



DRILL STEM TEST REPORT

Prepared For: **King Oil Operation**

1746 150th Ave
Ellis, KS 67637

ATTN: Jason T Alm

Stevenson #1-10

10-13s31w Gove,KS

Start Date: 2018.09.17 @ 01:34:38

End Date: 2018.09.17 @ 09:07:08

Job Ticket #: 63922 DST #: 1

Trilobite Testing, Inc

1515 Commerce Parkway Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.09.20 @ 10:39:51

King Oil Operation
10-13s31w Gove,KS
Stevenson #1-10
DST # 1
LKC LK
2018.09.17



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

King Oil Operation

10-13s31w Gove, KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

ATTN: Jason T Alm

Job Ticket: 63922

DST#: 1

Test Start: 2018.09.17 @ 01:34:38

GENERAL INFORMATION:

Formation: LKC I-K
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:27:38
Time Test Ended: 09:07:08

Test Type: Conventional Bottom Hole (Initial)
Tester: Brandon Turley
Unit No: 79

Interval: 4170.00 ft (KB) To 4270.00 ft (KB) (TVD)
Total Depth: 4270.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2963.00 ft (KB)
2945.00 ft (CF)
KB to GRCP: 8.00 ft

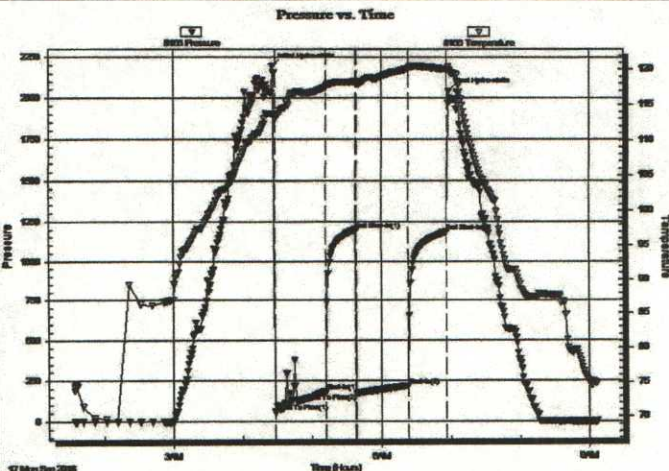
Serial #: 8166

Outside

Press@RunDepth: 218.39 psig @ 4171.00 ft (KB)
Start Date: 2018.09.17 End Date: 2018.09.17
Start Time: 01:34:43 End Time: 09:07:07

Capacity: 8000.00 psig
Last Calib.: 2018.09.17
Time On Btm: 2018.09.17 @ 04:25:38
Time Off Btm: 2018.09.17 @ 06:58:08

TEST COMMENT: IF:BOB in 23 min. 15"
IS: No return.
FF: BOB in 45 min.
FS: No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2195.16	113.72	Initial Hydro-static
2	56.08	112.87	Open To Flow (1)
46	180.39	117.45	Shut-In (1)
72	1199.21	118.25	End Shut-In (1)
73	171.16	118.00	Open To Flow (2)
117	218.39	120.11	Shut-In (2)
151	1185.02	120.02	End Shut-In (2)
153	2041.44	119.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
126.00	nw 50%w 50%m	0.76
126.00	w cm 20%w 80%m	0.76
176.00	mud oil spot 100%m	2.01

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

King Oil Operation

10-13s31w Gove, KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

Job Ticket: 63922

DST#: 1

ATTN: Jason T Alm

Test Start: 2018.09.17 @ 01:34:38

Tool Information

Drill Pipe:	Length: 3855.00 ft	Diameter: 3.80 inches	Volume: 54.08 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 310.00 ft	Diameter: 2.50 inches	Volume: 1.88 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: 68000.00 lb
			<u>Total Volume: 55.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4170.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	130.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4141.00	
Shut In Tool	5.00			4146.00	
Hydraulic tool	5.00			4151.00	
Jars	5.00			4156.00	
EM tool	3.00			4159.00	
Safety Joint	2.00			4161.00	
Packer	5.00			4166.00	30.00 Bottom Of Top Packer
Packer	4.00			4170.00	
Stubb	1.00			4171.00	
Recorder	0.00	6651	Inside	4171.00	
Recorder	0.00	8166	Outside	4171.00	
Perforations	28.00			4199.00	
Change Over Sub	1.00			4200.00	
Drill Pipe	64.00			4264.00	
Change Over Sub	1.00			4265.00	
Bullnose	5.00			4270.00	100.00 Bottom Packers & Anchor
Total Tool Length:	130.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operation

10-13s31w Gove,KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

Job Ticket: 63922

DST#: 1

ATTN: Jason T Alm

Test Start: 2018.09.17 @ 01:34:38

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 52.00 sec/qt
Water Loss: 7.59 in³
Resistivity: 0.00 ohm.m
Salinity: 6500.00 ppm
Filter Cake: 1.00 inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: 0 deg API
Water Salinity: 52000 ppm

Recovery Information

Recovery Table

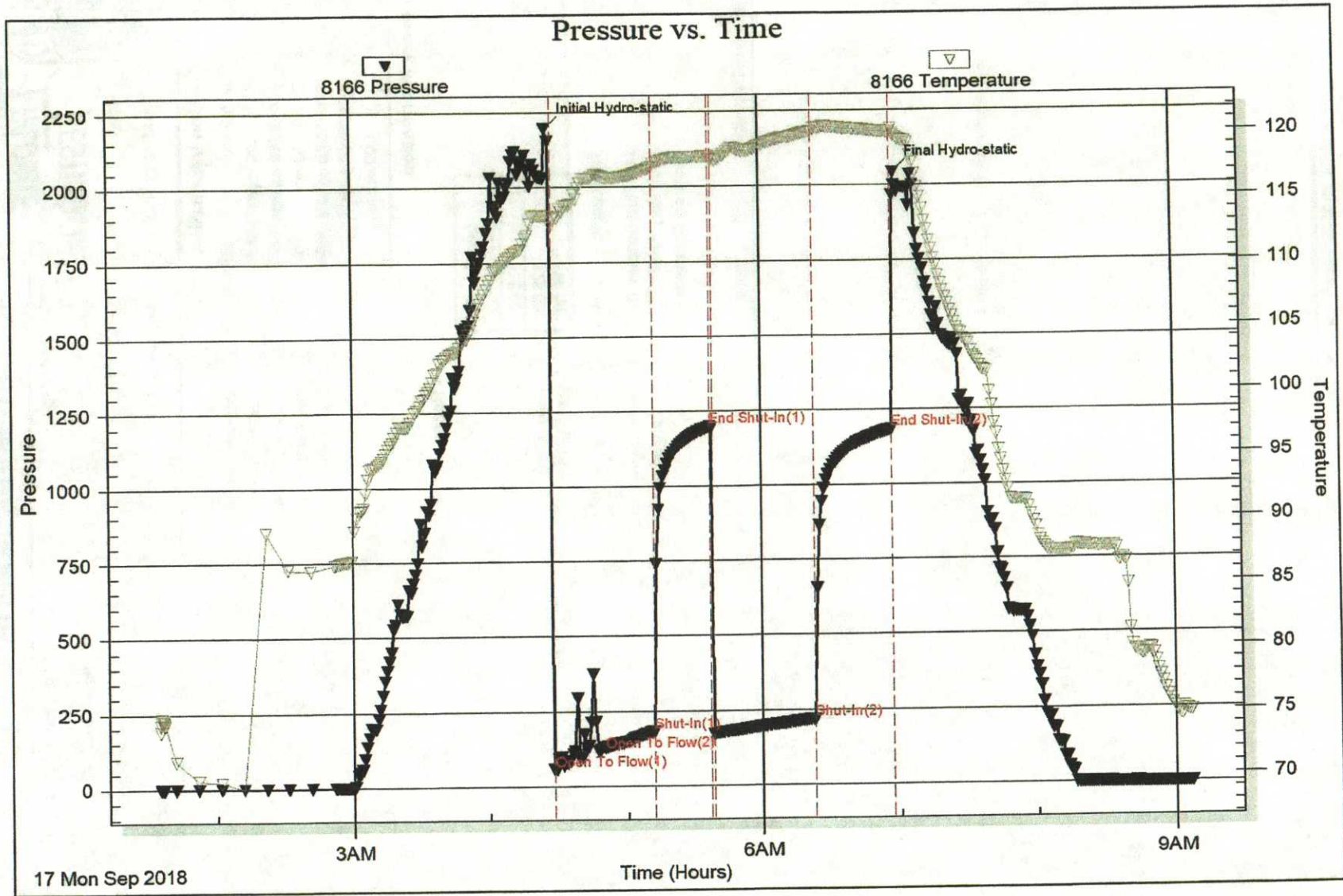
Length ft	Description	Volume bbl
126.00	mw 50%w 50%m	0.765
126.00	w cm 20%w 80%m	0.765
176.00	mud oil spot 100%m	2.007

Total Length: 428.00 ft Total Volume: 3.537 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: .15@69=52000



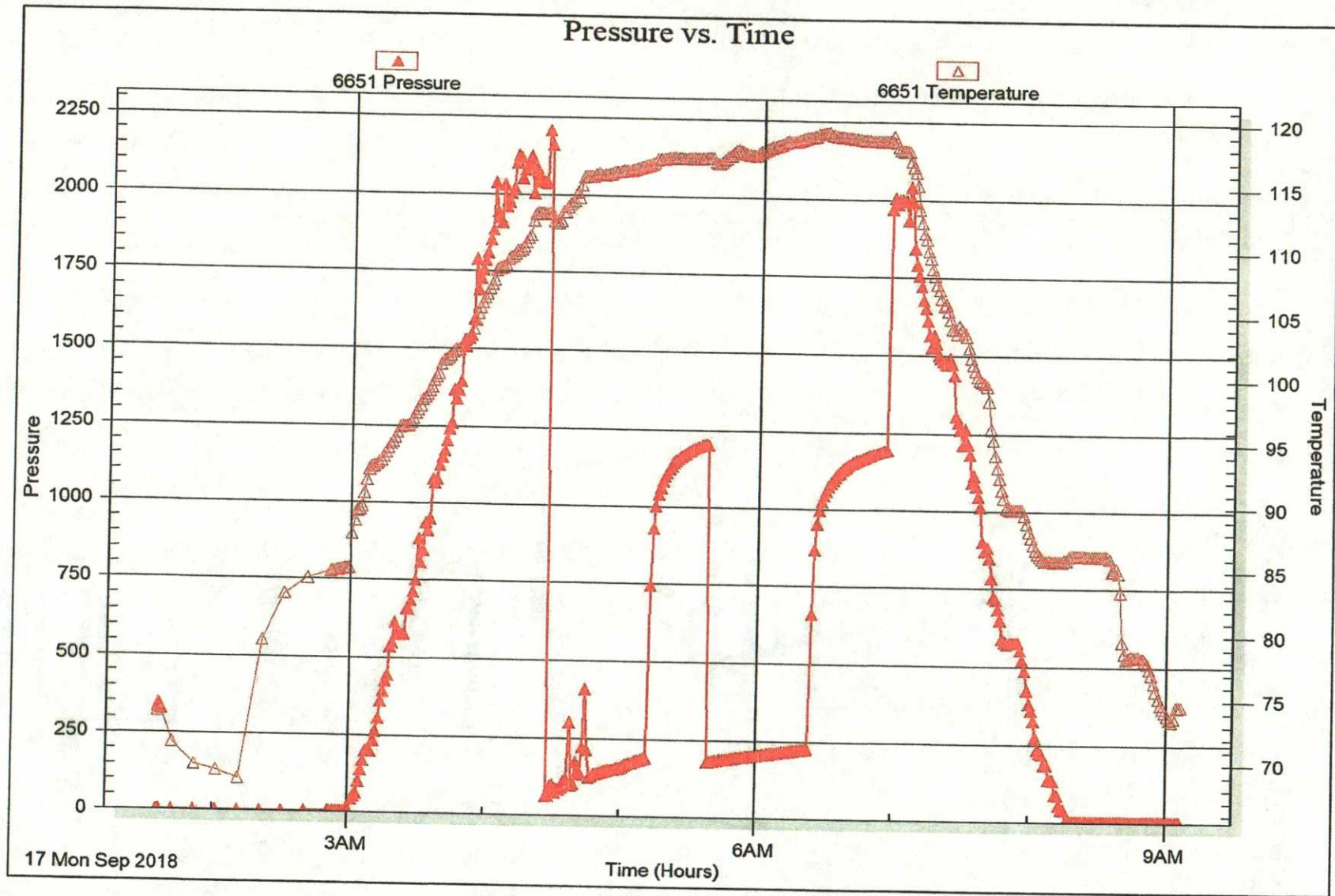
17 Mon Sep 2018

Serial #: 6651

Inside King Oil Operation

Stevenson #1-10

DST Test Number: 1





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **King Oil Operation**

1746 150th Ave
Ellis, KS 67637

ATTN: Jason T Alm

Stevenson #1-10

10-13s31w Gove,KS

Start Date: 2018.09.18 @ 12:57:54

End Date: 2018.09.18 @ 20:28:24

Job Ticket #: 63923 DST #: 2

Trilobite Testing, Inc

1515 Commerce Parkway Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.09.20 @ 10:38:11

King Oil Operation
10-13s31w Gove,KS
Stevenson #1-10
DST # 2
Johnson
2018.09.18



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

King Oil Operation

10-13s31w Gove, KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

Job Ticket: 63923 **DST#: 2**

ATTN: Jason T Alm

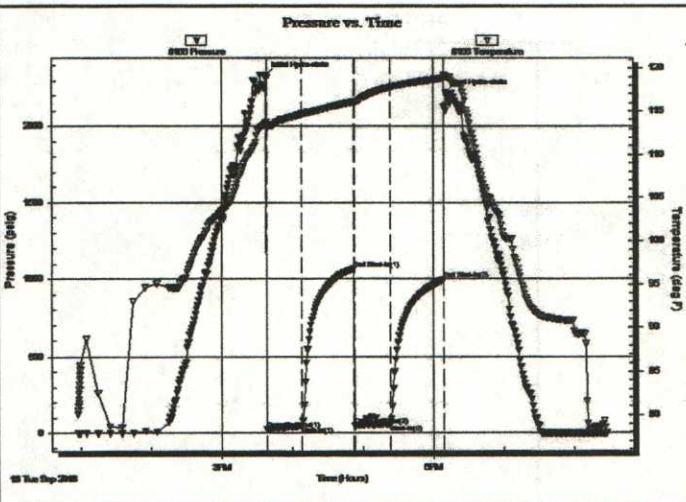
Test Start: 2018.09.18 @ 12:57:54

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:38:24
 Time Test Ended: 20:28:24
 Interval: **4517.00 ft (KB) To 4590.00 ft (KB) (TVD)**
 Total Depth: **4590.00 ft (KB) (TVD)**
 Hole Diameter: **7.88 inches** Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 79
 Reference Elevations: 2953.00 ft (KB)
 2945.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8166 **Outside**
 Press@RunDepth: 57.08 psig @ 4518.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.09.18 End Date: 2018.09.18 Last Calib.: 2018.09.18
 Start Time: 12:57:59 End Time: 20:28:23 Time On Btm: 2018.09.18 @ 15:37:24
 Time Off Btm: 2018.09.18 @ 18:10:24

TEST COMMENT: IF: 3/4 blow built to 2 1/2.
 IS: No return.
 FF: Surface blow built to 1.
 FS: No return.



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2332.68	113.60	Initial Hydro-static
1	24.49	113.10	Open To Flow (1)
31	41.57	114.61	Shut-In(1)
75	1066.50	116.09	End Shut-In(1)
76	47.14	115.82	Open To Flow (2)
106	57.08	117.75	Shut-In(2)
151	995.24	118.86	End Shut-In(2)
153	2218.70	119.00	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
75.00	mud 100%m	0.46

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

King Oil Operation

10-13s31w Gove,KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

Job Ticket: 63923

DST#: 2

ATTN: Jason T Alm

Test Start: 2018.09.18 @ 12:57:54

Tool Information

Drill Pipe:	Length: 4195.00 ft	Diameter: 3.80 inches	Volume: 58.84 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 310.00 ft	Diameter: 2.50 inches	Volume: 1.88 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:	80000.00 lb
			Total Volume: 60.72 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4517.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	73.00 ft				
Tool Length:	103.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4488.00	
Shut In Tool	5.00			4493.00	
Hydraulic tool	5.00			4498.00	
Jars	5.00			4503.00	
EM tool	3.00			4506.00	
Safety Joint	2.00			4508.00	
Packer	5.00			4513.00	30.00 Bottom Of Top Packer
Packer	4.00			4517.00	
Stubb	1.00			4518.00	
Recorder	0.00	6651	Inside	4518.00	
Recorder	0.00	8166	Outside	4518.00	
Perforations	1.00			4519.00	
Change Over Sub	1.00			4520.00	
Drill Pipe	64.00			4584.00	
Change Over Sub	1.00			4585.00	
Bullnose	5.00			4590.00	73.00 Bottom Packers & Anchor
Total Tool Length:	103.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operation

10-13s31w Gove,KS

1746 150th Ave
Ellis, KS 67637

Stevenson #1-10

Job Ticket: 63923

DST#: 2

ATTN: Jason T Alm

Test Start: 2018.09.18 @ 12:57:54

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.79 in³

Gas Cushion Type:

Gas Cushion Pressure:

psig

Resistivity: 0.00 ohm.m

Salinity: 7000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
75.00	mud 100%m	0.455

Total Length: 75.00 ft Total Volume: 0.455 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

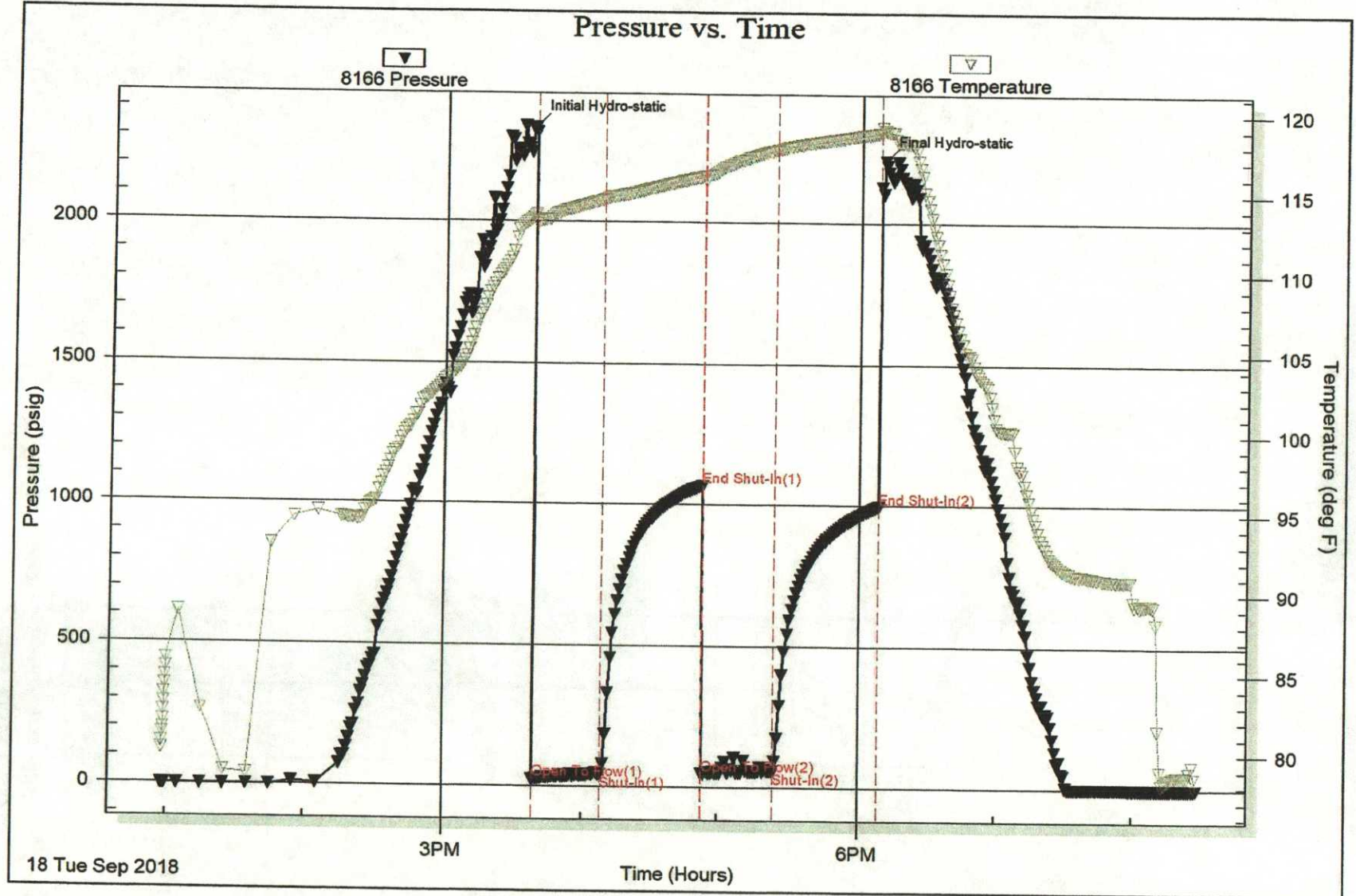
Recovery Comments:

Serial #: 8166

Outside King Oil Operation

Stevenson #1-10

DST Test Number: 2



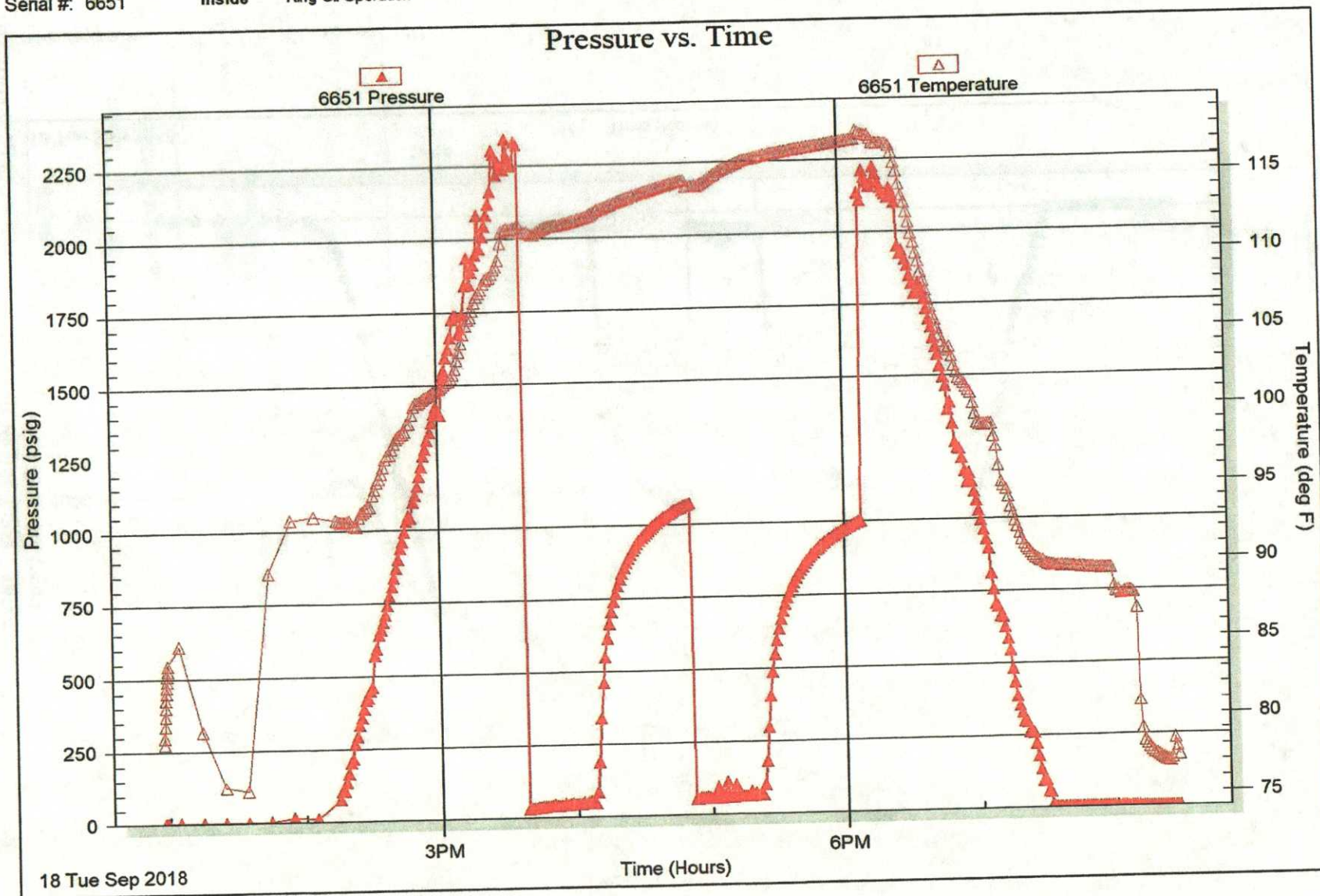
18 Tue Sep 2018

Serial #: 6651

Inside King Oil Operation

Stevenson #1-10

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **63922**

Well Name & No. Stevenson 1-10 Test No. 1 Date 9-16-18
 Company King oil operation Elevation 2953 KB 2945 GL
 Address 1746 150th Ave Ellis, KS 67637
 Co. Rep / Geo. Jason T Alm Rig Discovery #1
 Location: Sec. 10 Twp. 13S Rge. 31W Co. Gove State KS

Interval Tested 4170 4270 Zone Tested LK L F-K
 Anchor Length 100 Drill Pipe Run 3855 Mud Wt. 9.3
 Top Packer Depth 4165 Drill Collars Run — Vis 52
 Bottom Packer Depth 4170 Wt. Pipe Run 310 WL 7.6
 Total Depth 4270 Chlorides 6500 ppm System LCM 3/4
 Blow Description IF: BoB in 23 min. 15"
IS: NO return.
FF: BoB in 45 min.
FS: NO return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>176</u>	<u>mud oil spots</u>			<u>100</u>	
<u>126</u>	<u>wcm</u>		<u>20</u>	<u>80</u>	
<u>126</u>	<u>mw</u>		<u>50</u>	<u>50</u>	

Rec Total 428 BHT 120 Gravity — API RW .15 @ 69° F Chlorides 52,000 ppm

(A) Initial Hydrostatic 2195 Test 1150 T-On Location 21:30
 (B) First Initial Flow 56 Jars 250 T-Started 1:34
 (C) First Final Flow 180 Safety Joint 75 T-Open 4:27
 (D) Initial Shut-In 1199 Circ Sub NIL T-Pulled 7:07
 (E) Second Initial Flow 171 Hourly Standby T-Out 9:10
 (F) Second Final Flow 218 Mileage 86 - 86 Comments EM 4001
 (G) Final Shut-In 1185 Sampler on bank 94 12.
 (H) Final Hydrostatic 2041 Straddle 350
 Ruined Shale Packer
 Ruined Packer
 Extra Copies

Initial Open 45
 Initial Shut-In 25
 Final Flow 45
 Final Shut-In 25
 Sub Total 1561
 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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **63923**

Well Name & No. Stevenson 1-10 Test No. 2 Date 9-18-18
 Company King oil operation Elevation 2953 KB 2945 GL
 Address _____
 Co. Rep / Geo. Jason T Alm Rig Discovery #1
 Location: Sec. 10 Twp. 135 Rge. 31W Co. Gove State KS

Interval Tested 4517 4590 Zone Tested Johnson
 Anchor Length 73 Drill Pipe Run 4195 Mud Wt. 9.4
 Top Packer Depth 4512 Drill Collars Run — Vis 55
 Bottom Packer Depth 4517 Wt. Pipe Run 310 WL 8.8
 Total Depth 4590 Chlorides 7000 ppm System LCM 2

Blow Description ±F: 3/4 blow built to 2 1/2.
IS: No return.
FF: Surface blow built 1.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>mud</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 Total 75 BHT 118 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2332</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>11145</u>
(B) First Initial Flow <u>24</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:57</u>
(C) First Final Flow <u>41</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>15:37</u>
(D) Initial Shut-In <u>1066</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIL</u>	T-Pulled <u>18:07</u>
(E) Second Initial Flow <u>47</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>20:30</u>
(F) Second Final Flow <u>57</u>	<input checked="" type="checkbox"/> Mileage <u>86-x2</u> 172	Comments <u>EM Tool</u>
(G) Final Shut-In <u>995</u>	<input type="checkbox"/> Sampler	350
(H) Final Hydrostatic <u>2218</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45

Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

Sub Total 1561

Sub Total 350
 Total 1911
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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