

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 Recompletion Date \_\_\_\_\_ Date Reached TD \_\_\_\_\_ Completion Date or Recompletion Date \_\_\_\_\_

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

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

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

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

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

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

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

Datum:  NAD27  NAD83  WGS84

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

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

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

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

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

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

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

Multiple Stage Cementing Collar Used?  Yes  No

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

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

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

**Drilling Fluid Management Plan**

*(Data must be collected from the Reserve Pit)*

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

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

Location of fluid disposal if hauled offsite: \_\_\_\_\_

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

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

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

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

**AFFIDAVIT**

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

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

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

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

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

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

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

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

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

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

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

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

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

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

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

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	KEN 3-17
Doc ID	1371785

All Electric Logs Run

DIL
DUCP
MEL
BHCS





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Clayton Erickson

**Ken #3-17**

**17-1s-35w Rawlins,KS**

Start Date: 2017.07.10 @ 07:33:00

End Date: 2017.07.10 @ 13:54:00

Job Ticket #: 64047                      DST #: 1

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

Printed: 2017.07.17 @ 09:20:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Clayton Erickson

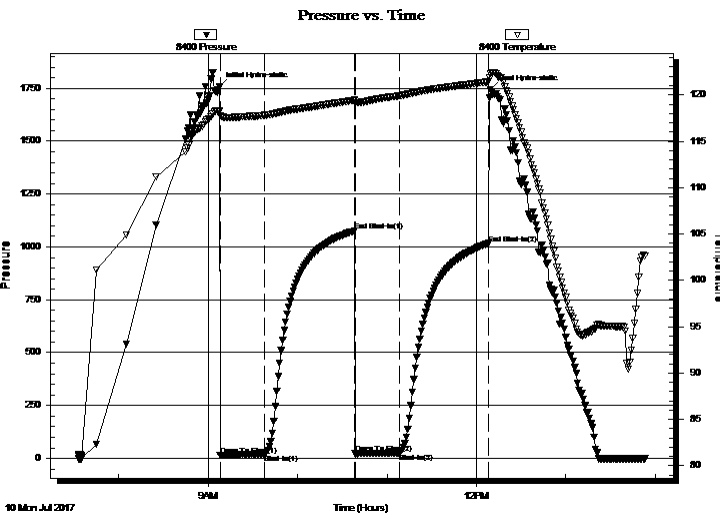
**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
 Job Ticket: 64047 **DST#: 1**  
 Test Start: 2017.07.10 @ 07:33:00

## GENERAL INFORMATION:

Formation: **Foraker**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:08:00  
 Time Test Ended: 13:54:00  
 Interval: **3645.00 ft (KB) To 3699.00 ft (KB) (TVD)**  
 Total Depth: 3699.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3181.00 ft (KB)  
 3176.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8400 Outside**  
 Press@RunDepth: 25.56 psig @ 3648.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.10 End Date: 2017.07.10 Last Calib.: 2017.07.10  
 Start Time: 07:33:01 End Time: 13:53:30 Time On Btm: 2017.07.10 @ 09:07:30  
 Time Off Btm: 2017.07.10 @ 12:09:30

**TEST COMMENT:** 30-IFP- 1/4". Blow Died Back in 21 min.  
 60-ISIP- No Blow  
 30-FFP- No Blow  
 60-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1756.12	118.25	Initial Hydro-static
1	15.76	117.78	Open To Flow (1)
31	20.66	117.80	Shut-In(1)
91	1074.53	119.42	End Shut-In(1)
91	22.12	119.04	Open To Flow (2)
121	25.56	119.91	Shut-In(2)
181	1016.13	121.41	End Shut-In(2)
182	1743.60	122.27	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Oil Speck Mud 1%o 99%m	0.02

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Clayton Erickson

**17-1s-35w Rawlins, KS**  
**Ken #3-17**  
 Job Ticket: 64047 **DST#: 1**  
 Test Start: 2017.07.10 @ 07:33:00

## GENERAL INFORMATION:

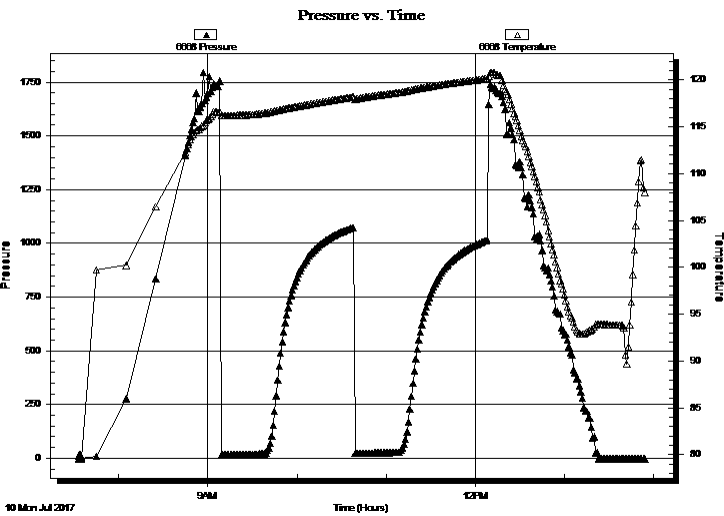
Formation: **Foraker**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:08:00  
 Time Test Ended: 13:54:00  
 Interval: **3645.00 ft (KB) To 3699.00 ft (KB) (TVD)**  
 Total Depth: 3699.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3181.00 ft (KB)  
 3176.00 ft (CF)  
 KB to GR/CF: 5.00 ft

## Serial #: 6668

Inside

Press@RunDepth: psig @ 3648.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.10 End Date: 2017.07.10 Last Calib.: 2017.07.10  
 Start Time: 07:33:01 End Time: 13:54:00 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30-IFP- 1/4". Blow Died Back in 21 min.  
 60-ISIP- No Blow  
 30-FFP- No Blow  
 60-FSIP- No Blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Oil Speck Mud 1%o 99% m	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64047

**DST#: 1**

ATTN: Clayton Erickson

Test Start: 2017.07.10 @ 07:33:00

## Tool Information

Drill Pipe:	Length: 3450.00 ft	Diameter: 3.80 inches	Volume: 48.39 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 49.29 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3645.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	54.00 ft			
Tool Length:	82.00 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			3618.00	
Shut In Tool	5.00			3623.00	
Hydraulic tool	5.00			3628.00	
Jars	5.00			3633.00	
Safety Joint	2.00			3635.00	
Packer	5.00			3640.00	28.00 Bottom Of Top Packer
Packer	5.00			3645.00	
Stubb	1.00			3646.00	
Perforations	2.00			3648.00	
Recorder	0.00	6668	Inside	3648.00	
Recorder	0.00	8400	Outside	3648.00	
Perforations	15.00			3663.00	
Change Over Sub	1.00			3664.00	
Blank Spacing	31.00			3695.00	
Change Over Sub	1.00			3696.00	
Bullnose	3.00			3699.00	54.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>82.00</b>				





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64047

**DST#: 1**

ATTN: Clayton Erickson

Test Start: 2017.07.10 @ 07:33:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.57 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 4.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Oil Speck Mud 1%o 99%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

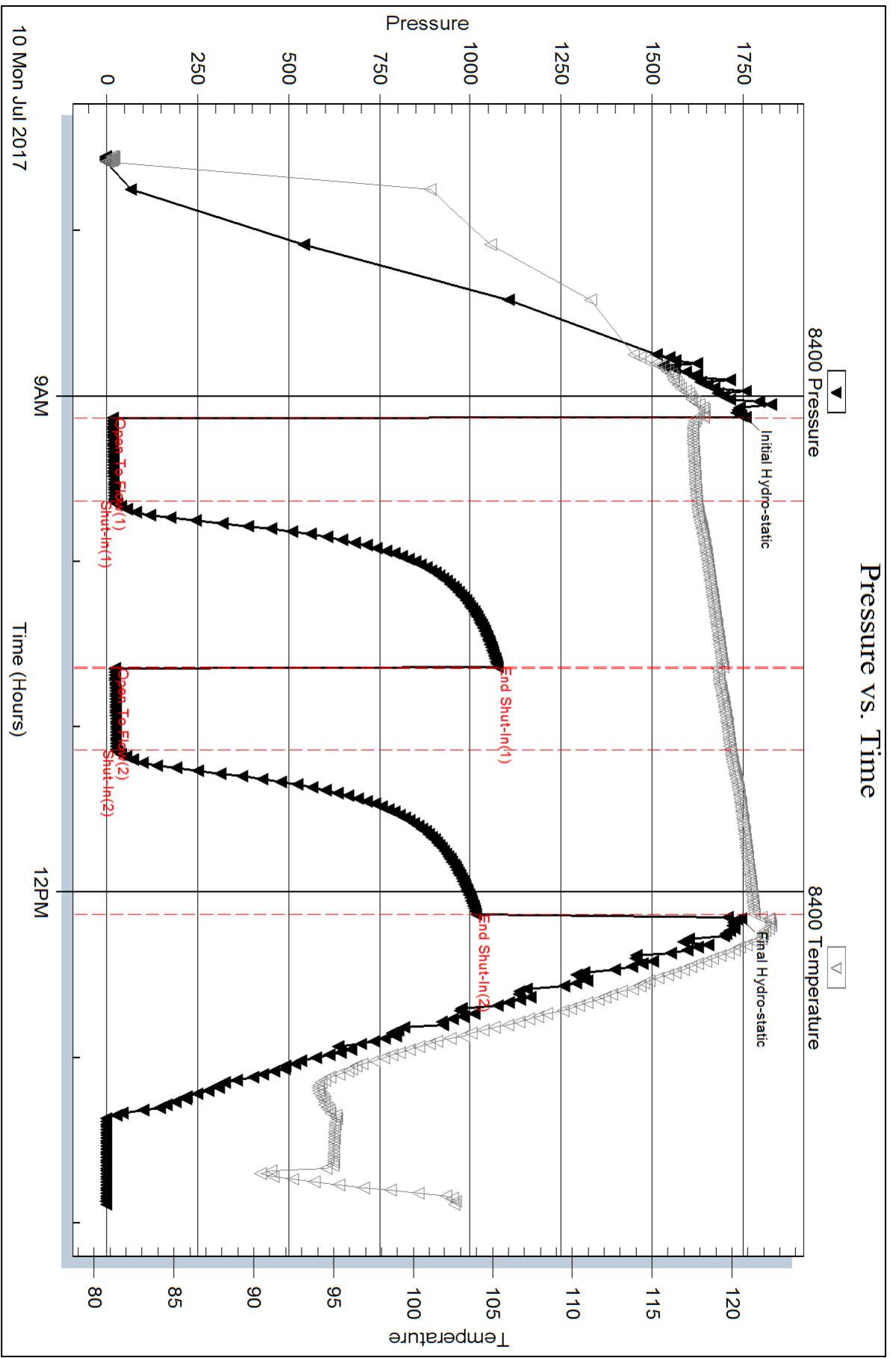
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



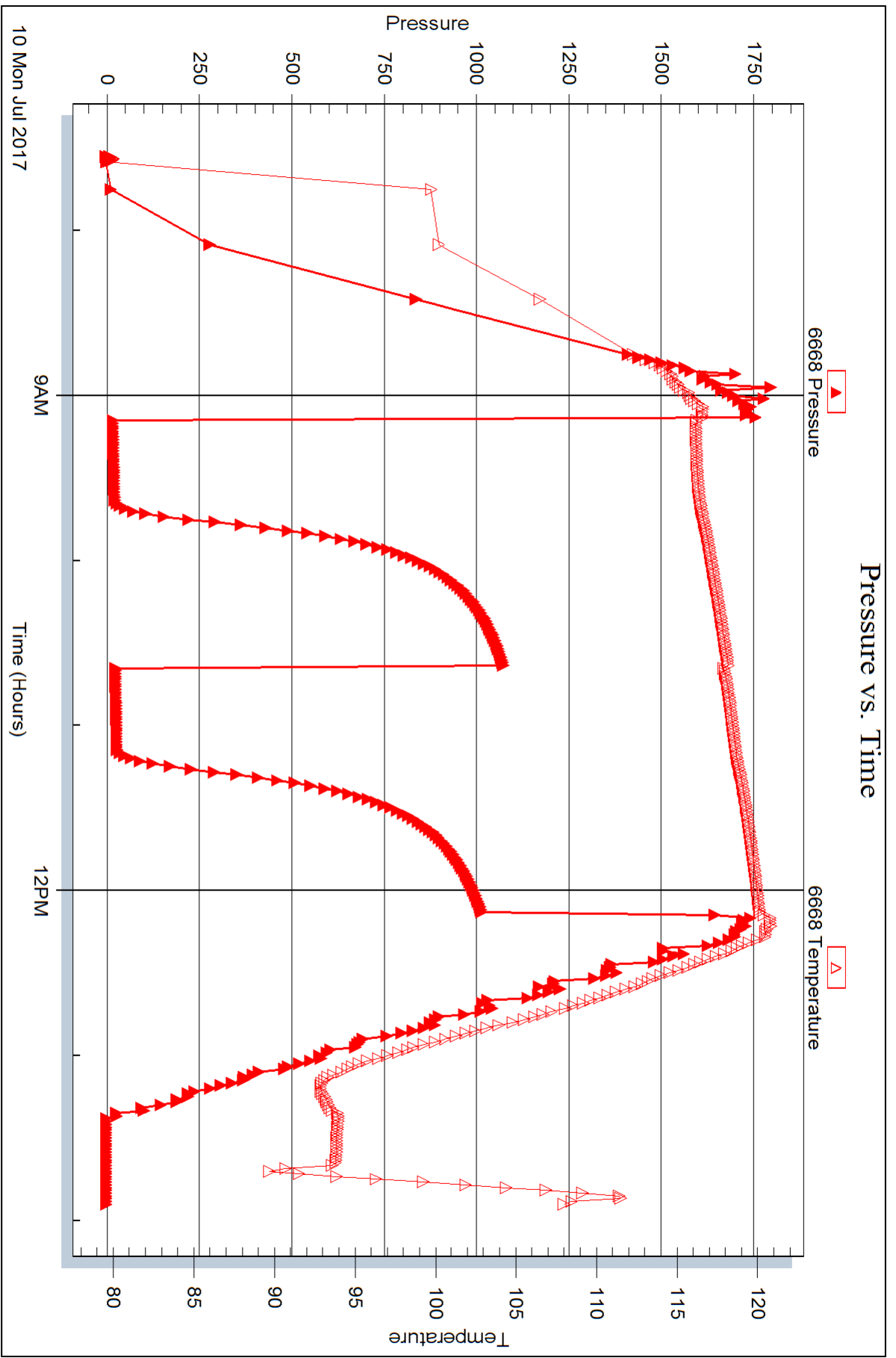
Serial #: 6668

Inside

Murfin Drilling Co Inc

Ken #3-17

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Clayton Erickson

**Ken #3-17**

**17-1s-35w Rawlins,KS**

Start Date: 2017.07.12 @ 02:30:00

End Date: 2017.07.12 @ 09:55:00

Job Ticket #: 64048                      DST #: 2

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

Printed: 2017.07.17 @ 09:19:40

Murfin Drilling Co Inc  
17-1s-35w Rawlins,KS  
Ken #3-17  
DST # 2  
LKC " A - D "  
2017.07.12



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Clayton Erickson

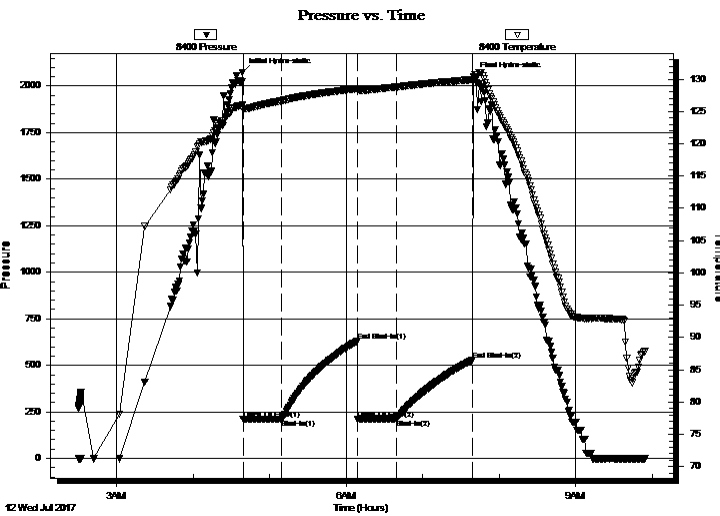
**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
Job Ticket: 64048 **DST#: 2**  
Test Start: 2017.07.12 @ 02:30:00

## GENERAL INFORMATION:

Formation: **LKC " A - D "**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 04:39:00  
Time Test Ended: 09:55:00  
Interval: **4045.00 ft (KB) To 4180.00 ft (KB) (TVD)**  
Total Depth: 4180.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Jim Svaty  
Unit No: 76  
Reference Elevations: 3181.00 ft (KB)  
3176.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8400 Outside**  
Press@RunDepth: 212.17 psig @ 4052.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2017.07.12 End Date: 2017.07.12 Last Calib.: 2017.07.12  
Start Time: 02:30:01 End Time: 09:54:30 Time On Btm: 2017.07.12 @ 04:38:30  
Time Off Btm: 2017.07.12 @ 07:40:00

**TEST COMMENT:** 30-IFP- Surface Blow Building to 3/4" In 10 min. Died Back in 15 min.  
60-ISIP- No Blow  
30-FFP- No Blow  
60-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2073.39	125.94	Initial Hydro-static
1	209.54	125.29	Open To Flow (1)
31	210.89	126.64	Shut-In(1)
90	630.29	128.51	End Shut-In(1)
91	210.68	128.35	Open To Flow (2)
121	212.17	128.77	Shut-In(2)
181	528.53	129.91	End Shut-In(2)
182	2050.67	130.43	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
375.00	Mud 100%	3.58
0.00	Show of Oil in Tool	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 Ste 300  
Wichita KS 67202-1216  
ATTN: Clayton Erickson

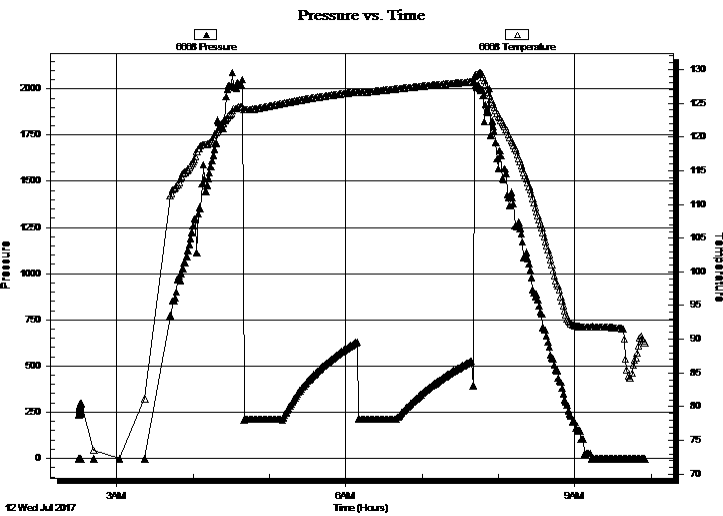
**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
Job Ticket: 64048      **DST#: 2**  
Test Start: 2017.07.12 @ 02:30:00

## GENERAL INFORMATION:

Formation: **LKC " A - D "**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 04:39:00      Tester: Jim Svaty  
Time Test Ended: 09:55:00      Unit No: 76  
**Interval: 4045.00 ft (KB) To 4180.00 ft (KB) (TVD)**      Reference Elevations: 3181.00 ft (KB)  
Total Depth: 4180.00 ft (KB) (TVD)      3176.00 ft (CF)  
Hole Diameter: 7.88 inches      Hole Condition: Fair      KB to GR/CF: 5.00 ft

**Serial #: 6668      Inside**  
Press@RunDepth: psig @ 4052.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2017.07.12      End Date: 2017.07.12      Last Calib.: 2017.07.12  
Start Time: 02:30:01      End Time: 09:55:00      Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 30-IFP- Surface Blow Building to 3/4" In 10 min. Died Back in 15 min.  
60-ISIP- No Blow  
30-FFP- No Blow  
60-FSIP- No Blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
375.00	Mud 100%	3.58
0.00	Show of Oil in Tool	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

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64048

**DST#: 2**

ATTN: Clayton Erickson

Test Start: 2017.07.12 @ 02:30:00

## Tool Information

Drill Pipe:	Length: 3863.00 ft	Diameter: 3.80 inches	Volume: 54.19 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 55.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4045.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	135.00 ft			
Tool Length:	163.00 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			4018.00	
Shut In Tool	5.00			4023.00	
Hydraulic tool	5.00			4028.00	
Jars	5.00			4033.00	
Safety Joint	2.00			4035.00	
Packer	5.00			4040.00	28.00 Bottom Of Top Packer
Packer	5.00			4045.00	
Stubb	1.00			4046.00	
Perforations	5.00			4051.00	
Change Over Sub	1.00			4052.00	
Recorder	0.00	6668	Inside	4052.00	
Recorder	0.00	8400	Outside	4052.00	
Blank Spacing	94.00			4146.00	
Change Over Sub	1.00			4147.00	
Perforations	30.00			4177.00	
Bullnose	3.00			4180.00	135.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>163.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64048

**DST#: 2**

ATTN: Clayton Erickson

Test Start: 2017.07.12 @ 02:30:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 4.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
375.00	Mud 100%	3.584
0.00	Show of Oil in Tool	0.000

Total Length: 375.00 ft      Total Volume: 3.584 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

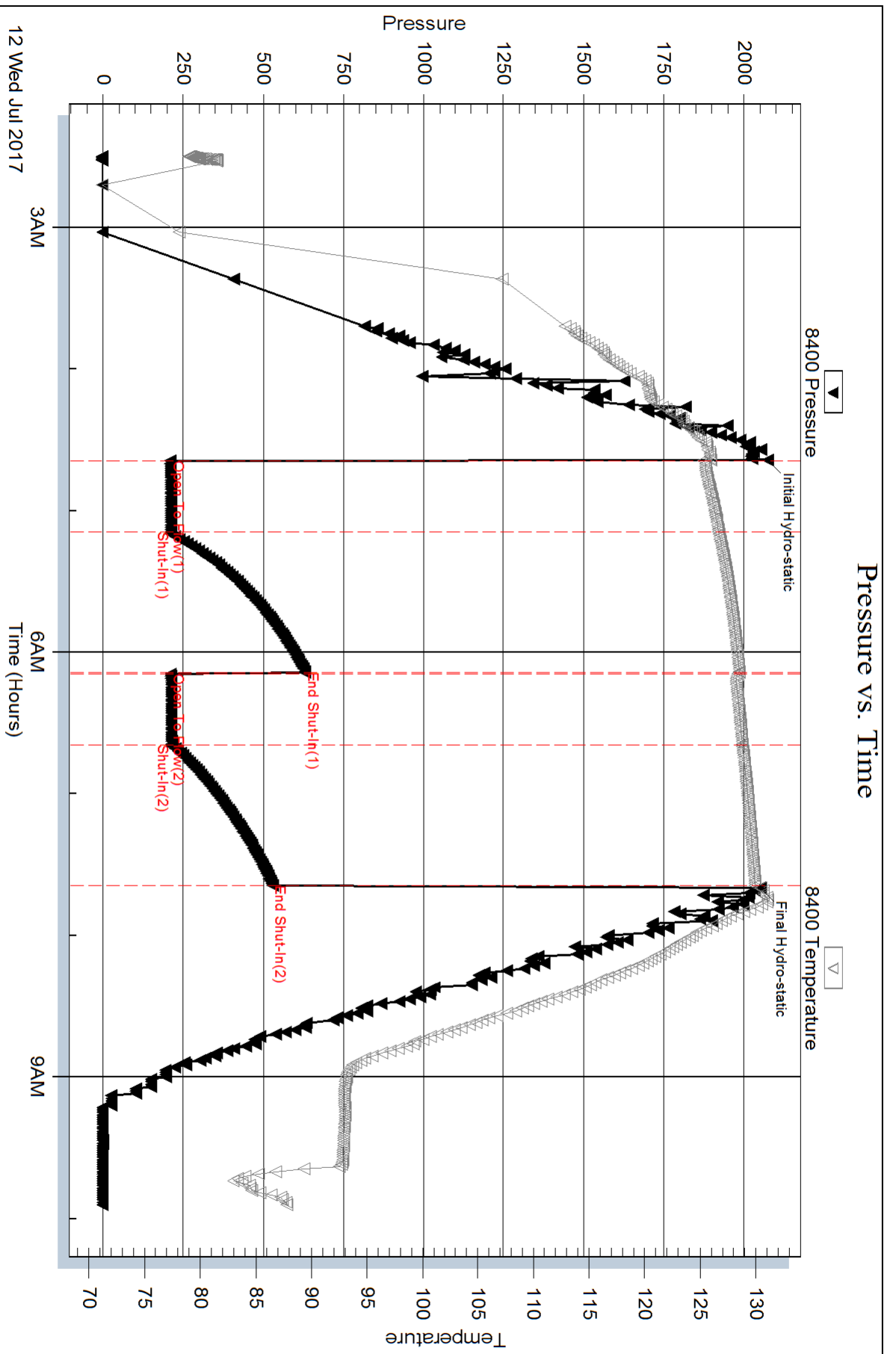
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Hit Bridge on the way in....





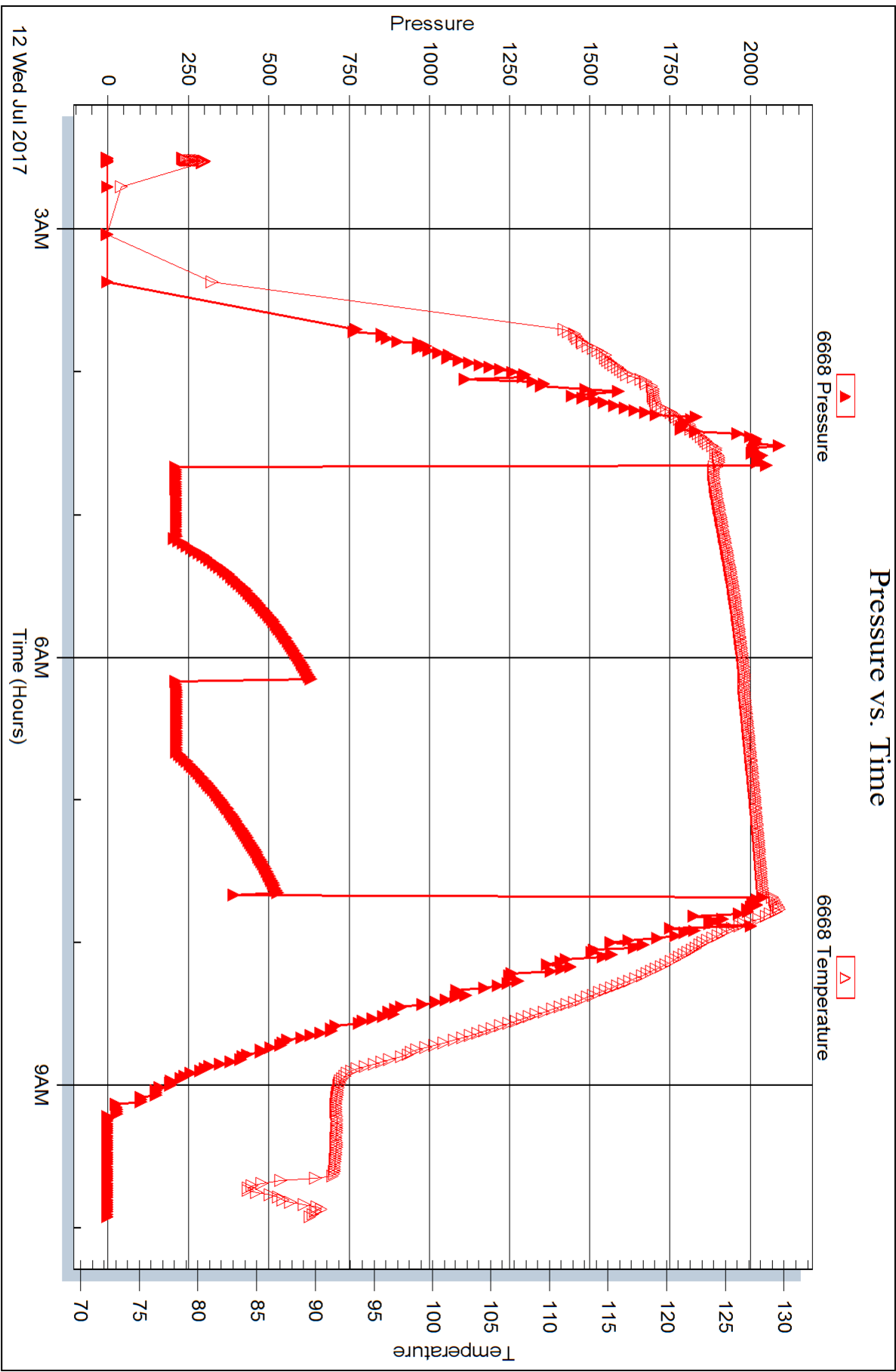
Serial #: 6668

Inside

Murfin Drilling Co Inc

Ken #3-17

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Clayton Erickson

**Ken #3-17**

**17-1s-35w Rawlins,KS**

Start Date: 2017.07.12 @ 20:12:00

End Date: 2017.07.13 @ 04:22:00

Job Ticket #: 64049                      DST #: 3

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

Printed: 2017.07.17 @ 09:19:18



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Clayton Erickson

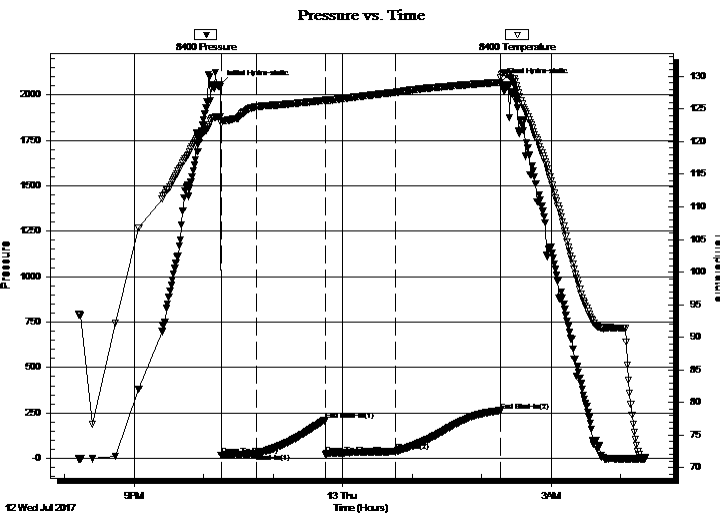
**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
 Job Ticket: 64049 **DST#: 3**  
 Test Start: 2017.07.12 @ 20:12:00

## GENERAL INFORMATION:

Formation: **LKC " G "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:15:00  
 Time Test Ended: 04:22:00  
 Interval: **4172.00 ft (KB) To 4235.00 ft (KB) (TVD)**  
 Total Depth: 4235.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3181.00 ft (KB)  
 3176.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8400 Outside**  
 Press@RunDepth: 38.50 psig @ 4175.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.12 End Date: 2017.07.13 Last Calib.: 2017.07.13  
 Start Time: 20:12:01 End Time: 04:21:30 Time On Btm: 2017.07.12 @ 22:14:30  
 Time Off Btm: 2017.07.13 @ 02:16:30

**TEST COMMENT:** 30-IFP- Surface Blow Building to 2"  
 60-ISIP- No Blow  
 60-FFP- Weak Surface Blow in 7 min. Building to 1 1/4"  
 90-FSIP- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2055.53	123.82	Initial Hydro-static
1	17.30	122.82	Open To Flow (1)
32	26.53	125.34	Shut-In(1)
91	211.48	126.33	End Shut-In(1)
91	23.40	126.27	Open To Flow (2)
152	38.50	127.54	Shut-In(2)
242	261.43	129.08	End Shut-In(2)
242	2067.78	129.80	Final Hydro-static

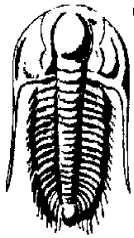
## Recovery

Length (ft)	Description	Volume (bbl)
50.00	OCM 30%o 70%m	0.25

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita KS 67202-1216  
ATTN: Clayton Erickson

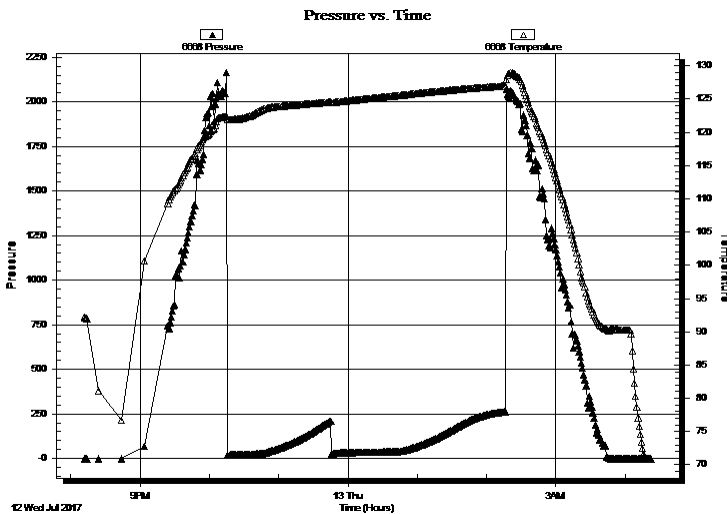
**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
Job Ticket: 64049 **DST#: 3**  
Test Start: 2017.07.12 @ 20:12:00

### GENERAL INFORMATION:

Formation: **LKC " G "**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 22:15:00  
Time Test Ended: 04:22:00  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Jim Svaty  
Unit No: 76  
Interval: **4172.00 ft (KB) To 4235.00 ft (KB) (TVD)**  
Reference Elevations: 3181.00 ft (KB)  
Total Depth: 4235.00 ft (KB) (TVD) 3176.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

**Serial #: 6668** Inside  
Press@RunDepth: psig @ 4175.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2017.07.12 End Date: 2017.07.13 Last Calib.: 2017.07.13  
Start Time: 20:12:01 End Time: 04:22:00 Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 30-IFP- Surface Blow Building to 2"  
60-ISIP- No Blow  
60-FFP- Weak Surface Blow in 7 min. Building to 1 1/4"  
90-FSIP- No Blow



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
50.00	OCM 30%o 70%m	0.25

### 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

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64049

**DST#: 3**

ATTN: Clayton Erickson

Test Start: 2017.07.12 @ 20:12:00

## Tool Information

Drill Pipe:	Length: 3988.00 ft	Diameter: 3.80 inches	Volume: 55.94 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 56.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4172.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.00 ft			
Tool Length:	91.00 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			4145.00	
Shut In Tool	5.00			4150.00	
Hydraulic tool	5.00			4155.00	
Jars	5.00			4160.00	
Safety Joint	2.00			4162.00	
Packer	5.00			4167.00	28.00 Bottom Of Top Packer
Packer	5.00			4172.00	
Stubb	1.00			4173.00	
Perforations	1.00			4174.00	
Change Over Sub	1.00			4175.00	
Recorder	0.00	6668	Inside	4175.00	
Recorder	0.00	8400	Outside	4175.00	
Blank Spacing	31.00			4206.00	
Change Over Sub	1.00			4207.00	
Blank Spacing	25.00			4232.00	
Bullnose	3.00			4235.00	63.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>91.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64049

**DST#: 3**

ATTN: Clayton Erickson

Test Start: 2017.07.12 @ 20:12:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 3.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
50.00	OCM 30%o 70%m	0.246

Total Length: 50.00 ft      Total Volume: 0.246 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

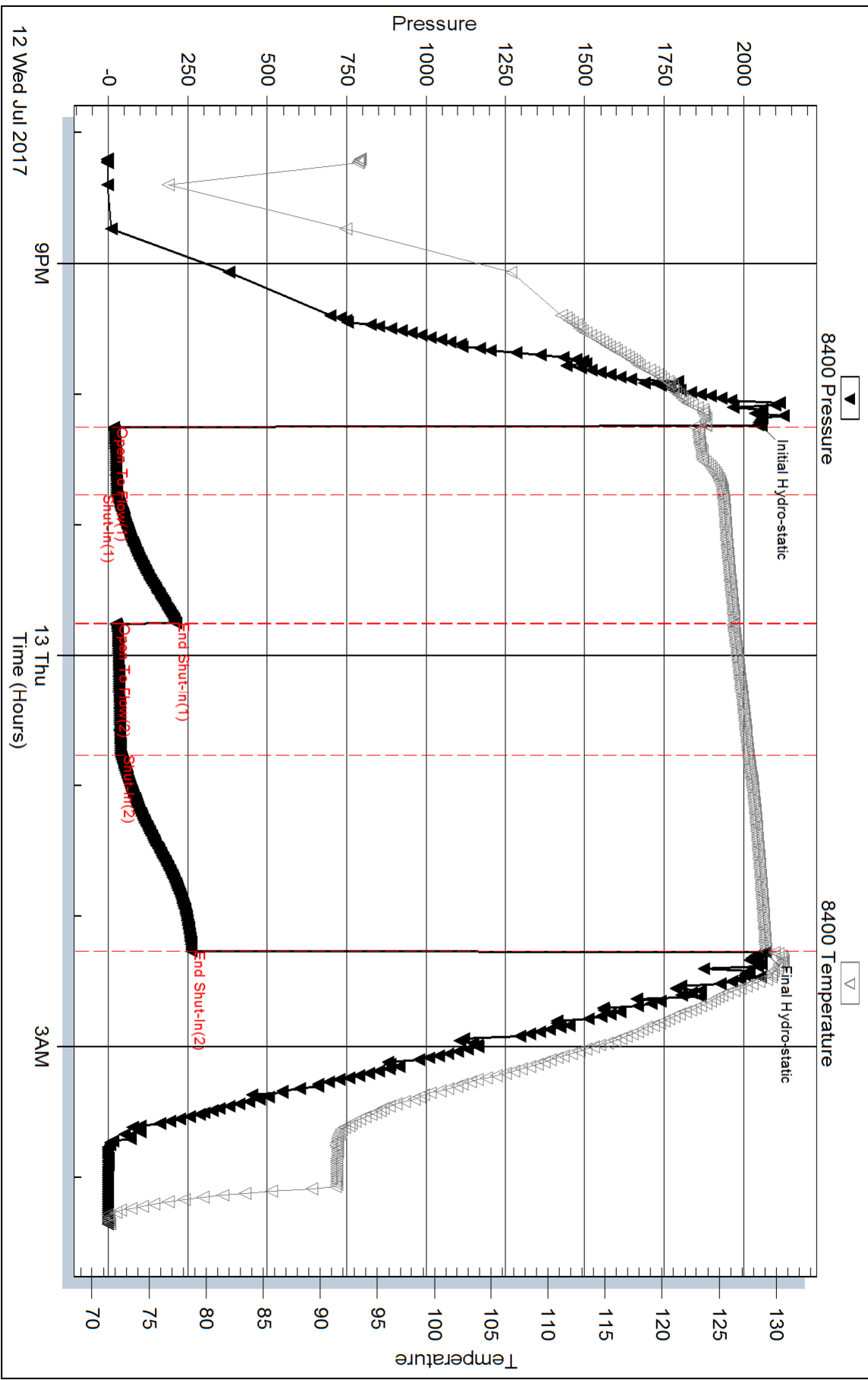
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





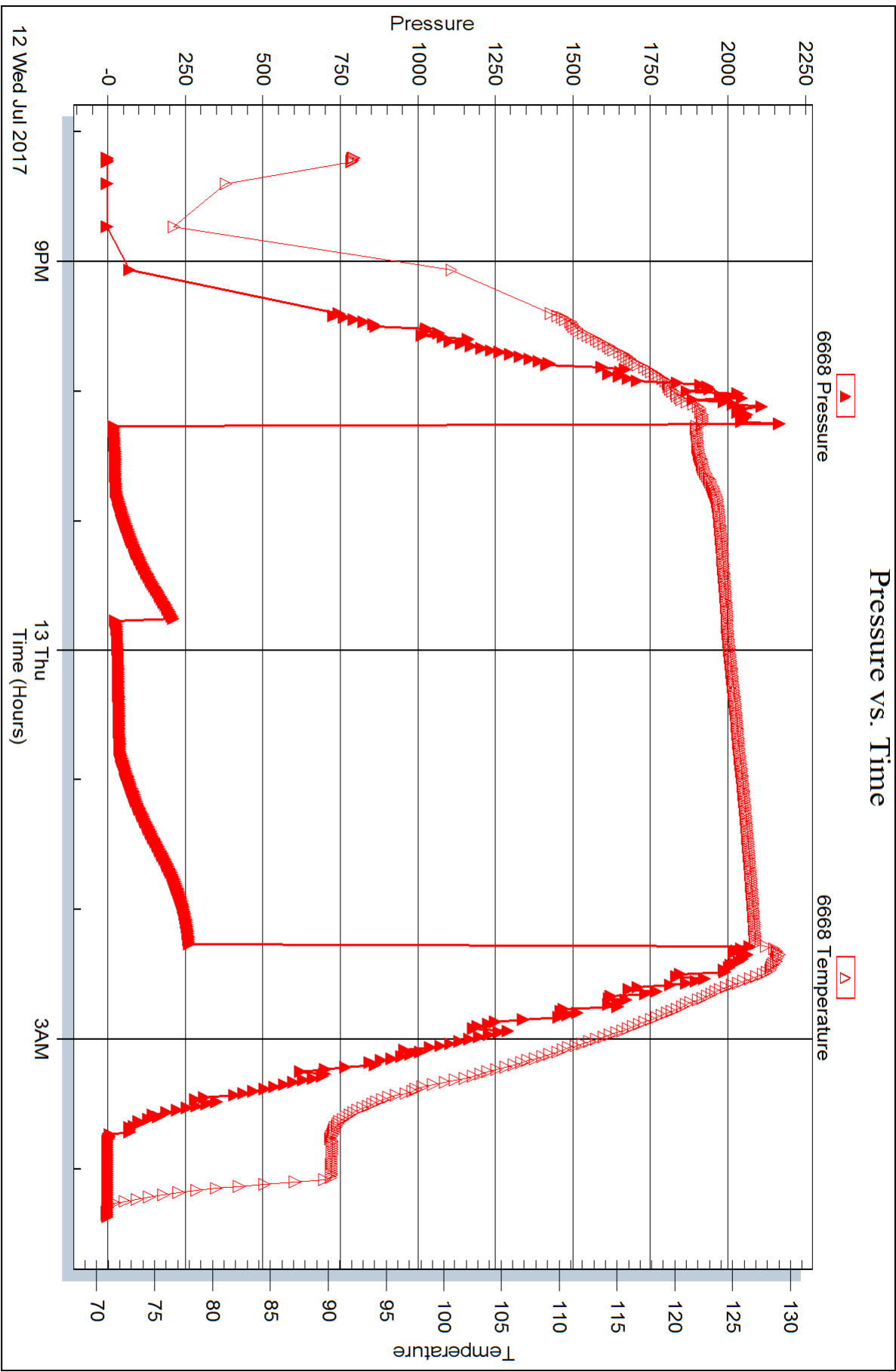
Serial #: 6668

Inside

Murfin Drilling Co Inc

Ken #3-17

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 64049

Printed: 2017.07.17 @ 09:19:19



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita KS 67202-1216

ATTN: Clayton Erickson

**Ken #3-17**

**17-1s-35w Rawlins,KS**

Start Date: 2017.07.13 @ 15:20:00

End Date: 2017.07.13 @ 23:53:00

Job Ticket #: 64050                      DST #: 4

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

Printed: 2017.07.17 @ 09:04:53



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
 250 N Water Ste 300  
 Wichita KS 67202-1216  
 ATTN: Clayton Erickson

**17-1s-35w Rawlins,KS**  
**Ken #3-17**  
 Job Ticket: 64050 **DST#: 4**  
 Test Start: 2017.07.13 @ 15:20:00

## GENERAL INFORMATION:

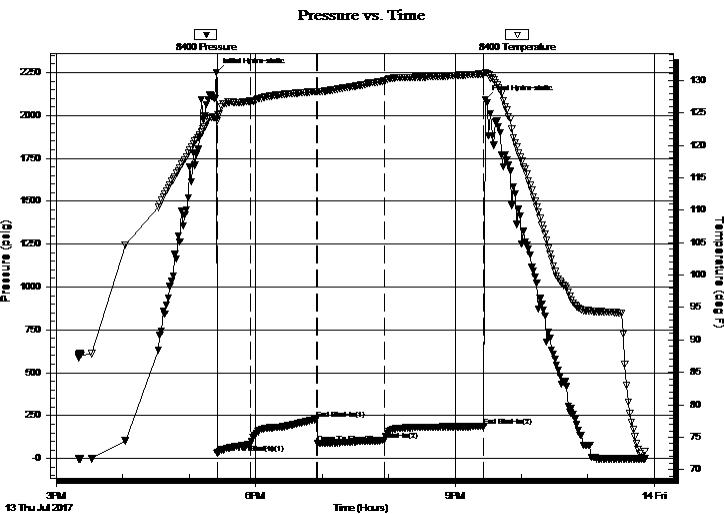
Formation: **LKC " G - J "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:25:00  
 Time Test Ended: 23:53:00  
 Interval: **4226.00 ft (KB) To 4324.00 ft (KB) (TVD)**  
 Total Depth: 4324.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Jim Svaty  
 Unit No: 76  
 Reference Elevations: 3181.00 ft (KB)  
 3176.00 ft (CF)  
 KB to GR/CF: 5.00 ft

## Serial #: 8400

Outside

Press@RunDepth: 107.44 psig @ 4232.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.07.13 End Date: 2017.07.13 Last Calib.: 2017.07.13  
 Start Time: 15:20:01 End Time: 23:52:30 Time On Btm: 2017.07.13 @ 17:24:30  
 Time Off Btm: 2017.07.13 @ 21:27:30

TEST COMMENT: 30-IFP- BOB in 11 min.  
 60-ISIP- Surface Blow in 1min. Building to 1" In 20 min. Died Back in 36 min.  
 60-FFP- BOB in 22 min.  
 90-FSIP- Surface Blow in 30sec. Building to 1 1/4". In 18 min. Died Back in 30 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2250.80	124.46	Initial Hydro-static
1	31.84	123.75	Open To Flow (1)
31	81.99	126.84	Shut-In(1)
91	228.53	128.31	End Shut-In(1)
92	89.28	128.27	Open To Flow (2)
152	107.44	129.91	Shut-In(2)
242	186.38	131.00	End Shut-In(2)
243	2092.60	131.23	Final Hydro-static

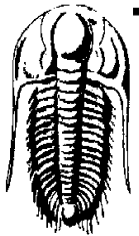
## Recovery

Length (ft)	Description	Volume (bbl)
122.00	OCM 40%o 60%m	0.60
122.00	GCO 20%g 80%o	1.15
0.00	445 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 Ste 300  
Wichita KS 67202-1216  
ATTN: Clayton Erickson

**17-1s-35w Rawlins,KS**

**Ken #3-17**

Job Ticket: 64050

**DST#: 4**

Test Start: 2017.07.13 @ 15:20:00

### GENERAL INFORMATION:

Formation: **LKC " G - J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:25:00

Time Test Ended: 23:53:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 76

Interval: **4226.00 ft (KB) To 4324.00 ft (KB) (TVD)**

Total Depth: 4324.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3181.00 ft (KB)

3176.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 6668** Inside

Press@RunDepth: psig @ 4232.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.07.13

End Date:

2017.07.13

Last Calib.:

2017.07.13

Start Time: 15:20:01

End Time:

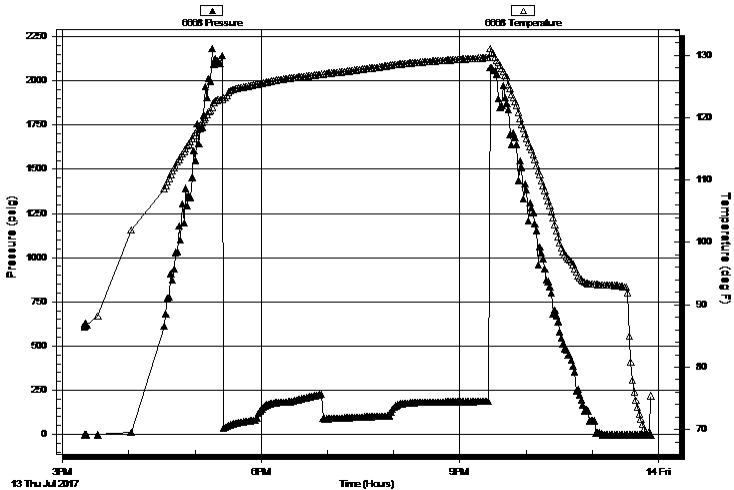
23:53:00

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IFP- BOB in 11 min.  
60-ISIP- Surface Blow in 1min. Building to 1" In 20 min. Died Back in 36 min.  
60-FFP- BOB in 22 min.  
90-FSIP- Surface Blow in 30sec. Building to 1 1/4". In 18 min. Died Back in 30 min.

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
122.00	OCM 40%o 60%m	0.60
122.00	GCO 20%g 80%o	1.15
0.00	445 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

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64050

**DST#: 4**

ATTN: Clayton Erickson

Test Start: 2017.07.13 @ 15:20:00

## Tool Information

Drill Pipe:	Length: 4021.00 ft	Diameter: 3.80 inches	Volume: 56.40 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 57.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4226.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	98.00 ft			
Tool Length:	126.00 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			4199.00	
Shut In Tool	5.00			4204.00	
Hydraulic tool	5.00			4209.00	
Jars	5.00			4214.00	
Safety Joint	2.00			4216.00	
Packer	5.00			4221.00	28.00 Bottom Of Top Packer
Packer	5.00			4226.00	
Stubb	1.00			4227.00	
Perforations	4.00			4231.00	
Change Over Sub	1.00			4232.00	
Recorder	0.00	6668	Inside	4232.00	
Recorder	0.00	8400	Outside	4232.00	
Blank Spacing	63.00			4295.00	
Change Over Sub	1.00			4296.00	
Blank Spacing	25.00			4321.00	
Bullnose	3.00			4324.00	98.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>126.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co Inc

**17-1s-35w Rawlins,KS**

250 N Water Ste 300  
Wichita KS 67202-1216

**Ken #3-17**

Job Ticket: 64050

**DST#: 4**

ATTN: Clayton Erickson

Test Start: 2017.07.13 @ 15:20:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 73.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 4.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
122.00	OCM 40%o 60%m	0.600
122.00	GCO 20%g 80%o	1.147
0.00	445 GIP	0.000

Total Length: 244.00 ft      Total Volume: 1.747 bbl

Num Fluid Samples: 0

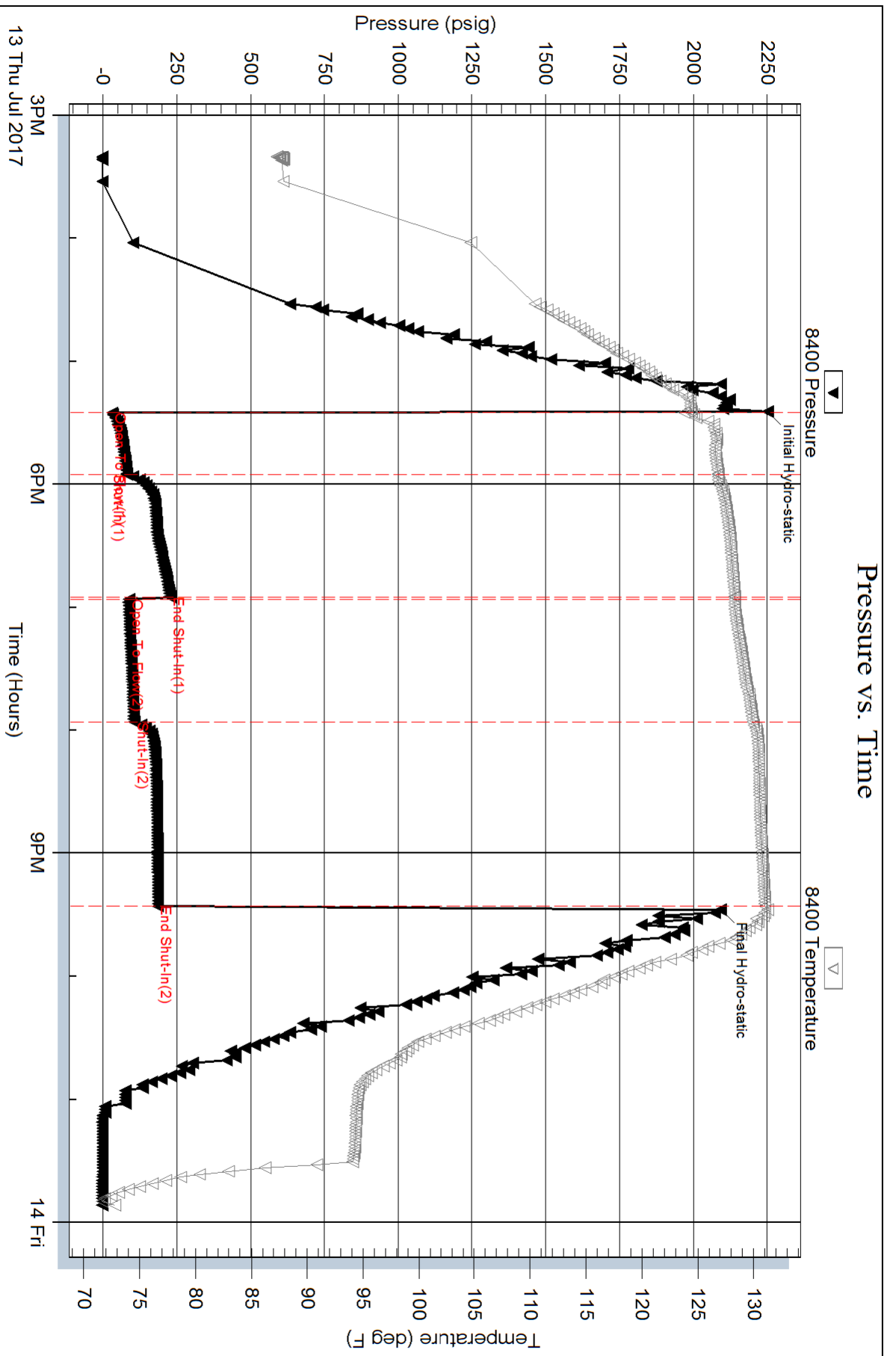
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



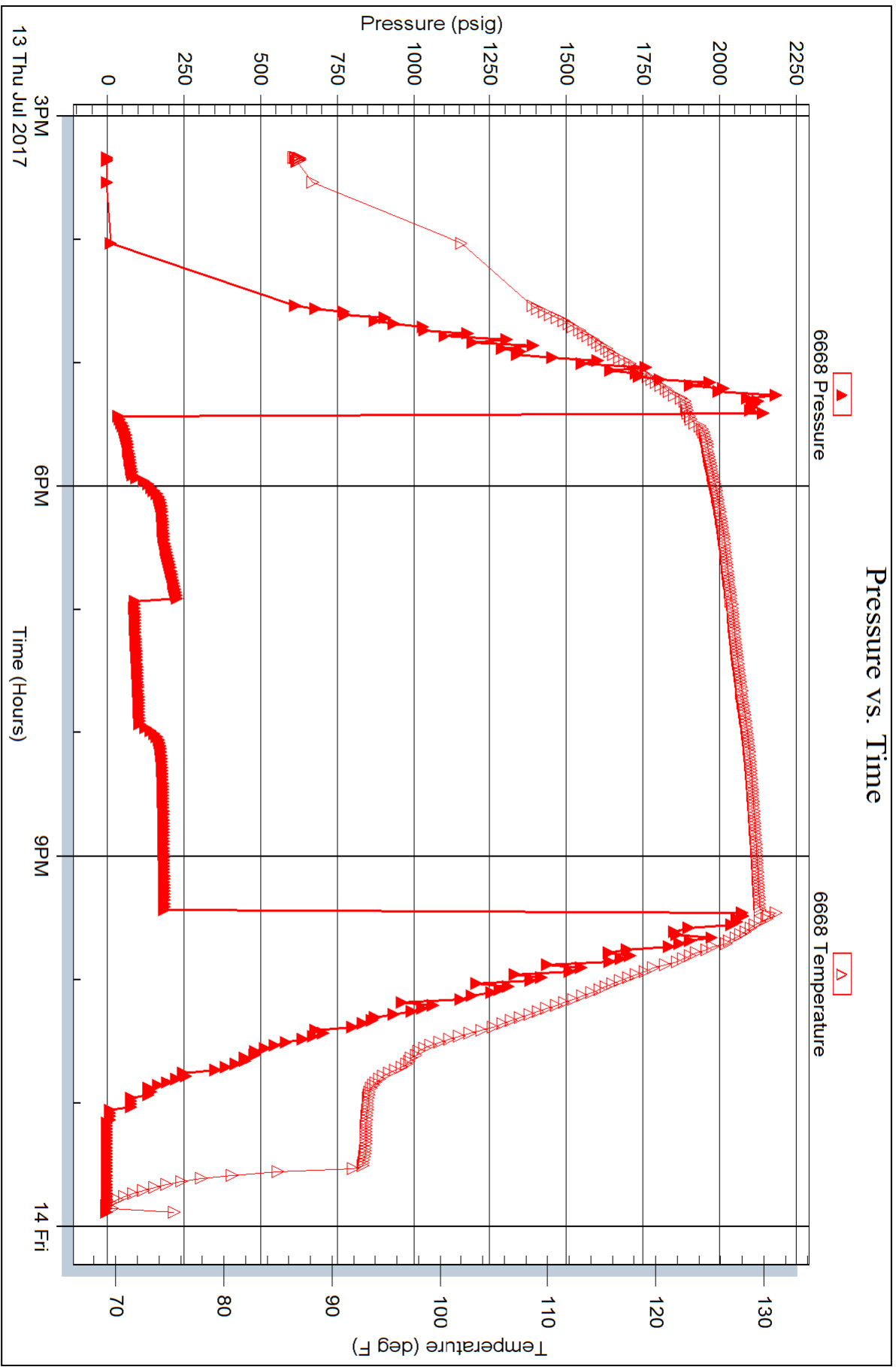
Serial #: 6668

Inside

Murfin Drilling Co Inc

Ken #3-17

DST Test Number: 4

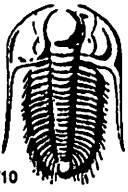


Triobite Testing, Inc

Ref. No: 64050

Printed: 2017.07.17 @ 09:04:54





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64047

4/10

Well Name & No. Ken 3-17 Test No. 1 Date 7-10-17  
 Company Murfin Drilling Co. Inc Elevation 3181 KB 3176 GL  
 Address 250 N. Water Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Clayton Erickson Rig Murfin 7  
 Location: Sec. 17 Twp. 15 Rge. 35W Co. Rawl's State KS

Interval Tested 3645-3699 Zone Tested Foraker  
 Anchor Length 54 Drill Pipe Run 3450 Mud Wt. 8.8  
 Top Packer Depth 3640 Drill Collars Run 184 Vis 65  
 Bottom Packer Depth 3645 Wt. Pipe Run 0 WL 5.6  
 Total Depth 3699 Chlorides 600 ppm System LCM 4

Blow Description IFP- 1/4 in Blow Dried Back in 2 min.  
ISIP- No Blow  
FFP- No Blow  
FSIP- No Blow

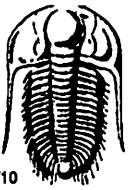
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Oil Speck Mud</u>	<u>1</u>		<u>99</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 122 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1756</u>	<input checked="" type="checkbox"/> Test 1050	T-On Location <u>06:40</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>07:33</u>
(C) First Final Flow <u>20</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>09:08</u>
(D) Initial Shut-In <u>1074</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>12:08</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>13:54</u>
(F) Second Final Flow <u>25</u>	<input checked="" type="checkbox"/> Mileage <u>80.25 107 RT</u>	Comments _____
(G) Final Shut-In <u>1016</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1743</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer 250	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1705.25</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1705.25</u>	

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

TriLOBITE TESTING Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64048

Well Name & No. Ken 3-17 Test No. 2 Date 7-12-17  
 Company Murfin Drilling Co. Inc Elevation 3181 KB 3176 GL  
 Address 250 N. Water St Ste 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Clayton Erickson Rig Murfin 7  
 Location: Sec. 17 Twp. 15 Rge. 35W Co. Rawlins State KS

Interval Tested 4045-4180 Zone Tested LKC "A-D"  
 Anchor Length 135 Drill Pipe Run 3863 Mud Wt. 8.8  
 Top Packer Depth 4040 Drill Collars Run 184 Vis 56  
 Bottom Packer Depth 4045 Wt. Pipe Run 0 WL 6  
 Total Depth 4180 Chlorides 600 ppm System LCM 4

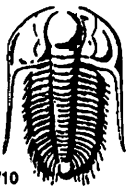
Blow Description IFP - Surface Blow Built to 3/4" In 10 min. Died Back 15 min  
ISIP - No Blow  
FFP - No Blow  
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>375</u>	<u>MUD</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>Hit Bridge on way in.</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 375 BHT 130 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2073</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>00:34</u>
(B) First Initial Flow <u>209</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>02:30</u>
(C) First Final Flow <u>210</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>04:40</u>
(D) Initial Shut-In <u>630</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>07:40</u>
(E) Second Initial Flow <u>210</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>09:55</u>
(F) Second Final Flow <u>212</u>	<input checked="" type="checkbox"/> Mileage <u>80.25</u>	Comments _____
(G) Final Shut-In <u>528</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2050</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1805.25</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1805.25</u>	

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64049

4/10

Well Name & No. Ken 3-17 Test No. 3 Date 7-12-17  
 Company Murfin Drilling Co. Inc Elevation 3181 KB 3176 GL  
 Address 250 N. Water St. 300 W. 17th St. KS. 67202-1216  
 Co. Rep / Geo. Clayton Erickson Rig Murfin 7  
 Location: Sec. 17 Twp. 15 Rge. 35W Co. Rawlins State KS

Interval Tested 4172-4235 Zone Tested LKC "u"  
 Anchor Length 63 Drill Pipe Run 3988 Mud Wt. 9.1  
 Top Packer Depth 4167 Drill Collars Run 184 Vis 45  
 Bottom Packer Depth 4172 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4235 Chlorides 600 ppm System LCM 3

Blow Description I FP - Surface Blow Building to 2 in.  
I SIP - No Blow  
F FP - Weak Surface Blow in 7 min. Building to 1 1/4 in.  
F SIP - No Blow

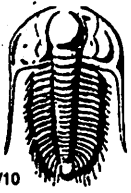
Rec	Feet of	%gas	%oil	%water	%mud
<u>50</u>	<u>0 CM</u>	<u>30</u>		<u>70</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 50 BHT 130 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>20.55</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>19:16</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>20:12</u>
(C) First Final Flow <u>26</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:16</u>
(D) Initial Shut-In <u>211</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>02:16</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>04:22</u>
(F) Second Final Flow <u>38</u>	<input checked="" type="checkbox"/> Mileage <u>80.25</u>	Comments _____
(G) Final Shut-In <u>261</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2067</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1805.25</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1805.2</u>	

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64050

Well Name & No. Ken 3-17 Test No. 4 Date 7-13-17  
 Company Murfin Drilling Co. Inc. Elevation 3181 KB 3176 GL  
 Address 250 N. Water St. 300 Wichita KS 67202-1216  
 Co. Rep / Geo. Clayton Erickson Rig Murfin 7  
 Location: Sec. 17 Twp. 15 Rge. 35W Co. Rawlins State KS

Interval Tested 4226-4324 Zone Tested LKC "2-5"  
 Anchor Length 98 Drill Pipe Run 4021 Mud Wt. 9.1  
 Top Packer Depth 4221 Drill Collars Run 184 Vis 73  
 Bottom Packer Depth 4226 Wt. Pipe Run 2 WL 5.6  
 Total Depth 4324 Chlorides 600 ppm System LCM 4

Blow Description I FP - BOB in 16 min.  
I SIP Surface Blow in 1 min. Building to line 20 min. Died Back Janin.  
I FP - BOB in 22 min.

I SIP - Surface Blow in 30 sec. Building to 1 1/4 in. 1 min. Died Back 30 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>122</u>	<u>OCM</u>	<u>40</u>		<u>60</u>	
<u>122</u>	<u>2 CO</u>	<u>20</u>	<u>80</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 244 BHT 132 Gravity 30 API RW @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2250</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>14:10</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>15:20</u>
(C) First Final Flow <u>81</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>17:26</u>
(D) Initial Shut-In <u>228</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>21:26</u>
(E) Second Initial Flow <u>89</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>23:53</u>
(F) Second Final Flow <u>107</u>	<input checked="" type="checkbox"/> Mileage <u>160.50 X 2</u>	Comments _____
(G) Final Shut-In <u>186</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2092</u>	<input type="checkbox"/> Straddle _____	_____

Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1885.50</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc _____
	Sub Total <u>1885.50</u>	

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

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Scale 1:240 (5"=100') Imperial  
Measured Depth Log

Well Name: Ken #3-17  
 Location: SW SE NE NW Sec 17 T1S R35W  
 License Number: Spud Date: 7/7/2017  
 Surface Coordinates: 1270' FNL & 2060' FWL  
 Region: Rawlins County, KS  
 Drilling Completed: 7/14/2017

Bottom Hole Coordinates: 3176  
 Ground Elevation (ft): 3176  
 Logged Interval (ft): 3600 To: TD  
 Formation: K.B. Elevation (ft): 3181  
 Type of Drilling Fluid: Chemical Mud Total Depth (ft): 4470

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Murfin Drilling Co., Inc.  
 Address: 250 N Water, Suite 300  
 Wichita, KS 67202

GEOLOGIST

Name: Clayton Erickson  
 Company: Erickson Wellsite Geology  
 Address: 402 Palmer Street  
 P.O. Box 294  
 Loomis, NE 68958

DSTs

DST #1 3645-3699 30-60-30-60; Hydro: 1756-1743 IFF: 15-20 ISIP: 1074 FFP: 22-25 FSIP: 1016; Rec: 5' 1%  
 99% m; BHT: 122 F; IF: 1/4" died back @21min ISI: dead FF: dead FSI: dead

DST #2 4045-4180 30-60-30-60; Hydro: 2073-2050 IFF: 209-210 ISIP: 630 FFP: 210-212 FSIP: 528; Rec: 375' mud  
 w/ oil spots in tool; BHT: 130F; IF: 3/4" died bak in 15min ISI: dead FF: dead FSI: dead

DST #3 4172-4235 30-60-60-90; Hydro: 2055-2067 IFF: 17-26 ISIP: 211 FFP: 23-38 FSIP: 261; Rec: 50' 30%  
 70% m; BHT: 130F; IF: 2" ISI: dead FF: 1 1/4" FSI: dead

DST #4 4126-4224 30-60-60-90; Hydro: 2250-2092 IFF: 31-81 ISIP: 228 FFP: 89-107 FSIP: 186; Rec: 122' 40%  
 60% m 122' 20% g 80% o 44S'GIP; BHT: 132F Grav: 30; IF: BOB 11min ISI: 1" died back in 36min FF: BOB 22min  
 FSI: 1 1/4" died back in 30min

COMMENTS

FORMATION TOPS

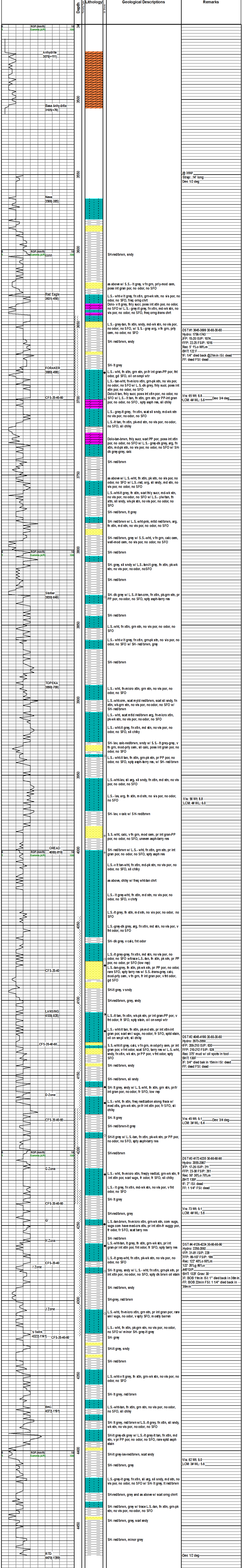
Log Tops	Sample tops
Anhydrite 3070(+111)	3070(+111)
Base Anhy 3105(+76)	3105(+76)
NEVA 3568(-387)	3566(-385)
RED EAGLE 3631(-450)	3631(-450)
FORAKER 3681(-500)	3680(-499)
TOPEKA 3894(-713)	3890(-709)
OREAD 4001(-820)	4000(-819)
LANSING 4109(-928)	4109(-928)
STARK 4322(-1141)	4322(-1141)
BKC 4372(-1191)	4372(-1191)
TD 4470(-1289)	4470(-1289)

ROCK TYPES

Anhy	Clyst	Gyp	Mrlst	Shgt
Bent	Carb. shale	Igne	Salt	Sltst
Brec	Arkose	Lmst	Shale	Ss
Cht	Dol	Meta	Shcol	Till

OTHER SYMBOLS

OIL SHOW Even	Spotted Ques	Dead	INTERVAL Dst
---------------	--------------	------	--------------



Ken #3-17  
 1270 FNL 1980 FWL  
 Sec. 17-1S-35W  
 3181' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3069	+112	-1	3070	+111	-2
B/Anhydrite	3105	+76	+1	3105	+76	+1
Foraker	3680	-499	-2	3681	-500	-3
Topeka	3890	-709	-2	3893	-712	-5
Oread	4000	-819	-2	4001	-820	-3
Lansing	4109	-928	-2	4109	-928	-2
Stark	4322	-1141	-1	4322	-1141	-1
Mound City	4372	-1191	-1	4372	-1191	-1
RTD	4470	-1289				
LTD				4470		

**TREATMENT REPORT**



**HURRICANE SERVICES INC**

<b>Customer:</b> Murfin Drilling	<b>Date:</b> 7/7/2017	<b>Ticket No.:</b> 100764
<b>Field Rep:</b> Kelly Wilson		
<b>Address:</b>		
<b>City, State:</b>		
<b>County, Zip:</b>		

<b>Field Order No.:</b> 100764	<b>Open Hole:</b>	<b>Perf Depths (ft)</b>	<b>Perfs</b>
<b>Well Name:</b> Ken # 3-17	<b>Casing Depth:</b> 260'		
<b>Location:</b> Beardsley	<b>Casing Size:</b> 8 5/8 23 Lb		
<b>Formation:</b>	<b>Tubing Depth:</b>		
<b>Type of Service:</b> Surface	<b>Tubing Size:</b>		
<b>Well Type:</b> Oil	<b>Liner Depth:</b>		
<b>Age of Well:</b> New	<b>Liner Size:</b>		
<b>Packer Type:</b>	<b>Liner Top:</b>		
<b>Packer Depth:</b>	<b>Liner Bottom:</b>		
<b>Treatment Via:</b> Casing	<b>Total Depth:</b> 261		
		<b>Total Perfs</b>	<b>0</b>

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
1:30 PM					Called Out			
3:15 PM					On Location W/Trucks Rig Still Drilling			
					Hold Safety Meeting Spot & Set Up Trucks			
					TD=261' TP=261' SJ=20' @ 260'			
					Run 6 Jt's 8 5/8 23 Lb. Centralizer 1 Jt 1/2 Way #4			
6:30 PM					Start Casing Had Trouble RDP			
9:15 PM					Casing On Bottom			
9:20 PM					Hook Up to Casing Break Circulation W/Rlg			
9:30 PM	4.5		75.0		Start Pumping H2O			10.00
	4.5		100.0		Start Mix & Pump 210 Sk Common 2%Gel 3%CC @ 15 Lb			50.87
	4.5		150.0		Start Displacement			16.40
10:00 PM			150.0		Shut Down Close Valve on Casing			
					Good Circulation Thru Job			
					Circulate & Bbbbl's To Pit			
10:30 PM					Off Location			
					Thank You			
					Please Call Again			
					Todd Cody Darren			
<b>TOTAL:</b>						-	-	76.27

**SUMMARY**

Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
4.5	4.5	150.0	118.8

**PRODUCTS USED**

210 Sacks Common 2% Gel 3% Calcium Chloride

Treater: Todd Seba

Customer: Kelly Wilson



COPY

TREATMENT REPORT



HURRICANE SERVICES INC

<b>Customer:</b> Murfin Drilling Company Inc.	<b>Date:</b> 7/15/2017	<b>Ticket No.:</b> 100772
<b>Field Rep:</b> Nathan Witt		
<b>Address:</b>		
<b>City, State:</b>		
<b>County, Zip:</b>		

<b>Field Order No.:</b> 100772	<b>Open Hole:</b>	<b>Perf Depths (ft)</b>	<b>Perfs</b>
<b>Well Name:</b> Ken # 3-17	<b>Casing Depth:</b> 4462'		
<b>Location:</b> Beardsley	<b>Casing Size:</b> 5.5 15.5 Lb		
<b>Formation:</b>	<b>Tubing Depth:</b>		
<b>Type of Service:</b> Longstring	<b>Tubing Size:</b>		
<b>Well Type:</b> Oil	<b>Liner Depth:</b>		
<b>Age of Well:</b> New	<b>Liner Size:</b>		
<b>Packer Type:</b>	<b>Liner Top:</b>		
<b>Packer Depth:</b>	<b>Liner Bottom:</b>		
<b>Treatment Via:</b> Casing	<b>Total Depth:</b> 4470'		
		<b>Total Perfs</b>	<b>0</b>

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
9:00 PM					Called Out			
12:30 PM					On Location With Float Equipment			
					Run 105 Jt's 5.5 15.5 Lb			
					TD= 4470' TP= 4462' SJ= 20.65 AFU Float Shoe & LD			
					Turbolizers on Jt's 1-2-3-4-5-6-7-8-9-10-11-12-13-16-34-45			
					Cement Baskets Jt's 11-35-45- Scratcher 3			
5:15 AM					Trucks On Location			
1:30 AM					Start Casing			
4:15 AM					Casing On Bottom Drop Ball			
5:00 AM					Hook Up To Casing Break Circulation W/Rlg Rotate 1 Hr			
					Start Pumping Preflushes			
6:07 AM	4.0		250.0		5 BBL's H2O			5.00
	4.0		250.0		12 BBL's Mud Flush			12.00
	4.0		250.0		5 BBL's H2O			5.00
6:15 AM	2.0		100.0		Plug Rat & Mouse Holes 60 Sacks Lead			
6:22 AM	4.5		400.0		Start Mix & Pump Lead @ 12 Lb/Gal Yield 2.61			116.00
6:50 AM	4.3				Start Mix & Pump Tail @ 14.8 Lb/Gal Yield 1.50			53.43
7:05 AM					Shut Down Clear Pump & Lines Drop LD Plug			15.00
<b>TOTAL:</b>						-	-	<b>458.93</b>

SUMMARY

Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
6.5	4.0	1,500.0	588.9

PRODUCTS USED

300 Sacks H-Con 200 Sacks H-Long

Treater: Todd Seba

Customer: Ben Simminger