



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Jones 'A' #5-17

17-1s-37w Cheyenne, NE

Start Date: 2019.09.07 @ 05:50:00

End Date: 2019.09.07 @ 14:08:15

Job Ticket #: 65577 DST #: 1

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

Printed: 2019.09.11 @ 13:45:28

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

Jones 'A' #5-17

DST # 1

LKC "A - D"

2019.09.07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65577

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2019.09.07 @ 05:50:00

GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:16:15

Time Test Ended: 14:08:15

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4056.00 ft (KB) To 4177.00 ft (KB) (TVD)

Reference Elevations: 3141.00 ft (KB)

Total Depth: 4177.00 ft (KB) (TVD)

3136.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 112.19 psig @ 4057.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.09.07 End Date: 2019.09.07

Last Calib.: 2019.09.07

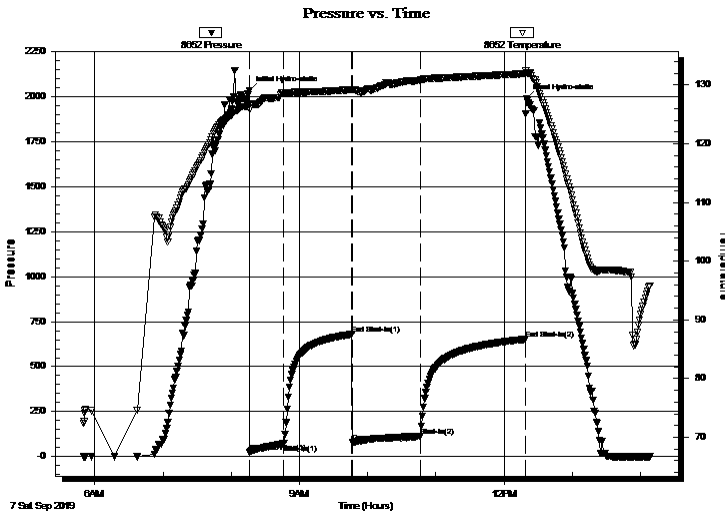
Start Time: 05:50:05 End Time: 14:08:14

Time On Btm: 2019.09.07 @ 08:16:00

Time Off Btm: 2019.09.07 @ 12:19:45

TEST COMMENT: 30 - IF: Blow built to 6"
60 - IS: No blow back
60 - FF: Blow built to 4"
90 - FS: No blow back

PRESSURE SUMMARY



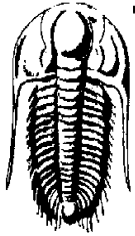
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2034.62	126.84	Initial Hydro-static
1	24.79	125.93	Open To Flow (1)
30	71.17	128.67	Shut-In(1)
90	679.71	129.24	End Shut-In(1)
91	79.27	129.20	Open To Flow (2)
151	112.19	130.87	Shut-In(2)
243	652.38	131.96	End Shut-In(2)
244	1989.36	132.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
208.00	GOCM 75% m, 16% o, 9% g	1.30

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65577

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2019.09.07 @ 05:50:00

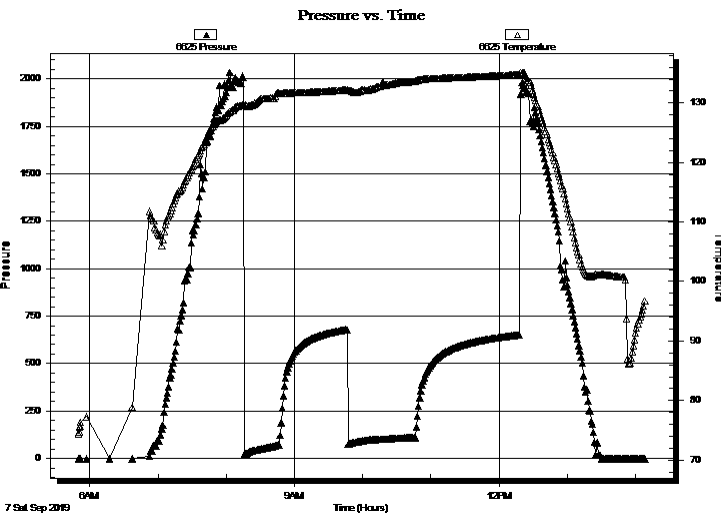
GENERAL INFORMATION:

Formation: LKC "A - D"			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)	
Time Tool Opened: 08:16:15		Tester: James Winder	
Time Test Ended: 14:08:15		Unit No: 83	
Interval: 4056.00 ft (KB) To 4177.00 ft (KB) (TVD)		Reference Elevations:	3141.00 ft (KB)
Total Depth: 4177.00 ft (KB) (TVD)			3136.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF:	5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4057.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2019.09.07	End Date: 2019.09.07
Start Time: 05:50:05	End Time: 14:08:44
Last Calib.: 2019.09.07	Time On Btm:
Time Off Btm:	

TEST COMMENT: 30 - IF: Blow built to 6"
60 - IS: No blow back
60 - FF: Blow built to 4"
90 - FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
208.00	GOCM 75% m, 16% o, 9% g	1.30

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65577

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2019.09.07 @ 05:50:00

Tool Information

Drill Pipe:	Length: 3856.00 ft	Diameter: 3.80 inches	Volume: 54.09 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 54.97 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4056.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	121.00 ft			
Tool Length:	150.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4028.00	
Shut In Tool	5.00			4033.00	
Hydraulic tool	5.00			4038.00	
Jars	5.00			4043.00	
Safety Joint	3.00			4046.00	
Packer	5.00			4051.00	29.00 Bottom Of Top Packer
Packer	5.00			4056.00	
Stubb	1.00			4057.00	
Recorder	0.00	6625	Inside	4057.00	
Recorder	0.00	8652	Outside	4057.00	
Perforations	20.00			4077.00	
Blank Spacing	97.00			4174.00	
Bullnose	3.00			4177.00	121.00 Bottom Packers & Anchor

Total Tool Length: 150.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65577

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2019.09.07 @ 05:50:00

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: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
208.00	GOCM 75% _m , 16% _o , 9% _g	1.296

Total Length: 208.00 ft Total Volume: 1.296 bbl

Num Fluid Samples: 0

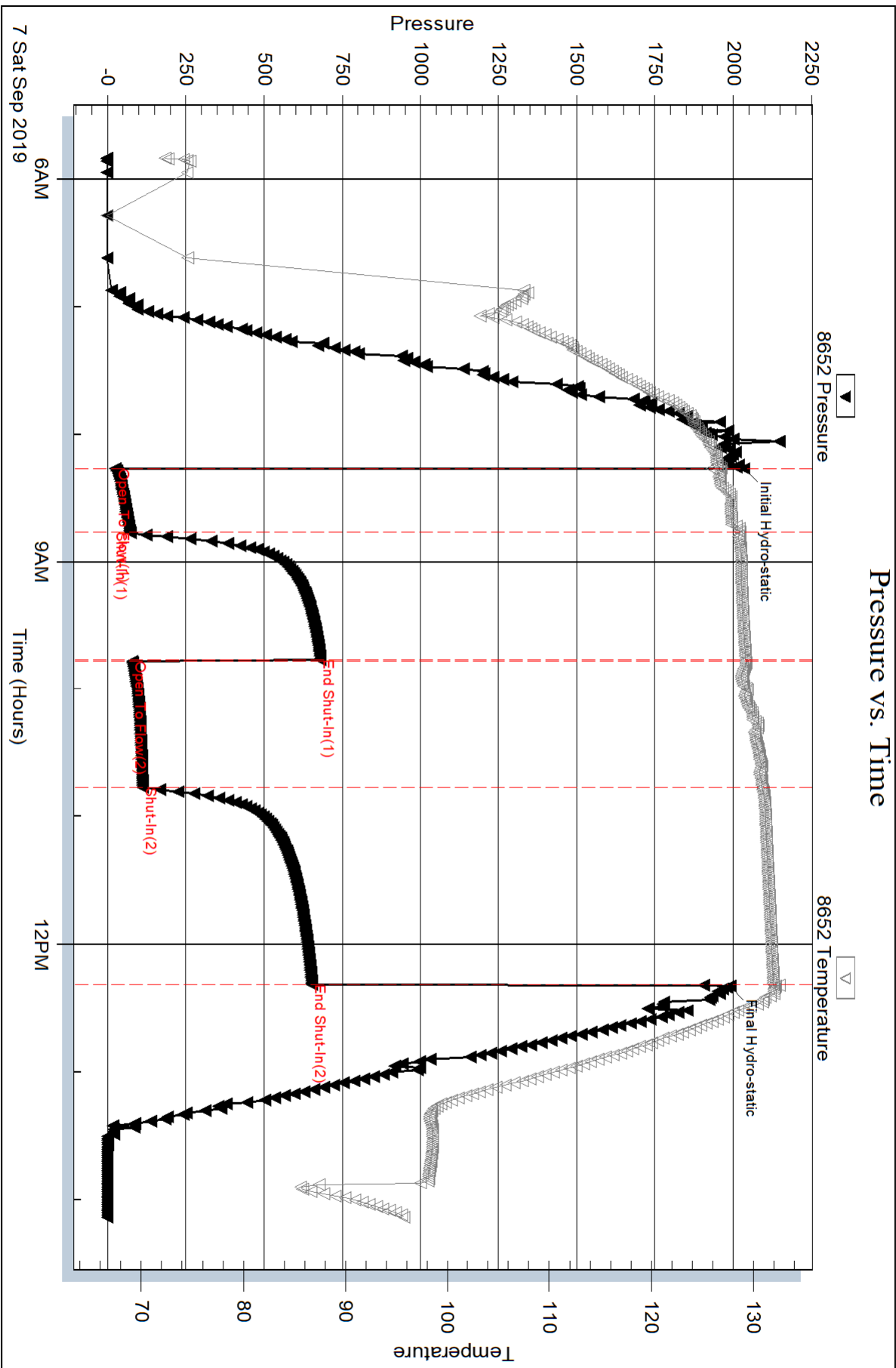
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



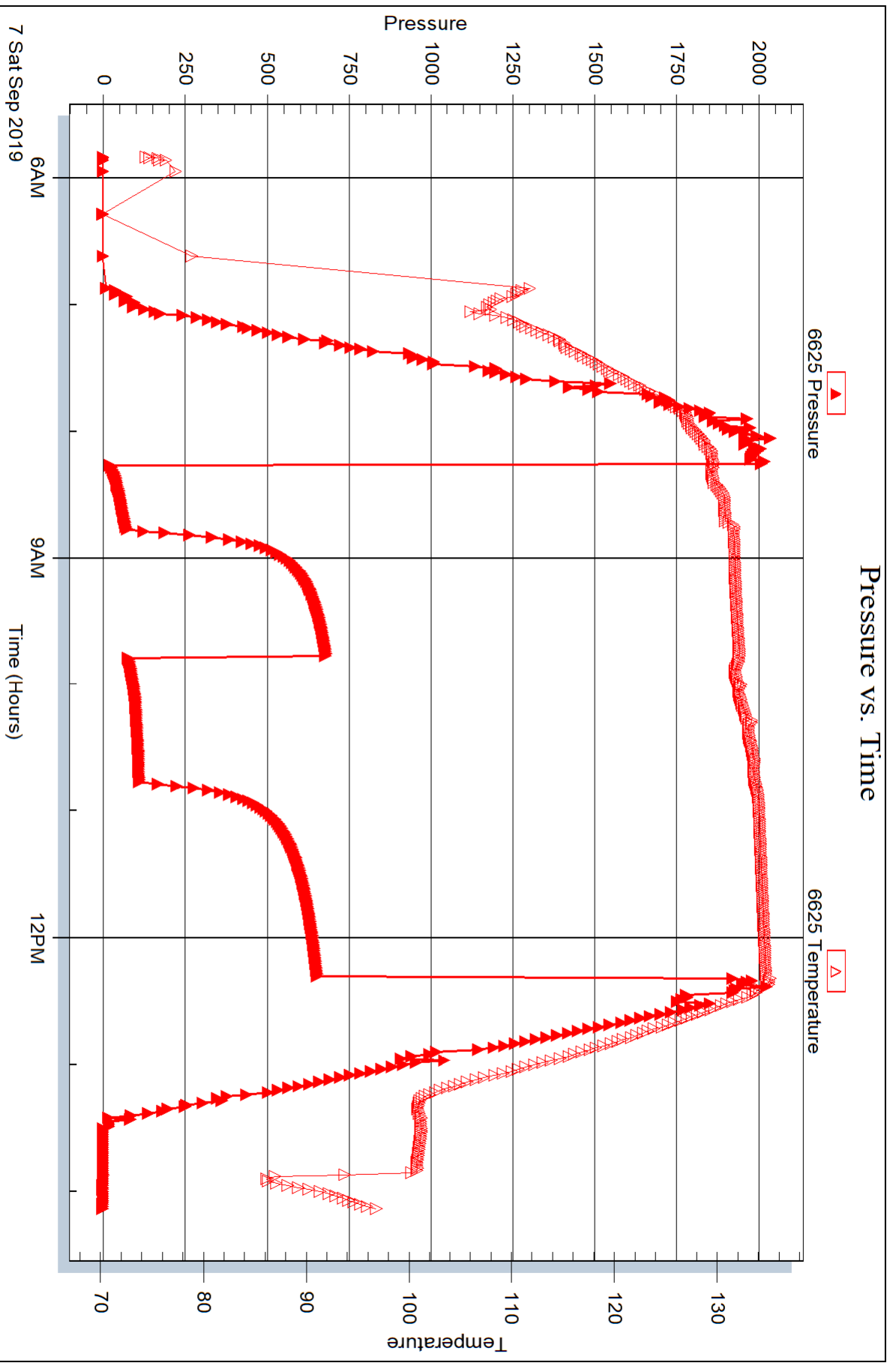
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Jones 'A' #5-17

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65577

Printed: 2019.09.11 @ 13:45:29



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Jones 'A' #5-17

17-1s-37w Cheyenne, NE

Start Date: 2019.09.08 @ 01:19:00

End Date: 2019.09.08 @ 08:31:45

Job Ticket #: 65578 DST #: 2

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

Printed: 2019.09.11 @ 13:45:03



**TRILOBITE
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DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65578

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 01:19:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:46:00

Time Test Ended: 08:31:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4176.00 ft (KB) To 4235.00 ft (KB) (TVD)

Reference Elevations: 3141.00 ft (KB)

Total Depth: 4235.00 ft (KB) (TVD)

3136.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 23.64 psig @ 4177.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.09.08

End Date: 2019.09.08

Last Calib.: 2019.09.08

Start Time: 01:19:05

End Time: 08:31:44

Time On Btm: 2019.09.08 @ 03:45:30

Time Off Btm: 2019.09.08 @ 06:49:30

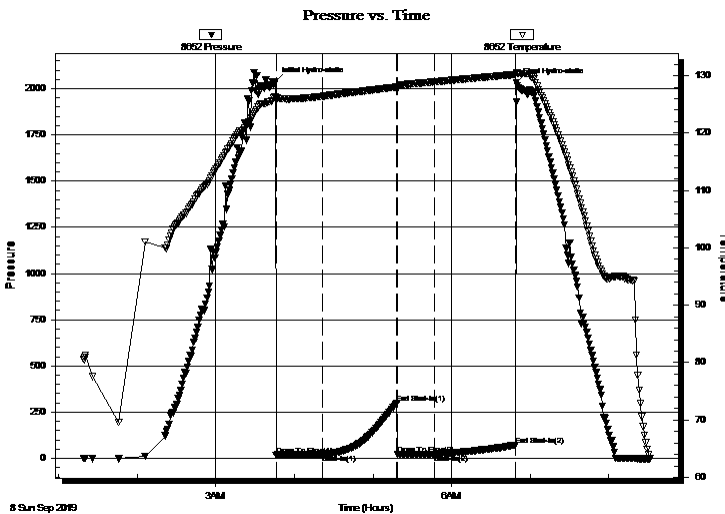
TEST COMMENT: 30 - IF: 1/4" Blow at open, died back to weak surface blow

60 - IS: No blow

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2040.31	126.35	Initial Hydro-static
1	18.64	126.02	Open To Flow (1)
36	20.19	126.41	Shut-In(1)
93	299.92	128.02	End Shut-In(1)
94	22.91	127.69	Open To Flow (2)
122	23.64	128.93	Shut-In(2)
184	72.38	130.21	End Shut-In(2)
184	2032.22	130.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w /Oil spots 98%m, 2%o	0.07

* 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: Saman Sharifaie

17-1s-37w Cheyenne, NE

Jones 'A' #5-17

Job Ticket: 65578

DST#: 2

Test Start: 2019.09.08 @ 01:19:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:46:00

Time Test Ended: 08:31:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4176.00 ft (KB) To 4235.00 ft (KB) (TVD)

Total Depth: 4235.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3141.00 ft (KB)

3136.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4177.00 ft (KB)

Start Date: 2019.09.08

End Date:

2019.09.08

Start Time: 01:19:05

End Time:

08:31:59

Capacity: 8000.00 psig

Last Calib.:

2019.09.08

Time On Btm:

Time Off Btm:

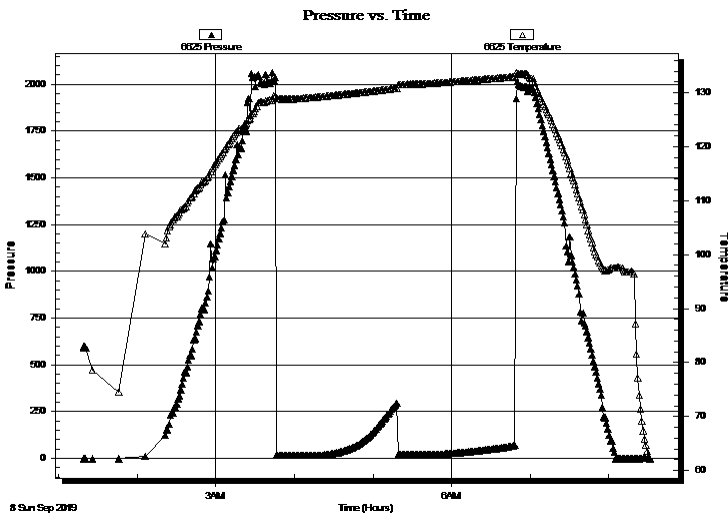
TEST COMMENT: 30 - IF: 1/4" Blow at open, died back to weak surface blow

60 - IS: No blow

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w /Oil spots 98%m, 2%o	0.07

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65578

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 01:19:00

Tool Information

Drill Pipe:	Length: 3982.00 ft	Diameter: 3.80 inches	Volume: 55.86 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: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 56.74 bbl</u>	Tool Chased 9.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4176.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	59.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4148.00	
Shut In Tool	5.00			4153.00	
Hydraulic tool	5.00			4158.00	
Jars	5.00			4163.00	
Safety Joint	3.00			4166.00	
Packer	5.00			4171.00	29.00 Bottom Of Top Packer
Packer	5.00			4176.00	
Stubb	1.00			4177.00	
Recorder	0.00	6625	Inside	4177.00	
Recorder	0.00	8652	Outside	4177.00	
Perforations	20.00			4197.00	
Blank Spacing	33.00			4230.00	
Perforations	2.00			4232.00	
Bullnose	3.00			4235.00	59.00 Bottom Packers & Anchor

Total Tool Length: 88.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65578

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 01:19:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Mud w /Oil spots 98%m, 2%o	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

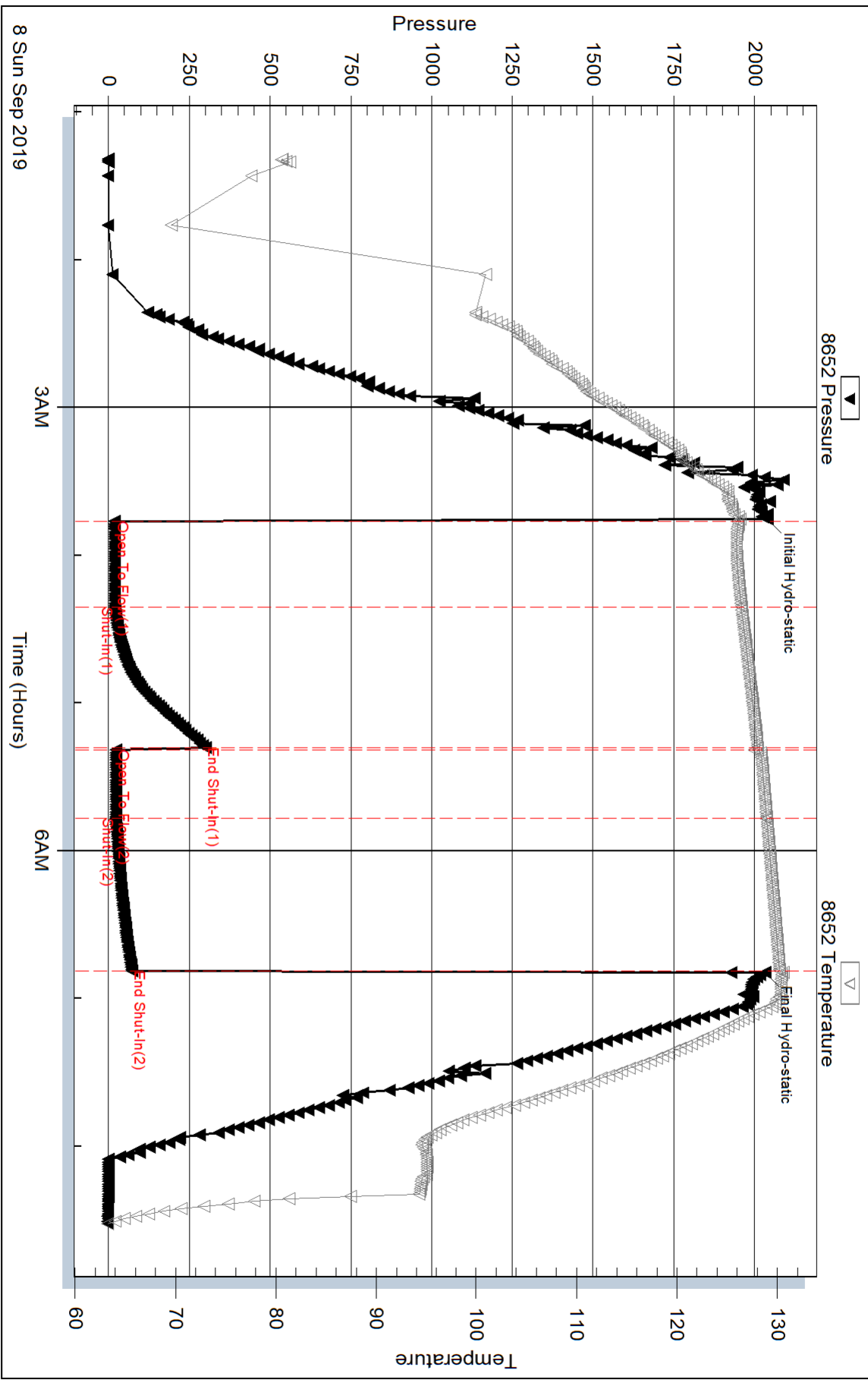
Serial #:

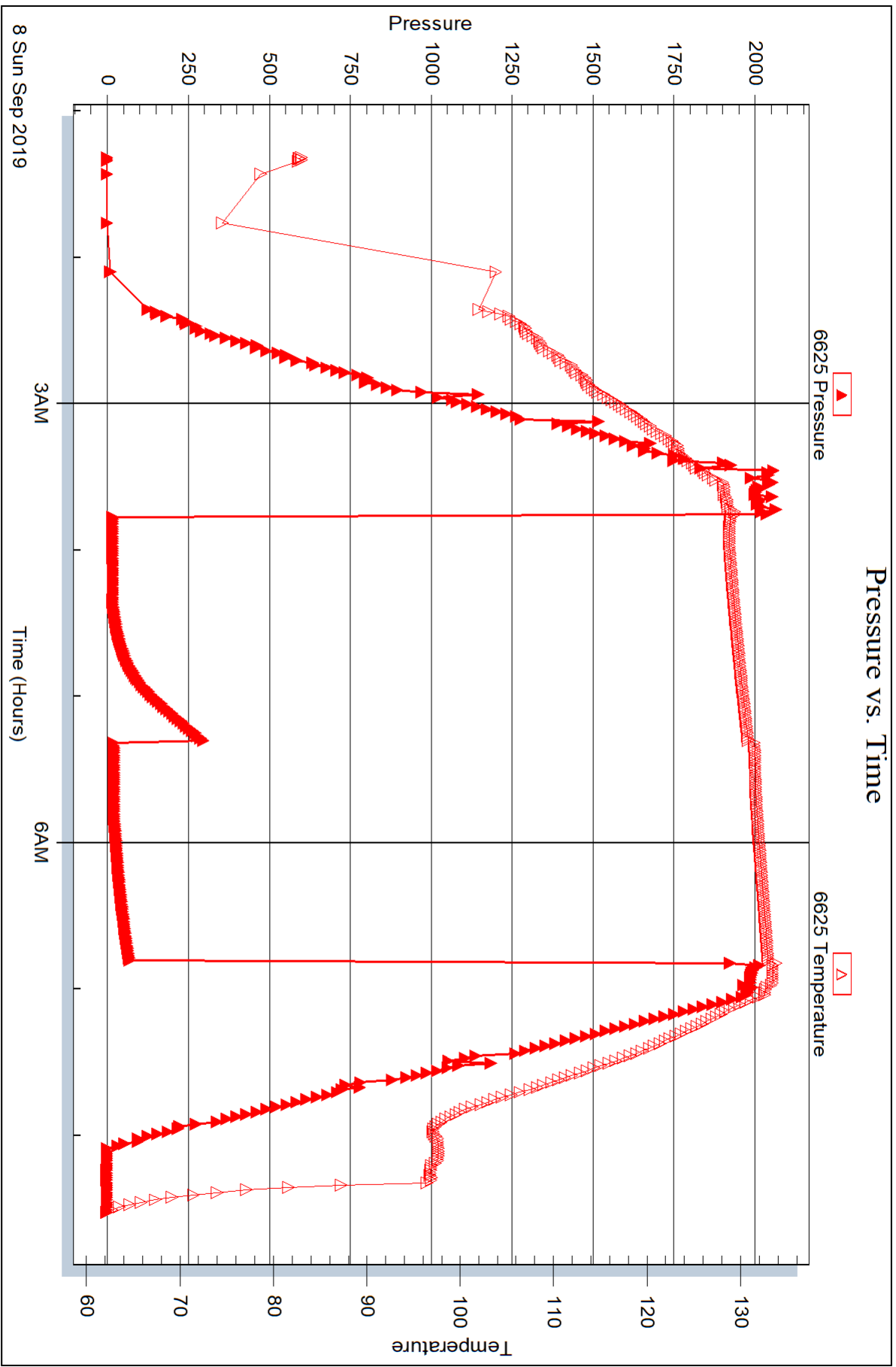
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Jones 'A' #5-17

17-1s-37w Cheyenne, NE

Start Date: 2019.09.08 @ 20:40:00

End Date: 2019.09.09 @ 04:14:45

Job Ticket #: 65579 DST #: 3

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

Printed: 2019.09.11 @ 13:44:28

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

Jones 'A' #5-17

DST # 3

LKC "H - J"

2019.09.08



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65579

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 20:40:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:22:30
 Time Test Ended: 04:14:45
 Interval: **4235.00 ft (KB) To 4330.00 ft (KB) (TVD)**
 Total Depth: 4330.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3141.00 ft (KB)
 3136.00 ft (CF)
 KB to GR/CF: 5.00 ft

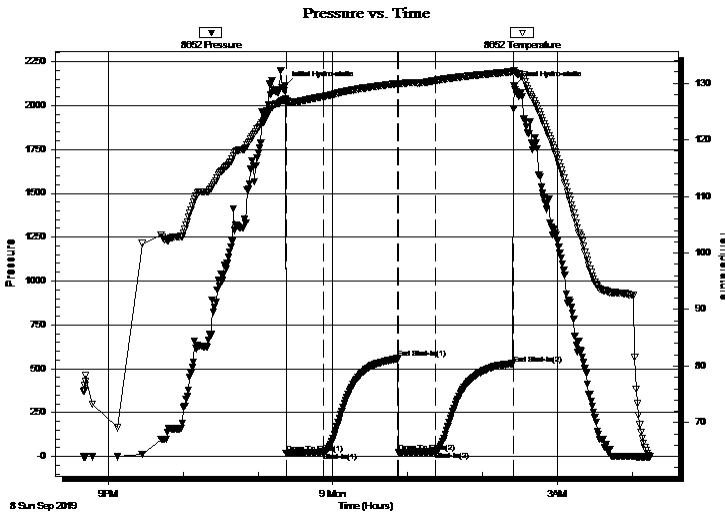
Serial #: 8652

Outside

Press@RunDepth: 27.01 psig @ 4236.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.08 End Date: 2019.09.09 Last Calib.: 2019.09.09
 Start Time: 20:40:05 End Time: 04:14:44 Time On Btm: 2019.09.08 @ 23:22:15
 Time Off Btm: 2019.09.09 @ 02:25:30

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2"
 60 - IS: No blow back
 30 - FF: No blow
 60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2115.22	127.20	Initial Hydro-static
1	19.51	126.43	Open To Flow (1)
31	22.91	127.67	Shut-In(1)
90	557.89	129.98	End Shut-In(1)
91	24.44	129.72	Open To Flow (2)
121	27.01	130.51	Shut-In(2)
183	528.96	132.06	End Shut-In(2)
184	2110.79	132.29	Final Hydro-static

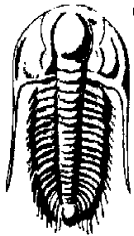
Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /trace of Oil 100% m	0.05

* 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

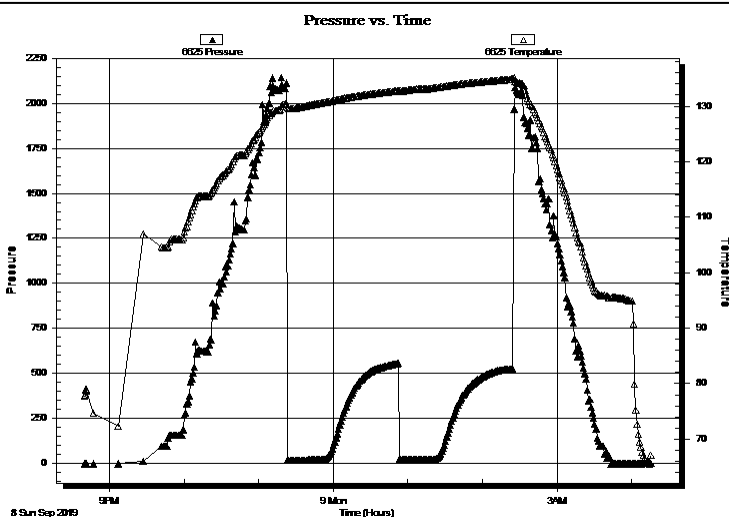
17-1s-37w Cheyenne, NE
Jones 'A' #5-17
Job Ticket: 65579 **DST#: 3**
Test Start: 2019.09.08 @ 20:40:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**
Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**
Time Tool Opened: 23:22:30 Tester: **James Winder**
Time Test Ended: 04:14:45 Unit No: **83**
Interval: 4235.00 ft (KB) To 4330.00 ft (KB) (TVD) Reference Elevations: **3141.00 ft (KB)**
Total Depth: **4330.00 ft (KB) (TVD)** **3136.00 ft (CF)**
Hole Diameter: **7.88 inches** Hole Condition: **Fair** KB to GR/CF: **5.00 ft**

Serial #: 6625 **Inside**
Press@RunDepth: **psig @ 4236.00 ft (KB)** Capacity: **8000.00 psig**
Start Date: **2019.09.08** End Date: **2019.09.09** Last Calib.: **2019.09.09**
Start Time: **20:40:05** End Time: **04:15:14** Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2"
60 - IS: No blow back
30 - FF: No blow
60 - FS: No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /trace of Oil 100% 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.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65579

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 20:40:00

Tool Information

Drill Pipe:	Length: 4043.00 ft	Diameter: 3.80 inches	Volume: 56.71 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4235.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	124.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4207.00	
Shut In Tool	5.00			4212.00	
Hydraulic tool	5.00			4217.00	
Jars	5.00			4222.00	
Safety Joint	3.00			4225.00	
Packer	5.00			4230.00	29.00 Bottom Of Top Packer
Packer	5.00			4235.00	
Stubb	1.00			4236.00	
Recorder	0.00	6625	Inside	4236.00	
Recorder	0.00	8652	Outside	4236.00	
Perforations	24.00			4260.00	
Blank Spacing	65.00			4325.00	
Perforations	2.00			4327.00	
Bullnose	3.00			4330.00	95.00 Bottom Packers & Anchor

Total Tool Length: 124.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65579

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2019.09.08 @ 20:40:00

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: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud w /trace of Oil 100%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:

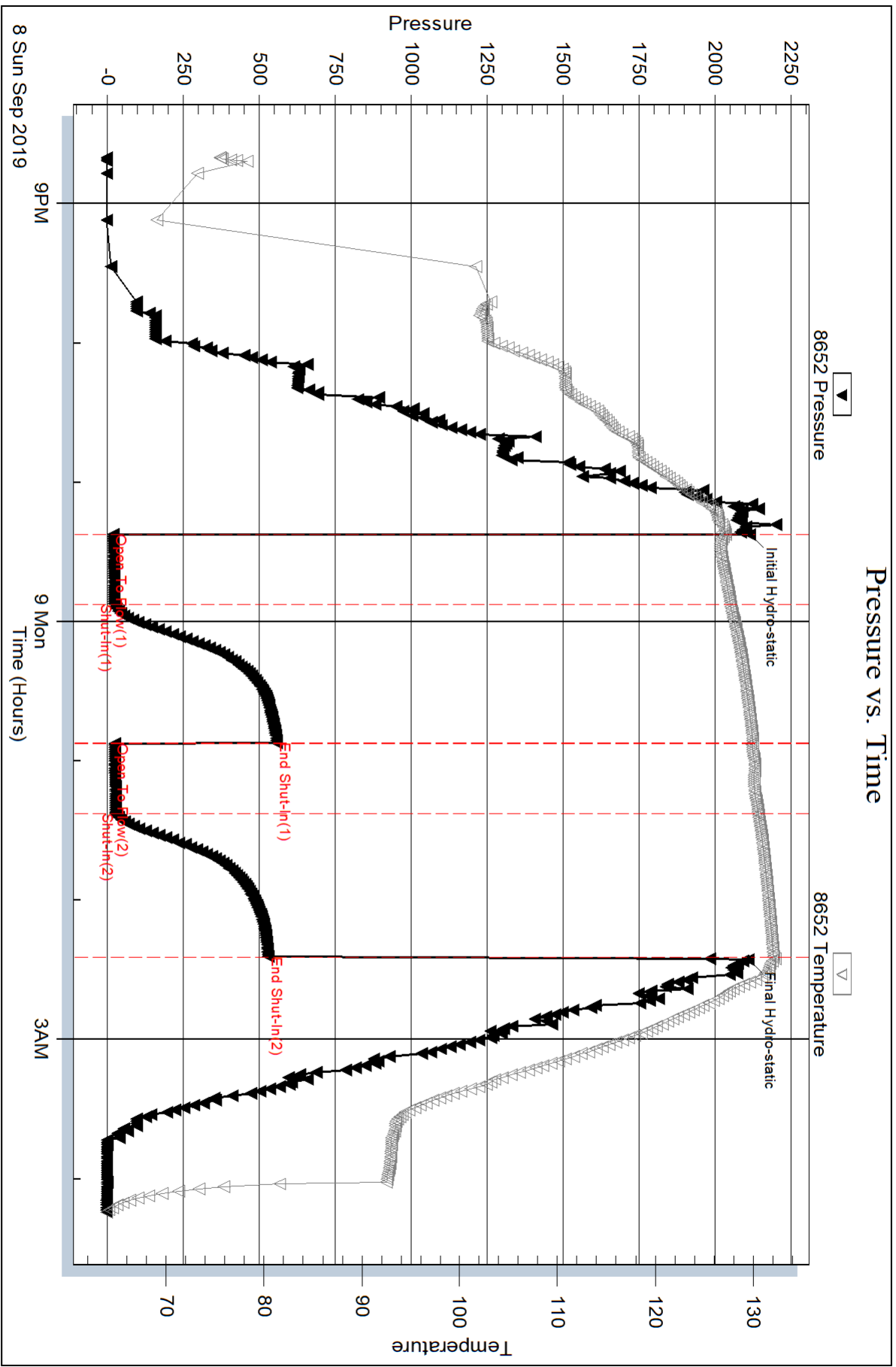
Recovery Comments:

Serial #: 8652

Outside Murfin Drilling Co., Inc.

Jones 'A' #5-17

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 65579

Printed: 2019.09.11 @ 13:44:29

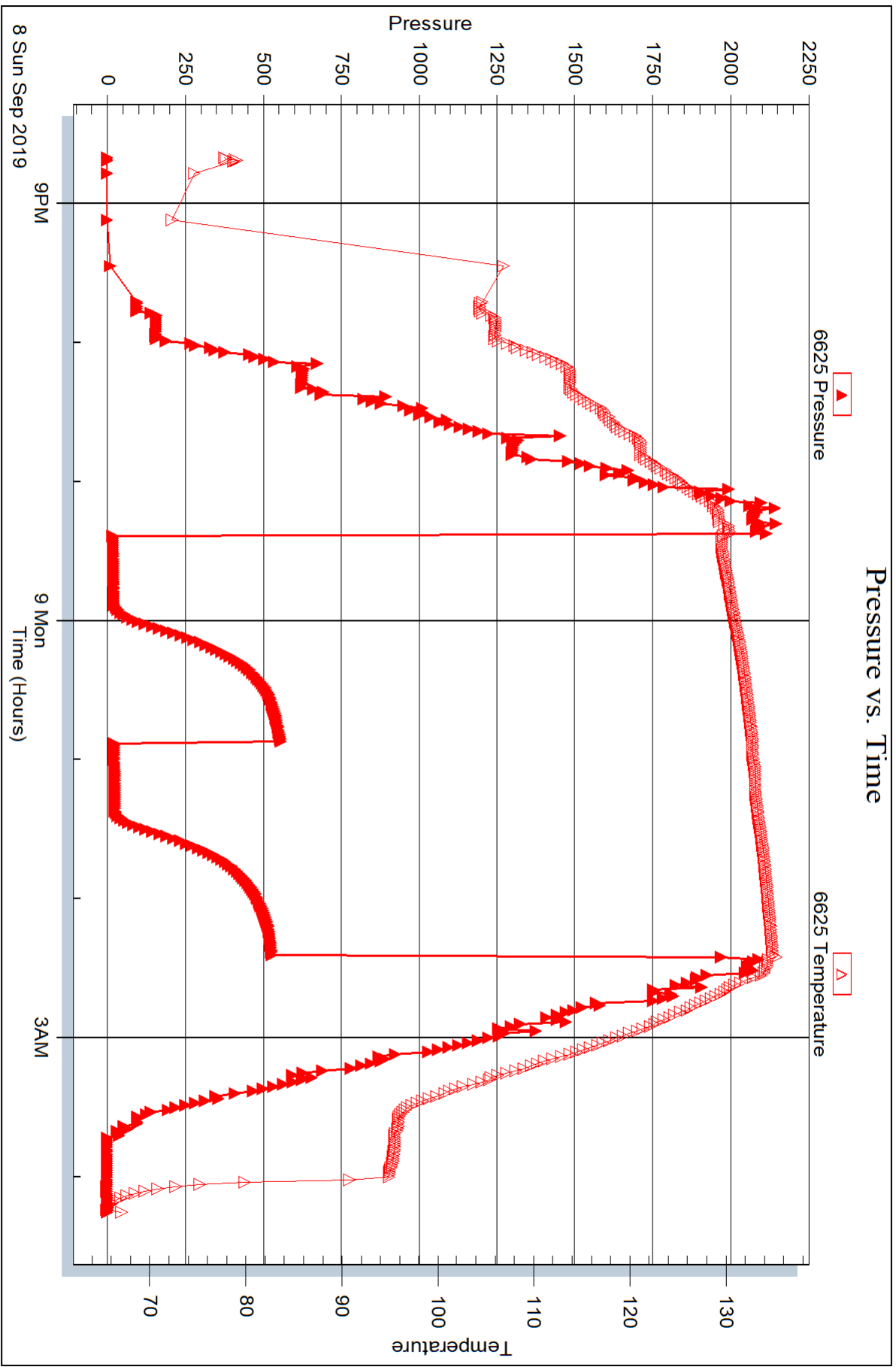
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Jones 'A' #5-17

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65579

Printed: 2019.09.11 @ 13:44:29



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Jones 'A' #5-17

17-1s-37w Cheyenne, NE

Start Date: 2019.09.09 @ 23:54:00

End Date: 2019.09.10 @ 06:55:45

Job Ticket #: 65580 DST #: 4

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

Printed: 2019.09.11 @ 13:36:40

Murfin Drilling Co., Inc. 17-1s-37w Cheyenne, NE Jones 'A' #5-17 DST # 4 Ft. Scott 2019.09.09



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65580

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2019.09.09 @ 23:54:00

GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:04:15

Time Test Ended: 06:55:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4484.00 ft (KB) To 4527.00 ft (KB) (TVD)

Reference Elevations: 3141.00 ft (KB)

Total Depth: 4527.00 ft (KB) (TVD)

3136.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 22.17 psig @ 4485.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.09.09

End Date:

2019.09.10

Last Calib.:

2019.09.10

Start Time:

23:54:05

End Time:

06:55:44

Time On Btm:

2019.09.10 @ 02:03:45

Time Off Btm:

2019.09.10 @ 05:06:15

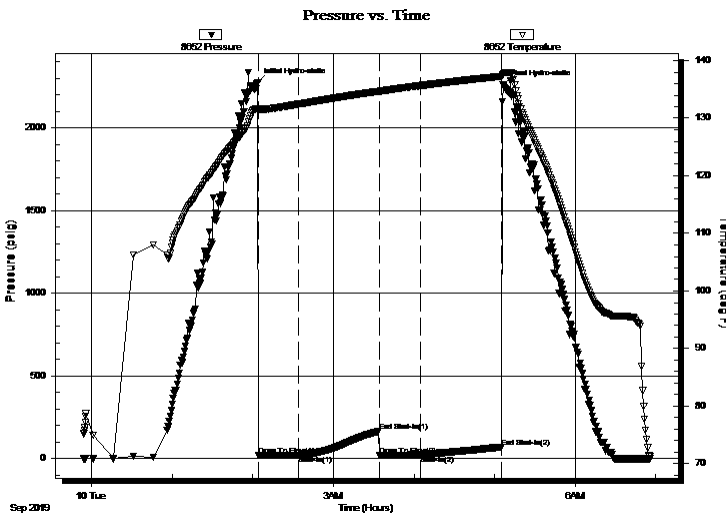
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2274.77	131.62	Initial Hydro-static
1	18.23	131.18	Open To Flow (1)
31	19.79	132.45	Shut-In(1)
91	163.89	134.69	End Shut-In(1)
91	20.97	134.67	Open To Flow (2)
121	22.17	135.64	Shut-In(2)
182	69.53	137.28	End Shut-In(2)
183	2259.04	137.59	Final Hydro-static

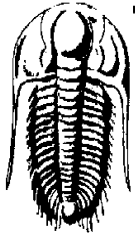
Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /Oil spots 99%m, 1%o	0.05

* 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

17-1s-37w Cheyenne, NE

Jones 'A' #5-17

Job Ticket: 65580

DST#: 4

Test Start: 2019.09.09 @ 23:54:00

GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:04:15

Time Test Ended: 06:55:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4484.00 ft (KB) To 4527.00 ft (KB) (TVD)

Reference Elevations: 3141.00 ft (KB)

Total Depth: 4527.00 ft (KB) (TVD)

3136.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4485.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.09.09

End Date: 2019.09.10

Last Calib.: 2019.09.10

Start Time: 23:54:05

End Time: 06:56:14

Time On Btm:

Time Off Btm:

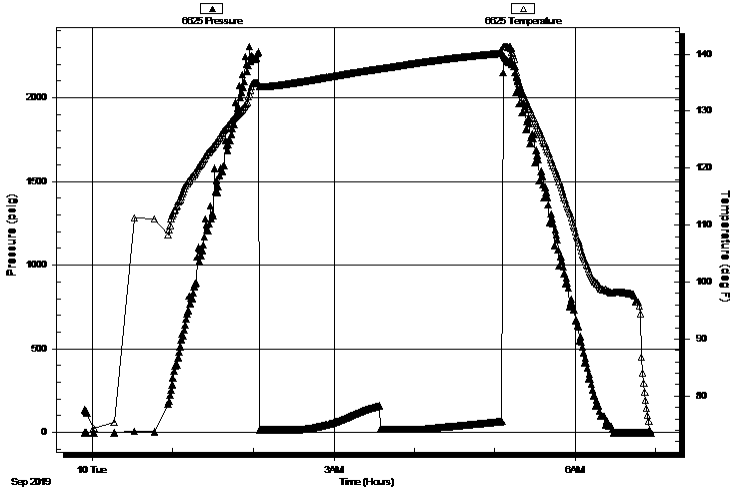
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /Oil spots 99% ^m , 1% ^o	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.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65580

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2019.09.09 @ 23:54:00

Tool Information

Drill Pipe:	Length: 4293.00 ft	Diameter: 3.80 inches	Volume: 60.22 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: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 61.10 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4484.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	43.00 ft			
Tool Length:	72.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4456.00	
Shut In Tool	5.00			4461.00	
Hydraulic tool	5.00			4466.00	
Jars	5.00			4471.00	
Safety Joint	3.00			4474.00	
Packer	5.00			4479.00	29.00 Bottom Of Top Packer
Packer	5.00			4484.00	
Stubb	1.00			4485.00	
Recorder	0.00	6625	Inside	4485.00	
Recorder	0.00	8652	Outside	4485.00	
Perforations	5.00			4490.00	
Blank Spacing	33.00			4523.00	
Perforations	1.00			4524.00	
Bullnose	3.00			4527.00	43.00 Bottom Packers & Anchor

Total Tool Length: 72.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-37w Cheyenne, NE

250 N. Water STE 300
Wichita, KS 67202

Jones 'A' #5-17

Job Ticket: 65580

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2019.09.09 @ 23:54:00

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: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud w /Oil spots 99% _m , 1% _o	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

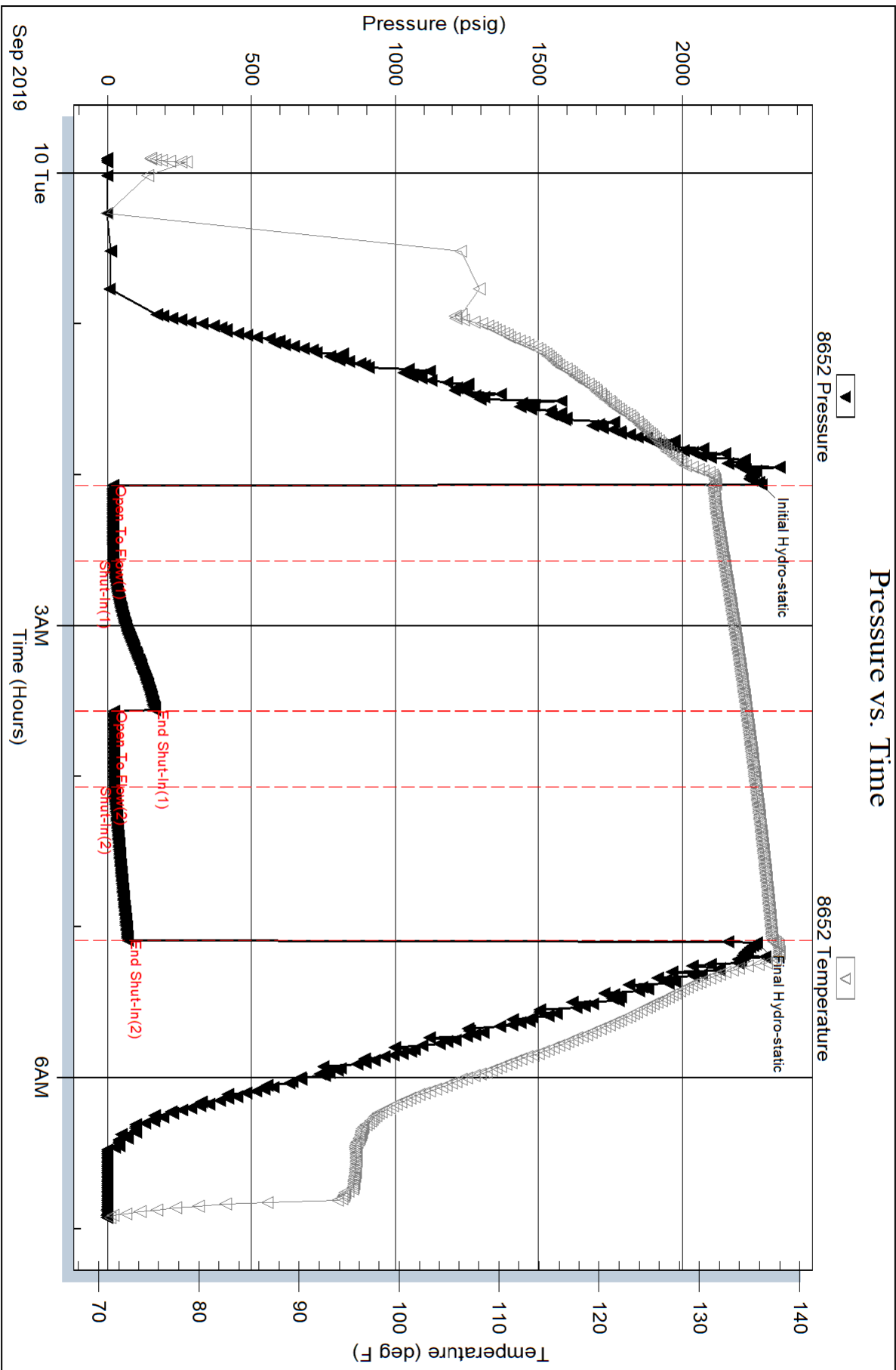
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



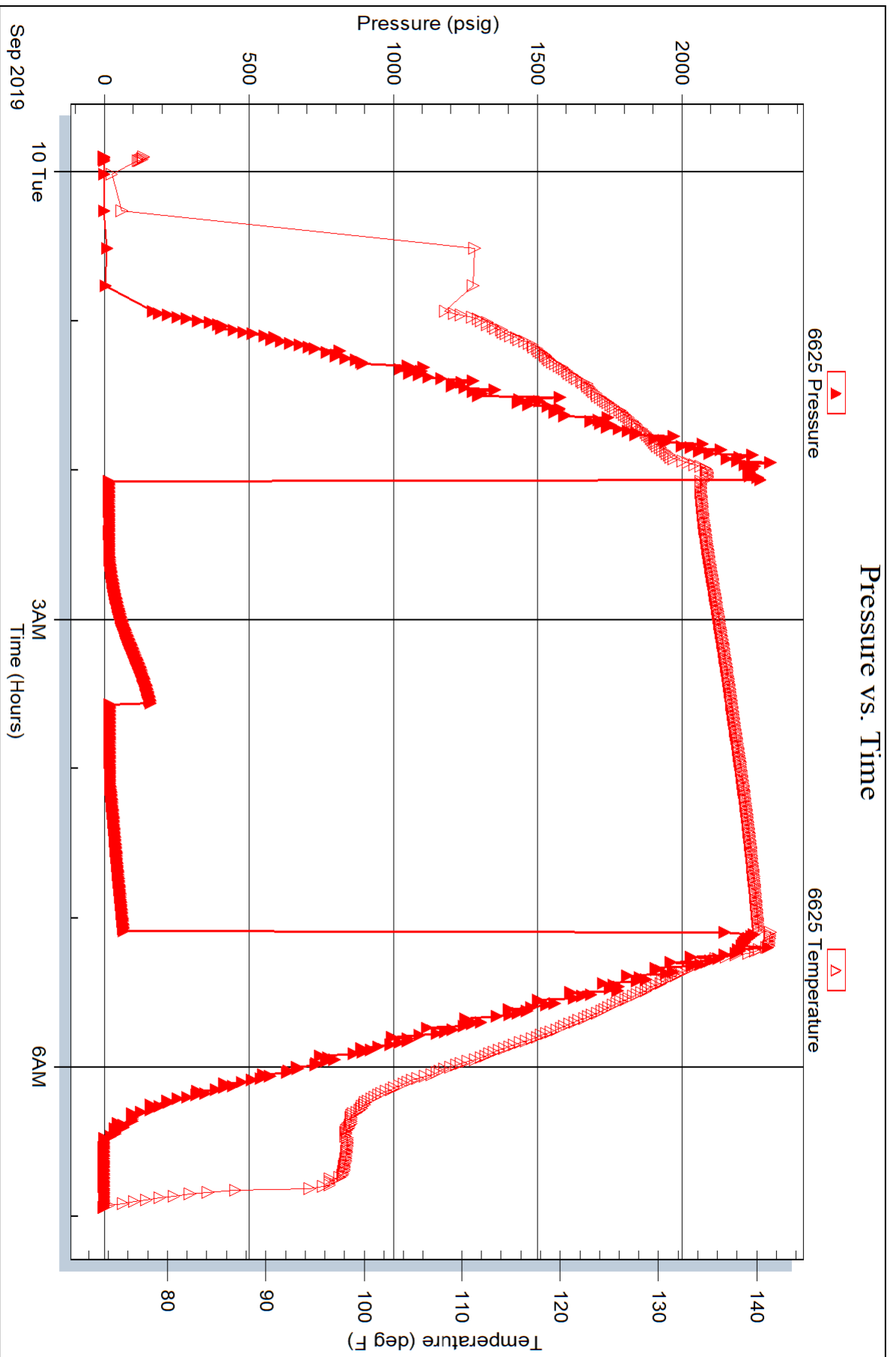
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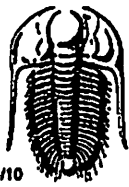
Inside

Murfin Drilling Co., Inc.

Jones 'A' #5-17

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65577

Well Name & No. Jones "A" # 5-17 Test No. 1 Date 9-7-19
 Company Murfin Drilling Co. Inc Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 17 Twp 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 4056 - 4177 Zone Tested LKC "A-D"
 Anchor Length 121 Drill Pipe Run 3856 Mud Wt. 9.2
 Top Packer Depth 4051 Drill Collars Run 178 Vls 61
 Bottom Packer Depth 4056 Wt. Pipe Run - WL 6.0
 Total Depth 4177 Chlorides 600 ppm System LCM 4

Blow Description IF: Blow built to 6"
ISI: No blowback
FF: Blow built to 4"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>208</u>	<u>60cm</u>	<u>9</u>	<u>16</u>	<u>75</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

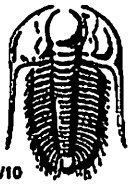
Rec Total 208 BHT 132 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2035 Test 1300 T-On Location 4:25
 (B) First Initial Flow 25 Jars 250 T-Started 5:50
 (C) First Final Flow 71 Safety Joint 75 T-Open 8:16
 (D) Initial Shut-In 680 Circ Sub _____ T-Pulled 12:19
 (E) Second Initial Flow 79 Hourly Standby _____ T-Out 14:10
 (F) Second Final Flow 112 Mileage 146 RT 146 Comments _____
 (G) Final Shut-In 652 Sampler _____
 (H) Final Hydrostatic 1989 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Sub Total 1771 MP/DST Disc't _____

Approved By _____ Our Representative James Vink
 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. 65578

Well Name & No. Jones 'A' #5-17 Test No. 2 Date 9-8-19
 Company Murfin Drilling Co. Inc Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 17 Twp 1S Rge. 37W Co. Cheyenne State KS

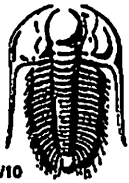
Interval Tested 4176 - 4235 Zone Tested LKC "6"
 Anchor Length 59 Drill Pipe Run 3982 Mud Wt. 9.1
 Top Packer Depth 4171 Drill Collars Run 178 Vls 57
 Bottom Packer Depth 4176 Wt. Pipe Run - WL 6.0
 Total Depth 4235 Chlorides 600 ppm System LCM 2
 Blow Description IF: 1/4" Blow at open, died back to weak surface blow
ISI: No blow
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>mud w/oil spots</u>	<u>2</u>		<u>98</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 130 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2040 Test 1300 T-On Location 23:55 9/7
 (B) First Initial Flow 19 Jars 250 T-Started 1:19 9/8
 (C) First Final Flow 20 Safety Joint 75 T-Open 3:46
 (D) Initial Shut-In 300 Circ Sub _____ T-Pulled 6:48
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 8:30
 (F) Second Final Flow 24 Mileage 146 RT 146 Comments _____
 (G) Final Shut-In 72 Sampler _____
 (H) Final Hydrostatic 2032 Straddle _____
 Shale Packer _____ EM Tool _____
 Extra Packer _____ Ruined Shale Packer _____
 Extra Recorder _____ Ruined Packer _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1771
 Sub Total 1771 MP/DST Disc't _____

Approved By _____ Our Representative James Winkler
 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. 65579

Well Name & No. Jones 'A' #5-17 Test No. 3 Date 9-8-19
 Company Murfin Drilling Co. Inc Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 17 Twp 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 4235 - 4330 Zone Tested LKC "H-5"
 Anchor Length 95 Drill Pipe Run 4043 Mud Wt. 9.1
 Top Packer Depth 4230 Drill Collars Run 178 Vls 57
 Bottom Packer Depth 4235 Wt. Pipe Run - WL 5.6
 Total Depth 4330 Chlorides 600 ppm System LCM 4
 Blow Description IF: 1/4" Blow at open, built to 1/2"
ISI: No blowback

FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud w/trace oil</u>	<u>trace</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 10 BHT 132 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2115 Test 1300 T-On Location 19:35 9/8
 (B) First Initial Flow 20 Jars 250 T-Started 20:40
 (C) First Final Flow 23 Safety Joint 75 T-Open 23:22
 (D) Initial Shut-In 558 Circ Sub _____ T-Pulled 2:24
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out 4:15 9/9
 (F) Second Final Flow 27 Mileage 146RT 146 Comments _____
 (G) Final Shut-In 529 Sampler _____
 (H) Final Hydrostatic 2111 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 1771 Accessibility _____ Sub Total 0
 Sub Total 1771 MP/DST Disc't _____ Total 1771

Approved By _____ Our Representative James Warden

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. 65580

Well Name & No. Jones 'A' #5-17 Test No. 4 Date 9-9-19
 Company Murfin Drilling Co. Inc Elevation 3141 KB 3136 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 17 Twp 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 4484-4527 Zone Tested Ft. Scott
 Anchor Length 43 Drill Pipe Run 4293 Mud Wt. 9.2
 Top Packer Depth 4479 Drill Collars Run 178 Vls 55
 Bottom Packer Depth 4484 Wt. Pipe Run - WL 5.6
 Total Depth 4527 Chlorides 600 ppm System LCM 2
 Blow Description IF: 1/4" Blow at open, built to 1"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud w/oil spots</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 10 BHT 137 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2275 Test 1300 T-On Location 22:30 9/9
 (B) First Initial Flow 18 Jars 250 T-Started 23:54
 (C) First Final Flow 20 Safety Joint 75 T-Open 2:04
 (D) Initial Shut-In 164 Circ Sub _____ T-Pulled 5:05
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 6:55 9/10
 (F) Second Final Flow 22 Mileage 146 RTX2 292 Comments _____
 (G) Final Shut-In 70 Sampler _____ loaded tools 9/10 16:55
 (H) Final Hydrostatic 2259 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1917

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

Sub Total 0
 Total 1917
 MP/DST Disc't _____

Approved By _____ Our Representative James Winder
 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.