



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Youngmeyer #1-2

2-29S-8E EIk,KS

Start Date: 2017.06.23 @ 21:32:54

End Date: 2017.06.24 @ 03:16:39

Job Ticket #: 59947 DST #: 1

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

Printed: 2017.06.29 @ 11:22:36



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

ATTN: Jeff Christian

Job Ticket: 59947

DST#: 1

Test Start: 2017.06.23 @ 21:32:54

GENERAL INFORMATION:

Formation: **Hertha**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:14:54

Time Test Ended: 03:16:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Leal Cason

Unit No: 74

Interval: 2056.00 ft (KB) To 2069.00 ft (KB) (TVD)

Reference Elevations: 1421.00 ft (KB)

Total Depth: 2069.00 ft (KB) (TVD)

1412.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8159

Inside

Press@RunDepth: 505.10 psig @ 2057.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.06.23

End Date: 2017.06.24

Last Calib.: 2017.06.24

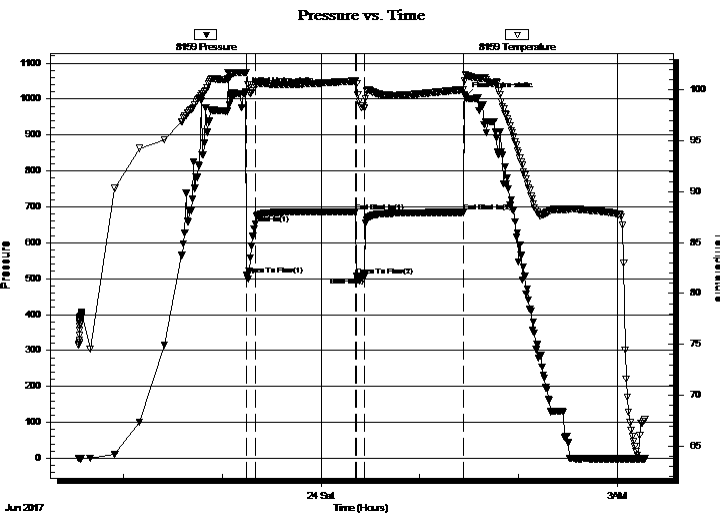
Start Time: 21:32:55

End Time: 03:16:39

Time On Btm: 2017.06.23 @ 23:14:09

Time Off Btm: 2017.06.24 @ 01:27:39

TEST COMMENT: IF: Strong Blow , BOB in 10 seconds
 IS: GTS in 5 minutes of Bleed Off, Blow Would Not Bleed Off
 FF: Strong Blow , BOB & GTS Immediate, Caught Sample
 FS: Would Not Bleed Off



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1020.71	101.70	Initial Hydro-static
1	510.93	101.67	Open To Flow (1)
6	652.28	100.42	Shut-In(1)
67	686.28	100.88	End Shut-In(1)
68	506.58	100.60	Open To Flow (2)
73	505.10	98.20	Shut-In(2)
133	684.82	100.04	End Shut-In(2)
134	1005.53	101.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	2036 GIP	0.00
20.00	GCM 10%G 90%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

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59947

DST#: 1

ATTN: Jeff Christian

Test Start: 2017.06.23 @ 21:32:54

Tool Information

Drill Pipe:	Length: 1815.00 ft	Diameter: 3.80 inches	Volume: 25.46 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 26.65 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	2056.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	13.00 ft			
Tool Length:	39.00 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			2035.00	
Hydraulic tool	5.00			2040.00	
Jars	5.00			2045.00	
Safety Joint	2.00			2047.00	
Packer	5.00			2052.00	26.00 Bottom Of Top Packer
Packer	4.00			2056.00	
Stubb	1.00			2057.00	
Recorder	0.00	8159	Inside	2057.00	
Recorder	0.00	6806	Outside	2057.00	
Perforations	9.00			2066.00	
Bullnose	3.00			2069.00	13.00 Bottom Packers & Anchor

Total Tool Length: 39.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59947

DST#: 1

ATTN: Jeff Christian

Test Start: 2017.06.23 @ 21:32:54

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: 40.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	2036 GIP	0.000
20.00	GCM 10%G 90%M	0.098

Total Length: 20.00 ft Total Volume: 1128.426 bbl

Num Fluid Samples: 0

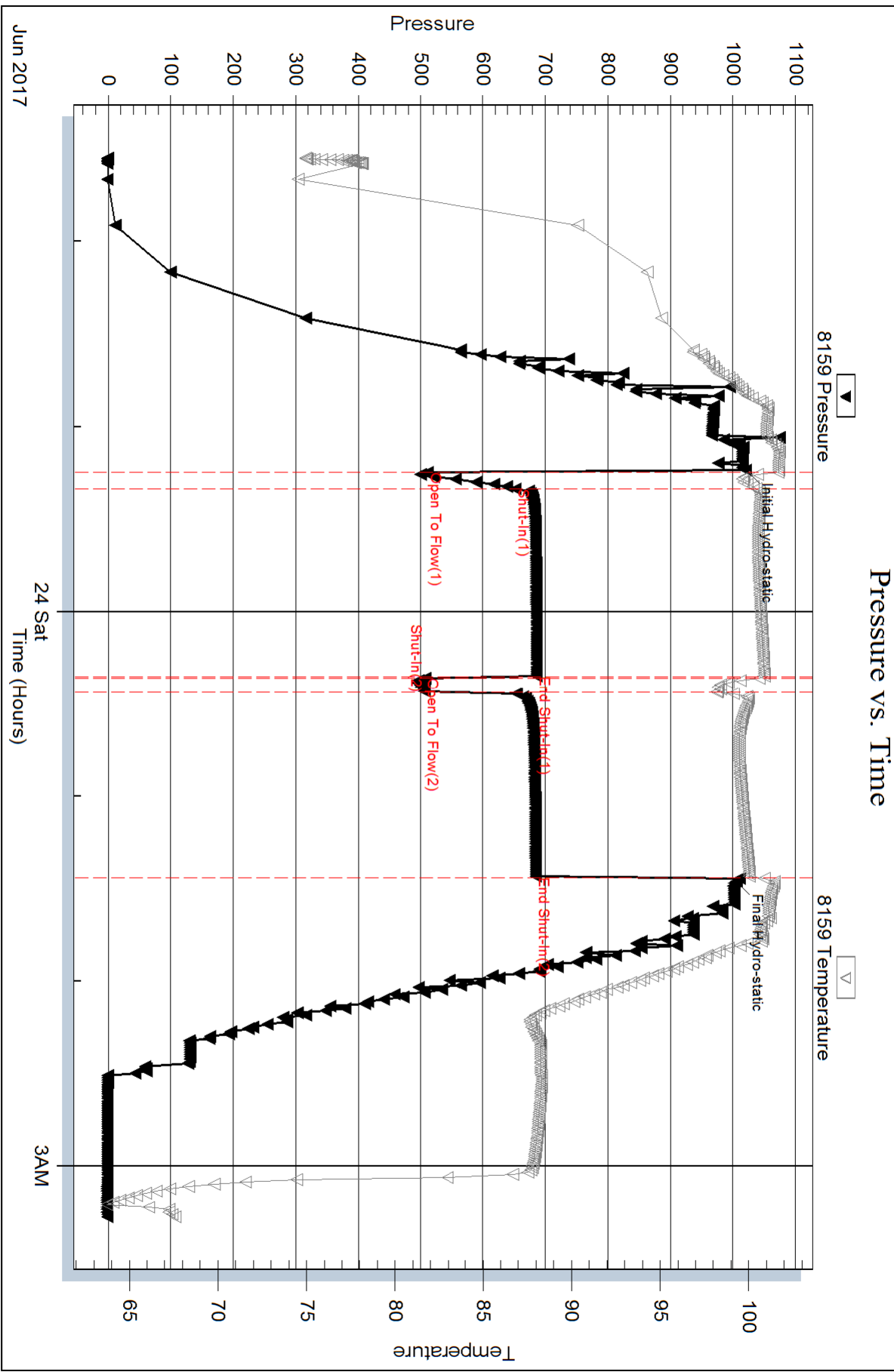
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

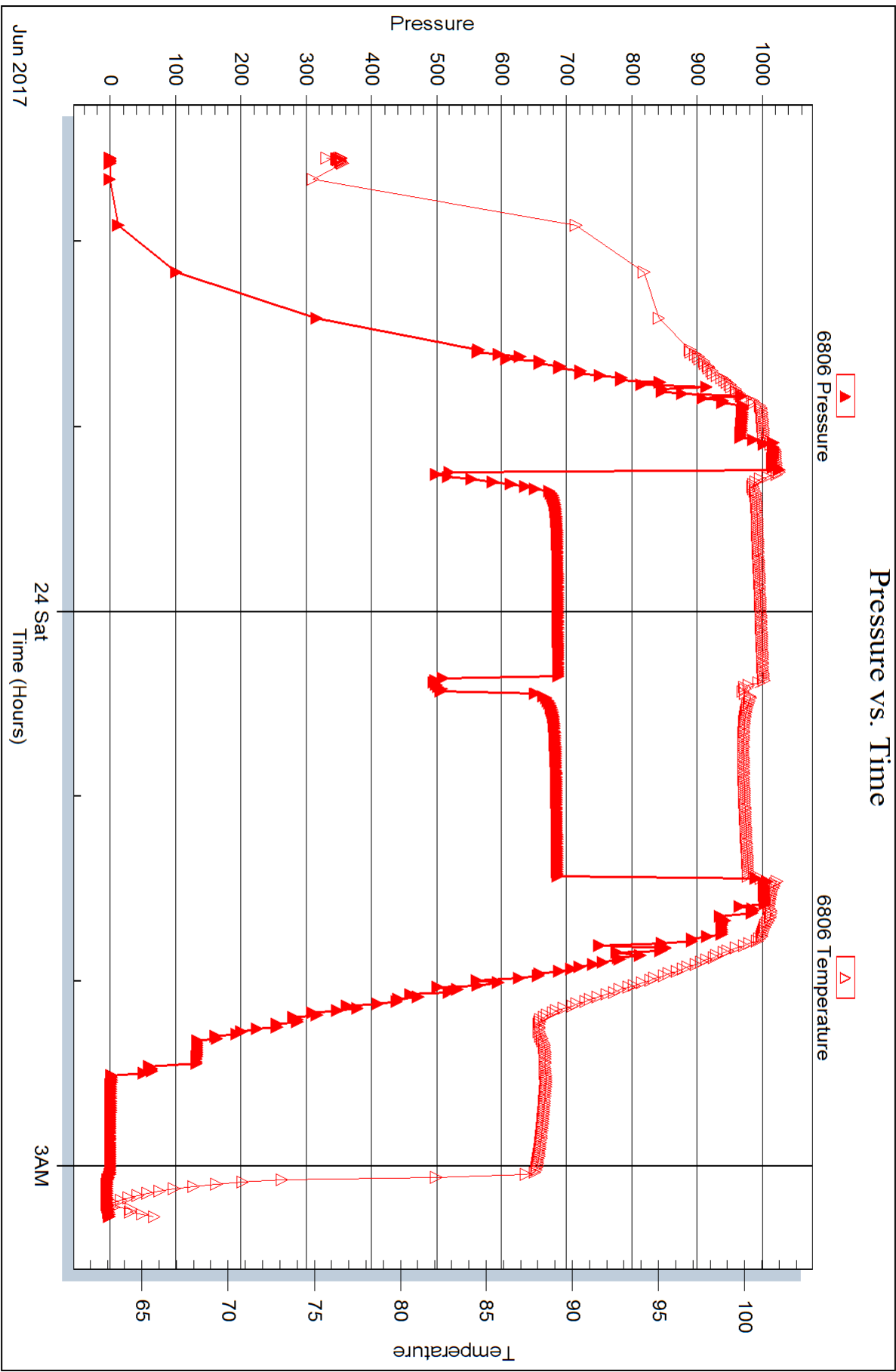


Serial #: 6806

Outside Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 59947

Printed: 2017.06.29 @ 11:22:37



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Youngmeyer #1-2

2-29S-8E EIk,KS

Start Date: 2017.06.25 @ 18:39:09

End Date: 2017.06.26 @ 02:45:39

Job Ticket #: 59948 DST #: 2

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

Printed: 2017.06.29 @ 11:21:19

Murfin Drilling Co
2-29S-8E EIk,KS
Youngmeyer #1-2
DST # 2
Mississippi
2017.06.25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

2-29S-8E Elk, KS
Youngmeyer #1-2
 Job Ticket: 59948 **DST#: 2**
 Test Start: 2017.06.25 @ 18:39:09

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:45:54
 Time Test Ended: 02:45:39
 Interval: **2680.00 ft (KB) To 2698.00 ft (KB) (TVD)**
 Total Depth: 2698.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Leal Cason
 Unit No: 74
 Reference Elevations: 1421.00 ft (KB)
 1412.00 ft (CF)
 KB to GR/CF: 9.00 ft

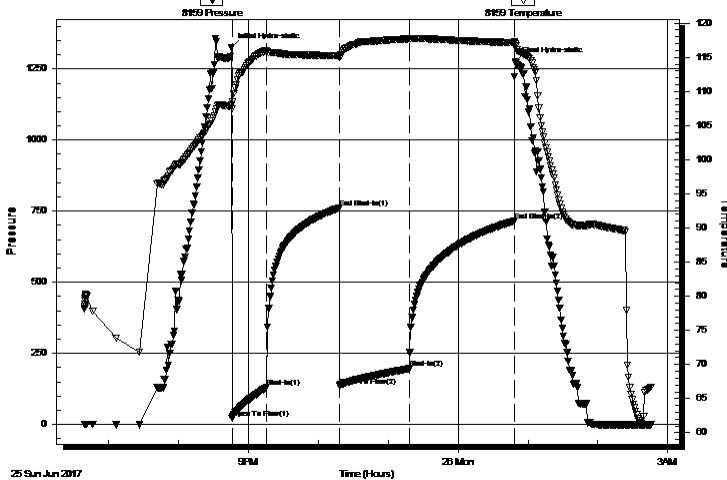
Serial #: 8159

Inside

Press@RunDepth: 196.06 psig @ 2681.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.25 End Date: 2017.06.26 Last Calib.: 2017.06.26
 Start Time: 18:39:10 End Time: 02:45:39 Time On Btm: 2017.06.25 @ 20:45:24
 Time Off Btm: 2017.06.26 @ 00:49:09

TEST COMMENT: IF: Fair Blow , Built to 7"
 IS: No Blow Back
 FF: Weak Blow , Built to 3"
 FS: No Blow Back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1324.56	108.00	Initial Hydro-static
1	22.02	107.50	Open To Flow (1)
31	130.55	115.87	Shut-In(1)
93	761.02	115.27	End Shut-In(1)
93	135.35	114.92	Open To Flow (2)
153	196.06	117.70	Shut-In(2)
243	714.95	117.18	End Shut-In(2)
244	1276.15	116.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
241.00	Water	1.19
92.00	MCW 36%M 64%W	1.29

* 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

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59948

DST#: 2

ATTN: Jeff Christian

Test Start: 2017.06.25 @ 18:39:09

Tool Information

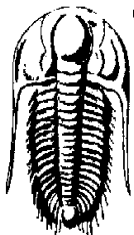
Drill Pipe:	Length: 2418.00 ft	Diameter: 3.80 inches	Volume: 33.92 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 35.11 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	2680.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	18.00 ft			
Tool Length:	44.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			2659.00	
Hydraulic tool	5.00			2664.00	
Jars	5.00			2669.00	
Safety Joint	2.00			2671.00	
Packer	5.00			2676.00	26.00 Bottom Of Top Packer
Packer	4.00			2680.00	
Stubb	1.00			2681.00	
Recorder	0.00	8159	Inside	2681.00	
Recorder	0.00	6806	Outside	2681.00	
Perforations	14.00			2695.00	
Bullnose	3.00			2698.00	18.00 Bottom Packers & Anchor

Total Tool Length: 44.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59948

DST#: 2

ATTN: Jeff Christian

Test Start: 2017.06.25 @ 18:39:09

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:

12000 ppm

Viscosity: 40.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
241.00	Water	1.185
92.00	MCW 36%M 64%W	1.291

Total Length: 333.00 ft Total Volume: 2.476 bbl

Num Fluid Samples: 0

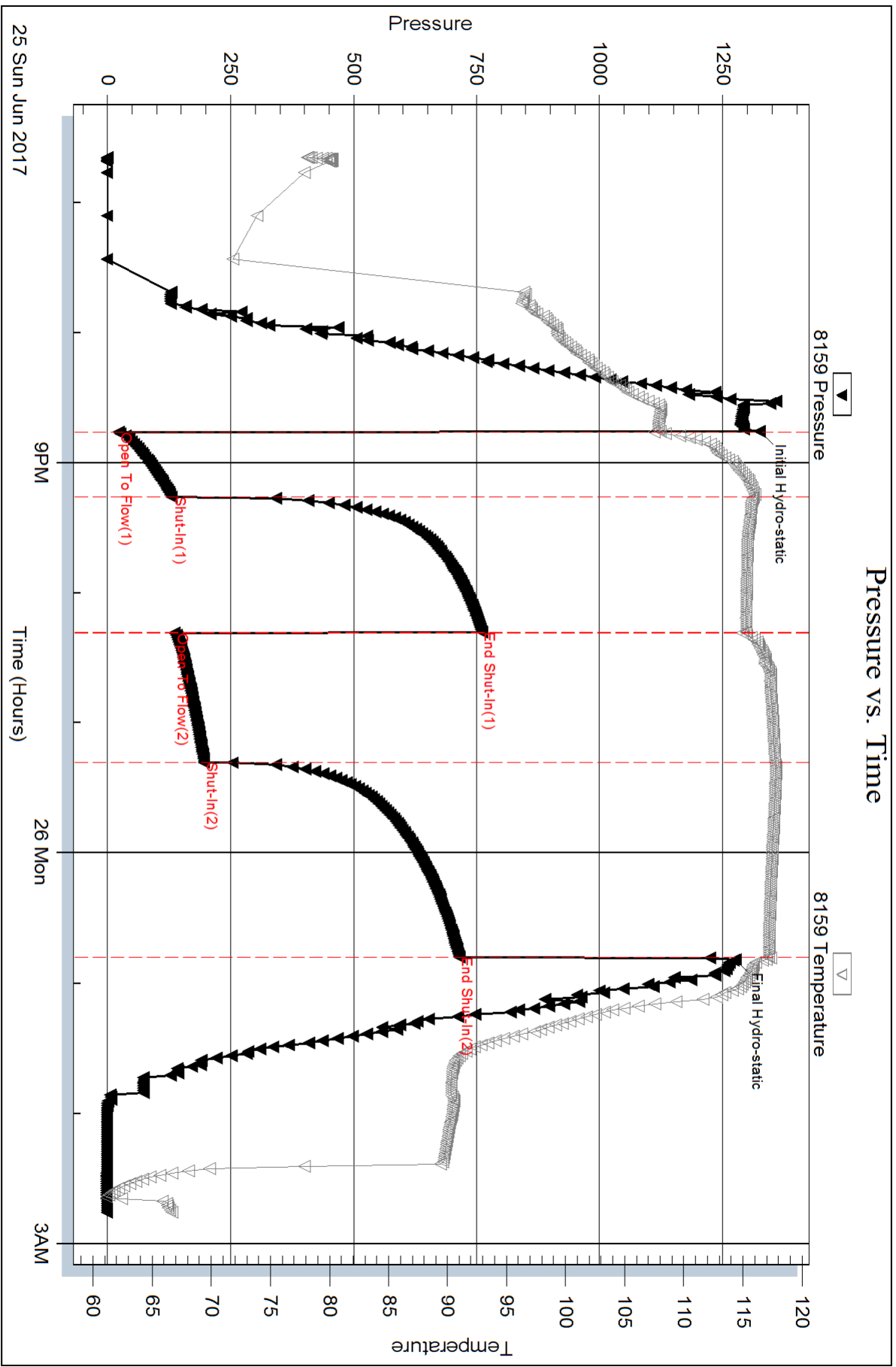
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW w as .44 @ 85 degrees





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Youngmeyer #1-2

2-29S-8E EIk,KS

Start Date: 2017.06.26 @ 21:08:17

End Date: 2017.06.27 @ 05:13:17

Job Ticket #: 59949 DST #: 3

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

Printed: 2017.06.29 @ 11:19:35



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

2-29S-8E Elk, KS
Youngmeyer #1-2
 Job Ticket: 59949 **DST#: 3**
 Test Start: 2017.06.26 @ 21:08:17

GENERAL INFORMATION:

Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:51:17
 Time Test Ended: 05:13:17
 Interval: **2826.00 ft (KB) To 2870.00 ft (KB) (TVD)**
 Total Depth: 2870.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Leal Cason
 Unit No: 74
 Reference Elevations: 1421.00 ft (KB)
 1412.00 ft (CF)
 KB to GR/CF: 9.00 ft

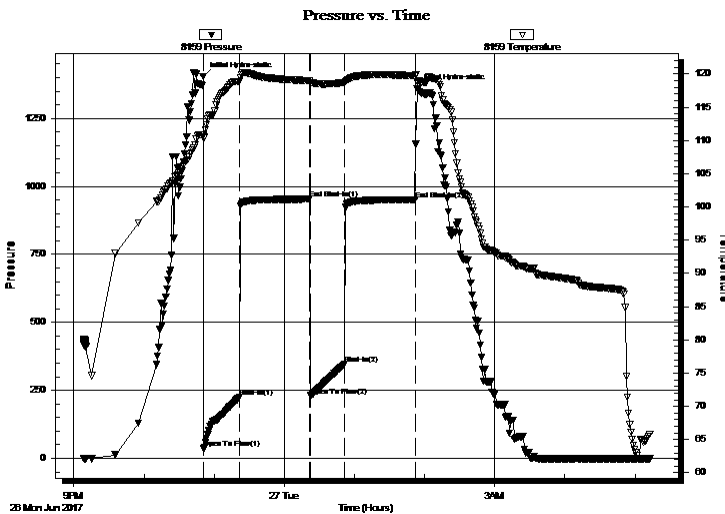
Serial #: 8159

Inside

Press@RunDepth: 347.13 psig @ 2827.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.26 End Date: 2017.06.27 Last Calib.: 2017.06.27
 Start Time: 21:08:18 End Time: 05:13:17 Time On Btm: 2017.06.26 @ 22:50:32
 Time Off Btm: 2017.06.27 @ 01:53:32

TEST COMMENT: IF: Fair Blow , BOB in 5 minutes
 IS: Weak 1" Blow Back
 FF: Fair Blow , BOB in 5 minutes
 FS: No Blow Back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1404.60	110.78	Initial Hydro-static
1	35.62	110.40	Open To Flow (1)
31	224.31	118.88	Shut-In(1)
91	953.18	118.95	End Shut-In(1)
92	230.23	118.73	Open To Flow (2)
122	347.13	118.72	Shut-In(2)
182	951.21	119.73	End Shut-In(2)
183	1358.31	118.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	140 GIP	0.00
241.00	GOCM 5%G 10%O 85%M	1.19
124.00	GMCO 5%G 20%M 75%O	1.74
474.00	GSY Oil 10%G 90%O	6.65

* 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

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59949

DST#: 3

ATTN: Jeff Christian

Test Start: 2017.06.26 @ 21:08:17

Tool Information

Drill Pipe:	Length: 2571.00 ft	Diameter: 3.80 inches	Volume: 36.06 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 37.25 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	2826.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	70.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			2805.00	
Hydraulic tool	5.00			2810.00	
Jars	5.00			2815.00	
Safety Joint	2.00			2817.00	
Packer	5.00			2822.00	26.00 Bottom Of Top Packer
Packer	4.00			2826.00	
Stubb	1.00			2827.00	
Recorder	0.00	8159	Inside	2827.00	
Recorder	0.00	6806	Outside	2827.00	
Perforations	6.00			2833.00	
Change Over Sub	1.00			2834.00	
Drill Pipe	32.00			2866.00	
Change Over Sub	1.00			2867.00	
Bullnose	3.00			2870.00	44.00 Bottom Packers & Anchor

Total Tool Length: 70.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59949

DST#: 3

ATTN: Jeff Christian

Test Start: 2017.06.26 @ 21:08:17

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37.5 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	140 GIP	0.000
241.00	GOCM 5%G 10%O 85%M	1.185
124.00	GMCO 5%G 20%M 75%O	1.739
474.00	GSY Oil 10%G 90%O	6.649

Total Length: 839.00 ft Total Volume: 9.573 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity w as 38 @ 65 degrees

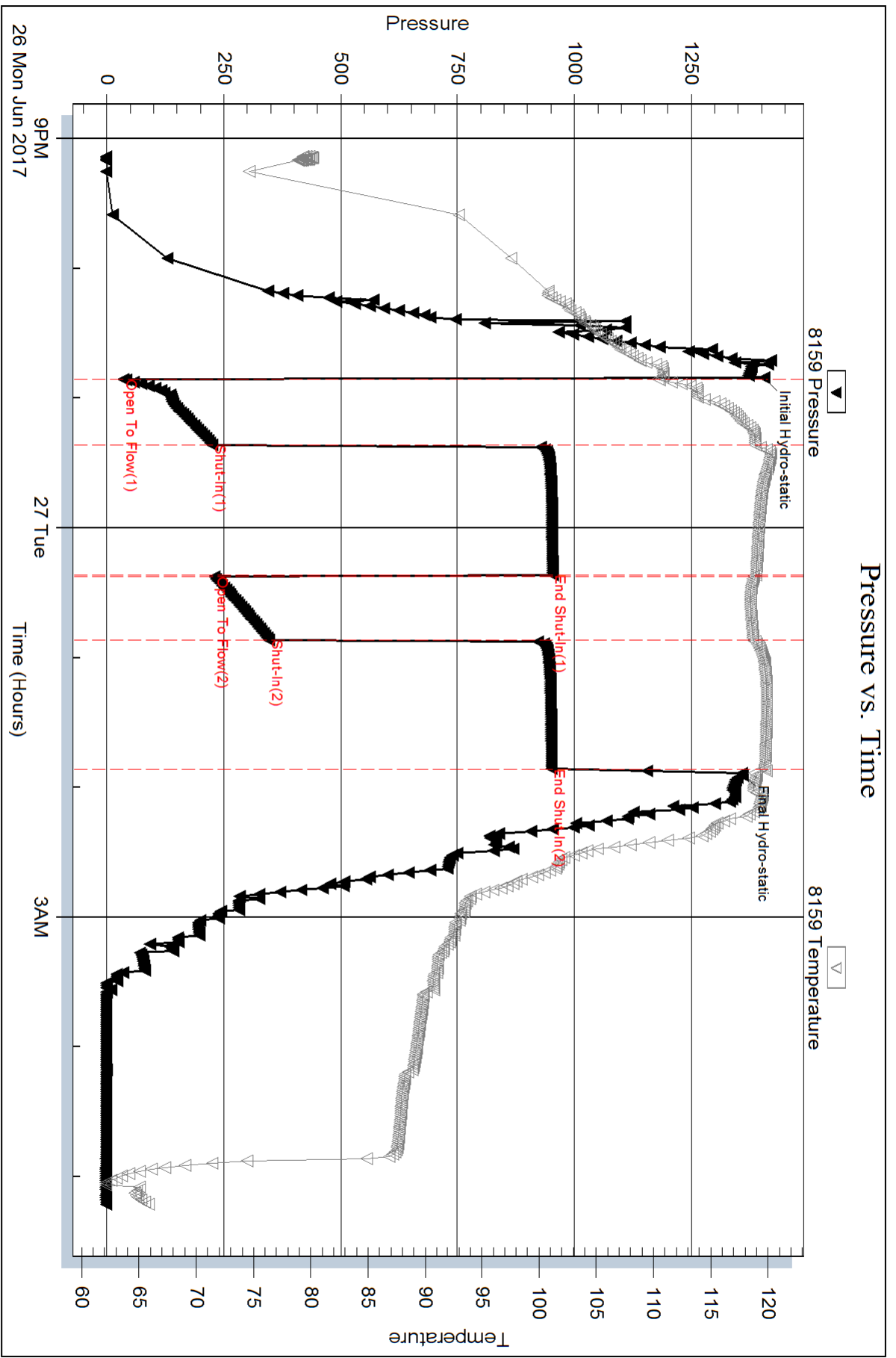
Serial #: 8159

Inside

Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 3

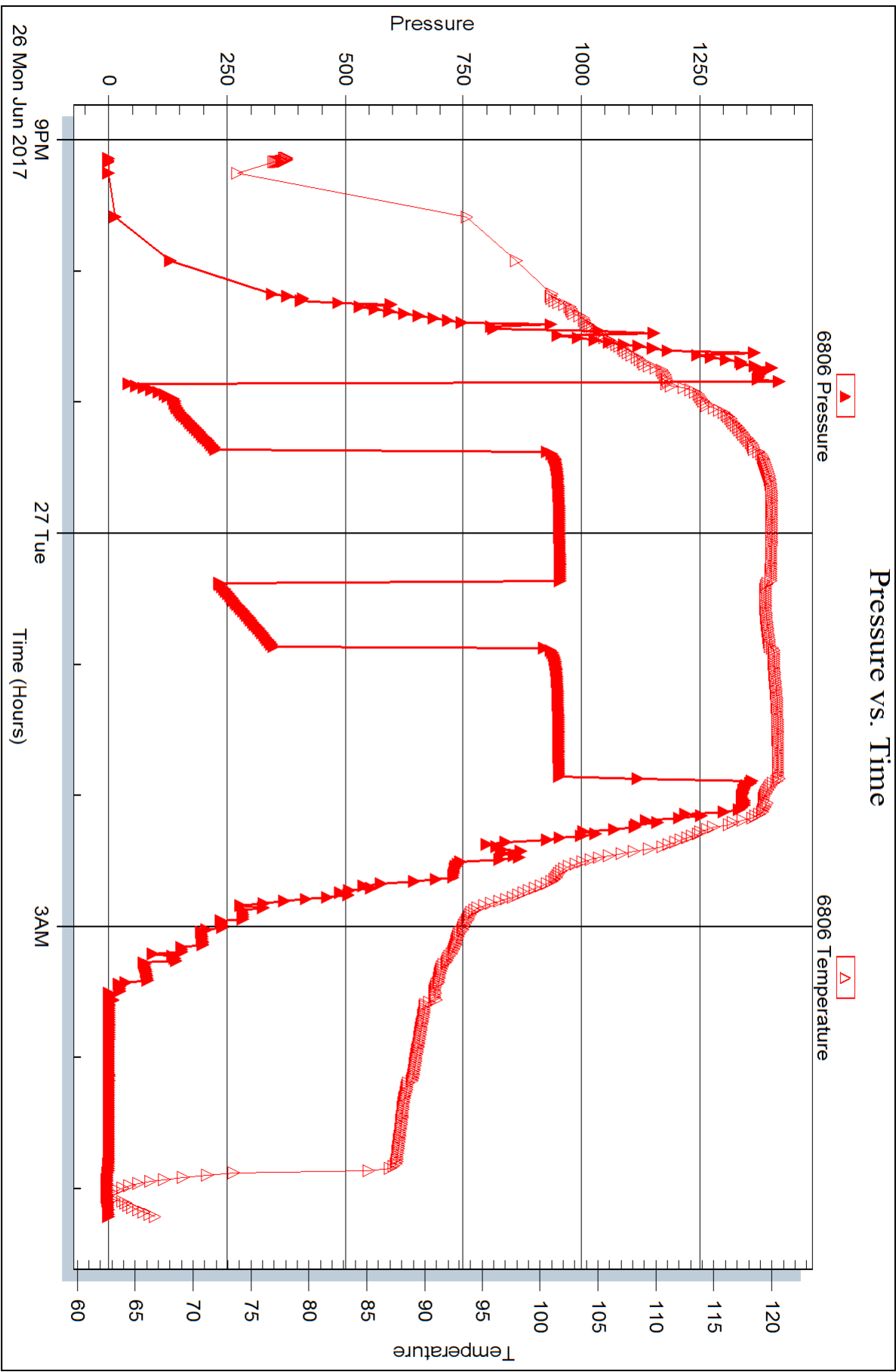


Serial #: 6806

Outside Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Youngmeyer #1-2

2-29S-8E EIk,KS

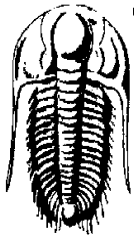
Start Date: 2017.06.27 @ 21:15:29

End Date: 2017.06.28 @ 06:18:44

Job Ticket #: 59950 DST #: 4

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

Printed: 2017.06.29 @ 11:19:00



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

ATTN: Jeff Christian

Job Ticket: 59950

DST#: 4

Test Start: 2017.06.27 @ 21:15:29

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:16:59

Time Test Ended: 06:18:44

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 74

Interval: 3013.00 ft (KB) To 3040.00 ft (KB) (TVD)

Reference Elevations: 1421.00 ft (KB)

Total Depth: 3040.00 ft (KB) (TVD)

1412.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 9.00 ft

Serial #: 8159

Inside

Press@RunDepth: 193.12 psig @ 3014.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.06.27 End Date: 2017.06.28

Last Calib.: 2017.06.28

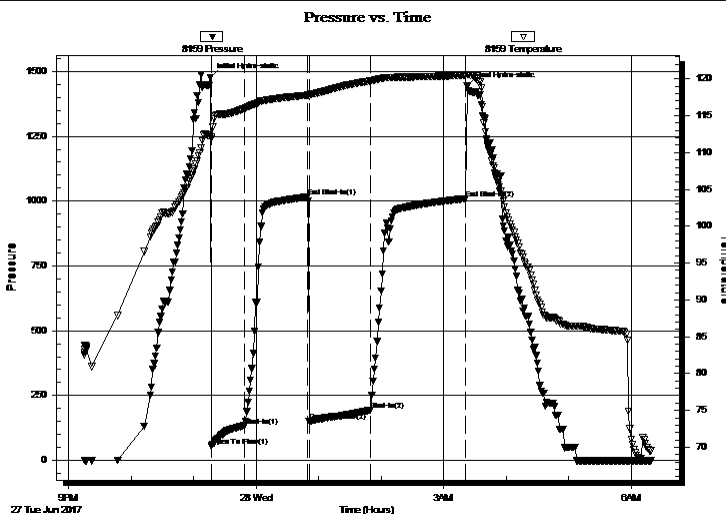
Start Time: 21:15:30 End Time: 06:18:44

Time On Btm: 2017.06.27 @ 23:15:59

Time Off Btm: 2017.06.28 @ 03:22:14

TEST COMMENT: IF: Fair Blow , BOB in 9 minutes
IS: No Blow Back
FF: Weak Blow , BOB in 48 minutes
FS: No Blow Back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1476.44	112.16	Initial Hydro-static
1	54.08	111.87	Open To Flow (1)
33	133.24	116.00	Shut-In(1)
94	1016.06	117.78	End Shut-In(1)
95	150.50	117.60	Open To Flow (2)
154	193.12	119.72	Shut-In(2)
245	1009.21	120.45	End Shut-In(2)
247	1443.41	120.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MCO 30%M 70%O	0.30
397.00	Oil	3.92

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

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59950

DST#: 4

ATTN: Jeff Christian

Test Start: 2017.06.27 @ 21:15:29

Tool Information

Drill Pipe:	Length: 2762.00 ft	Diameter: 3.80 inches	Volume: 38.74 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 39.93 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3013.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	27.00 ft			
Tool Length:	53.00 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			2992.00	
Hydraulic tool	5.00			2997.00	
Jars	5.00			3002.00	
Safety Joint	2.00			3004.00	
Packer	5.00			3009.00	26.00 Bottom Of Top Packer
Packer	4.00			3013.00	
Stubb	1.00			3014.00	
Recorder	0.00	8159	Inside	3014.00	
Recorder	0.00	6806	Outside	3014.00	
Perforations	23.00			3037.00	
Bullnose	3.00			3040.00	27.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 59950

DST#: 4

ATTN: Jeff Christian

Test Start: 2017.06.27 @ 21:15:29

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35.8 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 40.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	MCO 30%M 70%O	0.295
397.00	Oil	3.920

Total Length: 457.00 ft Total Volume: 4.215 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity was 36.2 @ 64 degrees

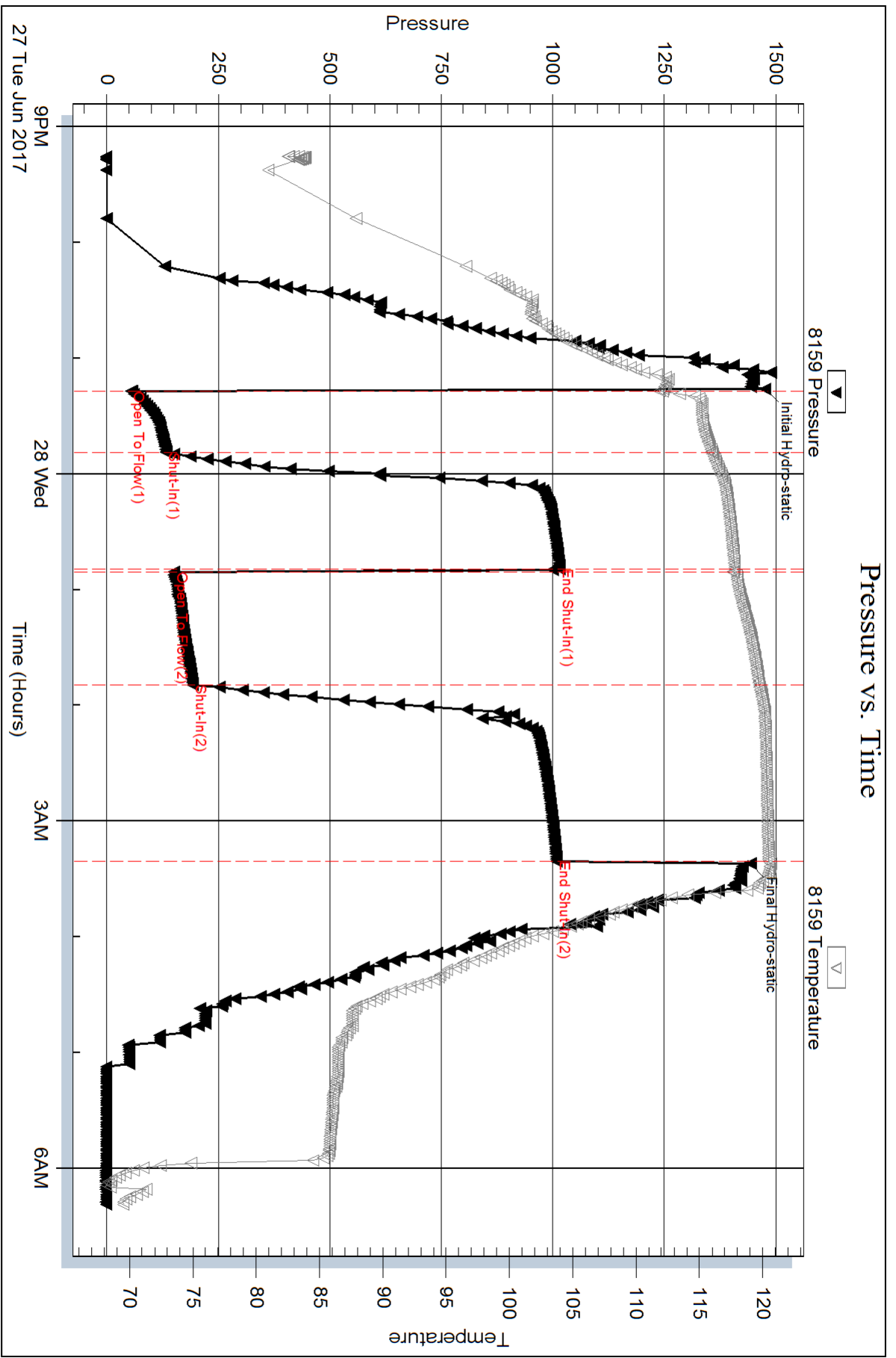
Serial #: 8159

Inside

Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 4

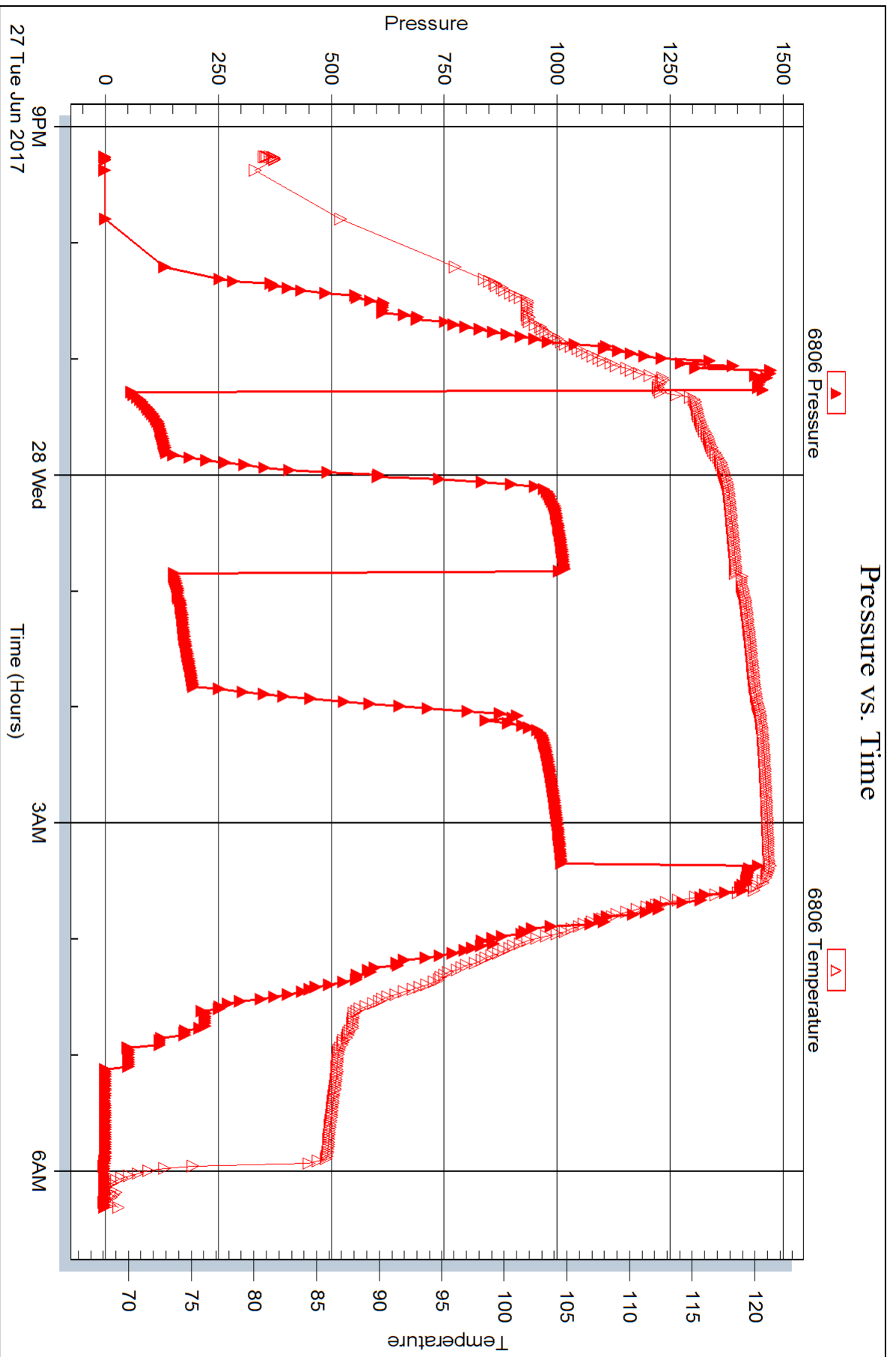


Serial #: 6806

Outside Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Youngmeyer #1-2

2-29S-8E EIk,KS

Start Date: 2017.06.28 @ 12:36:51

End Date: 2017.06.28 @ 18:36:36

Job Ticket #: 63601 DST #: 5

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

Printed: 2017.06.29 @ 11:18:04



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

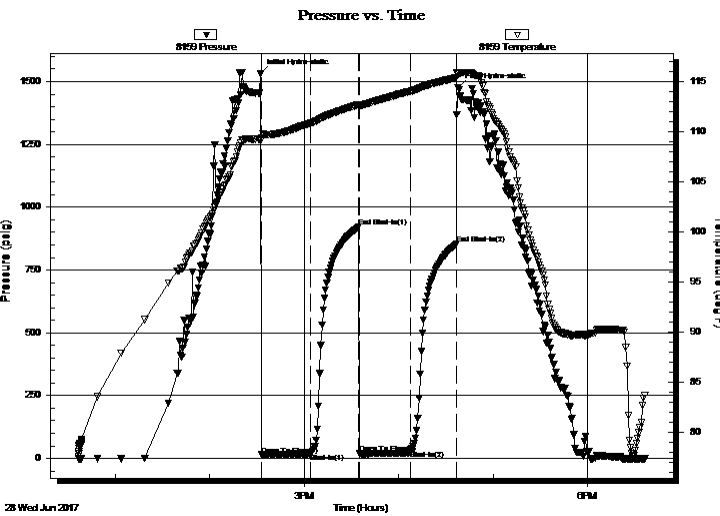
2-29S-8E Elk, KS
Youngmeyer #1-2
Job Ticket: 63601 **DST#: 5**
Test Start: 2017.06.28 @ 12:36:51

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:33:06
Time Test Ended: 18:36:36
Interval: **3040.00 ft (KB) To 3050.00 ft (KB) (TVD)**
Total Depth: 3050.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74
Reference Elevations: 1421.00 ft (KB)
1412.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8159 **Inside**
Press@RunDepth: 31.46 psig @ 3041.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.06.28 End Date: 2017.06.28 Last Calib.: 2017.06.28
Start Time: 12:36:52 End Time: 18:36:36 Time On Btm: 2017.06.28 @ 14:32:21
Time Off Btm: 2017.06.28 @ 16:37:36

TEST COMMENT: IF: Weak Surface Blow
IS: No Blow Back
FF: No Blow
FS: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1529.97	109.27	Initial Hydro-static
1	13.77	109.34	Open To Flow (1)
32	19.19	110.85	Shut-In(1)
63	921.32	112.72	End Shut-In(1)
63	18.75	112.48	Open To Flow (2)
96	31.46	114.04	Shut-In(2)
125	853.63	115.38	End Shut-In(2)
126	1476.47	115.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	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

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 63601

DST#: 5

ATTN: Jeff Christian

Test Start: 2017.06.28 @ 12:36:51

Tool Information

Drill Pipe:	Length: 2793.00 ft	Diameter: 3.80 inches	Volume: 39.18 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 40.37 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3040.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	36.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3019.00	
Hydraulic tool	5.00			3024.00	
Jars	5.00			3029.00	
Safety Joint	2.00			3031.00	
Packer	5.00			3036.00	26.00 Bottom Of Top Packer
Packer	4.00			3040.00	
Stubb	1.00			3041.00	
Recorder	0.00	8159	Inside	3041.00	
Recorder	0.00	6806	Outside	3041.00	
Perforations	6.00			3047.00	
Bullnose	3.00			3050.00	10.00 Bottom Packers & Anchor

Total Tool Length: 36.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

2-29S-8E Elk, KS

250 N Water Ste 300
Wichita, KS 67202

Youngmeyer #1-2

Job Ticket: 63601

DST#: 5

ATTN: Jeff Christian

Test Start: 2017.06.28 @ 12:36:51

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: 40.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 0.02 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud	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:

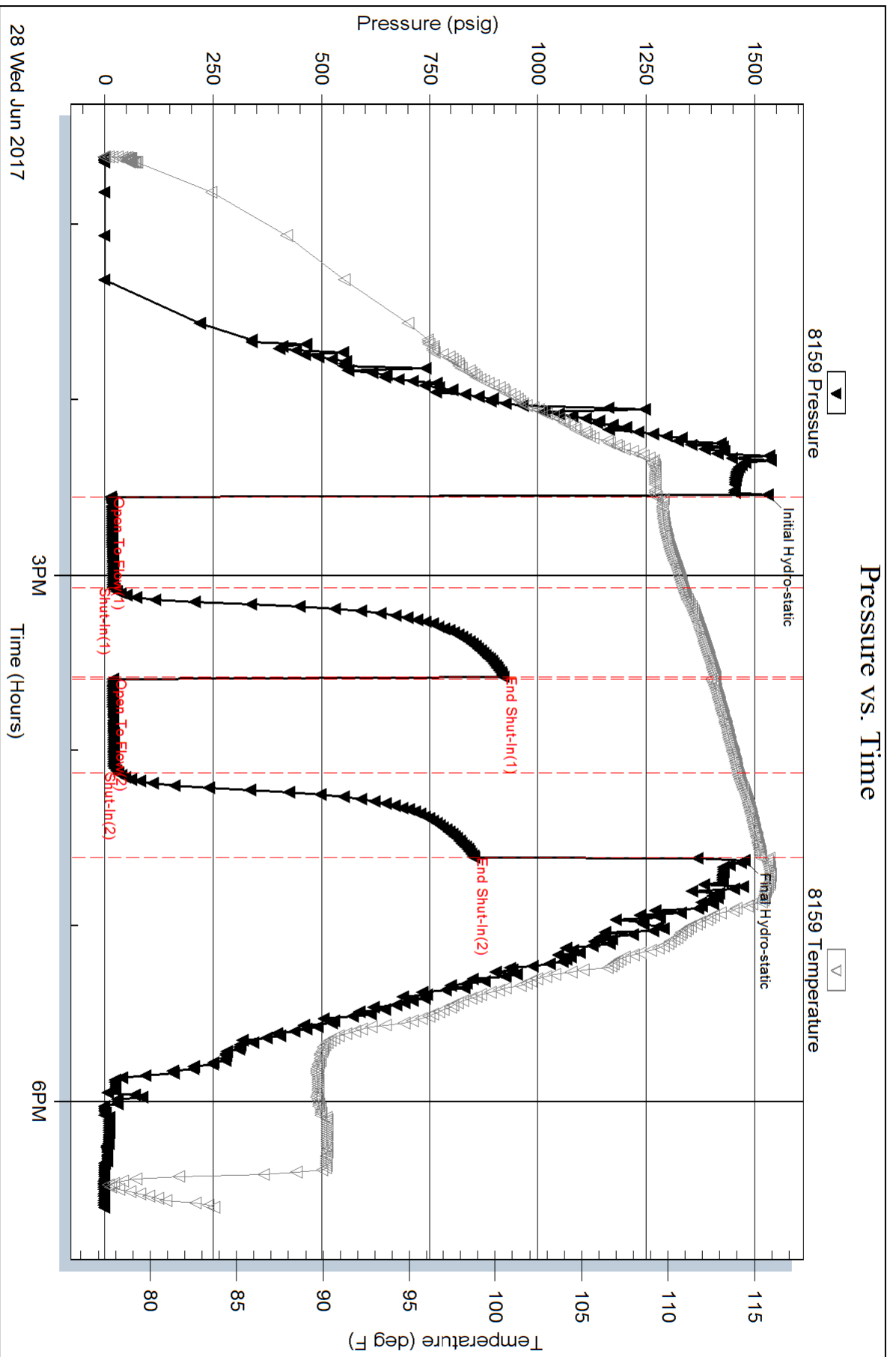
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Inside

Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 63601

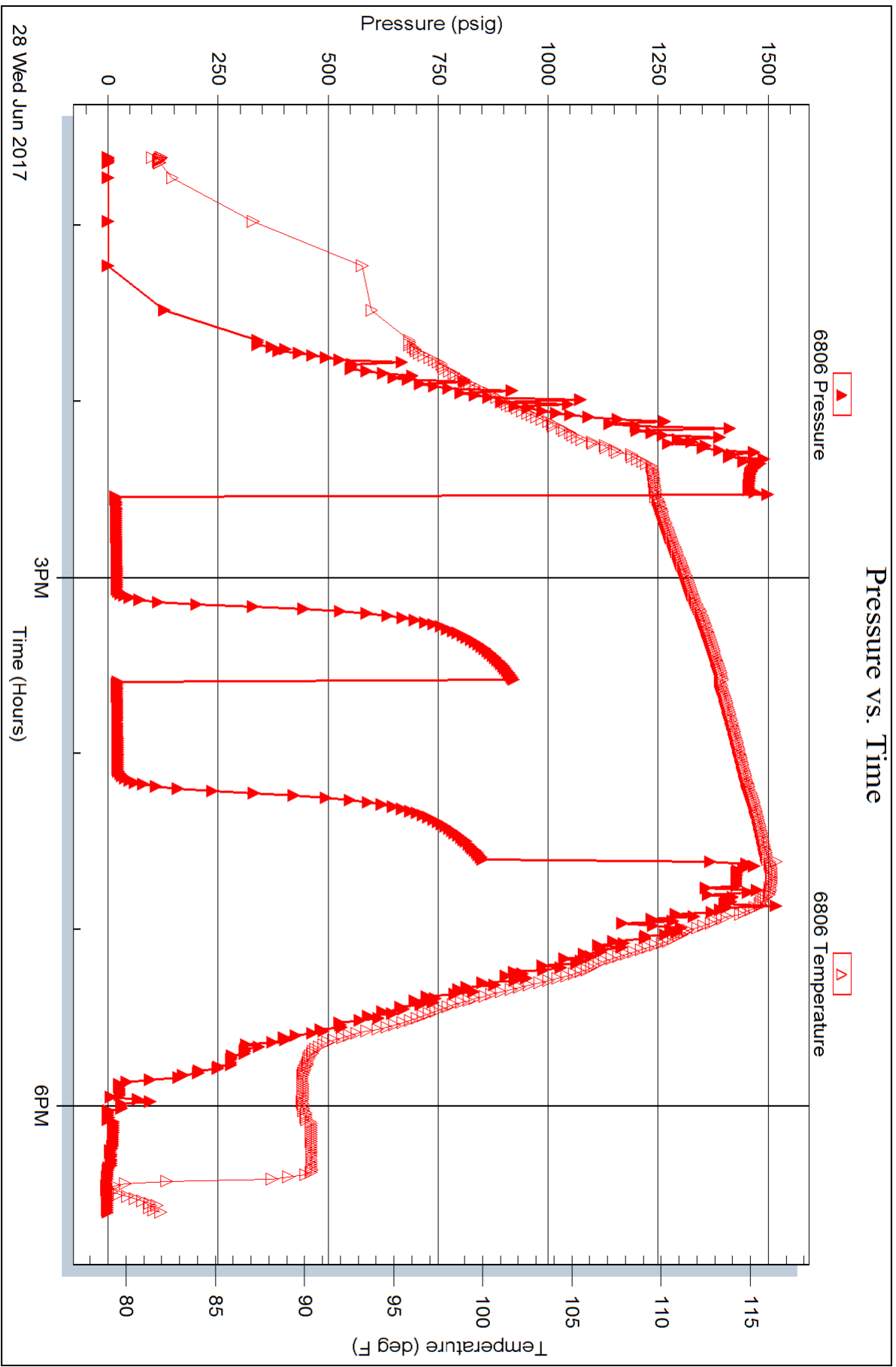
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Serial #: 6806

Outside Murfin Drilling Co

Youngmeyer #1-2

DST Test Number: 5

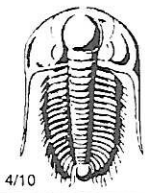


28 Wed Jun 2017

Trilobite Testing, Inc

Ref. No: 63601

Printed: 2017.06.29 @ 11:18:06



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59947

Well Name & No. Youngmeyer 1-2 Test No. 1 Date 06/23/17
 Company Murfin Drilling CO Elevation 1421 KB 1412 GL
 Address 250 N. Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig C+G 2
 Location: Sec. 2 Twp. 29S Rge. 8E Co. EK State KS

Interval Tested 2056 - 2069 Zone Tested Hertha
 Anchor Length 13 Drill Pipe Run 1815 Mud Wt. 9.3
 Top Packer Depth 2051 Drill Collars Run 241 Vis 40
 Bottom Packer Depth 2056 Wt. Pipe Run 0 WL 9.6
 Total Depth 2069 Chlorides 700 ppm System LCM 3

Blow Description IF: Strong Blow, BOB in 10 seconds
ISI: GTS in 5 minutes of bleed off, Blow would NOT bleed off
FF: Strong Blow, BOB + GTS immediate, caught sample
FSI: would not bleed off

Rec	Feet of	%gas	%oil	%water	%mud
<u>2036</u>	<u>GIP</u>				
<u>20</u>	<u>GCM</u>	<u>10%</u>		<u>90%</u>	

Rec Total 20 BHT 101 Gravity NK API RW NK @ NK °F Chlorides NK ppm

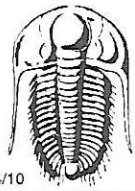
(A) Initial Hydrostatic <u>1021</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>20:45</u>
(B) First Initial Flow <u>511</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:32</u>
(C) First Final Flow <u>652</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:14</u>
(D) Initial Shut-In <u>686</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:26</u>
(E) Second Initial Flow <u>506</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:16</u>
(F) Second Final Flow <u>505</u>	<input checked="" type="checkbox"/> Mileage <u>(280)</u> 210	Comments <u>NOTE 1</u>
(G) Final Shut-In <u>685</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1005</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open 5
 Initial Shut-In 60
 Final Flow 5
 Final Shut-In 60

Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1585
 MP/DST Disc't

Approved By Jeff Christian Our Representative [Signature]

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59948

Well Name & No. Youngmeyer 1-2 Test No. 2 Date 06/25/17
 Company Martin Drilling Co. Elevation 1421 KB 1412 GL
 Address 250 N. Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig C+G 2
 Location: Sec. 2 Twp. 29S Rge. 8E Co. E1K State KS

Interval Tested ~~2670-2698~~ 2680-2698 Zone Tested Mississippi
 Anchor Length 18 Drill Pipe Run 2418 Mud Wt. 9.2
 Top Packer Depth 2675 Drill Collars Run 241 Vis 40
 Bottom Packer Depth 2680 Wt. Pipe Run 0 WL 8.6
 Total Depth 2698 Chlorides 700 ppm System LCM 3

Blow Description IF: Fair Blow, Built to 7 inches
ISI: NO Blow Back
FF: Weak Blow, Built to 3 inches
FST: NO Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>92</u>	<u>MCW</u>		<u>64</u>	<u>36</u>	
<u>241</u>	<u>water</u>				

Rec Total 333 BHT 117 Gravity NK API RW .44 @ 85 °F Chlorides 12,000 ppm

(A) Initial Hydrostatic <u>1325</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>17:15</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>18:39</u>
(C) First Final Flow <u>130</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>20:45</u>
(D) Initial Shut-In <u>761</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>00:47</u>
(E) Second Initial Flow <u>135</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>02:45</u>
(F) Second Final Flow <u>196</u>	<input checked="" type="checkbox"/> Mileage <u>(280)</u> 210	Comments <u>Motel</u>
(G) Final Shut-In <u>715</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1276</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

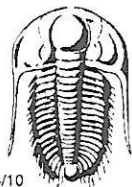
Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

Sub Total 1585
 Total 1585
 MP/DST Disc't

Approved By Jeff Christian Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59949

Well Name & No. Youngmeyer 1-2 Test No. 3 Date 06/26/17
 Company Muffin Drilling Co Elevation 1421 KB 1412 GL
 Address 250 N. Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig C+G 2
 Location: Sec. 2 Twp. 29S Rge. 8E Co. E1K State KS

Interval Tested 2826 - 2870 Zone Tested Mississippi
 Anchor Length 44 Drill Pipe Run 2571 Mud Wt. 9.2
 Top Packer Depth 2821 Drill Collars Run 241 Vis 50
 Bottom Packer Depth 2826 Wt. Pipe Run 0 WL 8.2
 Total Depth 2870 Chlorides 700 ppm System LCM 2

Blow Description IF: Fair Blow, BOB in 5 minutes
ISI: Weak Inch Blow Back
FF: Fair Blow, BOB in 5 minutes
FSI:

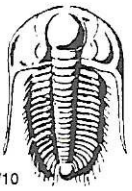
Rec	Feet of	%gas	%oil	%water	%mud
<u>140</u>	<u>GIP</u>				
<u>474</u>	<u>GST OIL</u>	<u>10%</u>	<u>90%</u>		
<u>124</u>	<u>GMCO</u>	<u>5%</u>	<u>75%</u>		<u>20%</u>
<u>241</u>	<u>GOCM</u>	<u>5%</u>	<u>10%</u>		<u>85%</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 839 BHT 119 Gravity 37.5 API RW DNK @ NK °F Chlorides NK ppm

(A) Initial Hydrostatic <u>1405</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>20:30</u>
(B) First Initial Flow <u>36</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:08</u>
(C) First Final Flow <u>224</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:51</u>
(D) Initial Shut-In <u>953</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:51</u>
(E) Second Initial Flow <u>230</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>05:13</u>
(F) Second Final Flow <u>347</u>	<input checked="" type="checkbox"/> Mileage <u>280</u> 210	Comments <u>Motel</u>
(G) Final Shut-In <u>951</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1358</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1585</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1585</u>	

Approved By Jeff Christian Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59950

Well Name & No. Youngmeyer 1-2 Test No. 4 Date 06/27/17
 Company Martin Drilling Co Elevation 1421 KB 1412 GL
 Address 250 N. Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig C+G 2
 Location: Sec. 2 Twp. 29S Rge. 8E Co. E1K State KS

Interval Tested 3013 - 3040 Zone Tested Arbuckle
 Anchor Length 27 Drill Pipe Run 2762 Mud Wt. 9.2
 Top Packer Depth 3008 Drill Collars Run 241 Vis 47
 Bottom Packer Depth 3013 Wt. Pipe Run 0 WL 7.8
 Total Depth 3040 Chlorides 900 ppm System LCM 3

Blow Description IF: Fair blow BOB in 9 minutes
ISI: NO Blow Back

FF: weak blow, BOB in 48 minutes

FSE: NO Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>39</u>	<u>Oil</u>				
<u>60</u>	<u>MCO</u>		<u>70%</u>		<u>30</u>

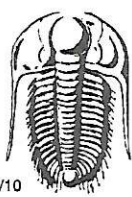
Rec Total 457 BHT 120 Gravity 35.8 API RW NIC @ NIC °F Chlorides NIC ppm

(A) Initial Hydrostatic 1476 Test 1050 T-On Location 20:30
 (B) First Initial Flow 54 Jars 250 T-Started 21:15
 (C) First Final Flow 133 Safety Joint 75 T-Open 23:16
 (D) Initial Shut-In 1016 Circ Sub _____ T-Pulled 03:20
 (E) Second Initial Flow 150 Hourly Standby _____ T-Out 06:17
 (F) Second Final Flow 193 Mileage (280) 210 Comments Motel
 (G) Final Shut-In 1009 Sampler _____
 (H) Final Hydrostatic 1443 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Copies _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1835 Total 1835 MP/DST Disc't _____

Approved By Jeff Christ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **63601**

Well Name & No. Youngmeyer 1-2 Test No. 5 Date 06/28/17
 Company Martin Drilling Co Elevation 1421 KB 1412 GL
 Address 250 N Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig C+G 2
 Location: Sec. 2 Twp. 29S Rge. 8E Co. E1K State KS

Interval Tested 3040 - 3050 Zone Tested Arbuckle
 Anchor Length 3035 Drill Pipe Run 2793 Mud Wt. 9.3
 Top Packer Depth 3040 Drill Collars Run 241 Vis 58
 Bottom Packer Depth 3050 Wt. Pipe Run 0 WL 8.4
 Total Depth _____ Chlorides 700 ppm System LCM 1

Blow Description IF: weak surface Blow

ISI: NO Blow Back

FF: NO Blow

FSI: NO Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>				
_____	_____				
_____	_____				
_____	_____				
_____	_____				

Rec Total 5 BHT 115 Gravity NIC API RW NIC @ NIC °F Chlorides NIC ppm

(A) Initial Hydrostatic 1530
 (B) First Initial Flow 14
 (C) First Final Flow 19
 (D) Initial Shut-In 921
 (E) Second Initial Flow 19
 (F) Second Final Flow 31
 (G) Final Shut-In 854
 (H) Final Hydrostatic 1476

Test 1050
 Jars 250
 Safety Joint 75
 Circ Sub _____
 Hourly Standby _____
 Mileage (280) 210
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1585

T-On Location 12:00
 T-Started 12:36
 T-Open 14:33
 T-Pulled 16:36
 T-Out 18:36
 Comments Motel
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1585
 MP/DST Disc't _____

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

Approved By Jeff Christian

Our Representative [Signature]