



DRILL STEM TEST REPORT

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

250 Water STE 300
Wichita, KS 67202

ATTN: Keith Reavis

Harden #1-20

20-32s-21w Clark,KS

Start Date: 2013.01.29 @ 15:08:05

End Date: 2013.01.29 @ 17:18:45

Job Ticket #: 51431 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
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**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.

20-32s-21w Clark,KS

250 Water STE 300
Wichita, KS 67202

Harden #1-20

Job Ticket: 51431

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ATTN: Keith Reavis

Test Start: 2013.01.29 @ 15:08:05

Tool Information

Drill Pipe:	Length: 6266.00 ft	Diameter: 3.80 inches	Volume: 87.90 bbl	Tool Weight: 2500.00 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: 240.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 30000.00 lb
			<u>Total Volume: 89.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	6510.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	47.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			6484.00	
Shut In Tool	5.00			6489.00	
Hydraulic tool	5.00			6494.00	
Jars	5.00			6499.00	
Safety Joint	2.00			6501.00	
Packer	5.00			6506.00	27.00 Bottom Of Top Packer
Packer	4.00			6510.00	
Stubb	1.00			6511.00	
Recorder	0.00	8677	Inside	6511.00	
Recorder	0.00	8522	Outside	6511.00	
Perforations	16.00			6527.00	
Bullnose	3.00			6530.00	20.00 Bottom Packers & Anchor

Total Tool Length: 47.00



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FLUID SUMMARY

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20-32s-21w Clark,KS

250 Water STE 300
Wichita, KS 67202

Harden #1-20

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DST#: 1

ATTN: Keith Reavis

Test Start: 2013.01.29 @ 15:08:05

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 11.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00		0.000

Total Length:

ft

Total Volume:

bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

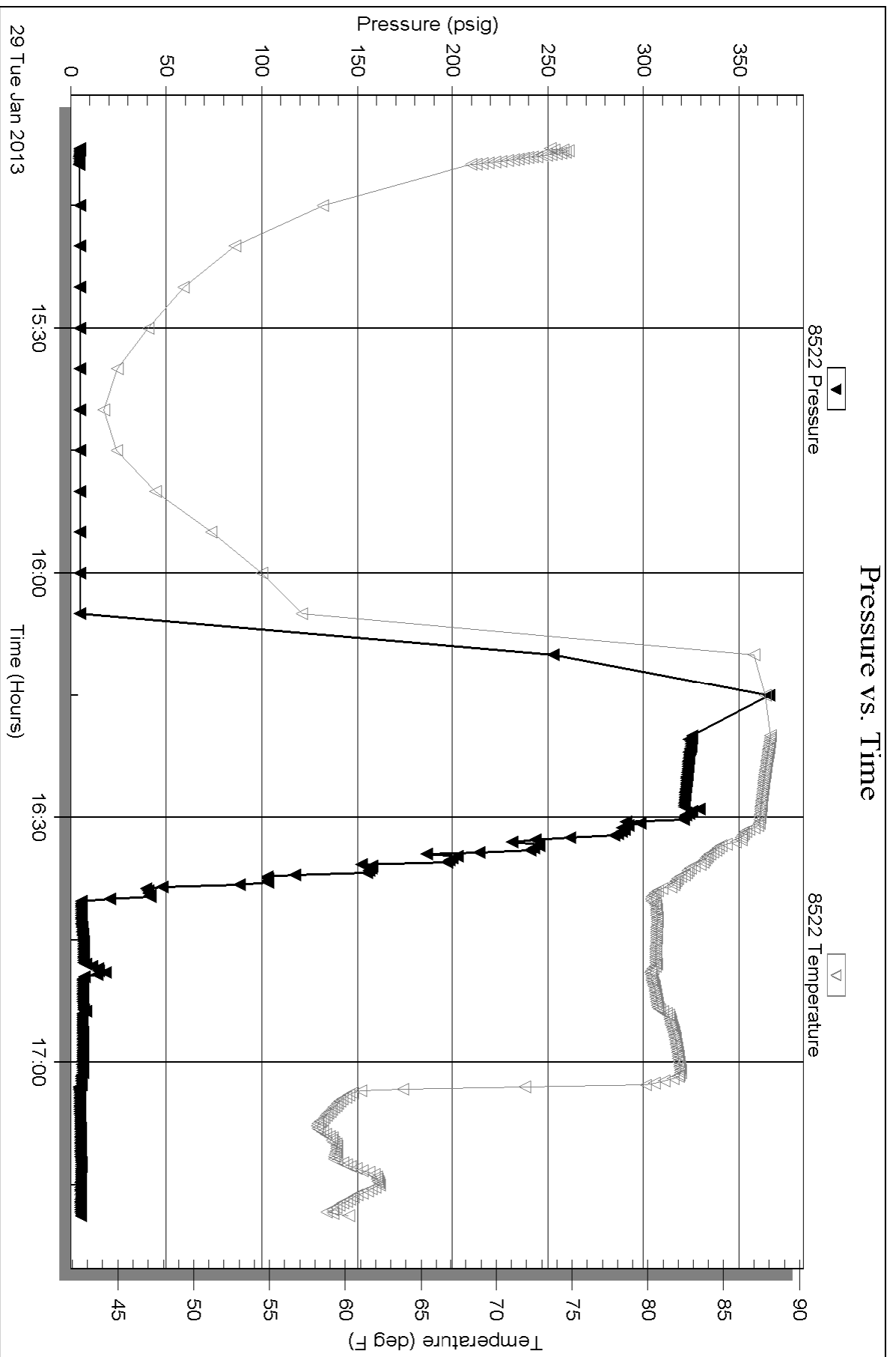
Recovery Comments:

Serial #: 8522

Outside Murfin Drilling Co, Inc.

Harden #1-20

DST Test Number: 1



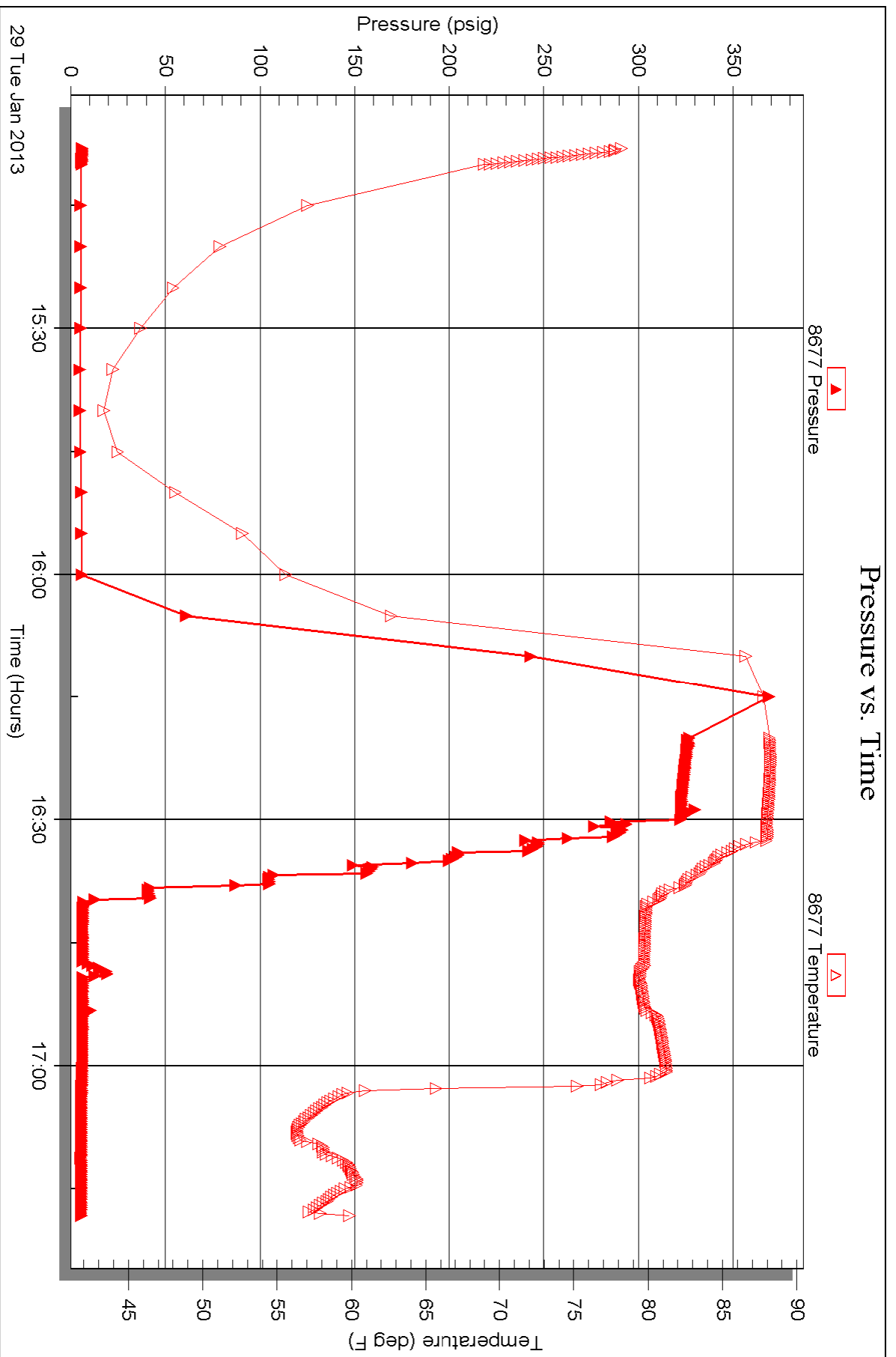
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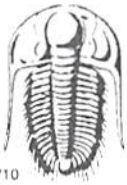
Inside

Murfin Drilling Co, Inc.

Harden #1-20

DST Test Number: 1





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51431

Well Name & No. Harden #1-20 Test No. 1 Date 1/29/15
 Company Murfin Drilling Co, Inc Elevation _____ KB _____ GL _____
 Address 250 Water STE 300 Wichita, Ks 67202
 Co. Rep / Geo. Keith Reavis Rig Murfin # 22
 Location: Sec. 20 Twp. 32 S Rge. 21 W Co. Clark State Ks

Interval Tested 6510 6530 Zone Tested Viola
 Anchor Length 20 Drill Pipe Run 6266 Mud Wt. 9.2
 Top Packer Depth 6505 Drill Collars Run 240 Vis 60
 Bottom Packer Depth 6510 Wt. Pipe Run Ø WL 12.0
 Total Depth 6530 Chlorides 9500 ppm System LCM 14#

Blow Description Mis-Run - Tool hit bridge on way down hole.

Rec	Feet of	%gas	%oil	%water	%mud
<u>Ø</u>					

Rec Total Ø BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic _____ Test 1250 _____ T-On Location 1400
 (B) First Initial Flow M _____ Jars 250 _____ T-Started 1508
 (C) First Final Flow I _____ Safety Joint 75 _____ T-Open _____
 (D) Initial Shut-In S _____ Circ Sub N/E _____ T-Pulled 1630
 (E) Second Initial Flow R _____ Hourly Standby _____ T-Out 17:18
 (F) Second Final Flow U _____ Mileage 146rt 452.60 _____
 (G) Final Shut-In N _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____

Comments Multiple Loss of Circ. ~~to~~ Pipe got stuck P/O Tool 1-30-13 @ 1100

Initial Open MIS RUN
 Initial Shut-In _____
 Final Flow _____
 Final Shut-In _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Sub Total 2027.60

Approved By _____ Our Representative [Signature]

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