



DRILL STEM TEST REPORT

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

250 N Water
Ste. 300
Wichita, KS 67202

ATTN: Mike Maune

Janke #1-15

15-16S-20W Rush, KS

Start Date: 2014.03.16 @ 03:33:56

End Date: 2014.03.16 @ 12:06:26

Job Ticket #: 54017 DST #: 1

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

Printed: 2014.03.20 @ 18:27:59

Murfin Drilling Co., Inc.
15-16S-20W Rush, KS
Janke #1-15
DST # 1
LKC B
2014.03.16



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54017

DST#: 1

Test Start: 2014.03.16 @ 03:33:56

GENERAL INFORMATION:

Formation: **LKC B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:33:26

Time Test Ended: 12:06:26

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan L

Unit No: 48

Interval: 3574.00 ft (KB) To 3600.00 ft (KB) (TVD)

Reference Elevations: 2183.00 ft (KB)

Total Depth: 3600.00 ft (KB) (TVD)

2177.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 8321

Inside

Press@RunDepth: 58.50 psig @ 3575.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.16

End Date:

2014.03.16

Last Calib.:

2014.03.16

Start Time: 03:33:57

End Time:

12:06:26

Time On Btm:

2014.03.16 @ 06:31:26

Time Off Btm:

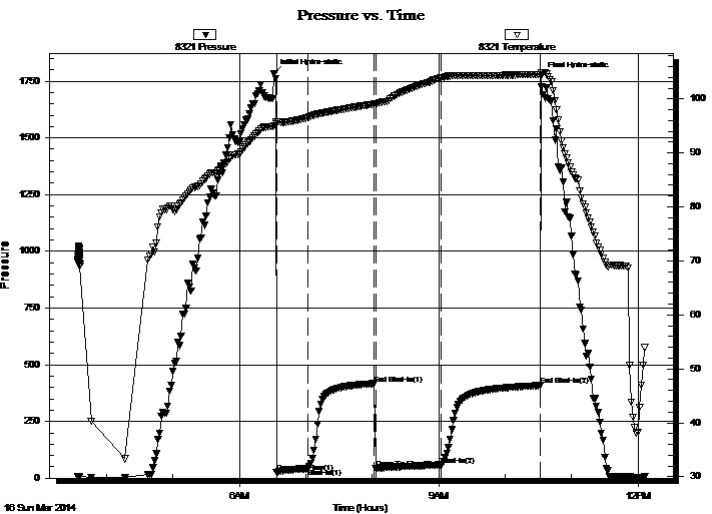
2014.03.16 @ 10:32:26

TEST COMMENT: 30- IF- Slow ly built to 3 1/2"

60- IS- No blow

60- FF- Slow ly built to 4"

90- FSI- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1784.84	95.05	Initial Hydro-static
2	25.01	95.40	Open To Flow (1)
30	41.52	96.53	Shut-In(1)
90	416.49	99.06	End Shut-In(1)
92	43.31	99.09	Open To Flow (2)
151	58.50	103.93	Shut-In(2)
240	408.09	104.58	End Shut-In(2)
241	1769.82	104.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
80.00	MW, 30%M 70%W	0.83
2.00	O	0.03

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune**Janke #1-15**

Job Ticket: 54017

DST#: 1

Test Start: 2014.03.16 @ 03:33:56

GENERAL INFORMATION:

Formation: **LKC B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:33:26

Time Test Ended: 12:06:26

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan L

Unit No: 48

Interval: **3574.00 ft (KB) To 3600.00 ft (KB) (TVD)**

Reference Elevations: 2183.00 ft (KB)

Total Depth: 3600.00 ft (KB) (TVD)

2177.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 8372 Outside

Press@RunDepth: psig @ 3575.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.16

End Date:

2014.03.16

Last Calib.:

2014.03.16

Start Time: 03:33:33

End Time:

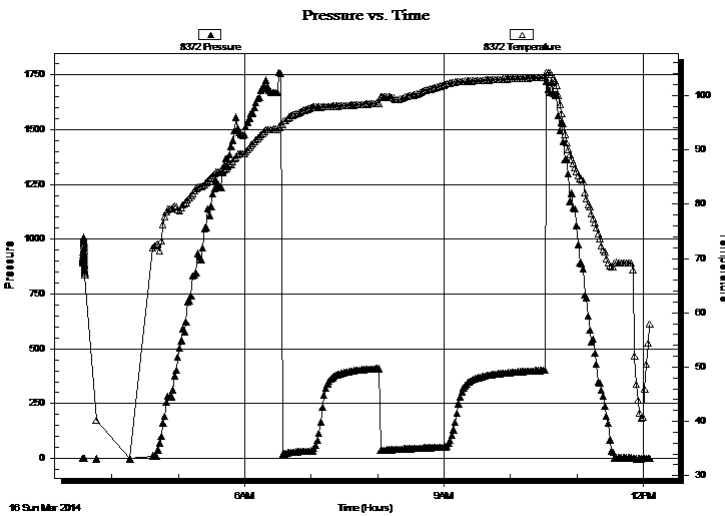
12:06:02

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF- Slow ly built to 3 1/2"
60- IS- No blow
60- FF- Slow ly built to 4"
90- FS- No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
80.00	MW, 30%M 70%W	0.83
2.00	O	0.03

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54017

DST#: 1

Test Start: 2014.03.16 @ 03:33:56

Tool Information

Drill Pipe:	Length: 3548.00 ft	Diameter: 3.75 inches	Volume: 48.47 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3574.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	26.00 ft				
Tool Length:	53.00 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			3548.00	
Shut In Tool	5.00			3553.00	
Hydraulic tool	5.00			3558.00	
Jars	5.00			3563.00	
Safety Joint	2.00			3565.00	
Packer	5.00			3570.00	27.00 Bottom Of Top Packer
Packer	4.00			3574.00	
Stubb	1.00			3575.00	
Recorder	0.00	8321	Inside	3575.00	
Recorder	0.00	8372	Outside	3575.00	
Perforations	22.00			3597.00	
Bullnose	3.00			3600.00	26.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54017

DST#: 1

Test Start: 2014.03.16 @ 03:33:56

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 64.00 sec/qt

Water Loss: 6.39 in³

Resistivity: ohm.m

Salinity: 2500.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: 72000 ppm

deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
80.00	MW, 30%M 70%W	0.831
2.00	O	0.027

Total Length: 82.00 ft Total Volume: 0.858 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

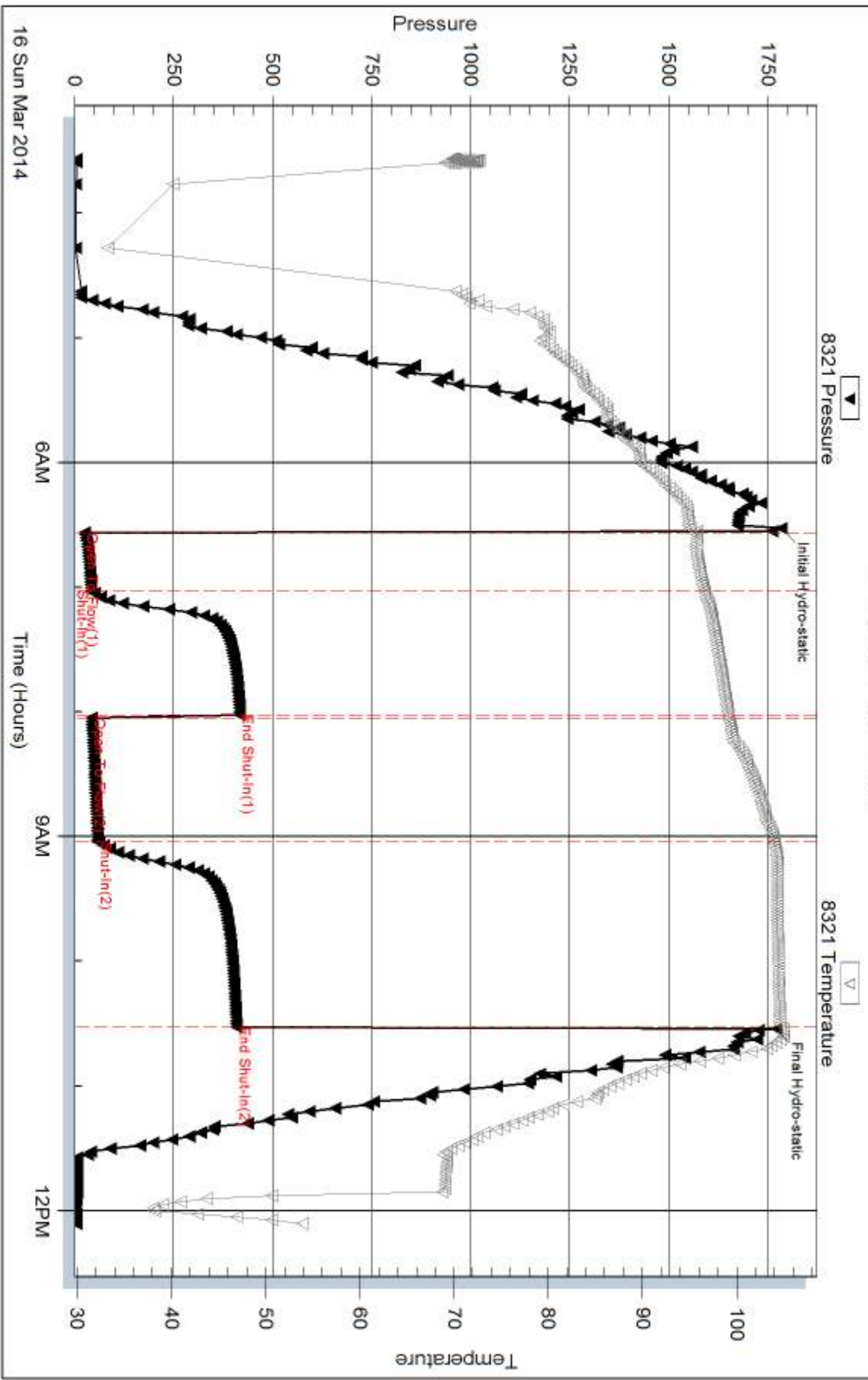
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

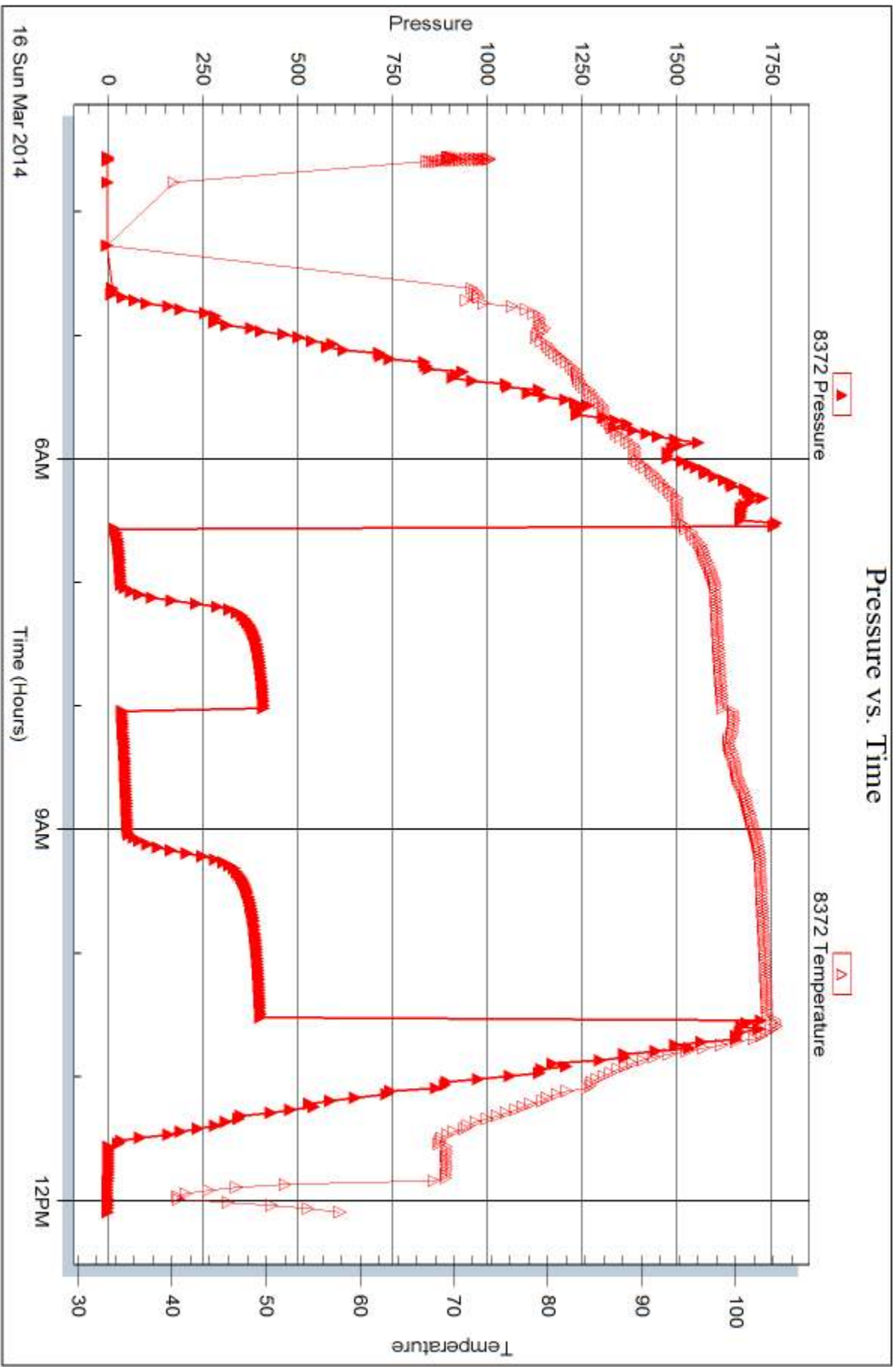


Serial #: 8372

Outside Murfin Drilling Co., Inc.

Janke #1-15

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54017

Printed: 2014.03.20 @ 18:28:01



DRILL STEM TEST REPORT

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

250 N Water
Ste. 300
Wichita, KS 67202

ATTN: Mike Maune

Janke #1-15

15-16S-20W Rush, KS

Start Date: 2014.03.17 @ 18:07:21

End Date: 2014.03.18 @ 02:08:21

Job Ticket #: 54018 DST #: 2

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

Printed: 2014.03.20 @ 18:27:23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54018

DST#: 2

Test Start: 2014.03.17 @ 18:07:21

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:44:51

Time Test Ended: 02:08:21

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 48

Interval: 3922.00 ft (KB) To 3955.00 ft (KB) (TVD)

Reference Elevations: 2183.00 ft (KB)

Total Depth: 3955.00 ft (KB) (TVD)

2177.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 8321 Outside

Press@RunDepth: 555.18 psig @ 3923.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.17

End Date:

2014.03.18

Last Calib.:

2014.03.18

Start Time: 18:07:22

End Time:

02:08:21

Time On Btm:

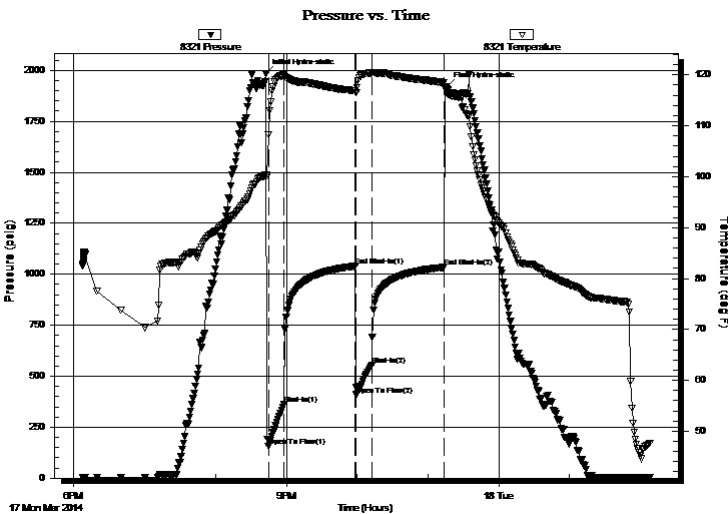
2014.03.17 @ 20:42:51

Time Off Btm:

2014.03.17 @ 23:16:21

TEST COMMENT: 15- IF- BOB 1 min
60- IS- No blow
15- FF- BOB 2 mins
60- FS- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1985.51	100.36	Initial Hydro-static
2	156.65	108.20	Open To Flow (1)
15	360.96	120.09	Shut-In(1)
76	1039.64	116.85	End Shut-In(1)
77	409.34	116.51	Open To Flow (2)
90	555.18	120.39	Shut-In(2)
151	1034.11	118.53	End Shut-In(2)
154	1922.07	116.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1175.00	MW, 20%M 80%W	15.79
10.00	O	0.14
0.00	20' 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.

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

15-16S-20W Rush, KS

Janke #1-15

Job Ticket: 54018

DST#: 2

Test Start: 2014.03.17 @ 18:07:21

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:44:51

Time Test Ended: 02:08:21

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan L

Unit No: 48

Interval: 3922.00 ft (KB) To 3955.00 ft (KB) (TVD)

Reference Elevations: 2183.00 ft (KB)

Total Depth: 3955.00 ft (KB) (TVD)

2177.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

Serial #: 8372 Inside

Press@RunDepth: psig @ 3923.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.03.17

End Date:

2014.03.18

Last Calib.:

2014.03.18

Start Time: 18:07:25

End Time:

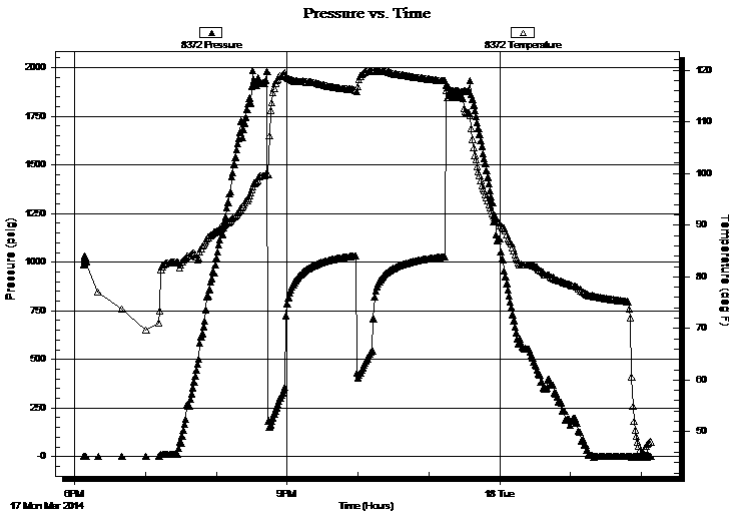
02:08:24

Time On Btm:

Time Off Btm:

TEST COMMENT: 15- IF- BOB 1 min
60- IS- No blow
15- FF- BOB 2 mins
60- FS- No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
1175.00	MW, 20%M 80%W	15.79
10.00	O	0.14
0.00	20' 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.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54018

DST#: 2

Test Start: 2014.03.17 @ 18:07:21

Tool Information

Drill Pipe:	Length: 3896.00 ft	Diameter: 3.75 inches	Volume: 53.22 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	3922.00 ft			Final	61000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	33.00 ft				
Tool Length:	60.00 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			3896.00	
Shut In Tool	5.00			3901.00	
Hydraulic tool	5.00			3906.00	
Jars	5.00			3911.00	
Safety Joint	2.00			3913.00	
Packer	5.00			3918.00	27.00 Bottom Of Top Packer
Packer	4.00			3922.00	
Stubb	1.00			3923.00	
Recorder	0.00	8372	Inside	3923.00	
Recorder	0.00	8321	Outside	3923.00	
Perforations	29.00			3952.00	
Bullnose	3.00			3955.00	33.00 Bottom Packers & Anchor

Total Tool Length: 60.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

15-16S-20W Rush, KS

250 N Water
Ste. 300
Wichita, KS 67202
ATTN: Mike Maune

Janke #1-15

Job Ticket: 54018

DST#: 2

Test Start: 2014.03.17 @ 18:07:21

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 58.00 sec/qt

Water Loss: 7.98 in³

Resistivity: ohm.m

Salinity: 5000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: 51000 ppm

deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1175.00	MW, 20%M 80%W	15.789
10.00	O	0.137
0.00	20' GIP	0.000

Total Length: 1185.00 ft Total Volume: 15.926 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

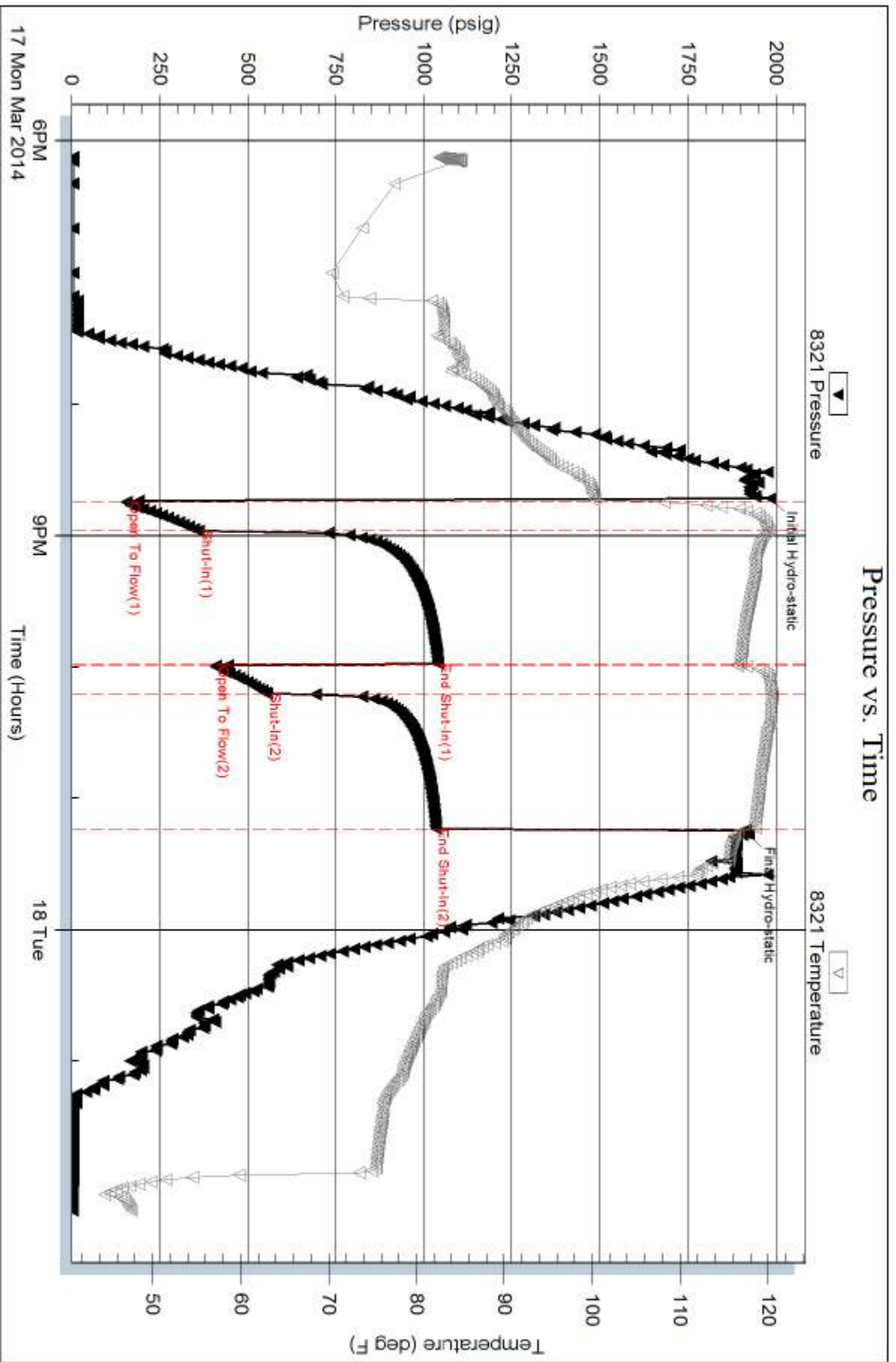
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



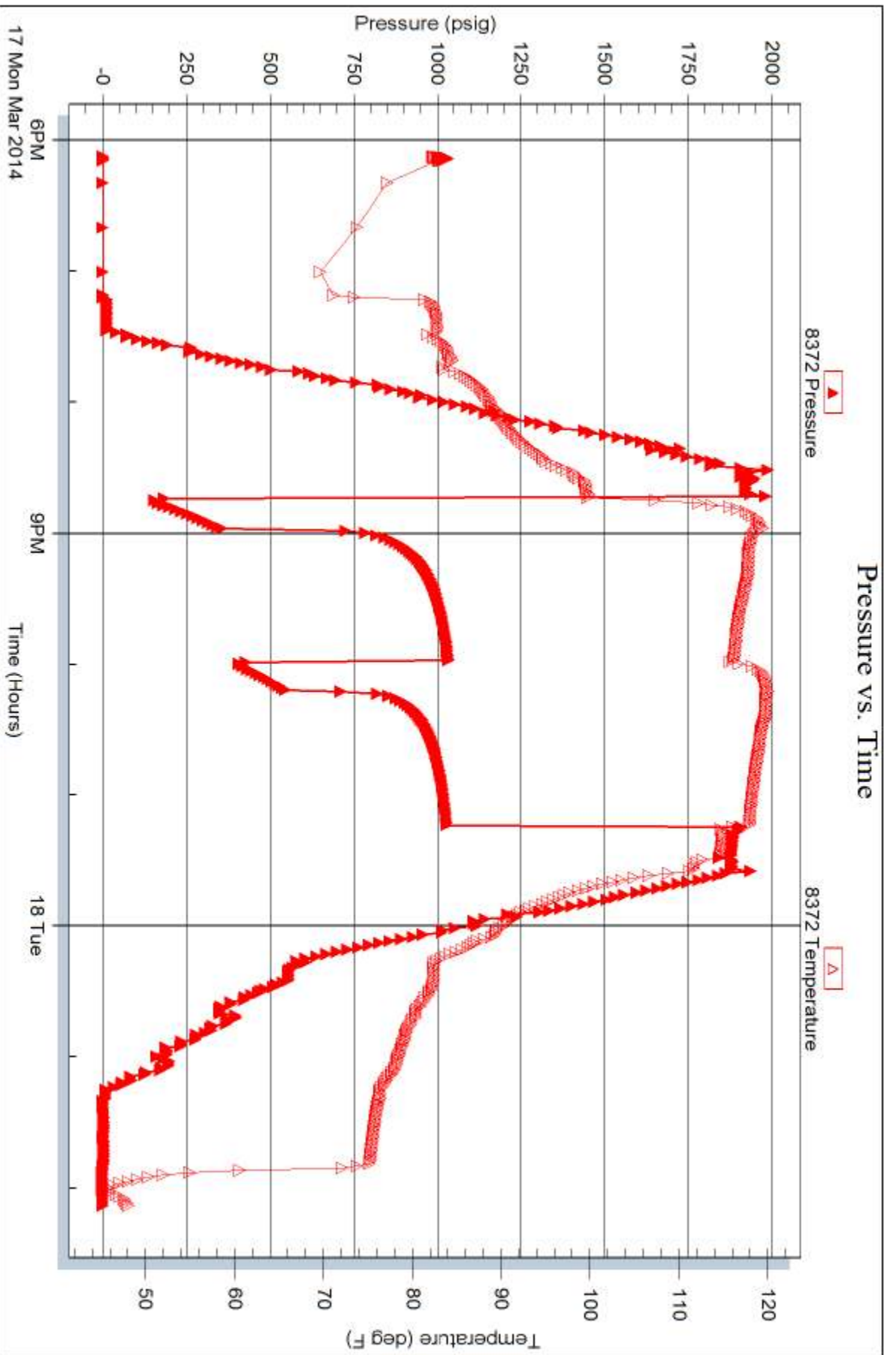
Serial #: 8372

Inside

Murfin Drilling Co., Inc.

Janke #1-15

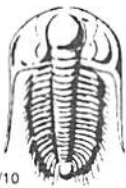
DST Test Number: 2



Triobite Testing, Inc

Ref. No: 54018

Printed: 2014.03.20 @ 18:27:25



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54017

Well Name & No. Janke #1-15 Test No. 1 Date 3/16/14
 Company Murfin Drilling Co., Inc. Elevation 2183 KB 2177 GL
 Address 250 N. Wate St. 300 Wichita, KS 67202
 Co. Rep / Geo. Mike Maune Rig Murfin 16
 Location: Sec. 15 Twp. 16S Rge. 20W Co. Rush State KS

Interval Tested 3574-3600 Zone Tested Lansing B
 Anchor Length 26' Drill Pipe Run 3548 Mud Wt. 8.6
 Top Packer Depth 3569 Drill Collars Run 30 Vis 64
 Bottom Packer Depth 3574 Wt. Pipe Run _____ WL 6.4
 Total Depth 3600 Chlorides 2500 ppm System LCM 1 1/2#
 Blow Description IF - slowly built to 3 1/2"
ISI - No blow
FF - slowly built to 4"
FSI - No blow

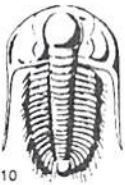
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>0</u>				
<u>80</u>	<u>MW</u>			<u>70</u>	<u>30</u>

Rec Total 82' BHT 105° Gravity _____ API RW .19 @ 35 ° F Chlorides 22,000 ppm

(A) Initial Hydrostatic <u>1785</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>0324</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0334</u>
(C) First Final Flow <u>42</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0633</u>
(D) Initial Shut-In <u>416</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1033</u>
(E) Second Initial Flow <u>43</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>1206</u>
(F) Second Final Flow <u>59</u>	<input checked="" type="checkbox"/> Mileage <u>64 RT</u> 99.20	Comments _____
(G) Final Shut-In <u>408</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1770</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>1574.20</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1574.20</u>	

Approved By _____ Our Representative Braman L

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. 54018

Well Name & No. Janke # 1-15 Test No. 2 Date 3/17/14
 Company Murfin Drilling CO., Inc. Elevation 2183 KB 2177 GL
 Address 250 N. Water Ste. 300 Wichita, KS 67202
 Co. Rep / Geo. Mik Manne Rig Murfm 16
 Location: Sec. 15 Twp. 16S Rge. 20W Co. Rush State KS

Interval Tested 3922-3955 Zone Tested Arbuckle
 Anchor Length 33' Drill Pipe Run 3896 Mud Wt. 9.2
 Top Packer Depth 3917 Drill Collars Run 30 Vis 58
 Bottom Packer Depth 3922 Wt. Pipe Run _____ WL 8.0
 Total Depth 3955 Chlorides 5000 ppm System LCM 3#

Blow Description IF-BOB 1min
ISI- No blow
FF-BOB 2mins
FSI- No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>0</u>				
<u>1175</u>	<u>NW</u>			<u>80</u>	<u>20</u>
	<u>20' CIP</u>				

Rec Total 1185 BHT 119° Gravity _____ API RW .24 @ 39 °F Chlorides 51,000 ppm

(A) Initial Hydrostatic 1986 Test 1150 T-On Location 1801
 (B) First Initial Flow 157 Jars 250 T-Started 1807
 (C) First Final Flow 361 Safety Joint 75 T-Open 2043
 (D) Initial Shut-In 1040 Circ Sub _____ T-Pulled 2313
 (E) Second Initial Flow 409 Hourly Standby _____ T-Out 0208
 (F) Second Final Flow 555 Mileage 64 RTx2 Comments Loaded tools
 (G) Final Shut-In 1034 Sampler 198.40 3/18 @ 1945
 (H) Final Hydrostatic 1922 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 15 Extra Packer _____ Extra Copies _____
 Initial Shut-In 60 Extra Recorder _____ Sub Total 200
 Final Flow 15 Day Standby 1d 6h Total 1873.40
 Final Shut-In 60 Accessibility _____ MP/DST Disc't _____
 Sub Total 1673.40

Approved By _____ Our Representative Boannen L

Trilobite Testing Inc. shall not be liable for damaged or 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.