



## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.10 @ 04:58:00

End Date: 2019.07.10 @ 14:07:30

Job Ticket #: 64362                      DST #: 1

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

Printed: 2019.07.16 @ 10:52:27



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
 250 N Water St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

**12-13s-33w Logan,KS**  
**Racette #3-12**  
 Job Ticket: 64362 **DST#: 1**  
 Test Start: 2019.07.10 @ 04:58:00

## GENERAL INFORMATION:

Formation: **LKC H**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 08:09:15 Tester: Bradley Walter  
 Time Test Ended: 14:07:30 Unit No: 78  
 Interval: **4157.00 ft (KB) To 4189.00 ft (KB) (TVD)** Reference Elevations: 3045.00 ft (KB)  
 Total Depth: 4189.00 ft (KB) (TVD) 3034.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

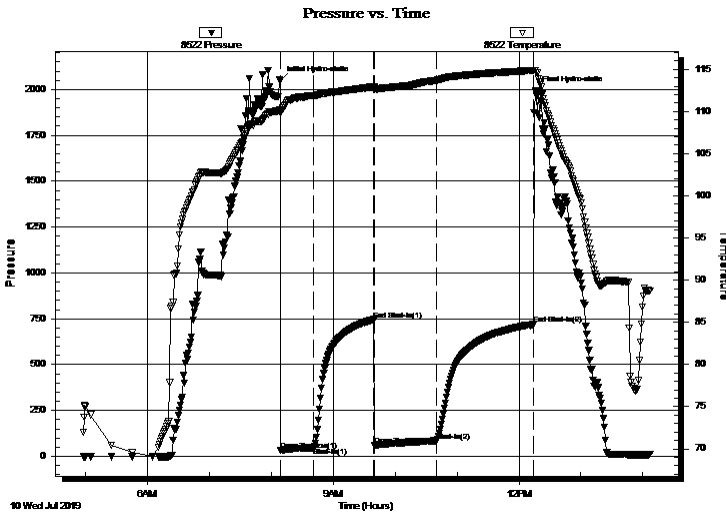
## Serial #: 8522

Inside

Press@RunDepth: 84.51 psig @ 4158.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.07.10 End Date: 2019.07.10 Last Calib.: 2019.07.10  
 Start Time: 04:58:05 End Time: 14:07:30 Time On Btm: 2019.07.10 @ 08:08:30  
 Time Off Btm: 2019.07.10 @ 12:15:45

TEST COMMENT: 30- IF: 3" blow .  
 60- IS: No return  
 60- FF: 1/2" blow .  
 90- FSI: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2048.55	110.15	Initial Hydro-static
1	33.90	109.82	Open To Flow (1)
33	47.15	111.84	Shut-In(1)
91	745.25	112.91	End Shut-In(1)
92	60.95	112.82	Open To Flow (2)
152	84.51	113.67	Shut-In(2)
246	718.97	114.85	End Shut-In(2)
248	1992.58	114.82	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	sow cm 1o 39w 60m	0.30
70.00	ocm 20o 80m	0.34
10.00	oil 100o	0.05

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64362

**DST#: 1**

ATTN: Tom Funk

Test Start: 2019.07.10 @ 04:58:00

## Tool Information

Drill Pipe:	Length: 3857.00 ft	Diameter: 3.80 inches	Volume: 54.10 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 55.45 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	2.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4157.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	59.00 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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Change Over Sub	1.00			4131.00	
Shut In Tool	5.00		Fluid	4136.00	
Hydraulic tool	5.00			4141.00	
Jars	5.00			4146.00	
Safety Joint	2.00			4148.00	
Packer	5.00		Inside	4153.00	27.00 Bottom Of Top Packer
Packer	4.00			4157.00	
Stubb	1.00			4158.00	
Recorder	0.00	8522	Inside	4158.00	
Recorder	0.00	8319	Outside	4158.00	
Perforations	28.00			4186.00	
Bullnose	3.00			4189.00	32.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



**TRILOBITE  
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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Murfin Drilling Co, Inc  
250 N Water St Ste 300  
Wichita, KS 67202  
ATTN: Tom Funk

**12-13s-33w Logan,KS**  
**Racette #3-12**  
Job Ticket: 64362      **DST#: 1**  
Test Start: 2019.07.10 @ 04:58:00

**Mud and Cushion Information**

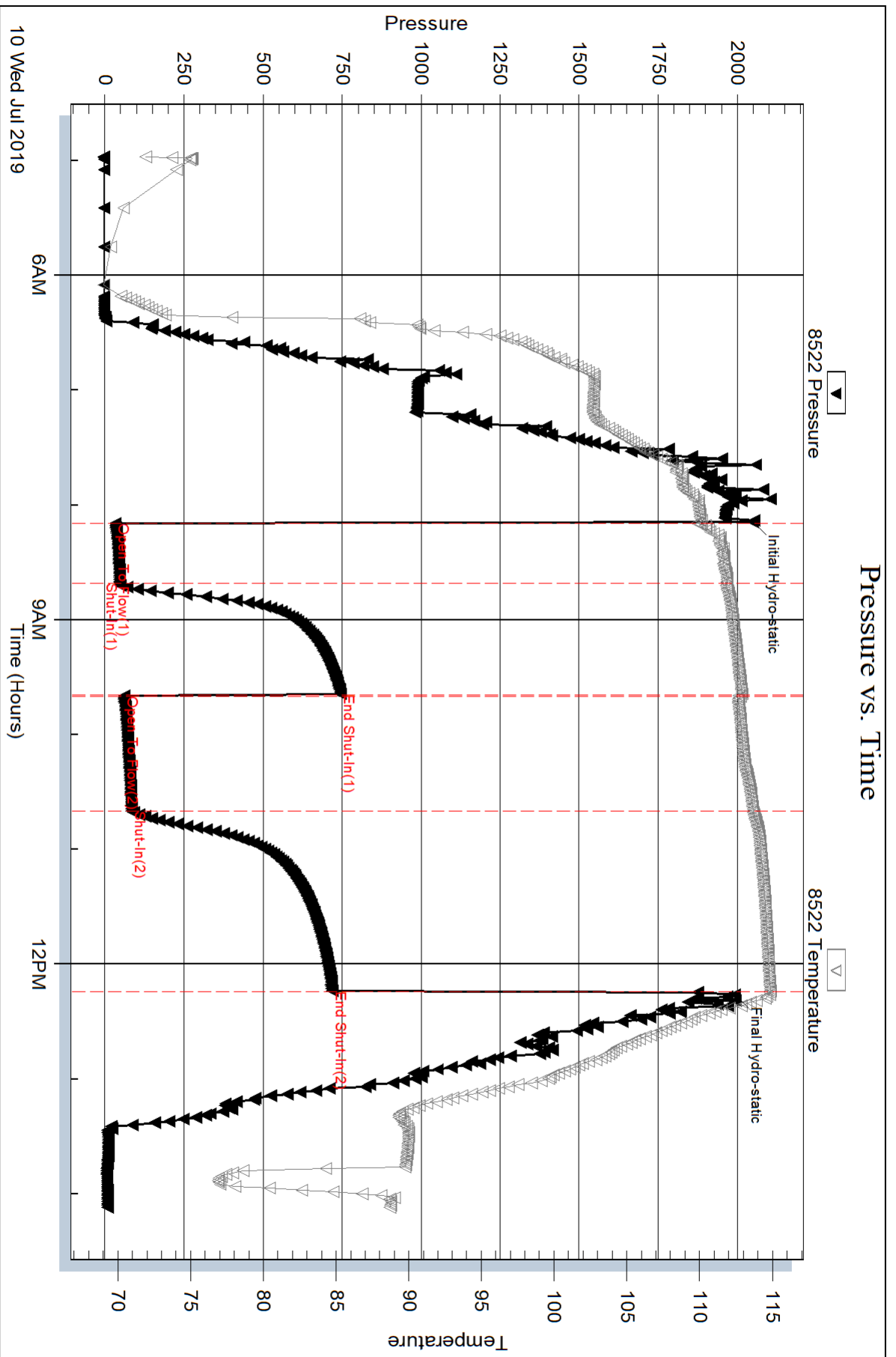
Mud Type: Gel Chem	Cushion Type:	Oil API: 36 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 48000 ppm
Viscosity: 62.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.78 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 5900.00 ppm		
Filter Cake: 1.00 inches		

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
60.00	sow cm 1o 39w 60m	0.295
70.00	ocm 20o 80m	0.344
10.00	oil 100o	0.049

Total Length: 140.00 ft      Total Volume: 0.688 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: rw is .143 @ 85f = 48000ppm

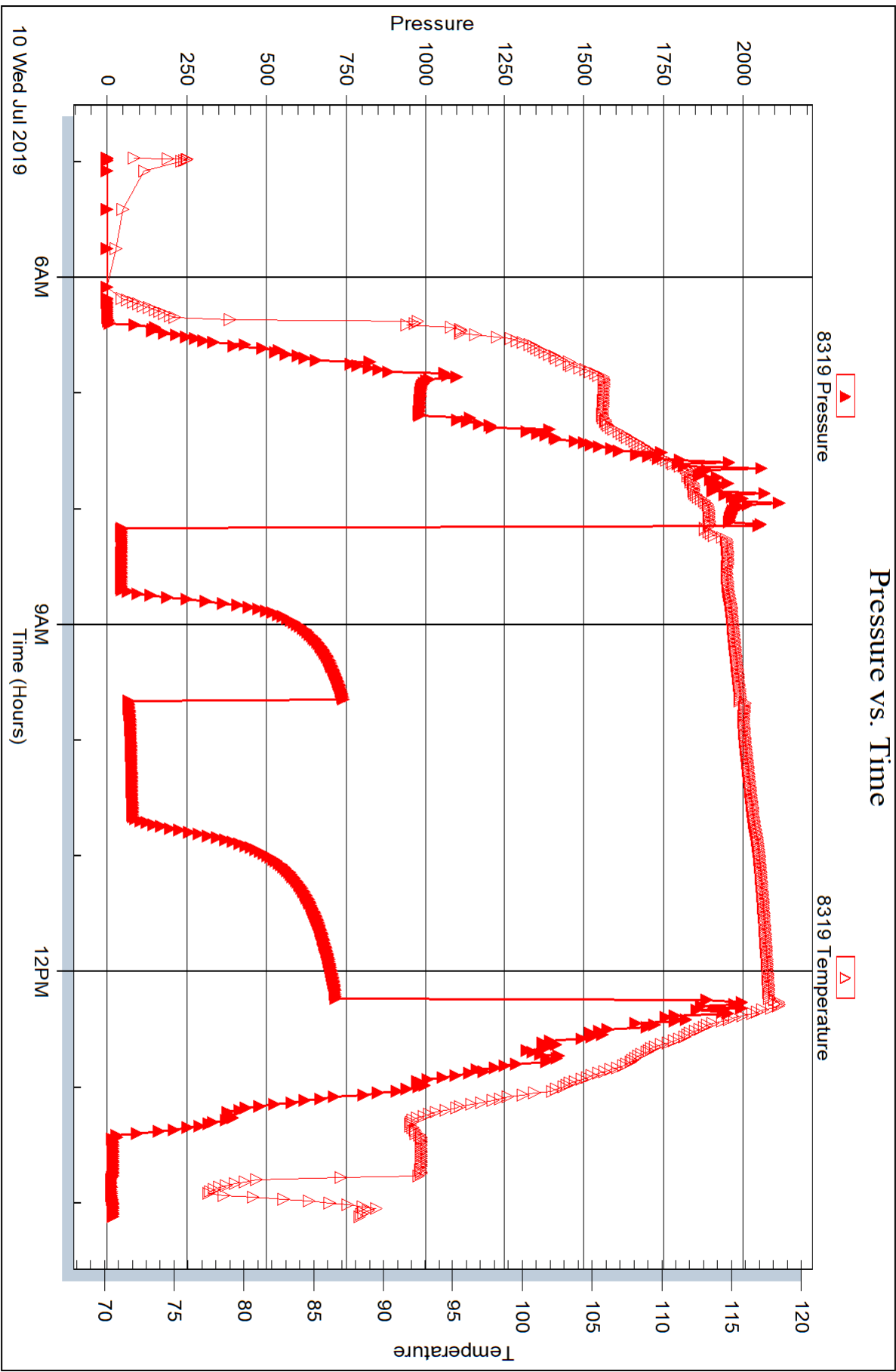


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.11 @ 01:50:05

End Date: 2019.07.11 @ 09:35:59

Job Ticket #: 64363                      DST #: 2

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

Printed: 2019.07.16 @ 10:51:58





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
250 N Water St Ste 300  
Wichita, KS 67202  
ATTN: Tom Funk

**12-13s-33w Logan,KS**  
**Racette #3-12**  
Job Ticket: 64363      **DST#: 2**  
Test Start: 2019.07.11 @ 01:50:05

## GENERAL INFORMATION:

Formation: **LKC I - K**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 03:48:15  
Time Test Ended: 09:35:59  
Interval: **4191.00 ft (KB) To 4275.00 ft (KB) (TVD)**  
Total Depth: 4275.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Bradley Walter  
Unit No: 78  
Reference Elevations: 3045.00 ft (KB)  
3034.00 ft (CF)  
KB to GR/CF: 11.00 ft

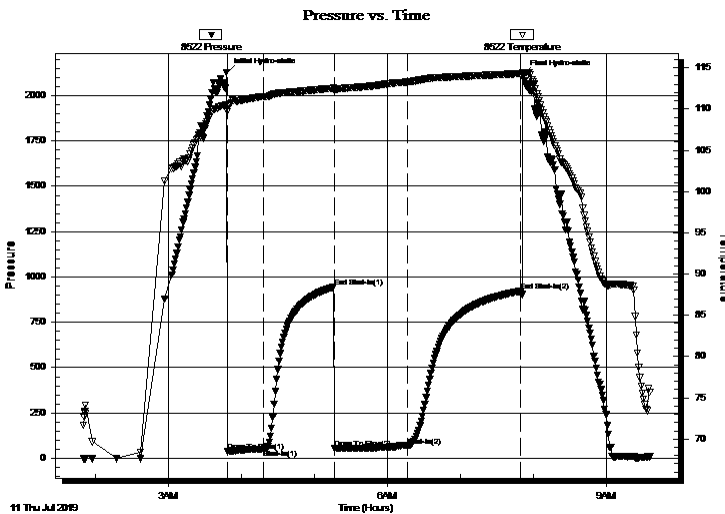
## Serial #: 8522

Inside

Press@RunDepth: 69.29 psig @ 4192.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2019.07.11 End Date: 2019.07.11 Last Calib.: 2019.07.11  
Start Time: 01:50:05 End Time: 09:35:59 Time On Btm: 2019.07.11 @ 03:48:00  
Time Off Btm: 2019.07.11 @ 07:51:30

TEST COMMENT: 30- IF: 1.5" blow .  
60- IS: No return.  
60- FF: Surface blow , Died @ 30 min.  
90- FSI: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2127.20	110.56	Initial Hydro-static
1	38.89	109.67	Open To Flow (1)
30	51.58	111.49	Shut-In(1)
88	943.72	112.53	End Shut-In(1)
89	54.43	112.23	Open To Flow (2)
149	69.29	113.28	Shut-In(2)
242	921.72	114.29	End Shut-In(2)
244	2116.69	114.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
90.00	socm 2o 98m	0.44

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

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 250 N Water St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

12-13s-33w Logan, KS  
 Racette #3-12  
 Job Ticket: 64363      **DST#: 2**  
 Test Start: 2019.07.11 @ 01:50:05

### GENERAL INFORMATION:

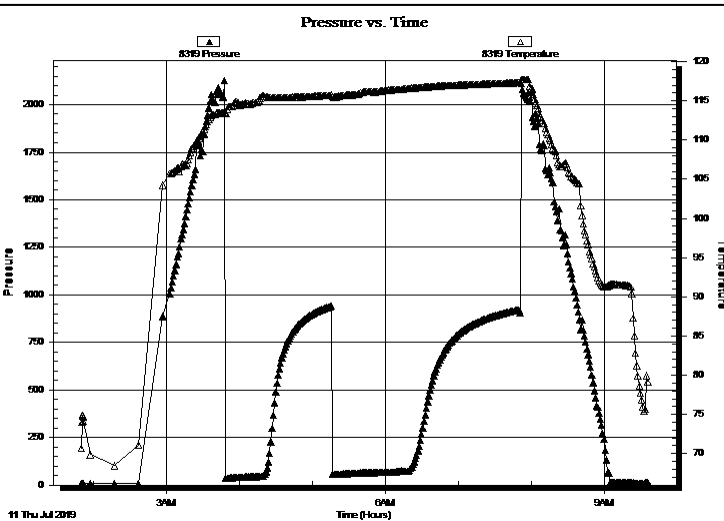
Formation: **LKC I - K**  
 Deviated: No Whipstock:                                  ft (KB)  
 Time Tool Opened: 03:48:15  
 Time Test Ended: 09:35:59  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
**Interval: 4191.00 ft (KB) To 4275.00 ft (KB) (TVD)**  
 Total Depth: 4275.00 ft (KB) (TVD)  
 Reference Elevations: 3045.00 ft (KB)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 KB to GR/CF: 11.00 ft

### Serial #: 8319

### Outside

Press@RunDepth:                                  psig @ 4192.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2019.07.11      End Date: 2019.07.11      Last Calib.: 2019.07.11  
 Start Time: 01:50:05      End Time: 09:35:59      Time On Btm:  
    Time Off Btm:

**TEST COMMENT:** 30- IF: 1.5" blow .  
 60- ISI: No return.  
 60- FF: Surface blow , Died @ 30 min.  
 90- FSI: No return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
90.00	socm 2o 98m	0.44

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64363

**DST#: 2**

ATTN: Tom Funk

Test Start: 2019.07.11 @ 01:50:05

### Tool Information

Drill Pipe:	Length: 3890.00 ft	Diameter: 3.80 inches	Volume: 54.57 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose:	85000.00 lb
			<u>Total Volume: 55.92 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	1.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4191.00 ft			Final	72000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	84.00 ft				
Tool Length:	111.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		
Tool Comments:					

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4165.00	
Shut In Tool	5.00		Fluid	4170.00	
Hydraulic tool	5.00			4175.00	
Jars	5.00			4180.00	
Safety Joint	2.00			4182.00	
Packer	5.00		Inside	4187.00	27.00 Bottom Of Top Packer
Packer	4.00			4191.00	
Stubb	1.00			4192.00	
Recorder	0.00	8522	Inside	4192.00	
Recorder	0.00	8319	Outside	4192.00	
Perforations	15.00			4207.00	
Change Over Sub	1.00			4208.00	
Drill Pipe	63.00			4271.00	
Change Over Sub	1.00			4272.00	
Bullnose	3.00			4275.00	84.00 Bottom Packers & Anchor

**Total Tool Length: 111.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64363

**DST#: 2**

ATTN: Tom Funk

Test Start: 2019.07.11 @ 01:50:05

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	socm 2o 98m	0.443

Total Length: 90.00 ft      Total Volume: 0.443 bbl

Num Fluid Samples: 0

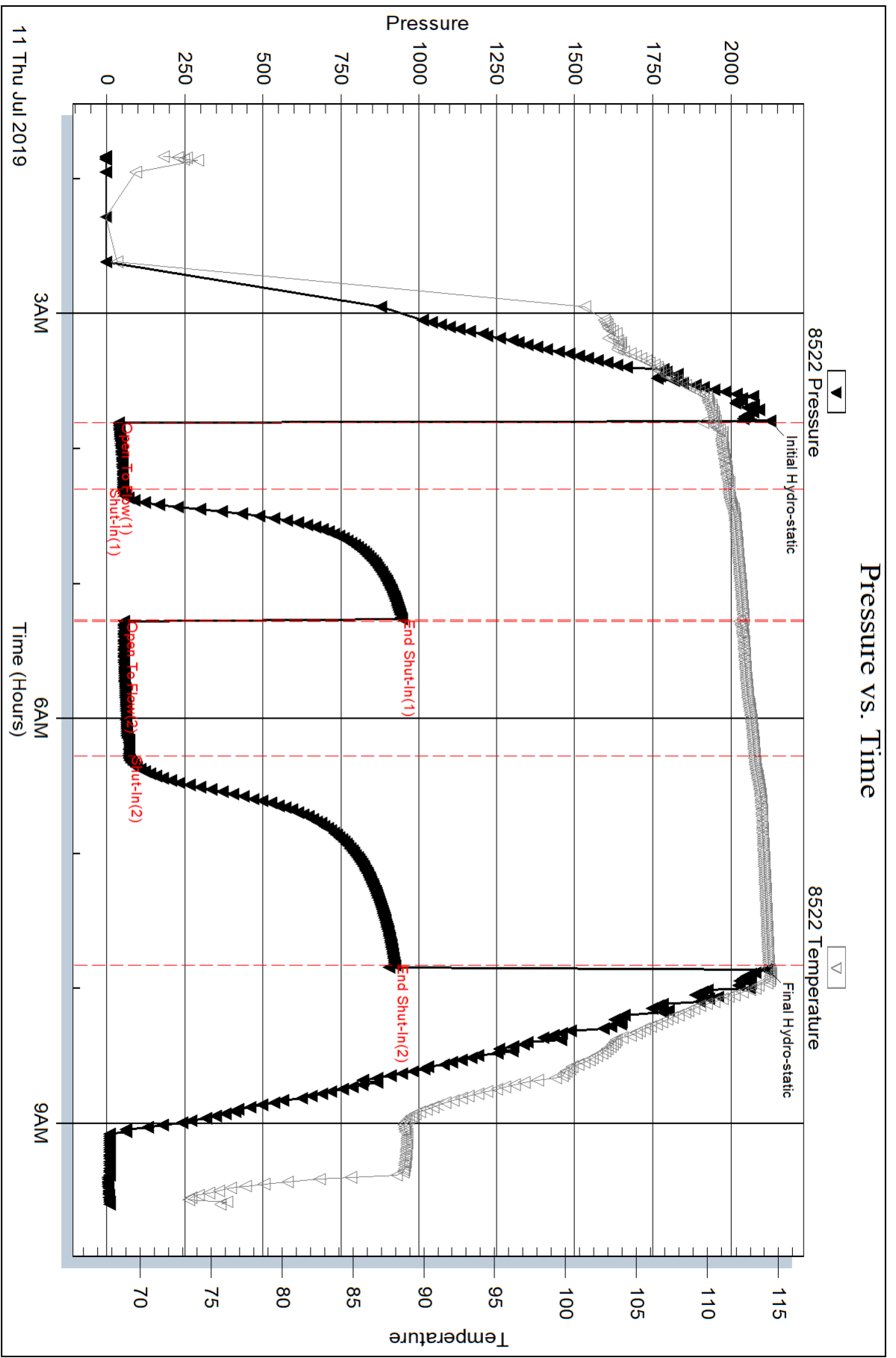
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

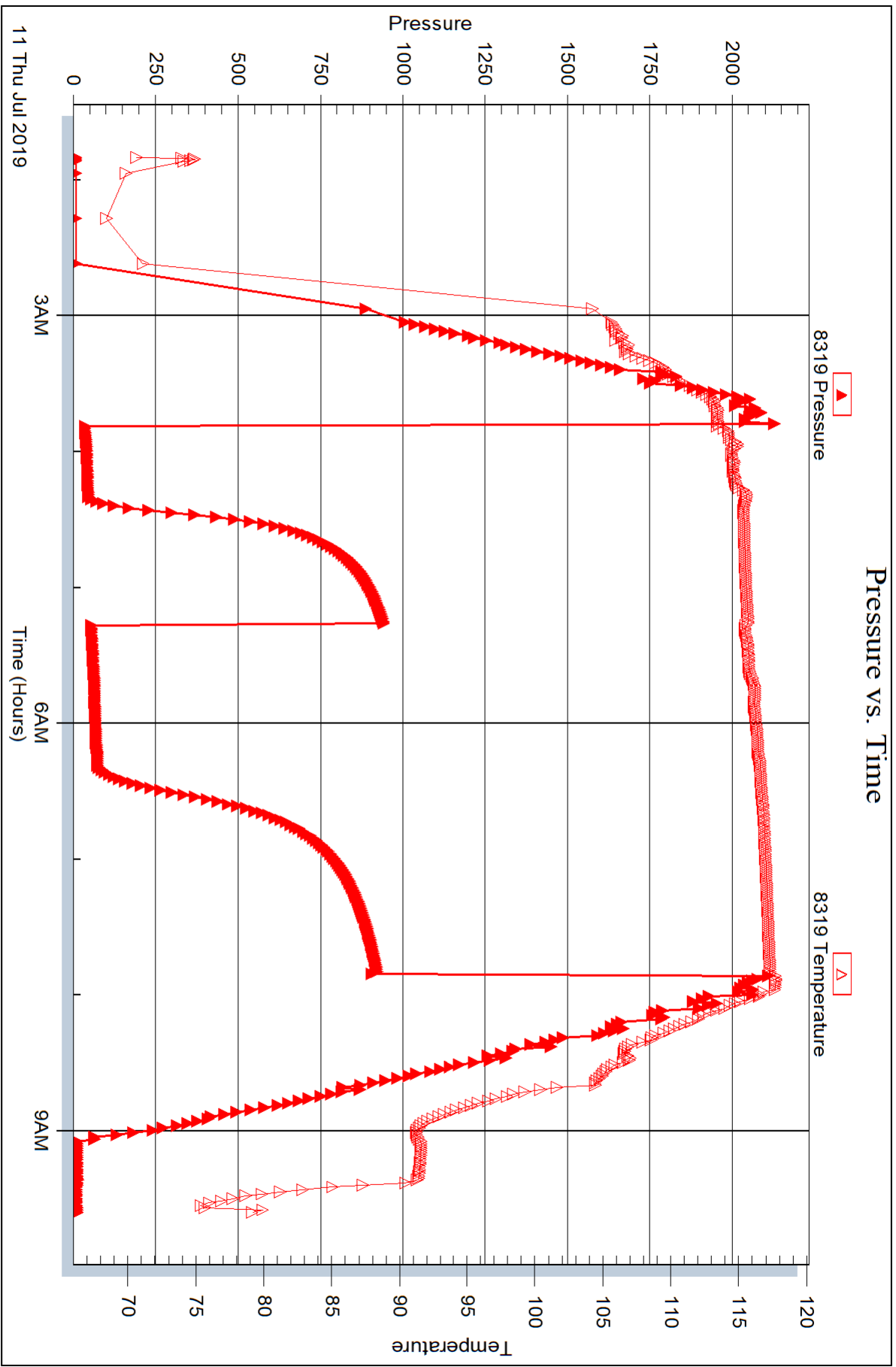


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.12 @ 00:34:00

End Date: 2019.07.12 @ 08:51:45

Job Ticket #: 64364                      DST #: 3

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

Printed: 2019.07.16 @ 10:51:33



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
250 N Water St Ste 300  
Wichita, KS 67202  
ATTN: Tom Funk

**12-13s-33w Logan,KS**  
**Racette #3-12**  
Job Ticket: 64364      **DST#: 3**  
Test Start: 2019.07.12 @ 00:34:00

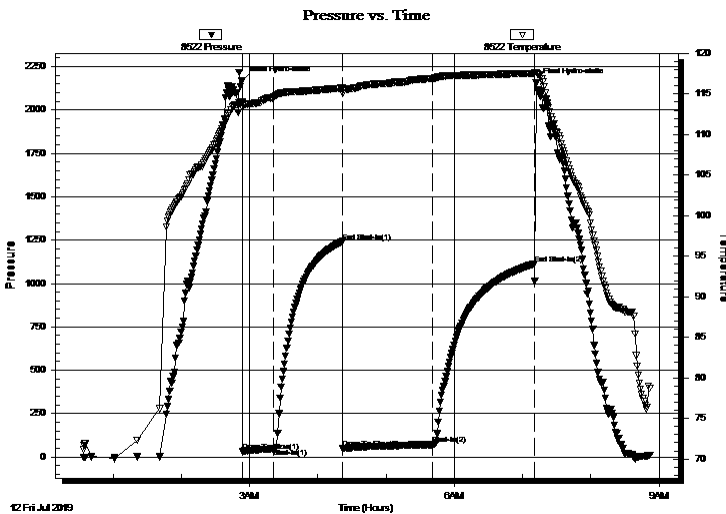
## GENERAL INFORMATION:

Formation: **Altamont**  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 02:53:45  
Time Test Ended: 08:51:45  
Interval: **4337.00 ft (KB) To 4435.00 ft (KB) (TVD)**  
Total Depth: 4435.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches      Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Bradley Walter  
Unit No: 78  
Reference Elevations: 3045.00 ft (KB)  
3034.00 ft (CF)  
KB to GR/CF: 11.00 ft

**Serial #: 8522      Inside**  
Press@RunDepth: 71.56 psig @ 4338.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2019.07.12      End Date: 2019.07.12      Last Calib.: 2019.07.12  
Start Time: 00:34:05      End Time: 08:51:44      Time On Btm: 2019.07.12 @ 02:53:30  
Time Off Btm: 2019.07.12 @ 07:11:45

**TEST COMMENT:** 30- IF: 1 1/2" blow .  
60- IS: No return.  
60- FF: 1/2" blow , receded to surface.  
90- FSI: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2167.23	114.01	Initial Hydro-static
1	34.19	113.36	Open To Flow (1)
28	47.67	114.63	Shut-In(1)
89	1242.02	115.74	End Shut-In(1)
89	50.50	115.10	Open To Flow (2)
167	71.56	116.88	Shut-In(2)
257	1113.43	117.57	End Shut-In(2)
259	2154.43	117.67	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
110.00	Mud 100Mw oil spots	0.54

\* 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 St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

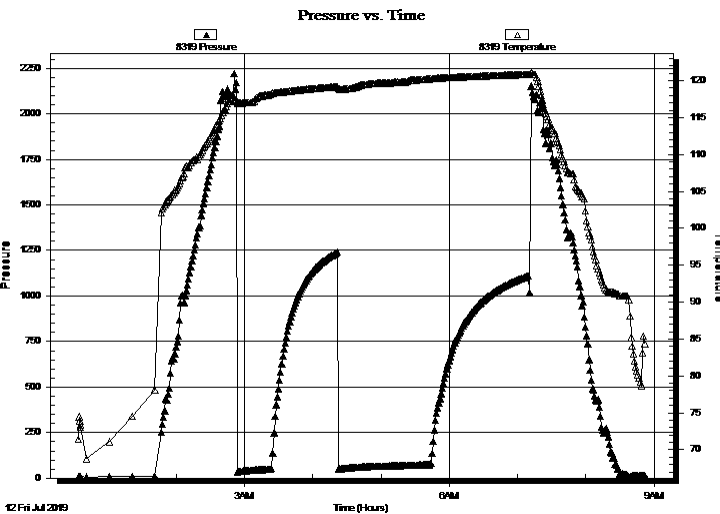
**12-13s-33w Logan,KS**  
**Racette #3-12**  
 Job Ticket: 64364 **DST#: 3**  
 Test Start: 2019.07.12 @ 00:34:00

## GENERAL INFORMATION:

Formation: **Altamont**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 02:53:45 Tester: Bradley Walter  
 Time Test Ended: 08:51:45 Unit No: 78  
 Interval: **4337.00 ft (KB) To 4435.00 ft (KB) (TVD)** Reference Elevations: 3045.00 ft (KB)  
 Total Depth: 4435.00 ft (KB) (TVD) 3034.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 8319 Outside**  
 Press@RunDepth: psig @ 4338.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.07.12 End Date: 2019.07.12 Last Calib.: 2019.07.12  
 Start Time: 00:34:05 End Time: 08:51:44 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30- IF: 1 1/2" blow .  
 60- IS: No return.  
 60- FF: 1/2" blow , receded to surface.  
 90- FSI: No return.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
110.00	Mud 100M w oil spots	0.54

\* 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

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64364

**DST#: 3**

ATTN: Tom Funk

Test Start: 2019.07.12 @ 00:34:00

## Tool Information

Drill Pipe:	Length: 4047.00 ft	Diameter: 3.80 inches	Volume: 56.77 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 58.12 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial	78000.00 lb
Depth to Top Packer:	4337.00 ft			Final	78000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	98.00 ft				
Tool Length:	125.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4311.00	
Shut In Tool	5.00		Fluid	4316.00	
Hydraulic tool	5.00			4321.00	
Jars	5.00			4326.00	
Safety Joint	2.00			4328.00	
Packer	5.00		Inside	4333.00	27.00 Bottom Of Top Packer
Packer	4.00			4337.00	
Stubb	1.00			4338.00	
Recorder	0.00	8522	Inside	4338.00	
Recorder	0.00	8319	Outside	4338.00	
Perforations	29.00			4367.00	
Change Over Sub	1.00			4368.00	
Drill Pipe	63.00			4431.00	
Change Over Sub	1.00			4432.00	
Bullnose	3.00			4435.00	98.00 Bottom Packers & Anchor

**Total Tool Length: 125.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64364

**DST#: 3**

ATTN: Tom Funk

Test Start: 2019.07.12 @ 00:34:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
110.00	Mud 100M w oil spots	0.541

Total Length: 110.00 ft      Total Volume: 0.541 bbl

Num Fluid Samples: 0

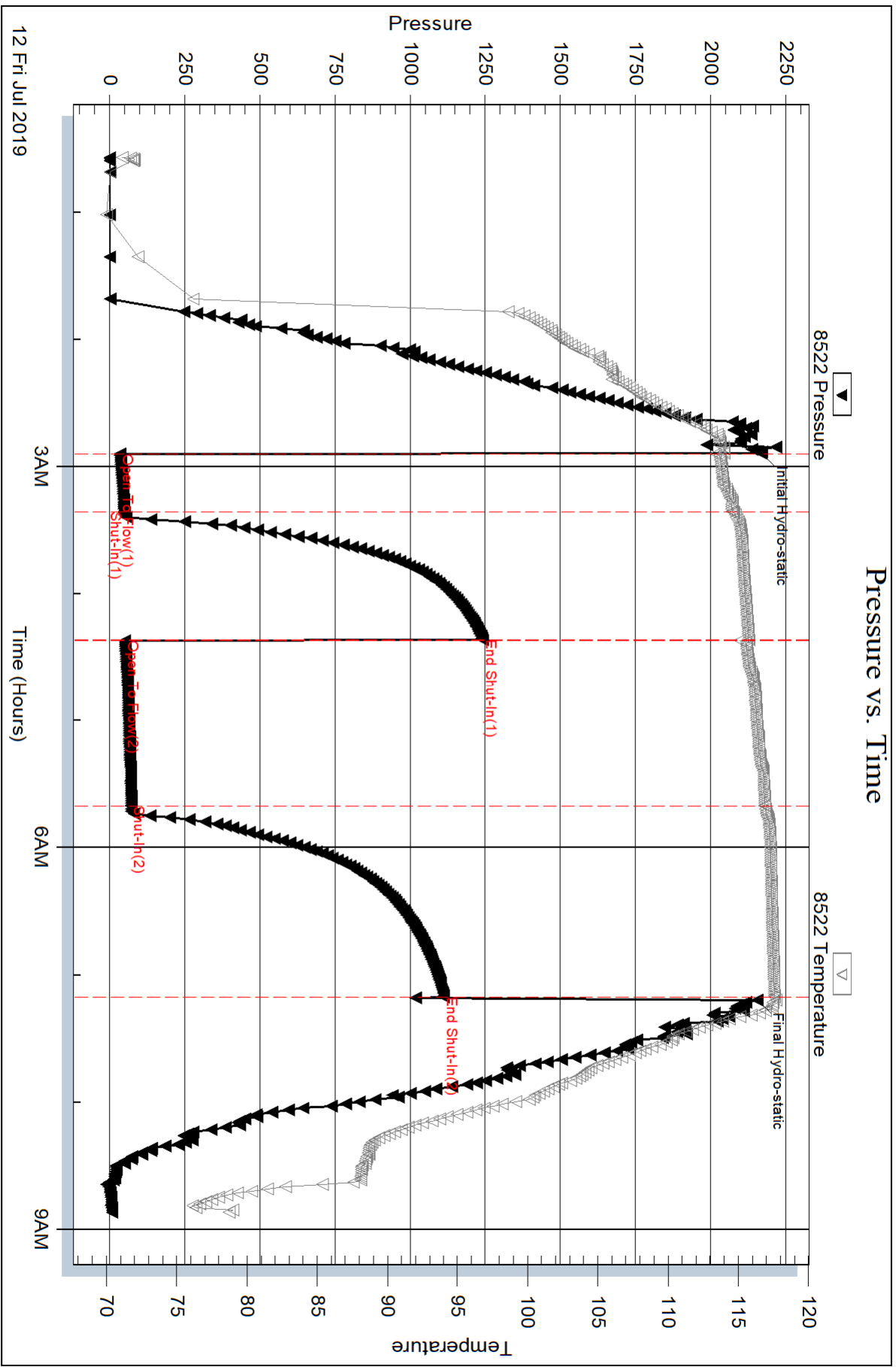
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

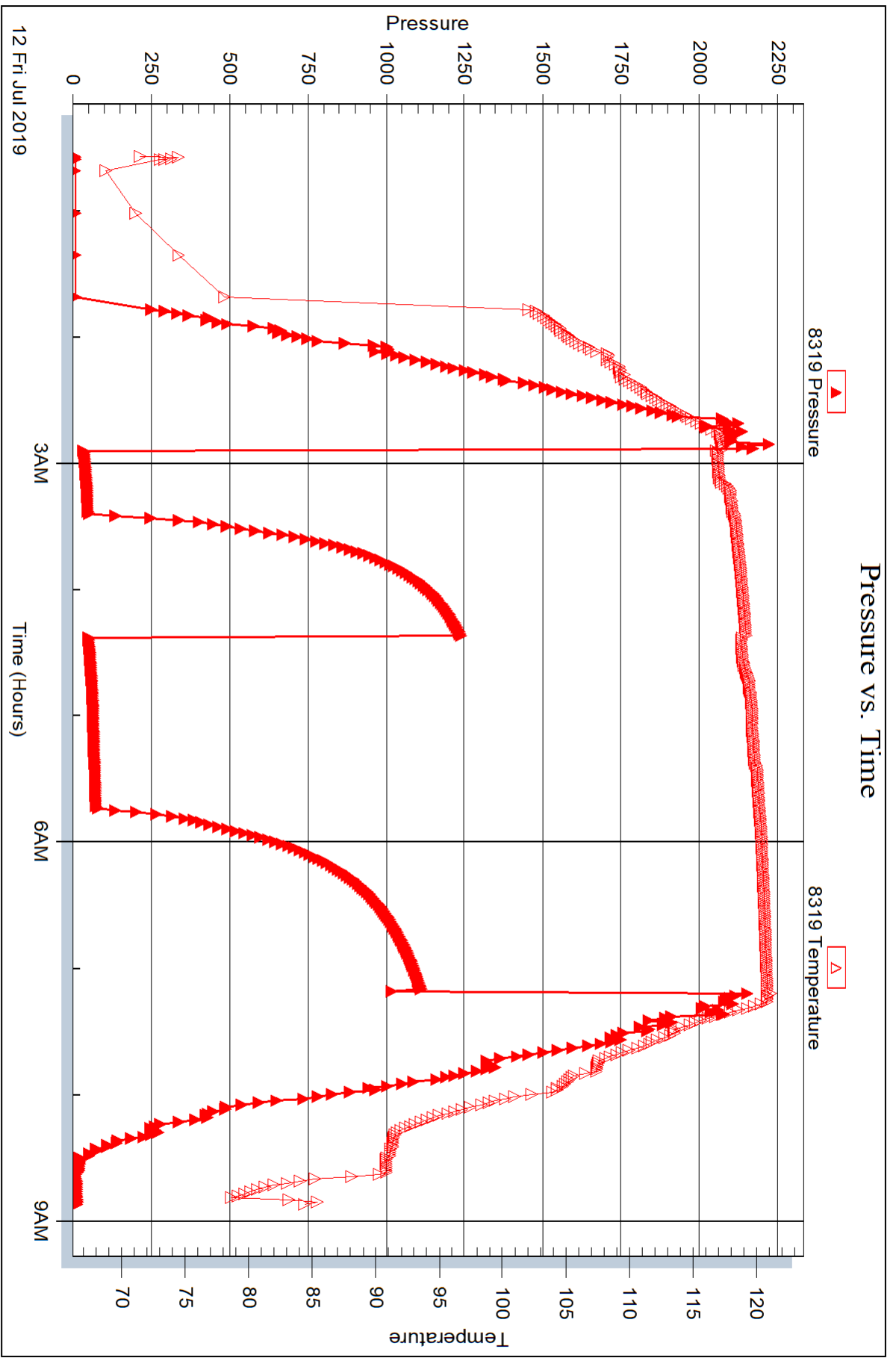


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 64364

Printed: 2019.07.16 @ 10:51:34



## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.12 @ 19:29:00

End Date: 2019.07.13 @ 03:43:15

Job Ticket #: 64365                      DST #: 4

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

Printed: 2019.07.16 @ 10:51:11



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
 250 N Water St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

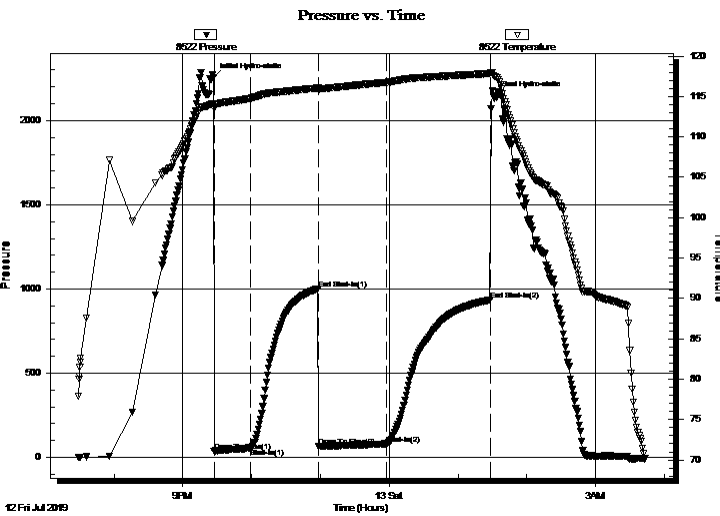
**12-13s-33w Logan,KS**  
**Racette #3-12**  
 Job Ticket: 64365 **DST#: 4**  
 Test Start: 2019.07.12 @ 19:29:00

## GENERAL INFORMATION:

Formation: **Pawnee- Ft Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:27:15  
 Time Test Ended: 03:43:15  
 Interval: **4442.00 ft (KB) To 4524.00 ft (KB) (TVD)**  
 Total Depth: 4524.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 3045.00 ft (KB)  
 3034.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8522 Inside**  
 Press@RunDepth: 80.20 psig @ 4443.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.07.12 End Date: 2019.07.13 Last Calib.: 2019.07.13  
 Start Time: 19:29:05 End Time: 03:43:14 Time On Btm: 2019.07.12 @ 21:27:00  
 Time Off Btm: 2019.07.13 @ 01:30:45

TEST COMMENT: 30- IF: 2" blow .  
 60- IS: No return.  
 60- FF: 1" blow .  
 90" FSI: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2251.54	114.16	Initial Hydro-static
1	36.46	113.50	Open To Flow (1)
32	53.89	114.76	Shut-In(1)
91	1001.74	116.05	End Shut-In(1)
92	65.92	115.81	Open To Flow (2)
151	80.20	116.75	Shut-In(2)
241	934.70	117.84	End Shut-In(2)
244	2149.12	117.59	Final Hydro-static

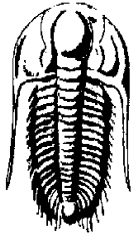
## Recovery

Length (ft)	Description	Volume (bbl)
120.00	socm 3o 97m	0.59

\* 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 St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

12-13s-33w Logan, KS

Racette #3-12

Job Ticket: 64365

DST#: 4

Test Start: 2019.07.12 @ 19:29:00

### GENERAL INFORMATION:

Formation: **Pawnee- Ft Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:27:15

Time Test Ended: 03:43:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 78

Interval: **4442.00 ft (KB) To 4524.00 ft (KB) (TVD)**

Total Depth: 4524.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3045.00 ft (KB)

3034.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8319

Outside

Press@RunDepth: psig @ 4443.00 ft (KB)

Start Date: 2019.07.12

End Date: 2019.07.13

Capacity: 8000.00 psig

Last Calib.: 2019.07.13

Start Time: 19:29:05

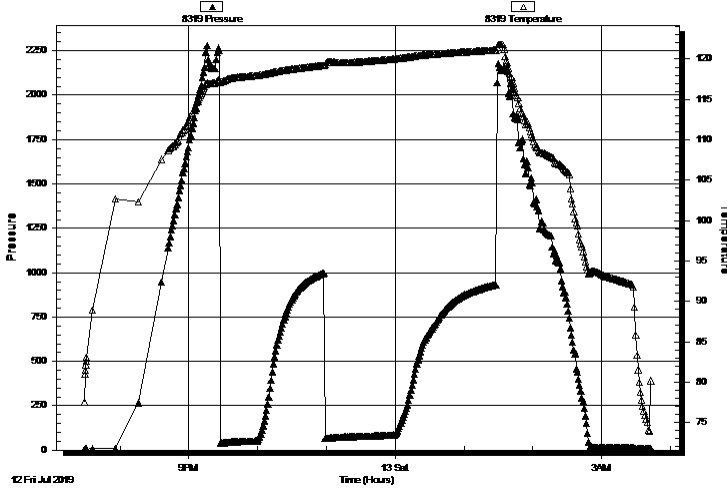
End Time: 03:43:29

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF: 2" blow .  
 60- IS: No return.  
 60- FF: 1" blow .  
 90" FSI: No return.

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
120.00	socm 3o 97m	0.59

\* 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

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64365

**DST#: 4**

ATTN: Tom Funk

Test Start: 2019.07.12 @ 19:29:00

## Tool Information

Drill Pipe:	Length: 4144.00 ft	Diameter: 3.80 inches	Volume: 58.13 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 59.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4442.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	109.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4416.00	
Shut In Tool	5.00		Fluid	4421.00	
Hydraulic tool	5.00			4426.00	
Jars	5.00			4431.00	
Safety Joint	2.00			4433.00	
Packer	5.00		Inside	4438.00	27.00 Bottom Of Top Packer
Packer	4.00			4442.00	
Stubb	1.00			4443.00	
Recorder	0.00	8522	Inside	4443.00	
Recorder	0.00	8319	Outside	4443.00	
Perforations	13.00			4456.00	
Change Over Sub	1.00			4457.00	
Drill Pipe	63.00			4520.00	
Change Over Sub	1.00			4521.00	
Bullnose	3.00			4524.00	82.00 Bottom Packers & Anchor

**Total Tool Length: 109.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64365

**DST#: 4**

ATTN: Tom Funk

Test Start: 2019.07.12 @ 19:29:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	socm 3o 97m	0.590

Total Length: 120.00 ft      Total Volume: 0.590 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

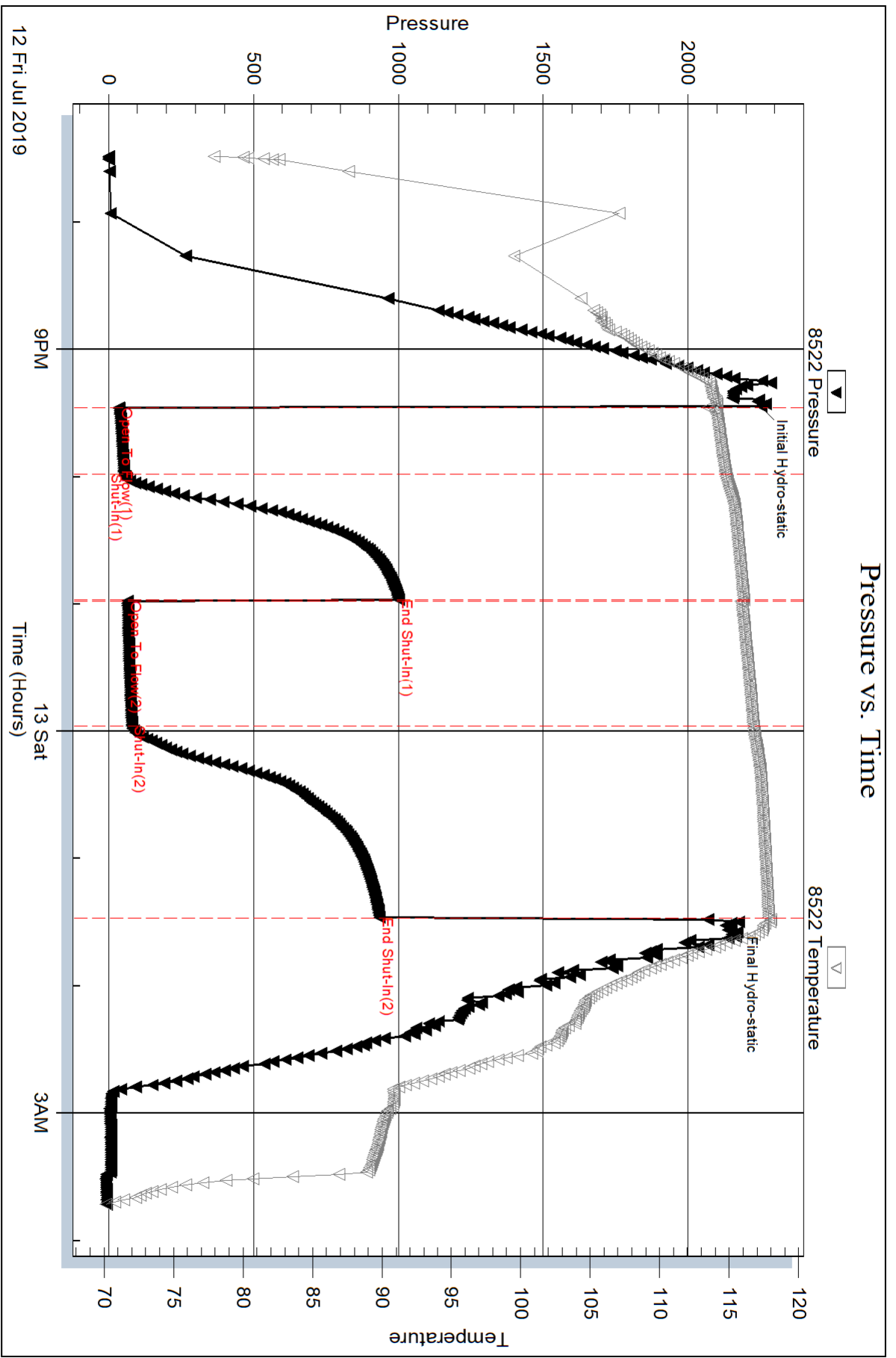
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 64365

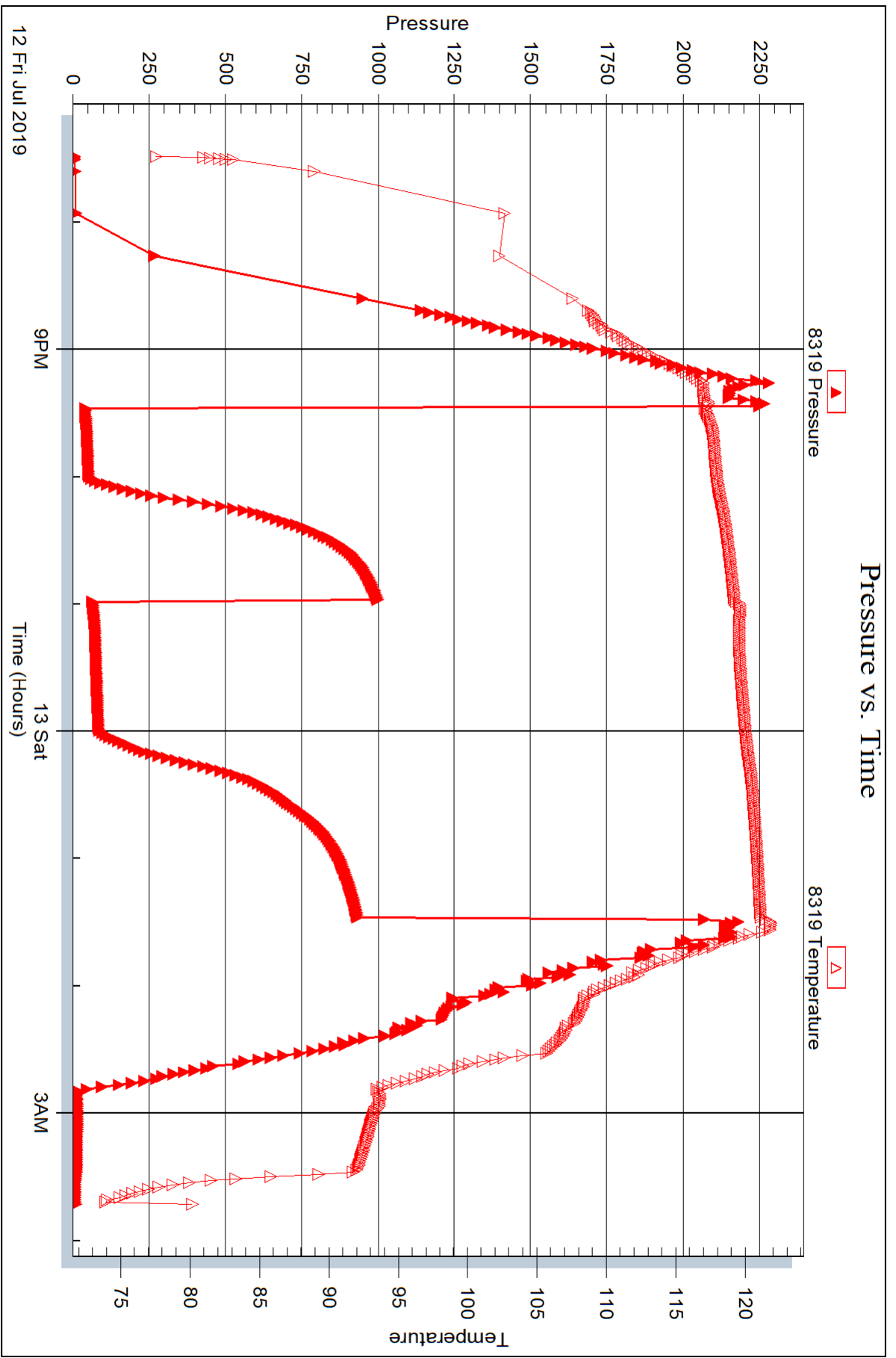
Printed: 2019.07.16 @ 10:51:12

Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 64365

Printed: 2019.07.16 @ 10:51:12



## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.13 @ 12:58:00

End Date: 2019.07.13 @ 22:19:15

Job Ticket #: 64366                      DST #: 5

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

Printed: 2019.07.16 @ 10:50:50



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
 250 N Water St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

**12-13s-33w Logan,KS**  
**Racette #3-12**  
 Job Ticket: 64366 **DST#: 5**  
 Test Start: 2019.07.13 @ 12:58:00

### GENERAL INFORMATION:

Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 15:15:30 Tester: Bradley Walter  
 Time Test Ended: 22:19:15 Unit No: 78  
 Interval: **4527.00 ft (KB) To 4595.00 ft (KB) (TVD)** Reference Elevations: 3045.00 ft (KB)  
 Total Depth: 4595.00 ft (KB) (TVD) 3034.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

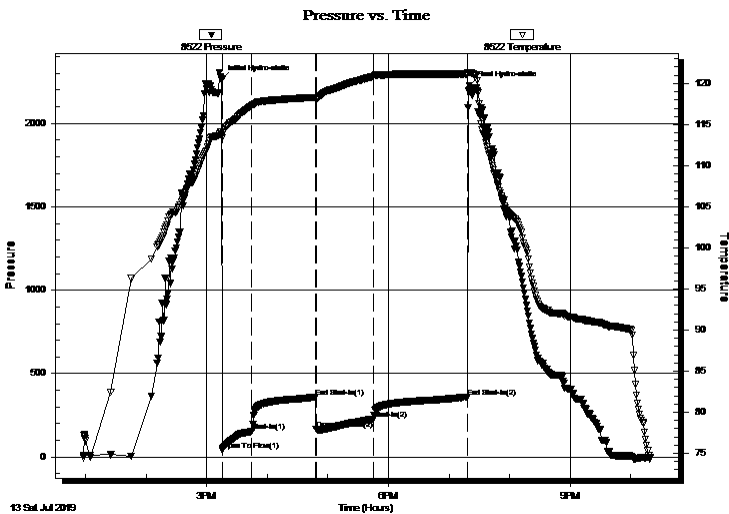
### Serial #: 8522

### Inside

Press@RunDepth: 227.18 psig @ 4528.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.07.13 End Date: 2019.07.13 Last Calib.: 2019.07.13  
 Start Time: 12:58:05 End Time: 22:19:15 Time On Btm: 2019.07.13 @ 15:15:00  
 Time Off Btm: 2019.07.13 @ 19:20:00

TEST COMMENT: 30- IF: 33" blow .  
 60- IS: 2 1/2" return.  
 60- FF: 68" blow .  
 90- FSI: 10" return.

### PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2263.78	114.09	Initial Hydro-static
1	41.32	113.37	Open To Flow (1)
30	152.66	117.31	Shut-In(1)
93	360.26	118.30	End Shut-In(1)
94	168.14	118.17	Open To Flow (2)
151	227.18	120.88	Shut-In(2)
243	359.62	121.13	End Shut-In(2)
245	2225.07	121.34	Final Hydro-static

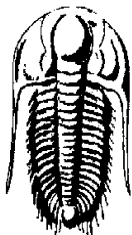
### Recovery

Length (ft)	Description	Volume (bbl)
120.00	gmco 40g 30m 30o	0.59
330.00	gmco 40g 20m 40o	3.22
90.00	go 30g 70o	1.26
0.00	1160' GIP	0.00

\* 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 St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

12-13s-33w Logan,KS

Racette #3-12

Job Ticket: 64366

DST#: 5

Test Start: 2019.07.13 @ 12:58:00

### GENERAL INFORMATION:

Formation: **Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:15:30

Time Test Ended: 22:19:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 78

Interval: **4527.00 ft (KB) To 4595.00 ft (KB) (TVD)**

Total Depth: 4595.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3045.00 ft (KB)

3034.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8319** **Outside**

Press@RunDepth: psig @ 4528.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.13

End Date:

2019.07.13

Last Calib.:

2019.07.13

Start Time: 12:58:05

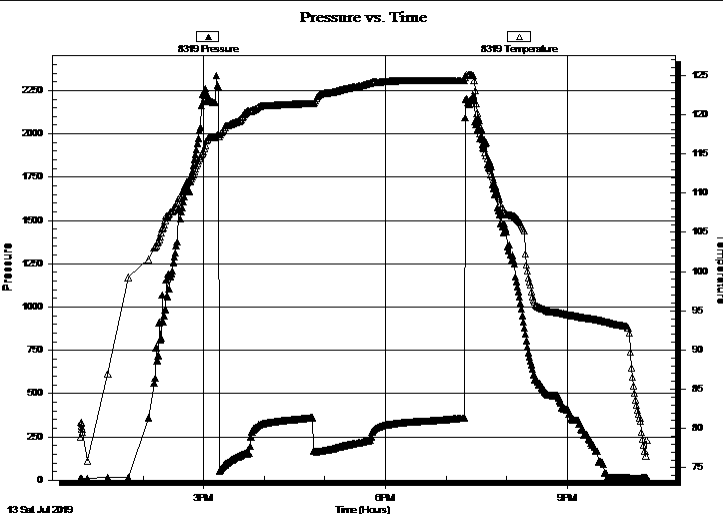
End Time:

22:19:15

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF: 33" blow.  
60- IS: 2 1/2" return.  
60- FF: 68" blow.  
90- FS: 10" return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
120.00	gmco 40g 30m 30o	0.59
330.00	gmco 40g 20m 40o	3.22
90.00	go 30g 70o	1.26
0.00	1160' GIP	0.00

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64366

**DST#: 5**

ATTN: Tom Funk

Test Start: 2019.07.13 @ 12:58:00

## Tool Information

Drill Pipe:	Length: 4238.00 ft	Diameter: 3.80 inches	Volume: 59.45 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 60.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4527.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	95.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4501.00	
Shut In Tool	5.00		Fluid	4506.00	
Hydraulic tool	5.00			4511.00	
Jars	5.00			4516.00	
Safety Joint	2.00			4518.00	
Packer	5.00		Inside	4523.00	27.00 Bottom Of Top Packer
Packer	4.00			4527.00	
Stubb	1.00			4528.00	
Recorder	0.00	8522	Inside	4528.00	
Recorder	0.00	8319	Outside	4528.00	
Perforations	31.00			4559.00	
Change Over Sub	1.00			4560.00	
Drill Pipe	31.00			4591.00	
Change Over Sub	1.00			4592.00	
Bullnose	3.00			4595.00	68.00 Bottom Packers & Anchor

**Total Tool Length: 95.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64366

**DST#: 5**

ATTN: Tom Funk

Test Start: 2019.07.13 @ 12:58:00

## 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:

0 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	gmco 40g 30m 30o	0.590
330.00	gmco 40g 20m 40o	3.217
90.00	go 30g 70o	1.262
0.00	1160' GIP	0.000

Total Length: 540.00 ft

Total Volume: 5.069 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

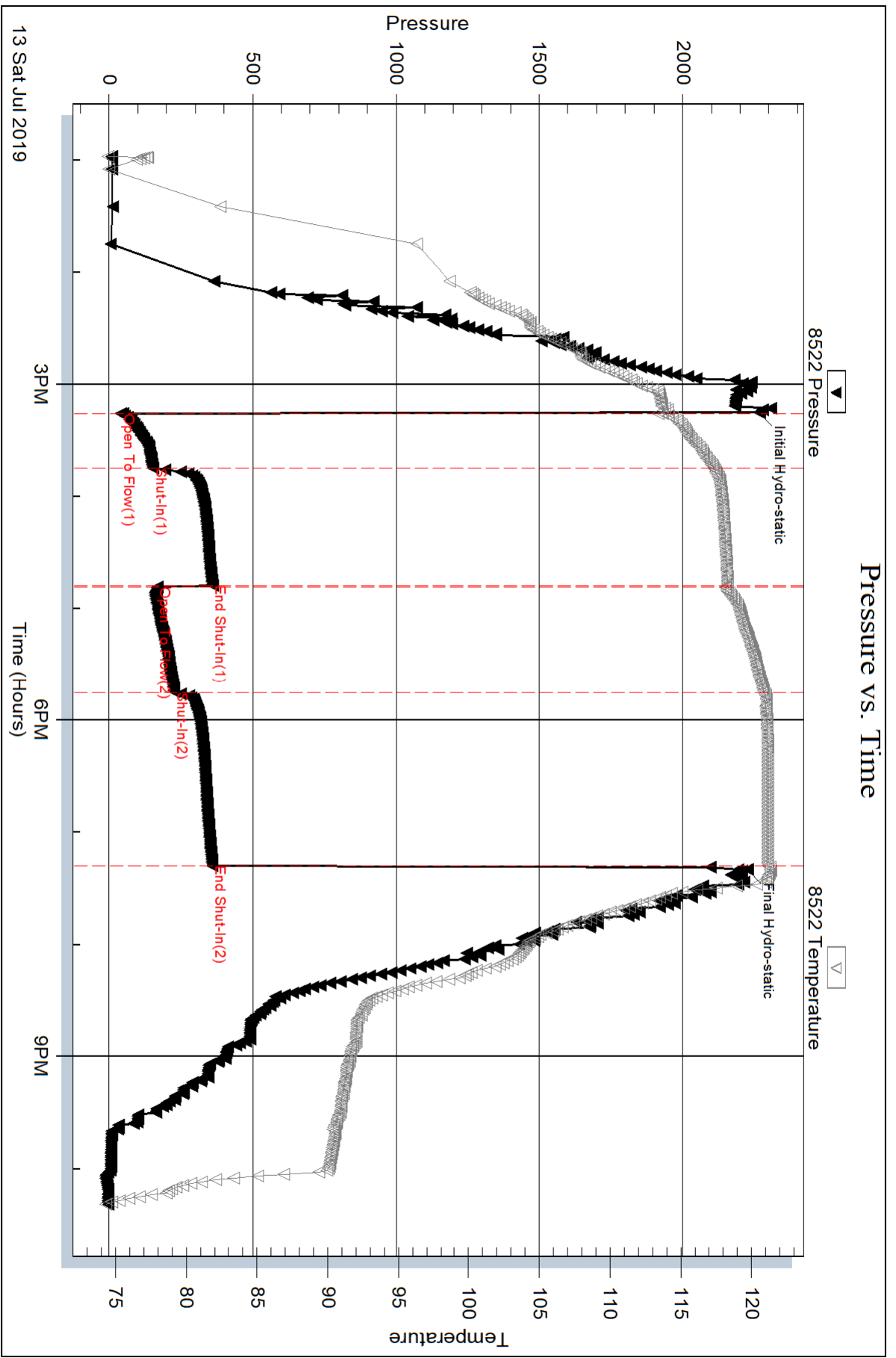
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 5

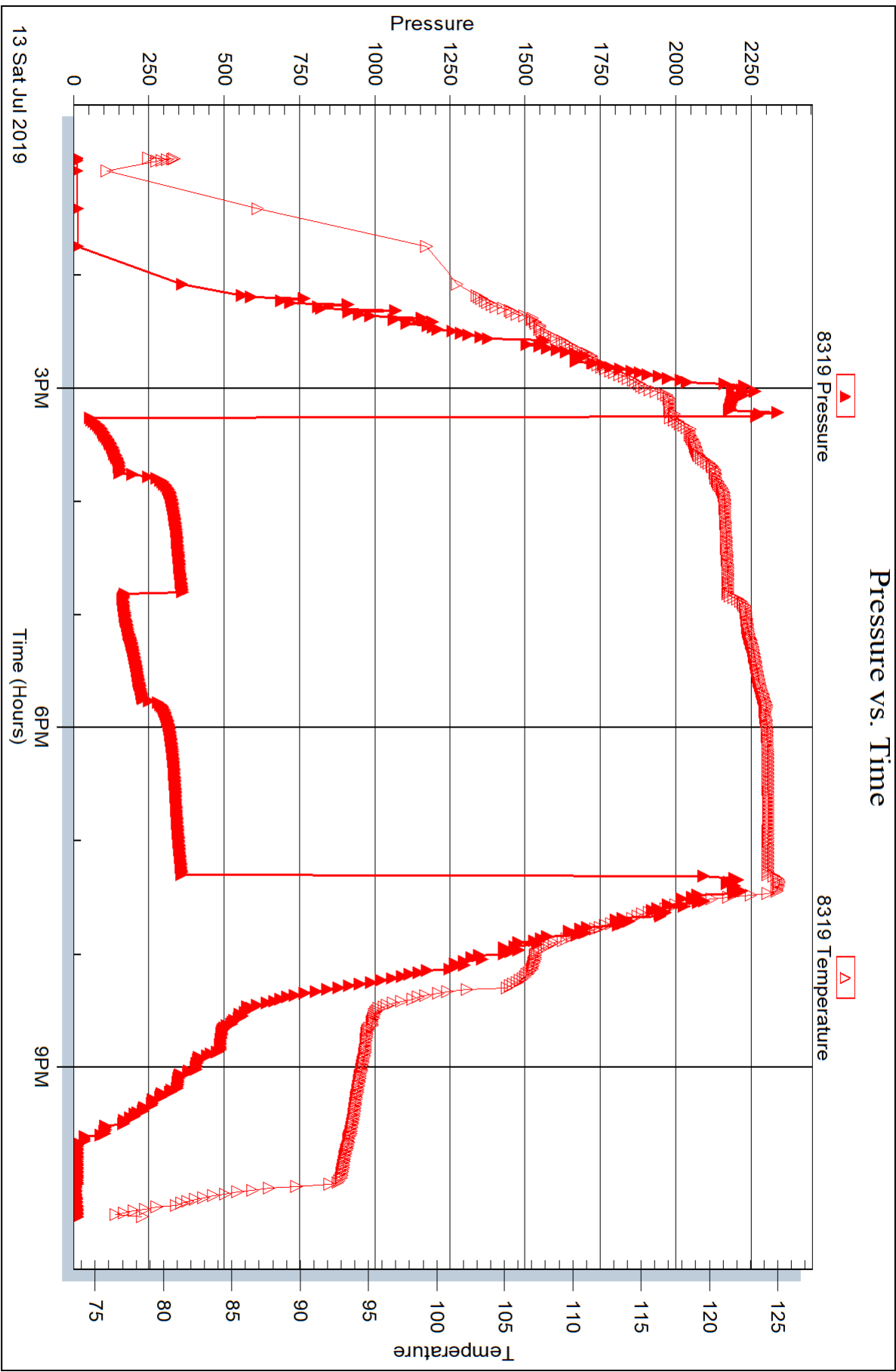


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 5





## DRILL STEM TEST REPORT

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

250 N Water St Ste 300  
Wichita, KS 67202

ATTN: Tom Funk

### **Racette #3-12**

#### **12-13s-33w Logan,KS**

Start Date: 2019.07.14 @ 08:33:00

End Date: 2019.07.14 @ 17:10:00

Job Ticket #: 64367                      DST #: 6

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

Printed: 2019.07.16 @ 10:50:29



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co, Inc  
 250 N Water St Ste 300  
 Wichita, KS 67202  
 ATTN: Tom Funk

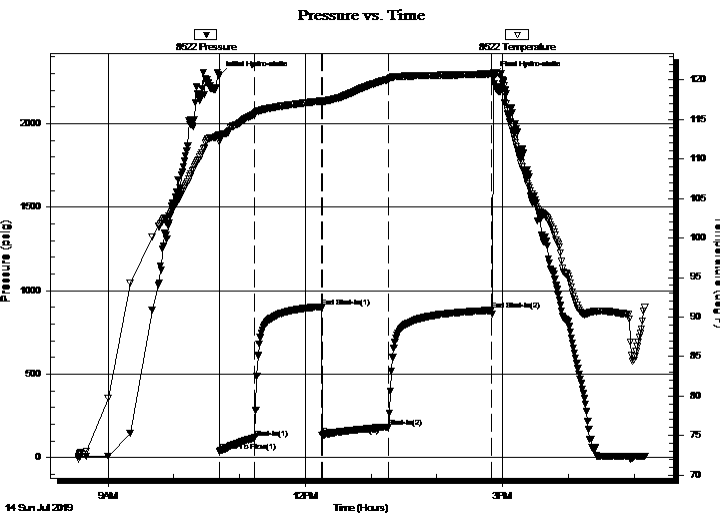
**12-13s-33w Logan,KS**  
**Racette #3-12**  
 Job Ticket: 64367 **DST#: 6**  
 Test Start: 2019.07.14 @ 08:33:00

## GENERAL INFORMATION:

Formation: **Morrow Sand**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 10:41:30 Tester: Bradley Walter  
 Time Test Ended: 17:10:00 Unit No: 78  
 Interval: **4602.00 ft (KB) To 4660.00 ft (KB) (TVD)** Reference Elevations: 3045.00 ft (KB)  
 Total Depth: 4660.00 ft (KB) (TVD) 3034.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 11.00 ft

**Serial #: 8522 Inside**  
 Press@RunDepth: 183.94 psig @ 4603.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.07.14 End Date: 2019.07.14 Last Calib.: 2019.07.14  
 Start Time: 08:33:05 End Time: 17:10:00 Time On Btm: 2019.07.14 @ 10:41:15  
 Time Off Btm: 2019.07.14 @ 14:51:30

TEST COMMENT: 30- IF: 7" blow .  
 60- IS: No return.  
 60- FF: 10" blow .  
 90- FSI: 1" return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2286.90	112.99	Initial Hydro-static
1	37.26	112.14	Open To Flow (1)
32	117.71	115.64	Shut-In(1)
94	903.98	117.33	End Shut-In(1)
94	135.15	117.19	Open To Flow (2)
155	183.94	120.06	Shut-In(2)
249	882.68	120.77	End Shut-In(2)
251	2286.52	120.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	somcw 2o 48m 50w	0.59
220.00	gow cm 10g 20o 30w 40m	1.67
20.00	gmco 20g 15m 65o	0.28
0.00	200' GIP	0.00

\* 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 St Ste 300  
Wichita, KS 67202  
ATTN: Tom Funk

**12-13s-33w Logan, KS**  
**Racette #3-12**  
Job Ticket: 64367 **DST#: 6**  
Test Start: 2019.07.14 @ 08:33:00

## GENERAL INFORMATION:

Formation: **Morrow Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:41:30

Time Test Ended: 17:10:00

**Interval: 4602.00 ft (KB) To 4660.00 ft (KB) (TVD)**

Total Depth: 4660.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 78

Reference Elevations: 3045.00 ft (KB)

3034.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8319**

**Outside**

Press@RunDepth: psig @ 4603.00 ft (KB)

Start Date: 2019.07.14

End Date:

2019.07.14

Start Time: 08:33:05

End Time:

17:10:00

Capacity: 8000.00 psig

Last Calib.:

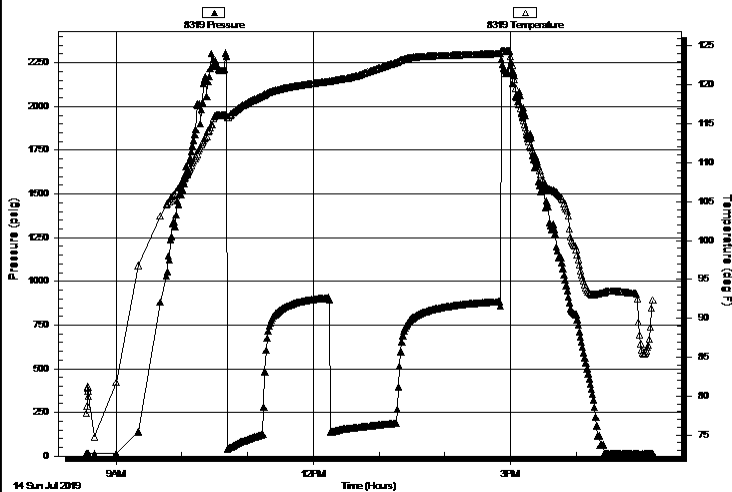
2019.07.14

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF: 7" blow .  
60- IS: No return.  
60- FF: 10" blow .  
90- FS: 1" return.

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	somcw 2o 48m 50w	0.59
220.00	gow cm 10g 20o 30w 40m	1.67
20.00	gmco 20g 15m 65o	0.28
0.00	200' GIP	0.00

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64367

**DST#: 6**

ATTN: Tom Funk

Test Start: 2019.07.14 @ 08:33:00

## Tool Information

Drill Pipe:	Length: 4332.00 ft	Diameter: 3.80 inches	Volume: 60.77 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 275.00 ft	Diameter: 2.25 inches	Volume: 1.35 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 62.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 79000.00 lb
Depth to Top Packer:	4602.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	58.00 ft			
Tool Length:	85.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4576.00	
Shut In Tool	5.00		Fluid	4581.00	
Hydraulic tool	5.00			4586.00	
Jars	5.00			4591.00	
Safety Joint	2.00			4593.00	
Packer	5.00		Inside	4598.00	27.00 Bottom Of Top Packer
Packer	4.00			4602.00	
Stubb	1.00			4603.00	
Recorder	0.00	8522	Inside	4603.00	
Recorder	0.00	8319	Outside	4603.00	
Perforations	21.00			4624.00	
Change Over Sub	1.00			4625.00	
Drill Pipe	31.00			4656.00	
Change Over Sub	1.00			4657.00	
Bullnose	3.00			4660.00	58.00 Bottom Packers & Anchor

**Total Tool Length: 85.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co, Inc

**12-13s-33w Logan,KS**

250 N Water St Ste 300  
Wichita, KS 67202

**Racette #3-12**

Job Ticket: 64367

**DST#: 6**

ATTN: Tom Funk

Test Start: 2019.07.14 @ 08:33:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

37000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbf

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
120.00	somcw 2o 48m 50w	0.590
220.00	gow cm 10g 20o 30w 40m	1.674
20.00	gmco 20g 15m 65o	0.281
0.00	200' GIP	0.000

Total Length: 360.00 ft      Total Volume: 2.545 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .152 @ 87f = 37000ppm



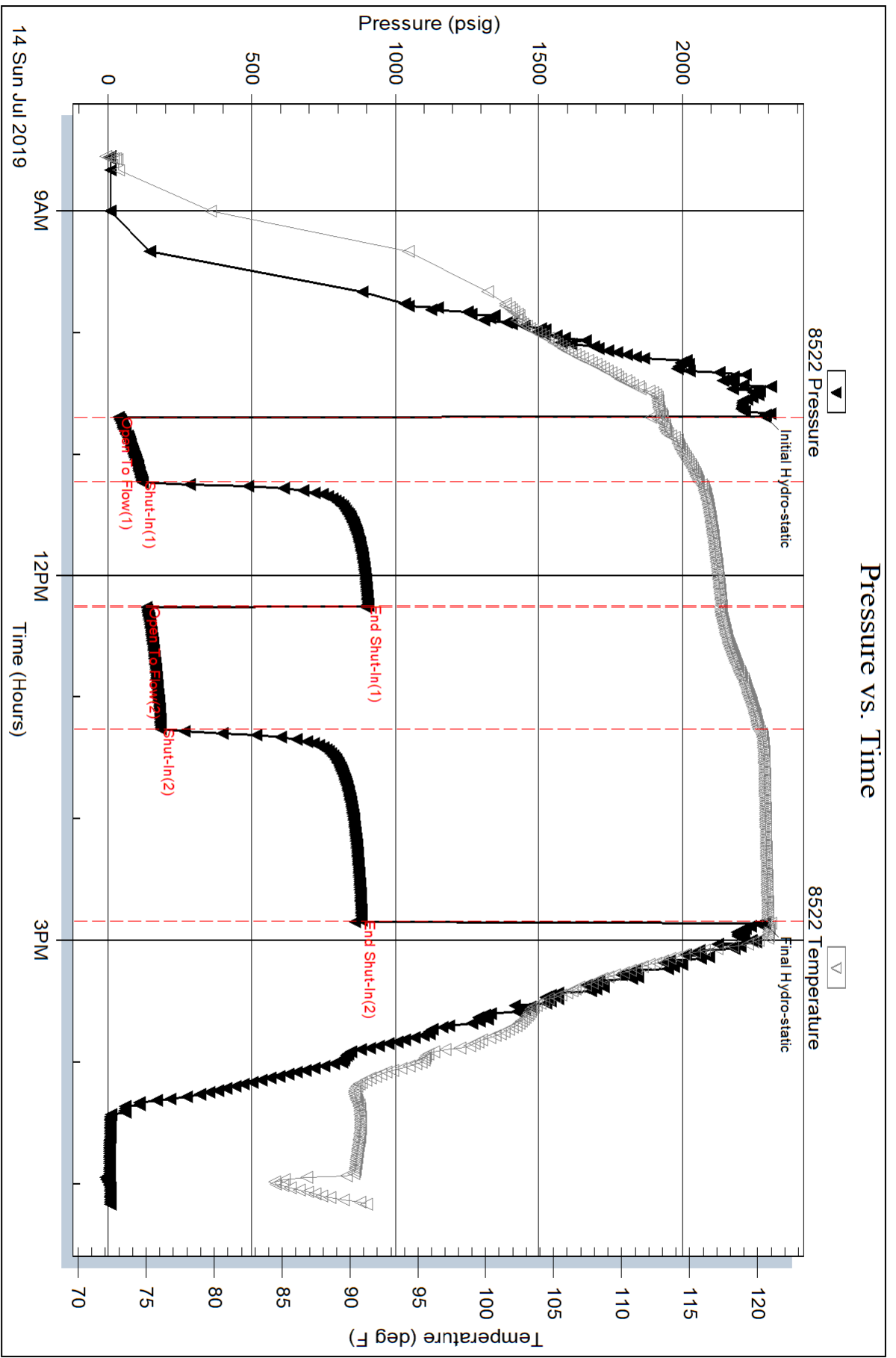
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 6

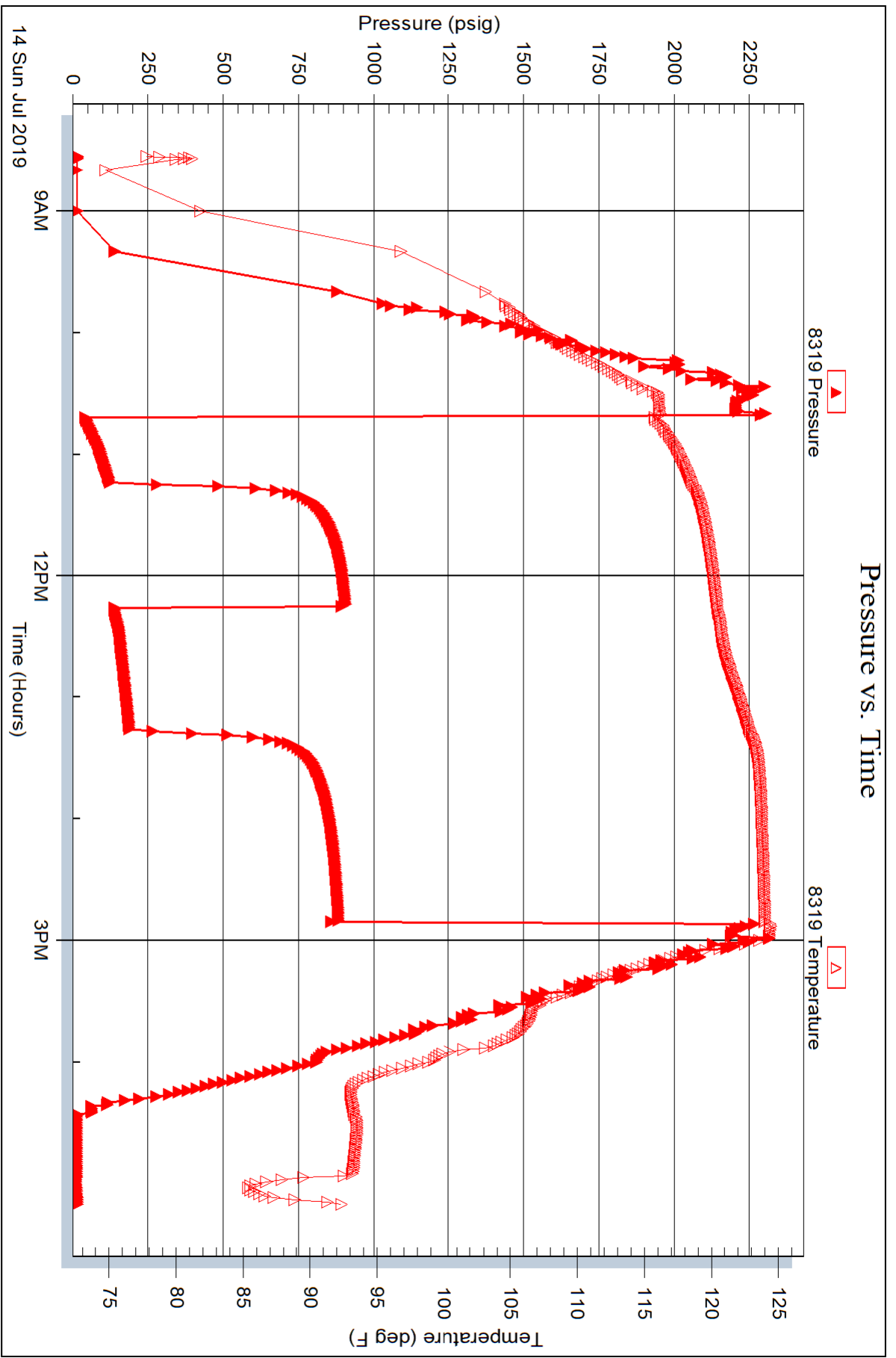


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 6



Trilobite Testing, Inc

Ref. No: 64367

Printed: 2019.07.16 @ 10:50:30



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64362**

Well Name & No. Ranette #3-12 Racette Test No. 1 Date 7/10/2019  
 Company Morfin Drilling Co, Inc Elevation 4153045 KB 3034 GL  
 Address 250 N Water St Ste 300 Wichita, Ks 67202  
 Co. Rep / Geo. Tom Fork Rig Morfin 21  
 Location: Sec. 12 Twp. 13s Rge. 33w Co. Logan State Ks

Interval Tested 4157-4189 Zone Tested LKC H  
 Anchor Length 32' Drill Pipe Run 3857 Mud Wt. 9.1  
 Top Packer Depth 4152 Drill Collars Run 275 Vis 62  
 Bottom Packer Depth 4157 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4189 Chlorides 5900 ppm System LCM 8#

Blow Description IF: 3" blow  
ISI: No return.  
FF: 1/2" blow  
FSI: No return.

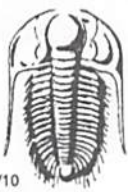
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>oil</u>	<u>100</u>			
<u>20</u>	<u>ocm</u>	<u>20</u>			<u>80</u>
<u>60</u>	<u>sowcm</u>	<u>1</u>		<u>39</u>	<u>60</u>

Rec Total 140 BHT 112 Gravity 36 API RW 143@ 85 °F Chlorides 48000 ppm

(A) Initial Hydrostatic <u>2049</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>0345</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0458</u>
(C) First Final Flow <u>47</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0810</u>
(D) Initial Shut-In <u>745</u>	<input checked="" type="checkbox"/> Circ Sub <u>4/C</u>	T-Pulled <u>1210</u>
(E) Second Initial Flow <u>61</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1408</u>
(F) Second Final Flow <u>85</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT</u> 82	Comments
(G) Final Shut-In <u>719</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1993</u>	<input type="checkbox"/> Straddle	
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1707</u>
	Sub Total <u>1707</u>	MP/DST Disc

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64363**

Well Name & No. Racette #3-12 Test No. 2 Date 7/11/2019  
 Company Mudfin Drilling Co, Inc Elevation 3045 KB 3034 GL  
 Address 250 N Water St Ste 300 Wichita, KS 67202  
 Co. Rep / Geo. Tom Funk Rig Mudfin 21  
 Location: Sec. 12 Twp. 13s Rge. 33w Co. Logan State Ks

Interval Tested 4191 - 4275 Zone Tested LKC I, J, K  
 Anchor Length 84' Drill Pipe Run 4890 Mud Wt. 9.6  
 Top Packer Depth 4186 Drill Collars Run 275 Vis 58  
 Bottom Packer Depth 4191 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4275 Chlorides 5900 ppm System LCM 6#

Blow Description IF: 1 1/2" blow  
ISI: No return.  
FF: Surface blow died @ 30 min  
FSI: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>SOCM</u>	<u>2</u>		<u>98</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 90 BHT 114 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2127</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>0130</u>
(B) First Initial Flow <u>39</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0150</u>
(C) First Final Flow <u>52</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0348</u>
(D) Initial Shut-In <u>944</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>0748</u>
(E) Second Initial Flow <u>54</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0936</u>
(F) Second Final Flow <u>69</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT</u> 82	Comments
(G) Final Shut-In <u>922</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2117</u>	<input type="checkbox"/> Straddle	
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>00</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1707</u>
	Sub Total <u>1707</u>	MP/DST Disc't

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64364**

Well Name & No. Racette #3-12 Test No. 3 Date 7/12/2019  
 Company Martin Drilling Co, Inc Elevation 3045 KB 3034 GL  
 Address 250 N Water St Ste 300 Wichita, Ks 67202  
 Co. Rep / Geo. Tom Funk Rig Martin 21  
 Location: Sec. 12 Twp. 13S Rge. 33W Co. Logan State Ks

Interval Tested 4337 4435 Zone Tested Altamont  
 Anchor Length ~~4332~~ 98' Drill Pipe Run 4047 Mud Wt. 9.2  
 Top Packer Depth 4332 Drill Collars Run 275 Vis 54  
 Bottom Packer Depth 4337 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4435 Chlorides 6000 ppm System LCM 4#

Blow Description IF: 1 1/2" blow  
ISF: No return  
FF: 1/2" blow, receded to surface.  
FST: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>110</u>	<u>mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 110 BHT 118 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2167  Test 1300 T-On Location 1230  
 (B) First Initial Flow 34  Jars 250 T-Started 0034  
 (C) First Final Flow 48  Safety Joint 75 T-Open 0254  
 (D) Initial Shut-In 1242  Circ Sub N/C T-Pulled 0714  
 (E) Second Initial Flow 50  Hourly Standby \_\_\_\_\_ T-Out 0852  
 (F) Second Final Flow 72  Mileage 82 RT 82 Comments \_\_\_\_\_  
 (G) Final Shut-In 1113  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2154  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1707

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

MP/DST Disc't \_\_\_\_\_  
 Total 1707

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64365

Well Name & No. Racette #3-12 Test No. 4 Date 7/13/2019  
 Company Moran Drilling Co, Inc Elevation 3045 KB 3034 GL  
 Address 250 N Water St. Ste 300 Wichita, Ks 67202  
 Co. Rep / Geo. Tom Funk Rig Moran 21  
 Location: Sec. 12 Twp. 13 Rge. 33w Co. Logan State Ks

Interval Tested 4442-4524 Zone Tested Pawnee - Ft Scott  
 Anchor Length 82 Drill Pipe Run 4144 Mud Wt. 9.2  
 Top Packer Depth 4437 Drill Collars Run 275 Vis 60  
 Bottom Packer Depth 4442 Wt. Pipe Run 0 WL 7.6  
 Total Depth 4524 Chlorides 6200 ppm System LCM 4#

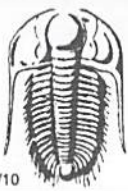
Blow Description IF : 2" blow.  
ISI : No return.  
FF : 1" blow  
FSI : No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>50cm</u>	<u>3</u>		<u>97</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 120 BHT 118 Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>2257</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>1830</u>
(B) First Initial Flow <u>36</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1930</u>
(C) First Final Flow <u>54</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2128</u>
(D) Initial Shut-In <u>1002</u>	<input checked="" type="checkbox"/> Circ Sub <u>1 1/2</u>	T-Pulled <u>0128</u>
(E) Second Initial Flow <u>66</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0344</u>
(F) Second Final Flow <u>80</u>	<input checked="" type="checkbox"/> Mileage <u>82 RT 82</u>	Comments
(G) Final Shut-In <u>935</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2149</u>	<input type="checkbox"/> Straddle	
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1707</u>
Sub Total <u>1707</u>		MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64366**

Well Name & No. Racette #3-12 Test No. 5 Date 7-13/2019  
 Company Muffin Drilling Co Inc Elevation 3045 KB 3034 GL  
 Address 250 N Water St Ste 300 Wichita, Ks 67202  
 Co. Rep / Geo. Tom Funk Rig Muffin 21  
 Location: Sec. 12 Twp. 13s Rge. 33w Co. Logan State Ks

Interval Tested 4527-4595 Zone Tested Johnson  
 Anchor Length 68' Drill Pipe Run 4238 Mud Wt. 9.2  
 Top Packer Depth 4522 Drill Collars Run 275 Vis 56  
 Bottom Packer Depth 4527 Wt. Pipe Run Ø WL 7.6  
 Total Depth 4595 Chlorides 5700 ppm System LCM 3<sup>rd</sup>  
 Blow Description JF 33' blow.  
ISI 2 1/2" return.  
FF 68" blow.  
FBI 10" return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>60</u>	<u>30</u>	<u>70</u>		
<u>330</u>	<u>GACO</u>	<u>40</u>	<u>40</u>		<u>20</u>
<u>120</u>	<u>GACO</u>	<u>40</u>	<u>30</u>		<u>30</u>
<u></u>	<u>1160' GIP</u>				
<u></u>					

Rec Total 540 BHT 121 Gravity 28 API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic 2264  Test 1300 T-On Location 1230  
 (B) First Initial Flow 41  Jars 250 T-Started 1258  
 (C) First Final Flow 153  Safety Joint 75 T-Open 1514  
 (D) Initial Shut-In 360  Circ Sub — T-Pulled 1914  
 (E) Second Initial Flow 168  Hourly Standby — T-Out 2219  
 (F) Second Final Flow 227  Mileage 82 RT 82 Comments —  
 (G) Final Shut-In 360  Sampler —  
 (H) Final Hydrostatic 2225  Straddle —  Ruined Shale Packer —  
 Shale Packer —  Ruined Packer —  
 Extra Packer —  Extra Copies —  
 Extra Recorder — Sub Total 0  
 Day Standby — Total 1707  
 Accessibility — MP/DST Disc't —  
 Sub Total 1707

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64367**

Well Name & No. Racette #3-12 Test No. 6 Date 7/14/2019  
 Company Murfin Drilling Co, Inc Elevation 3045 KB 3034 GL  
 Address 250 N Water St Ste 300 Wichita, Ks 67202  
 Co. Rep / Geo. Tom Funk Rig Murfin 21  
 Location: Sec. 12 Twp. 13s Rge. 33w Co. Logan State Ks

Interval Tested 4602-4660 Zone Tested Morrow Sand  
 Anchor Length 58' Drill Pipe Run 4332 Mud Wt. 9.2  
 Top Packer Depth 4797 Drill Collars Run 275 Vis 60  
 Bottom Packer Depth 4602 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4660 Chlorides 6500 ppm System LCM 4#

Blow Description IF: 7" blow  
ISI: No return  
FF: 10" blow  
FSF: 1" return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>6 MCO</u>	<u>20</u>	<u>65</u>	<u>15</u>	<u>15</u>
<u>220</u>	<u>60 WCM</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>
<u>120</u>	<u>50 MCV</u>	<u>2</u>	<u>50</u>	<u>48</u>	<u>48</u>
	<u>200' GIP</u>				

Rec Total 360 BHT 121 Gravity — API RW 152 @ 87 °F Chlorides 37000 ppm  
 (A) Initial Hydrostatic 2287  Test 1300 T-On Location 0730  
 (B) First Initial Flow 37  Jars 250 T-Started 0833  
 (C) First Final Flow 118  Safety Joint 75 T-Open 1044  
 (D) Initial Shut-In 904  Circ Sub N/C T-Pulled 1444  
 (E) Second Initial Flow 135  Hourly Standby \_\_\_\_\_ T-Out 1710  
 (F) Second Final Flow 184  Mileage 82 Comments \_\_\_\_\_  
 (G) Final Shut-In 883  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2287  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1707

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1707  
 MP/DST Disc't \_\_\_\_\_

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

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