

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) (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	LAING 1-19
Doc ID	1471919

All Electric Logs Run

DIL
DUCP
MEL
BHCS





### CEMENT TREATMENT REPORT

Customer: Murfin Drilling	Well: Laing 1-19	Ticket: ICT2177
City, State:	County: Cheyenne, KS	Date: 7/24/2019
Field Rep: Jay	S-T-R: 19-25-38W	Service: Cement

Hole Size:	12.25
Hole Depth:	303'
Casing Size:	8.625
Casing Depth:	303'
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	18

Weight:	14.8 # / sx
Water / Sx:	6 5/7 gal / sx
Yield:	1 2/5 ft <sup>3</sup> / sx
Bbls / Ft.:	
Depth:	303' ft
Volume:	bbls
Excess:	120% %
Total Slurry:	74 bbls
Total Sacks:	295 sx

Product	%	#
Class A		27730
Gel		554
CaCl		832
Metso		
KofSeal		
PhenoSeal		
Salt		
Total		29,116

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
815pm				Arrival					
820pm				Safety meeting					
825pm				Rig up equip					
925pm				Run in casing					
				Centralizers in Jnts 2,6					
1005pm				Rig circulates casing					
1020pm	5.0	200.0	74.0	Pump 295sx cement					
1035pm	4.0	200.0	18.0	Displace cement					
1045pm		300.0		Cement down shut in					
				Cement did circulate 3 bbls					

CREW			UNIT		SUMMARY		
Cementer:	Miles Shaw	73.0			Average Rate	Average Pressure	Total Fluid
Pump Operator:	Josh Mosier	230.0			4.5 bpm	233.33 psi	92.00 bbls
Bulk #1:	Kale Ochs	181 / 254					
Bulk #2:							

Hurricane Services, Inc.  
 250 N. Water  
 Wichita, KS 67202



**CEMENT TREATMENT REPORT**

Customer: <b>Murfin Drilling Co</b>	Well: <b>Laing 1-19</b>	Ticket: <b>IGT 2088</b> <i>ICT 208</i>
City, State: <b>Oakley KS</b>	County: <b>Cheyenne</b>	Date: <b>8/2/2019</b>
Field Rep: <b>Jay</b>	S-T-R: <b>19/25/30W</b>	Service: <b>Cement</b>

Downhole Information	
Hole Size:	<b>7 7/8</b>
Hole Depth:	<b>4800</b>
Casing Size:	
Casing Depth:	
Tubing / Liner:	<b>in</b>
Depth:	<b>ft</b>
Tool / Packer:	
Depth:	
Displacement:	

*Plugging*

Slurry	
Weight:	<b>13.8 # / sx</b>
Water / Sx:	<b>6 8/9</b>
Yield:	<b>1.42</b>
Bbls / Ft.:	<b>0.0142</b>
Depth:	<b>ft</b>
Volume:	<b>bbls</b>
Excess:	
Total Slurry:	<b>60.5</b>
Total Sacks:	<b>240 sx</b>

Cement Blend		
Product	%	#
Class A	<b>60.0</b>	<b>13536</b>
Fly Ash	<b>40.0</b>	<b>7104</b>
Gel	<b>4.0</b>	<b>826</b>
Motso		
KoiSeal		
PhenoSeal		
Salt		
<b>Total</b>		<b>21,466</b>

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
11:00 PM				Arrive					
11:05 PM				Safety Meeting					
11:10 PM				Rig up					
12:00 AM	3.0	300.0	64.0	Mix 50 sks @ 3295 and displace					
1:10 AM	3.0	220.0	51.0	Mix 100 sks @ 2480 and displace					
2:20 AM	3.0	110.0	13.0	Mix 50 sks @ 350 and displace					
3:15 AM	3.0	80.0	8.0	10 sks @ 40 and 30 sks RH					
3:30 AM				Wash up					
3:45 AM				Rig down					
4:00 AM				Depart					

CREW			UNIT			SUMMARY		
Cementer:	<b>Dane Retzloff</b>	<b>78.0</b>			Average Rate	Average Pressure	Total Fluid	
Pump Operator:	<b>Josh Mosier</b>	<b>230.0</b>			<b>3 bpm</b>	<b>180.00 psi</b>	<b>126.00 bbls</b>	
Bulk #1:	<b>John Polly</b>	<b>242.0</b>						
Bulk #2:	<b>1</b>							

MDCI  
 Laing #1-19  
 330FSL 990FWL  
 Sec. 19-T2S-R38W  
 3389' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	3283	+106	+1	3281	+108	+3
B/Anhydrite	3310	+79	+5	3311	+78	+4
Topeka	4095	-706	-5	4087	-698	+3
Oread	4230	-841	-1	4224	-835	+5
Lansing	4298	-909	+3	4296	-907	+5
Stark	4538	-1149	+1	4536	-1147	+3
Mound City	4595	-1206	+4	4602	-1213	-3
Ft Scott	4738	-1349	-3	4729	-1340	+6
Oakley	4804	-1415	+10	4809	-1420	+5
Mississippian	5074	-1685	+19	5093	-1704	Flat
RTD	5178	-1789				
LTD				5180	-1791	

# Saman Sharifaie

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY: **Martin Drilling Co., Inc.**  
LEASE: **Lamp #1-19**

FIELD: **Wildcat**  
LOCATION: **3307 ESL & 990 F.W.L.**  
SEC: **19** TWP: **2S** R: **38W**  
COUNTY: **Cheyenne** STATE: **Kansas**

CONTRACTOR: **Martin Drilling #3**  
RUD: **07/24/19** COMP: **08/03/19**  
SPUD: **5/17/19** LTD: **5180'**

WUD UP: **3359'** TYPE MUD: **Chemical**

SAMPLES SAVED FROM: **3990'** TO RTD  
DRILLING TIME KEPT FROM: **3990'** TO RTD  
SAMPLES EXAMINED FROM: **3990'** TO RTD

GEOLOGICAL SUPERVISION FROM: **3690'**  
REFERENCE WELL: **MDCT - Sowers "A" #1-19**

FORMATION: **Flint Hill**

Formation	Sample Tops	E-log Tops	Strat Pos.
Anhydrite	3383 (+106)	3281 (+108)	E-3
Base Anhydrite	3310 (+78)	3311 (+78)	E-4
Tussock	4095 (-706)	4097 (-698)	E-1
O'Leary	4230 (-841)	4224 (-833)	E-2
Siltstone	4298 (-909)	4296 (-907)	E-3
Stark	4538 (-1149)	4536 (-1147)	E-3
Mound City	4595 (-1206)	4602 (-1213)	E-3
Ft Scott	4738 (-1349)	4729 (-1340)	E-6
Orkney	4804 (-1415)	4809 (-1420)	E-5

CASING  
CONDUCTOR: **8-5/8" at 303'**  
SURFACE: **8-5/8" at 303'**  
PRODUCTION: **N/A**

ELECTRICAL  
CND: **D.L. MEL; Smitc**  
Fluoride: **Trace**

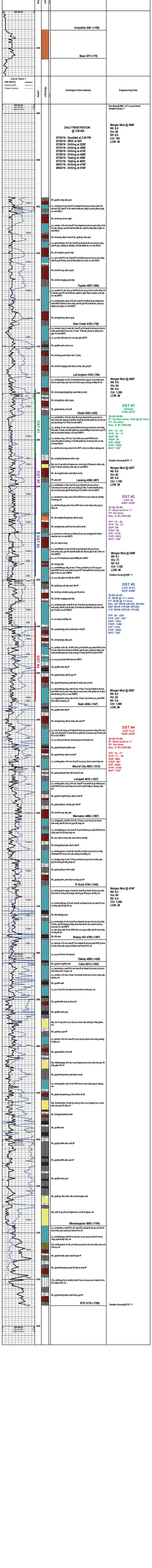
ELEVATIONS  
KB: **3389'**

DF: \_\_\_\_\_  
GL: **3384'**  
Measurements Are All From Kelly Bushing

REMARKS  
Due to poor shows of oil in multiple potential pay zones and negative DST results, it is recommended and agreed upon by all parties that this well be plugged and abandoned.

Respectfully Submitted,  
Saman Sharifaie  
Petroleum Geologist

API #15-023-21520  
\*Tops have been adjusted to electric logs



REMARKS: Due to poor shows of oil in multiple potential pay zones and negative DST results, it is recommended and agreed upon by all parties that this well be plugged and abandoned.

Respectfully Submitted,  
Saman Sharifaie  
Petroleum Geologist

API #15-023-21520  
\*Tops have been adjusted to electric logs





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Saman Sharifaie

### **Laing #1-19**

#### **19-2s-38w Cheyenne KS**

Start Date: 2019.07.28 @ 19:12:00

End Date: 2019.07.29 @ 02:32:30

Job Ticket #: 65269                      DST #: 1

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

Printed: 2019.08.02 @ 10:47:26



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65269

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2019.07.28 @ 19:12:00

## GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:40:10

Time Test Ended: 02:32:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4196.00 ft (KB) To 4270.00 ft (KB) (TVD)**

Reference Elevations: 3389.00 ft (KB)

Total Depth: 4270.00 ft (KB) (TVD)

3384.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 16.56 psig @ 4197.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.28

End Date:

2019.07.29

Last Calib.:

2019.07.29

Start Time: 19:12:01

End Time:

02:32:30

Time On Btm:

2019.07.28 @ 21:40:00

Time Off Btm:

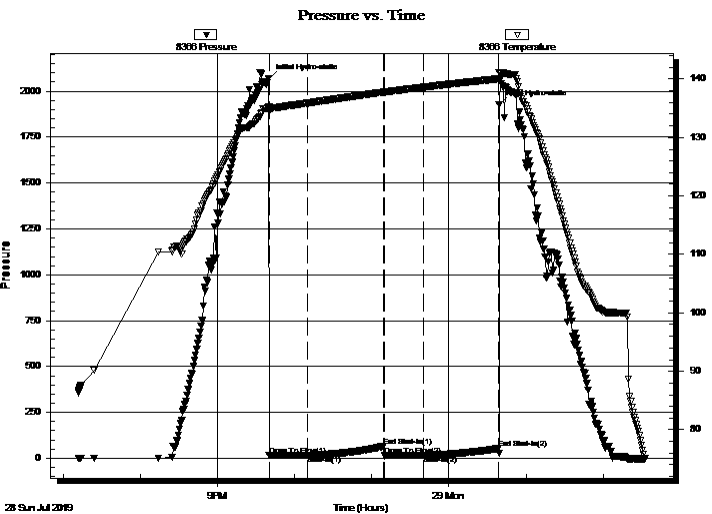
2019.07.29 @ 00:39:00

TEST COMMENT: 30 IF - Surface blow died @ 20 mins

60 ISI - No return

30 FF - No blow

60 FSI - No return



## PRESSURE SUMMARY

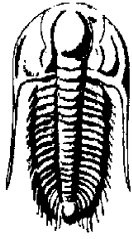
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2068.91	135.31	Initial Hydro-static
1	14.75	134.47	Open To Flow (1)
30	15.83	135.88	Shut-In(1)
90	66.11	137.76	End Shut-In(1)
90	15.57	137.76	Open To Flow (2)
120	16.56	138.60	Shut-In(2)
179	53.72	140.04	End Shut-In(2)
179	1925.59	141.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%M	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Saman Sharifaie

**19-2s-38w Cheyenne KS**  
**Laing #1-19**  
Job Ticket: 65269 **DST#: 1**  
Test Start: 2019.07.28 @ 19:12:00

## GENERAL INFORMATION:

Formation: **Oread**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:40:10  
Time Test Ended: 02:32:30

Test Type: Conventional Bottom Hole (Initial)  
Tester: Ryan Nichols  
Unit No: 71

**Interval: 4196.00 ft (KB) To 4270.00 ft (KB) (TVD)**  
Total Depth: 4270.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good

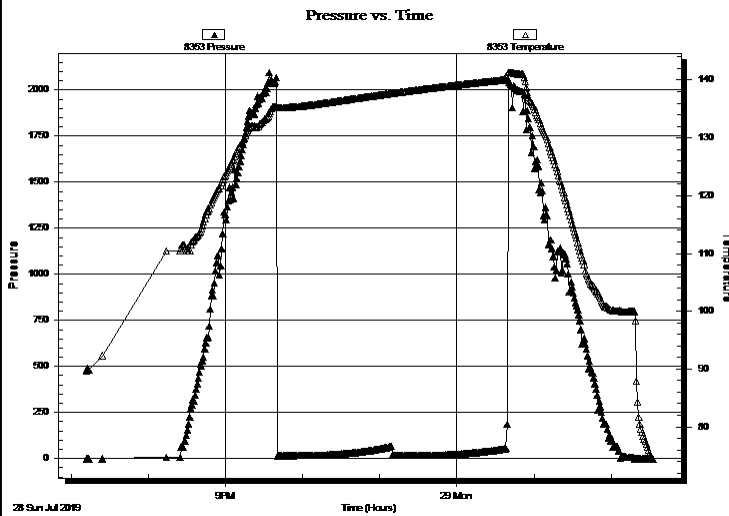
Reference Elevations: 3389.00 ft (KB)  
3384.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8353 Inside**

Press@RunDepth: psig @ 4197.00 ft (KB)  
Start Date: 2019.07.28 End Date: 2019.07.29  
Start Time: 19:12:01 End Time: 02:32:20

Capacity: 8000.00 psig  
Last Calib.: 2019.07.29  
Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 30 IF - Surface blow died @ 20 mins  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%M	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65269

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2019.07.28 @ 19:12:00

## Tool Information

Drill Pipe:	Length: 4016.00 ft	Diameter: 3.80 inches	Volume: 56.33 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 57.20 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4196.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	102.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4173.00	
Hydraulic tool	5.00			4178.00	
Jars	5.00			4183.00	
Safety Joint	3.00			4186.00	
Packer	5.00			4191.00	28.00 Bottom Of Top Packer
Packer	5.00			4196.00	
Stubb	1.00			4197.00	
Recorder	0.00	8353	Inside	4197.00	
Recorder	0.00	8366	Outside	4197.00	
Perforations	5.00			4202.00	
Blank Spacing	65.00			4267.00	
Bullnose	3.00			4270.00	74.00 Bottom Packers & Anchor

**Total Tool Length: 102.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65269

**DST#: 1**

ATTN: Saman Sharifaie

Test Start: 2019.07.28 @ 19:12:00

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud 100%M	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

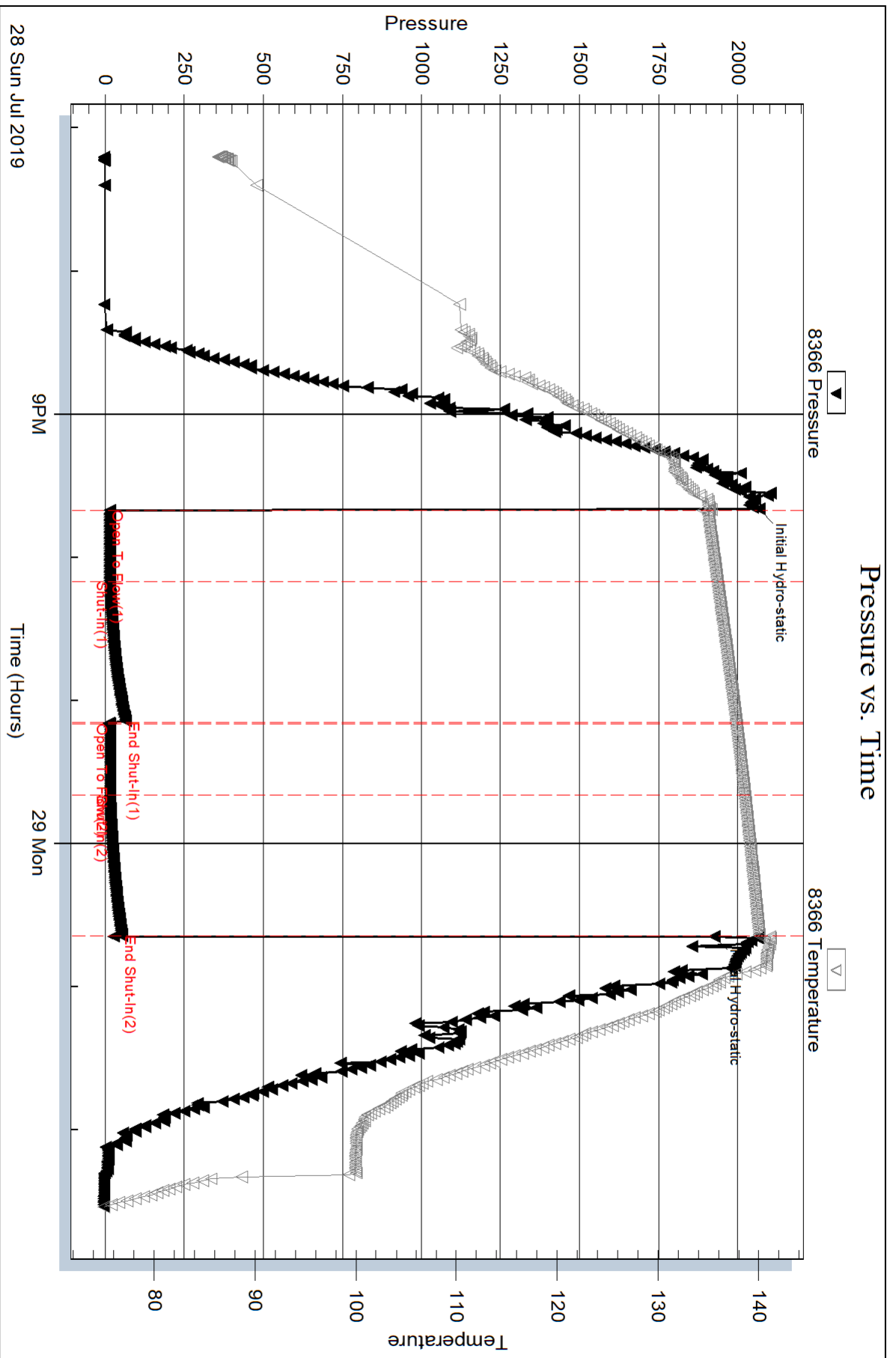
Recovery Comments:

Serial #: 8366

Outside Murfin Drilling Co. Inc.

Laing #1-19

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65269

Printed: 2019.08.02 @ 10:47:27

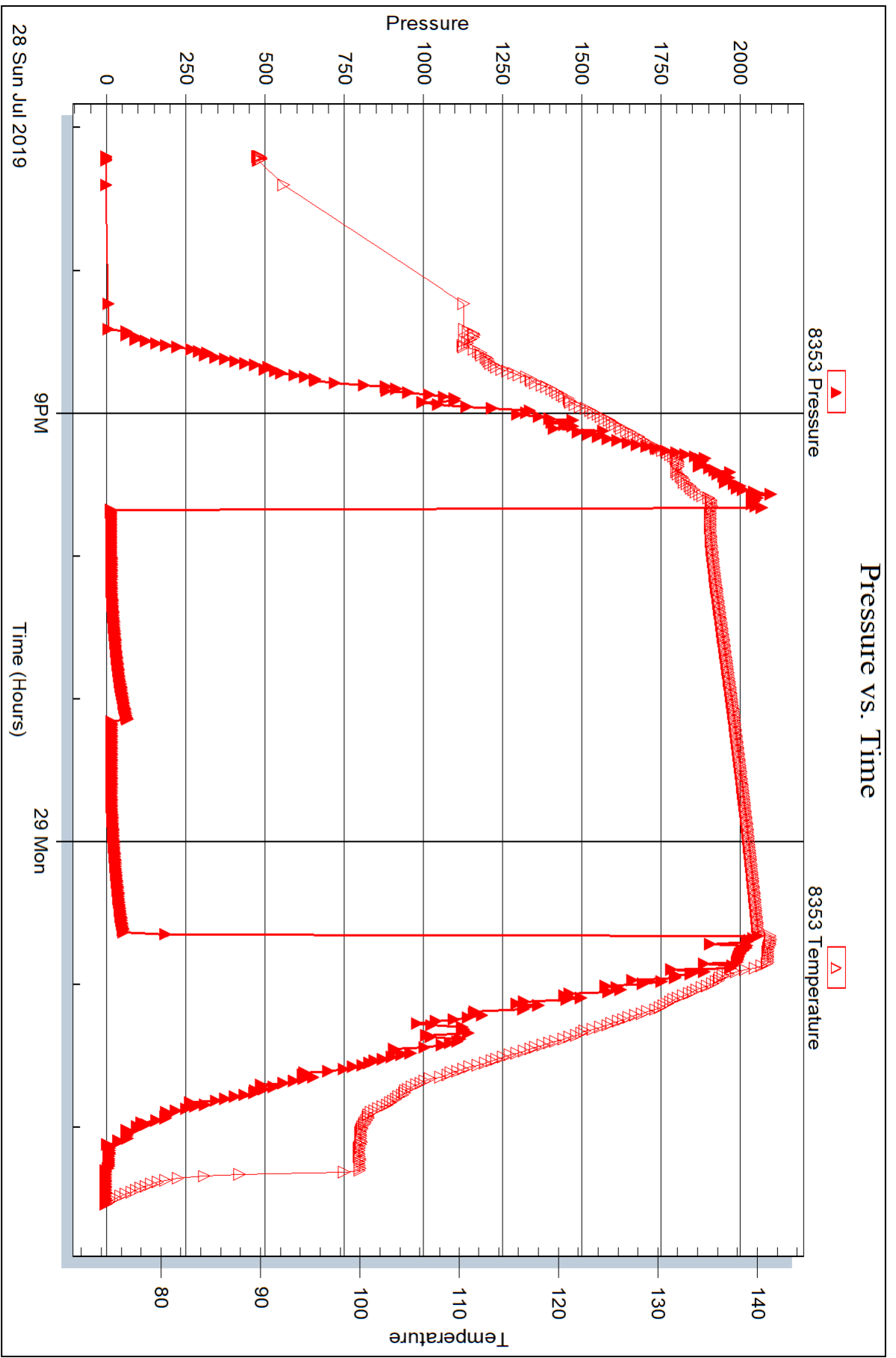
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Laing #1-19

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Saman Sharifaie

### **Laing #1-19**

#### **19-2s-38w Cheyenne KS**

Start Date: 2019.07.29 @ 11:55:00

End Date: 2019.07.29 @ 18:32:20

Job Ticket #: 65270                      DST #: 2

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

Printed: 2019.08.02 @ 10:47:01





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65270

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2019.07.29 @ 11:55:00

## GENERAL INFORMATION:

Formation: **LKC " A "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:38:10

Time Test Ended: 18:32:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4264.00 ft (KB) To 4330.00 ft (KB) (TVD)**

Reference Elevations: 3389.00 ft (KB)

Total Depth: 4330.00 ft (KB) (TVD)

3384.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 20.57 psig @ 4265.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.29

End Date:

2019.07.29

Last Calib.: 2019.07.29

Start Time: 11:55:01

End Time:

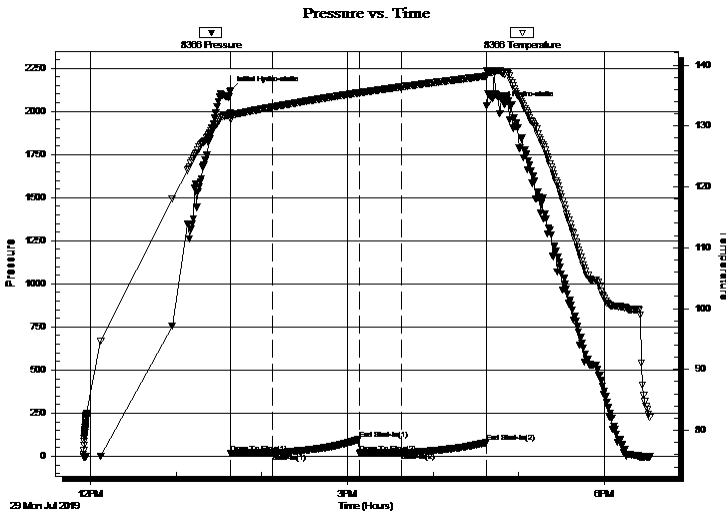
18:32:20

Time On Btm: 2019.07.29 @ 13:38:00

Time Off Btm: 2019.07.29 @ 16:37:39

**TEST COMMENT:** 30 IF - Blow built to 1/4" died to surface  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2120.05	132.12	Initial Hydro-static
1	18.95	131.14	Open To Flow (1)
30	20.08	133.10	Shut-In(1)
90	99.19	135.46	End Shut-In(1)
91	18.88	135.41	Open To Flow (2)
120	20.57	136.42	Shut-In(2)
180	80.14	138.19	End Shut-In(2)
180	2031.10	139.04	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**

Murfin Drilling Co. Inc.

250 N. Water STE 300  
Wichita KS 67202

ATTN: Saman Sharifaie

**19-2s-38w Cheyenne KS**

**Laing #1-19**

Job Ticket: 65270

**DST#: 2**

Test Start: 2019.07.29 @ 11:55:00

**GENERAL INFORMATION:**

Formation: **LKC "A "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:38:10

Time Test Ended: 18:32:20

**Interval: 4264.00 ft (KB) To 4330.00 ft (KB) (TVD)**

Total Depth: 4330.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Reference Elevations: 3389.00 ft (KB)

3384.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8353**

Inside

Press@RunDepth: psig @ 4265.00 ft (KB)

Start Date: 2019.07.29

End Date:

2019.07.29

Start Time: 11:55:01

End Time:

18:32:20

Capacity: 8000.00 psig

Last Calib.: 2019.07.29

Time On Btm:

Time Off Btm:

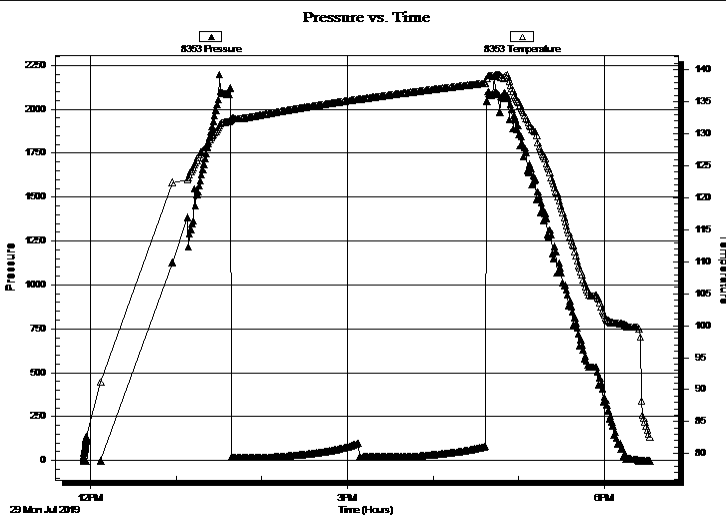
**TEST COMMENT:** 30 IF - Blow built to 1/4" died to surface

60 ISI - No return

30 FF - No blow

60 FSI - No return

**PRESSURE SUMMARY**



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

**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. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65270

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2019.07.29 @ 11:55:00

## Tool Information

Drill Pipe:	Length: 4078.00 ft	Diameter: 3.80 inches	Volume: 57.20 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.07 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4264.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	66.00 ft			
Tool Length:	94.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4241.00	
Hydraulic tool	5.00			4246.00	
Jars	5.00			4251.00	
Safety Joint	3.00			4254.00	
Packer	5.00			4259.00	28.00 Bottom Of Top Packer
Packer	5.00			4264.00	
Stubb	1.00			4265.00	
Recorder	0.00	8353	Inside	4265.00	
Recorder	0.00	8366	Outside	4265.00	
Perforations	29.00			4294.00	
Blank Spacing	33.00			4327.00	
Bullnose	3.00			4330.00	66.00 Bottom Packers & Anchor

**Total Tool Length: 94.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65270

**DST#: 2**

ATTN: Saman Sharifaie

Test Start: 2019.07.29 @ 11:55:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: 2.00 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

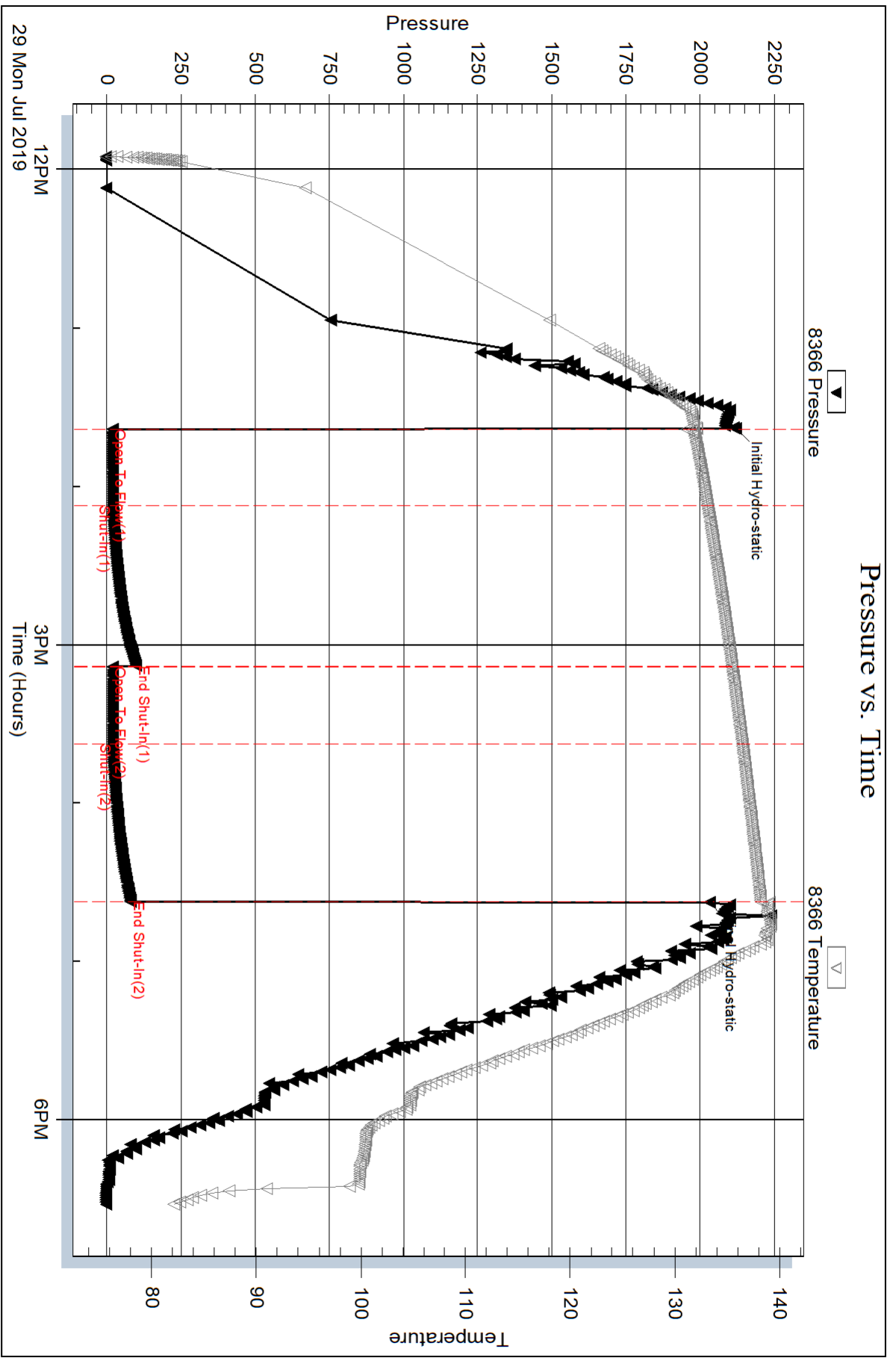
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



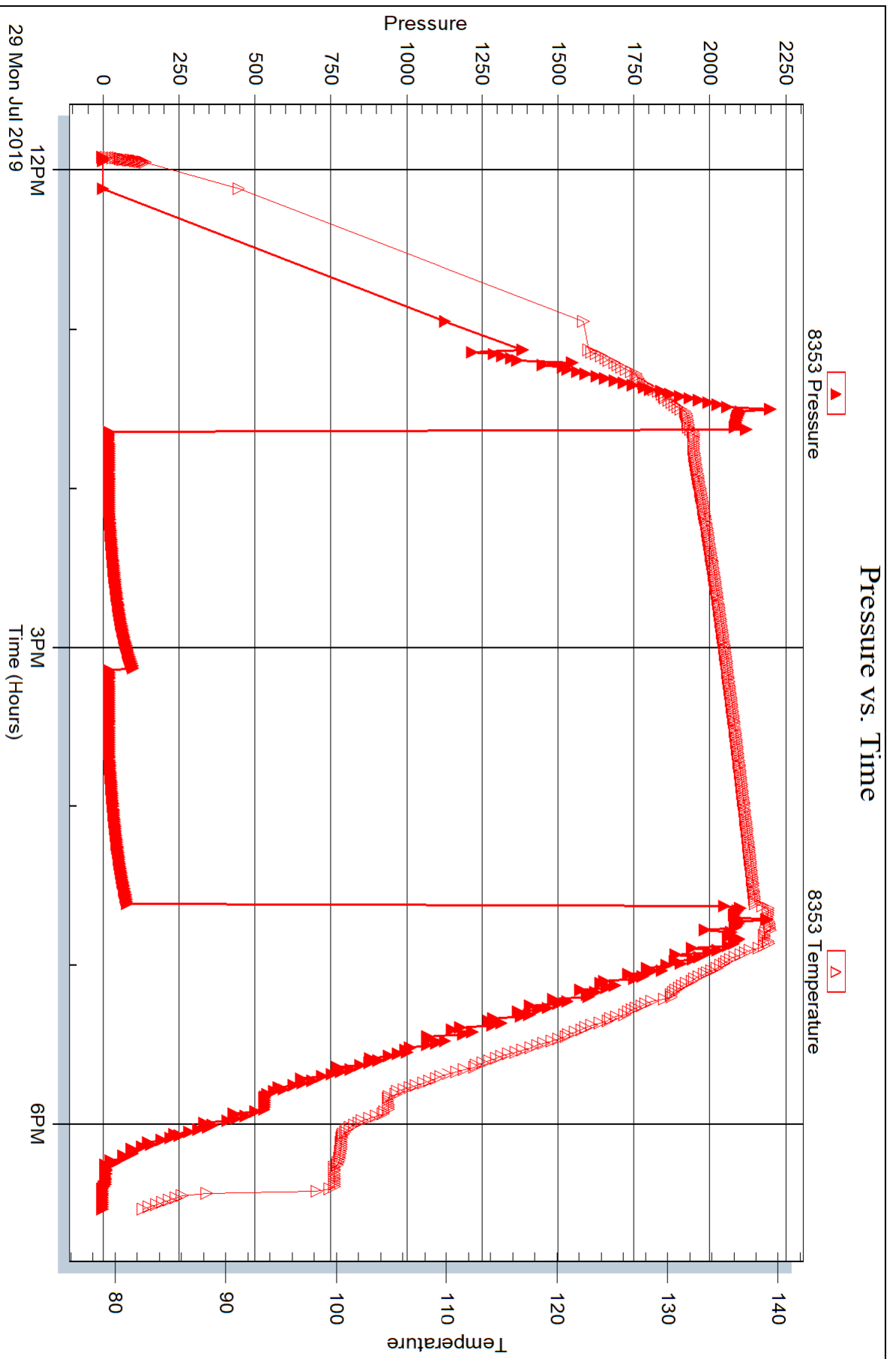
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Laing #1-19

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65270

Printed: 2019.08.02 @ 10:47:03



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Saman Sharifaie

### **Laing #1-19**

#### **19-2s-38w Cheyenne KS**

Start Date: 2019.07.30 @ 04:19:00

End Date: 2019.07.30 @ 11:58:50

Job Ticket #: 65271                      DST #: 3

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

Printed: 2019.08.02 @ 10:46:37

Murfin Drilling Co. Inc. 19-2s-38w Cheyenne KS Laing #1-19 DST # 3 LKC " B - D " 2019.07.30



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65271

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2019.07.30 @ 04:19:00

## GENERAL INFORMATION:

Formation: **LKC " B - D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:37:30

Time Test Ended: 11:58:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4320.00 ft (KB) To 4396.00 ft (KB) (TVD)**

Reference Elevations: 3389.00 ft (KB)

Total Depth: 4396.00 ft (KB) (TVD)

3384.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 387.25 psig @ 4321.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.30

End Date:

2019.07.30

Last Calib.: 2019.07.30

Start Time: 04:19:01

End Time:

11:58:50

Time On Btm: 2019.07.30 @ 06:37:10

Time Off Btm: 2019.07.30 @ 09:40:30

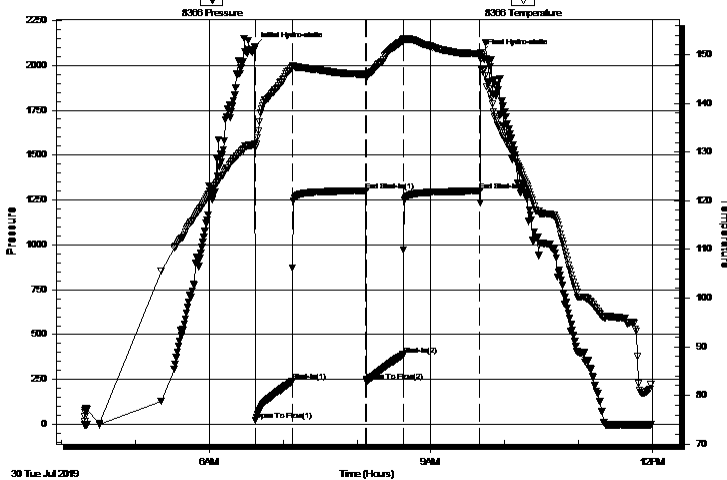
TEST COMMENT: 30 IF - BOB @ 11 1/2 mins

60 ISI - No return

30 FF - BOB @ 13 mins

60 FSI - No return

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2103.91	131.71	Initial Hydro-static
1	23.96	130.93	Open To Flow (1)
31	239.13	147.42	Shut-In(1)
90	1301.67	145.94	End Shut-In(1)
91	240.25	145.53	Open To Flow (2)
121	387.25	152.96	Shut-In(2)
183	1300.11	150.21	End Shut-In(2)
184	2068.28	149.07	Final Hydro-static

## Recovery

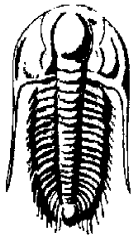
Length (ft)	Description	Volume (bbl)
60.00	WCM - 45%W - 55%M	0.30
650.00	MCW - 10%M - 90%W	8.05
170.00	WCM - 25%W - 75%M	2.38

## Gas Rates

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

\* Recovery from multiple tests





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

## DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Saman Sharifaie

**19-2s-38w Cheyenne KS**

**Laing #1-19**

Job Ticket: 65271

**DST#: 3**

Test Start: 2019.07.30 @ 04:19:00

### GENERAL INFORMATION:

Formation: **LKC " B - D "**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 06:37:30

Time Test Ended: 11:58:50

**Interval: 4320.00 ft (KB) To 4396.00 ft (KB) (TVD)**

Total Depth: 4396.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: **Good**

Test Type: **Conventional Bottom Hole (Reset)**

Tester: **Ryan Nichols**

Unit No: **71**

Reference Elevations: 3389.00 ft (KB)

3384.00 ft (CF)

KB to GR/CF: **5.00 ft**

### Serial #: 8353

Inside

Press@RunDepth: **psig @ 4321.00 ft (KB)**

Start Date: 2019.07.30

End Date:

2019.07.30

Start Time: 04:19:01

End Time:

11:58:50

Capacity: **8000.00 psig**

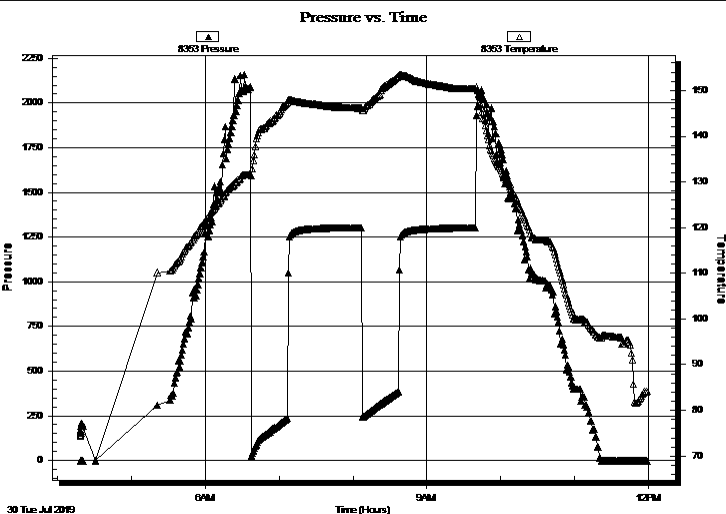
Last Calib.:

2019.07.30

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF - BOB @ 11 1/2 mins  
60 ISI - No return  
30 FF - BOB @ 13 mins  
60 FSI - No return



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
60.00	WCM - 45%W - 55%M	0.30
650.00	MCW - 10%M - 90%W	8.05
170.00	WCM - 25%W - 75%M	2.38

\* Recovery from multiple tests

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65271

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2019.07.30 @ 04:19:00

## Tool Information

Drill Pipe:	Length: 4140.00 ft	Diameter: 3.80 inches	Volume: 58.07 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.94 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4320.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	76.00 ft			
Tool Length:	104.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4297.00	
Hydraulic tool	5.00			4302.00	
Jars	5.00			4307.00	
Safety Joint	3.00			4310.00	
Packer	5.00			4315.00	28.00 Bottom Of Top Packer
Packer	5.00			4320.00	
Stubb	1.00			4321.00	
Recorder	0.00	8353	Inside	4321.00	
Recorder	0.00	8366	Outside	4321.00	
Perforations	7.00			4328.00	
Blank Spacing	65.00			4393.00	
Bullnose	3.00			4396.00	76.00 Bottom Packers & Anchor

**Total Tool Length: 104.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65271

**DST#: 3**

ATTN: Saman Sharifaie

Test Start: 2019.07.30 @ 04:19:00

## 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: 73.00 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: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	WCM - 45%W - 55%M	0.295
650.00	MCW - 10%M - 90%W	8.052
170.00	WCM - 25%W - 75%M	2.385

Total Length: 880.00 ft      Total Volume: 10.732 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

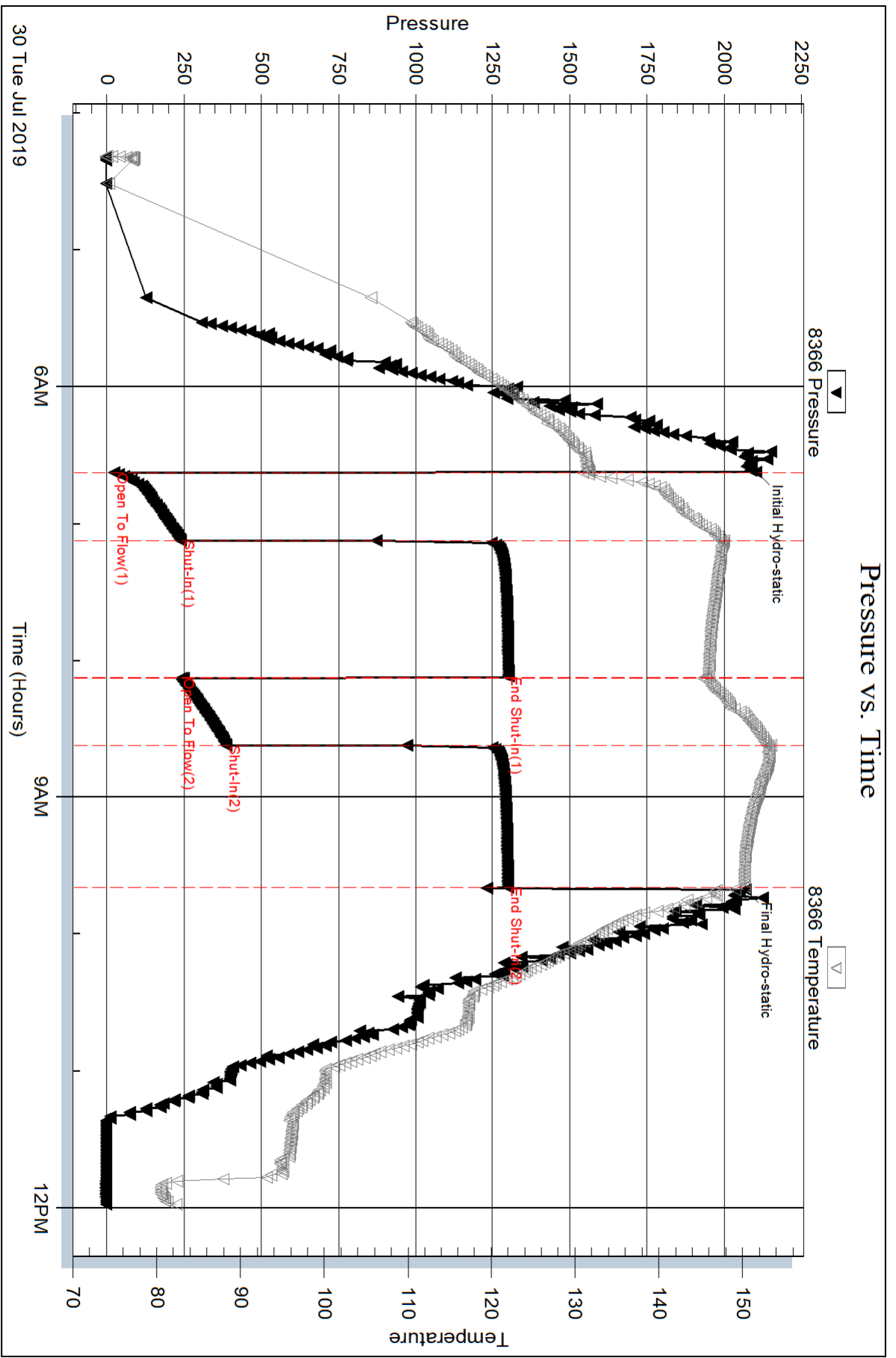
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .250 @ 78 DEG F

CHLORIDES = 24,000 PPM



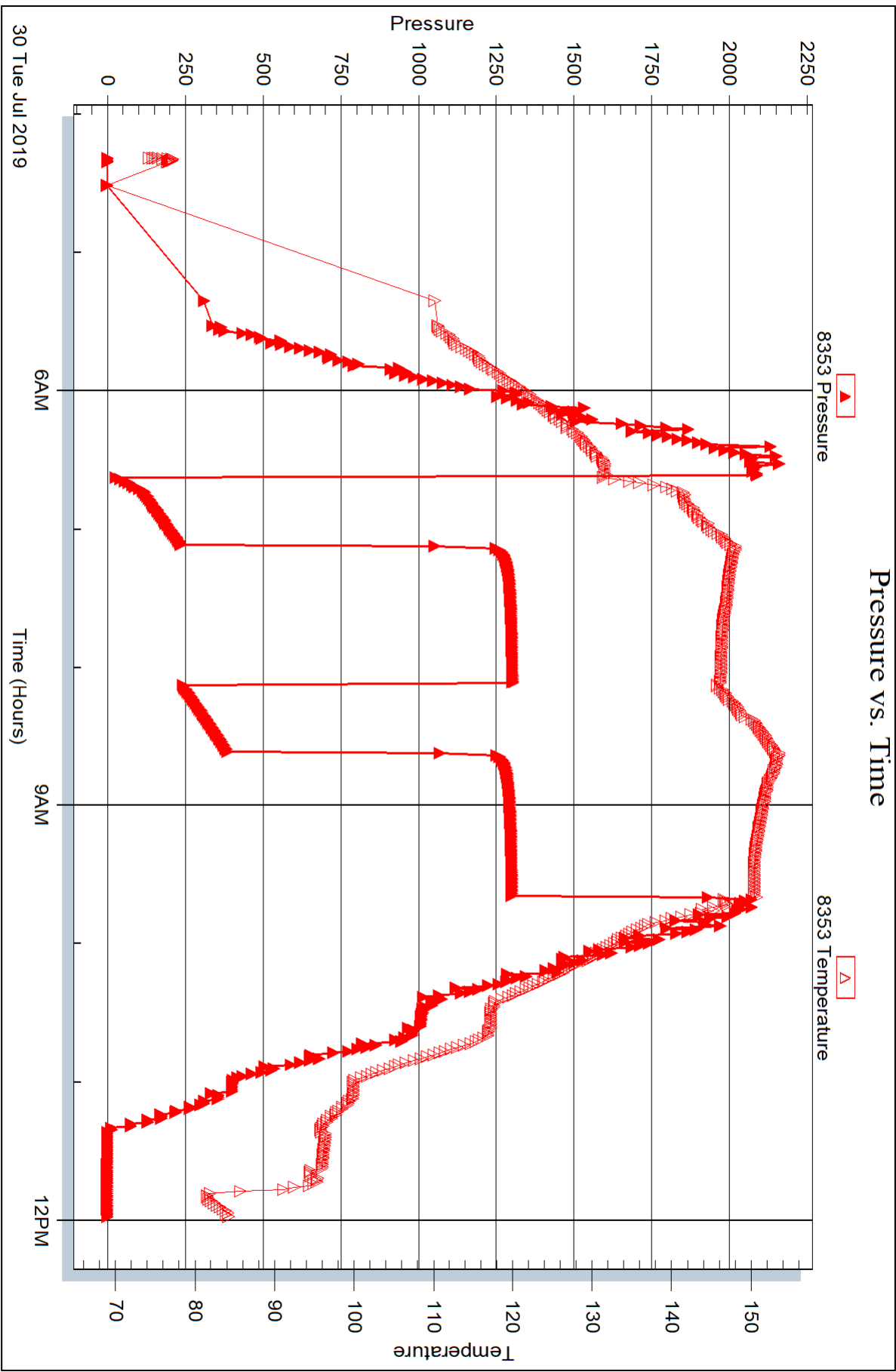
Serial #: 8353

Inside

Murfin Drilling Co. Inc.

Laing #1-19

DST Test Number: 3





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita KS 67202

ATTN: Saman Sharifaie

### **Laing #1-19**

#### **19-2s-38w Cheyenne KS**

Start Date: 2019.07.31 @ 06:12:00

End Date: 2019.07.31 @ 13:40:20

Job Ticket #: 65272                      DST #: 4

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

Printed: 2019.08.02 @ 10:46:09

Murfin Drilling Co. Inc. 19-2s-38w Cheyenne KS Laing #1-19 DST # 4 LKC " H - J " 2019.07.31



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65272

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2019.07.31 @ 06:12:00

## GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:49:20

Time Test Ended: 13:40:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

**Interval: 4446.00 ft (KB) To 4530.00 ft (KB) (TVD)**

Reference Elevations: 3389.00 ft (KB)

Total Depth: 4530.00 ft (KB) (TVD)

3384.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: 19.38 psig @ 4447.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.31

End Date:

2019.07.31

Last Calib.: 2019.07.31

Start Time: 06:12:01

End Time:

13:40:20

Time On Btm: 2019.07.31 @ 08:49:00

Time Off Btm: 2019.07.31 @ 11:50:20

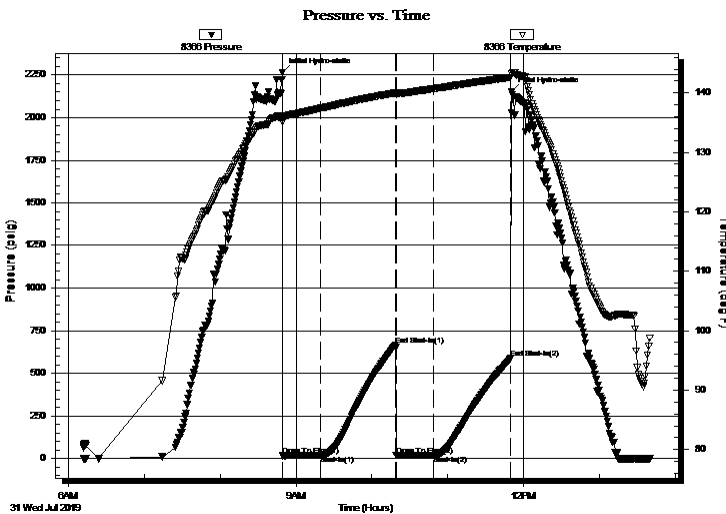
**TEST COMMENT:** 30 IF - Blow built to 1/4" died @ 28 mins

60 ISI - No return

30 FF - No blow

60 FSI - No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2265.38	136.10	Initial Hydro-static
1	15.48	135.06	Open To Flow (1)
30	17.34	137.39	Shut-In(1)
90	665.56	140.00	End Shut-In(1)
91	17.39	139.71	Open To Flow (2)
120	19.38	140.71	Shut-In(2)
181	586.79	142.62	End Shut-In(2)
182	2149.78	143.16	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

Murfin Drilling Co. Inc.  
250 N. Water STE 300  
Wichita KS 67202  
ATTN: Saman Sharifaie

**19-2s-38w Cheyenne KS**

**Laing #1-19**

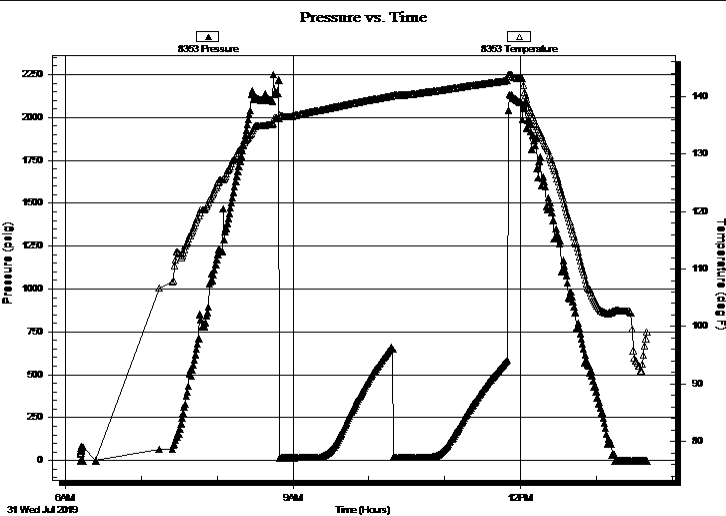
Job Ticket: 65272      **DST#: 4**  
Test Start: 2019.07.31 @ 06:12:00

## GENERAL INFORMATION:

Formation: <b>LKC " H - J "</b>		
Deviated: No Whipstock:      ft (KB)	Test Type: Conventional Bottom Hole (Reset)	
Time Tool Opened: 08:49:20	Tester: Ryan Nichols	
Time Test Ended: 13:40:20	Unit No: 71	
<b>Interval: 4446.00 ft (KB) To 4530.00 ft (KB) (TVD)</b>	Reference Elevations: 3389.00 ft (KB)	
Total Depth: 4530.00 ft (KB) (TVD)	3384.00 ft (CF)	
Hole Diameter: 7.88 inches Hole Condition: Good	KB to GR/CF: 5.00 ft	

<b>Serial #: 8353</b>	<b>Inside</b>				
Press@RunDepth:      psig @ 4447.00 ft (KB)	Capacity: 8000.00 psig				
Start Date: 2019.07.31      End Date: 2019.07.31	Last Calib.: 2019.07.31				
Start Time: 06:12:01      End Time: 13:40:10	Time On Btm:				
	Time Off Btm:				

**TEST COMMENT:** 30 IF - Blow built to 1/4" died @ 28 mins  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return



## PRESSURE SUMMARY

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

## Recovery

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

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65272

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2019.07.31 @ 06:12:00

## Tool Information

Drill Pipe:	Length: 4266.00 ft	Diameter: 3.80 inches	Volume: 59.84 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4446.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.00 ft			
Tool Length:	112.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4423.00	
Hydraulic tool	5.00			4428.00	
Jars	5.00			4433.00	
Safety Joint	3.00			4436.00	
Packer	5.00			4441.00	28.00 Bottom Of Top Packer
Packer	5.00			4446.00	
Stubb	1.00			4447.00	
Recorder	0.00	8353	Inside	4447.00	
Recorder	0.00	8366	Outside	4447.00	
Perforations	15.00			4462.00	
Blank Spacing	65.00			4527.00	
Bullnose	3.00			4530.00	84.00 Bottom Packers & Anchor

**Total Tool Length: 112.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co. Inc.

**19-2s-38w Cheyenne KS**

250 N. Water STE 300  
Wichita KS 67202

**Laing #1-19**

Job Ticket: 65272

**DST#: 4**

ATTN: Saman Sharifaie

Test Start: 2019.07.31 @ 06:12:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%M	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

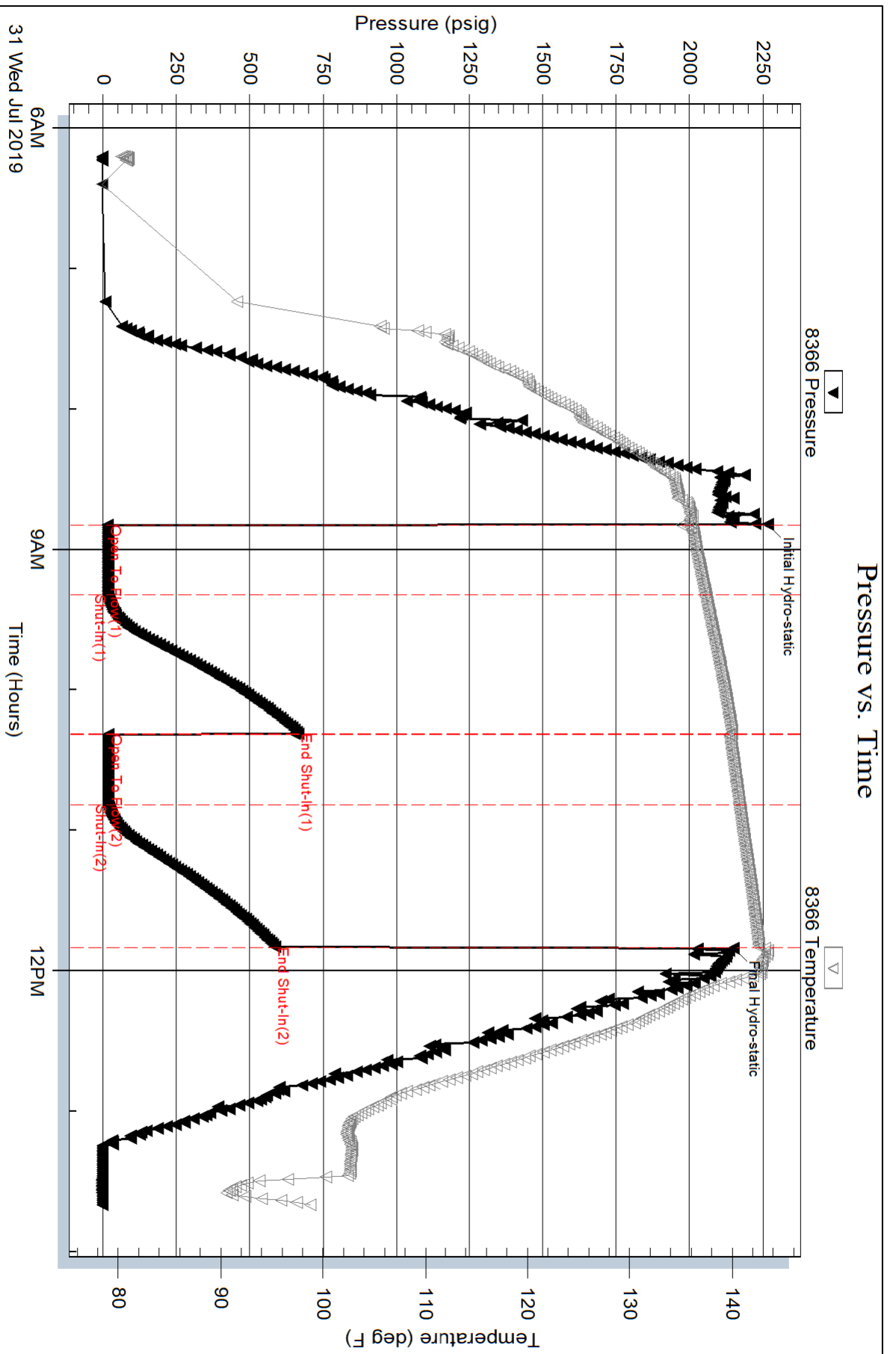
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



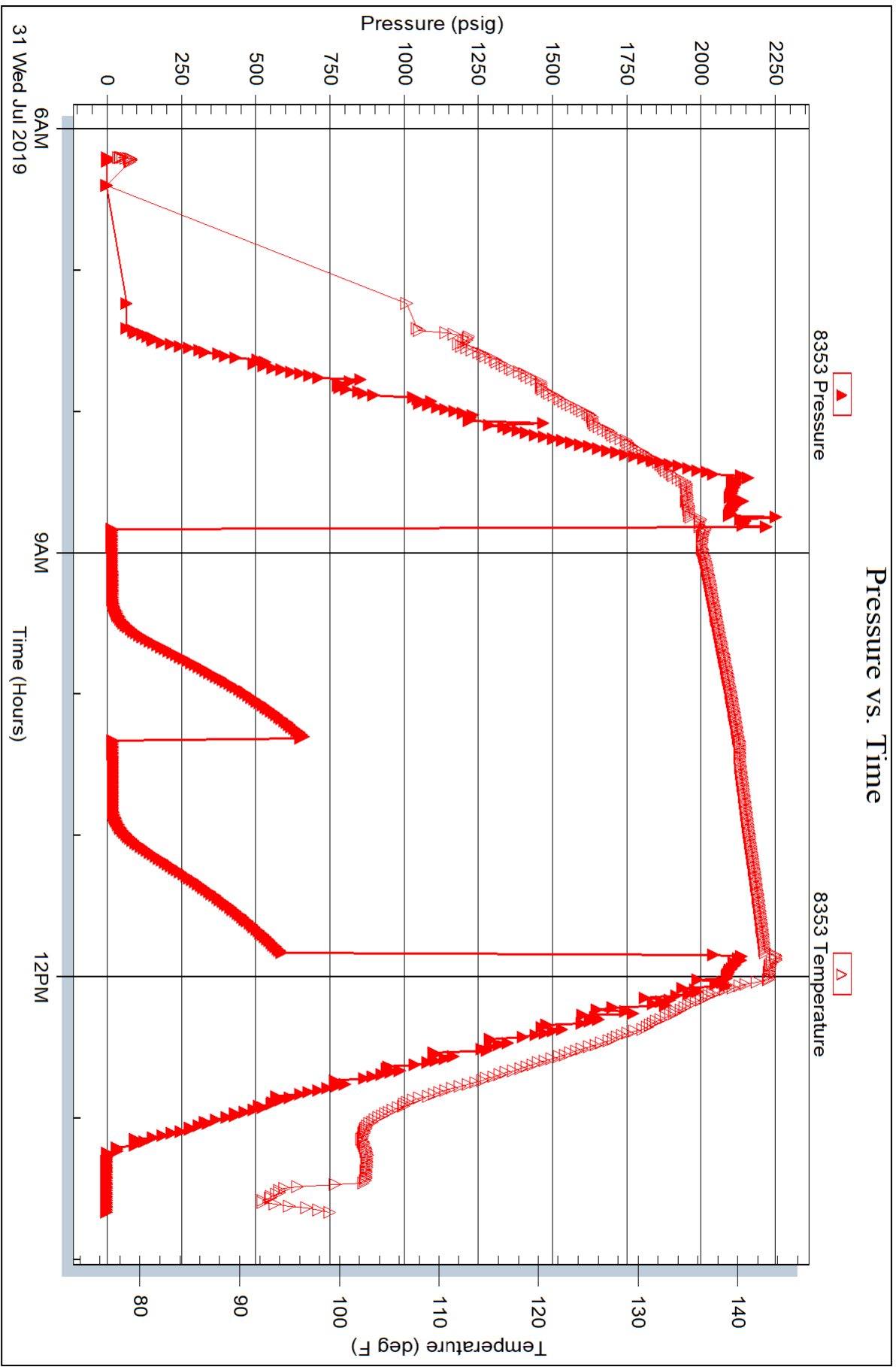
Serial #: 8353

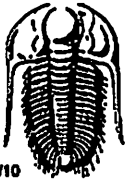
Inside

Murfin Drilling Co. Inc.

Laing #1-19

DST Test Number: 4





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65269

Well Name & No. Laing # 1-19 Test No. 1 Date 7/28/19  
 Company Murfin Drilling Co. Inc. Elevation 3389 KB 3384 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Saman Sharifie Rig Murfin # 3  
 Location: Sec. 19 Twp 25 Rge. 38 W Co. Cheyenne State KS

Interval Tested 4196 - 4270 Zone Tested Oread  
 Anchor Length 74' Drill Pipe Run 4016' Mud Wt. 8.8  
 Top Packer Depth 4191 Drill Collars Run 177' Vis 64  
 Bottom Packer Depth 4196 Wt. Pipe Run 0' WL 6.8  
 Total Depth 4270 Chlorides 1200 ppm System LCM 4  
 Blow Description 30 IF - Surface blow died @ 23 mins  
60 ISI - No return  
30 EF - No blow  
60 FSI - No return

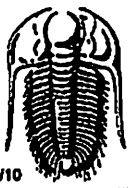
Rec	Feet of	%gas	%oil	%water	%mud
<u>2'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2' BHT 140° Gravity < API RW < @ < F Chlorides < ppm

(A) Initial Hydrostatic <u>2069</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>18:45</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>19:12</u>
(C) First Final Flow <u>16</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:40</u>
(D) Initial Shut-In <u>66</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>00:38</u>
(E) Second Initial Flow <u>16</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>02:25</u>
(F) Second Final Flow <u>17</u>	<input checked="" type="checkbox"/> Mileage <u>135 RT</u> <u>135</u>	Comments
(G) Final Shut-In <u>54</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1926</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
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>1760</u>
	Sub Total <u>1760</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Ry 2 Nicks

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. 65270

Well Name & No. Laing #1-19 Test No. 2 Date 7/29/19  
 Company Martin Drilling Co. Inc. Elevation 3389 KB 3384 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Saman Sharif Rig Martin # 3  
 Location: Sec. 19 Twp 2S Rge. 38W Co. Cheyenne State KS

Interval Tested 4264 - 4330 Zone Tested LKC "A"  
 Anchor Length 66' Drill Pipe Run 4078' Mud Wt. 9.0  
 Top Packer Depth 4259 Drill Collars Run 177' Vis 62  
 Bottom Packer Depth 4264 Wt. Pipe Run 0' WL 6.8  
 Total Depth 4330 Chlorides 1100 ppm System LCM 3  
 Blow Description 30 IF - Blow built to 1/4" died to surface  
60 ISI - No return  
30 FF - No blow  
60 FSI - No return

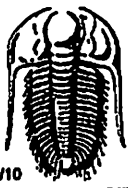
Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 138° Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>2120</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>11:30</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:55</u>
(C) First Final Flow <u>20</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:38</u>
(D) Initial Shut-In <u>99</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>16:38</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>18:30</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>135 RT</u> <sup>135</sup>	Comments
(G) Final Shut-In <u>80</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2031</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
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>10</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1760</u>
	Sub Total <u>1760</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Ag 2 Wilb

Triobite 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. 65271

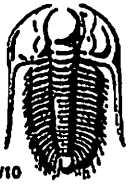
Well Name & No. Lains # 1-19 Test No. 3 Date 7/30/19  
 Company Martin Drilling Co. Inc. Elevation 3389 KB 3384 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Saman Sharifie Rig Martin # 3  
 Location: Sec. 19 Twp 25 Rge. 38W Co. Cheyenne State KS

Interval Tested 4320 - 4396 Zone Tested LKC "B-D"  
 Anchor Length 76' Drill Pipe Run 4140' Mud Wt. 9.1  
 Top Packer Depth 4315 Drill Collars Run 177' Vis 73  
 Bottom Packer Depth 4320 Wt. Pipe Run 0' WL 6.0  
 Total Depth 4396 Chlorides 1100 ppm System LCM 4  
 Blow Description 30 IF - BoB @ 11 1/2 mins  
60 ISI - No return  
30 FF - BoB @ 13 mins  
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>170</u>	<u>WCM</u>		<u>25</u>	<u>75</u>	
<u>650</u>	<u>MCW</u>		<u>90</u>	<u>10</u>	
<u>60</u>	<u>WCM</u>		<u>45</u>	<u>55</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 680' BHT 150° Gravity — API RW 250 @ 78 °F Chlorides 24,000 ppm  
 (A) Initial Hydrostatic 2104  Test 1300 T-On Location 03:45  
 (B) First Initial Flow 24  Jars 250 T-Started 04:19  
 (C) First Final Flow 239  Safety Joint 75 T-Open 06:37  
 (D) Initial Shut-In 1302  Circ Sub \_\_\_\_\_ T-Pulled 09:39  
 (E) Second Initial Flow 240  Hourly Standby \_\_\_\_\_ T-Out 12:00  
 (F) Second Final Flow 387  Mileage 135 XT 135 Comments \_\_\_\_\_  
 (G) Final Shut-In 1300  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2068  Straddle \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1760 Sub Total 0  
 Total 1760 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65272

Well Name & No. Laing # 1-19 Test No. 4 Date 7/31/19  
 Company Murfin Drilling Co. Inc. Elevation 3389 KB 3384 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Saman Sharifie Rig Murfin # 3  
 Location: Sec. 19 Twp 25 Rge. 38W Co. Cheyenne State KS

Interval Tested 4446 - 4530 Zone Tested LKC "H-J"  
 Anchor Length 84' Drill Pipe Run 4266' Mud Wt. 9.0  
 Top Packer Depth 4441 Drill Collars Run 177' Vis 62  
 Bottom Packer Depth 4446 Wt. Pipe Run 0' WL 5.6  
 Total Depth 4530 Chlorides 1000 ppm System LCM 5  
 Blow Description 30 IF - Blow built to 1/4" died @ 28 mins  
60 ISL - No return  
30 FF - No blow  
60 FSI - No return

Rec	Feet of	%gas	Spots	%oil	%water	%mud
5'	OS Mud				100	

Rec Total 5' BHT 143° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2265  Test 1300 T-On Location 05:30  
 (B) First Initial Flow 15  Jars 250 T-Started 06:12  
 (C) First Final Flow 17  Safety Joint 75 T-Open 08:49  
 (D) Initial Shut-In 666  Circ Sub — T-Pulled 11:49  
 (E) Second Initial Flow 17  Hourly Standby — T-Out 13:30  
 (F) Second Final Flow 19  Mileage 135 RTx2 Comments Loaded tools  
 (G) Final Shut-In 567  Sampler 135+135 @ 8:00 on 8/2/19  
 (H) Final Hydrostatic 2150  Straddle —  EM Tool —  
 Shale Packer —  Ruined Shale Packer —  
 Extra Packer —  Ruined Packer —  
 Extra Recorder —  Extra Copies —  
 Day Standby 1.5d 6.5h Sub Total 800  
 Accessibility — Total 2695  
 Sub Total 1895 MP/DST Disc't —

Approved By \_\_\_\_\_ Our Representative Ry 2 Nishid  
 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.