



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Samon Sharifaie

Nelson A #1-34

34-4s-33w Rawlins,KS

Start Date: 2019.11.12 @ 21:00:00

End Date: 2019.11.13 @ 04:35:39

Job Ticket #: 66455 DST #: 1

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

Printed: 2019.11.18 @ 13:34:06

Murfin Drilling Co. Inc.
34-4s-33w Rawlins,KS
Nelson A #1-34
DST # 1
LKC " A - B "
2019.11.12



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66455

DST#: 1

ATTN: Samon Sharifaie

Test Start: 2019.11.12 @ 21:00:00

GENERAL INFORMATION:

Formation: **LKC " A - B "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:37:20

Time Test Ended: 04:35:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

Interval: 4016.00 ft (KB) To 4062.00 ft (KB) (TVD)

Reference Elevations: 3118.00 ft (KB)

Total Depth: 4062.00 ft (KB) (TVD)

3113.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 35.76 psig @ 4017.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.12

End Date:

2019.11.13

Last Calib.: 2019.11.13

Start Time: 21:00:01

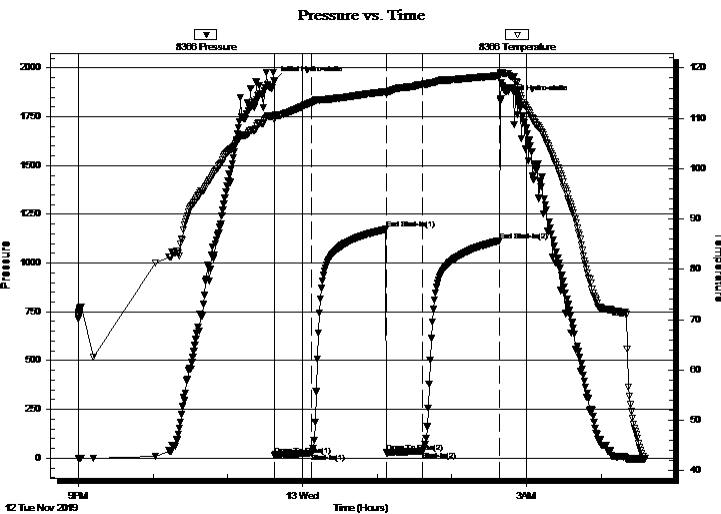
End Time:

04:35:40

Time On Btm: 2019.11.12 @ 23:37:10

Time Off Btm: 2019.11.13 @ 02:39:10

TEST COMMENT: 30 IF - Blow built to 1 1/4"
60 ISI - No return
30 FF - Blow built to 1/4"
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1932.96	110.49	Initial Hydro-static
1	15.55	109.68	Open To Flow (1)
30	25.14	113.11	Shut-In(1)
90	1172.93	115.31	End Shut-In(1)
91	27.58	114.80	Open To Flow (2)
120	35.76	116.70	Shut-In(2)
182	1114.72	118.47	End Shut-In(2)
182	1839.78	118.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.10

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66455

DST#: 1

ATTN: Samon Sharifaie

Test Start: 2019.11.12 @ 21:00:00

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Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:37:20

Time Test Ended: 04:35:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

Interval: 4016.00 ft (KB) To 4062.00 ft (KB) (TVD)

Total Depth: 4062.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3118.00 ft (KB)

3113.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8353

Inside

Press@RunDepth: psig @ 4017.00 ft (KB)

Start Date: 2019.11.12

End Date:

2019.11.13

Start Time: 21:00:01

End Time:

04:35:30

Capacity: 8000.00 psig

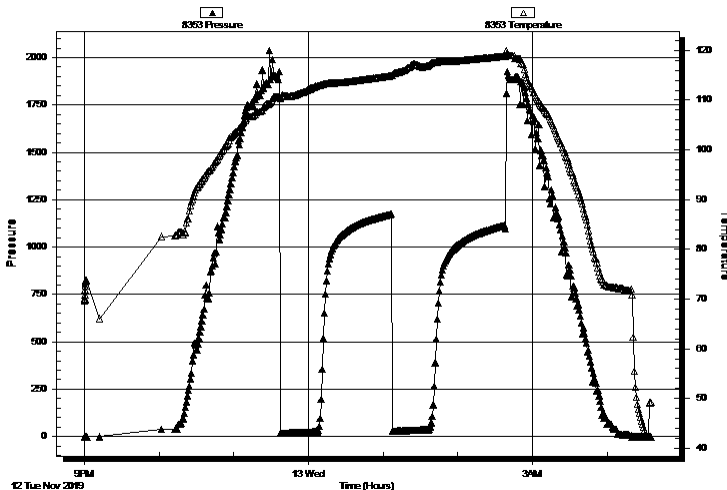
Last Calib.: 2019.11.13

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 1 1/4"
60 ISI - No return
30 FF - Blow built to 1/4"
60 FSI - No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.10

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66455

DST#: 1

ATTN: Samon Sharifaie

Test Start: 2019.11.12 @ 21:00:00

Tool Information

Drill Pipe:	Length: 3830.00 ft	Diameter: 3.80 inches	Volume: 53.72 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: 70000.00 lb
			<u>Total Volume: 54.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4016.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	74.00 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			3993.00	
Hydraulic tool	5.00			3998.00	
Jars	5.00			4003.00	
Safety Joint	3.00			4006.00	
Packer	5.00			4011.00	28.00 Bottom Of Top Packer
Packer	5.00			4016.00	
Stubb	1.00			4017.00	
Recorder	0.00	8353	Inside	4017.00	
Recorder	0.00	8366	Outside	4017.00	
Perforations	8.00			4025.00	
Blank Spacing	34.00			4059.00	
Bullnose	3.00			4062.00	46.00 Bottom Packers & Anchor

Total Tool Length: 74.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66455

DST#: 1

ATTN: Samon Sharifaie

Test Start: 2019.11.12 @ 21:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2100.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100%M	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

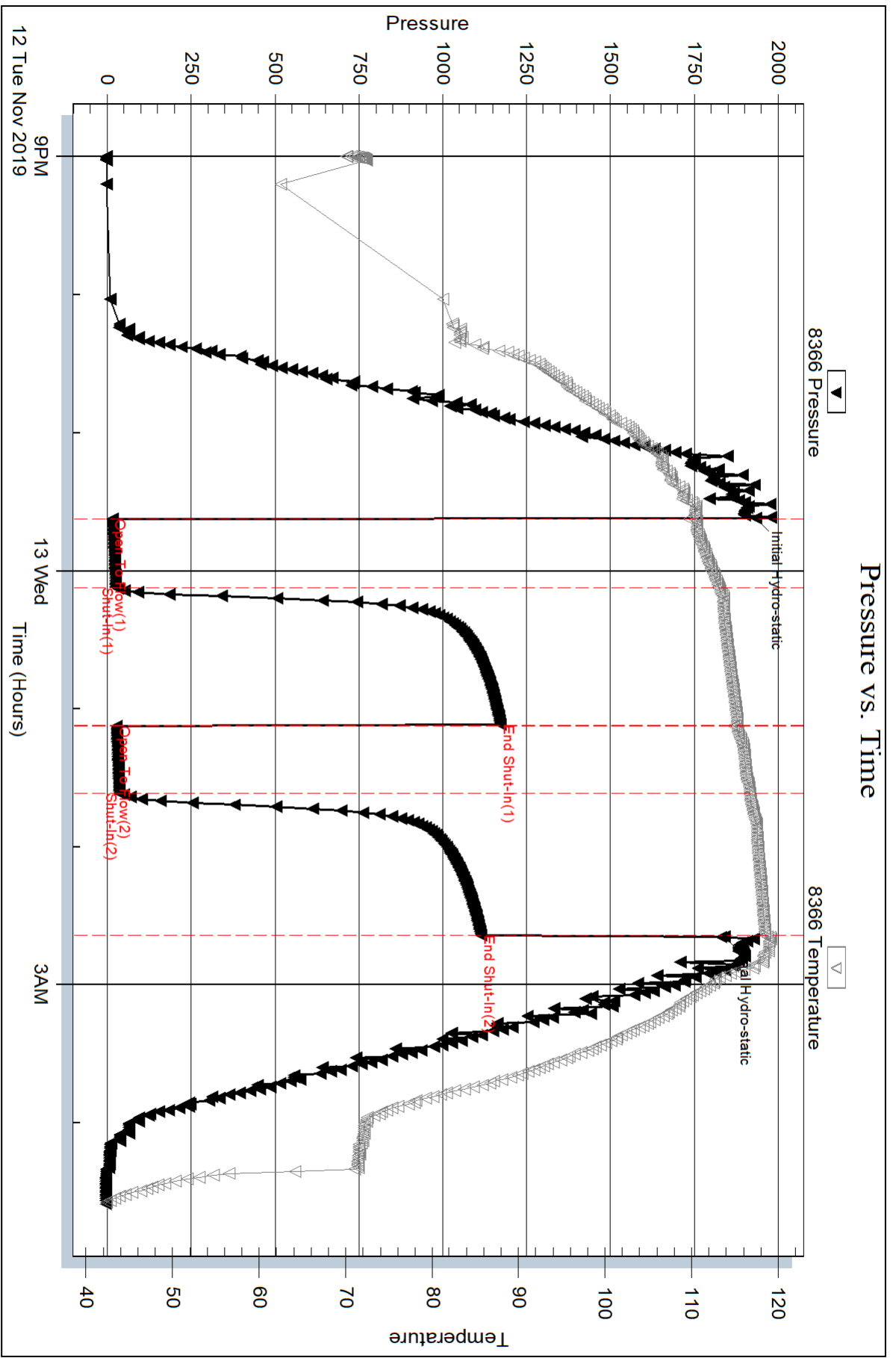
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



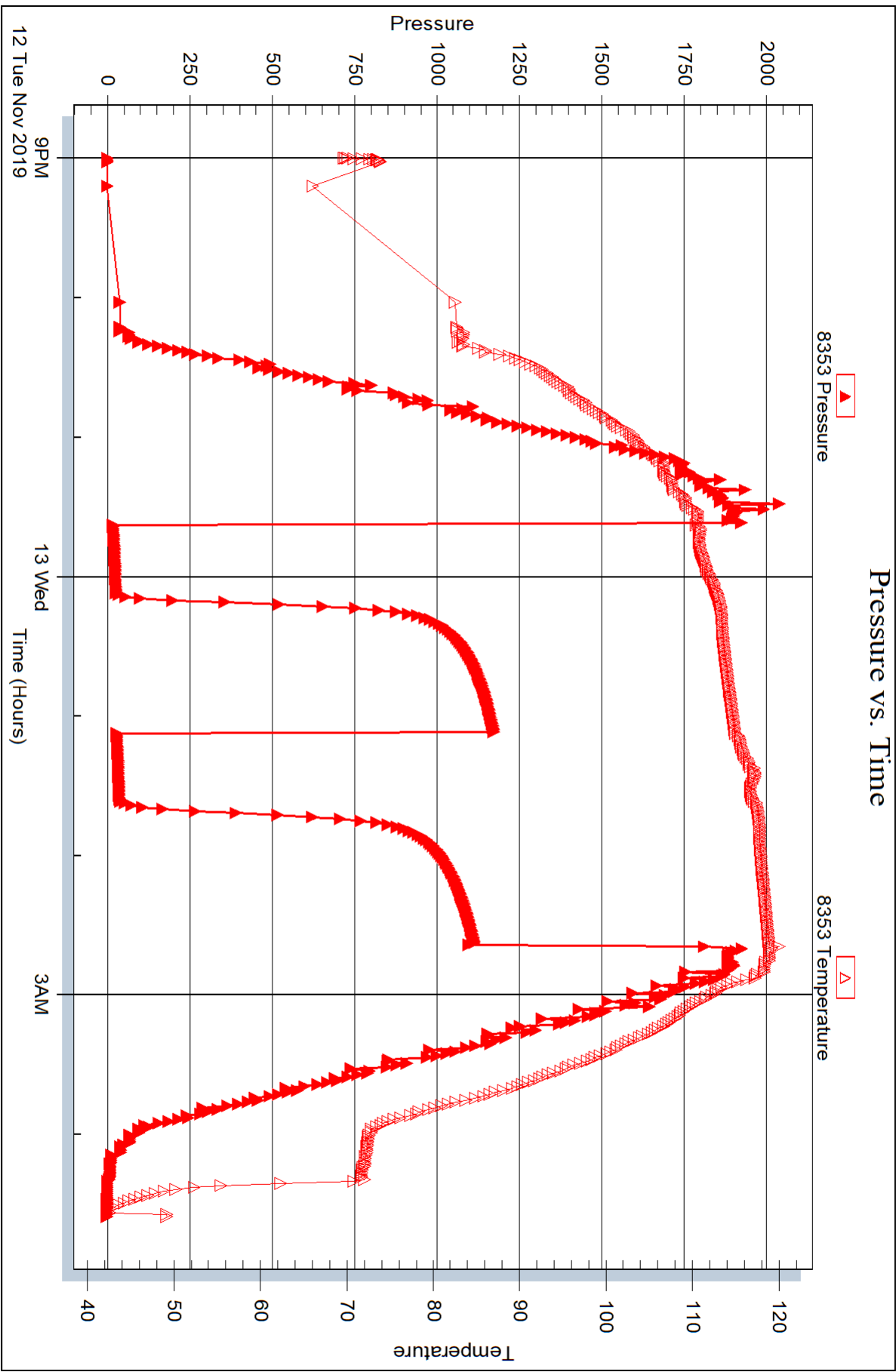
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Nelson A #1-34

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 66455

Printed: 2019-11-18 @ 13:34:07



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Samon Sharifaie

Nelson A #1-34

34-4s-33w Rawlins,KS

Start Date: 2019.11.13 @ 15:00:00

End Date: 2019.11.13 @ 21:53:30

Job Ticket #: 66456 DST #: 2

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

Printed: 2019.11.18 @ 13:31:54

Murfin Drilling Co. Inc.
34-4s-33w Rawlins,KS
Nelson A #1-34
DST # 2
LKC " F - G "
2019.11.13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66456

DST#: 2

ATTN: Samon Sharifaie

Test Start: 2019.11.13 @ 15:00:00

GENERAL INFORMATION:

Formation: **LKC " F - G "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:56:00

Time Test Ended: 21:53:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4080.00 ft (KB) To 4120.00 ft (KB) (TVD)

Reference Elevations: 3118.00 ft (KB)

Total Depth: 4120.00 ft (KB) (TVD)

3113.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 31.42 psig @ 4081.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.13

End Date:

2019.11.13

Last Calib.: 2019.11.13

Start Time: 15:00:01

End Time:

21:53:30

Time On Btm: 2019.11.13 @ 16:55:50

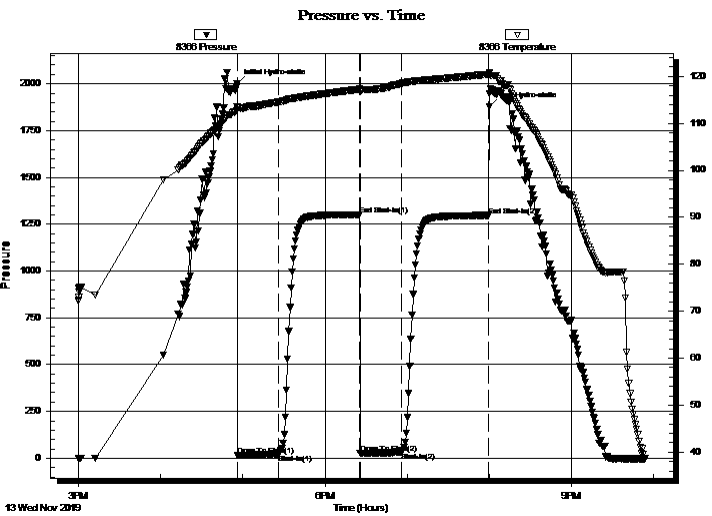
Time Off Btm: 2019.11.13 @ 20:00:00

TEST COMMENT: 30 IF - Blow built to 1/4"

60 ISI - No return

30 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2002.16	113.54	Initial Hydro-static
1	14.58	112.91	Open To Flow (1)
31	22.20	114.53	Shut-In(1)
90	1301.10	117.27	End Shut-In(1)
90	25.04	116.78	Open To Flow (2)
120	31.42	118.53	Shut-In(2)
184	1297.17	120.43	End Shut-In(2)
185	1879.58	120.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	VSOCM - 5%o - 95%M	0.05

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

250 N. Water STE 300
Wichita KS 67202

ATTN: Samon Sharifaie

34-4s-33w Rawlins, KS

Nelson A #1-34

Job Ticket: 66456

DST#: 2

Test Start: 2019.11.13 @ 15:00:00

GENERAL INFORMATION:

Formation: **LKC " F - G "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:56:00

Time Test Ended: 21:53:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4080.00 ft (KB) To 4120.00 ft (KB) (TVD)

Total Depth: 4120.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3118.00 ft (KB)

3113.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8353

Inside

Press@RunDepth: psig @ 4081.00 ft (KB)

Start Date: 2019.11.13

End Date: 2019.11.13

Capacity: 8000.00 psig

Last Calib.: 2019.11.13

Start Time: 15:00:01

End Time: 21:53:30

Time On Btm:

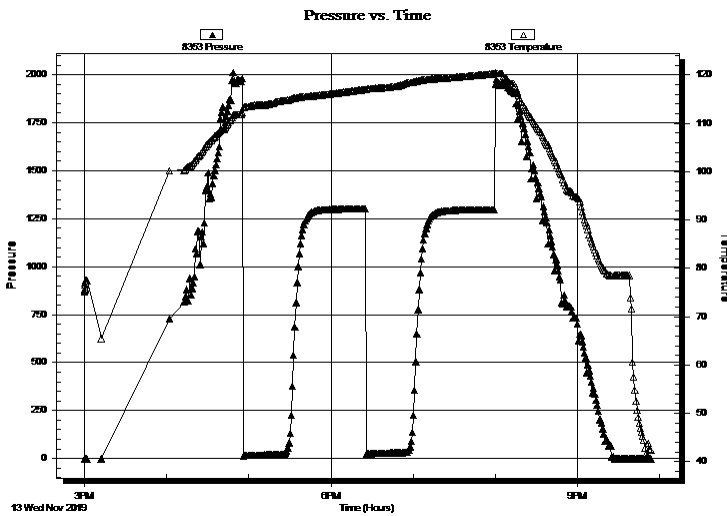
Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 1/4"

60 ISI - No return

30 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	VSOCM - 5%σ - 95%M	0.05

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.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66456

DST#: 2

ATTN: Samon Sharifaie

Test Start: 2019.11.13 @ 15:00:00

Tool Information

Drill Pipe:	Length: 3893.00 ft	Diameter: 3.80 inches	Volume: 54.61 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: 65000.00 lb
			<u>Total Volume: 55.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4080.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	68.00 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			4057.00	
Hydraulic tool	5.00			4062.00	
Jars	5.00			4067.00	
Safety Joint	3.00			4070.00	
Packer	5.00			4075.00	28.00 Bottom Of Top Packer
Packer	5.00			4080.00	
Stubb	1.00			4081.00	
Recorder	0.00	8353	Inside	4081.00	
Recorder	0.00	8366	Outside	4081.00	
Perforations	36.00			4117.00	
Bullnose	3.00			4120.00	40.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66456

DST#: 2

ATTN: Samon Sharifaie

Test Start: 2019.11.13 @ 15:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	VSOCM - 5%o - 95%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

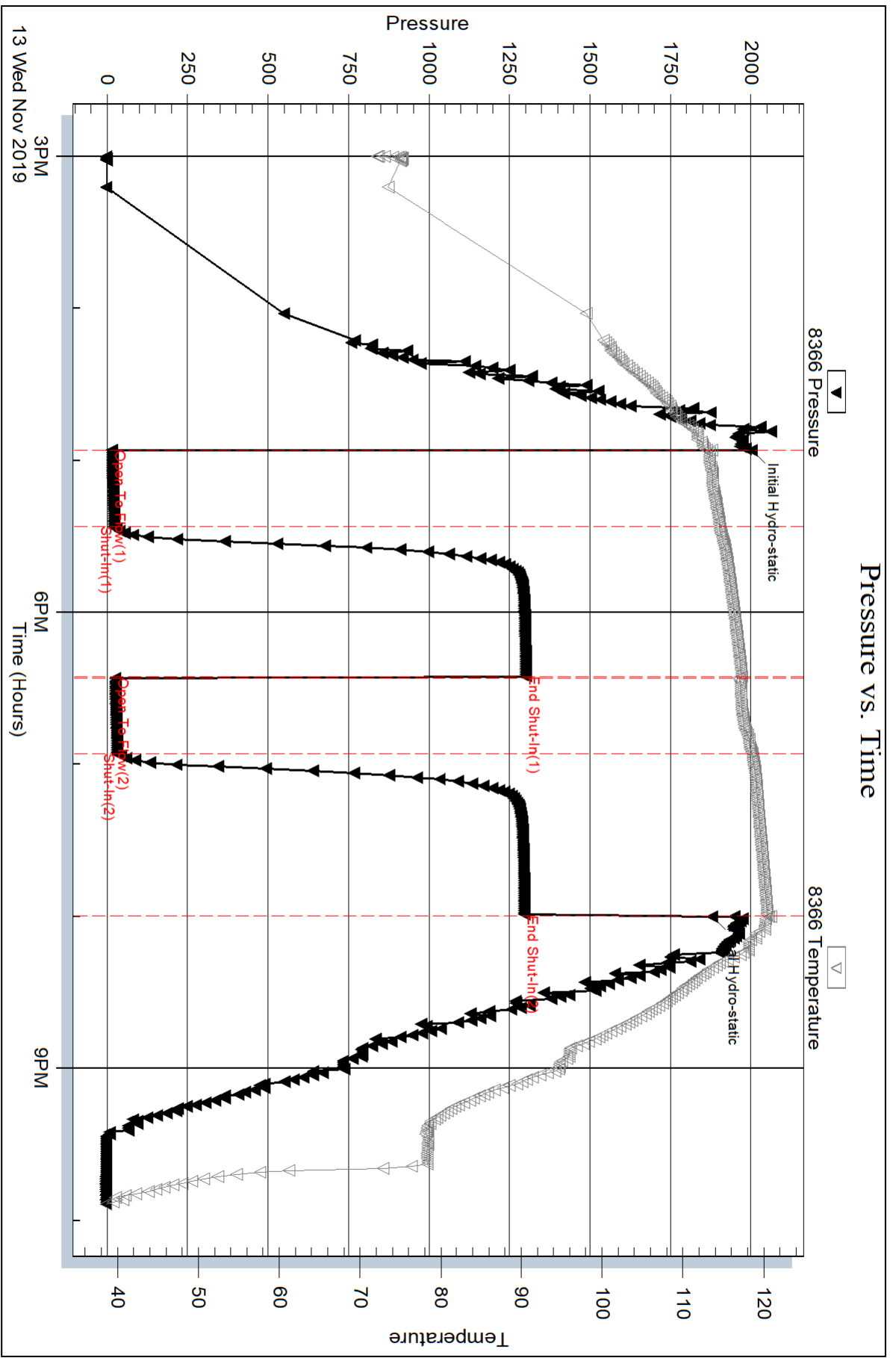
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



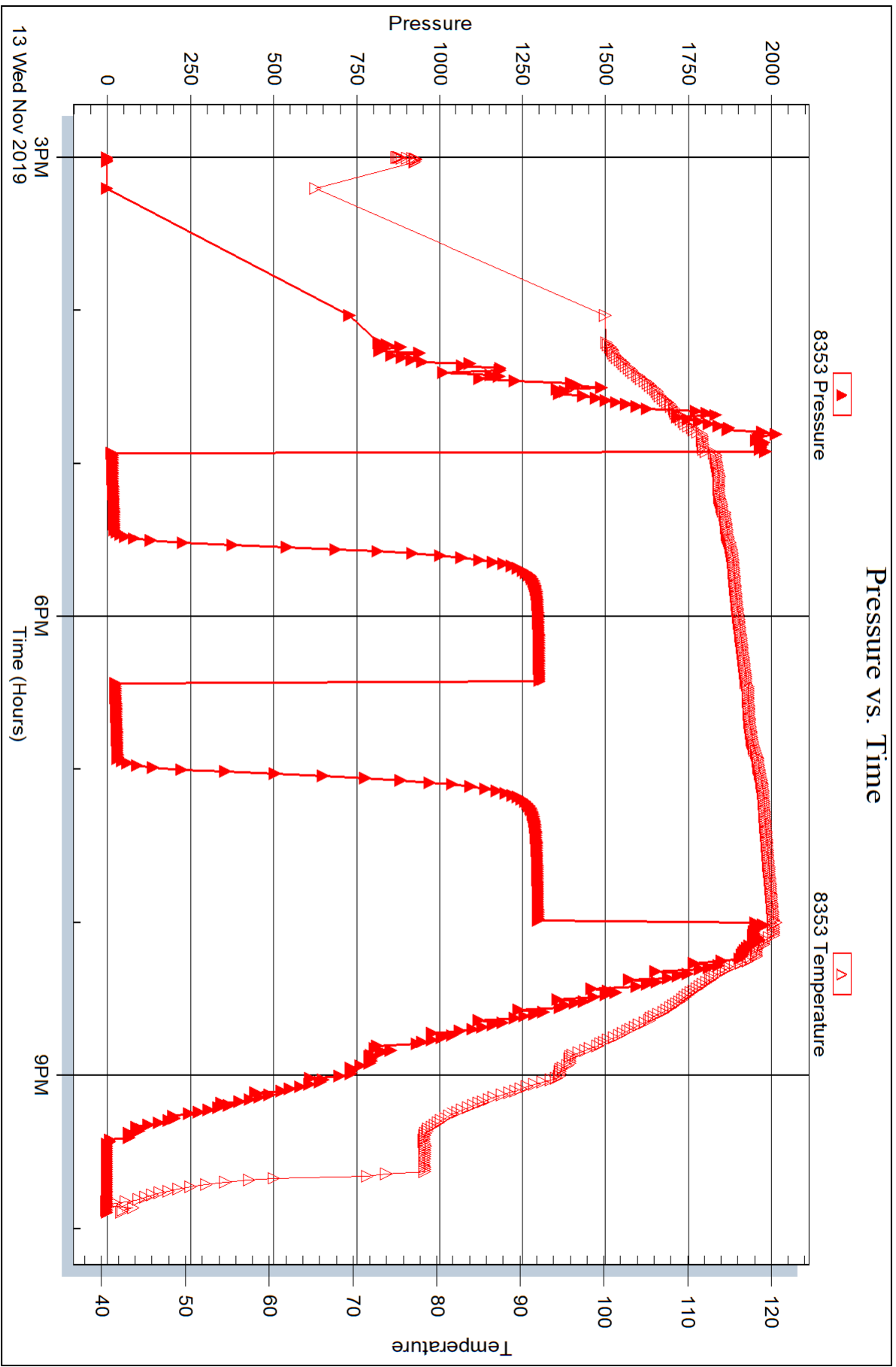
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Nelson A #1-34

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Samon Sharifaie

Nelson A #1-34

34-4s-33w Rawlins,KS

Start Date: 2019.11.14 @ 09:00:00

End Date: 2019.11.14 @ 17:10:00

Job Ticket #: 66457 DST #: 3

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

Printed: 2019.11.18 @ 13:17:22



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66457

DST#: 3

ATTN: Samon Sharifaie

Test Start: 2019.11.14 @ 09:00:00

GENERAL INFORMATION:

Formation: **LKC " J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:03:20

Time Test Ended: 17:10:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4160.00 ft (KB) To 4200.00 ft (KB) (TVD)

Reference Elevations: 3118.00 ft (KB)

Total Depth: 4200.00 ft (KB) (TVD)

3113.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 64.18 psig @ 4161.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.14

End Date:

2019.11.14

Last Calib.: 2019.11.14

Start Time: 09:00:01

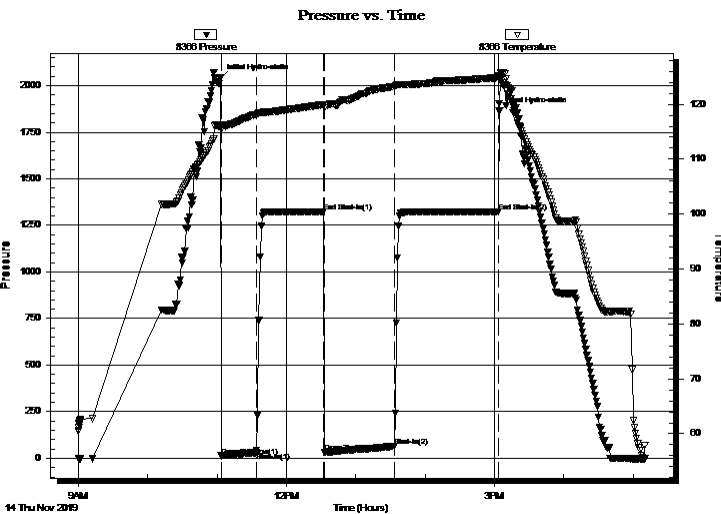
End Time:

17:10:00

Time On Btm: 2019.11.14 @ 11:03:00

Time Off Btm: 2019.11.14 @ 15:03:50

TEST COMMENT: 30 IF - Blow built to 1 1/2"
60 ISI - No return
60 FF - Blow built to 2 1/4"
90 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2040.23	116.26	Initial Hydro-static
1	12.92	115.33	Open To Flow (1)
31	30.59	118.14	Shut-In(1)
90	1324.26	119.98	End Shut-In(1)
90	31.45	119.33	Open To Flow (2)
150	64.18	123.25	Shut-In(2)
241	1323.72	124.81	End Shut-In(2)
241	1862.87	125.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mud 100%M	0.30
20.00	WCM - 5%W - 95%M	0.10

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66457

DST#: 3

ATTN: Samon Sharifaie

Test Start: 2019.11.14 @ 09:00:00

GENERAL INFORMATION:

Formation: **LKC " J "**

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

Time Tool Opened: 11:03:20

Time Test Ended: 17:10:00

Test Type: **Conventional Bottom Hole (Reset)**

Tester: **Ryan Nichols**

Unit No: **71**

Interval: 4160.00 ft (KB) To 4200.00 ft (KB) (TVD)

Reference Elevations: **3118.00 ft (KB)**

Total Depth: **4200.00 ft (KB) (TVD)**

3113.00 ft (CF)

Hole Diameter: **7.88 inches** Hole Condition: **Good**

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

Serial #: 8353 **Inside**

Press@RunDepth: **psig @ 4161.00 ft (KB)**

Capacity: **8000.00 psig**

Start Date: **2019.11.14**

End Date: **2019.11.14**

2019.11.14

Last Calib.: **2019.11.14**

2019.11.14

Start Time: **09:00:01**

End Time: **17:09:50**

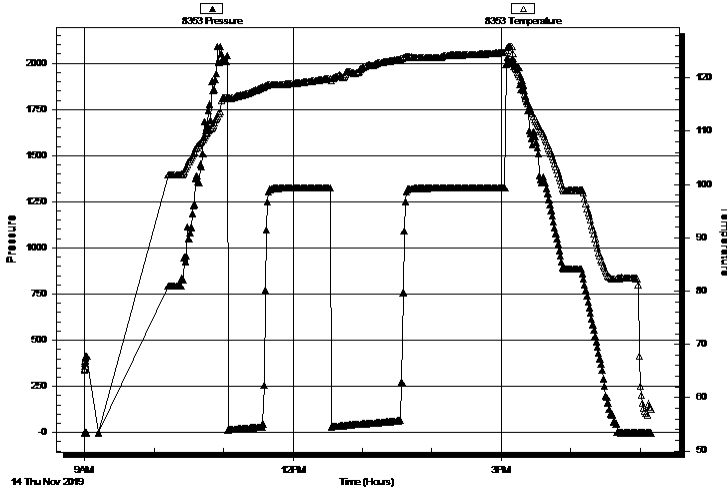
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Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 1 1/2"
60 ISI - No return
60 FF - Blow built to 2 1/4"
90 FSI - No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mud 100%M	0.30
20.00	WCM - 5%W - 95%M	0.10

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.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66457

DST#: 3

ATTN: Samon Sharifaie

Test Start: 2019.11.14 @ 09:00:00

Tool Information

Drill Pipe:	Length: 3986.00 ft	Diameter: 3.80 inches	Volume: 55.91 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: 70000.00 lb
			<u>Total Volume: 56.78 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4160.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	68.00 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			4137.00	
Hydraulic tool	5.00			4142.00	
Jars	5.00			4147.00	
Safety Joint	3.00			4150.00	
Packer	5.00			4155.00	28.00 Bottom Of Top Packer
Packer	5.00			4160.00	
Stubb	1.00			4161.00	
Recorder	0.00	8353	Inside	4161.00	
Recorder	0.00	8366	Outside	4161.00	
Perforations	36.00			4197.00	
Bullnose	3.00			4200.00	40.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66457

DST#: 3

ATTN: Samon Sharifaie

Test Start: 2019.11.14 @ 09:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	Mud 100%M	0.295
20.00	WCM - 5%W - 95%M	0.098

Total Length: 80.00 ft

Total Volume: 0.393 bbl

Num Fluid Samples: 0

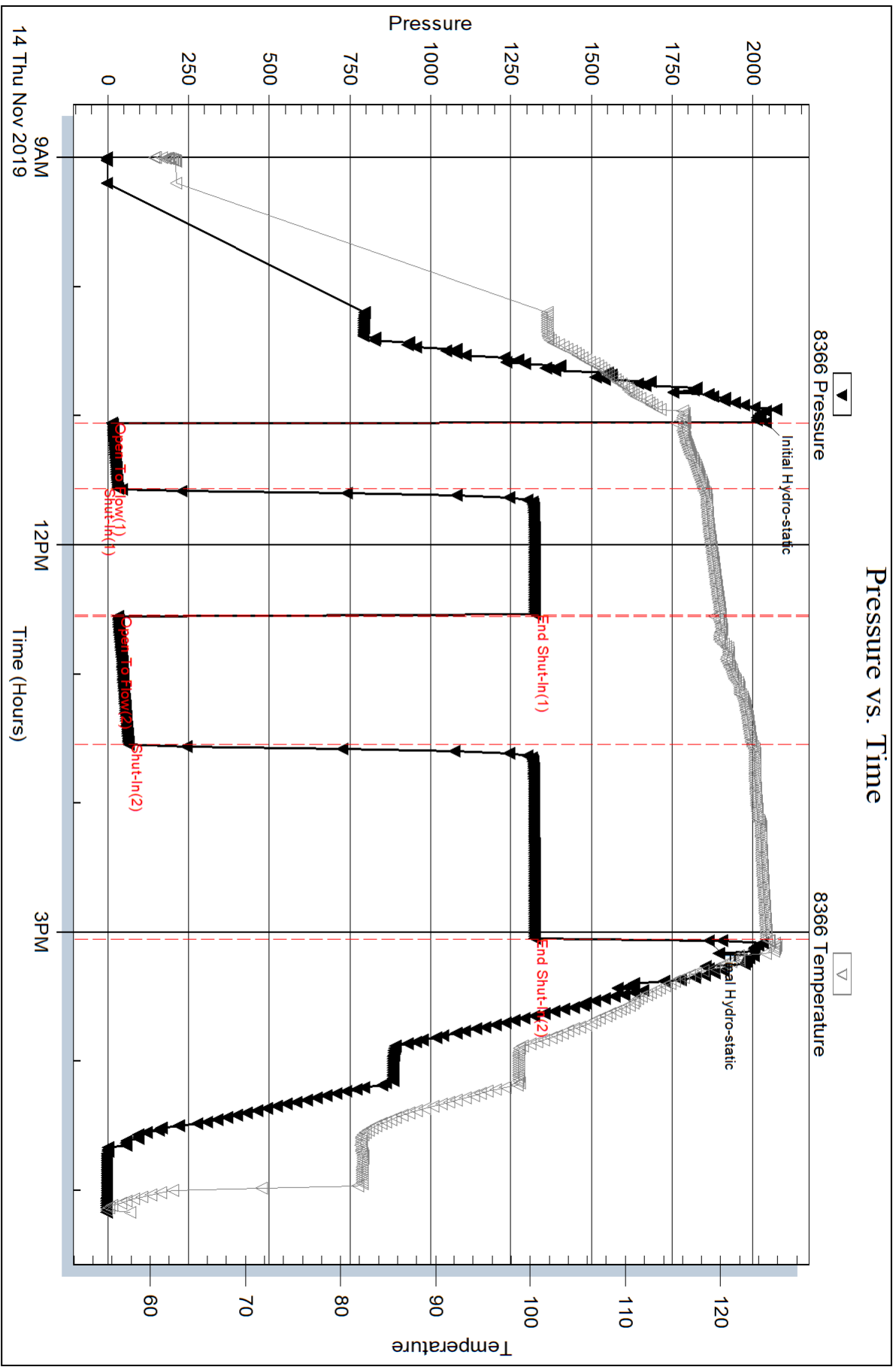
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



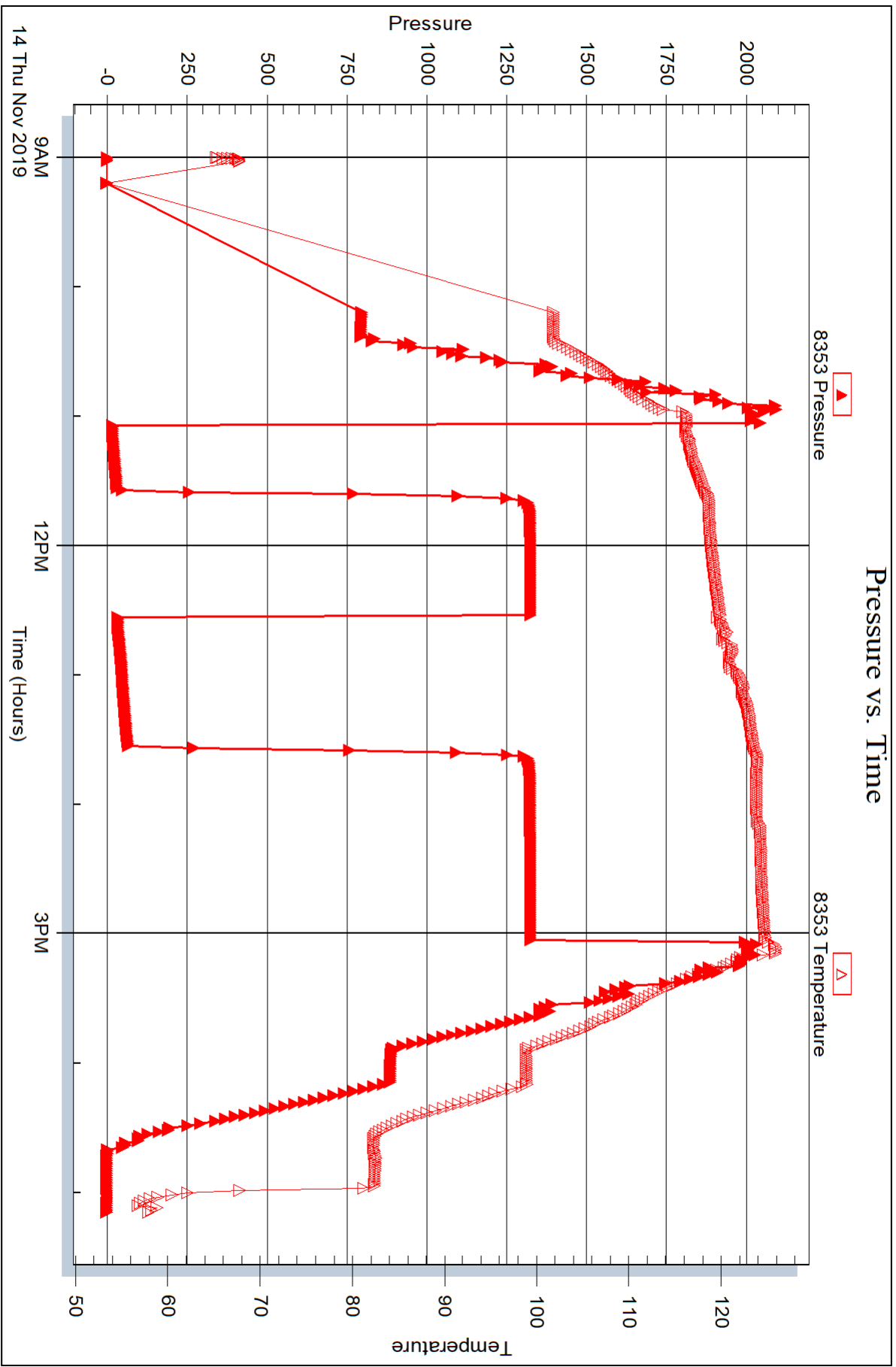
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Nelson A #1-34

DST Test Number: 3





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Samon Sharifaie

Nelson A #1-34

34-4s-33w Rawlins,KS

Start Date: 2019.11.15 @ 19:51:00

End Date: 2019.11.16 @ 03:12:39

Job Ticket #: 66458 DST #: 4

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

Printed: 2019.11.18 @ 13:14:51



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

34-4s-33w Rawlins, KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66458

DST#: 4

ATTN: Samon Sharifaie

Test Start: 2019.11.15 @ 19:51:00

GENERAL INFORMATION:

Formation: **Lower Ft. Scott - Ce**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:59:30

Time Test Ended: 03:12:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4400.00 ft (KB) To 4490.00 ft (KB) (TVD)

Reference Elevations: 3118.00 ft (KB)

Total Depth: 4490.00 ft (KB) (TVD)

3113.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 28.62 psig @ 4401.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.15

End Date:

2019.11.16

Last Calib.:

2019.11.16

Start Time: 19:51:01

End Time:

03:12:40

Time On Btm:

2019.11.15 @ 21:59:10

Time Off Btm:

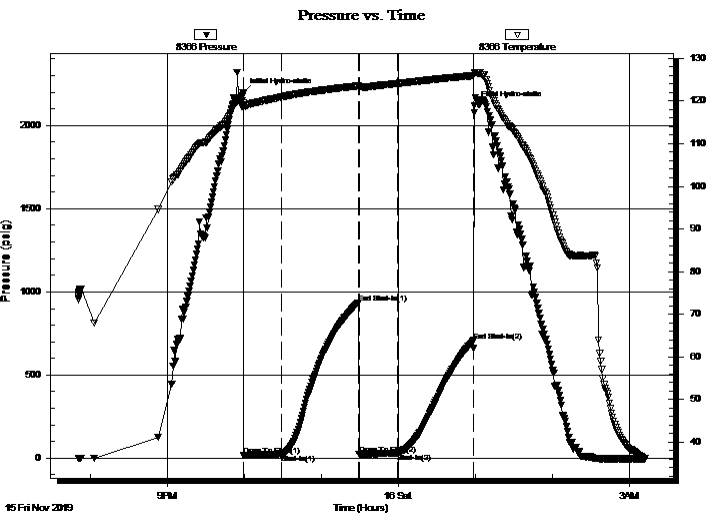
2019.11.16 @ 00:59:10

TEST COMMENT: 30 IF - Blow built to 1" died back to 1/2"

60 ISI - No return

30 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2194.97	119.50	Initial Hydro-static
1	18.43	118.47	Open To Flow (1)
31	22.58	120.97	Shut-In(1)
90	934.89	123.56	End Shut-In(1)
91	25.44	123.16	Open To Flow (2)
120	28.62	124.10	Shut-In(2)
180	706.76	125.94	End Shut-In(2)
180	2119.11	126.53	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

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66458

DST#: 4

ATTN: Samon Sharifaie

Test Start: 2019.11.15 @ 19:51:00

GENERAL INFORMATION:

Formation: **Lower Ft. Scott - Ce**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:59:30

Time Test Ended: 03:12:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: **4400.00 ft (KB) To 4490.00 ft (KB) (TVD)**

Reference Elevations: 3118.00 ft (KB)

Total Depth: 4490.00 ft (KB) (TVD)

3113.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8353 Inside

Press@RunDepth: psig @ 4401.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.15 End Date: 2019.11.16

Last Calib.: 2019.11.16

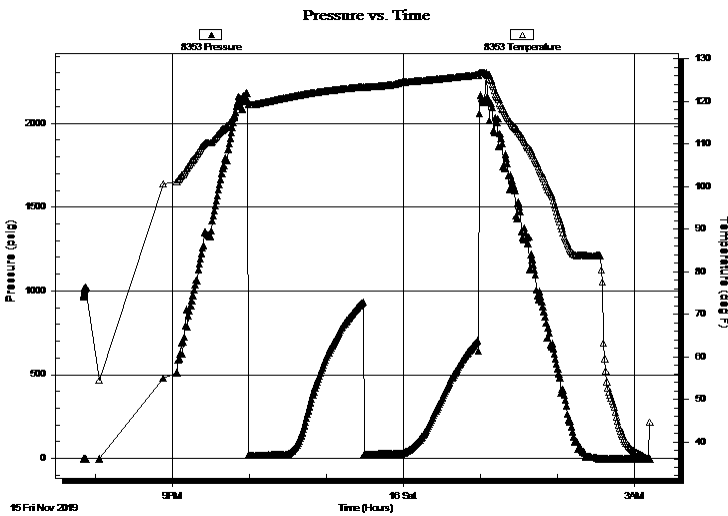
Start Time: 19:51:01 End Time: 03:12:30

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 1" died back to 1/2"
60 ISI - No return
30 FF - No blow
60 FSI - No return

PRESSURE SUMMARY



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

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.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66458

DST#: 4

ATTN: Samon Sharifaie

Test Start: 2019.11.15 @ 19:51:00

Tool Information

Drill Pipe:	Length: 4204.00 ft	Diameter: 3.80 inches	Volume: 58.97 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: 70000.00 lb
			<u>Total Volume: 59.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4400.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.00 ft			
Tool Length:	118.00 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			4377.00	
Hydraulic tool	5.00			4382.00	
Jars	5.00			4387.00	
Safety Joint	3.00			4390.00	
Packer	5.00			4395.00	28.00 Bottom Of Top Packer
Packer	5.00			4400.00	
Stubb	1.00			4401.00	
Recorder	0.00	8353	Inside	4401.00	
Recorder	0.00	8366	Outside	4401.00	
Perforations	21.00			4422.00	
Blank Spacing	65.00			4487.00	
Bullnose	3.00			4490.00	90.00 Bottom Packers & Anchor

Total Tool Length: 118.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

34-4s-33w Rawlins,KS

250 N. Water STE 300
Wichita KS 67202

Nelson A #1-34

Job Ticket: 66458

DST#: 4

ATTN: Samon Sharifaie

Test Start: 2019.11.15 @ 19:51:00

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: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 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

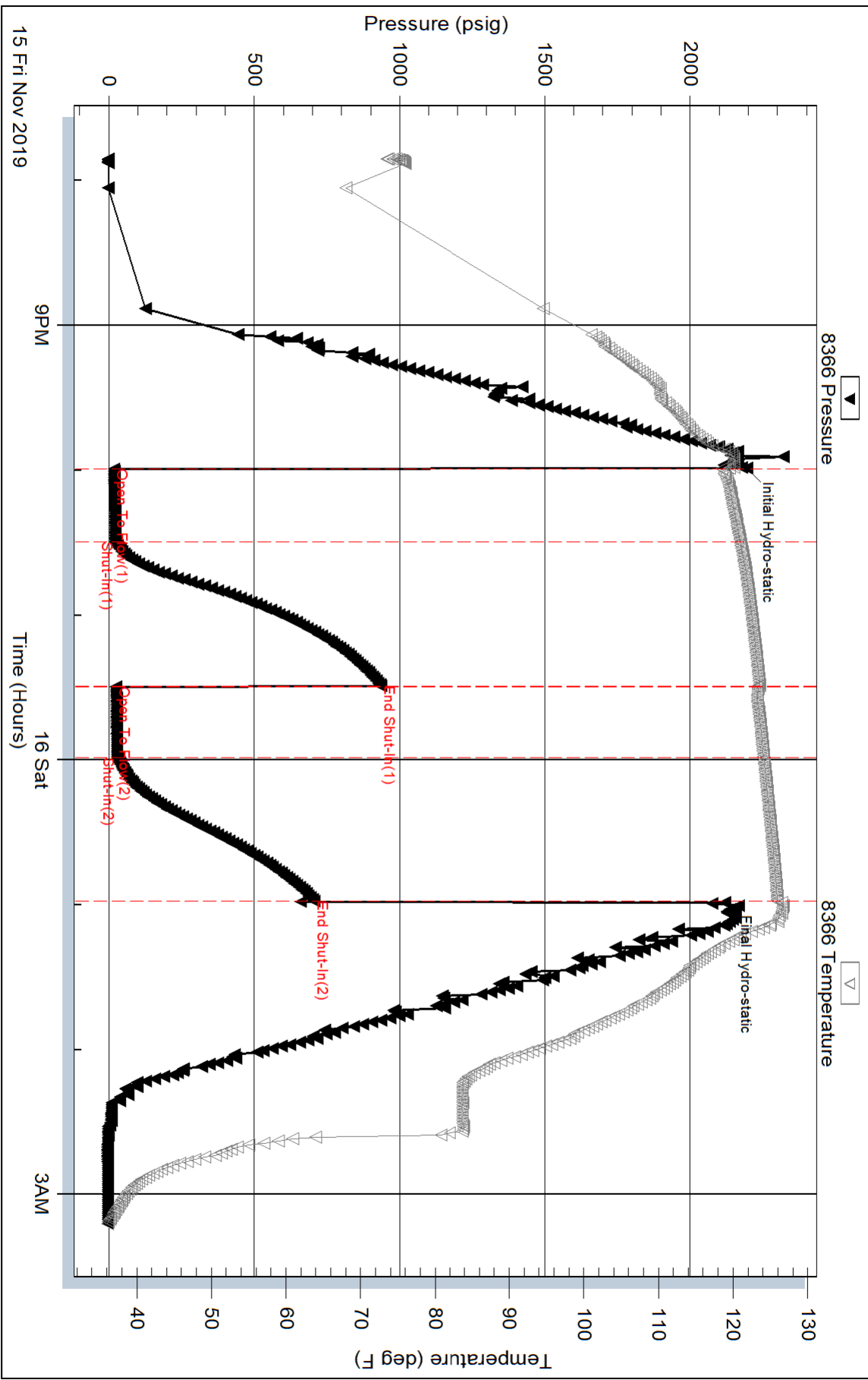
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



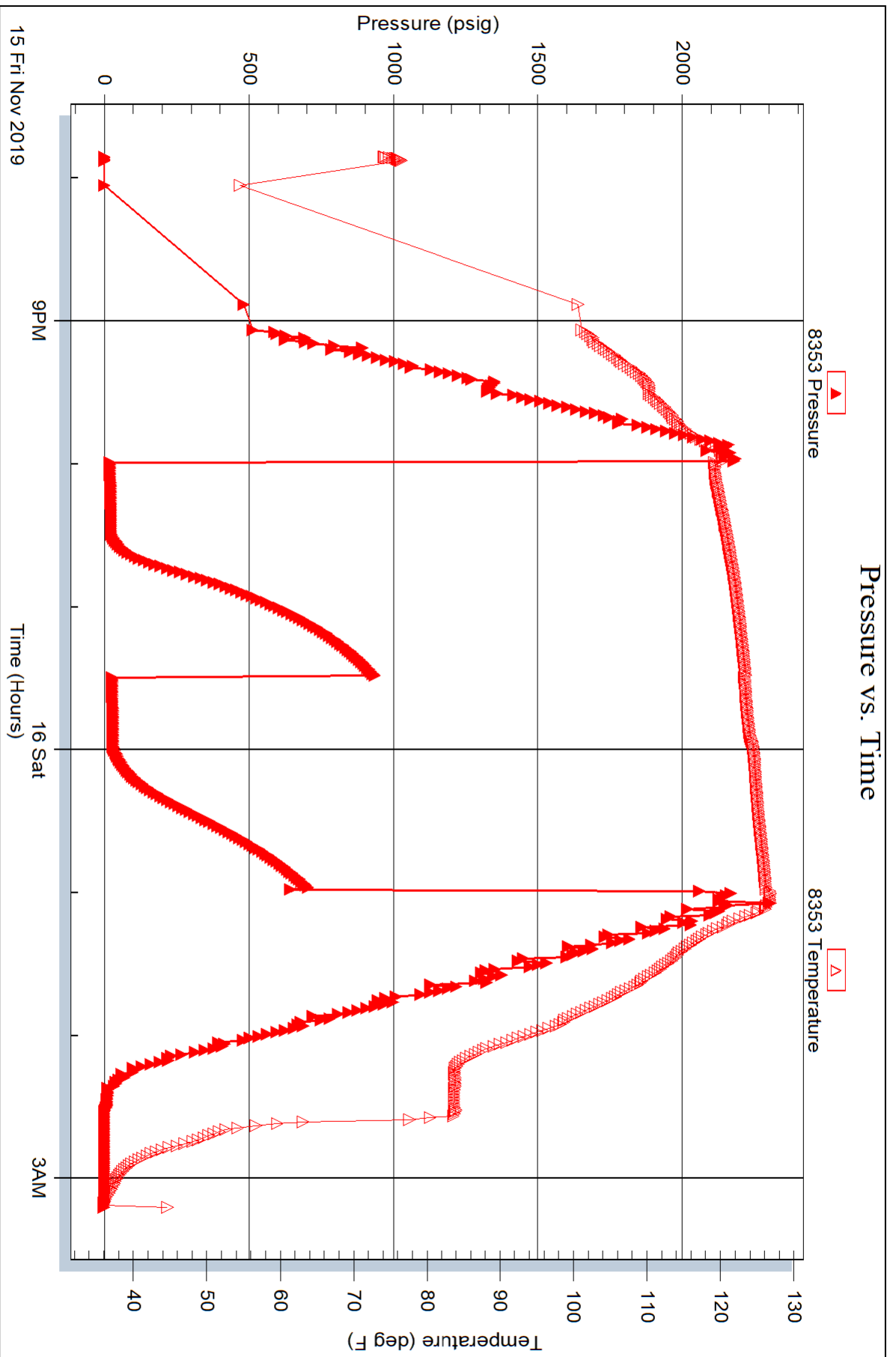
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Inside

Murfin Drilling Co. Inc.

Nelson A #1-34

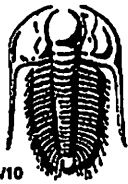
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 66458

Printed: 2019-11-18 @ 13:14:52



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66455

NO.

Well Name & No. Nelson "A" #1-34 Test No. 1 Date 11/12/19
 Company Martin Drilling Co. Inc. Elevation 3118 KB 3113 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Martin # 3
 Location: Sec. 34 Twp 4S Rge. 33W Co. Rawlins State KS

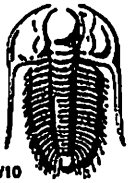
Interval Tested 4016 - 4062 Zone Tested LKC "A-B"
 Anchor Length 46' Drill Pipe Run 3830' Mud Wt. 8.8
 Top Packer Depth 4011 Drill Collars Run 177' Vis 57
 Bottom Packer Depth 4016 Wt. Pipe Run 0' WL 6.4
 Total Depth 4062 Chlorides 2100 ppm System LCM S
 Blow Description 30 IF - Blow built to 1 1/4"
60 ISI - No return
30 FF - Blow built to 1/4"
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</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 20' BHT 118° Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>1933</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>19:15</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:00</u>
(C) First Final Flow <u>25</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:37</u>
(D) Initial Shut-In <u>1173</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>02:38</u>
(E) Second Initial Flow <u>28</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>04:45</u>
(F) Second Final Flow <u>36</u>	<input checked="" type="checkbox"/> Mileage <u>82 AT 82</u>	Comments
(G) Final Shut-In <u>1115</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1840</u>	<input type="checkbox"/> Straddle	
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>1707</u>	Total <u>1707</u>

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 66456

NO.

Well Name & No. Nelson "A" #1-34 Test No. 2 Date 11/13/19
 Company Martin Drilling Co. Inc. Elevation 3118 KB 3113 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Samen Sharifaie Rig Martin # 3
 Location: Sec. 34 Twp 4S Rge. 33W Co. Rawlins State KS

Interval Tested 4090 - 4120 Zone Tested LKC "F - G"
 Anchor Length 40' Drill Pipe Run 3893' Mud Wt. 8.9
 Top Packer Depth 4075 Drill Collars Run 177' Vis 61
 Bottom Packer Depth 4080 Wt. Pipe Run 0' WL 5.6
 Total Depth 4120 Chlorides 3400 ppm System LCM 6

Blow Description 30 IF - Blow built to 1/4"
60 ISI - No return
30 FF - No blow
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>VSOCM</u>	<u>5</u>		<u>95</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 10' BHT 120° Gravity ✓ API RW ✓ @ ✓ ° F Chlorides --- ppm

(A) Initial Hydrostatic 2002
 (B) First Initial Flow 15
 (C) First Final Flow 22
 (D) Initial Shut-In 1301
 (E) Second Initial Flow 25
 (F) Second Final Flow 31
 (G) Final Shut-In 1297
 (H) Final Hydrostatic 1880

Test 1300
 Jars 250
 Safety Joint 75
 Circ Sub _____
 Hourly Standby _____
 Mileage 82 RT 82
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1707

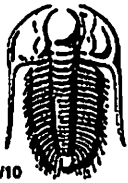
T-On Location 14:30
 T-Started 15:00
 T-Open 16:56
 T-Pulled 19:59
 T-Out 21:45

Comments _____
 EM Tool _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1707
 MP/DST Disc't _____

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

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66457

NO.

Well Name & No. Nelson "A" #1-34 Test No. 3 Date 11/14/19
 Company Murfin Drilling Co. Inc. Elevation 3118 KB 3113 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Samen Sharifaie Rig Murfin # 3
 Location: Sec. 34 Twp 4S Rge. 33W Co. Rawlins State KS

Interval Tested 4160 - 4200 Zone Tested LKC "J"
 Anchor Length 40' Drill Pipe Run 2986' Mud Wt. 9.1
 Top Packer Depth 4155 Drill Collars Run 177' Vis 53
 Bottom Packer Depth 4160 Wt. Pipe Run 0' WL 2.0
 Total Depth 4200 Chlorides 3500 ppm System LCM 6

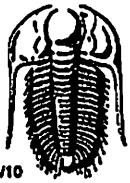
Blow Description 30 IF - Blow built to 1 1/2"
60 ISI - No return
60 FF - Blow built to 1 1/4"
90 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>WCM</u>		<u>5</u>	<u>95</u>	
<u>60'</u>	<u>Mud</u>			<u>100</u>	

Rec Total 80' BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2040</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>08:30</u>
(B) First Initial Flow <u>13</u>	<input type="checkbox"/> Jars <u>250</u>	T-Started <u>09:00</u>
(C) First Final Flow <u>31</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:03</u>
(D) Initial Shut-In <u>1324</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>15:03</u>
(E) Second Initial Flow <u>31</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>17:00</u>
(F) Second Final Flow <u>64</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT</u> 82	Comments _____
(G) Final Shut-In <u>1324</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1863</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>60</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1707</u>
	Sub Total <u>1707</u>	MP/DST Disc't _____

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 66458

NO.

Well Name & No. Nelson "A" # 1-34 Test No. 4 Date 11/15/19
 Company Murkin Drilling Co. Inc. Elevation 3118 KB 3113 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Saman Sharif Rig Murkin # 3
 Location: Sec. 34 Twp 4S Rge. 33W Co. Randolph State KS

Interval Tested 4400 - 4490 Zone Tested L. Ft. Scott - Celia
 Anchor Length 90' Drill Pipe Run 4204' Mud Wt. 9.2
 Top Packer Depth 4395 Drill Collars Run 177' Vis 55
 Bottom Packer Depth 4400 Wt. Pipe Run 0' WL 6.8
 Total Depth 4490 Chlorides 3400 ppm System LCM 5
 Blow Description 30 IF - Blow built to 1" died back to 1/2"
60 IFI - No return
30 FF - No blow
60 FFI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>USOCM</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 5' BHT 126° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2195</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>19:00</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>19:51</u>
(C) First Final Flow <u>23</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:59</u>
(D) Initial Shut-In <u>935</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>00:59</u>
(E) Second Initial Flow <u>25</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:10</u>
(F) Second Final Flow <u>29</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT</u> 82	Comments
(G) Final Shut-In <u>707</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2119</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>1707</u>
	Sub Total <u>1707</u>	MP/DST Disc't

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.