



## DRILL STEM TEST REPORT

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

250 N. Water, Ste 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

### **Schmidt-Vap #4-26**

### **26-4s-31w Rawlins,KS**

Start Date: 2015.04.04 @ 06:09:00

End Date: 2015.04.04 @ 15:26:00

Job Ticket #: 62264                      DST #: 1

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

Printed: 2015.04.13 @ 10:57:18

Murfin Drlg. Co., Inc.

26-4s-31w Rawlins,KS

Schmidt-Vap #4-26

DST # 1

Toronto - LKC "B"

2015.04.04



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62264

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2015.04.04 @ 06:09:00

## GENERAL INFORMATION:

Formation: **Toronto - LKC "B"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:35:00  
 Time Test Ended: 15:26:00  
 Interval: **3902.00 ft (KB) To 3986.00 ft (KB) (TVD)**  
 Total Depth: 3986.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Brandon Quintana  
 Unit No: 57  
 Reference Elevations: 2925.00 ft (KB)  
 2920.00 ft (CF)  
 KB to GR/CF: 5.00 ft

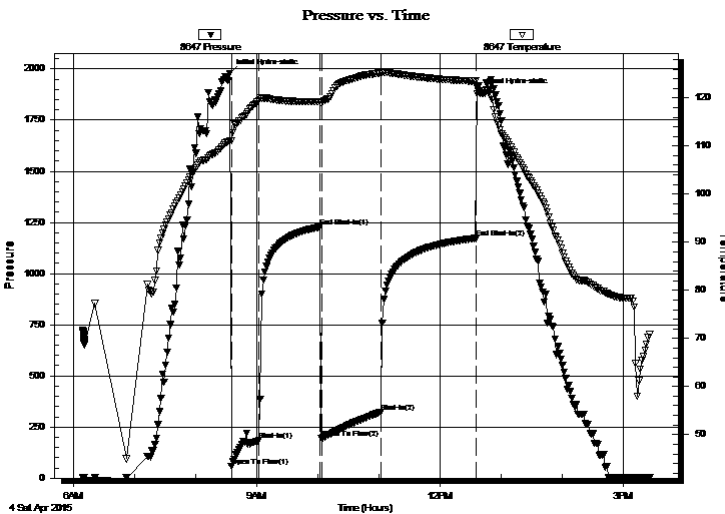
## Serial #: 8647

Inside

Press@RunDepth: 323.13 psig @ 3903.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.04.04 End Date: 2015.04.04 Last Calib.: 2015.04.04  
 Start Time: 06:09:01 End Time: 15:26:00 Time On Btm: 2015.04.04 @ 08:33:30  
 Time Off Btm: 2015.04.04 @ 12:39:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to B.o.B in 14 min.  
 60 - ISI - Return built to 1/4"  
 60 - FF - Blow built to B.o.B in 15 min.  
 90 - FSI - Return built to 1 1/4"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1978.58	111.06	Initial Hydro-static
2	57.81	111.05	Open To Flow (1)
29	185.22	119.51	Shut-In(1)
89	1227.64	119.21	End Shut-In(1)
90	193.45	119.06	Open To Flow (2)
149	323.13	125.20	Shut-In(2)
242	1172.31	123.48	End Shut-In(2)
246	1881.97	121.46	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
437.00	MW 80%2, 20%m	3.86
189.00	WOCM 50%m, 40%w , 10%o	2.65
20.00	GO 90%o, 10%g	0.28
0.00	106' GIP	0.00

## Gas Rates

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



TRILOBITE  
TESTING, INC.

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

250 N. Water, Ste 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**26-4s-31w Rawlins, KS**

**Schmidt-Vap #4-26**

Job Ticket: 62264

**DST#: 1**

Test Start: 2015.04.04 @ 06:09:00

## GENERAL INFORMATION:

Formation: **Toronto - LKC "B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:35:00

Time Test Ended: 15:26:00

**Interval: 3902.00 ft (KB) To 3986.00 ft (KB) (TVD)**

Total Depth: 3986.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 57

Reference Elevations: 2925.00 ft (KB)

2920.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**

Press@RunDepth: psig @ 3903.00 ft (KB)

Start Date: 2015.04.04

End Date: 2015.04.04

Start Time: 06:09:01

End Time: 15:28:00

Capacity: 8000.00 psig

Last Calib.: 2015.04.04

Time On Btm:

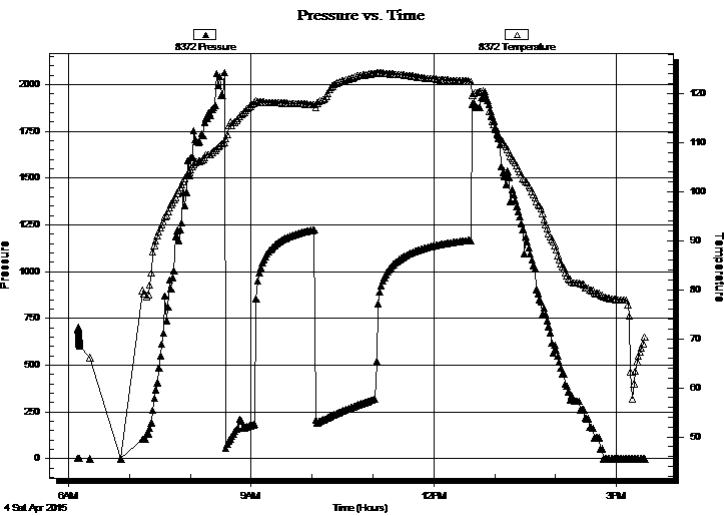
Time Off Btm:

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to B.o.B in 14 min.

60 - ISI - Return built to 1/4"

60 - FF - Blow built to B.o.B in 15 min.

90 - FSI - Return built to 1 1/4"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
437.00	MW 80%2, 20% m	3.86
189.00	WOCM 50% m, 40% w, 10% o	2.65
20.00	GO 90% o, 10% g	0.28
0.00	106' GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62264

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2015.04.04 @ 06:09:00

## Tool Information

Drill Pipe:	Length: 3645.00 ft	Diameter: 3.80 inches	Volume: 51.13 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 248.82 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.82 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3902.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.00 ft			
Tool Length:	112.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3879.00	
Hydraulic tool	5.00			3884.00	
Jars	5.00			3889.00	
Safety Joint	3.00			3892.00	
Packer	5.00			3897.00	28.00 Bottom Of Top Packer
Packer	5.00			3902.00	
Stubb	1.00			3903.00	
Recorder	0.00	8647	Inside	3903.00	
Recorder	0.00	8372	Outside	3903.00	
Perforations	15.00			3918.00	
Change Over Sub	1.00			3919.00	
Drill Pipe	63.00			3982.00	
Change Over Sub	1.00			3983.00	
Bullnose	3.00			3986.00	84.00 Bottom Packers & Anchor

**Total Tool Length: 112.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62264

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2015.04.04 @ 06:09:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

70000 ppm

Viscosity: 82.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.96 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
437.00	MW 80%2, 20%m	3.863
189.00	WOCM 50%m, 40%w , 10%o	2.651
20.00	GO 90%o, 10%g	0.281
0.00	106' GIP	0.000

Total Length: 646.00 ft

Total Volume: 6.795 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

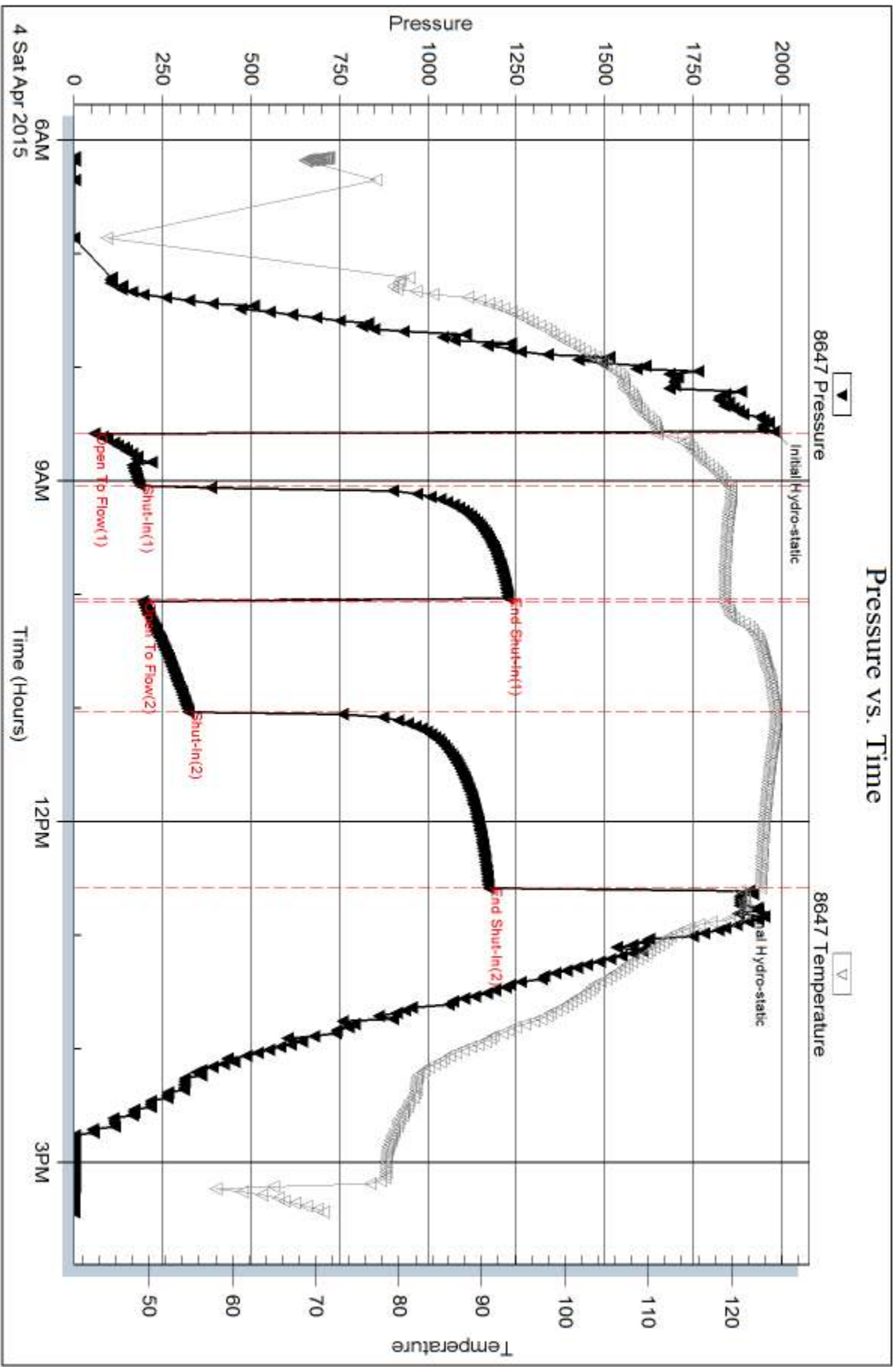
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 30 @ 60

RW .128 @ 63F

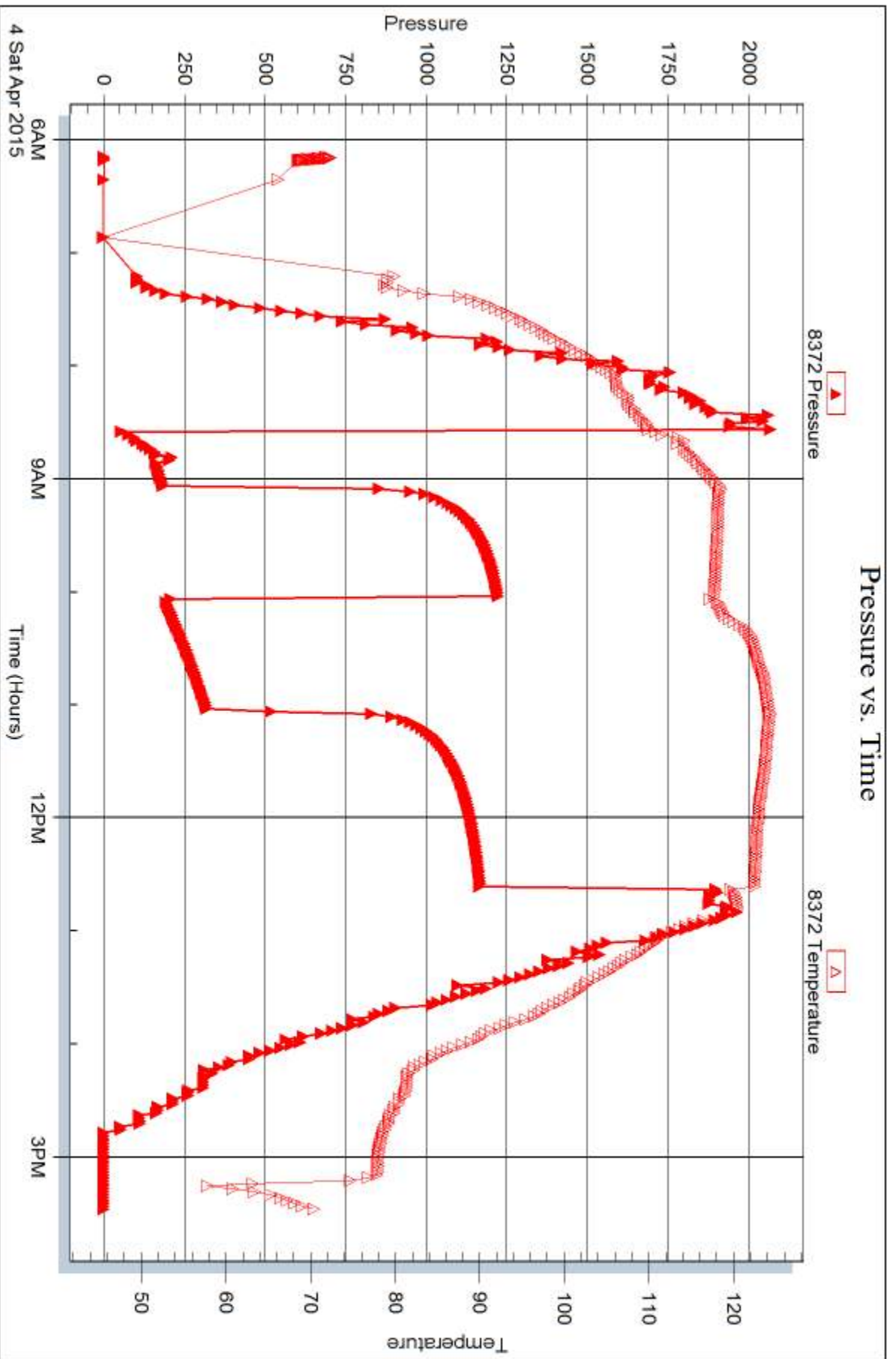


Serial #: 8372

Outside Murfin Drtg. Co., Inc.

Schmidt-Vap #4-26

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 62264

Printed: 2015.04.13 @ 10:57:20



## DRILL STEM TEST REPORT

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

250 N. Water, Ste 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

### **Schmidt-Vap #4-26**

### **26-4s-31w Rawlins,KS**

Start Date: 2015.04.05 @ 02:41:00

End Date: 2015.04.05 @ 10:51:30

Job Ticket #: 62265                      DST #: 2

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

Printed: 2015.04.13 @ 10:56:53

Murfin Drlg. Co., Inc.  
26-4s-31w Rawlins,KS  
Schmidt-Vap #4-26  
DST # 2  
LKC "E-G"  
2015.04.05





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62265

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 02:41:00

## GENERAL INFORMATION:

Formation: **LKC "E-G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:34:30

Time Test Ended: 10:51:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 57

**Interval: 4006.00 ft (KB) To 4061.00 ft (KB) (TVD)**

Reference Elevations: 2925.00 ft (KB)

Total Depth: 4061.00 ft (KB) (TVD)

2920.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8647**

**Inside**

Press@RunDepth: 151.91 psig @ 4007.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.04.05

End Date:

2015.04.05

Last Calib.: 2015.04.05

Start Time: 02:41:01

End Time:

10:51:30

Time On Btm: 2015.04.05 @ 04:33:30

Time Off Btm: 2015.04.05 @ 08:37:30

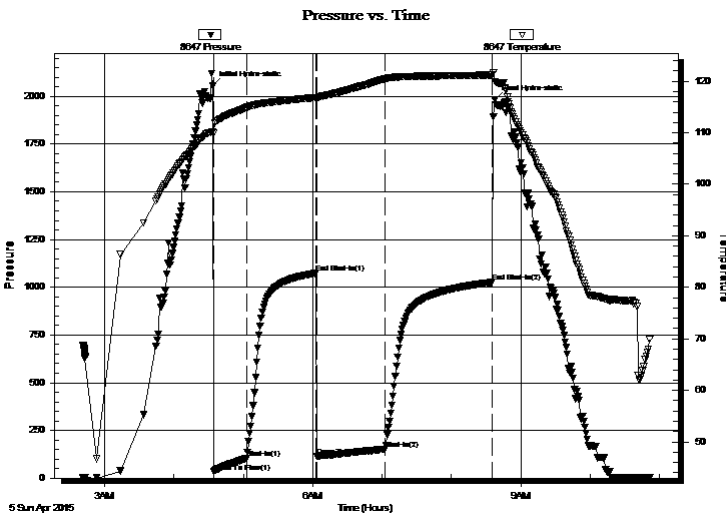
**TEST COMMENT:** 30 - IF - Opened w/ surface blow , built to B.o.B in 12 min.

60 - ISI - Return built to 1/4"

60 - FF - Blow built to B.o.B in 14 min.

90 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2054.23	110.23	Initial Hydro-static
1	32.36	109.93	Open To Flow (1)
29	102.98	114.86	Shut-In(1)
89	1073.20	116.84	End Shut-In(1)
90	112.53	116.82	Open To Flow (2)
149	151.91	120.46	Shut-In(2)
242	1026.25	121.22	End Shut-In(2)
244	1982.07	119.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
229.00	GOCM 40%o, 40%m, 20%g	1.13
83.00	100%oil	0.98

## Gas Rates

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



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# DRILL STEM TEST REPORT

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**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62265

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 02:41:00

## GENERAL INFORMATION:

Formation: **LKC "E-G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:34:30

Time Test Ended: 10:51:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Quintana

Unit No: 57

**Interval: 4006.00 ft (KB) To 4061.00 ft (KB) (TVD)**

Total Depth: 4061.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2925.00 ft (KB)

2920.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**

Press@RunDepth: psig @ 4007.00 ft (KB)

Start Date: 2015.04.05

End Date: 2015.04.05

Start Time: 02:41:01

End Time: 10:53:00

Capacity: 8000.00 psig

Last Calib.: 2015.04.05

Time On Btm:

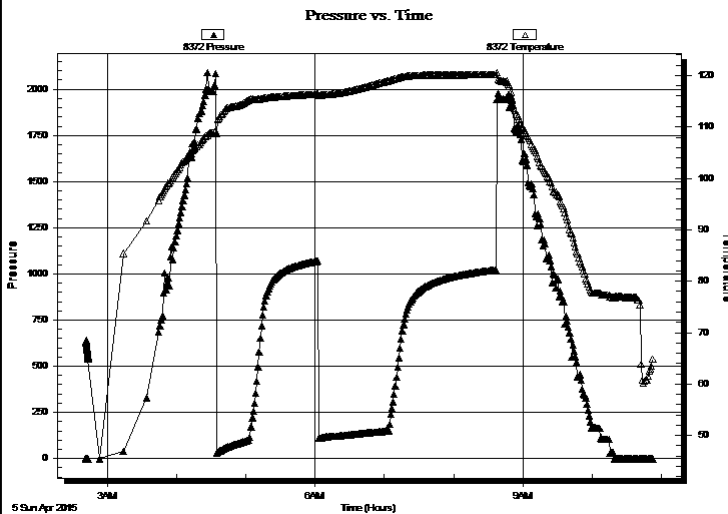
Time Off Btm:

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to B.o.B in 12 min.

60 - ISI - Return built to 1/4"

60 - FF - Blow built to B.o.B in 14 min.

90 - FSI - No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
229.00	GOCM 40%o, 40%m, 20%g	1.13
83.00	100%oil	0.98

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62265

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 02:41:00

## Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 248.82 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
			- bbl	String Weight: Initial	56000.00 lb
Drill Pipe Above KB:	10.82 ft			Final	58000.00 lb
Depth to Top Packer:	4006.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	55.00 ft				
Tool Length:	83.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		
Tool Comments:					

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3983.00	
Hydraulic tool	5.00			3988.00	
Jars	5.00			3993.00	
Safety Joint	3.00			3996.00	
Packer	5.00			4001.00	28.00 Bottom Of Top Packer
Packer	5.00			4006.00	
Stubb	1.00			4007.00	
Recorder	0.00	8647	Inside	4007.00	
Recorder	0.00	8372	Outside	4007.00	
Perforations	17.00			4024.00	
Change Over Sub	1.00			4025.00	
Drill Pipe	32.00			4057.00	
Change Over Sub	1.00			4058.00	
Bullnose	3.00			4061.00	55.00 Bottom Packers & Anchor

**Total Tool Length: 83.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62265

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 02:41:00

### 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:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
229.00	GOCM 40%o, 40%m, 20%g	1.126
83.00	100%oil	0.984

Total Length: 312.00 ft      Total Volume: 2.110 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

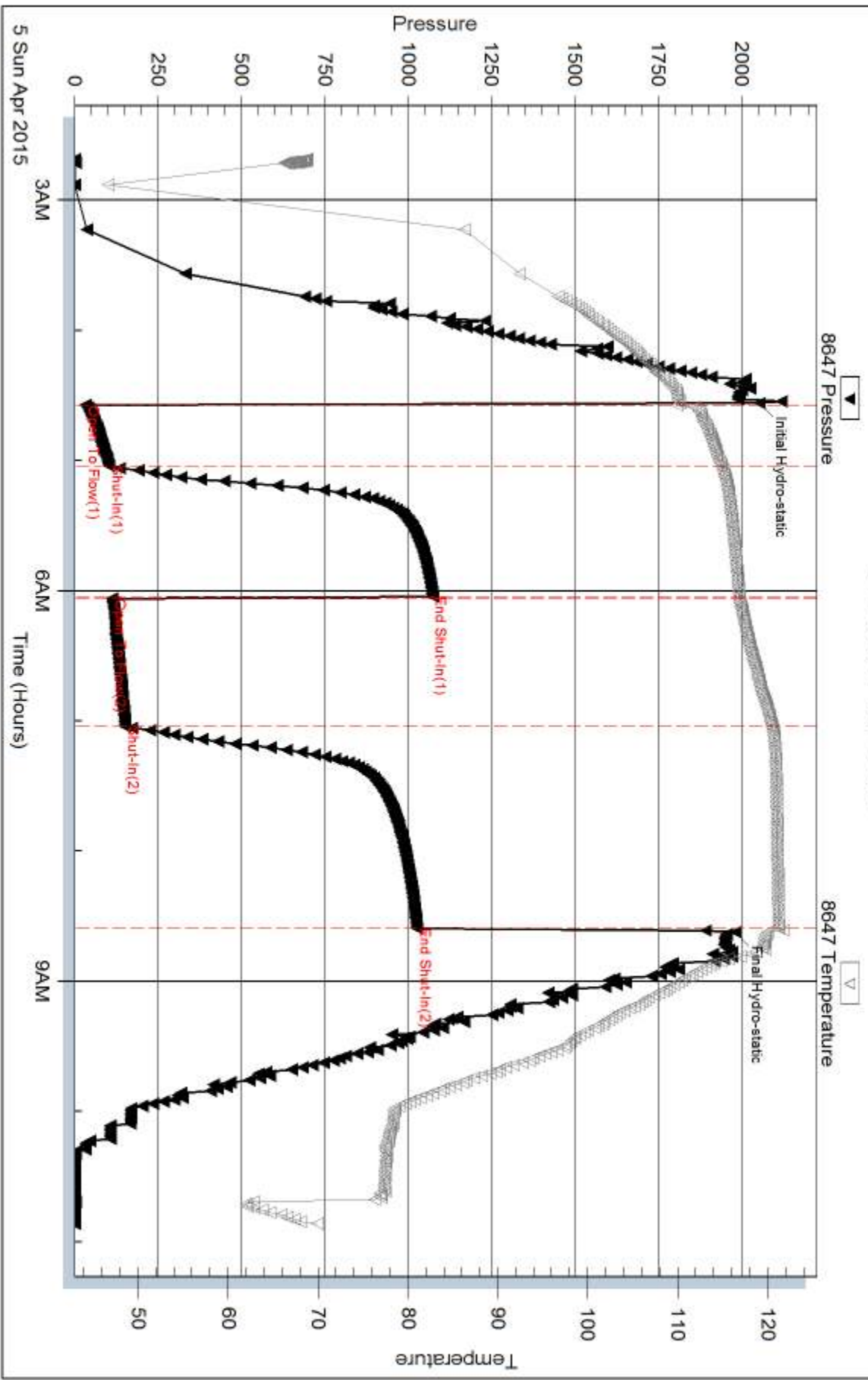
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 36 @ 62F

### Pressure vs. Time

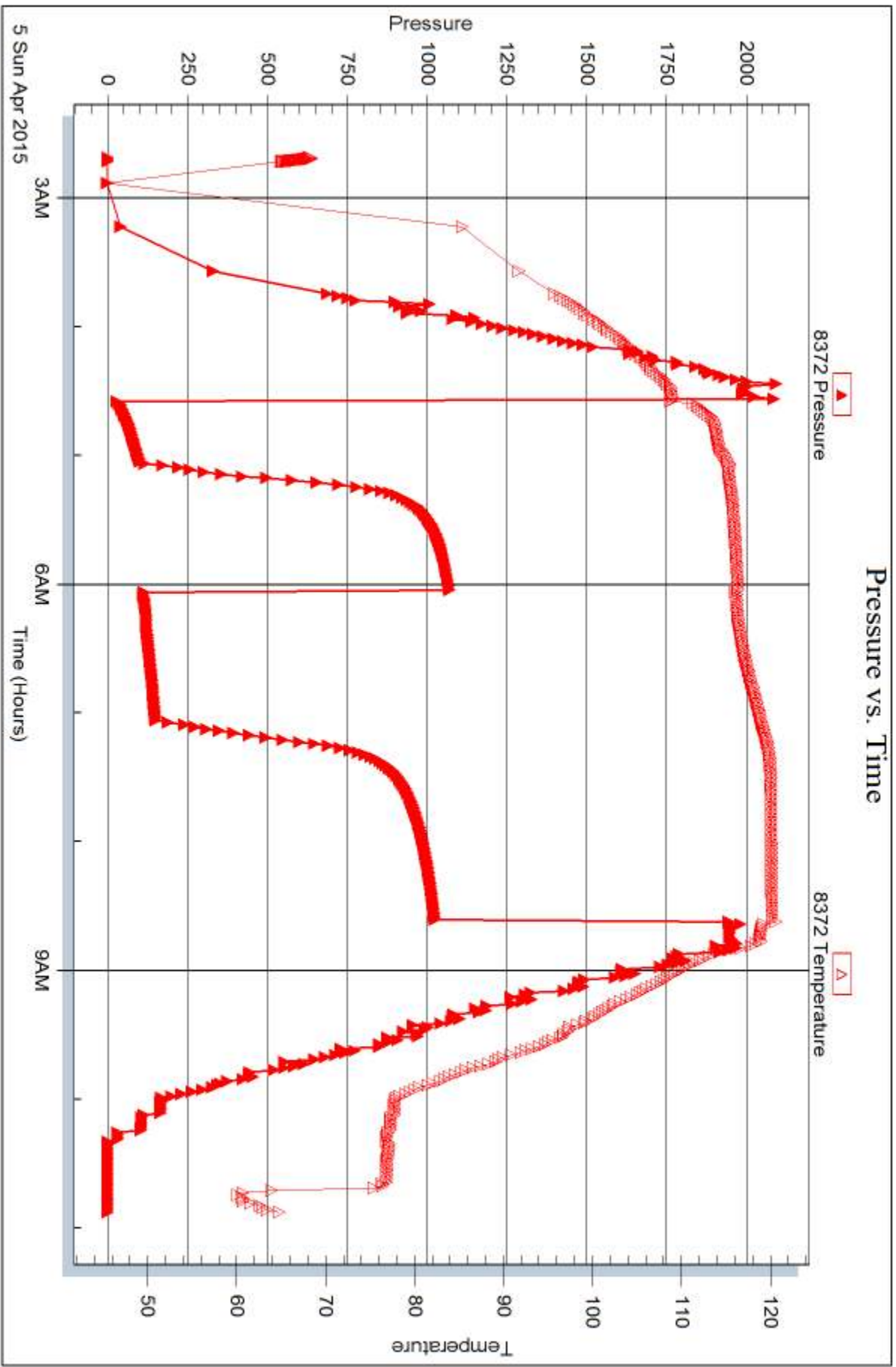


Serial #: 8372

Outside Murfin Drtg. Co., Inc.

Schmidt-Vap #4-26

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N. Water, Ste 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

### **Schmidt-Vap #4-26**

### **26-4s-31w Rawlins,KS**

Start Date: 2015.04.05 @ 19:52:00

End Date: 2015.04.06 @ 04:20:00

Job Ticket #: 62266                      DST #: 3

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

Printed: 2015.04.13 @ 10:56:28

Murfin Drlg. Co., Inc.  
26-4s-31w Rawlins,KS  
Schmidt-Vap #4-26  
DST # 3  
LKC "H.J."  
2015.04.05



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62266

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 19:52:00

## GENERAL INFORMATION:

Formation: **LKC "H-J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:33:00  
 Time Test Ended: 04:20:00  
 Interval: **4056.00 ft (KB) To 4117.00 ft (KB) (TVD)**  
 Total Depth: 4117.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Brandon Quintana  
 Unit No: 57  
 Reference Elevations: 2925.00 ft (KB)  
 2920.00 ft (CF)  
 KB to GR/CF: 5.00 ft

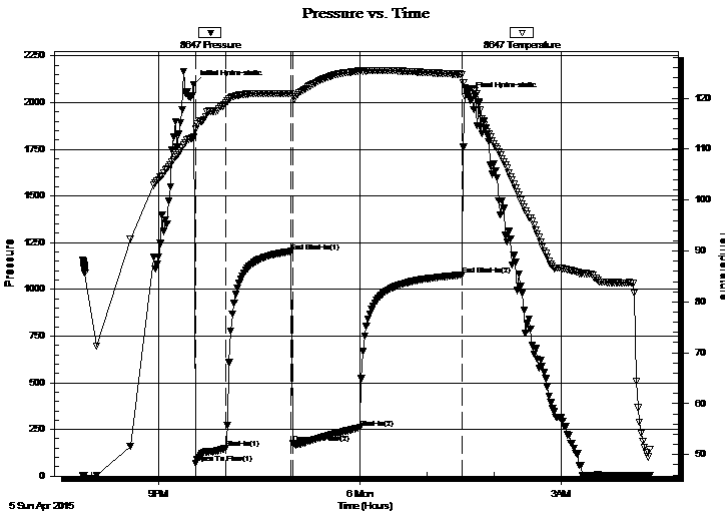
## Serial #: 8647

Inside

Press@RunDepth: 258.99 psig @ 4057.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.04.05 End Date: 2015.04.06 Last Calib.: 2015.04.06  
 Start Time: 19:52:01 End Time: 04:20:00 Time On Btm: 2015.04.05 @ 21:31:30  
 Time Off Btm: 2015.04.06 @ 01:37:30

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to B.o.B in 10 min.  
 60 - ISI - Return built to 11" over the 60 min.  
 30 - FF - Blow built to B.o.B in 6 min.  
 60 - FSI - Return built to 10" over the 90 min.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2098.35	112.35	Initial Hydro-static
2	68.48	113.90	Open To Flow (1)
29	148.89	118.99	Shut-In(1)
87	1203.24	120.85	End Shut-In(1)
89	177.20	120.32	Open To Flow (2)
149	258.99	125.33	Shut-In(2)
240	1077.52	124.67	End Shut-In(2)
246	2031.77	121.71	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
297.00	GOCM 40%g/40%m, 20%o	1.90
356.00	GO 85%o, 15%g	4.99
0.00	1228' GIP	0.00

## Gas Rates

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





**TRILOBITE TESTING, INC.**

## DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins, KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62266

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 19:52:00

### GENERAL INFORMATION:

Formation: **LKC "H-J"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 21:33:00 Tester: Brandon Quintana  
 Time Test Ended: 04:20:00 Unit No: 57  
**Interval: 4056.00 ft (KB) To 4117.00 ft (KB) (TVD)**  
 Reference Elevations: 2925.00 ft (KB)  
 Total Depth: 4117.00 ft (KB) (TVD) 2920.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

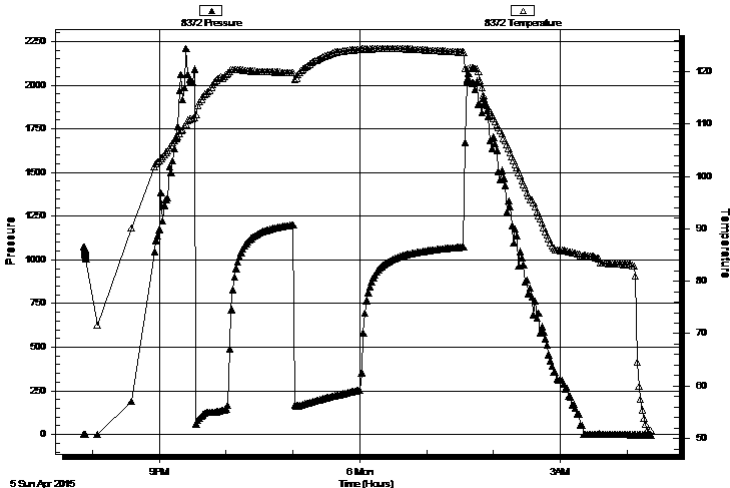
**Serial #: 8372**

**Outside**

Press@RunDepth: psig @ 4057.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.04.05 End Date: 2015.04.06 Last Calib.: 2015.04.06  
 Start Time: 19:52:01 End Time: 04:21:30 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30 - IF - Opened w/ surface blow , built to B.o.B in 10 min.  
 60 - ISI - Return built to 11" over the 60 min.  
 30 - FF - Blow built to B.o.B in 6 min.  
 60 - FSI - Return built to 10" over the 90 min.

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

### Recovery

Length (ft)	Description	Volume (bbl)
297.00	GOCM 40%g/40%m, 20%o	1.90
356.00	GO 85%o, 15%g	4.99
0.00	1228' GIP	0.00

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62266

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 19:52:00

## Tool Information

Drill Pipe:	Length: 3803.00 ft	Diameter: 3.80 inches	Volume: 53.35 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 248.82 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.82 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4056.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	89.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4033.00	
Hydraulic tool	5.00			4038.00	
Jars	5.00			4043.00	
Safety Joint	3.00			4046.00	
Packer	5.00			4051.00	28.00 Bottom Of Top Packer
Packer	5.00			4056.00	
Stubb	1.00			4057.00	
Recorder	0.00	8647	Inside	4057.00	
Recorder	0.00	8372	Outside	4057.00	
Perforations	23.00			4080.00	
Change Over Sub	1.00			4081.00	
Drill Pipe	32.00			4113.00	
Change Over Sub	1.00			4114.00	
Bullnose	3.00			4117.00	61.00 Bottom Packers & Anchor

**Total Tool Length: 89.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62266

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2015.04.05 @ 19:52:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
297.00	GOCM 40%g/40%m, 20%o	1.899
356.00	GO 85%o, 15%g	4.994
0.00	1228' GIP	0.000

Total Length: 653.00 ft      Total Volume: 6.893 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

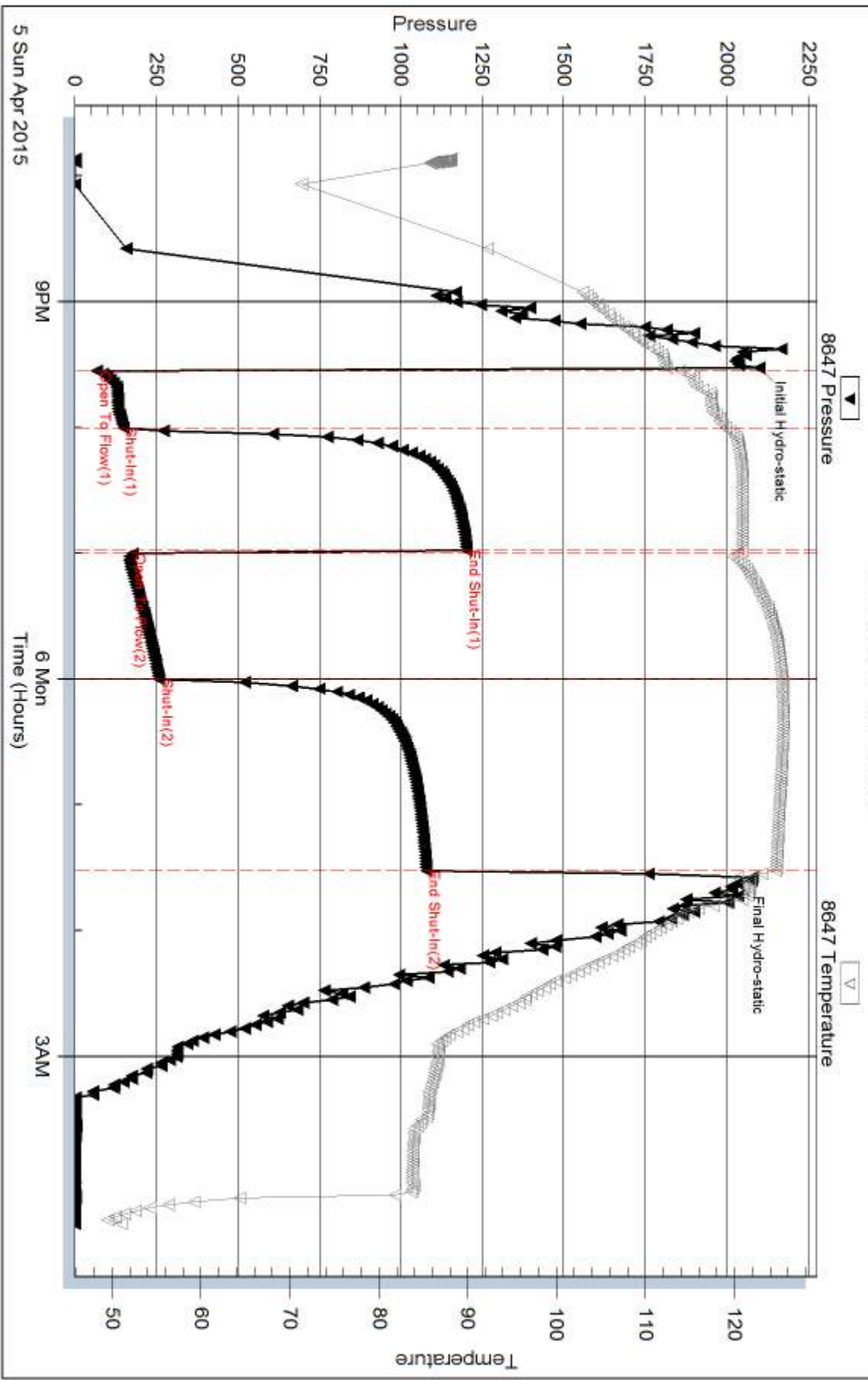
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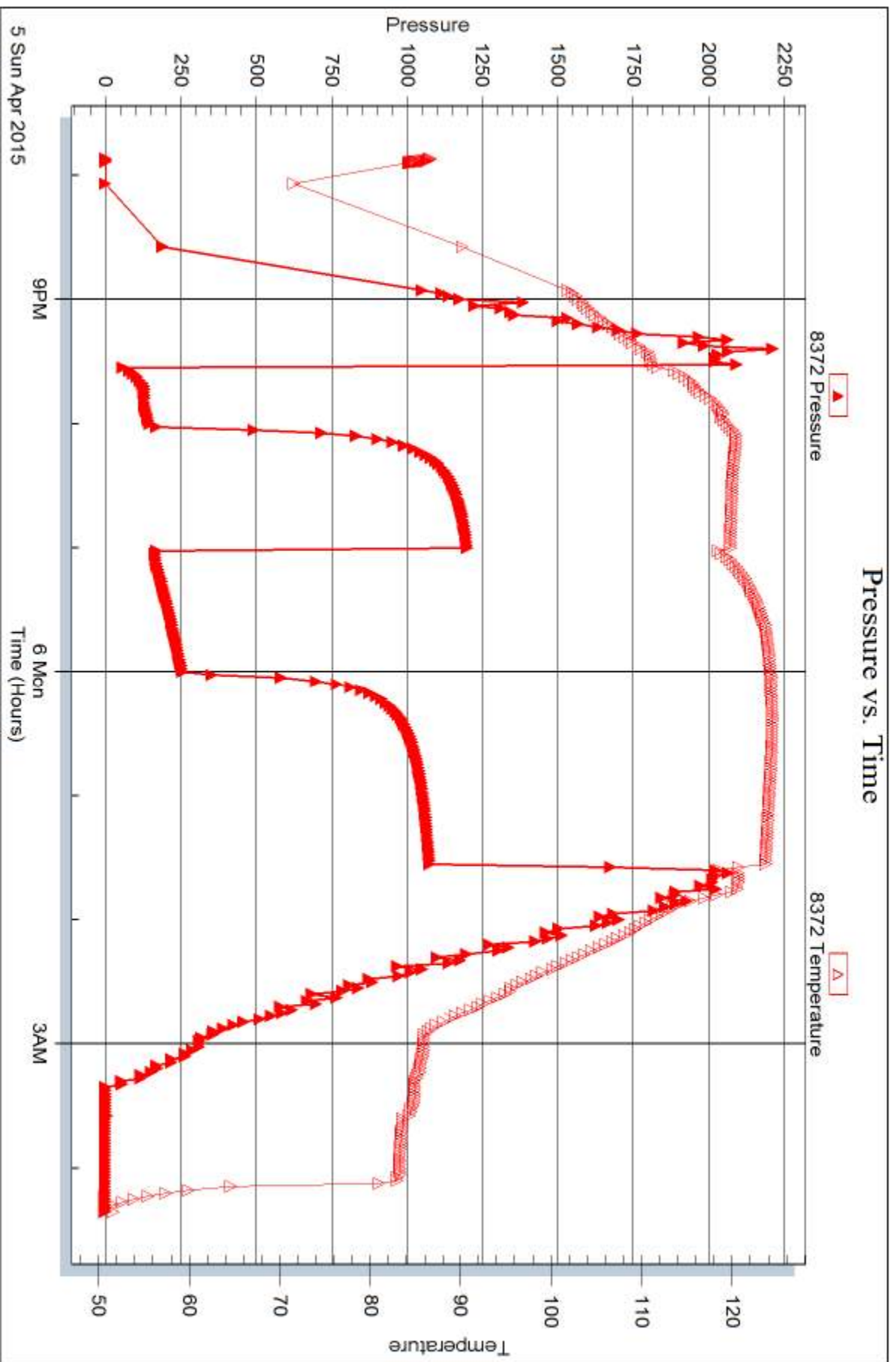
Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 35 @ 50F Corrected = 34

### Pressure vs. Time







## DRILL STEM TEST REPORT

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

250 N. Water, Ste 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

### **Schmidt-Vap #4-26**

### **26-4s-31w Rawlins,KS**

Start Date: 2015.04.07 @ 11:19:00

End Date: 2015.04.07 @ 18:25:30

Job Ticket #: 62203                      DST #: 4

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

Printed: 2015.04.13 @ 10:55:06

Murfin Drlg. Co., Inc.

26-4s-31w Rawlins,KS

Schmidt-Vap #4-26

DST # 4

Pawnee - Cherokee

2015.04.07



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62203

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2015.04.07 @ 11:19:00

## GENERAL INFORMATION:

Formation: **Pawnee - Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:31:30

Time Test Ended: 18:25:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Donovan Baumann

Unit No: 57

Interval: **4248.00 ft (KB) To 4392.00 ft (KB) (TVD)**

Reference Elevations: 2925.00 ft (KB)

Total Depth: 4392.00 ft (KB) (TVD)

2920.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8647 Inside**

Press@RunDepth: 58.10 psig @ 4249.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.04.07

End Date:

2015.04.07

Last Calib.:

2015.04.07

Start Time: 11:19:01

End Time:

18:25:30

Time On Btm:

2015.04.07 @ 13:31:00

Time Off Btm:

2015.04.07 @ 16:31:30

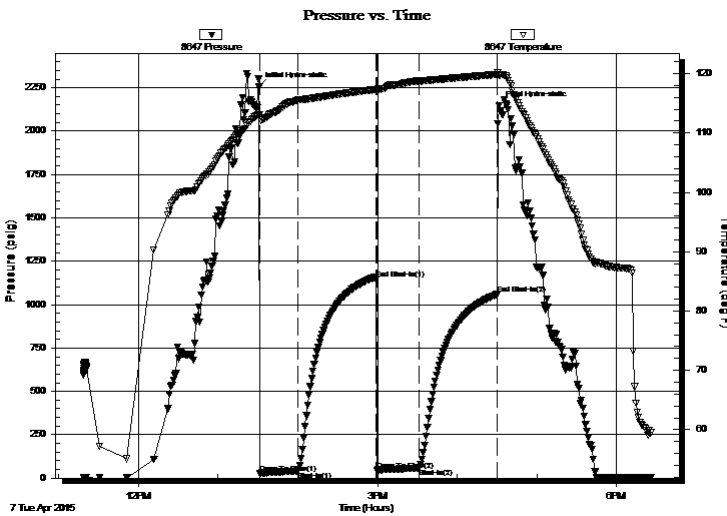
TEST COMMENT: 30 - IF - Weak surface blow built to 1 3/4". in 30 min.

60 - ISI - No return

30 - FF - Real weak surface blow started 10 min. in & built to 1/8". in 20 min.

60 - FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2256.47	113.03	Initial Hydro-static
1	27.49	112.50	Open To Flow (1)
29	41.43	115.55	Shut-In(1)
88	1145.22	117.33	End Shut-In(1)
89	46.15	117.34	Open To Flow (2)
120	58.10	118.75	Shut-In(2)
179	1059.29	119.86	End Shut-In(2)
181	2146.50	119.70	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM - 45o - 55M	0.37

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62203

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2015.04.07 @ 11:19:00

## GENERAL INFORMATION:

Formation: **Pawnee - Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:31:30

Time Test Ended: 18:25:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Donovan Baumann

Unit No: 57

**Interval: 4248.00 ft (KB) To 4392.00 ft (KB) (TVD)**

Total Depth: 4392.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2925.00 ft (KB)

2920.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8372** Outside

Press@RunDepth: psig @ 4249.00 ft (KB)

Start Date: 2015.04.07

End Date:

2015.04.07

Start Time: 11:19:01

End Time:

18:27:00

Capacity: 8000.00 psig

Last Calib.:

2015.04.07

Time On Btm:

Time Off Btm:

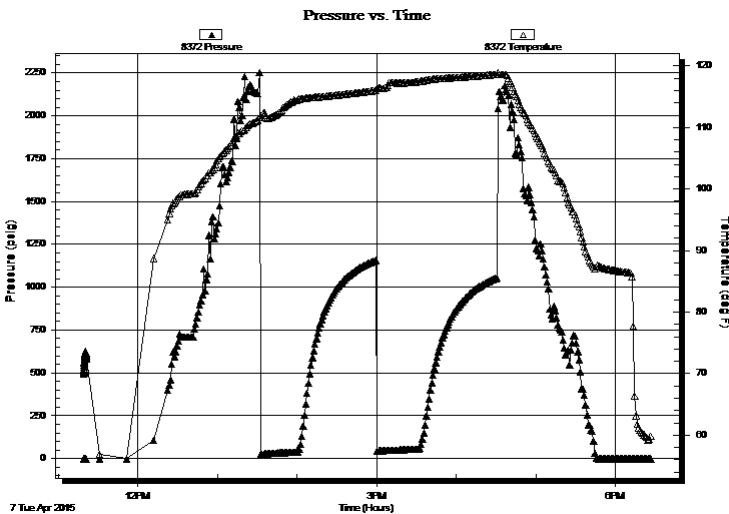
TEST COMMENT: 30 - IF - Weak surface blow built to 1 3/4". in 30 min.

60 - ISI - No return

30 - FF - Real weak surface blow started 10 min. in & built to 1/8". in 20 min.

60 - FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM - 45o - 55M	0.37

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62203

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2015.04.07 @ 11:19:00

## Tool Information

Drill Pipe:	Length: 3992.80 ft	Diameter: 3.80 inches	Volume: 56.01 bbl	Tool Weight: 2500.00 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: 248.82 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 57.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.62 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4248.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	144.00 ft			
Tool Length:	172.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4225.00	
Hydraulic tool	5.00			4230.00	
Jars	5.00			4235.00	
Safety Joint	3.00			4238.00	
Packer	5.00			4243.00	28.00 Bottom Of Top Packer
Packer	5.00			4248.00	
Packer - Shale	0.00			4248.00	
Stubb	1.00			4249.00	
Recorder	0.00	8647	Inside	4249.00	
Recorder	0.00	8372	Outside	4249.00	
Perforations	11.00			4260.00	
Change Over Sub	1.00			4261.00	
Drill Pipe	127.00			4388.00	
Change Over Sub	1.00			4389.00	
Bullnose	3.00			4392.00	144.00 Bottom Packers & Anchor

**Total Tool Length: 172.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drlg. Co., Inc.

**26-4s-31w Rawlins,KS**

250 N. Water, Ste 300  
Wichita, KS 67202

**Schmidt-Vap #4-26**

Job Ticket: 62203

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2015.04.07 @ 11:19:00

## 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: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
75.00	OCM - 45o - 55M	0.369

Total Length: 75.00 ft      Total Volume: 0.369 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

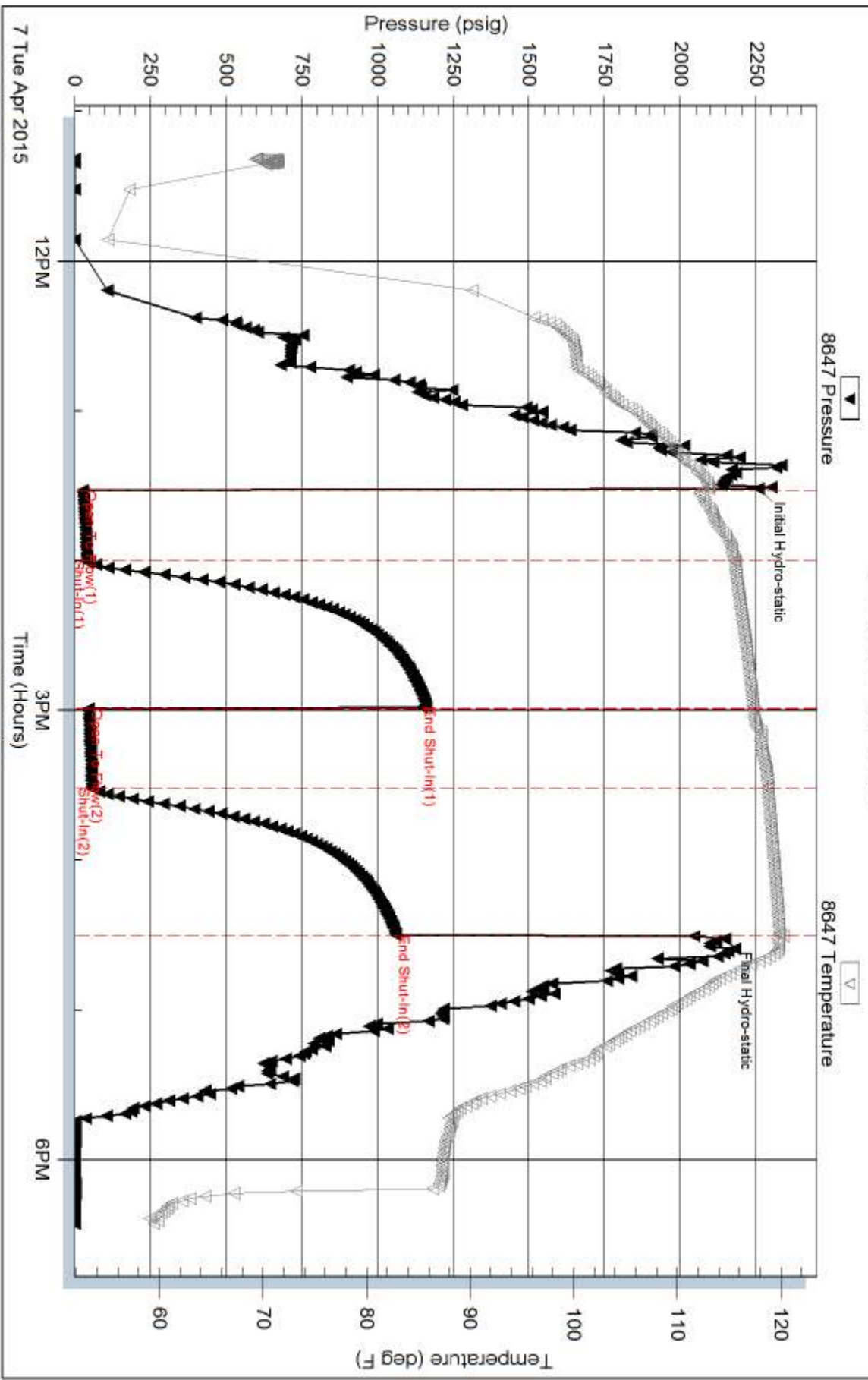
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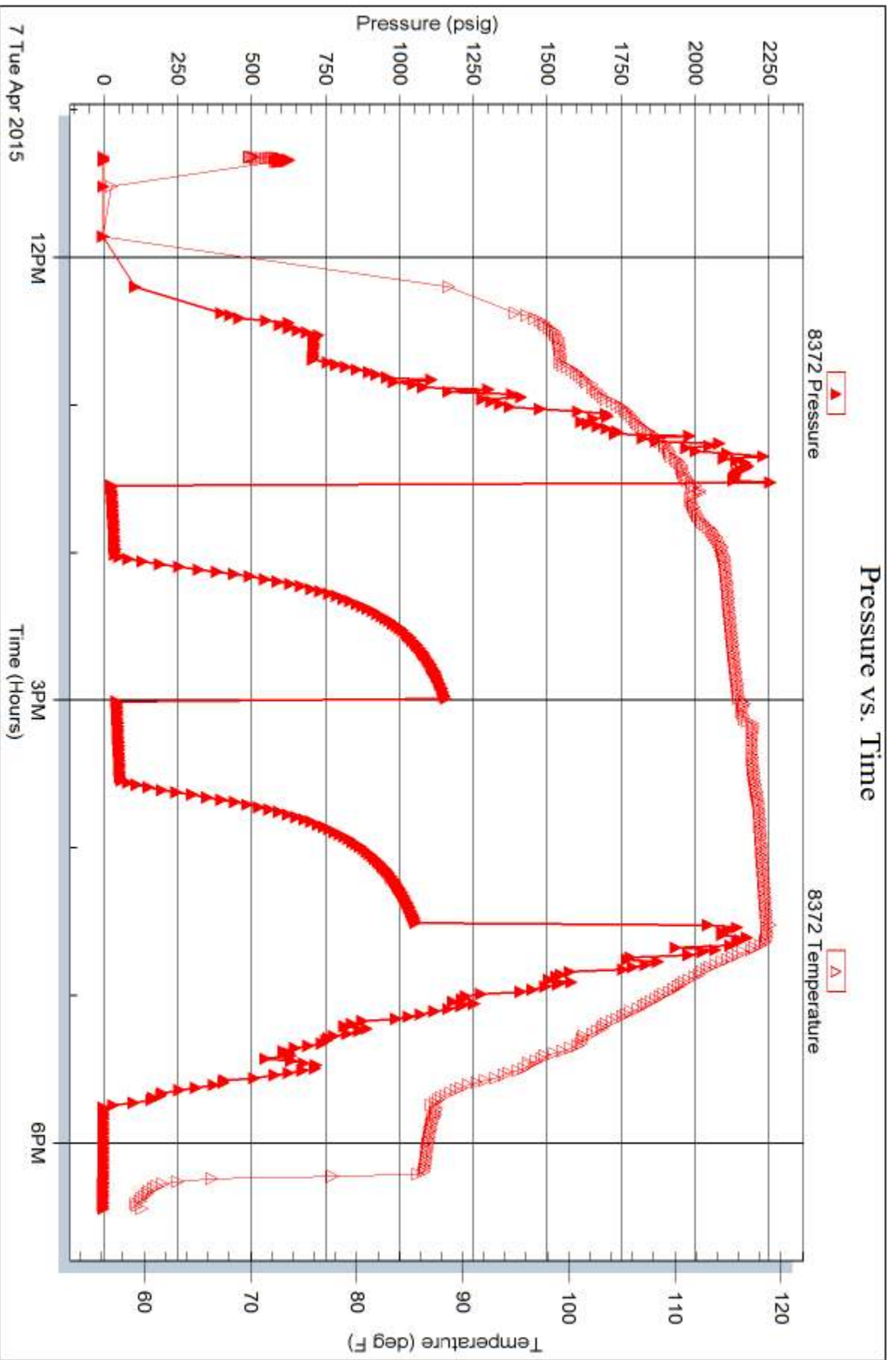
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 62264

Well Name & No. Schmidt-Vap #4-26 Test No. 1 Date 4-4-15  
 Company Murfin Drilg. Co., Inc. Elevation 2925 KB 2920 GL  
 Address 250 N. Water, Ste 300 Wichita, KS 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin #7  
 Location: Sec. 26 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 3902-3986 Zone Tested Toronto - LKC "B"  
 Anchor Length 84' Drill Pipe Run 3645 Mud Wt. 8.9  
 Top Packer Depth 3898 Drill Collars Run 248.82 Vis 82  
 Bottom Packer Depth 3902 Wt. Pipe Run — WL 8  
 Total Depth 3986 Chlorides 1600 ppm System LCM 5

Blow Description IF - Opened w/ surface blow. built to B.o.B in 14 min.  
ISI - Return built to 1/4"  
FF - Blow built to B.o.B in 15 min.  
FSI - Return built to 1 1/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>26</u>	<u>60</u>	<u>10</u>	<u>90</u>		
<u><del>126</del> 189</u>	<u>WOCM</u>		<u>10</u>	<u>40</u>	<u>50</u>
<u>437</u>	<u>MW</u>			<u>80</u>	<u>20</u>
<u>106</u>	<u>GIP</u>	<u>100</u>			

Rec Total 646 BHT 123 Gravity 30 API RW .128 @ 63 °F Chlorides 70,000 ppm

(A) Initial Hydrostatic 1978  Test \_\_\_\_\_ T-On Location 5:20 AM  
 (B) First Initial Flow 57  Jars \_\_\_\_\_ T-Started 6:09 AM  
 (C) First Final Flow 185  Safety Joint \_\_\_\_\_ T-Open 8:34 AM  
 (D) Initial Shut-In 1227  Circ Sub \_\_\_\_\_ T-Pulled 12:34 PM  
 (E) Second Initial Flow 193  Hourly Standby \_\_\_\_\_ T-Out 3:28 PM  
 (F) Second Final Flow 323  Mileage 50 R.T. Comments \_\_\_\_\_  
 (G) Final Shut-In 1172  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1881  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total \_\_\_\_\_

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

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

Approved By \_\_\_\_\_

Our Representative Burd O. L.

TriLOBite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 62265

Well Name & No. Schmidt - Vap #4-26 Test No. 2 Date 4-5-15  
 Company Murfin Drly. Co., Inc. Elevation 2925 KB 2920 GL  
 Address 250 N. Water, STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin #7  
 Location: Sec. 26 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 4006-4061 Zone Tested LKC "E-6"  
 Anchor Length 55 Drill Pipe Run 3740 Mud Wt. 9.3  
 Top Packer Depth 4001 Drill Collars Run 248.82 Vis 55  
 Bottom Packer Depth 4006 Wt. Pipe Run — WL 7.2  
 Total Depth 4061 Chlorides 1400 ppm System LCM 5  
 Blow Description IF - Opened w/ surface blow. built to B.o.B in 12min.  
ISI - Return built to 1/4"  
FF - Blow built to B.o.B in 14 min.  
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
83	CO	100			
229	GOCM	20	40		40
499	GIP	100			
Rec Total	312	BHT	121	Gravity	36
				API RW	@
					° F Chlorides

(A) Initial Hydrostatic 2054  Test 2:24 AM T-On Location 2:24 AM  
 (B) First Initial Flow 32  Jars 2:41 AM T-Started 2:41 AM  
 (C) First Final Flow 102  Safety Joint 4:34 AM T-Open 4:34 AM  
 (D) Initial Shut-In 1073  Circ Sub 8:34 AM T-Pulled 8:34 AM  
 (E) Second Initial Flow 112  Hourly Standby 10:53 AM T-Out 10:53 AM  
 (F) Second Final Flow 151  Mileage 50 RT Comments \_\_\_\_\_  
 (G) Final Shut-In 1026  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1982  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total \_\_\_\_\_

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

MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Bud At

TriLOBITE TESTING INC. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 62266

4/10

Well Name & No. Schmidt-Vap #4-26 Test No. 3 Date 4-5-15  
 Company Murfin Drlg. Co., Inc. Elevation 2925 KB 2920 GL  
 Address 250 N. Water, STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin #7  
 Location: Sec. 26 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 4056-4117 Zone Tested LKC "H-3"  
 Anchor Length 61' Drill Pipe Run 3803 Mud Wt. 9.4  
 Top Packer Depth 4051 Drill Collars Run 248.82 Vis 59  
 Bottom Packer Depth 4056 Wt. Pipe Run - WL 7.2  
 Total Depth 4117 Chlorides 1900 ppm System LCM 4  
 Blow Description IF- Opened w/ surface blow, built to B.o.B in 10 min.  
ISI- Return built to 11" over the 60 min.  
FF- Blow built to B.o.B in 6 min.  
FSI- Return built to 10" over the 90 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>356</u>	<u>GO</u>	<u>15</u>	<u>85</u>		
<u>297</u>	<u>GOCM</u>	<u>40</u>	<u>20</u>		<u>40</u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>
<u>1228</u>	<u>GIP</u>	<u>100</u>			

Rec Total 653 BHT 124 Gravity 34 API RW @ °F Chlorides      ppm

(A) Initial Hydrostatic 2098  Test      T-On Location 7:47 PM  
 (B) First Initial Flow 68  Jars      T-Started 7:52 PM  
 (C) First Final Flow 148  Safety Joint      T-Open 9:32 PM  
 (D) Initial Shut-In 1203  Circ Sub      T-Pulled 1:32 AM  
 (E) Second Initial Flow 177  Hourly Standby      T-Out 4:22 AM  
 (F) Second Final Flow 258  Mileage 50 R.T. Comments       
 (G) Final Shut-In 1077  Sampler       
 (H) Final Hydrostatic 2031  Straddle       Ruined Shale Packer       
 Shale Packer       Ruined Packer       
 Extra Packer       Extra Copies       
 Extra Recorder      Sub Total       
 Day Standby      Total       
 Accessibility      MP/DST Disc't       
 Sub Total     

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

Approved By      Our Representative Burd Q. Jr

TriLOBite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 62203

Well Name & No. Schmitt-vap #4-26 Test No. 4 Date 4-7-15  
 Company Murfin Drilling Co., Inc Elevation 2925 KB 2920 GL  
 Address 250 N. Water STE 300 Wichita, KS, 67202  
 Co. Rep / Geo. Paul Gunzelman Rig Murfin #7  
 Location: Sec. 26 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 4248' - 4392' Zone Tested Pawnee - Cherokee  
 Anchor Length 144' Drill Pipe Run 3992.80 Mud Wt. 9.3  
 Top Packer Depth 4243' Drill Collars Run 248.82 Vis 65  
 Bottom Packer Depth 4248' Wt. Pipe Run 0 WL 6  
 Total Depth 4392' Chlorides 2000 ppm System LCM #4

Blow Description IF - weak surface blow built to 1 3/4 in. in 30 min.  
ISI - No return  
FF - Real weak surface blow started 10 min. in & built to 1/8 in. in 20 min.  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>OCM</u>		<u>45</u>		<u>55</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 75 BHT 120 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 2256  Test — T-On Location 10:14am  
 (B) First Initial Flow 27  Jars — T-Started 11:19am  
 (C) First Final Flow 41  Safety Joint — T-Open 1:30pm  
 (D) Initial Shut-In 1145  Circ Sub N/C T-Pulled 4:30pm  
 (E) Second Initial Flow 46  Hourly Standby — T-Out 6:27pm  
 (F) Second Final Flow 58  Mileage 25 RIT Comments —  
 (G) Final Shut-In 1059  Sampler —  
 (H) Final Hydrostatic 2147  Straddle —  
 Shale Packer —  Ruined Shale Packer —  
 Extra Packer —  Ruined Packer —  
 Extra Recorder —  Extra Copies —  
 Day Standby — Sub Total —  
 Accessibility — Total —  
 Sub Total — MP/DST Disc't —

Approved By — Our Representative Danison Newman  
 TriLOBite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.