



DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Paul Gunzelman

Johnson 'E' #1-10

10-4s-36w Rawlins,KS

Start Date: 2015.07.12 @ 16:37:00

End Date: 2015.07.13 @ 00:18:20

Job Ticket #: 61693 DST #: 1

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

Printed: 2015.07.15 @ 13:30:59



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61693

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2015.07.12 @ 16:37:00

GENERAL INFORMATION:

Formation: **LKC A-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:24:10

Time Test Ended: 00:18:20

Test Type: Conventional Bottom Hole (Initial)

Tester: Chuck Smith

Unit No: 61

Interval: 4100.00 ft (KB) To 4219.00 ft (KB) (TVD)

Reference Elevations: 3245.00 ft (KB)

Total Depth: 4219.00 ft (KB) (TVD)

3240.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8357

Inside

Press@RunDepth: 33.99 psig @ 4102.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.07.12

End Date:

2015.07.13

Last Calib.:

2015.07.13

Start Time:

16:37:02

End Time:

00:18:19

Time On Btm:

2015.07.12 @ 19:22:30

Time Off Btm:

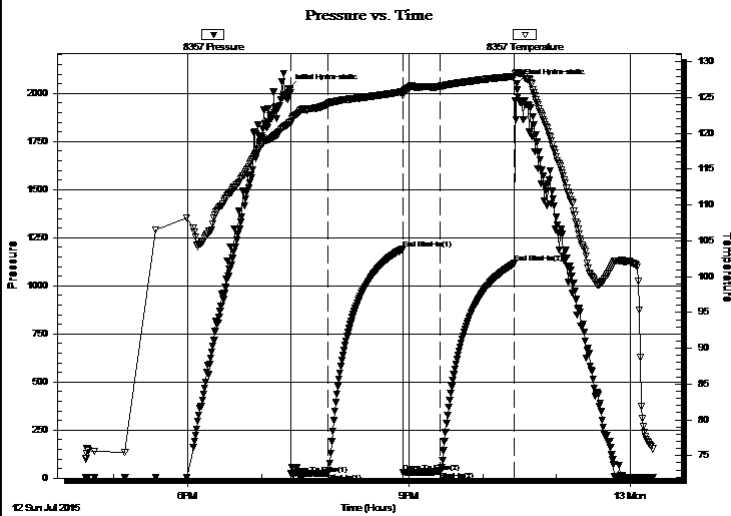
2015.07.12 @ 22:27:30

TEST COMMENT: 30- 1/2" Blow died @ 20 min.

60- No return.

30- No blow .

60- No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2024.93	121.42	Initial Hydro-static
2	22.05	121.57	Open To Flow (1)
32	26.25	124.17	Shut-In(1)
93	1191.77	125.81	End Shut-In(1)
93	29.23	125.24	Open To Flow (2)
123	33.99	126.58	Shut-In(2)
184	1117.03	127.99	End Shut-In(2)
185	2052.03	128.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	M 100m	0.15

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61693

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2015.07.12 @ 16:37:00

Tool Information

Drill Pipe:	Length: 3965.00 ft	Diameter: 3.82 inches	Volume: 56.21 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 56.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.50 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4100.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	119.00 ft			
Tool Length:	146.50 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			4073.50	
Shut In Tool	5.00			4078.50	
Hydraulic tool	5.00			4083.50	
Jars	5.00			4088.50	
Safety Joint	2.50			4091.00	
Packer	5.00			4096.00	27.50 Bottom Of Top Packer
Packer	4.00			4100.00	
Stubb	1.00			4101.00	
Perforations	1.00			4102.00	
Recorder	0.00	8357	Inside	4102.00	
Recorder	0.00	6751	Outside	4102.00	
Perforations	19.00			4121.00	
Change Over Sub	1.00			4122.00	
Drill Pipe	93.00			4215.00	
Change Over Sub	1.00			4216.00	
Bullnose	3.00			4219.00	119.00 Bottom Packers & Anchor
Total Tool Length:	146.50				



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61693

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2015.07.12 @ 16:37:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	M 100m	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

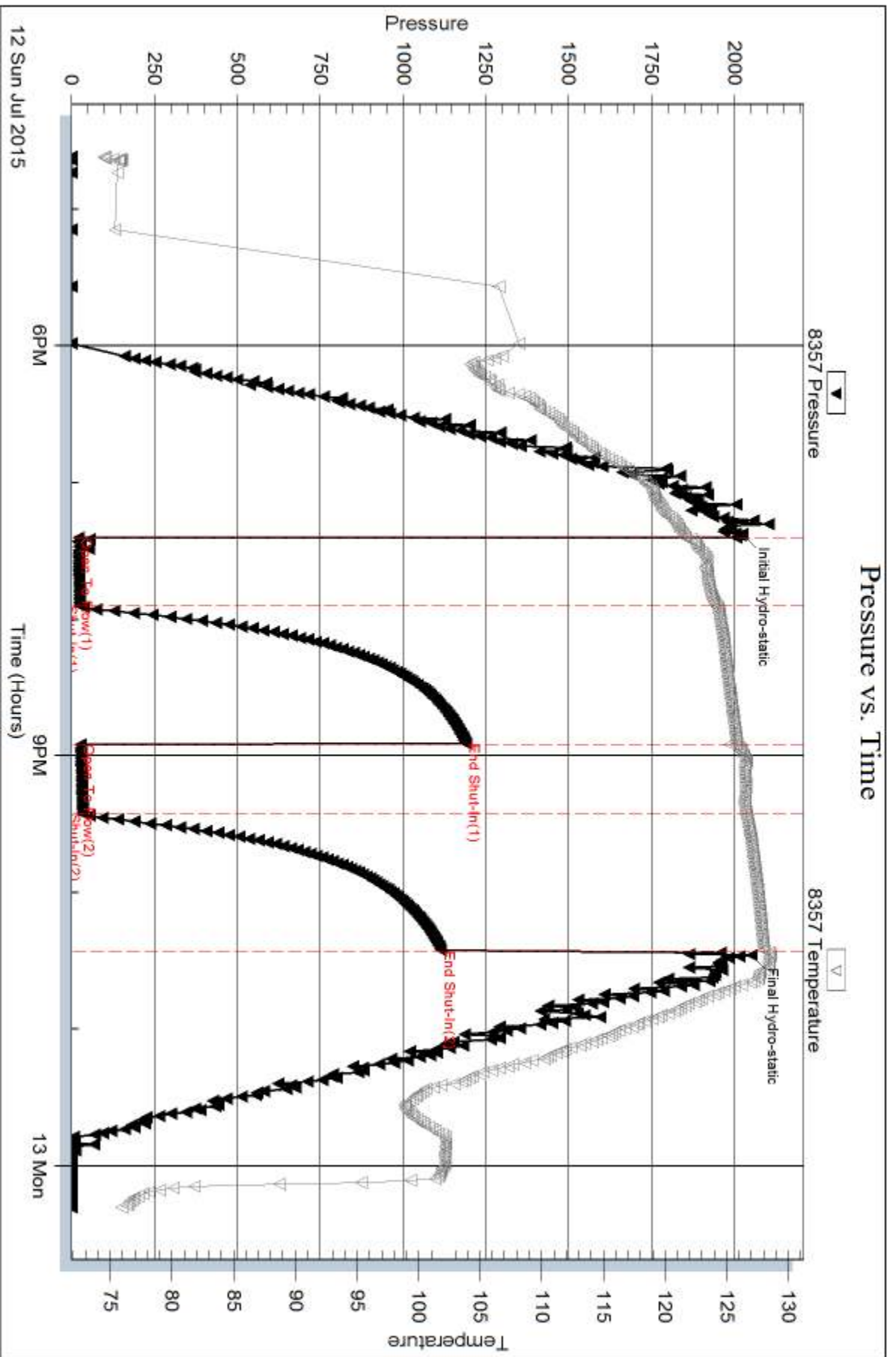
Num Gas Bombs: 0

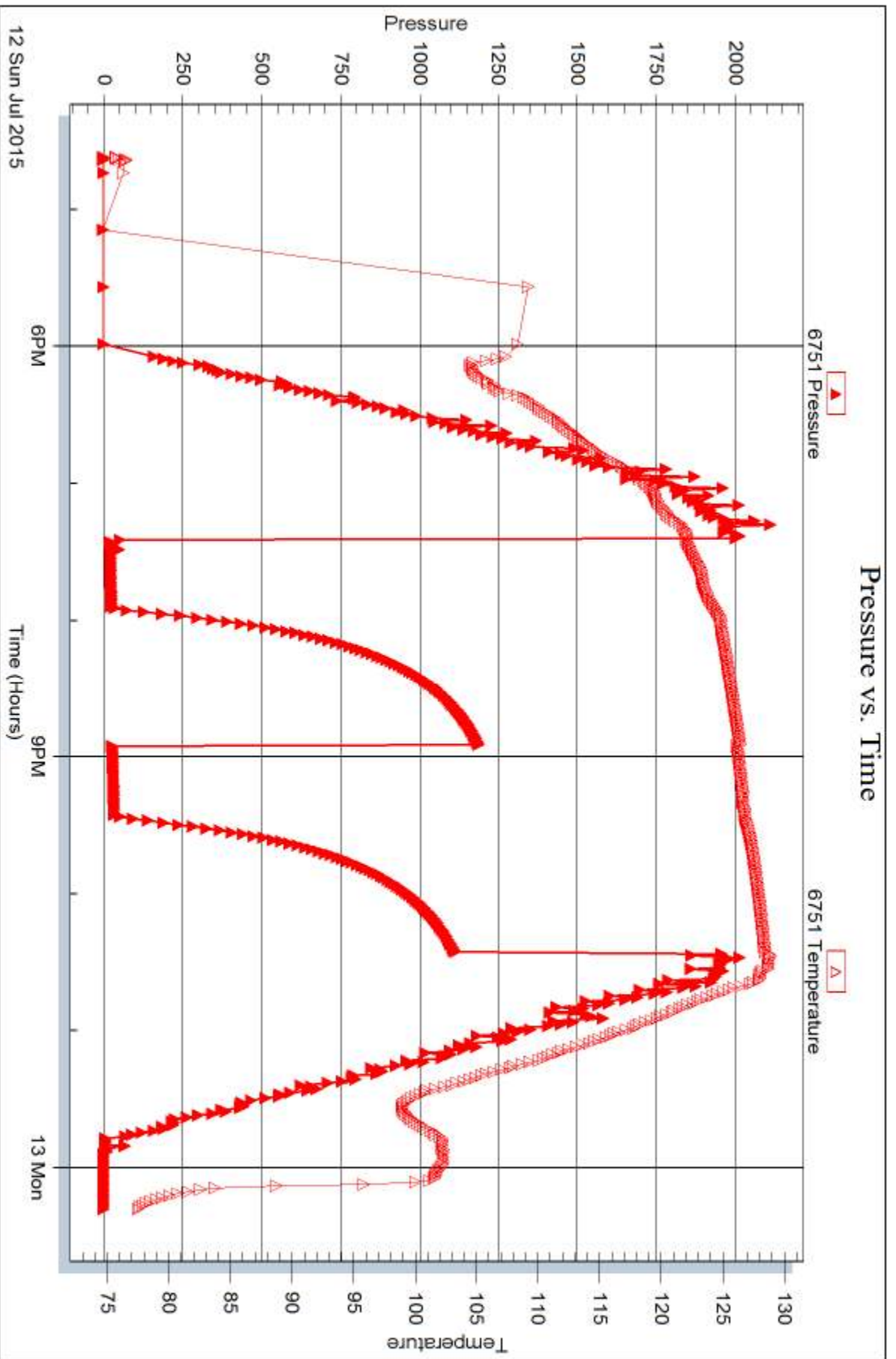
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

250 N Water Suite 300
Wichita, KS 67202

ATTN: Paul Gunzelman

Johnson 'E' #1-10

10-4s-36w Rawlins,KS

Start Date: 2015.07.14 @ 19:37:00

End Date: 2015.07.15 @ 03:19:30

Job Ticket #: 61694 DST #: 2

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

Printed: 2015.07.15 @ 13:29:02



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DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61694

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2015.07.14 @ 19:37:00

GENERAL INFORMATION:

Formation: **Cherokee-Verdigris**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:02:40

Time Test Ended: 03:19:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 61

Interval: 4593.00 ft (KB) To 4634.00 ft (KB) (TVD)

Total Depth: 4634.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3245.00 ft (KB)

3240.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8357

Inside

Press@RunDepth: 19.97 psig @ 4594.00 ft (KB)

Start Date: 2015.07.14

End Date:

2015.07.15

Start Time: 19:37:02

End Time:

03:19:30

Capacity: 8000.00 psig

Last Calib.: 2015.07.15

Time On Btm: 2015.07.14 @ 22:01:20

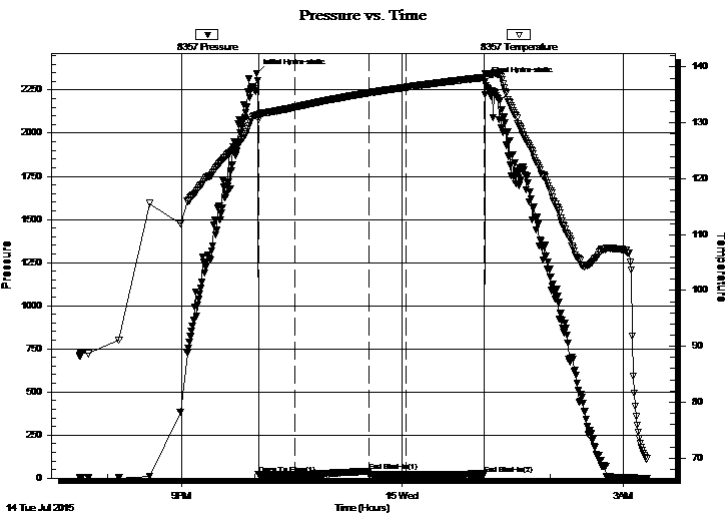
Time Off Btm: 2015.07.15 @ 01:07:20

TEST COMMENT: 30- Surface blow died @ 15 min.

60- No return.

30- No blow .

60- No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2347.06	131.48	Initial Hydro-static
2	20.43	130.53	Open To Flow (1)
32	20.10	132.82	Shut-In(1)
92	40.15	135.37	End Shut-In(1)
92	20.07	135.37	Open To Flow (2)
122	19.97	136.37	Shut-In(2)
186	24.65	138.12	End Shut-In(2)
186	2300.44	138.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	M 100m	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61694

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2015.07.14 @ 19:37:00

Tool Information

Drill Pipe:	Length: 4465.00 ft	Diameter: 3.82 inches	Volume: 63.29 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 63.88 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.50 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4593.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	41.00 ft			
Tool Length:	68.50 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			4566.50	
Shut In Tool	5.00			4571.50	
Hydraulic tool	5.00			4576.50	
Jars	5.00			4581.50	
Safety Joint	2.50			4584.00	
Packer	5.00			4589.00	27.50 Bottom Of Top Packer
Packer	4.00			4593.00	
Stubb	1.00			4594.00	
Recorder	0.00	8357	Inside	4594.00	
Recorder	0.00	6751	Outside	4594.00	
Perforations	4.00			4598.00	
Change Over Sub	1.00			4599.00	
Drill Pipe	31.00			4630.00	
Change Over Sub	1.00			4631.00	
Bullnose	3.00			4634.00	41.00 Bottom Packers & Anchor

Total Tool Length: 68.50



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10-4s-36w Rawlins,KS

250 N Water Suite 300
Wichita, KS 67202

Johnson 'E' #1-10

Job Ticket: 61694

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2015.07.14 @ 19:37:00

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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.60 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	M 100m	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

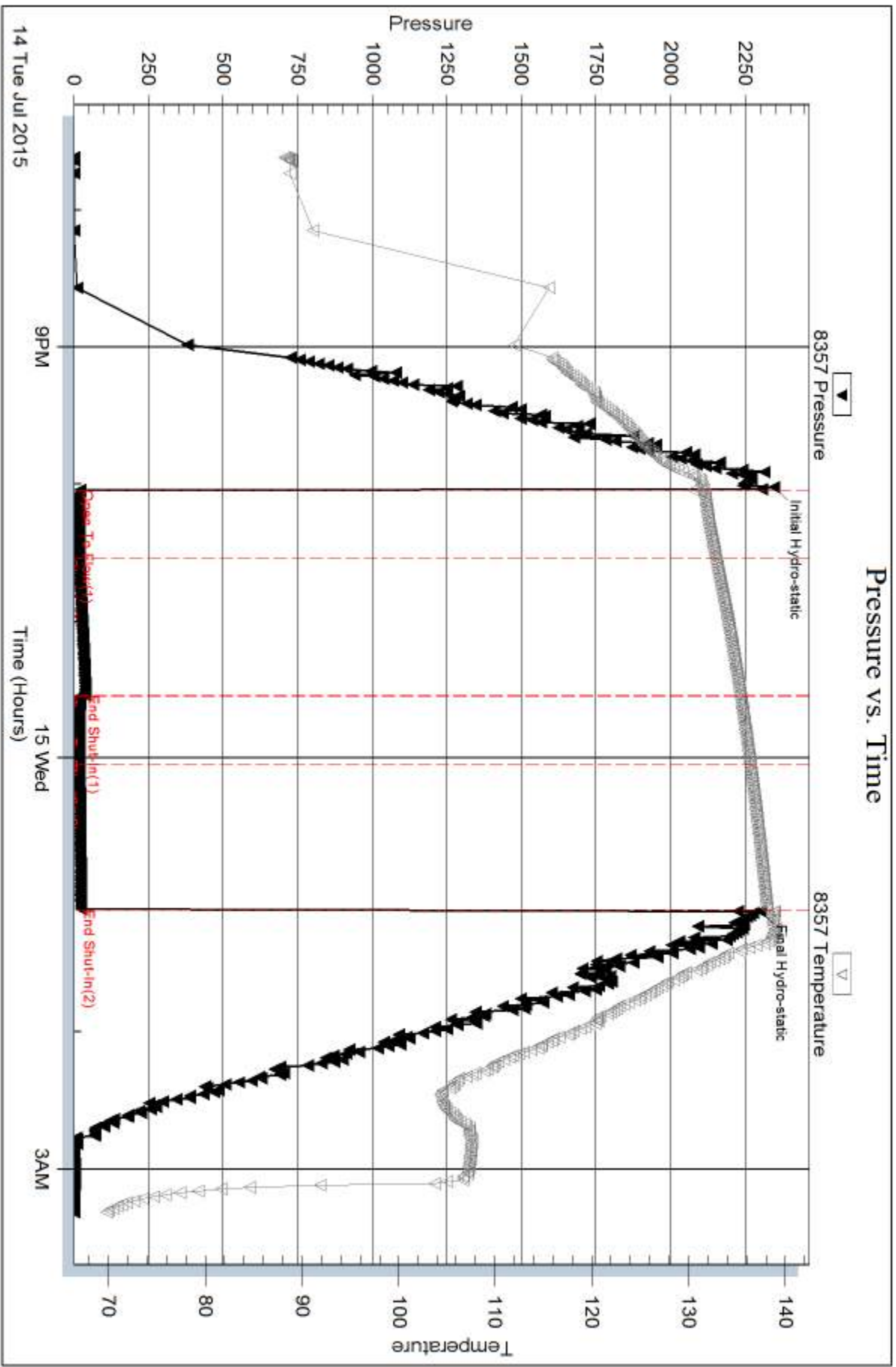
Num Gas Bombs: 0

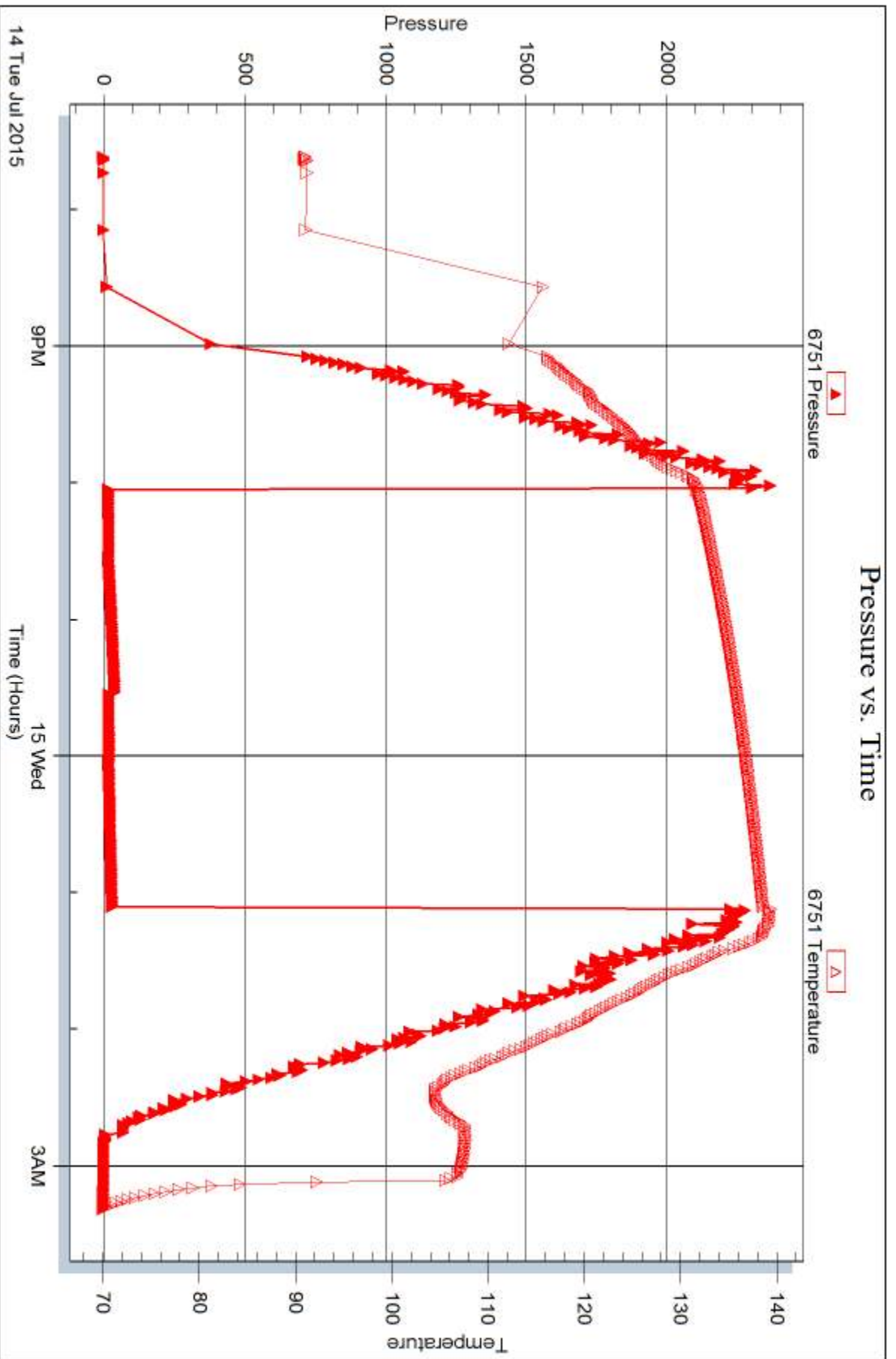
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61693

Well Name & No. Johnson 'E' #1-10 Test No. 1 Date 7-12-15
 Company Murfin Drilling Co., Inc Elevation 3245 KB 3240 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig M.D.C. #24
 Location: Sec. 10 Twp. 7s Rge. 36w Co. Rawlins State Ks

Interval Tested 4100 - 4219 Zone Tested LKC A+D
 Anchor Length 119 Drill Pipe Run 3965 Mud Wt. 9.0
 Top Packer Depth 4096 Drill Collars Run 120 Vis 53
 Bottom Packer Depth 4100 Wt. Pipe Run 0 WL 5.6
 Total Depth 4219 Chlorides 1200 ppm System LCM 8"
 Blow Description 1/2" Blow died @ 20 min.
No return.
No blow.
No return.

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>30</u>	Feet of <u>M</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 30 BHT 128 Gravity — API RW — @ — ° F Chlorides — ppm
 (A) Initial Hydrostatic 2025 Test 1150 T-On Location 16:35
 (B) First Initial Flow 22 Jars 250 T-Started 16:37
 (C) First Final Flow 26 Safety Joint 75 T-Open 19:23
 (D) Initial Shut-In 1192 Circ Sub N/C T-Pulled 22:28
 (E) Second Initial Flow 29 Hourly Standby — T-Out 00:18
 (F) Second Final Flow 34 Mileage 229RT 100 Comments —
 (G) Final Shut-In 1117 Sampler —
 (H) Final Hydrostatic 2052 Straddle — Ruined Shale Packer —
 Shale Packer — Ruined Packer —
 Extra Packer — Extra Copies —
 Extra Recorder — Sub Total 0
 Day Standby — Total 1575
 Accessibility — MP/DST Disc't —
 Sub Total 1575

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61694

Well Name & No. Johnson 'E' #1-10 Test No. 2 Date 7-14-15
 Company Mulfin Drilling Co., Inc. Elevation 3245 KB 3240 GL
 Address 250 N. Water STE. 300 Wichita, KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig M.D.C. #24
 Location: Sec. 10 Twp. 4s Rge. 36w Co. Rawlins State KS

Interval Tested 4593-4634 Zone Tested Cherokee - Verdigris
 Anchor Length 41 Drill Pipe Run 4465 Mud Wt. 9.2
 Top Packer Depth 4589 Drill Collars Run 120 Vis 63
 Bottom Packer Depth 4593 Wt. Pipe Run 0 WL 5.6
 Total Depth 4634 Chlorides 1200 ppm System LCM 8*
 Blow Description Surface blow died @ 15 min.
No return.
No blow.
No return.

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>2</u>	Feet of <u>M</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 2 BHT 138 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2347</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>19:05</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>19:37</u>
(C) First Final Flow <u>20</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:03</u>
(D) Initial Shut-In <u>40</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>1:07</u>
(E) Second Initial Flow <u>20</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>3:20</u>
(F) Second Final Flow <u>20</u>	<input checked="" type="checkbox"/> Mileage <u>96 RT colby</u> <u>100</u>	Comments <u>3 Nights motel</u>
(G) Final Shut-In <u>25</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2300</u>	<input type="checkbox"/> Straddle	
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Ruined Packer <u>320</u>
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Day Standby <u>1.5d 6.75h</u>	Sub Total <u>225+320</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	Total <u>2120</u>
Final Flow <u>30</u>	Sub Total <u>1575</u>	MP/DST Disc't
Final Shut-In <u>60</u>		

Approved By _____ Our Representative Chuck Smith

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.