



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 43721

**DST#: 1**

Test Start: 2011.07.26 @ 18:05:00

## GENERAL INFORMATION:

Formation: **LKC**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:09:00

Time Test Ended: 04:02:00

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4100.00 ft (KB) To 4170.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4170.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752**

**Inside**

Press @ Run Depth: 381.25 psig @ 4101.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.26

End Date:

2011.07.27

Last Calib.:

2011.07.27

Start Time: 18:05:05

End Time:

04:02:00

Time On Btm:

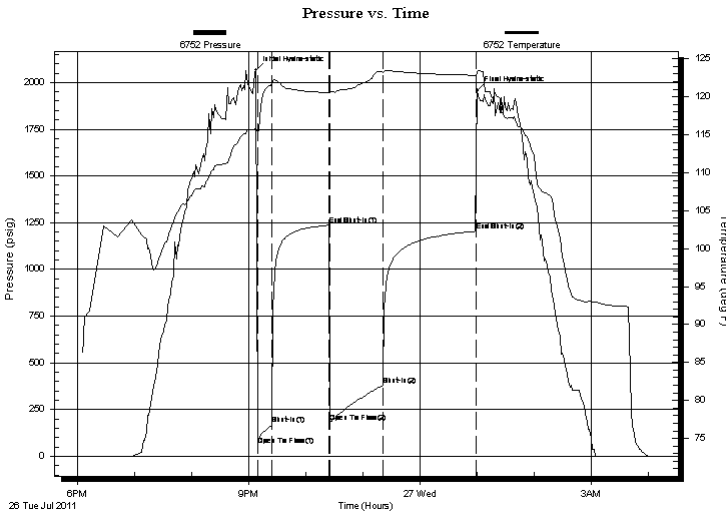
2011.07.26 @ 21:07:30

Time Off Btm:

2011.07.27 @ 01:00:30

**TEST COMMENT:** IF: Strong blow , Built to B.O.B in 13 mins.  
IS: No blow back over 60 mins.  
FF: Strong blow , Built to B.O.B in 15 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2064.45	115.94	Initial Hydro-static
2	60.20	115.44	Open To Flow (1)
17	170.44	121.78	Shut-In(1)
77	1236.50	120.59	End Shut-In(1)
78	181.68	120.54	Open To Flow (2)
134	381.25	123.25	Shut-In(2)
231	1203.96	122.83	End Shut-In(2)
233	1955.28	123.35	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
187.00	water-	0.92
496.00	mcw -10%m90%w	6.96
124.00	w cm-50%w 50%m	1.74
40.00	w cm-w ith oil specs-15%w 85%m	0.56

## Gas Rates

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



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**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 43721

**DST#: 1**

ATTN: Charlie Sturdavant

Test Start: 2011.07.26 @ 18:05:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 76.00 sec/qt  
Water Loss: 7.99 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 7000.00 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: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
187.00	water-	0.920
496.00	mcw -10%m90%w	6.958
124.00	w cm-50%w 50%m	1.739
40.00	w cm-w ith oil specs-15%w 85%m	0.561

Total Length: 847.00 ft      Total Volume: 10.178 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

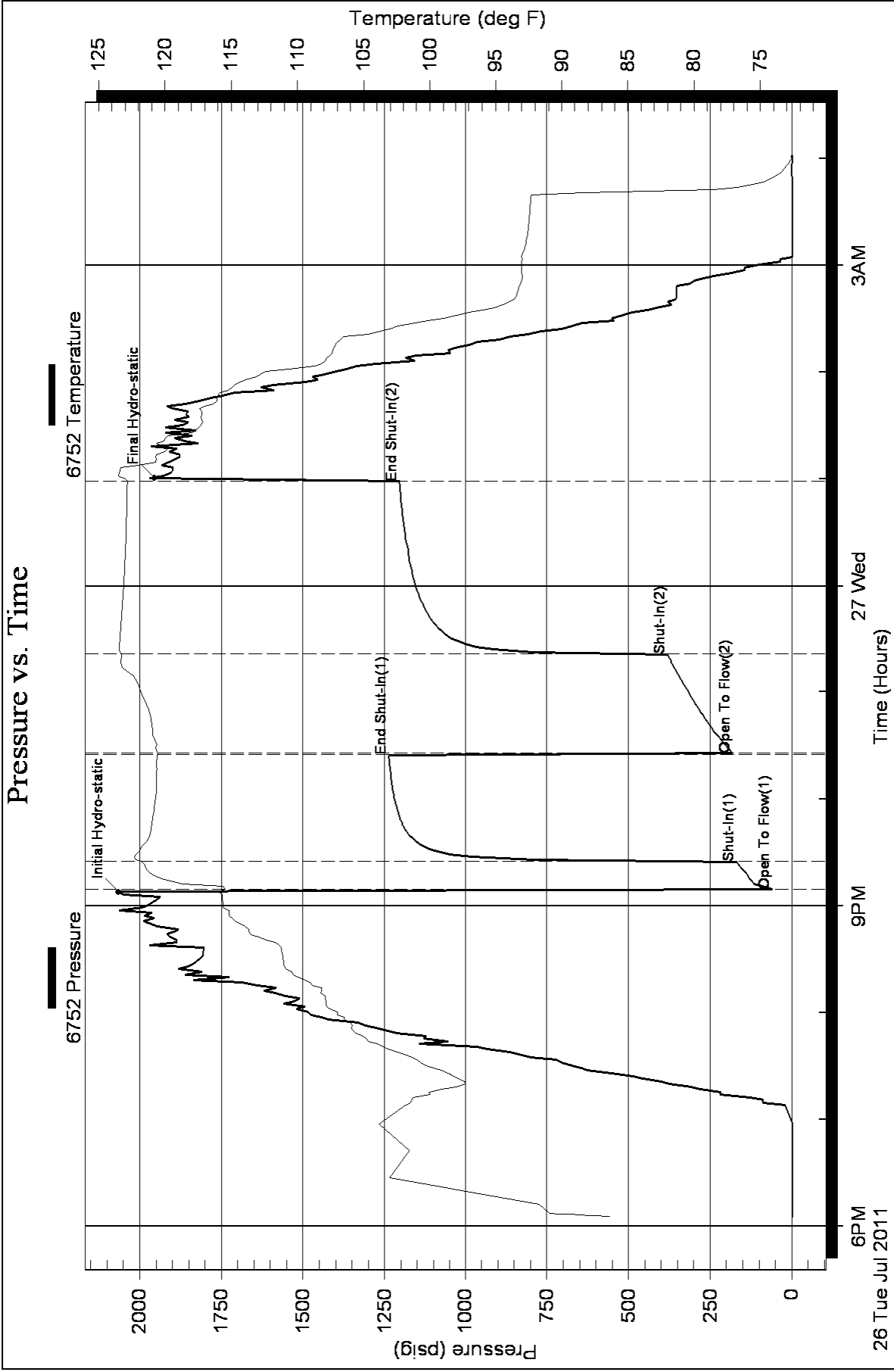
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 43722

**DST#: 2**

Test Start: 2011.07.27 @ 12:25:00

## GENERAL INFORMATION:

Formation: **LKC-EF**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:08:00

Time Test Ended: 21:51:30

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4192.00 ft (KB) To 4216.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4170.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752**

**Inside**

Press @ Run Depth: 950.45 psig @ 4193.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.27

End Date:

2011.07.27

Last Calib.:

2011.07.27

Start Time: 12:25:05

End Time:

21:51:30

Time On Btm:

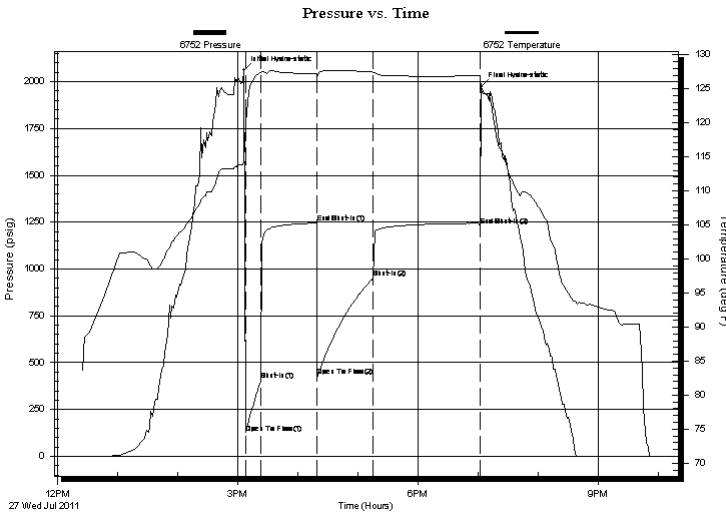
2011.07.27 @ 15:06:30

Time Off Btm:

2011.07.27 @ 19:03:30

**TEST COMMENT:** IF: Strong Blow , Built to B.O.B in 2 mins.  
IS: No blow back over 60 mins.  
FF: Strong blow , Built to B.O.B in 3 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2059.57	114.33	Initial Hydro-static
2	126.35	120.08	Open To Flow (1)
17	404.77	127.31	Shut-In(1)
73	1244.76	127.17	End Shut-In(1)
73	427.11	126.74	Open To Flow (2)
129	950.45	127.45	Shut-In(2)
236	1228.83	126.94	End Shut-In(2)
237	1971.45	124.67	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1535.00	Water	19.83
40.00	mcw -30% m70%w	0.56

## Gas Rates

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



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 43722

**DST#: 2**

ATTN: Charlie Sturdavant

Test Start: 2011.07.27 @ 12:25:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.00 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1535.00	Water	19.829
40.00	mcw -30% m70%w	0.561

Total Length: 1575.00 ft      Total Volume: 20.390 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

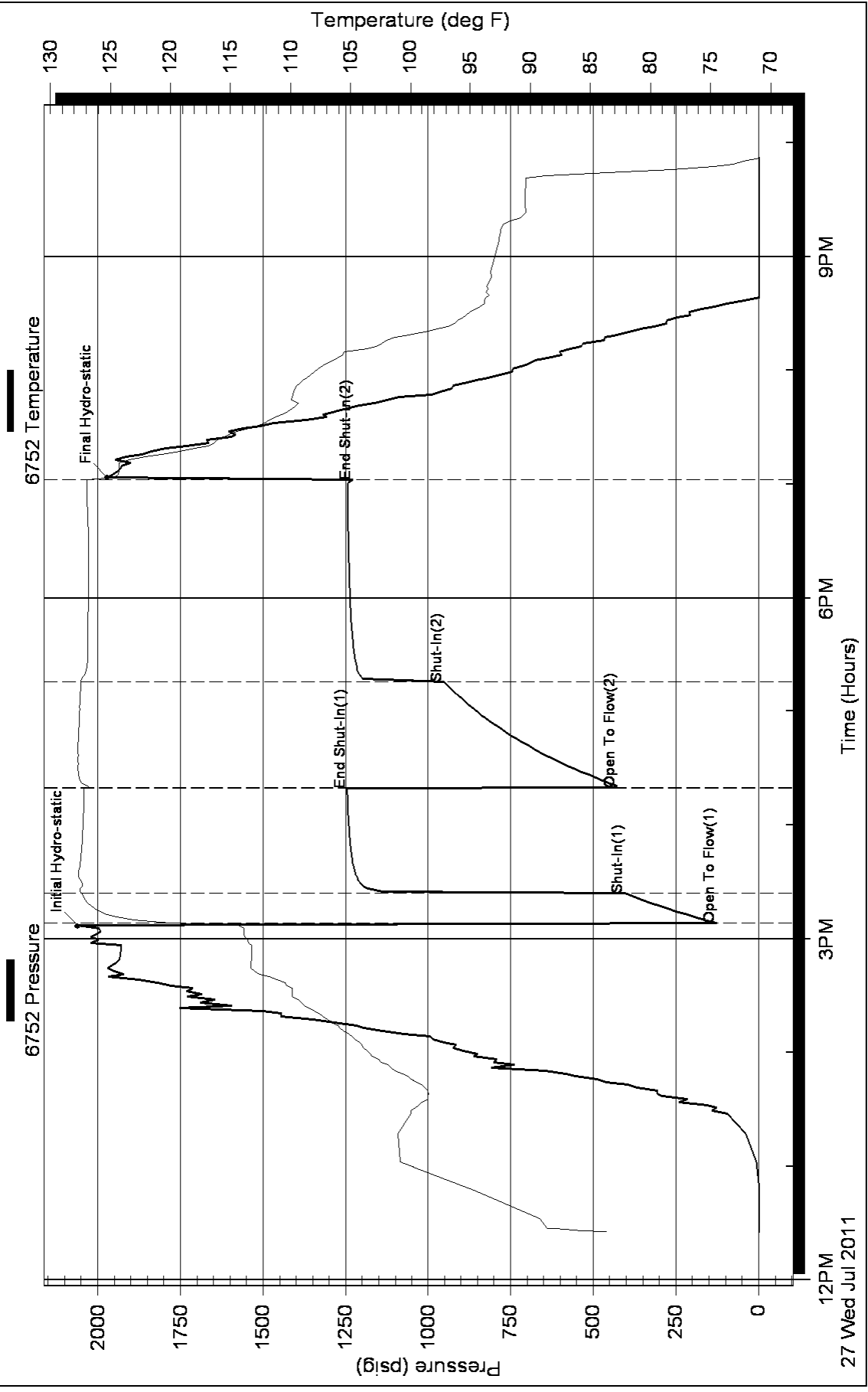
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time





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Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 43723

**DST#: 3**

Test Start: 2011.07.28 @ 14:00:00

## GENERAL INFORMATION:

Formation: **LKC-H,I,J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:53:30

Time Test Ended: 01:42:30

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4257.00 ft (KB) To 4340.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4340.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752**

**Inside**

Press @ Run Depth: 205.99 psig @ 4258.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.28

End Date:

2011.07.29

Last Calib.:

2011.07.29

Start Time:

14:00:05

End Time:

01:42:30

Time On Btm:

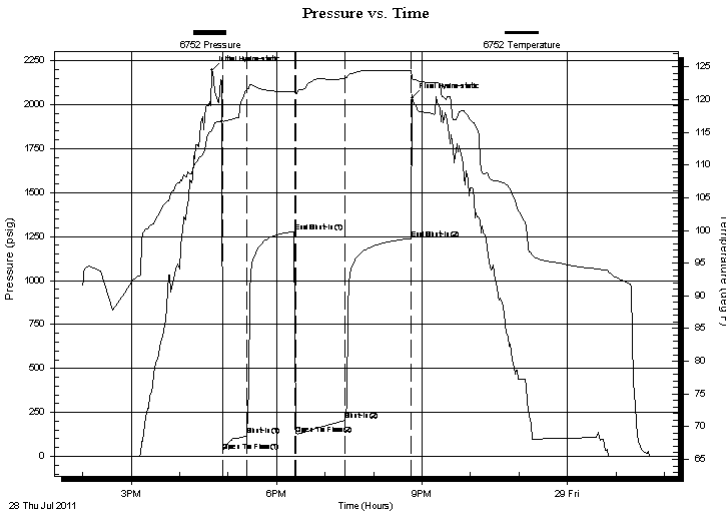
2011.07.28 @ 16:40:00

Time Off Btm:

2011.07.28 @ 20:48:00

**TEST COMMENT:** IF: Fair blow, Built to B.O.B in 29 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Built to B.O.B in 60 mins.  
FS: Blow back, Built to 1/2 in. over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2194.97	115.22	Initial Hydro-static
14	29.37	116.77	Open To Flow (1)
44	118.57	121.57	Shut-In(1)
103	1278.59	121.24	End Shut-In(1)
104	128.77	120.95	Open To Flow (2)
165	205.99	123.33	Shut-In(2)
246	1238.69	124.40	End Shut-In(2)
248	2037.53	123.17	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
187.00	ocm-10%o90%m	0.92
63.00	gocm-5%g25%o70%m	0.88
63.00	gmco-10%g10%m80%o	0.88
156.00	go-10%g90%o	2.19
0.00	20ft. gas in pipe	0.00

## Gas Rates

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



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**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 43723

**DST#: 3**

ATTN: Charlie Sturdavant

Test Start: 2011.07.28 @ 14:00:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.00 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
187.00	ocm-10%o90%m	0.920
63.00	gocm-5%g25%o70%m	0.884
63.00	gmco-10%g10%m80%o	0.884
156.00	go-10%g90%o	2.188
0.00	20ft. gas in pipe	0.000

Total Length: 469.00 ft

Total Volume: 4.876 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

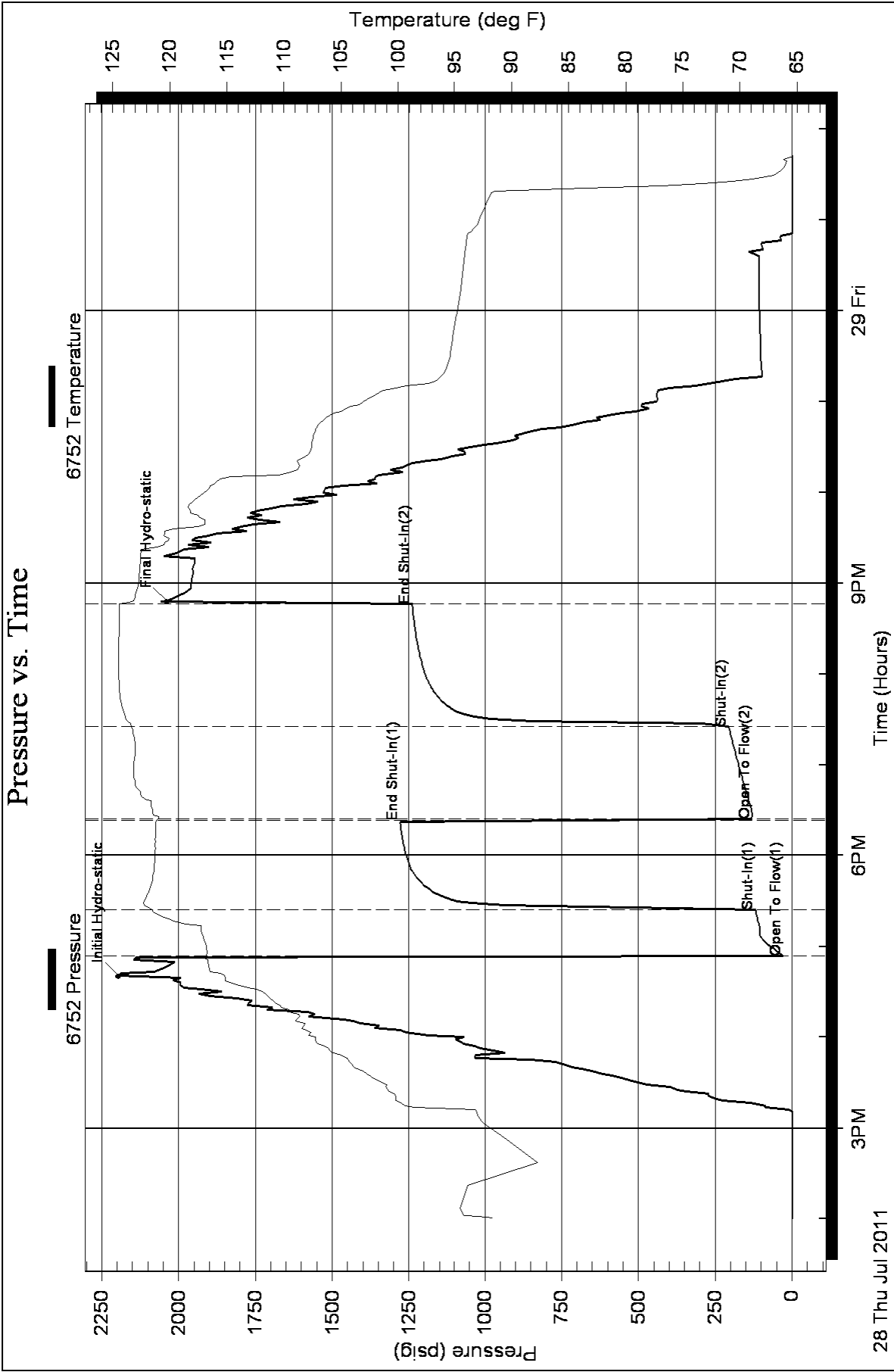
Laboratory Name:

Laboratory Location:

Recovery Comments:



### Pressure vs. Time





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# DRILL STEM TEST REPORT

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 43724

**DST#: 4**

Test Start: 2011.07.29 @ 10:00:00

## GENERAL INFORMATION:

Formation: **LKC-K,I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:20:30

Time Test Ended: 17:50:30

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4332.00 ft (KB) To 4370.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4370.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752**

**Inside**

Press @ Run Depth: 124.32 psig @ 4333.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.29

End Date:

2011.07.29

Last Calib.:

2011.07.29

Start Time: 10:00:05

End Time:

17:50:29

Time On Btm:

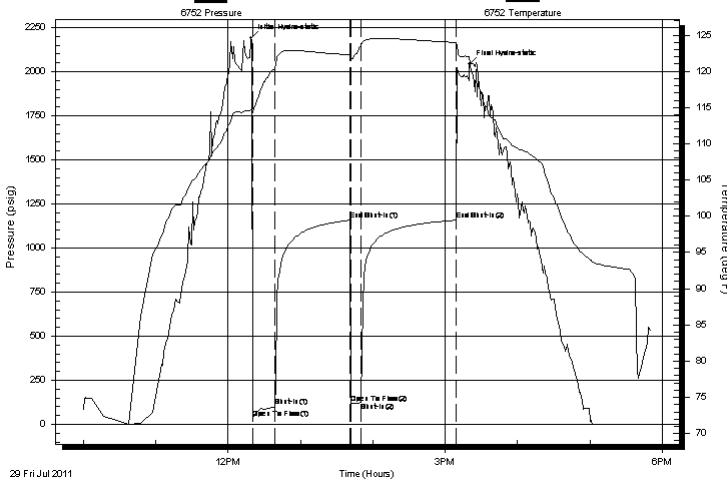
2011.07.29 @ 12:19:00

Time Off Btm:

2011.07.29 @ 15:20:00

**TEST COMMENT:** IF: Strong blow, Built to B.O.B in 9 mins.  
IS: Blow back, Built to 5 in. over 60 mins.  
FF: Strong blow, Built to B.O.B in 13 mins.  
FS: Blow back, Built to 7 in. over 60 mins.

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.02	114.67	Initial Hydro-static
2	35.67	114.31	Open To Flow (1)
20	100.87	120.41	Shut-In(1)
82	1157.50	122.27	End Shut-In(1)
83	117.62	121.74	Open To Flow (2)
91	124.32	123.53	Shut-In(2)
170	1157.74	123.98	End Shut-In(2)
181	2041.40	121.68	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
187.00	ghocm-20%g40%o40%m	0.92
63.00	gmco-20%g10%m70%o	0.88
63.00	go-30%g70%o	0.88
0.00	189 ft. gas in pipe	0.00

## Gas Rates

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



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**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 43724

**DST#: 4**

ATTN: Charlie Sturdavant

Test Start: 2011.07.29 @ 10:00:00

## 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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
187.00	ghocm-20%g40%o40%m	0.920
63.00	gmco-20%g10%m70%o	0.884
63.00	go-30%g70%o	0.884
0.00	189 ft. gas in pipe	0.000

Total Length: 313.00 ft

Total Volume: 2.688 bbl

Num Fluid Samples: 0

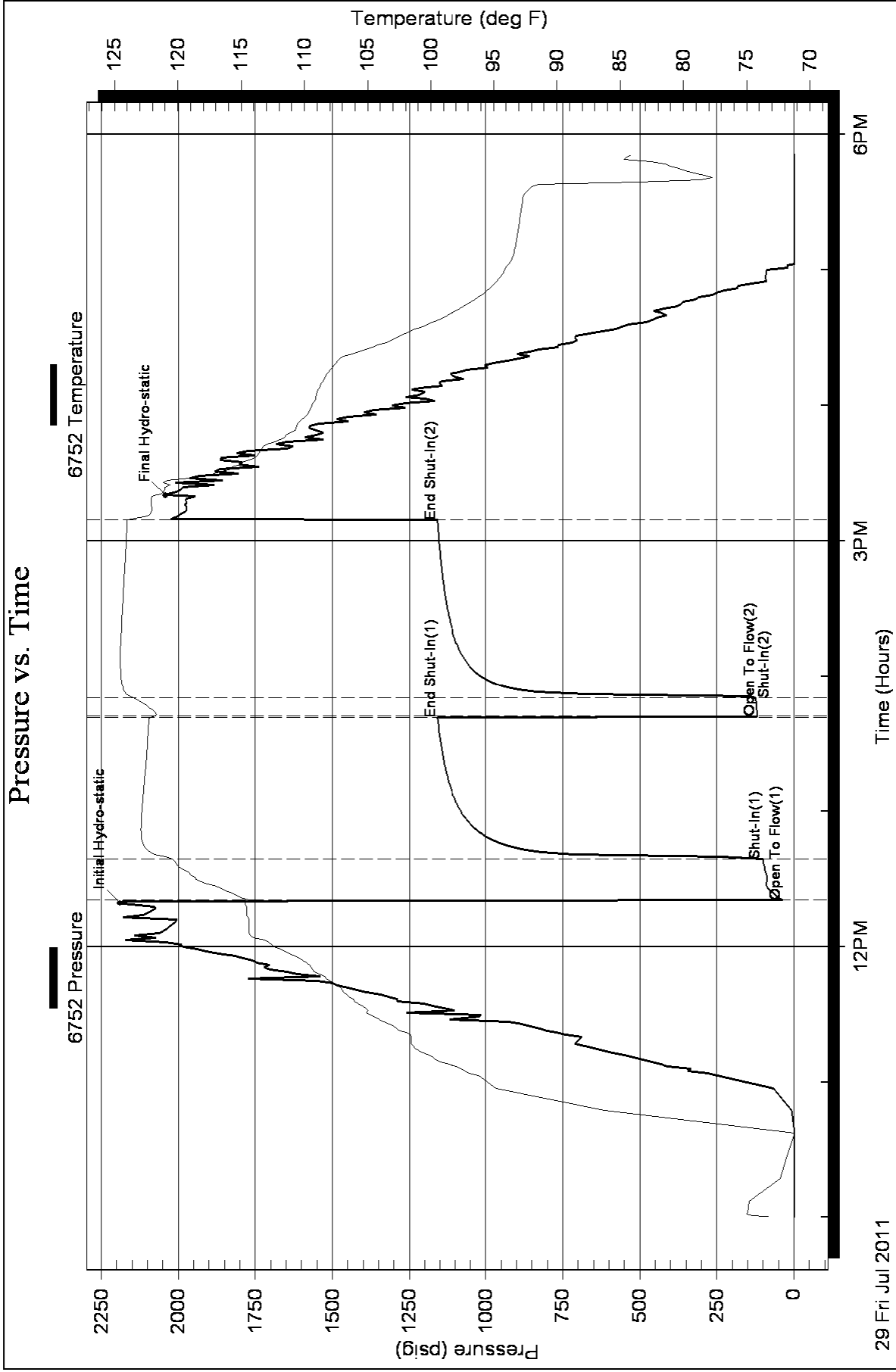
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





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# DRILL STEM TEST REPORT

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 43725

**DST#: 5**

Test Start: 2011.07.30 @ 15:00:00

## GENERAL INFORMATION:

Formation: **Pawne**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:52:30

Time Test Ended: 04:42:00

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4532.00 ft (KB) To 4600.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4600.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752 Inside**

Press @ Run Depth: 583.90 psig @ 4533.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.30

End Date:

2011.07.31

Last Calib.: 2011.07.31

Start Time: 15:00:05

End Time:

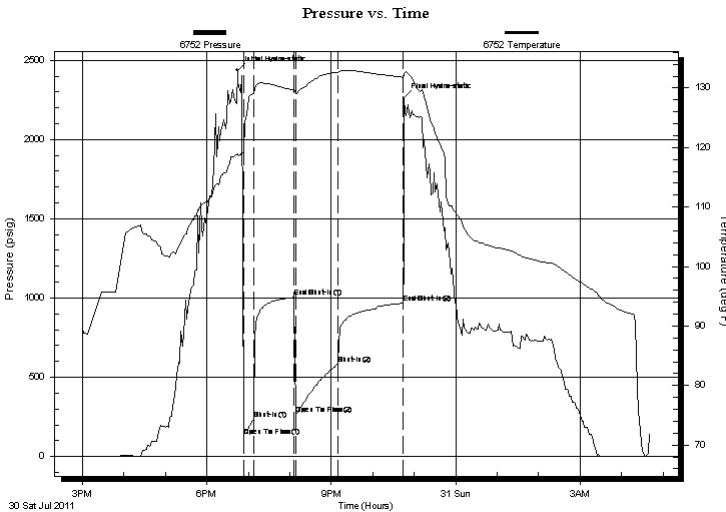
04:42:00

Time On Btm: 2011.07.30 @ 18:44:00

Time Off Btm: 2011.07.30 @ 22:45:00

**TEST COMMENT:** IF: Strong blow, Built to B.O.B in 1 1/2 mins.  
IS: Blow back, Built to B.O.B in 2 mins. GAS to surface in 10 mins.  
FF: Strong blow, Built to B.O.B in 30 sec.  
FS: Blow back, Built to B.O.B in 2 mi

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2436.38	118.88	Initial Hydro-static
9	127.88	119.18	Open To Flow (1)
23	233.83	129.15	Shut-In(1)
82	1004.42	129.66	End Shut-In(1)
84	267.33	129.29	Open To Flow (2)
146	583.90	132.65	Shut-In(2)
240	966.91	131.82	End Shut-In(2)
241	2262.37	132.22	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
187.00	ocm-10%o90%m	0.92
1575.00	go-30%g70%	22.09
0.00	2472 ft. gas in pipe	0.00

## Gas Rates

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



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 43725

**DST#: 5**

ATTN: Charlie Sturdavant

Test Start: 2011.07.30 @ 15:00:00

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 10900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
187.00	ocm-10%o90%m	0.920
1575.00	go-30%g70%o	22.093
0.00	2472 ft. gas in pipe	0.000

Total Length: 1762.00 ft      Total Volume: 23.013 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

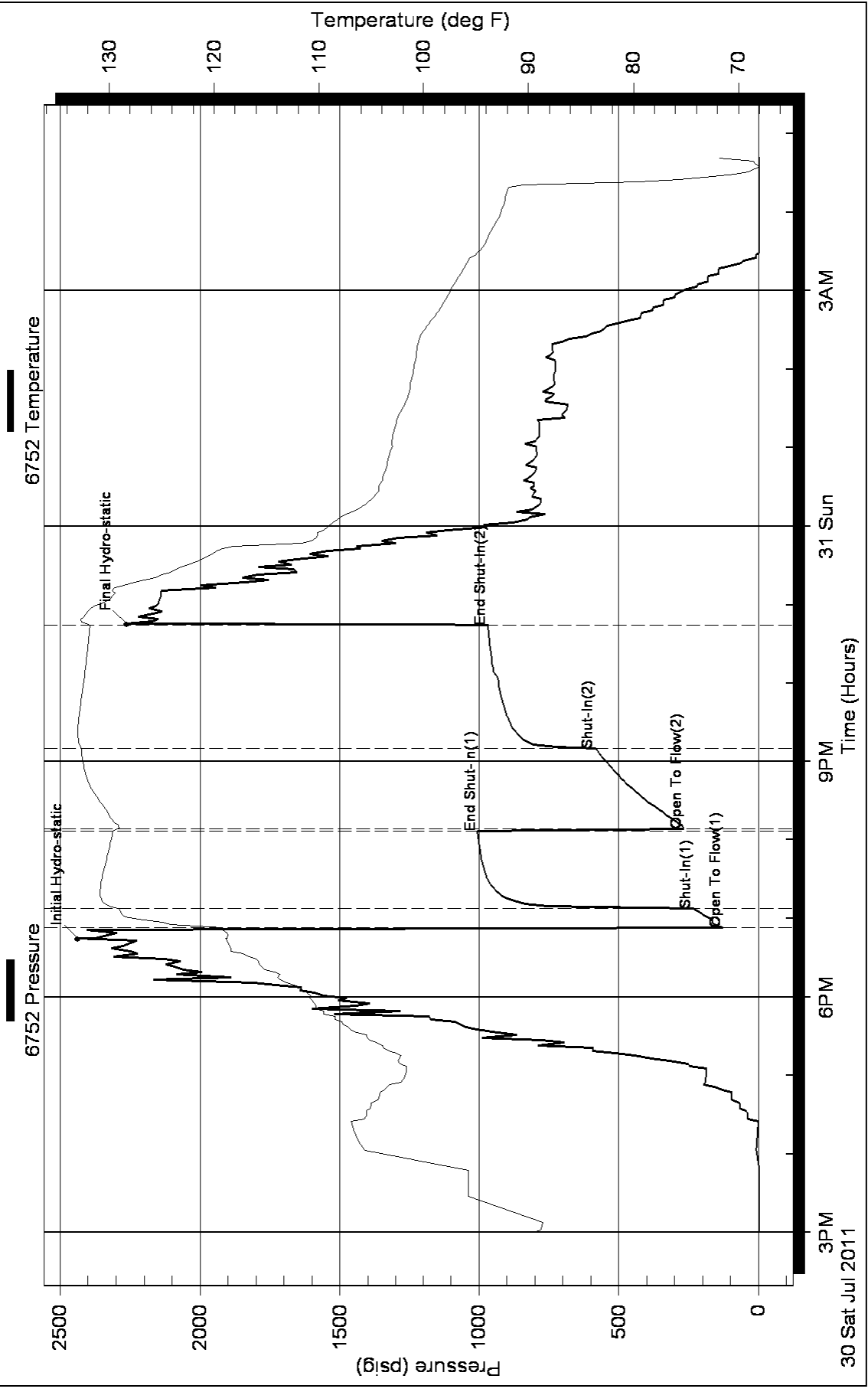
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





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# DRILL STEM TEST REPORT

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

ATTN: Charlie Sturdavant

Job Ticket: 041926

**DST#: 6**

Test Start: 2011.07.31 @ 18:30:00

## GENERAL INFORMATION:

Formation: **Johnsom**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:13:00

Time Test Ended: 03:50:30

Test Type: Conventional Bottom Hole

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 4644.00 ft (KB) To 4700.00 ft (KB) (TVD)**

Reference Elevations: 3194.00 ft (KB)

Total Depth: 4700.00 ft (KB) (TVD)

3184.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 6752 Inside**

Press @ Run Depth: 49.70 psig @ 4645.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2011.07.31

End Date:

2011.08.01

Last Calib.: 2011.08.01

Start Time: 18:30:05

End Time:

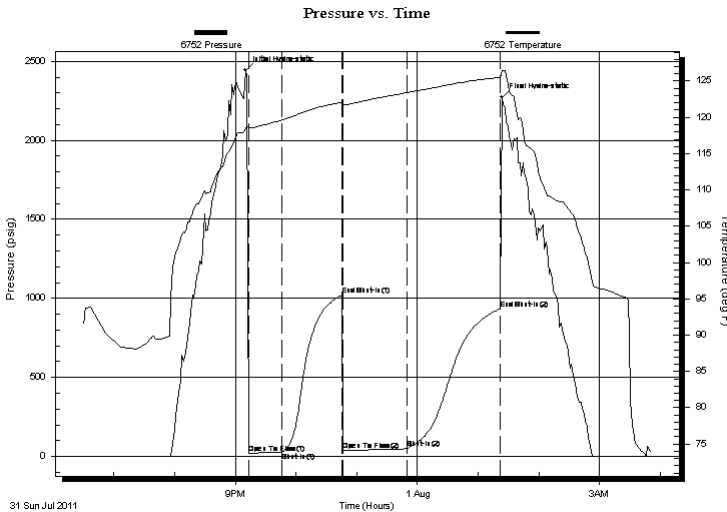
03:50:30

Time On Btm: 2011.07.31 @ 21:10:00

Time Off Btm: 2011.08.01 @ 01:23:30

**TEST COMMENT:** IF: Weak blow, Surface over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Surface over 30 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2442.64	118.52	Initial Hydro-static
3	21.18	118.58	Open To Flow (1)
36	29.01	119.64	Shut-In(1)
96	1021.54	122.12	End Shut-In(1)
97	36.47	121.79	Open To Flow (2)
160	49.70	123.40	Shut-In(2)
252	934.45	125.54	End Shut-In(2)
254	2273.19	126.39	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	ocm-30%o70%m	0.31
20.00	mo-30%m70%o	0.10

## Gas Rates

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





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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.

**Epard #1-27**

250 N. Water Ste. 300  
Wichita Ks. 67202

**27 10s 34w Thomas Ks**

Job Ticket: 041926

**DST#: 6**

ATTN: Charlie Sturdavant

Test Start: 2011.07.31 @ 18:30:00

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 10900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	ocm-30%o70%m	0.310
20.00	mo-30%m70%o	0.098

Total Length: 83.00 ft      Total Volume: 0.408 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time

