

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

Form C-122
Revised 9-1-63

Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 6/22/95		API Number 30-021-20086	
Company Amoco Corporation				Connection Wellhead Sales to CO2 Services				
Pool N/A				Formation Tubb				Unit BDCDGU
Completion Date 7/28/95 sales		Total Depth 2321		Plug Back Depth 2266		Elevation 4556 RDB		Farm or Lease Name Bravo Dome
Csg. Size 5-1/2	Wt. 14	Csg. Inside Dia. 5.012	Set At 2321	Perforations From 2123 To 2242		Well Number 1930-251-J		
Tbg. Size 2-3/8 J55	Wt. 4.7	Tbg. Inside Dia. 1.995	Set At 2086	Perforations From X To X		Unit Sec. Twp. Rge. sec 25,T-19,R-30		
Type well -Single-Bradenhead-G.G. or G.O. Multiple Single					Packer Set At 2086		County Harding	
Producing Through Tubing		Reservoir Temp. F 95		Mean Annual Temp. F 60		Baro. Press. - PSIA 12.2		State New Mexico
L	H	Gg	%CO2 100	%N2 0	%H2S 0	Prover PITOT	Meter Run	Taps

FLOW DATA					TUBING DATA			CASING DATA			Duration of Flow
NO.	Prover Size	X	Stat. Press psig	Diff. Press. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F		
SI						535				24 hour	
1.	pitot	X	X	X	X	450				60 MIN	
2.	pitot	X	X	X	X	400				60 MIN	
3.	pitot	X	X	X	X	350				60 MIN	
4.	pitot	X	X	X	X	300				60 MIN	
5.											

RATE OF FLOW CALCULATIONS						
NO.	Coefficient (24 Hour)	Pressure Pm	Flow Temp. Ft	Factor Gravity Fg	Super Compressibility F	Rate of Flow Q, Mcfd
1.						1016
2.						1306
3.						1447
4.						1587
5.						

NO.	Temp. °R	Gas Liquid Hydrocarbon Ratio	N/A Mcf/bbl
1.		A. P. I. Gravity of Liquid Hydroca	N/A Deg.
2.		Specific Gravity Separator Gas	N/A
3.		Specific Gravity Flowing Fluid	1.5192
4.		Critical Pressure	1072 P.S.I.A.
5.		Critical Temperature	548 R

Pc	547.2	Pc^2	299,428
NO.	P	Pw	Pw^2
1.		462.2	213,629
2.		412.2	169,909
3.		362.2	131,189
4.		312.2	97,469
5.			

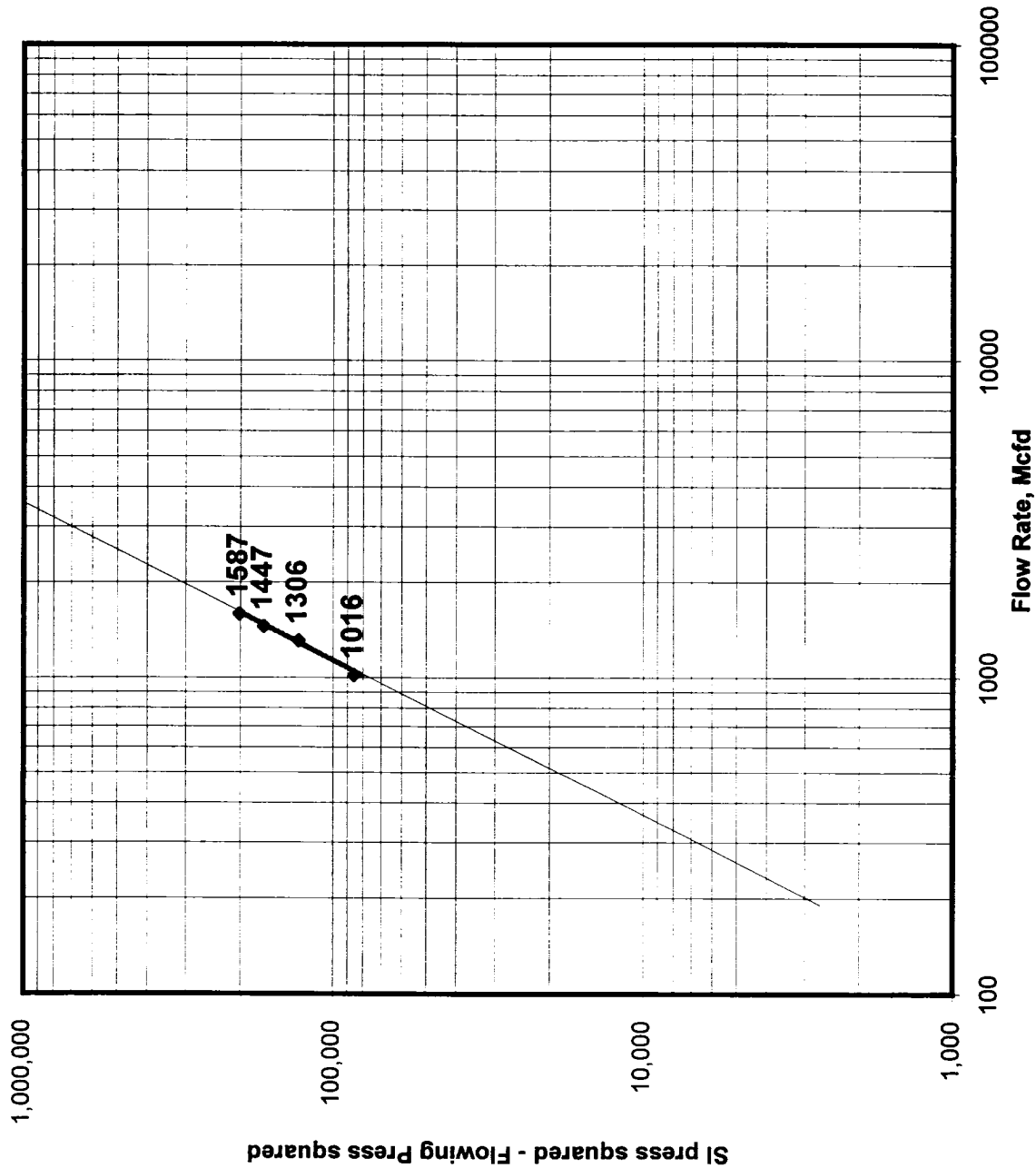
(1)		(2)	
Pc^2	1.483	Pc^2 ^n	1.220
Pc^2 - Pw^2		Pc^2 - Pw^2	
AOF = Q P^2 ^n 1,936 Pc^2-Pw^2			

Absolute Open Flow	1,936	Mcf/d @ 15.025	Angle of Slope	Slop	0.505
Remarks:					

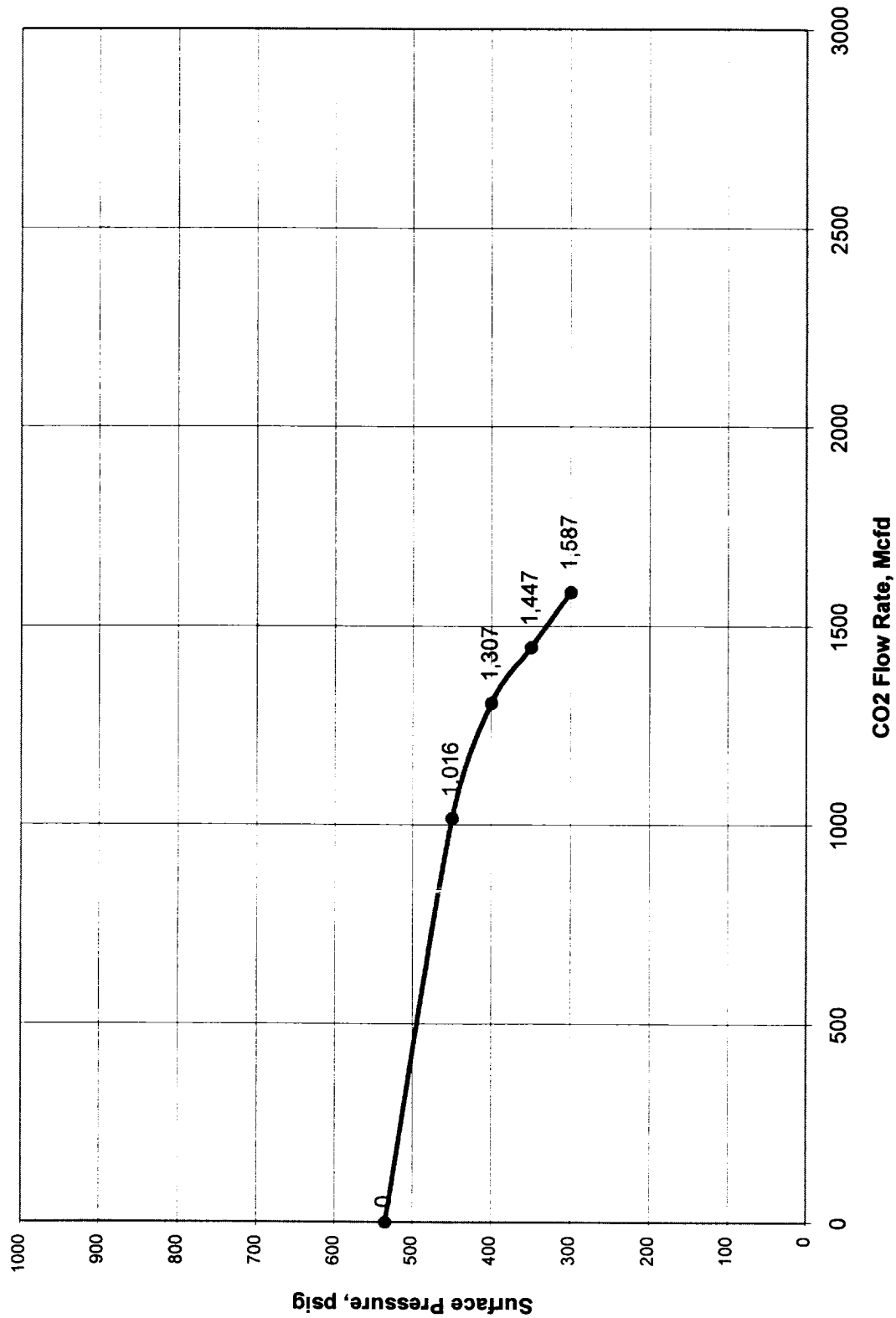
Approved By Commission:	Conducted By: Bill Prichard	Calculated By: EGEIVE Software	Checked By: Gary Ford
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NOV 15 1995

GAS WELL BACK PRESSURE TEST



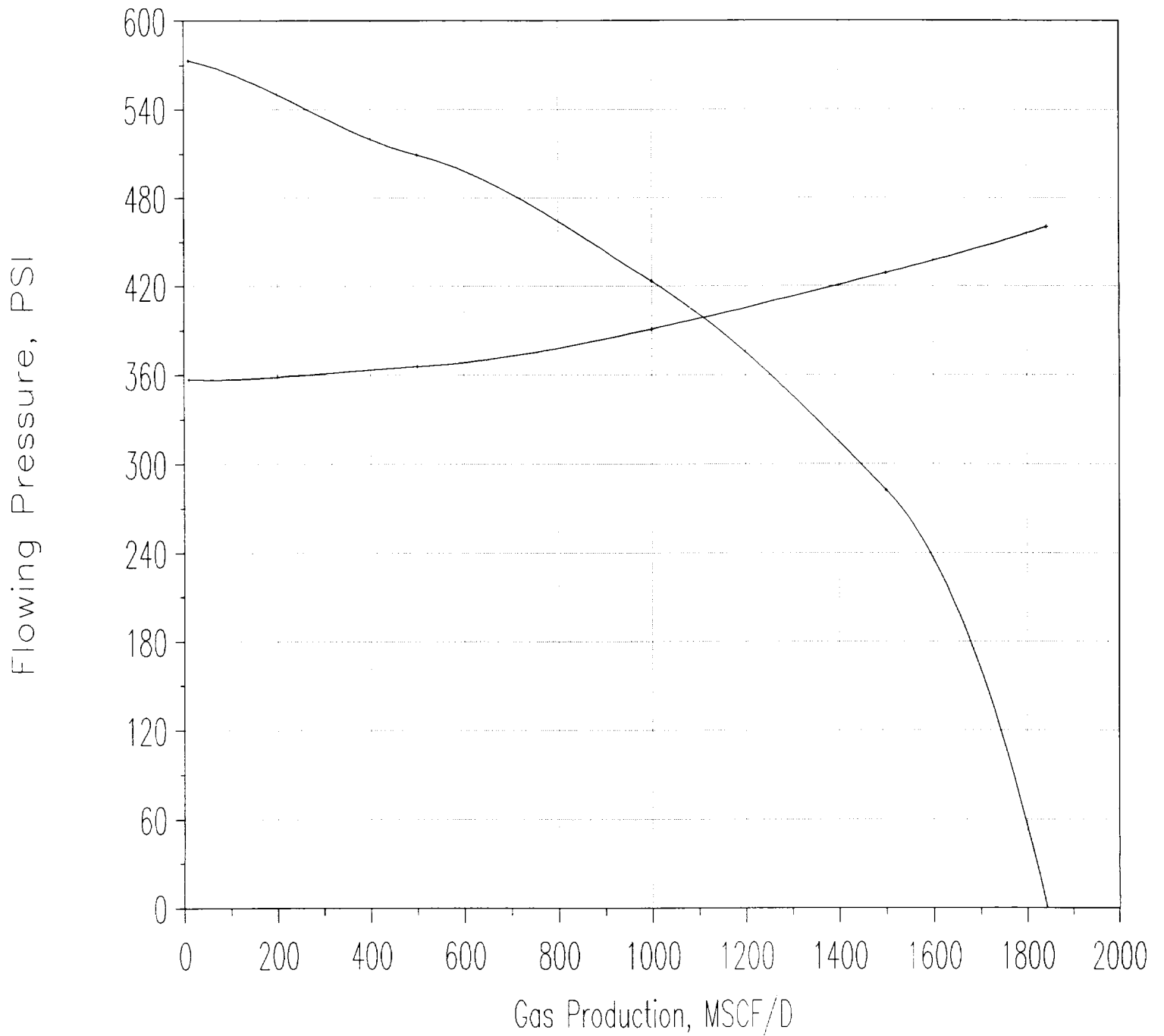
Bravo Dome 1930-251 J



Slope

	Bravo Dome CO2 Gas Unit									
	Well No. 1930-251-J									
Calculations to determine 1 / Slope, n value used on form C-122										
						Q1 at	Q2 at			
		Log of	Log of			20000	200000	Log of	Log of	
Flow Rate	Pc^2-Pw^2	Flow Rate	Pc^2-Pw^2	n	1/n	psia	psia	Q1	Q2	n
										auto
1016	85799	3.0068937	4.933482226	0.516	1.939	730	1598	2.863073	3.20346	0.340
1306	129519	3.1159432	5.112333483							
1447	168239	3.1604685	5.225926678			500	1598	2.69897	3.203577	0.505
1587	201959	3.2005769	5.305263212							manual
						10315.42	103149.9422			
						4.013487	5.013468989			
		Pitot Tube Pressure	Pitot Tube Flow Rate	Adjustment Factor	Adjusted Flow Rate	Static Pressure				
	Shut In				0	535				
	Test 1	10	2,902	0.35	1,016	450				
	Test 2	16	3,733	0.35	1,307	400				
	Test 3	19	4,133	0.35	1,447	350				
	Test 4	22	4,533	0.35	1,587	300				
	Test 5	22	4,533	0.35	1,587	300				

INFLOW/OUTFLOW:"Bravo Dome Well 1930 251 J RTU 5201"



	Flowline	Tubing	Sep	Perf	Bean	Pres	Depth	GLR	Skin	WC
	ID	DIA	psi	spf	ID	Inj	Inj	Inj		
— B	.000	1.995	308.0	0.	.0	0.	0.	0.	-4.	0.

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*****
*   Amoco Nodal Analysis Program for Well System   *
*               SNAP: Version  3.17                *
*   Copyright 1991 Amoco Corporation                *
*   Copyright 1991 Amoco Production Company         *
*               All Rights Reserved                *
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1995-11-07-13:22

SUMMARY OF INPUT PARAMETERS:

Project ID : Bravo Dome Well 1930 251 J RTU 5201
 User Name : Gary Ford

Module Selection

2 Module(s) Have Been Selected for This Study

(4) VERTICAL MULTIPHASE FLOW
 (7) RESERVOIR INFLOW PERFORMANCE

Node Is between Modules 4 AND 7

Multiphase Flow Correlations used for the Simulation

Gas Well:

Gray & Ros Correlation

Fluid Property Correlations

Z-Factor Corr.: Hall & Yarborough
 Gas Viscosity Corr.: Lee et al

End Point Pressure and Temperature Data

Discharge Pressure = 308. PSIG
 Discharge/Surface Temp. = 60. DEG
 Bottom Hole Temperature = 95. DEG

INPUT FOR SEGMENT 1 OF VERTICAL FLOW:

SEGMENT NO.	TUBING ID, INCHES	WELLBORE DEPTH, FT	ANGLE, DEGREES	ANNULAR FLOW ONLY TUBING O.D., INCHES	CASING I.D., IN
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1	1.995	0.	.00	.000	.00

Length of Wellbore for above Segment, ft 2200.

RESERVOIR DATA:

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RESERVOIR PRESSURE (PSIG) = 575.0
TEMPERATURE - BHT (DEG/F) = 95.0
EFFECTIVE PERMEABILITY (MD) = 3.5
PERFORATED INTERVAL (FT) = 43.0
FORMATION THICKNESS (FT) = 75.0
DRAINAGE RADIUS (FT) = 2640.0
WELL BORE DIA. (INCHES) = 5.0
TURBULENCE COEFF., (1/ft) = .51377E+10
SKIN FACTOR (Total) = -3.9

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AOFP FOR OPEN HOLE COMPLETION IN BASE CASE IS 1842.
Flow rates changed by SNAP to accomodate AOFP restriction
New Rates are:

10. 500. 1000. 1500. 1842.

DESIGN VARIABLES -- BASE CASE --

FLOWLINE ID, IN	TUBING DIA, IN	DISCHG PSIG	PERF SPF	BEAN DIA, IN	CASING PSIG	DEPTH GAS INJ	INJEC GLR
.000	1.995	308.	0.	.00	0.	-NA-	0.

RESERVOIR PRESSURE (PSI) = 575.0 SKIN FACTOR = -3.9

MODULE PRESSURE DROPS--AT ABOVE DESIGN VARIABLES

GAS-MCFD LIQ-B/D	FLOW LINE	CHOKE	SSSV	TUBING (1)	TUBING (2)	PERF/OR GR PACK	SAND FACE P
10.	0.	0.	0.	49.	0.	0.	573.
500.	0.	0.	0.	58.	0.	0.	509.
1000.	0.	0.	0.	83.	0.	0.	423.
1500.	0.	0.	0.	121.	0.	0.	282.
1842.	0.	0.	0.	152.	0.	0.	0.

*
* PRESSURE-RATE PROFILE FOR INFLOW-OUTFLOW CURVES *
*

** Tubing and/or flowline diameter is defaulted to
first segment ID in the sensitivity studies **

--BASE CASE--

FLOW RATE	INFLOW PRESSURE	OUTFLOW PRESSURE
10.	573.	357.
500.	509.	366.
1000.	423.	391.
1500.	282.	429.
1842.	0.	460.

FOR BASE CASE WELL WILL FLOW AT 1090.

Input Data File Echo Back

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*****
Bravo Dome Well 1930 251 J RTU 5201 /PROJECT TITLE
Gary Ford /USER NAME
2 4 7 0 /NMOD,MOD(I),INJSW
8 /NUM_RATE
0.01 0.50 1.00 1.50 2.00 2.50 3.00 3.50/QQ(I)
1 2 308.0 1 60.0 95.0 /IPR,NODE,PST,PSGN,TST,TBH
4 0.0 0.000 32.0 1.519 1.030 0 /IGAS,BCM,BMW,API,SG,SW,MCODE
60.0 95.0 2200 2200 1 /MOD41 TSUR,TBOT,DEPTH,PSD,NCHG
0 1.995 0.0 0.00 0.000150 0.0 0.000 /MOD42,NT ID,H,ANG,R,OD,CID
3 0.650 10 0 /MOD43 NGL,SGGL,VC,ITFLG
0.0 0.0 /MOD44 DINJ,GLRING
1 2 0 /MOD71 IWTYPE,NCURVE,IHWELL
75.0 43.0 5.000 2640 0.0 0.00 /MOD72 H,L_PERF,RW,RE,ANG,PB
575 3.520 1.00 -3.890 1 0.000 0 /MOD73 PWS,K,Kr,SKIN,Iturb,Beta/Phi
N--FL.ID-TUB.ID-SEP.P-SPF--CK.ID--PINJ---DINJ---GLINJ---SKIN---WC---RES_PRES
*** End of File ***

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