



DRILL STEM TEST REPORT

Prepared For: **John O Farmer Inc**

PO Box 352
Russell KS 67665+0352

ATTN: Austin Klaus

Harder #1

11-17s-10e Lyon,KS

Start Date: 2019.07.26 @ 14:20:00

End Date: 2019.07.26 @ 19:56:45

Job Ticket #: 65800 DST #: 1

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

Printed: 2019.07.30 @ 10:35:59



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65800 **DST#: 1**
Test Start: 2019.07.26 @ 14:20:00

GENERAL INFORMATION:

Formation: **Hunton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:19:35
Time Test Ended: 19:56:45
Interval: **2916.00 ft (KB) To 2922.00 ft (KB) (TVD)**
Total Depth: 2922.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 1328.00 ft (KB)
1320.00 ft (CF)
KB to GR/CF: 8.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Benny Mulligan
Unit No: 66

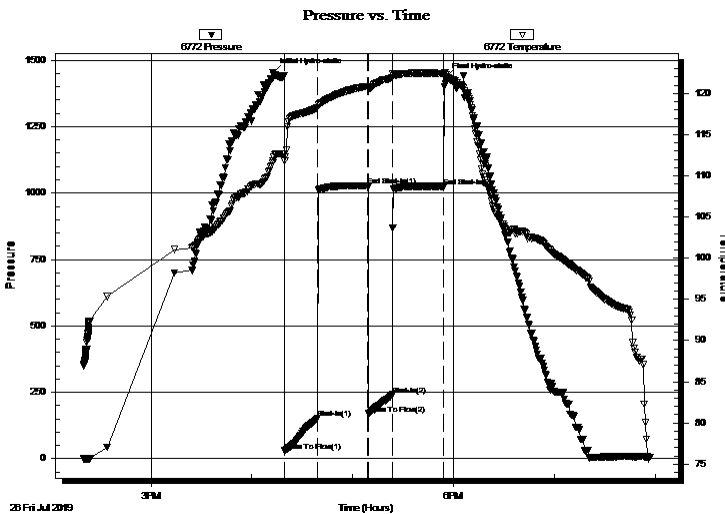
Serial #: 6772

Inside

Press@RunDepth: 241.12 psig @ 2917.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.07.26 End Date: 2019.07.26 Last Calib.: 2019.07.26
Start Time: 14:20:01 End Time: 19:56:45 Time On Btm: 2019.07.26 @ 16:12:35
Time Off Btm: 2019.07.26 @ 17:55:15

TEST COMMENT: IF-20- BOB 7 mins 40 secs total build of 32"
ISI-30- no blow back
FF-15- BOB 7 mins 45 secs total build of 26"
FSI-30- no blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1453.84	111.88	Initial Hydro-static
7	29.92	111.86	Open To Flow (1)
27	152.32	118.31	Shut-In(1)
57	1027.48	120.89	End Shut-In(1)
57	169.68	120.59	Open To Flow (2)
71	241.12	121.95	Shut-In(2)
102	1025.02	122.42	End Shut-In(2)
103	1432.59	122.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
360.00	W 100% W	3.36
120.00	MW 40%M 60%W	1.68

Gas Rates

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



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PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65800 **DST#: 1**
Test Start: 2019.07.26 @ 14:20:00

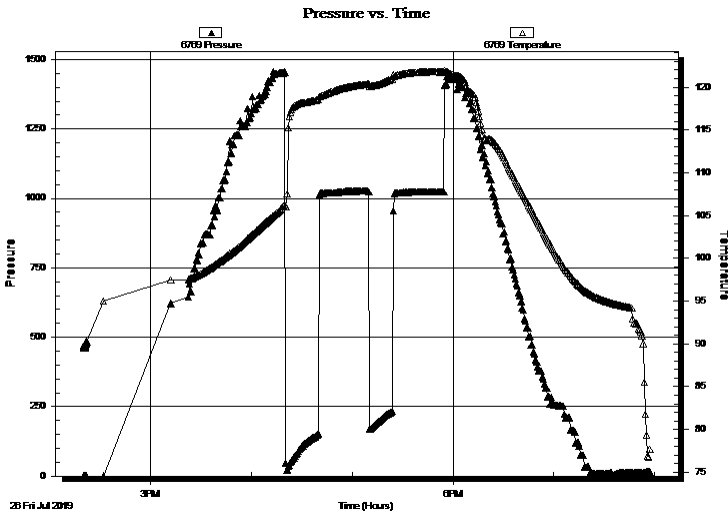
GENERAL INFORMATION:

Formation: **Hunton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:19:35
Time Test Ended: 19:56:45
Interval: **2916.00 ft (KB) To 2922.00 ft (KB) (TVD)**
Total Depth: 2922.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Benny Mulligan
Unit No: 66
Reference Elevations: 1328.00 ft (KB)
1320.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6769 Outside
Press@RunDepth: psig @ 2917.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.07.26 End Date: 2019.07.26 Last Calib.: 2019.07.26
Start Time: 14:20:01 End Time: 19:57:30 Time On Btm:
Time Off Btm:

TEST COMMENT: IF-20- BOB 7 mins 40 secs total build of 32"
ISI-30- no blow back
FF-15- BOB 7 mins 45 secs total build of 26"
FSI-30- no blow back

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
360.00	W 100% W	3.36
120.00	MW 40%M 60%W	1.68

Gas Rates

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



**TRILOBITE
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DRILL STEM TEST REPORT

TOOL DIAGRAM

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65800 **DST#: 1**
Test Start: 2019.07.26 @ 14:20:00

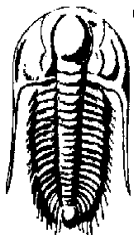
Tool Information

Drill Pipe:	Length: 2687.00 ft	Diameter: 3.80 inches	Volume: 37.69 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 243.00 ft	Diameter: 2.70 inches	Volume: 1.72 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 54000.00 lb
			<u>Total Volume: 39.41 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	2916.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	6.00 ft			
Tool Length:	26.00 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			2897.00	
Shut In Tool	5.00			2902.00	
Hydraulic tool	5.00			2907.00	
Packer	5.00			2912.00	20.00 Bottom Of Top Packer
Packer	4.00			2916.00	
Stubb	1.00			2917.00	
Recorder	0.00	6772	Inside	2917.00	
Recorder	0.00	6769	Outside	2917.00	
Perforations	2.00			2919.00	
Bullnose	3.00			2922.00	6.00 Bottom Packers & Anchor
Total Tool Length:	26.00				



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65800 **DST#: 1**
Test Start: 2019.07.26 @ 14:20:00

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:	15000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

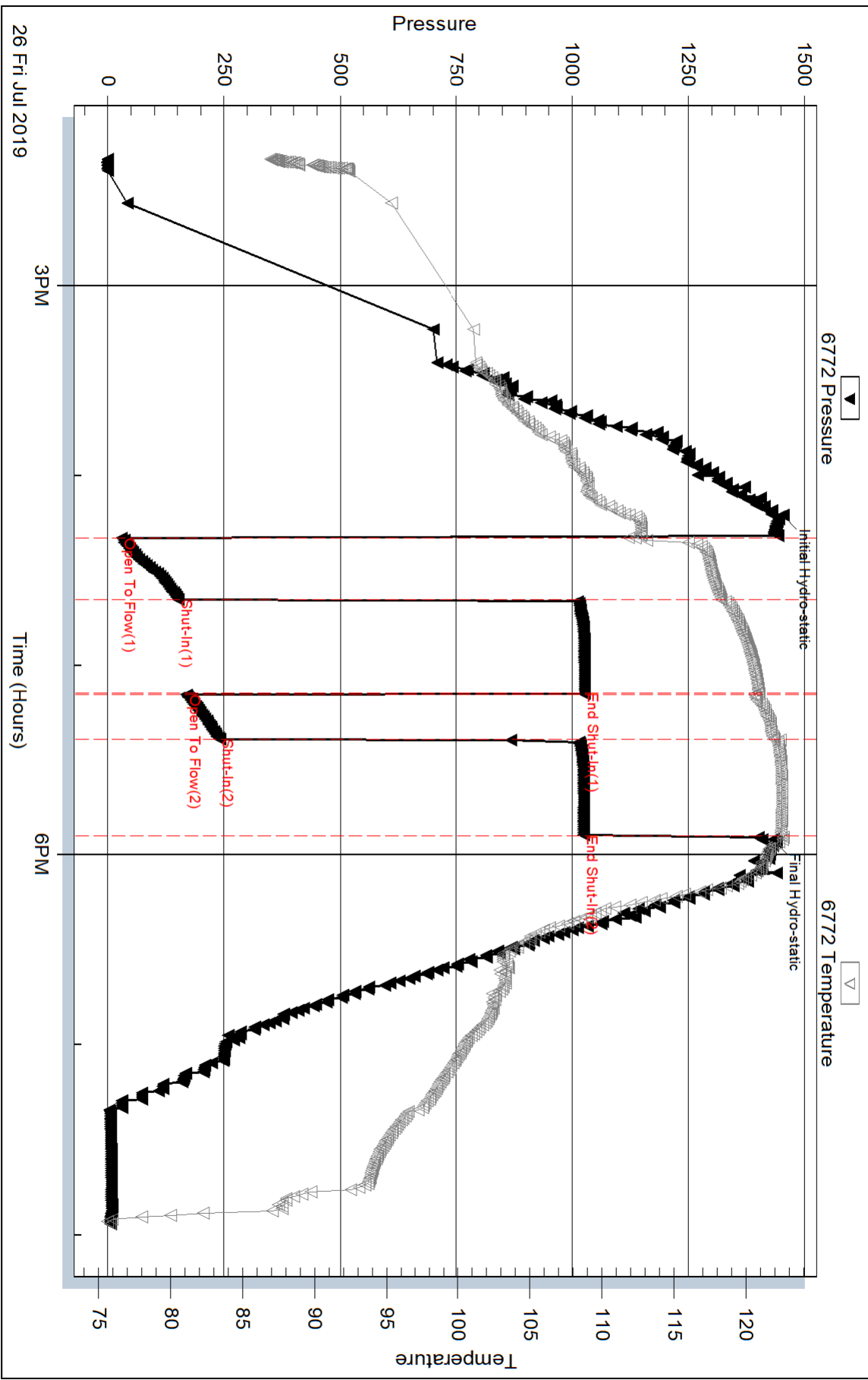
Recovery Information

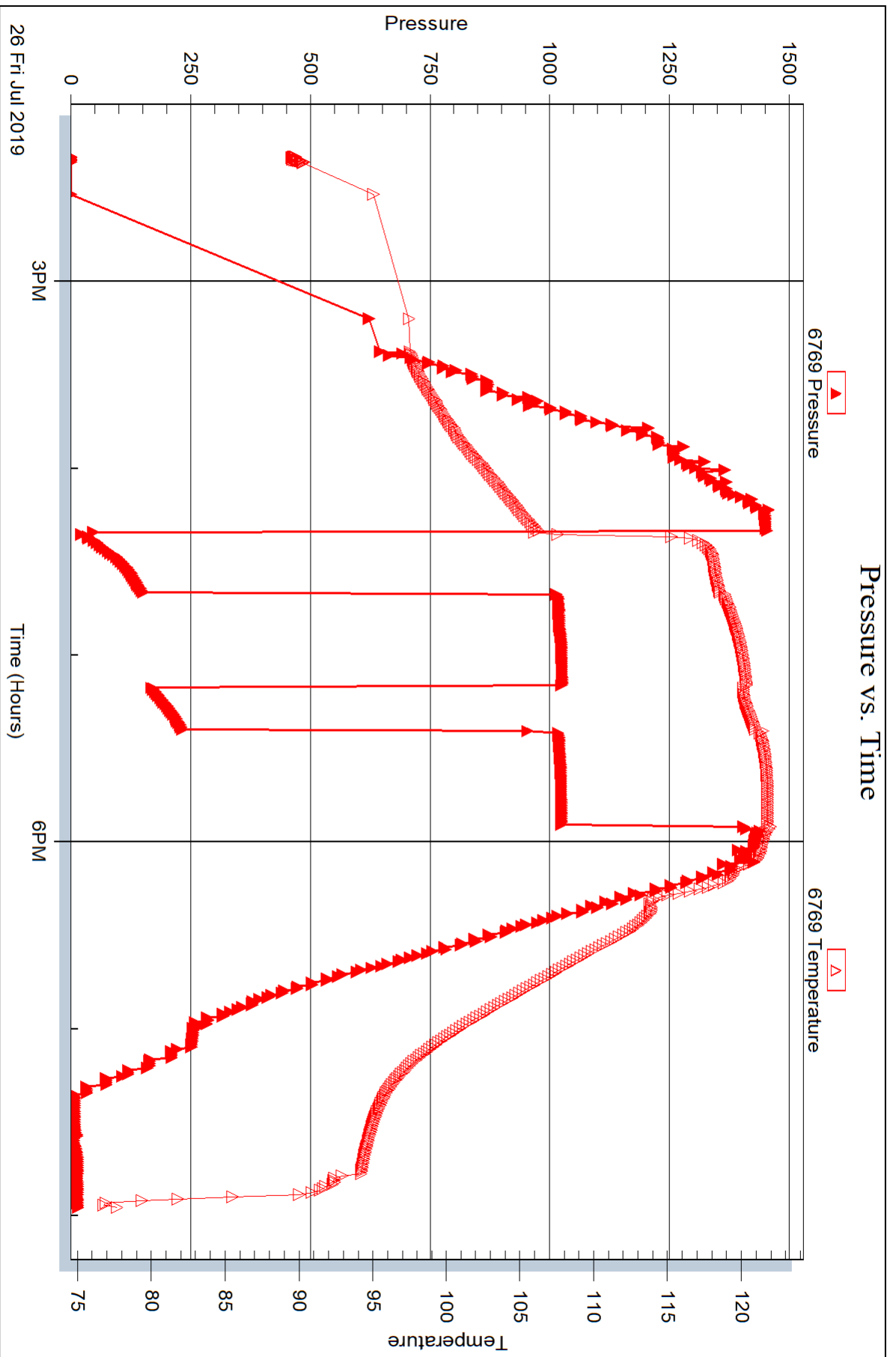
Recovery Table

Length ft	Description	Volume bbl
360.00	W 100% W	3.362
120.00	MW 40%M 60%W	1.683

Total Length: 480.00 ft Total Volume: 5.045 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: **John O Farmer Inc**

PO Box 352
Russell KS 67665+0352

ATTN: Austin Klaus

Harder #1

11-17s-10e Lyon,KS

Start Date: 2019.07.27 @ 18:23:00

End Date: 2019.07.27 @ 23:46:39

Job Ticket #: 65801 DST #: 2

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

Printed: 2019.07.30 @ 10:35:29



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65801 **DST#: 2**
Test Start: 2019.07.27 @ 18:23:00

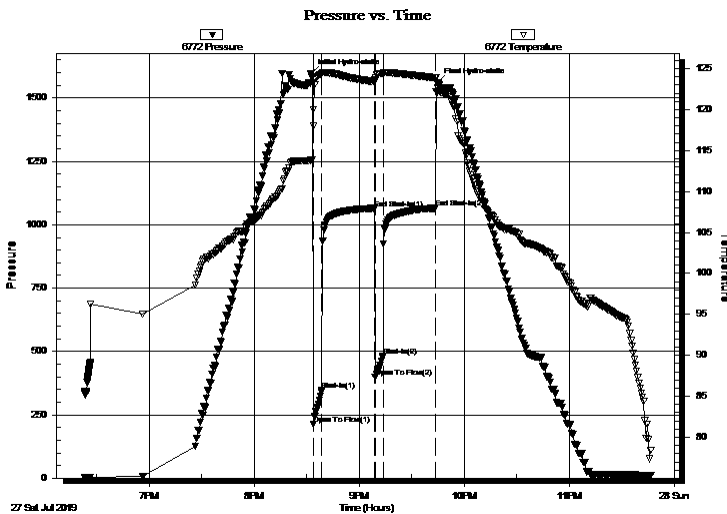
GENERAL INFORMATION:

Formation: **Simpson Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:33:40
Time Test Ended: 23:46:39
Interval: **3111.00 ft (KB) To 3120.00 ft (KB) (TVD)**
Total Depth: 3120.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Benny Mulligan
Unit No: 66
Reference Elevations: 1328.00 ft (KB)
1320.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6772 Inside
Press@RunDepth: 482.61 psig @ 3112.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.07.27 End Date: 2019.07.27 Last Calib.: 2019.07.28
Start Time: 18:23:01 End Time: 23:46:40 Time On Btm: 2019.07.27 @ 20:32:20
Time Off Btm: 2019.07.27 @ 21:44:50

TEST COMMENT: IF-5-BOB 45 secs total build of 74"
ISI-30- no blow back
FF-5- BOB 35 secs total build of 65"
FSI-30- no blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1595.69	113.80	Initial Hydro-static
2	212.05	117.94	Open To Flow (1)
7	345.76	124.32	Shut-In(1)
37	1064.42	123.36	End Shut-In(1)
37	398.20	123.61	Open To Flow (2)
42	482.61	124.37	Shut-In(2)
72	1065.54	123.85	End Shut-In(2)
73	1559.41	122.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
780.00	W 100% W	7.53
150.00	MW 40%M 60%W	2.10

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65801 **DST#: 2**
Test Start: 2019.07.27 @ 18:23:00

Tool Information

Drill Pipe:	Length: 2878.00 ft	Diameter: 3.80 inches	Volume: 40.37 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 243.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight to Pull Loose: 58000.00 lb
			<u>Total Volume: 40.37 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3111.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	29.00 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			3092.00	
Shut In Tool	5.00			3097.00	
Hydraulic tool	5.00			3102.00	
Packer	5.00			3107.00	20.00 Bottom Of Top Packer
Packer	4.00			3111.00	
Stubb	1.00			3112.00	
Recorder	0.00	6772	Inside	3112.00	
Recorder	0.00	6769	Outside	3112.00	
Perforations	5.00			3117.00	
Bullnose	3.00			3120.00	9.00 Bottom Packers & Anchor
Total Tool Length:	29.00				



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DRILL STEM TEST REPORT

FLUID SUMMARY

John O Farmer Inc
PO Box 352
Russell KS 67665+0352
ATTN: Austin Klaus

11-17s-10e Lyon,KS
Harder #1
Job Ticket: 65801 **DST#: 2**
Test Start: 2019.07.27 @ 18:23:00

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:	8500 ppm
Viscosity: 49.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
780.00	W 100% W	7.533
150.00	MW 40%M 60%W	2.104

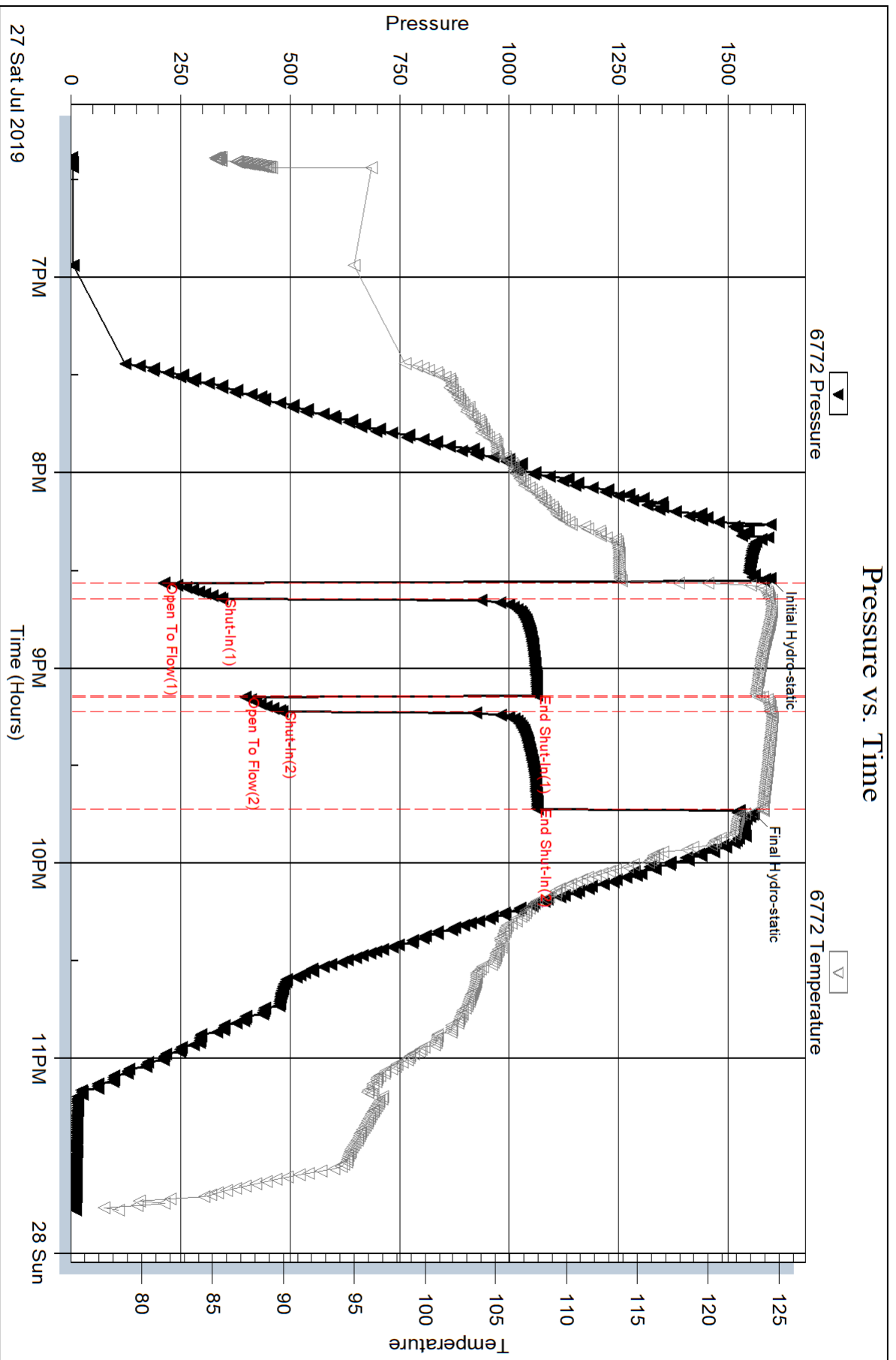
Total Length: 930.00 ft Total Volume: 9.637 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

Pressure vs. Time

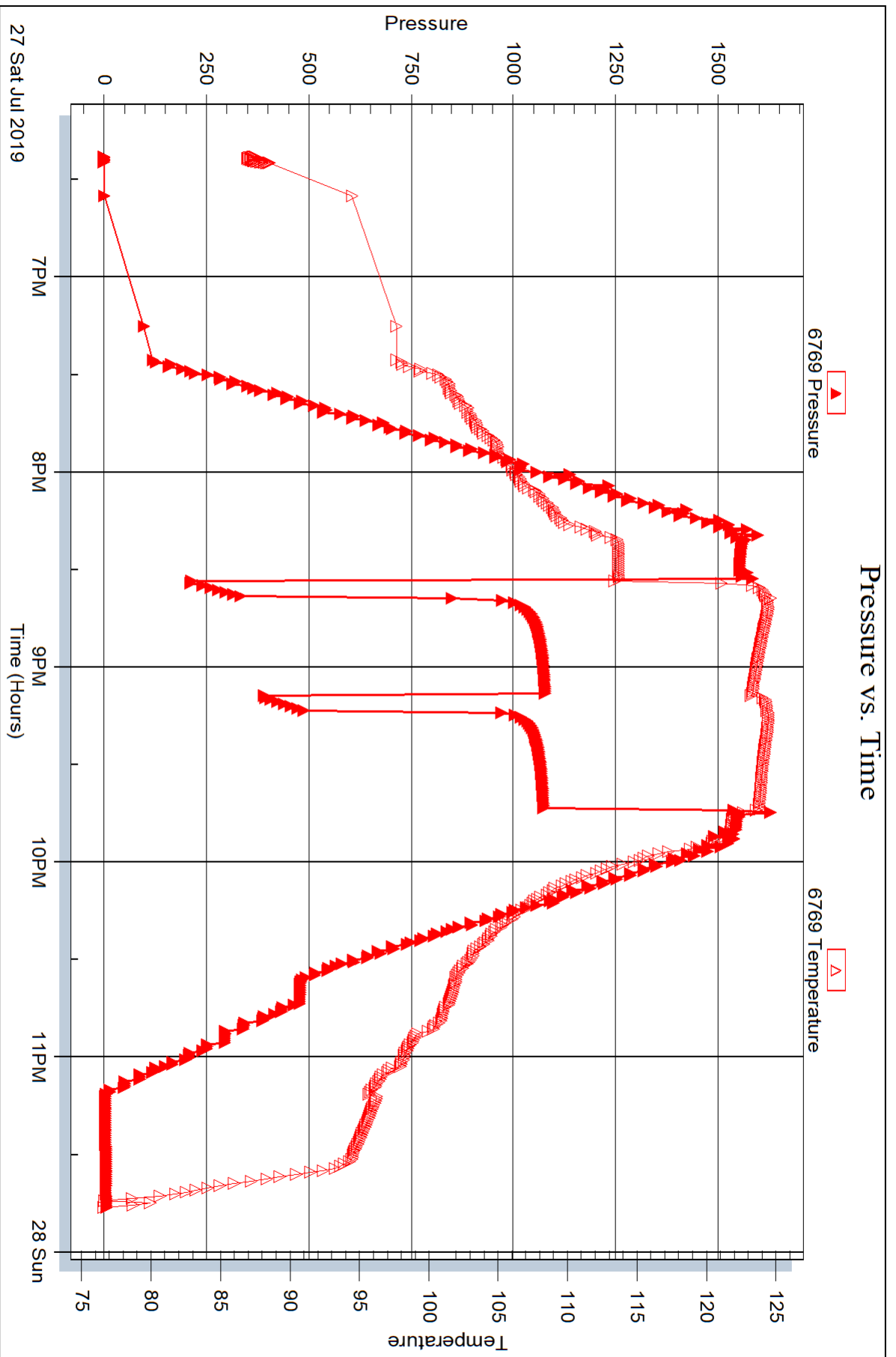


Serial #: 6769

Outside John O Farmer Inc

Harder #1

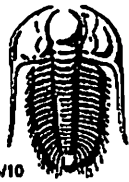
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65801

Printed: 2019.07.30 @ 10:35:31



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65800

NO.

Well Name & No. Merder #1 Test No. 1 Date 7-26-2019
 Company John O Farmer Inc Elevation 1328 KB 1320 GL
 Address 370 W Wichita Ave P.O. box 352 Russell, KS 67665+0352
 Co. Rep / Geo. Austin Klaus Rig Disc Rig 2
 Location: Sec. 11 Twp 17s Rge. 10E Co. 4y0- State KS

Interval Tested 2916-2922 Zone Tested Hunton
 Anchor Length 6' Drill Pipe Run _____ Mud Wt. 9.1
 Top Packer Depth 2911 Drill Collars Run _____ Vis 54
 Bottom Packer Depth 2916 Wt. Pipe Run 243 WL 7.2
 Total Depth 2922 Chlorides 1000 ppm System LCM 1.5#

Blow Description IF-BOB 7mins 40secs total build of 32"
ESI- no blow back
FF-BOB 7mins 45secs total build of 26"
F54- no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>M.W.</u>		<u>60</u>	<u>40</u>	
<u>360</u>	<u>W</u>		<u>100</u>		
____	____				
____	____				

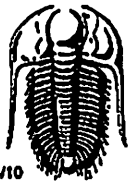
Rec Total 480' BHT _____ Gravity _____ API RW 0.356 @ 84.2°F Chlorides 15000 ppm

(A) Initial Hydrostatic 1453 Test 1200 T-On Location 1:40 PM
 (B) First Initial Flow 29 Jars _____ T-Started 2:20
 (C) First Final Flow 152 Safety Joint _____ T-Open 4:20
 (D) Initial Shut-In 1027 Circ Sub _____ T-Pulled 5:56
 (E) Second Initial Flow 169 Hourly Standby _____ T-Out 7:58
 (F) Second Final Flow 241 Mileage 308 mi RT 308 Comments _____
 (G) Final Shut-In 1025 Sampler _____
 (H) Final Hydrostatic 1432 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 20 EM Tool _____
 Initial Shut-In 30 Ruined Shale Packer _____
 Final Flow 15 Ruined Packer _____
 Final Shut-In 30 Extra Copies _____
 Sub Total 0 Total 1508 MP/DST Disc't _____
 Sub Total 1508

Approved By _____ Our Representative Benny Mulligan

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 65801

NO.

Well Name & No. Harder #1 Test No. 2 Date 7-27-2019
 Company John O Farmer Inc Elevation 1328 KB 1300 GL
 Address 370 W. Wichita Ave P.O. box 352 Russell KS 67665+0352
 Co. Rep / Geo. Austin Klaus Rig Disco 2
 Location: Sec. 11 Twp 17s Rge. 10E Co. Lyons State KS

Interval Tested 3111 ~ 3120 Zone Tested Simpson Sand
 Anchor Length 9' Drill Pipe Run 2878 Mud Wt. 9.2
 Top Packer Depth 3106 Drill Collars Run --- Vls 49
 Bottom Packer Depth 3111 Wt. Pipe Run 243 WL 7.2
 Total Depth 3120 Chlorides 1000 ppm System LCM 1#

Blow Description IF - BOB 45 secs total build of 74"
ISI - no blow back
FF - BOB 35 secs total build of 65"
FSI - no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>150'</u>	<u>m.w.</u>		<u>60</u>	<u>40</u>	
<u>780'</u>	<u>W</u>		<u>100</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 930' BHT 122 Gravity _____ API RW 0.290 @ 77 °F Chlorides 8500 ppm
 (A) Initial Hydrostatic 1595 Test 1200 T-On Location 5:57 PM
 (B) First Initial Flow 212 Jars _____ T-Started 6:25
 (C) First Final Flow 345 Safety Joint _____ T-Open 8:33
 (D) Initial Shut-In 1064 Circ Sub _____ T-Pulled 9:43
 (E) Second Initial Flow 398 Hourly Standby _____ T-Out 11:47
 (F) Second Final Flow 482 Mileage 308 RT 308+308 Comments Loaded tool
 (G) Final Shut-In 1065 Sampler _____ 7-28-2019 at
 (H) Final Hydrostatic 1559 Straddle _____ 2 p.m.

Initial Open 5 Shale Packer _____ EM Tool _____
 Initial Shut-In 30 Extra Packer _____ Ruined Shale Packer _____
 Final Flow 5 Extra Recorder _____ Ruined Packer _____
 Final Shut-In 30 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1816
 Sub Total 1816 MP/DST Disc't _____

Approved By _____ Our Representative Benny Mulligan

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.