



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

250 N Water STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Thornburg #1-6

6-8-14, Osborne, KS

Job Ticket: 44604

DST#: 1

Test Start: 2011.09.04 @ 22:30:19

GENERAL INFORMATION:

Formation: **Topeka**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:05:49

Time Test Ended: 07:48:49

Test Type: Conventional Bottom Hole

Tester: Brett Dickinson

Unit No: 47

Interval: 2798.00 ft (KB) To 2818.00 ft (KB) (TVD)

Reference Elevations: 1859.00 ft (KB)

Total Depth: 2818.00 ft (KB) (TVD)

1854.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition:

KB to GR/CF: 5.00 ft

Serial #: 6753 Inside

Press @ Run Depth: 82.80 psig @ 2799.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.09.04

End Date: 2011.09.05

Last Calib.: 2011.09.05

Start Time: 22:30:24

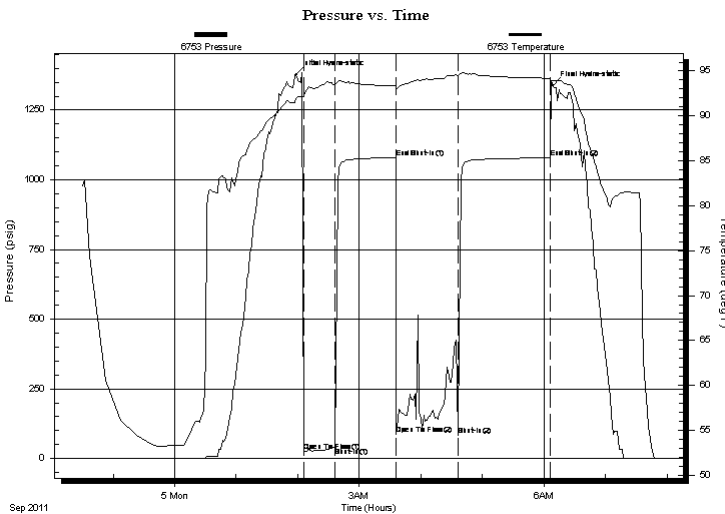
End Time: 07:48:49

Time On Btm: 2011.09.05 @ 01:58:19

Time Off Btm: 2011.09.05 @ 06:08:49

TEST COMMENT: IF-9in blow
ISI-No blow
FF-8in blow
FSI-weak surface blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1376.61	91.93	Initial Hydro-static
8	25.81	92.17	Open To Flow (1)
38	41.26	93.52	Shut-In(1)
97	1079.96	93.38	End Shut-In(1)
98	86.44	92.89	Open To Flow (2)
158	82.80	94.44	Shut-In(2)
248	1078.16	94.20	End Shut-In(2)
251	1339.62	93.96	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	SGOCM 10%G 25%O 65%M	0.30
120.00	SGO 5%G 95%O	0.60

Gas Rates

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



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FLUID SUMMARY

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Wichita KS 67202

6-8-14, Osborne, KS

Job Ticket: 44604

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2011.09.04 @ 22:30:19

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.20 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	SGOCM 10%G 25%O 65%M	0.295
120.00	SGO 5%G 95%O	0.599

Total Length: 180.00 ft

Total Volume: 0.894 bbl

Num Fluid Samples: 0

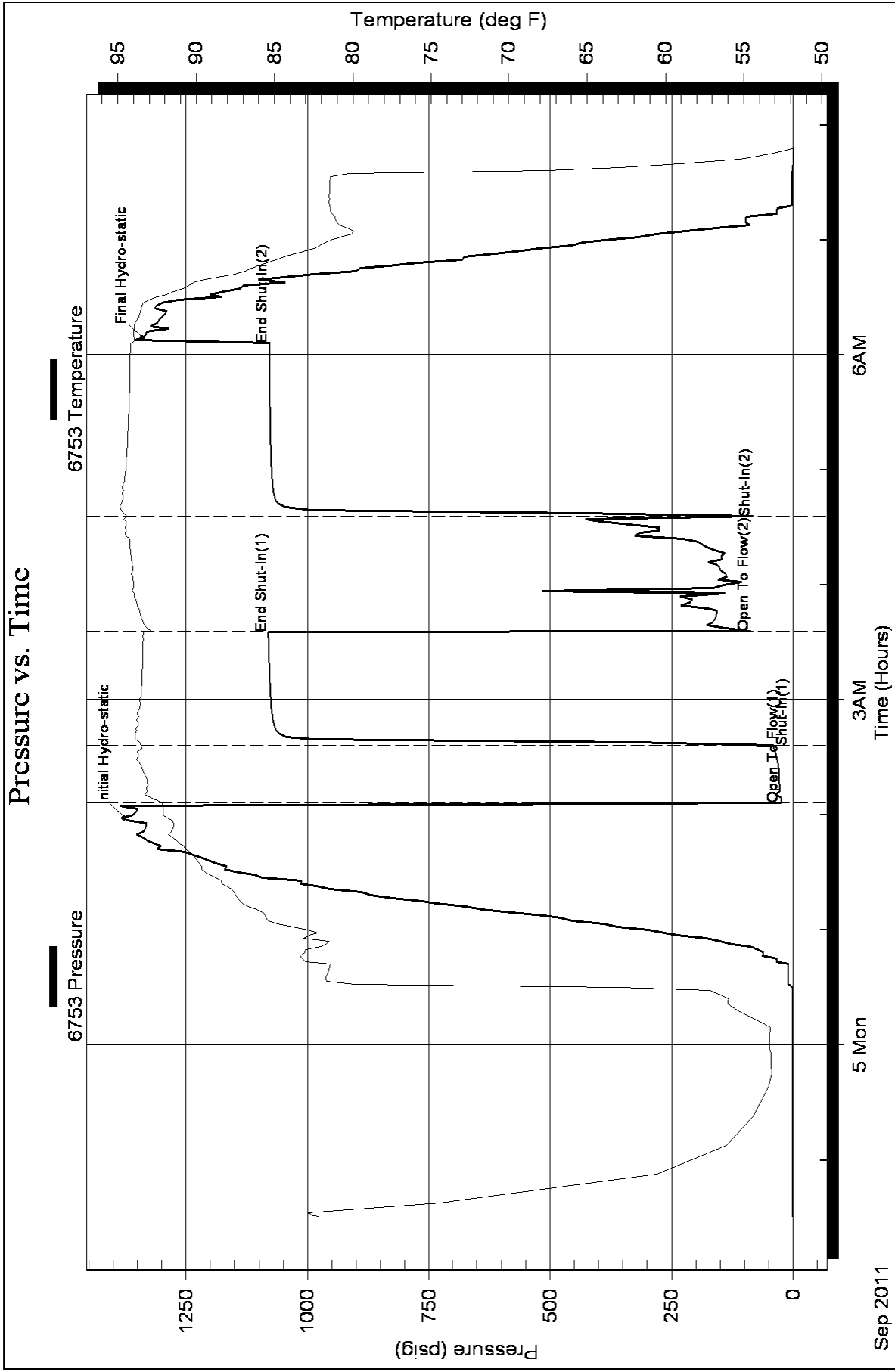
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





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Murfin Drilling Co. Inc.

250 N Water STE 300
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ATTN: Paul Gunzelman

Thornburg #1-6

6-8-14, Osborne, KS

Job Ticket: 44605

DST#: 2

Test Start: 2011.09.06 @ 06:20:42

GENERAL INFORMATION:

Formation: **KC "A-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:00:42

Time Test Ended: 12:26:12

Test Type: Conventional Bottom Hole

Tester: Brett Dickinson

Unit No: 47

Interval: 3040.00 ft (KB) To 3130.00 ft (KB) (TVD)

Reference Elevations: 1859.00 ft (KB)

Total Depth: 3130.00 ft (KB) (TVD)

1854.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ Run Depth: 38.55 psig @ 3111.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.09.06

End Date: 2011.09.06

Last Calib.: 2011.09.06

Start Time: 06:20:47

End Time: 12:26:11

Time On Btm: 2011.09.06 @ 07:59:12

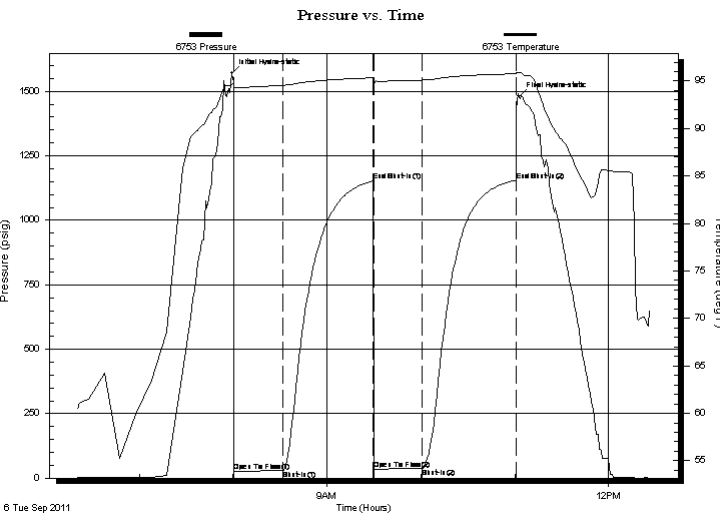
Time Off Btm: 2011.09.06 @ 11:02:42

TEST COMMENT: IF-1 1/4in blow

ISI-No blow

FF-No blow

FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1569.96	94.63	Initial Hydro-static
2	24.89	94.22	Open To Flow (1)
33	28.66	94.55	Shut-In(1)
91	1153.80	95.35	End Shut-In(1)
91	35.01	94.74	Open To Flow (2)
122	38.55	95.11	Shut-In(2)
182	1154.92	95.78	End Shut-In(2)
184	1480.33	95.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	O Spotted Mud	0.05

Gas Rates

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



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FLUID SUMMARY

Murfin Drilling Co. Inc.

Thornburg #1-6

250 N Water STE 300
Wichita KS 67202

6-8-14, Osborne, KS

Job Ticket: 44605

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2011.09.06 @ 06:20:42

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: 5.80 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OSpotted Mud	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

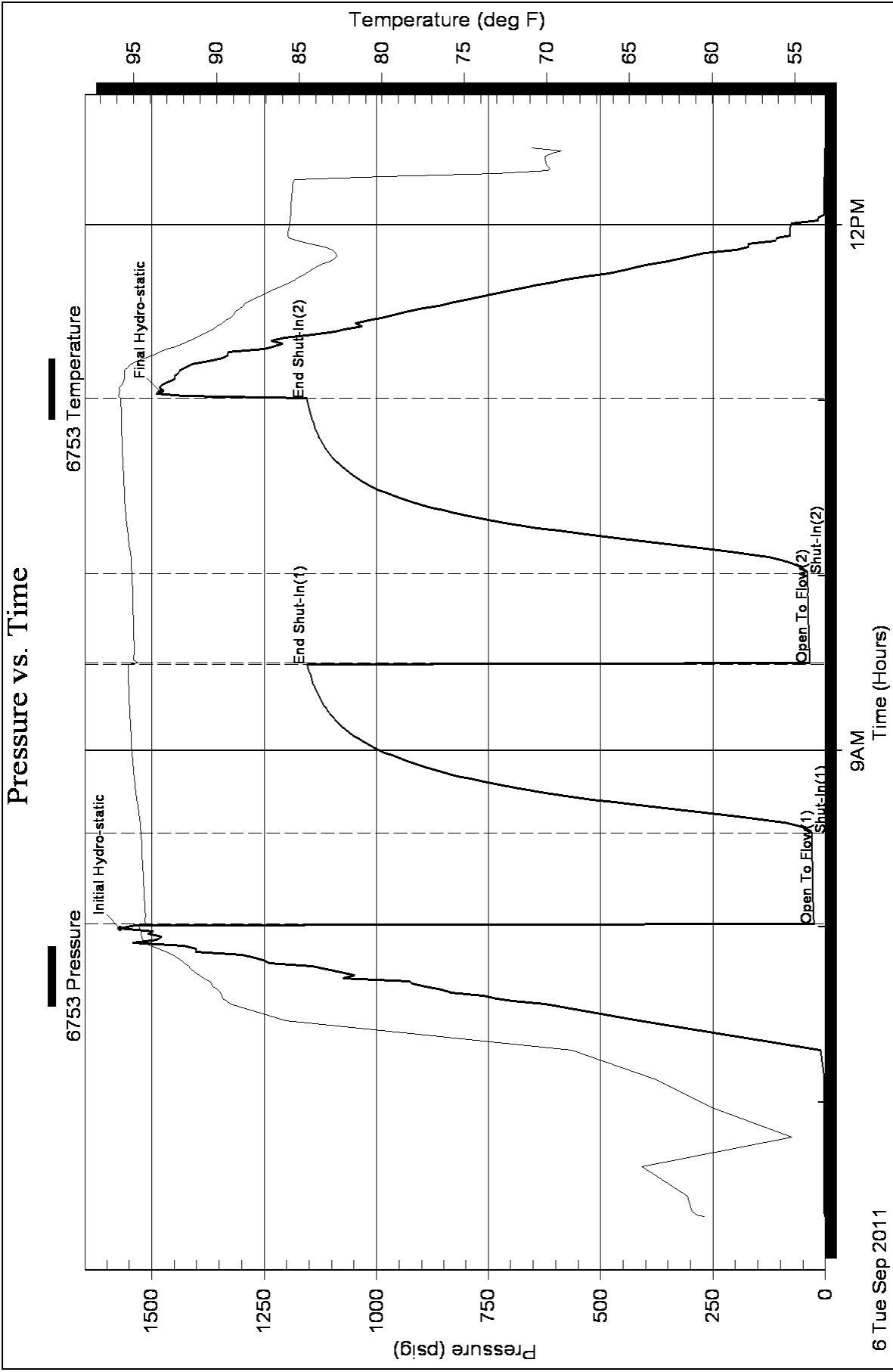
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time





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ATTN: Paul Gunzelman

Thornburg #1-6

6-8-14, Osborne, KS

Job Ticket: 44606

DST#: 3

Test Start: 2011.09.07 @ 09:55:23

GENERAL INFORMATION:

Formation: **KC "I-L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:12:23

Time Test Ended: 18:15:23

Test Type: Conventional Bottom Hole

Tester: Brett Dickinson

Unit No: 47

Interval: 3218.00 ft (KB) To 3331.00 ft (KB) (TVD)

Reference Elevations: 1859.00 ft (KB)

Total Depth: 3331.00 ft (KB) (TVD)

1854.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6753

Inside

Press @ RunDepth: 199.82 psig @ 3219.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.09.07

End Date: 2011.09.07

Last Calib.: 2011.09.07

Start Time: 09:55:28

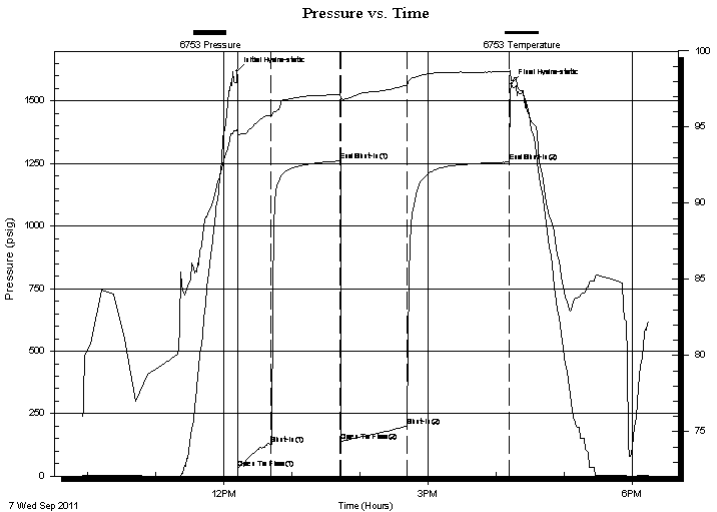
End Time: 18:15:22

Time On Btm: 2011.09.07 @ 12:11:23

Time Off Btm: 2011.09.07 @ 16:12:53

TEST COMMENT: IF-BOB in 24min
ISI-NO Blow
FF-BOB in 33min
FSI-No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1619.19	94.83	Initial Hydro-static
1	32.96	94.44	Open To Flow (1)
30	125.51	95.78	Shut-In(1)
91	1260.36	97.18	End Shut-In(1)
92	140.63	96.85	Open To Flow (2)
150	199.82	97.76	Shut-In(2)
240	1255.83	98.65	End Shut-In(2)
242	1568.51	98.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	mud	0.59
310.00	MCW 20%M 80%W	3.81

Gas Rates

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



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6-8-14, Osborne, KS

Job Ticket: 44606

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2011.09.07 @ 09:55:23

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:

68000 ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.80 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	mud	0.590
310.00	MCW 20%M 80%W	3.811

Total Length: 430.00 ft

Total Volume: 4.401 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

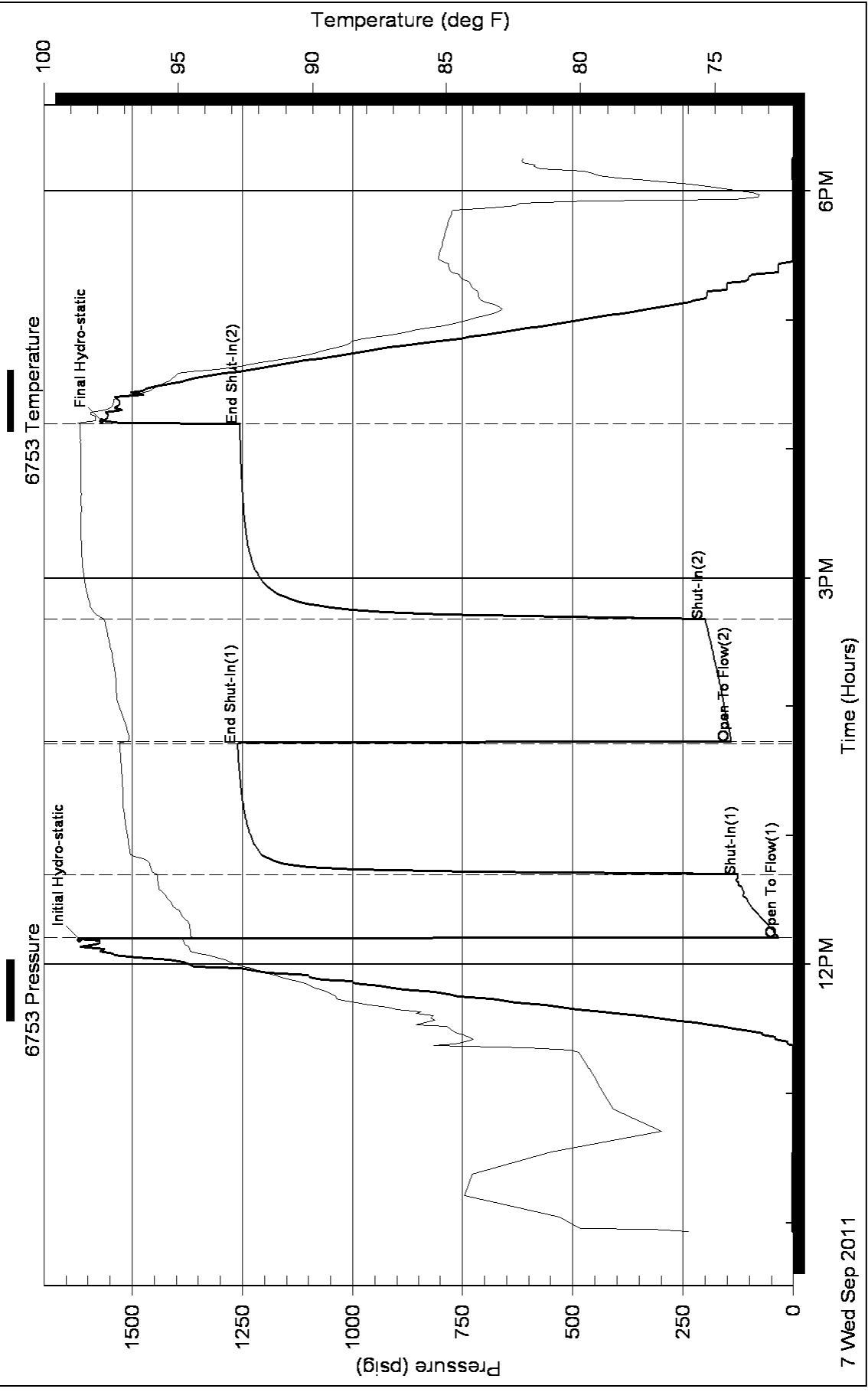
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .1

Pressure vs. Time



7 Wed Sep 2011