

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 | RUSCO 'B' 2-36 |
| Doc ID | 1493384 |

All Electric Logs Run

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

Rusco 'B' #2-36
 330' FNL 1210' FEL
 Sec. 36-T11S-R20W
 2017' KB

| Formation | Sample tops | Datum | Ref | Log Tops | Datum | Ref |
|-------------|-------------|-------|-----|----------|-------|-----|
| Anhydrite | 1387 | +630 | +5 | 1379 | +638 | +11 |
| B/Anhydrite | 1429 | +588 | +2 | 1429 | +588 | +2 |
| Topeka | 3038 | -1021 | +5 | 3034 | -1017 | +9 |
| Heebner | 3257 | -1240 | +4 | 3252 | -1235 | +9 |
| Lansing | 3298 | -1281 | +3 | 3290 | -1273 | +11 |
| Stark | | | | 3475 | -1458 | +9 |
| Arbuckle | 3595 | -1578 | +19 | 3592 | -1575 | +16 |
| RTD | 3710 | | | | | |
| LTD | | | | 3707 | | |



CEMENT TREATMENT REPORT

| | | |
|----------------------------------|---------------------------|-----------------------------------|
| Customer: Murfin Drilling | Well: Rusco B 2-36 | Ticket: ICT 2764 |
| City, State: | County: Ellis KS | Date: 11/12/2019 |
| Field Rep: | S-T-R: 36-11S-20W | Service: 2Stage Longstring |

| Downhole Information | |
|----------------------|------------------|
| Hole Size: | 7 7/8 In |
| Hole Depth: | 3710 ft |
| Casing Size: | 5 1/2 In |
| Casing Depth: | 3709 ft |
| Tubing / Liner: | in |
| Depth: | ft |
| Tool / Packer: | DV Tool |
| Depth: | 1394 ft |
| Displacement: | 87.8 bbls |

| Calculated Slurry | |
|-------------------|---------------------------------|
| Weight: | 12 # / sx |
| Water / Sx: | 15.60 gal / sx |
| Yield: | 2.50 ft³ / sx |
| Bbls / Ft.: | |
| Depth: | ft |
| Annular Volume: | 0 bbls |
| Excess: | |
| Total Slurry: | 154.0 bbls |
| Total Sacks: | 370 sx |

| Product | % / # | # |
|------------|-------|---|
| Class A | | |
| Poz | | |
| Gel | | |
| CaCl | | |
| Gypsum | | |
| Metso | | |
| Kol Seal | | |
| Flo Seal | | |
| Salt (bww) | | |

| TIME | RATE | PSI | BBLs | REMARKS | Total |
|------|------|---------|-------|--|-------|
| 345P | | | | ON LOCATION | - |
| | | | | RUN FLOAT EQUIPMENT AS FOLLOWS | |
| | | | | BASKETS ON JOINTS 42, 50, 55, 62, 76 | |
| | | | | TURBOLIZERS ON JOINTS 1-12, 55, 57, 58 | |
| | | | | SCRATCHERS ON JOINTS 3 & 7 4 PER JOINT | |
| | | | | DV TOOL ON TOP OF JOINT 56 | |
| | | | | 3709 FT 5 1/2 15.5 LB CASING, 21.3 FT SHOE JOINT, 8 5/8 SURFACE CASING SET AT 260 FT | |
| 615P | | | | EQUIPMENT ARRIVES TO LOCATION | |
| 630P | | | | SAFETY MEETING | |
| 640P | | | | RIG UP | |
| 650P | | | | CASING ON BOTTOM | |
| 700P | | | | CIRCULATE CASING 1 HOUR WITH RIG PUMP | |
| 820P | 3.7 | 300.0 | 5.0 | H2O AHEAD | |
| 822P | 3.7 | 300.0 | 12.0 | MUDFLUSH | |
| 826P | 3.7 | 300.0 | 5.0 | H2O SPACER | |
| 828P | 5.5 | 450.0 | 136.0 | LEAD CEMENT 300 SKS H-CON | |
| 853P | 4.0 | 400.0 | 17.7 | TAIL CEMENT 70 SKS H-LONG | |
| 905P | | | | DROP PLUG | |
| 905P | | | | WASH PUMP & LINES | |
| 910P | 5.0 | 400.0 | 15.0 | DISPLACE H2O | |
| | 5.0 | 400.0 | 15.0 | DISPLACE H2O | |
| | 5.0 | 525.0 | 15.0 | DISPLACE H2O | |
| 918P | 6.0 | 535.0 | 15.0 | DISPLACE MUD | |
| | 6.0 | 700.0 | 15.0 | DISPLACE MUD | |
| | 4.0 | 1,200.0 | 12.0 | DISPLACE MUD | |
| 930P | | | | PLUG LANDED | |
| 935P | | | | RELEASE/CHECK FLOATS, THEY HELD | |

| CREW | | UNIT | SUMMARY | | |
|----------------|------------------------|------------|--------------|------------------|-------------|
| Cementer: | Jimmie Cottrell | 73 | Average Rate | Average Pressure | Total Fluid |
| Pump Operator: | Josh Mosler | 230 | 4.69091 bpm | 501 psi | 263 bbls |
| Bulk #1: | Kale Ochs | 254 | | | |
| Bulk #2: | John Polley | 256 | | | |

Scale 1:240 Imperial

Well Name: RUSCO B #2-36
Surface Location: W2 NW NE NE Sec. 36 - 11S - 20W
Bottom Location:
API: 15-051-26977-00
License Number: 30606
Spud Date: 11/4/2019 Time: 1:30 PM
Region: ELLIS COUNTY
Drilling Completed: 11/12/2019 Time: 12:27 AM
Surface Coordinates: 330' FNL & 1210' FEL
Bottom Hole Coordinates:
Ground Elevation: 2012.00ft
K.B. Elevation: 2017.00ft
Logged Interval: 2900.00ft To: 3710.00ft
Total Depth: 3710.00ft
Formation: LANSING-KANSAS CITY; ARBUCKLE
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

OPERATOR

Company: MURFIN DRILLING CO., INC.
Address: 250 N WATER
STE. 300
WICHITA, KS 67202
Contact Geologist: SHAUNA GUNZELMAN
Contact Phone Nbr: (316) 267-3241
Well Name: RUSCO B #2-36
Location: W2 NW NE NE Sec. 36 - 11S - 20W
API: 15-051-26977-00
Pool: State: KANSAS Field: STAR NORTH
Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: -99.486104
Latitude: 39.058544
N/S Co-ord: 330' FNL
E/W Co-ord: 1210' FEL

LOGGED BY



Company: BIG CREEK CONSULTING, INC.
Address: 1909 MAPLE
ELLIS, KS 67637
Phone Nbr: (785) 259-3737
Logged By: GEOLOGIST Name: JEFF LAWLER

CONTRACTOR

Contractor: MURFIN DRILLING CO., INC.
Rig #: 7
Rig Type: MUD ROTARY
Spud Date: 11/4/2019 Time: 1:30 PM
TD Date: 11/12/2019 Time: 12:27 AM
Rig Release: 11/13/2019 Time: 3:45 AM

ELEVATIONS

K.B. Elevation: 2017.00ft
K.B. to Ground: 5.00ft

Ground Elevation: 2012.00ft

NOTES


DUE TO ECONOMICAL RECOVERY ON MULTIPLE DST'S DECISION WAS MADE TO SET A PRODUCTION STRING AND FURTHER EVALUATE ZONES UPON COMPLETION.

RESPECTFULLY SUBMITTED,
JEFF LAWLER

WELL COMPARISON SHEET

| FORMATION | RUSCO B #2-36 | | | | | | | | MURFIN DRILLING CO., INC. RUSCO B #1-36 | | | | MURFIN DRILLING CO., INC. RUSCO C #1 | | | | P&A 8-90 MURFIN DRILLING CO., INC. STAR-DAVIS #1-25 | | | | WAMEGO OIL, INC. SPREEN #1 | | | | | | | |
|---------------|----------------------|-------|-------------|-------|-------------------|-------|-------|-------|---|-------|------------|-------|--------------------------------------|-------|-------|-------|---|-------|-------|-------|----------------------------|-------|------------|-------|-------|-------|-------|-------|
| | W2 NW NW NE 36-11-20 | | | | W2 W2 NE 36-11-20 | | | | SW SW SE 25-11-20 | | | | SW SW SW 30-11-19 | | | | | | | | | | | | | | | |
| | LOG TOPS | | SAMPLE TOPS | | LOG | | LOG | | SMPL. | | COMP. CARD | | LOG | | SMPL. | | LOGS | | LOG | | SMPL. | | COMP. CARD | | LOG | | SMPL. | |
| | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | CORR. | CORR. | DEPTH | DATUM | CORR. | CORR. | DEPTH | DATUM | CORR. | CORR. | DEPTH | DATUM | CORR. | CORR. | DEPTH | DATUM | CORR. | CORR. | DEPTH | DATUM | CORR. | CORR. |
| ANHYDRITE TOP | 1388 | 629 | 1387 | 630 | 1380 | 625 | + 4 | + 5 | 1400 | 632 | - 3 | - 2 | 1386 | 625 | + 4 | + 5 | 1465 | 630 | - 1 | + 0 | | | | | | | | |
| BASE | 1428 | 589 | 1429 | 588 | 1419 | 586 | + 3 | + 2 | 1440 | 592 | - 3 | - 4 | 1431 | 580 | + 9 | + 8 | 1509 | 586 | + 3 | + 2 | | | | | | | | |
| TOPEKA | 3035 | -1018 | 3038 | -1021 | 3031 | -1026 | + 8 | + 5 | 3044 | -1012 | - 6 | - 9 | 3060 | -1049 | + 31 | + 28 | 3116 | -1021 | + 3 | + 0 | | | | | | | | |
| HEEBNER SHALE | 3252 | -1235 | 3257 | -1240 | 3249 | -1244 | + 9 | + 4 | 3262 | -1230 | - 5 | - 10 | 3282 | -1271 | + 36 | + 31 | 3338 | -1243 | + 8 | + 3 | | | | | | | | |
| TORONTO | 3272 | -1255 | 3276 | -1259 | 3268 | -1263 | + 8 | + 4 | 3280 | -1248 | - 7 | - 11 | 3302 | -1291 | + 36 | + 32 | 3362 | -1267 | + 12 | + 8 | | | | | | | | |
| LKC | 3291 | -1274 | 3298 | -1281 | 3289 | -1284 | + 10 | + 3 | 3301 | -1269 | - 5 | - 12 | 3321 | -1310 | + 36 | + 29 | 3380 | -1285 | + 11 | + 4 | | | | | | | | |
| BKC | 3516 | -1499 | 3523 | -1506 | 3512 | -1507 | + 8 | + 1 | 3527 | -1495 | - 4 | - 11 | 3542 | -1531 | + 32 | + 25 | 3609 | -1514 | + 15 | + 8 | | | | | | | | |
| SIMPSON SAND | | | | | | | | | | | | | 3647 | -1636 | | | 3670 | -1575 | | | | | | | | | | |
| ARBUCKLE | 3598 | -1581 | 3595 | -1578 | 3602 | -1597 | + 16 | + 19 | 3598 | -1566 | - 15 | - 12 | 3652 | -1641 | + 60 | + 63 | | | | | | | | | | | | |
| TOTAL DEPTH | 3707 | -1690 | 3710 | -1693 | 3705 | -1700 | + 10 | + 7 | 3700 | -1668 | - 22 | - 25 | 3700 | -1689 | - 1 | - 4 | 3725 | -1630 | - 60 | - 63 | | | | | | | | |

DST #1 LKC B-F 3310' - 3380'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co
250 N Water STE 300
Wichita KS 67202+1216
ATTN: Jeff Lawler

36-11s-20w Ellis KS

Rusco B #2-36

Job Ticket: 66359 **DST#: 1**

Test Start: 2019.11.08 @ 11:00:00

GENERAL INFORMATION:

Formation: **LKC 'B-F'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:29:17
 Time Test Ended: 18:21:02

Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J Staab
 Unit No: 84

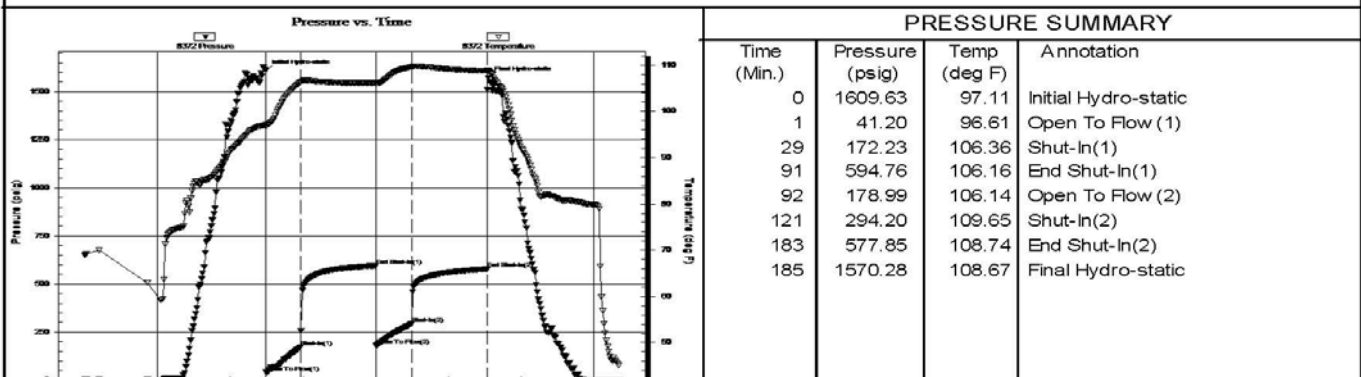
Interval: **3310.00 ft (KB) To 3380.00 ft (KB) (TVD)**
 Total Depth: 3380.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor

Reference Elevations: 2017.00 ft (KB)
 2012.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8372 Inside

Press@RunDepth: 294.20 psig @ 3314.00 ft (KB) Capacity: psig
 Start Date: 2019.11.08 End Date: 2019.11.08 Last Calib.: 2019.11.08
 Start Time: 11:00:01 End Time: 18:21:02 Time On Btm: 2019.11.08 @ 13:29:02
 Time Off Btm: 2019.11.08 @ 16:33:02

TEST COMMENT: 30-IF-BOB 5 mins; Built to 28"
 60-ISI-No Return
 30-FF-BOB 6 mins; Built to 29"
 60-FSI-No Return

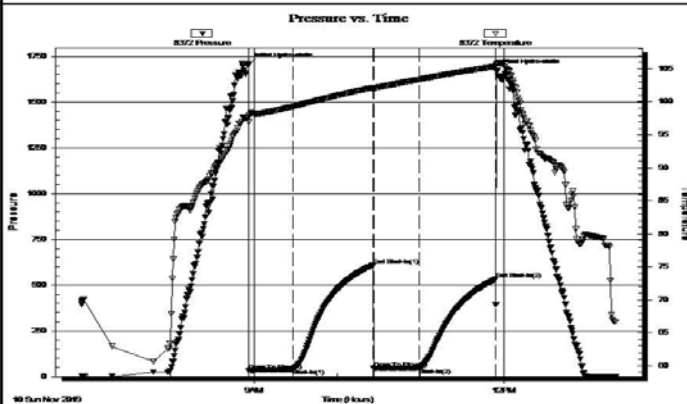


GENERAL INFORMATION:

Formation: **LKC K-L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:56:17
 Time Test Ended: 13:21:02
 Interval: **3478.00 ft (KB) To 3527.00 ft (KB) (TVD)**
 Total Depth: 3527.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J Staab
 Unit No: 84
 Reference Elevations: 2017.00 ft (KB)
 2012.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8372 Inside
 Press@RunDepth: 46.58 psig @ 3481.00 ft (KB) Capacity: psig
 Start Date: 2019.11.10 End Date: 2019.11.10 Last Calib.: 2019.11.10
 Start Time: 06:56:01 End Time: 13:21:02 Time On Btm: 2019.11.10 @ 08:56:02
 Time Off Btm: 2019.11.10 @ 11:54:47

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



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1705.25 | 97.66 | Initial Hydro-static |
| 1 | 34.24 | 96.93 | Open To Flow (1) |
| 32 | 39.74 | 99.26 | Shut-In(1) |
| 90 | 608.10 | 102.11 | End Shut-In(1) |
| 91 | 44.90 | 102.08 | Open To Flow (2) |
| 124 | 46.58 | 103.39 | Shut-In(2) |
| 178 | 532.22 | 105.40 | End Shut-In(2) |
| 179 | 1670.66 | 105.68 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 10.00 | OSM 100%M | 0.05 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 66362

Printed: 2019.11.10 @ 20:41:53

ROCK TYPES

| | | | |
|---------|------------|------------|-----------|
| Cht | Lmst fw7> | Carbon Sh | Arg/Shale |
| Dolprim | shale, grn | Shbck | Ss |
| Dolsec | shale, gry | shale, red | |

ACCESSORIES

FOSSIL

◇ Oolite

STRINGER

~~~~ Chert

████ Dolomite

**OTHER SYMBOLS**

**MISC**

Daily Report

Digital Photo

Document

Folder

Link

Vertical Log File

Horizontal Log File

**DST**

DST Int

DST alt

| Curve Track #1 |             |          | Depth   Intervals | DST | Lithology | Oil Show | Geological Descriptions | Curve Track #3 |
|----------------|-------------|----------|-------------------|-----|-----------|----------|-------------------------|----------------|
| ROP (min/ft)   | Gamma (API) | Cal (in) |                   |     |           |          |                         | Cored Interval |
| 0              | 150         | 16       | 5                 |     |           |          |                         |                |
| 0              | 150         | 16       | 5                 |     |           |          |                         |                |
| 6              | 150         | 16       | 16                |     |           |          |                         |                |
|                |             |          | 2860              |     |           |          |                         |                |
|                |             |          | 2870              |     |           |          |                         |                |
|                |             |          | 2880              |     |           |          |                         |                |
|                |             |          | 2890              |     |           |          |                         |                |
|                |             |          | 2900              |     |           |          |                         |                |
|                |             |          | 2910              |     |           |          |                         |                |
|                |             |          | 2920              |     |           |          |                         |                |
|                |             |          | 2930              |     |           |          |                         |                |
|                |             |          | 2940              |     |           |          |                         |                |
|                |             |          | 2950              |     |           |          |                         |                |
|                |             |          | 2960              |     |           |          |                         |                |
|                |             |          | 2970              |     |           |          |                         |                |
|                |             |          | 2980              |     |           |          |                         |                |
|                |             |          | 2990              |     |           |          |                         |                |
|                |             |          | 3000              |     |           |          |                         |                |
| 0              | 150         | 16       | 5                 |     |           |          |                         |                |
| 0              | 150         | 16       | 5                 |     |           |          |                         |                |
| 6              | 150         | 16       | 16                |     |           |          |                         |                |
|                |             |          | 3010              |     |           |          |                         |                |
|                |             |          | 3020              |     |           |          |                         |                |

5' DRILL TIME FROM 1290' - 1360'  
 1' DRILL TIME THROUGH ANHYDRITE FROM 1360' - 1460'  
 5' DRILL TIME FROM 1460' - 2940  
 1' DRILL TIME FROM 2940' - RTD  
 10' WET/DRY SAMPLES FROM 2940' - RTD

GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 2940' - RTD

8 5/8" SURFACE PIPE SET @ 260' SURVEY 1/4 deg.

ANHYDRITE TOP 1387' (+630) E-LOG 1388' (+629)  
 ANHYDRITE BASE 1429' (+588) E-LOG 1428' (+589)

SURVEY @ 1144'  
 1/4 deg.

Sh- Dark & Lt Gray Green , soft & sl calcareous, some gummy clumps

Lm- Cream Buff, FXLN, fsl, sctrd XLN porosity, barren

Lm- A/A

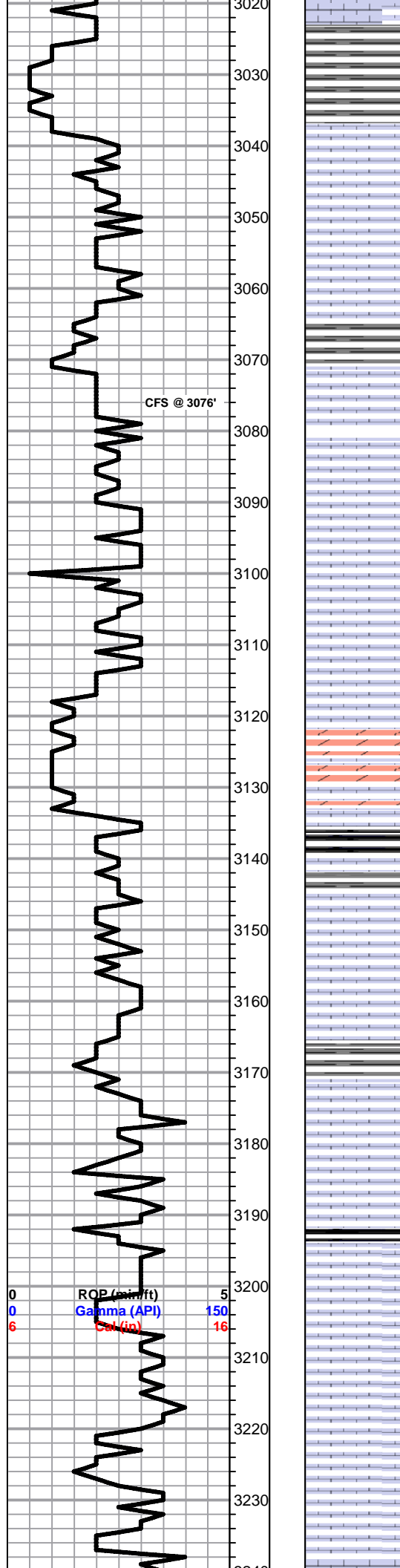
Sh- Drk & Lt Gray, dense & semi-waxy, silty & calcareous, gummy wash

Lm- Gray, FXLN, trashy, sl fsl w/ fragments, poor vis. porosity, barren

Lm,- Gray Cream, FXLN, dense, well cemented, most trashy w/ poor vis. porosity, others poorly dev. w/ sctrd XLN porosity, barren

Sh- Gray, gummy wash & argillaceous clumps, some sl sandy in part

Sh/Ss- Lt Gray, argillaceous clumps, sl sandy, frosted Fn Grn Ss, consolidated & well sorted, sub-rounded, mature, loosely cemented, barren, some sl shaley



Sh/Ss- A/A w/ influx of dark gray semi-waxy slivers

Sh- Lt Gray, silty & calcareous

**TOPEKA 3038' (-1021) E-LOG 3035' (-1018)** Lm- Cream Buff Tan, VF-FXLN, dense, well cemented, cream w/ densely packed small oolites, sctrd micro XLN porosity, others tight w/ poor vis. porosity, all barren

Lm- Tan Buff, VFXLN, dense, well cemented, poor vis. porosity, barren

Lm- Tan Buff, FXLN, dense, well cemented, poorly dev. w/ sctrd micro XLN porosity, some chalky in part, barren

Lm- Cream, FXLN, grainy, loosely cemented, dense vry fn ppt porosity, 1 PCS W/ TR LT STN, NSFO, TR ODR

CFS @ 3076'

Lm- Cream Off White, FXLN, densely packed small oolites, poor vis. porosity, barren

Lm- Cream Off White, FXLN, dense, well cemented, heavily mottled, poorly dev. w/ micro XLN porosity, some chalky in part, barren

Lm- Cream Off White, FXLN, well to loosley cemented, fsl w/ fusulinids, dense XLN porosity w/ secondary reXLN porosity & clear replacement cementation, barren

Chert- Black, sharp vitreous fresh bedded w/ fsl inclusions, no vis. porosity

Lm- Cream Tan, FXLN, dense, well cemented, massive, dolomitic Ls w/ dense micro XLN porosity, much soft white chalk

Sh- Black Gray White, fissile & carbonaceous, argillaceous clumps & soft white chalk

Lm- Mint Green, Fn grn, loosely cemented arenaceous w/ consistent intergranular porosity, barren, soft white chalk & sandy shale

Lm- Tan, FXLN, well cemented dolomitic Ls w/ consistent micro XLN porosity throughout, barren

Lm- Cream Off White, poorly dev. mix of loosely cemented & chalky & well cemented, tight w/ sctrd-dense micro XLN porosity, some soft white chalk, all vry clean & barren

Lm- Gray Buff, FXLN, bioclastic & trashy w/ fsl fragments, sctrd XLN porosity

Sh- Drk & Lt Gray Green, dense waxy slivers, argillaceous clumps & wash

Lm- Tan, FXLN, well cemented, tight w/ micro XLN & sctrd XLN porosity, barren

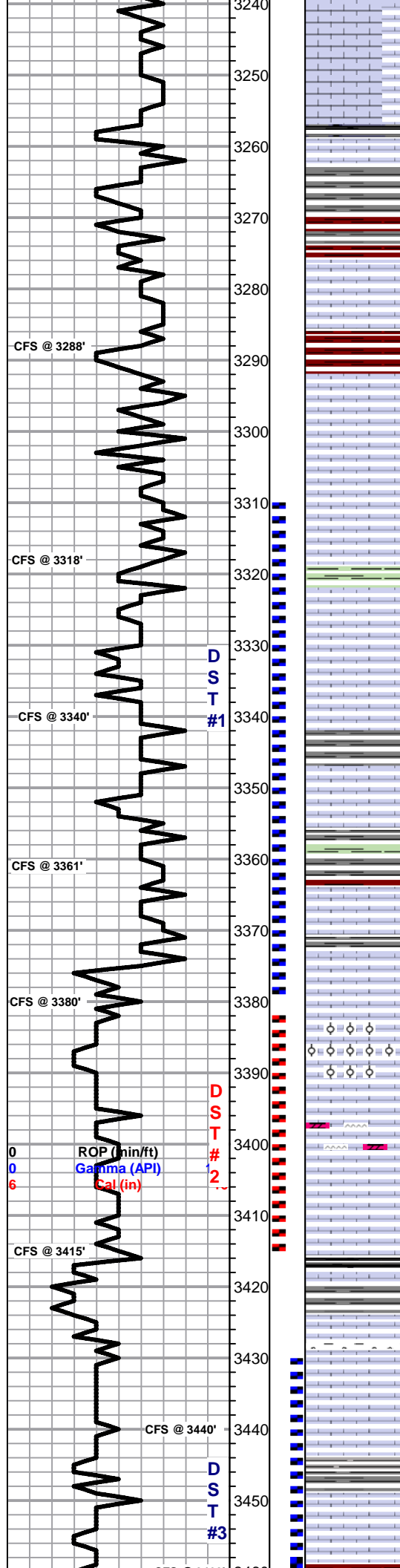
Lm- Tan Buff, VF-FXLN, dense, well cemented, poorly dev. w/ sctrd XLN porosity, few pcs of cherty Ls w/ no vis. porosity

Lm- Cream Off White, FXLN, fsl w/ fusulinids, sctrd XLN porosity, several pcs of cherty Ls w/ min. vis. porosity, all clean & barren

Lm- Cream Off White, loosely cemented, sl fsl, poorly dev. & chalky, barren, few pcs of cream fsl cherty Ls w/o vis. porosity, barren

ROP (min/ft) 5  
Gamma (API) 150  
C/L (in) 16





Lm- Cream Off White Tan, FXLN, loosely to well cemented, heavily mottled, dense XLN porosity, some sctrd reXLN porosity, some sl chalky in part, barren

**HEEBNER 3257' (-1240) E-LOG 3252' (-1235)** Sh- Black Gray, dense & carbonaceous, semi-waxy, some soft

Sh- Gray Maroon, calcareous, gummy wash

**TORONTO 3276' (-1259) E-LOG 3270' (-1253)** Lm- Cream Off White, FXLN, sl fsl, most well cemented w/ sctrd XLN porosity, some loosely cemented & chalky in part, all vry clean & barren

Sh- Maroon Gray Green, sl gummy wash, dense slivers, silty & calcareous

**LKC 3298' (-1281) E-LOG 3291' (-1274)** Chert Lm- Milky White/Gray, fresh bedded vitreous chert w/o vis. porosity, Buff Cream, FXLN, dense, well cemented, grainy sl dolomitic Ls w/ consistent micro XLN porosity throughout, all barren

Lm- Tan Buff, FXLN, dense, well cemented, consistent micro XLN porosity throughout, barren

Sh- Green Gray Maroon ,calcareous gummy washy, gritty & earthy

Lm- Cream Off White, FXLN, oolitic cluster w/ sctrd ppt inter oolite porosity to sl trahsy, oolitic w/ sctrd XLN & secondary reXLN porosity, all w/ SCTRDRK STN, TR FRO, WK ODR

Sh- Gray Maroon, abundant waxy slivers, gritty & earthy

Lm- Cream Off White FXLN, fsl w/ fusulinids, mod. developed w/ dense sctrd ppt & XLN porosity, SCTRDRK STN, NSFO, FR ODR

Sh- Gray Green Maroon, waxy slivers, sl calcareous

Lm- Cream Off White, mix of Vf Grn mudstone w/ sctrd-dense fn ppt porosity, & sl fsl w/ fusulinids, sctrd fn ppt inter fsl porosity, ALL W/ SCTRDRK STN, TR FO, GD ODR

Lm- Cream, FXLN, fsl & oolitic w/ mostly consistent ppt inter oolite porosity throughout, some reXLN w/in porosity, DRK STN, TR GSY OIL UPON CRUSH, FR ODR

Lm- Cream Off White, well developed oolite clusters w/ fr cementation, consistent ppt inter oolite porosity, SCTRDRK STN, TR GSY BUBBLEY FO, FR ODR & VF-FXLN, dense, well cemented, sl fsl w/ sctrd XLN porosity, barren, much soft chalk

Lm/Chert/Dolomite- Cream Off White, VF-FXLN, tight to poorly dev. w/ consistent micro to sctrd XLN porosity, all clear & barren

Lm- White Cream, FXLN, well to loosely cemented & crumbley, chalky in part, sctrd dense XLN to poor vis. porosity, all vry clean & barren, few pcs of fresh bedded chert w/o vis. porosity

Sh- Black Gray Maroon, fissile & carbonaceous, dense, gritty & earthy

Lm/Chert- Cream Off White, FXLN, dense, well cemented, sl fsl & tight w/ poor vis. porosity, few sl chalky in part, Chert- Tan, fresh bedded vitreous chert w/o vis. porosity, 1 PC LOOSELY CEMENTED & CHALKY, RARE VRY FN PPT POROSITY, SCTRDRK STN, NSFO, NO ODR

Sh- Gray Maroon, waxy & dense, gritty & earthy

Lm- Cream Tan, VF-FXLN, sctrd-dense XLN & sctrd fn ppt porosity, WK SCTRDRK STN, TR FO, WK ODR

SHORT TRIP STRAP +0.49' SURVEY 1/2 deg.

DST #1 LKC B-A 3310' - 3380' 30-60-30-60

650' TOTAL FLUID  
10' GMCWO (5%G, 35%O, 30% W, 30%M)  
400' GSOCMW (10%G, 10%O, 50% W, 30%M)  
240' GVSOCMW (5%G, 2%O, 83%W, 10%M)

CHLOR: 62K  
IFP: 41-172#  
FFP: 178-294#  
SIP: 594-577#  
BHT: 108'

3333.jpg

3353.jpg

3367.jpg

3376.jpg

3388.jpg

DST #2 LKC G 3383' - 3415' 30-60-45-90

125' GW w/ OIL SCUM (25%G, 75% W)

IFP: 19-50#  
FFP: 51-80#  
SIP: 610-609#  
CHLOR: 78K

DST #3 LKC H-J 3430' - 3482' 30-60-30-60

440' TOTAL FLUID 950' GIP

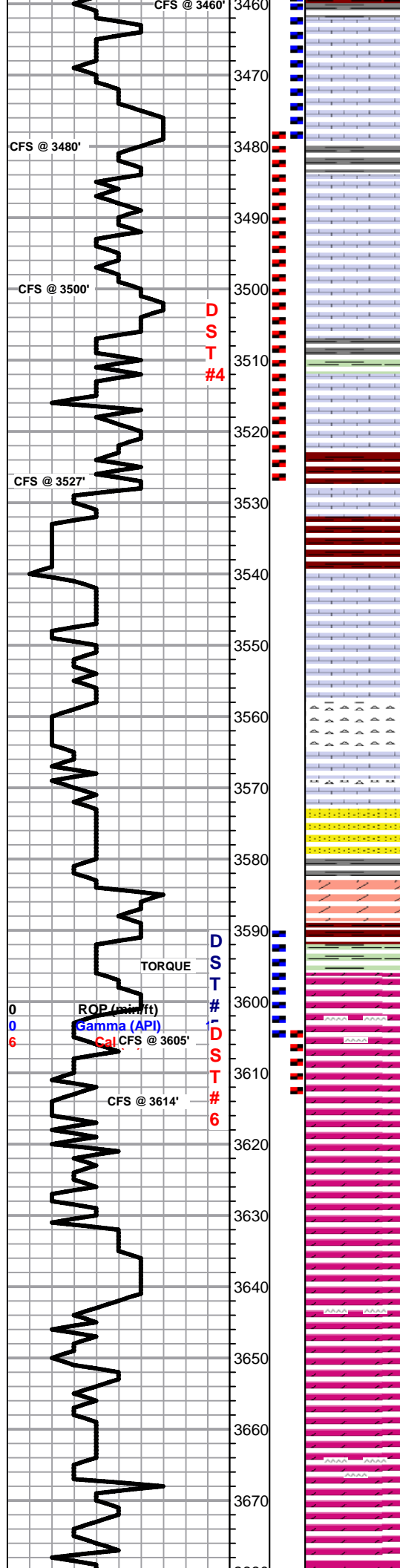
320' GO (100%)  
60' FROTHY OIL (50%G, 50%O)  
60' GMO (20%G, 50%O, 30%M)

Gr: 38

IFP: 70-138#  
FFP: 146-192#  
SIP: 536-491#

3454.jpg





Lm- Cream Off White, FXLN, oolitic/oomoldic, sctrd vuggy & XLN inter fsl porosity, GD DRK STN-SAT STN, SHW GSY OIL, FR ODR

3468.jpg

Lm- Off White, VF-FXLN, dense, well cemented, mostly tight w/ sctrd micro XLN & XLN porosity, vry clean & barren

Sh- Gray, thin waxy slivers

Lm- White, FXLN, well dev. w/ vry fn ppt & mirco XLN-XLN porosity throughout, SCTRD LT STN, NFO, FR ODOR

3943.jpg

Lm- White, VF-FXLN, tight w/ sctrd micro XLN porosity, vry clean & barren

DST #4 LKC K-L  
3478' - 3527'  
30-60-30-60

10' OSM

IFP: 34-39#  
FFP: 44-46#  
SIP: 608-532#

3514.jpg

Sh- Gray Green, dense & semi-waxy

Lm- White, FXLN, oolitic, dense XLN & fn ppt inter oolite porosity, SCTRD LT STN, NSFO, FR ODR (POSSIBLE CARRYOVER FROM ABOVE)

Lm- Off White Tan, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, barren

**BKC 3523' (-1506) E-LOG 3516' (-1499)** Sh- Gray Maroon, some argillaceous clumps, dense & semi-waxy, gritty & earthy

Lm- Cream Tan, FXLN, well cemented w/ dense fractured XLN porosity, clean & barren

Chert- White Salmon Tan, mostly white fresh bedded, massive, some w/ sctrd micro XLN porosity, SCTRD DRK STN, FEW W/ DEAD OIL STN, SOME FREE OIL SHW, NO ODR, few pcs of detrital chert A/A

3560.jpg

Sand- Clear Frosted, Fn Grn, med to light cementation, (dolomite appearance) NO HCL EFF., sub-angular, immature, mod. sorting & consolidation, consistent intergranular porosity, MOST W/ SAT BLK STN, SHW FRO, WK ODR

3573.jpg

Dol- Frosted Clear, sandy/shaley, reworked, loosley to well cemented, semi-sucrosic, consistent XLN porosity throughout, MIX OF BLK DO & DRK STN, SOME W/ SHW FRO, NO ODR

3587.jpg

Sh- Mint Green Maroon, dense & waxy, some w/ fn grn qtz inclusions gritty & earthy, some argillaceous clumps

**ARBUCKLE 3595' (-1578) E-LOG 3295' (-1581)** Dol- Cream Tan, FXLN, dense, well cemented, consistent fn XLN porosity throughout, sucrosic, SAT DRK STN, GD SHW FO, FO ON TOP OF WET CUP, FR ODR, few pcs of sl oolitic dolomite w/ sctrd inter fsl porosity, clear replacement cementation, LT SCTRD STN, NSFO, ODR A/A

3603'.jpg

3605.jpg

3605 60.jpg

**3605' 40"-** Dol/Chert- mix of clear fresh bedded oolitic/oomoldic & fractured detrital chert, most barren, FEW PCS W/ SCTRD LT STN, NO SFO, WK ODR & Dol- Tan, VFXLN, loosely cemented, semi-sucrosic, consistent inter XLN porosity, SCTRD LT STN, NSFO, WK ODR, LT YLW FLOR.

3614.jpg

DST 5.jpg

**60"-** Dol- White/Mint Green, detrital mix of sandy/cherty dolomite w/ pebble & qtz. inclusions, sucrosic, loosely cemented, SCTRD BLK DO STN, NSFO, NO ODR

DST #5  
ARBUCKLE  
3590' - 3605'  
30-60-30-60  
(REVERSED OUT)

**3614'-** Dol- Tan, F-MedXLN, massive, well dev. w/ consistent ppt porosity mostly throughout, semi-sucrosic, SAT DRK STN, FLOATING FREE OIL, FR ODR

(CHARTS BELOW)

Dol- Cream Tan, FXLN, dense, well cemented, consistent micro XLN porosity, barren

2590' TOTAL  
FLUID  
2470' GO  
(65%G, 35%O)  
Gr: 29 deg.  
120'OSWM  
(40%W, 60%M)

Dol/Chert- Buff Gray, FXLN, loosely cemeneted w/ consistent XLN porosity throughout, SCTRD DRK STN, NSFO, FR ODR Chert- White, fresh bedded vitreous, cryptoXLN, soft white chalk (permeability barrier???)

Dol- Lt Pink/Salmon Lt Ylw, FXLN, well cemented cherty dolo w/ consistent micro XLN porosity, mostly barren, few pcs w/ BLK DEAD OIL ST, NSFO, ODR (carryover?)

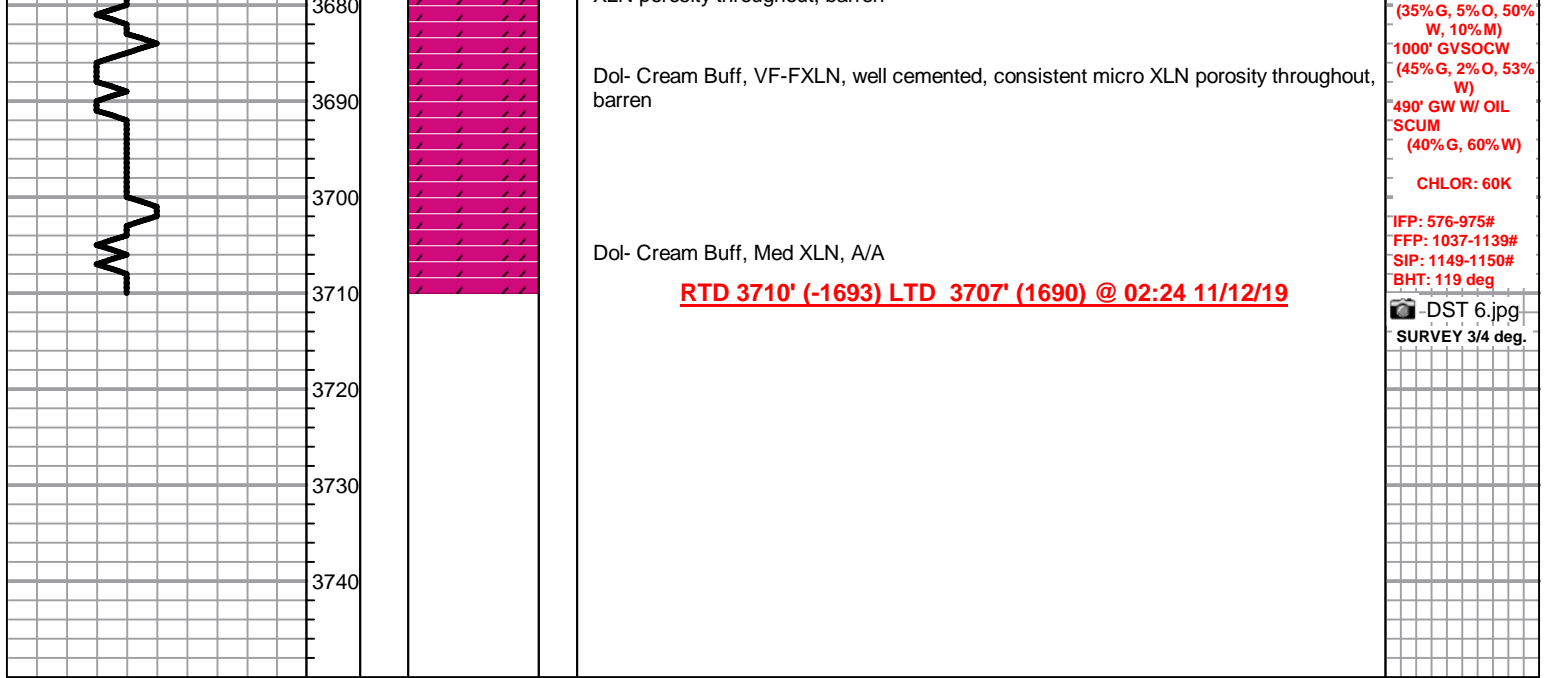
IFP: 294-787#  
FFP: 795-1024#  
SIP: 1136-1134#

Dol- Cream Off White, A/A, few pcs of massive, rhombic w/ ppt porosity throughout, all barren

DST #6  
ARBUCKLE  
3605' - 3614'  
15-60-15-60

Dol- Cream Off White, Med-Crs XLN, well dev. w/ defined sucrosic rhombs, ppt inter XLN porositv throughout. barren

(CHARTS BELOW)  
2390' TOTAL  
FLUID  
900' GSOCMW



3333.jpg

A004 1280x1024 2019/11/08 03:13:26 Unit: mm Magnification: 77.5 x 1



3333'





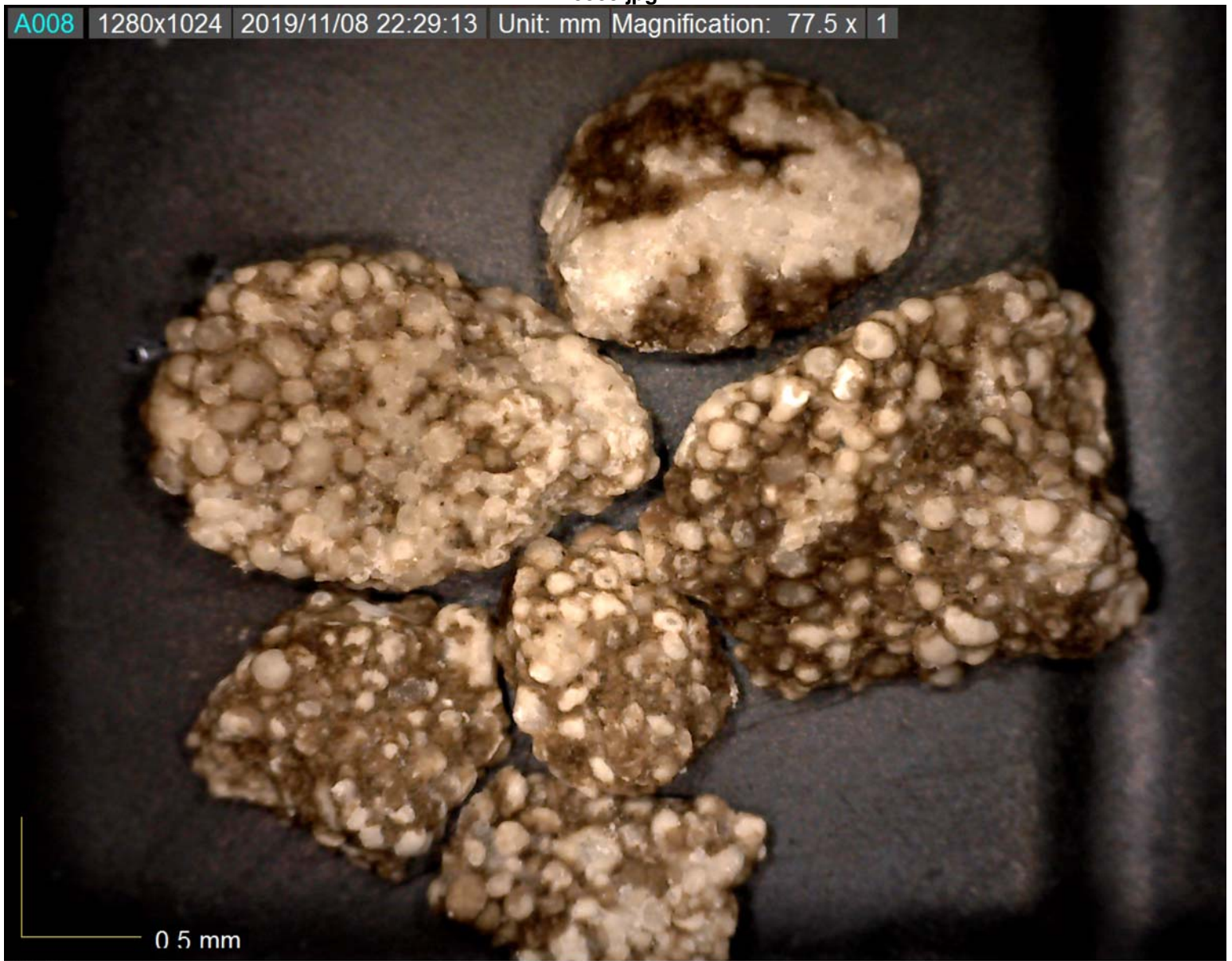
3353'



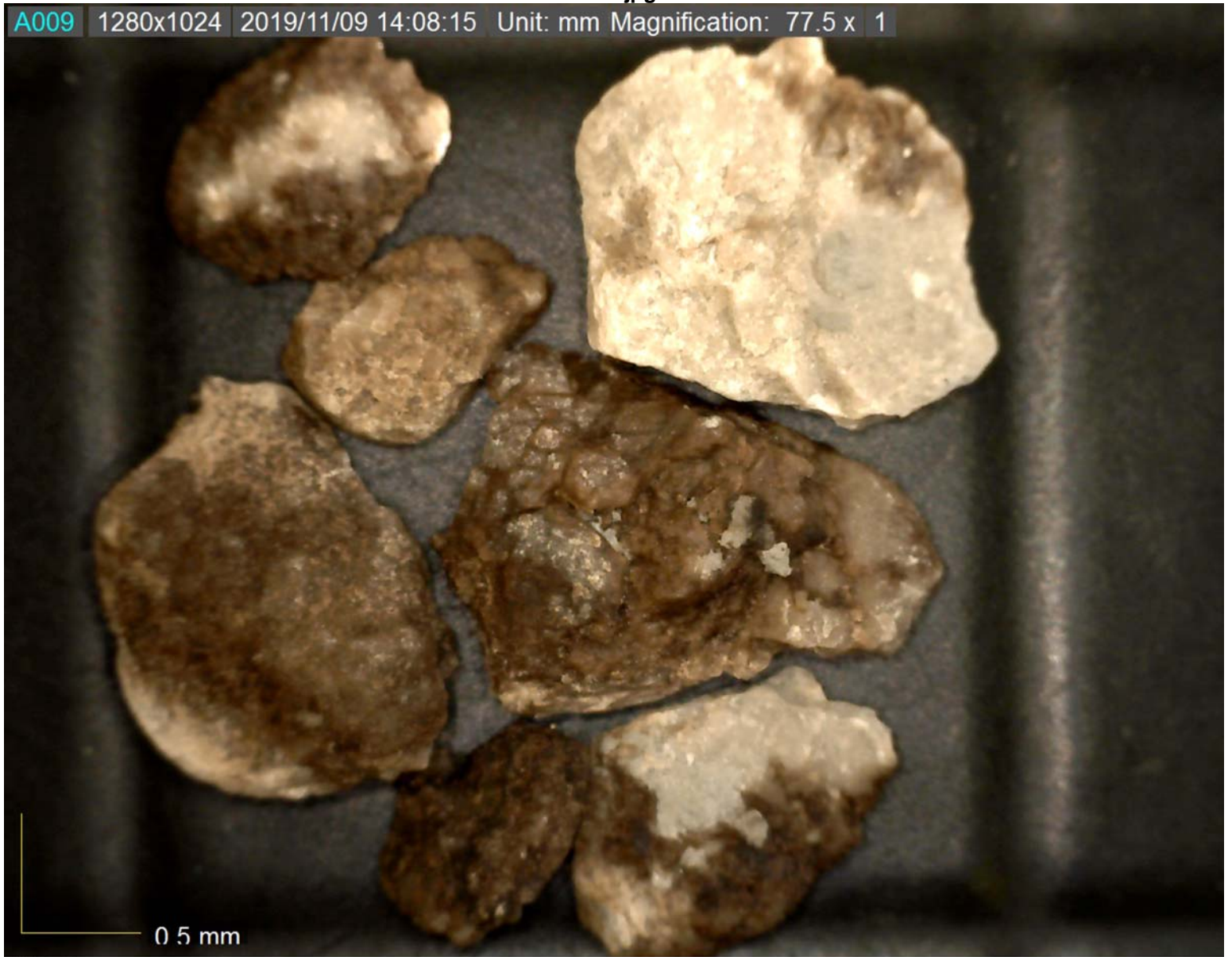




3376'









3468'







3524'





0.5 mm

3560'



3573'



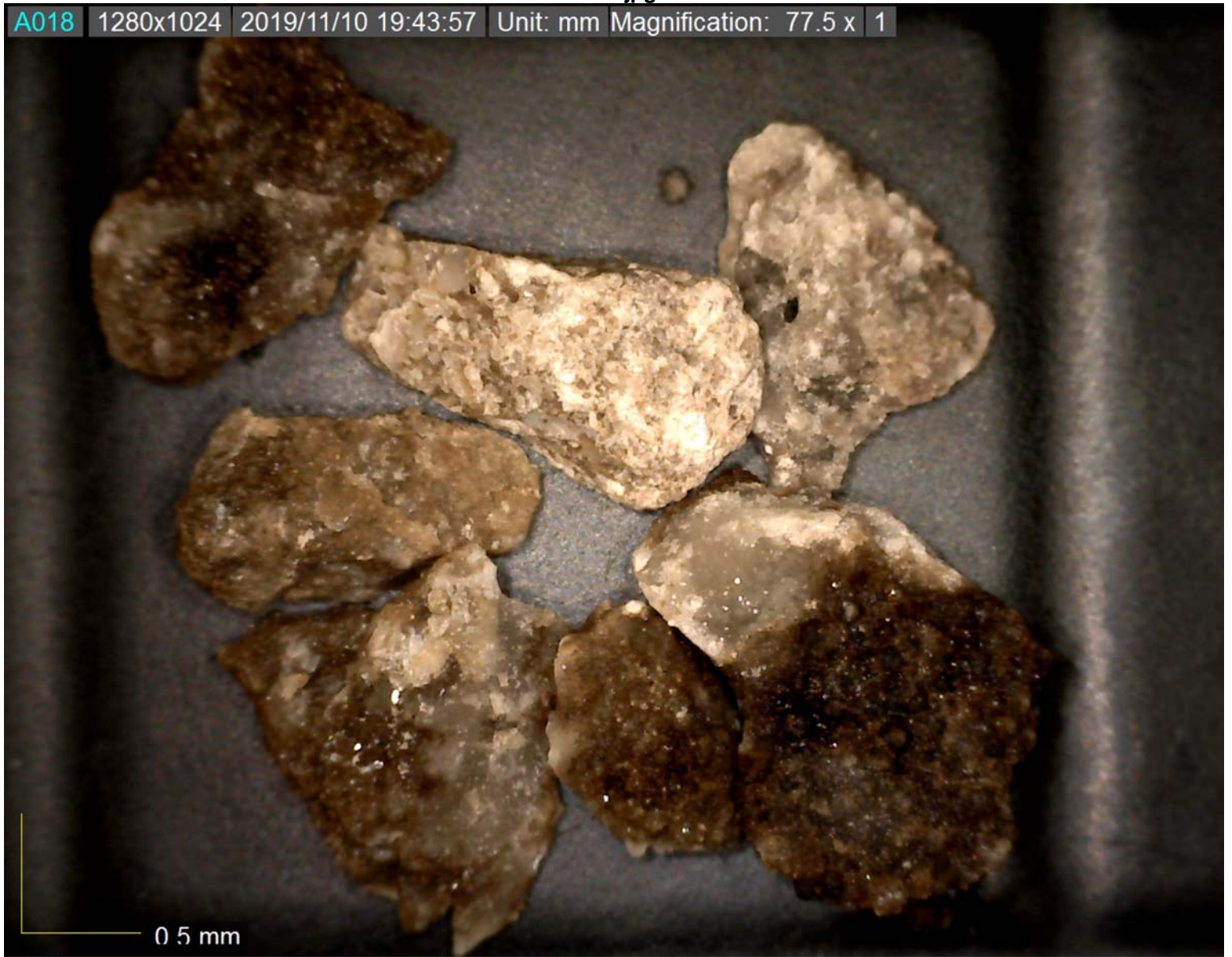


3587'



3603'





3605'



3605'

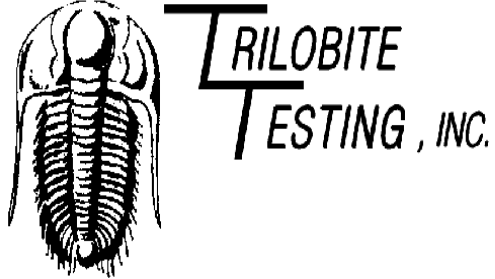




3614'







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

#### **36-11s-20w Ellis,KS**

Start Date: 2019.11.08 @ 11:00:00

End Date: 2019.11.08 @ 18:21:02

Job Ticket #: 66359                      DST #: 1

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

Printed: 2019.11.12 @ 13:34:48



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
 Job Ticket: 66359 **DST#: 1**  
 Test Start: 2019.11.08 @ 11:00:00

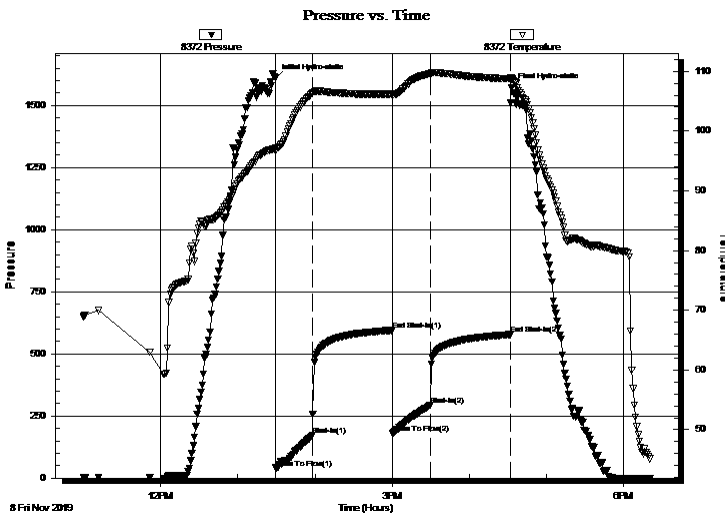
## GENERAL INFORMATION:

Formation: **LKC 'B-F'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:29:17  
 Time Test Ended: 18:21:02  
 Interval: **3310.00 ft (KB) To 3380.00 ft (KB) (TVD)**  
 Total Depth: 3380.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Poor  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Spencer J Staab  
 Unit No: 84  
 Reference Elevations: 2017.00 ft (KB)  
 2012.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372** **Inside**  
 Press@RunDepth: 294.20 psig @ 3314.00 ft (KB) Capacity: psig  
 Start Date: 2019.11.08 End Date: 2019.11.08 Last Calib.: 2019.11.08  
 Start Time: 11:00:01 End Time: 18:21:02 Time On Btm: 2019.11.08 @ 13:29:02  
 Time Off Btm: 2019.11.08 @ 16:33:02

**TEST COMMENT:** 30-IF-BOB 5 mins; Built to 28"  
 60-ISI-No Return  
 30-FF-BOB 6 mins; Built to 29"  
 60-FSI-No Return

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1609.63         | 97.11        | Initial Hydro-static |
| 1           | 41.20           | 96.61        | Open To Flow (1)     |
| 29          | 172.23          | 106.36       | Shut-In(1)           |
| 91          | 594.76          | 106.16       | End Shut-In(1)       |
| 92          | 178.99          | 106.14       | Open To Flow (2)     |
| 121         | 294.20          | 109.65       | Shut-In(2)           |
| 183         | 577.85          | 108.74       | End Shut-In(2)       |
| 185         | 1570.28         | 108.67       | Final Hydro-static   |

## Recovery

| Length (ft) | Description                | Volume (bbl) |
|-------------|----------------------------|--------------|
| 240.00      | GV/SOCMW 5%G 2%O 10%M 83%W | 3.12         |
| 400.00      | GSOCMW 10%G 10%O 30%M 50%W | 5.67         |
| 10.00       | GMCWO 5%G 30%M 30%W 35%O   | 0.14         |
|             |                            |              |
|             |                            |              |

## 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 STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66359      **DST#: 1**  
Test Start: 2019.11.08 @ 11:00:00

**Tool Information**

|                           |                    |                       |                            |                                    |
|---------------------------|--------------------|-----------------------|----------------------------|------------------------------------|
| Drill Pipe:               | Length: 3260.00 ft | Diameter: 3.82 inches | Volume: 46.21 bbl          | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: ft         | Diameter: 2.75 inches | Volume: - bbl              | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl           | Weight to Pull Loose: 60000.00 lb  |
|                           |                    |                       | <u>Total Volume: - bbl</u> | Tool Chased ft                     |
| Drill Pipe Above KB:      | 9.00 ft            |                       |                            | String Weight: Initial 45000.00 lb |
| Depth to Top Packer:      | 3310.00 ft         |                       |                            | Final 48000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                            |                                    |
| Interval between Packers: | 70.00 ft           |                       |                            |                                    |
| Tool Length:              | 99.00 ft           |                       |                            |                                    |
| Number of Packers:        | 1                  | 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> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                 |       |      |        |         |                                    |
|-----------------|-------|------|--------|---------|------------------------------------|
| Change Over Sub | 1.00  |      |        | 3282.00 |                                    |
| Shut In Tool    | 5.00  |      |        | 3287.00 |                                    |
| Hydraulic tool  | 5.00  |      |        | 3292.00 |                                    |
| Jars            | 5.00  |      |        | 3297.00 |                                    |
| Safety Joint    | 3.00  |      |        | 3300.00 |                                    |
| Packer          | 5.00  |      |        | 3305.00 | 29.00      Bottom Of Top Packer    |
| Packer          | 5.00  |      |        | 3310.00 |                                    |
| Stubb           | 1.00  |      |        | 3311.00 |                                    |
| Perforations    | 2.00  |      |        | 3313.00 |                                    |
| Change Over Sub | 1.00  |      |        | 3314.00 |                                    |
| Recorder        | 0.00  | 6838 | Inside | 3314.00 |                                    |
| Recorder        | 0.00  | 8372 | Inside | 3314.00 |                                    |
| Drill Pipe      | 62.00 |      |        | 3376.00 |                                    |
| Change Over Sub | 1.00  |      |        | 3377.00 |                                    |
| Bullnose        | 3.00  |      |        | 3380.00 | 70.00      Bottom Packers & Anchor |

**Total Tool Length: 99.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66359      **DST#: 1**  
Test Start: 2019.11.08 @ 11:00:00

## 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: | 62000 ppm |
| Viscosity: 60.00 sec/qt          | Cushion Volume: bbl        |                 |           |
| Water Loss: 7.95 in <sup>3</sup> | Gas Cushion Type:          |                 |           |
| Resistivity: ohm.m               | Gas Cushion Pressure: psig |                 |           |
| Salinity: 3500.00 ppm            |                            |                 |           |
| Filter Cake: inches              |                            |                 |           |

## Recovery Information

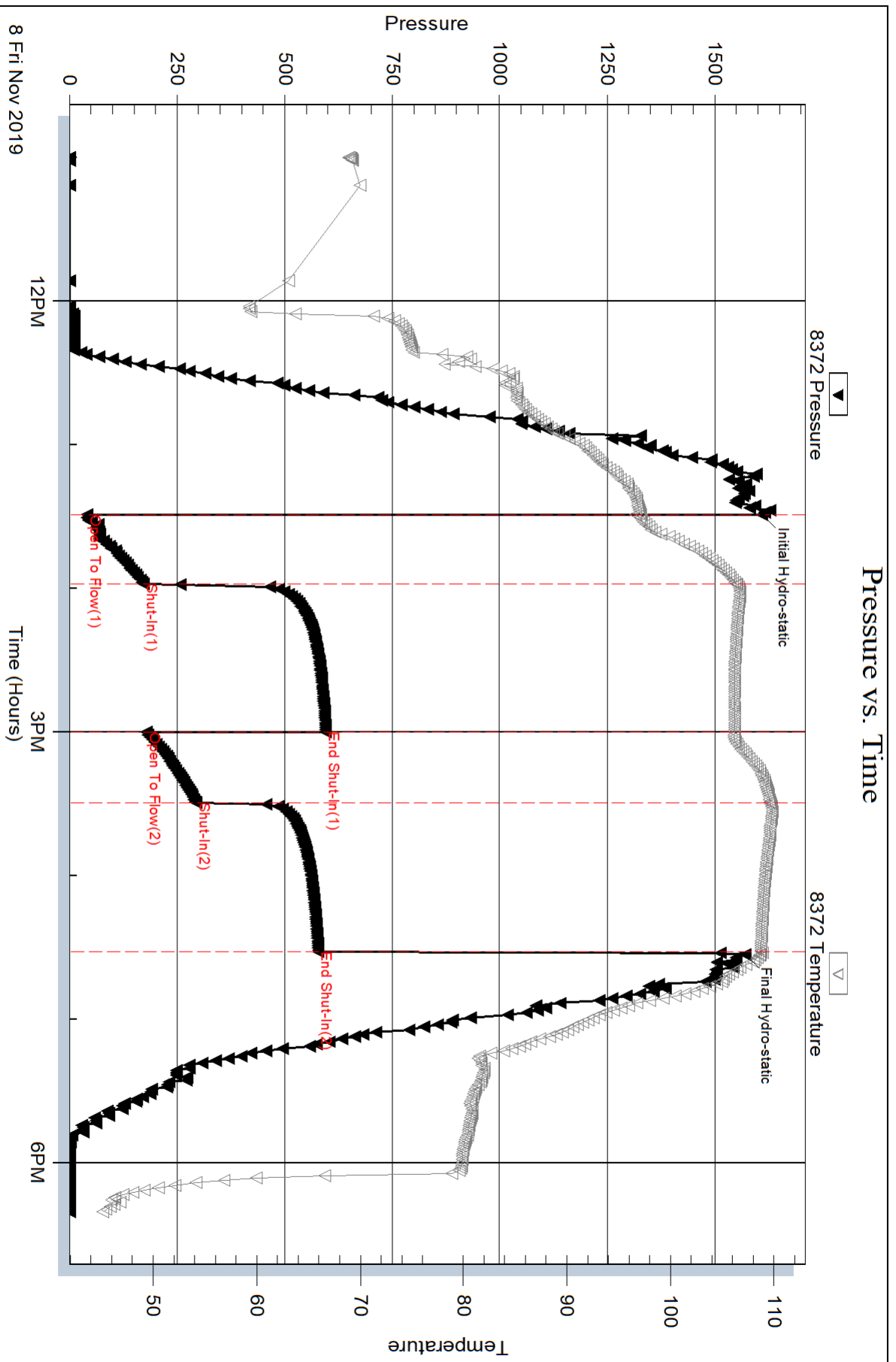
Recovery Table

| Length<br>ft | Description                | Volume<br>bbl |
|--------------|----------------------------|---------------|
| 240.00       | GVSOCMW 5%G 2%O 10%M 83%W  | 3.124         |
| 400.00       | GSOCMW 10%G 10%O 30%M 50%W | 5.670         |
| 10.00        | GMCWO 5%G 30%M 30%W 35%O   | 0.142         |

Total Length: 650.00 ft      Total Volume: 8.936 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments: 1#LCM  
RW=.176@50F



### Pressure vs. Time



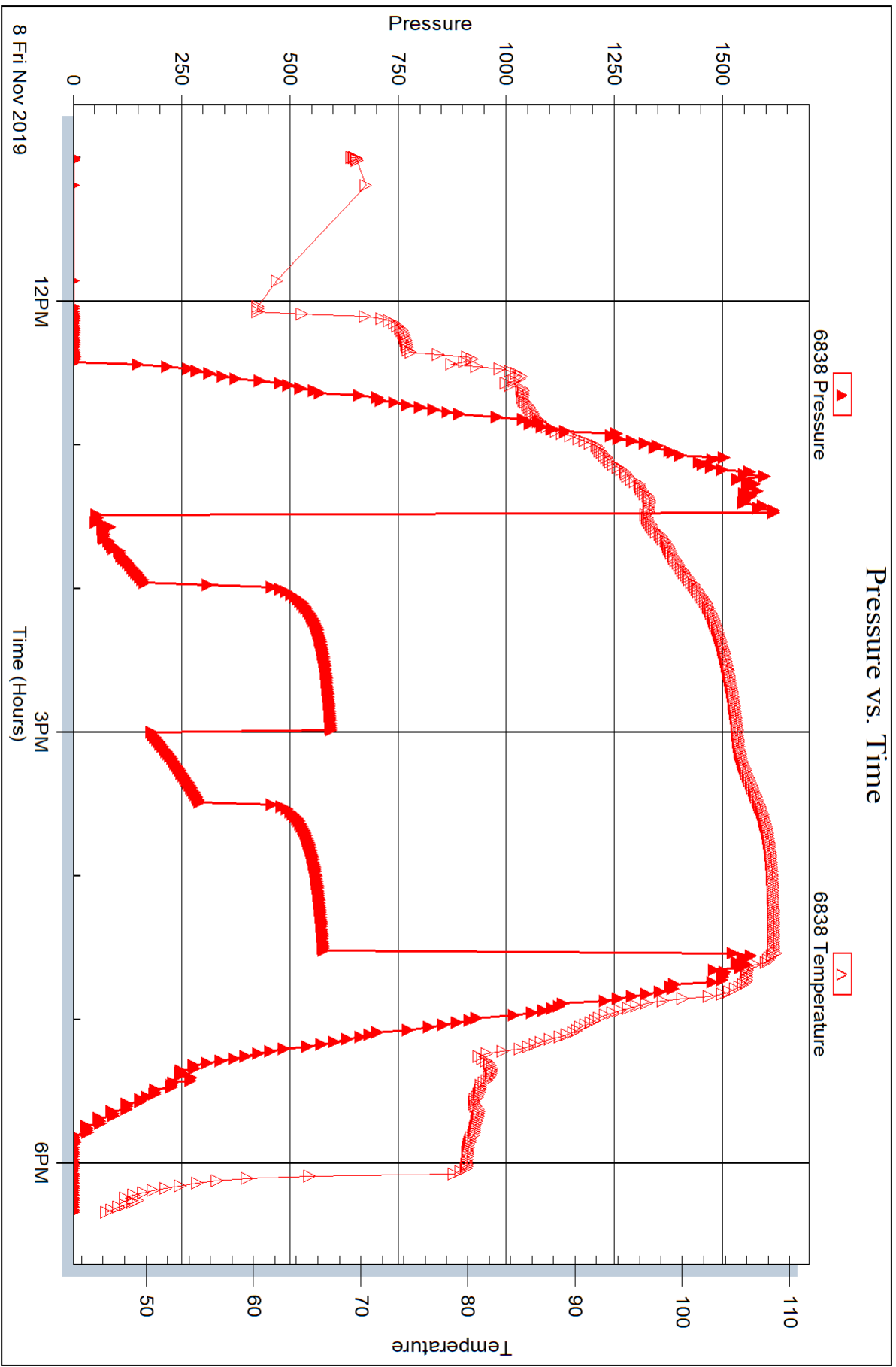
Serial #: 6838

Inside

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

#### **36-11s-20w Ellis,KS**

Start Date: 2019.11.09 @ 01:05:00

End Date: 2019.11.09 @ 07:40:02

Job Ticket #: 66360                      DST #: 2

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

Printed: 2019.11.12 @ 13:34:24



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Lawler

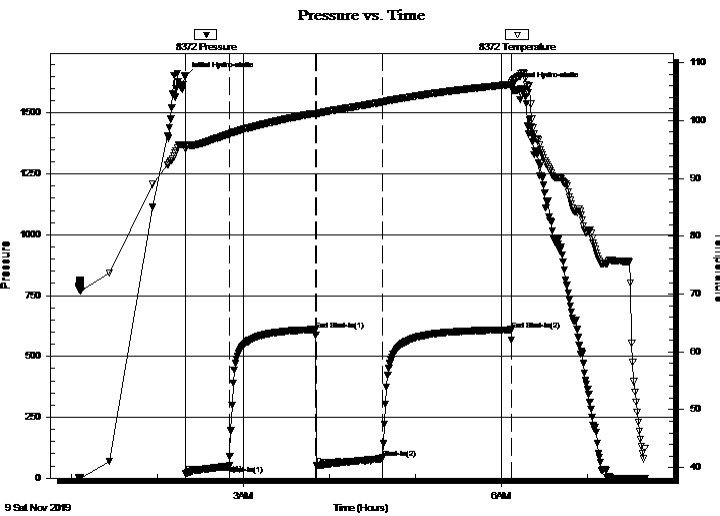
**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
 Job Ticket: 66360 **DST#: 2**  
 Test Start: 2019.11.09 @ 01:05:00

## GENERAL INFORMATION:

Formation: **LKC 'G'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:19:47  
 Time Test Ended: 07:40:02  
 Interval: **3383.00 ft (KB) To 3415.00 ft (KB) (TVD)**  
 Total Depth: 3415.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J Staab  
 Unit No: 84  
 Reference Elevations: 2017.00 ft (KB)  
 2012.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**  
 Press@RunDepth: 80.77 psig @ 3386.00 ft (KB) Capacity: psig  
 Start Date: 2019.11.09 End Date: 2019.11.09 Last Calib.: 2019.11.09  
 Start Time: 01:05:01 End Time: 07:40:02 Time On Btm: 2019.11.09 @ 02:19:32  
 Time Off Btm: 2019.11.09 @ 06:07:17

**TEST COMMENT:** 30-IF-Weak; Built to 4"  
 60-ISI-Weak Surface; Died 10 mins in  
 45-FF-Weak; Built to 3 1/2"  
 90-FSI-Weak Surface



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1650.96         | 95.81        | Initial Hydro-static |
| 1           | 19.72           | 95.13        | Open To Flow (1)     |
| 31          | 50.97           | 97.65        | Shut-In(1)           |
| 91          | 610.10          | 101.23       | End Shut-In(1)       |
| 92          | 51.48           | 101.21       | Open To Flow (2)     |
| 138         | 80.77           | 103.18       | Shut-In(2)           |
| 228         | 609.72          | 106.27       | End Shut-In(2)       |
| 228         | 1607.54         | 106.57       | Final Hydro-static   |

## Recovery

| Length (ft) | Description              | Volume (bbl) |
|-------------|--------------------------|--------------|
| 125.00      | GW w /scum oil 25%G 75%W | 1.49         |
|             |                          |              |
|             |                          |              |
|             |                          |              |
|             |                          |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66360 **DST#: 2**  
Test Start: 2019.11.09 @ 01:05:00

## Tool Information

|                           |                    |                       |                            |                                    |
|---------------------------|--------------------|-----------------------|----------------------------|------------------------------------|
| Drill Pipe:               | Length: 3354.00 ft | Diameter: 3.82 inches | Volume: 47.54 bbl          | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: ft         | Diameter: 2.75 inches | Volume: - bbl              | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl           | Weight to Pull Loose: 48000.00 lb  |
|                           |                    |                       | <u>Total Volume: - bbl</u> | Tool Chased ft                     |
| Drill Pipe Above KB:      | 30.00 ft           |                       |                            | String Weight: Initial 45000.00 lb |
| Depth to Top Packer:      | 3383.00 ft         |                       |                            | Final 45000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                            |                                    |
| Interval between Packers: | 32.00 ft           |                       |                            |                                    |
| Tool Length:              | 61.00 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  |      |         | 3355.00 |                               |
| Shut In Tool    | 5.00  |      |         | 3360.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 3365.00 |                               |
| Jars            | 5.00  |      |         | 3370.00 |                               |
| Safety Joint    | 3.00  |      |         | 3373.00 |                               |
| Packer          | 5.00  |      |         | 3378.00 | 29.00 Bottom Of Top Packer    |
| Packer          | 5.00  |      |         | 3383.00 |                               |
| Stubb           | 1.00  |      |         | 3384.00 |                               |
| Perforations    | 2.00  |      |         | 3386.00 |                               |
| Recorder        | 0.00  | 6838 | Inside  | 3386.00 |                               |
| Recorder        | 0.00  | 8372 | Outside | 3386.00 |                               |
| Perforations    | 26.00 |      |         | 3412.00 |                               |
| Bullnose        | 3.00  |      |         | 3415.00 | 32.00 Bottom Packers & Anchor |

**Total Tool Length: 61.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66360      **DST#: 2**  
Test Start: 2019.11.09 @ 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: | 78000 ppm |
| Viscosity: 60.00 sec/qt          | Cushion Volume: bbl        |                 |           |
| Water Loss: 7.94 in <sup>3</sup> | Gas Cushion Type:          |                 |           |
| Resistivity: ohm.m               | Gas Cushion Pressure: psig |                 |           |
| Salinity: 3500.00 ppm            |                            |                 |           |
| Filter Cake: inches              |                            |                 |           |

### Recovery Information

Recovery Table

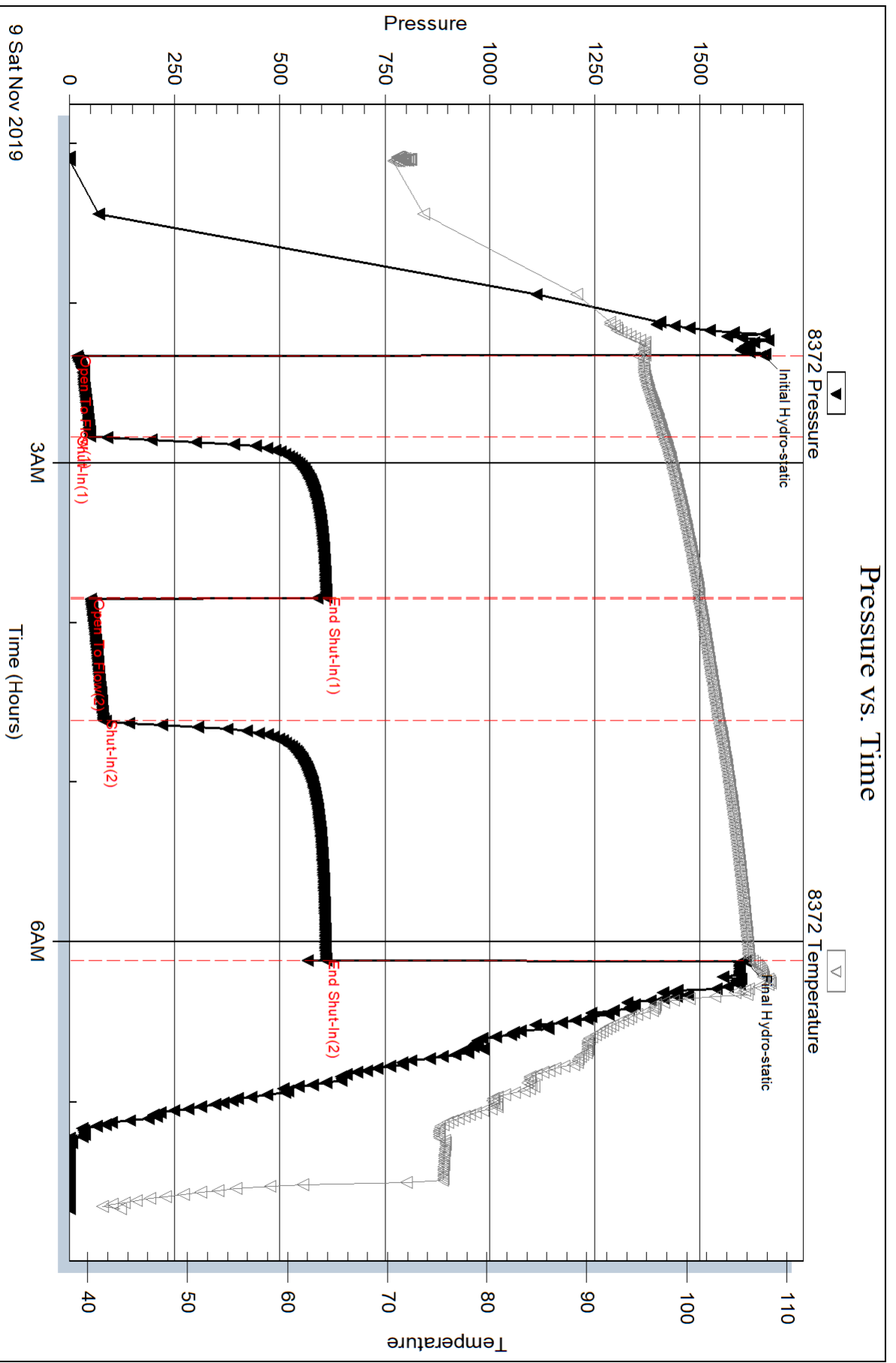
| Length<br>ft | Description             | Volume<br>bbl |
|--------------|-------------------------|---------------|
| 125.00       | GW w/scum oil 25%G 75%W | 1.494         |

Total Length: 125.00 ft      Total Volume: 1.494 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: 1#LCM  
RW=.243@29F





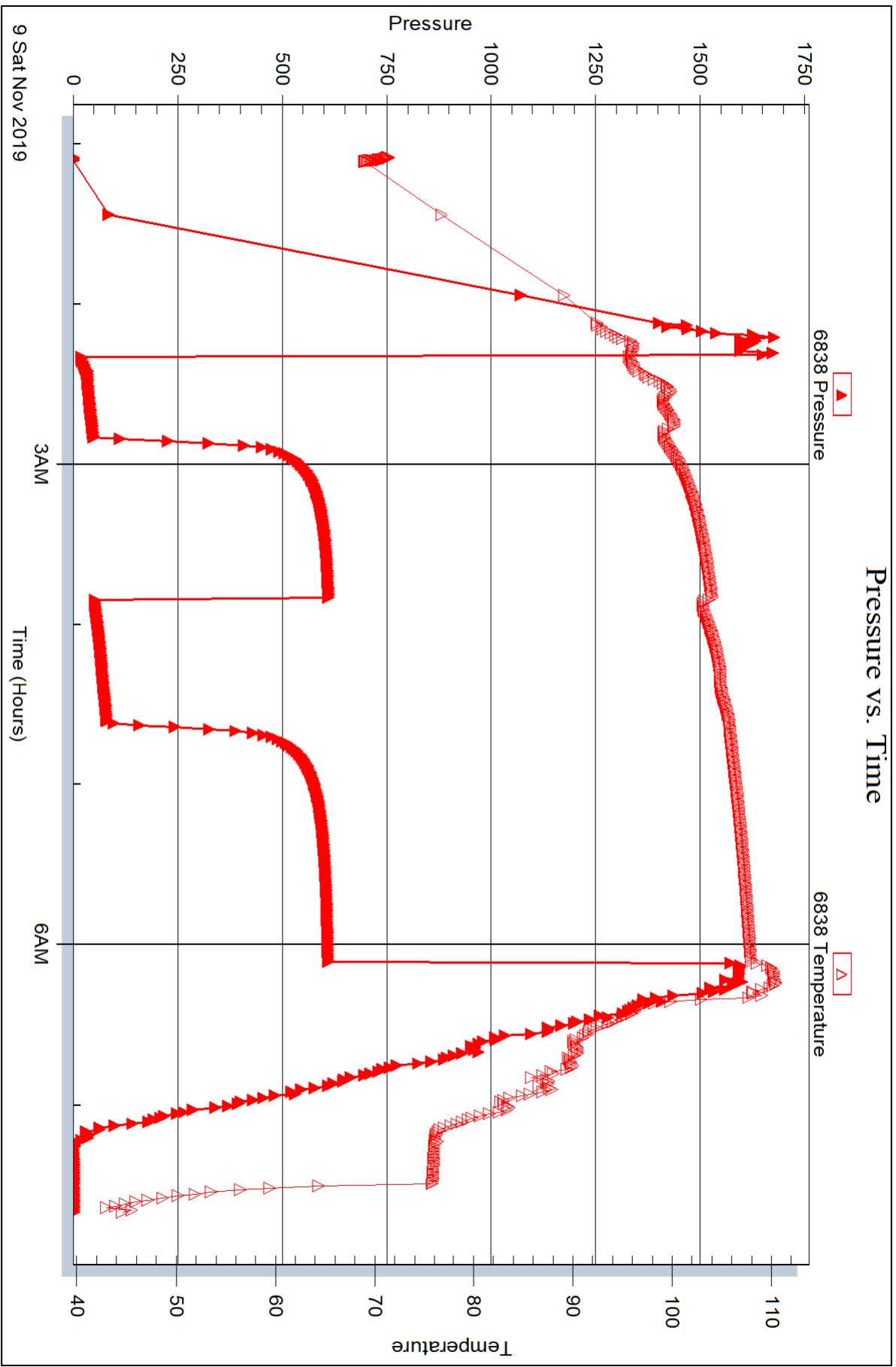
Serial #: 6838

Inside

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

### **36-11s-20w Ellis,KS**

Start Date: 2019.11.09 @ 16:52:00

End Date: 2019.11.09 @ 23:23:02

Job Ticket #: 66361                      DST #: 3

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

Printed: 2019.11.12 @ 13:33:58

Murfin Drilling Co  
36-11s-20w Ellis,KS  
Rusco B #2-36  
DST # 3  
LKC H - J  
2019.11.09







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66361      **DST#: 3**  
Test Start: 2019.11.09 @ 16:52:00

**Tool Information**

|                           |                    |                       |                   |                                    |
|---------------------------|--------------------|-----------------------|-------------------|------------------------------------|
| Drill Pipe:               | Length: 3384.00 ft | Diameter: 3.82 inches | Volume: 47.97 bbl | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: ft         | Diameter: 2.75 inches | Volume: - bbl     | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl  | Weight to Pull Loose: 58000.00 lb  |
|                           |                    | Total Volume: - bbl   |                   | Tool Chased ft                     |
| Drill Pipe Above KB:      | 13.00 ft           |                       |                   | String Weight: Initial 48000.00 lb |
| Depth to Top Packer:      | 3430.00 ft         |                       |                   | Final 50000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                   |                                    |
| Interval between Packers: | 52.00 ft           |                       |                   |                                    |
| Tool Length:              | 81.00 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  |              |        | 3402.00 |                                    |
| Shut In Tool              | 5.00  |              |        | 3407.00 |                                    |
| Hydraulic tool            | 5.00  |              |        | 3412.00 |                                    |
| Jars                      | 5.00  |              |        | 3417.00 |                                    |
| Safety Joint              | 3.00  |              |        | 3420.00 |                                    |
| Packer                    | 5.00  |              |        | 3425.00 | 29.00      Bottom Of Top Packer    |
| Packer                    | 5.00  |              |        | 3430.00 |                                    |
| Stubb                     | 1.00  |              |        | 3431.00 |                                    |
| Perforations              | 1.00  |              |        | 3432.00 |                                    |
| Change Over Sub           | 1.00  |              |        | 3433.00 |                                    |
| Recorder                  | 0.00  | 6838         | Inside | 3433.00 |                                    |
| Recorder                  | 0.00  | 8372         | Inside | 3433.00 |                                    |
| Drill Pipe                | 32.00 |              |        | 3465.00 |                                    |
| Change Over Sub           | 1.00  |              |        | 3466.00 |                                    |
| Perforations              | 13.00 |              |        | 3479.00 |                                    |
| Bullnose                  | 3.00  |              |        | 3482.00 | 52.00      Bottom Packers & Anchor |
| <b>Total Tool Length:</b> |       | <b>81.00</b> |        |         |                                    |



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co

**36-11s-20w Ellis,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Rusco B #2-36**

Job Ticket: 66361

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2019.11.09 @ 16:52:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.95 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description          | Volume<br>bbbl |
|--------------|----------------------|----------------|
| 60.00        | GMO 20%G 30%M 50%O   | 0.573          |
| 60.00        | Frothy Oil 30%G 70%O | 0.851          |
| 320.00       | GO 50%G 50%O         | 4.536          |
| 0.00         | 950 GIP              | 0.000          |

Total Length: 440.00 ft

Total Volume: 5.960 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

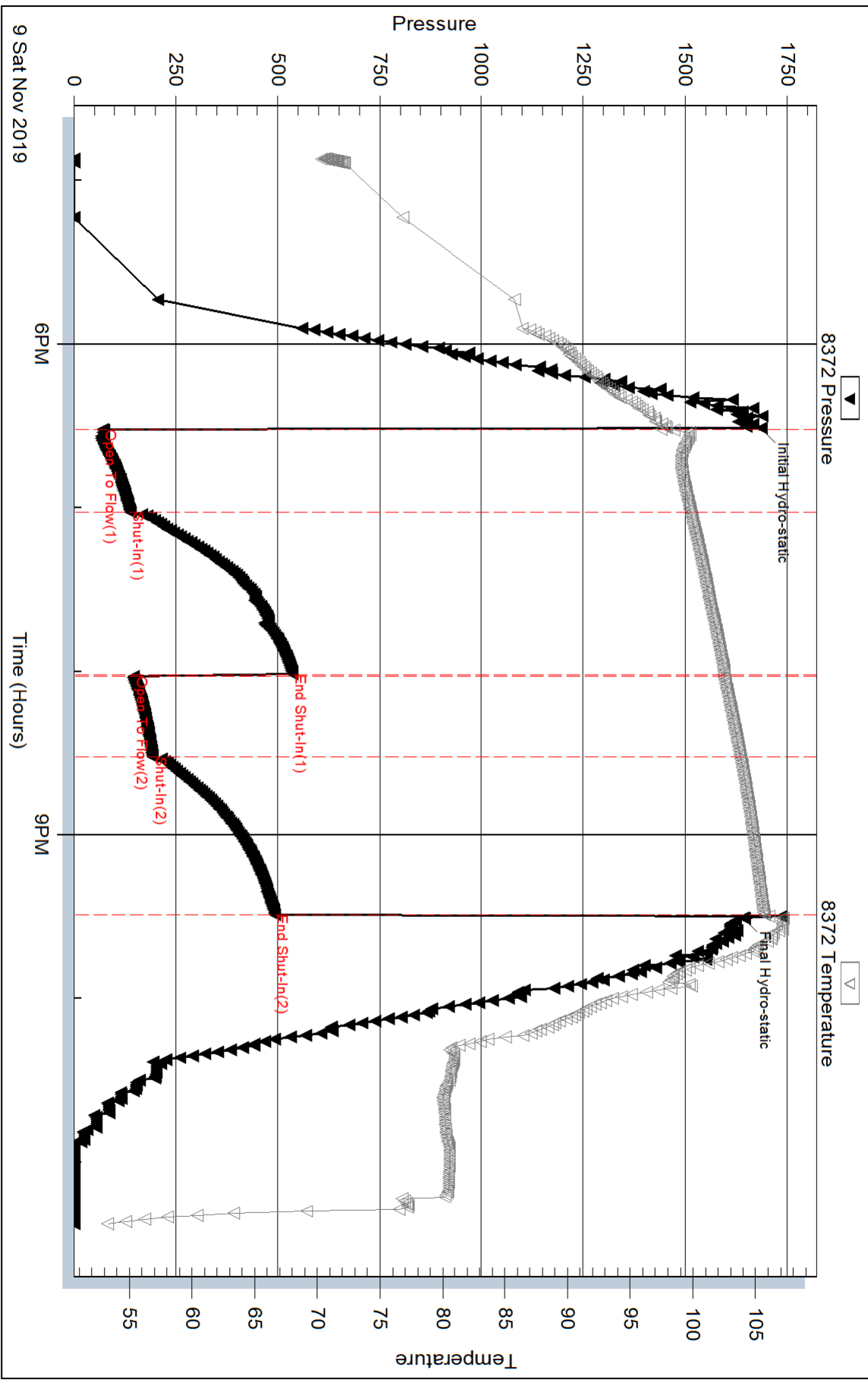
Serial #:

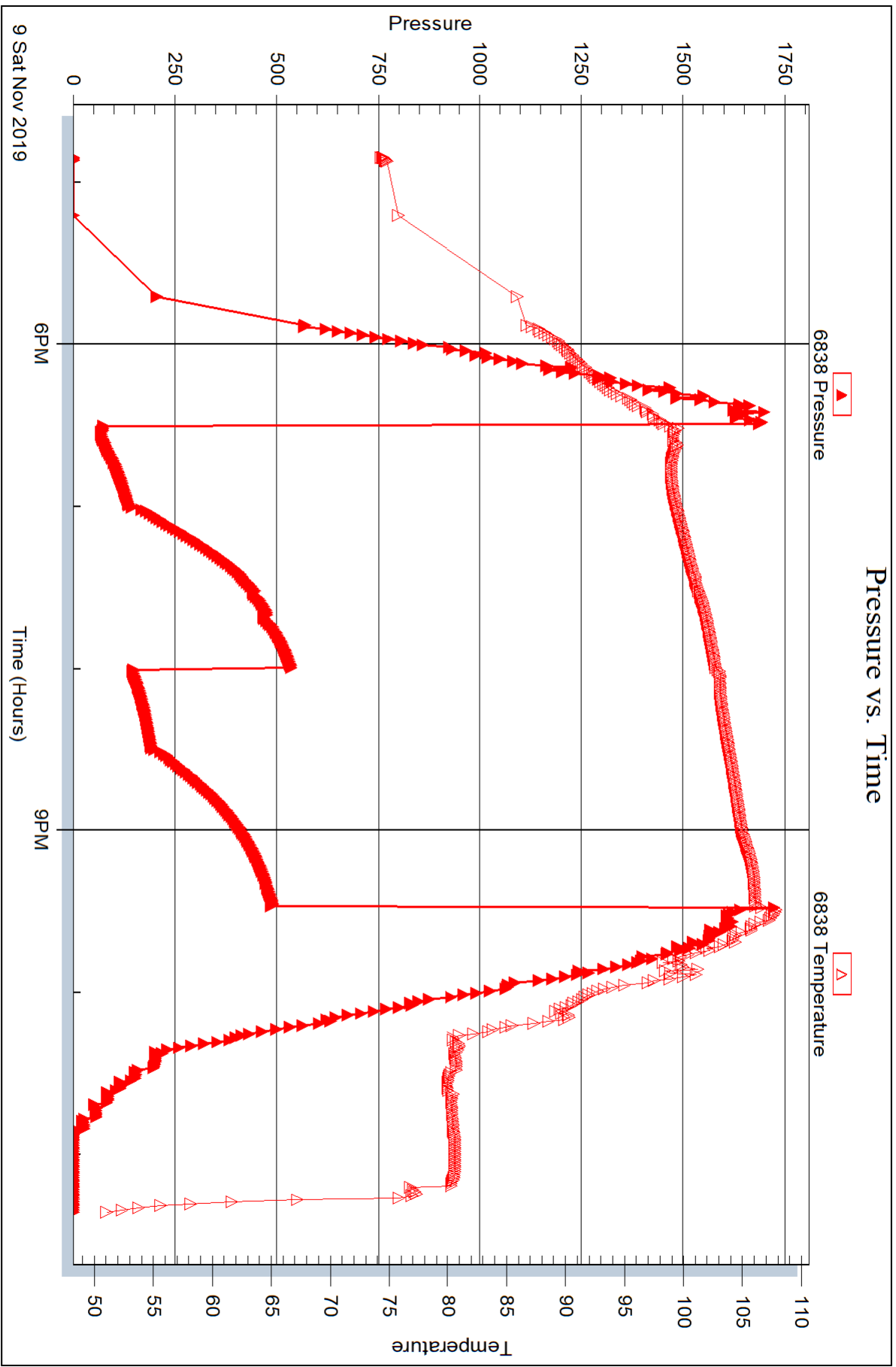
Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

### Pressure vs. Time









## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

#### **36-11s-20w Ellis,KS**

Start Date: 2019.11.10 @ 06:56:00

End Date: 2019.11.10 @ 13:21:02

Job Ticket #: 66362                      DST #: 4

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

Printed: 2019.11.12 @ 13:33:38



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
 Job Ticket: 66362      **DST#: 4**  
 Test Start: 2019.11.10 @ 06:56:00

## GENERAL INFORMATION:

Formation: **LKC K - L**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:56:17  
 Time Test Ended: 13:21:02  
 Interval: **3478.00 ft (KB) To 3527.00 ft (KB) (TVD)**  
 Total Depth: 3527.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J Staab  
 Unit No: 84  
 Reference Elevations: 2017.00 ft (KB)  
 2012.00 ft (CF)  
 KB to GR/CF: 5.00 ft

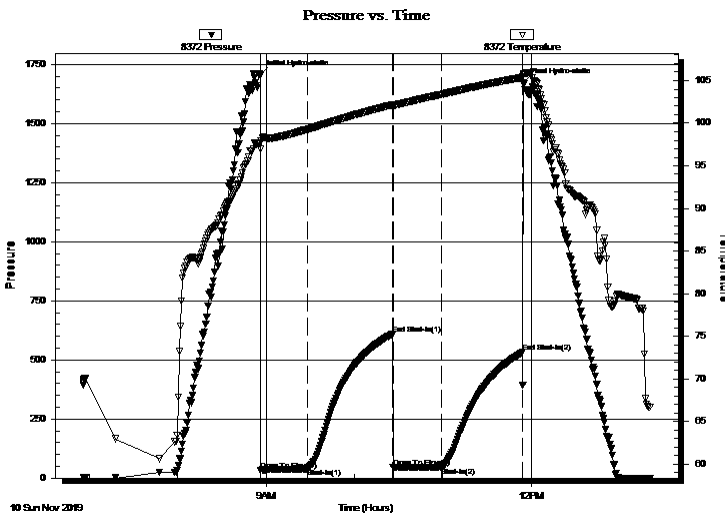
## Serial #: 8372

Inside

Press@RunDepth: 46.58 psig @ 3481.00 ft (KB)      Capacity:      psig  
 Start Date: 2019.11.10      End Date: 2019.11.10      Last Calib.: 2019.11.10  
 Start Time: 06:56:01      End Time: 13:21:02      Time On Btm: 2019.11.10 @ 08:56:02  
 Time Off Btm: 2019.11.10 @ 11:54:47

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

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1705.25         | 97.66        | Initial Hydro-static |
| 1           | 34.24           | 96.93        | Open To Flow (1)     |
| 32          | 39.74           | 99.26        | Shut-In(1)           |
| 90          | 608.10          | 102.11       | End Shut-In(1)       |
| 91          | 44.90           | 102.08       | Open To Flow (2)     |
| 124         | 46.58           | 103.39       | Shut-In(2)           |
| 178         | 532.22          | 105.40       | End Shut-In(2)       |
| 179         | 1670.66         | 105.68       | Final Hydro-static   |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 10.00       | OSM 100%M   | 0.05         |
|             |             |              |
|             |             |              |
|             |             |              |
|             |             |              |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66362      **DST#: 4**  
Test Start: 2019.11.10 @ 06:56:00

**Tool Information**

|                           |                       |                       |                      |                        |             |
|---------------------------|-----------------------|-----------------------|----------------------|------------------------|-------------|
| Drill Pipe:               | Length: 3449.00 ft    | Diameter: 3.82 inches | Volume: 48.89 bbl    | Tool Weight:           | 2500.00 lb  |
| Heavy Wt. Pipe:           | Length:            ft | Diameter: 2.75 inches | Volume: - bbl        | Weight set on Packer:  | 25000.00 lb |
| Drill Collar:             | Length: 30.00 ft      | Diameter: 2.25 inches | Volume: 0.15 bbl     | Weight to Pull Loose:  | 50000.00 lb |
|                           |                       |                       | <u>Total Volume:</u> | Tool Chased            | ft          |
|                           |                       |                       |                      | String Weight: Initial | 49000.00 lb |
| Drill Pipe Above KB:      | 30.00 ft              |                       |                      | Final                  | 49000.00 lb |
| Depth to Top Packer:      | 3478.00 ft            |                       |                      |                        |             |
| Depth to Bottom Packer:   | ft                    |                       |                      |                        |             |
| Interval between Packers: | 49.00 ft              |                       |                      |                        |             |
| Tool Length:              | 78.00 ft              |                       |                      |                        |             |
| Number of Packers:        | 1                     | 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> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                           |              |      |        |         |                                    |
|---------------------------|--------------|------|--------|---------|------------------------------------|
| Change Over Sub           | 1.00         |      |        | 3450.00 |                                    |
| Shut In Tool              | 5.00         |      |        | 3455.00 |                                    |
| Hydraulic tool            | 5.00         |      |        | 3460.00 |                                    |
| Jars                      | 5.00         |      |        | 3465.00 |                                    |
| Safety Joint              | 3.00         |      |        | 3468.00 |                                    |
| Packer                    | 5.00         |      |        | 3473.00 | 29.00      Bottom Of Top Packer    |
| Packer                    | 5.00         |      |        | 3478.00 |                                    |
| Stubb                     | 1.00         |      |        | 3479.00 |                                    |
| Perforations              | 1.00         |      |        | 3480.00 |                                    |
| Change Over Sub           | 1.00         |      |        | 3481.00 |                                    |
| Recorder                  | 0.00         | 6838 | Inside | 3481.00 |                                    |
| Recorder                  | 0.00         | 8372 | Inside | 3481.00 |                                    |
| Drill Pipe                | 32.00        |      |        | 3513.00 |                                    |
| Change Over Sub           | 1.00         |      |        | 3514.00 |                                    |
| Perforations              | 10.00        |      |        | 3524.00 |                                    |
| Bullnose                  | 3.00         |      |        | 3527.00 | 49.00      Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>78.00</b> |      |        |         |                                    |





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66362      **DST#: 4**  
Test Start: 2019.11.10 @ 06:56:00

## 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: | ppm     |
| Viscosity: 51.00 sec/qt          | Cushion Volume: bbl        |                 |         |
| Water Loss: 7.93 in <sup>3</sup> | Gas Cushion Type:          |                 |         |
| Resistivity: ohm.m               | Gas Cushion Pressure: psig |                 |         |
| Salinity: 4900.00 ppm            |                            |                 |         |
| Filter Cake: inches              |                            |                 |         |

## Recovery Information

Recovery Table

| Length<br>ft | Description | Volume<br>bbl |
|--------------|-------------|---------------|
| 10.00        | OSM 100%M   | 0.049         |

Total Length: 10.00 ft      Total Volume: 0.049 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments: 2#LCM

Serial #: 8372

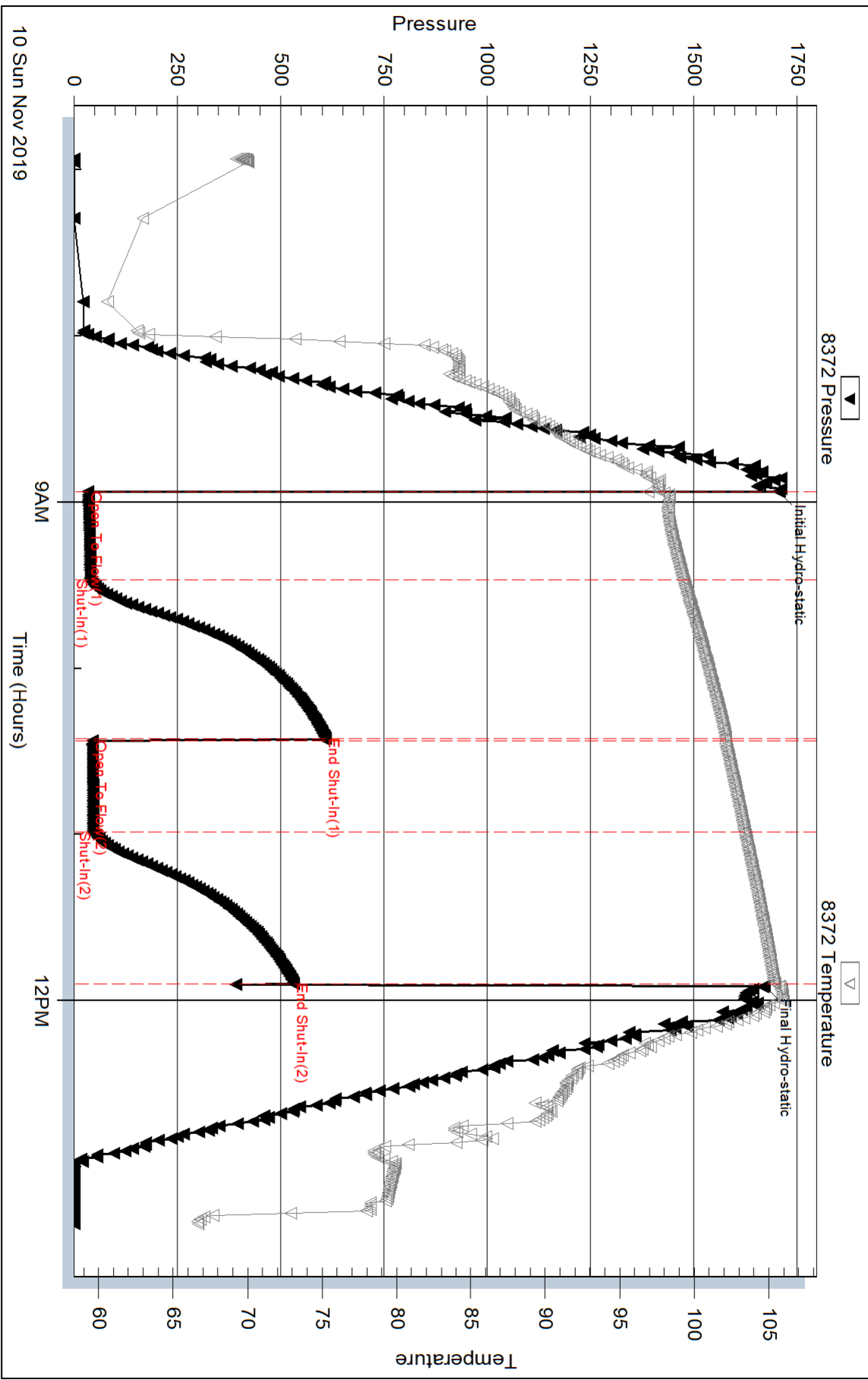
Inside

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 4

### Pressure vs. Time

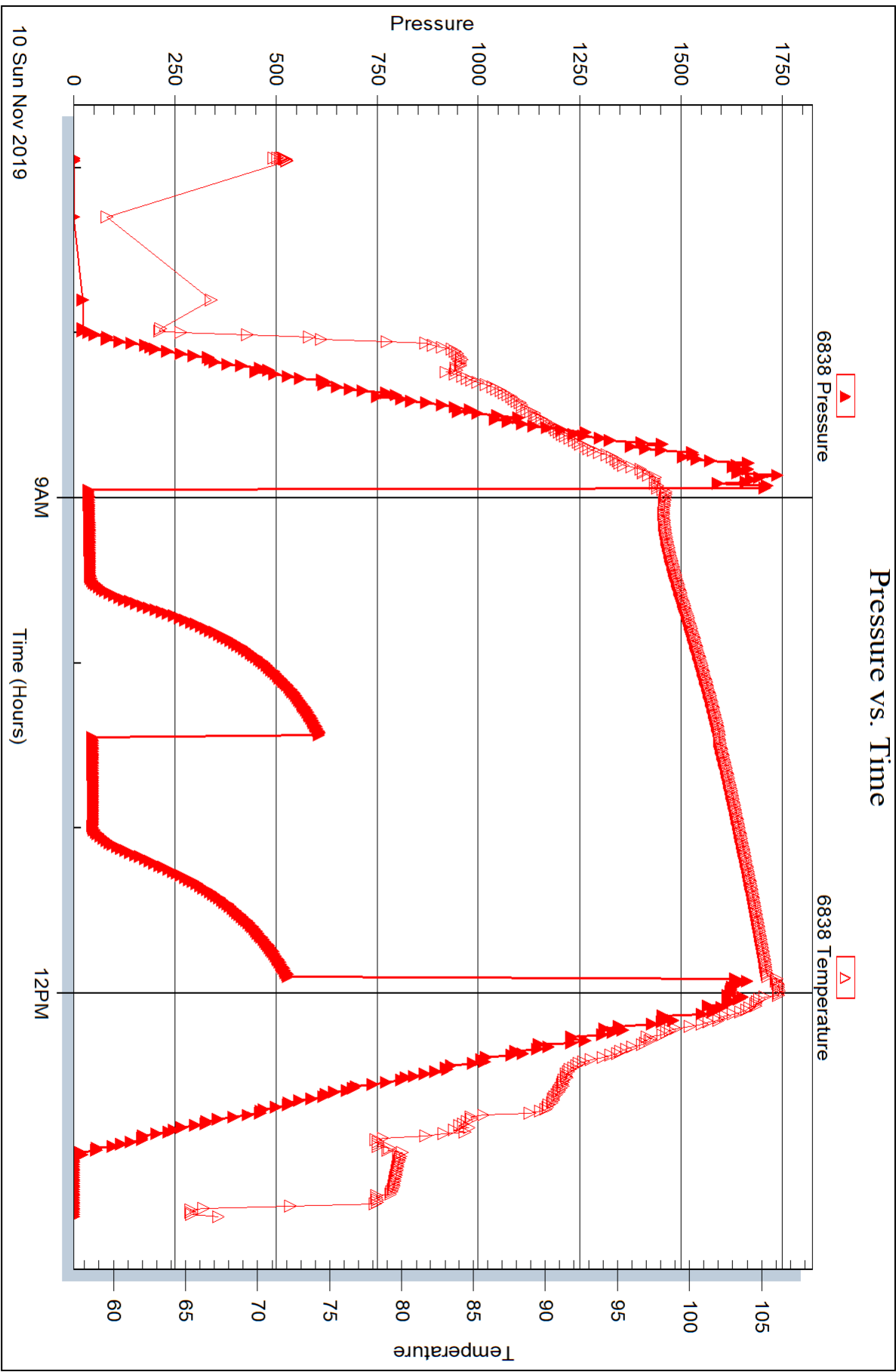


Serial #: 6838

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

#### **36-11s-20w Ellis,KS**

Start Date: 2019.11.10 @ 20:58:00

End Date: 2019.11.11 @ 07:52:47

Job Ticket #: 66363                      DST #: 5

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

Printed: 2019.11.12 @ 13:33:13





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Lawler

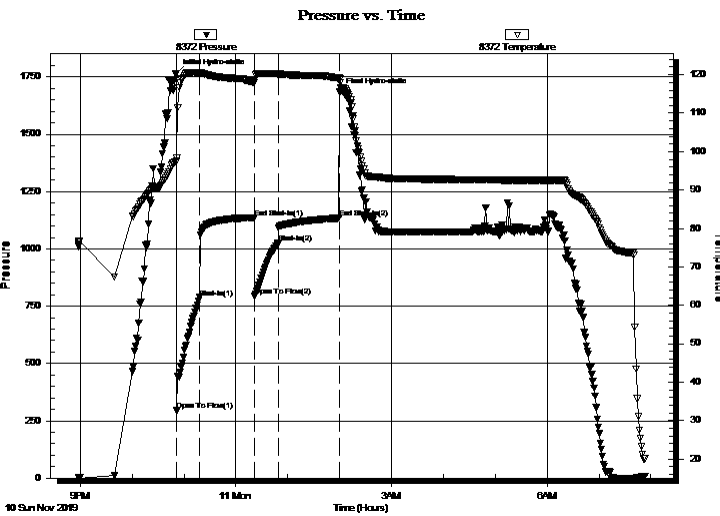
**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
 Job Ticket: 66363 **DST#: 5**  
 Test Start: 2019.11.10 @ 20:58:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:51:32  
 Time Test Ended: 07:52:47  
 Interval: **3590.00 ft (KB) To 3605.00 ft (KB) (TVD)**  
 Total Depth: 3605.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J Staab  
 Unit No: 84  
 Reference Elevations: 2017.00 ft (KB)  
 2012.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372 Outside**  
 Press@RunDepth: 1024.06 psig @ 3592.00 ft (KB) Capacity: psig  
 Start Date: 2019.11.10 End Date: 2019.11.11 Last Calib.: 2019.11.11  
 Start Time: 20:58:01 End Time: 07:52:47 Time On Btm: 2019.11.10 @ 22:51:02  
 Time Off Btm: 2019.11.11 @ 02:00:02

**TEST COMMENT:** 30-IF-BOB 1 min; Built to 335"  
 60-ISI-Weak Surface  
 30-FF-BOB 40 secs; Built to 198"  
 60-FSI-Weak Surface



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1764.14         | 97.52        | Initial Hydro-static |
| 1           | 294.22          | 98.45        | Open To Flow (1)     |
| 27          | 787.20          | 120.42       | Shut-In(1)           |
| 90          | 1136.22         | 118.02       | End Shut-In(1)       |
| 91          | 795.77          | 118.56       | Open To Flow (2)     |
| 118         | 1024.06         | 120.19       | Shut-In(2)           |
| 189         | 1134.46         | 119.15       | End Shut-In(2)       |
| 189         | 1683.23         | 119.09       | Final Hydro-static   |

## Recovery

| Length (ft) | Description    | Volume (bbl) |
|-------------|----------------|--------------|
| 120.00      | OSWM 40%W 60%M | 1.42         |
| 2470.00     | GO 65%G 35%O   | 35.01        |
|             |                |              |
|             |                |              |
|             |                |              |

\* 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 Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66363 **DST#: 5**  
Test Start: 2019.11.10 @ 20:58:00

## Tool Information

|                           |                    |                       |                            |                                    |
|---------------------------|--------------------|-----------------------|----------------------------|------------------------------------|
| Drill Pipe:               | Length: 3544.00 ft | Diameter: 3.82 inches | Volume: 50.24 bbl          | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: ft         | Diameter: 2.75 inches | Volume: - bbl              | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl           | Weight to Pull Loose: 54000.00 lb  |
|                           |                    |                       | <u>Total Volume: - bbl</u> | Tool Chased ft                     |
| Drill Pipe Above KB:      | 13.00 ft           |                       |                            | String Weight: Initial 46000.00 lb |
| Depth to Top Packer:      | 3590.00 ft         |                       |                            | Final 54000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                            |                                    |
| Interval between Packers: | 15.00 ft           |                       |                            |                                    |
| Tool Length:              | 44.00 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  |      |         | 3562.00 |                               |
| Shut In Tool    | 5.00  |      |         | 3567.00 |                               |
| Hydraulic tool  | 5.00  |      |         | 3572.00 |                               |
| Jars            | 5.00  |      |         | 3577.00 |                               |
| Safety Joint    | 3.00  |      |         | 3580.00 |                               |
| Packer          | 5.00  |      |         | 3585.00 | 29.00 Bottom Of Top Packer    |
| Packer          | 5.00  |      |         | 3590.00 |                               |
| Stubb           | 1.00  |      |         | 3591.00 |                               |
| Perforations    | 1.00  |      |         | 3592.00 |                               |
| Recorder        | 0.00  | 6838 | Inside  | 3592.00 |                               |
| Recorder        | 0.00  | 8372 | Outside | 3592.00 |                               |
| Perforations    | 10.00 |      |         | 3602.00 |                               |
| Bullnose        | 3.00  |      |         | 3605.00 | 15.00 Bottom Packers & Anchor |

**Total Tool Length: 44.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co

**36-11s-20w Ellis,KS**

250 N Water STE 300  
Wichita KS 67202+1216

**Rusco B #2-36**

Job Ticket: 66363

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2019.11.10 @ 20:58:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.95 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4900.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description    | Volume<br>bbl |
|--------------|----------------|---------------|
| 120.00       | OSWM 40%W 60%M | 1.423         |
| 2470.00      | GO 65%G 35%O   | 35.013        |

Total Length: 2590.00 ft

Total Volume: 36.436 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM



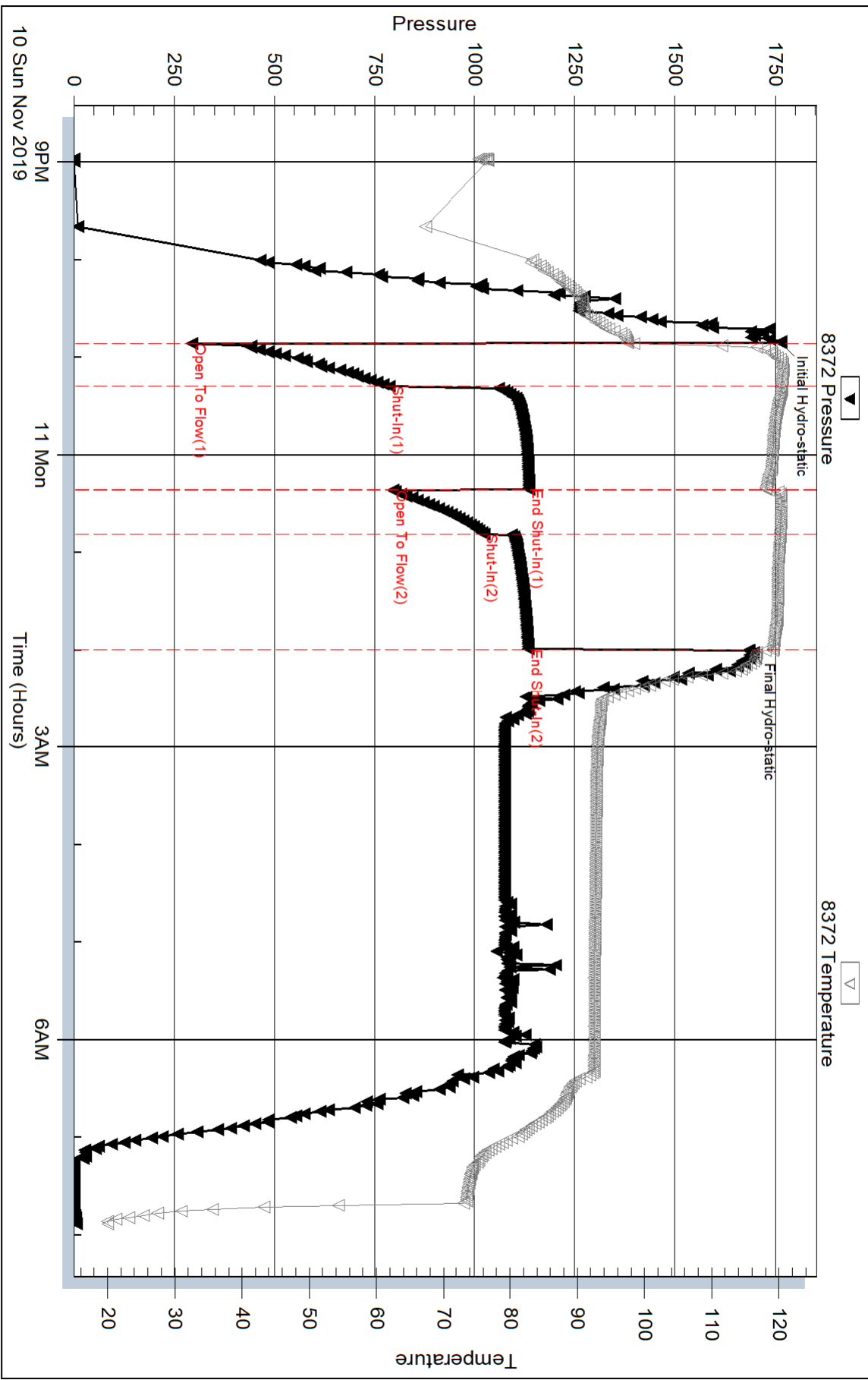
Serial #: 8372

Outside Murfin Drilling Co

Rusco B #2-36

DST Test Number: 5

### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 66363

Printed: 2019.11.12 @ 13:33:14

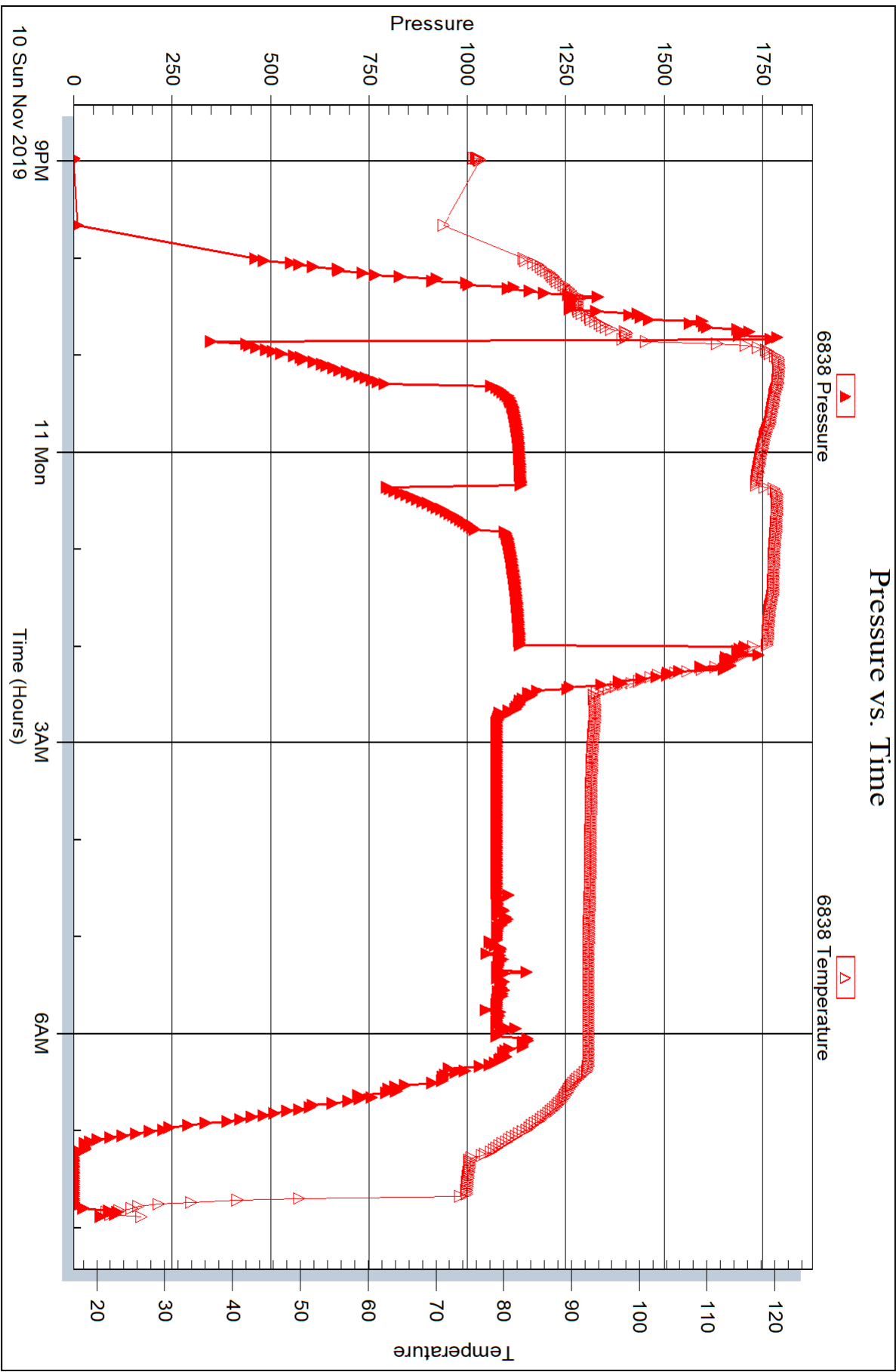
Serial #: 6838

Inside

Murfin Drilling Co

Rusco B#2-36

DST Test Number: 5





## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co**

250 N Water STE 300  
Wichita KS 67202+1216

ATTN: Jeff Lawler

### **Rusco B #2-36**

#### **36-11s-20w Ellis,KS**

Start Date: 2019.11.11 @ 13:05:00

End Date: 2019.11.11 @ 19:58:02

Job Ticket #: 66364                      DST #: 6

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

Printed: 2019.11.12 @ 13:32:49



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co  
 250 N Water STE 300  
 Wichita KS 67202+1216  
 ATTN: Jeff Lawler

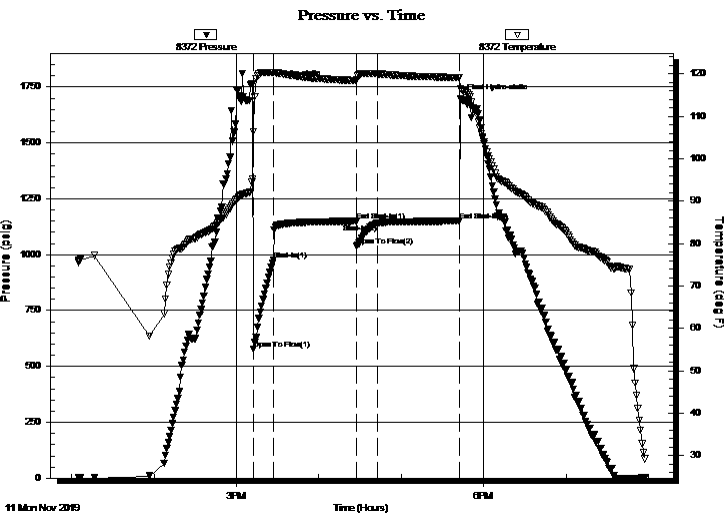
**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
 Job Ticket: 66364 **DST#: 6**  
 Test Start: 2019.11.11 @ 13:05:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:12:17  
 Time Test Ended: 19:58:02  
 Interval: **3605.00 ft (KB) To 3614.00 ft (KB) (TVD)**  
 Total Depth: 3614.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J Staab  
 Unit No: 84  
 Reference Elevations: 2017.00 ft (KB)  
 2012.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8372 Inside**  
 Press@RunDepth: 1139.63 psig @ 3606.00 ft (KB) Capacity: psig  
 Start Date: 2019.11.11 End Date: 2019.11.11 Last Calib.: 2019.11.11  
 Start Time: 13:05:01 End Time: 19:58:02 Time On Btm: 2019.11.11 @ 15:11:47  
 Time Off Btm: 2019.11.11 @ 17:43:17

**TEST COMMENT:** 15-IF-BOB 20 secs; Built to 386"  
 60-ISI-Weak; Built to 1/2"  
 15-FF-BOB instantaneously; Built to 160"; GTS immediately  
 60-FSI-Weak Surface



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1762.30         | 95.18        | Initial Hydro-static |
| 1           | 576.82          | 106.39       | Open To Flow (1)     |
| 16          | 975.58          | 120.25       | Shut-In(1)           |
| 76          | 1149.43         | 118.49       | End Shut-In(1)       |
| 76          | 1037.94         | 118.60       | Open To Flow (2)     |
| 91          | 1139.63         | 120.00       | Shut-In(2)           |
| 151         | 1150.57         | 119.12       | End Shut-In(2)       |
| 152         | 1696.45         | 116.54       | Final Hydro-static   |

## Recovery

| Length (ft) | Description               | Volume (bbl) |
|-------------|---------------------------|--------------|
| 490.00      | GW w /scum oil 40%G 60%W  | 6.67         |
| 1000.00     | GV SOCW 45%G 2%O 53%W     | 14.18        |
| 900.00      | GSOCMW 35%G 5%O 10%M 50%W | 12.76        |
| 0.00        | GTS                       | 0.00         |
|             |                           |              |
|             |                           |              |

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66364      **DST#: 6**  
Test Start: 2019.11.11 @ 13:05:00

**Tool Information**

|                           |                    |                       |                            |                                    |
|---------------------------|--------------------|-----------------------|----------------------------|------------------------------------|
| Drill Pipe:               | Length: 3576.00 ft | Diameter: 3.82 inches | Volume: 50.69 bbl          | Tool Weight: 2500.00 lb            |
| Heavy Wt. Pipe:           | Length: ft         | Diameter: 2.75 inches | Volume: - bbl              | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 30.00 ft   | Diameter: 2.25 inches | Volume: 0.15 bbl           | Weight to Pull Loose: 58000.00 lb  |
|                           |                    |                       | <u>Total Volume: - bbl</u> | Tool Chased ft                     |
| Drill Pipe Above KB:      | 30.00 ft           |                       |                            | String Weight: Initial 47000.00 lb |
| Depth to Top Packer:      | 3605.00 ft         |                       |                            | Final 57000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                            |                                    |
| Interval between Packers: | 9.00 ft            |                       |                            |                                    |
| Tool Length:              | 38.00 ft           |                       |                            |                                    |
| Number of Packers:        | 1                  | 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> |
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|
|-------------------------|--------------------|-------------------|-----------------|-------------------|-----------------------|

|                 |      |      |        |         |                              |
|-----------------|------|------|--------|---------|------------------------------|
| Change Over Sub | 1.00 |      |        | 3577.00 |                              |
| Shut In Tool    | 5.00 |      |        | 3582.00 |                              |
| Hydraulic tool  | 5.00 |      |        | 3587.00 |                              |
| Jars            | 5.00 |      |        | 3592.00 |                              |
| Safety Joint    | 3.00 |      |        | 3595.00 |                              |
| Packer          | 5.00 |      |        | 3600.00 | 29.00 Bottom Of Top Packer   |
| Packer          | 5.00 |      |        | 3605.00 |                              |
| Stubb           | 1.00 |      |        | 3606.00 |                              |
| Recorder        | 0.00 | 6838 | Inside | 3606.00 |                              |
| Recorder        | 0.00 | 8372 | Inside | 3606.00 |                              |
| Perforations    | 5.00 |      |        | 3611.00 |                              |
| Bullnose        | 3.00 |      |        | 3614.00 | 9.00 Bottom Packers & Anchor |

**Total Tool Length: 38.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co  
250 N Water STE 300  
Wichita KS 67202+1216  
ATTN: Jeff Lawler

**36-11s-20w Ellis,KS**  
**Rusco B #2-36**  
Job Ticket: 66364      **DST#: 6**  
Test Start: 2019.11.11 @ 13:05:00

## 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: | 60000 ppm |
| Viscosity: 58.00 sec/qt          | Cushion Volume: bbl        |                 |           |
| Water Loss: 7.18 in <sup>3</sup> | Gas Cushion Type:          |                 |           |
| Resistivity: ohm.m               | Gas Cushion Pressure: psig |                 |           |
| Salinity: 4500.00 ppm            |                            |                 |           |
| Filter Cake: inches              |                            |                 |           |

## Recovery Information

Recovery Table

| Length<br>ft | Description               | Volume<br>bbl |
|--------------|---------------------------|---------------|
| 490.00       | GW w /scum oil 40%G 60%W  | 6.668         |
| 1000.00      | GVSOCW 45%G 2%O 53%W      | 14.175        |
| 900.00       | GSOCMW 35%G 5%O 10%M 50%W | 12.758        |
| 0.00         | GTS                       | 0.000         |

Total Length: 2390.00 ft      Total Volume: 33.601 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: 3#LCM  
 RW=.454@19F

Serial #: 8372

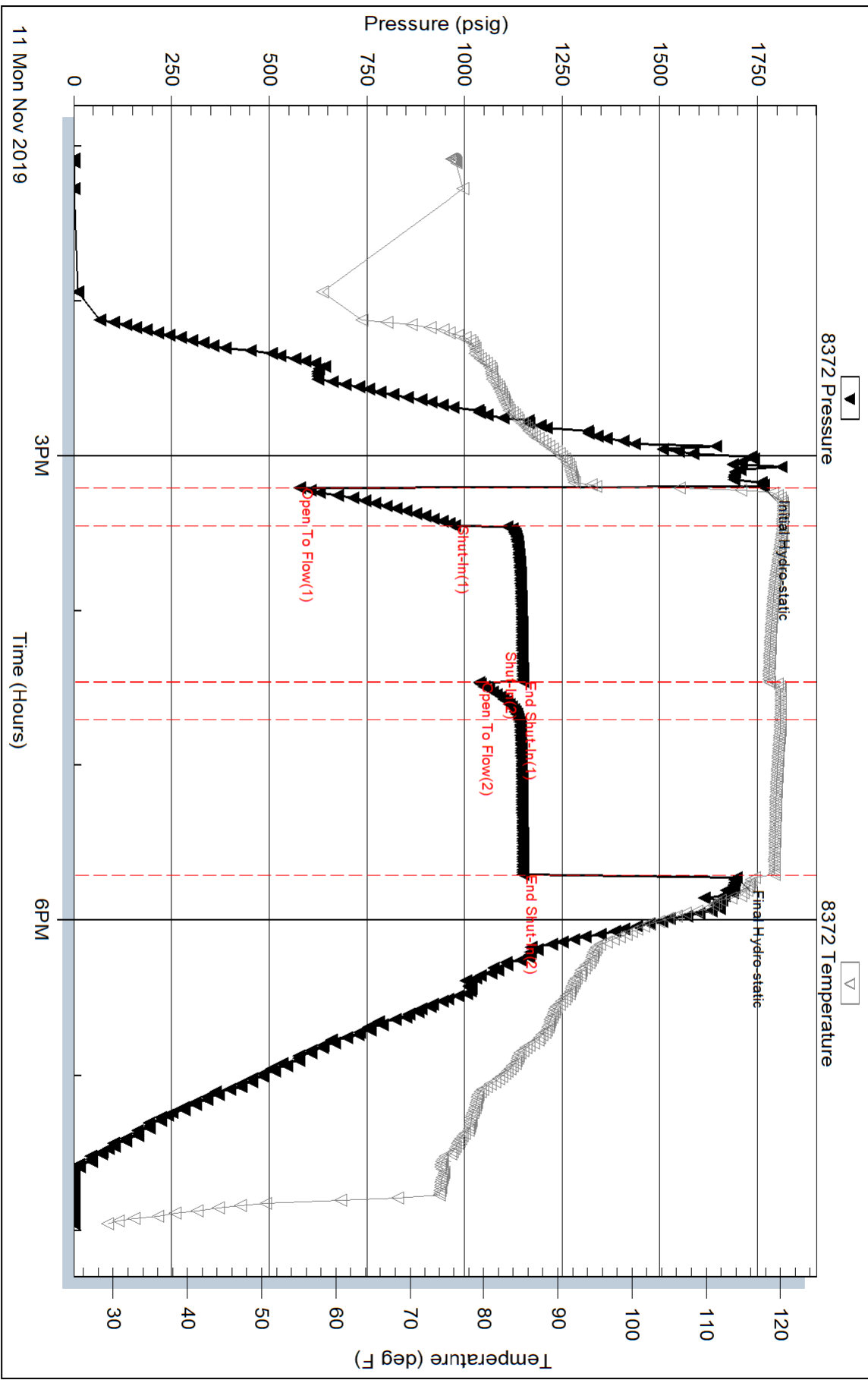
Inside

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 6

### Pressure vs. Time



Triobite Testing, Inc

Ref. No: 66364

Printed: 2019.11.12 @ 13:32:51

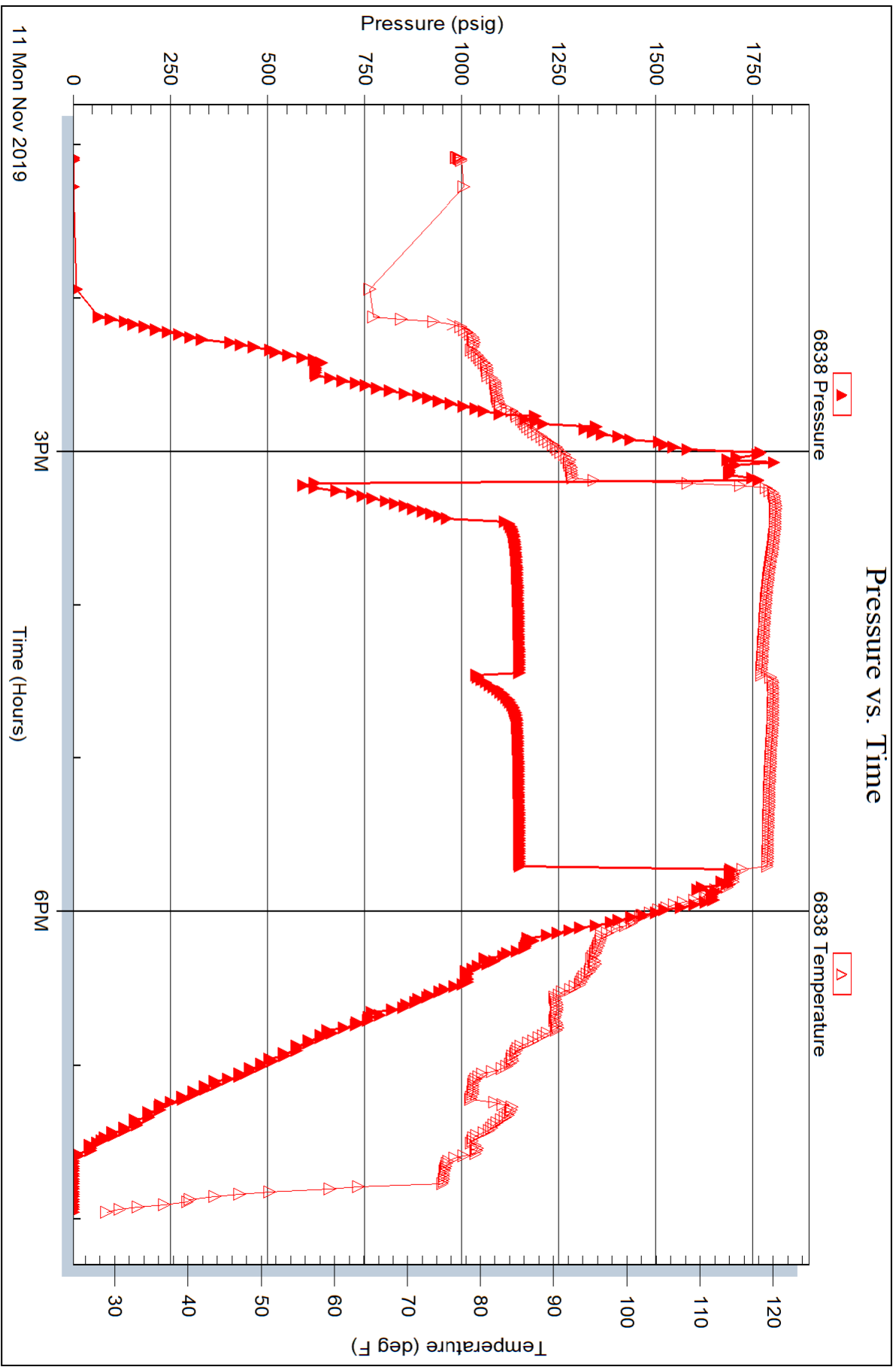
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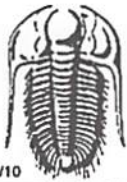
Inside

Murfin Drilling Co

Rusco B #2-36

DST Test Number: 6





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66359

NO.

Well Name & No. Rusco B #2-36 Test No. 1 Date 11/8/2019  
 Company Murfin Drilling Co Elevation 2017 KB 2012 GL  
 Address 250 N Water STE 300 Wichita KS 67202+1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 114 Rge. 20W Co. Ellis State Ks

Interval Tested 3310' - 3380' Zone Tested LKC 'B-7'  
 Anchor Length 70' Drill Pipe Run 3260' Mud Wt. 9.2  
 Top Packer Depth 3305' Drill Collars Run 30' Vis 60  
 Bottom Packer Depth 3310' Wt. Pipe Run - WL 8.0  
 Total Depth 3380' Chlorides 3500 ppm System LCM 1#

Blow Description 77- BOB 5 mins, Built to 28"  
79- BOB 6 mins, Built to 29"  
75- No Return

| Rec         | Feet of            | %gas      | %oil      | %water    | %mud      |
|-------------|--------------------|-----------|-----------|-----------|-----------|
| <u>240'</u> | <u>GUSOCMW</u>     | <u>5</u>  | <u>2</u>  | <u>83</u> | <u>10</u> |
| <u>400'</u> | <u>G S O C M W</u> | <u>10</u> | <u>10</u> | <u>50</u> | <u>30</u> |
| <u>10'</u>  | <u>G M C W D</u>   | <u>5</u>  | <u>85</u> | <u>30</u> | <u>30</u> |
| Rec         | Feet of            | %gas      | %oil      | %water    | %mud      |
| Rec         | Feet of            | %gas      | %oil      | %water    | %mud      |

Rec Total 650' BHT 108° Gravity - API RW .176 @ 50 F Chlorides 62000 ppm  
 (A) Initial Hydrostatic 1609  Test 1200 T-On Location 10:30  
 (B) First Initial Flow 41  Jars 250 T-Started 11:00  
 (C) First Final Flow 172  Safety Joint 75 T-Open 13:26  
 (D) Initial Shut-In 594  Circ Sub \_\_\_\_\_ T-Pulled 16:26  
 (E) Second Initial Flow 178  Hourly Standby \_\_\_\_\_ T-Out 18:18  
 (F) Second Final Flow 294  Mileage 62.27 62 Comments \_\_\_\_\_  
 (G) Final Shut-In 577  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1570  Straddle \_\_\_\_\_  EM Tool \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Day Standby \_\_\_\_\_ Sub Total 0  
 Accessibility \_\_\_\_\_ Total 1587  
 Sub Total 1587 MP/DST Disc't \_\_\_\_\_

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

Approved By \_\_\_\_\_ Our Representative Spencer J. Jacob 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 66360

NO.

Well Name & No. Rusco B #2-36 Test No. 2 Date 11/09/2019  
 Company Murfin Drilling Co Elevation 2017 KB 2012 GL  
 Address 250 N Water STE 300 Wichita, KS 67202+1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 11s Rge. 20w Co. Ellis State KS

Interval Tested 3383' - 3415' Zone Tested LRC 2'  
 Anchor Length 32' Drill Pipe Run 3354' Mud Wt. 9.2  
 Top Packer Depth 3378' Drill Collars Run 30' Vls 60  
 Bottom Packer Depth 3383' Wt. Pipe Run - WL 8.0  
 Total Depth 3415' Chlorides 3500 ppm System LCM 1#

Blow Description 77-Weak; Built to 4"  
77-Weak Surface; Dred 10min in  
77-Weak; Built to 3 1/2"  
75D-Weak Surface

| Rec         | Feet of              | %gas      | %oil      | %water | %mud |
|-------------|----------------------|-----------|-----------|--------|------|
| <u>125'</u> | <u>GW w/scum oil</u> | <u>25</u> | <u>75</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 125 BHT 106° Gravity - API RW .243 @ 29 °F Chlorides 78,000 ppm

|                                     |                                                             |                                  |
|-------------------------------------|-------------------------------------------------------------|----------------------------------|
| (A) Initial Hydrostatic <u>1650</u> | <input checked="" type="checkbox"/> Test <u>1200</u>        | T-On Location <u>00:40</u>       |
| (B) First Initial Flow <u>19</u>    | <input checked="" type="checkbox"/> Jars <u>250</u>         | T-Started <u>01:05</u>           |
| (C) First Final Flow <u>50</u>      | <input checked="" type="checkbox"/> Safety Joint <u>75</u>  | T-Open <u>02:23</u>              |
| (D) Initial Shut-In <u>610</u>      | <input type="checkbox"/> Circ Sub                           | T-Pulled <u>06:08</u>            |
| (E) Second Initial Flow <u>51</u>   | <input type="checkbox"/> Hourly Standby                     | T-Out <u>07:44</u>               |
| (F) Second Final Flow <u>80</u>     | <input checked="" type="checkbox"/> Mileage <u>62.27</u> 62 | Comments                         |
| (G) Final Shut-In <u>609</u>        | <input type="checkbox"/> Sampler                            |                                  |
| (H) Final Hydrostatic <u>1667</u>   | <input type="checkbox"/> Straddle                           | <input type="checkbox"/> EM Tool |

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 45  
 Final Shut-In 90

Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

Sub Total 1587 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.

785-259-0556





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66361

NO.

Well Name & No. Rusco B #2-36 Test No. 3 Date 11/09/2019  
 Company Murfin Drilling Co Elevation 2017 KB 2012 GL  
 Address 250 N Water STE 300 Wichita Ks 67202+1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 11s Rge. 20w Co. Ellis State Ks

Interval Tested 3430' - 3482' Zone Tested LAC 'A-J'  
 Anchor Length 52' Drill Pipe Run 3384' Mud Wt. 9.3  
 Top Packer Depth 3425' Drill Collars Run 30' Vis 54  
 Bottom Packer Depth 3430' Wt. Pipe Run - WL 8.0  
 Total Depth 3482' Chlorides 4200 ppm System LCM 1#

Blow Description: 7-BOB 2 mins; Built to 80"  
7SD Weak; Built to 3"; Died back to 2 1/2"  
77-BOB 6 mins; Built to 29"  
7SD Weak; Built to 5 1/2"; Died to 4 1/2"

| Rec  | Feet of     | %gas | %oil | %water | %mud |
|------|-------------|------|------|--------|------|
| 60'  | GMD         | 20%  | 50%  | 30%    |      |
| 60'  | Frothy Oil  | 30%  | 70%  |        |      |
| 320' | GO          | 50%  | 50%  |        |      |
|      | 9.50' G.I.P | 100% |      |        |      |

Rec Total 440' BHT 105° Gravity 38° API RW - @ -°F Chlorides - ppm

|                                     |                                                             |                                        |
|-------------------------------------|-------------------------------------------------------------|----------------------------------------|
| (A) Initial Hydrostatic <u>1687</u> | <input checked="" type="checkbox"/> Test <u>1200</u>        | T-On Location <u>16:30</u>             |
| (B) First Initial Flow <u>70</u>    | <input checked="" type="checkbox"/> Jars <u>250</u>         | T-Started <u>16:52</u>                 |
| (C) First Final Flow <u>138</u>     | <input checked="" type="checkbox"/> Safety Joint <u>75</u>  | T-Open <u>18:30</u>                    |
| (D) Initial Shut-In <u>536</u>      | <input type="checkbox"/> Circ Sub                           | T-Pulled <u>21:30</u>                  |
| (E) Second Initial Flow <u>146</u>  | <input type="checkbox"/> Hourly Standby                     | T-Out <u>23:23</u>                     |
| (F) Second Final Flow <u>192</u>    | <input checked="" type="checkbox"/> Mileage <u>62.27</u> 62 | Comments _____                         |
| (G) Final Shut-In <u>491</u>        | <input type="checkbox"/> Sampler                            | _____                                  |
| (H) Final Hydrostatic <u>1642</u>   | <input type="checkbox"/> Straddle                           | <input type="checkbox"/> EM Tool _____ |

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

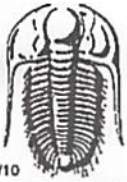
Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

Sub Total 1587 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Spencer J. Joubert 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 66362

NO.

Well Name & No. Rusco B #2-36 Test No. 4 Date 11/10/2019  
 Company Murfin Drilling Co Elevation 2017 KB 202 GL  
 Address 250 N Water STE 300 Wichita KS 67202+1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 11s Rge. 20w Co. Ellis State KS

Interval Tested 3478' - 3527' Zone Tested LHC 'N-L'  
 Anchor Length 49' Drill Pipe Run 3449' Mud Wt. 9.3  
 Top Packer Depth 3473' Drill Collars Run 30' Vis 51  
 Bottom Packer Depth 3478' Wt. Pipe Run - WL 8  
 Total Depth 3527' Chlorides 4900 ppm System LCM 2#

Blow Description 77-Weak; Built to 1/4"  
78- No Return  
77- Weak Surface  
78- No Return

| Rec        | Feet of    | %gas | %oil | %water     | %mud |
|------------|------------|------|------|------------|------|
| <u>10'</u> | <u>OSM</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 10' BHT 105° Gravity - API RW - @ - °F Chlorides - ppm

|                                     |                                                                   |                                  |
|-------------------------------------|-------------------------------------------------------------------|----------------------------------|
| (A) Initial Hydrostatic <u>1705</u> | <input checked="" type="checkbox"/> Test <u>1200</u>              | T-On Location <u>06:40</u>       |
| (B) First Initial Flow <u>34</u>    | <input checked="" type="checkbox"/> Jars <u>250</u>               | T-Started <u>06:56</u>           |
| (C) First Final Flow <u>39</u>      | <input checked="" type="checkbox"/> Safety Joint <u>75</u>        | T-Open <u>08:55</u>              |
| (D) Initial Shut-In <u>608</u>      | <input type="checkbox"/> Circ Sub                                 | T-Pulled <u>11:55</u>            |
| (E) Second Initial Flow <u>44</u>   | <input type="checkbox"/> Hourly Standby                           | T-Out <u>13:20</u>               |
| (F) Second Final Flow <u>46</u>     | <input checked="" type="checkbox"/> Mileage <u>6227</u> <u>62</u> | Comments                         |
| (G) Final Shut-In <u>532</u>        | <input type="checkbox"/> Sampler                                  |                                  |
| (H) Final Hydrostatic <u>1670</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>1587</u>                            |
|                           | Sub Total <u>1587</u>                   | MP/DST Disc't                                |

Approved By \_\_\_\_\_ Our Representative Spencer J. Stahl  
 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 66363

NO.

Well Name & No. Rusco B # 2-36 Test No. 5 Date 11/10/2019  
 Company Murfin Drilling Co. Elevation 2017 KB 2012 GL  
 Address 250 W Water STE 300 Wichita KS 67202 +1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 11s Rge. 20w Co. Ellis State Ks

Interval Tested 3590' - 3605' Zone Tested Arbuckle  
 Anchor Length 15' Drill Pipe Run 3544' Mud Wt. 9.3  
 Top Packer Depth 3585' Drill Collars Run 30' Vis 51  
 Bottom Packer Depth 3590' Wt. Pipe Run - WL 8.0  
 Total Depth 3605' Chlorides 4900 ppm System LCM 2#

Blow Description 77-BOB 1 min; Built to 335"  
ISD - Weak Surface  
77-BOB 40 sec; Built to 198"  
ISD - Weak Surface

| Rec          | Feet of     | %gas      | %oil      | %water    | %mud |
|--------------|-------------|-----------|-----------|-----------|------|
| <u>120'</u>  | <u>OSUM</u> |           | <u>40</u> | <u>60</u> |      |
| <u>2470'</u> | <u>GIO</u>  | <u>65</u> | <u>35</u> |           |      |
| Rec          | Feet of     | %gas      | %oil      | %water    | %mud |
| Rec          | Feet of     | %gas      | %oil      | %water    | %mud |

Rec Total 2590' BHT 119° Gravity 29° API RW - @ - °F Chlorides - ppm

|                                     |                                                                             |                                              |
|-------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------|
| (A) Initial Hydrostatic <u>1764</u> | <input checked="" type="checkbox"/> Test <u>1200</u>                        | T-On Location <u>20:38</u>                   |
| (B) First Initial Flow <u>294</u>   | <input checked="" type="checkbox"/> Jars <u>250</u>                         | T-Started <u>20:58</u>                       |
| (C) First Final Flow <u>787</u>     | <input checked="" type="checkbox"/> Safety Joint <u>75</u>                  | T-Open <u>22:48</u>                          |
| (D) Initial Shut-In <u>1136</u>     | <input checked="" type="checkbox"/> Circ Sub                                | T-Pulled <u>01:48 11/11/2019</u>             |
| (E) Second Initial Flow <u>795</u>  | <input checked="" type="checkbox"/> Hourly Standby <u>x3</u> 2hr <u>200</u> | T-Out <u>07:52</u>                           |
| (F) Second Final Flow <u>1024</u>   | <input checked="" type="checkbox"/> Mileage <u>6227</u> 62                  | Comments                                     |
| (G) Final Shut-In <u>1134</u>       | <input type="checkbox"/> Sampler                                            |                                              |
| (H) Final Hydrostatic <u>1683</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>1787</u>                            |
|                                     | Sub Total <u>1787</u>                                                       | MP/DST Disc't                                |

Approved By \_\_\_\_\_ Our Representative Spencer J. Jacob Thanks!  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66364

NO.

Well Name & No. Rusco B #2-36 Test No. 6 Date 11/11/2019  
 Company Murfin Drilling Co Elevation 2017 KB 2012 GL  
 Address 250 N Water STE 300 Wichita Ks 67202 +1216  
 Co. Rep / Geo. Jeff Lawler Rig Murfin #16  
 Location: Sec. 36 Twp 11s Rge. 20w Co. Ellis State Ks

Interval Tested 3605'-3614' Zone Tested Arbuckle  
 Anchor Length 9' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.0  
 Top Packer Depth 3600' Drill Collars Run 30' Vis 58  
 Bottom Packer Depth 3605' Wt. Pipe Run - WL 7.2  
 Total Depth 3614' Chlorides 4500 ppm System LCM 3#

Blow Description 77- BOB 20 sec; Built to 386"  
78- Weak; Built to 1/2"  
77- BOB instantaneously; Built to 160"; Gas to Surface  
78- Weak Surface

| Rec         | Feet of              | %gas       | %oil       | %water       | %mud       |
|-------------|----------------------|------------|------------|--------------|------------|
| <u>490</u>  | <u>GW w/scum oil</u> | <u>40</u>  | <u>60</u>  | <u>0</u>     | <u>0</u>   |
| <u>1000</u> | <u>GVSOOW</u>        | <u>45</u>  | <u>2</u>   | <u>53</u>    | <u>0</u>   |
| <u>900</u>  | <u>GVSOOW</u>        | <u>35</u>  | <u>5</u>   | <u>50</u>    | <u>10</u>  |
| Rec _____   | Feet of _____        | %gas _____ | %oil _____ | %water _____ | %mud _____ |
| Rec _____   | Feet of _____        | %gas _____ | %oil _____ | %water _____ | %mud _____ |

Rec Total 2390' BHT 119° Gravity - API RW .454 @ 19 °F Chlorides 60000 ppm

|                                     |                                                                   |                                                    |
|-------------------------------------|-------------------------------------------------------------------|----------------------------------------------------|
| (A) Initial Hydrostatic <u>1762</u> | <input checked="" type="checkbox"/> Test <u>1200</u>              | T-On Location <u>12:45</u>                         |
| (B) First Initial Flow <u>576</u>   | <input checked="" type="checkbox"/> Jars <u>250</u>               | T-Started <u>13:05</u>                             |
| (C) First Final Flow <u>975</u>     | <input checked="" type="checkbox"/> Safety Joint <u>75</u>        | T-Open <u>15:09</u>                                |
| (D) Initial Shut-In <u>1149</u>     | <input type="checkbox"/> Circ Sub _____                           | T-Pulled <u>17:39</u>                              |
| (E) Second Initial Flow <u>1037</u> | <input type="checkbox"/> Hourly Standby _____                     | T-Out <u>19:58</u>                                 |
| (F) Second Final Flow <u>1139</u>   | <input checked="" type="checkbox"/> Mileage <u>6277</u> <u>62</u> | Comments <u>had H2S ~24ppm</u>                     |
| (G) Final Shut-In <u>1150</u>       | <input type="checkbox"/> Sampler _____                            | <u>loaded after Test</u>                           |
| (H) Final Hydrostatic <u>1696</u>   | <input type="checkbox"/> Straddle _____                           | <input type="checkbox"/> EM Tool _____             |
| Initial Open <u>15</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>15</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>1587</u>                                  |
|                                     | Sub Total <u>1587</u>                                             |                                                    |

Approved By \_\_\_\_\_ Our Representative Spencer J. Stubb Thanks  
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