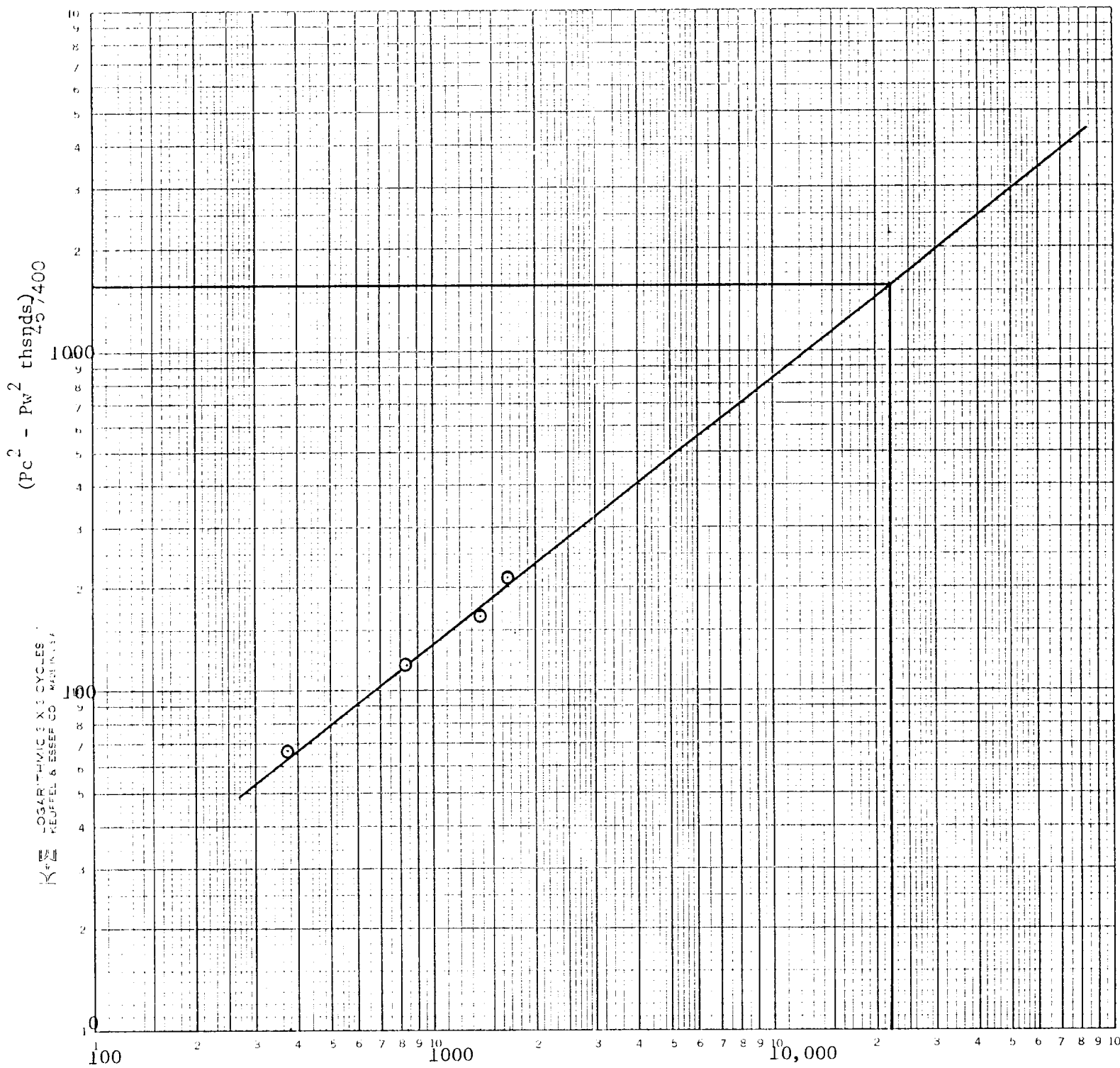


MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS RECEIVED

451
File

Type Test ☐ Initial ☐ Annual ☒ Special		Test Date 05/03/91		JUN 28 1991											
Company Mowbourne Oil Company		Connection Transwestern		O. C. D. JATESA, OFFICE											
Pool Red Bluff #1 W. F. Brown #1		Formation Morrow		Unit											
Completion Date 10/17/91		Total Depth 9874'		Plug Back TD 9713'											
Elevation 3401' KB		Farm or Lease Name Federal "S"		Well No. #1											
Casing Size 5-1/2"		Well 20#		Set At 9874'											
Tubing Size 2-7/8"		Well 6.5#		Set At 9432'											
Type Well - Single - Bradenhead - G.C. or G.O. Multiple Single		Perforations: From 9607' To 9626'		Perforations: From Open To End											
Producing Thru Tbg.		Reservoir Temp. °F 151 ° BH		Mean Annual Temp. °F 60											
Bwo. Press. - P _a 13.2		State New Mexico		County Eddy											
L 9617		H 9617		G _g .625											
% CO ₂ 1.85		% N ₂ .58		% H ₂ S ---											
Prover 4.026		Meter Run 4.026		Taps Flg.											
FLOW DATA															
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	Duration of Flow				
51							1240				72 hrs.				
1.	4 x 1.125			406.8	6	75	1230	74	Pkr.		1 hr.				
2.	4 x 1.125			436.8	25	76	1210	74	Pkr.		1 hr.				
3.	4 x 1.125			446.8	64	77	1165	74	Pkr.		1 hr.				
4.	4 x 1.125			446.8	97	77	1120	74	Pkr.		1 hr.				
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	6.152	50.200	420	.9359	1.265	1.035	378								
2	6.152	106.066	450	.9850	1.265	1.037	843								
3	6.152	171.581	460	.9840	1.265	1.038	1364								
4	6.152	211.234	460	.9840	1.265	1.038	1679								
5															
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.										
1	.620	535	1.478	.933	A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.										
2	.665	536	1.481	.930	Specific Gravity Separator Gas .625 XXXXXXXXXX										
3	.679	537	1.483	.929	Specific Gravity Flowing Fluid XXXXX										
4	.679	537	1.483	.929	Critical Pressure 677 P.S.I.A. P.S.I.A.										
5					Critical Temperature 362 R R										
P _c 1255.6 P _c ² 1576.5					(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 7.384$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 13.186$										
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²	AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 22,138$										
1		1228.5	1509.2	67.3											
2		1206.9	1456.6	119.9											
3		1188.2	1411.8	164.7											
4		1167.5	1363.0	213.5											
5															
Absolute Open Flow 22,138 Mcfd @ 15.025					Angle of Slope 38.0°		Slope, n 1.290								
Remarks: Recovered no fluid during test															
Approved By Division				Conducted By: Gregory Milner				Calculated By: Gregory Milner				Checked By: WAP			



$Q = \text{MCF/D}$

AOF = 22,000 MCF/D

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_w)FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

COMPANY FEDERAL S LEASE 5-13-91 WELL NO. 18 DATE 27

LOCATION: Unit 21 Section 18 Township 27 Range 27

L 9617 H 9617 LH 1.000 G 6.25 % CO₂ 1.85 % N₂ 58 % H₂S 58

GH 6010 P_{CT} 677 T_{CT} 362
TABLE IX & X

LINE	1	2	3	4	5	6	7	8
1	T _w (W.H. °R)	534						
2	T _s (B.H. °R)	611						
3	T _r = ($\frac{T_w + T_s}{2}$)	572.5						
4	Z (Est.)	.810						
5	TZ	463.7						
6	GH/TZ	12.960						
7	e ^s (Table XIV)	1.626						
8	P _f or P _s	1583						
9	P _f ² or P _s ²	2505.9						
10	P _c ² = P _f ² /es or P _w ² = P _s ² /es	1541.3						
11	P _c or P_w	1241.5						
12	P _r = ($\frac{P_w + P_s}{2}$) or ($\frac{P_c + P_f}{2}$)	1412.2						
13	P _r = (P/P _{CT})	2.09						
14	T _r = (T/T _{CT})	1.58						
15	Z (Table XI)	.849						

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURES (P_c or P_w)

Form C-122F
Adopted 9-1-65

FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

COMPANY Newbourne Oil LEASE Federal S WELL NO. #1 DATE 5-12-91

LOCATION: Unit 21 Section 185 Township 27E Range 27E

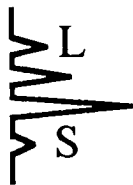
L 9617 H 9617 LH 1.000 G .625 % CO₂ 1.85 % N₂ .58 % H₂S

GH 6010 P_{CT} 697 T_{CT} 362

TABLE IX & X

TABLE IX & X

LINE	1	2	3	4	5	6	7	8
1	T _w (W.H. °R)	534	534	534	534	534	534	534
2	T _s (B.H. °R)	611	611	611	611	611	611	611
3	T = (T _w + T _s) / 2	572.5	572.5	572.5	572.5	572.5	572.5	572.5
4	Z (Est.)	.850	.851	.854	.853	.855	.857	.857
5	TZ	486.6	487.4	488.9	488.6	490.1	490.6	491.6
6	GH/TZ	12.350	12.330	12.293	12.301	12.264	12.249	12.249
7	e ^s (Table XIV)	1.589	1.588	1.586	1.586	1.584	1.583	1.583
8	P _f or P _s	1548	1548	1520	1520	1496	1469	
9	P _f ² or P _s ²	2396.3	2396.3	2310.4	2310.4	2238.0	2158.0	
10	P _c ² = P _f ² /e ^s or P _w ² = P _s ² /e ^s	1508.0	1509.2	1457.1	1456.6	1413.0	1363.2	
11	P_c or P _w	1228.0	1228.5	1207.1	1206.9	1188.7	1167.5	
12	P _c = (P _w + P _s) / 2 or (P _c + P _f) / 2	1288.0	1388.2	1363.6	1363.5	1342.3	1318.3	
13	P _f = (P/P _{CT})	2.05	2.05	2.01	2.01	1.98	1.95	
14	T _f = (T/T _{CT})	1.58	1.58	1.58	1.58	1.58	1.58	
15	Z (Table XI)	.851	.851	.853	.853	.855	.857	



Laboratory Services

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Mewbourne Oil Company
Attention: Gregory Milner
P. O. Box 5270
Hobbs, New Mexico 88240

SAMPLE
IDENTIFICATION: Federal S #1
COMPANY: Mewbourne Oil Company
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	05-03-91	GAS (XX)	LIQUID ()
	ANALYSIS DATE:	05-07-91	SAMPLED BY:	Gregory Milner
	PRESSURE - PSIG	460.00	ANALYSIS BY:	Rolland Perry
	SAMPLE TEMP. °F			
	ATMOS. TEMP. °F			

REMARKS:

COMPONENT ANALYSIS

COMPONENT		MOL PERCENT	GPM	
Oxygen	(O2)			
Hydrogen Sulfide	(H2S)			
Nitrogen	(N2)	0.58		
Carbon Dioxide	(CO2)	1.85		
Methane	(C1)	92.41		
Ethane	(C2)	3.10	0.828	
Propane	(C3)	0.73	0.199	
I-Butane	(IC4)	0.10	0.033	
N-Butane	(NC4)	0.13	0.042	
I-Pentane	(IC5)	0.07	0.026	
N-Pentane	(NC5)	0.24	0.087	
Hexane	(C6)	0.79	0.325	
Heptanes Plus	(C7+)	0.00	0.000	
		100.00	1.540	
BTU/CU.FT. - DRY		1064	MOLECULAR WT	18.0937
AT 14.650 DRY		1061		
AT 14.650 WET		1042	26# GASOLINE -	0.452
AT 15.025 DRY		1088		
AT 15.025 WET		1069		
SPECIFIC GRAVITY -				
CALCULATED		0.625		
MEASURED		0.000		

COMPANY: PRO WIRELINE
CLIENT: MEWBOURNE OIL
GAUGE NUMBER: 14659
WELL NAME: FEDERAL S
WELL NUMBER: 1
TEST NUMBER: 1
LOCATION:
TEST OPERATOR: BURRELL
COMMENTS: FOUR POINT FLOW TEST
AFTER 72 HOUR BUILD UP

POSITION	GAUGE SERIAL NUMBER
1	
2	
3	
4	

PAGE START DATE: 5/ 3/91

GAUGE S/N: 14659

DATA FILE: 3

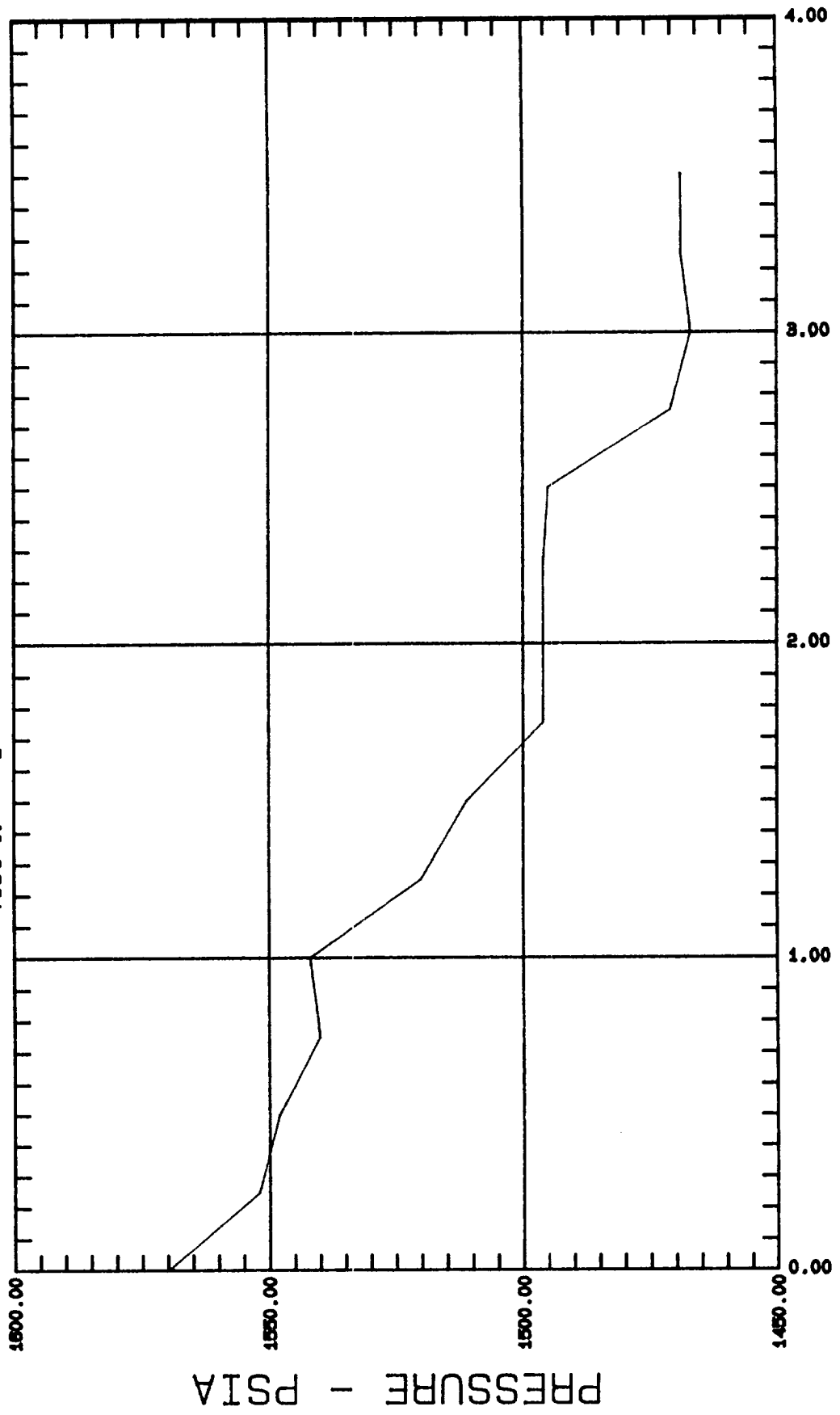
REAL TIME	DELTA TIME HRS	PRESSURE PSIA	TEMPERATURE 'F	COMMENTS
7:15: 0	0.0000	1570.00 ~		START RATE 1
7:30: 0	0.2500	1552.00		
7:45: 0	0.5000	1548.00←		
8: 0: 0	0.7500	1540.00		
8:15: 0	1.0000	1542.00		START RATE 2
8:30: 0	1.2500	1520.00←		
8:45: 0	1.5000	1511.00		
9: 0: 0	1.7500	1496.00		START RATE 3
9:15: 0	2.0000	1496.00		
9:30: 0	2.2500	1496.00←		
9:45: 0	2.5000	1495.00		
10: 0: 0	2.7500	1471.00		START RATE 4
10:15: 0	3.0000	1467.00		
10:30: 0	3.2500	1469.00		
10:45: 0	3.5000	1469.00←		END OF TEST

Plot starting date: 5/ 3/91
time: 7:15: 0

Gauge S/N

Company: PRO WIRELINE
Client: NEWBOURNE OIL
Well name: FEDERAL S
Well #: 1
Test #: 1

Location:
Operator: BURRELL
Comments: FOUR POINT FLOW TEST
AFTER 72 HOUR BUILD UP



DELTA TIME - HRS