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Energy, Minerals and Natural Resources Department

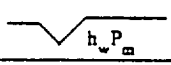
Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

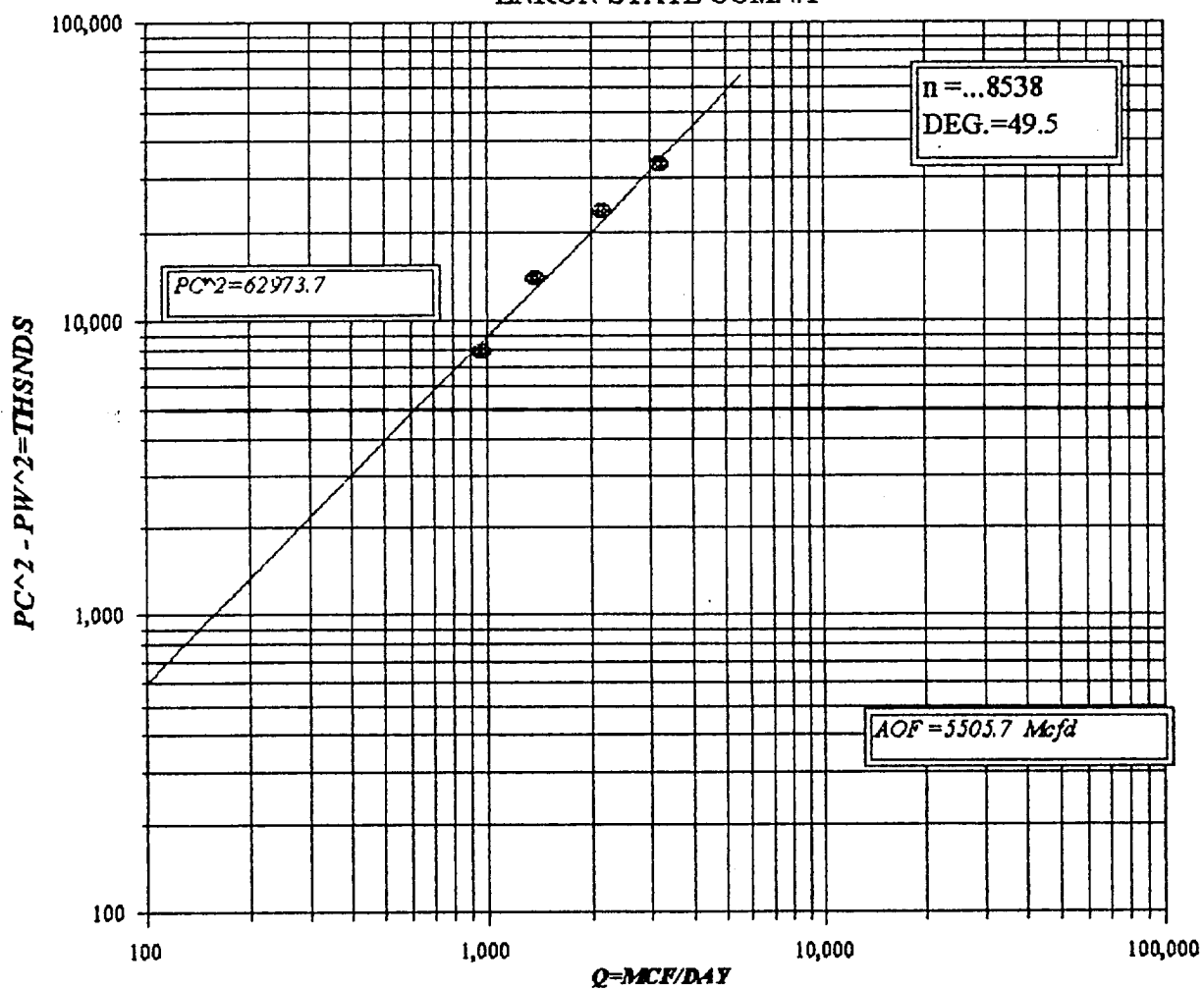
P.O. Box 2088

Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator <u>Murchison</u>					Lease or Unit Name <u>Enron st Com 9</u>					
Type Test ☒ Initial ☐ Annual ☐ Special					Test Date <u>1/11/98</u>		Well No. <u>1</u>			
Completion Date <u>1/7/98</u>		Total Depth <u>13891</u>		Plug Back TD <u>13845</u>		Elevation <u>3612</u>		Unit Ltr. - Sec. - TWP - Rsp. <u>9 - 24-5 - 34-E</u>		
Csg. Size <u>4 1/2</u>	WL <u>15.1</u>	d <u>3.826</u>	Set At <u>13891</u>	Perforations: From: <u>13234</u> To: <u>13737</u>				County <u>Lea</u>		
Tbg. Size <u>2 7/8</u>	WL <u>6.5</u>	d <u>2.441</u>	Set At <u>13102</u>	Perforations: From: To:				Pool		
Type Well - Single - Bradenhead - G.G. or G.O. Multiple <u>Single</u>					Packer Set At <u>12128</u>		Formation <u>Wolf Camp</u>			
Producing Thru <u>Tbg</u>		Reservoir Temp. °F <u>183.17</u>		Mean Annual Temp. °F <u>60</u>		Baro. Press. - P _a <u>13.2</u>		Connection <u>air</u>		
L <u>13102</u>	H <u>13102</u>	Gg <u>.695</u>	% CO ₂ <u>.323</u>	% N ₂ <u>.974</u>	% H ₂ S <u>0</u>	Prover <u>0</u>	Meter Run <u>4.068</u>	Taps <u>Flg</u>		
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.
SI							<u>1100</u>	<u>65°</u>	<u>1100</u>	<u>----</u>
1.	<u>4.026</u>	<u>x</u>	<u>1.500</u>	<u>640</u>	<u>8"</u>	<u>82°</u>	<u>6570</u>	<u>68°</u>	<u>1100</u>	<u>----</u>
2.	<u>4.026</u>	<u>x</u>	<u>1.500</u>	<u>580</u>	<u>18"</u>	<u>82°</u>	<u>6442</u>	<u>68°</u>	<u>1150</u>	<u>----</u>
3.	<u>4.026</u>	<u>x</u>	<u>1.500</u>	<u>660</u>	<u>37"</u>	<u>72°</u>	<u>5400</u>	<u>68°</u>	<u>1200</u>	<u>----</u>
4.	<u>4.026</u>	<u>x</u>	<u>1.500</u>	<u>650</u>	<u>74"</u>	<u>72°</u>	<u>4490</u>	<u>68°</u>	<u>1300</u>	<u>----</u>
5.										
RATE OF FLOW CALCULATIONS										
NO.	COEFFICIENT (24 HOUR)		Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd			
1.	<u>10.84</u>	<u>72.28</u>	<u>653.2</u>	<u>.9795</u>	<u>1.200</u>	<u>1.054</u>	<u>970</u>			
2.	<u>10.84</u>	<u>103.33</u>	<u>593.2</u>	<u>.9795</u>	<u>1.200</u>	<u>1.054</u>	<u>1387</u>			
3.	<u>10.84</u>	<u>157.82</u>	<u>673.2</u>	<u>.9887</u>	<u>1.200</u>	<u>1.060</u>	<u>2151</u>			
4.	<u>10.84</u>	<u>221.53</u>	<u>663.2</u>	<u>.9887</u>	<u>1.200</u>	<u>1.060</u>	<u>3201</u>			
5.										
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio <u>4.066</u> Mcf/bbl.					
1.	<u>.80</u>	<u>542</u>	<u>1.41</u>	<u>.901</u>	A.P.I. Gravity of Liquid Hydrocarbons <u>53.30</u> Deg.					
2.	<u>.80</u>	<u>542</u>	<u>1.41</u>	<u>.901</u>	Specific Gravity Separator Gas <u>.695</u> XXXXXXXXXX					
3.	<u>.79</u>	<u>532</u>	<u>1.38</u>	<u>.890</u>	Specific Gravity Flowing Fluid <u>53.30</u> XXXXX					
4.	<u>.79</u>	<u>532</u>	<u>1.38</u>	<u>.890</u>	Critical Pressure <u>672</u> P.S.I.A. P.S.I.A.					
5.					Critical Temperature <u>384</u> R R					
P _c <u>7935.6</u> - P _c ² <u>62973.7</u>										
NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²	1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{1.90}{1.72}$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \frac{1.72}{1.72}$					
1.		<u>7425.6</u>	<u>55139.5</u>	<u>7834.2</u>	AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \frac{5505.7}{1.72}$					
2.		<u>7001.7</u>	<u>49023.8</u>	<u>13949.9</u>						
3.		<u>6291.2</u>	<u>39579.1</u>	<u>23394.6</u>						
4.		<u>5466.2</u>	<u>29879.3</u>	<u>33094.4</u>						
5.										
Absolute Open Flow <u>5505.7</u> Mcfd @ 15.025					Angle of Slope Θ <u>49.5</u>			Slope, n <u>.8538</u>		
Remarks: <u>*Well made 79 BBLs of 53.30 API Gravity Condensate</u>										
<u>*Calculated from known BHP'S</u>										
Approved By Division			Conducted By: <u>Pro well Testing</u>			Calculated By: <u>M.B.</u>			Checked By: <u>B.M.</u>	

MURCHISON
ENRON STATE COM. #1



WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURE (Pc or Pw)
FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

FORM C-122F

COMPANY MURCHISON

LEASE : ENRON ST WELL NO. : 1

DATE 1/11/98

UNIT

SECTION : 9

TWNSHP : 24

RANGE : 34

L

13102

H : 13102

L/H : 1

G/GHIX : 0.6950

C02 : 0.323

N2 : 0.974

H2S :

GH : 9105.9

PCR : 672

TCR : 384

LINE

1

2

3

4

5

6

7

8

1	TW(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	665.0	665.0	665.0	665.0	665.0	665.0	665.0	665.0
3	T=(Tw+Ts/2)	599.5	599.5	599.5	599.5	599.5	599.5	599.5	599.5
4	Z (EST.)	1.511	1.324	ERR	ERR	ERR	ERR	ERR	ERR
5	TZ	906	794	ERR	ERR	ERR	ERR	ERR	ERR
6	SH/TZ	10.053	11.472	ERR	ERR	ERR	ERR	ERR	ERR
7	eS(TABLE XIV)	1.458	1.538	ERR	ERR	ERR	ERR	ERR	ERR
8	Pf or Ps	9840	9840	0	0	0	0	0	0
9	Pf2 or Ps2	96825.6	96825.6	0.0	0.0	0.0	0.0	0.0	0.0
10	Pc2=Pf/eS or Pw2=Ps2/eS	66416.0	62974.4	ERR	ERR	ERR	ERR	ERR	ERR
11	Pc or Pw	8150	7936	ERR	ERR	ERR	ERR	ERR	ERR
12	P=(Pw+Ps/2)or(Pc+Pf/2)	8995	8888	ERR	ERR	ERR	ERR	ERR	ERR
13	Pr=(P/Pcr)	13.39	13.23	ERR	ERR	ERR	ERR	ERR	ERR
14	Tr(T/Tcr)	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
15	Z (TABLE XI)	1.324	1.313	ERR	ERR	ERR	ERR	ERR	ERR

PCW 1 : 7935.6 PW 2 : ERR PW 3 : ERR PW 4 : ERR

WORK SHEET FOR CALCULATION OF WELLHEAD PRL E (Pc or Pw) FORM C-122F
FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

COMPANY MURCHISON LEASE : ENRON ST WELL NO. : 1 DATE 1/11/98
UNIT SECTION : 9 TWSHP : 24 RANGE : 34
L 13102 H : 13102 L/H : 1 G/GMIX : 0.6950
CO2 : 0.323 N2 : 0.974 H2S :
GH : 9105.9 PCR : 672 TCR : 384

LINE		1	2	3	4	5	6	7	8
1	TW(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	665.0	665.0	665.0	665.0	665.0	665.0	665.0	665.0
3	T=(Tw+Ts/2)	599.5	599.5	599.5	599.5	599.5	599.5	599.5	599.5
4	Z (EST.)	1.452	1.271	1.308	1.223	1.231	1.149	1.141	1.065
5	TZ	871	762	784	733	738	689	684	638
6	GH/TZ	10.457	11.947	11.608	12.420	12.334	13.214	13.310	14.268
7	eS(TABLE XIV)	1.480	1.565	1.545	1.593	1.588	1.641	1.647	1.708
8	Pf or Ps	9290.04	9290.04	8837.8	8837.8	8060	8060	7142.9	7142.9
9	Pf2 or Ps2	86304.8	86304.8	78106.7	78106.7	64963.6	64963.6	51021.0	51021.0
10	Pc2=Pf/eS or Pw2=Ps2/eS	58308.3	55139.9	50540.7	49024.3	40907.1	39579.4	30972.5	29879.9
11	Pc or Pw	7636	7426	7109	7002	6396	6291	5565	5466
12	P=(Pw+Ps/2)or(Pc+Pf/2)	8463	8358	7973	7920	7228	7176	6354	6305
13	Pr=(P/Pcr)	12.59	12.44	11.87	11.79	10.76	10.68	9.46	9.38
14	Tr(T/TCr)	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
15	Z (TABLE XI)	1.271	1.261	1.223	1.218	1.149	1.144	1.065	1.060

PW 1 : 7425.6 PW 2 : 7001.7 PW 3 : 6291.2 PW 4 : 5466.2

NEW MEXICO G.O.R./G. MIX		
NO. OF BBLs PRODUCED	=	79.0
API GRAVITY @ 60 DEG.	=	53.3
SPECIFIC GRAVITY OF GAS	=	0.6950
XX		
TOTAL GAS PRODUCED	=	321
G.O.R.	=	4.066
G.MIX	=	1.318



Laboratory Services, Inc.

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

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

SAMPLE
IDENTIFICATION: Enron St. Com. 9 #1
COMPANY: Murchison Oil & Gas
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 1/11/98 12:00 PM
ANALYSIS DATE: 1/12/98
PRESSURE - PSIG 600
SAMPLE TEMP. °F 85
ATMOS. TEMP. °F 65

GAS (XX) LIQUID ()
SAMPLED BY: J. Rice
ANALYSIS BY: Vickie Walker

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)	0.000	
Nitrogen (N2)	0.974	
Carbon Dioxide (CO2)	0.323	
Methane (C1)	81.387	
Ethane (C2)	10.789	2.879
Propane (C3)	4.021	1.105
I-Butane (IC4)	0.576	0.188
N-Butane (NC4)	1.048	0.330
I-Pentane (IC5)	0.261	0.095
N-Pentane (NC5)	0.287	0.104
Hexane Plus (C6+)	0.334	0.137

100.000

4.838

BTU/CU.FT. - DRY 1205
AT 14.650 DRY 1201
AT 14.650 WET 1180
AT 14.73 DRY 1208
AT 14.73 WET 1187

MOLECULAR WT. 20.1140

SPECIFIC GRAVITY -
CALCULATED 0.695
MEASURED



Laboratory Services, Inc.

1331 Tasker Drive
Hobbs, New Mexico 88240
Telephone: (505) 397-3713

ASTM DISTILLATION

Pro Well Testing & Wireline
Attention: Mr. Merv Buecker
P. O. Box 791
Hobbs, New Mexico 88241

January 12, 1998
Sampled By: J. Rice 1/11/98 12:00 PM

Murchison Oil & Gas
Enron Fed. Com 9 #1

Percent Distilled

Temperature

IBP	96
5	137
10	162
20	200
30	236
40	281
50	346
60	451
70	510
80	626
90	748
95	753
EP	760

% Recovered = 95.0
% Residue = 0.5
% Loss = 4.5

API Gravity @ 60° F = 53.30

Rolland Perry

