

OIL CONSERVATION DIVISION

Form C-122
Revised 10-1-78STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2038
SANTA FE, NEW MEXICO 87501

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 9-4-81		660 FSL	
Company GREAT WESTERN DRILLING Co.		Connection AIR NEW WELL		1980 FEB OCT 13 1981	
Pool WILDEAT		Formation ABO		Unit 0	
Completion Date 8-28-81		Total Depth 5,200		Plug Back TD 4,913	
Elevation 3940.75 KB		Farm or Lease Name QUAIL FEDERAL		Well No. 1	
Csg. Size 4.5	Wt. 10.5	d 4.052	Set At 5200	Perforations: From 365 3675 To 3982 3995	
Tub. Size 2.375	Wt. 4.7	d 1.995	Set At 3611	Perforations: From OPEN To ENDED	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE				Packer Set At NONE	
Producing Thru TUBING		Reservoir Temp. °F 101° 3980		Mean Annual Temp. °F 60°	
Baro. Press. - P_b 13.2		State NEW MEXICO		County CHAVES	
L 3837	H 3837	Gg 7786	% CO ₂ .056	% N ₂ 46.656	% H ₂ S -0-
Prover CRITICAL		Meter Run FLOW PROVER		Taps	

FLOW DATA							TUBING DATA		CASING DATA		Duration 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	BHP	Temp. °F	
SI				998					1118		154 HRS.
1.	2"	X	.125	980		84	977	84	1065		1 HRS.
2.	2"	X	.218	926		83	923	83	1004		1 HRS.
3.	2"	X	.312	817		80	814	80	859		1 HRS.
4.	2"	X	.375	673		80	670	80	731		1 HRS.
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, Mcid
1	.2716	.00	990.2	.9777	1.1337	1.0298	307.
2	.8608	.00	936.2	.9786	1.1337	1.0292	920.
3	1.7140	.00	827.2	.9813	1.1337	1.0265	1619.
4	2.4390	.00	683.2	.9813	1.1337	1.0228	1896.
5							

NO.	R	Temp. °R	T_i	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	1.68	544	1.92	.943	A.P.L. Gravity of Liquid Hydrocarbons	Deg.
2	1.59	543	1.91	.944	Specific Gravity Separator Gas	.7780
3	1.41	540	1.90	.949	Specific Gravity Flowing Fluid	.7780
4	1.16	540	1.90	.956	Critical Pressure	588 P.S.I.A.
5					Critical Temperature	284 R

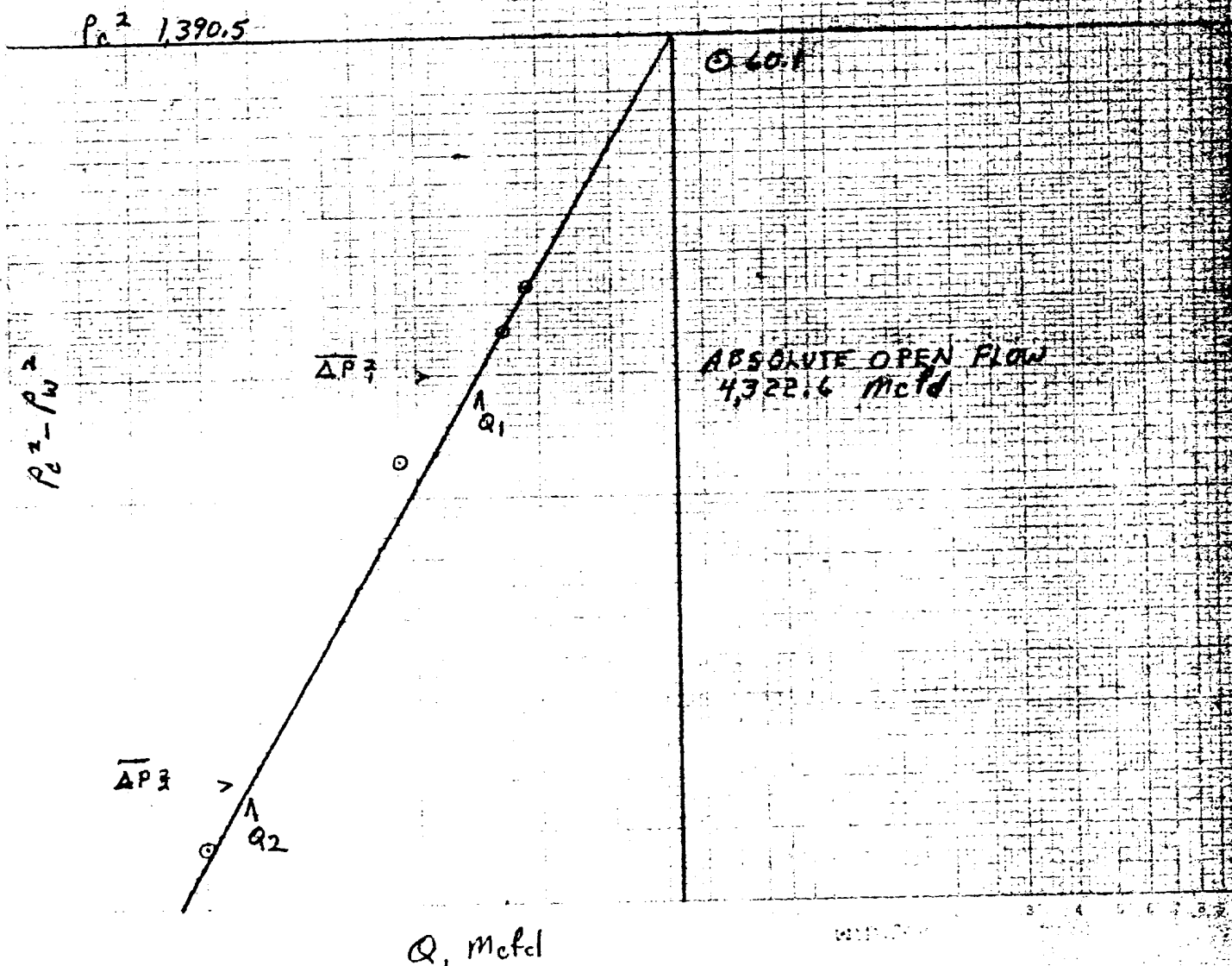
NO.	P_c	P_w	P_w^2	$P_c^2 - P_w^2$
1	1179.2	1173.2	1376.4	14
2	1390.5	1126.2	1268.3	122
3		1065.2	1134.7	256
4		1029.2	1059.3	331
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 4.2009$		(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.2798$	
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4322.6$			

Absolute Open Flow	4,322.6	Mcf @ 15.025	Angle of Slope	60.1	Slope, n	.5742
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Remarks: BOTTOM HOLE PRESSURE MEASURED WITH AMERADA PRESSURE ELEMENT	
Approved By Division	Conducted By: DON BENNETT
Calculated By: WOHLFORD & JENKINS	Checked By:

LACOF Western Unit
 Unit Federal Well No 1
 Unit O, Sec 3, Twp 6S, Rge 25E
 Chaves County New Mexico
 September 4, 1981



$$\frac{\Delta P_1}{\Delta P_2} = \frac{P_c^2 - P_w^2}{P_c^2 - P_w^2} = \frac{200}{20}$$

$$Q_1 = 1440.0 \text{ mcf/d}$$

$$Q_2 = 383.8 \text{ mcf/d}$$

$$\log Q_1 = 3.1583$$

$$\log Q_2 = 2.5841$$

NEW-TEX LAB

P. O. BOX 1161
HOBBS, N.M. 88240

No. 5579
Run No. _____
Date of Run. 9-07-81
Date Secured. 9-04-81

CERTIFICATE OF ANALYSIS

A Sample of Great Western Drilling Quail Federal #1
Secured from Bennett-Cathey
At Box 787 Secured by _____
Artesia, New Mexico 88210 Time _____ Date _____
Sampling conditions _____ Press _____
Temp. _____

RECEIVED

OCT 13 1981

FRACTIONAL ANALYSIS

O. C. D.
ARTESIA, OFFICE

Percentage Composition

MOL % LIQ. % G.P.M.

Carbon Dioxide	.056	
Air		
Nitrogen	46.656	
Oxygen		
Hydrogen sulfide		
Hydrogen		
Methane	49.608	
Ethane	2.310	.616
Propane	.616	.169
Butanes		
Isobutane	.113	.037
N-Butane	.239	.075
Pentanes		
Isopentane	.092	.034
Hexanes	.097	.035
Heptanes	.081	.033
Octanes	Plus .132	.061
TOTAL	100.000	1.060

Calc. Sol. Gr. 0.7786
Calc. A.P.I. _____
Calc. Vapor Pressure _____ PSIA
Sp. Gr. _____
Mol. Wt. 22.56

LIQUID CONTENT (GAL/MCF)

Propane Calc. G.P.M. .169
Butanes Calc. G.P.M. .112
Pentanes Plus G.P.M. .163
Ethane Calc. G.P.M. .616
L.R.V. Gasoline G.P.M. _____
B.T.U. @ 14.696 P.S.I.A. _____
Dry Basis 588
Wet basis 578
Sample Analysis by Distillation _____
_____ G.P.M.
Hydrogen sulfide _____
Mercaptans _____
Sulfur _____
Residual Solids _____
Total Solids _____

Analyst Deane Simpson

Checked by _____

Approved by Deane Simpson

Additional Data and Remarks

Artesia, New Mexico 88210

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CHART READINGS AND CALCULATIONS FOR BUILDUP OR DRAWDOWN TEST

TEMPERATURE 3980 FT. 101 °F.
 TEST WEIGHT AT THE END OF 9 1/4 HOURS 13 MINUTES

1010 P.S.I.A. DEAD WEIGHT AT THE END OF 94 HOURS 13 MINUTES.

[illegible]

TEST DATE: 9-4-81 TO 9-8-81

TEST DEPTH: 3,980 FEET

ELEMENT NO.: RPG3 #46951

RANGE: 0 - 7,000 LBS.

CLOCKS: H 9499

RANGE: 90 HOURS

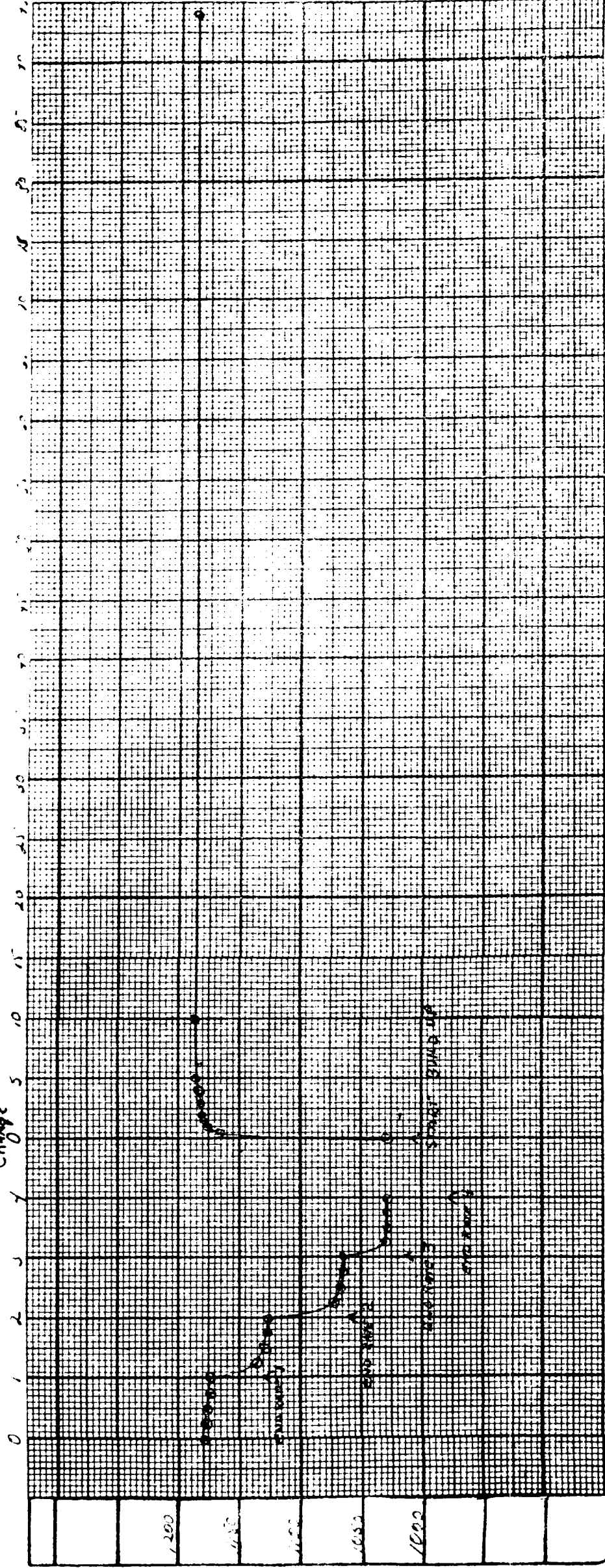
OPERATOR: BOB HERRON

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

FOUR POINT BACK PRESSURE TEST AND 94 HOUR BUILD UP

Scale
Change

TIME IN HOURS



LEONARD ROBNETT & KENNETH SMITH

GREAT WESTERN DRILLING
QUAIL FEDERAL WELL NO. 1

BENNETT-CATHEY WIRE LINE SERVICE
Box 787
Artesia, N.M. 88210
505/746-3281

Drawn By _____ Scale: As Shown

BENNETT-
CATHEY
WELL SERVICES



BEN. JETT-CATHEY WIRE LINE SERVICE

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



BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR GREAT WESTERN DRILLING
LEASE QUAIL FEDERAL
WELL NO. 1
POOL FORMATION ABO
DATE 9-8-81 TIME 1242 HOURS
STATUS SHUT IN TEST DEPTH 3980
TIME S.I. 1430 LAST TEST DATE FIRST TEST
CAS. PRES. 9-4-81 BHP LAST TEST
TUB. PRES. 1010 BHP CHANGE
ELE. FLUID TOP 3830
DATUM PLANE WATER TOP
DATUM PSIA 1187 RUN BY BOB HERRON
TEMP 101° PRESSURE RANGE 7000
CLOCK NO.
ELEMENT NO. RPG3 #46951

DEPTH	PRESSURE	GRADIENT
0	1010	
1080	1045	3.24
2000	1069	2.6
3000	1104	3.5
3830	1133	3.5
3980	1187	36.0

TIME B.H.P. MEASURED: 12.42 HOURS
LENGTH OF TIME WELL SHUT IN: 94 HOURS
13 MINUTE

