



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Wes Hansen

Erickson 'B' #1-1

1 5s 31w Rawlins KS

Start Date: 2013.08.31 @ 05:55:00

End Date: 2013.08.31 @ 13:48:30

Job Ticket #: 52736 DST #: 1

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

Printed: 2013.09.05 @ 16:27:47



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52736

DST#: 1

ATTN: Wes Hansen

Test Start: 2013.08.31 @ 05:55:00

GENERAL INFORMATION:

Formation: **Toronto-LKC B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:15:30

Time Test Ended: 13:48:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Kreuzer Jr.

Unit No: 61

Interval: 3812.00 ft (KB) To 3890.00 ft (KB) (TVD)

Reference Elevations: 2823.00 ft (KB)

Total Depth: 3890.00 ft (KB) (TVD)

2813.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8673

Inside

Press @ Run Depth: 185.36 psig @ 3813.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.31

End Date:

2013.08.31

Last Calib.: 2013.08.31

Start Time: 05:55:01

End Time:

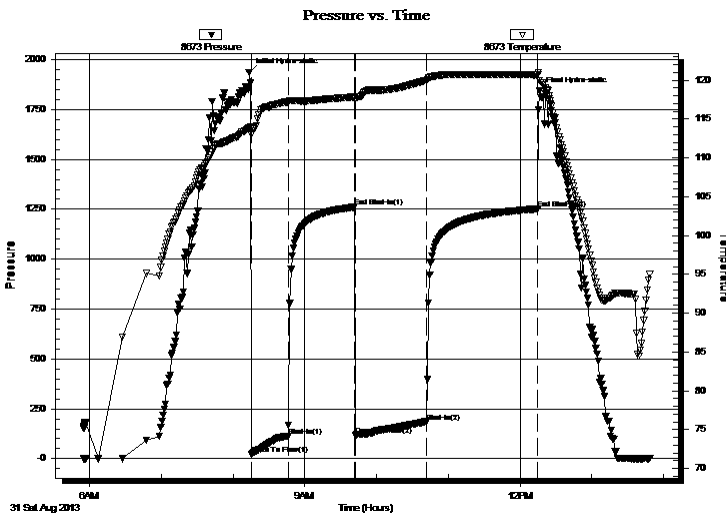
13:48:30

Time On Btm: 2013.08.31 @ 08:13:30

Time Off Btm: 2013.08.31 @ 12:16:30

TEST COMMENT: IF: Weak blow , Built to 6 in. Over 30 mins.
IS: No blow back.
FF: Weak blow after 5 mins. Built to 4 in. over 60 mins.
FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1936.02	113.84	Initial Hydro-static
2	22.82	112.97	Open To Flow (1)
33	114.02	117.20	Shut-In(1)
88	1261.12	117.84	End Shut-In(1)
89	118.26	117.68	Open To Flow (2)
148	185.36	119.98	Shut-In(2)
242	1252.33	120.69	End Shut-In(2)
243	1841.81	119.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
176.00	mcw -10%m90%w	0.87
62.00	mcw -40%m60%w	0.87
62.00	w cm-20%w 80%m	0.87
62.00	mud-100%m	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52736

DST#: 1

ATTN: Wes Hansen

Test Start: 2013.08.31 @ 05:55:00

Tool Information

Drill Pipe:	Length: 3626.00 ft	Diameter: 3.80 inches	Volume: 50.86 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 22000.00 lb
Drill Collar:	Length: 176.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 51.73 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	3812.00 ft			Final 68000.00 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

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			3789.00	
Hydraulic tool	5.00			3794.00	
Jars	5.00			3799.00	
Safety Joint	3.00			3802.00	
Packer	5.00			3807.00	28.00 Bottom Of Top Packer
Packer	5.00			3812.00	
Stubb	1.00			3813.00	
Recorder	0.00	8673	Inside	3813.00	
Recorder	0.00	8651	Outside	3813.00	
Perforations	8.00			3821.00	
change Over Sub	1.00			3822.00	
Drill Pipe	64.00			3886.00	
Change Over Sub	1.00			3887.00	
Bullnose	3.00			3890.00	78.00 Bottom Packers & Anchor

Total Tool Length: 106.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52736

DST#: 1

ATTN: Wes Hansen

Test Start: 2013.08.31 @ 05:55:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
176.00	mcw -10%m90%w	0.866
62.00	mcw -40%m60%w	0.870
62.00	w cm-20%w 80%m	0.870
62.00	mud-100%m	0.870

Total Length: 362.00 ft

Total Volume: 3.476 bbl

Num Fluid Samples: 0

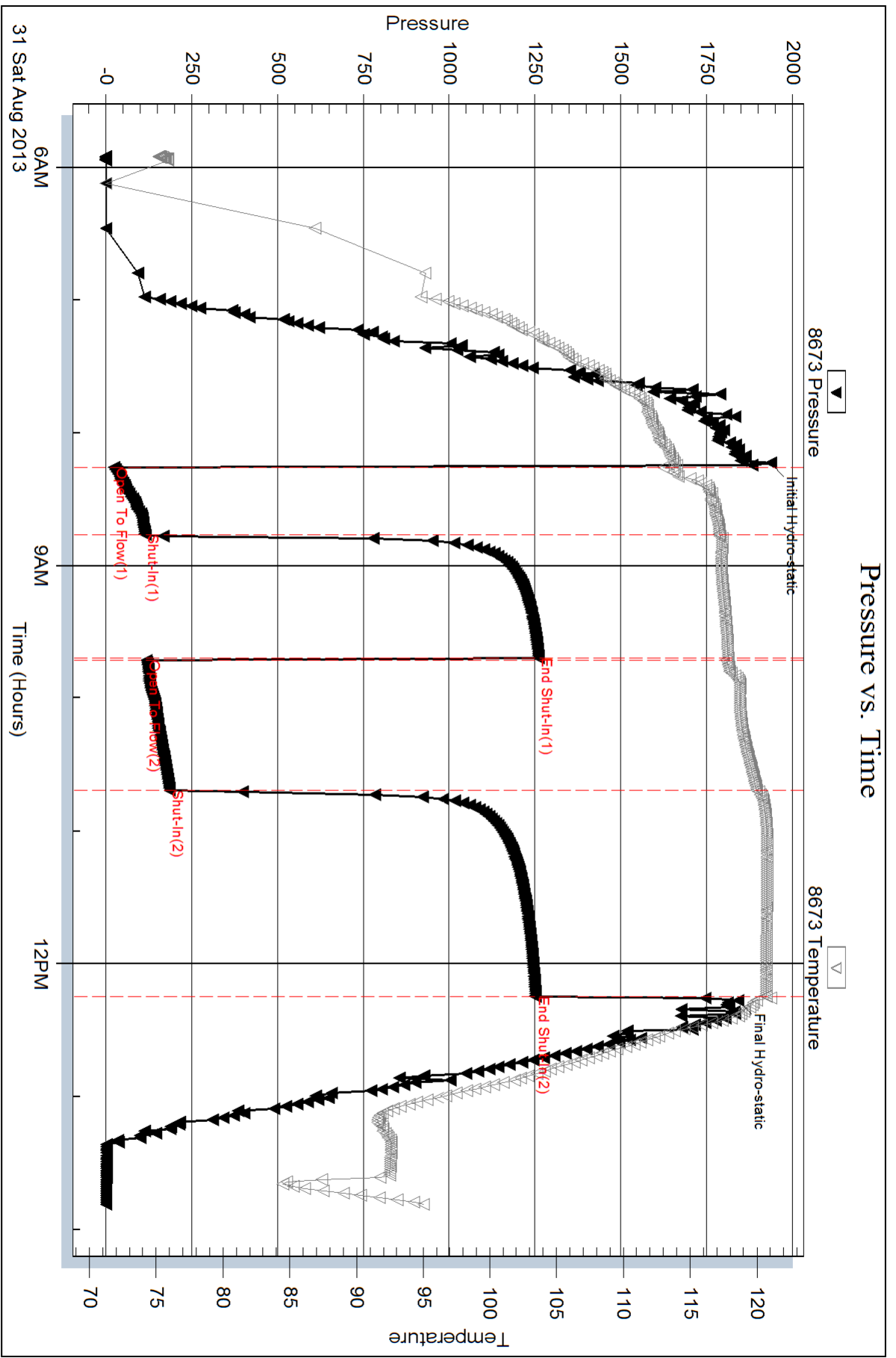
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

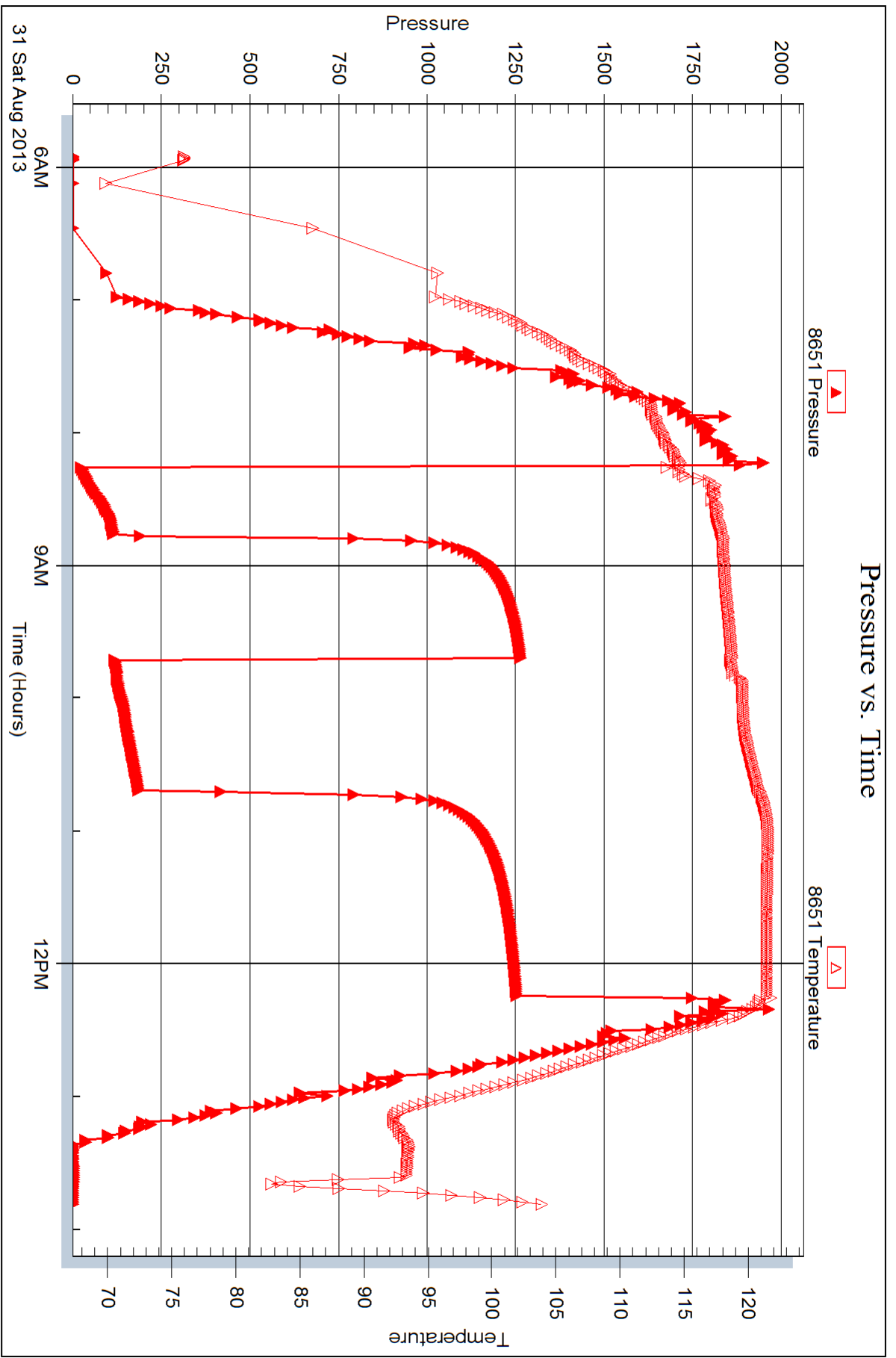


Serial #: 8651

Outside Murfin Drilling Company Inc

Erickson 'B' #1-1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 52736

Printed: 2013.09.05 @ 16:27:49



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Wes Hansen

Erickson 'B' #1-1

1 5s 31w Rawlins KS

Start Date: 2013.08.31 @ 23:42:00

End Date: 2013.09.01 @ 07:26:30

Job Ticket #: 52737 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.09.05 @ 16:27:21

Murfin Drilling Company Inc
1 5s 31w Rawlins KS
Erickson 'B' #1-1
DST # 2
LKC-F
2013.08.31



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

ATTN: Wes Hansen

Job Ticket: 52737

DST#: 2

Test Start: 2013.08.31 @ 23:42:00

GENERAL INFORMATION:

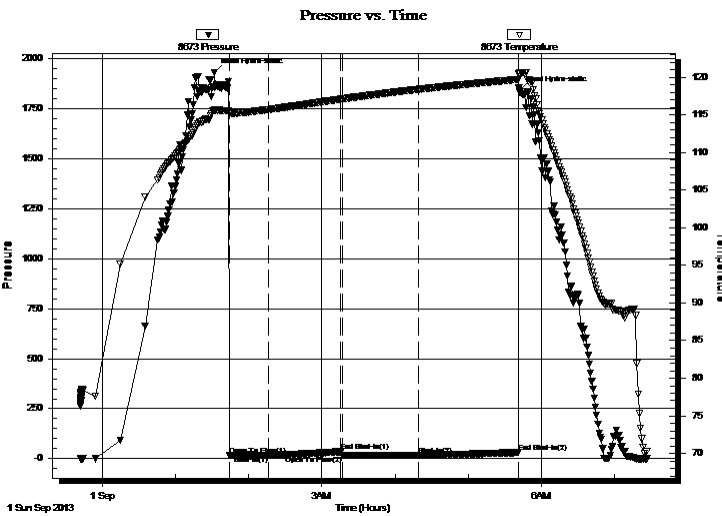
Formation: **LKC-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:44:30
 Time Test Ended: 07:26:30
 Interval: **3914.00 ft (KB) To 3940.00 ft (KB) (TVD)**
 Total Depth: 3890.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 61
 Reference Elevations: 2823.00 ft (KB)
 2813.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8673

Inside

Press @ Run Depth: 18.72 psig @ 3915.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.08.31 End Date: 2013.09.01 Last Calib.: 2013.09.01
 Start Time: 23:42:01 End Time: 07:26:30 Time On Btm: 2013.09.01 @ 01:32:00
 Time Off Btm: 2013.09.01 @ 05:42:00

TEST COMMENT: IF: Weak surface blow , Started and stopped over 3 mins.
 IS: No blow back
 FF: No blow
 FS: No bLow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1931.79	115.60	Initial Hydro-static
13	18.94	115.16	Open To Flow (1)
45	18.90	115.71	Shut-In(1)
104	35.49	117.07	End Shut-In(1)
105	18.52	117.09	Open To Flow (2)
168	18.72	118.39	Shut-In(2)
249	31.27	119.70	End Shut-In(2)
250	1841.96	120.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud w ith oil specs	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 Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52737

DST#: 2

ATTN: Wes Hansen

Test Start: 2013.08.31 @ 23:42:00

Tool Information

Drill Pipe:	Length: 3684.00 ft	Diameter: 3.80 inches	Volume: 51.68 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 233.00 ft	Diameter: 2.25 inches	Volume: 1.15 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 52.83 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	3914.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	26.00 ft			
Tool Length:	54.00 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			3891.00	
Hydraulic tool	5.00			3896.00	
Jars	5.00			3901.00	
Safety Joint	3.00			3904.00	
Packer	5.00			3909.00	28.00 Bottom Of Top Packer
Packer	5.00			3914.00	
Stubb	1.00			3915.00	
Recorder	0.00	8673	Inside	3915.00	
Recorder	0.00	8651	Outside	3915.00	
Perforations	22.00			3937.00	
Bullnose	3.00			3940.00	26.00 Bottom Packers & Anchor

Total Tool Length: 54.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Wes Hansen

1 5s 31w Rawlins KS
Erickson 'B' #1-1
Job Ticket: 52737 **DST#: 2**
Test Start: 2013.08.31 @ 23:42:00

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: 62.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.39 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1100.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud w ith oil specs	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:

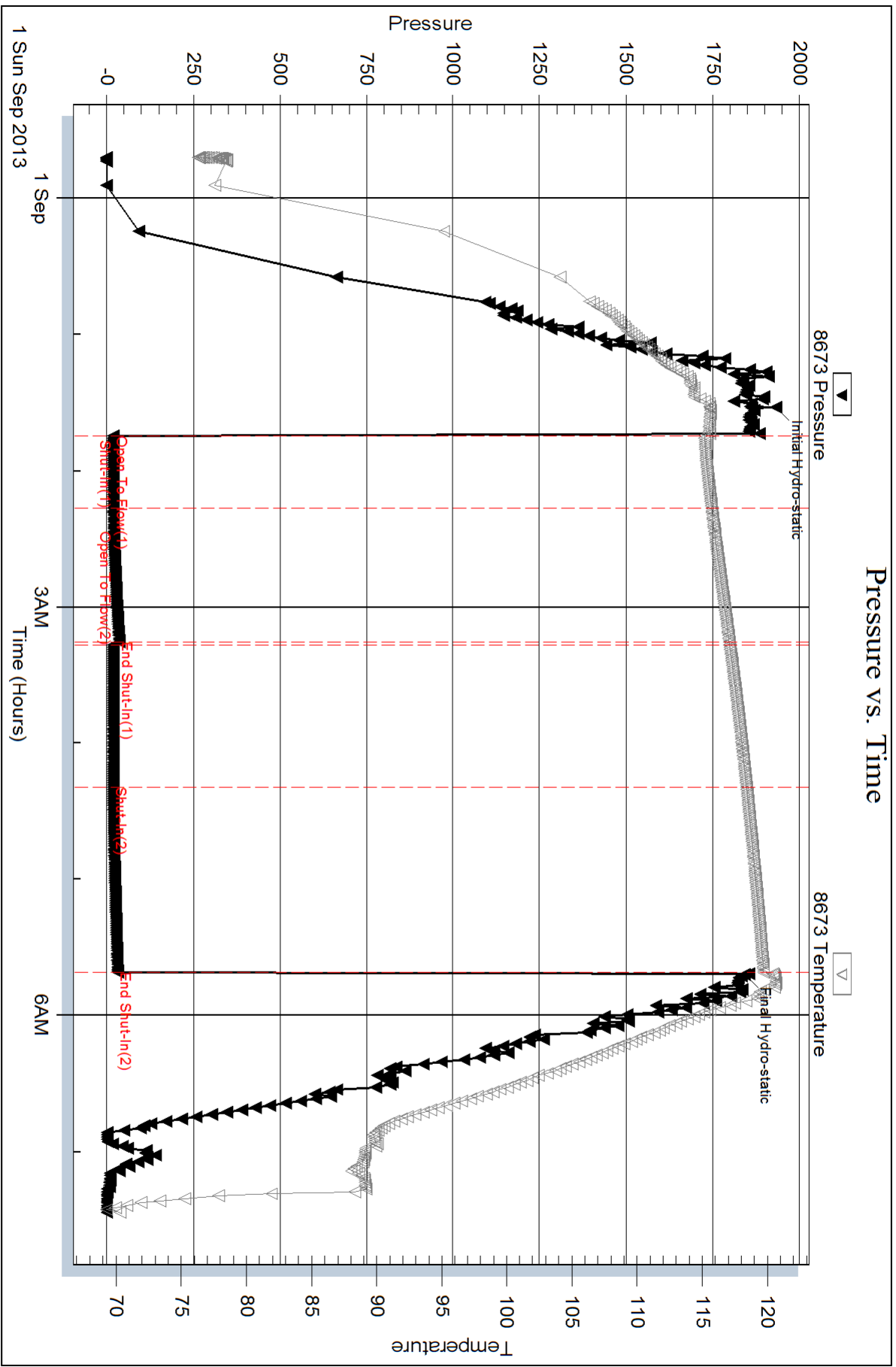
Serial #: 8673

Inside

Murfin Drilling Company Inc

Erickson 'B' #1-1

DST Test Number: 2

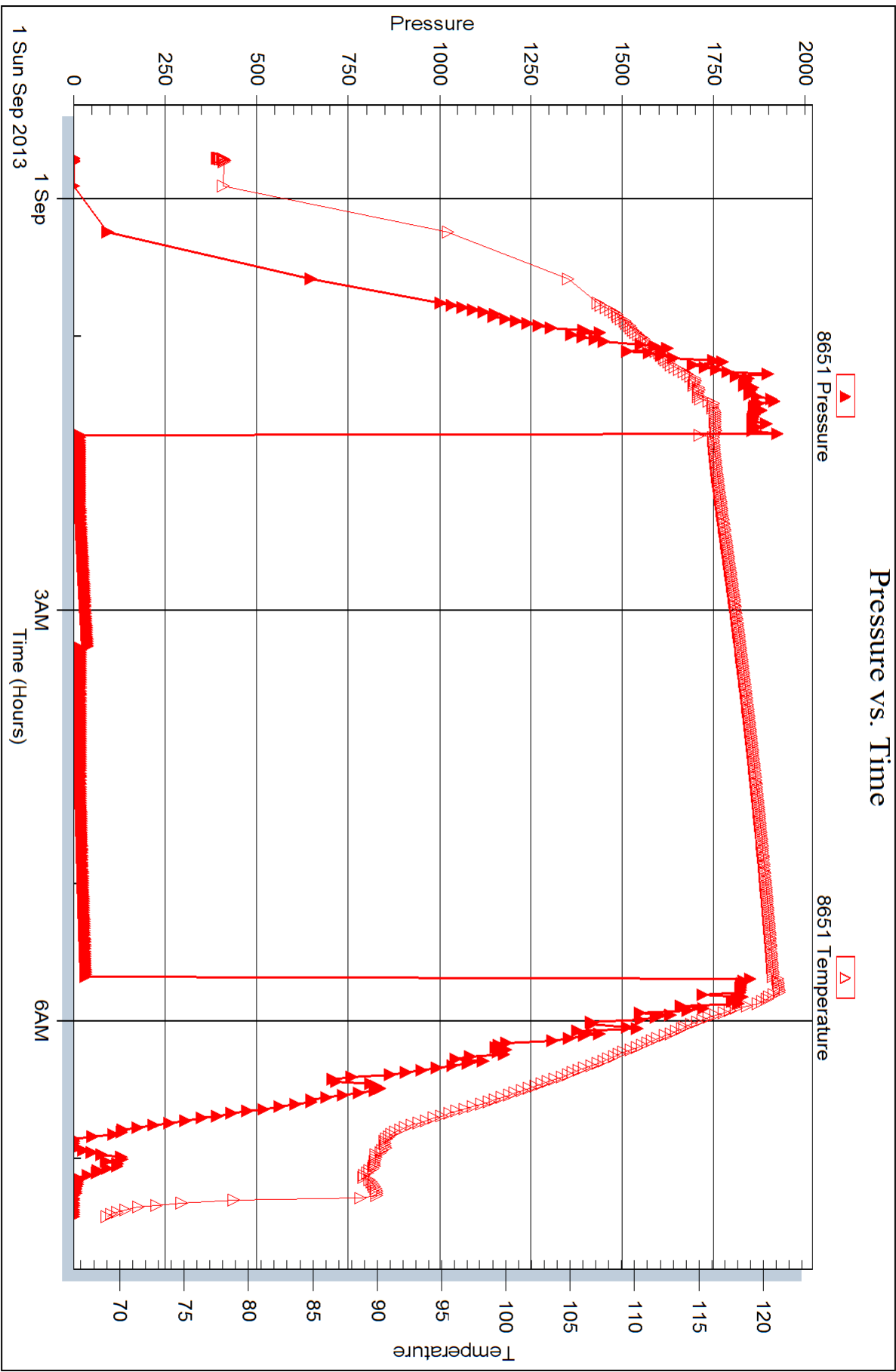


Serial #: 8651

Outside Murfin Drilling Company Inc

Erickson 'B' #1-1

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Wes Hansen

Erickson 'B' #1-1

1 5s 31w Rawlins KS

Start Date: 2013.09.01 @ 21:20:00

End Date: 2013.09.02 @ 03:59:30

Job Ticket #: 52738 DST #: 3

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

Printed: 2013.09.05 @ 16:26:54



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

ATTN: Wes Hansen

Job Ticket: 52738

DST#: 3

Test Start: 2013.09.01 @ 21:20:00

GENERAL INFORMATION:

Formation: **LKC-H,J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:12:30

Time Test Ended: 03:59:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreuzer Jr.

Unit No: 61

Interval: 3960.00 ft (KB) To 4030.00 ft (KB) (TVD)

Reference Elevations: 2823.00 ft (KB)

Total Depth: 4030.00 ft (KB) (TVD)

2813.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8673

Inside

Press @ Run Depth: 36.50 psig @ 3961.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.09.01

End Date:

2013.09.02

Last Calib.:

2013.09.02

Start Time: 21:20:01

End Time:

03:59:30

Time On Btm:

2013.09.01 @ 22:58:30

Time Off Btm:

2013.09.02 @ 02:24:00

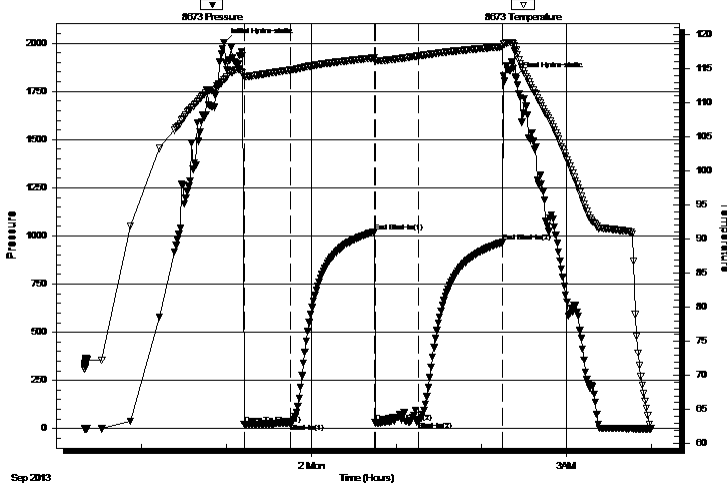
TEST COMMENT: IF: Weak blow, Dead in 20 mns.

IS: No blow back.

FF: No blow.

FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2004.07	113.36	Initial Hydro-static
14	21.03	113.78	Open To Flow (1)
47	28.37	114.79	Shut-In(1)
106	1021.25	116.57	End Shut-In(1)
107	30.63	116.17	Open To Flow (2)
137	36.50	116.86	Shut-In(2)
197	966.46	118.22	End Shut-In(2)
206	1824.83	117.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	mud w ith oil specs	0.10

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 Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52738

DST#: 3

ATTN: Wes Hansen

Test Start: 2013.09.01 @ 21:20:00

Tool Information

Drill Pipe:	Length: 3774.00 ft	Diameter: 3.80 inches	Volume: 52.94 bbl	Tool Weight:	2400.00 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: 176.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 53.81 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	66000.00 lb
Depth to Top Packer:	3960.00 ft			Final	66000.00 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			3937.00	
Hydraulic tool	5.00			3942.00	
Jars	5.00			3947.00	
Safety Joint	3.00			3950.00	
Packer	5.00			3955.00	28.00 Bottom Of Top Packer
Packer	5.00			3960.00	
Stubb	1.00			3961.00	
Recorder	0.00	8673	Inside	3961.00	
Recorder	0.00	8651	Outside	3961.00	
Perforations	2.00			3963.00	
change Over Sub	1.00			3964.00	
Drill Pipe	32.00			3996.00	
Change Over Sub	1.00			3997.00	
Perforations	30.00			4027.00	
Bullnose	3.00			4030.00	70.00 Bottom Packers & Anchor

Total Tool Length: 98.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52738

DST#: 3

ATTN: Wes Hansen

Test Start: 2013.09.01 @ 21:20:00

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: 55.89 in³

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
20.00	mud w ith oil specs	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

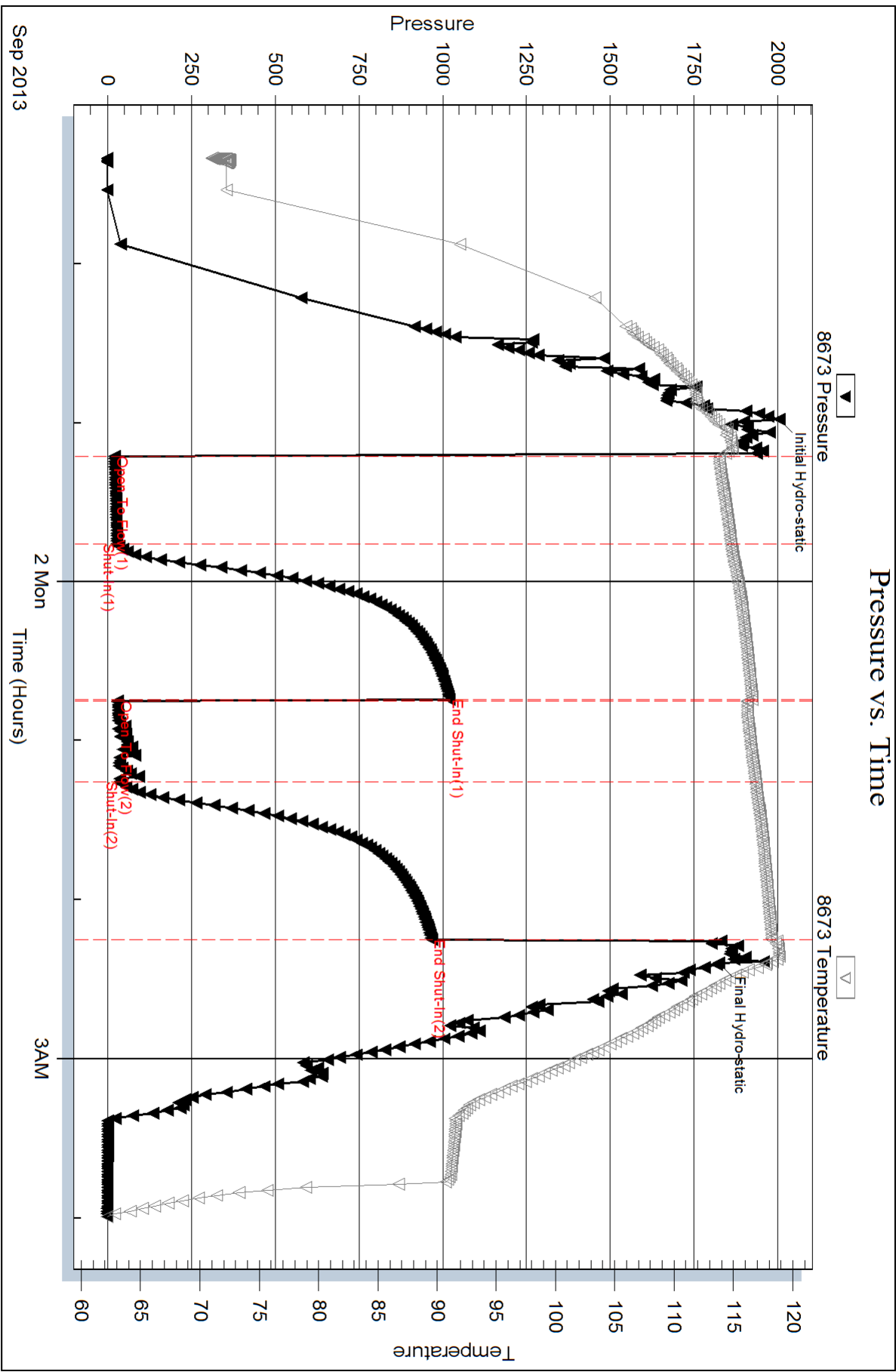
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Inside

Murfin Drilling Company Inc

Erickson 'B' #1-1

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 52738

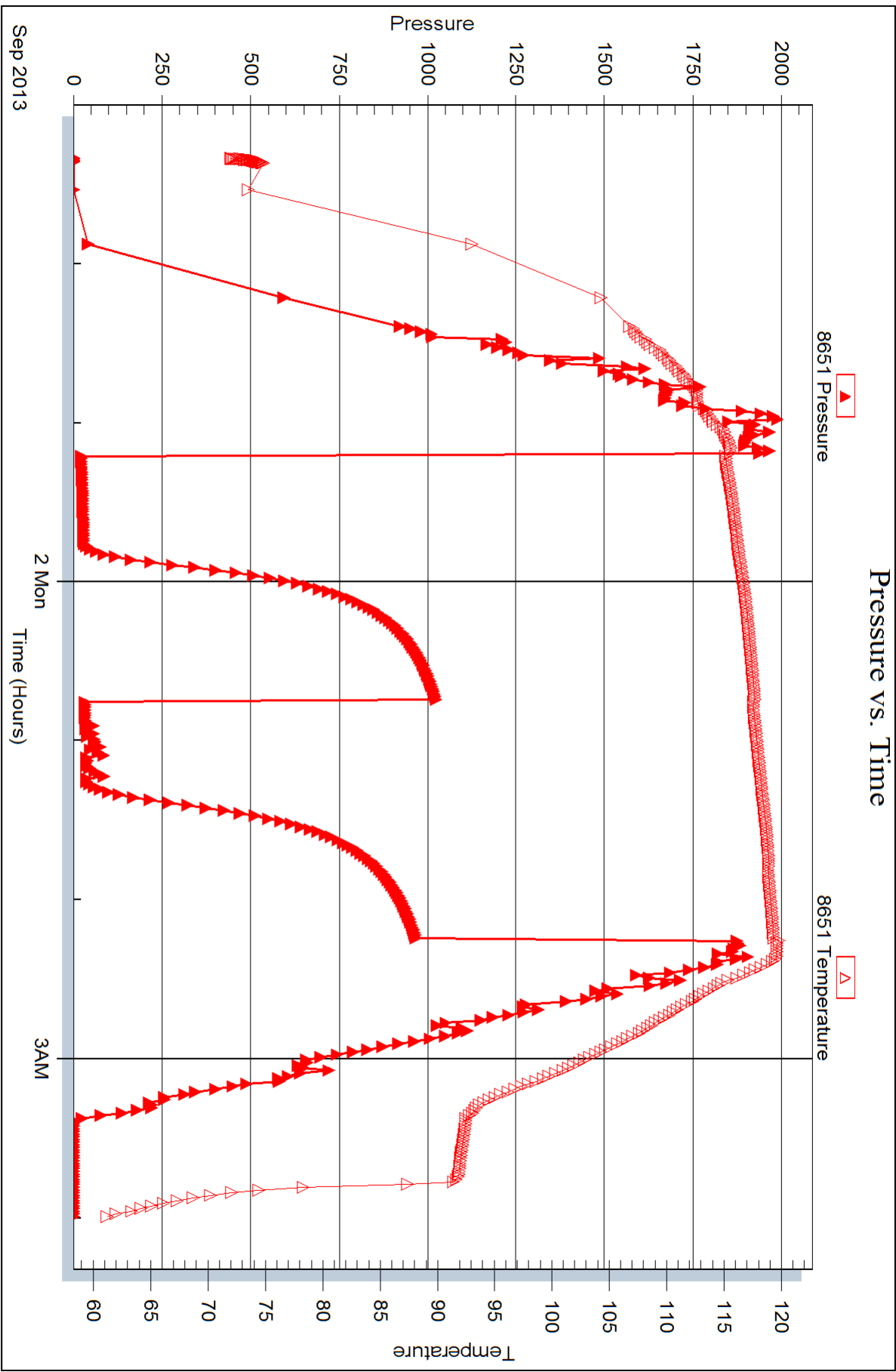
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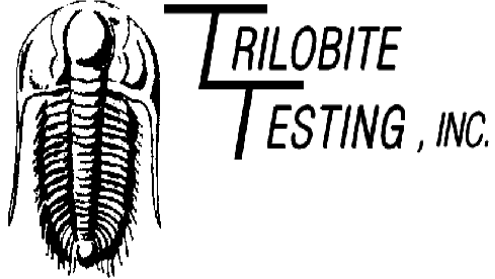
Serial #: 8651

Outside Murfin Drilling Company Inc

Erickson 'B' #1-1

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Wes Hansen

Erickson 'B' #1-1

1 5s 31w Rawlins KS

Start Date: 2013.09.03 @ 08:25:00

End Date: 2013.09.03 @ 15:16:30

Job Ticket #: 52739 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.09.05 @ 16:26:27



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Wes Hansen

1 5s 31w Rawlins KS
Erickson 'B' #1-1
 Job Ticket: 52739 **DST#: 4**
 Test Start: 2013.09.03 @ 08:25:00

GENERAL INFORMATION:

Formation: **Cherokee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:22:00
 Time Test Ended: 15:16:30
 Interval: **4240.00 ft (KB) To 4310.00 ft (KB) (TVD)**
 Total Depth: 4310.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 61
 Reference Elevations: 2823.00 ft (KB)
 2813.00 ft (CF)
 KB to GR/CF: 10.00 ft

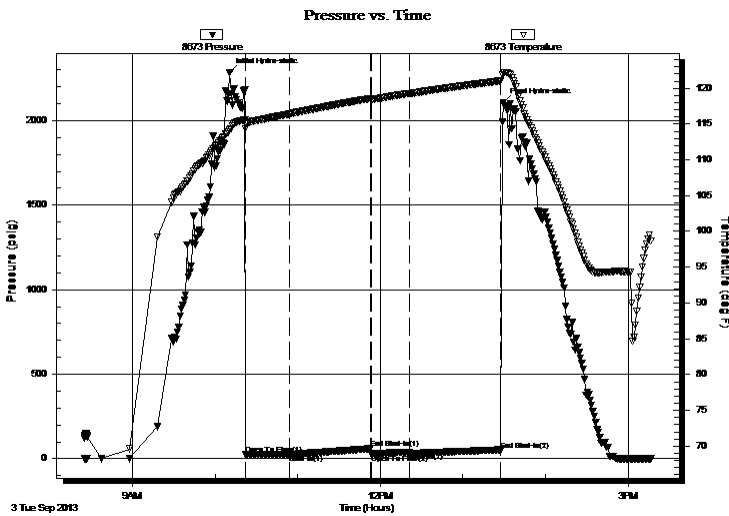
Serial #: 8673

Inside

Press @ Run Depth: 39.81 psig @ 4241.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.09.03 End Date: 2013.09.03 Last Calib.: 2013.09.03
 Start Time: 08:25:01 End Time: 15:16:30 Time On Btm: 2013.09.03 @ 10:10:30
 Time Off Btm: 2013.09.03 @ 13:29:30

TEST COMMENT: IF: Weak blow, Died in 20 mins.
 IS: No blow back over 60 mins.
 FF: No blow over 30 mins.
 FS: No blow back over 60 mins.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2285.07	114.20	Initial Hydro-static
12	24.50	114.36	Open To Flow (1)
44	25.42	116.43	Shut-In(1)
102	60.42	118.56	End Shut-In(1)
103	28.03	118.53	Open To Flow (2)
131	39.81	119.30	Shut-In(2)
197	53.38	121.03	End Shut-In(2)
199	2105.77	122.18	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud-100%m	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 Company Inc
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Wes Hansen

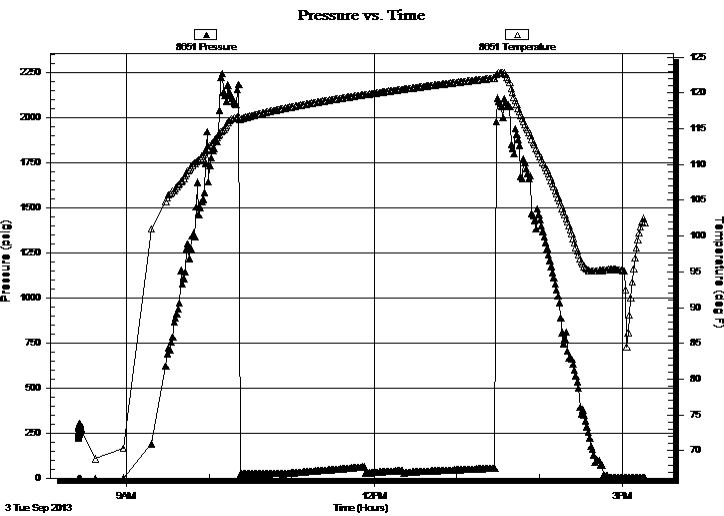
1 5s 31w Rawlins KS
Erickson 'B' #1-1
 Job Ticket: 52739 **DST#: 4**
 Test Start: 2013.09.03 @ 08:25:00

GENERAL INFORMATION:

Formation: **Cherokee**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:22:00
 Tester: Chuck Kreutzer Jr.
 Time Test Ended: 15:16:30
 Unit No: 61
 Interval: **4240.00 ft (KB) To 4310.00 ft (KB) (TVD)**
 Reference Elevations: 2823.00 ft (KB)
 Total Depth: 4310.00 ft (KB) (TVD)
 2813.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 10.00 ft

Serial #: 8651 Outside
 Press @ Run Depth: psig @ 4241.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.09.03 End Date: 2013.09.03 Last Calib.: 2013.09.03
 Start Time: 08:25:01 End Time: 15:17:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Weak blow, Died in 20 mins.
 IS: No blow back over 60 mins.
 FF: No blow over 30 mins.
 FS: No blow back over 60 mins.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud-100%m	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 Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52739

DST#: 4

ATTN: Wes Hansen

Test Start: 2013.09.03 @ 08:25:00

Tool Information

Drill Pipe:	Length: 4050.00 ft	Diameter: 3.80 inches	Volume: 56.81 bbl	Tool Weight:	2400.00 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: 176.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 57.68 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	4240.00 ft			Final	68000.00 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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4217.00	
Hydraulic tool	5.00			4222.00	
Jars	5.00			4227.00	
Safety Joint	3.00			4230.00	
Packer	5.00			4235.00	28.00 Bottom Of Top Packer
Packer	5.00			4240.00	
Stubb	1.00			4241.00	
Recorder	0.00	8673	Inside	4241.00	
Recorder	0.00	8651	Outside	4241.00	
Perforations	2.00			4243.00	
change Over Sub	1.00			4244.00	
Drill Pipe	32.00			4276.00	
Change Over Sub	1.00			4277.00	
Perforations	30.00			4307.00	
Bullnose	3.00			4310.00	70.00 Bottom Packers & Anchor

Total Tool Length: 98.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

1 5s 31w Rawlins KS

250 N. Water Ste. 300
Wichita KS 67202

Erickson 'B' #1-1

Job Ticket: 52739

DST#: 4

ATTN: Wes Hansen

Test Start: 2013.09.03 @ 08:25:00

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: 5.59 in³

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
5.00	mud-100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

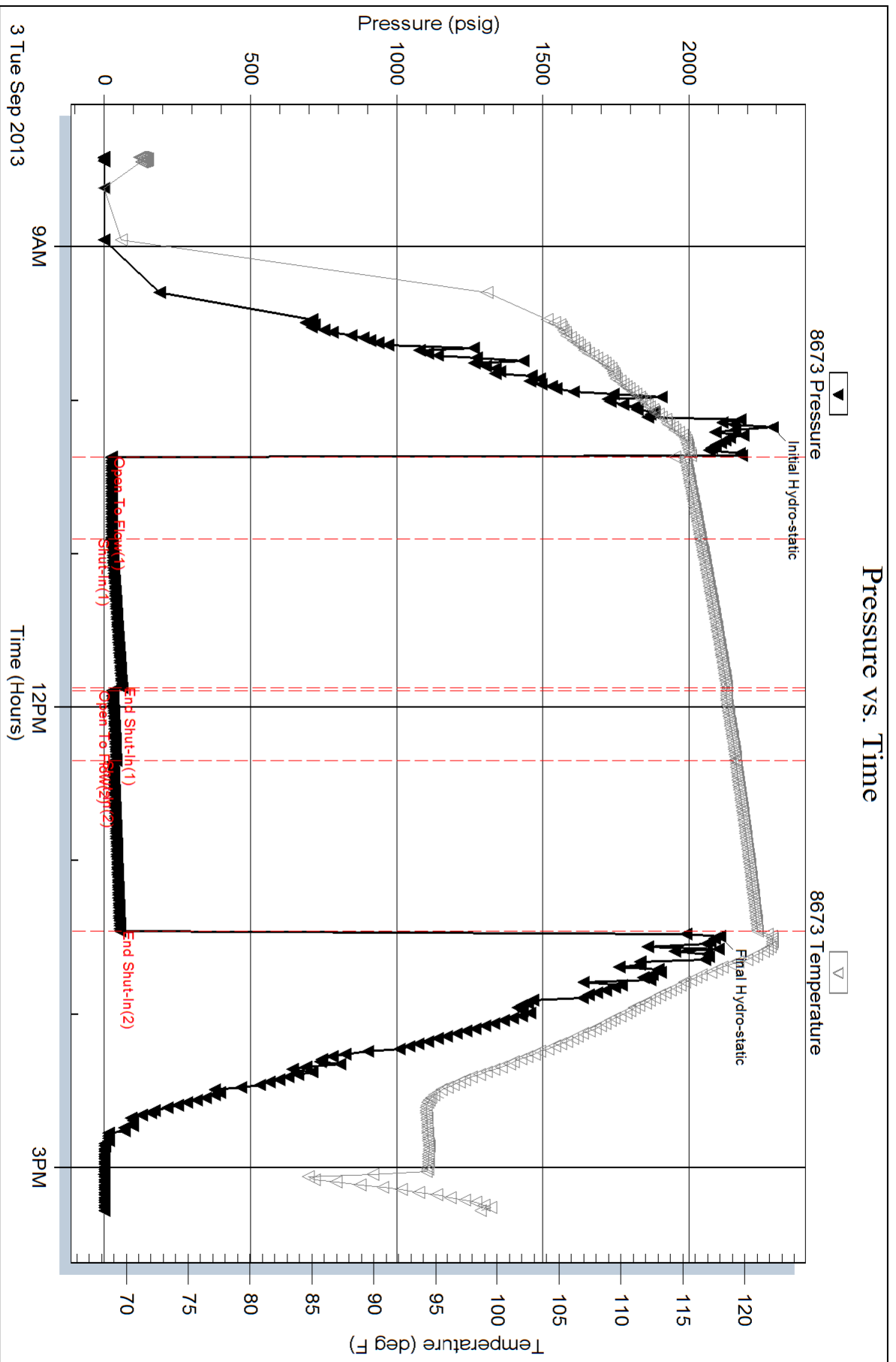
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

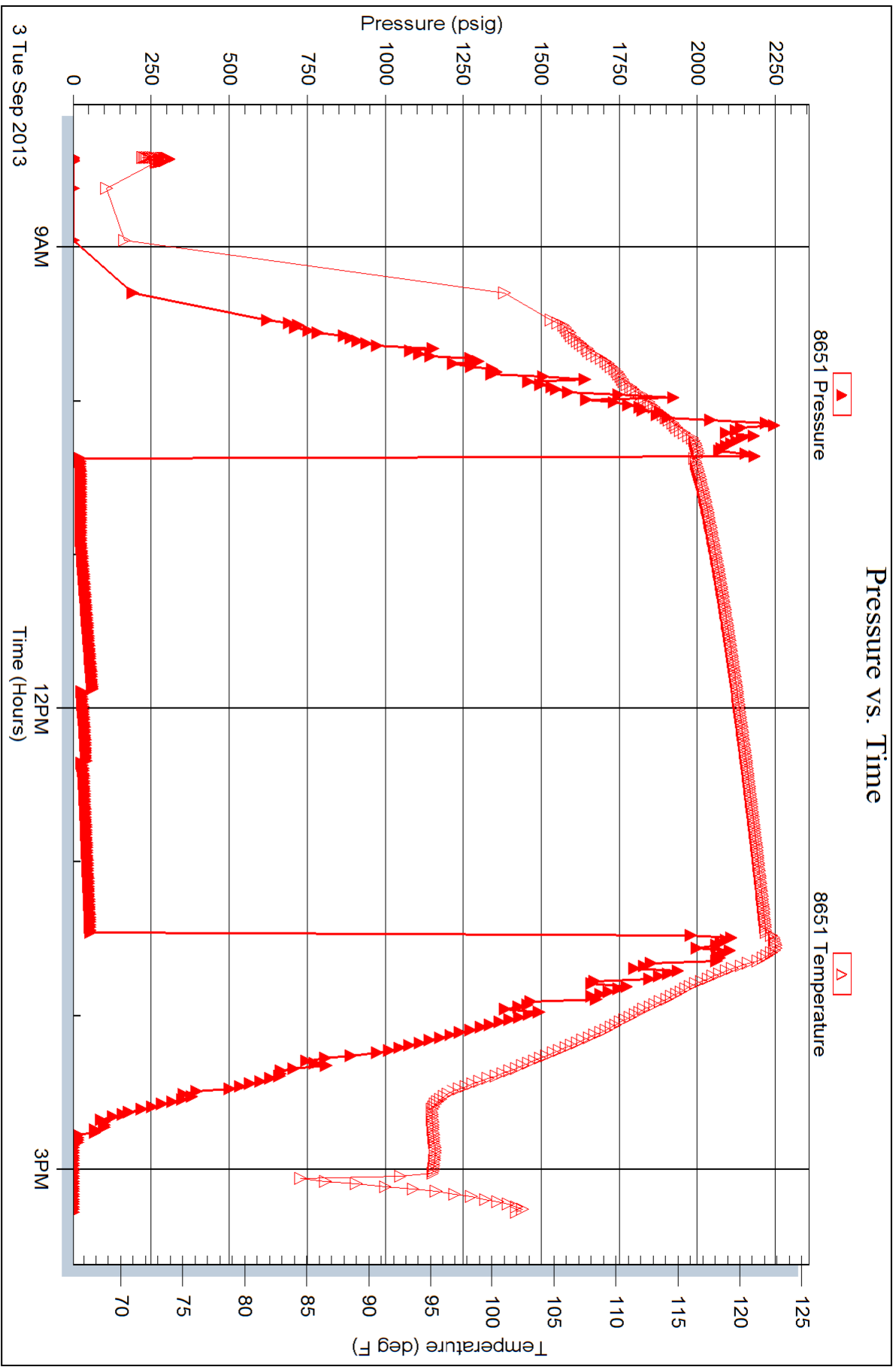


Serial #: 8651

Outside Murfin Drilling Company Inc

Erickson B' #1-1

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52736

Well Name & No. Erickson 'B' 1-1 Test No. 1 Date 8-31-2013
 Company Murfin Drilling Comp. Inc. Elevation 2823 KB 2813 GL
 Address 250 N. Water Ste 300 Wichita KS 67203
 Co. Rep / Geo. Wes Hansen Rig Murfin #2
 Location: Sec. 1 Twp. 5S Rge. 31w Co. Rawlins State Ks.

Interval Tested 3812 3890 Zone Tested Toronto - LKC-B
 Anchor Length 78 Drill Pipe Run 3626 Mud Wt. 8.6
 Top Packer Depth 3807 Drill Collars Run 178 Vis 57
 Bottom Packer Depth 3812 Wt. Pipe Run -0- WL 5.6
 Total Depth 3890 Chlorides 900 ppm System LCM 4#

Blow Description IF: Weak blow built to fin. over 30mins.

ISI: No blow back

FF: Weak blow after 5mins. built to 4in. over 60mins.

FSS: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>mud</u>				<u>100</u>
<u>62</u>	<u>wcm</u>			<u>20</u>	<u>80</u>
<u>62</u>	<u>mcw</u>			<u>60</u>	<u>40</u>
<u>176</u>	<u>mcw</u>			<u>90</u>	<u>10</u>
<u> </u>	<u> </u>				

Rec Total 362 BHT 120 Gravity API RW .22 @ 100 °F Chlorides 20,000 ppm

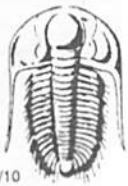
(A) Initial Hydrostatic <u>1936</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>5:10</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>5:55</u>
(C) First Final Flow <u>114</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>8:15</u>
(D) Initial Shut-In <u>1261</u>	<input type="checkbox"/> Circ Sub <u> </u>	T-Pulled <u>12:15</u>
(E) Second Initial Flow <u>118</u>	<input type="checkbox"/> Hourly Standby <u> </u>	T-Out <u>13:48</u>
(F) Second Final Flow <u>185</u>	<input checked="" type="checkbox"/> Mileage <u>23x2 = 46x1.50</u> <u>71.30</u>	Comments <u> </u>
(G) Final Shut-In <u>1252</u>	<input type="checkbox"/> Sampler <u> </u>	<u> </u>
(H) Final Hydrostatic <u>1842</u>	<input type="checkbox"/> Straddle <u> </u>	<u> </u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u> </u>	<input type="checkbox"/> Ruined Shale Packer <u> </u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer <u> </u>	<input type="checkbox"/> Ruined Packer <u> </u>
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder <u> </u>	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby <u> </u>	Total <u>1546.30</u>
	<input type="checkbox"/> Accessibility <u> </u>	MP/DST Disc't <u> </u>
	Sub Total <u>1546.30</u>	

Approved By

Our Representative Chuck Pepp

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.

785-254-3188



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52737

Well Name & No. Erickson 'B' 1-1 Test No. 2 Date 8-31-13
 Company Murfin Drilling Co Elevation 2823 KB 2813 GL
 Address 250 N Water Ste 300 Wichita Ks. 67202
 Co. Rep / Geo. Wes Hansen Rig Murfin #2
 Location: Sec. 1 Twp. 5S Rge. 31W Co. Rawlins State KS

Interval Tested 3914 3940 Zone Tested LKC-F
 Anchor Length 26 Drill Pipe Run 3684 Mud Wt. 9.3
 Top Packer Depth 3909 Drill Collars Run 233 Vis 62
 Bottom Packer Depth 3914 Wt. Pipe Run 0 WL 6.4
 Total Depth 3940 Chlorides 1,100 ppm System LCM 4#

Blow Description IF: Weak surface blow, off and on for 3mins.

ISI: No blow back

FF: No blow

FSI: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud with oil specs</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 5 BHT 118.4 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1932 Test 1150 T-On Location 23:10
 (B) First Initial Flow 19 Jars 250 T-Started 23:40
 (C) First Final Flow 19 Safety Joint 75 T-Open 1:44
 (D) Initial Shut-In 35 Circ Sub T-Pulled 5:45
 (E) Second Initial Flow 19 Hourly Standby T-Out 7:26
 (F) Second Final Flow 19 Mileage 23 x 2 = 46 x 1.50 = 71.30 Comments _____
 (G) Final Shut-In 31 Sampler _____
 (H) Final Hydrostatic 1842 Straddle _____

Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1546.30
 MP/DST Disc't _____

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

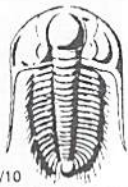
Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility
 Sub Total 1546.30

Approved By _____

Our Representative Chuck Wagner

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785-259-3188



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52738

Well Name & No. Erickson 'B' 1-1 Test No. 3 Date 9-1-2013
 Company Murfin Drilling Co Elevation 2823 KB 2813 GL
 Address 250 N. water ste. 300 wichita ks . 67202
 Co. Rep / Geo. Wes Hansen Rig Murfin #2
 Location: Sec. 1 Twp. 55 Rge. 31w Co. Rawlins State Ks

Interval Tested 3960 4030 Zone Tested LKC-H&J
 Anchor Length 70 Drill Pipe Run 3774 Mud Wt. 9.0
 Top Packer Depth 3955 Drill Collars Run 233 Vis 65
 Bottom Packer Depth 3960 Wt. Pipe Run 0 WL 5.6
 Total Depth 4030 Chlorides 1000 ppm System LCM 4#

Blow Description IF: Weak blow, Died in 20 mins.
ISI: No blow back
FF: No blow
FST: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Mud w. oil specks</u>				

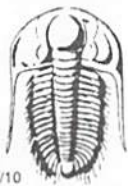
Rec Total 20 BHT 117 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 2004 Test 1250 T-On Location 20:50
 (B) First Initial Flow 21 Jars 250 T-Started 21:20
 (C) First Final Flow 28 Safety Joint 75 T-Open 23:12
 (D) Initial Shut-In 1021 Circ Sub _____ T-Pulled 2:15
 (E) Second Initial Flow 31 Hourly Standby _____ T-Out 3:54
 (F) Second Final Flow 37 Mileage 23x2 = 46 x 1.50 71.30
 (G) Final Shut-In 966 Sampler _____
 (H) Final Hydrostatic 1825 Straddle _____

Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1646.30
 Accessibility _____ MP/DST Disc't _____

Sub Total 1646.30

Approved By _____ Our Representative Chris Rogers
 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. 52739

Well Name & No. Erickson 'B' 1-1 Test No. 4 Date 9-3-13
 Company Murfin Drilling Co. Elevation 2823 KB 2813 GL
 Address 250 N. Water Ste 300 Wichita Ks. 67202
 Co. Rep / Geo. Wes Hansen Rig Murfin #2
 Location: Sec. 1 Twp. SS Rge. 3/W Co. Rawlins State Ks.

Interval Tested 4240 4310 Zone Tested Loverock
 Anchor Length 70 Drill Pipe Run _____ Mud Wt. 9.3
 Top Packer Depth 4235 Drill Collars Run 233 Vis 65
 Bottom Packer Depth 4240 Wt. Pipe Run -0- WL 5.6
 Total Depth 4310 Chlorides 1000 ppm System LCM 4#

Blow Description IF: Weak blow, Died in 20 mins.
ESI: No blow back
FF: No blow
FSS: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</u>			<u>100</u>	
____	____				
____	____				
____	____				
____	____				

Rec Total 5 BHT 119 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2285</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>8:00</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>8:25</u>
(C) First Final Flow <u>25</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>10:22</u>
(D) Initial Shut-In <u>60</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>13:25</u>
(E) Second Initial Flow <u>28</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>15:16</u>
(F) Second Final Flow <u>40</u>	<input checked="" type="checkbox"/> Mileage <u>23x2 = 46x1.50</u> 142.60	Comments _____
(G) Final Shut-In <u>53</u>	<input type="checkbox"/> Sampler _____	<u>loaded tools 8/4 14:00</u>
(H) Final Hydrostatic <u>2106</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>133.33</u>
Final Shut-In <u>60</u>	<input checked="" type="checkbox"/> Day Standby <u>1 DAY 4 hrs</u>	Total <u>1850.93</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1717.60</u>	

Approved By _____ Our Representative Chuck [Signature]

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