

Confidentiality Requested:

Yes No

**KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

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

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

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

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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

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

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

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

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

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

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

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	RACETTE 3-12
Doc ID	1474910

All Electric Logs Run

DIL
DUCP
MEL
BHCS

Racette #3-12
 1100' FNL 2100' FEL
 Sec. 12-T13S-R33W
 3045' KB

Formation	SampleTops	Datum	Ref	Log Tops	Datum	Ref
Anhydrite	2519	+526	-4	2517	+528	-2
B/Anhydrite	2541	+504	-2	2539	+506	Flat
Topeka	3747	-702	+3	3746	-701	+4
Heebner	3969	-924	+3	3969	-924	+3
Lansing	4015	-970	+6	4016	-971	+5
Stark	4250	-1205	+2	4250	-1205	+2
Mound City	4319	-1274	+1	4319	-1274	+1
Ft Scott	4448	-1403	+2	4449	-1404	+1
Mississippi	4663	-1618	-6	4664	-1619	-7
RTD	4765	-1720				
LTD				4766	-1721	

Thomas J. Funk
Petroleum Geologist

**Geologists Report
Drilling Time and Sample Log**

OPERATOR **Murfin Drilling Co., Inc**

LEASE **Racette** WELL NO **#3-12**
FIELD **Tom Tom** API **15-109-21597**
LOCATION **1100' FNL & 2100' FEL**
SEC. **12** TWP **13S** RGE **33W**
COUNTY **Logan** STATE **Kansas**

ELEVATION
KB **3045'**
DF
GL **3034'**
Measurements Are All From **KB**

CASING RECORD
SURFACE
8 5/8" at 310'KB w/2005x

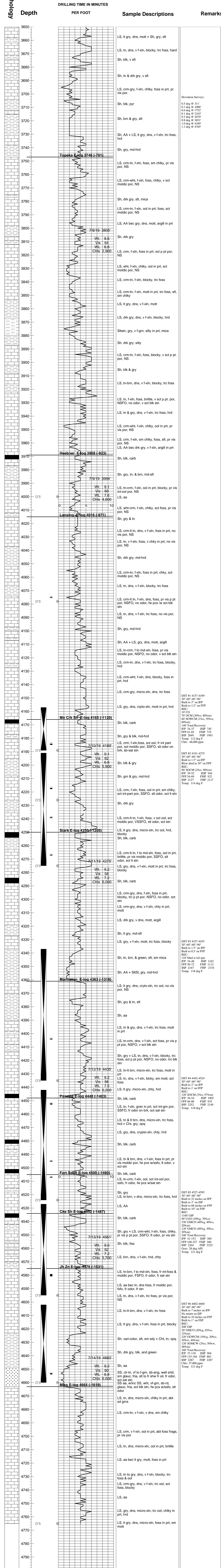
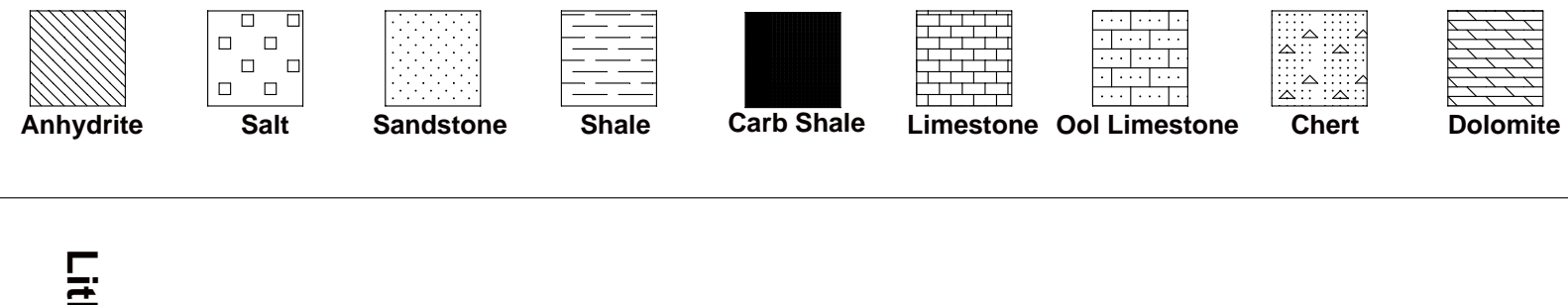
DRILLING TIME KEPT FROM **3650** TO **4765'**
SAMPLES EXAMINED FROM **3650** TO **4765'**
GEOLOGICAL SUPERVISION FROM **3680** TO **4765'**
MUD UP **3250** TYPE MUD **Chemical**

FORMATION	LOG	SAMPLE	TOP DATUM
Anhydrite	2502 (+516)	2519 (+526)	
Baryanhydrite	2525 (+483)	2541 (+504)	
Topeka Sh	3746 (-701)	3747 (-702)	
Heebner Sh	3968 (-923)	3969 (-924)	
Lansing	4016 (-971)	4015 (-970)	
Muncie Creek	4166 (-1120)	4166 (-1121)	
Start Sh	4250 (-1205)	4250 (-1205)	
Marmaton	4363 (-1318)	4361 (-1316)	
Pawnee	4448 (-1403)	4448 (-1403)	
Cherokee Sh	4532 (-1487)	4534 (-1489)	
Johnson Zone	4576 (-1531)	4575 (-1530)	
Mississippian	4664 (-1619)	4663 (-1618)	

DATE	DAILY PROGRESS	NO. STR.	MAKE	TYPE	DEPTH	OUT	FEET	HOURS
7/5/19	Spud	1	12 1/4 GMS	RR	311		311	
7/6/19		1						
7/7/19		2	7 7/8" HTC	DF506F	3651		3340	50.25
7/8/19		3	7 7/8" HTC	GX22s	4765		1114	73.75
7/9/19					3977'			
7/11/19					4189'			
7/12/19					4435'			
7/13/19					4538'			
7/14/19					4660'			
7/15/19					4765' TD Logging			

REMARKS AND RECOMMENDATIONS:
Based on sample examination, DST results, and log analysis it was recommended to run casing to further test the #3-12 Racette.
Thomas Funk
Petroleum Geologist

LEGEND



COMPANY Murfin Drilling Co., Inc **ELEVATION** 3045' **KB**

LEASE #3-12 **Racette**

LOCATION 1100' FNL & 2100' FEL **Sec 12** **TWP 13S** **RGE 33W**

COUNTY Logan **STATE** Kansas



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

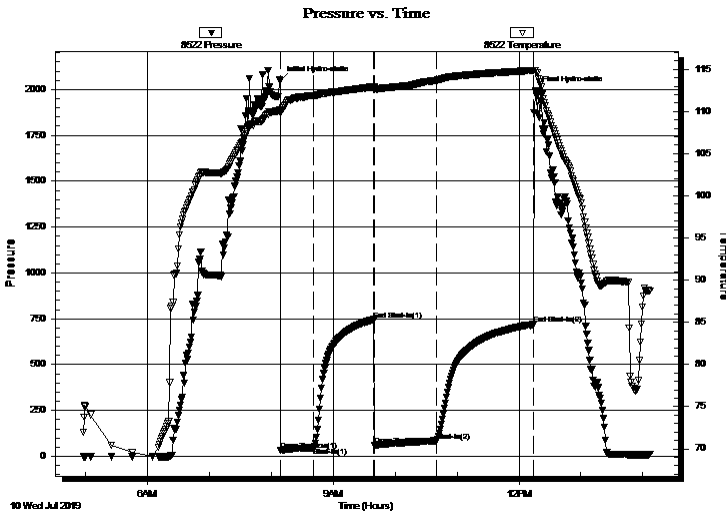
Serial #: 8522

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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
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: 64362

DST#: 1

ATTN: Tom Funk

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:

bbf

Water Loss: 6.78 in³

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 bbf
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 bbf

Num Fluid Samples: 0

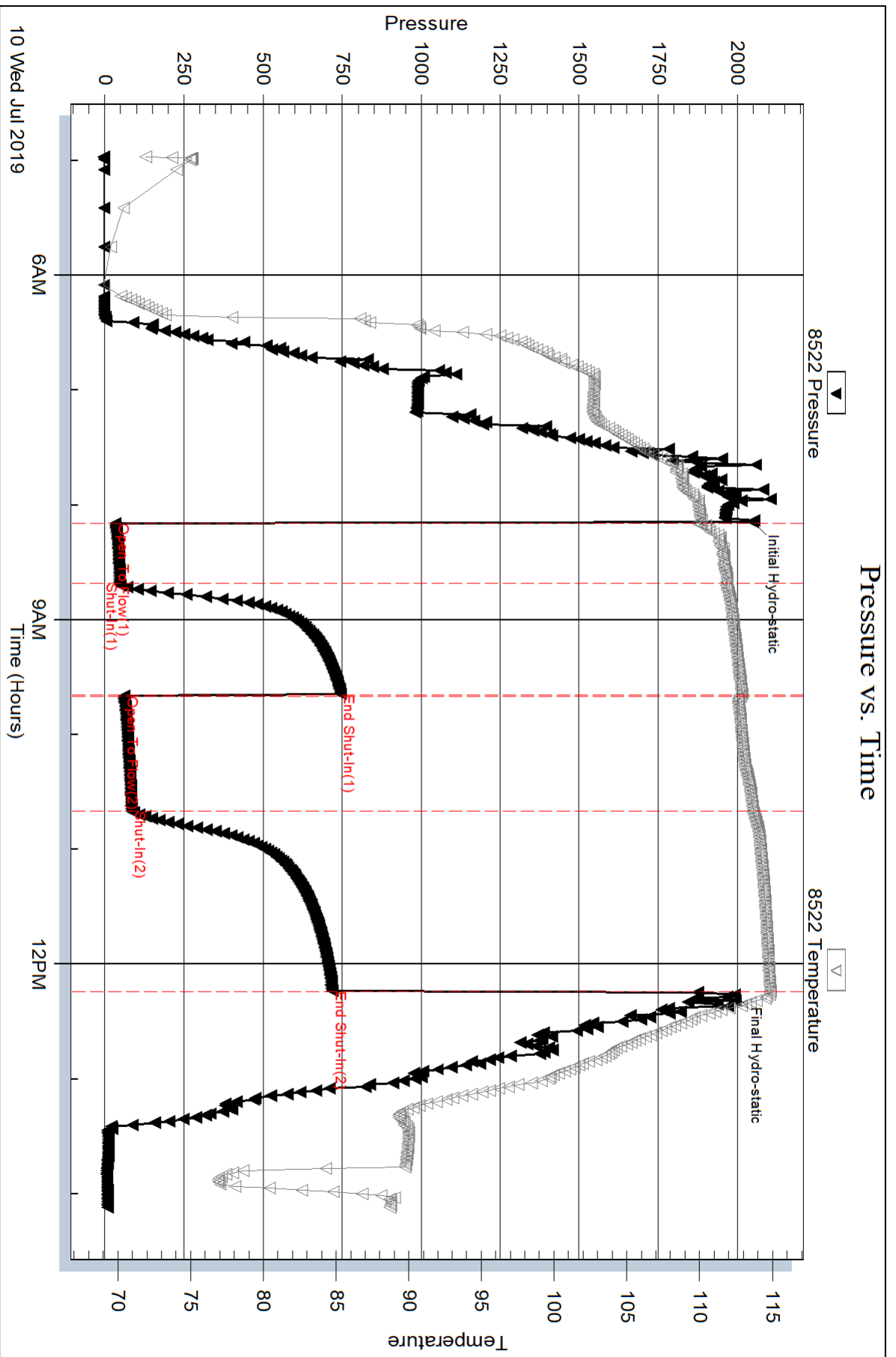
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .143 @ 85f = 48000ppm

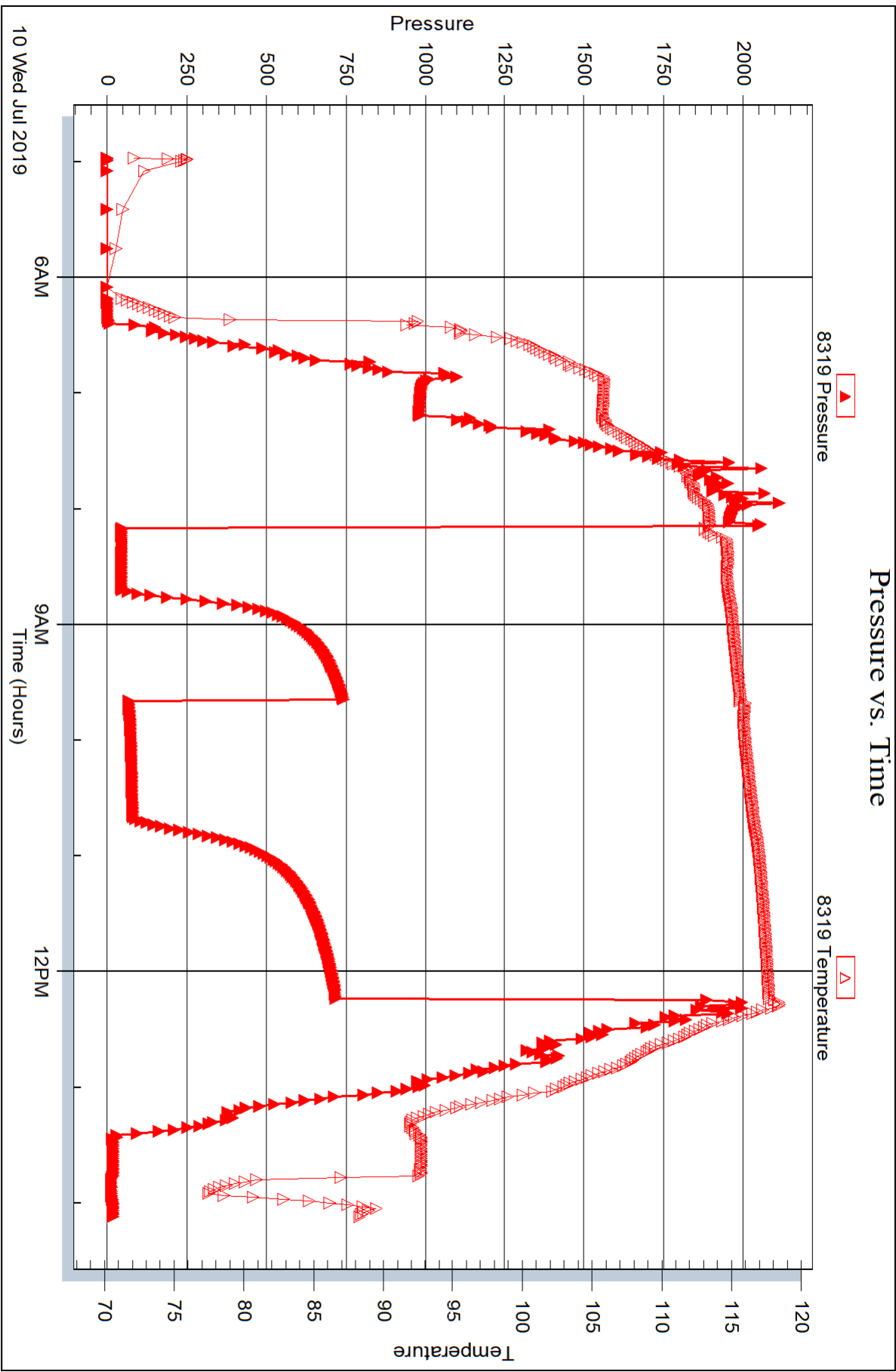


Serial #: 8319

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

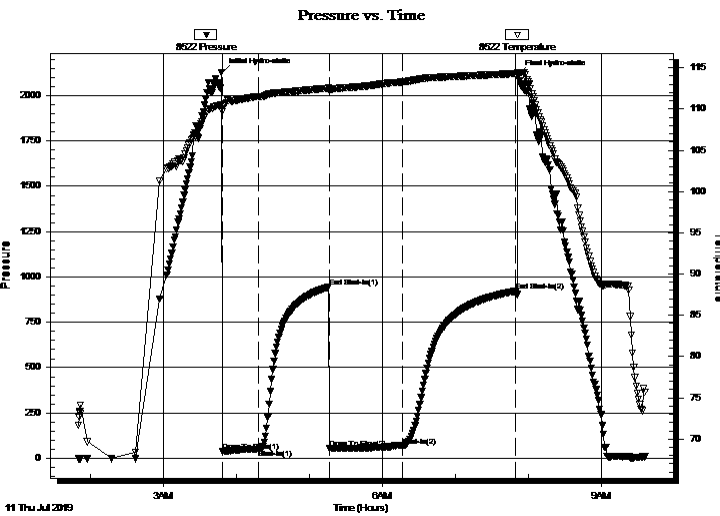
12-13s-33w Logan,KS
Racette #3-12
 Job Ticket: 64363 **DST#: 2**
 Test Start: 2019.07.11 @ 01:50:05

GENERAL INFORMATION:

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

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

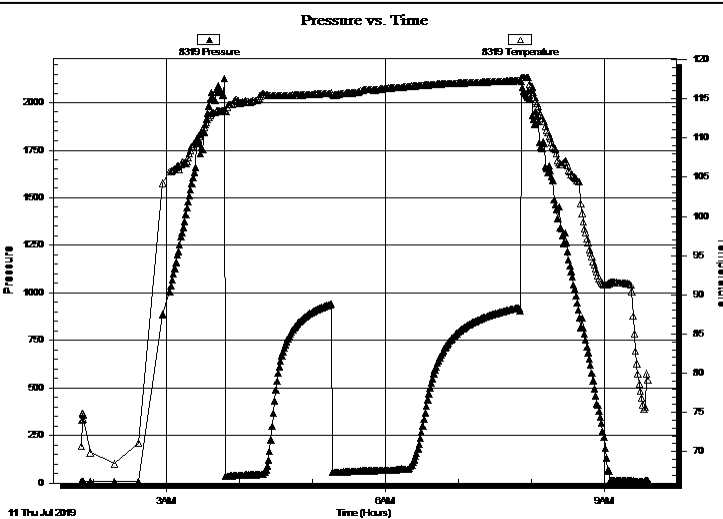
Test Start: 2019.07.11 @ 01:50:05

GENERAL INFORMATION:

Formation: LKC I - K		
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 03:48:15		Tester: Bradley Walter
Time Test Ended: 09:35:59		Unit No: 78
Interval: 4191.00 ft (KB) To 4275.00 ft (KB) (TVD)		Reference Elevations: 3045.00 ft (KB)
Total Depth: 4275.00 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 @ 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- IS: No return.
60- FF: Surface blow , Died @ 30 min.
90- FS: 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
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: 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 in³

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

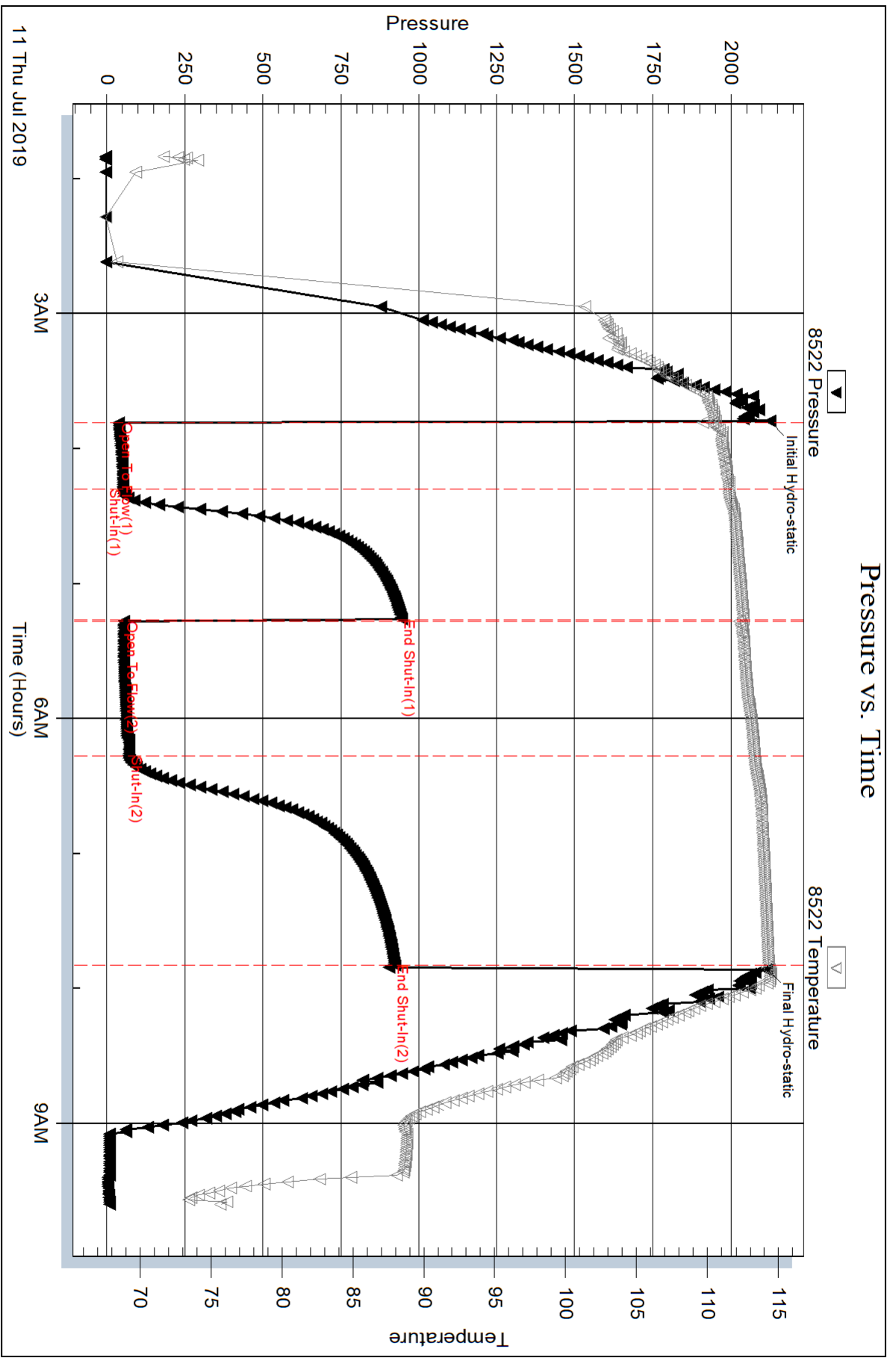
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

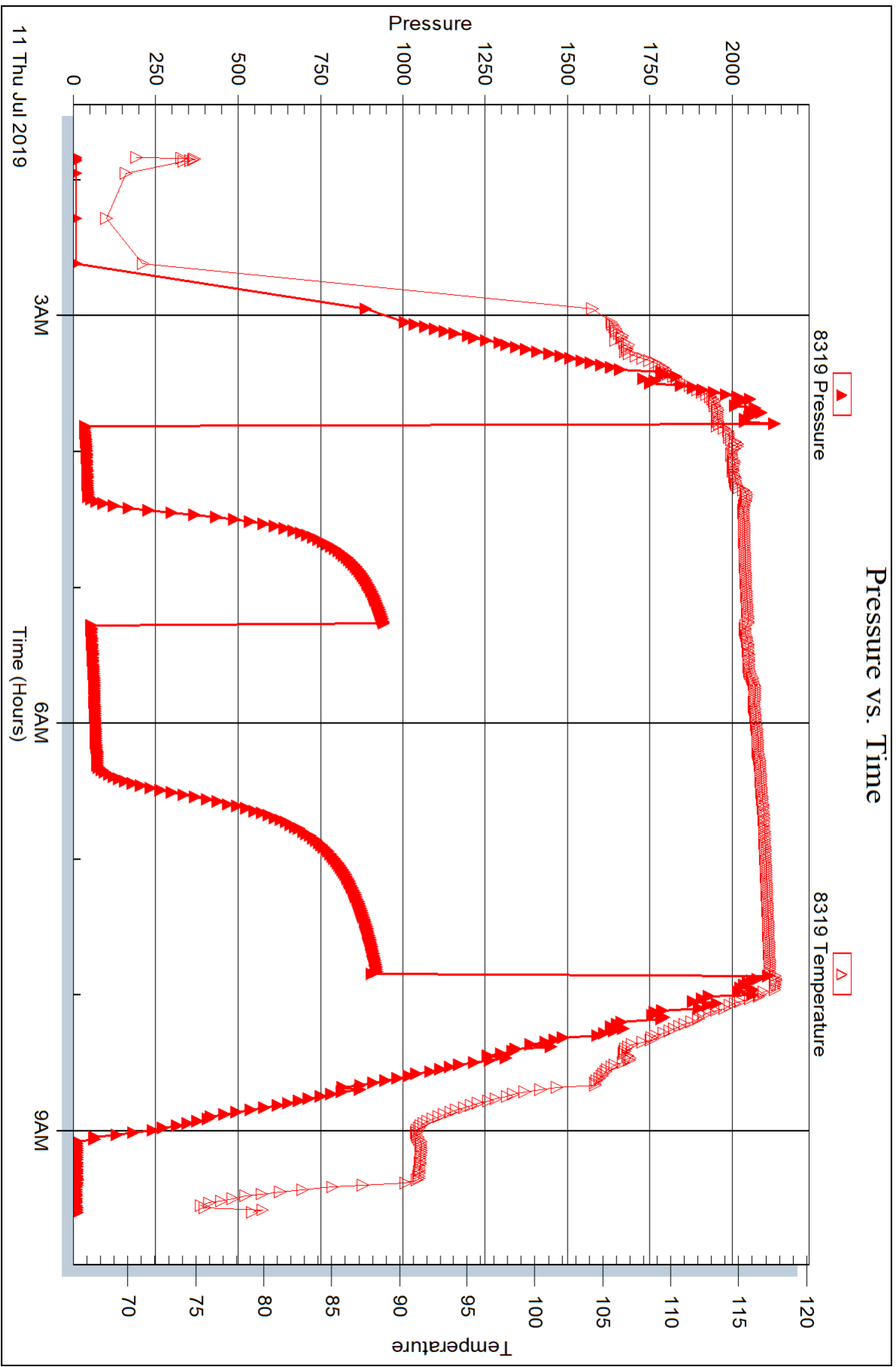


Serial #: 8319

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

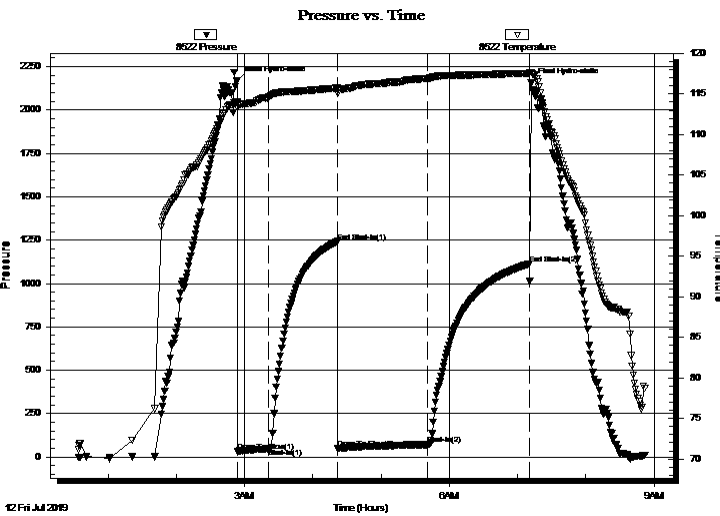
12-13s-33w Logan,KS
Racette #3-12
 Job Ticket: 64364 **DST#: 3**
 Test Start: 2019.07.12 @ 00:34:00

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

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 in³

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

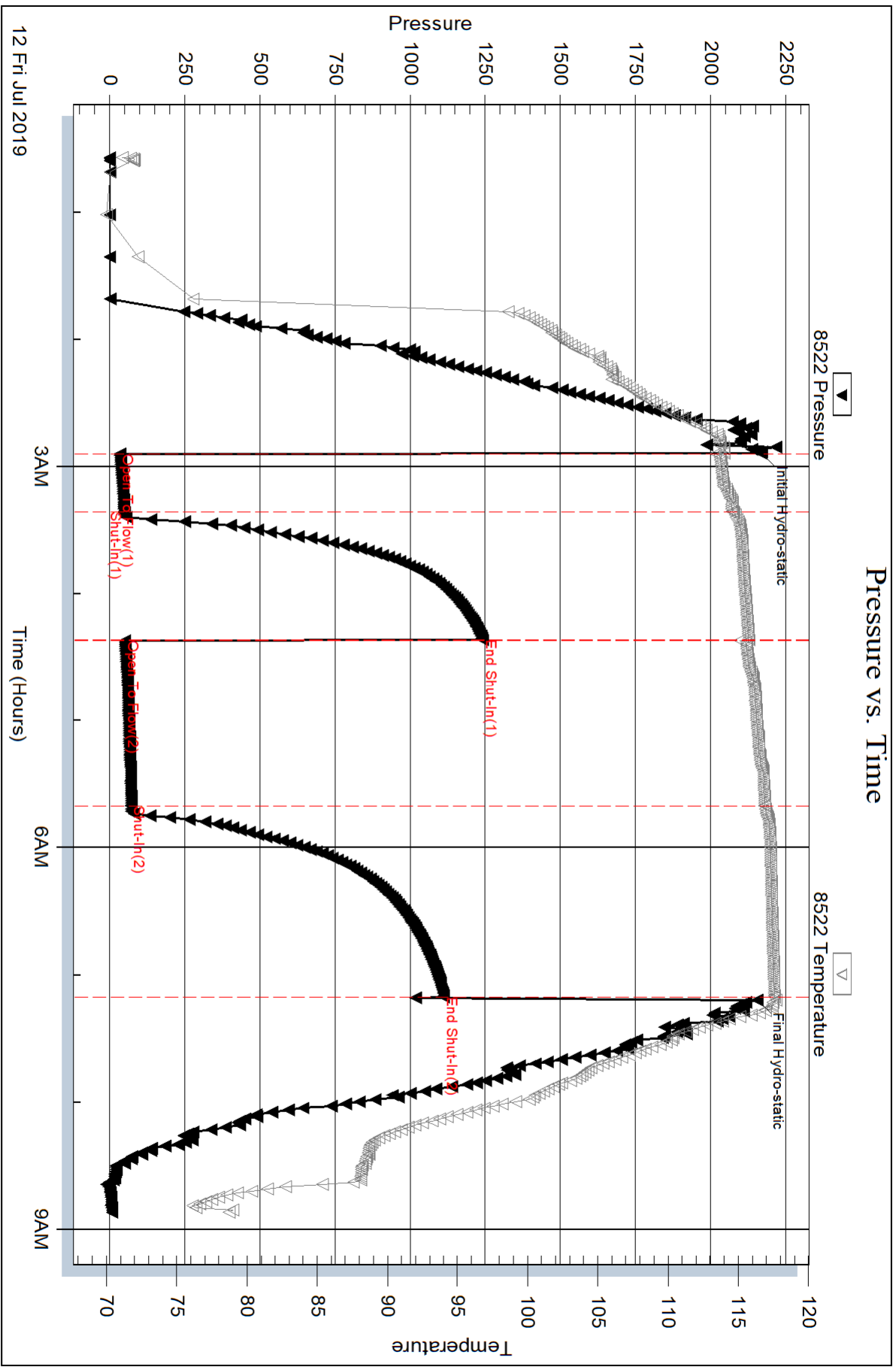
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

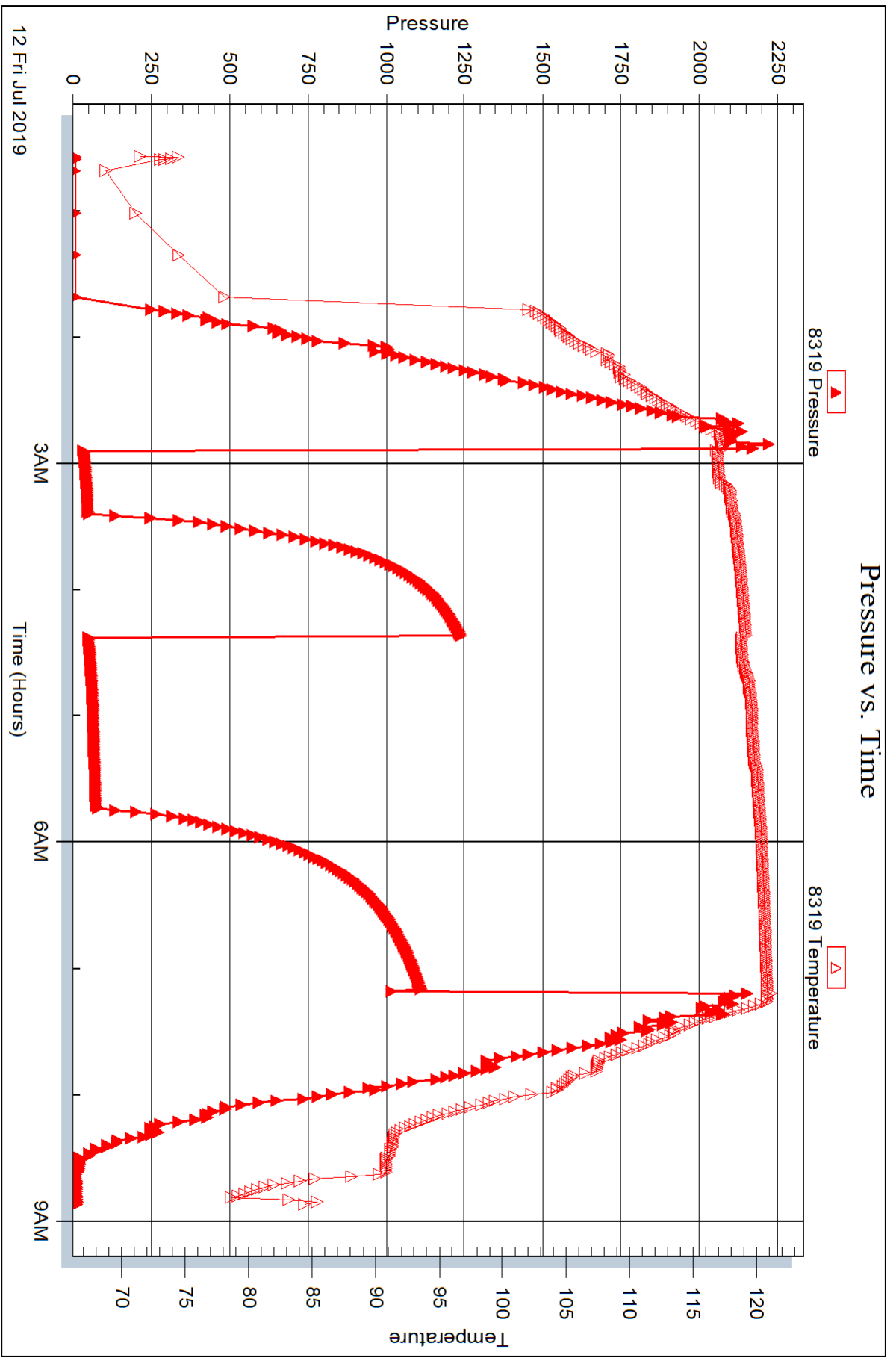


Serial #: 8319

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

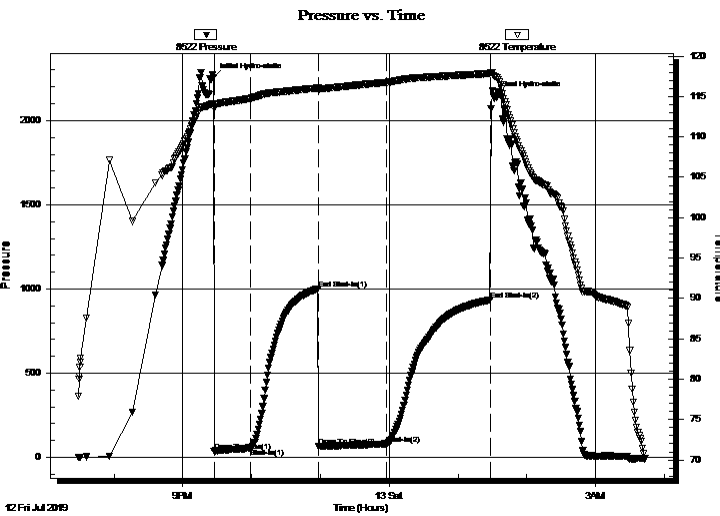
12-13s-33w Logan,KS
Racette #3-12
 Job Ticket: 64365 **DST#: 4**
 Test Start: 2019.07.12 @ 19:29:00

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

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:

bbbl

Water Loss: 7.59 in³

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:

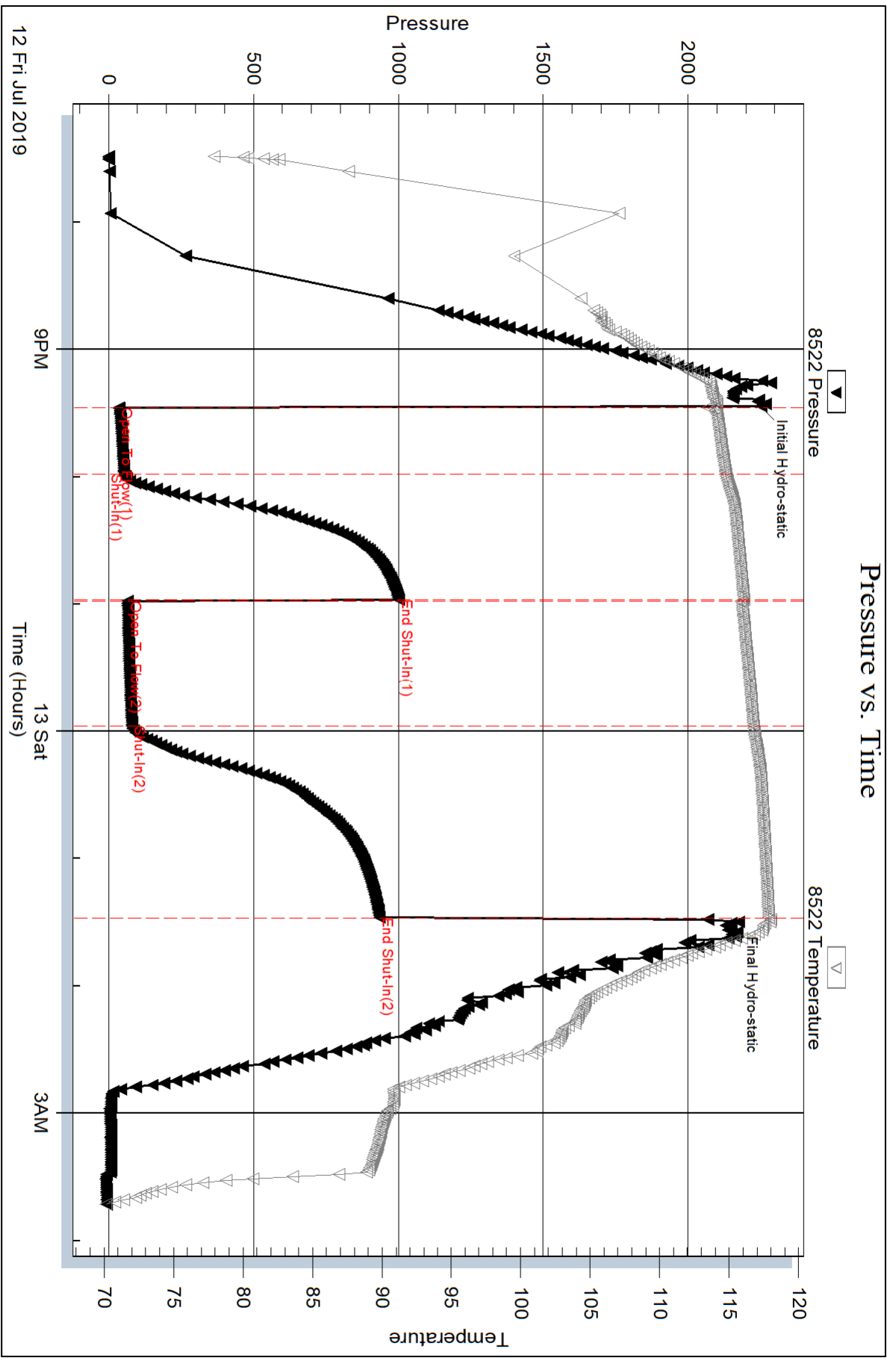
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 64365

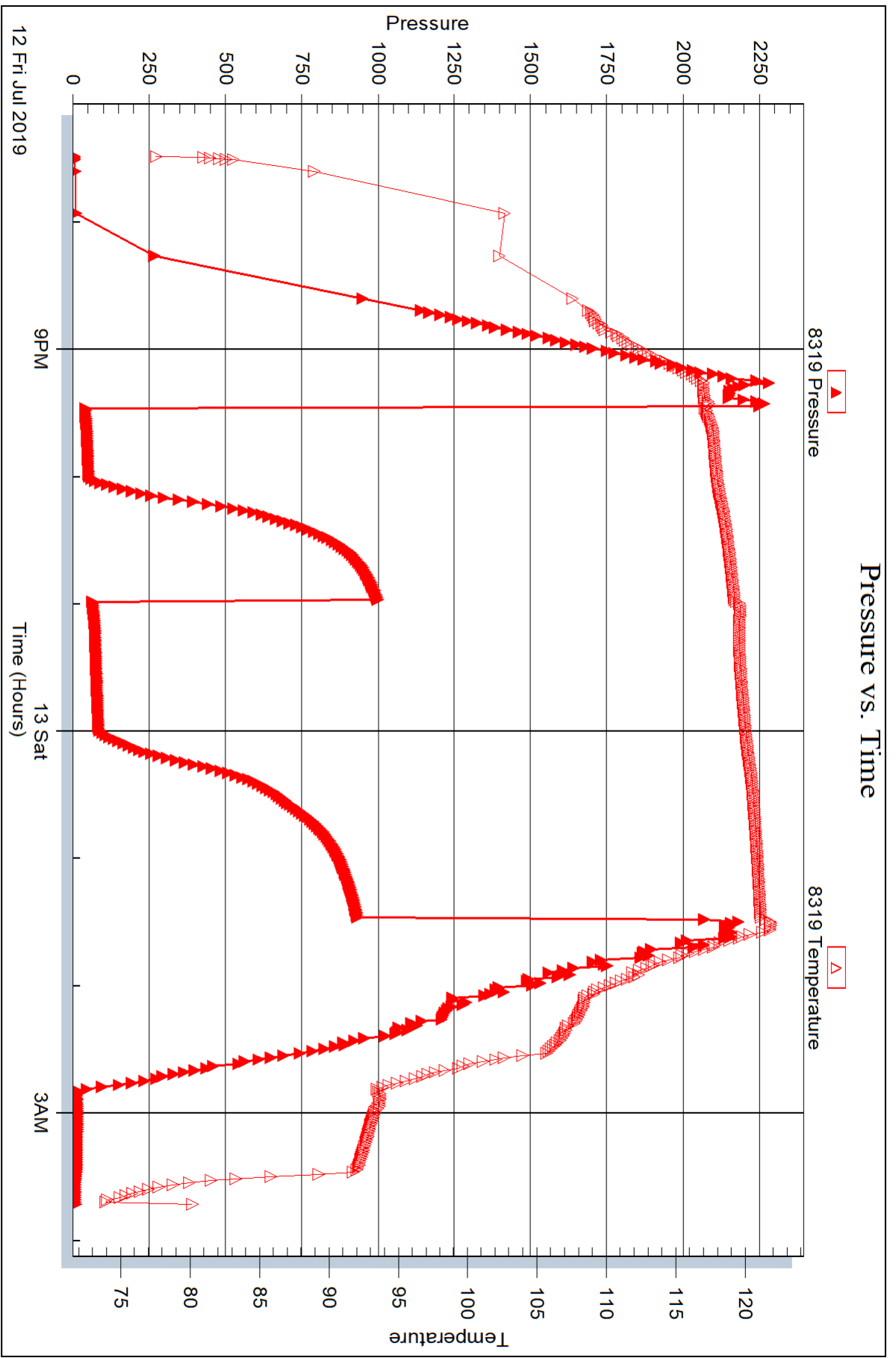
Printed: 2019.07.16 @ 10:51:12

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

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

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 in³

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:

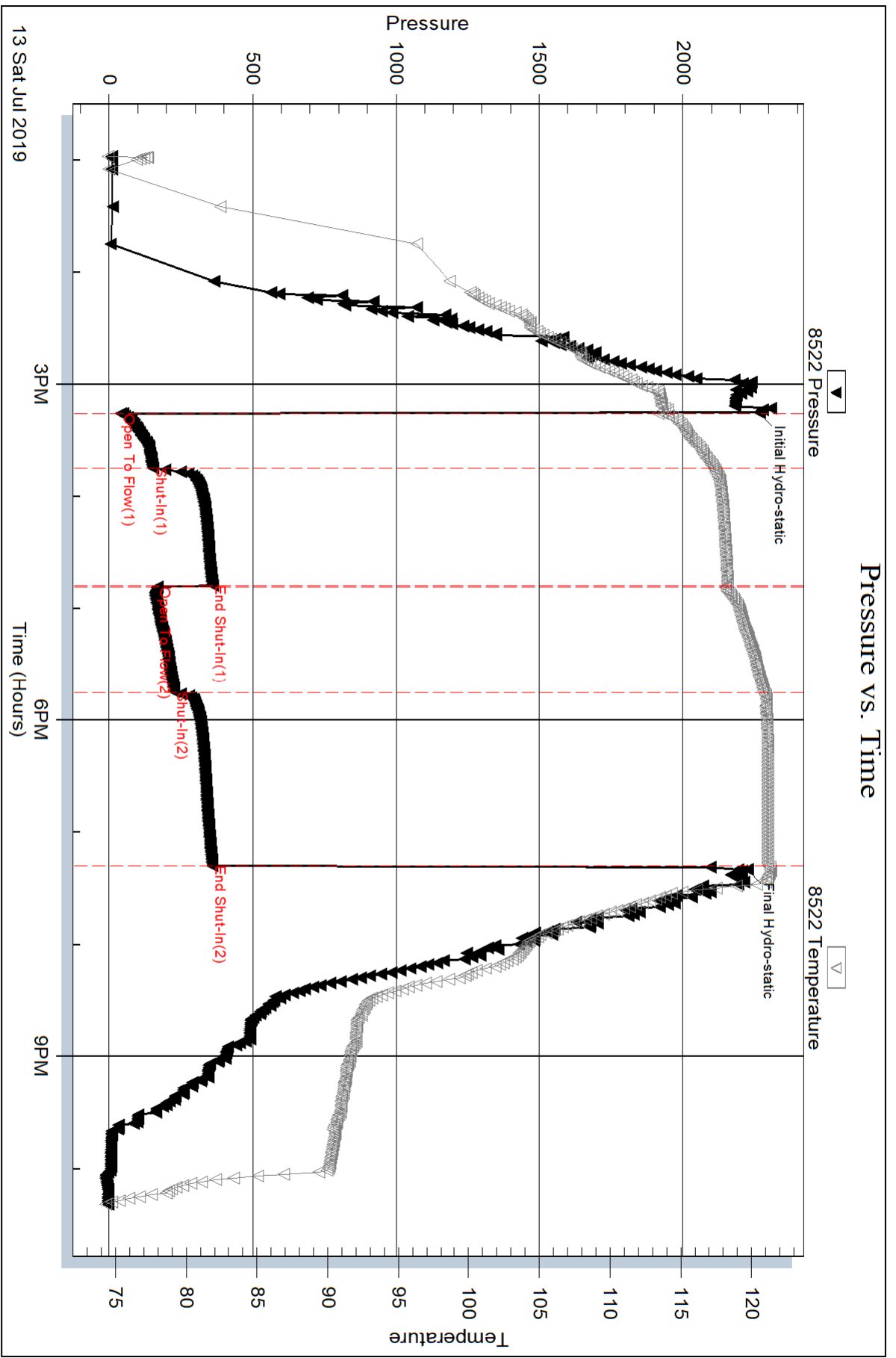
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 5

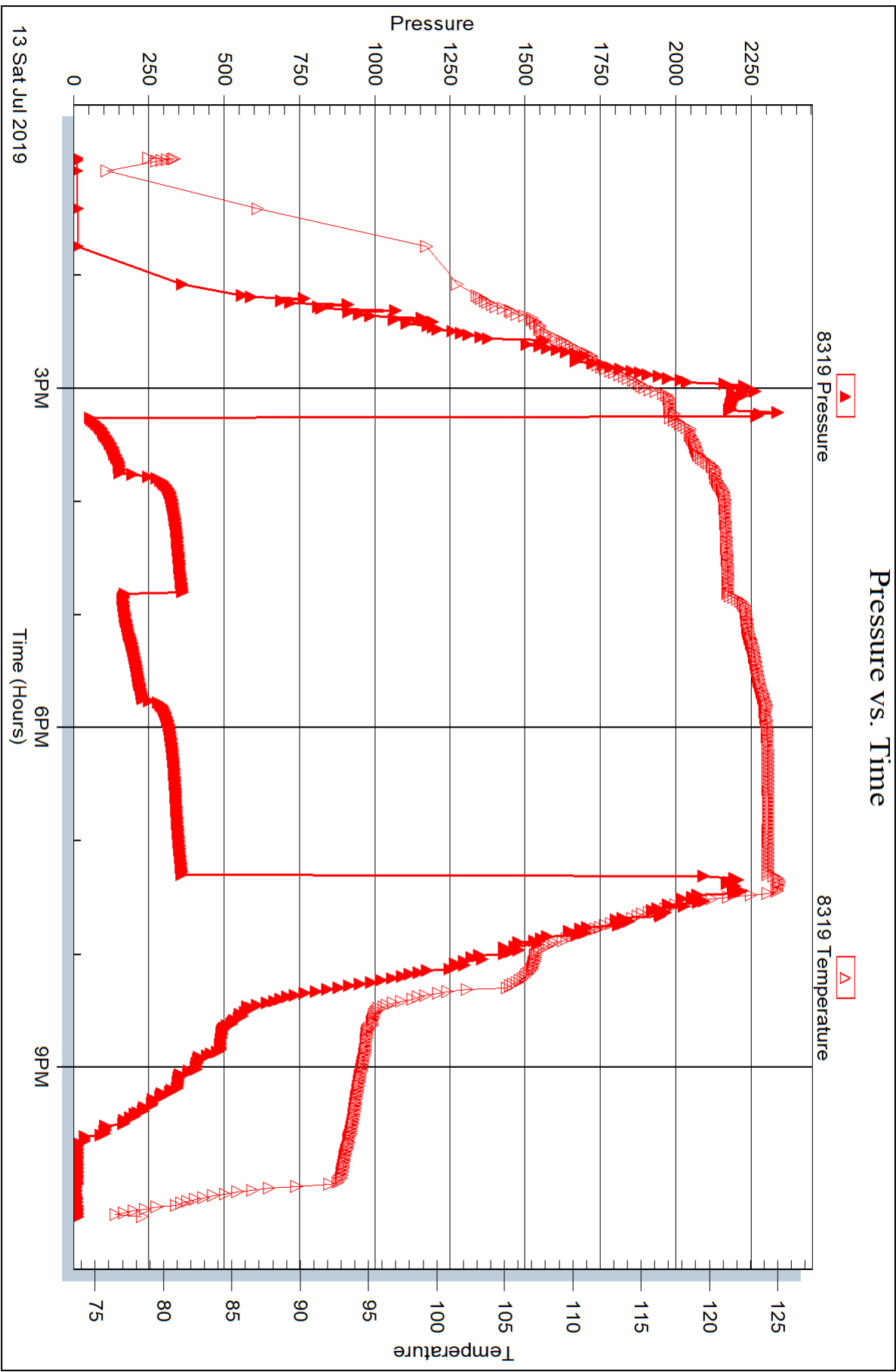


Serial #: 8319

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

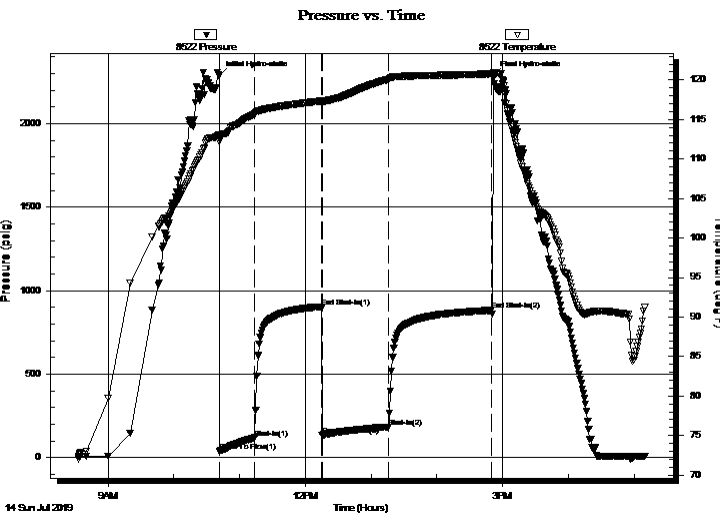
GENERAL INFORMATION:

Formation: **Morrow Sand**
Deviated: No Whipstock: ft (KB)
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 #: 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

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 in³

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

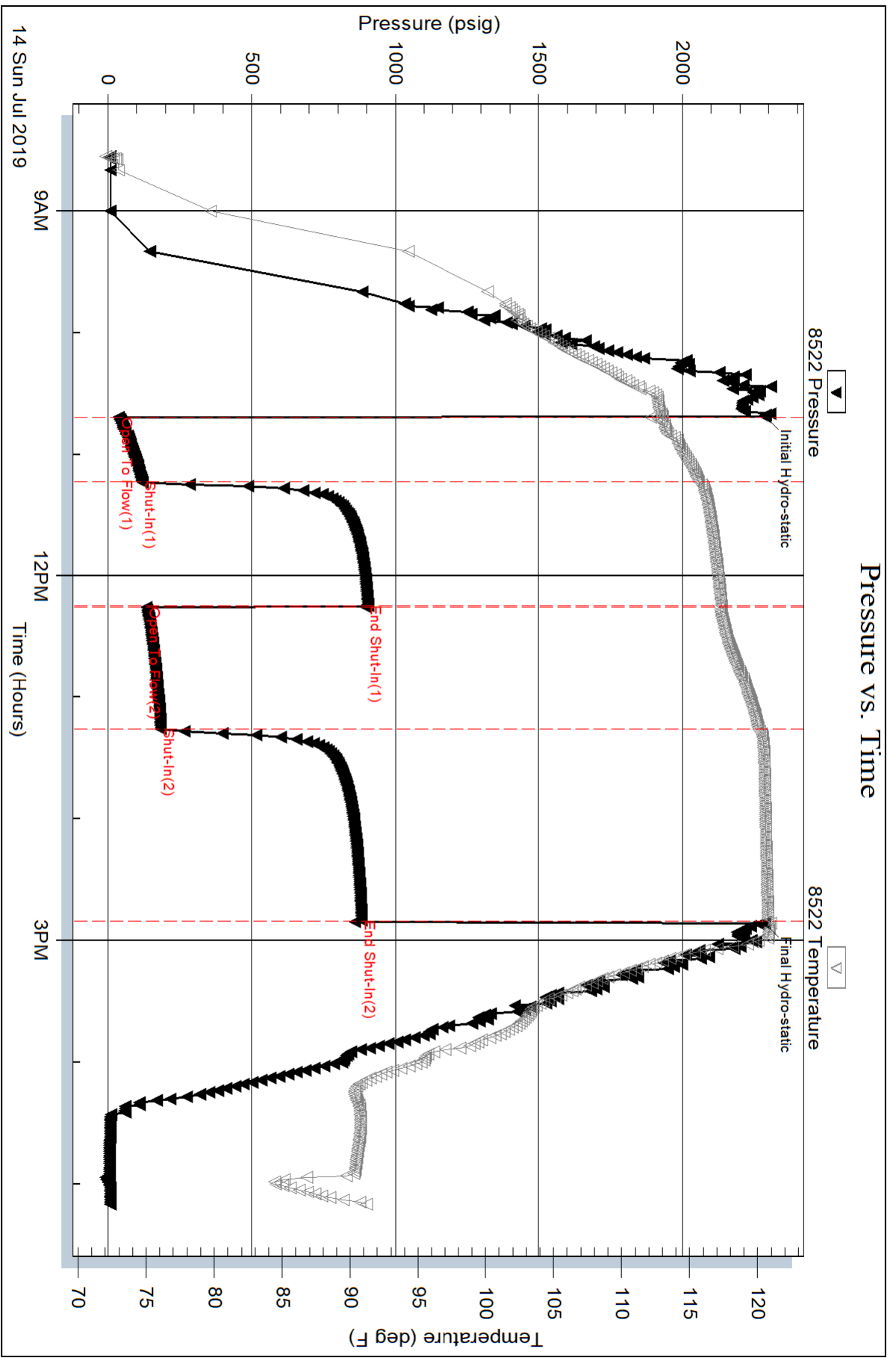
Serial #: 8522

Inside

Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 6

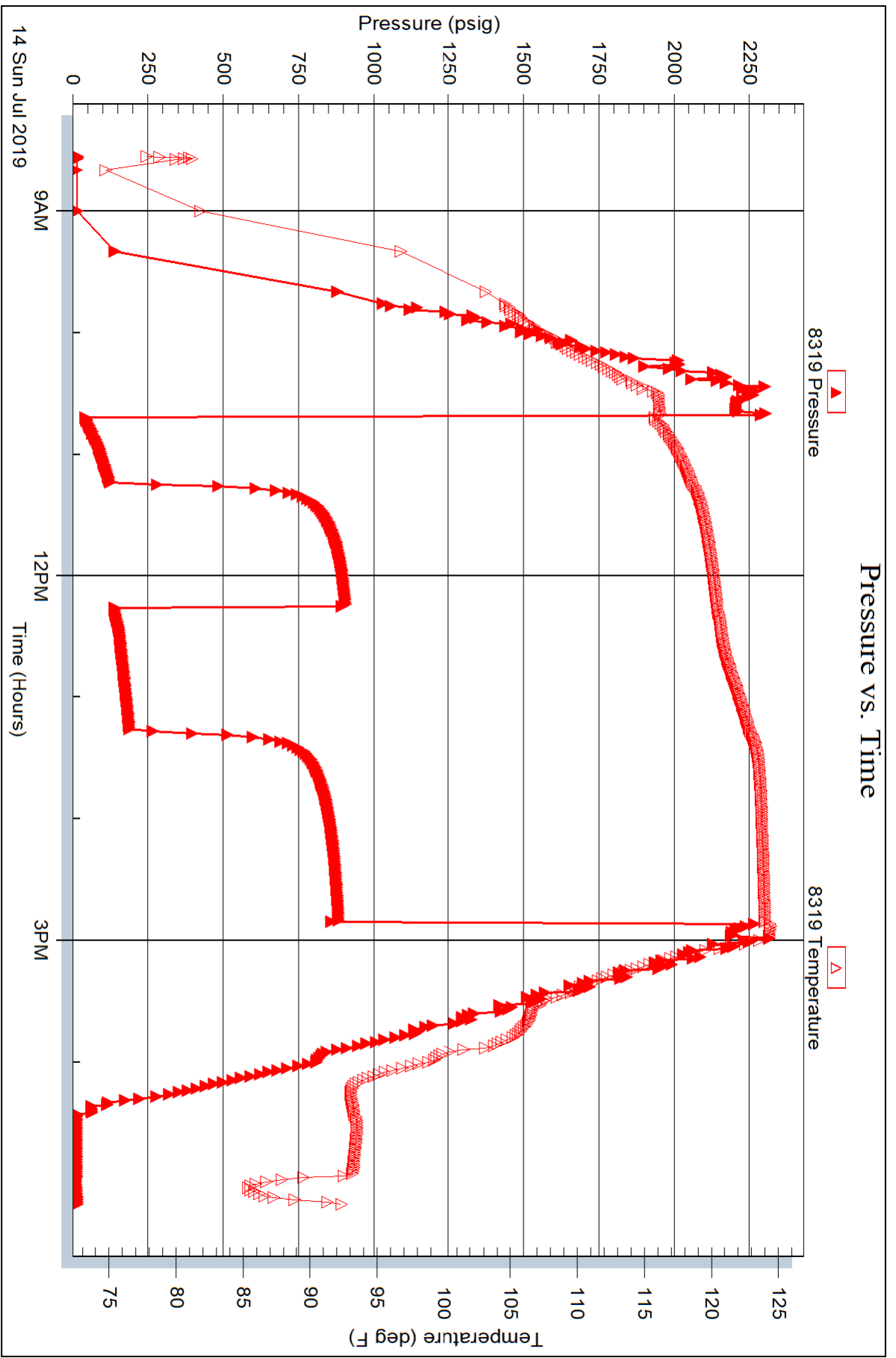


Serial #: 8319

Outside Murfin Drilling Co, Inc

Racette #3-12

DST Test Number: 6





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64362**

Well Name & No. Rancette #3-12 Rancette 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.

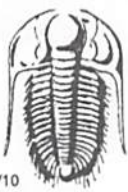
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>oil</u>	<u>100</u>			
<u>20</u>	<u>ocm</u>	<u>20</u>			<u>80</u>
<u>60</u>	<u>sowcm</u>	<u>1</u>		<u>39</u>	<u>60</u>

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> <u>82</u>	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 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 _____

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

Sub Total 1707
 Total 1707
 MP/DST Disc't _____

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#

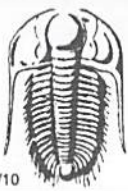
Blow Description IF : 2" blow.
ISI : No return.
FF : 1" blow
FSI : No return.

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 3rd
 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

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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>0</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>0</u>	<u>2</u>	<u>50</u>	<u>48</u>
<u>200'</u>	<u>GIP</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</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

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

Approved By _____ Our Representative [Signature]

Sub Total 1707

MP/DST Disc't _____

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CEMENT TREATMENT REPORT

Customer:	Murfin Drilling	Well:	Racette 3-12	Ticket:	ICT2144
City, State:		County:	Logan, KS	Date:	7/15/2019
Field Rep:	Ben Simmlinger	S-T-R:	12-13S-33W	Service:	Cement

Downhole Information	
Hole Size:	7 7/8"
Hole Depth:	4765'
Casing Size:	5.5"
Casing Depth:	4760'
Tubing / Liner:	In
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	113

Slurry	
Weight:	14.8 # / sx
Water / Sx:	6 1/2 gal / sx
Yield:	1 1/2 ft ³ / sx
Bbls / Ft.:	
Depth:	ft
Volume:	bbls
Excess:	%
Total Slurry:	61 bbls
Total Sacks:	225 sx

Cement Blend		
Product	%	#
Class A		21150
Gel		211
CaCl		
Metso		
KolSeal		1125
PhenoSeal		
Salt		1237
Plaster		1057
Total		24,780

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
7pm				Arrival					
705pm				Safety meeting					
710pm				Rig up equip					
815pm				Run in casing					
				Turbolizers on jnts 1-10,12,14,18,30,53					
				Baskets on jnts 18,30,53					
				PC tool on jnt 54 @ 2524'					
10pm				Jnt 57 Circulate 30 mins					
1030pm				Run in casing					
1145pm				Circulate casing on bottom 1.6 hrs					
1230am	5.0	400.0	12.0	Pump mud flush					
1240am	3.0		8.0	Plug RH 30sx					
1245am	3.0		5.0	Plug MH 20sx					
1247am	6.0	400.0	60.0	Mix 176sx DH					
1255am				Shut down Clear pump and lines					
1257am				Release plug					
1am	6.0	950.0	113.0	Displace					
120am		1,400.0		Plug down					
125am				Wash up and rig down equip					
140am				Depart					

CREW		UNIT		SUMMARY		
Cementer:	Miles Shaw		73.0	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Dane Retzlloff/Josh Mosler		231.0	4.6 bpm	787.50 psi	188.00 bbls
Bulk #1:	Jesse Jones		181 / 254			
Bulk #2:	Dane Retzlloff		78.0			



CEMENT TREATMENT REPORT

Customer: Murfin Drilling Co	Well: Racette #3-21	Ticket: ICT2170
City, State: Wichita, KS	County: Logan	Date: 7/23/2019
Field Rep: Glen	S-T-R: Sec 6 - T13S - R33W	Service: Cement

Downhole Information	
Hole Size:	8 3/4 in
Hole Depth:	ft
Casing Size:	5 1/2 in
Casing Depth:	ft
Tubing / Liner:	2 3/8 in
- Depth:	ft
Tool / Packer:	Port Collar
Depth:	2518 ft
Displacement:	9.5 bbls

Slurry	
Weight:	12 # / sx
Water / Sx:	12.51 gal / sx
Yield:	2.56 ft ³ / sx
Bbls / Ft.:	0.0405
Depth:	2518 ft
- Volume:	113 bbls
Excess:	%
Total Slurry:	108 bbls
Total Sacks:	285 sx

Cement Blend		
Product	%	#
Class A	100.0	37600
Gel		
CaCl	3.0	1128
Metso	2.0	752
Gypsum	2.0	752
PhenoSeal	0.25#/sk	100
Salt		
Total		40,332

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
8:00 AM				Called for job	13:16				Rig down & rack-up equipment
11:00 AM				Depart Oakley yard	13:30				Depart locn
11:30 AM				Arrive on locn. Rig performing					
11:35 AM				JSA, discuss moving, spotting & rig-u					
11:40 AM				Move on, spot & rig-up					
11:55 AM				Rig-up complete					Note: Mixed & pumped 130bbls / 285sx of
11:58 AM		1,200.0		Pressure up backside					of 12.0ppg cement.
12:00 PM		200.0		Bleed back pressure					Thanks for calling Hurricane Svcs Inc
12:01 PM				Open port collar					
12:04 PM	0.5		150.0	Start pumping & have light blow at pit					
				and confirm port collar is open					
12:05 PM				Rig-up to 2 3/8" tbg					
12:08 PM	3.5	500.0	5.0	Pump H2O ahead					
12:11 PM	3.0	400.0		Mix & pump cement slurry @ 12.0#					
				Y - 2.56cuf/sk, MW - 12.51g/sk					
12:12 PM				Mud returns @ pit					
12:39 PM	4.0	800.0	120.0	Cement returns @ surface					
12:41 PM			130.0	Shutdown					
12:42 PM	3.5	700.0		Pump displacement					
12:45 PM			9.0	Shutdown					
12:46 PM				Hook-up to backside. Close port collar					
12:48 PM		800.0		Pressure up on port collar & confirm e					
12:49 PM				Bleed-off pressure					
12:52 PM				RIH w/ 4jts 2 3/8" tbg to 2636'					
12:59 PM	3.0	400.0		Start to rev circ					
1:05 PM			25.0	Shutdown. End Job					
1:06 PM				Wash-up pumps & lines to pit					

CREW		UNIT
Cementer:	Scott Green	74
Pump Operator:	Michael Rebarcek	266
Bulk #1:	John Polley	182 / 256
Bulk #2:	Dane Retzliff	78

SUMMARY		
Average Rate	Average Pressure	Total Fluid
2.91667 bpm	625.00 psi	439.00 bbls