



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Schmidt-Vap"A" #2-26**

**26- 4S.-31W Rawlins,ks**

Start Date: 2017.10.16 @ 23:57:00

End Date: 2017.10.17 @ 08:29:10

Job Ticket #: 63157                      DST #: 1

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

Printed: 2017.10.23 @ 10:07:54



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co INC

**26- 4S. -31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63157

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2017.10.16 @ 23:57:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:06:30

Time Test Ended: 08:29:10

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 82

**Interval: 3885.00 ft (KB) To 3930.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 3930.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8959**

**Inside**

Press@RunDepth: 422.88 psig @ 3886.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.16

End Date:

2017.10.17

Last Calib.: 2017.10.17

Start Time: 23:57:01

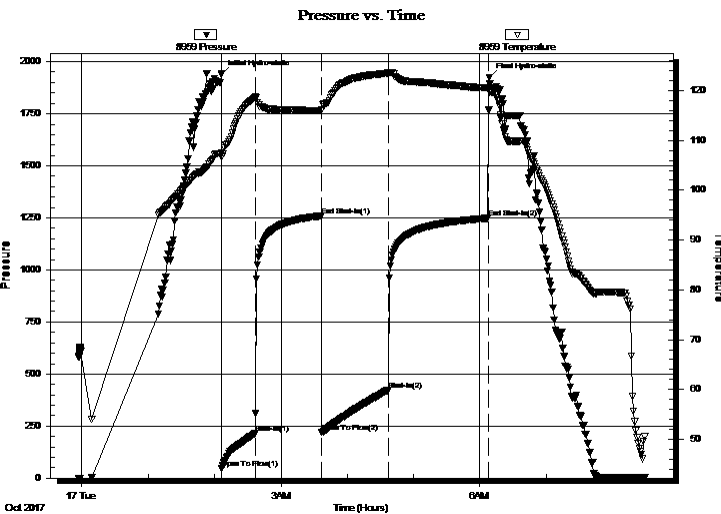
End Time:

08:29:10

Time On Btm: 2017.10.17 @ 02:06:20

Time Off Btm: 2017.10.17 @ 06:08:30

**TEST COMMENT:** 30-IF-BOB (12 inches) @ 10 mins 45 secs  
60-ISI-No blow  
60-FF-BOB (12 inches) @ 13 1/2 mins  
90-FSI-No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1938.03	107.57	Initial Hydro-static
1	47.09	106.74	Open To Flow (1)
31	216.30	118.66	Shut-In(1)
91	1258.07	115.98	End Shut-In(1)
91	219.14	116.15	Open To Flow (2)
151	422.88	123.48	Shut-In(2)
241	1248.16	120.51	End Shut-In(2)
243	1922.99	119.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
670.00	MSW 2%M, 98%W	7.56
208.00	HMCW35%M, 65%W	2.92

## 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"A" #2-26**

Job Ticket: 63157

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2017.10.16 @ 23:57:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:06:30

Time Test Ended: 08:29:10

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 82

**Interval: 3885.00 ft (KB) To 3930.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 3930.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8734 Outside**

Press@RunDepth: psig @ 3886.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.16

End Date:

2017.10.17

Last Calib.:

2017.10.17

Start Time: 23:57:01

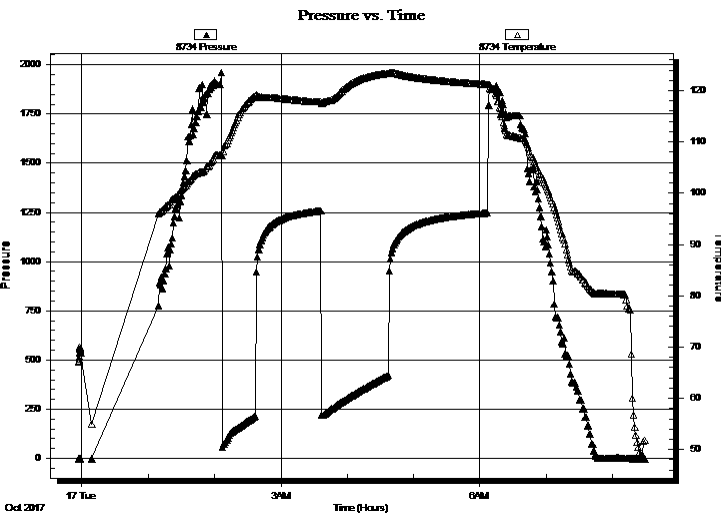
End Time:

08:29:10

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IF-BOB (12 inches) @ 10 mins 45 secs  
60-ISI-No blow  
60-FF-BOB (12 inches) @ 13 1/2 mins  
90-FSI-No blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
670.00	MSW 2%M, 98%W	7.56
208.00	HMCW35%M, 65%W	2.92

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63157

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2017.10.16 @ 23:57:00

## Tool Information

Drill Pipe:	Length: 3683.00 ft	Diameter: 3.80 inches	Volume: 51.66 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: 202.00 ft	Diameter: 2.25 inches	Volume: 0.99 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 52.65 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3885.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.88 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			3862.00	
Hydraulic tool	5.00			3867.00	
Jars	5.00			3872.00	
Safety Joint	3.00			3875.00	
Packer	5.00			3880.00	28.00 Bottom Of Top Packer
Packer	5.00			3885.00	
Stubb	1.00			3886.00	
Recorder	0.00	8959	Inside	3886.00	
Recorder	0.00	8734	Outside	3886.00	
Perforations	39.00			3925.00	
Bullnose	5.00			3930.00	45.00 Bottom Packers & Anchor

**Total Tool Length: 73.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63157

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2017.10.16 @ 23:57:00

## 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: 72.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
670.00	MSW 2%M, 98%W	7.558
208.00	HMCW35%M, 65%W	2.918

Total Length: 878.00 ft      Total Volume: 10.476 bbl

Num Fluid Samples: 0

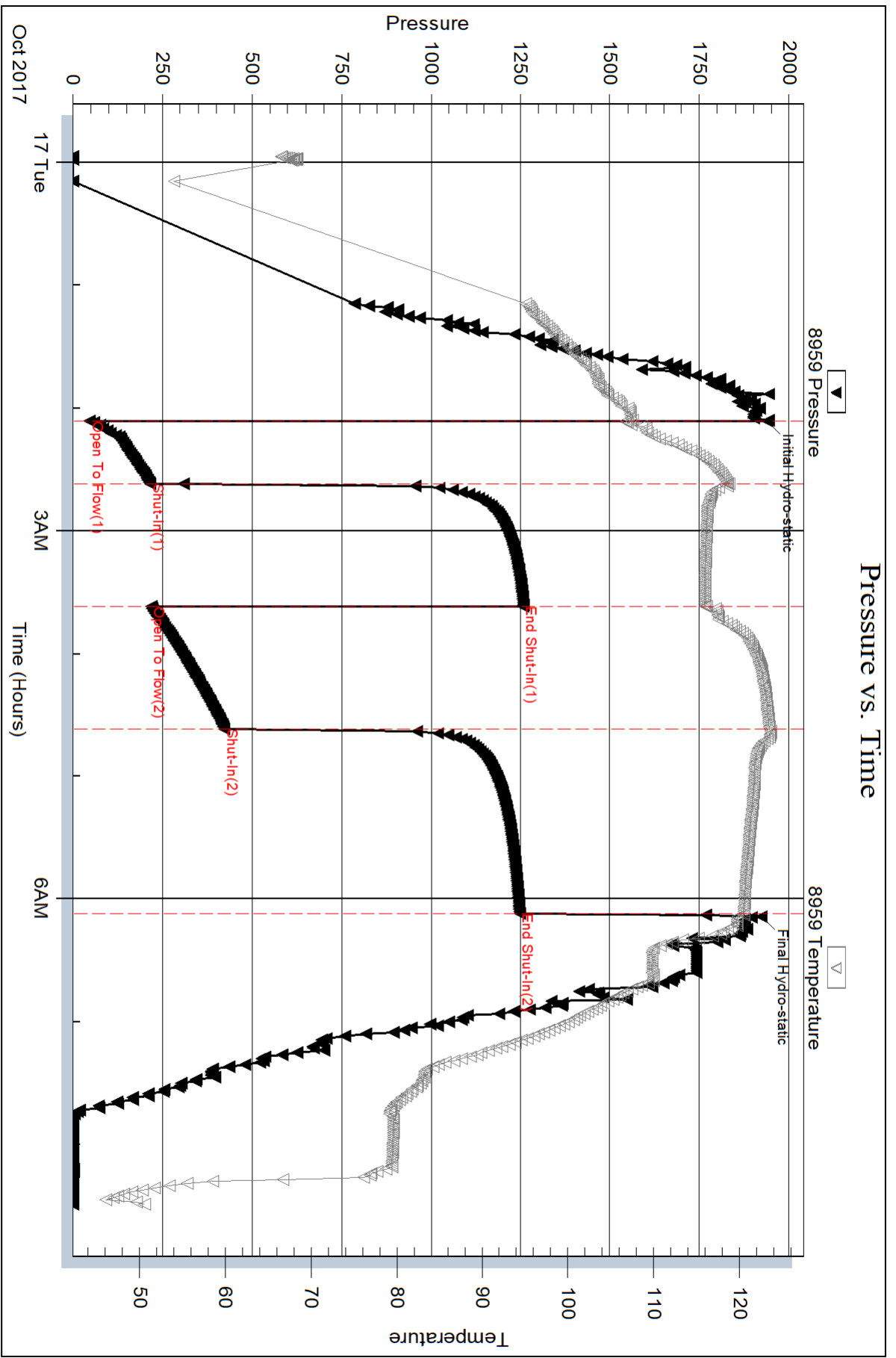
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW=.092@ 47.5=160,000

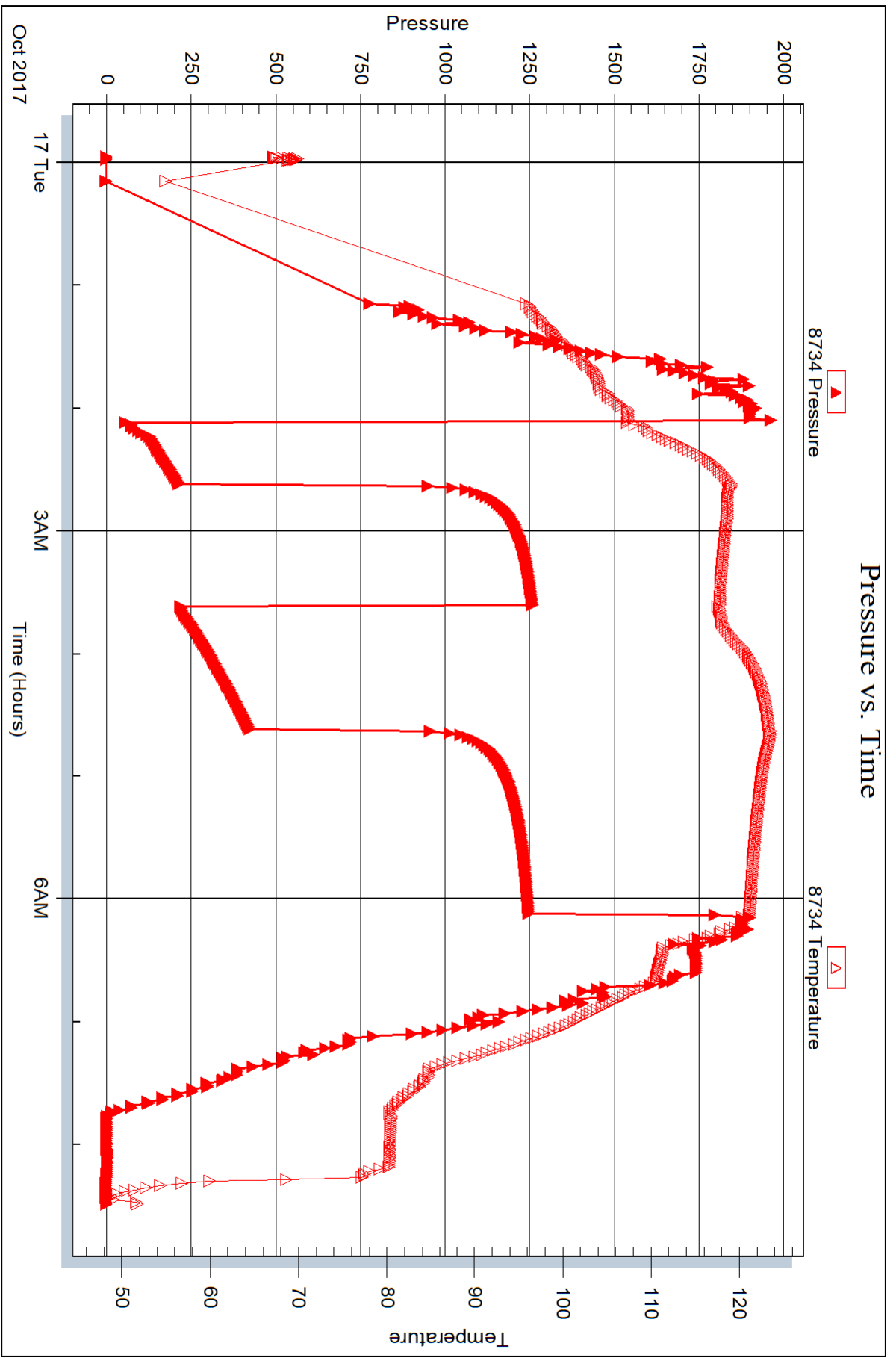


Serial #: 8734

Outside Murfin Drilling Co INC

Schmidt-Vap"A" #2-26

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Schmidt-Vap"A" #2-26**

**26- 4S.-31W Rawlins,ks**

Start Date: 2017.10.17 @ 20:38:00

End Date: 2017.10.18 @ 05:12:49

Job Ticket #: 63158                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.10.23 @ 10:06:34





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co INC

**26- 4S. -31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63158

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2017.10.17 @ 20:38:00

## GENERAL INFORMATION:

Formation: **Toronto - LKC B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:37:00

Time Test Ended: 05:12:49

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

**Interval: 3936.00 ft (KB) To 4014.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 4014.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8959**

**Inside**

Press@RunDepth: 619.86 psig @ 3937.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.17

End Date: 2017.10.18

Last Calib.: 2017.10.18

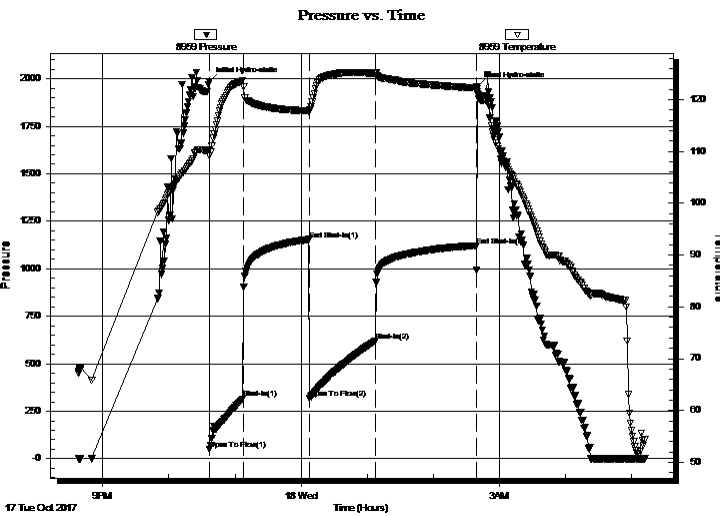
Start Time: 20:38:01

End Time: 05:12:49

Time On Btm: 2017.10.17 @ 22:36:50

Time Off Btm: 2017.10.18 @ 02:39:50

**TEST COMMENT:** 30-IF- BOB (12 inches) @ 5 1/2 mins  
60-ISI-Blow back @ 5 mins built to 1/8" dead @ 54 mins  
60-FF-BOB (12 inches) @ 7 mins 15 secs  
90-FSI-No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1984.82	110.36	Initial Hydro-static
1	48.42	109.11	Open To Flow (1)
31	316.70	123.66	Shut-In(1)
91	1153.38	117.81	End Shut-In(1)
91	320.31	117.70	Open To Flow (2)
151	619.86	125.12	Shut-In(2)
243	1121.59	122.26	End Shut-In(2)
244	1959.96	121.54	Final Hydro-static

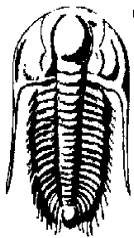
## Recovery

Length (ft)	Description	Volume (bbl)
982.00	MSW 3%M, 97%W	11.93
314.00	OSMCW 2%O, 31%M, 67%W	4.40

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Murfin Drilling Co INC  
 250 N. Water STE 300  
 Wichita, KS 67202  
 ATTN: Saman Sharifaie

**26- 4S.-31W Rawlins,ks**

**Schmidt-Vap"A" #2-26**

Job Ticket: 63158      **DST#: 2**  
 Test Start: 2017.10.17 @ 20:38:00

### GENERAL INFORMATION:

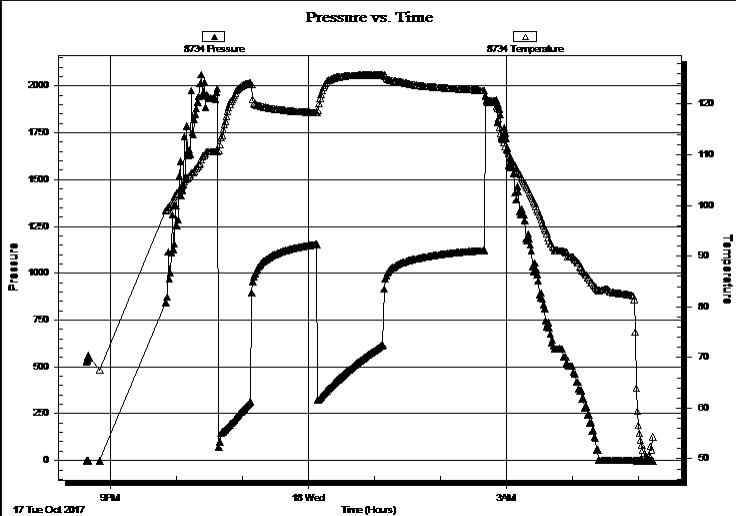
Formation: **Toronto - LKC B**  
 Deviated: No Whipstock:      ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 22:37:00      Tester: Martine Salinas  
 Time Test Ended: 05:12:49      Unit No: 82

**Interval: 3936.00 ft (KB) To 4014.00 ft (KB) (TVD)**      Reference Elevations: 2947.00 ft (KB)  
 Total Depth: 4014.00 ft (KB) (TVD)      2942.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft

**Serial #: 8734 Outside**

Press@RunDepth:	psig @	3937.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2017.10.17	End Date:	2017.10.18	Last Calib.:	2017.10.18
Start Time:	20:38:39	End Time:	05:13:27	Time On Btm:	
				Time Off Btm:	

**TEST COMMENT:** 30-IF- BOB (12 inches) @ 5 1/2 mins  
 60-ISI-Blow back @ 5 mins built to 1/8" dead @ 54 mins  
 60-FF-BOB (12 inches) @ 7 mins 15 secs  
 90-FSI-No blow



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
982.00	MSW 3%M, 97%W	11.93
314.00	OSMCW 2%O, 31%M, 67%W	4.40

\* 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

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63158

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2017.10.17 @ 20:38:00

## Tool Information

Drill Pipe:	Length: 3745.00 ft	Diameter: 3.80 inches	Volume: 52.53 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: 202.00 ft	Diameter: 2.25 inches	Volume: 0.99 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 53.52 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3936.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	78.00 ft			
Tool Length:	98.00 ft			
Number of Packers:	2	Diameter: 6.88 inches		

Tool Comments: Hit tight spot 15' off bottom  
4' fill on bottom

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

shut In Tool	5.00			3921.00	
hydraulic tool	5.00			3926.00	
Packer	5.00			3931.00	20.00 Bottom Of Top Packer
Packer	5.00			3936.00	
stubb	1.00			3937.00	
Recorder	0.00	8959	Inside	3937.00	
Recorder	0.00	8734	Outside	3937.00	
Perforations	39.00			3976.00	
change Over Sub	1.00			3977.00	
blank spacing	31.00			4008.00	
change Over Sub	1.00			4009.00	
Bullnose	5.00			4014.00	78.00 Bottom Packers & Anchor

**Total Tool Length: 98.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63158

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2017.10.17 @ 20:38:00

### 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: 76.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbf
982.00	MSW 3%M, 97%W	11.935
314.00	OSMCW 2%O, 31%M, 67%W	4.405

Total Length: 1296.00 ft      Total Volume: 16.340 bbf

Num Fluid Samples: 0

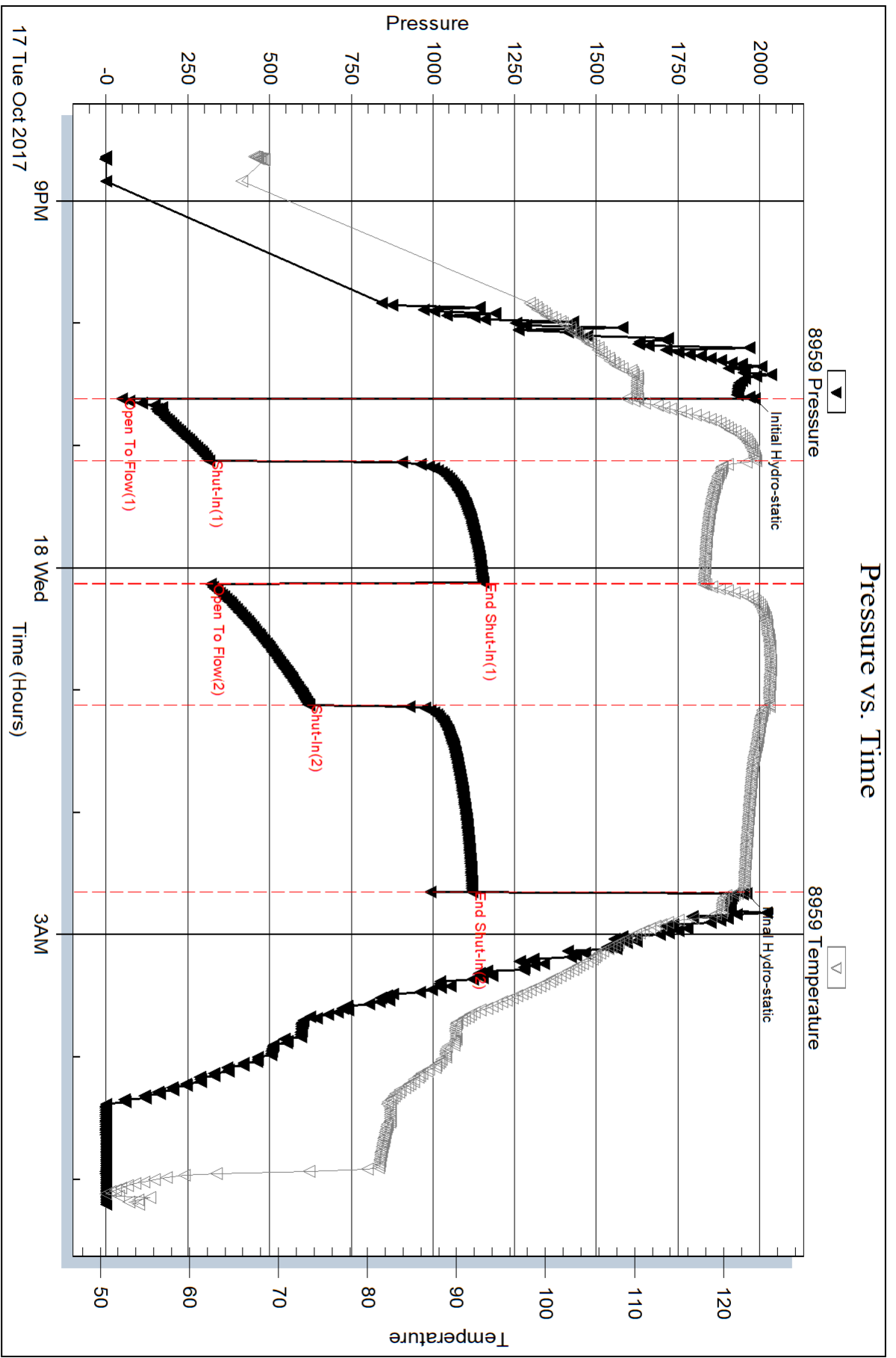
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .97 @ 44.4 degs = 10,500 ppm

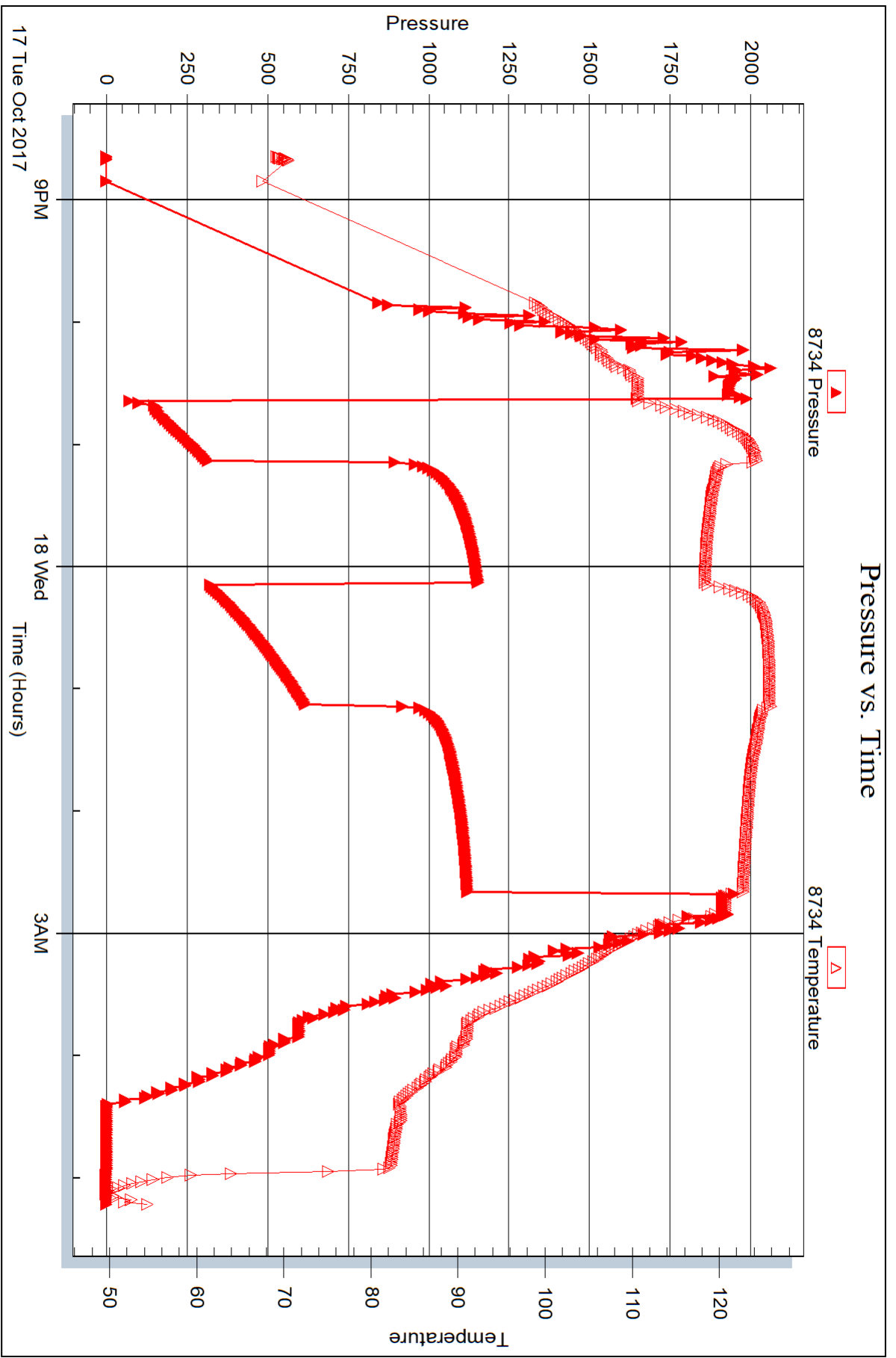


Serial #: 8734

Outside Murfin Drilling Co INC

Schmidt-Vap"A" #2-26

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63158

Printed: 2017.10.23 @ 10:06:36



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

**Schmidt-Vap"A" #2-26**

**26- 4S.-31W Rawlins,ks**

Start Date: 2017.10.18 @ 17:57:00

End Date: 2017.10.19 @ 01:42:50

Job Ticket #: 63159                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.10.23 @ 10:06:11

Murfin Drilling Co INC

26- 4S.-31W Rawlins,ks

Schmidt-Vap"A" #2-26

DST # 3

LKC F-G

2017.10.18



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co INC

**26- 4S. -31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63159

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2017.10.18 @ 17:57:00

## GENERAL INFORMATION:

Formation: **LKC F-G**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:44:20

Time Test Ended: 01:42:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

**Interval: 4038.00 ft (KB) To 4084.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 4084.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8959**

**Inside**

Press@RunDepth: 32.34 psig @ 4039.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.18

End Date:

2017.10.19

Last Calib.: 2017.10.19

Start Time: 17:57:01

End Time:

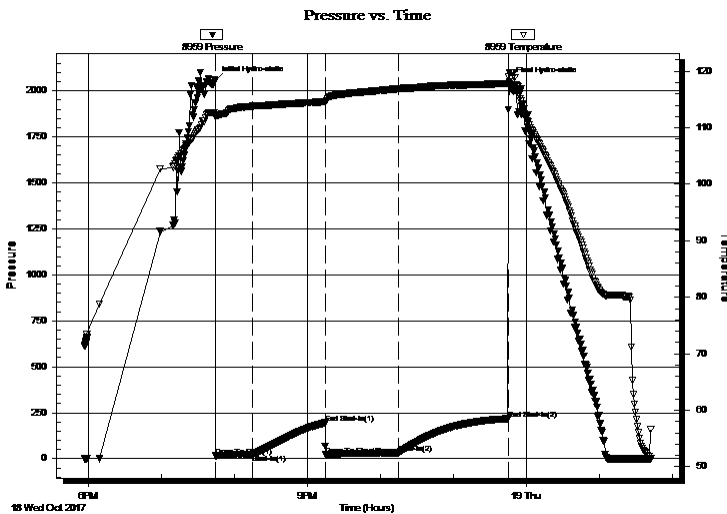
01:42:50

Time On Btm: 2017.10.18 @ 19:44:10

Time Off Btm: 2017.10.18 @ 23:46:00

**TEST COMMENT:** 30-IF-Surface blow built to 1 3/4"  
60-ISI-No blow  
60-FF BOB (12 inches) @ 37 1/2 mins  
90-FSI-No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2055.60	112.75	Initial Hydro-static
1	15.17	112.01	Open To Flow (1)
31	24.17	113.81	Shut-In(1)
91	194.78	114.62	End Shut-In(1)
91	21.17	114.62	Open To Flow (2)
151	32.34	116.91	Shut-In(2)
241	217.87	117.84	End Shut-In(2)
242	2048.68	119.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
52.00	GOSM 5%G, 3%O, 92%M	0.26
0.00	280' GIP	0.00

## Gas Rates

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

\* Recovery from multiple tests





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

## DRILL STEM TEST REPORT

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**26- 4S. -31W Rawlins,ks**

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Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63159

**DST#: 3**

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Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

**Interval: 4038.00 ft (KB) To 4084.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 4084.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8734 Outside**

Press@RunDepth: psig @ 4039.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.18

End Date: 2017.10.19

Last Calib.: 2017.10.19

Start Time: 17:57:01

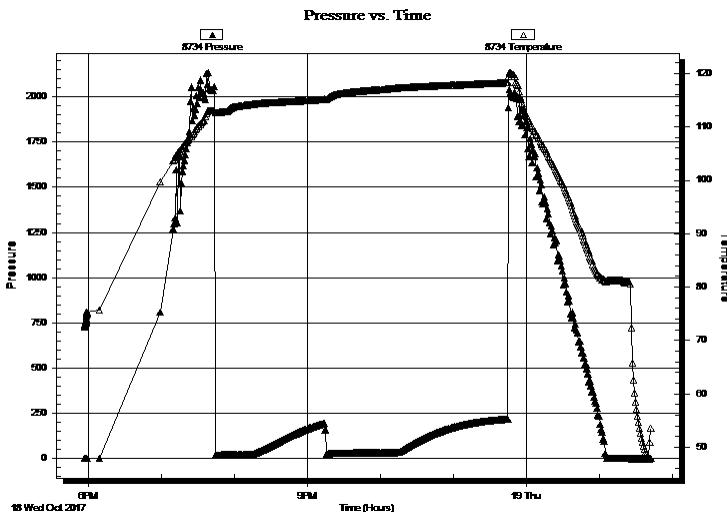
End Time: 01:42:50

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IF-Surface blow built to 1 3/4"  
60-ISI-No blow  
60-FF BOB (12 inches) @ 37 1/2 mins  
90-FSI-No blow

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
52.00	GOSM 5%G, 3%O, 92%M	0.26
0.00	280' GIP	0.00

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63159

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2017.10.18 @ 17:57:00

## Tool Information

Drill Pipe:	Length: 3839.00 ft	Diameter: 3.80 inches	Volume: 53.85 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: 202.00 ft	Diameter: 2.25 inches	Volume: 0.99 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 54.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4038.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	66.00 ft			
Number of Packers:	2	Diameter: 6.88 inches		

Tool Comments: Hit tight spot 10' off bottom

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
shut In Tool	5.00			4023.00	
hydraulic tool	5.00			4028.00	
Packer	5.00			4033.00	20.00 Bottom Of Top Packer
Packer	5.00			4038.00	
stubb	1.00			4039.00	
Recorder	0.00	8959	Inside	4039.00	
Recorder	0.00	8734	Outside	4039.00	
Perforations	40.00			4079.00	
Bullnose	5.00			4084.00	46.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>66.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63159

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2017.10.18 @ 17:57:00

### 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: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
52.00	GOSM 5%G, 3%O, 92%M	0.256
0.00	280' GIP	0.000

Total Length: 52.00 ft      Total Volume: 0.256 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

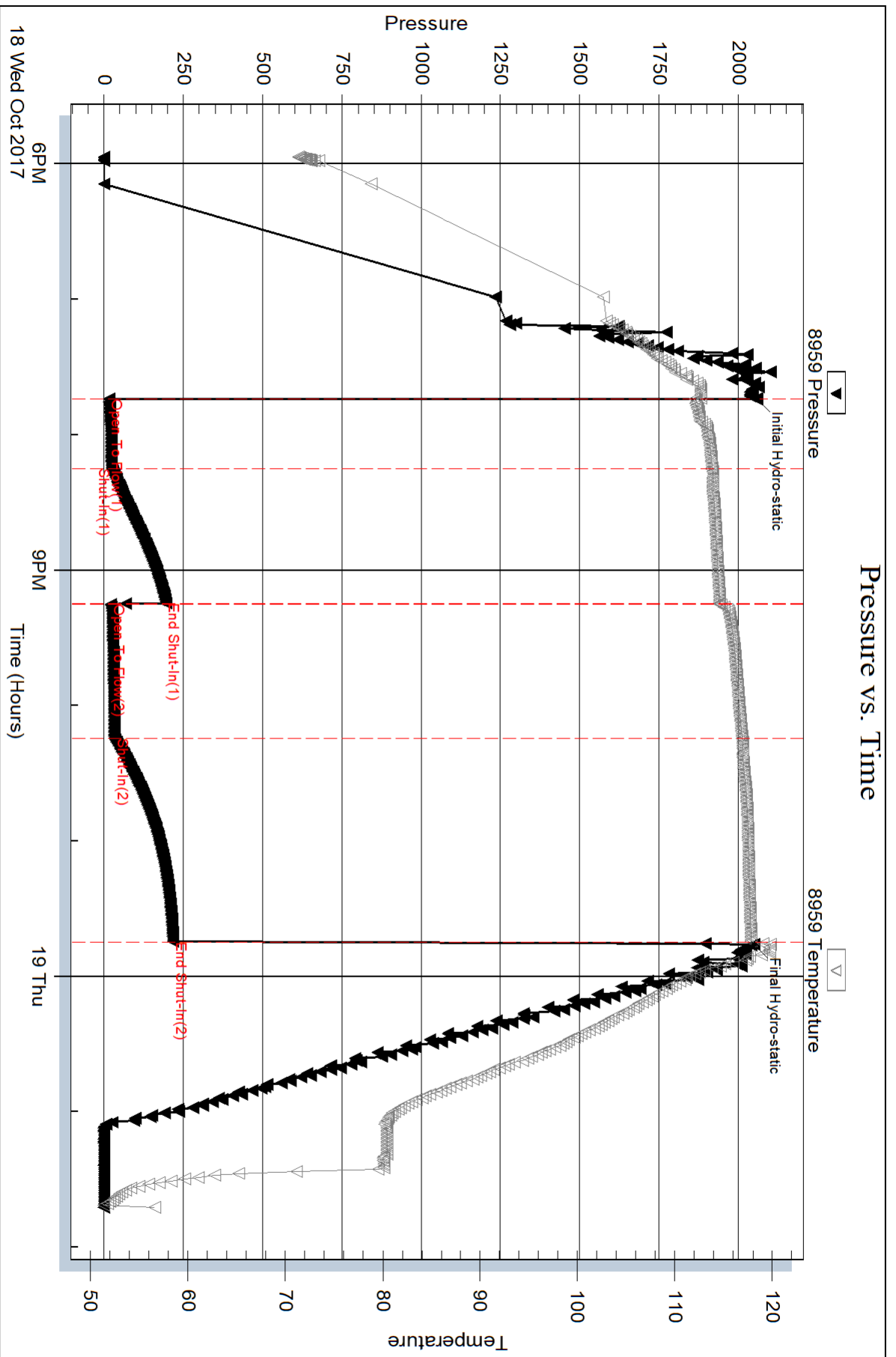
Serial #: 8959

Inside

Murfin Drilling Co INC

Schmidt-Vap"A" #2-26

DST Test Number: 3

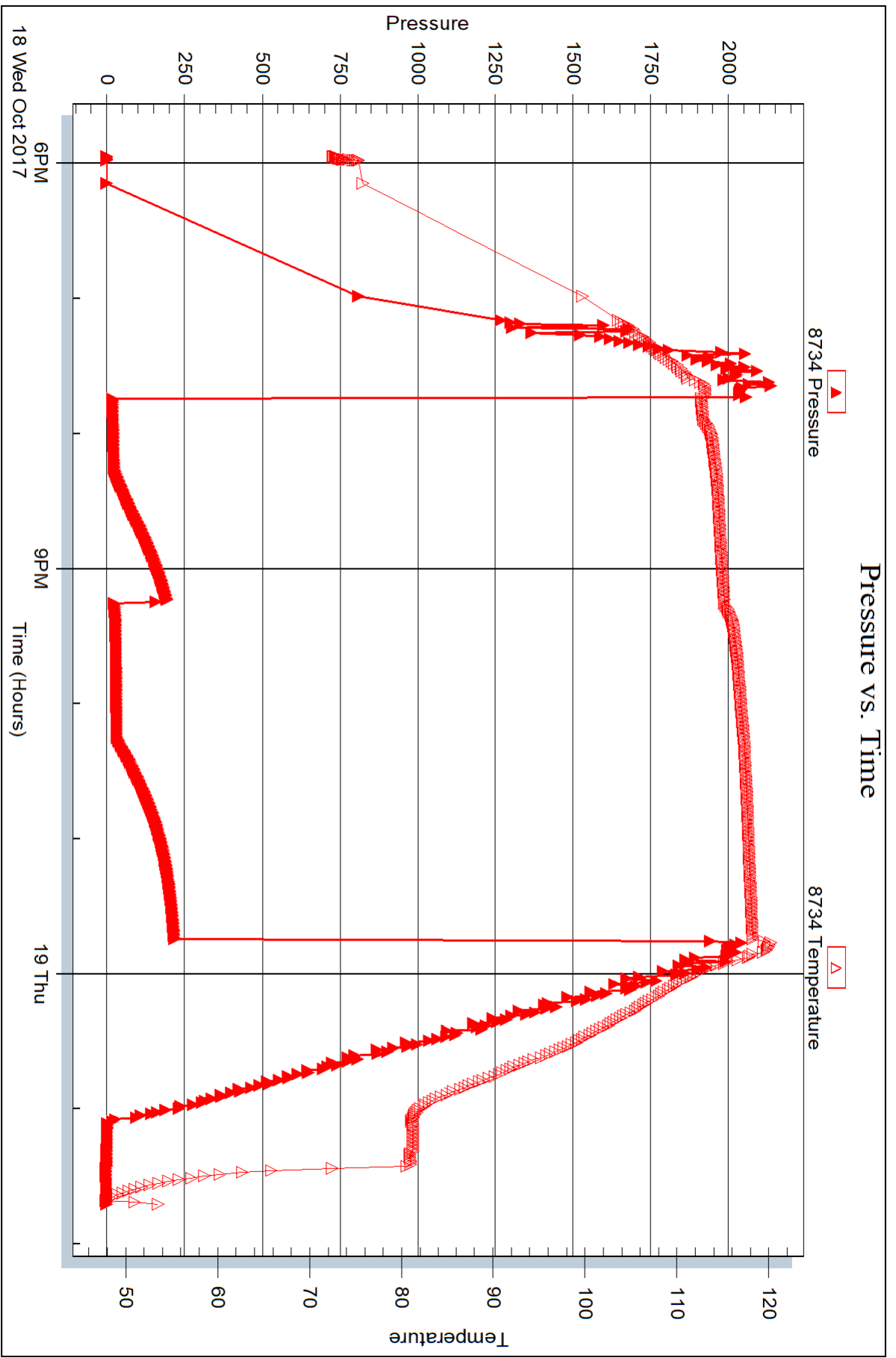


Serial #: 8734

Outside Murfin Drilling Co INC

Schmidt-Vap"A" #2-26

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Saman Sharifaie

### **Schmidt-Vap"A" #2-26**

### **26- 4S.-31W Rawlins,ks**

Start Date: 2017.10.19 @ 13:33:00

End Date: 2017.10.19 @ 20:23:30

Job Ticket #: 63160                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.10.23 @ 10:05:07

Murfin Drilling Co INC

26- 4S.-31W Rawlins,ks

Schmidt-Vap"A" #2-26

DST # 4

LKC H-J

2017.10.19



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63160

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2017.10.19 @ 13:33:00

## GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:14:10

Time Test Ended: 20:23:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

**Interval: 4086.00 ft (KB) To 4154.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 4154.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8959**

**Inside**

Press@RunDepth: 18.26 psig @ 4087.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.19

End Date: 2017.10.19

Last Calib.: 2017.10.19

Start Time: 13:33:01

End Time: 20:23:30

Time On Btm: 2017.10.19 @ 15:14:00

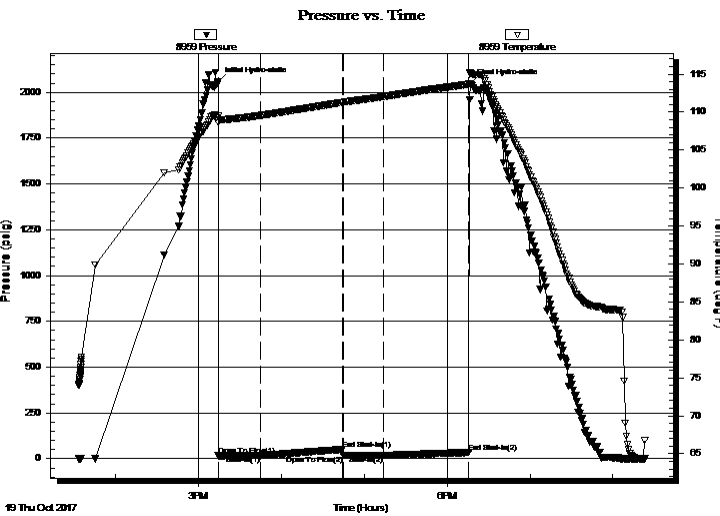
Time Off Btm: 2017.10.19 @ 18:17:00

**TEST COMMENT:** 30-IF-Surface blow built to 1/4" & died back to surface blow

60-ISI-No blow

30-FF-No blow

60-FSI-No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2058.78	109.48	Initial Hydro-static
1	16.50	108.59	Open To Flow (1)
31	16.54	109.54	Shut-In(1)
91	50.86	111.28	End Shut-In(1)
91	18.13	111.27	Open To Flow (2)
120	18.26	112.04	Shut-In(2)
182	34.30	113.67	End Shut-In(2)
183	2047.02	115.15	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 1%O, 99% M	0.02

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co INC

**26- 4S. -31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63160

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2017.10.19 @ 13:33:00

## GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:14:10

Time Test Ended: 20:23:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

**Interval: 4086.00 ft (KB) To 4154.00 ft (KB) (TVD)**

Reference Elevations: 2947.00 ft (KB)

Total Depth: 4154.00 ft (KB) (TVD)

2942.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8734 Outside**

Press@RunDepth: psig @ 4087.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.19

End Date: 2017.10.19

Last Calib.: 2017.10.19

Start Time: 13:33:01

End Time: 20:23:30

Time On Btm:

Time Off Btm:

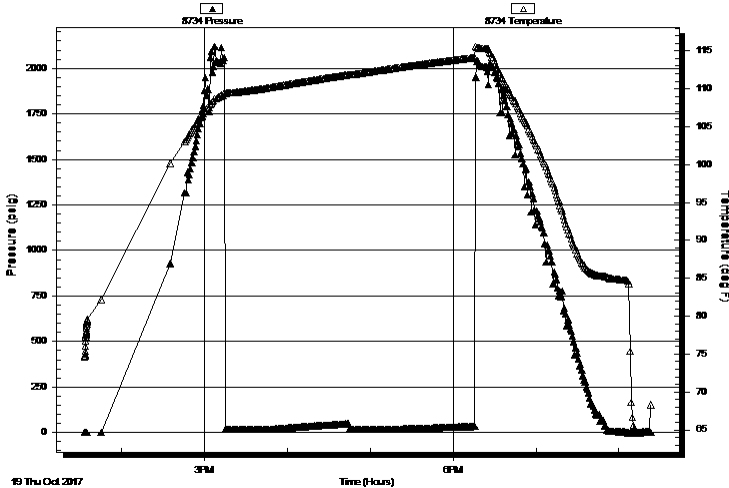
**TEST COMMENT:** 30-IF-Surface blow built to 1/4" & died back to surface blow

60-ISI-No blow

30-FF-No blow

60-FSI-No blow

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 1%O, 99% M	0.02

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63160

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2017.10.19 @ 13:33:00

## Tool Information

Drill Pipe:	Length: 3870.00 ft	Diameter: 3.80 inches	Volume: 54.29 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: 202.00 ft	Diameter: 2.25 inches	Volume: 0.99 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.28 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4086.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.88 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

shut In Tool	5.00			4071.00	
hydraulic tool	5.00			4076.00	
Packer	5.00			4081.00	20.00 Bottom Of Top Packer
Packer	5.00			4086.00	
stubb	1.00			4087.00	
Recorder	0.00	8959	Inside	4087.00	
Recorder	0.00	8734	Outside	4087.00	
Perforations	29.00			4116.00	
change Over Sub	1.00			4117.00	
blank spacing	31.00			4148.00	
change Over Sub	1.00			4149.00	
Bullnose	5.00			4154.00	68.00 Bottom Packers & Anchor

**Total Tool Length: 88.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co INC

**26- 4S.-31W Rawlins,ks**

250 N. Water STE 300  
Wichita, KS 67202

**Schmidt-Vap"A" #2-26**

Job Ticket: 63160

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2017.10.19 @ 13:33:00

## 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:

bbf

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	OSM 1%O, 99% M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

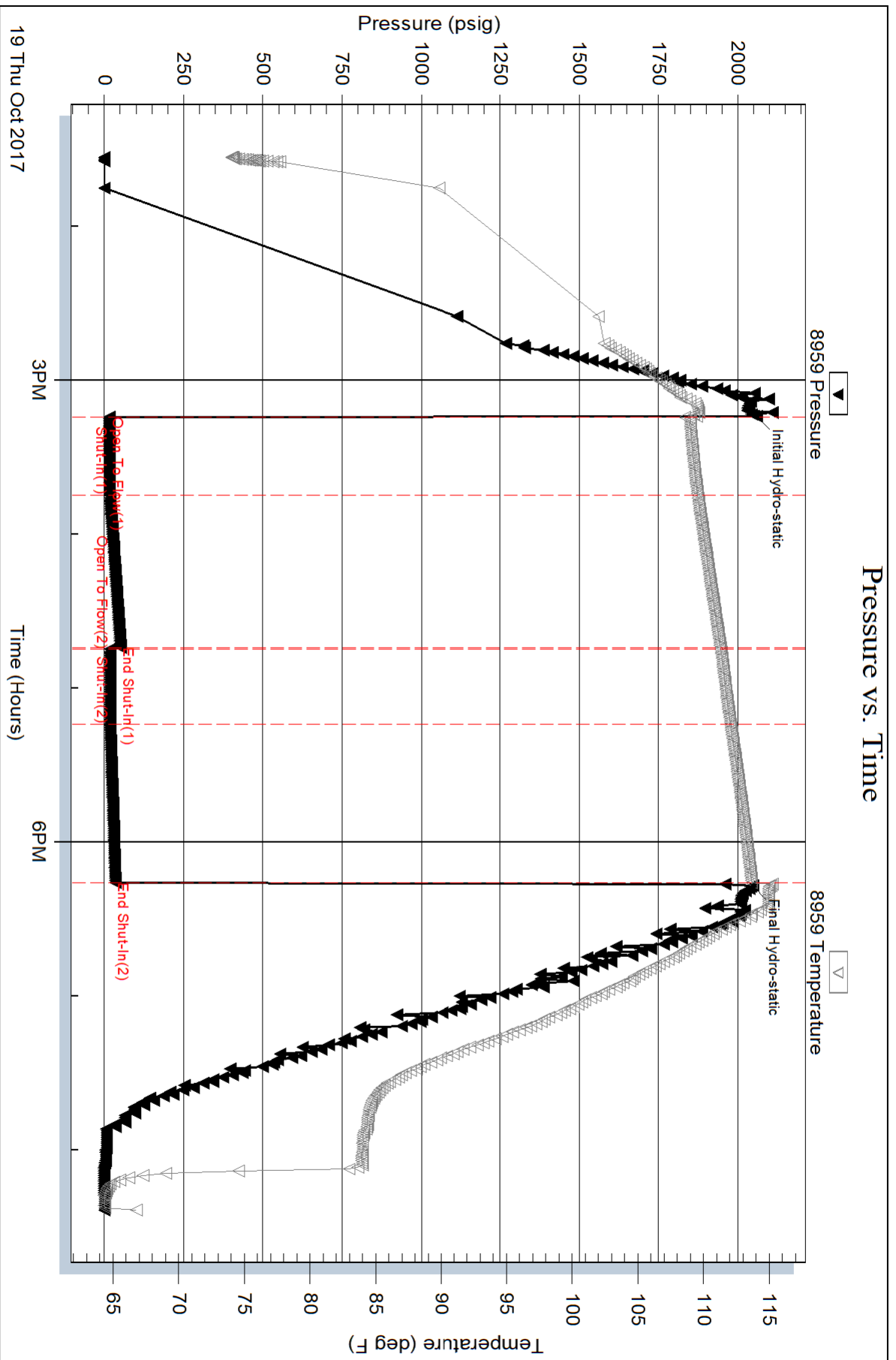
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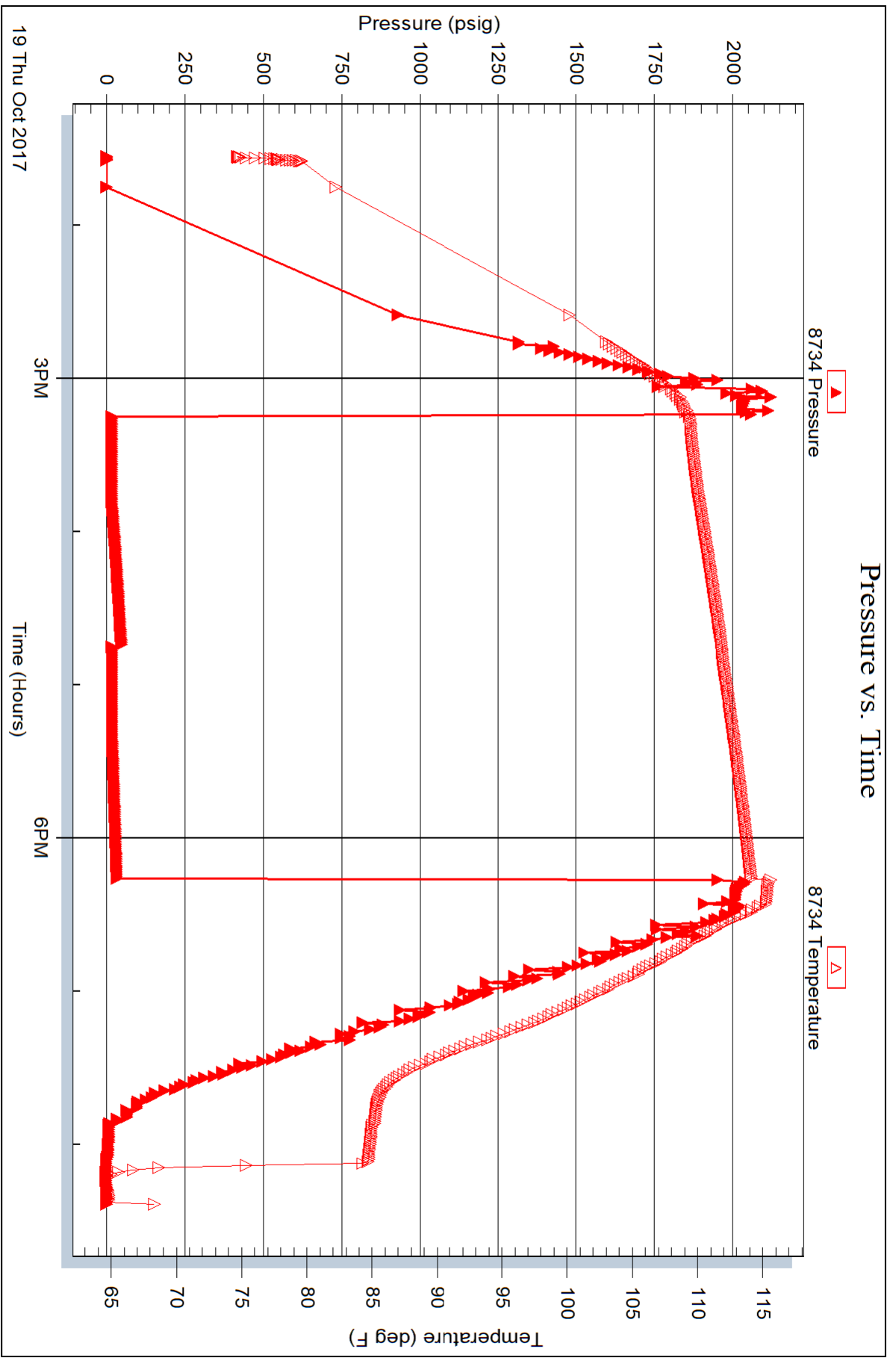
Laboratory Name:

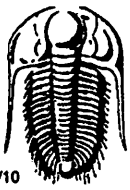
Laboratory Location:

Recovery Comments:

# Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63157

Well Name & No. Schmidt - Vap "A" #2-26 Test No. 1 Date 10-16-17  
 Company Murfin Drilling Co Inc Elevation 2947 KB 2942 GL  
 Address 250 N. Water, STE 300, Wichita, KS 67202  
 Co. Rep / Geo. Saman Shuck & Faie Rig Murfin #24  
 Location: Sec. 26 Twp. 4S Rge. 31 W. Co. Bawlin State KS

Interval Tested 3885-3930 Zone Tested Orcad  
 Anchor Length 45' Drill Pipe Run 3683 Mud Wt. 8.9  
 Top Packer Depth 3880 Drill Collars Run 202 Vis 72  
 Bottom Packer Depth 3885 Wt. Pipe Run — WL 5.6  
 Total Depth 3930 Chlorides 1000 ppm System LCM ZH

Blow Description IF - S. blow built to B.O.B (12 inches) @ 10 mins 45 secs.  
ISI - No blow  
FF - S. blow built to B.O.B (12 inches) @ 13 1/2 mins.  
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>670</u>	<u>MSW</u>		<u>98</u>	<u>2</u>	
<u>208</u>	<u>HMCW</u>		<u>65</u>	<u>35</u>	

Rec Total 878 BHT 120 Gravity \_\_\_\_\_ API RW .092 @ 47.5° F Chlorides 160,000 ppm

(A) Initial Hydrostatic <u>1938</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>22:05 10-16-17</u>
(B) First Initial Flow <u>47</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:57</u>
(C) First Final Flow <u>216</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:06</u>
(D) Initial Shut-In <u>1258</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>06:06</u>
(E) Second Initial Flow <u>219</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>08:29 10-17-17</u>
(F) Second Final Flow <u>423</u>	<input checked="" type="checkbox"/> Mileage <u>47 RT.</u> 35.25	Comments _____
(G) Final Shut-In <u>1248</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1923</u>	<input type="checkbox"/> Straddle _____	

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

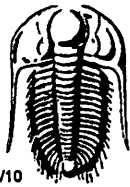
Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_

Sub Total 0  
 Total 1410.25  
 MP/DST Disc't \_\_\_\_\_

Sub Total 1410.25

Approved By \_\_\_\_\_ Our Representative Walter Palmer

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. 63158

Well Name & No. Schmidt-Vap "A" #2-26 Test No. 2 Date 10-17-17  
 Company Murfin Drilling Co Inc Elevation 2947 KB 2942 GL  
 Address 250 N. Water, STE 300, Wichita, KS 67202  
 Co. Rep / Geo. Saman Sharifaic Rig Murfin #24  
 Location: Sec. 26 Twp. 4S. Rge. 31W Co. Bawling State KS

Interval Tested 3936-4014 Zone Tested Toronto, LKC A-B  
 Anchor Length 78' Drill Pipe Run 3745 Mud Wt. 8.8  
 Top Packer Depth 3931 Drill Collars Run 202 Vis 76  
 Bottom Packer Depth 3936 Wt. Pipe Run — WL 5.6  
 Total Depth 4014 Chlorides 1500 ppm System LCM 4#

Blow Description IF - S. blow built to B.O.B (12 inches) @ 5 1/2 mins.  
ISF - Blow back @ 5 mins built to 1/8" dead @ 54 mins.  
EF - S. blow built to B.O.B (12 inches) @ 7 mins 15 secs.  
FSI - NO blow

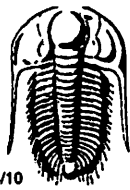
Rec	Feet of	%gas	%oil	%water	%mud
<u>982</u>	<u>MSW</u>		<u>97</u>	<u>3</u>	
<u>314</u>	<u>OSMCW</u>		<u>2</u>	<u>67</u>	<u>31</u>

Rec Total 1296 BHT 122 Gravity \_\_\_\_\_ API RW .97 @ 44.4 °F Chlorides 10500 ppm

(A) Initial Hydrostatic 1985  Test 1150 T-On Location 20:00  
 (B) First Initial Flow 48  Jars \_\_\_\_\_ T-Started 20:38  
 (C) First Final Flow 317  Safety Joint \_\_\_\_\_ T-Open 22:37  
 (D) Initial Shut-In 1153  Circ Sub \_\_\_\_\_ T-Pulled 02:37  
 (E) Second Initial Flow 320  Hourly Standby \_\_\_\_\_ T-Out 05:13  
 (F) Second Final Flow 620  Mileage 47RT 35.25 Comments Hit tight spot 15' off bottom.  
 (G) Final Shut-In 1122  Sampler \_\_\_\_\_ 4' Fill on Bottom  
 (H) Final Hydrostatic 1960  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1185.25  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1185.25

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

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. 63159

Well Name & No. Schmidt - Vap "A" # 2-26 Test No. 3 Date 10-18-17  
 Company Murfin Drilling Co Inc Elevation 2947 KB 2942 GL  
 Address 250 N. Water, STE 300, Wichita, KS 67202  
 Co. Rep / Geo. Saman Sharifaie Rig Murfin # 24  
 Location: Sec. 26 Twp. 4S. Rge. 31W Co. Bawling State KS

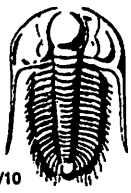
Interval Tested 4038 - 4084 Zone Tested LKC F-G  
 Anchor Length 46 Drill Pipe Run 3839 Mud Wt. 9.0  
 Top Packer Depth 4033 Drill Collars Run 202 Vis 62  
 Bottom Packer Depth 4038 Wt. Pipe Run — WL 6.4  
 Total Depth 4084 Chlorides 2300 ppm System LCM 4#  
 Blow Description IF. S. blow built to 1 3/4"  
ISI. No blow  
FF. 4" blow built to B.O.B (12 inches) @ 37 1/2 mins.  
FSI. No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>52</u>	<u>GOSM</u>	<u>5</u>	<u>3</u>		<u>92</u>
<u>0</u>	<u>280' GIP</u>				

Rec Total 52 BHT 120 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2056  Test 1150 T-On Location 17:13 10-18-17  
 (B) First Initial Flow 15  Jars \_\_\_\_\_ T-Started 17:57  
 (C) First Final Flow 24  Safety Joint \_\_\_\_\_ T-Open 19:45  
 (D) Initial Shut-In 195  Circ Sub \_\_\_\_\_ T-Pulled 23:45  
 (E) Second Initial Flow 21  Hourly Standby \_\_\_\_\_ T-Out 01:44 10-19-17  
 (F) Second Final Flow 32  Mileage 47 RT 35.25 Comments Hit tight spot 10'  
 (G) Final Shut-In 218  Sampler \_\_\_\_\_ off bottom  
 (H) Final Hydrostatic 2049  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1185.25  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1185.25

Approved By \_\_\_\_\_ Our Representative Yates Selvin  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63160

Well Name & No. Schmidt - Vap "A" #2-26 Test No. 4 Date 10-19-17  
 Company Murfin Drilling Co Inc Elevation 2947 KB 2942 GL  
 Address 250 N. Water, STE 300, Wichita, KS 67202  
 Co. Rep / Geo. Saman Sherifai Rig Murfin #24  
 Location: Sec. 26 Twp. 4S. Rge. 31W. Co. Rawlins State K5

Interval Tested 4086 - 4154 Zone Tested LKC H-5  
 Anchor Length 68' Drill Pipe Run 3870 Mud Wt. 9.0  
 Top Packer Depth 4081 Drill Collars Run 202 Vis 65  
 Bottom Packer Depth 4086 Wt. Pipe Run — WL 6.4  
 Total Depth 4154 Chlorides 2000 ppm System LCM 4#

Blow Description IF - S. blow built to 1/4" & died back to S. blow  
ISI - No blow  
FF - No blow  
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>SDSM</u>	<u>1</u>		<u>99</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 5 BHT 115 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2059  Test 1150 T-On Location 13:18  
 (B) First Initial Flow 17  Jars \_\_\_\_\_ T-Started 13:33  
 (C) First Final Flow 17  Safety Joint \_\_\_\_\_ T-Open 15:14  
 (D) Initial Shut-In 51  Circ Sub \_\_\_\_\_ T-Pulled 18:14  
 (E) Second Initial Flow 18  Hourly Standby \_\_\_\_\_ T-Out 20:24  
 (F) Second Final Flow 18  Mileage 47 RT 35.25 Comments \_\_\_\_\_  
 (G) Final Shut-In 34  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2047  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1185.25  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1185.25

Approved By \_\_\_\_\_ Our Representative Matt Spina

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