



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202

ATTN: Rocky Milford

Mears "C" # 1-10

10-2S-37W Cheyenne,KS

Start Date: 2017.09.05 @ 06:02:00

End Date: 2017.09.05 @ 13:01:50

Job Ticket #: 63389 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.09.11 @ 09:51:24

Murfin Drilling Co
10-2S-37W Cheyenne,KS
Mears "C" # 1-10
DST # 1
LKC "A"
2017.09.05



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63389

DST#: 1

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 06:02:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:09:40

Time Test Ended: 13:01:50

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 82

Interval: 4308.00 ft (KB) To 4380.00 ft (KB) (TVD)

Reference Elevations: 3405.00 ft (KB)

Total Depth: 4380.00 ft (KB) (TVD)

3400.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 20.57 psig @ 4309.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.09.05 End Date: 2017.09.05

Last Calib.: 2017.09.05

Start Time: 06:02:01 End Time: 13:01:50

Time On Btm: 2017.09.05 @ 08:09:30

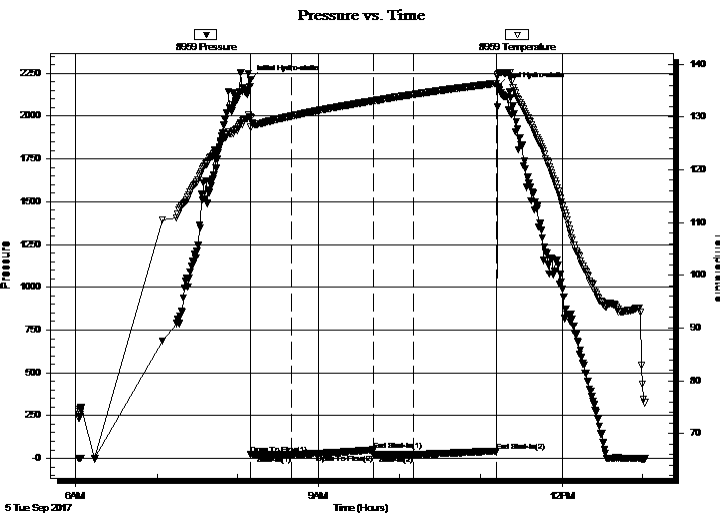
Time Off Btm: 2017.09.05 @ 11:12:30

TEST COMMENT: 30-IF-Weak.blow built to 1/2" & died back to 1/4"

60-ISI-No blow

30-FF-No blow

60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2212.86	129.83	Initial Hydro-static
1	23.68	128.08	Open To Flow (1)
31	19.67	130.18	Shut-In(1)
91	50.34	133.05	End Shut-In(1)
91	21.31	133.04	Open To Flow (2)
121	20.57	134.26	Shut-In(2)
182	43.30	136.36	End Shut-In(2)
183	2174.12	138.02	Final Hydro-static

Recovery

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

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63389

DST#: 1

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 06:02:00

Tool Information

Drill Pipe:	Length: 4089.00 ft	Diameter: 3.80 inches	Volume: 57.36 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: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.37 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4308.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	72.00 ft			
Tool Length:	100.00 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			4285.00	
Hydraulic tool	5.00			4290.00	
Jars	5.00			4295.00	
Safety Joint	3.00			4298.00	
Packer	5.00			4303.00	28.00 Bottom Of Top Packer
Packer	5.00			4308.00	
Stubb	1.00			4309.00	
Recorder	0.00	8959	Inside	4309.00	
Recorder	0.00	8734	Outside	4309.00	
Perforations	33.00			4342.00	
Change Over Sub	1.00			4343.00	
Drill Pipe	31.00			4374.00	
Change Over Sub	1.00			4375.00	
Bullnose	5.00			4380.00	72.00 Bottom Packers & Anchor

Total Tool Length: 100.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63389

DST#: 1

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 06:02:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% 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:

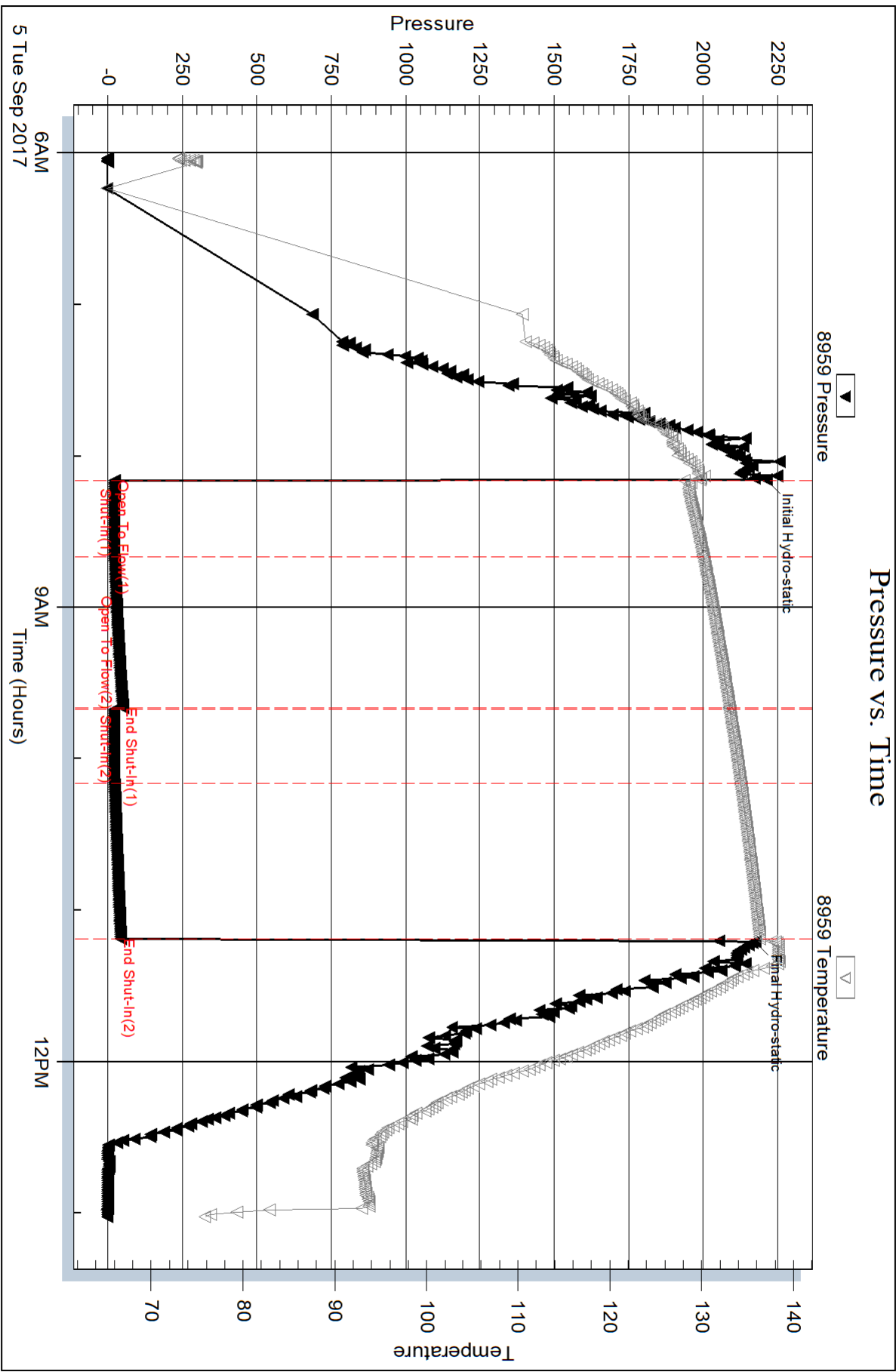
Serial #: 8959

Inside

Murfin Drilling Co

Mears 'C' # 1-10

DST Test Number: 1

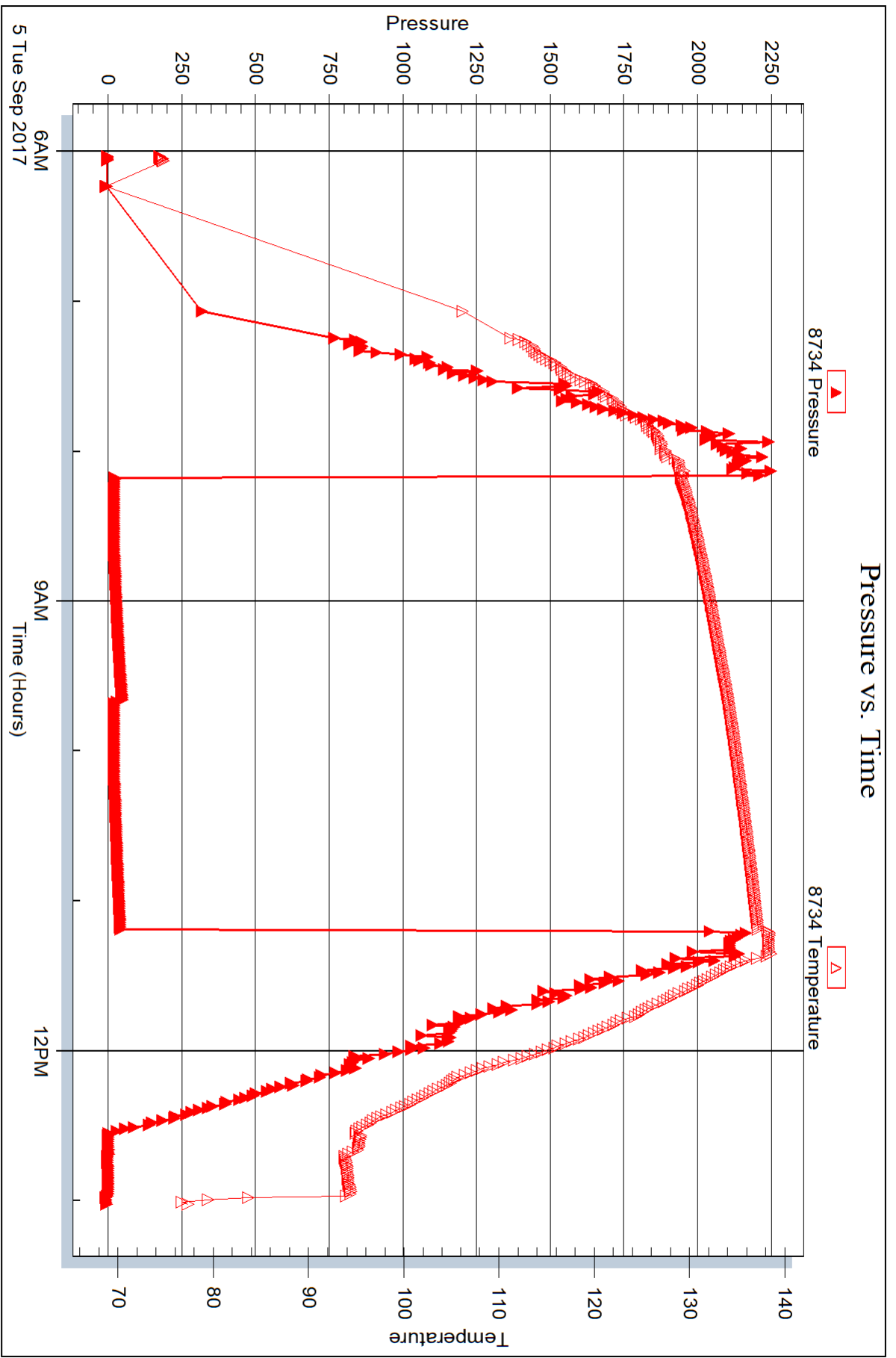


Serial #: 8734

Outside Murfin Drilling Co

Mears "C" # 1-10

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63389

Printed: 2017.09.11 @ 09:51:25



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202

ATTN: Rocky Milford

Mears "C" # 1-10

10-2S-37W Cheyenne,KS

Start Date: 2017.09.05 @ 22:20:00

End Date: 2017.09.06 @ 05:22:50

Job Ticket #: 63390 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.09.11 @ 09:51:00

Murfin Drilling Co
10-2S-37W Cheyenne,KS
Mears "C" # 1-10
DST # 2
LKC "D"
2017.09.05



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63390

DST#: 2

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 22:20:00

GENERAL INFORMATION:

Formation: **LKC "D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:26:10

Time Test Ended: 05:22:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

Interval: 4378.00 ft (KB) To 4439.00 ft (KB) (TVD)

Reference Elevations: 3405.00 ft (KB)

Total Depth: 4439.00 ft (KB) (TVD)

3400.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 29.63 psig @ 4379.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.09.05

End Date:

2017.09.06

Last Calib.:

2017.09.06

Start Time: 22:20:01

End Time:

05:22:50

Time On Btm:

2017.09.06 @ 00:26:00

Time Off Btm:

2017.09.06 @ 03:28:00

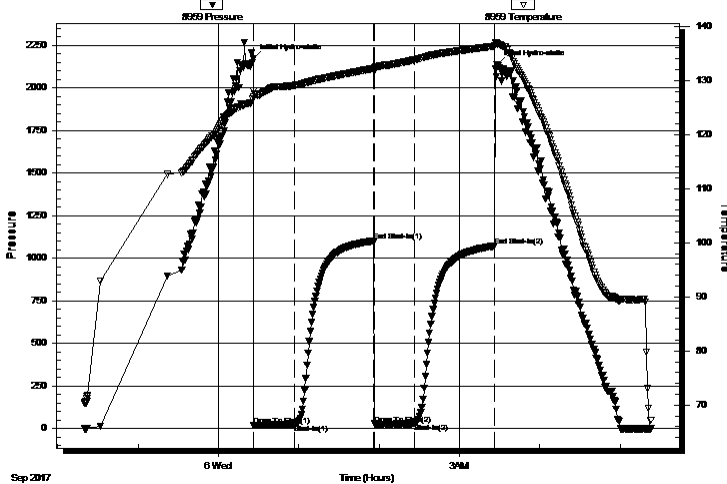
TEST COMMENT: 30-IF-Surface.blow built to 1 1/4"

60-ISI-No blow

30-FF-No blow

60-FSI-No blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2170.90	128.01	Initial Hydro-static
1	20.10	126.92	Open To Flow (1)
31	23.20	129.10	Shut-In(1)
90	1101.97	132.22	End Shut-In(1)
91	27.75	131.71	Open To Flow (2)
121	29.63	133.83	Shut-In(2)
180	1071.72	136.35	End Shut-In(2)
182	2138.72	136.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM 15%O, 85%M	0.05

* 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

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63390

DST#: 2

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 22:20:00

Tool Information

Drill Pipe:	Length: 4152.00 ft	Diameter: 3.80 inches	Volume: 58.24 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: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 59.25 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4378.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	89.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Pushed through 5' fill

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4355.00	
Hydraulic tool	5.00			4360.00	
Jars	5.00			4365.00	
Safety Joint	3.00			4368.00	
Packer	5.00			4373.00	28.00 Bottom Of Top Packer
Packer	5.00			4378.00	
Stubb	1.00			4379.00	
Recorder	0.00	8959	Inside	4379.00	
Recorder	0.00	8734	Outside	4379.00	
Perforations	22.00			4401.00	
Change Over Sub	1.00			4402.00	
Drill Pipe	31.00			4433.00	
Change Over Sub	1.00			4434.00	
Bullnose	5.00			4439.00	61.00 Bottom Packers & Anchor

Total Tool Length: 89.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63390

DST#: 2

ATTN: Rocky Milford

Test Start: 2017.09.05 @ 22:20:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OCM 15%O, 85%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: Not enough oil to catch gravity

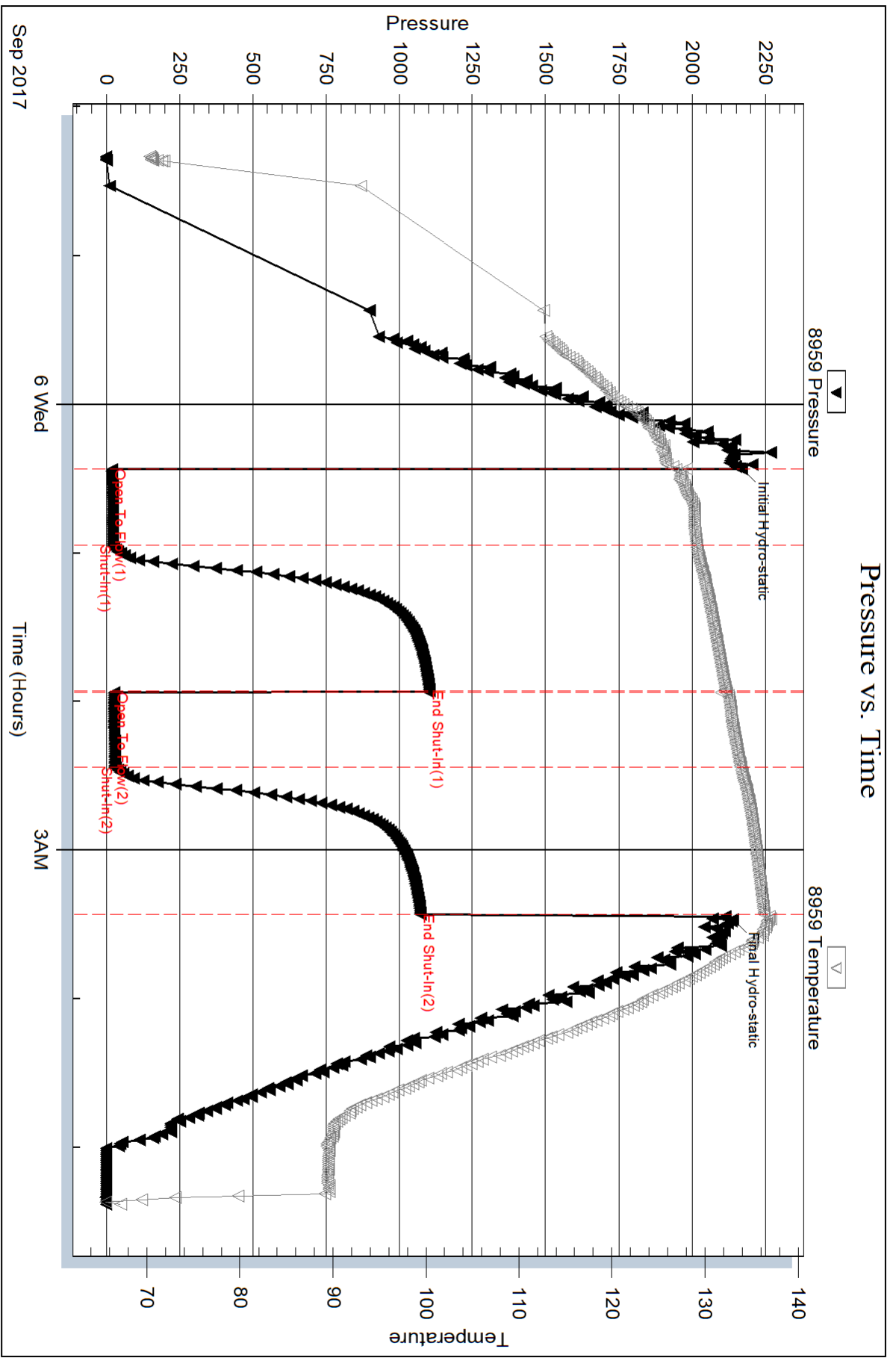
Serial #: 8959

Inside

Murfin Drilling Co

Mears "C" # 1-10

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63390

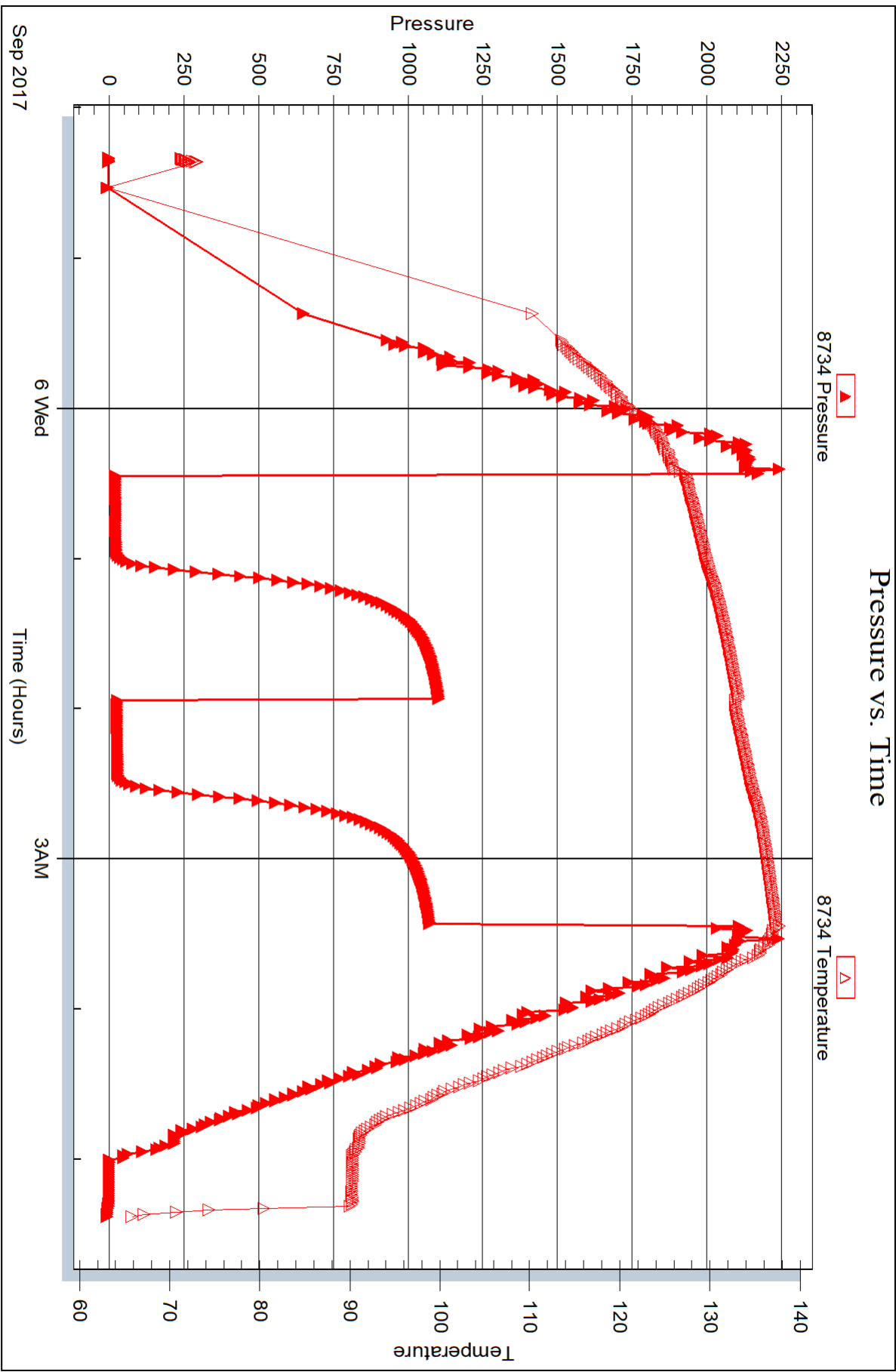
Printed: 2017.09.11 @ 09:51:01

Serial #: 8734

Outside Murfin Drilling Co

Mears 'C' # 1-10

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202

ATTN: Rocky Milford

Mears "C" # 1-10

10-2S-37W Cheyenne,KS

Start Date: 2017.09.06 @ 15:17:00

End Date: 2017.09.06 @ 21:52:50

Job Ticket #: 63391 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.09.11 @ 09:50:29



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63391

DST#: 3

ATTN: Rocky Milford

Test Start: 2017.09.06 @ 15:17:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:57:30

Time Test Ended: 21:52:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

Interval: 4448.00 ft (KB) To 4500.00 ft (KB) (TVD)

Reference Elevations: 3405.00 ft (KB)

Total Depth: 4500.00 ft (KB) (TVD)

3400.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 27.88 psig @ 4449.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.09.06

End Date:

2017.09.06

Last Calib.:

2017.09.06

Start Time: 15:17:01

End Time:

21:52:50

Time On Btm:

2017.09.06 @ 16:57:20

Time Off Btm:

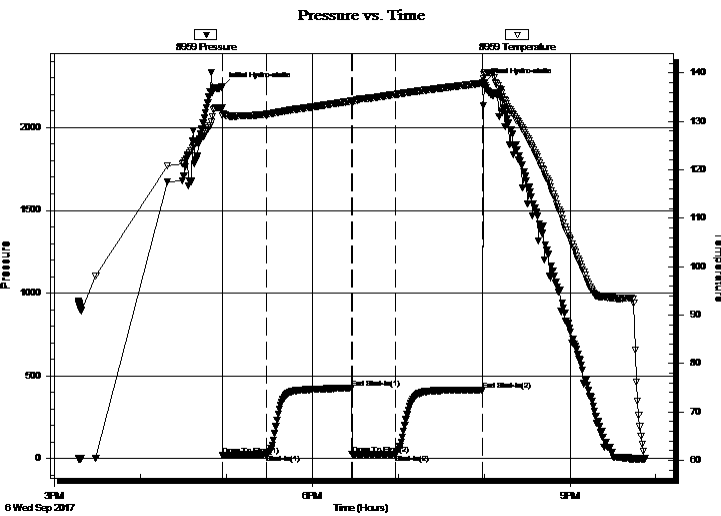
2017.09.06 @ 20:00:00

TEST COMMENT: 30-IF-Surface.blow died @ 16 1/2 mins

60-ISI-No blow

30-FF-No blow

60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2249.58	132.70	Initial Hydro-static
1	20.89	131.23	Open To Flow (1)
31	23.99	131.48	Shut-In(1)
90	426.92	134.16	End Shut-In(1)
91	25.33	133.90	Open To Flow (2)
121	27.88	135.54	Shut-In(2)
182	413.92	137.87	End Shut-In(2)
183	2268.17	139.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% 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

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63391

DST#: 3

ATTN: Rocky Milford

Test Start: 2017.09.06 @ 15:17:00

Tool Information

Drill Pipe:	Length: 4245.00 ft	Diameter: 3.80 inches	Volume: 59.55 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: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 60.56 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4448.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	80.00 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			4425.00	
Hydraulic tool	5.00			4430.00	
Jars	5.00			4435.00	
Safety Joint	3.00			4438.00	
Packer	5.00			4443.00	28.00 Bottom Of Top Packer
Packer	5.00			4448.00	
Stubb	1.00			4449.00	
Recorder	0.00	8959	Inside	4449.00	
Recorder	0.00	8734	Outside	4449.00	
Perforations	13.00			4462.00	
Change Over Sub	1.00			4463.00	
Drill Pipe	31.00			4494.00	
Change Over Sub	1.00			4495.00	
Bullnose	5.00			4500.00	52.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63391

DST#: 3

ATTN: Rocky Milford

Test Start: 2017.09.06 @ 15:17:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 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
5.00	100% 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:

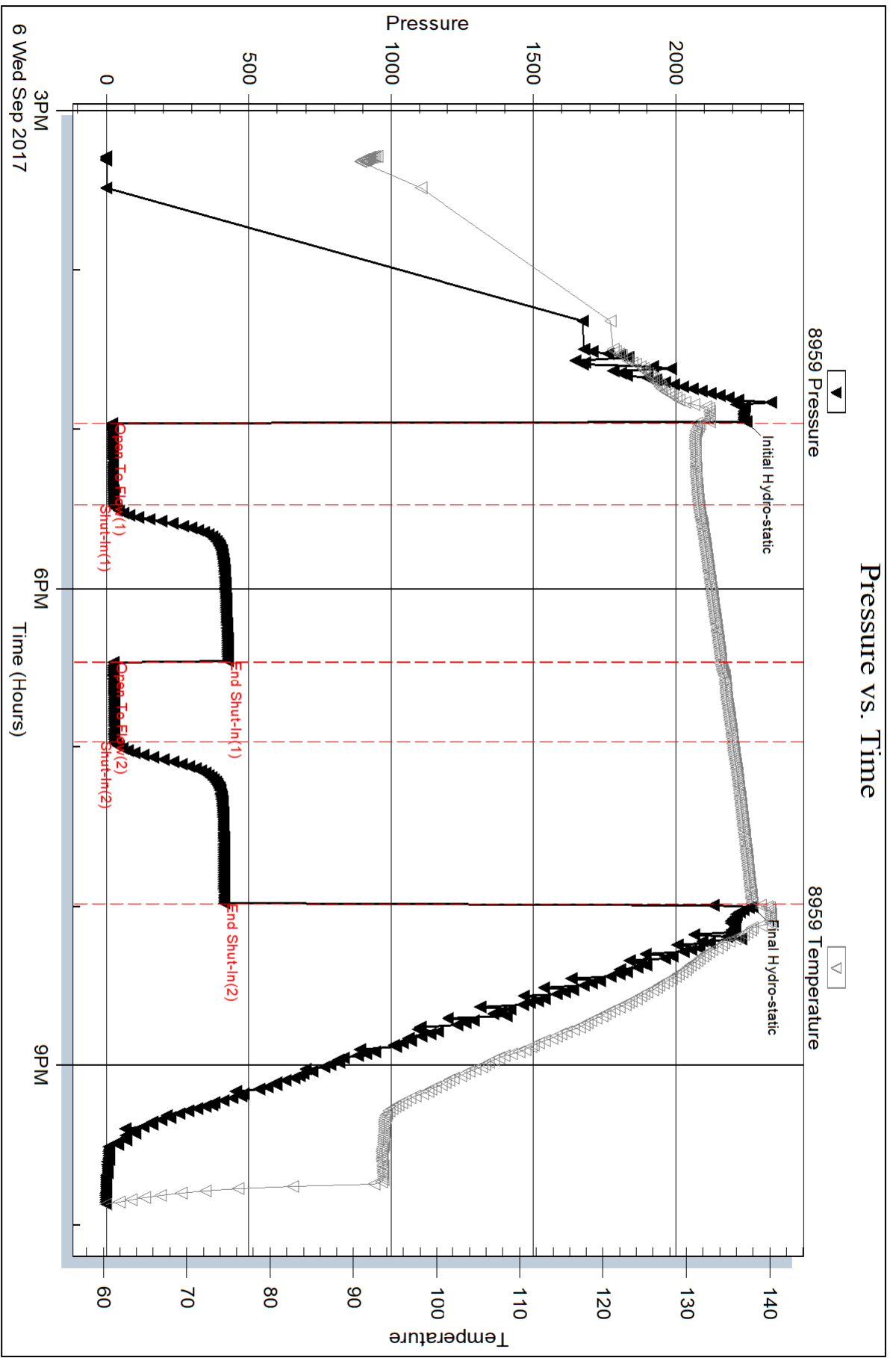
Serial #: 8959

Inside

Murfin Drilling Co

Mears 'C' # 1-10

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63391

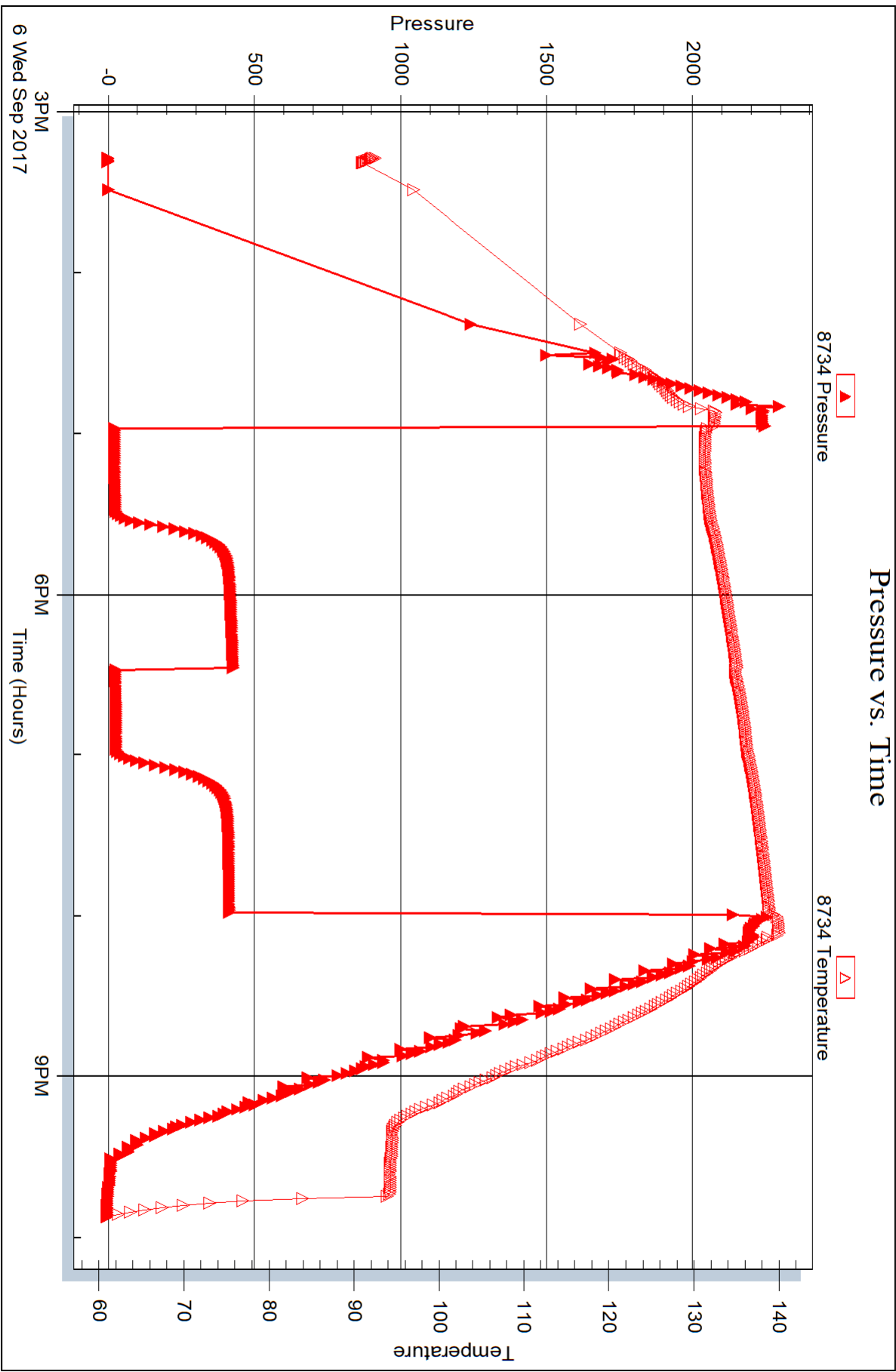
Printed: 2017.09.11 @ 09:50:29

Serial #: 8734

Outside Murfin Drilling Co

Mears "C" # 1-10

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202

ATTN: Rocky Milford

Mears "C" # 1-10

10-2S-37W Cheyenne,KS

Start Date: 2017.09.07 @ 10:15:00

End Date: 2017.09.07 @ 16:50:39

Job Ticket #: 63392 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.09.11 @ 09:50:08

Murfin Drilling Co
10-2S-37W Cheyenne,KS
Mears "C" # 1-10
DST # 4
LKC "H-J"
2017.09.07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63392

DST#: 4

ATTN: Rocky Milford

Test Start: 2017.09.07 @ 10:15:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:57:40

Time Test Ended: 16:50:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

Interval: 4498.00 ft (KB) To 4588.00 ft (KB) (TVD)

Reference Elevations: 3405.00 ft (KB)

Total Depth: 4588.00 ft (KB) (TVD)

3400.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 31.44 psig @ 4499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.09.07

End Date:

2017.09.07

Last Calib.: 2017.09.07

Start Time: 10:15:01

End Time:

16:50:40

Time On Btm: 2017.09.07 @ 11:57:00

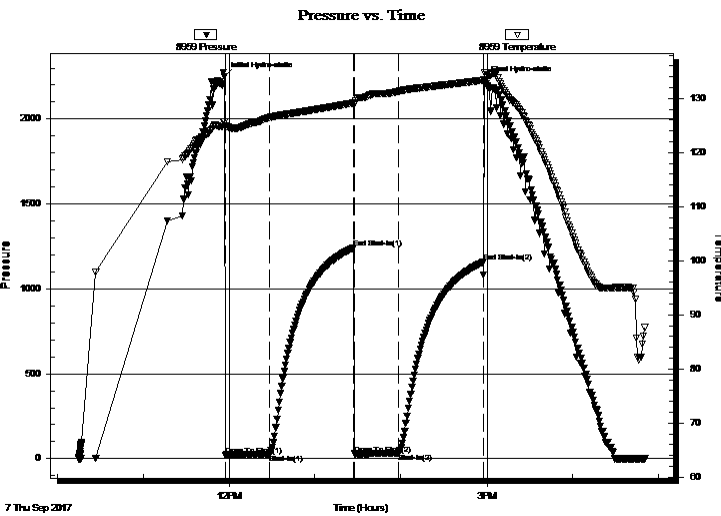
Time Off Btm: 2017.09.07 @ 14:58:30

TEST COMMENT: 30-IF-1/4" blow built to 3/4" @ 25 mins

60-ISI-No blow

30-FF-No blow

60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2249.07	125.57	Initial Hydro-static
1	21.93	124.90	Open To Flow (1)
31	25.56	126.40	Shut-In(1)
90	1241.52	129.17	End Shut-In(1)
91	28.30	128.85	Open To Flow (2)
122	31.44	131.31	Shut-In(2)
181	1157.81	133.36	End Shut-In(2)
182	2224.79	134.79	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.05

* 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

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63392

DST#: 4

ATTN: Rocky Milford

Test Start: 2017.09.07 @ 10:15:00

Tool Information

Drill Pipe:	Length: 4275.00 ft	Diameter: 3.80 inches	Volume: 59.97 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: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4498.00 ft			Final 65000.00 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
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4475.00	
Hydraulic tool	5.00			4480.00	
Jars	5.00			4485.00	
Safety Joint	3.00			4488.00	
Packer	5.00			4493.00	28.00 Bottom Of Top Packer
Packer	5.00			4498.00	
Stubb	1.00			4499.00	
Recorder	0.00	8959	Inside	4499.00	
Recorder	0.00	8734	Outside	4499.00	
Perforations	20.00			4519.00	
Change Over Sub	1.00			4520.00	
Drill Pipe	62.00			4582.00	
Change Over Sub	1.00			4583.00	
Bullnose	5.00			4588.00	90.00 Bottom Packers & Anchor

Total Tool Length: 118.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63392

DST#: 4

ATTN: Rocky Milford

Test Start: 2017.09.07 @ 10:15:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 73.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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	100% Mud	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

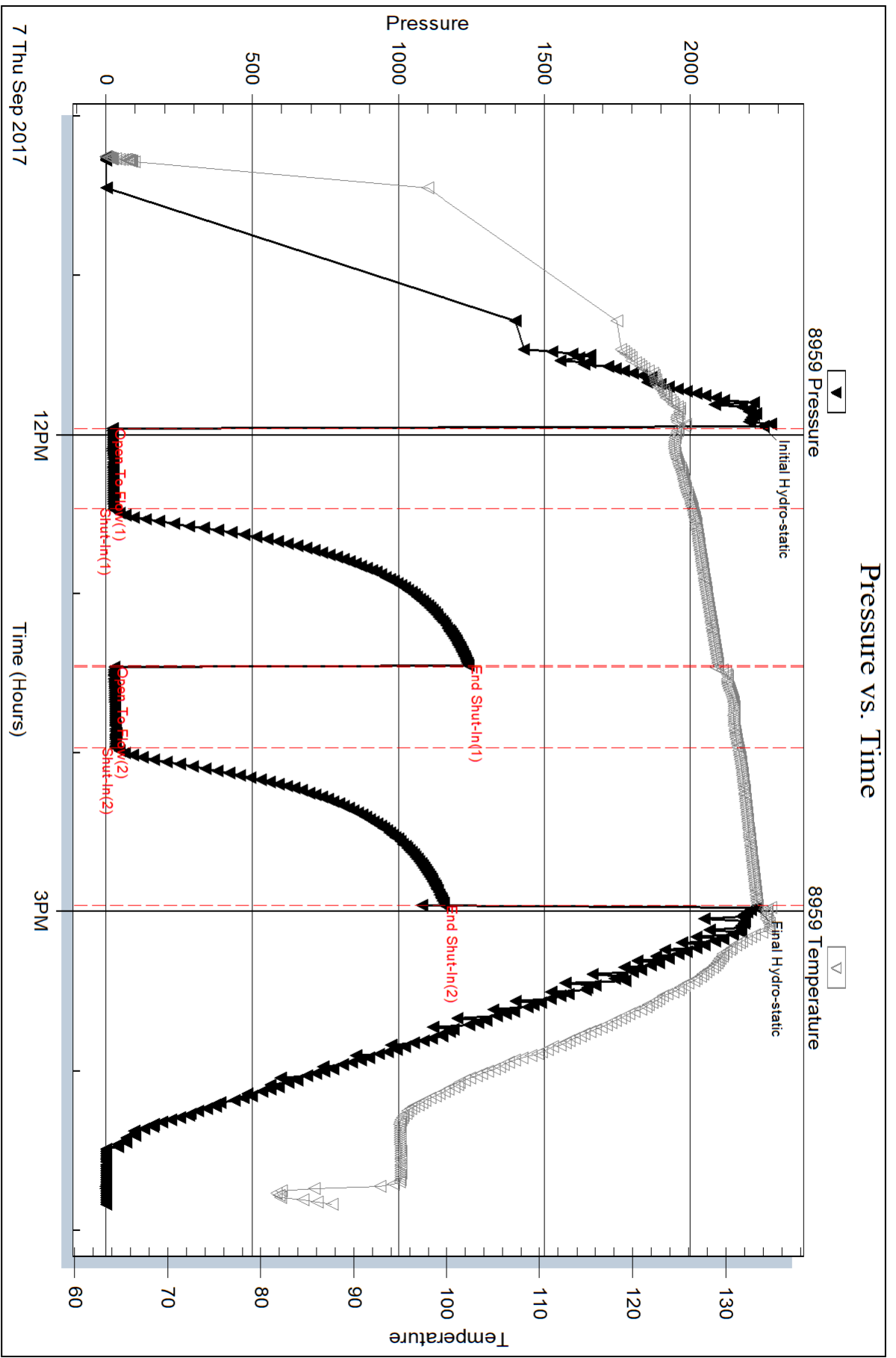
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

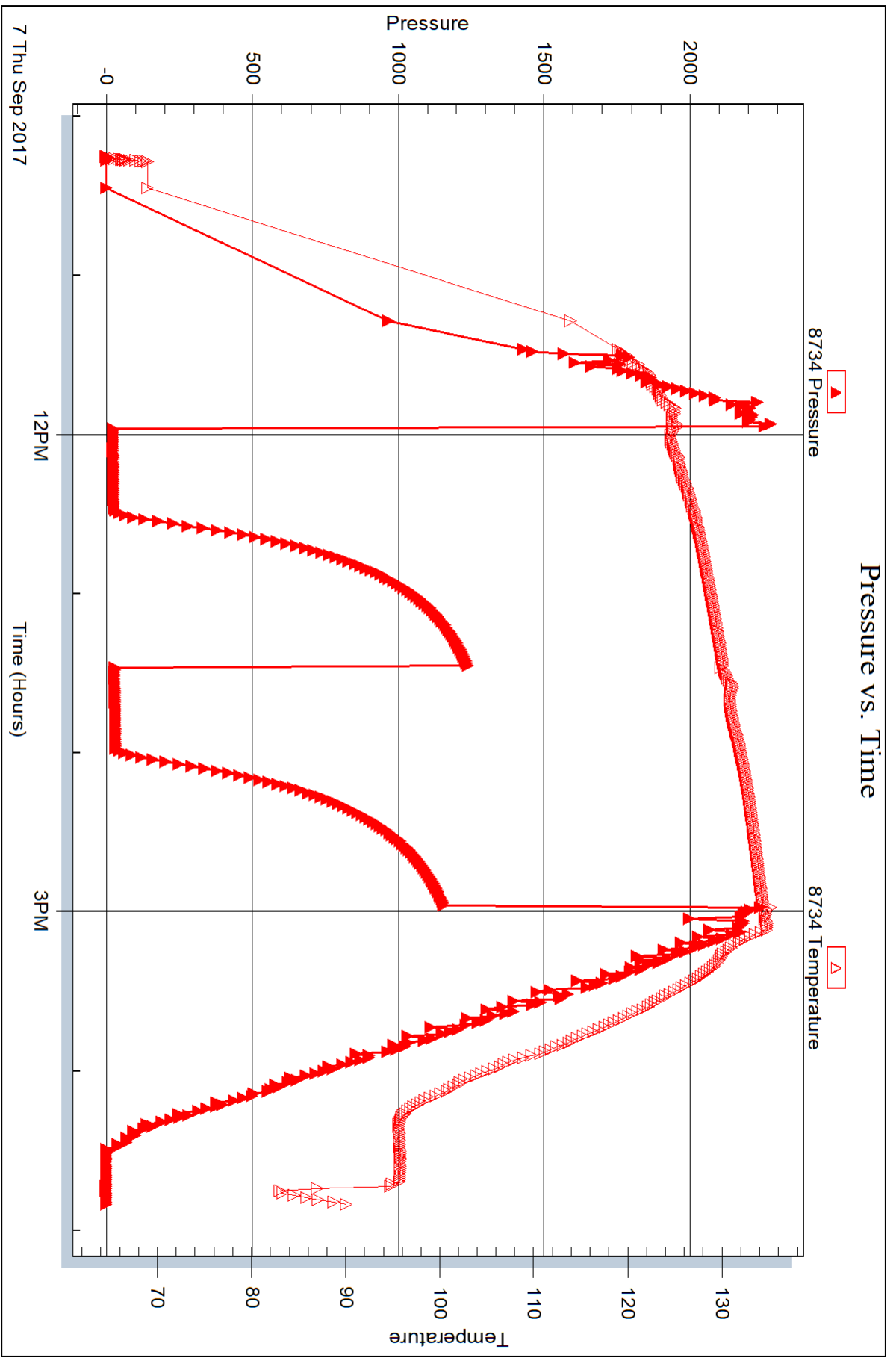


Serial #: 8734

Outside Murfin Drilling Co

Mears "C" # 1-10

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 63392

Printed: 2017.09.11 @ 09:50:09



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202

ATTN: Rocky Milford

Mears "C" # 1-10

10-2S-37W Cheyenne,KS

Start Date: 2017.09.08 @ 19:59:01

End Date: 2017.09.09 @ 03:05:09

Job Ticket #: 63393 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.09.11 @ 09:36:46

Murfin Drilling Co

10-2S-37W Cheyenne,KS

Mears "C" # 1-10

DST # 5

Fl.Scott - Celia

2017.09.08



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co

10-2S-37W Cheyenne, KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63393

DST#: 5

ATTN: Rocky Milford

Test Start: 2017.09.08 @ 19:59:01

GENERAL INFORMATION:

Formation: **Ft.Scott - Celia**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:01:40

Time Test Ended: 03:05:09

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 82

Interval: 4743.00 ft (KB) To 4880.00 ft (KB) (TVD)

Reference Elevations: 3405.00 ft (KB)

Total Depth: 4880.00 ft (KB) (TVD)

3400.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 86.32 psig @ 4744.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.09.08

End Date:

2017.09.09

Last Calib.:

2017.09.09

Start Time: 19:59:01

End Time:

03:05:10

Time On Btm:

2017.09.08 @ 22:01:30

Time Off Btm:

2017.09.09 @ 01:02:09

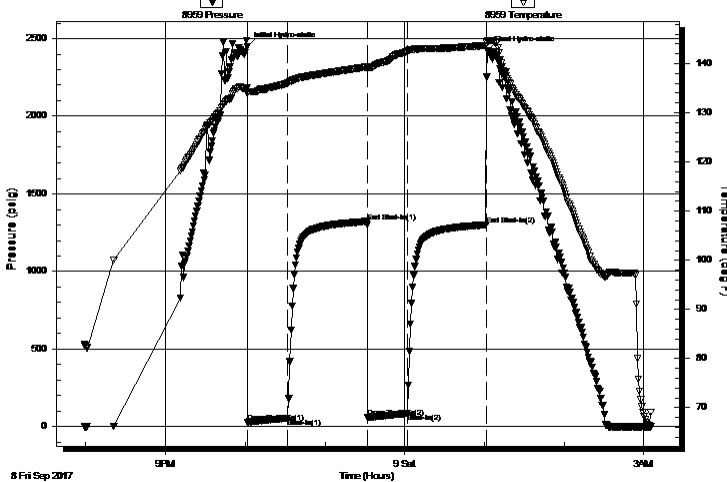
TEST COMMENT: 30-IF-Weak.blow built to 2 1/4"

60-ISI-No blow

30-FF-No blow

60-FSI-No blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2449.05	135.05	Initial Hydro-static
1	28.74	133.90	Open To Flow (1)
31	56.04	136.00	Shut-In(1)
91	1322.49	139.34	End Shut-In(1)
91	60.47	138.92	Open To Flow (2)
121	86.32	142.52	Shut-In(2)
180	1300.22	143.69	End Shut-In(2)
181	2421.77	144.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
133.00	100%Mud	0.65

* 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

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63393

DST#: 5

ATTN: Rocky Milford

Test Start: 2017.09.08 @ 19:59:01

Tool Information

Drill Pipe:	Length: 4527.00 ft	Diameter: 3.80 inches	Volume: 63.50 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: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 64.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4743.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	137.00 ft			
Tool Length:	165.00 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			4720.00	
Hydraulic tool	5.00			4725.00	
Jars	5.00			4730.00	
Safety Joint	3.00			4733.00	
Packer	5.00			4738.00	28.00 Bottom Of Top Packer
Packer	5.00			4743.00	
Packer - Shale	0.00			4743.00	
Stubb	1.00			4744.00	
Recorder	0.00	8959	Inside	4744.00	
Recorder	0.00	8734	Outside	4744.00	
Perforations	36.00			4780.00	
Change Over Sub	1.00			4781.00	
Drill Pipe	93.00			4874.00	
Change Over Sub	1.00			4875.00	
Bullnose	5.00			4880.00	137.00 Bottom Packers & Anchor

Total Tool Length: 165.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

10-2S-37W Cheyenne,KS

250 N Water STE 300
Wichita KS 67202

Mears "C" # 1-10

Job Ticket: 63393

DST#: 5

ATTN: Rocky Milford

Test Start: 2017.09.08 @ 19:59:01

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 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
133.00	100%Mud	0.654

Total Length: 133.00 ft Total Volume: 0.654 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

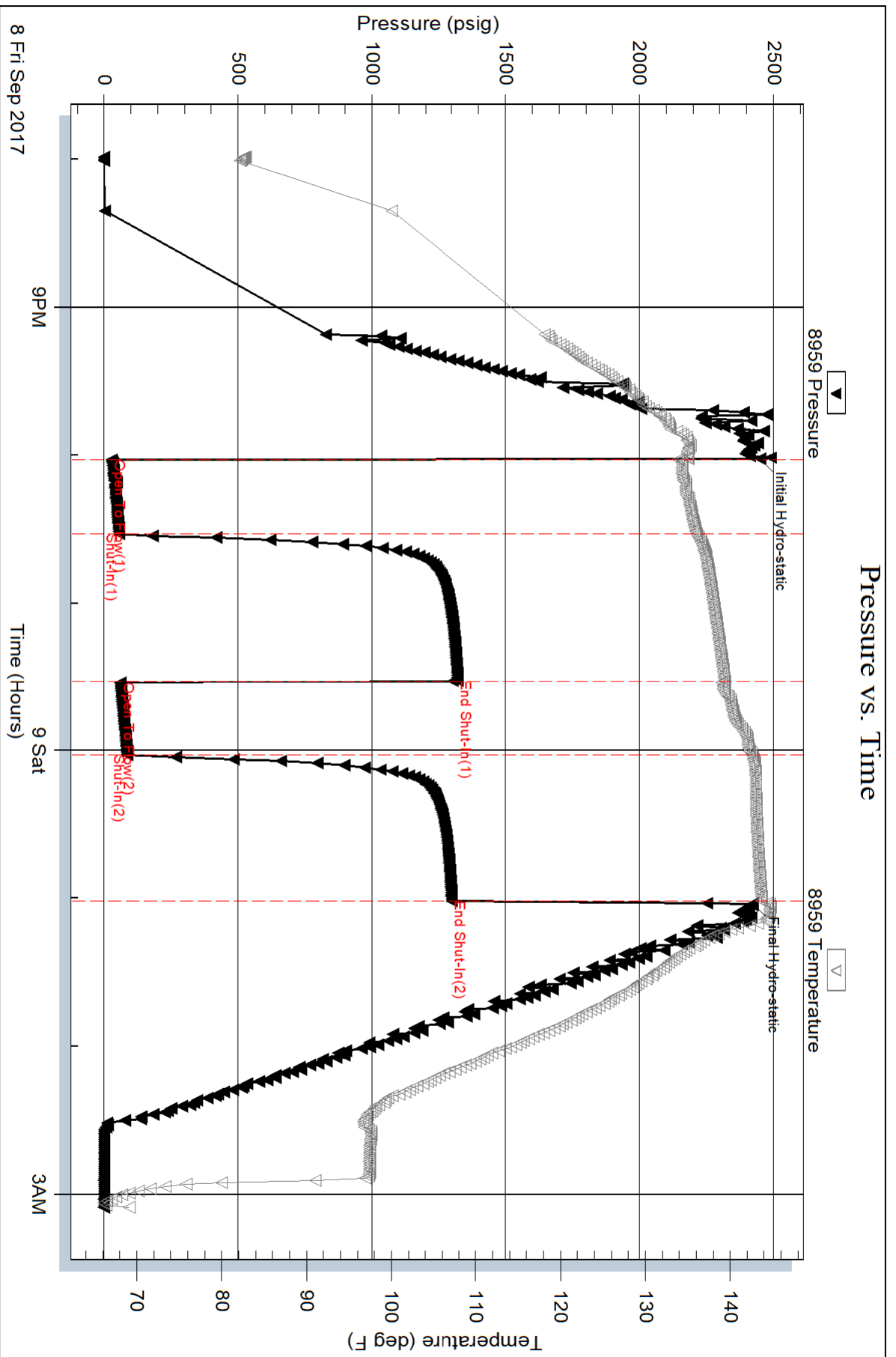
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Inside

Murfin Drilling Co

Mears 'C' # 1-10

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 63393

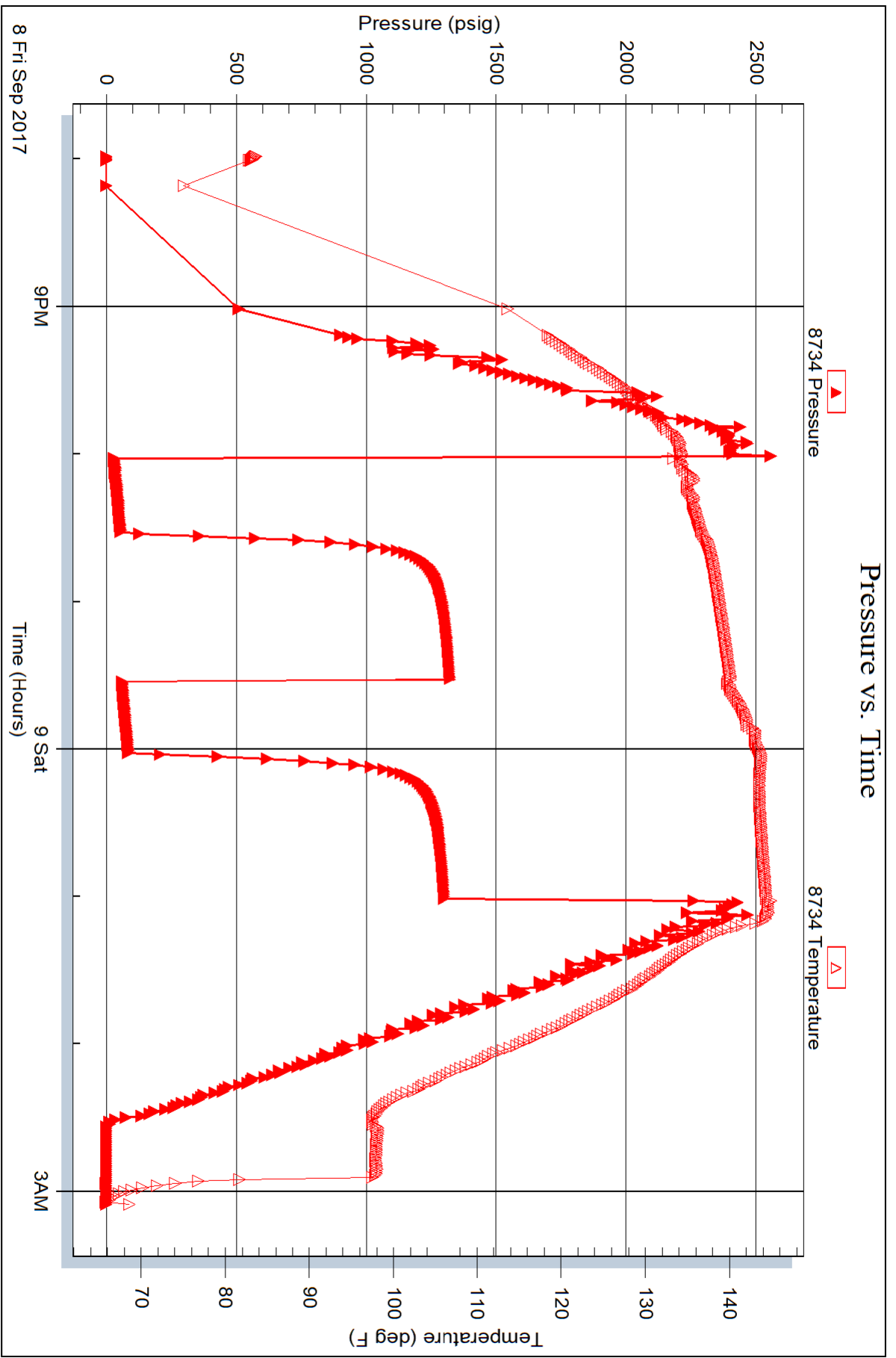
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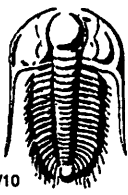
Serial #: 8734

Outside Murfin Drilling Co

Mears "C" # 1-10

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63389

Well Name & No. Mears "C" #1-10 Test No. 1 Date 9-5-17
 Company Murfin Drilling Co. Inc Elevation 3405 KB 3400 GL
 Address 250 N. Water, STE 300, Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #24
 Location: Sec. 10 Twp. 2S. Rge. 37W. Co. Cheyenne State KS

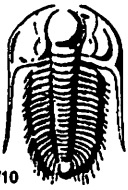
Interval Tested 4308-4380 Zone Tested LKCC "A"
 Anchor Length 72 Drill Pipe Run 4089 Mud Wt. 9.1
 Top Packer Depth 4303 Drill Collars Run 205 Vis 60
 Bottom Packer Depth 4308 Wt. Pipe Run - WL 7.6
 Total Depth 4380 Chlorides 700 ppm System LCM 4#
 Blow Description IF. S. blow built to 1/2" & died back to 1/4"
ISI. No blow
FF. No blow
FSI. No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec Total <u>5'</u>	BHT <u>138</u>	Gravity	API RW	@	F Chlorides ppm

(A) Initial Hydrostatic 2213 Test _____ T-On Location 04:45
 (B) First Initial Flow 24 Jars _____ T-Started 06:02
 (C) First Final Flow 20 Safety Joint _____ T-Open 08:10
 (D) Initial Shut-In 50 Circ Sub _____ T-Pulled 11:10
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 13:02
 (F) Second Final Flow 22 Mileage 118 RT. Comments _____
 (G) Final Shut-In 43 Sampler _____
 (H) Final Hydrostatic 2174 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total _____
 Total _____
 MP/DST Disc't _____

Approved By Rocky Milford Our Representative John Palmer
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63390

Well Name & No. Mears "C" # 1-10 Test No. 2 Date 9-5-17
 Company Murfin Drilling Co Inc Elevation 3405 KB 3400 GL
 Address 250 N. Water, STE 300, Wichita, KS 67262
 Co. Rep / Geo. Rocky Milford Rig Murfin #24
 Location: Sec. 10 Twp. 2.S. Rge. 37W. Co. Cheyenne State KJ

Interval Tested 4378-4439 Zone Tested LKC "D"
 Anchor Length 61 Drill Pipe Run 4152 Mud Wt. 9.1
 Top Packer Depth 4373 Drill Collars Run 205 Vis 60
 Bottom Packer Depth 4378 Wt. Pipe Run — WL 7.2
 Total Depth 4439 Chlorides 700 ppm System LCM 4#

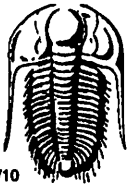
Blow Description IF. S. blow built to 1 1/4"
ISI. No blow
FF. No blow
FSI. No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>OCM</u>	<u>15</u>		<u>85</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 2171 Test _____ T-On Location 21:25
 (B) First Initial Flow 20 Jars _____ T-Started 22:20
 (C) First Final Flow 23 Safety Joint _____ T-Open 00:26
 (D) Initial Shut-In 1102 Circ Sub _____ T-Pulled 63:26
 (E) Second Initial Flow 28 Hourly Standby _____ T-Out 65:23
 (F) Second Final Flow 30 Mileage 118 RT Comments _____
 (G) Final Shut-In 1072 Sampler _____
 (H) Final Hydrostatic 2139 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By Rocky Milford Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63391

Well Name & No. Mears "C" # 1-10 Test No. 3 Date 9-6-17
 Company Murfin Drilling Co Inc. Elevation 3405 KB 3400 GL
 Address 250 N. Water, STE 300, Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin # 24
 Location: Sec. 10 Twp. 2.S. Rge. 37W. Co. Cheyenne State KS

Interval Tested 4448 - 4500 Zone Tested LKC "G"
 Anchor Length 52' Drill Pipe Run 4245 Mud Wt. 58
 Top Packer Depth 4443 Drill Collars Run 205 Vis 9.0
 Bottom Packer Depth 4448 Wt. Pipe Run — WL 6.8
 Total Depth 4500 Chlorides 600 ppm System LCM 4H

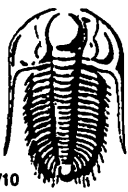
Blow Description IF. S. blow dead @ 16 1/2 mins.
ISI. No blow
FF. No blow
FSI. No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 140 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 2250 Test _____ T-On Location 14:45
 (B) First Initial Flow 21 Jars _____ T-Started 15:17
 (C) First Final Flow 24 Safety Joint _____ T-Open 16:58
 (D) Initial Shut-In 427 Circ Sub _____ T-Pulled 19:58
 (E) Second Initial Flow 25 Hourly Standby _____ T-Out 21:53
 (F) Second Final Flow 28 Mileage 118 RT Comments _____
 (G) Final Shut-In 414 Sampler _____
 (H) Final Hydrostatic 2268 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By Rocky Milford Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63392

Well Name & No. Mears "C" #1-10 Test No. 4 Date 9-7-17
 Company Murfin Drilling Co. Inc. Elevation 3465 KB 3400 GL
 Address 250 N. Water, STE 300, Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #24
 Location: Sec. 10 Twp. 2.S. Rge. 37W. Co. Cheyenne State KS

Interval Tested 4498-4588 Zone Tested LKC "H-J"
 Anchor Length 90' Drill Pipe Run 4275 Mud Wt. 9.0
 Top Packer Depth 4493 Drill Collars Run 205 Vis 73
 Bottom Packer Depth 4498 Wt. Pipe Run — WL 5.6
 Total Depth 4588 Chlorides 600 ppm System LCM 44

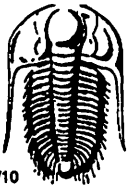
Blow Description IF: 1/4" S. blow built to 3/4" @ 25 mins
ISI: No blow
FF: No blow
FJI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</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 10 BHT 135 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2249 Test _____ T-On Location 09:50
 (B) First Initial Flow 22 Jars _____ T-Started 10:15
 (C) First Final Flow 26 Safety Joint _____ T-Open 11:58
 (D) Initial Shut-In 1242 Circ Sub _____ T-Pulled 14:58
 (E) Second Initial Flow 28 Hourly Standby _____ T-Out 16:51
 (F) Second Final Flow 31 Mileage 118RT Comments _____
 (G) Final Shut-In 1158 Sampler _____
 (H) Final Hydrostatic 2225 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By Rocky Milford Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63393

Well Name & No. Mears "C" # 1-10 Test No. 5 Date 9-8-17
 Company Murfin Drilling Co Inc Elevation 3405 KB 3400 GL
 Address 250 N. Water, STE 300, Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #24
 Location: Sec. 10 Twp. 2S. Rge. 37W. Co. Cheyenne State KS.

Interval Tested 4743-4880 Zone Tested Ft Scott - Celia
 Anchor Length 137' Drill Pipe Run 4527 Mud Wt. 9.3
 Top Packer Depth 4738 Drill Collars Run 205 Vis 69
 Bottom Packer Depth 4743 Wt. Pipe Run — WL 6.0
 Total Depth 4880 Chlorides 600 ppm System LCM 4#
 Blow Description IF. S. blow built to 2 1/4"

ISI - No blow

FF - No blow

FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>133</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 133 BHT 145 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2449 Test _____ T-On Location 19:30 9-8-17
 (B) First Initial Flow 29 Jars _____ T-Started 19:59
 (C) First Final Flow 56 Safety Joint _____ T-Open 22:02
 (D) Initial Shut-In 1322 Circ Sub _____ T-Pulled 01:02
 (E) Second Initial Flow 60 Hourly Standby _____ T-Out 03:05 9-9-17
 (F) Second Final Flow 86 Mileage 118RT x 2 Comments Loaded tools 9-9-17 @ 15:50
 (G) Final Shut-In 1300 Sampler _____
 (H) Final Hydrostatic 2422 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By Rocky Milford

Our Representative [Signature]

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