

Confidentiality Requested:

Yes No

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

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

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

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

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

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

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

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

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

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

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

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

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

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

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

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

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

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

| CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used | | | | | | | |
|---|-------------------|---------------------------|-------------------|---------------|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. | | | | | | | |
| Purpose of String | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs. / Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

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

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

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

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

| 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: | |
|----------------|-------|---------|------------|--|

| | |
|-----------|---------------------------|
| Form | ACO1 - Well Completion |
| Operator | Murfin Drilling Co., Inc. |
| Well Name | STAHL 'A' 1-30 |
| Doc ID | 1470044 |

All Electric Logs Run

| |
|------|
| |
| DIL |
| DUCP |
| MEL |
| BHCS |
| CBL |

MDCI
 Stahl 'A' #1-30
 1260FNL 2970FEL
 Sec. 30-T9S-R19W
 2163' KB

| Formation | Sample top | Datum | Ref | Log Top | Datum | Ref |
|-------------|------------|-------|-----|---------|-------|-----|
| Anhydrite | 1582 | +581 | -16 | 1582 | +581 | -16 |
| B/Anhydrite | 1619 | +544 | -14 | 1620 | +543 | -15 |
| Topeka | 3130 | -967 | -17 | 3133 | -970 | -20 |
| Heebner | 3333 | -1170 | -15 | 3336 | -1173 | -18 |
| Lansing | 3374 | -1211 | -14 | 3376 | -1213 | -19 |
| Stark | 3560 | -1397 | -13 | 3563 | -1400 | -16 |
| BKC | 3595 | -1432 | -13 | 3596 | -1433 | -14 |
| Arbuckle | 3668 | -1505 | -61 | 3672 | -1509 | -65 |
| RTD | 3780 | -1617 | | | | |
| LTD | | | | 3784 | -1621 | |



CEMENT TREATMENT REPORT

| | | |
|--------------------------------------|----------------------------------|------------------------|
| Customer: Murfin Drilling Co. | Well: Stahl A #1-30 | Ticket: ICT2185 |
| City, State: Wichita, KS | County: Rooks, KS | Date: 7/27/2019 |
| Field Rep: Jason | S-T-R: Sec30 - T9S - R19W | Service: Cement |

| Downhole Information | |
|----------------------|----------|
| Hole Size: | 7 7/8 In |
| Hole Depth: | 3780 ft |
| Casing Size: | 8 5/8 In |
| Casing Depth: | 304 ft |
| Drill Pipe | 4 1/2 In |
| Depth: | 3652 ft |
| Tool / Packer: | |
| Depth: | ft |
| Displacement: | bbbls |

| Slurry | |
|---------------|---------------------------|
| Weight: | 13.8 # / sx |
| Water / Sx: | 6.89 gal / sx |
| Yield: | 1.42 ft ³ / sx |
| Bbls / Ft.: | |
| Depth: | ft |
| Volume: | bbbls |
| Excess: | % |
| Total Slurry: | bbbls |
| Total Sacks: | 315 sx |

| Cement Blend | | |
|--------------|------|---------------|
| Product | % | # |
| Class A | 60.0 | 17766 |
| Gel | 4.0 | 1084 |
| CaCl | | |
| Metso | | |
| KolSeal | | |
| Flo-Seal | | |
| Salt | | |
| Fly Ash | 40.0 | 9324 |
| Total | | 28,174 |

| TIME | RATE | PSI | BBLs | REMARKS | TIME | RATE | PSI | BBLs | REMARKS |
|-------|------|-------|------|--|-------|------|-----|------|--|
| 8:30 | | | | Called for job | 17:16 | 2.5 | 110 | 1.90 | Displace w/ H2O |
| 12:00 | | | | Depart Oakley yard | 17:17 | | | | Rig POH to surface. Rig down kelly, rathole, |
| 13:40 | | | | Arrive on locn. Rig RIH w/ DP to 3360' | | | | | mousehole & lay down same. |
| 13:45 | | | | JSA, discuss moving, spotting & rig-up | 17:36 | 3.0 | 75 | 7.50 | Plug Rathole w/ 30sx slurry @ 13.8ppg |
| 13:50 | | | | Move on, spot & rig-up | 17:41 | 2.5 | 50 | 3.80 | Plug Mousehole w/ 15sx slurry @ 13.8ppg |
| 14:15 | | | | Rig-up complete | 17:45 | 3.0 | 75 | 2.50 | Pump 10sx @ 13.8ppg & plug surface |
| 14:30 | | | | DP @ 3652' | | | | | Y - 1.42cuf/sk, MW - 6.89g/sk |
| | | | | Plug #1 3652' - 3442' | 17:47 | | | | Shutdown |
| 14:40 | 4.2 | 130.0 | 5.0 | Pump H2O ahead | 17:50 | | | | Wash-up pumps & lines |
| 14:43 | 4.2 | 290.0 | 12.5 | Mix & pump 50sx slurry @ 13.8ppg | 18:00 | | | | JSA, discuss rigging down & rackup equip. |
| | | | | Y - 1.42cuf/sk, MW - 6.89g/sk | 18:05 | | | | Rig down & rack-up equipment |
| 14:46 | 2.5 | 140.0 | 2.0 | Pump H2O behind | 18:30 | | | | Rig down complete |
| 14:48 | 8.0 | 550.0 | 42.8 | Rig displace w/ mud | 18:35 | | | | JSA, discuss journey management |
| 14:55 | | | | Rig POH to 1600' | 18:45 | | | | Depart locn |
| | | | | Plug #2 1600' - 1390' | | | | | |
| 16:00 | 4.1 | 50.0 | 12.5 | Mix & pump 50sx slurry @ 13.8ppg | | | | | |
| | | | | Y - 1.42cuf/sk, MW - 6.89g/sk | | | | | |
| 16:04 | 3.5 | 150.0 | 19.5 | Displace w/ H2O | | | | | |
| 16:14 | | | | Rig POH to 920' | | | | | |
| | | | | Plug #3 920' - 500' | | | | | Thanks for calling Hurricane Svcs Inc. |
| 16:40 | 5.4 | 250.0 | 25.3 | Mix & pump 100sx slurry @ 13.8ppg | | | | | |
| | | | | Y - 1.42cuf/sk, MW - 6.89g/sk | | | | | |
| 16:47 | 2.6 | 70.0 | 6.6 | Displace w/ H2O | | | | | |
| 16:50 | | | | Rig POH to 350' | | | | | |
| | | | | Plug #4 350' - 149' | | | | | |
| 17:12 | 5.5 | 160.0 | 60.0 | Mix & pump 50sx slurry @ 13.8ppg | | | | | |
| | | | | Y - 1.42cuf/sk, MW - 6.89g/sk | | | | | |

| CREW | | UNIT | SUMMARY | | |
|----------------|-------------------|-----------|--------------|------------------|--------------|
| Cementer: | Scott Green | 74 | Average Rate | Average Pressure | Total Fluid |
| Pump Operator: | Michael Rebarchek | 231 | 3.92308 bpm | 161.64 psi | 201.80 bbbls |
| Bulk #1: | Alan Ryan | 180 / 250 | | | |
| Bulk #2: | Jesse Jones | | | | |



GEOLOGIST'S REPORT

OPERATOR **MURFIN DRILLING COMPANY, INC.**

LEASE **STAHL 'A' #1-30**

LOCATION **1260 FNL & 2970 FEL**

SEC. **30** TWSP **9S** RGE **19W**

COUNTY **ROOKS** STATE **KANSAS**

FIELD **WILDCAT**

CONTRACTOR **Murfin Drilling Company** RIG NO. **8**

COMMENCED **18 July 2019** COMPLETED **27 July 2019**

MUD DISPLACED **2705** MUD TYPE **Chemical**

DRILLING TIME KEPT FROM **2900** TO **3780**

SAMPLES SAVED FROM **2900** TO **3780**

SAMPLES EXAMINED FROM **2900** TO **3780**

GEOLOGICAL SUPERVISION FROM **2923** TO **3780**

GEOLOGIST ON WELL **Paul Gunzelman**

ELEVATIONS

KB **2163 Ft.**

GL **2158 Ft.**

ALL MEASUREMENTS
FROM K.B.

CASING RECORD

Conductor **None**

Surface **8 5/8" @ 304'**

Production **None**

ELECTRICAL SURVEYS

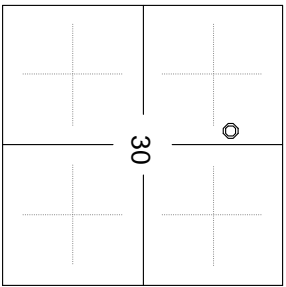
Pioneer Oilfield Services

Comp. Neutron Density

Dual Induction

Micro Resistivity

Comp. Sonic



FORMATION

| FORMATION NAME | LOG TOP DATUM | SAMPLE TOP DATUM |
|------------------|---------------|------------------|
| Stone Corral | 1582 +581 | 1582 +581 |
| Base/Anhydrite | 1620 +543 | 1619 +544 |
| Topeka | 3132 -968 | 3130 -967 |
| Heebner Shale | 3336 -1173 | 3333 -1170 |
| Toronto | 3356 -1193 | 3355 -1192 |
| Lansing | 3376 -1213 | 3374 -1211 |
| Stark Shale | 3563 -1400 | 3560 -1397 |
| Base/Kansas City | 3596 -1433 | 3595 -1432 |
| Atbuckle | 3672 -1509 | 3668 -1505 |
| Total Depth | 3784 -1621 | 3780 -1617 |

REMARKS

API 15-163-24395-00-00

Drilling Fluids: Mud Co/Service Mud, Inc. (Gary Schmidtberger, engineer)

Drill Stem Testing: Trilobite Testing, Inc. (Spencer Staab, tester)

Gas Trailer: No Gas Trailer

Reserve Pit Chlorides: 41,000 PPM

REMARKS

SAMPLE DESCRIPTIONS

SHOWS

LITHOLOGY

DEPTH

DRILL TIME (MIN/FT)

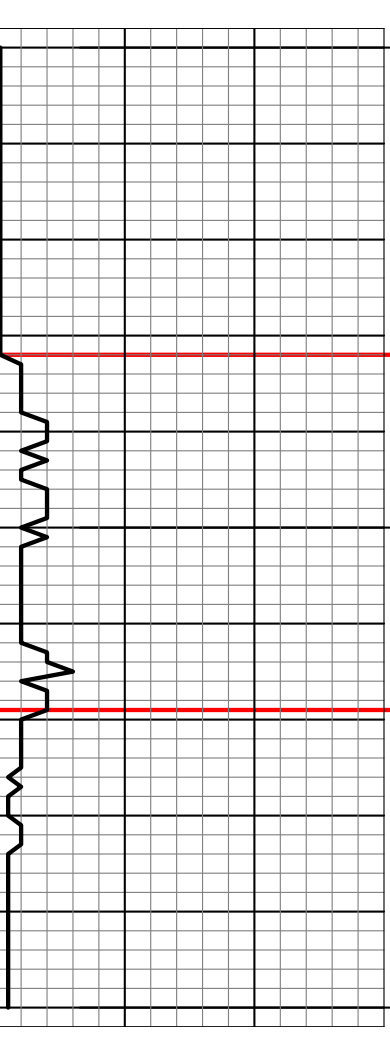
STONE CORRAL
1582 (+581)

BASE/ANHYDRITE
1619 (+544)

1550

1600

1650





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.21 @ 11:08:00

End Date: 2019.07.21 @ 13:13:45

Job Ticket #: DST #: 1

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

Printed: 2019.07.29 @ 15:33:23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket:

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2019.07.21 @ 11:08:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|------------|
| Drill Pipe: | Length: 2962.00 ft | Diameter: 3.82 inches | Volume: 41.99 bbl | Tool Weight: | 2200.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 2.75 inches | Volume: 0.00 bbl | Weight set on Packer: | lb |
| Drill Collar: | Length: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: | lb |
| | | | <u>Total Volume: 42.90 bbl</u> | Tool Chased | ft |
| Drill Pipe Above KB: | 30.00 ft | | | String Weight: Initial | lb |
| Depth to Top Packer: | 3146.00 ft | | | Final | lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 22.00 ft | | | | |
| Tool Length: | 51.00 ft | | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3118.00 | |
| Shut In Tool | 5.00 | | | 3123.00 | |
| Hydraulic tool | 5.00 | | | 3128.00 | |
| Jars | 5.00 | | | 3133.00 | |
| Safety Joint | 3.00 | | | 3136.00 | |
| Packer | 5.00 | | | 3141.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3146.00 | |
| Stubb | 1.00 | | | 3147.00 | |
| Recorder | 0.00 | 8934 | Inside | 3147.00 | |
| Recorder | 0.00 | 8352 | Outside | 3147.00 | |
| Perforations | 18.00 | | | 3165.00 | |
| Bullnose | 3.00 | | | 3168.00 | 22.00 Bottom Packers & Anchor |

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket:

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2019.07.21 @ 11:08:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|-------------|----------------|
| | | |

Total Length: ft

Total Volume: bbl

Num Fluid Samples: 0

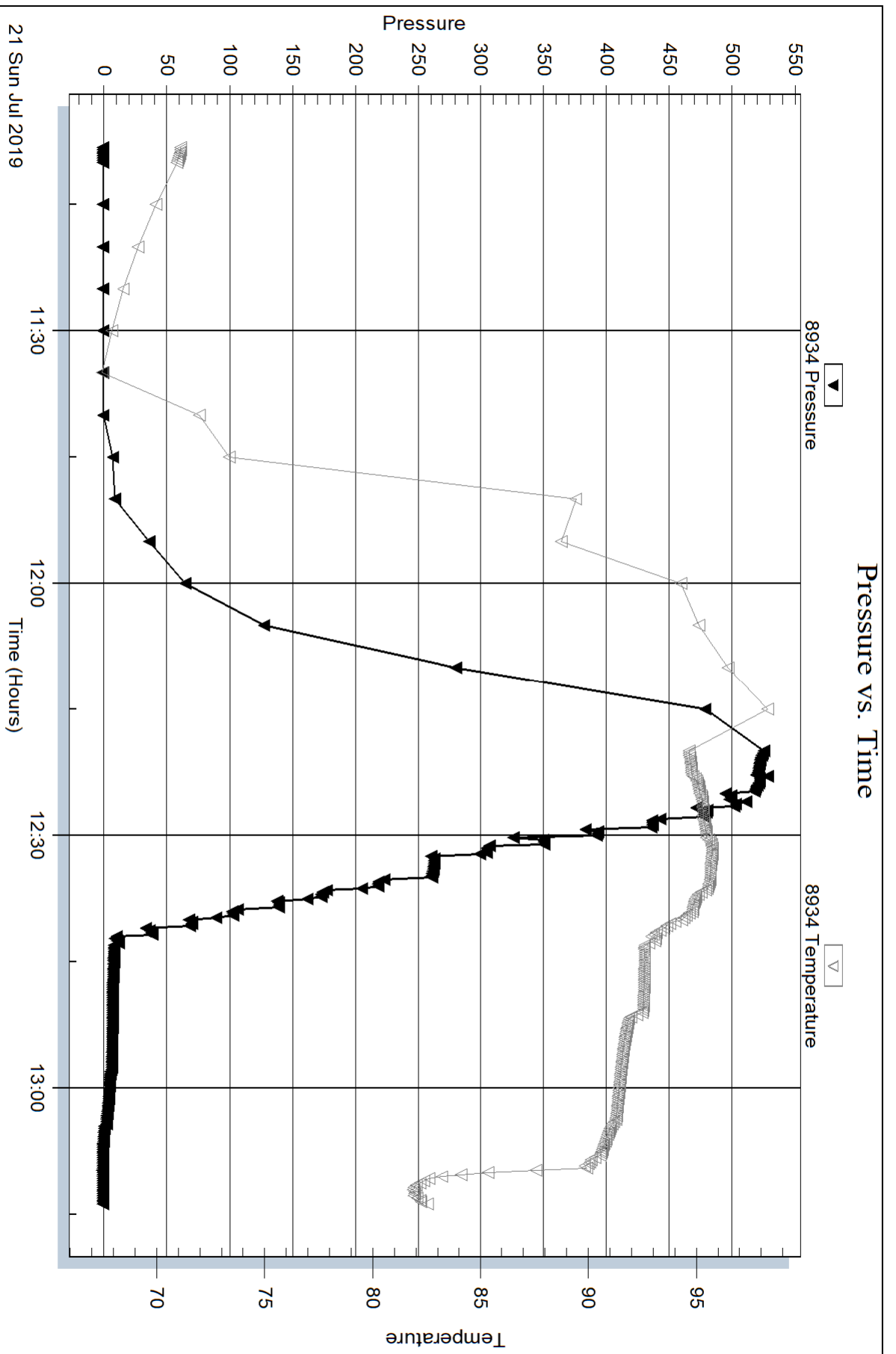
Num Gas Bombs: 0

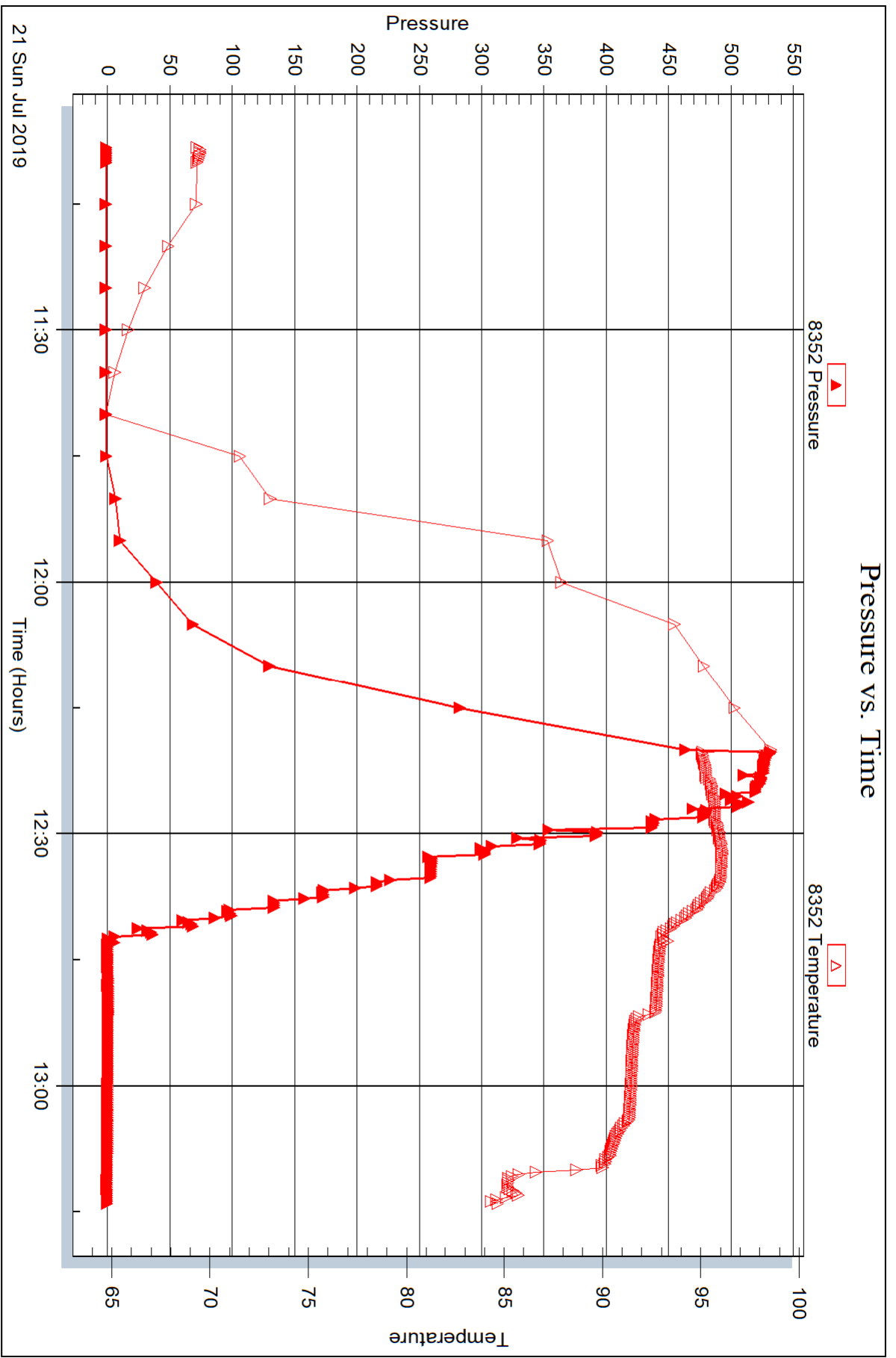
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.21 @ 16:30:00

End Date: 2019.07.21 @ 23:03:00

Job Ticket #: 65969 DST #: 2

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

Printed: 2019.07.29 @ 15:32:47



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65969

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2019.07.21 @ 16:30:00

GENERAL INFORMATION:

Formation: **Topeka**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:13:45

Time Test Ended: 23:03:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3146.00 ft (KB) To 3168.00 ft (KB) (TVD)

Reference Elevations: 2163.00 ft (KB)

Total Depth: 3168.00 ft (KB) (TVD)

2158.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 102.45 psig @ 3147.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.21

End Date:

2019.07.21

Last Calib.:

2019.07.21

Start Time: 16:30:15

End Time:

23:03:00

Time On Btm:

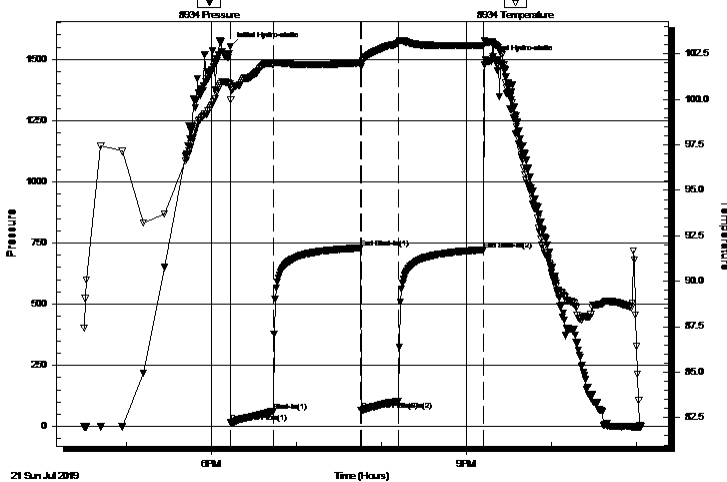
2019.07.21 @ 18:13:30

Time Off Btm:

2019.07.21 @ 21:13:15

TEST COMMENT: 30-IF-Fair; Built to 5"
60-ISI-No Return
30-FF-Weak; Built to 2 1/2"
60-FSI-No Return

Pressure vs. Time



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1551.46 | 100.85 | Initial Hydro-static |
| 1 | 16.50 | 100.00 | Open To Flow (1) |
| 30 | 63.71 | 101.93 | Shut-In(1) |
| 92 | 729.65 | 102.01 | End Shut-In(1) |
| 92 | 66.08 | 101.80 | Open To Flow (2) |
| 119 | 102.45 | 103.11 | Shut-In(2) |
| 179 | 721.91 | 102.97 | End Shut-In(2) |
| 180 | 1498.97 | 103.15 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|----------------------------|--------------|
| 63.00 | HMCW 25%M 75%W | 0.31 |
| 63.00 | MW 50%M 50%W | 0.31 |
| 74.00 | WCM w/ oil spots 10%W 90%M | 0.50 |
| | | |
| | | |

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 Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65969

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2019.07.21 @ 16:30:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 2962.00 ft | Diameter: 3.82 inches | Volume: 41.99 bbl | Tool Weight: 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: 50000.00 lb |
| | | | <u>Total Volume: 42.90 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 30.00 ft | | | String Weight: Initial 44000.00 lb |
| Depth to Top Packer: | 3146.00 ft | | | Final 45000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 22.00 ft | | | |
| Tool Length: | 51.00 ft | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | |

Tool Comments:

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

| | | | | | |
|-----------------|-------|------|---------|---------|-------------------------------|
| Change Over Sub | 1.00 | | | 3118.00 | |
| Shut In Tool | 5.00 | | | 3123.00 | |
| Hydraulic tool | 5.00 | | | 3128.00 | |
| Jars | 5.00 | | | 3133.00 | |
| Safety Joint | 3.00 | | | 3136.00 | |
| Packer | 5.00 | | | 3141.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3146.00 | |
| Stubb | 1.00 | | | 3147.00 | |
| Recorder | 0.00 | 8934 | Inside | 3147.00 | |
| Recorder | 0.00 | 8352 | Outside | 3147.00 | |
| Perforations | 18.00 | | | 3165.00 | |
| Bullnose | 3.00 | | | 3168.00 | 22.00 Bottom Packers & Anchor |

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65969

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2019.07.21 @ 16:30:00

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:

37000 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-----------------------------|---------------|
| 63.00 | HMCW 25%M 75%W | 0.310 |
| 63.00 | MW 50%M 50%W | 0.310 |
| 74.00 | WCM w / oil spots 10%W 90%M | 0.503 |

Total Length: 200.00 ft Total Volume: 1.123 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.191@72F

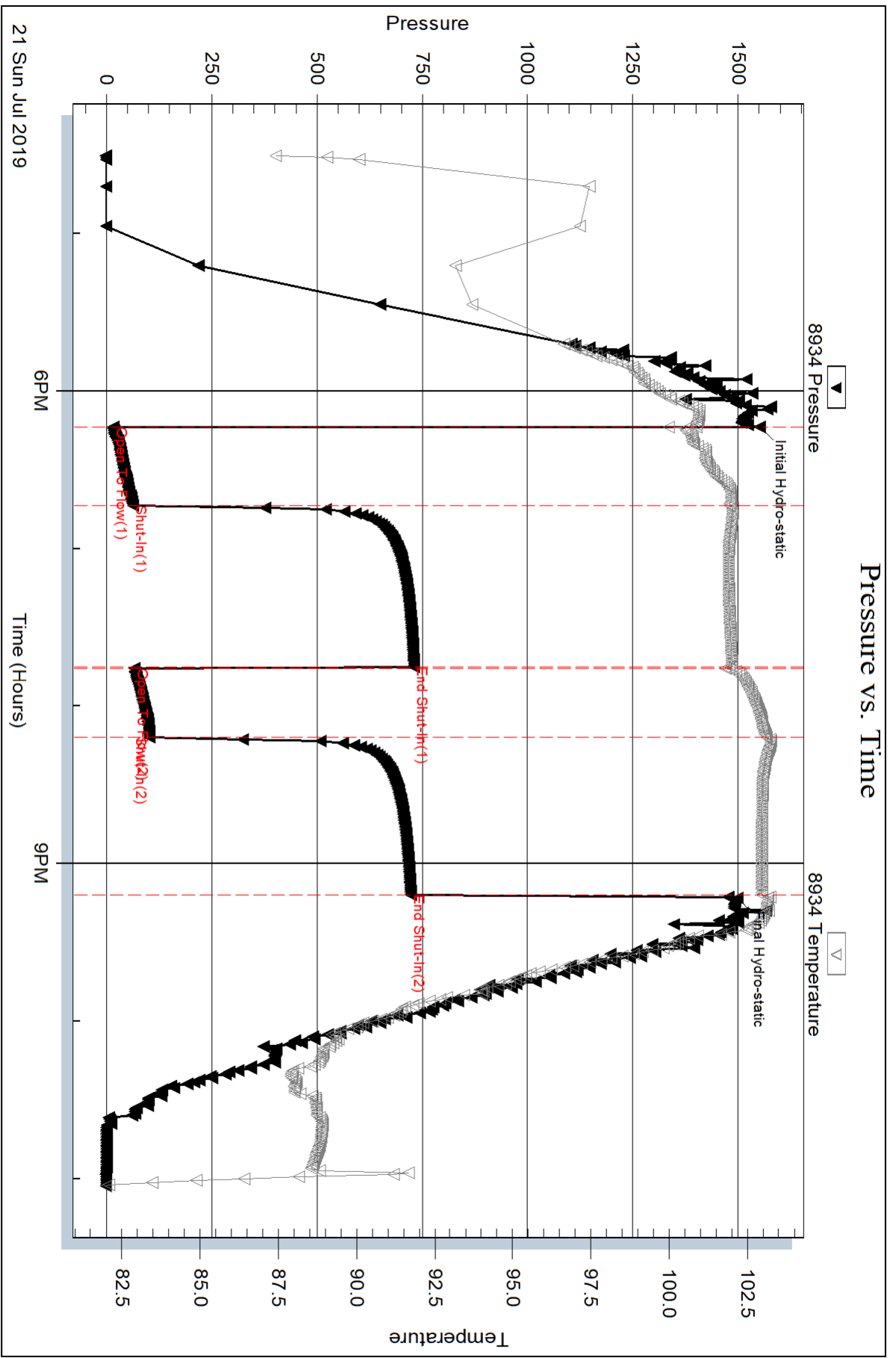
Serial #: 8934

Inside

Murfin Drilling Company Inc

Stahl 'A' #1-30

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 65969

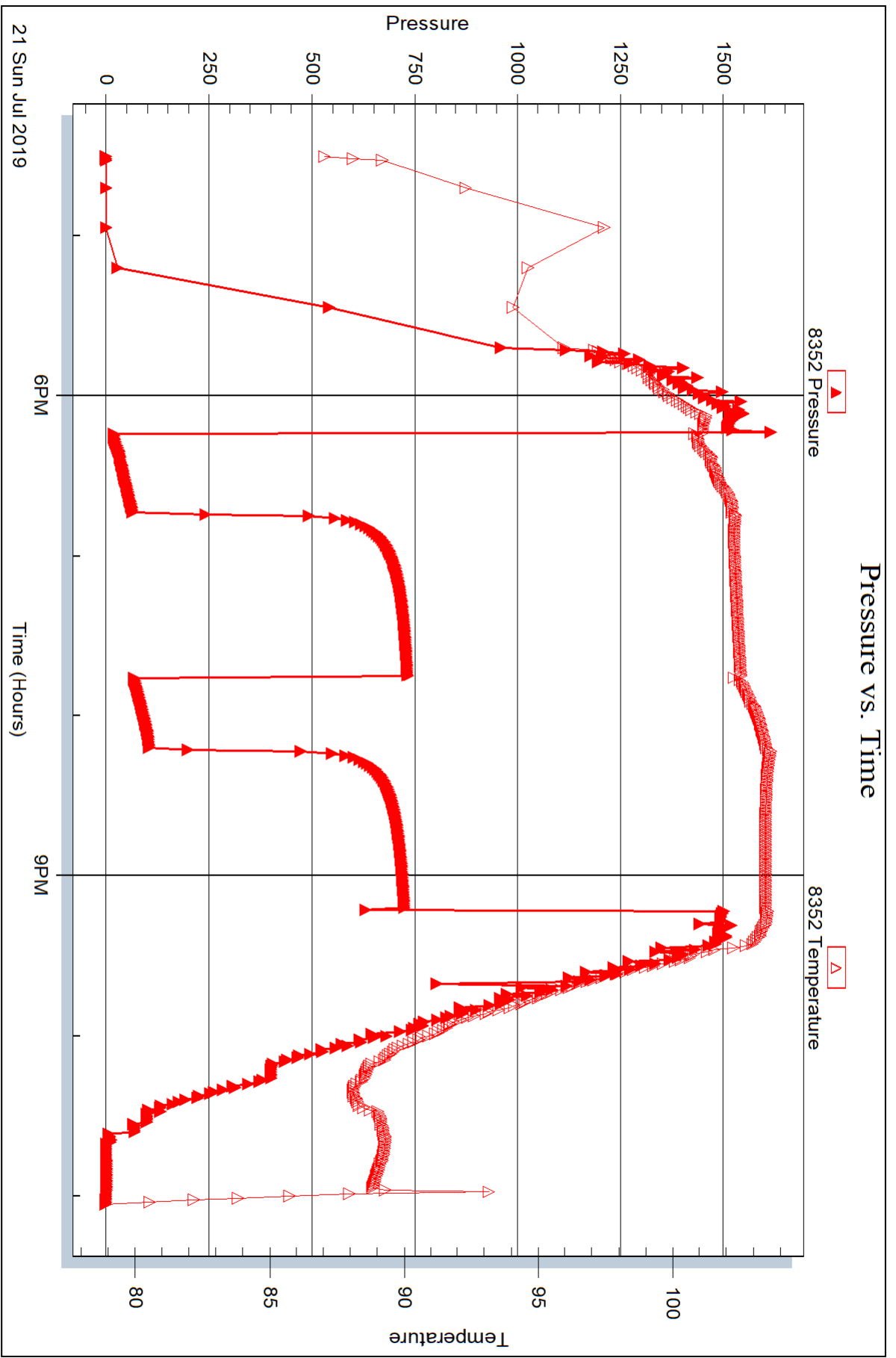
Printed: 2019.07.29 @ 15:32:48

Serial #: 8352

Outside Murfin Drilling Company Inc

Stahl A' #1-30

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65969

Printed: 2019.07.29 @ 15:32:48



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.23 @ 09:40:00

End Date: 2019.07.23 @ 16:26:00

Job Ticket #: 65970 DST #: 3

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

Printed: 2019.07.29 @ 15:30:01



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65970

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 09:40:00

GENERAL INFORMATION:

Formation: **Toronto - LKC 'B'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:35:30

Time Test Ended: 16:26:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3332.00 ft (KB) To 3426.00 ft (KB) (TVD)

Reference Elevations: 2163.00 ft (KB)

Total Depth: 3426.00 ft (KB) (TVD)

2158.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 345.19 psig @ 3335.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.23

End Date:

2019.07.23

Last Calib.:

2019.07.23

Start Time: 09:40:15

End Time:

16:26:00

Time On Btm:

2019.07.23 @ 11:35:00

Time Off Btm:

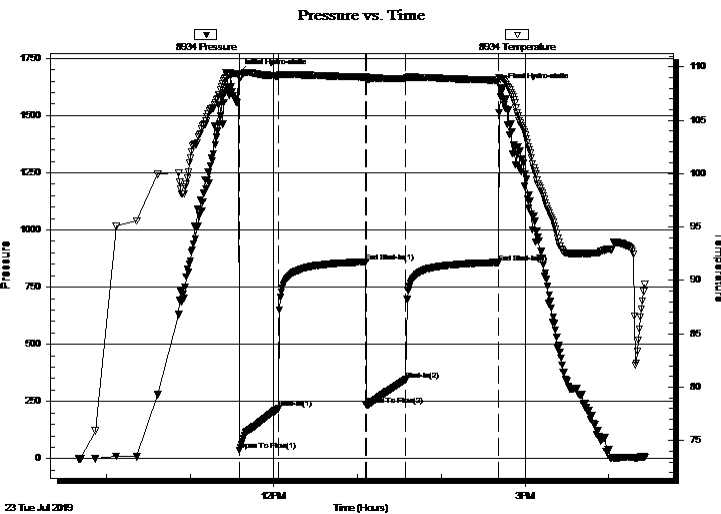
2019.07.23 @ 14:42:45

TEST COMMENT: 30-IF-BOB 9 mins; Built to 38"

60-ISI-No Return

30-FF-BOB 11 mins; Built to 32"

60-FSI-No Return



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1683.77 | 109.39 | Initial Hydro-static |
| 1 | 37.24 | 108.93 | Open To Flow (1) |
| 29 | 219.81 | 109.12 | Shut-In(1) |
| 91 | 859.25 | 109.02 | End Shut-In(1) |
| 92 | 232.90 | 108.74 | Open To Flow (2) |
| 120 | 345.19 | 108.88 | Shut-In(2) |
| 186 | 857.01 | 108.75 | End Shut-In(2) |
| 188 | 1622.69 | 108.88 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|----------------|--------------|
| 500.00 | HMCW 20%M 80%W | 5.38 |
| | | |
| | | |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65970

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 09:40:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3152.00 ft | Diameter: 3.82 inches | Volume: 44.68 bbl | Tool Weight: 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: 51000.00 lb |
| | | | <u>Total Volume: 45.59 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 34.00 ft | | | String Weight: Initial 44000.00 lb |
| Depth to Top Packer: | 3332.00 ft | | | Final 49000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 94.00 ft | | | |
| Tool Length: | 123.00 ft | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|---------------------------|---------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3304.00 | |
| Shut In Tool | 5.00 | | | 3309.00 | |
| Hydraulic tool | 5.00 | | | 3314.00 | |
| Jars | 5.00 | | | 3319.00 | |
| Safety Joint | 3.00 | | | 3322.00 | |
| Packer | 5.00 | | | 3327.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3332.00 | |
| Stubb | 1.00 | | | 3333.00 | |
| Perforations | 1.00 | | | 3334.00 | |
| Change Over Sub | 1.00 | | | 3335.00 | |
| Recorder | 0.00 | 8934 | Inside | 3335.00 | |
| Recorder | 0.00 | 8352 | Inside | 3335.00 | |
| Drill Pipe | 64.00 | | | 3399.00 | |
| Change Over Sub | 1.00 | | | 3400.00 | |
| Perforations | 23.00 | | | 3423.00 | |
| Bullnose | 3.00 | | | 3426.00 | 94.00 Bottom Packers & Anchor |
| Total Tool Length: | 123.00 | | | | |



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65970

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 09:40:00

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:

63000 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|----------------|---------------|
| 500.00 | HMCW 20%M 80%W | 5.375 |

Total Length: 500.00 ft Total Volume: 5.375 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

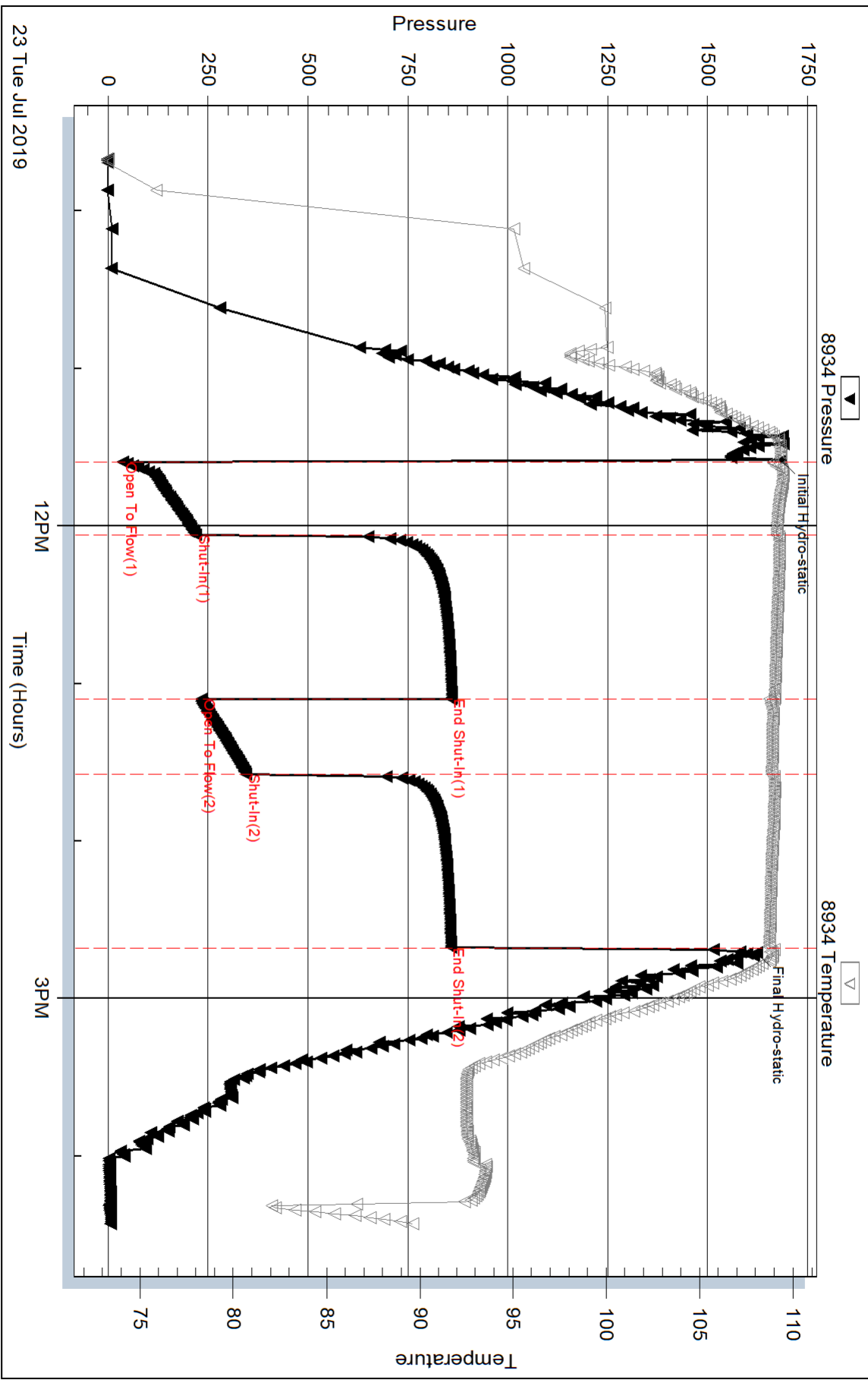
Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.105@84F

Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.23 @ 21:58:00

End Date: 2019.07.24 @ 05:18:45

Job Ticket #: 65971 DST #: 4

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

Printed: 2019.07.29 @ 15:25:06

Murfin Drilling Company Inc
30-9s-19w Rooks,KS
Stahl 'A' #1-30
DST # 4
LKC D
2019.07.23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65971

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 21:58:00

GENERAL INFORMATION:

Formation: **LKC D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:00:15

Time Test Ended: 05:18:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3425.00 ft (KB) To 3446.00 ft (KB) (TVD)

Reference Elevations: 2163.00 ft (KB)

Total Depth: 3446.00 ft (KB) (TVD)

2158.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 26.50 psig @ 3426.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.23

End Date:

2019.07.24

Last Calib.: 2019.07.24

Start Time: 21:58:15

End Time:

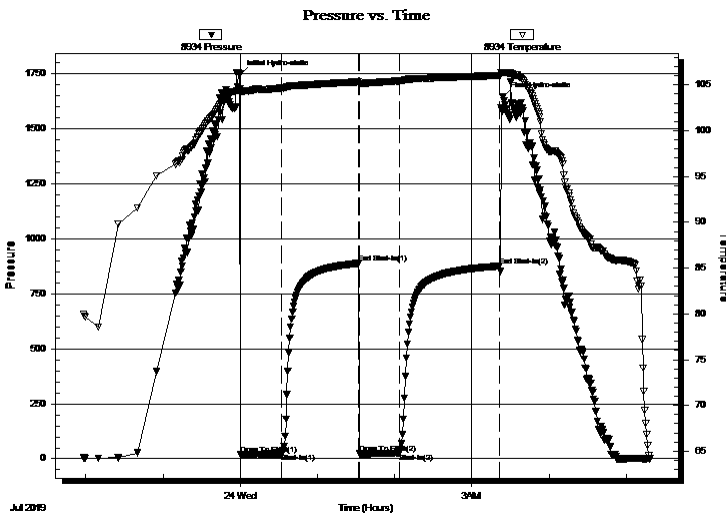
05:18:45

Time On Btm: 2019.07.23 @ 23:59:45

Time Off Btm: 2019.07.24 @ 03:24:15

TEST COMMENT: 30-IF-Weak; Built to 1"
60-ISI-No Return
30-FF-Weak Surface Blow
60-FSI-No Return

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1747.26 | 104.61 | Initial Hydro-static |
| 1 | 18.76 | 104.34 | Open To Flow (1) |
| 33 | 23.59 | 104.65 | Shut-In(1) |
| 93 | 888.74 | 105.34 | End Shut-In(1) |
| 93 | 22.74 | 105.14 | Open To Flow (2) |
| 124 | 26.50 | 105.43 | Shut-In(2) |
| 202 | 876.38 | 106.04 | End Shut-In(2) |
| 205 | 1646.40 | 106.36 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 20.00 | WCM 15%W 85%M | 0.10 |
| | | |
| | | |
| | | |
| | | |

* 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 Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65971

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 21:58:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3216.00 ft | Diameter: 3.82 inches | Volume: 45.59 bbl | Tool Weight: 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: 53000.00 lb |
| | | | <u>Total Volume: 46.50 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 5.00 ft | | | String Weight: Initial 44000.00 lb |
| Depth to Top Packer: | 3425.00 ft | | | Final 44000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 21.00 ft | | | |
| Tool Length: | 50.00 ft | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3397.00 | |
| Shut In Tool | 5.00 | | | 3402.00 | |
| Hydraulic tool | 5.00 | | | 3407.00 | |
| Jars | 5.00 | | | 3412.00 | |
| Safety Joint | 3.00 | | | 3415.00 | |
| Packer | 5.00 | | | 3420.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3425.00 | |
| Stubb | 1.00 | | | 3426.00 | |
| Recorder | 0.00 | 8934 | Inside | 3426.00 | |
| Recorder | 0.00 | 9120 | Outside | 3426.00 | |
| Perforations | 17.00 | | | 3443.00 | |
| Bullnose | 3.00 | | | 3446.00 | 21.00 Bottom Packers & Anchor |

Total Tool Length: 50.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65971

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2019.07.23 @ 21:58:00

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:

71000 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbf |
|--------------|---------------|---------------|
| 20.00 | WCM 15%W 85%M | 0.098 |

Total Length: 20.00 ft Total Volume: 0.098 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.132@57F

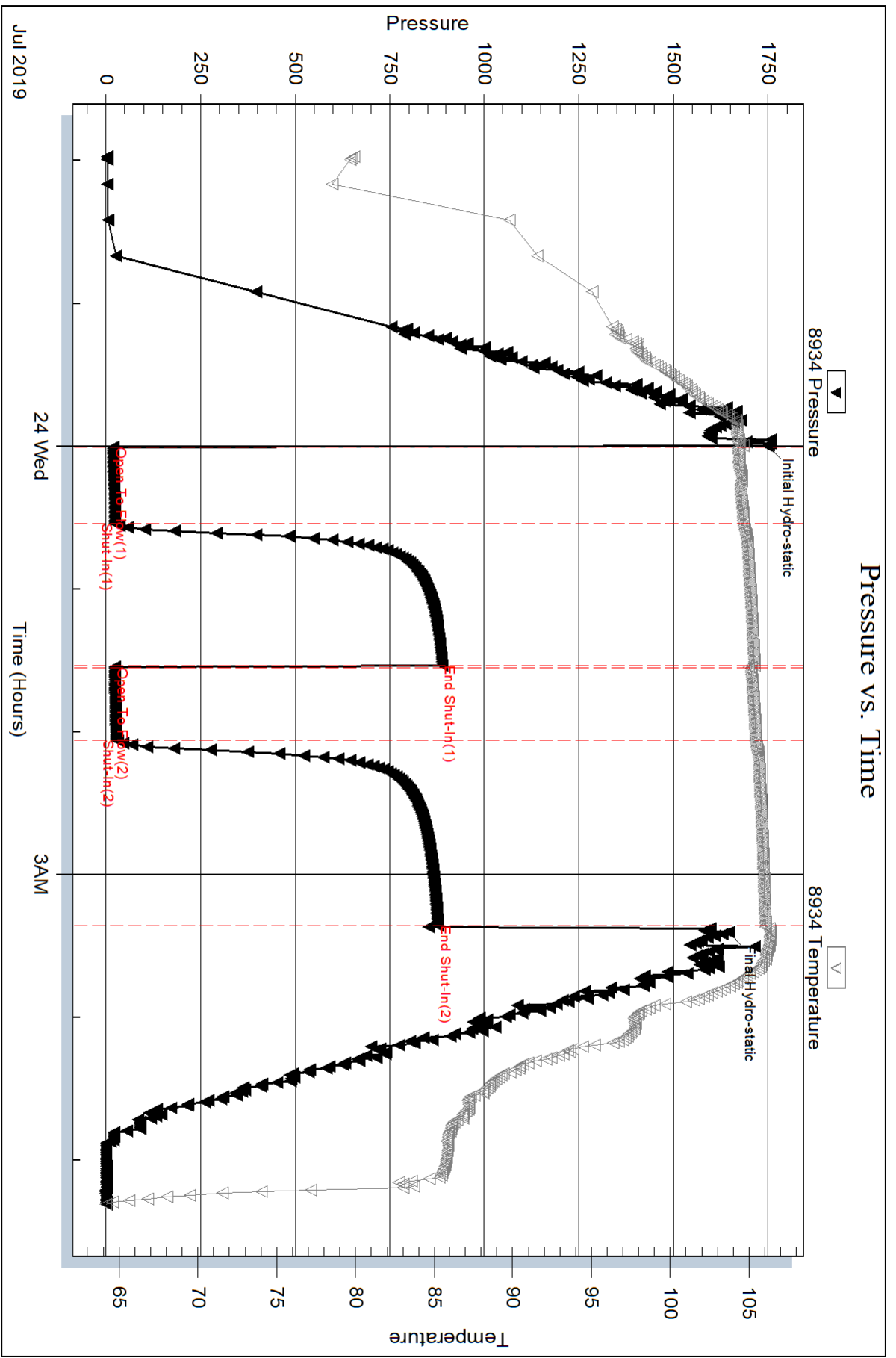
Serial #: 8934

Inside

Murfin Drilling Company Inc

Stahl 'A' #1-30

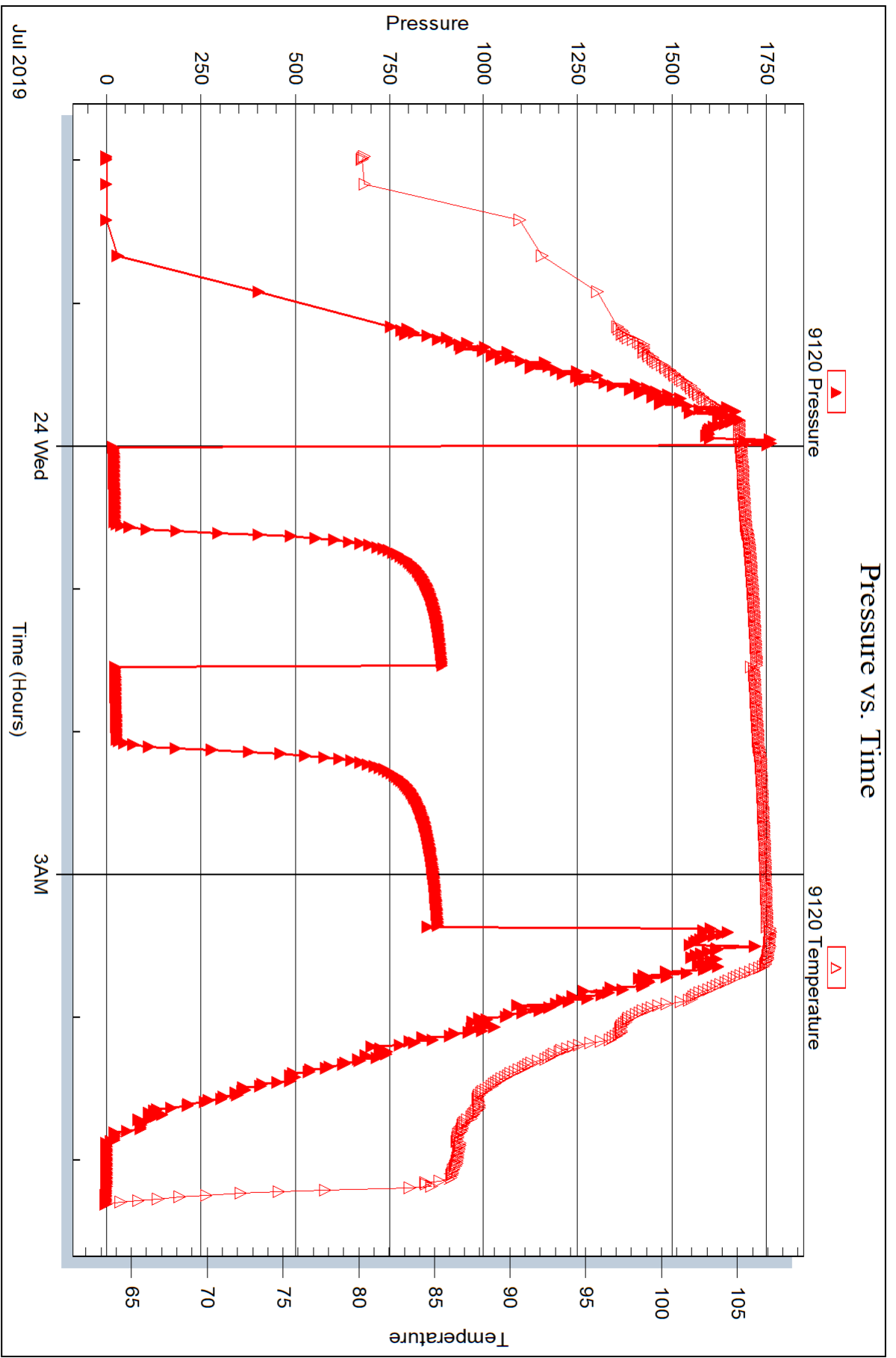
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 65971

Printed: 2019.07.29 @ 15:25:07





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.24 @ 11:30:00

End Date: 2019.07.24 @ 18:17:30

Job Ticket #: 65972 DST #: 5

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

Printed: 2019.07.29 @ 15:24:38

Murfin Drilling Company Inc
30-9s-19w Rooks,KS
Stahl 'A' #1-30
DST # 5
LKC 'E-F'
2019.07.24



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65972

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2019.07.24 @ 11:30:00

GENERAL INFORMATION:

Formation: **LKC 'E-F'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:27:30

Time Test Ended: 18:17:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3446.00 ft (KB) To 3467.00 ft (KB) (TVD)

Total Depth: 3446.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2163.00 ft (KB)

2158.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8934 Inside

Press@RunDepth: 885.89 psig @ 3447.00 ft (KB)

Start Date: 2019.07.24

End Date: 2019.07.24

Start Time: 11:30:15

End Time: 18:17:30

Capacity: 8000.00 psig

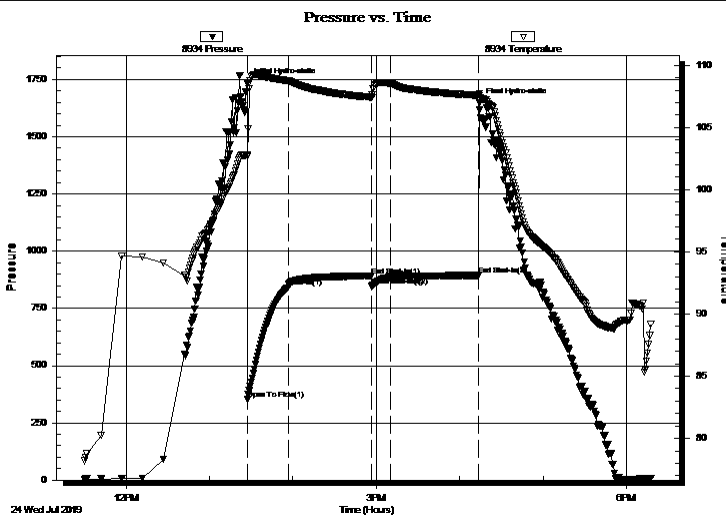
Last Calib.: 2019.07.24

Time On Btm: 2019.07.24 @ 13:27:00

Time Off Btm: 2019.07.24 @ 16:14:00

TEST COMMENT: 30-IF-BOB 45 secs; Built to 343"
60-ISI-Weak Surface Blow after 10 mins; Died 40 mins in
15-FF-BOB 1 min; Built to 23"
60-FSI-No Return

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1734.66 | 102.77 | Initial Hydro-static |
| 1 | 351.38 | 102.67 | Open To Flow (1) |
| 30 | 841.94 | 108.75 | Shut-In(1) |
| 90 | 891.92 | 107.41 | End Shut-In(1) |
| 90 | 846.24 | 107.38 | Open To Flow (2) |
| 104 | 885.89 | 108.51 | Shut-In(2) |
| 167 | 894.49 | 107.62 | End Shut-In(2) |
| 167 | 1647.66 | 107.71 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|--------------|--------------|
| 1690.00 | Water 100%W | 22.24 |
| 200.00 | MW 50%M 50%W | 2.84 |
| 10.00 | OSM 100%M | 0.14 |
| | | |
| | | |

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 Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65972

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2019.07.24 @ 11:30:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 3247.00 ft | Diameter: 3.82 inches | Volume: 46.03 bbl | Tool Weight: | 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: | 60000.00 lb |
| | | | <u>Total Volume: 46.94 bbl</u> | Tool Chased | ft |
| Drill Pipe Above KB: | 15.00 ft | | | String Weight: Initial | 43000.00 lb |
| Depth to Top Packer: | 3446.00 ft | | | Final | 54000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 21.00 ft | | | | |
| Tool Length: | 50.00 ft | | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3418.00 | |
| Shut In Tool | 5.00 | | | 3423.00 | |
| Hydraulic tool | 5.00 | | | 3428.00 | |
| Jars | 5.00 | | | 3433.00 | |
| Safety Joint | 3.00 | | | 3436.00 | |
| Packer | 5.00 | | | 3441.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3446.00 | |
| Stubb | 1.00 | | | 3447.00 | |
| Recorder | 0.00 | 8934 | Inside | 3447.00 | |
| Recorder | 0.00 | 9120 | Outside | 3447.00 | |
| Perforations | 17.00 | | | 3464.00 | |
| Bullnose | 3.00 | | | 3467.00 | 21.00 Bottom Packers & Anchor |

Total Tool Length: 50.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65972

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2019.07.24 @ 11:30:00

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:

86000 ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|--------------|---------------|
| 1690.00 | Water 100%W | 22.244 |
| 200.00 | MW 50%M 50%W | 2.835 |
| 10.00 | OSM 100%M | 0.142 |

Total Length: 1900.00 ft Total Volume: 25.221 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

RW=.069@90F

Serial #: 8934

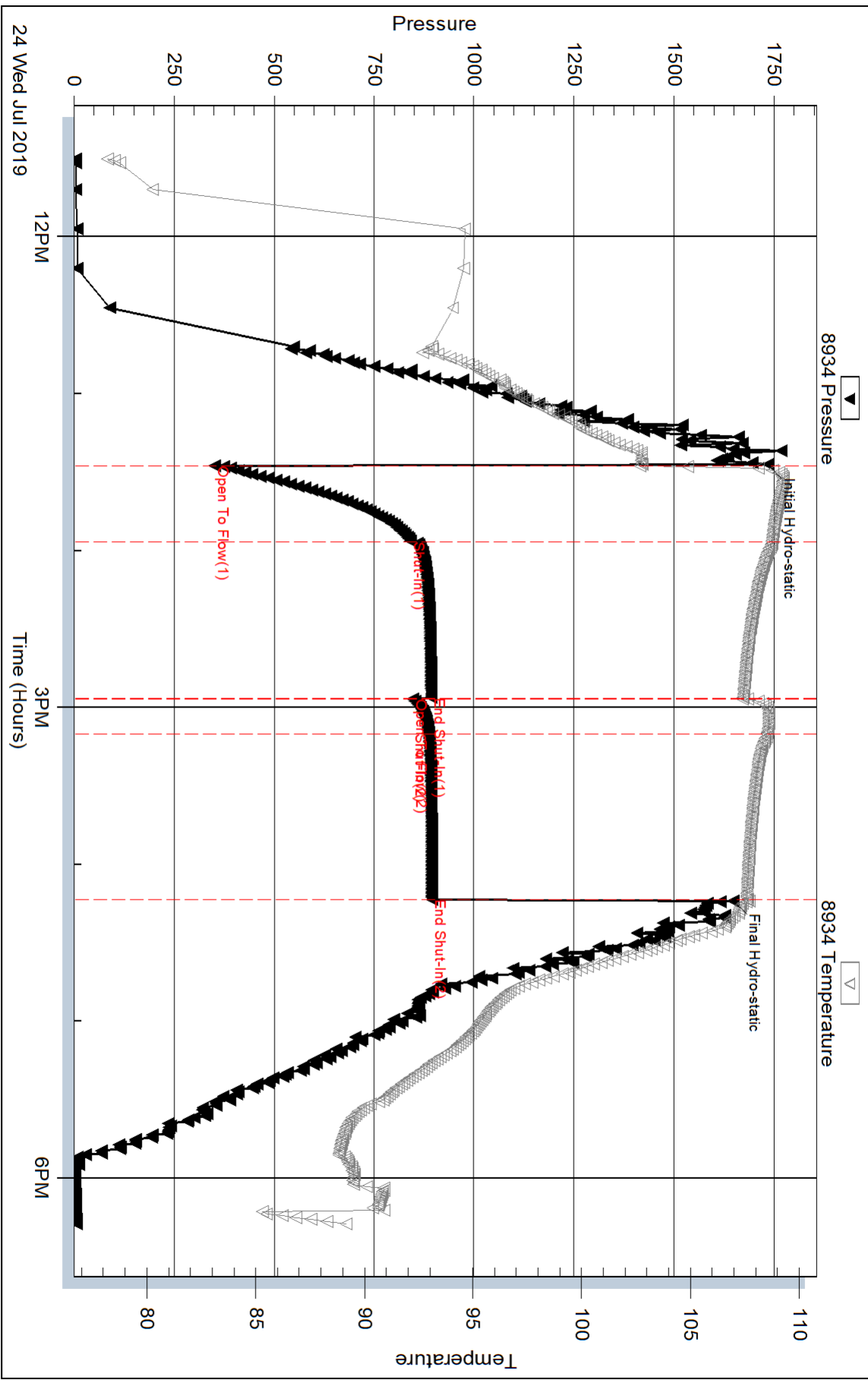
Inside

Murfin Drilling Company Inc

Stahl 'A' #1-30

DST Test Number: 5

Pressure vs. Time

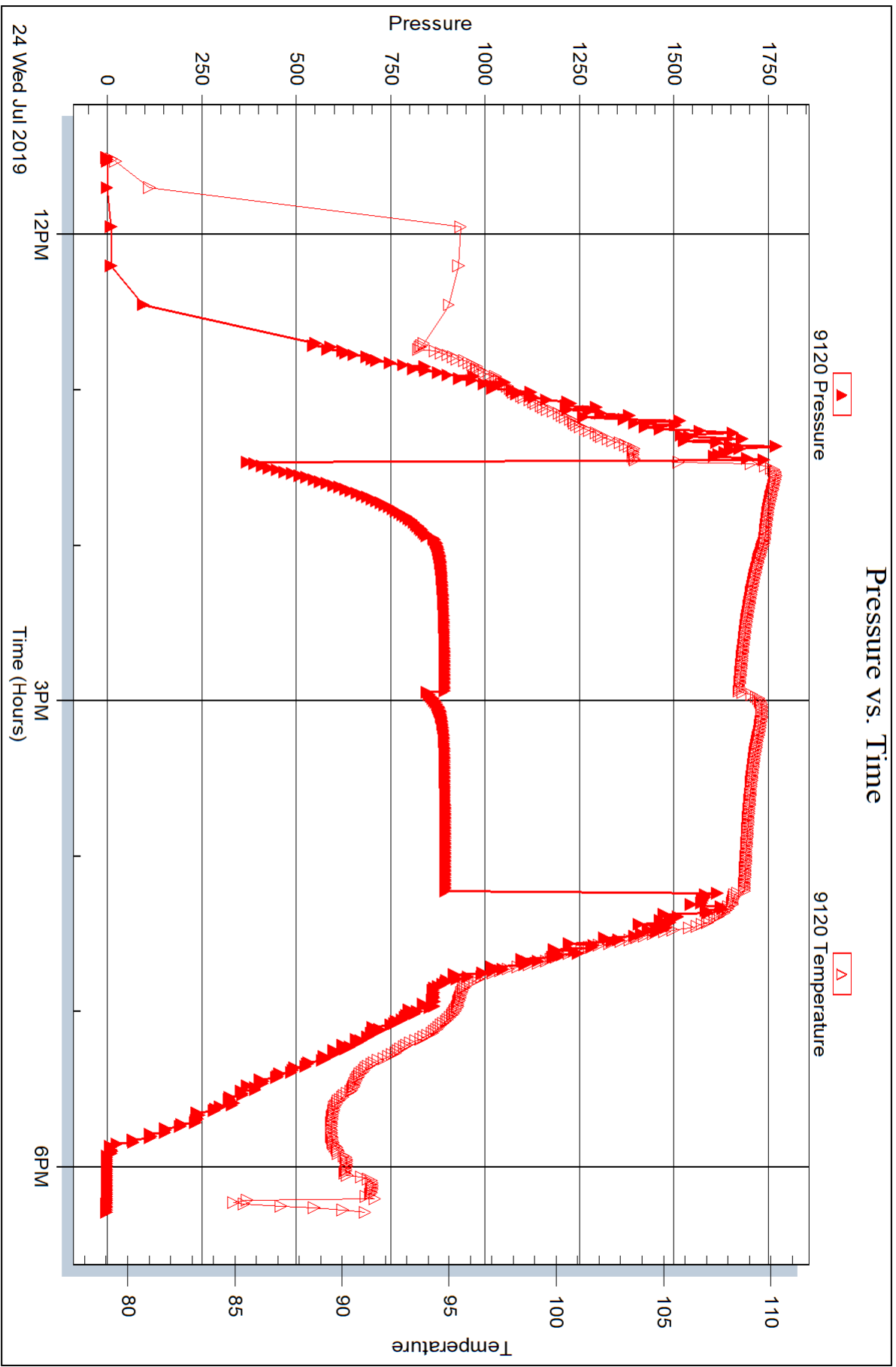


Serial #: 9120

Outside Murfin Drilling Company Inc

Stahl 'A' #1-30

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 65972

Printed: 2019.07.29 @ 15:24:39



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.25 @ 05:35:00

End Date: 2019.07.25 @ 12:21:45

Job Ticket #: 65973 DST #: 6

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

Printed: 2019.07.29 @ 15:21:43

Murfin Drilling Company Inc
30-9s-19w Rooks,KS
Stahl 'A' #1-30
DST # 6
LKC 'H-J'
2019.07.25



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65973

DST#: 6

ATTN: Paul Gunzelman

Test Start: 2019.07.25 @ 05:35:00

GENERAL INFORMATION:

Formation: **LKC 'H-J'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:31:45

Time Test Ended: 12:21:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3496.00 ft (KB) To 3560.00 ft (KB) (TVD)

Reference Elevations: 2163.00 ft (KB)

Total Depth: 3560.00 ft (KB) (TVD)

2158.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 32.96 psig @ 3499.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.25

End Date:

2019.07.25

Last Calib.:

2019.07.25

Start Time: 05:35:15

End Time:

12:21:45

Time On Btm:

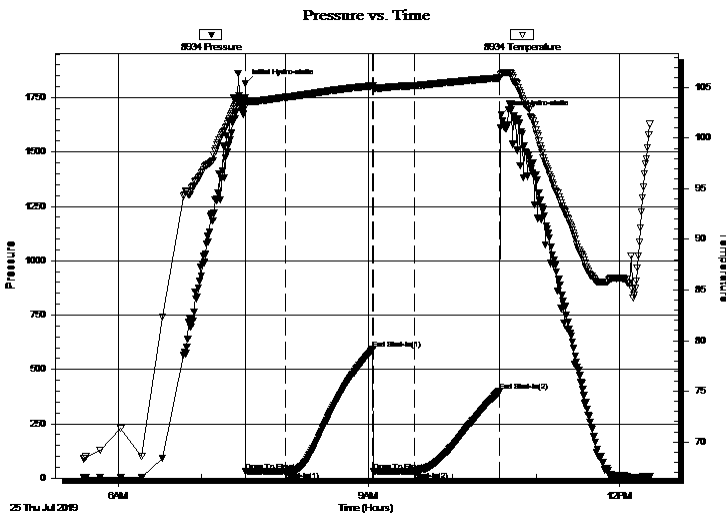
2019.07.25 @ 07:31:30

Time Off Btm:

2019.07.25 @ 10:35:00

TEST COMMENT: 30-IF-Weak; Built to 1/4"; Died back to Surface
60-ISI-No Return
30-FF-No Blow
60-FSI-No Return

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1815.40 | 104.00 | Initial Hydro-static |
| 1 | 30.93 | 103.26 | Open To Flow (1) |
| 29 | 32.43 | 104.03 | Shut-In(1) |
| 92 | 592.47 | 105.18 | End Shut-In(1) |
| 92 | 32.71 | 104.99 | Open To Flow (2) |
| 122 | 32.96 | 105.19 | Shut-In(2) |
| 183 | 399.77 | 105.94 | End Shut-In(2) |
| 184 | 1672.08 | 106.40 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 15.00 | Mud 100%M | 0.07 |
| | | |
| | | |
| | | |
| | | |

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 Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65973

DST#: 6

ATTN: Paul Gunzelman

Test Start: 2019.07.25 @ 05:35:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3311.00 ft | Diameter: 3.82 inches | Volume: 46.93 bbl | Tool Weight: 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: 48000.00 lb |
| | | | <u>Total Volume: 47.84 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 29.00 ft | | | String Weight: Initial 45000.00 lb |
| Depth to Top Packer: | 3496.00 ft | | | Final 45000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 64.00 ft | | | |
| Tool Length: | 93.00 ft | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | |
| Tool Comments: | | | | |

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|---------------------------|--------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3468.00 | |
| Shut In Tool | 5.00 | | | 3473.00 | |
| Hydraulic tool | 5.00 | | | 3478.00 | |
| Jars | 5.00 | | | 3483.00 | |
| Safety Joint | 3.00 | | | 3486.00 | |
| Packer | 5.00 | | | 3491.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3496.00 | |
| Stubb | 1.00 | | | 3497.00 | |
| Perforations | 1.00 | | | 3498.00 | |
| Change Over Sub | 1.00 | | | 3499.00 | |
| Recorder | 0.00 | 8934 | Inside | 3499.00 | |
| Recorder | 0.00 | 9120 | Outside | 3499.00 | |
| Drill Pipe | 32.00 | | | 3531.00 | |
| Change Over Sub | 1.00 | | | 3532.00 | |
| Perforations | 25.00 | | | 3557.00 | |
| Bullnose | 3.00 | | | 3560.00 | 64.00 Bottom Packers & Anchor |
| Total Tool Length: | 93.00 | | | | |



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65973

DST#: 6

ATTN: Paul Gunzelman

Test Start: 2019.07.25 @ 05:35:00

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: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------|---------------|
| 15.00 | Mud 100%M | 0.074 |

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

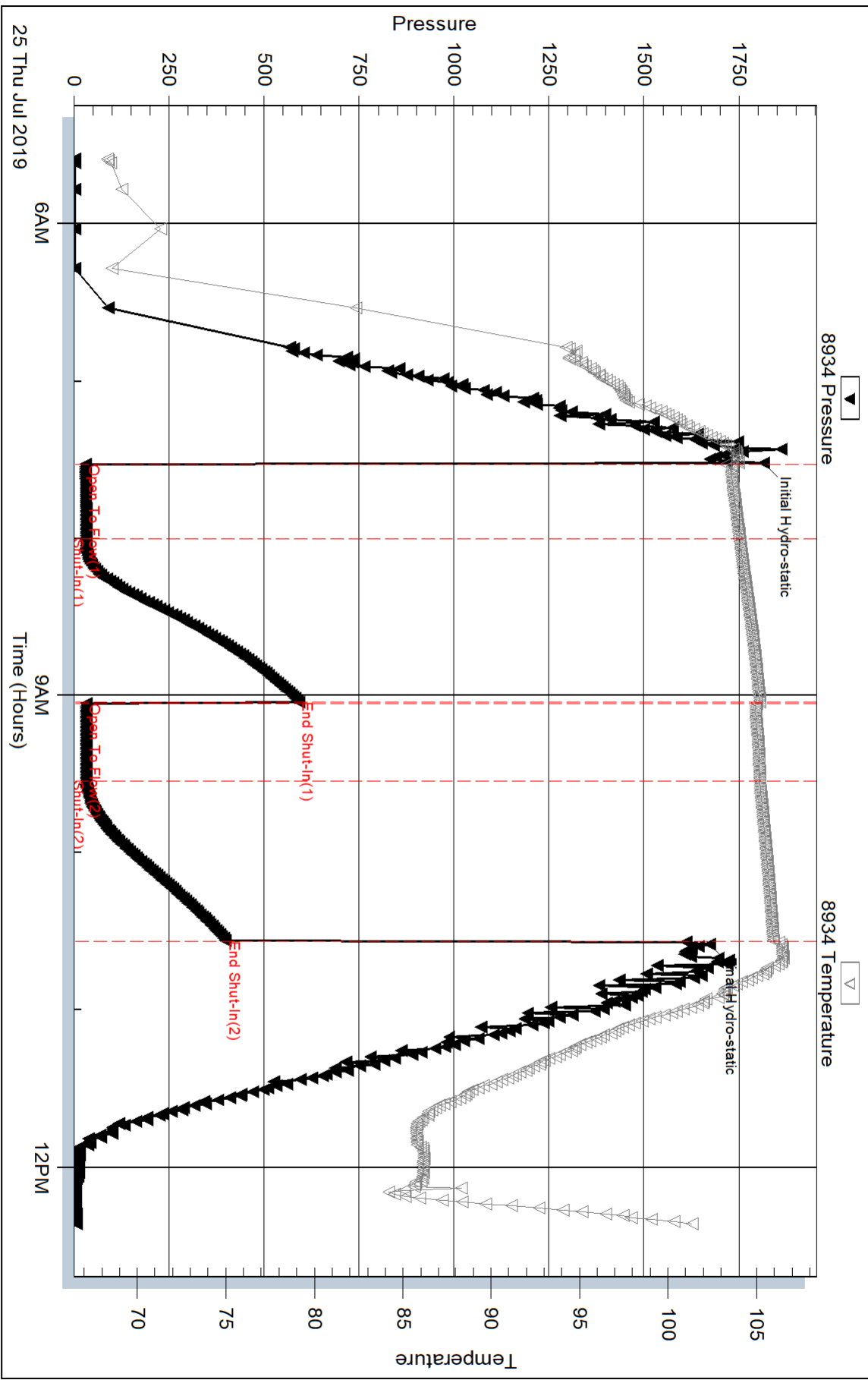
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

Pressure vs. Time

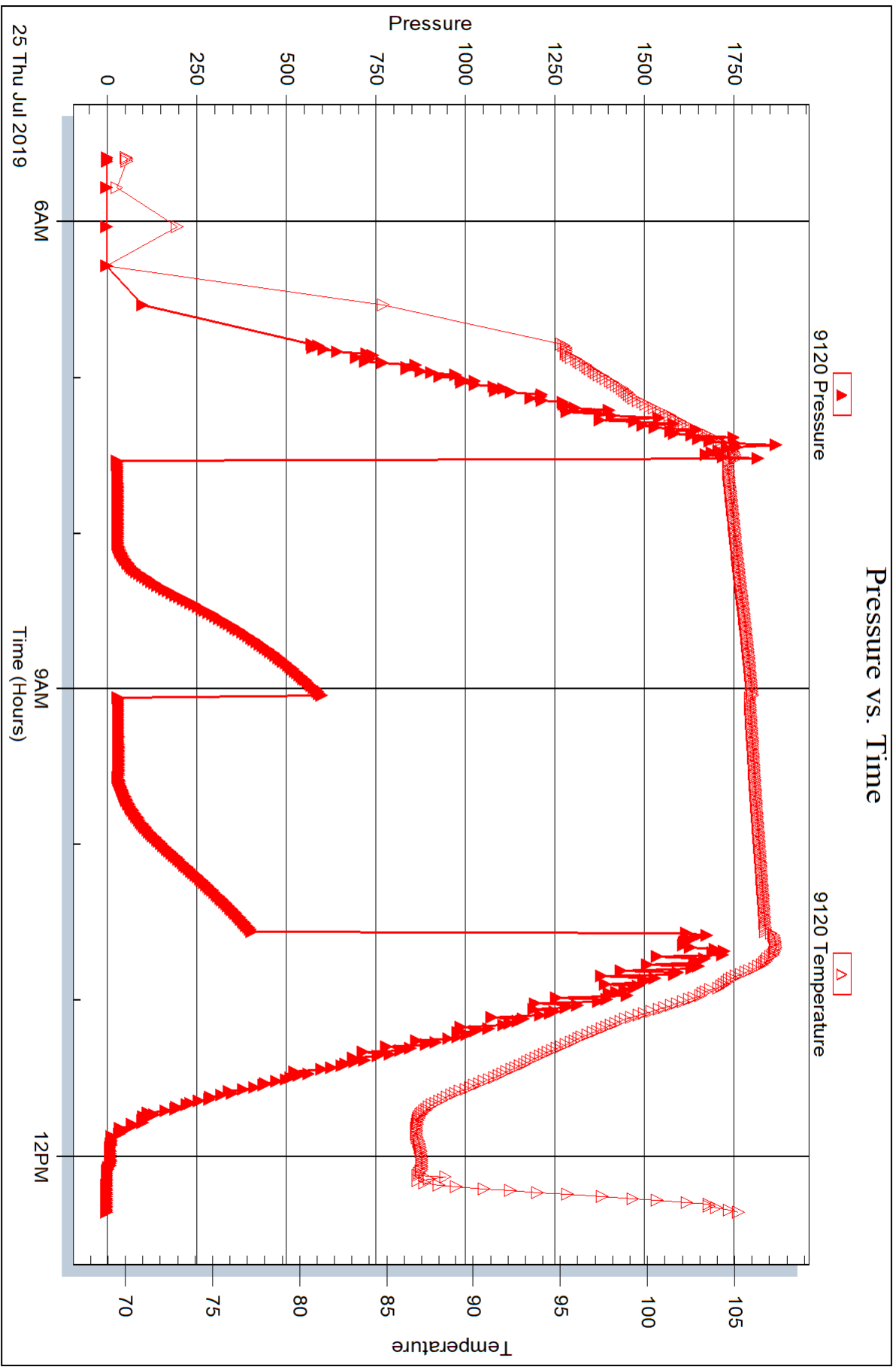


Serial #: 9120

Outside Murfin Drilling Company Inc

Stahl 'A' #1-30

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water STE 300
Wichita KS 67202+1216

ATTN: Paul Gunzelman

Stahl 'A' #1-30

30-9s-19w Rooks,KS

Start Date: 2019.07.26 @ 01:05:00

End Date: 2019.07.26 @ 07:48:30

Job Ticket #: 65974 DST #: 7

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

Printed: 2019.07.29 @ 15:20:31



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65974

DST#: 7

ATTN: Paul Gunzelman

Test Start: 2019.07.26 @ 01:05:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:52:45

Time Test Ended: 07:48:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3608.00 ft (KB) To 3650.00 ft (KB) (TVD)

Reference Elevations: 2163.00 ft (KB)

Total Depth: 3650.00 ft (KB) (TVD)

2158.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 24.39 psig @ 3611.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.07.26

End Date:

2019.07.26

Last Calib.: 2019.07.26

Start Time: 01:05:15

End Time:

07:48:30

Time On Btm: 2019.07.26 @ 02:52:15

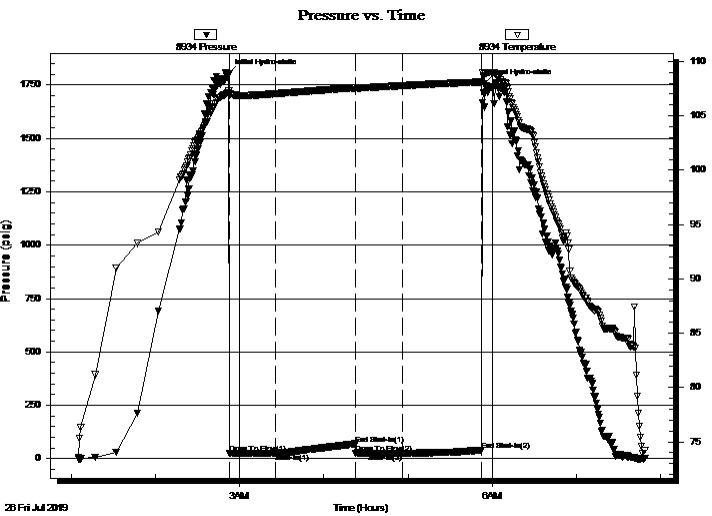
Time Off Btm: 2019.07.26 @ 05:54:15

TEST COMMENT: 30-IF-Weak Surface; Built to 1/4"; Died back to Surface

60-ISI-No Return

30-FF-No Blow

60FSI-No Return



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1803.94 | 107.27 | Initial Hydro-static |
| 1 | 24.31 | 106.89 | Open To Flow (1) |
| 34 | 25.17 | 107.03 | Shut-In(1) |
| 91 | 68.71 | 107.56 | End Shut-In(1) |
| 91 | 26.46 | 107.55 | Open To Flow (2) |
| 124 | 24.39 | 107.77 | Shut-In(2) |
| 181 | 39.86 | 108.12 | End Shut-In(2) |
| 182 | 1757.67 | 108.68 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 3.00 | Mud 100%M | 0.01 |
| | | |
| | | |
| | | |
| | | |

* 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 Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65974

DST#: 7

ATTN: Paul Gunzelman

Test Start: 2019.07.26 @ 01:05:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 3407.00 ft | Diameter: 3.82 inches | Volume: 48.30 bbl | Tool Weight: | 2200.00 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: 185.00 ft | Diameter: 2.25 inches | Volume: 0.91 bbl | Weight to Pull Loose: | 70000.00 lb |
| | | | <u>Total Volume: 49.21 bbl</u> | Tool Chased | ft |
| Drill Pipe Above KB: | 13.00 ft | | | String Weight: Initial | 46000.00 lb |
| Depth to Top Packer: | 3608.00 ft | | | Final | 46000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 42.00 ft | | | | |
| Tool Length: | 71.00 ft | | | | |
| Number of Packers: | 1 | Diameter: 6.75 inches | | | |
| Tool Comments: | | | | | |

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|---------------------------|--------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 3580.00 | |
| Shut In Tool | 5.00 | | | 3585.00 | |
| Hydraulic tool | 5.00 | | | 3590.00 | |
| Jars | 5.00 | | | 3595.00 | |
| Safety Joint | 3.00 | | | 3598.00 | |
| Packer | 5.00 | | | 3603.00 | 29.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3608.00 | |
| Stubb | 1.00 | | | 3609.00 | |
| Perforations | 1.00 | | | 3610.00 | |
| Change Over Sub | 1.00 | | | 3611.00 | |
| Recorder | 0.00 | 8934 | Inside | 3611.00 | |
| Recorder | 0.00 | 9120 | Outside | 3611.00 | |
| Drill Pipe | 32.00 | | | 3643.00 | |
| Change Over Sub | 1.00 | | | 3644.00 | |
| Perforations | 3.00 | | | 3647.00 | |
| Bullnose | 3.00 | | | 3650.00 | 42.00 Bottom Packers & Anchor |
| Total Tool Length: | 71.00 | | | | |



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

30-9s-19w Rooks,KS

250 N Water STE 300
Wichita KS 67202+1216

Stahl 'A' #1-30

Job Ticket: 65974

DST#: 7

ATTN: Paul Gunzelman

Test Start: 2019.07.26 @ 01:05:00

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: 41.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 17.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------|---------------|
| 3.00 | Mud 100%M | 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: 2#LCM

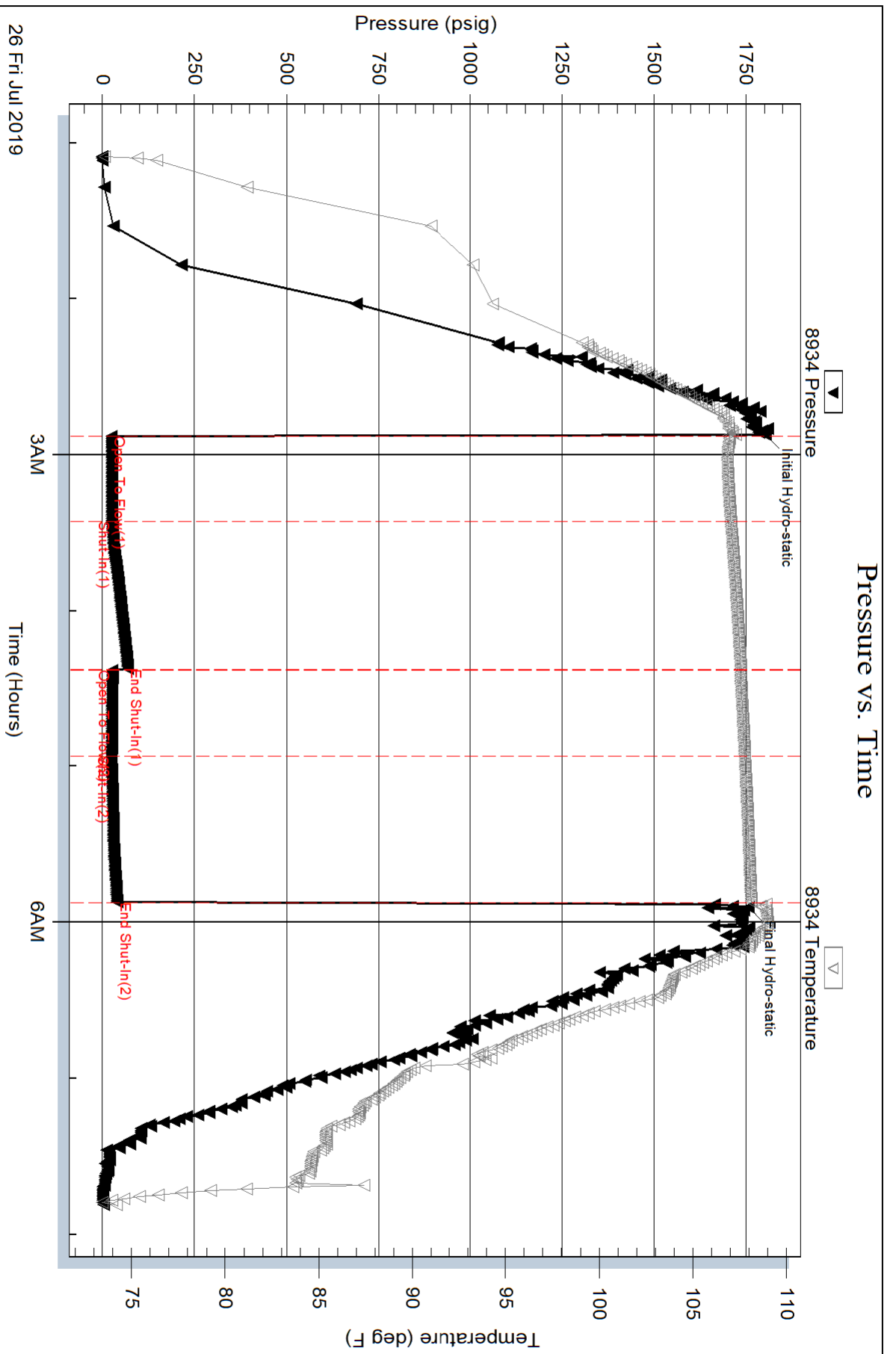
Serial #: 8934

Inside

Murfin Drilling Company Inc

Stahl 'A' #1-30

DST Test Number: 7

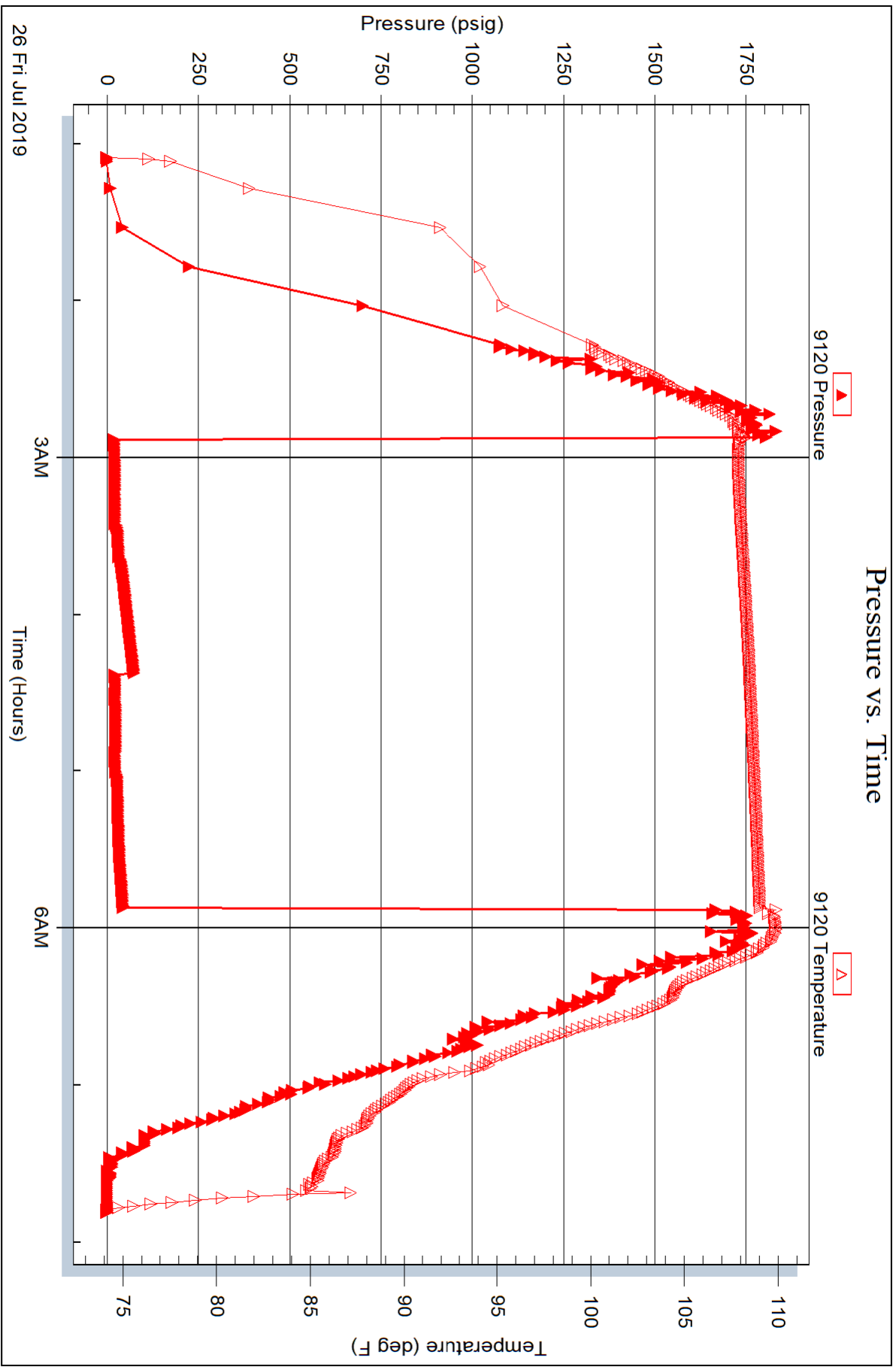


Serial #: 9120

Outside Murfin Drilling Company Inc

Stahl A' #1-30

DST Test Number: 7



Trilobite Testing, Inc

Ref. No: 65974

Printed: 2019.07.29 @ 15:20:33



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65968

NO.

Well Name & No. Stahl 'A' # 1-30 Test No. 1 Date 07/21/2019
 Company Murfin Drilling Co Elevation 2163 KB 2158 GL
 Address 250 N Water St E 300 Wichita Ks 67202-1216
 Co. Rep / Geo. Paul Jungelman Rig Murfin #8
 Location: Sec. 30 Twp 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3146' - 3168' Zone Tested Topeka
 Anchor Length 82' Drill Pipe Run _____ Mud Wt. 9.0
 Top Packer Depth 3141' Drill Collars Run 185' Vis 64
 Bottom Packer Depth 3146' Wt. Pipe Run _____ WL 6.0
 Total Depth 3168' Chlorides 3100 ppm System LCM 2#

Blow Description 17-
1st - Hit Bridge ~~Body~~ 18 stands in
7:7 - Misrun 1100' approx
7SD

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----|---------|------|------|--------|------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total _____ BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic _____ Test 500? _____ T-On Location 10:40
 (B) First Initial Flow _____ Jars 250 _____ T-Started 11:08
 (C) First Final Flow _____ Safety Joint 75 _____ T-Open _____
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled _____
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 13:12
 (F) Second Final Flow _____ Mileage 7827 78 _____ Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____ EM Tool _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Initial Open _____ Day Standby _____ Sub Total 0
 Initial Shut-In _____ Accessibility _____ Total 903
 Final Flow _____ Sub Total 903
 Final Shut-In _____ MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. [Signature] Thanks!
 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.
785-259-0086



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65969

NO.

Well Name & No. Stahl 'a' #1-30 Test No. 2 Date 07/21/2019
 Company Murfin Drilling Co Inc Elevation 2163 KB 2158 GL
 Address 250 N Water STE 300 Wichita KS 67202 +1216
 Co. Rep / Geo. Paul J Jungelman Rig Murfin #8
 Location: Sec. 30 Twp 9s Rge. 19w Co. Kooks State KS

Interval Tested 3146' - 3168' Zone Tested Topeka
 Anchor Length 22' Drill Pipe Run 2962' Mud Wt. 9.0
 Top Packer Depth 3141' Drill Collars Run 185' Vis 64
 Bottom Packer Depth 3146' Wt. Pipe Run - WL 6.0
 Total Depth 3168' Chlorides 3100 ppm System LCM 2#

Blow Description 17- Fair; Built to 5"
1SD- No Return
47- Weak; Built to 2 1/2"
75- No Return

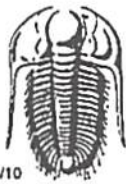
| Rec | Feet of | %gas | %oil | %water | %mud |
|-----|-----------------|------|------|--------|------|
| 63 | HMCW | | 75 | 25 | |
| 63 | MW | | 50 | 50 | |
| 74 | WCM w/oil spots | | 10 | 90 | |
| | | | | | |
| | | | | | |

Rec Total 250 BHT 103° Gravity - API RW 191 @ 72 °F Chlorides 37,000 ppm

(A) Initial Hydrostatic 1551 Test 1200 T-On Location 13:12
 (B) First Initial Flow 16 Jars 250 T-Started 16:30
 (C) First Final Flow 83 Safety Joint 75 T-Open 18:28
 (D) Initial Shut-In 729 Circ Sub _____ T-Pulled 21:28
 (E) Second Initial Flow 66 Hourly Standby x1 1hr 100 T-Out 23:17
 (F) Second Final Flow 102 Mileage _____
 (G) Final Shut-In 721 Sampler _____
 (H) Final Hydrostatic 1498 Straddle _____

Initial Open 30 Shale Packer _____
 Initial Shut-In 60 Extra Packer _____
 Final Flow 30 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Sub Total 1625 Accessibility _____
 Total 1625 EM Tool _____
 MP/DST Disc't _____ Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1625

Approved By _____ Our Representative Jungelman
 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.
785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65970

NO.

Well Name & No. Stahl 'A' #1-30 Test No. 3 Date 07/23/2017
 Company Murfin Drilling Co Inc Elevation 2163 KB 2158 GL
 Address 250 N Water STE 300 Wichita KS 67202 +1216
 Co. Rep / Geo. Paul Gungelman Rig Murfin #8
 Location: Sec. 30 Twp 9s Rge. 19w Co. Rock State KS

Interval Tested 3332' - 3426' Zone Tested 702, Lams 'A & B'
 Anchor Length 94' Drill Pipe Run 3152' Mud Wt. 9.3
 Top Packer Depth 3327' Drill Collars Run 185' Vis 64
 Bottom Packer Depth 3332' Wt. Pipe Run - WL 7.2
 Total Depth 3426' Chlorides 3500 ppm System LCM 2#

Blow Description 47-BOB 9 mins; Built to 38"
55- No Return
77-BOB 11 mins; Built to 32"
75- No Return

| Rec | Feet of | %gas | %oil | %water | %mud |
|-------------|---------------|------|-----------|-----------|------|
| <u>500'</u> | <u>29M CW</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 Total 500' BHT 108° Gravity - API RW 105 @ 84° F Chlorides 63000 ppm

| | | |
|-------------------------------------|--|----------------------------------|
| (A) Initial Hydrostatic <u>1683</u> | <input checked="" type="checkbox"/> Test <u>1200</u> | T-On Location <u>09:20</u> |
| (B) First Initial Flow <u>37</u> | <input checked="" type="checkbox"/> Jars <u>250</u> | T-Started <u>09:40</u> |
| (C) First Final Flow <u>219</u> | <input checked="" type="checkbox"/> Safety Joint <u>75</u> | T-Open <u>11:32</u> |
| (D) Initial Shut-In <u>859</u> | <input type="checkbox"/> Circ Sub | T-Pulled <u>14:32</u> |
| (E) Second Initial Flow <u>232</u> | <input type="checkbox"/> Hourly Standby | T-Out <u>16:23</u> |
| (F) Second Final Flow <u>345</u> | <input checked="" type="checkbox"/> Mileage <u>78+24</u> 78+24 | Comments <u>24 miles called</u> |
| (G) Final Shut-In <u>857</u> | <input type="checkbox"/> Sampler | <u>and sent home on 07/22</u> |
| (H) Final Hydrostatic <u>1622</u> | <input type="checkbox"/> Straddle | <input type="checkbox"/> EM Tool |

| | | |
|---------------------------|---|--|
| Initial Open <u>30</u> | <input type="checkbox"/> Shale Packer | <input type="checkbox"/> Ruined Shale Packer |
| Initial Shut-In <u>60</u> | <input type="checkbox"/> Extra Packer | <input type="checkbox"/> Ruined Packer |
| Final Flow <u>30</u> | <input type="checkbox"/> Extra Recorder | <input type="checkbox"/> Extra Copies |
| Final Shut-In <u>60</u> | <input type="checkbox"/> Day Standby | Sub Total <u>0</u> |
| | <input type="checkbox"/> Accessibility | Total <u>1627</u> |
| | Sub Total <u>1627</u> | MP/DST Disc't |

Approved By _____ Our Representative Spencer J. Stahl Thanks!
 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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65971

NO.

Well Name & No. Stahl 'a' #1-30 Test No. 4 Date 07/23/2019
 Company Murfin Drilling Co Inc Elevation 2163 KB 2158 GL
 Address 250 N Water STE 300 Wichita KS 67202+1216
 Co. Rep / Geo. Paul Gungelman Rig Murfin #8
 Location: Sec. 30 Twp 9s Rge. 19w Co. Roooks State KS

Interval Tested 3425' - 3446' Zone Tested Lansing D
 Anchor Length 21' Drill Pipe Run 3216' Mud Wt. 9.3
 Top Packer Depth 3420' Drill Collars Run 185' Vis 64
 Bottom Packer Depth 3425' Wt. Pipe Run - WL 7.2
 Total Depth 3446' Chlorides 3500 ppm System LCM 2#

Blow Description 77- Weak; Built to 1"
78- No Return
79- Weak Surface Blow
78- No Return

| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|------------|------|-----------|-----------|------|
| <u>20'</u> | <u>WCM</u> | | <u>15</u> | <u>85</u> | |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

Rec Total 20' BHT 106° Gravity - API RW 132 @ 57 °F Chlorides 71000 ppm

(A) Initial Hydrostatic 1747 Test 1200 T-On Location 21:50
 (B) First Initial Flow 18 Jars 250 T-Started 21:58
 (C) First Final Flow 23 Safety Joint 75 T-Open 23:58
 (D) Initial Shut-In 888 Circ Sub _____ T-Pulled 02:58
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 05:16
 (F) Second Final Flow 26 Mileage 7817 78 Comments _____
 (G) Final Shut-In 876 Sampler _____
 (H) Final Hydrostatic 1646 Straddle _____ EM Tool _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 1603
 Total 1603
 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Paul - Hards!
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65972

NO.

Well Name & No. Stahl 'a' # 1-30 Test No. 5 Date 07/24/2019
 Company Murfin Drilling Company Inc Elevation 2163 KB 2158 GL
 Address 250 N Water STE 300 Wichita KS 67202 +1216
 Co. Rep / Geo. Paul Gungelman Rig Murfin #8
 Location: Sec. 30 Twp 9s Rge. 19w Co. Rooks State KS

Interval Tested 3446' - 3467' Zone Tested Lans 'E+7'
 Anchor Length 21' Drill Pipe Run 3247' Mud Wt. 9.25
 Top Packer Depth 3441' Drill Collars Run 185' Vis 0.59
 Bottom Packer Depth 3446' Wt. Pipe Run - WL 10.4
 Total Depth 3467' Chlorides 4500 ppm System LCM 1#

Blow Description 17-BOB; 45sec; Built to 343"
1st-Weak Surface after 10mins; Dried 40mins in
77-BOB /min; Built to 23"
7st No Return

| Rec | Feet of | %gas | %oil | %water | %mud |
|--------------|--------------|------|------------|------------|------|
| <u>1690'</u> | <u>Water</u> | | <u>100</u> | | |
| <u>200</u> | <u>MW</u> | | <u>50</u> | <u>50</u> | |
| <u>10'</u> | <u>OSM</u> | | | <u>100</u> | |
| | | | | | |
| | | | | | |

Rec Total 1900' BHT 107° Gravity - API RW .069 @ 90° F Chlorides 86000 ppm

| | | |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>1734</u> | <input checked="" type="checkbox"/> Test <u>1200</u> | T-On Location <u>11:13</u> |
| (B) First Initial Flow <u>351</u> | <input checked="" type="checkbox"/> Jars <u>250</u> | T-Started <u>11:30</u> |
| (C) First Final Flow <u>841</u> | <input checked="" type="checkbox"/> Safety Joint <u>75</u> | T-Open <u>13:25</u> |
| (D) Initial Shut-In <u>891</u> | <input type="checkbox"/> Circ Sub | T-Pulled <u>16:10</u> |
| (E) Second Initial Flow <u>846</u> | <input type="checkbox"/> Hourly Standby | T-Out <u>18:15</u> |
| (F) Second Final Flow <u>885</u> | <input checked="" type="checkbox"/> Mileage <u>7827</u> <u>78</u> | Comments |
| (G) Final Shut-In <u>894</u> | <input type="checkbox"/> Sampler | |
| (H) Final Hydrostatic <u>1647</u> | <input type="checkbox"/> Straddle | <input type="checkbox"/> EM Tool |
| | <input type="checkbox"/> Shale Packer | <input type="checkbox"/> Ruined Shale Packer |
| Initial Open <u>30</u> | <input type="checkbox"/> Extra Packer | <input type="checkbox"/> Ruined Packer |
| Initial Shut-In <u>60</u> | <input type="checkbox"/> Extra Recorder | <input type="checkbox"/> Extra Copies |
| Final Flow <u>15</u> | <input type="checkbox"/> Day Standby | Sub Total <u>0</u> |
| Final Shut-In <u>60</u> | <input type="checkbox"/> Accessibility | Total <u>1603</u> |
| | Sub Total <u>1603</u> | MP/DST Disc't |

Approved By _____ Our Representative Spencer J. Paul *Thanks*
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TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65973

NO.

Well Name & No. Stahl 'A' #1-30 Test No. 6 Date 07/25/2019
 Company Murphy Drilling Co - Inc Elevation 2163 KB 2158' GL
 Address 250 N Water STE 300 Wichita, KS 67202-1216
 Co. Rep / Geo. Paul Gumpelman Rig Murphy #8
 Location: Sec. 30 Twp 9S Rge. 19W Co. Rocky State KS

Interval Tested 3496' - 3560' Zone Tested LHC
 Anchor Length 64' Drill Pipe Run _____ Mud Wt. 9.25
 Top Packer Depth 3491' Drill Collars Run 185' Vis 59
 Bottom Packer Depth 3496' Wt. Pipe Run _____ WL 10.4
 Total Depth 3560' Chlorides 4500 ppm System LCM 1#

Blow Description 17- Weak; Built to 4"; Died back to Surface

1st - No Return
77 - No Blow
75 - No Return

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|------------|------|------|------------|------|
| <u>15</u> | <u>Mud</u> | | | <u>100</u> | |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

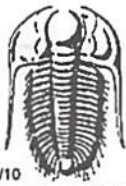
Rec Total 15' BHT 105° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1815 Test 1200 T-On Location 04:57
 (B) First Initial Flow 30 Jars 250 T-Started 05:35
 (C) First Final Flow 32 Safety Joint 75 T-Open 07:28
 (D) Initial Shut-In 592 Circ Sub _____ T-Pulled 10:28
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 12:18
 (F) Second Final Flow 32 Mileage 78K7 78 Comments _____
 (G) Final Shut-In 399 Sampler _____
 (H) Final Hydrostatic 1672 Straddle _____

Initial Open 30 Shale Packer _____ EM Tool _____
 Initial Shut-In 60 Extra Packer _____ Ruined Shale Packer _____
 Final Flow 30 Extra Recorder _____ Ruined Packer _____
 Final Shut-In 60 Day Standby _____ Extra Copies _____
 Sub Total 1603 Accessibility _____ Sub Total 0
 Sub Total 1603 MP/DST Disc't _____ Total 1603

Approved By _____ Our Representative Spencer J. Stahl - Thanks!
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65974

NO.

Well Name & No. Stahl 'A' # 1-30 Test No. 7 Date 07/25/2019
 Company Murfin Drilling Co Inc Elevation 2163 KB 2158 GL
 Address 250 N Water STE 300 Wichita Ks, 67202 +1216
 Co. Rep / Geo. Paul Jungelman Rig Murfin #8
 Location: Sec. 30 Twp 9N Rge. 19W Co. Roark State Ks

Interval Tested 3608' - 3650' Zone Tested Arbuckle
 Anchor Length 42' Drill Pipe Run 3467 Mud Wt. 9.4
 Top Packer Depth 3603' Drill Collars Run 185' Vis 41
 Bottom Packer Depth 3608' Wt. Pipe Run - WL 18.0
 Total Depth 3650' Chlorides 7,000 ppm System LCM 2#

Blow Description 17- Wash surface; Built to 4"; Dried back to surface

1SD - No Return
77 - No Blow
7SD - No Return

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----|---------|------|------|--------|------|
| 3 | Mud | | | 100 | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 3 BHT 108° Gravity - API RW - @ - F Chlorides - ppm

(A) Initial Hydrostatic 1803 Test 1200 T-On Location 23:15
 (B) First Initial Flow 24 Jars 250 T-Started 01:05 07/26/2019
 (C) First Final Flow 25 Safety Joint 75 T-Open 02:42
 (D) Initial Shut-In 68 Circ Sub - T-Pulled 05:42
 (E) Second Initial Flow 26 Hourly Standby - T-Out 07:38
 (F) Second Final Flow 24 Mileage 7827x2 78+78 Comments Loaded @ 20:00
 (G) Final Shut-In 39 Sampler - 07/26/2019
 (H) Final Hydrostatic 1757 Straddle - EM Tool -

Initial Open 30 Extra Packer - Ruined Shale Packer -
 Initial Shut-In 60 Extra Recorder - Ruined Packer -
 Final Flow 30 Day Standby - Extra Copies -
 Final Shut-In 60 Accessibility - Sub Total 0
 Sub Total 1681 Total 1681 MP/DST Disc't -

Approved By _____ Our Representative Spencer J. Paul Thanks!
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