



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.11 @ 10:14:00

End Date: 2012.11.11 @ 17:11:45

Job Ticket #: 49820 DST #: 1

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

Printed: 2012.11.23 @ 10:52:41



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49820

DST#: 1

ATTN: Robert Hendrix

Test Start: 2012.11.11 @ 10:14:00

GENERAL INFORMATION:

Formation: **Toronto- Lansing D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:45

Time Test Ended: 17:11:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Sam Esparza

Unit No: 58

Interval: 4006.00 ft (KB) To 4107.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4107.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 491.85 psig @ 4007.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.11

End Date:

2012.11.11

Last Calib.:

2012.11.11

Start Time: 10:14:05

End Time:

17:11:44

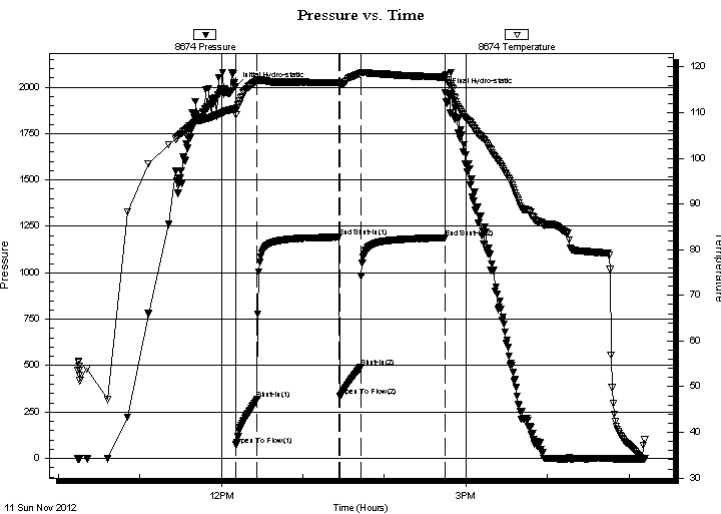
Time On Btm:

2012.11.11 @ 12:10:30

Time Off Btm:

2012.11.11 @ 14:44:30

TEST COMMENT: IF: BOB @ 3 min.
IS: No return.
FF: BOB @ 3 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2001.79	110.71	Initial Hydro-static
1	73.06	109.62	Open To Flow (1)
16	319.15	116.94	Shut-In(1)
77	1191.83	116.56	End Shut-In(1)
77	332.71	116.09	Open To Flow (2)
92	491.85	118.58	Shut-In(2)
154	1188.10	117.78	End Shut-In(2)
154	1968.20	118.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
315.00	GOMCW 5g 5o 20m 70w	2.28
500.00	GOWCM 5g 5o 10w 80m	7.01
220.00	OCM 5o 95m	3.09

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

4-13s-32w Logan,KS

W W W M #1-4

Job Ticket: 49820

DST#: 1

Test Start: 2012.11.11 @ 10:14:00

GENERAL INFORMATION:

Formation: **Toronto- Lansing D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:45

Time Test Ended: 17:11:45

Interval: 4006.00 ft (KB) To 4107.00 ft (KB) (TVD)

Total Depth: 4107.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Initial)

Tester: Sam Esparza

Unit No: 58

Reference Elevations: 3056.00 ft (KB)

3045.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8355 Outside

Press @ Run Depth: psig @ 4007.00 ft (KB)

Start Date: 2012.11.11

End Date:

2012.11.11

Start Time: 10:13:20

End Time:

17:12:14

Capacity: 8000.00 psig

Last Calib.:

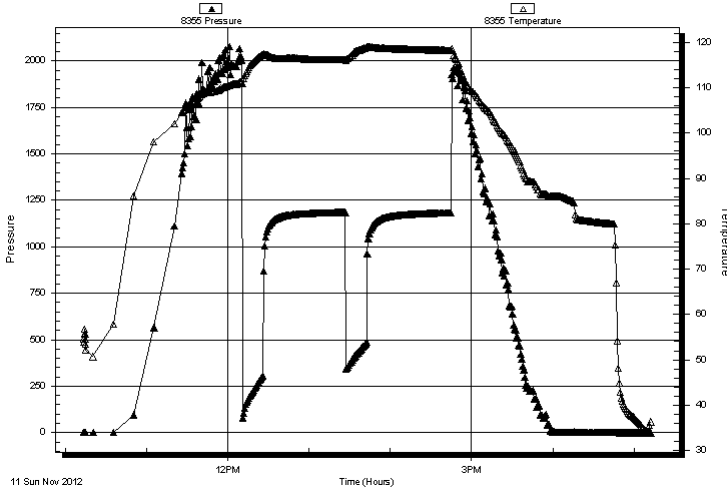
2012.11.11

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: BOB @ 3 min.
IS: No return.
FF: BOB @ 3 min.
FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
315.00	GOMCW 5g 5o 20m 70w	2.28
500.00	GOWCM 5g 5o 10w 80m	7.01
220.00	OCM 5o 95m	3.09

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49820

DST#: 1

ATTN: Robert Hendrix

Test Start: 2012.11.11 @ 10:14:00

Tool Information

Drill Pipe:	Length: 3754.00 ft	Diameter: 3.80 inches	Volume: 52.66 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:	2000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose:	85000.00 lb
			<u>Total Volume: 53.82 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	67000.00 lb
Depth to Top Packer:	4006.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	101.00 ft				
Tool Length:	124.00 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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Change Over Sub	1.00			3984.00	
Shut In Tool	5.00			3989.00	
Hydraulic tool	5.00			3994.00	
Safety Joint	3.00			3997.00	
Packer	5.00			4002.00	23.00 Bottom Of Top Packer
Packer	4.00			4006.00	
Stubb	1.00			4007.00	
Recorder	0.00	8355	Outside	4007.00	
Recorder	0.00	8674	Inside	4007.00	
Perforations	32.00			4039.00	
Change Over Sub	1.00			4040.00	
Drill Pipe	63.00			4103.00	
Change Over Sub	1.00			4104.00	
Bullnose	3.00			4107.00	101.00 Bottom Packers & Anchor

Total Tool Length: 124.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49820

DST#: 1

ATTN: Robert Hendrix

Test Start: 2012.11.11 @ 10:14:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
315.00	GOMCW 5g 5o 20m 70w	2.278
500.00	GOWCM 5g 5o 10w 80m	7.014
220.00	OCM 5o 95m	3.086

Total Length: 1035.00 ft Total Volume: 12.378 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

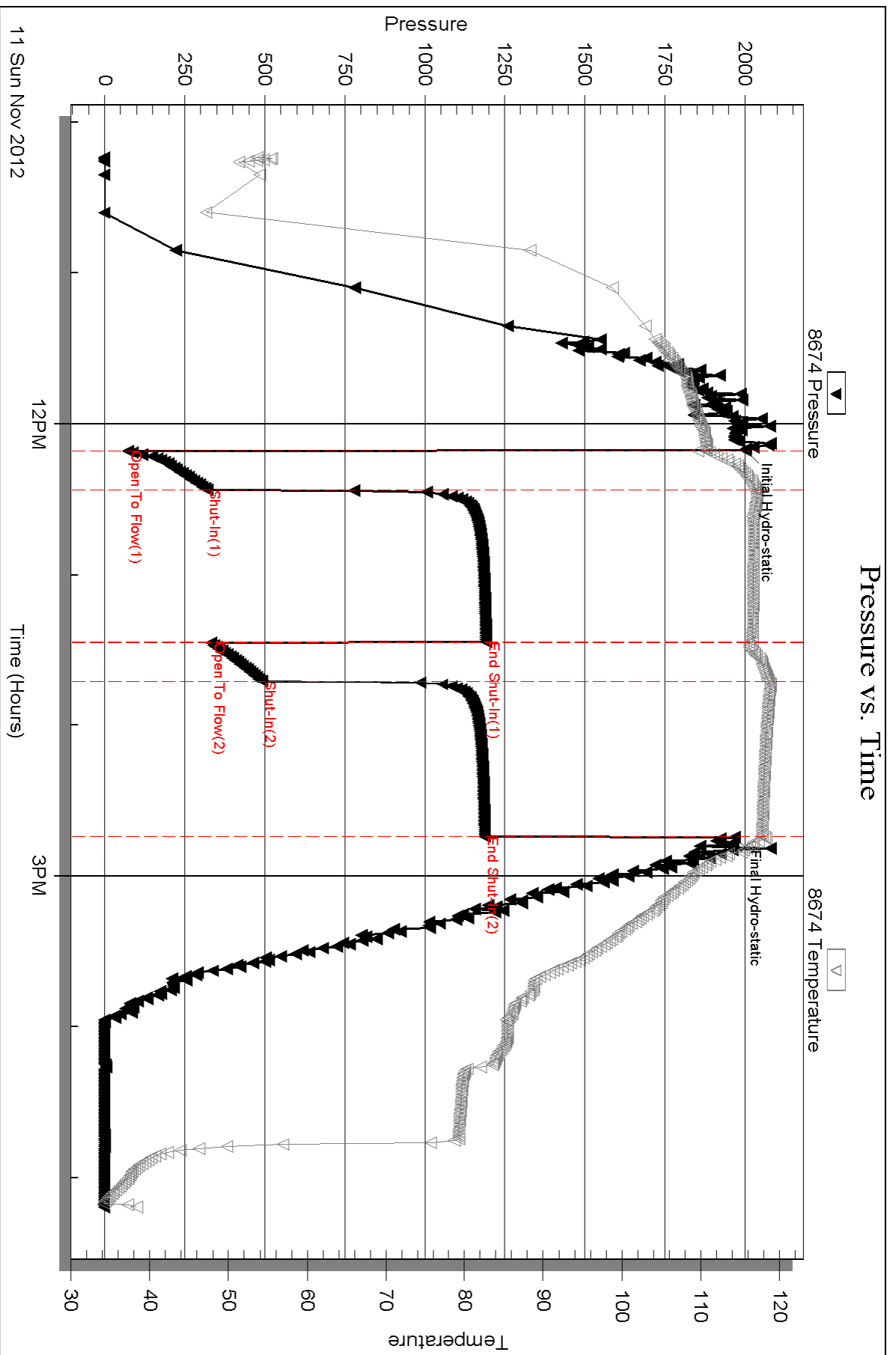
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 1

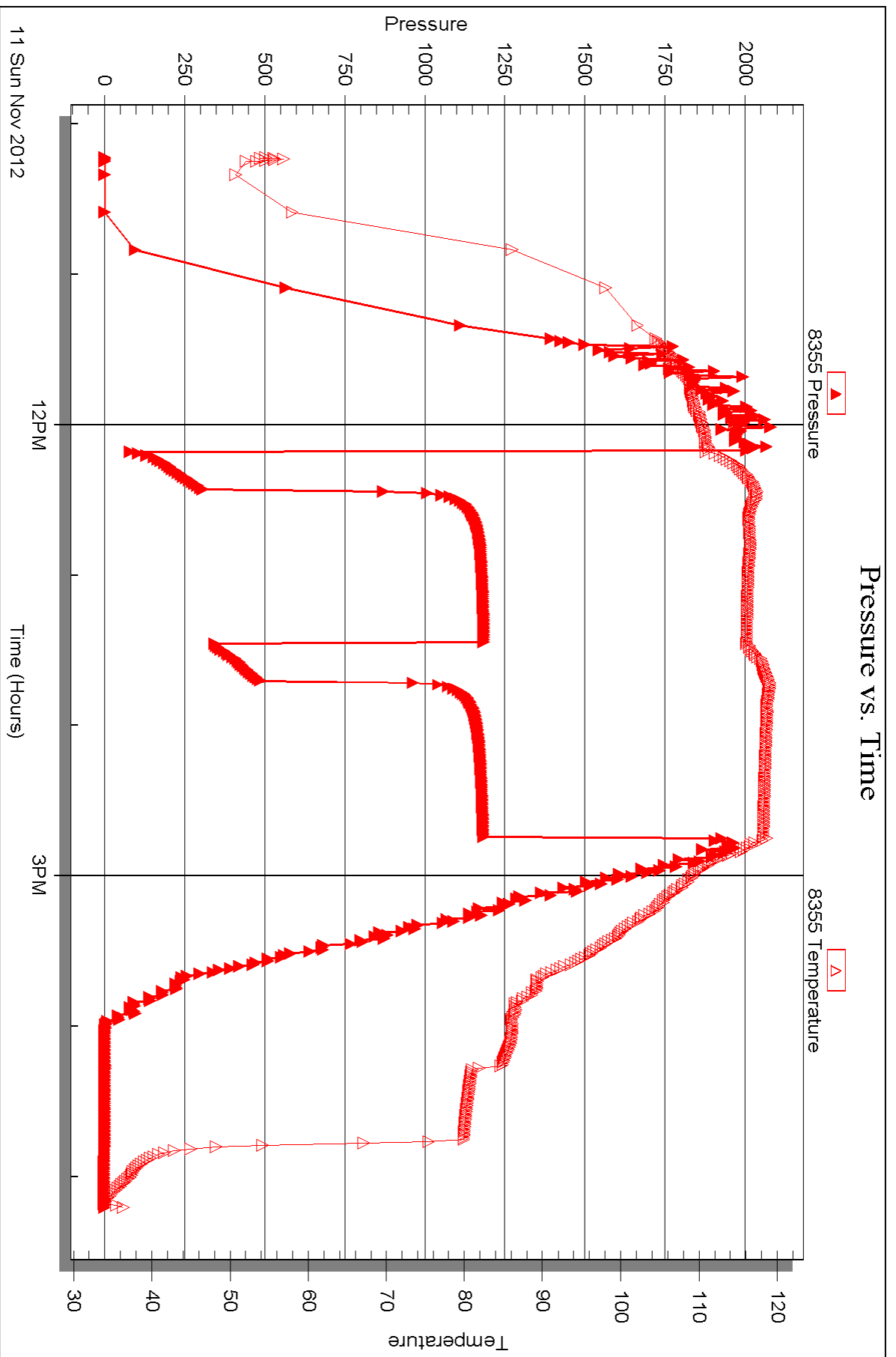


Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

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

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.12 @ 03:35:00

End Date: 2012.11.12 @ 12:39:30

Job Ticket #: 49821 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:52:01



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49821

DST#: 2

ATTN: Robert Hendrix

Test Start: 2012.11.12 @ 03:35:00

GENERAL INFORMATION:

Formation: **Lansing E-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:06:00

Time Test Ended: 12:39:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4116.00 ft (KB) To 4150.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4150.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 492.41 psig @ 4117.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.12

End Date:

2012.11.12

Last Calib.: 2012.11.12

Start Time: 03:35:05

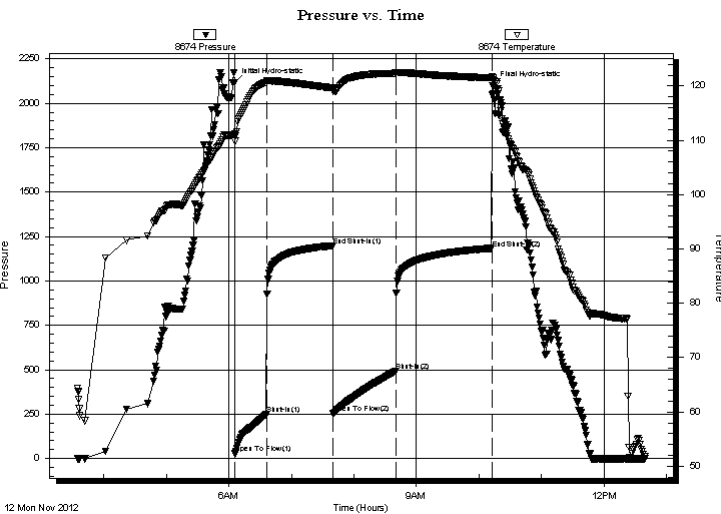
End Time:

12:39:30

Time On Btm: 2012.11.12 @ 06:05:45

Time Off Btm: 2012.11.12 @ 10:13:00

TEST COMMENT: IF: BOB @ 11 min.
IS: No return.
FF: BOB @ 16 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2117.23	111.20	Initial Hydro-static
1	27.21	109.84	Open To Flow (1)
31	247.82	120.70	Shut-In(1)
94	1198.15	119.65	End Shut-In(1)
94	253.76	119.02	Open To Flow (2)
155	492.41	122.35	Shut-In(2)
247	1181.75	121.48	End Shut-In(2)
248	2097.79	121.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
875.00	GMCW 5g 10m 85w	10.13
150.00	GWCM (Oil Spots) 5g 25w 70m	2.10

* 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.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49821

DST#: 2

ATTN: Robert Hendrix

Test Start: 2012.11.12 @ 03:35:00

Tool Information

Drill Pipe:	Length: 3880.00 ft	Diameter: 3.80 inches	Volume: 54.43 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 55.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4116.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	34.00 ft			
Tool Length:	57.00 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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Change Over Sub	1.00			4094.00	
Shut In Tool	5.00			4099.00	
Hydraulic tool	5.00			4104.00	
Safety Joint	3.00			4107.00	
Packer	5.00			4112.00	23.00 Bottom Of Top Packer
Packer	4.00			4116.00	
Stubb	1.00			4117.00	
Recorder	0.00	8355	Outside	4117.00	
Recorder	0.00	8674	Inside	4117.00	
Perforations	30.00			4147.00	
Bullnose	3.00			4150.00	34.00 Bottom Packers & Anchor

Total Tool Length: 57.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49821

DST#: 2

ATTN: Robert Hendrix

Test Start: 2012.11.12 @ 03:35:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
875.00	GMCW 5g 10m 85w	10.133
150.00	GWCM (Oil Spots) 5g 25w 70m	2.104

Total Length: 1025.00 ft Total Volume: 12.237 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API RW: .107 @ 56 degrees= 90,000 ppm

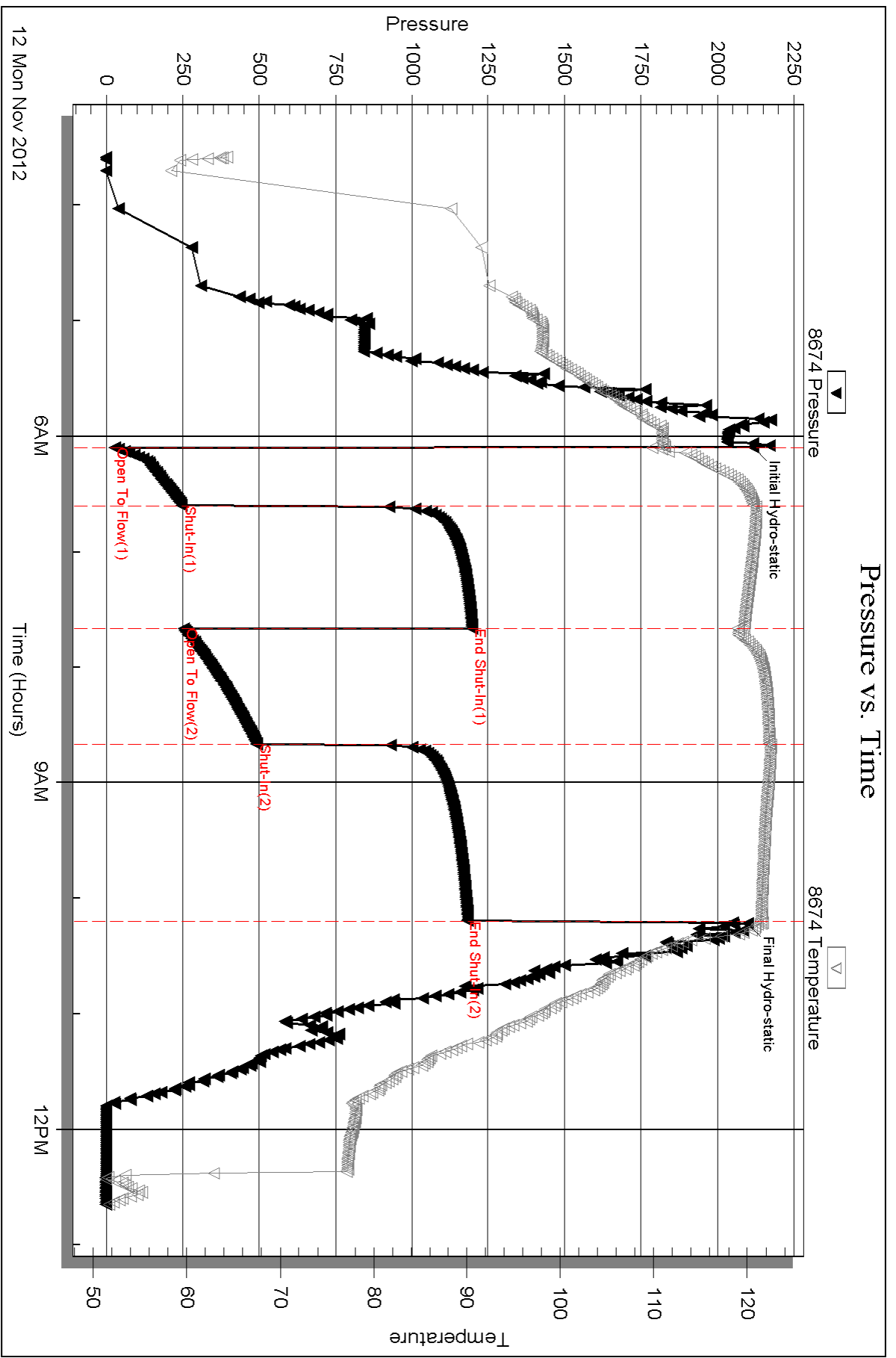
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 2

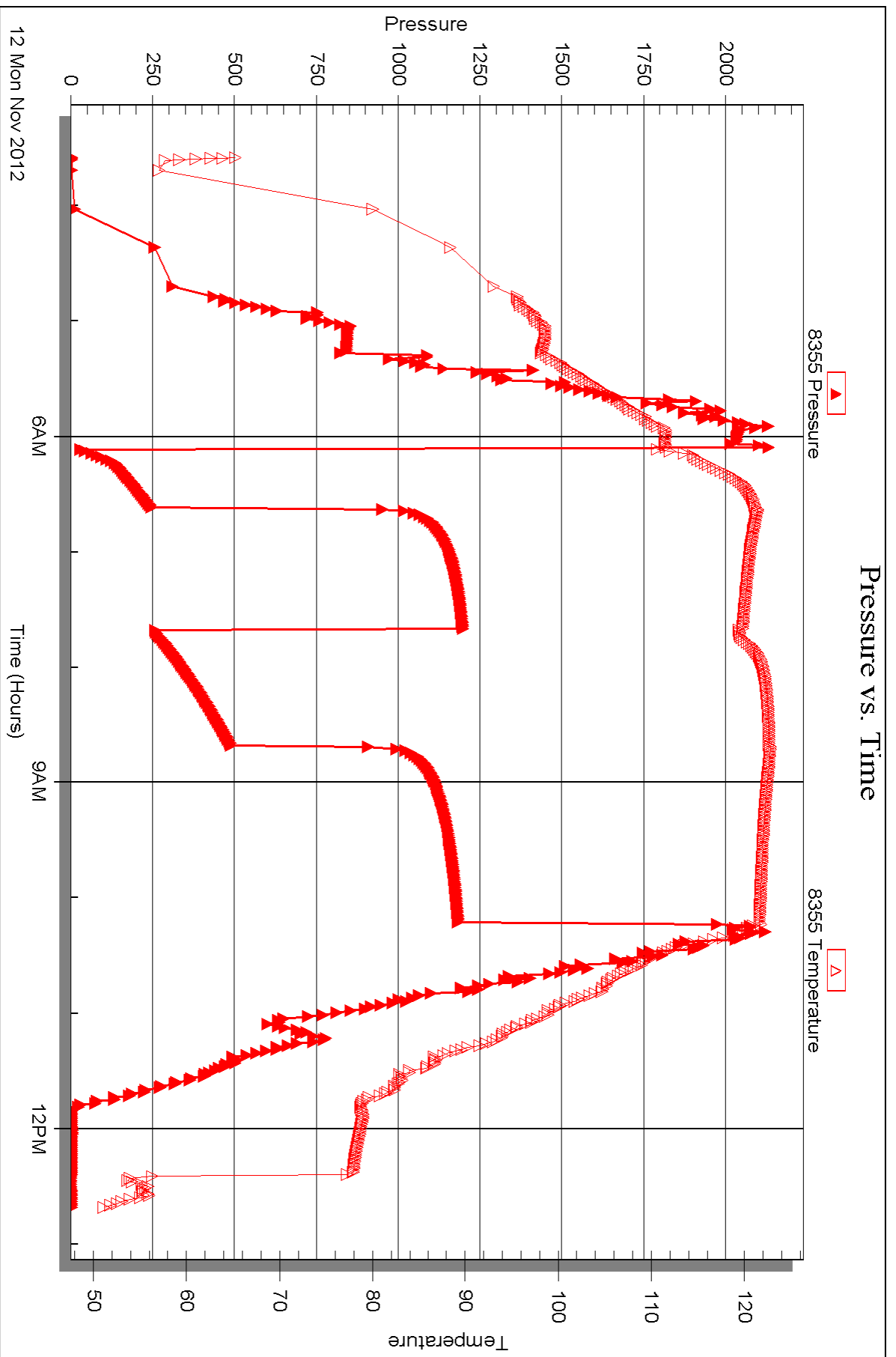


Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.13 @ 04:27:00

End Date: 2012.11.13 @ 11:15:15

Job Ticket #: 49822 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:51:20

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

W W W M #1-4

DST # 3

Lansing "H-I"

2012.11.13



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49822

DST#: 3

ATTN: Robert Hendrix

Test Start: 2012.11.13 @ 04:27:00

GENERAL INFORMATION:

Formation: **Lansing "H-I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:18:45

Time Test Ended: 11:15:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4187.00 ft (KB) To 4248.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4248.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 26.47 psig @ 4188.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.13

End Date:

2012.11.13

Last Calib.: 2012.11.13

Start Time: 04:27:05

End Time:

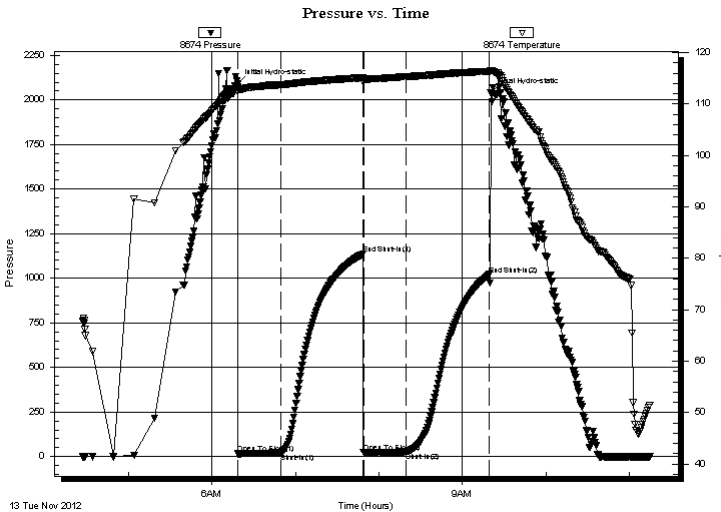
11:15:14

Time On Btm: 2012.11.13 @ 06:18:30

Time Off Btm: 2012.11.13 @ 09:20:30

TEST COMMENT: IF: 3/4" blow.
IS: No return.
FF: No blow.
FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2089.05	113.28	Initial Hydro-static
1	15.85	112.41	Open To Flow (1)
31	20.79	113.73	Shut-In(1)
91	1135.98	115.11	End Shut-In(1)
91	23.92	114.35	Open To Flow (2)
121	26.47	115.32	Shut-In(2)
181	1021.01	116.36	End Shut-In(2)
182	2039.65	116.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud (Oil Spots) 100m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49822

DST#: 3

ATTN: Robert Hendrix

Test Start: 2012.11.13 @ 04:27:00

Tool Information

Drill Pipe:	Length: 3944.00 ft	Diameter: 3.80 inches	Volume: 55.32 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 56.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 69000.00 lb
Depth to Top Packer:	4187.00 ft			Final 69000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	84.00 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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Change Over Sub	1.00			4165.00	
Shut In Tool	5.00			4170.00	
Hydraulic tool	5.00			4175.00	
Safety Joint	3.00			4178.00	
Packer	5.00			4183.00	23.00 Bottom Of Top Packer
Packer	4.00			4187.00	
Stubb	1.00			4188.00	
Recorder	0.00	8355	Outside	4188.00	
Recorder	0.00	8674	Inside	4188.00	
Perforations	24.00			4212.00	
Change Over Sub	1.00			4213.00	
Drill Pipe	31.00			4244.00	
Change Over Sub	1.00			4245.00	
Bullnose	3.00			4248.00	61.00 Bottom Packers & Anchor

Total Tool Length: 84.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49822

DST#: 3

ATTN: Robert Hendrix

Test Start: 2012.11.13 @ 04:27:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.57 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud (Oil Spots) 100m	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:

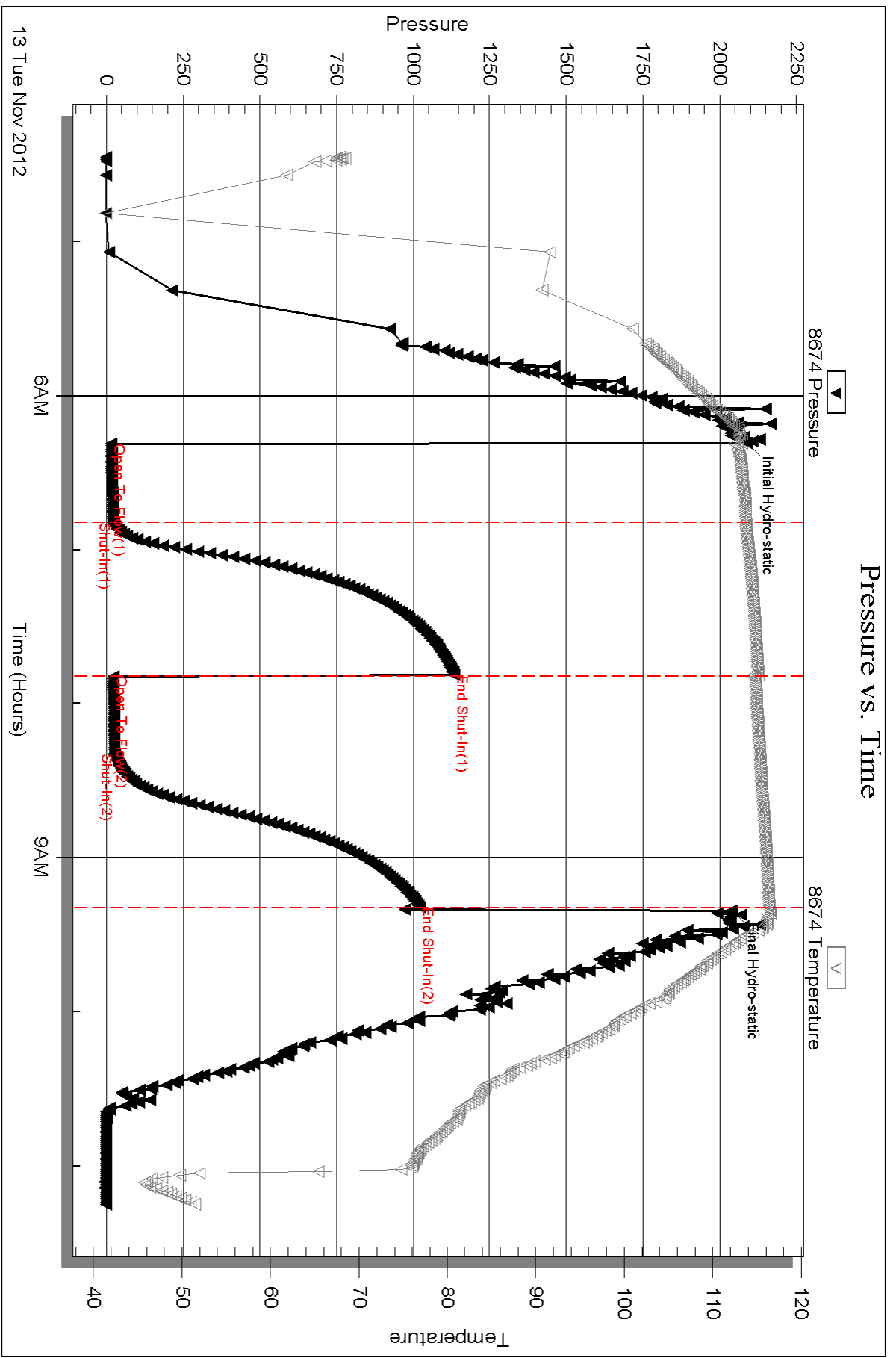
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WVWM#1-4

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 49822

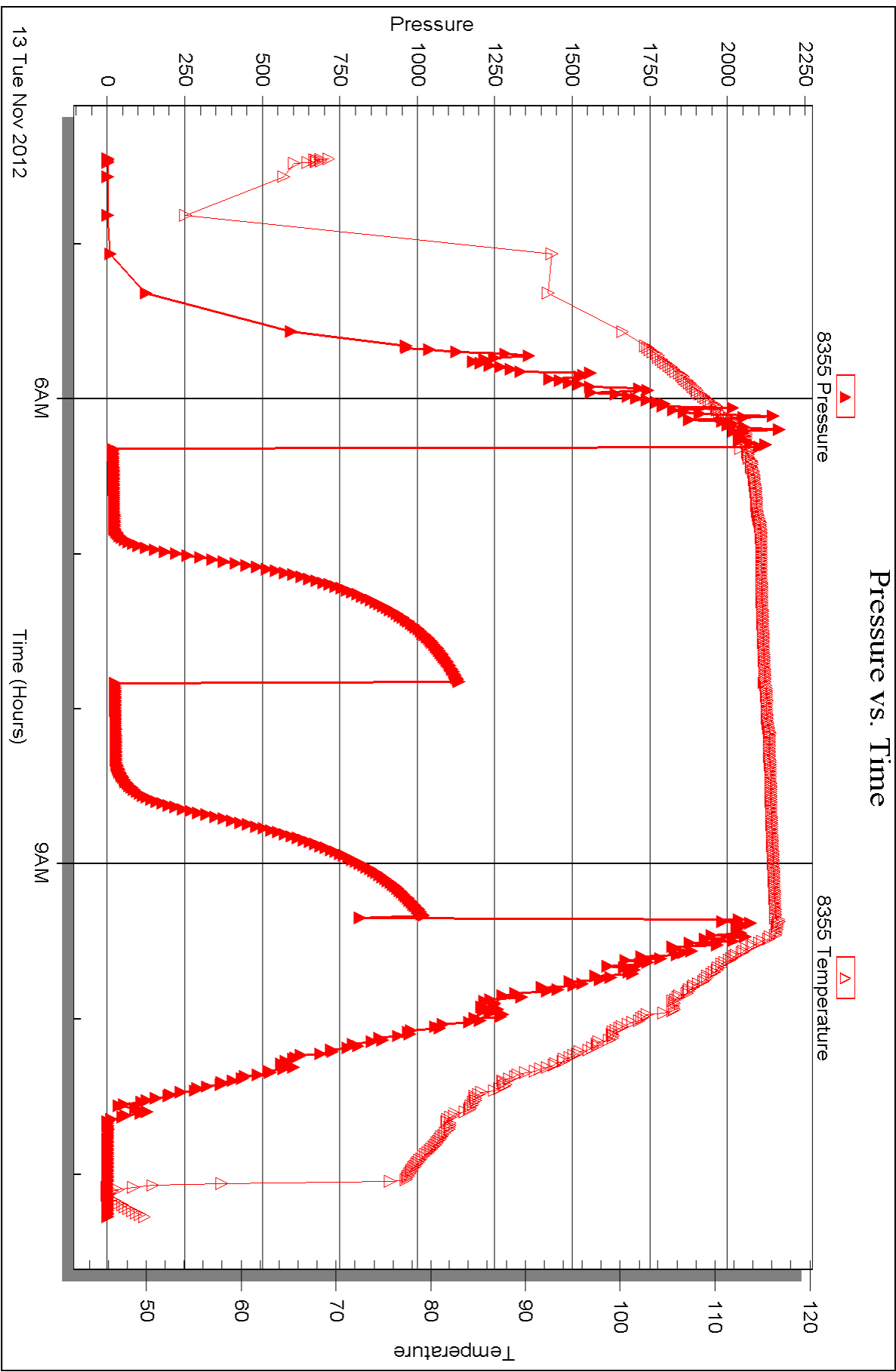
Printed: 2012.11.23 @ 10:51:24

Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

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

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.14 @ 03:52:00

End Date: 2012.11.14 @ 12:29:15

Job Ticket #: 49823 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:50:39

Murfin Drilling Co. Inc.
4-13s-32w Logan,KS
W W W M #1-4
DST # 4
Lansing "J-K-L"
2012.11.14



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

ATTN: Robert Hendrix

Job Ticket: 49823

DST#: 4

Test Start: 2012.11.14 @ 03:52:00

GENERAL INFORMATION:

Formation: **Lansing "J-K-L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:05:45

Time Test Ended: 12:29:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4246.00 ft (KB) To 4334.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4334.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition:

KB to GR/CF: 11.00 ft

Serial #: 8674 Inside

Press @ Run Depth: 151.64 psig @ 4247.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.14

End Date:

2012.11.14

Last Calib.: 2012.11.14

Start Time: 03:52:05

End Time:

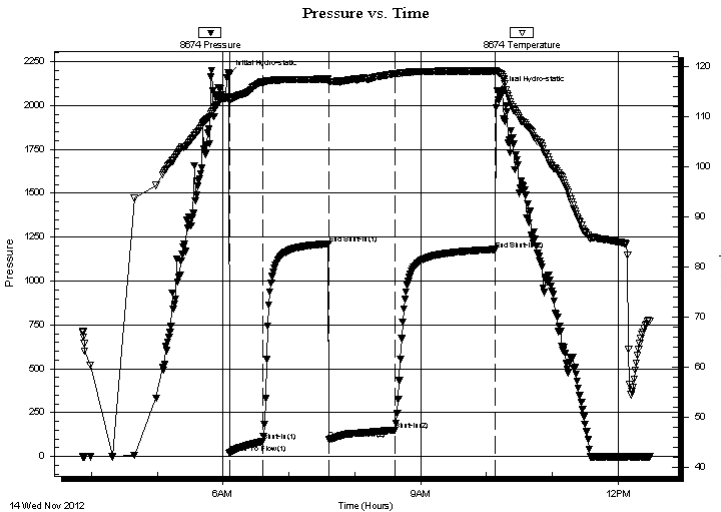
12:29:15

Time On Btm: 2012.11.14 @ 06:05:30

Time Off Btm: 2012.11.14 @ 10:09:45

TEST COMMENT: IF: 6" blow.
IS: No return.
FF: BOB @ 58 min.
FS: Weak surface return died @ 45 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2176.00	114.04	Initial Hydro-static
1	19.36	113.12	Open To Flow (1)
31	86.97	116.91	Shut-In(1)
91	1212.45	117.49	End Shut-In(1)
91	96.92	117.00	Open To Flow (2)
152	151.64	118.60	Shut-In(2)
243	1180.60	119.09	End Shut-In(2)
245	2083.04	119.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
250.00	GOCM 5g 15o 80m	1.37
30.00	GO 10g 90o	0.42
0.00	180' 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.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49823

DST#: 4

ATTN: Robert Hendrix

Test Start: 2012.11.14 @ 03:52:00

Tool Information

Drill Pipe:	Length: 4004.00 ft	Diameter: 3.80 inches	Volume: 56.17 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 57.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 67000.00 lb
Depth to Top Packer:	4246.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	111.00 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			4224.00	
Shut In Tool	5.00			4229.00	
Hydraulic tool	5.00			4234.00	
Safety Joint	3.00			4237.00	
Packer	5.00			4242.00	23.00 Bottom Of Top Packer
Packer	4.00			4246.00	
Stubb	1.00			4247.00	
Recorder	0.00	8355	Outside	4247.00	
Recorder	0.00	8674	Inside	4247.00	
Perforations	19.00			4266.00	
Change Over Sub	1.00			4267.00	
Drill Pipe	63.00			4330.00	
Change Over Sub	1.00			4331.00	
Bullnose	3.00			4334.00	88.00 Bottom Packers & Anchor

Total Tool Length: 111.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49823

DST#: 4

ATTN: Robert Hendrix

Test Start: 2012.11.14 @ 03:52:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

36 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
250.00	GOCM 5g 15o 80m	1.366
30.00	GO 10g 90o	0.421
0.00	180' GIP	0.000

Total Length: 280.00 ft Total Volume: 1.787 bbl

Num Fluid Samples: 0

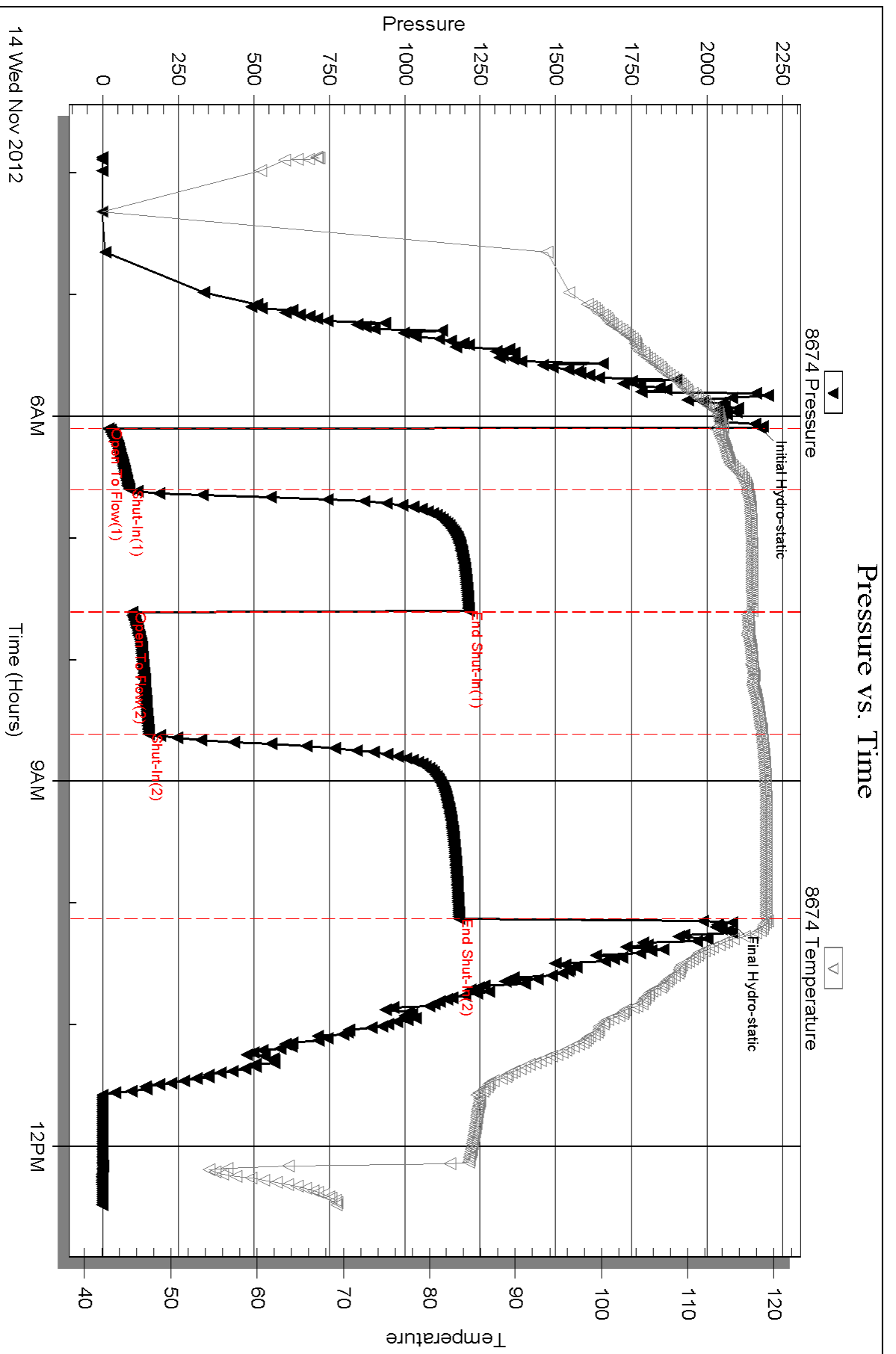
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API: 36 @ 60 degrees= 36 API

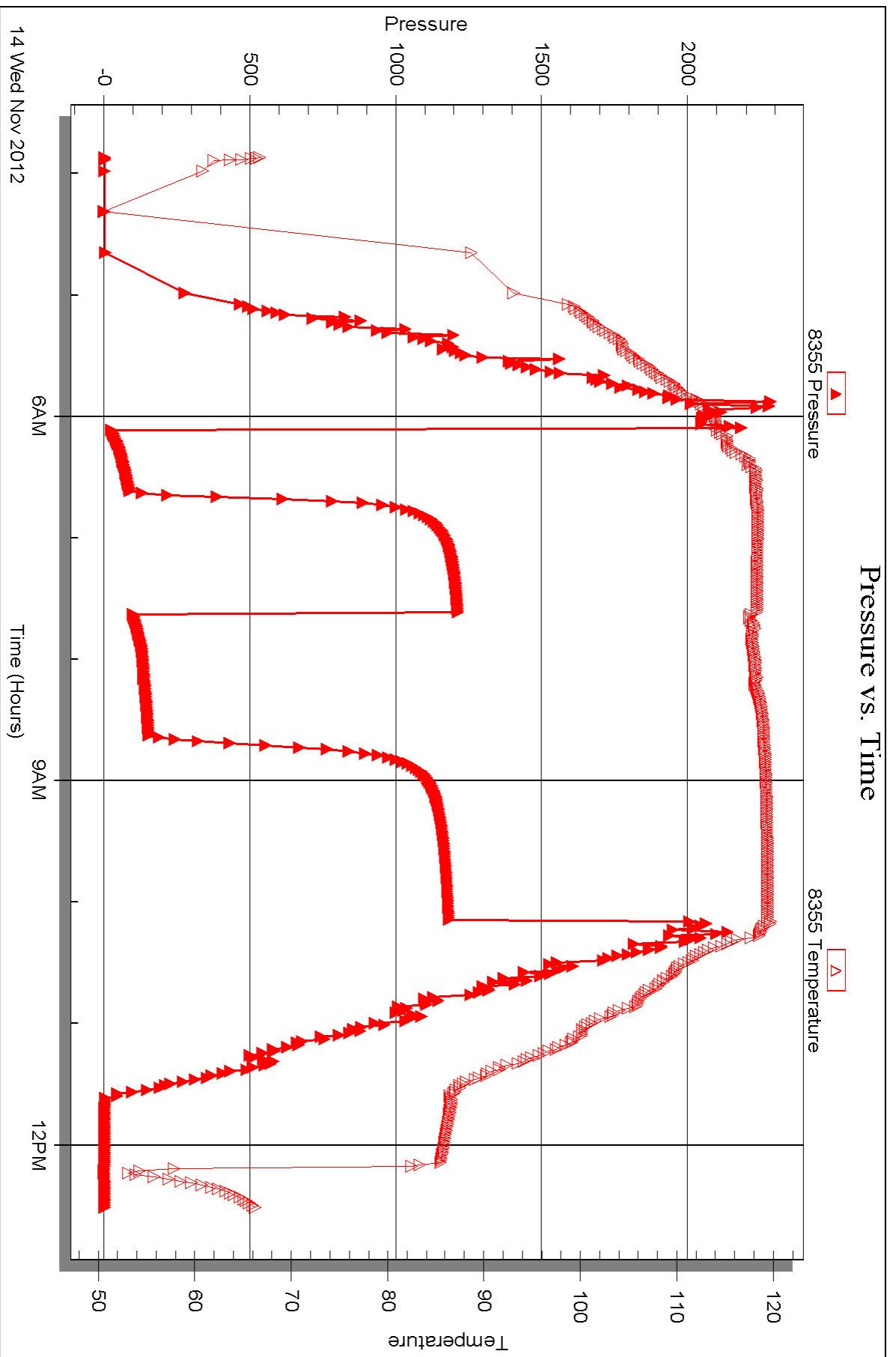


Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 49823

Printed: 2012.11.23 @ 10:50:44



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.15 @ 05:50:00

End Date: 2012.11.15 @ 13:47:30

Job Ticket #: 49824 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:50:01

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

W W W M #1-4

DST # 5

Marmaton-Altamont

2012.11.15



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49824

DST#: 5

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 05:50:00

GENERAL INFORMATION:

Formation: **Marmaton- Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:01:00

Time Test Ended: 13:47:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4377.00 ft (KB) To 4460.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4460.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 262.11 psig @ 4378.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.15

End Date:

2012.11.15

Last Calib.:

2012.11.15

Start Time: 05:50:05

End Time:

13:47:29

Time On Btm:

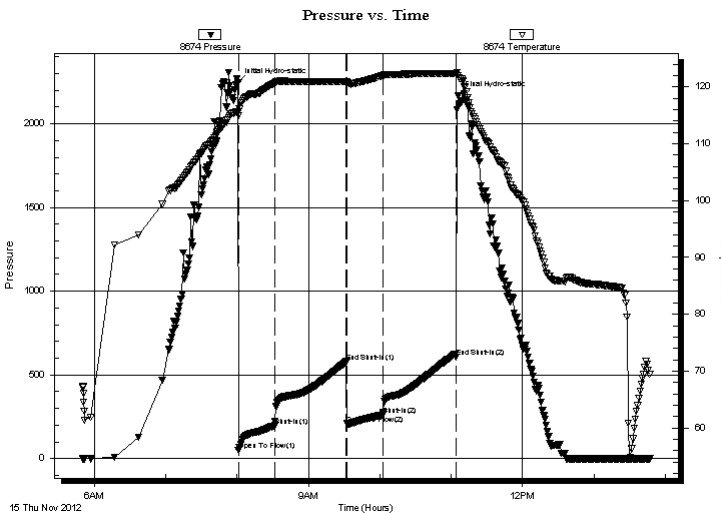
2012.11.15 @ 08:00:45

Time Off Btm:

2012.11.15 @ 11:05:45

TEST COMMENT: IF: BOB @ 6 min.
IS: 7 1/2" return.
FF: BOB @ 1 1/2 min.
FS: 8 3/4" return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2244.46	115.69	Initial Hydro-static
1	48.67	114.96	Open To Flow (1)
31	196.47	120.68	Shut-In(1)
91	579.23	120.96	End Shut-In(1)
92	208.65	120.75	Open To Flow (2)
122	262.11	122.00	Shut-In(2)
183	604.98	122.36	End Shut-In(2)
185	2166.33	122.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
490.00	GMCO 20g 20m 60o	4.73
160.00	GO 20g 80o	2.24
0.00	1450' 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.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49824

DST#: 5

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 05:50:00

Tool Information

Drill Pipe:	Length: 4130.00 ft	Diameter: 3.80 inches	Volume: 57.93 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 84000.00 lb
			<u>Total Volume: 59.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4377.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.00 ft			
Tool Length:	106.00 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			4355.00	
Shut In Tool	5.00			4360.00	
Hydraulic tool	5.00			4365.00	
Safety Joint	3.00			4368.00	
Packer	5.00			4373.00	23.00 Bottom Of Top Packer
Packer	4.00			4377.00	
Stubb	1.00			4378.00	
Recorder	0.00	8355	Outside	4378.00	
Recorder	0.00	8674	Inside	4378.00	
Perforations	14.00			4392.00	
Change Over Sub	1.00			4393.00	
Drill Pipe	63.00			4456.00	
Change Over Sub	1.00			4457.00	
Bullnose	3.00			4460.00	83.00 Bottom Packers & Anchor

Total Tool Length: 106.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49824

DST#: 5

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 05:50:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
490.00	GMCO 20g 20m 60o	4.733
160.00	GO 20g 80o	2.244
0.00	1450' GIP	0.000

Total Length: 650.00 ft Total Volume: 6.977 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API: 30 @ 60 degrees= 30

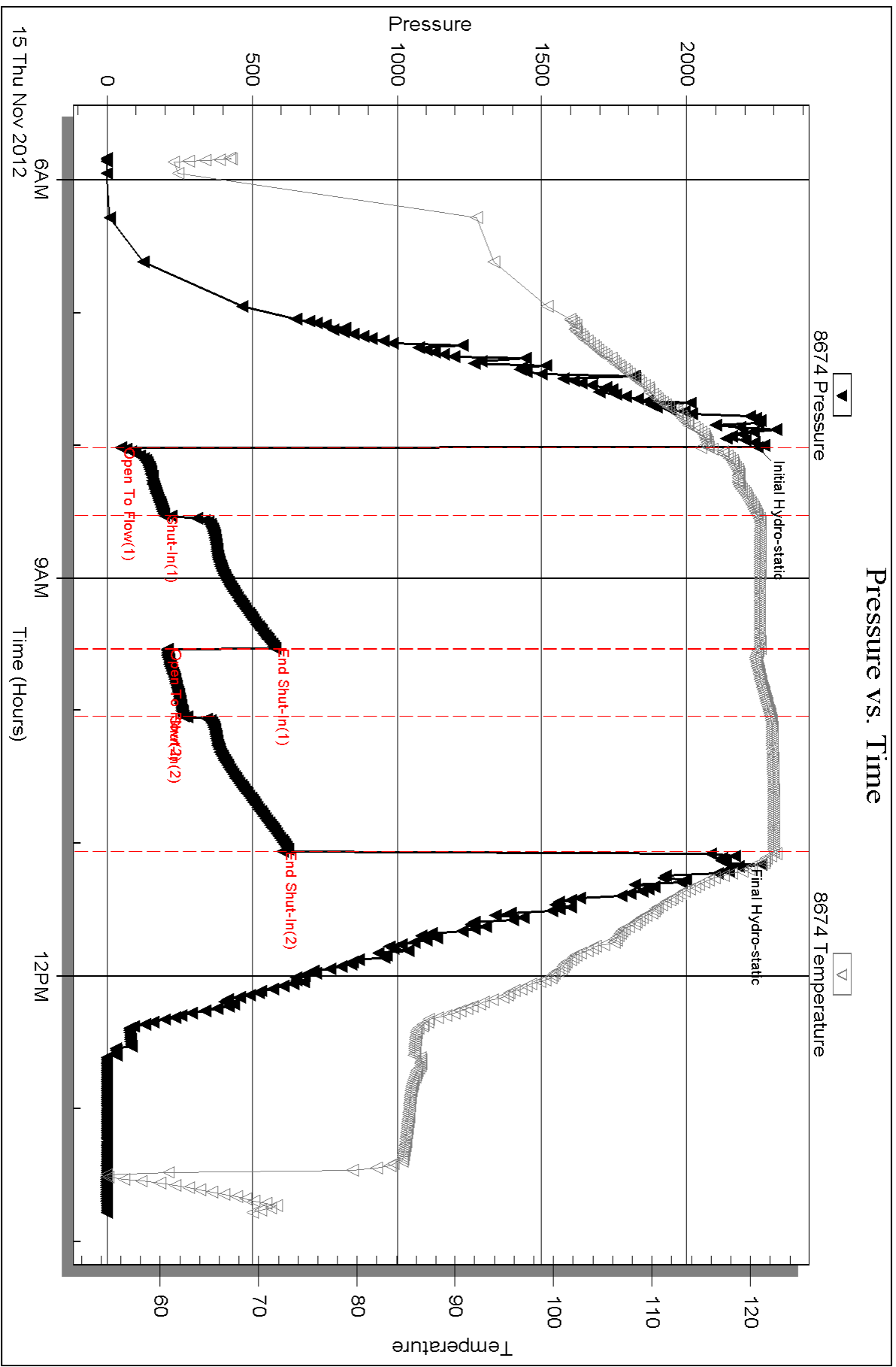
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 5

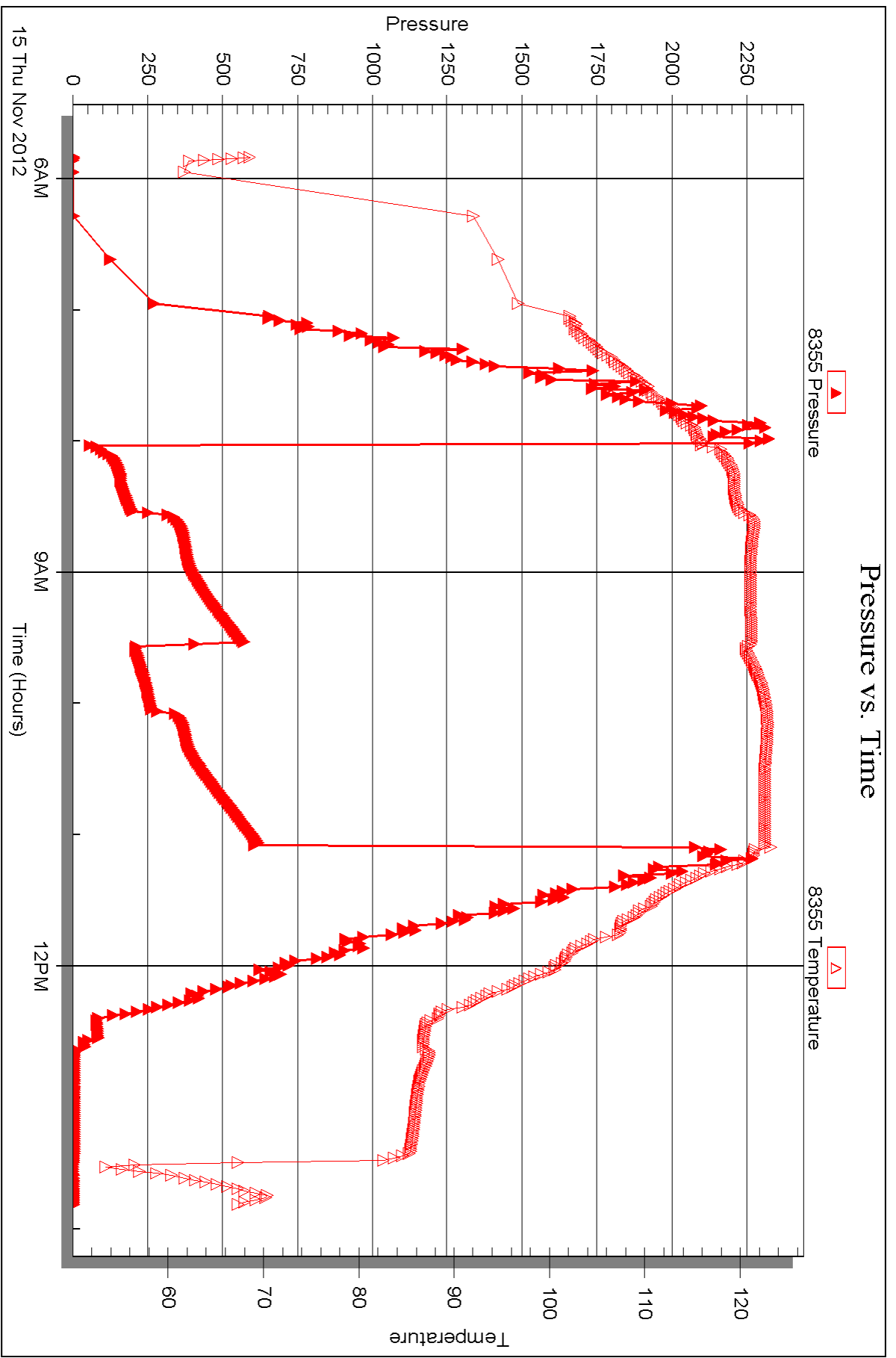


Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 5





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.15 @ 23:42:00

End Date: 2012.11.16 @ 08:42:30

Job Ticket #: 49825 DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:49:21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49825

DST#: 6

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 23:42:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:47:00

Time Test Ended: 08:42:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4468.00 ft (KB) To 4495.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4495.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674 Inside

Press @ Run Depth: 265.72 psig @ 4469.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.15

End Date:

2012.11.16

Last Calib.:

2012.11.16

Start Time: 23:42:05

End Time:

08:42:30

Time On Btm:

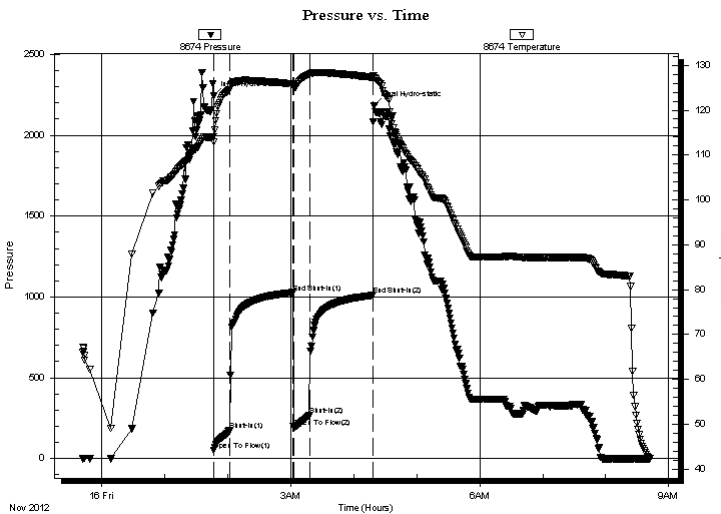
2012.11.16 @ 01:46:45

Time Off Btm:

2012.11.16 @ 04:19:45

TEST COMMENT: IF: BOB @ 2 1/2 min.
IS: BOB return @ 10 min.
FF: BOB Immediately
FS: BOB return @ 8 1/2 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2244.06	114.15	Initial Hydro-static
1	52.40	112.86	Open To Flow (1)
16	172.89	124.67	Shut-In(1)
76	1027.39	125.79	End Shut-In(1)
77	195.53	125.36	Open To Flow (2)
92	265.72	127.97	Shut-In(2)
152	1010.51	127.37	End Shut-In(2)
153	2182.34	127.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
635.00	GO 30g 70o	6.77
0.00	2080' GIP	0.00

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.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49825

DST#: 6

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 23:42:00

Tool Information

Drill Pipe:	Length: 4225.00 ft	Diameter: 3.80 inches	Volume: 59.27 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.43 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4468.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	27.00 ft			
Tool Length:	50.00 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			4446.00	
Shut In Tool	5.00			4451.00	
Hydraulic tool	5.00			4456.00	
Safety Joint	3.00			4459.00	
Packer	5.00			4464.00	23.00 Bottom Of Top Packer
Packer	4.00			4468.00	
Stubb	1.00			4469.00	
Recorder	0.00	8355	Outside	4469.00	
Recorder	0.00	8674	Inside	4469.00	
Perforations	23.00			4492.00	
Bullnose	3.00			4495.00	27.00 Bottom Packers & Anchor

Total Tool Length: 50.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 49825

DST#: 6

ATTN: Robert Hendrix

Test Start: 2012.11.15 @ 23:42:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

23 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4100.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
635.00	GO 30g 70o	6.767
0.00	2080' GIP	0.000

Total Length: 635.00 ft Total Volume: 6.767 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API: 20 @ 30 degrees= 23 API

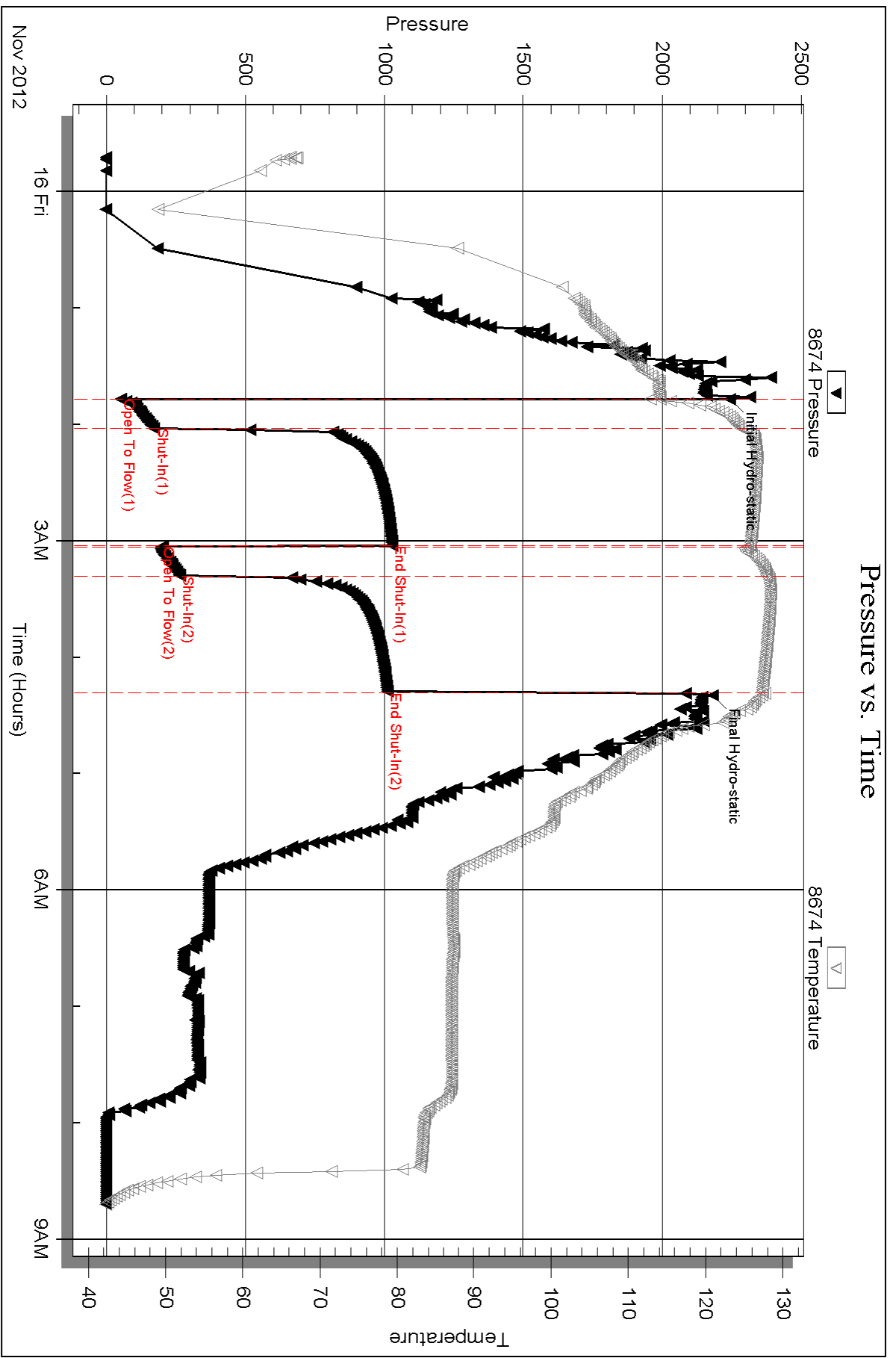
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 49825

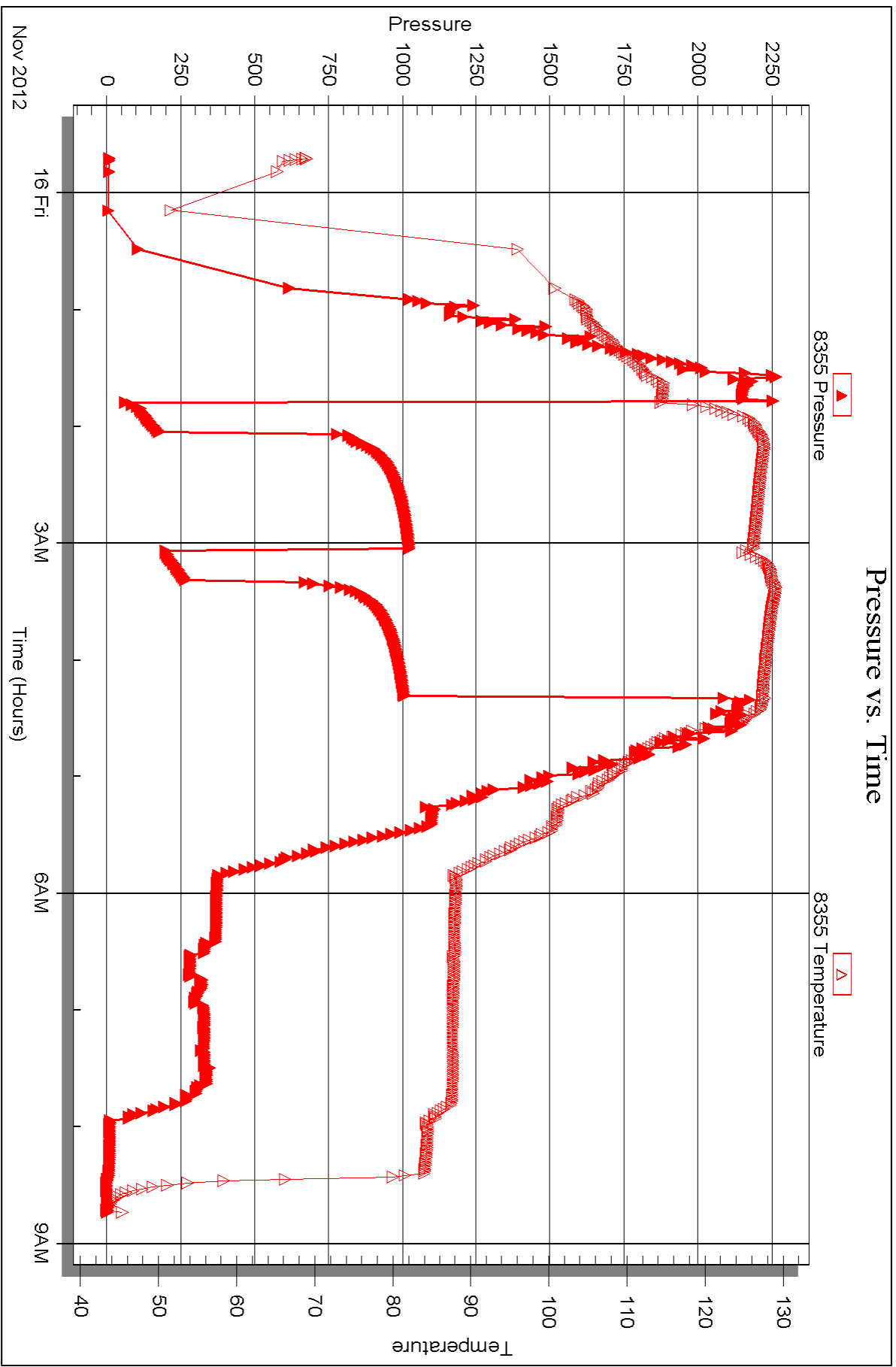
Printed: 2012.11.23 @ 10:49:25

Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 6





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.16 @ 19:50:00

End Date: 2012.11.17 @ 03:27:15

Job Ticket #: 51251 DST #: 7

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.11.23 @ 10:48:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

ATTN: Robert Hendrix

Job Ticket: 51251

DST#: 7

Test Start: 2012.11.16 @ 19:50:00

GENERAL INFORMATION:

Formation: **Lower Pawnee- Ft. Sc**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:36:45

Time Test Ended: 03:27:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4498.00 ft (KB) To 4555.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4555.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674 Inside

Press @ Run Depth: 124.95 psig @ 4499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.16

End Date:

2012.11.17

Last Calib.: 2012.11.17

Start Time: 19:50:05

End Time:

03:27:14

Time On Btm: 2012.11.16 @ 21:36:30

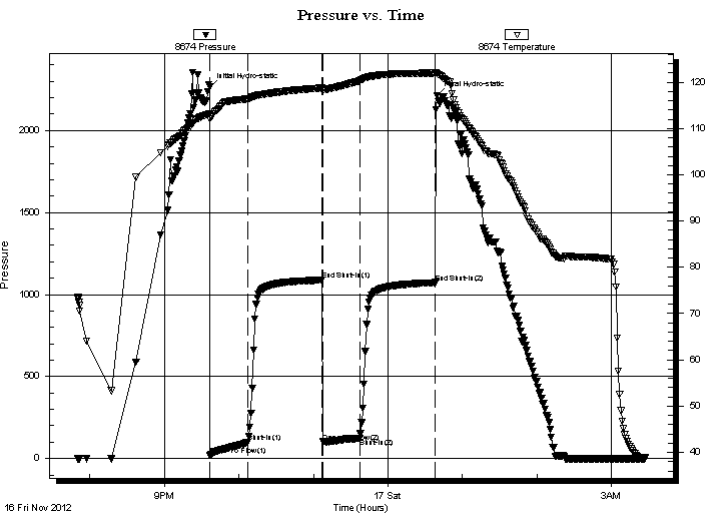
Time Off Btm: 2012.11.17 @ 00:39:30

TEST COMMENT: IF: BOB @ 16 min.

ISI: Weak surface return died @ 43 min.

FF: BOB @ 9 min.

FSI: 1 14" return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2264.41	113.25	Initial Hydro-static
1	19.14	112.06	Open To Flow (1)
31	98.66	116.41	Shut-In(1)
91	1088.31	118.74	End Shut-In(1)
91	101.21	118.34	Open To Flow (2)
121	124.95	120.31	Shut-In(2)
182	1072.58	121.97	End Shut-In(2)
183	2211.16	121.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
160.00	GOCM 15g 35o 50m	0.79
130.00	GO 30g 70o	1.14
0.00	500' 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.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 51251

DST#: 7

ATTN: Robert Hendrix

Test Start: 2012.11.16 @ 19:50:00

Tool Information

Drill Pipe:	Length: 4256.00 ft	Diameter: 3.80 inches	Volume: 59.70 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 60.86 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4498.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	57.00 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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Change Over Sub	1.00			4476.00	
Shut In Tool	5.00			4481.00	
Hydraulic tool	5.00			4486.00	
Safety Joint	3.00			4489.00	
Packer	5.00			4494.00	23.00 Bottom Of Top Packer
Packer	4.00			4498.00	
Stubb	1.00			4499.00	
Recorder	0.00	8355	Outside	4499.00	
Recorder	0.00	8674	Inside	4499.00	
Perforations	20.00			4519.00	
Change Over Sub	1.00			4520.00	
Drill Pipe	31.00			4551.00	
Change Over Sub	1.00			4552.00	
Bullnose	3.00			4555.00	57.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 51251

DST#: 7

ATTN: Robert Hendrix

Test Start: 2012.11.16 @ 19:50:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
160.00	GOCM 15g 35o 50m	0.787
130.00	GO 30g 70o	1.140
0.00	500' GIP	0.000

Total Length: 290.00 ft Total Volume: 1.927 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API: 25 @ 40degrees= 27 API

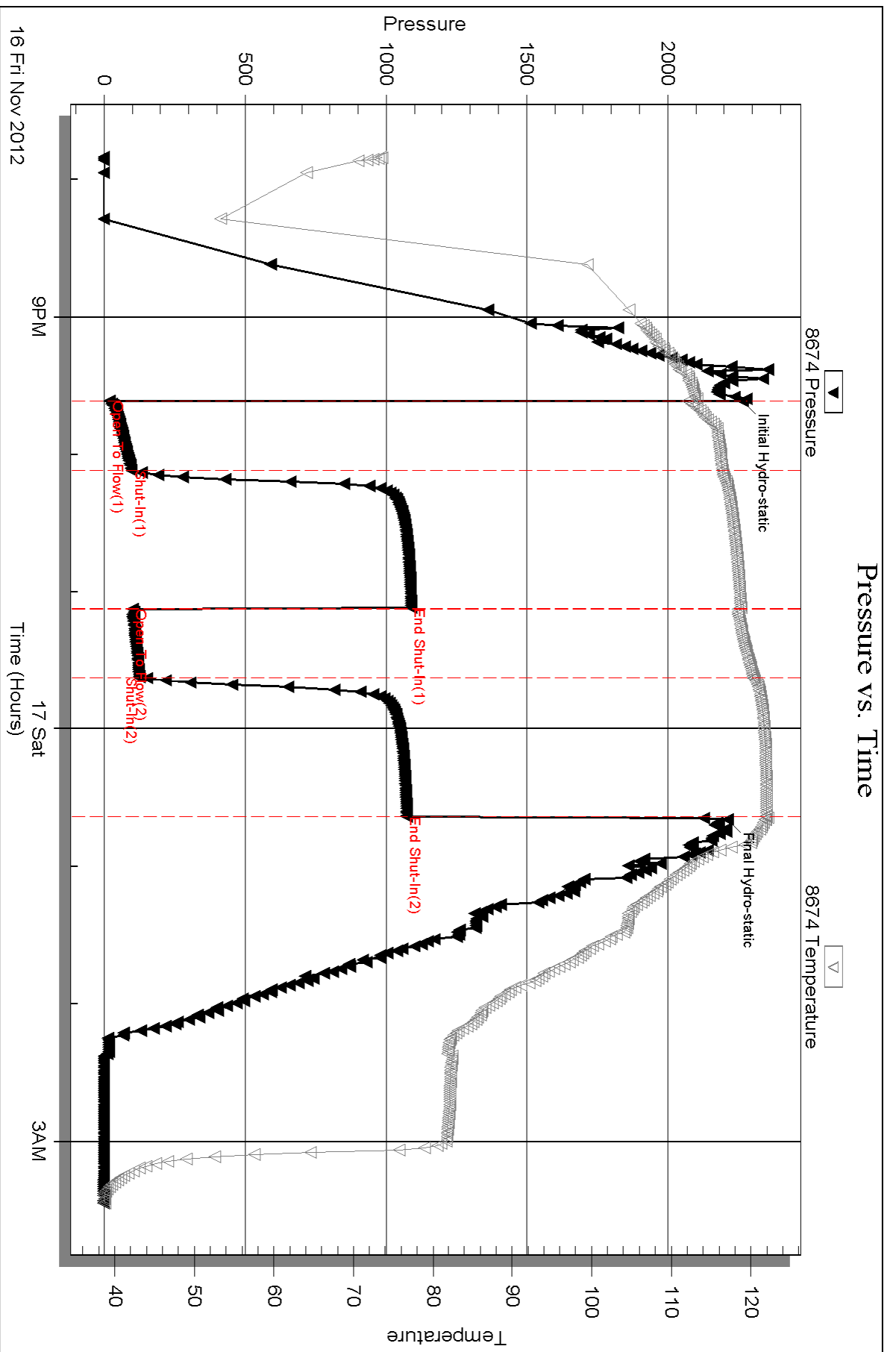
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 7

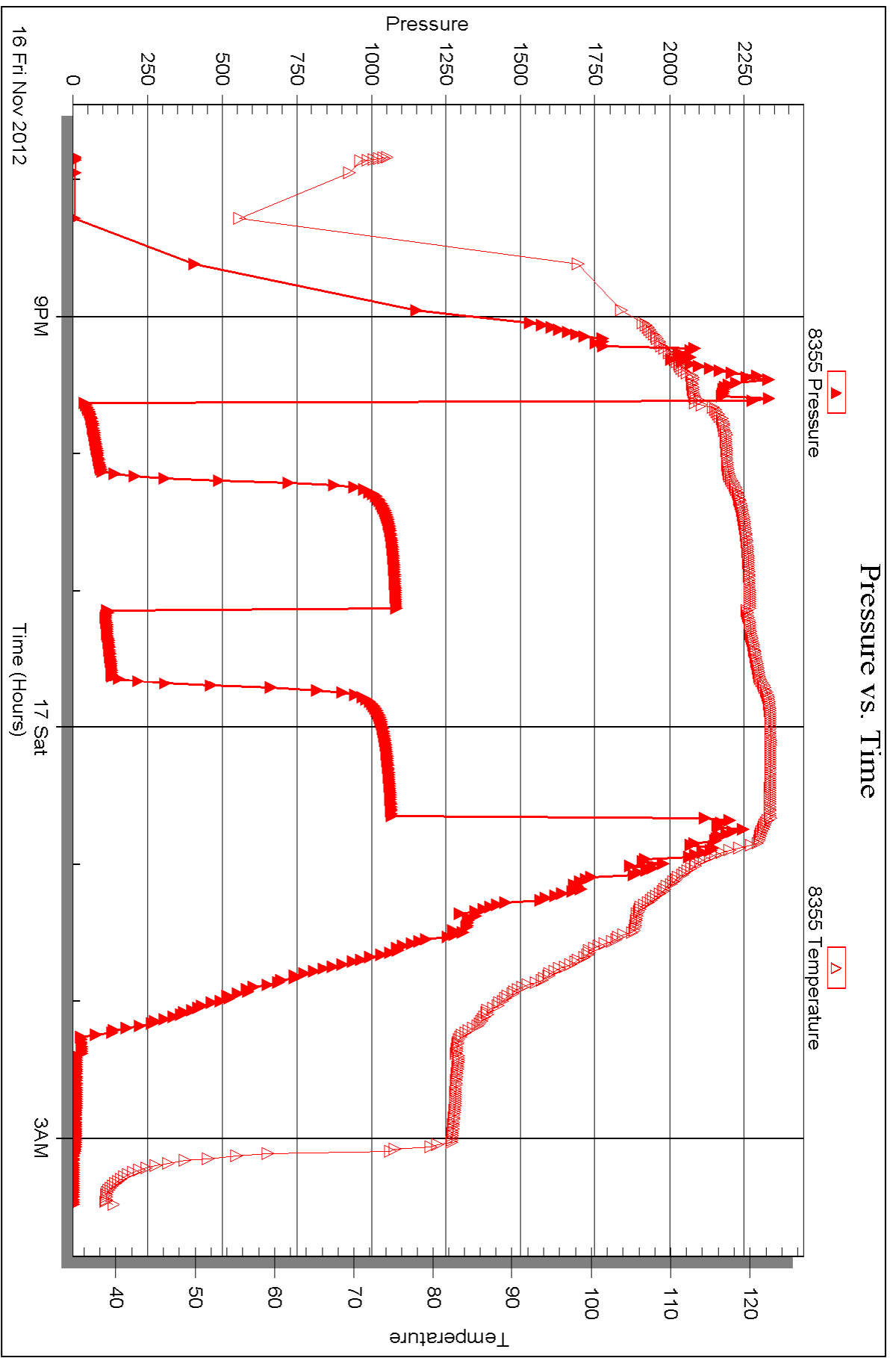


Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 7



Triobite Testing, Inc

Ref. No: 51251

Printed: 2012.11.23 @ 10:48:37



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

W W W M #1-4

4-13s-32w Logan,KS

Start Date: 2012.11.17 @ 16:37:00

End Date: 2012.11.18 @ 00:49:15

Job Ticket #: 51252 DST #: 8

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

Printed: 2012.11.23 @ 10:47:48



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

ATTN: Robert Hendrix

Job Ticket: 51252

DST#: 8

Test Start: 2012.11.17 @ 16:37:00

GENERAL INFORMATION:

Formation: **Cherokee- Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:26:30

Time Test Ended: 00:49:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Sam Esparza

Unit No: 58

Interval: 4565.00 ft (KB) To 4630.00 ft (KB) (TVD)

Reference Elevations: 3056.00 ft (KB)

Total Depth: 4630.00 ft (KB) (TVD)

3045.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8674

Inside

Press @ Run Depth: 292.62 psig @ 4566.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.11.17

End Date:

2012.11.18

Last Calib.:

2012.11.18

Start Time:

16:37:05

End Time:

00:49:14

Time On Btm:

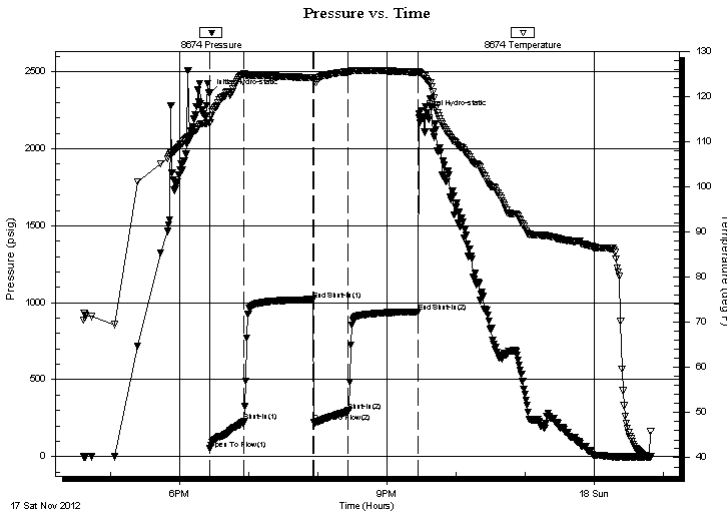
2012.11.17 @ 18:26:00

Time Off Btm:

2012.11.17 @ 21:28:00

TEST COMMENT: IF: BOB @ 5 min.
IS: BOB return @ 17 1/2 min.
FF: BOB immediatly.
FS: BOB return @ 23 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2359.07	114.92	Initial Hydro-static
1	49.34	114.13	Open To Flow (1)
31	226.75	125.07	Shut-In(1)
91	1020.37	124.23	End Shut-In(1)
91	222.79	123.83	Open To Flow (2)
121	292.62	125.52	Shut-In(2)
181	941.37	125.43	End Shut-In(2)
182	2225.31	125.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
485.00	GMCO 20g 35m 45o	4.66
235.00	GO 20g 80o	3.30
0.00	1700' GIP	0.00

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.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 51252

DST#: 8

ATTN: Robert Hendrix

Test Start: 2012.11.17 @ 16:37:00

Tool Information

Drill Pipe:	Length: 4319.00 ft	Diameter: 3.80 inches	Volume: 60.58 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 235.00 ft	Diameter: 2.25 inches	Volume: 1.16 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume: 61.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4565.00 ft			Final 71000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4543.00	
Shut In Tool	5.00			4548.00	
Hydraulic tool	5.00			4553.00	
Safety Joint	3.00			4556.00	
Packer	5.00			4561.00	23.00 Bottom Of Top Packer
Packer	4.00			4565.00	
Stubb	1.00			4566.00	
Recorder	0.00	8355	Outside	4566.00	
Recorder	0.00	8674	Inside	4566.00	
Perforations	28.00			4594.00	
Change Over Sub	1.00			4595.00	
Drill Pipe	31.00			4626.00	
Change Over Sub	1.00			4627.00	
Bullnose	3.00			4630.00	65.00 Bottom Packers & Anchor

Total Tool Length: 88.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita, KS 67202

W W W M #1-4

Job Ticket: 51252

DST#: 8

ATTN: Robert Hendrix

Test Start: 2012.11.17 @ 16:37:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
485.00	GMCO 20g 35m 45o	4.663
235.00	GO 20g 80o	3.296
0.00	1700' GIP	0.000

Total Length: 720.00 ft Total Volume: 7.959 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API: 26 @ 40 degrees= 28 API

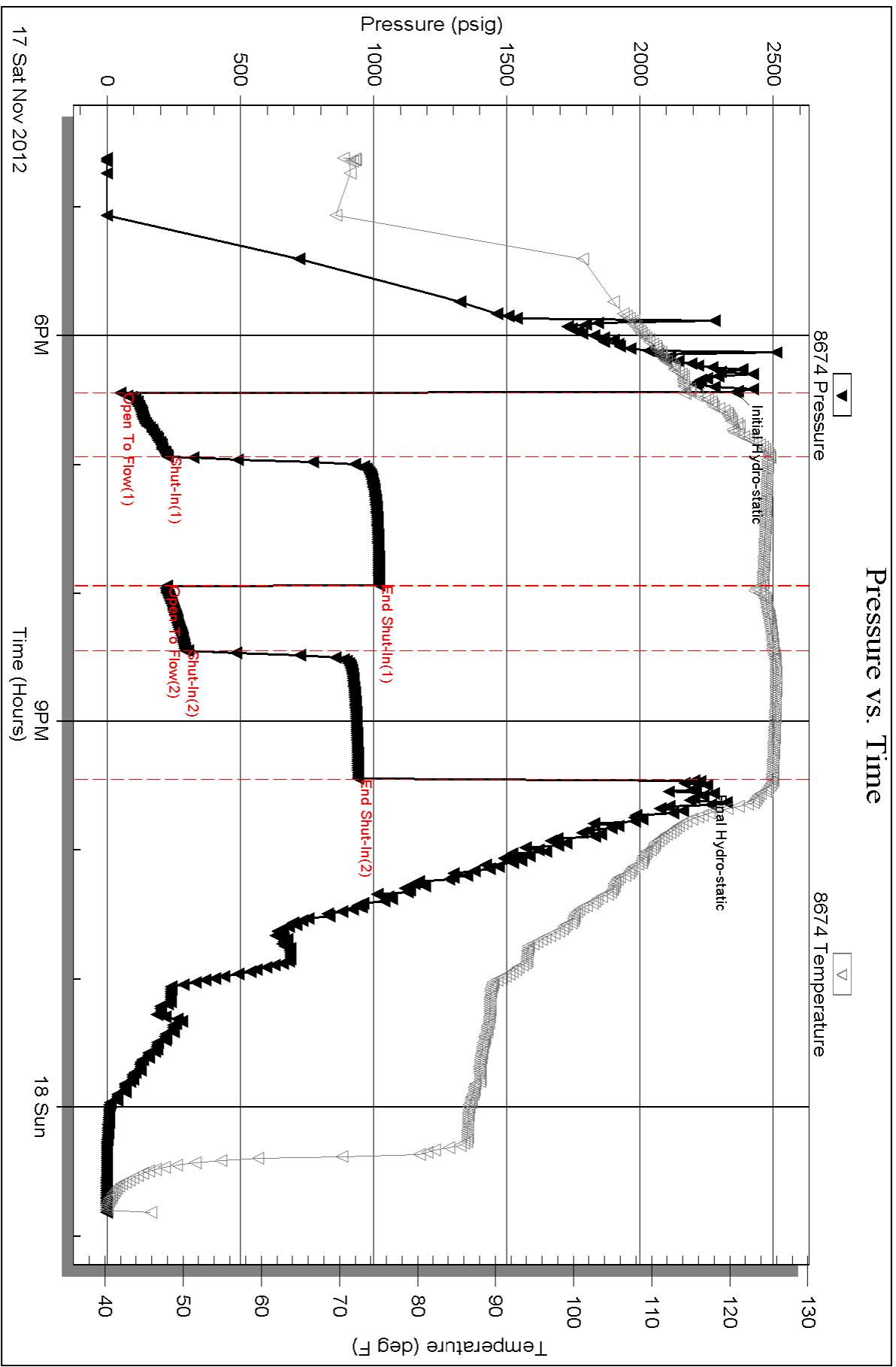
Serial #: 8674

Inside

Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 8



Triobite Testing, Inc

Ref. No: 51252

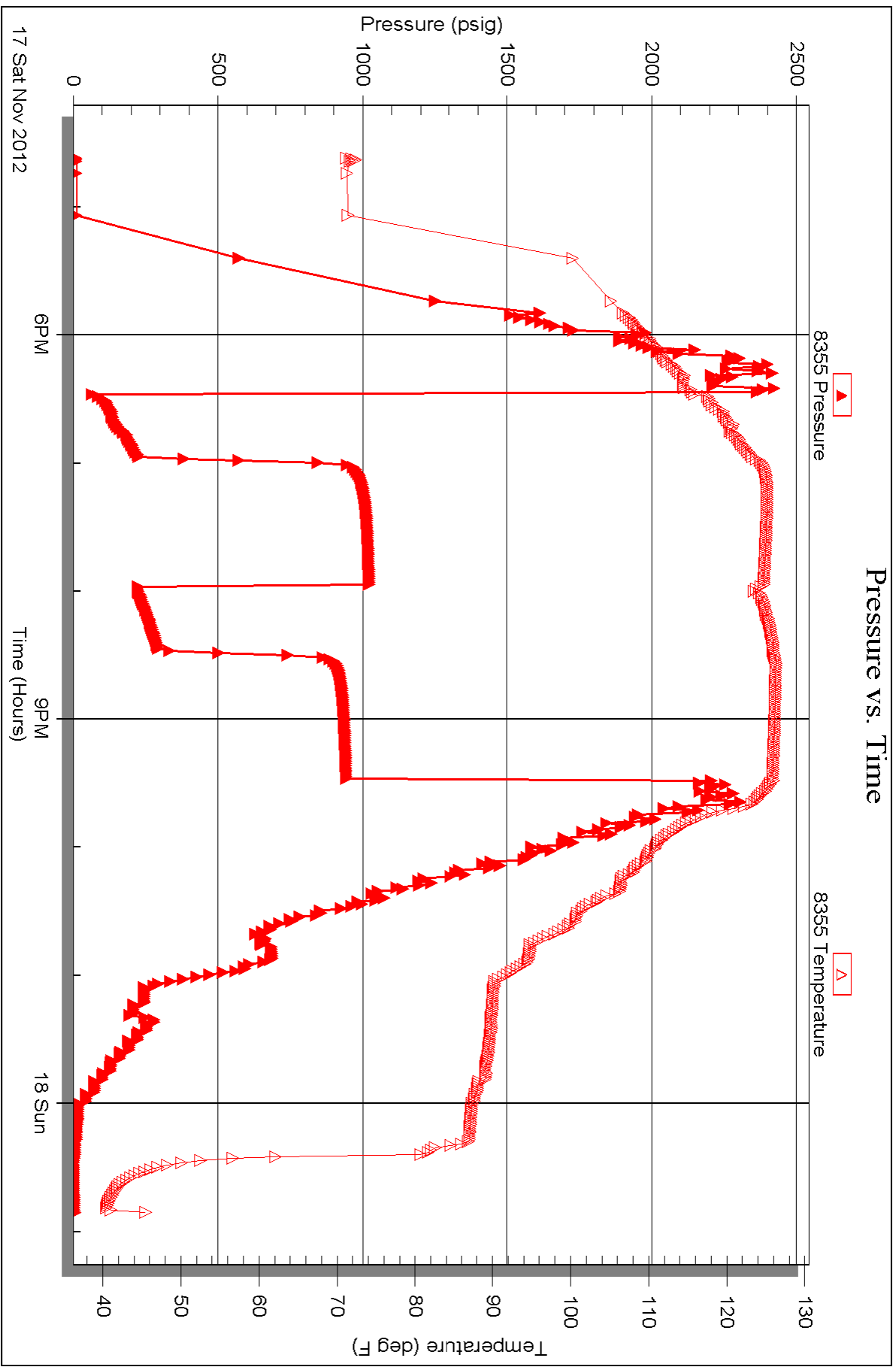
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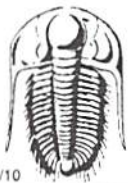
Serial #: 8355

Outside Murfin Drilling Co. Inc.

WWWM#1-4

DST Test Number: 8





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **49820**

4/10

Well Name & No. <u>WWWM #1-4</u>	Test No. <u>1</u>	Date <u>11/11/12</u>
Company <u>Murfin Drilling Co. Inc.</u>	Elevation <u>3056</u>	KB <u>3045</u> GL
Address <u>250 N Water STE 300 Wichita, KS 67202</u>		
Co. Rep / Geo. <u>Robert Hendrix</u>	Rig <u>Murfin #22</u>	
Location: Sec. <u>4</u>	Twp. <u>13S</u>	Rge. <u>32W</u> Co. <u>Logan</u> State <u>KS</u>

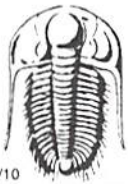
Interval Tested <u>4006-4107</u>	Zone Tested <u>Toronto - Lansing "D"</u>
Anchor Length <u>101'</u>	Drill Pipe Run <u>3754</u> Mud Wt. <u>9.1</u>
Top Packer Depth <u>4002</u>	Drill Collars Run <u>235</u> Vis <u>53</u>
Bottom Packer Depth <u>4006</u>	Wt. Pipe Run <u>Ø</u> WL <u>6.4</u>
Total Depth <u>4107</u>	Chlorides <u>3200</u> ppm System LCM <u>6</u>
Blow Description <u>BoB@ 3 min.</u>	
<u>No return.</u>	
<u>BoB@ 3 min.</u>	
<u>No return</u>	

Rec	Feet of	%gas	%oil	%water	%mud
<u>220'</u>	<u>OCM</u>	<u>5</u>	<u>5</u>	<u>95</u>	<u>95</u>
<u>500'</u>	<u>GOWCM</u>	<u>5</u>	<u>5</u>	<u>10</u>	<u>80</u>
<u>315'</u>	<u>GOMCW</u>	<u>5</u>	<u>5</u>	<u>70</u>	<u>20</u>
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total <u>1035</u>	BHT <u>118</u>	Gravity _____	API RW _____	@ _____ °F	Chlorides _____ ppm
(A) Initial Hydrostatic <u>2002</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>9:15</u>			
(B) First Initial Flow <u>73</u>	<input type="checkbox"/> Jars _____	T-Started <u>10:14</u>			
(C) First Final Flow <u>319</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:12</u>			
(D) Initial Shut-In <u>1192</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>14:44</u>			
(E) Second Initial Flow <u>333</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>17:13</u>			
(F) Second Final Flow <u>492</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments _____			
(G) Final Shut-In <u>1188</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____			
(H) Final Hydrostatic <u>1968</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____			
Initial Open <u>15</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>15</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1439.70</u>			
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____			
	<input type="checkbox"/> Accessibility _____	Sub Total <u>1439.70</u>			

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 49821

Well Name & No. WWWM #1-4 Test No. 2 Date 11/12/12
 Company Murfin Drilling Co Inc Elevation 3556 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4116-4150 Zone Tested Lansing "E-F"
 Anchor Length 34' Drill Pipe Run 3880 Mud Wt. 9.5
 Top Packer Depth 4112 Drill Collars Run 235 Vis 53
 Bottom Packer Depth 4116 Wt. Pipe Run Ø WL 6.4
 Total Depth 4150 Chlorides 4000 ppm System LCM 7

Blow Description BoB @ 11 min.
No return.
BoB @ 16 min.
No return.

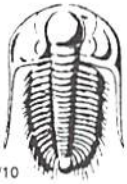
Rec	Feet of	%gas	%oil	%water	%mud
150	Gwcm (oil spots)	5	25	70	
875	Gmcw	5	85	10	

Rec Total 1025 BHT 122 Gravity — API RW .107 @ 56 °F Chlorides 90,000 ppm

(A) Initial Hydrostatic <u>2117</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>2:55</u>
(B) First Initial Flow <u>27</u>	<input type="checkbox"/> Jars	T-Started <u>3:35</u>
(C) First Final Flow <u>248</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>6:08</u>
(D) Initial Shut-In <u>1198</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>10:10</u>
(E) Second Initial Flow <u>254</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>12:41</u>
(F) Second Final Flow <u>492</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments
(G) Final Shut-In <u>1182</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2098</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1439.70</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1439.70</u>	

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **49822**

Well Name & No. WWWM #1-4 Test No. 3 Date 11/13/12
 Company Murfin Drilling Co Inc. Elevation 3056 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4187-4248 Zone Tested Lensing "H-I"
 Anchor Length 61' Drill Pipe Run 3944 Mud Wt. 9.3
 Top Packer Depth 4183 Drill Collars Run 235 Vis 53
 Bottom Packer Depth 4187 Wt. Pipe Run Ø WL 7.6
 Total Depth 4248 Chlorides 4900 ppm System LCM 7
 Blow Description 3/4" blow.
No return.

No blow.
No return.

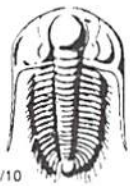
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud (oil spots)</u>				<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 116 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2089</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>3:50</u>
(B) First Initial Flow <u>16</u>	<input type="checkbox"/> Jars <u>—</u>	T-Started <u>4:27</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>6:20</u>
(D) Initial Shut-In <u>1136</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/K</u>	T-Pulled <u>9:21</u>
(E) Second Initial Flow <u>24</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>11:17</u>
(F) Second Final Flow <u>26</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments <u>—</u>
(G) Final Shut-In <u>1021</u>	<input type="checkbox"/> Sampler <u>—</u>	
(H) Final Hydrostatic <u>2040</u>	<input type="checkbox"/> Straddle <u>—</u>	
	<input type="checkbox"/> Shale Packer <u>—</u>	
	<input type="checkbox"/> Extra Packer <u>—</u>	
Initial Open <u>30</u>	<input type="checkbox"/> Extra Recorder <u>—</u>	
Initial Shut-In <u>60</u>	<input type="checkbox"/> Day Standby <u>—</u>	
Final Flow <u>30</u>	<input type="checkbox"/> Accessibility <u>—</u>	
Final Shut-In <u>60</u>	Sub Total <u>1439.70</u>	

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 49823

4/10

Well Name & No. WWWM # 1-4 Test No. 4 Date 11/14/12
 Company Murfin Drilling Co Inc Elevation 3056 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4246-4334 Zone Tested Lansing "J-K-L"
 Anchor Length 88' Drill Pipe Run 4004 Mud Wt. 9.5
 Top Packer Depth 4242 Drill Collars Run 235 Vis SS
 Bottom Packer Depth 4246 Wt. Pipe Run Ø WL 7.6
 Total Depth 4334 Chlorides 4000 ppm System LCM 8
 Blow Description 6" blow.

No return.

Bob @ 58 min.

Weak surface return died @ 45 min

Rec	Feet of	%gas	%oil	%water	%mud
<u>30'</u>	<u>60</u>	<u>10</u>	<u>90</u>		
<u>250'</u>	<u>700m</u>	<u>5</u>	<u>15</u>		<u>80</u>
<u>180' GID</u>					

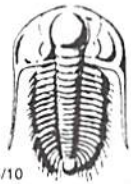
Rec Total 280 BHT 119 Gravity 36 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2176 Test 1250 T-On Location 3:00
 (B) First Initial Flow 19 Jars T-Started 3:52
 (C) First Final Flow 87 Safety Joint 75 T-Open 6:06
 (D) Initial Shut-In 1212 Circ Sub N/C T-Pulled 10:08
 (E) Second Initial Flow 97 Hourly Standby T-Out 12:31
 (F) Second Final Flow 152 Mileage 74 R/T 114.70
 (G) Final Shut-In 1181 Sampler
 (H) Final Hydrostatic 2083 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies

Initial Open 30 Extra Recorder
 Initial Shut-In 60 Day Standby
 Final Flow 60 Accessibility
 Final Shut-In 90 Sub Total 1439.70
 Sub Total 1439.70 MP/DST Disc't

Approved By Rob D. Hendrix Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 49824

Well Name & No. WWM #1-4 Test No. 5 Date 11/15/12
 Company Murfin Drilling Co Inc Elevation 3556 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4377-4460 Zone Tested Marmaton - Altamont
 Anchor Length 83' Drill Pipe Run 4130 Mud Wt. 9.2
 Top Packer Depth 4373 Drill Collars Run 235 Vis 69
 Bottom Packer Depth 4377 Wt. Pipe Run Ø WL 7.2
 Total Depth 4460 Chlorides 5000 ppm System LCM 7
 Blow Description Bob @ 6 min.
7 1/2" return.
Bob @ 1 1/2 min.
8 3/4" return.

Rec	Feet of	%gas	%oil	%water	%mud
160	GO	20	80		
490	GMCO	20	60		20
	1450' GIP				

Rec Total 650 BHT 122 Gravity 30 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2244</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>5:30</u>
(B) First Initial Flow <u>49</u>	<input type="checkbox"/> Jars	T-Started <u>5:50</u>
(C) First Final Flow <u>196</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>8:02</u>
(D) Initial Shut-In <u>579</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>11:04</u>
(E) Second Initial Flow <u>209</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>13:42</u>
(F) Second Final Flow <u>262</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments
(G) Final Shut-In <u>605</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2166</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1439.70</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1439.70</u>	

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **49825**

Well Name & No. WWWM #1-4 Test No. 6 Date 11/15/12
 Company Murfin Drilling Co. Inc. Elevation 356 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4468-4495 Zone Tested Pawnee
 Anchor Length 27' Drill Pipe Run 4225 Mud Wt. 9.3
 Top Packer Depth 4464 Drill Collars Run 235 Vis 53
 Bottom Packer Depth 4468 Wt. Pipe Run Ø WL 7.6
 Total Depth 4495 Chlorides 4100 ppm System LCM 8

Blow Description BoB @ 2 1/2 min
BoB @ 10 min return.
BoB @ immediately
BoB @ 8 1/2 min return.

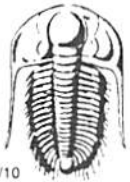
Rec	Feet of	%gas	%oil	%water	%mud
<u>635</u>	<u>GO</u>	<u>30</u>	<u>70</u>		
	<u>2080' GIP</u>				

Rec Total 635 BHT 127 Gravity 23 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2244</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>2315</u>
(B) First Initial Flow <u>52</u>	<input type="checkbox"/> Jars	T-Started <u>23:42</u>
(C) First Final Flow <u>173</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1:48</u>
(D) Initial Shut-In <u>1027</u>	<input checked="" type="checkbox"/> Circ Sub <u>USED</u> 50	T-Pulled <u>4:19</u>
(E) Second Initial Flow <u>196</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>8:44</u>
(F) Second Final Flow <u>266</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments
(G) Final Shut-In <u>1011</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2182</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>15</u>	<input type="checkbox"/> Day Standby	Total <u>1489.70</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1489.70</u>	

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51251

Well Name & No. WWW #1-4 Test No. 7 Date 11/16/12
 Company Murfin Drilling Co Inc Elevation 3056 KB 3045 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4498-4555 Zone Tested Lower Pawnee - Ft. Scott
 Anchor Length 57' Drill Pipe Run 4256 Mud Wt. 9.2
 Top Packer Depth 4494 Drill Collars Run 235 Vis 61
 Bottom Packer Depth 4498 Wt. Pipe Run Ø WL 7.2
 Total Depth 4555 Chlorides 3800 ppm System LCM Ø 7
 Blow Description BoB @ 16 min.
Weak surface return died @ 43 min.
BoB @ 9 min.
1 1/4" return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>130</u>	<u>60</u>	<u>30</u>	<u>70</u>		
<u>160</u>	<u>90 CM</u>	<u>15</u>	<u>35</u>		<u>50</u>
<u> </u>	<u>500' GP</u>				
<u> </u>	<u> </u>				
<u> </u>	<u> </u>				

Rec Total 290 BHT 122 Gravity 27 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic <u>2264</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>19:30</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars <u> </u>	T-Started <u>19:50</u>
(C) First Final Flow <u>99</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:37</u>
(D) Initial Shut-In <u>1088</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>00:38</u>
(E) Second Initial Flow <u>101</u>	<input type="checkbox"/> Hourly Standby <u> </u>	T-Out <u>3:28</u>
(F) Second Final Flow <u>125</u>	<input checked="" type="checkbox"/> Mileage <u>74 R/T</u> 114.70	Comments <u> </u>
(G) Final Shut-In <u>1073</u>	<input type="checkbox"/> Sampler <u> </u>	<input type="checkbox"/> Ruined Shale Packer <u> </u>
(H) Final Hydrostatic <u>2211</u>	<input type="checkbox"/> Straddle <u> </u>	<input type="checkbox"/> Ruined Packer <u> </u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u> </u>	<input type="checkbox"/> Extra Copies <u> </u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer <u> </u>	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder <u> </u>	Total <u>1439.70</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby <u> </u>	MP/DST Disc't <u> </u>
	<input type="checkbox"/> Accessibility <u> </u>	
	Sub Total <u>1439.70</u>	

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51252

Well Name & No. WWJM #1-4 Test No. 8 Date 11/17/12
 Company Murfin Drilling Co Inc Elevation 3056 KB 345 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #22
 Location: Sec. 4 Twp. 13S Rge. 32W Co. Logan State KS

Interval Tested 4565-4630 Zone Tested Cherokee - Johnson
 Anchor Length 65' Drill Pipe Run 4319 Mud Wt. 9.3
 Top Packer Depth 4561 Drill Collars Run 235 Vis 56
 Bottom Packer Depth 4565 Wt. Pipe Run Ø WL 8.4
 Total Depth 4630 Chlorides 3800 ppm System LCM 6

Blow Description Bob @ 5 min.
Bob return @ 17 1/2 min.
Bob immediately.
Bob return @ 23 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>235</u>	<u>70</u>	<u>20</u>	<u>80</u>		
<u>485</u>	<u>GMCO</u>	<u>20</u>	<u>45</u>		<u>35</u>
	<u>1700' GIP</u>				

Rec Total 720 BHT 125 Gravity 28 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2359 Test 1250 T-On Location 16:20
 (B) First Initial Flow 49 Jars _____ T-Started 16:37
 (C) First Final Flow 227 Safety Joint 75 T-Open 18:27
 (D) Initial Shut-In 1020 Circ Sub N/C T-Pulled 21:28
 (E) Second Initial Flow 223 Hourly Standby _____ T-Out 00:51
 (F) Second Final Flow 293 Mileage 74 R/T 229.40 Comments Graded 600pm
 (G) Final Shut-In 941 Sampler _____ 11/17/12
 (H) Final Hydrostatic 2225 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer 320
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 320
 Day Standby _____ Total 1874.40
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 1554.40

Approved By Robert P. Hendrix Our Representative [Signature]

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