



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Kacirek #1 21

21-2s-36w Rawlins,KS

Start Date: 2012.09.18 @ 01:50:15

End Date: 2012.09.18 @ 08:28:38

Job Ticket #: 44435 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.09.25 @ 13:23:17



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

21-2s-36w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44435

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2012.09.18 @ 01:50:15

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:47:38

Time Test Ended: 08:28:38

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 4178.00 ft (KB) To 4232.00 ft (KB) (TVD)

Reference Elevations: 3355.00 ft (KB)

Total Depth: 4232.00 ft (KB) (TVD)

3345.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 6668 Outside

Press @ Run Depth: 38.48 psig @ 4180.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.09.18

End Date: 2012.09.18

Last Calib.: 2012.09.18

Start Time: 13:50:15

End Time: 20:28:38

Time On Btm: 2012.09.18 @ 15:47:23

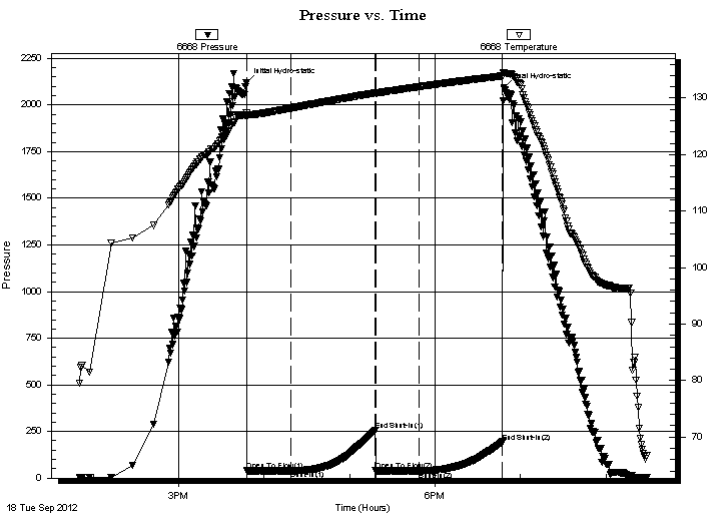
Time Off Btm: 2012.09.18 @ 18:48:23

TEST COMMENT: IF: Built to weak surface blow and died in 14 min.

IS: No return blow

FF: No blow

FS: No return blow



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2121.12 | 127.31 | Initial Hydro-static |
| 1 | 39.48 | 126.66 | Open To Flow (1) |
| 32 | 38.93 | 128.21 | Shut-In(1) |
| 91 | 254.35 | 130.90 | End Shut-In(1) |
| 91 | 39.52 | 130.83 | Open To Flow (2) |
| 122 | 38.48 | 132.01 | Shut-In(2) |
| 180 | 194.33 | 133.93 | End Shut-In(2) |
| 181 | 2093.57 | 134.45 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 1.00 | mud 100% m | 0.00 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

21-2s-36w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44435

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2012.09.18 @ 01:50:15

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:47:38

Time Test Ended: 08:28:38

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 4178.00 ft (KB) To 4232.00 ft (KB) (TVD)

Reference Elevations: 3355.00 ft (KB)

Total Depth: 4232.00 ft (KB) (TVD)

3345.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8365 Inside

Press @ Run Depth: psig @ 4180.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.09.18

End Date: 2012.09.18

Last Calib.: 2012.09.18

Start Time: 13:50:15

End Time: 20:29:15

Time On Btm:

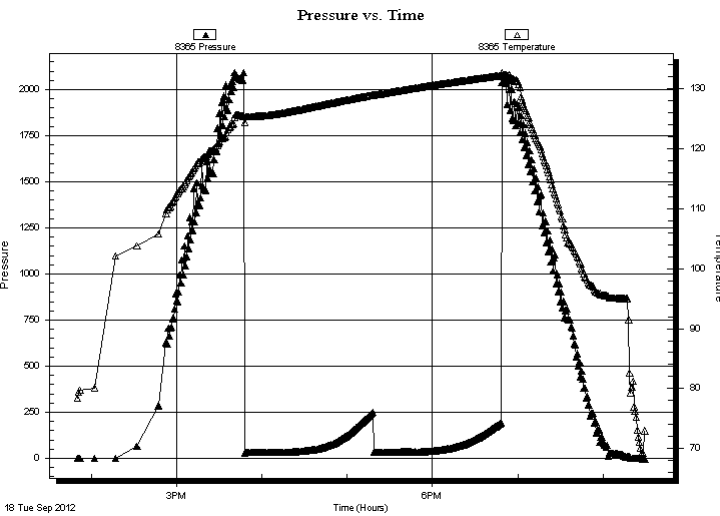
Time Off Btm:

TEST COMMENT: IF: Built to weak surface blow and died in 14 min.

IS: No return blow

FF: No blow

FS: No return blow



PRESSURE SUMMARY

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

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 1.00 | mud 100% m | 0.00 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company, Inc.

21-2s-36w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44435

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2012.09.18 @ 01:50:15

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3650.00 ft | Diameter: 3.80 inches | Volume: 51.20 bbl | Tool Weight: 1500.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 20000.00 lb |
| Drill Collar: | Length: 530.00 ft | Diameter: 2.25 inches | Volume: 2.61 bbl | Weight to Pull Loose: 90000.00 lb |
| | | | <u>Total Volume: 53.81 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 30.00 ft | | | String Weight: Initial 74000.00 lb |
| Depth to Top Packer: | 4178.00 ft | | | Final 74000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 54.00 ft | | | |
| Tool Length: | 82.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|---------------------------|--------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 4151.00 | |
| Shut In Tool | 5.00 | | | 4156.00 | |
| Hydraulic tool | 5.00 | | | 4161.00 | |
| Jars | 5.00 | | | 4166.00 | |
| Safety Joint | 3.00 | | | 4169.00 | |
| Packer | 5.00 | | | 4174.00 | 28.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4178.00 | |
| Stubb | 1.00 | | | 4179.00 | |
| Perforations | 1.00 | | | 4180.00 | |
| Recorder | 0.00 | 8365 | Inside | 4180.00 | |
| Recorder | 0.00 | 6668 | Outside | 4180.00 | |
| Change Over Sub | 1.00 | | | 4181.00 | |
| Drill Pipe | 32.00 | | | 4213.00 | |
| Change Over Sub | 1.00 | | | 4214.00 | |
| Perforations | 13.00 | | | 4227.00 | |
| Bullnose | 5.00 | | | 4232.00 | 54.00 Bottom Packers & Anchor |
| Total Tool Length: | 82.00 | | | | |



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company, Inc.

21-2s-36w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44435

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2012.09.18 @ 01:50:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------|---------------|
| 1.00 | mud 100% m | 0.005 |

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

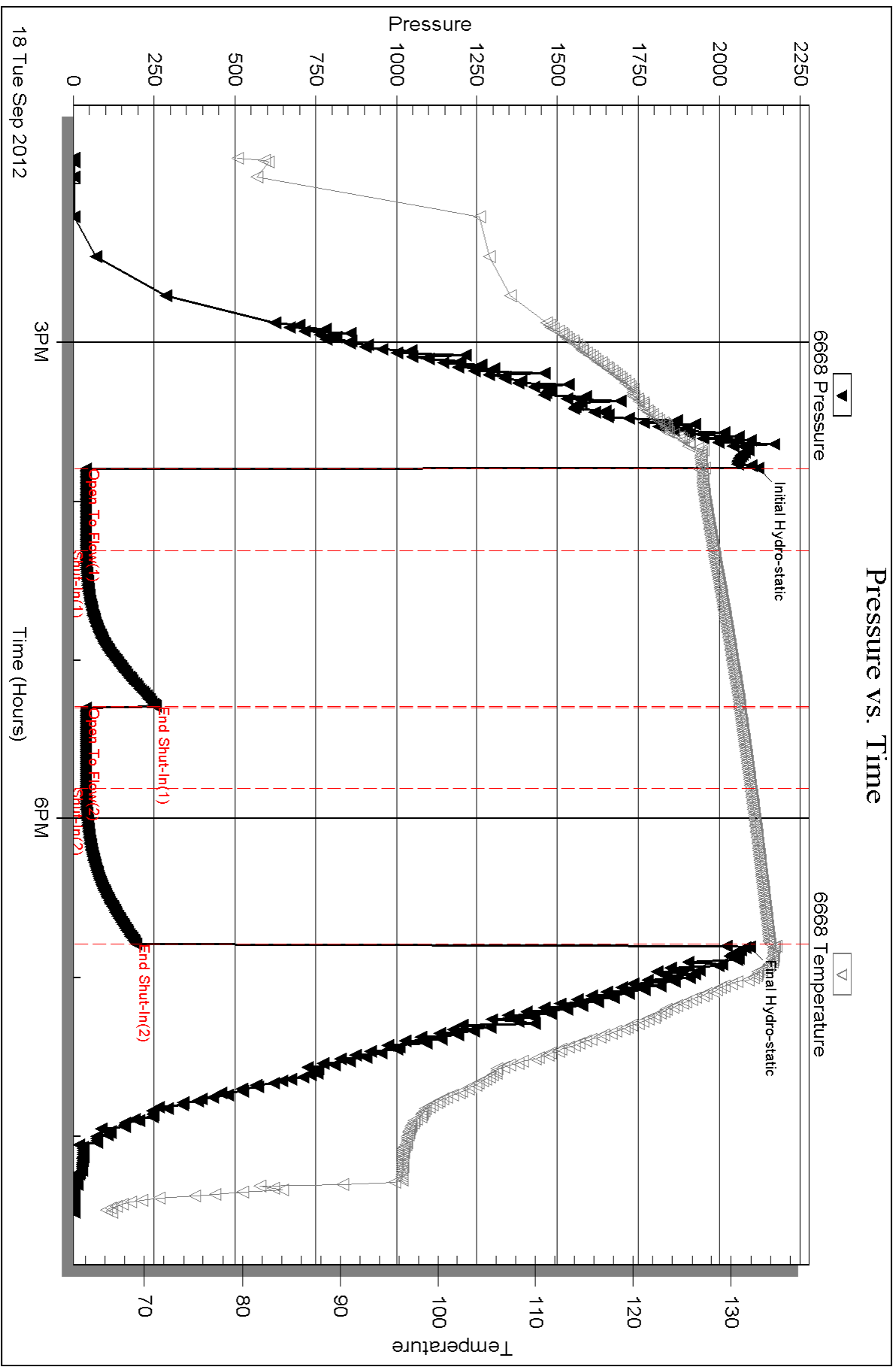
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



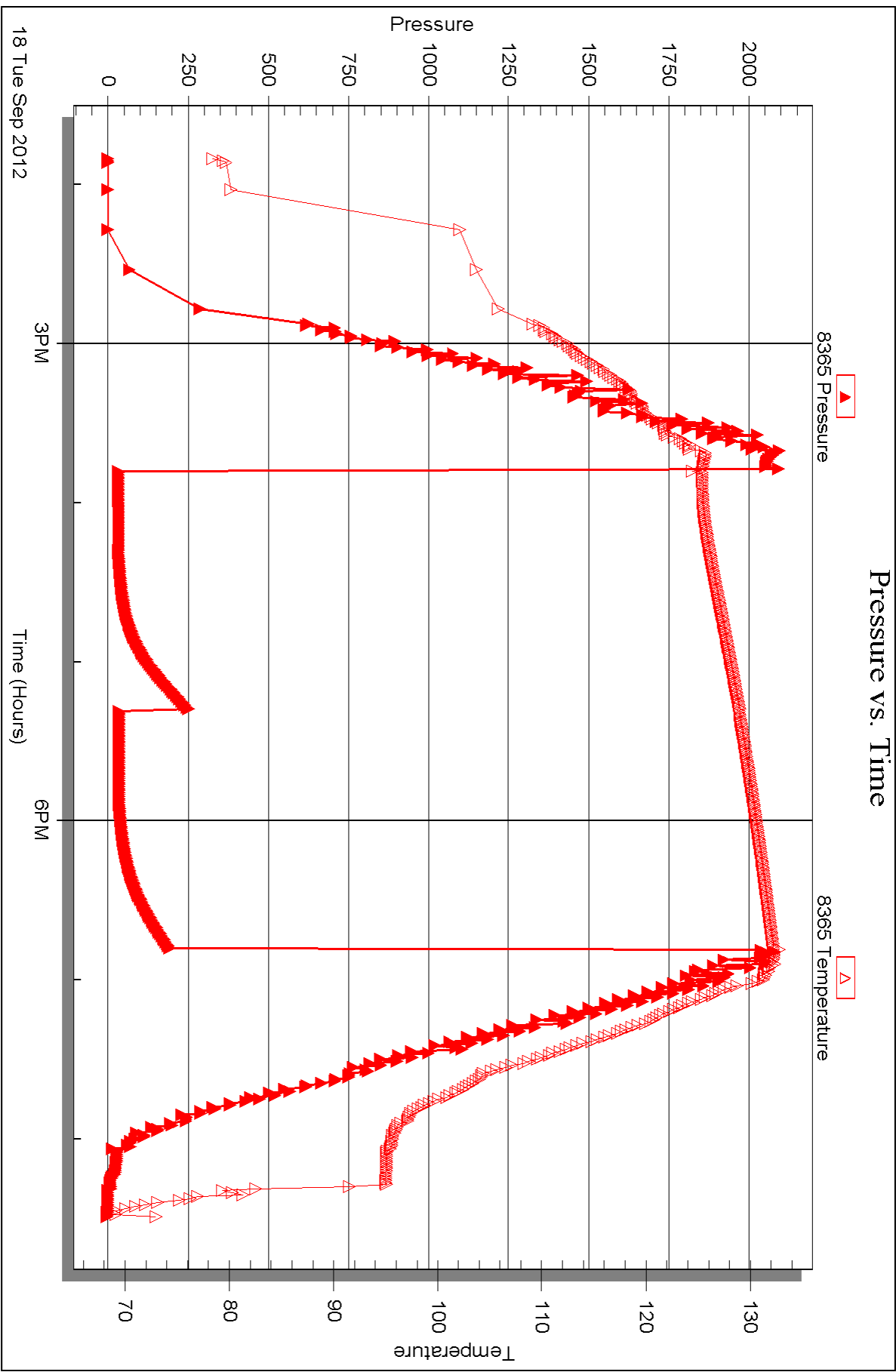
Serial #: 8365

Inside

Murfin Drilling Company, Inc.

Kacirek #1 21

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company, Inc.**

250 N Water STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Kacirek #1 21

21-2s-36w Rawlins,KS

Start Date: 2012.09.20 @ 05:53:15

End Date: 2012.09.20 @ 13:00:30

Job Ticket #: 44436 DST #: 2

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.09.25 @ 13:22:30



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

21-2s-36w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44436

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2012.09.20 @ 05:53:15

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:14:30

Time Test Ended: 13:00:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4490.00 ft (KB) To 4435.00 ft (KB) (TVD)

Reference Elevations: 3355.00 ft (KB)

Total Depth: 4535.00 ft (KB) (TVD)

3345.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 6668 Outside

Press @ Run Depth: 25.84 psig @ 4492.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.09.20

End Date: 2012.09.20

Last Calib.: 2012.09.20

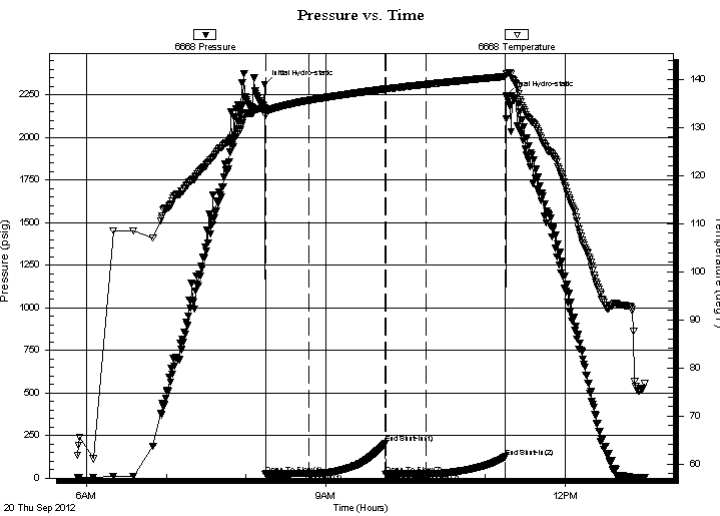
Start Time: 05:53:15

End Time: 13:00:30

Time On Btm: 2012.09.20 @ 08:14:15

Time Off Btm: 2012.09.20 @ 11:16:00

TEST COMMENT: IF: No blow
IS: No return blow
FF: No blow
FS: No return blow



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2309.67 | 134.03 | Initial Hydro-static |
| 1 | 23.25 | 132.45 | Open To Flow (1) |
| 33 | 27.08 | 135.64 | Shut-In(1) |
| 91 | 202.77 | 138.00 | End Shut-In(1) |
| 91 | 23.21 | 137.97 | Open To Flow (2) |
| 121 | 25.84 | 138.95 | Shut-In(2) |
| 181 | 124.49 | 140.63 | End Shut-In(2) |
| 182 | 2246.15 | 141.13 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|------------------------|--------------|
| 3.00 | mud w ith trace of oil | 0.01 |
| | | |
| | | |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company, Inc.

21-2s-36w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44436

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2012.09.20 @ 05:53:15

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3962.00 ft | Diameter: 3.80 inches | Volume: 55.58 bbl | Tool Weight: 1500.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 20000.00 lb |
| Drill Collar: | Length: 530.00 ft | Diameter: 2.25 inches | Volume: 2.61 bbl | Weight to Pull Loose: 90000.00 lb |
| | | | <u>Total Volume: 58.19 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 30.00 ft | | | String Weight: Initial 78000.00 lb |
| Depth to Top Packer: | 4490.00 ft | | | Final 78000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 45.00 ft | | | |
| Tool Length: | 73.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|---------------------------|--------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 4463.00 | |
| Shut In Tool | 5.00 | | | 4468.00 | |
| Hydraulic tool | 5.00 | | | 4473.00 | |
| Jars | 5.00 | | | 4478.00 | |
| Safety Joint | 3.00 | | | 4481.00 | |
| Packer | 5.00 | | | 4486.00 | 28.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4490.00 | |
| Stubb | 1.00 | | | 4491.00 | |
| Perforations | 1.00 | | | 4492.00 | |
| Recorder | 0.00 | 8365 | Inside | 4492.00 | |
| Recorder | 0.00 | 6668 | Outside | 4492.00 | |
| Change Over Sub | 1.00 | | | 4493.00 | |
| Drill Pipe | 32.00 | | | 4525.00 | |
| Change Over Sub | 1.00 | | | 4526.00 | |
| Perforations | 4.00 | | | 4530.00 | |
| Bullnose | 5.00 | | | 4535.00 | 45.00 Bottom Packers & Anchor |
| Total Tool Length: | 73.00 | | | | |



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company, Inc.

21-2s-36w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Kacirek #1 21

Job Ticket: 44436

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2012.09.20 @ 05:53:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|------------------------|---------------|
| 3.00 | mud w ith trace of oil | 0.015 |

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

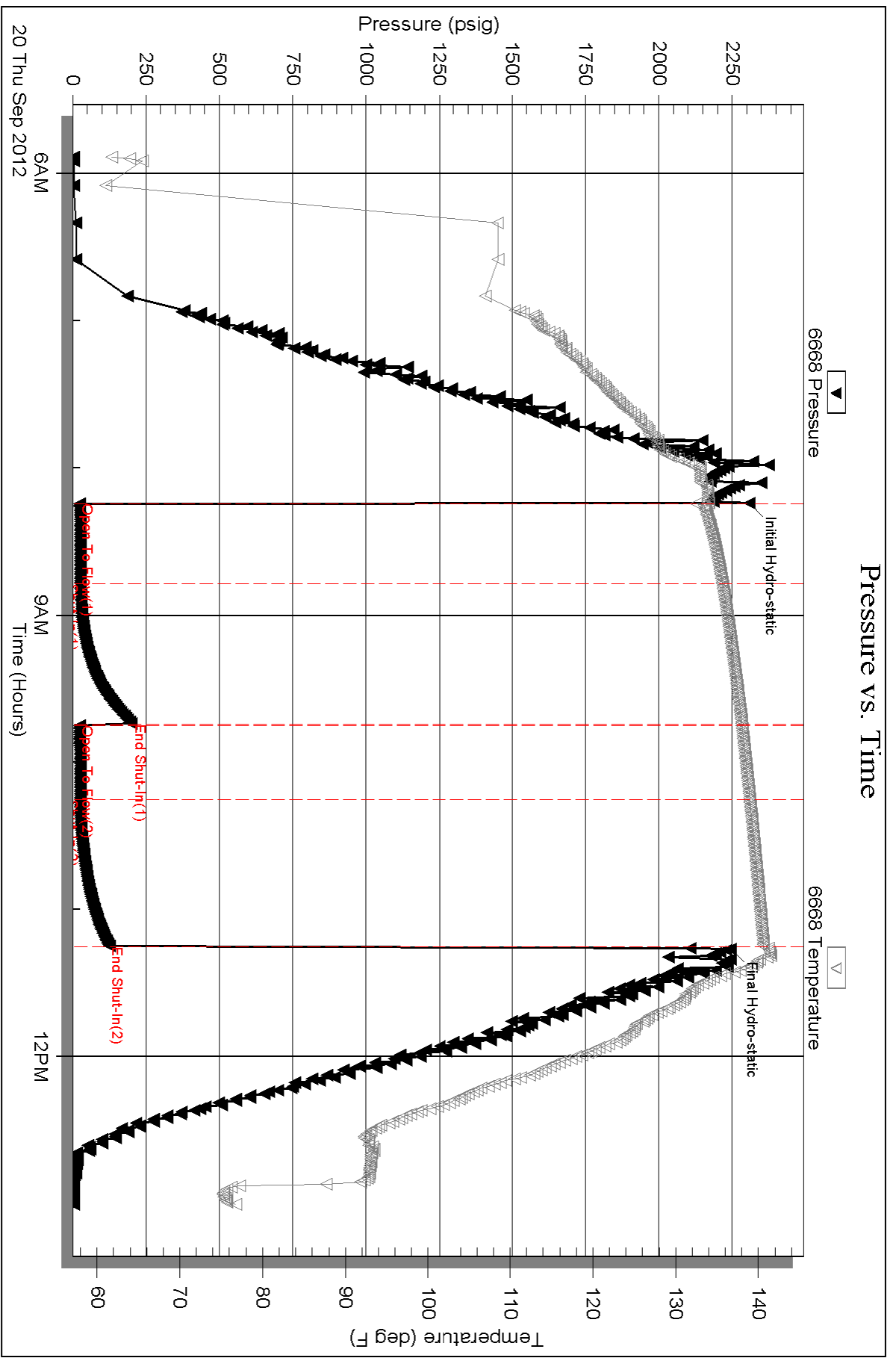
Recovery Comments:

Serial #: 6668

Outside Murfin Drilling Company, Inc.

Kacirek #1 21

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 44436

Printed: 2012.09.25 @ 13:22:35

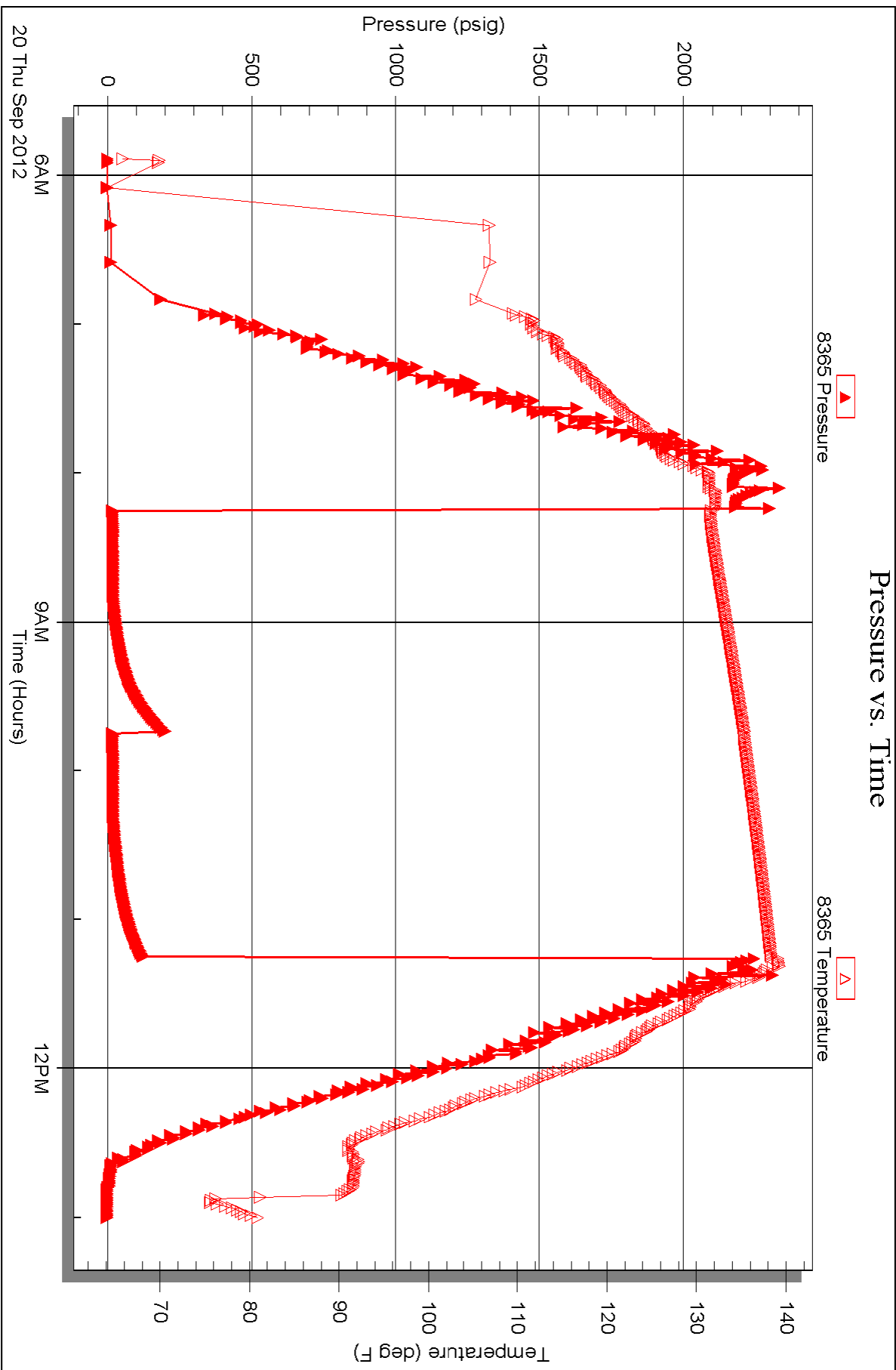
Serial #: 8365

Inside

Murfin Drilling Company, Inc.

Kacirek #1 21

DST Test Number: 2





TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

~~3.03 TOP 3:48~~
~~3:44~~
N-21333
N-21326-316
Test Ticket
BOTTOM
NO. **44435**

Well Name & No. Kacirek 1-21 Test No. 1 Date 9-18-12
 Company Murfin Drilling Company Inc Elevation 3355 KB 3345 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 14
 Location: Sec. 21 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4178-4232 Zone Tested Oread
 Anchor Length 54 Drill Pipe Run 3650 Mud Wt. 9.3
 Top Packer Depth 4174 Drill Collars Run 530 Vis 67
 Bottom Packer Depth 4178 Wt. Pipe Run φ WL 6.0
 Total Depth 4232 Chlorides 1000 ppm System LCM 4

Blow Description IF: Built to weak surface Blow & Died in 14 Min.
IS: NO Return Blow
FF: NO Blow
FS: NO Return Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----|---------|------|------|--------|------|
| 1 | MUD | | | 100% | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 1 BHT 134 Gravity API RW @ ° F Chlorides ppm
 (A) Initial Hydrostatic 2121 Test 1250 T-On Location 12:30
 (B) First Initial Flow 39 Jars 250 T-Started 1:50 KS TIME
 (C) First Final Flow 38 Safety Joint 75 T-Open 15:47 10 TIME
 (D) Initial Shut-In 254 Circ Sub NC T-Pulled 18:47
 (E) Second Initial Flow 39 Hourly Standby T-Out 20:28
 (F) Second Final Flow 38 Mileage 252 RT 88rt 136.40 Comments _____
 (G) Final Shut-In 194 Sampler _____
 (H) Final Hydrostatic 2093 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 60 Extra Recorder _____ Sub Total 0
 Final Flow 30 Day Standby _____ Total 1711.40
 Final Shut-In 60 Accessibility _____ MP/DST Disc't _____
 Sub Total 1711.40

Approved By Paul Gunzelman Our Representative John Roberts

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



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

~~1100204~~ - 3.38 top N-21326
N21333 - 3.34 BTM

Test Ticket

NO. 44436

Well Name & No. Kalirek 1-21 Test No. 2 Date 9-20-12
 Company Murfin Drilling Company Inc Elevation 3355 KB 3345 GL
 Address 200 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 20
 Location: Sec. 21 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4490-4535 Zone Tested LKC J
 Anchor Length 45 Drill Pipe Run 3962 Mud Wt. 9.1
 Top Packer Depth 4486 Drill Collars Run 530 Vis 62
 Bottom Packer Depth 4490 Wt. Pipe Run Ø WL 6.4
 Total Depth 4535 Chlorides 1000 ppm System LCM 3
 Blow Description IF: No Blow
IS: No Return Blow
FF: No Blow
FS: No Return Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|----------|--------------------------------------|------|------|------------|------|
| <u>3</u> | <u>Feet of mud with trace of oil</u> | | | <u>100</u> | |
| | <u>Free oil on tool</u> | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 3 BHT 141 Gravity — API RW — @ — °F Chlorides — ppm

| | | |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2309</u> | <input checked="" type="checkbox"/> Test 1250 | T-On Location <u>04:30</u> |
| (B) First Initial Flow <u>23</u> | <input checked="" type="checkbox"/> Jars 250 | T-Started <u>05:53</u> |
| (C) First Final Flow <u>27</u> | <input checked="" type="checkbox"/> Safety Joint <u>NC</u> | T-Open <u>08:15</u> |
| (D) Initial Shut-In <u>202</u> | <input checked="" type="checkbox"/> Circ Sub <u>NC</u> | T-Pulled <u>11:15</u> |
| (E) Second Initial Flow <u>23</u> | <input type="checkbox"/> Hourly Standby | T-Out <u>13:00</u> |
| (F) Second Final Flow <u>25</u> | <input checked="" type="checkbox"/> Mileage <u>136.40</u> | Comments |
| (G) Final Shut-In <u>124</u> | <input type="checkbox"/> Sampler | |
| (H) Final Hydrostatic <u>2246</u> | <input type="checkbox"/> Straddle | <input type="checkbox"/> Ruined Shale Packer |
| | <input type="checkbox"/> Shale Packer | <input type="checkbox"/> Ruined Packer |
| Initial Open <u>30</u> | <input type="checkbox"/> Extra Packer | <input type="checkbox"/> Extra Copies |
| Initial Shut-In <u>60</u> | <input type="checkbox"/> Extra Recorder | Sub Total <u>0</u> |
| Final Flow <u>30</u> | <input checked="" type="checkbox"/> Day Standby <u>Plus standby for</u> | Total <u>1636.40</u> |
| Final Shut-In <u>60</u> | <input type="checkbox"/> Accessibility <u>Waiting on DST</u> | MP/DST Disc't |
| | Sub Total <u>1636.40</u> #3 | |

Approved By Paul Gunzelman Our Representative Mike Rohde

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