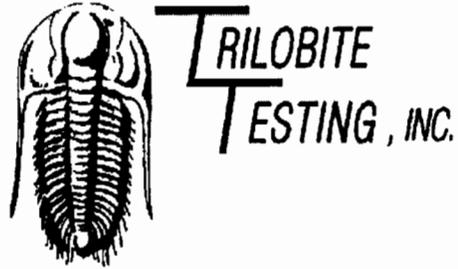


ORIGINAL



DRILL STEM TEST REPORT

Prepared For: **RJ Patrick**  
 PO Box 1157  
 Liberal, KS 67905

RECEIVED  
 DEC 03 2001  
 KCC WICHITA

ATTN: Bob Posey

**10-33s-19w**

**Donald Herd 4-10**

Start Date: 2001.10.25 @ 16:44:49  
 End Date: 2001.10.26 @ 02:38:47  
 Job Ticket #: 14226                      DST #: 1

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

RJ Patrick

Donald Herd 4-10

10-33s-19w

DST # 1

pawnee-fort scott

2001.10.25

# ORIGINAL



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

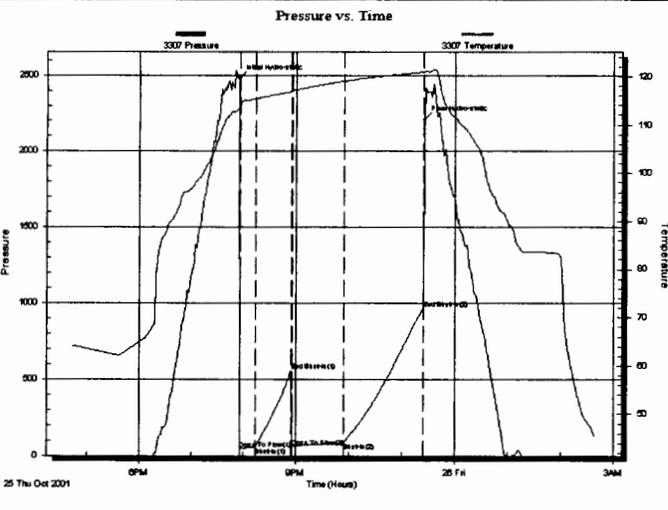
**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14226      **DST#: 1**  
Test Start: 2001.10.25 @ 16:44:49

**GENERAL INFORMATION:**

Formation: **pawnee-fort scott**  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 19:55:47  
Time Test Ended: 02:38:47  
Interval: **5076.00 ft (KB) To 5140.00 ft (KB) (TVD)**  
Total Depth: 5140.00 ft (KB) (TVD)  
Hole Diameter: 7.78 inches      Hole Condition: Fair  
Test Type: Conventional Bottom Hole  
Tester: David Galloway  
Unit No: 12  
Reference Elevations: 2010.00 ft (KB)  
1997.00 ft (CF)  
KB to GR/CF: 13.00 ft

**Serial #: 3307      Inside**  
Press@RunDepth: 83.94 psig @ 5082.00 ft (KB)      Capacity: 7000.00 psig  
Start Date: 2001.10.25      End Date: 2001.10.26      Last Calib.: 2001.10.26  
Start Time: 16:44:49      End Time: 02:38:47      Time On Btm: 2001.10.25 @ 19:54:47  
Time Off Btm: 2001.10.25 @ 23:25:17

**TEST COMMENT:** IF Strong blow 2 mins 30 secs bob  
ISI No blow  
FF Strong blow 45secs bob  
FSI No blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2479.41	113.25	Initial Hydro-static
1	45.50	113.67	Open To Flow (1)
19	56.12	115.37	Shut-in(1)
60	556.84	116.82	End Shut-in(1)
61	52.83	116.99	Open To Flow (2)
120	83.94	119.00	Shut-in(2)
211	965.36	120.96	End Shut-in(2)
211	2206.82	121.06	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
120.00	100% mud	0.59

Gas Rates			
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14226      **DST#: 1**  
Test Start: 2001.10.25 @ 16:44:49

**Tool Information**

Drill Pipe:	Length: 4742.00 ft	Diameter: 3.80 inches	Volume: 66.52 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 305.00 ft	Diameter: 2.25 inches	Volume: 1.50 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 68.02 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	0.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	5076.00 ft			Final 82000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 9.00 inches		
Tool Comments:				

**Tool Description**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Combination Sub	1.00			5048.00	
S.I. Tool	5.00			5053.00	
HMV	5.00			5058.00	
Jars	5.00			5063.00	
Safety Joint	3.00			5066.00	
Packer	5.00			5071.00	29.00      Bottom Of Top Packer
Packer	5.00			5076.00	
Stubb	1.00			5077.00	
Perforations	5.00			5082.00	
Recorder	0.00	3307	Inside	5082.00	
C.O. Sub	1.00			5083.00	
Blank Spacing	29.00			5112.00	
C.O. Sub	1.00			5113.00	
Perforations	27.00			5140.00	
Recorder	0.00	13362	Inside	5140.00	64.00      Bottom Packers & Anchor

**Total Tool Length: 93.00**



**TRILOBITE**  
TESTING, INC.

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14226      **DST#: 1**  
Test Start: 2001.10.25 @ 16:44:49

**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: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.28 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: 2.25 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
120.00	100% mud	0.590

Total Length: 120.00 ft      Total Volume: 0.590 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

Serial #: 3307

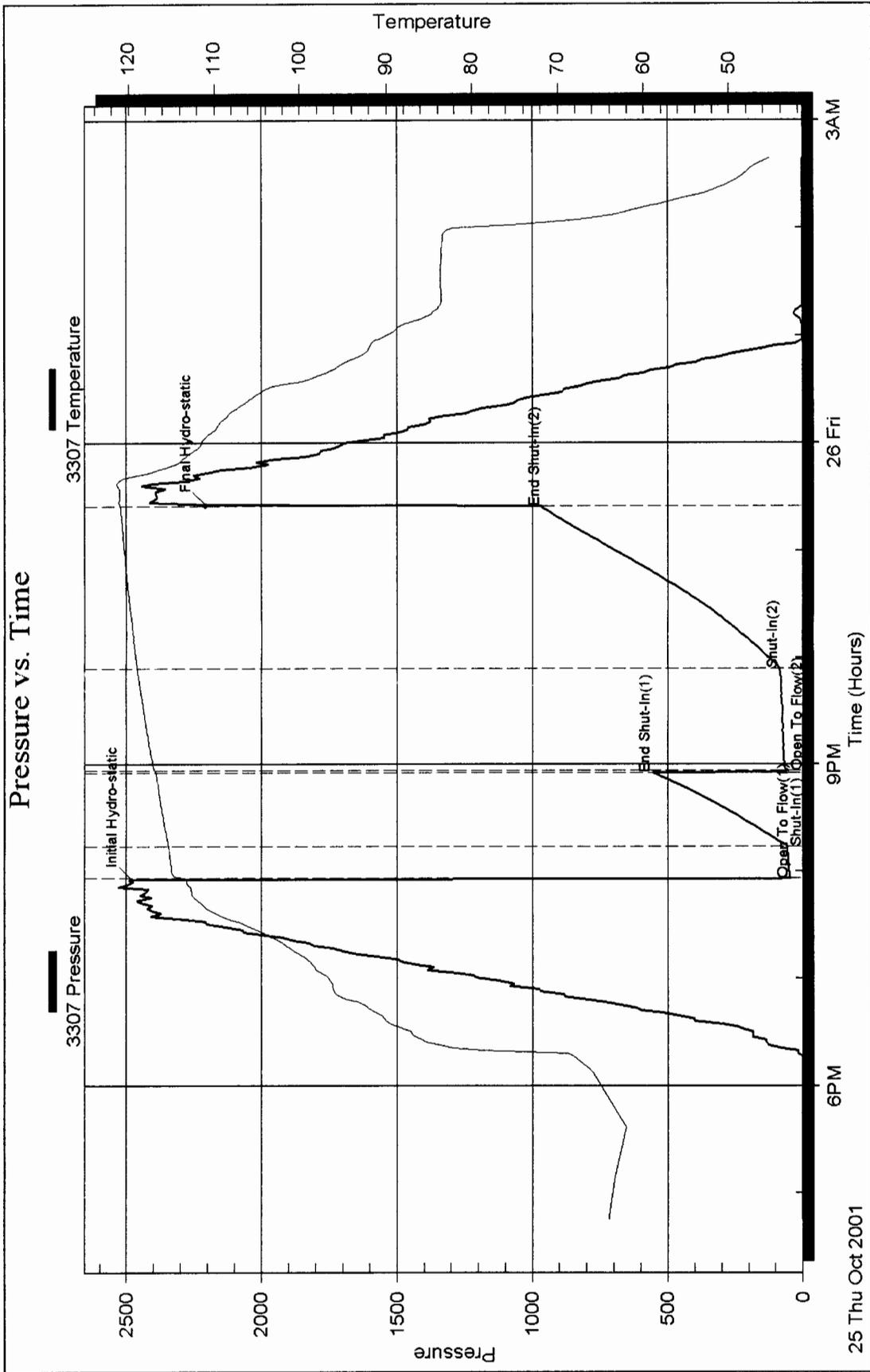
Inside

RJ Patrick

10-33s-19w

DST Test Number: 1

### Pressure vs. Time





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

## DRILL STEM TEST REPORT

Prepared For: **RJ Patrick**

PO Box 1157  
Liberal, KS 67905

ATTN: Bob Posey

**10-33s-19w**

**Donald Herd 4-10**

Start Date: 2001.10.27 @ 02:14:32

End Date: 2001.10.27 @ 12:14:00

Job Ticket #: 14227                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14227      **DST#: 2**  
Test Start: 2001.10.27 @ 02:14:32

## GENERAL INFORMATION:

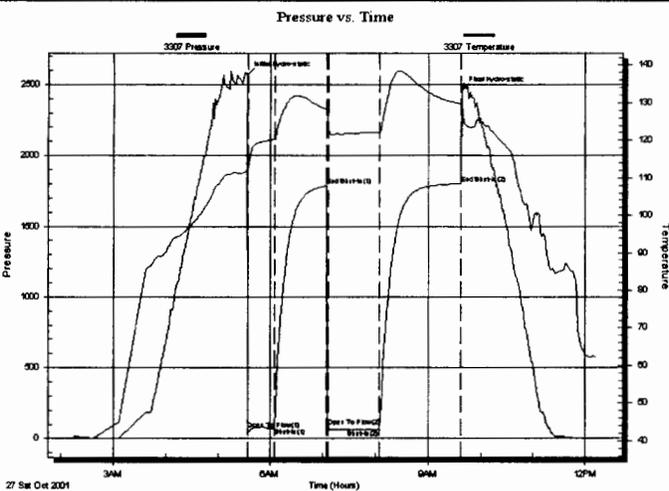
Formation: **MISSISSIPPIAN**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole  
Time Tool Opened: 05:34:30      Tester: David Galloway  
Time Test Ended: 12:14:00      Unit No: 12  
Interval: **5246.00 ft (KB) To 5346.00 ft (KB) (TVD)**      Reference Elevations: 2010.00 ft (KB)  
Total Depth: 5346.00 ft (KB) (TVD)      1997.00 ft (CF)  
Hole Diameter: 7.78 inches Hole Condition: Fair      KB to GR/CF: 13.00 ft

## Serial #: 3307

Inside

Press@RunDepth: 64.83 psig @ 5252.00 ft (KB)      Capacity: 7000.00 psig  
Start Date: 2001.10.27      End Date: 2001.10.27      Last Calib.: 2001.10.02  
Start Time: 02:14:32      End Time: 12:14:00      Time On Btm: 2001.10.27 @ 05:33:30  
Time Off Btm: 2001.10.27 @ 09:38:30

**TEST COMMENT:** F Strong blow 55 secs to bob gts 20mins see gas volume report  
ISI No blow  
FF Strong blow see gas volume report  
FSI No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2568.76	111.92	Initial Hydro-static
1	62.13	112.44	Open To Flow (1)
31	75.06	120.29	Shut-In(1)
92	1785.17	128.10	End Shut-In(1)
93	85.32	123.30	Open To Flow (2)
152	64.83	122.08	Shut-In(2)
245	1799.71	129.64	End Shut-In(2)
246	2456.42	129.45	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	gassy mud 3% g 97%m	0.61

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.50	4.00	124.12
Last Gas Rate	0.38	10.00	89.38
Max. Gas Rate	0.50	13.00	184.83



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14227      DST#: 2  
Test Start: 2001.10.27 @ 02:14:32

### Tool Information

Drill Pipe:	Length: 4939.00 ft	Diameter: 3.80 inches	Volume: 69.28 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 305.00 ft	Diameter: 2.25 inches	Volume: 1.50 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 70.78 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 82000.00 lb
Depth to Top Packer:	5246.00 ft			Final 82000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	129.00 ft			
Number of Packers:	2	Diameter: 9.00 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Combination Sub	1.00			5218.00	
S.I. Tool	5.00			5223.00	
HMV	5.00			5228.00	
Jars	5.00			5233.00	
Safety Joint	3.00			5236.00	
Packer	5.00			5241.00	29.00      Bottom Of Top Packer
Packer	5.00			5246.00	
Stubb	1.00			5247.00	
Perforations	5.00			5252.00	
Recorder	0.00	3307	Inside	5252.00	
C.O. Sub	1.00			5253.00	
Blank Spacing	63.00			5316.00	
C.O. Sub	1.00			5317.00	
Perforations	26.00			5343.00	
Recorder	0.00	13362	Outside	5343.00	
Bullnose	3.00			5346.00	100.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>129.00</b>				



**TRILOBITE**  
TESTING, INC.

## DRILL STEM TEST REPORT

**FLUID SUMMARY**

RJ Patrick

**Donald Herd 4-10**

PO Box 1157  
Liberal, KS 67905

**10-33s-19w**

Job Ticket: 14227

**DST#: 2**

ATTN: Bob Posey

Test Start: 2001.10.27 @ 02:14:32

### 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: 46.00 sec/qt

Cushion Volume:

bbf

Water Loss: 10.30 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 2.25 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbf
125.00	gassy mud 3% g 97%m	0.615

Total Length: 125.00 ft

Total Volume: 0.615 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



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

## DRILL STEM TEST REPORT

**GAS RATES**

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14227      **DST#: 2**  
Test Start: 2001.10.27 @ 02:14:32

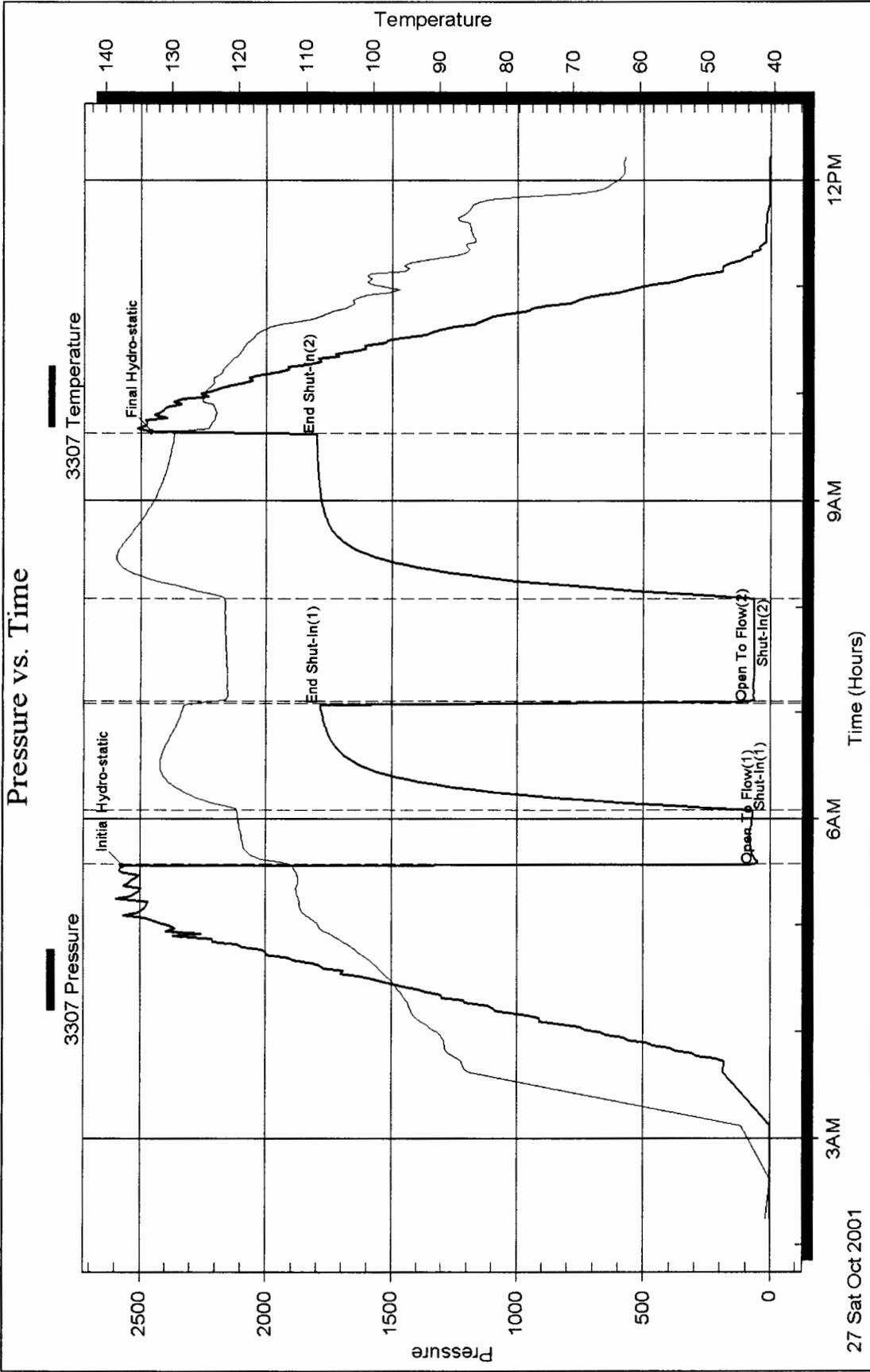
### Gas Rates Information

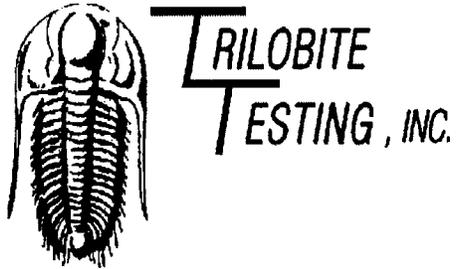
Temperature:            59 deg C  
Relative Density:      0.65  
Z Factor:                0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m <sup>3</sup> /d)
1	25	0.50	4.00	124.12
1	25	0.50	4.00	124.12
1	30	0.50	4.00	124.12
2	5	0.50	13.00	184.83
2	10	0.38	11.00	93.05
2	15	0.38	10.00	89.38
2	20	0.38	10.00	89.38
2	30	0.38	10.00	89.38
2	35	0.38	10.00	89.38
2	40	0.38	10.00	89.38
2	45	0.38	10.00	89.38
2	50	0.38	10.00	89.38
2	55	0.38	10.00	89.38

### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **RJ Patrick**

PO Box 1157  
Liberal, KS 67905

ATTN: Bob Posey

**10-33s-19w**

**Donald Herd 4-10**

Start Date: 2001.10.28 @ 07:31:10

End Date: 2001.10.28 @ 15:09:38

Job Ticket #: 14228                      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

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

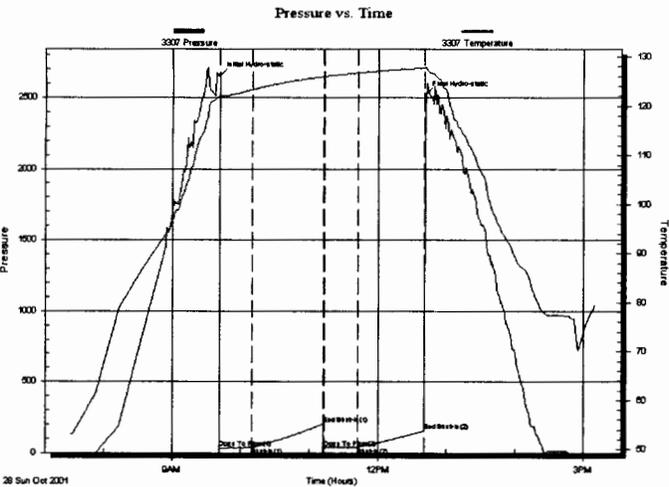
**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14228      **DST#: 3**  
Test Start: 2001.10.28 @ 07:31:10

### GENERAL INFORMATION:

Formation: **mississippian**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 09:41:38  
Time Test Ended: 15:09:38  
Test Type: Conventional Bottom Hole  
Tester: David Galloway  
Unit No: 12  
Interval: **5346.00 ft (KB) To 5400.00 ft (KB) (TVD)**  
Reference Elevations: 2010.00 ft (KB)  
Total Depth: 5400.00 ft (KB) (TVD)      1997.00 ft (CF)  
Hole Diameter: 7.78 inches Hole Condition: Fair      KB to GR/CF: 13.00 ft

**Serial #: 3307**      Inside  
Press@RunDepth: 39.94 psig @ 5352.00 ft (KB)      Capacity: 7000.00 psig  
Start Date: 2001.10.28      End Date: 2001.10.28      Last Calib.: 1899.12.30  
Start Time: 07:31:10      End Time: 15:09:38      Time On Btm: 2001.10.28 @ 09:41:08  
Time Off Btm: 2001.10.28 @ 12:41:08

TEST COMMENT: IF Weak blow building to 3"  
SI No blow



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2654.59	122.00	Initial Hydro-static
1	32.89	122.06	Open To Flow (1)
29	37.61	123.29	Shut-In(1)
91	200.44	125.91	End Shut-In(1)
92	30.96	125.95	Open To Flow (2)
121	39.94	126.68	Shut-In(2)
180	154.73	127.75	End Shut-In(2)
181	2521.83	127.84	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
25.00	mud	0.12

### Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14228      **DST#: 3**  
Test Start: 2001.10.28 @ 07:31:10

### Tool Information

Drill Pipe:	Length: 5030.00 ft	Diameter: 3.80 inches	Volume: 70.56 bbl	Tool Weight:	2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 305.00 ft	Diameter: 2.25 inches	Volume: 1.50 bbl	Weight to Pull Loose:	lb
			<u>Total Volume: 72.06 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	82000.00 lb
Depth to Top Packer:	5346.00 ft			Final	lb
Depth to Bottom Packer:	ft				
Interval between Packers:	54.00 ft				
Tool Length:	83.00 ft				
Number of Packers:	2	Diameter: 9.00 inches			

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Combination Sub	1.00			5318.00	
S.I. Tool	5.00			5323.00	
HMV	5.00			5328.00	
Jars	5.00			5333.00	
Safety Joint	3.00			5336.00	
Packer	5.00			5341.00	29.00      Bottom Of Top Packer
Packer	5.00			5346.00	
Stubb	1.00			5347.00	
Perforations	5.00			5352.00	
Recorder	0.00	3307	Inside	5352.00	
C.O. Sub	1.00			5353.00	
Blank Spacing	31.00			5384.00	
C.O. Sub	1.00			5385.00	
Perforations	12.00			5397.00	
Recorder	0.00	13362	Inside	5397.00	
Bullnose	3.00			5400.00	54.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>83.00</b>				



**TRILOBITE**  
TESTING, INC.

## DRILL STEM TEST REPORT

FLUID SUMMARY

RJ Patrick  
PO Box 1157  
Liberal, KS 67905  
ATTN: Bob Posey

**Donald Herd 4-10**  
**10-33s-19w**  
Job Ticket: 14228      **DST#: 3**  
Test Start: 2001.10.28 @ 07:31:10

### 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:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	10.27 in <sup>3</sup>	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4000.00 ppm				
Filter Cake:	2.25 inches				

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
25.00	mud	0.123

Total Length: 25.00 ft      Total Volume: 0.123 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

Serial #: 3307

Inside

RJ Patrick

10-33s-19w

DST Test Number: 3

