



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202 -1216

ATTN: Jeff Christian

Zellner #1-3

3-18s-36w Wichita,KS

Start Date: 2013.10.13 @ 18:18:00

End Date: 2013.10.14 @ 01:26:00

Job Ticket #: 52983 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.10.21 @ 10:30:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

3-18s-36w Wichita, KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52983

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.10.13 @ 18:18:00

GENERAL INFORMATION:

Formation: **Kansas City " I "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:27:15

Time Test Ended: 01:26:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

Interval: 4206.00 ft (KB) To 4236.00 ft (KB) (TVD)

Reference Elevations: 3280.00 ft (KB)

Total Depth: 4236.00 ft (KB) (TVD)

3269.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8675

Inside

Press @ Run Depth: 25.71 psig @ 4207.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.13

End Date:

2013.10.14

Last Calib.: 2013.10.14

Start Time: 18:18:15

End Time:

01:26:00

Time On Btm: 2013.10.13 @ 20:27:00

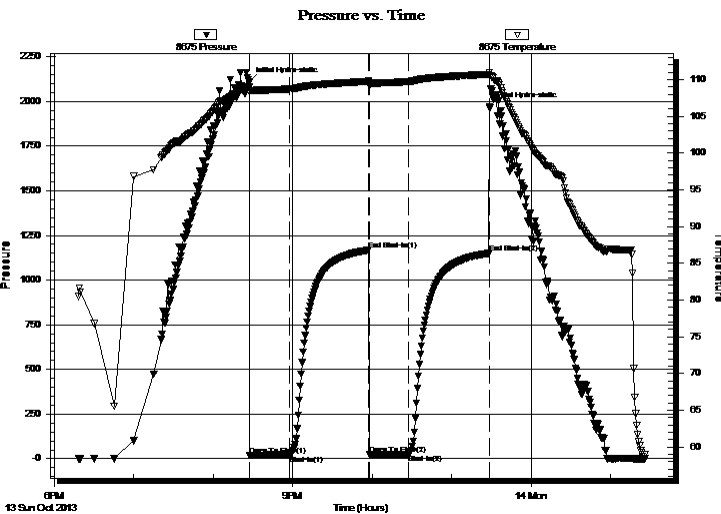
Time Off Btm: 2013.10.13 @ 23:28:30

TEST COMMENT: Built to 1/4", died in 28 min.

No return blow

No blow

No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2109.17	109.00	Initial Hydro-static
1	20.00	108.33	Open To Flow (1)
31	22.03	108.73	Shut-In(1)
91	1168.56	109.77	End Shut-In(1)
91	23.83	109.11	Open To Flow (2)
121	25.71	109.74	Shut-In(2)
182	1150.32	110.71	End Shut-In(2)
182	1971.90	110.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud w with few oil spots in tool	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company, Inc.

3-18s-36w Wichita,KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52983

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.10.13 @ 18:18:00

Tool Information

Drill Pipe:	Length: 3948.66 ft	Diameter: 3.80 inches	Volume: 55.39 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: 30000.00 lb
Drill Collar:	Length: 238.65 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 56.56 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.81 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4206.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	57.50 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			4179.50	
Shut In Tool	5.00			4184.50	
Hydraulic tool	5.00			4189.50	
Jars	5.00			4194.50	
Safety Joint	2.50			4197.00	
Packer	5.00			4202.00	27.50 Bottom Of Top Packer
Packer	4.00			4206.00	
Stubb	1.00			4207.00	
Recorder	0.00	8675	Inside	4207.00	
Recorder	0.00	8650	Outside	4207.00	
Perforations	26.00			4233.00	
Change Over Sub	0.00			4233.00	
Drill Pipe	0.00			4233.00	
Change Over Sub	0.00			4233.00	
Bullnose	3.00			4236.00	30.00 Bottom Packers & Anchor

Total Tool Length: 57.50



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company, Inc.

3-18s-36w Wichita,KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52983

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.10.13 @ 18:18:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 91.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	100% Mud with few oil spots in tool	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

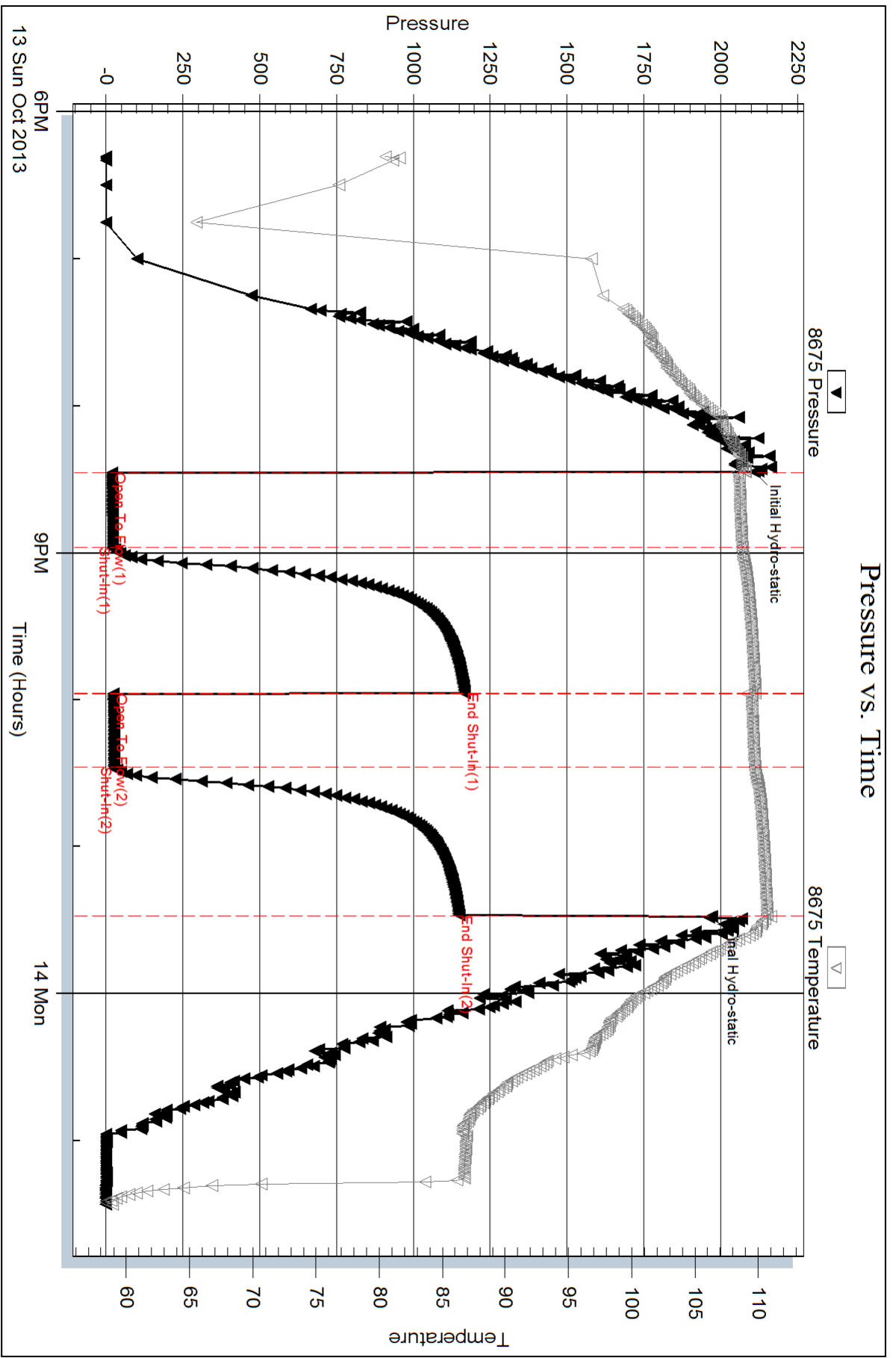
Serial #: 8675

Inside

Murfin Drilling Company, Inc.

Zellner #1-3

DST Test Number: 1





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202 -1216

ATTN: Jeff Christian

Zellner #1-3

3-18s-36w Wichita,KS

Start Date: 2013.10.16 @ 06:30:00

End Date: 2013.10.16 @ 14:58:30

Job Ticket #: 52984 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.10.21 @ 10:30:09



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company, Inc.

3-18s-36w Wichita, KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52984

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.10.16 @ 06:30:00

GENERAL INFORMATION:

Formation: **Marmaton " A & B "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:49:30

Time Test Ended: 14:58:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

Interval: 4441.00 ft (KB) To 4485.00 ft (KB) (TVD)

Reference Elevations: 3280.00 ft (KB)

Total Depth: 4485.00 ft (KB) (TVD)

3269.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8675

Inside

Press @ Run Depth: 74.81 psig @ 4442.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.16

End Date:

2013.10.16

Last Calib.:

2013.10.16

Start Time: 06:30:15

End Time:

14:58:30

Time On Btm:

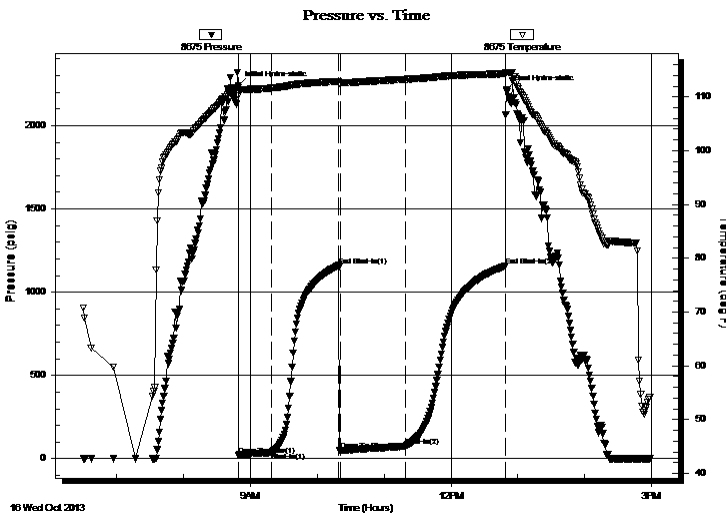
2013.10.16 @ 08:49:15

Time Off Btm:

2013.10.16 @ 12:50:00

TEST COMMENT: Built to 3" blow
Bled off for 2 min. No return blow
Built to 3 1/4" blow
Bled off for 2 min. No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2241.29	111.76	Initial Hydro-static
1	20.83	110.28	Open To Flow (1)
30	38.44	111.65	Shut-In(1)
90	1160.24	112.89	End Shut-In(1)
92	48.93	112.58	Open To Flow (2)
150	74.81	113.26	Shut-In(2)
240	1156.68	114.29	End Shut-In(2)
241	2215.60	114.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	gco 10%G 90%O	0.30
90.00	gcmo 10%G 30%M 60%O	0.44

Gas Rates

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

* Recovery from multiple tests



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company, Inc.

3-18s-36w Wichita,KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52984

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.10.16 @ 06:30:00

Tool Information

Drill Pipe:	Length: 4199.17 ft	Diameter: 3.80 inches	Volume: 58.90 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:	30000.00 lb
Drill Collar:	Length: 238.65 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose:	82000.00 lb
			<u>Total Volume: 60.07 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	24.32 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	4441.00 ft			Final	72000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	44.00 ft				
Tool Length:	71.50 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			4414.50	
Shut In Tool	5.00			4419.50	
Hydraulic tool	5.00			4424.50	
Jars	5.00			4429.50	
Safety Joint	2.50			4432.00	
Packer	5.00			4437.00	27.50 Bottom Of Top Packer
Packer	4.00			4441.00	
Stubb	1.00			4442.00	
Recorder	0.00	8675	Inside	4442.00	
Recorder	0.00	8650	Outside	4442.00	
Perforations	40.00			4482.00	
Change Over Sub	0.00			4482.00	
Drill Pipe	0.00			4482.00	
Change Over Sub	0.00			4482.00	
Bullnose	3.00			4485.00	44.00 Bottom Packers & Anchor

Total Tool Length: 71.50



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company, Inc.

3-18s-36w Wichita,KS

250 N Water STE 300
Wichita KS 67202 -1216

Zellner #1-3

Job Ticket: 52984

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.10.16 @ 06:30:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 10500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	gco 10%G 90%O	0.295
90.00	gcmo 10%G 30%M 60%O	0.443

Total Length: 150.00 ft Total Volume: 0.738 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API: 29 @ 50 F = 30

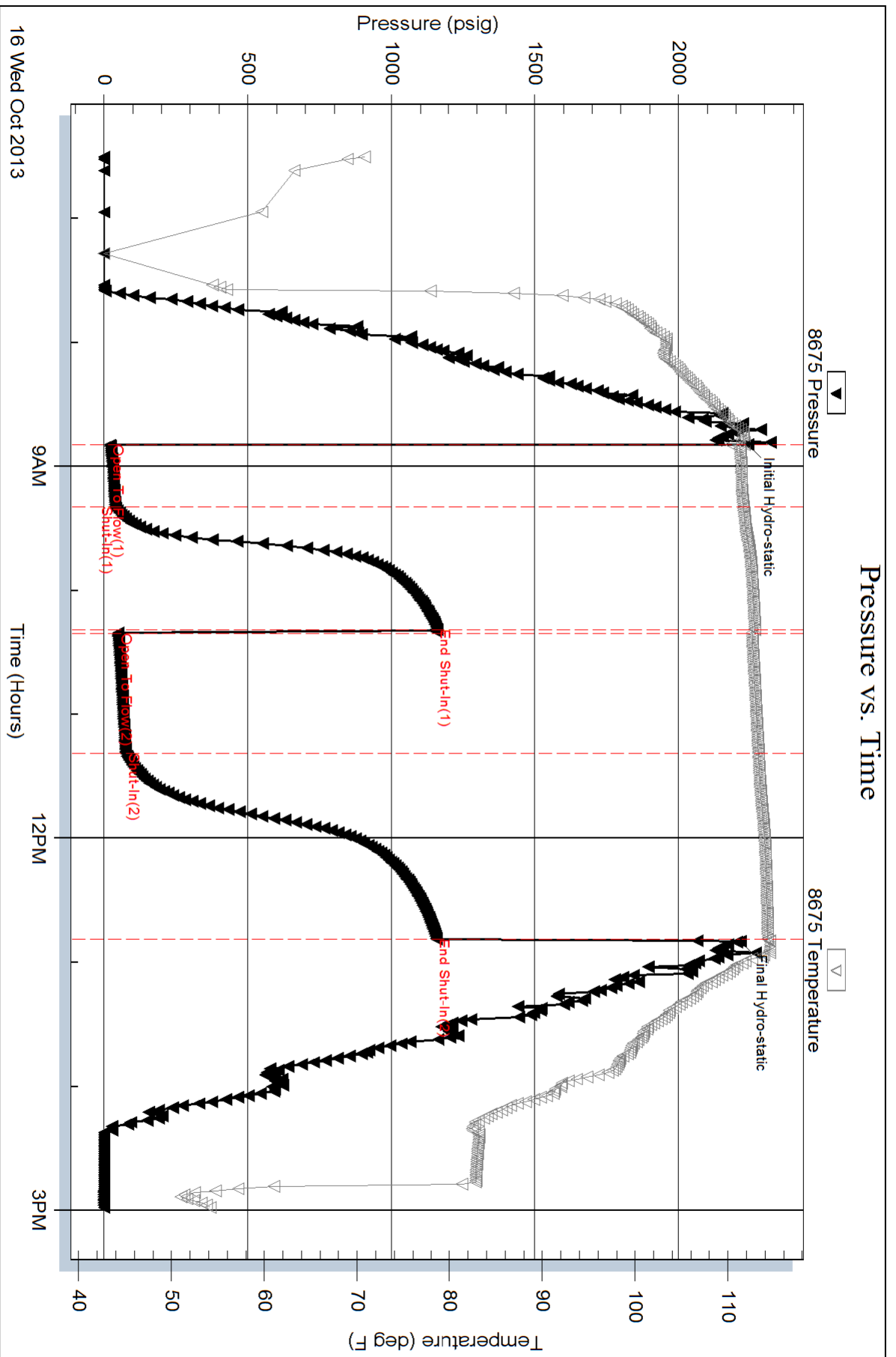
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Inside

Murfin Drilling Company, Inc.

Zellner #1-3

DST Test Number: 2

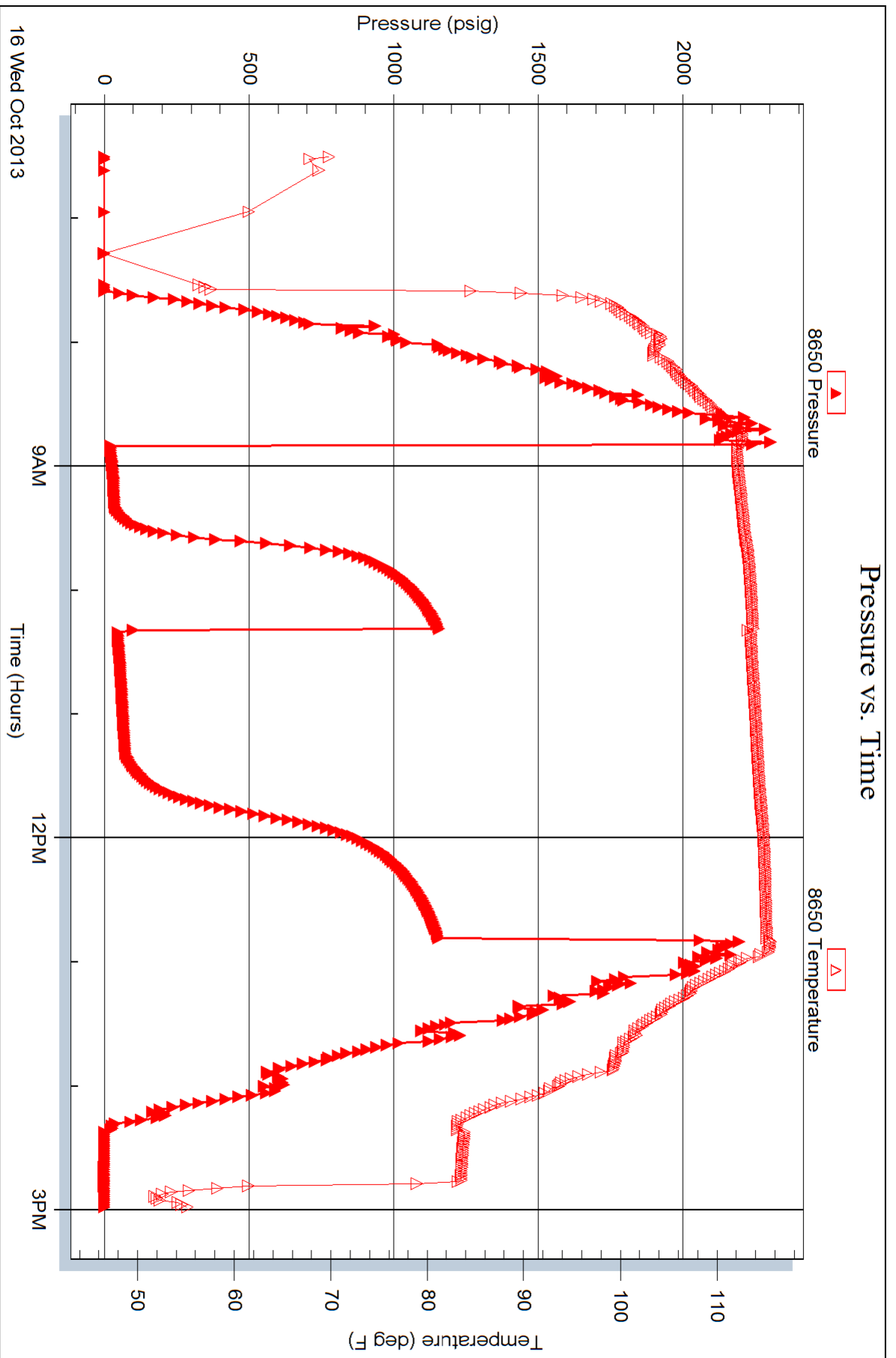


Serial #: 8650

Outside Murfin Drilling Company, Inc.

Zellner #1-3

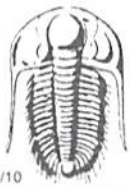
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 52984

Printed: 2013.10.21 @ 10:30:10



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52983

Well Name & No. Zellner 1-3 Test No. 1 Date 10/13/13 10/14/14
 Company Martin Drilling Company, Inc Elevation 3280 KB 3269 GL
 Address 250 N Water STE 300 Wichita KS, 67202-1216
 Co. Rep / Geo. Jeff Christian Rig Martin Rig 22
 Location: Sec. 3 Twp. 185 Rge. 36w Co. Wichita Co. State Kansas

Interval Tested 4206-4236 Zone Tested Kansas City "I"
 Anchor Length 30 Drill Pipe Run 3948.66 Mud Wt. 9.1
 Top Packer Depth 4202 Drill Collars Run 238.65 Vis 57
 Bottom Packer Depth 4206 Wt. Pipe Run _____ WL 6.8
 Total Depth 4236 Chlorides 9,300 ppm System LCM 4#
 Blow Description Built to 1/4", died in 28 min.
No return below
No below
no return below

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud with few oil spots in top</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	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 111 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2,109</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>17:15</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>18:18</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>20:28</u>
(D) Initial Shut-In <u>1,169</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>23:28</u>
(E) Second Initial Flow <u>24</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>01:26</u>
(F) Second Final Flow <u>26</u>	<input checked="" type="checkbox"/> Mileage <u>60 BT</u> <u>93</u>	Comments _____
(G) Final Shut-In <u>1,150</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1,972</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1668</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	
	Sub Total <u>1668</u>	

Approved By _____ 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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52984

Well Name & No. Zellner 1-3 Test No. 2 Date 10/16/13
 Company Martin Drilling Company, Inc Elevation 3280 KB 3269 GL
 Address 250 N Water STE 300 Wichita KS 67202-1216
 Co. Rep / Geo. Jeff Christian Rig Martin Rig 22
 Location: Sec. 3 Twp. 18S Rge. 3E Co. Wichita Co. State KS

Interval Tested 4441-4485 Zone Tested Marmaton "A+B"
 Anchor Length 44 Drill Pipe Run 4199.17 Mud Wt. 9.3
 Top Packer Depth 4437 Drill Collars Run 238.65 Vis 6.3
 Bottom Packer Depth 4441 Wt. Pipe Run _____ WL 9.2
 Total Depth 4485 Chlorides 10,500 ppm System LCM 5#

Blow Description Built to 3" below
Bled off for 2 min. No return below

Built to 3 1/4" below
Bled off for 2 min. No return below

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>600</u>	<u>10</u>	<u>90</u>		
<u>90</u>	<u>6000</u>	<u>10</u>	<u>60</u>		<u>30</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 150 BHT 114 Gravity 30 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2,241 Test 1250 T-On Location 05:40
 (B) First Initial Flow 21 Jars 250 T-Started 06:30
 (C) First Final Flow 38 Safety Joint 75 T-Open 08:50
 (D) Initial Shut-In 1,160 Circ Sub N/C T-Pulled 12:50
 (E) Second Initial Flow 50 Hourly Standby _____ T-Out 14:58
 (F) Second Final Flow 75 Mileage 60 RT X 2 186 Comments Loaded tools on 10/20
 (G) Final Shut-In 1,157 Sampler _____ @ 07:00 so 3 days +
 (H) Final Hydrostatic 2,216 Straddle _____ 16 hrs standley

Initial Open 30 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 60 Extra Packer _____ Ruined Packer _____
 Final Flow 60 Extra Recorder 1d 28.25h Sub Total 3341.67
 Final Shut-In 90 Day Standby 2 day + 4 hrs from Total 5102.67
 Accessibility last test ended MP/DST Disc't _____
 Sub Total 1761

Approved By _____ Our Representative [Signature]

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