



## DRILL STEM TEST REPORT

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

250 N. Water Suite 300  
Wichita, KS 67202

ATTN: Robert Hendrix

### **Thiele Unit #1-20**

### **20-2s-24w Norton,KS**

Start Date: 2012.02.25 @ 08:40:00

End Date: 2012.02.25 @ 16:09:00

Job Ticket #: 042980                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.03.02 @ 11:14:07



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**20-2s-24w Norton, KS**  
**Thiele Unit #1-20**  
Job Ticket: 042980 **DST#: 1**  
Test Start: 2012.02.25 @ 08:40:00

## GENERAL INFORMATION:

Formation: **LKC "A - G"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 10:19:00  
Time Test Ended: 16:09:00  
Interval: **3520.00 ft (KB) To 3600.00 ft (KB) (TVD)**  
Total Depth: 3600.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: James Winder  
Unit No: 57  
Reference Elevations: 2547.00 ft (KB)  
2536.00 ft (CF)  
KB to GR/CF: 11.00 ft

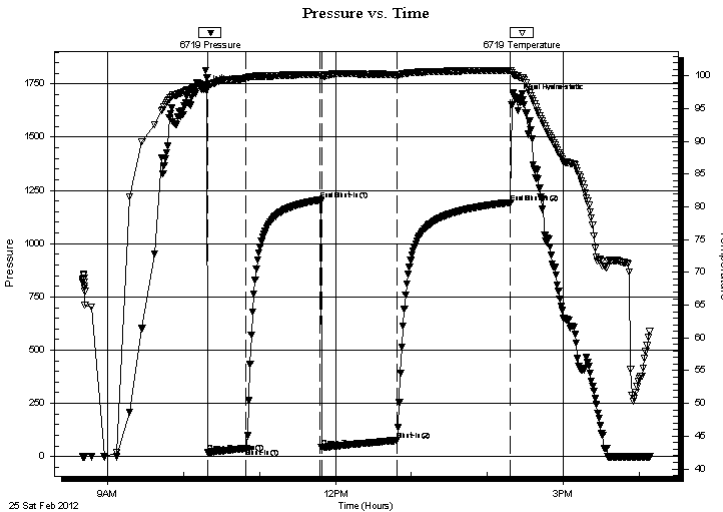
## Serial #: 6719

Inside

Press @ Run Depth: 75.66 psig @ 3521.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2012.02.25 End Date: 2012.02.25 Last Calib.: 2012.02.25  
Start Time: 08:40:05 End Time: 16:08:59 Time On Btm: 2012.02.25 @ 10:17:00  
Time Off Btm: 2012.02.25 @ 14:23:00

TEST COMMENT: 30 - IF: Blow built to 3"  
60 - IS: Bled off, Weak on/off surface blow back dead after 20 min.  
60 - FF: Blow built to 3 1/4"  
90 - FS: Bled off, No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1725.73	98.58	Initial Hydro-static
2	20.28	98.36	Open To Flow (1)
32	38.82	99.63	Shut-In(1)
91	1205.50	100.23	End Shut-In(1)
92	43.32	99.88	Open To Flow (2)
152	75.66	100.14	Shut-In(2)
242	1193.48	100.84	End Shut-In(2)
246	1683.64	100.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	MCW 79%w, 21%m	0.59
5.00	SWCM 98%m, 2%w	0.02

## Gas Rates

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



**TRILLOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042980 **DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.25 @ 08:40:00

**GENERAL INFORMATION:**

Formation: **LKC "A - G"**

Deviated: No Whipstock:               ft (KB)

Time Tool Opened: 10:19:00

Time Test Ended: 16:09:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 57

**Interval: 3520.00 ft (KB) To 3600.00 ft (KB) (TVD)**

Total Depth: 3600.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2547.00 ft (KB)

2536.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8320 Outside**

Press @RunDepth:               psig @ 3521.00 ft (KB)

Start Date: 2012.02.25           End Date: 2012.02.25

Start Time: 08:40:05           End Time: 16:06:29

Capacity: 8000.00 psig

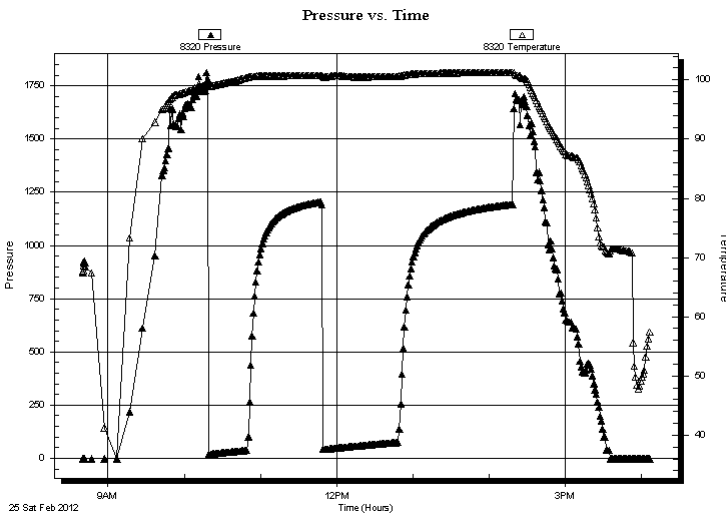
Last Calib.: 2012.02.25

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30 - IF: Blow built to 3"  
60 - IS: Bled off, Weak on/off surface blow back dead after 20 min.  
60 - FF: Blow built to 3 1/4"  
90 - FS: Bled off, No blow back

**PRESSURE SUMMARY**



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

**Recovery**

Length (ft)	Description	Volume (bbl)
120.00	MCW 79%w , 21%m	0.59
5.00	SWCM 98%m, 2%w	0.02

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042980

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.25 @ 08:40:00

## Tool Information

Drill Pipe:	Length: 3295.00 ft	Diameter: 3.80 inches	Volume: 46.22 bbl	Tool Weight: 2500.00 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 47.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3520.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	80.00 ft			
Tool Length:	108.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			3497.00	
Hydraulic tool	5.00			3502.00	
Jars	5.00			3507.00	
Safety Joint	3.00			3510.00	
Packer	5.00			3515.00	28.00 Bottom Of Top Packer
Packer	5.00			3520.00	
Stubb	1.00			3521.00	
Recorder	0.00	6719	Inside	3521.00	
Recorder	0.00	8320	Outside	3521.00	
Perforations	12.00			3533.00	
Blank Spacing	64.00			3597.00	
Bullnose	3.00			3600.00	80.00 Bottom Packers & Anchor

**Total Tool Length: 108.00**



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TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042980

**DST#: 1**

ATTN: Robert Hendrix

Test Start: 2012.02.25 @ 08:40:00

## 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:

39000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	MCW 79%w , 21%m	0.590
5.00	SWCM 98%m, 2%w	0.025

Total Length: 125.00 ft      Total Volume: 0.615 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

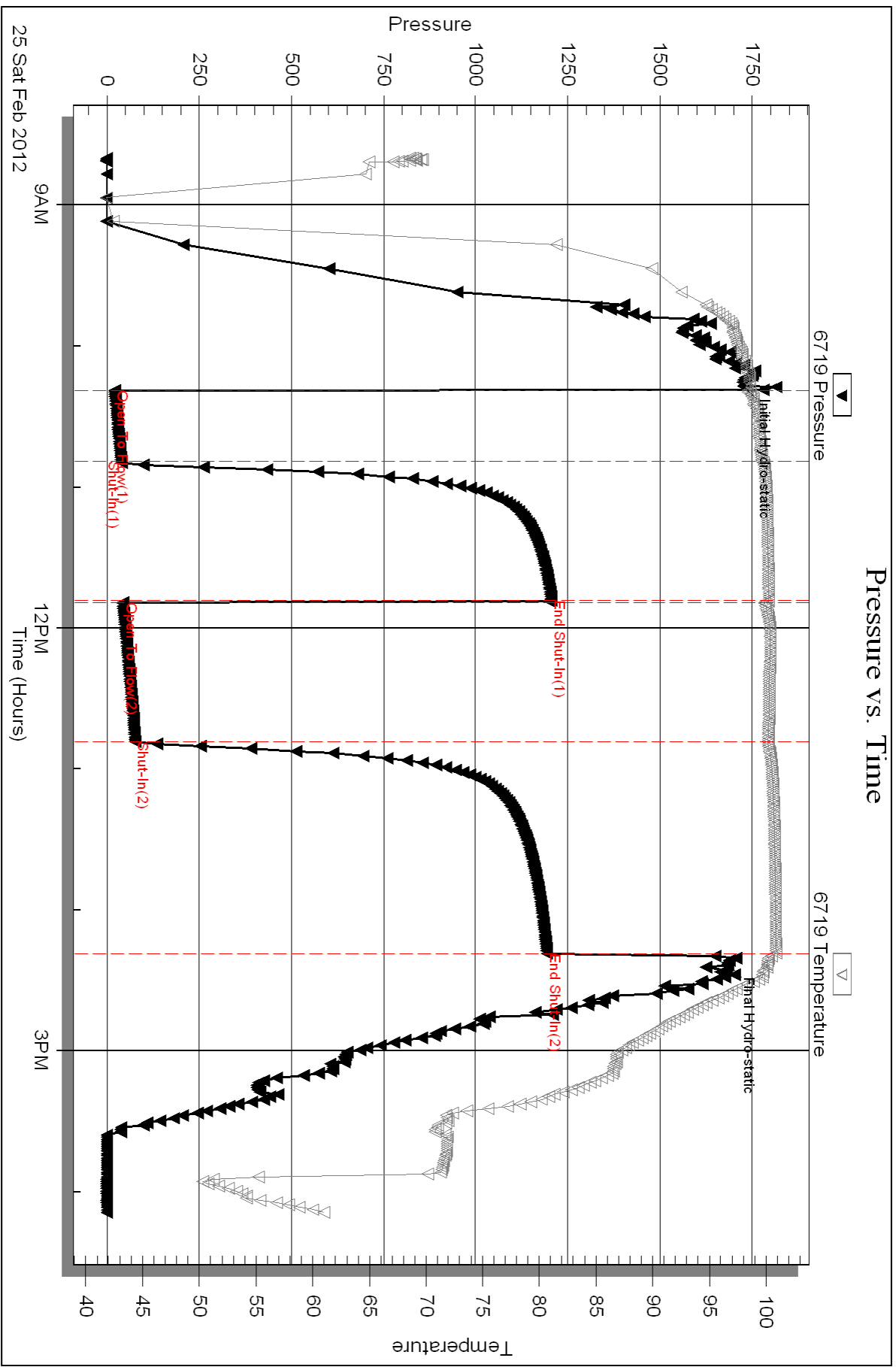
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .211 ohms @ 62.4 deg F

Chlorides = 39,000 ppm

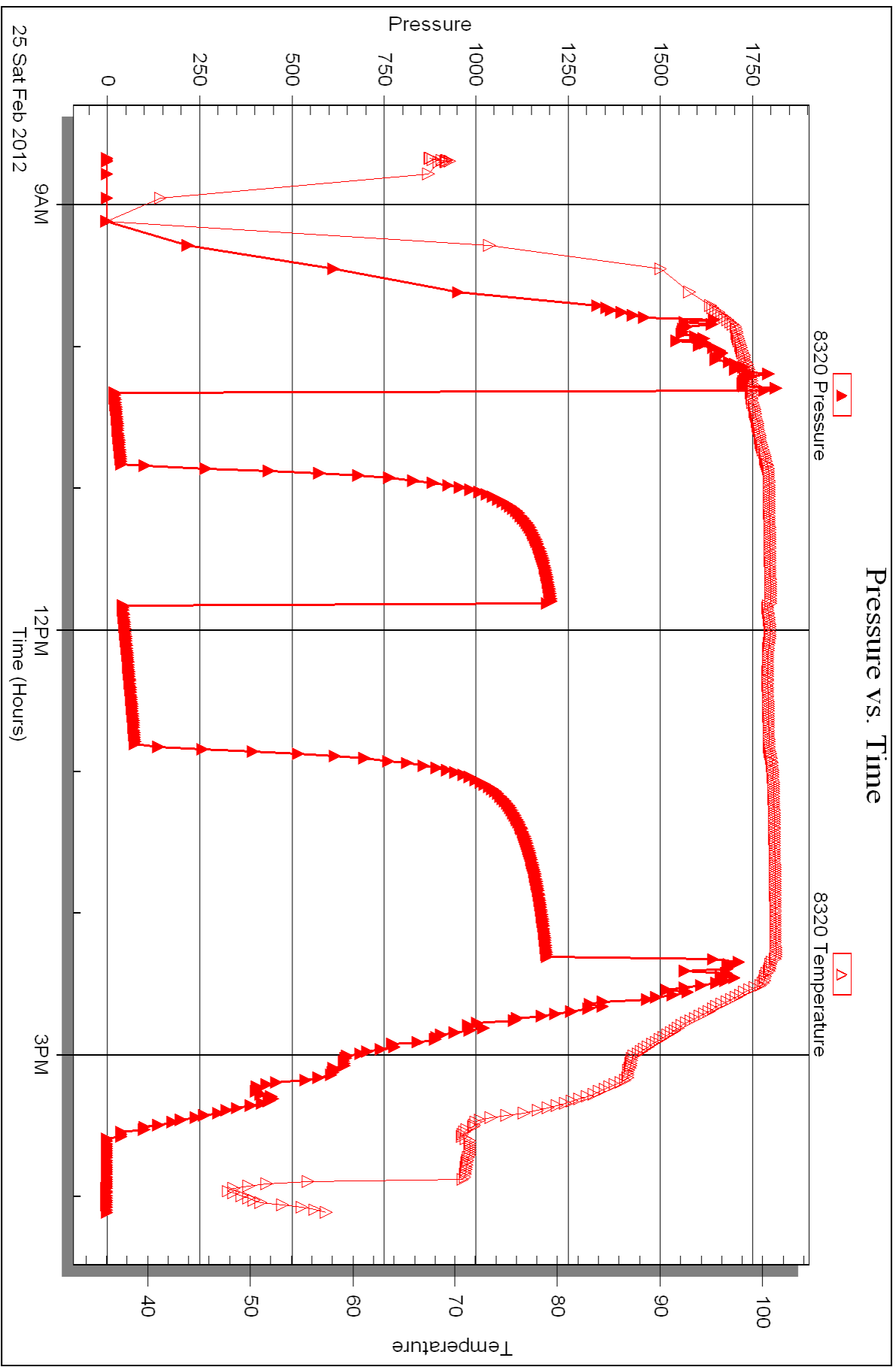


Serial #: 8320

Outside Murfin Drilling Co., Inc.

Thiele Unit #1-20

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 042980

Printed: 2012.03.02 @ 11:14:10



## DRILL STEM TEST REPORT

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

250 N. Water Suite 300  
Wichita, KS 67202

ATTN: Robert Hendrix

### **Thiele Unit #1-20**

### **20-2s-24w Norton,KS**

Start Date: 2012.02.26 @ 06:50:00

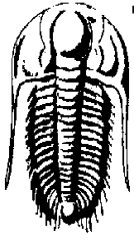
End Date: 2012.02.26 @ 14:36:00

Job Ticket #: 042981                      DST #: 2

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

Printed: 2012.03.02 @ 11:13:21





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

20-2s-24w Norton, KS

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042981

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.26 @ 06:50:00

### GENERAL INFORMATION:

Formation: **LKC "H - L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:46:00

Time Test Ended: 14:36:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

**Interval: 3596.00 ft (KB) To 3700.00 ft (KB) (TVD)**

Reference Elevations: 2547.00 ft (KB)

Total Depth: 3700.00 ft (KB) (TVD)

2536.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 6719**

**Inside**

Press @ Run Depth: 95.12 psig @ 3597.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.26

End Date:

2012.02.26

Last Calib.: 2012.02.26

Start Time: 06:50:05

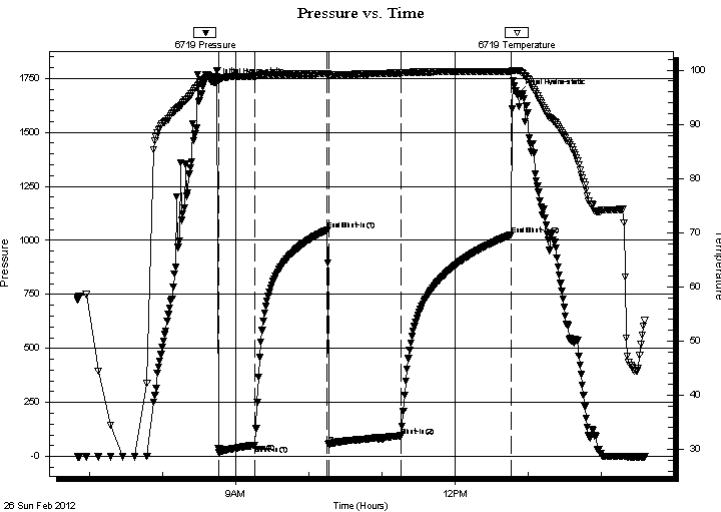
End Time:

14:35:59

Time On Btm: 2012.02.26 @ 08:43:30

Time Off Btm: 2012.02.26 @ 12:51:30

**TEST COMMENT:** 30 - IF: 1/2" Blow at open, Built to 3 1/2"  
60 - IS: Bled off, No blow back  
60 - FF: Blow started at 6 min., built to 2 1/2"  
90 - FS: Bled off, no blow back



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1729.50	98.82	Initial Hydro-static
3	20.48	98.48	Open To Flow (1)
32	52.27	98.91	Shut-In(1)
92	1049.49	99.35	End Shut-In(1)
93	56.91	99.15	Open To Flow (2)
152	95.12	99.48	Shut-In(2)
243	1025.98	99.78	End Shut-In(2)
248	1677.59	99.95	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
165.00	Mud w /Oil spots 96%m, 2%o, 2%g	0.81

### 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.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042981

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.26 @ 06:50:00

## GENERAL INFORMATION:

Formation: **LKC "H - L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:46:00

Time Test Ended: 14:36:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

**Interval: 3596.00 ft (KB) To 3700.00 ft (KB) (TVD)**

Total Depth: 3700.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2547.00 ft (KB)

2536.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8320 Outside**

Press @ Run Depth: psig @ 3597.00 ft (KB)

Start Date: 2012.02.26

End Date: 2012.02.26

Start Time: 06:50:05

End Time: 14:35:29

Capacity: 8000.00 psig

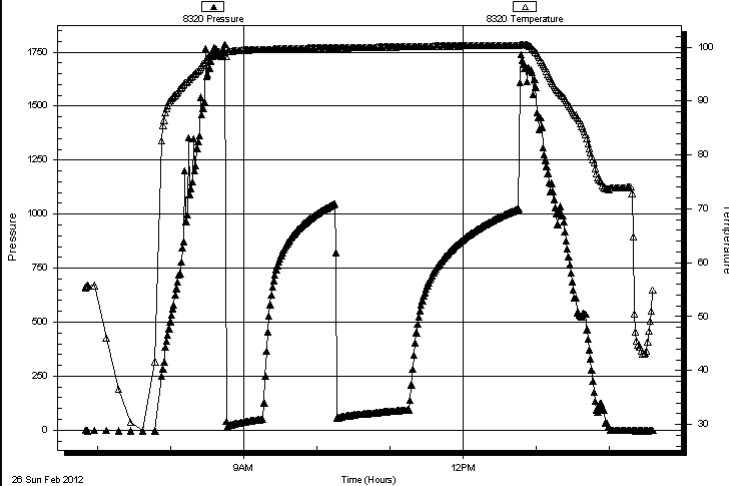
Last Calib.: 2012.02.26

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30 - IF: 1/2" Blow at open, Built to 3 1/2"  
60 - IS: Bled off, No blow back  
60 - FF: Blow started at 6 min., built to 2 1/2"  
90 - FS: Bled off, no blow back

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
165.00	Mud w /Oil spots 96%m, 2%o, 2%g	0.81

## 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.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042981

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.26 @ 06:50:00

## Tool Information

Drill Pipe:	Length: 3388.00 ft	Diameter: 3.80 inches	Volume: 47.52 bbl	Tool Weight: 2500.00 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 48.55 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3596.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	104.00 ft			
Tool Length:	132.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3573.00	
Hydraulic tool	5.00			3578.00	
Jars	5.00			3583.00	
Safety Joint	3.00			3586.00	
Packer	5.00			3591.00	28.00 Bottom Of Top Packer
Packer	5.00			3596.00	
Stubb	1.00			3597.00	
Recorder	0.00	6719	Inside	3597.00	
Recorder	0.00	8320	Outside	3597.00	
Perforations	5.00			3602.00	
Blank Spacing	95.00			3697.00	
Bullnose	3.00			3700.00	104.00 Bottom Packers & Anchor

**Total Tool Length: 132.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042981

**DST#: 2**

ATTN: Robert Hendrix

Test Start: 2012.02.26 @ 06:50:00

## 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: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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
165.00	Mud w /Oil spots 96% <sub>m</sub> , 2% <sub>o</sub> , 2% <sub>g</sub>	0.811

Total Length: 165.00 ft      Total Volume: 0.811 bbl

Num Fluid Samples: 0

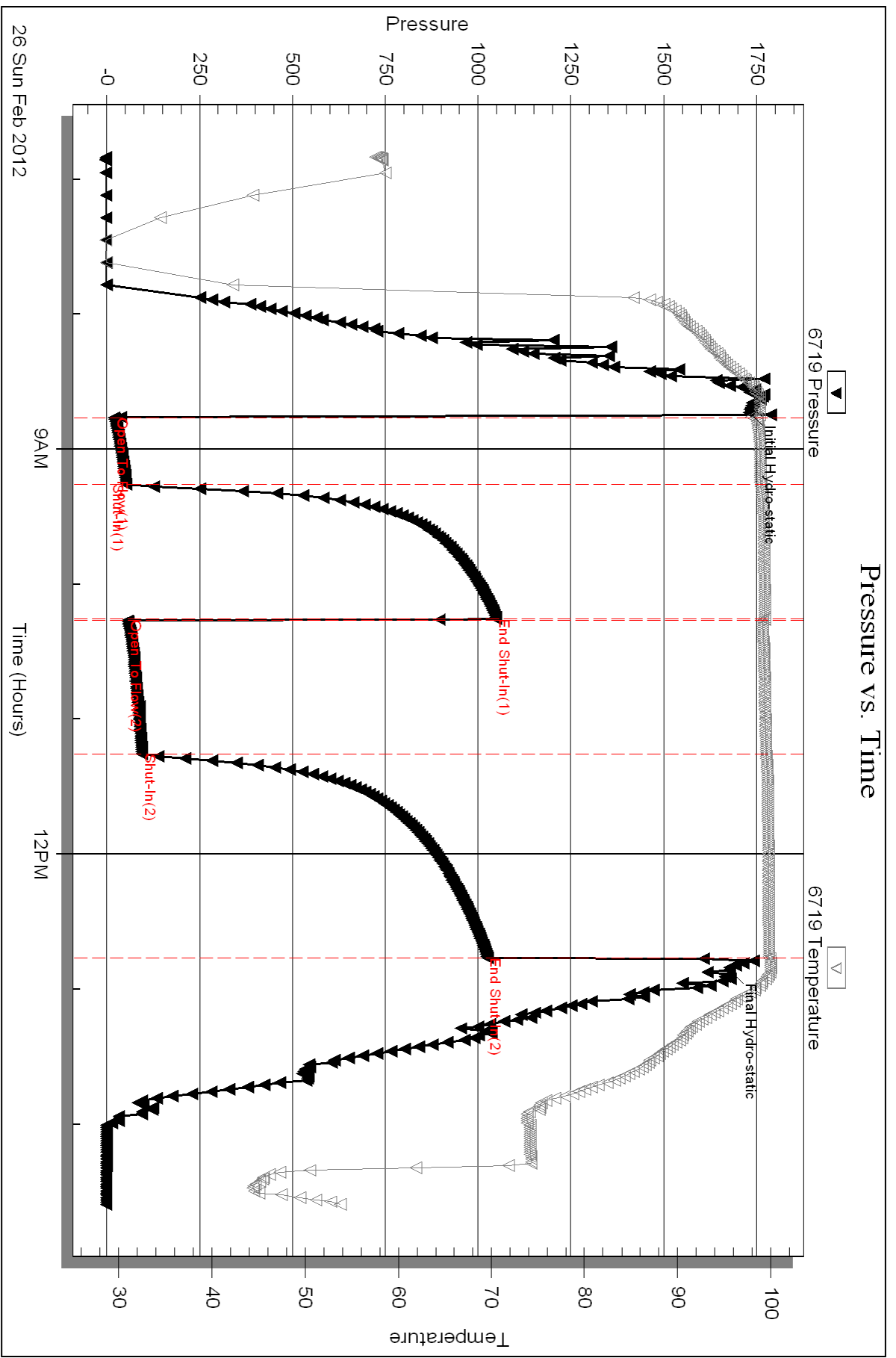
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

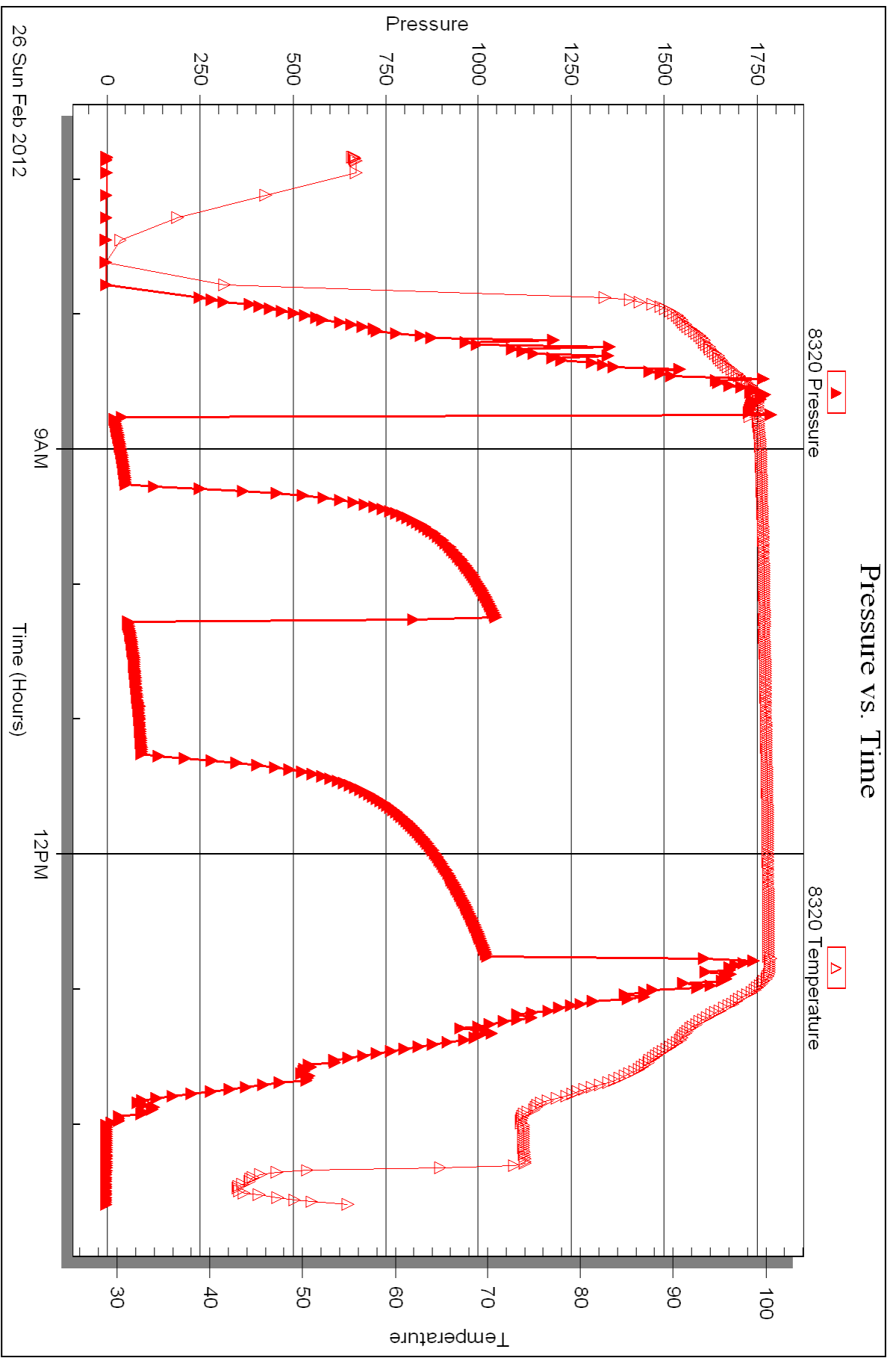


Serial #: 8320

Outside Murfin Drilling Co., Inc.

Thiele Unit #1-20

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 042981

Printed: 2012.03.02 @ 11:13:23



## DRILL STEM TEST REPORT

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

250 N. Water Suite 300  
Wichita, KS 67202

ATTN: Robert Hendrix

### **Thiele Unit #1-20**

### **20-2s-24w Norton,KS**

Start Date: 2012.02.27 @ 01:52:00

End Date: 2012.02.27 @ 08:28:30

Job Ticket #: 042982                      DST #: 3

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

Printed: 2012.03.02 @ 11:12:40



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**20-2s-24w Norton, KS**

**Thiele Unit #1-20**

Job Ticket: 042982      **DST#: 3**  
 Test Start: 2012.02.27 @ 01:52:00

## GENERAL INFORMATION:

Formation: **Reagan Sand/ Granite**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:31:30  
 Time Test Ended: 08:28:30  
 Interval: **3780.00 ft (KB) To 3803.00 ft (KB) (TVD)**  
 Total Depth: 3803.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: James Winder  
 Unit No: 57  
 Reference Elevations: 2547.00 ft (KB)  
 2536.00 ft (CF)  
 KB to GR/CF: 11.00 ft

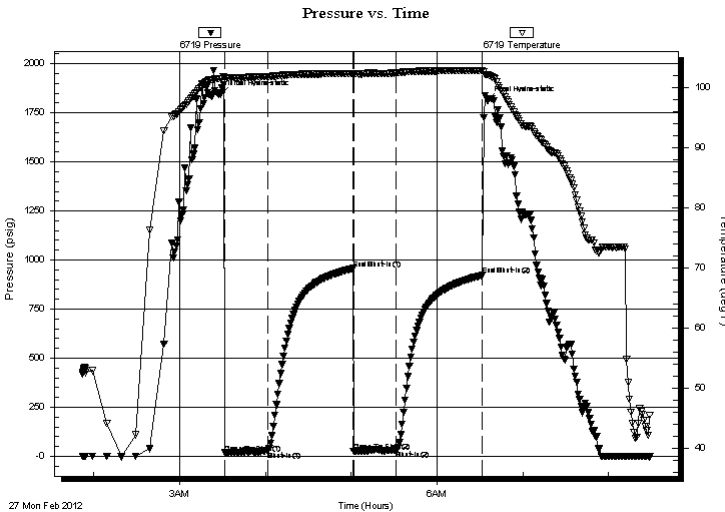
## Serial #: 6719

Inside

Press @ Run Depth: 31.05 psig @ 3781.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2012.02.27      End Date: 2012.02.27      Last Calib.: 2012.02.27  
 Start Time: 01:52:05      End Time: 08:28:29      Time On Btm: 2012.02.27 @ 03:28:30  
 Time Off Btm: 2012.02.27 @ 06:35:00

**TEST COMMENT:** 30 - IF: Blow built to 1" in 10 min., slow ly died back to 1/2" at close  
 60 - IS: Bled off, No blow back  
 30 - FF: No blow  
 60 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1842.12	101.45	Initial Hydro-static
3	17.96	101.65	Open To Flow (1)
33	25.74	101.82	Shut-In(1)
93	956.80	102.34	End Shut-In(1)
93	25.65	102.22	Open To Flow (2)
123	31.05	102.41	Shut-In(2)
183	922.00	102.82	End Shut-In(2)
187	1814.10	102.12	Final Hydro-static

## Recovery

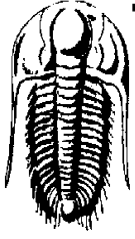
Length (ft)	Description	Volume (bbl)
30.00	SWCM 97% m, 3% w	0.15

\* 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.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042982

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.27 @ 01:52:00

#### GENERAL INFORMATION:

Formation: **Reagan Sand/ Granite**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:31:30

Time Test Ended: 08:28:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

Interval: **3780.00 ft (KB) To 3803.00 ft (KB) (TVD)**

Reference Elevations: 2547.00 ft (KB)

Total Depth: 3803.00 ft (KB) (TVD)

2536.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

**Serial #: 8320 Outside**

Press@RunDepth: psig @ 3781.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.27

End Date:

2012.02.27

Last Calib.:

2012.02.27

Start Time: 01:52:05

End Time:

08:27:59

Time On Btm:

Time Off Btm:

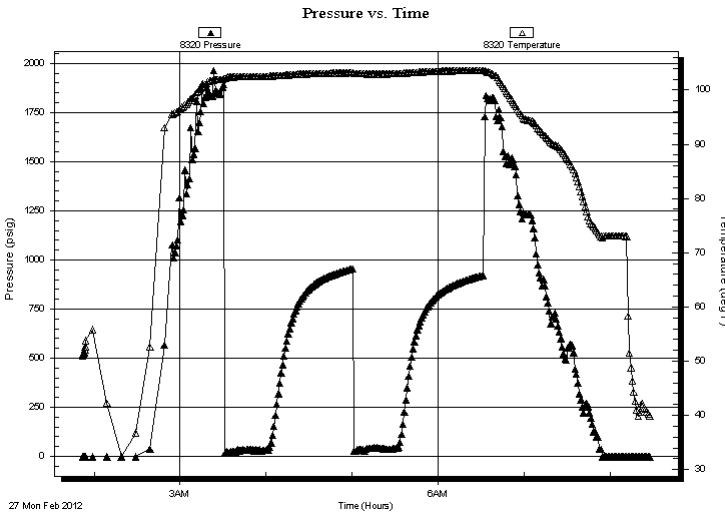
**TEST COMMENT:** 30 - IF: Blow built to 1" in 10 min., slow ly died back to 1/2" at close

60 - IS: Bled off, No blow back

30 - FF: No blow

60 - FS: No blow back

#### PRESSURE SUMMARY



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

#### Recovery

Length (ft)	Description	Volume (bbl)
30.00	SWCM 97% m, 3% w	0.15

\* Recovery from multiple tests

#### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042982

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.27 @ 01:52:00

## Tool Information

Drill Pipe:	Length: 3547.00 ft	Diameter: 3.80 inches	Volume: 49.76 bbl	Tool Weight: 2500.00 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 50.79 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3780.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			3757.00	
Hydraulic tool	5.00			3762.00	
Jars	5.00			3767.00	
Safety Joint	3.00			3770.00	
Packer	5.00			3775.00	28.00 Bottom Of Top Packer
Packer	5.00			3780.00	
Stubb	1.00			3781.00	
Recorder	0.00	6719	Inside	3781.00	
Recorder	0.00	8320	Outside	3781.00	
Perforations	19.00			3800.00	
Bullnose	3.00			3803.00	23.00 Bottom Packers & Anchor

**Total Tool Length: 51.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**20-2s-24w Norton, KS**

250 N. Water Suite 300  
Wichita, KS 67202

**Thiele Unit #1-20**

Job Ticket: 042982

**DST#: 3**

ATTN: Robert Hendrix

Test Start: 2012.02.27 @ 01:52:00

## 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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 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
30.00	SWCM 97% <sub>m</sub> , 3% <sub>w</sub>	0.148

Total Length: 30.00 ft      Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

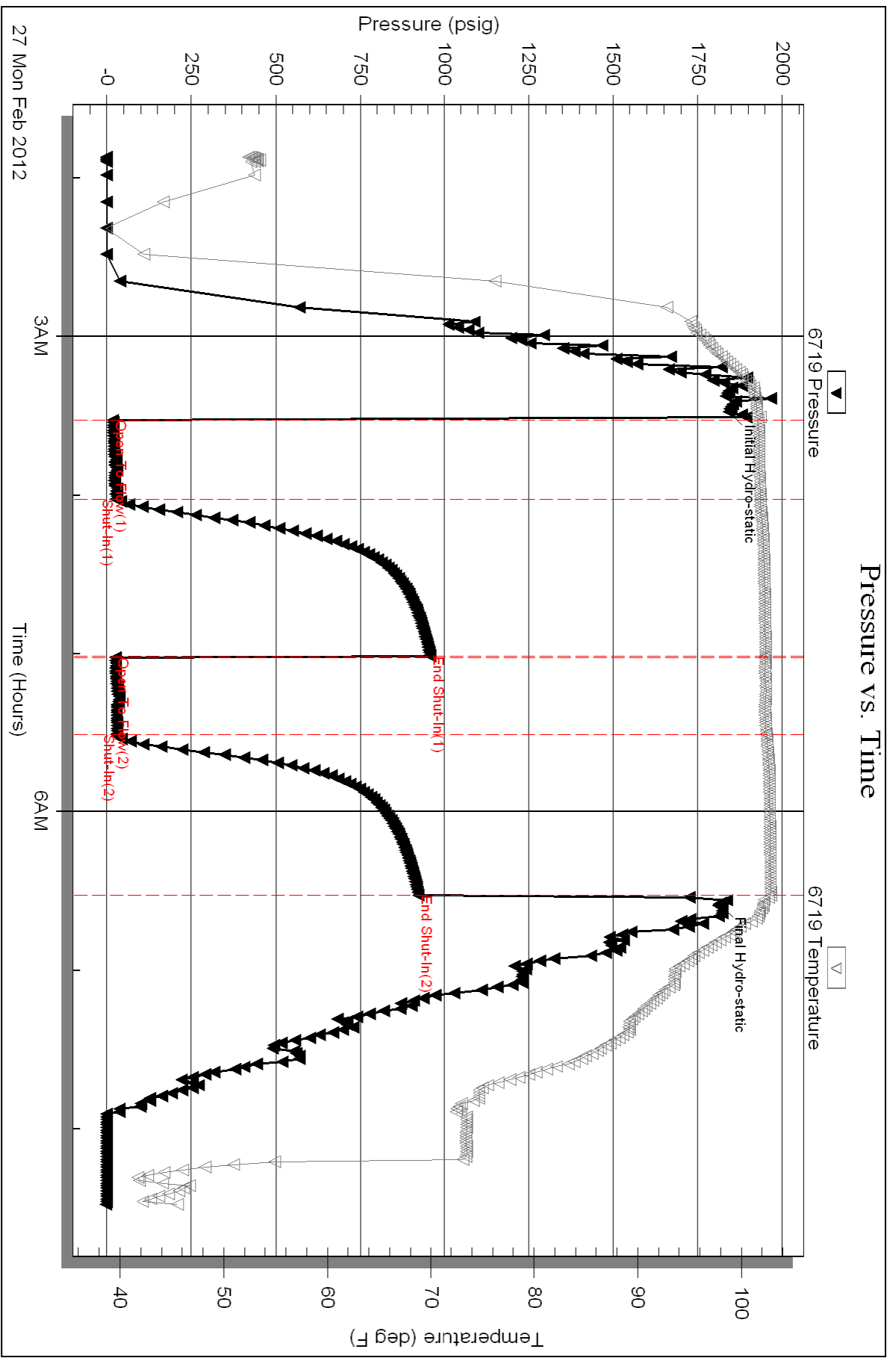
Serial #: 6719

Inside

Murfin Drilling Co., Inc.

Thiele Unit #1-20

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 042982

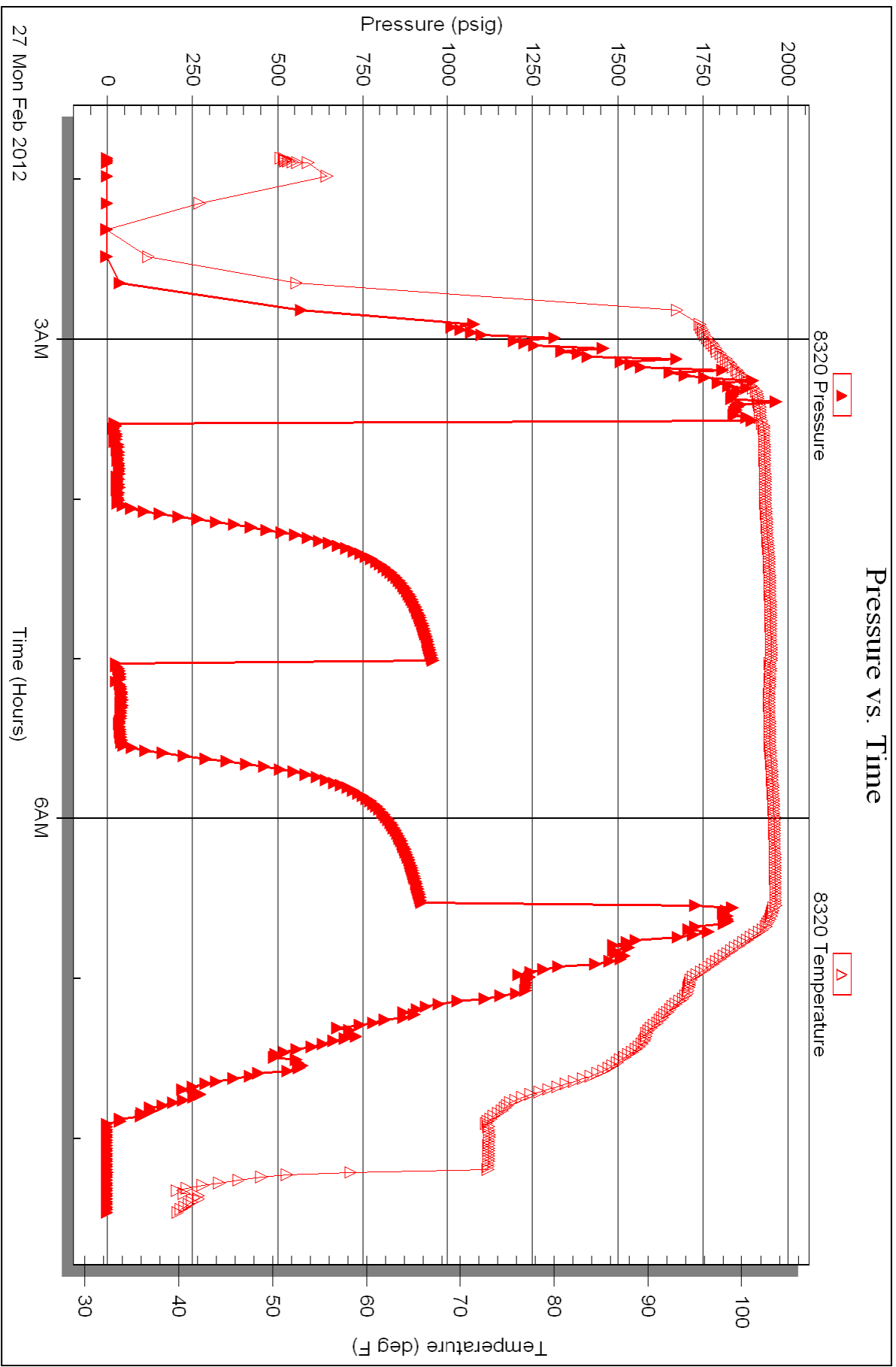
Printed: 2012.03.02 @ 11:12:42

Serial #: 8320

Outside Murfin Drilling Co., Inc.

Thiele Unit #1-20

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 042982

Printed: 2012.03.02 @ 11:12:43



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## Test Ticket

NO. 042980

4/10

Well Name & No. Thiele Unit #1-20 Test No. 1 Date 2-25-12  
 Company Murfin Drilling Co. Inc. Elevation 2547 KB 2536 GL  
 Address 250 N. Water Suite 300 Wichita, KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 20 Twp. 2s Rge. 24w Co. Norton State KS

Interval Tested 3520 - 3600 Zone Tested LKC "A-6"  
 Anchor Length 80 Drill Pipe Run 32.95 Mud Wt. 9.3  
 Top Packer Depth 3515 Drill Collars Run 210 Vis 65  
 Bottom Packer Depth 3520 Wt. Pipe Run - WL 5.6  
 Total Depth 3600 Chlorides 1600 ppm System LCM trace

Blow Description IF: Blow built to 3"  
ISI: Bled off, weak on/off surface blowback, dead after 20 min.  
FF: Blow built to 3 1/4"  
FSI: Bled off, No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Swcm</u>		<u>2</u>	<u>98</u>	
<u>120</u>	<u>MCW</u>		<u>79</u>	<u>21</u>	

Rec Total 125 BHT 101 Gravity - API RW .211 @ 62.4 °F Chlorides 39000 ppm

(A) Initial Hydrostatic <u>1726</u>	<input type="checkbox"/> Test <u>* 1125</u>	T-On Location <u>6:45 7:00</u>
(B) First Initial Flow <u>20</u>	<input type="checkbox"/> Jars <u>* 250</u>	T-Started <u>8:40</u>
(C) First Final Flow <u>39</u>	<input type="checkbox"/> Safety Joint <u>* 75</u>	T-Open <u>10:19</u>
(D) Initial Shut-In <u>1206</u>	<input checked="" type="checkbox"/> Circ Sub <u>XNA</u>	T-Pulled <u>14:18</u>
(E) Second Initial Flow <u>43</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>16:00</u>
(F) Second Final Flow <u>76</u>	<input type="checkbox"/> Mileage <u>58RT 81<sup>20</sup></u>	Comments
(G) Final Shut-In <u>1193</u>	<input checked="" type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1684</u>	<input checked="" type="checkbox"/> Straddle	<input checked="" type="checkbox"/> Ruined Shale Packer

Initial Open <u>30</u>	<input checked="" type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input checked="" type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>60</u>	<input checked="" type="checkbox"/> Day Standby	Total <u>1531</u>
Final Shut-In <u>90</u>	<input checked="" type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1531<sup>20</sup></u>	

Approved By [Signature] Our Representative James Winder

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

## Test Ticket

NO. 042981

Well Name & No. Thiele Unit #1-20 Test No. 2 Date 2-26-12  
 Company Murfin Drilling Co., Inc. Elevation 2547 KB 2536 GL  
 Address 250 N. Water Suite 300 Wichita, KS 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 20 Twp. 2s Rge. 24w Co. Norton State KS

Interval Tested 3596 - 3700 Zone Tested LKC "H-L"  
 Anchor Length 104 Drill Pipe Run 3388 Mud Wt. 9.1  
 Top Packer Depth 3591 Drill Collars Run 210 Vis 62  
 Bottom Packer Depth 3596 Wt. Pipe Run - WL 5.6  
 Total Depth 3700 Chlorides 1800 ppm System LCM Trace

Blow Description IF: 1/2 Blow at open, built to 3 1/2"  
ISI: Bled off, No Blowback  
FF: Blow started at 6min., built to 2 1/2"  
FSI: Bled off, No Blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>165</u>	<u>Mud w/oil spots</u>	<u>2</u>	<u>2</u>	<u>-</u>	<u>96</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 165 BHT 100 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1730</u>	<input type="checkbox"/> Test <u>* 1125"</u>	T-On Location <u>6:30</u>
(B) First Initial Flow <u>20</u>	<input type="checkbox"/> Jars <u>* 250"</u>	T-Started <u>6:50</u>
(C) First Final Flow <u>52</u>	<input type="checkbox"/> Safety Joint <u>* 75"</u>	T-Open <u>8:46</u>
(D) Initial Shut-In <u>1049</u>	<input checked="" type="checkbox"/> Circ Sub <u>* NA</u>	T-Pulled <u>12:46</u>
(E) Second Initial Flow <u>57</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>14:30</u>
(F) Second Final Flow <u>95</u>	<input type="checkbox"/> Mileage <u>58 RT 81<sup>20</sup></u>	Comments _____
(G) Final Shut-In <u>1026</u>	<input checked="" type="checkbox"/> Sampler	<input checked="" type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>1678</u>	<input checked="" type="checkbox"/> Straddle	<input checked="" type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer	<input checked="" type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input checked="" type="checkbox"/> Extra Packer	Sub Total <u>95</u>
Final Flow <u>60</u>	<input checked="" type="checkbox"/> Extra Recorder	Total <u>1531<sup>20</sup></u>
Final Shut-In <u>90</u>	<input checked="" type="checkbox"/> Day Standby	MP/DST Disc't _____
	<input checked="" type="checkbox"/> Accessibility	
	Sub Total <u>1531<sup>20</sup></u>	

Approved By [Signature]

Our Representative [Signature]

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## Test Ticket

NO. 042982

4/10

Well Name & No. Thiele Unit #1-20 Test No. 3 Date 2-27-12  
 Company Murfin Drilling Co., Inc. Elevation 2547 KB 2536 GL  
 Address 250 N. Water Suite 300 Wichita, Ks. 67202  
 Co. Rep / Geo. Robert Hendrix Rig Murfin #21  
 Location: Sec. 20 Twp. 2s Rge. 24w Co. Norton State KS

Interval Tested 3780 - 3803 Zone Tested Reagan Sand / Granite Wash  
 Anchor Length 23 Drill Pipe Run 3547 Mud Wt. 9.3  
 Top Packer Depth 3775 Drill Collars Run 210 Vis 61  
 Bottom Packer Depth 3780 Wt. Pipe Run - WL 6.0  
 Total Depth 3803 Chlorides 1800 ppm System LCM 1 1/2

Blow Description IF: Blow built to 1" in 10min, slowly died back to 1/2" at close  
ISI: Bled off, No blowback

FF: No Blow

FSI: No Blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>SWCM</u>	<u>-</u>	<u>-</u>	<u>3</u>	<u>97</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 30 BHT 103 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1842  Test \* 1125" T-On Location 1:25  
 (B) First Initial Flow 18  Jars \* 250" T-Started 1:52  
 (C) First Final Flow 26  Safety Joint \* 75" T-Open 3:31  
 (D) Initial Shut-In 957  Circ Sub ANA T-Pulled 6:31  
 (E) Second Initial Flow 26  Hourly Standby T-Out 8:20  
 (F) Second Final Flow 31  Mileage 58RTX2 162<sup>40</sup> Comments \_\_\_\_\_  
 (G) Final Shut-In 922  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1814  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 60  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 30  Day Standby \_\_\_\_\_ Total 1612<sup>40</sup>  
 Final Shut-In 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1612<sup>40</sup>

Approved By [Signature] Our Representative [Signature]

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