



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**Moore Unit #1-17**

250 N. Water Suite 300  
Wichita, KS 67202

**14/1s/29w Decaur KS**

ATTN: Paul Gunzelman

Job Ticket: 040827

**DST#: 1**

Test Start: 2011.02.16 @ 12:34:00

## GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:32:30

Time Test Ended: 20:05:00

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 46

**Interval: 3470.00 ft (KB) To 3527.00 ft (KB) (TVD)**

Reference Elevations: 2583.00 ft (KB)

Total Depth: 3527.00 ft (KB) (TVD)

2578.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press @ Run Depth: 78.74 psig @ 3471.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.02.16

End Date:

2011.02.16

Last Calib.:

2011.02.16

Start Time: 12:34:05

End Time:

20:04:59

Time On Btm:

2011.02.16 @ 14:30:30

Time Off Btm:

2011.02.16 @ 18:40:30

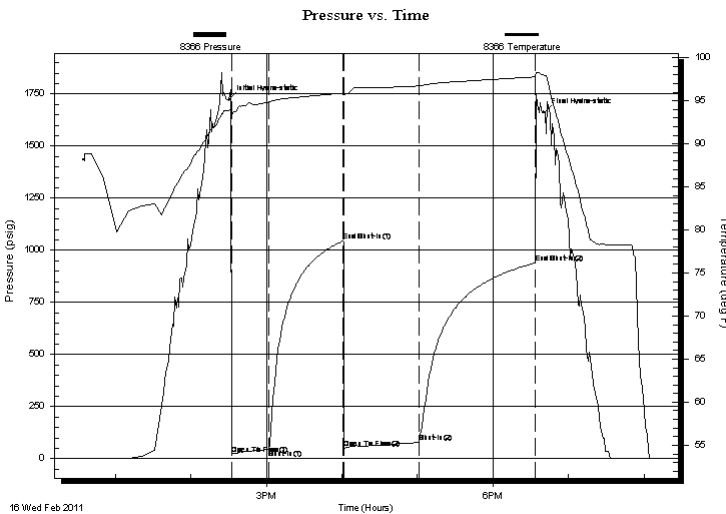
**TEST COMMENT:** IF: Blow built to 2 3/4"

IS: Bled off, No blow back

FF: Blow started at 3 min., built to 2 1/4"

FS: Bled off, No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1720.75	93.86	Initial Hydro-static
2	21.39	93.66	Open To Flow (1)
32	44.28	94.84	Shut-In(1)
91	1043.89	95.89	End Shut-In(1)
92	50.24	95.68	Open To Flow (2)
151	78.74	96.74	Shut-In(2)
243	939.19	97.78	End Shut-In(2)
250	1661.55	97.97	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	Mud 100%	0.01
120.00	WM 60% m, 40% w	0.59
0.00	Oil Spots in Tool	0.00

## Gas Rates

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



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**FLUID SUMMARY**

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**14/1s/29w Decaur KS**

Job Ticket: 040827

**DST#: 1**

ATTN: Paul Gunzelman

Test Start: 2011.02.16 @ 12:34:00

**Mud and Cushion Information**

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 68.00 sec/qt  
Water Loss: 5.99 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 1500.00 ppm  
Filter Cake: 2.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: deg API  
Water Salinity: 27000 ppm

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
3.00	Mud 100%	0.015
120.00	WM 60%m, 40%w	0.590
0.00	Oil Spots in Tool	0.000

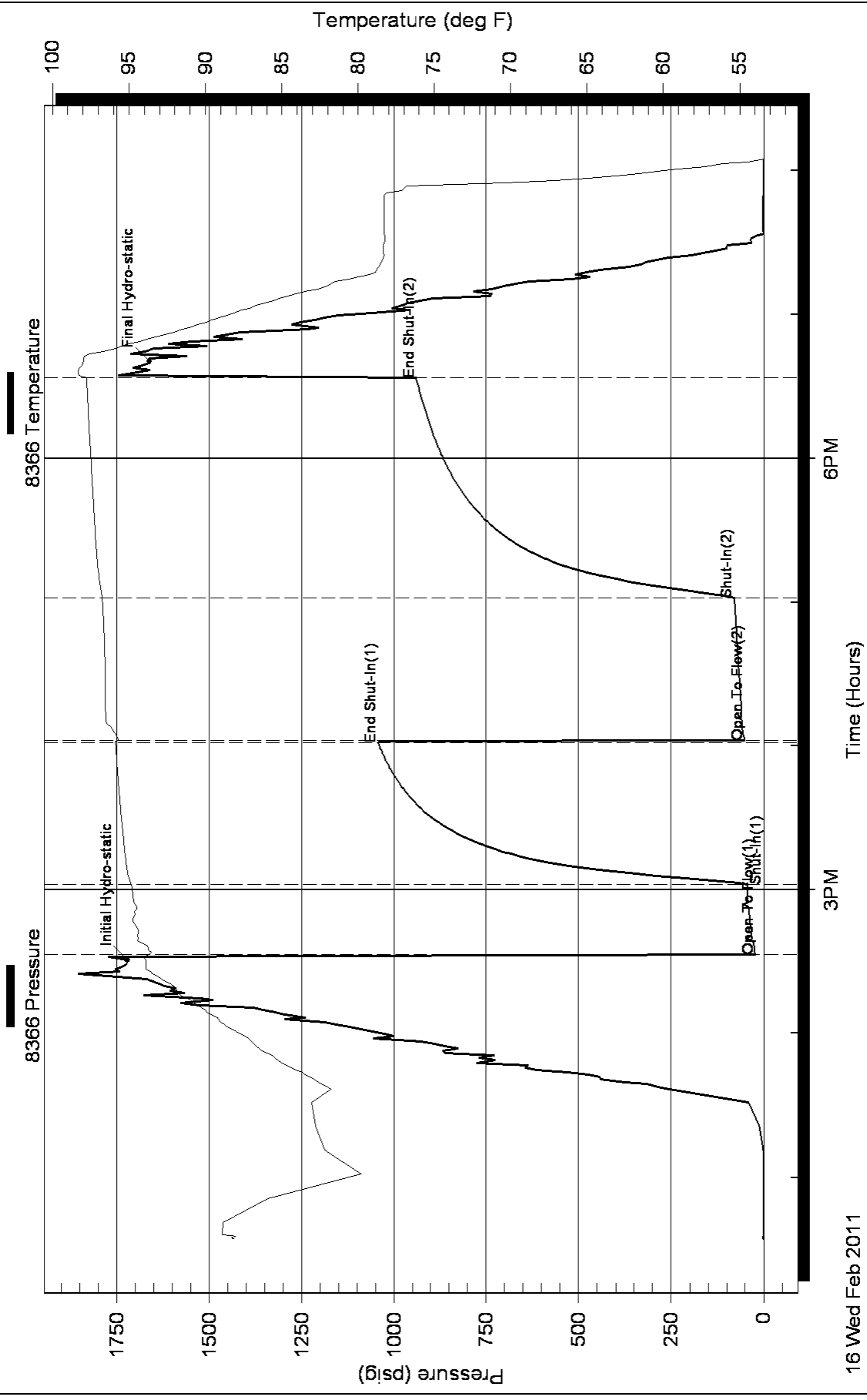
Total Length: 123.00 ft      Total Volume: 0.605 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW = .317 ohms @ 56.3 deg F  
Chlorides = 27,000 ppm

### Pressure vs. Time



16 Wed Feb 2011



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Murfin Drilling Co., Inc.

250 N. Water Suite 300  
Wichita, KS 67202

ATTN: Paul Gunzelman

**Moore Unit #1-17**

**14/1s/29w Decatur KS**

Job Ticket: 040828

**DST#: 2**

Test Start: 2011.02.17 @ 03:36:00

## GENERAL INFORMATION:

Formation: **LKC "D"**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 05:27:30

Time Test Ended: 10:16:00

Test Type: **Conventional Bottom Hole**

Tester: **James Winder**

Unit No: **46**

**Interval: 3517.00 ft (KB) To 3572.00 ft (KB) (TVD)**

Reference Elevations: **2583.00 ft (KB)**

Total Depth: **3572.00 ft (KB) (TVD)**

**2578.00 ft (CF)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

KB to GR/CF: **5.00 ft**

**Serial #: 8366**

**Inside**

Press @ Run Depth: **25.86 psig @ 3518.00 ft (KB)**

Capacity: **8000.00 psig**

Start Date: **2011.02.17**

End Date:

**2011.02.17**

Last Calib.:

**2011.02.17**

Start Time:

**03:36:05**

End Time:

**10:15:59**

Time On Btm:

**2011.02.17 @ 05:24:00**

Time Off Btm:

**2011.02.17 @ 08:36:00**

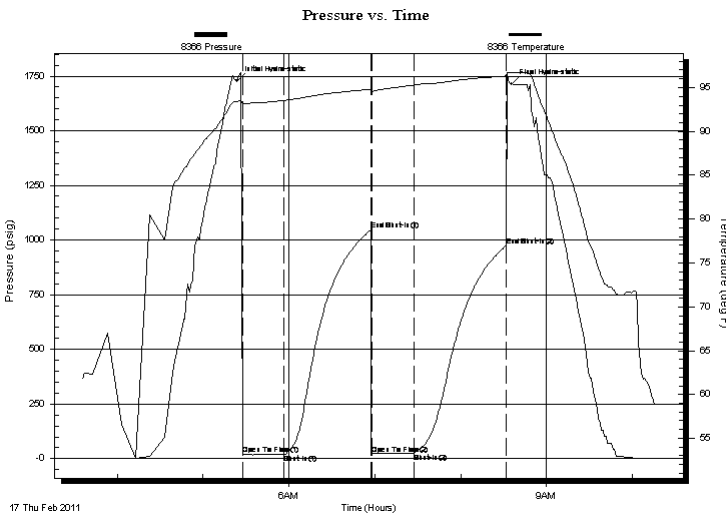
**TEST COMMENT:** IF: Blow built to 1 1/4"

IS: Bled off, No blow back

FF: Surface blow from 19 min. till close

FS: Bled off, No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1729.25	93.40	Initial Hydro-static
4	18.03	93.16	Open To Flow (1)
33	20.21	93.53	Shut-In(1)
93	1045.06	94.82	End Shut-In(1)
94	21.66	94.55	Open To Flow (2)
124	25.86	95.33	Shut-In(2)
188	973.35	96.32	End Shut-In(2)
192	1713.79	96.73	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	MCO 73%o, 25%m, 2%g	0.01
25.00	OM 56%m, 41%o, 3%g	0.12

## Gas Rates

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



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**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**Moore Unit #1-17**

250 N. Water Suite 300  
Wichita, KS 67202

**14/1s/29w Decatur KS**

Job Ticket: 040828

**DST#: 2**

ATTN: Paul Gunzelman

Test Start: 2011.02.17 @ 03:36:00

## 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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	MCO 73%o, 25%m, 2%g	0.015
25.00	OM 56%m, 41%o, 3%g	0.123

Total Length: 28.00 ft      Total Volume: 0.138 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

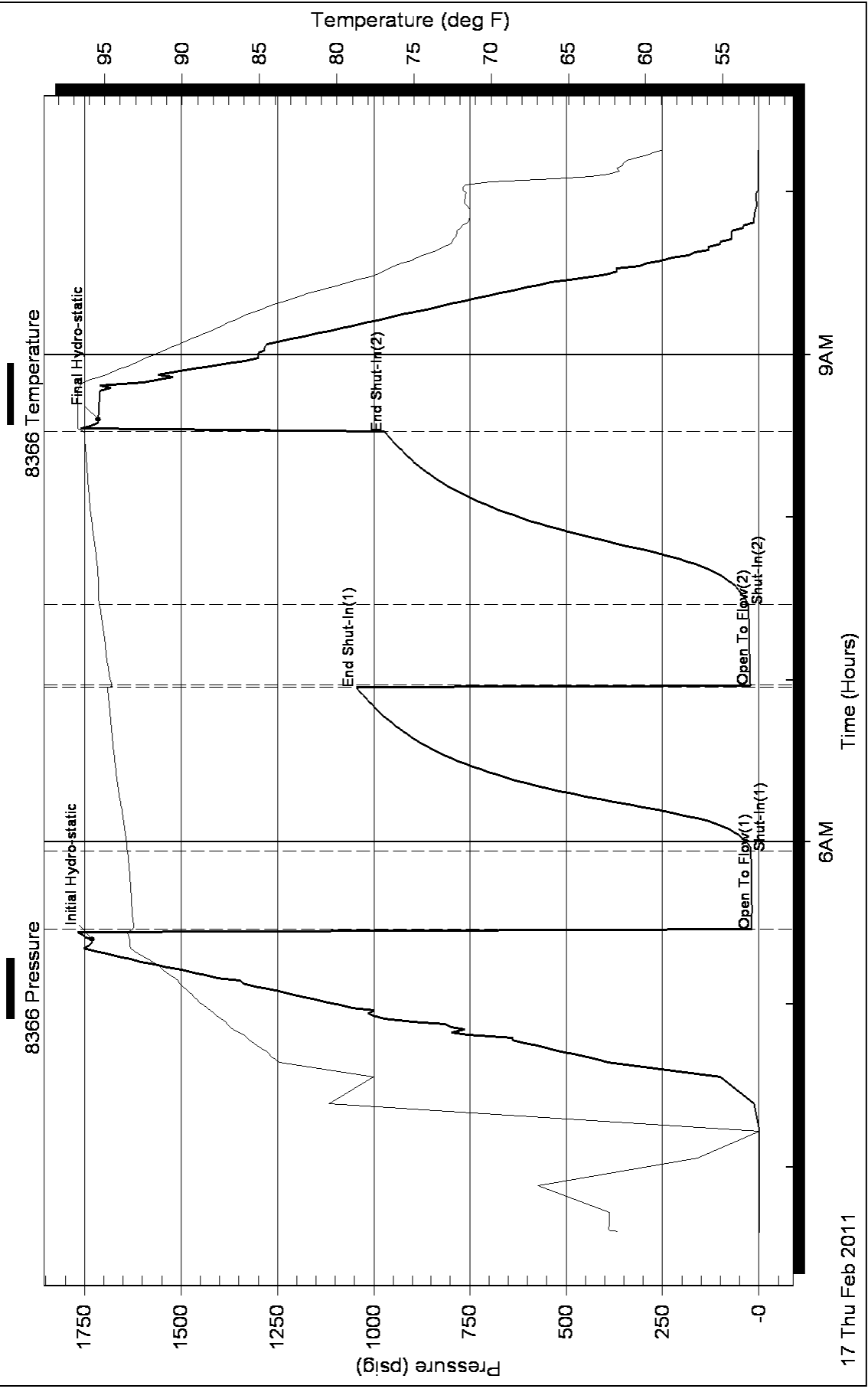
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





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**14/1s/29w Decatur KS**

ATTN: Paul Gunzelman

Job Ticket: 040829

**DST#: 3**

Test Start: 2011.02.17 @ 23:28:00

## GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:27:30

Time Test Ended: 05:14:30

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 46

**Interval: 3620.00 ft (KB) To 3686.00 ft (KB) (TVD)**

Reference Elevations: 2583.00 ft (KB)

Total Depth: 3686.00 ft (KB) (TVD)

2578.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press @ Run Depth: 58.37 psig @ 3621.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.02.17

End Date:

2011.02.18

Last Calib.: 2011.02.18

Start Time: 23:28:05

End Time:

05:14:29

Time On Btm: 2011.02.18 @ 01:24:00

Time Off Btm: 2011.02.18 @ 03:35:30

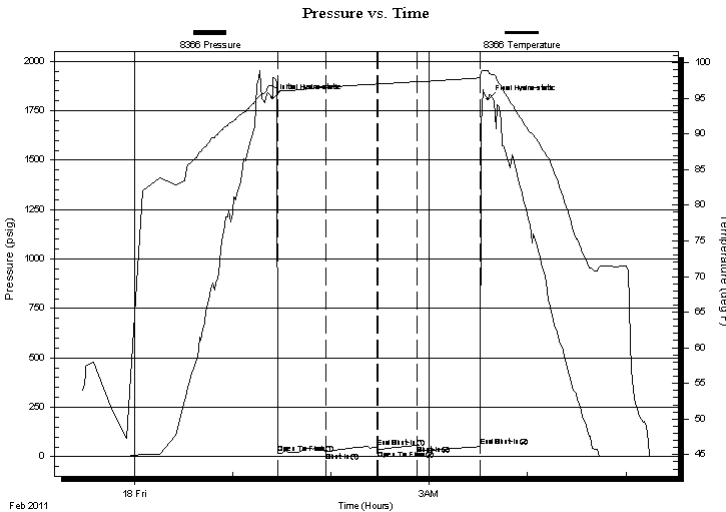
**TEST COMMENT:** IF: 1/4" Blow at open, dead at 16 min.

IS: No blow back

FF: No blow

FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1811.18	96.72	Initial Hydro-static
4	18.24	95.48	Open To Flow (1)
33	23.42	96.54	Shut-In(1)
64	48.46	96.99	End Shut-In(1)
65	32.21	96.99	Open To Flow (2)
89	58.37	97.34	Shut-In(2)
127	50.59	97.85	End Shut-In(2)
132	1807.72	98.91	Final Hydro-static

## Recovery

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

## Gas Rates

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



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**14/1s/29w Decatur KS**

Job Ticket: 040829

**DST#: 3**

ATTN: Paul Gunzelman

Test Start: 2011.02.17 @ 23:28:00

## 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: 5.96 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud 100%	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

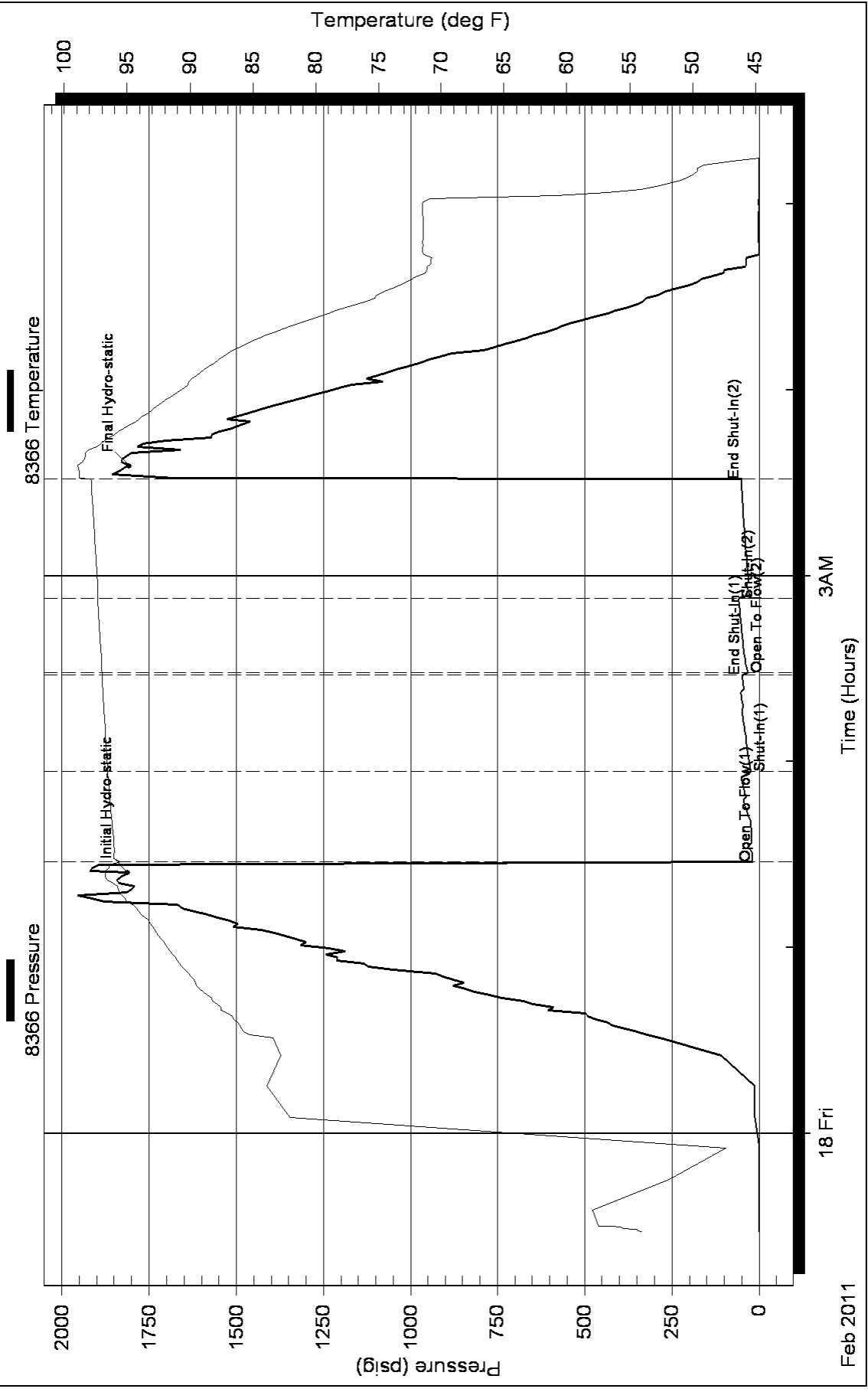
Laboratory Name:

Laboratory Location:

Recovery Comments:



### Pressure vs. Time





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ATTN: Paul Gunzelman

**Moore Unit #1-17**

**14/1s/29w Decaur KS**

Job Ticket: 040830

**DST#: 4**

Test Start: 2011.02.18 @ 12:12:00

## GENERAL INFORMATION:

Formation: **LKC "K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:45:30

Time Test Ended: 17:43:00

Test Type: Conventional Bottom Hole

Tester: James Winder

Unit No: 46

**Interval: 3681.00 ft (KB) To 3718.00 ft (KB) (TVD)**

Reference Elevations: 2583.00 ft (KB)

Total Depth: 3718.00 ft (KB) (TVD)

2578.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8366**

**Inside**

Press @ Run Depth: 20.65 psig @ 3682.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.02.18

End Date:

2011.02.18

Last Calib.:

2011.02.18

Start Time:

12:12:05

End Time:

17:42:59

Time On Btm:

2011.02.18 @ 13:43:30

Time Off Btm:

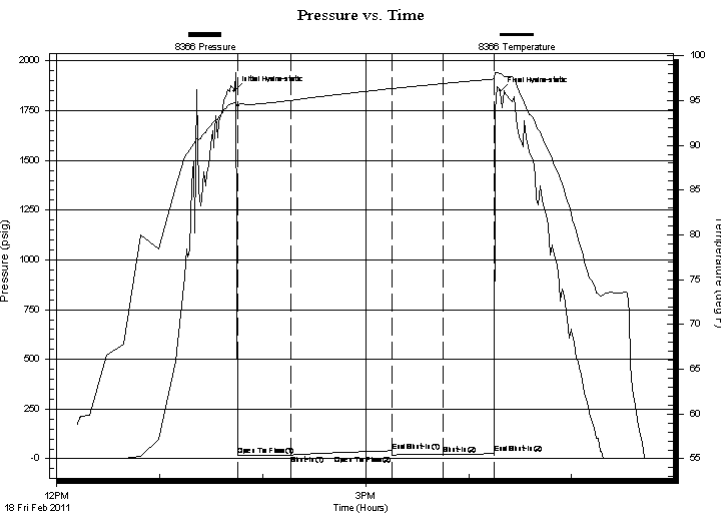
2011.02.18 @ 16:18:30

**TEST COMMENT:** IF: Blow built to 1/2", dieing back at end of open

IS: Bled off, No blow back

FF: No blow

FS: No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1850.47	94.71	Initial Hydro-static
2	17.77	94.32	Open To Flow (1)
33	19.25	95.01	Shut-In(1)
92	40.02	96.33	End Shut-In(1)
92	19.72	96.32	Open To Flow (2)
122	20.65	96.89	Shut-In(2)
152	25.91	97.41	End Shut-In(2)
155	1848.59	98.01	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100% w /trace of oil	0.01

## Gas Rates

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



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**14/1s/29w Decaur KS**

Job Ticket: 040830

**DST#: 4**

ATTN: Paul Gunzelman

Test Start: 2011.02.18 @ 12:12:00

## 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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud 100% w/trace of oil	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

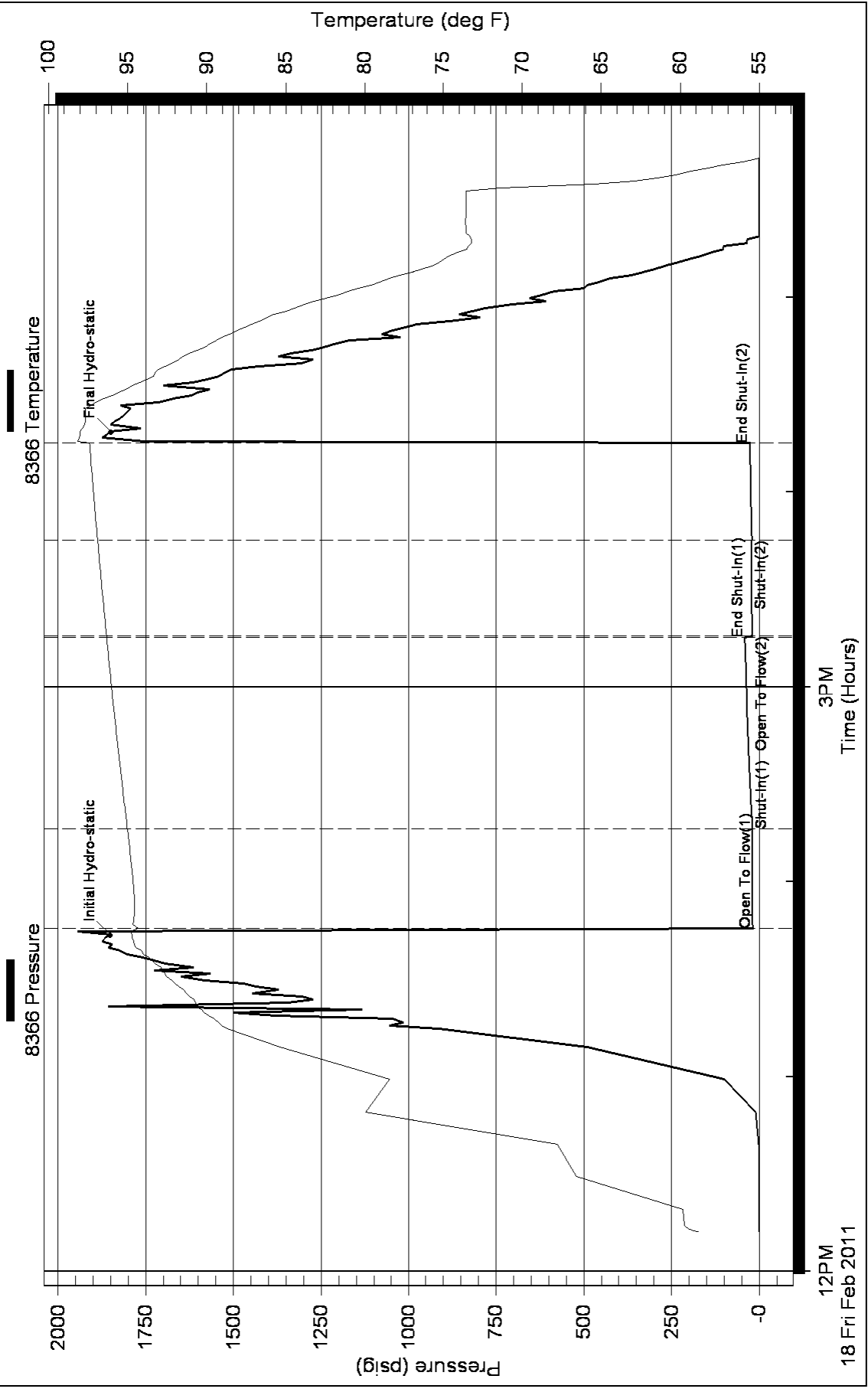
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



12PM  
18 Fri Feb 2011

3PM  
Time (Hours)