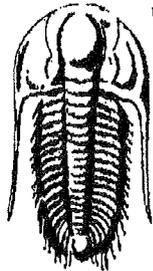


15-039-21092

21-3s-27w

IND



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

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

250 N. Water  
Suite 300  
Wichita, KS 67202

**CONFIDENTIAL**  
JUL 20 2009  
KCC

ATTN: Paul Gunzelman

**21 3s 27w Decatur KS**

**Carter - Brown Unit #1-21**

Start Date: 2009.03.26 @ 10:47:00

End Date: 2009.03.26 @ 19:10:30

Job Ticket #: 34494                      DST #: 1

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JUL 20 2009  
KCC WICHITA

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

Murfin Drilling Co., Inc.

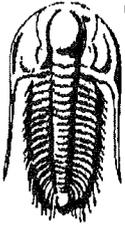
Carter - Brown Unit #1-21

21 3s 27w Decatur KS

DST # 1

Topeka & Toronto

2009.03.26



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34494 **DST#: 1**

Test Start: 2009.03.26 @ 10:47:00

## GENERAL INFORMATION:

Formation: **Topeka & Toronto**

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

Time Tool Opened: 13:10:30

Time Test Ended: 19:10:30

Test Type: **Conventional Bottom Hole**

Tester: **James Winder**

Unit No: **36**

Interval: **3472.00 ft (KB) To 3560.00 ft (KB) (TVD)**

Total Depth: **3560.00 ft (KB) (TVD)**

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

Reference Elevations: **2629.00 ft (KB)**

**2624.00 ft (CF)**

KB to GR/CF: **5.00 ft**

**Serial #: 8366** **Inside**

Press@RunDepth: **221.54 psig @ 3473.00 ft (KB)**

Start Date: **2009.03.26**

Start Time: **10:47:05**

End Date: **2009.03.26**

End Time: **19:10:29**

Capacity: **7000.00 psig**

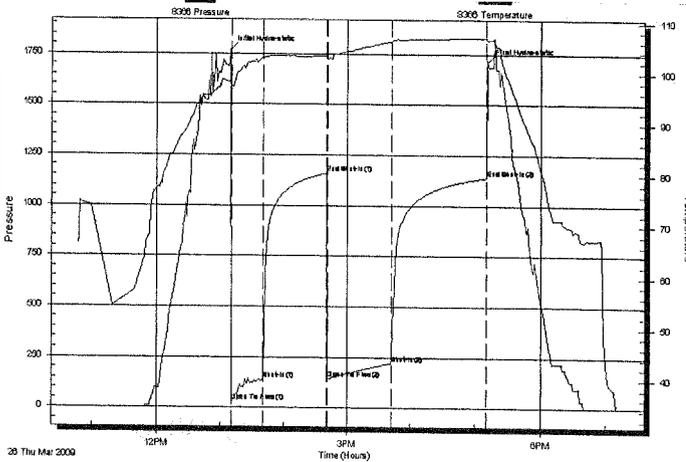
Last Calib.: **2009.03.26**

Time On Btm: **2009.03.26 @ 13:09:30**

Time Off Btm: **2009.03.26 @ 17:11:30**

**TEST COMMENT:** IF: Blow built to BOB in 21 min.  
IS: Bled off, Weak surface blow back for about 5 min.  
FF: Blow built to BOB in 23 min.  
FS: Bled off, Blowback built to 1/2" in 30 min., on/off at 1/2" thru rest o

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1767.03	98.56	Initial Hydro-static
1	28.92	97.38	Open To Flow (1)
31	137.57	102.89	Shut-In(1)
91	1158.13	103.28	End Shut-In(1)
92	143.84	102.83	Open To Flow (2)
153	221.54	106.16	Shut-In(2)
241	1139.45	106.93	End Shut-In(2)
242	1711.78	106.61	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	MCW w/trace oil 85%w, 15%o	0.59
125.00	SOCWM 49%o, 41%w, 6%o, 5%g	1.21
175.00	SOWCM 68%o, 24%w, 6%o, 2%g	2.45
15.00	CO 98%o, 2%g	0.21
0.00	Gravity = 29.8 @ 56 deg F = 30.2 api	0.00
0.00	RW = .210 ohms @ 39.3 deg F = 65000 p0.00	

## Gas Rates

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



**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34494      **DST#: 1**  
Test Start: 2009.03.26 @ 10:47:00

**Tool Information**

Drill Pipe:	Length: 3288.00 ft	Diameter: 3.80 inches	Volume: 46.12 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: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 52000.00 lb
		<u>Total Volume: 47.01 bbl</u>		Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3472.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	116.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

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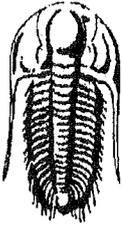
KCC

**Tool Description**

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

S.I. Tool	5.00			3449.00	
HYD S.I. Tool	5.00			3454.00	
Jars	5.00			3459.00	
Safety Joint	3.00			3462.00	
Packer	5.00			3467.00	28.00      Bottom Of Top Packer
Packer	5.00			3472.00	
Stubb	1.00			3473.00	
Recorder	0.00	8366	Inside	3473.00	
Recorder	0.00	8320	Inside	3473.00	
Perforations	16.00			3489.00	
Blank Spacing	65.00			3554.00	
Perforations	3.00			3557.00	
Bullnose	3.00			3560.00	88.00      Bottom Packers & Anchor

**Total Tool Length: 116.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34494      **DST#: 1**  
Test Start: 2009.03.26 @ 10:47:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30.2 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 65000 ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.57 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4000.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	MCW w/trace oil 85%w, 15%m	0.590
125.00	SOCWM 49%m, 41%w, 6%o, 5%g	1.207
175.00	SOWCM 68%m, 24%w, 6%o, 2%g	2.455
15.00	CO 98%o, 2%g	0.210
0.00	Gravity = 29.8 @ 56 deg F = 30.2 api	0.000
0.00	RW = .210 ohms @ 39.3 deg F = 65000 ppm	0.000

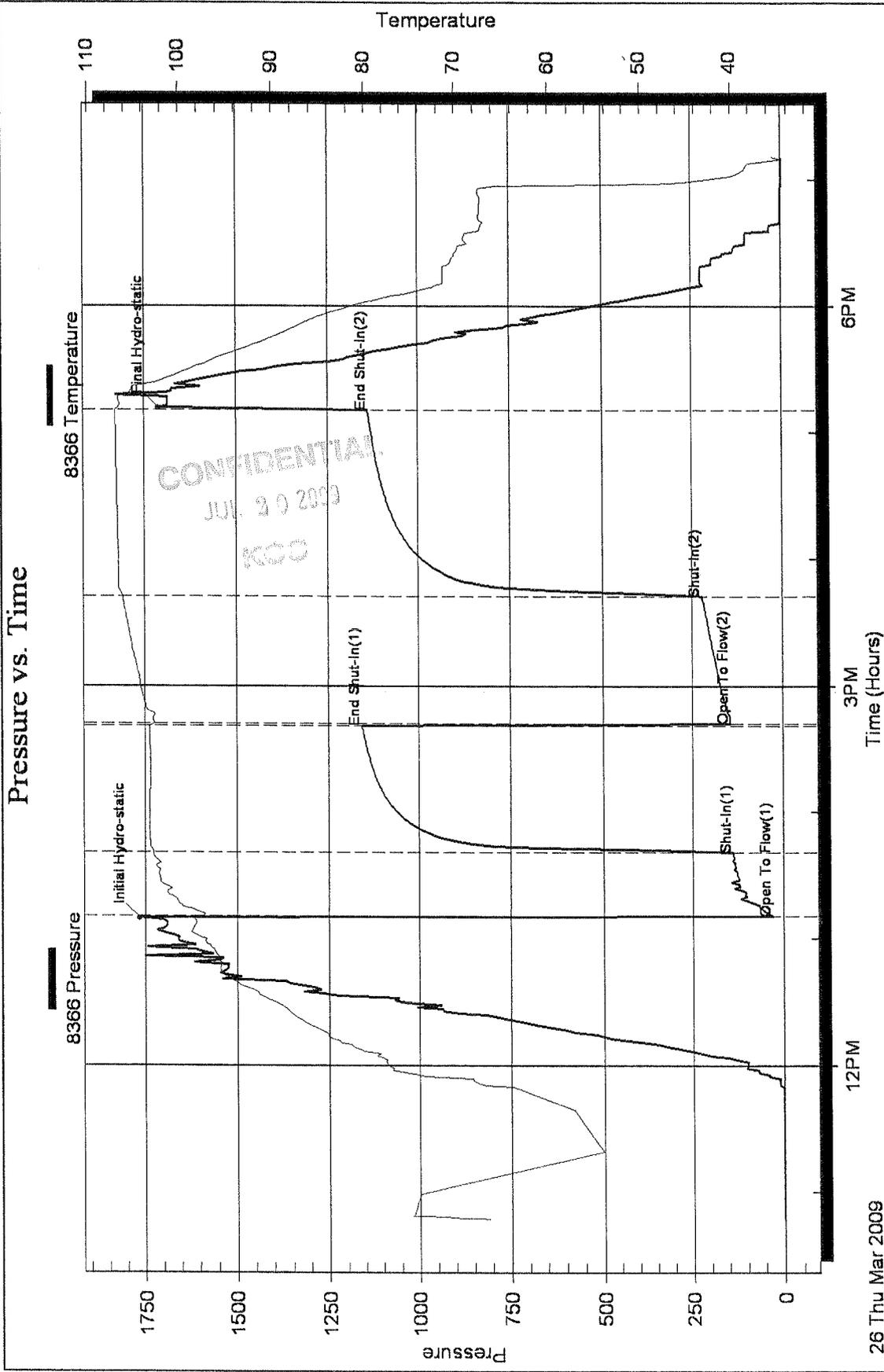
Total Length: 435.00 ft      Total Volume: 4.462 bbl

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

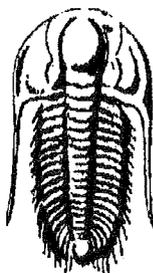
Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time



26 Thu Mar 2009



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**CONFIDENTIAL**  
JUL 20 2009  
KCC

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

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 3s 27w Decatur KS**

**Carter - Brown Unit #1-21**

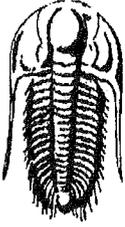
Start Date: 2009.03.27 @ 06:17:00

End Date: 2009.03.27 @ 14:39:30

Job Ticket #: 34495                      DST #: 2

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KCC WICHITA

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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34495 **DST#: 2**

Test Start: 2009.03.27 @ 06:17:00

## GENERAL INFORMATION:

Formation: **Lans. "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:19:30

Time Test Ended: 14:39:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 36

Interval: **3553.00 ft (KB) To 3622.00 ft (KB) (TVD)**

Total Depth: 3622.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2629.00 ft (KB)

2624.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8366**

Inside

Press@RunDepth: 160.76 psig @ 3554.00 ft (KB)

Start Date: 2009.03.27 End Date: 2009.03.27

Start Time: 06:17:05 End Time: 14:39:29

Capacity: 7000.00 psig

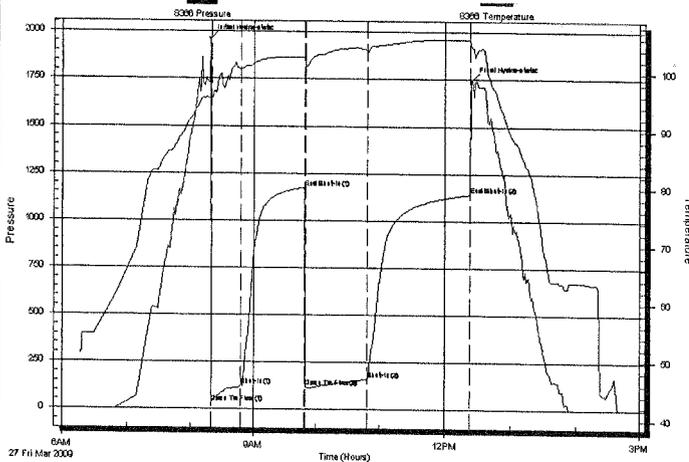
Last Calib.: 2009.03.27

Time On Btm: 2009.03.27 @ 08:18:30

Time Off Btm: 2009.03.27 @ 12:23:59

**TEST COMMENT:** IF: Blow built to BOB in 19 min.  
IS: Bled off, very weak surface blow back from 10 - 30 min.  
FF: Blow built to BOB in 9 min.  
FS: Bled off, Blow back built to 1 1/2" in 15 min., down to surface blow

Pressure vs. Time



## PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	1961.60	95.81	Initial Hydro-static
1	33.96	95.49	Open To Flow (1)
30	124.41	100.52	Shut-In(1)
91	1174.05	102.64	End Shut-In(1)
92	118.42	101.46	Open To Flow (2)
151	160.76	103.65	Shut-In(2)
244	1139.74	105.81	End Shut-In(2)
246	1744.98	104.69	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	GWCOM 37%m, 30%o, 20%g, 13%w	0.59
220.00	GMCO 52%o, 28%m, 20%g	2.54
15.00	SMCO 93%o, 5%m, 2%g	0.21
0.00	GIP = 125'	0.00
0.00	Gravity = 35 api @ 48 deg F	0.00
0.00	Corrected Gravity = 36.2 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.

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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34495      **DST#: 2**

Test Start: 2009.03.27 @ 06:17:00

### Tool Information

Drill Pipe:	Length: 3356.00 ft	Diameter: 3.80 inches	Volume: 47.08 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: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 47.97 bbl</u>	Tool Chased: 0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3553.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	69.00 ft			
Tool Length:	97.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

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Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
S.I. Tool	5.00			3530.00		
HYD S.I. Tool	5.00			3535.00		
Jars	5.00			3540.00		
Safety Joint	3.00			3543.00		
Packer	5.00			3548.00	28.00	Bottom Of Top Packer
Packer	5.00			3553.00		
Stubb	1.00			3554.00		
Recorder	0.00	8366	Inside	3554.00		
Recorder	0.00	8320	Inside	3554.00		
Perforations	29.00			3583.00		
Blank Spacing	33.00			3616.00		
Perforations	3.00			3619.00		
Bullnose	3.00			3622.00	69.00	Bottom Packers & Anchor

**Total Tool Length: 97.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34495      **DST#: 2**  
Test Start: 2009.03.27 @ 06:17:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 36.2 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.18 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4400.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

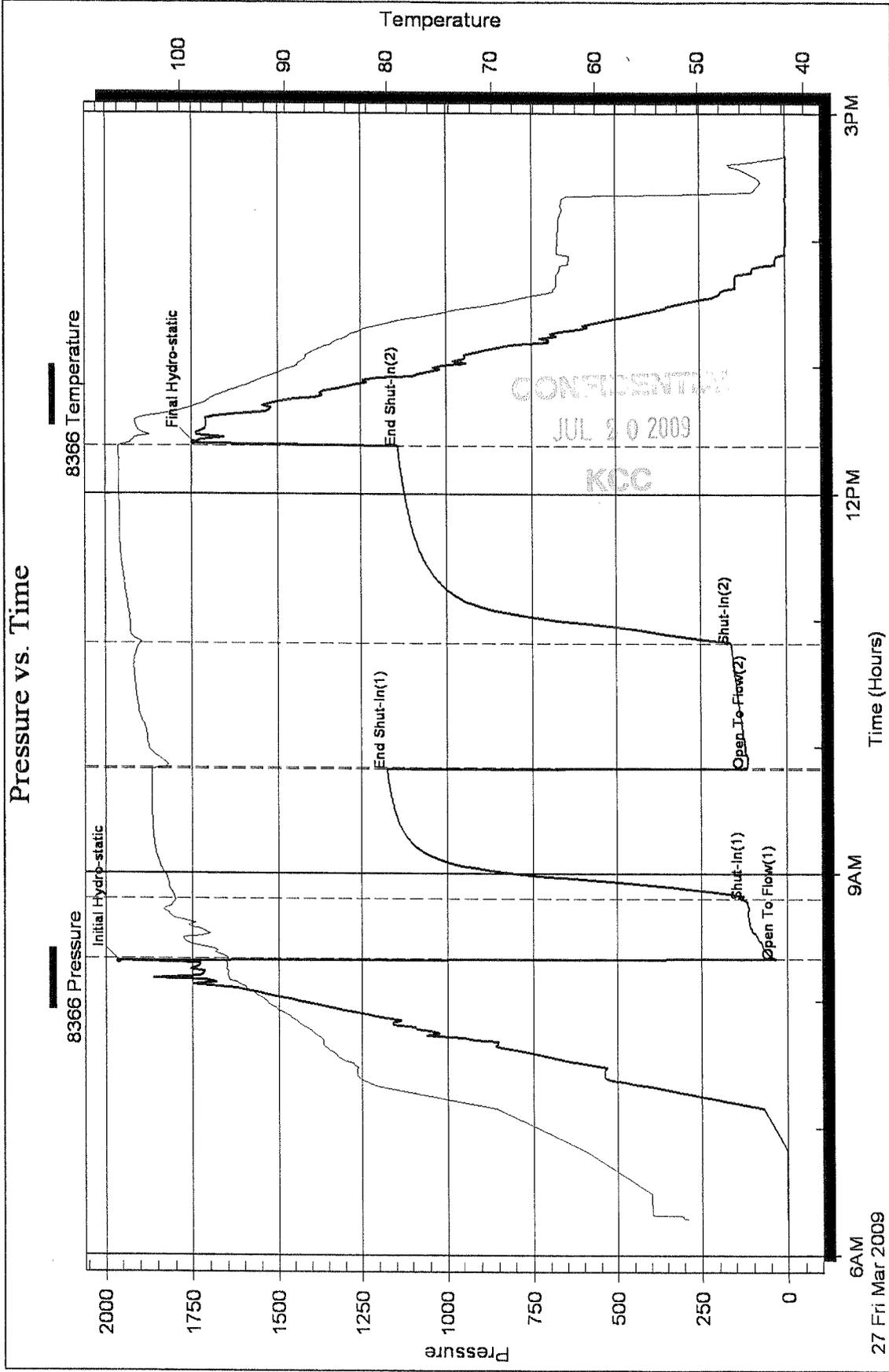
Recovery Table

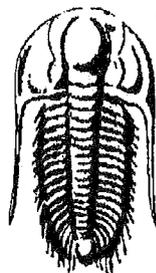
Length ft	Description	Volume bbl
120.00	GWCOM 37% <i>m</i> , 30% <i>o</i> , 20% <i>g</i> , 13% <i>w</i>	0.590
220.00	GMCO 52% <i>o</i> , 28% <i>m</i> , 20% <i>g</i>	2.539
15.00	SMCO 93% <i>o</i> , 5% <i>m</i> , 2% <i>g</i>	0.210
0.00	GIP = 125'	0.000
0.00	Gravity = 35 api @ 48 deg F	0.000
0.00	Corrected Gravity = 36.2 api	0.000

Total Length: 355.00 ft      Total Volume: 3.339 bbl

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

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

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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 3s 27w Decatur KS**

**Carter - Brown Unit #1-21**

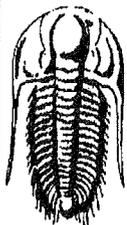
Start Date: 2009.03.27 @ 23:00:00

End Date: 2009.03.28 @ 03:07:30

Job Ticket #: 34496                      DST #: 3

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KCC WICHITA

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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34496      **DST#: 3**

Test Start: 2009.03.27 @ 23:00:00

## GENERAL INFORMATION:

Formation: **Lans. "E - G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:08:30

Time Test Ended: 03:07:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 36

Interval: **3616.00 ft (KB) To 3660.00 ft (KB) (TVD)**

Total Depth: 3660.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2629.00 ft (KB)

2624.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8366**      **Inside**

Press@RunDepth:      psig @      3617.00 ft (KB)

Start Date: 2009.03.27      End Date: 2009.03.28

Start Time: 23:00:05      End Time: 03:07:30

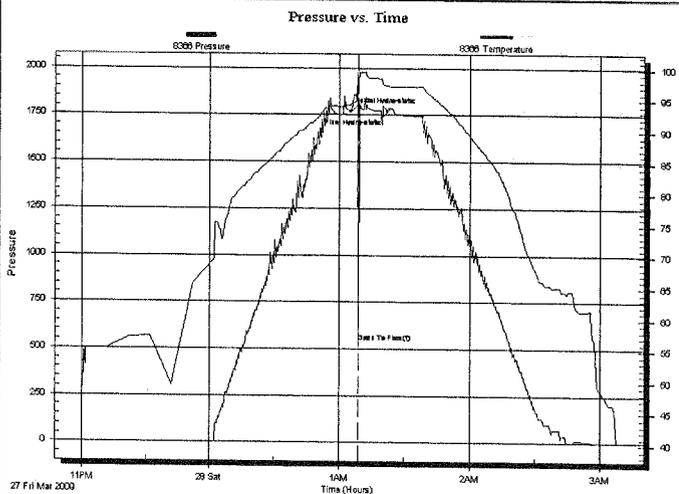
Capacity: 7000.00 psig

Last Calib.: 2009.03.28

Time On Btm: 2009.03.28 @ 01:05:00

Time Off Btm: 2009.03.28 @ 01:22:00

**TEST COMMENT:** Tool slid 10' to bottom before opening  
Packers not holding  
Reset tool - Packers still not holding  
Pulled tool Mis-Run



## PRESSURE SUMMARY

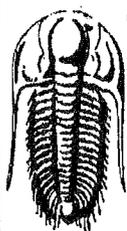
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1768.99	94.33	Initial Hydro-static
4	533.25	97.74	Open To Flow (1)
17	1769.48	97.39	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
260.00	Mud 100%	2.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34496      **DST#: 3**  
Test Start: 2009.03.27 @ 23:00:00

### Tool Information

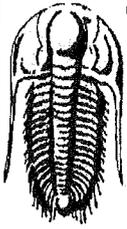
Drill Pipe:	Length: 3418.00 ft	Diameter: 3.80 inches	Volume: 47.95 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose:	65000.00 lb
		Total Volume: 48.84 bbl		Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	39000.00 lb
Depth to Top Packer:	3616.00 ft			Final	40000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	44.00 ft				
Tool Length:	72.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

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### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			3593.00	
HYD S.I. Tool	5.00			3598.00	
Jars	5.00			3603.00	
Safety Joint	3.00			3606.00	
Packer	5.00			3611.00	28.00      Bottom Of Top Packer
Packer	5.00			3616.00	
Stubb	1.00			3617.00	
Recorder	0.00	8366	Inside	3617.00	
Recorder	0.00	8320	Inside	3617.00	
Perforations	40.00			3657.00	
Bullnose	3.00			3660.00	44.00      Bottom Packers & Anchor

**Total Tool Length: 72.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34496      **DST#: 3**  
Test Start: 2009.03.27 @ 23:00:00

**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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.18 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4400.00 ppm			
Filter Cake: 2.00 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
260.00	Mud 100%	2.007

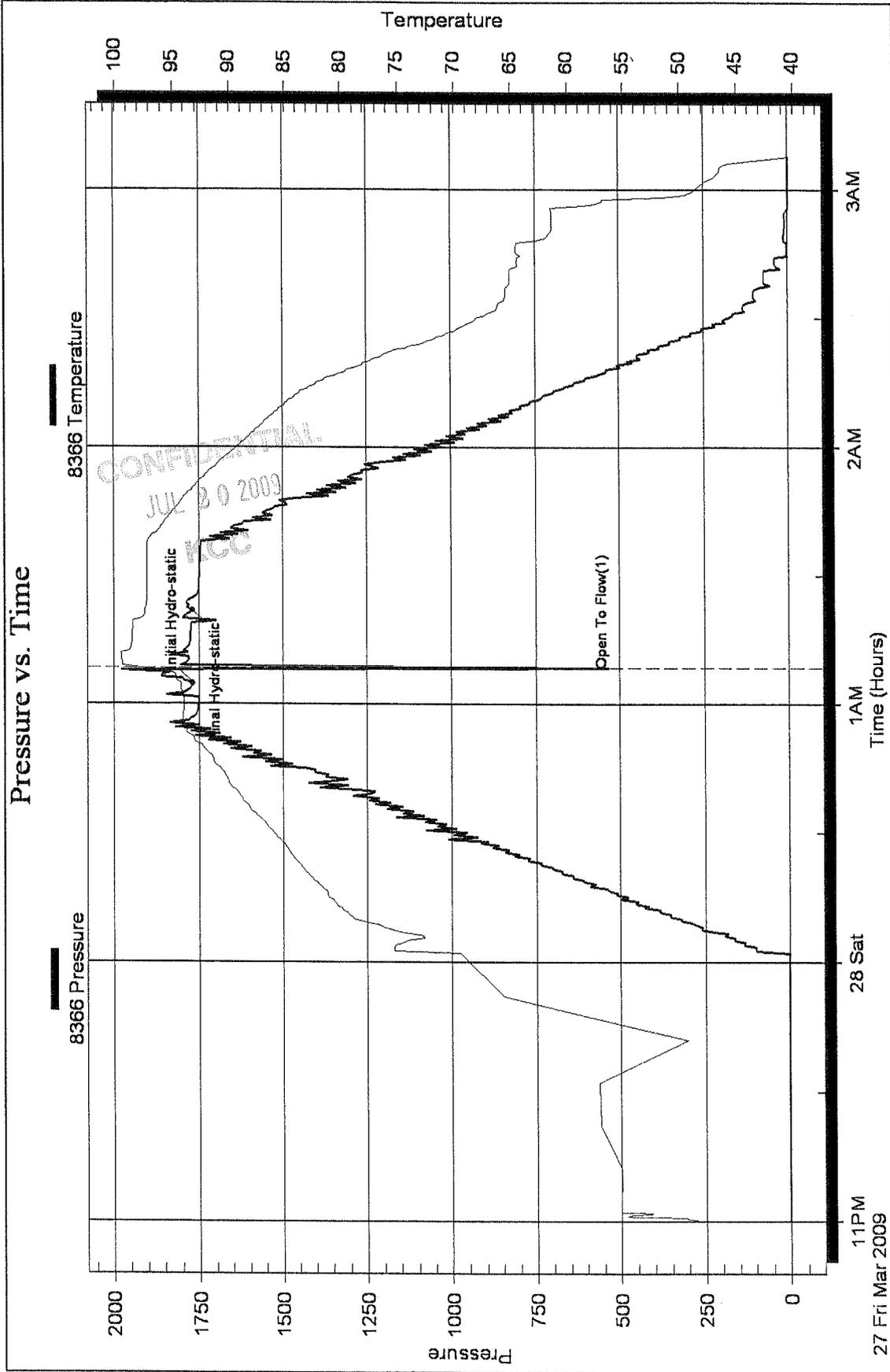
Total Length: 260.00 ft      Total Volume: 2.007 bbl

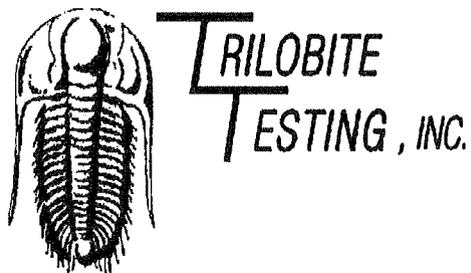
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time





### DRILL STEM TEST REPORT

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

250 N. Water  
Suite 300  
Wichita, KS 67202

CONFIDENTIAL  
JUL 20 2009  
KCC

ATTN: Paul Gunzelman

**21 3s 27w Decatur KS**

**Carter - Brown Unit #1-21**

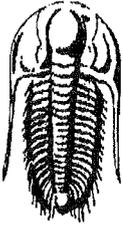
Start Date: 2009.03.28 @ 03:23:00

End Date: 2009.03.28 @ 11:56:30

Job Ticket #: 34497                      DST #: 4

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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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34497 **DST#: 4**

Test Start: 2009.03.28 @ 03:23:00

## GENERAL INFORMATION:

Formation: **Lans. "E - G"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 04:56:30  
Time Test Ended: 11:56:30

Test Type: Conventional Bottom Hole  
Tester: James Winder  
Unit No: 36

Interval: **3612.00 ft (KB) To 3660.00 ft (KB) (TVD)**  
Total Depth: 3660.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2629.00 ft (KB)  
2624.00 ft (CF)  
KB to GR/CF: 5.00 ft

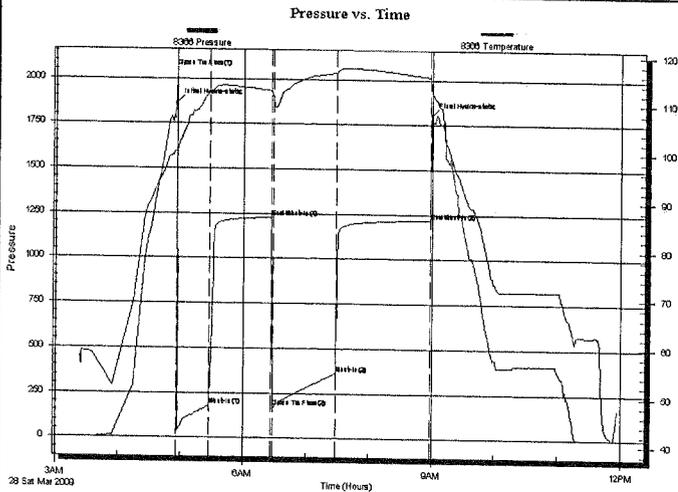
## Serial #: 8366

Inside

Press@RunDepth: 178.80 psig @ 3613.00 ft (KB)  
Start Date: 2009.03.28 End Date: 2009.03.28  
Start Time: 03:23:05 End Time: 11:56:30

Capacity: 7000.00 psig  
Last Calib.: 2009.03.28  
Time On Btm: 2009.03.28 @ 04:55:30  
Time Off Btm: 2009.03.28 @ 08:59:29

**TEST COMMENT:** IF: Blow built to BOB in 5 1/2 min.  
ISI: Bled off, Blow back built to 7" in 35 min.  
FF: Blow built to BOB in 4 min.  
FSI: Bled off for 3 min. Blow back built to BOB at 10 min., dying back after 52 min



## PRESSURE SUMMARY

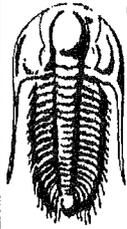
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1860.99	100.18	Initial Hydro-static
1	2062.26	100.18	Open To Flow (1)
32	178.80	112.27	Shut-In(1)
91	1226.91	112.67	End Shut-In(1)
92	174.93	111.35	Open To Flow (2)
152	360.75	116.40	Shut-In(2)
243	1217.83	115.62	End Shut-In(2)
244	1801.02	113.55	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
125.00	CGO 80%o, 20%g	0.61
0.00	Reversed out to a vac truck for 35 min.	0.00
0.00	5 min. - SGMCO 95%o, 3%g, 2%m	0.00
0.00	10 min. - 35 min. GMCO 62%o, 30%m, 8%w	0.00
60.00	GMCO 62%o, 28%m, 12%g	0.34
60.00	SWGMC0 47%o, 28%m, 21%g, 4%w	0.84

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34497      DST#: 4  
Test Start: 2009.03.28 @ 03:23:00

**Tool Information**

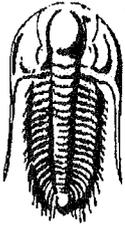
Drill Pipe:	Length: 3418.00 ft	Diameter: 3.80 inches	Volume: 47.95 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 56000.00 lb
			<b>Total Volume: 48.84 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3612.00 ft			Final 43000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:  
Tool slid 5' - 6' to bottom before open

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Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			3589.00	
HYD S.I. Tool	5.00			3594.00	
Jars	5.00			3599.00	
Safety Joint	3.00			3602.00	
Packer	5.00			3607.00	28.00      Bottom Of Top Packer
Packer	5.00			3612.00	
Stubb	1.00			3613.00	
Recorder	0.00	8366	Inside	3613.00	
Recorder	0.00	8320	Inside	3613.00	
Perforations	44.00			3657.00	
Bullnose	3.00			3660.00	48.00      Bottom Packers & Anchor

**Total Tool Length: 76.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34497      **DST#: 4**  
Test Start: 2009.03.28 @ 03:23:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 38 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4400.00 ppm		
Filter Cake: 2.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
125.00	CGO 80%o, 20%g	0.615
0.00	Reversed out to a vac truck for 35 min.	0.000
0.00	5 min. - SGMCO 95%o, 3%g, 2%m	0.000
0.00	10 min. - 35 min. GMCO 62%o, 30%m, 8%g	0.000
60.00	GMCO 62%o, 28%m, 12%g	0.341
60.00	SWGMC0 47%o, 28%m, 21%g, 4%w	0.842

Total Length: 245.00 ft      Total Volume: 1.798 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: Gravity = 36 api @ 40 deg F  
Corrected Gravity = 38 api

Serial #: 8366

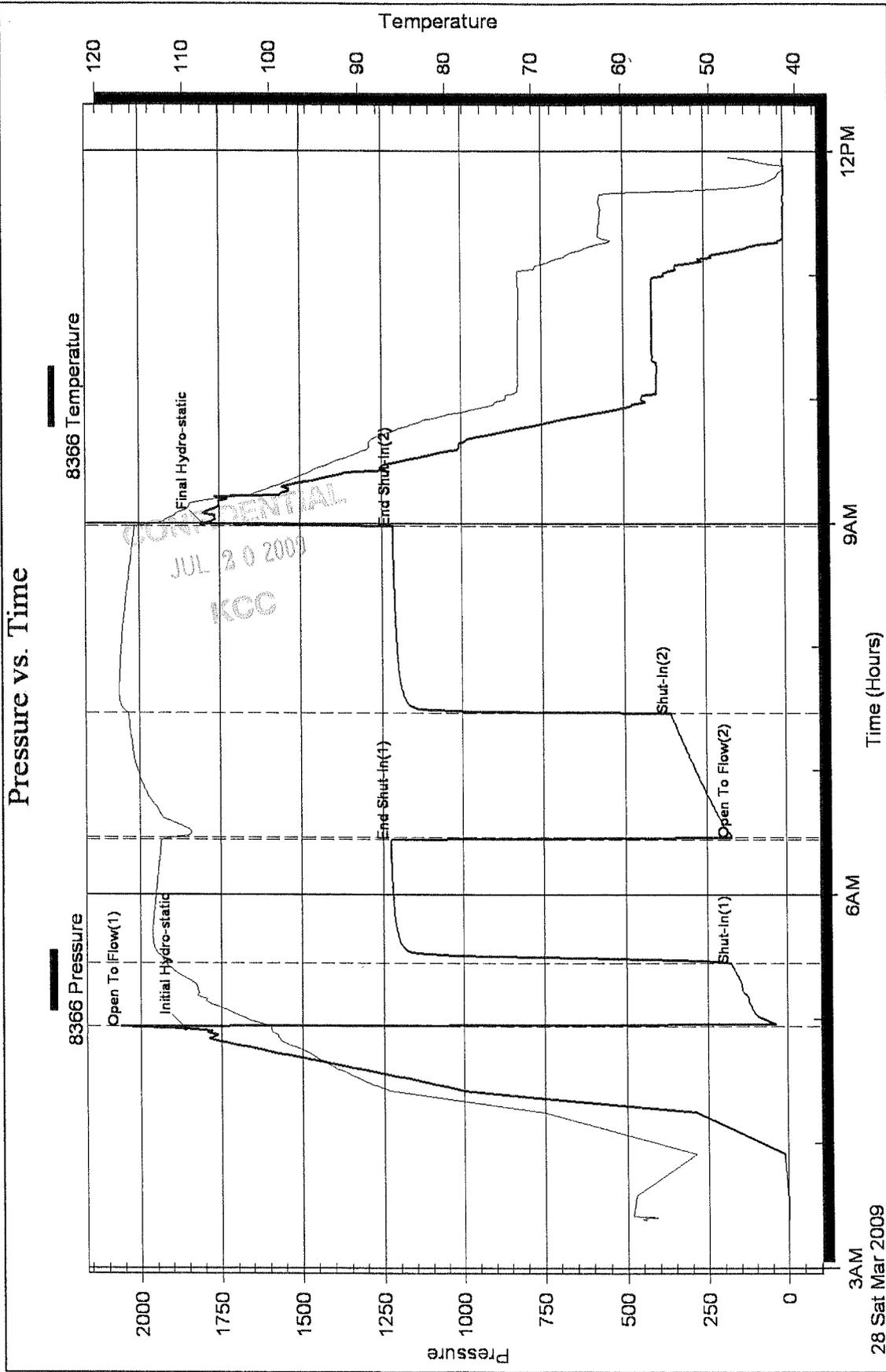
Inside

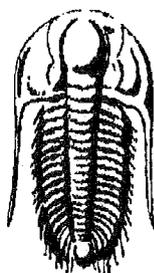
Murfin Drilling Co., Inc.

21 3s 27w Decatur KS

DST Test Number: 4

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

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

250 N. Water  
Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**21 3s 27w Decatur KS**

**Carter - Brown Unit #1-21**

Start Date: 2009.03.28 @ 23:16:00

End Date: 2009.03.29 @ 07:16:30

Job Ticket #: 34498                      DST #: 5

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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

**Carter - Brown Unit #1-21**

**21 3s 27w Decatur KS**

Job Ticket: 34498      **DST#: 5**

Test Start: 2009.03.28 @ 23:16:00

## GENERAL INFORMATION:

Formation: **Lans. "H - L"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 01:24:00  
Time Test Ended: 07:16:30

Test Type: Conventional Bottom Hole  
Tester: James Winder  
Unit No: 36

Interval: **3658.00 ft (KB) To 3770.00 ft (KB) (TVD)**  
Total Depth: 3770.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair

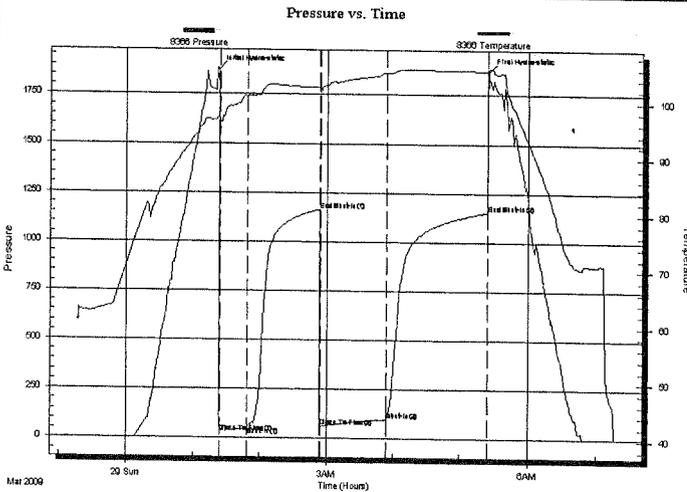
Reference Elevations: 2629.00 ft (KB)  
2624.00 ft (CF)  
KB to GR/CF: 5.00 ft

## Serial #: 8366 Inside

Press@RunDepth: 95.18 psig @ 3659.00 ft (KB)  
Start Date: 2009.03.28 End Date: 2009.03.29  
Start Time: 23:16:05 End Time: 07:16:29

Capacity: 7000.00 psig  
Last Calib.: 2009.03.29  
Time On Btm: 2009.03.29 @ 01:23:00  
Time Off Btm: 2009.03.29 @ 05:24:59

**TEST COMMENT:** IF: Blow built to 7" (some tool plugging)  
IS: Bled off, No blow back  
FF: Blow built to BOB in 43 min.  
FS: Bled off, No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1876.59	97.17	Initial Hydro-static
1	25.67	96.44	Open To Flow (1)
26	54.01	101.05	Shut-In(1)
90	1162.57	102.62	End Shut-In(1)
91	60.66	101.88	Open To Flow (2)
151	95.18	105.27	Shut-In(2)
241	1151.67	105.67	End Shut-In(2)
242	1867.34	105.84	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOWCM 44% <sub>m</sub> , 30% <sub>o</sub> , 21% <sub>w</sub> , 10% <sub>g</sub>	0.30
60.00	GMCO 55% <sub>o</sub> , 25% <sub>m</sub> , 20% <sub>g</sub>	0.30
58.00	GOM 53% <sub>m</sub> , 37% <sub>o</sub> , 10% <sub>g</sub>	0.29
8.00	CO 98% <sub>o</sub> , 2% <sub>g</sub>	0.09
0.00	Gravity = 33.6 api @ 42 deg F	0.00
0.00	Corrected Gravity = 35.4 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.

**Carter - Brown Unit #1-21**

250 N. Water  
Suite 300  
Wichita, KS 67202

**21 3s 27w Decatur KS**

Job Ticket: 34498

**DST#: 5**

ATTN: Paul Gunzelman

Test Start: 2009.03.28 @ 23:16:00

### Tool Information

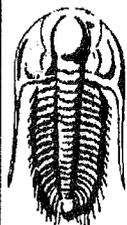
Drill Pipe:	Length: 3480.00 ft	Diameter: 3.80 inches	Volume: 48.82 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 52000.00 lb
			<b>Total Volume: 49.71 bbl</b>	Tool Chased: 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 41000.00 lb
Depth to Top Packer:	3658.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	112.00 ft			
Tool Length:	140.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
S.I. Tool	5.00			3635.00	
HYD S.I. Tool	5.00			3640.00	
Jars	5.00			3645.00	
Safety Joint	3.00			3648.00	
Packer	5.00			3653.00	28.00 Bottom Of Top Packer
Packer	5.00			3658.00	
Stubb	1.00			3659.00	
Recorder	0.00	8366	Inside	3659.00	
Recorder	0.00	8320	Inside	3659.00	
Perforations	32.00			3691.00	
Blank Spacing	65.00			3756.00	
Perforations	11.00			3767.00	
Bullnose	3.00			3770.00	112.00 Bottom Packers & Anchor

**Total Tool Length: 140.00**



**TRILOBITE**  
TESTING, INC

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., inc.

**Carter - Brown Unit #1-21**

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

**21 3s 27w Decatur KS**  
Job Ticket: 34498      **DST#: 5**  
Test Start: 2009.03.28 @ 23:16:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	35.4 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4400.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	GOWCM 44% <i>m</i> , 30% <i>o</i> , 21% <i>w</i> , 10% <i>g</i>	0.295
60.00	GMCO 55% <i>o</i> , 25% <i>m</i> , 20% <i>g</i>	0.295
58.00	GOM 53% <i>m</i> , 37% <i>o</i> , 10% <i>g</i>	0.285
8.00	CO 98% <i>o</i> , 2% <i>g</i>	0.094
0.00	Gravity = 33.6 api @ 42 deg F	0.000
0.00	Corrected Gravity = 35.4 api	0.000

Total Length: 186.00 ft      Total Volume: 0.969 bbl

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

### Pressure vs. Time

