



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N Water Ste 300  
Wichita, KS 67202-1216

ATTN: Mike Maune

### **Collingwood #1-34**

#### **34-21s-39w Hamilton,KS**

Start Date: 2014.04.19 @ 10:00:37

End Date: 2014.04.19 @ 18:45:37

Job Ticket #: 56337                      DST #: 1

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

Printed: 2014.04.28 @ 13:51:18

Murfin Drilling Co Inc

34-21s-39w Hamilton,KS

Collingwood #1-34

DST # 1

Morrow

2014.04.19



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita, KS 67202-1216  
ATTN: Mike Maune

**34-21s-39w Hamilton,KS**

**Collingwood #1-34**

Job Ticket: 56337      **DST#: 1**  
Test Start: 2014.04.19 @ 10:00:37

## GENERAL INFORMATION:

Formation: **Morrow**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 12:51:37  
Time Test Ended: 18:45:37  
Interval: **4936.00 ft (KB) To 5041.00 ft (KB) (TVD)**  
Total Depth: 5041.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane McBride  
Unit No: 55  
Reference Elevations: 3441.00 ft (KB)  
3430.00 ft (CF)  
KB to GR/CF: 11.00 ft

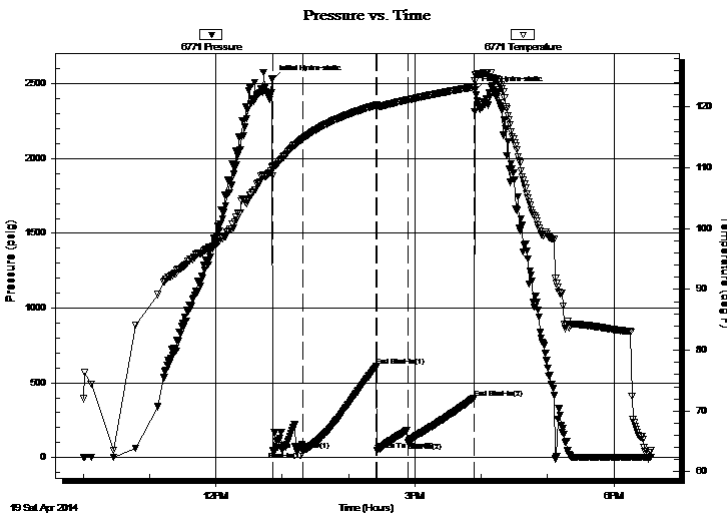
## Serial #: 6771

Inside

Press@RunDepth: 101.90 psig @ 4937.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.04.19      End Date: 2014.04.19      Last Calib.: 2014.04.19  
Start Time: 10:00:37      End Time: 18:33:37      Time On Btm: 2014.04.19 @ 12:51:22  
Time Off Btm: 2014.04.19 @ 15:54:37

TEST COMMENT: 1/4" blow died in 12 min.  
No return  
No blow  
No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2529.95	110.16	Initial Hydro-static
1	46.59	108.73	Open To Flow (1)
28	41.51	114.85	Shut-In(1)
94	608.99	120.32	End Shut-In(1)
95	48.71	120.13	Open To Flow (2)
123	101.90	121.19	Shut-In(2)
183	399.17	123.32	End Shut-In(2)
184	2457.10	125.33	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	heavy thick mud 100% mud	0.02
0.00	50% of recovery w as lcm	0.00

## Gas Rates

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



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250 N Water Ste 300  
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ATTN: Mike Maune

**34-21s-39w Hamilton,KS**

**Collingwood #1-34**

Job Ticket: 56337      **DST#: 1**  
Test Start: 2014.04.19 @ 10:00:37

**GENERAL INFORMATION:**

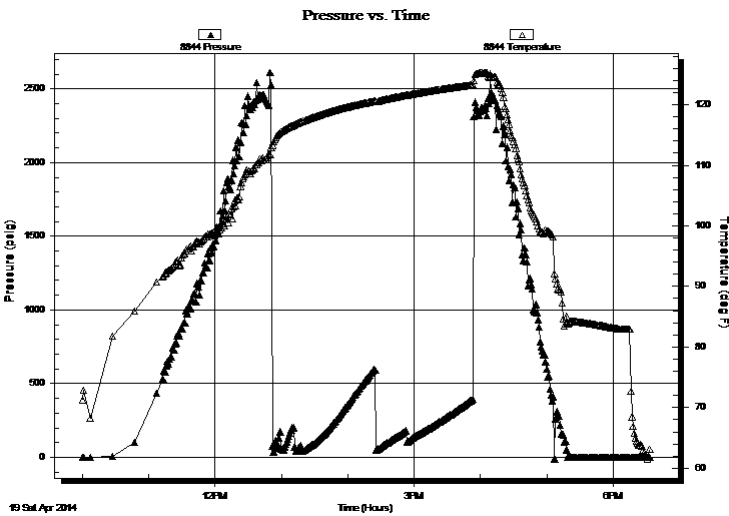
Formation: **Morrow**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 12:51:37  
Time Test Ended: 18:45:37  
**Interval: 4936.00 ft (KB) To 5041.00 ft (KB) (TVD)**  
Total Depth: 5041.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Shane McBride  
Unit No: 55  
Reference Elevations: 3441.00 ft (KB)  
3430.00 ft (CF)  
KB to GR/CF: 11.00 ft

**Serial #: 8844 Outside**

Press@RunDepth: psig @ 4937.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.04.19 End Date: 2014.04.19 Last Calib.: 2014.04.19  
Start Time: 10:00:19 End Time: 18:33:19 Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 1/4" blow died in 12 min.  
No return  
No blow  
No return

**PRESSURE SUMMARY**



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

**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	heavy thick mud 100% mud	0.02
0.00	50% of recovery w as lcm	0.00

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co Inc  
250 N Water Ste 300  
Wichita, KS 67202-1216  
ATTN: Mike Maune

**34-21s-39w Hamilton,KS**  
**Collingwood #1-34**  
Job Ticket: 56337      **DST#: 1**  
Test Start: 2014.04.19 @ 10:00:37

**Tool Information**

Drill Pipe:	Length: 4661.00 ft	Diameter: 3.80 inches	Volume: 65.38 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: 25000.00 lb
Drill Collar:	Length: 268.00 ft	Diameter: 2.25 inches	Volume: 1.32 bbl	Weight to Pull Loose: 115000.0 lb
			<u>Total Volume: 66.70 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 97000.00 lb
Depth to Top Packer:	4936.00 ft			Final 97000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	105.00 ft			
Tool Length:	133.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			4909.00	
Shut In Tool	5.00			4914.00	
Hydraulic tool	5.00			4919.00	
Jars	5.00			4924.00	
Safety Joint	3.00			4927.00	
Packer	5.00			4932.00	28.00      Bottom Of Top Packer
Packer	4.00			4936.00	
Stubb	1.00			4937.00	
Recorder	0.00	6771	Inside	4937.00	
Recorder	0.00	8844	Outside	4937.00	
Perforations	33.00			4970.00	
Change Over Sub	1.00			4971.00	
Drill Pipe	64.00			5035.00	
Change Over Sub	1.00			5036.00	
Bullnose	5.00			5041.00	105.00      Bottom Packers & Anchor

**Total Tool Length: 133.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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ATTN: Mike Maune

**34-21s-39w Hamilton,KS**  
**Collingwood #1-34**  
Job Ticket: 56337      **DST#: 1**  
Test Start: 2014.04.19 @ 10:00:37

## 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: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.76 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 5800.00 ppm			
Filter Cake: 1.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	heavy thick mud 100%mud	0.025
0.00	50% of recovery w as lcm	0.000

Total Length: 5.00 ft      Total Volume: 0.025 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

Serial #: 6771

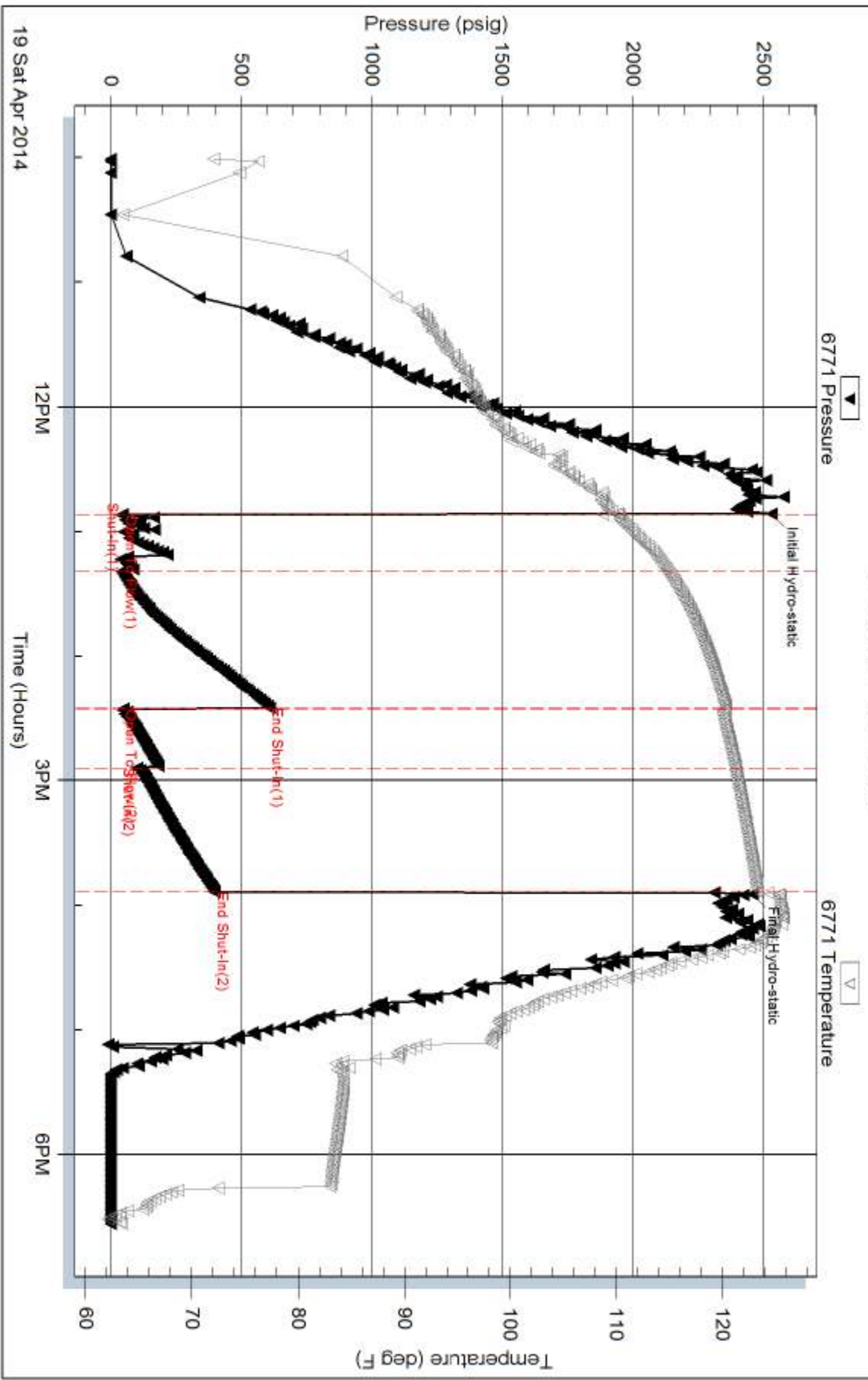
Inside

Murfin Drilling Co Inc

Collingwood #1-34

DST Test Number: 1

### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 56337

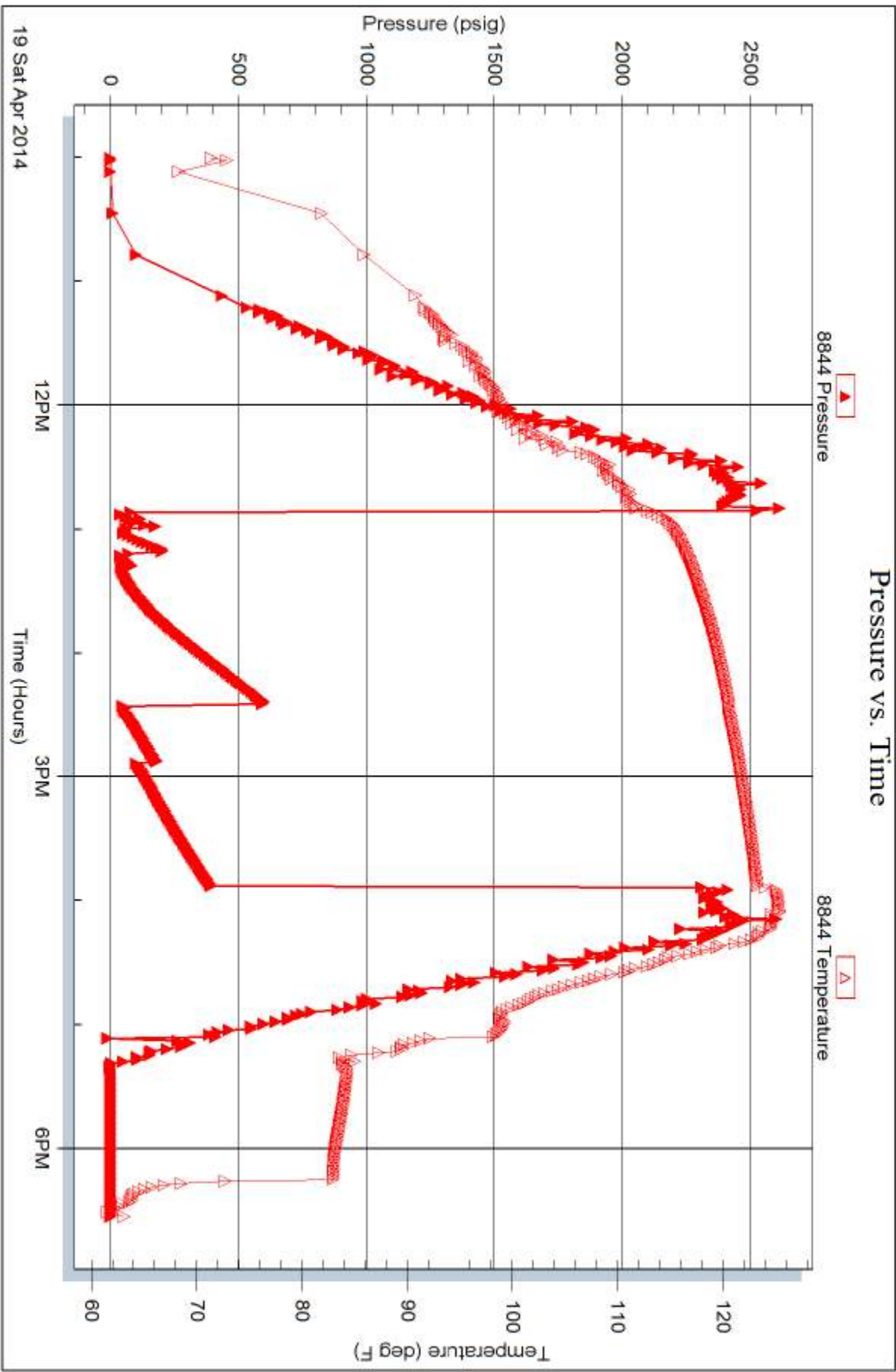
Printed: 2014.04.28 @ 13:51:19

Serial #: 8844

Outside Murfin Drilling Co Inc

Collingwood #1-34

DST Test Number: 1



19 Sat Apr 2014

12 PM

Time (Hours)

3 PM

6 PM



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 56337

Well Name & No. Collinswood #1-34 Test No. #1 Date 4/19/14  
 Company Mudwin Drilling Co Inc. Elevation 3441 KB 3430 GL  
 Address 250 N. Water St. 300 Wichita, KS 67202-1204  
 Co. Rep / Geo. Mike Maune Rig Mudwin #1  
 Location: Sec. 34 Twp. 21S Rge. 39W Co. Hamilton State Ks

Interval Tested 4936 5041 Zone Tested Marrow  
 Anchor Length 105' Drill Pipe Run 464' Mud Wt. 9.2  
 Top Packer Depth 4931 Drill Collars Run 268' Vis 57  
 Bottom Packer Depth 4934 Wt. Pipe Run — WL 8.8  
 Total Depth 5041 Chlorides 5800 ppm System LCM #7

Blow Description 1/4" in blow died in 12 min.  
No return  
No blow  
No return

Rec	Feet of	%gas	%oil	%water	%mud
5'	Mud (Heavy Thick)			100	
	50% of Recovery was LCM				
	cotton seed hulls				

Rec Total 5' BHT 125° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2529</u>	<input checked="" type="checkbox"/> Test <u>1350</u>	T-On Location <u>06:45</u>
(B) First Initial Flow <u>46</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:00</u>
(C) First Final Flow <u>41</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:50</u>
(D) Initial Shut-In <u>608</u>	<input checked="" type="checkbox"/> Circ Sub <u>n/c</u>	T-Pulled <u>15:50</u>
(E) Second Initial Flow <u>48</u>	<input checked="" type="checkbox"/> Hourly Standby <u>2 1/4 hrs @ 100</u>	T-Out <u>18:45</u>
(F) Second Final Flow <u>101</u>	<input checked="" type="checkbox"/> Mileage <u>114 RT</u> <u>353.40</u>	Comments <u>Rig doc ready @ 7:30</u>
(G) Final Shut-In <u>399</u>	<input type="checkbox"/> Sampler	<u>wasted 2 1/4 hrs for Rig</u>
(H) Final Hydrostatic <u>2457</u>	<input type="checkbox"/> Straddle	<u>to pull Bit. on loc 3 1/4</u>
	<input type="checkbox"/> Shale Packer	<u>Before rig was ready.</u>
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Day Standby <u>1d 13.25h</u>	Sub Total <u>800</u>
	<input checked="" type="checkbox"/> Accessibility <u>150.00</u>	Total <u>3078.40</u>
	Sub Total <u>2278.40</u>	MP/DST Disc't

Approved By Mike Maune Our Representative [Signature]

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

Picked up Tools 2, Released @ 08:00 AM 4/21/14