

**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

DK Operating, Inc.

18-21S-22W Hodgeman, KS

621 Benton St.  
Jetmore, KS 67854

**Tull #1-18**

Job Ticket: 63191

DST#: 1

ATTN: Jason T. Alm

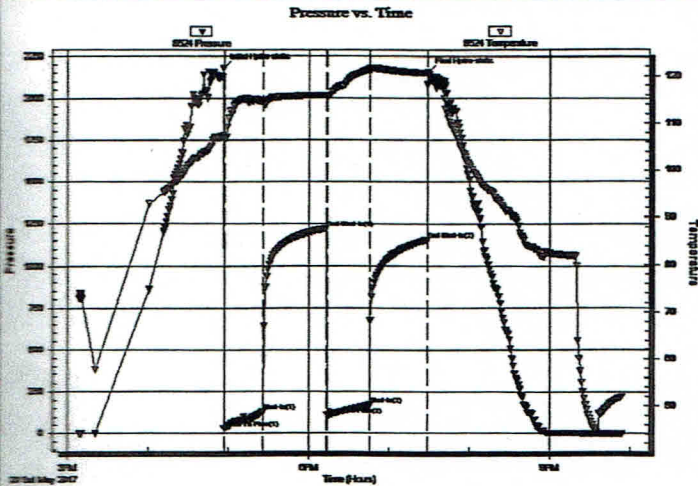
Test Start: 2017.05.20 @ 15:08:50

### GENERAL INFORMATION:

Formation: **Miss**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 16:57:11  
 Time Test Ended: 21:54:26  
 Interval: **4311.00 ft (KB) To 4371.00 ft (KB) (TVD)**  
 Total Depth: 4371.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Brannan Lonsdale  
 Unit No: 73  
 Reference Elevations: 2279.00 ft (KB)  
 2272.00 ft (CF)  
 KB to GR/CF: 7.00 ft

Serial #: **8524** Outside  
 Press@RunDepth: 169.43 psig @ 4336.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.05.20 End Date: 2017.05.20 Last Calib.: 2017.05.20  
 Start Time: 15:08:51 End Time: 21:54:26 Time On Btm: 2017.05.20 @ 16:56:56  
 Time Off Btm: 2017.05.20 @ 19:28:56

TEST COMMENT: 30- IF- BOB 16 mins  
 45- IS- No blow  
 30- FF- BOB 23 mins  
 45- FS- No blow



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2180.34	107.27	Initial Hydro-static
1	30.53	106.41	Open To Flow (1)
29	134.15	114.49	Shut-In(1)
77	1223.41	115.79	End Shut-In(1)
77	108.08	115.50	Open To Flow (2)
109	169.43	121.34	Shut-In(2)
152	1156.01	120.55	End Shut-In(2)
152	2158.18	120.85	Final Hydro-static

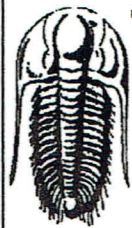
### Recovery

Length (ft)	Description	Volume (bbl)
64.00	OCMW, 10%O 60%W 30%M	0.91
127.00	WOCM, 10%O 15%W 75%M	1.80
143.00	SOCM, 10%O 90%M	2.03

### Gas Rates

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





**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

DK Operating, Inc.  
621 Benton St.  
Jetmore, KS 67854  
ATTN: Jason T. Alm

**18-21S-22W Hodgeman, KS**  
**Tull #1-18**  
Job Ticket: 63191      **DST#: 1**  
Test Start: 2017.05.20 @ 15:08:50

**Tool Information**

Drill Pipe:	Length: 4310.00 ft	Diameter: 3.82 inches	Volume: 61.10 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: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 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 57000.00 lb
Depth to Top Packer:	4311.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	87.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4285.00	
Shut In Tool	5.00			4290.00	
Hydraulic tool	5.00			4295.00	
Jars	5.00			4300.00	
Safety Joint	2.00			4302.00	
Packer	5.00			4307.00	27.00      Bottom Of Top Packer
Packer	4.00			4311.00	
Stubb	1.00			4312.00	
Perforations	23.00			4335.00	
Change Over Sub	1.00			4336.00	
Recorder	0.00	6838	Inside	4336.00	
Recorder	0.00	8524	Outside	4336.00	
Drill Pipe	31.00			4367.00	
Change Over Sub	1.00			4368.00	
Bullnose	3.00			4371.00	60.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>87.00</b>				



**TRIOBITE TESTING, INC.**

### DRILL STEM TEST REPORT

### FLUID SUMMARY

DK Operating, Inc.  
621 Benton St.  
Jesimore, KS 67854  
ATTN: Jason T. Alm

18-21S-22W Hodgeman, KS  
Tull #1-18  
Job Ticket: 63191  
DST#: 1  
Test Start: 2017.05.20 @ 15:08:50

#### 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: 28000 ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl	
Water Loss: 9.38 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 4000.00 ppm		
Filter Cake: inches		

#### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
64.00	OCMW, 10%O 60%W 30%M	0.907
127.00	WOCM, 10%O 15%W 75%M	1.800
143.00	SOCM, 10%O 90%M	2.027

Total Length: 334.00 ft      Total Volume: 4.734 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW: .28@58deg

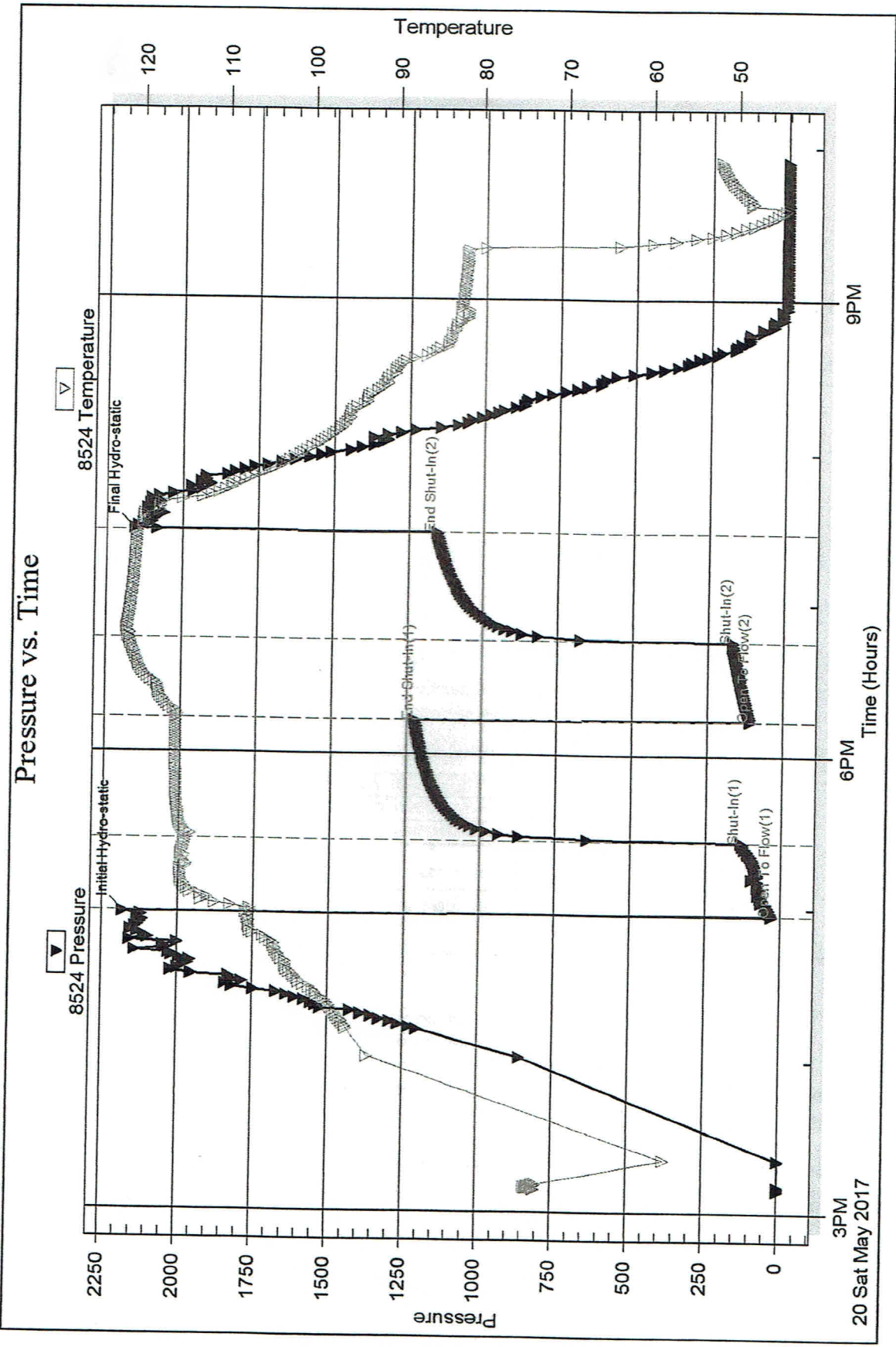
Serial #: 8524

Outside DK Operating, Inc.

Tull #1-18

DST Test Number: 1

### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63191

Printed: 2017.05.22 @ 08:37:04

Serial #: 6838

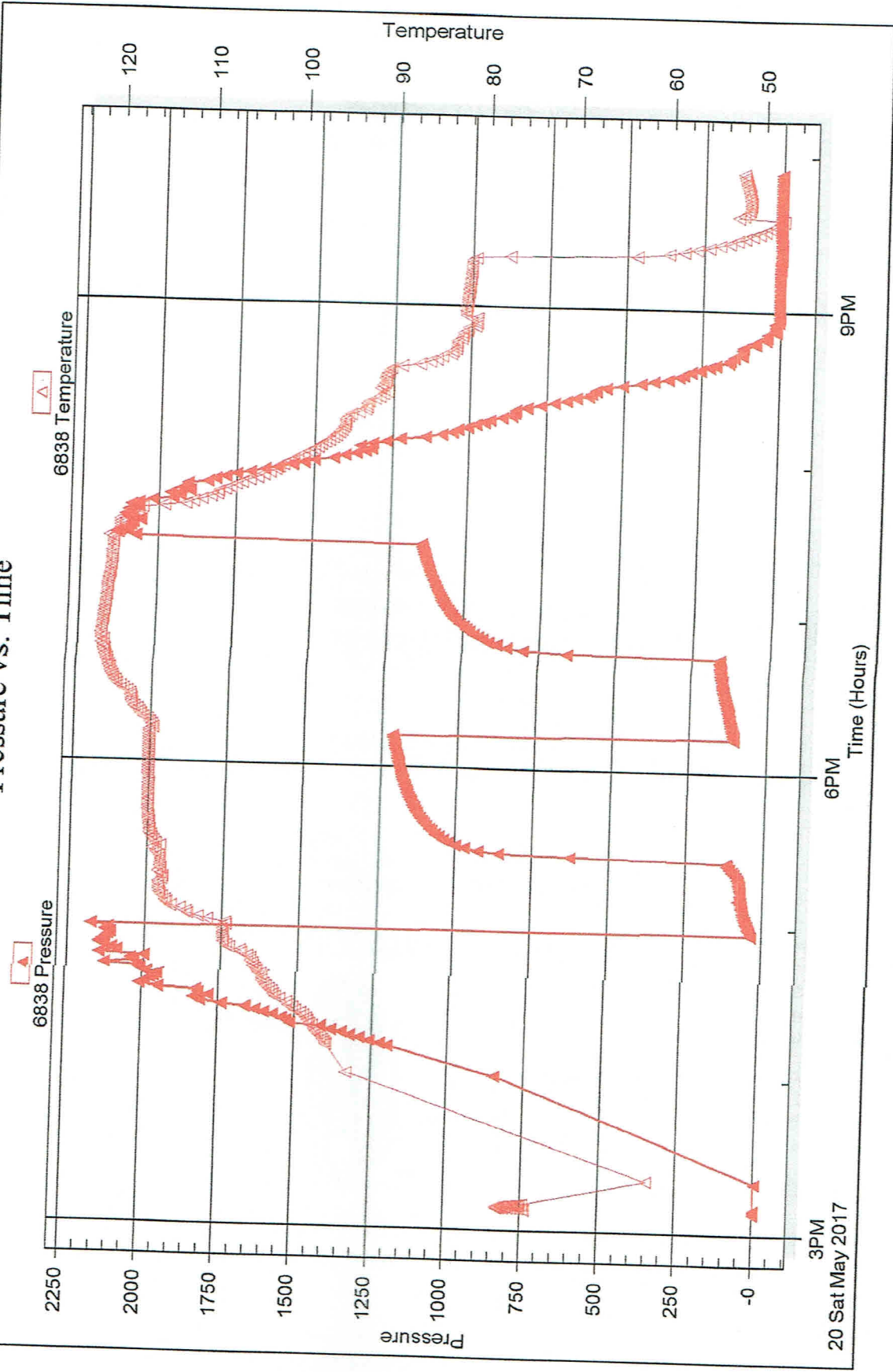
Inside

DK Operating, Inc.

Tull #1-18

DST Test Number: 1

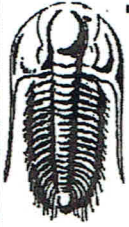
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63191

Printed: 2017.05.22 @ 08:37:04



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

DK Operating, Inc.

18-21S-22W Hodgeman, KS

621 Benton St.  
Jetmore, KS 67854

Tull #1-18

Job Ticket: 63192

DST#: 2

ATTN: Jason T. Alm

Test Start: 2017.05.20 @ 22:35:24

### GENERAL INFORMATION:

Formation: **Ft. Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:17:45

Time Test Ended: 05:45:30

Test Type: Conventional Straddle (Reset)

Tester: Brannan Lonsdale

Unit No: 73

Interval: 4245.00 ft (KB) To 4290.00 ft (KB) (TVD)

Reference Elevations: 2279.00 ft (KB)

Total Depth: 4371.00 ft (KB) (TVD)

2272.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8524

Outside

Press@RunDepth: 49.19 psig @ 4249.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.05.20

End Date:

2017.05.21

Last Calib.: 2017.05.21

Start Time: 22:35:25

End Time:

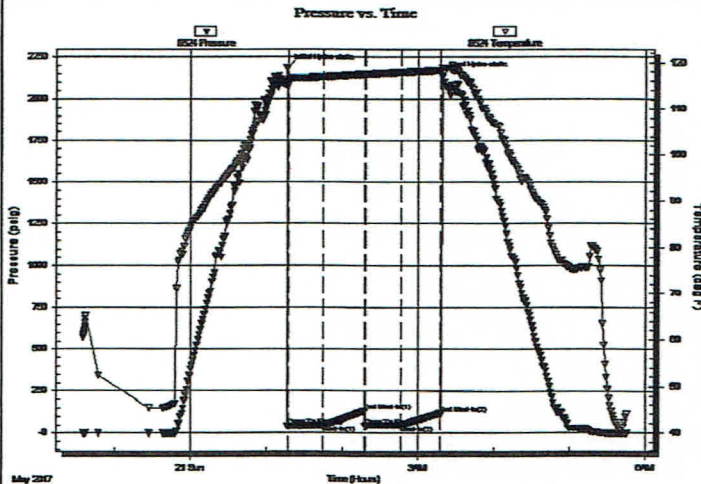
05:45:30

Time On Btm: 2017.05.21 @ 01:17:00

Time Off Btm: 2017.05.21 @ 03:19:00

TEST COMMENT: 30- IF- Weak blow built slowly to 3"  
30- IS- No blow  
30- FF- Weak blow built slowly to 3"  
30- FSI- No blow

### PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2184.15	116.07	Initial Hydro-static
1	41.08	116.20	Open To Flow (1)
28	46.46	116.86	Shut-In(1)
61	131.80	117.44	End Shut-In(1)
62	41.65	117.43	Open To Flow (2)
90	49.19	117.87	Shut-In(2)
121	118.82	118.33	End Shut-In(2)
122	2140.97	118.92	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM, 5%O 95%M	0.43

\* Recovery from multiple tests

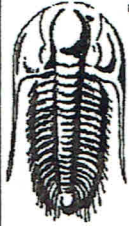
### Gas Rates

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









**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

DK Operating, Inc.

**18-21S-22W Hodgeman, KS**

621 Benton St.  
Jetmore, KS 67854

**Tull #1-18**

Job Ticket: 63192

**DST#: 2**

ATTN: Jason T. Alm

Test Start: 2017.05.20 @ 22:35:24

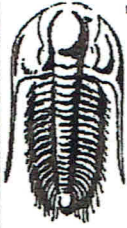
### Tool Information

Drill Pipe:	Length: 4248.00 ft	Diameter: 3.82 inches	Volume: 60.22 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: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 61000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 59000.00 lb
Depth to Top Packer:	4245.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	4290.00 ft			
Interval between Packers:	45.00 ft			
Tool Length:	153.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4219.00	
Shut In Tool	5.00			4224.00	
Hydraulic tool	5.00			4229.00	
Jars	5.00			4234.00	
Safety Joint	2.00			4236.00	
Packer	5.00			4241.00	27.00 Bottom Of Top Packer
Packer	4.00			4245.00	
Stubb	1.00			4246.00	
Perforations	2.00			4248.00	
Change Over Sub	1.00			4249.00	
Recorder	0.00	6838	Inside	4249.00	
Recorder	0.00	8524	Outside	4249.00	
Drill Pipe	31.00			4280.00	
Change Over Sub	1.00			4281.00	
Perforations	5.00			4286.00	
Blank Off Sub	1.00			4287.00	
Blank Spacing	3.00			4290.00	45.00 Tool Interval
Packer	1.00			4291.00	
Stubb	1.00			4292.00	
Recorder	0.00	6753	Below	4292.00	
Perforations	11.00			4303.00	
Change Over Sub	1.00			4304.00	
Drill Pipe	63.00			4367.00	
Change Over Sub	1.00			4368.00	
Bullnose	3.00			4371.00	81.00 Bottom Packers & Anchor

**Total Tool Length: 153.00**



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### DRILL STEM TEST REPORT

**FLUID SUMMARY**

DK Operating, Inc.

**18-21S-22W Hodgeman, KS**

621 Benton St.  
Jetmore, KS 67854

**Tull #1-18**

Job Ticket: 63192

**DST#: 2**

ATTN: Jason T. Alm

Test Start: 2017.05.20 @ 22:35:24

#### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

26 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbl

Water Loss: 9.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

#### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	SOCM, 5%O 95%M	0.425

Total Length: 30.00 ft

Total Volume: 0.425 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

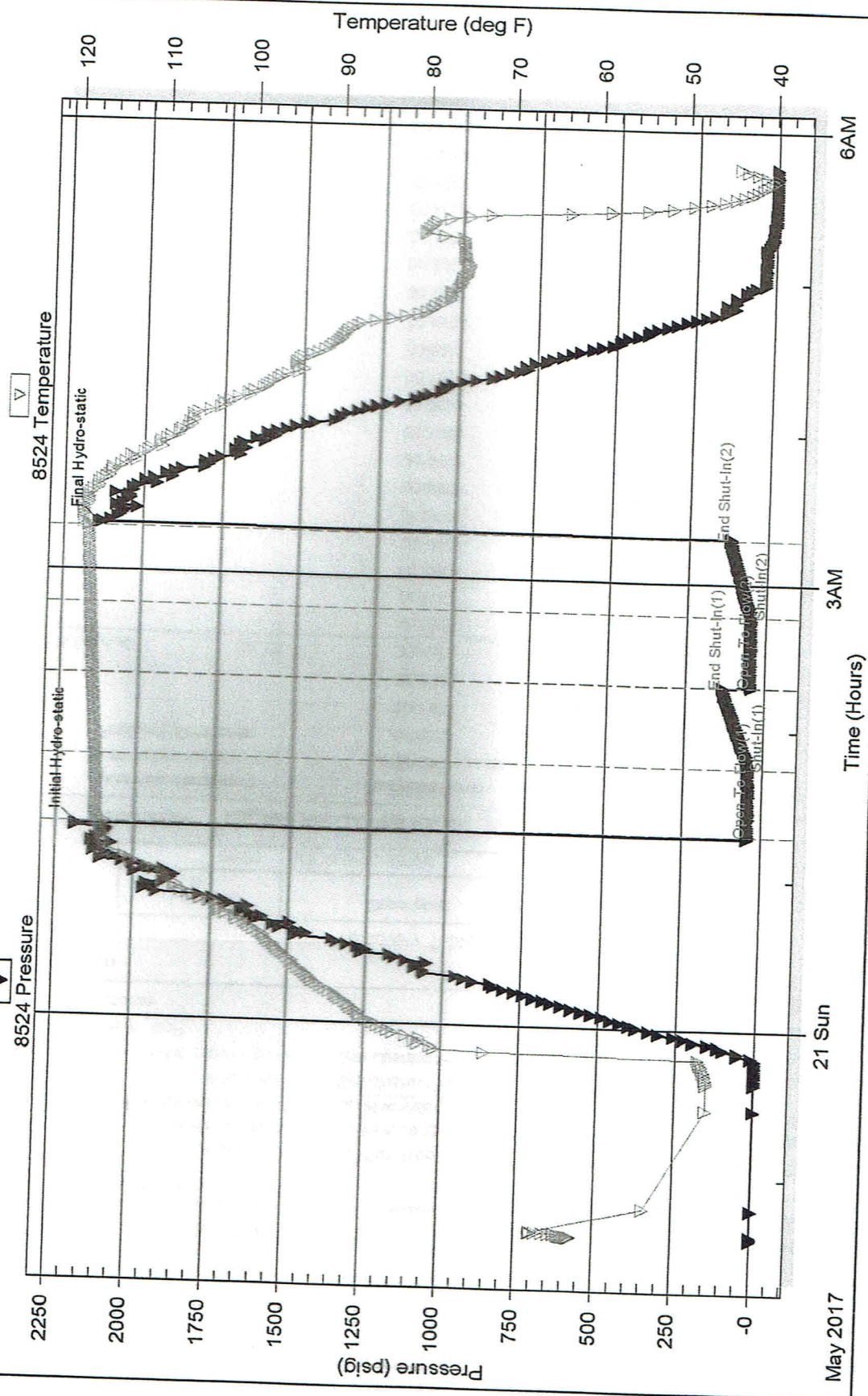
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time



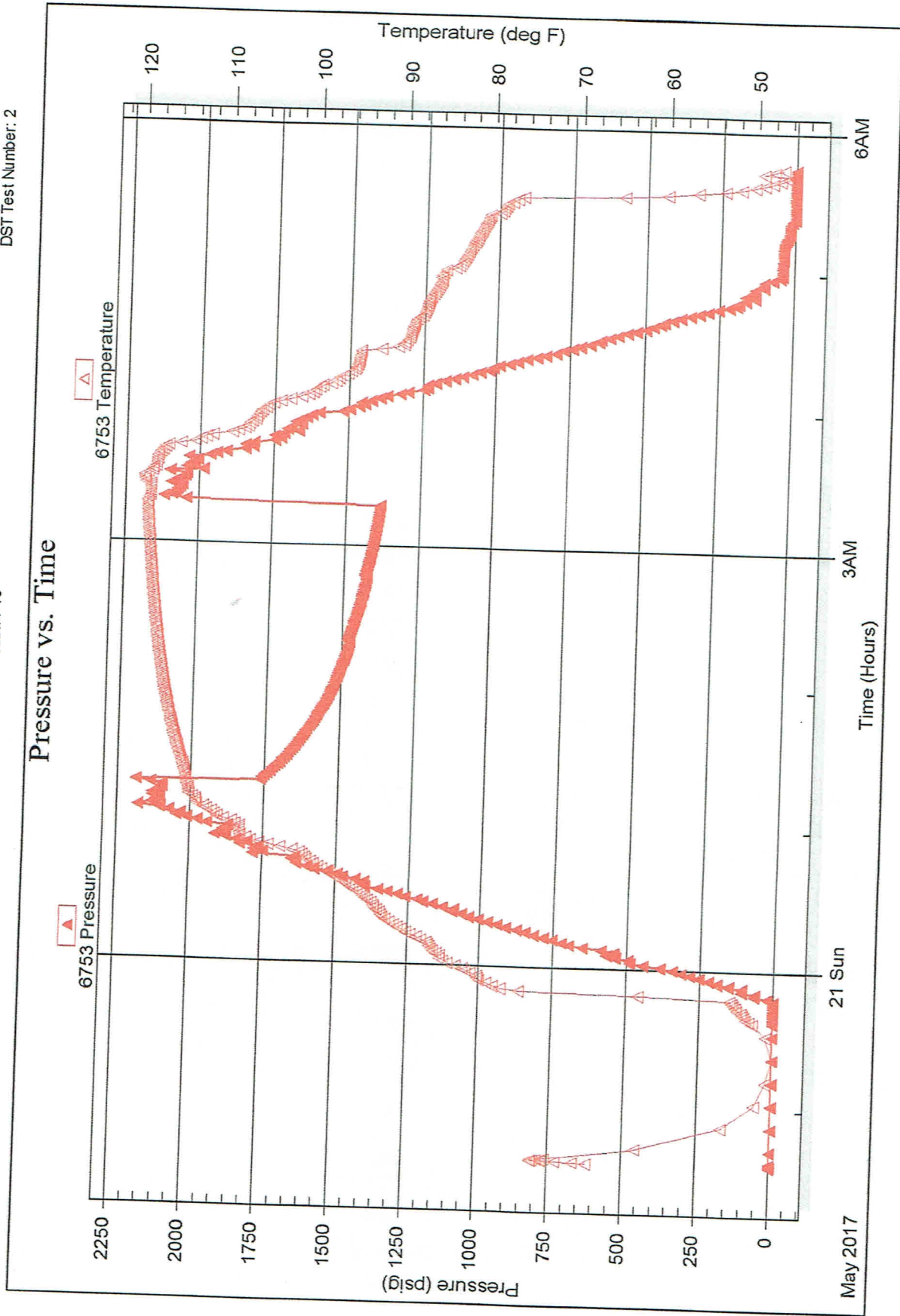
Serial #: 6753

Below (Strat) Operating, Inc.

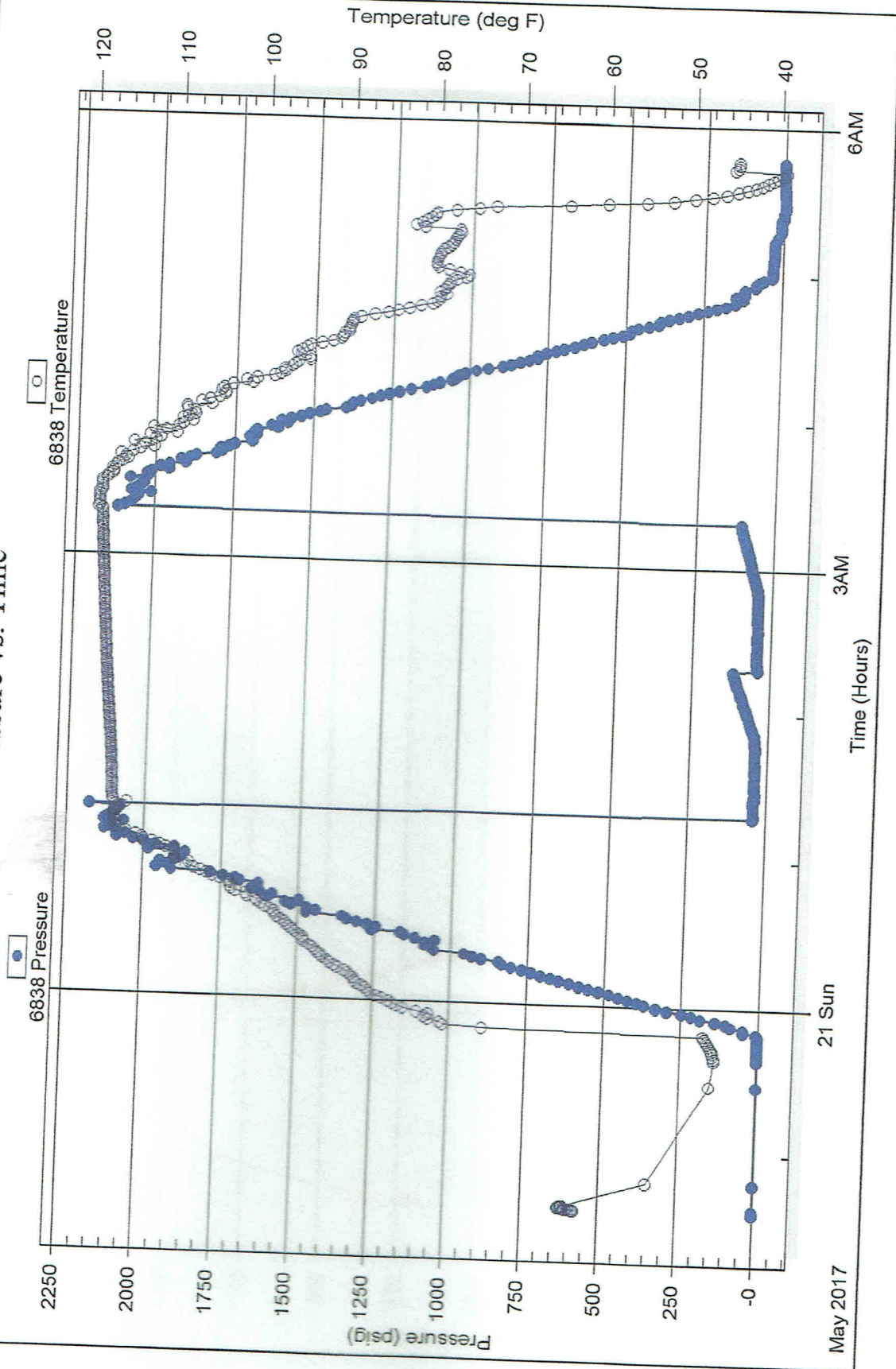
Tull #1-18

DST Test Number: 2

### Pressure vs. Time



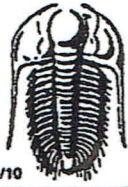
# Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63192

Printed: 2017.05.22 @ 08:36:16



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63191

Well Name & No. Tull #1-18 Test No. 1 Date 5/20/17  
 Company DK Operating, Inc Elevation 2279 KB 2272 GL  
 Address 621 Benton St. Jetmore KS 67854  
 Co. Rep / Geo. Jason T. Alm Rig Pickrell #10  
 Location: Sec. 18 Twp. 21 S Rge. 22 W Co. Adair State KS

Interval Tested 4311-4371 Zone Tested M955  
 Anchor Length 60' Drill Pipe Run 4310 Mud Wt. 9.2  
 Top Packer Depth 4306 Drill Collars Run — Vis 53  
 Bottom Packer Depth 4311 Wt. Pipe Run — WL 9.4  
 Total Depth 4371 Chlorides 4000 ppm System LCM 2<sup>nd</sup>

Blow Description IF-BOB 16 mins  
ISF- No blow  
FF-BOB 23 mins  
FSF- No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>64</u>	<u>OCNW</u>		<u>10</u>	<u>60</u>	<u>30</u>
<u>127</u>	<u>WOCM</u>		<u>10</u>	<u>15</u>	<u>75</u>
<u>143</u>	<u>SOCM</u>		<u>10</u>		<u>90</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 334' BHT 121° Gravity 27 API RW 28 @ 58 °F Chlorides 28,000 ppm

(A) Initial Hydrostatic 2180  Test 1150 T-On Location 1410  
 (B) First Initial Flow 31  Jars 250 T-Started 1508  
 (C) First Final Flow 134  Safety Joint 75 T-Open 1657  
 (D) Initial Shut-In 1223  Circ Sub \_\_\_\_\_ T-Pulled 1927  
 (E) Second Initial Flow 108  Hourly Standby \_\_\_\_\_ T-Out 2154

(F) Second Final Flow 169  Mileage 152 RT 114  
 (G) Final Shut-In 1156  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2158  Straddle \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 45  Day Standby \_\_\_\_\_  
 Sub Total 1589  Accessibility \_\_\_\_\_  
 Sub Total 1589

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1589  
 MP/DST Disc't \_\_\_\_\_



# TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

NO. 63192

Well Name & No. Tull #1-18 Test No. 2 Date 5/21/17  
 Company DK Operating, Inc. Elevation 2279 KB 2272 GL  
 Address 621 Benton St. Jetmore, KS 67854  
 Co. Rep / Geo. Jason T Abm Rig Pickrell #10  
 Location: Sec. 18 Twp. 21 S Rge. 22 Wco. Hedgeman State KS

Interval Tested 4245-4290 Zone Tested Ft. Scott  
 Anchor Length 45' tail 81' Drill Pipe Run 4248 Mud Wt. 9.2  
 Top Packer Depth 4240-4245 Drill Collars Run — Vis 53  
 Bottom Packer Depth 4290 Wt. Pipe Run — WL 9.4  
 Total Depth 4371 Chlorides 4000 ppm System LCM 2#

Blow Description IF - Weak flow built slowly to 3"  
ISI - No blow  
FF - Weak flow built slowly to 3"  
FST - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>SOCMA</u>		<u>5</u>		<u>95</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 30' BHT 118° Gravity 2.6 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	<u>2184</u>	<input checked="" type="checkbox"/> Test	<u>1150</u>	T-On Location	<u>2154</u>
(B) First Initial Flow	<u>41</u>	<input checked="" type="checkbox"/> Jars	<u>250</u>	T-Started	<u>2235</u>
(C) First Final Flow	<u>46</u>	<input checked="" type="checkbox"/> Safety Joint	<u>75</u>	T-Open	<u>0117</u>
(D) Initial Shut-In	<u>132</u>	<input type="checkbox"/> Circ Sub		T-Pulled	<u>0317</u>
(E) Second Initial Flow	<u>42</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>0545</u>
(F) Second Final Flow	<u>49</u>	<input checked="" type="checkbox"/> Mileage		Comments	
(G) Final Shut-In	<u>119</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>2141</u>	<input checked="" type="checkbox"/> Straddle	<u>600</u>	<input type="checkbox"/> Ruined Shale Packer	
		<input type="checkbox"/> Shale Packer		<input type="checkbox"/> Ruined Packer	
Initial Open	<u>30</u>	<input type="checkbox"/> Extra Packer		<input type="checkbox"/> Extra Copies	
Initial Shut-In	<u>30</u>	<input type="checkbox"/> Extra Recorder		Sub Total	<u>0</u>
Final Flow	<u>30</u>	<input type="checkbox"/> Day Standby		Total	<u>2075</u>
Final Shut-In	<u>30</u>	<input type="checkbox"/> Accessibility		MP/DST Disc't	
		Sub Total	<u>2075</u>		

Approved By \_\_\_\_\_ Our Representative Braman Konsdak  
 Tribotite 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.