

OIL CONSERVATION DIVISION

ST. NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

Form C-122
Revised 10-1-78

451
File

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special		RECEIVED 04-16-90	
Company Oxy, U.S.A.		Connection Vented	
Pool M. Burton Flat Wilfey Canyon		Formation Canyon	
Completion Date		Total Depth 11446	
Ceq. Size		Perforations: From 9771 To 9853	
Thq. Size 2 7/8		Perforations: From To	
Type Well - Single - Brdenhead - G.G. or G.O. Multiple Single		Packer Set At 9655	
Producing Thru TBG		Baro. Press. - P _g 13.2	
L 9812		H 9812	
Cg .705		% CO ₂ .31	
		% N ₂ 1.34	
		% H ₂ S -----	
Prover		Meter Run 3.068	
Taps FLG			
FARM OR LEASE NAME Govt. W			
WELL NO. 2			
UNIT 0 22 20 28			
COUNTY Eddy			
STATE N.M.			

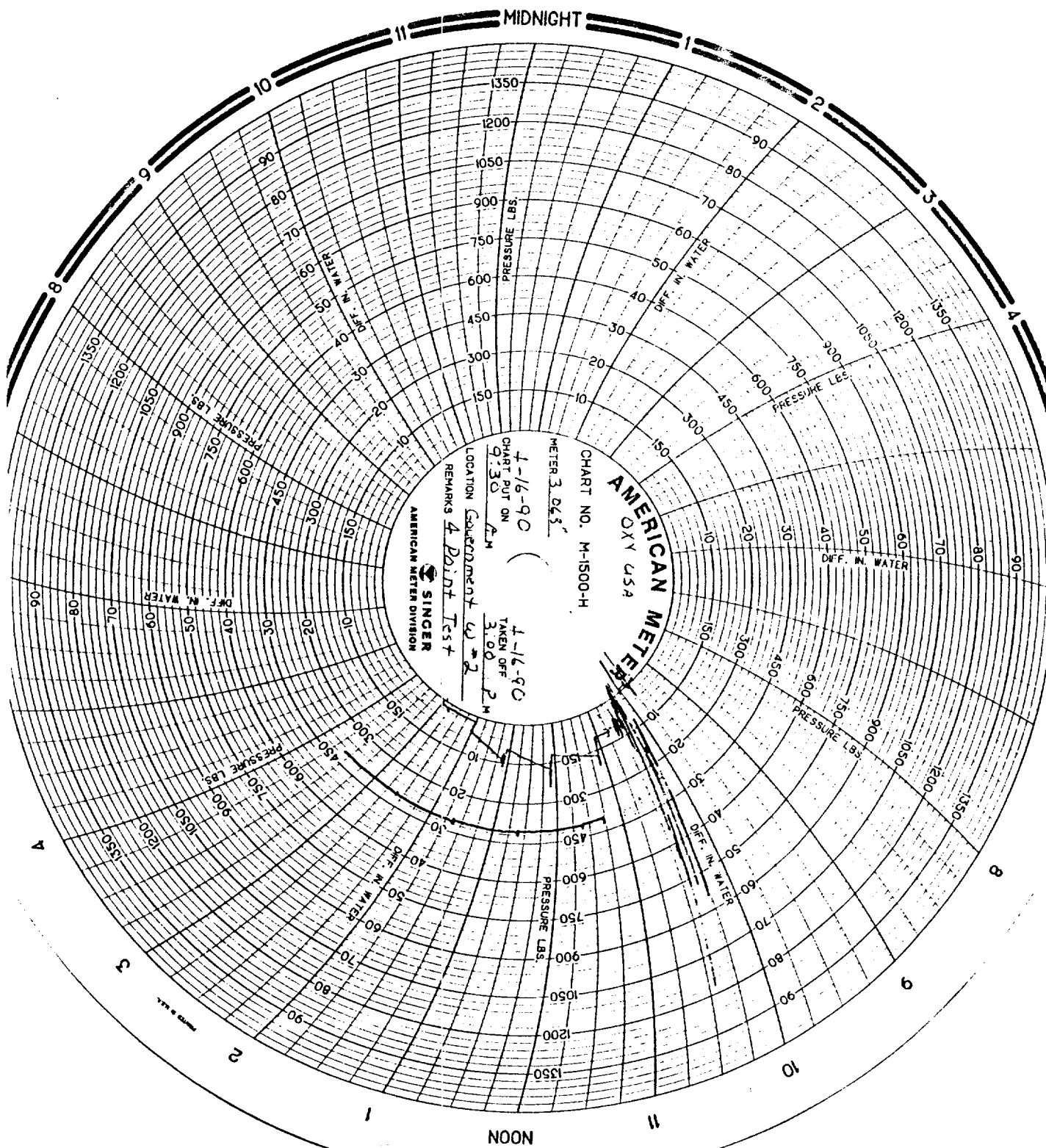
FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							1510				72 hrs.
1.	3	X	1.250	400	7.00	70	1310				1 hr.
2.	3	X	1.250	405	8.00	82	1074				1 hr.
3.	3	X	1.250	410	7.00	90	825				1 hr.
4.	3	X	1.250	410	4.00	90	535				1 hr.
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1.	7.577	53.78	413.2	.9905	1.191	1.048	504
2.	7.577	57.84	418.2	.9795	1.191	1.049	536
3.	7.577	54.42	423.2	.9723	1.191	1.043	498
4.	7.577	41.14	423.2	.9723	1.191	1.043	376
5.							

NO.	P _t	Temp. °R	T _g	Z	Gas Liquid Hydrocarbon Ratio	DRY GAS	Mcf/bbl.
1.	.61	530	1.36	.911	A.P.I. Gravity of Liquid Hydrocarbons	DRY	Deg.
2.	.62	542	1.39	.909	Specific Gravity Separator Gas	.705	X X X X X X X X
3.	.63	550	1.41	.919	Specific Gravity Flowing Fluid	X X X X X	
4.	.63	550	1.41	.919	Critical Pressure	*667	P.S.I.A.
5.					Critical Temperature	*389	R

NO.	P _t	P _w	P _w ²	P _t ² - P _w ²	(1) $\frac{P_t^2}{P_t^2 - P_w^2} =$	(2) $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n =$
1.	1392.6	1939.3	734.7		1.524	1.235
2.	1200.9	1442.2	1231.8			
3.	1046.5	1095.2	1578.8			
4.						
5.						

Absolute Open Flow		464	Mcf @ 15.025	Angle of Slope θ	63.5	Slope, n	.500
Remarks: * corrected to 1.34% N ₂ No fluid produced during test							
Approved By Division		Conducted By:		Calculated By:		Checked By:	





Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Pro Well Testing & Wireline
Attention: Mr. Keith Norvell
P. O. Box 791
Hobbs, New Mexico 88241

SAMPLE
IDENTIFICATION: Government W #2
COMPANY: Oxy USA
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	04/16/90 1:30PM	GAS (XX)	LIQUID ()
	ANALYSIS DATE:	04-16-90	SAMPLED BY:	Keith Norvell
	PRESSURE - PSIG	410	ANALYSIS BY:	Rolland Perry
	SAMPLE TEMP. °F	90		
	ATMOS. TEMP. °F	94		

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	
Hydrogen Sulfide (H2S)	0.00		
Nitrogen (N2)	1.34		
Carbon Dioxide (CO2)	0.31		
Methane (C1)	79.65		
Ethane (C2)	11.70	3.112	
Propane (C3)	4.40	1.208	
I-Butane (IC4)	0.56	0.183	
N-Butane (NC4)	1.20	0.376	
I-Pentane (IC5)	0.30	0.107	
N-Pentane (NC5)	0.28	0.102	
Hexane (C6)	0.26	0.113	
Heptanes Plus (C7+)	0.00	0.000	
	100.00	5.201	
BTU/CU.FT. - DRY	1215	MOLECULAR WT	20.4105
AT 14.650 DRY	1219		
AT 14.650 WET	1198	26# GASOLINE -	0.447
AT 15.025 DRY	1189		
AT 15.025 WET	1168		
SPECIFIC GRAVITY -			
CALCULATED	0.705		
MEASURED			

Calc. Back To Surface

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_{wf} or P_w) FROM KNOWN BOTTOM HOLE PRESSURE (P_{gr} or P_g)

Form C-122F
Adopted 9-1-65

COMPANY OXY USA LEASE SEY, M. WELL NO. 2 DATE 4-16-90
LOCATION: Unit L 9812 Section H 9812 Township G 705 Range 134
L 9812 H 9812 G 705 %CO₂ .31 %N₂ 1.34 %H₂S
* GRIP INST. SET GH 4917.46 P_{gr} 467 T_{gr} 589
M.D. - 121255 TABLE IX B X TABLE IX B X TABLE IX B X

LINE	1	2	3	4	5	6	7	8
1	$T_w(W.H. \cdot R)$	534	534	534	534	534	534	534
2	$T_g(B.H. \cdot R)$	632	632	632	632	632	632	632
3	$T = \frac{T_w + T_g}{2}$	583	583	583	583	583	583	583
4	Z (Est.)	.785	.800	.802	.820	.822	.837	.848
5	TZ	457.6	466.4	467.5	478.0	479.2	487.9	494.3
6	GH/TZ	15.115	10.831	14.794	14.469	14.434	14.175	14.244
7	e^s (Table XIV)	1.762	1.744	1.741	1.720	1.718	1.701	1.705
8	P_{gr} or P_s	1839.2	1839.2	1575.2	1365.2	1365.2	1246.2	1246.2
9	P_{gr}^2 or P_s^2	3382.7	3382.7	2481.3	2481.3	1863.8	1553.0	1553.0
10	$P_{gr}^2 = P_{gr}^2/e^s$ or $P_w^2 = P_s^2/e^s$	1919.0	1939.5	1424.7	1442.1	1084.6	1095.2	918.9
11	P_{gr} or P_w	1385.3	1392.6	1193.6	1200.9	1041.4	1046.5	954.1
12	$P = \frac{P_w + P_s}{2}$ or $\frac{P_{gr} + P_s}{2}$	1612.2	1615.9	1284.4	1388.0	1203.5	1205.8	1102.4
13	$P_r = (P/P_{gr})$	2.42	2.42	2.08	2.08	1.80	1.80	1.65
14	$T_r = (T/T_{gr})$	1.50	1.50	1.50	1.50	1.50	1.50	1.50
15	Z (Table XI)	1.800	.800	.820	.820	.820	.848	.848

STATIC BOND
CALC. BASED TO SURF.

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c and P_w)
FROM KNOWN BOTTOM HOLE PRESSURE (P_b)

Form C-122F
Adopted 9-1-85

COMPANY OXY USA LEASE GOV. M. WELL NO. 2 DATE 4-16-90

LOCATION: Unit _____ Section _____ Township _____ Range _____

L 9512 H 9512 L/H 1,000 G .705 %CO₂ .31 %N₂ 1.34 %H₂S —

* = $\left\{ \begin{array}{l} \text{SAND} \\ \text{MID} - \text{PERM} \end{array} \right\}$ GH 6917.46 P_{cr} 667 T_{cr} 389
TABLE IX B 2 TABLE IX B 2

LINE		1	2	3	4	5	6	7	8
1	$T_w / (W.H. \cdot R)$	534	534						
2	$T_s (B.H. \cdot R)$	632	632						
3	$T = \left(\frac{T_w + T_s}{2} \right)$	583	583						
4	Z (Est.)	.773	.781						
5	TZ	450.6	455.3						
6	GH/TZ	15.349	15.192						
7	e^s (Table XIV)	1.778	1.767						
8	P_f or P_s	2174.2	2174.2						
9	P_f^2 or P_s^2	4727.1	4727.1						
10	$P_c^2 = P_f^2 / e^s$ or $P_w^2 = P_s^2 / e^s$	2658.3	2674.0						
11	P_c or P_w	1630.4	1635.2	*					
12	$P_c \left(\frac{P_w + P_s}{2} \right)$ or $\left(\frac{P_c + P_f}{2} \right)$	1902.3	1504.7						
13	$P_r = (P_c \cdot \alpha)$	2.85	2.85						
14	$T_r = (T / T_c)$	1.50	1.50						
15	Z (Table XI)	.781	.781						

* = P_c

PRO WELL TESTING & WIRELINE

FIELD DATA SHEET

COMPANY OXY USA COMPANY REPRESENTATIVE Joe Gibson

EASE NAME & NO. Government W*2 TEST DATE & TIME 4-16-90

COUNTY Eddy STATE New Mex. ELEVATION _____ FORMATION Canyon

INIT _____ SECTION _____ TOWNSHIP _____ RANGE _____

TEST TYPE ☒ INITIAL _____ ANNUAL _____ SPECIAL _____ TYPE WELL Single Gas

COMPLETION DATE _____ TD@ _____ PBT@ _____ PKR@ _____

CONNECTION AIR METER RUN 3.068" TAPS FLANGE

ASING SIZE _____ WT. _____ DIA. _____ SET@ _____

UBING SIZE _____ WT. _____ DIA. _____ SET@ _____

PERFORATIONS FROM _____ TO _____

PRODUCING THRU TUBING

TIME DATE	ELAP. HR	TBG. PRES	CASING PRES	W/H TEMP	METER OR PROVER			ORIF. SIZE	CHOKE SIZE	MCFD	REMARKS
					PRES	DIFF	TEMP				
5:57 AM	-	1510	PKR	N-A	-	-	-	-	645	-	Began Preheat
6:30	0.00	1510	"	"	-	-	-	-	CLOSED	-	Began Test
6:45	0.15	1439	"	"	400	10"	60°	1.250"	8/64	603	
7:00	0.30	1402	"	"	400	7"	64°	1.250"	8/64	505	NO FLUID
7:15	0.45	1346	"	"	400	7"	68°	1.250"	8/64	505	
7:30	1.00	1310	"	"	400	7"	70°	1.250"	8/64	505	End 1 st rate
7:45	1.15	1227	PKR	N-A	400	10.5"	74°	1.250"	9/64	618	Began 2nd rate
8:00	1.30	1174	"	"	410	9"	78°	1.250"	9/64	579	
8:15	1.45	1123	"	"	405	9"	80°	1.250"	9/64	576	NO FLUID
8:30	2.00	1074	"	"	405	8"	82°	1.250"	9/64	543	END 2 nd rate
8:45	2.15	1002	PKR	N-A	410	9.5"	84°	1.250"	10/64	595	Began 3 rd rate
9:00	2.30	923	"	"	410	9"	86°	1.250"	10/64	579	
9:15	2.45	865	"	"	410	8"	88°	1.250"	10/64	546	NO FLUID
9:30	3.00	825	"	"	410	7"	90°	1.250"	10/64	511	End of 3 rd rate
9:45	3.15	720	PKR	N-A	410	8"	92°	1.250"	11/64	546	Began 4 th rate
10:00	3.30	660	"	"	410	6.5"	94°	1.250"	11/64	492	
10:15	3.45	601	"	"	410	5"	92°	1.250"	11/64	432	NO FLUID
10:30	4.00	535	"	"	410	4"	90°	1.250"	11/64	386	End of 4 th rate
10:45	4.15	545	PKR	N-A	405	1.5"	90°	1.250"	8/64	235	Began 5 th rate
11:00	4.30	543	"	"	400	1.5"	90°	1.250"	8/64	233	
11:15	4.45	535	"	"	400	1.5"	91°	1.250"	8/64	233	No Fluid
11:30	5.00	528	"	"	400	1.5"	90°	1.250"	8/64	233	End of 5 th rate