



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44846

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2011.11.18 @ 12:45:48

GENERAL INFORMATION:

Formation: **Toronto LKC "A,B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:55:48

Time Test Ended: 21:22:18

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 47

Interval: 3449.00 ft (KB) To 3534.00 ft (KB) (TVD)

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3534.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ Run Depth: 98.80 psig @ 3450.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.18

End Date: 2011.11.18

Last Calib.: 2011.11.18

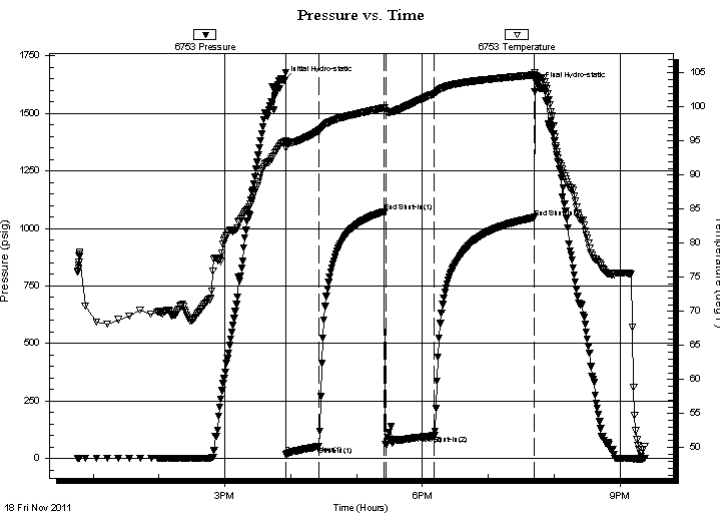
Start Time: 12:45:53

End Time: 21:22:18

Time On Btm: 2011.11.18 @ 15:53:18

Time Off Btm: 2011.11.18 @ 19:45:18

TEST COMMENT: IF-3.5in blow
ISI-No blow
FF-2.25in blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.56	94.81	Initial Hydro-static
3	18.48	94.03	Open To Flow (1)
32	52.75	96.49	Shut-In(1)
92	1073.05	99.92	End Shut-In(1)
93	60.98	99.43	Open To Flow (2)
138	98.80	101.97	Shut-In(2)
229	1047.69	104.72	End Shut-In(2)
232	1614.48	104.39	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	WCM 35%W 65% m	0.15
120.00	Water	0.59

Gas Rates

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



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250 N Water STE 300
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Dorzweiler #1-3

Job Ticket: 44846

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2011.11.18 @ 12:45:48

GENERAL INFORMATION:

Formation: **Toronto LKC "A,B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:55:48

Time Test Ended: 21:22:18

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 47

Interval: 3449.00 ft (KB) To 3534.00 ft (KB) (TVD)

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3534.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8369 Outside

Press @ Run Depth: psig @ 3450.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.18 End Date: 2011.11.18

Last Calib.: 2011.11.18

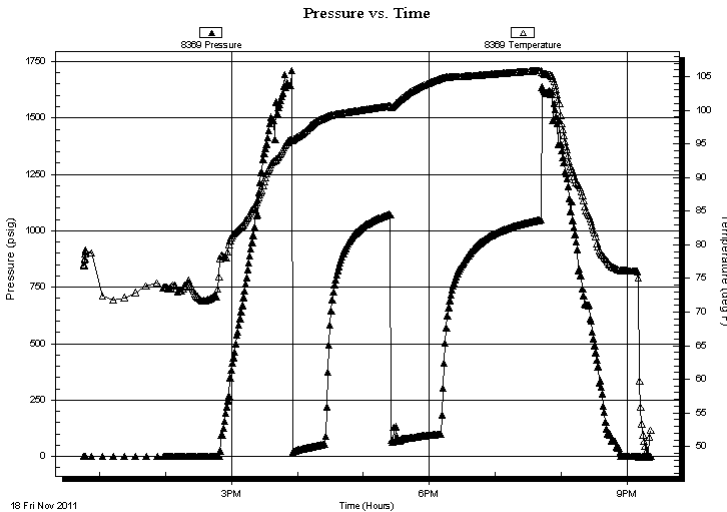
Start Time: 12:45:14 End Time: 21:22:09

Time On Btm:

Time Off Btm:

TEST COMMENT: IF-3.5in blow
ISI-No blow
FF-2.25in blow
FSI-No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	WCM 35%W 65% m	0.15
120.00	Water	0.59

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44846

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2011.11.18 @ 12:45:48

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:

90000 ppm

Viscosity: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.00 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	WCM 35%W 65%m	0.148
120.00	Water	0.590

Total Length: 150.00 ft Total Volume: 0.738 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .14 @ 45

Serial #: 6753

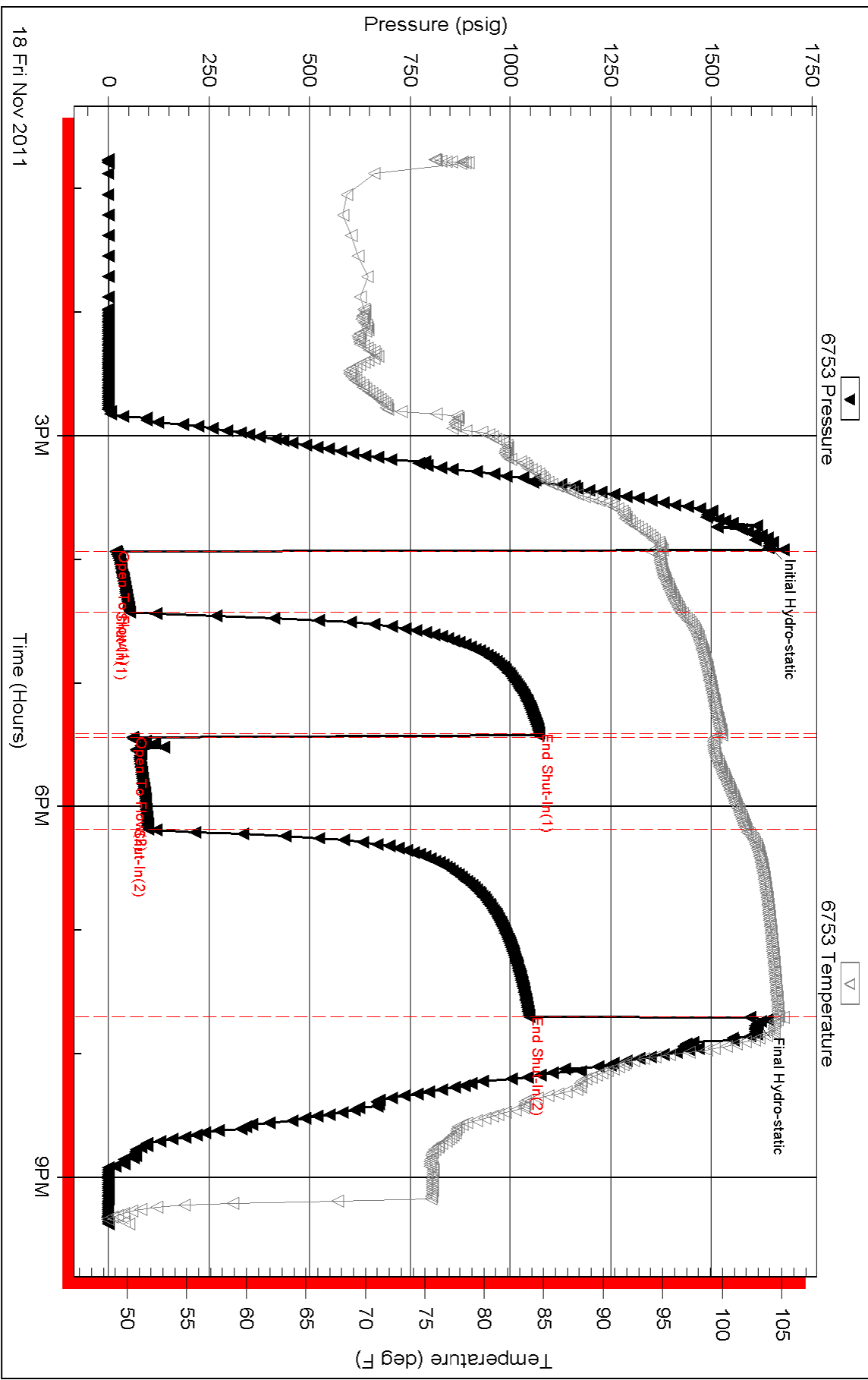
Inside

Murfin Drilling CO., Inc.

Dorzweller #1-3

DST Test Number: 1

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 44846

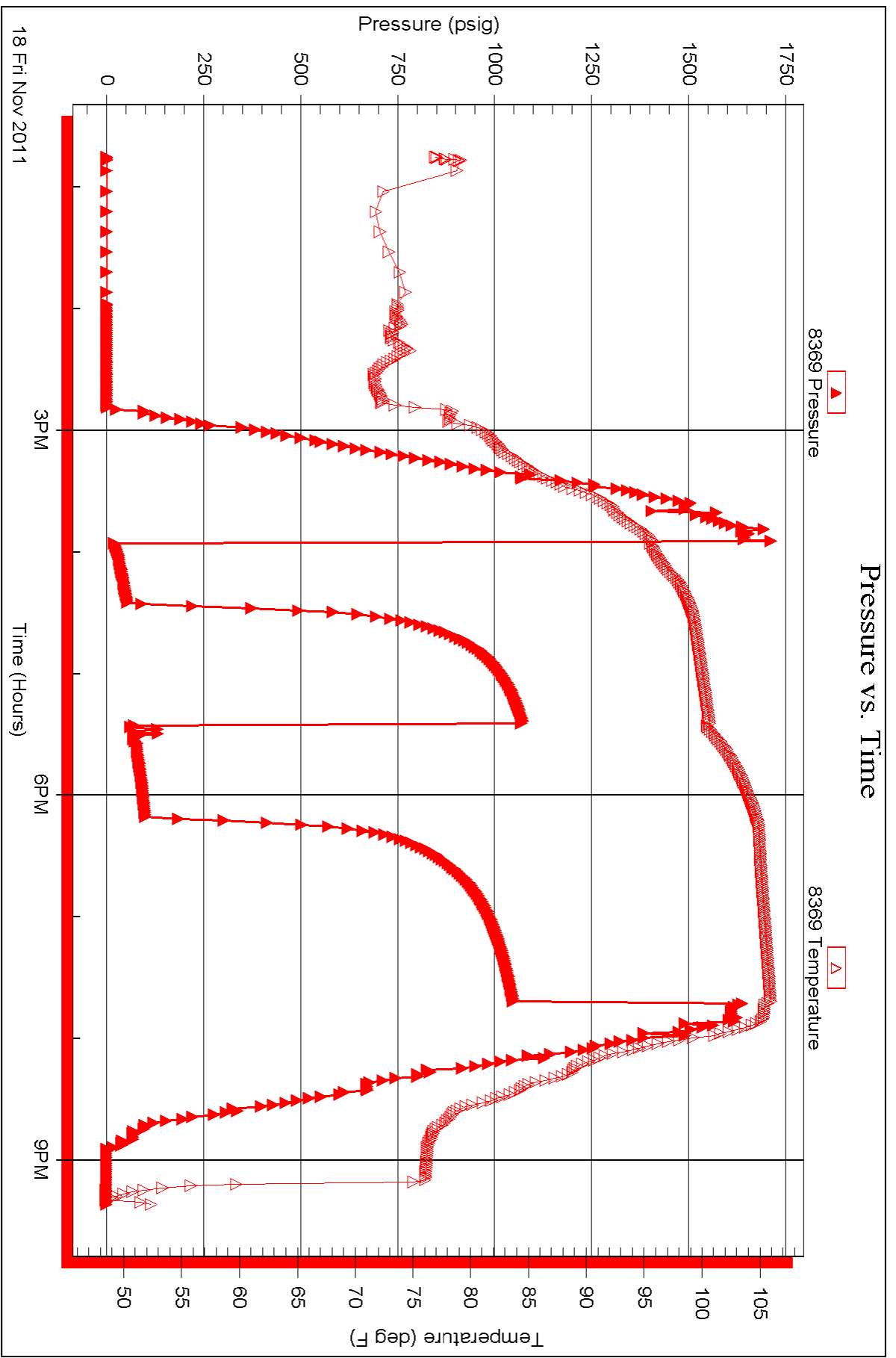
Printed: 2011.11.19 @ 10:57:30

Serial #: 8369

Outside Murfin Drilling CO. Inc.

Dorzweller #1-3

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 44846

Printed: 2011.11.19 @ 10:57:30



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44847

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2011.11.19 @ 06:05:25

GENERAL INFORMATION:

Formation: **KC"D-F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:26:55

Time Test Ended: 12:56:25

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 47

Interval: 3535.00 ft (KB) To 3580.00 ft (KB) (TVD)

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3580.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ Run Depth: 23.30 psig @ 3536.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.19

End Date: 2011.11.19

Last Calib.: 2011.11.19

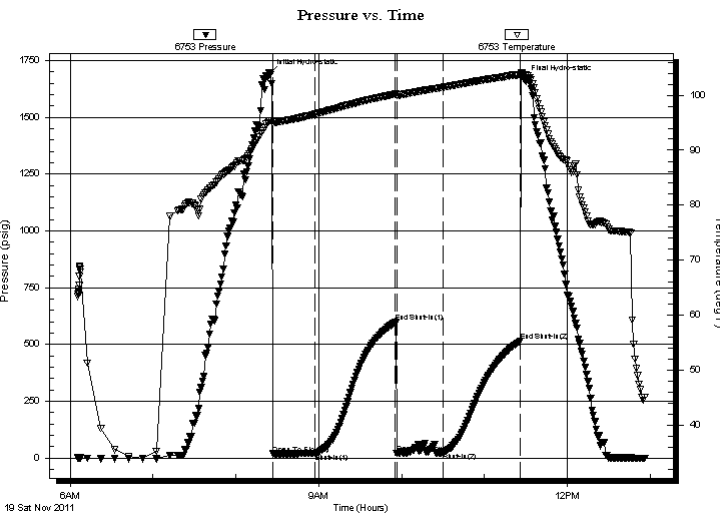
Start Time: 06:05:30

End Time: 12:56:24

Time On Btm: 2011.11.19 @ 08:24:25

Time Off Btm: 2011.11.19 @ 11:28:55

TEST COMMENT: IF-3/4in blow
ISI-No blow
FF-No blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1693.87	95.38	Initial Hydro-static
3	18.06	94.85	Open To Flow (1)
33	20.07	96.55	Shut-In(1)
91	597.53	100.18	End Shut-In(1)
92	20.60	100.00	Open To Flow (2)
126	23.30	101.43	Shut-In(2)
182	515.11	103.73	End Shut-In(2)
185	1666.46	103.77	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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



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FLUID SUMMARY

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44847

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2011.11.19 @ 06:05:25

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Oilspotted Mud	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

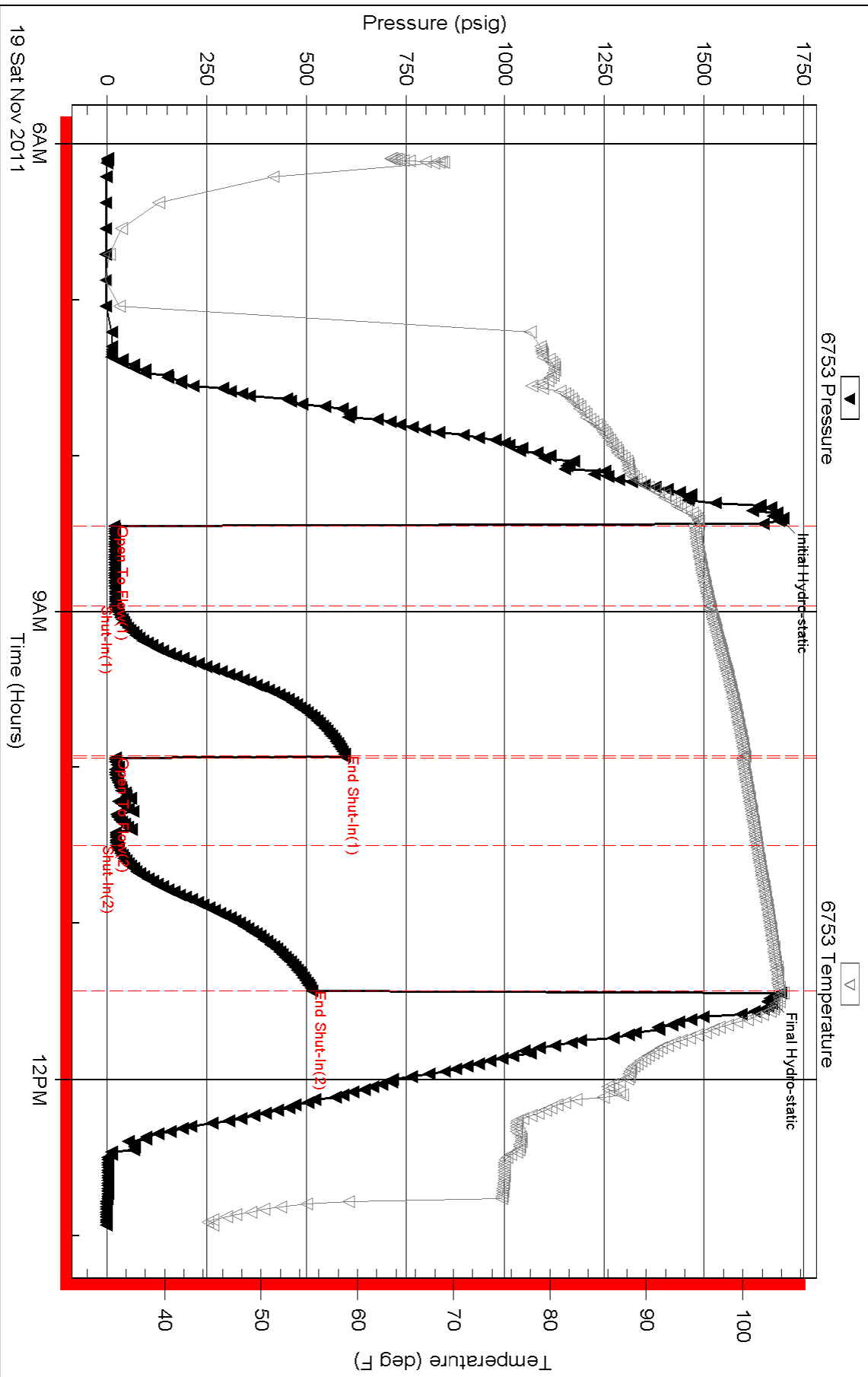
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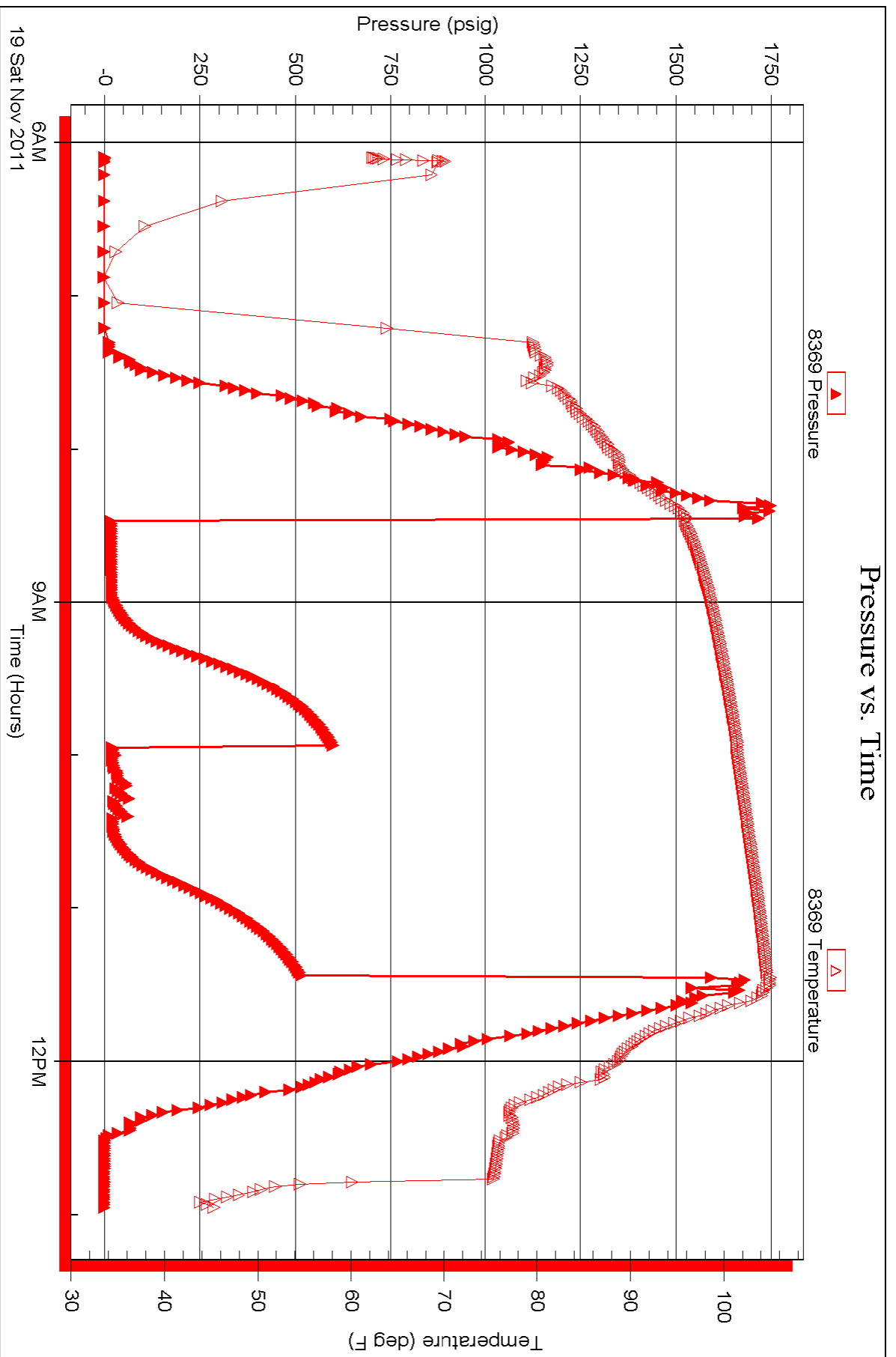
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44848

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2011.11.20 @ 00:25:20

GENERAL INFORMATION:

Formation: **KC "H-J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:26:20
 Time Test Ended: 09:41:20
 Interval: **3612.00 ft (KB) To 3685.00 ft (KB) (TVD)**
 Total Depth: 3685.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brett Dickinson
 Unit No: 47
 Reference Elevations: 2191.00 ft (KB)
 2186.00 ft (CF)
 KB to GR/CF: 5.00 ft

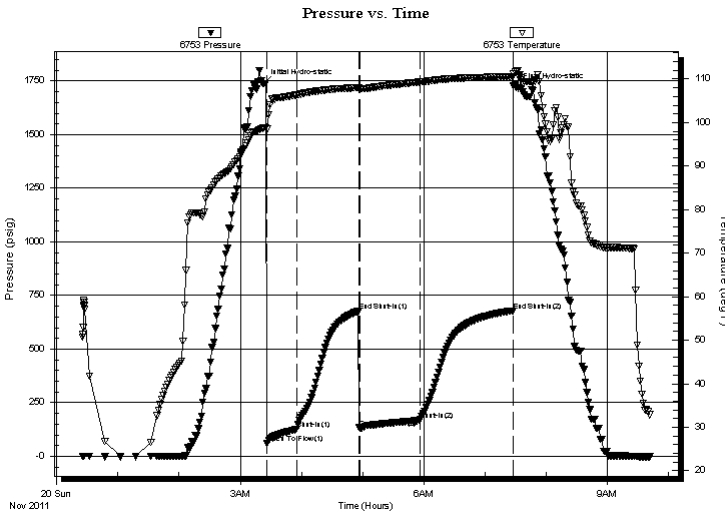
Serial #: 6753

Inside

Press @ Run Depth: 166.66 psig @ 3613.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2011.11.20 End Date: 2011.11.20 Last Calib.: 2011.11.20
 Start Time: 00:25:25 End Time: 09:41:20 Time On Btm: 2011.11.20 @ 03:23:20
 Time Off Btm: 2011.11.20 @ 07:30:50

TEST COMMENT: IF-BOB in 3min
 ISI-1in blow died back to 1/4in
 FF-BOB in 5 1/2min
 FS-3in blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1738.50	98.79	Initial Hydro-static
3	59.95	98.51	Open To Flow (1)
32	123.97	106.36	Shut-In(1)
93	676.74	108.04	End Shut-In(1)
94	131.32	107.81	Open To Flow (2)
153	166.66	109.30	Shut-In(2)
244	678.93	110.60	End Shut-In(2)
248	1719.71	111.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	VGSMCO 60%G 35%O 5%M	0.59
60.00	GMCO 20%G 50%O 30%M	0.30
220.00	VGMCO 60%G 30%O 10%M	3.09
0.00	1030ft GIP	0.00

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44848

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2011.11.20 @ 00:25:20

GENERAL INFORMATION:

Formation: **KC "H-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:26:20

Time Test Ended: 09:41:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 47

Interval: **3612.00 ft (KB) To 3685.00 ft (KB) (TVD)**

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3685.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: **8319** Outside

Press @ Run Depth: psig @ 3613.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.20

End Date:

2011.11.20

Last Calib.:

2011.11.20

Start Time: 00:25:41

End Time:

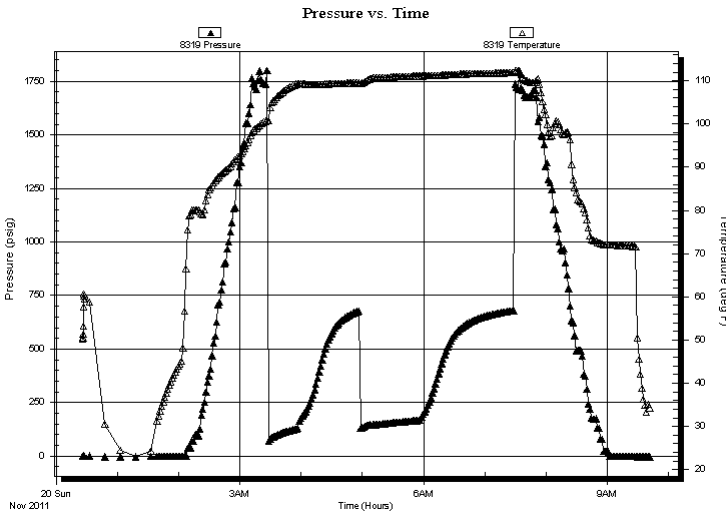
09:42:06

Time On Btm:

Time Off Btm:

TEST COMMENT: IF-BOB in 3min
ISI-1in blow died back to 1/4in
FF-BOB in 5 1/2min
FSI-3in blow

PRESSURE SUMMARY



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

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
120.00	VGSMCO 60%G 35%O 5%M	0.59
60.00	GMCO 20%G 50%O 30%M	0.30
220.00	VGCMCO 60%G 30%O 10%M	3.09
0.00	1030ft GIP	0.00

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

* Recovery from multiple tests



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44848

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2011.11.20 @ 00:25:20

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: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.60 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	VGSMCO 60%G 35%O 5%M	0.590
60.00	GMCO 20%G 50%O 30%M	0.295
220.00	VGMCO 60%G 30%O 10%M	3.086
0.00	1030ft GIP	0.000

Total Length: 400.00 ft

Total Volume: 3.971 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

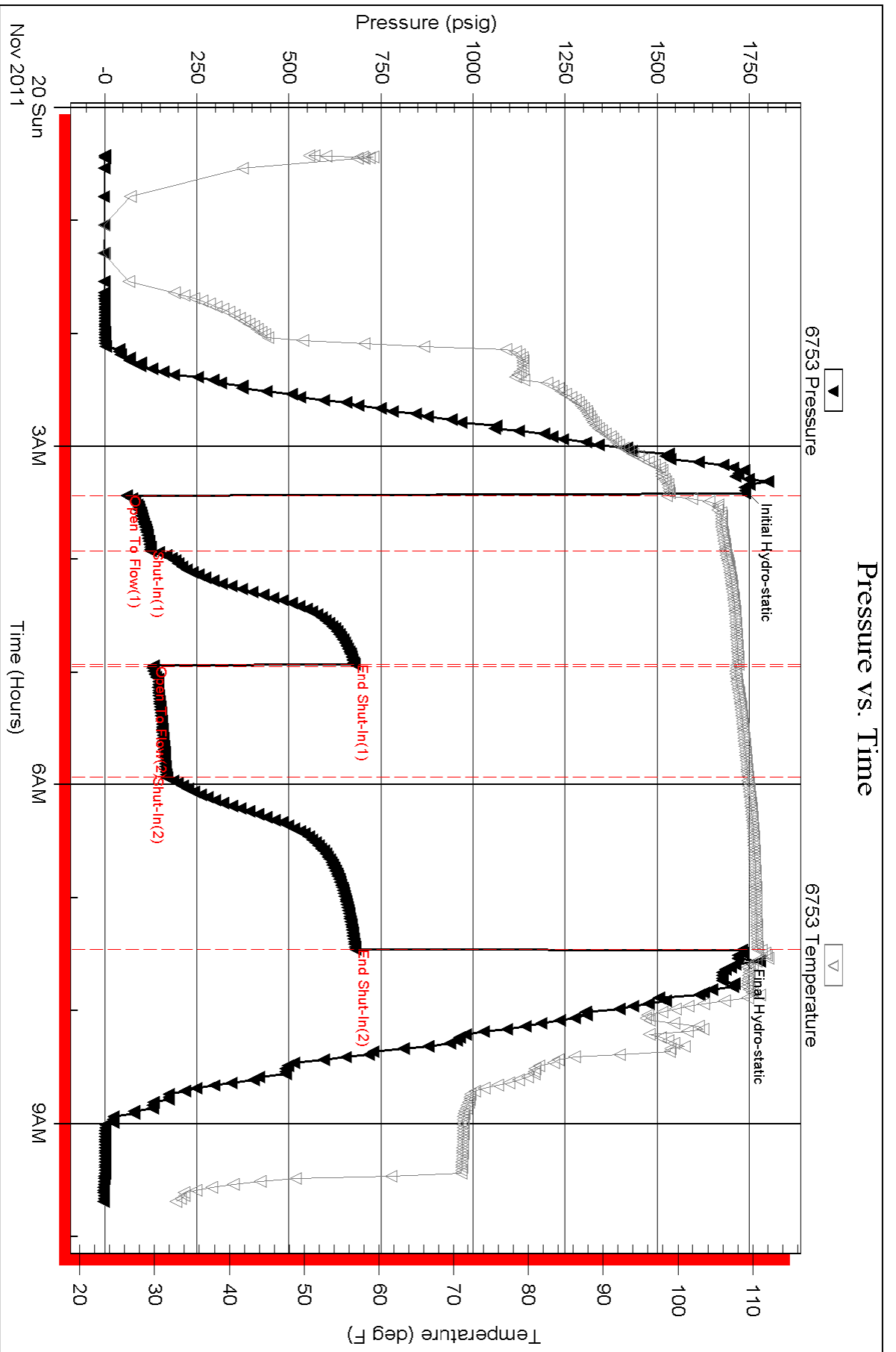
Serial #: 6753

Inside

Murfin Drilling CO. Inc.

Dorzweller #1-3

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 44848

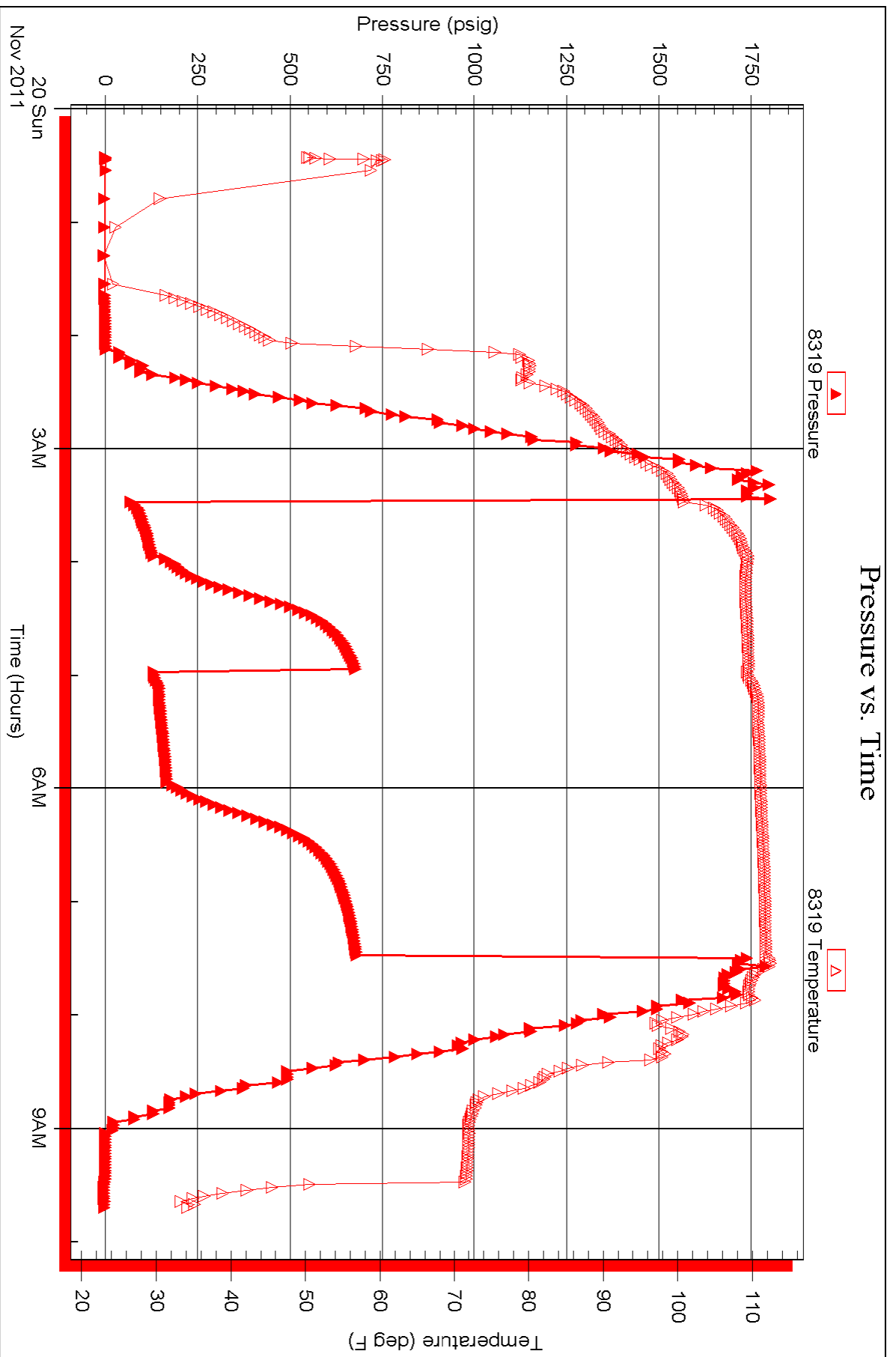
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Serial #: 8319

Outside Murfin Drilling CO, Inc.

Dorzweller #1-3

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 44848

Printed: 2011.11.20 @ 12:21:49



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44849

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2011.11.21 @ 00:55:43

GENERAL INFORMATION:

Formation: **Arb.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:29:43

Time Test Ended: 08:26:43

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 47

Interval: 3836.00 ft (KB) To 3846.00 ft (KB) (TVD)

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3846.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ Run Depth: 20.11 psig @ 3837.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.21

End Date:

2011.11.21

Last Calib.:

2011.11.21

Start Time: 00:55:48

End Time:

08:26:42

Time On Btm:

2011.11.21 @ 03:22:13

Time Off Btm:

2011.11.21 @ 06:32:13

TEST COMMENT:

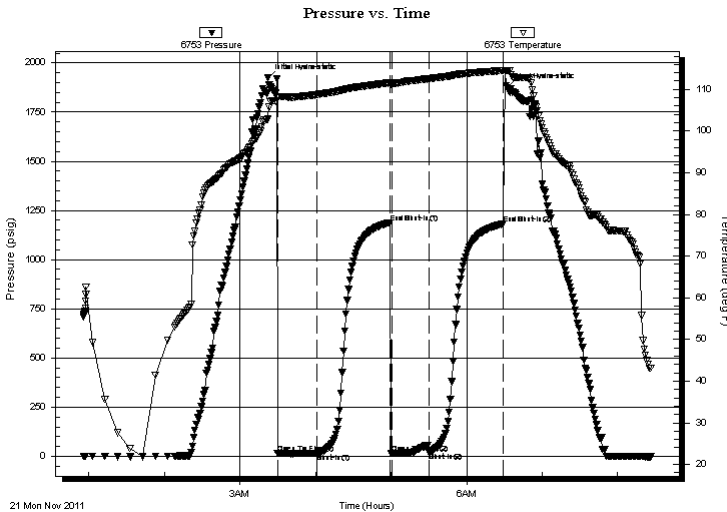
IF-1in blow

ISI-No blow

FF-weak surface blow died in 18min

FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1922.52	102.89	Initial Hydro-static
8	14.43	107.92	Open To Flow (1)
39	14.99	108.74	Shut-In(1)
97	1188.62	111.60	End Shut-In(1)
99	15.19	111.42	Open To Flow (2)
128	20.11	112.59	Shut-In(2)
187	1182.02	114.55	End Shut-In(2)
190	1872.60	114.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	OIL	0.01
1.00	Mud	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44849

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2011.11.21 @ 00:55:43

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.60 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
2.00	OIL	0.010
1.00	Mud	0.005

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

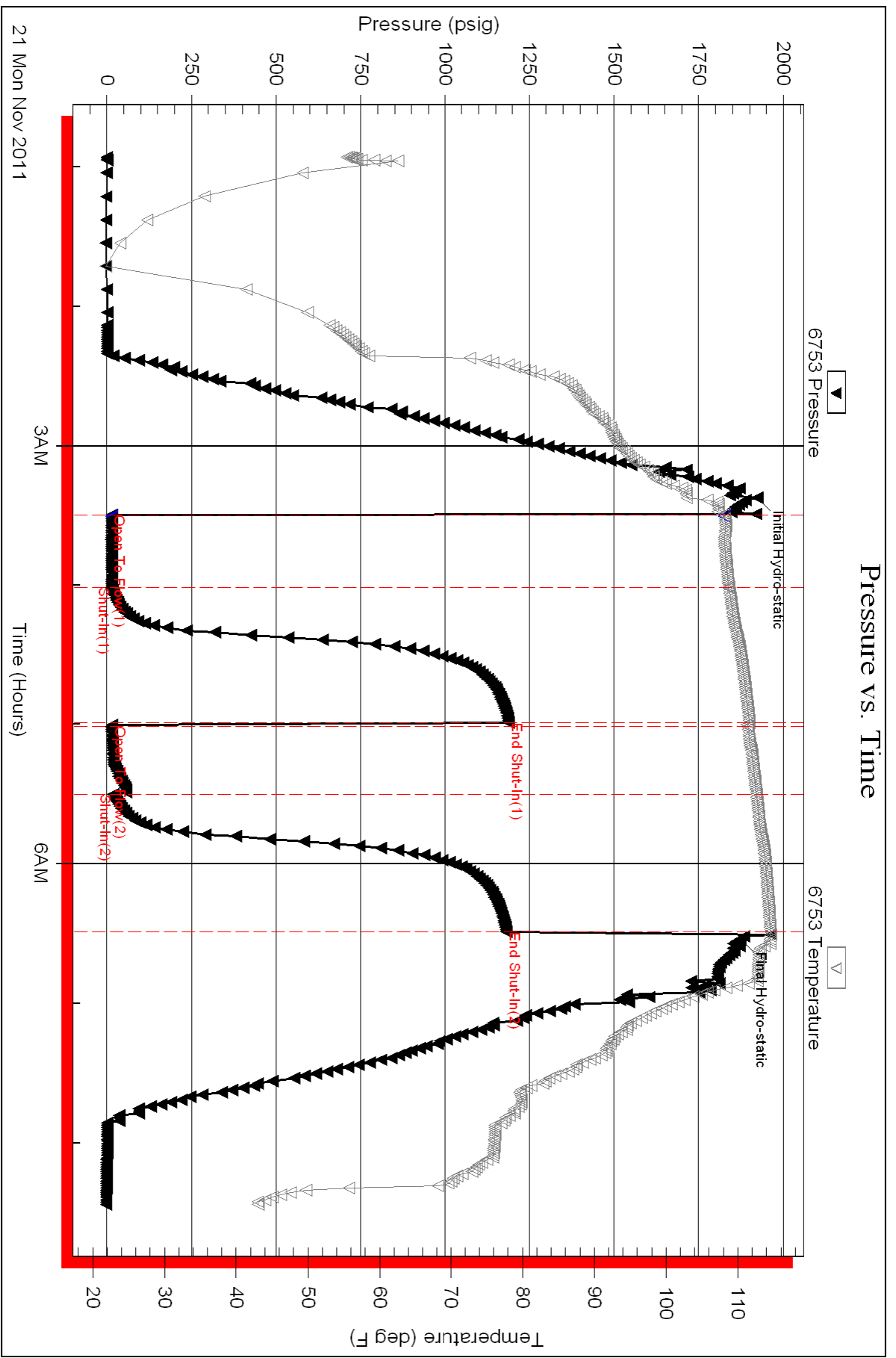
Serial #: 6753

Inside

Murfin Drilling CO. Inc.

Dorzweller #1-3

DST Test Number: 4





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44850

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2011.11.21 @ 13:30:41

GENERAL INFORMATION:

Formation: **Arb.**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:44:11

Time Test Ended: 22:17:11

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 47

Interval: 3846.00 ft (KB) To 3856.00 ft (KB) (TVD)

Reference Elevations: 2191.00 ft (KB)

Total Depth: 3856.00 ft (KB) (TVD)

2186.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ Run Depth: 344.27 psig @ 3847.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.11.21

End Date:

2011.11.21

Last Calib.:

2011.11.21

Start Time: 13:30:46

End Time:

22:17:11

Time On Btm:

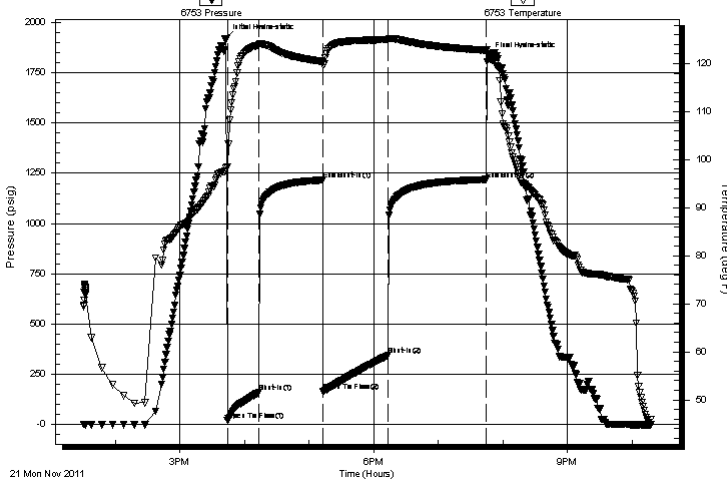
2011.11.21 @ 15:42:11

Time Off Btm:

2011.11.21 @ 19:46:41

TEST COMMENT: IF-BOB in 11min
ISI-1/4in blow
FF-BOB in 11min
FSI-No blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1920.85	97.60	Initial Hydro-static
2	21.31	98.58	Open To Flow (1)
31	159.61	123.82	Shut-In(1)
91	1216.82	120.44	End Shut-In(1)
91	166.64	119.69	Open To Flow (2)
151	344.27	124.96	Shut-In(2)
242	1219.54	122.76	End Shut-In(2)
245	1832.12	121.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
640.00	water	7.34
40.00	Oilspotted VSMCW 10%M 90%W	0.56

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling CO. Inc.

3-14-19, Ellis, KS

250 N Water STE 300
Wichita Ks 67202

Dorzweiler #1-3

Job Ticket: 44850

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2011.11.21 @ 13:30:41

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:

70000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.60 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
640.00	water	7.338
40.00	Oilspotted VSMCW 10%M 90%W	0.561

Total Length: 680.00 ft Total Volume: 7.899 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .26 @ 30

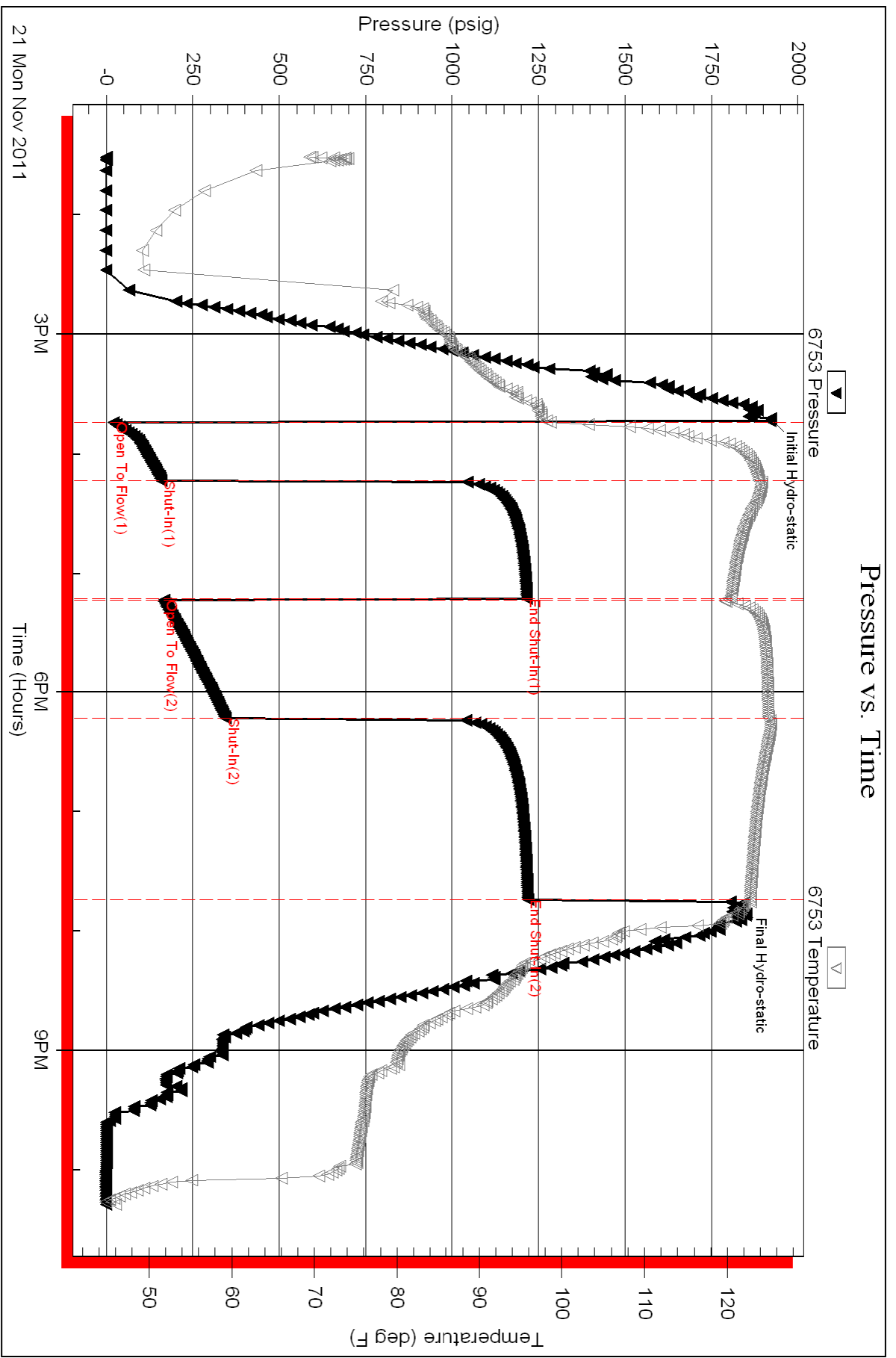
Serial #: 6753

Inside

Murfin Drilling CO. Inc.

Dorzweller #1-3

DST Test Number: 5



Triobite Testing, Inc

Ref. No: 44850

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