY

JUL 27 1984

Type Test 4 POINT ☒ Initial ☐ Annual ☐ Special				Test Date 6-26-84		990 FWLO. C. D.	
Company STEVENS OPERATING				Connection AIR NEW WELL		ARTESIA, OFFICE	
Pool PECOS SLOPE				Formation ABO		Unit M	
Completion Date 6-27-84		Total Depth 4658: 4700		Plug Back To 4658.		Elevation 3742.	
Casing Size 4.500		Wt. 11.6		Set At 4658.		Perforations: From 4167. To 4430.	
Tubing Size 2.375		Wt. 4.7		Set At 4374.		Perforations: From 0. To 0.	
Type Well - Single - Brokenhead - G.O. or G.O. Multiple SINGLE				Factor Set At 0		County CHAVES	
Producing thru TUBING		Reservoir Temp. °F 104. 4299.		Mean Annual Temp. °F 60.0		Baro. Press. - P _a 13.2	
L 4299.		H 4299.		G _g 0.818		% CO ₂ 0.05	
				% N ₂ 4.84		% H ₂ O 0.	
				Prover 2.0		Motor Run 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							798.		903.		99.5
1.	2.00 X 0.190			115.	0.	84.	765.	86.	888.	5.5/64	1.0
2.	2.00 X 0.190			260.	0.	86.	755.	86.	865.	7/64	1.0
3.	2.00 X 0.190			440.	0.	86.	720.	86.	827.	9/64	1.0
4.	2.00 X 0.250			380.	0.	70.	667.	86.	767.	10.5/64	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, Mcfd
1	0.63	0.	128.2	0.9777	1.1057	1.0160	88.
2	0.63	0.	273.2	0.9759	1.1057	1.0346	191.
3	0.63	0.	453.2	0.9759	1.1057	1.0590	324.
4	1.08	0.	393.2	0.9905	1.1057	1.0559	493.
5							

NO.	P ₁	Temp. °R	T ₁	Z	Gas Liquid Hydrocarbon Ratio	A.P.L. Gravity of Liquid Hydrocarbon	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	0.20	544.	1.32	0.969	0.	0.	0.818	XXXXXX	653.	413.
2	0.42	546.	1.32	0.934				XXXXXX		
3	0.69	546.	1.32	0.892						
4	0.60	530.	1.28	0.897						
5										

NO.	P _c ²	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.7451$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.8519$
1	812.	773.	598.		
2	771.	754.	569.		
3	706.	723.	523.		
4	608.	672.	452.		
5					

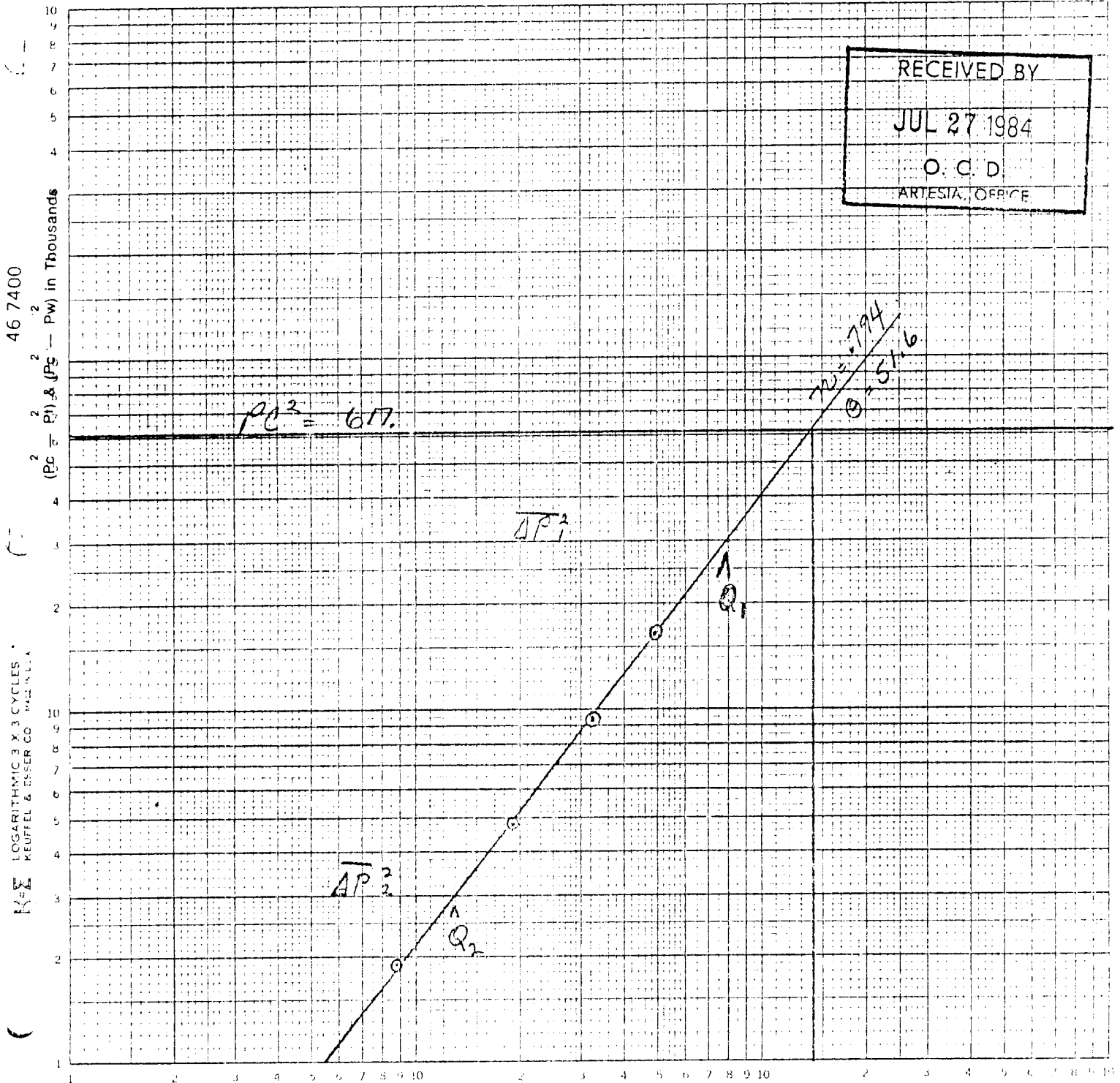
Absolute Open Flow 1406. Mcfd @ 15.023				Angle of Slope 51.6		Slope, n 0.794	
Remarks: BOTTOM HOLE PRESSURES MEASURED WITH AMERADA PRESSURE ELEMENTS.							
Approved By Commission		Conducted By		Calculated By		Checked By	

Post FD-2
8-3-84
Camp + BK

BACK PRESSURE CURVE

Operator STEVENS OPERATING Lease HAWKINS FORD Well No. 2A
 County CHANDLER Field POSS SHOPE Location M 11 75 26E
 Date of Test 6-26-84 Slope "n" .794 Angle of Slope 51.6

Calc. Abs. Potential _____ MCF/D



$$\frac{\Delta P_1^2}{\Delta P_2^2} \frac{P_c^2 - P_w^2}{P_c^2 - P_w^2} = \frac{300}{30}$$

$$Q_1 = 805.0$$

Q in MCF/Day

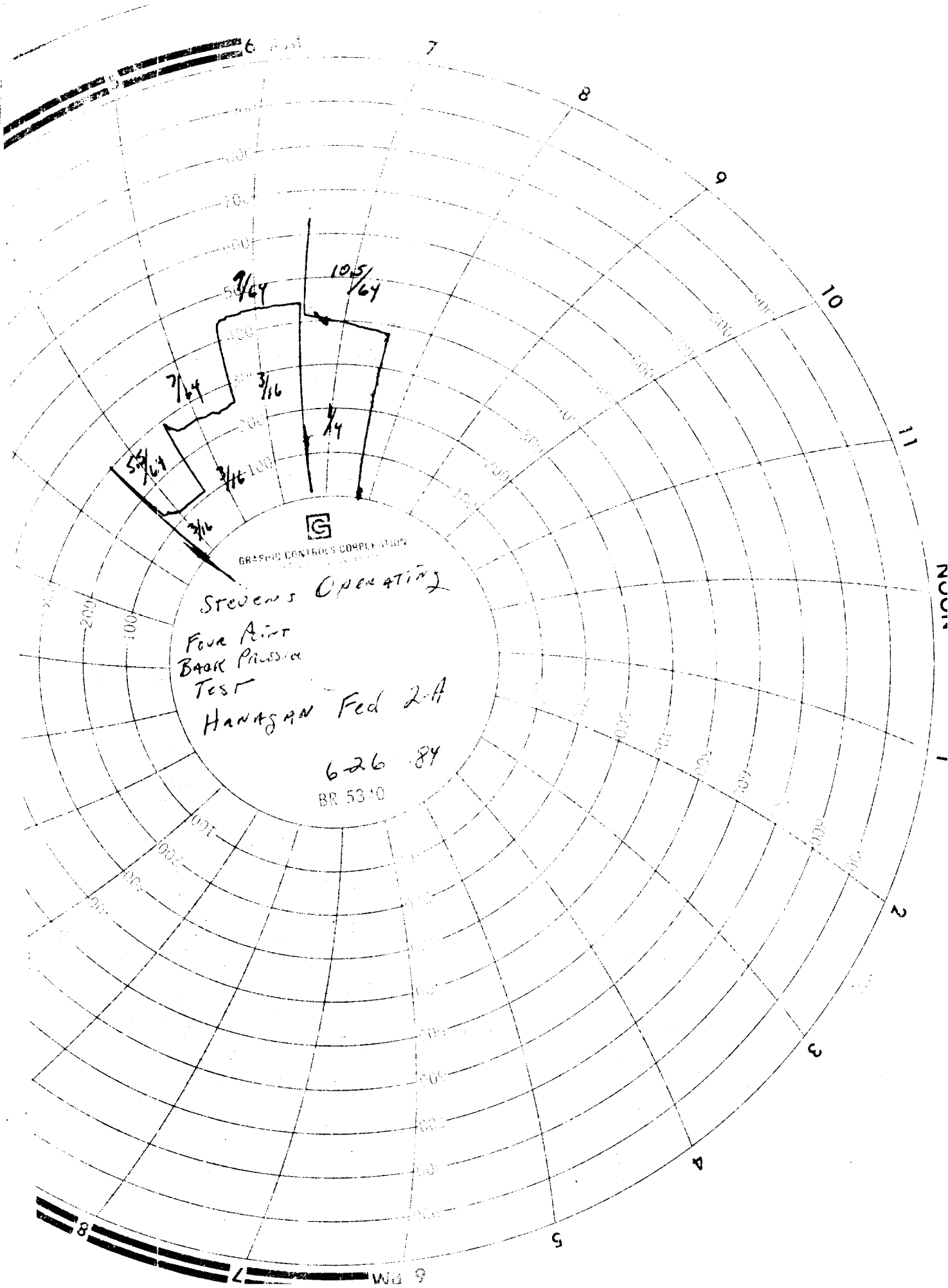
$$\text{LOG } Q_1 = 2.906$$

$$\text{LOG } Q_2 = 2.112$$

$$n = .794$$

Flow Measurement Engineers Analysis Has the Summary Casper, W. W. 82391

$$x^{\frac{1}{2}} = \frac{1}{2} \log_2 \frac{1+x}{1-x} \quad (2)$$



COMPANY: STEVENS OPERATING
LEASE: HANAGAN FEDERAL
FIELD: PECOS SLOPE
COUNTY: CHAVES
STATUS: BOTTOM HOLE BUILD UP TEST
PERFORATIONS FROM: 4167 ft
DEPTH: 4299 ft

CONTACT: MIKE VOWELL
WELL: #2A
ZONE: ABO
STATE: NEW MEXICO
OPERATOR: BO FAULKENBERRY
TO: 4430 ft
TEMPERATURE: 104°F

ELEMENT# RPCB#7201
CLOCK# 27744
ELEMENT# RPCB#37882
CLOCK# 30996

ELEMENT RANGE: 3200 psig
CLOCK RANGE: 48 hrs
ELEMENT RANGE: 3500 psig
CLOCK RANGE: 48 hrs

START CLOCK 06/26/84
SET ELEMENT 06/26/84
WELL SHUT IN 06/26/84
TEST ENDED 06/27/84

09:02:00 737 psig
10:00:00 747 psig
15:30:00 667 psig
16:02:00 800 psig

GAIN= 1
FILE: HANAGAN/3:D701

BIAS= 0 psi
BAROMETRIC PRESSURE= 13.2 psia

BENNETT-CATHEY WIRE LINE SERVICE
 PHONE (505) 748-3954
 ARTESIA, NEW MEXICO, 88210

PRESSURE TRANSIENT TEST DATA

COMPANY: STEVENS OPERATING	CONTACT: MIKE VOWELL
LEASE: HANAGAN FEDERAL	WELL: #2A
FIELD:	ZONE: ABO
COUNTY: CHAVES	STATE: NEW MEXICO
STATUS: FOUR POINT BACK PRESSURE TEST	OPERATOR: DON BENNETT

PERFORATIONS FROM: 4,167.0'	TO: 4,430.0'
ELEMENT DEPTH: 4,299.0'	TEMPERATURE: 104.0°F

ELEMENT: RPO3#7201	RANGE: 3200 psig
CLOCK: 27744	RANGE: 48 hrs
ELEMENT: RPO3#37882	RANGE: 3500 psig
CLOCK: 30995	RANGE: 48 hrs

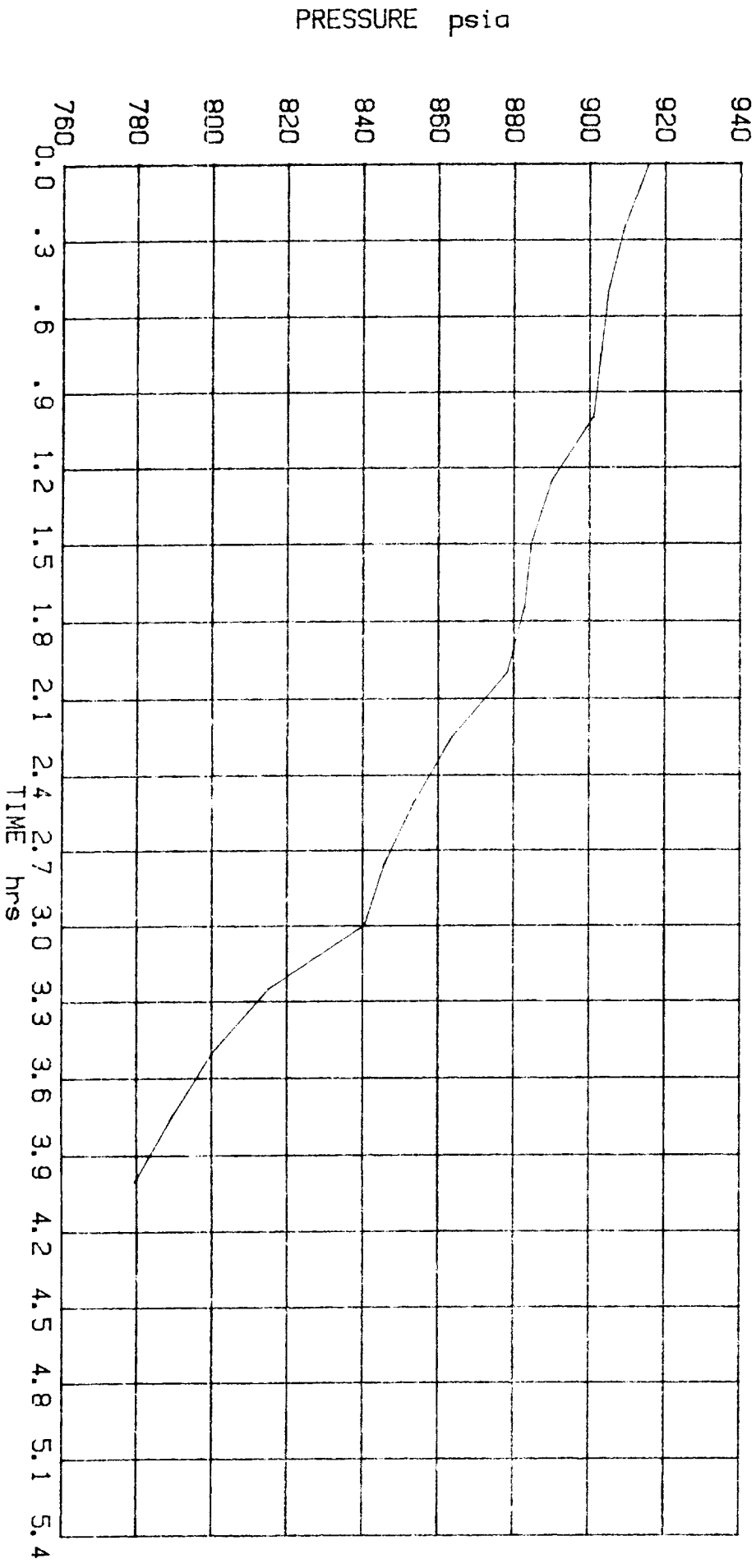
SURFACE PRESSURE MEASUREMENTS

EVENT	DATE	TIME	DEAD WEIGHT PRESSURE
START CLOCK	06/26/84	09:02:00	797.0 psig
SET ELEMENT	06/26/84	10:00:00	747.0 psig
WELL SHUT IN	06/23/84	08:00:00	0.0 psig
END OF TEST	06/26/84	15:30:00	667.0 psig

SUBSURFACE PRESSURE MEASUREMENTS

DATE	TIME	t hrs	GAUGE PRESSURE psig	ABSOLUTE PRESSURE psia	RESERVOIR PRESSURE psia
06/26/84	11:30:00	0.000	902.5	915.7	915.7
06/26/84	11:44:59	.250	896.1	909.3	909.3
06/26/84	12:00:01	.500	891.3	905.0	905.0
06/26/84	12:14:59	.750	889.8	903.0	903.0
06/26/84	12:30:01	1.000	887.8	901.0	901.0
06/26/84	12:45:00	1.250	876.9	890.1	890.1
06/26/84	13:00:02	1.500	871.4	884.6	884.6
06/26/84	13:15:00	1.750	869.6	882.8	882.8
06/26/84	13:29:59	2.000	865.1	878.3	878.3
06/26/84	13:45:01	2.250	850.4	863.6	863.6
06/26/84	13:59:59	2.500	840.8	854.0	854.0
06/26/84	14:15:01	2.750	832.7	845.9	845.9
06/26/84	14:30:00	3.000	827.3	840.5	840.5
06/26/84	14:44:59	3.250	802.1	815.3	815.3
06/26/84	15:00:01	3.500	797.1	800.3	800.3
06/26/84	15:14:59	3.750	776.3	789.5	789.5
06/26/84	15:30:01	4.000	766.5	779.7	779.7

TEST DATE: 06/26/84 TO 06/26/84
TEST DEPTH: 4299 ft
ELEMENT NO: RPC3#37882
RANGE: 3500 psig
CLOCK: 30996
RANGE: 48 hrs
OPERATOR: DON BENNETT



MIKE VOWELL
STEVENS OPERATING
HANAGAN FEDERAL #2A
BENNETT-CATHEY WIRE LINE SERVICE
Box 787 Artesia, N.M. 88210 (505) 748-3354

COMPANY: STEVENS OPERATING
LEASE: HANAGAN FEDERAL
FIELD:
COUNTY: CHAVES
STATUS: FOUR POINT BACK PRESSURE TEST
PERFORATIONS FROM: 4167 ft
DEPTH: 4299 ft

CONTACT: MIKE VOWELL
WELL: #2A
ZONE: ABO
STATE: NEW MEXICO
OPERATOR: DON BENNETT
TO: 4430 ft
TEMPERATURE: 104°F

ELEMENT# RFG3#7201
CLOCK# 27744
ELEMENT# RFG3#37382
CLOCK# 30996

ELEMENT RANGE: 3200 psig
CLOCK RANGE: 48 hrs
ELEMENT RANGE: 3500 psig
CLOCK RANGE: 48 hrs

START CLOCK 06/26/84
SET ELEMENT 06/26/84
WELL SHUT IN 06/22/84
TEST ENDED 06/26/84

09:02:00 797 psig
10:00:00 747 psig
09:00:00 0 psig
15:30:00 667 psig

GAIN= 1
FILE: STEVENS2A/:D701

BIAS= 0 psi
BAROMETRIC PRESSURE= 13.2 psia

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

PRESSURE TRANSIENT TEST DATA

COMPANY: STEVENS OPERATING	CONTACT: MIKE VOWELL
LEASE: HANAGAN FEDERAL	WELL: #2A
FIELD: PECOS SLOPE	ZONE: ABO
COUNTY: CHAVES	STATE: NEW MEXICO
STATUS: BOTTOM HOLE BUILD UP TEST	OPERATOR: BO FAULKENBERRY

PERFORATIONS FROM: 4,167.0'	TO: 4,430.0'
ELEMENT DEPTH: 4,299.0'	TEMPERATURE: 104.0°F

ELEMENT: RPG3#7201	RANGE: 3200 psig
CLOCK: 27744	RANGE: 48 hrs
ELEMENT: RPG3#27882	RANGE: 3500 psig
CLOCK: 30990	RANGE: 48 hrs

SURFACE PRESSURE MEASUREMENTS

EVENT	DATE	TIME	DEAD WEIGHT PRESSURE
START CLOCK	06/26/84	09:02:00	797.0 psig
SET ELEMENT	06/26/84	10:00:00	747.0 psig
WELL SHUT IN	06/26/84	15:30:00	667.0 psig
END OF TEST	06/27/84	16:02:00	800.0 psig

SUBSURFACE PRESSURE MEASUREMENTS

DATE	TIME	t hrs	GAUGE PRESSURE psig	ABSOLUTE PRESSURE psia	RESERVOIR PRESSURE psia
06/26/84	15:30:00	0.000	766.7	779.9	779.9
06/26/84	15:35:00	.083	781.6	794.8	794.8
06/26/84	15:40:00	.167	794.6	807.8	807.8
06/26/84	15:45:00	.250	804.9	818.1	818.1
06/26/84	15:50:00	.333	813.6	826.8	826.8
06/26/84	15:55:00	.417	820.0	833.2	833.2
06/26/84	16:00:00	.500	826.4	839.6	839.6
06/26/84	16:05:00	.583	831.8	845.0	845.0
06/26/84	16:10:00	.667	836.8	850.0	850.0
06/26/84	16:15:00	.750	841.4	854.6	854.6
06/26/84	16:20:00	.833	845.1	858.3	858.3
06/26/84	16:25:00	.917	848.7	861.9	861.9
06/26/84	16:30:00	1.000	851.6	864.8	864.8
06/26/84	16:45:00	1.250	858.8	872.0	872.0
06/26/84	17:00:00	1.500	864.4	877.6	877.6
06/26/84	17:15:00	1.750	869.4	882.6	882.6
06/26/84	17:30:00	2.000	873.4	886.6	886.6
06/26/84	17:45:00	2.250	876.7	889.9	889.9
06/26/84	18:00:00	2.500	878.9	892.1	892.1
06/26/84	18:15:00	2.750	882.0	895.2	895.2
06/26/84	18:30:00	3.000	883.8	897.0	897.0
06/26/84	18:45:00	3.250	885.7	898.9	898.9

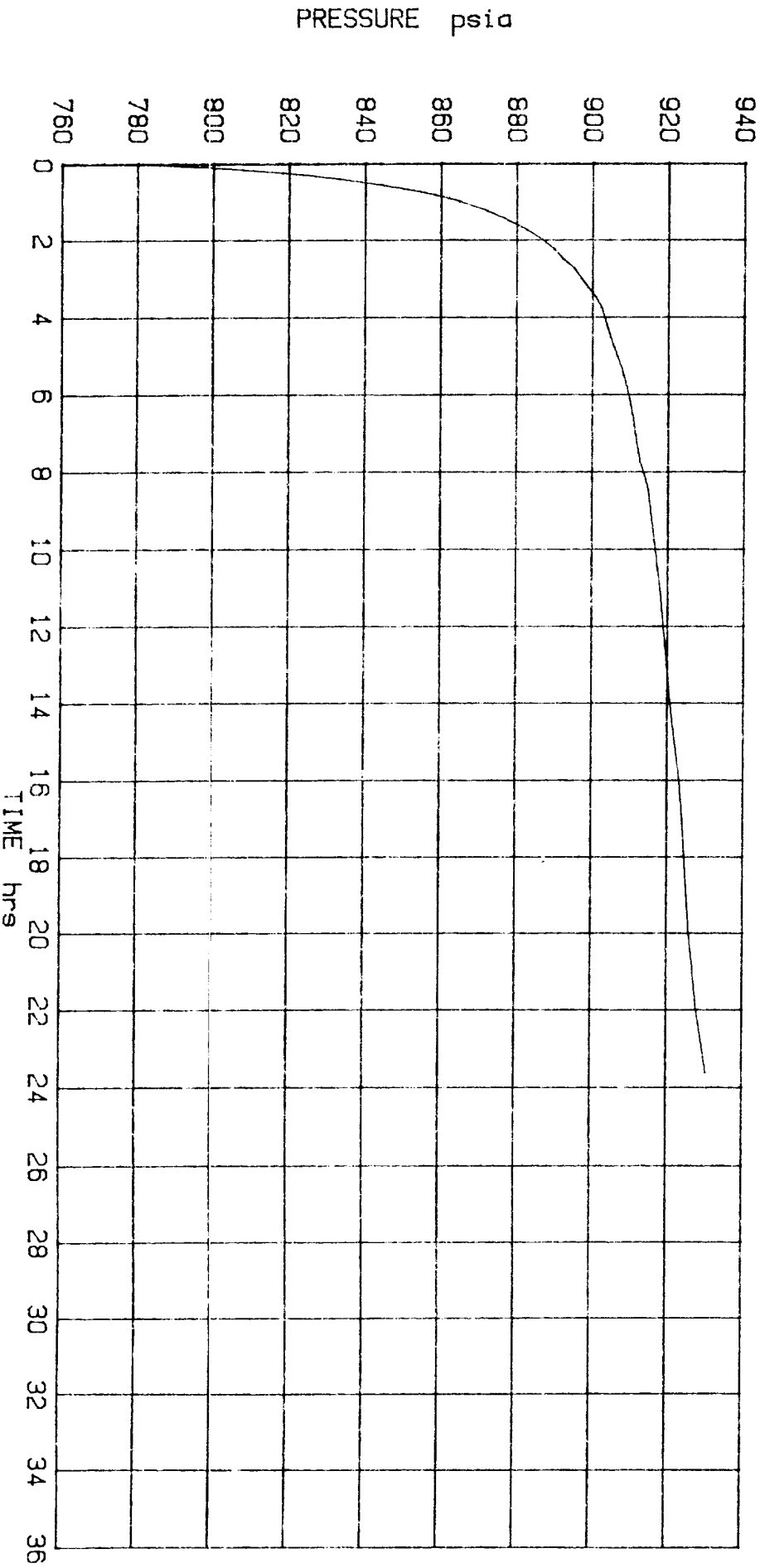
BENNETT-CATHEY WIPE LINE SERVICE
 PHONE (505) 748-3354
 ARTESIA, NEW MEXICO, 88210

PRESSURE TRANSIENT TEST DATA

SUBSURFACE PRESSURE MEASUREMENTS

DATE	TIME	t hrs	GAUGE PRESSURE psig	ABSOLUTE PRESSURE psia	RESERVOIR PRESSURE psia
06/26/84	19:00:00	3.500	887.7	900.9	900.9
06/26/84	19:15:00	3.750	889.2	902.4	902.4
06/26/84	19:30:00	4.000	890.0	902.2	902.2
06/26/84	19:45:00	4.250	890.7	903.9	903.9
06/26/84	20:00:00	4.500	891.6	904.8	904.8
06/26/84	20:15:00	4.750	892.4	905.6	905.6
06/26/84	20:30:00	5.000	893.3	906.5	906.5
06/26/84	20:45:00	5.250	894.3	907.5	907.5
06/26/84	21:00:00	5.500	895.1	908.3	908.3
06/26/84	21:15:00	5.750	895.8	909.0	909.0
06/26/84	21:30:00	6.000	896.4	909.6	909.6
06/26/84	21:45:00	6.250	896.9	910.1	910.1
06/26/84	22:00:00	6.500	897.4	910.6	910.6
06/26/84	22:15:00	6.750	897.8	911.0	911.0
06/26/84	22:30:00	7.000	898.2	911.4	911.4
06/26/84	22:45:00	7.250	898.5	911.7	911.7
06/26/84	23:00:00	7.500	899.0	912.2	912.2
06/26/84	23:15:00	7.750	899.5	912.7	912.7
06/26/84	23:30:00	8.000	900.3	913.5	913.5
06/26/84	23:45:00	8.250	901.1	914.3	914.3
06/27/84	00:00:00	8.500	901.7	914.9	914.9
06/27/84	00:15:00	8.750	902.0	915.2	915.2
06/27/84	00:30:00	9.000	902.3	915.5	915.5
06/27/84	00:45:00	9.250	902.6	915.8	915.8
06/27/84	01:00:00	9.500	902.9	916.1	916.1
06/27/84	01:15:00	9.750	903.3	916.5	916.5
06/27/84	01:30:00	10.000	903.6	916.8	916.8
06/27/84	02:00:00	10.500	904.2	917.4	917.4
06/27/84	02:30:00	11.000	904.8	918.0	918.0
06/27/84	03:00:00	11.500	905.3	918.5	918.5
06/27/84	03:30:00	12.000	905.8	919.0	919.0
06/27/84	04:00:00	12.500	906.2	919.4	919.4
06/27/84	04:30:00	13.000	906.7	919.9	919.9
06/27/84	05:00:00	13.500	907.2	920.4	920.4
06/27/84	05:30:00	14.000	907.6	920.8	920.8
06/27/84	06:00:00	14.500	908.2	921.4	921.4
06/27/84	06:30:00	15.000	908.8	922.0	922.0
06/27/84	07:30:00	16.000	910.1	923.3	923.3
06/27/84	08:30:00	17.000	910.9	924.1	924.1
06/27/84	09:30:00	18.000	911.5	924.7	924.7
06/27/84	10:30:00	19.000	912.1	925.3	925.3
06/27/84	11:30:00	20.000	912.8	926.0	926.0
06/27/84	12:30:00	22.000	914.8	928.0	928.0
06/27/84	15:07:39	23.629	917.4	930.6	930.6

TEST DATE: 06/26/84 TO 06/27/84
TEST DEPTH: 4299 ft
ELEMENT NO: RPC3#37882
RANGE: 3500 psig
CLOCK: 30996
RANGE: 48 hrs
OPERATOR: BO FAULKENBERRY



MIKE VOWELL
STEVENS OPERATING
HANAGAN FEDERAL #2A
BENNETT-CATHEY WIRE LINE SERVICE
Box 787 Artesia, N.M. 88210 (505) 748-3354



BENNETT-CATHEY WIRE LINE SERVICE

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

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ARTESIA, NEW MEXICO

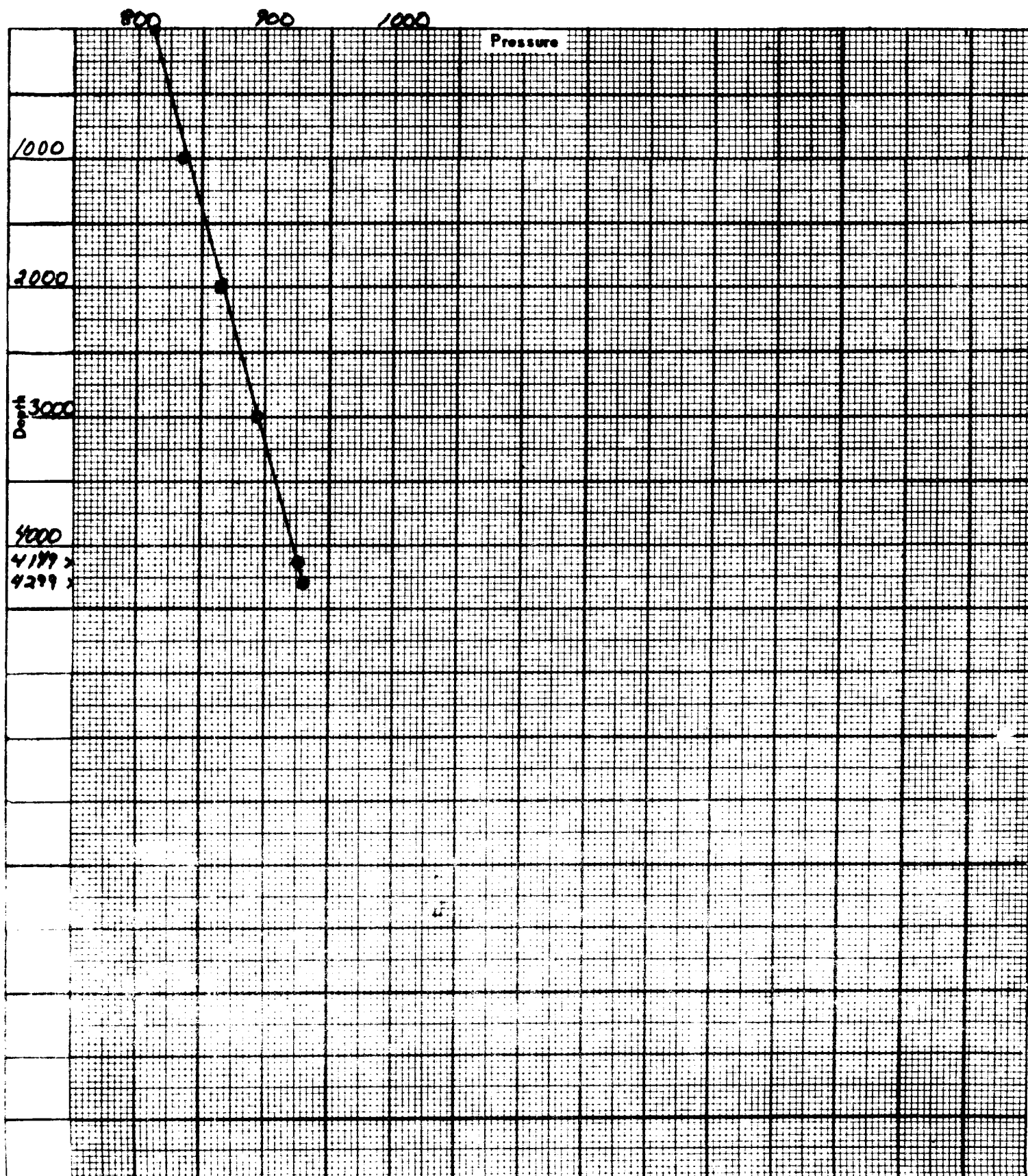
BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR STEVENS OPERATING
LEASE HANAGAN FEDERAL
WELL NO. #2-A
POOL FORMATION
DATE 6-27-84 TIME 1602 HOUR
CO. MAN MIKE VOWELL
STATUS SHUT IN TEST DEPTH 4299 FEET
TIME S.I. 1530 HOUR LAST TEST DATE 1ST TEST
4-26-84 BHP LAST TEST
TUB. PRES. 813.2# BHP CHANGE
CAS. PRES. FLUID TOP
DATUM PLANE WATER TOP
DATUM PSIA 931.2# RUN BY BO FAULKENBERRY
TEMP 104° CLOCK # B-3443
PRESSURE RANGE 3500 LBS.
ELEMENT NO. RPG3#37882

DEPTH	PSIA PRESSURE	LBS/100 FT. GRADIENT
0	813.2	
1000	836.2	2.3
2000	865.2	2.9
3000	894.2	2.9
4149	926.2	2.8
4299	931.2	3.3

TIME B.H.P. MEASURED 1602 HOUR.
LENGTH OF TIME WELL SHUT IN 24 HR 32 MIN.

PERFORATIONS FROM 4167 TO 4430 FEET.



COMPANY: STEVENS OPERATING
LEASE: HANAGAN FEDERAL
FIELD: PECOS SLOPE
COUNTY: CHAVES
STATUS: BOTTOM HOLE BUILD UP TEST

CONTACT: MIKE VOWELL
WELL: #2A
ZONE: ABO
STATE: NEW MEXICO
OPERATOR: BO FAULKENBERRY

PERFORATIONS FROM: 4167 ft
DEPTH: 4299 ft

TO: 4480 ft
TEMPERATURE: 104°F

ELEMENT# RPOB#7201
CLOCK# 27744
ELEMENT# RPOB#37882
CLOCK# 30996

RANGE: 3200 psi
RANGE: 48 hrs
RANGE: 3500 psi
RANGE: 48 hrs

START CLOCK	05/26/84	09:02:00	797 psiq
SET ELEMENT	05/26/84	10:00:00	747 psiq
WELL SHUT IN	06/26/84	15:30:00	667 psiq
TEST ENDED	06/27/84	16:02:00	800 psiq

FILE: HANAGAN/3:D701

C/qwf= 0 hrs/psi

Gain= 1

tsi= 0 hrs

td= 128 hrs

Dt/tD= 1 hrs

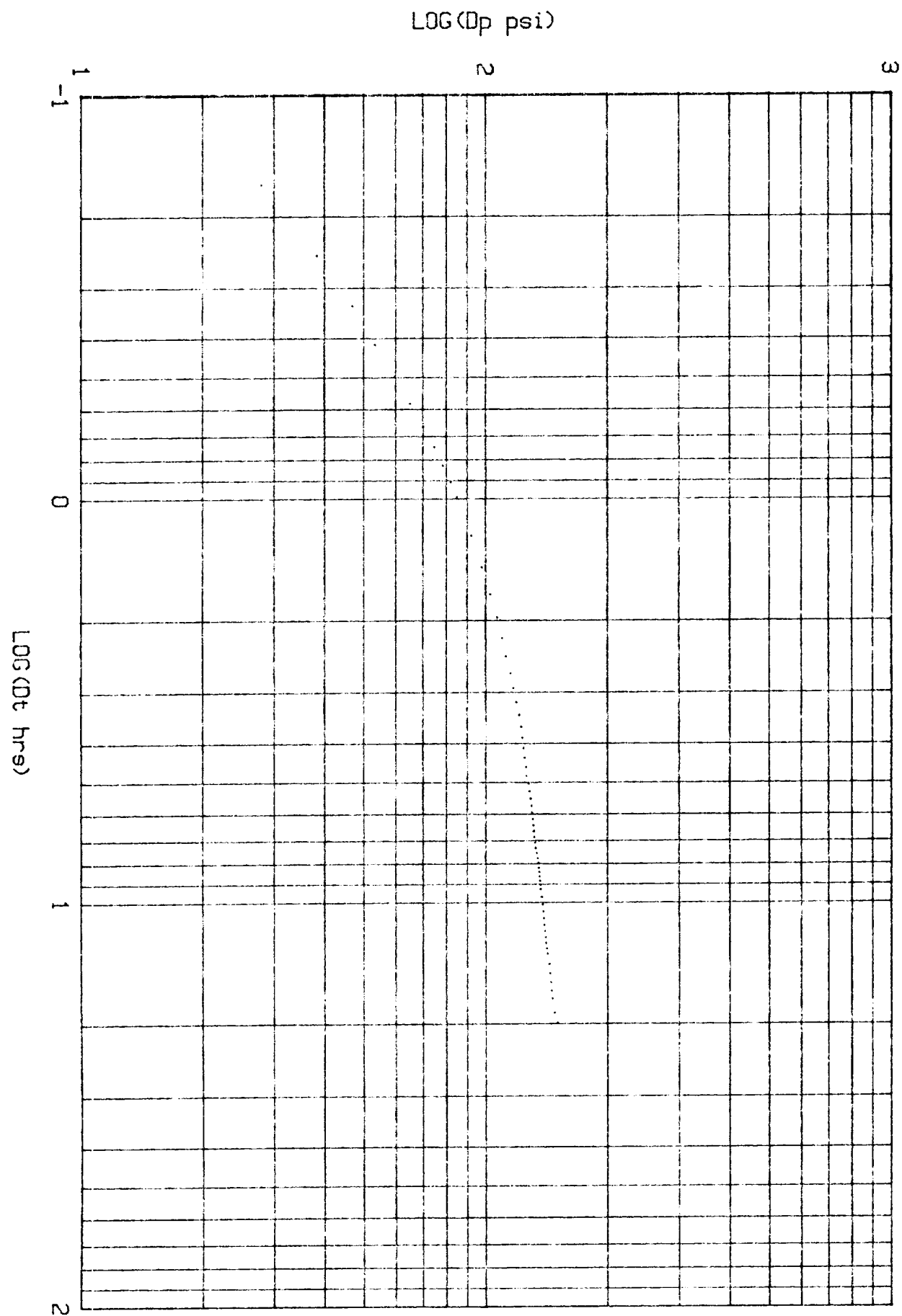
pA= 13.2 psia

Bias= 0 psi

qwf= 779.857 psia

cds= 0 psi

Do/OD= 1 psi



COMPANY: STEVENS OPERATING
LEASE: HANAGAN FEDERAL
FIELD: PECOS SLOPE
COUNTY: CHAVES
STATUS: BOTTOM HOLE BUILD UP TEST

CONTACT: MIKE VOWELL
WELL: #2A
ZONE: ABO
STATE: NEW MEXICO
OPERATOR: BO FAULKENBERRY

PERFORATIONS FROM: 4167 ft
DEPTH: 4299 ft

TO: 4430 ft
TEMPERATURE: 104°F

ELEMENT# RPG3#7201
CLOCK# 27744
ELEMENT# RPG3#37882
CLOCK# 30996

RANGE: 3200 psi
RANGE: 48 hrs
RANGE: 3500 psi
RANGE: 48 hrs

START CLOCK	06/26/84	09:02:00	797 psi
SET ELEMENT	06/26/84	10:00:00	747 psi
WELL SHUT IN	06/26/84	15:30:00	667 psi
TEST ENDED	06/27/84	16:02:00	800 psi

FILE: HANAGAN/3:D701

C/qwf= 0 hrs/psi
Gain= 1
tsi= 0 hrs
td= 128 hrs
m= 0 psi/cycle

oA= 13.2 psia
Bias= 0 psi
qwf= 779.857 psia
dos= 0 psi
ot= 0 psia

p psia

