



DRILL STEM TEST REPORT

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

250 N. Water
Ste. 300
Wichita, KS 67202

ATTN: Robert Hendrix

Henderson 'G' #7

27-11S-18W Ellis,KS

Start Date: 2019.09.23 @ 19:19:21

End Date: 2019.09.24 @ 03:49:12

Job Ticket #: 64498 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.09.25 @ 16:44:56



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

27-11S-18W Ellis,KS

250 N. Water
Ste. 300
Wichita, KS 67202
ATTN: Robert Hendrix

Henderson 'G' #7

Job Ticket: 64498

DST#: 1

Test Start: 2019.09.23 @ 19:19:21

Tool Information

Drill Pipe:	Length: 3580.00 ft	Diameter: 3.82 inches	Volume: 50.75 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3611.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 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			3584.00	
Shut In Tool	5.00			3589.00	
Hydraulic tool	5.00			3594.00	
Jars	5.00			3599.00	
Safety Joint	3.00			3602.00	
Packer	5.00			3607.00	28.00 Bottom Of Top Packer
Packer	4.00			3611.00	
Stubb	1.00			3612.00	
Recorder	0.00	6771	Inside	3612.00	
Recorder	0.00	8700	Outside	3612.00	
Perforations	6.00			3618.00	
Bullnose	3.00			3621.00	10.00 Bottom Packers & Anchor

Total Tool Length: 38.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

27-11S-18W Ellis,KS

250 N. Water
Ste. 300
Wichita, KS 67202
ATTN: Robert Hendrix

Henderson 'G' #7

Job Ticket: 64498

DST#: 1

Test Start: 2019.09.23 @ 19:19:21

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

24 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

40000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
250.00	SMW, 5%M 95%W	3.275
315.00	OCMW, 10%O 10%M 80%W	4.465
30.00	CO	0.425

Total Length: 595.00 ft Total Volume: 8.165 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

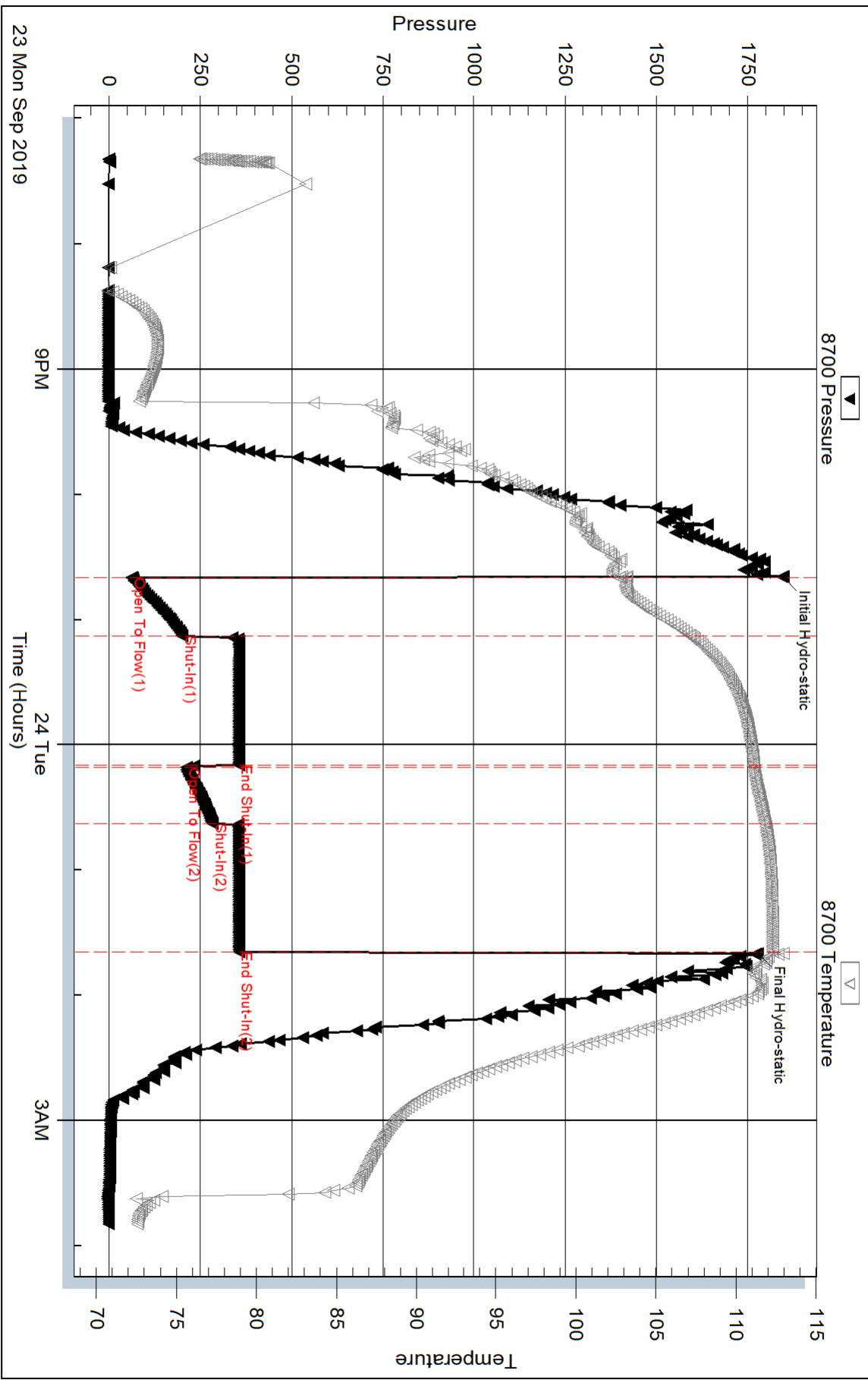
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .19@60deg

Pressure vs. Time





DRILL STEM TEST REPORT

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

250 N. Water
Ste. 300
Wichita, KS 67202

ATTN: Robert Hendrix

Henderson 'G' #7

27-11S-18W Ellis,KS

Start Date: 2019.09.24 @ 09:33:04

End Date: 2019.09.24 @ 17:26:25

Job Ticket #: 64499 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.09.25 @ 16:42:45

Murfin Drilling Co., Inc. 27-11S-18W Ellis,KS Henderson 'G' #7 DST # 2 Arbuckle 2019.09.24



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

27-11S-18W Ellis,KS

250 N. Water
Ste. 300
Wichita, KS 67202
ATTN: Robert Hendrix

Henderson 'G' #7

Job Ticket: 64499

DST#: 2

Test Start: 2019.09.24 @ 09:33:04

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:02:55

Time Test Ended: 17:26:25

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 73

Interval: 3621.00 ft (KB) To 3631.00 ft (KB) (TVD)

Reference Elevations: 2092.00 ft (KB)

Total Depth: 3631.00 ft (KB) (TVD)

2087.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8700 Outside

Press@RunDepth: 363.98 psig @ 3622.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.09.24

End Date:

2019.09.24

Last Calib.:

2019.09.24

Start Time: 09:33:05

End Time:

17:26:25

Time On Btm:

2019.09.24 @ 11:02:40

Time Off Btm:

2019.09.24 @ 14:03:55

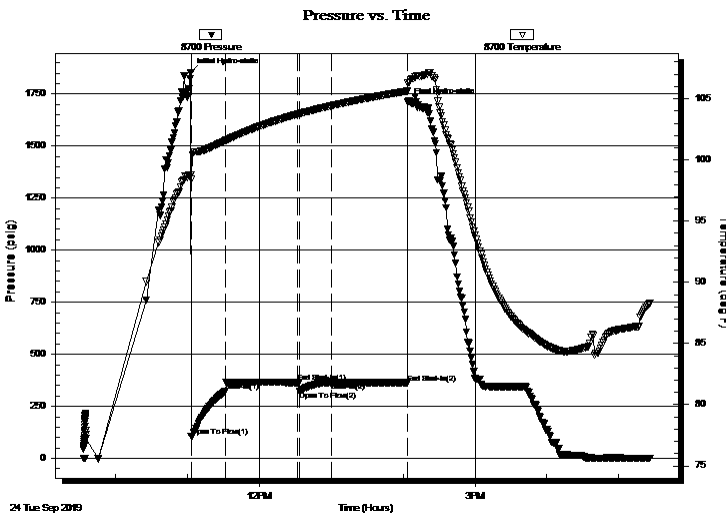
TEST COMMENT: 30- IF- BOB 3 mins. Built to 76.32"

60- IS- No blow

30- FF- BOB 14 mins. Built to 11.30"

60- FS- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1853.53	98.75	Initial Hydro-static
1	106.47	98.42	Open To Flow (1)
29	321.43	101.58	Shut-In(1)
90	364.33	103.74	End Shut-In(1)
91	322.61	103.78	Open To Flow (2)
118	363.98	104.45	Shut-In(2)
181	363.10	105.63	End Shut-In(2)
182	1710.62	106.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
380.00	SMW, 5%M 95%W	5.12
410.00	SOCMW, 5%O 5%M 90%W	5.81

* Recovery from multiple tests

Gas Rates

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



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TOOL DIAGRAM

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250 N. Water
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Wichita, KS 67202
ATTN: Robert Hendrix

Henderson 'G' #7

Job Ticket: 64499

DST#: 2

Test Start: 2019.09.24 @ 09:33:04

Tool Information

Drill Pipe:	Length: 3580.00 ft	Diameter: 3.82 inches	Volume: 50.75 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3621.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	38.00 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			3594.00	
Shut In Tool	5.00			3599.00	
Hydraulic tool	5.00			3604.00	
Jars	5.00			3609.00	
Safety Joint	3.00			3612.00	
Packer	5.00			3617.00	28.00 Bottom Of Top Packer
Packer	4.00			3621.00	
Stubb	1.00			3622.00	
Recorder	0.00	6771	Inside	3622.00	
Recorder	0.00	8700	Outside	3622.00	
Perforations	6.00			3628.00	
Bullnose	3.00			3631.00	10.00 Bottom Packers & Anchor

Total Tool Length: 38.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

27-11S-18W Ellis,KS

250 N. Water
Ste. 300
Wichita, KS 67202
ATTN: Robert Hendrix

Henderson 'G' #7

Job Ticket: 64499

DST#: 2

Test Start: 2019.09.24 @ 09:33:04

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

24 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

26000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
380.00	SMW, 5%M 95%W	5.118
410.00	SOCMW, 5%O 5%M 90%W	5.812

Total Length: 790.00 ft Total Volume: 10.930 bbl

Num Fluid Samples: 0

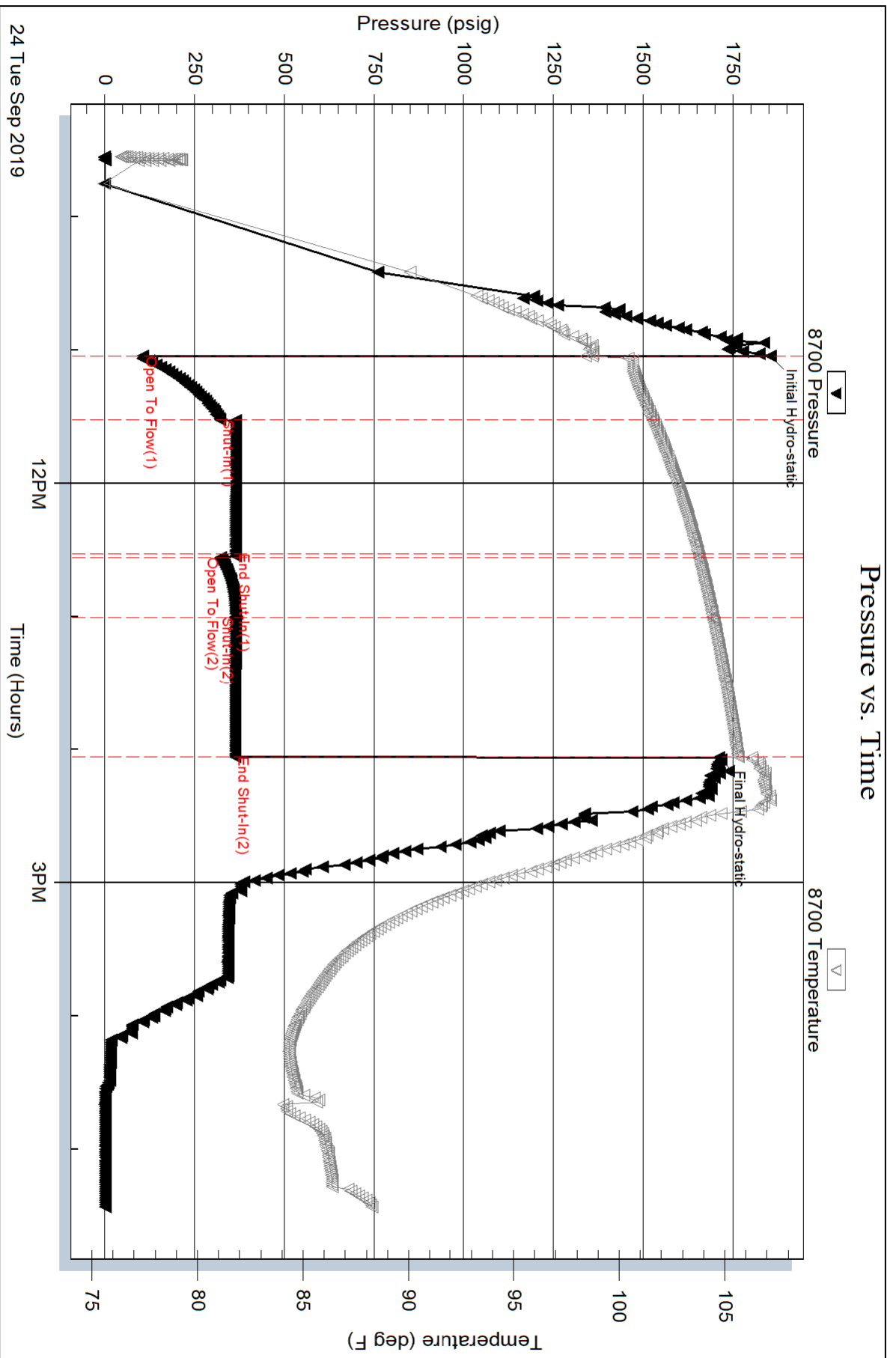
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .22@80deg
H2S 10-20ppm



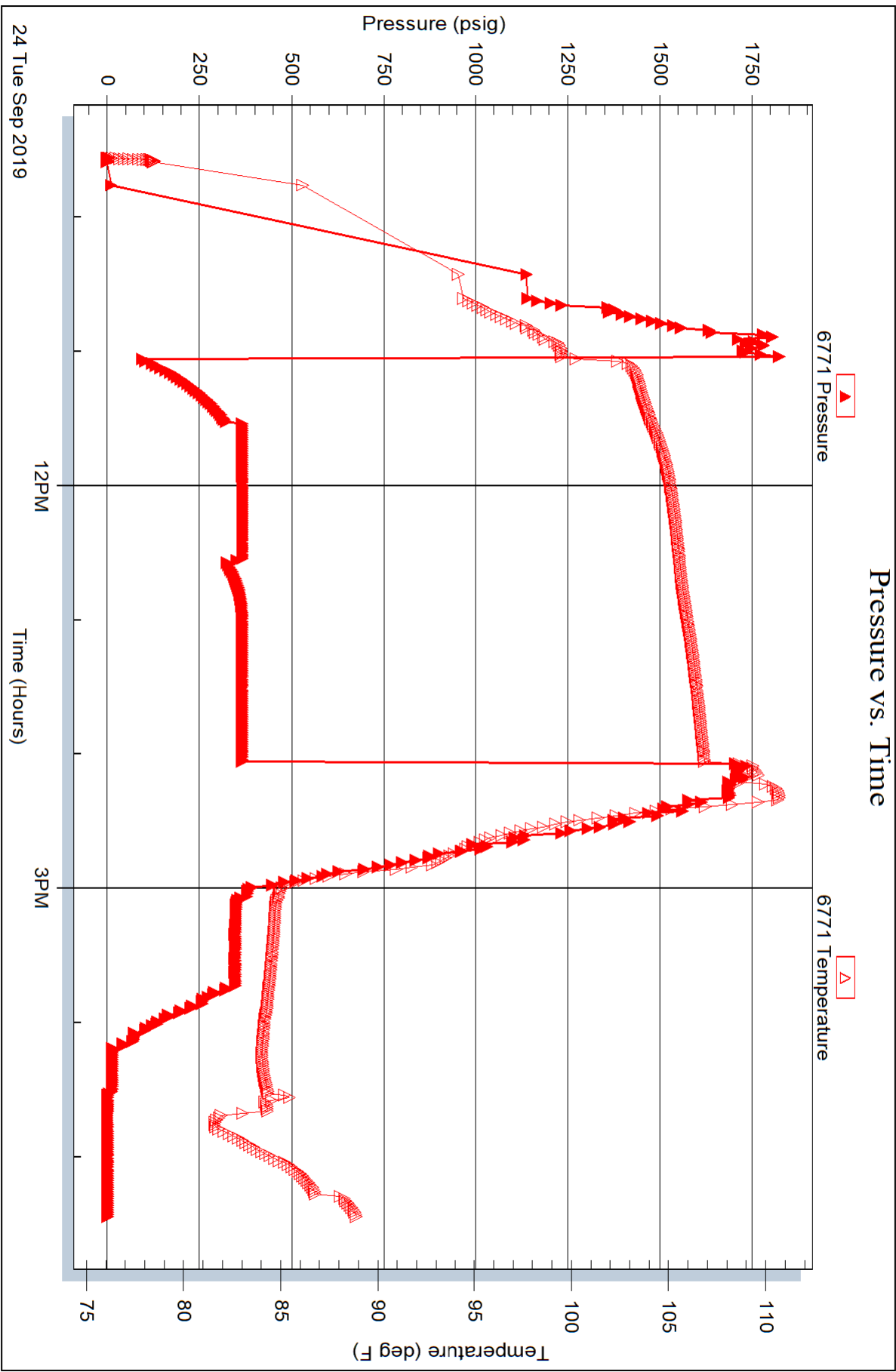
Serial #: 6771

Inside

Murfin Drilling Co., Inc.

Henderson 'G' #7

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64498

Well Name & No. Henderson G #7 Test No. 1 Date 9/23/19
 Company Marfin Drilling Co., Inc. Elevation 2092 KB 2087 GL
 Address 250 N. Water Ste. 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Marfin 16
 Location: Sec. 27 Twp 11 S Rge. 18 W Co. Ellis State KS

Interval Tested 3611-3621 Zone Tested Arbuckle
 Anchor Length 10' Drill Pipe Run 3580 Mud Wt. 9.0
 Top Packer Depth 3606 Drill Collars Run 29 Vis 54
 Bottom Packer Depth 3611 Wt. Pipe Run _____ WL 6.8
 Total Depth 3621 Chlorides 2,600 ppm System LCM 2#

Blow Description IF-BOB 5 mins. Bail to 46.07"
ISF - No flow
FF-BOB 12 mins. Bail to 22.51"
FSI - No flow

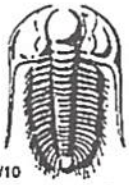
Rec	Feet of	%gas	%oil	%water	%mud
<u>250</u>	<u>SMW</u>			<u>95</u>	<u>5</u>
<u>315</u>	<u>OGMW</u>		<u>10</u>	<u>80</u>	<u>10</u>
<u>30</u>	<u>CO</u>				
_____	_____				
_____	_____				

Rec Total 595' BHT 112° Gravity 24 API RW 19 @ 60 °F Chlorides 40,000 ppm

(A) Initial Hydrostatic <u>1847</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>1900</u>
(B) First Initial Flow <u>62</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1919</u>
(C) First Final Flow <u>201</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2239</u>
(D) Initial Shut-In <u>355</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>0139</u>
(E) Second Initial Flow <u>212</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>0351</u>
(F) Second Final Flow <u>283</u>	<input checked="" type="checkbox"/> Mileage <u>32 RT</u> 32	Comments _____
(G) Final Shut-In <u>355</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1778</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1557</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1557</u>	

Approved By _____ Our Representative Braman Gorsdak

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. 64499

Well Name & No. Henderson 'A' #7 Test No. 2 Date 9/24/19
 Company Martin Drilling Co. Inc. Elevation 2092 KB 2087 GL
 Address 250 N. Water Ste. 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Martin 16
 Location: Sec. 27 Twp 11 S Rge. 18 W Co. Ellis State KS

Interval Tested 3621-3631 Zone Tested Arbuckle
 Anchor Length 10' Drill Pipe Run 3580 Mud Wt. 9.2
 Top Packer Depth 3616 Drill Collars Run 29 Vis 60+
 Bottom Packer Depth 3621 Wt. Pipe Run --- WL 7.2
 Total Depth 3631 Chlorides 3,200 ppm System LCM 8#
 Blow Description IF-BOB 3mins. Built to 76.32"
ISF- No blow
FF-BOB 14 mins. Built to 11.30"
FSL- No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>380</u>	<u>SMW</u>			<u>95</u>	<u>5</u>
<u>410</u>	<u>20CMW</u>		<u>5</u>	<u>90</u>	<u>5</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 790' BHT 106° Gravity 24 API RW .22 @ 80° F Chlorides 26,000 ppm

(A) Initial Hydrostatic <u>1854</u>	<input checked="" type="checkbox"/> Test	T-On Location <u>0921</u>
(B) First Initial Flow <u>106</u>	<input checked="" type="checkbox"/> Jars	T-Started <u>0933</u>
(C) First Final Flow <u>321</u>	<input checked="" type="checkbox"/> Safety Joint	T-Open <u>1102</u>
(D) Initial Shut-In <u>364</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1402</u>
(E) Second Initial Flow <u>323</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1728</u>
(F) Second Final Flow <u>364</u>	<input checked="" type="checkbox"/> Mileage <u>32 RT</u>	Comments _____
(G) Final Shut-In <u>364</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1711</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total _____
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total _____
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total _____	

Approved By _____ Our Representative Brannan Lonsdale

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.