



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Paul Gunzelman

Kathka Farms #2-2

2-2s-29w Decatur,KS

Start Date: 2013.05.28 @ 05:31:37

End Date: 2013.05.28 @ 12:15:37

Job Ticket #: 53156 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.03 @ 09:54:23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

ATTN: Paul Gunzelman

Job Ticket: 53156

DST#: 1

Test Start: 2013.05.28 @ 05:31:37

GENERAL INFORMATION:

Formation: **LKC A-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:34:37

Time Test Ended: 12:15:37

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 60

Interval: 3700.00 ft (KB) To 3806.00 ft (KB) (TVD)

Reference Elevations: 2787.00 ft (KB)

Total Depth: 3806.00 ft (KB) (TVD)

2782.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8373

Inside

Press @ Run Depth: 51.26 psig @ 3701.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.05.28

End Date:

2013.05.28

Last Calib.:

2013.05.28

Start Time: 05:31:42

End Time:

12:15:36

Time On Btm:

2013.05.28 @ 07:33:07

Time Off Btm:

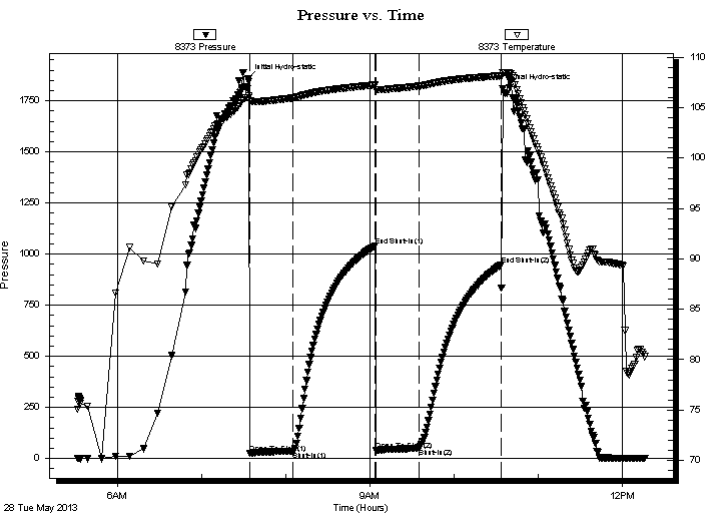
2013.05.28 @ 10:34:37

TEST COMMENT: IF: 1/4" blow built to 1" died in 20 min.

IS: No return.

FF: No blow.

FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1859.91	106.00	Initial Hydro-static
2	25.71	105.65	Open To Flow (1)
32	36.35	105.97	Shut-In(1)
91	1040.55	107.26	End Shut-In(1)
91	40.85	106.83	Open To Flow (2)
122	51.26	107.14	Shut-In(2)
180	947.12	108.18	End Shut-In(2)
182	1810.87	108.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	ocm 5%o 95%m	0.10

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

Job Ticket: 53156

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2013.05.28 @ 05:31:37

Tool Information

Drill Pipe:	Length: 3504.00 ft	Diameter: 3.80 inches	Volume: 49.15 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 50.06 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3700.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	106.00 ft			
Tool Length:	134.00 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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Stubb	1.00			3673.00	
Shut In Tool	5.00			3678.00	
Hydraulic tool	5.00			3683.00	
Jars	5.00			3688.00	
Safety Joint	3.00			3691.00	
Packer	5.00			3696.00	28.00 Bottom Of Top Packer
Packer	4.00			3700.00	
Stubb	1.00			3701.00	
Recorder	0.00	8373	Inside	3701.00	
Recorder	0.00	8356	Outside	3701.00	
Perforations	4.00			3705.00	
Change Over Sub	1.00			3706.00	
Drill Pipe	94.00			3800.00	
Change Over Sub	1.00			3801.00	
Bullnose	5.00			3806.00	106.00 Bottom Packers & Anchor

Total Tool Length: 134.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

Job Ticket: 53156

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2013.05.28 @ 05:31:37

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	ocm 5%o 95%m	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8373

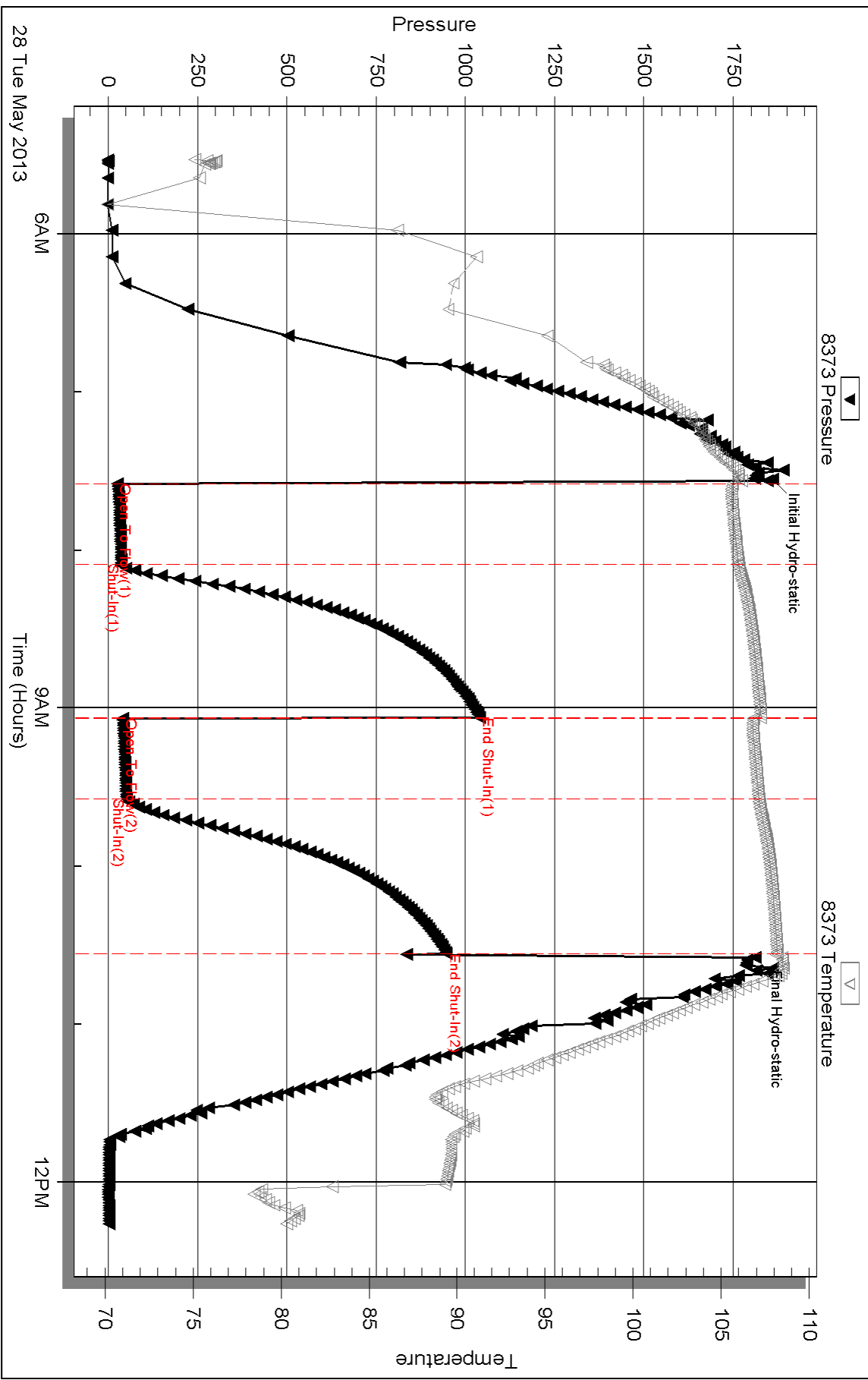
Inside

Murfin Drilling Company

Kathka Farms #2-2

DST Test Number: 1

Pressure vs. Time

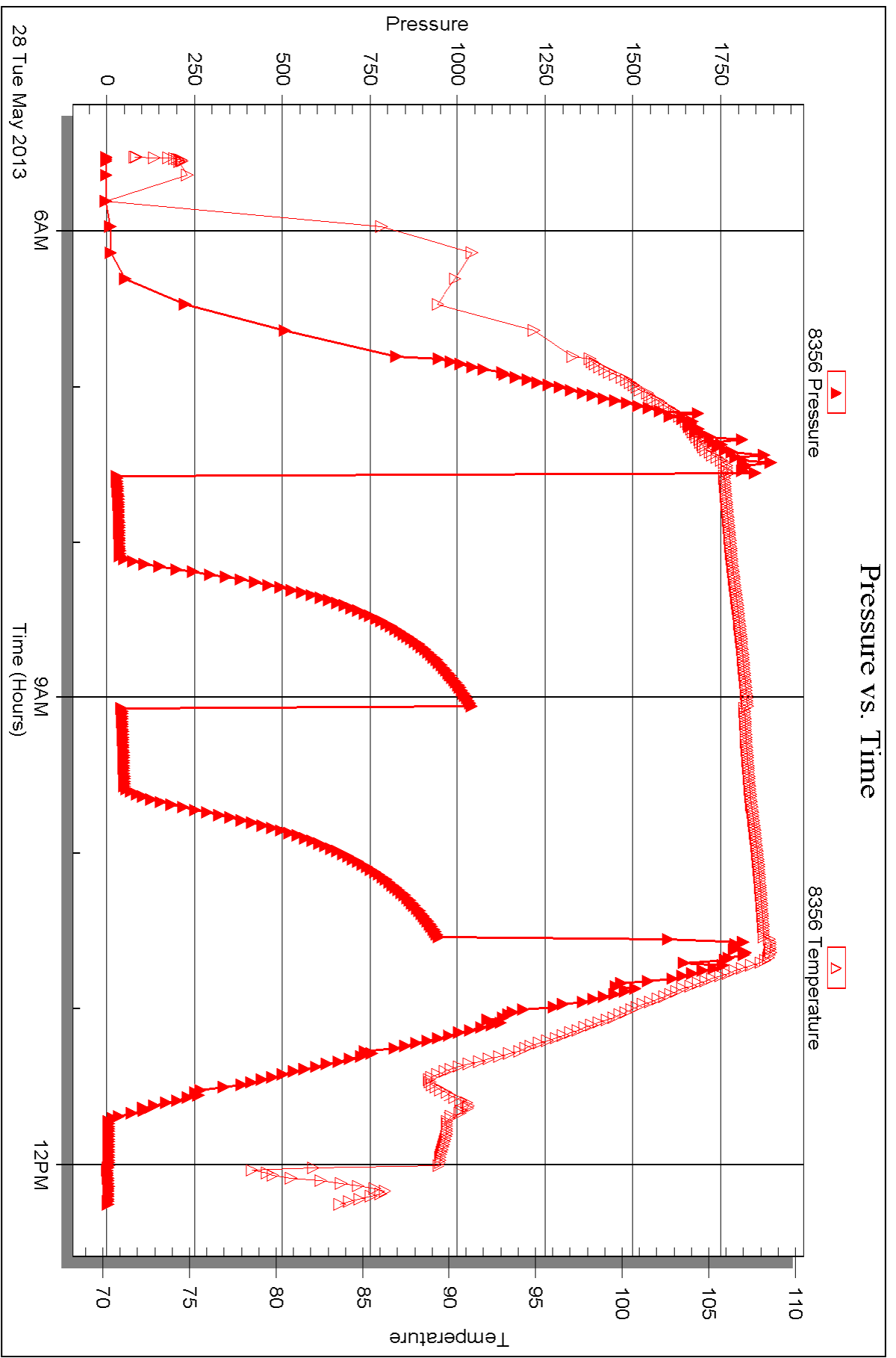


Serial #: 8356

Outside Murfin Drilling Company

Kathka Farms #2-2

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 53156

Printed: 2013.06.03 @ 09:54:26



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Paul Gunzelman

Kathka Farms #2-2

2-2s-29w Decatur,KS

Start Date: 2013.05.29 @ 01:50:00

End Date: 2013.05.29 @ 08:56:00

Job Ticket #: 52680 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.03 @ 09:53:48

Murfin Drilling Company

2-2s-29w Decatur,KS

Kathka Farms #2-2

DST # 2

LKC " H - K "

2013.05.29



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

ATTN: Paul Gunzelman

Job Ticket: 52680

DST#: 2

Test Start: 2013.05.29 @ 01:50:00

GENERAL INFORMATION:

Formation: **LKC " H - K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:35:00

Time Test Ended: 08:56:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 60

Interval: 3846.00 ft (KB) To 3943.00 ft (KB) (TVD)

Reference Elevations: 2787.00 ft (KB)

Total Depth: 3943.00 ft (KB) (TVD)

2782.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8356 Outside

Press @ RunDepth: 80.89 psig @ 3847.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.05.29

End Date:

2013.05.29

Last Calib.:

2013.05.29

Start Time: 01:50:05

End Time:

08:55:59

Time On Btm:

2013.05.29 @ 03:34:30

Time Off Btm:

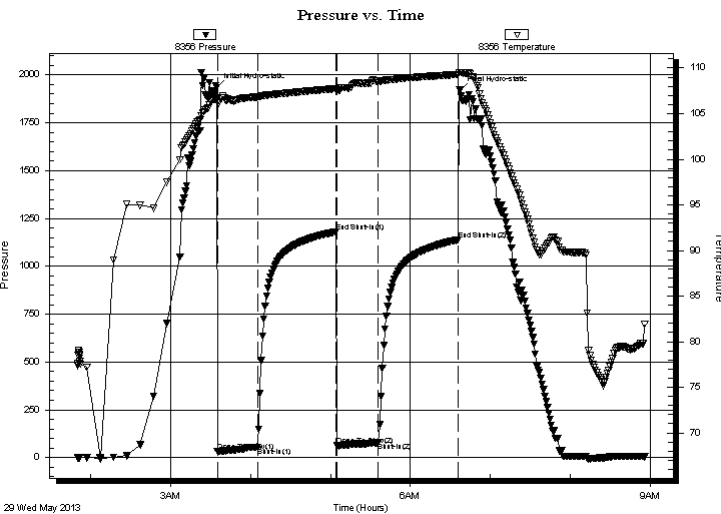
2013.05.29 @ 06:37:00

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

60 ISI - No return

30 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1934.10	106.61	Initial Hydro-static
1	31.20	106.25	Open To Flow (1)
31	53.74	106.83	Shut-In(1)
90	1180.64	107.74	End Shut-In(1)
91	63.40	107.39	Open To Flow (2)
122	80.89	108.56	Shut-In(2)
182	1139.37	109.29	End Shut-In(2)
183	1920.27	109.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	MW - 45%M - 55%W	0.30
62.00	Mud w/oil spots	0.30

* 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 Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

Job Ticket: 52680

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2013.05.29 @ 01:50:00

Tool Information

Drill Pipe:	Length: 3662.00 ft	Diameter: 3.80 inches	Volume: 51.37 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: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 52.28 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3846.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	97.00 ft			
Tool Length:	125.00 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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Stubb	1.00			3819.00	
Shut In Tool	5.00			3824.00	
Hydraulic tool	5.00			3829.00	
Jars	5.00			3834.00	
Safety Joint	3.00			3837.00	
Packer	5.00			3842.00	28.00 Bottom Of Top Packer
Packer	4.00			3846.00	
Stubb	1.00			3847.00	
Recorder	0.00	8373	Inside	3847.00	
Recorder	0.00	8356	Outside	3847.00	
Perforations	27.00			3874.00	
Change Over Sub	1.00			3875.00	
Drill Pipe	62.00			3937.00	
Change Over Sub	1.00			3938.00	
Bullnose	5.00			3943.00	97.00 Bottom Packers & Anchor

Total Tool Length: 125.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

2-2s-29w Decatur, KS

250 N Water Ste 300
Wichita, KS 67202

Kathka Farms #2-2

Job Ticket: 52680

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2013.05.29 @ 01:50:00

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:

24000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.60 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
62.00	MW - 45%M - 55%W	0.305
62.00	Mud w /oil spots	0.305

Total Length: 124.00 ft Total Volume: 0.610 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

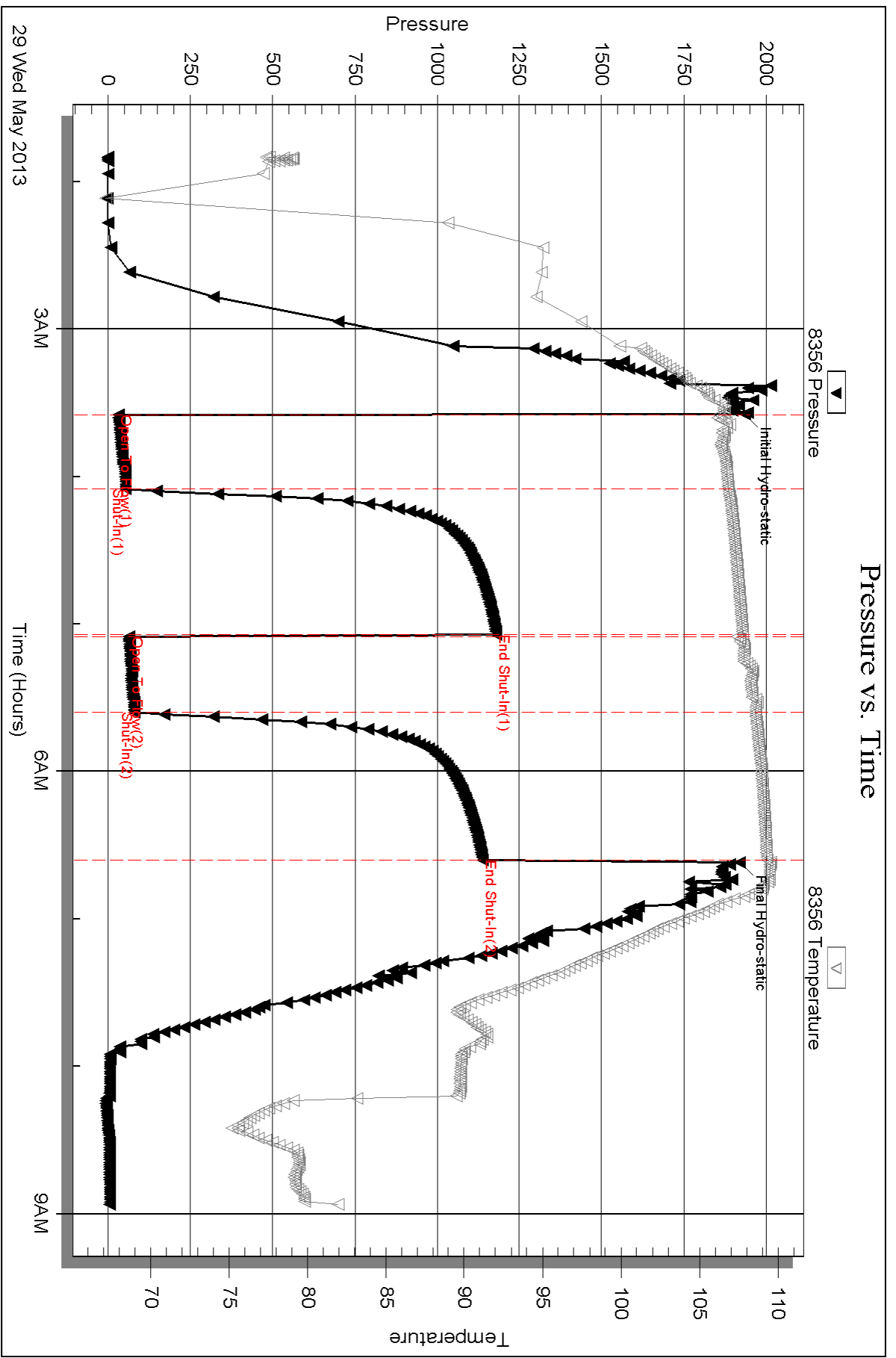
Recovery Comments: RW = .207 @ 75 DEG F

Serial #: 8356

Outside Murfin Drilling Company

Kathka Farms #2-2

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 52680

Printed: 2013.06.03 @ 09:53:50



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53156

Well Name & No. Kathka Farms 2-2 Test No. 1 Date 5-28-13
 Company Murfin Drilling Company Elevation 2787 KB 2782 GL
 Address 250 N water ste 300 Wichita, KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 8
 Location: Sec. 2 Twp. 25 Rge. 29W Co. Decatur State KS

Interval Tested 3700 3806 Zone Tested LKC A-D
 Anchor Length 106 Drill Pipe Run 3504 Mud Wt. 8.9
 Top Packer Depth 2782 Drill Collars Run 186 Vis 59
 Bottom Packer Depth 2787 Wt. Pipe Run --- WL 6.0
 Total Depth 3806 Chlorides 1200 ppm System LCM 4

Blow Description IF: 1/4 blow built to 1 died in 20 min.
IS: No return,
FF: No blow.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>OCM</u>	<u>5</u>		<u>95</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20 BHT 108 Gravity --- API RW --- @ --- F Chlorides --- ppm

(A) Initial Hydrostatic <u>1859</u>	<input checked="" type="checkbox"/> Test 1150	T-On Location <u>3:30</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>5:31</u>
(C) First Final Flow <u>36</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>7:33</u>
(D) Initial Shut-In <u>1040</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>10:33</u>
(E) Second Initial Flow <u>40</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>12:17</u>
(F) Second Final Flow <u>51</u>	<input checked="" type="checkbox"/> Mileage <u>228-</u> 13rt 20.15	Comments
(G) Final Shut-In <u>947</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1810</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

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

Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

Sub Total 1495.15

Sub Total 0
 Total 1495.15
 MP/DST Disc't

Approved By Paul Gunzelman 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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52680

4/10

Well Name & No. Kathka Farms #2-2 Test No. 2 Date 5/29/13
 Company Murfin Drilling Co. Elevation 2787 KB 2782 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin #8
 Location: Sec. 2 Twp. 2S Rge. 29W Co. Decatur State KS

Interval Tested 3846 - 3943 Zone Tested LKC "H-K"
 Anchor Length 97' Drill Pipe Run 3662' Mud Wt. 9.1
 Top Packer Depth 3841 Drill Collars Run 186' Vis 55
 Bottom Packer Depth 3846 Wt. Pipe Run 0' WL 5.6
 Total Depth 3943 Chlorides 1400 ppm System LCM 26

Blow Description IF - Surface blow built to 1"
ISI - No return
FF - No blow
FST - No return

Rec	Feet of	%gas	%oil	%water	%mud
62' 62'	Mud w/oil spots			100	
62'	MW		55	45	
Rec Total	<u>124'</u>				

BHT 109° Gravity — API RW 207 @ 25 ° F Chlorides 24000 ppm

(A) Initial Hydrostatic	<u>1934</u>	<input checked="" type="checkbox"/> Test	<u>1150</u>	T-On Location	<u>01:30</u>
(B) First Initial Flow	<u>31</u>	<input checked="" type="checkbox"/> Jars	<u>250</u>	T-Started	<u>01:50</u>
(C) First Final Flow	<u>54</u>	<input checked="" type="checkbox"/> Safety Joint	<u>75</u>	T-Open	<u>03:35</u>
(D) Initial Shut-In	<u>1181</u>	<input checked="" type="checkbox"/> Circ Sub	<u>NC</u>	T-Pulled	<u>06:35</u>
(E) Second Initial Flow	<u>63</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>08:57</u>
(F) Second Final Flow	<u>81</u>	<input checked="" type="checkbox"/> Mileage	<u>13 KT</u> 20.15	Comments	
(G) Final Shut-In	<u>1139</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>1920</u>	<input type="checkbox"/> Straddle		<input type="checkbox"/> Ruined Shale Packer	

Initial Open	<u>30</u>	<input type="checkbox"/> Shale Packer		<input type="checkbox"/> Ruined Packer	
Initial Shut-In	<u>60</u>	<input type="checkbox"/> Extra Packer		<input type="checkbox"/> Extra Copies	
Final Flow	<u>30</u>	<input type="checkbox"/> Extra Recorder		Sub Total	<u>0</u>
Final Shut-In	<u>60</u>	<input type="checkbox"/> Day Standby		Total	<u>1495.15</u>
		<input type="checkbox"/> Accessibility		MP/DST Disc't	
		Sub Total	<u>1495.15</u>		

Approved By _____ Our Representative Ryan J. Mikes

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.