



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Sowers A #1-19**

#### **19-2s-38w Cheyenne,KS**

Start Date: 2019.07.14 @ 19:13:00

End Date: 2019.07.15 @ 03:16:09

Job Ticket #: 65260                      DST #: 1

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

Printed: 2019.07.22 @ 14:46:39



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65260

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2019.07.14 @ 19:13:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:10:20

Time Test Ended: 03:16:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4225.00 ft (KB) To 4306.00 ft (KB) (TVD)**

Reference Elevations: 3440.00 ft (KB)

Total Depth: 4306.00 ft (KB) (TVD)

3435.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 19.06 psig @ 4226.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.14

End Date:

2019.07.15

Last Calib.:

2019.07.15

Start Time: 19:13:01

End Time:

03:16:10

Time On Btm:

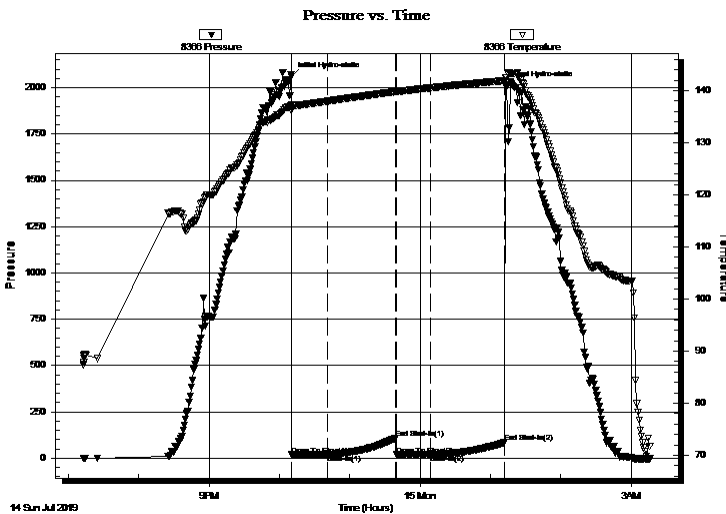
2019.07.14 @ 22:10:10

Time Off Btm:

2019.07.15 @ 01:12:50

**TEST COMMENT:** 30 IF - Blow built to 1" died back to surface blow  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2059.15	137.19	Initial Hydro-static
1	17.45	136.15	Open To Flow (1)
31	18.20	137.96	Shut-In(1)
90	108.46	139.79	End Shut-In(1)
90	17.83	139.78	Open To Flow (2)
120	19.06	140.53	Shut-In(2)
182	84.13	141.92	End Shut-In(2)
183	2009.14	142.52	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%M	0.02

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65260

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2019.07.14 @ 19:13:00

## Tool Information

Drill Pipe:	Length: 4040.00 ft	Diameter: 3.80 inches	Volume: 56.67 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 57.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4225.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	81.00 ft			
Tool Length:	109.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4202.00	
Hydraulic tool	5.00			4207.00	
Jars	5.00			4212.00	
Safety Joint	3.00			4215.00	
Packer	5.00			4220.00	28.00 Bottom Of Top Packer
Packer	5.00			4225.00	
Stubb	1.00			4226.00	
Recorder	0.00	8353	Inside	4226.00	
Recorder	0.00	8366	Outside	4226.00	
Perforations	12.00			4238.00	
Blank Spacing	65.00			4303.00	
Bullnose	3.00			4306.00	81.00 Bottom Packers & Anchor

**Total Tool Length: 109.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65260

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2019.07.14 @ 19:13:00

### 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:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

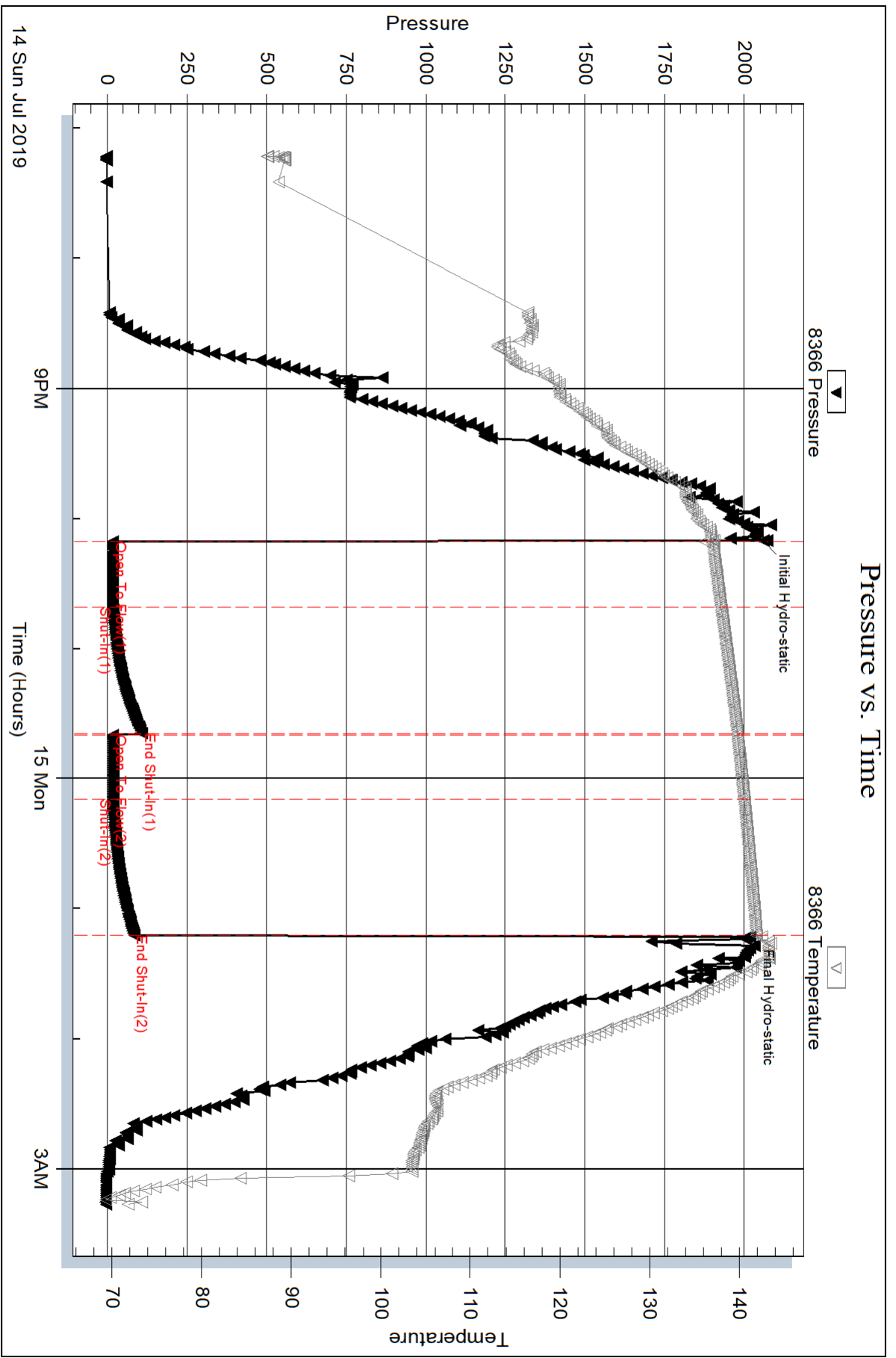
Recovery Comments:

Serial #: 8366

Outside Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 65260

Printed: 2019.07.22 @ 14:46:40

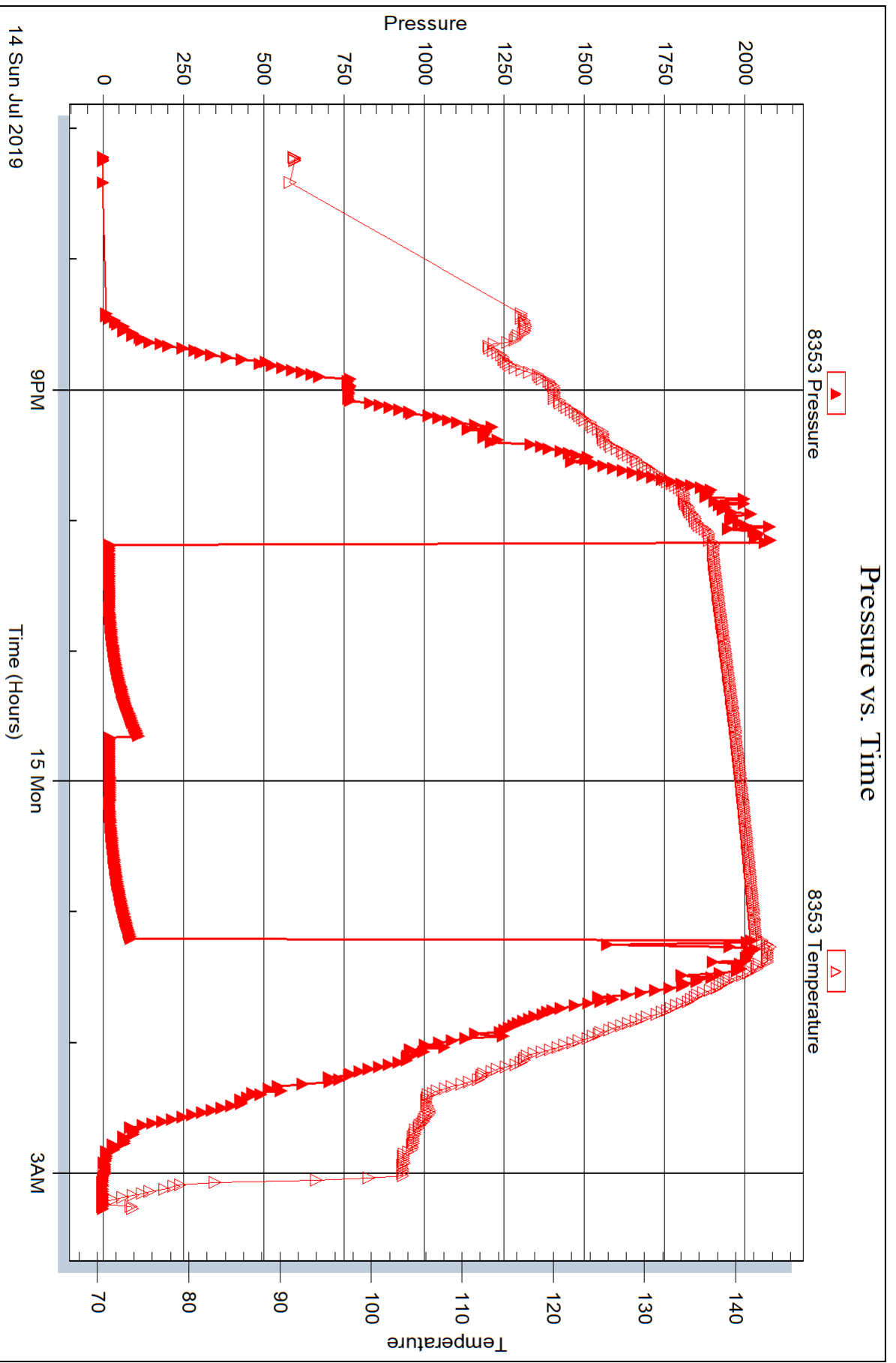
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Sowers A #1-19**

#### **19-2s-38w Cheyenne,KS**

Start Date: 2019.07.15 @ 14:15:00

End Date: 2019.07.15 @ 21:52:09

Job Ticket #: 65261                      DST #: 2

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

Printed: 2019.07.22 @ 14:45:52





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne, KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65261

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2019.07.15 @ 14:15:00

## GENERAL INFORMATION:

Formation: **LKC A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:15:00

Time Test Ended: 21:52:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4308.00 ft (KB) To 4375.00 ft (KB) (TVD)**

Reference Elevations: 3440.00 ft (KB)

Total Depth: 4375.00 ft (KB) (TVD)

3435.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 103.29 psig @ 4309.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.15 End Date: 2019.07.15

Last Calib.: 2019.07.15

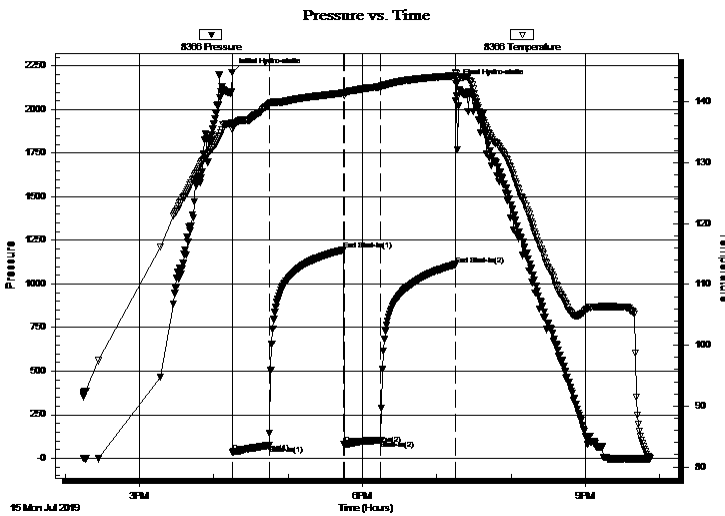
Start Time: 14:15:01 End Time: 21:52:10

Time On Btm: 2019.07.15 @ 16:14:50

Time Off Btm: 2019.07.15 @ 19:15:39

**TEST COMMENT:** 30 IF - Blow built to 2"  
60 ISI - No Return  
30 FF - Blow started @ 10 mins built to 1"  
60 ISI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2213.30	136.47	Initial Hydro-static
1	34.13	135.41	Open To Flow (1)
31	74.96	139.56	Shut-In(1)
90	1194.63	141.43	End Shut-In(1)
91	77.97	141.05	Open To Flow (2)
120	103.29	142.48	Shut-In(2)
180	1111.47	144.30	End Shut-In(2)
181	2147.55	144.55	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
210.00	VSOCM - 3%o - 97%M	1.33

\* 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.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65261

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2019.07.15 @ 14:15:00

## Tool Information

Drill Pipe:	Length: 4133.00 ft	Diameter: 3.80 inches	Volume: 57.98 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 58.85 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4308.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 ft			
Tool Length:	95.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4285.00	
Hydraulic tool	5.00			4290.00	
Jars	5.00			4295.00	
Safety Joint	3.00			4298.00	
Packer	5.00			4303.00	28.00 Bottom Of Top Packer
Packer	5.00			4308.00	
Stubb	1.00			4309.00	
Recorder	0.00	8353	Inside	4309.00	
Recorder	0.00	8366	Outside	4309.00	
Perforations	30.00			4339.00	
Blank Spacing	33.00			4372.00	
Bullnose	3.00			4375.00	67.00 Bottom Packers & Anchor

**Total Tool Length: 95.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65261

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2019.07.15 @ 14:15:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
210.00	VSOCM - 3%o - 97%M	1.333

Total Length: 210.00 ft      Total Volume: 1.333 bbl

Num Fluid Samples: 0

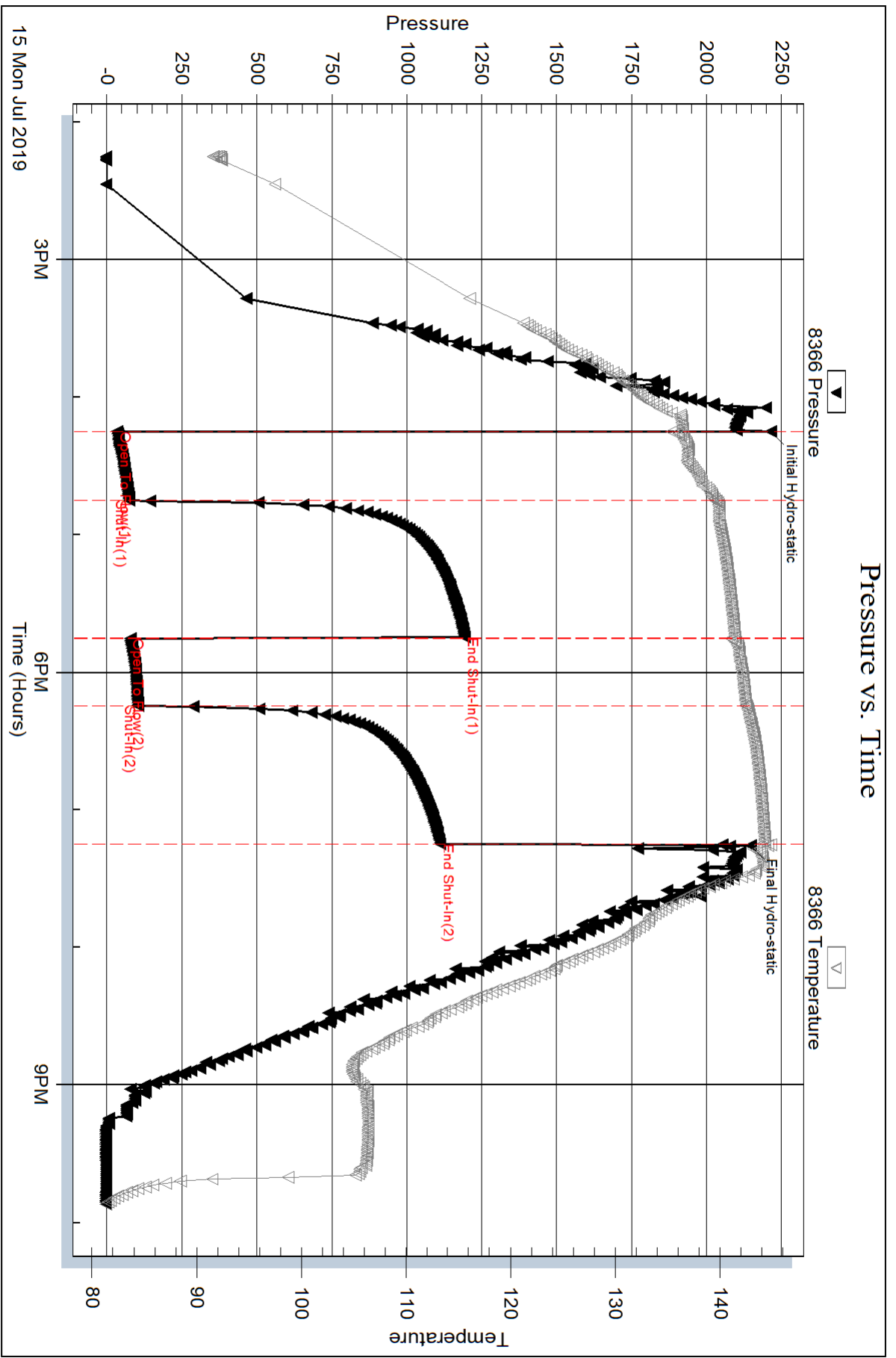
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



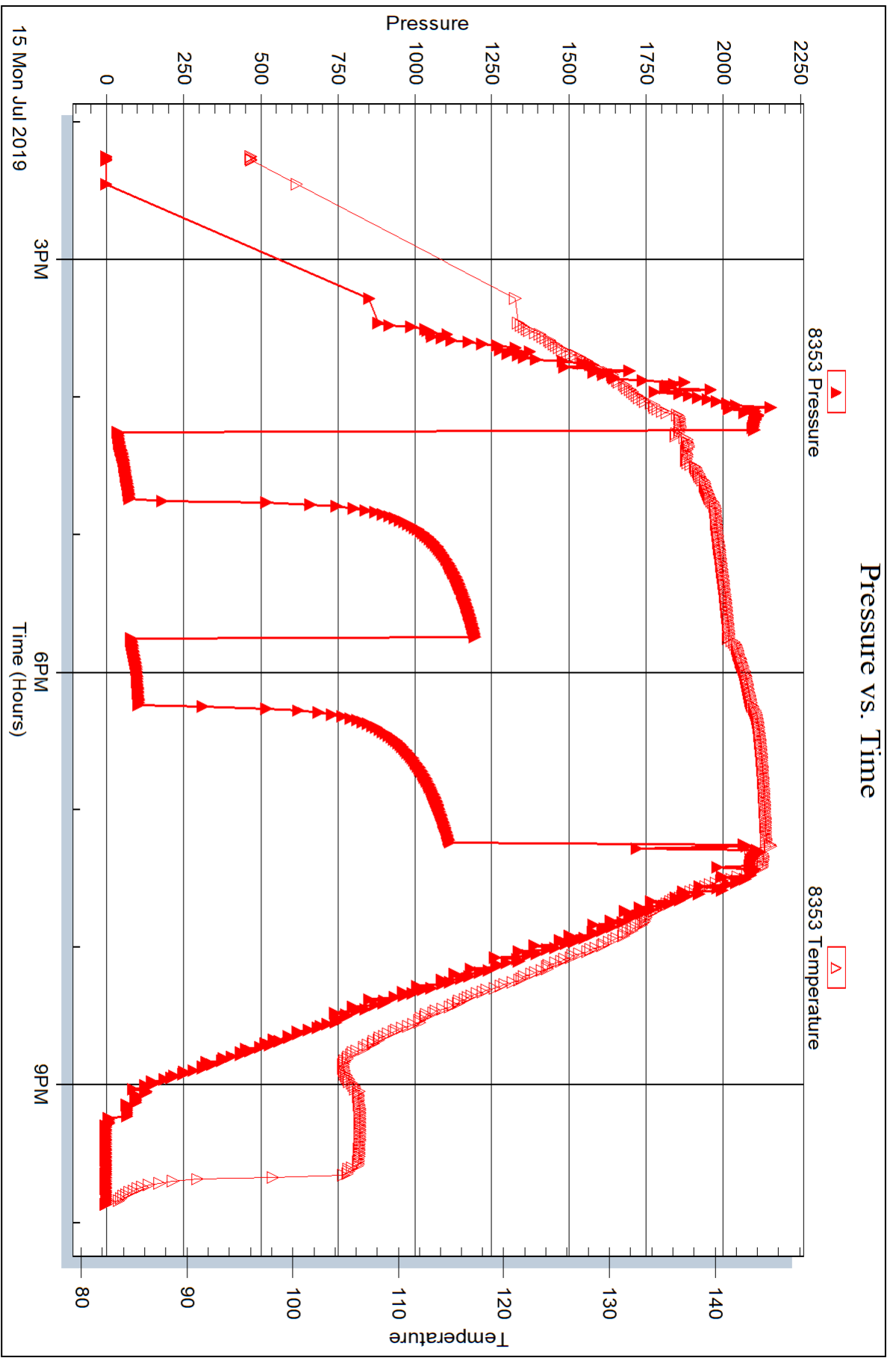
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Sowers A #1-19**

#### **19-2s-38w Cheyenne,KS**

Start Date: 2019.07.16 @ 11:07:00

End Date: 2019.07.16 @ 19:23:09

Job Ticket #: 65262                      DST #: 3

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

Printed: 2019.07.22 @ 14:45:05

Murfin Drilling Co. Inc.

19-2s-38w Cheyenne,KS

Sowers A #1-19

DST # 3

LKC " D "

2019.07.16



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65262

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2019.07.16 @ 11:07:00

## GENERAL INFORMATION:

Formation: **LKC " D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:21:20

Time Test Ended: 19:23:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4371.00 ft (KB) To 4460.00 ft (KB) (TVD)**

Reference Elevations: 3440.00 ft (KB)

Total Depth: 4460.00 ft (KB) (TVD)

3435.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 1125.46 psig @ 4372.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.16

End Date: 2019.07.16

Last Calib.: 2019.07.16

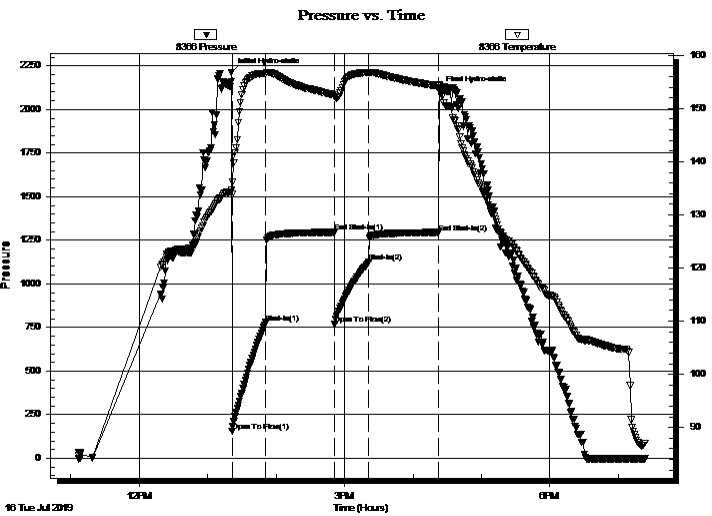
Start Time: 11:07:01

End Time: 19:23:10

Time On Btm: 2019.07.16 @ 13:21:10

Time Off Btm: 2019.07.16 @ 16:22:50

**TEST COMMENT:** 30 IF - BoB @ 2 mins  
60 ISI - No return  
30 FF - BoB @ 3 mins  
60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2213.05	134.76	Initial Hydro-static
1	154.80	133.84	Open To Flow (1)
30	777.47	156.61	Shut-In(1)
90	1296.02	152.54	End Shut-In(1)
91	768.78	152.19	Open To Flow (2)
121	1125.46	156.70	Shut-In(2)
181	1295.36	154.20	End Shut-In(2)
182	2108.02	154.40	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	MCW - 45%M - 55%W	0.59
1750.00	MCW - 5%M - 95%W	24.03
630.00	MCW - 40%M - 60%W	8.84

\* 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: Robert Hendrix

**19-2s-38w Cheyenne, KS**

**Sowers A #1-19**

Job Ticket: 65262      **DST#: 3**  
Test Start: 2019.07.16 @ 11:07:00

**GENERAL INFORMATION:**

Formation: **LKC " D "**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 13:21:20      Tester: Ryan Nichols  
Time Test Ended: 19:23:09      Unit No: 71

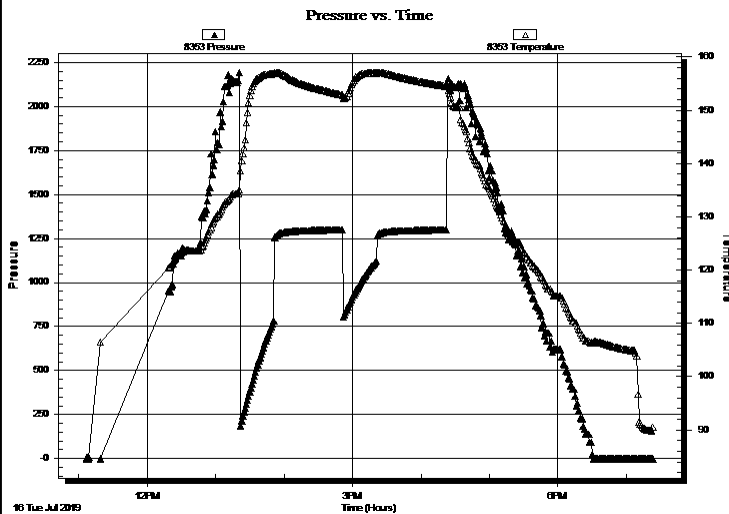
**Interval: 4371.00 ft (KB) To 4460.00 ft (KB) (TVD)**      Reference Elevations: 3440.00 ft (KB)  
Total Depth: 4460.00 ft (KB) (TVD)      3435.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft

**Serial #: 8353**

Inside

Press@RunDepth:      psig @ 4372.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2019.07.16      End Date: 2019.07.16      Last Calib.: 2019.07.16  
Start Time: 11:07:01      End Time: 19:23:00      Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 30 IF - BoB @ 2 mins  
60 ISI - No return  
30 FF - BoB @ 3 mins  
60 FSI - No return



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
120.00	MCW - 45%M - 55%W	0.59
1750.00	MCW - 5%M - 95%W	24.03
630.00	MCW - 40%M - 60%W	8.84

**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.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65262

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2019.07.16 @ 11:07:00

## Tool Information

Drill Pipe:	Length: 4194.00 ft	Diameter: 3.80 inches	Volume: 58.83 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 115000.0 lb
			<u>Total Volume: 59.70 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4371.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	89.00 ft			
Tool Length:	117.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4348.00	
Hydraulic tool	5.00			4353.00	
Jars	5.00			4358.00	
Safety Joint	3.00			4361.00	
Packer	5.00			4366.00	28.00 Bottom Of Top Packer
Packer	5.00			4371.00	
Stubb	1.00			4372.00	
Recorder	0.00	8353	Inside	4372.00	
Recorder	0.00	8366	Outside	4372.00	
Perforations	20.00			4392.00	
Blank Spacing	65.00			4457.00	
Bullnose	3.00			4460.00	89.00 Bottom Packers & Anchor

**Total Tool Length: 117.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65262

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2019.07.16 @ 11:07:00

## 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:

23000 ppm

Viscosity: 66.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	MCW - 45%M - 55%W	0.590
1750.00	MCW - 5%M - 95%W	24.029
630.00	MCW - 40%M - 60%W	8.837

Total Length: 2500.00 ft      Total Volume: 33.456 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .215 @ 90 DEG F

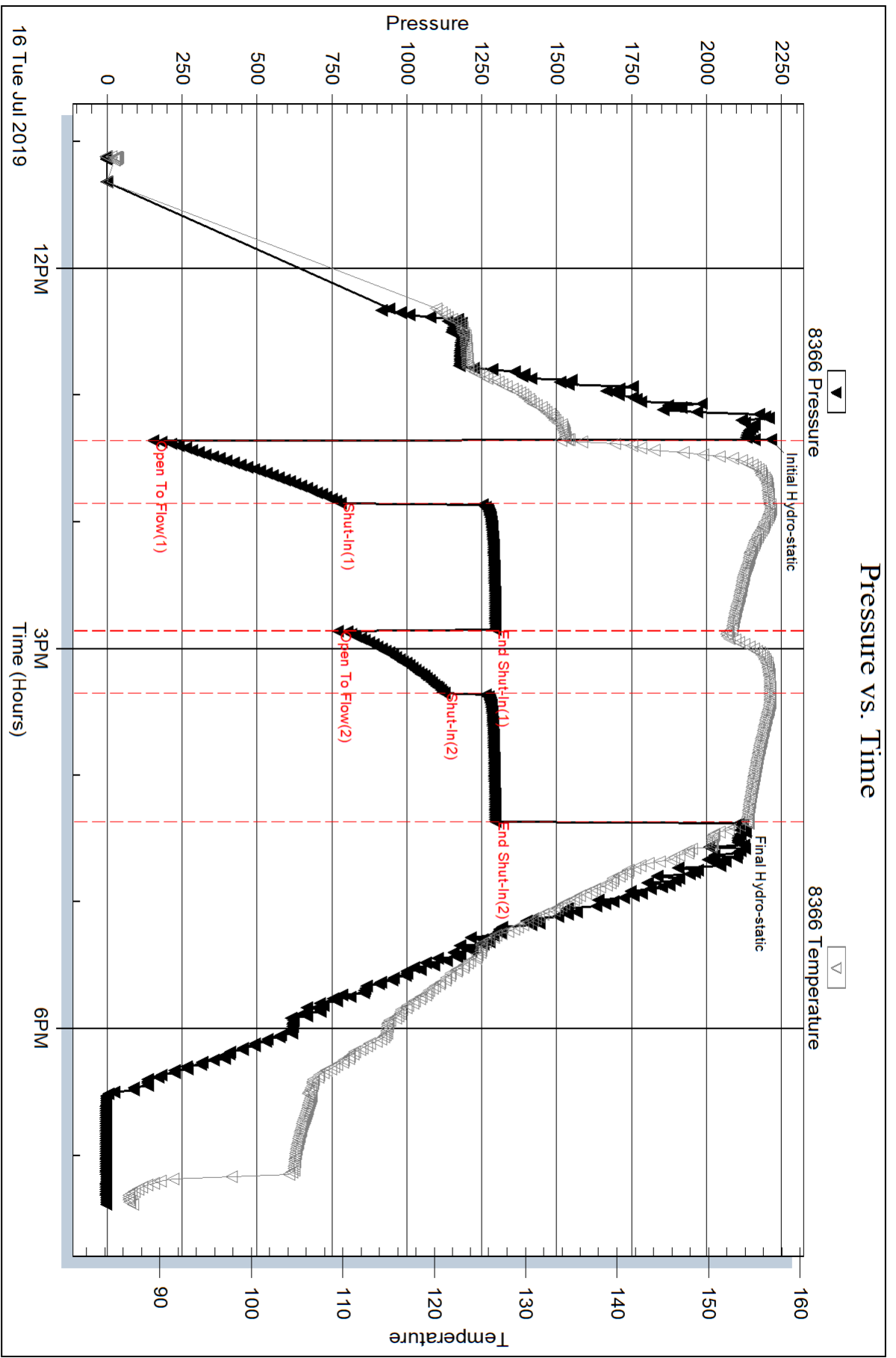
CHLORIDES = 23,000 ppm

Serial #: 8366

Outside Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 65262

Printed: 2019.07.22 @ 14:45:06

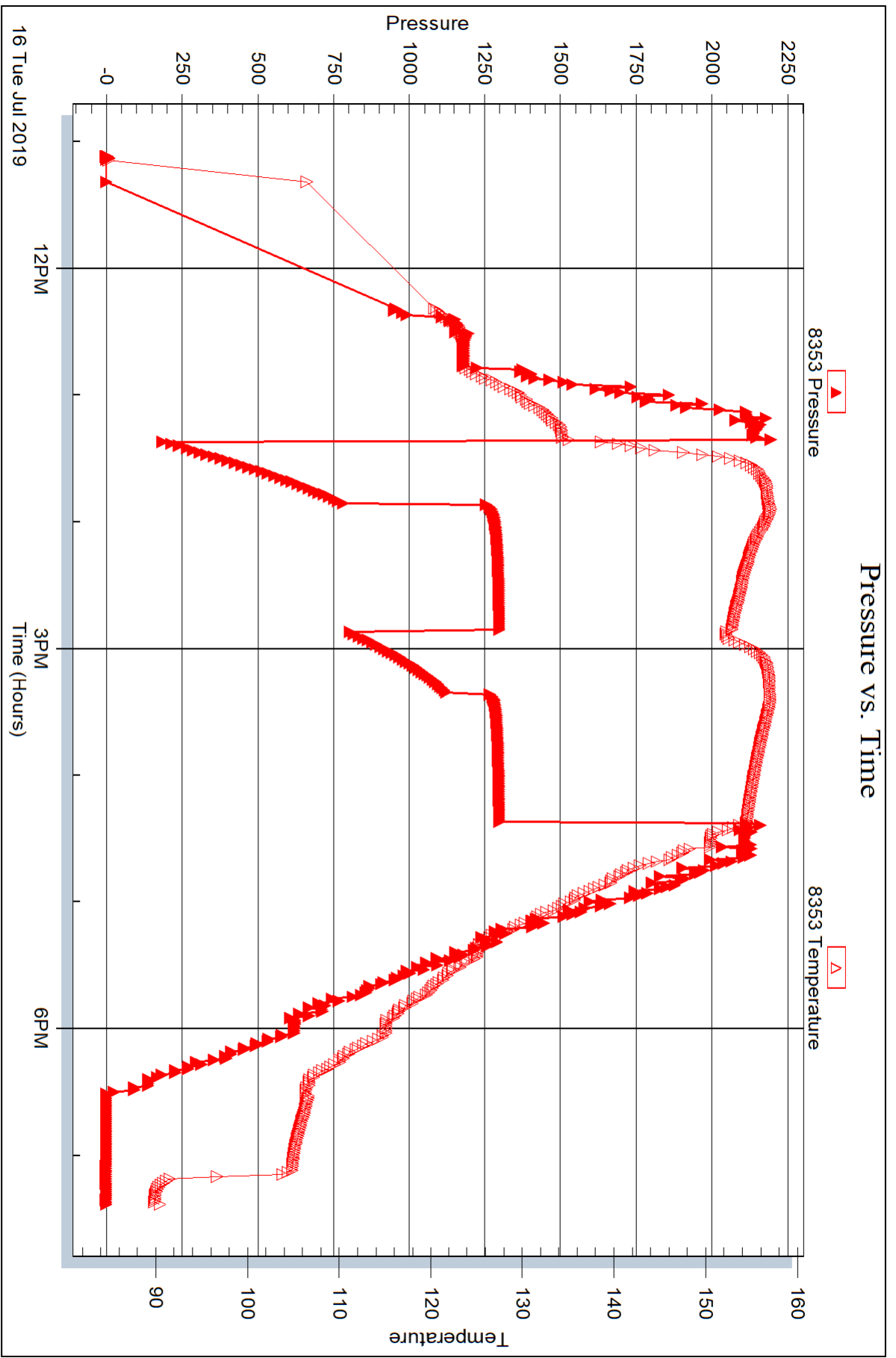
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 65262

Printed: 2019.07.22 @ 14:45:06



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Sowers A #1-19**

#### **19-2s-38w Cheyenne,KS**

Start Date: 2019.07.17 @ 13:35:00

End Date: 2019.07.17 @ 20:54:39

Job Ticket #: 65623                      DST #: 4

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

Printed: 2019.07.22 @ 14:44:33

Murfin Drilling Co. Inc.

19-2s-38w Cheyenne,KS

Sowers A #1-19

DST # 4

LKC "H-J"

2019.07.17



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65623

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2019.07.17 @ 13:35:00

## GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:35:50

Time Test Ended: 20:54:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4495.00 ft (KB) To 4584.00 ft (KB) (TVD)**

Reference Elevations: 3440.00 ft (KB)

Total Depth: 4584.00 ft (KB) (TVD)

3435.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 53.08 psig @ 4496.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.17

End Date: 2019.07.17

Last Calib.: 2019.07.17

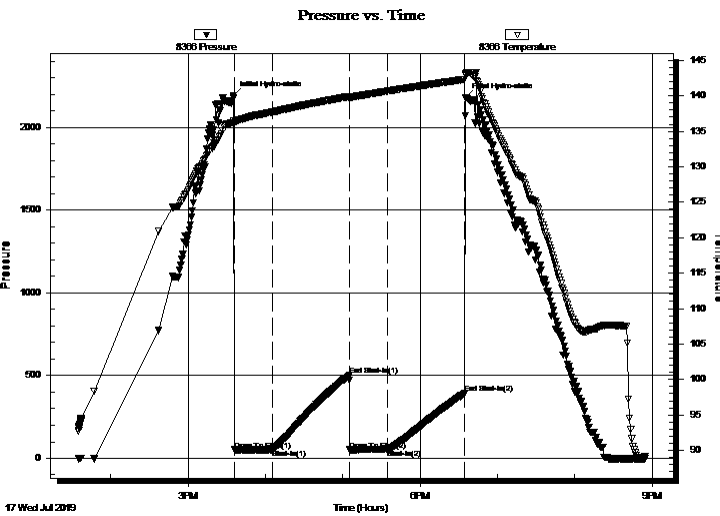
Start Time: 13:35:01

End Time: 20:54:40

Time On Btm: 2019.07.17 @ 15:35:20

Time Off Btm: 2019.07.17 @ 18:35:20

**TEST COMMENT:** 30 IF - Opened tool slide 5', 2" blow built to 2 1/2" died back to 1"  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2191.83	136.46	Initial Hydro-static
1	50.72	136.03	Open To Flow (1)
31	52.31	137.72	Shut-In(1)
90	501.14	139.91	End Shut-In(1)
90	51.45	139.62	Open To Flow (2)
120	53.08	140.67	Shut-In(2)
180	392.86	142.33	End Shut-In(2)
180	2181.18	143.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
65.00	Mud 100%M	0.32

\* 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.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65623

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2019.07.17 @ 13:35:00

## Tool Information

Drill Pipe:	Length: 4319.00 ft	Diameter: 3.80 inches	Volume: 60.58 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 61.45 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	4495.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	89.00 ft				
Tool Length:	117.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4472.00	
Hydraulic tool	5.00			4477.00	
Jars	5.00			4482.00	
Safety Joint	3.00			4485.00	
Packer	5.00			4490.00	28.00 Bottom Of Top Packer
Packer	5.00			4495.00	
Stubb	1.00			4496.00	
Recorder	0.00	8353	Inside	4496.00	
Recorder	0.00	8366	Outside	4496.00	
Perforations	20.00			4516.00	
Blank Spacing	65.00			4581.00	
Bullnose	3.00			4584.00	89.00 Bottom Packers & Anchor

**Total Tool Length: 117.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65623

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2019.07.17 @ 13:35:00

## 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: 57.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	Mud 100%M	0.320

Total Length: 65.00 ft      Total Volume: 0.320 bbl

Num Fluid Samples: 0

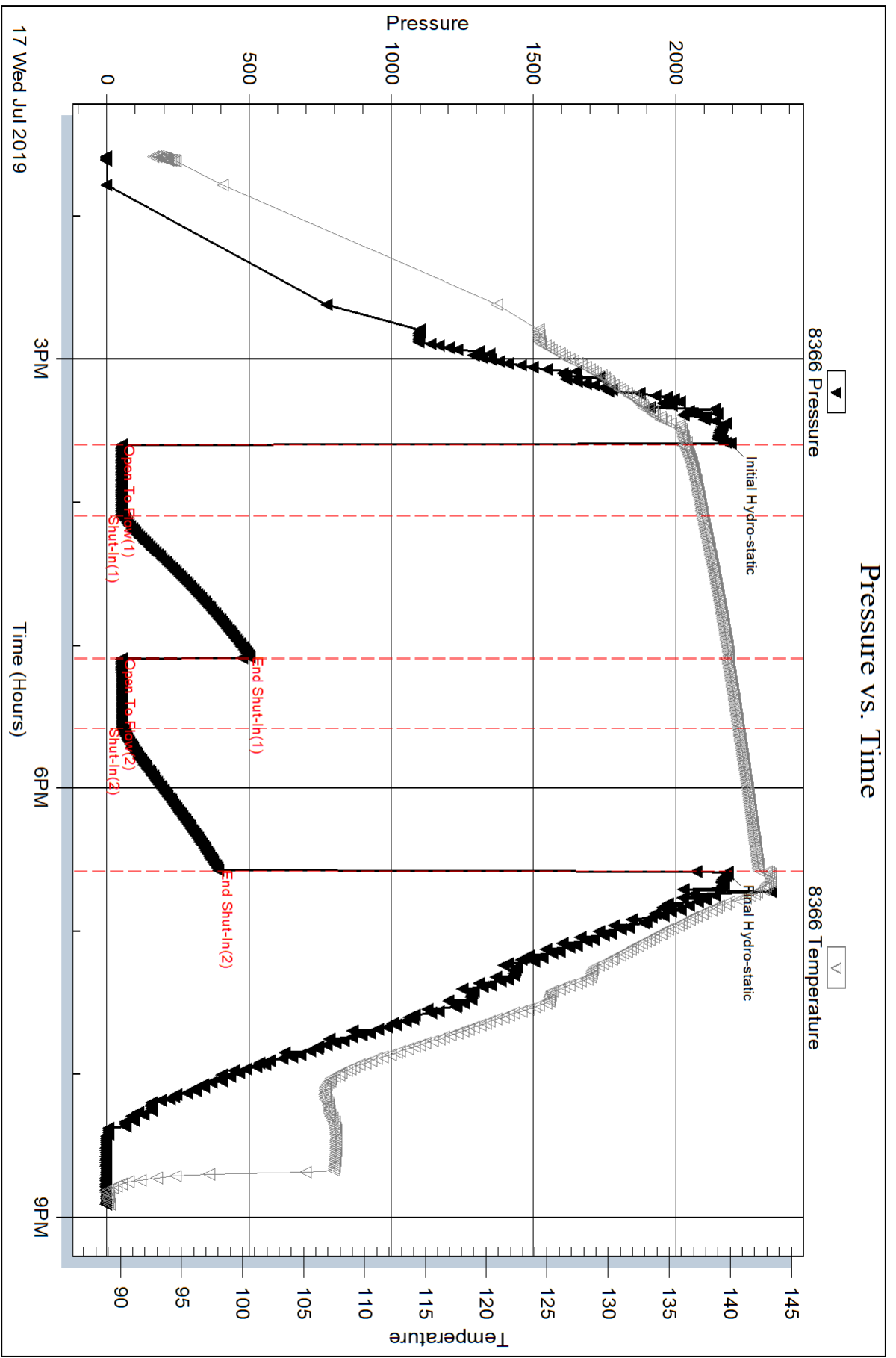
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



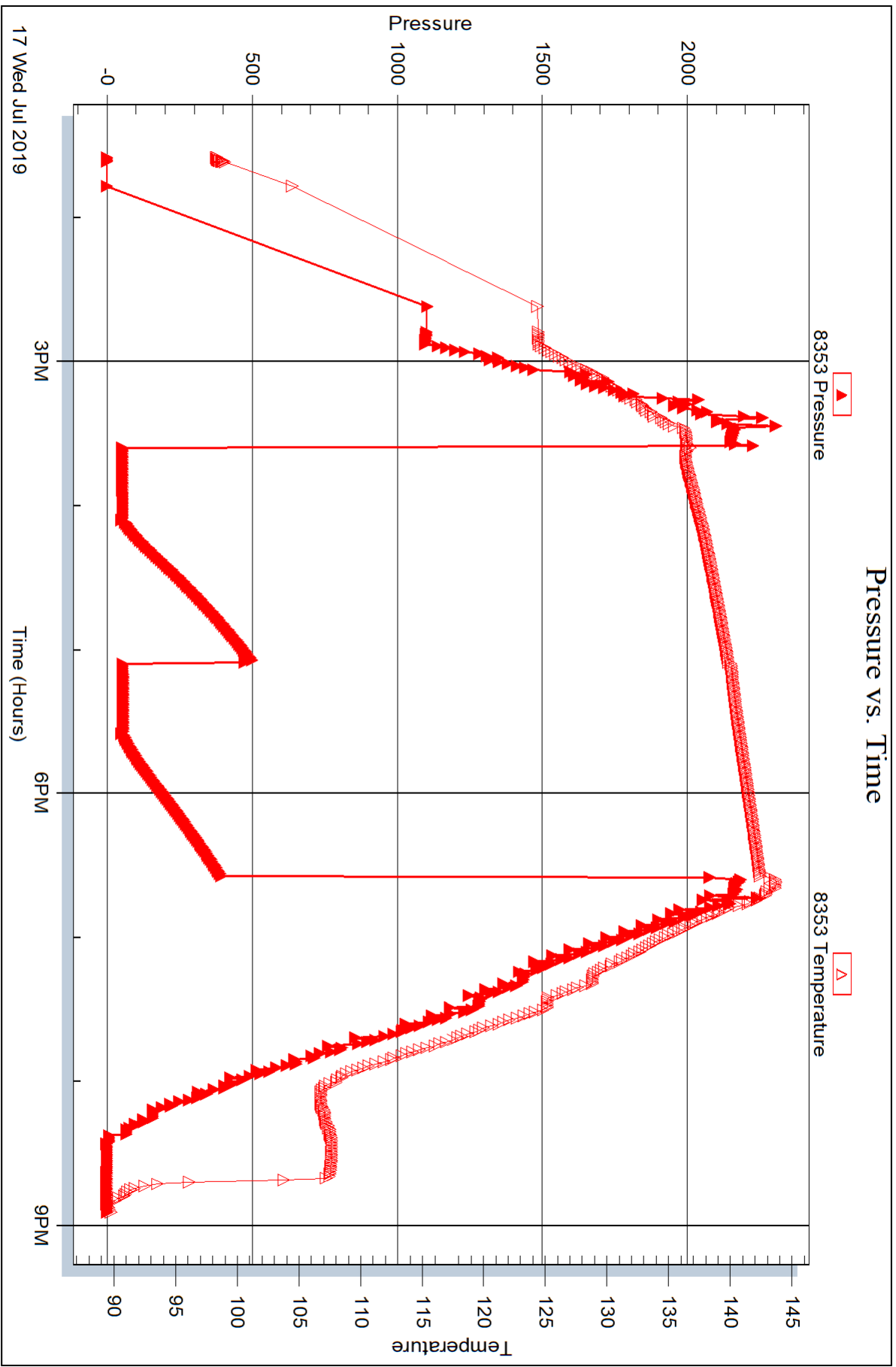
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 65623

Printed: 2019.07.22 @ 14:44:34



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Sowers A #1-19**

#### **19-2s-38w Cheyenne,KS**

Start Date: 2019.07.19 @ 05:37:00

End Date: 2019.07.19 @ 13:38:39

Job Ticket #: 65264                      DST #: 5

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

Printed: 2019.07.22 @ 14:44:09



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne, KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65264

**DST#: 5**

ATTN: Robert Hendrix

Test Start: 2019.07.19 @ 05:37:00

## GENERAL INFORMATION:

Formation: **Ft. Scott - Celia**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 08:27:30  
 Tester: Ryan Nichols  
 Time Test Ended: 13:38:39  
 Unit No: 71  
 Interval: **4719.00 ft (KB) To 4862.00 ft (KB) (TVD)**  
 Reference Elevations: 3440.00 ft (KB)  
 Total Depth: 4862.00 ft (KB) (TVD)  
 3435.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 5.00 ft

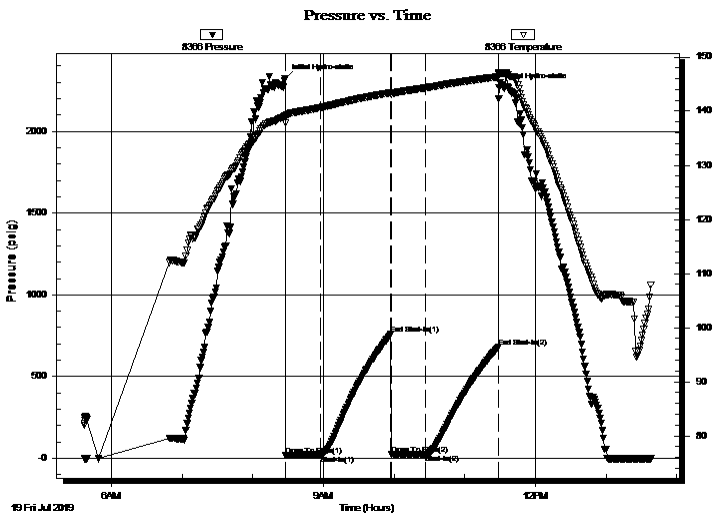
## Serial #: 8366

Outside

Press@RunDepth: 25.00 psig @ 4720.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2019.07.19 End Date: 2019.07.19 Last Calib.: 2019.07.19  
 Start Time: 05:37:01 End Time: 13:38:40  
 Time On Btm: 2019.07.19 @ 08:27:20  
 Time Off Btm: 2019.07.19 @ 11:29:09

TEST COMMENT: 30 IF - Blow built to 1/4" died @ 28 mins  
 60 ISI - No return  
 30 FF - No blow  
 60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2321.90	139.07	Initial Hydro-static
1	19.40	137.81	Open To Flow (1)
31	21.75	140.65	Shut-In(1)
90	758.55	143.42	End Shut-In(1)
91	22.98	143.07	Open To Flow (2)
120	25.00	144.32	Shut-In(2)
182	681.19	146.36	End Shut-In(2)
182	2269.12	146.79	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%M	0.02

\* 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.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65264

**DST#: 5**

ATTN: Robert Hendrix

Test Start: 2019.07.19 @ 05:37:00

## Tool Information

Drill Pipe:	Length: 4474.00 ft	Diameter: 3.80 inches	Volume: 62.76 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 237.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 63.93 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4719.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	143.00 ft			
Tool Length:	171.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4696.00	
Hydraulic tool	5.00			4701.00	
Jars	5.00			4706.00	
Safety Joint	3.00			4709.00	
Packer	5.00			4714.00	28.00 Bottom Of Top Packer
Packer	5.00			4719.00	
Stubb	1.00			4720.00	
Recorder	0.00	8353	Inside	4720.00	
Recorder	0.00	8366	Outside	4720.00	
Perforations	11.00			4731.00	
Blank Spacing	128.00			4859.00	
Bullnose	3.00			4862.00	143.00 Bottom Packers & Anchor

**Total Tool Length: 171.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne,KS**

250 N. Water STE 300  
Wichita KS 67202

**Sowers A #1-19**

Job Ticket: 65264

**DST#: 5**

ATTN: Robert Hendrix

Test Start: 2019.07.19 @ 05:37:00

## 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: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 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
5.00	Mud 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

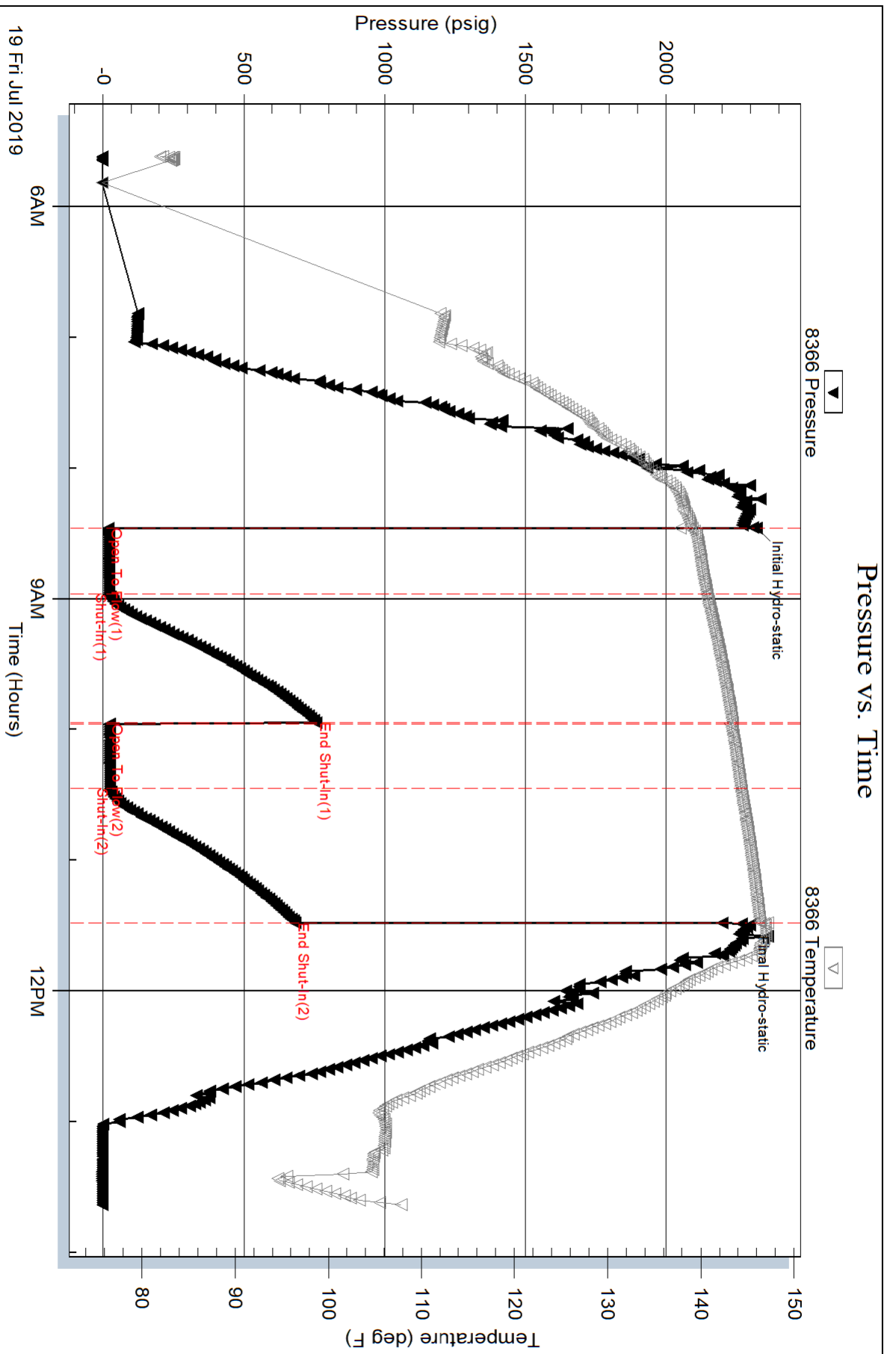
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



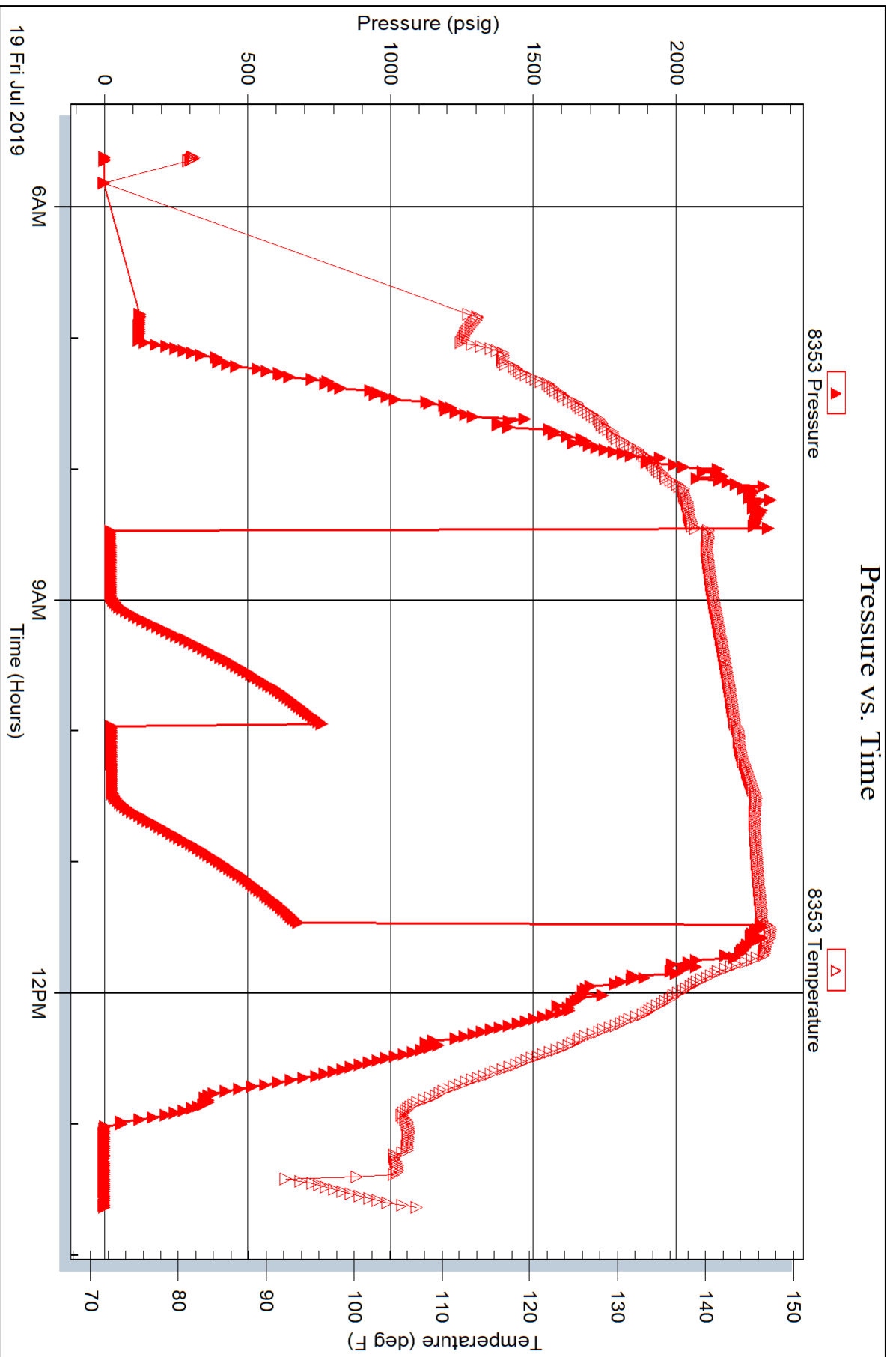
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Sowers A #1-19

DST Test Number: 5





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65260

Well Name & No. Sowers A #1-19 Test No. 1 Date 7/14/19  
 Company Martin Drilling Co Inc. Elevation 3440 KB 3435 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Martin # 3  
 Location: Sec. 19 Twp 25 Rge. 38W Co. Cheyenne State KS

Interval Tested 4225-4306 Zone Tested Oread  
 Anchor Length 81' Drill Pipe Run 4040' Mud Wt. 8.9  
 Top Packer Depth 4220 Drill Collars Run 177' Vls 58  
 Bottom Packer Depth 4225 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4306 Chlorides 900 ppm System LCM 4  
 Blow Description 30 IF - blow built to 1" died to surface  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</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 142° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2059</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>18:00</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>19:13</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:10</u>
(D) Initial Shut-In <u>108</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:12</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:15</u>
(F) Second Final Flow <u>19</u>	<input checked="" type="checkbox"/> Mileage <u>133 RT</u> 133	Comments
(G) Final Shut-In <u>84</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>209</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1758</u>
	Sub Total <u>1758</u>	MP/DST Disc't <u>—</u>

Approved By \_\_\_\_\_ Our Representative Robert Hendrix  
 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. 65261

Well Name & No. Sowers A #1-19 Test No. 2 Date 7/25/19  
 Company Martin Drilling Co Inc. Elevation 3440 KB 3435 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Martin # 3  
 Location: Sec. 19 Twp 2 S Rge. 38 W Co. Cheyenne State KS

Interval Tested 4308 - 4375 Zone Tested Lansing A  
 Anchor Length 67' Drill Pipe Run 4133' Mud Wt. 9.0  
 Top Packer Depth 4303 Drill Collars Run 177' Vis 60  
 Bottom Packer Depth 4308 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4375 Chlorides 1100 ppm System LCM 4

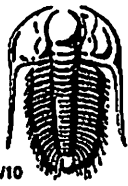
Blow Description 30 IF - Blow built to 2"  
60 ISI - No return  
30 FF - Blow started @ 10 mins built to 1"  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>240'</u>	<u>VSOCM</u>	<u>3</u>		<u>97</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 240' BHT 144° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2313</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>13:30</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:15</u>
(C) First Final Flow <u>75</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:15</u>
(D) Initial Shut-In <u>11 95</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>19:15</u>
(E) Second Initial Flow <u>78</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>21:45</u>
(F) Second Final Flow <u>103</u>	<input checked="" type="checkbox"/> Mileage <u>133 RT</u> 133	Comments
(G) Final Shut-In <u>1111</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2148</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1758</u>
	Sub Total <u>1758</u>	MP/DST Disc't

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

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65262

Well Name & No. Sowers A # 1-19 Test No. 3 Date 7/16/19  
 Company Mudlin Drilling Co. Inc. Elevation 3440 KB 3435 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep/Geo. Robert Hendrix Rig Mudlin # 3  
 Location: Sec. 19 Twp 2S Rge. 38 W Co. Cheyenne State KS

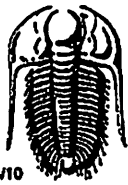
Interval Tested 4371 - 4460 Zone Tested LKC "D"  
 Anchor Length 89' Drill Pipe Run 4194' Mud Wt. 9.1  
 Top Packer Depth 4366 Drill Collars Run 177' Vls 66  
 Bottom Packer Depth 4371 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4460 Chlorides 1200 ppm System LCM 3  
 Blow Description 30 IF - BoB @ 2 min  
60 ISI - No return  
30 FF - BoB @ 3 min  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>630</u>	<u>MLW</u>		<u>60</u>	<u>40</u>	
<u>1750</u>	<u>MLW</u>		<u>95</u>	<u>5</u>	
<u>120'</u>	<u>MLW</u>		<u>55</u>	<u>45</u>	

Rec Total 2500' BHT 154° Gravity — API RW .215 @ 90° F Chlorides 23000 ppm

(A) Initial Hydrostatic <u>2213</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>10:30</u>
(B) First Initial Flow <u>155</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:09</u>
(C) First Final Flow <u>777</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:21</u>
(D) Initial Shut-In <u>1296</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>16:22</u>
(E) Second Initial Flow <u>769</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>17:15</u>
(F) Second Final Flow <u>1125</u>	<input checked="" type="checkbox"/> Mileage <u>133 RT</u> 133	Comments _____
(G) Final Shut-In <u>1295</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>2108</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1758</u>
	Sub Total <u>1758</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative Robert Hendrix  
 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. 65263

Well Name & No. Sowers A #1-19 Test No. 4 Date 7/17/19  
 Company Murfin Drilling Co. Inc. Elevation 3440 KB 3435 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #3  
 Location: Sec. 19 Twp 2S Rge. 38W Co. Cheyenne State KS

Interval Tested 4495-4584 Zone Tested LKC "H-J"  
 Anchor Length 89' Drill Pipe Run 4319' Mud Wt. 9.0  
 Top Packer Depth 4490 Drill Collars Run 177' Vis 57  
 Bottom Packer Depth 4495 Wt. Pipe Run 0' WL 6.4  
 Total Depth 4584 Chlorides 800 ppm System LCM 3

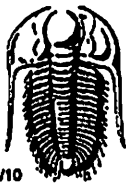
Blow Description 30 IF - @. Open tool slide 5', 2" blow built to 2 1/2' died to 1"  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>65'</u>	<u>Mud</u>			<u>100%</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 15' BHT 143° Gravity — API RW — @ — ° F Chlorides — ppm  
 (A) Initial Hydrostatic 2191  Test 1300 T-On Location 13:00  
 (B) First Initial Flow 51  Jars 250 T-Started 13:35  
 (C) First Final Flow 52  Safety Joint 75 T-Open 15:35  
 (D) Initial Shut-In 501  Circ Sub \_\_\_\_\_ T-Pulled 18:35  
 (E) Second Initial Flow 51  Hourly Standby \_\_\_\_\_ T-Out 20:45  
 (F) Second Final Flow 53  Mileage 133 RT 133  
 (G) Final Shut-In 393  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2181  Straddle \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  EM Tool \_\_\_\_\_  
 Initial Shut-In 60  Extra Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Sub Total 0  Accessibility \_\_\_\_\_  
 Total 1758 Sub Total 1758 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative R. J. Hendrix  
 Triobite 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. 65264

Well Name & No. Sowers A # 1-19 Test No. 5 Date 7/19/19  
 Company Martin Drilling Co. Inc. Elevation 3440 KB 3435 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Martin # 3  
 Location: Sec. 19 Twp 2S Rge. 28 W Co. Cheyenne State KS

Interval Tested 4719 - 4862 Zone Tested Ft. Scott - Celia  
 Anchor Length 143' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.1  
 Top Packer Depth 4714 Drill Collars Run 237' Vis 69  
 Bottom Packer Depth 4719 Wt. Pipe Run 0' WL 6.0  
 Total Depth 4862 Chlorides 1000 ppm System LCM 4  
 Blow Description 30 IF - Blow built to 1/4" died @ 28 mins  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud</u>			<u>100</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 146° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2322</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>05:00</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>05:37</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>08:27</u>
(D) Initial Shut-In <u>759</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>11:29</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>13:30</u>
(F) Second Final Flow <u>25</u>	<input checked="" type="checkbox"/> Mileage <u>133 RT X 2</u>	Comments <u>Loaded tools</u>
(G) Final Shut-In <u>681</u>	<input type="checkbox"/> Sampler _____	<u>@ 15:30 on</u>
(H) Final Hydrostatic <u>2269</u>	<input type="checkbox"/> Straddle _____	<u>7/21/19</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> EM Tool _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Ruined Packer _____
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	<input type="checkbox"/> Extra Copies _____
	<input type="checkbox"/> Accessibility _____	Sub Total <u>0</u>
	Sub Total <u>1891</u>	Total <u>1891</u>

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