

## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Robert Hendrix

**Carolyn " A " 2-24**

**24 1s 37w Cheyenne KS**

Start Date: 2017.07.01 @ 10:50:00

End Date: 2017.07.01 @ 20:47:00

Job Ticket #: 64043                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.07.06 @ 14:12:39



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**

**Carolyn " A " 2-24**

Job Ticket: 64043 **DST#: 1**

Test Start: 2017.07.01 @ 10:50:00

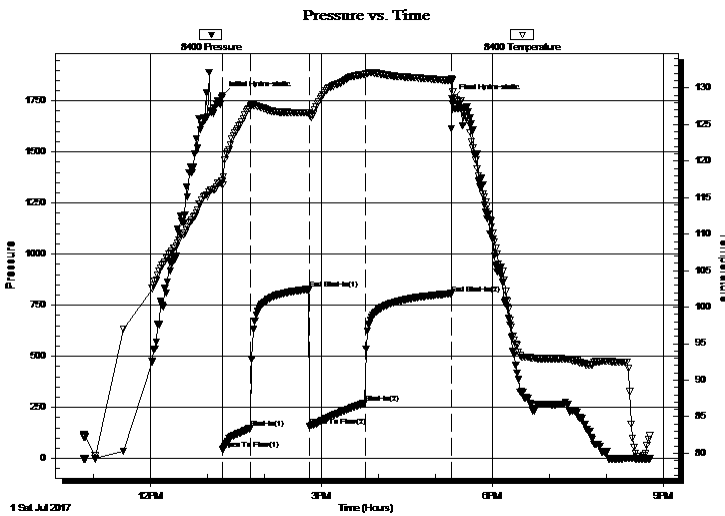
## GENERAL INFORMATION:

Formation: **Foraker**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:16:30  
 Time Test Ended: 20:47:00  
 Interval: **3709.00 ft (KB) To 3762.00 ft (KB) (TVD)**  
 Total Depth: 3762.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3252.00 ft (KB)  
 3247.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8400 Outside**  
 Press@RunDepth: 272.33 psig @ 3712.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.01 End Date: 2017.07.01 Last Calib.: 2017.07.01  
 Start Time: 10:50:01 End Time: 20:46:30 Time On Btm: 2017.07.01 @ 13:16:00  
 Time Off Btm: 2017.07.01 @ 17:17:30

**TEST COMMENT:** 30-IFP- BOB in 9 min.  
 60-Surface Blow in 1 1/2 min. Building to 6 1/2"  
 60-FFP- BOB in 11 min.  
 90-FSIP- Surface Blow in 1 min. Building to 6 3/4"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1776.57	117.24	Initial Hydro-static
1	42.94	116.74	Open To Flow (1)
30	150.20	127.52	Shut-In(1)
92	827.54	126.66	End Shut-In(1)
92	157.72	126.36	Open To Flow (2)
150	272.33	131.84	Shut-In(2)
241	806.69	131.02	End Shut-In(2)
242	1759.15	131.05	Final Hydro-static

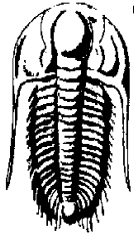
## Recovery

Length (ft)	Description	Volume (bbl)
117.00	MCO 30% m 70% o	0.58
541.00	CO 100%	6.80
0.00	GIP 260	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 Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64043      **DST#: 1**  
Test Start: 2017.07.01 @ 10:50:00

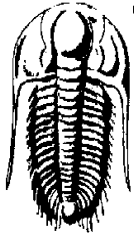
## Tool Information

Drill Pipe:	Length: 3493.00 ft	Diameter: 3.80 inches	Volume: 49.00 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 204.00 ft	Diameter: 2.25 inches	Volume: 1.00 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 50.00 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3709.00 ft			Final 62000.00 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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3682.00	
Shut In Tool	5.00			3687.00	
Hydraulic tool	5.00			3692.00	
Jars	5.00			3697.00	
Safety Joint	2.00			3699.00	
Packer	5.00			3704.00	28.00      Bottom Of Top Packer
Packer	5.00			3709.00	
Stubb	1.00			3710.00	
Perforations	2.00			3712.00	
Recorder	0.00	6668	Inside	3712.00	
Recorder	0.00	8400	Outside	3712.00	
Perforations	14.00			3726.00	
Change Over Sub	1.00			3727.00	
Blank Spacing	31.00			3758.00	
Change Over Sub	1.00			3759.00	
Bullnose	3.00			3762.00	53.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>81.00</b>				



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64043      **DST#: 1**  
Test Start: 2017.07.01 @ 10:50:00

## Mud and Cushion Information

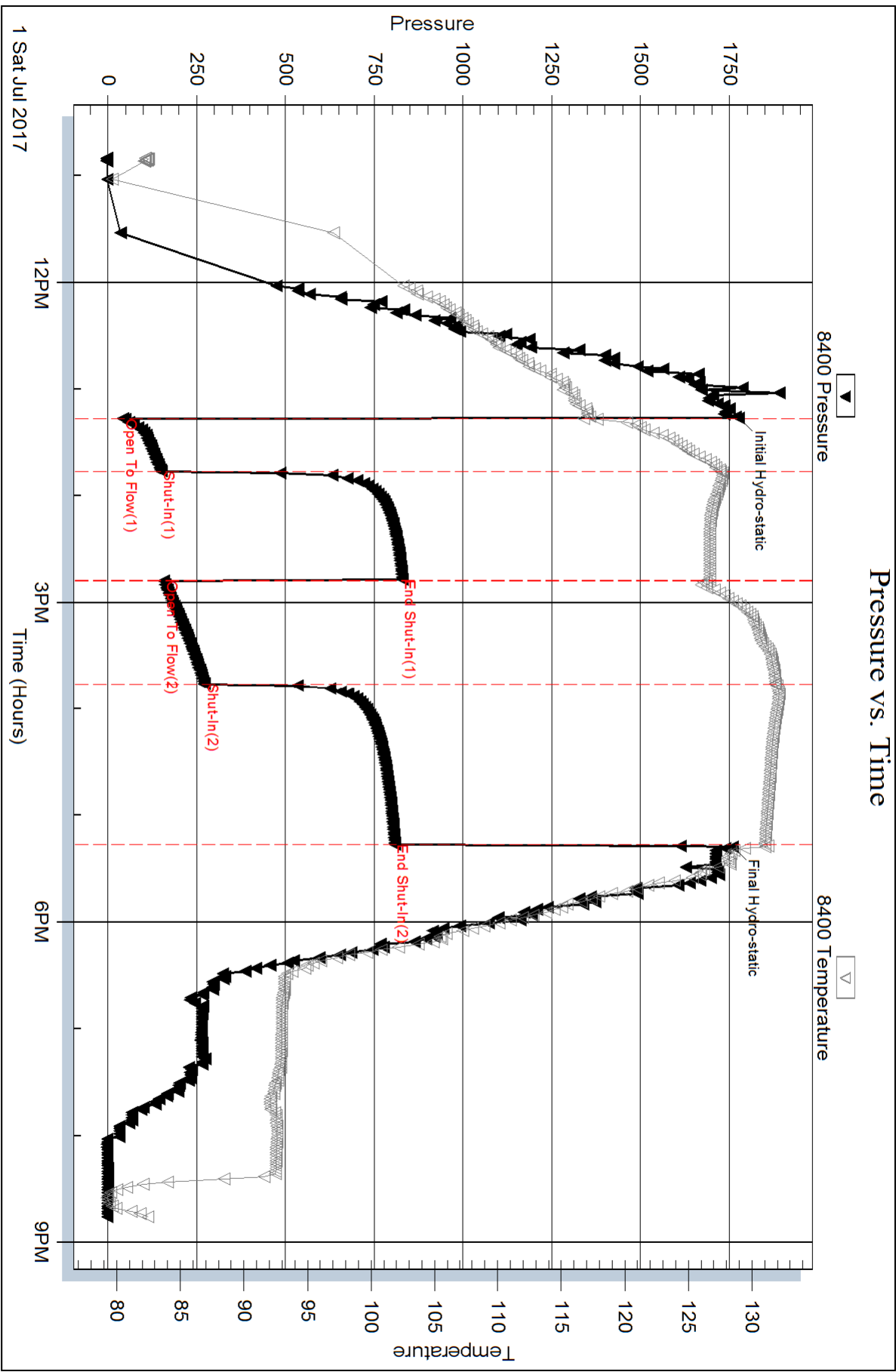
Mud Type: Gel Chem	Cushion Type:	Oil API: 24 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 79.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.36 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 700.00 ppm		
Filter Cake: 7.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
117.00	MCO 30% m 70% o	0.575
541.00	CO 100%	6.796
0.00	GIP 260	0.000

Total Length: 658.00 ft      Total Volume: 7.371 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:



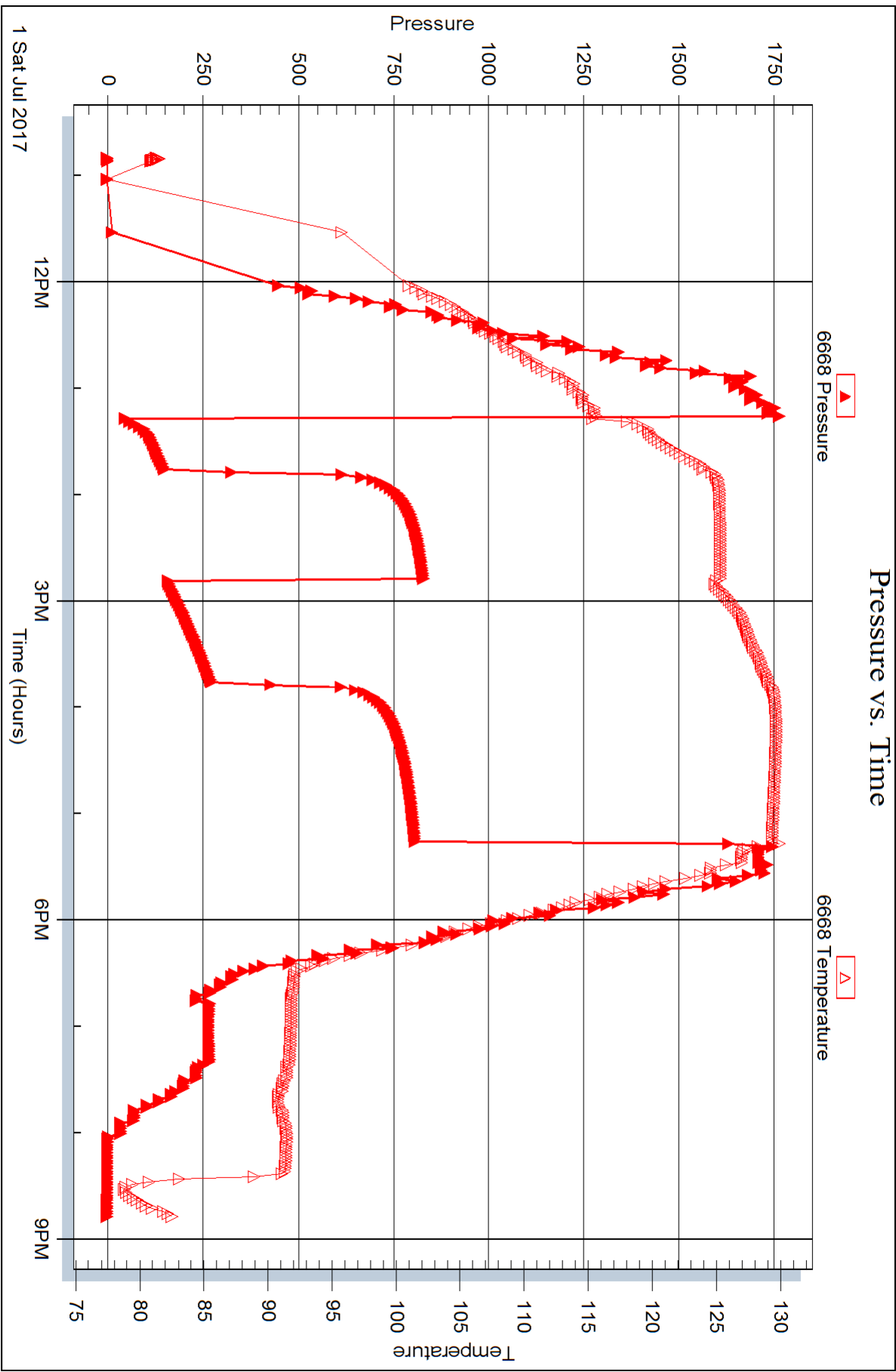
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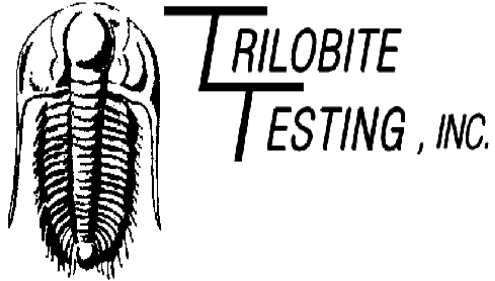
Inside

Murfin Drilling Co Inc

Carolyn "A" 2-24

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Robert Hendrix

### **Carolyn " A " 2-24**

#### **24 1s 37w Cheyenne KS**

Start Date: 2017.07.02 @ 20:45:00

End Date: 2017.07.03 @ 05:13:00

Job Ticket #: 64044                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

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**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
 Job Ticket: 64044      **DST#: 2**  
 Test Start: 2017.07.02 @ 20:45:00

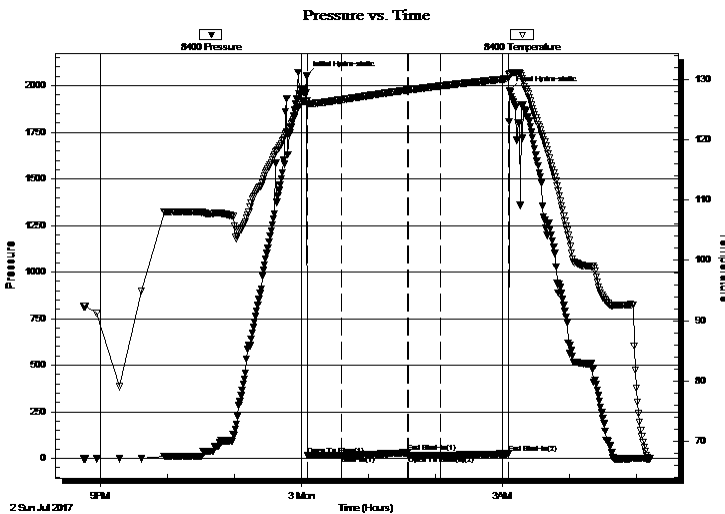
## GENERAL INFORMATION:

Formation: **Oread**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:05:30  
 Time Test Ended: 05:13:00  
 Interval: **4039.00 ft (KB) To 4104.00 ft (KB) (TVD)**  
 Total Depth: 4104.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3252.00 ft (KB)  
 3247.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8400 Outside**  
 Press@RunDepth: 17.63 psig @ 4044.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2017.07.02      End Date: 2017.07.03      Last Calib.: 2017.07.03  
 Start Time: 20:45:01      End Time: 05:12:00      Time On Btm: 2017.07.03 @ 00:05:00  
 Time Off Btm: 2017.07.03 @ 03:06:30

**TEST COMMENT:** 30-IFP- 1/4" Blow Dead in 1 7min.  
 60-ISIP- No Blow  
 30-FFP- No Blow  
 60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2052.21	126.42	Initial Hydro-static
1	16.38	125.84	Open To Flow (1)
31	16.66	126.62	Shut-In(1)
90	30.35	128.24	End Shut-In(1)
91	16.93	128.24	Open To Flow (2)
120	17.63	128.92	Shut-In(2)
180	25.55	130.11	End Shut-In(2)
182	1974.70	130.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	OCM 4%o 96%m	0.01

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64044      **DST#: 2**  
Test Start: 2017.07.02 @ 20:45:00

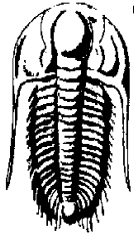
## Tool Information

Drill Pipe:	Length: 3834.00 ft	Diameter: 3.80 inches	Volume: 53.78 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 204.00 ft	Diameter: 2.25 inches	Volume: 1.00 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 54.78 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4039.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4012.00	
Shut In Tool	5.00			4017.00	
Hydraulic tool	5.00			4022.00	
Jars	5.00			4027.00	
Safety Joint	2.00			4029.00	
Packer	5.00			4034.00	28.00      Bottom Of Top Packer
Packer	5.00			4039.00	
Stubb	1.00			4040.00	
Perforations	3.00			4043.00	
Change Over Sub	1.00			4044.00	
Recorder	0.00	6668	Inside	4044.00	
Recorder	0.00	8400	Outside	4044.00	
Blank Spacing	31.00			4075.00	
Change Over Sub	1.00			4076.00	
Perforations	25.00			4101.00	
Bullnose	3.00			4104.00	65.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>93.00</b>				



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# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co Inc  
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ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64044      **DST#: 2**  
Test Start: 2017.07.02 @ 20:45:00

### 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: 6.37 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 700.00 ppm			
Filter Cake: 7.00 inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	OCM 4%o 96%m	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

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

Laboratory Name:      Laboratory Location:

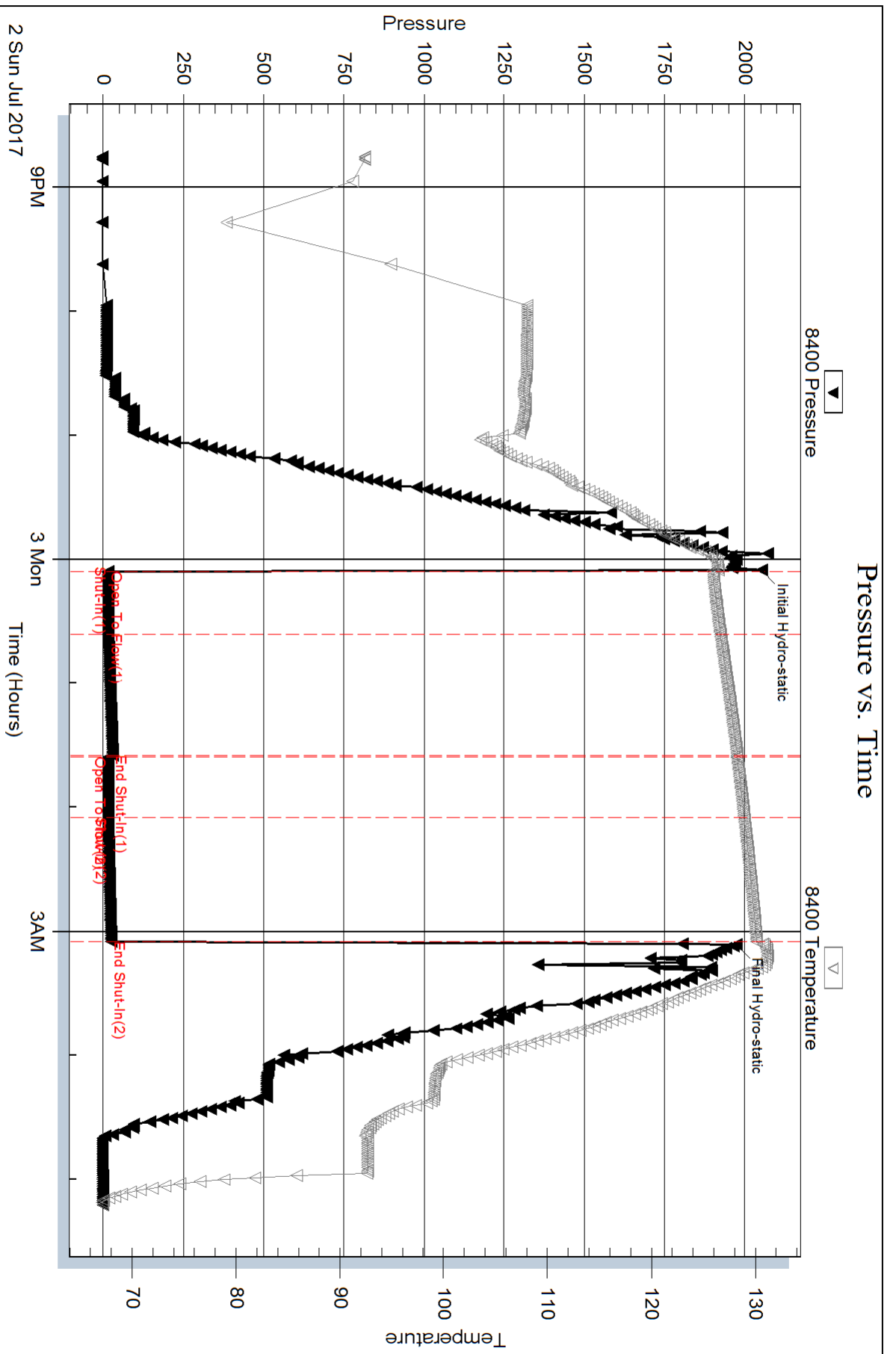
Recovery Comments:

Serial #: 8400

Outside Murfin Drilling Co Inc

Carolyn "A" 2-24

DST Test Number: 2



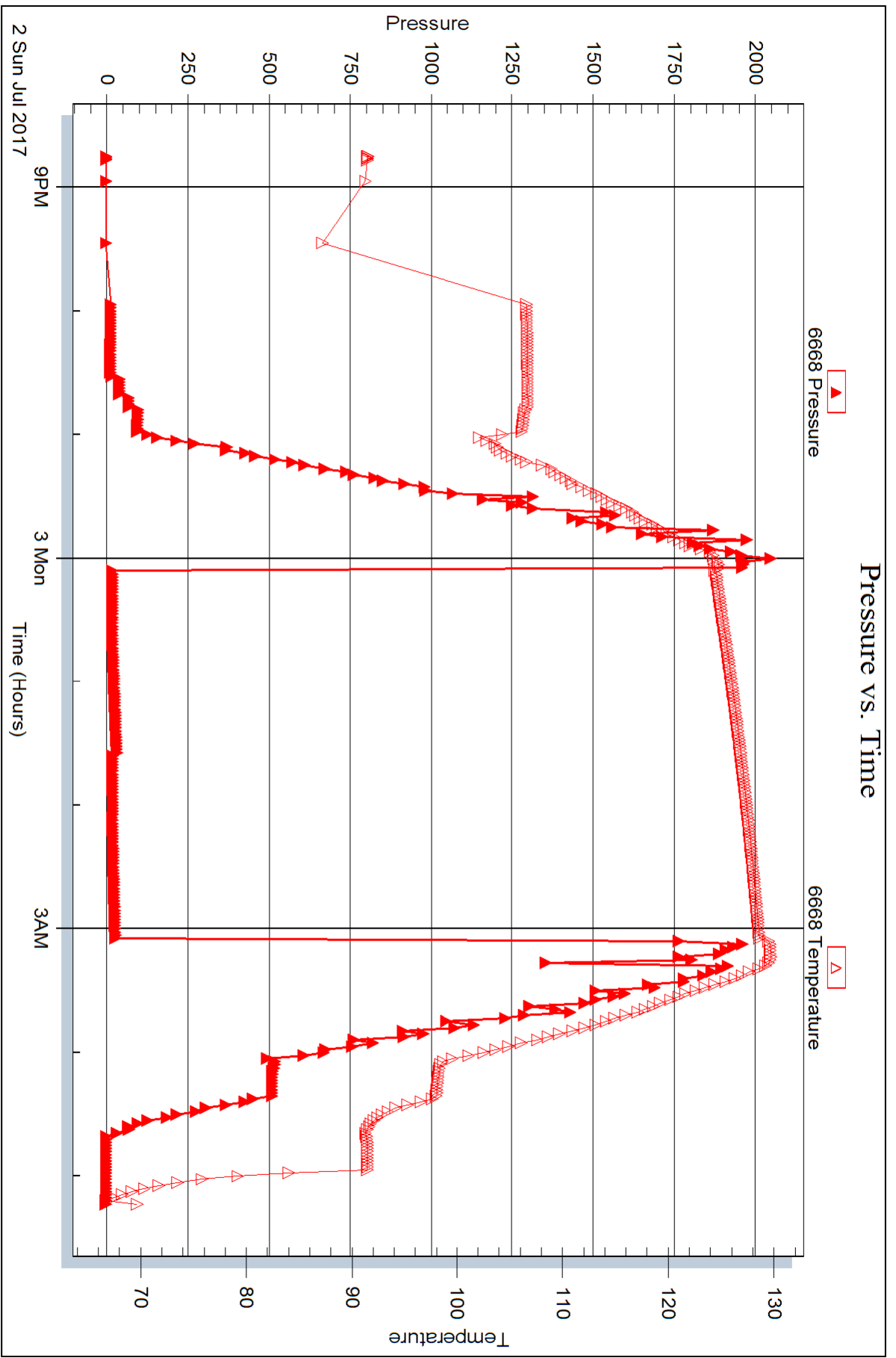
Serial #: 6668

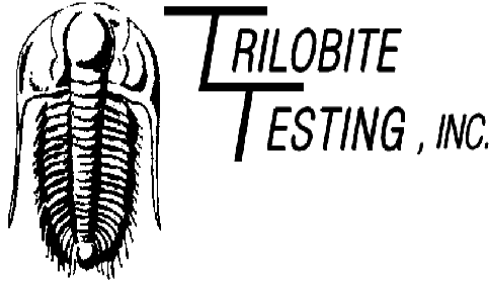
Inside

Murfin Drilling Co Inc

Carolyn "A" 2-24

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Robert Hendrix

### **Carolyn " A " 2-24**

#### **24 1s 37w Cheyenne KS**

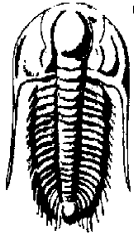
Start Date: 2017.07.03 @ 21:15:00

End Date: 2017.07.04 @ 06:28:00

Job Ticket #: 64045                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.07.06 @ 14:11:37



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
 Job Ticket: 64045 **DST#: 3**  
 Test Start: 2017.07.03 @ 21:15:00

## GENERAL INFORMATION:

Formation: **LKC " A - D "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 23:37:00  
 Time Test Ended: 06:28:00  
 Interval: **4129.00 ft (KB) To 4245.00 ft (KB) (TVD)**  
 Total Depth: 4245.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3252.00 ft (KB)  
 3247.00 ft (CF)  
 KB to GR/CF: 5.00 ft

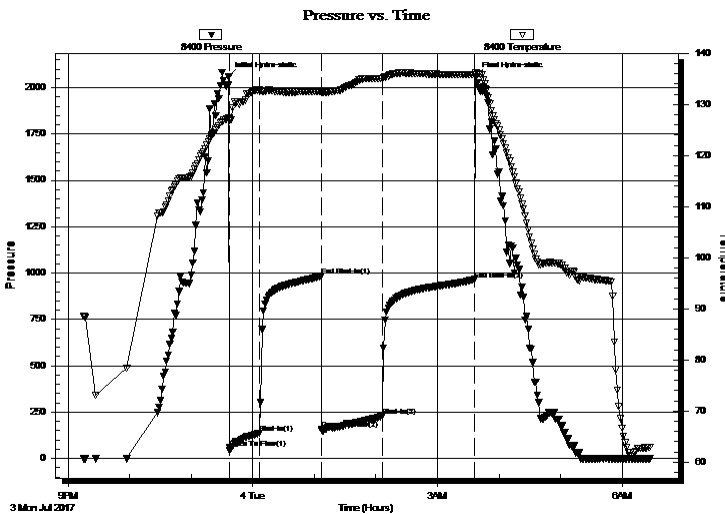
## Serial #: 8400

## Outside

Press@RunDepth: 225.79 psig @ 4132.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.03 End Date: 2017.07.04 Last Calib.: 2017.07.04  
 Start Time: 21:15:01 End Time: 06:27:30 Time On Btm: 2017.07.03 @ 23:36:30  
 Time Off Btm: 2017.07.04 @ 03:37:30

**TEST COMMENT:** 30-IFP- BOB in 16 1/2 min.  
 60-ISIP- Surface Blow in 2min. Building to 1 1/4" ln 44 min.  
 60-FFP- BOB in 16 1/2 min.  
 90-FSIP- BOB in 32 min.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2060.35	127.37	Initial Hydro-static
1	57.02	127.13	Open To Flow (1)
30	134.51	132.78	Shut-In(1)
90	985.87	132.58	End Shut-In(1)
91	155.55	132.34	Open To Flow (2)
150	225.79	135.07	Shut-In(2)
240	964.58	135.86	End Shut-In(2)
241	2057.19	136.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
514.00	GMCO 15%g 20%m 65%o	5.35
0.00	GIP 496	0.00

\* Recovery from multiple tests

## 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 Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64045      **DST#: 3**  
Test Start: 2017.07.03 @ 21:15:00

**Tool Information**

Drill Pipe:	Length: 3930.00 ft	Diameter: 3.80 inches	Volume: 55.13 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 204.00 ft	Diameter: 2.25 inches	Volume: 1.00 bbl	Weight to Pull Loose:	67000.00 lb
			<u>Total Volume: 56.13 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4129.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	116.00 ft				
Tool Length:	144.00 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>
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Change Over Sub	1.00			4102.00	
Shut In Tool	5.00			4107.00	
Hydraulic tool	5.00			4112.00	
Jars	5.00			4117.00	
Safety Joint	2.00			4119.00	
Packer	5.00			4124.00	28.00      Bottom Of Top Packer
Packer	5.00			4129.00	
Stubb	1.00			4130.00	
Perforations	2.00			4132.00	
Recorder	0.00	6668	Inside	4132.00	
Recorder	0.00	8400	Outside	4132.00	
Perforations	15.00			4147.00	
Change Over Sub	1.00			4148.00	
Blank Spacing	93.00			4241.00	
Change Over Sub	1.00			4242.00	
Bullnose	3.00			4245.00	116.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>144.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64045      **DST#: 3**  
Test Start: 2017.07.03 @ 21:15:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 20 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.98 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 700.00 ppm		
Filter Cake: 8.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
514.00	GMCO 15%g 20%m 65%o	5.352
0.00	GIP 496	0.000

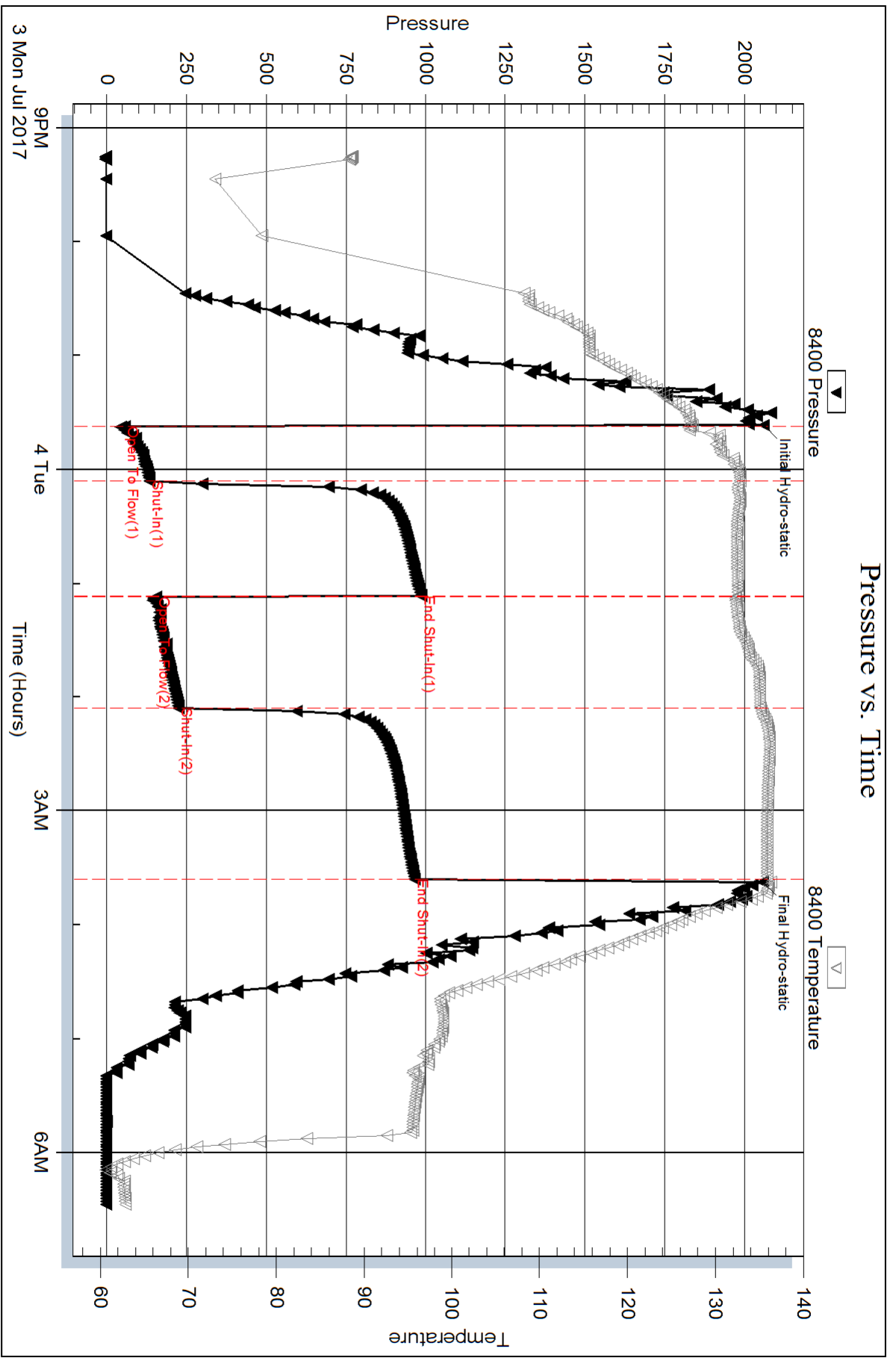
Total Length: 514.00 ft      Total Volume: 5.352 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 8400

Outside Murfin Drilling Co Inc

Carolyn "A" 2-24

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 64045

Printed: 2017.07.06 @ 14:11:39

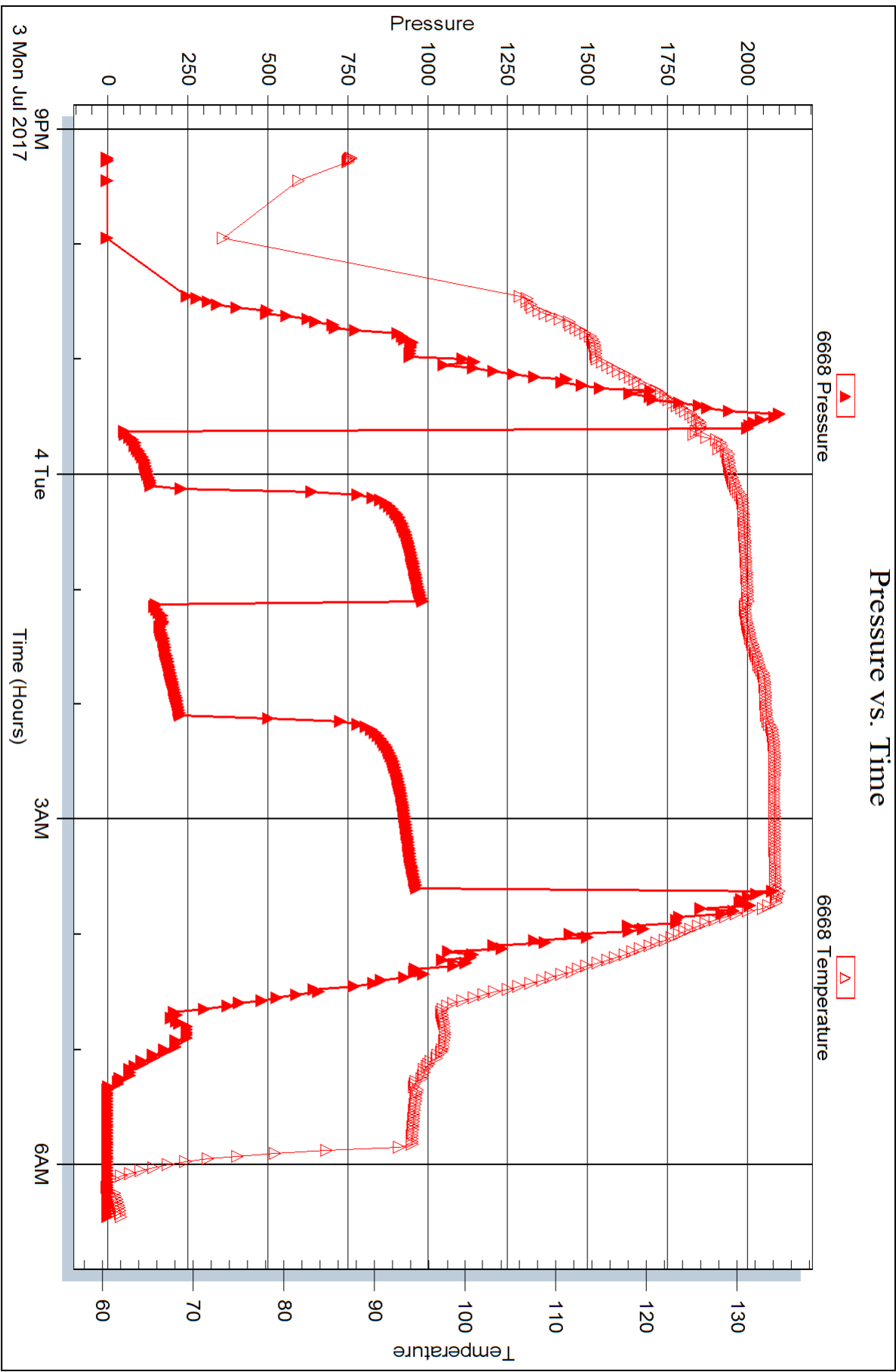
Serial #: 6668

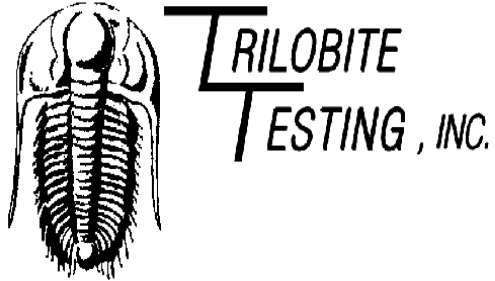
Inside

Murfin Drilling Co Inc

Carolyn "A" 2-24

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Robert Hendrix

### **Carolyn " A " 2-24**

#### **24 1s 37w Cheyenne KS**

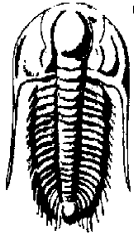
Start Date: 2017.07.04 @ 22:53:00

End Date: 2017.07.05 @ 06:44:00

Job Ticket #: 64046                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.07.06 @ 14:09:21



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**

**Carolyn " A " 2-24**

Job Ticket: 64046

**DST#: 4**

Test Start: 2017.07.04 @ 22:53:00

## GENERAL INFORMATION:

Formation: **LKC " J "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:16:30  
 Time Test Ended: 06:44:00  
 Interval: **4336.00 ft (KB) To 4388.00 ft (KB) (TVD)**  
 Total Depth: 4388.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3252.00 ft (KB)  
 3247.00 ft (CF)  
 KB to GR/CF: 5.00 ft

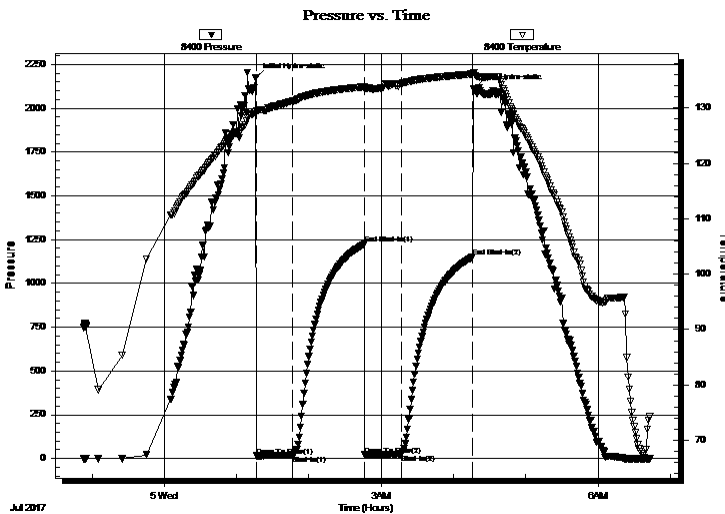
## Serial #: 8400

Outside

Press@RunDepth: 24.44 psig @ 4337.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.04 End Date: 2017.07.05 Last Calib.: 2017.07.05  
 Start Time: 22:53:01 End Time: 06:43:30 Time On Btm: 2017.07.05 @ 01:16:00  
 Time Off Btm: 2017.07.05 @ 04:17:00

TEST COMMENT: 30-IFP- Surface Blow Building to 3/4" Died Back in 18 min.  
 60-ISIP- No Blow  
 30-FFP- No Blow  
 60-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2174.45	129.34	Initial Hydro-static
1	14.92	129.42	Open To Flow (1)
31	17.94	131.22	Shut-In(1)
90	1223.79	133.81	End Shut-In(1)
91	20.29	133.54	Open To Flow (2)
121	24.44	134.40	Shut-In(2)
180	1151.41	136.12	End Shut-In(2)
181	2110.16	136.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
7.00	Oil Speck Mud 2%o 98%m	0.03

\* Recovery from multiple tests

## 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 Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64046      **DST#: 4**  
Test Start: 2017.07.04 @ 22:53:00

**Tool Information**

Drill Pipe:	Length: 4116.00 ft	Diameter: 3.80 inches	Volume: 57.74 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 204.00 ft	Diameter: 2.25 inches	Volume: 1.00 bbl	Weight to Pull Loose: 65000.00 lb
		Total Volume: 58.74 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4336.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	80.00 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>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			4309.00	
Shut In Tool	5.00			4314.00	
Hydraulic tool	5.00			4319.00	
Jars	5.00			4324.00	
Safety Joint	2.00			4326.00	
Packer	5.00			4331.00	28.00      Bottom Of Top Packer
Packer	5.00			4336.00	
Stubb	1.00			4337.00	
Recorder	0.00	6668	Inside	4337.00	
Recorder	0.00	8400	Outside	4337.00	
Perforations	15.00			4352.00	
Change Over Sub	1.00			4353.00	
Blank Spacing	31.00			4384.00	
Change Over Sub	1.00			4385.00	
Bullnose	3.00			4388.00	52.00      Bottom Packers & Anchor

**Total Tool Length: 80.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Robert Hendrix

**24 1s 37w Cheyenne KS**  
**Carolyn " A " 2-24**  
Job Ticket: 64046      **DST#: 4**  
Test Start: 2017.07.04 @ 22:53:00

## Mud and Cushion Information

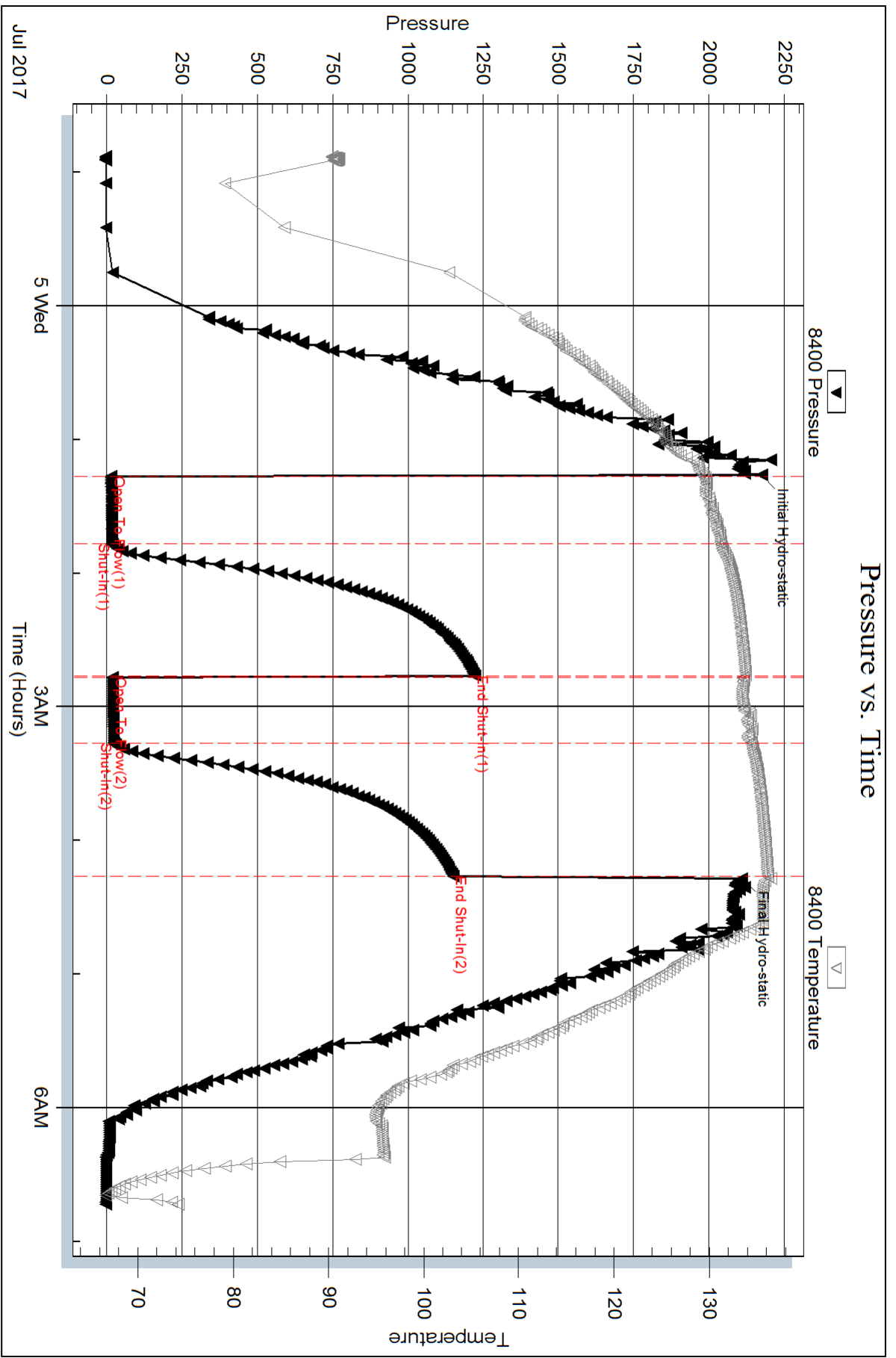
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 700.00 ppm			
Filter Cake: 7.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
7.00	Oil Speck Mud 2%o 98%m	0.034

Total Length: 7.00 ft      Total Volume: 0.034 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:



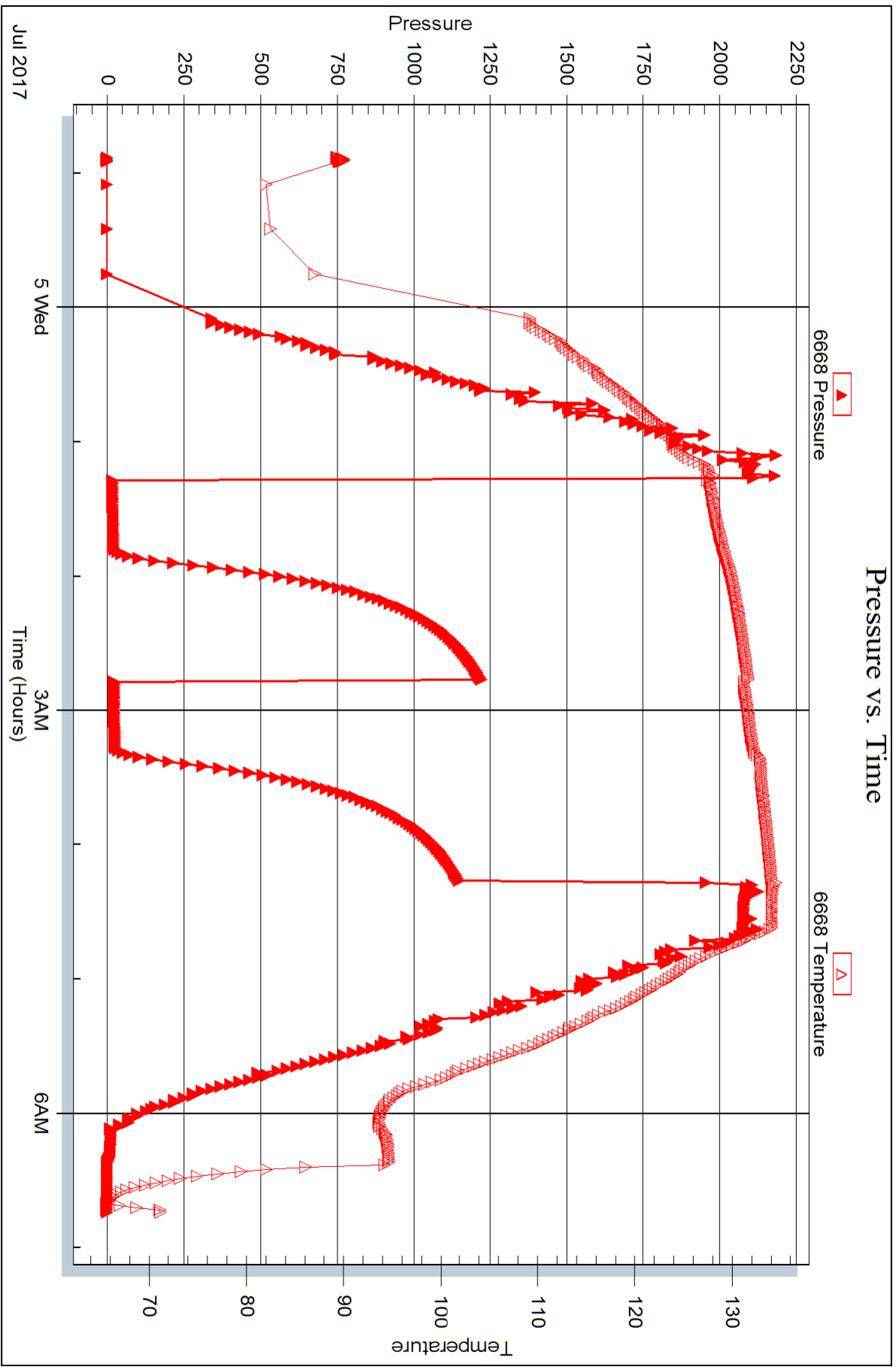
Serial #: 6668

Inside

Murfin Drilling Co Inc

Carolyn "A" 2-24

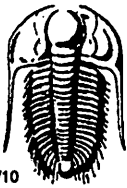
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 64046

Printed: 2017.07.06 @ 14:09:22



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64043

Well Name & No. Carolyn "A" 2-24 Test No. 1 Date 7-1-17  
 Company Murfin Drilling Co. Inc. Elevation 3252 KB 3247 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Robert Hendrix Rig Murfin 3  
 Location: Sec. 24 Twp. 15 Rge. 27 W Co. Cheyenne State KS

Interval Tested 3709-3762 Zone Tested FORAKER  
 Anchor Length 53 Drill Pipe Run 3493 Mud Wt. 8.8  
 Top Packer Depth 3704 Drill Collars Run 204 Vis 79  
 Bottom Packer Depth 3709 Wt. Pipe Run 2 WL 6.4  
 Total Depth 3762 Chlorides 700 ppm System LCM 7

Blow Description IFP- BOB in 9min  
ISIP-Surface Blow in 1 1/2 min. Building to 6 1/2 in.  
IFP- BOB in 11min.  
FSIP-Surface Blow in 1min. Building to 6 3/4 in.

Rec	Feet of	%gas	%oil	%water	%mud
<u>117</u>	<u>MCO</u>	<u>70</u>	<u>0</u>	<u>30</u>	<u>0</u>
<u>541</u>	<u>CO</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 658 BHT 131 Gravity 24 API RW @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

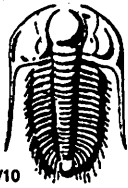
(A) Initial Hydrostatic <u>1776</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>9:45</u>
(B) First Initial Flow <u>42</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:50</u>
(C) First Final Flow <u>150</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:17</u>
(D) Initial Shut-In <u>827</u>	<input checked="" type="checkbox"/> Circ Sub <u>50</u>	T-Pulled <u>17:17</u>
(E) Second Initial Flow <u>157</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>20:47</u>
(F) Second Final Flow <u>272</u>	<input checked="" type="checkbox"/> Mileage <u>91.50</u> <u>122 RT</u>	Comments _____
(G) Final Shut-In <u>806</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1759</u>	<input type="checkbox"/> Straddle	_____
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1516.50</u>
	Sub Total <u>1516.50</u>	MP/DST Disc't _____

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Approved By \_\_\_\_\_ Our Representative [Signature]

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785 639 5864



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64044

Well Name & No. Carolyn A 2-24 Test No. 2 Date 7-2-17  
 Company Murfin Drilling Co. Inc Elevation 3252 KB 3247 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Robert Hendrix Rig Murfin 3  
 Location: Sec. 24 Twp. 15 Rge. 37W Co. Cheyenne State KS

Interval Tested 4039-4104 Zone Tested OreAd  
 Anchor Length 65 Drill Pipe Run 3834 Mud Wt. 8.8  
 Top Packer Depth 4034 Drill Collars Run 204 Vis 59  
 Bottom Packer Depth 4039 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4104 Chlorides 700 ppm System LCM 7

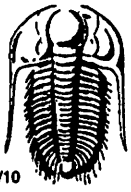
Blow Description IFP - 1/4 in. Blow Read in 17 min.  
ISIP - No Blow  
FFP - No Blow  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>0cm</u>		<u>4</u>		<u>96</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 131 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2052  Test 1150 T-On Location 18:37  
 (B) First Initial Flow 16  Jars 250 T-Started 20:45  
 (C) First Final Flow 16  Safety Joint 75 T-Open 00:06  
 (D) Initial Shut-In 30  Circ Sub \_\_\_\_\_ T-Pulled 03:06  
 (E) Second Initial Flow 16  Hourly Standby \_\_\_\_\_ T-Out 05:13  
 (F) Second Final Flow 17  Mileage 91.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 25  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1974  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1566.50  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1566.50

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64045

Well Name & No. Carolyn A 2-24 Test No. 3 Date 7-3-17  
 Company Murfin Drilling Co. INC Elevation 3252 KB 3247 GL  
 Address 250 N. Water St. Boonville, MO 64602-1216  
 Co. Rep / Geo. Robert Hendrix Rig Murfin 3  
 Location: Sec. 24 Twp. 1<sup>s</sup> Rge. 37<sup>w</sup> Co. Cheyenne State K.S.

Interval Tested 4129-~~4129~~4245 Zone Tested LKC "A-D"  
 Anchor Length 116 Drill Pipe Run 3930 Mud Wt. 8.9  
 Top Packer Depth 4124 Drill Collars Run 204 Vis 59  
 Bottom Packer Depth 4129 Wt. Pipe Run 0 WL 6  
 Total Depth 4245 Chlorides 700 ppm System LCM 8

Blow Description IFP - BOB in 16 1/2 min.  
ISIP - Surface Blow in 2 min. Building to 1 1/4 in. In 4 min.  
FFP - BOB in 16 1/2 min.  
FSTIP - BOB in 32 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>514</u>	<u>AMCO</u>	<u>15</u>	<u>65</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>496</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

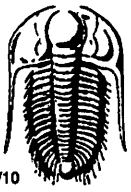
Rec Total 514 BHT 136 Gravity 20 API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic <u>2060</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>19:46</u>
(B) First Initial Flow <u>57</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:15</u>
(C) First Final Flow <u>134</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:37</u>
(D) Initial Shut-In <u>985</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>03:37</u>
(E) Second Initial Flow <u>155</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>06:28</u>
(F) Second Final Flow <u>225</u>	<input checked="" type="checkbox"/> Mileage <u>91.50</u>	Comments
(G) Final Shut-In <u>964</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2057</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Total <u>1566.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1566.50</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64046

Well Name & No. Carolyn A 2-24 Test No. 4 Date 7-4-17  
 Company Murfin Drilling Co. Inc. Elevation 3252 KB 3247 GL  
 Address 250 N Water St Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Robert Hendrix Rig Murfin 3  
 Location: Sec. 24 Twp. 15 Rge. 37 W Co. Cheyenne State KS

Interval Tested 4336 - 4388 Zone Tested LKC & J  
 Anchor Length 52 Drill Pipe Run 4116 Mud Wt. 9  
 Top Packer Depth 4331 Drill Collars Run 204 Vis 58  
 Bottom Packer Depth 4336 Wt. Pipe Run 0 WL 6  
 Total Depth 4388 Chlorides 700 ppm System LCM 7

Blow Description I-FP - Surface Blow Building to 3/4 in. Died Back in 18 min.  
ISIP - No Blow  
FFP - No Blow  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>7</u>	<u>Oil Speck Mud</u>	<u>2</u>		<u>98</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 7 BHT 136 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

- (A) Initial Hydrostatic 2174
- (B) First Initial Flow 14
- (C) First Final Flow 17
- (D) Initial Shut-In 1223
- (E) Second Initial Flow 20
- (F) Second Final Flow 24
- (G) Final Shut-In 1151
- (H) Final Hydrostatic 2110

- Test 1150
- Jars 250
- Safety Joint 75
- Circ Sub \_\_\_\_\_
- Hourly Standby \_\_\_\_\_
- Mileage X 2 183
- Sampler \_\_\_\_\_
- Straddle \_\_\_\_\_
- Shale Packer \_\_\_\_\_
- Extra Packer \_\_\_\_\_
- Extra Recorder \_\_\_\_\_
- Day Standby \_\_\_\_\_
- Accessibility \_\_\_\_\_
- Sub Total 1658

T-On Location 21:53  
 T-Started 22:53  
 T-Open 01:17  
 T-Pulled 04:17  
 T-Out 06:44

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1658  
 MP/DST Disc't \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 30  
 Final Shut-In 60

Approved By \_\_\_\_\_ Our Representative [Signature]

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