



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Matlock #2

26-13S-19W Ellis,KS

Start Date: 2019.09.23 @ 13:25:00

End Date: 2019.09.23 @ 19:33:45

Job Ticket #: 66317 DST #: 1

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

Printed: 2019.09.26 @ 09:05:39

TDI
26-13S-19W Ellis,KS
Matlock #2
DST # 1
"C & D"

2019.09.23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

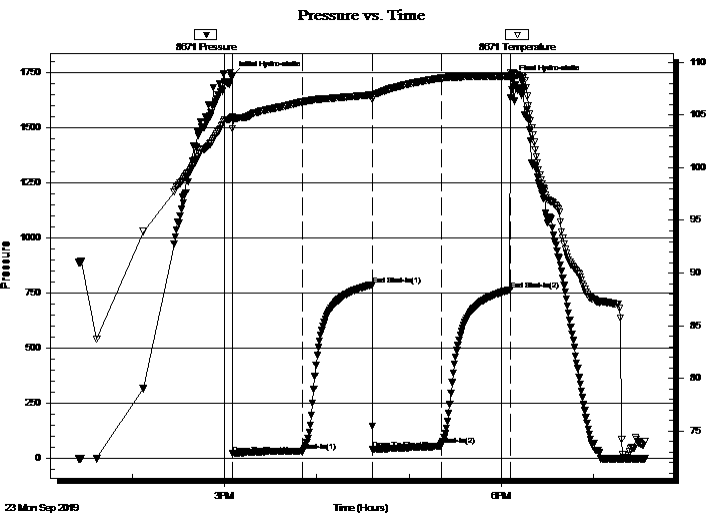
26-13S-19W Ellis,KS
Matlock #2
Job Ticket: 66317 **DST#: 1**
Test Start: 2019.09.23 @ 13:25:00

GENERAL INFORMATION:

Formation: **"C & D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:05:15
 Time Test Ended: 19:33:45
 Interval: **3495.00 ft (KB) To 3535.00 ft (KB) (TVD)**
 Total Depth: 3535.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Royal Fisher
 Unit No: 77
 Reference Elevations: 2170.00 ft (KB)
 2160.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8671 Outside
 Press@RunDepth: 60.46 psig @ 3496.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.23 End Date: 2019.09.23 Last Calib.: 2019.09.23
 Start Time: 13:25:05 End Time: 19:33:44 Time On Btm: 2019.09.23 @ 15:05:00
 Time Off Btm: 2019.09.23 @ 18:07:30

TEST COMMENT: 45 - IFP - Surface blow gradually built up to 7"
 45 - ISI - No Return
 45 - FFP - Surface blow slowly built up to 6 1/2"
 45 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1733.78	104.79	Initial Hydro-static
1	21.23	103.73	Open To Flow (1)
46	33.56	106.26	Shut-In(1)
91	787.29	106.89	End Shut-In(1)
92	42.55	106.71	Open To Flow (2)
136	60.46	108.50	Shut-In(2)
181	764.56	108.69	End Shut-In(2)
183	1715.00	108.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	Free Oil - 100%o	0.03
90.00	OCMW - 10%o - 40%m - 50%w	0.92

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 #2
Job Ticket: 66317 **DST#: 1**
Test Start: 2019.09.23 @ 13:25:00

Tool Information

Drill Pipe:	Length: 3487.10 ft	Diameter: 3.25 inches	Volume: 35.78 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: 60000.00 lb
		Total Volume: 35.78 bbl		Tool Chased 3.00 ft
Drill Pipe Above KB:	12.10 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3495.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	60.00 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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Shut In Tool	5.00			3480.00	
Hydraulic tool	5.00			3485.00	
Packer	5.00			3490.00	20.00 Bottom Of Top Packer
Packer	5.00			3495.00	
Stubb	1.00			3496.00	
Recorder	0.00	8360	Inside	3496.00	
Recorder	0.00	8671	Outside	3496.00	
perforations	36.00			3532.00	
Bullnose	3.00			3535.00	40.00 Bottom Packers & Anchor
Total Tool Length:	60.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **26-13S-19W Ellis,KS**
 1310 Bison Rd **Matlock #2**
 Hays KS 67601 Job Ticket: 66317 **DST#: 1**
 ATTN: Herb Deines Test Start: 2019.09.23 @ 13:25:00

Mud and Cushion Information

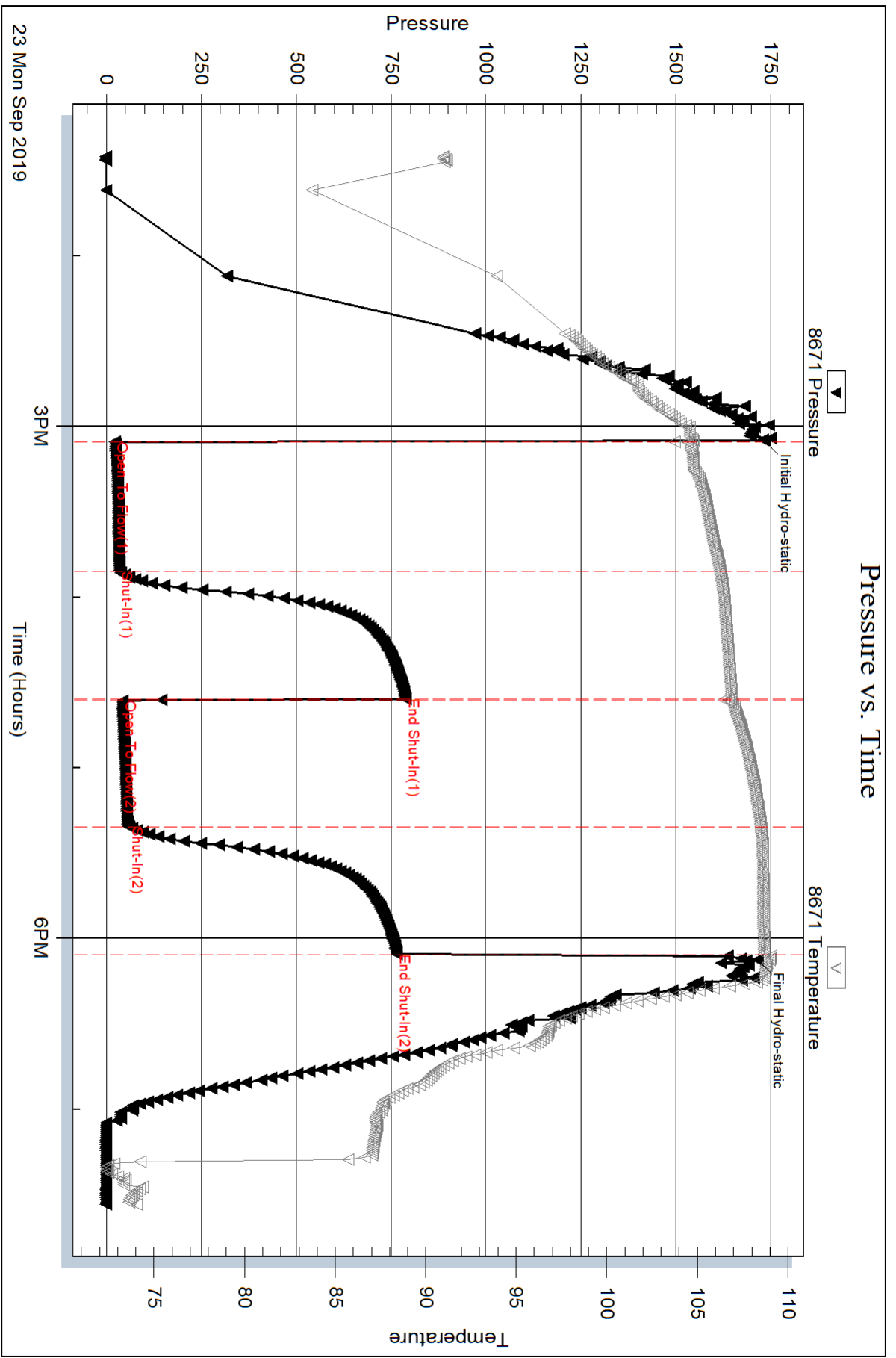
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	34000 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2900.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	Free Oil - 100%o	0.031
90.00	OCMW - 10%o - 40%m - 50%w	0.923

Total Length: 93.00 ft Total Volume: 0.954 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: .179 @ 78deg.

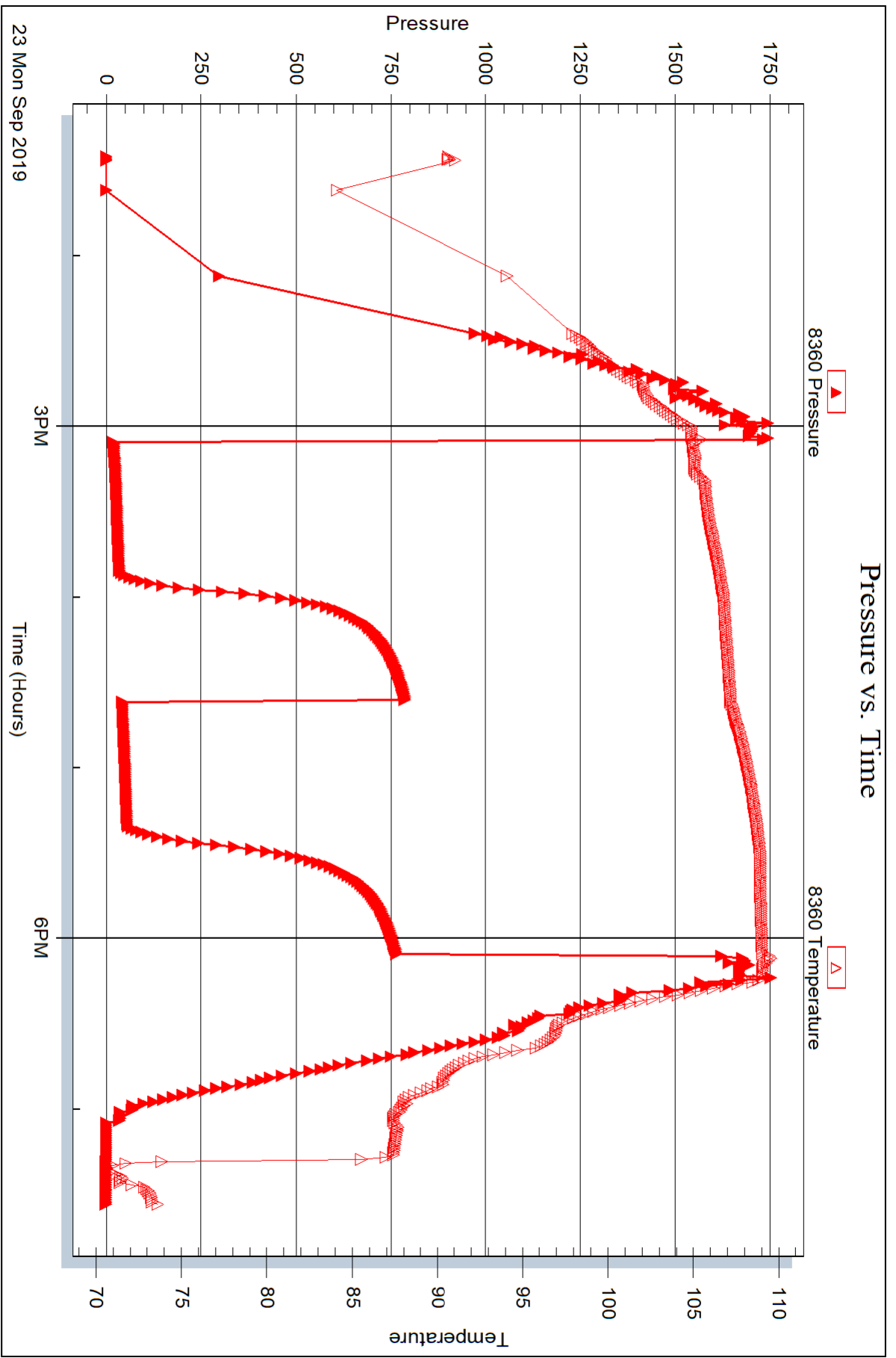


Serial #: 8360

Inside TDI

Matlock #2

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 66317

Printed: 2019.09.26 @ 09:05:40



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Matlock #2

26-13S-19W Ellis,KS

Start Date: 2019.09.24 @ 12:40:00

End Date: 2019.09.24 @ 17:01:00

Job Ticket #: 66318 DST #: 2

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

Printed: 2019.09.26 @ 09:03:23

TDI
26-13S-19W Ellis,KS
Matlock #2
DST # 2
"J & K"
2019.09.24



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

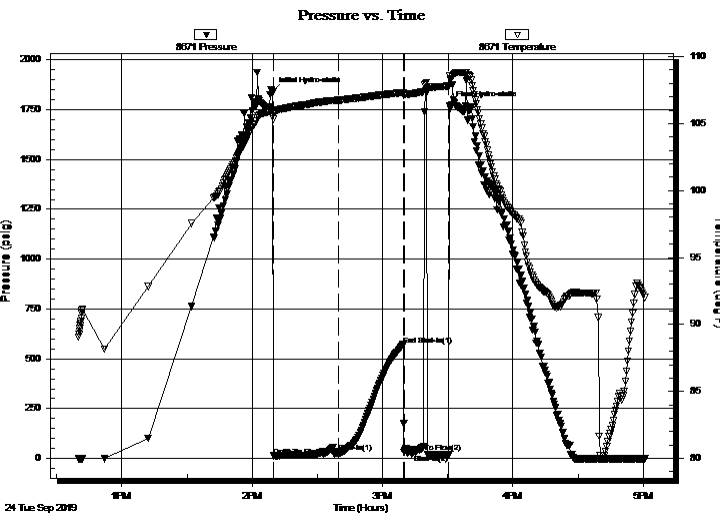
26-13S-19W Ellis, KS
Matlock #2
Job Ticket: 66318 **DST#: 2**
Test Start: 2019.09.24 @ 12:40:00

GENERAL INFORMATION:

Formation: **"J & K"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:09:45
Time Test Ended: 17:01:00
Interval: **3648.00 ft (KB) To 3700.00 ft (KB) (TVD)**
Total Depth: 3700.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: 77
Reference Elevations: 2170.00 ft (KB)
2160.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8671 Outside
Press@RunDepth: 33.46 psig @ 3649.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.09.24 End Date: 2019.09.24 Last Calib.: 2019.09.24
Start Time: 12:40:05 End Time: 17:00:59 Time On Btm: 2019.09.24 @ 14:09:30
Time Off Btm: 2019.09.24 @ 15:31:00

TEST COMMENT: 30 - IFP - Surface blow built to a weak blow and stayed
30 - ISI - No Return
20 - FFP - No blow flushed tool 10 mins. in blow bubbled then died
0 - FSI -



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1838.54	106.05	Initial Hydro-static
1	13.69	105.34	Open To Flow (1)
30	33.46	106.75	Shut-In(1)
60	571.28	107.32	End Shut-In(1)
61	32.70	107.16	Open To Flow (2)
81	19.18	107.81	Shut-In(2)
82	1771.03	108.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM - Oil Spots - 100%m	0.10

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 #2
Job Ticket: 66318 **DST#: 2**
Test Start: 2019.09.24 @ 12:40:00

Tool Information

Drill Pipe:	Length: 3645.00 ft	Diameter: 3.25 inches	Volume: 37.40 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: 50000.00 lb
			<u>Total Volume: 37.40 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3648.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	72.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Pulled tool after final open

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3633.00	
Hydraulic tool	5.00			3638.00	
Packer	5.00			3643.00	20.00 Bottom Of Top Packer
Packer	5.00			3648.00	
Stubb	1.00			3649.00	
Recorder	0.00	8360	Inside	3649.00	
Recorder	0.00	8671	Outside	3649.00	
perforations	15.00			3664.00	
Change Over Sub	1.00			3665.00	
Drill Pipe	31.00			3696.00	
Change Over Sub	1.00			3697.00	
Bullnose	3.00			3700.00	52.00 Bottom Packers & Anchor

Total Tool Length: 72.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **26-13S-19W Ellis,KS**
 1310 Bison Rd **Matlock #2**
 Hays KS 67601 Job Ticket: 66318 **DST#: 2**
 ATTN: Herb Deines Test Start: 2019.09.24 @ 12:40:00

Mud and Cushion Information

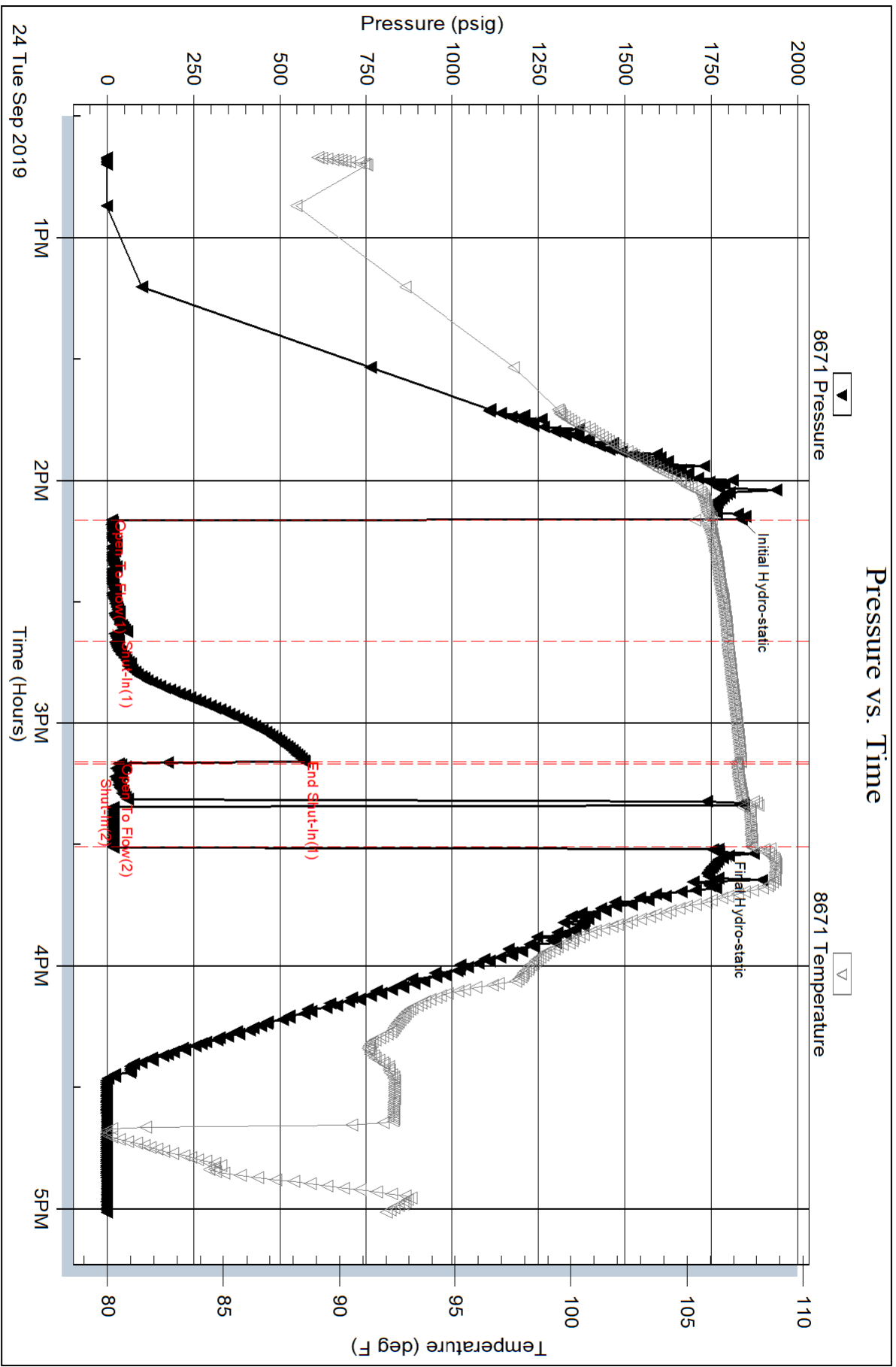
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.98 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3300.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OSM - Oil Spots - 100%m	0.103

Total Length: 10.00 ft Total Volume: 0.103 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

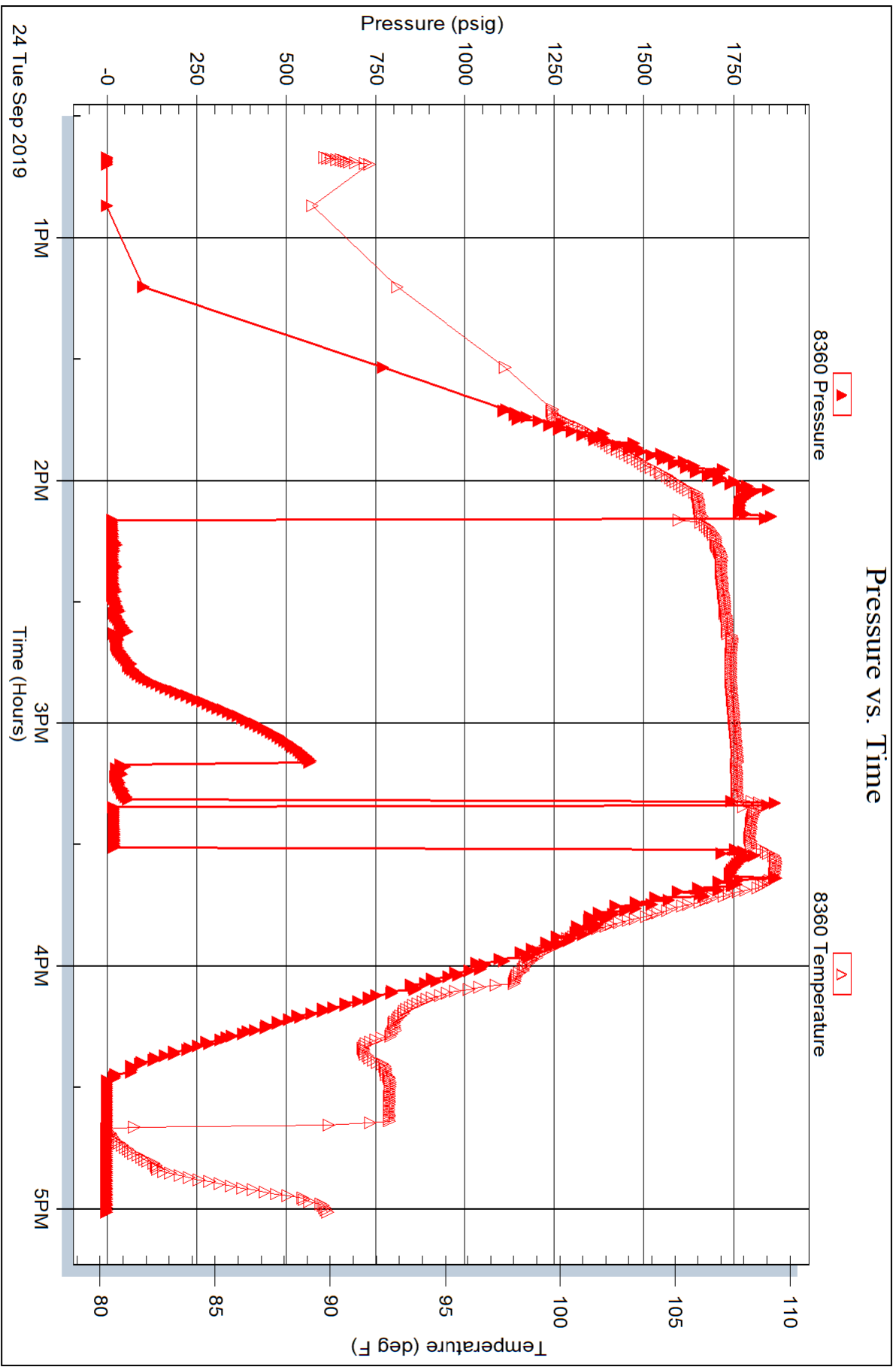


Serial #: 8360

Inside TDI

Matlock #2

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66317

NO.

Well Name & No. Matlock #2 Test No. 1 Date 9-23-19
 Company TDT Elevation 2170' KB 2160' GL
 Address 1310 Bison Rd Hays Ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 26 Twp 13 S Rge. 19 W Co. Ellis State Ks

Interval Tested 3495'-3535' Zone Tested "C & D"
 Anchor Length 40' Drill Pipe Run 3487.10' Mud Wt. 9.1
 Top Packer Depth 3490' Drill Collars Run 0 Vis 54
 Bottom Packer Depth 3495' Wt. Pipe Run 0 WL 6.8
 Total Depth 3535' Chlorides 2900 ppm System LCM 1#

Blow Description IFP-Surface blow gradually built up to 7"
IST-No return
FFP-Surface blow slowly built up to 1 1/2"
FST-No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>90'</u>	<u>ccmw</u>	<u>10</u>	<u>50</u>	<u>40</u>	
<u>3'</u>	<u>Free Oil</u>	<u>100</u>			

Rec Total 93' BHT 109°F Gravity _____ API RW 179 @ 78 °F Chlorides 34,000 ppm

(A) Initial Hydrostatic <u>1734</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>12:10pm</u>
(B) First Initial Flow <u>21</u>	<input type="checkbox"/> Jars _____	T-Started <u>1:25pm</u>
(C) First Final Flow <u>34</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>3:05pm</u>
(D) Initial Shut-In <u>787</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>6:05pm</u>
(E) Second Initial Flow <u>43</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>7:34pm</u>
(F) Second Final Flow <u>60</u>	<input checked="" type="checkbox"/> Mileage <u>18 R/T</u> 18	Comments _____
(G) Final Shut-In <u>764</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1715</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____

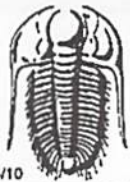
Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45

Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Sub Total 1218 MP/DST Disc't _____

Approved By _____ Our Representative Herb Deines

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 66318

NO. _____

Well Name & No. Matlock #2 Test No. 2 Date 9-24-19
 Company TDI Elevation 2170 KB 2100 GL _____
 Address 1310 Bison Rd Hays Ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 26 Twp 13S Rge. 19W Co. Ellis State Ks

Interval Tested 3648' - 3700' Zone Tested J & K
 Anchor Length 52' Drill Pipe Run 3645' Mud Wt. 9.2
 Top Packer Depth 3643' Drill Collars Run 0 Vis 52
 Bottom Packer Depth 3648' Wt. Pipe Run 0 WL 8.0
 Total Depth 3700' Chlorides 3300 ppm System LCM 2#

Blow Description IFP Surface blow built to a weak blow
ISI - No Return

FFP - Flashed tool 10mins in bubbled then died, pulled tool after open
FSI -

Rec	Feet of	%gas	Spots	%oil	%water	%mud
<u>10'</u>	<u>OSM</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 108°F Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 1839
- (B) First Initial Flow 14
- (C) First Final Flow 33
- (D) Initial Shut-In 571
- (E) Second Initial Flow 32
- (F) Second Final Flow 19
- (G) Final Shut-In _____
- (H) Final Hydrostatic 1771

Initial Open 30
 Initial Shut-In 30
 Final Flow 20
 Final Shut-In 0

- Test 1200
- Jars _____
- Safety Joint _____
- Circ Sub _____
- Hourly Standby _____
- Mileage 18/R/T 36
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____

T-On Location 12:00pm
 T-Started 12:40pm
 T-Open 2:09pm
 T-Pulled 3:29pm
 T-Out 5:01pm

Comments Flushed tool 10min
into final open left open
for 10mins then pulled

EM Tool _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1236
 MP/DST Disc't _____

Approved By _____ Our Representative Royal Tester

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.

picked up tool 9-25-19 from
10:44am to 11:16am