



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Matlock #3

26-13S-19W Ellis,KS

Start Date: 2019.10.02 @ 23:46:00

End Date: 2019.10.03 @ 07:10:00

Job Ticket #: 66319 DST #: 1

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

Printed: 2019.10.04 @ 14:14:24

TDI
26-13S-19W Ellis,KS
Matlock #3
DST # 1
LKC C - D
2019.10.02



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

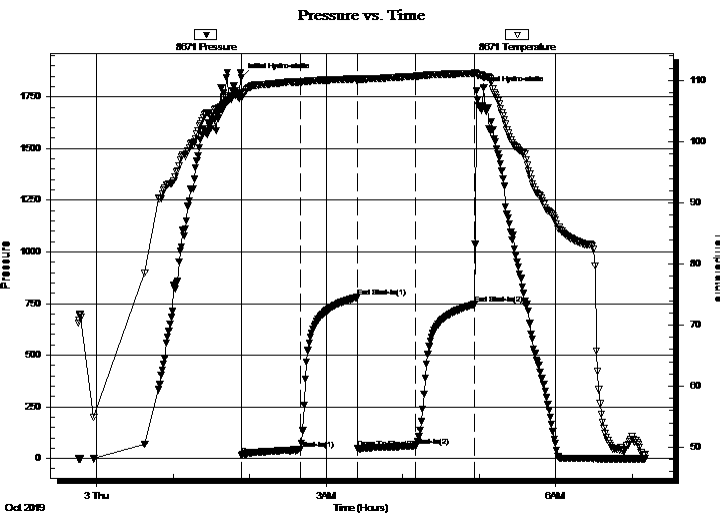
26-13S-19W Ellis,KS
Matlock #3
Job Ticket: 66319 **DST#: 1**
Test Start: 2019.10.02 @ 23:46:00

GENERAL INFORMATION:

Formation: **LKC C - D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:54:00
 Time Test Ended: 07:10:00
 Interval: **3520.00 ft (KB) To 3563.00 ft (KB) (TVD)**
 Total Depth: 3920.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Royal Fisher
 Unit No: #77
 Reference Elevations: 2189.00 ft (KB)
 2179.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8671 Outside
 Press@RunDepth: 60.53 psig @ 3521.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.10.02 End Date: 2019.10.03 Last Calib.: 2019.10.03
 Start Time: 23:46:05 End Time: 07:09:59 Time On Btm: 2019.10.03 @ 01:53:45
 Time Off Btm: 2019.10.03 @ 04:57:45

TEST COMMENT: 45 - IFP - Surface blow built up to 4 1/2"
 45 - ISI - No Return
 45 - FFP - Surface blow built up to 3"
 45 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1845.04	108.01	Initial Hydro-static
1	16.96	107.24	Open To Flow (1)
46	43.69	109.74	Shut-In(1)
91	780.13	110.27	End Shut-In(1)
91	50.38	109.82	Open To Flow (2)
136	60.53	110.69	Shut-In(2)
183	745.68	111.11	End Shut-In(2)
184	1778.97	111.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Free Oil - 100%o	0.02
112.00	OCMW - 5%o - 40%m - 55%w	1.15

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

26-13S-19W Ellis,KS
Matlock #3
Job Ticket: 66319 **DST#: 1**
Test Start: 2019.10.02 @ 23:46:00

Tool Information

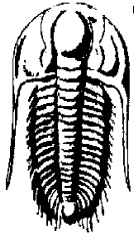
Drill Pipe:	Length: 3517.80 ft	Diameter: 3.25 inches	Volume: 36.09 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 36.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.80 ft			String Weight: Initial 41000.00 lb
Depth to Top Packer:	3520.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	3927.00 ft			
Interval between Packers:	407.00 ft			
Tool Length:	427.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3505.00	
Hydraulic tool	5.00			3510.00	
Packer	5.00		Inside	3515.00	20.00 Bottom Of Top Packer
Packer	5.00			3520.00	
Stubb	1.00			3521.00	
Recorder	0.00	8671	Outside	3521.00	
Recorder	0.00	8360	Inside	3521.00	
Perforations	5.00			3526.00	
Change Over Sub	1.00			3527.00	
Drill Pipe	31.00			3558.00	
Change Over Sub	1.00			3559.00	
Perforations	1.00			3560.00	
Stubb	3.00		Outside	3563.00	
Packer - Shale	5.00		Outside	3568.00	
Stubb	1.00			3569.00	
Blank Off Sub	1.00			3570.00	
Change Over Sub	1.00			3571.00	
Recorder	0.00	8678	Outside	3571.00	
Drill Pipe	349.00		Below	3920.00	
Change Over Sub	1.00			3921.00	
Perforations	3.00			3924.00	
Bullnose	3.00			3927.00	407.00 Bottom Packers & Anchor

Total Tool Length: 427.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **26-13S-19W Ellis,KS**
 1310 Bison Rd **Matlock #3**
 Hays KS 67601 Job Ticket: 66319 **DST#: 1**
 ATTN: Herb Deines Test Start: 2019.10.02 @ 23:46:00

Mud and Cushion Information

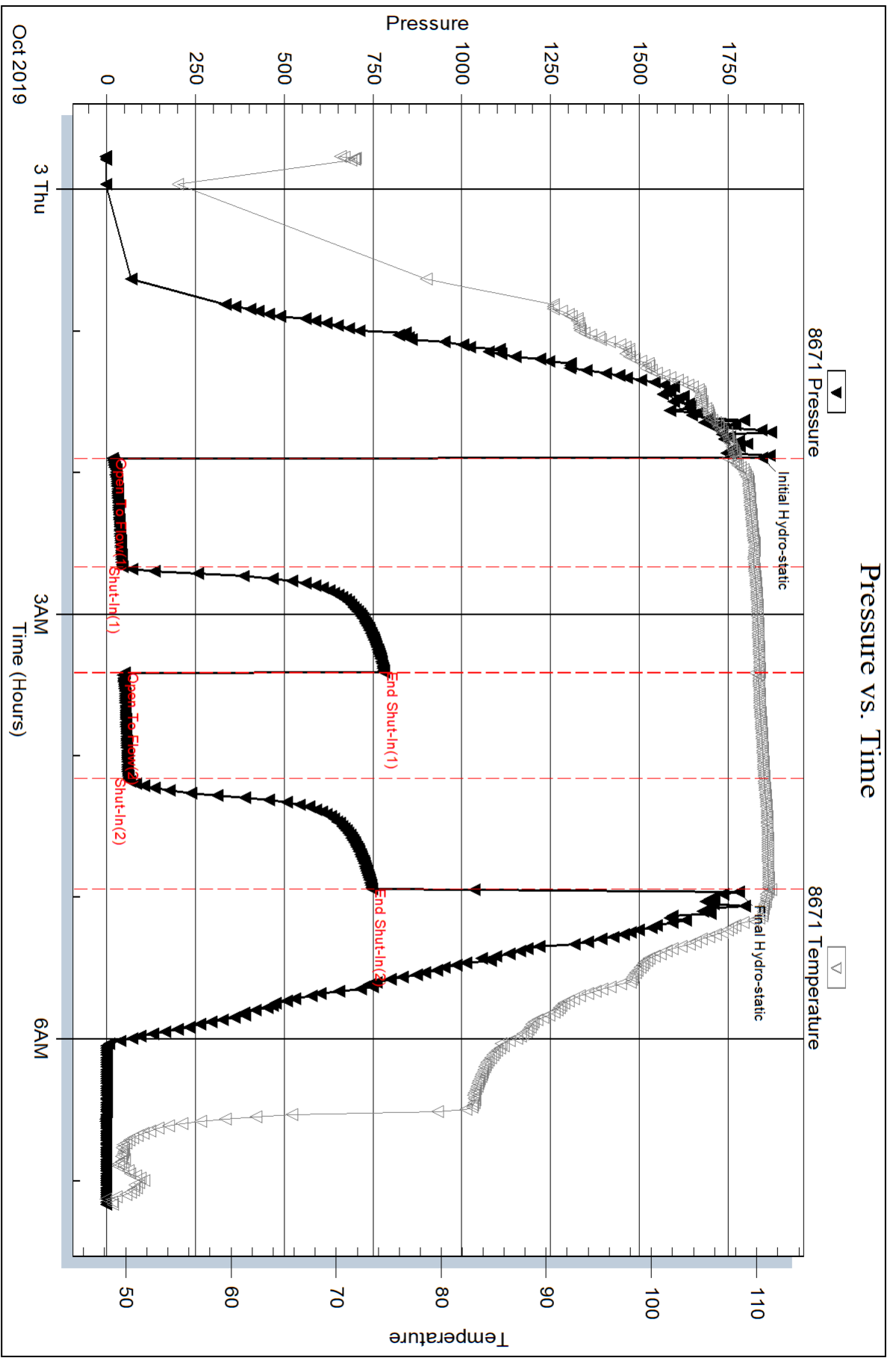
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	34000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3000.00 ppm			
Filter Cake: 1.00 inches			

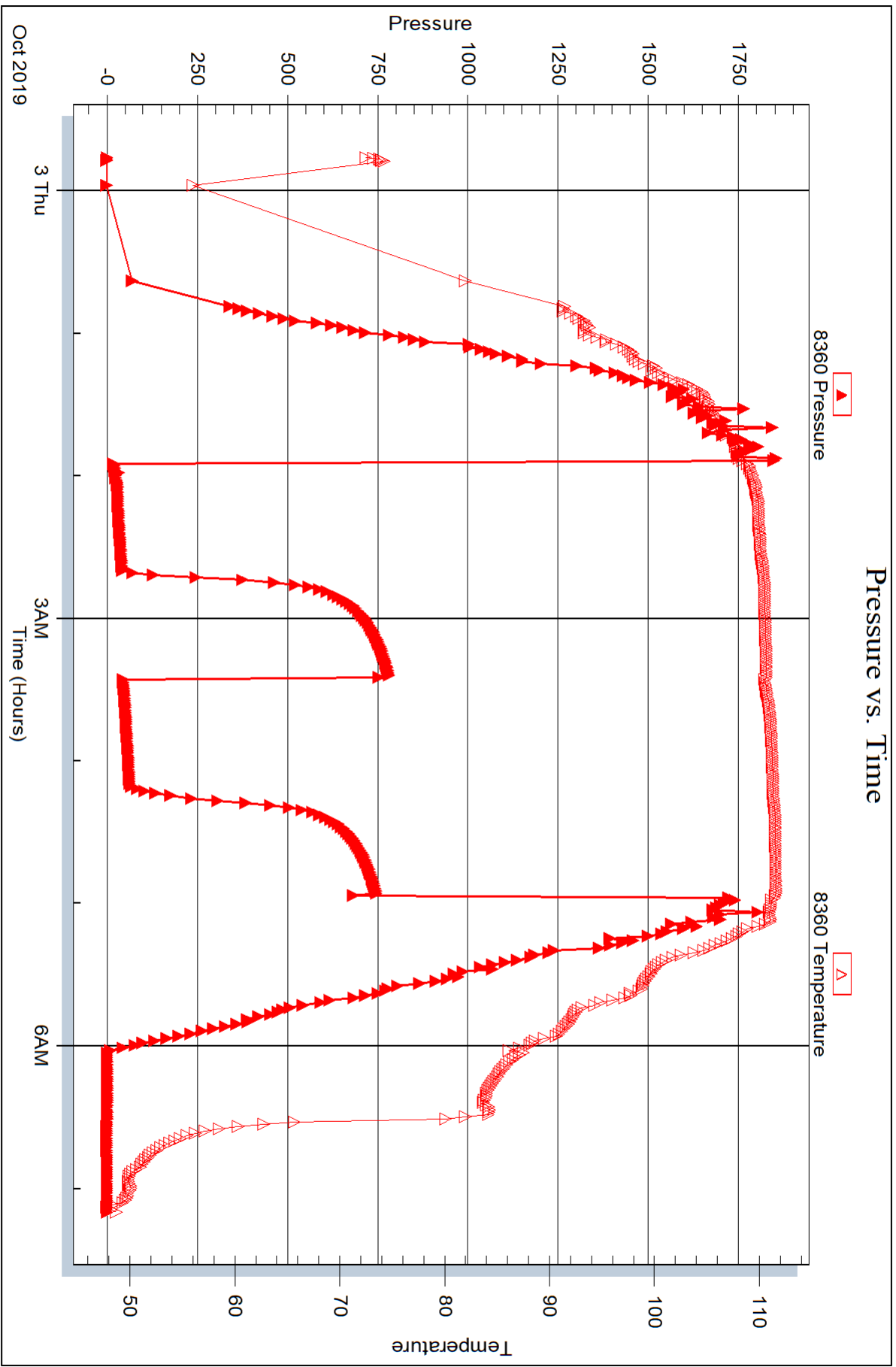
Recovery Information

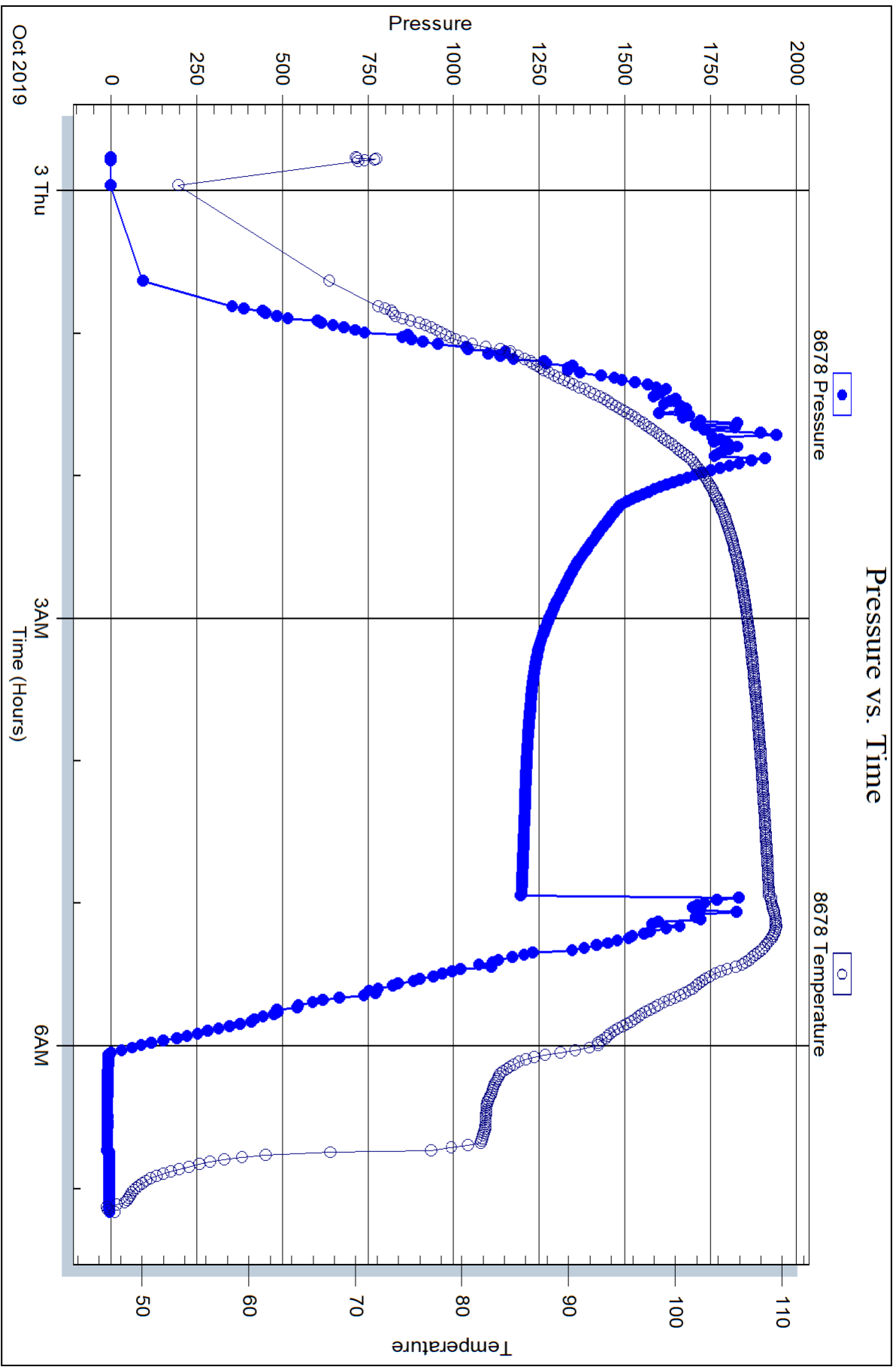
Recovery Table

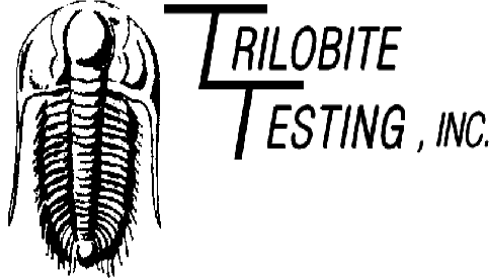
Length ft	Description	Volume bbl
2.00	Free Oil - 100%o	0.021
112.00	OCMW - 5%o - 40%m - 55%w	1.149

Total Length: 114.00 ft Total Volume: 1.170 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: .340 @ 42deg.









DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Matlock #3

26-13S-19W Ellis,KS

Start Date: 2019.10.03 @ 08:12:00

End Date: 2019.10.03 @ 13:53:15

Job Ticket #: 66320 DST #: 2

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

Printed: 2019.10.04 @ 14:07:47

TDI
26-13S-19W Ellis,KS
Matlock #3
DST # 2
LKC J
2019.10.03



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

26-13S-19W Ellis, KS
Matlock #3
Job Ticket: 66320 **DST#: 2**
Test Start: 2019.10.03 @ 08:12:00

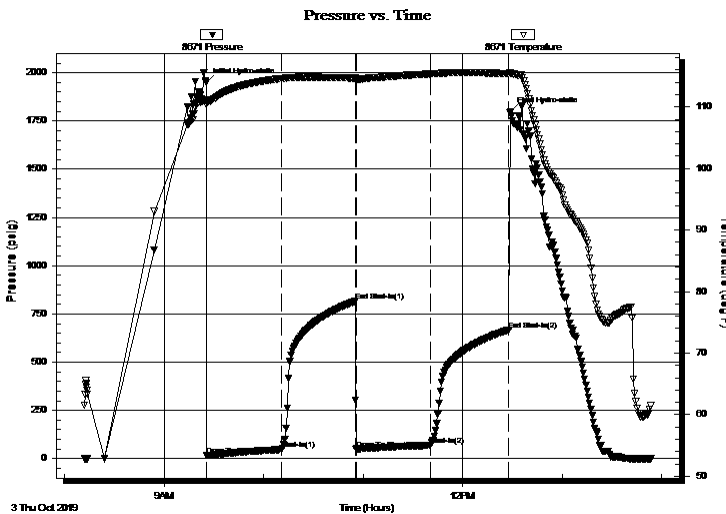
GENERAL INFORMATION:

Formation: **LKC J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:25:30
Time Test Ended: 13:53:15
Interval: **3675.00 ft (KB) To 3690.00 ft (KB) (TVD)**
Total Depth: 3920.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Straddle (Initial)
Tester: Royal Fisher
Unit No: #77
Reference Elevations: 2189.00 ft (KB)
2179.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8671 Outside
Press@RunDepth: 68.75 psig @ 3676.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.10.03 End Date: 2019.10.03 Last Calib.: 2019.10.03
Start Time: 08:12:05 End Time: 13:53:14 Time On Btm: 2019.10.03 @ 09:25:15
Time Off Btm: 2019.10.03 @ 12:28:45

TEST COMMENT: 45 - IFP - Surface blow built up to 6"
45 - ISI - No Return
45 - FFP - Surface blow built up to 3"
45 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1949.80	111.07	Initial Hydro-static
1	17.14	110.40	Open To Flow (1)
46	47.54	114.59	Shut-In(1)
90	814.97	114.67	End Shut-In(1)
91	50.13	114.42	Open To Flow (2)
136	68.75	115.34	Shut-In(2)
183	667.55	115.42	End Shut-In(2)
184	1798.99	115.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCW - 10%o - 90%w	0.21
63.00	OSW - Oil Skim - 100%w	0.65

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

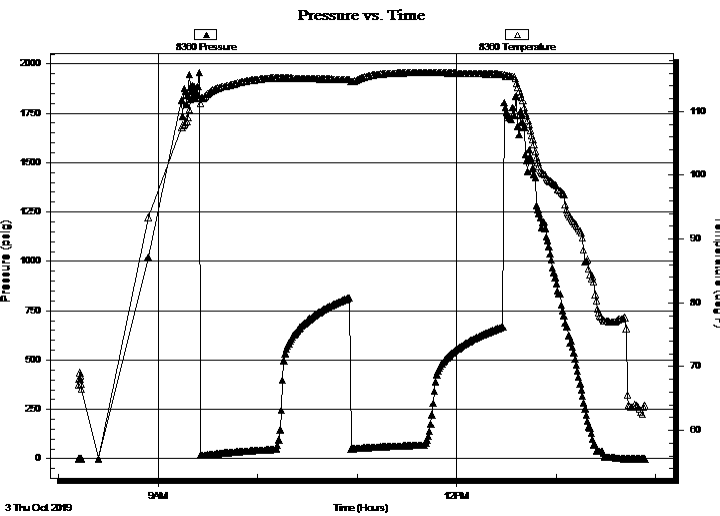
26-13S-19W Ellis, KS
Matlock #3
Job Ticket: 66320 **DST#: 2**
Test Start: 2019.10.03 @ 08:12:00

GENERAL INFORMATION:

Formation: **LKC J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:25:30
Time Test Ended: 13:53:15
Interval: **3675.00 ft (KB) To 3690.00 ft (KB) (TVD)**
Total Depth: 3920.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Straddle (Initial)
Tester: Royal Fisher
Unit No: #77
Reference Elevations: 2189.00 ft (KB)
2179.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8360 Inside
Press@RunDepth: psig @ 3676.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.10.03 End Date: 2019.10.03 Last Calib.: 2019.10.03
Start Time: 08:12:05 End Time: 13:53:29 Time On Btm:
Time Off Btm:

TEST COMMENT: 45 - IFP - Surface blow built up to 6"
45 - ISI - No Return
45 - FFP - Surface blow built up to 3"
45 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCW - 10%o - 90%w	0.21
63.00	OSW - Oil Skim - 100%w	0.65

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

26-13S-19W Ellis,KS
Matlock #3
Job Ticket: 66320 **DST#: 2**
Test Start: 2019.10.03 @ 08:12:00

Tool Information

Drill Pipe:	Length: 3678.15 ft	Diameter: 3.25 inches	Volume: 37.74 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 37.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.15 ft			String Weight: Initial 41000.00 lb
Depth to Top Packer:	3675.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	3927.00 ft			
Interval between Packers:	252.00 ft			
Tool Length:	272.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3660.00	
Hydraulic tool	5.00			3665.00	
Packer	5.00		Inside	3670.00	20.00 Bottom Of Top Packer
Packer	5.00			3675.00	
Stubb	1.00			3676.00	
Recorder	0.00	8671	Outside	3676.00	
Recorder	0.00	8360	Inside	3676.00	
Perforations	10.00			3686.00	
Blank Off Sub	1.00			3687.00	
Stubb	3.00		Outside	3690.00	
Packer - Shale	5.00		Outside	3695.00	
Stubb	1.00			3696.00	
Change Over Sub	1.00			3697.00	
Recorder	0.00	8678	Outside	3697.00	
Drill Pipe	219.00		Below	3916.00	
Change Over Sub	1.00			3917.00	
Perforations	7.00			3924.00	
Bullnose	3.00			3927.00	252.00 Bottom Packers & Anchor

Total Tool Length: 272.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **26-13S-19W Ellis,KS**
 1310 Bison Rd **Matlock #3**
 Hays KS 67601 Job Ticket: 66320 **DST#: 2**
 ATTN: Herb Deines Test Start: 2019.10.03 @ 08:12:00

Mud and Cushion Information

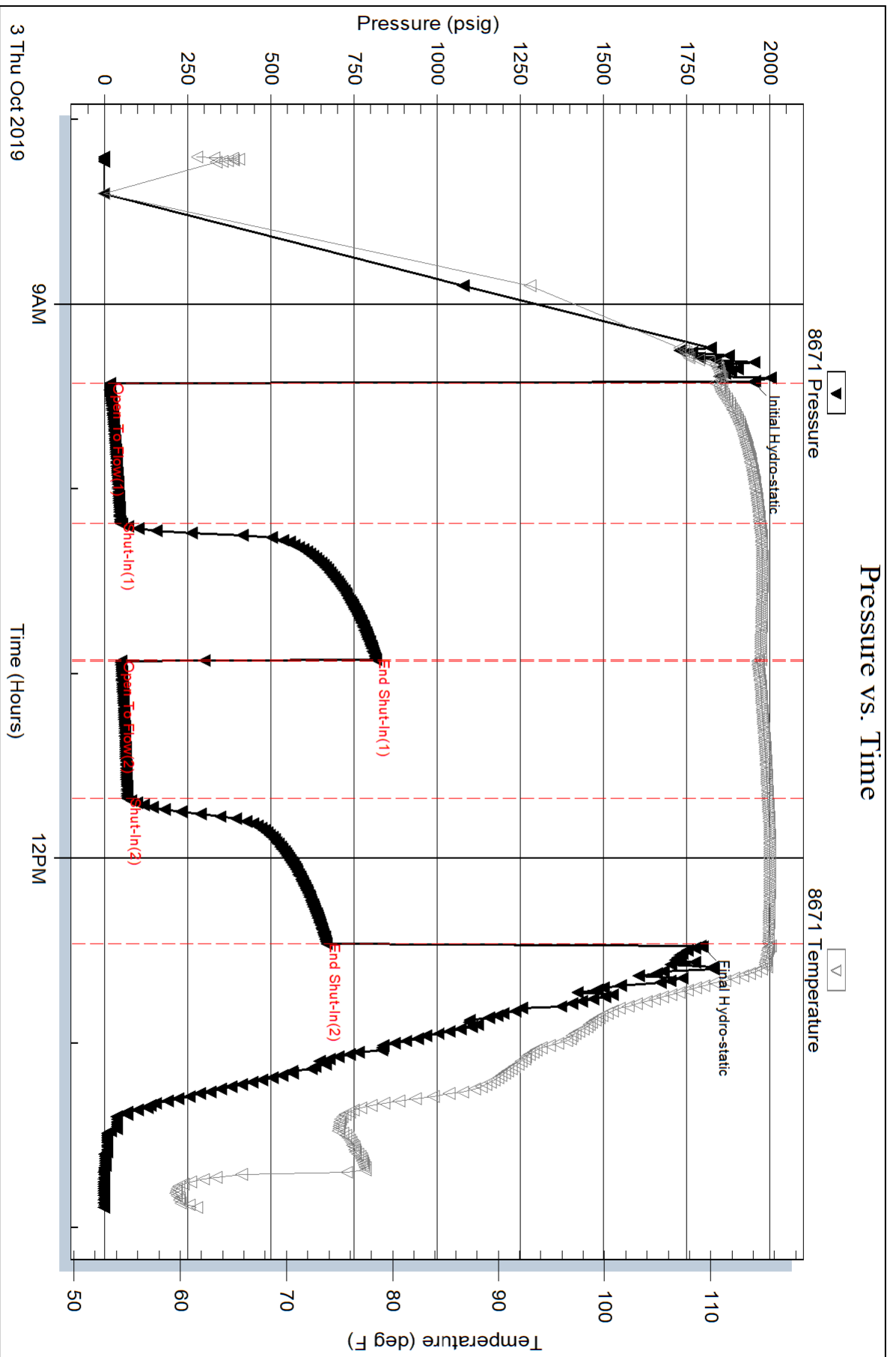
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	48000 ppm
Viscosity: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3000.00 ppm			
Filter Cake: 1.00 inches			

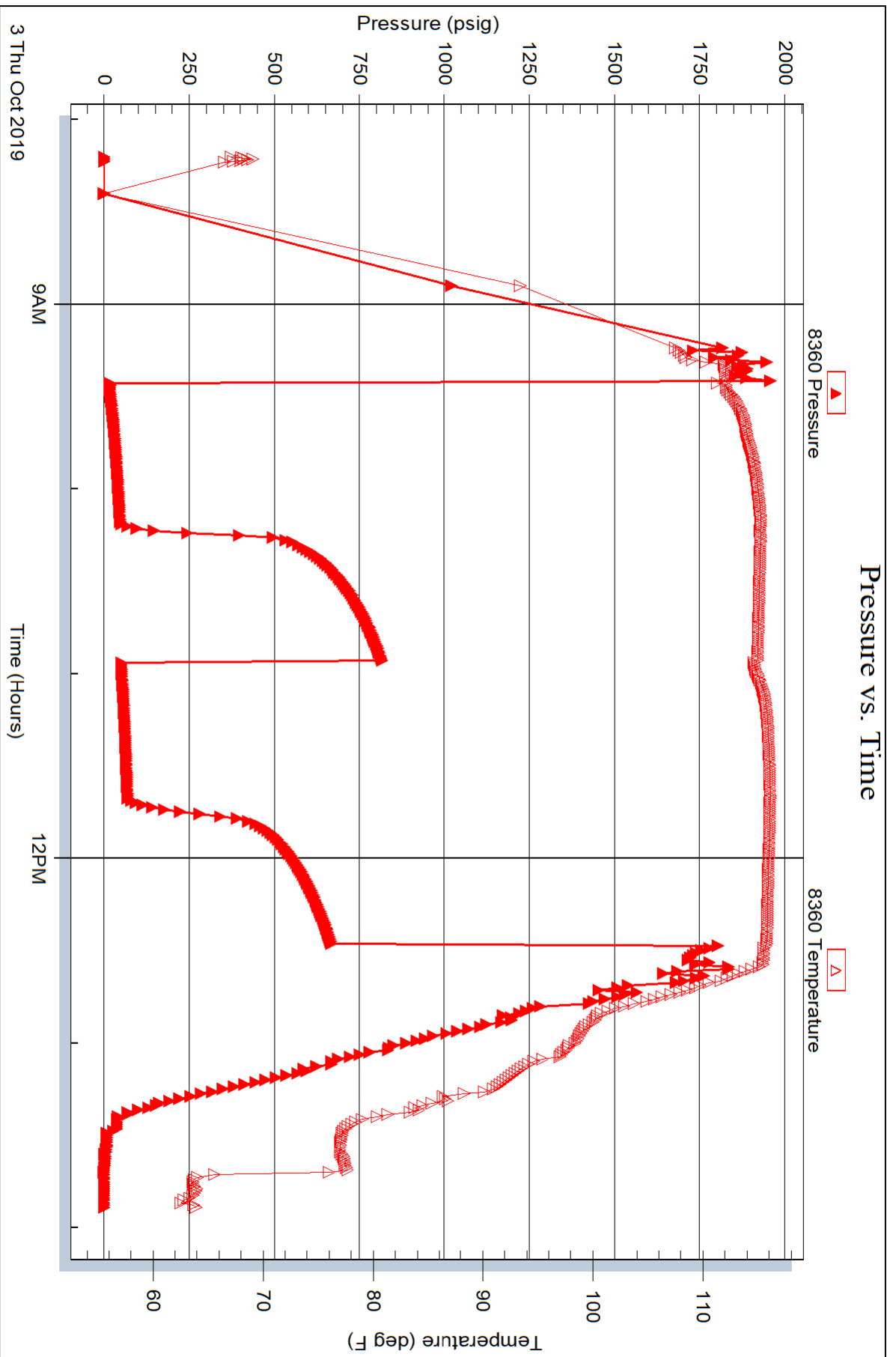
Recovery Information

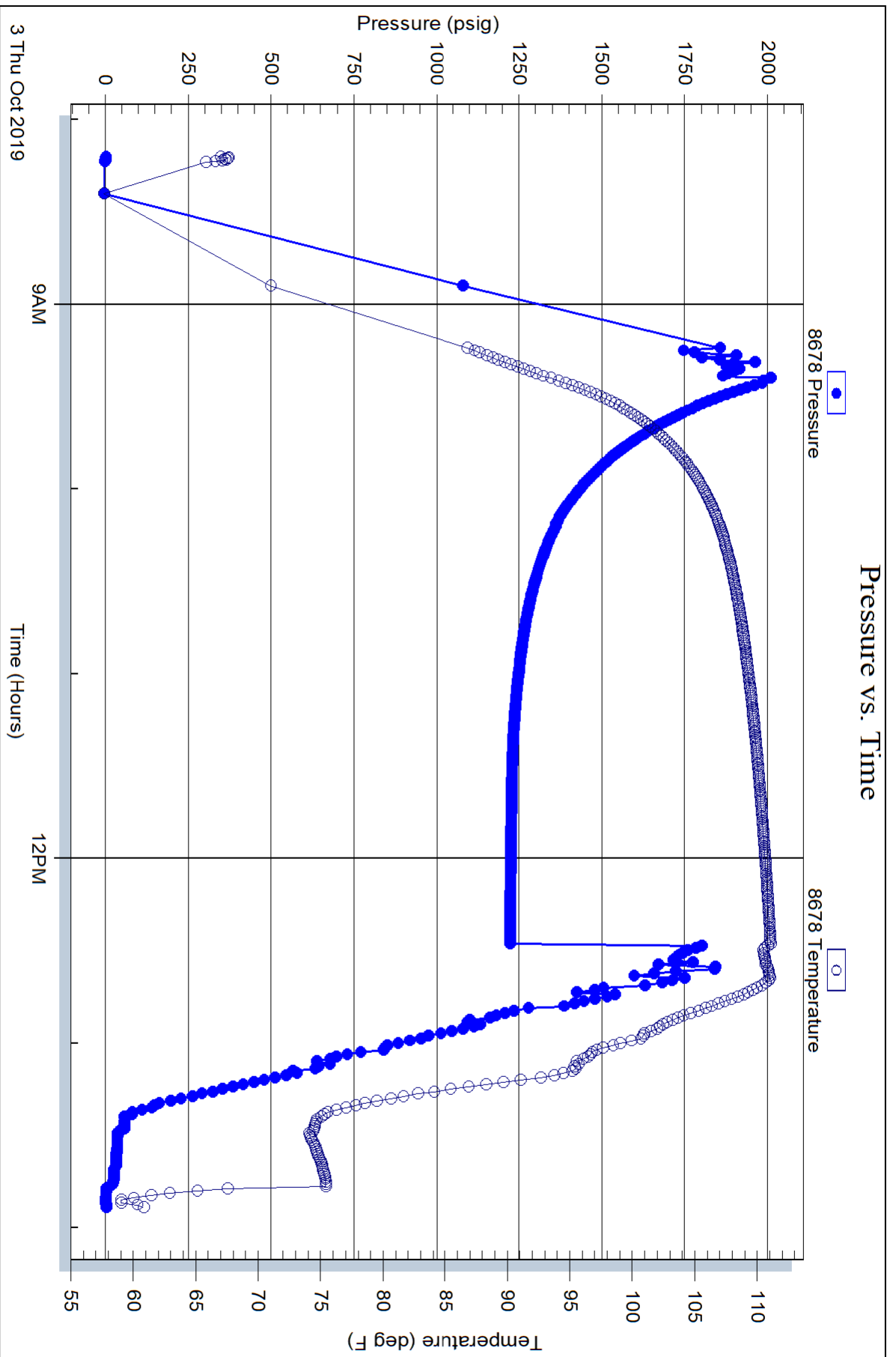
Recovery Table

Length ft	Description	Volume bbl
20.00	OCW - 10%o - 90%w	0.205
63.00	OSW - Oil Skim - 100%w	0.646

Total Length: 83.00 ft Total Volume: 0.851 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: .167 @ 67deg









TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66319

NO.

Well Name & No. Matlock #3 Test No. 1 Date 10-3-19
 Company TOT Elevation 2189 KB 2179 GL
 Address 1310 Bison Rd Hays ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 24 Twp 13S Rge. 19W Co. Ellis State Ks

Interval Tested 3520'-3563' Zone Tested C & D
 Anchor Length 43' Drill Pipe Run 3517.8' Mud Wt. _____
 Top Packer Depth 3515' Drill Collars Run 0 Vis _____
 Bottom Packer Depth 3520' Wt. Pipe Run 0 WL _____
 Total Depth 3920' Chlorides _____ ppm System LCM _____

Blow Description IFP - Surface blow built up to 4 1/2"
ISI - No Return
FFP - Surface blow built up to 3"
FST - No Return

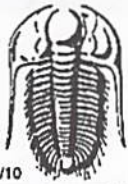
Rec	Feet of	%gas	%oil	%water	%mud
<u>2'</u>	<u>Free Oil</u>	<u>100</u>			
<u>112'</u>	<u>ocmw</u>	<u>5</u>	<u>55</u>	<u>40</u>	
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total 114' BHT 111°F Gravity _____ API RW .340 @ 42 °F Chlorides 34,000 ppm
 (A) Initial Hydrostatic 1845 Test 1200 T-On Location 10:15pm
 (B) First Initial Flow 17 Jars _____ T-Started 11:46pm
 (C) First Final Flow 44 Safety Joint _____ T-Open 1:54am
 (D) Initial Shut-In 780 Circ Sub _____ T-Pulled 4:54am
 (E) Second Initial Flow 50 Hourly Standby _____ T-Out 7:10am
 (F) Second Final Flow 61 Mileage 24 R/T 24 Comments _____
 (G) Final Shut-In 746 Sampler _____
 (H) Final Hydrostatic 1779 Straddle 600 EM Tool _____
 Shale Packer 250 Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 2074
 Sub Total 2074 MP/DST Disc't _____

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45

Approved By _____ Our Representative Randy Gester

Tribolite 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 66320

NO.

Well Name & No. Matlock #3 Test No. 2 Date 10-3-19
 Company TDI Elevation 2189 KB 2179 GL
 Address 1310 Bison Rd Hays Ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 26 Twp 13.S Rge. 19W Co. Ellis State Ks

Interval Tested 3675'-3690' Zone Tested J
 Anchor Length 15' Drill Pipe Run 3678, 15' Mud Wt. 9.3
 Top Packer Depth 3670 Drill Collars Run 0 Vis 51
 Bottom Packer Depth 3675 Wt. Pipe Run 0 WL 8.0
 Total Depth 3920' Chlorides 3000 ppm System LCM 1#

Blow Description IFP-Surface blow built up to 6"
IST-No Return
FFP-Surface blow built up to 3"
FST-No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>OCW</u>	<u>10</u>	<u>90</u>		
<u>63</u>	<u>OSW</u>	<u>Shim</u>	<u>100</u>		

Rec Total 83' BHT 115°F Gravity _____ API RW 167 @ 67 °F Chlorides 48,000 ppm

(A) Initial Hydrostatic 1949 Test 1200 T-On Location 10:15pm 10-2-19
 (B) First Initial Flow 17 Jars _____ T-Started 8:12am
 (C) First Final Flow 47 Safety Joint _____ T-Open 9:25am
 (D) Initial Shut-In 814 Circ Sub _____ T-Pulled 12:25pm
 (E) Second Initial Flow 50 Hourly Standby _____ T-Out 1:53pm
 (F) Second Final Flow 168 Mileage 24 B/T 24 Comments _____
 (G) Final Shut-In 1667 Sampler _____
 (H) Final Hydrostatic 1798 Straddle 600 EM Tool _____

Initial Open 45 Shale Packer 250 Ruined Shale Packer _____
 Initial Shut-In 45 Extra Packer _____ Ruined Packer _____
 Final Flow 45 Extra Recorder _____ Extra Copies _____
 Final Shut-In 45 Day Standby _____ Sub Total 0
 Sub Total 2074 Accessibility _____ Total 2074
 MP/DST Disc't _____

Approved By _____ Our Representative _____

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.