



## DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788  
Wichita Ks. 67201

ATTN: Clarke Sandberg

**Barber Co.4-31S-13W**

**Maddix Trust #1**

Start Date: 2001.12.04 @ 18:00:06

End Date: 2001.12.05 @ 00:48:06

Job Ticket #: 15360                      DST #: 1

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

ATTN: Clarke Sandberg

Job Ticket: 15360

**DST#: 1**

Test Start: 2001.12.04 @ 18:00:06

## GENERAL INFORMATION:

Formation: **Douglass Sd.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:33:51

Time Test Ended: 00:48:06

Test Type: Conventional Bottom Hole

Tester: Lanny Saloga

Unit No: 14

Interval: **3746.00 ft (KB) To 3764.00 ft (KB) (TVD)**

Total Depth: 3764.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1789.00 ft (KB)

1781.00 ft (CF)

KB to GR/CF: 8.00 ft

**Serial #: 3289**

**Inside**

Press@RunDepth: 350.52 psig @ 3748.00 ft (KB)

Start Date: 2001.12.04

End Date:

2001.12.05

Capacity: 7000.00 psig

Last Calib.: 1899.12.30

Start Time: 18:00:11

End Time:

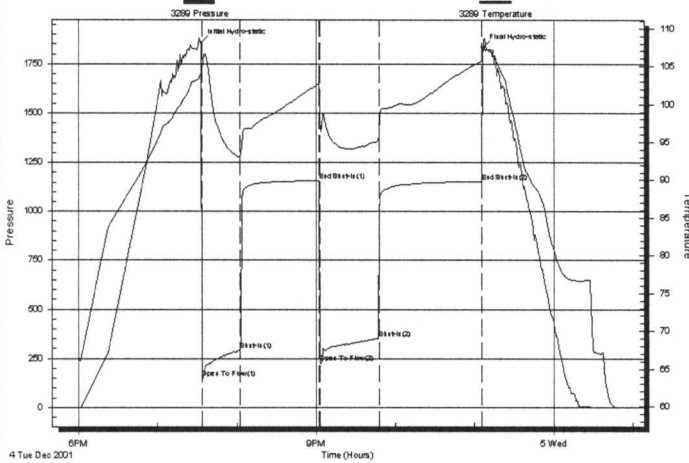
00:48:05

Time On Btm: 2001.12.04 @ 19:33:06

Time Off Btm: 2001.12.04 @ 23:05:50

**TEST COMMENT:** Strong immed. GTS in 4 min. See flow chart. I.F.P.  
No blow-back. I.S.I.P.  
See flow chart. F.F.P. "Gas burned."  
No blow-back. F.S.I.P

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1854.59	104.06	Initial Hydro-static
1	148.41	104.56	Open To Flow (1)
30	291.42	92.92	Shut-In(1)
89	1157.64	102.75	End Shut-In(1)
90	229.16	98.14	Open To Flow (2)
135	350.52	95.26	Shut-In(2)
213	1153.71	105.71	End Shut-In(2)
213	1832.72	106.12	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Wtr 100%W	0.84
65.00	Sli McW 87%W 13%M	0.91
65.00	Gassy WcM 8%G 14%W 78%M	0.91
0.00	3558 ft. GIP	0.00
0.00	RW 0.34 at 57 F. 25,000 PPM.	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.75	37.00	802.86
Last Gas Rate	0.75	73.00	1365.17
Max. Gas Rate	0.75	73.00	1365.17



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15360

**DST#: 1**

ATTN: Clarke Sandberg

Test Start: 2001.12.04 @ 18:00:06

### Tool Information

Drill Pipe:	Length: 3748.00 ft	Diameter: 3.80 inches	Volume: 52.57 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 16000.00 lb
			<u>Total Volume: 52.57 bbl</u>	Tool Chased: ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3746.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	17.00 ft			
Tool Length:	39.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3725.00	
S.I. Tool	5.00			3730.00	
HMV	5.00			3735.00	
Safety Joint	2.00			3737.00	
Packer	4.00			3741.00	22.00 Bottom Of Top Packer
Packer	5.00			3746.00	
Stubb	1.00			3747.00	
Perforations	1.00			3748.00	
Recorder	0.00	3289	Inside	3748.00	
Perforations	13.00			3761.00	
Recorder	0.00	10242	Inside	3761.00	
Bullnose	2.00			3763.00	17.00 Bottom Packers & Anchor

**Total Tool Length: 39.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15360

**DST#: 1**

ATTN: Clarke Sandberg

Test Start: 2001.12.04 @ 18:00:06

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 11.95 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Wtr 100%W	0.842
65.00	Sli McW 87%W 13%M	0.912
65.00	Gassy WcM 8%G 14%W 78%M	0.912
0.00	3558 ft. GIP	0.000
0.00	RW 0.34 at 57 F. 25,000 PPM.	0.000

Total Length: 190.00 ft      Total Volume: 2.666 bbl

Num Fluid Samples: 1      Num Gas Bombs: 1      Serial #: 1

Laboratory Name: Caraway      Laboratory Location: Liberal KS

Recovery Comments:



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**GAS RATES**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15360

**DST#: 1**

ATTN: Clarke Sandberg

Test Start: 2001.12.04 @ 18:00:06

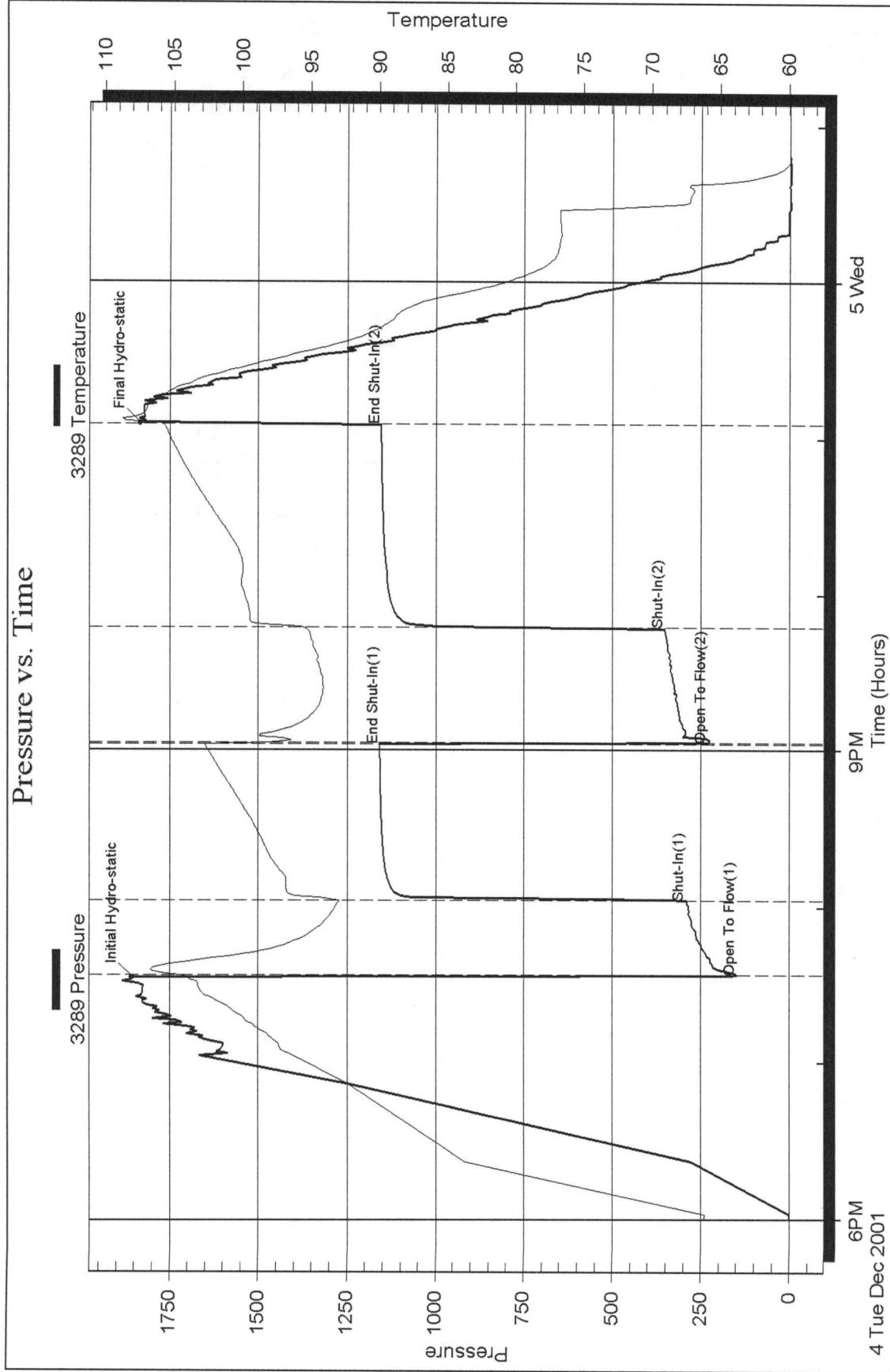
### Gas Rates Information

Temperature: 59 deg C  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m <sup>3</sup> /d)
1	10	0.75	37.00	802.86
1	10	0.75	37.00	802.86
1	20	0.75	50.00	1005.92
1	30	0.75	60.00	1162.12
2	10	0.75	62.00	1193.36
2	20	0.75	68.00	1287.08
2	30	0.75	71.00	1333.94
2	40	0.75	73.00	1365.17

### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788  
Wichita Ks. 67201

ATTN: Clarke Sandberg

**Barber Co.4-31S-13W**

**Maddix Trust #1**

Start Date: 2001.12.05 @ 09:31:25

End Date: 2001.12.05 @ 16:49:55

Job Ticket #: 15361                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE  
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## DRILL STEM TEST REPORT

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

ATTN: Clarke Sandberg

Job Ticket: 15361

**DST#: 2**

Test Start: 2001.12.05 @ 09:31:25

### GENERAL INFORMATION:

Formation: **Lower Douglass Sd.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:59:55

Time Test Ended: 16:49:55

Test Type: Conventional Bottom Hole

Tester: Lanny Saloga

Unit No: 14

Interval: **3803.00 ft (KB) To 3839.00 ft (KB) (TVD)**

Reference Elevations: 1789.00 ft (KB)

Total Depth: 3839.00 ft (KB) (TVD)

1781.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

### Serial #: 3289

Inside

Press@RunDepth: 197.97 psig @ 3805.00 ft (KB)

Capacity: 7000.00 psig

Start Date: 2001.12.05

End Date: 2001.12.05

Last Calib.: 1899.12.30

Start Time: 09:31:30

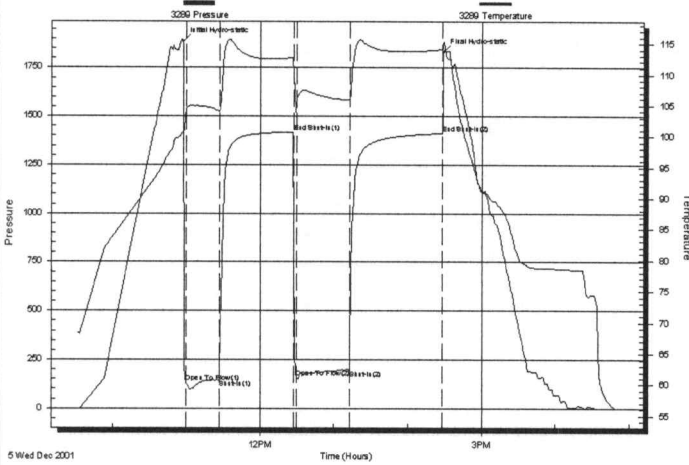
End Time: 16:49:54

Time On Btm: 2001.12.05 @ 10:57:10

Time Off Btm: 2001.12.05 @ 14:28:54

**TEST COMMENT:** Strong immed. GTS in 5 min. See flow chart. I.F.P.  
1" blow-back. I.S.I.P.  
See flow chart. F.F.P. "Gas burned."  
1" blow-back. F.S.I.P.

Pressure vs. Time



### PRESSURE SUMMARY

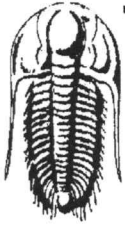
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1886.91	100.71	Initial Hydro-static
3	130.06	104.41	Open To Flow (1)
30	147.85	103.97	Shut-In(1)
90	1419.07	112.73	End Shut-In(1)
92	155.56	105.26	Open To Flow (2)
136	197.97	105.88	Shut-In(2)
211	1412.12	114.07	End Shut-In(2)
212	1830.47	115.12	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
60.00	Wtr w/scum of Oil 100%W	0.84
245.00	M&W c Gassy Oil 20%G 40%O 15%W	23.441
85.00	Sli O&G c Mud 5%G 2%O 93%M	1.19
0.00	3419 ft. GIP	0.00
0.00	RW 0.28 at 56 F. 31,000 PPM.	0.00

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.50	16.00	205.07
Last Gas Rate	0.50	35.00	333.24
Max. Gas Rate	0.50	38.00	353.47



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15361

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2001.12.05 @ 09:31:25

### Tool Information

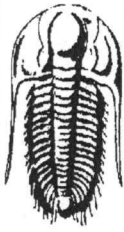
Drill Pipe:	Length: 3809.00 ft	Diameter: 3.80 inches	Volume: 53.43 bbl	Tool Weight: 1800.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: 53.43 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3803.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	57.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			3782.00	
S.I. Tool	5.00			3787.00	
HMV	5.00			3792.00	
Safety Joint	2.00			3794.00	
Packer	4.00			3798.00	22.00 Bottom Of Top Packer
Packer	5.00			3803.00	
Stubb	1.00			3804.00	
Perforations	1.00			3805.00	
Recorder	0.00	3289	Inside	3805.00	
Perforations	31.00			3836.00	
Recorder	0.00	10242	Inside	3836.00	
Bullnose	2.00			3838.00	35.00 Bottom Packers & Anchor

**Total Tool Length: 57.00**



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15361

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2001.12.05 @ 09:31:25

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	31000 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl		
Water Loss: 11.94 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Wtr w /scum of Oil 100%W	0.842
245.00	M&W c Gassy Oil 20%G 40%O 15%W 25%M	3.437
85.00	Sli O&G c Mud 5%G 2%O 93%M	1.192
0.00	3419 ft. GIP	0.000
0.00	RW 0.28 at 56 F. 31,000 PPM.	0.000

Total Length: 390.00 ft      Total Volume: 5.471 bbl

Num Fluid Samples: 1      Num Gas Bombs: 2      Serial #: 2

Laboratory Name: Caraway      Laboratory Location: Liberal KS

Recovery Comments:



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

**GAS RATES**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15361

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2001.12.05 @ 09:31:25

### Gas Rates Information

Temperature: 59 deg C

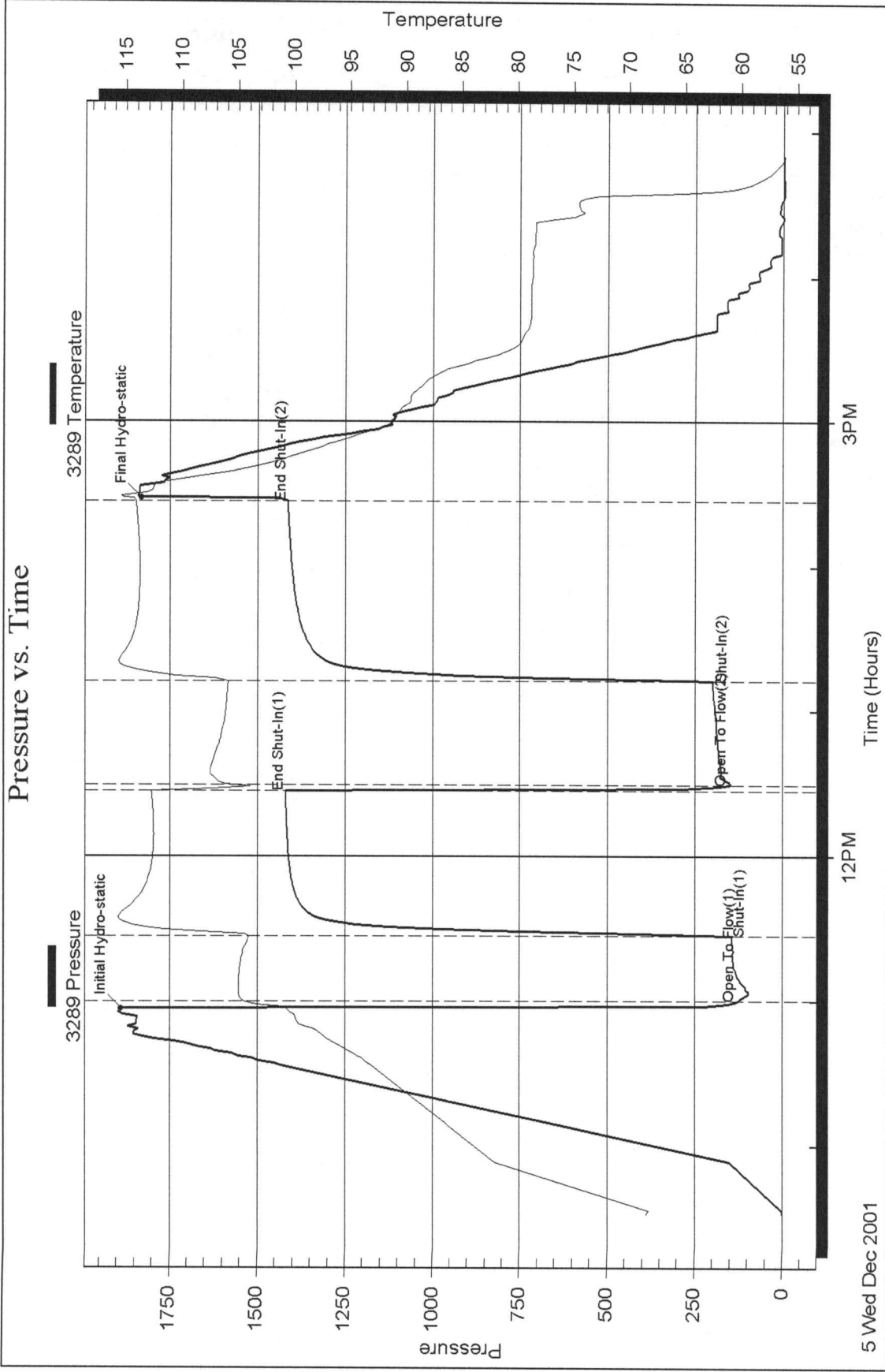
Relative Density: 0.65

Z Factor: 0.8

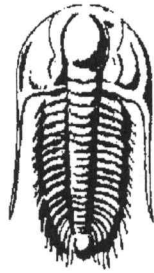
Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m <sup>3</sup> /d)
1	10	0.50	16.00	205.07
1	10	0.50	16.00	205.07
1	20	0.50	21.00	238.80
1	30	0.50	27.00	279.27
2	10	0.50	38.00	353.47
2	20	0.50	38.00	353.47
2	30	0.50	37.00	346.73
2	40	0.50	35.00	333.24

# Pressure vs. Time



5 Wed Dec 2001



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Company**

P.O. Box 48788  
Wichita Ks. 67201

ATTN: Clarke Sandberg

**Barber Co.4-31S-13W**

**Maddix Trust #1**

Start Date: 2001.12.08 @ 05:55:06

End Date: 2001.12.08 @ 12:52:36

Job Ticket #: 15362                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

ATTN: Clarke Sandberg

Job Ticket: 15362

**DST#: 3**

Test Start: 2001.12.08 @ 05:55:06

### GENERAL INFORMATION:

Formation: **Massey/Miss.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:23:36

Time Test Ended: 12:52:36

Test Type: Conventional Straddle

Tester: Lanny Saloga

Unit No: 14

Interval: **4331.00 ft (KB) To 4440.00 ft (KB) (TVD)**

Reference Elevations: 1789.00 ft (KB)

Total Depth: 4580.00 ft (KB) (TVD)

1781.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

### Serial #: 3289

Inside

Press@RunDepth: 1485.06 psig @ 4339.00 ft (KB)

Capacity: 7000.00 psig

Start Date: 2001.12.08

End Date:

2001.12.08

Last Calib.: 1899.12.30

Start Time: 05:55:11

End Time:

12:52:35

Time On Btm: 2001.12.08 @ 07:22:36

Time Off Btm: 2001.12.08 @ 10:56:05

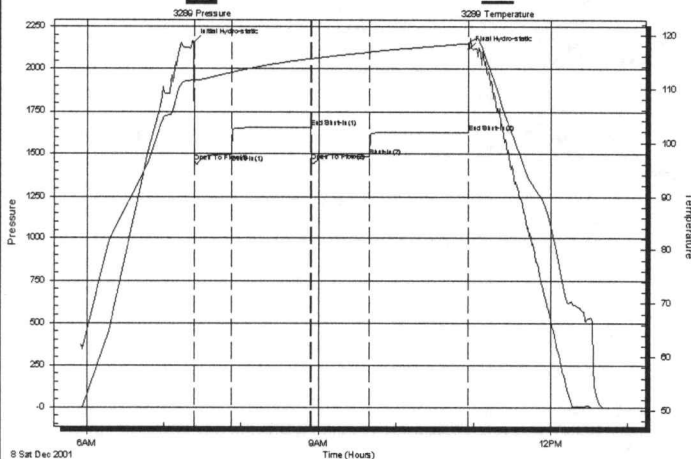
TEST COMMENT: Strong immed. GTS in 1 min. See flow chart. I.F.P.

No blow-back. I.S.I.P.

See flow-chart. F.F.P. "Gas burned."

No blow-back. F.S.I.P.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2157.22	111.55	Initial Hydro-static
1	1452.38	111.48	Open To Flow (1)
30	1494.68	112.96	Shut-In(1)
92	1654.78	115.55	End Shut-In(1)
92	1456.32	115.42	Open To Flow (2)
137	1485.06	116.75	Shut-In(2)
213	1629.87	118.40	End Shut-In(2)
214	2118.16	118.52	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
3.00	Condensate	0.04
0.00	4337 ft. GIP	0.00

### Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.75	320.00	5223.28
Last Gas Rate	0.75	450.00	7253.86
Max. Gas Rate	0.75	450.00	7253.86



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15362

**DST#: 3**

ATTN: Clarke Sandberg

Test Start: 2001.12.08 @ 05:55:06

### Tool Information

Drill Pipe:	Length: 4340.00 ft	Diameter: 3.80 inches	Volume: 60.88 bbl	Tool Weight: 5300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 4000.00 lb
			<u>Total Volume: 60.88 bbl</u>	Tool Chased: ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4331.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	4440.00 ft			
Interval between Packers:	109.00 ft			
Tool Length:	271.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
C.O. Sub	1.00			4310.00	
S.I. Tool	5.00			4315.00	
HMV	5.00			4320.00	
Safety Joint	2.00			4322.00	
Packer	4.00			4326.00	22.00 Bottom Of Top Packer
Packer	5.00			4331.00	
Stubb	1.00			4332.00	
Perforations	6.00			4338.00	
C.O. Sub	1.00			4339.00	
Recorder	0.00	3289	Inside	4339.00	
Blank Spacing	92.00			4431.00	
C.O. Sub	1.00			4432.00	
Recorder	0.00	10242	Inside	4432.00	
Perforations	5.00			4437.00	
Blank Off Sub	0.00			4437.00	
T.C.	3.00			4440.00	109.00 Tool Interval
Packer	1.00			4441.00	
Stubb	1.00			4442.00	
Perforations	12.00			4454.00	
C.O. Sub	1.00			4455.00	
Blank Spacing	122.00			4577.00	
Recorder	0.00	13630	Below	4577.00	
C.O. Sub	1.00			4578.00	
Bullnose	2.00			4580.00	140.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>271.00</b>				



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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15362

**DST#: 3**

ATTN: Clarke Sandberg

Test Start: 2001.12.08 @ 05:55:06

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.97 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3400.00 ppm			
Filter Cake: inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
3.00	Condensate	0.042
0.00	4337 ft. GIP	0.000

Total Length: 3.00 ft      Total Volume: 0.042 bbl

Num Fluid Samples: 1      Num Gas Bombs: 3      Serial #: 3

Laboratory Name: Caraway      Laboratory Location: Liberal KS

Recovery Comments:



**TRILOBITE**  
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## DRILL STEM TEST REPORT

**GAS RATES**

Raymond Oil Company

**Maddix Trust #1**

P.O. Box 48788  
Wichita Ks. 67201

**Barber Co.4-31S-13W**

Job Ticket: 15362

**DST#: 3**

ATTN: Clarke Sandberg

Test Start: 2001.12.08 @ 05:55:06

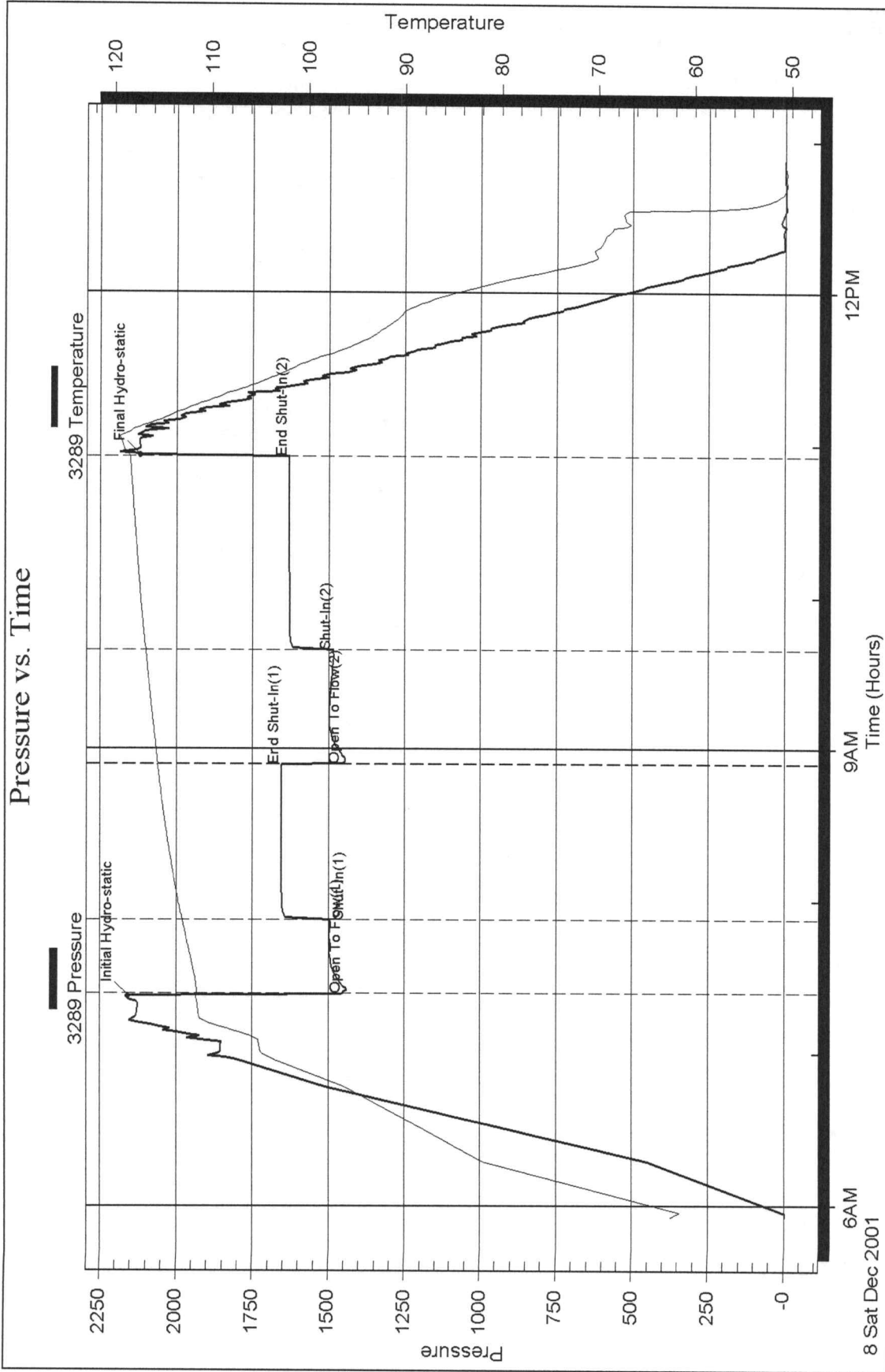
### Gas Rates Information

Temperature: 59 deg C  
Relative Density: 0.65  
Z Factor: 0.8

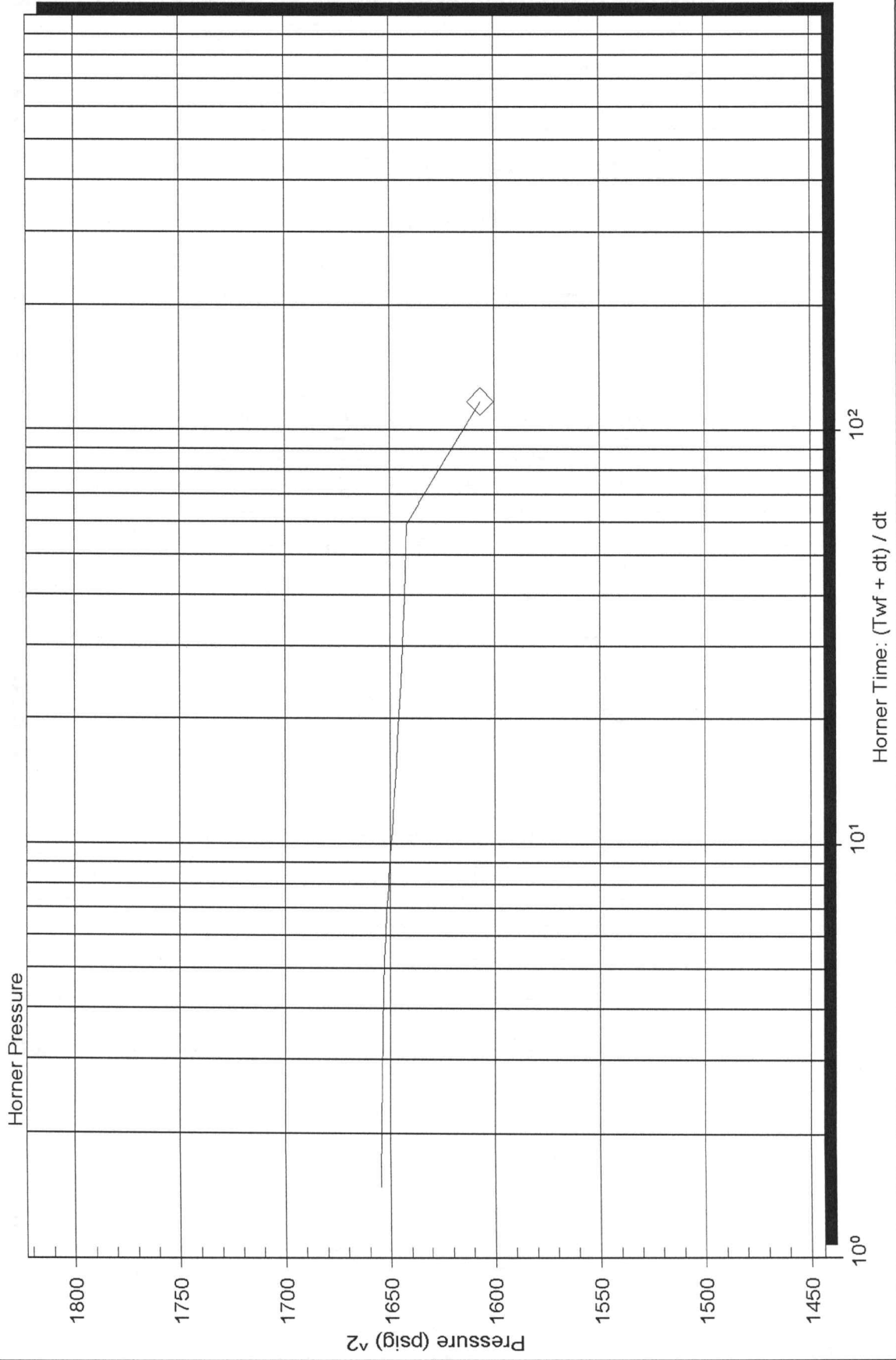
Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m <sup>3</sup> /d)
1	5	0.75	320.00	5223.28
1	5	0.75	320.00	5223.28
1	10	0.75	412.00	6660.31
1	20	0.75	450.00	7253.86
1	30	0.75	445.00	7175.76
2	5	0.75	340.00	5535.68
2	10	0.75	412.00	6660.31
2	20	0.75	442.00	7128.90
2	30	0.75	445.00	7175.76
2	40	0.75	450.00	7253.86

### Pressure vs. Time



### Horner Plot



# Horner Plot

