

**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water Suite 300
Wichita, KS 67202

ATTN: Kent Crisler

HFM #1-33

33-14s-18w Ellis,KS

Start Date: 2013.01.20 @ 18:16:57

End Date: 2013.01.21 @ 02:55:12

Job Ticket #: 51717 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.01.25 @ 10:04:04

Murfin Drilling Company

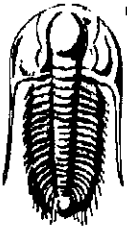
33-14s-18w Ellis,KS

HFM #1-33

DST # 1

Toronto-B

2013.01.20



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Company
250 N. Water Suite 300
Wichita, KS 67202
ATTN: Kent Crisler

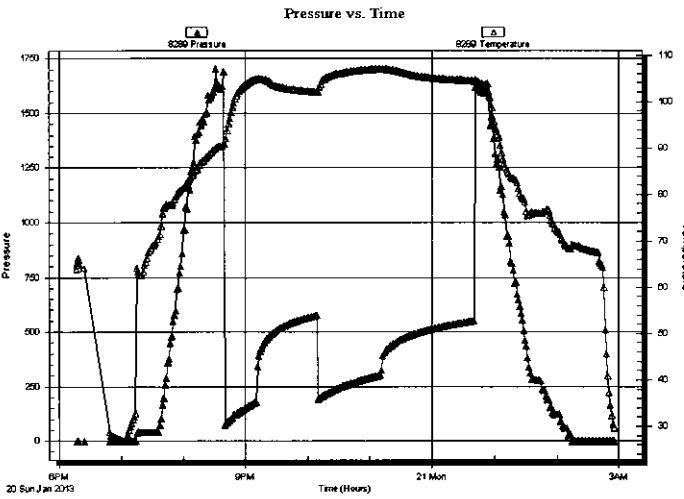
33-14s-18w Ellis,KS
HFM #1-33
Job Ticket: 51717 **DST#: 1**
Test Start: 2013.01.20 @ 18:16:57

GENERAL INFORMATION:

Formation: **Toronto-B**
Deviated: **No** Whipstock: ft (KB) Test Type: **Conventional Bottom Hole (Initial)**
Time Tool Opened: 20:39:27 Tester: **Jason McLemore**
Time Test Ended: 02:55:12 Unit No: **54**
Interval: **3278.00 ft (KB) To 3366.00 ft (KB) (TVD)** Reference Elevations: 2048.00 ft (KB)
Total Depth: **3366.00 ft (KB) (TVD)** 2043.00 ft (CF)
Hole Diameter: **7.88 inches** Hole Condition: **Good** KB to GR/CF: 5.00 ft

Serial #: 8289 Outside
Press@RunDepth: psig @ 3355.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.01.20 End Date: 2013.01.21 Last Calib.: 2013.01.21
Start Time: 18:16:59 End Time: 02:55:27 Time On Btmr
Time Off Btmr

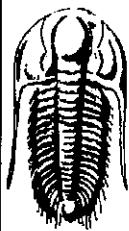
TEST COMMENT: IFP-Strong, BOB in 5 Min.
IS-Dead
FFP-Good Blow, BOB in 15 Min.
FSI-Dead



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

Recovery		
Length (ft)	Description	Volume (tbt)
484.00	Muddy Water	6.55
1.00	Free Oil	0.01

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

33-14s-18w Ellis, KS

250 N. Water Suite 300
Wichita, KS 67202

HFM #1-33

Job Ticket: 51717

DST#: 1

ATTN: Kent Crisler

Test Start: 2013.01.20 @ 18:16:57

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:

95000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 11600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
484.00	Muddy Water	6.551
1.00	Free Oil	0.014

Total Length: 485.00 ft

Total Volume: 6.565 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

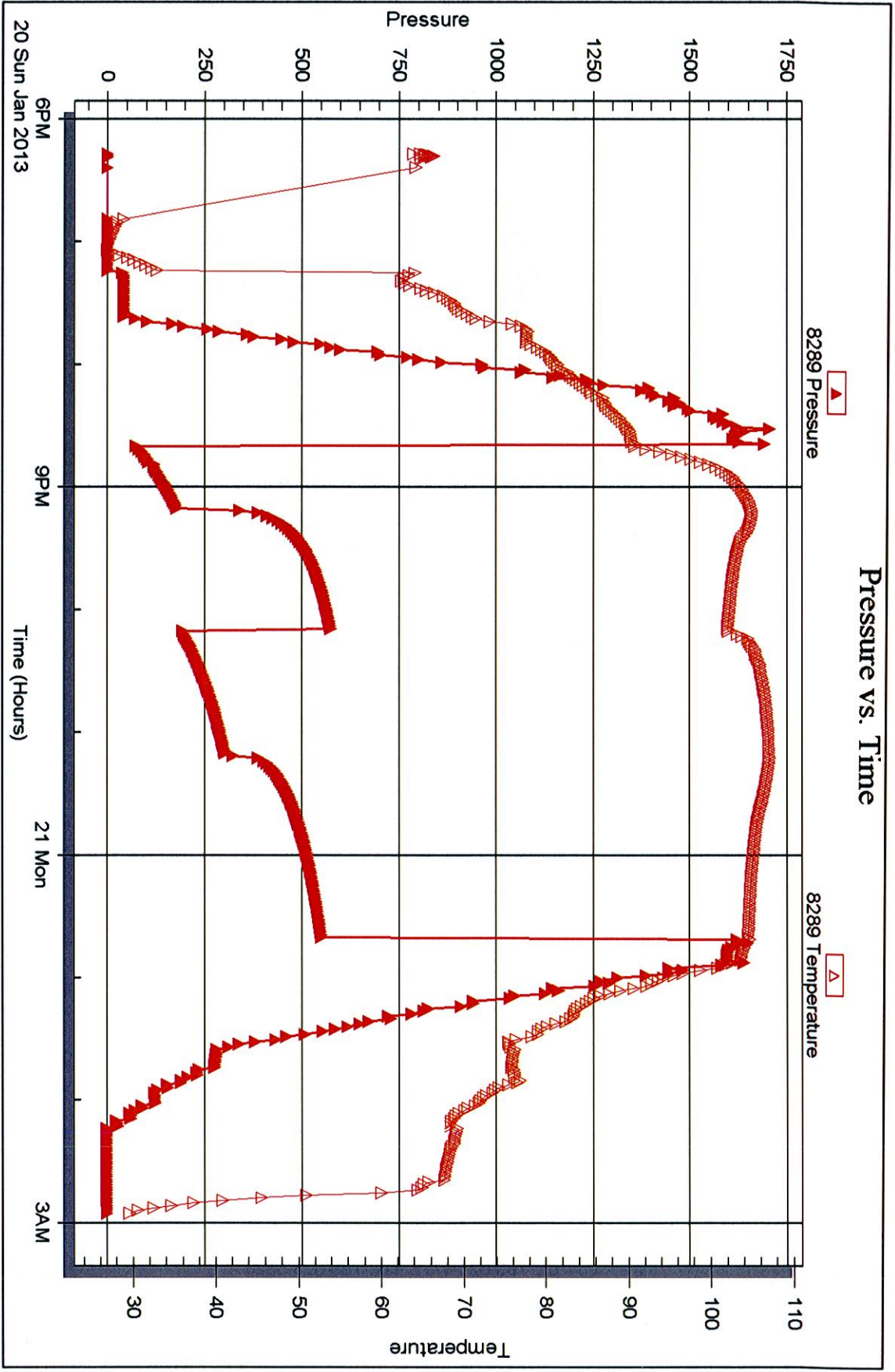
Recovery Comments:

Serial #: 8289

Outside Murfin Drilling Company

HFM#1-33

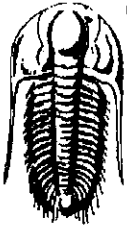
DST Test Number: 1



Triolite Testing, Inc

Ref. No: 51717

Printed: 2013.01.25 @ 10:04:07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company
250 N. Water Suite 300
Wichita, KS 67202
ATTN: Kent Crisler

33-14s-18w Ellis,KS
HFM #1-33
Job Ticket: 51718 **DST#: 2**
Test Start: 2013.01.21 @ 11:35:53

GENERAL INFORMATION:

Formation: **C-E**
Deviated: **No** Whipstock: ft (KB) Test Type: **Conventional Bottom Hole (Reset)**
Time Tool Opened: 13:31:38 Tester: **Jason McLemore**
Time Test Ended: 18:22:53 Unit No: **54**

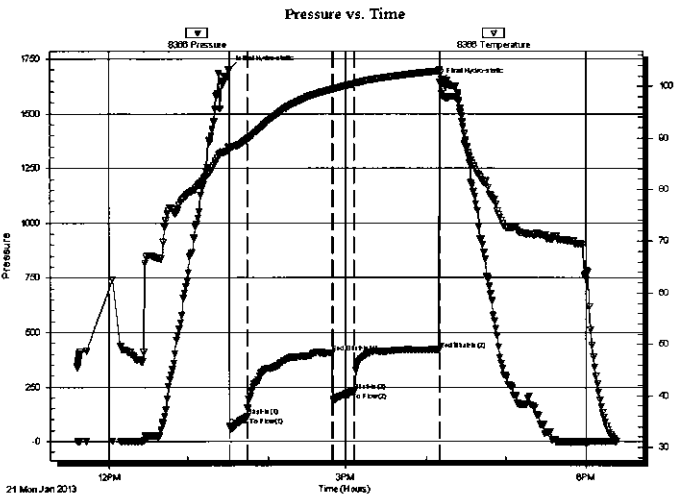
Interval: **3364.00 ft (KB) To 3420.00 ft (KB) (TVD)** Reference Elevations: 2048.00 ft (KB)
Total Depth: **3420.00 ft (KB) (TVD)** 2043.00 ft (CF)
Hole Diameter: **7.88 inches** Hole Condition: **Good** KB to GR/CF: 5.00 ft

Serial #: 8366

Inside

Press@RunDepth: 231.56 psig @ 3399.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.01.21 End Date: 2013.01.21 Last Calib.: 2013.01.21
Start Time: 11:35:55 End Time: 18:22:53 Time On Btm: 2013.01.21 @ 13:31:08
Time Off Btm: 2013.01.21 @ 16:10:23

TEST COMMENT: IFF-Strong, BOB in 1 Min.
IS-Blow back BOB in 15 Min.
FFP-Strong, BOB in 5 Min.
FSI-Blow back Built to 8"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1702.00	88.15	Initial Hydro-static
1	72.61	87.92	Open To Flow (1)
14	114.65	89.65	Shut-In(1)
79	406.88	99.35	End Shut-In(1)
80	188.48	99.28	Open To Flow (2)
96	231.56	100.44	Shut-In(2)
159	422.14	102.93	End Shut-In(2)
160	1643.09	103.25	Final Hydro-static

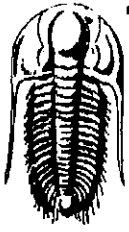
Recovery

Length (ft)	Description	Volume (bbl)
120.00	VSOCMW-1%O-94%W-5%M	1.44
330.00	GOCMW-25%G-20%O-50%W-5%M	4.63
45.00	GHOCWM-15%G-50%O-15%W-20%M	0.63
0.00	585' Gas In Pipe	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 Company

33-14s-18w Ellis, KS

250 N. Water Suite 300
Wichita, KS 67202

HFM #1-33

Job Ticket: 51718

DST#: 2

ATTN: Kent Crisler

Test Start: 2013.01.21 @ 11:35:53

Tool Information

Drill Pipe:	Length: 3328.00 ft	Diameter: 3.80 inches	Volume: 46.68 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.50 inches	Volume: 0.18 bbl	Weight to Pull Loose: 48000.00 lb
			Total Volume: 46.86 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3364.00 ft			Final 46500.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	84.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3337.00	
Shut In Tool	5.00			3342.00	
Hydraulic tool	5.00			3347.00	
Jars	5.00			3352.00	
Safety Joint	2.00			3354.00	
Packer	5.00			3359.00	28.00 Bottom Of Top Packer
Packer	5.00			3364.00	
Stubb	1.00			3365.00	
Perforations	1.00			3366.00	
Change Over Sub	1.00			3367.00	
Blank Spacing	31.00			3398.00	
Change Over Sub	1.00			3399.00	
Recorder	0.00	8366	Inside	3399.00	
Recorder	0.00	8289	Outside	3399.00	
Perforations	18.00			3417.00	
Bullnose	3.00			3420.00	56.00 Bottom Packers & Anchor
Total Tool Length:	84.00				

Serial #: 8366

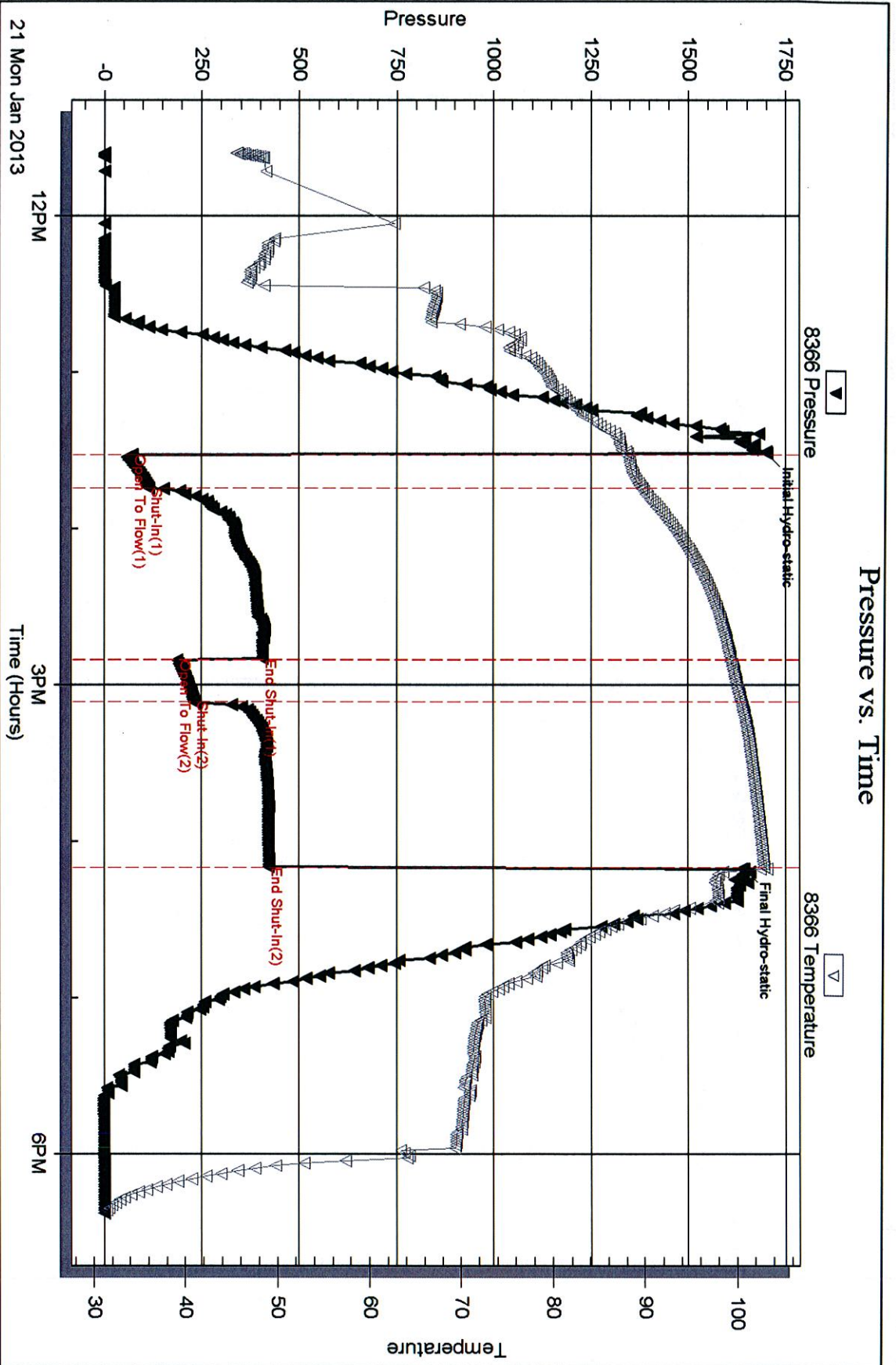
Inside

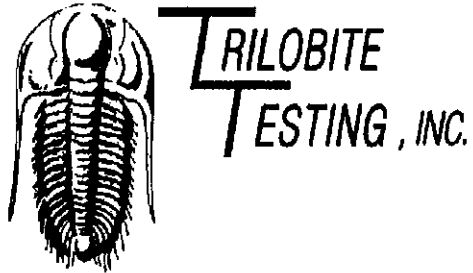
Murfin Drilling Company

HFM #1-33

DST Test Number: 2

Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company**

250 N. Water Suite 300
Wichita, KS 67202

ATTN: Kent Crisler

HFM #1-33

33-14s-18w Ellis,KS

Start Date: 2013.01.22 @ 05:03:33

End Date: 2013.01.22 @ 13:24:03

Job Ticket #: 51719 DST #: 3

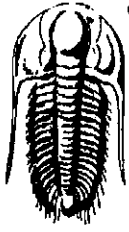
Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.01.25 @ 10:02:34

Murfin Drilling Company 33-14s-18w Ellis,KS HFM #1-33 DST # 3 H-1 2013.01.22



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company

33-14s-18w Ellis, KS

250 N. Water Suite 300
Wichita, KS 67202

HFM #1-33

Job Ticket: 51719

DST#: 3

ATTN: Kent Crisler

Test Start: 2013.01.22 @ 05:03:33

Tool Information

Drill Pipe:	Length: 3420.00 ft	Diameter: 3.80 inches	Volume: 47.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.50 inches	Volume: 0.18 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 48.15 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3448.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	97.00 ft			
Tool Length:	125.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3421.00	
Shut In Tool	5.00			3426.00	
Hydraulic tool	5.00			3431.00	
Jars	5.00			3436.00	
Safety Joint	2.00			3438.00	
Packer	5.00			3443.00	28.00 Bottom Of Top Packer
Packer	5.00			3448.00	
Stubb	1.00			3449.00	
Perforations	2.00			3451.00	
Change Over Sub	1.00			3452.00	
Blank Spacing	64.00			3516.00	
Change Over Sub	1.00			3517.00	
Recorder	0.00	8289	Inside	3517.00	
Recorder	0.00	8366	Outside	3517.00	
Perforations	25.00			3542.00	
Bullnose	3.00			3545.00	97.00 Bottom Packers & Anchor
Total Tool Length:	125.00				

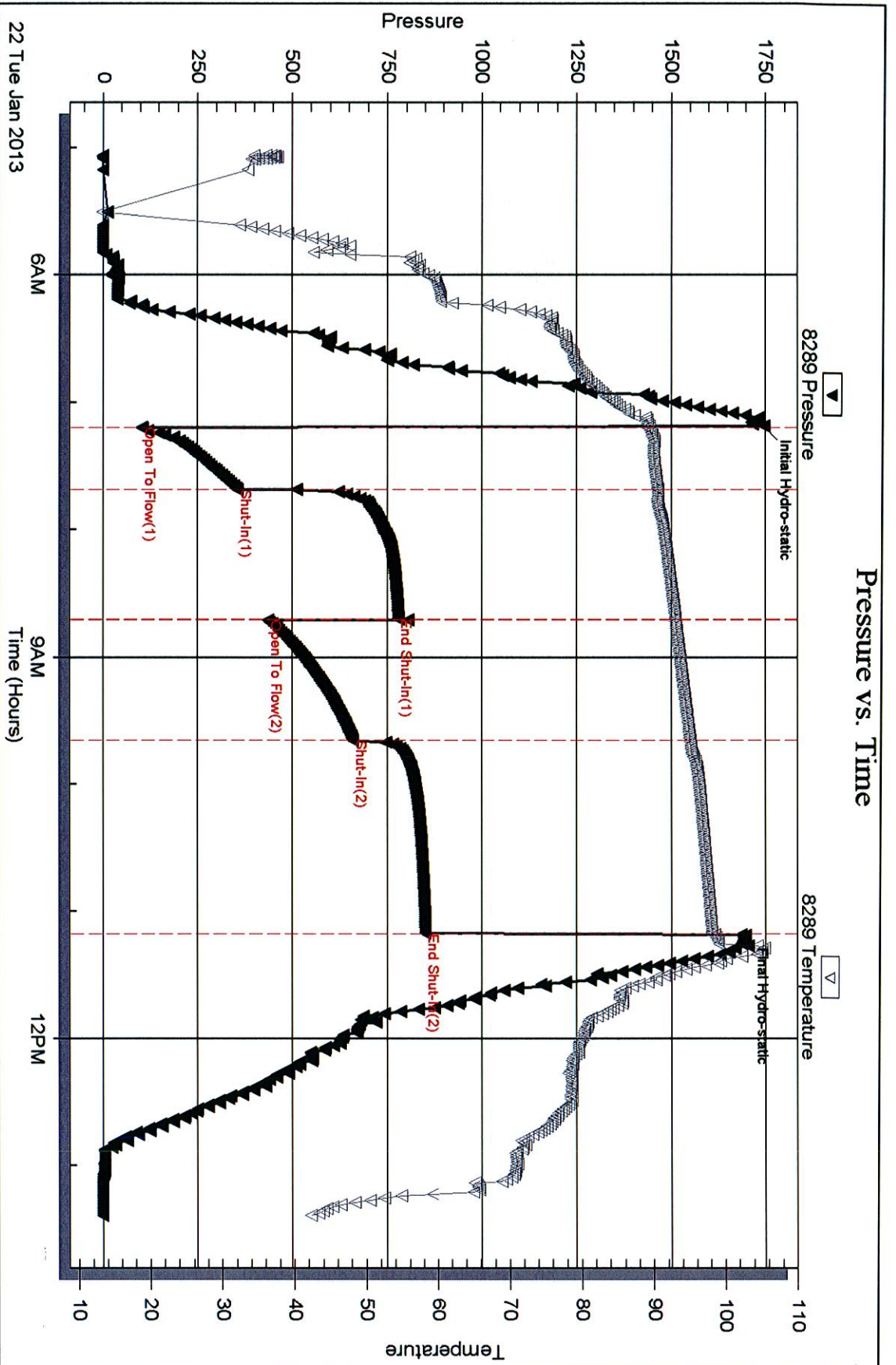
Serial #: 8289

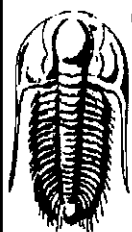
Inside

Murfin Drilling Company

HFM#1-33

DST Test Number: 3





**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company

33-14s-18w Ellis,KS

250 N. Water Suite 300
Wichita, KS 67202

HFM #1-33

Job Ticket: 51720

DST#: 4

ATTN: Kent Crisler

Test Start: 2013.01.23 @ 01:00:10

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:

40000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 14000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
930.00	Muddy Water-95%W-5%M	12.807

Total Length: 930.00 ft

Total Volume: 12.807 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. 51717

Well Name & No. HFM # 1-33 Test No. 1 Date 1-20-13
 Company Murfin Drilling Company Elevation 2048 KB 2043 GL
 Address 250 N. Water, Suite 300, Wichita, KS. 67202
 Co. Rep / Geo. Kent Crisler Rig Murfin #16
 Location: Sec. 33 Twp. 14s Rge. 18w Co. Ellis State KS

Interval Tested 3278-3366 Zone Tested Toronto - B
 Anchor Length 88' Drill Pipe Run 3243 Mud Wt. 9.1
 Top Packer Depth 3283 Drill Collars Run 30 Vis 58
 Bottom Packer Depth 3288 Wt. Pipe Run 0 WL 8.4
 Total Depth 3366 Chlorides 11,600 ppm System LCM
 Blow Description IFP - Strong, BOB in 5 min.
ISI - Dead
FFP - Good Blow, BOB in 15 min, Died back after 30 min
FSI - Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Free Oil</u>				
<u>484</u>	<u>Muddy Water</u>			<u>95</u>	<u>5</u>

Rec Total 485 BHT _____ Gravity _____ API RW .230 @ 20 ° F Chlorides 95,000 ppm

(A) Initial Hydrostatic _____ Test 1150 T-On Location 16:47
 (B) First Initial Flow _____ Jars 250 T-Started 18:14
 (C) First Final Flow _____ Safety Joint 75 T-Open 20:40
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled 24:40
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 2:57
 (F) Second Final Flow _____ Mileage 18 rt 27.90 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 60 Day Standby _____ Total 1502.90
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total 1502.90

Approved By _____ Our Representative Jason McJannet
 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.

Thank you



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **51719**

Well Name & No. HFM #1-33 Test No. 3 Date 1-22-13
 Company Murfin Drilling Company Elevation 2048 KB 2043 GL
 Address 250 N. Water, Suite 300, Wichita, KS. 67202
 Co. Rep / Geo. Kent Crisler Rig Murfin #16
 Location: Sec. 33 Twp. 14s Rge. 18w Co. Ellis State KS

Interval Tested 3448-3545 Zone Tested H-J
 Anchor Length 97' Drill Pipe Run 3420 Mud Wt. 9.1
 Top Packer Depth 3443 Drill Collars Run 30 Vis 58
 Bottom Packer Depth 3448 Wt. Pipe Run 0 WL 8.4
 Total Depth 3545 Chlorides 11,600 ppm System LCM Ø

Blow Description IFP - Strong, BOB in 2 min.
ISI - Blowback Built to 2 1/4"
FFP - Strong Blow, BOB in 4 min
FST - Blowback Built to 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Free Oil</u>				
<u>1225</u>	<u>Muddy Water with Oil</u>		<u>1</u>	<u>94</u>	<u>5</u>
	<u>Scum</u>				
	<u>210' Gas In Pipe</u>				

Rec Total 1230 BHT _____ Gravity _____ API RW 164 @ 55 °F Chlorides 65,000 ppm

(A) Initial Hydrostatic <u>1746</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>4:55</u>
(B) First Initial Flow <u>104</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>5:03</u>
(C) First Final Flow <u>355</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>7:14</u>
(D) Initial Shut-In <u>779</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>11:14</u>
(E) Second Initial Flow <u>437</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>13:24</u>
(F) Second Final Flow <u>660</u>	<input checked="" type="checkbox"/> Mileage <u>27.90</u>	Comments _____
(G) Final Shut-In <u>850</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1686</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>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1502.90</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1502.90</u>	

Approved By _____ Our Representative Jason McLawton *Thank you*

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.