



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Patti #3-10

10-1Ss-37w Cheyenne,KS

Start Date: 2015.02.28 @ 21:24:00

End Date: 2015.03.01 @ 04:47:00

Job Ticket #: 62201 DST #: 1

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

Printed: 2015.03.06 @ 14:00:59



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.

10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 62201

DST#: 1

ATTN: Robert Hendrix

Test Start: 2015.02.28 @ 21:24:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:58:45

Time Test Ended: 04:47:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Donovan Baumann

Unit No: 54

Interval: 4052.00 ft (KB) To 4112.00 ft (KB) (TVD)

Reference Elevations: 3233.00 ft (KB)

Total Depth: 4112.00 ft (KB) (TVD)

3222.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 6753 Outside

Press@RunDepth: 47.09 psig @ 4053.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.02.28

End Date: 2015.03.01

Last Calib.: 2015.03.01

Start Time: 21:24:05

End Time: 04:46:59

Time On Btm: 2015.02.28 @ 23:58:30

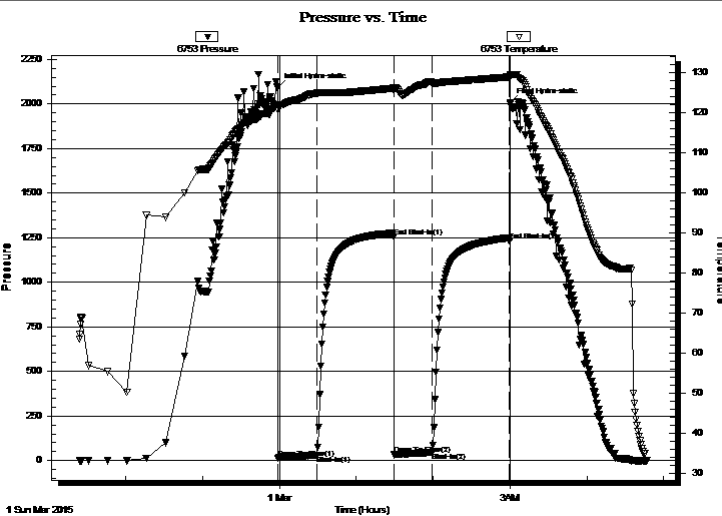
Time Off Btm: 2015.03.01 @ 03:00:15

TEST COMMENT: 30 - IF - Weak surface blow built to 1 3/4" in 30 min. (In Diesel)

60 - ISI - No return

30 - FF - No surface blow

60 - FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2091.02	122.05	Initial Hydro-static
1	14.42	120.63	Open To Flow (1)
31	30.37	124.81	Shut-In(1)
91	1252.96	126.06	End Shut-In(1)
91	33.39	125.44	Open To Flow (2)
121	47.09	127.50	Shut-In(2)
181	1230.53	128.87	End Shut-In(2)
182	2008.67	129.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSM - 100M - Oil Spots	0.30

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.

10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 62201

DST#: 1

ATTN: Robert Hendrix

Test Start: 2015.02.28 @ 21:24:00

Tool Information

Drill Pipe:	Length: 3819.84 ft	Diameter: 3.80 inches	Volume: 53.58 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 209.66 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose:	62000.00 lb
			<u>Total Volume: 54.61 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	4.50 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4052.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	87.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4030.00	
Hydraulic tool	5.00			4035.00	
Jars	5.00			4040.00	
Safety Joint	3.00			4043.00	
Packer	4.00			4047.00	27.00 Bottom Of Top Packer
Packer	5.00			4052.00	
Stubb	1.00			4053.00	
Recorder	0.00	8368	Inside	4053.00	
Recorder	0.00	6753	Outside	4053.00	
Perforations	22.00			4075.00	
Change Over Sub	1.00			4076.00	
Drill Pipe	31.00			4107.00	
Change Over Sub	1.00			4108.00	
Bullnose	4.00			4112.00	60.00 Bottom Packers & Anchor

Total Tool Length: 87.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 62201

DST#: 1

ATTN: Robert Hendrix

Test Start: 2015.02.28 @ 21:24:00

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: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	OSM - 100M - Oil Spots	0.295

Total Length: 60.00 ft Total Volume: 0.295 bbl

Num Fluid Samples: 0

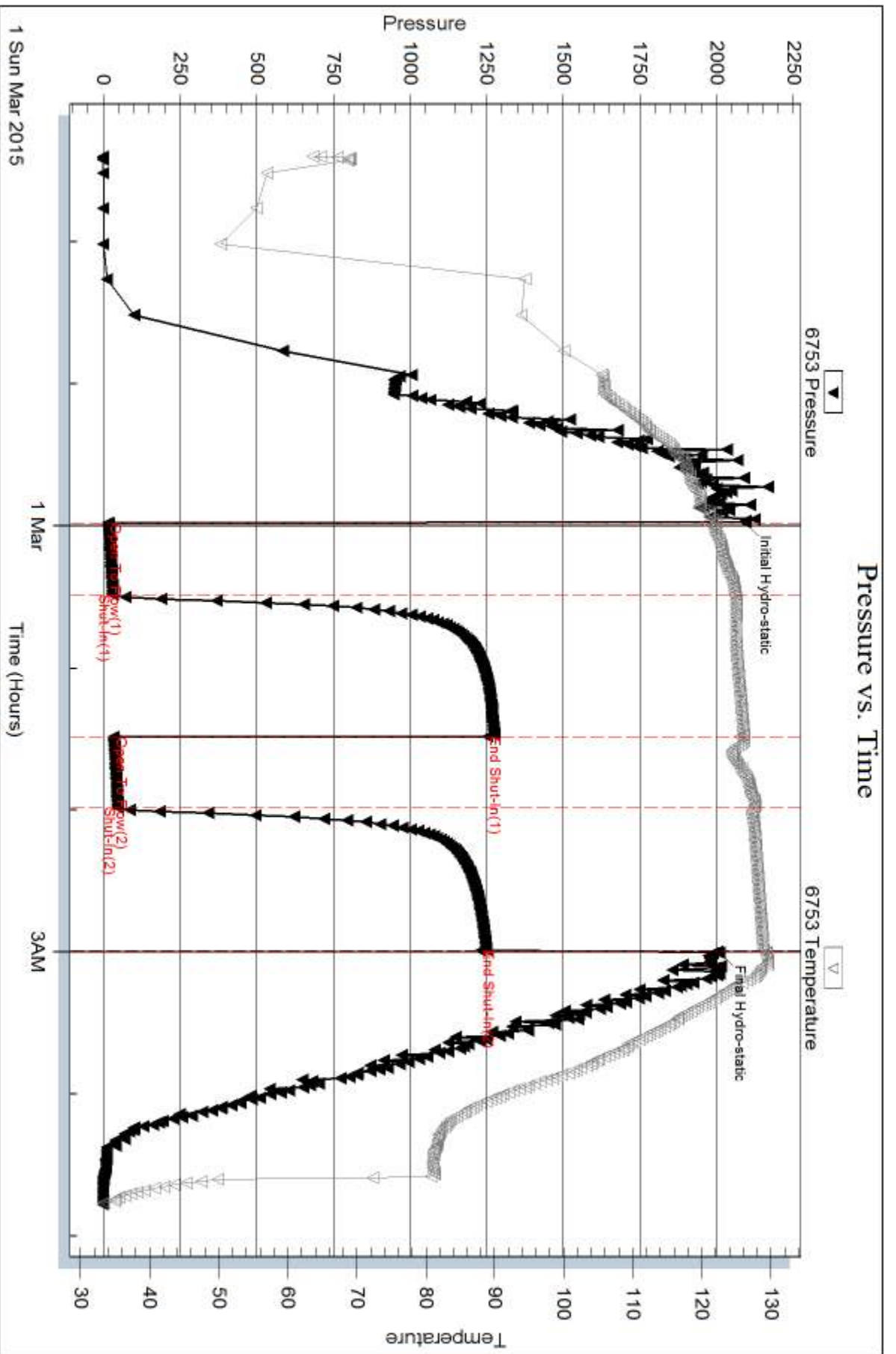
Num Gas Bombs: 0

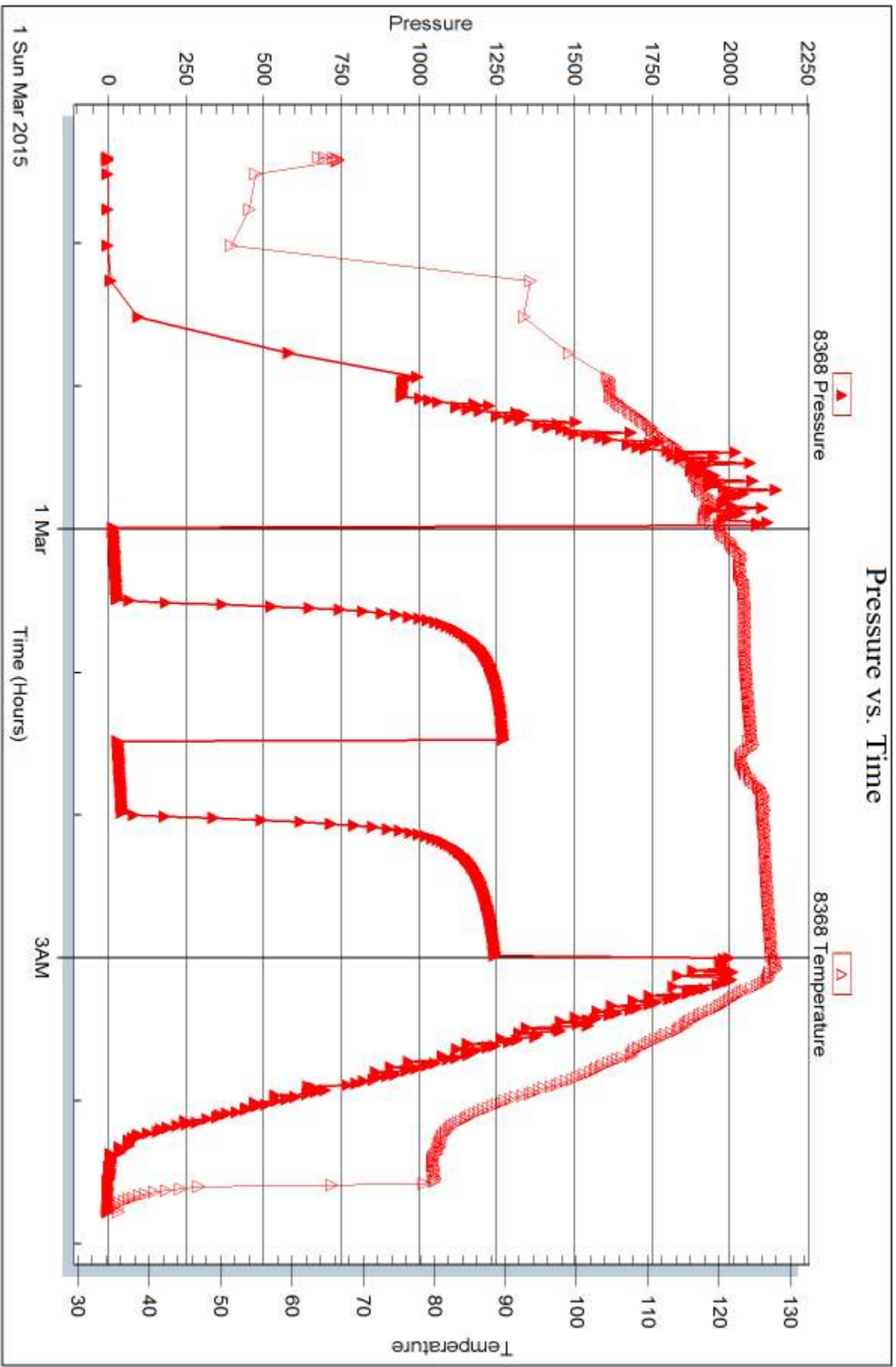
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Patti #3-10

10-1Ss-37w Cheyenne,KS

Start Date: 2015.03.01 @ 20:23:00

End Date: 2015.03.02 @ 04:08:00

Job Ticket #: 61099 DST #: 2

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

Printed: 2015.03.06 @ 13:59:37



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DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.

10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 61099

DST#: 2

ATTN: Robert Hendrix

Test Start: 2015.03.01 @ 20:23:00

GENERAL INFORMATION:

Formation: **LKC 'D'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:00:30

Time Test Ended: 04:08:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 54

Interval: 4180.00 ft (KB) To 4254.00 ft (KB) (TVD)

Reference Elevations: 3233.00 ft (KB)

Total Depth: 4254.00 ft (KB) (TVD)

3222.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 6753 Outside

Press@RunDepth: 161.58 psig @ 4181.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.03.01

End Date:

2015.03.02

Last Calib.:

2015.03.02

Start Time: 20:23:05

End Time:

04:07:59

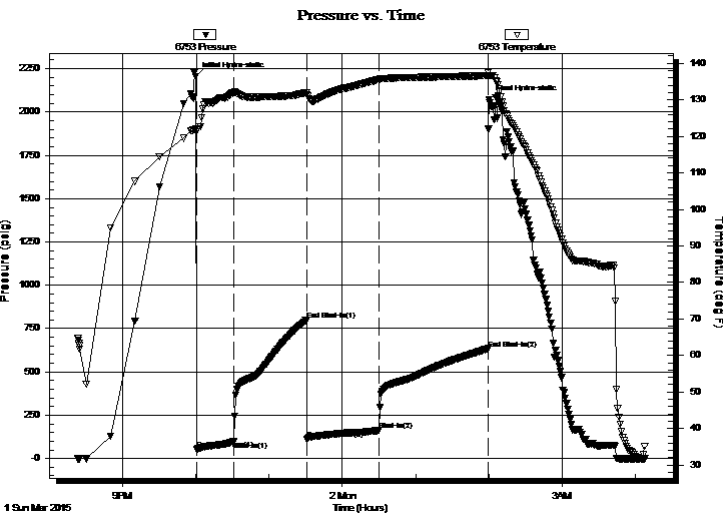
Time On Btm:

2015.03.01 @ 22:00:00

Time Off Btm:

2015.03.02 @ 02:00:15

TEST COMMENT: 30 - IF - Surface blow built up to 8"
60 - ISI - No Return
60 - FF - Surface blow started 3 mins. in and built up to 5 3/4"
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2202.50	122.07	Initial Hydro-static
1	51.68	121.33	Open To Flow (1)
31	97.62	132.03	Shut-In(1)
91	799.68	131.88	End Shut-In(1)
91	109.64	131.37	Open To Flow (2)
150	161.58	135.58	Shut-In(2)
240	634.54	136.63	End Shut-In(2)
241	2070.83	136.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
126.00	OSMW - 25M - 75W - Oil Spots	0.62
63.00	OSMW - 45M - 55W - Oil Spots	0.31
129.00	OCM - 95M - 5o	1.62
2.00	Free Oil - 100o	0.03

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.

10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 61099

DST#: 2

ATTN: Robert Hendrix

Test Start: 2015.03.01 @ 20:23:00

Tool Information

Drill Pipe:	Length: 3971.55 ft	Diameter: 3.80 inches	Volume: 55.71 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 209.66 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 56.74 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.21 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4180.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	74.00 ft				
Tool Length:	101.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4158.00	
Hydraulic tool	5.00			4163.00	
Jars	5.00			4168.00	
Safety Joint	3.00			4171.00	
Packer	4.00			4175.00	27.00 Bottom Of Top Packer
Packer	5.00			4180.00	
Stubb	1.00			4181.00	
Recorder	0.00	8368	Inside	4181.00	
Recorder	0.00	6753	Outside	4181.00	
Perforations	36.00			4217.00	
Change Over Sub	1.00			4218.00	
Drill Pipe	31.00			4249.00	
Change Over Sub	1.00			4250.00	
Bullnose	4.00			4254.00	74.00 Bottom Packers & Anchor

Total Tool Length: 101.00



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10-1Ss-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Patti #3-10

Job Ticket: 61099

DST#: 2

ATTN: Robert Hendrix

Test Start: 2015.03.01 @ 20:23:00

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:

55000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
126.00	OSMW - 25M - 75W - Oil Spots	0.620
63.00	OSMW - 45M - 55W - Oil Spots	0.310
129.00	OCM - 95M - 5o	1.621
2.00	Free Oil - 100o	0.028

Total Length: 320.00 ft

Total Volume: 2.579 bbl

Num Fluid Samples: 0

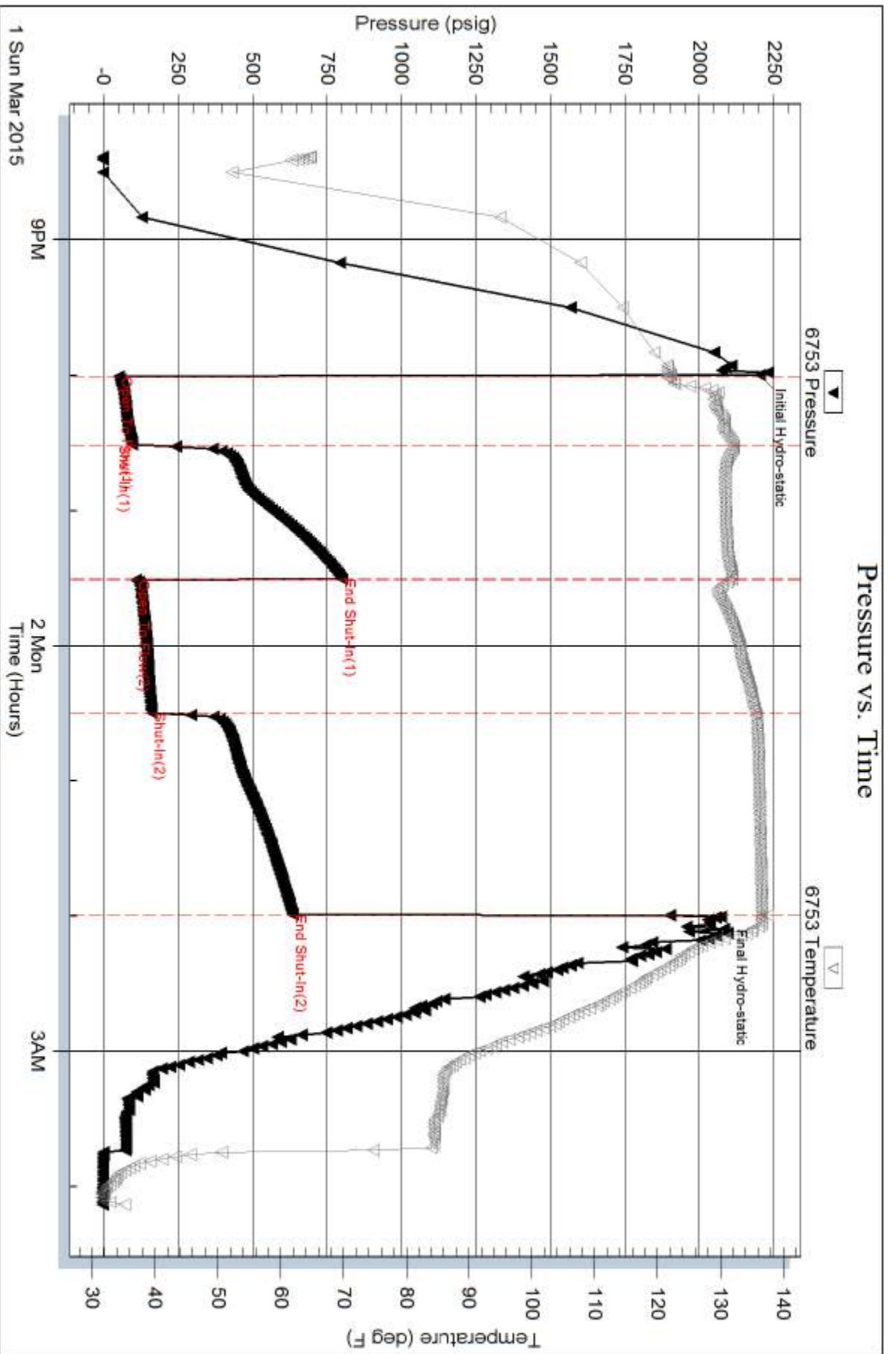
Num Gas Bombs: 0

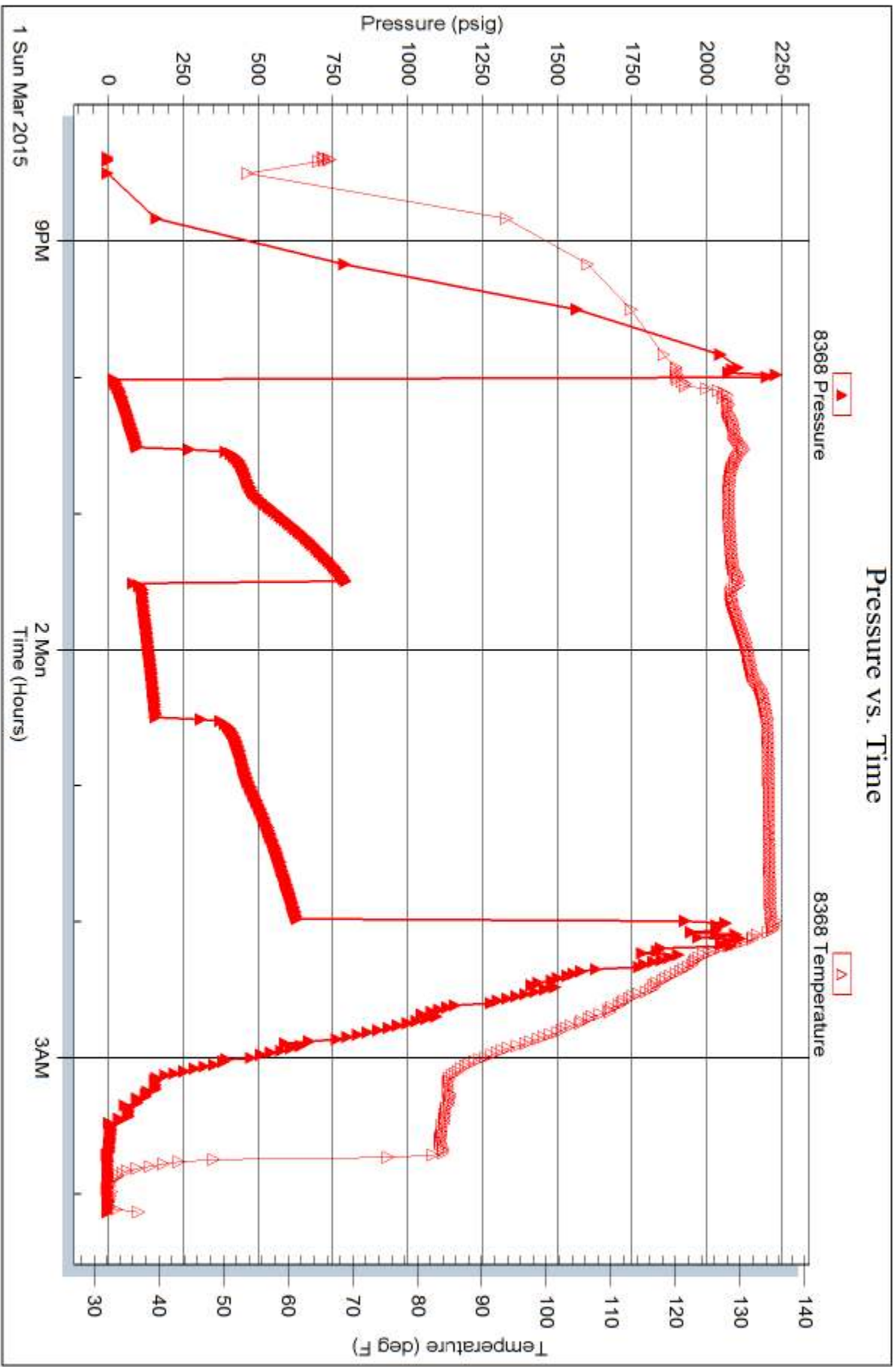
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62201

Well Name & No. Patti # 3-10 Test No. 1 Date 2-28-15
 Company Murfin Drilling Co., Inc. Elevation 3233 KB 3222 GL
 Address 250 N water STE 300, Wichita, KS, 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #2
 Location: Sec. 10 Twp. 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 4052' - 4112' Zone Tested oread
 Anchor Length 60' Drill Pipe Run 3819.84 Mud Wt. 9.0
 Top Packer Depth 4047' Drill Collars Run 209.66 Vis 64
 Bottom Packer Depth 4052' Wt. Pipe Run 0 WL 6.8
 Total Depth 4112' Chlorides 700 ppm System LCM #8
 Blow Description IF- weak surface blow built to 1 3/4 in. in 30 min. (In Diesel)
ISI- NO return
FF- NO surface blow
FSI- NO return

Rec	Feet of	%gas	spots	%oil	%water	%mud
<u>60</u>	<u>0.5M</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 60 BHT 129 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2091 Test 1150 T-On Location 7:08pm
 (B) First Initial Flow 14 Jars 250 T-Started 9:24pm
 (C) First Final Flow 30 Safety Joint 75 T-Open 11:59pm
 (D) Initial Shut-In 1253 Circ Sub N/C T-Pulled 2:59am 3-
 (E) Second Initial Flow 33 Hourly Standby _____ T-Out 4:47am
 (F) Second Final Flow 47 Mileage 148 Comments _____
 (G) Final Shut-In 1231 Sampler _____
 (H) Final Hydrostatic 2009 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1623

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

Sub Total 1623
 Total 1623
 MP/DST Disc't _____

Approved By _____ Our Representative General Baumgartner

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61099

Well Name & No. Patti #3-10 Test No. 2 Date 3-1-15
 Company Murfin Drilling Co., Inc. Elevation 3233 KB 3222 GL
 Address 250 N. Water, Ste 300 Wichita Ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #2
 Location: Sec. 10 Twp. 1S Rge. 37W Co. Cheyenne State Ks

Interval Tested 4180'-4254' Zone Tested Lans. - D'
 Anchor Length 74' Drill Pipe Run 3971.55' Mud Wt. 9.3
 Top Packer Depth 4175' Drill Collars Run 209.66' Vis 53
 Bottom Packer Depth 4180' Wt. Pipe Run 0 WL 7.2
 Total Depth 4254' Chlorides 700 ppm System LCM 6#

Blow Description IF - Surface blow built up to 8"
ISI - No Return
FF - Surface blow started 3 mins in and built up to 5 3/4"
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>2'</u>	<u>Free Oil</u>	<u>100</u>			
<u>129'</u>	<u>OCM</u>	<u>5</u>		<u>95</u>	
<u>63'</u>	<u>OSMW</u>	<u>Spots</u>	<u>55</u>	<u>45</u>	
<u>126'</u>	<u>OSMW</u>	<u>Spots</u>	<u>75</u>	<u>25</u>	

Rec Total 320' BHT 136°F Gravity 1150 API RW .268 @ 37 °F Chlorides 55,000 ppm

(A) Initial Hydrostatic 2202 Test T-On Location 7:50 pm
 (B) First Initial Flow 57 Jars 250 T-Started 8:23 pm
 (C) First Final Flow 97 Safety Joint 75 T-Open 10:01 pm
 (D) Initial Shut-In 799 Circ Sub N/C T-Pulled 2:01 am
 (E) Second Initial Flow 109 Hourly Standby T-Out 4:09 am
 (F) Second Final Flow 161 Mileage 148 R/T 148+148 Comments picked up tool 3/3/15
 (G) Final Shut-In 634 Sampler on location @ 9:50 am left
 (H) Final Hydrostatic 2070 Straddle @ 11:30 am rig stuck @ 4362
 Shale Packer
 Ruined Shale Packer
 Extra Packer
 Ruined Packer
 Extra Recorder
 Extra Copies
 Day Standby
 Accessability

Initial Open 30 Sub Total 0
 Initial Shut-In 60 Total 1771
 Final Flow 60 MP/DST Disc't
 Final Shut-In 90 Sub Total 1771

Approved By _____ Our Representative [Signature]

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