



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Bob Stozle

Kathka Farms #1-2

2-2s-29w Decatur,KS

Start Date: 2013.05.19 @ 03:00:00

End Date: 2013.05.19 @ 10:09:30

Job Ticket #: 52592 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.05.28 @ 12:00:59



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.
 250 N Water STE 300
 Wichita KS 67202
 ATTN: Bob Stozle

2-2s-29w Decatur, KS
Kathka Farms #1-2
 Job Ticket: 52592 **DST#: 1**
 Test Start: 2013.05.19 @ 03:00:00

GENERAL INFORMATION:

Formation: **Lan A-D**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 05:19:30
 Tester: Wilbur Steinbeck
 Time Test Ended: 10:09:30
 Unit No: 44
 Interval: **3653.00 ft (KB) To 3760.00 ft (KB) (TVD)**
 Reference Elevations: 2725.00 ft (KB)
 Total Depth: 3760.00 ft (KB) (TVD)
 2720.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

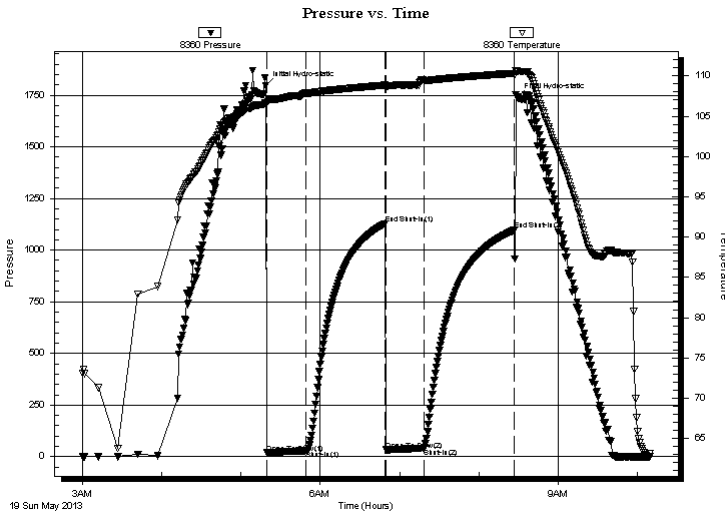
Serial #: 8360

Inside

Press @ Run Depth: 41.44 psig @ 3654.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.19 End Date: 2013.05.19 Last Calib.: 2013.05.19
 Start Time: 03:00:15 End Time: 10:09:30 Time On Btm: 2013.05.19 @ 05:18:30
 Time Off Btm: 2013.05.19 @ 08:28:30

TEST COMMENT: 30 IF; Built to 1 1/4"
 60 IS; No Blow
 30 FF; No Blow
 60 FS; No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1796.68	106.67	Initial Hydro-static
1	18.14	106.54	Open To Flow (1)
31	29.61	107.84	Shut-In(1)
91	1129.60	108.87	End Shut-In(1)
91	32.53	108.50	Open To Flow (2)
120	41.44	109.47	Shut-In(2)
188	1096.56	110.33	End Shut-In(2)
190	1740.54	110.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

2-2s-29w Decatur, KS

250 N Water STE 300
Wichita KS 67202

Kathka Farms #1-2

Job Ticket: 52592

DST#: 1

ATTN: Bob Stozle

Test Start: 2013.05.19 @ 03:00:00

Tool Information

Drill Pipe:	Length: 3477.00 ft	Diameter: 3.80 inches	Volume: 48.77 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: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 49.66 bbl</u>	Tool Chased 3.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3653.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	107.00 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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Shut In Tool	5.00			3631.00	
Hydraulic tool jars	5.00			3636.00	
safety Joint	3.00			3641.00	
Packer	5.00			3649.00	27.00 Bottom Of Top Packer
Packer	4.00			3653.00	
Stubb	1.00			3654.00	
Recorder	0.00	8360	Inside	3654.00	
Recorder	0.00	8353	Outside	3654.00	
Perforations	7.00			3661.00	
Change Over Sub	1.00			3662.00	
Blank Spacing	94.00			3756.00	
Change Over Sub	1.00			3757.00	
Bullnose	3.00			3760.00	107.00 Bottom Packers & Anchor

Total Tool Length: 134.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

2-2s-29w Decatur, KS

250 N Water STE 300
Wichita KS 67202

Kathka Farms #1-2

Job Ticket: 52592

DST#: 1

ATTN: Bob Stozle

Test Start: 2013.05.19 @ 03:00:00

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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

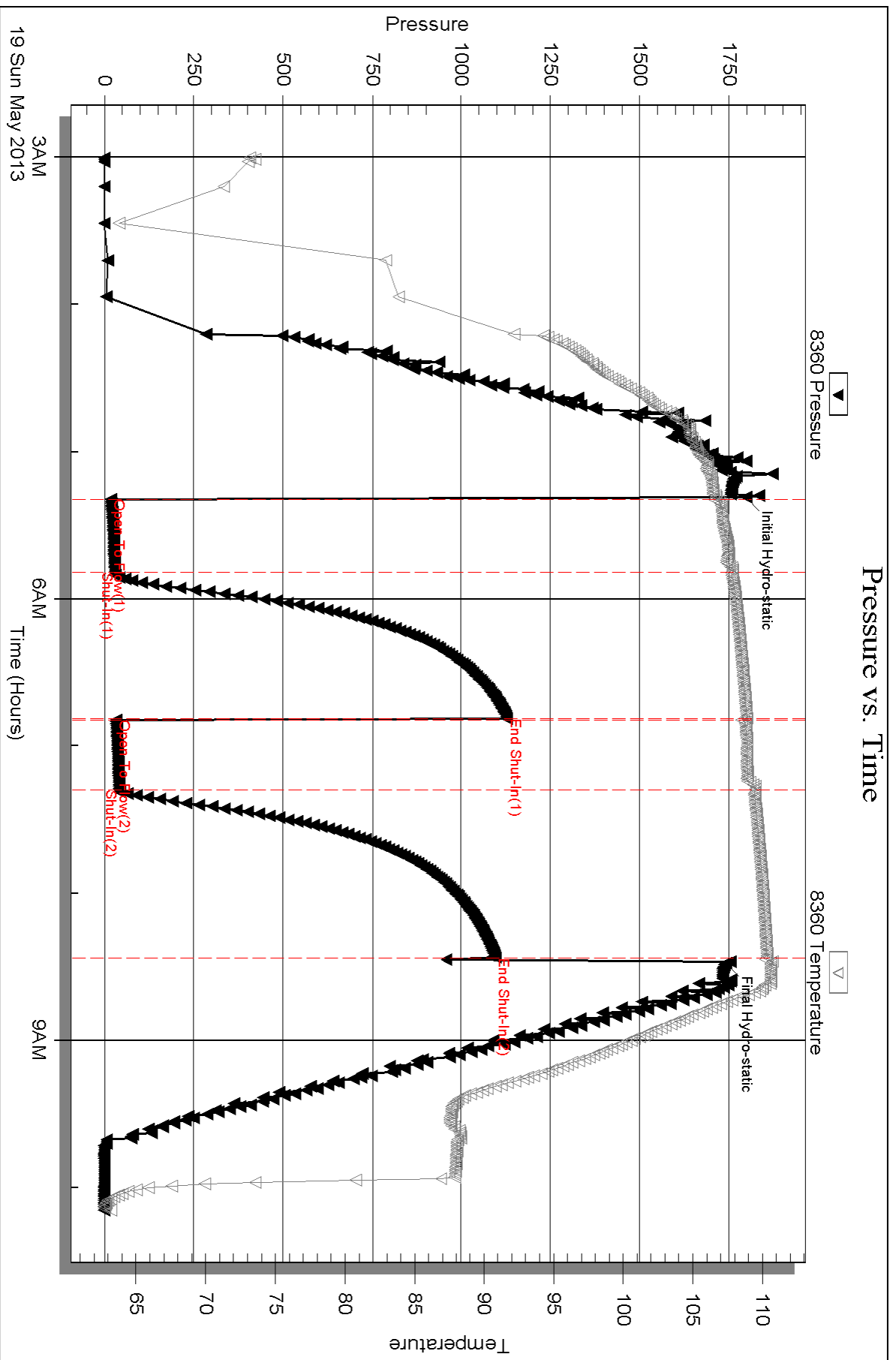
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

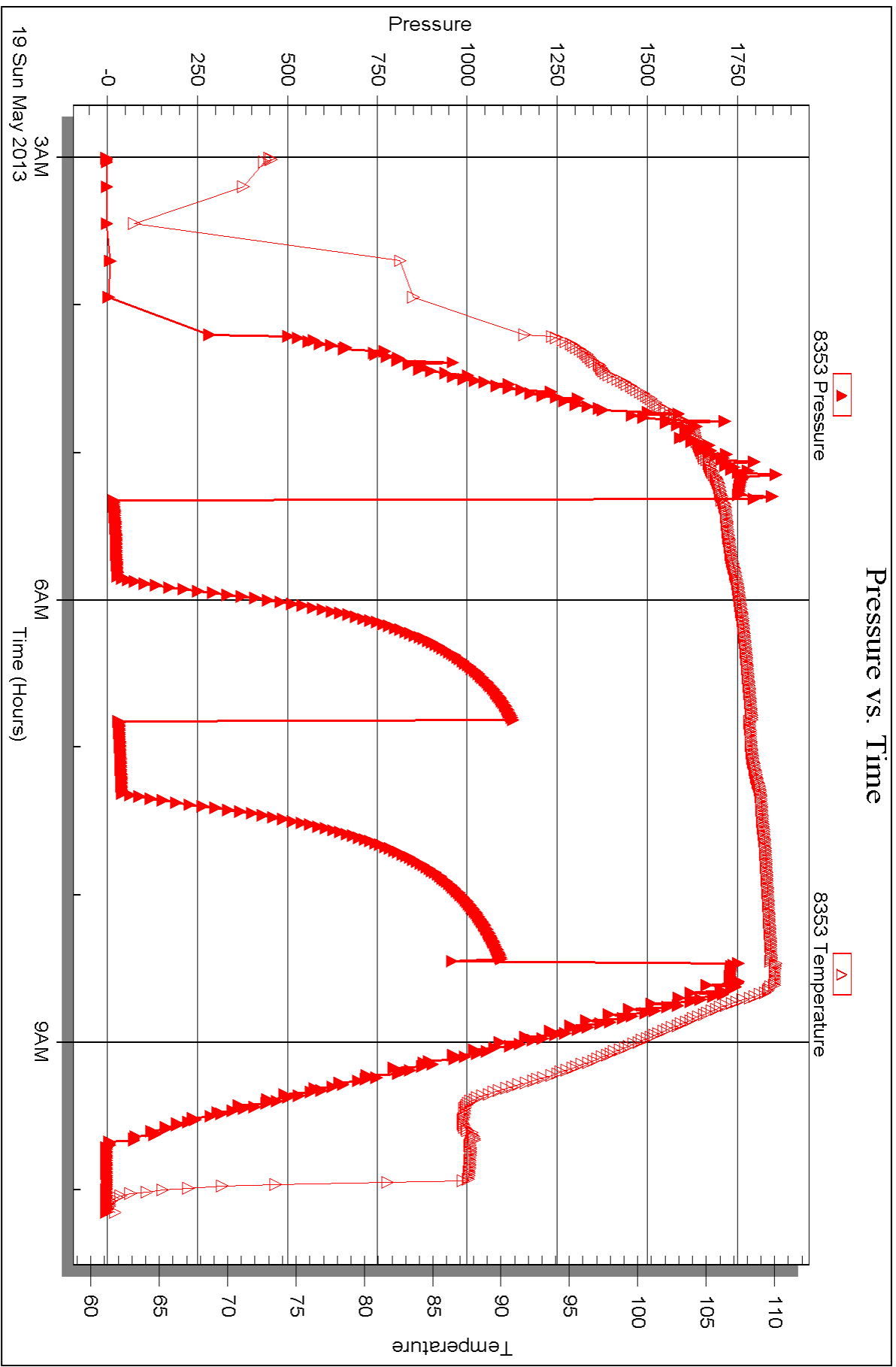


Serial #: 8353

Outside Murfin Drilling Co.

Kathka Farms #1-2

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Bob Stozle

Kathka Farms #1-2

2-2s-29w Decatur,KS

Start Date: 2013.05.19 @ 22:27:00

End Date: 2013.05.20 @ 05:17:45

Job Ticket #: 52593 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.05.28 @ 12:00:21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.
 250 N Water STE 300
 Wichita KS 67202
 ATTN: Bob Stozle

2-2s-29w Decatur, KS
Kathka Farms #1-2
 Job Ticket: 52593 **DST#: 2**
 Test Start: 2013.05.19 @ 22:27:00

GENERAL INFORMATION:

Formation: **LKC G-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:17:00
 Time Test Ended: 05:17:45
 Interval: **3752.00 ft (KB) To 3855.00 ft (KB) (TVD)**
 Total Depth: 3855.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Wilbur Steinbeck
 Unit No: 44
 Reference Elevations: 2725.00 ft (KB)
 2720.00 ft (CF)
 KB to GR/CF: 5.00 ft

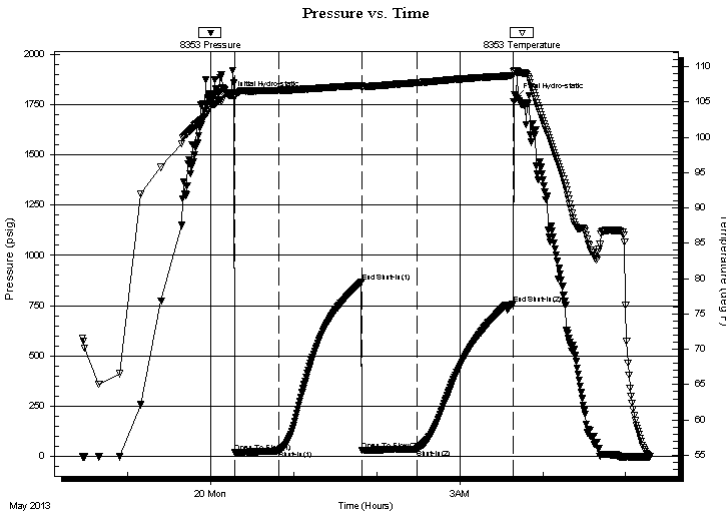
Serial #: 8353

Outside

Press @ Run Depth: 37.50 psig @ 3753.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.19 End Date: 2013.05.20 Last Calib.: 2013.05.20
 Start Time: 22:27:15 End Time: 05:17:45 Time On Btm: 2013.05.20 @ 00:14:30
 Time Off Btm: 2013.05.20 @ 03:40:30

TEST COMMENT: 30 IF; Built to 1 1/4"
 60 IS; No Blow
 30 FF; Surface blow died in 10 min
 60 FS; No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1795.00	106.35	Initial Hydro-static
3	18.70	105.58	Open To Flow (1)
35	28.37	106.65	Shut-In(1)
95	868.55	107.37	End Shut-In(1)
95	31.47	107.04	Open To Flow (2)
135	37.50	107.74	Shut-In(2)
204	758.89	108.73	End Shut-In(2)
206	1782.78	109.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM 1%O 99%M	0.05

* 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.

2-2s-29w Decatur, KS

250 N Water STE 300
Wichita KS 67202

Kathka Farms #1-2

Job Ticket: 52593

DST#: 2

ATTN: Bob Stozle

Test Start: 2013.05.19 @ 22:27:00

Tool Information

Drill Pipe:	Length: 3578.00 ft	Diameter: 3.80 inches	Volume: 50.19 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: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 51.08 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	3752.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	103.00 ft			
Tool Length:	130.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3730.00	
Hydraulic tool jars	5.00			3735.00	
safety Joint	3.00			3740.00	
Packer	5.00			3748.00	27.00 Bottom Of Top Packer
Packer	4.00			3752.00	
Stubb	1.00			3753.00	
Recorder	0.00	8360	Inside	3753.00	
Recorder	0.00	8353	Outside	3753.00	
Perforations	5.00			3758.00	
Change Over Sub	1.00			3759.00	
Blank Spacing	92.00			3851.00	
Change Over Sub	1.00			3852.00	
Bullnose	3.00			3855.00	103.00 Bottom Packers & Anchor

Total Tool Length: 130.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

2-2s-29w Decatur, KS

250 N Water STE 300
Wichita KS 67202

Kathka Farms #1-2

Job Ticket: 52593

DST#: 2

ATTN: Bob Stozle

Test Start: 2013.05.19 @ 22:27:00

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OSM 1%O 99%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

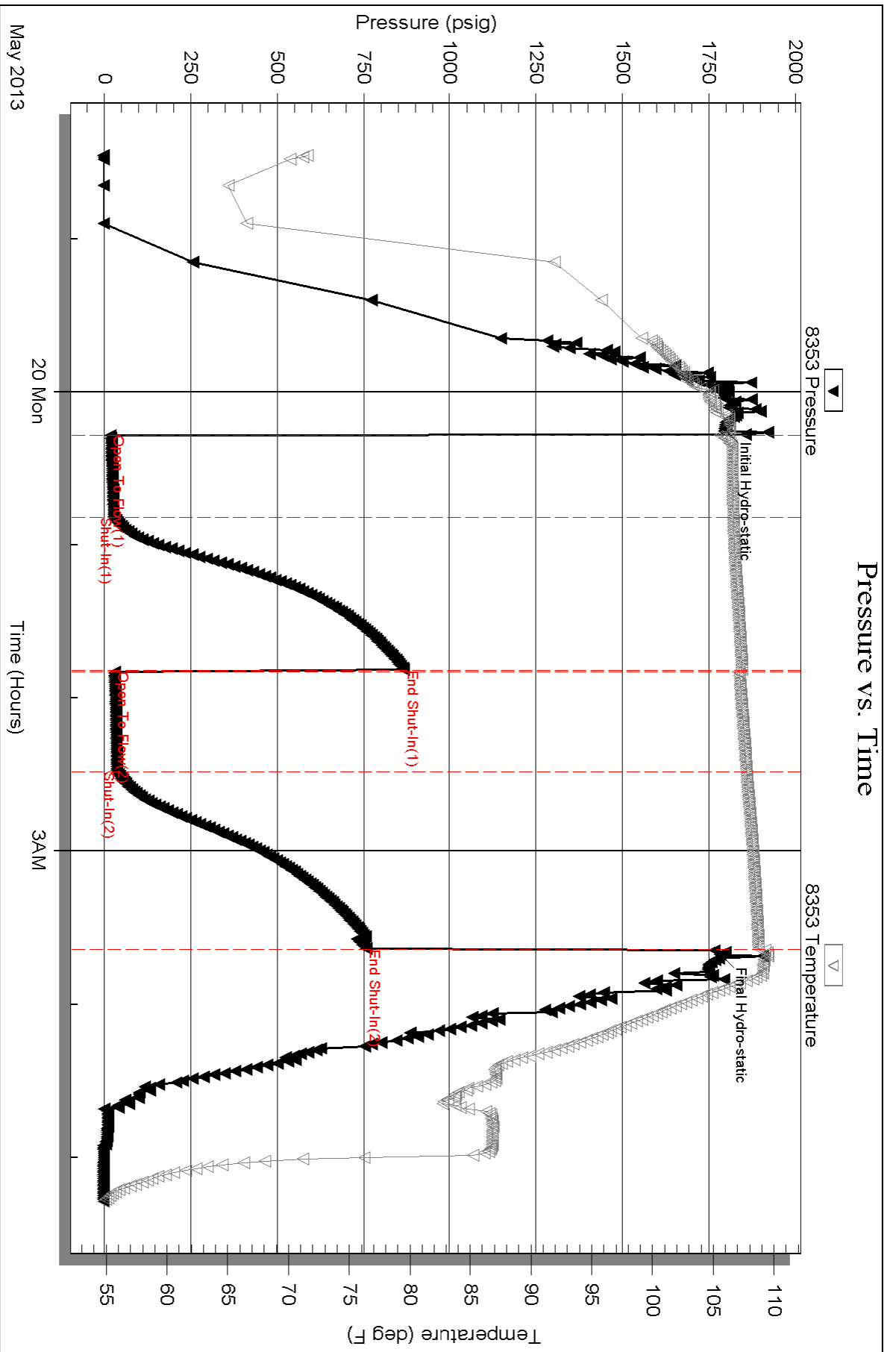
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



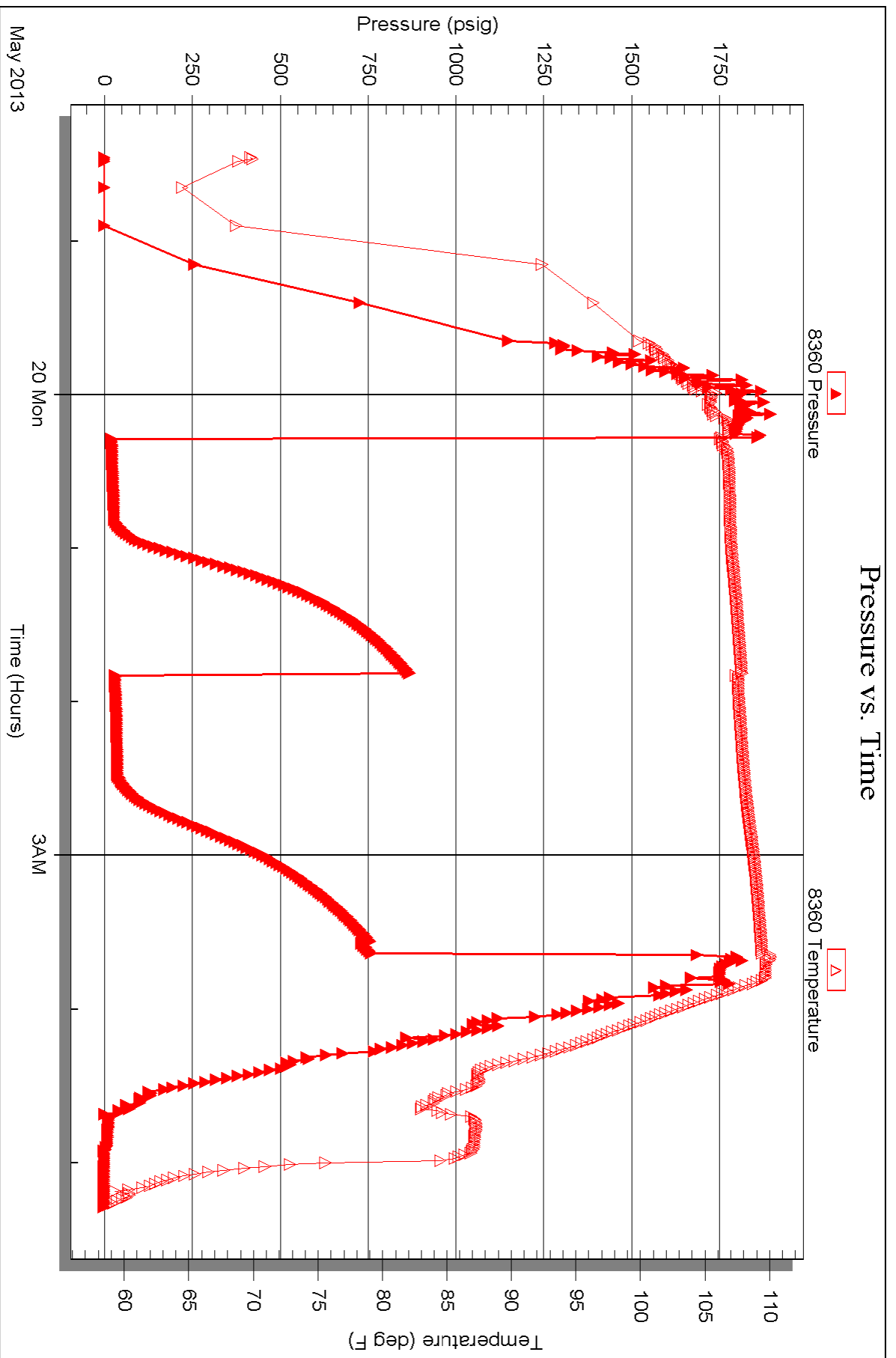
Serial #: 8360

Inside

Murfin Drilling Co.

Kathka Farms #1-2

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52592

4/10

Well Name & No. Kathka Farms 1-2 Test No. 1 Date 5-19-13
 Company Murkin Drilling Co. Elevation 2725 KB 2720 GL
 Address 250 N Water St E 300 Wichita KS 67202
 Co. Rep / Geo. Bob Stalc Rig Murkin 8
 Location: Sec. 2 Twp. 2s Rge. 29w Co. Deaton State Ks

Interval Tested 3653 3760 Zone Tested lan A-D
 Anchor Length 107 Drill Pipe Run 3477 Mud Wt. 8.9
 Top Packer Depth 3648 Drill Collars Run 180 Vis 56
 Bottom Packer Depth 3653 Wt. Pipe Run 0 WL 5-6
 Total Depth 3760 Chlorides 1,000 ppm System LCM 6

Blow Description IF: Bault to 1'4"
IS: No blow
FP: No blow
BS: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mod</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 111° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1,797 Test 1150 T-On Location 1:30
 (B) First Initial Flow 18 Jars 250 T-Started 3:00
 (C) First Final Flow 30 Safety Joint 75 T-Open 5:20
 (D) Initial Shut-In 11:30 Circ Sub NA T-Pulled 8:20
 (E) Second Initial Flow 33 Hourly Standby T-Out 10:10
 (F) Second Final Flow 41 Mileage 12 RT 18.60 Comments _____
 (G) Final Shut-In 1097 Sampler _____
 (H) Final Hydrostatic 1741 Straddle _____ Ruined Shale Packer _____

Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 60 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub Total 0
 Final Shut-In 60 Day Standby _____ Total 1493.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1493.60

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52593

4/10

Well Name & No. Kathka Farway #1-2 Test No. 2 Date 5-19-13
 Company Morfin Drilling Co Elevation 2725 KB 2720 GL
 Address 250 N. Water Ste 300 Wichita Ks 67202
 Co. Rep / Geo. Bob Stolzle Rig Morfin 8
 Location: Sec. 2 Twp. 25 Rge. 29a Co. Decatur State Ks

Interval Tested 3752 - 3855 Zone Tested LKC GH+J
 Anchor Length 103 Drill Pipe Run ~~3578~~ 3578 Mud Wt. 9.0
 Top Packer Depth 3747 Drill Collars Run 180 Vis 54
 Bottom Packer Depth 3752 Wt. Pipe Run 0 WL 6.0
 Total Depth 3855 Chlorides 1,400 ppm System LCM 6

Blow Description IF Built to 1 1/4"
ISL No blow
FF Surface blow Died on 10 min
ISL No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>OSM</u>		<u>1</u>	<u>99</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 1090 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1,795 Test 1150 T-On Location 22:00
 (B) First Initial Flow 19 Jars 250 T-Started 22:27
 (C) First Final Flow 28 Safety Joint NA 75 T-Open 12:20
 (D) Initial Shut-In 869 Circ Sub _____ T-Pulled 3:20
 (E) Second Initial Flow 31 Hourly Standby _____ T-Out 5:15
 (F) Second Final Flow 38 Mileage 12 RT X 2 37.20 Comments Loaded 5-21-13
 (G) Final Shut-In 759 Sampler _____ @ 4:00 AM
 (H) Final Hydrostatic 1,783 Straddle _____ Ruined Shale Packer _____

Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 60 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub Total 0
 Final Shut-In 60 Day Standby _____ Total 1512.20
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1512.20

Approved By _____ Our Representative [Signature]

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