

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<br><i>(Attach Additional Sheets)</i><br><br>Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>List All E. Logs Run: | <input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample<br><br>Name Top Datum |
|--|---|

| 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<br><input type="checkbox"/> Protect Casing<br><input type="checkbox"/> Plug Back TD<br><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:<br><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:<br><input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease<br><i>(If vented, Submit ACO-18.)</i> | METHOD OF COMPLETION:<br><input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled<br><i>(Submit ACO-5) (Submit ACO-4)</i> | PRODUCTION INTERVAL:<br>Top Bottom |
|---|--|------------------------------------|

| Shots Per Foot | Perforation Top | Perforation Bottom | Bridge Plug Type | Bridge Plug Set At | Acid, Fracture, Shot, Cementing Squeeze Record<br><i>(Amount and Kind of Material Used)</i> |
|----------------|-----------------|--------------------|------------------|--------------------|---|
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |

|                |       |         |            |  |
|----------------|-------|---------|------------|--|
| TUBING RECORD: | Size: | Set At: | Packer At: |  |
|----------------|-------|---------|------------|--|

|           |                           |
|-----------|---------------------------|
| Form      | ACO1 - Well Completion    |
| Operator  | Murfin Drilling Co., Inc. |
| Well Name | MERIEM 1-19               |
| Doc ID    | 1417589                   |

All Electric Logs Run

|      |
|------|
|      |
| DIL  |
| DUCP |
| EL   |
| BHCS |





MDCI  
 Meriem #1-19  
 2640 FNL 23100 FWL  
 Sec. 19-T28S-R9E  
 1375' KB

| Formation   | Sample tops | Datum | Ref | Log Tops | Datum | Ref |
|-------------|-------------|-------|-----|----------|-------|-----|
| Heebner     | 1040        | +335  | -16 | 1038     | +337  | -14 |
| Lansing     | 1428        | -53   | -14 | 1426     | -51   | -12 |
| Kansas City | 1777        | -402  | -13 | 1770     | -395  | -6  |
| Mound City  | 1940        | -565  | -9  | 1936     | -561  | -5  |
| Altamont    | 2102        | -727  | -7  | 2097     | -722  | -2  |
| Pawnee      | 2188        | -813  | -10 | 2184     | -809  | -6  |
| Ft Scott    | 2226        | -851  | -8  | 2220     | -845  | -2  |
| Excello     | 2256        | -881  | -6  | 2252     | -877  | -2  |
| Oakley      | 2332        | -957  | -8  | 2327     | -952  | -3  |
| Mississippi | 2540        | -1165 | +4  | 2543     | -1168 | +1  |
| B/Cowley    | 2749        | -1374 | -22 | 2738     | -1363 | -11 |
| Arbuckle    | 2891        | -1516 | -17 | 2887     | -1512 | -13 |
| RTD         | 2975        |       |     |          |       |     |
| LTD         |             |       |     | 2973     |       |     |



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Suite 300  
Wichita, KS 67202+1216

ATTN: Jeff Christian

### **Meriem #1-19**

### **19-28S-9E Elk,KS**

Start Date: 2018.06.09 @ 06:31:00

End Date: 2018.06.09 @ 12:19:02

Job Ticket #: 63495                      DST #: 1

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

Printed: 2018.06.14 @ 15:25:01



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

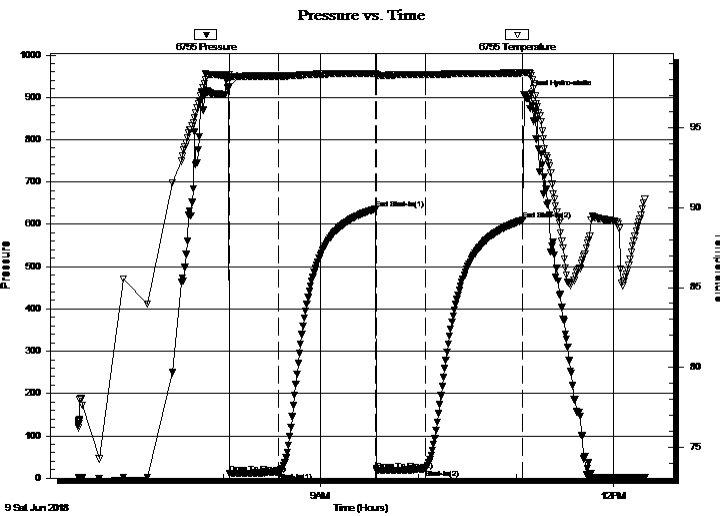
**19-28S-9E EIk, KS**  
**Meriem #1-19**  
 Job Ticket: 63495 **DST#: 1**  
 Test Start: 2018.06.09 @ 06:31:00

## GENERAL INFORMATION:

Formation: **LKC K-L**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:03:47  
 Time Test Ended: 12:19:02  
 Interval: **1878.00 ft (KB) To 1940.00 ft (KB) (TVD)**  
 Total Depth: 1940.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 1375.00 ft (KB)  
 1367.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6755 Inside**  
 Press@RunDepth: 21.66 psig @ 1879.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.09 End Date: 2018.06.09 Last Calib.: 2018.06.09  
 Start Time: 06:31:01 End Time: 12:19:02 Time On Btm: 2018.06.09 @ 08:03:32  
 Time Off Btm: 2018.06.09 @ 11:05:02

**TEST COMMENT:** IFP 30 Minutes/ Steady surface blow for 3 min then intermittent blow for 15 min  
 ISI 60 Minutes/ No blow back  
 FFP 30 Minutes/ One bubble at open then dead  
 FSI 60 Minutes/ No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 925.22          | 98.29        | Initial Hydro-static |
| 1           | 10.81           | 98.01        | Open To Flow (1)     |
| 31          | 14.09           | 98.21        | Shut-In(1)           |
| 90          | 635.69          | 98.35        | End Shut-In(1)       |
| 91          | 18.22           | 98.27        | Open To Flow (2)     |
| 121         | 21.66           | 98.31        | Shut-In(2)           |
| 181         | 609.81          | 98.43        | End Shut-In(2)       |
| 182         | 905.70          | 98.44        | Final Hydro-static   |

## Recovery

| Length (ft) | Description                       | Volume (bbl) |
|-------------|-----------------------------------|--------------|
| 3.00        | Mud w/oil spots in tool/ Mud 100% | 0.01         |
|             |                                   |              |
|             |                                   |              |
|             |                                   |              |

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk, KS**  
**Meriem #1-19**  
Job Ticket: 63495 **DST#: 1**  
Test Start: 2018.06.09 @ 06:31:00

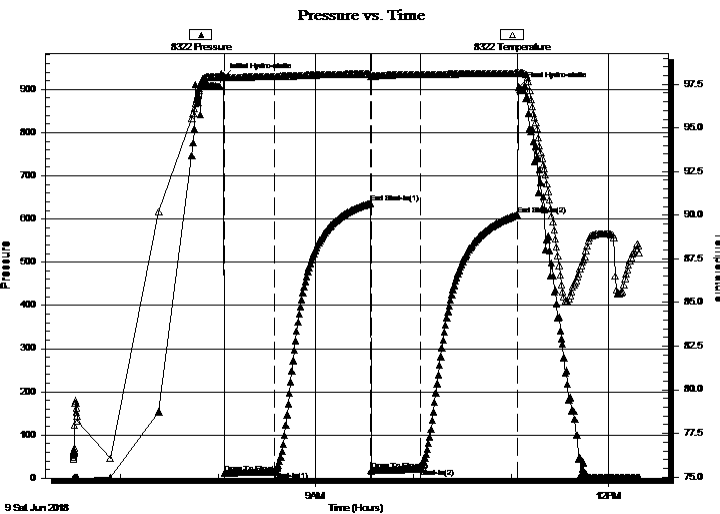
## GENERAL INFORMATION:

Formation: **LKC K- L**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 08:03:47  
Time Test Ended: 12:19:02  
Interval: **1878.00 ft (KB) To 1940.00 ft (KB) (TVD)**  
Total Depth: 1940.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Ken Swinney  
Unit No: 72  
Reference Elevations: 1375.00 ft (KB)  
1367.00 ft (CF)  
KB to GR/CF: 8.00 ft

## Serial #: 8322 Outside

Press@RunDepth: 610.12 psig @ 1880.00 ft (KB) Capacity: psig  
Start Date: 2018.06.09 End Date: 2018.06.09 Last Calib.: 2018.06.09  
Start Time: 06:31:01 End Time: 12:19:02 Time On Btm: 2018.06.09 @ 08:03:17  
Time Off Btm: 2018.06.09 @ 11:05:02

TEST COMMENT: IFP 30 Minutes/ Steady surface blow for 3 min then intermittent blow for 15 min  
ISI 60 Minutes/ No blow back  
FFP 30 Minutes/ One bubble at open then dead  
FSI 60 Minutes/ No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 927.31          | 98.00        | Initial Hydro-static |
| 1           | 11.35           | 97.91        | Open To Flow (1)     |
| 32          | 15.18           | 97.94        | Shut-In(1)           |
| 91          | 636.23          | 98.06        | End Shut-In(1)       |
| 91          | 17.15           | 97.97        | Open To Flow (2)     |
| 121         | 21.65           | 98.06        | Shut-In(2)           |
| 181         | 610.12          | 98.16        | End Shut-In(2)       |
| 182         | 906.26          | 98.18        | Final Hydro-static   |

## Recovery

| Length (ft) | Description                       | Volume (bbl) |
|-------------|-----------------------------------|--------------|
| 3.00        | Mud w/oil spots in tool/ Mud 100% | 0.01         |
|             |                                   |              |
|             |                                   |              |
|             |                                   |              |
|             |                                   |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk,KS**  
**Meriem #1-19**  
Job Ticket: 63495      **DST#: 1**  
Test Start: 2018.06.09 @ 06:31:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 1573.00 ft | Diameter: 3.80 inches | Volume: 22.07 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer: 20000.00 lb  |
| Drill Collar:             | Length: 305.00 ft  | Diameter: 2.25 inches | Volume: 1.50 bbl               | Weight to Pull Loose: 48000.00 lb  |
|                           |                    |                       | <u>Total Volume: 23.57 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 20.00 ft           |                       |                                | String Weight: Initial 44000.00 lb |
| Depth to Top Packer:      | 1878.00 ft         |                       |                                | Final 44000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 61.60 ft           |                       |                                |                                    |
| Tool Length:              | 81.60 ft           |                       |                                |                                    |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                                    |

Tool Comments:

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

|                 |       |      |         |         |                            |
|-----------------|-------|------|---------|---------|----------------------------|
| Shut-In Tool    | 5.00  |      |         | 1863.00 |                            |
| Hydraulic tool  | 5.00  |      |         | 1868.00 |                            |
| Top Packer      | 5.00  |      |         | 1873.00 |                            |
| Packer          | 5.00  |      |         | 1878.00 | 20.00 Bottom Of Top Packer |
| Recorder        | 1.00  | 6755 | Inside  | 1879.00 |                            |
| Recorder        | 1.00  | 8322 | Outside | 1880.00 |                            |
| Anchor          | 24.00 |      |         | 1904.00 |                            |
| Change Over Sub | 1.00  |      |         | 1905.00 |                            |
| Drill Pipe      | 30.60 |      |         | 1935.60 |                            |
| Change Over Sub | 1.00  |      |         | 1936.60 |                            |
| Bullnose        | 3.00  |      |         | 1939.60 | 61.60 Anchor Tool          |

**Total Tool Length: 81.60**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E Eik, KS**  
**Meriem #1-19**  
Job Ticket: 63495      **DST#: 1**  
Test Start: 2018.06.09 @ 06:31:00

### 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: bbl        |                 |         |
| Water Loss: 10.17 in <sup>3</sup> | Gas Cushion Type:          |                 |         |
| Resistivity: ohm.m                | Gas Cushion Pressure: psig |                 |         |
| Salinity: 9200.00 ppm             |                            |                 |         |
| Filter Cake: 1.00 inches          |                            |                 |         |

### Recovery Information

Recovery Table

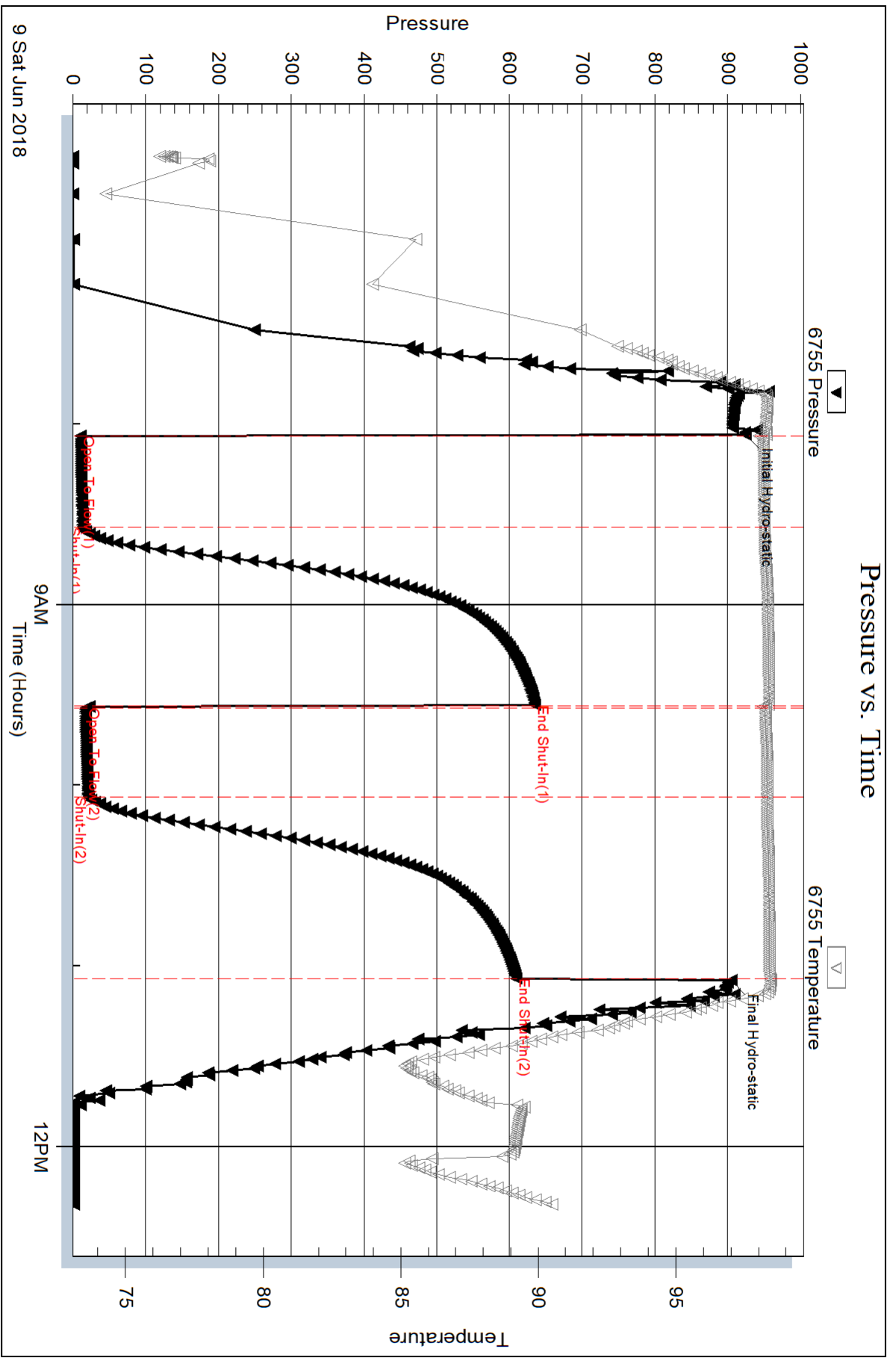
| Length<br>ft | Description                       | Volume<br>bbl |
|--------------|-----------------------------------|---------------|
| 3.00         | Mud w/oil spots in tool/ Mud 100% | 0.015         |

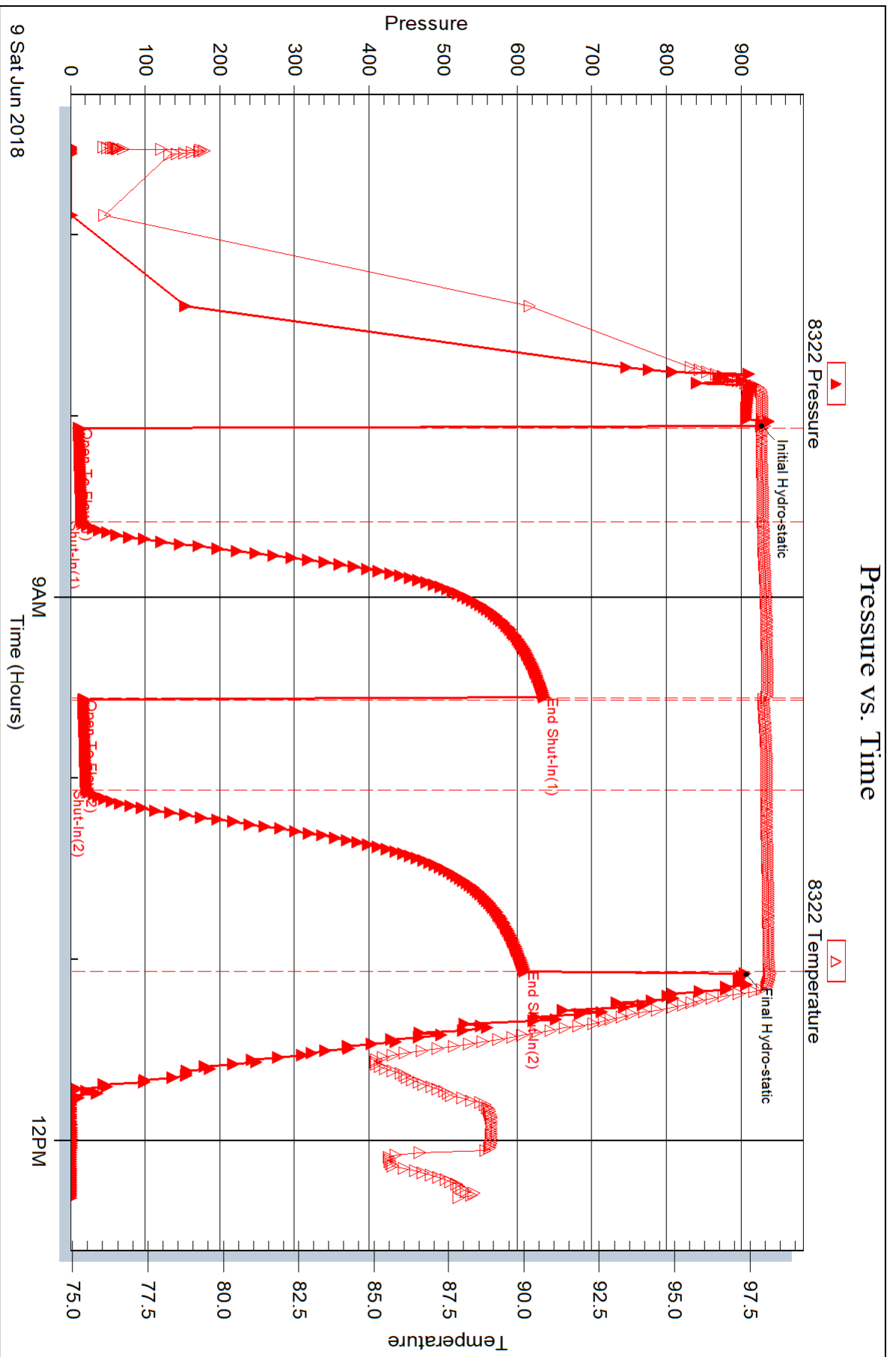
Total Length: 3.00 ft      Total Volume: 0.015 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Suite 300  
Wichita, KS 67202+1216

ATTN: Jeff Christian

### **Meriem #1-19**

### **19-28S-9E Elk,KS**

Start Date: 2018.06.10 @ 19:56:00

End Date: 2018.06.11 @ 03:14:02

Job Ticket #: 63496                      DST #: 2

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

Printed: 2018.06.14 @ 15:24:38



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

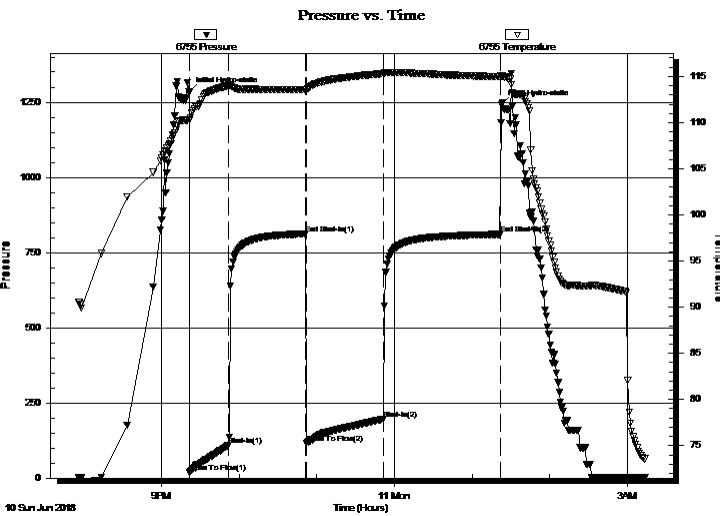
**19-28S-9E EIk, KS**  
**Meriem #1-19**  
 Job Ticket: 63496 **DST#: 2**  
 Test Start: 2018.06.10 @ 19:56:00

## GENERAL INFORMATION:

Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:21:47  
 Time Test Ended: 03:14:02  
 Interval: **2545.00 ft (KB) To 2560.00 ft (KB) (TVD)**  
 Total Depth: 2560.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 1375.00 ft (KB)  
 1367.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6755 Inside**  
 Press@RunDepth: 196.56 psig @ 2546.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.10 End Date: 2018.06.11 Last Calib.: 2018.06.11  
 Start Time: 19:56:01 End Time: 03:14:02 Time On Btm: 2018.06.10 @ 21:21:17  
 Time Off Btm: 2018.06.11 @ 01:22:47

**TEST COMMENT:** IFP 30 Minutes Blow built to 9"  
 ISI 60 Minutes No blow back  
 FFP 60 Minutes Blow built to 7 1/2"  
 FSI 90 Minutes No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1284.01         | 110.33       | Initial Hydro-static |
| 1           | 19.32           | 110.27       | Open To Flow (1)     |
| 31          | 108.58          | 114.00       | Shut-In(1)           |
| 90          | 812.14          | 113.56       | End Shut-In(1)       |
| 91          | 115.87          | 113.50       | Open To Flow (2)     |
| 151         | 196.56          | 115.34       | Shut-In(2)           |
| 241         | 811.01          | 115.02       | End Shut-In(2)       |
| 242         | 1240.80         | 115.04       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                       | Volume (bbl) |
|-------------|-----------------------------------|--------------|
| 417.00      | Muddy Water w/skim of oil in pipe | 3.07         |
| 0.00        | Mud 20% Water 80%                 | 0.00         |
|             |                                   |              |
|             |                                   |              |
|             |                                   |              |

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

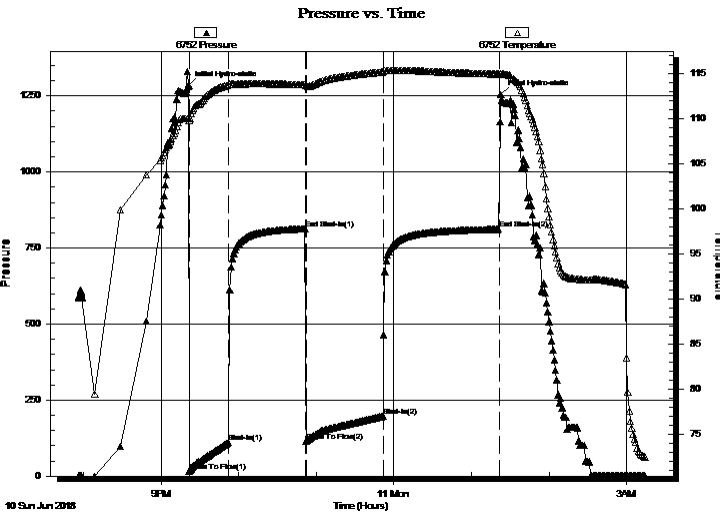
**19-28S-9E EIk, KS**  
**Meriem #1-19**  
 Job Ticket: 63496 **DST#: 2**  
 Test Start: 2018.06.10 @ 19:56:00

## GENERAL INFORMATION:

Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:21:47  
 Time Test Ended: 03:14:02  
 Interval: **2545.00 ft (KB) To 2560.00 ft (KB) (TVD)**  
 Total Depth: 2560.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
 Reference Elevations: 1375.00 ft (KB)  
 1367.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6752 Outside**  
 Press@RunDepth: 811.84 psig @ 2547.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.10 End Date: 2018.06.11 Last Calib.: 2018.06.11  
 Start Time: 19:56:01 End Time: 03:14:02 Time On Btm: 2018.06.10 @ 21:21:17  
 Time Off Btm: 2018.06.11 @ 01:22:47

**TEST COMMENT:** IFP 30 Minutes Blow built to 9"  
 ISI 60 Minutes No blow back  
 FFP 60 Minutes Blow built to 7 1/2"  
 FSI 90 Minutes No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1284.49         | 110.10       | Initial Hydro-static |
| 1           | 16.53           | 109.80       | Open To Flow (1)     |
| 31          | 111.71          | 113.73       | Shut-In(1)           |
| 90          | 812.84          | 113.75       | End Shut-In(1)       |
| 91          | 116.05          | 113.61       | Open To Flow (2)     |
| 151         | 197.19          | 115.16       | Shut-In(2)           |
| 240         | 811.84          | 114.93       | End Shut-In(2)       |
| 242         | 1255.49         | 114.96       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                       | Volume (bbl) |
|-------------|-----------------------------------|--------------|
| 417.00      | Muddy Water w/skim of oil in pipe | 3.07         |
| 0.00        | Mud 20% Water 80%                 | 0.00         |
|             |                                   |              |
|             |                                   |              |
|             |                                   |              |

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk, KS**  
**Meriem #1-19**  
Job Ticket: 63496      **DST#: 2**  
Test Start: 2018.06.10 @ 19:56:00

**Tool Information**

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 2232.00 ft | Diameter: 3.80 inches | Volume: 31.31 bbl              | Tool Weight:           | 2000.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 20000.00 lb |
| Drill Collar:             | Length: 305.00 ft  | Diameter: 2.25 inches | Volume: 1.50 bbl               | Weight to Pull Loose:  | 55000.00 lb |
|                           |                    |                       | <u>Total Volume: 32.81 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 12.00 ft           |                       |                                | String Weight: Initial | 51000.00 lb |
| Depth to Top Packer:      | 2545.00 ft         |                       |                                | Final                  | 51000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 15.00 ft           |                       |                                |                        |             |
| Tool Length:              | 35.00 ft           |                       |                                |                        |             |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |             |

Tool Comments:

| <b>Tool Description</b> | <b>Length (ft)</b> | <b>Serial No.</b> | <b>Position</b> | <b>Depth (ft)</b> | <b>Accum. Lengths</b> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                |       |      |         |         |                                 |
|----------------|-------|------|---------|---------|---------------------------------|
| Shut-In Tool   | 5.00  |      |         | 2530.00 |                                 |
| Hydraulic tool | 5.00  |      |         | 2535.00 |                                 |
| Top Packer     | 5.00  |      |         | 2540.00 |                                 |
| Packer         | 5.00  |      |         | 2545.00 | 20.00      Bottom Of Top Packer |
| Recorder       | 1.00  | 6755 | Inside  | 2546.00 |                                 |
| Recorder       | 1.00  | 6752 | Outside | 2547.00 |                                 |
| Anchor         | 10.00 |      |         | 2557.00 |                                 |
| Bullnose       | 3.00  |      |         | 2560.00 | 15.00      Anchor Tool          |

**Total Tool Length: 35.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk,KS**  
**Meriem #1-19**  
Job Ticket: 63496      **DST#: 2**  
Test Start: 2018.06.10 @ 19:56:00

### 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: | 18000 ppm |
| Viscosity: 56.00 sec/qt           | Cushion Volume: bbl        |                 |           |
| Water Loss: 10.17 in <sup>3</sup> | Gas Cushion Type:          |                 |           |
| Resistivity: ohm.m                | Gas Cushion Pressure: psig |                 |           |
| Salinity: 9200.00 ppm             |                            |                 |           |
| Filter Cake: 1.00 inches          |                            |                 |           |

### Recovery Information

Recovery Table

| Length<br>ft | Description                       | Volume<br>bbl |
|--------------|-----------------------------------|---------------|
| 417.00       | Muddy Water w/skim of oil in pipe | 3.071         |
| 0.00         | Mud 20% Water 80%                 | 0.000         |

Total Length: 417.00 ft      Total Volume: 3.071 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: Recovery Resistivity .350 ohms @ 74 deg

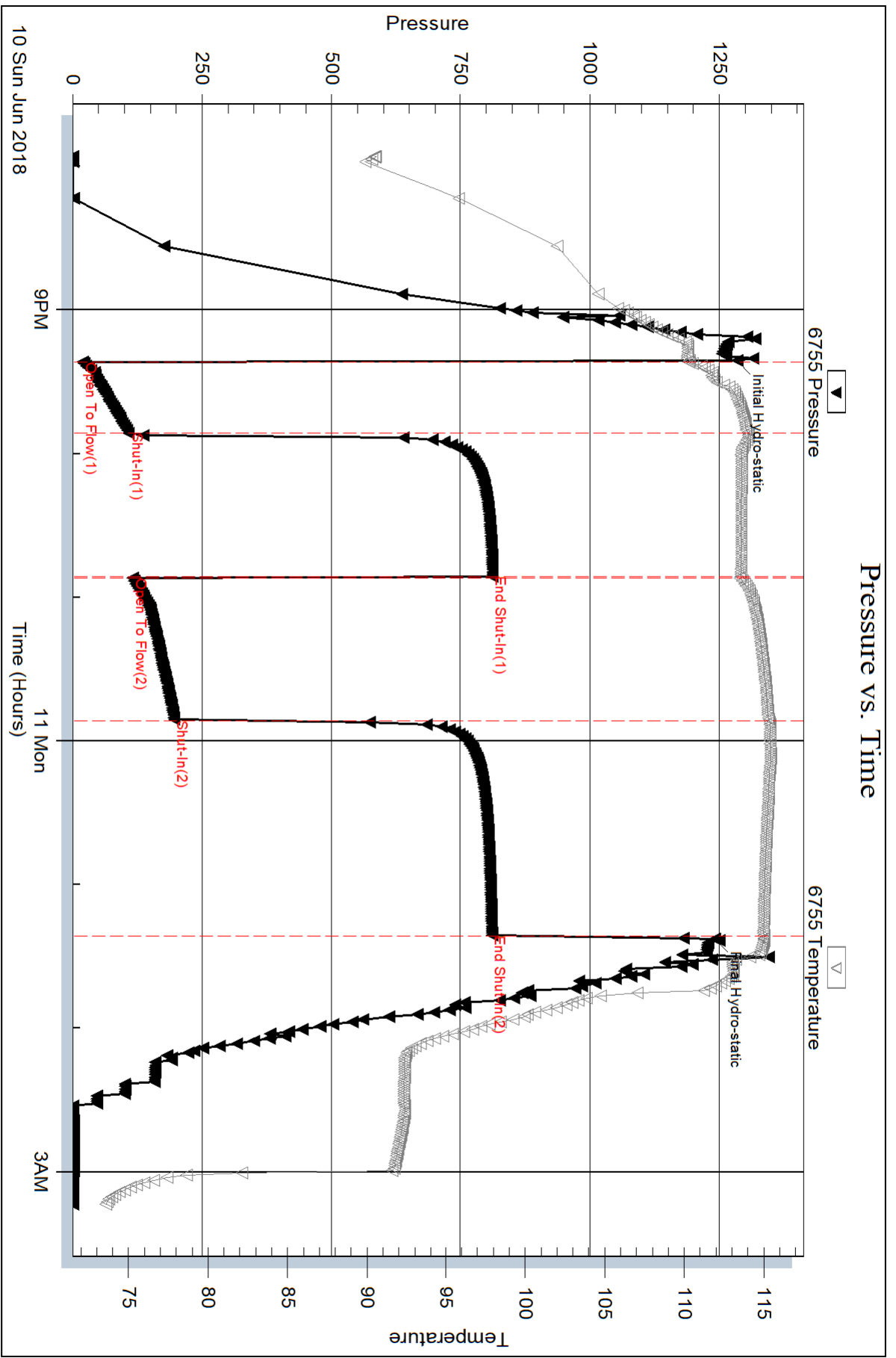
Serial #: 6755

Inside

Murfin Drilling Co

Meriem#1-19

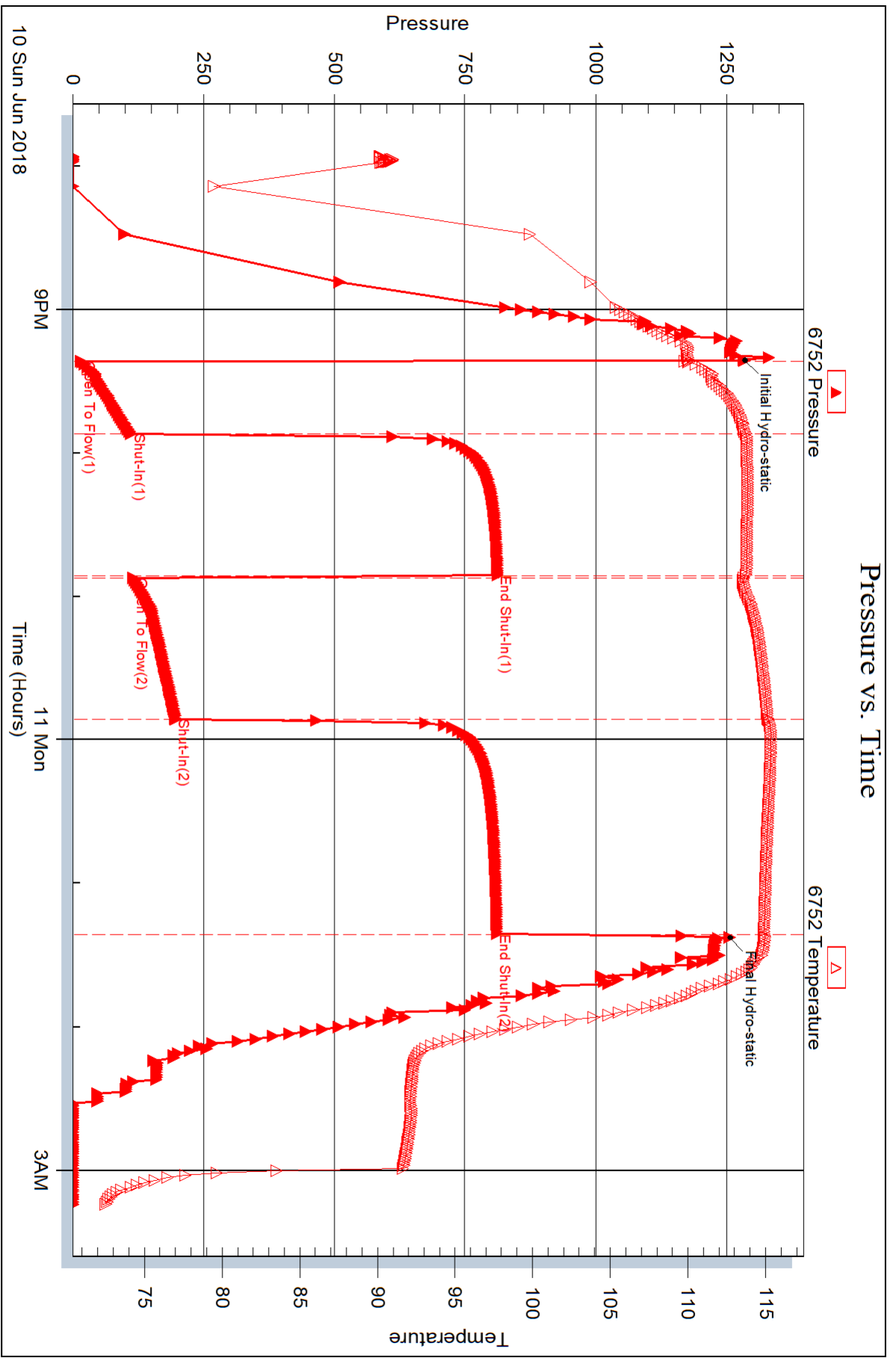
DST Test Number: 2



Triobite Testing, Inc

Ref. No: 63496

Printed: 2018.06.14 @ 15:24:39





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Suite 300  
Wichita, KS 67202+1216

ATTN: Jeff Christian

**Meriem #1-19**

**19-28S-9E Elk,KS**

Start Date: 2018.06.11 @ 18:12:00

End Date: 2018.06.12 @ 01:26:02

Job Ticket #: 63497                      DST #: 3

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

Printed: 2018.06.14 @ 15:23:41





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

**19-28S-9E EIK, KS**  
**Meriem #1-19**  
 Job Ticket: 63497 **DST#: 3**  
 Test Start: 2018.06.11 @ 18:12:00

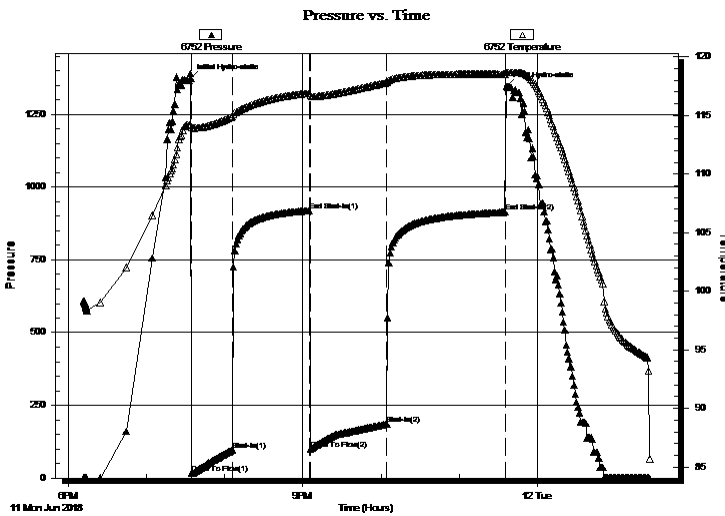
## GENERAL INFORMATION:

Formation: **Base Cowley**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 19:35:02 Tester: Ken Swinney  
 Time Test Ended: 01:26:02 Unit No: 72  
 Interval: **2751.00 ft (KB) To 2760.00 ft (KB) (TVD)** Reference Elevations: 1375.00 ft (KB)  
 Total Depth: 2760.00 ft (KB) (TVD) 1367.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

**Serial #: 6752 Outside**  
 Press@RunDepth: 913.78 psig @ 2753.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.11 End Date: 2018.06.12 Last Calib.: 2018.06.12  
 Start Time: 18:12:01 End Time: 01:26:02 Time On Btm: 2018.06.11 @ 19:34:17  
 Time Off Btm: 2018.06.11 @ 23:36:02

**TEST COMMENT:** IFP 30 Minutes Blow built to 8"  
 ISI 60 Minutes No blow back  
 FFP 60 Minutes Blow built to 9"  
 FSI 90 Minutes No blow back

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1373.79         | 114.18       | Initial Hydro-static |
| 1           | 16.02           | 113.98       | Open To Flow (1)     |
| 32          | 96.86           | 114.91       | Shut-In(1)           |
| 91          | 918.60          | 116.85       | End Shut-In(1)       |
| 92          | 100.56          | 116.70       | Open To Flow (2)     |
| 151         | 185.38          | 117.81       | Shut-In(2)           |
| 241         | 913.78          | 118.54       | End Shut-In(2)       |
| 242         | 1346.28         | 118.63       | Final Hydro-static   |

## Recovery

| Length (ft) | Description          | Volume (bbl) |
|-------------|----------------------|--------------|
| 372.00      | MW Mud 10% Water 90% | 2.44         |
|             |                      |              |
|             |                      |              |
|             |                      |              |
|             |                      |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk,KS**  
**Meriem #1-19**  
Job Ticket: 63497      **DST#: 3**  
Test Start: 2018.06.11 @ 18:12:00

**Tool Information**

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 2453.00 ft | Diameter: 3.80 inches | Volume: 34.41 bbl              | Tool Weight:           | 2000.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 20000.00 lb |
| Drill Collar:             | Length: 305.00 ft  | Diameter: 2.25 inches | Volume: 1.50 bbl               | Weight to Pull Loose:  | 60000.00 lb |
|                           |                    |                       | <u>Total Volume: 35.91 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 27.00 ft           |                       |                                | String Weight: Initial | 51000.00 lb |
| Depth to Top Packer:      | 2751.00 ft         |                       |                                | Final                  | 52000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 9.00 ft            |                       |                                |                        |             |
| Tool Length:              | 29.00 ft           |                       |                                |                        |             |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |             |

Tool Comments:

| <b>Tool Description</b> | <b>Length (ft)</b> | <b>Serial No.</b> | <b>Position</b> | <b>Depth (ft)</b> | <b>Accum. Lengths</b> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                |      |      |         |         |                                 |
|----------------|------|------|---------|---------|---------------------------------|
| Shut-In Tool   | 5.00 |      |         | 2736.00 |                                 |
| Hydraulic tool | 5.00 |      |         | 2741.00 |                                 |
| Top Packer     | 5.00 |      |         | 2746.00 |                                 |
| Packer         | 5.00 |      |         | 2751.00 | 20.00      Bottom Of Top Packer |
| Recorder       | 1.00 | 6755 | Inside  | 2752.00 |                                 |
| Recorder       | 1.00 | 6752 | Outside | 2753.00 |                                 |
| Anchor         | 4.00 |      |         | 2757.00 |                                 |
| Bullnose       | 3.00 |      |         | 2760.00 | 9.00      Anchor Tool           |

**Total Tool Length: 29.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E Eik, KS**  
**Meriem #1-19**  
Job Ticket: 63497      **DST#: 3**  
Test Start: 2018.06.11 @ 18:12:00

## Mud and Cushion Information

|                             |                            |                 |           |
|-----------------------------|----------------------------|-----------------|-----------|
| Mud Type: Gel Chem          | Cushion Type:              | Oil API:        | deg API   |
| Mud Weight: 10.00 lb/gal    | Cushion Length: ft         | Water Salinity: | 23000 ppm |
| Viscosity: 49.00 sec/qt     | Cushion Volume: bbl        |                 |           |
| Water Loss: in <sup>3</sup> | Gas Cushion Type:          |                 |           |
| Resistivity: ohm.m          | Gas Cushion Pressure: psig |                 |           |
| Salinity: ppm               |                            |                 |           |
| Filter Cake: inches         |                            |                 |           |

## Recovery Information

Recovery Table

| Length<br>ft | Description          | Volume<br>bbl |
|--------------|----------------------|---------------|
| 372.00       | MW Mud 10% Water 90% | 2.440         |

Total Length: 372.00 ft      Total Volume: 2.440 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: Recovery Resistivity .250 ohms @ 79 deg

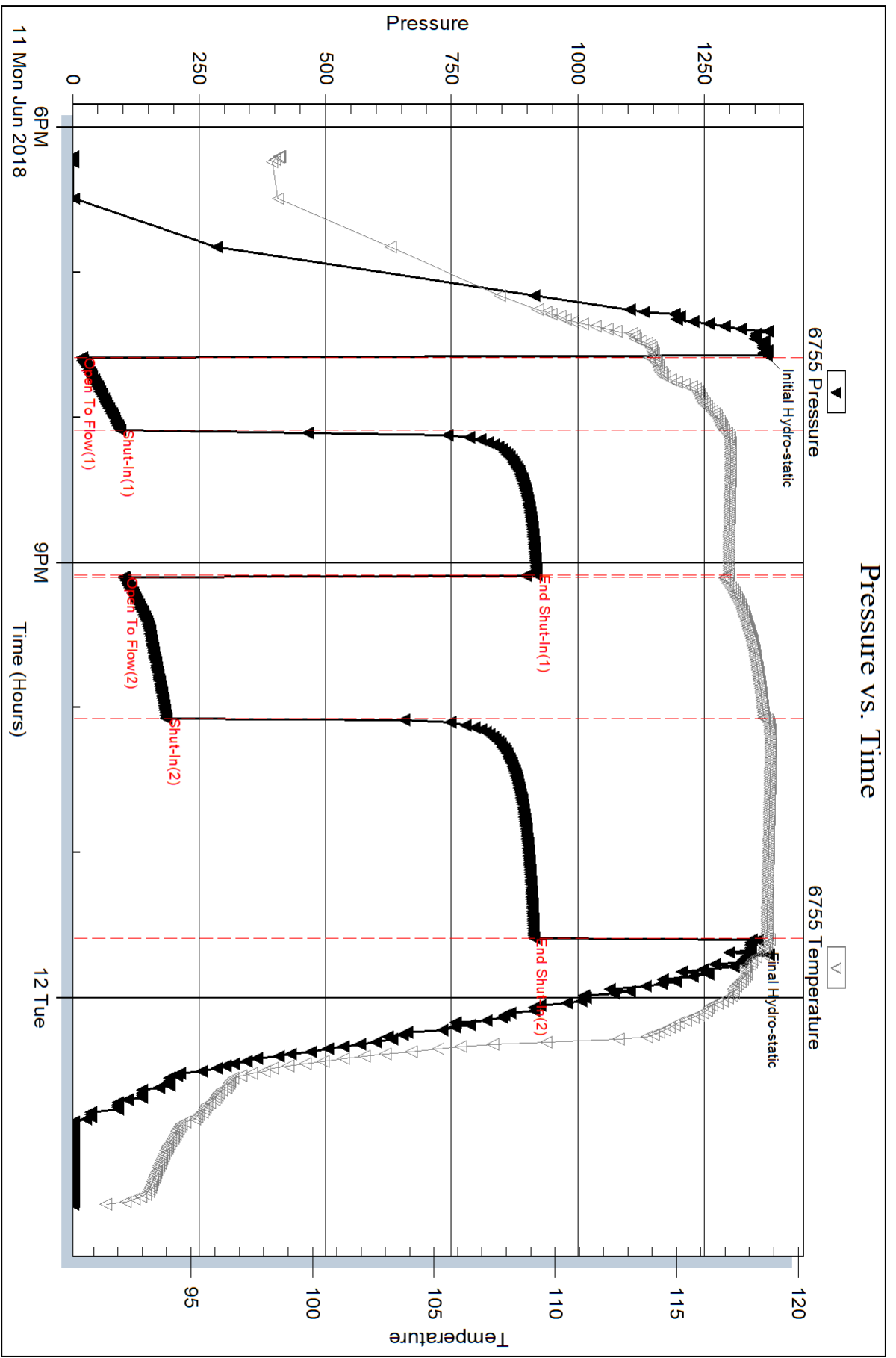
Serial #: 6755

Inside

Murfin Drilling Co

Meriem#1-19

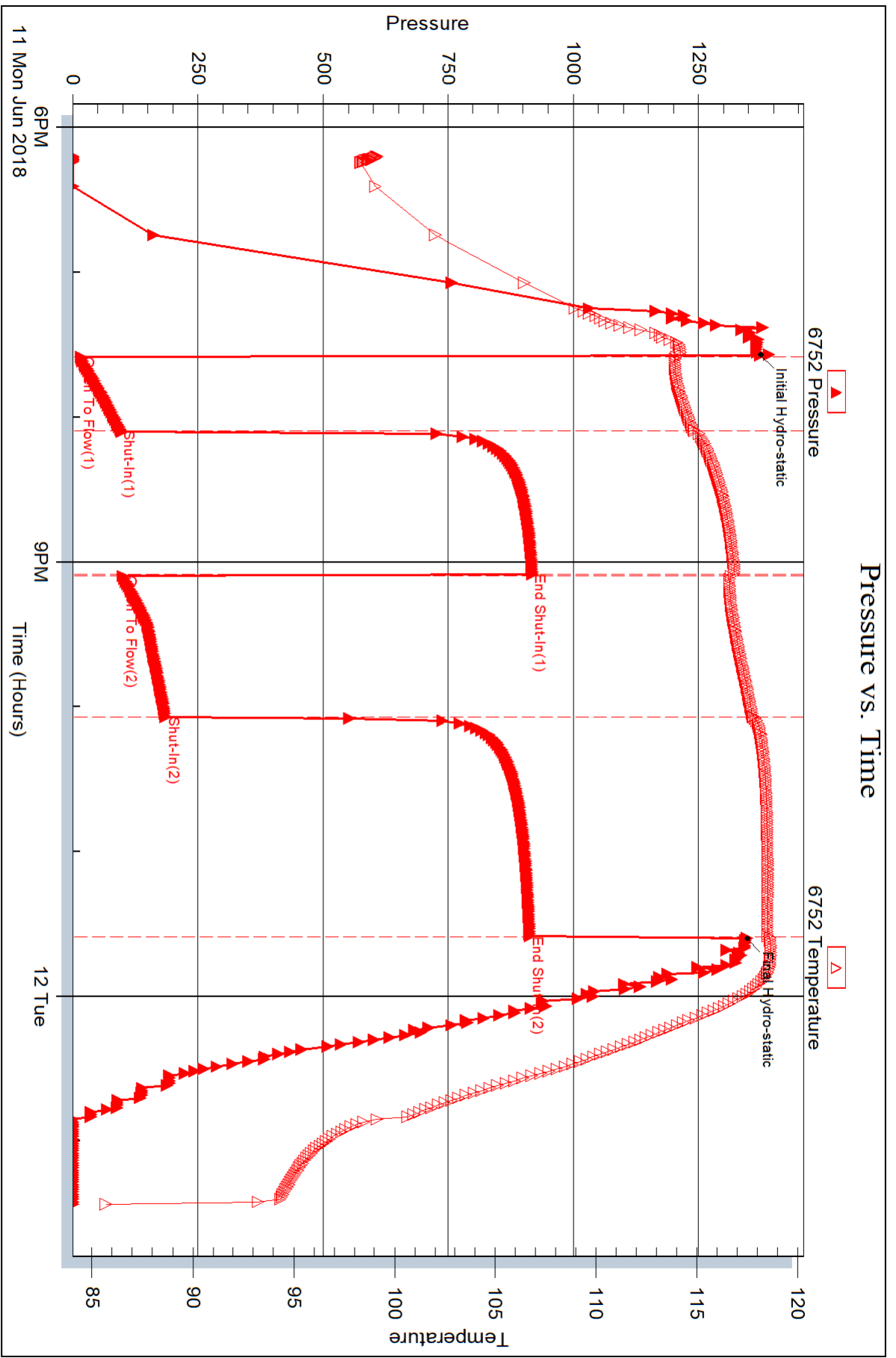
DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63497

Printed: 2018.06.14 @ 15:23:41





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Suite 300  
Wichita, KS 67202+1216

ATTN: Jeff Christian

### **Meriem #1-19**

### **19-28S-9E Elk,KS**

Start Date: 2018.06.12 @ 17:45:00

End Date: 2018.06.12 @ 23:59:02

Job Ticket #: 63498                      DST #: 4

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

Printed: 2018.06.14 @ 15:04:33

Murfin Drilling Co  
19-28S-9E Elk,KS  
Meriem #1-19  
DST # 4  
Arbuckle  
2018.06.12



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

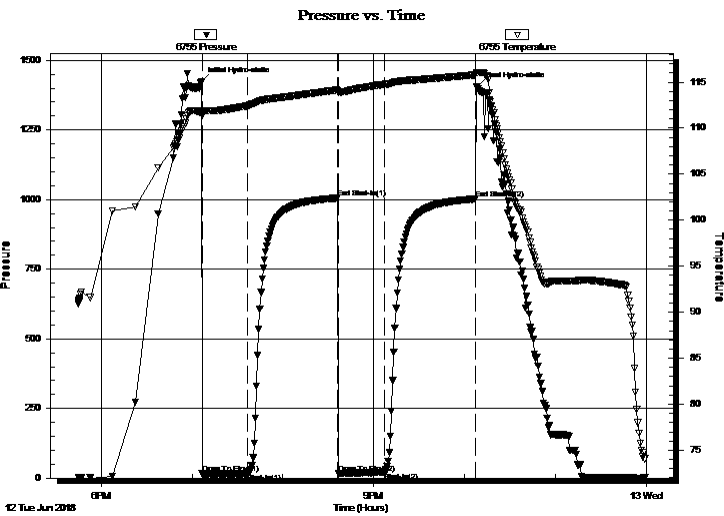
**19-28S-9E EIk, KS**  
**Meriem #1-19**  
 Job Ticket: 63498 **DST#: 4**  
 Test Start: 2018.06.12 @ 17:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 19:06:32 Tester: Ken Swinney  
 Time Test Ended: 23:59:02 Unit No: 72  
 Interval: **2884.00 ft (KB) To 2899.00 ft (KB) (TVD)** Reference Elevations: 1375.00 ft (KB)  
 Total Depth: 2899.00 ft (KB) (TVD) 1367.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

**Serial #: 6755 Inside**  
 Press@RunDepth: 20.44 psig @ 2885.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.12 End Date: 2018.06.12 Last Calib.: 2018.06.13  
 Start Time: 17:45:01 End Time: 23:59:02 Time On Btm: 2018.06.12 @ 19:06:02  
 Time Off Btm: 2018.06.12 @ 22:08:17

**TEST COMMENT:** IFP 30 Minutes After 7 minutes light surface blow for 1 minute then dead  
 ISI 60 Minutes No blow back  
 FFP 30 Minutes Dead no blow  
 FSI 60 Minutes No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1422.56         | 111.82       | Initial Hydro-static |
| 1           | 15.92           | 111.37       | Open To Flow (1)     |
| 31          | 15.92           | 112.44       | Shut-In(1)           |
| 90          | 1005.27         | 114.11       | End Shut-In(1)       |
| 91          | 18.05           | 113.91       | Open To Flow (2)     |
| 121         | 20.44           | 114.76       | Shut-In(2)           |
| 182         | 1002.34         | 115.83       | End Shut-In(2)       |
| 183         | 1406.12         | 116.03       | Final Hydro-static   |

## Recovery

| Length (ft) | Description             | Volume (bbl) |
|-------------|-------------------------|--------------|
| 1.00        | Mw / oil spots Mud 100% | 0.00         |
|             |                         |              |
|             |                         |              |
|             |                         |              |

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

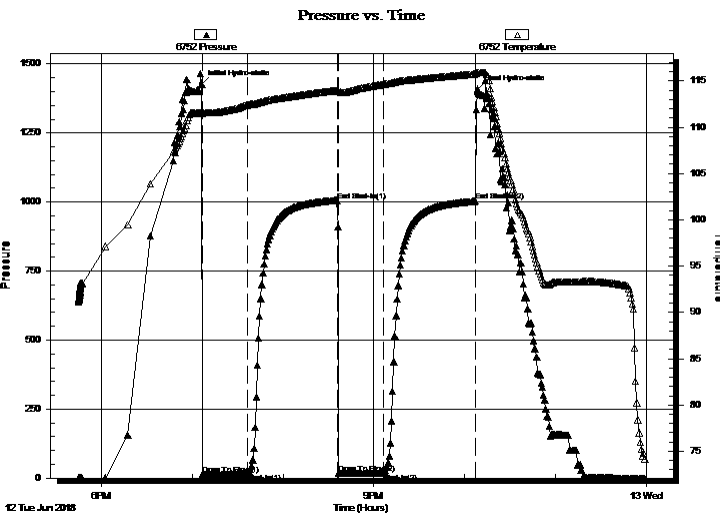
**19-28S-9E EIk, KS**  
**Meriem #1-19**  
 Job Ticket: 63498 **DST#: 4**  
 Test Start: 2018.06.12 @ 17:45:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 19:06:32 Tester: Ken Swinney  
 Time Test Ended: 23:59:02 Unit No: 72  
 Interval: **2884.00 ft (KB) To 2899.00 ft (KB) (TVD)** Reference Elevations: 1375.00 ft (KB)  
 Total Depth: 2899.00 ft (KB) (TVD) 1367.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

**Serial #: 6752 Outside**  
 Press@RunDepth: 1003.35 psig @ 2886.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.12 End Date: 2018.06.12 Last Calib.: 2018.06.13  
 Start Time: 17:45:01 End Time: 23:59:02 Time On Btm: 2018.06.12 @ 19:06:17  
 Time Off Btm: 2018.06.12 @ 22:08:17

**TEST COMMENT:** IFP 30 Minutes After 7 minutes light surface blow for 1 minute then dead  
 ISI 60 Minutes No blow back  
 FFP 30 Minutes Dead no blow  
 FSI 60 Minutes No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1424.69         | 111.59       | Initial Hydro-static |
| 1           | 12.73           | 111.50       | Open To Flow (1)     |
| 31          | 15.63           | 112.42       | Shut-In(1)           |
| 90          | 1006.08         | 113.97       | End Shut-In(1)       |
| 91          | 17.05           | 113.84       | Open To Flow (2)     |
| 120         | 18.49           | 114.64       | Shut-In(2)           |
| 181         | 1003.35         | 115.79       | End Shut-In(2)       |
| 182         | 1408.26         | 115.87       | Final Hydro-static   |

## Recovery

| Length (ft) | Description             | Volume (bbl) |
|-------------|-------------------------|--------------|
| 1.00        | Mw / oil spots Mud 100% | 0.00         |
|             |                         |              |
|             |                         |              |
|             |                         |              |
|             |                         |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk,KS**  
**Meriem #1-19**  
Job Ticket: 63498      **DST#: 4**  
Test Start: 2018.06.12 @ 17:45:00

**Tool Information**

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 2578.00 ft | Diameter: 3.80 inches | Volume: 36.16 bbl              | Tool Weight:           | 2000.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 20000.00 lb |
| Drill Collar:             | Length: 305.00 ft  | Diameter: 2.25 inches | Volume: 1.50 bbl               | Weight to Pull Loose:  | 62000.00 lb |
|                           |                    |                       | <u>Total Volume: 37.66 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 19.00 ft           |                       |                                | String Weight: Initial | 51000.00 lb |
| Depth to Top Packer:      | 2884.00 ft         |                       |                                | Final                  | 51000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 15.00 ft           |                       |                                |                        |             |
| Tool Length:              | 35.00 ft           |                       |                                |                        |             |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |             |

Tool Comments:

| <b>Tool Description</b> | <b>Length (ft)</b> | <b>Serial No.</b> | <b>Position</b> | <b>Depth (ft)</b> | <b>Accum. Lengths</b> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                |       |      |         |         |                                 |
|----------------|-------|------|---------|---------|---------------------------------|
| Shut-In Tool   | 5.00  |      |         | 2869.00 |                                 |
| Hydraulic tool | 5.00  |      |         | 2874.00 |                                 |
| Top Packer     | 5.00  |      |         | 2879.00 |                                 |
| Packer         | 5.00  |      |         | 2884.00 | 20.00      Bottom Of Top Packer |
| Recorder       | 1.00  | 6755 | Inside  | 2885.00 |                                 |
| Recorder       | 1.00  | 6752 | Outside | 2886.00 |                                 |
| Anchor         | 10.00 |      |         | 2896.00 |                                 |
| Bullnose       | 3.00  |      |         | 2899.00 | 15.00      Anchor Tool          |

**Total Tool Length: 35.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E Eik, KS**  
**Meriem #1-19**  
Job Ticket: 63498      **DST#: 4**  
Test Start: 2018.06.12 @ 17:45:00

## 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: 54.00 sec/qt     | Cushion Volume: bbl        |                 |         |
| Water Loss: in <sup>3</sup> | Gas Cushion Type:          |                 |         |
| Resistivity: ohm.m          | Gas Cushion Pressure: psig |                 |         |
| Salinity: ppm               |                            |                 |         |
| Filter Cake: inches         |                            |                 |         |

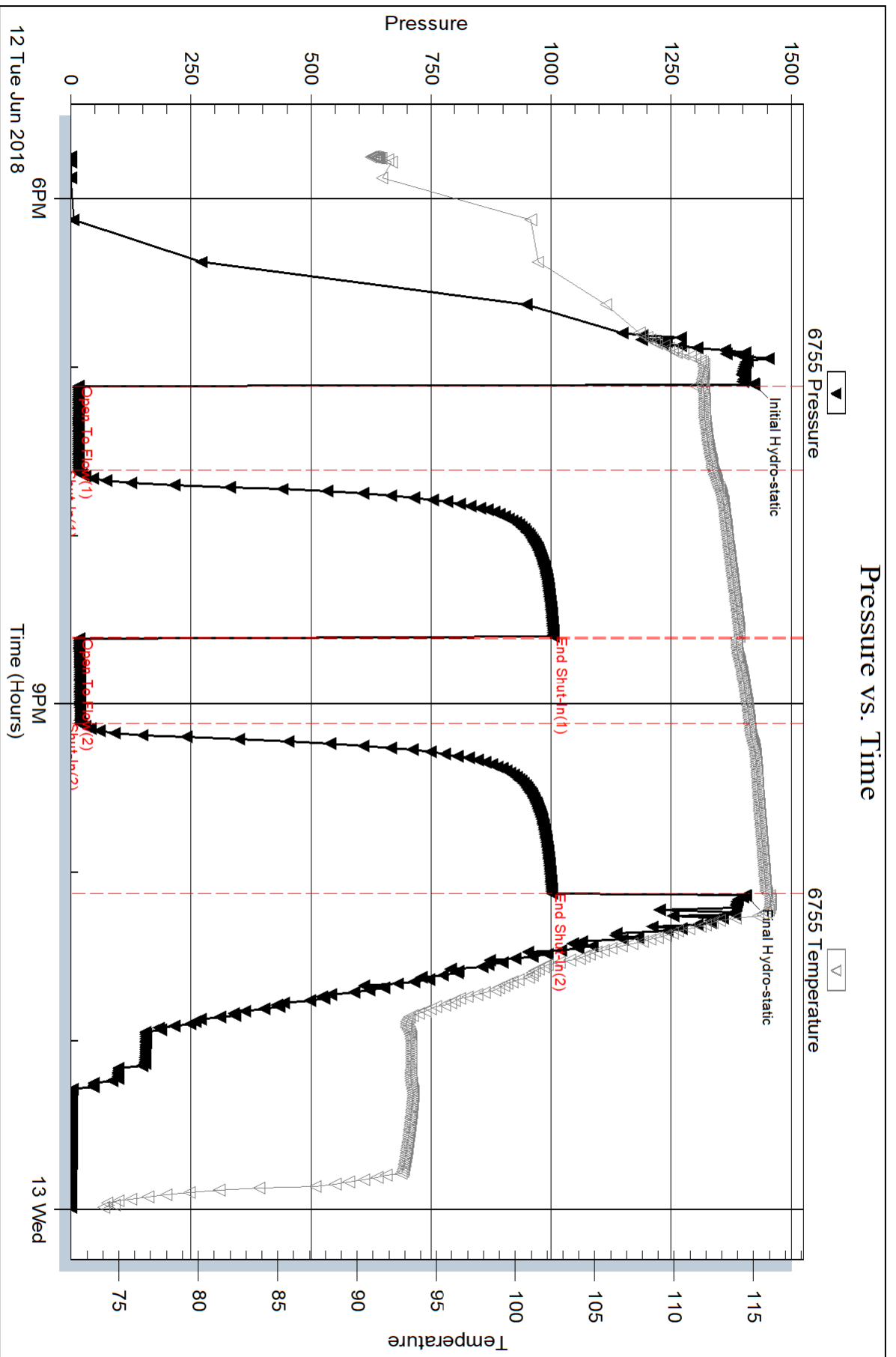
## Recovery Information

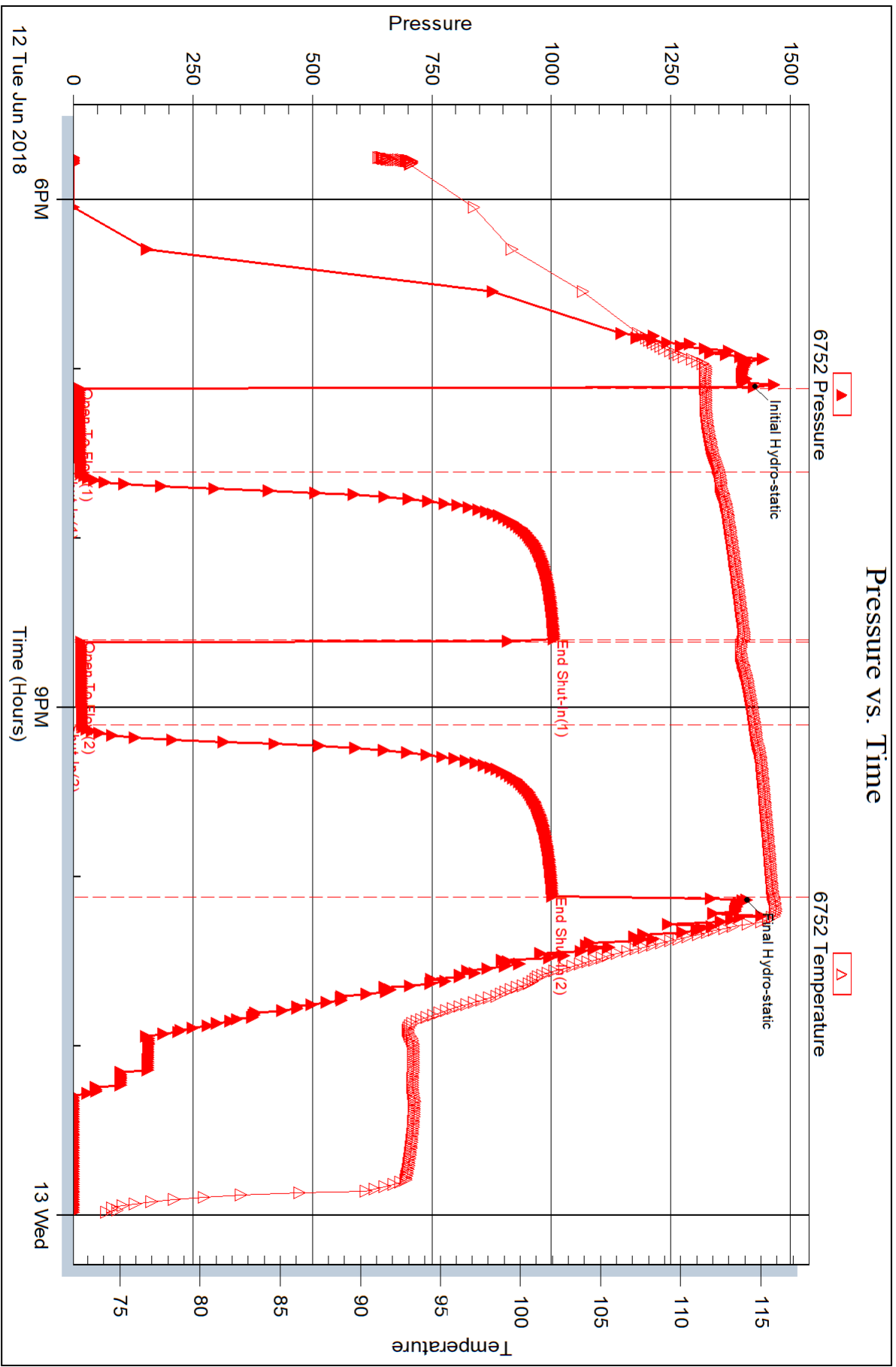
Recovery Table

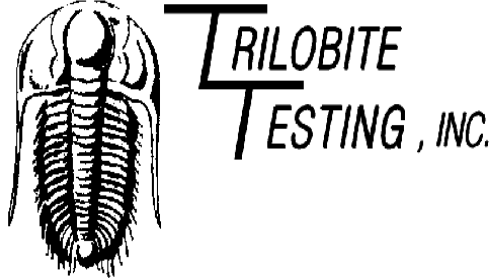
| Length<br>ft | Description             | Volume<br>bbl |
|--------------|-------------------------|---------------|
| 1.00         | Mw / oil spots Mud 100% | 0.005         |

Total Length: 1.00 ft      Total Volume: 0.005 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water Suite 300  
Wichita, KS 67202+1216

ATTN: Jeff Christian

### **Meriem #1-19**

### **19-28S-9E Elk,KS**

Start Date: 2018.06.13 @ 05:54:00

End Date: 2018.06.13 @ 12:38:02

Job Ticket #: 63499                      DST #: 5

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

Printed: 2018.06.14 @ 15:03:53



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water Suite 300  
 Wichita, KS 67202+1216  
 ATTN: Jeff Christian

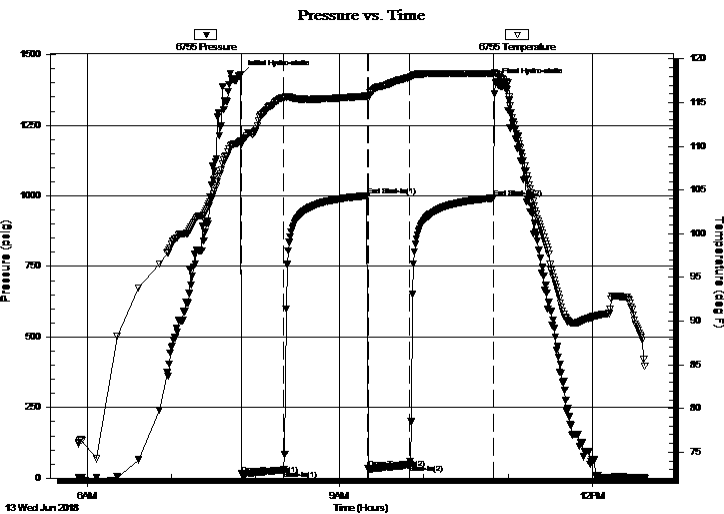
**19-28S-9E EIK, KS**  
**Meriem #1-19**  
 Job Ticket: 63499 **DST#: 5**  
 Test Start: 2018.06.13 @ 05:54:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 07:50:02  
 Time Test Ended: 12:38:02  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 72  
**Interval: 2896.00 ft (KB) To 2906.00 ft (KB) (TVD)**  
 Reference Elevations: 1375.00 ft (KB)  
 Total Depth: 2906.00 ft (KB) (TVD) 1367.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

**Serial #: 6755 Inside**  
 Press@RunDepth: 47.19 psig @ 2897.00 ft (KB) Capacity: psig  
 Start Date: 2018.06.13 End Date: 2018.06.13 Last Calib.: 2018.06.13  
 Start Time: 05:54:01 End Time: 12:38:02 Time On Btm: 2018.06.13 @ 07:49:47  
 Time Off Btm: 2018.06.13 @ 10:51:02

**TEST COMMENT:** IF 30 Minutes/ Blow built to 1"  
 ISI 60 Minutes/ No blow back  
 FF 30 Minutes/ Blow started after 13 minutes, built to 1/4"  
 FSI 60 Minutes/ No blow back



## PRESSURE SUMMARY

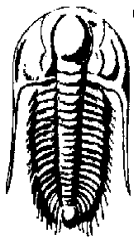
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1429.52         | 110.60       | Initial Hydro-static |
| 1           | 14.58           | 110.16       | Open To Flow (1)     |
| 31          | 29.13           | 115.56       | Shut-In(1)           |
| 90          | 1000.03         | 115.74       | End Shut-In(1)       |
| 91          | 33.10           | 115.46       | Open To Flow (2)     |
| 121         | 47.19           | 117.90       | Shut-In(2)           |
| 180         | 992.78          | 118.36       | End Shut-In(2)       |
| 182         | 1400.16         | 118.35       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                          | Volume (bbl) |
|-------------|--------------------------------------|--------------|
| 65.00       | MW w/oil spots in pipe Mud 20% Water | 80.32        |
|             |                                      |              |
|             |                                      |              |
|             |                                      |              |
|             |                                      |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

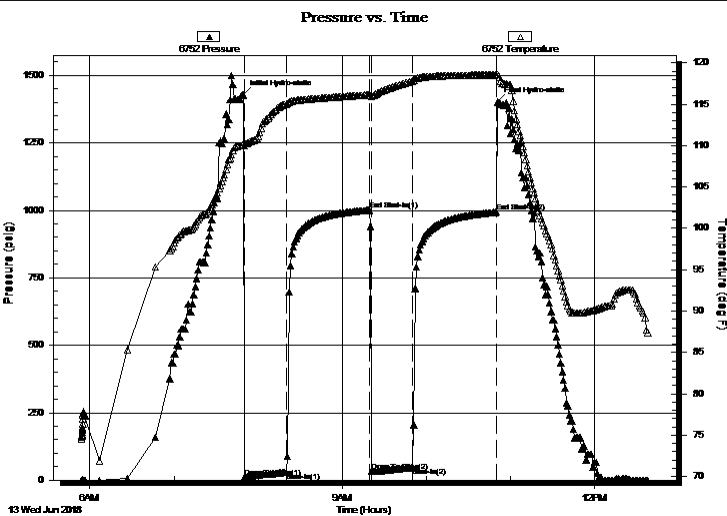
**19-28S-9E EIK, KS**  
**Meriem #1-19**  
Job Ticket: 63499      **DST#: 5**  
Test Start: 2018.06.13 @ 05:54:00

## GENERAL INFORMATION:

|                   |   |                      |                       |                                    |
|-------------------|---|----------------------|-----------------------|------------------------------------|
| Formation:        | <b>Arbuckle</b>                                 |                      | Test Type:            | Conventional Bottom Hole (Initial) |
| Deviated:         | No Whipstock:                                   | ft (KB)              | Tester:               | Ken Swinney                        |
| Time Tool Opened: | 07:50:02  |                      | Unit No:              | 72                                 |
| Time Test Ended:  | 12:38:02  |                      | Reference Elevations: | 1375.00 ft (KB)                    |
| <b>Interval:</b>  | <b>2896.00 ft (KB) To 2906.00 ft (KB) (TVD)</b> |                      |                       | 1367.00 ft (CF)                    |
| Total Depth:      | 2906.00 ft (KB) (TVD)                           |                      | KB to GR/CF:          | 8.00 ft                            |
| Hole Diameter:    | 7.88 inches                                     | Hole Condition: Fair |                       |                                    |

|                       |                |                 |            |               |                       |            |
|-----------------------|----------------|-----------------|------------|---------------|-----------------------|------------|
| <b>Serial #: 6752</b> | <b>Outside</b> |                 |            |               | Capacity:             | psig       |
| Press@RunDepth:       | 993.64 psig @  | 2898.00 ft (KB) |            |               | Last Calib.:          | 2018.06.13 |
| Start Date:           | 2018.06.13     | End Date:       | 2018.06.13 | Time On Btm:  | 2018.06.13 @ 07:49:17 |            |
| Start Time:           | 05:54:01       | End Time:       | 12:38:02   | Time Off Btm: | 2018.06.13 @ 10:51:02 |            |

TEST COMMENT: IF 30 Minutes/ Blow built to 1"  
ISI 60 Minutes/ No blow back  
FF 30 Minutes/ Blow started after 13 minutes, built to 1/4"  
FSI 60 Minutes/ No blow back



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1429.83         | 110.16       | Initial Hydro-static |
| 1           | 12.31           | 109.96       | Open To Flow (1)     |
| 31          | 29.50           | 115.01       | Shut-In(1)           |
| 91          | 1000.72         | 116.10       | End Shut-In(1)       |
| 92          | 31.61           | 115.90       | Open To Flow (2)     |
| 121         | 46.91           | 117.78       | Shut-In(2)           |
| 181         | 993.64          | 118.57       | End Shut-In(2)       |
| 182         | 1401.47         | 118.59       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                          | Volume (bbl) |
|-------------|--------------------------------------|--------------|
| 65.00       | MW w/oil spots in pipe Mud 20% Water | 80.32        |
|             |                                      |              |
|             |                                      |              |
|             |                                      |              |
|             |                                      |              |

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E EIk,KS**  
**Meriem #1-19**  
Job Ticket: 63499      **DST#: 5**  
Test Start: 2018.06.13 @ 05:54:00

**Tool Information**

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 2580.00 ft | Diameter: 3.80 inches | Volume: 36.19 bbl              | Tool Weight:           | 2000.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 0.00 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 20000.00 lb |
| Drill Collar:             | Length: 305.00 ft  | Diameter: 2.25 inches | Volume: 1.50 bbl               | Weight to Pull Loose:  | 64000.00 lb |
|                           |                    |                       | <u>Total Volume: 37.69 bbl</u> | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      | 9.00 ft            |                       |                                | String Weight: Initial | 52000.00 lb |
| Depth to Top Packer:      | 2896.00 ft         |                       |                                | Final                  | 52000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 10.00 ft           |                       |                                |                        |             |
| Tool Length:              | 30.00 ft           |                       |                                |                        |             |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |             |

Tool Comments:

| <b>Tool Description</b> | <b>Length (ft)</b> | <b>Serial No.</b> | <b>Position</b> | <b>Depth (ft)</b> | <b>Accum. Lengths</b> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                |      |      |         |         |                                 |
|----------------|------|------|---------|---------|---------------------------------|
| Shut-In Tool   | 5.00 |      |         | 2881.00 |                                 |
| Hydraulic tool | 5.00 |      |         | 2886.00 |                                 |
| Top Packer     | 5.00 |      |         | 2891.00 |                                 |
| Packer         | 5.00 |      |         | 2896.00 | 20.00      Bottom Of Top Packer |
| Recorder       | 1.00 | 6755 | Inside  | 2897.00 |                                 |
| Recorder       | 1.00 | 6752 | Outside | 2898.00 |                                 |
| Anchor         | 5.00 |      |         | 2903.00 |                                 |
| Bullnose       | 3.00 |      |         | 2906.00 | 10.00      Anchor Tool          |

**Total Tool Length: 30.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water Suite 300  
Wichita, KS 67202+1216  
ATTN: Jeff Christian

**19-28S-9E Eik, KS**  
**Meriem #1-19**  
Job Ticket: 63499      **DST#: 5**  
Test Start: 2018.06.13 @ 05:54:00

## Mud and Cushion Information

|              |                 |                       |      |                 |           |
|--------------|-----------------|-----------------------|------|-----------------|-----------|
| Mud Type:    | Gel Chem        | Cushion Type:         |      | Oil API:        | deg API   |
| Mud Weight:  | 10.00 lb/gal    | Cushion Length:       | ft   | Water Salinity: | 16000 ppm |
| Viscosity:   | 48.00 sec/qt    | Cushion Volume:       | bbbl |                 |           |
| Water Loss:  | in <sup>3</sup> | Gas Cushion Type:     |      |                 |           |
| Resistivity: | ohm.m           | Gas Cushion Pressure: | psig |                 |           |
| Salinity:    | ppm             |                       |      |                 |           |
| Filter Cake: | inches          |                       |      |                 |           |

## Recovery Information

Recovery Table

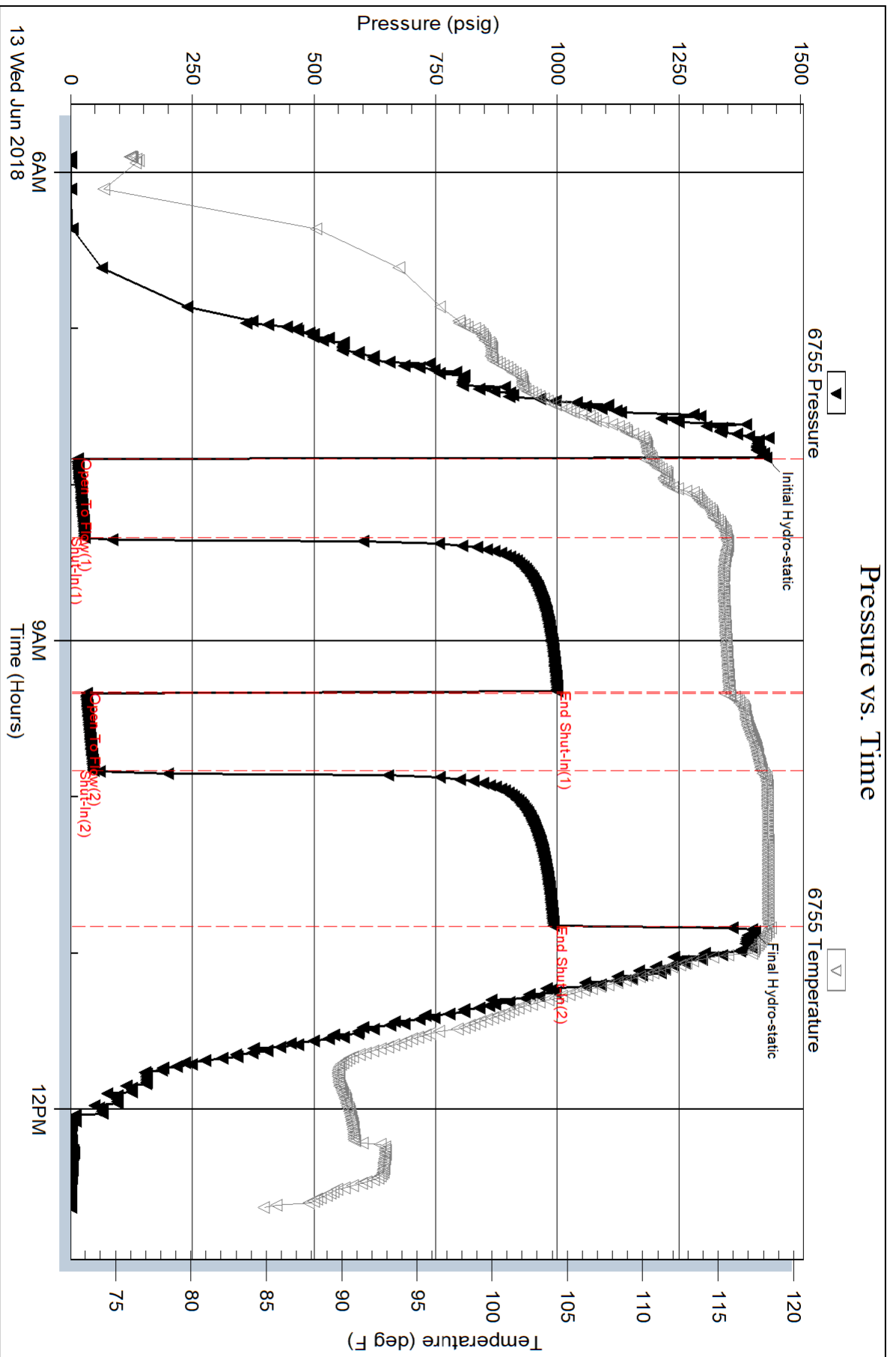
| Length<br>ft | Description                              | Volume<br>bbbl |
|--------------|--|----------------|
| 65.00        | MW w/oil spots in pipe Mud 20% Water 80% | 0.320          |

Total Length: 65.00 ft      Total Volume: 0.320 bbl

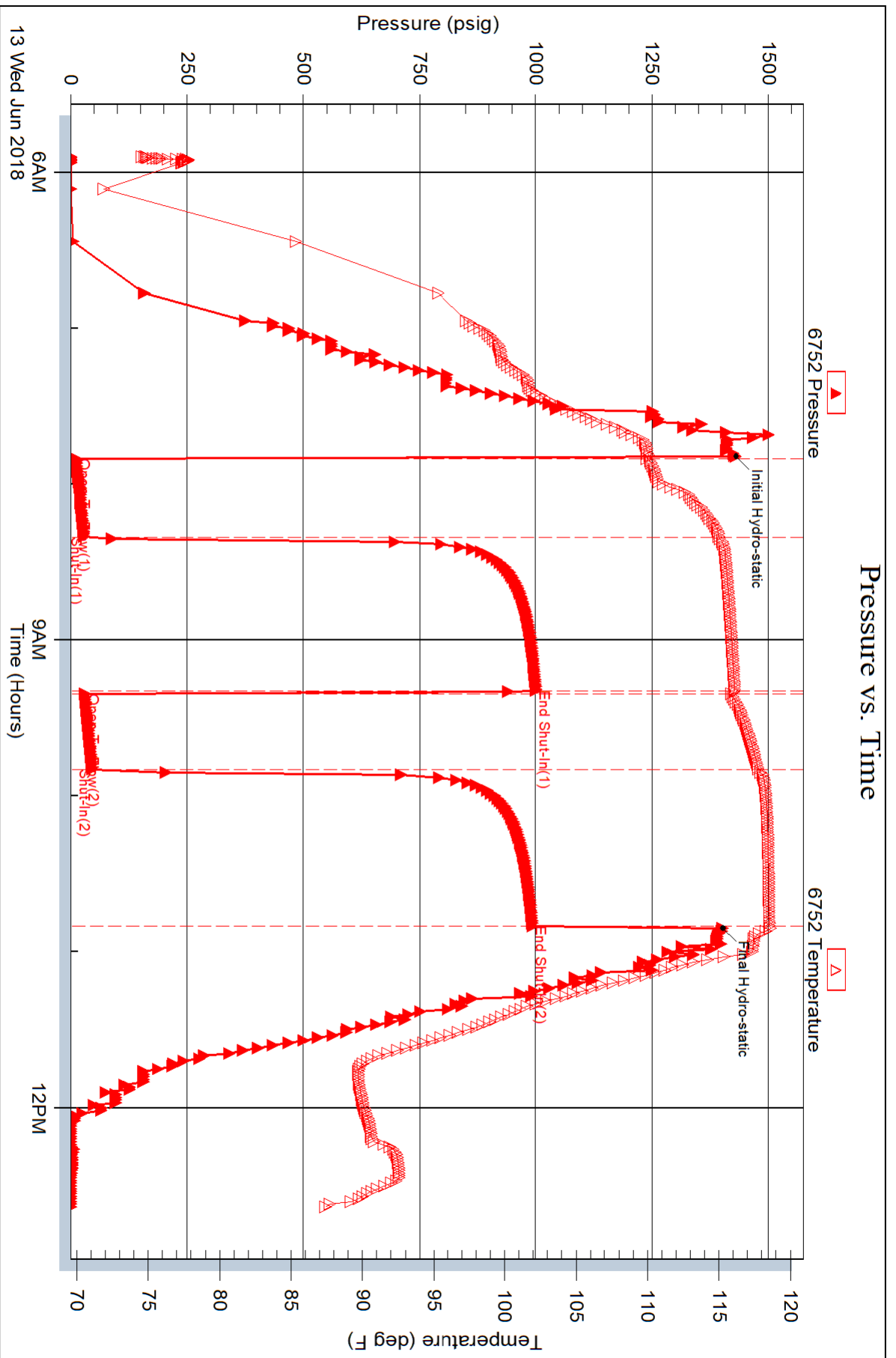
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: Recovery resistivity .316 ohms @ 87 deg









# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63495**

Well Name & No. Meriem #1-19 Test No. 1 Date 9 June 18  
 Company Murfin Drilling Co Elevation 1375 KB 1367 GL  
 Address 250 N Water Suite 300 Wichita Kansas 67202-1216  
 Co. Rep / Geo. Jeff Christian Rig C4G Rig 2  
 Location: Sec. 19 Twp 28S Rge. 9E Co. E1K State KS

Interval Tested 1878 - 1940 Zone Tested Lansing/Kansas City zones K+L  
 Anchor Length 62 Drill Pipe Run 1573 Mud Wt. 8.7  
 Top Packer Depth 1873 Drill Collars Run 305 Vis 56  
 Bottom Packer Depth 1878 Wt. Pipe Run - WL 10.2  
 Total Depth 1940 Chlorides 9200 ppm System LCM 3#

Blow Description I.F. Steady surface blow for 3 min then intermittent blow for 15 min.  
I.S.I. No blow back  
F.F. one bubble of open then dead  
F.S.I. No blow back

| Rec      | Feet of                        | %gas | %oil | %water     | %mud |
|----------|--------------------------------|------|------|------------|------|
| <u>3</u> | <u>Mud w/ oil gets in tool</u> |      |      | <u>100</u> |      |
| Rec      | Feet of                        | %gas | %oil | %water     | %mud |
| Rec      | Feet of                        | %gas | %oil | %water     | %mud |
| Rec      | Feet of                        | %gas | %oil | %water     | %mud |
| Rec      | Feet of                        | %gas | %oil | %water     | %mud |

Rec Total 3 BHT 98 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 925  Test 1050 T-On Location 6:09 am  
 (B) First Initial Flow 10  Jars \_\_\_\_\_ T-Started 6:31 am  
 (C) First Final Flow 14  Safety Joint \_\_\_\_\_ T-Open 8:02 am  
 (D) Initial Shut-In 635  Circ Sub \_\_\_\_\_ T-Pulled 11:02 am  
 (E) Second Initial Flow 18  Hourly Standby \_\_\_\_\_ T-Out 12:20 pm  
 (F) Second Final Flow 21  Mileage 274 274  
 (G) Final Shut-In 609  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 905  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Sub Total 1324

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1324  
 MP/DST Disc't \_\_\_\_\_

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63496**

Well Name & No. Meriem #1-19 Test No. 2 Date 10 Jun 18  
 Company Murfin Drilling Co Elevation 1375 KB 1367 GL  
 Address 250 N Water Suite 300 Wichita Kansas 67202-1216  
 Co. Rep / Geo. Jeff Christian Rig C+G Rig 2  
 Location: Sec. 19 Twp 28S Rge. 9E Co. ELK State KS

Interval Tested 2545-2560 Zone Tested Mississippi  
 Anchor Length 15 Drill Pipe Run 2232 Mud Wt. 8.7  
 Top Packer Depth 2540 Drill Collars Run 305 Vis 56  
 Bottom Packer Depth 2545 Wt. Pipe Run - WL 10.2  
 Total Depth 2560 Chlorides 9200 ppm System LCM 3#

Blow Description I.F. Blow built to 9 inches  
I.S.I. No blow back  
F.F. Blow built to 7 1/2 inches  
F.S.I. No blow back

| Rec        | Feet of                               | %gas | %oil      | %water    | %mud |
|------------|---------------------------------------|------|-----------|-----------|------|
| <u>417</u> | <u>Muddy Water w/skin oil in pipe</u> |      | <u>80</u> | <u>20</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 |

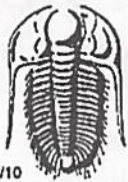
Rec Total 417 BHT 115 Gravity \_\_\_\_\_ API RW .350 @ 74 °F Chlorides 18000 ppm

(A) Initial Hydrostatic 1284  Test 1050 T-On Location 7:08 pm  
 (B) First Initial Flow 19  Jars \_\_\_\_\_ T-Started 7:56 pm  
 (C) First Final Flow 108  Safety Joint \_\_\_\_\_ T-Open 9:20 pm  
 (D) Initial Shut-In 812  Circ Sub \_\_\_\_\_ T-Pulled 1:20 am  
 (E) Second Initial Flow 115  Hourly Standby \_\_\_\_\_ T-Out 3:15 am  
 (F) Second Final Flow 196  Mileage 274 274 Comments \_\_\_\_\_  
 (G) Final Shut-In 811  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1240  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  
 Initial Shut-In 60  Extra Recorder \_\_\_\_\_  
 Final Flow 60  Day Standby \_\_\_\_\_  
 Final Shut-In 90  Accessibility \_\_\_\_\_  
 Sub Total 1324

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. **63497**

Well Name & No. Meriem #1-19 Test No. 3 Date 11 June 18  
 Company Murfin Drilling Co Elevation 1375 KB 1367 GL  
 Address 250 N Water Suite 300 Wichita Kansas 67202+1216  
 Co. Rep / Geo. Jeff Christen Rig C46 Rig 2  
 Location: Sec. 19 Twp 28S Rge. 9E Co. E1K State KS

Interval Tested 2751-2760 Zone Tested Base Cowley  
 Anchor Length 9 Drill Pipe Run 2453 Mud Wt. 9.5  
 Top Packer Depth 2746 Drill Collars Run 305 Vis 149  
 Bottom Packer Depth 2751 Wt. Pipe Run - WL \_\_\_\_\_  
 Total Depth 2760 Chlorides \_\_\_\_\_ ppm System \_\_\_\_\_ LCM 5#

Blow Description I.F. Blow built to 8"  
I.S.I No blow back  
F.F. Blow built to 9"  
F.S.I No blow back

| Rec        | Feet of            | %gas       | %oil       | %water       | %mud       |
|------------|--------------------|------------|------------|--------------|------------|
| <u>372</u> | <u>Muddy Water</u> |            |            | <u>90</u>    | <u>10</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 372 BHT 118 Gravity \_\_\_\_\_ API RW .250 @ 79 °F Chlorides 23000 ppm

|                                     |   |  |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>1374</u> | <input checked="" type="checkbox"/> Test <u>1050</u>              | T-On Location <u>5:56 pm</u>                       |
| (B) First Initial Flow <u>18</u>    | <input type="checkbox"/> Jars _____                               | T-Started <u>6:12 pm</u>                           |
| (C) First Final Flow <u>93</u>      | <input type="checkbox"/> Safety Joint _____                       | T-Open <u>7:34 pm</u>                              |
| (D) Initial Shut-In <u>918</u>      | <input type="checkbox"/> Circ Sub _____                           | T-Pulled <u>11:34 pm</u>                           |
| (E) Second Initial Flow <u>160</u>  | <input type="checkbox"/> Hourly Standby _____                     | T-Out <u>1:27 am</u>                               |
| (F) Second Final Flow <u>185</u>    | <input checked="" type="checkbox"/> Mileage <u>274</u> <u>274</u> | Comments _____                                     |
| (G) Final Shut-In <u>913</u>        | <input type="checkbox"/> Sampler _____                            | _____  |
| (H) Final Hydrostatic <u>1344</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>60</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>1324</u>                                  |
|                                     | Sub Total <u>1324</u>   | MP/DST Disc't _____                                |

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

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63498

Well Name & No. Meriem #1-19 Test No. 4 Date 12 Jun 18  
 Company Murfin Drilling Co Elevation 1375 KB 1367 GL  
 Address 250 N Water Suite 300 Wichita Kansas 67202+1216  
 Co. Rep / Geo. Jeff Christen Rig C&G R-2  
 Location: Sec. 19 Twp 28S Rge. 9E Co. EK State KS

Interval Tested 2884-2899 Zone Tested Arbuckle  
 Anchor Length 15 Drill Pipe Run 2578 Mud Wt. 9.4  
 Top Packer Depth 2879 Drill Collars Run 305 Vis 54  
 Bottom Packer Depth 2884 Wt. Pipe Run - WL \_\_\_\_\_  
 Total Depth 2899 Chlorides \_\_\_\_\_ ppm System LCM \_\_\_\_\_

Blow Description I.F. After 7 minutes light surface blow for 1 minute then dead

I.S.I. No blow back

F.F. Dead no blow

F.S.I. No blow back

| Rec      | Feet of                   | %gas | %oil | %water     | %mud |
|----------|---------------------------|------|------|------------|------|
| <u>1</u> | <u>Light oil spot mud</u> |      |      | <u>100</u> |      |
| Rec      | Feet of                   | %gas | %oil | %water     | %mud |
| Rec      | Feet of                   | %gas | %oil | %water     | %mud |
| Rec      | Feet of                   | %gas | %oil | %water     | %mud |
| Rec      | Feet of                   | %gas | %oil | %water     | %mud |

Rec Total 1 BHT 115 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1422  Test 1050 T-On Location 5:37 pm  
 (B) First Initial Flow 15  Jars \_\_\_\_\_ T-Started 5:45 pm  
 (C) First Final Flow 15  Safety Joint \_\_\_\_\_ T-Open 7:05 pm  
 (D) Initial Shut-In 1005  Circ Sub \_\_\_\_\_ T-Pulled 10:05 pm  
 (E) Second Initial Flow 18  Hourly Standby \_\_\_\_\_ T-Out 11:59 pm  
 (F) Second Final Flow 20  Mileage 274 Comments \_\_\_\_\_  
 (G) Final Shut-In 1002  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1406  Straddle \_\_\_\_\_

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  
 Initial Shut-In 60  
 Final Flow 30  
 Final Shut-In 60  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1324  
 Total 1324  
 MP/DST Disc't \_\_\_\_\_

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

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **63499**

Well Name & No. Meriem #1-19 Test No. 5 Date 13 Jun 18  
 Company Murfin Drilling Co Elevation 1375 KB 1567 GL  
 Address 250 N Water Suite 300 Wichita Kansas 67202+1216  
 Co. Rep / Geo. Jeff Christen Rig C46 Rig 2  
 Location: Sec. 19 Twp 28S Rge. 9E Co. E1k State KS

Interval Tested 2896-2906 Zone Tested Arbuckle  
 Anchor Length 10 Drill Pipe Run 2580 Mud Wt. 9.5  
 Top Packer Depth 2891 Drill Collars Run 305 Vls 48  
 Bottom Packer Depth 2896 Wt. Pipe Run - WL \_\_\_\_\_  
 Total Depth 2906 Chlorides \_\_\_\_\_ ppm System LCM \_\_\_\_\_

Blow Description I.F. Blow built to 1 inch  
I.S.I. No blow back  
F.F. Blow started after 13 minutes, built to 1/4 inch  
F.S.I. No blow back

| Rec       | Feet of                                | %gas | %oil      | %water    | %mud |
|-----------|--|------|-----------|-----------|------|
| <u>65</u> | <u>Muddy Water w/algae in top pipe</u> |      | <u>80</u> | <u>20</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 65 BHT 118 Gravity \_\_\_\_\_ API RW .316 @ 87 °F Chlorides 16,000 ppm

|                                     |  |  |
|-------------------------------------|--|--|
| (A) Initial Hydrostatic <u>1429</u> | <input checked="" type="checkbox"/> Test <u>1050</u>   | T-On Location <u>4:54 am</u>                       |
| (B) First Initial Flow <u>14</u>    | <input type="checkbox"/> Jars _____                    | T-Started <u>5:54 am</u>                           |
| (C) First Final Flow <u>29</u>      | <input type="checkbox"/> Safety Joint _____            | T-Open <u>7:50 am</u>                              |
| (D) Initial Shut-In <u>1000</u>     | <input type="checkbox"/> Circ Sub _____                | T-Pulled <u>10:50 am</u>                           |
| (E) Second Initial Flow <u>33</u>   | <input type="checkbox"/> Hourly Standby _____          | T-Out <u>12:37 am</u>                              |
| (F) Second Final Flow <u>47</u>     | <input checked="" type="checkbox"/> Mileage <u>274</u> | Comments _____                                     |
| (G) Final Shut-In <u>992</u>        | <input type="checkbox"/> Sampler _____                 | <input type="checkbox"/> Ruined Shale Packer _____ |
| (H) Final Hydrostatic <u>1400</u>   | <input type="checkbox"/> Straddle _____                | <input type="checkbox"/> Ruined Packer _____       |
| Initial Open <u>30</u>              | <input type="checkbox"/> Shale Packer _____            | <input type="checkbox"/> Extra Copies _____        |
| Initial Shut-In <u>60</u>           | <input type="checkbox"/> Extra Packer _____            | Sub Total <u>0</u>                                 |
| Final Flow <u>30</u>                | <input type="checkbox"/> Extra Recorder _____          | Total <u>1324</u>                                  |
| Final Shut-In <u>60</u>             | <input type="checkbox"/> Day Standby _____             | MP/DST Disc't _____                                |
|                                     | <input type="checkbox"/> Accessibility _____           |  |
|                                     | Sub Total <u>1324</u>                                  |  |

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

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TREATMENT REPORT



HURRICANE SERVICES INC

|              |                    |       |          |             |         |
|--------------|--------------------|-------|----------|-------------|---------|
| Customer:    | Murfin Drilling    | Date: | 6/7/2018 | Ticket No.: | ICT1079 |
| Field Rep:   | Judd <b>GULICK</b> |       |          |             |         |
| Address:     | PO Box 661         |       |          |             |         |
| City, State: | Colby, KS          |       |          |             |         |
| County, Zip: |                    | 67701 |          |             |         |

|                  |             |               |        |                  |       |
|------------------|-------------|---------------|--------|------------------|-------|
| Field Order No.: |             | Open Hole:    | 55     | Perf Depths (ft) | Perfs |
| Well Name:       | Marlem 1-19 | Casing Depth: | 55.4   |                  |       |
| Location:        | Elk County  | Casing Size:  | 8 3/8" |                  |       |
| Formation:       |             | Tubing Depth: |        |                  |       |
| Type of Service: | Cement      | Tubing Size:  |        |                  |       |
| Well Type:       | oil         | Liner Depth:  |        |                  |       |
| Age of Well:     | New         | Liner Size:   |        |                  |       |
| Packer Type:     |             | Liner Top:    |        |                  |       |
| Packer Depth:    |             | Liner Bottom: |        |                  |       |
| Treatment Via:   | Cement      | Total Depth:  |        |                  |       |
|                  |             |               |        | Total Perfs      | 0     |

| TIME | INJECTION RATE |                                 | PRESSURE |         | REMARKS  | PROP (lbs) | HCL (gls) | FLUID (bbls) |
|------|----------------|---------------------------------|----------|---------|--|------------|-----------|--------------|
|      | FLUID          | H <sub>2</sub> O/G <sub>2</sub> | STP      | ANNULUS |  |            |           |              |
| 800  |                |                                 |          |         | Depart shop  |            |           |              |
| 800  |                |                                 |          |         | Arrive on Location   |            |           |              |
| 810  |                |                                 |          |         | Safety Meeting   |            |           |              |
| 820  |                |                                 |          |         | Rig up pump and lines  |            |           |              |
| 830  | 2.8            |                                 | 10.0     |         | Pump 6 bbls of H2O ahead                                       |            |           | 6.00         |
| 833  | 2.5            |                                 | 10.0     |         | Mix 60 sacks (1.41 yield) of class 3 3/4 cc 2% gel at 14.8 ppg |            |           | 12.60        |
| 840  | 2.8            |                                 | 10.0     |         | Displace with fresh water                                      |            |           | 2.87         |
| 842  |                |                                 |          |         | End Displacement   |            |           |              |
| 845  |                |                                 |          |         | Wash up pump and lines   |            |           |              |
| 851  |                |                                 |          |         | Rig down   |            |           |              |
| 1030 |                |                                 |          |         | Depart Location  |            |           |              |

**SUMMARY**

|              |              |         |         |
|--------------|--------------|---------|---------|
| Max Fl. Rate | Avg Fl. Rate | Max PSI | Avg PSI |
| 2.5          | 2.5          | 10.0    | 7.5     |

**PRODUCTS USED**

Treater: Dave Ratzliff

Customer: