



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water Suite 300
Wichita, KS 672020

ATTN: Saman Sharifaie

CWA 'C' #1-32

32-2s-36w Rawlins KS

Start Date: 2013.08.15 @ 12:21:00

End Date: 2013.08.15 @ 20:38:00

Job Ticket #: 52660 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.20 @ 15:33:07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52660

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.08.15 @ 12:21:00

GENERAL INFORMATION:

Formation: **LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 14:11:00
 Tester: James Winder
 Time Test Ended: 20:38:00
 Unit No: 57
 Interval: **4268.00 ft (KB) To 4330.00 ft (KB) (TVD)**
 Reference Elevations: 3363.00 ft (KB)
 Total Depth: 4330.00 ft (KB) (TVD)
 3358.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

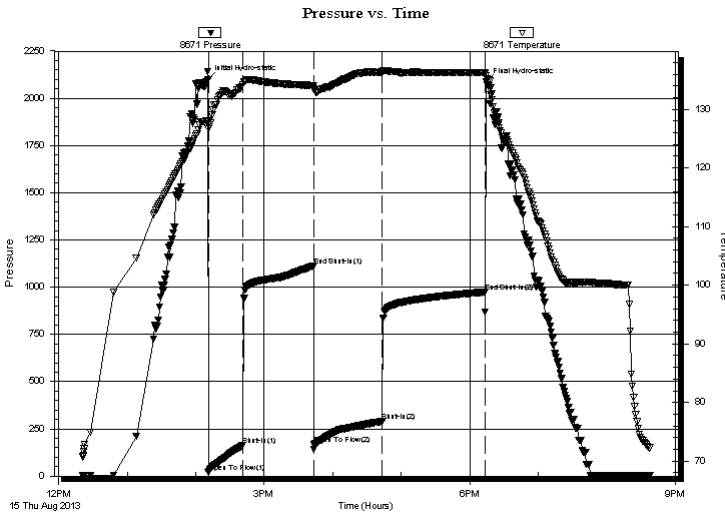
Serial #: 8671

Inside

Press @ RunDepth: 290.20 psig @ 4269.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.08.15 End Date: 2013.08.15 Last Calib.: 2013.08.15
 Start Time: 12:21:05 End Time: 20:37:59 Time On Btm: 2013.08.15 @ 14:10:45
 Time Off Btm: 2013.08.15 @ 18:14:15

TEST COMMENT: 30 - IF: Blow built to BOB (11") in 22 1/2 min.
 60 - IS: No blow back
 60 - FF: Blow started around 2 min., built to BOB at 41 min.
 90 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2099.97	128.07	Initial Hydro-static
1	20.10	126.65	Open To Flow (1)
31	163.45	134.20	Shut-In(1)
93	1112.35	134.01	End Shut-In(1)
93	169.95	133.54	Open To Flow (2)
153	290.20	136.33	Shut-In(2)
243	974.45	136.21	End Shut-In(2)
244	2085.57	135.80	Final Hydro-static

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
59.00	GOCM 74% _m , 18% _g , 8% _o	0.29
59.00	GOWCM 56% _m , 21% _g , 12% _w , 11% _o	0.29
357.00	GMO 37% _o , 33% _m , 30% _g	1.76
125.00	GOCM 73% _m , 15% _o , 12% _g	1.48
30.00	MO 60% _o , 40% _m	0.42
0.00	GIP = 30'	0.00

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52660

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.08.15 @ 12:21:00

Tool Information

Drill Pipe:	Length: 3741.00 ft	Diameter: 3.80 inches	Volume: 52.48 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: 505.00 ft	Diameter: 2.25 inches	Volume: 2.48 bbl	Weight to Pull Loose: 76000.00 lb
			<u>Total Volume: 54.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4268.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 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			4245.00	
Hydraulic tool	5.00			4250.00	
Jars	5.00			4255.00	
Safety Joint	3.00			4258.00	
Packer	5.00			4263.00	28.00 Bottom Of Top Packer
Packer	5.00			4268.00	
Stubb	1.00			4269.00	
Recorder	0.00	8671	Inside	4269.00	
Recorder	0.00	8320	Outside	4269.00	
Perforations	22.00			4291.00	
Blank Spacing	33.00			4324.00	
Perforations	3.00			4327.00	
Bullnose	3.00			4330.00	62.00 Bottom Packers & Anchor

Total Tool Length: 90.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52660

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.08.15 @ 12:21:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

21.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
59.00	GOCM 74%m, 18%g, 8%o	0.290
59.00	GOWCM 56%m, 21%g, 12%w, 11%o	0.290
357.00	GMO 37%o, 33%m, 30%g	1.756
125.00	GOCM 73%m, 15%o, 12%g	1.480
30.00	MO 60%o, 40%m	0.421
0.00	GIP = 30'	0.000

Total Length: 630.00 ft Total Volume: 4.237 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

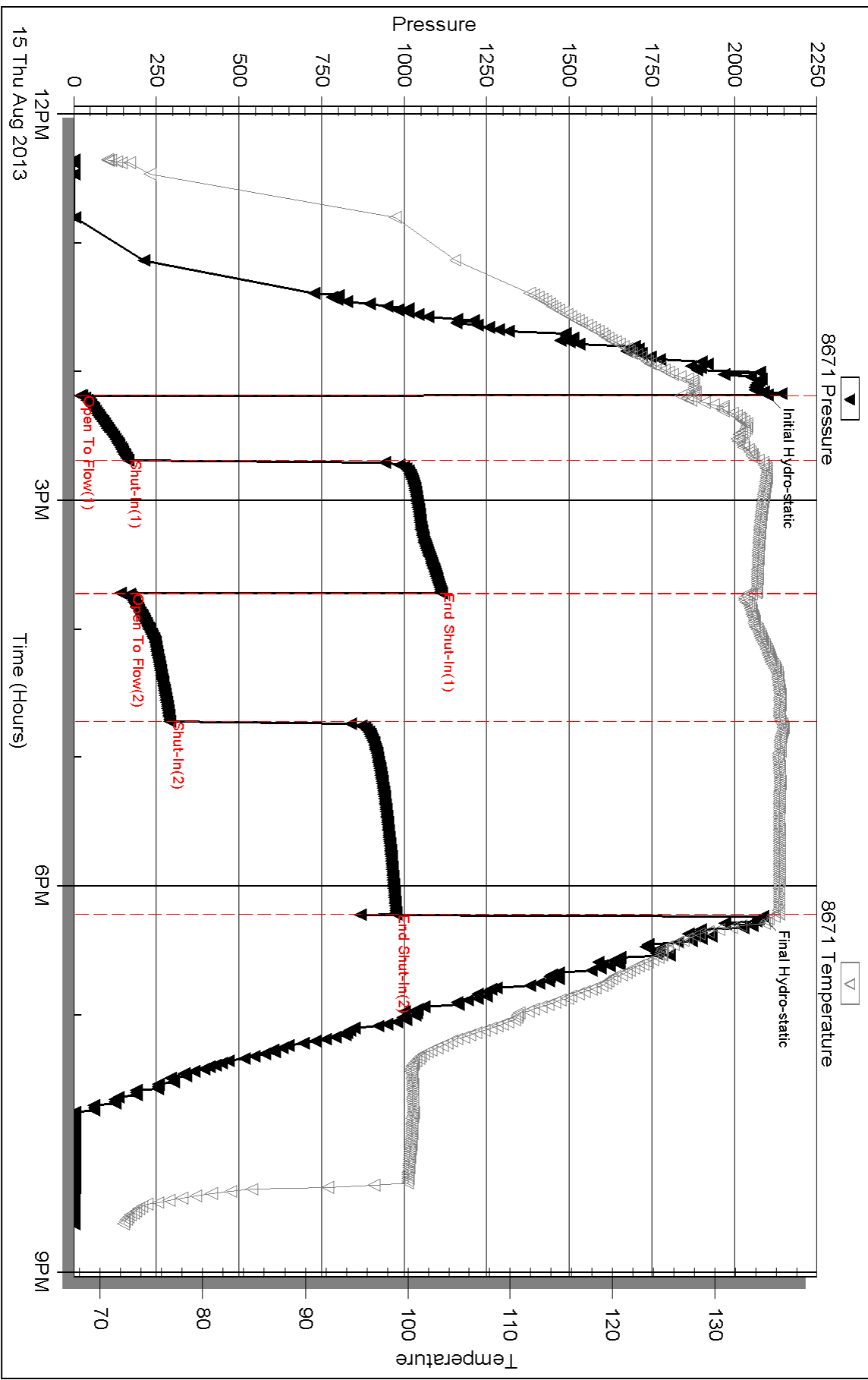
Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 22.4 api @ 72 deg F

Corrected Gravity = 21.2 api

Pressure vs. Time

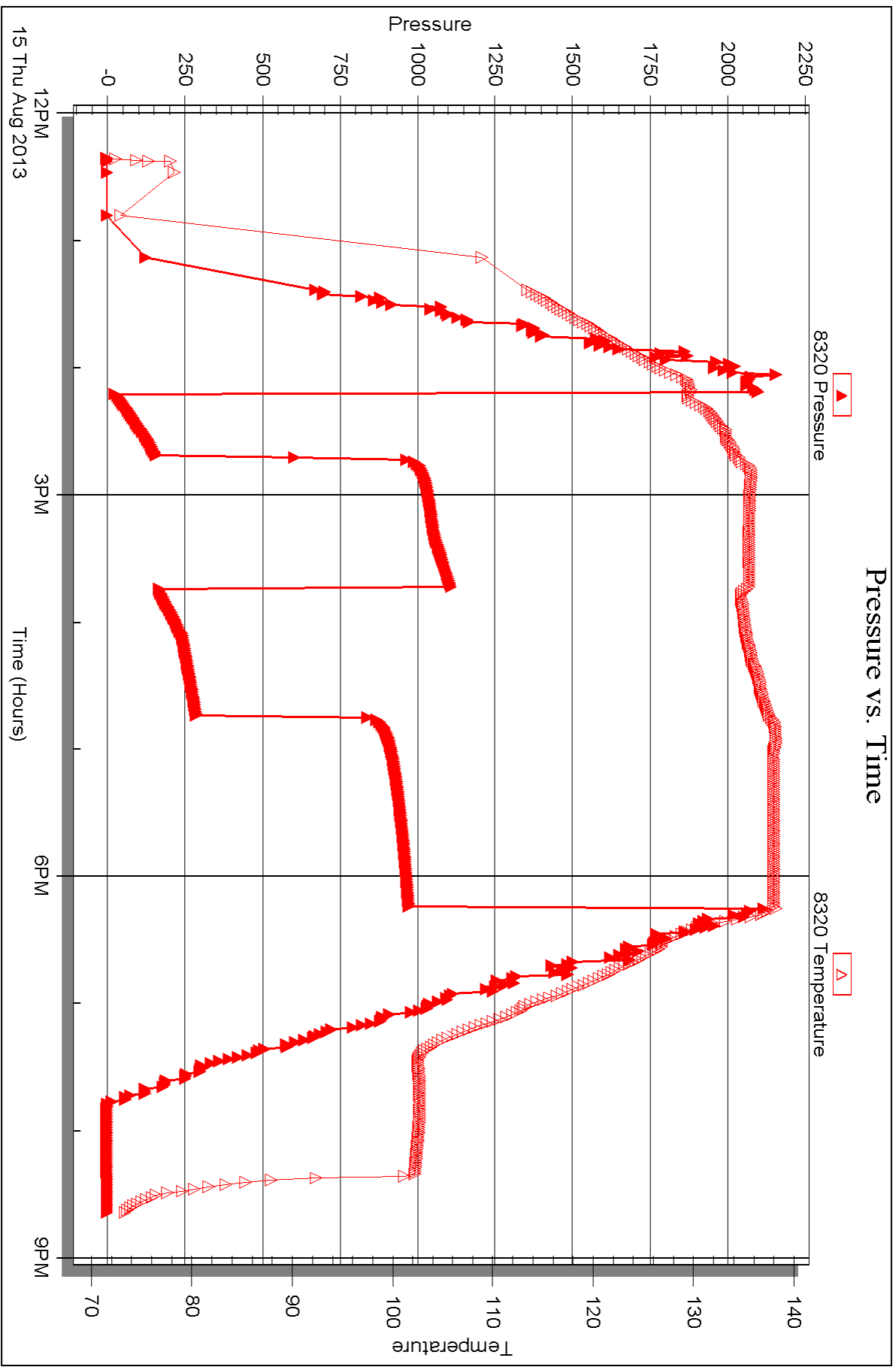


Serial #: 8320

Outside Murfin Drilling Co., Inc.

CWA 'C' #1-32

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 52660

Printed: 2013.08.20 @ 15:33:10



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water Suite 300
Wichita, KS 672020

ATTN: Saman Sharifaie

CWA 'C' #1-32

32-2s-36w Rawlins KS

Start Date: 2013.08.16 @ 09:40:00

End Date: 2013.08.16 @ 18:05:30

Job Ticket #: 52661 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.20 @ 15:32:28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52661

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.08.16 @ 09:40:00

GENERAL INFORMATION:

Formation: **LKC "B - G"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 11:35:45
 Tester: James Winder
 Time Test Ended: 18:05:30
 Unit No: 57
 Interval: **4304.00 ft (KB) To 4420.00 ft (KB) (TVD)**
 Reference Elevations: 3363.00 ft (KB)
 Total Depth: 4430.00 ft (KB) (TVD)
 3358.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

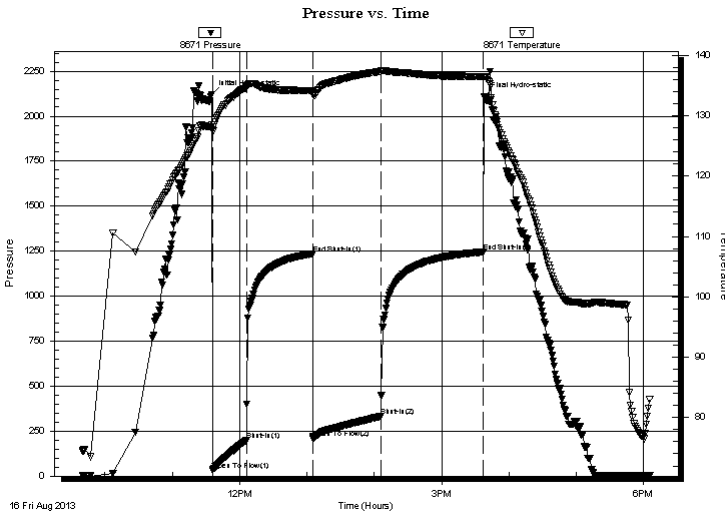
Serial #: 8671

Inside

Press @ Run Depth: 333.67 psig @ 4305.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.08.16 End Date: 2013.08.16 Last Calib.: 2013.08.16
 Start Time: 09:40:05 End Time: 18:05:29 Time On Btm: 2013.08.16 @ 11:35:15
 Time Off Btm: 2013.08.16 @ 15:38:00

TEST COMMENT: 30 - IF: Blow built to BOB (11") in 20 min.
 60 - IS: No blow back
 60 - FF: Blow built to BOB in 28 min.
 90 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2120.52	128.43	Initial Hydro-static
1	31.74	127.67	Open To Flow (1)
31	200.99	134.63	Shut-In(1)
90	1235.37	134.17	End Shut-In(1)
91	208.67	133.59	Open To Flow (2)
151	333.67	137.32	Shut-In(2)
242	1245.77	136.45	End Shut-In(2)
243	2107.75	136.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	SO/GWCM 52% <i>m</i> , 35% <i>w</i> , 9% <i>g</i> , 4% <i>o</i>	0.89
295.00	GOWCM 42% <i>m</i> , 21% <i>w</i> , 19% <i>g</i> , 18% <i>o</i>	1.45
245.00	GOCM 55% <i>m</i> , 36% <i>o</i> , 9% <i>g</i>	3.16

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52661

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.08.16 @ 09:40:00

Tool Information

Drill Pipe:	Length: 3804.00 ft	Diameter: 3.80 inches	Volume: 53.36 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: 505.00 ft	Diameter: 2.25 inches	Volume: 2.48 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 55.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4304.00 ft			Final 73000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	116.00 ft			
Tool Length:	144.00 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			4281.00	
Hydraulic tool	5.00			4286.00	
Jars	5.00			4291.00	
Safety Joint	3.00			4294.00	
Packer	5.00			4299.00	28.00 Bottom Of Top Packer
Packer	5.00			4304.00	
Stubb	1.00			4305.00	
Recorder	0.00	8671	Inside	4305.00	
Recorder	0.00	8320	Outside	4305.00	
Perforations	15.00			4320.00	
Blank Spacing	95.00			4415.00	
Perforations	2.00			4417.00	
Bullnose	3.00			4420.00	116.00 Bottom Packers & Anchor

Total Tool Length: 144.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52661

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.08.16 @ 09:40:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

21 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

12000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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
180.00	SO/GWCM 52%m, 35%w, 9%g, 4%o	0.885
295.00	GOWCM 42%m, 21%w, 19%g, 18%o	1.451
245.00	GOCM 55%m, 36%o, 9%g	3.163

Total Length: 720.00 ft Total Volume: 5.499 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 24 api @ 90 deg F

Corrected Gravity = 21 api

RW = .452 ohms @ 82.4 deg F

Chlorides = 12,000 ppm

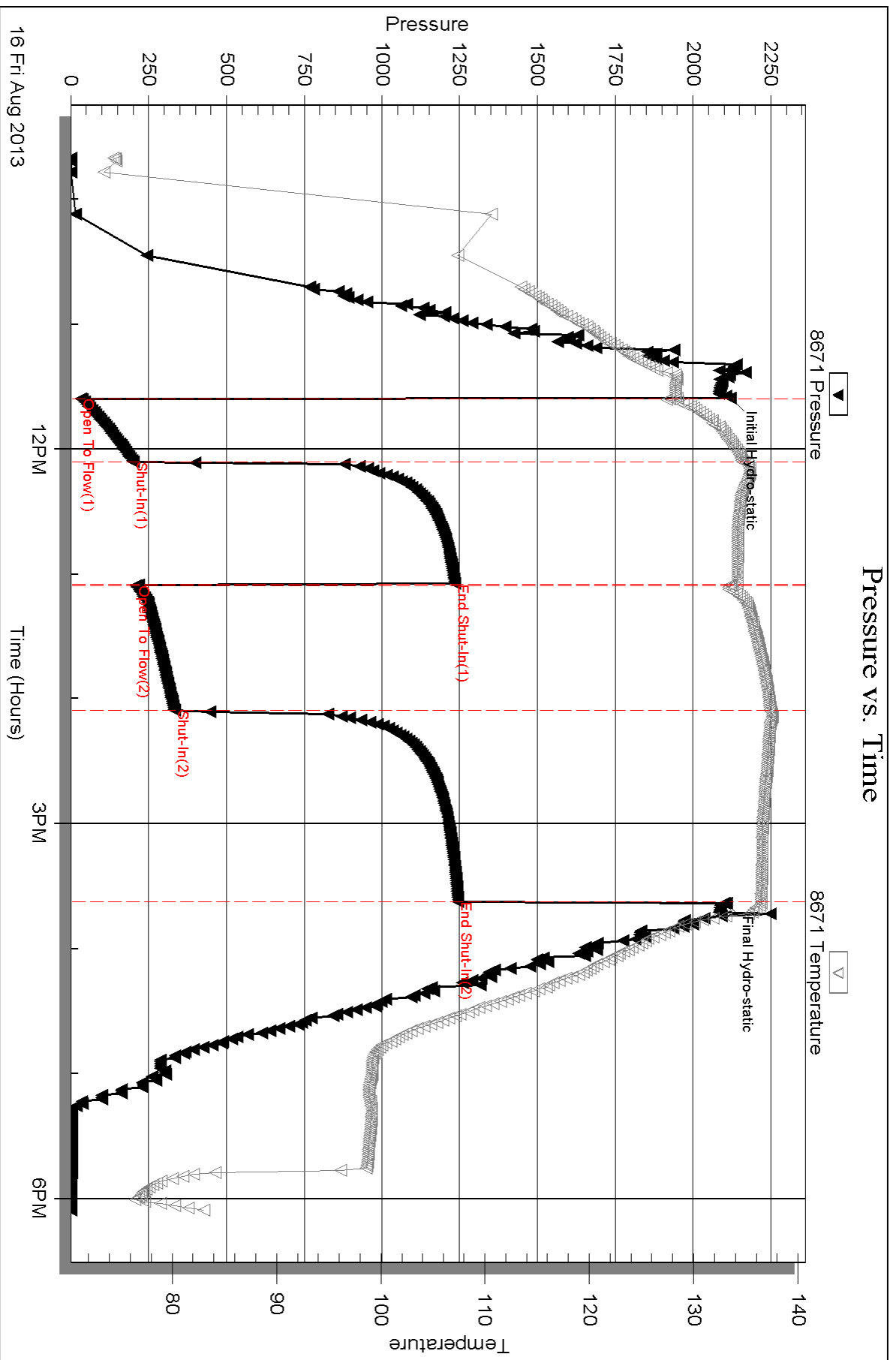
Serial #: 8671

Inside

Murfin Drilling Co., Inc.

CMA 'C' #1-32

DST Test Number: 2

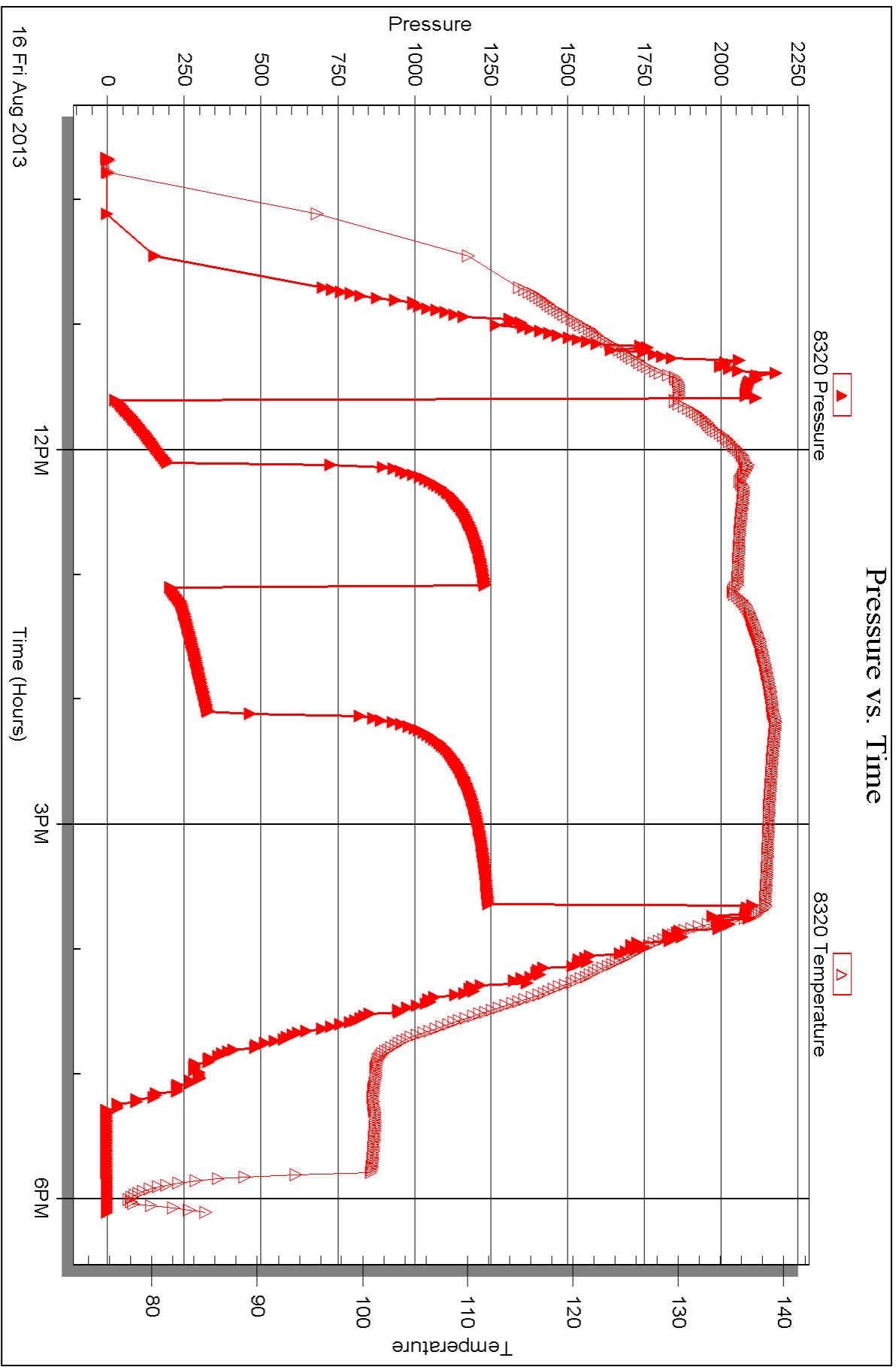


Serial #: 8320

Outside Murfin Drilling Co., Inc.

CWA 'C' #1-32

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 52661

Printed: 2013.08.20 @ 15:32:31



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water Suite 300
Wichita, KS 672020

ATTN: Saman Sharifaie

CWA 'C' #1-32

32-2s-36w Rawlins KS

Start Date: 2013.08.17 @ 05:44:00

End Date: 2013.08.17 @ 13:10:45

Job Ticket #: 52662 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.20 @ 15:31:56



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52662

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2013.08.17 @ 05:44:00

GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:56:30

Time Test Ended: 13:10:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

Interval: 4469.00 ft (KB) To 4510.00 ft (KB) (TVD)

Reference Elevations: 3363.00 ft (KB)

Total Depth: 4510.00 ft (KB) (TVD)

3358.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671

Inside

Press @ Run Depth: 20.19 psig @ 4470.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.17

End Date: 2013.08.17

Last Calib.: 2013.08.17

Start Time: 05:44:05

End Time: 13:10:44

Time On Btm: 2013.08.17 @ 07:56:15

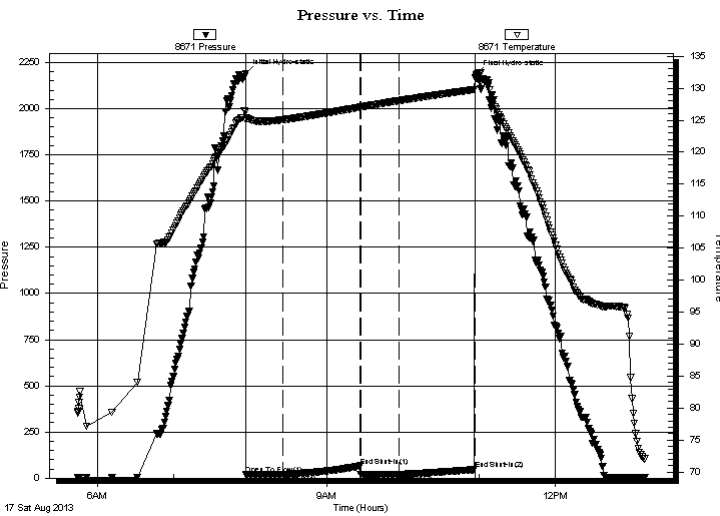
Time Off Btm: 2013.08.17 @ 10:57:30

TEST COMMENT: 30 - IF: Blow built to 1/4" then died back, dead at 20 min.

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2191.58	126.28	Initial Hydro-static
1	18.43	125.00	Open To Flow (1)
30	19.58	125.06	Shut-In(1)
90	65.94	127.01	End Shut-In(1)
91	19.24	127.00	Open To Flow (2)
121	20.19	128.04	Shut-In(2)
181	46.31	129.78	End Shut-In(2)
182	2182.23	132.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM 97% m, 3% o	0.01

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 Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52662

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2013.08.17 @ 05:44:00

Tool Information

Drill Pipe:	Length: 3958.00 ft	Diameter: 3.80 inches	Volume: 55.52 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: 505.00 ft	Diameter: 2.25 inches	Volume: 2.48 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 58.00 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4469.00 ft			Final 68000.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4446.00	
Hydraulic tool	5.00			4451.00	
Jars	5.00			4456.00	
Safety Joint	3.00			4459.00	
Packer	5.00			4464.00	28.00 Bottom Of Top Packer
Packer	5.00			4469.00	
Stubb	1.00			4470.00	
Recorder	0.00	8671	Inside	4470.00	
Recorder	0.00	8320	Outside	4470.00	
Perforations	4.00			4474.00	
Blank Spacing	33.00			4507.00	
Bullnose	3.00			4510.00	41.00 Bottom Packers & Anchor

Total Tool Length: 69.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52662

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2013.08.17 @ 05:44:00

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:

bbbl

Water Loss: 5.17 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	OSM 97% _m , 3% _o	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:

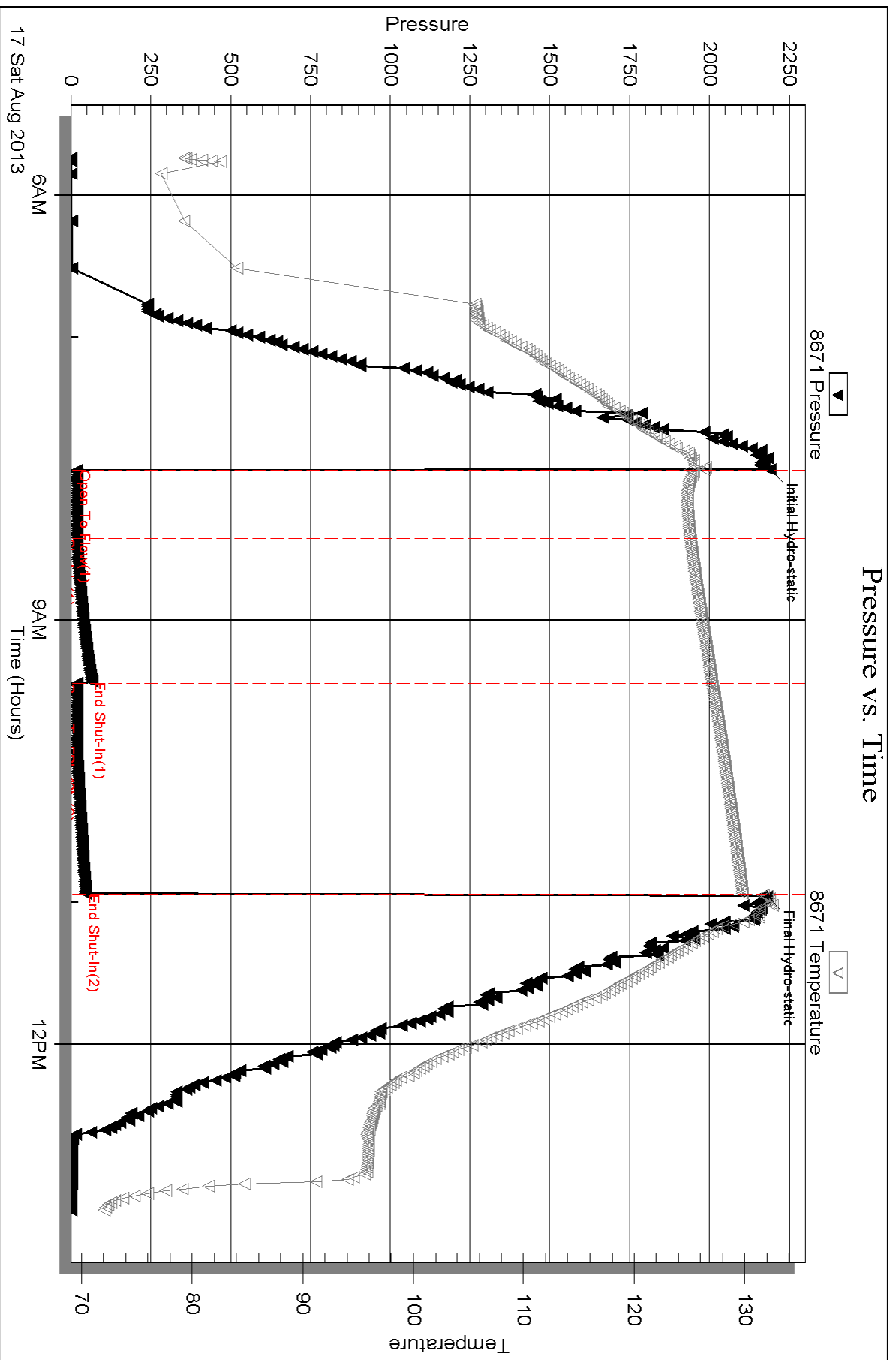
Serial #: 8671

Inside

Murfin Drilling Co., Inc.

CWA 'C' #1-32

DST Test Number: 3

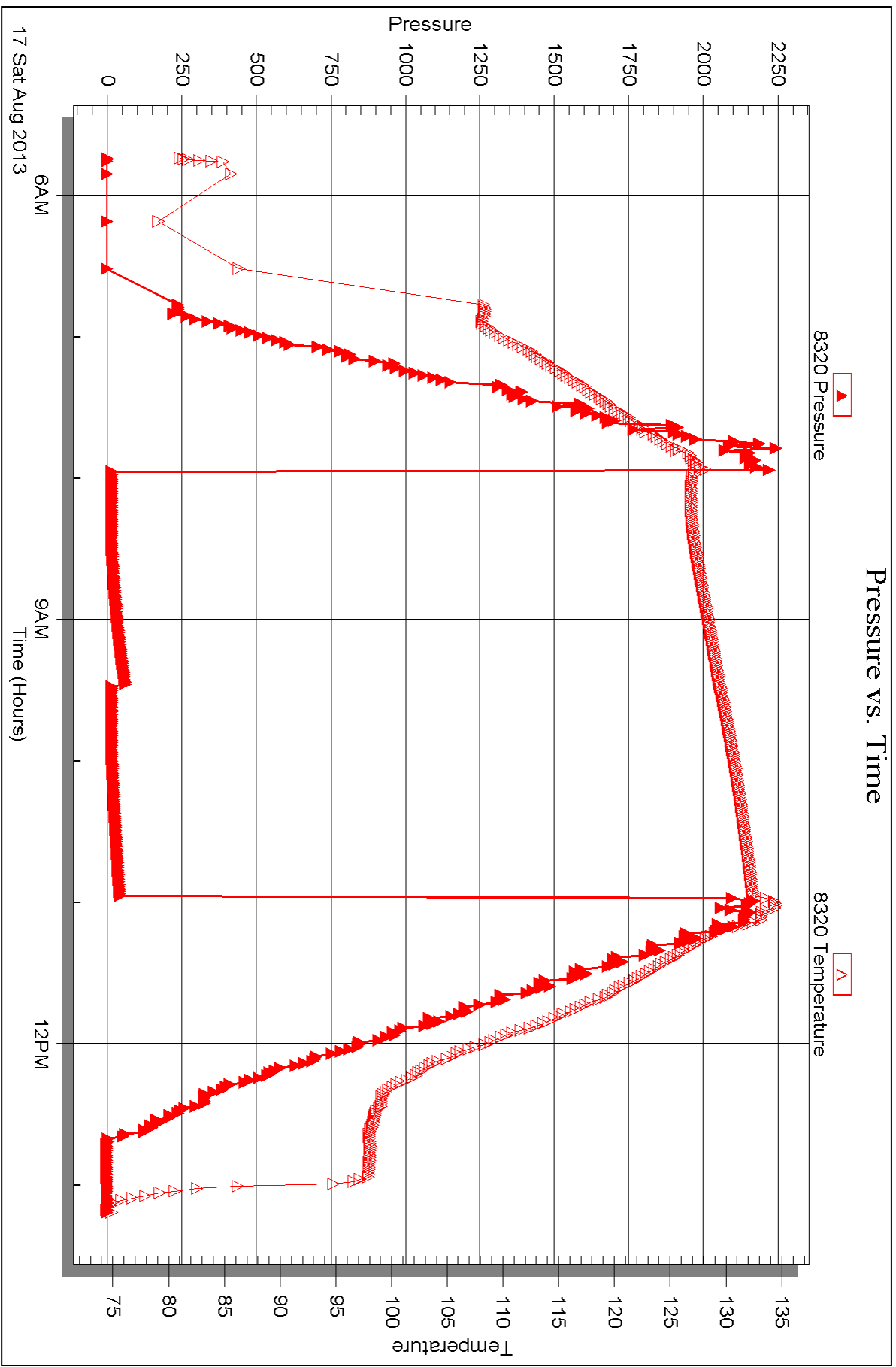


Serial #: 8320

Outside Murfin Drilling Co., Inc.

CWA 'C' #1-32

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water Suite 300
Wichita, KS 672020

ATTN: Saman Sharifaie

CWA 'C' #1-32

32-2s-36w Rawlins KS

Start Date: 2013.08.18 @ 11:58:00

End Date: 2013.08.18 @ 16:01:45

Job Ticket #: 52663 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.20 @ 15:31:19



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52663

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 11:58:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:51:45

Time Test Ended: 16:01:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

Interval: 4658.00 ft (KB) To 4706.00 ft (KB) (TVD)

Reference Elevations: 3363.00 ft (KB)

Total Depth: 4706.00 ft (KB) (TVD)

3358.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671 Inside

Press @ Run Depth: psig @ 4659.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.18

End Date:

2013.08.18

Last Calib.:

2013.08.18

Start Time: 11:58:05

End Time:

16:01:45

Time On Btm:

2013.08.18 @ 13:51:30

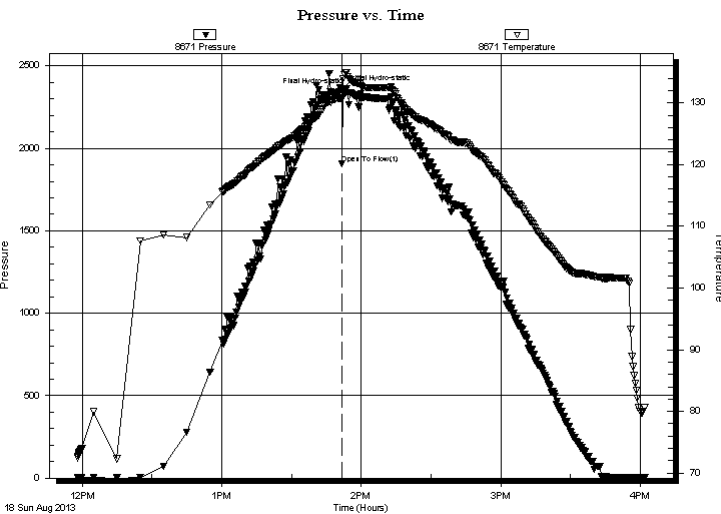
Time Off Btm:

2013.08.18 @ 13:55:15

TEST COMMENT: Mis-Run

Packer Failure - Reset tool - Failed again

Pulled tool



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2357.15	130.73	Initial Hydro-static
1	1904.50	130.46	Open To Flow (1)
4	2334.95	133.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
165.00	Mud 100%	0.81

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 Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52663

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 11:58:00

Tool Information

Drill Pipe:	Length: 4145.00 ft	Diameter: 3.80 inches	Volume: 58.14 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: 505.00 ft	Diameter: 2.25 inches	Volume: 2.48 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 60.62 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4658.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	76.00 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			4635.00	
Hydraulic tool	5.00			4640.00	
Jars	5.00			4645.00	
Safety Joint	3.00			4648.00	
Packer	5.00			4653.00	28.00 Bottom Of Top Packer
Packer	5.00			4658.00	
Stubb	1.00			4659.00	
Recorder	0.00	8671	Inside	4659.00	
Recorder	0.00	8320	Outside	4659.00	
Perforations	11.00			4670.00	
Blank Spacing	33.00			4703.00	
Bullnose	3.00			4706.00	48.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52663

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 11:58:00

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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 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
165.00	Mud 100%	0.811

Total Length: 165.00 ft Total Volume: 0.811 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

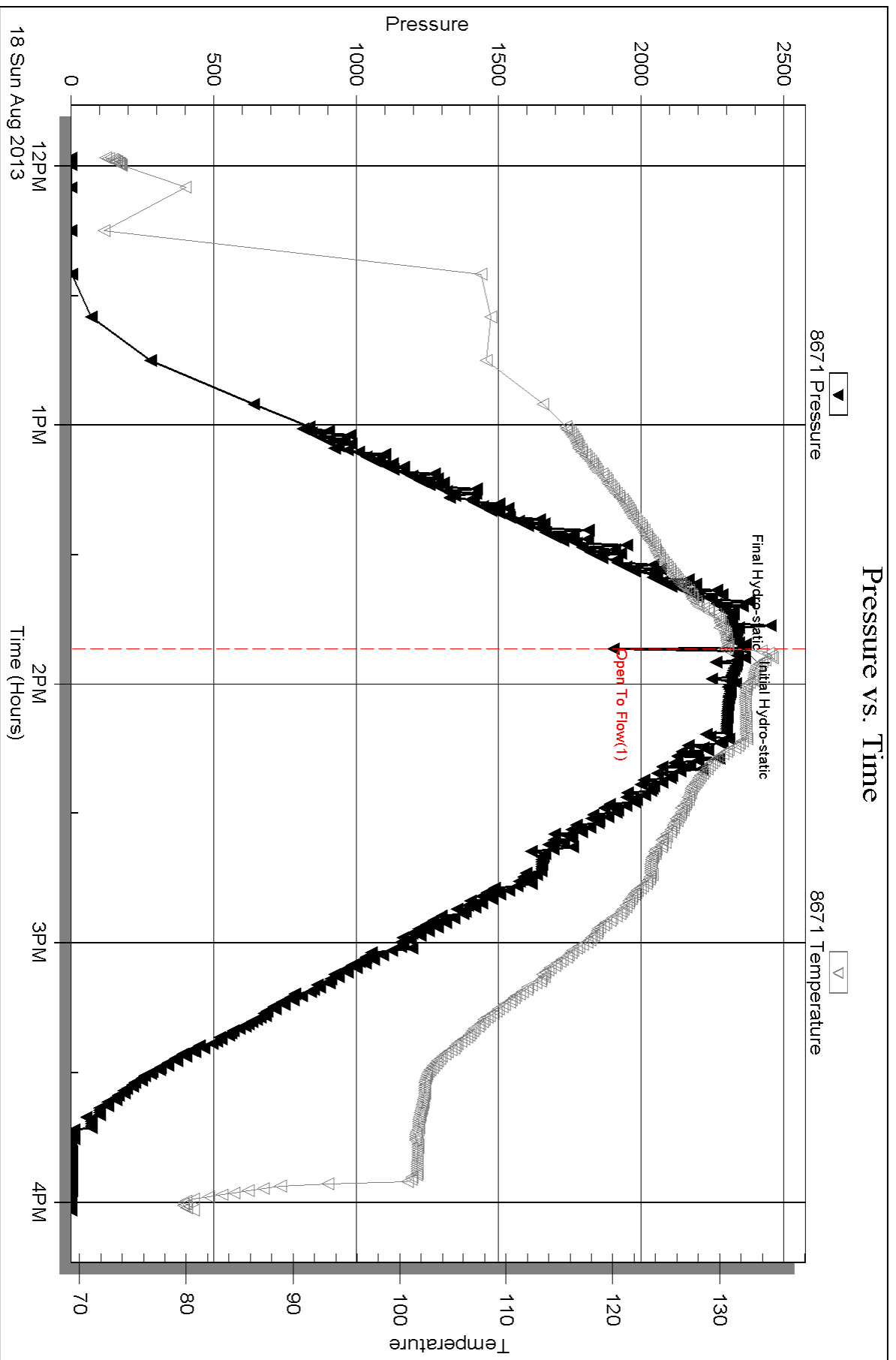
Serial #: 8671

Inside

Murfin Drilling Co., Inc.

CMA 'C' #1-32

DST Test Number: 4

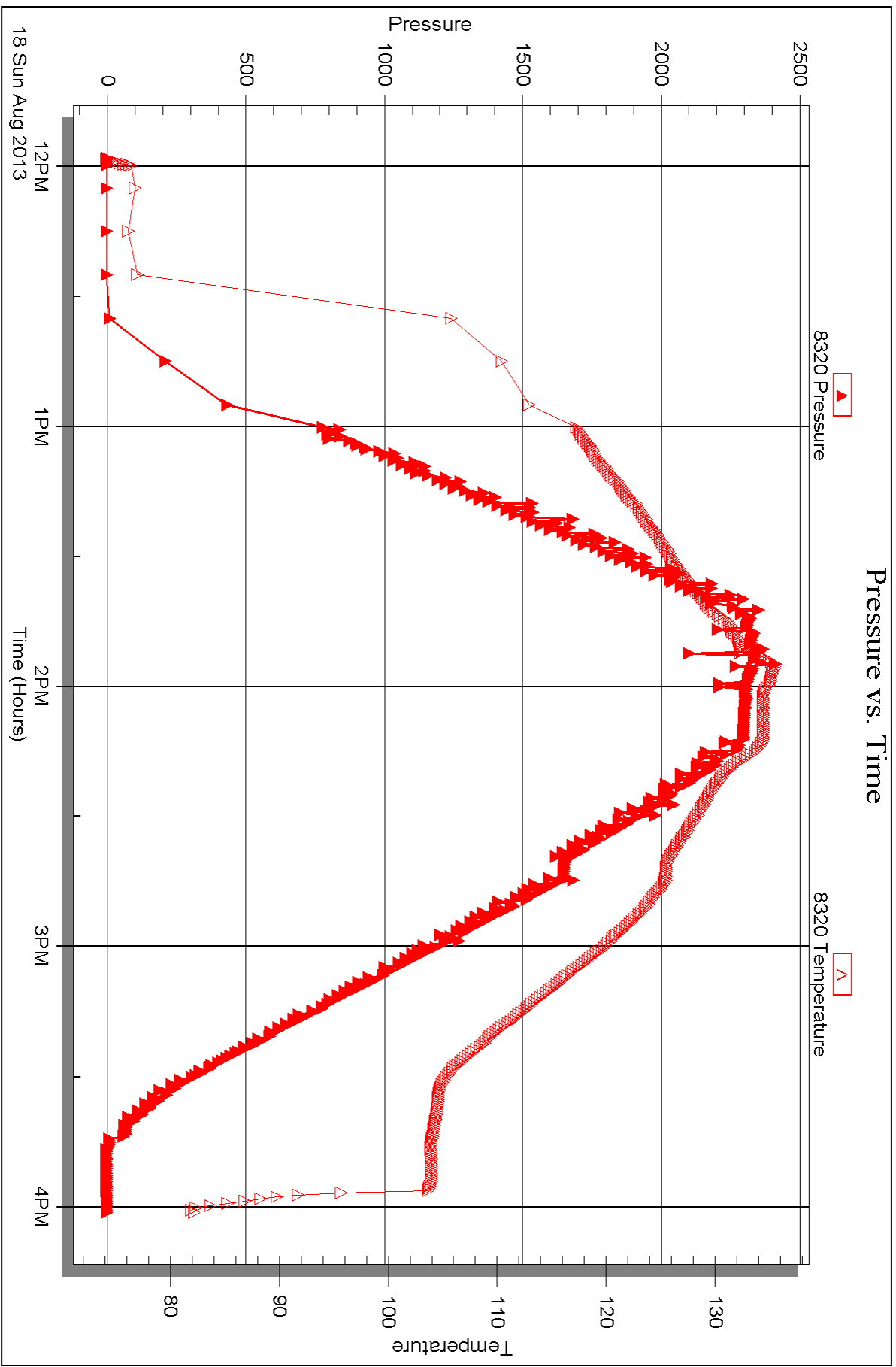


Serial #: 8320

Outside Murfin Drilling Co., Inc.

CMA 'C' #1-32

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water Suite 300
Wichita, KS 672020

ATTN: Saman Sharifaie

CWA 'C' #1-32

32-2s-36w Rawlins KS

Start Date: 2013.08.18 @ 16:27:00

End Date: 2013.08.18 @ 23:11:00

Job Ticket #: 52664 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.20 @ 15:30:09



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52664

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 16:27:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:59:30

Time Test Ended: 23:11:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

Interval: 4651.00 ft (KB) To 4706.00 ft (KB) (TVD)

Reference Elevations: 3363.00 ft (KB)

Total Depth: 4706.00 ft (KB) (TVD)

3358.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671

Inside

Press @ Run Depth: 24.02 psig @ 4652.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.18

End Date:

2013.08.18

Last Calib.:

2013.08.18

Start Time:

16:27:05

End Time:

23:10:59

Time On Btm:

2013.08.18 @ 17:59:15

Time Off Btm:

2013.08.18 @ 20:59:45

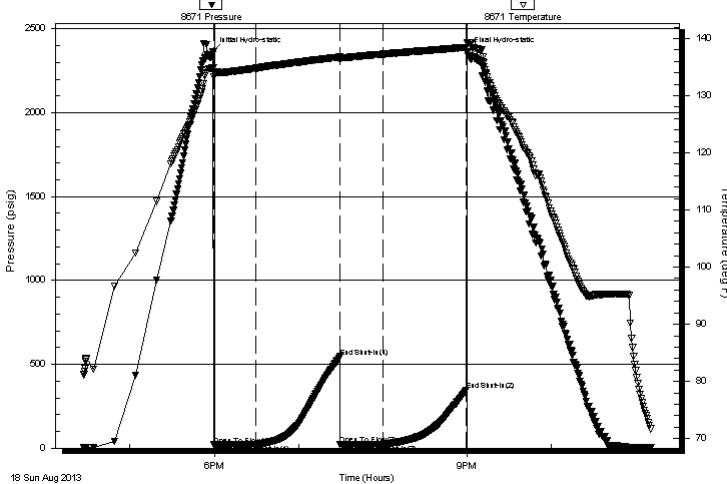
TEST COMMENT: 30 - IF: Blow built to 3/4" then died back to surface blow at close

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2362.91	134.87	Initial Hydro-static
1	19.13	133.24	Open To Flow (1)
30	22.34	134.78	Shut-In(1)
91	545.29	136.76	End Shut-In(1)
91	22.61	136.36	Open To Flow (2)
121	24.02	137.25	Shut-In(2)
180	343.59	138.46	End Shut-In(2)
181	2363.90	139.27	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	OSM 97% m, 3% o	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52664

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 16:27:00

Tool Information

Drill Pipe:	Length: 4145.00 ft	Diameter: 3.80 inches	Volume: 58.14 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: 505.00 ft	Diameter: 2.25 inches	Volume: 2.48 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.62 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4651.00 ft			Final 70000.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4628.00	
Hydraulic tool	5.00			4633.00	
Jars	5.00			4638.00	
Safety Joint	3.00			4641.00	
Packer	5.00			4646.00	28.00 Bottom Of Top Packer
Packer	5.00			4651.00	
Packer - Shale	0.00			4651.00	
Stubb	1.00			4652.00	
Recorder	0.00	8671	Inside	4652.00	
Recorder	0.00	8320	Outside	4652.00	
Perforations	18.00			4670.00	
Blank Spacing	33.00			4703.00	
Bullnose	3.00			4706.00	55.00 Bottom Packers & Anchor

Total Tool Length: 83.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

32-2s-36w Rawlins KS

250 N. Water Suite 300
Wichita, KS 672020

CWA 'C' #1-32

Job Ticket: 52664

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2013.08.18 @ 16:27:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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
30.00	OSM 97% _m , 3% _o	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

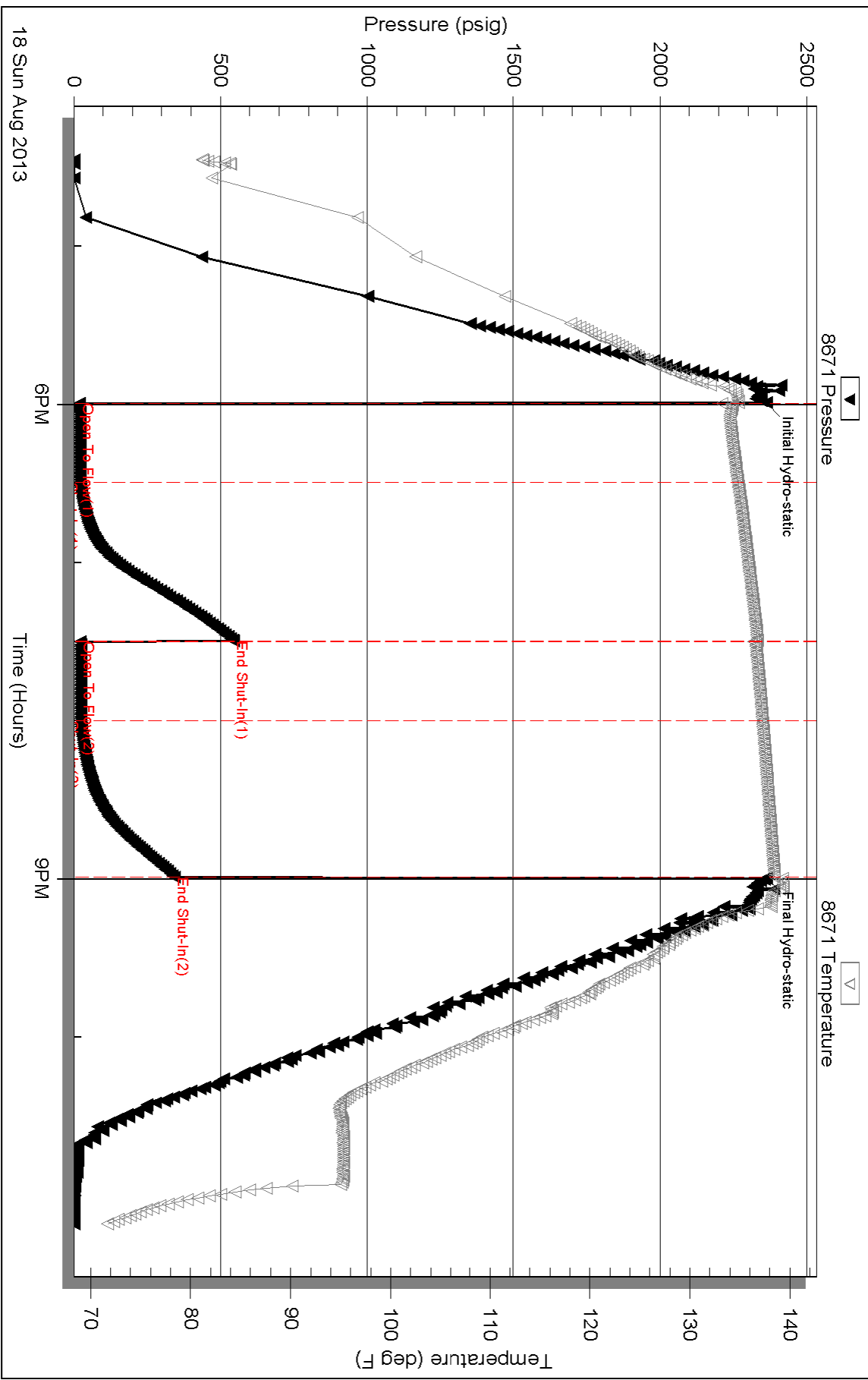
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

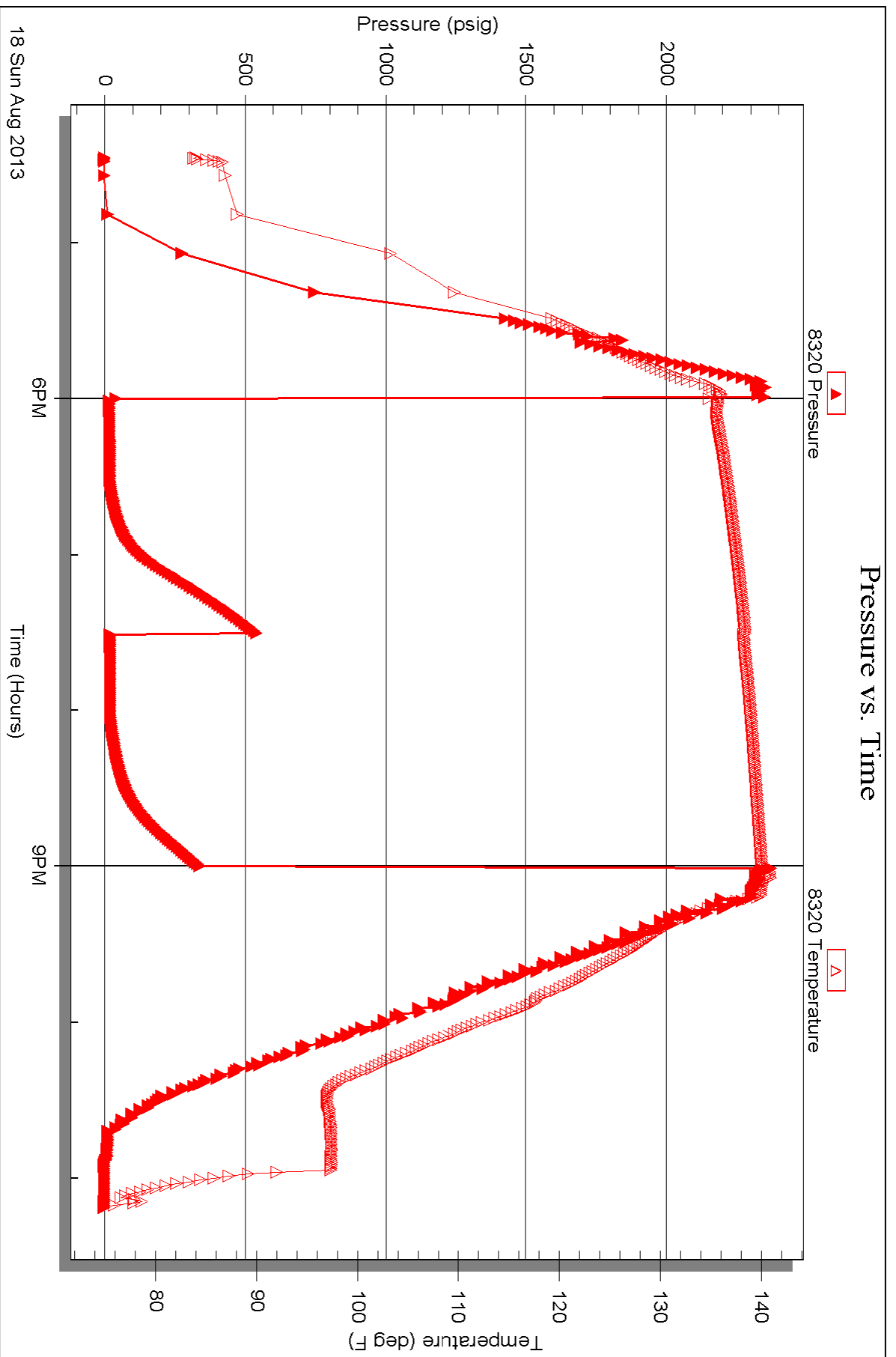


Serial #: 8320

Outside Murfin Drilling Co., Inc.

CMA 'C' #1-32

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52660

Well Name & No. CWA "C" #1-32 Test No. 1 Date 8-15-13
 Company Murfin Drilling Co. Inc Elevation 3363 KB 3358 GL
 Address 250 N. Water Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 32 Twp. 2s Rge. 36w Co. Rawlins State KS

Interval Tested 4268-4330 Zone Tested LKC "A"
 Anchor Length 62 Drill Pipe Run 3741 Mud Wt. 9.0
 Top Packer Depth 4263 Drill Collars Run 505 Vis 65
 Bottom Packer Depth 4268 Wt. Pipe Run - WL 5.2
 Total Depth 4330 Chlorides 600 ppm System LCM 1
 Blow Description IF: Blow built to BOB (11") in 22 1/2 min.
ISI: No blowback
FF: Blow started around 2 min, built to BOB ^{at} 41 min.
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
30	MO	-	60	-	40
125	GOCM	12	15	-	73
357	GMO	30	37	-	33
59	GOWCM	21	11	12	56
59	GOCM	18	8	-	74

Rec Total 630 Fluid 30' 5" IP BHT 136 Gravity 21.2 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2100 Test * 1250 T-On Location 11:15
 (B) First Initial Flow 20 Jars * 250 T-Started 12:21
 (C) First Final Flow 163 Safety Joint * 75 T-Open 14:10
 (D) Initial Shut-In 1112 Circ Sub * T-Pulled ~~18:13~~ 18:13
 (E) Second Initial Flow 170 Hourly Standby T-Out 20:30
 (F) Second Final Flow 290 Mileage 98 RT 151.90 Comments _____
 (G) Final Shut-In 974 Sampler _____
 (H) Final Hydrostatic 2086 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1726.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1726.90

Approved By [Signature] Our Representative James Winder
 Trilobite Testing Inc. shall not be liable for damaged or 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. 52661

Well Name & No. CWA 'C' #1-32 Test No. 2 Date 8-16-13
 Company Murfin Drilling Co. Inc Elevation 3363 KB 3358 GL
 Address 250 N. Water Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 32 Twp. 2s Rge. 36w Co. Rawlins State KS

Interval Tested 4304 - 4420 Zone Tested LKC "B-G"
 Anchor Length 116 Drill Pipe Run 3804 Mud Wt. 9.1
 Top Packer Depth 4309 Drill Collars Run 505 Vis 52
 Bottom Packer Depth 4314 Wt. Pipe Run - WL 5.6
 Total Depth 4430 Chlorides 800 ppm System LCM 1

Blow Description IF: Blow built to BOB (11") in 20 min.
ISI: No blowback
FF: Blow built to BOB in 28 min.
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
245	60cm	9	36	-	55
295	60wcm	19	18	21	42
180	50/6wcm	9	4	35	52
		%gas	%oil	%water	%mud
		%gas	%oil	%water	%mud

Rec Total 720 BHT 136 Gravity 21 API RW .452 @ 82.4 °F Chlorides 12,000 ppm

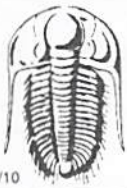
(A) Initial Hydrostatic 2121 Test * 1250 T-On Location 9:10
 (B) First Initial Flow 32 Jars * 250 T-Started 9:40
 (C) First Final Flow 201 Safety Joint * 75 T-Open 11:35
 (D) Initial Shut-In 1235 Circ Sub *NA T-Pulled 15:37
 (E) Second Initial Flow 209 Hourly Standby _____ T-Out 18:00
 (F) Second Final Flow 334 Mileage 98RT 151.90
 (G) Final Shut-In 1246 Sampler _____
 (H) Final Hydrostatic 2108 Straddle _____

Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1726.90
 Total 1726.90
 MP/DST Disc't _____

Approved By [Signature] Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52662

Well Name & No. CWA 'C' #1-32 Test No. 3 Date 8-17-13
 Company Murfin Drilling Co., Inc Elevation 3363 KB 3358 GL
 Address 250 N. Water Suite 300 Wichita KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 32 Twp. 25 Rge. 36w Co. Rawlins State KS

Interval Tested 4469-4510 Zone Tested LKC "J"
 Anchor Length 41 Drill Pipe Run 3958 Mud Wt. 9.0
 Top Packer Depth 4464 Drill Collars Run 505 Vis 62
 Bottom Packer Depth 4469 Wt. Pipe Run - WL 5.2
 Total Depth 4510 Chlorides 800 ppm System LCM 1
 Blow Description IF: Blow built to 1/4" then died back, dead at 20 min.
ISI: No blowback
FF: No blow
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>OSM</u>	<u>-</u>	<u>3</u>	<u>-</u>	<u>97</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 2192 Test * 1250 T-On Location 5:15
 (B) First Initial Flow 18 Jars * 250 T-Started 5:44
 (C) First Final Flow 20 Safety Joint * 75 T-Open 7:56
 (D) Initial Shut-In 66 Circ Sub *NA T-Pulled 10:56
 (E) Second Initial Flow 19 Hourly Standby _____ T-Out 13:05
 (F) Second Final Flow 20 Mileage 98RT 151.90 Comments _____
 (G) Final Shut-In 46 Sampler _____
 (H) Final Hydrostatic 2182 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____

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

Sub Total 1726.90
 Total 1726.90
 MP/DST Disc't _____

Approved By 

Our Representative Gomer Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52663

Well Name & No. CWA "C" #1-32 Test No. 4 Date 8-18-13
 Company Murfin Drilling Co. Inc Elevation 3363 KB 3358 GL
 Address 250 N. Water Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 32 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4658 - 4706 Zone Tested Pawnee
 Anchor Length 48 Drill Pipe Run 4145 Mud Wt. 9.1
 Top Packer Depth 4653 Drill Collars Run 505 Vis 56
 Bottom Packer Depth 4658 Wt. Pipe Run - WL 5.6
 Total Depth 4706 Chlorides 800 ppm System LCM 2
 Blow Description Mis-Run
Packer Failure - Reset - Failed again
Pulled tool

Rec	Feet of	%gas	%oil	%water	%mud
<u>165</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 165 BHT - Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic ~~_____~~ Test * 1050 T-On Location 11:00
 (B) First Initial Flow ~~_____~~ Jars * 250 T-Started 11:58
 (C) First Final Flow ~~_____~~ Safety Joint * 75 T-Open 13:51
 (D) Initial Shut-In ~~_____~~ Circ Sub *NA T-Pulled 13:55
 (E) Second Initial Flow ~~_____~~ Hourly Standby T-Out 16:00
 (F) Second Final Flow ~~_____~~ Mileage 98 + 20 = 118RT 182.90 Comments Started to Rig got
 (G) Final Shut-In ~~_____~~ Sampler _____ called - said they need to
 (H) Final Hydrostatic ~~_____~~ Straddle _____ short trip - 20mi RT
 Shale Packer _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer * 320
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1877.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1557.90

Approved By _____ Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52664

Well Name & No. CWA "C" #1-32 Test No. 5 Date 8-18-13
 Company Murfin Drilling Co. Inc. Elevation 3363 KB 3358 GL
 Address 250 N. Water Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 32 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4651 - 4706 Zone Tested Pawnee
 Anchor Length 55 Drill Pipe Run 4145 Mud Wt. 9.1
 Top Packer Depth 4646 Drill Collars Run 505 Vis 56
 Bottom Packer Depth 4651 Wt. Pipe Run - WL 5.6
 Total Depth 4706 Chlorides 800 ppm System LCM 2

Blow Description IF: Blow built to 3/4" then died back to surface at close.
ISI: No blowback
FF: No blow
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>05m</u>	<u>-</u>	<u>3</u>	<u>-</u>	<u>97</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 30 BHT 138 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2363 Test ★ 1250 T-On Location 16:15
 (B) First Initial Flow 19 Jars ★ 250 T-Started 16:27
 (C) First Final Flow 22 Safety Joint ★ 75 T-Open 17:59
 (D) Initial Shut-In 545 Circ Sub ★ T-Pulled 20:59
 (E) Second Initial Flow 23 Hourly Standby T-Out 23:05
 (F) Second Final Flow 24 Mileage - Comments _____
 (G) Final Shut-In 344 Sampler _____
 (H) Final Hydrostatic 2364 Straddle _____ Ruined Shale Packer ★ 350

Initial Open 30 Shale Packer ★ 250 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 2175
 Accessibility _____ MP/DST Disc't _____
 Sub-Total 1825

Approved By [Signature] Our Representative James Winder

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