

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	HAMIT 1-20
Doc ID	1351002

All Electric Logs Run

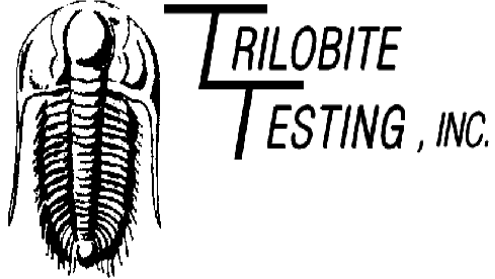
DIL
DUCP
MEL
BHCS

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	HAMIT 1-20
Doc ID	1351002

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	3630-3643	1300 g Diesel w/ 5% musol, 1/4% foamer surfactant, 14% WA1	





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Christian

### **Hamit #1-20**

### **S20-6S-19W Rooks,KS**

Start Date: 2017.02.27 @ 16:11:00

End Date: 2017.02.27 @ 23:07:30

Job Ticket #: 63509                      DST #: 1

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

Printed: 2017.03.02 @ 15:37:41

Murfin Drilling Company Inc  
S20-6S-19W Rooks,KS  
Hamit #1-20  
DST # 1  
LKC 'A-B'  
2017.02.27



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63509

**DST#: 1**

ATTN: Jeff Christian

Test Start: 2017.02.27 @ 16:11:00

## GENERAL INFORMATION:

Formation: **LKC 'A-B'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:25:45

Time Test Ended: 23:07:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3352.00 ft (KB) To 3410.00 ft (KB) (TVD)**

Reference Elevations: 2134.00 ft (KB)

Total Depth: 3410.00 ft (KB) (TVD)

2129.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 5.00 ft

**Serial #: 8934 Outside**

Press@RunDepth: 29.43 psig @ 3353.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.02.27 End Date: 2017.02.27

Last Calib.: 2017.02.27

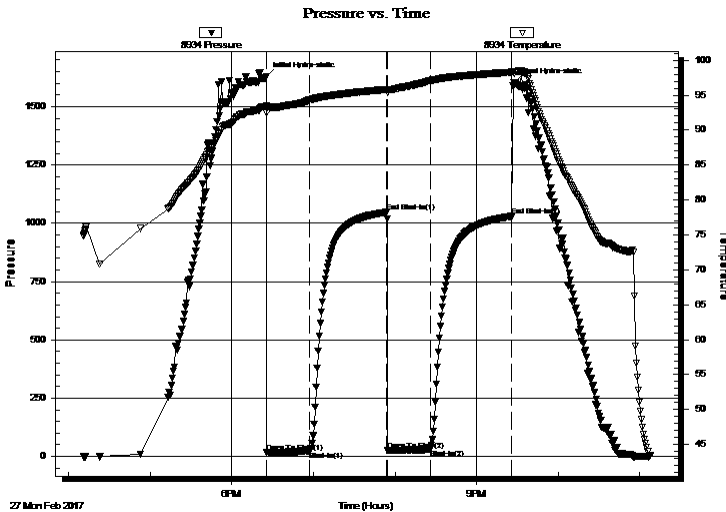
Start Time: 16:11:05 End Time: 23:07:29

Time On Btm: 2017.02.27 @ 18:25:30

Time Off Btm: 2017.02.27 @ 21:27:30

**TEST COMMENT:** 30-IF-Very Weak Surface Blow ; Built to 1"  
60-ISI-No Blow Back  
30-FF-Very Weak Surface Blow ; Built to 1/4"  
60-FSI-No Blow Back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1627.82	93.51	Initial Hydro-static
1	18.09	92.50	Open To Flow (1)
32	21.52	94.32	Shut-In(1)
89	1047.46	95.83	End Shut-In(1)
90	25.75	95.45	Open To Flow (2)
121	29.43	97.11	Shut-In(2)
181	1030.04	98.28	End Shut-In(2)
182	1602.96	98.16	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /oil specks 100% M	0.05

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63509

**DST#: 1**

ATTN: Jeff Christian

Test Start: 2017.02.27 @ 16:11:00

## Tool Information

Drill Pipe:	Length: 3149.00 ft	Diameter: 3.80 inches	Volume: 44.17 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose:	62000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
			- bbl	String Weight: Initial	56000.00 lb
Drill Pipe Above KB:	30.00 ft			Final	56000.00 lb
Depth to Top Packer:	3352.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	58.00 ft				
Tool Length:	86.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3325.00	
Shut In Tool	5.00			3330.00	
Hydraulic tool	5.00			3335.00	
Jars	5.00			3340.00	
Safety Joint	3.00			3343.00	
Packer	5.00			3348.00	28.00 Bottom Of Top Packer
Packer	4.00			3352.00	
Stubb	1.00			3353.00	
Recorder	0.00	9120	Inside	3353.00	
Recorder	0.00	8934	Outside	3353.00	
Perforations	19.00			3372.00	
Change Over Sub	1.00			3373.00	
Drill Pipe	32.00			3405.00	
Change Over Sub	1.00			3406.00	
Bullnose	4.00			3410.00	58.00 Bottom Packers & Anchor

**Total Tool Length: 86.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63509

**DST#: 1**

ATTN: Jeff Christian

Test Start: 2017.02.27 @ 16:11:00

## 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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud w /oil specks 100% M	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

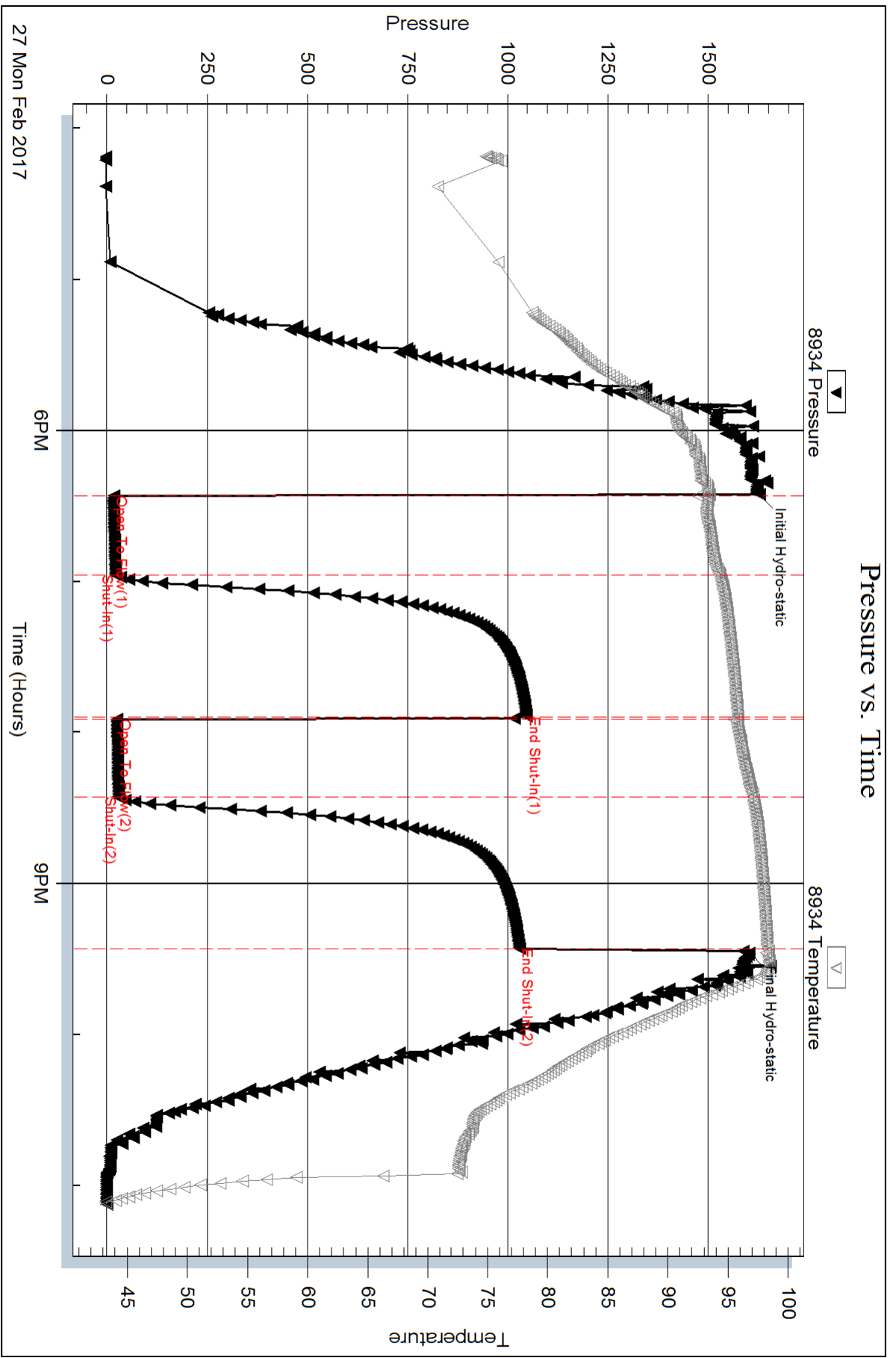
Num Gas Bombs: 0

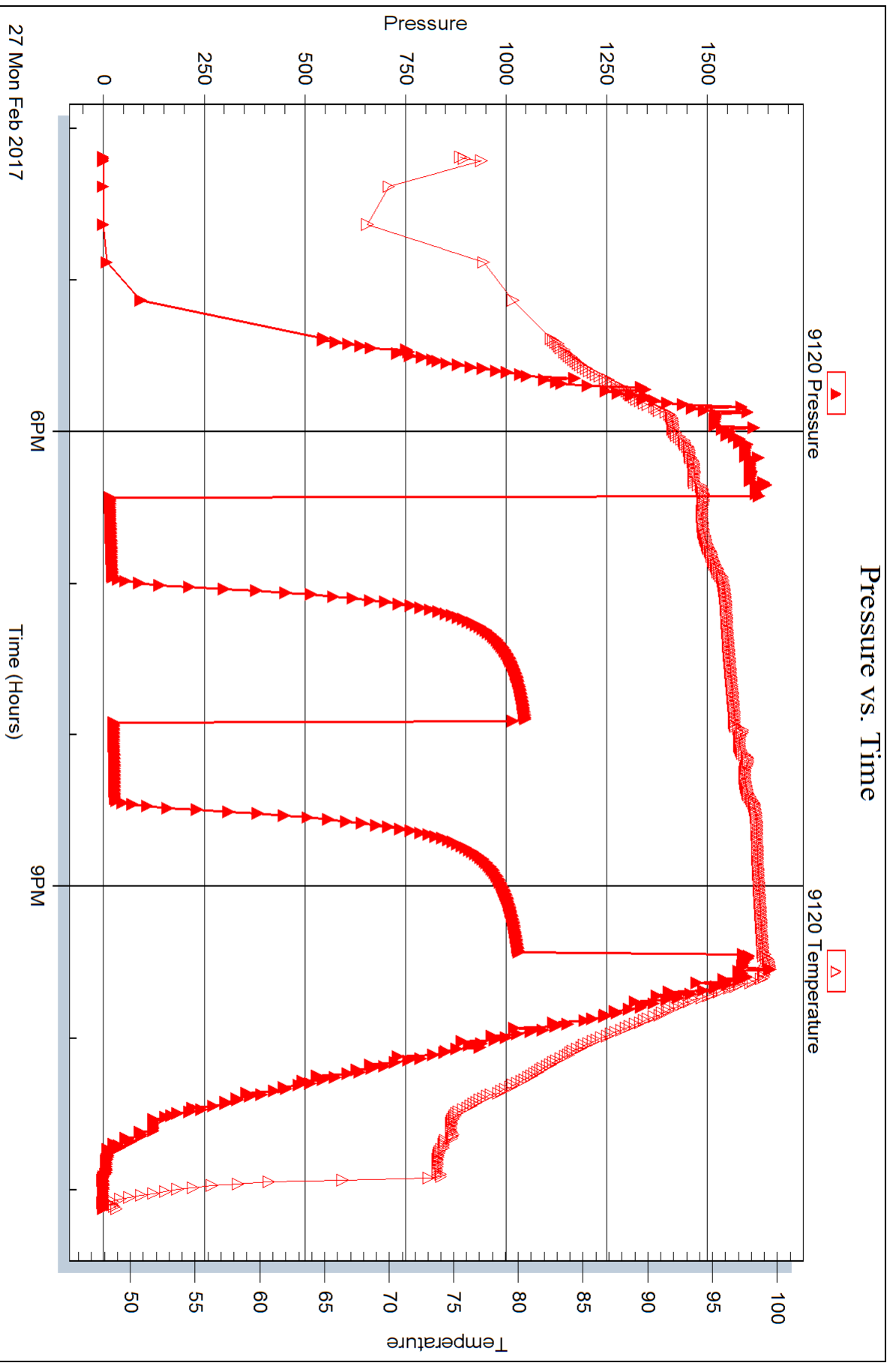
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 3# LCM







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Christian

### **Hamit #1-20**

#### **S20-6S-19W Rooks,KS**

Start Date: 2017.02.28 @ 06:34:00

End Date: 2017.02.28 @ 08:38:45

Job Ticket #: 63510                      DST #: 2

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

Printed: 2017.03.02 @ 15:36:56

Murfin Drilling Company Inc  
S20-6S-19W Rooks,KS  
Hamit #1-20  
DST # 2  
LKC 'D-F'  
2017.02.28







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63510

**DST#: 2**

ATTN: Jeff Christian

Test Start: 2017.02.28 @ 06:34:00

## Tool Information

Drill Pipe:	Length: 3181.00 ft	Diameter: 3.80 inches	Volume: 44.62 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose:	lb
			<u>Total Volume:</u>	Tool Chased	ft
			- bbl	String Weight: Initial	lb
Drill Pipe Above KB:	7.00 ft			Final	lb
Depth to Top Packer:	3407.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	41.00 ft				
Tool Length:	69.00 ft				
Number of Packers:	1	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
Change Over Sub	1.00			3380.00	
Shut In Tool	5.00			3385.00	
Hydraulic tool	5.00			3390.00	
Jars	5.00			3395.00	
Safety Joint	3.00			3398.00	
Packer	5.00			3403.00	28.00 Bottom Of Top Packer
Packer	4.00			3407.00	
Stubb	1.00			3408.00	
Perforations	2.00			3410.00	
Recorder	0.00	9120	Inside	3410.00	
Recorder	0.00	8934	Outside	3410.00	
Change Over Sub	1.00			3411.00	
Drill Pipe	32.00			3443.00	
Change Over Sub	1.00			3444.00	
Bullnose	4.00			3448.00	41.00 Bottom Packers & Anchor

**Total Tool Length: 69.00**





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63510

**DST#: 2**

ATTN: Jeff Christian

Test Start: 2017.02.28 @ 06:34:00

### 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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Mud	0.295

Total Length: 60.00 ft      Total Volume: 0.295 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

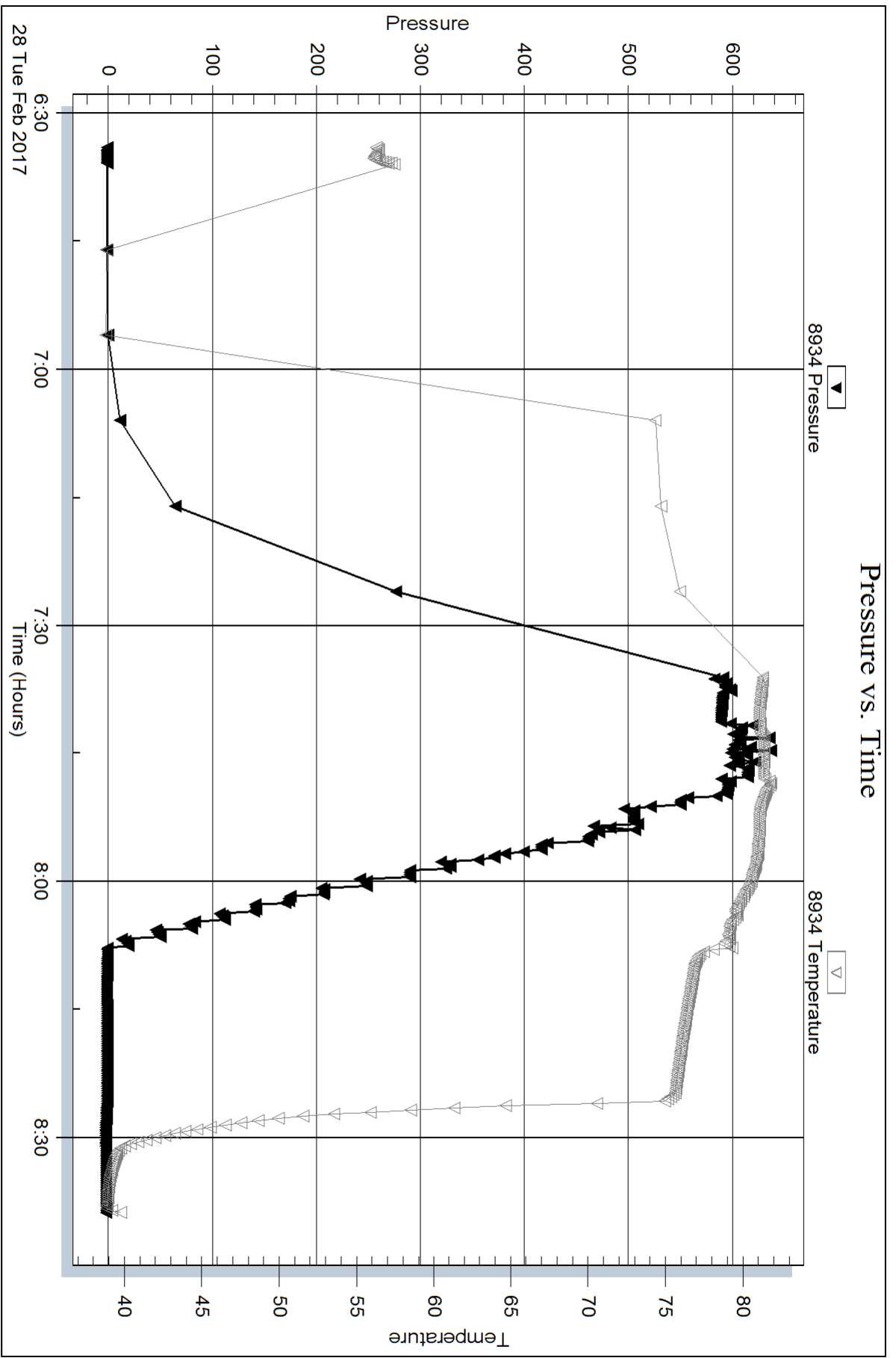
Recovery Comments:

Serial #: 8934

Outside Murfin Drilling Company Inc

Hamit #1-20

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63510

Printed: 2017.03.02 @ 15:36:58

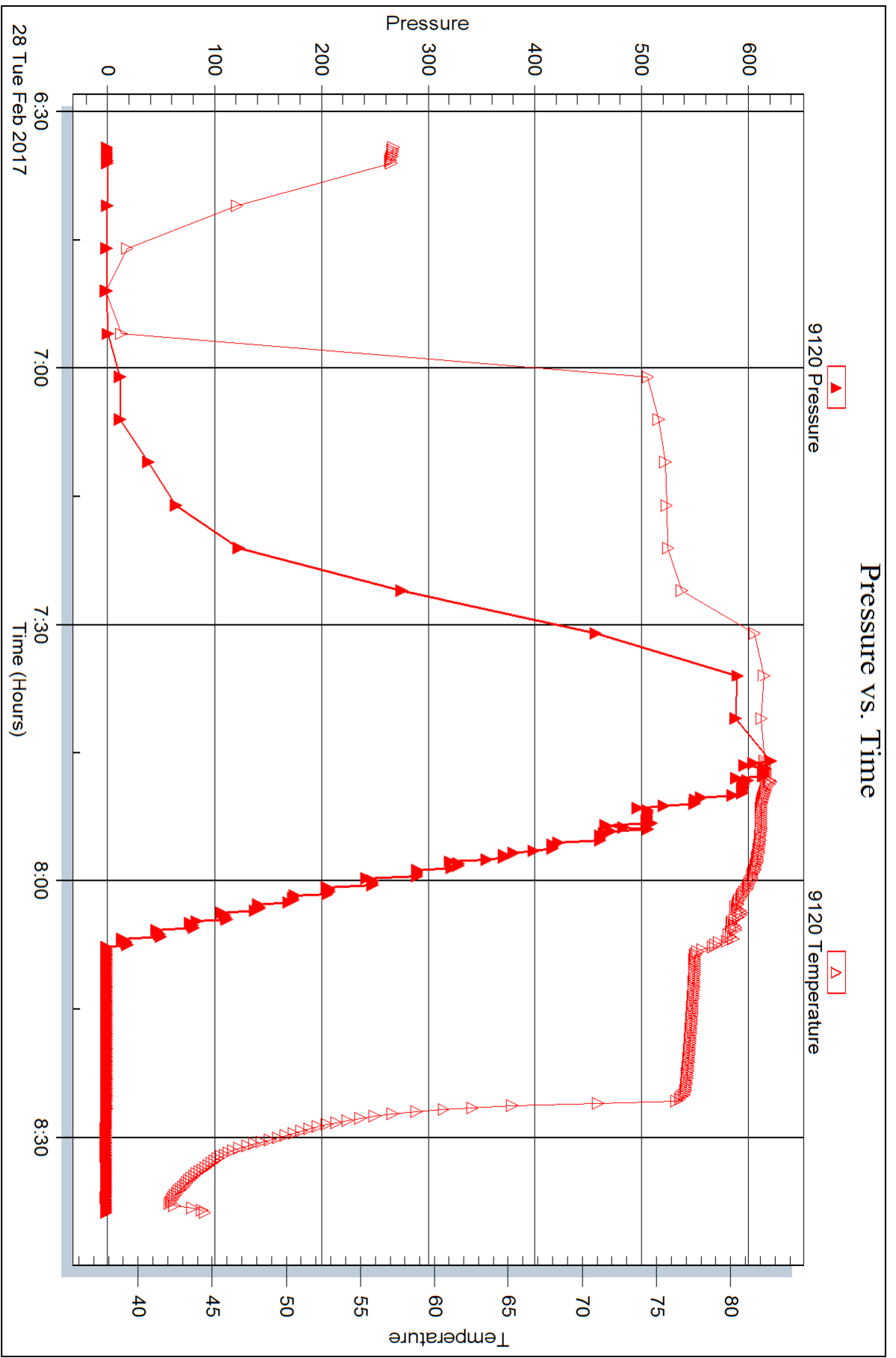
Serial #: 9120

Inside

Murfin Drilling Company Inc

Hamit #1-20

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63510

Printed: 2017.03.02 @ 15:36:58



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Christian

### **Hamit #1-20**

### **S20-6S-19W Rooks,KS**

Start Date: 2017.02.28 @ 13:48:00

End Date: 2017.02.28 @ 20:26:00

Job Ticket #: 63511                      DST #: 3

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

Printed: 2017.03.02 @ 15:36:32

Murfin Drilling Company Inc  
S20-6S-19W Rooks,KS  
Hamit #1-20  
DST # 3  
LKC 'D-F'  
2017.02.28



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company Inc  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Christian

**S20-6S-19W Rooks,KS**

**Hamit #1-20**

Job Ticket: 63511

**DST#: 3**

Test Start: 2017.02.28 @ 13:48:00

## GENERAL INFORMATION:

Formation: **LKC 'D-F'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:36:15  
 Time Test Ended: 20:26:00  
 Interval: **3407.00 ft (KB) To 3448.00 ft (KB) (TVD)**  
 Total Depth: 3448.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition:  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J. Staab  
 Unit No: 84  
 Reference Elevations: 2134.00 ft (KB)  
 2129.00 ft (CF)  
 KB to GR/CF: 5.00 ft

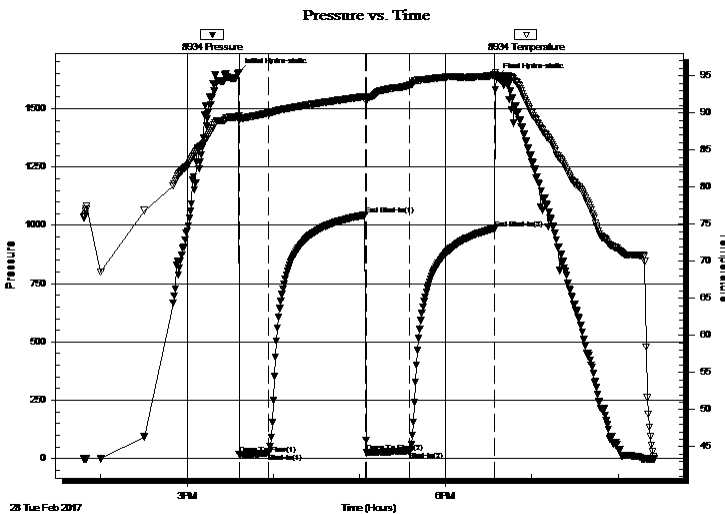
**Serial #: 8934**

**Outside**

Press@RunDepth: 30.75 psig @ 3410.00 ft (KB)  
 Start Date: 2017.02.28 End Date: 2017.02.28  
 Start Time: 13:48:05 End Time: 20:25:59  
 Capacity: 8000.00 psig  
 Last Calib.: 2017.02.28  
 Time On Btm: 2017.02.28 @ 15:36:00  
 Time Off Btm: 2017.02.28 @ 18:35:15

**TEST COMMENT:** 30-IF-Very Weak Surface Blow ; Built from 1/8 inch to 1"  
 60-ISI-No Blow Back  
 30-FF-Very Weak Surface Blow ; Few Bubbles  
 60-FSI-No Blow Back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1655.48	89.54	Initial Hydro-static
1	16.83	89.03	Open To Flow (1)
21	22.91	89.96	Shut-In(1)
88	1043.78	92.22	End Shut-In(1)
89	24.87	91.97	Open To Flow (2)
119	30.75	93.77	Shut-In(2)
179	986.30	95.10	End Shut-In(2)
180	1633.47	95.04	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud 100% M	0.07

\* 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 Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63511

**DST#: 3**

ATTN: Jeff Christian

Test Start: 2017.02.28 @ 13:48:00

## Tool Information

Drill Pipe:	Length: 3181.00 ft	Diameter: 3.80 inches	Volume: 44.62 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3407.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	41.00 ft			
Tool Length:	69.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3380.00	
Shut In Tool	5.00			3385.00	
Hydraulic tool	5.00			3390.00	
Jars	5.00			3395.00	
Safety Joint	3.00			3398.00	
Packer	5.00			3403.00	28.00 Bottom Of Top Packer
Packer	4.00			3407.00	
Stubb	1.00			3408.00	
Perforations	2.00			3410.00	
Recorder	0.00	9120	Inside	3410.00	
Recorder	0.00	8934	Outside	3410.00	
Change Over Sub	1.00			3411.00	
Drill Pipe	32.00			3443.00	
Change Over Sub	1.00			3444.00	
Bullnose	4.00			3448.00	41.00 Bottom Packers & Anchor

**Total Tool Length: 69.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63511

**DST#: 3**

ATTN: Jeff Christian

Test Start: 2017.02.28 @ 13:48:00

## 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: 64.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
15.00	Mud 100% M	0.074

Total Length: 15.00 ft      Total Volume: 0.074 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

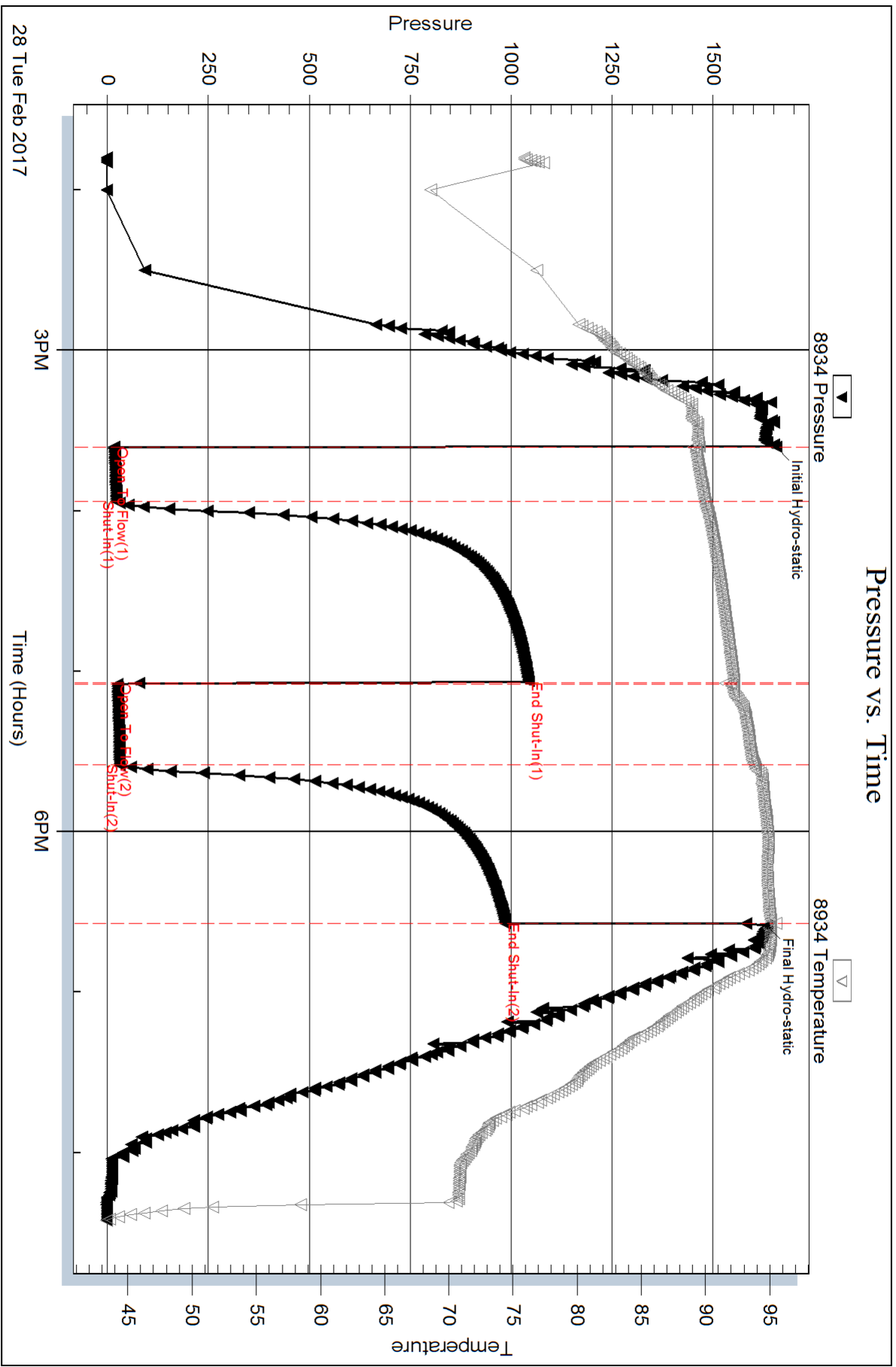
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 4# LCM





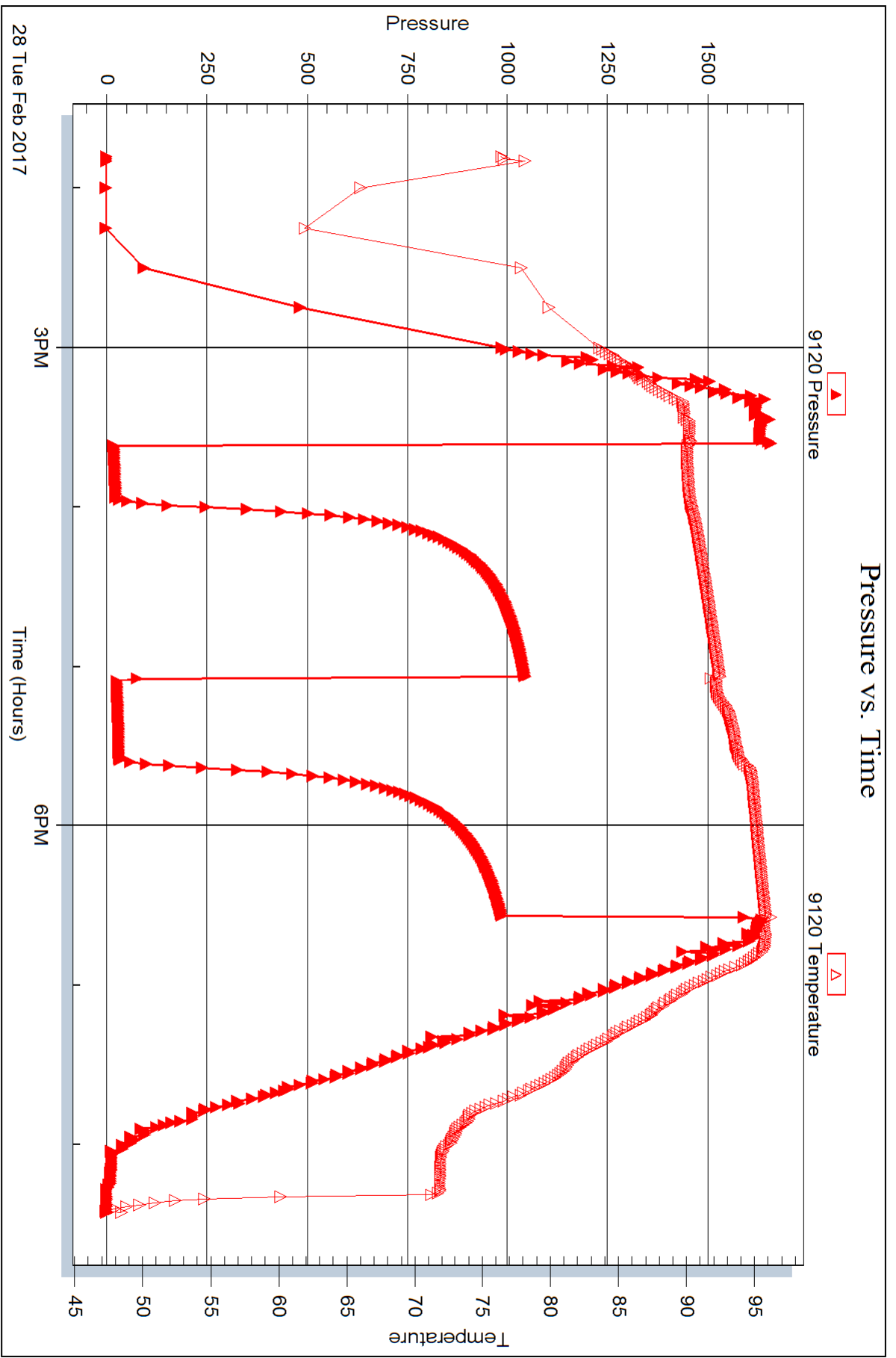
Serial #: 9120

Inside

Murfin Drilling Company Inc

Hamit #1-20

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63511

Printed: 2017.03.02 @ 15:36:33



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Christian

### **Hamit #1-20**

### **S20-6S-19W Rooks,KS**

Start Date: 2017.03.01 @ 10:43:00

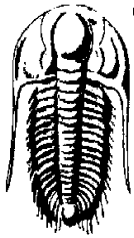
End Date: 2017.03.01 @ 17:01:45

Job Ticket #: 63512                      DST #: 4

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

Printed: 2017.03.02 @ 15:35:16

Murfin Drilling Company Inc  
S20-6S-19W Rooks,KS  
Hamit #1-20  
DST # 4  
LKC 'H-K'  
2017.03.01



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63512

**DST#: 4**

ATTN: Jeff Christian

Test Start: 2017.03.01 @ 10:43:00

## GENERAL INFORMATION:

Formation: **LKC 'H-K'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:27:15

Time Test Ended: 17:01:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3472.00 ft (KB) To 3564.00 ft (KB) (TVD)**

Reference Elevations: 2134.00 ft (KB)

Total Depth: 3564.00 ft (KB) (TVD)

2129.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934 Outside**

Press@RunDepth: 31.96 psig @ 3475.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.03.01 End Date: 2017.03.01

Last Calib.: 2017.03.01

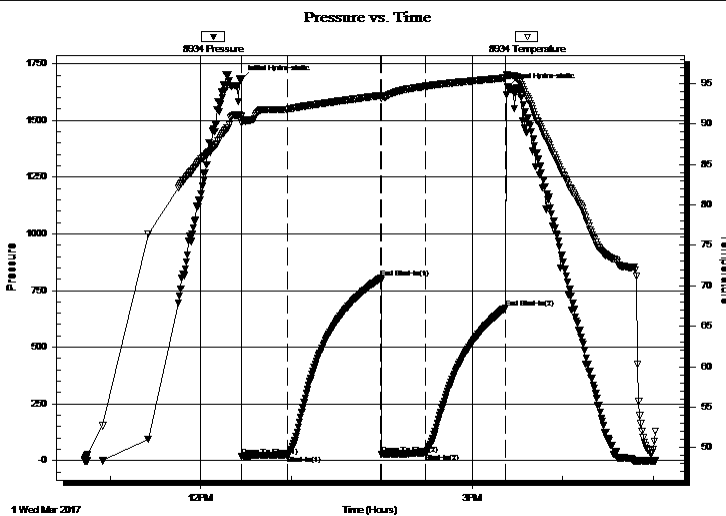
Start Time: 10:43:05 End Time: 17:01:44

Time On Btm: 2017.03.01 @ 12:27:00

Time Off Btm: 2017.03.01 @ 15:23:30

**TEST COMMENT:** 30-IF-Very Weak Surface Blow ; Built from 1/8" to 1"  
60-ISI-No Blow Back  
30-FF-Very Weak Surface Blow ; Few Bubbles  
60-FSI-No Blow Back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1681.82	90.89	Initial Hydro-static
1	18.66	90.15	Open To Flow (1)
31	25.48	91.79	Shut-In(1)
93	803.48	93.50	End Shut-In(1)
93	28.64	93.11	Open To Flow (2)
122	31.96	94.63	Shut-In(2)
176	674.65	95.69	End Shut-In(2)
177	1646.86	96.02	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100% M	0.10

## 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 Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63512

**DST#: 4**

ATTN: Jeff Christian

Test Start: 2017.03.01 @ 10:43:00

## Tool Information

Drill Pipe:	Length: 3244.00 ft	Diameter: 3.80 inches	Volume: 45.50 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
			- bbl	String Weight: Initial	60000.00 lb
Drill Pipe Above KB:	5.00 ft			Final	60000.00 lb
Depth to Top Packer:	3472.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	92.00 ft				
Tool Length:	120.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3445.00	
Shut In Tool	5.00			3450.00	
Hydraulic tool	5.00			3455.00	
Jars	5.00			3460.00	
Safety Joint	3.00			3463.00	
Packer	5.00			3468.00	28.00 Bottom Of Top Packer
Packer	4.00			3472.00	
Stubb	1.00			3473.00	
Perforations	2.00			3475.00	
Recorder	0.00	9120	Inside	3475.00	
Recorder	0.00	8934	Outside	3475.00	
Perforations	20.00			3495.00	
Change Over Sub	1.00			3496.00	
Drill Pipe	63.00			3559.00	
Change Over Sub	1.00			3560.00	
Bullnose	4.00			3564.00	92.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>120.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63512

**DST#: 4**

ATTN: Jeff Christian

Test Start: 2017.03.01 @ 10:43:00

## 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: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100% M	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

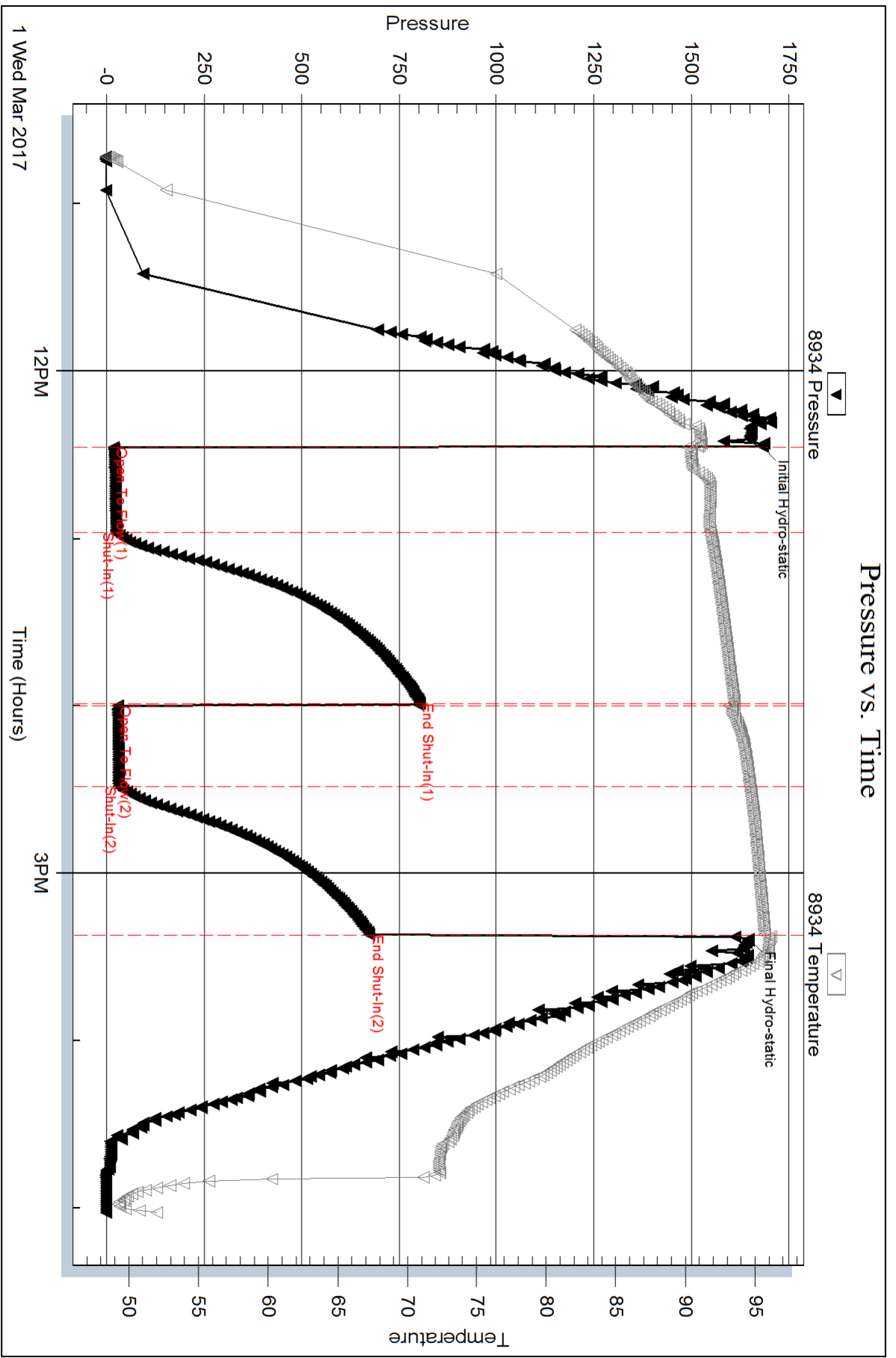
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 4# LCM





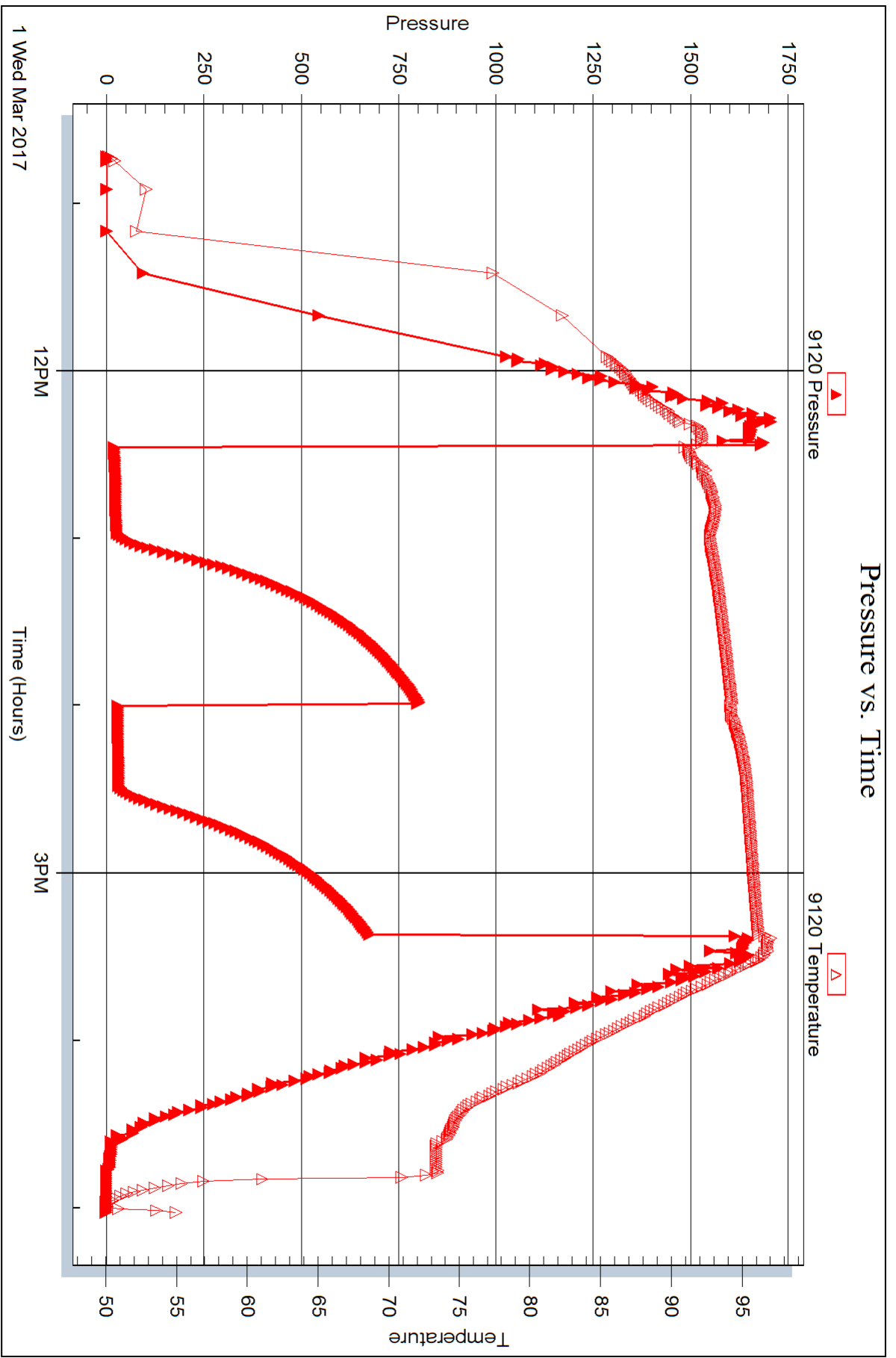
Serial #: 9120

Inside

Murfin Drilling Company Inc

Hamit #1-20

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 63512

Printed: 2017.03.02 @ 15:35:17



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Christian

### **Hamit #1-20**

#### **S20-6S-19W Rooks,KS**

Start Date: 2017.03.02 @ 02:55:00

End Date: 2017.03.02 @ 10:47:30

Job Ticket #: 63513                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.03.02 @ 15:32:47



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63513

**DST#: 5**

ATTN: Jeff Christian

Test Start: 2017.03.02 @ 02:55:00

## GENERAL INFORMATION:

Formation: **Reagan Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:34:15

Time Test Ended: 10:47:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3606.00 ft (KB) To 3641.00 ft (KB) (TVD)**

Reference Elevations: 2134.00 ft (KB)

Total Depth: 3641.00 ft (KB) (TVD)

2129.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934 Outside**

Press@RunDepth: 217.99 psig @ 3607.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.03.02

End Date:

2017.03.02

Last Calib.:

2017.03.02

Start Time:

02:55:05

End Time:

10:47:29

Time On Btm:

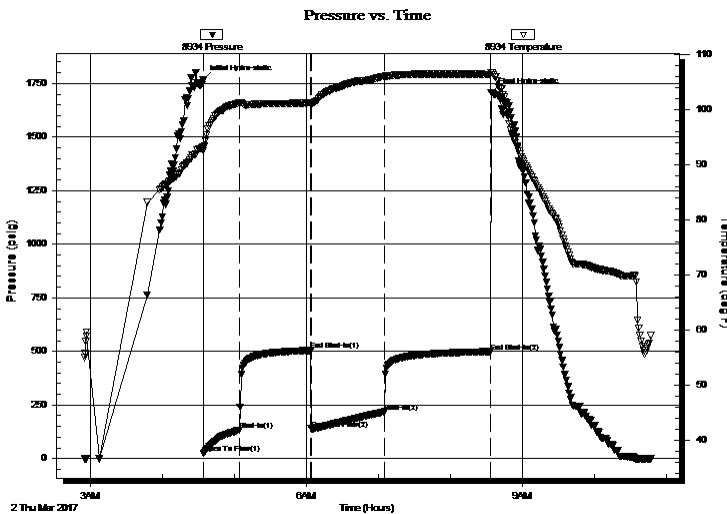
2017.03.02 @ 04:34:00

Time Off Btm:

2017.03.02 @ 08:33:45

**TEST COMMENT:** 30-IF-BOB in 12 minutes  
60-ISI-Very Weak Surface Blow ; Built to 1/4"  
60-FF-BOB in 14 minutes  
90-FSI-Very Weak Surface Blow ; Built to 1/2"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1768.01	93.13	Initial Hydro-static
1	25.76	92.44	Open To Flow (1)
31	132.57	101.15	Shut-In(1)
90	504.07	101.14	End Shut-In(1)
90	138.77	101.05	Open To Flow (2)
151	217.99	105.96	Shut-In(2)
240	497.94	106.32	End Shut-In(2)
240	1707.33	106.67	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	GOCM 10% G 40% O 50% M	0.59
385.00	GMCO 10%G 10%M 80%O	4.63
20.00	Clean Oil 100% O	0.28

## 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 Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63513

**DST#: 5**

ATTN: Jeff Christian

Test Start: 2017.03.02 @ 02:55:00

## Tool Information

Drill Pipe:	Length: 3402.00 ft	Diameter: 3.80 inches	Volume: 47.72 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 205.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose:	62000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
			- bbl	String Weight: Initial	58000.00 lb
Drill Pipe Above KB:	29.00 ft			Final	60000.00 lb
Depth to Top Packer:	3606.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	35.00 ft				
Tool Length:	63.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3579.00	
Shut In Tool	5.00			3584.00	
Hydraulic tool	5.00			3589.00	
Jars	5.00			3594.00	
Safety Joint	3.00			3597.00	
Packer	5.00			3602.00	28.00 Bottom Of Top Packer
Packer	4.00			3606.00	
Stubb	1.00			3607.00	
Recorder	0.00	9120	Inside	3607.00	
Recorder	0.00	8934	Outside	3607.00	
Perforations	30.00			3637.00	
Bullnose	4.00			3641.00	35.00 Bottom Packers & Anchor

**Total Tool Length: 63.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Company Inc

**S20-6S-19W Rooks,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Hamit #1-20**

Job Ticket: 63513

**DST#: 5**

ATTN: Jeff Christian

Test Start: 2017.03.02 @ 02:55:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

19 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	GOCM 10% G 40% O 50% M	0.590
385.00	GMCO 10%G 10%M 80%O	4.626
20.00	Clean Oil 100% O	0.281

Total Length: 525.00 ft      Total Volume: 5.497 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

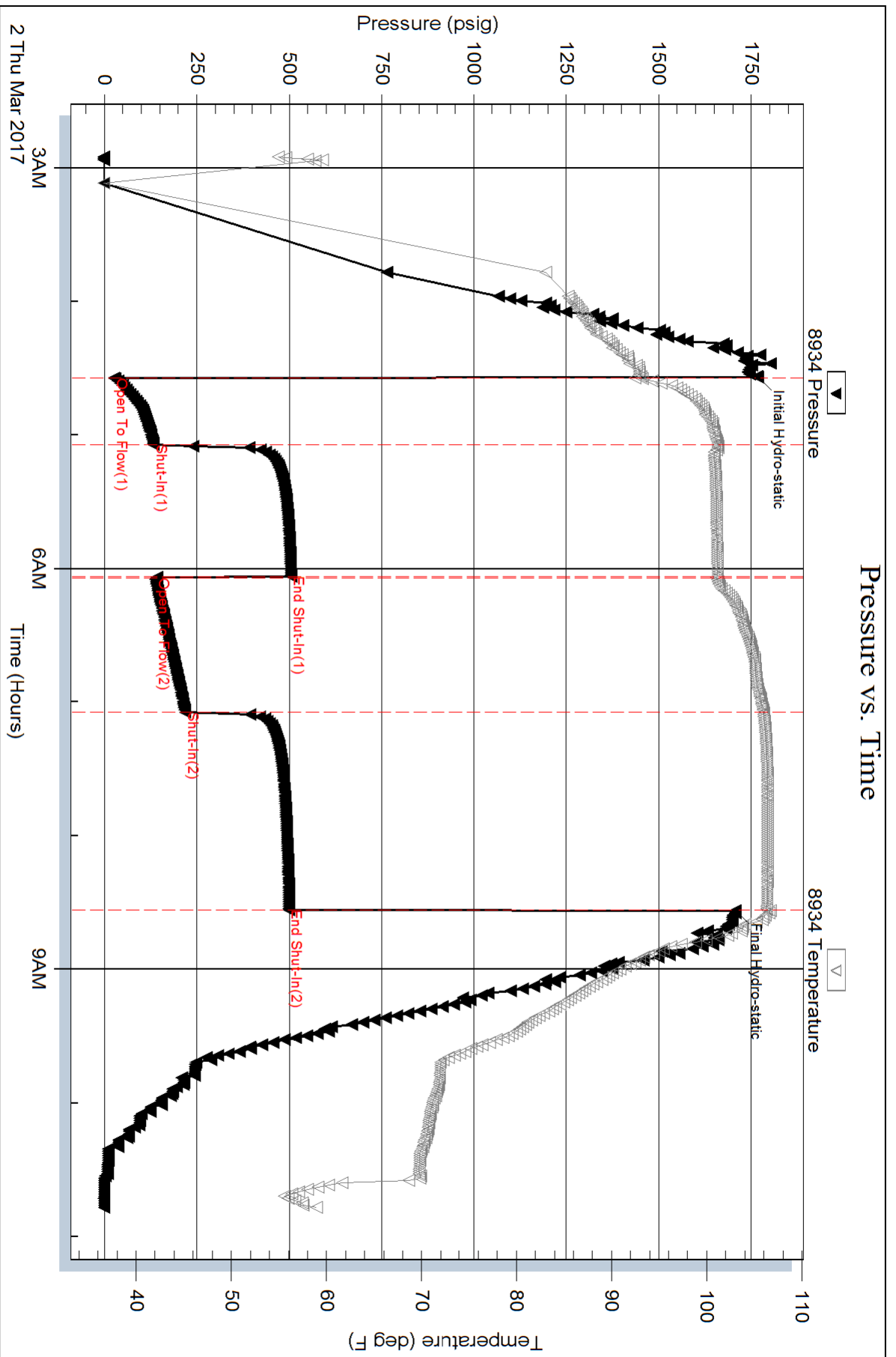
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 4# LCM

Gravity= 19 degrees @ 60 degrees



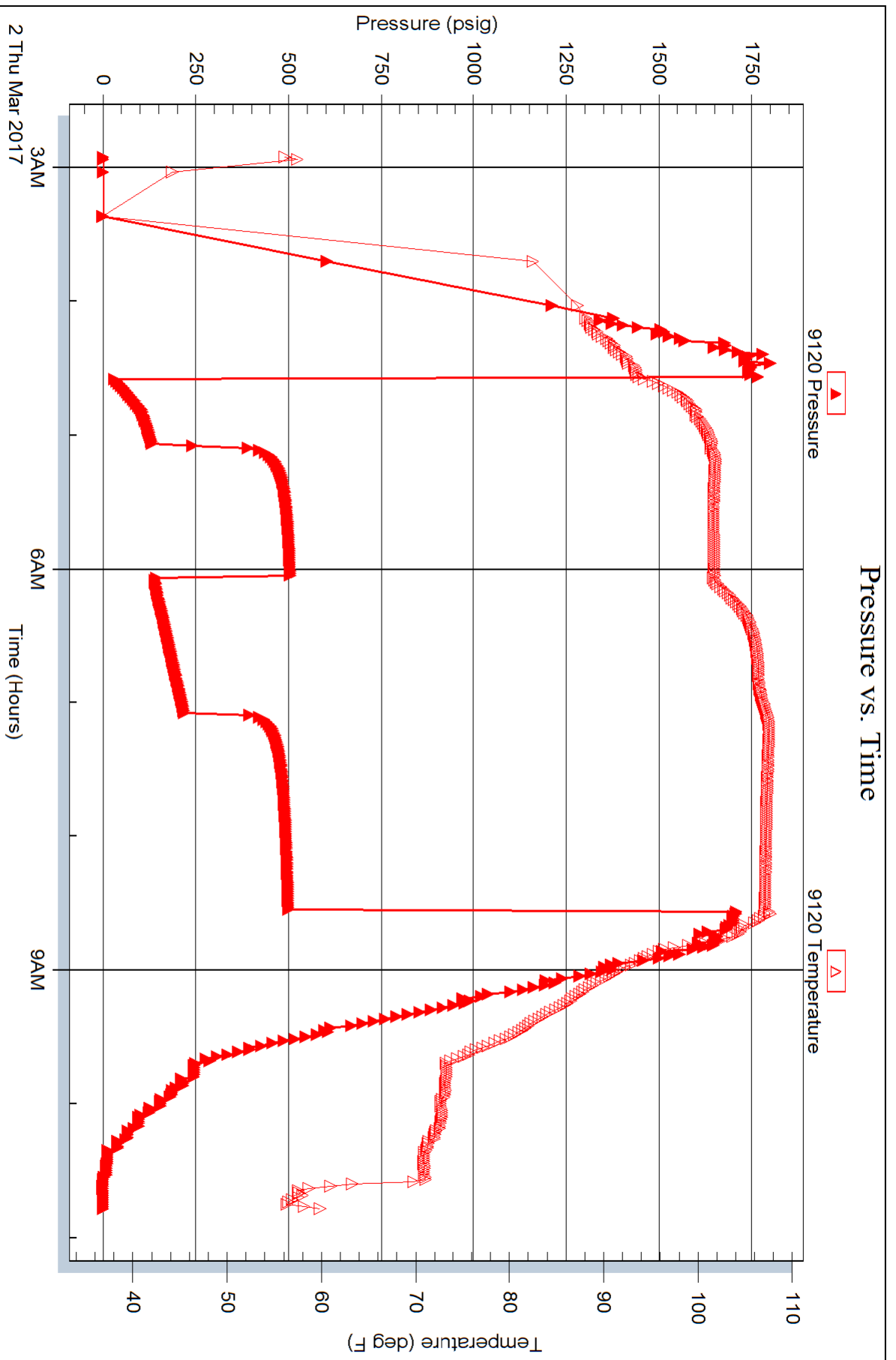
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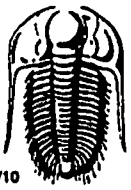
Murfin Drilling Company Inc

Hamit #1-20

DST Test Number: 5







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63509

Well Name & No. Hamit # 1-20 Test No. 1 Date 02/27/2017  
 Company Murfin Drilling Company Elevation 2134 KB 2129 GL  
 Address 250 N Water STE 300 Wichita KS 67202 + 1216  
 Co. Rep / Geo. Jeff Christian Johnson Murfin Rig # 24  
 Location: Sec. 20 Twp. 6S Rge. 19W Co. Rooks State Ks

Interval Tested 3352' - 3410' Zone Tested LKC 'a-b'  
 Anchor Length 58' Drill Pipe Run 3149' Mud Wt. 8.8  
 Top Packer Depth 3347' Drill Collars Run 205' Vis 63  
 Bottom Packer Depth 3352' Wt. Pipe Run — WL 5.6  
 Total Depth 3410' Chlorides 800 ppm System LCM 3#

Blow Description D7 - Very Weak Surface Blow; built up to 1 inch  
DSD - No Blow Back  
F7 - Very Weak Surface Blow; Built to 1/4 inch  
FSD - No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>Mud w/oil specks</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

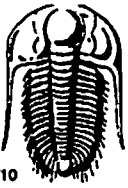
Rec Total 10' BHT 98° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>1627</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>13:08</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>16:11</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>18:24</u>
(D) Initial Shut-In <u>1047</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>21:26</u>
(E) Second Initial Flow <u>25</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>23:06</u>
(F) Second Final Flow <u>29</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT 90</u>	Comments
(G) Final Shut-In <u>1030</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1602</u>	<input type="checkbox"/> Straddle	

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1465</u>
	Sub Total <u>1465</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Spencer J. Stank Thank-you!!  
 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.

785-259-0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63510

Well Name & No. Hamit # 1-20 Test No. 2 Date 02/28/2017  
 Company Murfin Drilling Company Inc Elevation 2134 KB 2129 GL  
 Address 250 N Water STE 300 Wichita Ks 67202+1216  
 Co. Rep / Geo. Jeff Christian / Shauna Hummelman Rig Murfin Rig #24  
 Location: Sec. 20 Twp. 6S Rge. 19W Co. Rocks State Ks

Interval Tested 3407' - 3448' Zone Tested LKC 'D-7' gone  
 Anchor Length 41' Drill Pipe Run 3181' Mud Wt. 8.8  
 Top Packer Depth 3402' Drill Collars Run 205' Vis 63  
 Bottom Packer Depth 3407' Wt. Pipe Run — WL 5.6  
 Total Depth 3448' Chlorides 800 ppm System LCM 3#

Blow Description 57-  
65-  
77- Hit Bridge 17 Stands in  
7SD- Opened tool to try to slide thru, didn't work

Rec	Feet of	%gas	%oil	%water	%mud
<u>60'</u>	<u>Mud</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 \_\_\_\_\_ BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic \_\_\_\_\_  Test 850 \_\_\_\_\_ T-On Location 05:58  
 (B) First Initial Flow \_\_\_\_\_  Jars 250 \_\_\_\_\_ T-Started 06:34  
 (C) First Final Flow \_\_\_\_\_  Safety Joint 75 \_\_\_\_\_ T-Open \_\_\_\_\_  
 (D) Initial Shut-In \_\_\_\_\_  Circ Sub \_\_\_\_\_ T-Pulled H + Bridge  
 (E) Second Initial Flow \_\_\_\_\_  Hourly Standby \_\_\_\_\_ T-Out 1050' in  
 (F) Second Final Flow \_\_\_\_\_  Mileage 120 R7 90 \_\_\_\_\_ Comments \_\_\_\_\_  
 (G) Final Shut-In \_\_\_\_\_  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic \_\_\_\_\_  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 \_\_\_\_\_  Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 \_\_\_\_\_  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open \_\_\_\_\_  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In \_\_\_\_\_  Day Standby \_\_\_\_\_ Total 1265  
 Final Flow \_\_\_\_\_  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In \_\_\_\_\_ Sub Total 1265

Approved By \_\_\_\_\_ Our Representative Spencer J. Stahl Thanks!  
 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.

785-259-0056

Test NO. 63511



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Well Name & No. Hamit # 1-20 Test No. 3 Date 02/28/2017  
 Company Murfin Drilling Company Inc Elevation 2134 KB 2129 GL  
 Address 250 N Water STE 380 Wichita Ks 67202+1216  
 Co. Rep / Geo. Jeff Christian Rig Murfin Rig #24  
 Location: Sec. 20 Twp. 6S Rge. 19W Co. Rooks State Ks

Interval Tested 3407'-3448' Zone Tested LAC 'D-7' zones  
 Anchor Length 41' Drill Pipe Run 3181' Mud Wt. 8.9  
 Top Packer Depth 3402' Drill Collars Run 205' Vis 64  
 Bottom Packer Depth 3407' Wt. Pipe Run — WL 7.2  
 Total Depth 3448' Chlorides 1,100 ppm System LCM 4#

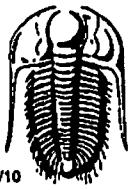
Blow Description D7- Very Weak Surface Blow; Built from 1/8th inch to 1 inch  
ISD- No Blow Back  
77- Very Weak Surface Blow; few bubbles  
7SD- No Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>15'</u>	<u>Mud</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 15' BHT 95° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1655</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>13:20</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>13:48</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>15:34</u>
(D) Initial Shut-In <u>1043</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>18:35</u>
(E) Second Initial Flow <u>24</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>20:24</u>
(F) Second Final Flow <u>30</u>	<input checked="" type="checkbox"/> Mileage <u>2027</u> 90	Comments
(G) Final Shut-In <u>986</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1633</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>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1465</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1465</u>	

Approved By \_\_\_\_\_ Our Representative Spencer J. Stuck Thanks!  
 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.  
 285-259 0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63512

Well Name & No. Hamit #1-20 Test No. 4 Date 03/01/2017  
 Company Murfin Drilling Company Inc Elevation 2134 KB 2129 GL  
 Address 250 N Main STE 300 Wichita Ks 67202 + 1216  
 Co. Rep / Geo. Jeff Christian Rig Murfin Rig # 24  
 Location: Sec. 20 Twp. 6s Rge. 19w Co. Rooks State Ks

Interval Tested 3472-3564' Zone Tested LKC 'A-K' zones  
 Anchor Length 92' Drill Pipe Run 3244' Mud Wt. 8.9  
 Top Packer Depth 3467' Drill Collars Run 205' Vis 64  
 Bottom Packer Depth 3472' Wt. Pipe Run - WL 7.2  
 Total Depth 3564' Chlorides 1,100 ppm System LCM 4#

Blow Description D7 - Very Weak Surface Blow; built from 1/2 in to 1 inch  
ISD - No Blow Back  
77 - Very Weak Surface Blow; Few Bubbles  
7SD - No Blow Back

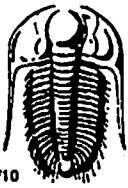
Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>Mud</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20' BHT 96° Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>1681</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>10:10</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:43</u>
(C) First Final Flow <u>25</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:26</u>
(D) Initial Shut-In <u>803</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>15:26</u>
(E) Second Initial Flow <u>28</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>17:01</u>
(F) Second Final Flow <u>31</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT 90</u>	Comments _____
(G) Final Shut-In <u>674</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1646</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>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1465</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1465</u>	

Approved By \_\_\_\_\_ Our Representative Spencer J. Jacob Thank-you!  
 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.

785-259-0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63513

Well Name & No. Hamit # 1-20 Test No. 5 Date 03/02/2017  
 Company Murfin Drilling Company Inc. Elevation 2134 KB 2129 GL  
 Address 250 N Main STE 300 Wichita Ks 67202 + 016  
 Co. Rep / Geo. Jeff Christian Rig Murfin Rig #24  
 Location: Sec. 20 Twp. 6s Rge. 19w Co. Roos State Ks

Interval Tested 3606' - 3641' Zone Tested Reagan Sand  
 Anchor Length 35' Drill Pipe Run 3402' Mud Wt. 9.0  
 Top Packer Depth 3601' Drill Collars Run 205' Vis 54  
 Bottom Packer Depth 3606' Wt. Pipe Run - WL 6.0  
 Total Depth 3641' Chlorides 1,100 ppm System LCM 4#

Blow Description 17- BOB in 12 minutes  
1SD- Very Weak Surface Blow, Built to 1/4 inch  
77- BOB in 14 minutes  
7SD- Very Weak Surface Blow; Built to 1/2 inch

Rec	Feet of	%gas	%oil	%water	%mud
<u>120'</u>	<u>10CM</u>	<u>10</u>	<u>40</u>	<u>50</u>	<u>0</u>
<u>385'</u>	<u>1MCO</u>	<u>10</u>	<u>80</u>	<u>10</u>	<u>0</u>
<u>20'</u>	<u>Clean Oil</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 525' BHT 106° Gravity 19° @ 60°F API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1768</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>02:04</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>02:55</u>
(C) First Final Flow <u>132</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>04:33</u>
(D) Initial Shut-In <u>504</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>08:33</u>
(E) Second Initial Flow <u>138</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>10:45</u>
(F) Second Final Flow <u>217</u>	<input checked="" type="checkbox"/> Mileage <u>120R7</u> 90	Comments
(G) Final Shut-In <u>497</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1707</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<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>1715</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1715</u>	

Approved By \_\_\_\_\_ Our Representative Spencer J. Staal Thanks!  
 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.

785-259-0056



# Jeff Christian

## PETROLEUM GEOLOGIST

Wichita, Kansas

### GEOLOGICAL REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **MURFIN DRILLING COMPANY**  
 LEASE **HAMIT # 1-20**  
 LOCATION **930' FSL & 330' FWL**

SEC. **20** TWP. **6 S** RANG. **19 W**  
 COUNTY **ROOKS** STATE **KANSAS**  
 FIELD \_\_\_\_\_  
 API **15-163-24329-00-00**

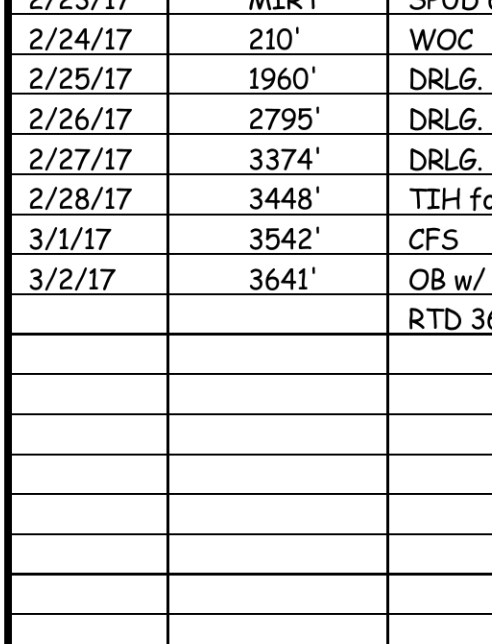
CONTRACTOR **COMPANY TOOLS** RIG NO. **24**  
 DRILLING STARTED **02/23/2017** COMPLETED **02/03/2017**  
 MUD DISPLACED **2812** MUD TYPE **CHEMICAL**  
 DRILLING TIME KEPT FROM **3000'** TO **RTD**  
 SAMPLES SAVED FROM **3020'** TO **RTD**  
 SAMPLES EXAMINED FROM **3020'** TO **RTD**  
 GEOLOGICAL SUPERVISION FROM **3000'** TO **RTD**

FORMATION NAME	LOG TOP	LOG DATUM	SAMPLE TOP	SAMPLE DATUM
ANHYDRITE	1706'	(+428)	1707'	(+427)
TOPEKA	3123'	(-989)	3124'	(-990)
HEEBNER	3321'	(-1187)	3322'	(-1188)
TORONTO	3343'	(-1209)	3344'	(-1210)
LANSING	3357'	(-1223)	3358'	(-1224)
ROUND CITY (BKC)	3571'	(-1437)	3573'	(-1439)
REAGAN SAND	3629'	(-1495)	3630'	(-1496)
GRANITE WASH	3642'	(-1508)	3646'	(-1512)
GRANITE	3665'	(-1531)	3666'	(-1532)
TOTAL DEPTH	3673'	(-1539)	3675'	(-1541)

ELEVATIONS  
 KB **2134'**  
 GIL **2129'**

MEASUREMENTS FROM KB  
 CASING RECORD  
 Conductor **NONE**

ELECTRICAL SURVEYS:  
 PIONEER:  
 DII  
 CNL/CDL  
 MEL  
 BHCs



DATE	7:00 AM DEPTH	REMARKS
2/23/17	MIRT	SPUD 6:45 pm
2/24/17	210'	WOC dev. 3/4 deg.
2/25/17	1960'	DRLG.
2/26/17	2795'	DRLG.
2/27/17	3374'	DRLG.
2/28/17	3448'	TIH for DST # 2 dev. 1 3/4 deg. @ 3410'
3/1/17	3542'	CFS
3/2/17	3641'	OB w/ DST # 5
		RTD 3675' @ 4:00 pm Finished logging @ 3:00 am 3/3/17 dev. 1 3/4 deg.

**Remarks**

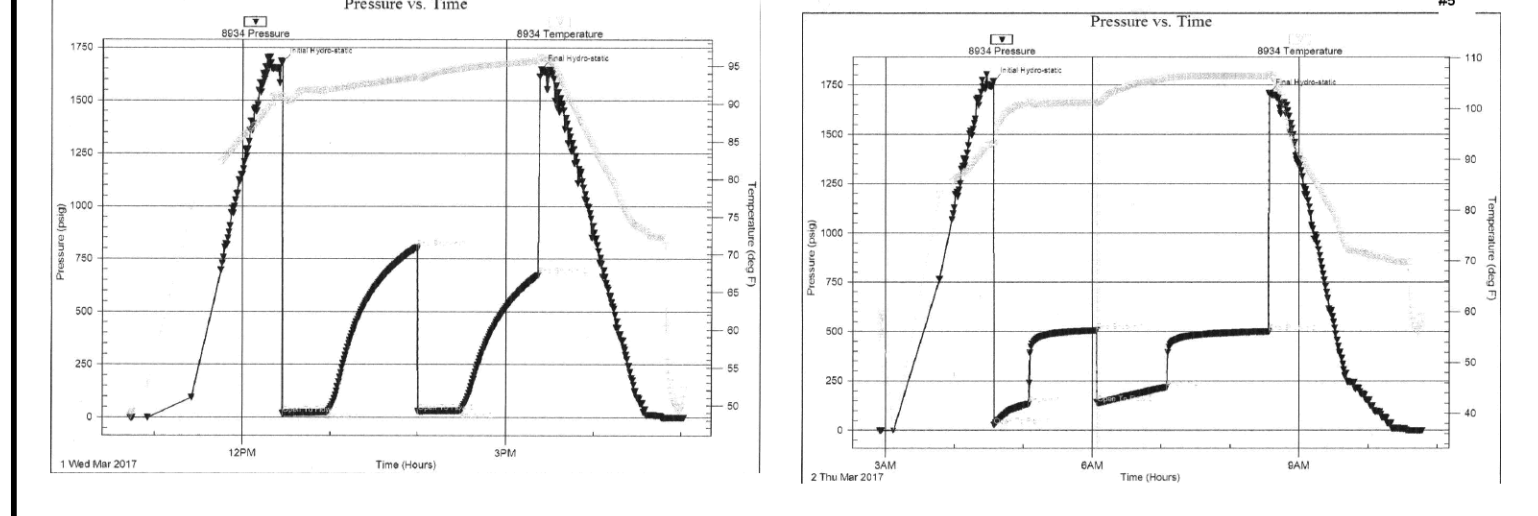
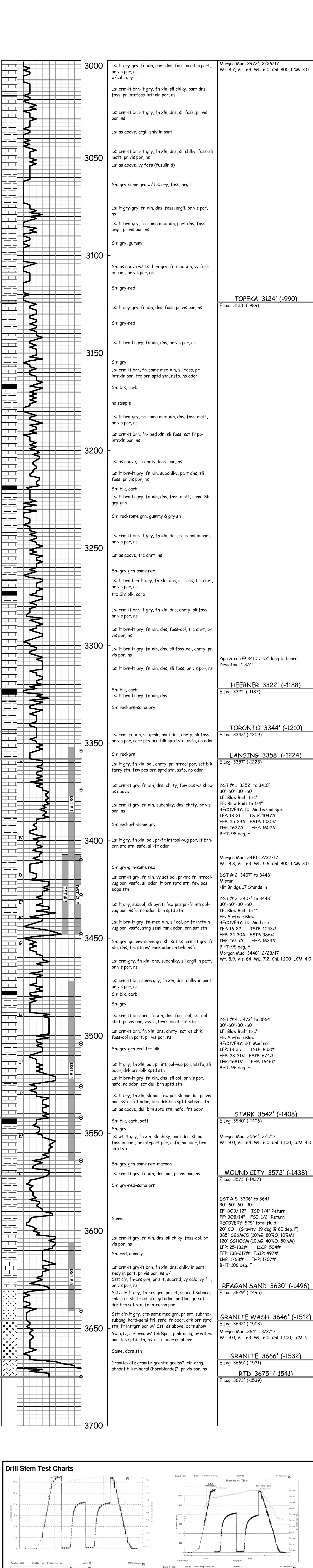
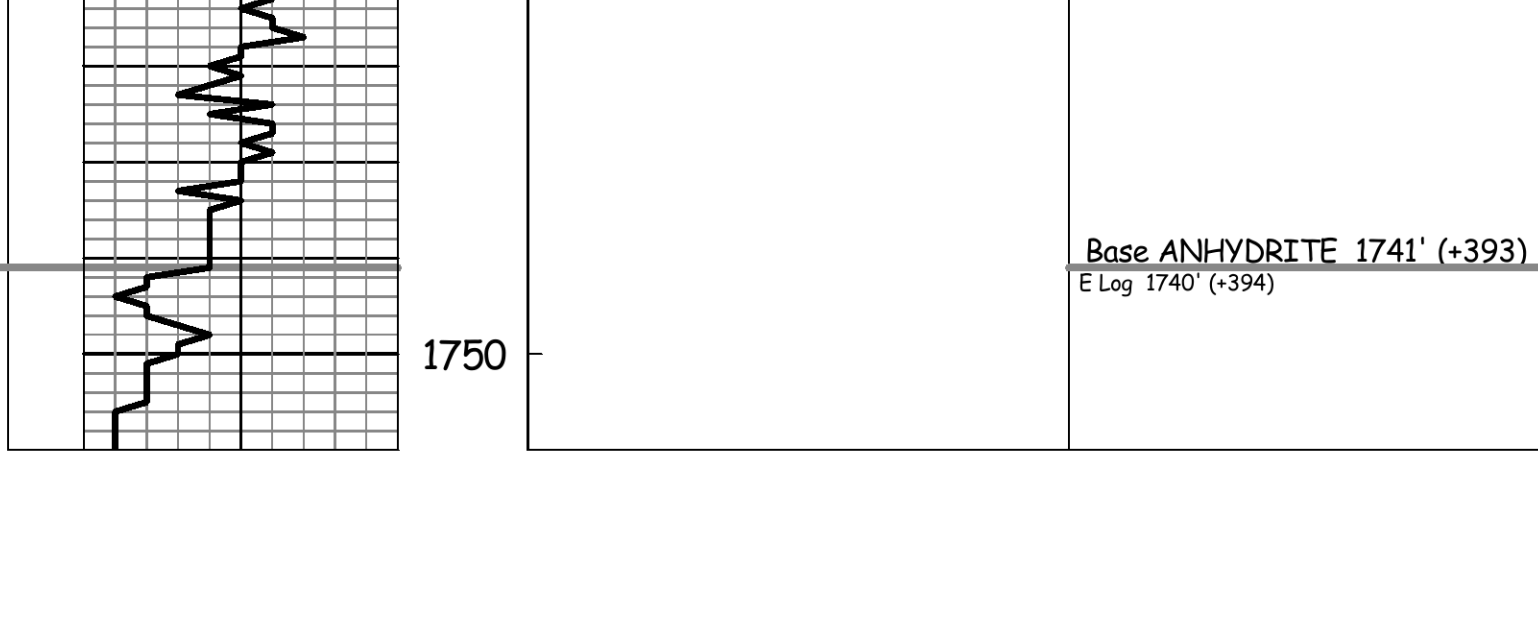
5 1/2" production casing set to further test the Reagan sand formation.

Electric log measurements correlate about 1' to 2' high compared to rotary measurements.

Drilling samples deposited at the Kansas Geological Survey.

Respectfully Submitted,  
*Jeff Christian*  
 Jeff Christian

LITH.	0	DRILL TIME (MIN/FT)	10	DEPTH (FT)	SAMPLE DESCRIPTIONS	REMARKS
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MDCI  
 Hamit #1-20  
 930 FSL 330 FWL  
 Sec. 20-T6S-R19W  
 2134' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	1708	+426	-2	1706	+428	Flat
B/Anhydrite	1741	+393	-3	1740	+394	-2
Topeka	3124	-990	-4	3123	-989	-3
Heebner	3322	-1188	-4	3321	-1187	-3
Toronto	3344	-1210	-5	3343	-1209	-4
Lansing	3358	-1224	-5	3357	-1223	-4
Mound City	3573	-1439	-5	3571	-1437	-3
Reagan	3630	-1496	-11	3629	-1495	-10
Granite	3666	-1532	-8	3665	-1531	-7
RTD	3675	-1541				
LTD				3673	-1539	







**CONSOLIDATED**  
Oil Well Services, LLC

7698  
7593

TICKET NUMBER 51707  
LOCATION Onkley Ks  
FOREMAN Jerry Y

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

Invoice # 809768 KS

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-3-17	5406	Hamit 1-20	20	65	19w	Rooks
CUSTOMER			COUNTY			
Murfin			Rooks			
MAILING ADDRESS			TRUCK #	DRIVER	TRUCK #	DRIVER
P.O. BOX 288			1753	Cory D		
CITY			529-7-127	Walt D		
Russell			639			
STATE	ZIP CODE					
KS	67665					

JOB TYPE 2 Stage HOLE SIZE 7 7/8 HOLE DEPTH 3675 CASING SIZE & WEIGHT 5 1/2 15.5#  
 CASING DEPTH 3673 DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER DWC 1750'  
 SLURRY WEIGHT 14.2/11.5 SLURRY VOL 1.42/2.90 WATER gal/sk \_\_\_\_\_ CEMENT LEFT IN CASING 65'  
 DISPLACEMENT 85%/41 1/2 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Sally meeting + rig up on Murfin 24 run float log. turbanon 1, 2, 3, 4, 5, 6, 8, 10, 12, 16 basket 20' on 45 DV Tool top @ 1750 run casing to bottom pump ball thru & circulate 1 hr pump 5 bbl H<sub>2</sub>O, 500 gal med flush, 5 bbl H<sub>2</sub>O, mix 125 sks Thixobond III shut down release plug clean pump & lines displace with 80 bbl 4.5% @ 600' final 1.5" plug landed @ 1400 set & in released back & float held open tool & circulate 4 hours mix 210 sks multi-dens start down release plug clean pump & lines displace with 4 1/4 bbl fresh water final 1.5" 450 plug landed and tool closed @ 1500' released back & float held circulate approx 20 bbl to get cement circulated well full

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE 0453	1	PUMP CHARGE	2800.00	2800.00
CE 0002	50	MILEAGE	7.15	357.50
CE 070	17.63	Tan mileage deliver	1.75	1542.63
CC 5862	125 sks	Thixobond III	26.00	3250.00
CC 6077	625 #	Kol seal	50	31250.00
CC 5855	280 sks	multi-density IA	2.70	6750.00
CC 6075	11669 63 #	Dlo seal	3.00	18992.70
CC 6125	500 gal	med flush	65	32500.00
CE 1166	1	5 1/2 rotating head	250.00	250.00
CP 8485	1	5 1/2 AFU float & loc	585.00	585.00
CP 8254	1	5 1/2 latch down assy	400.00	400.00
CP 8576	10	5 1/2 turbalizers	110.00	1100.00
CP 8629	1	5 1/2 basket	385.00	385.00
CP 8801	1	5 1/2 DV Tool	5970.00	5970.00
CP 8676	10	5 1/2 rotating stretchers	75.00	750.00
		Subtotal		24966.63
		-40%		9986.65
		Subtotal		14979.98
		SALES TAX		840.69
		ESTIMATED TOTAL		15820.67

RAVIN 3737  
 AUTHORIZATION Walt Dunt TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
Wade King

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.