



## DRILL STEM TEST REPORT

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

250 N. Water Ste. 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Schulze #1-12**

#### **12-2s-24w Norton,KS**

Start Date: 2012.02.05 @ 02:40:00

End Date: 2012.02.05 @ 10:38:30

Job Ticket #: 042036                      DST #: 1

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.02.24 @ 14:33:33



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042036

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 02:40:00

## GENERAL INFORMATION:

Formation: **Tor-LKC,G**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:53:30

Time Test Ended: 10:38:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 3420.00 ft (KB) To 3570.00 ft (KB) (TVD)**

Reference Elevations: 2481.00 ft (KB)

Total Depth: 3570.00 ft (KB) (TVD)

2470.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 6752 Inside**

Press @ Run Depth: 145.92 psig @ 3421.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.05 End Date: 2012.02.05

Last Calib.: 2012.02.05

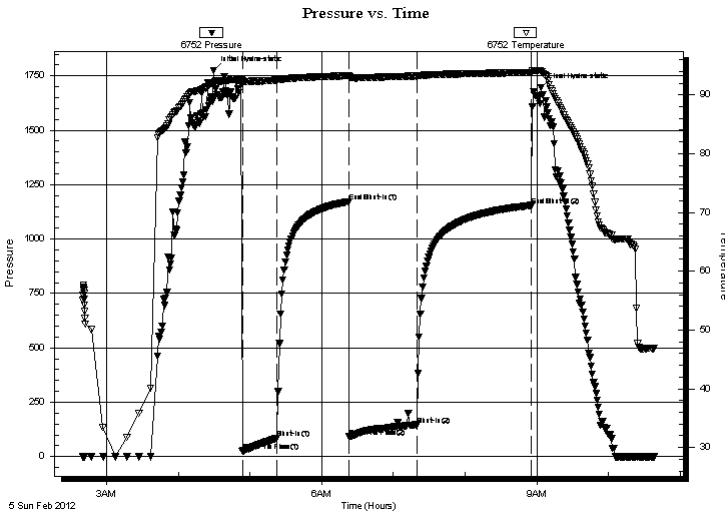
Start Time: 02:40:05 End Time: 10:38:29

Time On Btm: 2012.02.05 @ 04:29:30

Time Off Btm: 2012.02.05 @ 09:03:30

**TEST COMMENT:** IF: Weak blow, Built to 3 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Built to 3 in. over 60 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1775.30	92.05	Initial Hydro-static
24	23.87	92.37	Open To Flow (1)
53	85.07	92.54	Shut-In(1)
113	1171.95	93.26	End Shut-In(1)
114	90.21	93.09	Open To Flow (2)
170	145.92	93.21	Shut-In(2)
266	1154.86	93.82	End Shut-In(2)
274	1697.72	94.02	Final Hydro-static

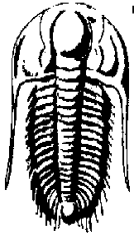
## Recovery

Length (ft)	Description	Volume (bbl)
271.00	w cm-20%w 80%m	1.61

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042036

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 02:40:00

## Tool Information

Drill Pipe:	Length: 3173.00 ft	Diameter: 3.80 inches	Volume: 44.51 bbl	Tool Weight: 2600.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 45.70 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3420.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	150.79 ft			
Tool Length:	178.79 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3397.00	
Hydraulic tool	5.00			3402.00	
Jars	5.00			3407.00	
Safety Joint	3.00			3410.00	
Packer	5.00			3415.00	28.00 Bottom Of Top Packer
Packer	5.00			3420.00	
Stubb	1.00			3421.00	
Recorder	0.00	6752	Inside	3421.00	
Recorder	0.00	6741	Outside	3421.00	
Perforations	5.00			3426.00	
Change Over Sub	0.60			3426.60	
Blank Spacing	125.59			3552.19	
Change Over Sub	0.60			3552.79	
Perforations	15.00			3567.79	
Bullnose	3.00			3570.79	150.79 Bottom Packers & Anchor

**Total Tool Length: 178.79**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.Inc.

**12-2s-24w Norton,KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042036

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 02:40:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
271.00	w cm-20%w 80%m	1.606

Total Length: 271.00 ft      Total Volume: 1.606 bbl

Num Fluid Samples: 0

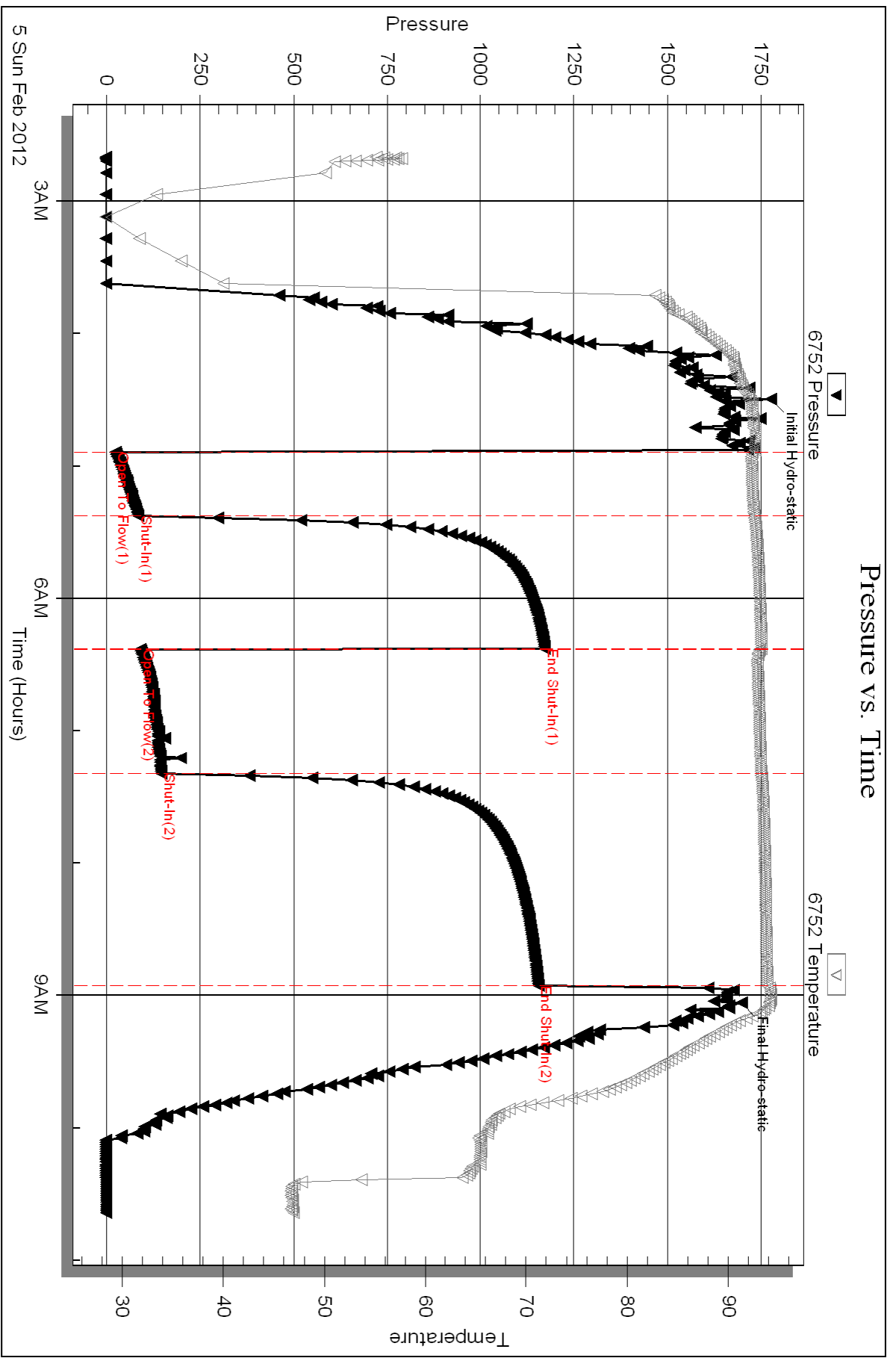
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

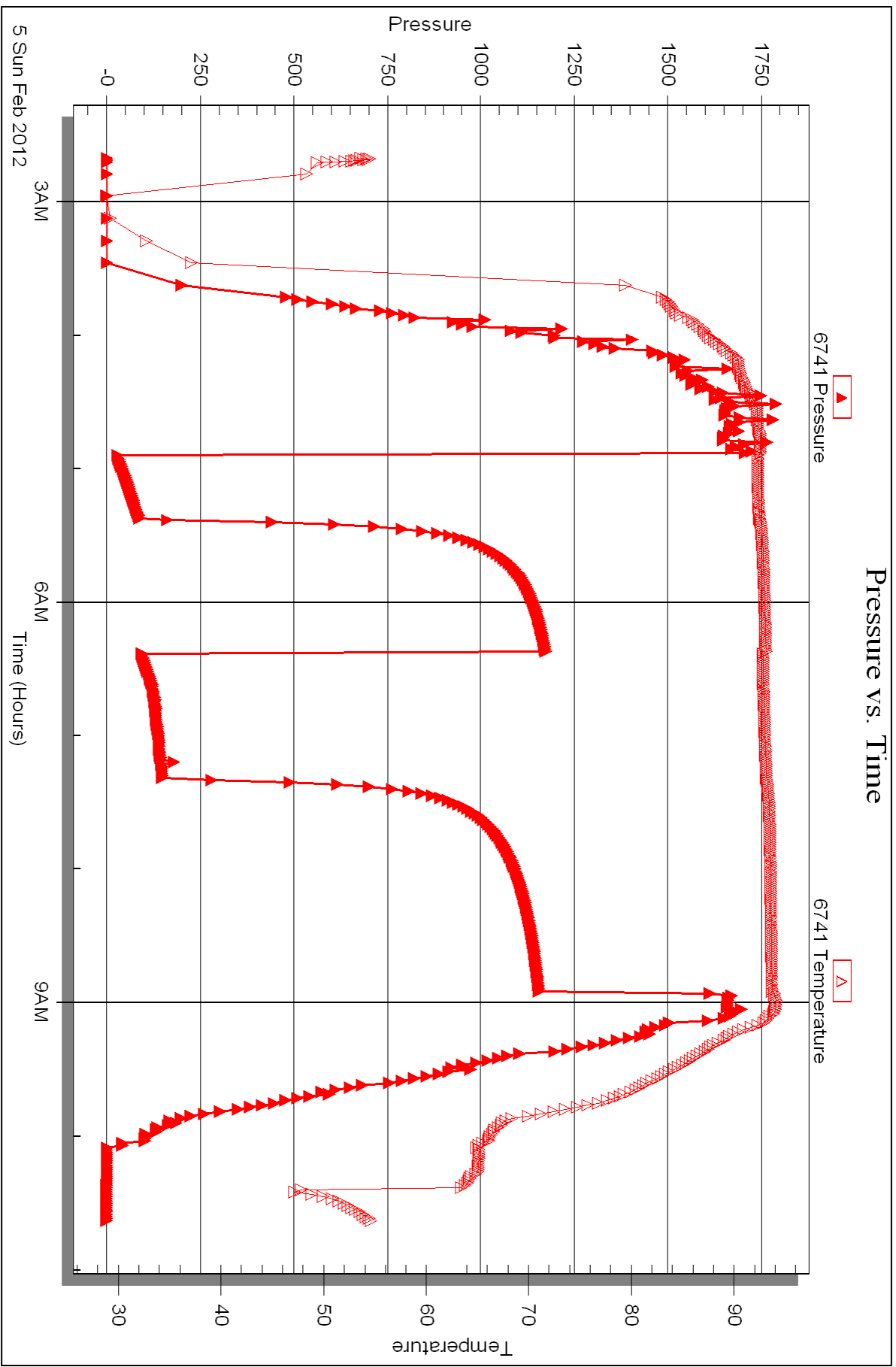


Serial #: 6741

Outside Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N. Water Ste. 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Schulze #1-12**

### **12-2s-24w Norton,KS**

Start Date: 2012.02.05 @ 23:10:00

End Date: 2012.02.06 @ 06:33:00

Job Ticket #: 042037                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.02.24 @ 14:29:56

Murfin Drilling Co.Inc. 12-2s-24w Norton,KS Schulze #1-12 DST # 2 LKC:H-K 2012.02.05





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042037

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 23:10:00

## GENERAL INFORMATION:

Formation: **LKC H-K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:45:30

Time Test Ended: 06:33:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 3567.00 ft (KB) To 3650.00 ft (KB) (TVD)**

Reference Elevations: 2481.00 ft (KB)

Total Depth: 3650.00 ft (KB) (TVD)

2470.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 6752**

**Inside**

Press @ Run Depth: 183.79 psig @ 3568.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.05

End Date:

2012.02.06

Last Calib.:

2012.02.06

Start Time: 23:10:05

End Time:

06:32:59

Time On Btm:

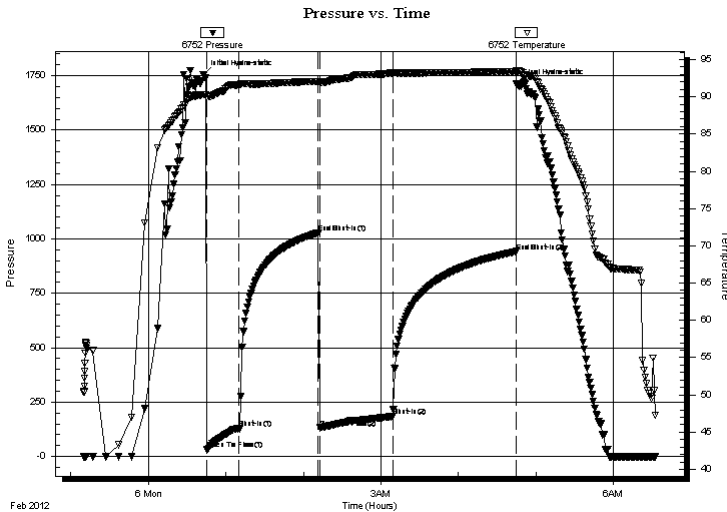
2012.02.06 @ 00:42:30

Time Off Btm:

2012.02.06 @ 04:45:00

**TEST COMMENT:** IF: Weak blow, Built to 5 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow, Built to 5 in. over 60 mins.  
FS: No blow back over 90 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1752.78	90.27	Initial Hydro-static
3	30.98	89.98	Open To Flow (1)
28	128.75	91.63	Shut-In(1)
89	1028.49	92.08	End Shut-In(1)
90	132.14	91.97	Open To Flow (2)
147	183.79	93.18	Shut-In(2)
242	941.82	93.39	End Shut-In(2)
243	1713.77	93.54	Final Hydro-static

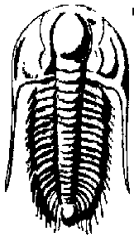
## Recovery

Length (ft)	Description	Volume (bbl)
121.00	w cm-20%w 80%m	0.60
202.00	mud-100%m	1.74

## Gas Rates

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

\* Recovery from multiple tests



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

250 N. Water Ste. 300  
Wichita KS 67202

ATTN: Robert Hendrix

**12-2s-24w Norton, KS**

**Schulze #1-12**

Job Ticket: 042037

**DST#: 2**

Test Start: 2012.02.05 @ 23:10:00

### GENERAL INFORMATION:

Formation: **LKC H-K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:45:30

Time Test Ended: 06:33:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreutzer Jr.

Unit No: 36

**Interval: 3567.00 ft (KB) To 3650.00 ft (KB) (TVD)**

Total Depth: 3650.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2481.00 ft (KB)

2470.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 6741 Outside**

Press @ RunDepth: psig @ 3568.00 ft (KB)

Start Date: 2012.02.05 End Date: 2012.02.06

Start Time: 23:10:05 End Time: 06:32:29

Capacity: 8000.00 psig

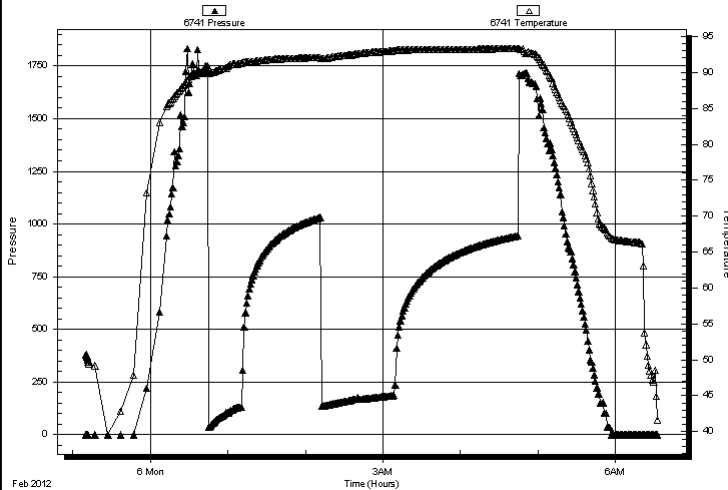
Last Calib.: 2012.02.06

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: Weak blow , Built to 5 in. over 30 mins.  
IS: No blow back over 60 mins.  
FF: Weak blow , Built to 5 in. over 60 mins.  
FS: No blow back over 90 mins.

Pressure vs. Time



### PRESSURE SUMMARY

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

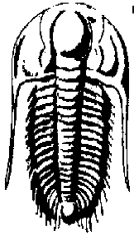
### Recovery

Length (ft)	Description	Volume (bbl)
121.00	w cm-20%w 80%m	0.60
202.00	mud-100%m	1.74

### 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.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042037

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 23:10:00

## Tool Information

Drill Pipe:	Length: 3323.00 ft	Diameter: 3.80 inches	Volume: 46.61 bbl	Tool Weight: 2600.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 47.80 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3567.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.95 ft			
Tool Length:	111.95 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3544.00	
Hydraulic tool	5.00			3549.00	
Jars	5.00			3554.00	
Safety Joint	3.00			3557.00	
Packer	5.00			3562.00	28.00 Bottom Of Top Packer
Packer	5.00			3567.00	
Stubb	1.00			3568.00	
Recorder	0.00	6752	Inside	3568.00	
Recorder	0.00	6741	Outside	3568.00	
Perforations	3.00			3571.00	
Change Over Sub	0.60			3571.60	
Blank Spacing	62.75			3634.35	
Change Over Sub	0.60			3634.95	
Perforations	13.00			3647.95	
Bullnose	3.00			3650.95	83.95 Bottom Packers & Anchor

**Total Tool Length: 111.95**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co.Inc.

**12-2s-24w Norton,KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042037

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.05 @ 23:10:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
121.00	w cm-20%w 80%m	0.595
202.00	mud-100%m	1.740

Total Length: 323.00 ft

Total Volume: 1.606 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

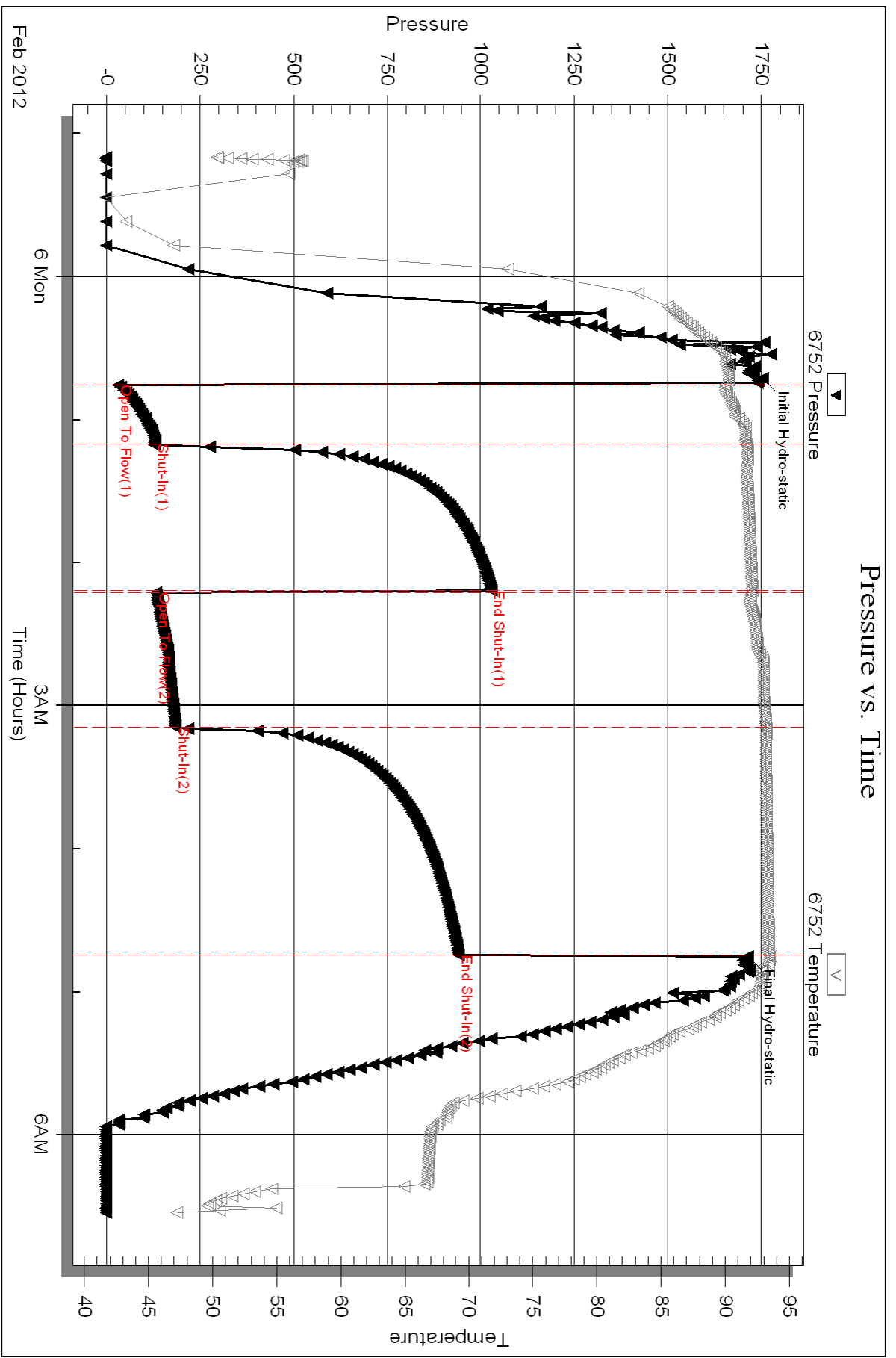
Serial #: 6752

Inside

Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 042037

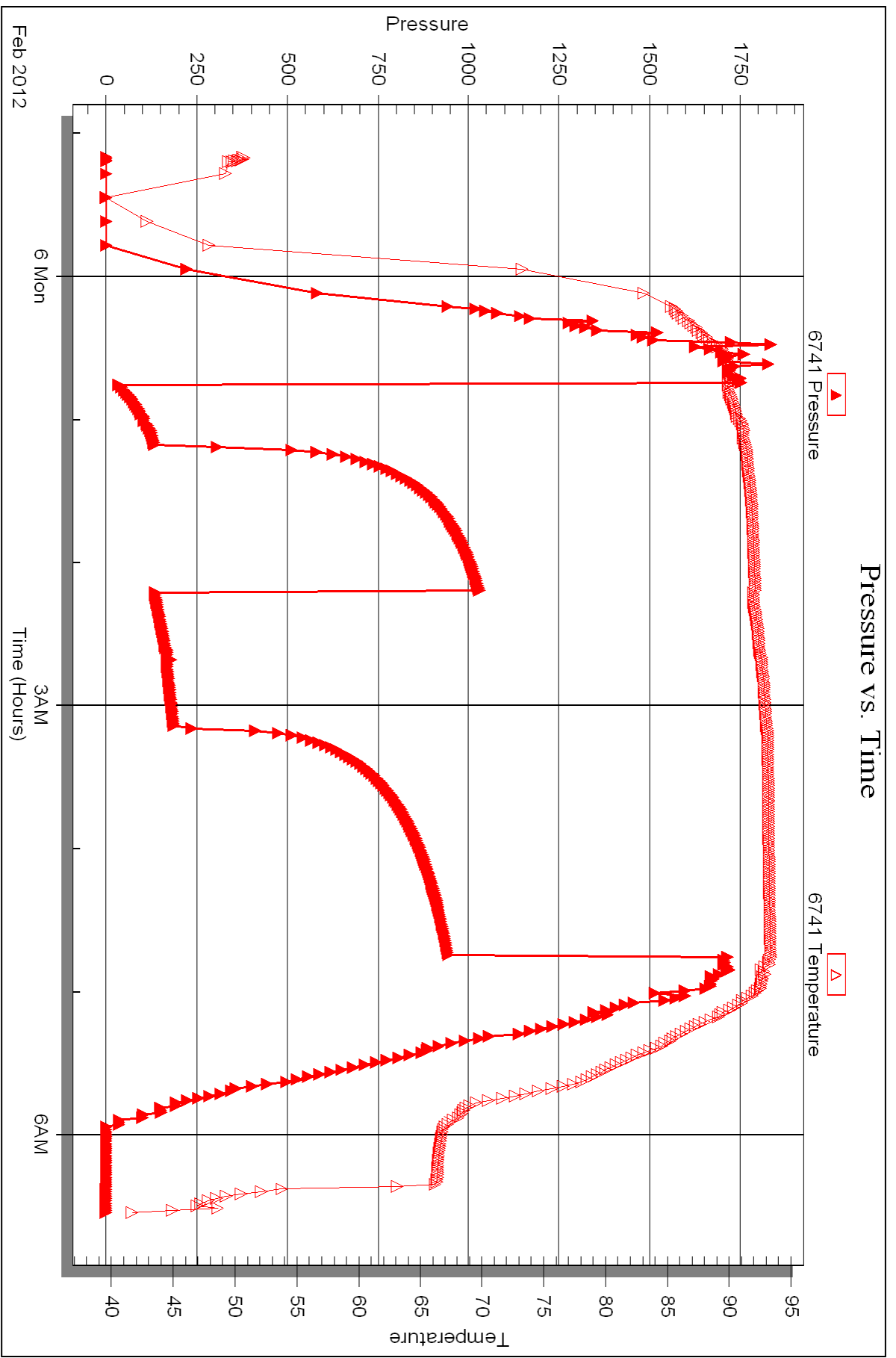
Printed: 2012.02.24 @ 14:29:58

Serial #: 6741

Outside Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N. Water Ste. 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Schulze #1-12**

### **12-2s-24w Norton,KS**

Start Date: 2012.02.06 @ 19:20:00

End Date: 2012.02.07 @ 01:41:00

Job Ticket #: 042038                      DST #: 3

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.02.24 @ 14:28:38



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042038

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.06 @ 19:20:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:01:30

Time Test Ended: 01:41:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Kreuzer Jr.

Unit No: 36

**Interval: 3681.00 ft (KB) To 3735.00 ft (KB) (TVD)**

Reference Elevations: 2481.00 ft (KB)

Total Depth: 3735.00 ft (KB) (TVD)

2470.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 6752 Inside**

Press @ Run Depth: 47.00 psig @ 3682.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.06

End Date:

2012.02.07

Last Calib.:

2012.02.07

Start Time:

19:20:05

End Time:

01:40:59

Time On Btm:

2012.02.06 @ 20:57:30

Time Off Btm:

2012.02.06 @ 23:58:30

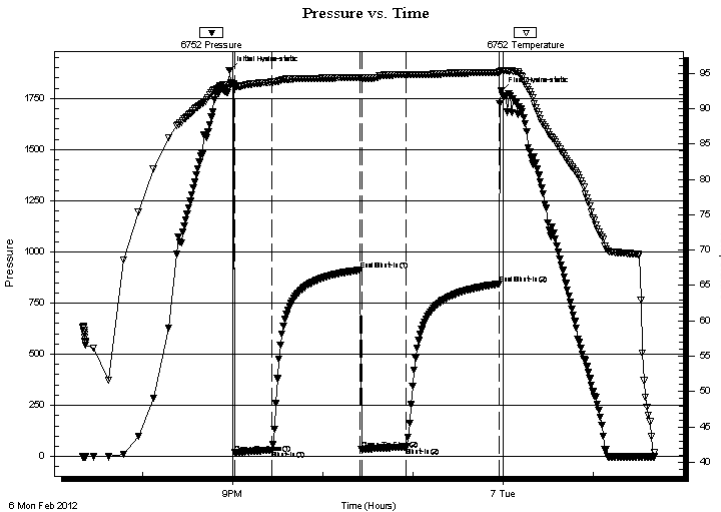
**TEST COMMENT:** IF: Weak blow, built to surface over 30 mins.

IS: No blow back over 60 mins.

FF: No blow over 30 mins.

FS: No blow back over 60 mins.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1886.88	93.36	Initial Hydro-static
4	17.61	92.99	Open To Flow (1)
28	30.97	93.72	Shut-In(1)
87	910.72	94.42	End Shut-In(1)
88	33.29	94.31	Open To Flow (2)
118	47.00	94.79	Shut-In(2)
180	843.39	95.08	End Shut-In(2)
181	1785.22	95.32	Final Hydro-static

## Recovery

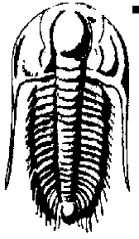
Length (ft)	Description	Volume (bbl)
62.00	Mud 100M	0.30

\* Recovery from multiple tests

## Gas Rates

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





# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
250 N. Water Ste. 300  
Wichita KS 67202  
ATTN: Robert Hendrix

**12-2s-24w Norton,KS**  
**Schulze #1-12**  
Job Ticket: 042038     **DST#: 3**  
Test Start: 2012.02.06 @ 19:20:00

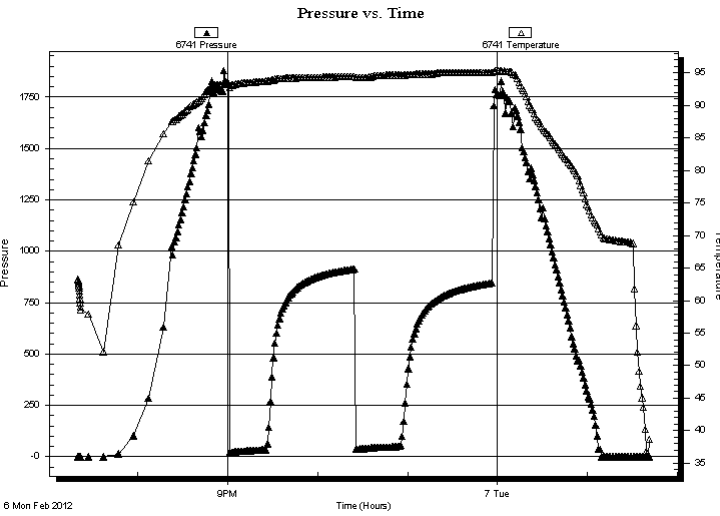
### GENERAL INFORMATION:

Formation: **Arbuckle**  
Deviated: No     Whipstock:     ft (KB)     Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 21:01:30     Tester: Chuck Kreuzer Jr.  
Time Test Ended: 01:41:00     Unit No: 36  
**Interval: 3681.00 ft (KB) To 3735.00 ft (KB) (TVD)**     Reference Elevations: 2481.00 ft (KB)  
Total Depth: 3735.00 ft (KB) (TVD)     2470.00 ft (CF)  
Hole Diameter: 7.88 inches     Hole Condition: Fair     KB to GR/CF: 11.00 ft

**Serial #: 6741     Outside**  
Press @ RunDepth:     psig @ 3682.00 ft (KB)     Capacity: 8000.00 psig  
Start Date: 2012.02.06     End Date: 2012.02.07     Last Calib.: 2012.02.07  
Start Time: 19:20:05     End Time: 01:41:59     Time On Btm:  
Time Off Btm:

**TEST COMMENT:** IF: Weak blow , built to surface over 30 mins.  
IS: No blow back over 60 mins.  
FF: No blow over 30 mins.  
FS: No blow back over 60 mins.

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
62.00	Mud 100M	0.30

### 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.

**12-2s-24w Norton,KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042038

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.06 @ 19:20:00

## Tool Information

Drill Pipe:	Length: 3424.00 ft	Diameter: 3.80 inches	Volume: 48.03 bbl	Tool Weight: 2600.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 61000.00 lb
			<u>Total Volume: 49.22 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 59000.00 lb
Depth to Top Packer:	3681.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	54.79 ft			
Tool Length:	82.79 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			3658.00	
Hydraulic tool	5.00			3663.00	
Jars	5.00			3668.00	
Safety Joint	3.00			3671.00	
Packer	5.00			3676.00	28.00 Bottom Of Top Packer
Packer	5.00			3681.00	
Stubb	1.00			3682.00	
Recorder	0.00	6752	Inside	3682.00	
Recorder	0.00	6741	Outside	3682.00	
Perforations	3.00			3685.00	
Change Over Sub	0.60			3685.60	
Blank Spacing	31.59			3717.19	
Change Over Sub	0.60			3717.79	
Perforations	15.00			3732.79	
Bullnose	3.00			3735.79	54.79 Bottom Packers & Anchor

**Total Tool Length: 82.79**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co.Inc.

**12-2s-24w Norton,KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 042038

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.06 @ 19:20:00

## 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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	Mud 100M	0.305

Total Length: 62.00 ft      Total Volume: 0.305 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

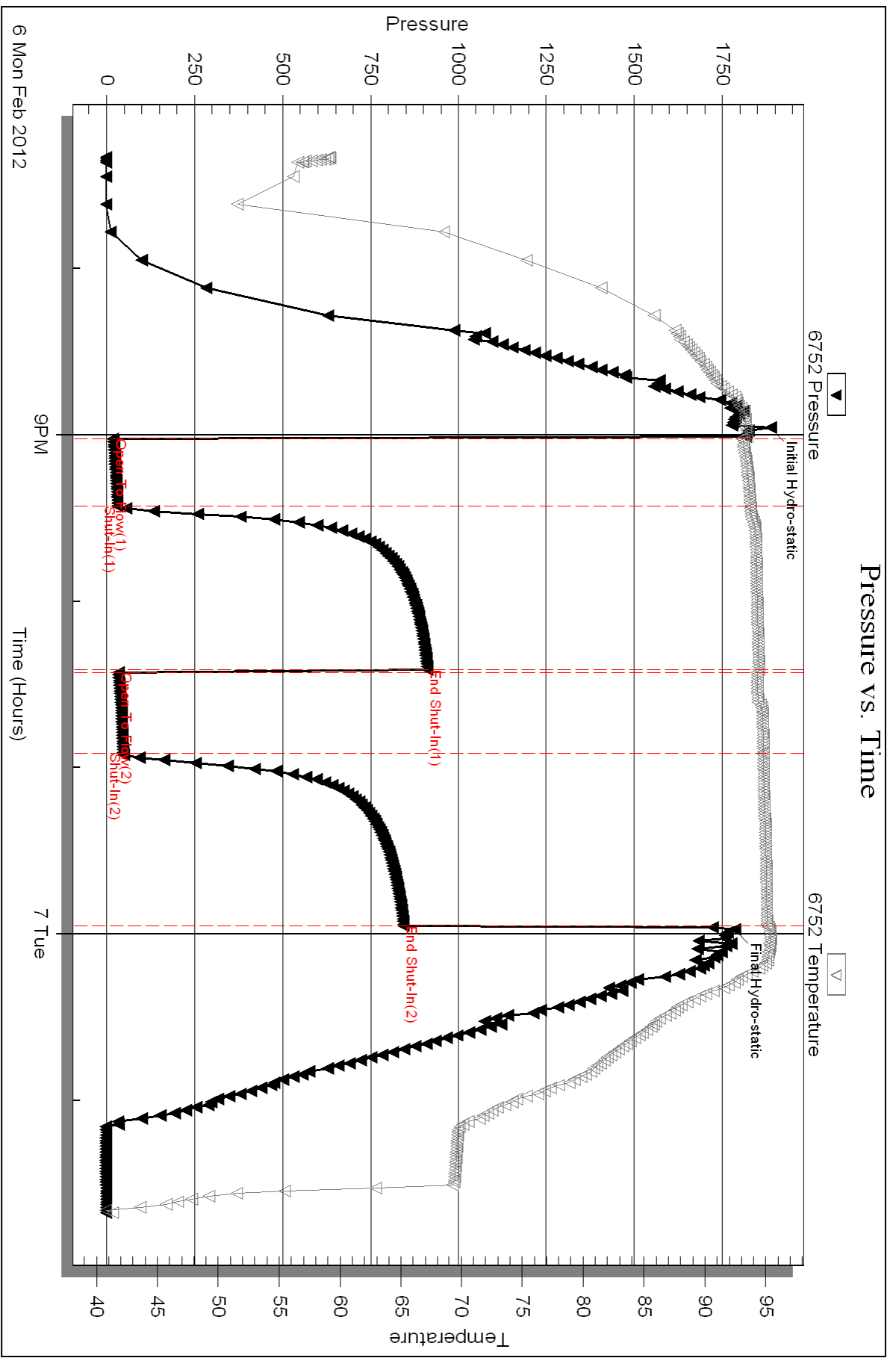
Serial #: 6752

Inside

Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 042038

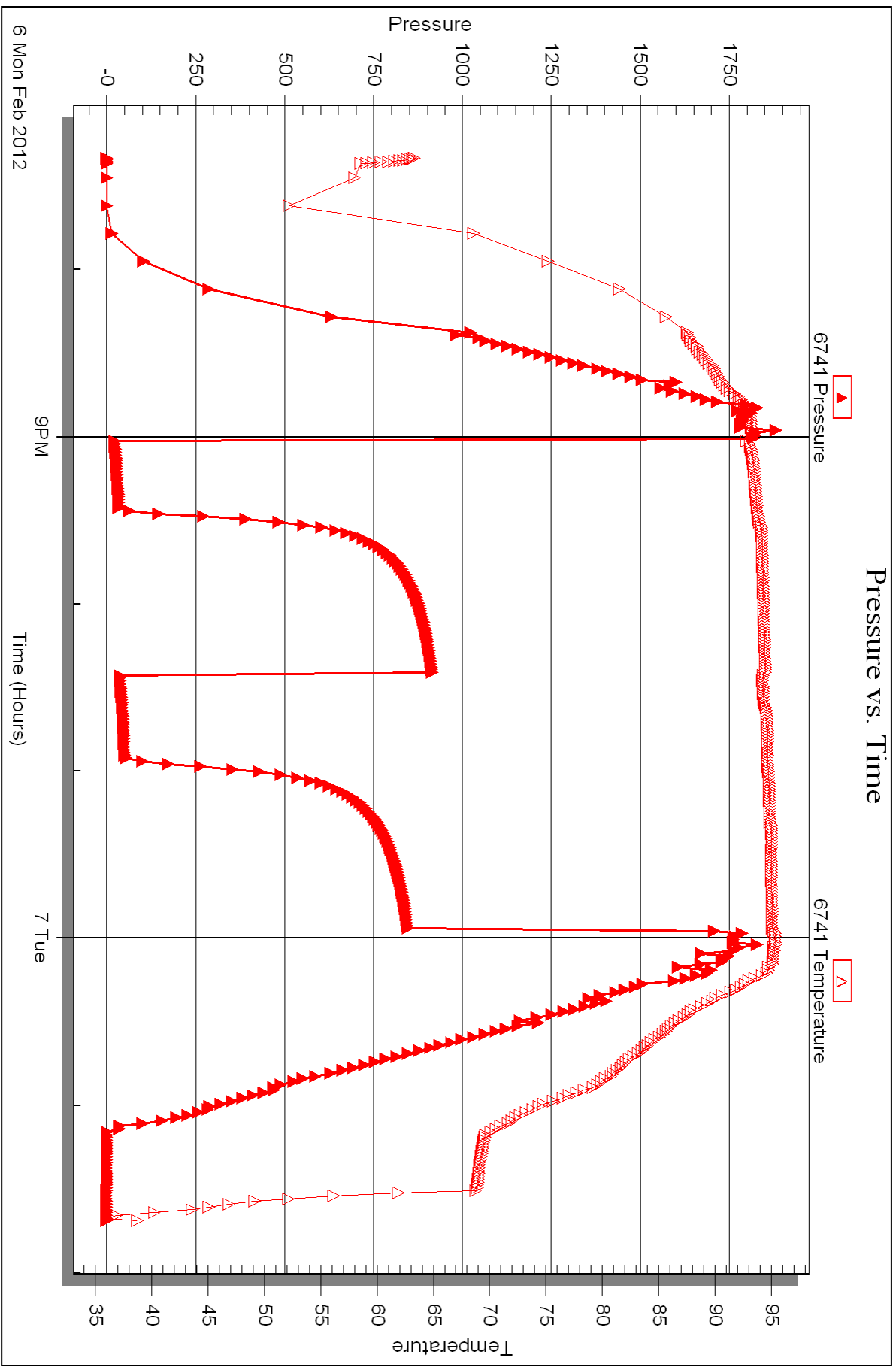
Printed: 2012.02.24 @ 14:28:40

Serial #: 6741

Outside Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 3





## DRILL STEM TEST REPORT

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

250 N. Water Ste. 300  
Wichita KS 67202

ATTN: Robert Hendrix

### **Schulze #1-12**

### **12-2s-24w Norton,KS**

Start Date: 2012.02.07 @ 11:54:00

End Date: 2012.02.07 @ 17:57:00

Job Ticket #: 43100                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.02.24 @ 14:27:35

Murfin Drilling Co.Inc. 12-2s-24w Norton,KS Schulze #1-12 DST # 4 Reagan Sand 2012.02.07



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 43100

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2012.02.07 @ 11:54:00

## GENERAL INFORMATION:

Formation: **Reagan Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:28:30

Time Test Ended: 17:57:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

**Interval: 3728.00 ft (KB) To 3760.00 ft (KB) (TVD)**

Reference Elevations: 2481.00 ft (KB)

Total Depth: 3760.00 ft (KB) (TVD)

2470.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8648**

**Inside**

Press @ Run Depth: 750.74 psig @ 3729.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.07

End Date:

2012.02.07

Last Calib.:

2012.02.07

Start Time:

11:54:05

End Time:

17:56:59

Time On Btm:

2012.02.07 @ 13:28:00

Time Off Btm:

2012.02.07 @ 15:49:30

## TEST COMMENT:

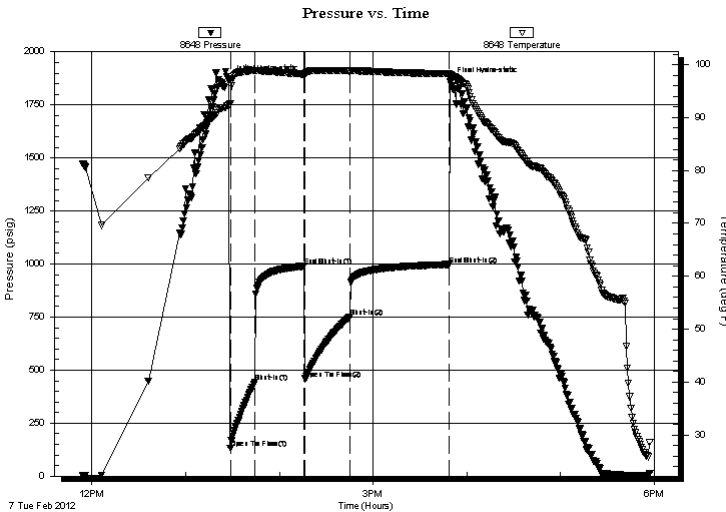
IF- BOB in 1 min.

IS- Weak surface return started at 10 min. Built to 1/2"

FF- BOB in 1 1/2 min.

FS- No Return

## PRESSURE SUMMARY



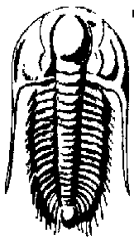
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1868.60	92.32	Initial Hydro-static
1	130.11	92.51	Open To Flow (1)
17	442.39	98.84	Shut-In(1)
48	989.88	98.21	End Shut-In(1)
49	459.16	98.08	Open To Flow (2)
77	750.74	98.81	Shut-In(2)
141	997.63	98.25	End Shut-In(2)
142	1860.09	98.08	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud (Heavy) 100M	0.02
547.00	W 100W (Mud trace)	5.52
682.00	MW 95W 5M	9.57
434.00	MW 50M 50W	6.09

## Gas Rates

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

ATTN: Robert Hendrix

Job Ticket: 43100

**DST#: 4**

Test Start: 2012.02.07 @ 11:54:00

**GENERAL INFORMATION:**

Formation: **Reagan Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:28:30

Time Test Ended: 17:57:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 43

Interval: **3728.00 ft (KB) To 3760.00 ft (KB) (TVD)**

Total Depth: 3760.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2481.00 ft (KB)

2470.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 6799 Inside**

Press@RunDepth: psig @ 3729.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.07 End Date: 2012.02.07

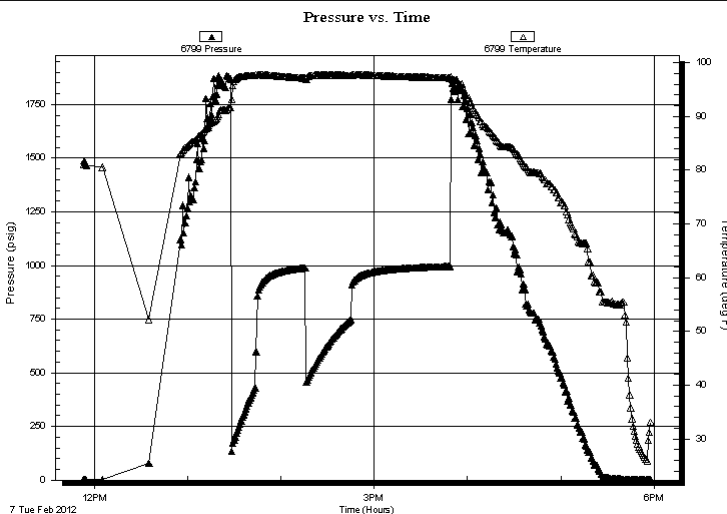
Last Calib.: 2012.02.07

Start Time: 11:53:20 End Time: 17:57:44

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF- BOB in 1 min.  
IS- Weak surface return started at 10 min. Built to 1/2"  
FF- BOB in 1 1/2 min.  
FS- No Return



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	Mud (Heavy) 100M	0.02
547.00	W 100W (Mud trace)	5.52
682.00	MW 95W 5M	9.57
434.00	MW 50M 50W	6.09

**Gas Rates**

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 43100

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2012.02.07 @ 11:54:00

## Tool Information

Drill Pipe:	Length: 3483.00 ft	Diameter: 3.80 inches	Volume: 48.86 bbl	Tool Weight: 2200.00 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: 241.00 ft	Diameter: 2.25 inches	Volume: 1.19 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 50.05 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3728.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	56.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3705.00	
Shut In Tool	5.00			3710.00	
Hydraulic tool	5.00			3715.00	
Safety Joint	3.00			3718.00	
Packer	5.00			3723.00	24.00 Bottom Of Top Packer
Packer	5.00			3728.00	
Stubb	1.00			3729.00	
Recorder	0.00	8648	Inside	3729.00	
Recorder	0.00	6799	Inside	3729.00	
Perforations	26.00			3755.00	
Bullnose	5.00			3760.00	32.00 Bottom Packers & Anchor

**Total Tool Length: 56.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**12-2s-24w Norton, KS**

250 N. Water Ste. 300  
Wichita KS 67202

**Schulze #1-12**

Job Ticket: 43100

**DST#: 4**

ATTN: Robert Hendrix

Test Start: 2012.02.07 @ 11:54:00

## 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:

28500 ppm

Viscosity: 85.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
5.00	Mud (Heavy) 100M	0.025
547.00	W 100W (Mud trace)	5.523
682.00	MW 95W 5M	9.567
434.00	MW 50M 50W	6.088

Total Length: 1668.00 ft      Total Volume: 21.203 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .41 @ 43 deg. = 28,500 ppm

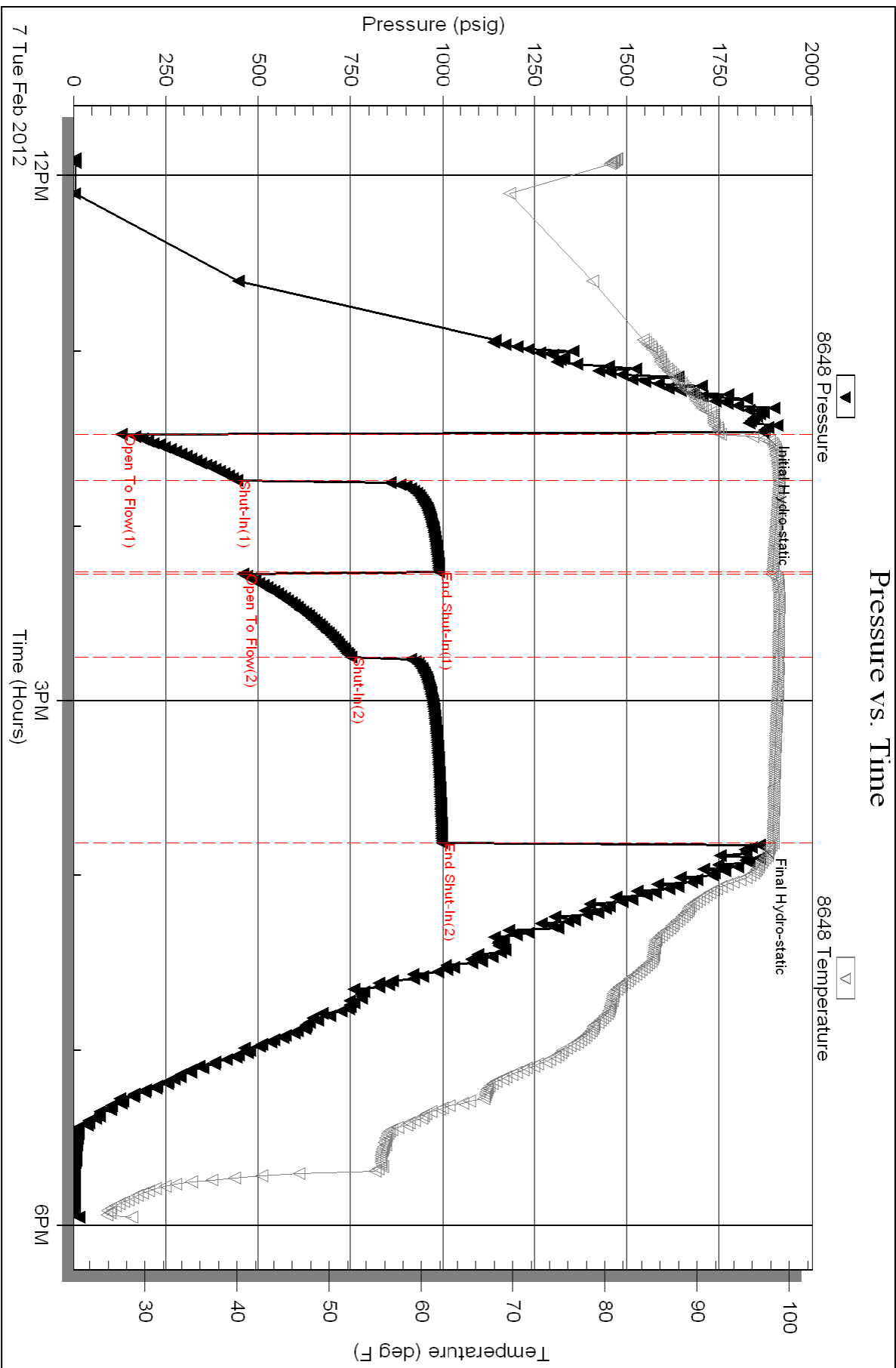
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Inside

Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 4



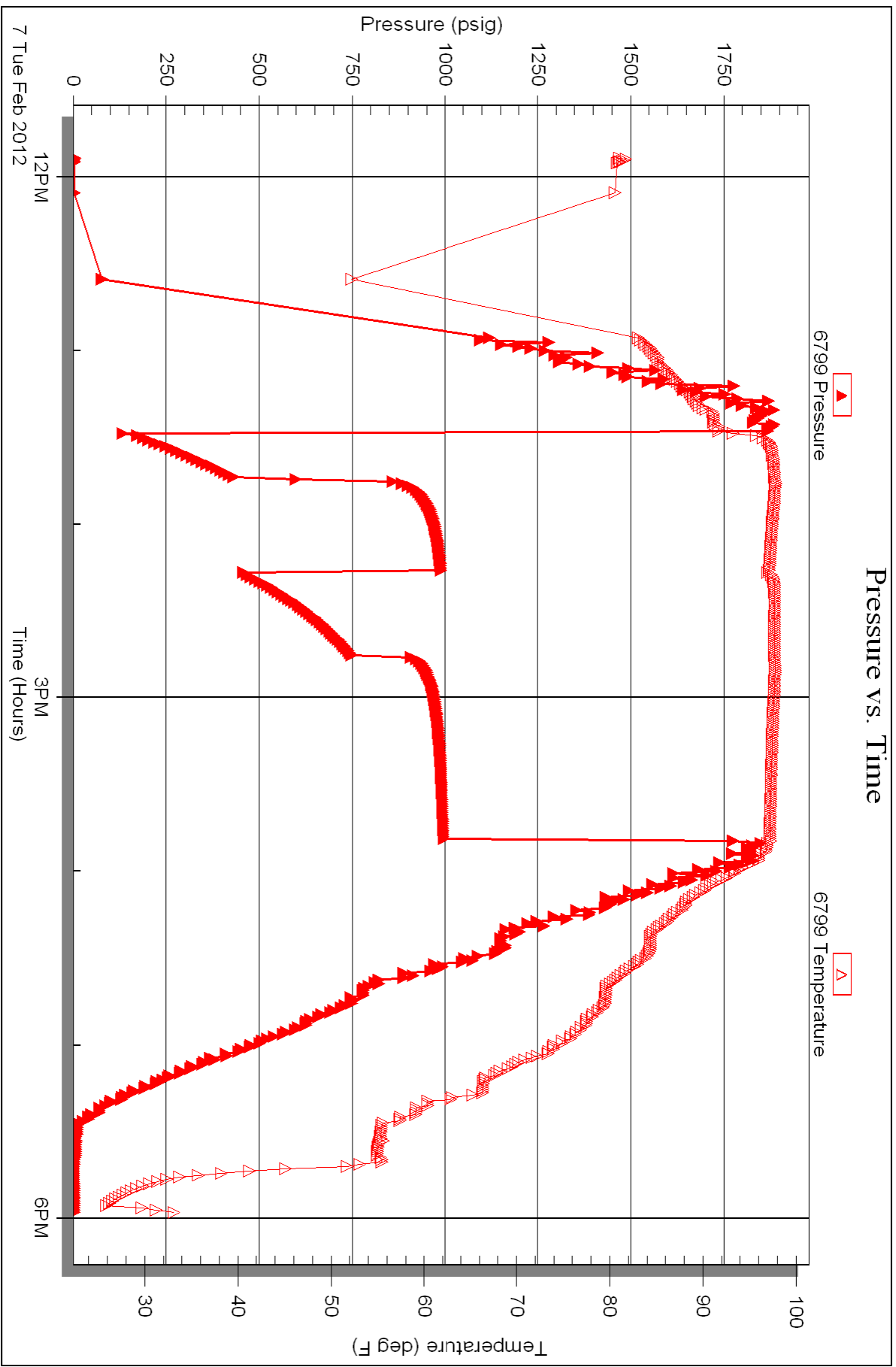
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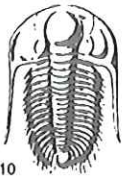
Inside

Murfin Drilling Co. Inc.

Schulze #1-12

DST Test Number: 4





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 07 2012

## Test Ticket

NO. 042036

4/10

BY: \_\_\_\_\_

Well Name & No. Schulze #1-12 Test No. 1 Date 02-05-2012  
 Company Murfin Drilling Co. Inc Elevation 2481 KB 2470 GL  
 Address 250 N. Water Ste 300 Wichita Ks. 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 12 Twp. 2S Rge. 24W Co. Norton State Ks

Interval Tested 3420 3570 Zone Tested tor-LKC  
 Anchor Length 150 Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.5  
 Top Packer Depth 3415 Drill Collars Run 241 Vis 54  
 Bottom Packer Depth 3420 Wt. Pipe Run 0 WL 7.2  
 Total Depth 3570 Chlorides 1300 ppm System LCM 0#

Blow Description IF: weak blow, built to 3in over 30mins

ISI: No blow back over 60mins

FF: weak blow, built to 3in over 60mins

FSD: No blow back over 90mins

Rec	Feet of	%gas	%oil	%water	%mud
<u>271</u>	<u>WCM</u>		<u>20</u>	<u>80</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

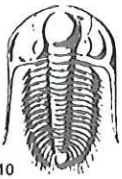
Rec Total 271 BHT 93.8 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1775</u>	<input checked="" type="checkbox"/> Test <u>1125</u>	T-On Location <u>1:45</u>
(B) First Initial Flow <u>24</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2:40</u>
(C) First Final Flow <u>85</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>4:53</u>
(D) Initial Shut-In <u>1172</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>8:50</u>
(E) Second Initial Flow <u>90</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>10:38</u>
(F) Second Final Flow <u>146</u>	<input checked="" type="checkbox"/> Mileage <u>41x2 = 82x1.40 = 114.80</u>	Comments _____
(G) Final Shut-In <u>1155</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1698</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1564.80</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1564.80</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]

TriLOBite Testing Inc. shall not be liable for damaged of 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.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 07 2012

## Test Ticket

NO. 042037

4/10

BY: \_\_\_\_\_

Well Name & No. Schulze #1-12 Test No. 2 Date 02-05-2012  
 Company Murfin Drilling Co Inc Elevation 2481 KB 2470 GL  
 Address 250 N. Water Ste. 300 Wichita Ks 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 12 Twp. 25 Rge. 24w Co. Norton State Ks

Interval Tested 3567 3650 Zone Tested LKc-H-K  
 Anchor Length 83 Drill Pipe Run 3323 Mud Wt. 9.4  
 Top Packer Depth 3562 Drill Collars Run 241 Vis 72  
 Bottom Packer Depth 3567 Wt. Pipe Run -0- WL -6.4  
 Total Depth 3650 Chlorides 1800 ppm System LCM 0#

Blow Description IF: weak blow, built to 5 in. over 30 mins  
ISF: No blow back over 60 mins  
FF: weak blow <sup>built</sup> ~~back~~ to 5 in. over 60 mins  
FSD: No blow back over 90 mins

Rec	Feet of	%gas	%oil	%water	%mud
<u>202</u>	<u>mud</u>			<u>100</u>	
<u>121</u>	<u>wcm</u>		<u>20</u>	<u>80</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

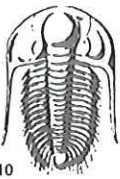
Rec Total 323 BHT 93.4 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1753  Test 1125 T-On Location 22:49  
 (B) First Initial Flow 31  Jars 250 T-Started 23:10  
 (C) First Final Flow 129  Safety Joint 75 T-Open 00:45  
 (D) Initial Shut-In 1028  Circ Sub \_\_\_\_\_ T-Pulled 4:40  
 (E) Second Initial Flow 132  Hourly Standby \_\_\_\_\_ T-Out 6:33  
 (F) Second Final Flow 184  Mileage 41x2 = 82x1.40 = 114.80 Comments \_\_\_\_\_  
 (G) Final Shut-In 942  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1714  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1564.80  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 00 Sub Total 1564.80

Approved By \_\_\_\_\_

Our Representative Chris Hendrix

TriLOBite Testing Inc. shall not be liable for damaged of 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.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 23 2012

## Test Ticket

NO. 042038

BY: \_\_\_\_\_

Well Name & No. Schulze #1-12 Test No. 3 Date 02-06-2012  
 Company Murfin Drilling Co. Inc. Elevation 2481 KB 2470 GL \_\_\_\_\_  
 Address 250 N. Water Ste. 300 Wichita Ks 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 12 Twp. 25 Rge. 24W Co. Norton State Ks

Interval Tested 3681 3735 Zone Tested Arbuckle  
 Anchor Length \_\_\_\_\_ 54 Drill Pipe Run 3424 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ 3676 Drill Collars Run 241 Vis 52  
 Bottom Packer Depth \_\_\_\_\_ 3681 Wt. Pipe Run -0- WL 6.8  
 Total Depth \_\_\_\_\_ 3735 Chlorides 1800 ppm System LCM 2#

Blow Description IF: Weak blow, Built to surface over 30 mins.  
ISI: No blow back over 60mins  
FF: No blow over 30mins  
FSI: No blow back over 60mins.

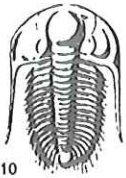
Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 62 BHT 95.1 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1887</u>	<input checked="" type="checkbox"/> Test <u>1125'</u>	T-On Location <u>18:56</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250'</u>	T-Started <u>19:20</u>
(C) First Final Flow <u>31</u>	<input checked="" type="checkbox"/> Safety Joint <u>75'</u>	T-Open <u>21:01</u>
(D) Initial Shut-In <u>911</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>23:45</u>
(E) Second Initial Flow <u>33</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>01:41</u>
(F) Second Final Flow <u>47</u>	<input checked="" type="checkbox"/> Mileage <u>41x2 = 82x1.40</u>	Comments <u>114.80</u>
(G) Final Shut-In <u>843</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1785</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1564.80</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	
	Sub Total <u>1564.80</u>	

Approved By \_\_\_\_\_ Our Representative Chad [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of 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.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 043100

RECEIVED  
FEB 15 2012

Well Name & No. Schulze # 1-12 Test No. 4 Date 2-7-12  
 Company Murfin Drilling Co. Inc Elevation 2481 KB 2470 GL  
 Address 250 N. Water STE #300 Wichita, KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #2J  
 Location: Sec. 12 Twp. 2S Rge. 24W Co. Norton State KS

Interval Tested ~~3681-3733~~ Zone Tested Reagan Sand  
 Anchor Length 3728-3760<sup>3</sup> 32' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.3  
 Top Packer Depth 3724 Drill Collars Run 241' Vis 85  
 Bottom Packer Depth 3728 Wt. Pipe Run Ø WL 6.0  
 Total Depth 3760 Chlorides 2,000 ppm System LCM 2#

Blow Description IF-BoB in 1min  
IS-Weak surface return started at 10 min. Built to 1/2"  
FF-BoB in 1 1/2 min.  
FS-No Return

Rec	Feet of	MW	%gas	%oil	%water	%mud
<u>434</u>		<u>MW</u>		<u>50</u>	<u>50</u>	
<u>682</u>		<u>MW</u>		<u>95</u>	<u>5</u>	
<u>547</u>		<u>W</u>		<u>100</u>	<u>TR</u>	
<u>5</u>					<u>600</u>	

Rec Total 1668 BHT 100 Gravity - API RW .41 @ 43 °F Chlorides 28,500 ppm  
 (A) Initial Hydrostatic 1868  Test 1125' T-On Location 8:00 AM  
 (B) First Initial Flow 130  Jars \_\_\_\_\_ T-Started 11:54 AM  
 (C) First Final Flow 442  Safety Joint 75' T-Open 1:30 PM  
 (D) Initial Shut-In 989  Circ Sub N/C T-Pulled 3:45 PM  
 (E) Second Initial Flow 459  Hourly Standby 1hr 100' T-Out 6:00 PM  
 (F) Second Final Flow 250  Mileage 82 RT 114.80 Comments Had to wait on  
 (G) Final Shut-In 997  Sampler \_\_\_\_\_ car to clear lease  
 (H) Final Hydrostatic 1860  Straddle \_\_\_\_\_ road.  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 15 Sub Total Ø  
 Initial Shut-In 30 Total 1414.80  
 Final Flow 30 MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60  Accessibility \_\_\_\_\_  
 Sub Total 1414.80

Approved By \_\_\_\_\_ Our Representative

Trilobite Testing Inc. shall not be liable for damaged of 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.