

15-193-20765

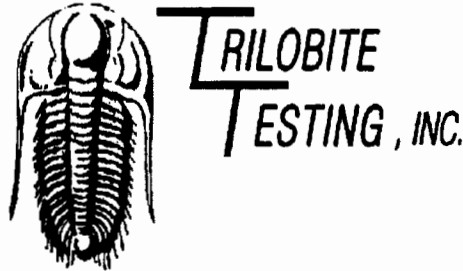
21-10s-34w

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OCT 08 2009

CONSERVATION DIVISION  
WICHITA, KS



### DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.14 @ 02:49:00

End Date: 2009.06.14 @ 10:30:00

Job Ticket #: 34678                      DST #: 1

**KCC**  
**OCT 07 2009**  
**CONFIDENTIAL**

Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Murfin Drilling Co., Inc.      TFF Unit #1-21      21 10s 34w Thomas KS      DST # 1      Toronto - LKC "A"      2009.06.14



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**TFF Unit #1-21**

**21 10s 34w Thomas KS**

Job Ticket: 34678      **DST#: 1**

Test Start: 2009.06.14 @ 02:49:00

### GENERAL INFORMATION:

Formation: **Toronto - LKC "A"**

Deviated: No Whipstock:      ft (KB)

Time Tool Opened: 04:47:30

Time Test Ended: 10:30:00

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 36

Interval: **4092.00 ft (KB) To 4145.00 ft (KB) (TVD)**

Total Depth: 4145.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3206.00 ft (KB)

3201.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press@RunDepth: 441.19 psig @ 4093.00 ft (KB)

Start Date: 2009.06.14

End Date: 2009.06.14

Start Time: 02:49:05

End Time: 10:29:59

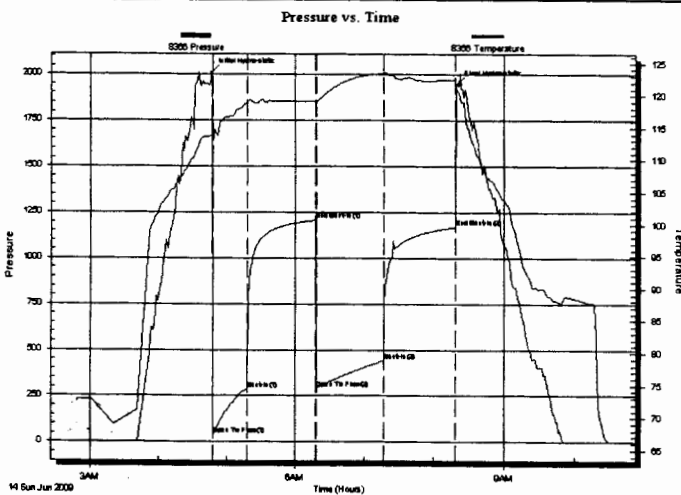
Capacity: 7000.00 psig

Last Calib.: 2009.06.14

Time On Btm: 2009.06.14 @ 04:46:30

Time Off Btm: 2009.06.14 @ 08:20:00

**TEST COMMENT:** IF: Blow built to BOB in 11 min.  
IS: Bled off, No blow back  
FF: Blow built to BOB in 17 min.  
FS: Bled off, No blow back



### PRESSURE SUMMARY

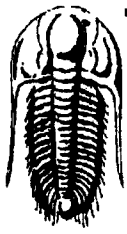
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2010.77	113.75	Initial Hydro-static
1	38.14	113.12	Open To Flow (1)
31	284.44	118.92	Shut-In(1)
92	1207.28	119.20	End Shut-In(1)
92	291.32	118.91	Open To Flow(2)
151	441.19	123.52	Shut-In(2)
212	1169.41	122.35	End Shut-In(2)
214	1947.40	120.67	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
670.00	SMCW 92%w, 8%r	4.42
255.00	Watery Mud 51%r, 49%w	3.58
0.00	Oil spots in tool	0.00
0.00	RW = .184 ohms @ 68 deg F	0.00
0.00	Chlorides = 41,000 ppm	0.00

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34678      **DST#: 1**  
Test Start: 2009.06.14 @ 02:49:00

**Tool Information**

Drill Pipe:	Length: 3532.00 ft	Diameter: 3.80 inches	Volume: 49.54 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 82000.00 lb
		<u>Total Volume: 52.23 bbl</u>		Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4092.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	53.00 ft			
Tool Length:	81.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4069.00	
HYD S.I. Tool	5.00			4074.00	
Jars	5.00			4079.00	
Safety Joint	3.00			4082.00	
Packer	5.00			4087.00	28.00 Bottom Of Top Packer
Packer	5.00			4092.00	
Stubb	1.00			4093.00	
Recorder	0.00	8366	Inside	4093.00	
Recorder	0.00	8320	Inside	4093.00	
Perforations	13.00			4106.00	
Blank Spacing	32.00			4138.00	
Perforations	4.00			4142.00	
Bullnose	3.00			4145.00	53.00 Bottom Packers & Anchor

**Total Tool Length: 81.00**

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WICHITA, KS



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34678      **DST#: 1**  
Test Start: 2009.06.14 @ 02:49:00

### 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:	41000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.96 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2300.00 ppm			
Filter Cake: 2.00 inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
670.00	SMCW 92%w, 8%m	4.425
255.00	Watery Mud 51%m, 49%w	3.577
0.00	Oil spots in tool	0.000
0.00	RW = .184 ohms @ 68 deg F	0.000
0.00	Chlorides = 41,000 ppm	0.000

Total Length: 925.00 ft      Total Volume: 8.002 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 8366

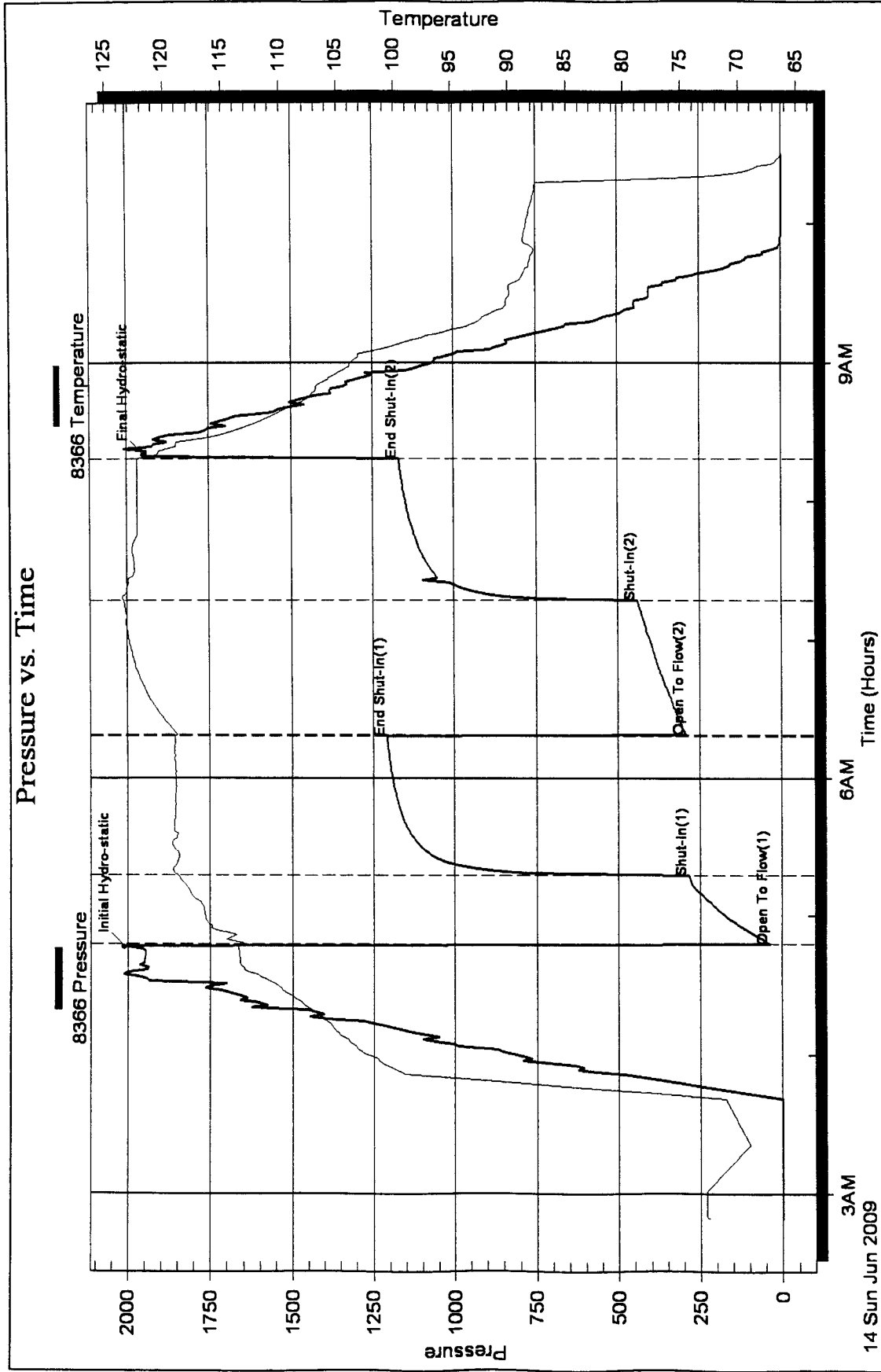
Inside

Murfin Drilling Co., Inc.

21 10s 34w Thomas KS

DST Test Number: 1

### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 34678

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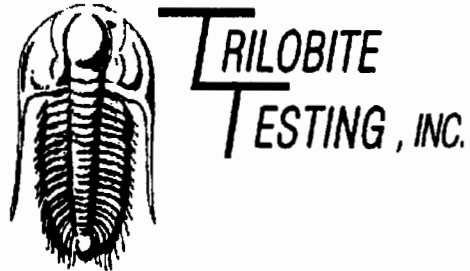
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WICHITA, KS



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.15 @ 00:12:00

End Date: 2009.06.15 @ 08:11:00

Job Ticket #: 34679                      DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Murfin Drilling Co., Inc.

TFF Unit #1-21

21 10s 34w Thomas KS

DST # 2

LKC "H"

2009.06.15



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**TFF Unit #1-21**

**21 10s 34w Thomas KS**

Job Ticket: 34679      **DST#: 2**

Test Start: 2009.06.15 @ 00:12:00

## GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: **No** Whipstock:                      ft (KB)

Time Tool Opened: 02:10:00

Time Test Ended: 08:11:00

Test Type: **Conventional Bottom Hole**

Tester: **James Winder**

Unit No: **36**

Interval: **4264.00 ft (KB) To 4300.00 ft (KB) (TVD)**

Total Depth: **4300.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

Reference Elevations:      3206.00 ft (KB)

3201.00 ft (CF)

KB to GR/CF:      5.00 ft

**Serial #: 8366**

**Inside**

Press@RunDepth:      216.49 psig @      4265.00 ft (KB)

Start Date:      2009.06.15

End Date:      2009.06.15

Capacity:      7000.00 psig

Last Calib.:      2009.06.15

Start Time:      00:12:05

End Time:      08:10:59

Time On Btm:      2009.06.15 @ 02:09:00

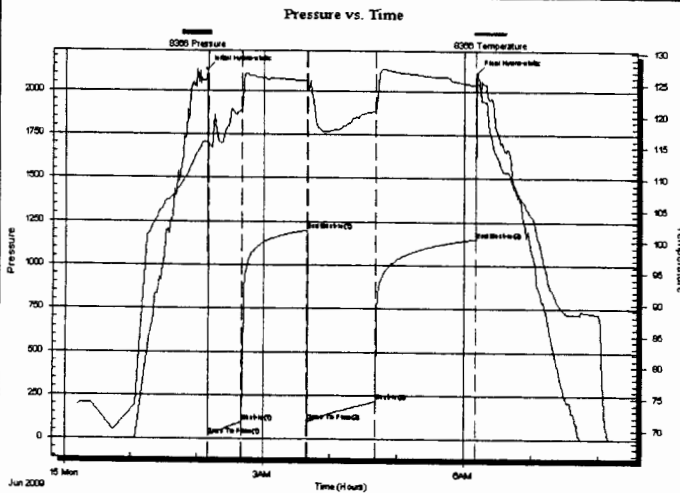
Time Off Btm:      2009.06.15 @ 06:11:30

TEST COMMENT: IF: Blow built to 6 1/2"

IS: Bled off, No blow back

FF: Blow built to 8"

FS: Bled off, No blow back



## PRESSURE SUMMARY

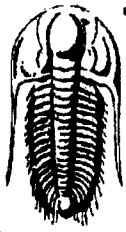
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2122.39	115.92	Initial Hydro-static
1	18.87	115.28	Open To Flow (1)
32	97.29	121.07	Shut-In(1)
90	1199.24	125.62	End Shut-In(1)
91	100.57	124.19	Open To Flow(2)
152	216.49	120.70	Shut-In(2)
241	1151.64	124.94	End Shut-In(2)
243	2101.48	125.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
276.00	SOMCW 92%w, 6%m, 2%o	1.36
150.00	SO/MCW 70%w, 25%m, 5%o	0.74
5.00	SMMCO 92%o, 4%m, 4%w	0.02
0.00	24 api @ 70 deg F = 23 api corrected	0.00
0.00	RW= .169 @ 65.2 deg F = 52,000 ppm	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34679      **DST#: 2**  
Test Start: 2009.06.15 @ 00:12:00

**Tool Information**

Drill Pipe:	Length: 3718.00 ft	Diameter: 3.80 inches	Volume: 52.15 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 54.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4264.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	36.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

**Tool Description**

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4241.00	
HYD S.I. Tool	5.00			4246.00	
Jars	5.00			4251.00	
Safety Joint	3.00			4254.00	
Packer	5.00			4259.00	28.00 Bottom Of Top Packer
Packer	5.00			4264.00	
Stubb	1.00			4265.00	
Recorder	0.00	8366	Inside	4265.00	
Recorder	0.00	8320	Inside	4265.00	
Perforations	32.00			4297.00	
Bullnose	3.00			4300.00	36.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**

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**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34679      **DST#: 2**  
Test Start: 2009.06.15 @ 00:12:00

### Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 23 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 52000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.95 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 2300.00 ppm		
Filter Cake: 2.00 inches		

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
276.00	SOMCW 92%w , 6%m, 2%o	1.357
150.00	SO/MCW 70%w , 25%m, 5%o	0.738
5.00	SMWCO 92%o, 4%m, 4%w	0.025
0.00	24 api @ 70 deg F = 23 api corrected	0.000
0.00	RW= .169 @ 65.2 deg F = 52,000 ppm	0.000

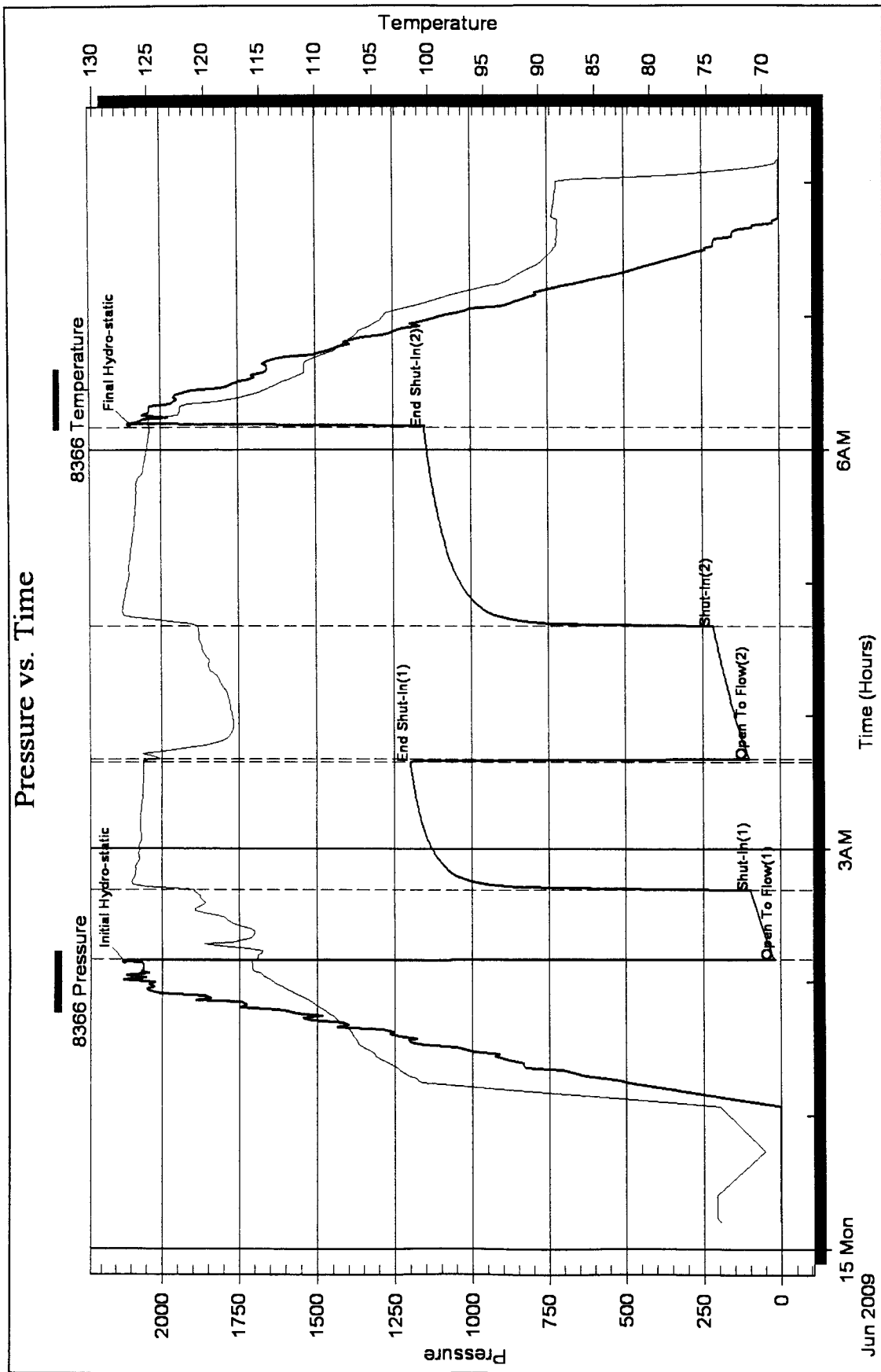
Total Length: 431.00 ft      Total Volume: 2.120 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time



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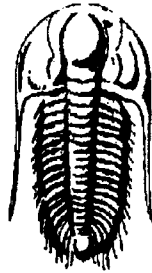
Printed: 2009.06.23 @ 13:04:01 Page 5

Ref. No: 34679

Trilobite Testing, Inc

OCT 08 2009

CONSERVATION DIVISION  
WICHITA, KS



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.15 @ 16:23:00

End Date: 2009.06.16 @ 06:43:30

Job Ticket #: 34680                      DST #: 3

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CONSERVATION DIVISION  
WICHITA, KS

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**TFF Unit #1-21**

**21 10s 34w Thomas KS**

Job Ticket: 34680 **DST#: 3**

Test Start: 2009.06.15 @ 16:23:00

### GENERAL INFORMATION:

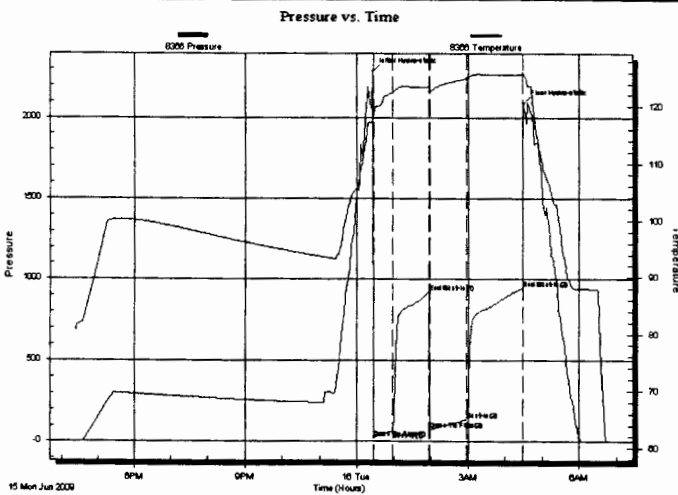
Formation: **Lans. "I - J"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole  
 Time Tool Opened: 00:27:00  
 Tester: James Winder  
 Time Test Ended: 06:43:30  
 Unit No: 36  
 Interval: **4304.00 ft (KB) To 4354.00 ft (KB) (TVD)**  
 Reference Elevations: 3206.00 ft (KB)  
 Total Depth: 4354.00 ft (KB) (TVD)  
 3201.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Fair  
 KB to GR/CF: 5.00 ft

### Serial #: 8366

Inside

Press@RunDepth: 133.27 psig @ 4305.00 ft (KB) Capacity: 7000.00 psig  
 Start Date: 2009.06.15 End Date: 2009.06.16 Last Calib.: 2009.06.16  
 Start Time: 16:23:05 End Time: 06:43:30 Time On Btrr: 2009.06.16 @ 00:26:00  
 Time Off Btrr: 2009.06.16 @ 04:29:30

TEST COMMENT: IF: Blow built to 7"  
 IS: Bled off, Surface slow back from 5 min. to 30 min.  
 FF: Blow built to BOB @ 60 min.  
 FS: Blow back built to 1/4" in 15 min., slowly dying back at 22 min.



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2282.00	117.46	Initial Hydro-static
1	19.54	118.54	Open To Flow (1)
32	64.03	122.49	Shut-In(1)
91	919.54	123.41	End Shut-In(1)
92	71.06	122.87	Open To Flow(2)
151	133.27	124.94	Shut-In(2)
242	943.93	125.57	End Shut-In(2)
244	2085.96	125.67	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM 65% m, 14% o, 21% g	0.30
185.00	GO 82% o, 18% g	0.91
60.00	GO 50% o, 50% g	0.30
0.00	120' GIP	0.00
0.00	31 api @ 64 deg F=30.6 api corrected	0.00

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34680      **DST#: 3**  
Test Start: 2009.06.15 @ 16:23:00

**Tool Information**

Drill Pipe:	Length: 3750.00 ft	Diameter: 3.80 inches	Volume: 52.60 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 90000.00 lb
		Total Volume: 55.29 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4304.00 ft			Final 77000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	78.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

**Tool Comments:**

Bearing in blocks went out after Collars & 2 stands of pipe in hole  
Rig worked on blocks from 5:15 pm to 11:30 pm

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4281.00	
HYD S.I. Tool	5.00			4286.00	
Jars	5.00			4291.00	
Safety Joint	3.00			4294.00	
Packer	5.00			4299.00	28.00      Bottom Of Top Packer
Packer	5.00			4304.00	
Stubb	1.00			4305.00	
Recorder	0.00	8366	Inside	4305.00	
Recorder	0.00	8320	Inside	4305.00	
Perforations	10.00			4315.00	
Blank Spacing	32.00			4347.00	
Perforations	4.00			4351.00	
Bullnose	3.00			4354.00	50.00      Bottom Packers & Anchor

**Total Tool Length: 78.00**

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WICHITA, KS



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34680      **DST#: 3**  
Test Start: 2009.06.15 @ 16:23:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30.6 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.95 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 5900.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GOCM 65% <sub>m</sub> , 14% <sub>o</sub> , 21% <sub>g</sub>	0.295
185.00	GO 82% <sub>o</sub> , 18% <sub>g</sub>	0.910
60.00	GO 50% <sub>o</sub> , 50% <sub>g</sub>	0.295
0.00	120' GIP	0.000
0.00	31 api @ 64 deg F=30.6 api corrected	0.000

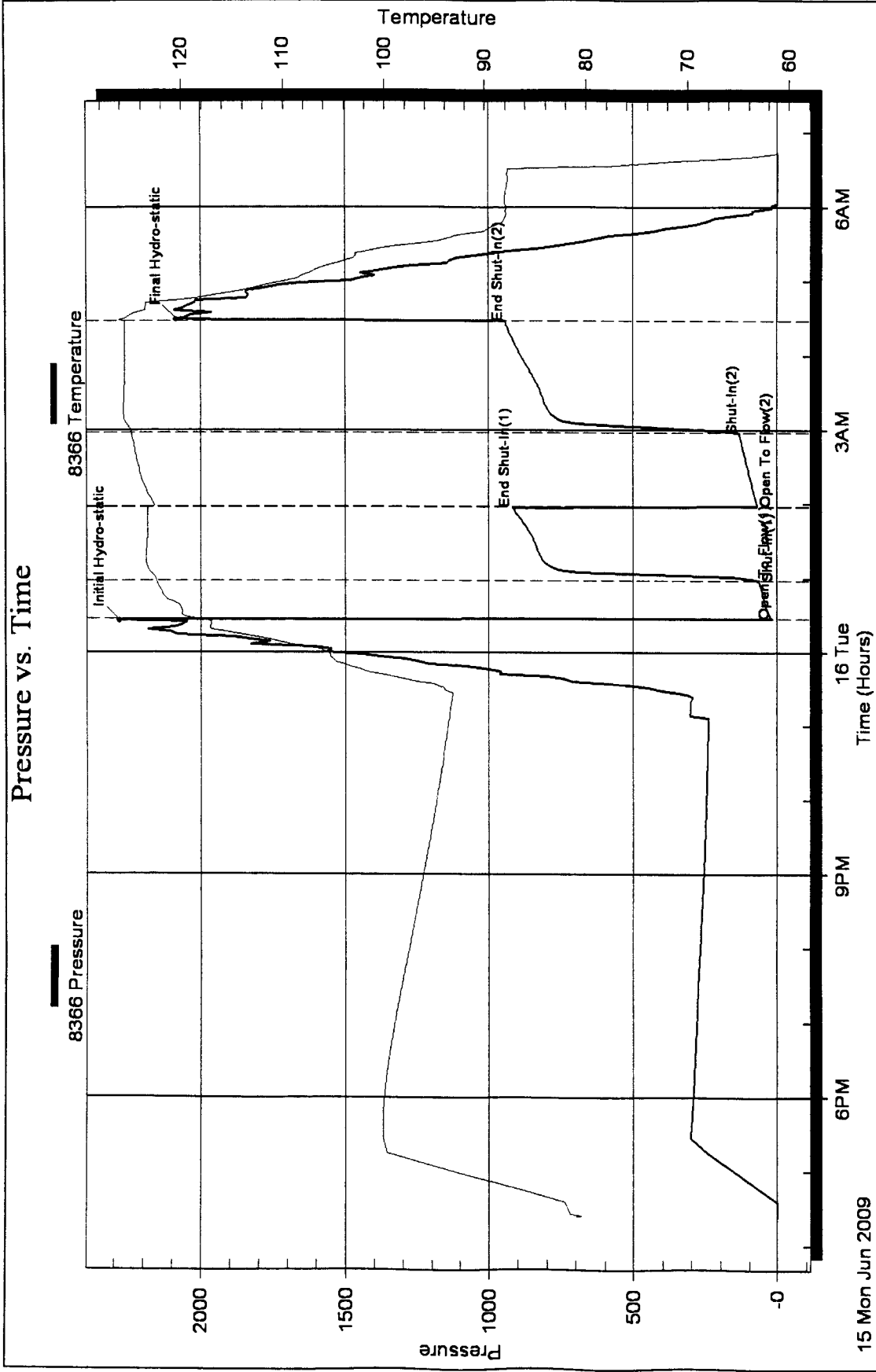
Total Length: 305.00 ft      Total Volume: 1.500 bbl

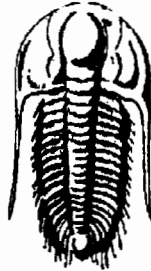
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time





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

## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.16 @ 13:15:00

End Date: 2009.06.16 @ 20:34:30

Job Ticket #: 34681                      DST #: 4

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OCT 08 2009

CONSERVATION DIVISION  
WICHITA, KS

Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34681 **DST#: 4**  
Test Start: 2009.06.16 @ 13:15:00

## GENERAL INFORMATION:

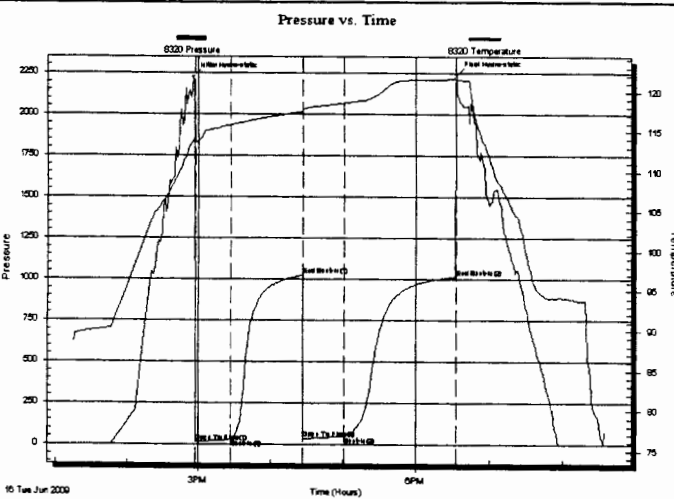
Formation: **Lans. "K"**  
Deviated: **No Whipstock:** ft (KB)  
Time Tool Opened: 14:57:30  
Time Test Ended: 20:34:30  
Interval: **4354.00 ft (KB) To 4384.00 ft (KB) (TVD)**  
Total Depth: **4384.00 ft (KB) (TVD)**  
Hole Diameter: **7.88 inches** Hole Condition: **Fair**  
Test Type: **Conventional Bottom Hole**  
Tester: **James Winder**  
Unit No: **36**  
Reference Elevations: **3206.00 ft (KB)**  
**3201.00 ft (CF)**  
KB to GR/CF: **5.00 ft**

## Serial #: 8320

**Inside**

Press@RunDepth: **47.21 psig @ 4355.00 ft (KB)**  
Start Date: **2009.06.16** End Date: **2009.06.16** Capacity: **7000.00 psig**  
Start Time: **13:15:05** End Time: **20:34:29** Last Calib.: **2009.06.16**  
Time On Btm: **2009.06.16 @ 14:55:30**  
Time Off Btm: **2009.06.16 @ 18:32:59**

**TEST COMMENT:** IF: Blow built to 2"  
ISI: Bled off, No blow back  
FF: Surface blow from 11 min. to close  
FSI: Bled off, No blow back



## PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2226.56	113.88	Initial Hydro-static
2	14.85	113.67	Open To Flow (1)
32	28.91	115.80	Shut-In (1)
91	1023.12	117.49	End Shut-In (1)
92	32.55	117.57	Open To Flow (2)
126	47.21	118.55	Shut-In (2)
217	1014.85	121.59	End Shut-In (2)
218	2239.63	121.88	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	GOCM 80% <sub>m</sub> , 10% <sub>o</sub> , 10% <sub>g</sub>	0.31
3.00	CO 97% <sub>o</sub> , 3% <sub>m</sub>	0.01
0.00	Gravity = 34.6 api @ 80 deg F	0.00
0.00	Corrected Gravity = 32.6 api	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34681      **DST#: 4**  
Test Start: 2009.06.16 @ 13:15:00

**Tool Information**

Drill Pipe:	Length: 3812.00 ft	Diameter: 3.80 inches	Volume: 53.47 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 92000.00 lb
			<u>Total Volume: 56.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4354.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	53.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4336.00	
HYD S.I. Tool	5.00			4341.00	
Safety Joint	3.00			4344.00	
Packer	5.00			4349.00	23.00      Bottom Of Top Packer
Packer	5.00			4354.00	
Stubb	1.00			4355.00	
Recorder	0.00	8366	Inside	4355.00	
Recorder	0.00	8320	Inside	4355.00	
Perforations	26.00			4381.00	
Bullnose	3.00			4384.00	30.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>53.00</b>				

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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34681      **DST#: 4**  
Test Start: 2009.06.16 @ 13:15:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 32.6 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.38 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 8800.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	GOCM 80% <sub>m</sub> , 10% <sub>o</sub> , 10% <sub>g</sub>	0.310
3.00	CO 97% <sub>o</sub> , 3% <sub>m</sub>	0.015
0.00	Gravity = 34.6 api @ 80 deg F	0.000
0.00	Corrected Gravity = 32.6 api	0.000

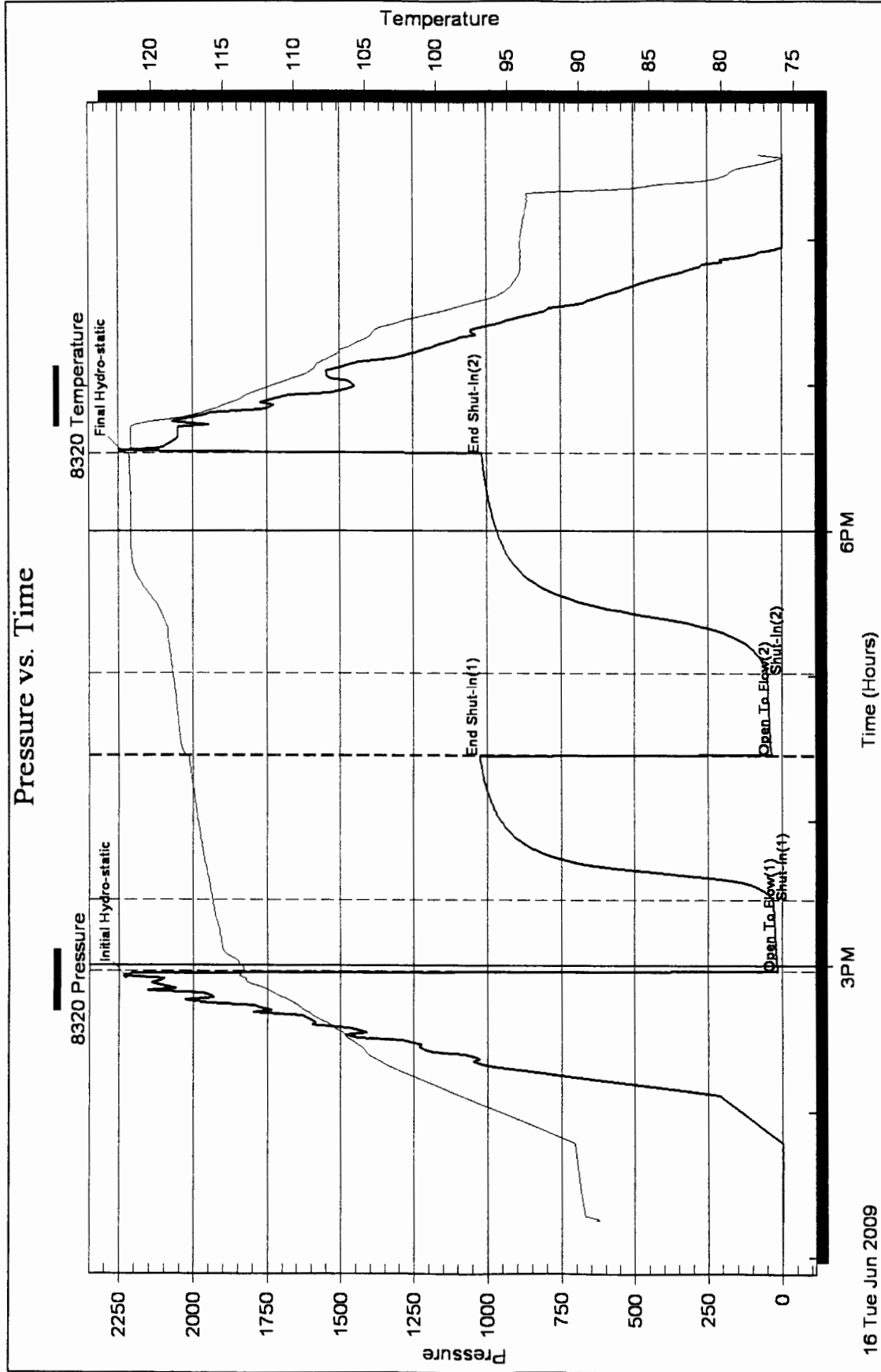
Total Length: 66.00 ft      Total Volume: 0.325 bbl

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

Laboratory Name:      Laboratory Location:

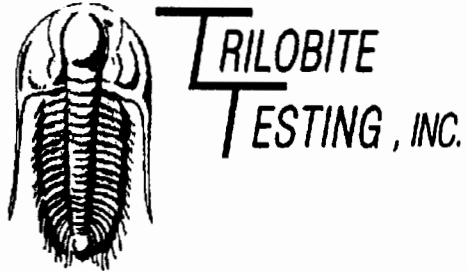
Recovery Comments:

### Pressure vs. Time



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CONSERVATION DIVISION  
WICHITA, KS



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.17 @ 15:25:00

End Date: 2009.06.18 @ 00:29:30

Job Ticket #: 34682                      DST #: 5

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# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

Job Ticket: 34682      **DST#: 5**

Test Start: 2009.06.17 @ 15:25:00

## GENERAL INFORMATION:

Formation: **Myrick St. - Ft. Sco**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:20:00

Time Test Ended: 00:29:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 36

Interval: **4570.00 ft (KB) To 4628.00 ft (KB) (TVD)**

Reference Elevations: 3206.00 ft (KB)

Total Depth: 4628.00 ft (KB) (TVD)

3201.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press@RunDepth: 42.60 psig @ 4571.00 ft (KB)

Capacity: 7000.00 psig

Start Date: 2009.06.17

End Date: 2009.06.18

Last Calib.: 2009.06.18

Start Time: 15:25:05

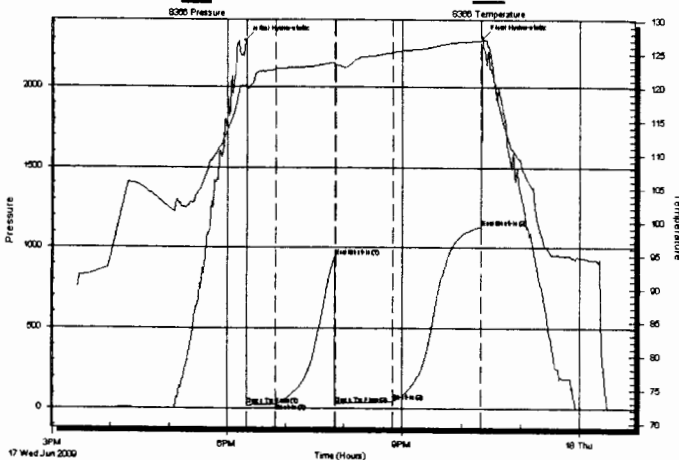
End Time: 00:29:30

Time On Btm: 2009.06.17 @ 18:18:30

Time Off Btm: 2009.06.17 @ 22:20:59

**TEST COMMENT:** IF: Blow built to 2 1/2"  
IS: Bled off, No blow back  
FF: Blow built to 8"  
FS: Bled off, No blow back

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2292.60	120.28	Initial Hydro-static
2	18.97	119.46	Open To Flow (1)
31	30.54	122.82	Shut-In(1)
92	939.93	123.74	End Shut-In(1)
93	27.17	123.49	Open To Flow (2)
152	42.60	125.24	Shut-In(2)
241	1129.41	127.00	End Shut-In(2)
243	2306.96	127.22	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOM 40% <sub>m</sub> , 32% <sub>g</sub> , 28% <sub>o</sub>	0.30

## Gas Rates

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



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**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34682      **DST#: 5**  
Test Start: 2009.06.17 @ 15:25:00

**Tool Information**

Drill Pipe:	Length: 4028.00 ft	Diameter: 3.80 inches	Volume: 56.50 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 59.19 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 77000.00 lb
Depth to Top Packer:	4570.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	58.00 ft			
Tool Length:	86.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			4547.00	
HYD S.I. Tool	5.00			4552.00	
Jars	5.00			4557.00	
Safety Joint	3.00			4560.00	
Packer	5.00			4565.00	28.00      Bottom Of Top Packer
Packer	5.00			4570.00	
Stubb	1.00			4571.00	
Recorder	0.00	8366	Inside	4571.00	
Recorder	0.00	8320	Inside	4571.00	
Perforations	20.00			4591.00	
Blank Spacing	32.00			4623.00	
Perforations	2.00			4625.00	
Bullnose	3.00			4628.00	58.00      Bottom Packers & Anchor

**Total Tool Length: 86.00**

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FLUID SUMMARY

Murfin Drilling Co., Inc.

TFF Unit #1-21

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34682      DST#: 5  
Test Start: 2009.06.17 @ 15:25:00

## 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: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.39 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 9200.00 ppm			
Filter Cake: 2.00 inches			

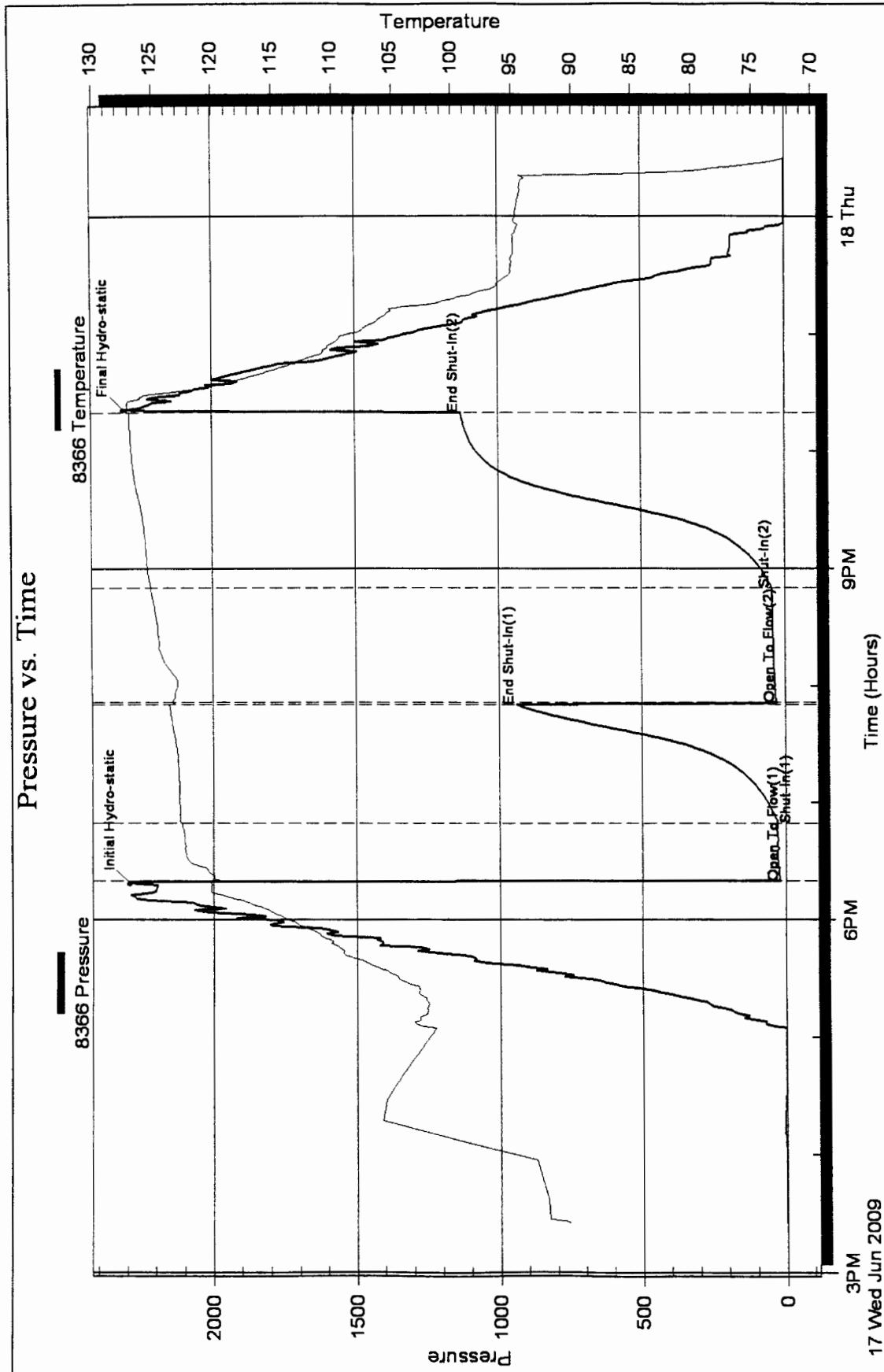
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GOM 40% <sub>m</sub> , 32% <sub>g</sub> , 28% <sub>o</sub>	0.295

Total Length: 60.00 ft      Total Volume: 0.295 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time



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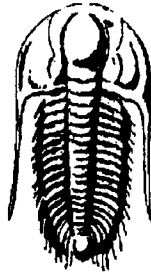
Ref. No: 34682

Printed: 2009.06.23 @ 13:04:50 Page 5

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**TRILOBITE**  
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## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

**TFF Unit #1-21**

Start Date: 2009.06.18 @ 10:23:00

End Date: 2009.06.18 @ 18:21:30

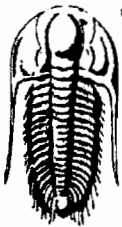
Job Ticket #: 34684                      DST #: 6

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# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

Job Ticket: 34684 **DST#: 6**

Test Start: 2009.06.18 @ 10:23:00

## GENERAL INFORMATION:

Formation: **Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:16:30

Time Test Ended: 18:21:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 36

Interval: **4648.00 ft (KB) To 4711.00 ft (KB) (TVD)**

Total Depth: 4711.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3206.00 ft (KB)

3201.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8366 Inside**

Press@RunDepth: 38.36 psig @ 4649.00 ft (KB)

Start Date: 2009.06.18

Start Time: 10:23:05

End Date:

End Time:

2009.06.18

18:21:29

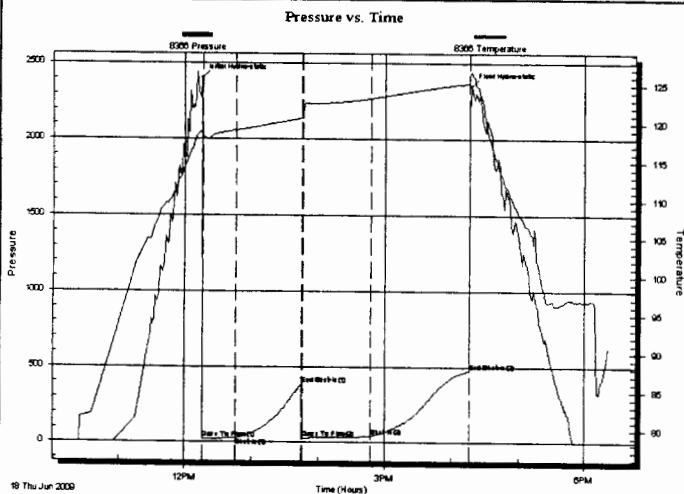
Capacity: 7000.00 psig

Last Calib.: 2009.06.18

Time On Btm: 2009.06.18 @ 12:15:30

Time Off Btm: 2009.06.18 @ 16:17:59

**TEST COMMENT:** IF: Blow built to 1"  
IS: Bled off, No blow back  
FF: Blow built to 3"  
FS: Bled off, No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2403.38	119.19	Initial Hydro-static
1	19.69	118.26	Open To Flow (1)
31	26.07	119.11	Shut-In(1)
90	383.99	120.71	End Shut-In(1)
91	28.01	121.56	Open To Flow(2)
152	38.36	123.26	Shut-In(2)
241	473.04	125.27	End Shut-In(2)
243	2352.87	126.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
50.00	GOCM 61% <sub>m</sub> , 27% <sub>o</sub> , 12% <sub>g</sub>	0.25
6.00	MCO 85% <sub>o</sub> , 15% <sub>m</sub>	0.03

## Gas Rates

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



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**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**TFF Unit #1-21**

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Suite 300  
Wichita, KS 67202  
ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**  
Job Ticket: 34684      **DST#: 6**  
Test Start: 2009.06.18 @ 10:23:00

**Tool Information**

Drill Pipe:	Length: 4091.00 ft	Diameter: 3.80 inches	Volume: 57.39 bbl	Tool Weight: 2000.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 60.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4648.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.00 ft			
Tool Length:	91.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

S.I. Tool	5.00			4625.00	
HYD S.I. Tool	5.00			4630.00	
Jars	5.00			4635.00	
Safety Joint	3.00			4638.00	
Packer	5.00			4643.00	28.00      Bottom Of Top Packer
Packer	5.00			4648.00	
Stubb	1.00			4649.00	
Recorder	0.00	8366	Inside	4649.00	
Recorder	0.00	8320	Inside	4649.00	
Perforations	20.00			4669.00	
Blank Spacing	31.00			4700.00	
Perforations	8.00			4708.00	
Bullnose	3.00			4711.00	63.00      Bottom Packers & Anchor

**Total Tool Length: 91.00**

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ATTN: Paul Gunzelman

**21 10s 34w Thomas KS**

Job Ticket: 34684      DST#: 6

Test Start: 2009.06.18 @ 10:23:00

## 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: 6.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 9700.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
50.00	GOCM 61% <sub>m</sub> , 27% <sub>o</sub> , 12% <sub>g</sub>	0.246
6.00	MCO 85% <sub>o</sub> , 15% <sub>m</sub>	0.030

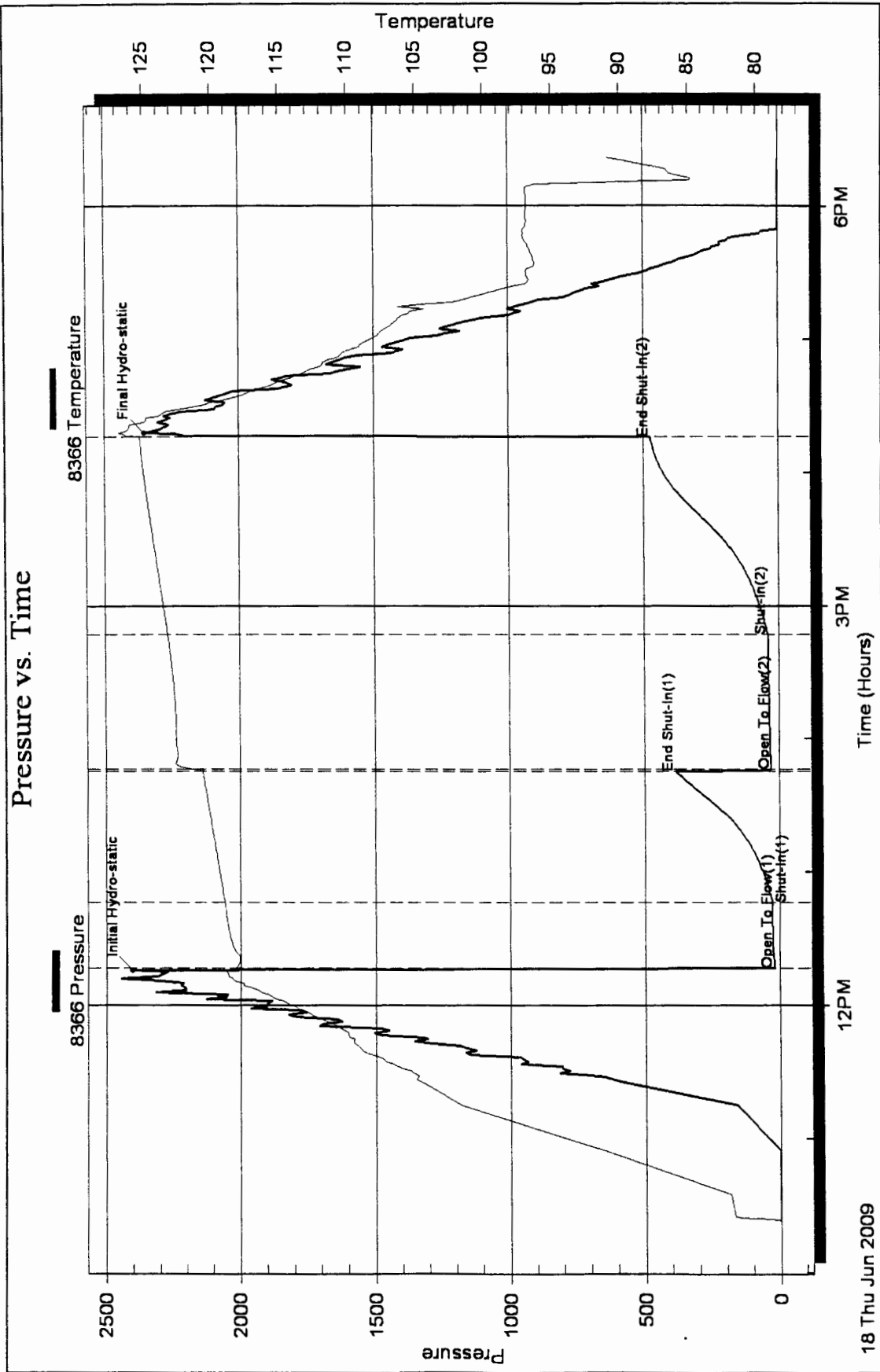
Total Length: 56.00 ft      Total Volume: 0.276 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time



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