

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. 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	STAHL 1-19
Doc ID	1463721

All Electric Logs Run

DIL
DUCP
MEL
BHCS

MDCI
 Stahl #1-19
 1320FNL 2050FEL
 Sec. 19-T9S-R19W
 2106' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	1517	+589	-8	1517	+589	-8
B/Anhydrite	1555	+551	-7	1550	+556	-2
Topeka	3056	-950	Flat	3057	-951	-1
Heebner	3256	-1150	+5	3264	-1158	-3
Lansing	3298	-1192	+2	3303	-1197	-3
Stark	3488	-1382	+2	3488	-1382	+2
BKC	3524	-1418	+1	3522	-1416	+3
Arbuckle	3550	-1444	Flat	3550	-1444	Flat
RTD	3650	-1544				
LTD				3649	-1543	



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.22 @ 17:03:00

End Date: 2019.04.23 @ 01:41:15

Job Ticket #: 65114 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:24:09

Murfin Drilling Co
19-9S-19W Rooks,KS
Stahl #1-19
DST # 1
Oread
2019.04.22



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

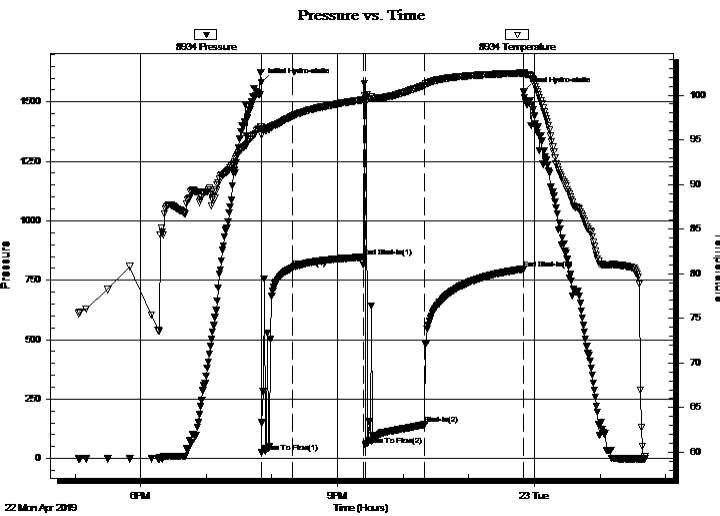
19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65114 **DST#: 1**
Test Start: 2019.04.22 @ 17:03:00

GENERAL INFORMATION:

Formation: **Oread**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:50:30
Time Test Ended: 01:41:15
Interval: **3187.00 ft (KB) To 3222.00 ft (KB) (TVD)**
Total Depth: 3222.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2106.00 ft (KB)
2101.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Spencer J Staab
Unit No: 84

Serial #: 8934 Inside
Press@RunDepth: 142.77 psig @ 3192.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.04.22 End Date: 2019.04.23 Last Calib.: 2019.04.23
Start Time: 17:03:15 End Time: 01:41:15 Time On Btm: 2019.04.22 @ 19:50:15
Time Off Btm: 2019.04.22 @ 23:50:15

TEST COMMENT: 30-IF-Weak; Built to 4" @15 mins; Plugged
60-ISI-No Return
60-FF-No Blow; Flushed twice; BOB 50 mins; Built to 13"
90-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1580.68	96.40	Initial Hydro-static
1	24.81	95.52	Open To Flow (1)
29	802.76	97.65	Shut-In(1)
94	846.73	99.48	End Shut-In(1)
95	56.94	99.12	Open To Flow (2)
150	142.77	101.09	Shut-In(2)
240	796.73	102.47	End Shut-In(2)
240	1541.47	102.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	HMCW 30%M 70%W	0.89
100.00	SWCM 3% W 97%M	1.36

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65114 **DST#: 1**
Test Start: 2019.04.22 @ 17:03:00

Tool Information

Drill Pipe:	Length: 2999.00 ft	Diameter: 3.82 inches	Volume: 42.51 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 41000.00 lb
			<u>Total Volume: 43.42 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 37000.00 lb
Depth to Top Packer:	3187.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3159.00	
Shut In Tool	5.00			3164.00	
Hydraulic tool	5.00			3169.00	
Jars	5.00			3174.00	
Safety Joint	3.00			3177.00	
Packer	5.00			3182.00	29.00 Bottom Of Top Packer
Packer	5.00			3187.00	
Stubb	1.00			3188.00	
Perforations	3.00			3191.00	
Change Over Sub	1.00			3192.00	
Recorder	0.00	8352	Inside	3192.00	
Recorder	0.00	8934	Inside	3192.00	
Drill Pipe	30.00			3222.00	35.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65114

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2019.04.22 @ 17:03:00

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:

72000 ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
180.00	HMCW 30%M 70%W	0.885
100.00	SWCM 3% W 97%M	1.362

Total Length: 280.00 ft Total Volume: 2.247 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.171@46F

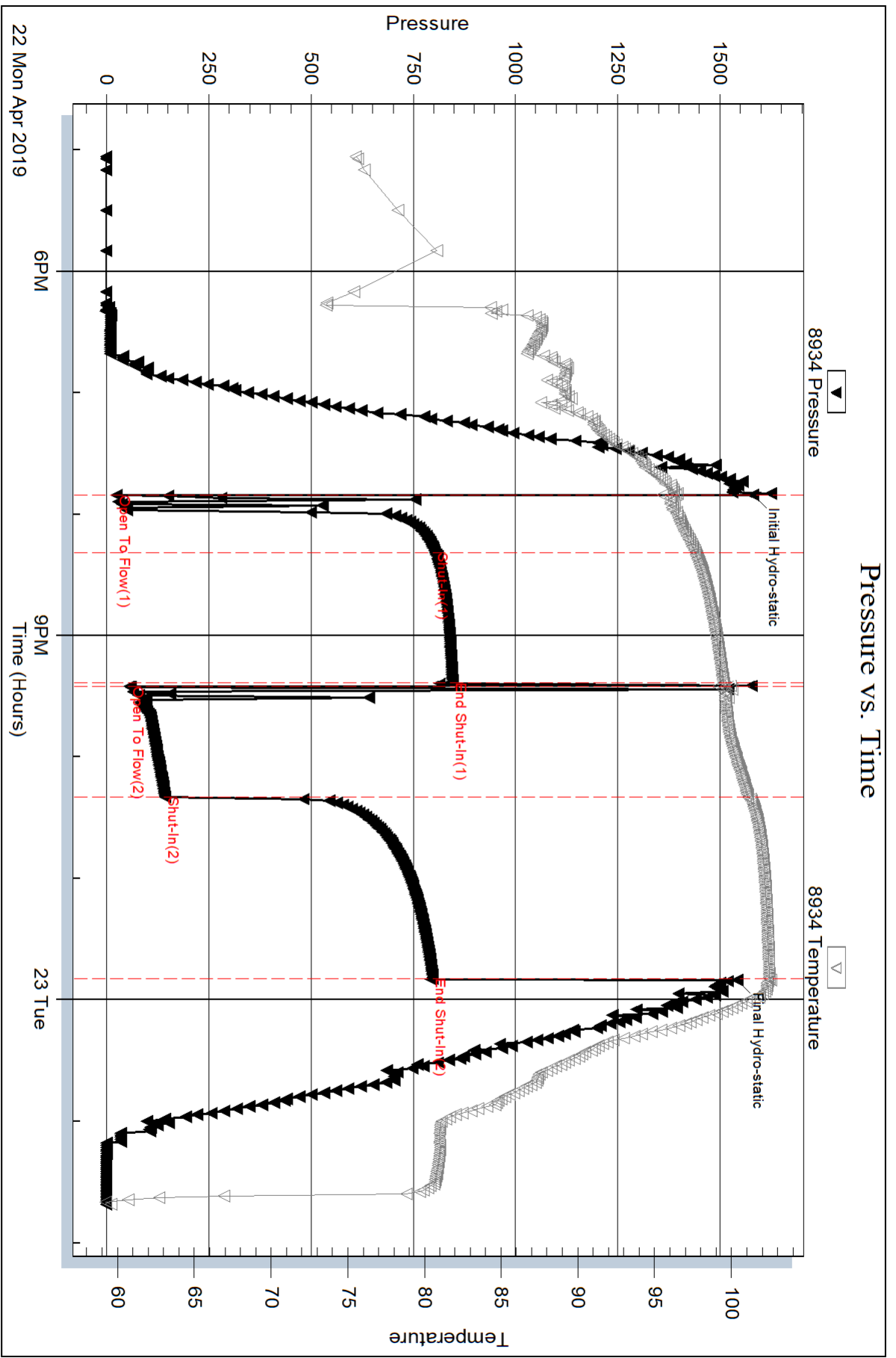
Serial #: 8934

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 65114

Printed: 2019.04.29 @ 14:24:10

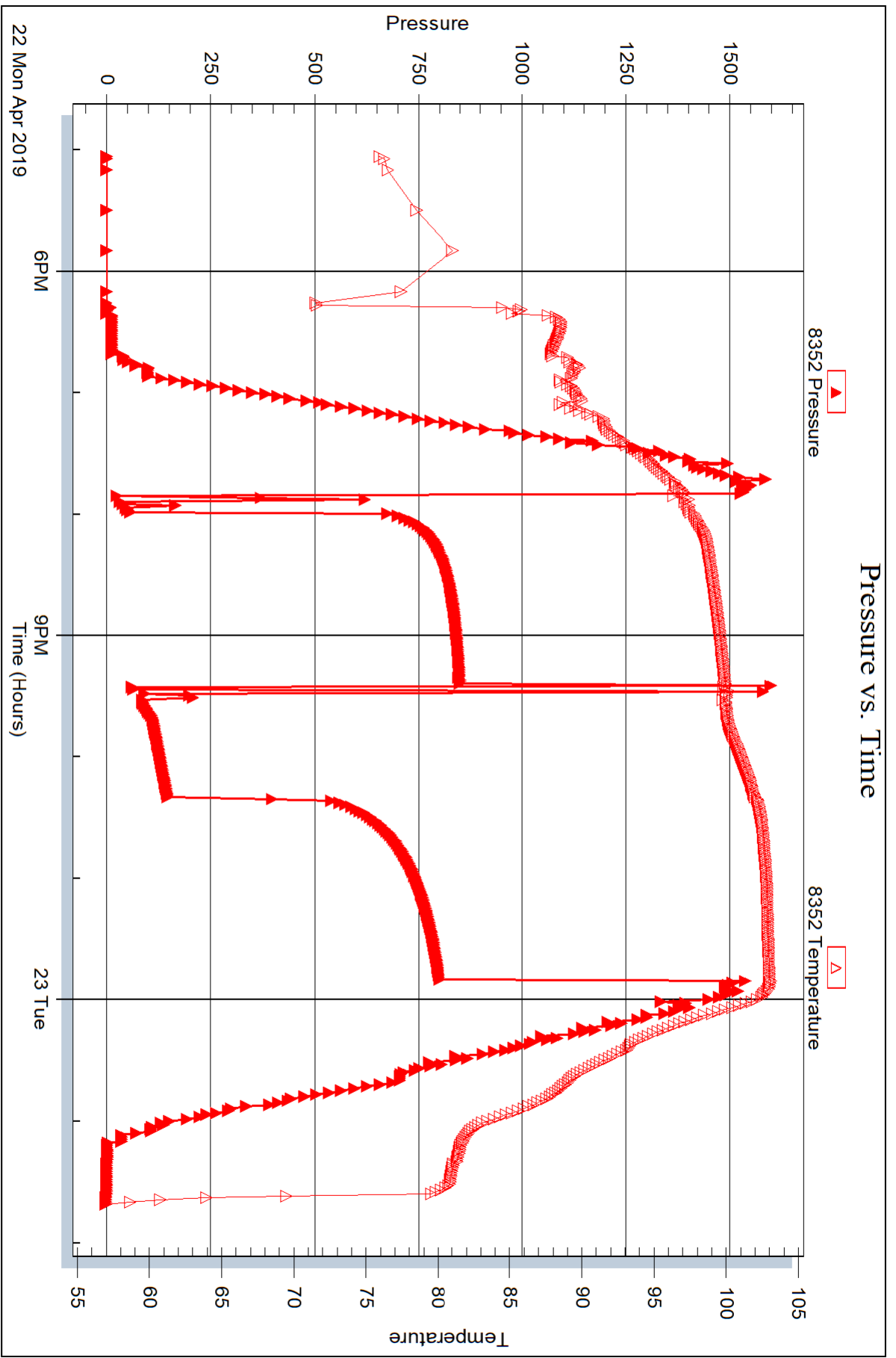
Serial #: 8352

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 65114

Printed: 2019.04.29 @ 14:24:10



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.23 @ 12:05:00

End Date: 2019.04.23 @ 20:11:15

Job Ticket #: 65115 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:23:40



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65115 **DST#: 2**
Test Start: 2019.04.23 @ 12:05:00

Tool Information

Drill Pipe:	Length: 3062.00 ft	Diameter: 3.82 inches	Volume: 43.41 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 42000.00 lb
		Total Volume: 44.32 bbl		Tool Chased ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3252.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	97.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3224.00	
Shut In Tool	5.00			3229.00	
Hydraulic tool	5.00			3234.00	
Jars	5.00			3239.00	
Safety Joint	3.00			3242.00	
Packer	5.00			3247.00	29.00 Bottom Of Top Packer
Packer	5.00			3252.00	
Stubb	1.00			3253.00	
Perforations	3.00			3256.00	
Change Over Sub	1.00			3257.00	
Recorder	0.00	8352	Inside	3257.00	
Recorder	0.00	8934	Inside	3257.00	
Drill Pipe	63.00			3320.00	68.00 Bottom Packers & Anchor

Total Tool Length: 97.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65115

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2019.04.23 @ 12:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.96 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
220.00	OCM 15%O 85%M	1.397
20.00	GO 20%G 80%O	0.284
0.00	90' GIP 100%G	0.000

Total Length: 240.00 ft Total Volume: 1.681 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2#LCM

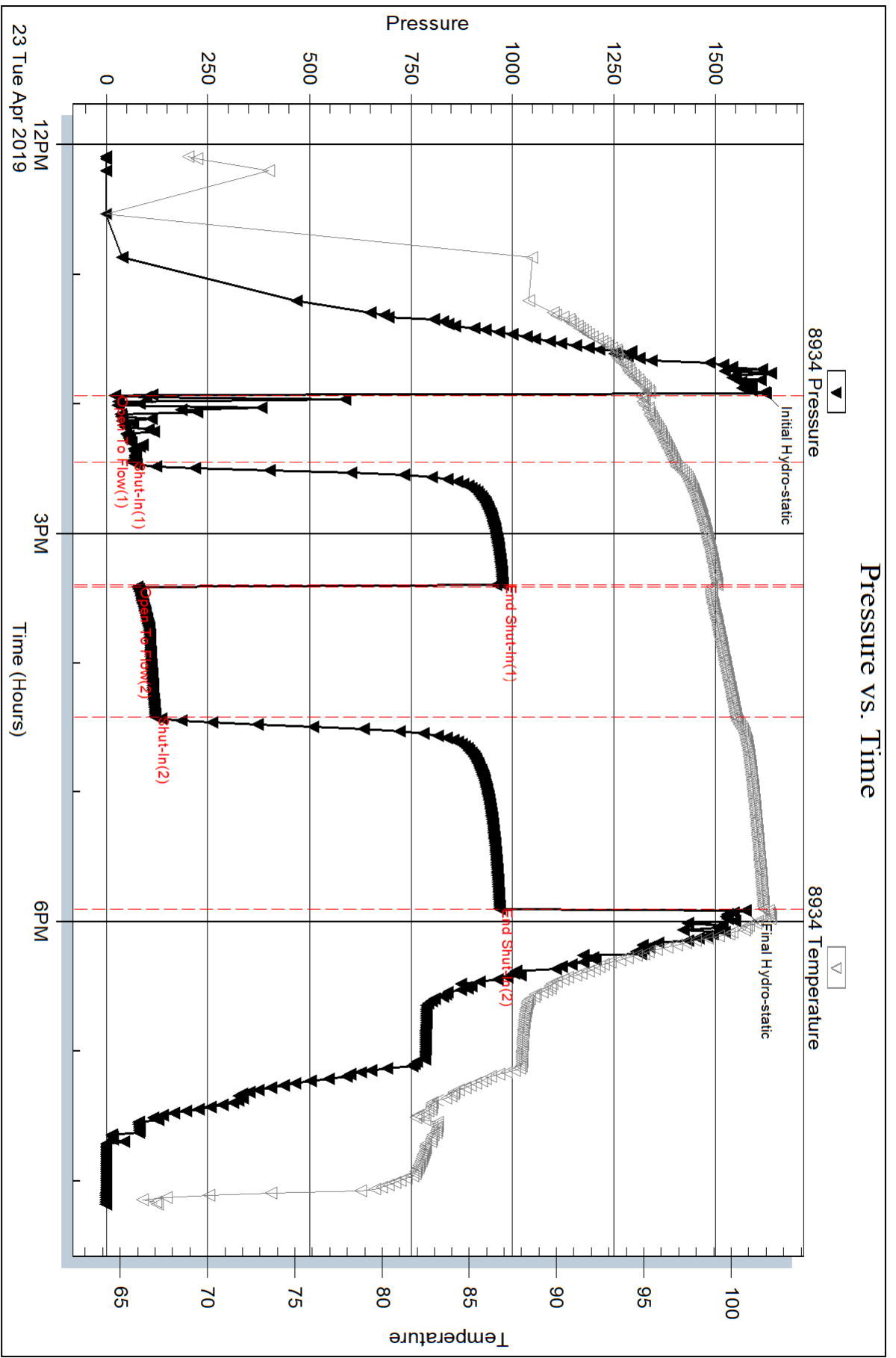
Serial #: 8934

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 2

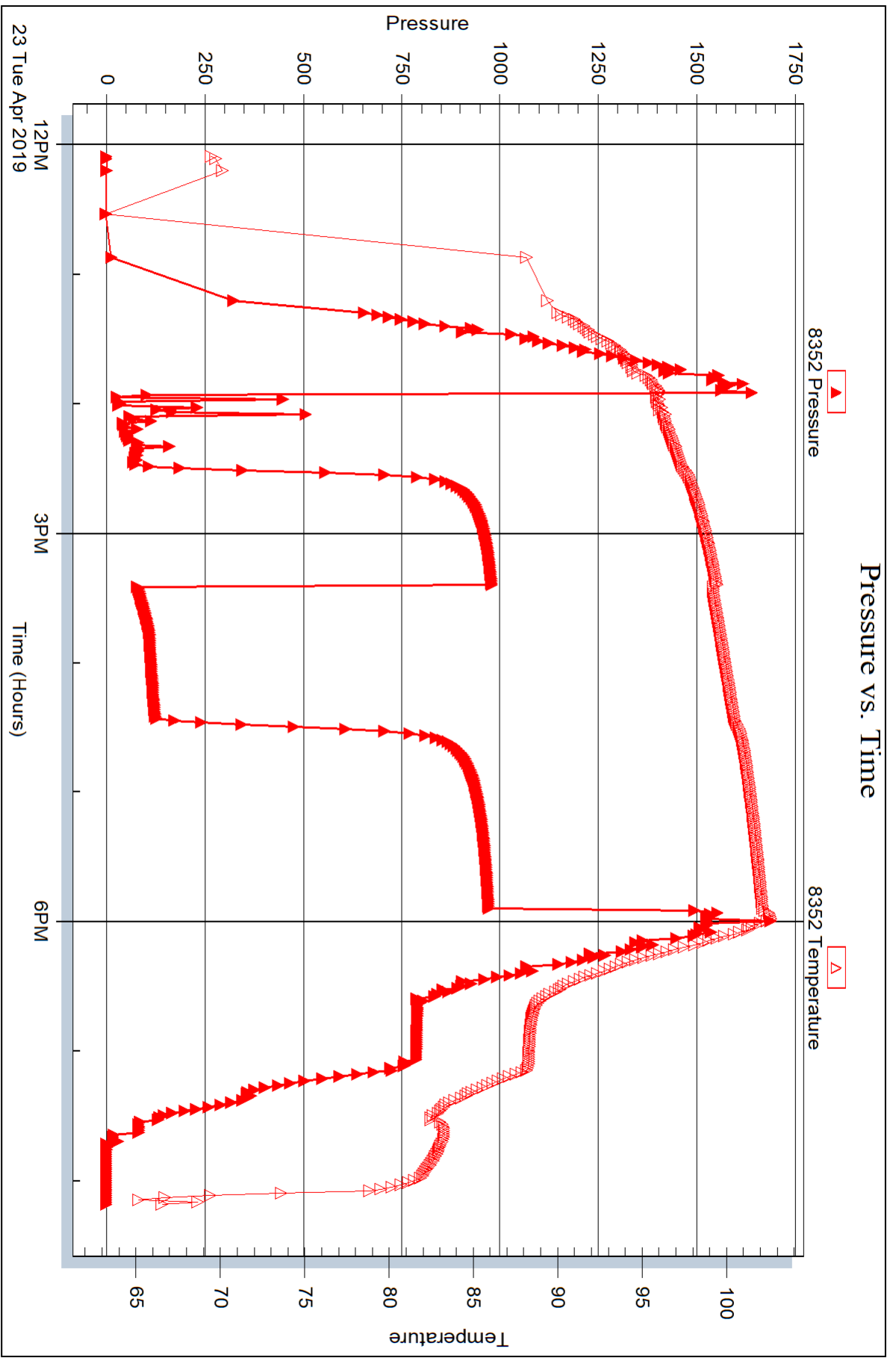


Serial #: 8352

Inside Murfin Drilling Co

Stahl #1-19

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 65115

Printed: 2019.04.29 @ 14:23:41



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.24 @ 03:20:00

End Date: 2019.04.24 @ 12:29:15

Job Ticket #: 65116 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:23:10



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS 67202+1216
 ATTN: Saman Sharifaie

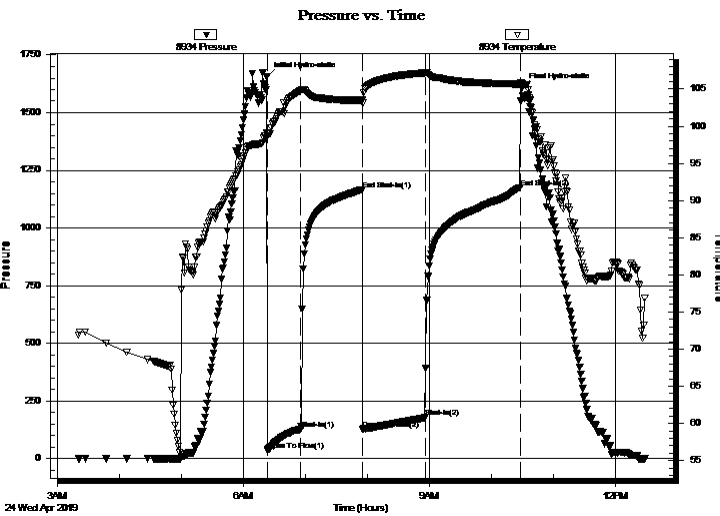
19-9S-19W Rooks,KS
Stahl #1-19
 Job Ticket: 65116 **DST#: 3**
 Test Start: 2019.04.24 @ 03:20:00

GENERAL INFORMATION:

Formation: **LKC 'B-D'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:23:15
 Time Test Ended: 12:29:15
 Interval: **3322.00 ft (KB) To 3366.00 ft (KB) (TVD)**
 Total Depth: 3366.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J Staab
 Unit No: 84
 Reference Elevations: 2106.00 ft (KB)
 2101.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 177.28 psig @ 3327.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.24 End Date: 2019.04.24 Last Calib.: 2019.04.24
 Start Time: 03:20:15 End Time: 12:29:15 Time On Btm: 2019.04.24 @ 06:23:00
 Time Off Btm: 2019.04.24 @ 10:29:45

TEST COMMENT: 30-IF-Fair; Built to 10"
 60-ISI-No Return
 60-FF-Fair; Built to 9"
 90-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.21	99.12	Initial Hydro-static
1	35.07	98.59	Open To Flow (1)
33	125.70	104.78	Shut-In(1)
93	1166.67	103.52	End Shut-In(1)
93	126.56	103.11	Open To Flow (2)
153	177.28	107.17	Shut-In(2)
246	1176.07	105.66	End Shut-In(2)
247	1606.41	105.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
255.00	MW 30%M 70%W	1.89
60.00	WM 30%W 70%M	0.85
5.00	GO 5%G 95%O	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 Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65116 **DST#: 3**
Test Start: 2019.04.24 @ 03:20:00

Tool Information

Drill Pipe:	Length: 3124.00 ft	Diameter: 3.82 inches	Volume: 44.28 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 41000.00 lb
			<u>Total Volume: 45.19 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3322.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Change Over Sub	1.00			3294.00	
Shut In Tool	5.00			3299.00	
Hydraulic tool	5.00			3304.00	
Jars	5.00			3309.00	
Safety Joint	3.00			3312.00	
Packer	5.00			3317.00	29.00 Bottom Of Top Packer
Packer	5.00			3322.00	
Stubb	1.00			3323.00	
Perforations	3.00			3326.00	
Change Over Sub	1.00			3327.00	
Recorder	0.00	8352	Inside	3327.00	
Recorder	0.00	8934	Inside	3327.00	
Drill Pipe	30.00			3357.00	
Change Over Sub	1.00			3358.00	
Perforations	5.00			3363.00	
Bullnose	3.00			3366.00	44.00 Bottom Packers & Anchor
Total Tool Length:	73.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65116

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2019.04.24 @ 03:20:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

94000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
255.00	MW 30%M 70%W	1.893
60.00	WM 30%W 70%M	0.851
5.00	GO 5%G 95%O	0.071

Total Length: 320.00 ft Total Volume: 2.815 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2#LCM

RW=.087@70F

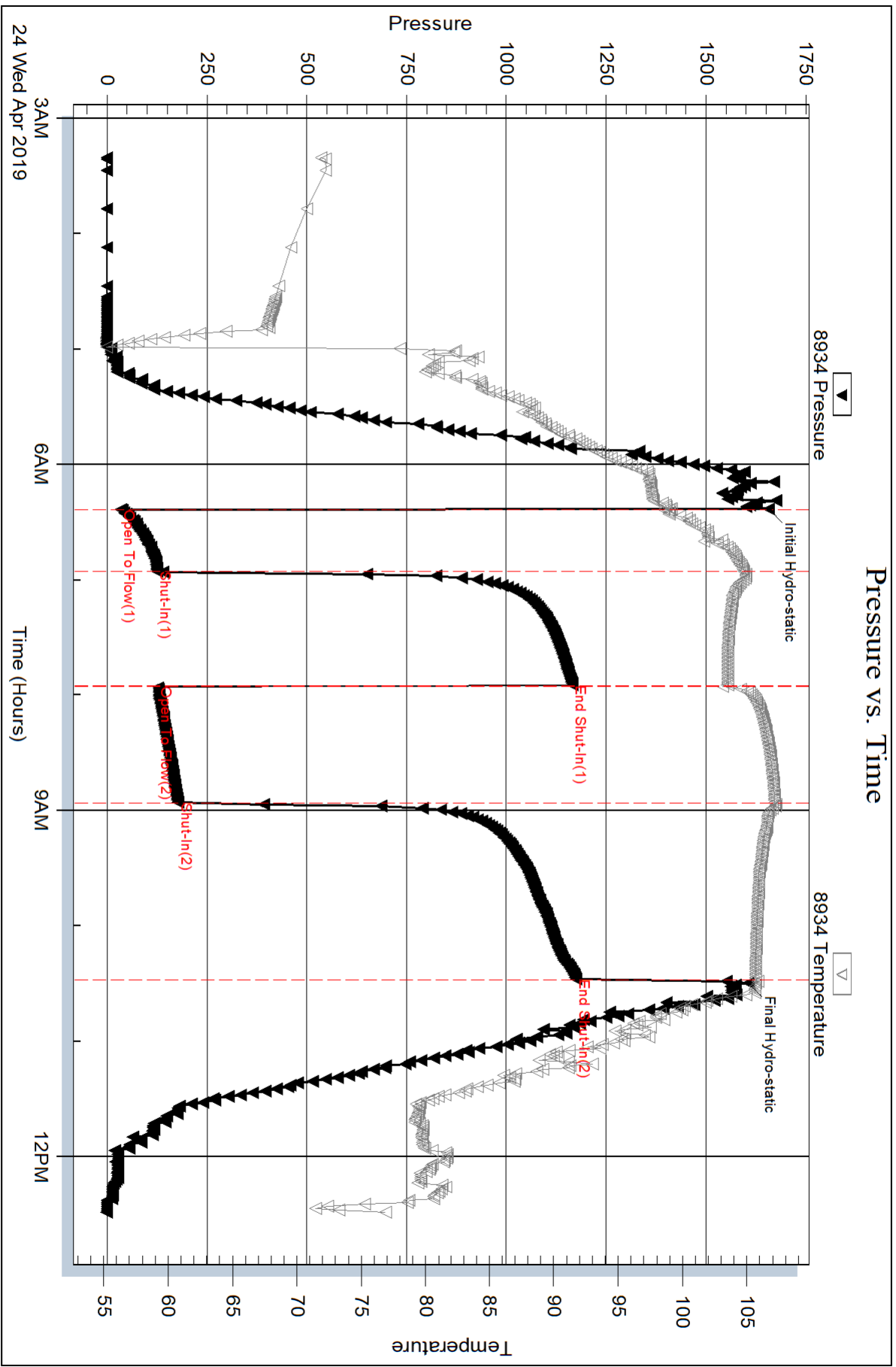
Serial #: 8934

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 3



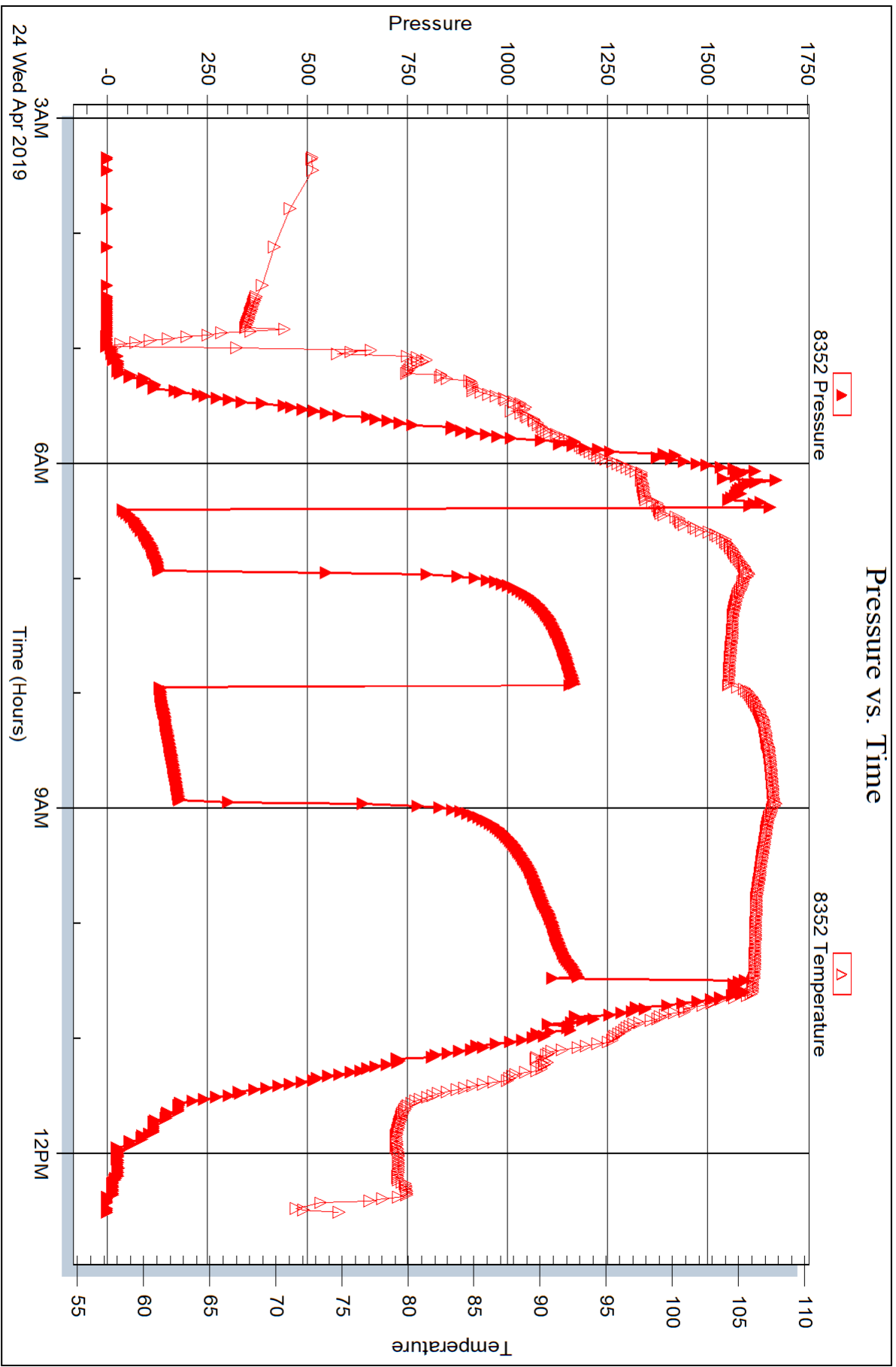
Serial #: 8352

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 65116

Printed: 2019.04.29 @ 14:23:11



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.24 @ 18:50:15

End Date: 2019.04.25 @ 03:55:00

Job Ticket #: 65117 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:22:44

Murfin Drilling Co
19-9S-19W Rooks,KS
Stahl #1-19
DST # 4
LKC E-F
2019.04.24



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65117 **DST#: 4**
Test Start: 2019.04.24 @ 18:50:15

Tool Information

Drill Pipe:	Length: 3154.00 ft	Diameter: 3.82 inches	Volume: 44.71 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 45.62 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3368.00 ft			Final 43000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	26.00 ft			
Tool Length:	60.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3335.00	
Shut In Tool	5.00			3340.00	
Hydraulic tool	5.00			3345.00	
Jars	5.00			3350.00	
EM Tool	5.00			3355.00	
Safety Joint	3.00			3358.00	
Packer	5.00			3363.00	34.00 Bottom Of Top Packer
Packer	5.00			3368.00	
Stubb	1.00			3369.00	
Recorder	0.00	8352	Inside	3369.00	
Recorder	0.00	8934	Inside	3369.00	
Perforations	22.00			3391.00	
Bullnose	3.00			3394.00	26.00 Bottom Packers & Anchor

Total Tool Length: 60.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65117

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2019.04.24 @ 18:50:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

39 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

117000 ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
400.00	SMCW 3%M 97%W	3.948
120.00	MW w / oil Spots 40%M 60%W	1.701
40.00	GO 10%G 90%O	0.567
0.00	125' GIP	0.000

Total Length: 560.00 ft

Total Volume: 6.216 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

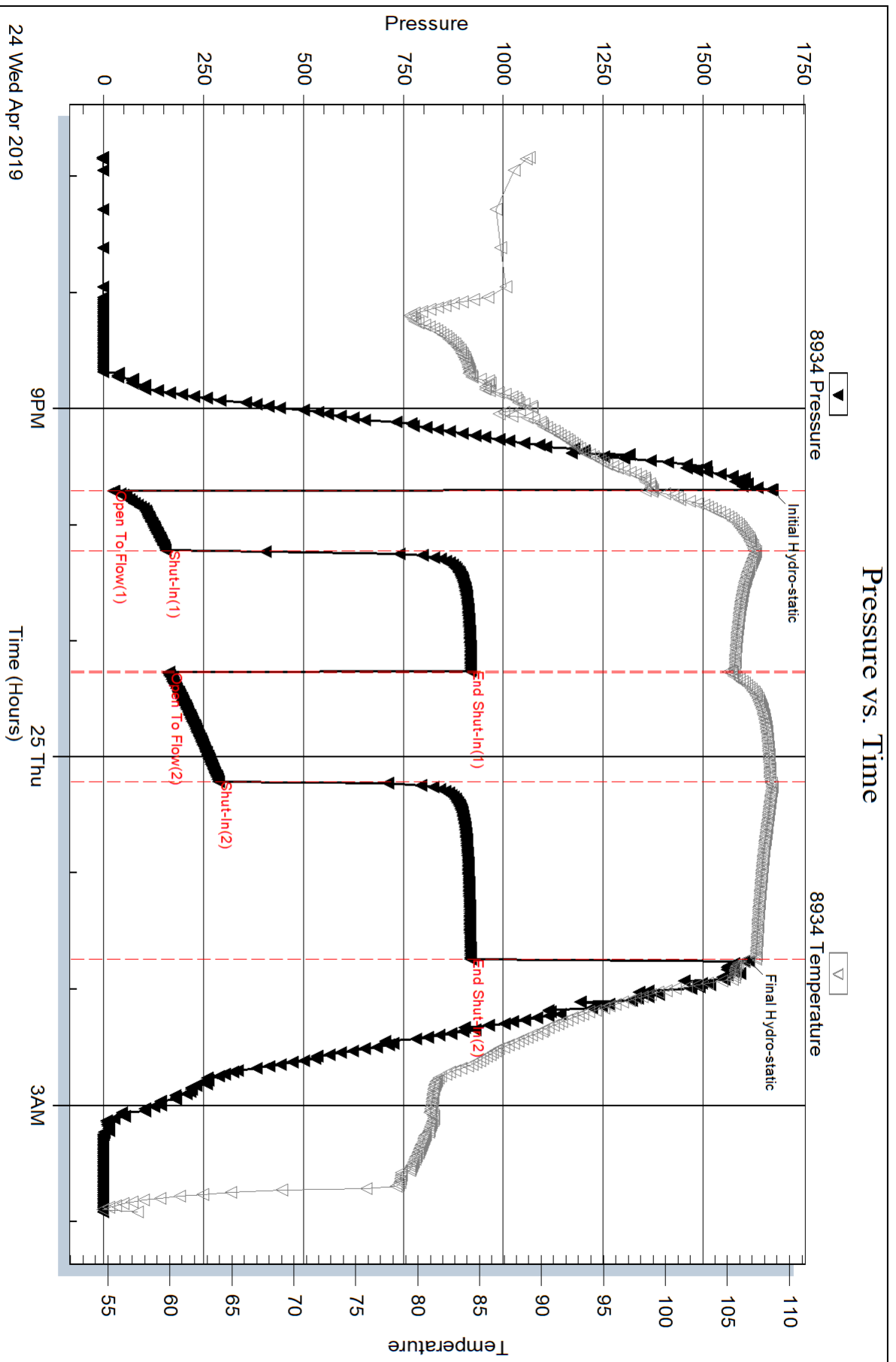
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw .106 @ 52

Pressure vs. Time



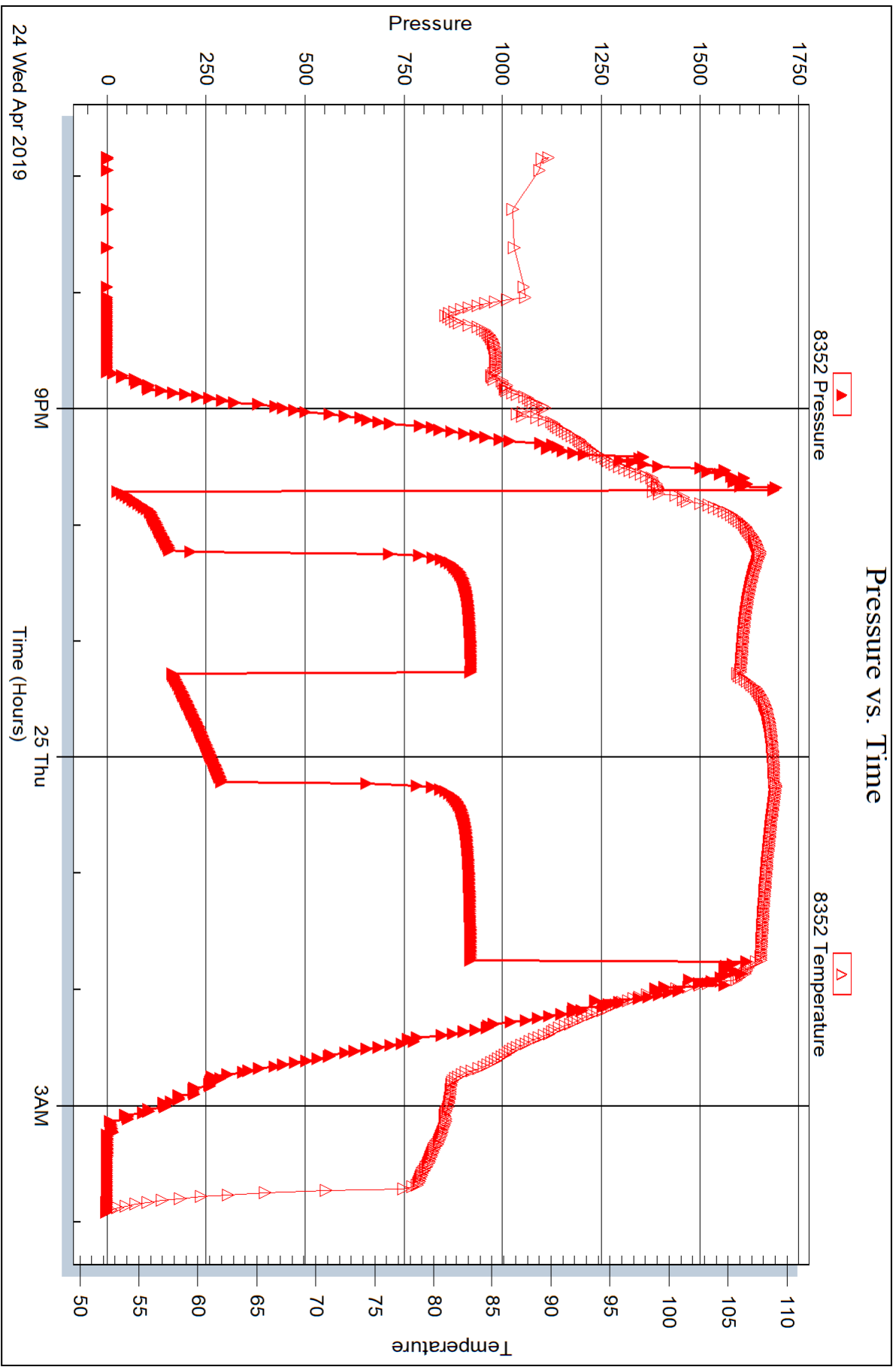
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Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 65117

Printed: 2019.04.29 @ 14:22:45



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.25 @ 13:15:00

End Date: 2019.04.25 @ 21:03:45

Job Ticket #: 65118 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:21:42



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65118 **DST#: 5**
Test Start: 2019.04.25 @ 13:15:00

Tool Information

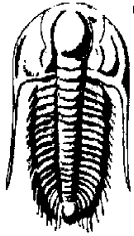
Drill Pipe:	Length: 3219.00 ft	Diameter: 3.82 inches	Volume: 45.63 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume: 46.54 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3424.00 ft			Final	44000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	40.00 ft				
Tool Length:	74.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3391.00	
Shut In Tool	5.00			3396.00	
Hydraulic tool	5.00			3401.00	
Jars	5.00			3406.00	
EM Tool	5.00			3411.00	
Safety Joint	3.00			3414.00	
Packer	5.00			3419.00	34.00 Bottom Of Top Packer
Packer	5.00			3424.00	
Stubb	1.00			3425.00	
Recorder	0.00	8352	Inside	3425.00	
Recorder	0.00	8934	Outside	3425.00	
Perforations	36.00			3461.00	
Bullnose	3.00			3464.00	40.00 Bottom Packers & Anchor

Total Tool Length: 74.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65118

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2019.04.25 @ 13:15:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

81000 ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
130.00	GVSOCWM 5%G 1%) 40%W 54%M	0.639
120.00	GSOCM 5%G 2%O 93%M	1.183
20.00	VGO 70%G 30%O	0.284
0.00	90' GIP	0.000

Total Length: 270.00 ft

Total Volume: 2.106 bbl

Num Fluid Samples: 0

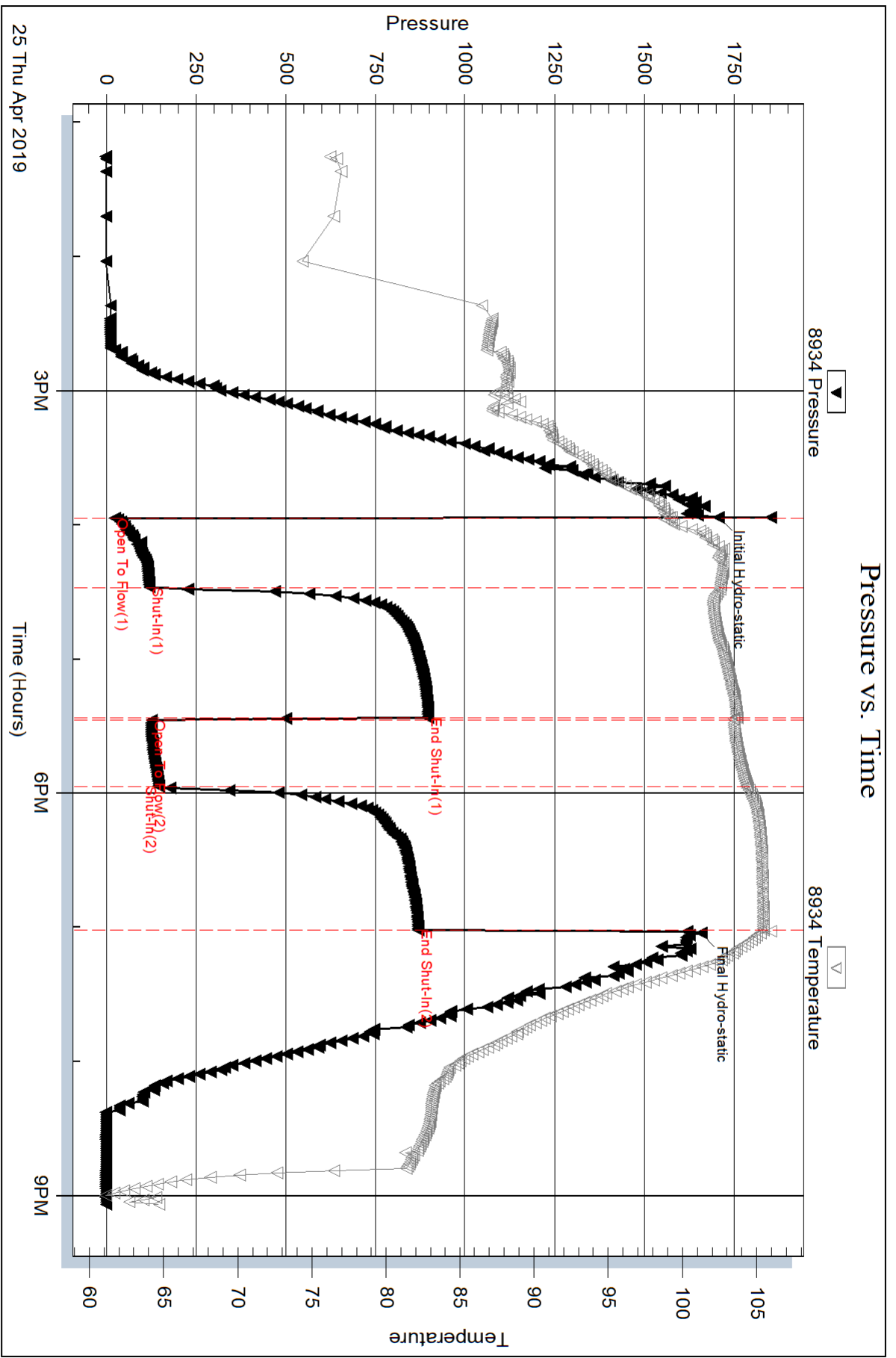
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



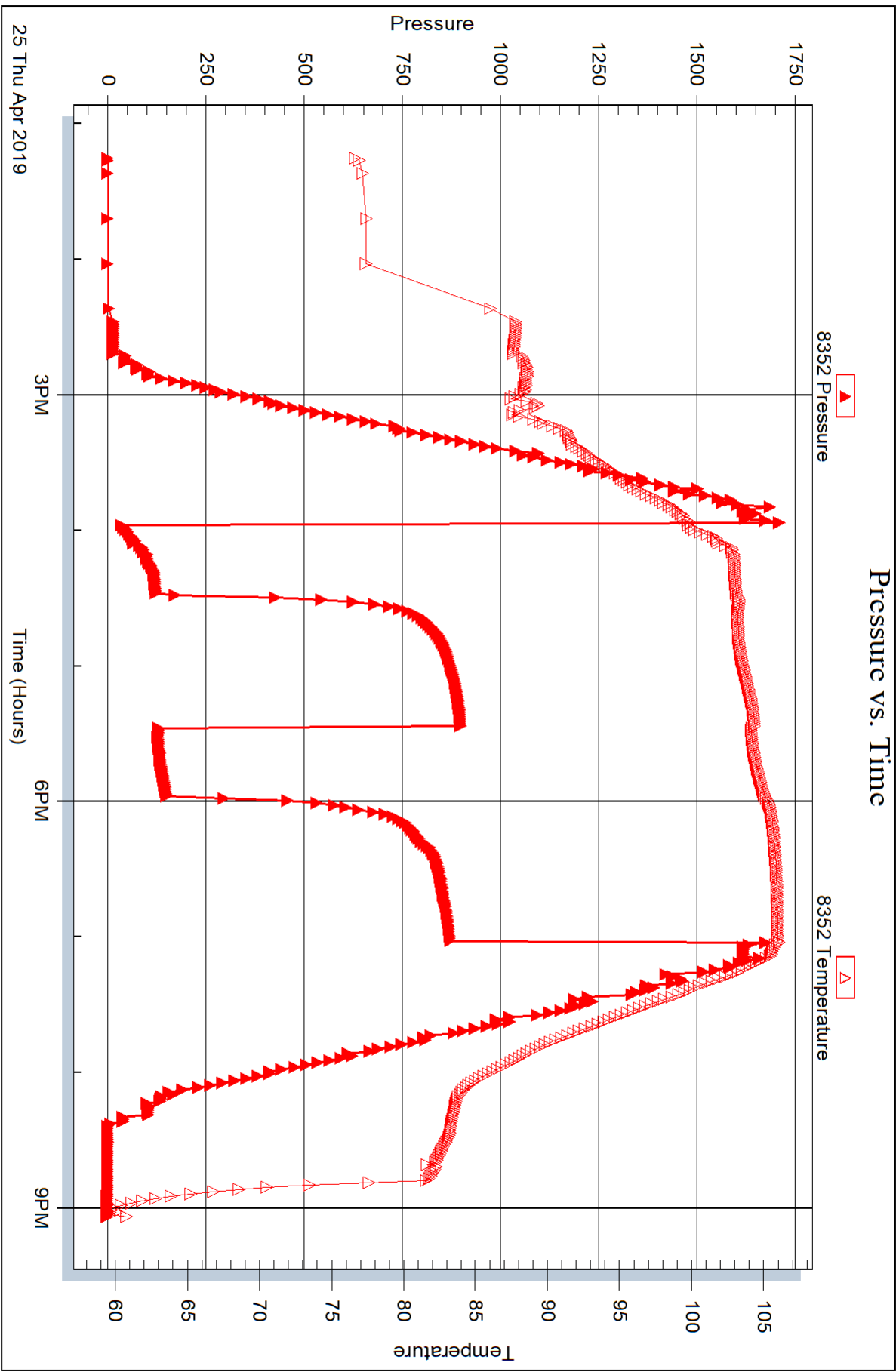
Serial #: 8352

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.26 @ 03:05:00

End Date: 2019.04.26 @ 10:08:45

Job Ticket #: 65119 DST #: 6

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:21:05



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65119 **DST#: 6**
Test Start: 2019.04.26 @ 03:05:00

Tool Information

Drill Pipe:	Length: 3250.00 ft	Diameter: 3.82 inches	Volume: 46.07 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 46.98 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3466.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	56.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3433.00	
Shut In Tool	5.00			3438.00	
Hydraulic tool	5.00			3443.00	
Gap Sub	5.00			3448.00	
Jars	5.00			3453.00	
Safety Joint	3.00			3456.00	
Packer	5.00			3461.00	34.00 Bottom Of Top Packer
Packer	5.00			3466.00	
Stubb	1.00			3467.00	
Recorder	0.00	8934	Inside	3467.00	
Recorder	0.00	8352	Outside	3467.00	
Perforations	18.00			3485.00	
Bullnose	3.00			3488.00	22.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65119

DST#: 6

ATTN: Saman Sharifaie

Test Start: 2019.04.26 @ 03:05:00

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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8200.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	OSM 100%M	0.344

Total Length: 70.00 ft Total Volume: 0.344 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1&1/2#LCM

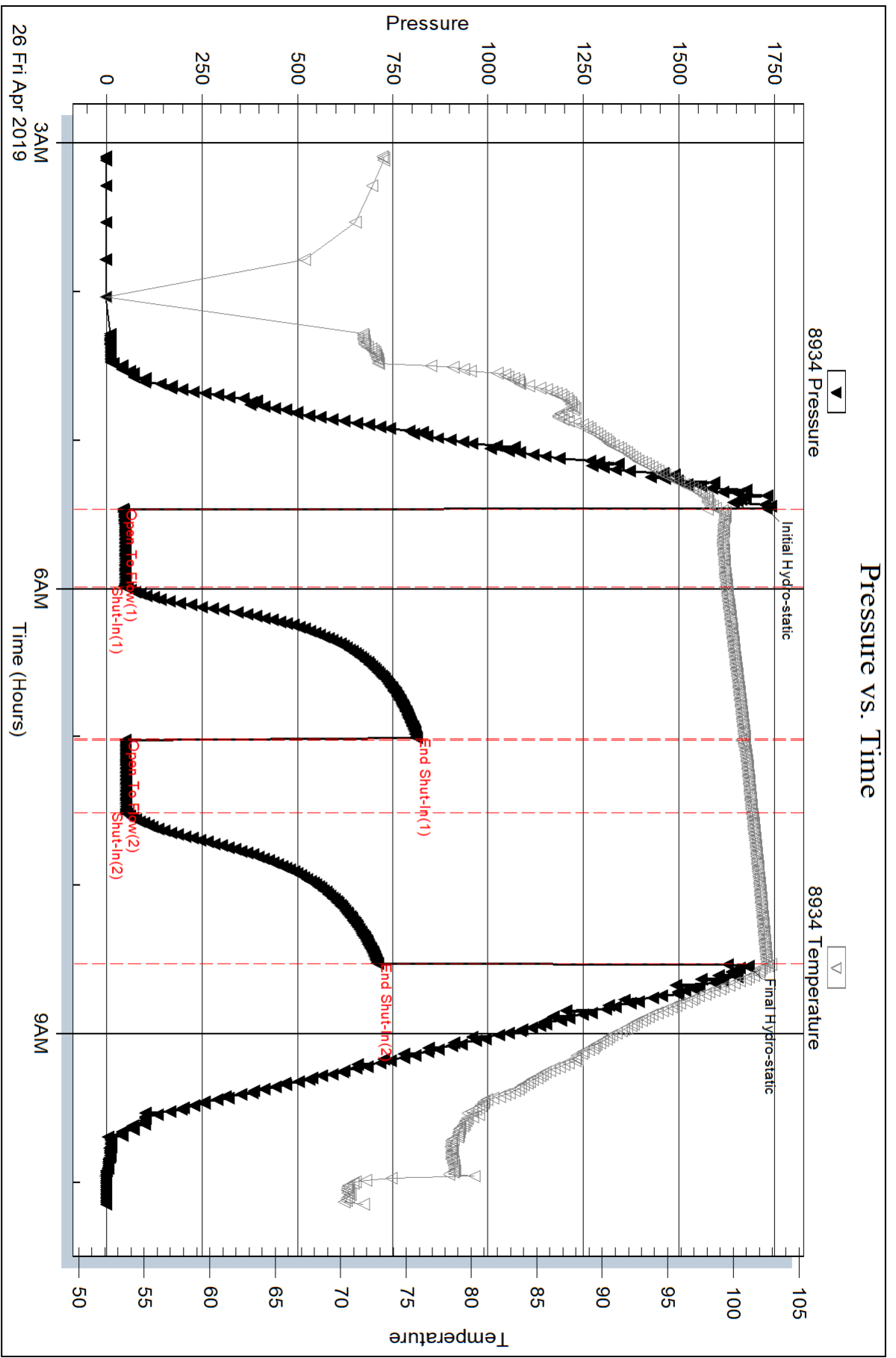
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Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 6



Triobite Testing, Inc

Ref. No: 65119

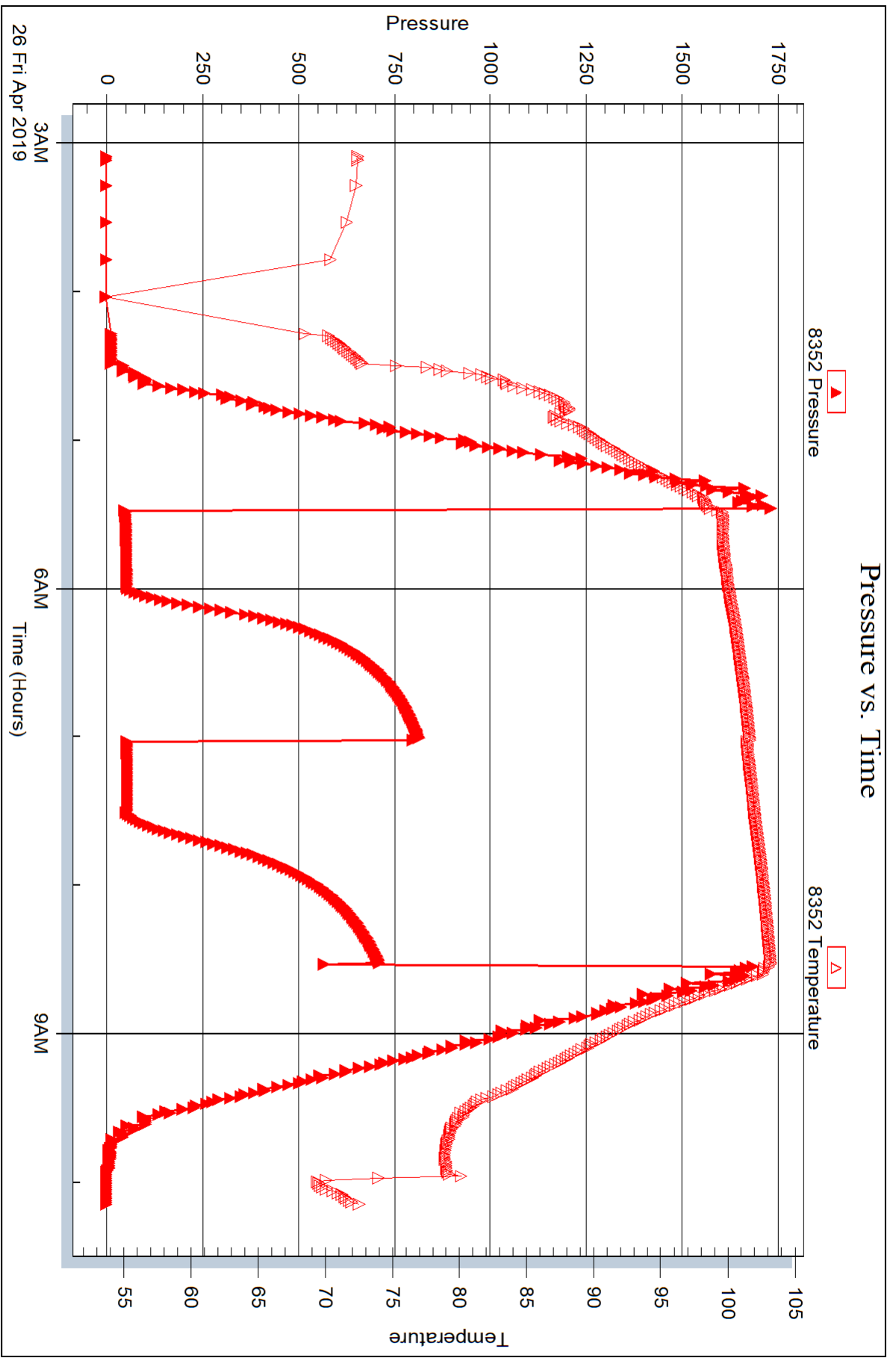
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Serial #: 8352

Outside Murfin Drilling Co

Stahl #1-19

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.26 @ 18:30:00

End Date: 2019.04.27 @ 01:41:00

Job Ticket #: 65120 DST #: 7

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:20:41

Murfin Drilling Co
19-9S-19W Rooks,KS
Stahl #1-19
DST # 7
Arbuckle
2019.04.26



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS 67202+1216
 ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
 Job Ticket: 65120 **DST#: 7**
 Test Start: 2019.04.26 @ 18:30:00

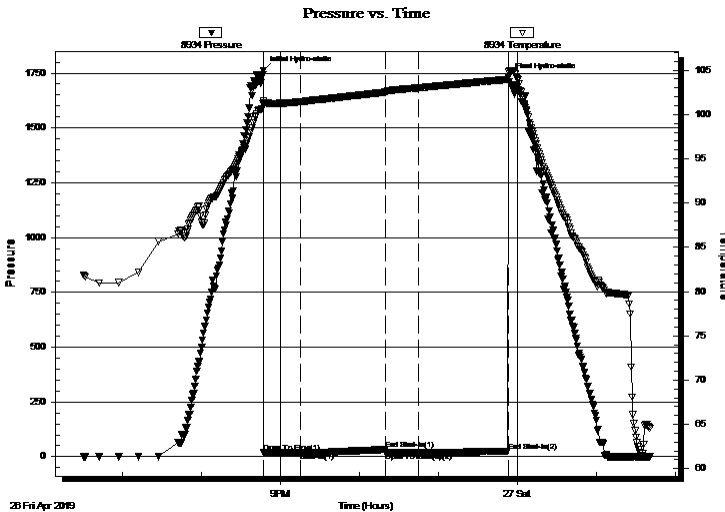
GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 20:47:00 Tester: Spencer J Staab
 Time Test Ended: 01:41:00 Unit No: 84
 Interval: **3539.00 ft (KB) To 3560.00 ft (KB) (TVD)** Reference Elevations: 2106.00 ft (KB)
 Total Depth: 3560.00 ft (KB) (TVD) 2101.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 19.55 psig @ 3540.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.26 End Date: 2019.04.27 Last Calib.: 2019.04.27
 Start Time: 18:30:15 End Time: 01:41:00 Time On Btm: 2019.04.26 @ 20:46:45
 Time Off Btm: 2019.04.26 @ 23:53:15

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

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1762.42	101.49	Initial Hydro-static
1	18.72	101.12	Open To Flow (1)
29	19.83	101.44	Shut-In(1)
93	33.25	102.52	End Shut-In(1)
93	18.69	102.52	Open To Flow (2)
119	19.55	103.01	Shut-In(2)
186	24.98	103.96	End Shut-In(2)
187	1729.81	104.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%M	0.02

* 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

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65120

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2019.04.26 @ 18:30:00

Tool Information

Drill Pipe:	Length: 3349.00 ft	Diameter: 3.82 inches	Volume: 47.47 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 48.38 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3539.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	21.00 ft			
Tool Length:	55.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			3506.00	
Shut In Tool	5.00			3511.00	
Hydraulic tool	5.00			3516.00	
Gap Sub	5.00			3521.00	
Jars	5.00			3526.00	
Safety Joint	3.00			3529.00	
Packer	5.00			3534.00	34.00 Bottom Of Top Packer
Packer	5.00			3539.00	
Stubb	1.00			3540.00	
Recorder	0.00	8934	Inside	3540.00	
Recorder	0.00	8352	Inside	3540.00	
Perforations	17.00			3557.00	
Bullnose	3.00			3560.00	21.00 Bottom Packers & Anchor

Total Tool Length: 55.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65120

DST#: 7

ATTN: Saman Sharifaie

Test Start: 2019.04.26 @ 18:30:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

Serial #: 8934

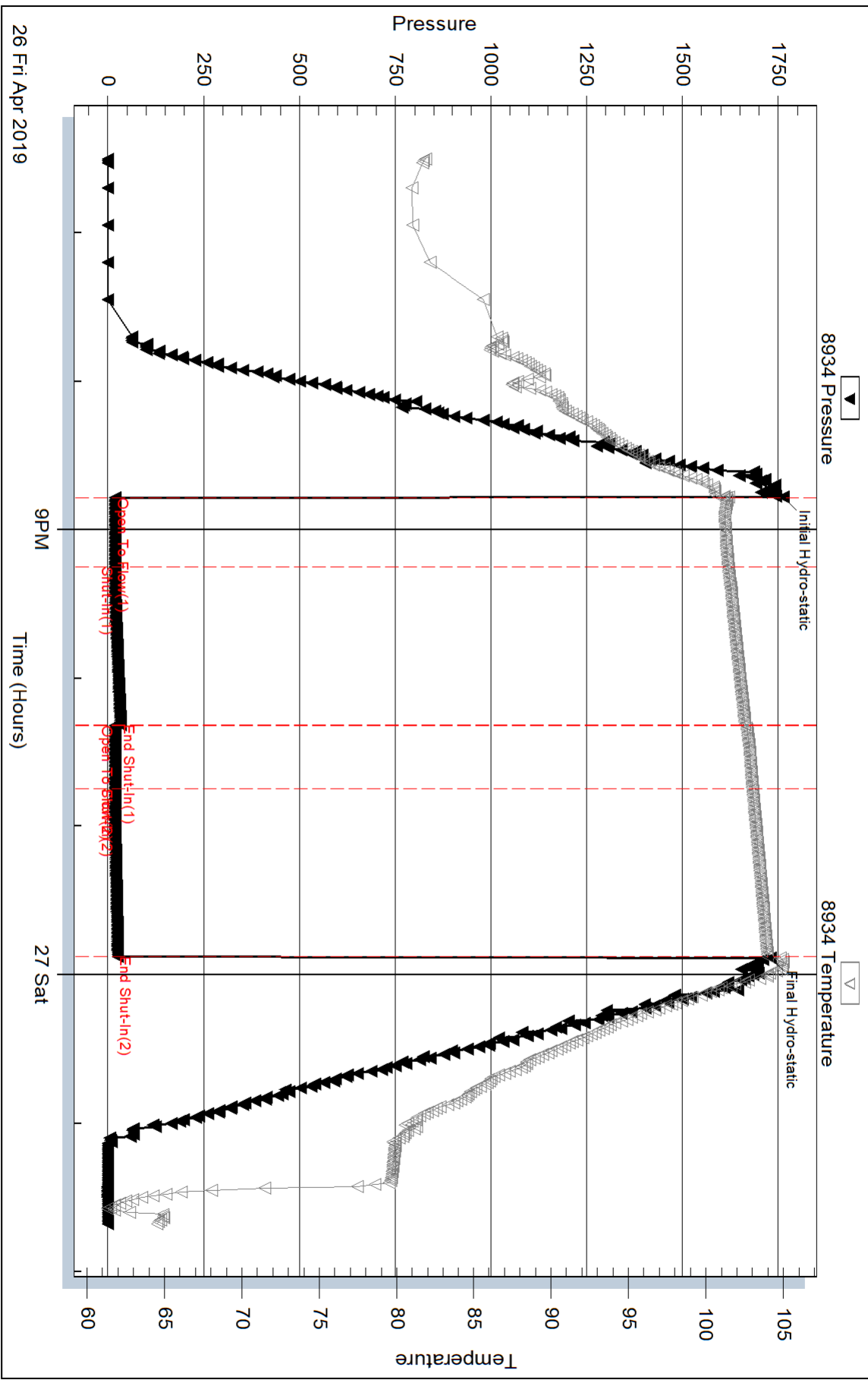
Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 7

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 65120

Printed: 2019.04.29 @ 14:20:42

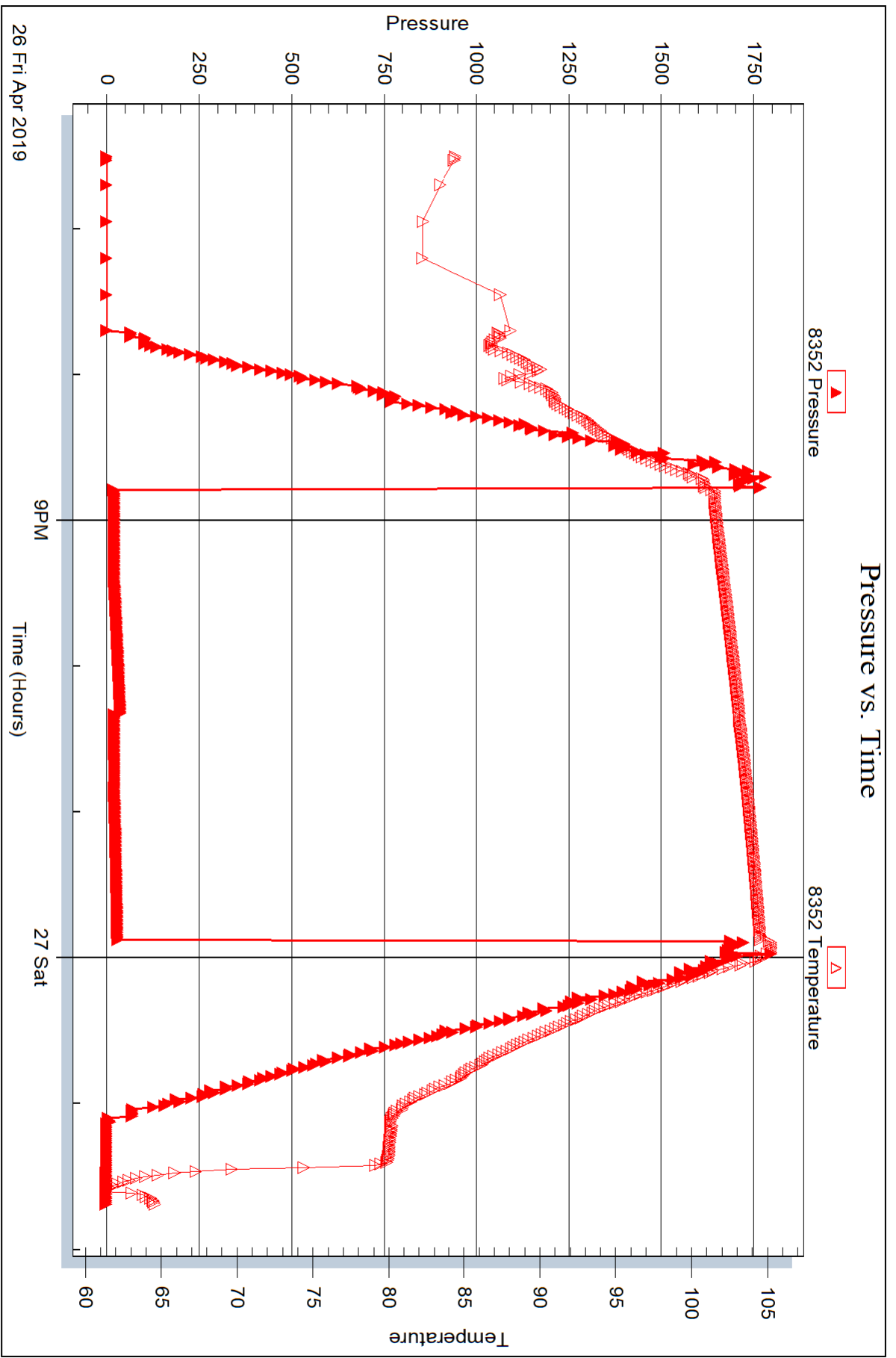
Serial #: 8352

Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 7



Trilobite Testing, Inc

Ref. No: 65120

Printed: 2019.04.29 @ 14:20:42



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.27 @ 06:55:00

End Date: 2019.04.27 @ 14:29:15

Job Ticket #: 65121 DST #: 8

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:19:29



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS 67202+1216
 ATTN: Saman Sharifaie

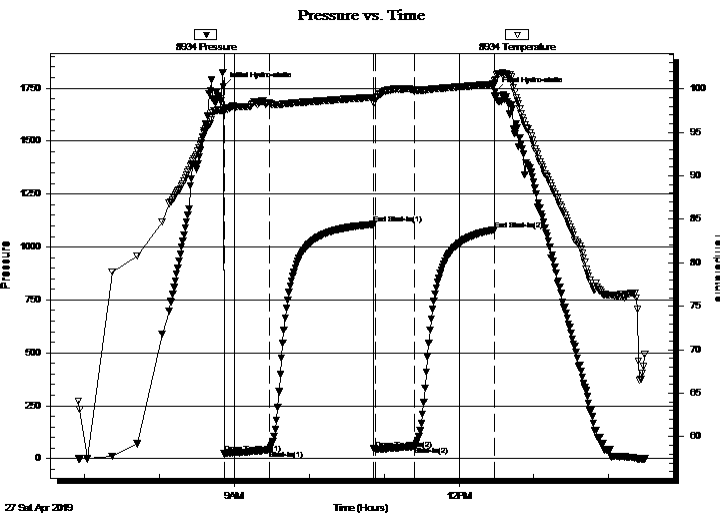
19-9S-19W Rooks,KS
Stahl #1-19
 Job Ticket: 65121 **DST#: 8**
 Test Start: 2019.04.27 @ 06:55:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 08:51:45 Tester: Spencer J Staab
 Time Test Ended: 14:29:15 Unit No: 84
 Interval: **3539.00 ft (KB) To 3570.00 ft (KB) (TVD)** Reference Elevations: 2106.00 ft (KB)
 Total Depth: 3570.00 ft (KB) (TVD) 2101.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 57.62 psig @ 3540.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.27 End Date: 2019.04.27 Last Calib.: 2019.04.27
 Start Time: 06:55:15 End Time: 14:29:15 Time On Btm: 2019.04.27 @ 08:51:15
 Time Off Btm: 2019.04.27 @ 12:29:00

TEST COMMENT: 30-IF-Weak; Built to 2 1/2"
 60-ISI-No Return
 30-FF-Weak; Built to 3/4"
 60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1759.15	97.85	Initial Hydro-static
1	23.25	97.51	Open To Flow (1)
37	41.05	98.42	Shut-In(1)
121	1106.79	99.03	End Shut-In(1)
122	45.08	98.98	Open To Flow (2)
154	57.62	99.87	Shut-In(2)
218	1081.12	100.55	End Shut-In(2)
218	1735.29	101.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MO 50%M 50%O	0.30
30.00	FO 100%O	0.15
0.00	90' GIP 100%G	0.00

* 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

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65121

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2019.04.27 @ 06:55:00

Tool Information

Drill Pipe:	Length: 3348.00 ft	Diameter: 3.82 inches	Volume: 47.46 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 48.37 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3539.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			3506.00	
Shut In Tool	5.00			3511.00	
Hydraulic tool	5.00			3516.00	
Gap Sub	5.00			3521.00	
Jars	5.00			3526.00	
Safety Joint	3.00			3529.00	
Packer	5.00			3534.00	34.00 Bottom Of Top Packer
Packer	5.00			3539.00	
Stubb	1.00			3540.00	
Recorder	0.00	8934	Inside	3540.00	
Recorder	0.00	8352	Outside	3540.00	
Perforations	27.00			3567.00	
Bullnose	3.00			3570.00	31.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65121

DST#: 8

ATTN: Saman Sharifaie

Test Start: 2019.04.27 @ 06:55:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	MO 50%M 50%O	0.295
30.00	FO 100%O	0.148
0.00	90' GIP 100%G	0.000

Total Length: 90.00 ft Total Volume: 0.443 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

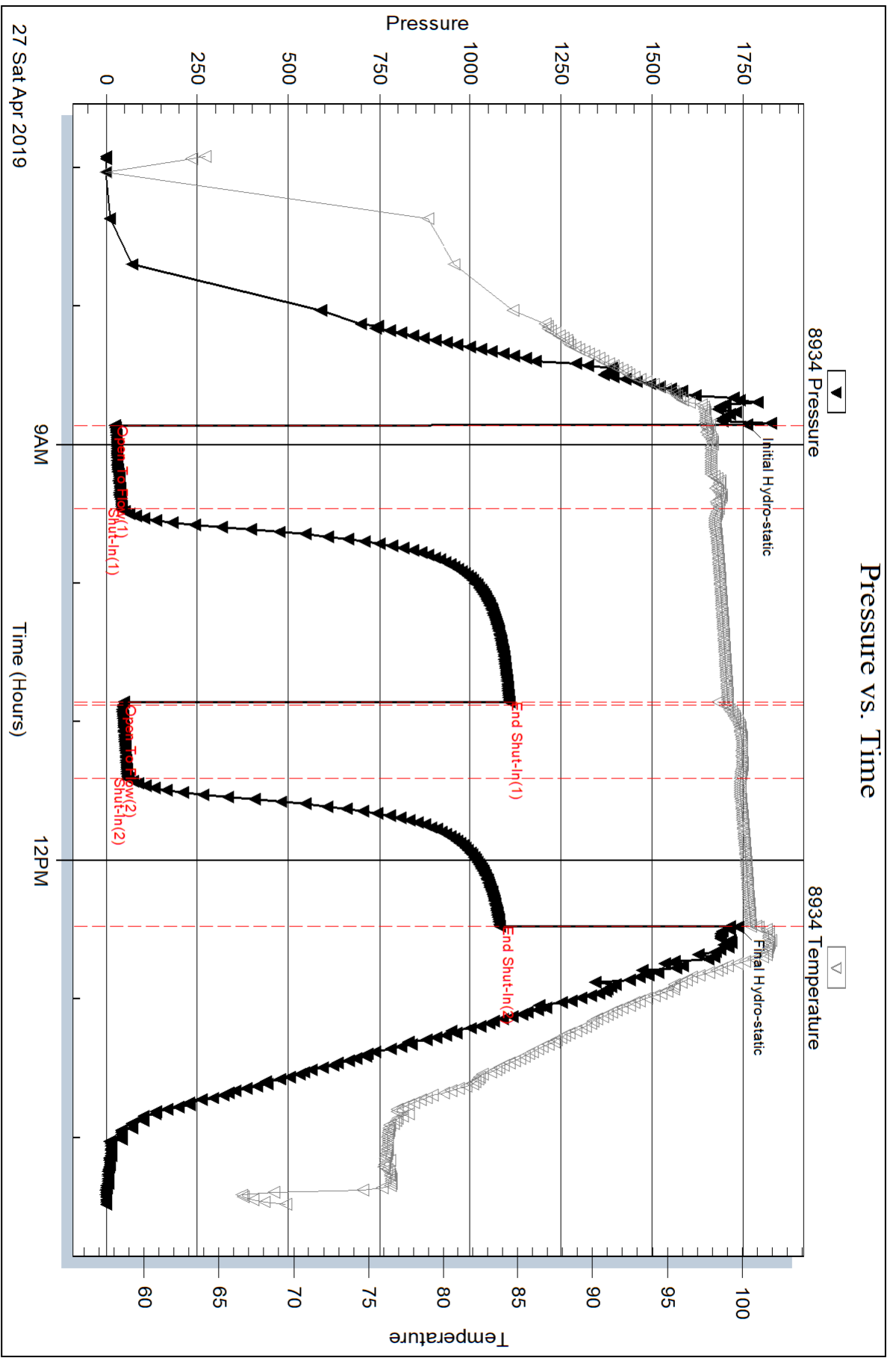
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Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 8



Trilobite Testing, Inc

Ref. No: 65121

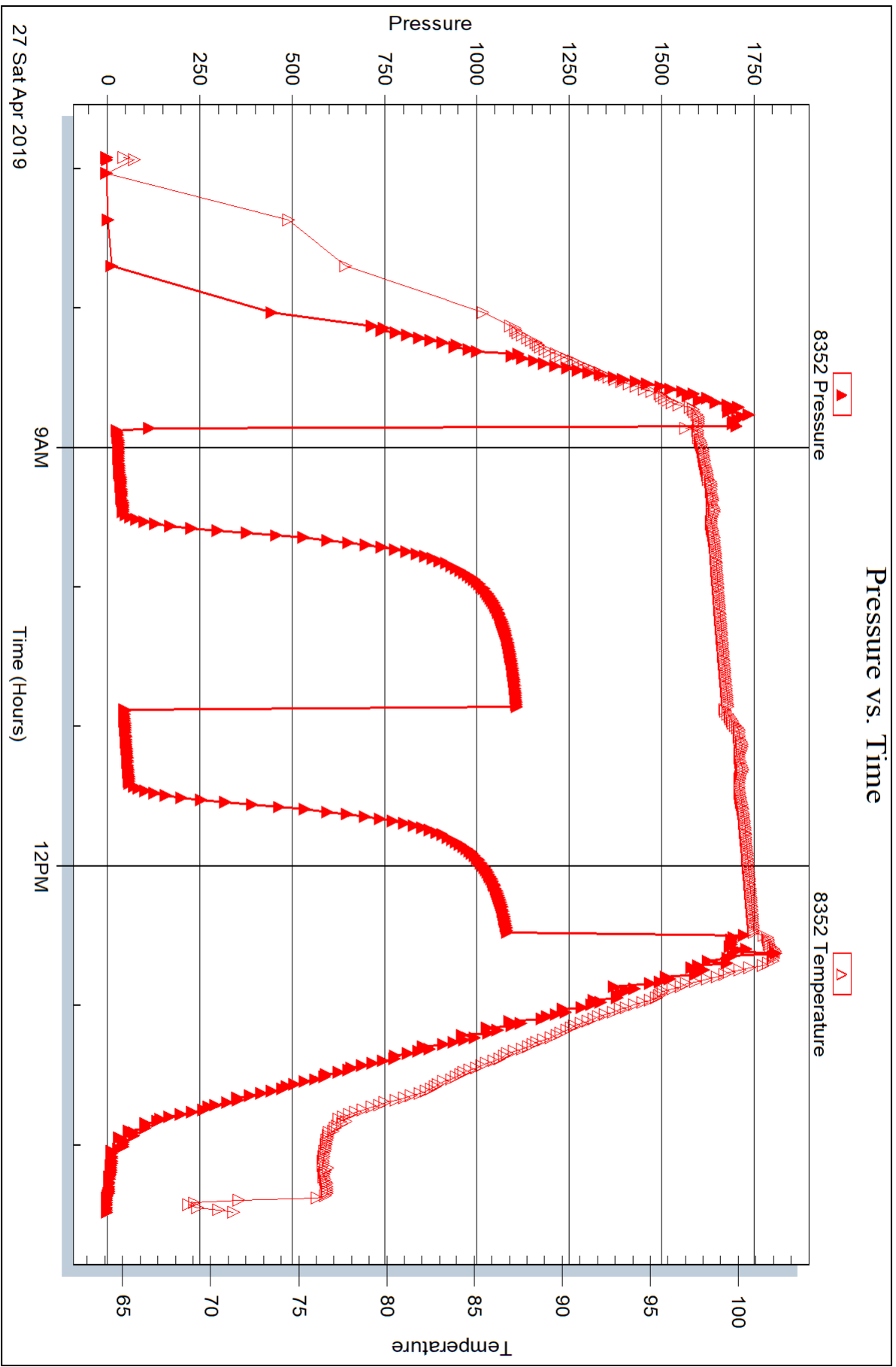
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Serial #: 8352

Outside Murfin Drilling Co

Stahl #1-19

DST Test Number: 8





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.27 @ 20:25:00

End Date: 2019.04.28 @ 04:14:45

Job Ticket #: 65122 DST #: 9

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:19:02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65122 **DST#: 9**
Test Start: 2019.04.27 @ 20:25:00

Tool Information

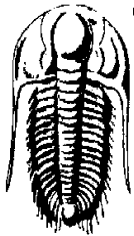
Drill Pipe:	Length: 3380.00 ft	Diameter: 3.82 inches	Volume: 47.91 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 55000.00 lb
			<u>Total Volume: 48.82 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3570.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	39.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			3542.00	
Shut In Tool	5.00			3547.00	
Hydraulic tool	5.00			3552.00	
Jars	5.00			3557.00	
Safety Joint	3.00			3560.00	
Packer	5.00			3565.00	29.00 Bottom Of Top Packer
Packer	5.00			3570.00	
Stubb	1.00			3571.00	
Recorder	0.00	8934	Inside	3571.00	
Recorder	0.00	8352	Outside	3571.00	
Perforations	6.00			3577.00	
Bullnose	3.00			3580.00	10.00 Bottom Packers & Anchor

Total Tool Length: 39.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65122

DST#: 9

ATTN: Saman Sharifaie

Test Start: 2019.04.27 @ 20:25:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 43.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9300.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	HOCM 30%O 70%M	0.148
190.00	Clean Oil	1.249

Total Length: 220.00 ft

Total Volume: 1.397 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

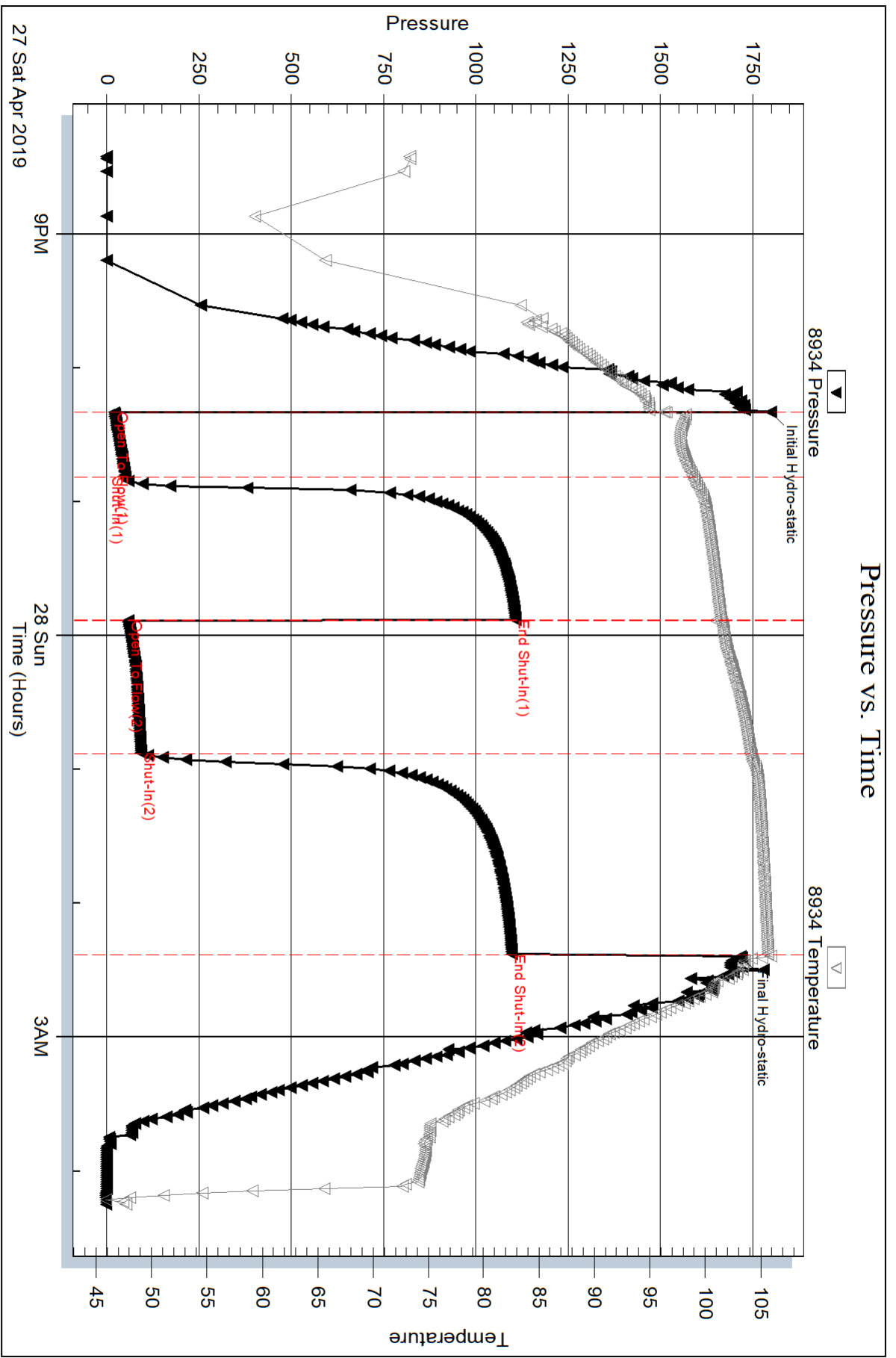
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Inside

Murfin Drilling Co

Stahl #1-19

DST Test Number: 9



Triobite Testing, Inc

Ref. No: 65122

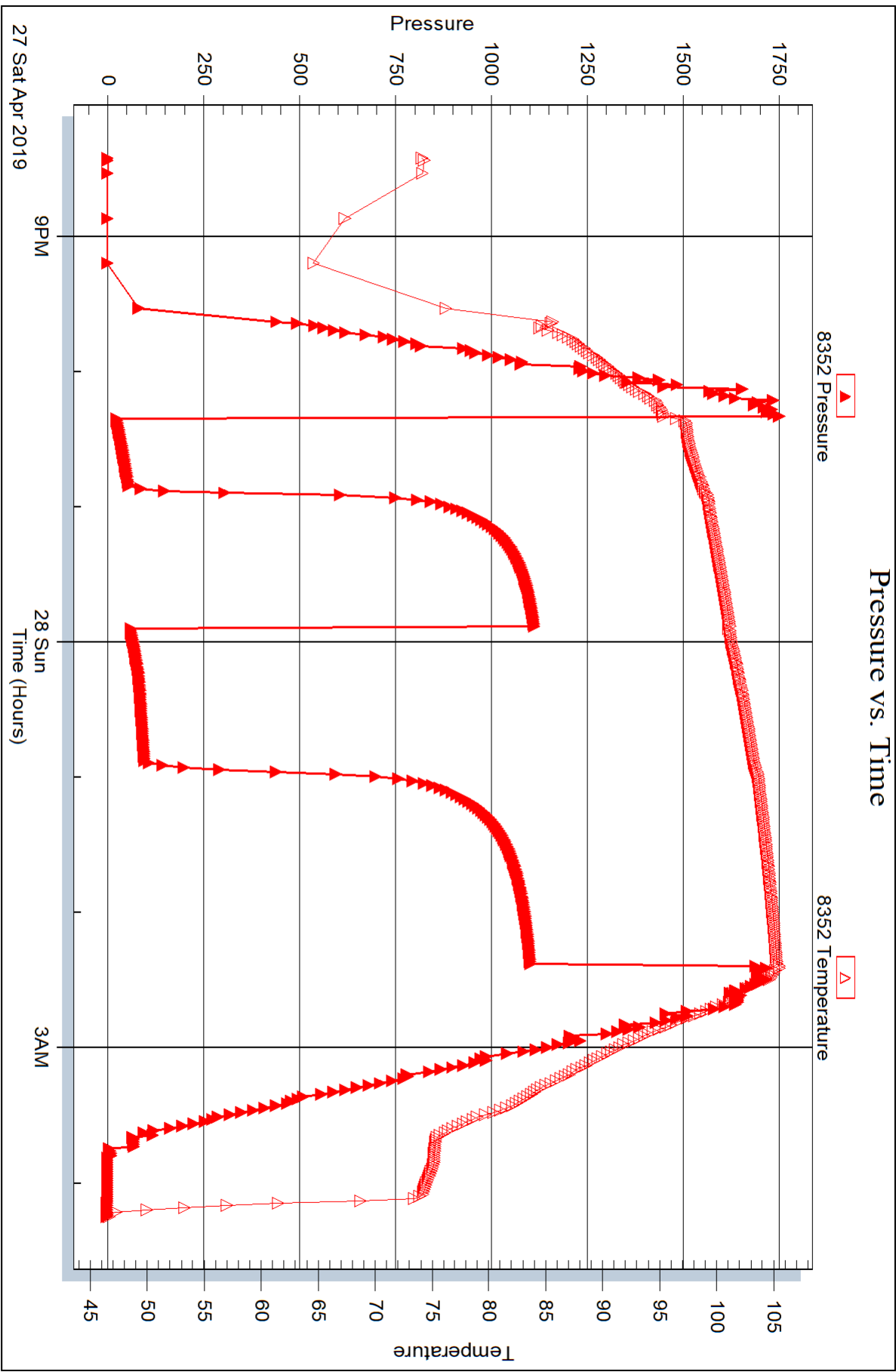
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Serial #: 8352

Outside Murfin Drilling Co

Stahl #1-19

DST Test Number: 9





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Saman Sharifaie

Stahl #1-19

19-9S-19W Rooks,KS

Start Date: 2019.04.28 @ 10:20:00

End Date: 2019.04.28 @ 17:24:30

Job Ticket #: 65123 DST #: 10

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.04.29 @ 14:18:37



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
 250 N Water STE 300
 Wichita KS 67202+1216
 ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
 Job Ticket: 65123 **DST#: 10**
 Test Start: 2019.04.28 @ 10:20:00

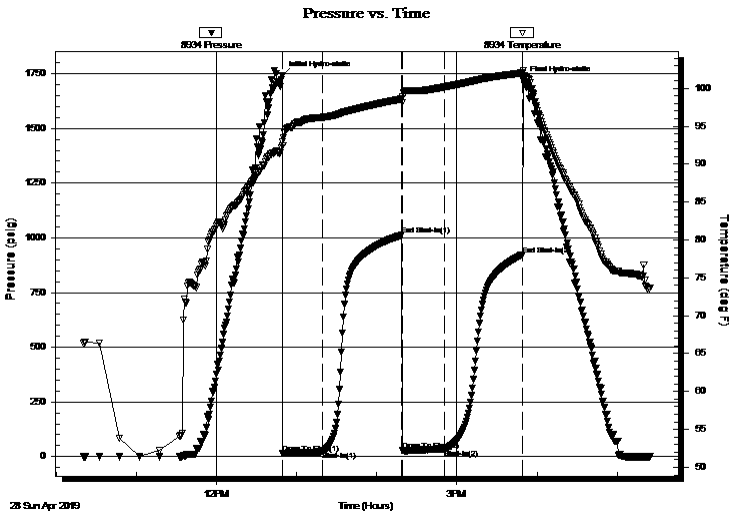
GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 12:49:30 Tester: Spencer J Staab
 Time Test Ended: 17:24:30 Unit No: 84
 Interval: **3580.00 ft (KB) To 3590.00 ft (KB) (TVD)** Reference Elevations: 2106.00 ft (KB)
 Total Depth: 3590.00 ft (KB) (TVD) 2101.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 33.99 psig @ 3581.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.28 End Date: 2019.04.28 Last Calib.: 2019.04.28
 Start Time: 10:20:15 End Time: 17:24:30 Time On Btm: 2019.04.28 @ 12:49:15
 Time Off Btm: 2019.04.28 @ 15:50:00

TEST COMMENT: 30-IF-Weak; Built to 1 1/4"
 60-ISI-No Return
 30-FF-Weak; Built to 3/4"
 60-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1741.65	92.92	Initial Hydro-static
1	14.81	92.45	Open To Flow (1)
31	22.98	96.18	Shut-In(1)
90	1012.27	98.61	End Shut-In(1)
91	27.99	98.88	Open To Flow (2)
122	33.99	100.18	Shut-In(2)
180	922.22	102.04	End Shut-In(2)
181	1717.60	102.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 10%O 90%M	0.10
10.00	CO 100%O	0.05

* 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
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Saman Sharifaie

19-9S-19W Rooks,KS
Stahl #1-19
Job Ticket: 65123 **DST#: 10**
Test Start: 2019.04.28 @ 10:20:00

Tool Information

Drill Pipe:	Length: 3380.00 ft	Diameter: 3.82 inches	Volume: 47.91 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose:	44000.00 lb
			<u>Total Volume: 48.82 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	40000.00 lb
Depth to Top Packer:	3580.00 ft			Final	40000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	10.00 ft				
Tool Length:	39.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

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

Change Over Sub	1.00			3552.00	
Shut In Tool	5.00			3557.00	
Hydraulic tool	5.00			3562.00	
Jars	5.00			3567.00	
Safety Joint	3.00			3570.00	
Packer	5.00			3575.00	29.00 Bottom Of Top Packer
Packer	5.00			3580.00	
Stubb	1.00			3581.00	
Recorder	0.00	8934	Inside	3581.00	
Recorder	0.00	8352	Outside	3581.00	
Perforations	6.00			3587.00	
Bullnose	3.00			3590.00	10.00 Bottom Packers & Anchor

Total Tool Length: 39.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co

19-9S-19W Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl #1-19

Job Ticket: 65123

DST#: 10

ATTN: Saman Sharifaie

Test Start: 2019.04.28 @ 10:20:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OCM 10%O 90%M	0.098
10.00	CO 100%O	0.049

Total Length: 30.00 ft

Total Volume: 0.147 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

Serial #: 8934

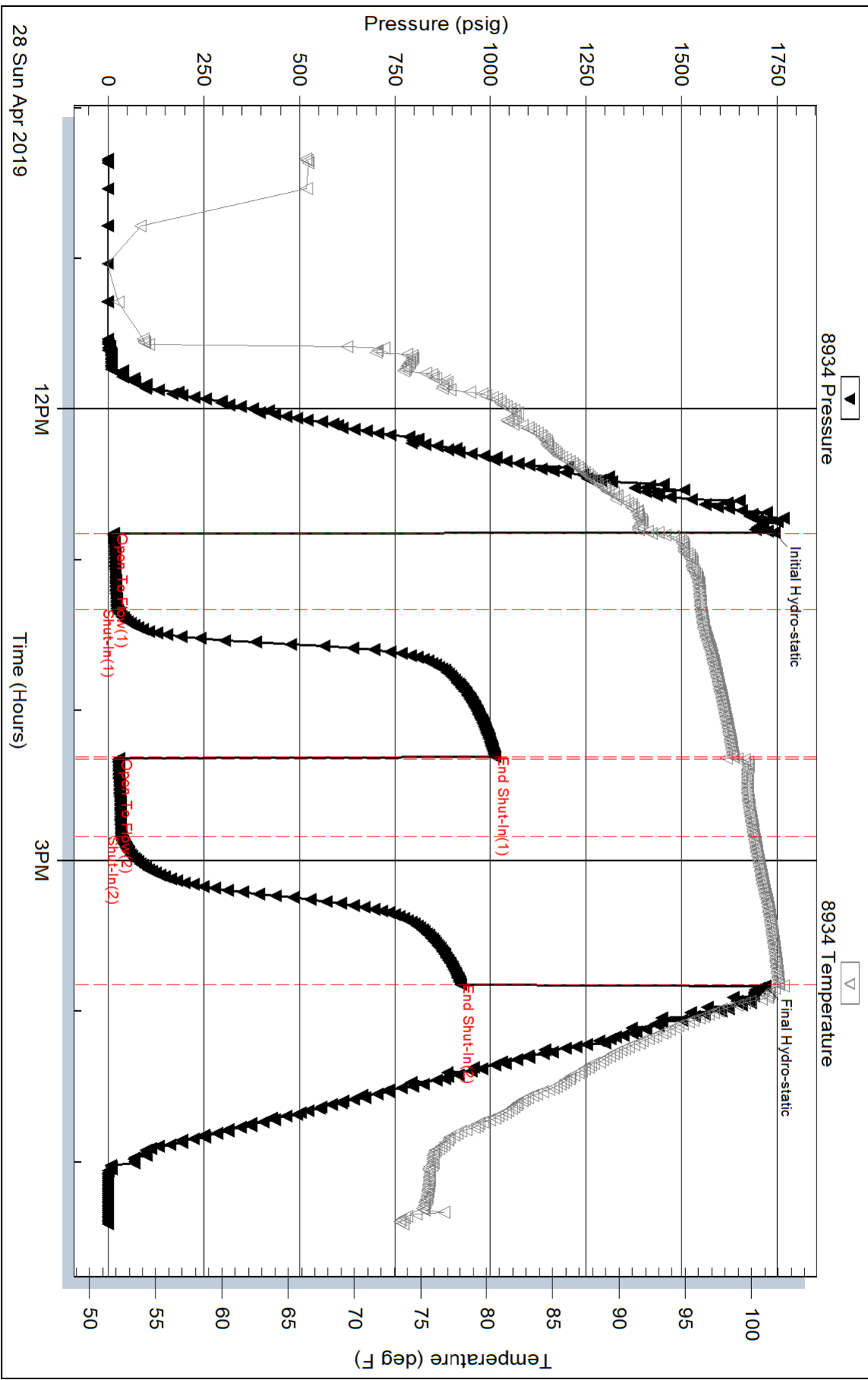
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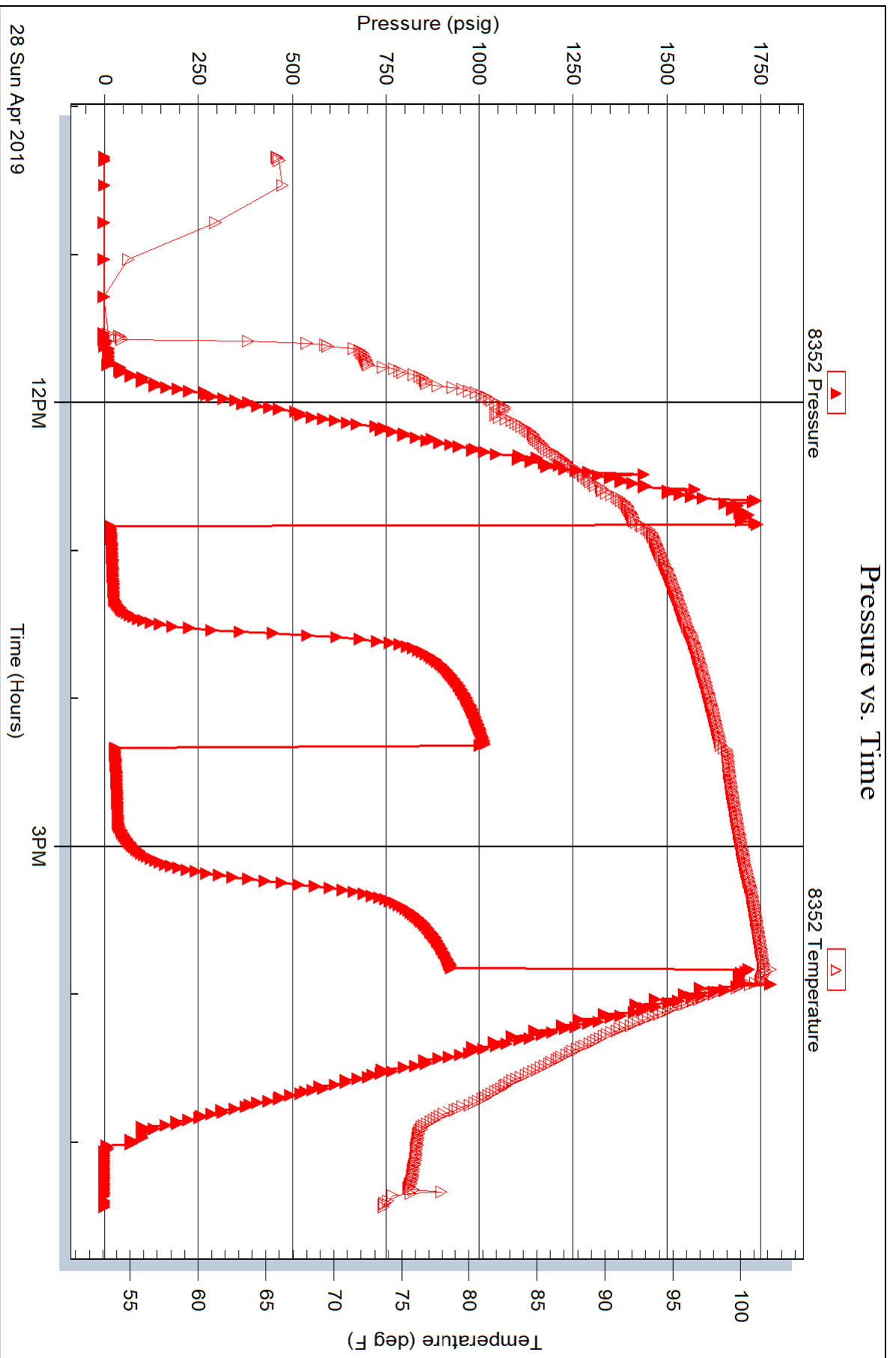
Murfin Drilling Co

Stahl #1-19

DST Test Number: 10

Pressure vs. Time







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65114

Well Name & No. Murphy Drilling Co Stahl #1-19 Test No. 1 Date 04/22/2019
 Company Murphy Drilling Co Elevation 2106' KB 2101' GL
 Address 250 N Water STE 300 Wichita Ks 67202 +1216
 Co. Rep / Geo. Samman Sharipie Rig Murphy #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Hooker State Ks

Interval Tested 3187' - 3222' Zone Tested Oread
 Anchor Length 35' Drill Pipe Run 2999' Mud Wt. 8.8
 Top Packer Depth 3182' Drill Collars Run 186' Vis 65
 Bottom Packer Depth 3187' Wt. Pipe Run - WL 7.2
 Total Depth 3222' Chlorides 5700 ppm System LCM 2#

Blow Description 67-Weak; Built to 4"
68- No Return
77- No Blow; Flushed twice; BOB 50 mins; Built to 13"
78- No Return

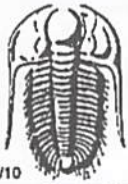
Rec	Feet of	%gas	%oil	%water	%mud
<u>180'</u>	<u>HMCW</u>		<u>70</u>	<u>30</u>	
<u>100'</u>	<u>SWCM</u>		<u>3</u>	<u>97</u>	

Rec Total 280' BHT 102° Gravity - API RW 171 @ 46 °F Chlorides 72000 ppm
 (A) Initial Hydrostatic 1580 Test 1200 T-On Location 16:42
 (B) First Initial Flow 24 Jars 250 T-Started 17:03
 (C) First Final Flow 802 Safety Joint 75 T-Open 19:49
 (D) Initial Shut-In 846 Circ Sub _____ T-Pulled 23:49
 (E) Second Initial Flow 56 Hourly Standby _____ T-Out 01:40 04/23/2019
 (F) Second Final Flow 142 Mileage 80R7 80 Comments _____
 (G) Final Shut-In 796 Sampler _____
 (H) Final Hydrostatic 1541 Straddle _____ EM Tool _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1605
 Sub Total 1605 MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Approved By _____ Our Representative Spencer J. Stahl
 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. **65115**

Well Name & No. Stahl # 1-19 Test No. 2 Date 04/23/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water 57E 300 Wichita Ks 67202 + 1216
 Co. Rep / Geo. Saman Sharif Rig Murfin #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Rooks State Ks

Interval Tested 3252' - 3320' Zone Tested Toronto - Lams 'A'
 Anchor Length 68' Drill Pipe Run 3062' Mud Wt. 9.2
 Top Packer Depth 3247' Drill Collars Run 186' Vis 56
 Bottom Packer Depth 3252' Wt. Pipe Run - WL 8.0
 Total Depth 3320' Chlorides 6900 ppm System LCM 1 1/2 #

Blow Description 27-9 Weab; Built to 5 1/2"
ISA - Weab Surface throughout
77 BOB @ 60 min
7SD Weab Surface throughout

Rec	Feet of	%gas	%oil	%water	%mud
<u>220'</u>	<u>OCM</u>	<u>15</u>	<u>85</u>		
<u>20'</u>	<u>GO</u>	<u>20</u>	<u>80</u>		
<u>'</u>	<u>90' GIP</u>	<u>100</u>			
<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>
<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>	<u>'</u>

Rec Total 240' BHT 101° Gravity 37° API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1622</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>11:47</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:05</u>
(C) First Final Flow <u>63</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:54</u>
(D) Initial Shut-In <u>976</u>	<input type="checkbox"/> Circ Sub <u>'</u>	T-Pulled <u>17:54</u>
(E) Second Initial Flow <u>76</u>	<input type="checkbox"/> Hourly Standby <u>'</u>	T-Out <u>20:10</u>
(F) Second Final Flow <u>120</u>	<input checked="" type="checkbox"/> Mileage <u>8027</u> <u>80</u>	Comments <u>'</u>
(G) Final Shut-In <u>969</u>	<input type="checkbox"/> Sampler <u>'</u>	<input type="checkbox"/> EM Tool <u>'</u>
(H) Final Hydrostatic <u>1573</u>	<input type="checkbox"/> Straddle <u>'</u>	<input type="checkbox"/> Ruined Shale Packer <u>'</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u>'</u>	<input type="checkbox"/> Ruined Packer <u>'</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer <u>'</u>	<input type="checkbox"/> Extra Copies <u>'</u>
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder <u>'</u>	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby <u>'</u>	Total <u>1605</u>
	<input type="checkbox"/> Accessibility <u>'</u>	MP/DST Disc't <u>'</u>
	Sub Total <u>1605</u>	

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65116

Well Name & No. Stahl #1-19 Test No. 3 Date 04/24/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water STE 300 Wichita KS 67202-1216
 Co. Rep / Geo. Saman Sharifae Rig Murfin #8
 Location: Sec. 19 Twp 9s Rge. 19w Co. Rocks State KS

Interval Tested 3322' - 3366' Zone Tested LKC 'Btd'
 Anchor Length 44' Drill Pipe Run 3124' Mud Wt. 9.2
 Top Packer Depth 3317' Drill Collars Run 186' Vis 56
 Bottom Packer Depth 3322' Wt. Pipe Run - WL 8.0
 Total Depth 3366' Chlorides 6900 ppm System LCM 1 1/2#

Blow Description 27- Fair; Built to 10"
25d- No Return
77- Fair; Built to 9"
75d- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>255'</u>	<u>9M</u>		<u>70</u>	<u>30</u>	
<u>60'</u>	<u>WM</u>		<u>30</u>	<u>70</u>	
<u>5'</u>	<u>GO</u>	<u>5</u>	<u>95</u>		

Rec Total 320 BHT 105° Gravity 34° API RW 087 @ 70 °F Chlorides 94,000 ppm

(A) Initial Hydrostatic <u>1657</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>03:10</u>
(B) First Initial Flow <u>35</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>03:20</u>
(C) First Final Flow <u>125</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>06:20</u>
(D) Initial Shut-In <u>1166</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>10:20</u>
(E) Second Initial Flow <u>126</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>12:24</u>
(F) Second Final Flow <u>177</u>	<input checked="" type="checkbox"/> Mileage <u>8027</u> 80	Comments
(G) Final Shut-In <u>1176</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1606</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

Sub Total 1605

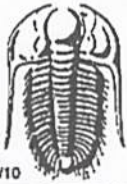
Sub Total 1605 MP/DST Disc't

Approved By _____

Our Representative Spencer J. Stahl

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. 65117

Well Name & No. Stahl #1-19 Test No. 4 Date 04/24/2019
 Company Murphy Drilling Co Elevation 2106' KB 2101' GL
 Address 250 N Water St E 300 Wichita Ks 67202 + 1216
 Co. Rep / Geo. Saman Sharif Rig Murphy #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Rooks State Ks

Interval Tested 3368' - 3394' Zone Tested SMC 'E-7'
 Anchor Length 26' Drill Pipe Run 3154' Mud Wt. 9.2
 Top Packer Depth 3363' Drill Collars Run 186' Vis 62
 Bottom Packer Depth 3368' Wt. Pipe Run - WL 8.0
 Total Depth 3394' Chlorides 7000 ppm System LCM 1 1/2#

Blow Description 7- BOB 20 mins; Built to 22 1/2"
1SD - No Return
77- BOB 24 mins; Built to 38 3/4"
7SD - 9 Weals; Built to 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
400	SMC W			97%	3%
180	MW w/ oil specks			60%	40%
40	GO	10%	90%		
	125' GTP	100%			

Rec Total 560' BHT 107° Gravity 39° API RW .106 @ 52° F Chlorides 117,000 ppm

(A) Initial Hydrostatic <u>1671</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>18:42</u>
(B) First Initial Flow <u>24</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>18:50</u>
(C) First Final Flow <u>156</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:36</u>
(D) Initial Shut-In <u>919</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:36</u>
(E) Second Initial Flow <u>161</u>	<input checked="" type="checkbox"/> Hourly Standby <u>X1</u>	T-Out <u>03:49</u>
(F) Second Final Flow <u>287</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT 80</u>	Comments
(G) Final Shut-In <u>918</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1614</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

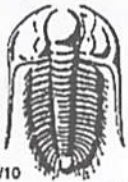
Sub Total 1605

MP/DST Disc't

Approved By _____ Our Representative Spencer J. Stahl Thanks!

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785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65118

Well Name & No. Stahl #1-19 Test No. 5 Date 04/25/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water STE 300 Wichita Ks 67202 +1216
 Co. Rep / Geo. Saman Sharifia Rig Murfin #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Rock State Ks

Interval Tested 3424' - 3464' Zone Tested LKC 'A-D'
 Anchor Length 40' Drill Pipe Run 3221' Mud Wt. 9.1
 Top Packer Depth 3419' Drill Collars Run 186' Vis 51
 Bottom Packer Depth 3424' Wt. Pipe Run - WL 8.4
 Total Depth 3464 Chlorides 8200 ppm System LCM 1 1/2#

Blow Description 77- Fair; Built to 10 3/4"
75D- No Return
77- Fair; Built to 11 1/2"
75E Weak; Built to 3/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>130'</u>	<u>G1750C9M</u>	<u>5</u>	<u>1</u>	<u>40</u>	<u>54</u>
<u>120'</u>	<u>G50C9M</u>	<u>5</u>	<u>2</u>	<u>%water</u>	<u>93</u>
<u>20'</u>	<u>G0</u>	<u>70</u>	<u>30</u>	<u>%water</u>	<u>%mud</u>
<u>Rec</u>	<u>Feet of 90' G1P</u>	<u>100</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
<u>Rec</u>	<u>Feet of</u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>

Rec Total 270' BHT 105° Gravity 38° API RW 113 @ 61 °F Chlorides 81000 ppm

(A) Initial Hydrostatic 1706 Test 1200 T-On Location 12:50
 (B) First Initial Flow 23 Jars 250 T-Started 13:15
 (C) First Final Flow 120 Safety Joint 75 T-Open 15:53
 (D) Initial Shut-In 896 Circ Sub _____ T-Pulled 18:53
 (E) Second Initial Flow 125 Hourly Standby _____ T-Out 21:00
 (F) Second Final Flow 146 Mileage 80 Comments _____
 (G) Final Shut-In 868 Sampler _____
 (H) Final Hydrostatic 1671 Straddle _____ EM Tool 350
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Initial Open 30 Day Standby _____ Sub Total 0
 Initial Shut-In 60 Accessibility _____ Total 1605
 Final Flow 80 Sub Total 1605 MP/DST Disc't _____
 Final Shut-In 80

Approved By _____ Our Representative Spencer J. Paul Thanks!

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785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65119

Well Name & No. Stahl #1-19 Test No. 6 Date 04/26/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water S7E 300 Wichita KS 67202+1216
 Co. Rep / Geo. Saman Sharifae Rig Murfin #8
 Location: Sec. 19 Twp 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3466' - 3488' Zone Tested LKC J
 Anchor Length 22' Drill Pipe Run 3250' Mud Wt. 9.1
 Top Packer Depth 3461' Drill Collars Run 186' Vis 51
 Bottom Packer Depth 3466' Wt. Pipe Run - WL 8.4
 Total Depth 3488' Chlorides 8200 ppm System LCM 1 1/2#

Blow Description 77- Weak; Built to 1/2" slide 5ft to bottom
78- No Return
77- Weak Surface
78- No Return

Rec	Feet of	%gas	%oil	%water	%mud
70'	OSM			100	

Rec Total 70' BHT 102° Gravity - API RW - @ - F Chlorides - ppm

(A) Initial Hydrostatic <u>1726</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>02:55</u>
(B) First Initial Flow <u>44</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>03:05</u>
(C) First Final Flow <u>49</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>05:26</u>
(D) Initial Shut-In <u>812</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>08:26</u>
(E) Second Initial Flow <u>49</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>10:07</u>
(F) Second Final Flow <u>50</u>	<input checked="" type="checkbox"/> Mileage <u>8027</u> 80	Comments
(G) Final Shut-In <u>710</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1682</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>
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>1605</u>
	Sub Total <u>1605</u>	MP/DST Disc't

Approved By

Our Representative

Spencer J. Stahl
 785-289-0056

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.



TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65120

Well Name & No. Stahl Test No. 7 Date 04/26/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water St 300 Wichita Ks 67202+1216
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Rooks State Ks

Interval Tested 3539' - 3560' Zone Tested Arbuckle
 Anchor Length 21' Drill Pipe Run _____ Mud Wt. 9.2
 Top Packer Depth 3534' Drill Collars Run 186' Vis 45
 Bottom Packer Depth 3539' Wt. Pipe Run — WL 9.2
 Total Depth 3560' Chlorides 9800 ppm System LCM 1#

Blow Description 77- Weak; Built to 1/4"
78- No Return
79- Wash Surface
75- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

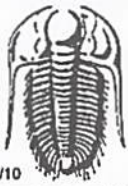
Rec Total 5' BHT 1040 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1762 Test 1200 T-On Location 18:05
 (B) First Initial Flow 18 Jars 250 T-Started 18:30
 (C) First Final Flow 19 Safety Joint 75 T-Open 20:44
 (D) Initial Shut-In 33 Circ Sub _____ T-Pulled 23:44
 (E) Second Initial Flow 18 Hourly Standby _____ T-Out 01:36 04/27/2019
 (F) Second Final Flow 19 Mileage 8027 80 Comments _____
 (G) Final Shut-In 24 Sampler _____
 (H) Final Hydrostatic 1729 Straddle _____ EM Tool 350
 Ruined Shale Packer _____
 Ruined Packer _____

Initial Open 30 Extra Packer _____
 Initial Shut-In 60 Extra Recorder _____
 Final Flow 30 Day Standby _____
 Final Shut-In 60 Accessibility _____
 Sub Total 1855 Sub Total 1855 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Stahl
 Tribolite 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.

785-259-0036



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65121

Well Name & No. Stahl #1-19 Test No. 8 Date 04/27/2019
 Company Murphy Drilling Co Elevation 2106 KB 2101 GL
 Address 250 W Water St E 300 Wichita KS 67602-1216
 Co. Rep / Geo. Samon Sharifae Rig Murphy #8
 Location: Sec. 19 Twp 9a Rge. 19w Co. Rooks State KS

Interval Tested 3539-3570' Zone Tested Arbuckle
 Anchor Length 31' Drill Pipe Run 3348' Mud Wt. 9.2
 Top Packer Depth 3534' Drill Collars Run 186' Vis 45
 Bottom Packer Depth 3539' Wt. Pipe Run - WL 9.2
 Total Depth 3570 Chlorides 9800 ppm System LCM 1#

Blow Description 27- Wash; Built to 2 1/2
JSJ - No Return
77- Wash; Built to 3"
JSJ - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>60'</u>	<u>MO</u>	<u>50</u>		<u>50</u>	
<u>30'</u>	<u>FO</u>	<u>100</u>			
	<u>90' GIP</u>	<u>100</u>			

Rec Total 90' BHT 100° Gravity 28 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1759</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>06:00</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>06:45</u>
(C) First Final Flow <u>41</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>08:50</u>
(D) Initial Shut-In <u>1106</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>12:20</u>
(E) Second Initial Flow <u>45</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>14:28</u>
(F) Second Final Flow <u>57</u>	<input checked="" type="checkbox"/> Mileage <u>8027</u> 80	Comments
(G) Final Shut-In <u>1081</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1735</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<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>1855</u>
	Sub Total <u>1855</u>	MP/DST Disc't

Approved By _____ Our Representative Samon Sharifae
 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.
 785-269-0086



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65122

Well Name & No. Stahl #1-19 Test No. 9 Date 04/27/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water STE 300 Wichita KS 67202 + 1216
 Co. Rep / Geo. Saman Sharifaire Rig Murfin #8
 Location: Sec. 19 Twp 9A Rge. 19W Co. Rock State KS

Interval Tested 3570' - 3580' Zone Tested Arbuckle
 Anchor Length 10' Drill Pipe Run _____ Mud Wt. 9.1
 Top Packer Depth 3565' Drill Collars Run 186' Vis 43
 Bottom Packer Depth 3570' Wt. Pipe Run - WL 9.2
 Total Depth 3580' Chlorides 9300 ppm System LCM 2#

Blow Description 77-Weak; Built to 5"

78A-Weak Surface

77-78 Fair; Built to 8"

78D-Weak; Built to 4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>30'</u>	<u>ROC M</u>	<u>30</u>		<u>70</u>	
<u>190'</u>	<u>Clear Oil</u>	<u>100</u>			
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total 220' BHT 105° Gravity 28° API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic 1798 Test 1200 T-On Location 19:00
 (B) First Initial Flow 20 Jars 250 T-Started 20:25
 (C) First Final Flow 49 Safety Joint 75 T-Open 22:19
 (D) Initial Shut-In 1107 Circ Sub _____ T-Pulled 02:19 04/28/2019
 (E) Second Initial Flow 58 Hourly Standby 1 T-Out 04:11
 (F) Second Final Flow 92 Mileage 8087 80 Comments _____
 (G) Final Shut-In 1098 Sampler _____
 (H) Final Hydrostatic 1720 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1605
 MP/DST Disc' _____

Approved By _____ Our Representative Spencer J. [Signature] Thanks!

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785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65123

Well Name & No. Stahl # 1-19 Test No. 10 Date 04/28/2019
 Company Murfin Drilling Co Elevation 2106 KB 2101 GL
 Address 250 N Water St 300 Wichita Ks 67202 +1216
 Co. Rep / Geo. Saman Sharifae Rig Murfin #8
 Location: Sec. 19 Twp 9S Rge. 19W Co. Roos State Ks

Interval Tested 3580' - 3590' Zone Tested Arbuckle
 Anchor Length 10' Drill Pipe Run 3380' Mud Wt. 8.9
 Top Packer Depth 3575' Drill Collars Run 186' Vis 62
 Bottom Packer Depth 3580' Wt. Pipe Run - WL 7.6
 Total Depth 3590' Chlorides 8800 ppm System LCM 2H

Blow Description 67-Weak; Built to 1 1/4

ISS - No Return
77-Weak; Built to 3/4"
78 - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>OCM</u>	<u>10</u>		<u>90</u>	
<u>10'</u>	<u>CO</u>	<u>100</u>			

Rec Total 30' BHT 102° Gravity 28 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1741 Test 1200 T-On Location 09:00
 (B) First Initial Flow 14 Jars 250 T-Started 10:20
 (C) First Final Flow 22 Safety Joint 75 T-Open 12:45
 (D) Initial Shut-In 1012 Circ Sub _____ T-Pulled 15:45
 (E) Second Initial Flow 27 Hourly Standby _____ T-Out 17:19
 (F) Second Final Flow 33 Mileage 807 80 Comments they stopped drilling
 (G) Final Shut-In 922 Sampler _____ line after tripping out
 (H) Final Hydrostatic 1717 Straddle _____ with bit
 EM Tool _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30 Extra Packer _____
 Initial Shut-In 60 Extra Recorder _____
 Final Flow 30 Day Standby _____
 Final Shut-In 60 Accessibility _____
 Sub Total 1605 Sub Total 0
 Total 1605 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Stahl Thanks!
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785-259-0056

Saman Sharifaie

Petroleum Geologist

GEOLOGISTS REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: **Martin Drilling Co., Inc.**

WELL: **Stahl #1-19**

FIELD: **Wildcat**

LOCATION: **1320' ENL & 2060' FEL**

SEC: **19** TWP: **9S** RGE: **19W**

COUNTY: **Rooks** STATE: **Kansas**

CONTRACTOR: **Martin Drilling #8**

SPUD: **04/19/19** COMP: **04/29/19**

RTD: **3650'** LTD: **3649'**

WUD UP: **2810'** TYPE: **MUD** Chemical

SAMPLES SAVED FROM: **2950'** TO RTD

DRAWING TIME KEPT FROM: **2900'** TO RTD

SAMPLES EXAMINED FROM: **2950'** TO **3500'**

GEOLOGICAL SUPERVISION FROM: **2650'**

REFERENCE WELL: **MDC1 - Homomichi #5**

CND: **D.L. MEL; Somic**

DATE: **11/19/19**

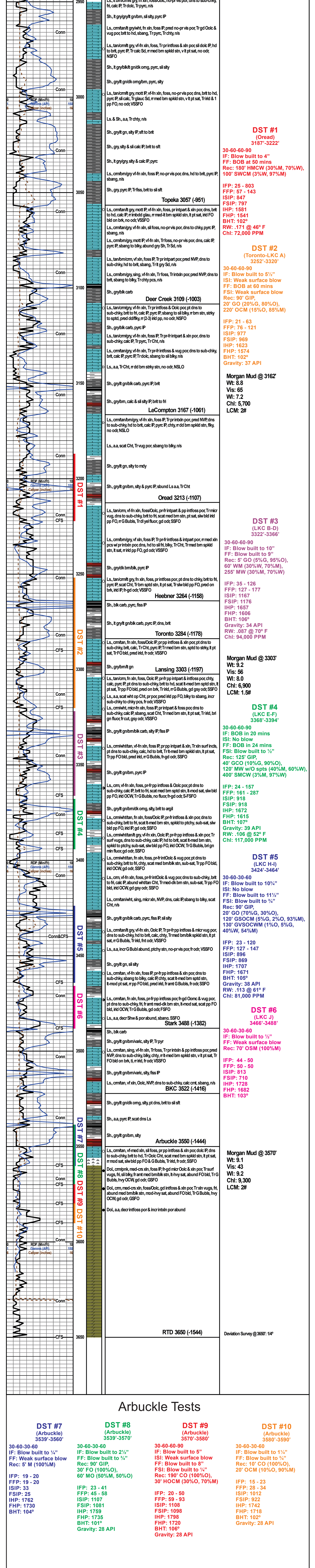
FILED: **Wildcat**

Formation	Sample Tops	E-log Tops	Struct
Amblydrite	1517' (+589)	1517' (+589)	-8
Base Amblydrite	1555' (+551)	1550' (+556)	-2
Topoka	3056' (+950)	3057' (+951)	-1
Lecompton	3166' (+1060)	3167' (+1061)	-2
Oread	3210' (+1104)	3213' (+1107)	-3
Lansing	3298' (+1192)	3303' (+1197)	-2
Stark	3388' (+1282)	3388' (+1282)	+2
BKC	3524' (+1418)	3522' (+1416)	+3
Arbuckle	3550' (+1444)	3550' (+1444)	Flat

REMARKS Due to fair shows of oil in multiple potential pay zones and positive DST results, it is recommended and agreed upon by all parties that production casing be set to further evaluate this well.

Respectfully Submitted,
 API #15-163-24390
 Saman Sharifaie
 Petroleum Geologist

*Tops have been adjusted to electric logs



Arbuckle Tests

DST #7 (Arbuckle) 3539'-3560'	DST #8 (Arbuckle) 3539'-3570'	DST #9 (Arbuckle) 3570'-3580'	DST #10 (Arbuckle) 3580'-3590'
30-60-30-60 IF: Blow built to 1/4" Rec: 5' M (100%M) IFF: 19 - 20 FFP: 19 - 20 ISIP: 33 FHP: 1762 BHT: 104°	30-60-30-60 IF: Blow built to 2 1/2" FF: Blow built to 1/2" Rec: 90' GIP 30' FO (100%O) 60' MO (50%M, 50%O) IFF: 23 - 41 FFP: 45 - 58 ISIP: 1107 FHP: 1759 BHT: 101° Gravity: 28 API	30-60-60-90 IF: Blow built to 5" ISI: Weak surface blow FF: Blow built to 8" Rec: Blow built to 1/2" FES: 190' CO (100%O), 30' HOCM (30%O, 70%M) IFF: 20 - 50 FFP: 45 - 93 ISIP: 1108 FHP: 1798 BHT: 1720 BHT: 106° Gravity: 28 API	30-60-30-60 IF: Blow built to 1 1/2" FF: Blow built to 3/4" Rec: 10' CO (100%O), 20' OCM (10%O, 90%M) IFF: 15 - 23 FFP: 28 - 34 ISIP: 1012 FHP: 1742 BHT: 1718 BHT: 102° Gravity: 28 API

