



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolzle

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.02.23 @ 10:40:00

End Date: 2014.02.23 @ 17:17:00

Job Ticket #: 56795 DST #: 1

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

Printed: 2014.03.04 @ 14:03:09



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

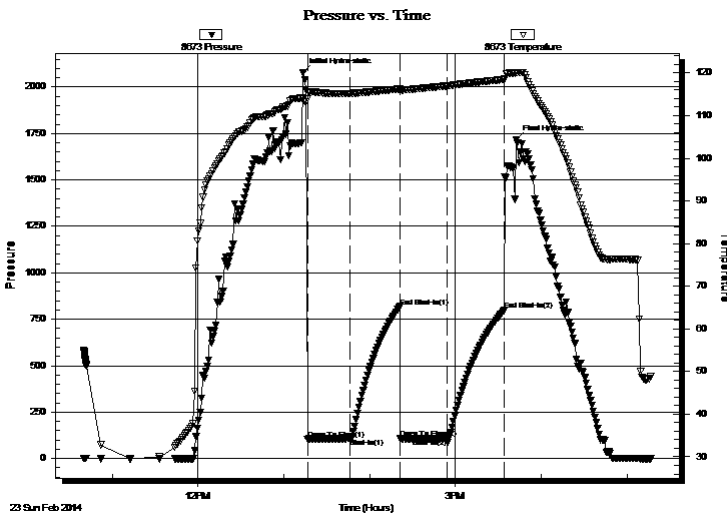
4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56795 **DST#: 1**
Test Start: 2014.02.23 @ 10:40:00

GENERAL INFORMATION:

Formation: **Foraker**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:16:30
Time Test Ended: 17:17:00
Test Type: Conventional Bottom Hole (Initial)
Tester: Chuck Kreuzer Jr.
Unit No: 46
Interval: **3625.00 ft (KB) To 3670.00 ft (KB) (TVD)**
Reference Elevations: 3122.00 ft (KB)
Total Depth: 3670.00 ft (KB) (TVD) 3110.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 12.00 ft

Serial #: 8673 Inside
Press@RunDepth: 106.64 psig @ 3626.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.23 End Date: 2014.02.23 Last Calib.: 2014.02.23
Start Time: 10:40:01 End Time: 17:17:00 Time On Btm: 2014.02.23 @ 13:13:30
Time Off Btm: 2014.02.23 @ 15:42:30

TEST COMMENT: IF: Had 12 ft. of fill. Slid 10 Ft. then tool opened on last 2. Weak blow , Died in 1 min.
IS: No blow back
FF: No blow
FS: NO blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2078.99	114.11	Initial Hydro-static
3	105.57	113.99	Open To Flow (1)
33	107.39	115.17	Shut-In(1)
68	817.89	116.24	End Shut-In(1)
68	106.63	115.99	Open To Flow (2)
101	106.64	116.96	Shut-In(2)
141	796.90	118.45	End Shut-In(2)
149	1714.24	120.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	mud w ith oil specs	0.89

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

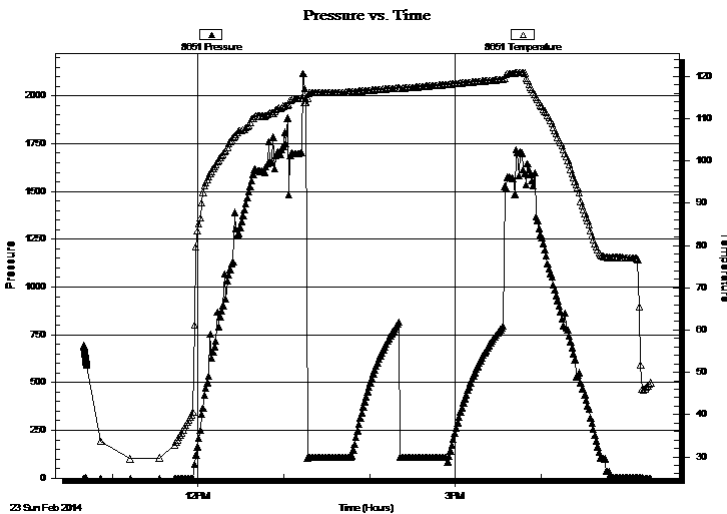
4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56795 **DST#: 1**
Test Start: 2014.02.23 @ 10:40:00

GENERAL INFORMATION:

Formation: Foraker				Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock:		ft (KB)		Tester: Chuck Kreutzer Jr.
Time Tool Opened: 13:16:30				Unit No: 46
Time Test Ended: 17:17:00				
Interval: 3625.00 ft (KB) To 3670.00 ft (KB) (TVD)			Reference Elevations: 3122.00 ft (KB)	
Total Depth: 3670.00 ft (KB) (TVD)				3110.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Good		KB to GR/CF: 12.00 ft	

Serial #: 8651	Outside				
Press@RunDepth: psig @ 3626.00 ft (KB)		Capacity: 8000.00 psig			
Start Date: 2014.02.23	End Date: 2014.02.23	Last Calib.: 2014.02.23			
Start Time: 10:40:01	End Time: 17:17:00	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: IF: Had 12 ft. of fill. Slid 10 Ft. then tool opened on last 2. Weak blow , Died in 1 min.
IS: No blow back
FF: No blow
FS: NO blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
180.00	mud w ith oil specs	0.89

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56795 **DST#: 1**
Test Start: 2014.02.23 @ 10:40:00

Tool Information

Drill Pipe:	Length: 3438.00 ft	Diameter: 3.80 inches	Volume: 48.23 bbl	Tool Weight: 2600.00 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 49.13 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3625.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	45.00 ft			
Tool Length:	73.00 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			3602.00	
Hydraulic tool	5.00			3607.00	
Jars	5.00			3612.00	
Safety Joint	3.00			3615.00	
Packer	5.00			3620.00	28.00 Bottom Of Top Packer
Packer	5.00			3625.00	
Stubb	1.00			3626.00	
Recorder	0.00	8673	Inside	3626.00	
Recorder	0.00	8651	Outside	3626.00	
Perforations	3.00			3629.00	
change Over Sub	1.00			3630.00	
Blank Spacing	31.00			3661.00	
Change Over Sub	1.00			3662.00	
Perforations	5.00			3667.00	
Bullnose	3.00			3670.00	45.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

4 1s 37w Cheyenne,KS

250 N. Water Ste. 300
Wichita KS 67202

Potthoff #1-4

Job Ticket: 56795

DST#: 1

ATTN: Bob Stolzle

Test Start: 2014.02.23 @ 10:40:00

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: 57.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
180.00	mud w ith oil specs	0.885

Total Length: 180.00 ft Total Volume: 0.885 bbf

Num Fluid Samples: 0

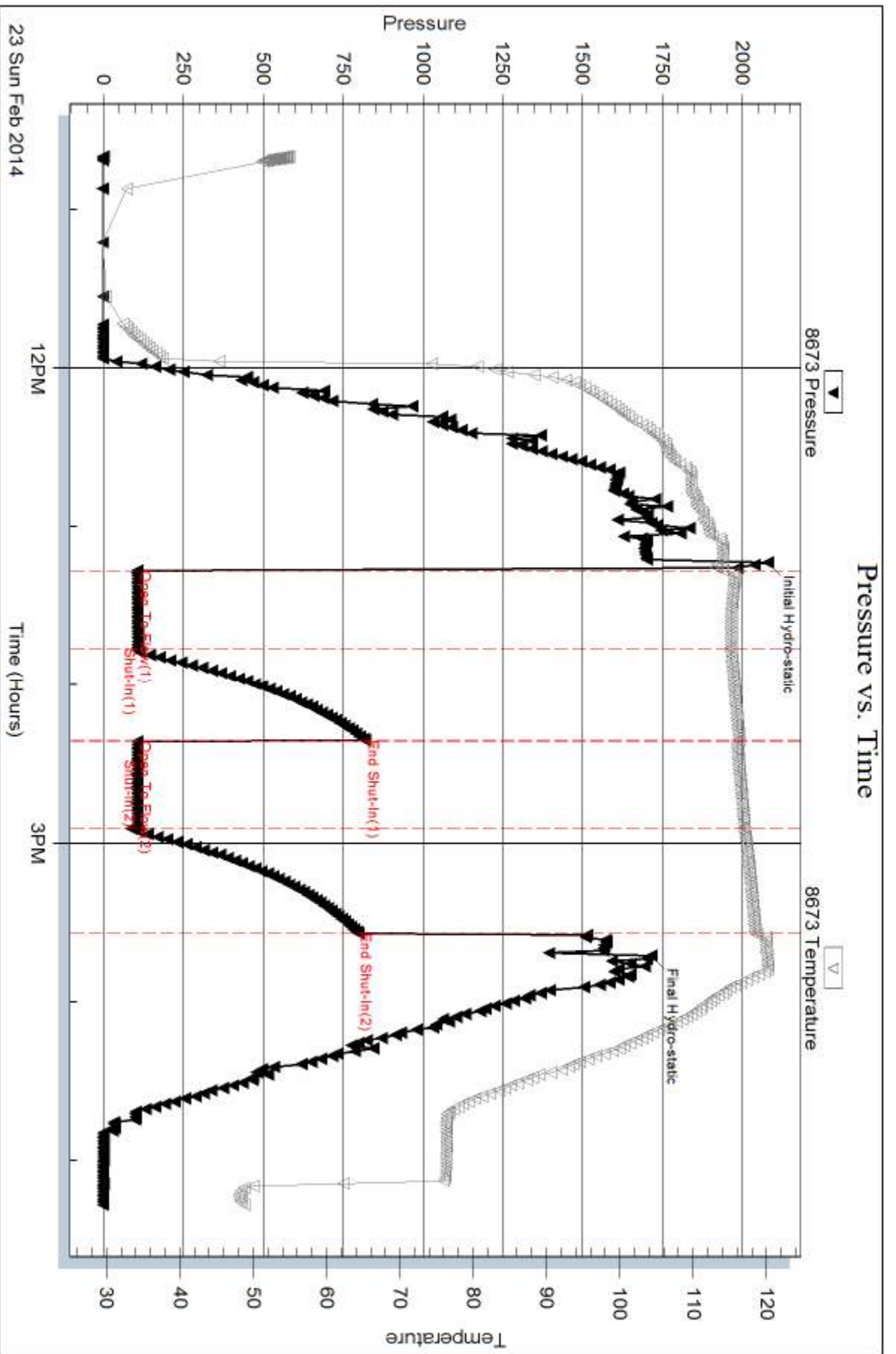
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

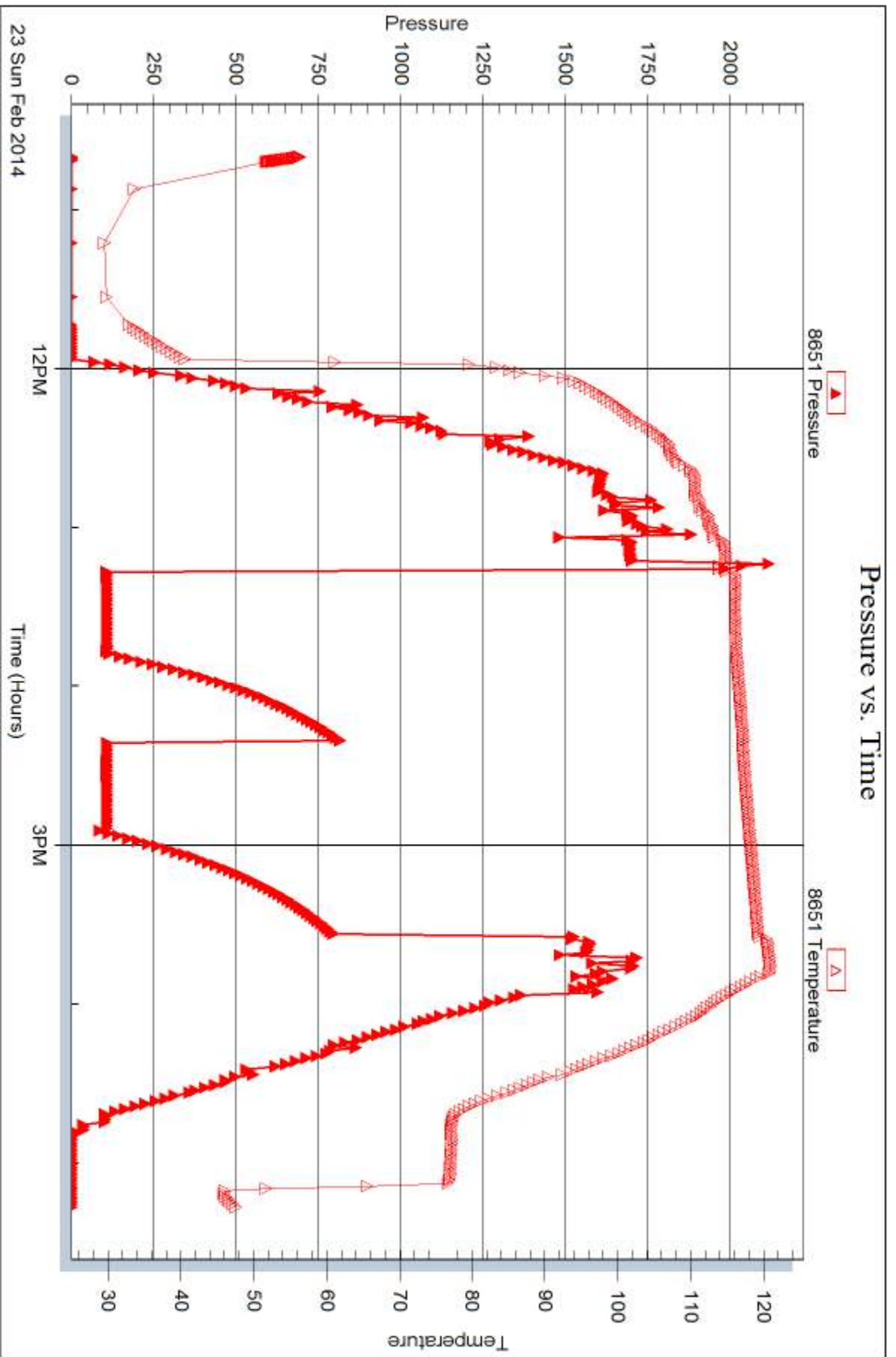


Serial #: 8651

Outside Murfin Drilling

Rothoff #1-4

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 56795

Printed: 2014.03.04 @ 14:03:11



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolze

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.02.24 @ 23:40:00

End Date: 2014.02.25 @ 08:48:13

Job Ticket #: 56796 DST #: 2

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

Printed: 2014.03.04 @ 14:02:46



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Bob Stolzle

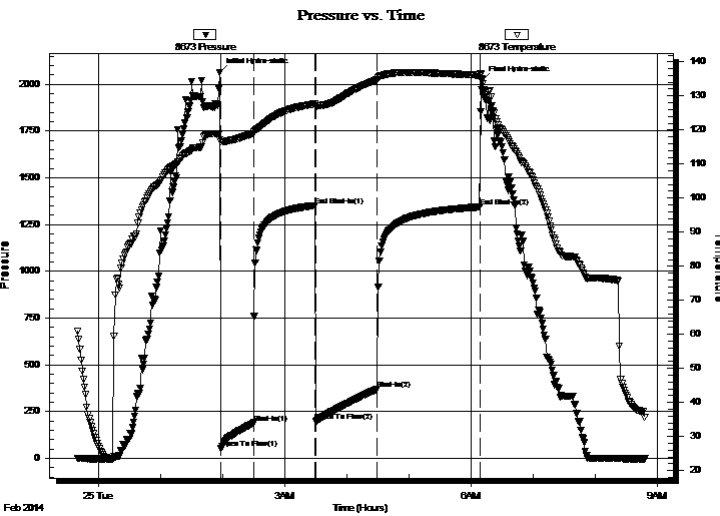
4 1s 37w Cheyenne, KS
Potthoff #1-4
 Job Ticket: 56796 **DST#: 2**
 Test Start: 2014.02.24 @ 23:40:00

GENERAL INFORMATION:

Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:58:37
 Time Test Ended: 08:48:13
 Interval: **3970.00 ft (KB) To 4040.00 ft (KB) (TVD)**
 Total Depth: 4040.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 46
 Reference Elevations: 3122.00 ft (KB)
 3110.00 ft (CF)
 KB to GR/CF: 12.00 ft

Serial #: 8673 Inside
 Press@RunDepth: 372.43 psig @ 3971.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.24 End Date: 2014.02.25 Last Calib.: 2014.02.25
 Start Time: 23:40:01 End Time: 08:48:13 Time On Btm: 2014.02.25 @ 01:57:31
 Time Off Btm: 2014.02.25 @ 06:10:16

TEST COMMENT: IF: Strong blow , Built to B.O.B in 18 mins.
 IS: No blow back
 FF: Strong blow , Built to B.O.B in 15 mins.
 FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2063.96	117.21	Initial Hydro-static
2	54.54	116.58	Open To Flow (1)
33	190.03	119.03	Shut-In(1)
92	1351.87	127.61	End Shut-In(1)
93	198.33	127.08	Open To Flow (2)
153	372.43	134.81	Shut-In(2)
252	1344.83	136.08	End Shut-In(2)
253	2021.42	135.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
184.00	mcw -5% m95%w	0.90
255.00	mcw -25% m75%w	3.58
189.00	w cm-25%w 75%m	2.65
156.00	mud-100%	2.19

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
 Job Ticket: 56796 **DST#: 2**
 Test Start: 2014.02.24 @ 23:40:00

GENERAL INFORMATION:

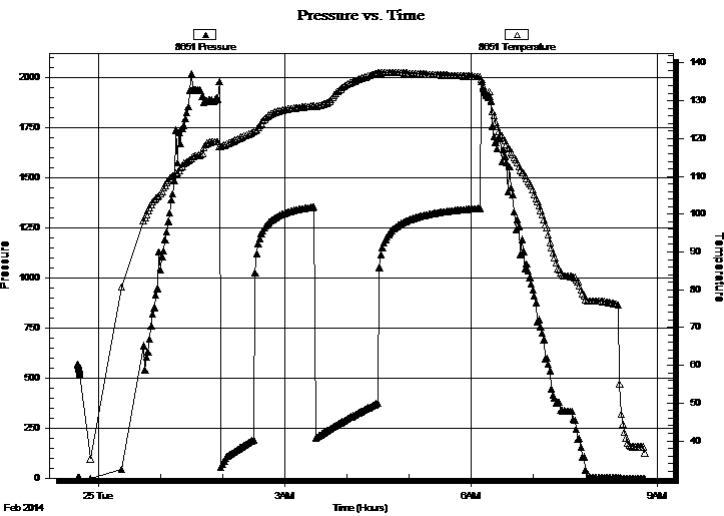
Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:58:37
 Time Test Ended: 08:48:13
 Interval: **3970.00 ft (KB) To 4040.00 ft (KB) (TVD)**
 Total Depth: 4040.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreutzer Jr.
 Unit No: 46
 Reference Elevations: 3122.00 ft (KB)
 3110.00 ft (CF)
 KB to GR/CF: 12.00 ft

Serial #: 8651

Outside

Press@RunDepth: psig @ 3971.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.24 End Date: 2014.02.25 Last Calib.: 2014.02.25
 Start Time: 23:40:01 End Time: 08:48:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Strong blow, Built to B.O.B in 18 mins.
 IS: No blow back
 FF: Strong blow, Built to B.O.B in 15 mins.
 FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
184.00	mcw -5% m95%w	0.90
255.00	mcw -25% m75%w	3.58
189.00	w cm-25%w 75%m	2.65
156.00	mud-100%	2.19

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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56796 **DST#: 2**
Test Start: 2014.02.24 @ 23:40:00

Tool Information

Drill Pipe:	Length: 3788.00 ft	Diameter: 3.80 inches	Volume: 53.14 bbl	Tool Weight: 2600.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 54.04 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3970.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.00 ft			
Tool Length:	98.00 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			3947.00	
Hydraulic tool	5.00			3952.00	
Jars	5.00			3957.00	
Safety Joint	3.00			3960.00	
Packer	5.00			3965.00	28.00 Bottom Of Top Packer
Packer	5.00			3970.00	
Stubb	1.00			3971.00	
Recorder	0.00	8673	Inside	3971.00	
Recorder	0.00	8651	Outside	3971.00	
Perforations	2.00			3973.00	
change Over Sub	1.00			3974.00	
Blank Spacing	62.00			4036.00	
Change Over Sub	1.00			4037.00	
Bullnose	3.00			4040.00	70.00 Bottom Packers & Anchor

Total Tool Length: 98.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56796 **DST#: 2**
Test Start: 2014.02.24 @ 23:40:00

Mud and Cushion Information

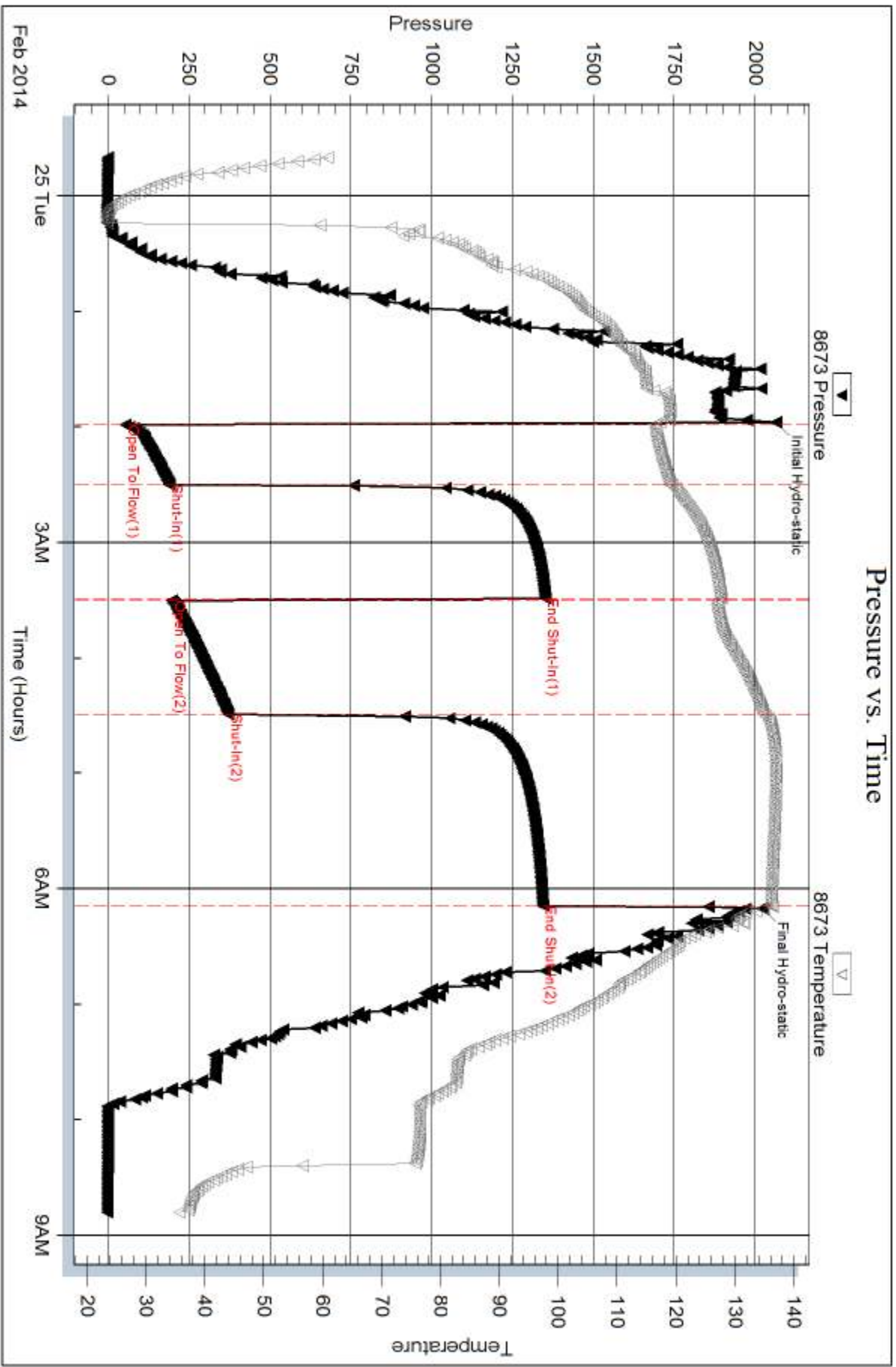
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 70.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.58 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 700.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
184.00	mcw -5% m 95% w	0.905
255.00	mcw -25% m 75% w	3.577
189.00	w cm-25% w 75% m	2.651
156.00	mud-100%	2.188

Total Length: 784.00 ft Total Volume: 9.321 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

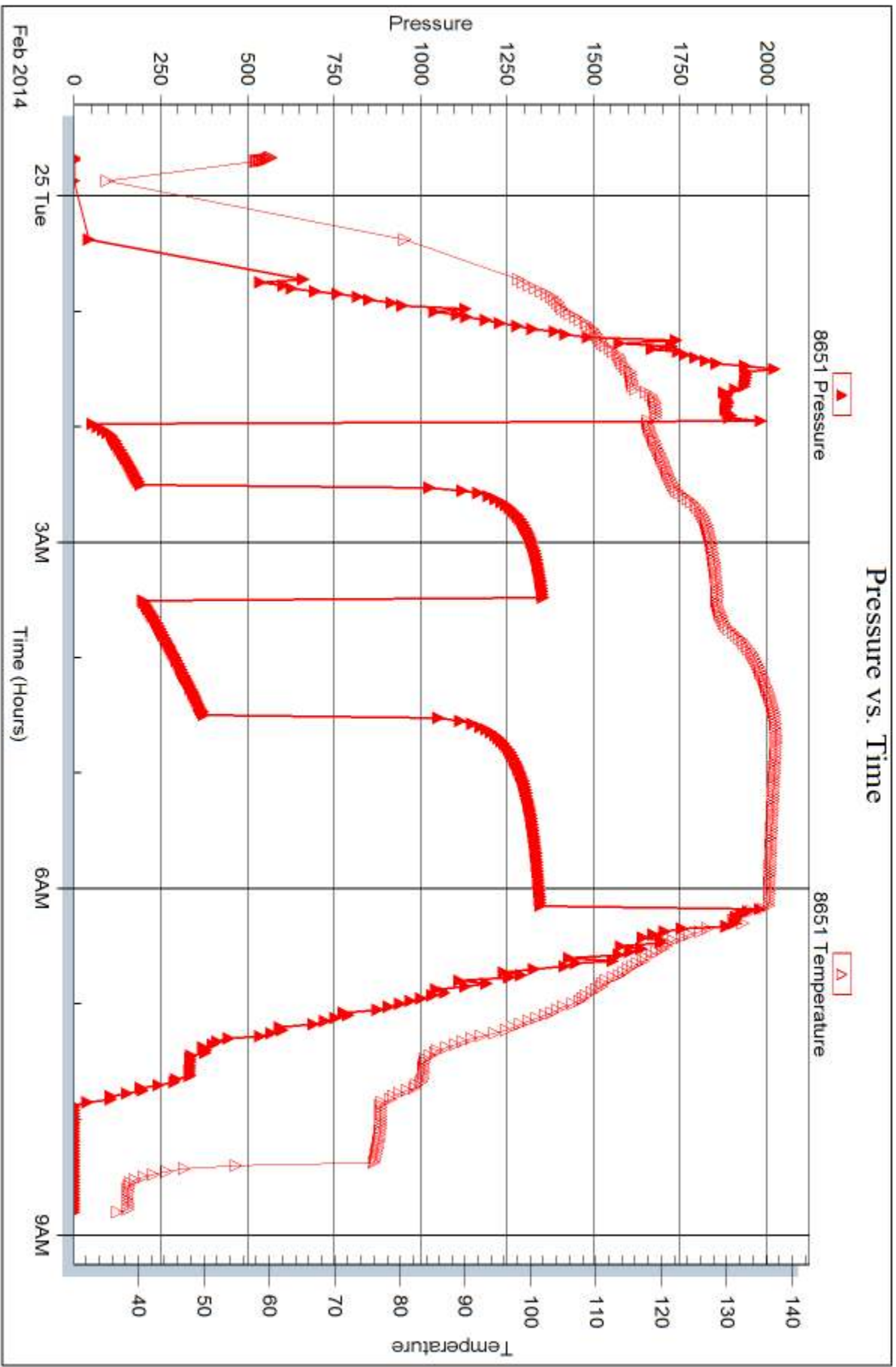


Serial #: 8651

Outside Murfin Drilling

Pothoff #1-4

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolze

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.02.26 @ 00:58:00

End Date: 2014.02.26 @ 10:10:30

Job Ticket #: 56759 DST #: 3

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

Printed: 2014.03.04 @ 14:02:22



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

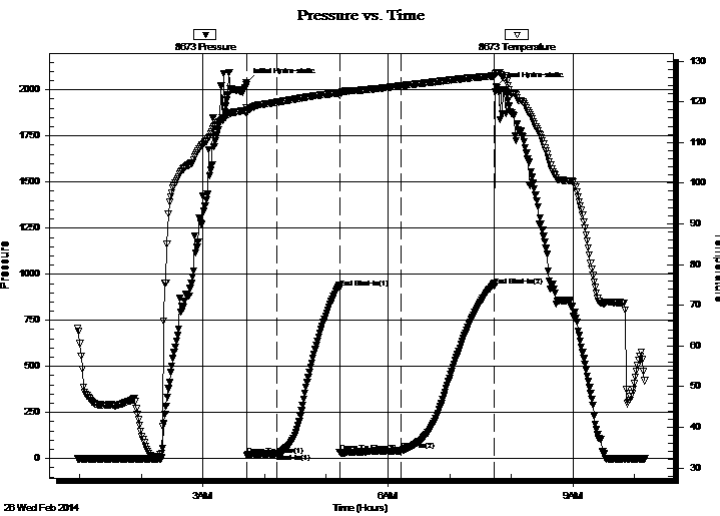
4 1s 37w Cheyenne, KS
Potthoff #1-4
Job Ticket: 56759 **DST#: 3**
Test Start: 2014.02.26 @ 00:58:00

GENERAL INFORMATION:

Formation: **LKC "A--D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 03:42:17
Time Test Ended: 10:10:30
Interval: **4043.00 ft (KB) To 4165.00 ft (KB) (TVD)**
Total Depth: 4165.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Robert Zodrow
Unit No: 46
Reference Elevations: 3122.00 ft (KB)
3110.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 **Inside**
Press@RunDepth: 42.82 psig @ 4044.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.26 End Date: 2014.02.26 Last Calib.: 2014.02.26
Start Time: 00:58:01 End Time: 10:10:30 Time On Btm: 2014.02.26 @ 03:42:14
Time Off Btm: 2014.02.26 @ 07:45:07

TEST COMMENT: 30-IS- Blow Built To 2"
60-IS- No Return
60-FF- Blow Built To 1/2"
90-FS- No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2040.85	118.57	Initial Hydro-static
1	18.77	117.16	Open To Flow (1)
30	27.03	119.90	Shut-In(1)
91	927.12	122.17	End Shut-In(1)
91	33.68	121.51	Open To Flow (2)
151	42.82	123.94	Shut-In(2)
242	936.41	126.37	End Shut-In(2)
243	2018.63	127.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
68.00	gocm 5%g 15%o 80%m	0.33

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne, KS
Potthoff #1-4
Job Ticket: 56759 **DST#: 3**
Test Start: 2014.02.26 @ 00:58:00

GENERAL INFORMATION:

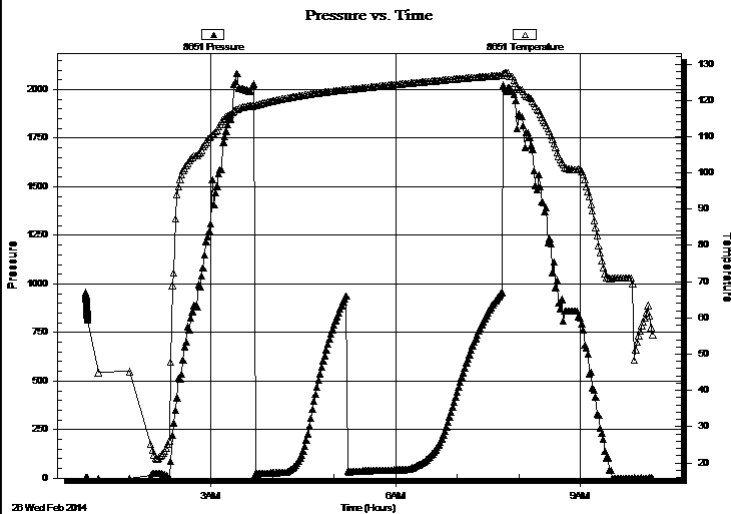
Formation: **LKC "A--D"**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 03:42:17 Tester: Robert Zodrow
 Time Test Ended: 10:10:30 Unit No: 46
Interval: 4043.00 ft (KB) To 4165.00 ft (KB) (TVD) Reference Elevations: 3122.00 ft (KB)
 Total Depth: 4165.00 ft (KB) (TVD) 3110.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 12.00 ft

Serial #: 8651

Outside

Press@RunDepth: psig @ 4044.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.02.26 End Date: 2014.02.26 Last Calib.: 2014.02.26
 Start Time: 00:58:01 End Time: 10:10:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF- Blow Built To 2"
 60-ISI- No Return
 60-FF- Blow Built To 1/2"
 90-FSI- No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
68.00	gocm 5%g 15%o 80%w	0.33

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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56759 **DST#: 3**
Test Start: 2014.02.26 @ 00:58:00

Tool Information

Drill Pipe:	Length: 3853.00 ft	Diameter: 3.80 inches	Volume: 54.05 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 61000.00 lb
			<u>Total Volume: 54.95 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4043.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	122.00 ft			
Tool Length:	150.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4020.00	
Hydraulic tool	5.00			4025.00	
Jars	5.00			4030.00	
Safety Joint	3.00			4033.00	
Packer	5.00			4038.00	28.00 Bottom Of Top Packer
Packer	5.00			4043.00	
Stubb	1.00			4044.00	
Recorder	0.00	8673	Inside	4044.00	
Recorder	0.00	8651	Outside	4044.00	
Perforations	20.00			4064.00	
change Over Sub	1.00			4065.00	
Blank Spacing	93.00			4158.00	
Change Over Sub	1.00			4159.00	
Perforations	3.00			4162.00	
Bullnose	3.00			4165.00	122.00 Bottom Packers & Anchor

Total Tool Length: 150.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56759 **DST#: 3**
Test Start: 2014.02.26 @ 00:58:00

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: 80.00 sec/qt	Cushion Volume: bbl		
Water Loss: 4.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 400.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

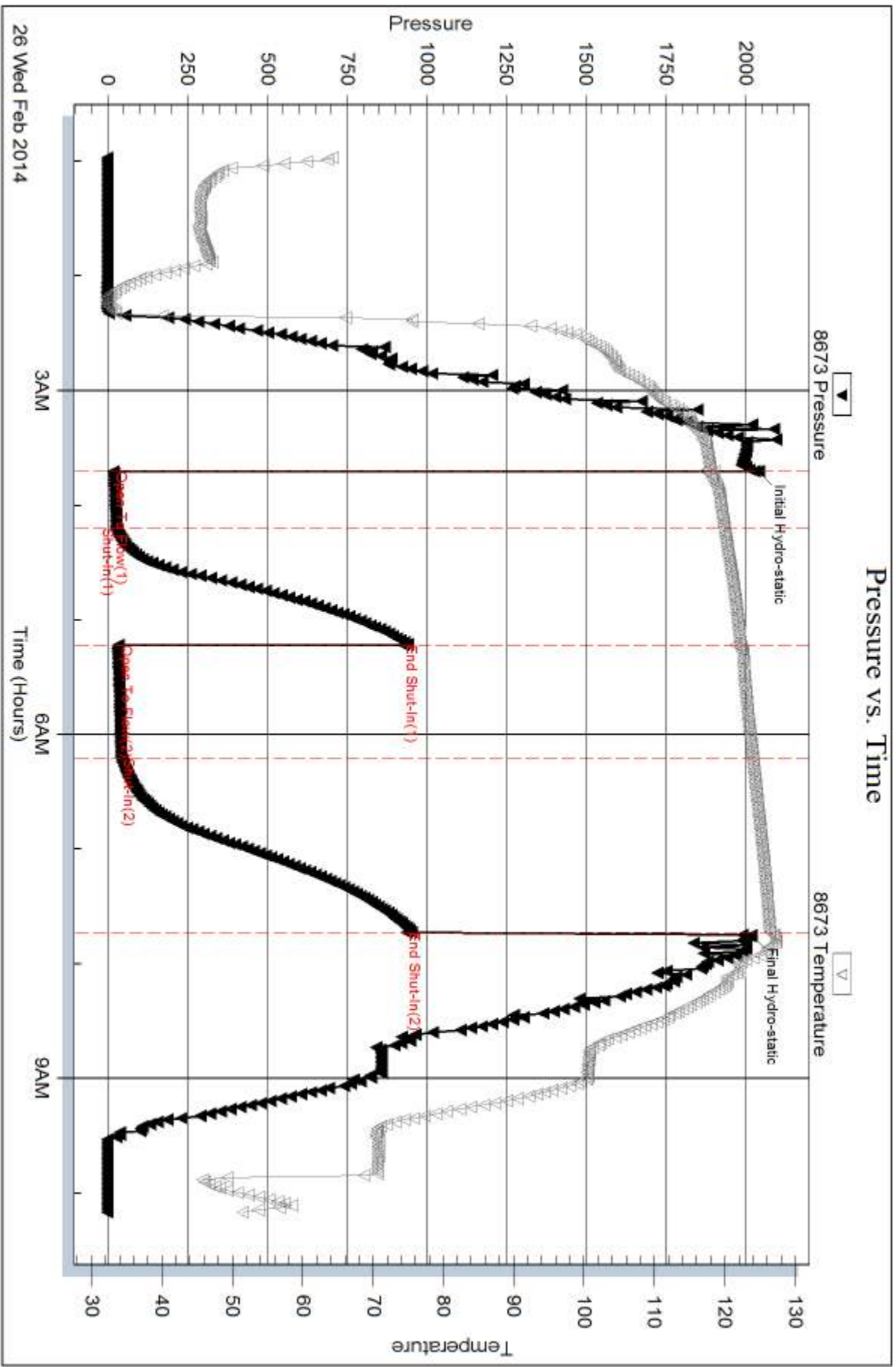
Length ft	Description	Volume bbl
68.00	gocm 5%g 15%o 80%m	0.334

Total Length: 68.00 ft Total Volume: 0.334 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

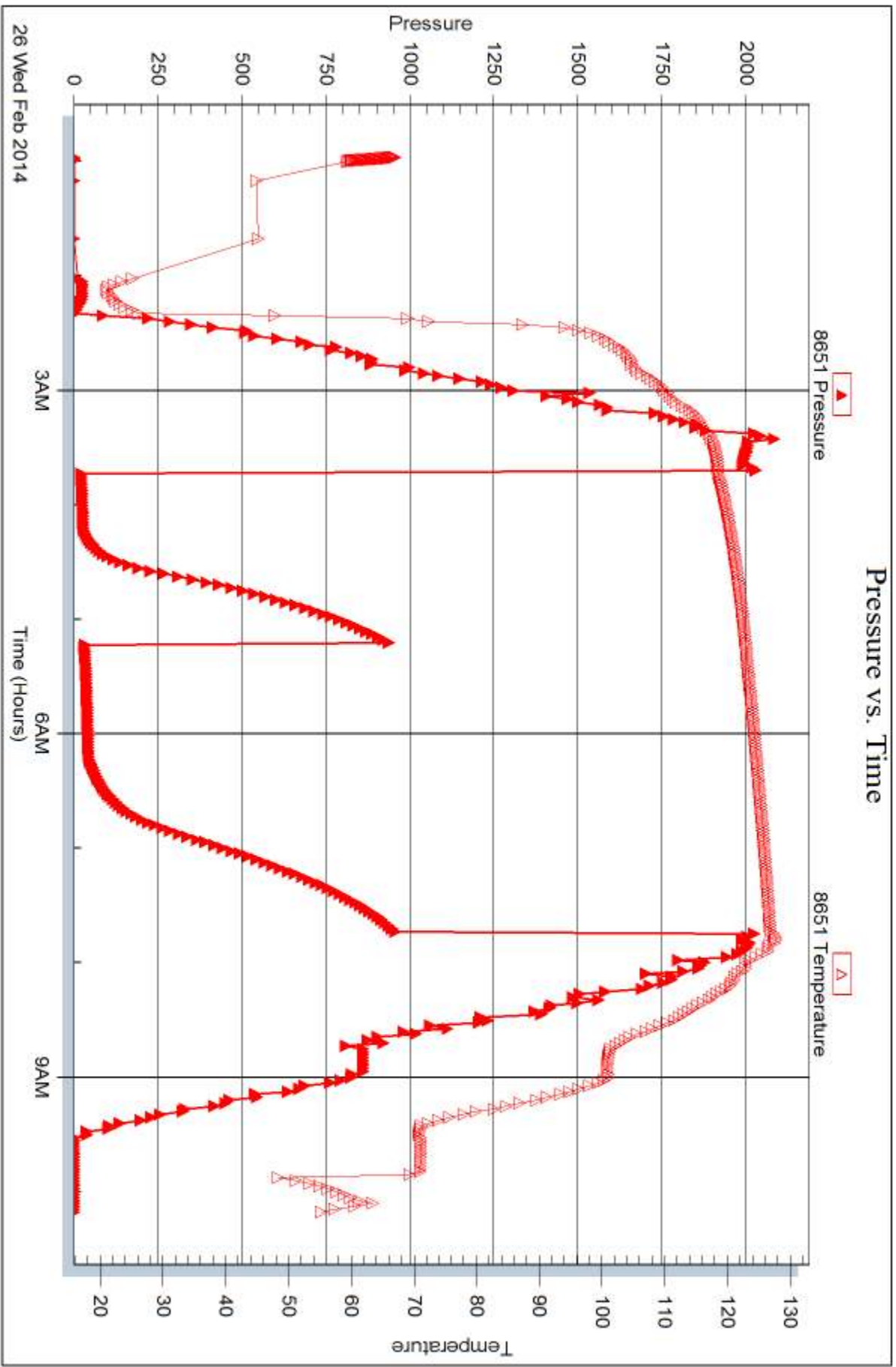


Serial #: 8651

Outside Murfin Drilling

Pothoff #1-4

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolzle

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.02.26 @ 20:26:00

End Date: 2014.02.27 @ 04:30:00

Job Ticket #: 56761 DST #: 4

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

Printed: 2014.03.04 @ 14:01:52

Murfin Drilling
4 1s 37w Cheyenne,KS
Potthoff #1-4
DST # 4
LKC "G"
2014.02.26



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne, KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 4**
Test Start: 2014.02.26 @ 20:26:00

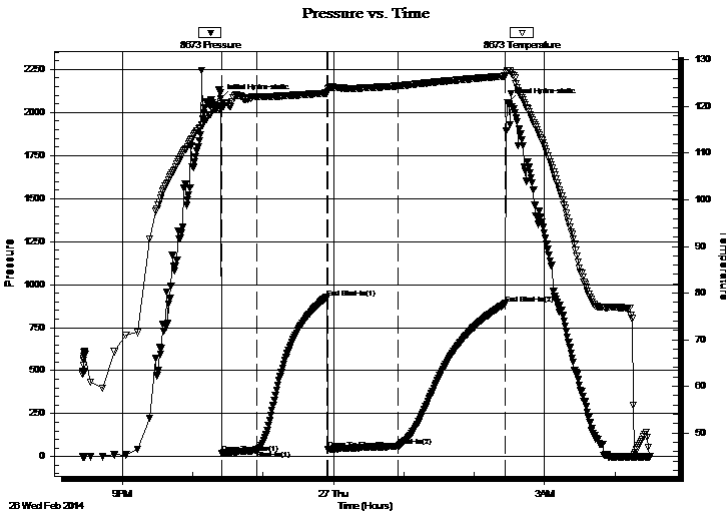
GENERAL INFORMATION:

Formation: **LKC "G"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:24:30
Time Test Ended: 04:30:00
Interval: **4157.00 ft (KB) To 4235.00 ft (KB) (TVD)**
Total Depth: 4235.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Robert Zodrow
Unit No: 46
Reference Elevations: 3122.00 ft (KB)
3110.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 **Inside**
Press@RunDepth: 60.17 psig @ 4158.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.26 End Date: 2014.02.27 Last Calib.: 2014.02.27
Start Time: 20:26:05 End Time: 04:29:59 Time On Btm: 2014.02.26 @ 22:24:00
Time Off Btm: 2014.02.27 @ 02:28:30

TEST COMMENT: 30-IS- Blow Built To 1 1/2"
60-IS- No Return
60-FF- Blow Built To 1"
90-FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2080.80	120.59	Initial Hydro-static
1	18.82	120.06	Open To Flow (1)
31	36.58	122.11	Shut-In(1)
91	921.87	122.89	End Shut-In(1)
91	42.61	123.17	Open To Flow (2)
151	60.17	124.42	Shut-In(2)
243	889.78	126.52	End Shut-In(2)
245	2054.99	127.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM 10%o 90%m	0.37

* Recovery from multiple tests

Gas Rates

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



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 4**
Test Start: 2014.02.26 @ 20:26:00

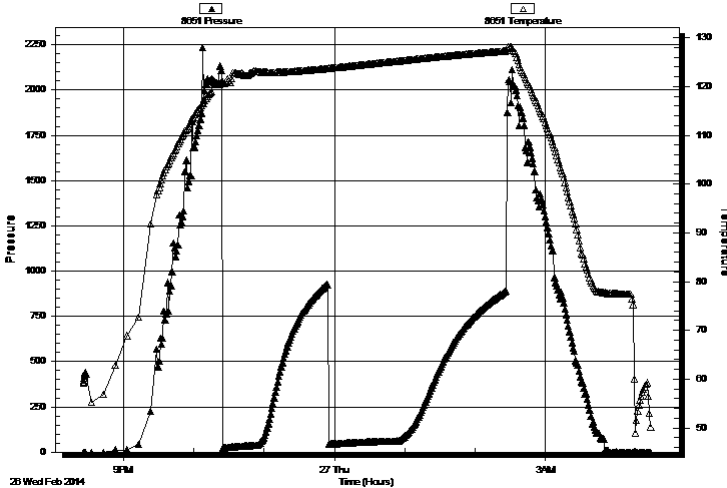
GENERAL INFORMATION:

Formation: **LKC "G"**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 22:24:30 Tester: Robert Zodrow
Time Test Ended: 04:30:00 Unit No: 46
Interval: 4157.00 ft (KB) To 4235.00 ft (KB) (TVD) Reference Elevations: 3122.00 ft (KB)
Total Depth: 4235.00 ft (KB) (TVD) 3110.00 ft (CF)
Hole Diameter: 7.88 inchesHole Condition: Good KB to GR/CF: 12.00 ft

Serial #: 8651 Outside
Press@RunDepth: psig @ 4158.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.26 End Date: 2014.02.27 Last Calib.: 2014.02.27
Start Time: 20:26:05 End Time: 04:29:59 Time On Btm:
Time Off Btm:

TEST COMMENT: 30-IF- Blow Built To 1 1/2"
60-ISI- No Return
60-FF- Blow Built To 1"
90-FSI- No Return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM 10%o 90%m	0.37

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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 4**
Test Start: 2014.02.26 @ 20:26:00

Tool Information

Drill Pipe:	Length: 3950.00 ft	Diameter: 3.80 inches	Volume: 55.41 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	64000.00 lb
			<u>Total Volume: 56.31 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4157.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	78.00 ft				
Tool Length:	106.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4134.00	
Hydraulic tool	5.00			4139.00	
Jars	5.00			4144.00	
Safety Joint	3.00			4147.00	
Packer	5.00			4152.00	28.00 Bottom Of Top Packer
Packer	5.00			4157.00	
Stubb	1.00			4158.00	
Recorder	0.00	8673	Inside	4158.00	
Recorder	0.00	8651	Outside	4158.00	
Perforations	10.00			4168.00	
change Over Sub	1.00			4169.00	
Blank Spacing	62.00			4231.00	
Change Over Sub	1.00			4232.00	
Bullnose	3.00			4235.00	78.00 Bottom Packers & Anchor

Total Tool Length: 106.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

4 1s 37w Cheyenne,KS

250 N. Water Ste. 300
Wichita KS 67202

Potthoff #1-4

Job Ticket: 56761

DST#: 4

ATTN: Bob Stolzle

Test Start: 2014.02.26 @ 20:26:00

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: 80.00 sec/qt

Cushion Volume:

bbf

Water Loss: 4.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
75.00	OCM 10%o 90%m	0.369

Total Length: 75.00 ft Total Volume: 0.369 bbf

Num Fluid Samples: 0

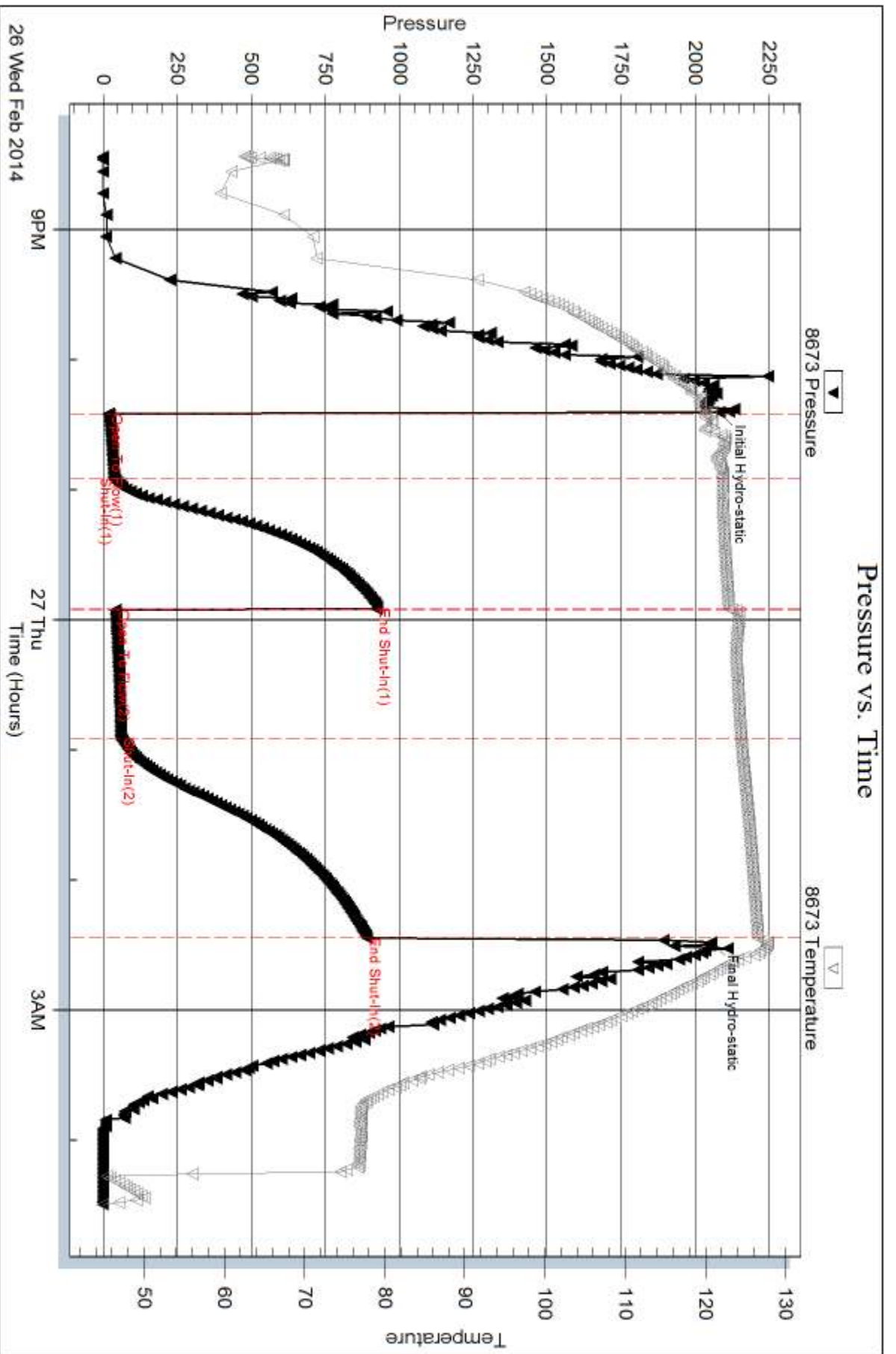
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

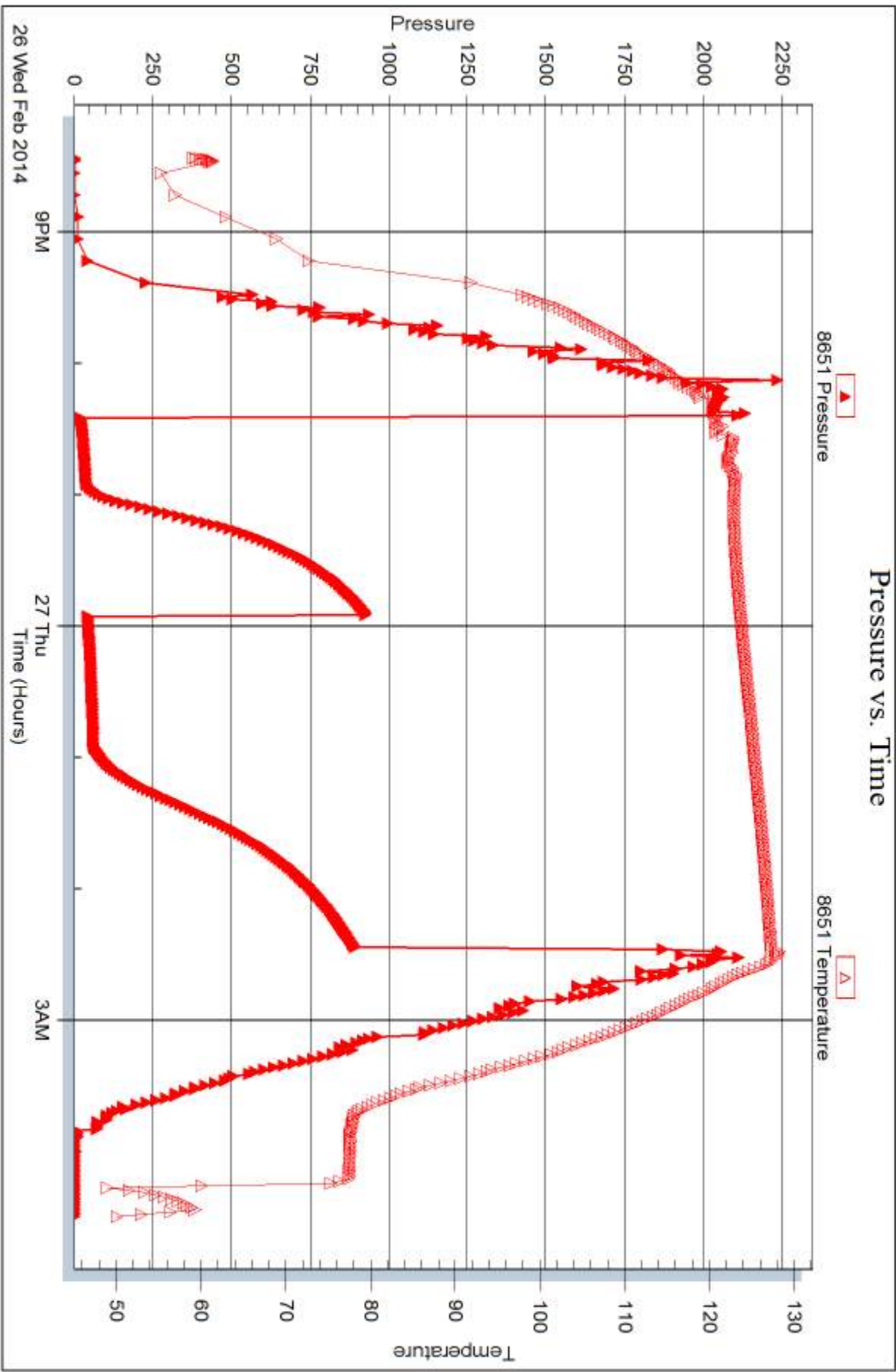


Serial #: 8651

Outside Murfin Drilling

Pothoff #1-4

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 56761

Printed: 2014.03.04 @ 14:01:55



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolze

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.02.27 @ 17:15:00

End Date: 2014.02.28 @ 01:53:30

Job Ticket #: 56761 DST #: 5

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

Printed: 2014.03.04 @ 14:01:30



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne, KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 5**
Test Start: 2014.02.27 @ 17:15:00

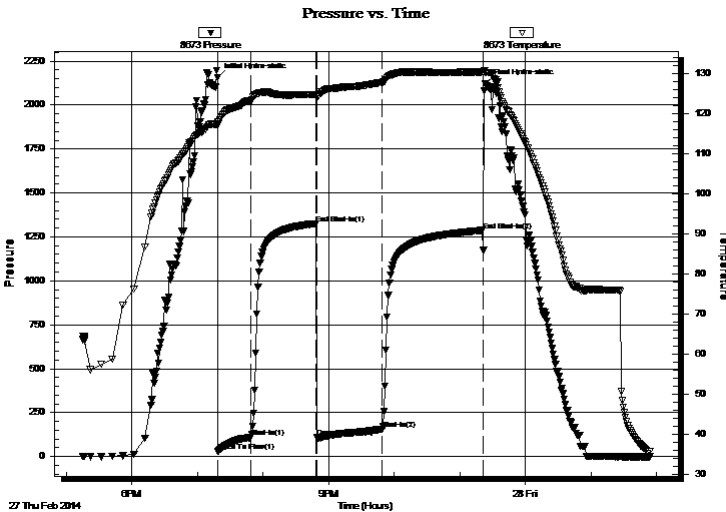
GENERAL INFORMATION:

Formation: **LKC "H-I-J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:19:00
Time Test Ended: 01:53:30
Interval: **4214.00 ft (KB) To 4309.00 ft (KB) (TVD)**
Total Depth: 4309.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Kreuzer Jr.
Unit No: 46
Reference Elevations: 3122.00 ft (KB)
3110.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 Inside
Press@RunDepth: 154.70 psig @ 4215.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.27 End Date: 2014.02.28 Last Calib.: 2014.02.28
Start Time: 17:15:05 End Time: 01:53:30 Time On Btm: 2014.02.27 @ 19:18:30
Time Off Btm: 2014.02.27 @ 23:23:30

TEST COMMENT: 30-IF- BOB In 23 mins.
60-ISI- Blow back Built To 1/2"
60-FF- BOB In 15 mins
90-FSI- Blow back built to 2".

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2156.85	117.84	Initial Hydro-static
1	29.91	117.34	Open To Flow (1)
31	107.95	123.24	Shut-In(1)
90	1326.12	124.77	End Shut-In(1)
91	109.34	124.23	Open To Flow (2)
151	154.70	127.76	Shut-In(2)
243	1287.18	130.36	End Shut-In(2)
245	2120.81	130.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
308.00	gocm 20%g 28%o 52%m	2.64
40.00	clean oil 1%g 99%o	0.56
0.00	gip 642'	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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 5**
Test Start: 2014.02.27 @ 17:15:00

GENERAL INFORMATION:

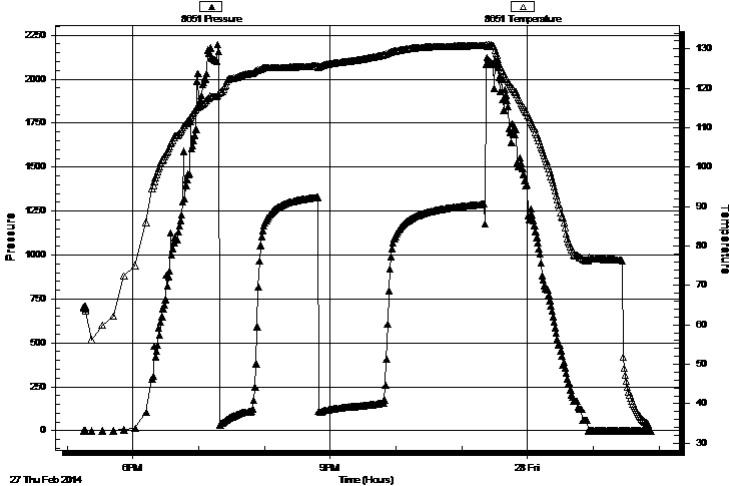
Formation: **LKC "H-I-J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:19:00
Time Test Ended: 01:53:30
Interval: **4214.00 ft (KB) To 4309.00 ft (KB) (TVD)**
Total Depth: 4309.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Kreuzer Jr.
Unit No: 46
Reference Elevations: 3122.00 ft (KB)
3110.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8651 Outside

Press@RunDepth: psig @ 4215.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.02.27 End Date: 2014.02.28 Last Calib.: 2014.02.28
Start Time: 17:15:05 End Time: 01:53:00 Time On Btm:
Time Off Btm:

TEST COMMENT: 30-IF- BOB In 23 mins.
60-ISI- Blow back Built To 1/2"
60-FF- BOB In 15 mins
90-FSI- Blow back built to 2".

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
308.00	gocm 20%g 28%o 52%m	2.64
40.00	clean oil 1%g 99%o	0.56
0.00	gip 642'	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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 5**
Test Start: 2014.02.27 @ 17:15:00

Tool Information

Drill Pipe:	Length: 4011.00 ft	Diameter: 3.80 inches	Volume: 56.26 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	72000.00 lb
			<u>Total Volume: 57.16 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4214.00 ft			Final	64000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	95.00 ft				
Tool Length:	123.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4191.00	
Hydraulic tool	5.00			4196.00	
Jars	5.00			4201.00	
Safety Joint	3.00			4204.00	
Packer	5.00			4209.00	28.00 Bottom Of Top Packer
Packer	5.00			4214.00	
Stubb	1.00			4215.00	
Recorder	0.00	8673	Inside	4215.00	
Recorder	0.00	8651	Outside	4215.00	
Perforations	27.00			4242.00	
change Over Sub	1.00			4243.00	
Blank Spacing	62.00			4305.00	
Change Over Sub	1.00			4306.00	
Bullnose	3.00			4309.00	95.00 Bottom Packers & Anchor

Total Tool Length: 123.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56761 **DST#: 5**
Test Start: 2014.02.27 @ 17:15:00

Mud and Cushion Information

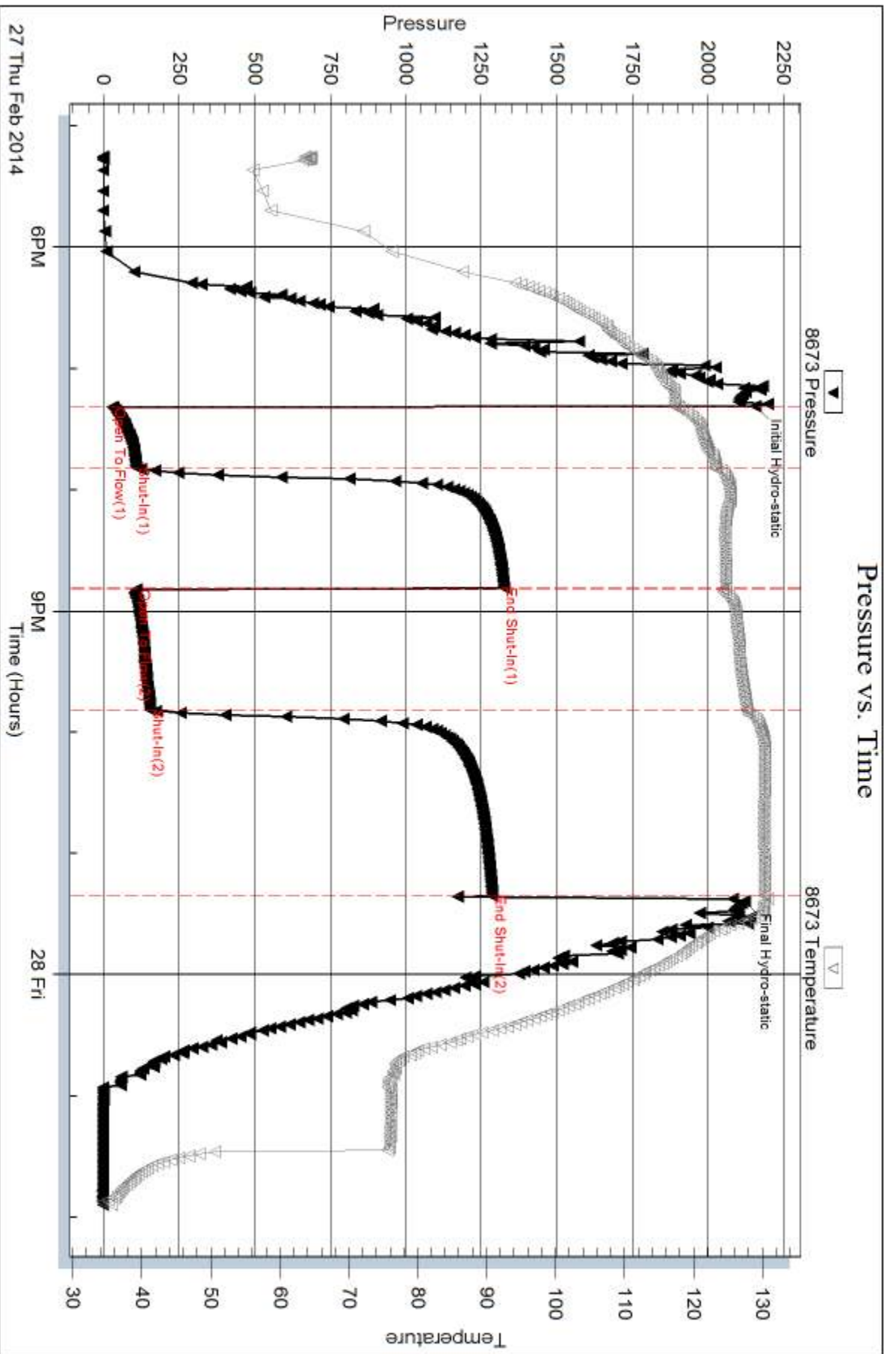
Mud Type: Gel Chem	Cushion Type:	Oil API: 38 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 65.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.98 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1000.00 ppm		
Filter Cake: 2.00 inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
308.00	gocm 20%g 28%o 52%m	2.644
40.00	clean oil 1%g 99%o	0.561
0.00	gip 642'	0.000

Total Length: 348.00 ft Total Volume: 3.205 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

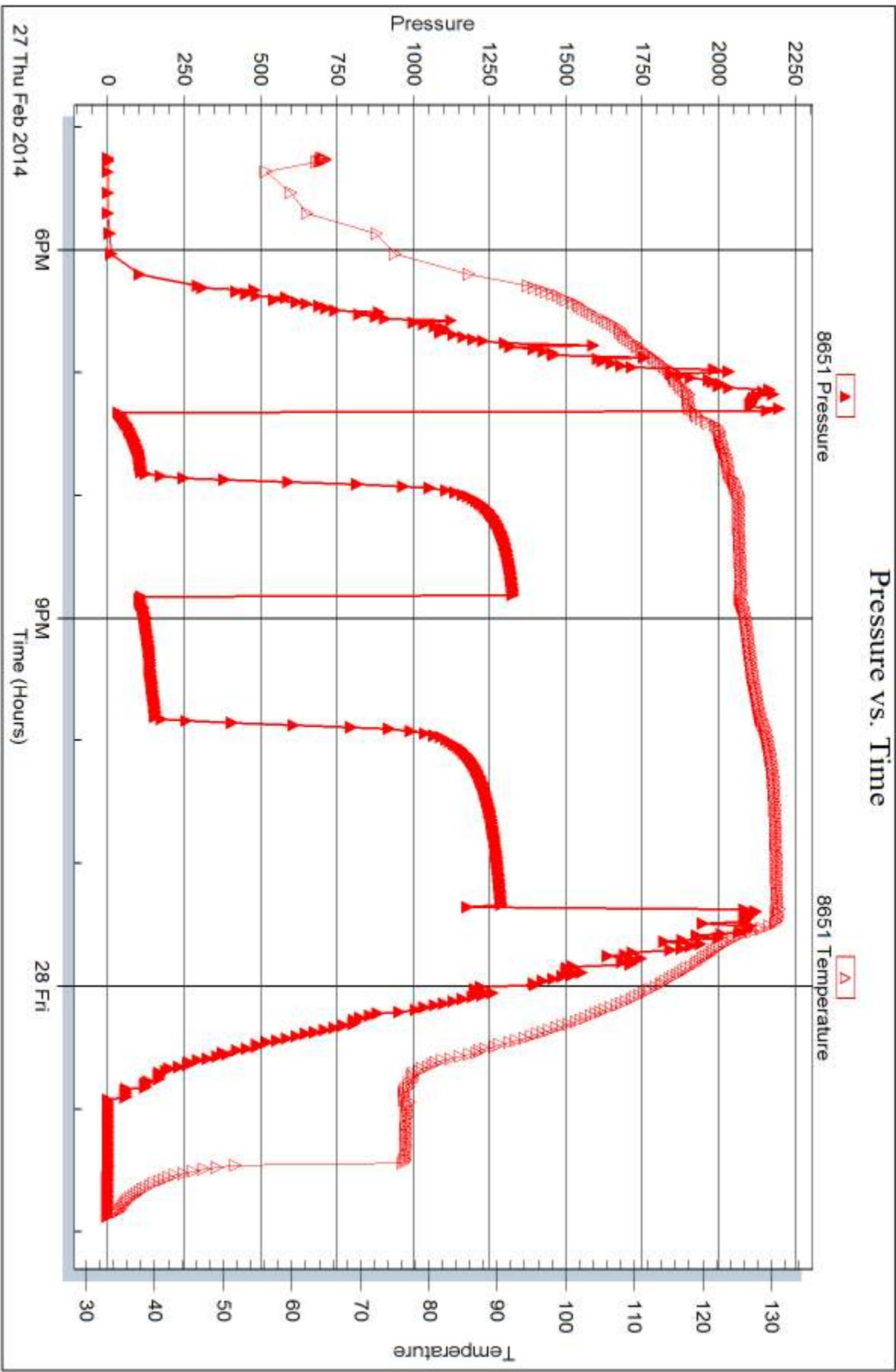


Serial #: 8651

Outside Murfin Drilling

Pothoff #1-4

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 56761

Printed: 2014.03.04 @ 14:01:32



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Bob Stolze

Potthoff #1-4

4 1s 37w Cheyenne,KS

Start Date: 2014.03.01 @ 00:21:00

End Date: 2014.03.01 @ 08:32:00

Job Ticket #: 56762 DST #: 6

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

Printed: 2014.03.04 @ 14:00:53



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS

Potthoff #1-4

Job Ticket: 56762

DST#: 6

Test Start: 2014.03.01 @ 00:21:00

GENERAL INFORMATION:

Formation: **Upper Pawnee LS**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:00:00

Time Test Ended: 08:32:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Robert Zodrow

Unit No: 46

Interval: 4455.00 ft (KB) To 4510.00 ft (KB) (TVD)

Total Depth: 4510.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3122.00 ft (KB)

3110.00 ft (CF)

KB to GR/CF: 12.00 ft

Serial #: 8673

Inside

Press@RunDepth: 20.93 psig @ 4456.00 ft (KB)

Start Date: 2014.03.01

End Date:

2014.03.01

Start Time: 00:21:05

End Time:

08:31:59

Capacity: 8000.00 psig

Last Calib.: 2014.03.01

Time On Btm: 2014.03.01 @ 02:59:30

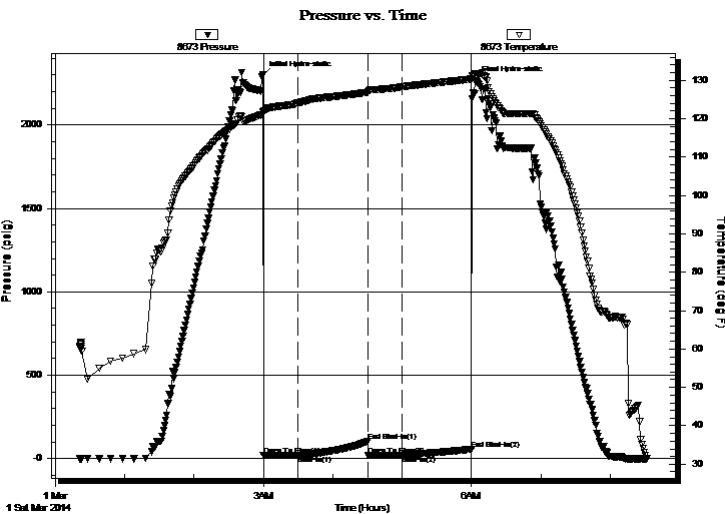
Time Off Btm: 2014.03.01 @ 06:03:30

TEST COMMENT: 30-IF-Blow Built To 1/8"

60-ISI-No Return

30-FF-No Blow

60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.33	121.70	Initial Hydro-static
1	17.69	121.68	Open To Flow (1)
31	19.38	124.07	Shut-In(1)
91	104.15	126.83	End Shut-In(1)
91	20.15	126.95	Open To Flow (2)
121	20.93	128.23	Shut-In(2)
181	55.61	130.26	End Shut-In(2)
184	2264.83	131.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%m	0.01

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS

Potthoff #1-4

Job Ticket: 56762 **DST#: 6**
 Test Start: 2014.03.01 @ 00:21:00

GENERAL INFORMATION:

Formation: **Upper Pawnee LS**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:00:00

Time Test Ended: 08:32:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Robert Zodrow

Unit No: 46

Interval: **4455.00 ft (KB) To 4510.00 ft (KB) (TVD)**

Total Depth: 4510.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3122.00 ft (KB)

3110.00 ft (CF)

KB to GR/CF: 12.00 ft

Serial #: 8651 Outside

Press@RunDepth: psig @ 4456.00 ft (KB)

Start Date: 2014.03.01

End Date:

2014.03.01

Start Time: 00:21:05

End Time:

08:31:59

Capacity: 8000.00 psig

Last Calib.:

2014.03.01

Time On Btm:

Time Off Btm:

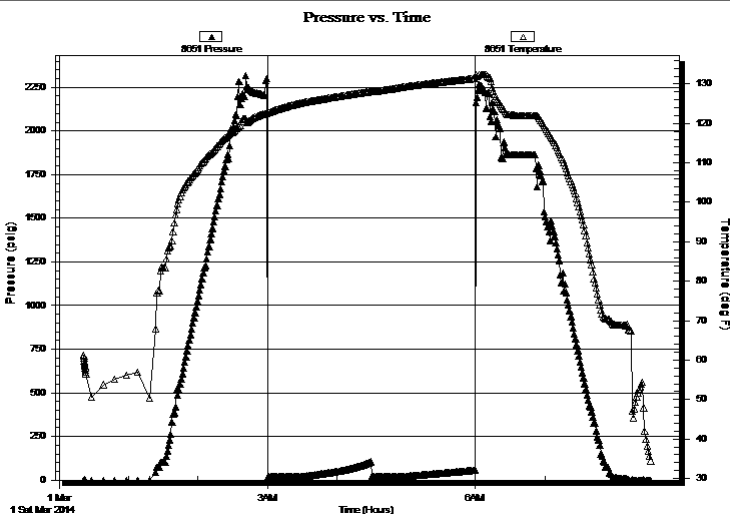
TEST COMMENT: 30-IF-Blow Built To 1/8"

60-ISI-No Return

30-FF-No Blow

60-FSI-No Return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100% m	0.01

* 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
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Bob Stolzle

4 1s 37w Cheyenne,KS
Potthoff #1-4
Job Ticket: 56762 **DST#: 6**
Test Start: 2014.03.01 @ 00:21:00

Tool Information

Drill Pipe:	Length: 4263.00 ft	Diameter: 3.80 inches	Volume: 59.80 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 60.70 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4455.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	83.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4432.00	
Hydraulic tool	5.00			4437.00	
Jars	5.00			4442.00	
Safety Joint	3.00			4445.00	
Packer	5.00			4450.00	28.00 Bottom Of Top Packer
Packer	5.00			4455.00	
Stubb	1.00			4456.00	
Recorder	0.00	8673	Inside	4456.00	
Recorder	0.00	8651	Outside	4456.00	
Perforations	18.00			4474.00	
change Over Sub	1.00			4475.00	
Blank Spacing	31.00			4506.00	
Change Over Sub	1.00			4507.00	
Bullnose	3.00			4510.00	55.00 Bottom Packers & Anchor

Total Tool Length: 83.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

4 1s 37w Cheyenne,KS

250 N. Water Ste. 300
Wichita KS 67202

Potthoff #1-4

Job Ticket: 56762

DST#: 6

ATTN: Bob Stolzle

Test Start: 2014.03.01 @ 00:21:00

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: 70.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud 100%m	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

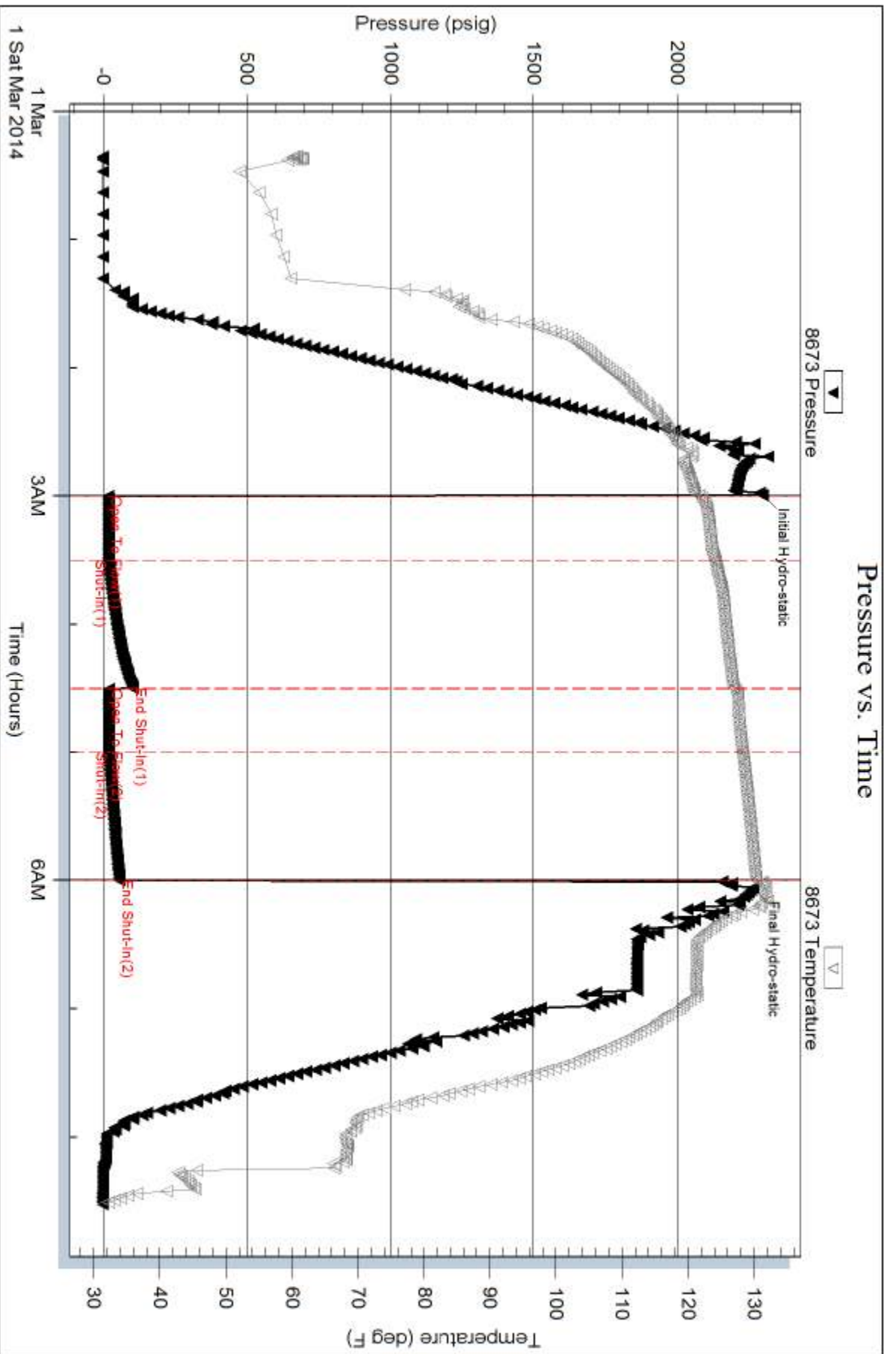
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

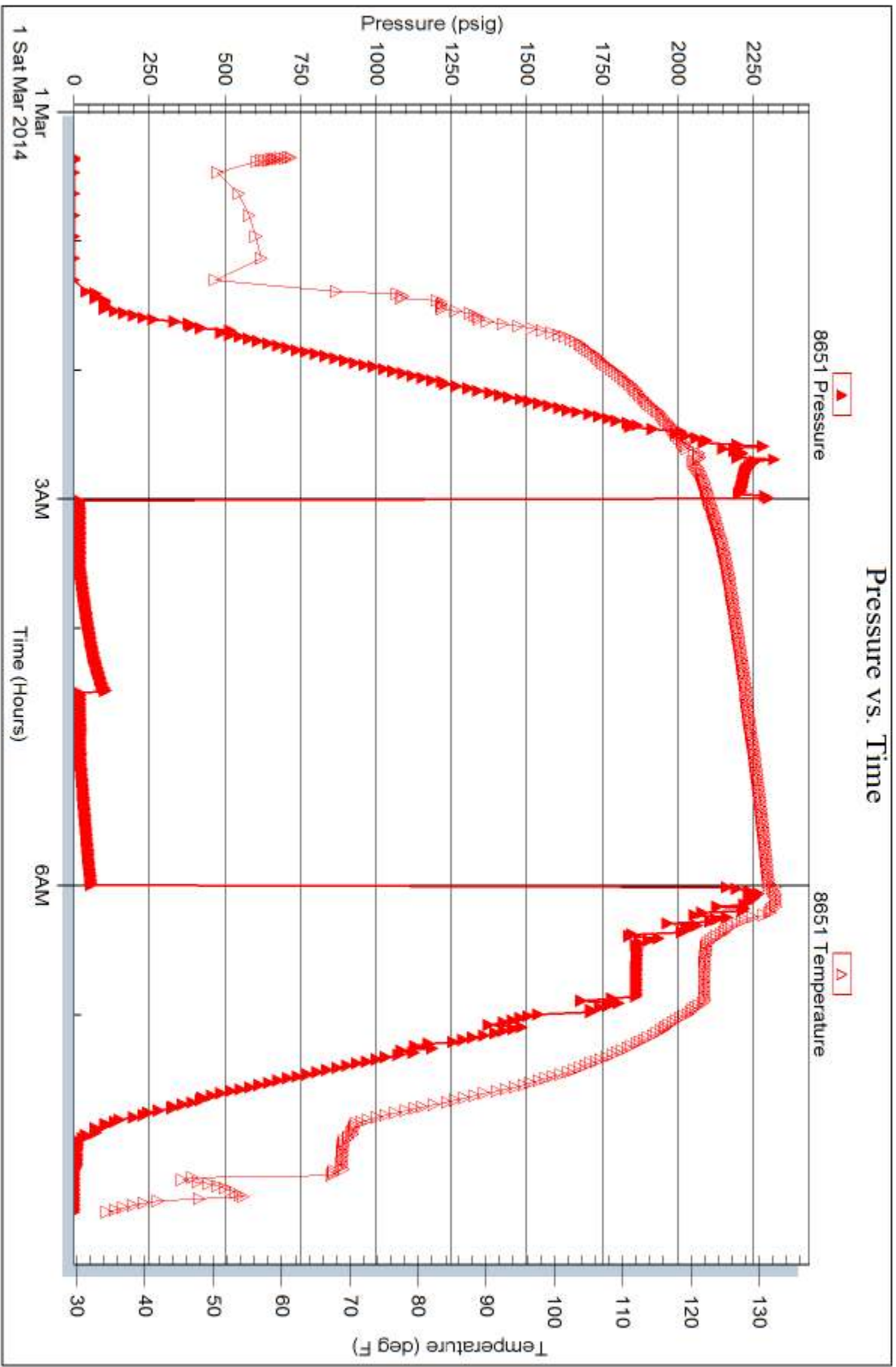


Serial #: 8651

Outside Murfin Drilling

Pothoff #1-4

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 56762

Printed: 2014.03.04 @ 14:00:55



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56795

Well Name & No. Potthoff # 1-4 Test No. 1 Date 2-23-2014
 Company Murfin Drilling Co. Elevation 3122 KB 3110 GL
 Address 250 N. Water ste. 300 Wichita Ks. 67202
 Co. Rep / Geo. Bob stolzle Rig Murfin #20
 Location: Sec. sw 4 Twp. 1s Rge. 37w Co. Cherokee State Ks

Interval Tested 3625 3870 Zone Tested FORAKER
 Anchor Length 45 Drill Pipe Run 3438 Mud Wt. 8.4
 Top Packer Depth 3620 Drill Collars Run 184 Vis 57
 Bottom Packer Depth 3625 Wt. Pipe Run 0 WL 5.6
 Total Depth 3670 Chlorides 700 ppm System LCM 4#

Blow Description IF: Had 12ft of fill ~~was~~ sid 10ft and opened last two. weak blow dead in limits.

ISI: No blow back

FF: No blow

FSI: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>180</u>	<u>Mud with oil specs</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

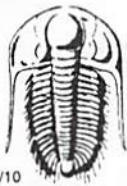
Rec Total 180 BHT 117 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2079</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>9:30</u>
(B) First Initial Flow <u>106</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:40</u>
(C) First Final Flow <u>107</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:16</u>
(D) Initial Shut-In <u>818</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>15:30</u>
(E) Second Initial Flow <u>107</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>17:17</u>
(F) Second Final Flow <u>107</u>	<input checked="" type="checkbox"/> Mileage <u>70x1.55 = 107</u> 217	Comments _____
(G) Final Shut-In <u>797</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1714</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>30</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>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1692</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1692</u>	

Approved By _____

Our Representative Chuck Hager

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. 56796

Well Name & No. Potthoff # 1-4 Test No. 2 Date 2-24-14
 Company Murfin Drilling Co. Elevation 3122 KB 3110 GL
 Address 250N. Water ste. 300 Wichita Ks. 67202
 Co. Rep / Geo. Bob Stolze Rig Murfin #20
 Location: Sec. sw 4 Twp. 15 Rge. 37w Co. cheyenne State Ks.

Interval Tested 3970 4040 Zone Tested Oread
 Anchor Length 70 Drill Pipe Run 3788 Mud Wt. 9.3
 Top Packer Depth 3965 Drill Collars Run 184 Vis 70
 Bottom Packer Depth 3970 Wt. Pipe Run 0 WL 6.0
 Total Depth 4040 Chlorides 700 ppm System LCM 4#

Blow Description FF: Strong blow, Built to B.O.B in 13 mins
TSE: No blow back over 60
FF: Strong blow, Built to B.O.B in 15 mins.
FSF: No blow back over 90 mins.

Rec	Feet of	%gas	%oil	%water	%mud
<u>156</u>	<u>mud</u>				<u>100%</u>
<u>189</u>	<u>wcm</u>			<u>25%</u>	<u>75%</u>
<u>255</u>	<u>mcw</u>			<u>75%</u>	<u>25%</u>
<u>184</u>	<u>mcw</u>			<u>95%</u>	<u>5%</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 784 BHT 135 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2064</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>2-24</u> <u>2060</u>
(B) First Initial Flow <u>54</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started _____ <u>23:40</u>
(C) First Final Flow <u>190</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open _____ <u>1:58</u>
(D) Initial Shut-In <u>1352</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>2-25</u> <u>5:00</u>
(E) Second Initial Flow <u>198</u>	<input type="checkbox"/> Hourly Standby _____	T-Out _____ <u>8:48</u>
(F) Second Final Flow <u>372</u>	<input checked="" type="checkbox"/> Mileage <u>70x2 = 140x1.55 =</u>	Comments _____
(G) Final Shut-In <u>1345</u>	<input type="checkbox"/> Sampler _____ <u>217</u>	
(H) Final Hydrostatic <u>2021</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

Initial Open 30 Shale Packer _____
 Initial Shut-In 60 Extra Packer _____
 Final Flow 60 Extra Recorder _____
 Final Shut-In 90 Day Standby 1 DAY 5 hours
 Accessibility _____
 Sub Total 1792

Approved By _____ Our Representative Chuck Kuyler
 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.
Robert 785-639-5242



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56759

Well Name & No. Pott Hoff # 1-4 Test No. 3 Date 2-26-2014
 Company Murfin Drilling Inc. Elevation 3122 KB 3110 GL
 Address 250 N Water Ste 300 Wichita KS, 67202
 Co. Rep / Geo. Bob Stolze Rig Murfin #20
 Location: Sec. SW 4 Twp. 1 S Rge. 37 W Co. Cheyenne State KS

Interval Tested 4043 - 4165 Zone Tested LKC "A-D"
 Anchor Length 122 Drill Pipe Run 3853 Mud Wt. 9.4
 Top Packer Depth 4038 Drill Collars Run 184 Vis 80
 Bottom Packer Depth 4043 Wt. Pipe Run 0 WL 4.8
 Total Depth 4165 Chlorides 400 ppm System LCM 4
 Blow Description IF - blow built to 2"
ISI - no return
FF - blow built to 1/2"
FSI - no return

Rec	Feet of	%gas	%oil	%water	%mud
<u>68</u>	<u>90cm</u>	<u>5</u>	<u>15</u>	<u>80</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

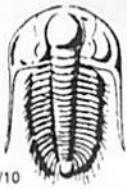
Rec Total 68 BHT 126 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2041 Test 1250 T-On Location 12:00 AM 2-26
 (B) First Initial Flow 19 Jars 250 T-Started 12:58 AM
 (C) First Final Flow 27 Safety Joint 75 T-Open 3:42 AM
 (D) Initial Shut-In 927 Circ Sub _____ T-Pulled 7:43 AM
 (E) Second Initial Flow 34 Hourly Standby NC T-Out 10:00 AM 2-26
 (F) Second Final Flow 43 Mileage 140 RT 217 Comments _____
 (G) Final Shut-In 936 Sampler _____
 (H) Final Hydrostatic 2019 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1792
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1792

Approved By _____ Our Representative Robert Zolnow

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56760

Well Name & No. Potthoff #1-4 Test No. 4 Date 2-26-2014
 Company Murfin Drilling Inc. Elevation 3122 KB 3118 GL
 Address 250 N Water Ste. 300 Wichita KS, 67202
 Co. Rep / Geo. Bob Stolze Rig Murfin #20
 Location: Sec. SW 4 Twp. 1S Rge. 37W Co. Cheyenne State KS

Interval Tested 4157 - 4235 Zone Tested LKC "H"
 Anchor Length 78 Drill Pipe Run 3950 Mud Wt. 9.4
 Top Packer Depth 4152 Drill Collars Run 184 Vis 80
 Bottom Packer Depth 4157 Wt. Pipe Run 0 WL 4.8
 Total Depth 4235 Chlorides 400 ppm System LCM 4
 Blow Description IF - blow built to 1 1/2"
ISI - no return
FF - blow built to 1"
FSI - no return

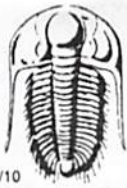
Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>0cm</u>	<u>10</u>		<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 75 BHT 126 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2081 Test 1250 T-On Location 9:00 pm 2-26
 (B) First Initial Flow 19 Jars 250 T-Started 9:26 pm 2-26
 (C) First Final Flow 37 Safety Joint 75 T-Open 10:24 pm 2-26
 (D) Initial Shut-In 922 Circ Sub _____ T-Pulled 2:26 Am 2-27
 (E) Second Initial Flow 43 Hourly Standby _____ T-Out 4:20 Am 2-27
 (F) Second Final Flow 60 Mileage 140 217 Comments _____
 (G) Final Shut-In 890 Sampler _____
 (H) Final Hydrostatic 2054 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 60 Day Standby _____ Total 1792
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total 1792

Approved By _____ Our Representative Robert Zedner

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56761

Well Name & No. Potthoff #1-4 Test No. 5 Date 2-27-2024
 Company Murfin Drilling Inc. Elevation 3122 KB 3110 GL
 Address 250 N Water Stc 300 Wichita KS, 67202
 Co. Rep / Geo. Bob Stolzie Rig Murfin #20
 Location: Sec. SW 4 Twp. 1 S Rge. 37 W Co. Cheyenne State KS

Interval Tested 4214 - 4309 Zone Tested LKC "H, I, J"
 Anchor Length 95 Drill Pipe Run 4011 Mud Wt. 9.3
 Top Packer Depth 4209 Drill Collars Run 184 Vis 65
 Bottom Packer Depth ~~4209~~ 4214 Wt. Pipe Run 0 WL 6
 Total Depth 4309 Chlorides 1000 ppm System LCM 4
 Blow Description IF - BOB in 23 mins.
ISF - blow back built to 1/2"
FF - BOB in 15 mins.
FSI - blow back built to 2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>642</u>	<u>PIP</u>				
<u>40</u>	<u>Clean oil</u>	<u>1</u>	<u>99</u>		
<u>308</u>	<u>90CM</u>	<u>20</u>	<u>28</u>	<u>52</u>	

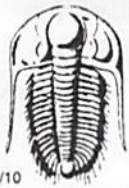
Rec Total 348 BHT 130 Gravity 38 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2157 Test 1250 T-On Location 4:30 PM 2-27
 (B) First Initial Flow 30 Jars 250 T-Started 5:15 PM 2-27
 (C) First Final Flow 108 Safety Joint 75 T-Open 7:19 PM 2-27
 (D) Initial Shut-In 1326 Circ Sub _____ T-Pulled 11:21 PM 2-27
 (E) Second Initial Flow 109 Hourly Standby _____ T-Out 1:30 AM 2-28
 (F) Second Final Flow 155 Mileage 140 RT 217 Comments _____
 (G) Final Shut-In 1287 Sampler _____
 (H) Final Hydrostatic 2120 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1792
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1792

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

Approved By _____ Our Representative Robert Zolnow

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56762

Well Name & No. Pothoff #1-4 Test No. 6 Date 2-28-2014
 Company Murfin Drilling Inc. Elevation 3122 KB 3110 GL
 Address 250 N water stE 300 Wichita KS, 67202
 Co. Rep / Geo. Bob Stolzie Rig MURFIN #20
 Location: Sec. SW 4 Twp. LS Rge. 37W Co. Cheyenne State KS

Interval Tested 4455-4510 Zone Tested Upper Pawnee LS
 Anchor Length 55 Drill Pipe Run 4263 Mud Wt. 9.4
 Top Packer Depth 4450 Drill Collars Run 184 Vis 70
 Bottom Packer Depth 4455 Wt. Pipe Run 0 WL 6.2
 Total Depth 4510 Chlorides 800 ppm System LCM 2.0
 Blow Description IF - blow built to 1/8"
ISE - no return
FF - no blow
FSI - no return

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</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	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 130 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2298 Test 1250 T-On Location 11:30 AM 2-28
 (B) First Initial Flow 18 Jars 250 T-Started 12:21 AM 3-1
 (C) First Final Flow 19 Safety Joint 75 T-Open 3:00 AM 3-1
 (D) Initial Shut-In 104 Circ Sub _____ T-Pulled 6:00 AM 3-1
 (E) Second Initial Flow 20 Hourly Standby _____ T-Out 8:15 AM 3-1
 (F) Second Final Flow 21 Mileage 140 RT 217 Comments _____
 (G) Final Shut-In 56 Sampler _____
 (H) Final Hydrostatic 2264 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1792
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1792

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

Approved By _____

Our Representative Robert Zachow

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