



DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.05.28 @ 13:01:10

End Date: 2013.05.28 @ 19:00:55

Job Ticket #: 49210 DST #: 1

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

Printed: 2013.06.06 @ 12:07:51



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne,KS

Culwell C #1-10

Job Ticket: 49210

DST#: 1

Test Start: 2013.05.28 @ 13:01:10

GENERAL INFORMATION:

Formation: **Foraker**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:35:10

Time Test Ended: 19:00:55

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane McBride

Unit No: 55

Interval: 3626.00 ft (KB) To 3672.00 ft (KB) (TVD)

Total Depth: 3672.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3150.00 ft (KB)

3140.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 6667 Inside

Press @ Run Depth: 35.93 psig @ 3627.00 ft (KB)

Start Date: 2013.05.28

End Date:

2013.05.28

Start Time: 13:01:10

End Time:

19:00:55

Capacity: 8000.00 psig

Last Calib.: 2013.05.28

Time On Btm: 2013.05.28 @ 14:34:55

Time Off Btm: 2013.05.28 @ 17:35:10

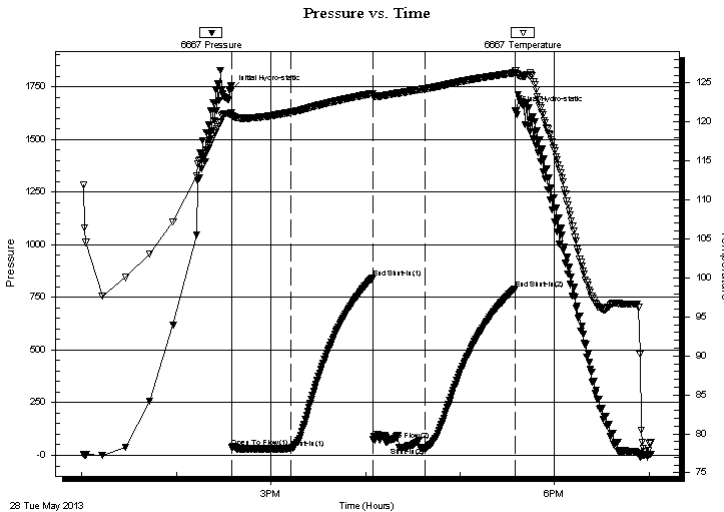
TEST COMMENT: Weak blow died in 8 min.

No return

No blow

No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1737.17	121.26	Initial Hydro-static
1	36.98	120.80	Open To Flow (1)
38	32.63	121.25	Shut-In(1)
90	842.83	123.65	End Shut-In(1)
90	73.76	123.32	Open To Flow (2)
123	35.93	124.25	Shut-In(2)
180	789.77	126.30	End Shut-In(2)
181	1637.52	126.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100% show of free oil on top 2'	0.00

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne, KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 49210

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.05.28 @ 13:01:10

GENERAL INFORMATION:

Formation: **Foraker**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:35:10

Time Test Ended: 19:00:55

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane McBride

Unit No: 55

Interval: 3626.00 ft (KB) To 3672.00 ft (KB) (TVD)

Reference Elevations: 3150.00 ft (KB)

Total Depth: 3672.00 ft (KB) (TVD)

3140.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8368 Outside

Press @ Run Depth: psig @ 3627.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.05.28

End Date:

2013.05.28

Last Calib.:

2013.05.28

Start Time: 13:00:38

End Time:

19:00:32

Time On Btm:

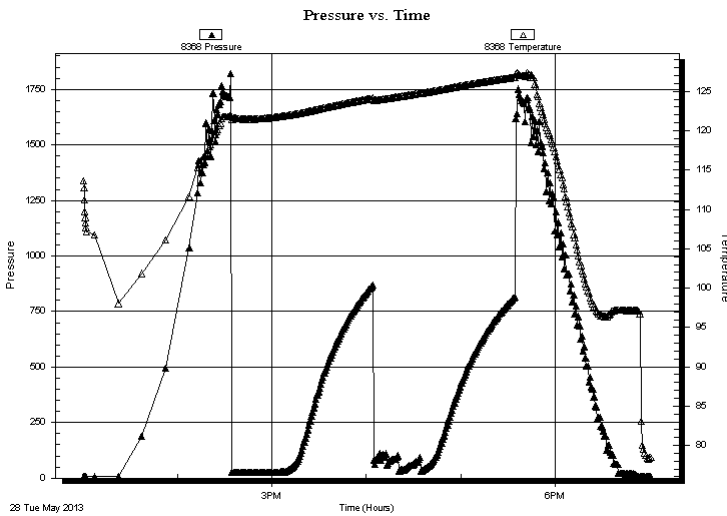
Time Off Btm:

TEST COMMENT: Weak blow died in 8 min.

No return

No blow

No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100% show of free oil on top 2'	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 49210

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.05.28 @ 13:01:10

Tool Information

Drill Pipe:	Length: 3078.00 ft	Diameter: 3.80 inches	Volume: 43.18 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose:	85000.00 lb
			<u>Total Volume: 45.80 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	3626.00 ft			Final	72000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	46.00 ft				
Tool Length:	74.00 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			3599.00	
Shut In Tool	5.00			3604.00	
Hydraulic tool	5.00			3609.00	
Jars	5.00			3614.00	
Safety Joint	3.00			3617.00	
Packer	5.00			3622.00	28.00 Bottom Of Top Packer
Packer	4.00			3626.00	
Stubb	1.00			3627.00	
Recorder	0.00	6667	Inside	3627.00	
Recorder	0.00	8368	Outside	3627.00	
Perforations	6.00			3633.00	
Change Over Sub	1.00			3634.00	
Drill Pipe	32.00			3666.00	
Change Over Sub	1.00			3667.00	
Bullnose	5.00			3672.00	46.00 Bottom Packers & Anchor

Total Tool Length: 74.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 49210

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.05.28 @ 13:01:10

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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	mud 100%m show of free oil on top 2"	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

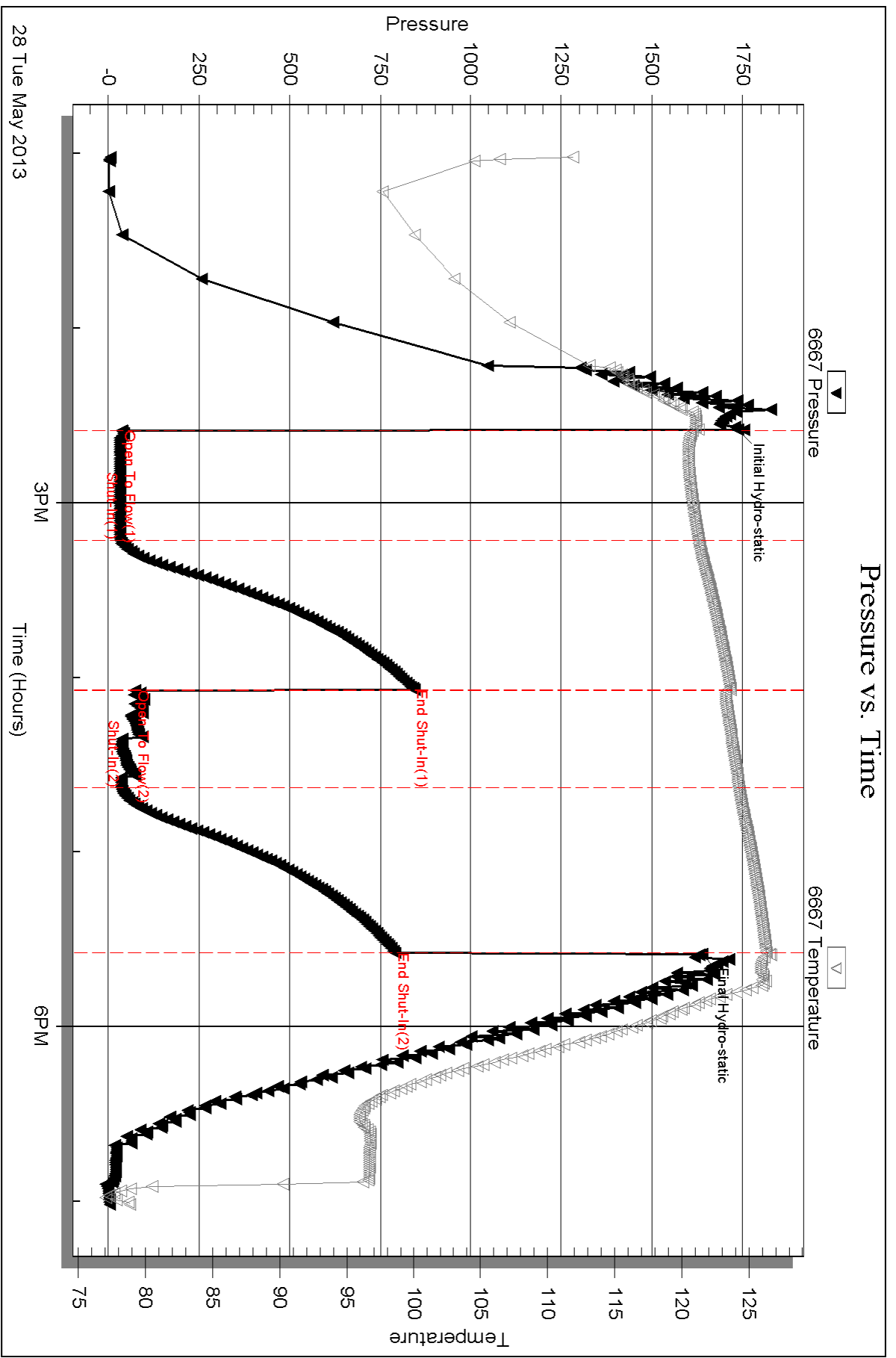
Serial #: 6667

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 49210

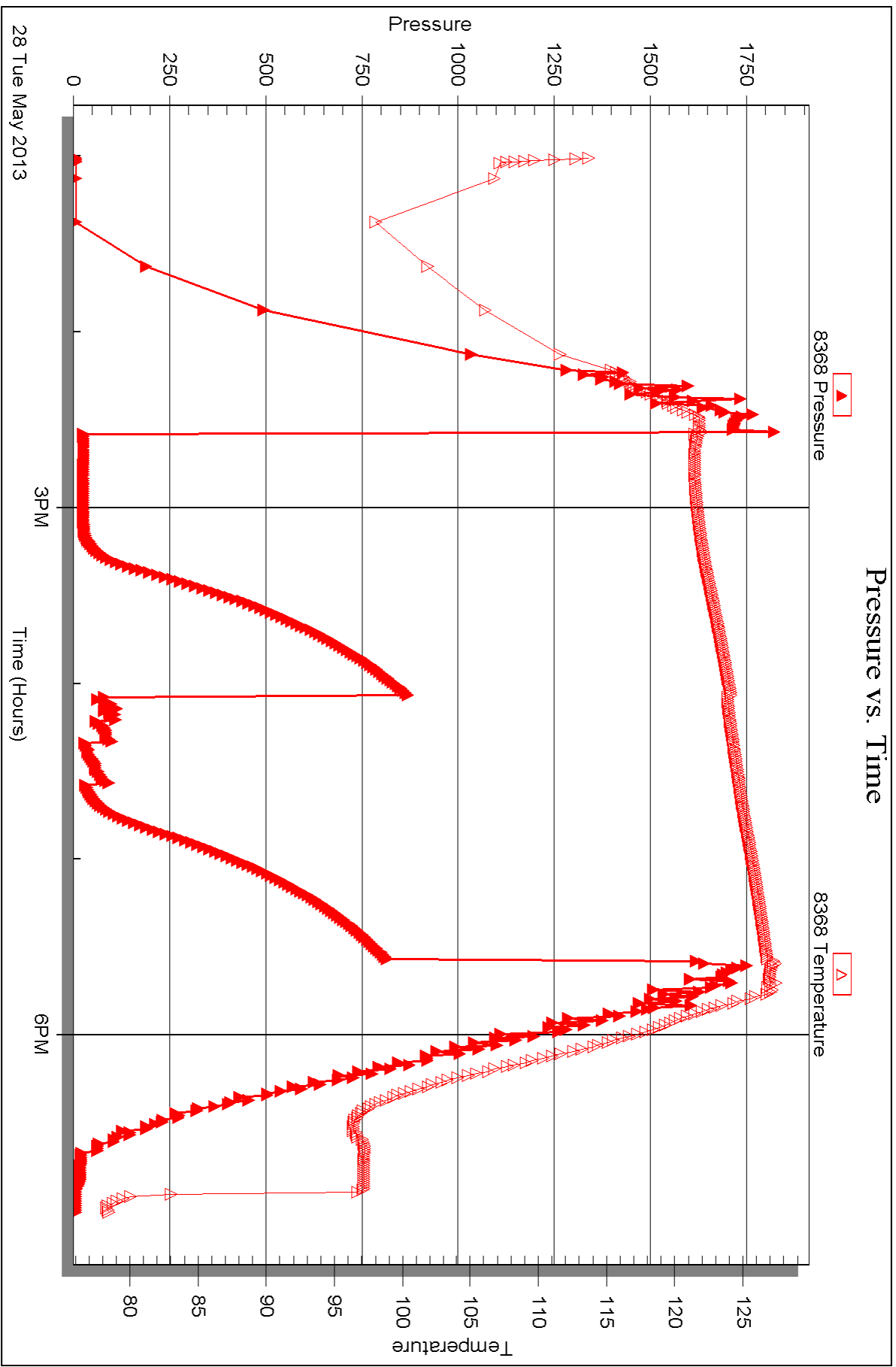
Printed: 2013.06.06 @ 12:07:53

Serial #: 8368

Outside Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 49210

Printed: 2013.06.06 @ 12:07:54



DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.05.29 @ 23:18:00

End Date: 2013.05.30 @ 06:02:30

Job Ticket #: 52599 DST #: 2

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

Printed: 2013.06.06 @ 12:07:14



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

10-1s-37w Cheyenne, KS

Culwell C #1-10

Job Ticket: 52599

DST#: 2

Test Start: 2013.05.29 @ 23:18:00

GENERAL INFORMATION:

Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:30:30
 Time Test Ended: 06:02:30
 Interval: **3967.00 ft (KB) To 4030.00 ft (KB) (TVD)**
 Total Depth: 4030.00 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: 3150.00 ft (KB)
 3140.00 ft (CF)
 KB to GR/CF: 10.00 ft

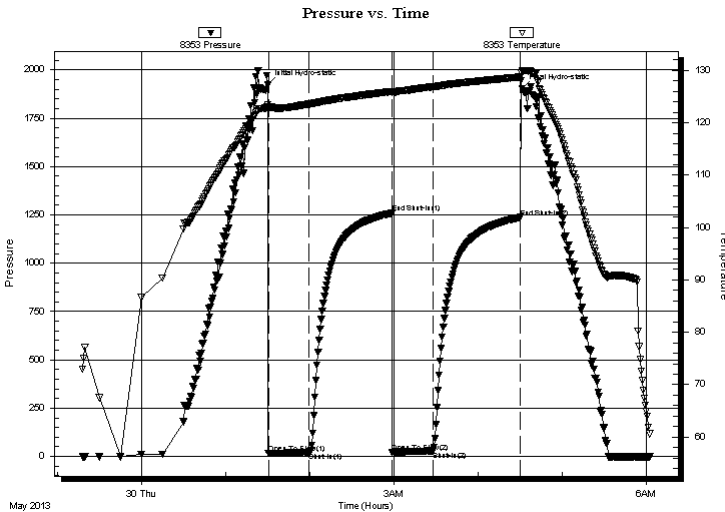
Serial #: 8353

Outside

Press @ Run Depth: 28.32 psig @ 3968.00 ft (KB)
 Start Date: 2013.05.29 End Date: 2013.05.30
 Start Time: 23:18:15 End Time: 06:02:30
 Capacity: 8000.00 psig
 Last Calib.: 2013.05.30
 Time On Btm: 2013.05.30 @ 01:30:00
 Time Off Btm: 2013.05.30 @ 04:31:30

TEST COMMENT: 30 IF; Built to 1/2"
 60 IS; No Blow
 30 FF; No Blow
 60 FS; No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1922.36	123.45	Initial Hydro-static
1	14.91	122.93	Open To Flow (1)
30	21.08	123.57	Shut-In(1)
89	1258.72	125.98	End Shut-In(1)
89	22.64	125.82	Open To Flow (2)
118	28.32	126.88	Shut-In(2)
180	1236.77	128.76	End Shut-In(2)
182	1904.16	129.93	Final Hydro-static

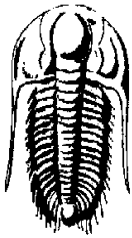
Recovery

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

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne, KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 52599 **DST#: 2**

ATTN: Jeff Christian

Test Start: 2013.05.29 @ 23:18:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:30:30

Time Test Ended: 06:02:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 44

Interval: **3967.00 ft (KB) To 4030.00 ft (KB) (TVD)**

Total Depth: 4030.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3150.00 ft (KB)

3140.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 8360 **Inside**

Press @ Run Depth: psig @ 3968.00 ft (KB)

Start Date: 2013.05.29

End Date:

2013.05.30

Start Time: 23:18:15

End Time:

06:02:30

Capacity: 8000.00 psig

Last Calib.:

2013.05.30

Time On Btm:

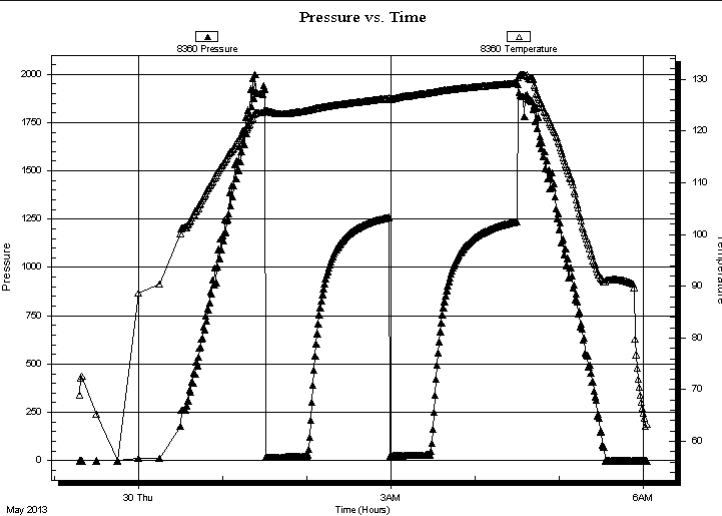
Time Off Btm:

TEST COMMENT: 30 IF; Built to 1/2"

60 ISI; No Blow

30 FF; No Blow

60 FSI; No Blow



PRESSURE SUMMARY

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

Recovery

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

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 Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 52599

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.05.29 @ 23:18:00

Tool Information

Drill Pipe:	Length: 3427.00 ft	Diameter: 3.80 inches	Volume: 48.07 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 50.69 bbl</u>	Tool Chased	1.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	3967.00 ft			Final	72000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	63.00 ft				
Tool Length:	90.00 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			3945.00	
Hydraulic tool	5.00			3950.00	
jars	5.00			3955.00	
safety Joint	3.00			3958.00	
Packer	5.00			3963.00	27.00 Bottom Of Top Packer
Packer	4.00			3967.00	
Stubb	1.00			3968.00	
Recorder	0.00	8360	Inside	3968.00	
Recorder	0.00	8353	Outside	3968.00	
Perforations	25.00			3993.00	
Change Over Sub	1.00			3994.00	
Blank Spacing	32.00			4026.00	
Change Over Sub	1.00			4027.00	
Bullnose	3.00			4030.00	63.00 Bottom Packers & Anchor

Total Tool Length: 90.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 52599

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.05.29 @ 23:18:00

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: 5.98 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 1.00 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

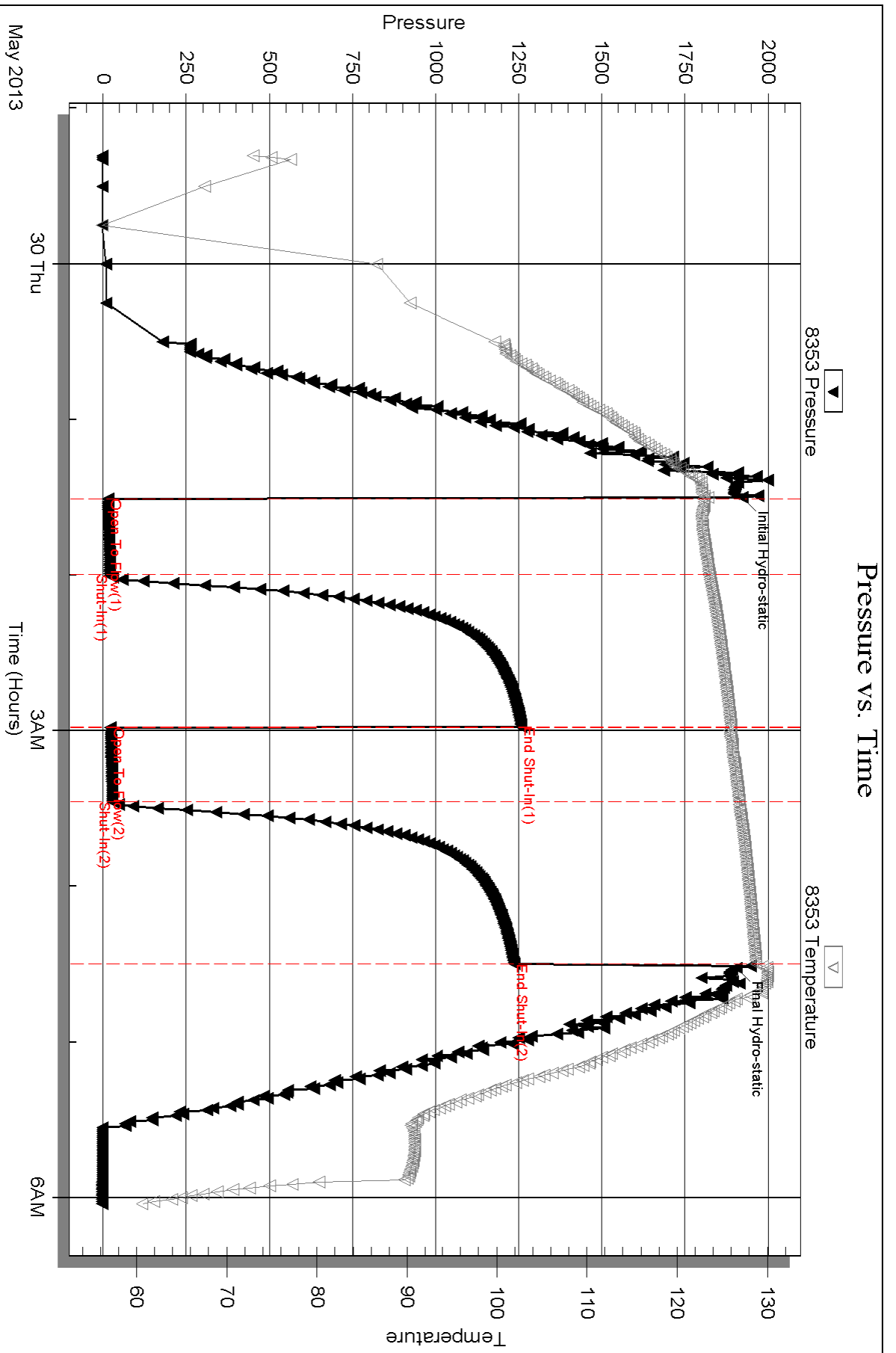
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



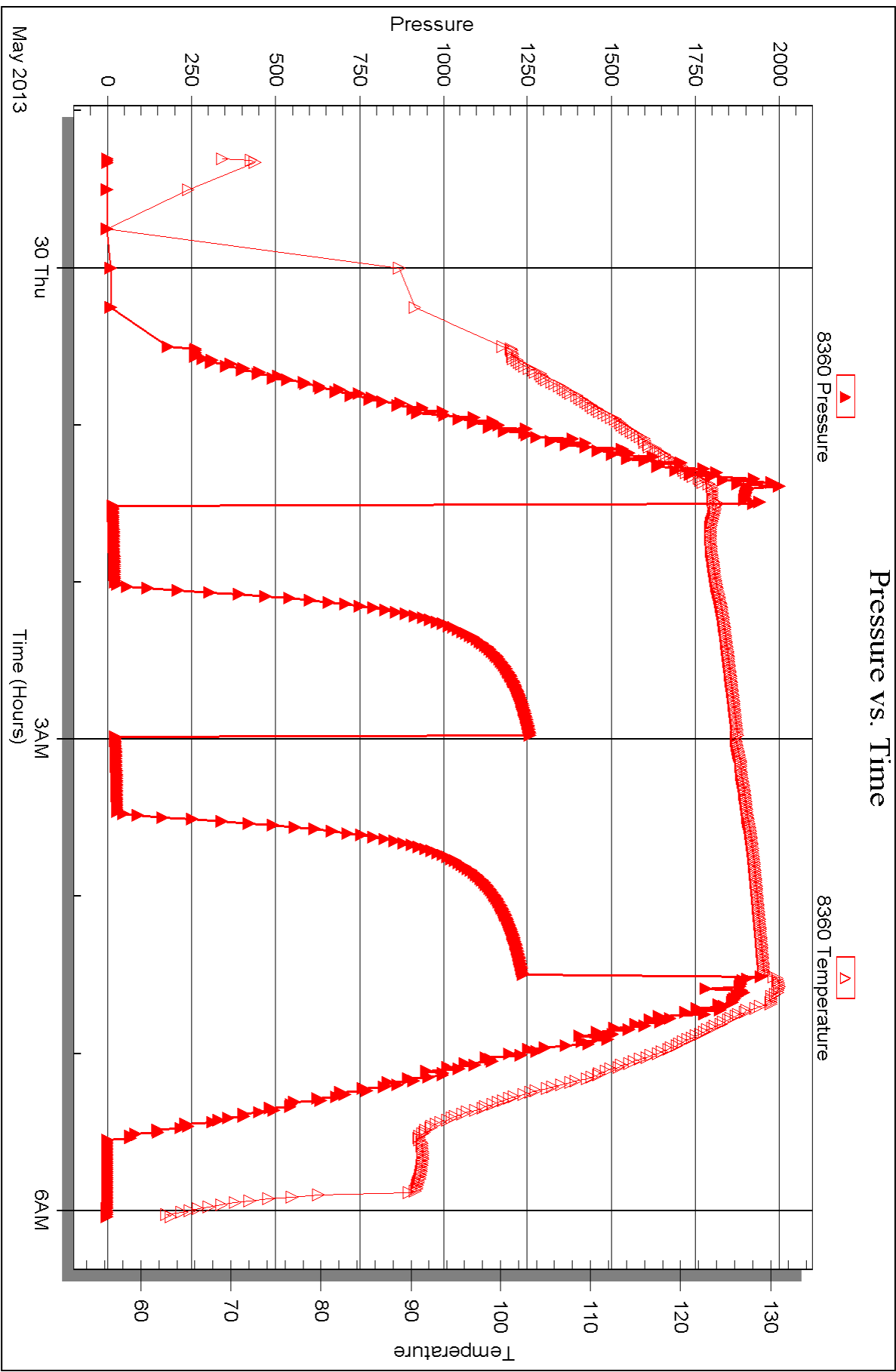
Serial #: 8360

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.05.30 @ 20:37:00

End Date: 2013.05.31 @ 05:11:00

Job Ticket #: 52600 DST #: 3

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

Printed: 2013.06.06 @ 12:06:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

10-1s-37w Cheyenne, KS

Culwell C #1-10

Job Ticket: 52600

DST#: 3

Test Start: 2013.05.30 @ 20:37:00

GENERAL INFORMATION:

Formation: **LKC A-D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:50:00
 Time Test Ended: 05:11:00
 Interval: **4074.00 ft (KB) To 4170.00 ft (KB) (TVD)**
 Total Depth: 4170.00 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: 3150.00 ft (KB)
 3140.00 ft (CF)
 KB to GR/CF: 10.00 ft

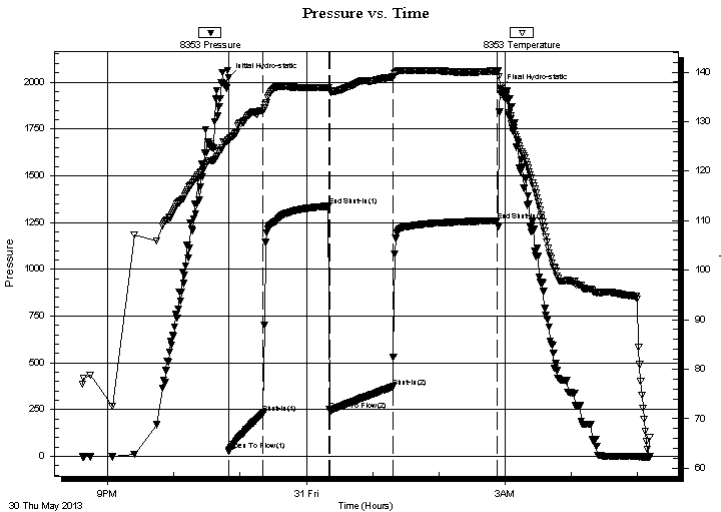
Serial #: 8353

Outside

Press @ Run Depth: 371.81 psig @ 4075.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.30 End Date: 2013.05.31 Last Calib.: 2013.05.31
 Start Time: 20:37:15 End Time: 05:11:00 Time On Btm: 2013.05.30 @ 22:49:15
 Time Off Btm: 2013.05.31 @ 02:55:15

TEST COMMENT: 30 IF; BOB in 12 min
 60 IS; Built to 4"
 60 FF; BOB in 12 min
 90 FS; Built to 7 1/2"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2024.60	126.26	Initial Hydro-static
1	30.03	126.31	Open To Flow (1)
32	230.06	132.20	Shut-In(1)
91	1337.73	136.82	End Shut-In(1)
92	248.69	136.26	Open To Flow (2)
150	371.81	139.02	Shut-In(2)
244	1259.90	140.23	End Shut-In(2)
246	1966.38	137.18	Final Hydro-static

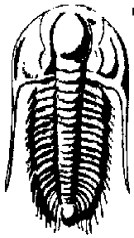
Recovery

Length (ft)	Description	Volume (bbl)
192.00	WOGCM 15%W 15%O 20%G 50%M	0.94
414.00	WGO CM 10 %W 10%G 20%O 60%M	2.71
288.00	OG 40%G 60%O	4.04
0.00	606' 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 Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne,KS
Culwell C #1-10
Job Ticket: 52600 **DST#: 3**
Test Start: 2013.05.30 @ 20:37:00

GENERAL INFORMATION:

Formation: **LKC A-D**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 22:50:00 Tester: Wilbur Steinbeck
 Time Test Ended: 05:11:00 Unit No: 44
 Interval: **4074.00 ft (KB) To 4170.00 ft (KB) (TVD)** Reference Elevations: 3150.00 ft (KB)
 Total Depth: 4170.00 ft (KB) (TVD) 3140.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

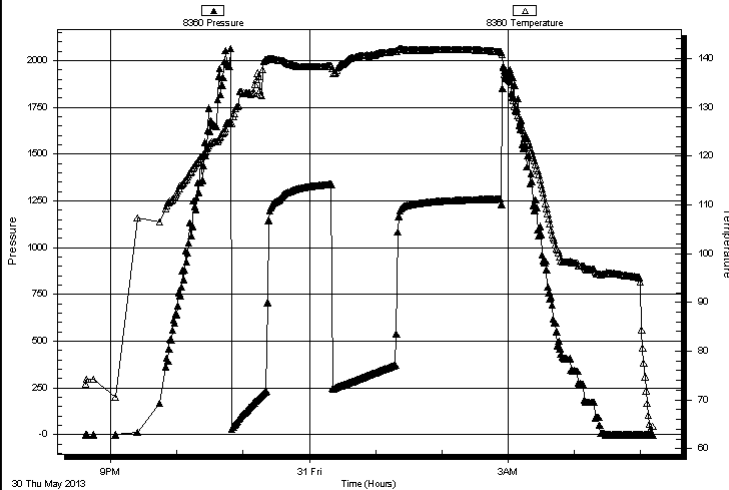
Serial #: 8360

Inside

Press @ Run Depth: psig @ 4075.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.30 End Date: 2013.05.31 Last Calib.: 2013.05.31
 Start Time: 20:37:15 End Time: 05:11:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 IF; BOB in 12 min
 60 ISI; Built to 4"
 60 FF; BOB in 12 min
 90 FSI; Built to 7 1/2"

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
192.00	WOGCM 15%W 15%O 20%G 50%M	0.94
414.00	WGO CM 10 %W 10%G 20%O 60%M	2.71
288.00	OG 40%G 60%O	4.04
0.00	606' 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 Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 52600

DST#: 3

ATTN: Jeff Christian

Test Start: 2013.05.30 @ 20:37:00

Tool Information

Drill Pipe:	Length: 3522.00 ft	Diameter: 3.80 inches	Volume: 49.40 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 52.02 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4074.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	96.00 ft			
Tool Length:	123.00 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			4052.00	
Hydraulic tool	5.00			4057.00	
jars	5.00			4062.00	
safety Joint	3.00			4065.00	
Packer	5.00			4070.00	27.00 Bottom Of Top Packer
Packer	4.00			4074.00	
Stubb	1.00			4075.00	
Recorder	0.00	8360	Inside	4075.00	
Recorder	0.00	8353	Outside	4075.00	
Perforations	26.00			4101.00	
Change Over Sub	1.00			4102.00	
Blank Spacing	64.00			4166.00	
Change Over Sub	1.00			4167.00	
Bullnose	3.00			4170.00	96.00 Bottom Packers & Anchor

Total Tool Length: 123.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 52600

DST#: 3

ATTN: Jeff Christian

Test Start: 2013.05.30 @ 20:37:00

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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
192.00	WOGCM 15%W 15%O 20%G 50%M	0.944
414.00	WGOCM 10 %W 10%G 20%O 60%M	2.710
288.00	OG 40%G 60%O	4.040
0.00	606' GIP	0.000

Total Length: 894.00 ft Total Volume: 7.694 bbl

Num Fluid Samples: 0

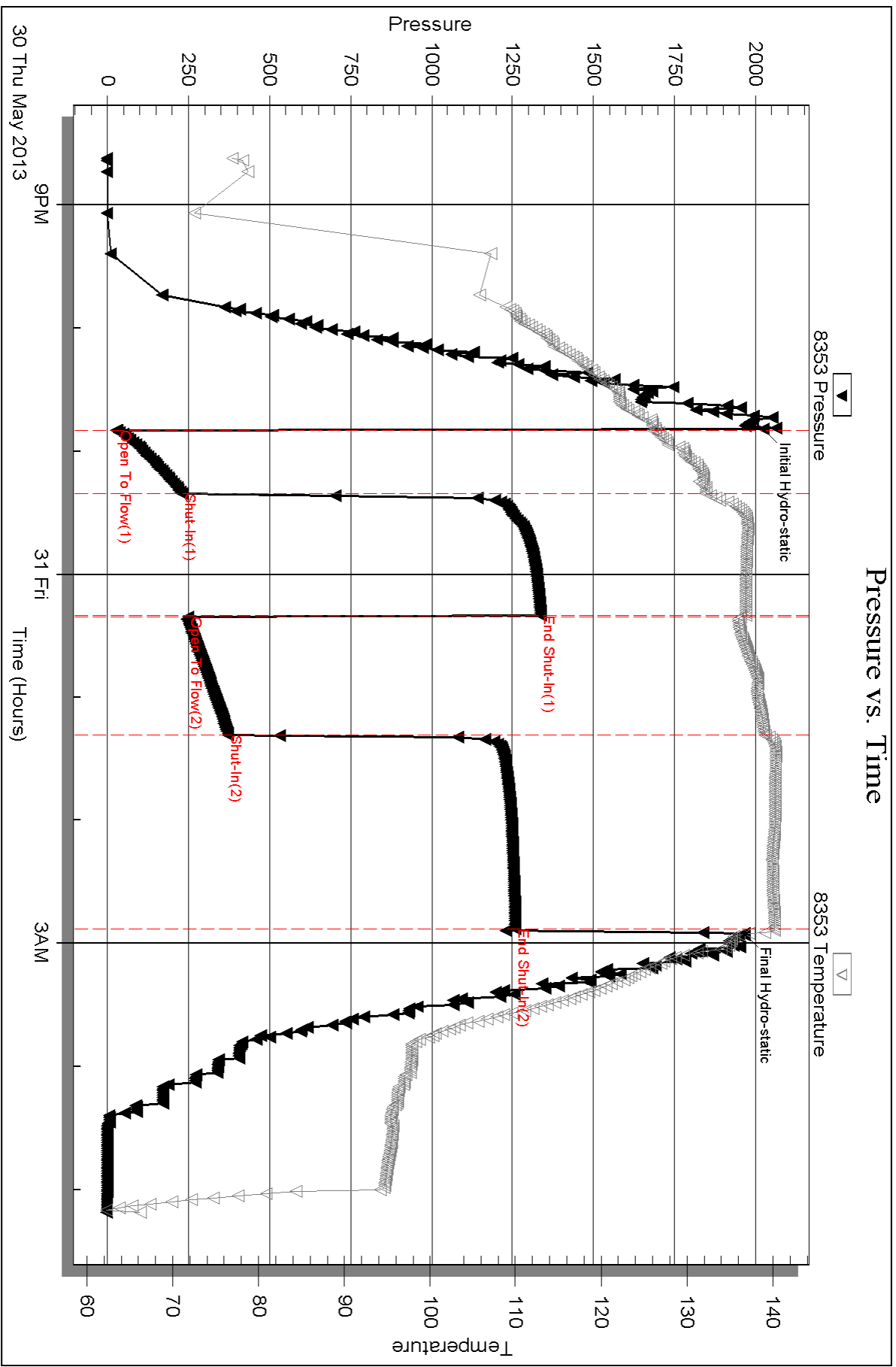
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 25@80 Deg F= 23



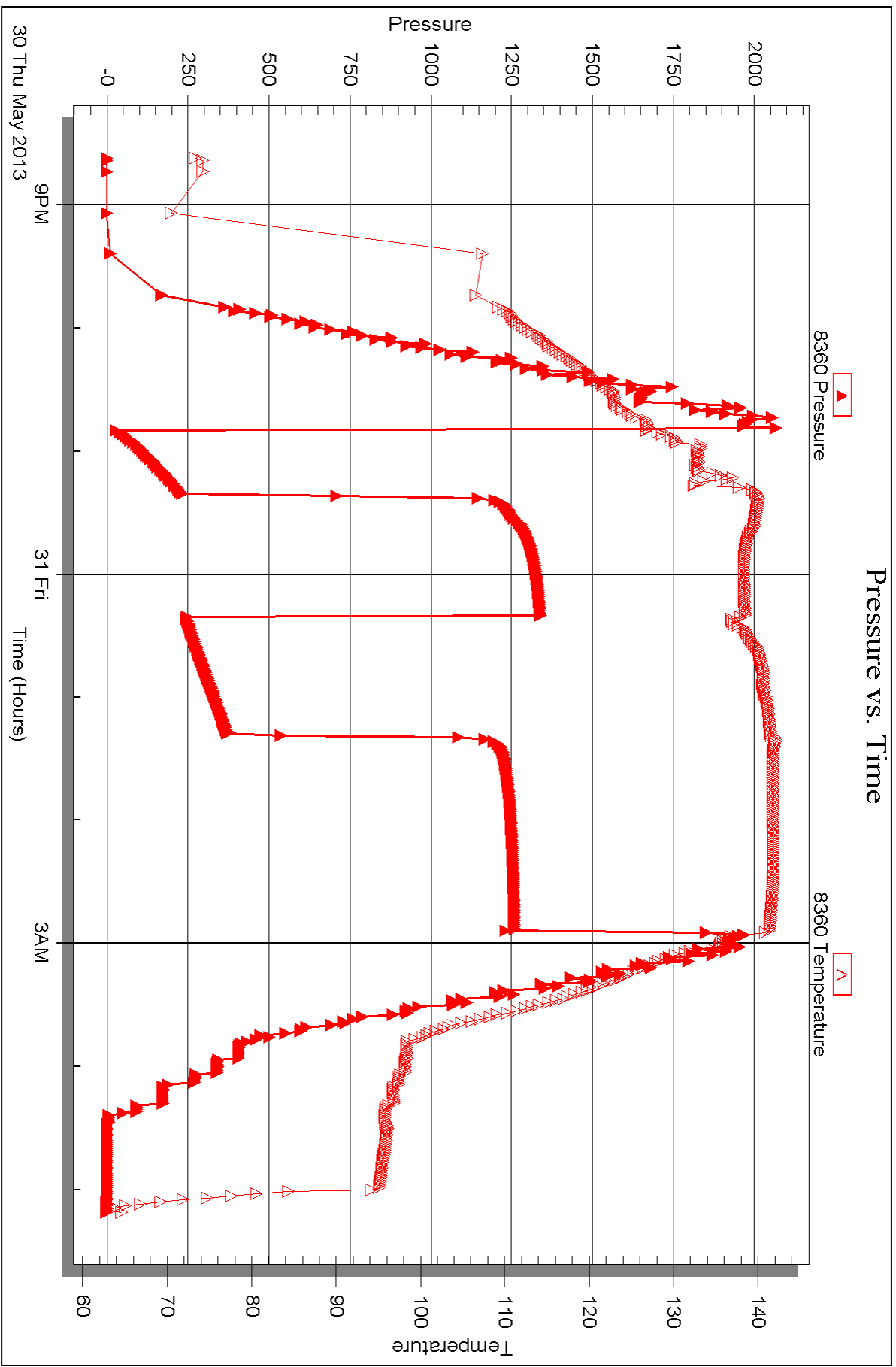
Serial #: 8360

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 52600

Printed: 2013.06.06 @ 12:06:36



DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.05.31 @ 14:05:09

End Date: 2013.05.31 @ 22:36:54

Job Ticket #: 50676 DST #: 4

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

Printed: 2013.06.06 @ 12:05:58



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne, KS

Culwell C #1-10

Job Ticket: 50676

DST#: 4

Test Start: 2013.05.31 @ 14:05:09

GENERAL INFORMATION:

Formation: **LKC F-G**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 16:08:54
 Tester: Wilbur Steinbeck
 Time Test Ended: 22:36:54
 Unit No: 55
 Interval: **4169.00 ft (KB) To 4239.00 ft (KB) (TVD)**
 Reference Elevations: 3150.00 ft (KB)
 Total Depth: 4230.00 ft (KB) (TVD)
 3140.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 10.00 ft

Serial #: 8353

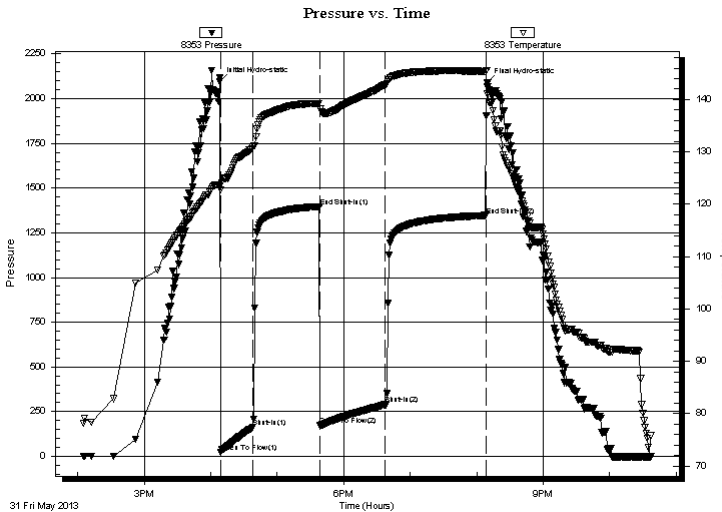
Outside

Press @ Run Depth: 288.66 psig @ 4170.00 ft (KB)
 Start Date: 2013.05.31 End Date: 2013.05.31
 Start Time: 14:05:24 End Time: 22:36:54

Capacity: 8000.00 psig
 Last Calib.: 2013.05.31
 Time On Btm: 2013.05.31 @ 16:08:09
 Time Off Btm: 2013.05.31 @ 20:09:39

TEST COMMENT: 30 IF; BOB in 7 mins
 60 IS; Built to 1 3/4"
 60 FF; BOB in 10 mins
 90 FS; Built to 7"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2096.00	123.51	Initial Hydro-static
1	24.22	122.77	Open To Flow (1)
30	162.39	130.98	Shut-In(1)
90	1397.38	139.26	End Shut-In(1)
91	171.62	138.17	Open To Flow (2)
150	288.66	142.85	Shut-In(2)
240	1347.32	145.38	End Shut-In(2)
242	2089.53	142.37	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
192.00	GMCO 10%G 25%M 65%O	0.94
760.00	GO 30%G 70%O	7.56
0.00	320' GIP	0.00

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

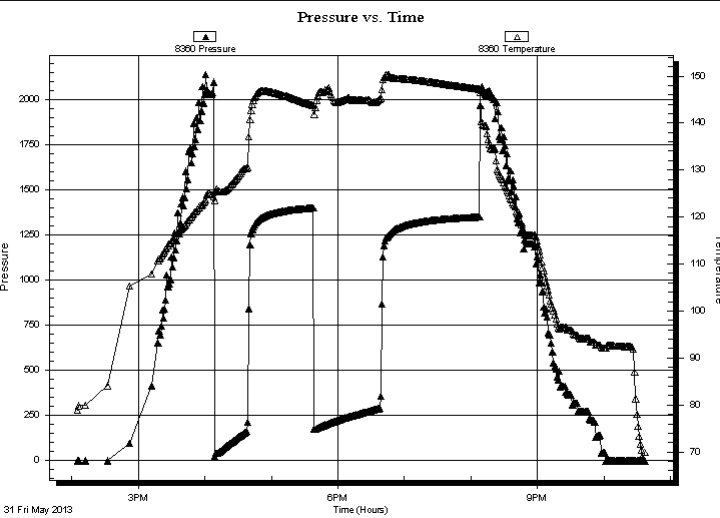
10-1s-37w Cheyenne, KS
Culwell C #1-10
 Job Ticket: 50676 **DST#: 4**
 Test Start: 2013.05.31 @ 14:05:09

GENERAL INFORMATION:

Formation: **LKC F-G**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:08:54
 Time Test Ended: 22:36:54
 Interval: **4169.00 ft (KB) To 4239.00 ft (KB) (TVD)**
 Total Depth: 4230.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Wilbur Steinbeck
 Unit No: 55
 Reference Elevations: 3150.00 ft (KB)
 3140.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8360 Inside
 Press @ Run Depth: psig @ 4170.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.31 End Date: 2013.05.31 Last Calib.: 2013.05.31
 Start Time: 14:05:15 End Time: 22:36:45 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 IF; BOB in 7 mins
 60 IS; Built to 1 3/4"
 60 FF; BOB in 10 mins
 90 FS; Built to 7"



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

Recovery		
Length (ft)	Description	Volume (bbl)
192.00	GMCO 10%G 25%M 65%O	0.94
760.00	GO 30%G 70%O	7.56
0.00	320' 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 Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 50676

DST#: 4

ATTN: Jeff Christian

Test Start: 2013.05.31 @ 14:05:09

Tool Information

Drill Pipe:	Length: 3617.00 ft	Diameter: 3.80 inches	Volume: 50.74 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 53.36 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4169.00 ft			Final 79000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4147.00	
Hydraulic tool jars	5.00			4152.00	
safety Joint	3.00			4157.00	
Packer	5.00			4160.00	
					27.00 Bottom Of Top Packer
Packer	4.00			4165.00	
Stubb	1.00			4169.00	
Recorder	0.00	8360	Inside	4170.00	
Recorder	0.00	8353	Outside	4170.00	
Perforations	23.00			4170.00	
Change Over Sub	1.00			4193.00	
Blank Spacing	32.00			4194.00	
Change Over Sub	1.00			4226.00	
Bullnose	3.00			4227.00	
					61.00 Bottom Packers & Anchor

Total Tool Length: 88.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne,KS
Culwell C #1-10
Job Ticket: 50676 **DST#: 4**
Test Start: 2013.05.31 @ 14:05:09

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: 67.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.39 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
192.00	GMCO 10%G 25%M 65%O	0.944
760.00	GO 30%G 70%O	7.564
0.00	320' GIP	0.000

Total Length: 952.00 ft Total Volume: 8.508 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

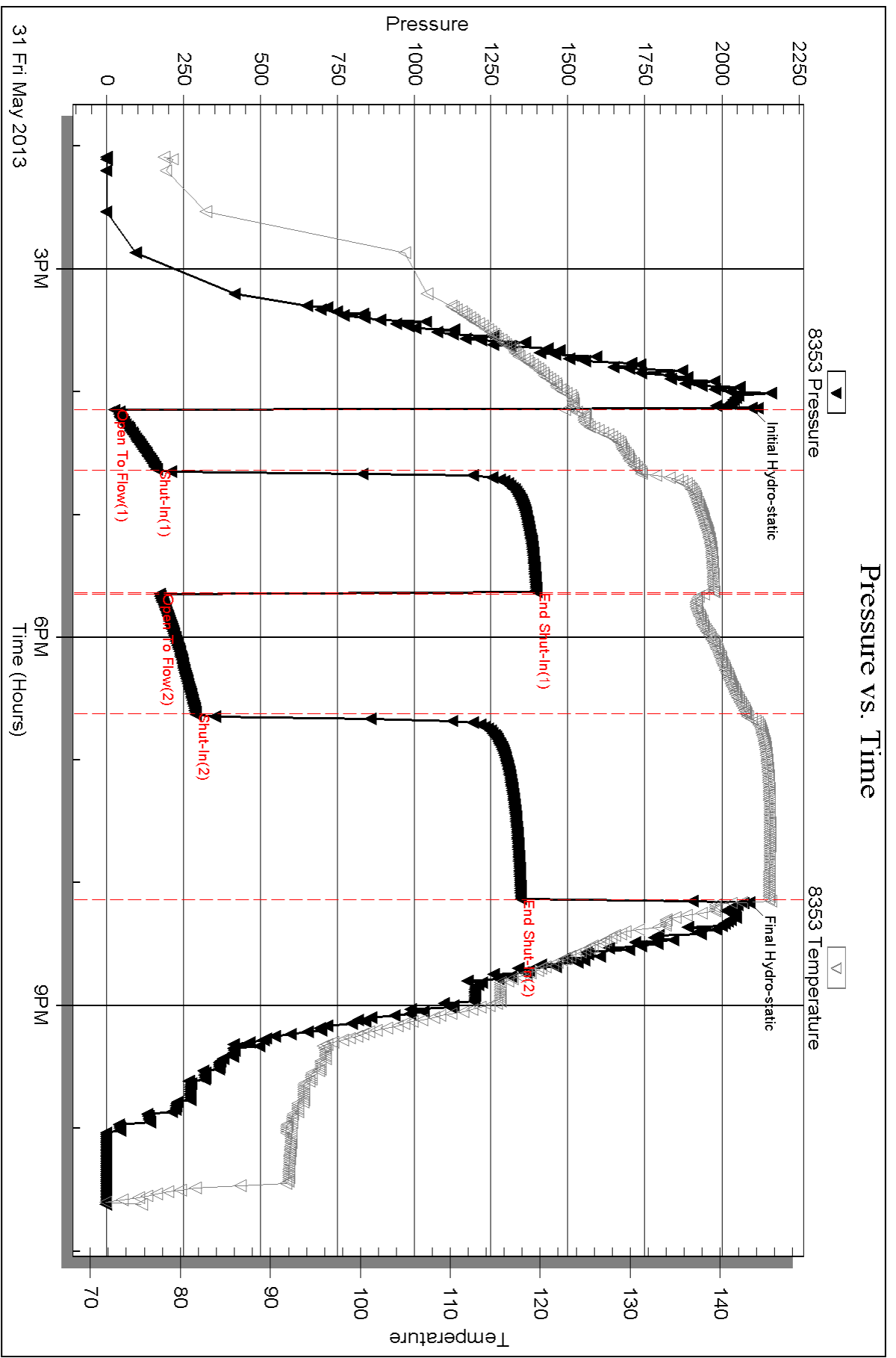
Recovery Comments: Gravity 30.4 @ 80 Deg F= 28.4

Serial #: 8353

Outside Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 50676

Printed: 2013.06.06 @ 12:06:01

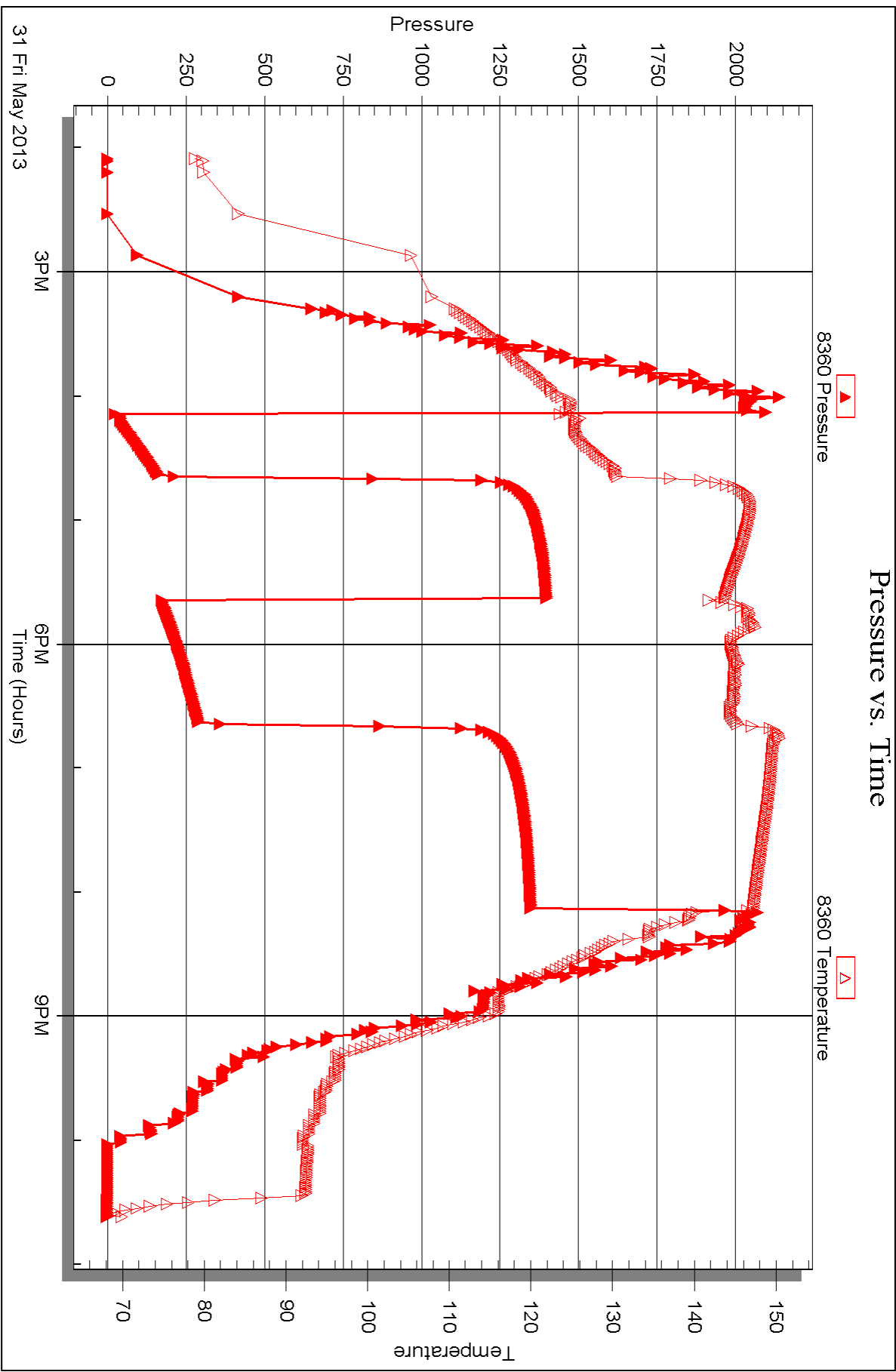
Serial #: 8360

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 4





DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.06.01 @ 11:55:00

End Date: 2013.06.01 @ 19:24:00

Job Ticket #: 50677 DST #: 5

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

Printed: 2013.06.06 @ 12:05:21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

10-1s-37w Cheyenne, KS

Culwell C #1-10

Job Ticket: 50677

DST#: 5

Test Start: 2013.06.01 @ 11:55:00

GENERAL INFORMATION:

Formation: **LKC H-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:36:15
 Time Test Ended: 19:24:00
 Interval: **4226.00 ft (KB) To 4326.00 ft (KB) (TVD)**
 Total Depth: 4326.00 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: 3150.00 ft (KB)
 3140.00 ft (CF)
 KB to GR/CF: 10.00 ft

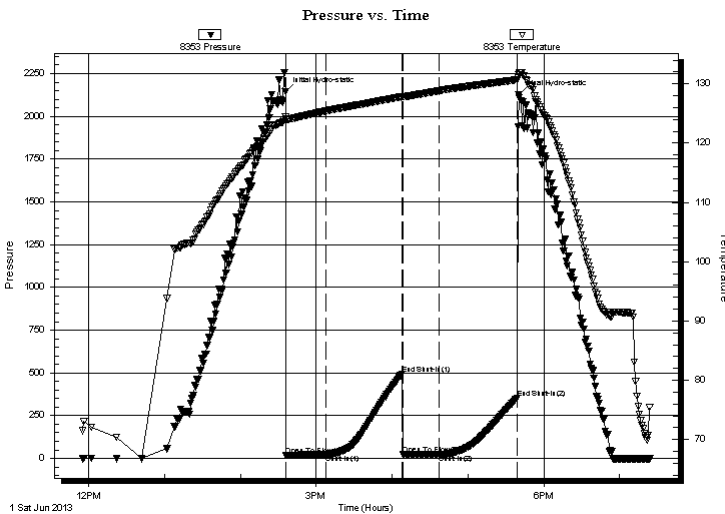
Serial #: 8353

Outside

Press @ Run Depth: 24.55 psig @ 4227.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.06.01 End Date: 2013.06.01 Last Calib.: 2013.06.01
 Start Time: 11:55:15 End Time: 19:24:00 Time On Btm: 2013.06.01 @ 14:35:45
 Time Off Btm: 2013.06.01 @ 17:40:15

TEST COMMENT: 30 IF; Built to 1/2" Then Died off
 60 IS; No Blow
 30 FF; No Blow
 60 FS; No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2146.77	124.35	Initial Hydro-static
1	17.69	123.87	Open To Flow (1)
32	21.67	125.41	Shut-In(1)
92	492.92	127.81	End Shut-In(1)
93	22.62	127.79	Open To Flow (2)
121	24.55	128.80	Shut-In(2)
183	352.07	130.67	End Shut-In(2)
185	2126.05	131.57	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 50677

DST#: 5

ATTN: Jeff Christian

Test Start: 2013.06.01 @ 11:55:00

GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:36:15

Time Test Ended: 19:24:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 44

Interval: 4226.00 ft (KB) To 4326.00 ft (KB) (TVD)

Reference Elevations: 3150.00 ft (KB)

Total Depth: 4326.00 ft (KB) (TVD)

3140.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8360 Inside

Press @ RunDepth: psig @ 4227.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.06.01 End Date: 2013.06.01

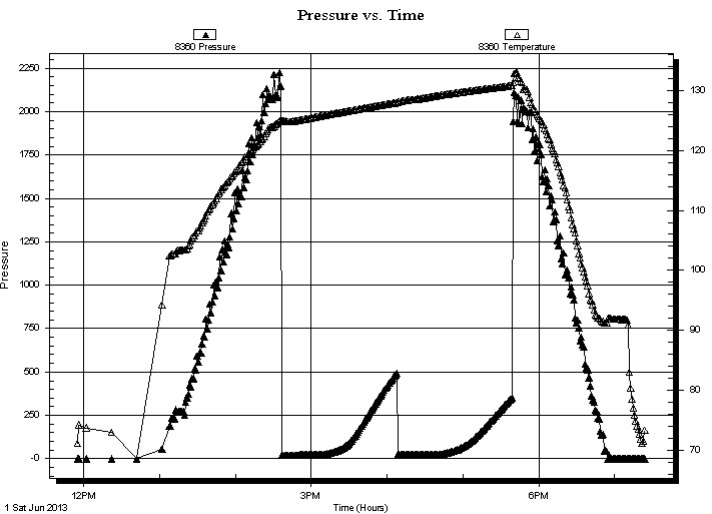
Last Calib.: 2013.06.01

Start Time: 11:55:15 End Time: 19:24:00

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF; Built to 1/2" Then Died off
60 ISl; No Blow
30 FF; No Blow
60 FS!; No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	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 Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 50677

DST#: 5

ATTN: Jeff Christian

Test Start: 2013.06.01 @ 11:55:00

Tool Information

Drill Pipe:	Length: 3681.00 ft	Diameter: 3.80 inches	Volume: 51.63 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 54.25 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4226.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	127.00 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			4204.00	
Hydraulic tool jars	5.00			4209.00	
safety Joint	5.00			4214.00	
	3.00			4217.00	
Packer	5.00			4222.00	27.00 Bottom Of Top Packer
Packer	4.00			4226.00	
Stubb	1.00			4227.00	
Recorder	0.00	8360	Inside	4227.00	
Recorder	0.00	8353	Outside	4227.00	
Perforations	30.00			4257.00	
Change Over Sub	1.00			4258.00	
Blank Spacing	64.00			4322.00	
Change Over Sub	1.00			4323.00	
Bullnose	3.00			4326.00	100.00 Bottom Packers & Anchor

Total Tool Length: 127.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 50677

DST#: 5

ATTN: Jeff Christian

Test Start: 2013.06.01 @ 11:55:00

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: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: 1.00 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:

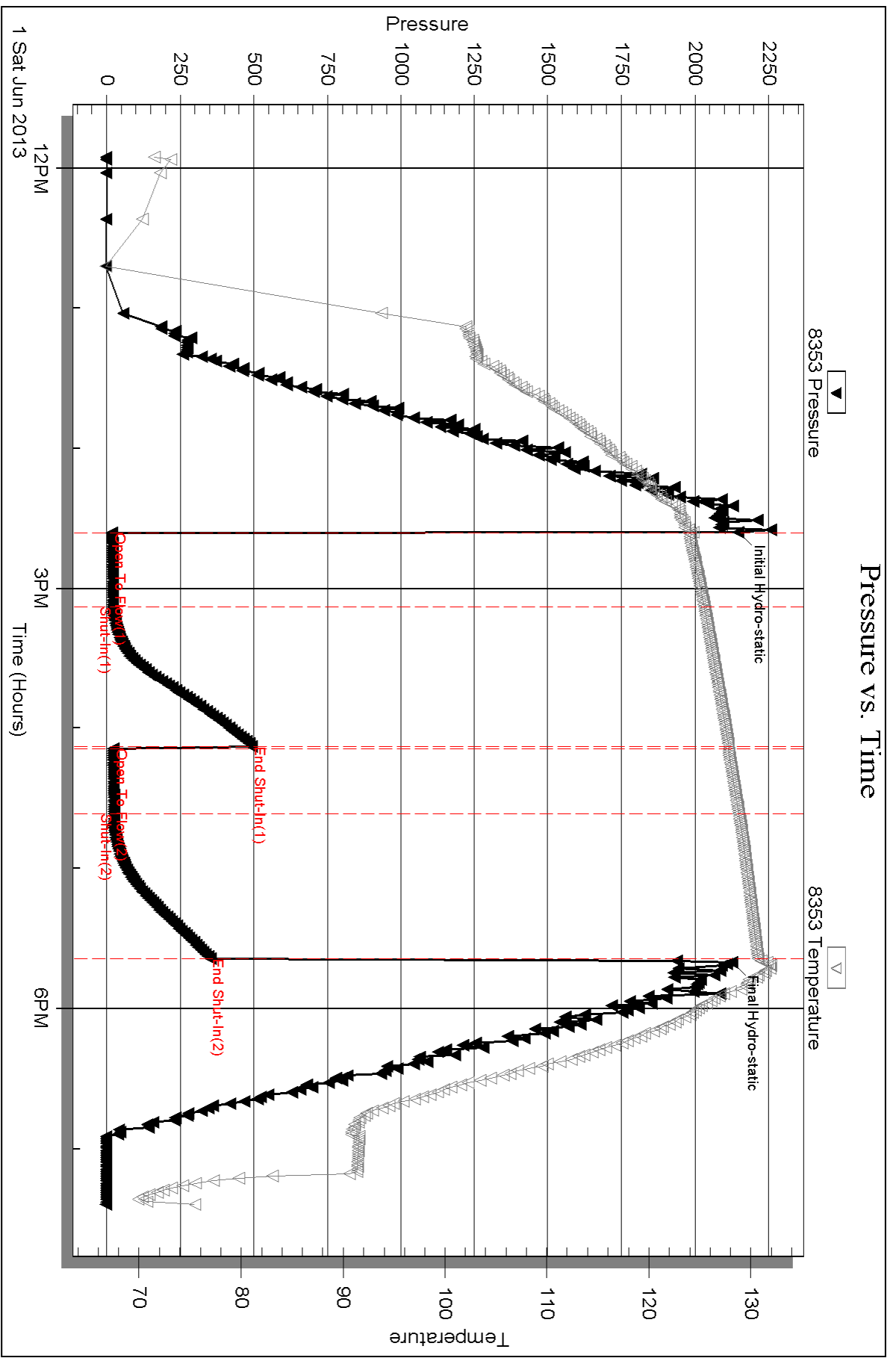
Recovery Comments:

Serial #: 8353

Outside Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 50677

Printed: 2013.06.06 @ 12:05:24

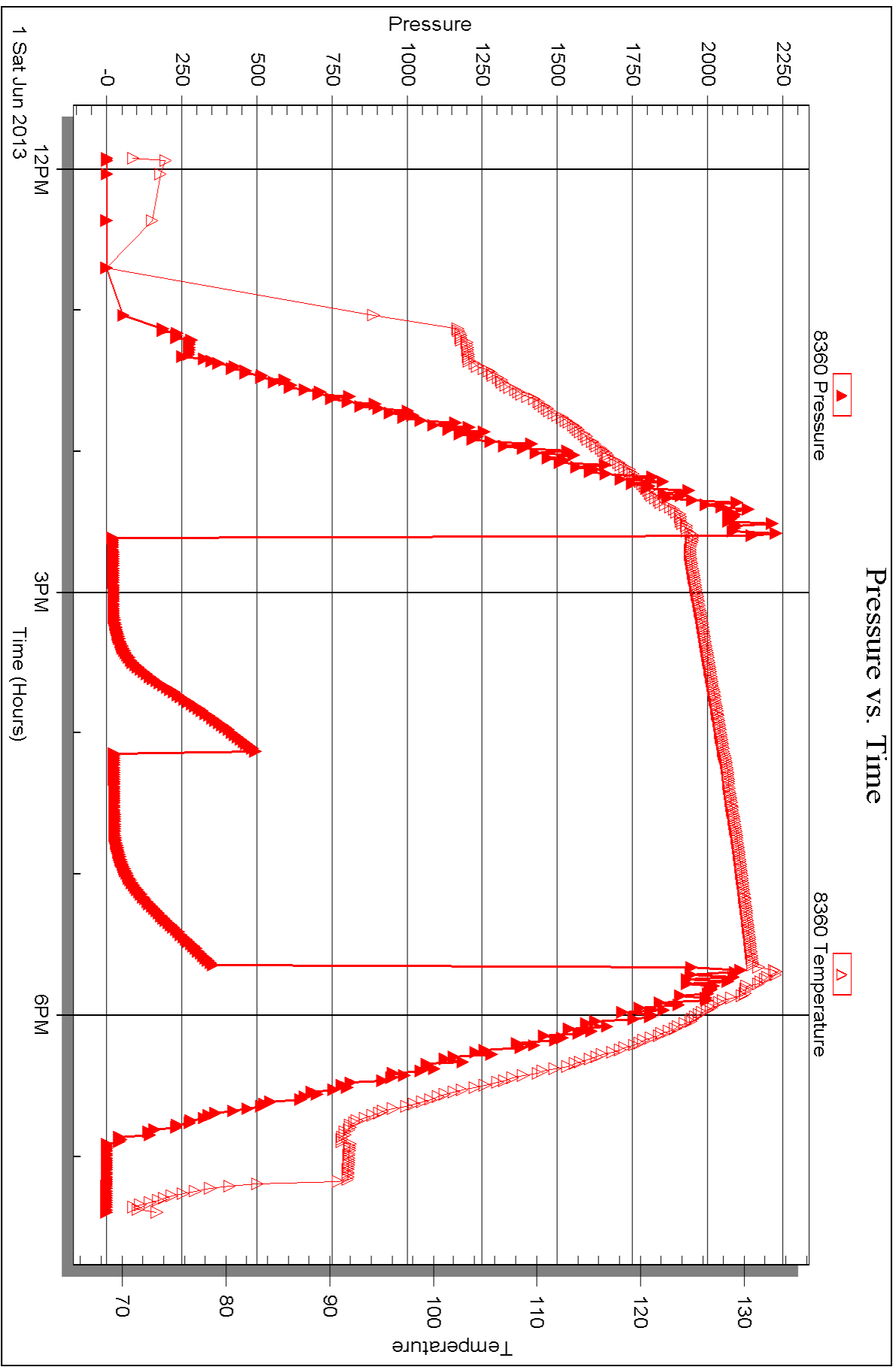
Serial #: 8360

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 5





DRILL STEM TEST REPORT

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

250 N Water Ste 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell C #1-10

10-1s-37w Cheyenne,KS

Start Date: 2013.06.02 @ 13:40:00

End Date: 2013.06.02 @ 22:06:00

Job Ticket #: 50678 DST #: 6

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

Printed: 2013.06.06 @ 12:04:38



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Comp. Inc
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Jeff Christian

10-1s-37w Cheyenne, KS

Culwell C #1-10

Job Ticket: 50678

DST#: 6

Test Start: 2013.06.02 @ 13:40:00

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:10:00
 Time Test Ended: 22:06:00
 Interval: **4460.00 ft (KB) To 4501.00 ft (KB) (TVD)**
 Total Depth: 4501.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Wilbur Steinbeck
 Unit No: 68
 Reference Elevations: 3150.00 ft (KB)
 3140.00 ft (CF)
 KB to GR/CF: 10.00 ft

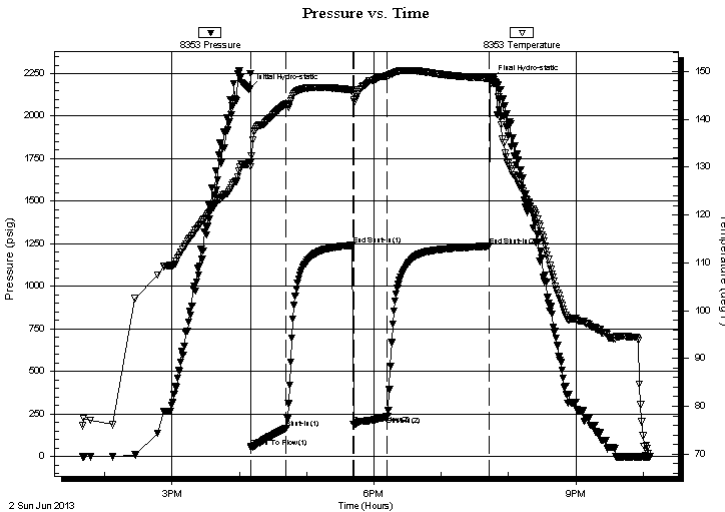
Serial #: 8353

Outside

Press @ Run Depth: 237.10 psig @ 4461.00 ft (KB)
 Start Date: 2013.06.02 End Date: 2013.06.02
 Start Time: 13:40:15 End Time: 22:06:00
 Capacity: 8000.00 psig
 Last Calib.: 2013.06.02
 Time On Btm: 2013.06.02 @ 16:09:00
 Time Off Btm: 2013.06.02 @ 19:44:00

TEST COMMENT: 30 IF; BOB in 5 mins
 60 IS; Built to 6 1/4"
 30 FF; BOB in 14 mins
 90 FS; Built to 7" died back to 4 1/2"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.57	130.95	Initial Hydro-static
1	52.11	130.04	Open To Flow (1)
32	163.79	143.14	Shut-In(1)
92	1241.22	146.13	End Shut-In(1)
93	187.00	144.15	Open To Flow (2)
123	237.10	149.13	Shut-In(2)
214	1236.65	148.59	End Shut-In(2)
215	2216.17	148.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
192.00	GOCM 10%G 40%O 50%M	0.94
483.00	GO 30%G 70%O	3.68
0.00	750' 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 Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne,KS

Culwell C #1-10

Job Ticket: 50678

DST#: 6

Test Start: 2013.06.02 @ 13:40:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:10:00

Time Test Ended: 22:06:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 68

Interval: 4460.00 ft (KB) To 4501.00 ft (KB) (TVD)

Total Depth: 4501.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3150.00 ft (KB)

3140.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 8360

Inside

Press @ Run Depth: psig @ 4461.00 ft (KB)

Start Date: 2013.06.02

End Date:

2013.06.02

Start Time: 13:40:15

End Time:

22:06:00

Capacity: 8000.00 psig

Last Calib.:

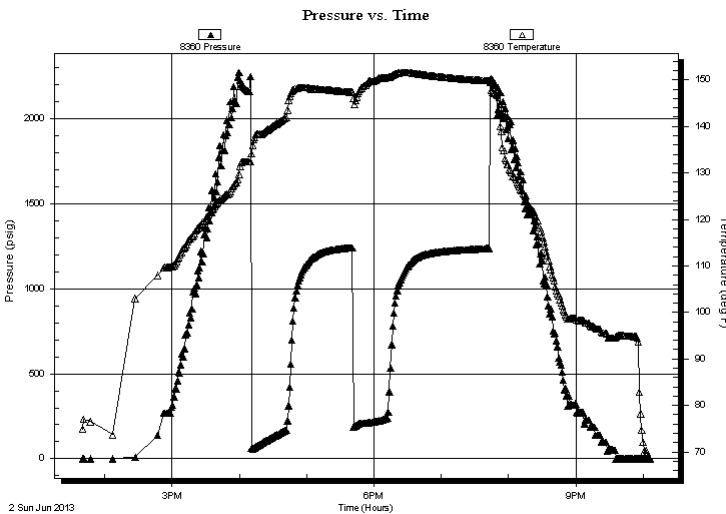
2013.06.02

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF; BOB in 5 mins
60 IS; Built to 6 1/4"
30 FF; BOB in 14 mins
90 FS; Built to 7" died back to 4 1/2"

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
192.00	GOCM 10%G 40%O 50%M	0.94
483.00	GO 30%G 70%O	3.68
0.00	750' 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 Comp. Inc

10-1s-37w Cheyenne,KS

250 N Water Ste 300
Wichita, KS 67202

Culwell C #1-10

Job Ticket: 50678

DST#: 6

ATTN: Jeff Christian

Test Start: 2013.06.02 @ 13:40:00

Tool Information

Drill Pipe:	Length: 3933.00 ft	Diameter: 3.80 inches	Volume: 55.17 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: 532.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 57.79 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4460.00 ft			Final 79000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	41.00 ft			
Tool Length:	69.00 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			4433.00	
Shut In Tool	5.00			4438.00	
Hydraulic tool	5.00			4443.00	
Jars	5.00			4448.00	
Safety Joint	3.00			4451.00	
Packer	5.00			4456.00	28.00 Bottom Of Top Packer
Packer	4.00			4460.00	
Stubb	1.00			4461.00	
Recorder	0.00	8360	Inside	4461.00	
Recorder	0.00	8353	Outside	4461.00	
Perforations	37.00			4498.00	
Bullnose	3.00			4501.00	41.00 Bottom Packers & Anchor

Total Tool Length: 69.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Comp. Inc
250 N Water Ste 300
Wichita, KS 67202
ATTN: Jeff Christian

10-1s-37w Cheyenne,KS
Culwell C #1-10
Job Ticket: 50678 **DST#: 6**
Test Start: 2013.06.02 @ 13:40:00

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: 72.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.39 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
192.00	GOCM 10%G 40%O 50%M	0.944
483.00	GO 30%G 70%O	3.678
0.00	750' GIP	0.000

Total Length: 675.00 ft Total Volume: 4.622 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

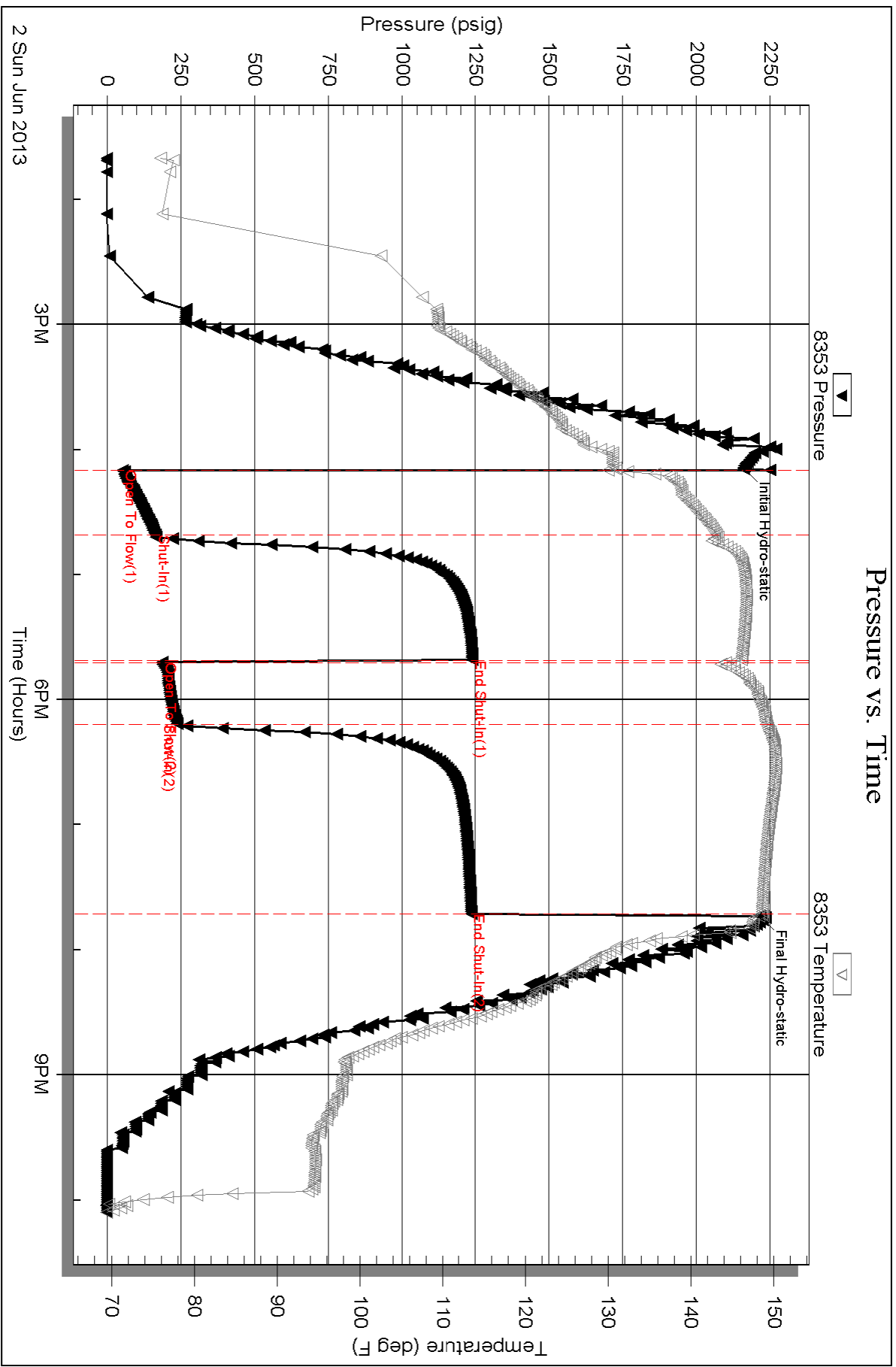
Recovery Comments: Gravity 38.2@84 DEG F=35.8

Serial #: 8353

Outside Murfin Drilling Comp. Inc

Oilwell C#1-10

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 50678

Printed: 2013.06.06 @ 12:04:41

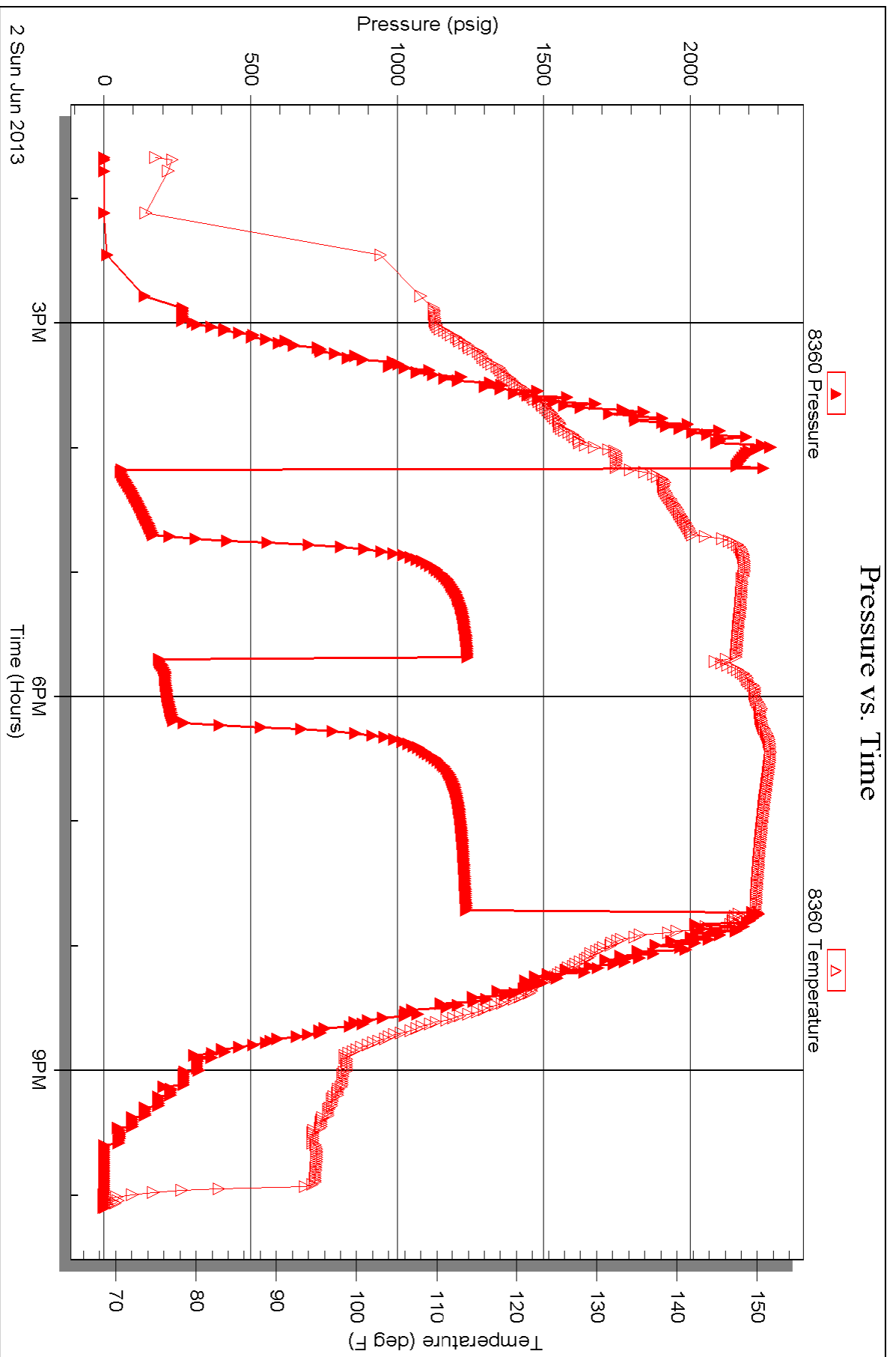
Serial #: 8360

Inside

Murfin Drilling Comp. Inc

Oilwell C#1-10

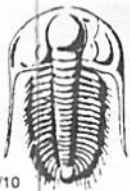
DST Test Number: 6



Triobite Testing, Inc

Ref. No: 50678

Printed: 2013.06.06 @ 12:04:42



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49210

Well Name & No. Culwell 'C' #1-10 Test No. #1 Date 5/28/13
 Company Muskeg Drilling Comp. Inc. Elevation 3150' KB 3140 GL
 Address 250 N. Water Ste 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Muskeg #14
 Location: Sec. 10 Twp. 15 Rge. 37W Co. Cheyenne State KS

Interval Tested 3620 3622 Zone Tested Faraker
 Anchor Length 46 Drill Pipe Run 3078 Mud Wt. 8.9
 Top Packer Depth 3621 Drill Collars Run 532' XH Vis 63
 Bottom Packer Depth 3626 Wt. Pipe Run --- WL 6.0
 Total Depth 3622 Chlorides 600 ppm System LCM ---

Blow Description Weak blow died in 8 min.
No return
No blow
No return

Rec	Feet of	%gas	%oil	%water	%mud
1'	Mud				100%
	Show of face oil on top				
	2" w				

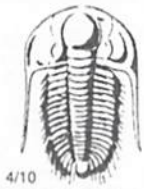
Rec Total 1' BHT 127° Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic	<u>1737</u>	<input checked="" type="checkbox"/> Test	<u>1150</u>	T-On Location	<u>09:20</u>
(B) First Initial Flow	<u>36</u>	<input checked="" type="checkbox"/> Jars	<u>250</u>	T-Started	<u>13:00</u>
(C) First Final Flow	<u>32</u>	<input checked="" type="checkbox"/> Safety Joint	<u>75</u>	T-Open	<u>14:33</u>
(D) Initial Shut-In	<u>842</u>	<input checked="" type="checkbox"/> Circ Sub	<u>N/C</u>	T-Pulled	<u>17:33</u>
(E) Second Initial Flow	<u>73</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>19:00</u>
(F) Second Final Flow	<u>35</u>	<input checked="" type="checkbox"/> Mileage	<u>172 RT 130rt 201.50</u>	Comments	
(G) Final Shut-In	<u>789</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>1637</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>1676.50</u>
		<input type="checkbox"/> Accessibility		MP/DST Disc't	

Approved By [Signature] Our Representative [Signature]
 Sub Total 1676.50

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52599

Well Name & No. Colwell C #1-10 Test No. 2 Date 5-29-13
 Company Marfen Drilling Co. Elevation 3150 KB 3140 GL
 Address 250 N Water Stc 300 Wichita ks 67206
 Co. Rep / Geo. Jeff Christanson Rig Marfen 14
 Location: Sec. 10 Twp. 1s Rge. 37w Co. Chryenne State KS

Interval Tested 3967 4030 Zone Tested Oreod
 Anchor Length 63 Drill Pipe Run 3427 Mud Wt. 9.0
 Top Packer Depth 3962 Drill Collars Run 532 Vis 56
 Bottom Packer Depth 3967 Wt. Pipe Run 0 WL 5.9
 Total Depth 4030 Chlorides 600 ppm System LCM 4

Blow Description IF; Drill to 1/2"
IS; No blow
FF; No blow
PSI; No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</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 Total 5 BHT 130° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1,422 Test 1250 T-On Location 20:25
 (B) First Initial Flow 15 Jars 250 T-Started 23:18
 (C) First Final Flow 21 Safety Joint 75 T-Open 1:30
 (D) Initial Shut-In 1,259 Circ Sub NA T-Pulled 4:30
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 6:05
 (F) Second Final Flow 28 Mileage 130 KT 201.50 Comments _____
 (G) Final Shut-In 1,237 Sampler _____
 (H) Final Hydrostatic 1,904 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 1776.50
 Total 1776.50
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52600

Well Name & No. Colwell C #1-10 Test No. 3 Date 5-30-13
 Company Murfin Drilling Co. Elevation 3150 KB 3140 GL
 Address 250 N Water St 300 Wichita Ks 67206
 Co. Rep / Geo. Jeff Christiansen Rig Murfin 14
 Location: Sec. 10 Twp. 15 Rge. 31w Co. Cherokee State KS

Interval Tested 4074 4170 Zone Tested Lan A-D
 Anchor Length 96 Drill Pipe Run 3522 Mud Wt. 9.0
 Top Packer Depth 4069 Drill Collars Run 532 Vis 52
 Bottom Packer Depth 4074 Wt. Pipe Run 0 WL 6.0
 Total Depth 4170 Chlorides 600 ppm System LCM 4

Blow Description IF; BOB in 12min
IS; BWT to 4"
PF; BOB in 12min
FS; BWT to 7 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>288</u>	<u>OG</u>	<u>40</u>	<u>60</u>		
<u>414</u>	<u>WOG cm</u>	<u>10</u>	<u>20</u>	<u>10</u>	<u>60</u>
<u>192</u>	<u>WOG cm</u>	<u>20</u>	<u>15</u>	<u>15</u>	<u>50</u>
<u>606'</u>	<u>G.I.P</u>				

Rec Total 894 BHT 140° Gravity 25@80° = 23 API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic 2025 Test 1250 T-On Location 20:25
 (B) First Initial Flow 30 Jars 250 T-Started 20:37
 (C) First Final Flow 230 Safety Joint 75 T-Open 22:50
 (D) Initial Shut-In 1338 Circ Sub NA T-Pulled 2:50
 (E) Second Initial Flow 249 Hourly Standby T-Out 5:10

(F) Second Final Flow 372 Mileage 130 RT 201.50
 (G) Final Shut-In 1260 Sampler
 (H) Final Hydrostatic 1966 Straddle

Shale Packer
 Ruined Shale Packer
 Ruined Packer

Initial Open 300 Extra Packer
 Extra Copies
 Initial Shut-In 60 Extra Recorder
 Sub Total 0

Final Flow 60 Day Standby
 Total 1776.50
 Final Shut-In 90 Accessibility
 MP/DST Disc't

Sub Total 1776.50
 Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50676

Well Name & No. Colwell C #1-10 Test No. 4 Date 5-31-13
 Company Murfin Drilling Co. Elevation 3150 KB 3140 GL
 Address 250 N Wake St. 300 Wichita KS 67206
 Co. Rep / Geo. Jeff Christensen Rig Murfin 14
 Location: Sec. 10 Twp. 15 Rge. 37w Co. Cherokee State Ks

Interval Tested 4169 4230 Zone Tested LAN F+G
 Anchor Length 61 Drill Pipe Run 3617 Mud Wt. 9.1
 Top Packer Depth 4164 Drill Collars Run 532 Vis 67
 Bottom Packer Depth 4169 Wt. Pipe Run 0 WL 6.4
 Total Depth 4230 Chlorides 1000 ppm System LCM 5

Blow Description 1F; BOBIN 7 mins
1st; Built to 1 3/4"
FF; BOBIN 10 min
PSI; Built to 7"

Rec	Feet of	%gas	%oil	%water	%mud
<u>760</u>	<u>GO</u>	<u>30</u>	<u>70</u>		
<u>192</u>	<u>GMCO</u>	<u>10</u>	<u>65</u>	<u>0</u>	<u>25</u>
<u>320'</u>	<u>GIP</u>				

Rec Total 952 BHT 145° Gravity 30.2 @ 80° API RW 28.4 @ ° F Chlorides ppm

(A) Initial Hydrostatic <u>2,096</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>13:50</u>
(B) First Initial Flow <u>24</u> <u>162</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:05</u>
(C) First Final Flow	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:10</u>
(D) Initial Shut-In <u>1397</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>20:10</u>
(E) Second Initial Flow <u>122</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>22:38</u>
(F) Second Final Flow <u>289</u>	<input checked="" type="checkbox"/> Mileage <u>130 RT</u> 201.50	Comments
(G) Final Shut-In <u>1347</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2090</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
	<input type="checkbox"/> Day Standby	Total <u>1776.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1776.50</u>	

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50677

Well Name & No. Culwell C #1-10 Test No. 5 Date 6-1-13
 Company Murfin Drilling Co. Elevation 3150 KB 3140 GL
 Address 250 N. Water Stc. 300 Wichita Ks 67206
 Co. Rep / Geo. Jeff Christenson Rig Murfin 14
 Location: Sec. 10 Twp. 15 Rge. 37w Co. Cherokee State Ks

Interval Tested 4226 4326 Zone Tested LAN H, I, J
 Anchor Length 100' Drill Pipe Run 3681 Mud Wt. 9.1
 Top Packer Depth 4221 Drill Collars Run 532 Vis 65
 Bottom Packer Depth 4226 Wt. Pipe Run 0 WL 6.0
 Total Depth 4326 Chlorides 1,100 ppm System LCM 5

Blow Description IF; Built to 1/2" then Died off
ISI; No blow
FF; No blow
FSI; No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</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 132° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2,147</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>11:10</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:55</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>14:40</u>
(D) Initial Shut-In <u>493</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>18:40</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>19:25</u>
(F) Second Final Flow <u>25</u>	<input checked="" type="checkbox"/> Mileage <u>130 RT</u> 201.50	Comments _____
(G) Final Shut-In <u>352</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2126</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> 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 1776.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1776.50

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50678

Well Name & No. Culwell C #1-10 Test No. 6 Date 6-2-13
 Company Murkin Drilling Co. Elevation 3150 KB 3146 GL
 Address 250 N. Water Ste. 300 Wichita Ks 67206
 Co. Rep / Geo. Jeff Christensen Rig Murkin 14
 Location: Sec. 10 Twp. 1s Rge. 37w Co. Cherokee State Ks

Interval Tested 4460 4501 Zone Tested Pawnee
 Anchor Length 41' Drill Pipe Run 3933 Mud Wt. 9.2
 Top Packer Depth 4455 Drill Collars Run 532 Vis 72
 Bottom Packer Depth 4460 Wt. Pipe Run 0 WL 6.4
 Total Depth 4501 Chlorides 1,000 ppm System LCM 4

Blow Description 1F; BOB in 5 min
1st; Built to 6 1/4"
FF; BOB in 14 min
PSI; Built to 7" died back to 4 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>483</u>	<u>GO</u>	<u>30</u>	<u>70</u>		
<u>192</u>	<u>GOCON</u>	<u>10</u>	<u>40</u>	<u>50</u>	
	<u>750 G.I.P</u>				

Rec Total 675 BHT 149° Gravity 38.2 @ 84° = 35.8 API RW @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2,161</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>12:55</u>
(B) First Initial Flow <u>52</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>13:40</u>
(C) First Final Flow <u>164</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:10</u>
(D) Initial Shut-In <u>1,241</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>19:40</u>
(E) Second Initial Flow <u>187</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>22:05</u>
(F) Second Final Flow <u>237</u>	<input checked="" type="checkbox"/> Mileage <u>130 RT</u> 403	Comments _____
(G) Final Shut-In <u>1,237</u>	<input type="checkbox"/> Sampler _____	<u>loaded tools 6/3 10:00</u>
(H) Final Hydrostatic <u>2,216</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>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1978</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1978</u>	

Approved By _____ Our Representative 

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