



DRILL STEM TEST REPORT

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

250 N. Water Ste 300
Wichita KS 67202

ATTN: Robert Hendrix

Mary Ann # 3-1

1-1s-36w Rawlins,KS

Start Date: 2013.08.17 @ 01:02:00

End Date: 2013.08.17 @ 08:16:09

Job Ticket #: 49100 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.08.21 @ 14:52:57



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 49100

DST#: 1

Test Start: 2013.08.17 @ 01:02:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:28:40

Time Test Ended: 08:16:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 58

Interval: 3935.00 ft (KB) To 3984.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 3984.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8674 Inside

Press @ Run Depth: 31.21 psig @ 3936.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.17

End Date:

2013.08.17

Last Calib.: 2013.08.17

Start Time: 01:02:00

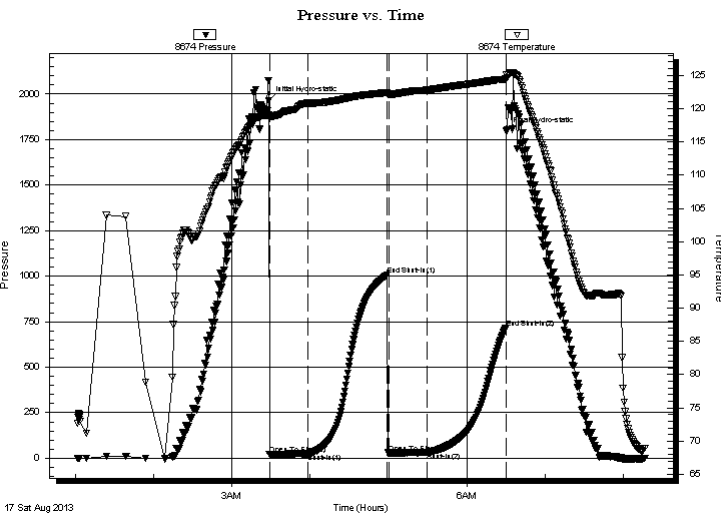
End Time:

08:16:09

Time On Btm: 2013.08.17 @ 03:28:10

Time Off Btm: 2013.08.17 @ 06:30:09

TEST COMMENT: IF- Weak Surface Blow Built to 1 1/4"
IS- No Blow
FF- Weak Surface Blow in 18min Built to 1/4"
FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1963.98	119.05	Initial Hydro-static
1	20.27	118.56	Open To Flow (1)
30	24.81	120.82	Shut-In(1)
91	1006.73	122.41	End Shut-In(1)
92	28.49	122.08	Open To Flow (2)
122	31.21	122.78	Shut-In(2)
182	715.91	124.42	End Shut-In(2)
182	1796.07	125.11	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 17%oil 83%m	0.07

Gas Rates

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



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TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 49100

DST#: 1

Test Start: 2013.08.17 @ 01:02:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:28:40

Time Test Ended: 08:16:09

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 58

Interval: 3935.00 ft (KB) To 3984.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 3984.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8355 Outside

Press @ Run Depth: psig @ 3936.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.17

End Date:

2013.08.17

Last Calib.:

2013.08.17

Start Time: 01:02:05

End Time:

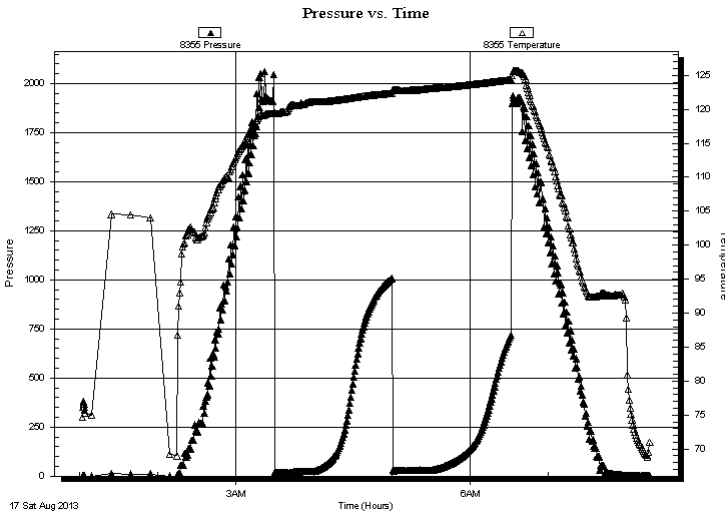
08:17:29

Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow Built to 1 1/4"
IS- No Blow
FF- Weak Surface Blow in 18min Built to 1/4"
FS- No Blow

PRESSURE SUMMARY



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

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
15.00	OCM 17%oil 83%m	0.07

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 49100

DST#: 1

ATTN: Robert Hendrix

Test Start: 2013.08.17 @ 01:02:00

Tool Information

Drill Pipe:	Length: 3354.00 ft	Diameter: 3.80 inches	Volume: 47.05 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 575.00 ft	Diameter: 2.25 inches	Volume: 2.83 bbl	Weight to Pull Loose:	12000.00 lb
			<u>Total Volume: 49.88 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	3935.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	49.00 ft				
Tool Length:	77.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

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

Change Over Sub	1.00			3908.00	
Shut In Tool	5.00			3913.00	
Hydraulic tool	5.00			3918.00	
Jars	5.00			3923.00	
Safety Joint	3.00			3926.00	
Packer	5.00			3931.00	28.00 Bottom Of Top Packer
Packer	4.00			3935.00	
Stubb	1.00			3936.00	
Recorder	0.00	8355	Outside	3936.00	
Recorder	0.00	8674	Inside	3936.00	
Perforations	10.00			3946.00	
Change Over Sub	1.00			3947.00	
Drill Pipe	31.00			3978.00	
Change Over Sub	1.00			3979.00	
Bullnose	5.00			3984.00	49.00 Bottom Packers & Anchor

Total Tool Length: 77.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 49100

DST#: 1

ATTN: Robert Hendrix

Test Start: 2013.08.17 @ 01:02:00

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: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.96 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	OCM 17%oil 83%m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

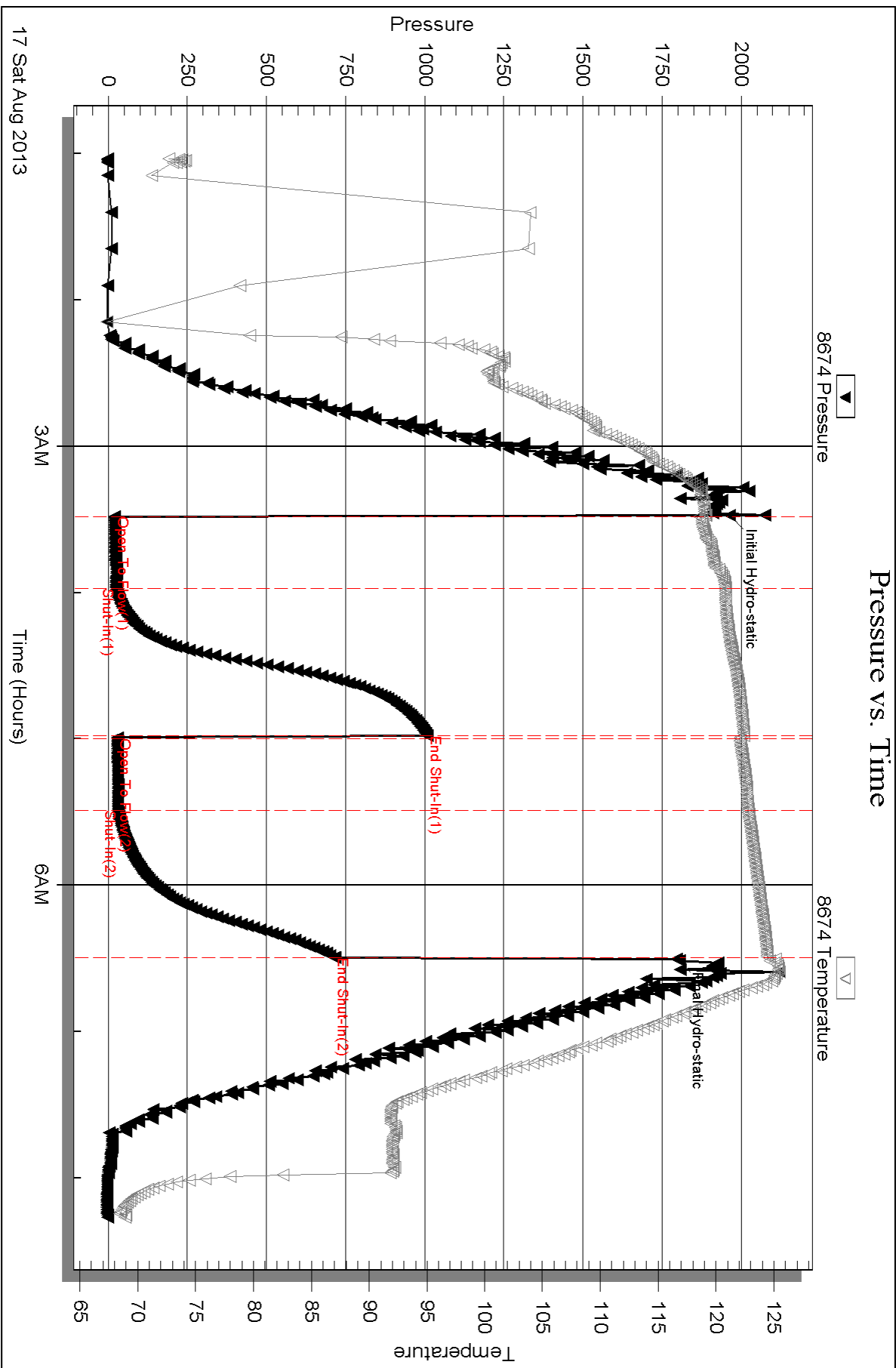
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

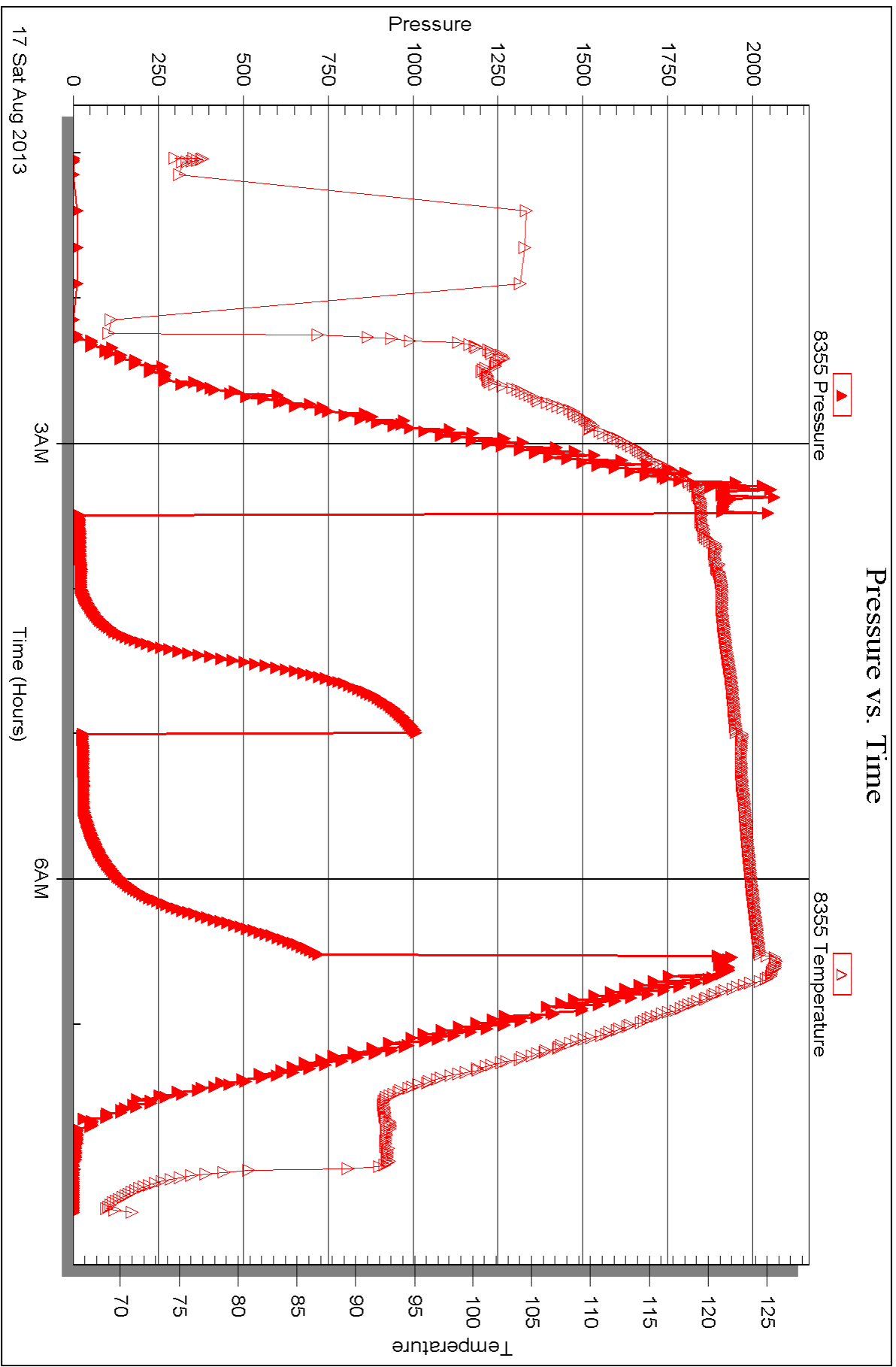


Serial #: 8355

Outside Murfin Drilling Co. Inc

Mary Ann # 3-1

DST Test Number: 1





DRILL STEM TEST REPORT

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

250 N. Water Ste 300
Wichita KS 67202

ATTN: Robert Hendrix

Mary Ann # 3-1

1-1s-36w Rawlins,KS

Start Date: 2013.08.17 @ 21:40:00

End Date: 2013.08.18 @ 05:13:39

Job Ticket #: 53002 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.21 @ 14:51:29



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 53002

DST#: 2

Test Start: 2013.08.17 @ 21:40:00

GENERAL INFORMATION:

Formation: **Lansing " A "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:30:10

Time Test Ended: 05:13:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Interval: 4006.00 ft (KB) To 4110.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 4110.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 34.86 psig @ 4008.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.17

End Date:

2013.08.18

Last Calib.:

2013.08.18

Start Time: 21:40:00

End Time:

05:13:39

Time On Btm:

2013.08.17 @ 23:29:55

Time Off Btm:

2013.08.18 @ 03:39:09

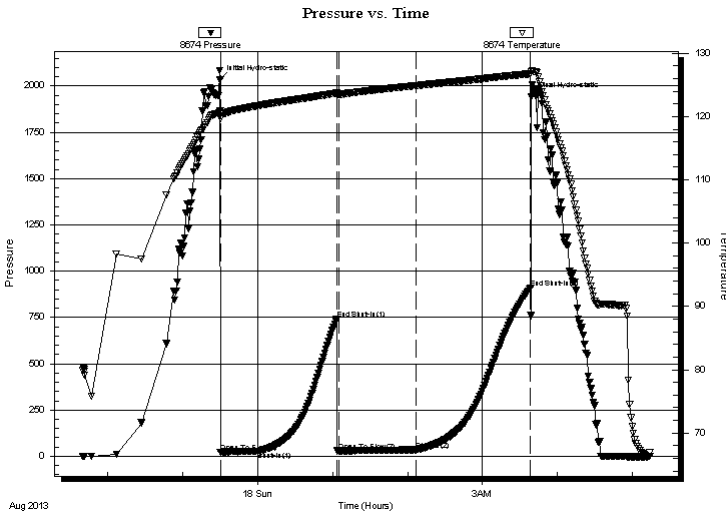
TEST COMMENT: IF- Weak Surface Blow Built to 1"

IS- No Blow

FF- Weak Surface Blow Built to 1 3/4"

FS- No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2033.68	120.93	Initial Hydro-static
1	21.81	119.74	Open To Flow (1)
31	26.82	121.73	Shut-In(1)
94	740.34	123.69	End Shut-In(1)
96	28.16	123.44	Open To Flow (2)
157	34.86	124.88	Shut-In(2)
249	909.05	126.76	End Shut-In(2)
250	1941.07	127.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	GOCM 2%g 9%oil 89%m	0.10

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53002

DST#: 2

ATTN: Robert Hendrix

Test Start: 2013.08.17 @ 21:40:00

GENERAL INFORMATION:

Formation: **Lansing " A "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:30:10

Time Test Ended: 05:13:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Interval: 4006.00 ft (KB) To 4110.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 4110.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8355 Outside

Press @ Run Depth: psig @ 4008.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.17

End Date:

2013.08.18

Last Calib.:

2013.08.18

Start Time: 21:40:05

End Time:

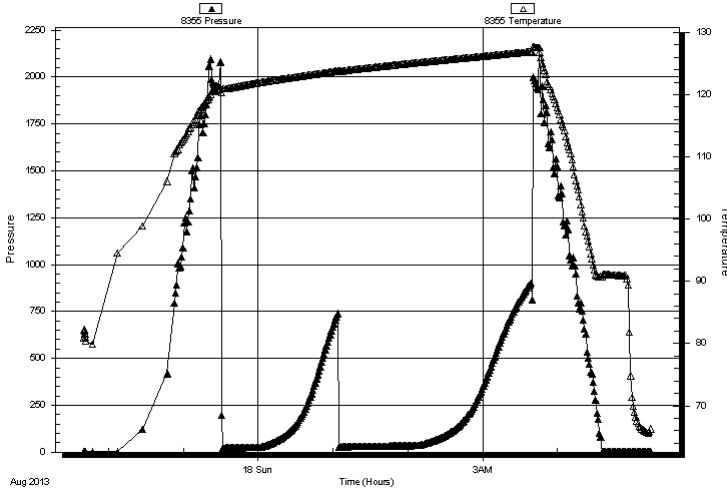
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Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow Built to 1"
IS- No Blow
FF- Weak Surface Blow Built to 1 3/4"
FS- No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	GOCM 2%g 9%oil 89%m	0.10

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53002

DST#: 2

ATTN: Robert Hendrix

Test Start: 2013.08.17 @ 21:40:00

Tool Information

Drill Pipe:	Length: 3415.00 ft	Diameter: 3.80 inches	Volume: 47.90 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	26000.00 lb
Drill Collar:	Length: 575.00 ft	Diameter: 2.25 inches	Volume: 2.83 bbl	Weight to Pull Loose:	16000.00 lb
			<u>Total Volume: 50.73 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	74000.00 lb
Depth to Top Packer:	4006.00 ft			Final	74000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	104.00 ft				
Tool Length:	132.00 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			3979.00	
Shut In Tool	5.00			3984.00	
Hydraulic tool	5.00			3989.00	
Jars	5.00			3994.00	
Safety Joint	3.00			3997.00	
Packer	5.00			4002.00	28.00 Bottom Of Top Packer
Packer	4.00			4006.00	
Stubb	1.00			4007.00	
Perforations	1.00			4008.00	
Recorder	0.00	8355	Outside	4008.00	
Recorder	0.00	8674	Inside	4008.00	
Perforations	32.00			4040.00	
Change Over Sub	1.00			4041.00	
Drill Pipe	63.00			4104.00	
Change Over Sub	1.00			4105.00	
Bullnose	5.00			4110.00	104.00 Bottom Packers & Anchor
Total Tool Length:	132.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53002

DST#: 2

ATTN: Robert Hendrix

Test Start: 2013.08.17 @ 21:40:00

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: 66.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	GOCM 2%g 9%oil 89%m	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

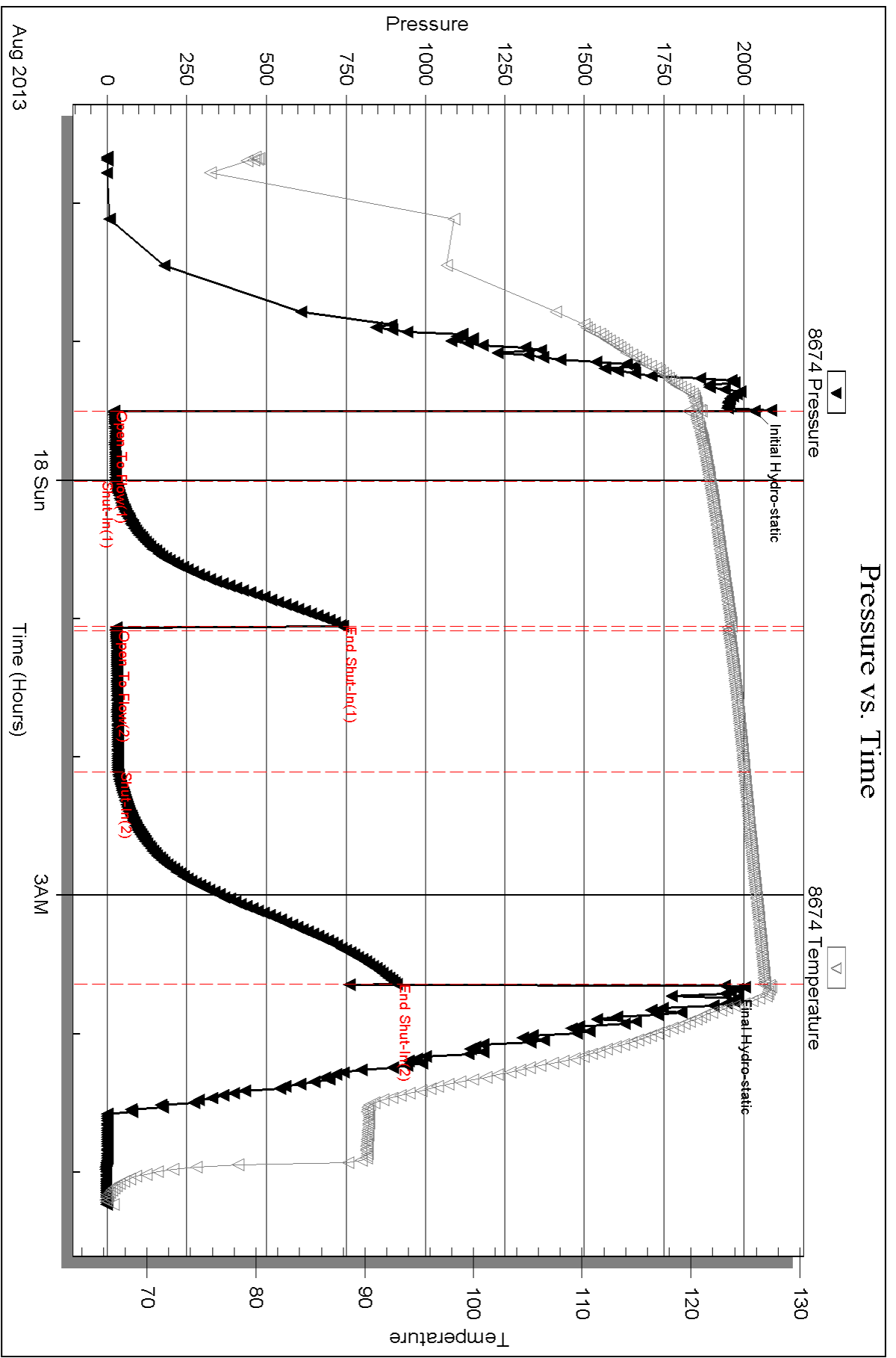
Serial #: 8674

Inside

Murfin Drilling Co. Inc

Mary Ann # 3-1

DST Test Number: 2

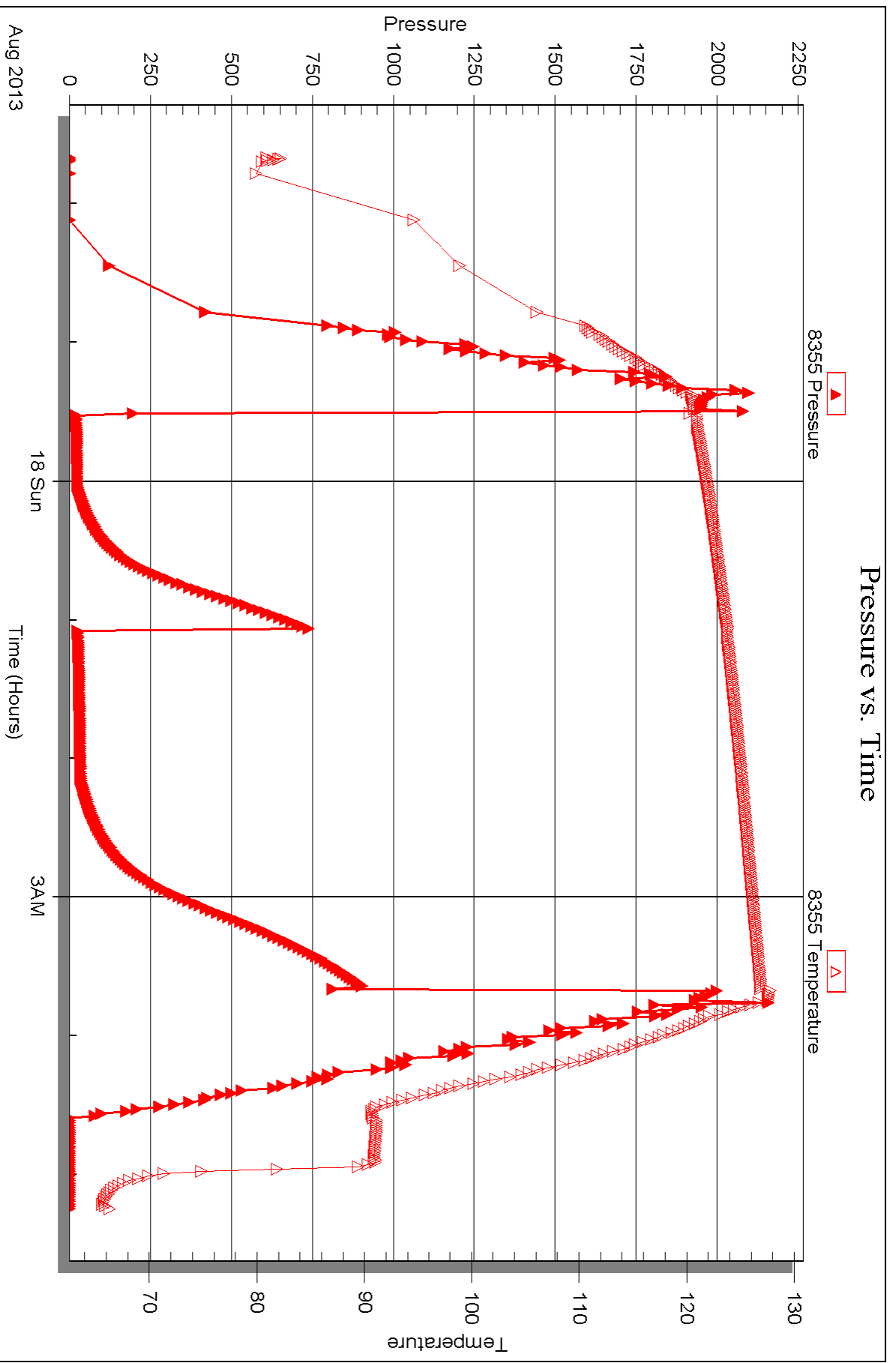


Serial #: 8355

Outside Murfin Drilling Co. Inc

Mary Ann # 3-1

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 53002

Printed: 2013.08.21 @ 14:51:33



DRILL STEM TEST REPORT

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

250 N. Water Ste 300
Wichita KS 67202

ATTN: Robert Hendrix

Mary Ann # 3-1

1-1s-36w Rawlins,KS

Start Date: 2013.08.18 @ 13:04:00

End Date: 2013.08.18 @ 21:16:54

Job Ticket #: 53003 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.21 @ 14:44:07

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

Mary Ann # 3-1

DST # 3

Lansing " D "

2013.08.18



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 53003

DST#: 3

Test Start: 2013.08.18 @ 13:04:00

GENERAL INFORMATION:

Formation: **Lansing " D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:47:40

Time Test Ended: 21:16:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Interval: 4093.00 ft (KB) To 4138.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 4138.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8674 Inside

Press @ Run Depth: 765.02 psig @ 4095.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.18

End Date: 2013.08.18

Last Calib.: 2013.08.18

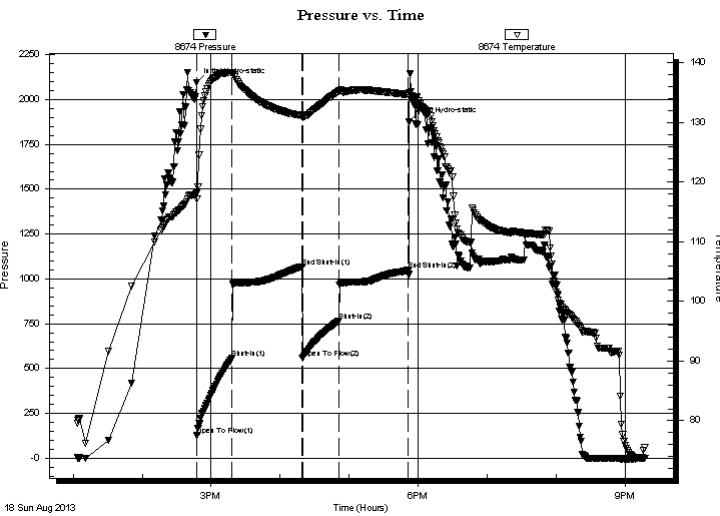
Start Time: 13:04:00

End Time: 21:16:54

Time On Btm: 2013.08.18 @ 14:47:25

Time Off Btm: 2013.08.18 @ 17:51:54

TEST COMMENT: IF- Surface Blow Built to BOB in 1 3/4 min
 IS- Weak Surface Blow in 1 1/2 min Built to BOB in 9 1/2 min
 FF- Surface Blow Built to BOB in 2 min (Gas to Surface in 20 min)
 FS- Weak Surface Blow Built to BOB in 5 1/4 min



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2093.20	118.13	Initial Hydro-static
1	128.72	117.18	Open To Flow (1)
31	555.73	138.38	Shut-In(1)
92	1067.46	131.10	End Shut-In(1)
92	558.43	130.89	Open To Flow (2)
124	765.02	135.21	Shut-In(2)
184	1048.63	134.62	End Shut-In(2)
185	1873.89	134.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	GO 22%g 78%oil	0.20
1115.00	GO 40%g 60%oil	10.77
950.00	GO 14%g 86%oil	13.33
90.00	GMCO 19%g 33%m 48%oil	1.26
0.00	1860' of GIP	0.00

* 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

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 53003

DST#: 3

Test Start: 2013.08.18 @ 13:04:00

GENERAL INFORMATION:

Formation: **Lansing " D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:47:40

Time Test Ended: 21:16:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Interval: 4093.00 ft (KB) To 4138.00 ft (KB) (TVD)

Total Depth: 4138.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3133.00 ft (KB)

3121.00 ft (CF)

KB to GR/CF: 12.00 ft

Serial #: 8355 Outside

Press @ RunDepth: psig @ 4095.00 ft (KB)

Start Date: 2013.08.18

End Date: 2013.08.18

Start Time: 13:04:05

End Time: 21:18:29

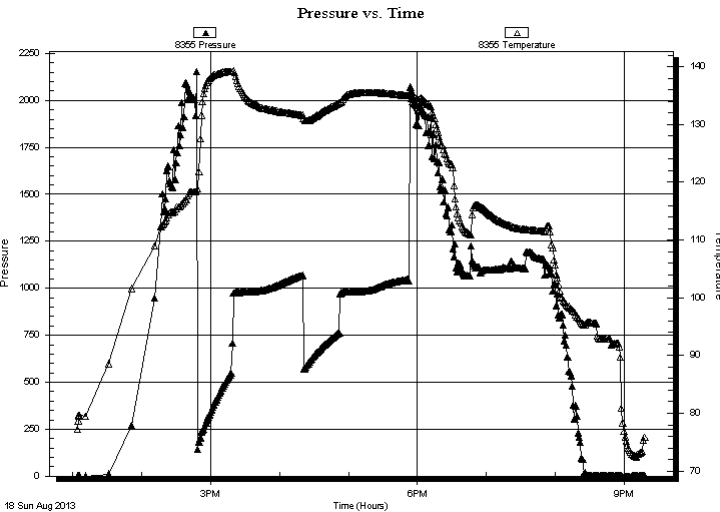
Capacity: 8000.00 psig

Last Calib.: 2013.08.18

Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Surface Blow Built to BOB in 1 3/4 min
IS- Weak Surface Blow in 1 1/2 min Built to BOB in 9 1/2 min
FF- Surface Blow Built to BOB in 2 min (Gas to Surface in 20 min)
FS- Weak Surface Blow Built to BOB in 5 1/4 min



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	GO 22%g 78%oil	0.20
1115.00	GO 40%g 60%oil	10.77
950.00	GO 14%g 86%oil	13.33
90.00	GMCO 19%g 33%m 48%oil	1.26
0.00	1860' of GIP	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53003

DST#: 3

ATTN: Robert Hendrix

Test Start: 2013.08.18 @ 13:04:00

Tool Information

Drill Pipe:	Length: 3512.00 ft	Diameter: 3.80 inches	Volume: 49.26 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 575.00 ft	Diameter: 2.25 inches	Volume: 2.83 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: 52.09 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4093.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	73.00 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			4066.00	
Shut In Tool	5.00			4071.00	
Hydraulic tool	5.00			4076.00	
Jars	5.00			4081.00	
Safety Joint	3.00			4084.00	
Packer	5.00			4089.00	28.00 Bottom Of Top Packer
Packer	4.00			4093.00	
Stubb	1.00			4094.00	
Perforations	1.00			4095.00	
Recorder	0.00	8355	Outside	4095.00	
Recorder	0.00	8674	Inside	4095.00	
Perforations	5.00			4100.00	
Change Over Sub	1.00			4101.00	
Drill Pipe	31.00			4132.00	
Change Over Sub	1.00			4133.00	
Bullnose	5.00			4138.00	45.00 Bottom Packers & Anchor
Total Tool Length:	73.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53003

DST#: 3

ATTN: Robert Hendrix

Test Start: 2013.08.18 @ 13:04:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
40.00	GO 22%g 78%oil	0.197
1115.00	GO 40%g 60%oil	10.767
950.00	GO 14%g 86%oil	13.326
90.00	GMCO 19%g 33%m 48%oil	1.262
0.00	1860' of GIP	0.000

Total Length: 2195.00 ft Total Volume: 25.552 bbf

Num Fluid Samples: 0

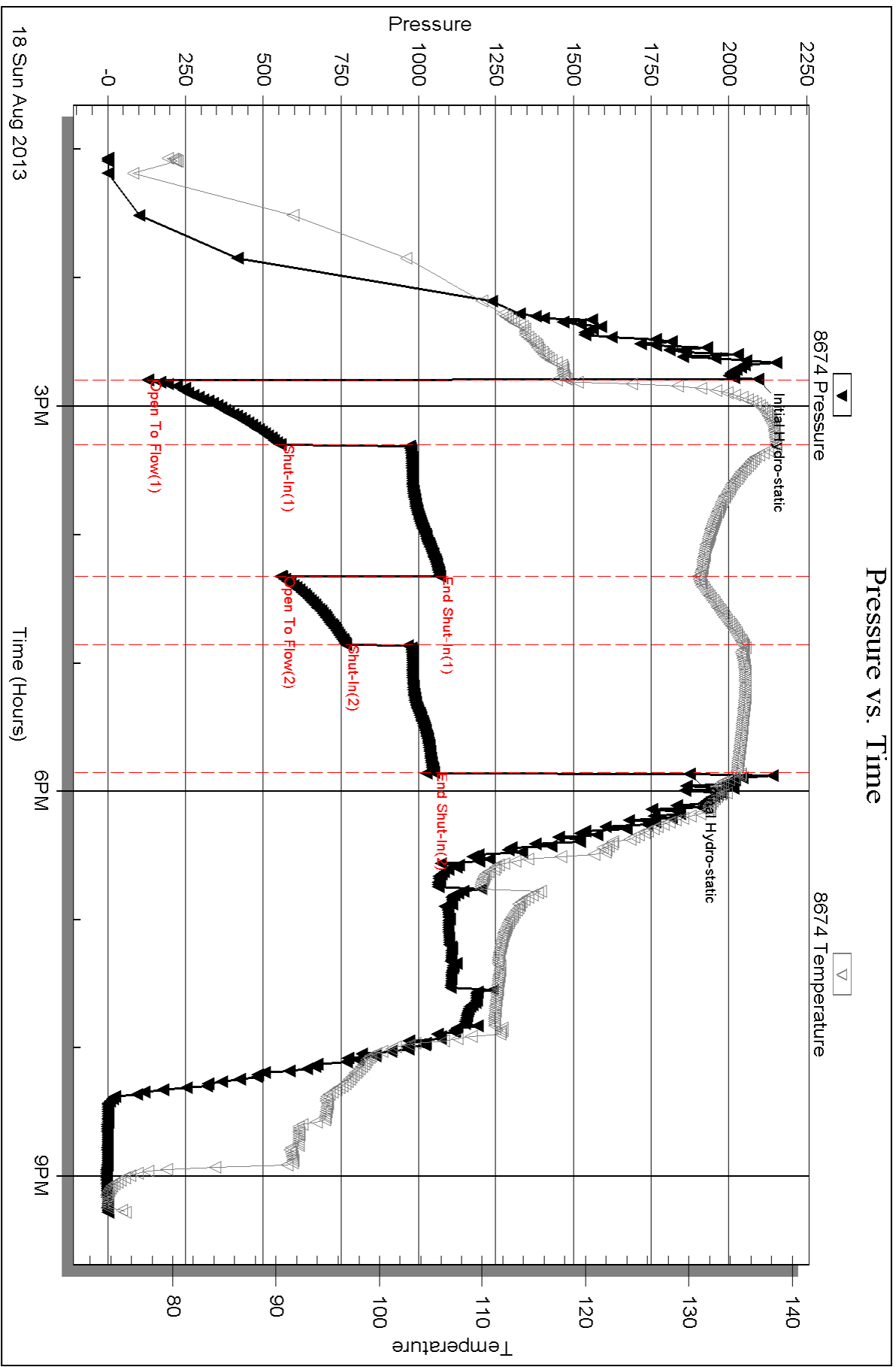
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API is 35 @ 70f = 34

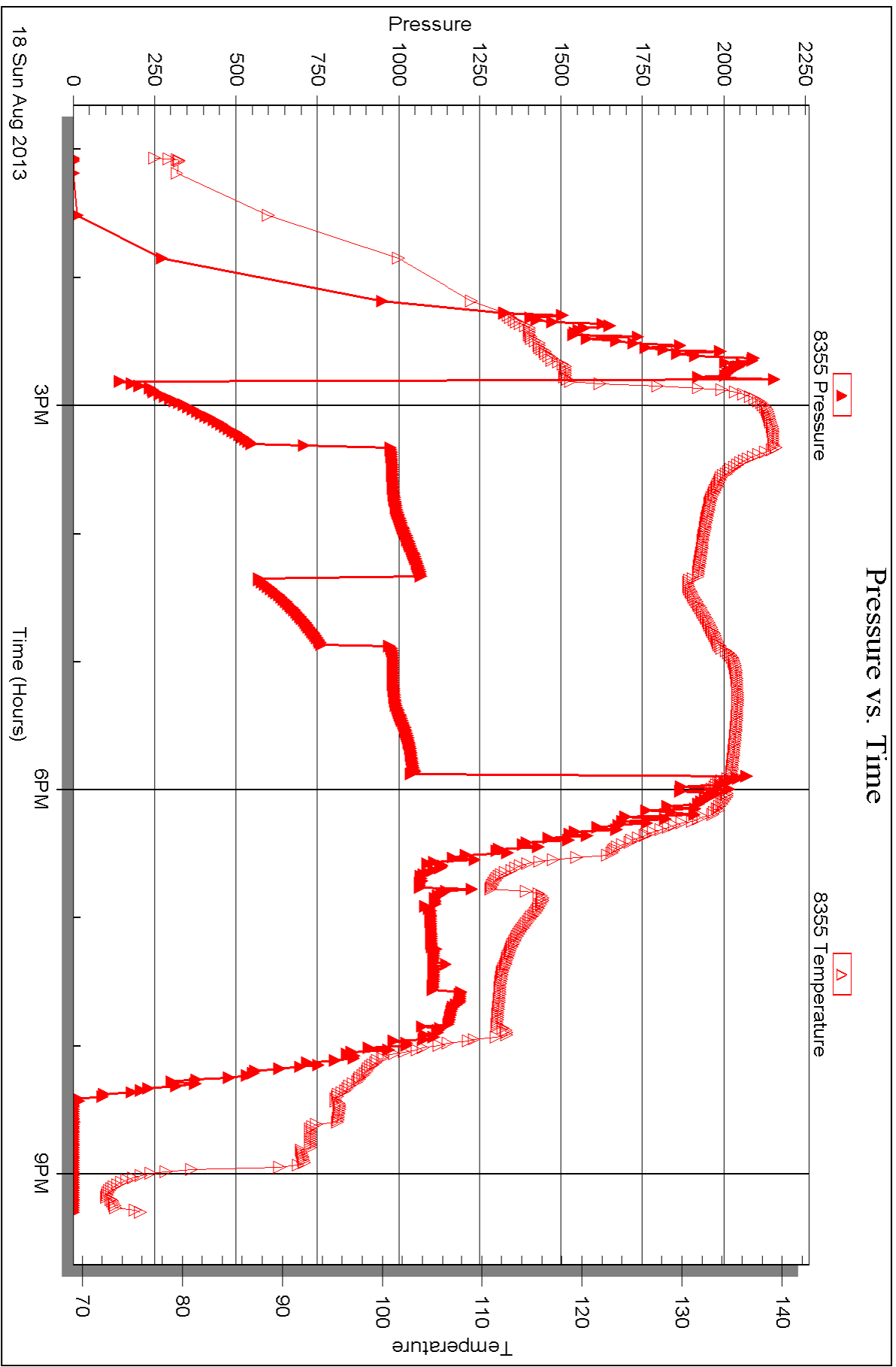


Serial #: 8355

Outside Murfin Drilling Co. Inc

Mary Ann # 3-1

DST Test Number: 3





DRILL STEM TEST REPORT

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

250 N. Water Ste 300
Wichita KS 67202

ATTN: Robert Hendrix

Mary Ann # 3-1

1-1s-36w Rawlins,KS

Start Date: 2013.08.19 @ 16:22:00

End Date: 2013.08.19 @ 23:21:24

Job Ticket #: 53004 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.21 @ 14:41:44



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 53004

DST#: 4

Test Start: 2013.08.19 @ 16:22:00

GENERAL INFORMATION:

Formation: **Lansing " J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:10:40

Time Test Ended: 23:21:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Interval: 4250.00 ft (KB) To 4297.00 ft (KB) (TVD)

Reference Elevations: 3133.00 ft (KB)

Total Depth: 4297.00 ft (KB) (TVD)

3121.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 12.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 151.50 psig @ 4251.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.19

End Date: 2013.08.19

Last Calib.: 2013.08.19

Start Time: 16:22:00

End Time: 23:21:24

Time On Btm: 2013.08.19 @ 19:10:10

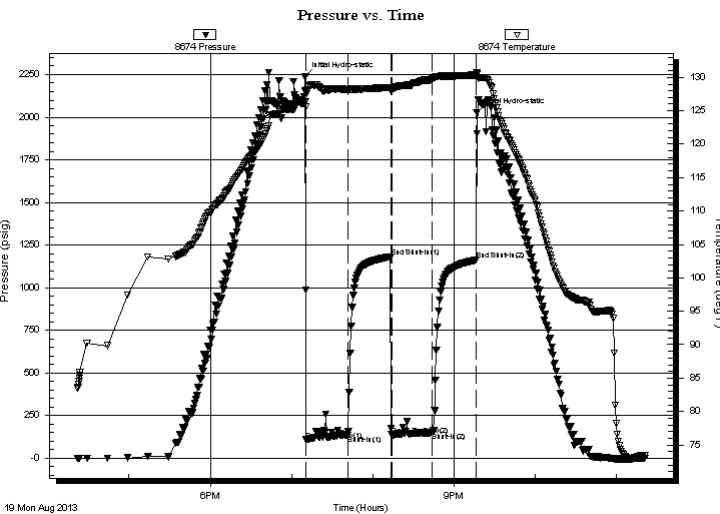
Time Off Btm: 2013.08.19 @ 21:16:54

TEST COMMENT: IF- Chased Tool 25' to Bottom Had 2" blow Bled it off Weak Surface Blow Built to 1/2"

IS- No Blow

FF- No Blow

FS- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2237.39	126.28	Initial Hydro-static
1	108.06	126.37	Open To Flow (1)
32	136.04	128.13	Shut-In(1)
63	1182.61	128.52	End Shut-In(1)
64	137.58	128.25	Open To Flow (2)
94	151.50	129.77	Shut-In(2)
127	1162.83	130.37	End Shut-In(2)
127	2025.03	130.75	Final Hydro-static

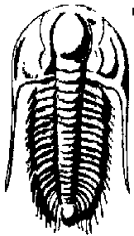
Recovery

Length (ft)	Description	Volume (bbl)
190.00	100% m w ith Oil Spots	0.93

* 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

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

ATTN: Robert Hendrix

Job Ticket: 53004

DST#: 4

Test Start: 2013.08.19 @ 16:22:00

GENERAL INFORMATION:

Formation: **Lansing " J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:10:40

Time Test Ended: 23:21:24

Interval: 4250.00 ft (KB) To 4297.00 ft (KB) (TVD)

Total Depth: 4297.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

Reference Elevations: 3133.00 ft (KB)

3121.00 ft (CF)

KB to GR/CF: 12.00 ft

Serial #: 8355 Outside

Press @RunDepth: psig @ 4251.00 ft (KB)

Start Date: 2013.08.19 End Date: 2013.08.19

Start Time: 16:22:05 End Time: 23:22:59

Capacity: 8000.00 psig

Last Calib.: 2013.08.19

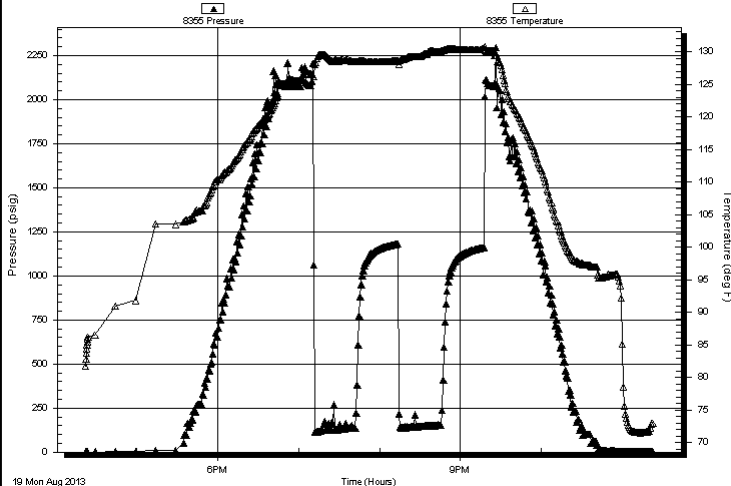
Time On Btm:

Time Off Btm:

TEST COMMENT: IF- Chased Tool 25' to Bottom Had 2" blow Bled it off Weak Surface Blow Built to 1/2"

- ISI- No Blow
- FF- No Blow
- FSI- No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
190.00	100% m w ith Oil Spots	0.93

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

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53004

DST#: 4

ATTN: Robert Hendrix

Test Start: 2013.08.19 @ 16:22:00

Tool Information

Drill Pipe:	Length: 3669.00 ft	Diameter: 3.80 inches	Volume: 51.47 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	28000.00 lb
Drill Collar:	Length: 575.00 ft	Diameter: 2.25 inches	Volume: 2.83 bbl	Weight to Pull Loose:	10000.00 lb
			<u>Total Volume: 54.30 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	4250.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	47.00 ft				
Tool Length:	75.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		
Tool Comments:					

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4223.00	
Shut In Tool	5.00			4228.00	
Hydraulic tool	5.00			4233.00	
Jars	5.00			4238.00	
Safety Joint	3.00			4241.00	
Packer	5.00			4246.00	28.00 Bottom Of Top Packer
Packer	4.00			4250.00	
Stubb	1.00			4251.00	
Recorder	0.00	8355	Outside	4251.00	
Recorder	0.00	8674	Inside	4251.00	
Perforations	8.00			4259.00	
Change Over Sub	1.00			4260.00	
Drill Pipe	31.00			4291.00	
Change Over Sub	1.00			4292.00	
Bullnose	5.00			4297.00	47.00 Bottom Packers & Anchor

Total Tool Length: 75.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

1-1s-36w Rawlins,KS

250 N. Water Ste 300
Wichita KS 67202

Mary Ann # 3-1

Job Ticket: 53004

DST#: 4

ATTN: Robert Hendrix

Test Start: 2013.08.19 @ 16:22:00

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: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
190.00	100% m with Oil Spots	0.934

Total Length: 190.00 ft Total Volume: 0.934 bbl

Num Fluid Samples: 0

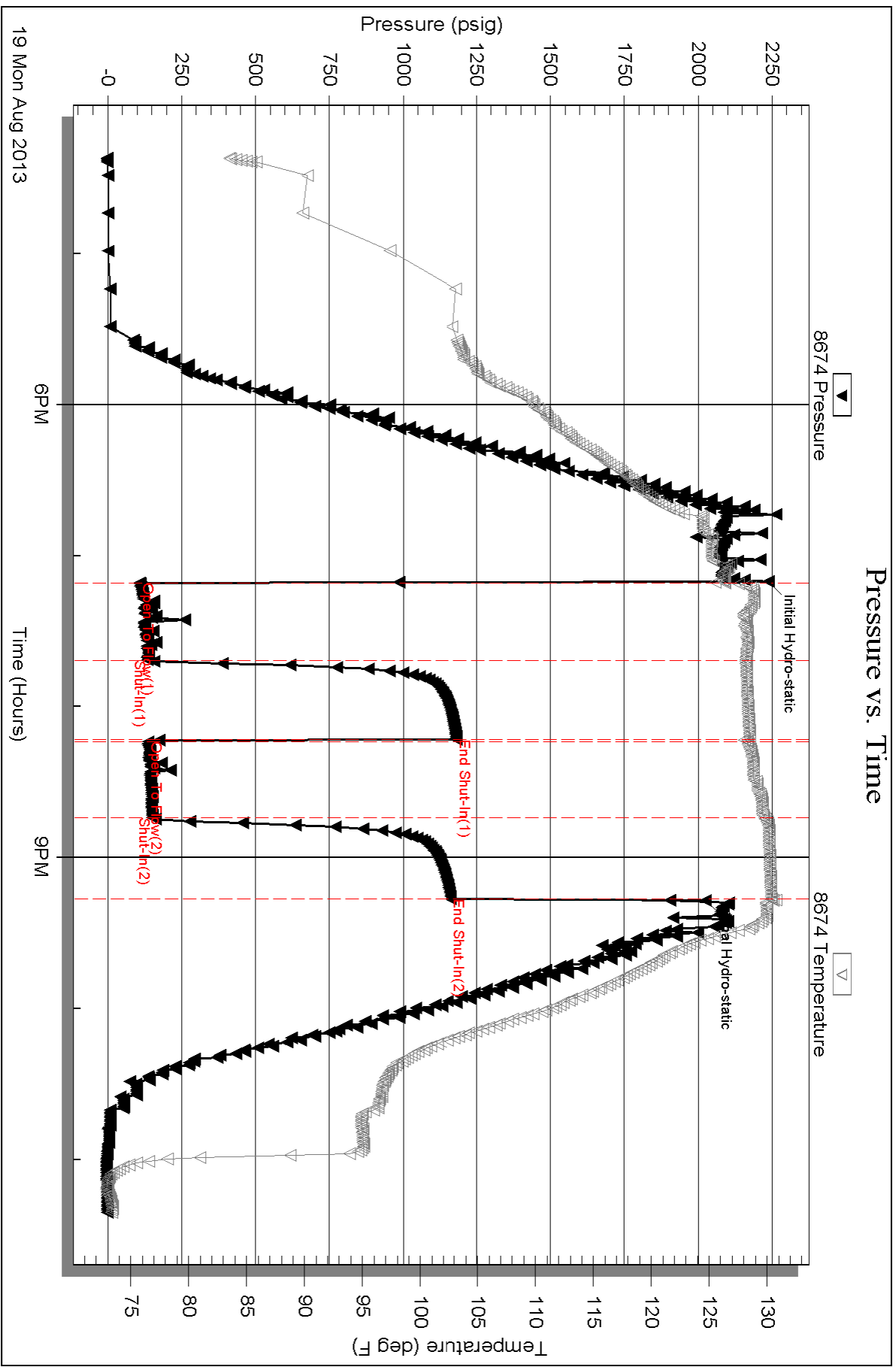
Num Gas Bombs: 0

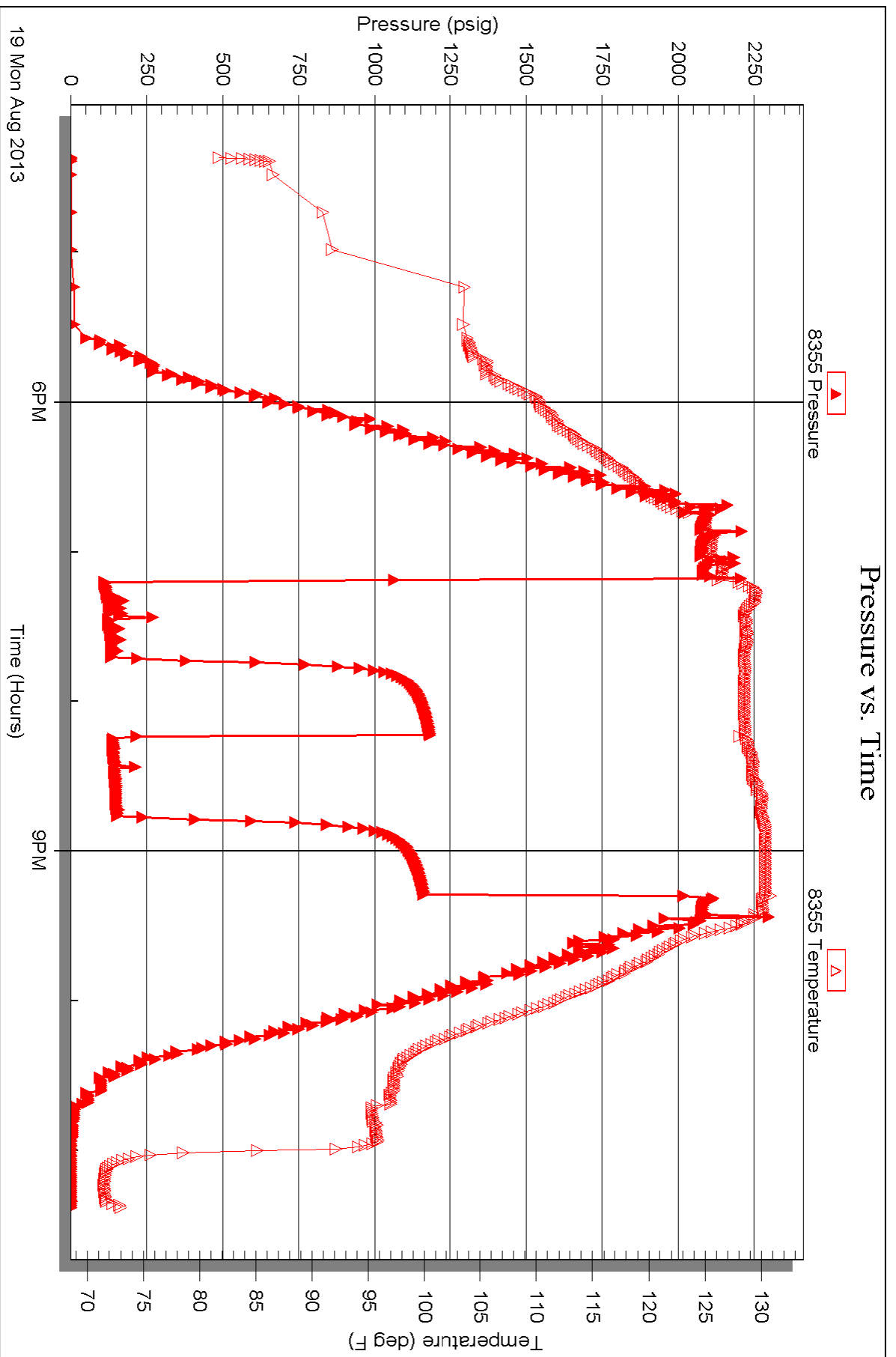
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49100

Well Name & No. Mary Ann #3-1 Test No. DST #1 Date 8-17-13
 Company Martin Drilling Co. Inc Elevation 3133 KB 3121 GL
 Address 250 N. Water Ste 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Martin Rig 14
 Location: Sec. 1 Twp. 15 Rge. 36W Co. Rawlins State KS

Interval Tested 3935-3984 Zone Tested Oread
 Anchor Length 49 Drill Pipe Run 3354 Mud Wt. 9.0
 Top Packer Depth 3931 Drill Collars Run 575 Vis 69
 Bottom Packer Depth 3935 Wt. Pipe Run 0 WL 6.0
 Total Depth 3984 Chlorides 600 ppm System LCM 316
 Blow Description IF- Weak Surface Blow Built to 1/4"
ISI- No Blow
FI- Weak Surface Blow in 18min Built to 1/4"
FST- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>OCM</u>	<u>17</u>		<u>83</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

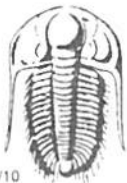
Rec Total 15 BHT 116 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1963</u>	<input checked="" type="checkbox"/> Test 1150	T-On Location <u>00:00</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>1:02</u>
(C) First Final Flow <u>24</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>3:28</u>
(D) Initial Shut-In <u>1006</u>	<input checked="" type="checkbox"/> Circ Sub	T-Pulled <u>6:30</u>
(E) Second Initial Flow <u>28</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>8:16</u>
(F) Second Final Flow <u>31</u>	<input checked="" type="checkbox"/> Mileage <u>256 R/T</u> 108rt 167.40	Comments _____
(G) Final Shut-In <u>715</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>1796</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Total <u>1642.40</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility	
	Sub Total <u>1642.40</u>	

Approved By _____

Our Representative Will Man

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53002

Well Name & No. Mary Ann # 3-1 Test No. DST # 2 Date 8-17-13
 Company Murfin Drilling Co. Inc Elevation 3133 KB 3121 GL
 Address 250 N. Water Ste 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin Rig #14
 Location: Sec. 1 Twp. 1S Rge. 36W Co. Rawlins State KS

Interval Tested 4006 - 4110 Zone Tested Lansing "A"
 Anchor Length 104 Drill Pipe Run 3415 Mud Wt. 9.1
 Top Packer Depth 4002 Drill Collars Run 575 Vis 66
 Bottom Packer Depth 4006 Wt. Pipe Run 0 WL 6.4
 Total Depth 4110 Chlorides 800 ppm System LCM 4/6

Blow Description IF - Weak Surface Blow Built to 1"
ISI - No Blow
FF - Weak Surface Blow Built to 134"
FSI - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>60CM</u>	<u>2</u>	<u>9</u>	<u>89</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

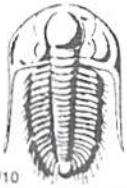
Rec Total 20 BHT 123 Gravity ✓ API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic 2033 Test 1250 T-On Location 20:54
 (B) First Initial Flow 21 Jars 250 T-Started 21:40
 (C) First Final Flow 26 Safety Joint 75 T-Open 23:30
 (D) Initial Shut-In 740 Circ Sub NIC T-Pulled 3:39
 (E) Second Initial Flow 28 Hourly Standby T-Out 5:13
 (F) Second Final Flow 34 Mileage 256 R/T 167.40 Comments _____
 (G) Final Shut-In 909 Sampler _____
 (H) Final Hydrostatic 1941 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 60 Ruined Packer _____
 Final Flow 60 Extra Copies _____
 Final Shut-In 90 Sub Total 0
 Total 1642.40
 MP/DST Disc't _____
 Sub Total 1642.40

Approved By _____ Our Representative Nin M...

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53003

Well Name & No. Mary Ann #3-1 Test No. DST #3 Date 8-18-13
 Company Murfin Drilling Co. Inc Elevation 3133 KB 3121 GL
 Address 250 N. Water Ste 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin Rig #14
 Location: Sec. 1 Twp. 1S Rge. 36W Co. Rawlins State KS

Interval Tested 4093-4138 Zone Tested Lansing "D"
 Anchor Length 45 Drill Pipe Run 3512 Mud Wt. 9.1
 Top Packer Depth 4089 Drill Collars Run 575 Vis 69
 Bottom Packer Depth 4093 Wt. Pipe Run 0 WL 6.4
 Total Depth 4138 Chlorides 900 ppm System LCM 416

Blow Description IF-Surface Blow Built to BOB in 1 3/4
ISI-Weak Surface Blow in 1 1/2 min Built to BOB in 9 1/2 min
FF-Surface Blow Built to BOB in 2 min (Gas to Surface in 20 min)
FSI-Weak Surface Blow Built to BOB in 5 1/4 min

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>0-0</u>	<u>22</u>	<u>78</u>		
<u>1115</u>	<u>0-0</u>	<u>40</u>	<u>60</u>		
<u>950</u>	<u>0-0</u>	<u>14</u>	<u>86</u>		
<u>90</u>	<u>0-MCO</u>	<u>19</u>	<u>48</u>		<u>33</u>
Rec	Feet of <u>1860 G-IP</u>	%gas	%oil	%water	%mud

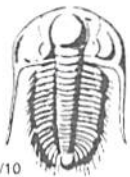
Rec Total 2195 BHT 130 Gravity 34 API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic 2093 Test 1250 T-On Location 12:54
 (B) First Initial Flow 128 Jars 250 T-Started 13:04
 (C) First Final Flow 555 Safety Joint 75 T-Open 14:47
 (D) Initial Shut-In 1067 Circ Sub 50 Dropped Bar T-Pulled 17:51
 (E) Second Initial Flow 558 Hourly Standby T-Out 21:16
 (F) Second Final Flow 765 Mileage 256 R/T 167.40 Comments API is 35 @ 70°F = 34
 (G) Final Shut-In 1048 Sampler Dropped Bar
 (H) Final Hydrostatic 1873 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1792.40
 MP/DST Disc't
 Sub Total 1792.40

Approved By _____ Our Representative Will Mad

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53004

Well Name & No. Mary Ann # 3-1 Test No. DST #4 Date 8-19-13
 Company Murfin Drilling Co. Inc Elevation 3133 KB 3121 GL
 Address 250 N. Water Ste 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin Rig #14
 Location: Sec. 1 Twp. 15 Rge. 36w Co. Rawlins State KS

Interval Tested 4250-4297 Zone Tested Lansings "J"
 Anchor Length 47 Drill Pipe Run 3669 Mud Wt. 9.1
 Top Packer Depth 4246 Drill Collars Run 575 Vis 6.7
 Bottom Packer Depth 4250 Wt. Pipe Run 0 WL 6.4
 Total Depth 4297 Chlorides 100 ppm System LCM 216

Blow Description IF- Tool Opened chased it 25' to Bottom Weak Surface Blow (Bull) to
ISI- No Blow
FF- No Blow
FST- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>190</u>	<u>Mud with Oil Spots</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 190 BHT 124 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 2237
- (B) First Initial Flow 108
- (C) First Final Flow 136
- (D) Initial Shut-In 1182
- (E) Second Initial Flow 137
- (F) Second Final Flow 151
- (G) Final Shut-In 1162
- (H) Final Hydrostatic 2025

- Test 1250
- Jars 250
- Safety Joint 75
- Circ Sub NIC
- Hourly Standby
- Mileage 256 RIT + 2
334.80
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility

T-On Location 16:08
 T-Started 16:22
 T-Open 19:10
 T-Pulled 21:16
 T-Out 23:21

Comments
loaded tools 8/20 15:30
Tool was plugging
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1909.80
 MP/DST Disc't _____

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

Approved By _____ Our Representative [Signature]

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