PRO WELL TESTING & WIRELINE

P.O. Box 791
Hobbs, New Mexico 88241
(505) 397-3590

March 6. 2002

Mr. Lonnie Arnold
TMBR/Sharp Drilling
4607 West Industrial
Midland, Texas 79703

Mr. Arnold,

I have analyzed the data from the buildup that was run on the Bluefin 24 #1 in Lea County, New Mexico. The data modeled as **a Homogeneous Reservoir with well bore storage and skin with partial penetration or limited entry and two intersecting faults**. The limited entry effects are more a part of the total skin than was seen on the previous buildup at the end of January.

The first page of this report is the Main Results page, which has the parameters, used for the calculations and the answers that I found. I used a flow rate of **971 mcf/day** of gas. The net interval that I used was **16 feet of a reported 32 feet gross** interval with an average **porosity of 10%**. The flow time that I used was **360 hours** of production. The pressure that the model generated was **6086.67 psia**, the permeability was **1.06 md.**, and the **formation skin was a +4.21**, the skin due to **partial penetration is 13.8 (total skin of 18.01)** and the radius of investigation was **837 feet**. The boundaries were seen at **141 feet and 144 feet** from the wellbore.

The second page is the simulation page. This page matches the model in red against the data in green. The model matches most all the data very well. The matching of the model to the Cartesian plot, the Semi-Log and Log-Log gives us a degree of confidence that we have chosen the correct model. If all three plots match well and the permeability, pressure and skin are reasonable numbers, then we know that the model is a believable one.

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER _____
Ocean EXHIBIT 12

The third page is the Semi-Log plot. The pressure is in green and the model is the red line. The model matches fairly well, except for where the data breaks over and this could be phase segregation or liquid falling out and dropping back. I drew a straight line on this plot for comparison with the Log-Log analysis. The straight line gives a **pressure of 6020 psia**, a **permeability of 0.392 md. and a skin of +8.77.** These numbers are some what close to the Log-Log numbers and are a good comparison. This plot does not tell us the amount of skin that is due to partial penetration though. In this case though, since the pseudo skin is very small, the numbers between the two match very well.

The last page is the Log-Log plot with derivative. This is the actual model page that I use to match the data. The delta pressure is in green, the derivative data is in red, the data model is in a red solid line and the derivative model is the solid black line. The dotted horizontal line is the radial flow line that the model generates. This model matches the data fairly well, but I could not get a perfect match. The plot indicates that the data is in radial flow and the derivative data at the end going slowly back up is an indication of the boundaries.

I have included nodal plots for skin and fracture half-length. The **skin cross plot** indicates that if the skin were reduced to zero, then the well should make **5250 mcf/day after 30 days, 5000 mcf/day after 60 days and 4500 mcf/day after 90 days.** This would only be possible if the guns were pulled and the other 16 feet of the 32 feet were perforated first. If you were able to remove the formation skin and get the formation skin to a -3, then the well would make about 2000 mcf/day.

The **frac plot** indicates that with a **200 ft. frac half-length**, the well should **make 11500 mcf/day after 30 days, 10600 mcf/day after 60 days and 10200 mcf/day after 90 days.**

We appreciate this work and look forward to working more with you in the near future. If you have any questions, please give me a call at 915-697-2932 or at our office in Hobbs, New Mexico at (505) 397-3590. Thank you.

Sincerely,

Robert E. Shafer Jr.
Pro Well Testing and Wireline

Disclaimer:
We do not accept any responsibility for any actions taken as a result of this interpretation. This is a best estimate of reservoir parameters and due to the short flow time of this well, conditions could change.

PRO Oil & WIRELINE

Main Results	Analysis 1
Company TMBR/Sharp Drilling	Field
Well Blue Fin 24 Fed. #1	Test Name / #

Test date / time	
Formation interval	16 feet
Perforated interval	
Gauge type / #	
Gauge depth	
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.33 ft
Pay Zone h	32 ft
Connate Water (%)	30
Water Salt (ppm)	10000
Rock compr.	3E-6 psi-1
Reservoir T	189 °F
Reservoir P	5000 psia
FLUID TYPE	Gas

Gas

Gas Gravity	0.7
Pseudo-Critical P	663.573 psia
Pseudo-Critical T	377.584 °R

Sour gas composition

Hydrogen sulphide	0
Carbon dioxide	0
Nitrogen	0

Water

Salinity, ppm	10000
WGR	1 bbl/MMcf
Reservoir T	189 °F
Reservoir P	5000 psia
Properties	@ Reservoir T&P

Gas

Z	0.988548
Mug	0.0274249 cp
Bg	0.00362629 cf/scf
Cg	1.23452E-4 psi-1
Rhog	0.236426 g/cc

Water

Rsw	21.2319 cf/bbl
Bw	1.01584 B/STB
Cw	3.3346E-6 psi-1
Muw	0.345088 cp
Rhow	0.991976 g/cc
Total Compr. ct	9.02845E-5 psi-1

Selected Model

Model Option	Standard Model
Well	Limited Entry
WBS Type	Changing
Reservoir	Homogeneous
Boundary	Intersecting Faults

Results

TMatch	20.2 [hr]**-1
PMatch	3.8E-8 [psi2/cp]**-1
C	0.0181 STB/psi
Ci/Cf	0.467
Alpha	573
skin	4.21
Delta P Skin	302.283 psi
Pseudo Skin	13.8
Delta P P.Skin	988.008 psi
Hw	0.322783 ft
Zw	16 ft
h	32 ft
Pi	6086.67 psia
k.h	34.1 md.ft
k	1.06 md
kz/kr	7.53
L1 - No Flow	144 ft
L2 - No Flow	141 ft
N	2
Rinv	837 ft
Test. Vol.	2.70743E+5 Barrels

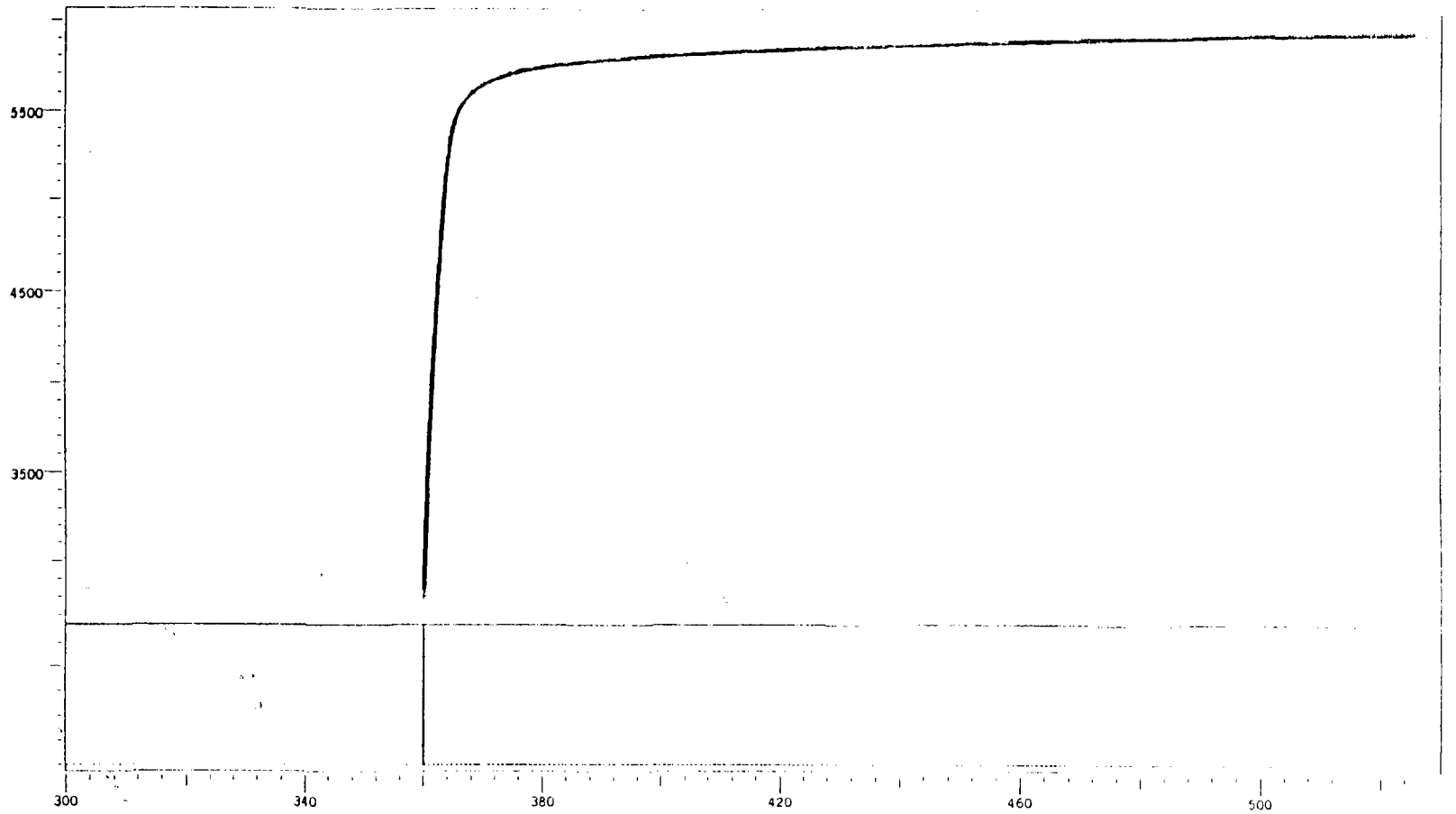
PRO & WIRELINE

History plot

Analysis 1

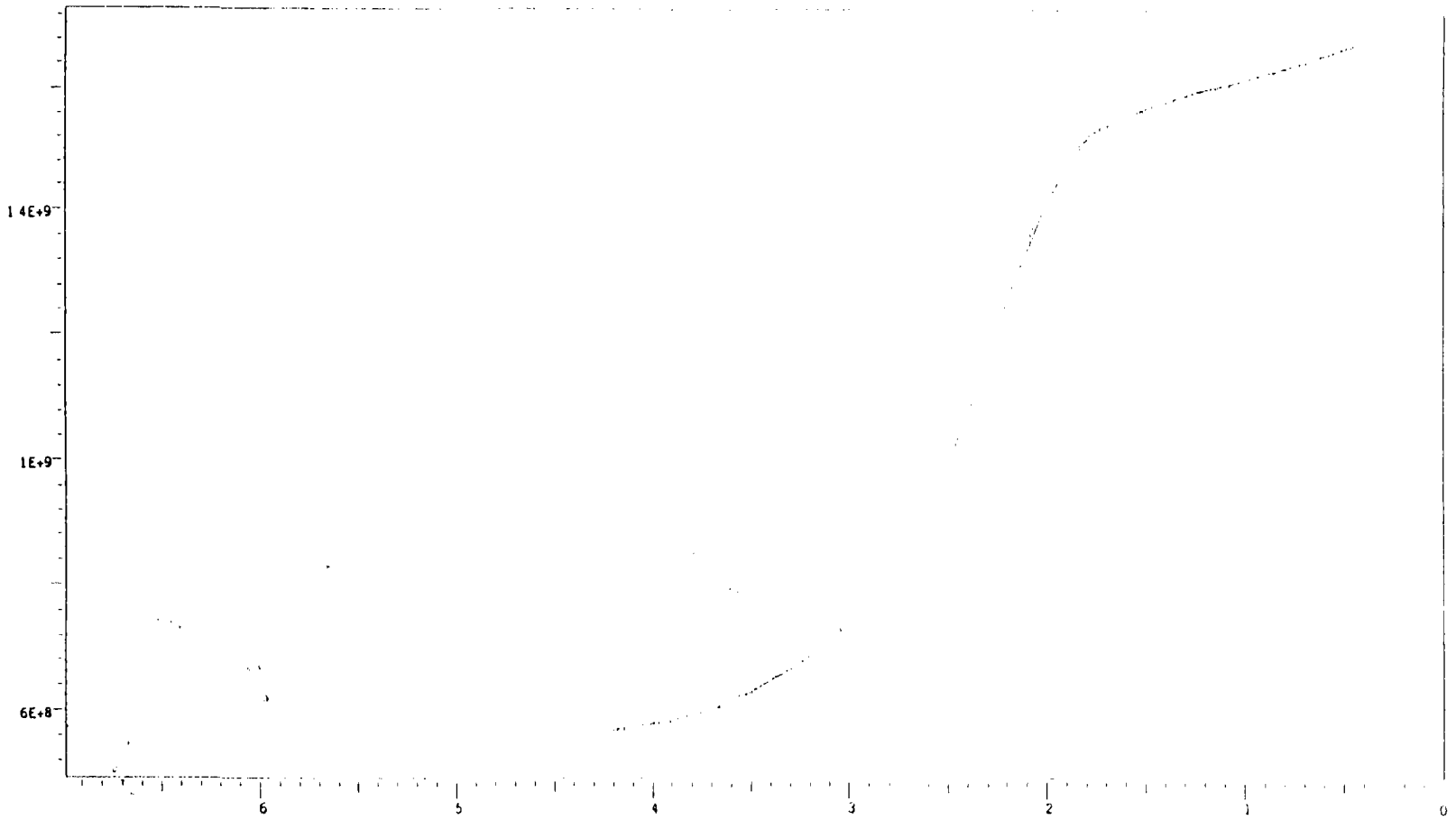
Company TMBR/Sharp Drilling
Well Blue Fin 24 Fed. #1

Field
Test Name / #

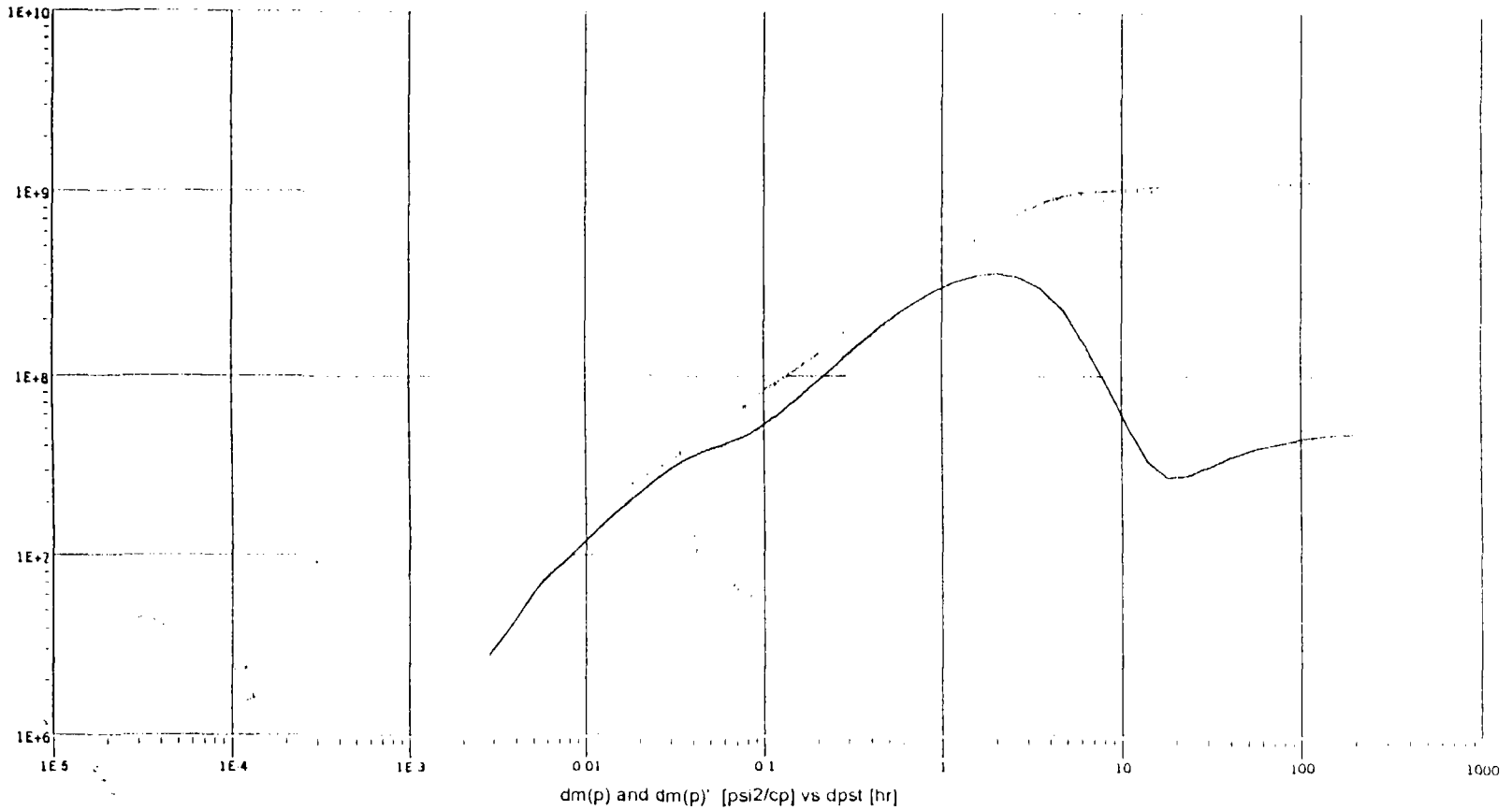


Pressure [psia], Gas Rate [Mscf/D] vs Time [hr]

PRO & WIRELINE	Semi-Log plot	Analysis 1
	Company TMBR/Sharp Drilling	Field
	Well Blue Fin 24 Fed. #1	Test Name / #

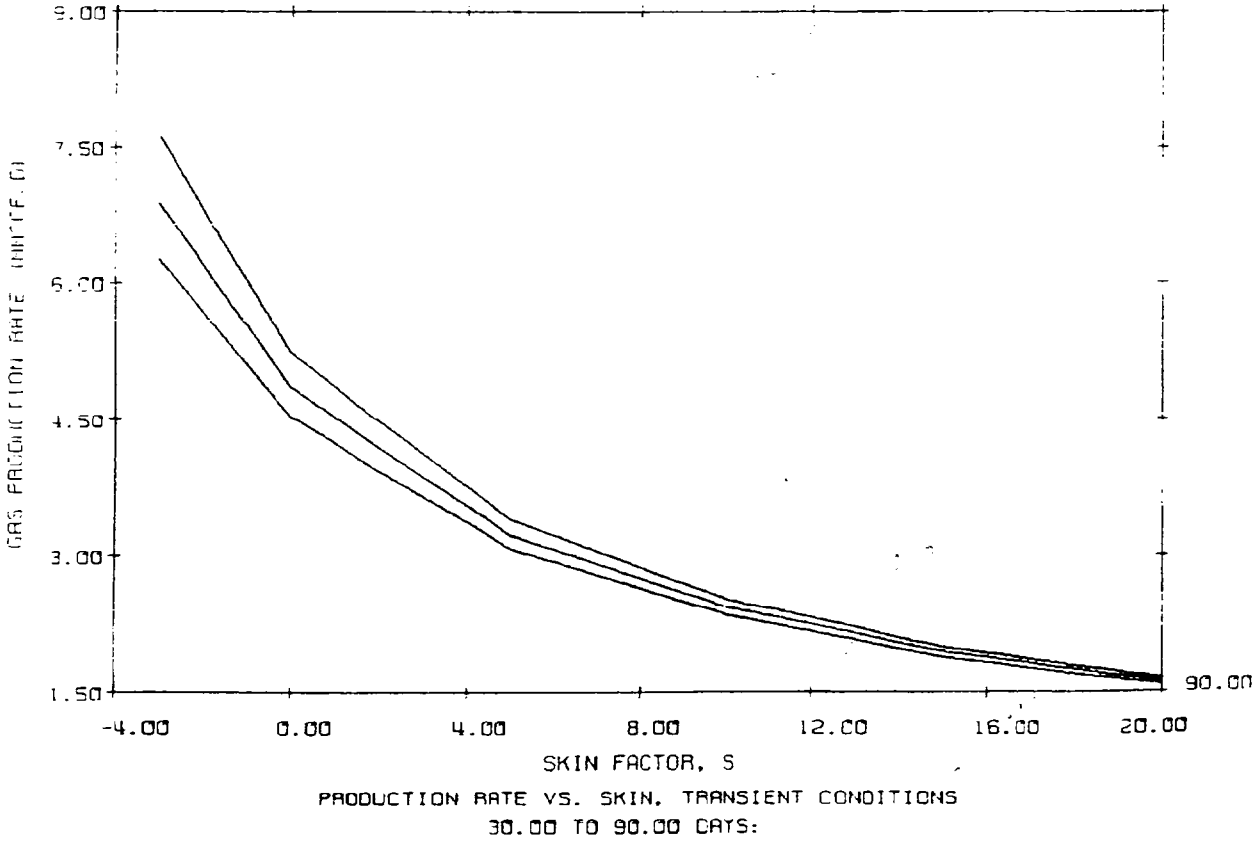


PRO & WIRELINE	Log-Log plot	Analysis 1
	Company TMBR/Sharp Drilling Well Blue Fin 24 Fed. #1	Field Test Name / #



WELL TEST INTERPRETATION REPORT [illegible]		NAME: --,
CLIENT : TMBF/Sharp Drilling		F-MAR--**
REGION :	SENSITIVITY ANALYSIS	FIELD:
DISTRICT:	DATE VS. TIME	ZONE :
BASE :		WELL [illegible]
ENGINEER:		LOCATION:

RESERVOIR PRESSURE: 6035 PSI
PERMEABILITY: 1.05 MD
NET THICKNESS: 32 FT
LIQUID/GAS RATIO: 120 STB/MMSCF
TUBING SIZE: 2.441 IN [illegible]
WELLHEAD PRESSURE: 450 PSI



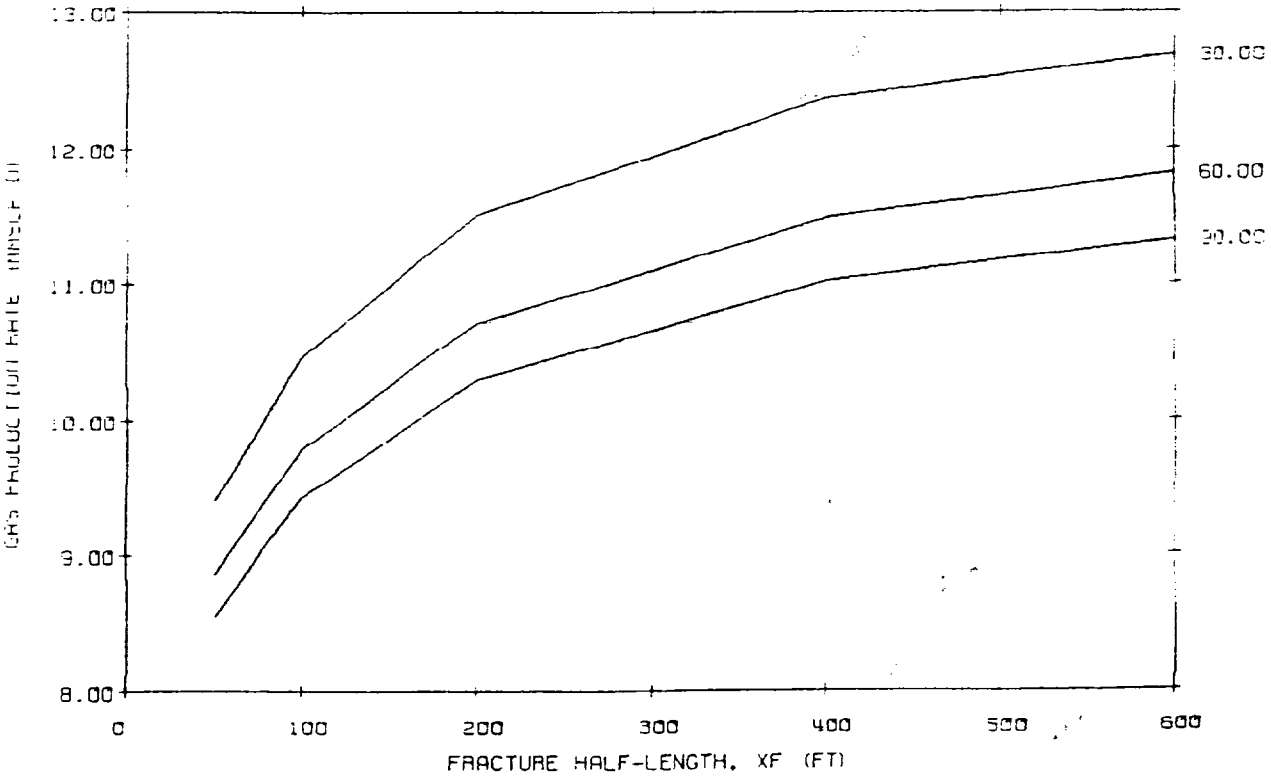
PRODUCTION RATE VS. SKIN, TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM# 11.00-102590

WELL TEST INTERPRETATION REPORT :Blue Fin 2		PAGE: 31.
CLIENT : MMS/Shore Drilling		S-NAME---
REGION : DISTRICT: BASE : ENGINEER:	SENSITIVITY ANALYSIS RATE Vs. XF (VS. TIME)	FIELD: ZONE : WELL :Blue Fin 2 LOCATION:

RESERVOIR PRESSURE: 6036 PSI LIQUID/GAS RATIO: 120 STB/MMSCF
PERMEABILITY: 1.06 MD TUBING SIZE: 3.441 IN .ID
NET THICKNESS: 32 FT WELLHEAD PRESSURE: 450 PSI

FRACTURE CONDUCTIVITY, KF*W: 500 MD.FT



PRODUCTION RATE VS. FRAC. HALF-LENGTH. TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM* 11.00-102590

PRO WELL &
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PRESSURE SURVEY REPORT

TMBR/SHARP DRILLING
BLUE FIN 24 FED. #1
165 HOUR SURFACE BUILD UP
2/25/02 TO 3/4/02
STATIC GRADIENT RAN AFTER BU

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HOBBS, NEW MEXICO

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JOB INFORMATION SHEET

Company Information	
Company:	TMBR/SHARP DRILLING
Address:	

Well Information	
Well Name:	BLUE FIN 24 FED. #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	165 HOUR BUILDUP
Gauge Depth:	SURFACE
Prod. Int. CF:	through
Prod. Through:	
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3593
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:		
Calibration Date		
Pressure Range		

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
1	02/25/02	09:10:21	0.001666	447.54	58.5	0.00
2	02/25/02	09:11:21	0.018333	504.40	58.2	56.86
3	02/25/02	09:12:21	0.035000	527.76	58.1	23.36
4	02/25/02	09:13:21	0.051666	547.90	58.4	20.14
5	02/25/02	09:14:21	0.068333	567.49	58.7	19.59
6	02/25/02	09:15:21	0.085000	586.91	58.9	19.42
7	02/25/02	09:16:21	0.101666	605.95	59.1	19.03
8	02/25/02	09:17:21	0.118333	624.80	59.1	18.85
9	02/25/02	09:18:21	0.135000	643.36	59.1	18.56
10	02/25/02	09:19:21	0.151666	661.62	59.0	18.25
11	02/25/02	09:20:21	0.168333	679.76	58.8	18.15
12	02/25/02	09:21:21	0.185000	697.72	58.7	17.96
13	02/25/02	09:22:21	0.201666	715.36	58.5	17.63
14	02/25/02	09:23:21	0.218333	732.66	58.5	17.31
15	02/25/02	09:24:21	0.235000	749.49	58.4	16.83
16	02/25/02	09:25:21	0.251666	766.12	58.5	16.63
17	02/25/02	09:26:21	0.268333	782.66	58.5	16.54
18	02/25/02	09:27:21	0.285000	798.96	58.5	16.30
19	02/25/02	09:28:21	0.301666	815.00	58.6	16.05
20	02/25/02	09:29:21	0.318333	830.70	58.6	15.70
21	02/25/02	09:30:21	0.335000	846.19	58.6	15.48
22	02/25/02	09:31:21	0.351666	861.82	58.7	15.64
23	02/25/02	09:32:21	0.368333	877.04	58.7	15.21
24	02/25/02	09:33:21	0.385000	891.92	58.8	14.89
25	02/25/02	09:34:21	0.401666	906.82	58.8	14.90
26	02/25/02	09:35:21	0.418333	921.44	58.8	14.61
27	02/25/02	09:36:21	0.435000	935.93	58.9	14.49
28	02/25/02	09:37:21	0.451666	950.27	59.0	14.34
29	02/25/02	09:38:21	0.468333	964.27	59.0	14.01
30	02/25/02	09:39:21	0.485000	978.21	59.1	13.93
31	02/25/02	09:40:21	0.501666	991.89	59.2	13.69
32	02/25/02	09:45:21	0.585000	1059.26	59.6	67.37
33	02/25/02	09:50:21	0.668333	1124.22	60.2	64.95
34	02/25/02	09:55:21	0.751666	1186.20	60.5	61.99
35	02/25/02	10:00:21	0.835000	1245.92	61.0	59.71
36	02/25/02	10:05:21	0.918333	1303.43	61.2	57.51
37	02/25/02	10:10:21	1.001666	1359.13	61.5	55.70
38	02/25/02	10:15:21	1.085000	1413.28	61.5	54.15
39	02/25/02	10:20:21	1.168333	1465.95	62.2	52.67
40	02/25/02	10:25:21	1.251666	1517.49	62.8	51.53
41	02/25/02	10:30:21	1.335000	1568.02	63.3	50.54
42	02/25/02	10:35:21	1.418333	1617.54	63.8	49.51
43	02/25/02	10:40:21	1.501666	1666.17	64.6	48.63
44	02/25/02	10:45:21	1.585000	1713.88	65.2	47.72
45	02/25/02	10:50:21	1.668333	1761.04	65.8	47.16

PRO WELL TESTING & WIRELINE

HOBBS, NEW MEXICO

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date	Real Time	DeltaTime	Pressure	Temperature	Differential
	mm/dd/yy	hh:mm:ss	hours	PSIA	F	PSIA
46	02/25/02	10:55:21	1.751666	1807.75	66.0	46.71
47	02/25/02	11:00:21	1.835000	1853.73	66.4	45.99
48	02/25/02	11:05:21	1.918333	1899.36	67.1	45.63
49	02/25/02	11:10:21	2.001666	1944.54	67.7	45.18
50	02/25/02	11:15:21	2.085000	1989.14	68.4	44.60
51	02/25/02	11:20:21	2.168333	2033.47	69.0	44.32
52	02/25/02	11:25:21	2.251666	2077.44	69.6	43.98
53	02/25/02	11:30:21	2.335000	2121.23	70.0	43.78
54	02/25/02	11:35:21	2.418333	2164.56	70.2	43.33
55	02/25/02	11:40:21	2.501666	2207.39	70.5	42.83
56	02/25/02	11:45:21	2.585000	2250.01	71.0	42.63
57	02/25/02	11:50:21	2.668333	2292.32	71.3	42.30
58	02/25/02	11:55:21	2.751666	2334.03	71.5	41.71
59	02/25/02	12:00:21	2.835000	2375.22	71.9	41.19
60	02/25/02	12:05:21	2.918333	2415.83	72.0	40.61
61	02/25/02	12:10:21	3.001666	2455.77	72.1	39.95
62	02/25/02	12:15:21	3.085000	2494.98	72.2	39.21
63	02/25/02	12:20:21	3.168333	2533.33	72.2	38.35
64	02/25/02	12:25:21	3.251666	2570.43	72.6	37.11
65	02/25/02	12:30:21	3.335000	2606.88	73.4	36.45
66	02/25/02	12:35:21	3.418333	2642.05	73.4	35.17
67	02/25/02	12:40:21	3.501666	2676.04	73.5	33.99
68	02/25/02	12:45:21	3.585000	2708.67	73.4	32.62
69	02/25/02	12:50:21	3.668333	2739.88	73.8	31.21
70	02/25/02	12:55:21	3.751666	2769.80	74.3	29.93
71	02/25/02	13:00:21	3.835000	2798.20	74.6	28.39
72	02/25/02	13:05:21	3.918333	2825.04	74.6	26.85
73	02/25/02	13:10:21	4.001666	2850.52	74.7	25.48
74	02/25/02	13:15:21	4.085000	2874.60	74.8	24.08
75	02/25/02	13:20:21	4.168333	2897.39	75.2	22.79
76	02/25/02	13:25:21	4.251666	2919.06	75.6	21.67
77	02/25/02	13:30:21	4.335000	2939.46	76.4	20.40
78	02/25/02	13:35:21	4.418333	2958.72	76.6	19.27
79	02/25/02	13:40:21	4.501666	2976.78	76.6	18.05
80	02/25/02	13:45:21	4.585000	2993.70	76.8	16.93
81	02/25/02	13:50:21	4.668333	3009.56	77.0	15.85
82	02/25/02	13:55:21	4.751666	3024.51	77.0	14.96
83	02/25/02	14:00:21	4.835000	3038.74	77.3	14.23
84	02/25/02	14:05:21	4.918333	3051.67	77.6	12.93
85	02/25/02	14:10:21	5.001666	3063.48	77.8	11.81
86	02/25/02	14:15:21	5.085000	3074.49	78.0	11.02
87	02/25/02	14:20:21	5.168333	3084.78	78.4	10.28
88	02/25/02	14:25:21	5.251666	3094.34	78.2	9.57
89	02/25/02	14:30:21	5.335000	3103.28	78.7	8.94
90	02/25/02	14:35:21	5.418333	3111.60	78.7	8.32

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
91	02/25/02	14:40:21	5.501666	3119.43	78.0	7.83
92	02/25/02	14:45:21	5.585000	3126.78	77.9	7.35
93	02/25/02	14:50:21	5.668333	3133.62	78.1	6.84
94	02/25/02	14:55:21	5.751666	3140.07	77.8	6.45
95	02/25/02	15:00:21	5.835000	3146.45	77.6	6.38
96	02/25/02	15:05:21	5.918333	3152.68	77.5	6.24
97	02/25/02	15:10:21	6.001666	3158.63	77.5	5.94
98	02/25/02	15:25:21	6.251666	3174.51	77.3	15.88
99	02/25/02	15:40:21	6.501666	3188.25	77.4	13.75
100	02/25/02	15:55:21	6.751666	3200.39	77.5	12.13
101	02/25/02	16:10:21	7.001666	3211.32	76.6	10.93
102	02/25/02	16:25:21	7.251666	3219.92	65.1	8.60
103	02/25/02	16:40:21	7.501666	3227.83	58.8	7.90
104	02/25/02	16:55:21	7.751666	3235.99	54.6	8.16
105	02/25/02	17:10:21	8.001666	3243.31	50.0	7.32
106	02/25/02	17:25:21	8.251666	3250.19	44.8	6.88
107	02/25/02	17:40:21	8.501666	3256.92	40.4	6.73
108	02/25/02	17:55:21	8.751666	3263.56	37.2	6.64
109	02/25/02	18:10:21	9.001666	3269.58	34.3	6.02
110	02/25/02	18:25:21	9.251666	3274.95	32.3	5.37
111	02/25/02	18:40:21	9.501666	3280.19	30.6	5.25
112	02/25/02	18:55:21	9.751666	3285.20	28.8	5.01
113	02/25/02	19:10:21	10.001666	3289.79	27.2	4.58
114	02/25/02	19:25:21	10.251666	3293.94	26.1	4.15
115	02/25/02	19:40:21	10.501666	3298.06	24.7	4.13
116	02/25/02	19:55:21	10.751666	3301.80	24.1	3.73
117	02/25/02	20:10:21	11.001666	3305.47	23.6	3.67
118	02/25/02	20:25:21	11.251666	3308.90	23.1	3.43
119	02/25/02	20:40:21	11.501666	3312.32	22.8	3.43
120	02/25/02	20:55:21	11.751666	3315.60	22.5	3.27
121	02/25/02	21:10:21	12.001666	3318.73	22.1	3.14
122	02/25/02	21:40:21	12.501666	3324.46	21.3	5.73
123	02/25/02	22:10:21	13.001666	3330.03	20.7	5.57
124	02/25/02	22:40:21	13.501666	3335.31	20.1	5.28
125	02/25/02	23:10:21	14.001666	3340.32	19.3	5.00
126	02/25/02	23:40:21	14.501666	3345.19	18.1	4.87
127	02/26/02	00:10:21	15.001666	3349.70	17.4	4.51
128	02/26/02	00:40:21	15.501666	3353.91	16.5	4.21
129	02/26/02	01:10:21	16.001666	3357.95	15.9	4.03
130	02/26/02	01:40:21	16.501666	3361.75	15.3	3.80
131	02/26/02	02:10:21	17.001666	3365.24	14.8	3.49
132	02/26/02	02:40:21	17.501666	3368.66	14.4	3.42
133	02/26/02	03:10:21	18.001666	3372.31	13.8	3.65
134	02/26/02	04:10:21	19.001666	3378.90	13.0	6.59
135	02/26/02	05:10:21	20.001666	3385.05	12.1	6.15

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
136	02/26/02	06:10:21	21.001666	3390.40	11.5	5.36
137	02/26/02	07:10:21	22.001666	3394.03	15.1	3.63
138	02/26/02	08:10:21	23.001666	3397.60	19.7	3.56
139	02/26/02	09:10:21	24.001666	3401.16	23.2	3.57
140	02/26/02	10:10:21	25.001666	3404.95	27.2	3.78
141	02/26/02	11:10:21	26.001666	3408.41	30.8	3.46
142	02/26/02	12:10:21	27.001666	3411.36	35.8	2.95
143	02/26/02	13:10:21	28.001666	3414.96	41.5	3.60
144	02/26/02	14:10:21	29.001666	3418.40	46.2	3.43
145	02/26/02	15:10:21	30.001666	3420.98	46.3	2.59
146	02/26/02	16:10:21	31.001666	3424.17	49.5	3.19
147	02/26/02	17:10:21	32.001666	3427.15	46.5	2.99
148	02/26/02	18:10:21	33.001666	3430.24	31.2	3.09
149	02/26/02	19:10:21	34.001666	3433.93	23.1	3.69
150	02/26/02	20:10:21	35.001666	3437.41	19.5	3.48
151	02/26/02	21:10:21	36.001666	3440.21	18.7	2.79
152	02/26/02	22:10:21	37.001666	3443.02	17.6	2.81
153	02/26/02	23:10:21	38.001666	3445.91	16.7	2.89
154	02/27/02	00:10:21	39.001666	3448.43	16.9	2.53
155	02/27/02	01:10:21	40.001666	3450.49	18.0	2.05
156	02/27/02	02:10:21	41.001666	3452.82	17.6	2.33
157	02/27/02	03:10:21	42.001666	3454.92	17.9	2.11
158	02/27/02	04:10:21	43.001666	3456.63	20.2	1.70
159	02/27/02	05:10:21	44.001666	3458.78	20.5	2.16
160	02/27/02	06:10:21	45.001666	3460.92	20.1	2.13
161	02/27/02	07:10:21	46.001666	3461.79	28.4	0.87
162	02/27/02	08:10:21	47.001666	3463.34	33.1	1.55
163	02/27/02	09:10:21	48.001666	3465.17	41.7	1.83
164	02/27/02	10:10:21	49.001666	3467.21	47.2	2.04
165	02/27/02	11:10:21	50.001666	3469.02	54.3	1.81
166	02/27/02	12:10:21	51.001666	3471.55	59.8	2.53
167	02/27/02	13:10:21	52.001666	3473.55	59.9	2.00
168	02/27/02	14:10:21	53.001666	3475.86	66.3	2.31
169	02/27/02	15:10:21	54.001666	3477.61	65.0	1.75
170	02/27/02	16:10:21	55.001666	3478.88	59.9	1.27
171	02/27/02	17:10:21	56.001666	3480.44	55.9	1.56
172	02/27/02	18:10:21	57.001666	3481.73	41.8	1.29
173	02/27/02	19:10:21	58.001666	3483.53	35.7	1.80
174	02/27/02	20:10:21	59.001666	3485.29	32.7	1.76
175	02/27/02	21:10:21	60.001666	3487.19	30.2	1.90
176	02/27/02	22:10:21	61.001666	3489.21	26.5	2.02
177	02/27/02	23:10:21	62.001666	3490.99	24.7	1.78
178	02/28/02	00:10:21	63.001666	3492.19	27.5	1.20
179	02/28/02	01:10:21	64.001666	3493.96	26.3	1.77
180	02/28/02	02:10:21	65.001666	3496.05	22.7	2.08

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
181	02/28/02	03:10:21	66.001666	3497.94	20.9	1.89
182	02/28/02	04:10:21	67.001666	3499.65	19.8	1.71
183	02/28/02	05:10:21	68.001666	3501.08	20.2	1.43
184	02/28/02	06:10:21	69.001666	3502.56	20.2	1.48
185	02/28/02	07:10:21	70.001666	3503.69	21.7	1.14
186	02/28/02	08:10:21	71.001666	3503.82	31.9	0.13
187	02/28/02	09:10:21	72.001666	3505.12	47.4	1.30
188	02/28/02	10:10:21	73.001666	3506.72	51.0	1.60
189	02/28/02	11:10:21	74.001666	3508.51	59.6	1.80
190	02/28/02	12:10:21	75.001666	3509.73	59.4	1.22
191	02/28/02	13:10:21	76.001666	3511.20	62.2	1.47
192	02/28/02	14:10:21	77.001666	3512.43	61.2	1.22
193	02/28/02	15:10:21	78.001666	3513.62	60.3	1.19
194	02/28/02	16:10:21	79.001666	3514.79	57.5	1.17
195	02/28/02	17:10:21	80.001666	3515.75	51.9	0.96
196	02/28/02	18:10:21	81.001666	3516.68	43.4	0.93
197	02/28/02	19:10:21	82.001666	3517.89	40.1	1.21
198	02/28/02	20:10:21	83.001666	3519.15	37.1	1.26
199	02/28/02	21:10:21	84.001666	3520.32	36.2	1.18
200	02/28/02	22:10:21	85.001666	3521.64	34.6	1.32
201	02/28/02	23:10:21	86.001666	3522.90	33.8	1.26
202	03/01/02	00:10:21	87.001666	3524.08	33.7	1.18
203	03/01/02	01:10:21	88.001666	3525.25	34.3	1.17
204	03/01/02	02:10:21	89.001666	3526.38	34.5	1.13
205	03/01/02	03:10:21	90.001666	3527.60	32.9	1.22
206	03/01/02	04:10:21	91.001666	3528.95	30.4	1.35
207	03/01/02	05:10:21	92.001666	3530.26	28.7	1.31
208	03/01/02	06:10:21	93.001666	3531.18	30.3	0.92
209	03/01/02	07:10:21	94.001666	3531.81	38.0	0.64
210	03/01/02	08:10:21	95.001666	3533.34	54.7	1.53
211	03/01/02	09:10:21	96.001666	3534.98	61.6	1.63
212	03/01/02	10:10:21	97.001666	3536.35	65.9	1.37
213	03/01/02	11:10:21	98.001666	3537.54	69.3	1.19
214	03/01/02	12:10:21	99.001666	3538.71	72.5	1.17
215	03/01/02	13:10:21	100.001666	3539.79	74.4	1.08
216	03/01/02	14:10:21	101.001666	3540.74	74.6	0.95
217	03/01/02	15:10:21	102.001666	3541.71	74.3	0.97
218	03/01/02	16:10:21	103.001666	3542.53	71.4	0.82
219	03/01/02	17:10:21	104.001666	3543.13	66.5	0.60
220	03/01/02	18:10:21	105.001666	3543.62	59.4	0.49
221	03/01/02	19:10:21	106.001666	3544.45	57.1	0.84
222	03/01/02	20:10:21	107.001666	3545.72	27.5	1.26
223	03/01/02	21:10:21	108.001666	3547.05	24.1	1.33
224	03/01/02	22:10:21	109.001666	3548.66	21.0	1.61
225	03/01/02	23:10:21	110.001666	3549.80	20.2	1.14

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
226	03/02/02	00:10:21	111.001666	3551.07	18.8	1.27
227	03/02/02	01:10:21	112.001666	3552.29	17.7	1.23
228	03/02/02	02:10:21	113.001666	3553.45	16.8	1.16
229	03/02/02	03:10:21	114.001666	3554.50	16.4	1.04
230	03/02/02	04:10:21	115.001666	3555.62	15.8	1.12
231	03/02/02	05:10:21	116.001666	3556.50	16.0	0.88
232	03/02/02	06:10:21	117.001666	3558.03	13.9	1.54
233	03/02/02	07:10:21	118.001666	3557.94	17.2	-0.09
234	03/02/02	08:10:21	119.001666	3557.78	22.3	-0.17
235	03/02/02	09:10:21	120.001666	3558.33	24.2	0.56
236	03/02/02	10:10:21	121.001666	3558.61	29.6	0.27
237	03/02/02	11:10:21	122.001666	3559.36	31.1	0.76
238	03/02/02	12:10:21	123.001666	3559.97	34.6	0.61
239	03/02/02	13:10:21	124.001666	3560.75	37.6	0.78
240	03/02/02	14:10:21	125.001666	3561.55	39.4	0.80
241	03/02/02	15:10:21	126.001666	3562.39	40.3	0.84
242	03/02/02	16:10:21	127.001666	3563.17	38.8	0.79
243	03/02/02	17:10:21	128.001666	3564.21	34.4	1.03
244	03/02/02	18:10:21	129.001666	3565.53	26.1	1.32
245	03/02/02	19:10:21	130.001666	3566.63	23.2	1.10
246	03/02/02	20:10:21	131.001666	3568.17	19.6	1.53
247	03/02/02	21:10:21	132.001666	3569.59	17.0	1.42
248	03/02/02	22:10:21	133.001666	3571.09	14.5	1.50
249	03/02/02	23:10:21	134.001666	3572.44	12.8	1.36
250	03/03/02	00:10:21	135.001666	3573.64	11.8	1.20
251	03/03/02	01:10:21	136.001666	3574.88	10.8	1.25
252	03/03/02	02:10:21	137.001666	3576.06	9.9	1.18
253	03/03/02	03:10:21	138.001666	3576.99	9.7	0.93
254	03/03/02	04:10:21	139.001666	3578.03	9.1	1.04
255	03/03/02	05:10:21	140.001666	3579.68	7.4	1.64
256	03/03/02	06:10:21	141.001666	3580.92	6.5	1.24
257	03/03/02	07:10:21	142.001666	3577.62	17.1	-3.30
258	03/03/02	08:10:21	143.001666	3576.69	27.5	-0.92
259	03/03/02	09:10:21	144.001666	3577.01	32.6	0.31
260	03/03/02	10:10:21	145.001666	3577.62	35.4	0.62
261	03/03/02	11:10:21	146.001666	3578.19	39.2	0.57
262	03/03/02	12:10:21	147.001666	3578.90	43.9	0.70
263	03/03/02	13:10:21	148.001666	3579.68	47.6	0.79
264	03/03/02	14:10:21	149.001666	3580.46	48.5	0.77
265	03/03/02	15:10:21	150.001666	3581.14	48.6	0.68
266	03/03/02	16:10:21	151.001666	3581.77	47.0	0.63
267	03/03/02	17:10:21	152.001666	3582.34	43.8	0.56
268	03/03/02	18:10:21	153.001666	3583.44	32.4	1.10
269	03/03/02	19:10:21	154.001666	3584.94	24.1	1.50
270	03/03/02	20:10:21	155.001666	3586.21	20.8	1.27

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

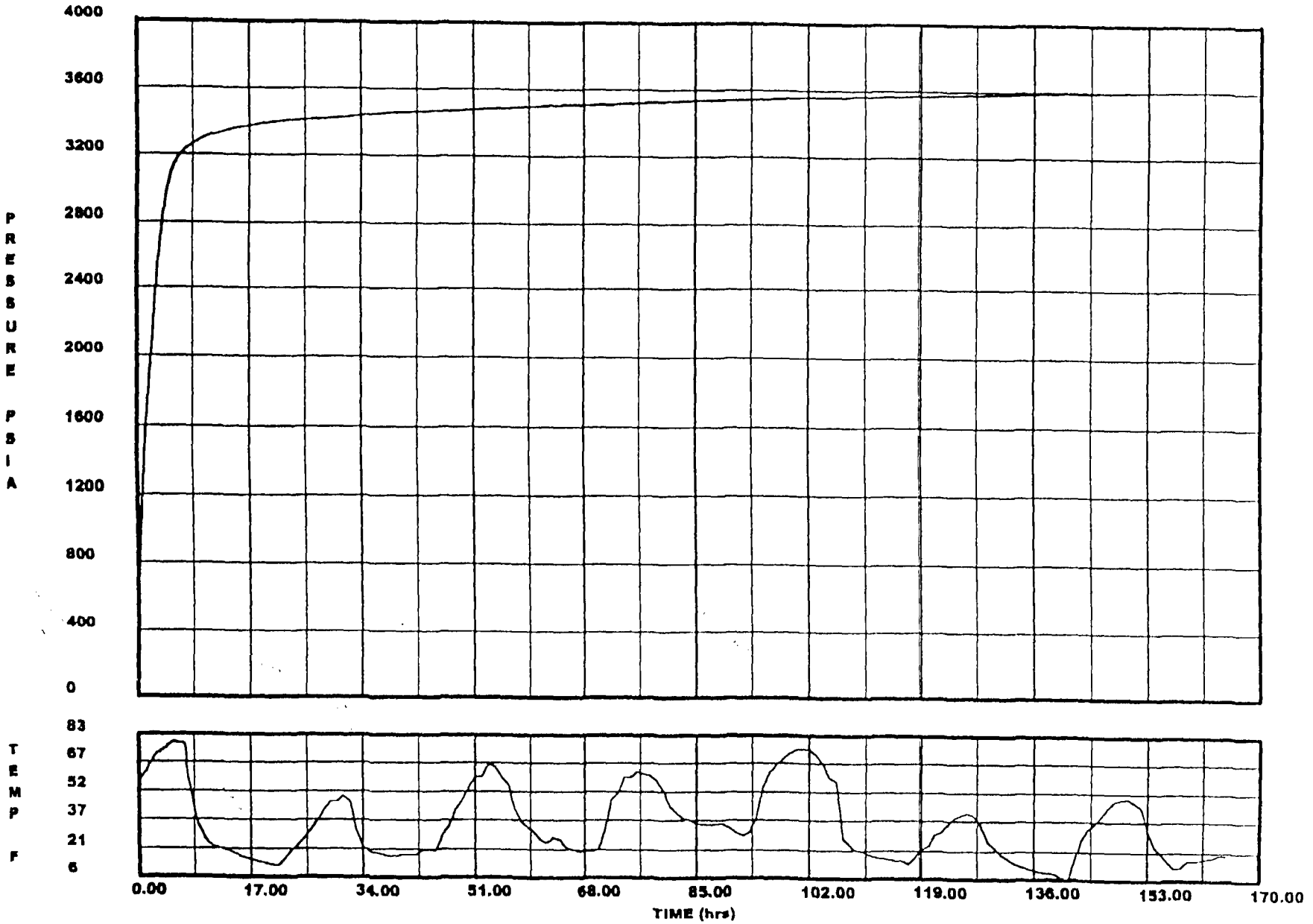
Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
271	03/03/02	21:10:21	156.001666	3587.96	16.2	1.75
272	03/03/02	22:10:21	157.001666	3589.80	12.5	1.84
273	03/03/02	23:10:21	158.001666	3590.35	12.7	0.55
274	03/04/02	00:10:21	159.001666	3589.69	16.9	-0.66
275	03/04/02	01:10:21	160.001666	3590.46	16.7	0.77
276	03/04/02	02:10:21	161.001666	3591.05	16.9	0.59
277	03/04/02	03:10:21	162.001666	3591.46	17.7	0.41
278	03/04/02	04:10:21	163.001666	3591.92	18.6	0.45
279	03/04/02	05:10:21	164.001666	3592.25	20.0	0.33
280	03/04/02	06:10:21	165.001666	3592.96	19.8	0.72

TMBR/SHARP DRILLING

BLUE FIN 24 FED. #1



PRO WELL TESTING & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/SHARP DRILLING
Address:	

Well Information	
Well Name:	BLUE FIN 24 FED. #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	STATIC GRADIENT
Gauge Depth:	12315
Prod. Int. CF:	12396 through 12410
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3593
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	183.79 @ 12315
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115B	76077D
Calibration Date	6/01	6/01
Pressure Range	10000	10000

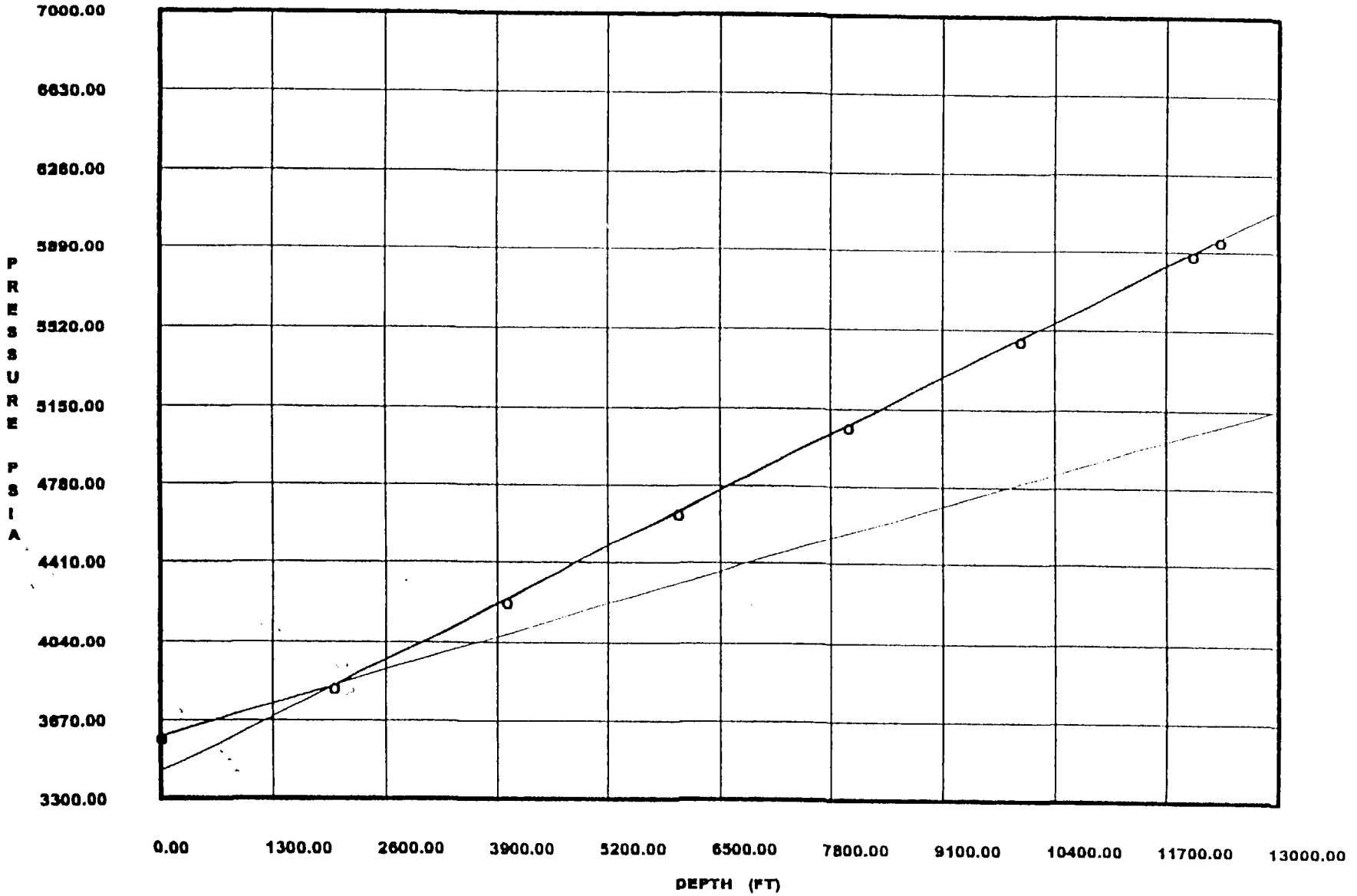
Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

STATIC GRADIENT

TMBR/SHARP DRILLING

BLUE FIN 24 FED. #1



PRO WELL TESTING & WIRELINE

P.O. Box 791
Hobbs, New Mexico 88241
(505) 397-3590

July 29, 2002

Mr. Lonnie Arnold
TMBR/Sharp Drilling
4607 West Industrial
Midland, Texas 79703

OIL CONSERVATION COMMISSION
CASE NUMBER _____
EXHIBIT 13

Mr. Arnold,

I have analyzed the data from the 4 day build up that was run on the Bluefin 25 #1 in Lea County, New Mexico from July 25, 2002 through July 29, 2002. The data modeled as **a Two-Layer Reservoir with well bore storage and skin.** The data did show a slight cross-flow, but I just ignored this indication and matched the data as well as I could.

The first page of this report is the Main Results page, which has the parameters, used for the calculations and the answers that I found. I used a flow rate of **340 mcf/day** of gas. The net interval that I used was **25 feet of** interval with an average **porosity of 10%**. The flow time that I used was **48 hours** of production. The pressure that the model generated was **5425.33 psia**, the permeability was **0.0501 md.**, and the **formation skin was a +2.56 for the first layer and +0.0687 for the second layer**, and the radius of investigation was **121 feet.**

The second page is the simulation page. This page matches the model in red against the data in green. I only analyzed the final shut in, so the model will not match the first flow and shut in. The model matches most all the data very well. The model does deviate from the data though when the cross-flow occurs. The matching of the model to the Cartesian plot, the Semi-Log and Log-Log gives us a degree of confidence that we have chosen the correct model. If all three plots match well and the permeability, pressure and skin are reasonable numbers, then we know that the model is a believable one.

The third page is the Semi-Log plot. The pressure is in green and the model is the red line. The model matches the data very well. Due to the fact that this was a two-layer reservoir, I did not

draw a straight line. Since the well is not quite in radial flow, the early time slope would give us too low of a reservoir pressure and the late time data would show too high of a pressure.

The last page is the Log-Log plot with derivative. This is the actual model page that I use to match the data. The delta pressure is in green, the derivative data is in red, the data model is in a red solid line and the derivative model is the solid black line. The dotted horizontal line is the radial flow line that the model generates. This model matches the very well, except for a couple of segments in time.

I have included nodal plots for fracture half-length. The **frac plot** indicates that with a **200 ft. frac half-length**, the well should **make 1.5 mmscf/day after 30 days, 1.2 mmscf/day after 60 days and 1.1 mmscf/day after 90 days.**

We appreciate this work and look forward to working more with you in the near future. If you have any questions, please give me a call at 915-697-2932 or at our office in Hobbs, New Mexico at (505) 397-3590. Thank you.

Sincerely,

Robert E. Shafer Jr.
Pro Well Testing and Wireline

Disclaimer:
We do not accept any responsibility for any actions taken as a result of this interpretation. This is a best estimate of reservoir parameters and due to the short flow time of this well, conditions could change.

PRO & WIRELINE

Main Results | Analysis 1

Company TMBR/Sharp Drilling
Well Blue Fin 25 #1

Field
Test Name / #

Test date / time	
Formation interval	
Perforated interval	12429-466
Gauge type / #	
Gauge depth	
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.33 ft
Pay Zone h	25 ft
Connate Water (%)	30
Water Salt (ppm)	10000
Rock compr.	3E-6 psi-1
Reservoir T	185.7 °F
Reservoir P	7000 psia
FLUID TYPE	Gas

Gas

Gas Gravity	0.7
Pseudo-Critical P	663.573 psia
Pseudo-Critical T	377.584 °R

Sour gas composition

Hydrogen sulphide	0
Carbon dioxide	0
Nitrogen	0

Water

Salinity, ppm	10000
WGR	0 bbl/MMcf
Reservoir T	185.7 °F
Reservoir P	7000 psia
Properties	@ Reservoir T&P

Gas

Z	1.16404
Mug	0.0335048 cp
Bg	0.00303451 cf/scf
Cg	6.58067E-5 psi-1
Rhog	0.282533 g/cc

Water

Rsw	25.9525 cf/bbl
Bw	1.00803 B/STB
Cw	3.14135E-6 psi-1
Muw	0.353579 cp
Rhow	0.999662 g/cc
Total Compr. ct	5.00071E-5 psi-1

Selected Model

Model Option	Standard Model
Well	Storage + Skin
WBS Type	Changing
Reservoir	Two Layers
Boundary	Infinite

Results

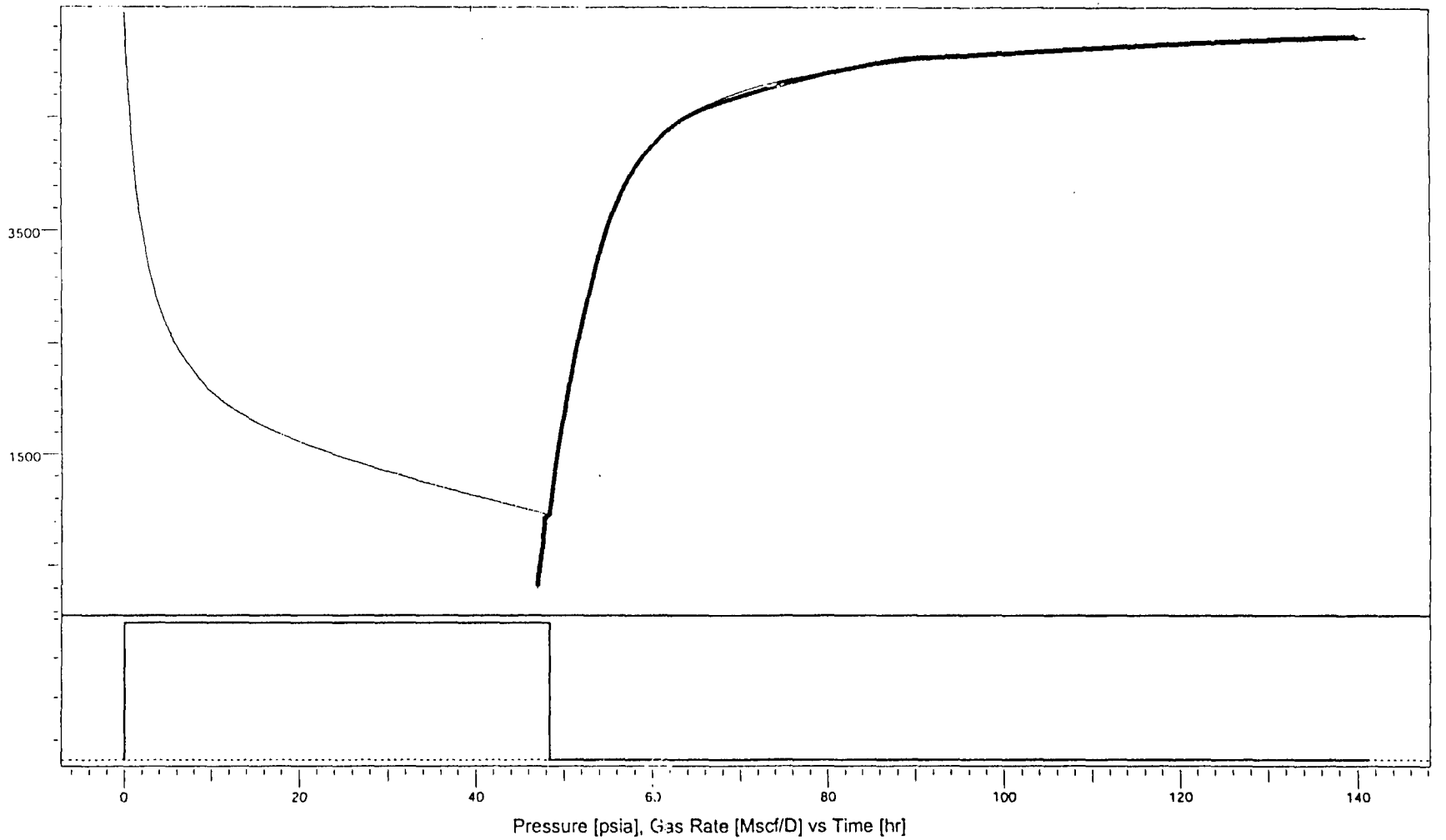
TMatch	2.69 [hr]**-1
PMatch	4.01E-9 [psi2/cp]**-1
C	0.00411 STB/psi
Ci/Cf	12.5
Alpha	0.151
skin1	2.56
skin2	0.0687
Pi	5425.33 psia
k.h	1.25 md.ft
k	0.0501 md
Omega	0.0436
Lambda	6.72E-5
Kappa	0.00708
Rinv	121 ft
Test. Vol.	20345.1 Barrels

History plot

PRO WELL TESTING & WIRELINE

Company TMBR/Sharp Drilling
Well Blue Fin 25 #1

Field
Test Name / #



Saphir v3 00.18 - 07-2002 bluefin25 ks3

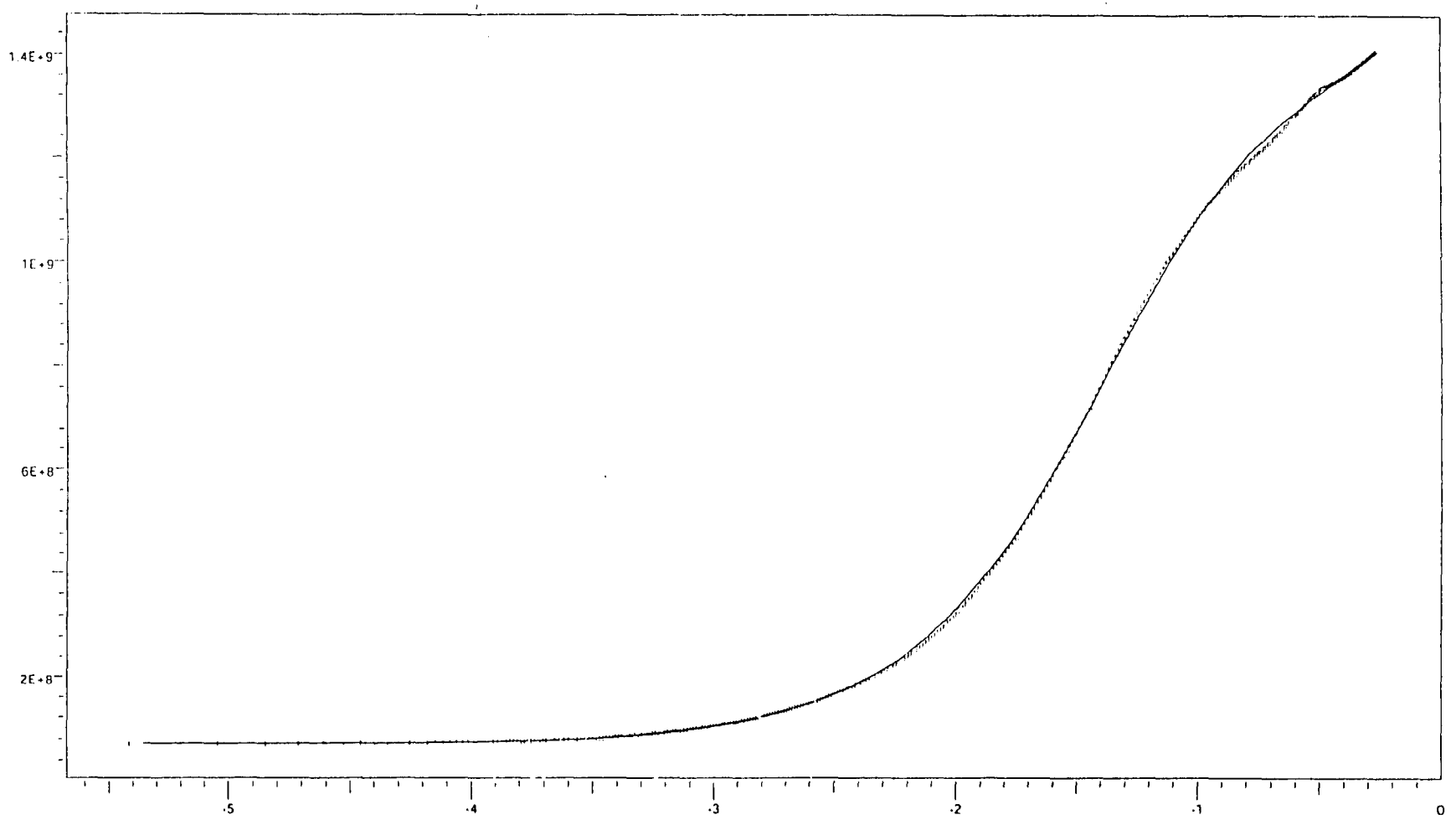
PRO & WIRELINE

Semi-Log plot

Analysis 1

Company TMBR/Sharp Drilling
Well Blue Fin 25 #1

Field
Test Name / #

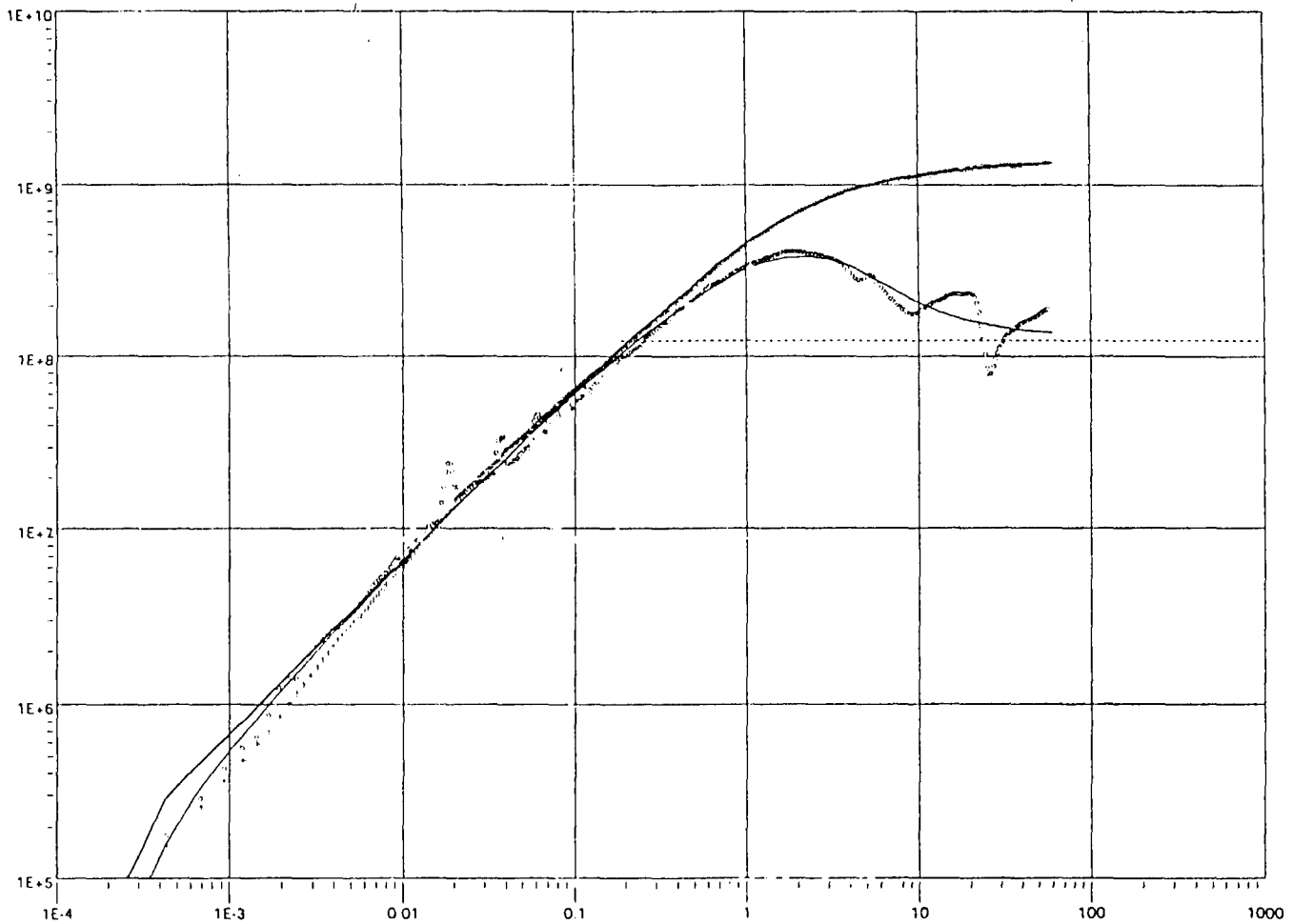


Saphir v3.00.18 - 07-2002 bluefin25 ks3

PRO & WIRELINE

Log-Log plot | Analysis 1

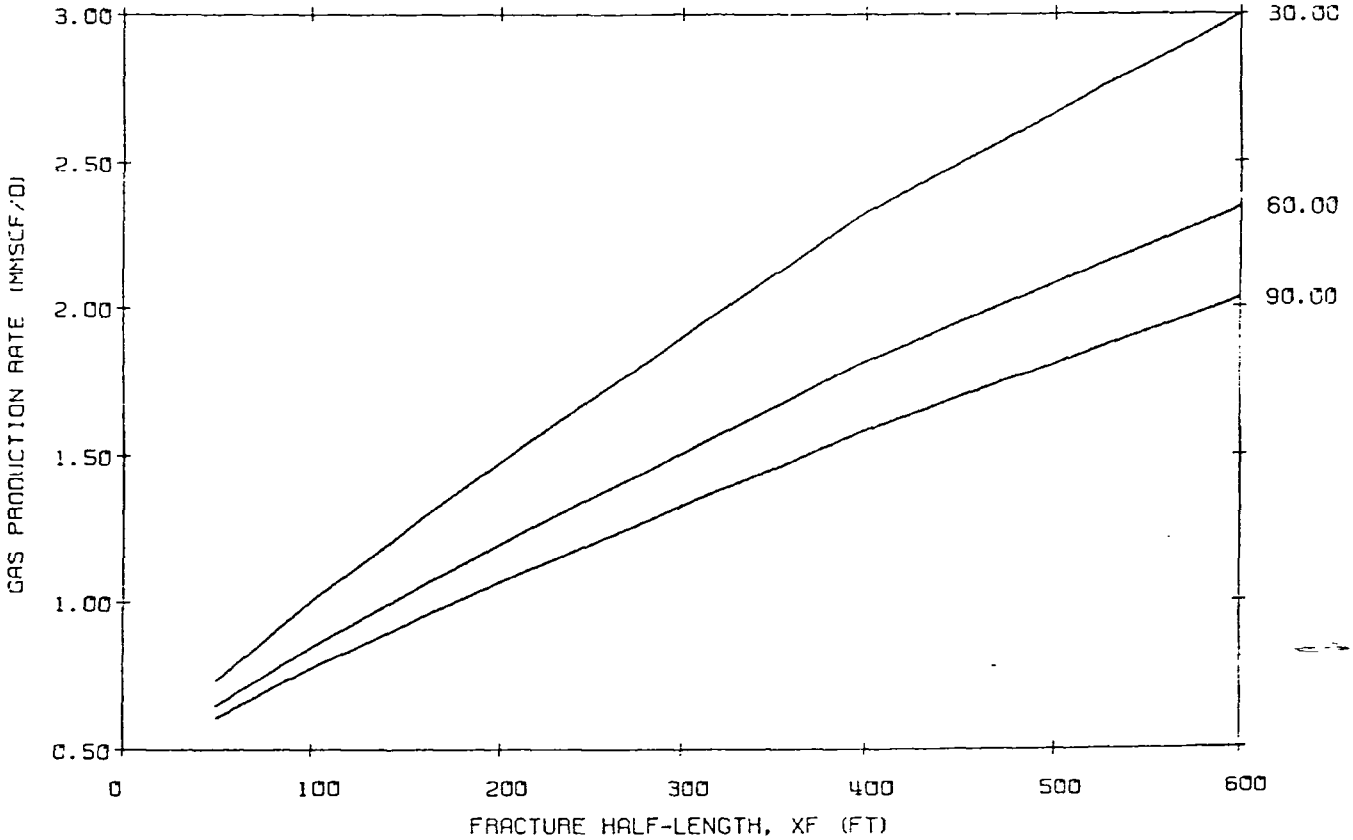
Company TMBR/Sharp Drilling | Field
Well Blue Fin 25 #1 | Test Name / #



WELL TEST INTERPRETATION REPORT =:Bluefin7 CLIENT : TMBR/Sharp Drilling		PAGE: 26, 29-JUL-**
REGION : DISTRICT: BASE : ENGINEER:	SENSITIVITY ANALYSIS RATE VS. XF (VS. TIME)	FIELD: ZONE : WELL :Blue Fin 25 #1 LOCATION:

RESERVOIR PRESSURE: 5425 PSI LIQUID/GAS RATIO: 72 STB/MMSCF
PERMEABILITY: 0.050 MD TUBING SIZE: 2.441 IN (ID)
NET THICKNESS: 25 FT WELLHEAD PRESSURE: 250 PSI

FRACTURE CONDUCTIVITY, KF*W: 500 MD.FT



PRODUCTION RATE VS. FRAC. HALF-LENGTH, TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM# 11.00-102590

TMBR000811

PRO WELL & WIRELINE

PRESSURE SURVEY REPORT

TMBR/SHARP DRILLING
BLUE FIN 25 #1
91 HOUR BUILDUP
7/25/02 TO 7/29/02

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 25 #1
Location:	
Field - Pool:	
Status:	FLOWING

Test Information	
Type Of Test:	FLOWING GRADIENT
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12436
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	240
Casing Pressure:	
Shut in Time:	
Status:	FLOWING
Temp @ Run Depth:	151.12 @ 12340
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO & WIRELINE

GRADIENT DATA SHEET

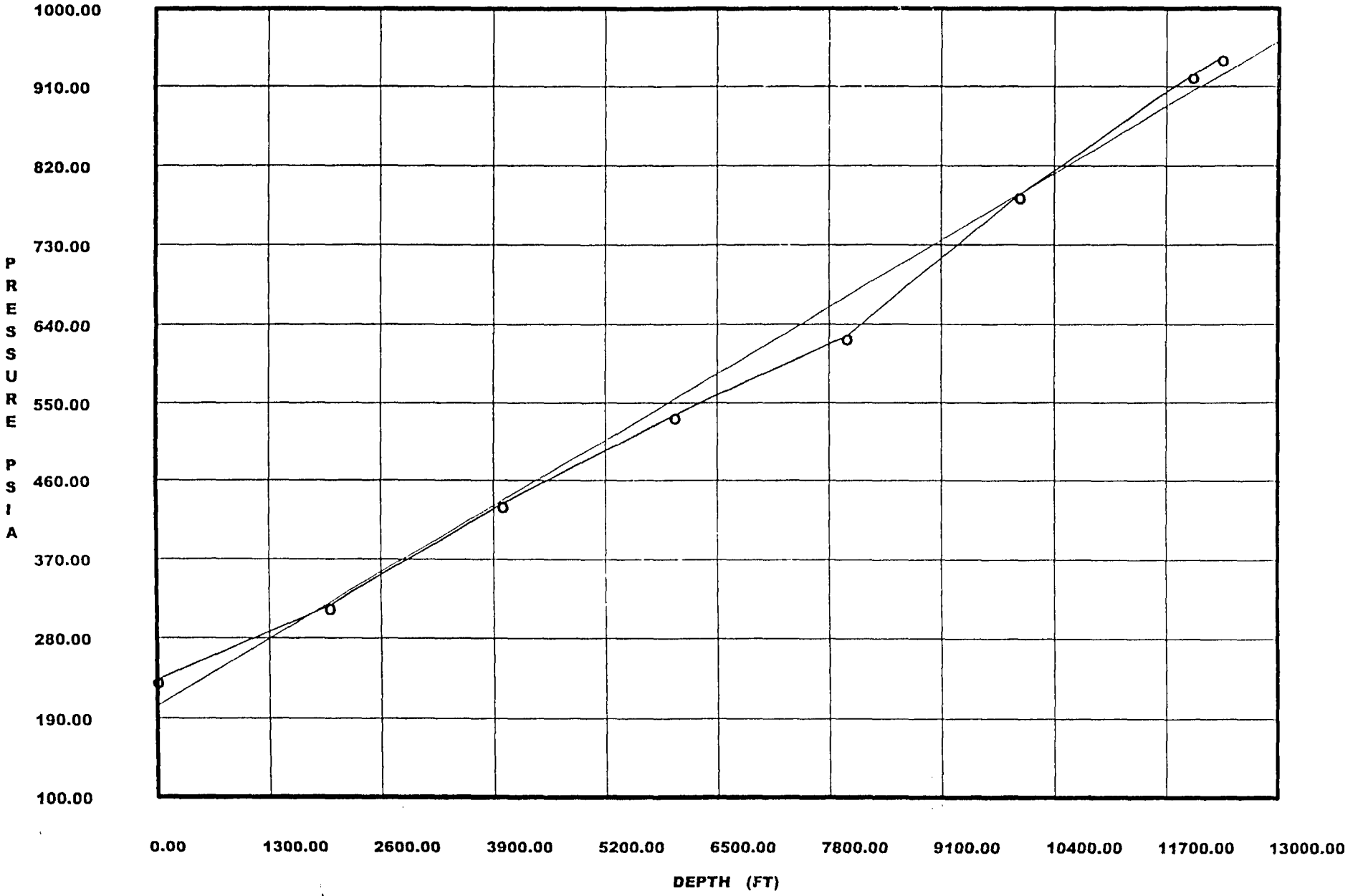
Depth ft	Pressure PSIA	Temperature Deg. F	Gradient PSIA/ft	Fluid Level ft
0.0000	232.88000	100.34000		
			0.04210	
2000.0000	317.08000	93.31700		
			0.05804	
4000.0000	433.16000	107.29000		
			0.05169	
6000.0000	536.53000	120.02000		
			0.04496	
8000.0000	626.44000	134.66000		
			0.08019	
10000.0000	786.82000	154.38000		
			0.06850	
12000.0000	923.82000	173.75000		
			0.06171	
12340.0000	944.80000	151.12000		
	END			

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

FLOWING GRADIENT

TMBR/Sharp Drilling

Blue Fin 25 #1



PRO WELL & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 25 #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	91 HOUR BUILDUP
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12466
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3000
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	185.78 @ 12340
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/Sharp Drilling
Well Name: Blue Fin 25 #1
Location:
Field:
Test Type: 91 HOUR BUILDUP
Gauge Depth: 12340
Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
1	07/25/02	12:34:27	0.000000	954.75	152.6	0.00
2	07/25/02	12:35:27	0.016667	959.80	152.1	5.05
3	07/25/02	12:36:27	0.033334	968.13	152.7	8.33
4	07/25/02	12:37:27	0.050000	978.87	153.3	10.74
5	07/25/02	12:38:27	0.066667	990.22	153.8	11.35
6	07/25/02	12:39:27	0.083334	1001.98	154.2	11.76
7	07/25/02	12:40:27	0.100000	1013.86	154.6	11.88
8	07/25/02	12:41:27	0.116667	1025.76	154.9	11.90
9	07/25/02	12:42:27	0.133334	1039.96	154.8	14.20
10	07/25/02	12:43:27	0.150000	1058.48	153.1	18.52
11	07/25/02	12:44:27	0.166667	1070.11	153.8	11.62
12	07/25/02	12:45:27	0.183334	1081.63	154.4	11.52
13	07/25/02	12:46:27	0.200000	1092.90	154.9	11.27
14	07/25/02	12:47:27	0.216667	1103.46	155.2	10.56
15	07/25/02	12:48:27	0.233334	1114.24	155.6	10.78
16	07/25/02	12:49:27	0.250000	1127.95	155.3	13.70
17	07/25/02	12:50:27	0.266667	1141.90	154.1	13.95
18	07/25/02	12:51:27	0.283334	1151.64	154.7	9.75
19	07/25/02	12:52:27	0.300000	1161.06	155.3	9.42
20	07/25/02	12:53:27	0.316667	1169.76	155.6	8.70
21	07/25/02	12:54:27	0.333334	1178.87	155.9	9.12
22	07/25/02	12:55:27	0.350000	1188.57	156.1	9.70
23	07/25/02	12:56:27	0.366667	1197.95	156.3	9.38
24	07/25/02	12:57:27	0.383334	1211.17	155.9	13.22
25	07/25/02	12:58:27	0.400000	1222.77	155.1	11.60
26	07/25/02	12:59:27	0.416667	1230.92	155.5	8.15
27	07/25/02	13:00:27	0.433334	1240.18	156.0	9.26
28	07/25/02	13:01:27	0.450000	1248.53	156.3	8.35
29	07/25/02	13:02:27	0.466667	1262.13	155.4	13.60
30	07/25/02	13:03:27	0.483334	1271.27	155.8	9.14
31	07/25/02	13:04:27	0.500000	1279.96	156.2	8.69
32	07/25/02	13:09:27	0.583334	1327.40	156.7	47.44
33	07/25/02	13:14:27	0.666667	1369.52	157.4	42.12
34	07/25/02	13:19:27	0.750000	1412.77	157.8	43.25
35	07/25/02	13:24:27	0.833334	1458.54	156.8	45.77
36	07/25/02	13:29:27	0.916667	1505.21	157.0	46.67
37	07/25/02	13:34:27	1.000000	1547.10	157.4	41.89
38	07/25/02	13:39:27	1.083334	1588.84	157.9	41.74
39	07/25/02	13:44:27	1.166667	1628.57	158.3	39.72
40	07/25/02	13:49:27	1.250000	1667.03	158.7	38.47
41	07/25/02	13:54:27	1.333334	1705.98	159.0	38.94
42	07/25/02	13:59:27	1.416667	1744.66	159.3	38.69
43	07/25/02	14:04:27	1.500000	1782.99	159.5	38.33
44	07/25/02	14:09:27	1.583334	1821.44	159.8	38.45
45	07/25/02	14:14:27	1.666667	1859.72	160.0	38.28

Company: TMBR/Sharp Drilling | Well Name: Blue Fin 25 #1

Location: | Field:

Test Type: 91 HOUR BUILDUP | Gauge Depth: 12340

Serial Number: 76077

	Date	Real Time	DeltaTime	Pressure	Temperature	Differential
	mm/dd/yy	hh:mm:ss	hours	PSIA	F	PSIA
46	07/25/02	14:19:27	1.750000	1895.72	160.1	36.00
47	07/25/02	14:24:27	1.833334	1932.99	160.4	37.28
48	07/25/02	14:29:27	1.916667	1972.21	160.7	39.22
49	07/25/02	14:34:27	2.000000	2008.18	160.9	35.97
50	07/25/02	14:39:27	2.083334	2044.67	161.1	36.49
51	07/25/02	14:44:27	2.166667	2080.27	161.3	35.60
52	07/25/02	14:49:27	2.250000	2115.69	161.6	35.43
53	07/25/02	14:54:27	2.333334	2151.09	161.8	35.40
54	07/25/02	14:59:27	2.416667	2185.69	162.1	34.60
55	07/25/02	15:04:27	2.500000	2221.04	162.3	35.34
56	07/25/02	15:09:27	2.583334	2255.57	162.6	34.53
57	07/25/02	15:14:27	2.666667	2290.43	162.9	34.86
58	07/25/02	15:19:27	2.750000	2324.00	163.1	33.57
59	07/25/02	15:24:27	2.833334	2358.00	163.4	34.00
60	07/25/02	15:29:27	2.916667	2389.95	163.6	31.95
61	07/25/02	15:34:27	3.000000	2422.33	163.8	32.38
62	07/25/02	15:39:27	3.083334	2453.84	164.0	31.50
63	07/25/02	15:44:27	3.166667	2484.70	164.3	30.86
64	07/25/02	15:49:27	3.250000	2515.57	164.5	30.87
65	07/25/02	15:54:27	3.333334	2546.63	164.8	31.06
66	07/25/02	15:59:27	3.416667	2577.31	165.0	30.68
67	07/25/02	16:04:27	3.500000	2607.18	165.3	29.86
68	07/25/02	16:09:27	3.583334	2637.02	165.5	29.84
69	07/25/02	16:14:27	3.666667	2667.08	165.7	30.06
70	07/25/02	16:19:27	3.750000	2696.26	166.0	29.18
71	07/25/02	16:24:27	3.833334	2724.60	166.2	28.34
72	07/25/02	16:29:27	3.916667	2752.69	166.4	28.09
73	07/25/02	16:34:27	4.000000	2780.79	166.6	28.10
74	07/25/02	16:39:27	4.083334	2808.69	166.8	27.90
75	07/25/02	16:44:27	4.166667	2836.16	167.1	27.46
76	07/25/02	16:49:27	4.250000	2863.41	167.3	27.25
77	07/25/02	16:54:27	4.333334	2890.21	167.5	26.80
78	07/25/02	16:59:27	4.416667	2916.76	167.7	26.55
79	07/25/02	17:04:27	4.500000	2943.60	167.9	26.84
80	07/25/02	17:09:27	4.583334	2969.44	168.1	25.84
81	07/25/02	17:14:27	4.666667	2995.38	168.3	25.94
82	07/25/02	17:19:27	4.750000	3021.40	168.5	26.03
83	07/25/02	17:24:27	4.833334	3046.64	168.7	25.24
84	07/25/02	17:29:27	4.916667	3071.11	168.9	24.46
85	07/25/02	17:34:27	5.000000	3096.41	169.1	25.31
86	07/25/02	17:39:27	5.083334	3120.98	169.3	24.56
87	07/25/02	17:44:27	5.166667	3144.86	169.5	23.88
88	07/25/02	17:49:27	5.250000	3168.75	169.7	23.89
89	07/25/02	17:54:27	5.333334	3192.84	169.9	24.10
90	07/25/02	17:59:27	5.416667	3216.30	170.1	23.46

Company: TMBR/Sharp Drilling | Well Name: Blue Fin 25 #1

Location: | Field:

Test Type: 91 HOUR BUILDUP | Gauge Depth: 12340

Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
91	07/25/02	18:04:27	5.500000	3239.62	170.2	23.32
92	07/25/02	18:09:27	5.583334	3262.64	170.4	23.02
93	07/25/02	18:14:27	5.666667	3285.46	170.5	22.82
94	07/25/02	18:19:27	5.750000	3308.08	170.7	22.62
95	07/25/02	18:24:27	5.833334	3330.18	170.9	22.10
96	07/25/02	18:29:27	5.916667	3352.08	171.0	21.90
97	07/25/02	18:34:27	6.000000	3373.47	171.2	21.38
98	07/25/02	18:49:27	6.250000	3436.43	171.6	62.96
99	07/25/02	19:04:27	6.500000	3496.18	172.0	59.75
100	07/25/02	19:19:27	6.750000	3553.18	172.4	57.01
101	07/25/02	19:34:27	7.000000	3607.52	172.7	54.34
102	07/25/02	19:49:27	7.250000	3659.42	173.1	51.89
103	07/25/02	20:04:27	7.500000	3708.77	173.4	49.36
104	07/25/02	20:19:27	7.750000	3756.45	173.7	47.68
105	07/25/02	20:34:27	8.000000	3800.98	174.0	44.53
106	07/25/02	20:49:27	8.250000	3843.87	174.2	42.90
107	07/25/02	21:04:27	8.500000	3884.67	174.5	40.80
108	07/25/02	21:19:27	8.750000	3923.76	174.8	39.09
109	07/25/02	21:34:27	9.000000	3960.86	175.1	37.10
110	07/25/02	21:49:27	9.250000	3996.24	175.3	35.38
111	07/25/02	22:04:27	9.500000	4029.75	175.6	33.51
112	07/25/02	22:19:27	9.750000	4061.36	175.8	31.61
113	07/25/02	22:34:27	10.000000	4091.40	176.1	30.04
114	07/25/02	22:49:27	10.250000	4119.37	176.3	27.97
115	07/25/02	23:04:27	10.500000	4144.78	176.6	25.40
116	07/25/02	23:19:27	10.750000	4168.40	176.8	23.62
117	07/25/02	23:34:27	11.000000	4191.17	176.9	22.77
118	07/25/02	23:49:27	11.250000	4212.88	177.1	21.70
119	07/26/02	00:04:27	11.500000	4233.81	177.3	20.94
120	07/26/02	00:19:27	11.750000	4253.84	177.4	20.03
121	07/26/02	00:34:27	12.000000	4273.48	177.6	19.63
122	07/26/02	01:04:27	12.500000	4313.93	178.0	40.45
123	07/26/02	01:34:27	13.000000	4353.13	178.2	39.21
124	07/26/02	02:04:27	13.500000	4387.85	178.5	34.72
125	07/26/02	02:34:27	14.000000	4418.80	178.8	30.95
126	07/26/02	03:04:27	14.500000	4446.66	179.0	27.85
127	07/26/02	03:34:27	15.000000	4471.93	179.3	25.27
128	07/26/02	04:04:27	15.500000	4494.97	179.5	23.04
129	07/26/02	04:34:27	16.000000	4516.08	179.7	21.11
130	07/26/02	05:04:27	16.500000	4535.55	179.9	19.48
131	07/26/02	05:34:27	17.000000	4553.60	180.1	18.05
132	07/26/02	06:04:27	17.500000	4570.34	180.2	16.74
133	07/26/02	06:34:27	18.000000	4586.12	180.4	15.77
134	07/26/02	07:34:27	19.000000	4614.96	180.7	28.85
135	07/26/02	08:34:27	20.000000	4641.08	180.9	26.12

Company: TMBR/Sharp Drilling | Well Name: Blue Fin 25 #1

Location: | Field:

Test Type: 91 HOUR BUILDUP | Gauge Depth: 12340

Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
136	07/26/02	09:34:27	21.000000	4666.52	181.2	25.44
137	07/26/02	10:34:27	22.000000	4691.55	181.4	25.03
138	07/26/02	11:34:27	23.000000	4716.07	181.6	24.52
139	07/26/02	12:34:27	24.000000	4739.80	181.8	23.74
140	07/26/02	13:34:27	25.000000	4762.73	182.0	22.93
141	07/26/02	14:34:27	26.000000	4784.71	182.1	21.97
142	07/26/02	15:34:27	27.000000	4805.87	182.3	21.17
143	07/26/02	16:34:27	28.000000	4827.30	182.5	21.43
144	07/26/02	17:34:27	29.000000	4847.89	182.6	20.59
145	07/26/02	18:34:27	30.000000	4867.54	182.7	19.65
146	07/26/02	19:34:27	31.000000	4886.33	182.9	18.79
147	07/26/02	20:34:27	32.000000	4904.36	183.0	18.02
148	07/26/02	21:34:27	33.000000	4921.53	183.1	17.17
149	07/26/02	22:34:27	34.000000	4938.01	183.2	16.49
150	07/26/02	23:34:27	35.000000	4953.94	183.3	15.93
151	07/27/02	00:34:27	36.000000	4969.30	183.4	15.36
152	07/27/02	01:34:27	37.000000	4984.02	183.5	14.72
153	07/27/02	02:34:27	38.000000	4998.10	183.6	14.07
154	07/27/02	03:34:27	39.000000	5010.93	183.7	12.83
155	07/27/02	04:34:27	40.000000	5022.40	183.7	11.48
156	07/27/02	05:34:27	41.000000	5030.65	183.8	8.25
157	07/27/02	06:34:27	42.000000	5036.39	183.9	5.73
158	07/27/02	07:34:27	43.000000	5039.81	183.9	3.42
159	07/27/02	08:34:27	44.000000	5042.58	184.0	2.77
160	07/27/02	09:34:27	45.000000	5045.79	184.1	3.21
161	07/27/02	10:34:27	46.000000	5049.42	184.1	3.63
162	07/27/02	11:34:27	47.000000	5053.34	184.2	3.93
163	07/27/02	12:34:27	48.000000	5057.57	184.2	4.23
164	07/27/02	13:34:27	49.000000	5061.93	184.3	4.36
165	07/27/02	14:34:27	50.000000	5066.49	184.4	4.56
166	07/27/02	15:34:27	51.000000	5071.06	184.4	4.57
167	07/27/02	16:34:27	52.000000	5075.67	184.5	4.62
168	07/27/02	17:34:27	53.000000	5080.20	184.5	4.53
169	07/27/02	18:34:27	54.000000	5084.79	184.6	4.58
170	07/27/02	19:34:27	55.000000	5089.38	184.6	4.59
171	07/27/02	20:34:27	56.000000	5093.94	184.7	4.56
172	07/27/02	21:34:27	57.000000	5098.47	184.7	4.53
173	07/27/02	22:34:27	58.000000	5102.90	184.8	4.43
174	07/27/02	23:34:27	59.000000	5107.22	184.8	4.32
175	07/28/02	00:34:27	60.000000	5111.59	184.9	4.37
176	07/28/02	01:34:27	61.000000	5115.92	184.9	4.34
177	07/28/02	02:34:27	62.000000	5120.28	184.9	4.35
178	07/28/02	03:34:27	63.000000	5124.46	185.0	4.19
179	07/28/02	04:34:27	64.000000	5128.60	185.0	4.13
180	07/28/02	05:34:27	65.000000	5132.67	185.1	4.07

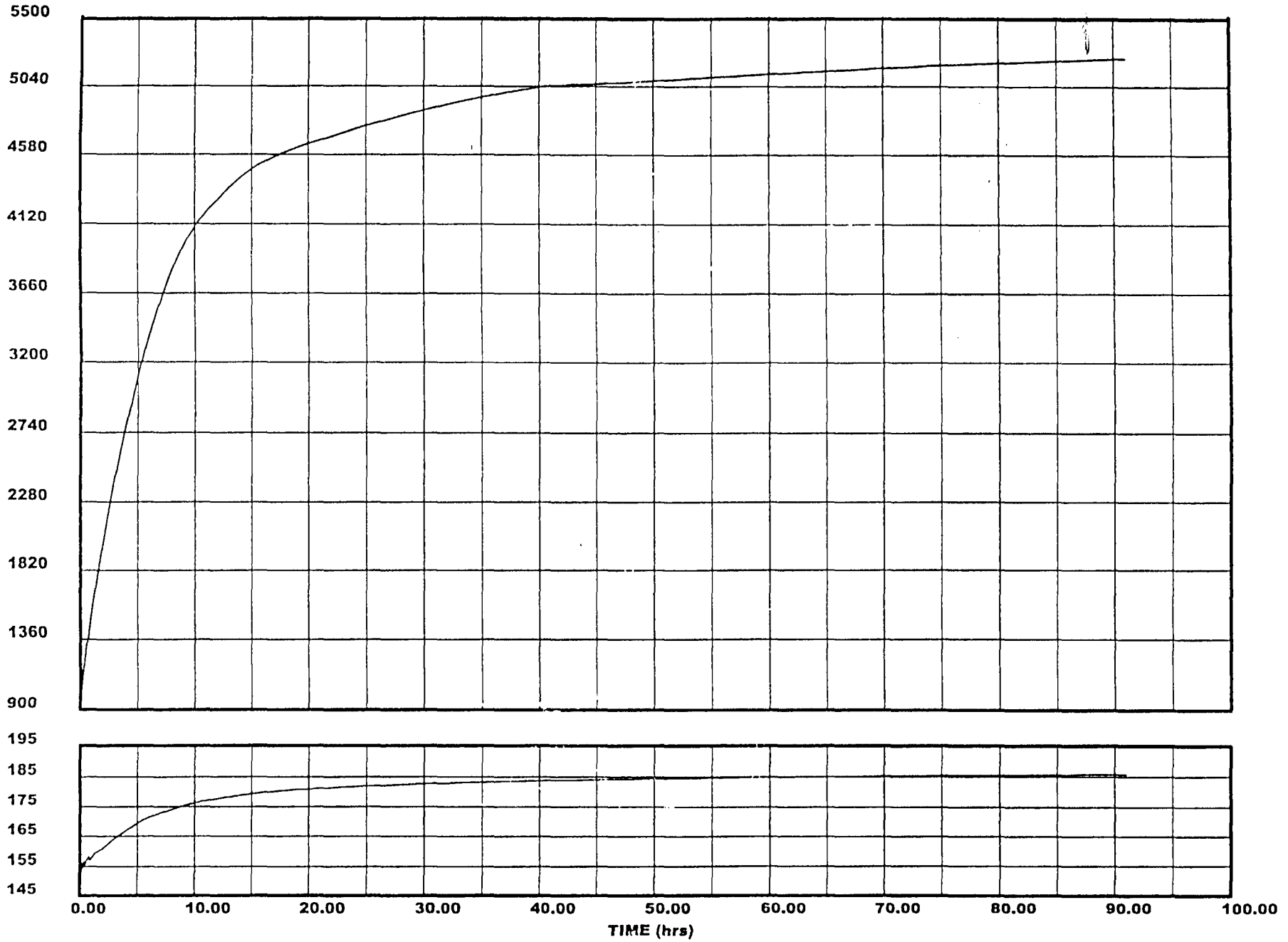
Company: TMBR/Sharp Drilling | Well Name: Blue Fin 25 #1

Location: | Field:

Test Type: 91 HOUR BUILDUP | Gauge Depth: 12340

Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
181	07/28/02	06:34:27	66.000000	5136.66	185.1	3.99
182	07/28/02	07:34:27	67.000000	5140.63	185.1	3.97
183	07/28/02	08:34:27	68.000000	5144.63	185.2	4.00
184	07/28/02	09:34:27	69.000000	5148.60	185.2	3.97
185	07/28/02	10:34:27	70.000000	5152.49	185.2	3.89
186	07/28/02	11:34:27	71.000000	5156.27	185.3	3.78
187	07/28/02	12:34:27	72.000000	5159.92	185.3	3.65
188	07/28/02	13:34:27	73.000000	5163.40	185.3	3.48
189	07/28/02	14:34:27	74.000000	5166.92	185.4	3.51
190	07/28/02	15:34:27	75.000000	5170.37	185.4	3.46
191	07/28/02	16:34:27	76.000000	5173.85	185.4	3.47
192	07/28/02	17:34:27	77.000000	5177.18	185.4	3.33
193	07/28/02	18:34:27	78.000000	5180.61	185.5	3.43
194	07/28/02	19:34:27	79.000000	5183.85	185.5	3.24
195	07/28/02	20:34:27	80.000000	5187.16	185.5	3.32
196	07/28/02	21:34:27	81.000000	5190.34	185.6	3.18
197	07/28/02	22:34:27	82.000000	5193.57	185.6	3.23
198	07/28/02	23:34:27	83.000000	5196.78	185.6	3.21
199	07/29/02	00:34:27	84.000000	5199.96	185.6	3.18
200	07/29/02	01:34:27	85.000000	5203.09	185.7	3.13
201	07/29/02	02:34:27	86.000000	5206.17	185.7	3.07
202	07/29/02	03:34:27	87.000000	5209.22	185.7	3.05
203	07/29/02	04:34:27	88.000000	5212.25	185.7	3.04
204	07/29/02	05:34:27	89.000000	5215.32	185.8	3.06
205	07/29/02	06:34:27	90.000000	5218.26	185.8	2.94
206	07/29/02	07:34:27	91.000000	5221.23	185.8	2.97


5500
5040
4580
4120
3660
3200
2740
2280
1820
1360
900
195
185
175
165
155
145
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
TIME (hrs)

PRO WELL TESTING & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 25 #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	STATIC GRADIENT
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12466
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3000
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	185.75 @ 12340
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO WELL & WIRELINE

GRADIENT DATA SHEET

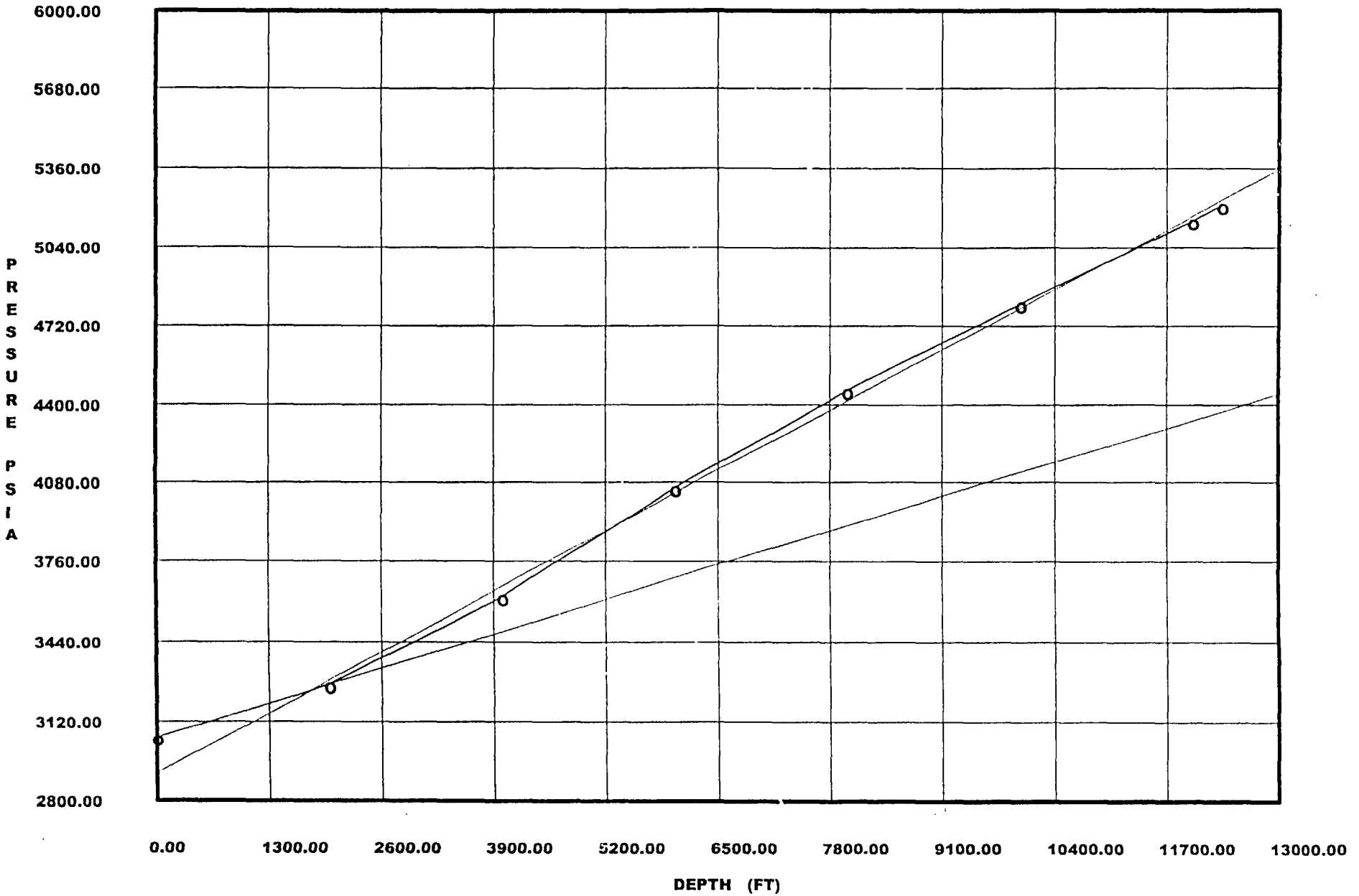
Depth ft	Pressure PSIA	Temperature Deg. F	Gradient PSIA/ft	Fluid Level ft
0.0000	3054.50000	84.93600		
			0.10660	
2000.0000	3267.70000	94.46300		
			0.17625	1709.08
4000.0000	3620.20000	106.95000		
			0.21915	
6000.0000	4058.50000	120.54000		
			0.19945	
8000.0000	4457.40000	135.09000		
			0.17640	
10000.0000	4810.20000	153.94000		
			0.16990	
12000.0000	5150.00000	181.64000		
			0.17824	
12340.0000	5210.60000 END	185.75000		

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

STATIC GRADIENT

TMBR/Sharp Drilling

Blue Fin 25 #1



CONFIDENTIAL

PERMIAN TESTERS INC.

PERMIAN TESTERS, INC.

P.O. BOX 14228
ODESSA, TEXAS 79768

BF 25-1

12,380-453

OIL CONSERVATION COMMISSION

CASE NUMBER [redacted]

Oxy EXHIBIT 14

Drill Stem Test Report

Permian Testers, Inc.

Since 1962

Quality drillstem testing services in the Permian Basin region.
Offering conventional and straddle testing.

Drill Stem Test Reporting
And Analysis by:
Michael Hudson

TMBR000453

Toll Free (877) 505-8540
Website: *datareporting.net*

DRILL STEM TEST REPORT DATA

BOTTOM HOLE CHOKE	5/8"	SURFACE	3/8"	CUSHION		ELEVATION	3959'	G.L.
TIME TOOL OPENED	08:05 Hrs							

RECORDER DATA

TOOL OPEN BEFORE I.S.I.P.			15	MIN.	TYPE	Electronic	CAPACITY	10000
INITIAL SHUT - IN	1	HRS.	0	MIN.	TOP	21058	DEPTH	12389
TOOL OPEN	1	HRS.	15	MIN.	BOTTOM	13832	DEPTH	12450
FINAL SHUT - IN	4	HRS.	0	MIN.	CLOCK : TOP		BOTTOM	24

SURFACE ACTION: Pre-Flow: Began with a strong blow, increased to 50.0 psi in 5 minutes; opened to pit on a 3/8" choke in 10 minutes; 80.0 psi in 12 minutes with gas to surface, 100.0 psi in 15 minutes = 338.0 MCFD.
Final Flow: Began with a strong blow, increased to 55.0 psi in 5 minutes, 104.0 psi in 10 minutes, 153.0 psi in 20 minutes, 194.0 psi in 30 minutes, 225.0 psi in 40 minutes = 790.0 MCFD, 255.0 psi in 50 minutes = 880.0 MCFD, 280.0 psi in 60 minutes = 940.0 MCFD, 310.0 psi in 75 minutes = 1050.0 MCFD.

RECOVERY: 625' Total fluid = 3.06 bbl., consisting of:
145' Free oil = 0.71 bbl. (gravity: 50.5 Deg API @ 60 Deg F)
480' Highly oil & gas cut drilling mud = 2.35 bbl. (chlorides: 82,000 ppm)

SUCCESSFUL TEST: Yes

			RECORDER NO. 21058	
A (INITIAL HYDROSTATIC PRESSURE)			6380	P.S.I.
B (INITIAL PRE-FLOW PRESSURE)			208	P.S.I.
C (FINAL PRE-FLOW PRESSURE)	15	MIN.	281	P.S.I.
D (INITIAL SHUT-IN PRESSURE)	60	MIN.	5974	P.S.I.
E (INITIAL FLOW PRESSURE)			421	P.S.I.
F (FINAL FLOW PRESSURE)	75	MIN.	708	P.S.I.
G (FINAL SHUT-IN PRESSURE)	240	MIN.	5997	P.S.I.
H (FINAL HYDROSTATIC PRESSURE)			6416	P.S.I.

HOLE AND MUD DATA

TOTAL DEPTH	12453'	MAIN HOLE	8 3/4"
RAT HOLE		CASING SIZE	9 5/8"
DEPTH OF CSG.	4957'	TYPE MUD	Brine
MUD WT.	9.6	VISCOSITY	38
WATER LOSS	11.0	CAKE	1/32
CHLORIDE	82,000		
RESISTIVITY	.071	@ 60	°F

SAMPLER REPORT

PRESSURE IN SAMPLER	5000			PSI
BHT	186.5			°F
OIL:	150 (distillate)			
WATER:	0			
MUD:	0			
GAS:	3.085			
RESISTIVITY		@		°F
CHLORIDE				PPM.
GRAVITY	50.5	° API @	60	°F

TOOL DATA

NO. PACKERS	2
SIZE PACKERS	7 3/4"
CONVENTIONAL TEST	Yes

TYPE TOOL	DEPTH	LENGTH	I.D.	O.D.
4 1/2" XH DP	11522		3.8	4.5
4 1/2" XH DC		790	2.3	6.25
Circulating Sub	12313	1		
Drillcollars	12343	30		
Shut-in Tool	12349	6		
Sampler	12352	3		
Hydraulic Tool	12357	5		
Jars	12363	6		
Recorder	12368	5		
Packer	12374	6		
Packer	12380	6		
Perfs		(		
Elec Recorder		)		
Drillcollars		(		
Bull Plut	TD	73		

DRLG. CONT: TMBR/Sharp Drilling RIG# 24

REMARKS:

TESTER: Don Terhune
APPROVED BY: Lonnie Arnold

DRS

LEASE NAME & NO.: BLUEFIN "25" #1
INTERVAL TESTED: 12380'- 12453'
STATE: NEW MEXICO
FORMATION: MORROW SAND
TICKET # 7932
TEST # 3

TMBR/Sharp Drilling, Inc.
Bluefin "25" #1, Dst #3

Comments relative to analysis of the pressure data from well test which was run in the Morrow Sand by Permian Testers, Inc.

This analysis has been prepared on the basis of the gas recovery and equations applicable to gas recovery tests, radial flow analysis techniques and derivative analysis techniques. The character of the pressure curves on the various diagnostic plots indicate a change in slope during the shut-in period. Various models were generated and the most appropriate model appears to be a multi-layered model with two porosity zones present. When other well data is obtained it may be necessary to change the estimated reservoir parameters.

The radial plots indicate a maximum initial reservoir pressure of 6224 psi and a maximum final reservoir pressure of 6278 psi which is equivalent to a subsurface pressure gradient of 0.507 psi/ft at gauge depth.

The Average Production Rate which was used in this analysis is the last gas flow rate which was gauged during the final flowing period.

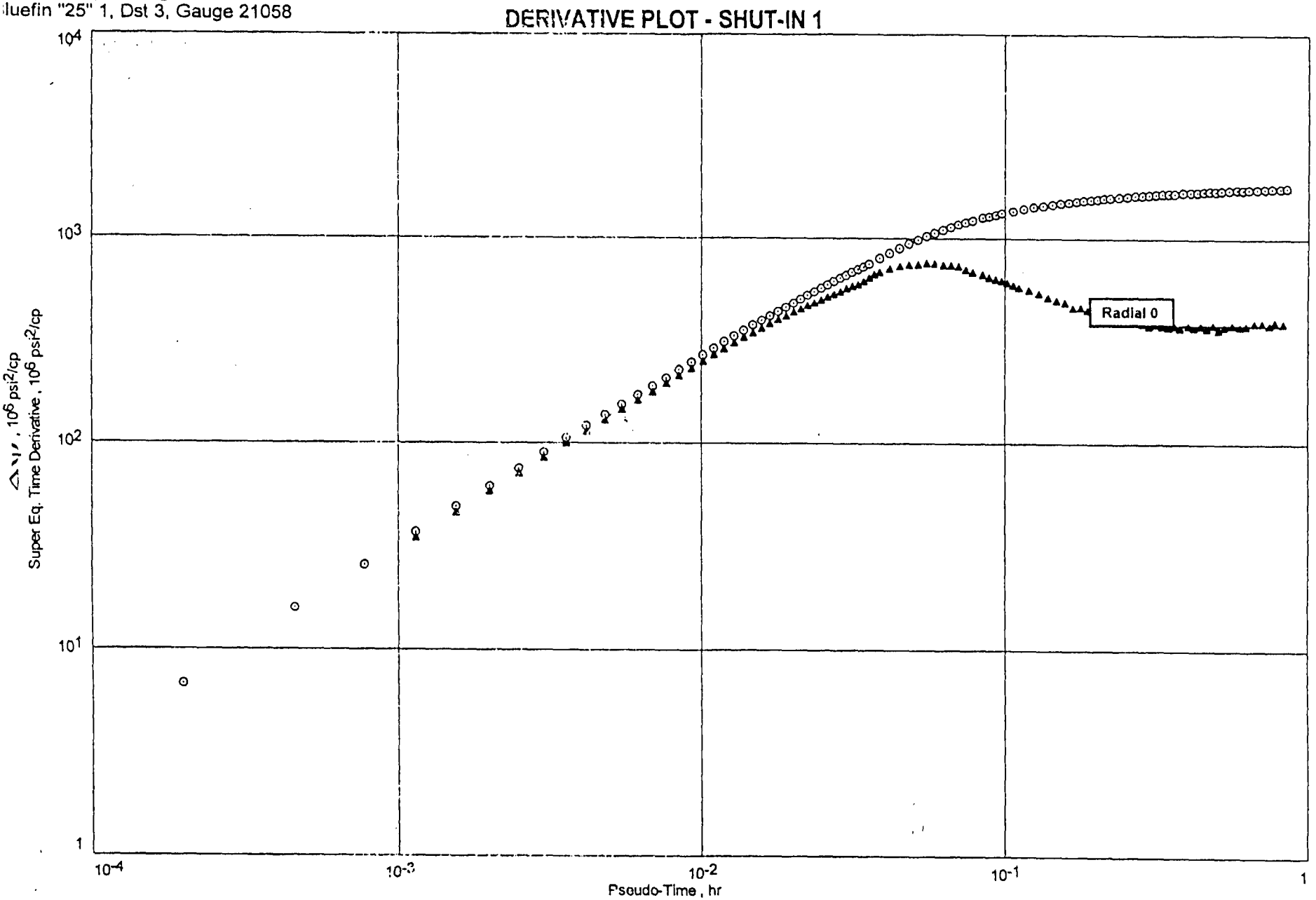
The calculated Skin Factors indicate no well-bore damage was present at the time of this formation test.

The evaluation criteria used in the drillstem test analysis system indicate this is a good mechanical test and the results obtained in this analysis should be reliable with reasonable limits relative to the assumptions which have been made.

Michael Hudson
Analyst
(877) 505-8540

DRS

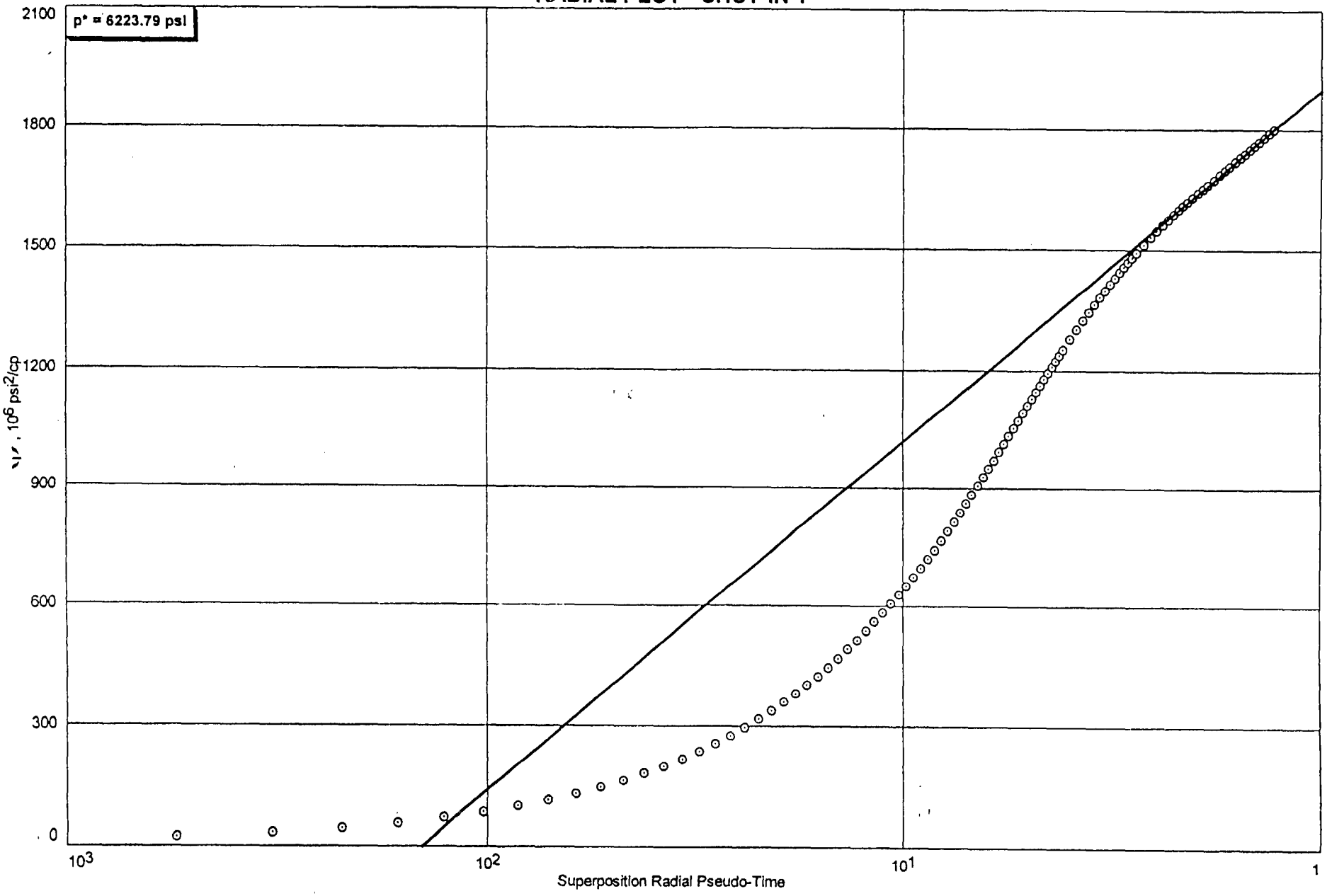
MBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058



Fast

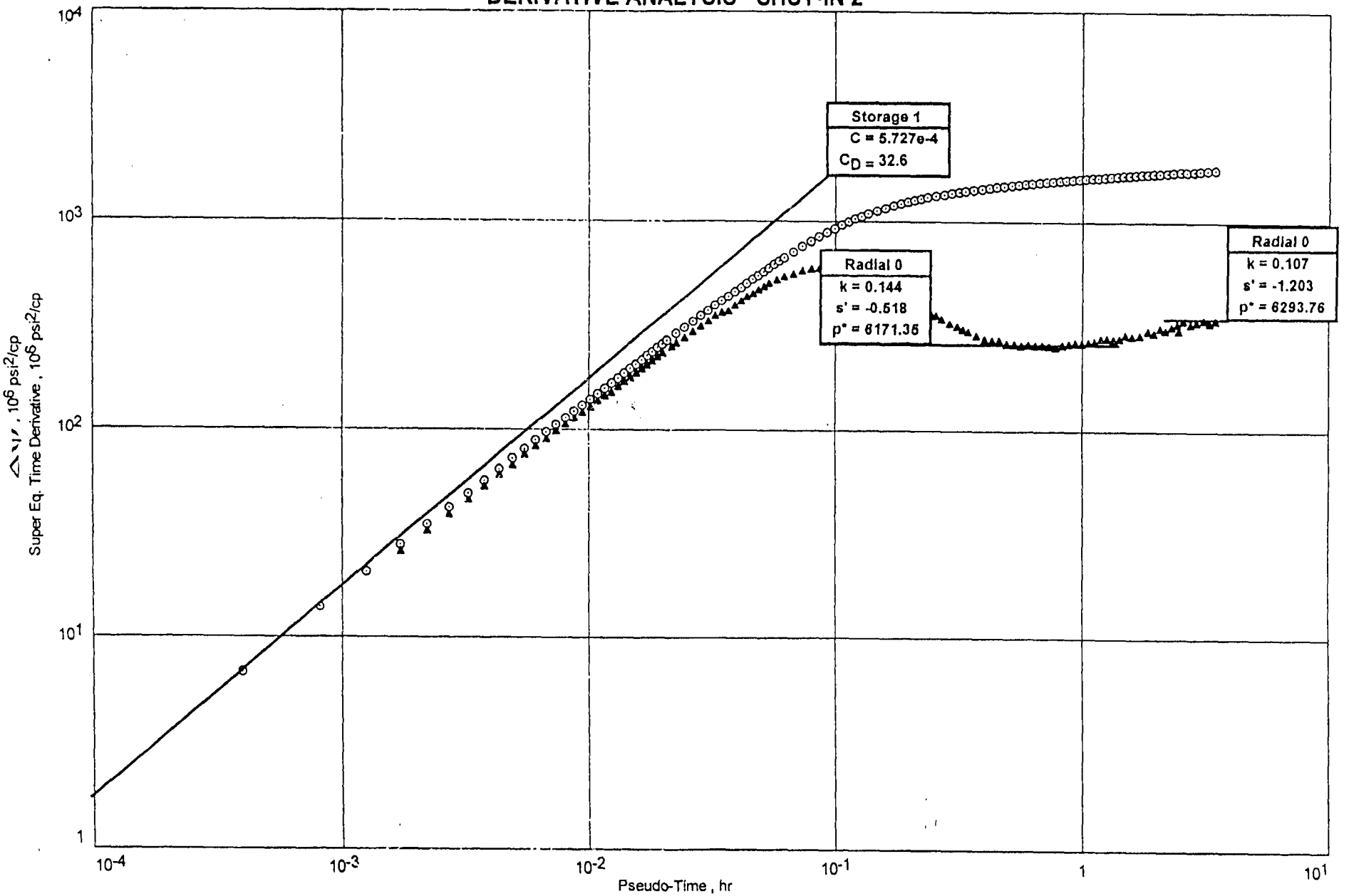
TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

RADIAL PLOT - SHUT-IN 1



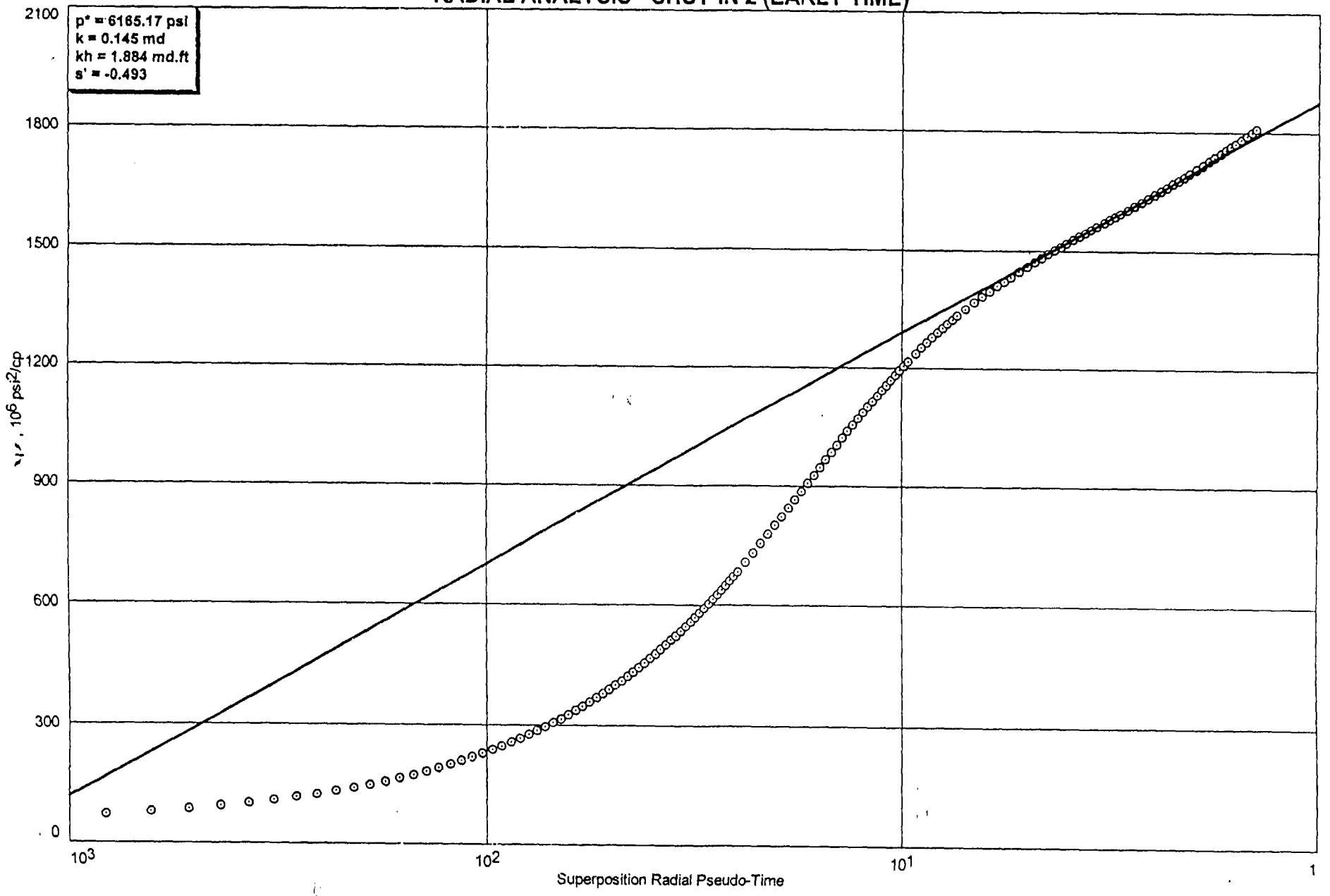
TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

DERIVATIVE ANALYSIS - SHUT-IN 2



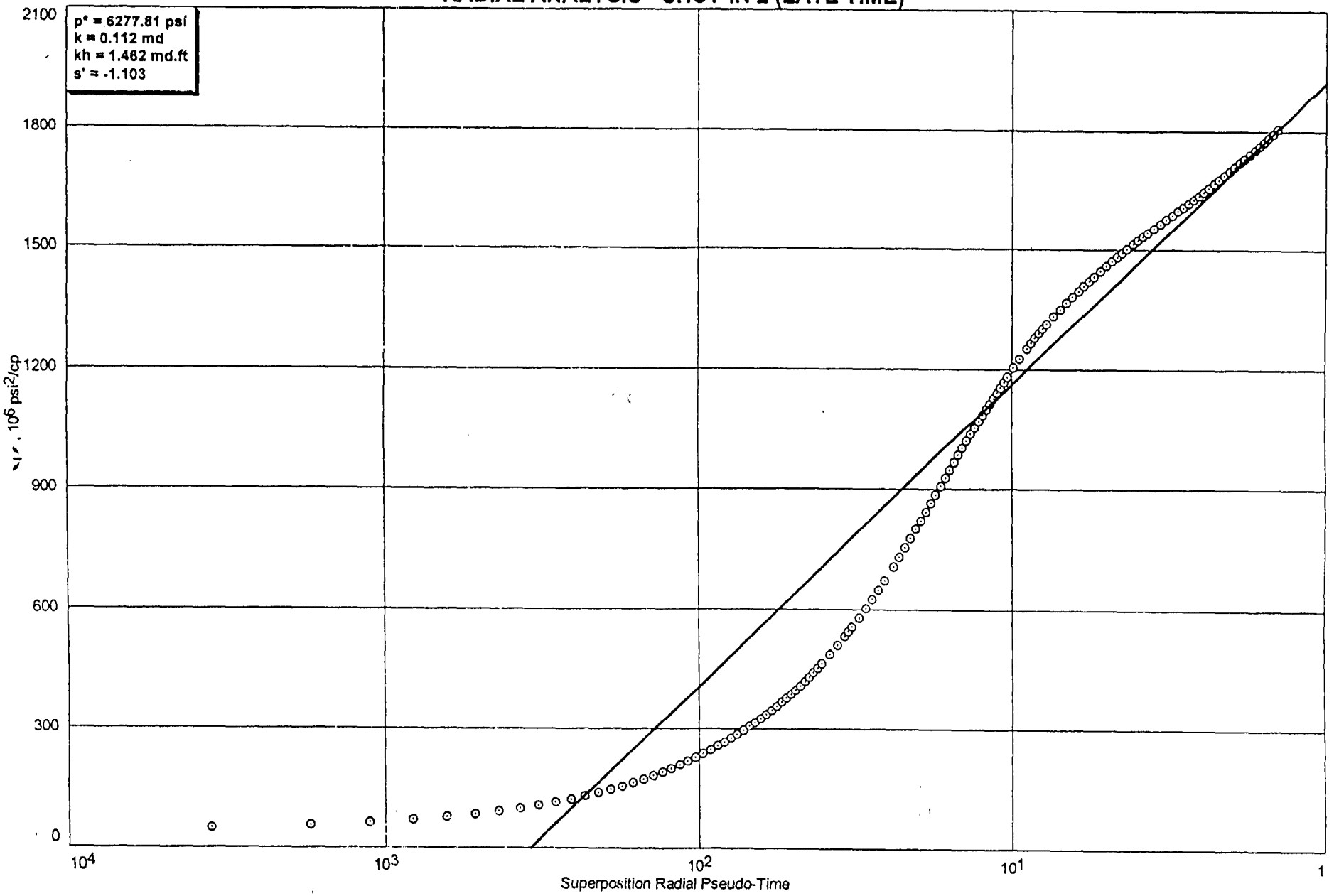
TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

RADIAL ANALYSIS - SHUT-IN 2 (EARLY TIME)



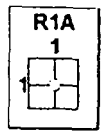
TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

RADIAL ANALYSIS - SHUT-IN 2 (LATE TIME)



Gas Well Test - Buildup

Radial Flow Analysis From Early Time Data



TMBR/Sharp Drilling, Inc.

Bluefin "25" 1, Dst 3, Gauge 21058

Analysis Results

Total Sandface Rate (q_tB_t)	609.446 bbl/d	Apparent Skin (s')	-0.493
Semilog Slope (m)	587.941	Skin - Damage	-0.493
Gas Permeability (k_g)	0.145 md	Damage Ratio (DR)	0.875
Flow Capacity (kh)	1.884 md.ft	Flow Efficiency (FE)	1.142
Total Mobility (k/μ_t)	5.20 md/cp		
Total Transmissivity(kh/μ_t)	67.58 md.ft/cp		

Reservoir Parameters

Net Pay (h)	13.000 ft
Total Porosity (ϕ_t)	12.00 %
Water Saturation (S_w)	20.00 %
Oil Saturation (S_o)	0.00 %
Gas Saturation (S_g)	80.00 %
Wellbore Radius (r_w)	0.36 ft
Formation Temperature (T)	186.5 °F
Formation Compressibility (c_f)	4.508e-6 psi^{-1}
Total Compressibility (c_t)	7.766e-5 psi^{-1}

Fluid Properties

Gas Gravity (G)	0.650
N_2	0.00 %
CO_2	0.00 %
H_2S	0.00 %
Critical Pressure (P_c)	670.91 psi
Critical Temperature (T_c)	373.97 R
PVT Reference Pressure (p_{PVT})	5997.44 psi
Gas Compressibility (c_g)	9.07421e-5 psi^{-1}
Gas Compressibility Factor (z)	1.073
Gas Viscosity (μ_g)	0.0279 cp
Gas Formation Volume Factor (B_g)	0.000580 bbl/scf

Pressures

Initial Pressure (p_i)	5997.44 psi
Extrapolated Pressure (p*)	6165.17 psi
Ave. Reservoir Press	6164.92 psi
Final Flowing Pressure (p_{wf0})	707.58 psi

Production and Times

Corrected Flow Time (t_c)	1.5083 hr
Cumulative Gas Production	0.066 MMCF
Final Gas Rate	1.050 MMCF/D

Extended Rates Calculations

Drainage Area	160.0 acres
Specified Flowing Pressure	707.58 psi
Specified Reservoir Pressure	6164.92 psi
3 - Month Constant Rate	0.519 MMCF/D
6 - Month Constant Rate	0.493 MMCF/D
Stabilized Rate @ Current Skin	0.490 MMCF/D
Stabilized Rate @ Skin of 0	0.460 MMCF/D
Stabilized Rate @ Skin of -4	0.898 MMCF/D

Multi-Layer Gas Well Model

Case Name : Multi-Layered Model

TMBR/Sharp Drilling, Inc.

Bluefin "25" 1, Dst 3, Gauge 21058

TMBR000463

Model Parameters

		Layer 1		Layer 2
Permeability	k_1=	0.095 md	k_2=	0.176 md
Net Pay	h_1=	9.00 ft	h_2=	4.00 ft
Skin	s_1=	-1.000	s_2=	-0.267
Outer Radius	r_{e1}=	31.000 ft	r_{e2}=	17.000 ft
Total Porosity	ϕ_{t1}=	12.00 %	ϕ_{t2}=	12.00 %
Total Compressibility	c_{t1}=	7.76626e-5 psi^{-1}	c_{t2}=	7.76626e-5 psi^{-1}
Viscosity	μ_1=	0.028 cp	μ_2=	0.028 cp
Inter Porosity Coeff	λ_1=	0.0000e0	λ_2=	1.0000e0
Storativity Ratio	ω_1=	0.0000e0	ω_2=	1.0000e0

Apparent Wellbore Storage Dim. (C_{aD})	3.29e9
Wellbore Storage Constant Dim. (C_D)	12.50
Storage Pressure Param. Dim. (C_{pD})	1.062e-6

Formation Parameters

Water Saturation (S_w)	20.00 %
Oil Saturation (S_o)	0.00 %
Gas Saturation (S_g)	80.00 %
Wellbore Radius (r_w)	0.35 ft
Formation Temperature (T)	186.5 °F

Fluid Properties

Gas Gravity (G)	0.650
N_2	0.00 %
H_2S	0.00 %
CO_2	0.00 %
Critical Pressure (P_c)	670.91 psi
Critical Temperature (T_c)	373.97 R
PVT Reference Pressure (p_{PVT})	5997.44 psi
Gas Compressibility (c_g)	9.07421e-5 psi^{-1}
Gas Compressibility Factor (z)	1.073
Gas Viscosity (μ_g)	0.0279 cp
Gas Formation Volume Factor (B_g)	0.000580 bbl/scf

Production and Pressure

Final Gas Rate	1.050 MMCF/[illegible]
Final Measured Pressure	5997.44 psi
Initial Pressure (p_i)	5997.44 psi

Synthesis Results

Average Error	-1.82 %
Synthetic Initial Pressure (p_i)	7094.05 psi
Pressure Drop Due To Skin (Δp_s)	psi
Extrapolated Pressure at Specified Time	6251.59 psi
Flow Efficiency (FE)	
Damage Ratio (DR)	

Forecasts

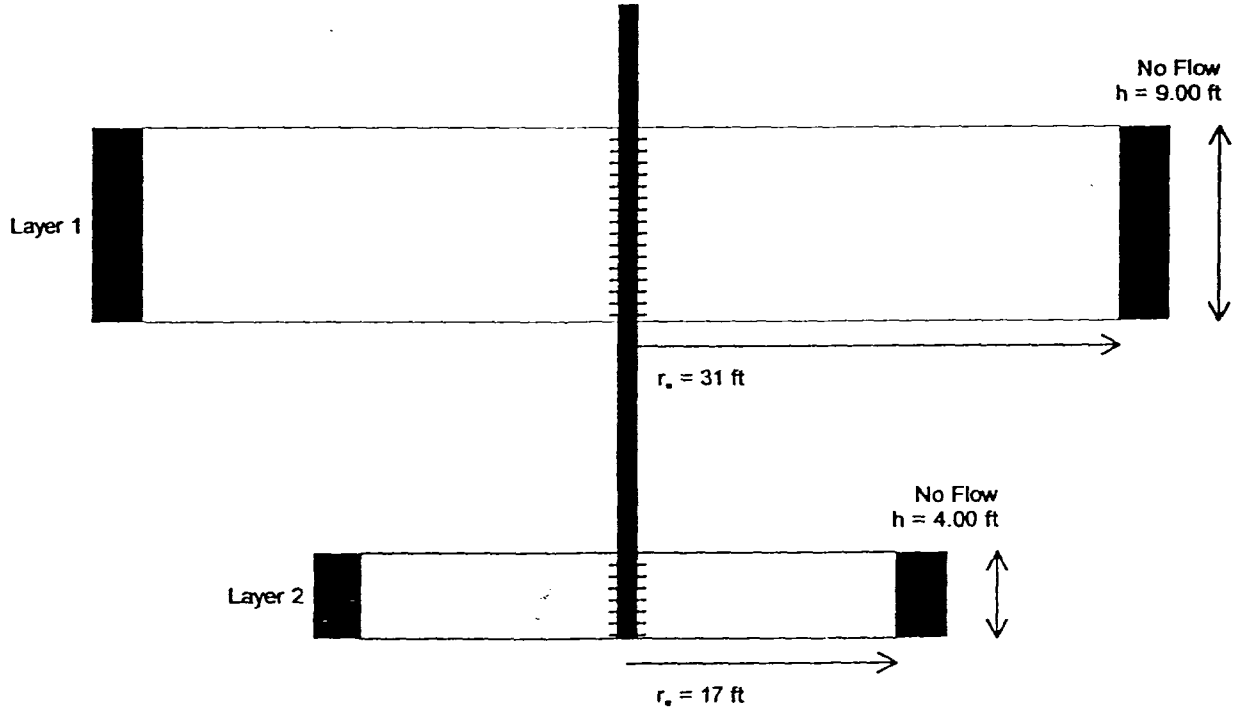
Specified Flowing Pressure (p_{wfs})	707.58 psi
3 - Month Constant Rate	0.004 MMCF
6 - Month Constant Rate	0.002 MMCF
Specified Forecast Time	12.00 month
Forecast Constant Rate @ Current Skin	0.001 MMCF
Forecast Constant Rate @ Skin=0	0.001 MMCF
Forecast Constant Rate @ Skin=-4	0.001 MMCF

Multi-Layered Model

TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21(Side View

(Not to scale)

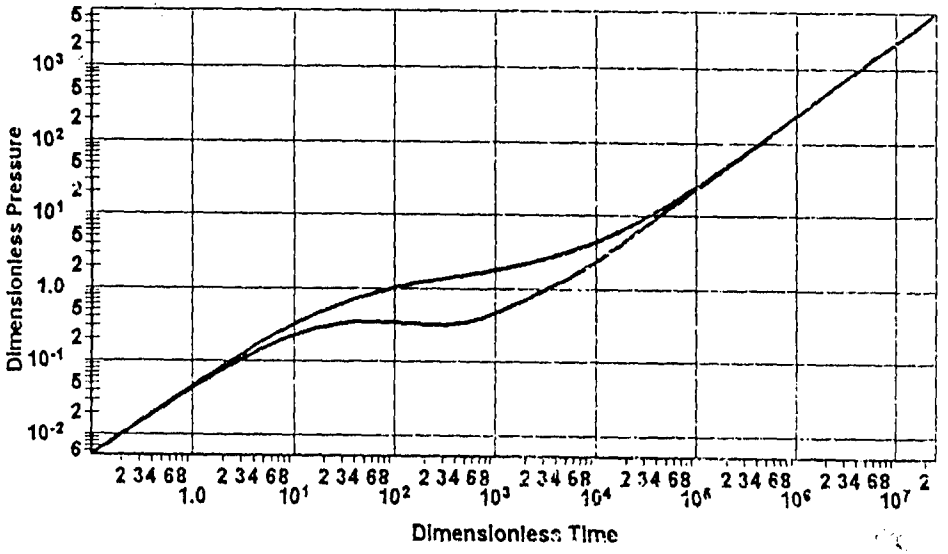
k_1 = 0.095 md
s_1 = -1.000
k_2 = 0.176 md
s_2 = -0.267



TMBR000464

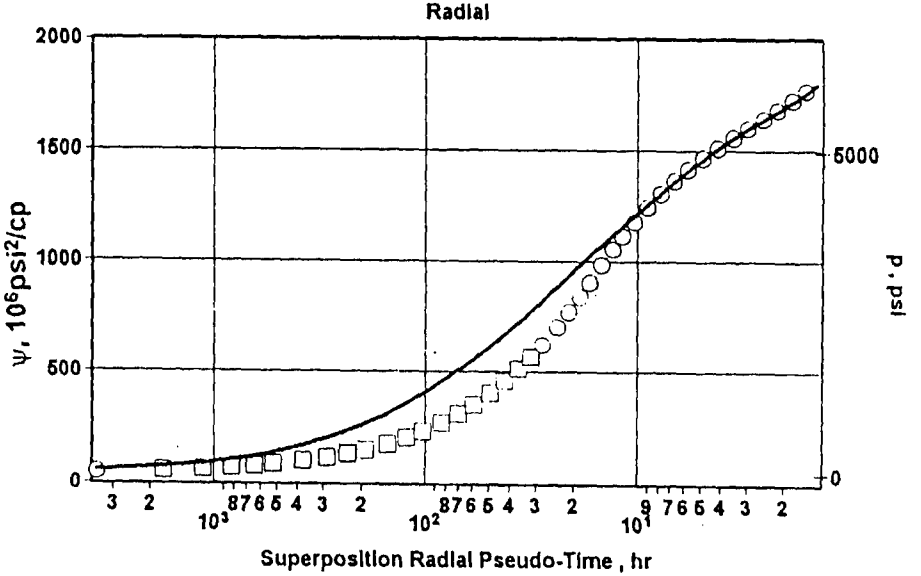
Multi-Layered Model

Dimensionless Typecurve



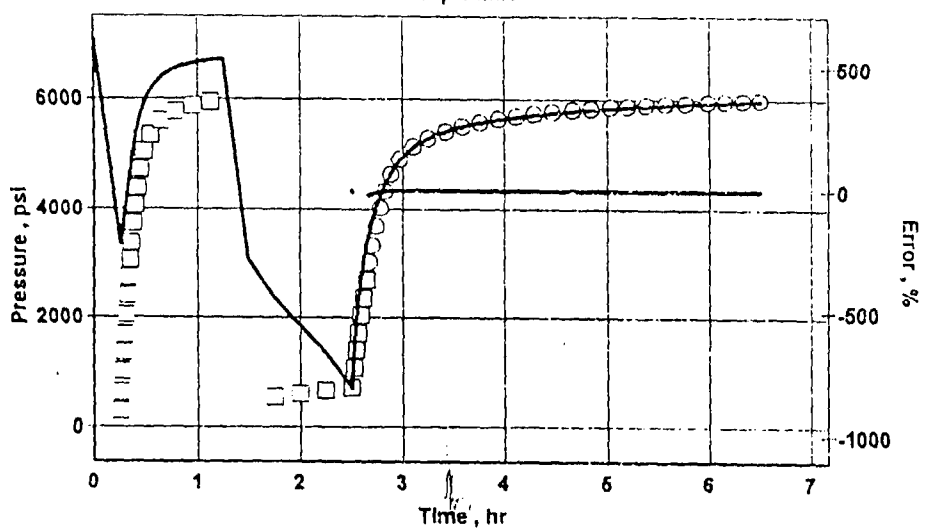
Multi-Layered Model

Radial



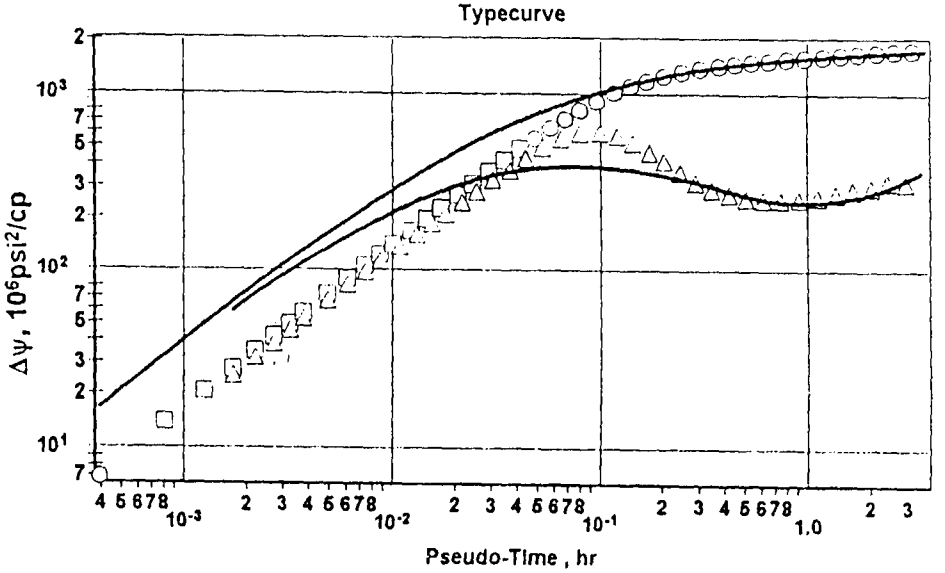
Multi-Layered Model

Strip Chart



Multi-Layered Model

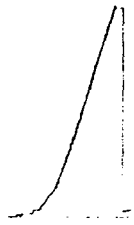
Typecurve



GUIDE TO IDENTIFICATION AND INTERPRETATION OF DST DATA:

Initial Hydrostatic:

The hydrostatic pressure increases as the test tool is lowered in well. After reaching the test interval the packer is set, the hydraulic tool is opened and the test zone is opened to atmospheric. This happens almost instantaneously and the pressure drop is recorded. This is called the pre-flow period. The purpose is to relieve the hydrostatic pressure from the annular space within the tested interval.

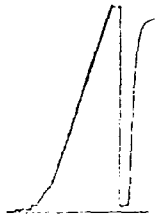


Pre-Flow Period:

The length of the pre-flow period can be determined by the surface blow according to the following:

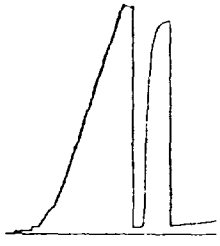
- *Approximately 5 minutes in duration* if the permeability is estimated to be greater than 15 md.
- Approximately 10 minutes in duration if the permeability is estimated to be less that 15 md.

If the pre-flow period is too short the hydrostatic pressure will not be dissipated and the following shut-in period may be under the influence of "hydrostatic super-charge" effect.



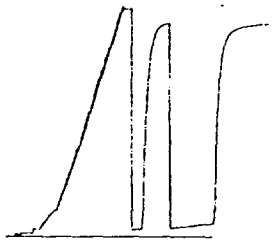
Initial shut-in Period:

When the pre-flow period is completed the tool is closed and the reservoir pressure is allowed to build. This is called the initial shut-in period. The purpose is to record the reservoir pressure before any production has occurred. It is important to have an initial shut-in period long enough to extrapolate a maximum reservoir pressure.



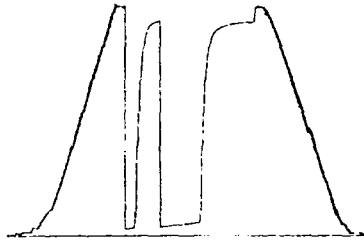
Second Flow Period:

When the initial shut-in is completed the tool is again opened. This is called the second flow period. The purpose is to allow reservoir fluid and gas to enter the drill string. Analysis of the final flow data will help to determine the flowing capabilities of the tested reservoir. Depending on conditions, when the tool is opened the pressure will drop from reservoir pressure to the pre-flow pressure and will record the weight of the formation fluid entering the drill string. If gas is present the flowing pressure will reflect the upstream pressure of the gas flow. The duration of the final flow period should be approximately 60 to 180 minutes, depending on conditions and estimated permeability. If gas flows to surface a stabilized measured rate is desirable for proper reservoir evaluation.



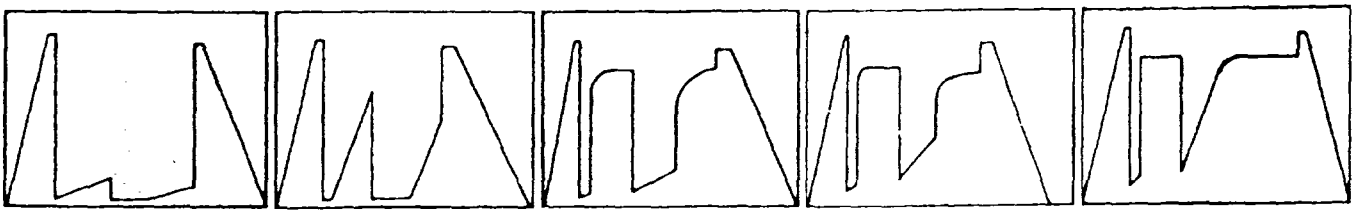
Second Shut-in Period:

When the second flow period is completed, the tool is again closed. This is called the second shut-in period. The purpose is to measure the reservoir pressure after a certain amount of production has occurred. Proper evaluation of the second shut-in data will help determine if the tested reservoir is of limited area extent. Skin Damage, Permeability, Radius of Investigation and other reservoir properties can also be determined.



Final Hydrostatic:

When the second shut-in period is completed the packer is released which allows drilling fluid to flow from the hole into the test zone and the hydrostatic pressure is then recorded. Because the pressure is equalized, the packer can be easily removed from the packer seat. As the test tool is pulled from the well, the hydrostatic pressure decreases to atmospheric pressure.



Virtually No Effective Permeability | Slightly Higher Permeability | Average Permeability | High Permeability | Excellent Permeability

CAUSE N. CV-2001-315C, TMBR/SHARP DRILLING, INC. V.
DAVID H. ARRINGTON OIL GAS, INC. ET AL

WILLIAMSON PROJECT 2.8895

GAS VOLUMETRIC CALCULATION

Gas Volumetric Calculation

Version 5.0

Well Name:	**Blue Fin "25" #1**			20-May-02
Field Name:	**Chester**		Tc =	383.24
Gas Gravity	**0.71**		Pc =	664.47
% N2	**0.88**	%	Tc' =	382.32
% CO2	**0.46**	%	Pc' =	662.87
% H2S	**0.00**	%	Tr =	1.632
Condensate (Yes=1)	**1**		Pri =	9.503
Res. Temperature	**163**	F	Pra =	1.207
Initial Pressure	**6,299**	Psia	Zi =	1.0977
Abandonment Pres	**800**	Psia	Za =	0.9149
Net Pay	**35**	Feet		
Acres	**100**	Acres		
Water Sat	**35.00**	%		
Porosity	**18.00**	%		
			Gas In Place	5,822,524 Mcf
Optional **			Recoverable Gas	4,935,286 Mcf
Recovery	**0.00%**		Recovery	84.76%

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER
EXHIBIT 15

COMMISSION

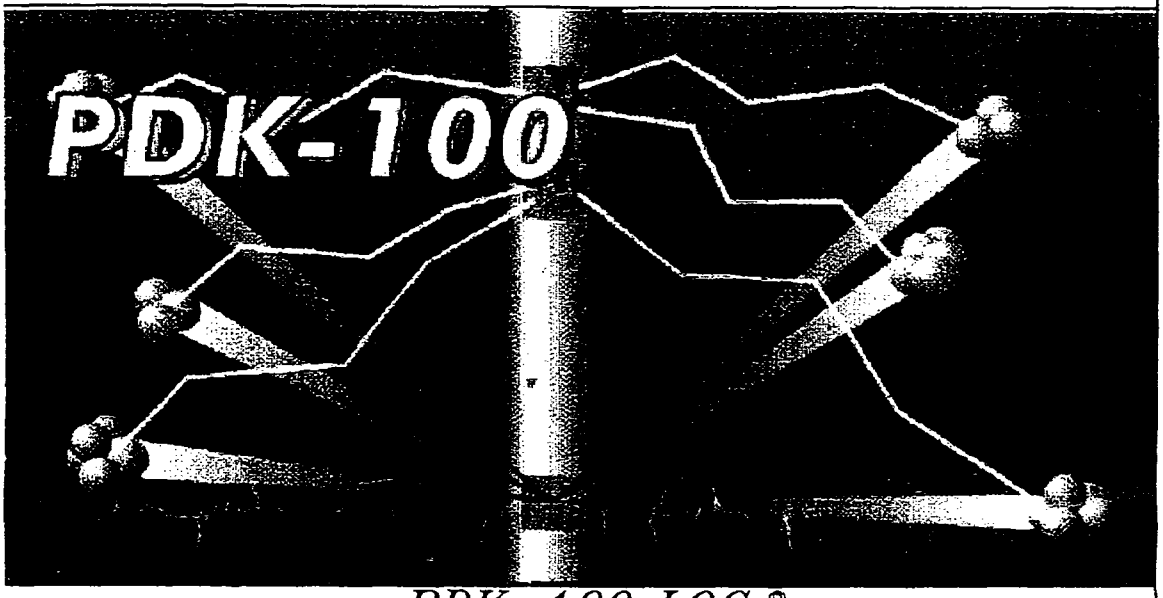
OIL CONSERVATION [redacted]

CASE NUMBER

Ocean EXHIBIT 17

BAKER HUGHES

Baker Atlas
GEOScience



PDK-100 LOG ®
ANALYSIS
GAMMA RAY LOG

DEPOSITION EXHIBIT
20

COMPANY TMBR/SHARP DRILLING INC.

WELL BLUE FIN "24" #1

FIELD TOWNSEND (MORROW)

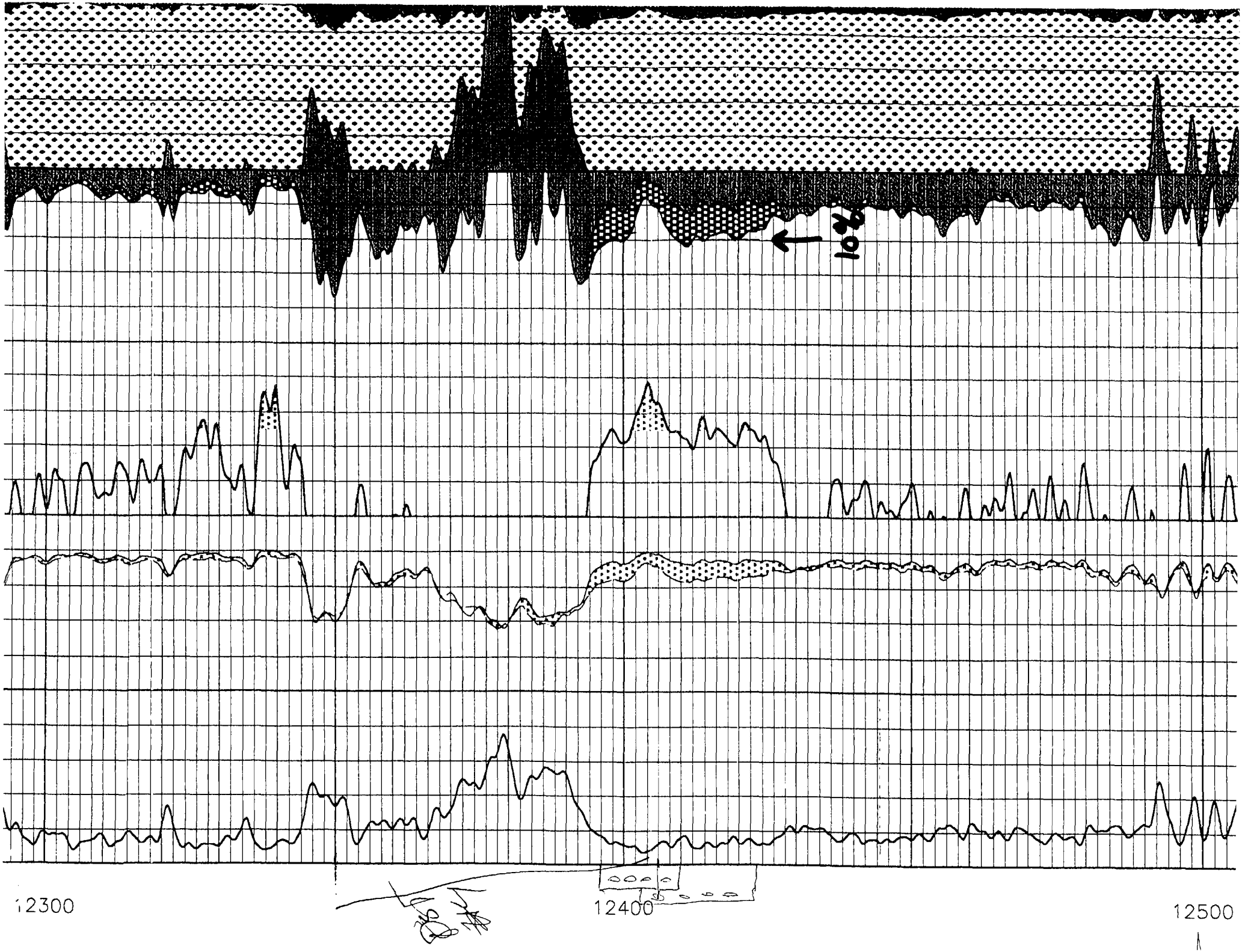
COUNTY LEA STATE NEW MEXICO

LOCATION:
660 FWL & 750 FSL

SEC 24 TWP 16S RGE 35E

ELEVATIONS:
KB 3976 FT DF 3975 FT GL 3964 FT

DATE 29-MAY-2001 ECC 159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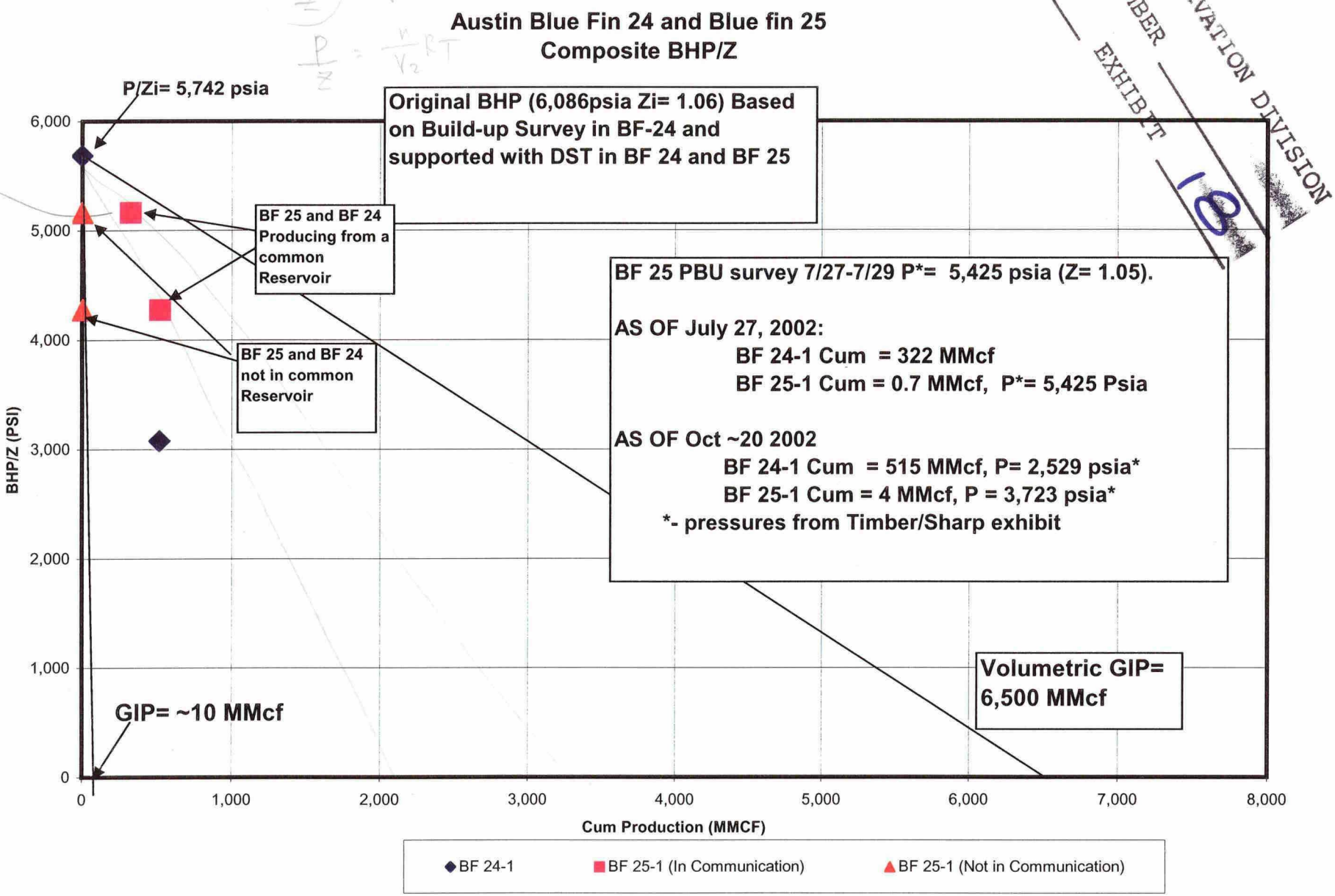


OIL CONSERVATION COMMISSION

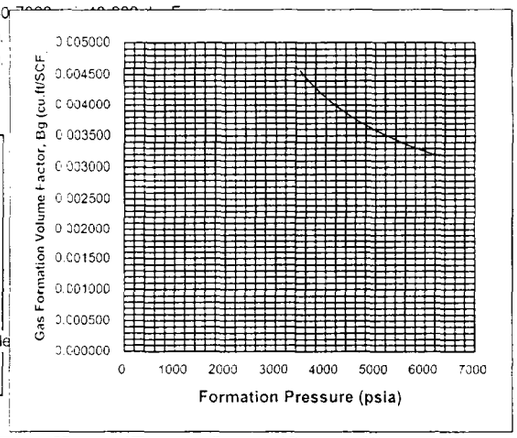
CASE NUMBER [redacted]

Ocean EXHIBIT 19

GASPRO01.xls

, Starling-Carnahan (Dake book, pp19-20). Wichert-Aziz correction for sour gases applied (accurate for 150 [illegible]
CO2<54.4% and H2S<73.8%. See O&G Journal 10/18/93 pg. 52. Do not use initial pressures < 1500 psia.
Required Input: Standard conditions, initial reservoir temp and pressure, and gas gravity OR gas composition (mole %).
Mole percentage of C1 to C5+ also required for any Heating Value calculation.
Current version of this worksheet does not allow for metric units.

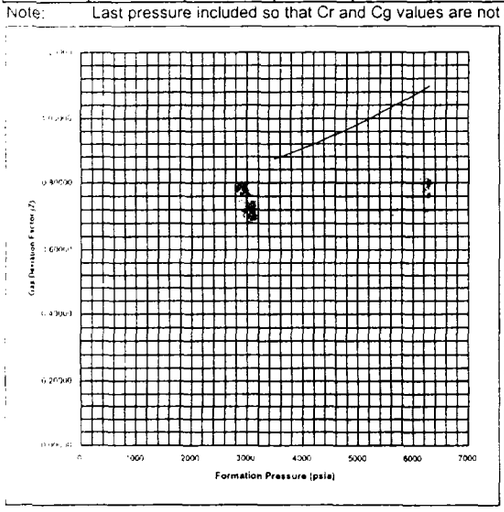
Field:		Well:					
Input Data		Input Data		Computed Data		Computed Data	
Gas grav, Gg (air=1) =	0.718	%C1 =	80.613	ghc (air=1) =	0.7107	Mol Wt. =	20.5895
Cond? (Yes=1,No=0)	0	%C2 =	10.249	pchc, degR =	392.6692	K =	129.2734
Metric? (Yes=1,No=0)	0	%C3 =	4.611	Ppchc,psia =	668.7188	x =	5.2322
eservoir Temperature =	186	%iC4 =	0.642	Tpc,degR =	392.2080	a =	1.3536
Reservoir Pressure =	6300	%nC4 =	1.325	Ppc, psia =	669.7349	DHV, BTU/SCF =	1218.1
Standard Pressure =	14.7	%C5+ =	1.057	CWA =	1.2272	WHV, BTU/SCF =	1200.1
Standard Temperature =	60	% N2 =	0.876	Tpc*, degR =	390.9808	Grad.psi/ft =	0.119736
		% CO2 =	0.635	Ppc*,psia =	667.6393		
Computed Data		% H2S =	0.000	**Init. Ppr =**	**9.4362**	Note: Heating value incorrect unle	
Res Temp, deg F	186.0	Total %	100.008	**Tpr =**	**1.6523**	C1 to C5+ data entered.	
Res Pr, psia	6300.0	Calc'd Gg	0.7224	t=1/Tpr =	0.6052		

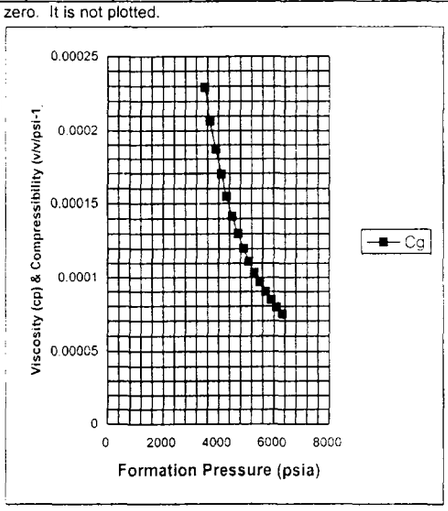


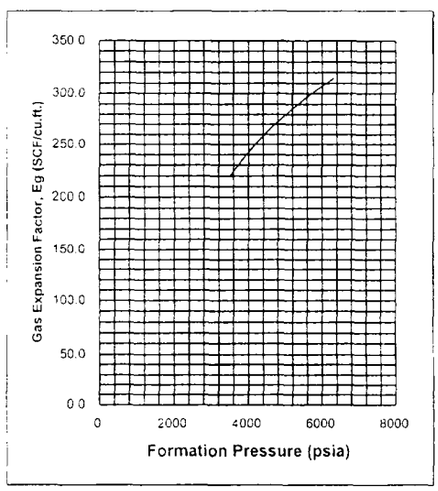
WARNING: Z factor accurate for 0.2<Ppr<24.0 & 1.15<Tpr<3.0
Gas viscosity accurate for 100-8000 psi, 100-340 degF, 0.9<CO2 mole %<3.2.

Pr, psia	Ppr	Y	df/dY	Yk+1	Init. Y	Z	Eg	Gas Den,	Gas Visc	Cr=CgPpc	Cg	Bg	Bg
							SCF/cu.ft.	gm/cc	cp.			(cu.ft /SCF)	(bbls/SCF)
6300	9.4362	0.00E+00	2.34090	0.26458	0.26458	1.09661	314.6	0.273467	0.031946	0.049881	7.471E-05	0.003179	0.000566
6100	9.1367	0.00E+00	2.24128	0.26056	0.26056	1.07819	309.8	0.269311	0.031358	0.052935	7.929E-05	0.003228	0.000575
5900	8.8371	0.00E+00	2.14268	0.25636	0.25636	1.05993	304.8	0.264967	0.030759	0.056317	8.435E-05	0.003281	0.000584
5700	8.5375	0.00E+00	2.04523	0.25196	0.25196	1.04188	299.6	0.260419	0.030148	0.060076	8.998E-05	0.003338	0.000595
5500	8.2380	-1.25E-16	1.94907	0.24734	0.24734	1.02408	294.1	0.255651	0.029524	0.064268	9.626E-05	0.003400	0.000606
5300	7.9384	2.50E-16	1.85435	0.24250	0.24250	1.00655	288.3	0.250644	0.028887	0.068961	0.0001033	0.003468	0.000618
5100	7.6389	0.00E+00	1.76127	0.23740	0.23740	0.98936	282.3	0.245376	0.028236	0.074235	0.0001112	0.003543	0.000631
4900	7.3393	0.00E+00	1.67004	0.23203	0.23203	0.97257	275.9	0.239825	0.027571	0.080184	0.0001201	0.003625	0.000646
4700	7.0397	-1.11E-16	1.58091	0.22636	0.22636	0.95623	269.1	0.233966	0.026892	0.086921	0.0001302	0.003715	0.000662
4500	6.7402	0.00E+00	1.49417	0.22037	0.22037	0.94044	262.0	0.227772	0.026198	0.094577	0.0001417	0.003816	0.000680
4300	6.4406	8.33E-17	1.41014	0.21402	0.21402	0.92529	254.5	0.221213	0.025491	0.103307	0.0001547	0.003930	0.000700
4100	6.1410	0.00E+00	1.32922	0.20730	0.20730	0.91088	246.5	0.214259	0.024769	0.113291	0.0001697	0.004057	0.000723
3900	5.8415	-2.01E-16	1.25183	0.20015	0.20015	0.89736	238.0	0.206878	0.024033	0.124736	0.0001868	0.004202	0.000748
3700	5.5419	-5.55E-17	1.17846	0.19257	0.19257	0.88488	229.0	0.199038	0.023286	0.137876	0.0002065	0.004367	0.000778
3500	5.2424	0.00E+00	1.10964	0.18451	0.18451	0.87359	219.4	0.190711	0.022528	0.152970	0.0002291	0.004558	0.000812
3300	4.9428	9.71E-17	1.04598	0.17596	0.17596	0.86371	209.2	0.181872	0.021763	0.169643	0.0002526	0.004780	0.000851
3200	4.7930	0.00E+00	1.01627	0.17149	0.17149	0.85935	203.9	0.177255	0.021379	0.178119	0.0002668	0.004904	0.000874
3100	4.6432	0.00E+00	0.98809	0.16690	0.16690	0.85542	198.4	0.172504	0.020994	0.188264	0.000282	0.005039	0.000898
3000	4.4934	0.00E+00	0.96151	0.16217	0.16217	0.85195	192.8	0.167620	0.020609	0.199116	0.0002982	0.005186	0.000924
2900	4.3437	-1.04E-16	0.93661	0.15732	0.15732	0.84896	187.1	0.162603	0.020226	0.210715	0.0003156	0.005346	0.000952
2800	4.1939	0.00E+00	0.91346	0.15234	0.15234	0.84648	181.1	0.157456	0.019844	0.223103	0.0003342	0.005521	0.000983
2700	4.0441	8.67E-17	0.89213	0.14724	0.14724	0.84453	175.1	0.152183	0.019464	0.236323	0.000354	0.005712	0.001017
2600	3.8943	0.00E+00	0.87270	0.14202	0.14202	0.84315	168.9	0.146787	0.019088	0.250419	0.0003751	0.005922	0.001055
2500	3.7445	0.00E+00	0.85520	0.13668	0.13668	0.84235	162.5	0.141276	0.018716	0.265443	0.0003976	0.006153	0.001096
2400	3.5948	-4.86E-17	0.83970	0.13125	0.13125	0.84214	156.1	0.135658	0.018350	0.281452	0.0004216	0.006408	0.001141
2300	3.4450	5.64E-17	0.82622	0.12572	0.12572	0.84255	149.5	0.129942	0.017989	0.298516	0.0004471	0.006690	0.001192
2200	3.2952	-1.99E-17	0.81478	0.12010	0.12010	0.84359	142.8	0.124139	0.017636	0.316719	0.0004744	0.007003	0.001247
2100	3.1454	-4.51E-17	0.80541	0.11442	0.11442	0.84527	136.0	0.118261	0.017292	0.336171	0.0005035	0.007351	0.001309
2000	2.9956	0.00E+00	0.79809	0.10867	0.10867	0.84758	129.2	0.112323	0.016956	0.357010	0.0005347	0.007739	0.001378
1900	2.8458	-4.47E-17	0.79280	0.10288	0.10288	0.85052	122.3	0.106337	0.016631	0.379417	0.0005683	0.008175	0.001456
1800	2.6961	4.34E-18	0.78953	0.09706	0.09706	0.85409	115.4	0.100320	0.016316	0.403624	0.0006046	0.008665	0.001543
1700	2.5463	3.64E-17	0.78822	0.09122	0.09122	0.85828	108.5	0.094284	0.016013	0.429936	0.000644	0.009220	0.001642
1600	2.3965	-3.04E-18	0.78883	0.08538	0.08538	0.86306	101.5	0.088246	0.015722	0.458747	0.0006871	0.009851	0.001755
1500	2.2467	0.00E+00	0.79130	0.07955	0.07955	0.86842	94.6	0.082220	0.015444	0.490577	0.0007348	0.010573	0.001883
1400	2.0969	3.40E-17	0.79555	0.07374	0.07374	0.87434	87.7	0.076220	0.015178	0.526103	0.000788	0.011405	0.002031
1300	1.9472	3.14E-18	0.80151	0.06797	0.06797	0.88078	80.8	0.070257	0.014926	0.566231	0.0008481	0.012373	0.002204
1200	1.7974	-8.67E-19	0.80911	0.06225	0.06225	0.88773	74.0	0.064346	0.014687	0.612174	0.0009169	0.013510	0.002406
1100	1.6476	-2.61E-17	0.81826	0.05659	0.05659	0.89515	67.3	0.058494	0.014462	0.665600	0.0009969	0.014861	0.002647
1000	1.4978	1.34E-17	0.82888	0.05100	0.05100	0.90302	60.6	0.052714	0.014250	0.728846	0.0010917	0.016491	0.002937
900	1.3480	4.04E-18	0.84090	0.04548	0.04548	0.91129	54.1	0.047011	0.014052	0.805294	0.0012062	0.018491	0.003294
800	1.1983	2.62E-18	0.85424	0.04005	0.04005	0.91996	47.6	0.041394	0.013868	0.900014	0.0013481	0.021000	0.003741
700	1.0485	-2.05E-18	0.86882	0.03470	0.03470	0.92898	41.3	0.035868	0.013697	1.020967	0.0015292	0.024236	0.004317
600	0.8987	-9.26E-18	0.88456	0.02945	0.02945	0.93833	35.0	0.030438	0.013540	1.181418	0.0017695	0.028559	0.005087
500	0.7489	-3.18E-19	0.90140	0.02429	0.02429	0.94798	28.9	0.025107	0.013397	1.404759	0.0021041	0.034624	0.006167
450	0.6740	7.54E-19	0.91022	0.02175	0.02175	0.95291	25.9	0.022479	0.013331	1.553700	0.0023272	0.038671	0.006888
400	0.5991	-1.06E-18	0.91928	0.01923	0.01923	0.95791	22.9	0.019877	0.013268	1.739681	0.0026057	0.043733	0.007790
350	0.5242	-1.19E-18	0.92859	0.01674	0.01674	0.96298	19.9	0.017301	0.013209	1.978601	0.0029636	0.050245	0.008950
300	0.4493	1.28E-19	0.93813	0.01427	0.01427	0.96810	17.0	0.014751	0.013154	2.296957	0.0034404	0.058931	0.010497
250	0.3745	-2.62E-18	0.94791	0.01183	0.01183	0.97329	14.1	0.012227	0.013103	2.742440	0.0041077	0.071096	0.012664
200	0.2996	-1.75E-19	0.95790	0.00941	0.00941	0.97853	11.2	0.009729	0.013056	3.410429	0.0051082	0.089349	0.015915
150	0.2247	-1.44E-19	0.96811	0.00702	0.00702	0.98382	8.3	0.007258	0.013014	4.523472	0.0067753	0.119776	0.021334
100	0.1498	3.11E-19	0.97854	0.00466	0.00466	0.98916	5.5	0.004812	0.012977	6.748917	0.0101086	0.180640	0.032175
95	0.1423	-5.80E-20	0.97959	0.00442	0.00442	0.98970	5.3	0.004569	0.012973	7.100333	0.010635	0.190251	0.033887
90	0.1348	2.07E-19	0.98065	0.00419	0.00419	0.99024	5.0	0.004326	0.012970	7.490792	0.0112198	0.200930	0.035789
85	0.1273	2.98E-20	0.98171	0.00395	0.00395	0.99078	4.7	0.004084	0.012967	7.927184	0.0118735	0.212865	0.037915
80	0.1198	-7.31E-20	0.98277	0.00372	0.00372	0.99132	4.4	0.003841	0.012964	8.418122	0.0126088	0.226292	0.040307
75	0.1123	-1.33E-19	0.98383	0.00348	0.00348	0.99185	4.1	0.003599	0.012961	8.974514	0.0134422	0.241509	0.043017
70	0.1048	7.81E-20	0.98489	0.00325	0.00325	0.99239	3.9	0.003358	0.012958	9.610386	0.0143946	0.258900	0.046115
65	0.0974	-2.85E-20	0.98596	0.00301	0.00301	0.99293	3.6	0.003116	0.012955	10.344081	0.0154935	0.278968	0.049689
60	0.0899	1.93E-19	0.98703	0.00278	0.00278	0.99348	3.3	0.002875	0.012952	11.200054	0.0167756	0.302379	0.053860
55	0.0824	1.78E-19	0.98810	0.00255	0.00255	0.99402	3.0	0.002634	0.012949	12.211875	0.0182911	0.330048	0.058788
15	0.0225	5.74E-21	0.99673	0.00069	0.00069	0.99836	0.8	0.000715	0.012931	0.000000	0	1.215468	0.216498

Note: Last pressure included so that Cr and Cg values are not zero. It is not plotted.







OIL CONSERVATION COMMISSION

CASE NUMBER _____

Ocean EXHIBIT 20

Blue Fin 24-1

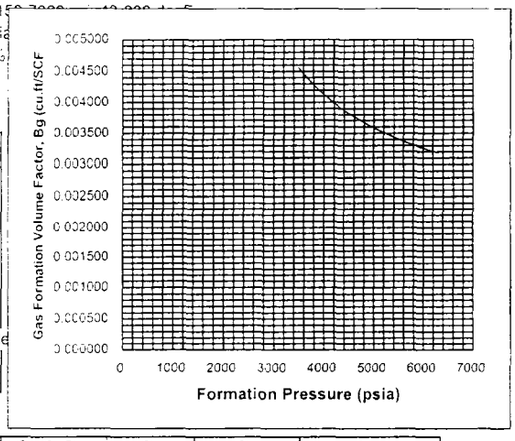
GASPRO01.xls

Equations by Starling-Carnahan (Dake book, pp19-20). Wichert-Aziz correction for sour gases applied (accurate for 15[illegible]
CO2<54.4% and H2S<73.8%. See O&G Journal 10/18/93 pg. 52. Do not use initial pressures < 1500 psia

Required input: Standard conditions, initial reservoir temp and pressure, and gas gravity OR gas composition (mole %).
Mole percentage of C1 to C5+ also required for any Heating Value calculation.
Current version of this worksheet does not allow for metric units.

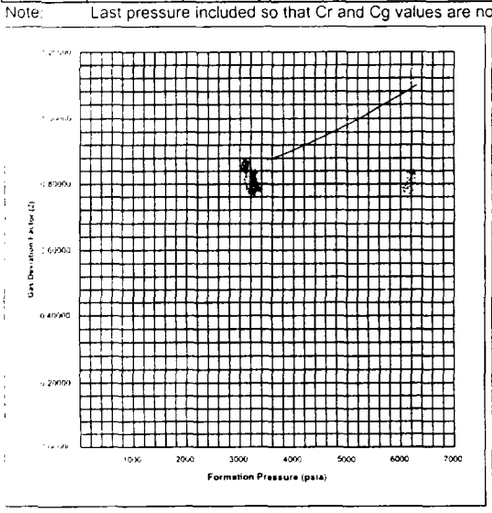
Field:		Well:					
Input Data		Input Data		Computed Data		Computed Data	
Gas grav, Gg (air=1) =	0.710	%C1 =	80.613	ghc (air=1) =	0.7024	Mol Wt. =	20.3483
Cond? (Yes=1,No=0)	0	%C2 =	10.249	pchc, degR =	390.1104	K =	125.1409
Metric? (Yes=1,No=0)	0	%C3 =	4.611	Ppchc,psia =	669.0351	x =	5.2861
Reservoir Temperature =	163	%iC4 =	0.642	Tpc,degR =	389.6879	a =	1.3428
Reservoir Pressure =	6300	%nC4 =	1.325	Ppc, psia =	670.0464	DHV, BTU/SCF =	1218.1
Standard Pressure =	14.7	%C5+ =	1.057	CWA =	1.2272	WHV, BTU/SCF =	1200.1
Standard Temperature =	60	% N2 =	0.876	Tpc*, degR =	388.4607	Grad,psi/ft =	0.122982
		% CO2 =	0.635	Ppc*,psia =	667.9363		
Computed Data		% H2S =	0.000	**Init. Ppr =**	**9.4320**	Note: Heating value incorrect unle	
Res Temp, deg F	163.0	Total %	100.008	**Tpr =**	**1.6038**	C1 to C5+ data entered.	
Res Pr, psia	6300.0	Calc'd Gg	0.7224	t=1/Tpr =	0.6235		

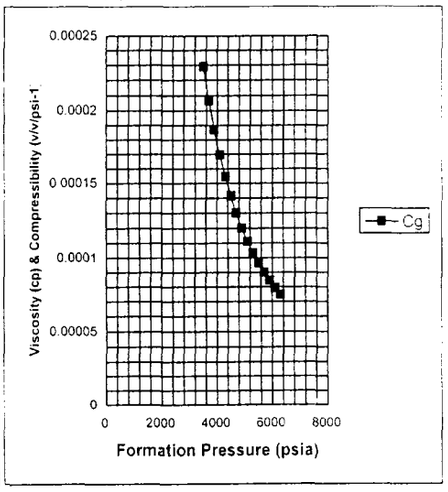
WARNING: Z factor accurate for 0.2<Ppr<24.0 & 1.15<Tpr<3.0
Gas viscosity accurate for 100-8000 psi, 100-340 degF, 0.9<CO2 mole %<3.2.

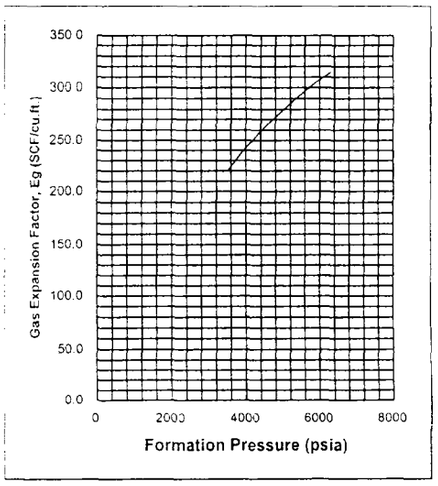


Pr, psia	Ppr	Y	df/dY	Yk+1	Init. Y	Z	Eg	Gas Den,	Gas Visc	Cr=CgPpc	Cg	Bg	Bg
							SCF/cu.ft.	gm/cc	cp.			(cu.ft./SCF)	(bbls/SCF)
6300	9.4320	#######	2.47887	0.27766	0.27766	1.09445	326.8	0.280796	0.032696	0.047018	7.039E-05	0.003060	0.000545
6100	9.1326	#######	2.37066	0.27368	0.27368	1.07511	322.2	0.276772	0.032099	0.049911	7.472E-05	0.003104	0.000553
5900	8.8332	#######	2.26343	0.26952	0.26952	1.05593	317.3	0.272561	0.031489	0.053122	7.953E-05	0.003152	0.000561
5700	8.5337	#######	2.15730	0.26515	0.26515	1.03693	312.1	0.268146	0.030865	0.056697	8.488E-05	0.003204	0.000571
5500	8.2343	#######	2.05243	0.26057	0.26057	1.01815	306.7	0.263510	0.030227	0.060695	9.087E-05	0.003260	0.000581
5300	7.9349	#######	1.94897	0.25574	0.25574	0.99963	301.0	0.258632	0.029573	0.065185	9.759E-05	0.003322	0.000592
5100	7.6355	#######	1.84711	0.25066	0.25066	0.98142	295.1	0.253490	0.028904	0.070247	0.0001052	0.003389	0.000604
4900	7.3360	#######	1.74708	0.24529	0.24529	0.96357	288.7	0.248059	0.028219	0.075982	0.0001138	0.003463	0.000617
4700	7.0366	#######	1.64914	0.23961	0.23961	0.94617	282.1	0.242312	0.027517	0.082505	0.0001235	0.003545	0.000632
4500	6.7372	#######	1.55358	0.23358	0.23358	0.92928	275.0	0.236217	0.026797	0.089959	0.0001347	0.003637	0.000648
4300	6.4377	#######	1.46075	0.22718	0.22718	0.91301	267.4	0.229741	0.026060	0.098511	0.0001475	0.003739	0.000666
4100	6.1383	#######	1.37108	0.22036	0.22036	0.89748	259.4	0.222847	0.025305	0.108359	0.0001622	0.003855	0.000687
3900	5.8389	#######	1.28501	0.21309	0.21309	0.88282	250.8	0.215496	0.024532	0.119738	0.0001793	0.003987	0.000710
3700	5.5395	#######	1.20311	0.20533	0.20533	0.86919	241.7	0.207649	0.023743	0.132915	0.000199	0.004137	0.000737
3500	5.2400	#######	1.12599	0.19704	0.19704	0.85680	231.9	0.199265	0.022938	0.148193	0.0002219	0.004311	0.000768
3300	4.9406	#######	1.05433	0.18818	0.18818	0.84586	221.5	0.190309	0.022121	0.164100	0.0002457	0.004514	0.000804
3200	4.7909	#######	1.02078	0.18353	0.18353	0.84101	216.0	0.185606	0.021708	0.173828	0.0002602	0.004629	0.000824
3100	4.6412	#######	0.98887	0.17873	0.17873	0.83662	210.4	0.180751	0.021294	0.184290	0.0002759	0.004753	0.000847
3000	4.4914	#######	0.95872	0.17378	0.17378	0.83271	204.6	0.175740	0.020879	0.195531	0.0002927	0.004889	0.000871
2900	4.3417	#######	0.93041	0.16867	0.16867	0.82933	198.5	0.170575	0.020463	0.207596	0.0003108	0.005037	0.000897
2800	4.1920	#######	0.90404	0.16341	0.16341	0.82651	192.4	0.165255	0.020049	0.220527	0.0003302	0.005199	0.000926
2700	4.0423	#######	0.87970	0.15800	0.15800	0.82428	186.0	0.159784	0.019635	0.234369	0.0003509	0.005377	0.000958
2600	3.8926	#######	0.85748	0.15245	0.15245	0.82267	179.4	0.154167	0.019225	0.249163	0.000373	0.005573	0.000993
2500	3.7429	#######	0.83744	0.14675	0.14675	0.82172	172.7	0.148409	0.018818	0.264954	0.0003967	0.005789	0.001031
2400	3.5932	#######	0.81967	0.14093	0.14093	0.82145	165.9	0.142520	0.018416	0.281790	0.0004219	0.006028	0.001074
2300	3.4434	#######	0.80420	0.13499	0.13499	0.82188	158.9	0.136510	0.018020	0.299729	0.0004487	0.006293	0.001121
2200	3.2937	#######	0.79108	0.12894	0.12894	0.82302	151.8	0.130393	0.017632	0.318840	0.0004774	0.006589	0.001174
2100	3.1440	#######	0.78032	0.12280	0.12280	0.82490	144.5	0.124183	0.017253	0.339214	0.0005079	0.006918	0.001232
2000	2.9943	#######	0.77193	0.11658	0.11658	0.82751	137.2	0.117896	0.016884	0.360970	0.0005404	0.007287	0.001298
1900	2.8446	#######	0.76588	0.11030	0.11030	0.83086	129.8	0.111551	0.016525	0.384269	0.0005753	0.007702	0.001372
1800	2.6949	#######	0.76216	0.10399	0.10399	0.83493	122.4	0.105164	0.016179	0.409326	0.0006128	0.008169	0.001455
1700	2.5452	#######	0.76070	0.09765	0.09765	0.83971	115.0	0.098756	0.015846	0.436430	0.0006534	0.008699	0.001550
1600	2.3954	#######	0.76144	0.09131	0.09131	0.84518	107.5	0.092345	0.015527	0.465962	0.0006976	0.009303	0.001657
1500	2.2457	#######	0.76432	0.08499	0.08499	0.85132	100.0	0.085950	0.015222	0.498429	0.0007462	0.009995	0.001780
1400	2.0960	#######	0.76924	0.07870	0.07870	0.85809	92.6	0.079586	0.014933	0.534506	0.0008002	0.010795	0.001923
1300	1.9463	#######	0.77611	0.07245	0.07245	0.86547	85.3	0.073272	0.014658	0.575094	0.000861	0.011725	0.002088
1200	1.7966	#######	0.78484	0.06627	0.06627	0.87341	78.0	0.067021	0.014399	0.621408	0.0009303	0.012819	0.002283
1100	1.6469	#######	0.79532	0.06017	0.06017	0.88188	70.8	0.060845	0.014155	0.675119	0.0010108	0.014120	0.002515
1000	1.4971	#######	0.80747	0.05415	0.05415	0.89085	63.7	0.054757	0.013927	0.738570	0.0011057	0.015689	0.002795
900	1.3474	#######	0.82116	0.04822	0.04822	0.90027	56.8	0.048766	0.013714	0.815151	0.0012204	0.017617	0.003138
800	1.1977	#######	0.83633	0.04240	0.04240	0.91011	49.9	0.042879	0.013516	0.909942	0.0013623	0.020036	0.003569
700	1.0480	#######	0.85285	0.03669	0.03669	0.92033	43.2	0.037102	0.013333	1.030915	0.0015434	0.023155	0.004124
600	0.8983	#######	0.87066	0.03109	0.03109	0.93090	36.6	0.031441	0.013166	1.191349	0.0017836	0.027325	0.004867
500	0.7486	#######	0.88966	0.02561	0.02561	0.94179	30.1	0.025898	0.013013	1.414542	0.0021179	0.033173	0.005909
450	0.6737	#######	0.89959	0.02291	0.02291	0.94734	27.0	0.023171	0.012943	1.563570	0.0023409	0.037076	0.006604
400	0.5989	#######	0.90978	0.02025	0.02025	0.95296	23.8	0.020475	0.012876	1.749546	0.0026193	0.041958	0.007474
350	0.5240	#######	0.92023	0.01761	0.01761	0.95865	20.7	0.017810	0.012814	1.988476	0.002977	0.048238	0.008592
300	0.4491	#######	0.93094	0.01500	0.01500	0.96440	17.7	0.015174	0.012755	2.306869	0.0034537	0.056616	0.010084
250	0.3743	#######	0.94189	0.01243	0.01243	0.97020	14.6	0.012570	0.012701	2.752438	0.0041208	0.068348	0.012174
200	0.2994	#######	0.95307	0.00988	0.00988	0.97606	11.6	0.009995	0.012651	3.420605	0.0051212	0.085951	0.015309
150	0.2246	#######	0.96448	0.00737	0.00737	0.98197	8.7	0.007451	0.012606	4.534019	0.0067881	0.115295	0.020536
100	0.1497	#######	0.97611	0.00488	0.00488	0.98794	5.7	0.004938	0.012567	6.760338	0.0101212	0.173993	0.030991
95	0.1422	#######	0.97728	0.00464	0.00464	0.98854	5.5	0.004688	0.012564	7.111898	0.0106476	0.183261	0.032642
90	0.1347	#######	0.97846	0.00439	0.00439	0.98914	5.2	0.004438	0.012560	7.502517	0.0112324	0.193560	0.034477
85	0.1273	#######	0.97964	0.00414	0.00414	0.98973	4.9	0.004189	0.012557	7.939090	0.011886	0.205070	0.036527
80	0.1198	#######	0.98082	0.00390	0.00390	0.99034	4.6	0.003941	0.012553	8.430233	0.0126213	0.218019	0.038833
75	0.1123	#######	0.98200	0.00365	0.00365	0.99094	4.3	0.003692	0.012550	8.985859	0.0134547	0.232695	0.041447
70	0.1048	#######	0.98319	0.00341	0.00341	0.99154	4.0	0.003444	0.012547	9.623001	0.0144071	0.249467	0.044435
65	0.0973	#######	0.98438	0.00316	0.00316	0.99214	3.7	0.003196	0.012544	10.357009	0.015506	0.268820	0.047882
60	0.0898	#######	0.98557	0.00292	0.00292	0.99274	3.4	0.002948	0.012541	11.213349	0.0167881	0.291398	0.051904
55	0.0823	#######	0.98676	0.00267	0.00267	0.99334	3.1	0.002701	0.012538	12.225592	0.0183035	0.318082	0.056656
15	0.0225	#######	0.99636	0.00072	0.00072	0.99818	0.9	0.000733	0.012518	0.000000	0	1.171978	0.208752

Note: Last pressure included so that Cr and Cg values are not zero. It is not plotted.







JAMES BRUCE
Attorney at Law
Post Office Box 1056
Santa Fe, New Mexico 87504
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Fax: (505) 982-2151

FAX COVER SHEET

DELIVER TO: Lori Wrotenbery

COMPANY: Oil Conservation Division

CITY: Santa Fe, New Mexico

FAX NUMBER: (505) 476 3462

NUMBER OF PAGES: 77 (Including Cover Sheet)

DATE SENT: 3/19/03

MEMO:

JAMES BRUCE
ATTORNEY AT LAW

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SANTA FE, NEW MEXICO 87501

(505) 982-2043 (PHONE)
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jamesbruc@aol.com

March 19, 2003

Hand Delivered

Lori Wrotenbery
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Case Nos. 12816, 12841, 12859, and 12860 *de novo*
(TMBR/Sharp Drilling, Inc./Ocean Energy, Inc.)

Dear Ms. Wrotenbery:

After 5:00 p.m. on Monday, March 17th, I received faxed copies of supplemental exhibits from TMBR/Sharp Drilling, Inc. regarding the above matters. As rebuttal to those exhibits, enclosed for filing are Ocean Energy, Inc.'s Exhibits 12-21.

Very truly yours,

James Bruce

Attorney for Ocean Energy, Inc.

cc: W. Thomas Kellahin (via fax)

PRO WELL TESTING & WIRELINE

P.O. Box 791
Hobbs, New Mexico 88241
(505) 397-3590

March 6. 2002

Mr. Lonnie Arnold
TMBR/Sharp Drilling
4607 West Industrial
Midland, Texas 79703

Mr. Arnold,

I have analyzed the data from the buildup that was run on the Bluefin 24 #1 in Lea County, New Mexico. The data modeled as a **Homogeneous Reservoir with well bore storage and skin with partial penetration or limited entry and two intersecting faults.** The limited entry effects are more a part of the total skin than was seen on the previous buildup at the end of January.

The first page of this report is the Main Results page, which has the parameters, used for the calculations and the answers that I found. I used a flow rate of **971 mcf/day** of gas. The net interval that I used was **16 feet of a reported 32 feet gross** interval with an average **porosity of 10%**. The flow time that I used was **360 hours** of production. The pressure that the model generated was **6086.67 psia**, the permeability was **1.06 md.**, and the **formation skin was a +4.21**, the skin due to **partial penetration is 13.8 (total skin of 18.01)** and the radius of investigation was **837 feet**. The boundaries were seen at **141 feet and 144 feet** from the wellbore.

The second page is the simulation page. This page matches the model in red against the data in green. The model matches most all the data very well. The matching of the model to the Cartesian plot, the Semi-Log and Log-Log gives us a degree of confidence that we have chosen the correct model. If all three plots match well and the permeability, pressure and skin are reasonable numbers, then we know that the model is a believable one.

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER _____
[redacted] EXHIBIT 12

The third page is the Semi-Log plot. The pressure is in green and the model is the red line. The model matches fairly well, except for where the data breaks over and this could be phase segregation or liquid falling out and dropping back. I drew a straight line on this plot for comparison with the Log-Log analysis. The straight line gives a **pressure of 6020 psia**, a **permeability of 0.392 md. and a skin of +8.77.** These numbers are some what close to the Log-Log numbers and are a good comparison. This plot does not tell us the amount of skin that is due to partial penetration though. In this case though, since the pseudo skin is very small, the numbers between the two match very well.

The last page is the Log-Log plot with derivative. This is the actual model page that I use to match the data. The delta pressure is in green, the derivative data is in red, the data model is in a red solid line and the derivative model is the solid black line. The dotted horizontal line is the radial flow line that the model generates. This model matches the data fairly well, but I could not get a perfect match. The plot indicates that the data is in radial flow and the derivative data at the end going slowly back up is an indication of the boundaries.

I have included nodal plots for skin and fracture half-length. The **skin cross plot** indicates that if the skin were reduced to zero, then the well should make **5250 mcf/day after 30 days, 5000 mcf/day after 60 days and 4500 mcf/day after 90 days.** This would only be possible if the guns were pulled and the other 16 feet of the 32 feet were perforated first. If you were able to remove the formation skin and get the formation skin to a -3, then the well would make about 2000 mcf/day.

The **frac plot** indicates that with a **200 ft. frac half-length**, the well should **make 11500 mcf/day after 30 days, 10600 mcf/day after 60 days and 10200 mcf/day after 90 days.**

We appreciate this work and look forward to working more with you in the near future. If you have any questions, please give me a call at 915-697-2932 or at our office in Hobbs, New Mexico at (505) 397-3590. Thank you.

Sincerely,

Robert E. Shafer Jr.
Pro Well Testing and Wireline

Disclaimer:
We do not accept any responsibility for any actions taken as a result of this interpretation. This is a best estimate of reservoir parameters and due to the short flow time of this well, conditions could change.

PROFIL & WHEELME

Main Results

Company TMBR/Sharp Drilling
Well Blue Fin 24 Fed. #1

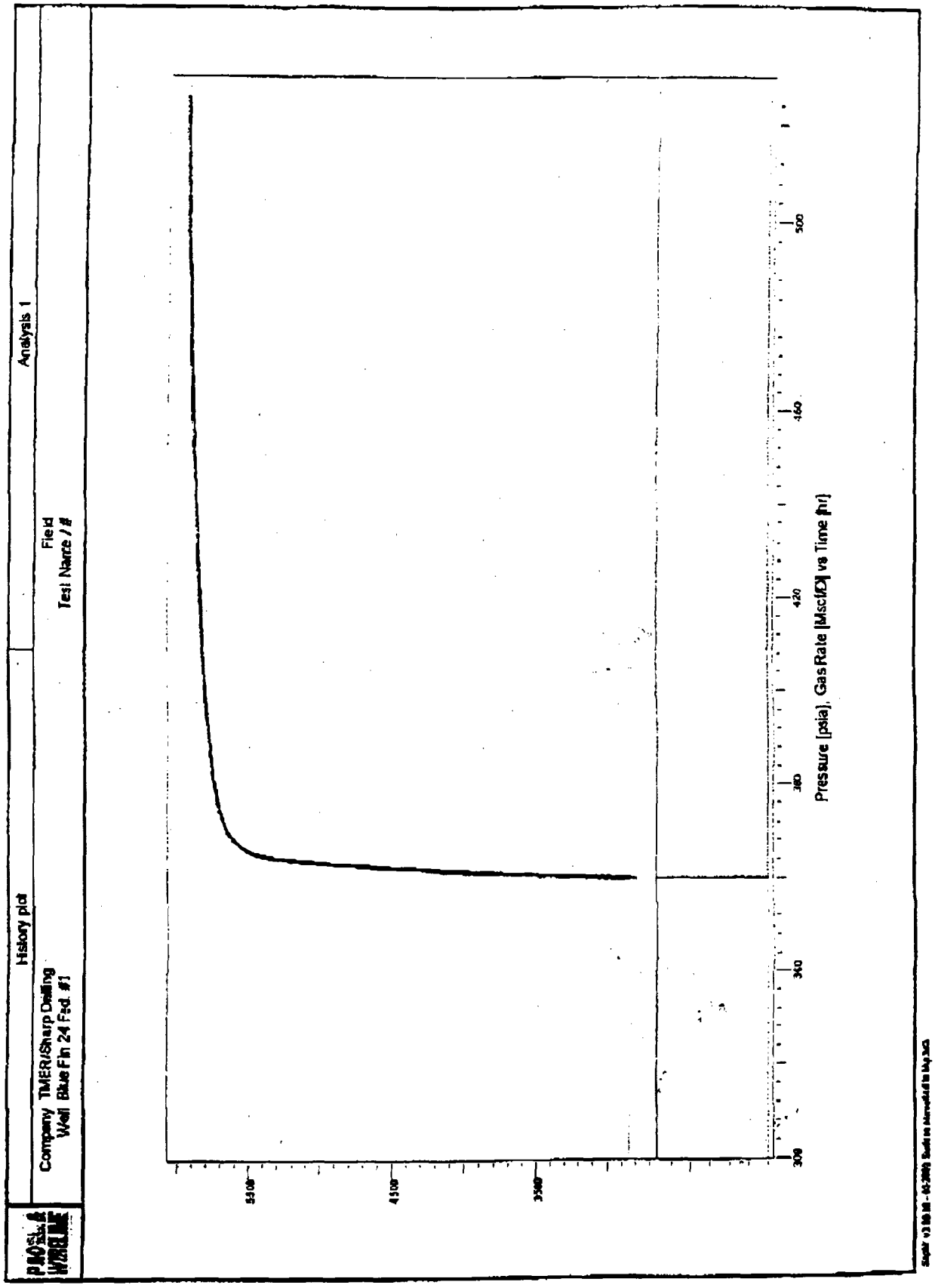
Analysis 1

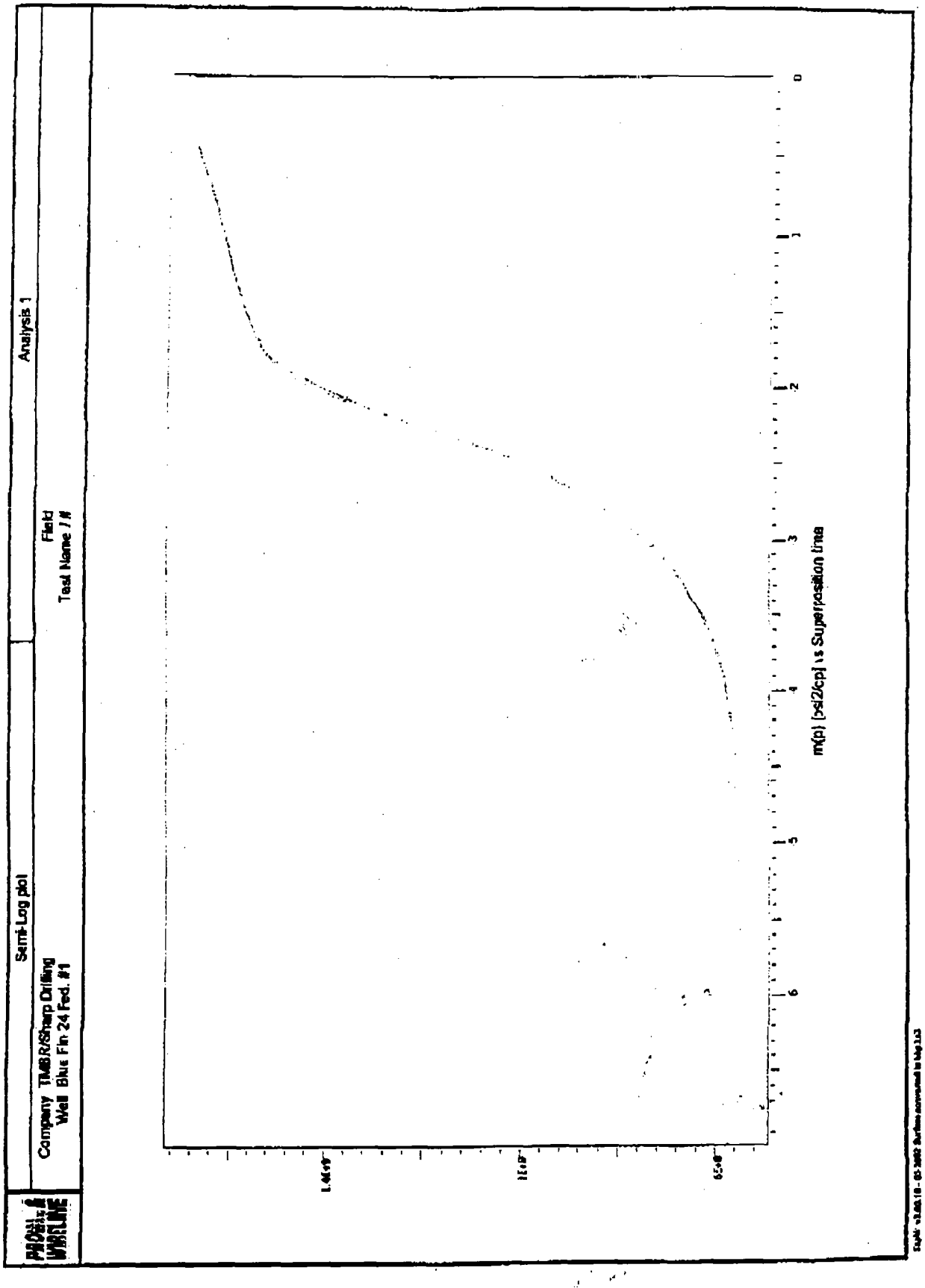
Field
Test Name / #

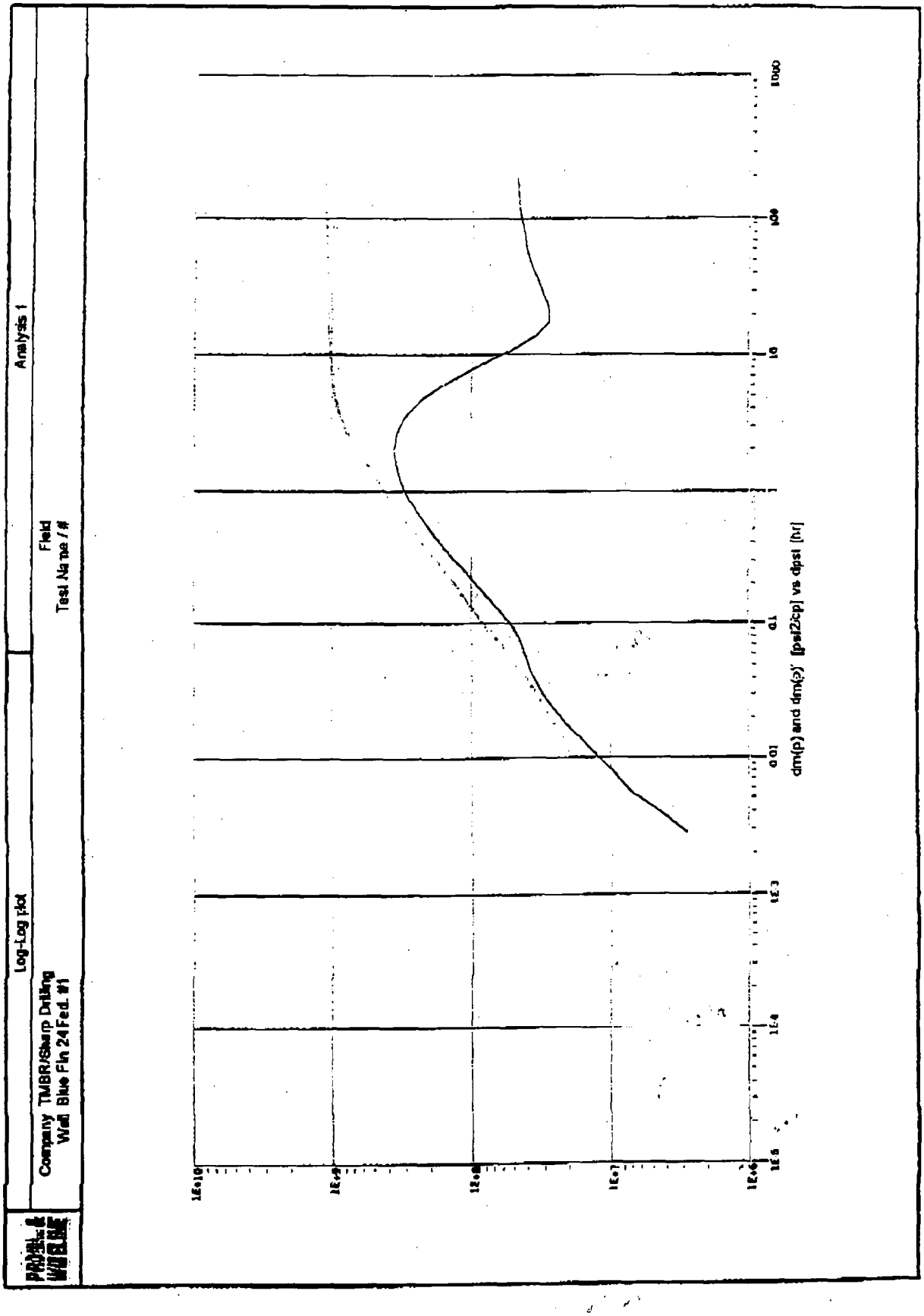
Test date / time	
Formation interval	16 feet
Perforated interval	
Gauge type / #	
Gauge depth	
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.33 ft
Pay Zone h	32 ft
Connate Water (%)	30
Water Salt (ppm)	10000
Rock compr.	3E-6 psi-1
Reservoir T	189 °F
Reservoir P	5000 psia
FLUID TYPE	Gas
Gas	
Gas Gravity	0.7
Pseudo-Critical P	663.573 psia
Pseudo-Critical T	377.584 °R
Sour gas composition	
Hydrogen sulphide	0
Carbon dioxide	0
Nitrogen	0
Water	
Salinity, ppm	10000
WGR	1 bbl/MMcf
Reservoir T	189 °F
Reservoir P	5000 psia
Properties	@ Reservoir T&P
Gas	
Z	0.988548
Mug	0.0274249 cp
Bg	0.00362529 cf/scf
Cg	1.23452E-4 psi-1
Rhog	0.236428 g/cc

Water	
Rsw	21.2319 cf/bbl
Bw	1.01584 B/STB
Cw	3.3346E-6 psi-1
Muw	0.345088 cp
Rhow	0.991976 g/cc
Total Compr. ct	9.02845E-5 psi-1
Selected Model	
Model Option	Standard Model
Well	Limited Entry
WBS Type	Changing
Reservoir	Homogeneous
Boundary	Intersecting Faults
Results	
TMatch	20.2 [hr]^-1
PMatch	3.8E-8 [psi2/cp]^-1
C	0.0181 STB/psi
Ci/Cf	0.467
Alpha	573
skin	4.21
Delta P Skin	302.283 psi
Pseudo Skin	13.8
Delta P P.Skin	988.008 psi
Hw	0.322783 ft
Zw	16 ft
h	32 ft
Pi	6086.67 psia
k.h	34.1 md.ft
k	1.06 md
kz/kr	7.53
L1 - No Flow	144 ft
L2 - No Flow	141 ft
N	2
Rinv	637 ft
Test Vol.	2.70743E+5 Barrels

Saphir v3.00.13 - 00-2003 Surface corrected to shp.ks3


History plot
Analysis 1
Company TMER/Sharp Drilling
Well Blue Fin 24 Fed. #1
Field
Test Name / #
Pressure [psia], Gas Rate [Mscf/D] vs Time [hr]
300
360
420
480
540
4500
3900

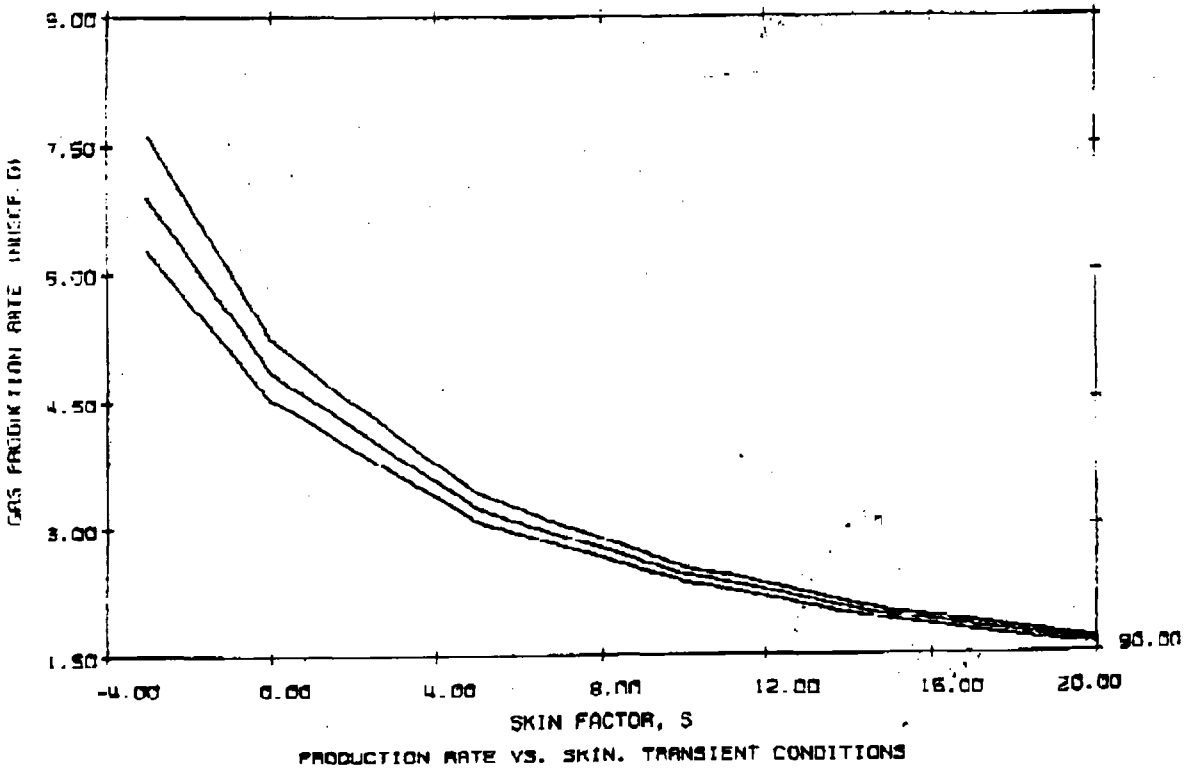

Semi-Log plot
Analysis 1
Company TMBR/Sharp Drilling
Well Blue Fin 24 Fed. #1
Field
Test Name / #
m(p) [psi2/cp] vs Superposition time


Log-Log plot
Analysis 1
Company TMBR/Sharp Drilling
Well Blue Fin 24 Fed. #1
Field
Test Name / #
dm(p) and dm(p)' [psi2/cp] vs dpsi [hr]
1000
100
10
1
0.1
0.01
1E-3
1E-4
1E-5
1E+10
1E+9
1E+8
1E+7
1E+6

WELL TEST INTERPRETATION REPORT [illegible] CLIENT : TMBF/Shaco Drilling		DATE: [illegible] 6-MAR-[illegible]
REGION : DISTRICT: BASE : ENGINEER:	SENSITIVITY ANALYSIS RATE VS. S VS. TIME	FIELD: ZONE : WELL [illegible] LOCATION:

RESERVOIR PRESSURE: 8055 PSI
PERMEABILITY: 1.38 MD
NET THICKNESS: 32 FT

LIQUID/GAS RATIO: 120 STB/MMSCF
TUBING SIZE: 2.441 IN [illegible]
WELLHEAD PRESSURE: 450 PSI



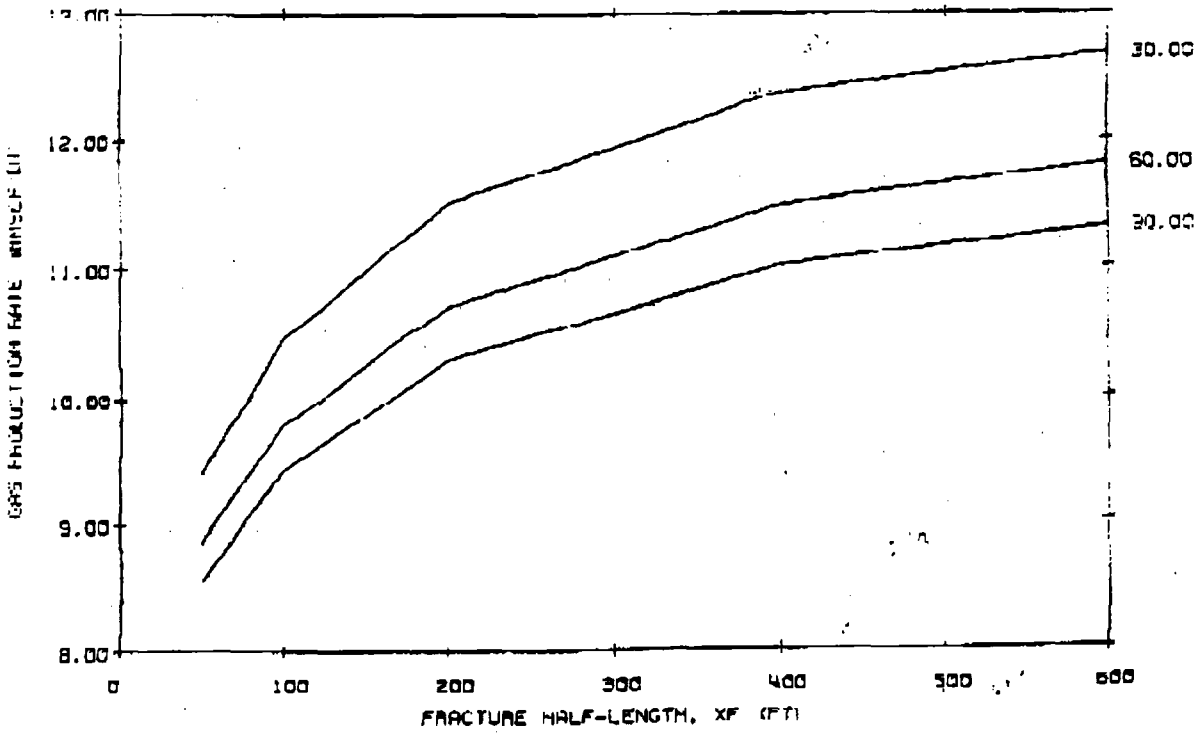
PRODUCTION RATE VS. SKIN. TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM# 11.00-102580

WELL TEST INTERPRETATION REPORT Evaluation CLIENT : TNB97Shere Drilling		PAGE: 51. 5-MAR-00
REGION : DISTRICT: BASE : ENGINEER:	SENSITIVITY ANALYSIS RATE VS. XF (VS. TIME)	FIELD: ZONE : WELL :Blue Fin 2a F LOCATION:

RESERVOIR PRESSURE: 6086 PSI LIQUID/GAS RATIO: 120 STB/MMSCF
PERMEABILITY: 1.36 MD TUBING SIZE: 2.441 IN (ID)
NET THICKNESS: 32 FT WELLHEAD PRESSURE: 450 PSI

FRACTURE CONDUCTIVITY, KF-W: 600 MD.FT



PRODUCTION RATE VS. FRAC. HALF-LENGTH, TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM= 11.00-102590

PRO WELL & WIRELINE

PRESSURE SURVEY REPORT

TMBR/SHARP DRILLING
BLUE FIN 24 FED. #1
165 HOUR SURFACE BUILD UP
2/25/02 TO 3/4/02
STATIC GRADIENT RAN AFTER BU

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO WELL TESTING & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/SHARP DRILLING
Address:	

Well Information	
Well Name:	BLUE FIN Z4 FED. #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	165 HOUR BUILDUP
Gauge Depth:	SURFACE
Prod. Int. CF:	through
Prod. Through:	
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3593
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	
Surface Temperature:	

Gauge Information	Top Recorder	Bottom Recorder
Serial Number:		
Calibration Date		
Pressure Range		

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/SHARP DRILLING — Well Name: BLUE FIN 24 FED. #1

Location: — Field:

Test Type: HOUR BUILDUP — Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
1	02/25/02	09:10:21	0.001666	447.54	58.5	0.00
2	02/25/02	09:11:21	0.018333	504.40	58.2	56.86
3	02/25/02	09:12:21	0.035000	527.76	58.1	23.36
4	02/25/02	09:13:21	0.051666	547.90	58.4	20.14
5	02/25/02	09:14:21	0.068333	567.49	58.7	19.59
6	02/25/02	09:15:21	0.085000	586.91	58.9	19.42
7	02/25/02	09:16:21	0.101666	605.95	59.1	19.03
8	02/25/02	09:17:21	0.118333	624.80	59.1	18.85
9	02/25/02	09:18:21	0.135000	643.36	59.1	18.56
10	02/25/02	09:19:21	0.151666	661.62	59.0	18.26
11	02/25/02	09:20:21	0.168333	679.76	58.8	18.13
12	02/25/02	09:21:21	0.185000	697.72	58.7	17.96
13	02/25/02	09:22:21	0.201666	715.36	58.5	17.63
14	02/25/02	09:23:21	0.218333	732.66	58.5	17.31
15	02/25/02	09:24:21	0.235000	749.49	58.4	16.83
16	02/25/02	09:25:21	0.251666	766.12	58.5	16.63
17	02/25/02	09:26:21	0.268333	782.66	58.5	16.54
18	02/25/02	09:27:21	0.285000	798.96	58.5	16.30
19	02/25/02	09:28:21	0.301666	815.00	58.6	16.03
20	02/25/02	09:29:21	0.318333	830.70	58.6	15.70
21	02/25/02	09:30:21	0.335000	846.19	58.6	15.48
22	02/25/02	09:31:21	0.351666	861.52	58.7	15.34
23	02/25/02	09:32:21	0.368333	877.04	58.7	15.51
24	02/25/02	09:33:21	0.385000	891.92	58.8	14.89
25	02/25/02	09:34:21	0.401666	906.82	58.8	14.90
26	02/25/02	09:35:21	0.418333	921.44	58.8	14.61
27	02/25/02	09:36:21	0.435000	935.93	58.9	14.49
28	02/25/02	09:37:21	0.451666	950.27	59.0	14.34
29	02/25/02	09:38:21	0.468333	964.27	59.0	14.01
30	02/25/02	09:39:21	0.485000	978.21	59.1	13.93
31	02/25/02	09:40:21	0.501666	991.89	59.2	13.69
32	02/25/02	09:45:21	0.585000	1059.26	59.6	67.37
33	02/25/02	09:50:21	0.668333	1124.22	60.2	64.95
34	02/25/02	09:55:21	0.751666	1186.20	60.5	61.99
35	02/25/02	10:00:21	0.835000	1245.92	61.0	59.71
36	02/25/02	10:05:21	0.918333	1303.43	61.2	57.51
37	02/25/02	10:10:21	1.001666	1359.13	61.5	55.70
38	02/25/02	10:15:21	1.085000	1413.25	61.5	54.19
39	02/25/02	10:20:21	1.168333	1465.95	62.2	52.67
40	02/25/02	10:25:21	1.251666	1517.48	62.6	51.53
41	02/25/02	10:30:21	1.335000	1568.02	63.3	50.54
42	02/25/02	10:35:21	1.418333	1617.54	63.8	49.51
43	02/25/02	10:40:21	1.501666	1666.17	64.6	48.63
44	02/25/02	10:45:21	1.585000	1713.88	65.2	47.72
45	02/25/02	10:50:21	1.668333	1761.04	65.8	47.16

Company: TMBR/SHARP DRILLING
Well Name: BLUE FIN 24 FED. #1
Location:
Field:
Test Type: HOUR BUILDUP
Gauge Depth: SURFACE
Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
46	02/25/02	10:55:21	1.751666	1907.75	66.0	46.71
47	02/25/02	11:00:21	1.835000	1853.73	66.4	45.99
48	02/25/02	11:05:21	1.918333	1899.36	67.1	45.53
49	02/25/02	11:10:21	2.001666	1944.54	67.7	45.18
50	02/25/02	11:15:21	2.085000	1989.14	68.4	44.60
51	02/25/02	11:20:21	2.168333	2033.47	69.0	44.32
52	02/25/02	11:25:21	2.251666	2077.44	69.6	43.96
53	02/25/02	11:30:21	2.335000	2121.23	70.0	43.78
54	02/25/02	11:35:21	2.418333	2164.56	70.2	43.33
55	02/25/02	11:40:21	2.501666	2207.39	70.5	42.83
56	02/25/02	11:45:21	2.585000	2250.01	71.0	42.63
57	02/25/02	11:50:21	2.668333	2292.32	71.3	42.30
58	02/25/02	11:55:21	2.751666	2334.03	71.5	41.71
59	02/25/02	12:00:21	2.835000	2375.22	71.9	41.19
60	02/25/02	12:05:21	2.918333	2415.83	72.0	40.61
61	02/25/02	12:10:21	3.001666	2455.77	72.1	39.95
62	02/25/02	12:15:21	3.085000	2494.98	72.2	39.21
63	02/25/02	12:20:21	3.168333	2533.33	72.2	38.35
64	02/25/02	12:25:21	3.251666	2570.43	72.6	37.11
65	02/25/02	12:30:21	3.335000	2606.58	73.4	36.15
66	02/25/02	12:35:21	3.418333	2642.05	73.4	35.47
67	02/25/02	12:40:21	3.501666	2676.04	73.5	33.99
68	02/25/02	12:45:21	3.585000	2708.67	73.4	32.62
69	02/25/02	12:50:21	3.668333	2739.88	73.8	31.21
70	02/25/02	12:55:21	3.751666	2769.80	74.3	29.92
71	02/25/02	13:00:21	3.835000	2798.20	74.6	28.39
72	02/25/02	13:05:21	3.918333	2825.04	74.6	26.84
73	02/25/02	13:10:21	4.001666	2850.52	74.7	25.48
74	02/25/02	13:15:21	4.085000	2874.60	74.8	24.08
75	02/25/02	13:20:21	4.168333	2897.39	75.2	22.79
76	02/25/02	13:25:21	4.251666	2919.06	75.6	21.67
77	02/25/02	13:30:21	4.335000	2939.46	76.4	20.40
78	02/25/02	13:35:21	4.418333	2958.72	76.6	19.27
79	02/25/02	13:40:21	4.501666	2976.78	76.6	18.05
80	02/25/02	13:45:21	4.585000	2993.70	76.8	16.93
81	02/25/02	13:50:21	4.668333	3009.56	77.0	15.85
82	02/25/02	13:55:21	4.751666	3024.51	77.0	14.96
83	02/25/02	14:00:21	4.835000	3038.74	77.3	14.23
84	02/25/02	14:05:21	4.918333	3051.67	77.6	12.93
85	02/25/02	14:10:21	5.001666	3063.48	77.8	11.81
86	02/25/02	14:15:21	5.085000	3074.49	78.0	11.02
87	02/25/02	14:20:21	5.168333	3084.78	78.4	10.29
88	02/25/02	14:25:21	5.251666	3094.34	78.2	9.57
89	02/25/02	14:30:21	5.335000	3103.28	78.7	8.94
90	02/25/02	14:35:21	5.418333	3111.60	78.7	8.32

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
91	02/25/02	14:40:21	5.501666	3119.43	78.0	7.83
92	02/25/02	14:45:21	5.585000	3126.78	77.9	7.35
93	02/25/02	14:50:21	5.668333	3133.62	78.1	6.84
94	02/25/02	14:55:21	5.751666	3140.07	77.8	6.45
95	02/25/02	15:00:21	5.835000	3146.45	77.6	6.38
96	02/25/02	15:05:21	5.918333	3152.68	77.5	6.24
97	02/25/02	15:10:21	6.001666	3158.63	77.5	5.94
98	02/25/02	15:25:21	6.251666	3174.51	77.3	15.88
99	02/25/02	15:40:21	6.501666	3188.25	77.4	13.75
100	02/25/02	15:55:21	6.751666	3200.39	77.5	12.13
101	02/25/02	16:10:21	7.001666	3211.32	78.6	10.93
102	02/25/02	16:25:21	7.251666	3219.92	65.1	8.60
103	02/25/02	16:40:21	7.501666	3227.83	58.8	7.90
104	02/25/02	16:55:21	7.751666	3235.99	54.6	8.16
105	02/25/02	17:10:21	8.001666	3243.31	50.0	7.32
106	02/25/02	17:25:21	8.251666	3250.19	44.6	6.88
107	02/25/02	17:40:21	8.501666	3256.92	40.4	6.73
108	02/25/02	17:55:21	8.751666	3263.56	37.2	6.64
109	02/25/02	18:10:21	9.001666	3269.58	34.3	6.02
110	02/25/02	18:25:21	9.251666	3274.95	32.3	5.37
111	02/25/02	18:40:21	9.501666	3280.19	30.6	5.25
112	02/25/02	18:55:21	9.751666	3285.20	28.8	5.01
113	02/25/02	19:10:21	10.001666	3289.79	27.2	4.59
114	02/25/02	19:25:21	10.251666	3293.94	26.1	4.15
115	02/25/02	19:40:21	10.501666	3298.06	24.7	4.13
116	02/25/02	19:55:21	10.751666	3301.80	24.1	3.73
117	02/25/02	20:10:21	11.001666	3305.47	23.6	3.67
118	02/25/02	20:25:21	11.251666	3308.90	23.1	3.43
119	02/25/02	20:40:21	11.501666	3312.32	22.8	3.43
120	02/25/02	20:55:21	11.751666	3315.60	22.8	3.27
121	02/25/02	21:10:21	12.001666	3318.73	22.1	3.14
122	02/25/02	21:40:21	12.501666	3324.46	21.3	5.73
123	02/25/02	22:10:21	13.001666	3330.03	20.7	5.57
124	02/25/02	22:40:21	13.501666	3335.31	20.1	5.28
125	02/25/02	23:10:21	14.001666	3340.32	19.3	5.00
126	02/25/02	23:40:21	14.501666	3345.19	18.1	4.87
127	02/26/02	00:10:21	15.001666	3349.70	17.4	4.51
128	02/26/02	00:40:21	15.501666	3353.91	16.5	4.21
129	02/26/02	01:10:21	16.001666	3357.95	15.9	4.03
130	02/26/02	01:40:21	16.501666	3361.75	15.3	3.80
131	02/26/02	02:10:21	17.001666	3365.24	14.8	3.49
132	02/26/02	02:40:21	17.501666	3368.66	14.4	3.42
133	02/26/02	03:10:21	18.001666	3372.31	13.8	3.66
134	02/26/02	04:10:21	19.001666	3378.90	13.0	6.59
135	02/26/02	05:10:21	20.001666	3385.05	12.1	6.15

Company: TMBR/SHARP DRILLING — Well Name: BLUE FIN 24 FED. #1
Location: — Field:
Test Type: HOUR BUILDUP — Gauge Depth: SURFACE
Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
136	02/26/02	06:10:21	21.001666	3390.40	11.5	5.38
137	02/26/02	07:10:21	22.001666	3394.03	15.1	3.63
138	02/26/02	08:10:21	23.001666	3397.60	19.7	3.58
139	02/26/02	09:10:21	24.001666	3401.16	23.2	3.57
140	02/26/02	10:10:21	25.001666	3404.95	27.2	3.78
141	02/26/02	11:10:21	26.001666	3408.41	30.6	3.46
142	02/26/02	12:10:21	27.001666	3411.36	35.8	2.95
143	02/26/02	13:10:21	28.001666	3414.96	41.8	3.60
144	02/26/02	14:10:21	29.001666	3418.40	46.2	3.43
145	02/26/02	15:10:21	30.001666	3420.98	48.3	2.59
146	02/26/02	16:10:21	31.001666	3424.17	49.5	3.19
147	02/26/02	17:10:21	32.001666	3427.15	46.5	2.99
148	02/26/02	18:10:21	33.001666	3430.24	31.2	3.09
149	02/26/02	19:10:21	34.001666	3433.93	23.1	3.69
150	02/26/02	20:10:21	35.001666	3437.41	19.5	3.48
151	02/26/02	21:10:21	36.001666	3440.21	18.7	2.79
152	02/26/02	22:10:21	37.001666	3443.02	17.6	2.81
153	02/26/02	23:10:21	38.001666	3445.91	16.7	2.89
154	02/27/02	00:10:21	39.001666	3448.43	16.9	2.53
155	02/27/02	01:10:21	40.001666	3450.49	18.0	2.05
156	02/27/02	02:10:21	41.001666	3452.82	17.6	2.33
157	02/27/02	03:10:21	42.001666	3454.92	17.9	2.11
158	02/27/02	04:10:21	43.001666	3456.63	20.2	1.70
159	02/27/02	05:10:21	44.001666	3458.78	20.8	2.16
160	02/27/02	06:10:21	45.001666	3460.92	20.1	2.13
161	02/27/02	07:10:21	46.001666	3461.79	28.4	0.87
162	02/27/02	08:10:21	47.001666	3463.34	33.1	1.55
163	02/27/02	09:10:21	48.001666	3465.17	41.7	1.83
164	02/27/02	10:10:21	49.001666	3467.21	47.2	2.04
165	02/27/02	11:10:21	50.001666	3469.02	54.3	1.81
166	02/27/02	12:10:21	51.001666	3471.55	59.8	2.53
167	02/27/02	13:10:21	52.001666	3473.56	60.9	2.00
168	02/27/02	14:10:21	53.001666	3475.86	56.3	2.31
169	02/27/02	15:10:21	54.001666	3477.61	60.0	1.75
170	02/27/02	16:10:21	55.001666	3478.88	58.9	1.27
171	02/27/02	17:10:21	56.001666	3480.44	58.9	1.56
172	02/27/02	18:10:21	57.001666	3481.73	41.6	1.29
173	02/27/02	19:10:21	58.001666	3483.53	35.7	1.80
174	02/27/02	20:10:21	59.001666	3485.29	33.7	1.76
175	02/27/02	21:10:21	60.001666	3487.19	30.2	1.90
176	02/27/02	22:10:21	61.001666	3489.21	26.5	2.02
177	02/27/02	23:10:21	62.001666	3490.99	24.7	1.78
178	02/28/02	00:10:21	63.001666	3492.19	27.5	1.20
179	02/28/02	01:10:21	64.001666	3493.96	25.3	1.77
180	02/28/02	02:10:21	65.001666	3496.05	22.7	2.08

Company: TMBR/SHARP DRILLING | Well Name: BLUE FIN 24 FED. #1

Location: | Field:

Test Type: HOUR BUILDUP | Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
181	02/28/02	03:10:21	66.001666	3497.94	20.9	1.89
182	02/28/02	04:10:21	67.001666	3499.65	19.8	1.71
183	02/28/02	05:10:21	68.001666	3501.08	20.2	1.43
184	02/28/02	06:10:21	69.001666	3502.56	20.2	1.48
185	02/28/02	07:10:21	70.001666	3503.69	21.7	1.14
186	02/28/02	08:10:21	71.001666	3503.82	31.9	0.13
187	02/28/02	09:10:21	72.001666	3505.12	47.4	1.30
188	02/28/02	10:10:21	73.001666	3506.72	51.0	1.60
189	02/28/02	11:10:21	74.001666	3508.51	59.6	1.80
190	02/28/02	12:10:21	75.001666	3509.73	59.4	1.22
191	02/28/02	13:10:21	76.001666	3511.20	62.2	1.47
192	02/28/02	14:10:21	77.001666	3512.43	61.2	1.22
193	02/28/02	15:10:21	78.001666	3513.62	60.3	1.19
194	02/28/02	16:10:21	79.001666	3514.79	57.5	1.17
195	02/28/02	17:10:21	80.001666	3515.75	51.9	0.96
196	02/28/02	18:10:21	81.001666	3516.68	43.4	0.93
197	02/28/02	19:10:21	82.001666	3517.89	40.1	1.21
198	02/28/02	20:10:21	83.001666	3519.15	37.1	1.26
199	02/28/02	21:10:21	84.001666	3520.32	36.2	1.18
200	02/28/02	22:10:21	85.001666	3521.64	34.6	1.32
201	02/28/02	23:10:21	86.001666	3522.90	33.8	1.26
202	03/01/02	00:10:21	87.001666	3524.08	33.7	1.18
203	03/01/02	01:10:21	88.001666	3525.25	34.3	1.17
204	03/01/02	02:10:21	89.001666	3526.38	34.5	1.13
205	03/01/02	03:10:21	90.001666	3527.60	32.9	1.22
206	03/01/02	04:10:21	91.001666	3528.95	30.4	1.35
207	03/01/02	05:10:21	92.001666	3530.26	28.7	1.31
208	03/01/02	06:10:21	93.001666	3531.18	30.3	0.92
209	03/01/02	07:10:21	94.001666	3531.81	38.0	0.64
210	03/01/02	08:10:21	95.001666	3533.34	54.7	1.53
211	03/01/02	09:10:21	96.001666	3534.98	61.8	1.63
212	03/01/02	10:10:21	97.001666	3536.35	65.9	1.37
213	03/01/02	11:10:21	98.001666	3537.54	69.3	1.19
214	03/01/02	12:10:21	99.001666	3538.71	72.5	1.17
215	03/01/02	13:10:21	100.001666	3539.79	74.4	1.08
216	03/01/02	14:10:21	101.001666	3540.74	74.6	0.95
217	03/01/02	15:10:21	102.001666	3541.71	74.3	0.97
218	03/01/02	16:10:21	103.001666	3542.93	71.4	0.82
219	03/01/02	17:10:21	104.001666	3543.13	68.5	0.80
220	03/01/02	18:10:21	105.001666	3543.62	59.4	0.49
221	03/01/02	19:10:21	106.001666	3544.45	57.1	0.84
222	03/01/02	20:10:21	107.001666	3545.72	57.5	1.26
223	03/01/02	21:10:21	108.001666	3547.08	24.1	1.33
224	03/01/02	22:10:21	109.001666	3548.66	21.0	1.61
225	03/01/02	23:10:21	110.001666	3549.80	20.2	1.14

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/SHARP DRILLING — Well Name: BLUE FIN 24 FED. #1

Location: — Field:

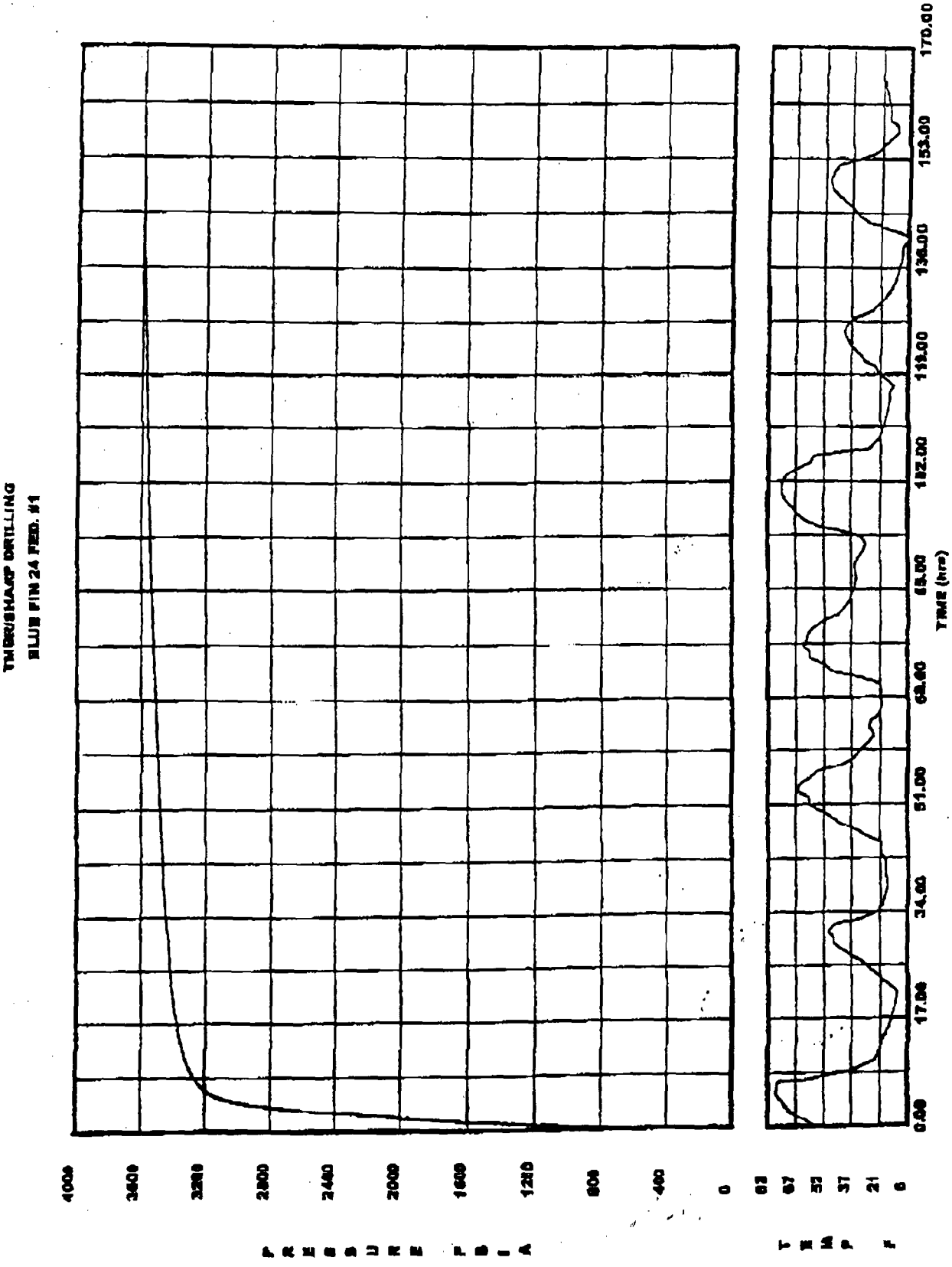
Test Type: HOUR BUILDUP — Gauge Depth: SURFACE

Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
226	03/02/02	00:10:21	111.001666	3551.07	18.8	1.27
227	03/02/02	01:10:21	112.001666	3552.29	17.7	1.23
228	03/02/02	02:10:21	113.001666	3553.45	16.8	1.16
229	03/02/02	03:10:21	114.001666	3554.50	16.4	1.04
230	03/02/02	04:10:21	115.001666	3555.62	15.8	1.12
231	03/02/02	05:10:21	116.001666	3556.50	16.0	0.88
232	03/02/02	06:10:21	117.001666	3558.03	13.9	1.54
233	03/02/02	07:10:21	118.001666	3557.94	17.2	-0.09
234	03/02/02	08:10:21	119.001666	3557.78	22.3	-0.17
235	03/02/02	09:10:21	120.001666	3558.33	24.2	0.56
236	03/02/02	10:10:21	121.001666	3558.61	23.5	0.27
237	03/02/02	11:10:21	122.001666	3559.36	31.1	0.75
238	03/02/02	12:10:21	123.001666	3559.97	34.6	0.61
239	03/02/02	13:10:21	124.001666	3560.75	37.6	0.78
240	03/02/02	14:10:21	125.001666	3561.55	39.4	0.80
241	03/02/02	15:10:21	126.001666	3562.39	40.3	0.84
242	03/02/02	16:10:21	127.001666	3563.17	38.8	0.79
243	03/02/02	17:10:21	128.001666	3564.21	34.4	1.03
244	03/02/02	18:10:21	129.001666	3565.53	26.1	1.32
245	03/02/02	19:10:21	130.001666	3566.63	23.2	1.10
246	03/02/02	20:10:21	131.001666	3568.17	18.6	1.53
247	03/02/02	21:10:21	132.001666	3569.59	17.0	1.42
248	03/02/02	22:10:21	133.001666	3571.09	14.5	1.50
249	03/02/02	23:10:21	134.001666	3572.44	12.9	1.36
250	03/03/02	00:10:21	135.001666	3573.64	11.8	1.20
251	03/03/02	01:10:21	136.001666	3574.85	10.8	1.25
252	03/03/02	02:10:21	137.001666	3576.06	9.9	1.18
253	03/03/02	03:10:21	138.001666	3576.99	9.7	0.93
254	03/03/02	04:10:21	139.001666	3578.03	9.1	1.04
255	03/03/02	05:10:21	140.001666	3579.66	7.4	1.64
256	03/03/02	06:10:21	141.001666	3580.92	6.5	1.24
257	03/03/02	07:10:21	142.001666	3577.62	17.1	-3.30
258	03/03/02	08:10:21	143.001666	3576.69	27.5	-0.92
259	03/03/02	09:10:21	144.001666	3577.01	32.6	0.31
260	03/03/02	10:10:21	145.001666	3577.62	35.4	0.62
261	03/03/02	11:10:21	146.001666	3578.19	39.2	0.57
262	03/03/02	12:10:21	147.001666	3578.90	43.9	0.70
263	03/03/02	13:10:21	148.001666	3579.68	47.6	0.79
264	03/03/02	14:10:21	149.001666	3580.46	48.5	0.77
265	03/03/02	15:10:21	150.001666	3581.14	48.6	0.68
266	03/03/02	16:10:21	151.001666	3581.77	47.9	0.63
267	03/03/02	17:10:21	152.001666	3582.34	43.8	0.56
268	03/03/02	18:10:21	153.001666	3583.44	32.4	1.10
269	03/03/02	19:10:21	154.001666	3584.94	24.1	1.50
270	03/03/02	20:10:21	155.001666	3586.21	20.8	1.27

Company: TIMBERSHARP DRILLING
Well Name: BLUE FIN 24 FED. #1
Location:
Field:
Test Type: HOUR BUILDUP
Gauge Depth: SURFACE
Serial Number:

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
271	03/03/02	21:10:21	156.001666	3587.96	16.2	1.75
272	03/03/02	22:10:21	157.001666	3589.80	12.5	1.84
273	03/03/02	23:10:21	158.001666	3590.35	12.7	0.55
274	03/04/02	00:10:21	159.001666	3589.69	16.9	-0.66
275	03/04/02	01:10:21	160.001666	3590.46	16.7	0.77
276	03/04/02	02:10:21	161.001666	3591.06	16.9	0.59
277	03/04/02	03:10:21	162.001666	3591.46	17.7	0.41
278	03/04/02	04:10:21	163.001666	3591.92	16.6	0.45
279	03/04/02	05:10:21	164.001666	3592.25	20.0	0.33
280	03/04/02	06:10:21	165.001666	3592.96	19.8	0.72


TIMBERSHARP DRILLING
BLUE FIN 24 FED. #1
4000
3600
3200
2800
2400
2000
1600
1200
800
400
0
170.00
153.00
136.00
119.00
102.00
85.00
68.00
51.00
34.00
17.00
0.00
TIME (hrs)

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/SHARP DRILLING
Address:	

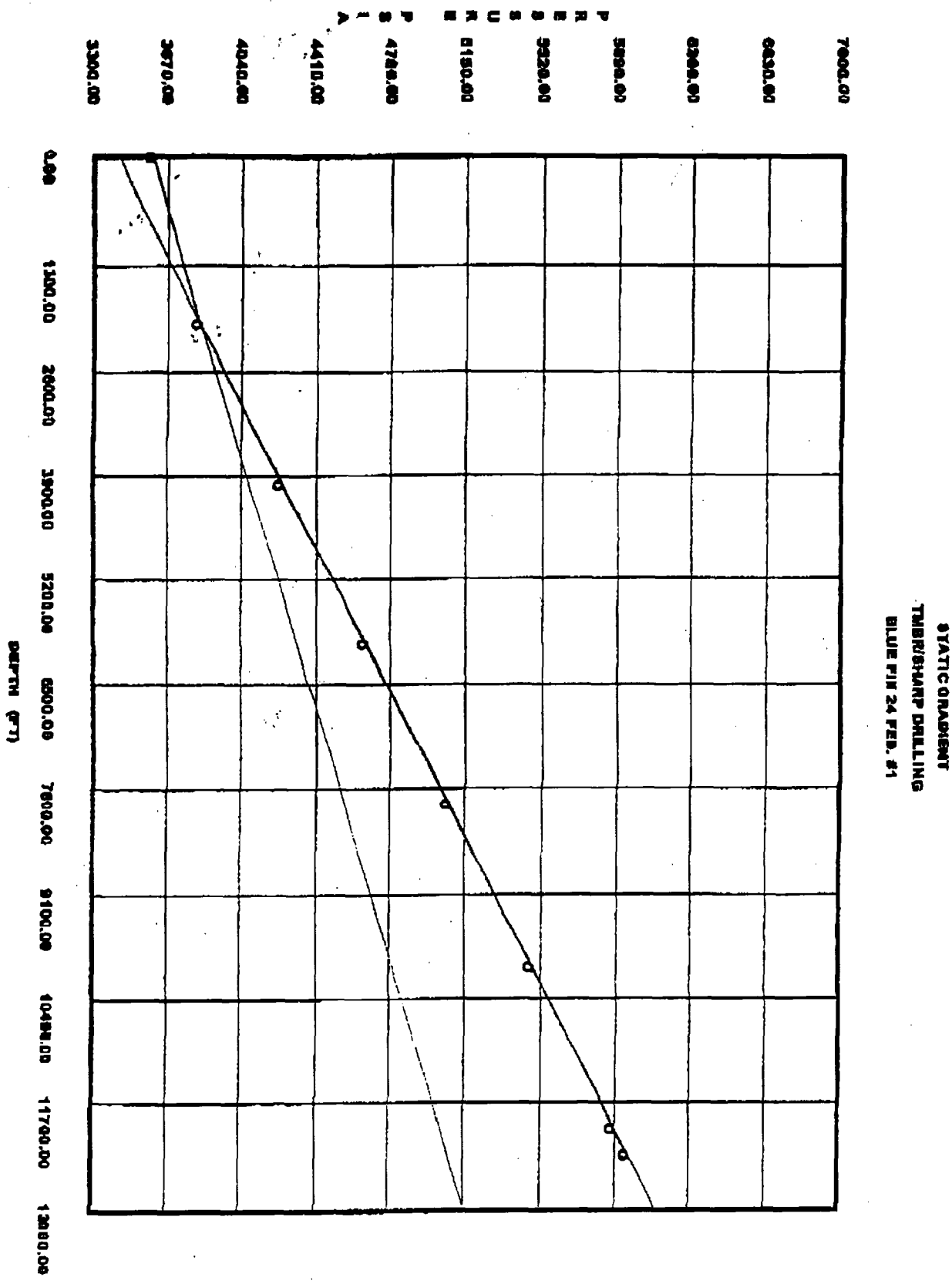
Well Information	
Well Name:	BLUE FIN 24 FED. #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	STATIC GRADIENT
Gauge Depth:	12315
Prod. Int. CF:	12396 through 12410
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3593
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	183.79 @ 12315
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115B	76077D
Calibration Date	6/01	6/01
Pressure Range	10000	10000

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO


STATIC ORIGINAL
TMBR/SHARP DRILLING
BLUE FIN 24 FED. #1
PRESSURE (PSIA)
3300.00
3670.00
4040.00
4410.00
4780.00
5150.00
5520.00
5890.00
6260.00
6630.00
7000.00
DEPTH (FT)
0.00
1100.00
2200.00
3300.00
4400.00
5500.00
6600.00
7700.00
8800.00
9900.00
11000.00
12100.00
13200.00

PRO WELL TESTING & WIRELINE

P.O. Box 791
Hobbs, New Mexico 88241
(505) 397-3590

July 29, 2002

Mr. Lonnie Arnold
TMBR/Sharp Drilling
4607 West Industrial
Midland, Texas 79703

OIL CONSERVATION COMMISSION
CASE NUMBER _____
EXHIBIT 13

Mr. Arnold,

I have analyzed the data from the 4 day build up that was run on the Bluefin 25 #1 in Lea County, New Mexico from July 25, 2002 through July 29, 2002. The data modeled as **a Two-Layer Reservoir with well bore storage and skin.** The data did show a slight cross-flow, but I just ignored this indication and matched the data as well as I could.

The first page of this report is the Main Results page, which has the parameters, used for the calculations and the answers that I found. I used a flow rate of **340 mcf/day** of gas. The net interval that I used was **25 feet of** interval with an average **porosity of 10%**. The flow time that I used was **48 hours** of production. The pressure that the model generated was **5425.33 psia**, the permeability was **0.0501 md.**, and the **formation skin was a +2.56 for the first layer and +0.0687 for the second layer**, and the radius of investigation was **121 feet.**

The second page is the simulation page. This page matches the model in red against the data in green. I only analyzed the final shut in, so the model will not match the first flow and shut in. The model matches most all the data very well. The model does deviate from the data though when the cross-flow occurs. The matching of the model to the Cartesian plot, the Semi-Log and Log-Log gives us a degree of confidence that we have chosen the correct model. If all three plots match well and the permeability, pressure and skin are reasonable numbers, then we know that the model is a believable one.

The third page is the Semi-Log plot. The pressure is in green and the model is the red line. The model matches the data very well. Due to the fact that this was a two-layer reservoir, I did not

draw a straight line. Since the well is not quite in radial flow, the early time slope would give us too low of a reservoir pressure and the late time data would show too high of a pressure.

The last page is the Log-Log plot with derivative. This is the actual model page that I use to match the data. The delta pressure is in green, the derivative data is in red, the data model is in a red solid line and the derivative model is the solid black line. The dotted horizontal line is the radial flow line that the model generates. This model matches the very well, except for a couple of segments in time.

I have included nodal plots for fracture half-length. The frac plot indicates that with a **200 ft. frac half-length, the well should make 1.5 mmscf/day after 30 days, 1.2 mmscf/day after 60 days and 1.1 mmscf/day after 90 days.**

We appreciate this work and look forward to working more with you in the near future. If you have any questions, please give me a call at 915-697-2932 or at our office in Hobbs, New Mexico at (505) 397-3590. Thank you.

Sincerely,

Robert E. Shafer Jr.
Pro Well Testing and Wireline

Disclaimer:
We do not accept any responsibility for any actions taken as a result of this interpretation. This is a best estimate of reservoir parameters and due to the short flow time of this well, conditions could change.

PRO WIRELINE

Main Results	Analysis 1
Company TMBR/Sharp Drilling	Field
Well Blue Fin 25 #1	Test Name / #

Test date / time	
Formation interval	
Perforated interval	12429-468
Gauge type / #	
Gauge depth	
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.33 ft
Pay Zone h	25 ft
Connate Water (%)	30
Water Salt (ppm)	10000
Rock compr.	3E-6 psi-1
Reservoir T	185.7 °F
Reservoir P	7000 psia
FLUID TYPE	Gas

Gas

Gas Gravity	0.7
Pseudo-Critical P	663.573 psia
Pseudo-Critical T	377.584 °R

Sour gas composition

Hydrogen sulphide	0
Carbon dioxide	0
Nitrogen	0

Water

Salinity, ppm	10000
WGR	0 bbl/MMcf
Reservoir T	185.7 °F
Reservoir P	7000 psia
Properties	@ Reservoir T&P

Gas

Z	1.16404
Mug	0.0335048 cp
Bg	0.00303451 cf/scf
Cg	6.58067E-5 psi-1
Rhog	0.282533 g/cc

Water

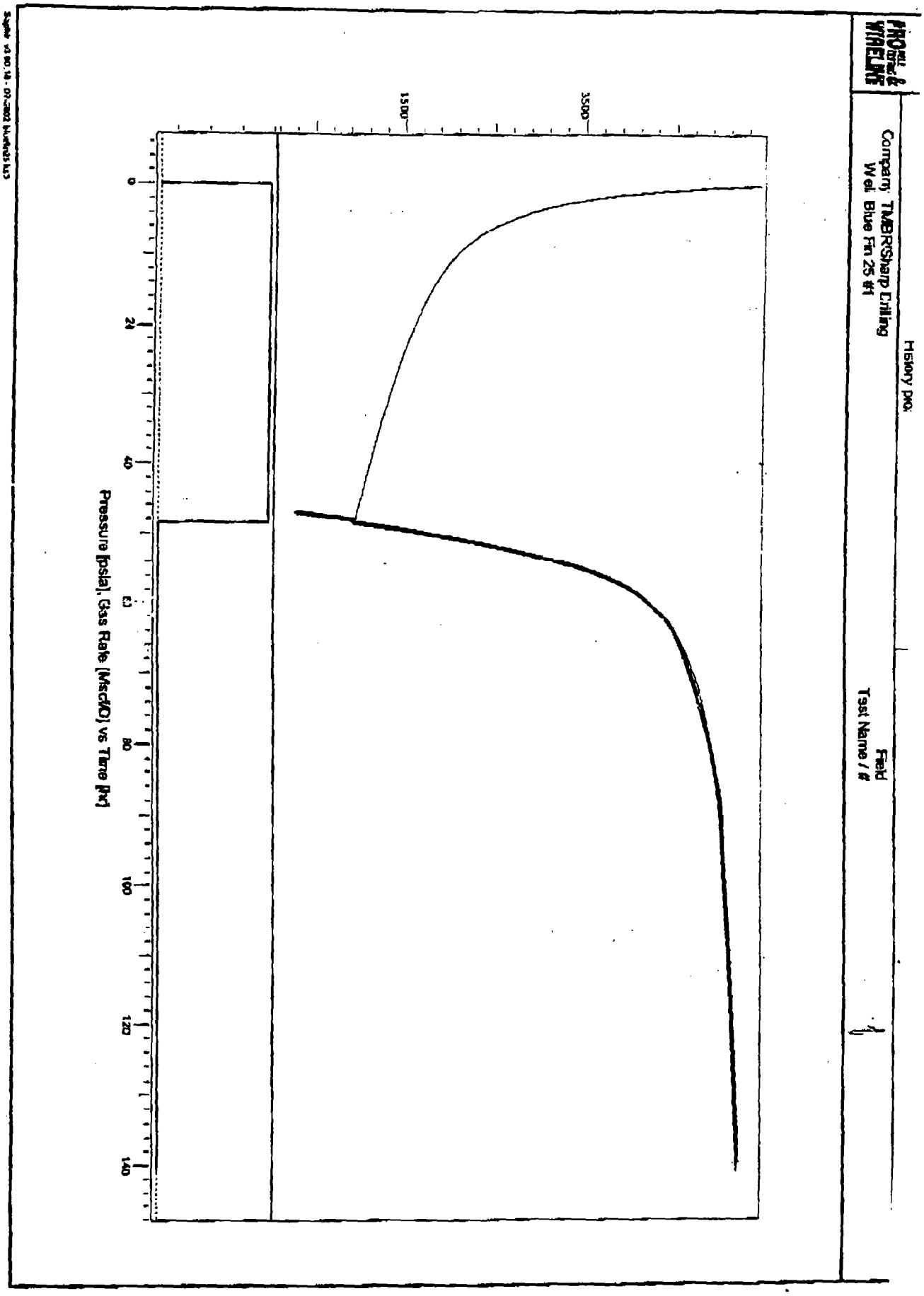
Rsw	25.9525 cf/bbl
Bw	1.00803 B/STB
Cw	3.14135E-6 psi-1
Muw	0.353579 cp
Rhow	0.999662 g/oc
Total Compr. ct	5.00071E-5 psi-1

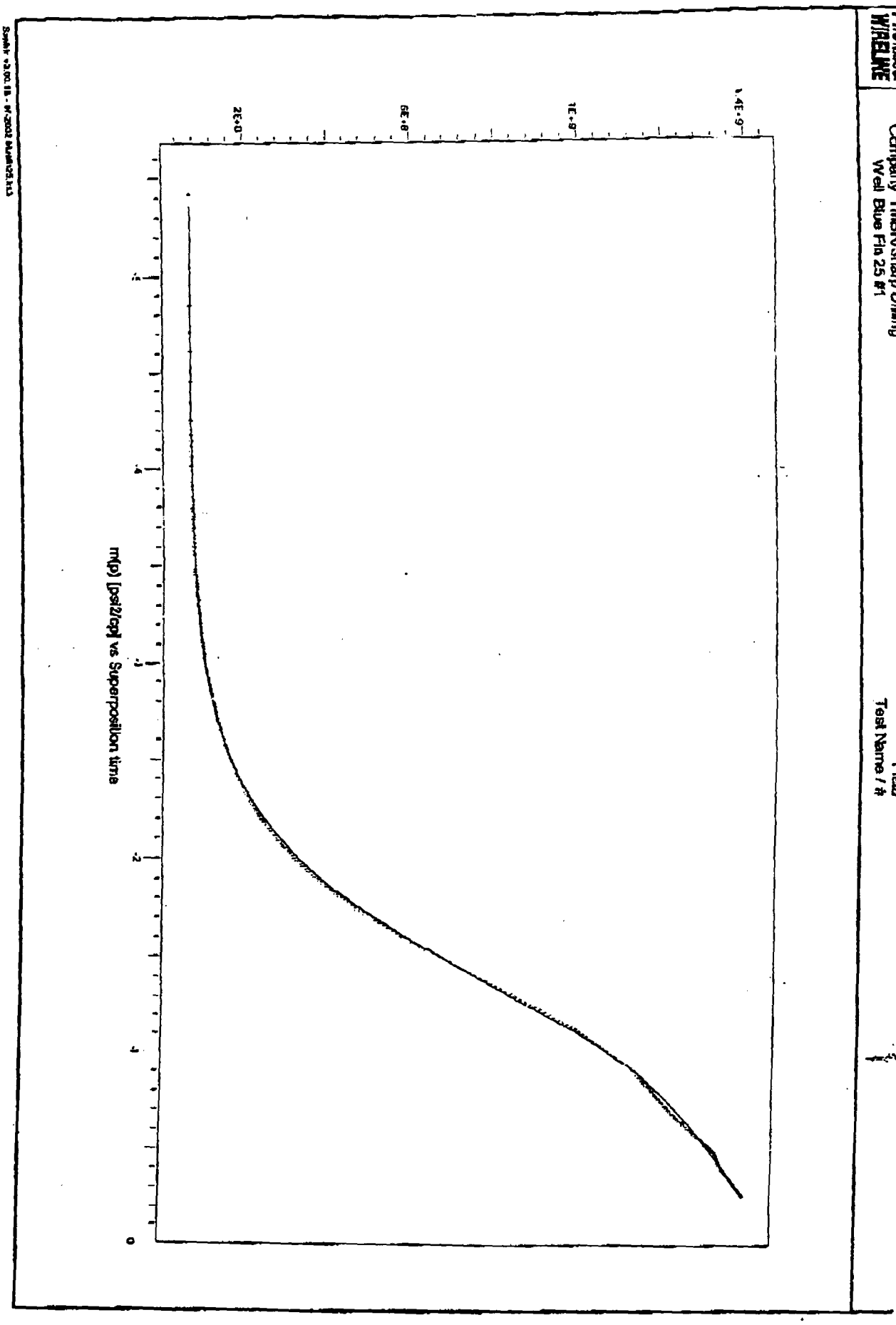
Selected Model

Model Option	Standard Model
Well	Storage + Skin
WBS Type	Changing
Reservoir	Two Layers
Boundary	Infinite

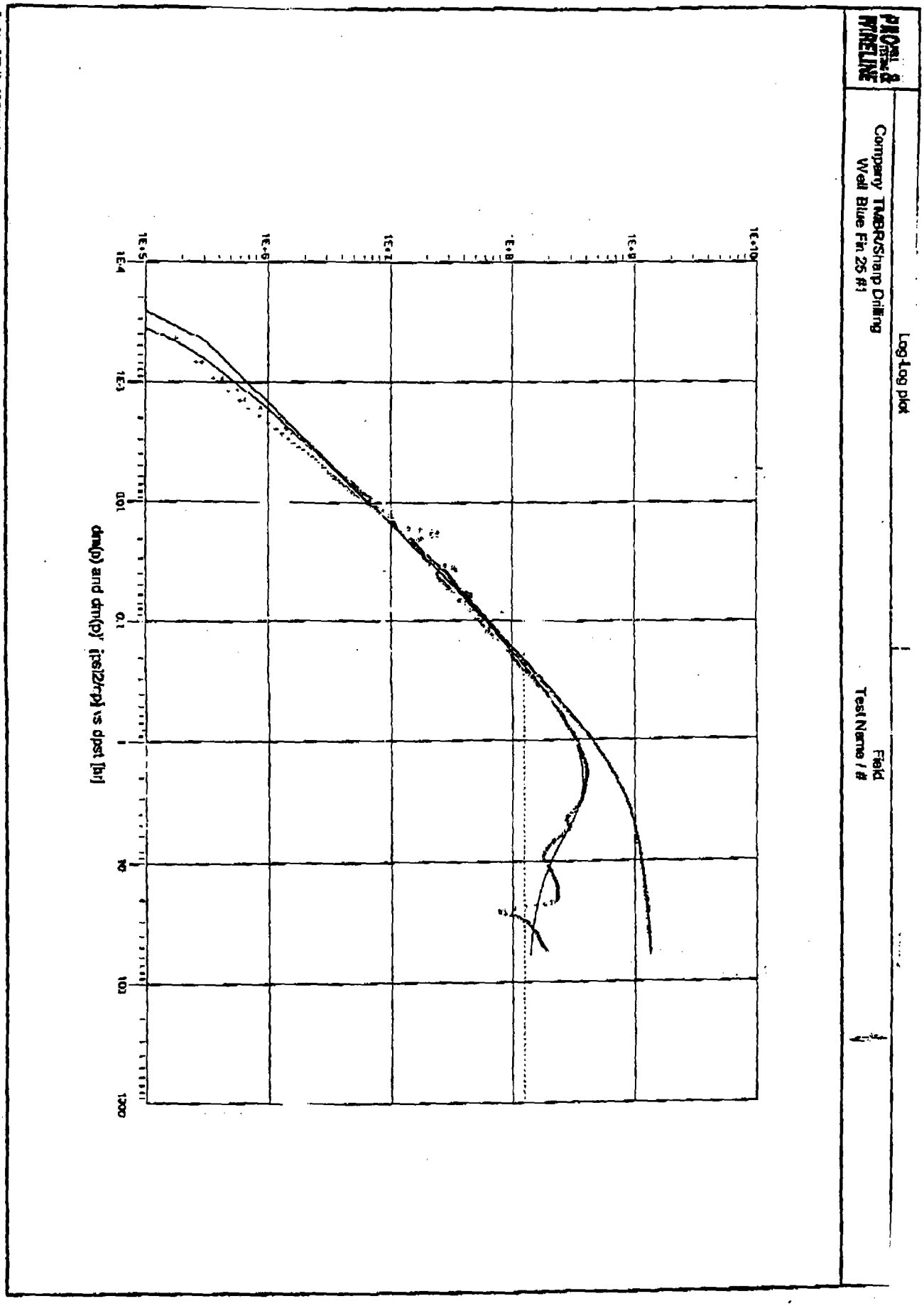
Results

TMatch	2.69 [hr]**-1
PMatch	4.01E-9 [psi2/cp]**-1
C	0.00411 STB/psi
Cf/Cf	12.5
Alpha	0.151
skin1	2.56
skin2	0.0687
Pi	5425.33 psia
k.h	1.25 md.ft
k	0.0501 md
Omega	0.0436
Lambda	6.72E-5
Kappa	0.00706
Rinv	121 ft
Test. Vol.	20345.1 Barrels


Company: TMBR/Sharp Drilling
Well: Blue Fin 25 #1
Field
Test Name / #
History pkt:
1500
3500
0
20
40
60
80
100
120
140
Pressure [psia], Gas Rate [Mscf/D] vs Time [hr]


PRO
WIRELINE
Company TMBR/Sharp Drilling
Well Blue Fin 25 #1
Field
Test Name / #
Semi-Log plot
m(p) [psi2/cp] vs Superposition time
2E+0
8E+8
1E+9
1.4E+9
0
1
2
3
4

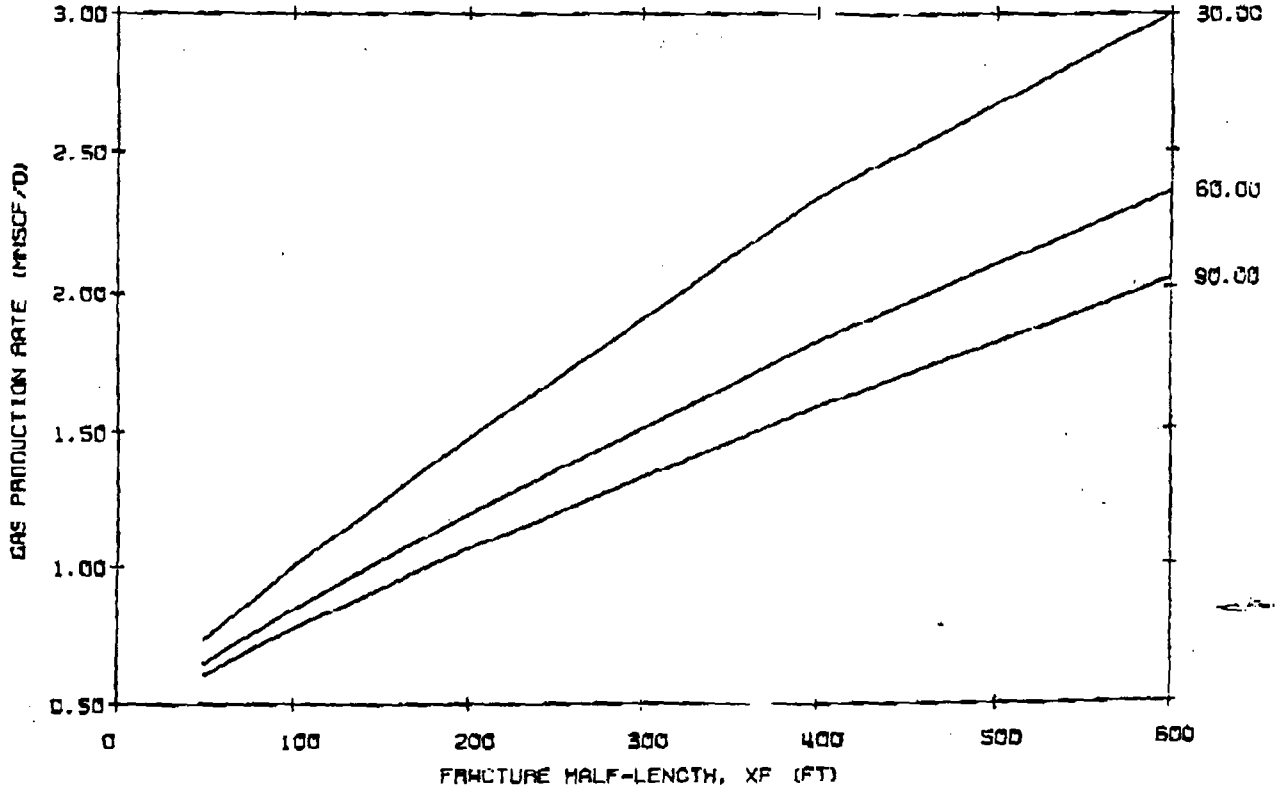
TMBR000809


PRO PETROLEUM & PIPELINE
Company TMBR/Sharp Drilling
Well Blue Fin 25 #1
Log-Log plot
Field
Test Name / #
dm(p) and dm(p)' [psi2/cp] vs dpst [hr]
1E-5
1E-4
1E-3
0.01
0.1
1
10
100
1000
1E-6
1E-7
1E-8
1E-9
1E-10

WELL TEST INTERPRETATION REPORT =:Bluefin7 CLIENT : TMBR/Share Drilling		PAGE: 26, 29-JUL-**
REGION : DISTRICT: BASE : ENGINEER:	SENSITIVITY ANALYSIS RATE VS. XF (VS. TIME)	FIELD: ZONE : WELL :Blue Fin 25 #1 LOCATION:

RESERVOIR PRESSURE: 5425 PSI LIQUID/GAS RATIO: 72 STB/MMSCF
PERMEABILITY: 0.050 MD TUBING SIZE: 2.441 IN (ID)
NET THICKNESS: 25 FT WELLHEAD PRESSURE: 250 PSI

FRACTURE CONDUCTIVITY, KF*W: 500 MD.FT



PRODUCTION RATE VS. FRAC. HALF-LENGTH, TRANSIENT CONDITIONS
30.00 TO 90.00 DAYS:

FORM* 11.00-102590

PRO WELL TESTING & WIRELINE

PRESSURE SURVEY REPORT

TMBR/SHARP DRILLING
BLUE FIN 25 #1
91 HOUR BUILDUP
7/25/02 TO 7/29/02

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO WELL & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 25 #1
Location:	
Field - Pool:	
Status:	FLOWING

Test Information	
Type Of Test:	FLOWING GRADIENT
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12436
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	240
Casing Pressure:	
Shut In Time:	
Status:	FLOWING
Temp @ Run Depth:	151.12 @ 12340
Surface Temperature:	

Gauge Information	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

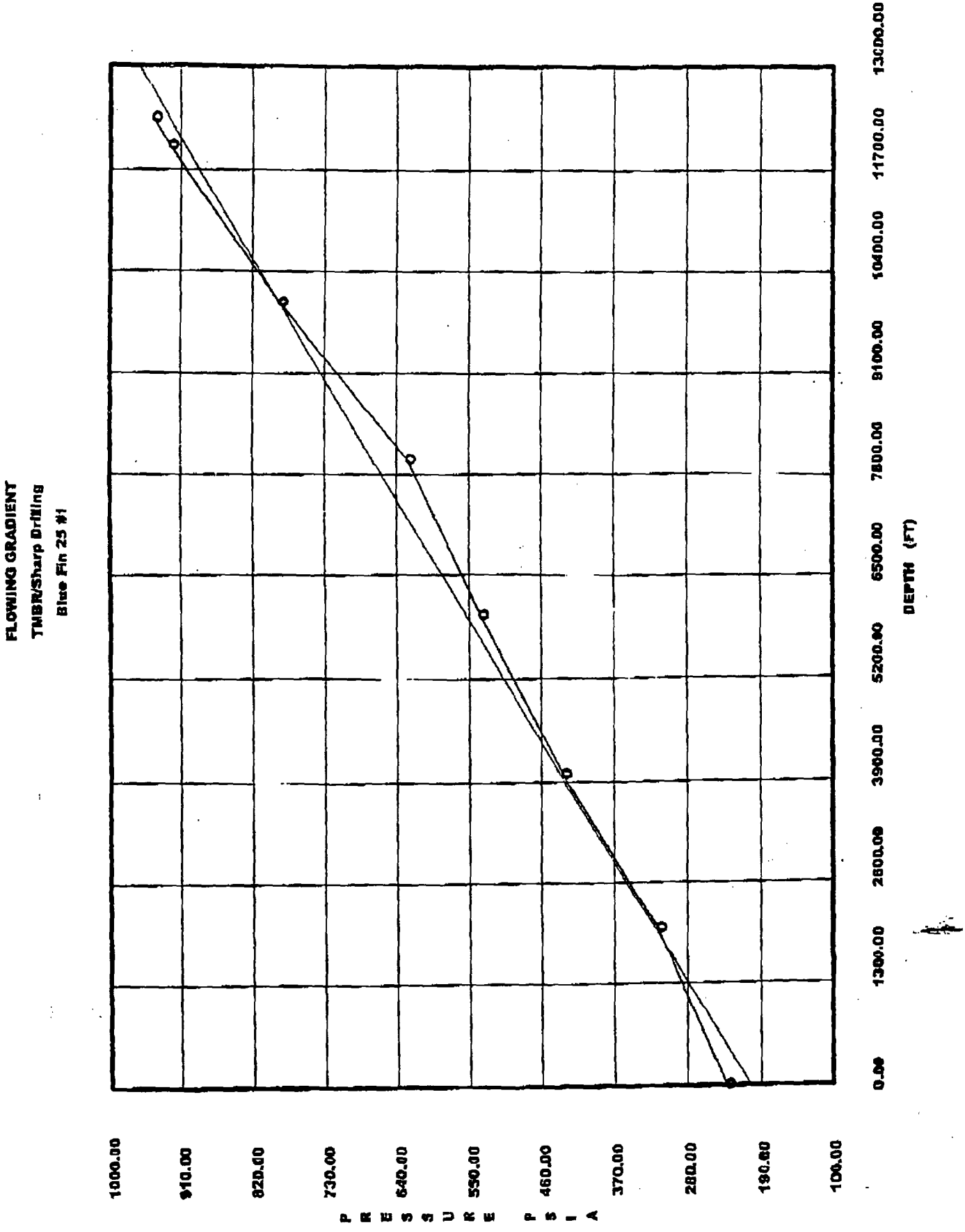
PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO & WIRELINE

GRADIENT DATA SHEET

Depth ft	Pressure PSIA	Temperature Deg. F	Gradient PSIA/ft	Fluid Level ft
0.0000	232.88000	100.34000		
			0.04210	
2000.0000	317.08000	93.31700		
			0.05804	
4000.0000	433.16000	107.29000		
			0.05169	
6000.0000	536.53000	120.02000		
			0.04496	
8000.0000	626.44000	131.66000		
			0.08019	
10000.0000	786.82000	154.38000		
			0.06850	
12000.0000	923.82000	173.75000		
			0.06171	
12340.0000	944.80000	151.12000		
	END			

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO


FLOWING GRADIENT
TMBR/Sharp Drilling
Blue Fin 25 #1
1000.00
910.00
820.00
730.00
640.00
550.00
460.00
370.00
280.00
190.00
100.00
PRESSURE PSIA
0.00
1300.00
2600.00
3900.00
5200.00
6500.00
7800.00
9100.00
10400.00
11700.00
13000.00
DEPTH (FT)

PRO WELL & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 26 #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	91 HOUR BUILDUP
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12466
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3000
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	185.78 @ 12340
Surface Temperature:	

Gauge Information	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

Company: TMBR/Sharp Drilling **Well Name: Blue Fin 25 #1**

Location: **Field:**

Test Type: 91 HOUR BUILDUP **Gauge Depth: 12340**

Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
1	07/25/02	12:34:27	0.000000	954.75	152.6	0.00
2	07/25/02	12:35:27	0.016667	959.80	152.1	5.05
3	07/25/02	12:36:27	0.033334	968.13	152.7	8.33
4	07/25/02	12:37:27	0.050000	978.87	153.3	10.74
5	07/25/02	12:38:27	0.066667	990.22	153.8	11.35
6	07/25/02	12:39:27	0.083334	1001.98	154.2	11.76
7	07/25/02	12:40:27	0.100000	1013.66	154.6	11.68
8	07/25/02	12:41:27	0.116667	1025.76	154.9	11.90
9	07/25/02	12:42:27	0.133334	1039.96	154.8	14.20
10	07/25/02	12:43:27	0.150000	1058.48	153.1	18.52
11	07/25/02	12:44:27	0.166667	1070.11	153.8	11.62
12	07/25/02	12:45:27	0.183334	1081.63	154.4	11.52
13	07/25/02	12:46:27	0.200000	1092.90	154.8	11.27
14	07/25/02	12:47:27	0.216667	1103.46	155.2	10.56
15	07/25/02	12:48:27	0.233334	1114.24	155.6	10.78
16	07/25/02	12:49:27	0.250000	1127.95	155.3	13.70
17	07/25/02	12:50:27	0.266667	1141.90	154.1	13.95
18	07/25/02	12:51:27	0.283334	1151.64	154.7	9.75
19	07/25/02	12:52:27	0.300000	1161.06	155.3	9.42
20	07/25/02	12:53:27	0.316667	1169.76	155.6	8.70
21	07/25/02	12:54:27	0.333334	1178.87	155.9	9.12
22	07/25/02	12:55:27	0.350000	1188.57	156.1	9.70
23	07/25/02	12:56:27	0.366667	1197.95	156.3	9.38
24	07/25/02	12:57:27	0.383334	1211.17	155.9	13.22
25	07/25/02	12:58:27	0.400000	1222.77	155.1	11.60
26	07/25/02	12:59:27	0.416667	1230.92	155.5	8.15
27	07/25/02	13:00:27	0.433334	1240.18	156.0	9.26
28	07/25/02	13:01:27	0.450000	1248.53	156.3	8.35
29	07/25/02	13:02:27	0.466667	1262.13	155.4	13.60
30	07/25/02	13:03:27	0.483334	1271.27	155.8	9.14
31	07/25/02	13:04:27	0.500000	1279.96	156.2	8.69
32	07/25/02	13:09:27	0.583334	1327.40	156.7	47.44
33	07/25/02	13:14:27	0.666667	1369.52	157.4	42.12
34	07/25/02	13:19:27	0.750000	1412.77	157.8	43.25
35	07/25/02	13:24:27	0.833334	1458.54	156.8	45.77
36	07/25/02	13:29:27	0.916667	1505.21	157.0	46.67
37	07/25/02	13:34:27	1.000000	1547.10	157.4	41.89
38	07/25/02	13:39:27	1.083334	1588.84	157.9	41.74
39	07/25/02	13:44:27	1.166667	1628.57	158.3	39.72
40	07/25/02	13:49:27	1.250000	1667.03	158.7	38.47
41	07/25/02	13:54:27	1.333334	1705.96	159.0	38.94
42	07/25/02	13:59:27	1.416667	1744.66	159.3	38.69
43	07/25/02	14:04:27	1.500000	1782.99	159.5	38.33
44	07/25/02	14:09:27	1.583334	1821.44	159.8	38.45
45	07/25/02	14:14:27	1.666667	1859.72	160.0	38.28

Company: TMBR/Sharp Drilling **Well Name: Blue Fin 25 #1**

Location: **Field:**

Test Type: 91 HOUR BUILDUP **Gauge Depth: 12340**

Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
46	07/25/02	14:19:27	1.750000	1895.72	160.1	36.00
47	07/25/02	14:24:27	1.833334	1932.99	160.4	37.28
48	07/25/02	14:29:27	1.916667	1972.21	160.7	39.22
49	07/25/02	14:34:27	2.000000	2008.18	160.9	35.97
50	07/25/02	14:39:27	2.083334	2044.67	161.1	36.49
51	07/25/02	14:44:27	2.166667	2080.27	161.3	35.60
52	07/25/02	14:49:27	2.250000	2115.69	161.6	35.43
53	07/25/02	14:54:27	2.333334	2151.09	161.8	35.40
54	07/25/02	14:59:27	2.416667	2185.69	162.1	34.60
55	07/25/02	15:04:27	2.500000	2221.04	162.3	35.34
56	07/25/02	15:09:27	2.583334	2255.57	162.6	34.53
57	07/25/02	15:14:27	2.666667	2290.43	162.9	34.86
58	07/25/02	15:19:27	2.750000	2324.00	163.1	33.57
59	07/25/02	15:24:27	2.833334	2358.00	163.4	34.00
60	07/25/02	15:29:27	2.916667	2389.95	163.6	31.95
61	07/25/02	15:34:27	3.000000	2422.33	163.8	32.38
62	07/25/02	15:39:27	3.083334	2453.84	164.0	31.50
63	07/25/02	15:44:27	3.166667	2484.70	164.3	30.86
64	07/25/02	15:49:27	3.250000	2515.57	164.5	30.87
65	07/25/02	15:54:27	3.333334	2546.63	164.8	31.06
66	07/25/02	15:59:27	3.416667	2577.31	165.0	30.68
67	07/25/02	16:04:27	3.500000	2607.18	165.3	29.86
68	07/25/02	16:09:27	3.583334	2637.02	165.5	29.84
69	07/25/02	16:14:27	3.666667	2667.08	165.7	30.06
70	07/25/02	16:19:27	3.750000	2696.26	166.0	29.18
71	07/25/02	16:24:27	3.833334	2724.60	166.2	28.34
72	07/25/02	16:29:27	3.916667	2752.69	166.4	28.09
73	07/25/02	16:34:27	4.000000	2780.79	166.6	28.10
74	07/25/02	16:39:27	4.083334	2808.69	166.8	27.90
75	07/25/02	16:44:27	4.166667	2836.16	167.1	27.46
76	07/25/02	16:49:27	4.250000	2863.41	167.3	27.25
77	07/25/02	16:54:27	4.333334	2890.21	167.5	26.80
78	07/25/02	16:59:27	4.416667	2916.76	167.7	26.55
79	07/25/02	17:04:27	4.500000	2943.60	167.9	26.84
80	07/25/02	17:09:27	4.583334	2969.44	168.1	25.84
81	07/25/02	17:14:27	4.666667	2995.38	168.3	25.94
82	07/25/02	17:19:27	4.750000	3021.40	168.5	26.03
83	07/25/02	17:24:27	4.833334	3046.64	168.7	25.24
84	07/25/02	17:29:27	4.916667	3071.11	168.9	24.48
85	07/25/02	17:34:27	5.000000	3096.41	169.1	25.31
86	07/25/02	17:39:27	5.083334	3120.98	169.3	24.56
87	07/25/02	17:44:27	5.166667	3144.86	169.5	23.88
88	07/25/02	17:49:27	5.250000	3168.75	169.7	23.89
89	07/25/02	17:54:27	5.333334	3192.84	169.9	24.10
90	07/25/02	17:59:27	5.416667	3216.30	170.1	23.45

Company: TMBR/Sharp Drilling **Well Name: Blue Fin 25 #1**

Location: **Field:**

Test Type: 91 HOUR BUILDUP **Gauge Depth: 12340**

Serial Number: 76077

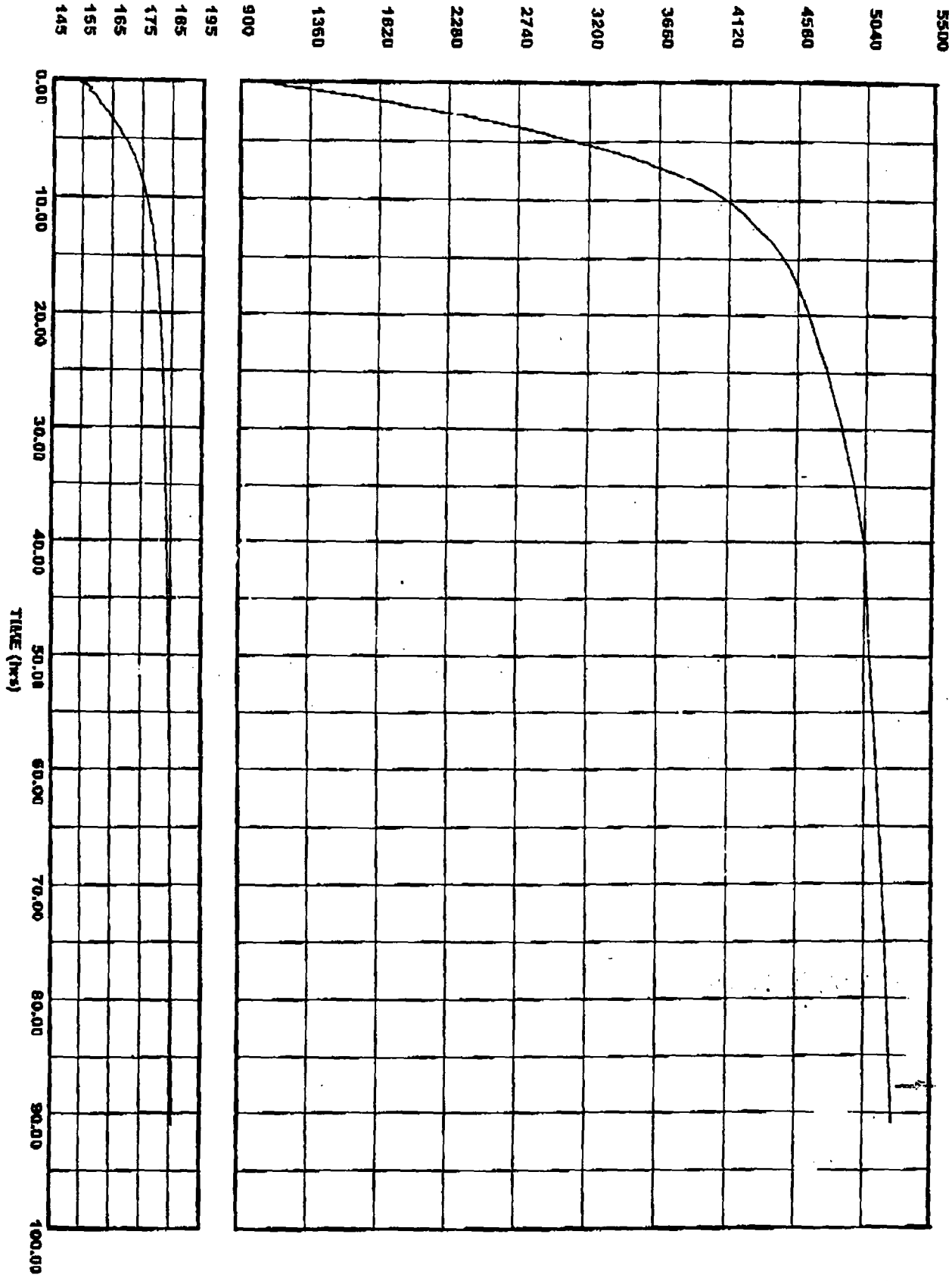
	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
91	07/25/02	18:04:27	5.500000	3239.62	170.2	23.32
92	07/25/02	18:09:27	5.583334	3262.64	170.4	23.02
93	07/25/02	18:14:27	5.666667	3285.46	170.5	22.82
94	07/25/02	18:19:27	5.750000	3308.08	170.7	22.62
95	07/25/02	18:24:27	5.833334	3330.18	170.9	22.10
96	07/25/02	18:29:27	5.916667	3352.08	171.0	21.90
97	07/25/02	18:34:27	6.000000	3373.47	171.2	21.38
98	07/25/02	18:49:27	6.250000	3436.43	171.6	62.96
99	07/25/02	19:04:27	6.500000	3496.18	172.0	59.75
100	07/25/02	19:19:27	6.750000	3553.18	172.4	57.01
101	07/25/02	19:34:27	7.000000	3607.52	172.7	54.34
102	07/25/02	19:49:27	7.250000	3659.42	173.1	51.89
103	07/25/02	20:04:27	7.500000	3708.77	173.4	49.36
104	07/25/02	20:19:27	7.750000	3756.45	173.7	47.68
105	07/25/02	20:34:27	8.000000	3800.98	174.0	44.53
106	07/25/02	20:49:27	8.250000	3843.87	174.2	42.90
107	07/25/02	21:04:27	8.500000	3884.67	174.5	40.80
108	07/25/02	21:19:27	8.750000	3923.76	174.8	39.09
109	07/25/02	21:34:27	9.000000	3960.86	175.1	37.10
110	07/25/02	21:49:27	9.250000	3996.24	175.3	35.38
111	07/25/02	22:04:27	9.500000	4029.75	175.6	33.51
112	07/25/02	22:19:27	9.750000	4061.36	175.8	31.61
113	07/25/02	22:34:27	10.000000	4091.40	176.1	30.04
114	07/25/02	22:49:27	10.250000	4119.37	176.3	27.97
115	07/25/02	23:04:27	10.500000	4144.78	176.5	25.40
116	07/25/02	23:19:27	10.750000	4168.40	176.8	23.62
117	07/25/02	23:34:27	11.000000	4191.17	176.9	22.77
118	07/25/02	23:49:27	11.250000	4212.88	177.1	21.70
119	07/26/02	00:04:27	11.500000	4233.81	177.3	20.94
120	07/26/02	00:19:27	11.750000	4253.84	177.4	20.03
121	07/26/02	00:34:27	12.000000	4273.48	177.6	19.63
122	07/26/02	01:04:27	12.500000	4313.93	178.0	40.45
123	07/26/02	01:34:27	13.000000	4353.13	178.2	39.21
124	07/26/02	02:04:27	13.500000	4387.85	178.5	34.72
125	07/26/02	02:34:27	14.000000	4418.80	178.8	30.95
126	07/26/02	03:04:27	14.500000	4446.66	179.0	27.85
127	07/26/02	03:34:27	15.000000	4471.93	179.3	25.27
128	07/26/02	04:04:27	15.500000	4494.97	179.5	23.04
129	07/26/02	04:34:27	16.000000	4516.08	179.7	21.11
130	07/26/02	05:04:27	16.500000	4535.55	179.9	19.48
131	07/26/02	05:34:27	17.000000	4553.60	180.1	18.05
132	07/26/02	06:04:27	17.500000	4570.34	180.2	16.74
133	07/26/02	06:34:27	18.000000	4586.12	180.4	15.77
134	07/26/02	07:34:27	19.000000	4614.96	180.7	28.85
135	07/26/02	08:34:27	20.000000	4641.08	180.9	26.12

Company: TMBR/Sharp Drilling
Well Name: Blue Fin 25 #1
Location:
Field:
Test Type: 91 HOUR BUILDUP
Gauge Depth: 12340
Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
136	07/26/02	09:34:27	21.000000	4666.52	181.2	25.44
137	07/26/02	10:34:27	22.000000	4691.55	181.4	25.03
138	07/26/02	11:34:27	23.000000	4716.07	181.6	24.52
139	07/26/02	12:34:27	24.000000	4739.80	181.8	23.74
140	07/26/02	13:34:27	25.000000	4762.73	182.0	22.93
141	07/26/02	14:34:27	26.000000	4784.71	182.1	21.97
142	07/26/02	15:34:27	27.000000	4805.87	182.3	21.17
143	07/26/02	16:34:27	28.000000	4827.30	182.5	21.43
144	07/26/02	17:34:27	29.000000	4847.89	182.6	20.59
145	07/26/02	18:34:27	30.000000	4867.54	182.7	19.65
146	07/26/02	19:34:27	31.000000	4886.33	182.9	18.79
147	07/26/02	20:34:27	32.000000	4904.36	183.0	18.02
148	07/26/02	21:34:27	33.000000	4921.53	183.1	17.17
149	07/26/02	22:34:27	34.000000	4938.01	183.2	16.48
150	07/26/02	23:34:27	35.000000	4953.94	183.3	15.93
151	07/27/02	00:34:27	36.000000	4969.30	183.4	15.36
152	07/27/02	01:34:27	37.000000	4984.02	183.5	14.72
153	07/27/02	02:34:27	38.000000	4998.10	183.6	14.07
154	07/27/02	03:34:27	39.000000	5010.93	183.7	12.83
155	07/27/02	04:34:27	40.000000	5022.40	183.7	11.48
156	07/27/02	05:34:27	41.000000	5030.65	183.8	8.25
157	07/27/02	06:34:27	42.000000	5036.39	183.9	5.73
158	07/27/02	07:34:27	43.000000	5039.81	183.9	3.42
159	07/27/02	08:34:27	44.000000	5042.58	184.0	2.77
160	07/27/02	09:34:27	45.000000	5045.79	184.1	3.21
161	07/27/02	10:34:27	46.000000	5049.42	184.1	3.63
162	07/27/02	11:34:27	47.000000	5053.34	184.2	3.93
163	07/27/02	12:34:27	48.000000	5057.57	184.2	4.23
164	07/27/02	13:34:27	49.000000	5061.93	184.3	4.36
165	07/27/02	14:34:27	50.000000	5066.49	184.4	4.56
166	07/27/02	15:34:27	51.000000	5071.06	184.4	4.57
167	07/27/02	16:34:27	52.000000	5075.67	184.5	4.62
168	07/27/02	17:34:27	53.000000	5080.20	184.5	4.53
169	07/27/02	18:34:27	54.000000	5084.79	184.6	4.58
170	07/27/02	19:34:27	55.000000	5089.38	184.6	4.59
171	07/27/02	20:34:27	56.000000	5093.94	184.7	4.56
172	07/27/02	21:34:27	57.000000	5098.47	184.7	4.53
173	07/27/02	22:34:27	58.000000	5102.90	184.8	4.43
174	07/27/02	23:34:27	59.000000	5107.22	184.8	4.32
175	07/28/02	00:34:27	60.000000	5111.59	184.9	4.37
176	07/28/02	01:34:27	61.000000	5115.92	184.9	4.34
177	07/28/02	02:34:27	62.000000	5120.28	184.9	4.36
178	07/28/02	03:34:27	63.000000	5124.46	185.0	4.19
179	07/28/02	04:34:27	64.000000	5128.60	185.0	4.13
180	07/28/02	05:34:27	65.000000	5132.67	185.1	4.07

Company: TMBR/Sharp Drilling | Well Name: Blue Fin 25 #1
Location: | Field:
Test Type: 91 HOUR BUILDUP | Gauge Depth: 12340
Serial Number: 76077

	Date mm/dd/yy	Real Time hh:mm:ss	DeltaTime hours	Pressure PSIA	Temperature F	Differential PSIA
181	07/28/02	06:34:27	66.000000	5136.66	185.1	3.99
182	07/28/02	07:34:27	67.000000	5140.63	185.1	3.97
183	07/28/02	08:34:27	68.000000	5144.63	185.2	4.00
184	07/28/02	09:34:27	69.000000	5148.60	185.2	3.97
185	07/28/02	10:34:27	70.000000	5152.49	185.2	3.89
186	07/28/02	11:34:27	71.000000	5156.27	185.3	3.78
187	07/28/02	12:34:27	72.000000	5159.92	185.3	3.65
188	07/28/02	13:34:27	73.000000	5163.40	185.3	3.48
189	07/28/02	14:34:27	74.000000	5166.92	185.4	3.51
190	07/28/02	15:34:27	75.000000	5170.37	185.4	3.46
191	07/28/02	16:34:27	76.000000	5173.85	185.4	3.47
192	07/28/02	17:34:27	77.000000	5177.18	185.4	3.33
193	07/28/02	18:34:27	78.000000	5180.61	185.5	3.43
194	07/28/02	19:34:27	79.000000	5183.85	185.5	3.24
195	07/28/02	20:34:27	80.000000	5187.16	185.5	3.32
196	07/28/02	21:34:27	81.000000	5190.34	185.6	3.18
197	07/28/02	22:34:27	82.000000	5193.57	185.6	3.23
198	07/28/02	23:34:27	83.000000	5196.78	185.6	3.21
199	07/29/02	00:34:27	84.000000	5199.96	185.6	3.18
200	07/29/02	01:34:27	85.000000	5203.09	185.7	3.13
201	07/29/02	02:34:27	86.000000	5206.17	185.7	3.07
202	07/29/02	03:34:27	87.000000	5209.22	185.7	3.05
203	07/29/02	04:34:27	88.000000	5212.25	185.7	3.04
204	07/29/02	05:34:27	89.000000	5215.32	185.8	3.06
205	07/29/02	06:34:27	90.000000	5218.26	185.8	2.94
206	07/29/02	07:34:27	91.000000	5221.23	185.8	2.97


TEMP F
145
155
165
175
185
195
PRESSURE A
900
1360
1820
2280
2740
3200
3660
4120
4580
5040
5500
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
TIME (hrs)

TMBR000822

PRO WELL TESTING & WIRELINE

JOB INFORMATION SHEET

Company Information	
Company:	TMBR/Sharp Drilling
Address:	

Well Information	
Well Name:	Blue Fin 25 #1
Location:	
Field - Pool:	
Status:	SHUT IN

Test Information	
Type Of Test:	STATIC GRADIENT
Gauge Depth:	12340
Prod. Int. CF:	12429 through 12466
Prod. Through:	2.875" TUBING
Elevation:	
On Bottom/Off Bottom:	
Tubing Pressure:	3000
Casing Pressure:	
Shut In Time:	
Status:	SHUT IN
Temp @ Run Depth:	105.75 @ 12340
Surface Temperature:	

Gauge Information		
	Top Recorder	Bottom Recorder
Serial Number:	76115	76077
Calibration Date	6/5/01	6/5/01
Pressure Range	10000	10000

Comments

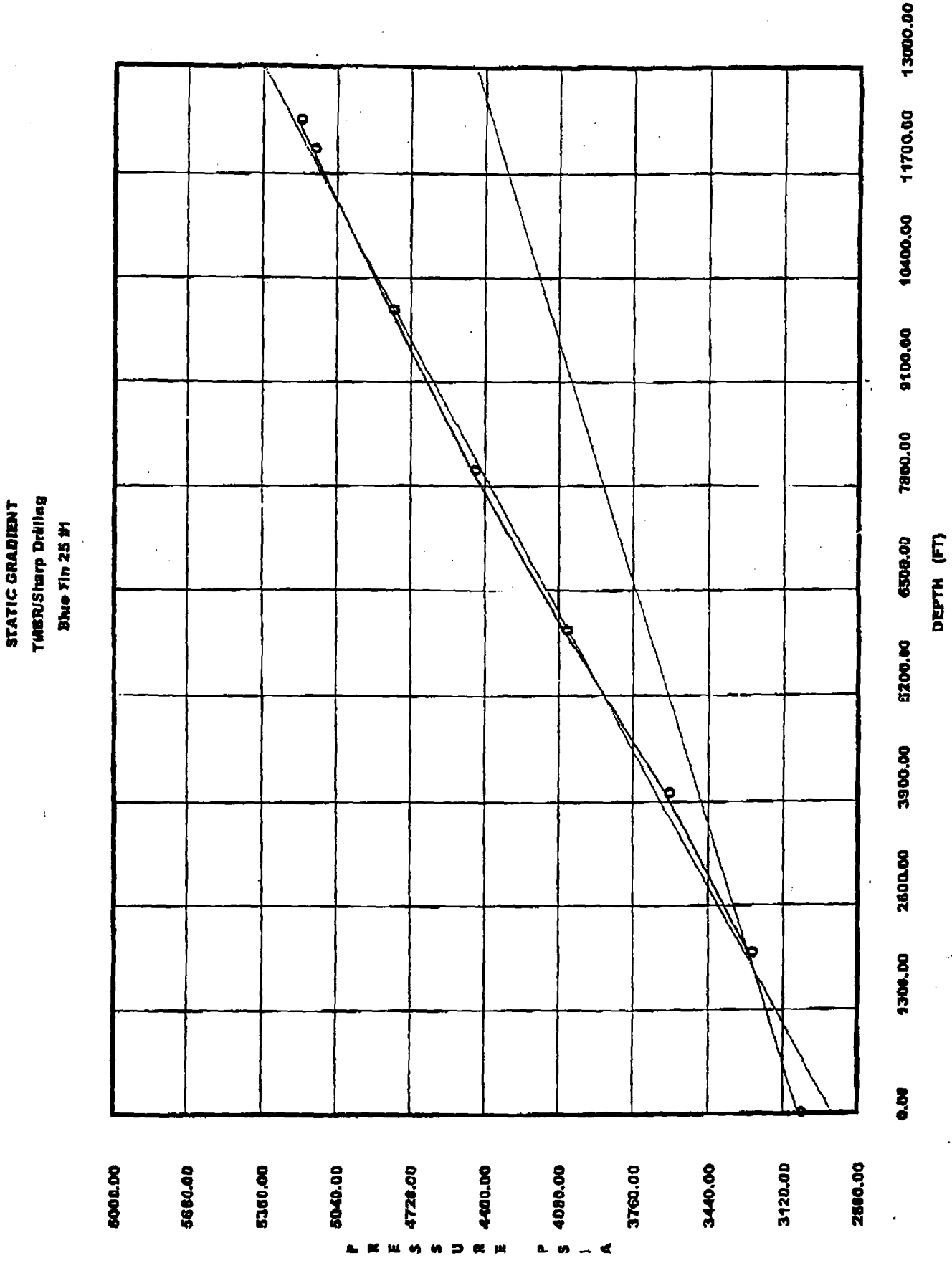
PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO

PRO WELL TESTING & WIRELINE

GRADIENT DATA SHEET

Depth ft	Pressure PSIA	Temperature Deg. F	Gradient PSIA/ft	Fluid Level ft
0.0000	3054.50000	84.93600		
			0.10660	
2000.0000	3267.70000	94.46300		
			0.17625	1709.08
4000.0000	3620.20000	106.95000		
			0.21915	
6000.0000	4058.50000	120.54000		
			0.19945	
8000.0000	4457.40000	135.09000		
			0.17640	
10000.0000	4810.20000	153.94000		
			0.16990	
12000.0000	5150.00000	181.64000		
			0.17624	
12340.0000	5210.60000	185.75000		
	END			

PRO WELL TESTING & WIRELINE
HOBBS, NEW MEXICO


STATIC GRADIENT
TMBR/Sharp Drilling
Blue Fin 25 #1
PRESSURE PSIA
6000.00
5680.00
5360.00
5040.00
4720.00
4400.00
4080.00
3760.00
3440.00
3120.00
2800.00
DEPTH (FT)
0.00
1300.00
2600.00
3900.00
5200.00
6500.00
7800.00
9100.00
10400.00
11700.00
13000.00

CONFIDENTIAL

PERMIAN TESTERS INC.

PERMIAN TESTERS, INC.
P.O. BOX 14228
ODESSA, TEXAS 79768

BF 25-1

12,380-453

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER _____
[redacted] EXHIBIT 14

Drill Stem Test Report

Permian Testers, Inc.

Since 1962

Quality drillstem testing services in the Permian Basin region.
Offering conventional and straddle testing.

Drill Stem Test Reporting
And Analysis by:
Michael Hudson

TMBR000453

D.R.S.

Toll Free (877) 505-8540
Website: *datareporting.net*

DRILL STEM TEST REPORT DATA

BOTTOM HOLE CHOKE	5/8"	SURFACE	3/8"	CUSHION		ELEVATION	3959'	G.L.
TIME TOOL OPENED	08:05 Hrs							

RECORDER DATA

TOOL OPEN BEFORE I.S.I.P.			15	MIN.	TYPE	Electronic	CAPACITY	10000
INITIAL SHUT - IN	1	HRS.	0	MIN.	TOP	21058	DEPTH	12389
TOOL OPEN	1	HRS.	15	MIN.	BOTTOM	13832	DEPTH	12450
FINAL SHUT - IN	4	HRS.	0	MIN.	CLOCK : TOP		BOTTOM	24

SURFACE ACTION

Pre-Flow: Began with a strong blow, increased to 50.0 psi in 5 minutes; opened to pit on a 3/8" choke in 10 minutes; 80.0 psi in 12 minutes with gas to surface, 100.0 psi in 15 minutes = 338.0 MCFD.
Final Flow: Began with a strong blow, increased to 55.0 psi in 5 minutes, 104.0 psi in 10 minutes, 153.0 psi in 20 minutes, 194.0 psi in 30 minutes, 225.0 psi in 40 minutes = 790.0 MCFD, 255.0 psi in 50 minutes = 880.0 MCFD, 280.0 psi in 60 minutes = 940.0 MCFD, 310.0 psi in 75 minutes = 1060.0 MCFD.

RECOVERY

625' Total fluid = 3.06 bbl., consisting of:
145' Free oil = 0.71 bbl. (gravity: 50.5 Deg API @ 60 Deg F)
480' Highly oil & gas cut drilling mud = 2.35 bbl. (chlorides: 82,000 ppm)

SUCCESSFUL TEST: Yes

			RECORDER NO. 21058	
A (INITIAL HYDROSTATIC PRESSURE)			6380	PSI
B (INITIAL PRE-FLOW PRESSURE)			208	PSI
C (FINAL PRE-FLOW PRESSURE)	15	MIN.	281	PSI
D (INITIAL SHUT-IN PRESSURE)	60	MIN.	5974	PSI
E (INITIAL FLOW PRESSURE)			421	PSI
F (FINAL FLOW PRESSURE)	75	MIN.	708	PSI
G (FINAL SHUT-IN PRESSURE)	240	MIN.	5997	PSI
H (FINAL HYDROSTATIC PRESSURE)			6416	PSI

HOLE AND MUD DATA

TOTAL DEPTH	12453'	MAIN HOLE	8 3/4"
RAT HOLE		CASING SIZE	9 5/8"
DEPTH OF CSG.	4957'	TYPE MUD	Brine
MUD WT.	9.6	VISCOSITY	38
WATER LOSS	11.0	CAKE	1/32
CHLORIDE	82,000		
RESISTIVITY	.071	@	60 °F

SAMPLER REPORT

PRESSURE IN SAMPLER	5000		PSI
BHT	186.5		°F
OIL:	150 (distillate)		
WATER:	0		
MUD:	0		
GAS:	3.085		
RESISTIVITY		@	°F
CHLORIDE			PPM
GRAVITY	50.5	° API @ 60	°F

TOOL DATA

NO. PACKERS: 2
SIZE PACKERS: 7 3/4"
CONVENTIONAL TEST: Yes

TYPE TOOL	DEPTH	LENGTH	I.D.	O.D.
4 1/2" XH DP	11522		3.8	4.5
4 1/2" XH DC		790	2.3	6.25
Circulating Sub	12313	1		
Drillcollars	12343	30		
Shut-in Tool	12349	6		
Sampler	12352	3		
Hydraulic Tool	12357	5		
Jars	12363	6		
Recorder	12368	5		
Packer	12374	6		
Packer	12380	6		
Perfs		(		
Elec Recorder		)		
Drillcollars		(		
Bull Plut	TD	73		

DRLG. CONT: TMBR/Sharp Drilling RIG# 24

REMARKS:

TESTER: Don Terhune
APPROVED BY: Lonnie Arnold

D.R.S.

LEASE NAME & NO.: BLUEFIN "25" #1
INTERVAL TESTED: 12380' - 12453'
STATE: NEW MEXICO
FORMATION: MCRROW SAND
TICKET # 7932
TEST # 3

TMBR/Sharp Drilling, Inc.
Bluefin "25" #1, Dst #3

Comments relative to analysis of the pressure data from well test which was run in the Morrow Sand by Permian Testers, Inc.

This analysis has been prepared on the basis of the gas recovery and equations applicable to gas recovery tests, radial flow analysis techniques and derivative analysis techniques. The character of the pressure curves on the various diagnostic plots indicate a change in slope during the shut-in period. Various models were generated and the most appropriate model appears to be a multi-layered model with two porosity zones present. When other well data is obtained it may be necessary to change the estimated reservoir parameters.

The radial plots indicate a maximum initial reservoir pressure of 6224 psi and a maximum final reservoir pressure of 6278 psi which is equivalent to a subsurface pressure gradient of 0.507 psi/ft at gauge depth.

The Average Production Rate which was used in this analysis is the last gas flow rate which was gauged during the final flowing period.

The calculated Skin Factors indicate no well-bore damage was present at the time of this formation test.

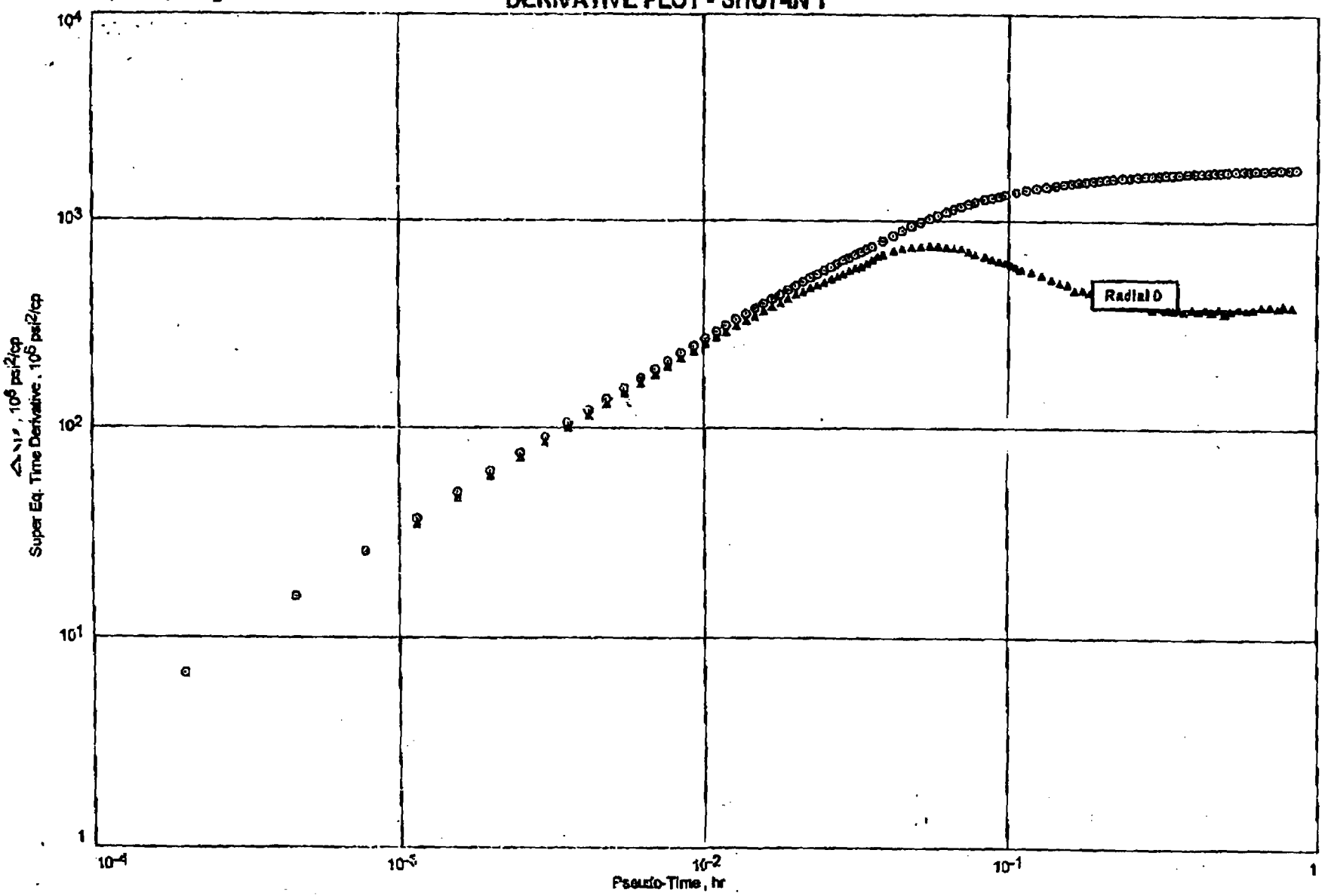
The evaluation criteria used in the drillstem test analysis system indicate this is a good mechanical test and the results obtained in this analysis should be reliable with reasonable limits relative to the assumptions which have been made.

Michael Hudson
Analyst
(877) 505-8540

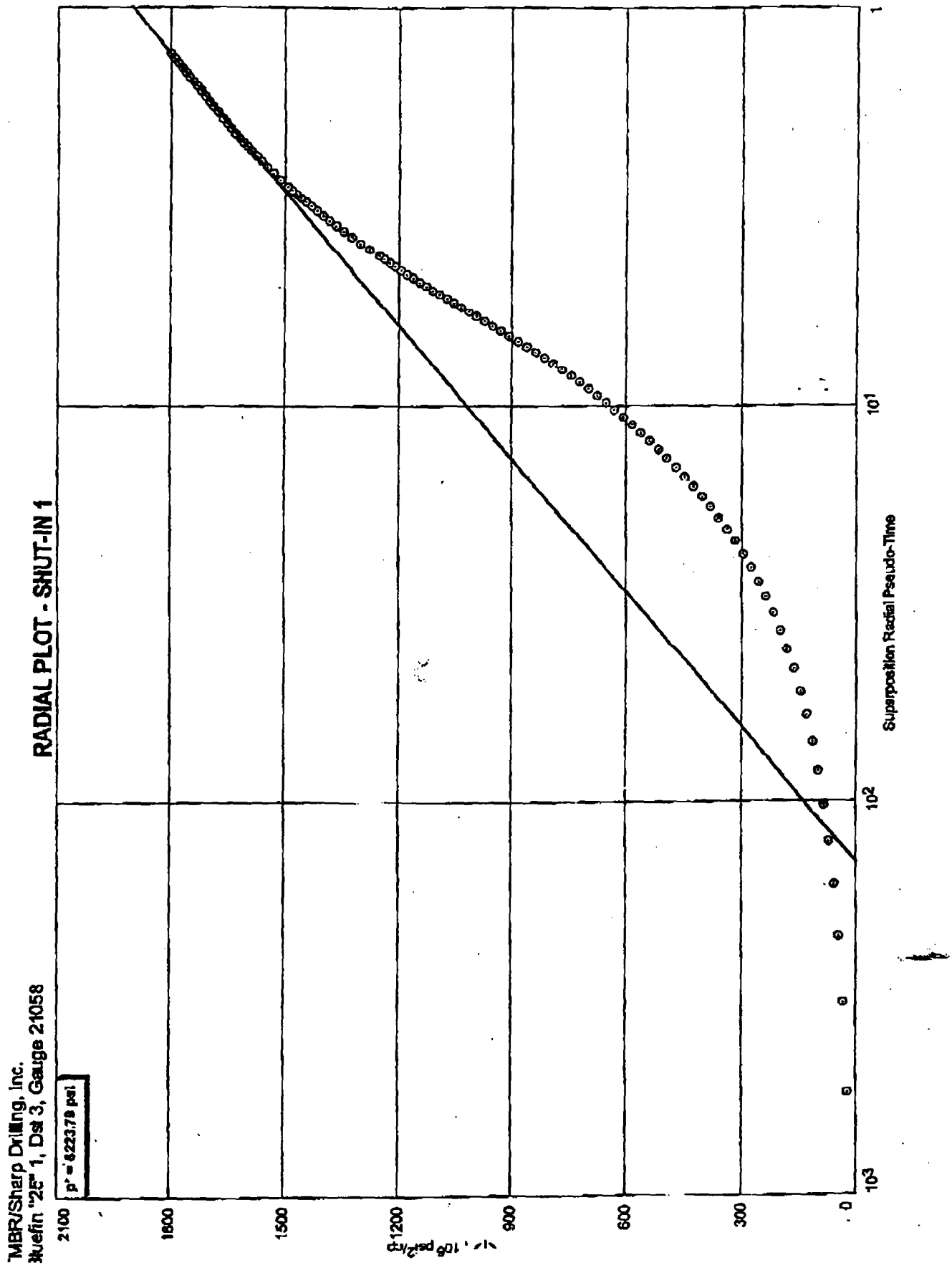
DRS

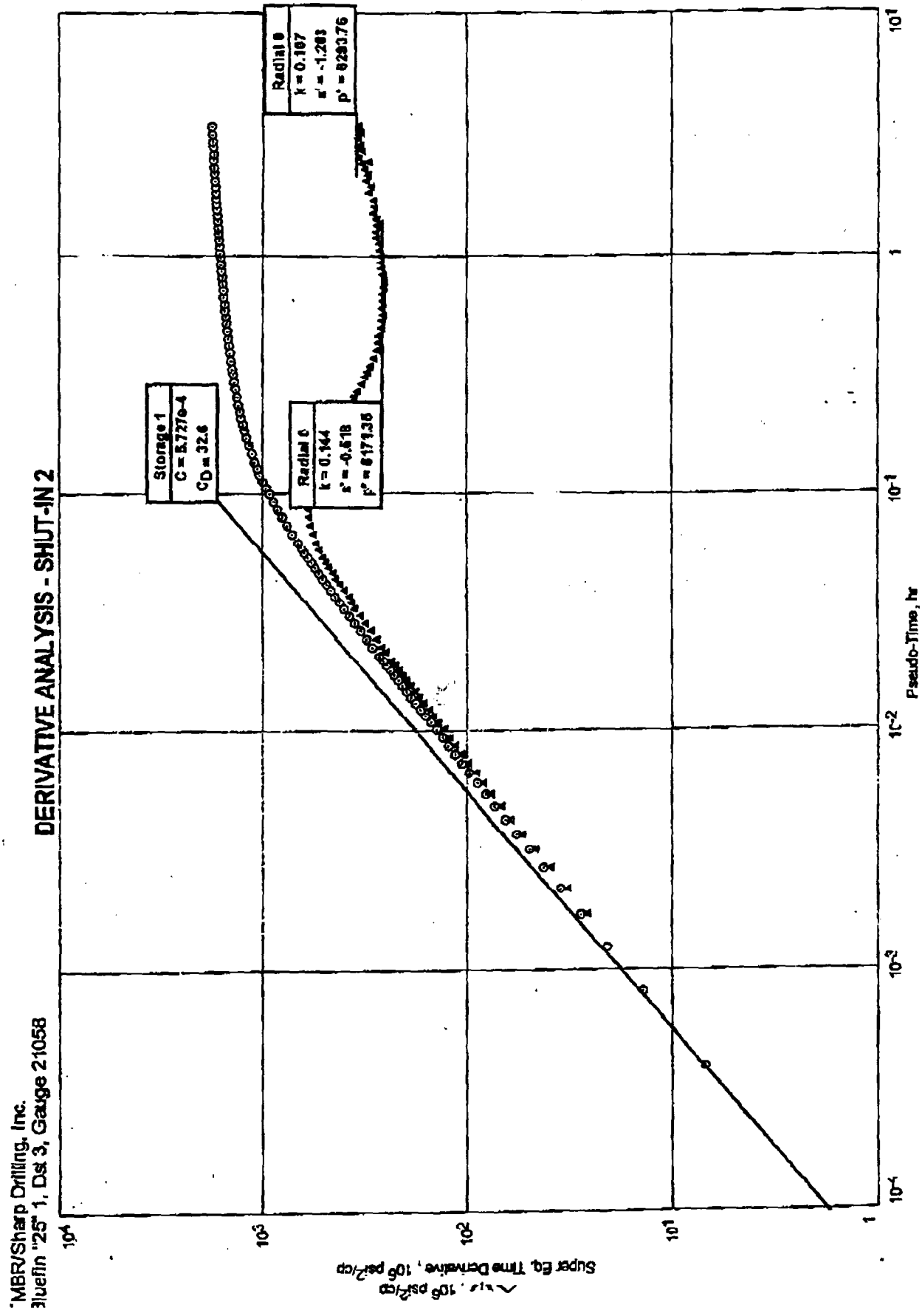
MBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

DERIVATIVE PLOT - SHUT-IN 1



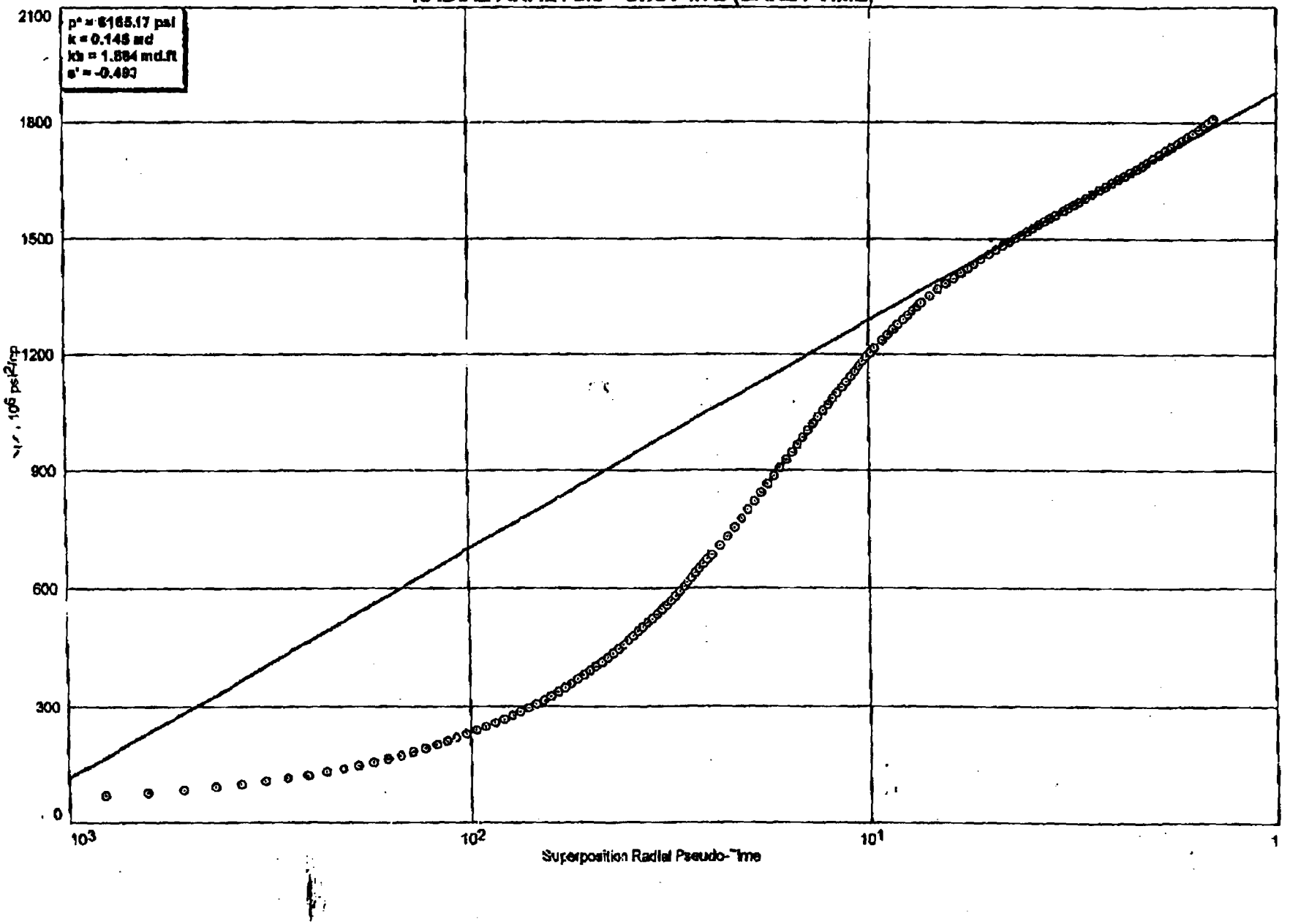
Fast


RADIAL PLOT - SHUT-IN 1
MBR/Sharp Drilling, Inc.
Huefin "25" 1, Dst 3, Gauge 21058
p* = 8223.78 psi
2100
1800
1500
1200
900
600
300
0
10^3
10^2
10^1
1
Superposition Radial Pseudo-Time


DERIVATIVE ANALYSIS - SHUT-IN 2
MBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058
Storage 1
C = 5.727e-4
C_D = 32.6
Radial 0
k = 0.144
s' = -0.618
p' = 8171.36
Radial 0
k = 0.167
s' = -1.283
p' = 8293.76
Super Eq. Time Derivative, 10^6 psi²/cp
Pseudo-Time, hr

MER/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058

RADIAL ANALYSIS - SHUT-IN 2 (EARLY TIME)



03/19/2003 15:47 9822151 JAMES BRUCE PAGE 01

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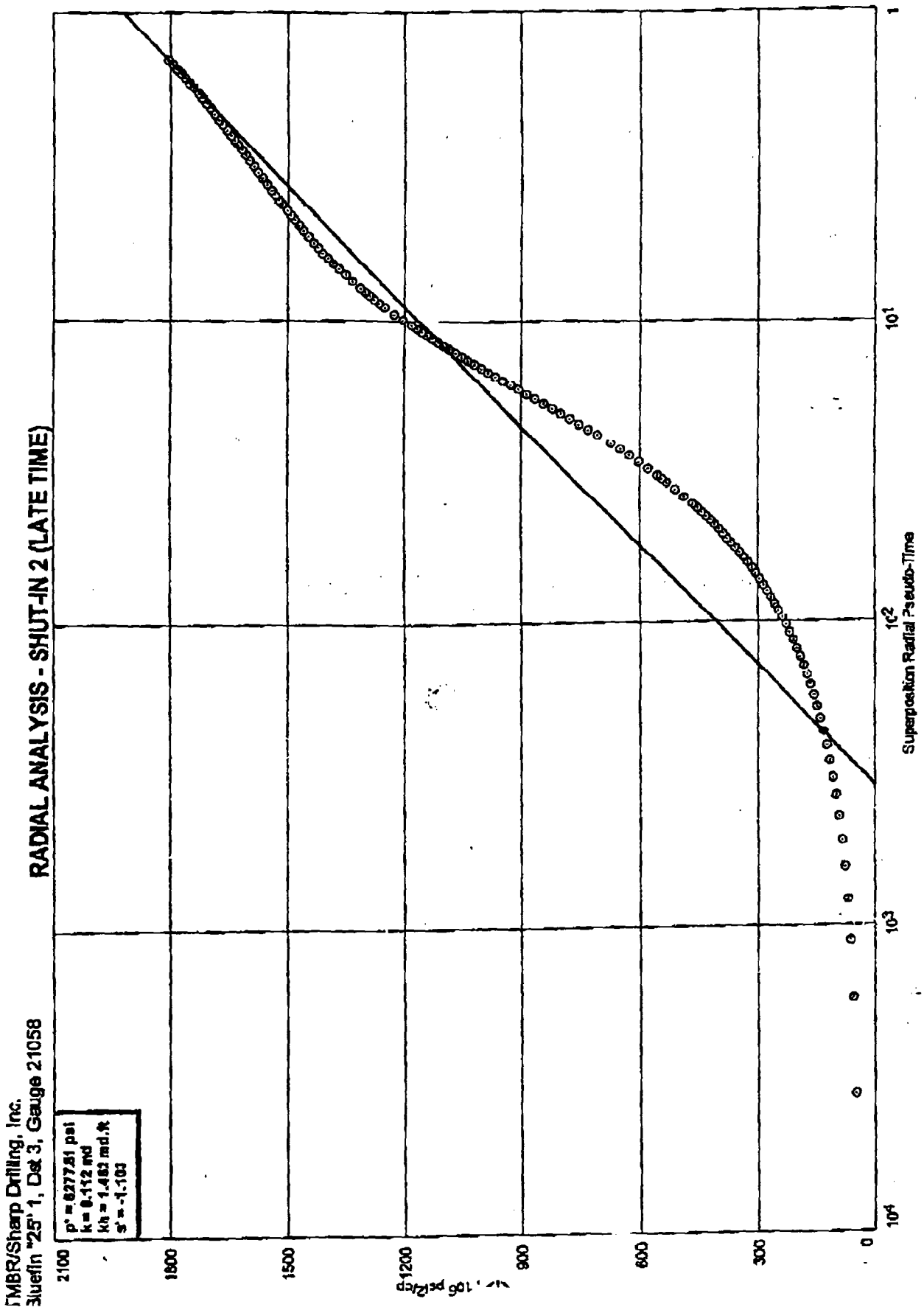
Fast


RADIAL ANALYSIS - SHUT-IN 2 (LATE TIME)
TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21058
p* = 827.51 psi
k = 0.112 md
kh = 1.482 md.ft
s' = -1.103
2100
1800
1500
1200
900
600
300
0
10^4
10^3
10^2
10^1
1
Superposition Radial Pseudo-Time

TMBR000461

Gas Well Test - Buildup

Radial Flow Analysis From Early Time Data

R1A 1

TMBR/Sharp Drilling, Inc.

Bluefin "25" 1, Dst 3, Gauge 21058

Analysis Results

Total Sandface Rate ($q_t B_t$)	609.446 bbl/d	Apparent Skin (s')	-0.493
Semilog Slope (m)	587.941	Skin - Damage	-0.493
Gas Permeability (k_g)	0.145 md	Damage Ratio (DR)	0.875
Flow Capacity (kh)	1.884 md.ft	Flow Efficiency (FE)	1.142
Total Mobility (k/μ_t)	5.20 md/cp		
Total Transmissivity(kh/μ_t)	67.58 md.ft/cp		

Reservoir Parameters

Net Pay (h)	13.000 ft
Total Porosity (ϕ_t)	12.00 %
Water Saturation (S_w)	20.00 %
Oil Saturation (S_o)	0.00 %
Gas Saturation (S_g)	80.00 %
Wellbore Radius (r_w)	0.36 ft
Formation Temperature (T)	186.5 °F
Formation Compressibility (c_f)	4.508e-6 psi^{-1}
Total Compressibility (c_t)	7.766e-5 psi^{-1}

Fluid Properties

Gas Gravity (G)	0.650
N_2	0.00 %
CO_2	0.00 %
H_2S	0.00 %
Critical Pressure (P_c)	670.91 psi
Critical Temperature (T_c)	373.97 R
PVT Reference Pressure (p_{PVT})	5997.44 psi
Gas Compressibility (c_g)	9.07421e-5 psi^{-1}
Gas Compressibility Factor (z)	1.073
Gas Viscosity (μ_g)	0.0279 cp
Gas Formation Volume Factor (B_g)	0.000580 bbl/scf

Pressures

Initial Pressure (p_i)	5997.44 psi
Extrapolated Pressure (p^*)	6165.17 psi
Ave. Reservoir Press	6164.92 psi
Final Flowing Pressure (p_{wfo})	707.58 psi

Production and Times

Corrected Flow Time (t_c)	1.5063 hr
Cumulative Gas Production	0.066 MMCF
Final Gas Rate	1.050 MMCF/D

Extended Rates Calculations

Drainage Area	160.0 acres
Specified Flowing Pressure	707.58 psi
Specified Reservoir Pressure	6164.92 psi
3 - Month Constant Rate	0.519 MMCF/D
6 - Month Constant Rate	0.493 MMCF/D
Stabilized Rate @ Current Skin	0.490 MMCF/D
Stabilized Rate @ Skin of 0	0.460 MMCF/D
Stabilized Rate @ Skin of -4	0.898 MMCF/D

Multi-Layer Gas Well Model

Case Name : Multi-Layered Model

TMBR/Sharp Drilling, Inc.

Bluefin "25" 1, Dst 3, Gauge 21058

TMBR000463

Model Parameters

		Layer 1		Layer 2
Permeability	k_1=	0.095 md	k_2=	0.170 md
Net Pay	h_1=	9.00 ft	h_2=	4.00 ft
Skin	s_1=	-1.000	s_2=	-0.257
Outer Radius	r_{e1}=	31.000 ft	r_{e2}=	17.000 ft
Total Porosity	ϕ_{t1}=	12.00 %	ϕ_{t2}=	12.00 %
Total Compressibility	c_{t1}=	7.76626e-5 psi^{-1}	c_{t2}=	7.76626e-5 psi^{-1}
Viscosity	μ_1=	0.028 cp	μ_2=	0.028 cp
Inter Porosity Coeff	λ_1=	0.0000e0	λ_2=	1.0000e0
Storativity Ratio	ω_1=	0.0000e0	ω_2=	1.0000e0
Apparent Wellbore Storage Dim. (C_{aD})		3.29e9		
Wellbore Storage Constant Dim. (C_D)		12.50		
Storage Pressure Param. Dim. (C_{pD})		1.062e-5		

Formation Parameters

Water Saturation (S_w)	20.00 %
Oil Saturation (S_o)	0.00 %
Gas Saturation (S_g)	80.00 %
Wellbore Radius (r_w)	0.36 ft
Formation Temperature (T)	186.5 °F

Fluid Properties

Gas Gravity (G)	0.650
N_2	0.00 %
H_2S	0.00 %
CO_2	0.00 %
Critical Pressure (P_c)	670.91 psi
Critical Temperature (T_c)	373.97 R
PVT Reference Pressure (p_{PVT})	5997.44 psi
Gas Compressibility (c_g)	9.07421e-5 psi^{-1}
Gas Compressibility Factor (z)	1.073
Gas Viscosity (μ_g)	0.0279 cp
Gas Formation Volume Factor (B_g)	0.000580 bbl/scf

Production and Pressure

Final Gas Rate	1.050 MMCF/
Final Measured Pressure	5997.44 psi
Initial Pressure (p_i)	5997.44 psi

Synthesis Results

Average Error	-1.82 %
Synthetic Initial Pressure (p_i)	7094.06 psi
Pressure Drop Due To Skin (Δp_s)	psi
Extrapolated Pressure at Specified Time	6251.59 psi
Flow Efficiency (FE)	
Damage Ratio (DR)	

Forecasts

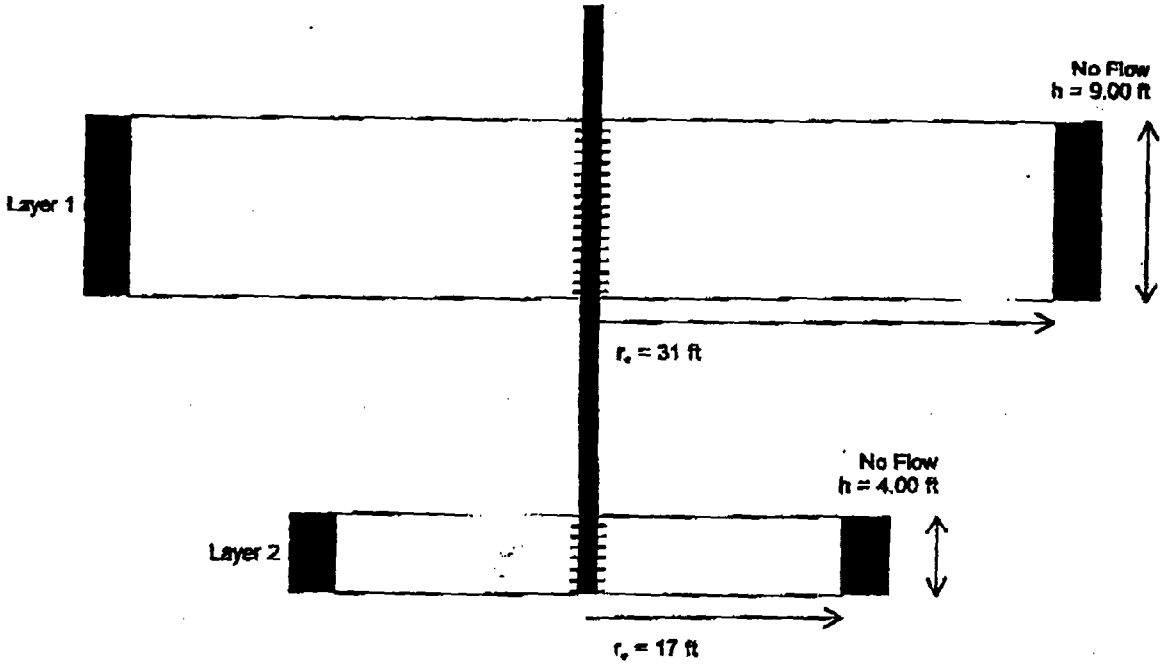
Specified Flowing Pressure (p_{wfs})	707.68 psi
3 - Month Constant Rate	0.004 MMC
6 - Month Constant Rate	0.002 MMC
Specified Forecast Time	12.00 mont
Forecast Constant Rate @ Current Skin	0.001 MMC
Forecast Constant Rate @ Skin=0	0.001 MMC
Forecast Constant Rate @ Skin=-4	0.001 MMC

Multi-Layered Model

TMBR/Sharp Drilling, Inc.
Bluefin "25" 1, Dst 3, Gauge 21(Side View

(Not to scale)

k_1 = 0.095 md
s_1 = -1.000
k_2 = 0.176 md
s_2 = -0.267



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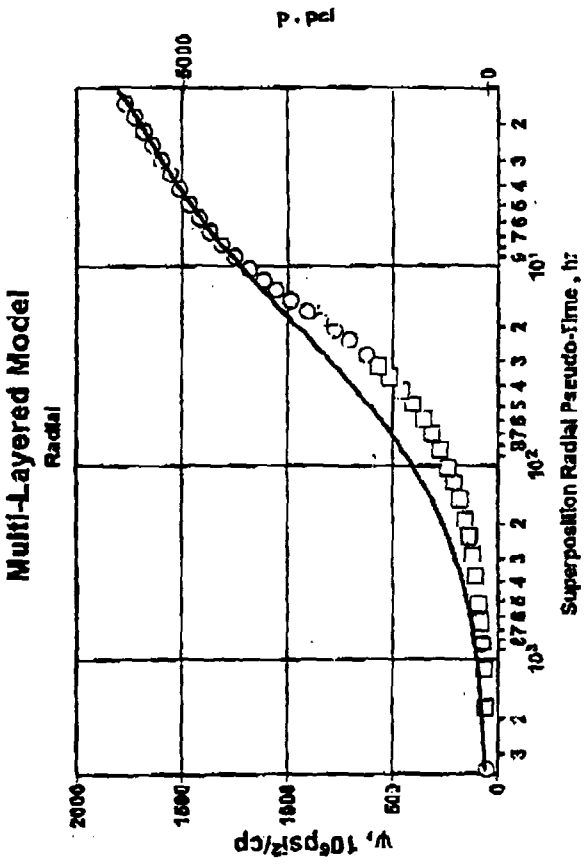
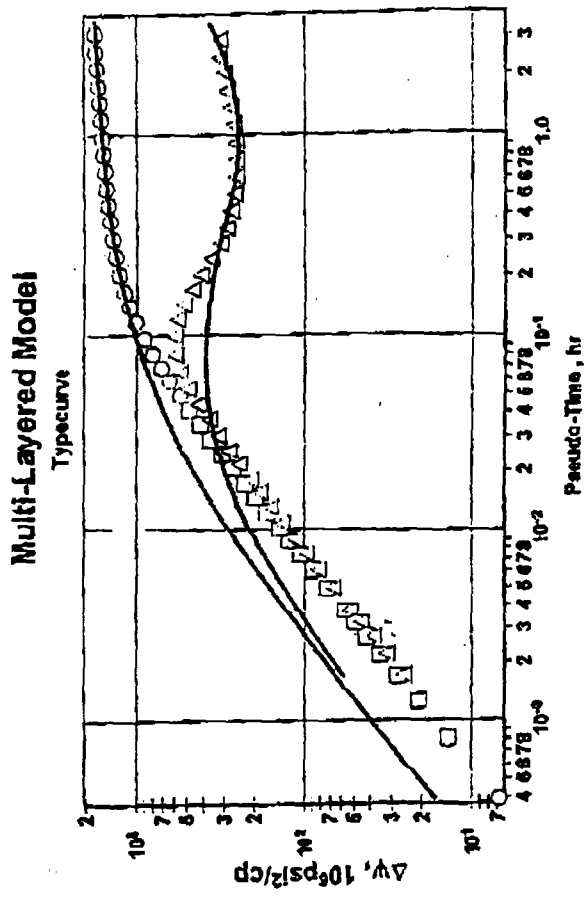
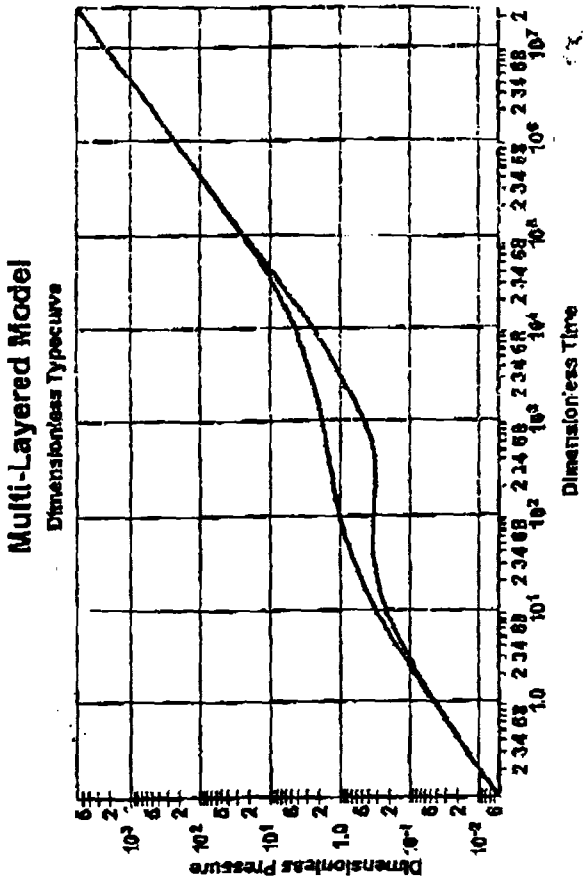
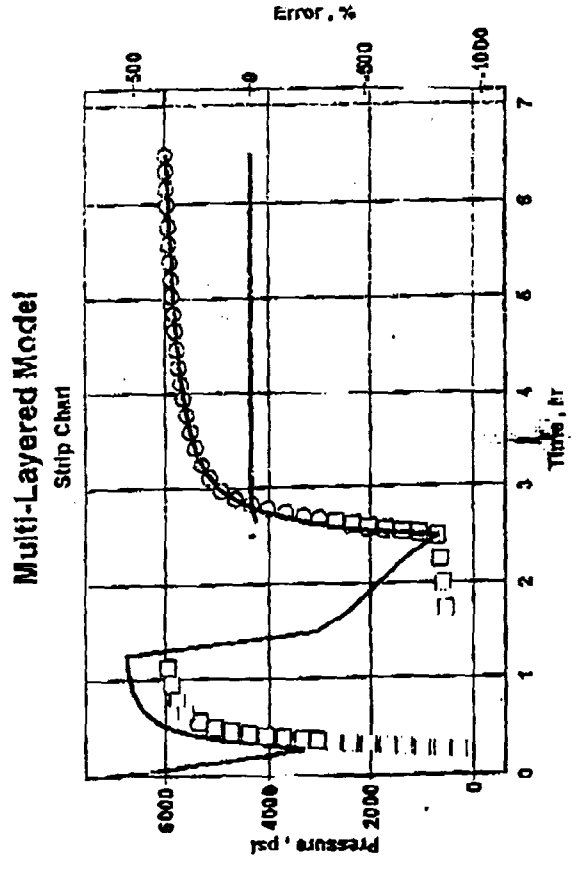

Multi-Layered Model
Radial
p , psi
w, 10⁶psi²/cp
Superposition Radial Pseudo-Time , hr


Multi-Layered Model
Typecurve
Δw, 10⁶psi²/cp
Pseudo-Time , hr


Multi-Layered Model
Dimensionless Typecurve
Dimensionless Pressure
Dimensionless Time


Multi-Layered Model
Strip Chart
Error , %
Pressure , psi
Time , hr

GUIDE TO IDENTIFICATION AND INTERPRETATION OF DST DATA:

Initial Hydrostatic:

The hydrostatic pressure increases as the test tool is lowered in well. After reaching the test interval the packer is set, the hydraulic tool is opened and the test zone is opened to atmospheric. This happens almost instantaneously and the pressure drop is recorded. This is called the pre-flow period. The purpose is to relieve the hydrostatic pressure from the annular space within the tested interval.

Pre-Flow Period:

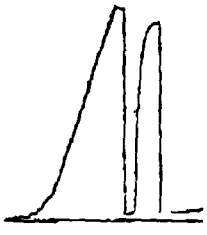
The length of the pre-flow period can be determined by the surface blow according to the following:

- Approximately 5 minutes in duration if the permeability is estimated to be greater than 15 md.
- Approximately 10 minutes in duration if the permeability is estimated to be less that 15 md.

If the pre-flow period is too short the hydrostatic pressure will not be dissipated and the following shut-in period may be under the influence of "hydrostatic super-charge" effect.

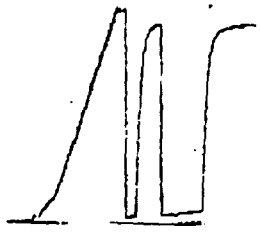
Initial shut-in Period:

When the pre-flow period is completed the tool is closed and the reservoir pressure is allowed to build. This is called the initial shut-in period. The purpose is to record the reservoir pressure before any production has occurred. It is important to have an initial shut-in period long enough to extrapolate a maximum reservoir pressure.



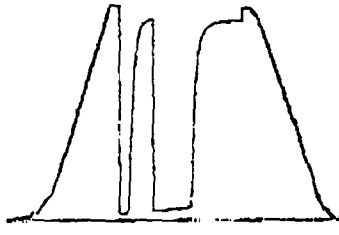
Second Flow Period:

When the initial shut-in is completed the tool is again opened. This is called the second flow period. The purpose is to allow reservoir fluid and gas to enter the drill string. Analysis of the final flow data will help to determine the flowing capabilities of the tested reservoir. Depending on conditions, when the tool is opened the pressure will drop from reservoir pressure to the pre-flow pressure and will record the weight of the formation fluid entering the drill string. If gas is present the flowing pressure will reflect the upstream pressure of the gas flow. The duration of the final flow period should be approximately 60 to 180 minutes, depending on conditions and estimated permeability. If gas flows to surface a stabilized measured rate is desirable for proper reservoir evaluation.



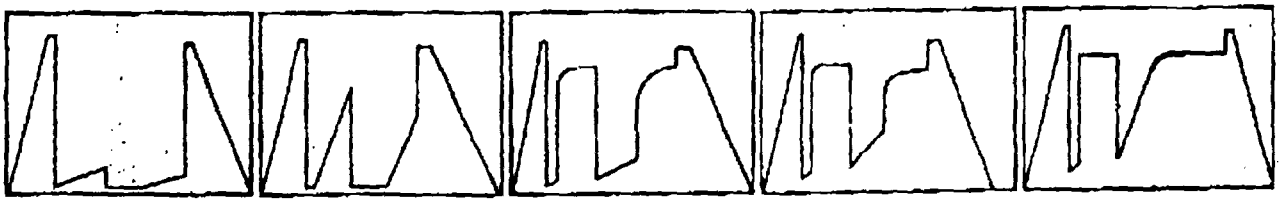
Second Shut-In Period:

When the second flow period is completed, the tool is again closed. This is called the second shut-in period. The purpose is to measure the reservoir pressure after a certain amount of production has occurred. Proper evaluation of the second shut-in data will help determine if the tested reservoir is of limited area extent. Skin Damage, Permeability, Radius of Investigation and other reservoir properties can also be determined.



Final Hydrostati

When the second shut-in period is completed the packer is released which allows drilling fluid to flow from the hole into the test zone and the hydrostatic pressure is then recorded. Because the pressure is equalized, the packer can be easily removed from the packer seat. As the test tool is pulled from the well, the hydrostatic pressure decreases to atmospheric pressure.



Virtually No Effective Permeability | Slightly Higher Permeability | Average Permeability | High Permeability | Excellent Permeability

CAUSE N. CV-2001-315C, TMBR/SHARP DRILLING, INC. V. DAVID H. ARRINGTON OIL GAS, INC. ET AL

WILLIAMSON PROJECT 2.8895

GAS VOLUMETRIC CALCULATION

Gas Volumetric Calculation

Version 5.0

Well Name:	Blue Fin "25" #1			20-May-02
Field Name:	*Chester*		Tc =	383.24
Gas Gravity	0.71		Pc =	664.47
% N2	0.98	%	Tc' =	382.32
% CO2	0.46	%	Pc' =	662.87
% H2S	0.00	%	Tr =	1.632
Condensate (Yes=1)	1		Pri =	9.503
Res. Temperature	163	F	Pra =	1.207
Initial Pressure	6,299	Psia	Zi =	1.0977
Abandonment Pres	800	Psia	Za =	0.9149
Net Pay	35	Feet		
Acres	100	Acres	Gas In Place	5,822,524 Mcf
Water Sat	35.00	%	Recoverable Gas	4,935,286 Mcf
Porosity	18.00	%	Recovery	84.76%
Optional **				
Recovery	0.00%			

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER
EXHIBIT 15

FAX COVER

To: Roy Williamson
Company : Williamson and Associates
City: Midland, Texas
Fax Number : 19156853909

FROM: LOUIS J. MAZZULLO, RG
Certified Petroleum Geologist
Albuquerque, New Mexico
Fax: (505) 890-4991
Voice: (505) 890-0080

Subject : BLUE FIN AREA, LEA COUNTY

Pages including cover page: 1 Date : 5/9/2002 Time : 1:37:16 PM

Dear Roy:

At your request, here are the area calculations I planimetered off the seismic anomalies associated with the Chester chert zones in the captioned area. Please be advised that these are minimum, conservative numbers, and the actual reservoirs may be larger. The reason I can't make them larger is because I can not really see a marker associated with the top of the chert zone, so I am making assumptions that limit the sizes to features that are interpreted as the edges of the reservoirs.

The Blue Fin #24-1 and #25-1 wells are located on different Chester anomalies that are separated by an intervening high. Therefore, I believe the wells will not drain one another. The following are the estimated, minimum areas of the anomalies associated with each well:

Blue Fin 24 #1 36.5 acres
Blue Fin 25 #1 56.8 acreas
Feature in NW/SE Sec. 25 14. 9 acres

Please call if you need further clarification.

Lou

COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER _____
Dean EXHIBIT 16

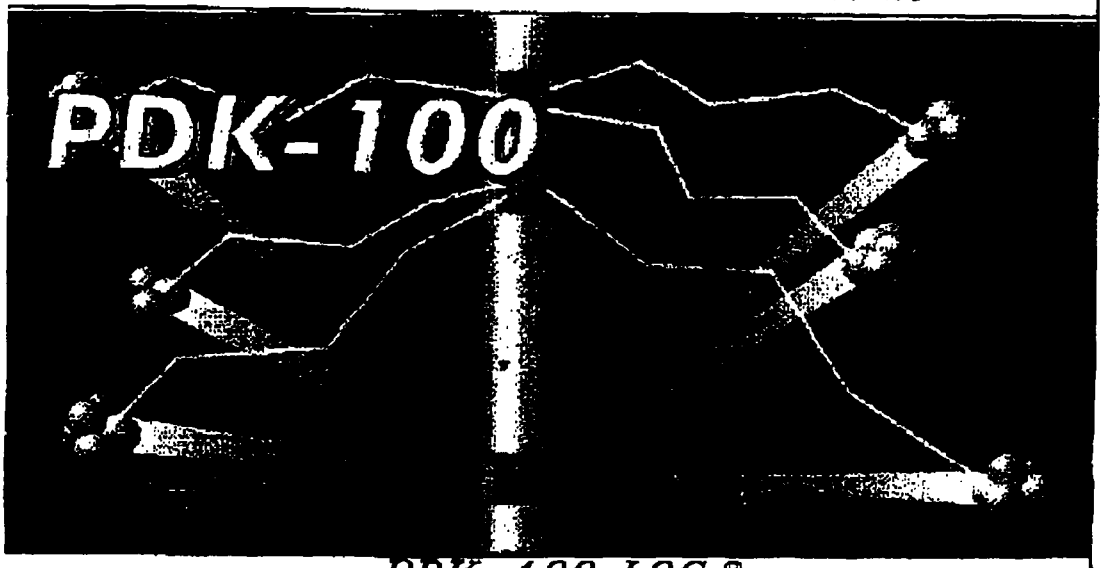
OIL CONSERVATION COMMISSION [redacted]

CASE NUMBER [redacted]

Dean EXHIBIT 17

BAKER HUGHES

Baker Atlas
GEOScience



PDK-100 LOG ®
ANALYSIS
GAMMA RAY LOG

DEPOSITION EXHIBIT 10

COMPANY TMBR/SHARP DRILLING INC.

WELL BLUE FIN "24" #1

FIELD TOWNSEND (MORROW)

COUNTY LEA STATE NEW MEXICO

LOCATION:

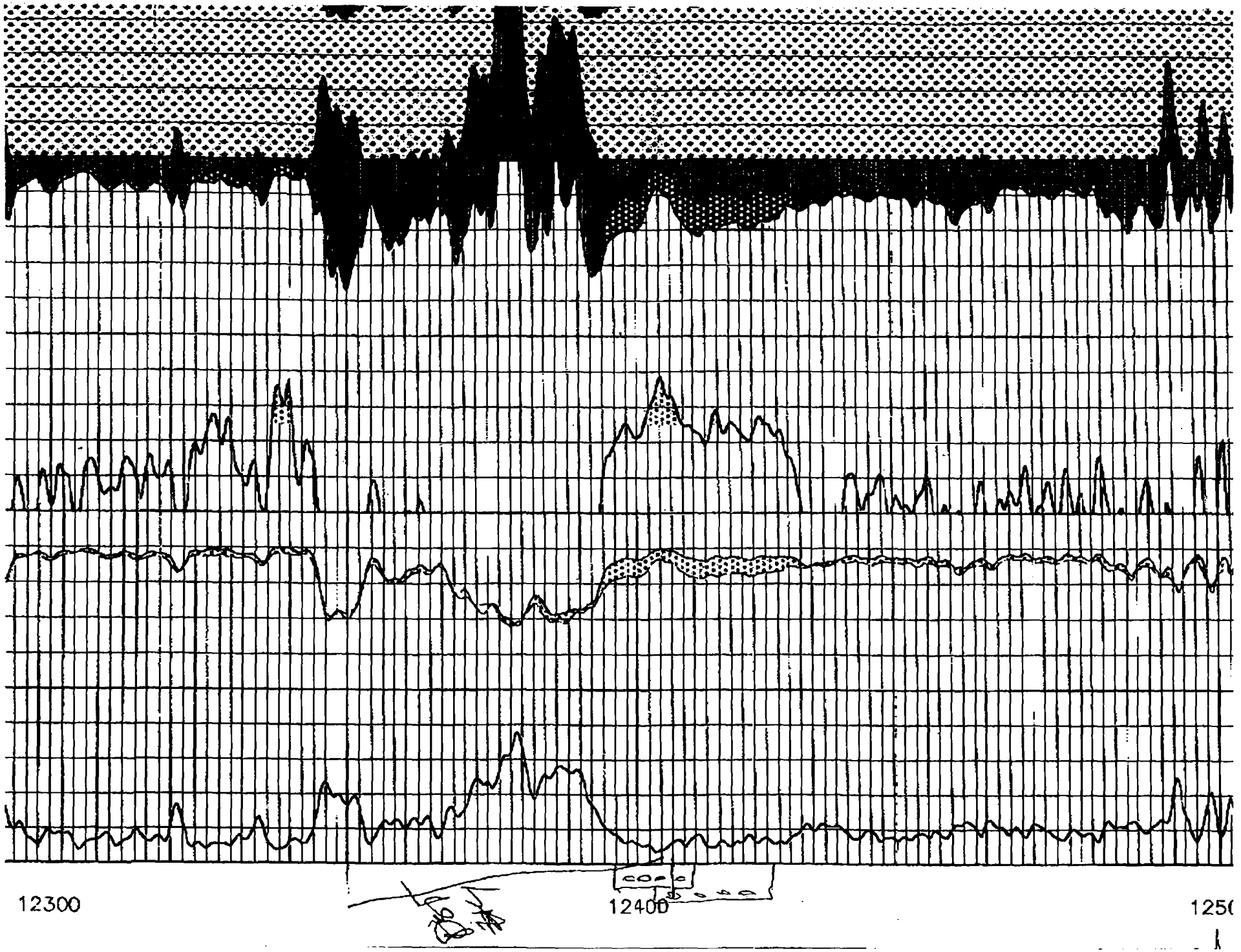
660 FWL & 750 FSL

SEC 24 TWP 16S RGE 35E

ELEVATIONS:

KB 3976 FT DF 3975 FT GL 3964 FT

DATE 29-MAY-2001 ECC 159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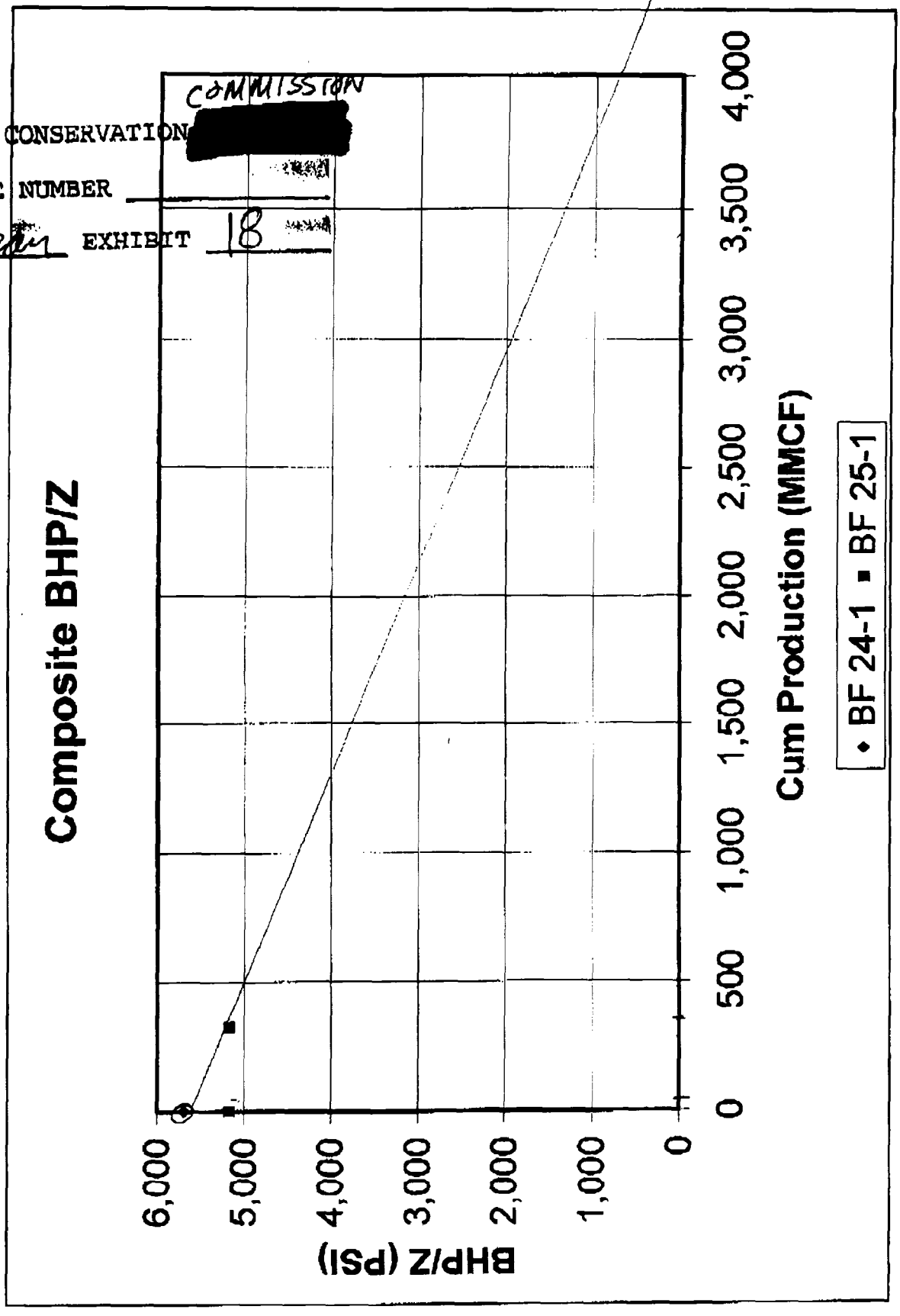


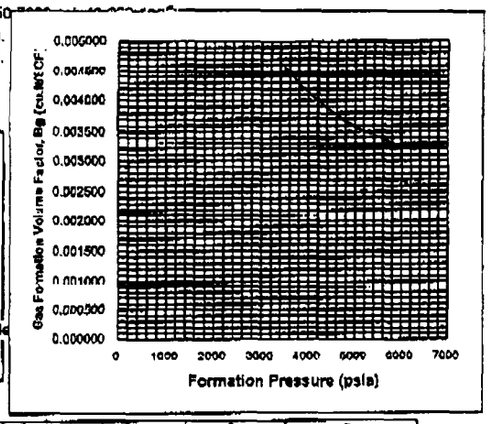
COMMISSION
OIL CONSERVATION [redacted]
CASE NUMBER _____
Dean EXHIBIT 19

Blue Fin 25-1

GASPRO01.xls

Equations by Sterling-Carnahan (Deke book, pp19-20). Wichert-Aziz correction for sour gases applied (accurate for 150
CO2<54.4% and H2S<73.6%. See O&G Journal 10/18/93 pg. 52. Do not use initial pressures < 1500 psia.
Required input: Standard conditions, initial reservoir temp and pressure, and gas gravity OR gas composition (mole %).
Mole percentage of C1 to C5+ also required for any Heating Value calculation.
Current version of this worksheet does not allow for metric units.

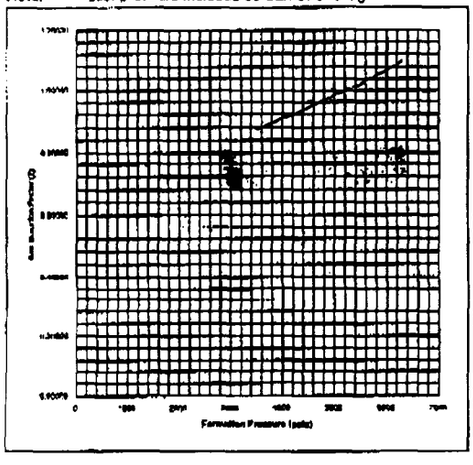
Field:		Well:					
Input Data		Input Data		Computed Data		Computed Data	
Gas grav, Gg (air=1) =	0.718	%C1 =	80.813	ghc (sir=1) =	0.7107	Mol Wt. =	20.5895
Cond? (Yes=1,No=0)	0	%C2 =	10.249	ghc, degR =	392.6692	K =	129.2734
Metric? (Yes=1,No=0)	0	%C3 =	4.611	Ppchc,psia =	668.7188	x =	5.2322
Reservoir Temperature =	186	%IC4 =	0.842	Tpc,degR =	392.2080	y =	1.3536
Reservoir Pressure =	6300	%nC4 =	1.325	Ppc, psia =	669.7349	DHV, BTU/SCF =	1218.1
Standard Pressure =	14.7	%C5+ =	1.057	CWA =	1.2272	WHV, BTU/SCF =	1200.1
Standard Temperature =	60	% N2 =	0.876	Tpc', degR =	390.9808	Grad,psi/ft =	0.119736
		% CO2 =	0.635	Ppc',psia =	667.8393		
Computed Data		% H2S =	0.000	Init. Ppr =	9.4362	Note: Heating value incorrect unle	
Res Temp, deg. F	186.0	Total %	100.000	Tpr =	1.6529	C1 to C5+ data entered.	
Res Pr, psia	6300.0	Calc'd Gg	0.7224	t=1/Tpr =	0.8052		

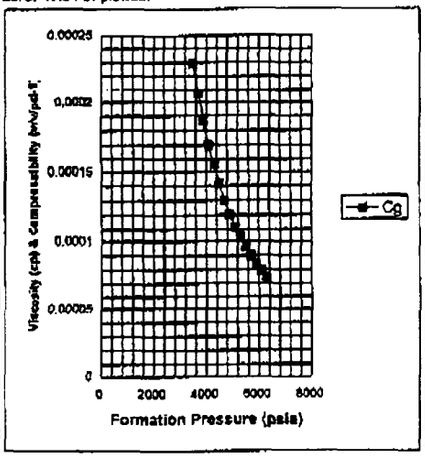


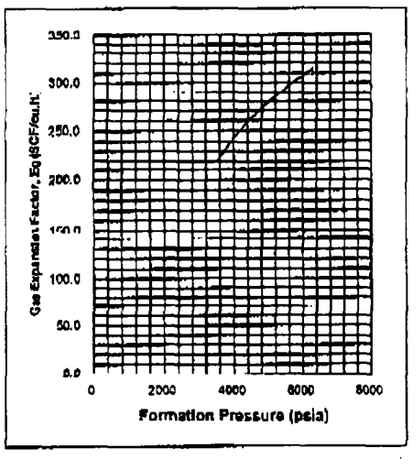
WARNING: Z factor accurate for 0.2<Ppr<24.0 & 1.15<Tpr<3.0
Gas viscosity accurate for 100-8000 psi, 100-340 degF, 0.9<CO2 mole %<3.2.

Pr, psia	Ppr	Y	dY/dY	Yk+1	Init. Y	Z	Eg	Gas Den.	Gas Visc	Cr=Cg/Ppc	Cg	Bg	Bg
							SCF/cu.ft.	gm/cc	cp.			(cu.ft./SCF)	(bbls/SCF)
6300	9.4362	0.00E+00	2.34090	0.26458	0.26458	1.09861	314.6	0.273467	0.031946	0.049861	7.471E-05	0.003179	0.000566
6100	9.1307	0.00E+00	2.24126	0.26056	0.26056	1.07916	309.4	0.269311	0.031388	0.052936	7.929E-05	0.003228	0.000575
5900	8.8371	0.00E+00	2.14258	0.25636	0.25636	1.05993	304.8	0.264967	0.030759	0.056317	8.435E-05	0.003281	0.000584
5700	8.5375	0.00E+00	2.04823	0.25196	0.25196	1.04188	299.6	0.260419	0.030148	0.060076	8.998E-05	0.003338	0.000595
5500	8.2380	-1.25E-16	1.94907	0.24734	0.24734	1.02408	294.1	0.255551	0.029524	0.064268	9.626E-05	0.003400	0.000606
5300	7.9384	2.50E-16	1.85435	0.24250	0.24250	1.00655	288.3	0.250644	0.028887	0.068961	0.0001033	0.003466	0.000618
5100	7.6389	0.00E+00	1.76127	0.23740	0.23740	0.98936	282.3	0.245376	0.028236	0.074235	0.0001112	0.003543	0.000631
4900	7.3393	0.00E+00	1.67004	0.23203	0.23203	0.97257	275.9	0.239825	0.027571	0.080184	0.0001201	0.003625	0.000646
4700	7.0397	-1.11E-16	1.58091	0.22636	0.22636	0.95623	269.1	0.233986	0.026892	0.086921	0.0001302	0.003715	0.000662
4500	6.7402	0.00E+00	1.49417	0.22037	0.22037	0.94044	262.0	0.227772	0.026198	0.094577	0.0001417	0.003818	0.000680
4300	6.4406	8.33E-17	1.41014	0.21402	0.21402	0.92529	254.5	0.221213	0.025491	0.103307	0.0001547	0.003930	0.000700
4100	6.1410	0.00E+00	1.32922	0.20730	0.20730	0.91088	246.5	0.214259	0.024769	0.113291	0.0001697	0.004057	0.000723
3900	5.8415	-2.01E-16	1.25183	0.20015	0.20015	0.89736	238.0	0.206878	0.024033	0.124736	0.0001868	0.004202	0.000748
3700	5.5419	-5.55E-17	1.17848	0.19257	0.19257	0.88488	229.0	0.199038	0.023286	0.137876	0.0002065	0.004367	0.000778
3500	5.2424	0.00E+00	1.10964	0.18451	0.18451	0.87359	219.4	0.190711	0.022528	0.152970	0.0002291	0.004558	0.000812
3300	4.9428	9.71E-17	1.04569	0.17596	0.17596	0.86371	209.2	0.181872	0.021759	0.169843	0.0002526	0.004780	0.000851
3200	4.7930	0.00E+00	1.01627	0.17149	0.17149	0.85935	203.9	0.177255	0.021379	0.178119	0.0002668	0.004904	0.000874
3100	4.6432	0.00E+00	0.98809	0.16690	0.16690	0.85542	198.4	0.172504	0.020994	0.185264	0.000282	0.005039	0.000898
3000	4.4934	0.00E+00	0.96151	0.16217	0.16217	0.85195	192.8	0.167620	0.020609	0.193116	0.0002982	0.005185	0.000924
2900	4.3437	-1.04E-16	0.93661	0.15732	0.15732	0.84896	187.1	0.162603	0.020228	0.210716	0.0003156	0.005346	0.000952
2800	4.1939	0.00E+00	0.91348	0.15234	0.15234	0.84648	181.1	0.157456	0.019844	0.223103	0.0003342	0.005521	0.000983
2700	4.0441	8.67E-17	0.89213	0.14724	0.14724	0.84453	175.1	0.152183	0.019464	0.236323	0.000354	0.005712	0.001017
2600	3.8943	0.00E+00	0.87270	0.14202	0.14202	0.84315	168.9	0.146787	0.019088	0.250419	0.0003751	0.005922	0.001055
2500	3.7445	0.00E+00	0.85520	0.13668	0.13668	0.84235	162.5	0.141276	0.018718	0.265443	0.0003976	0.006153	0.001096
2400	3.5948	-4.86E-17	0.83970	0.13125	0.13125	0.84214	156.1	0.135658	0.018350	0.281452	0.0004216	0.006408	0.001141
2300	3.4450	5.64E-17	0.82622	0.12572	0.12572	0.84256	149.5	0.129942	0.017989	0.298516	0.0004471	0.006690	0.001192
2200	3.2952	-1.69E-17	0.81478	0.12010	0.12010	0.84359	142.8	0.124139	0.017636	0.316719	0.0004744	0.007003	0.001247
2100	3.1454	-4.51E-17	0.80541	0.11442	0.11442	0.84527	136.0	0.118261	0.017292	0.336171	0.0005035	0.007351	0.001309
2000	2.9956	0.00E+00	0.79809	0.10867	0.10867	0.84758	129.2	0.112323	0.016956	0.357010	0.0005347	0.007739	0.001378
1900	2.8458	-4.47E-17	0.79280	0.10288	0.10288	0.85052	122.3	0.106337	0.016631	0.379417	0.0005683	0.008175	0.001456
1800	2.6961	4.34E-18	0.78953	0.09706	0.09706	0.85409	115.4	0.100320	0.016318	0.403624	0.0006046	0.008665	0.001543
1700	2.5463	3.64E-17	0.78822	0.09122	0.09122	0.85828	108.5	0.094284	0.016013	0.429936	0.000644	0.009220	0.001642
1600	2.3965	-3.04E-18	0.78883	0.08538	0.08538	0.86306	101.5	0.088246	0.015722	0.458747	0.0006871	0.009851	0.001755
1500	2.2467	0.00E+00	0.79130	0.07955	0.07955	0.86842	94.6	0.082220	0.015444	0.490577	0.0007348	0.010573	0.001883
1400	2.0969	3.40E-17	0.79555	0.07374	0.07374	0.87434	87.7	0.076220	0.015178	0.526103	0.000788	0.011405	0.002031
1300	1.9472	3.14E-18	0.80151	0.06797	0.06797	0.88078	80.8	0.070257	0.014926	0.566231	0.0008481	0.012373	0.002204
1200	1.7974	-5.67E-19	0.80911	0.06225	0.06225	0.88773	74.0	0.064346	0.014687	0.612174	0.0009169	0.013510	0.002406
1100	1.6476	-2.61E-17	0.81828	0.05659	0.05659	0.89515	67.3	0.058494	0.014462	0.665600	0.0009969	0.014881	0.002647
1000	1.4978	1.34E-17	0.82888	0.05100	0.05100	0.90302	60.6	0.052714	0.014250	0.728846	0.0010917	0.016491	0.002937
900	1.3480	1.01E-18	0.84080	0.04548	0.04548	0.91129	54.1	0.047011	0.014052	0.805294	0.0012062	0.018491	0.003294
800	1.1983	2.62E-18	0.85424	0.04005	0.04005	0.91996	47.5	0.041394	0.013868	0.900014	0.0013481	0.021000	0.003741
700	1.0485	-2.05E-18	0.86882	0.03470	0.03470	0.92898	41.0	0.035886	0.013697	1.020967	0.0015292	0.024236	0.004317
600	0.8987	-9.26E-18	0.88456	0.02945	0.02945	0.93833	35.0	0.030438	0.013540	1.181418	0.0017695	0.028559	0.005087
500	0.7489	-3.18E-19	0.90140	0.02429	0.02429	0.94795	28.9	0.025107	0.013397	1.404759	0.0021041	0.034624	0.006167
450	0.6740	7.54E-19	0.91022	0.02175	0.02175	0.95291	25.9	0.022479	0.013331	1.553760	0.0023272	0.038671	0.006886
400	0.5991	-1.06E-18	0.91928	0.01923	0.01923	0.95791	22.8	0.019877	0.013268	1.739681	0.0026057	0.043733	0.007790
350	0.5242	-1.19E-18	0.92859	0.01674	0.01674	0.96295	19.9	0.017301	0.013209	1.976801	0.0029596	0.050245	0.008950
300	0.4493	1.28E-18	0.93813	0.01427	0.01427	0.96810	17.0	0.014751	0.013154	2.299957	0.0034404	0.058931	0.010497
250	0.3745	-2.52E-18	0.94791	0.01183	0.01183	0.97329	14.1	0.012227	0.013103	2.742440	0.0041077	0.071096	0.012664
200	0.2996	-1.75E-19	0.95790	0.00941	0.00941	0.97853	11.2	0.009729	0.013056	3.410429	0.0051082	0.089349	0.015915
150	0.2247	-1.44E-19	0.96811	0.00702	0.00702	0.98382	8.3	0.007256	0.013014	4.523472	0.0067753	0.119776	0.021334
100	0.1498	3.11E-19	0.97854	0.00466	0.00466	0.98916	5.5	0.004812	0.012977	6.748917	0.0101086	0.180640	0.032175
95	0.1423	-5.80E-20	0.97959	0.00442	0.00442	0.98970	5.3	0.004569	0.012973	7.100333	0.010636	0.190251	0.033887
90	0.1348	2.07E-19	0.98065	0.00419	0.00419	0.99024	5.0	0.004320	0.012970	7.490752	0.0112108	0.200930	0.035789
85	0.1273	2.98E-20	0.98171	0.00395	0.00395	0.99078	4.7	0.004084	0.012967	7.927184	0.0118735	0.212865	0.037915
80	0.1198	-7.31E-20	0.98277	0.00372	0.00372	0.99132	4.4	0.003841	0.012964	8.418122	0.0126088	0.226292	0.040307
75	0.1123	-1.33E-19	0.98383	0.00348	0.00348	0.99185	4.1	0.003599	0.012961	8.974514	0.0134422	0.241509	0.043017
70	0.1048	7.81E-20	0.98489	0.00325	0.00325	0.99239	3.9	0.003358	0.012958	9.610356	0.0143946	0.258900	0.046115
65	0.0974	-2.85E-20	0.98596	0.00301	0.00301	0.99293	3.6	0.003116	0.012955	10.344081	0.0154935	0.278968	0.049689
60	0.0899	1.93E-19	0.98703	0.00278	0.00278	0.99346	3.3	0.002875	0.012952	11.200054	0.0167756	0.302379	0.053860
55	0.0824	1.76E-19	0.98810	0.00255	0.00255	0.99402	3.0	0.002634	0.012949	12.211679	0.0182911	0.330040	0.058788
15	0.0225	5.74E-21	0.99673	0.00069	0.00069	0.99836	0.8	0.000715	0.012931	0.000000	0	1.215468	0.216496

Note: Last pressure included so that Cr and Cg values are not zero. It is not plotted.







COMMISSION

OIL CONSERVATION [redacted]

CASE NUMBER _____

Ocean EXHIBIT 20

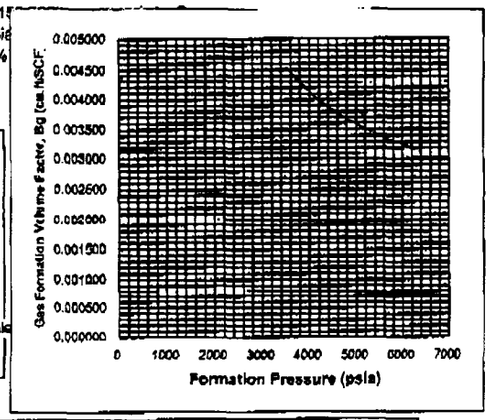
GASPRO01.xls

Blue Fin 24-1

Equations by Starling-Carnahan (Dake book, pp19-20). Wichert-Aziz correction for sour gases applied (accurate for 15
CO2<54.4% and H2S<73.8%. See O&G Journal 10/18/93 pg. 52. Do not use initial pressures < 1500 psia
Required input: Standard conditions, initial reservoir temp and pressure, and gas gravity OR gas composition (mole %
Mole percentage of C1 to C5+ also required for any Heating Value calculation.
Current version of this worksheet does not allow for metric units.

Field: Welt

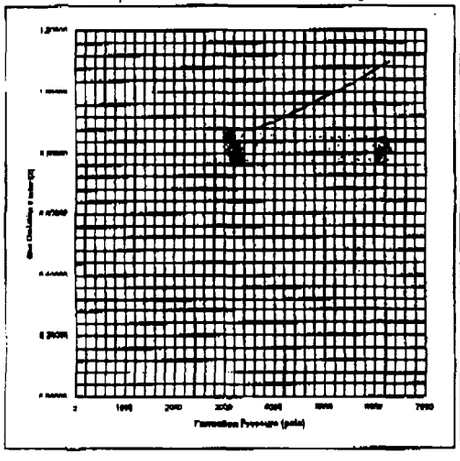
Input Data		Input Data		Computed Data		Computed Data	
Gas grav, Gg (air=1) =	0.710	%C1 =	80.613	ghc (air=1) =	0.7024	Mol Wt. =	20.3483
Cond? (Yes=1,No=0)	0	%C2 =	10.249	pchc, degR =	390.1104	K =	125.1409
Metric? (Yes=1,No=0)	0	%C3 =	4.611	Ppchc,psia =	669.0351	x =	5.2881
eservoir Temperature =	163	%iC4 =	0.642	Tpc,degR =	389.6879	y =	1.3428
Reservoir Pressure =	6300	%nC4 =	1.325	Ppc, psia =	670.0464	DHV, BTU/SCF =	1218.1
Standard Pressure =	14.7	%C5+ =	1.057	CWA =	1.2272	WHV, BTU/SCF =	1200.1
Standard Temperature =	60	% N2 =	0.876	Tpc', degR =	390.4007	Crad,psi/ft =	0.122982
		% CO2 =	0.835	Ppc',psia =	667.9363		
Computed Data		% H2S =	0.000	Init. Ppr =	9.4320	Note: Heating value incorrect unle	
Res Temp, deg F	163.0	Total %	100.008	Tpr =	1.5038	C1 to C5+ data entered.	
Res Pr, psia	6300.0	Calcd Gg	0.7224	ut1/Tpr =	0.6235		

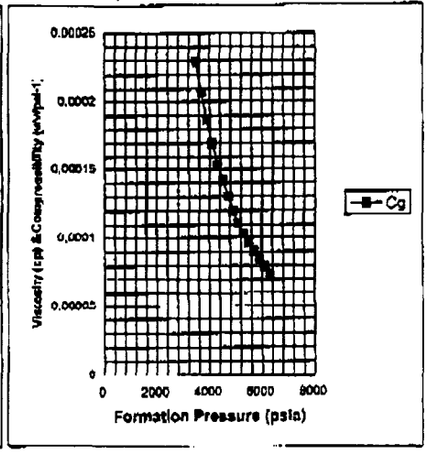


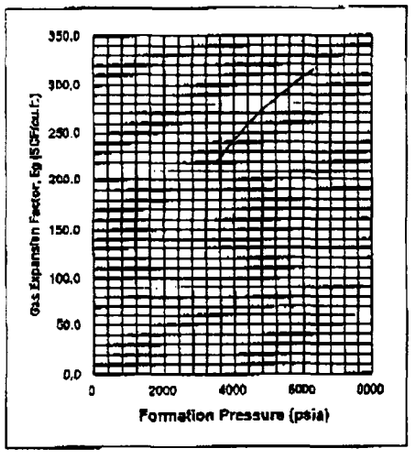
WARNING: Z factor accurate for 0.2<Ppr<24.0 & 1.15<Tpr<3.0
Gas viscosity accurate for 100-6000 psi, 100-340 degF, 0.9<CO2 mole %<3.2.

Pr, psia	Ppr	Y	df/dY	Yk+1	Init. Y	Z	Eg SCF/cu.ft.	Gas Den, gm/cc	Gas Visc cp.	Cr=Cg/Ppc	Cg	Bg (cu.ft./SCF)	Bg (bbls/SCF)
6300	9.4320	########	2.47887	0.27766	0.27766	1.09445	326.8	0.260796	0.032696	0.047018	7.039E-05	0.003060	0.000545
6100	9.1228	########	2.37068	0.27368	0.27368	1.07511	322.2	0.276772	0.032099	0.049911	7.472E-05	0.003104	0.000553
5900	8.8332	########	2.26343	0.26952	0.26952	1.05593	317.3	0.272561	0.031489	0.053122	7.953E-05	0.003152	0.000561
5700	8.5537	########	2.15730	0.26515	0.26515	1.03693	312.1	0.268148	0.030865	0.056697	8.488E-05	0.003204	0.000571
5500	8.2343	########	2.05243	0.26057	0.26057	1.01815	306.7	0.263510	0.030227	0.060695	9.087E-05	0.003260	0.000581
5300	7.9349	########	1.94897	0.25574	0.25574	0.99963	301.0	0.258602	0.029573	0.065185	9.759E-05	0.003322	0.000592
5100	7.6355	########	1.84711	0.25066	0.25066	0.98142	295.1	0.253490	0.028904	0.070247	0.0001052	0.003389	0.000604
4900	7.3360	########	1.74708	0.24529	0.24529	0.96357	288.7	0.248059	0.028219	0.075982	0.0001138	0.003463	0.000617
4700	7.0366	########	1.64914	0.23961	0.23961	0.94617	282.1	0.242312	0.027517	0.082505	0.0001235	0.003545	0.000632
4500	6.7372	########	1.55358	0.23358	0.23358	0.92928	275.0	0.236217	0.026797	0.089959	0.0001347	0.003637	0.000648
4300	6.4377	########	1.46075	0.22718	0.22718	0.91301	267.4	0.229741	0.026060	0.098511	0.0001475	0.003739	0.000666
4100	6.1383	########	1.37108	0.22036	0.22036	0.89746	259.4	0.222847	0.025305	0.108359	0.0001622	0.003855	0.000687
3900	5.8389	########	1.28501	0.21309	0.21309	0.88282	250.8	0.215496	0.024532	0.119738	0.0001793	0.003987	0.000710
3700	5.5395	########	1.20311	0.20533	0.20533	0.86919	241.7	0.207649	0.023743	0.132915	0.000199	0.004137	0.000737
3500	5.2400	########	1.12599	0.19704	0.19704	0.85680	231.9	0.199285	0.022936	0.148193	0.0002219	0.004311	0.000768
3300	4.9406	########	1.05433	0.18818	0.18818	0.84588	221.5	0.190309	0.022121	0.164100	0.0002457	0.004514	0.000804
3200	4.7909	########	1.02078	0.18353	0.18353	0.84101	216.0	0.185606	0.021708	0.173828	0.0002602	0.004629	0.000824
3100	4.6412	########	0.98887	0.17873	0.17873	0.83662	210.4	0.180751	0.021294	0.184290	0.0002759	0.004755	0.000847
3000	4.4914	########	0.95872	0.17378	0.17378	0.83271	204.6	0.175740	0.020879	0.195531	0.0002927	0.004889	0.000871
2900	4.3417	########	0.93041	0.16867	0.16867	0.82933	198.5	0.170570	0.020463	0.207606	0.0003108	0.005037	0.000897
2800	4.1920	########	0.90404	0.16341	0.16341	0.82651	192.4	0.165255	0.020049	0.220527	0.0003302	0.005199	0.000926
2700	4.0423	########	0.87970	0.15800	0.15800	0.82428	186.0	0.159784	0.019635	0.234399	0.0003509	0.005377	0.000958
2600	3.8926	########	0.85748	0.15245	0.15245	0.82267	179.4	0.154167	0.019225	0.249163	0.0003731	0.005573	0.000993
2500	3.7429	########	0.83744	0.14675	0.14675	0.82172	172.7	0.148409	0.018818	0.264954	0.0003967	0.005789	0.001031
2400	3.5932	########	0.81967	0.14093	0.14093	0.82145	165.9	0.142520	0.018416	0.281790	0.0004219	0.006026	0.001074
2300	3.4434	########	0.80420	0.13499	0.13499	0.82188	158.9	0.136510	0.018020	0.299729	0.0004487	0.006293	0.001121
2200	3.2937	########	0.79106	0.12894	0.12894	0.82302	151.8	0.130380	0.017632	0.318810	0.0004774	0.006589	0.001174
2100	3.1440	########	0.78032	0.12280	0.12280	0.82490	144.5	0.124153	0.017253	0.339214	0.0005079	0.006916	0.001232
2000	2.9943	########	0.77193	0.11658	0.11658	0.82751	137.2	0.117896	0.016884	0.360970	0.0005404	0.007287	0.001298
1900	2.8445	########	0.76588	0.11030	0.11030	0.83086	129.8	0.111561	0.016525	0.384289	0.0005753	0.007702	0.001372
1800	2.6949	########	0.76216	0.10399	0.10399	0.83493	122.4	0.105164	0.016179	0.409326	0.0006128	0.008169	0.001455
1700	2.5452	########	0.76070	0.09765	0.09765	0.83971	115.0	0.098756	0.015846	0.436430	0.0006534	0.008699	0.001550
1600	2.3954	########	0.76144	0.09131	0.09131	0.84518	107.5	0.092345	0.015527	0.465982	0.0006978	0.009303	0.001657
1500	2.2457	########	0.76432	0.08499	0.08499	0.85132	100.0	0.085950	0.015222	0.498429	0.0007462	0.009996	0.001780
1400	2.0960	########	0.76924	0.07870	0.07870	0.85808	92.6	0.079586	0.014933	0.534506	0.0008002	0.010795	0.001923
1300	1.9463	########	0.77611	0.07245	0.07245	0.86547	85.3	0.073272	0.014658	0.575094	0.000861	0.011725	0.002088
1200	1.7966	########	0.78484	0.06627	0.06627	0.87341	78.0	0.067021	0.014399	0.621408	0.0009303	0.012819	0.002283
1100	1.6469	########	0.79532	0.06017	0.06017	0.88188	70.8	0.060845	0.014155	0.675119	0.0010108	0.014120	0.002515
1000	1.4971	########	0.80747	0.05415	0.05415	0.89085	63.7	0.054757	0.013927	0.738570	0.0011057	0.015689	0.002795
900	1.3474	########	0.82116	0.04822	0.04822	0.90027	56.8	0.048765	0.013714	0.815151	0.0012204	0.017617	0.003138
800	1.1977	########	0.83633	0.04240	0.04240	0.91011	49.9	0.042879	0.013516	0.909942	0.0013623	0.020036	0.003568
700	1.0480	########	0.85285	0.03669	0.03669	0.92033	43.2	0.037102	0.013333	1.030915	0.0015434	0.023155	0.004124
600	0.8983	########	0.87066	0.03109	0.03109	0.93090	36.6	0.031441	0.013166	1.191349	0.0017836	0.027325	0.004867
500	0.7486	########	0.88966	0.02561	0.02561	0.94179	30.1	0.026898	0.013013	1.414842	0.0021179	0.033173	0.005909
450	0.6737	########	0.89959	0.02291	0.02291	0.94734	27.0	0.023171	0.012943	1.563570	0.0023409	0.037078	0.006604
400	0.5989	########	0.90976	0.02025	0.02025	0.95296	23.8	0.020475	0.012878	1.748546	0.0026193	0.041958	0.007474
350	0.5240	########	0.92023	0.01761	0.01761	0.95865	20.7	0.017810	0.012814	1.988476	0.002977	0.048238	0.008592
300	0.4491	########	0.93094	0.01500	0.01500	0.96440	17.7	0.015174	0.012755	2.306869	0.0034537	0.056616	0.010084
250	0.3743	########	0.94189	0.01243	0.01243	0.97020	14.6	0.012570	0.012701	2.752438	0.0041208	0.068348	0.012174
200	0.2994	########	0.95307	0.00988	0.00988	0.97606	11.6	0.009995	0.012651	3.420605	0.0051212	0.085951	0.015309
150	0.2246	########	0.96448	0.00737	0.00737	0.98197	8.7	0.007451	0.012606	4.334019	0.0067881	0.115295	0.020536
100	0.1497	########	0.97611	0.00488	0.00488	0.98794	5.7	0.004938	0.012567	6.760338	0.0101212	0.173993	0.030991
95	0.1422	########	0.97728	0.00464	0.00464	0.98854	5.5	0.004686	0.012564	7.111898	0.0106478	0.183261	0.032642
90	0.1347	########	0.97849	0.00439	0.00439	0.98914	5.2	0.004435	0.012560	7.502517	0.0112324	0.193560	0.034477
85	0.1273	########	0.97964	0.00414	0.00414	0.98973	4.9	0.004189	0.012557	7.939090	0.011886	0.205070	0.036527
80	0.1198	########	0.98082	0.00390	0.00390	0.99034	4.6	0.003941	0.012553	8.430233	0.0126213	0.218019	0.038833
75	0.1123	########	0.98200	0.00365	0.00365	0.99094	4.3	0.003692	0.012550	8.986859	0.0134547	0.232695	0.041447
70	0.1048	########	0.98319	0.00341	0.00341	0.99154	4.0	0.003444	0.012547	9.623001	0.0144071	0.249467	0.044435
65	0.0973	########	0.98438	0.00316	0.00316	0.99214	3.7	0.003196	0.012544	10.357009	0.015506	0.268820	0.047882
60	0.0898	########	0.98557	0.00292	0.00292	0.99274	3.4	0.002948	0.012541	11.213349	0.0167881	0.291398	0.051904
55	0.0823	########	0.98678	0.00267	0.00267	0.99334	3.1	0.002701	0.012538	12.225592	0.0183035	0.318082	0.056656
15	0.0225	########	0.99536	0.00072	0.00072	0.99818	0.9	0.000733	0.012518	0.000000	0	1.171978	0.208752

Note: Last pressure included so that Cr and Cg values are not zero. It is not plotted.







GEOLOGIC HISTORY AND RESERVOIR DEVELOPMENT IN THE SHOEBAR FIELD AREA, LEA COUNTY, NEW MEXICO

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ABSTRACT

Production in the Shoebar Field area comes from many different types of reservoirs in rocks ranging in age from the Silurian up through and including the Permian Abo Formation. A complex structural setting in this area created a Paleozoic stratigraphy that is difficult to interpret with seismic data alone. The section from the upper Mississippian Chester through the upper Atoka Formations is further complicated by inter- and intra-formational unconformities, and differential movement along major faults. Faults and unconformities were important to the development of reservoirs throughout the section because tectonic movement and exposure events associated with those surfaces affected reservoir distribution, quality, and locally, erosion.

Several formations in the area, including the Wristen, Chester, Atoka, Strawn and lower Wolfcamp, are key targets because of recent exploratory successes or because they offer new reserve development potential. Reservoirs in each of these formations were developed under unique depositional conditions, and prediction of ideal reservoir conditions in these rocks may be facilitated through coordinated lithologic correlations and seismic interpretation. Lithologic data are critical to understanding the abrupt changes that affect the stratigraphy in the area, and to preventing mis-correlations that could inhibit optimum evaluation of prospective targets in a well.

INTRODUCTION

The Shoebar Field area is located west-southwest of Lovington in Lea County, New Mexico, and is situated on the east side of the Northwest Shelf at the junction of several other major structural elements of the Permian Basin: the Tatum Basin to the north, North Platform to the northeast, and Central Basin Platform to the southeast (Figure 1). In this setting, the Paleozoic section had undergone numerous episodes of tectonic activity, reactivation of older structures, and periodic exposure and erosion of parts of the section. This episodic tectonic activity had varying affects upon development of carbonate and siliciclastic reservoirs that occur in formations from the Wristen (Silurian) through the Abo (Permian). The purpose of this geologic note is to summarize the tectonic setting of the Shoebar area, the types of reservoirs that have developed as a result of the complicated history of the area, and characteristics of major oil and gas reservoirs in the area. The aim of this study was to apply an understanding of reservoir development mechanisms to broadening old plays and developing new ones in formations that have been producing in the area for years. Study in this area is a work in progress, as new drilling activity will no doubt continue to reveal useful details of the stratigraphy that will add to our exploration tools.

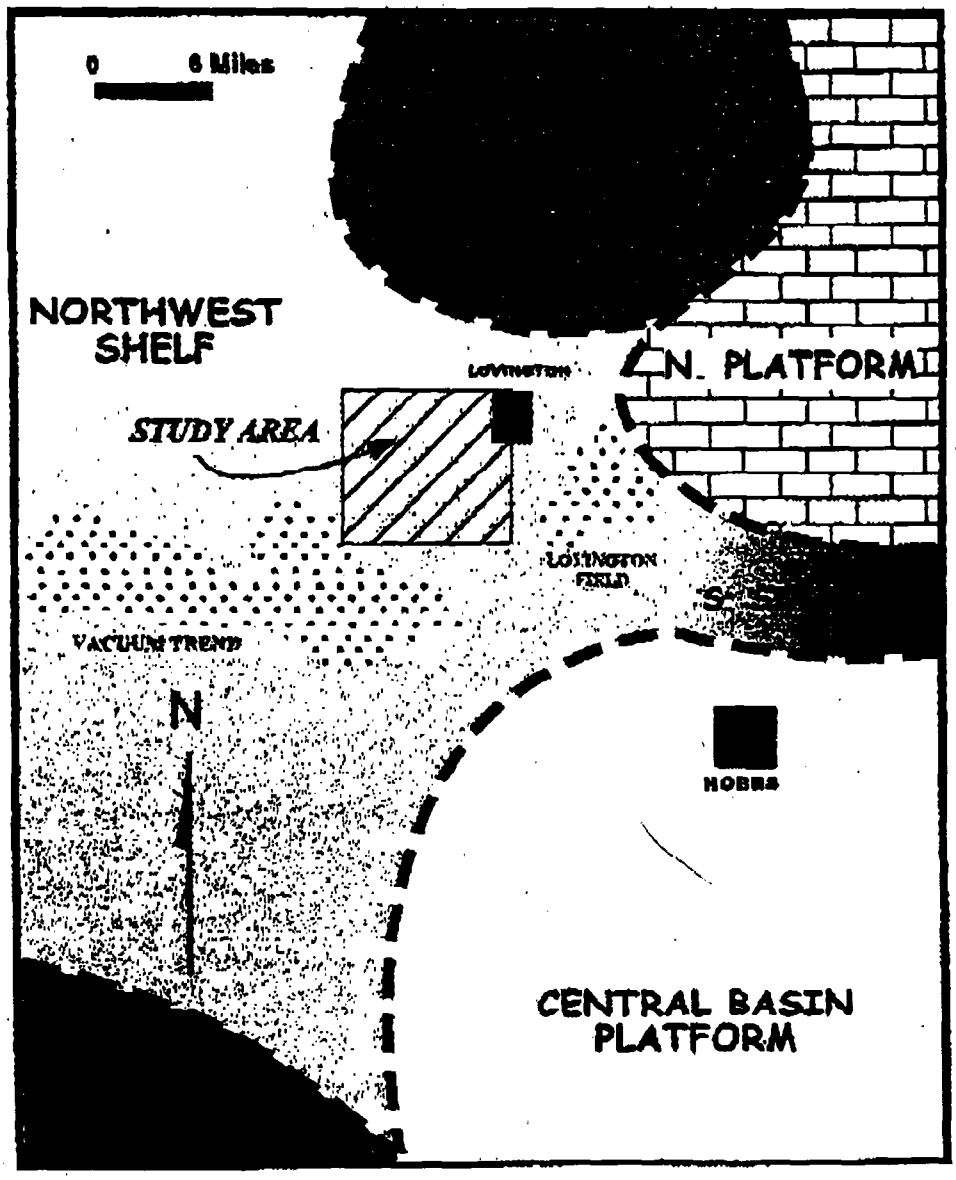

Figure 1. Location and tectonic setting of Shoebar Field study area in eastern Lea County, New Mexico.

GEOLOGIC SETTING

General

Detailed lithologic study of well cuttings from 19 wells in the area were used to evaluate the stratigraphy of the major producing horizons, identify and correlate formation contacts, and provide depositional models for each of the major target zones. Several high-resolution 2-D seismic lines were also used to identify fault locations and penetrations, and in some cases, to confirm the presence of reservoir facies. Figure 2 shows the stratigraphy of the area and the formations that produce there. Some of the formational contacts (e.g., between the lower Atoka shale and lower Atoka limestone) differ from colloquial use in the area, but are based on detailed lithologic correlation and faunal assemblages.

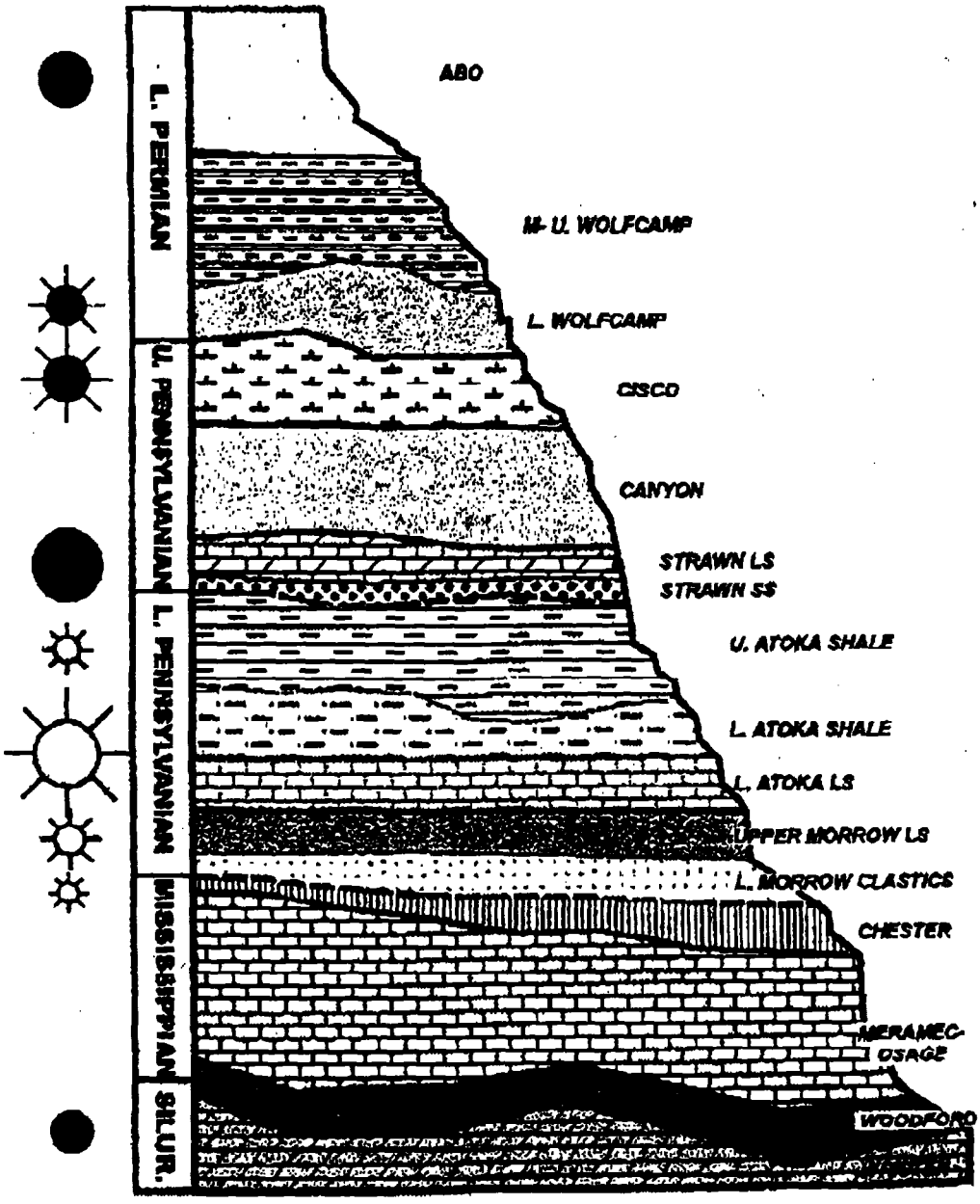

Figure 2. Silurian through Lower Permian stratigraphic section of the Shoebar area. Well symbols at left are sized in relative proportion to production from formations in the area. Dashed contacts represent major unconformities.

Pay Zones and Production

The greater Shoebar area is in one of the oldest producing areas of the Permian Basin, yet new and significant discoveries continue to be made there. The most prolific production to date has been from sandstones near the base of the Lower Pennsylvanian Atoka Formation (up to 30 billion cubic feet of gas per well), and from algal mound carbonates in the Middle Pennsylvanian Strawn Formation (up to 600,000 to 1,000,0000 barrels of oil equivalent (BOE) per well). Other significant production has been from (1) algal mounds of the Lower Permian Wolfcamp Formation (variously referred to as Permo-Penn or Wolfcamp), which produces dual-phase hydrocarbons (up to 775,000 BOE per well); (2) carbonates of the Silurian Wristen Formation (up to 650,000 barrels of oil per well); (3) Upper Pennsylvanian Cisco algal mounds (similar in reserves to the Wolfcamp); (4) foreshelf carbonates of the Permian Abo Formation (up to

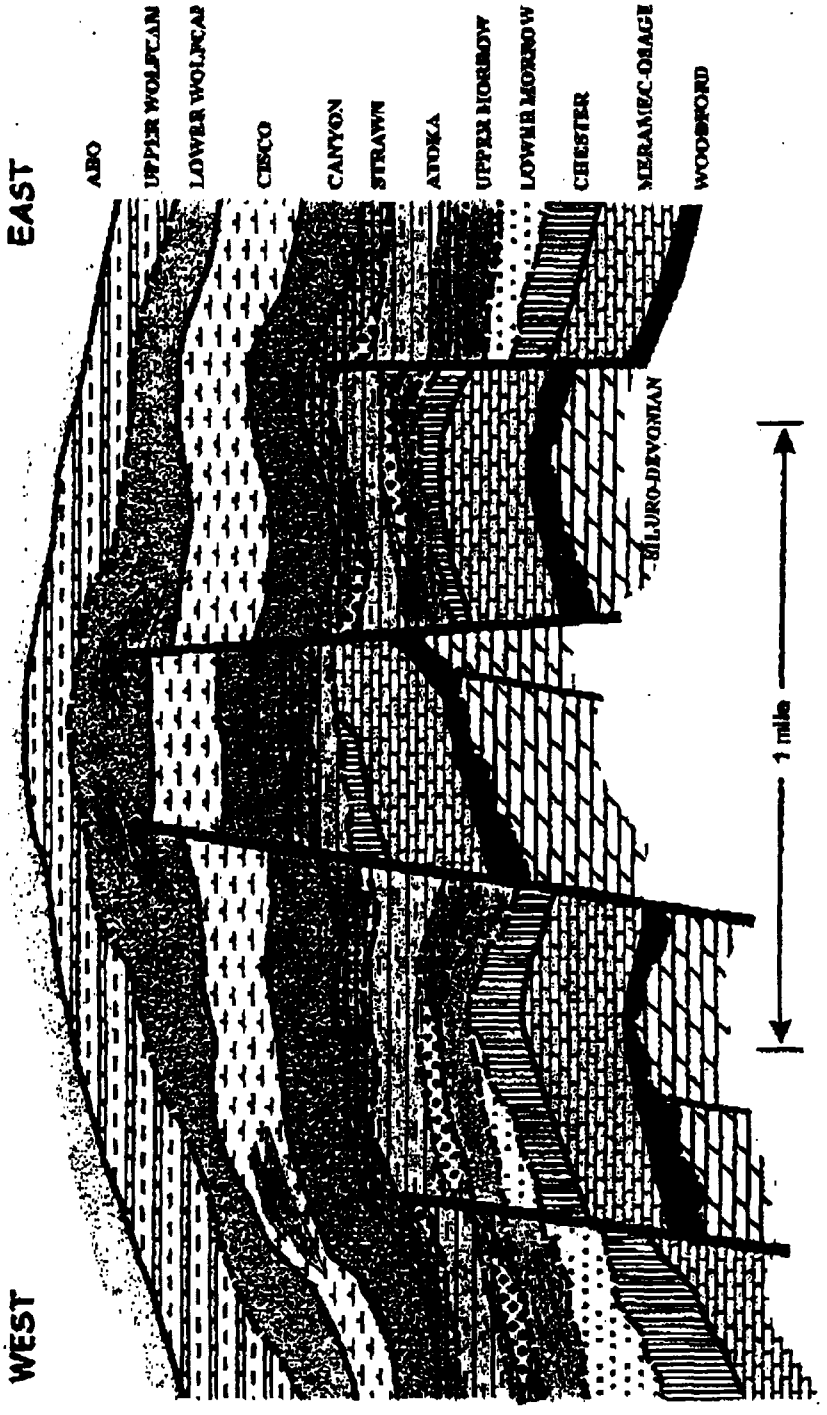

Figure 3. Schematic structural cross-section through the Shoebar area, showing various age faults and major unconformities (dashed contacts).

100,000 barrels of oil per well); and (5) various sands in the Lower Pennsylvanian Morrow and upper Atoka shale sections (up to 2.5 billion cubic feet of gas per well). Depths to the various pay formations range from approximately 8,500 feet (Abo) to 13,000 feet (Silurian or Atoka-Morrow).

Tectonic Setting

Figures 2 and 3 show a number of inter- and intra-formational unconformities that have been recognized in the area. Figure 3 also shows that over relatively short distances, the Paleozoic section is cut by several faults of different ages.

The terminal tectonic event occurred in the Early Wolfcamp, but only affected a small part of the study area. Faults that penetrate only to the upper Atoka are more numerous, and in some areas, faulting terminates in the Silurian and does not extend any farther up section. The major unconformities are found at the top of the Silurian, Mississippian, Atoka, and lower Wolfcamp formations. Important intraformational unconformities are found within the Wristen, Morrow, Atoka, and lower Wolfcamp Formations. Faults and unconformities were important to hydrocarbon production in the area because tectonic movement and exposure events associated with those surfaces affected reservoir distribution and quality, hydrocarbon migration, and locally, reservoir erosion.

EXPLORATION PROBLEMS

Because of the structural complexity and resultant variable stratigraphy of the area, conventional 2-D seismic data has its limitations in exploring for and developing hydrocarbon reservoirs in the Shoebar area. 3-D seismic, which has been used a lot in the area over the last several years, has had mixed success because of the way the section and structure can change very abruptly over short lateral distances. For example, Figure 3 shows that on the highest fault blocks, part or all of the upper Mississippian, Morrow, and lower Atoka Formations can be stripped off, depending upon the timing of movement along each fault. It is not surprising, then, that seismic interpretations sometimes miss their mark because these abrupt changes in structure and stratigraphy are not always recognized or anticipated.

Another problem that arises from misunderstanding the stratigraphy is drilling short of potential pay zones. For example, the lower Atoka and upper Morrow limestones have been often mistaken for the Mississippian Chester or Meramec-Osage limestones, causing some operators to drill short of targets in the Morrow. The lithologies of the Atoka-Morrow and the Mississippian are distinguishable in samples, but log responses in these formations are often similar. Well logs are not a reliable means by which to correlate sections, especially when it comes to deciding on the final depth of a well.

MAJOR RESERVOIRS

Table 1 lists the types of reservoirs found in the Shoebar study area. The more important reservoirs in terms of recent exploratory successes or potential new development are summarized below.

Silurian

The oldest rocks that produce in this immediate area are dolomitic carbonates that have been referred to as Devonian, but which are lithologically similar to the Upper Silurian Wristen Formation (e.g., Mazzullo, 1998). The Wristen Formation subcrops beneath a relatively thick section of dark Woodford Shale in this area. Production is from moderately-bedded porous dolomites that are interbedded with non-porous limestones. Although most of the production is on higher structural blocks, productive features are small and reserves not always commensurate with the amount of structural closure.

Figure 4 suggests the reason for lackluster production out of the Wristen. Unit *A* is a limestone reference horizon, identified with samples, that is used to show the relationship between pre-Woodford and post-Woodford structure. The changing structural attitude of unit *A* relative to the base of the Woodford reflects pre-Woodford folding and removal of the upper part of the section, which is a common occurrence in this part of the Lower Paleozoic (Mazzullo, 1990). The base of the Woodford Shale is an exposure surface. The section below this surface was folded prior to exposure and erosion and further modified by subsequent tectonic events in the Mississippian, Atoka, and early Wolfcamp. Consequently, porous reservoir facies (dolomites) could be eroded off or are not always ideally juxtaposed on the later structures, and are often reverse-structured from what is mapped on the base of the Woodford shale. With adequate

TABLE 1

RESERVOIRS IN THE SHOEBAR AREA AND VICINITY

SILURIAN:	**Restructured karsted carbonates; dolomites interbedded with limestones**
MISSISSIPPIAN:	**Weathered tripolitic limestones near top of the Chester**
MORROW:	**Primarily alluvial sandstones, absent on higher structures**
ATOKA:	**Fluvial/Transitional marine sandstones in lower part; Fluvial and marine sands in upper part**
STRAWN:	**Sandstones on top of upper Atoka unconformity; Algal mound carbonates on flanks of deeper structures**
CISCO:	**Algal mound carbonates; foreslope detrital carbonates**
L. WOLFCAMP:	**Tubiphytes/algal mounds along flanks of deeper highs**
ABO:	**Foreslope to shelf-edge carbonates**

sample control, the Wristen can be zoned, and reservoir dolomites traced to areas where they might trap more favorably, even if these areas do not coincide directly with highest structures.

Mississippian

The Upper Mississippian Chester Limestone pays in a few wells in the area, although it is often mis-correlated as a Morrow pay zone. It is noted here because it may offer additional reserve opportunity that has generally gone unrecognized. Based on correlations of Mississippian lithologies from several wells, the pay zone is a reworked, tripolitic, carbonate sand that appears to form very close to major fault scarps that cut the Upper Mississippian section.

Figure 4 suggests how these carbonate sands may have formed. The top of the Mississippian is one of the major unconformities in the area. During the latest Mississippian, low-relief uplift occurred along the faults and exposed cherty Chester limestones to erosion. Unit *B* was formed from erosion of the fault scarp, and deposition of debris in alluvial fans close to the base of the scarps. The carbonate debris was exposed and tripolitized, which created the outstanding porosity seen in these reservoirs. Since they were deposited so close to the source, they are limited in width and probably discontinuous along trend, which makes them hard to predict. To date, these reservoirs have been found to be up to 20 to 25 feet thick, and capable of delivering in excess of 1.0 billion cubic feet of gas per well.

Atoka

Sandstones near the base of the lower Atoka shale (Figure 2) are the most sought after reservoirs in the area because of their potentially large gas reserves. These sandstones were

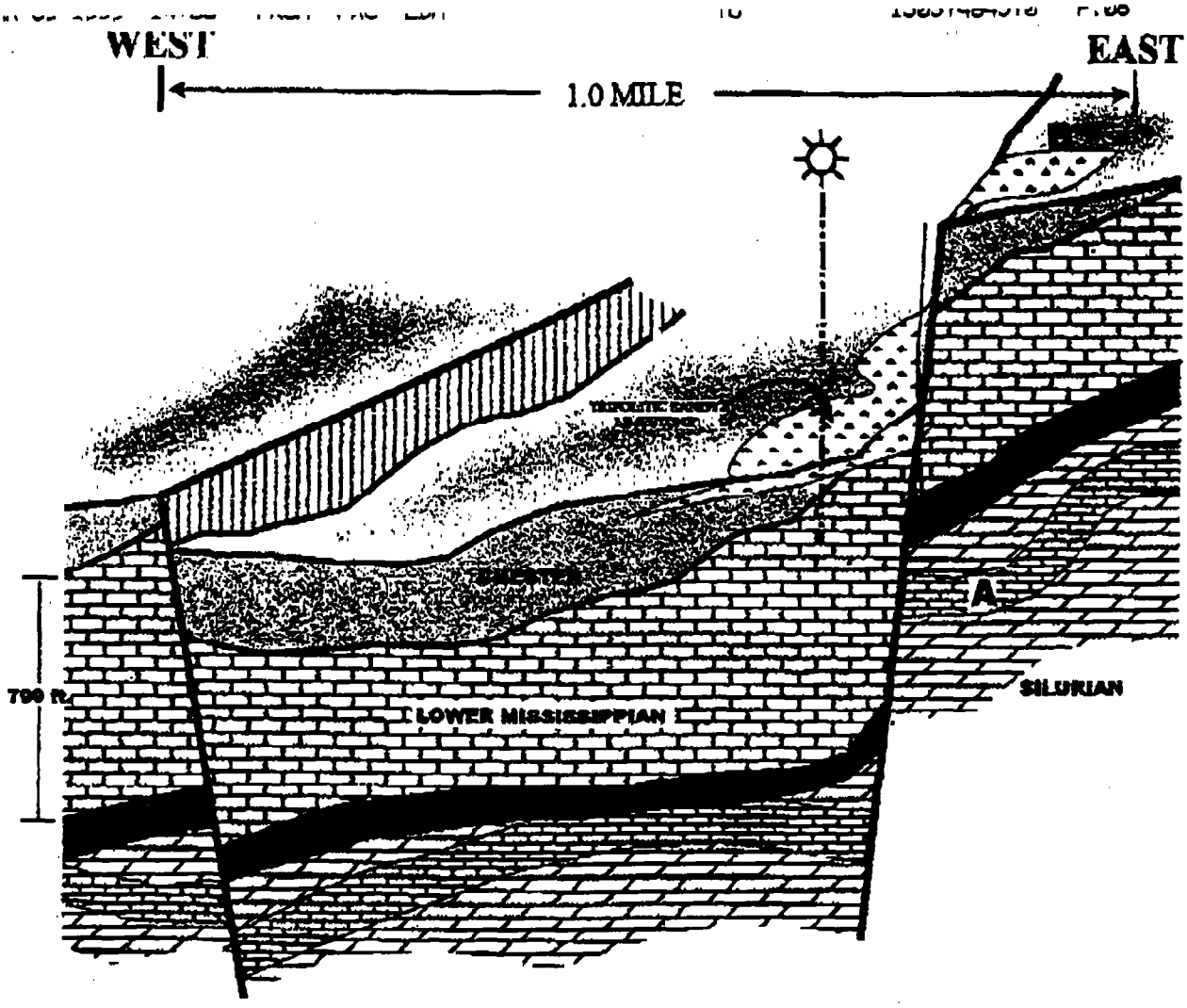

Figure 4. Structural cross-section through the Silurian and Chester sections in the Shoebar area. Unit A represents a limestone marker bed in the Wristen; Unit B is a tripolitic lime grainstone in the Chester.

deposited in fluvial environments over most of the area, but the net pay section is actually a composite of several individual channel units that locally stack into appreciable thicknesses of sand (Figure 5). These sandstones were deposited on a relatively gently-sloping alluvial plain. Because these sands are found on both high and low structural blocks, they appear to have been deposited in relatively low areas that were differentially uplifted after deposition, either in the late Early Atoka or Late Atoka.

Some basal Atoka sands terminate abruptly on parts of the higher fault blocks in the area (Figure 6). Because their grain size and lithology do not change closer to these highs, it is suspected that the lower Atoka section was uplifted shortly after deposition of the sands, and the sands were eroded off the highs. This event is marked by an intraformational unconformity that separates the lower Atoka shale and limestone from the upper Atoka section (Figures 2 and 3). On the highs, the Atoka thins by erosion of the basal part of the lower Atoka shale and the Atoka limestone sections. Lower permeability is also associated with these sands in close proximity to the highs, presumably due to early post-depositional occlusion of primary porosity in the meteoric environment.

Strawn

The Shoebar area is south of (i.e., basinward of) the main Lovington Strawn trend. The Lovington trend is characterized by a few

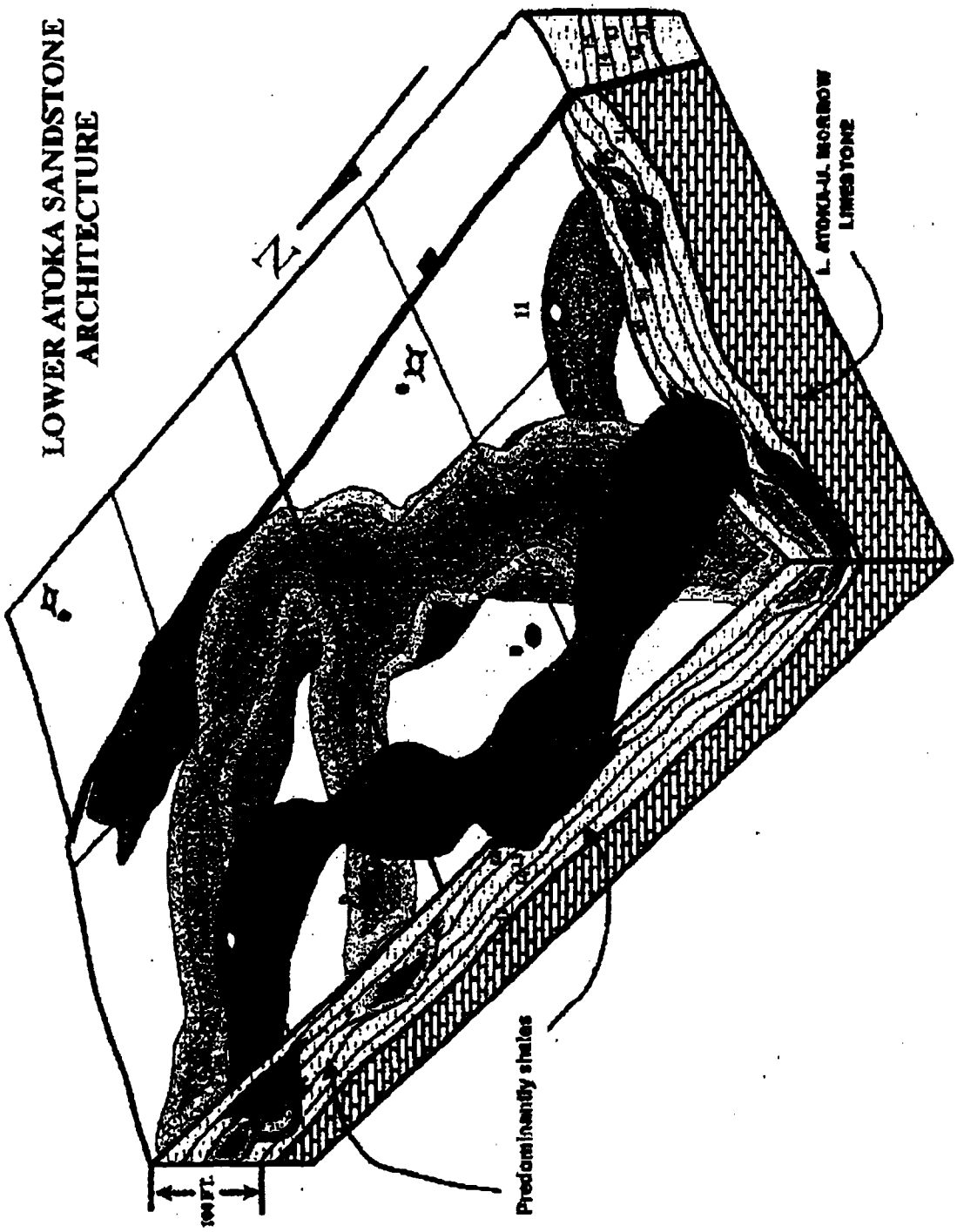

Figure 5. Block diagram showing development of fluvial sandstones (11 through 15) in the lower Atoka shale section. Each square represents a one mile-square section.

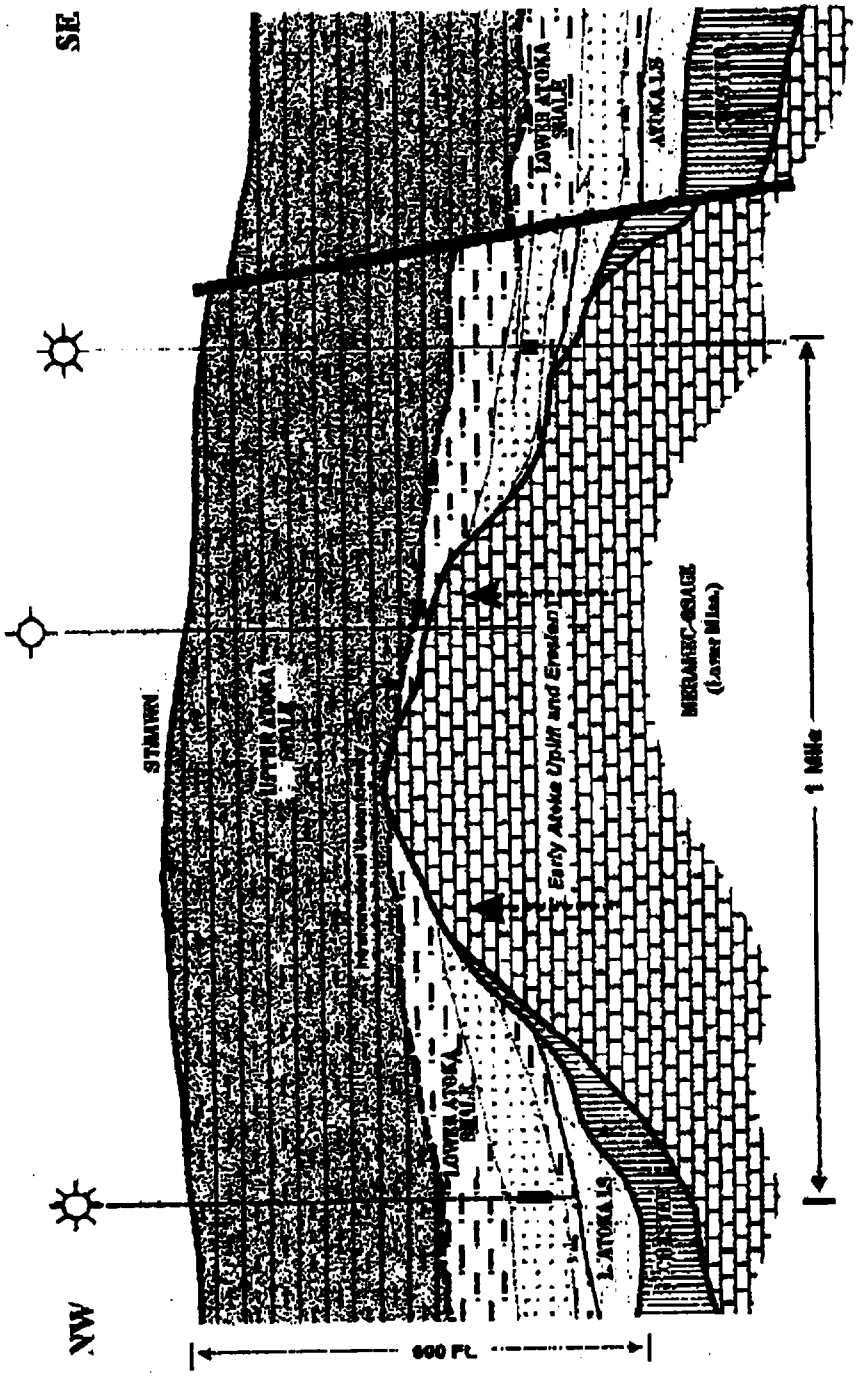

Figure 6. Structural cross-section across the crest of a major Early Wolfcamp fault block in the Shoebar area, showing erosion of the lower Atoka section beneath the early Atoka intraformational unconformity.

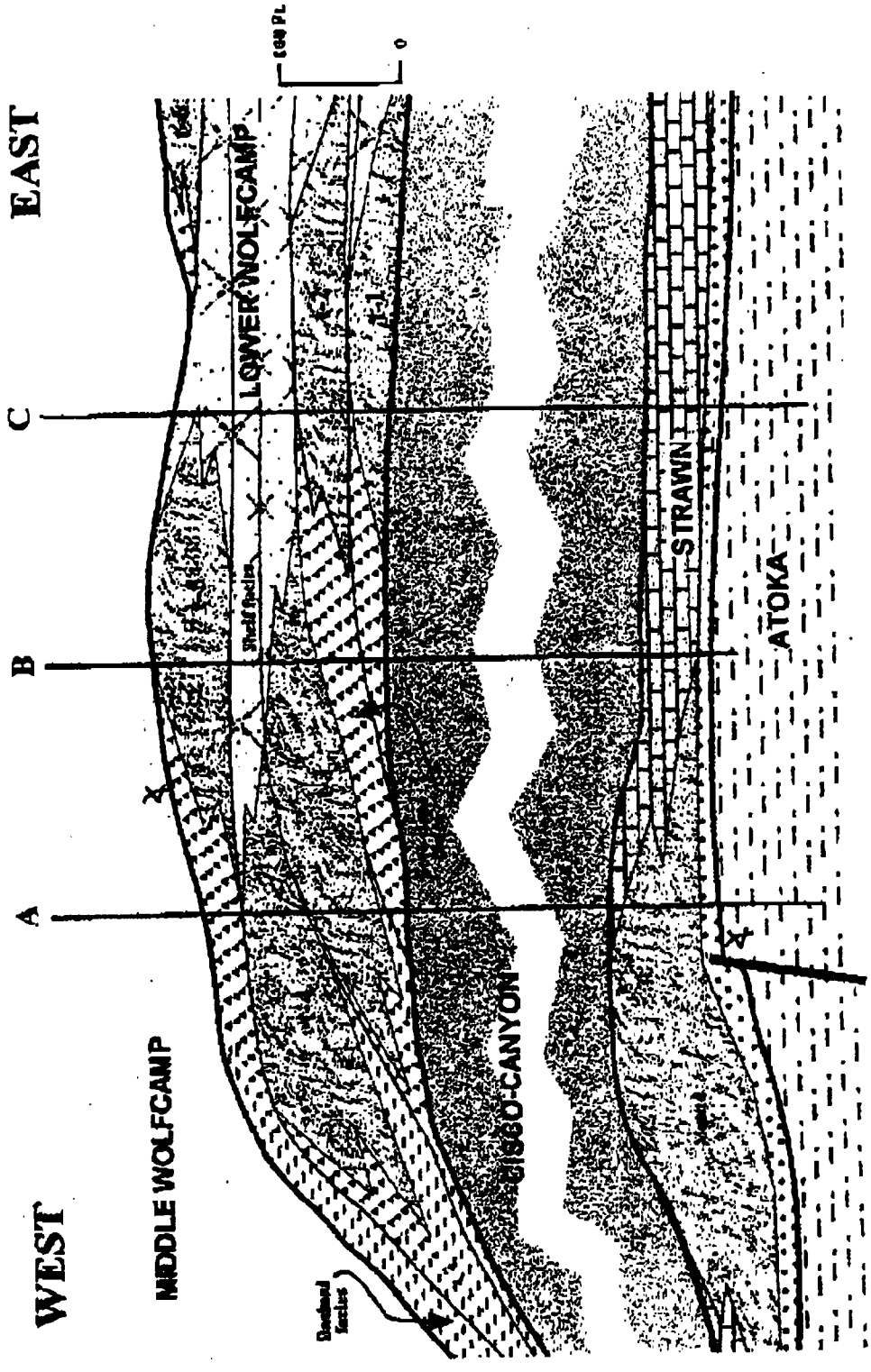

Figure 7. Structure section depicting development of Strawn algal mounds and lower Wolfcamp *Tubiphytes*-algal mound sequences (A through C). Part of the Cisco-Canyon section is omitted for clarity.

hundred feet of Strawn carbonate that is comprised of multiple, stacked carbonate algal mound sequences. In the Shoebar area, the Strawn is only 50 to 150 feet thick. It locally contains isolated algal mound sequences (Figure 7) in the northern part of the study area, but grades to basinal, muddy limestones in the southern part. The mounds are commonly found on the flanks of underlying structural highs rather than on the crests. These highs provided paleo-topographic substrates on the sea floor on which mounds grew. However, the wave-intolerant phylloid algae that are common to these mounds favored the slightly lower-energy environments around the flanks of the highs.

Lower Wolfcamp

The lower Wolfcamp produces from algal mounds similar to those in the Strawn (Figure 7), but are dominated by *Tubiphytes* algae, red algae, and bryozoans. These species were more resistant to wave energy than those in the Strawn, and grew both on the flanks and near the crests of substrate highs. The lower Wolfcamp is often miscorrelated as the upper Cisco because it has been generally thought that the southernmost extent of *Tubiphytes* mound development in the Wolfcamp was to the north along the Eidson-Townsend trend. A high-relief Early Wolfcamp reverse fault block, however, provided the substrate for more basinward development of these mounds in the Shoebar area.

The lower Wolfcamp mounds developed in carbonate facies tracts that shifted depositional sites laterally through time in response to changes in relative sea level. As a result, mounds were able to grow on the higher structural blocks in the area several miles seaward of the main Eidson-Townsend shelf-edge trend to the north. At Shoebar, lower Wolfcamp reservoirs occur as discrete mound sequences of less than 30 feet thickness, or locally develop over 300 feet of stacked, composite sequences.

CONCLUSIONS

The Shoebar area is an exploration and development play in a mature hydrocarbon producing region because of the number of potential reservoir zones in the section, many of which have not been developed to their full potential. Part of the reason why reservoirs are underdeveloped or overlooked is the stratigraphic complexity that arises from the unique tectonic setting of the area. It is understandable that miscorrelations have limited development in some areas because it is difficult to sort out the section without detailed lithologic correlations.

Seismic evaluation of the area should not be conducted without coordinated lithologic study. The examples cited in this report have shown how critical lithologic and faunal correlation can be to correctly placing reservoirs in the section, and how abrupt changes in section may not be easily recognized. Log correlations are not reliable for gross stratigraphic correlation here because logs cannot characterize facies and faunal assemblages, and different formations often show similar log signatures. In areas where well control is adequate, it should possible to enhance chances for a successful well and finding new reserves from old producers by applying reservoir models based on lithologic study to the location of new well sites and interpretation of 3-D seismic.

REFERENCES CITED

Mazzullo, L. J., 1990, Implications of sub-Woodford geologic variations in the exploration for Silurian-Devonian reservoirs in the Permian Basin; West Texas Geological Society, Publ. 90-86, p.29-42.

Mazzullo, L. J., 1998, Exploration model of non-conventional Siluro-Devonian reservoirs in the Permian Basin (abstract): Frontier and Underdeveloped Basins of New Mexico, Albuquerque: Petroleum Technology Transfer Council Symposium.