



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Zimbelman #1-28

28-2s-41w Cheyenne KS

Start Date: 2013.11.30 @ 19:20:00

End Date: 2013.12.01 @ 03:14:00

Job Ticket #: 55876 DST #: 1

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

Printed: 2013.12.05 @ 10:02:30

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

Zimbelman #1-28

DST # 1

LKC "A - D"

2013.11.30



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimelman #1-28

Job Ticket: 55876

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.11.30 @ 19:20:00

GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:28:15

Time Test Ended: 03:14:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 57

Interval: 4490.00 ft (KB) To 4620.00 ft (KB) (TVD)

Reference Elevations: 3667.00 ft (KB)

Total Depth: 4620.00 ft (KB) (TVD)

3657.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8671

Inside

Press@RunDepth: 39.42 psig @ 4491.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.30

End Date: 2013.12.01

Last Calib.: 2013.12.01

Start Time: 19:20:05

End Time: 03:13:59

Time On Btm: 2013.11.30 @ 21:28:00

Time Off Btm: 2013.12.01 @ 00:31:15

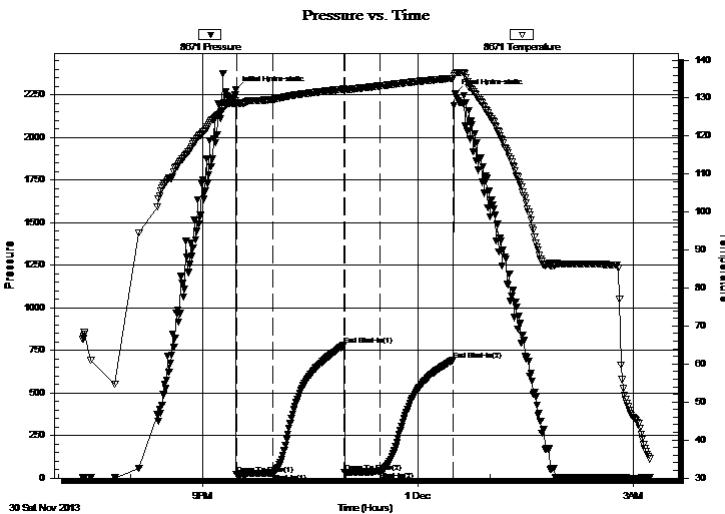
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1" in 10 min., blow stayed at 1" through open

60 - ISI: No blow back

30 - FF: No blow

60 - FSI: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2276.80	129.37	Initial Hydro-static
1	22.67	128.31	Open To Flow (1)
31	30.66	129.64	Shut-In(1)
91	782.60	132.37	End Shut-In(1)
91	34.25	132.07	Open To Flow (2)
121	39.42	133.17	Shut-In(2)
182	693.37	135.21	End Shut-In(2)
184	2257.73	136.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM 76% m, 21% o, 3% g	0.22

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimelman #1-28

Job Ticket: 55876

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.11.30 @ 19:20:00

Tool Information

Drill Pipe:	Length: 3933.00 ft	Diameter: 3.80 inches	Volume: 55.17 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: 559.00 ft	Diameter: 2.25 inches	Volume: 2.75 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 57.92 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	4490.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	130.00 ft			
Tool Length:	158.00 ft			
Number of Packers:	2	Diameter: 7.88 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4467.00	
Hydraulic tool	5.00			4472.00	
Jars	5.00			4477.00	
Safety Joint	3.00			4480.00	
Packer	5.00			4485.00	28.00 Bottom Of Top Packer
Packer	5.00			4490.00	
Packer - Shale	0.00			4490.00	
Stubb	1.00			4491.00	
Recorder	0.00	8671	Inside	4491.00	
Recorder	0.00	8320	Outside	4491.00	
Perforations	27.00			4518.00	
Blank Spacing	97.00			4615.00	
Perforations	2.00			4617.00	
Bullnose	3.00			4620.00	130.00 Bottom Packers & Anchor

Total Tool Length: 158.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimelman #1-28

Job Ticket: 55876

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2013.11.30 @ 19:20:00

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: 64.00 sec/qt

Cushion Volume: bbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	OCM 76% _m , 21% _o , 3% _g	0.221

Total Length: 45.00 ft Total Volume: 0.221 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

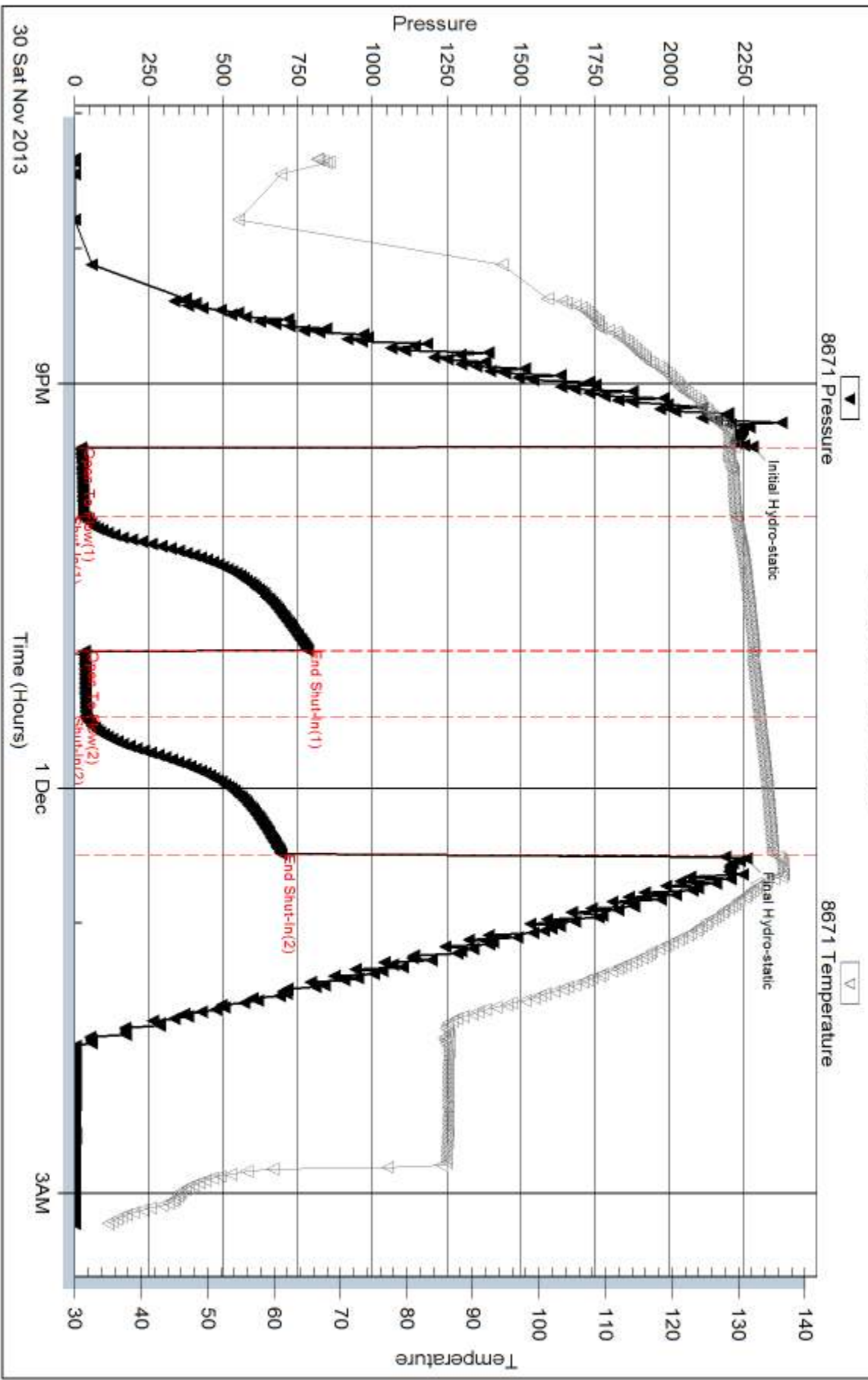
Serial #:

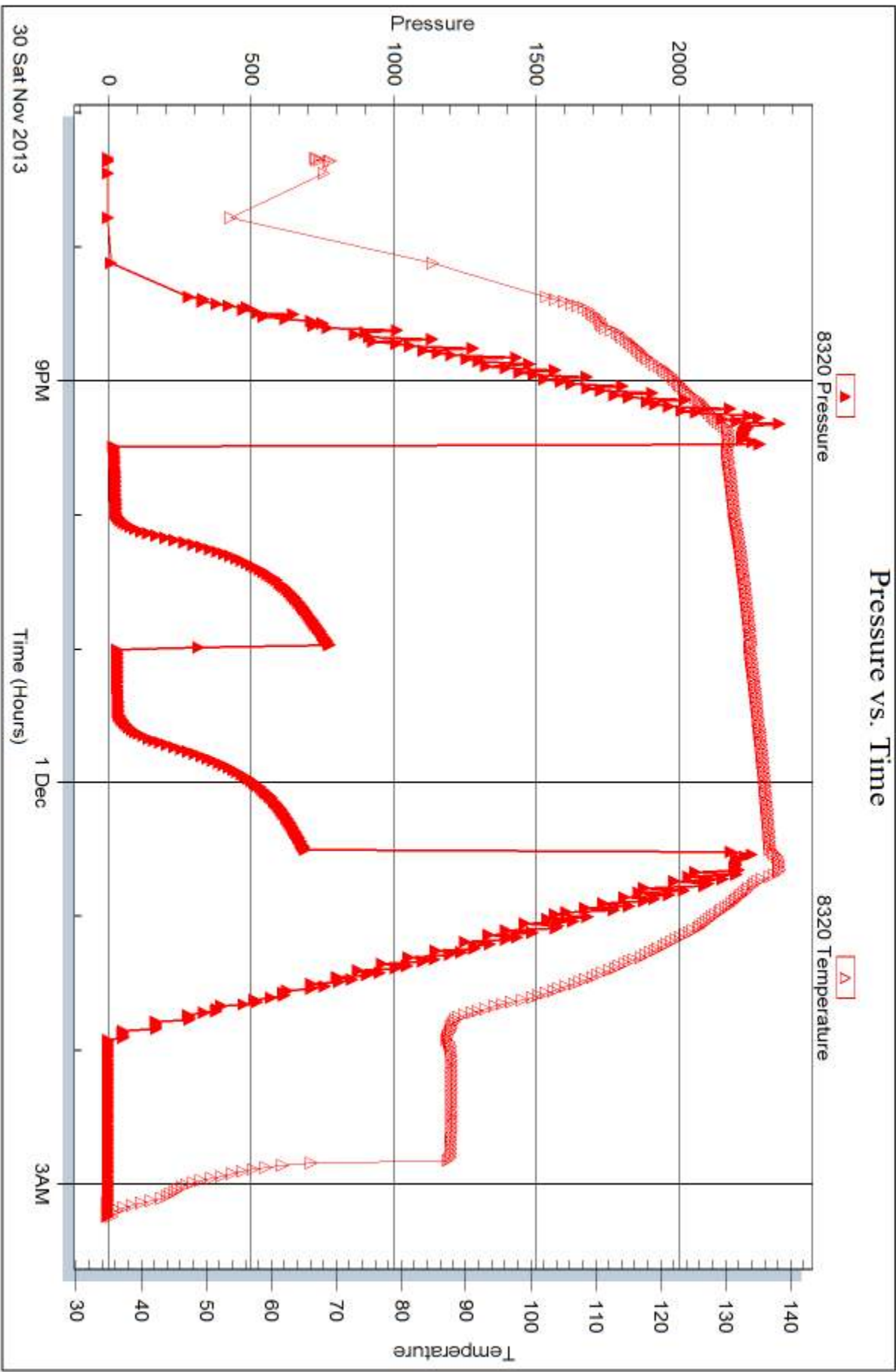
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Zimbelman #1-28

28-2s-41w Cheyenne KS

Start Date: 2013.12.01 @ 22:08:05

End Date: 2013.12.02 @ 07:55:15

Job Ticket #: 55877 DST #: 2

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

Printed: 2013.12.05 @ 10:01:37



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimelman #1-28

Job Ticket: 55877

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.12.01 @ 22:08:05

GENERAL INFORMATION:

Formation: **LKC "J - K"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 00:09:45
 Tester: James Winder
 Time Test Ended: 07:55:15
 Unit No: 57
 Interval: **4689.00 ft (KB) To 4830.00 ft (KB) (TVD)**
 Reference Elevations: 3667.00 ft (KB)
 Total Depth: 4830.00 ft (KB) (TVD)
 3657.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 10.00 ft

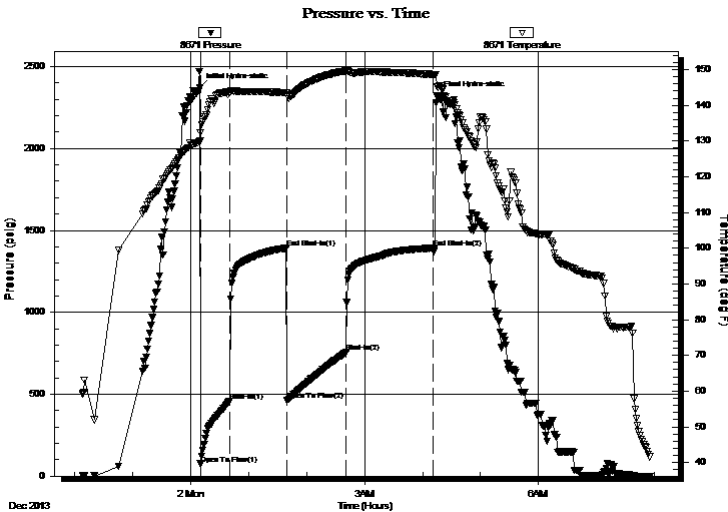
Serial #: 8671

Inside

Press@RunDepth: 755.59 psig @ 4690.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.12.01 End Date: 2013.12.02 Last Calib.: 2013.12.02
 Start Time: 22:08:05 End Time: 07:55:15 Time On Btm: 2013.12.02 @ 00:09:15
 Time Off Btm: 2013.12.02 @ 04:15:14

TEST COMMENT: 30 - IF: Blow built to BOB (11") in 4 3/4 min.
 60 - IS: Blow back built to 3"
 60 - FF: Blow built to BOB in 6 3/4 min.
 90 - FS: Blow back built to BOB in 35 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2368.80	129.61	Initial Hydro-static
1	74.39	130.10	Open To Flow (1)
32	459.31	143.72	Shut-In(1)
90	1391.21	143.58	End Shut-In(1)
91	463.51	142.83	Open To Flow (2)
152	755.59	149.64	Shut-In(2)
242	1391.94	148.67	End Shut-In(2)
246	2323.37	145.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
465.00	MCW w/trace oil 75%w, 25%m	2.29
380.00	WCM w/Oil spots 61%m, 29%w, 7%g	34.47
475.00	GOCM 72%m, 16%g, 12%o	6.66
410.00	CGO 77%o, 23%g	5.75
0.00	GIP = 150'	0.00

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimbelman #1-28

Job Ticket: 55877

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.12.01 @ 22:08:05

Tool Information

Drill Pipe:	Length: 4123.00 ft	Diameter: 3.80 inches	Volume: 57.83 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: 559.00 ft	Diameter: 2.25 inches	Volume: 2.75 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume: 60.58 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	4689.00 ft			Final 90000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	141.00 ft			
Tool Length:	169.00 ft			
Number of Packers:	2	Diameter: 7.88 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4666.00	
Hydraulic tool	5.00			4671.00	
Jars	5.00			4676.00	
Safety Joint	3.00			4679.00	
Packer	5.00			4684.00	28.00 Bottom Of Top Packer
Packer	5.00			4689.00	
Packer - Shale	0.00			4689.00	
Stubb	1.00			4690.00	
Recorder	0.00	8671	Inside	4690.00	
Recorder	0.00	8320	Outside	4690.00	
Perforations	8.00			4698.00	
Blank Spacing	128.00			4826.00	
Perforations	1.00			4827.00	
Bullnose	3.00			4830.00	141.00 Bottom Packers & Anchor

Total Tool Length: 169.00



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28-2s-41w Cheyenne KS

250 N. Water STE 300
Wichita, KS 67202

Zimelman #1-28

Job Ticket: 55877

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2013.12.01 @ 22:08:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

26000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
465.00	MCW w /trace oil 75%w , 25%m	2.287
380.00	WCM w /Oil spots 61%m, 29%w , 7%g, 3%o	4.474
475.00	GOCM 72%m, 16%g, 12%o	6.663
410.00	CGO 77%o, 23%g	5.751
0.00	GIP = 150'	0.000

Total Length: 1730.00 ft Total Volume: 19.175 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

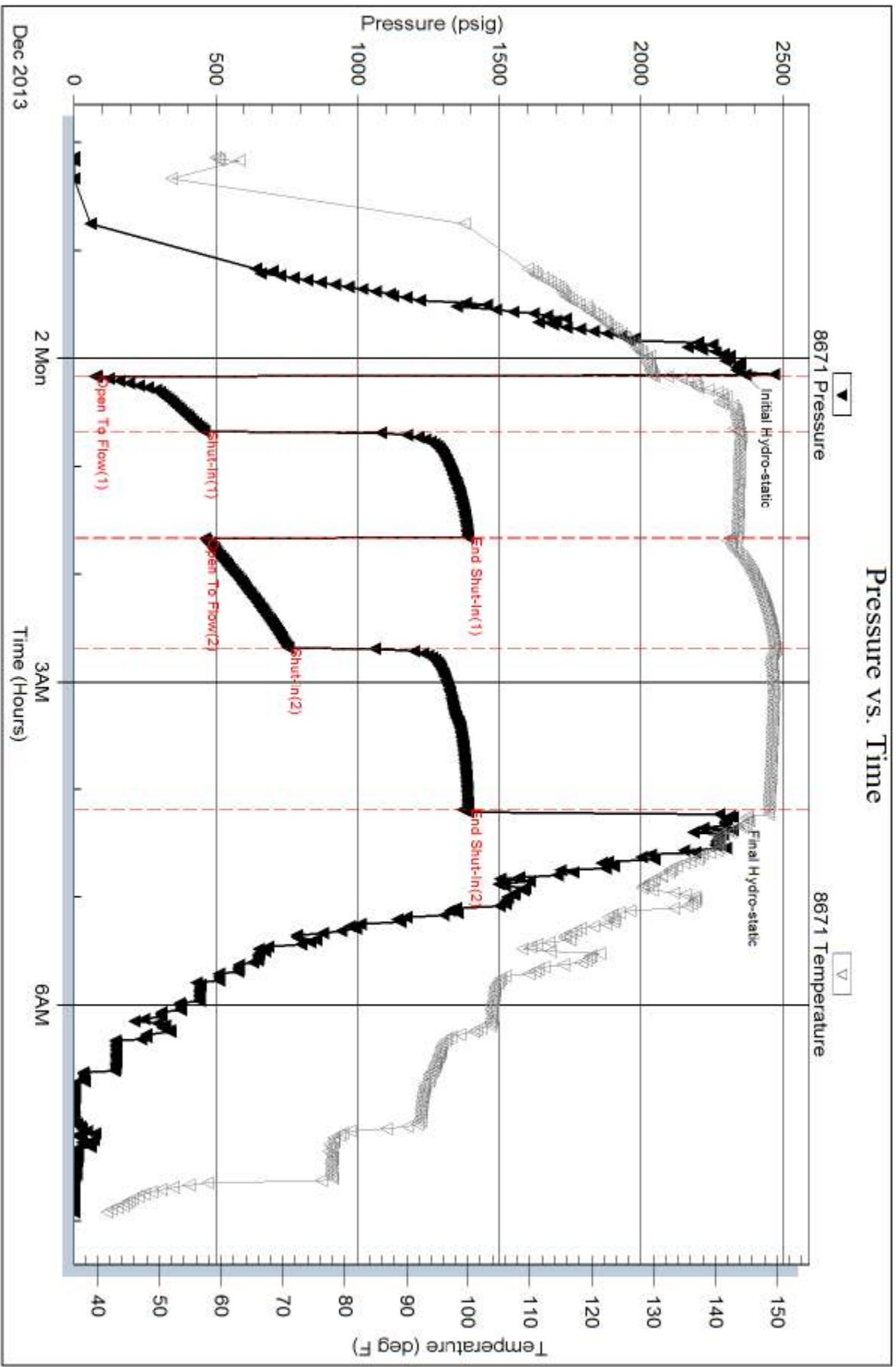
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 25 api @ 40 deg F Corrected Gravity = 27 api

RW = .292 ohms @ 64.6 deg F Chlorides = 26,000 ppm

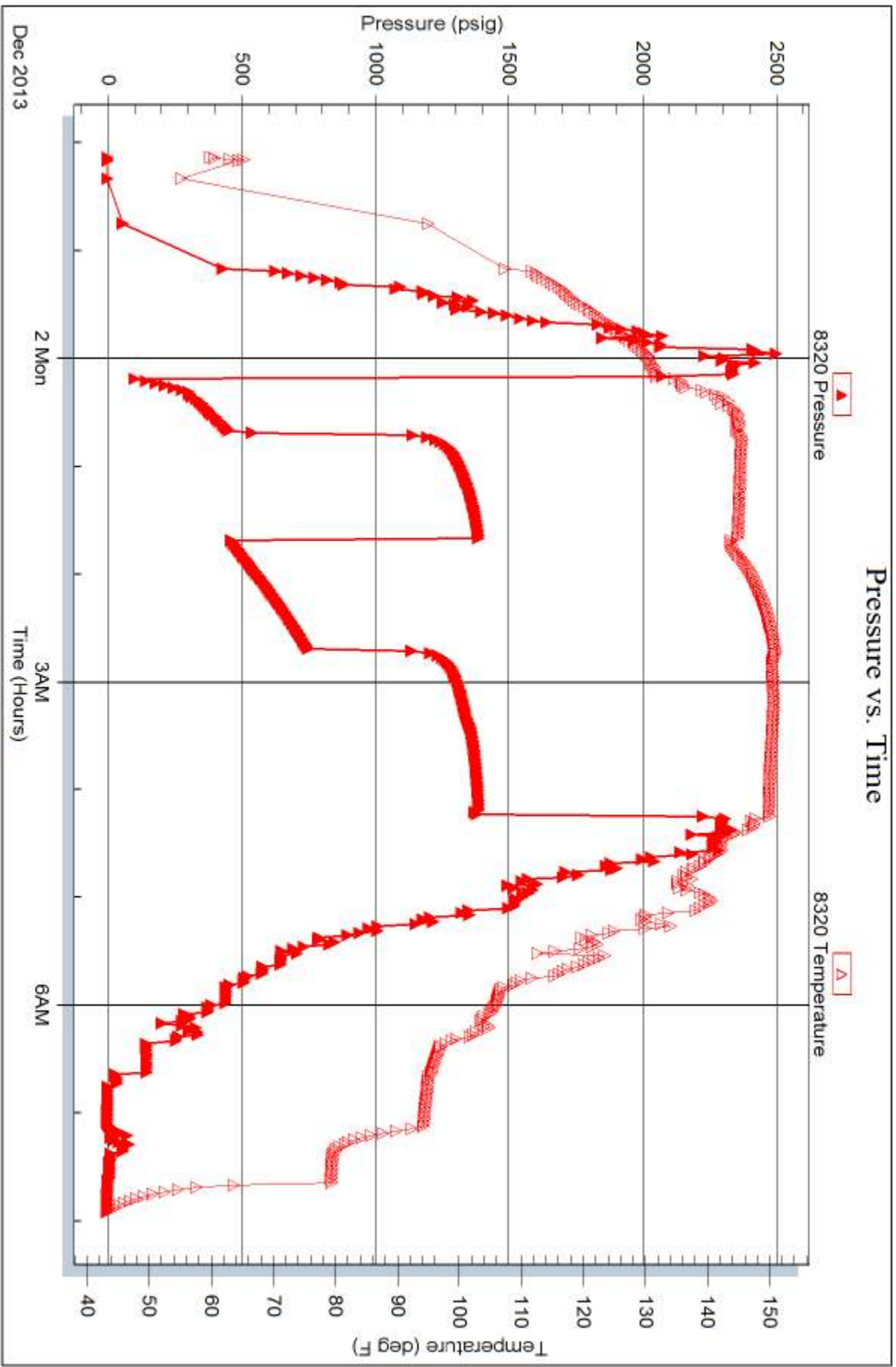


Serial #: 8320

Outside Murfin Drilling Co., Inc.

Zimbelman #1-28

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 55877

Printed: 2013.12.05 @ 10:01:40



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 55876

Well Name & No. Zimbelman #1-28 Test No. 1 Date 11-30-13
 Company Murfin Drilling Co. Inc. Elevation 3667 KB 3657 GL
 Address 250 N. Water Suite 300 Wichita KS ~~67202~~ 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #14
 Location: Sec. 28 Twp. 25 Rge. 41w Co. Cheyenne State KS

Interval Tested 4490 - 4620 Zone Tested LKC "A-D"
 Anchor Length 130 Drill Pipe Run 3933 Mud Wt. 9.1
 Top Packer Depth 4485 Drill Collars Run 559 Vis 64
 Bottom Packer Depth 4490 (shale) Wt. Pipe Run - WL 6.0
 Total Depth 4620 Chlorides 600 ppm System LCM 4

Blow Description IF 4" Blow ^{at open} built to 1" in 10 min., stayed at 1" through open
ISI: No blowback
FF: No blow
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>OCM</u>	<u>3</u>	<u>21</u>	<u>-</u>	<u>76</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 45 BHT 135 Gravity - API RW - @ - °F Chlorides - ppm

- (A) Initial Hydrostatic 2277
- (B) First Initial Flow 23
- (C) First Final Flow 31
- (D) Initial Shut-In 783
- (E) Second Initial Flow 34
- (F) Second Final Flow 39
- (G) Final Shut-In 693
- (H) Final Hydrostatic 2258

- Test X 1250
 - Jars X 250
 - Safety Joint X 75
 - Circ Sub XNA
 - Hourly Standby
 - Mileage 162RT 251.10
 - Sampler
 - Straddle
 - Shale Packer X 250
 - Extra Packer
 - Extra Recorder
 - Day Standby
 - Accessibility
- Sub Total 2076.10

T-On Location 18:00
 T-Started 19:20
 T-Open 21:28
 T-Pulled 00:29
 T-Out 3:10

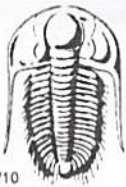
Comments _____
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 2076.10
 MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60

Approved By _____

Our Representative James Winder

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. **55877**

4/10

Well Name & No. Zimbelman #1-28 Test No. 2 Date 12-1-13
 Company Murfin Drilling Co. Inc Elevation 3667 KB 3657 GL
 Address 250 N. Water Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #14
 Location: Sec. 28 Twp. 2S Rge. 41W Co. Cheyenne State KS

Interval Tested 4689 - 4830 Zone Tested LKC "J-K"
 Anchor Length 141 Drill Pipe Run 4123 Mud Wt. 9.1
 Top Packer Depth 4684 Drill Collars Run 559 Vis 56
 Bottom Packer Depth 4689 Wt. Pipe Run - WL 5.6
 Total Depth 4830 Chlorides 600 ppm System LCM 4

Blow Description IF: Blow built to BOB in 4 3/4 min. (BOB is 11")
ISI: Blowback built to 3"
FF: Blow built to BOB in 6 3/4 min
FSI: Blowback built to BOB at 35 min.

Rec	Feet of	%gas	%oil	%water	%mud
410	C60	23	77	-	-
475	GOCM	16	12	-	72
380	wcm w/oil spots	7	3	29	61
465	MCW w/trace of oil	-	trace	75	25
	GIP=150'				

Rec Total _____ BHT 149 Gravity 27 API RW .292 @ 64.6 °F Chlorides 26,000 ppm

(A) Initial Hydrostatic 2369 Test * 1250 T-On Location 21:45 12/1
 (B) First Initial Flow 74 Jars * 250 T-Started 22:08
 (C) First Final Flow 459 Safety Joint * 75 T-Open 00:09
 (D) Initial Shut-In 1391 Circ Sub * T-Pulled 4:10
 (E) Second Initial Flow 464 Hourly Standby _____ T-Out 7:50 12/2
 (F) Second Final Flow 756 Mileage 162 RTX 2 502.20 Comments _____
 (G) Final Shut-In 1392 Sampler _____
 (H) Final Hydrostatic 2323 Straddle _____ Ruined Shale Packer _____

Shale Packer * 250 Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 1600
 Day Standby * Tools loaded 17:15 Total 3927.20
 Accessibility 1d 33.5h 12/4 MP/DST Disc't _____
 Sub Total 2327.20

Approved By _____ Our Representative James Winder

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.