



DRILL STEM TEST REPORT

Prepared For: **King Oil Operations**

1746 150th Ave
Ellis KS 67637

ATTN: Charlie Sturdavant

Singer #1-19

19 12s 31w Gove,KS

Start Date: 2016.05.22 @ 00:12:00

End Date: 2016.05.22 @ 07:06:00

Job Ticket #: 64775 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.05.25 @ 14:31:29

King Oil Operations 19 12s 31w Gove,KS Singer #1-19 DST # 1 Johnson 2016.05.22



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

King Oil Operations

19 12s 31w Gove, KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64775

DST#: 1

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 00:12:00

GENERAL INFORMATION:

Formation: **Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:53:45

Time Test Ended: 07:06:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 76

Interval: 4508.00 ft (KB) To 4535.00 ft (KB) (TVD)

Total Depth: 4535.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2939.00 ft (KB)

2931.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8289

Outside

Press@RunDepth: 33.92 psig @ 4509.00 ft (KB)

Start Date: 2016.05.22

End Date:

2016.05.22

Capacity: 8000.00 psig

Last Calib.: 2016.05.22

Start Time: 00:12:02

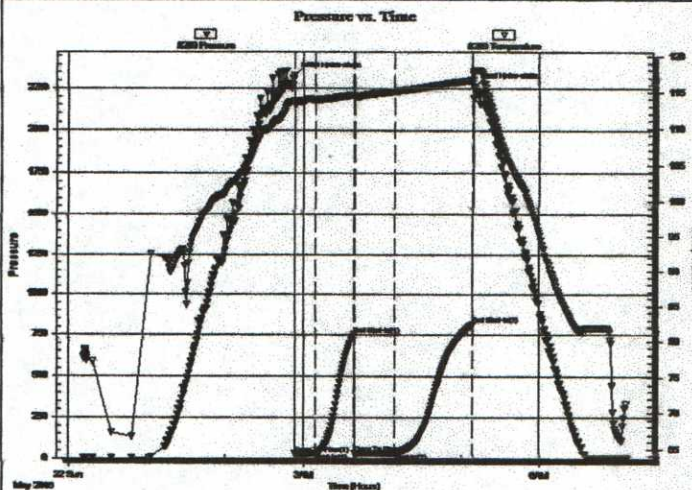
End Time:

07:06:00

Time On Btm: 2016.05.22 @ 02:53:30

Time Off Btm: 2016.05.22 @ 05:10:00

TEST COMMENT: 15-IFP- 1 1/4". Blow
30-ISIP- No Blow
30-FFP- Weak Surface Blow in 3 min.
60-FSIP- No Blow



PRESSURE SUMMARY

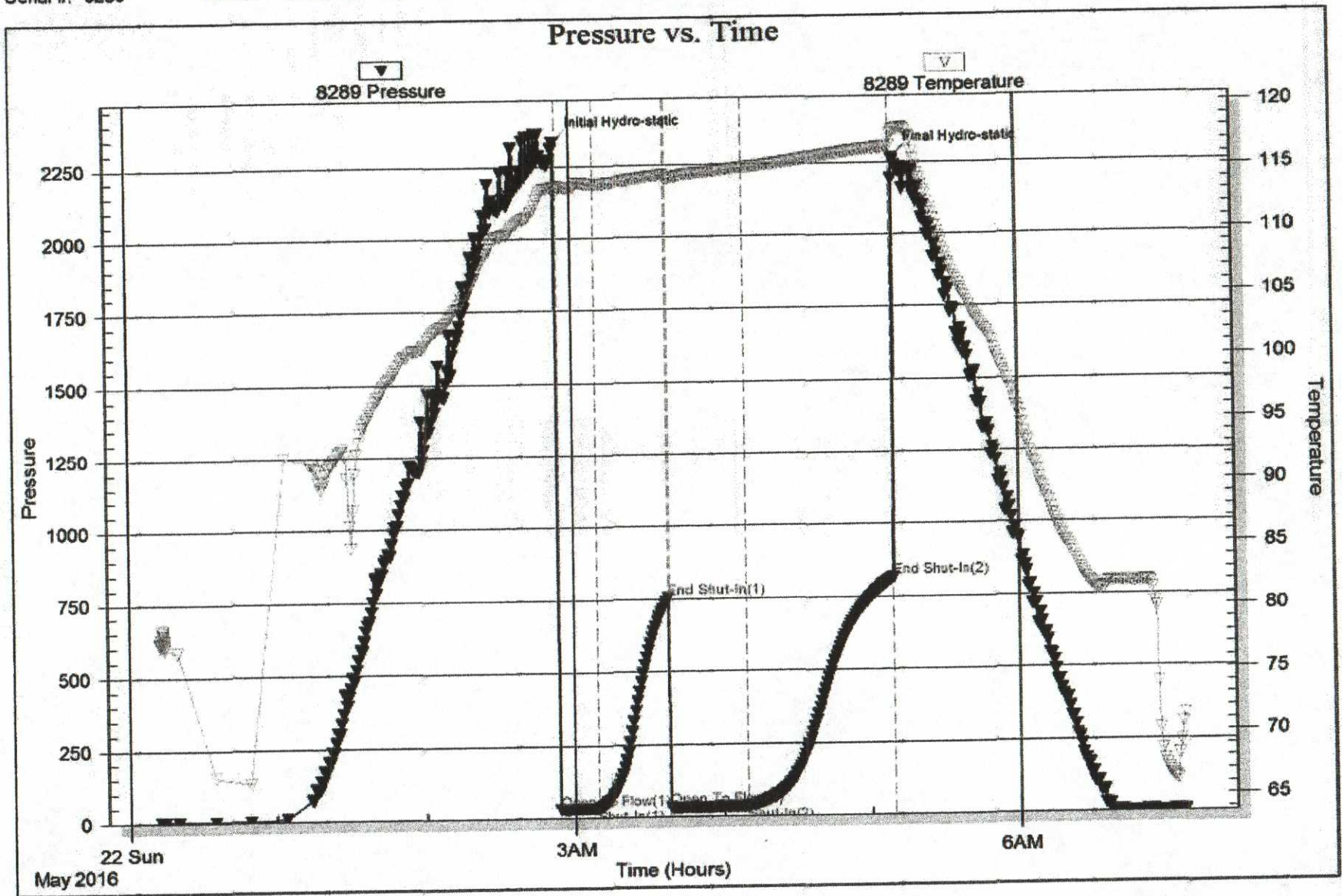
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2329.76	113.76	Initial Hydro-static
1	30.26	113.12	Open To Flow (1)
16	32.06	113.89	Shut-In(1)
45	751.48	114.58	End Shut-In(1)
46	34.04	114.21	Open To Flow (2)
76	33.92	115.08	Shut-In(2)
136	816.49	116.65	End Shut-In(2)
137	2262.50	117.73	Final Hydro-static

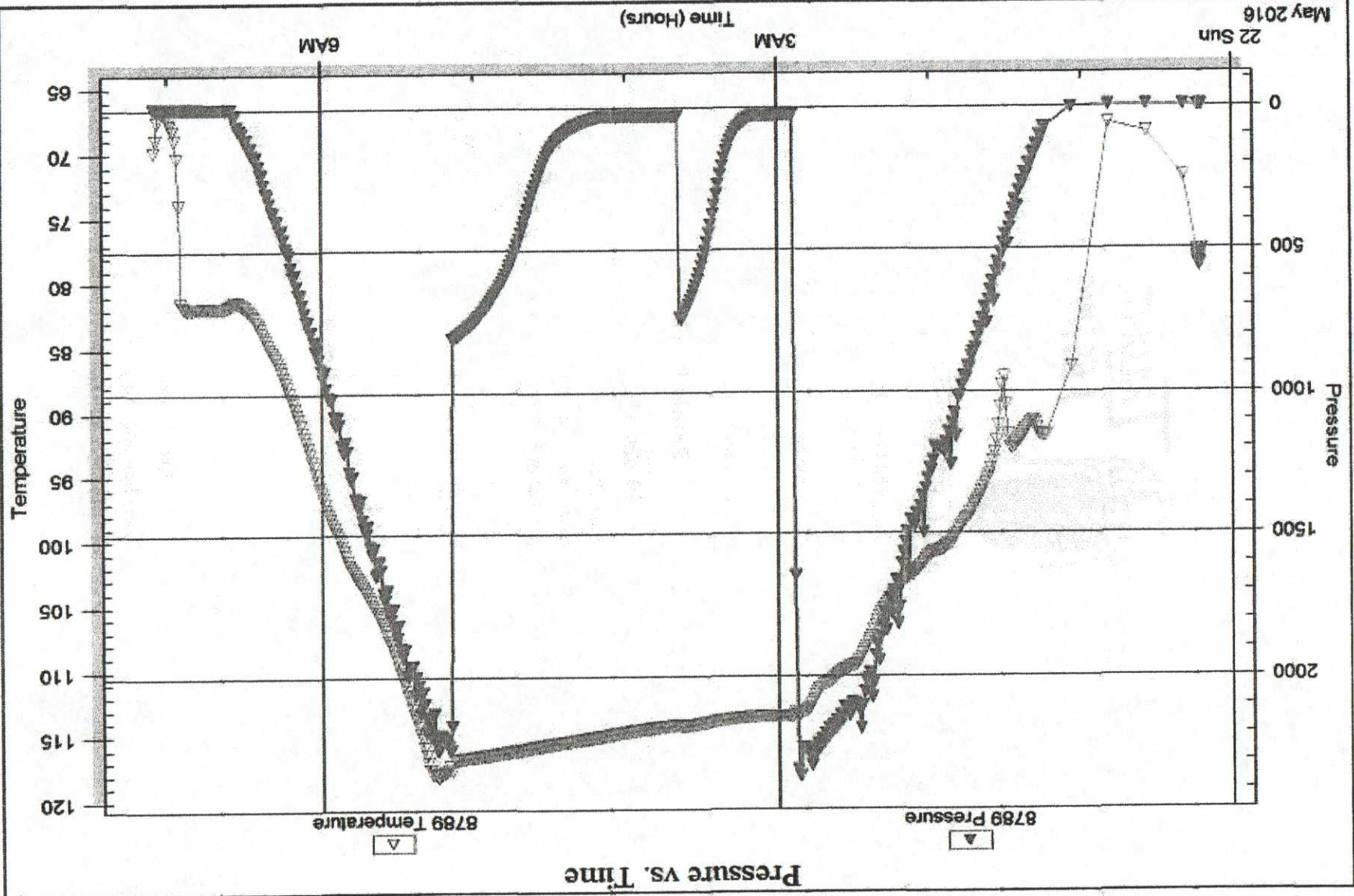
Recovery

Length (ft)	Description	Volume (bbl)
20.00	Oil Speck Mud 1%o 99%m	0.15

Gas Rates

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







**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64775

DST#: 1

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 00:12:00

Tool Information

Drill Pipe:	Length: 4171.00 ft	Diameter: 3.80 inches	Volume: 58.51 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 312.00 ft	Diameter: 2.75 inches	Volume: 2.29 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: 55000.00 lb
			<u>Total Volume: 60.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	4508.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	27.00 ft			
Tool Length:	55.00 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			4481.00	
Shut In Tool	5.00			4486.00	
Hydraulic tool	5.00			4491.00	
Jars	5.00			4496.00	
Safety Joint	2.00			4498.00	
Packer	5.00			4503.00	28.00 Bottom Of Top Packer
Packer	5.00			4508.00	
Stubb	1.00			4509.00	
Recorder	0.00	8789	Inside	4509.00	
Recorder	0.00	8289	Outside	4509.00	
Perforations	23.00			4532.00	
Bullnose	3.00			4535.00	27.00 Bottom Packers & Anchor

Total Tool Length: 55.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64775

DST#: 1

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 00:12:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length: ft

Water Salinity: ppm

Viscosity: 44.00 sec/qt

Cushion Volume: bbl

Water Loss: 9.57 in³

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	Oil Speck Mud 1%o 99%m	0.147

Total Length: 20.00 ft Total Volume: 0.147 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **King Oil Operations**

1746 150th Ave
Ellis KS 67637

ATTN: Charlie Sturdavant

Singer #1-19

19 12s 31w Gove,KS

Start Date: 2016.05.22 @ 16:23:00

End Date: 2016.05.23 @ 00:01:00

Job Ticket #: 64648 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.05.25 @ 14:31:07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

King Oil Operations

19 12s 31w Gove, KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64648

DST#: 2

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 16:23:00

GENERAL INFORMATION:

Formation: **Basa Penn Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:18:00

Time Test Ended: 00:01:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 78

Interval: **4528.00 ft (KB) To 4580.00 ft (KB) (TVD)**

Reference Elevations: 2939.00 ft (KB)

Total Depth: 4535.00 ft (KB) (TVD)

2931.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8522

Outside

Press@RunDepth: 1047.26 psig @ 4529.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.05.22

End Date:

2016.05.23

Last Calib.: 2016.05.23

Start Time: 16:23:05

End Time:

00:00:59

Time On Btm: 2016.05.22 @ 19:16:45

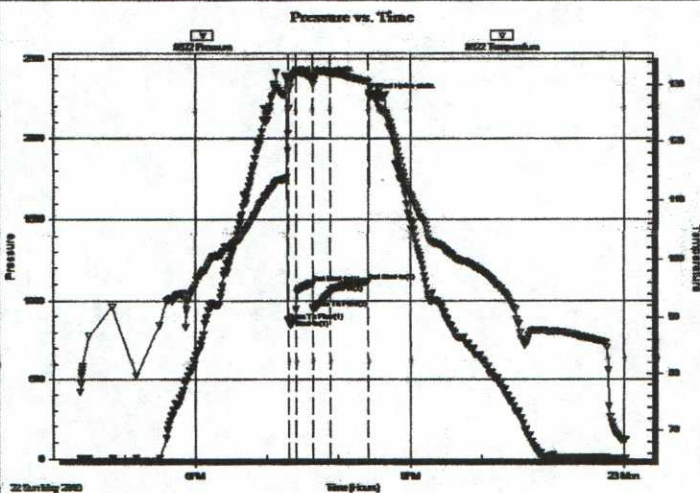
Time Off Btm: 2016.05.22 @ 20:26:00

TEST COMMENT: IF: BOB in 30 sec.

IS: No return.

FF: BOB in 30 sec.

FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2372.66	113.79	Initial Hydro-static
2	870.94	121.35	Open To Flow (1)
8	886.50	132.07	Shut-In(1)
22	1106.02	131.07	End Shut-In(1)
23	950.68	130.13	Open To Flow (2)
37	1047.26	132.10	Shut-In(2)
69	1119.08	130.52	End Shut-In(2)
70	2265.47	127.72	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2000.00	smcw 1m 99w	25.97
200.00	mcw 40m 60w	2.81
0.00	oil spots in tool	0.00

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

King Oil Operations
 1746 150th Ave
 Ellis KS 67637
 ATTN: Charlie Sturdavant

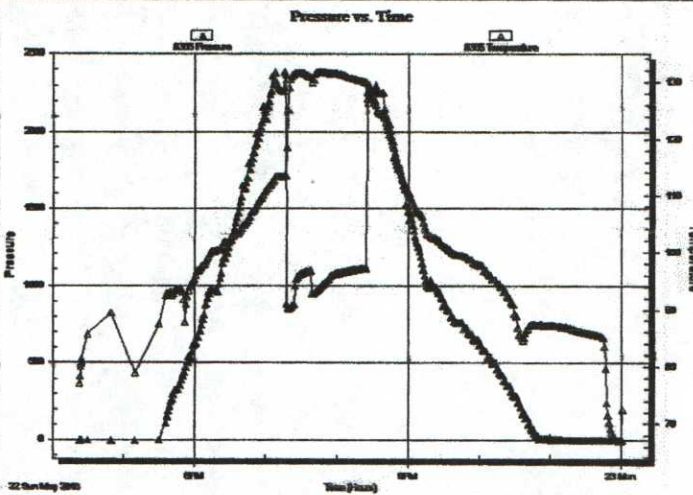
19 12s 31w Gove,KS
Singer #1-19
 Job Ticket: 64648 **DST#: 2**
 Test Start: 2016.05.22 @ 16:23:00

GENERAL INFORMATION:

Formation: **Basa Penn Sand**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:18:00
 Time Test Ended: 00:01:00
 Interval: **4528.00 ft (KB) To 4580.00 ft (KB) (TVD)**
 Total Depth: **4535.00 ft (KB) (TVD)**
 Hole Diameter: **7.88 inches**Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Bradley Walter
 Unit No: 78
 Reference Elevations: 2939.00 ft (KB)
 2931.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8365 **Inside**
 Press@RunDepth: psig @ 4529.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.05.22 End Date: 2016.05.23 Last Calib.: 2016.05.23
 Start Time: 16:23:05 End Time: 00:00:59 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: BOB in 30 sec.
 IS: No return.
 FF: BOB in 30 sec.
 FS: No return.



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

Recovery		
Length (ft)	Description	Volume (bbl)
2000.00	smcw 1m 99w	25.97
200.00	mcw 40m 60w	2.81
0.00	oil spots in tool	0.00

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 Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64648

DST#: 2

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 16:23:00

Tool Information

Drill Pipe:	Length: 4204.00 ft	Diameter: 3.80 inches	Volume: 58.97 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 312.00 ft	Diameter: 2.75 inches	Volume: 2.29 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: 70000.00 lb
			Total Volume: 61.26 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4528.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	79.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4502.00	
Shut In Tool	5.00			4507.00	
Hydraulic tool	5.00			4512.00	
Jars	5.00			4517.00	
Safety Joint	2.00			4519.00	
Packer	5.00			4524.00	27.00 Bottom Of Top Packer
Packer	4.00			4528.00	
Stubb	1.00			4529.00	
Recorder	0.00	8365	Inside	4529.00	
Recorder	0.00	8522	Outside	4529.00	
Perforations	15.00			4544.00	
Change Over Sub	1.00			4545.00	
Drill Pipe	31.00			4576.00	
Change Over Sub	1.00			4577.00	
Bullnose	3.00			4580.00	52.00 Bottom Packers & Anchor

Total Tool Length: 79.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64648

DST#: 2

ATTN: Charlie Sturdavant

Test Start: 2016.05.22 @ 16:23:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

42000 ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2000.00	smcw 1m 99w	25.970
200.00	mcw 40m 60w	2.805
0.00	oil spots in tool	0.000

Total Length: 2200.00 ft Total Volume: 28.775 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

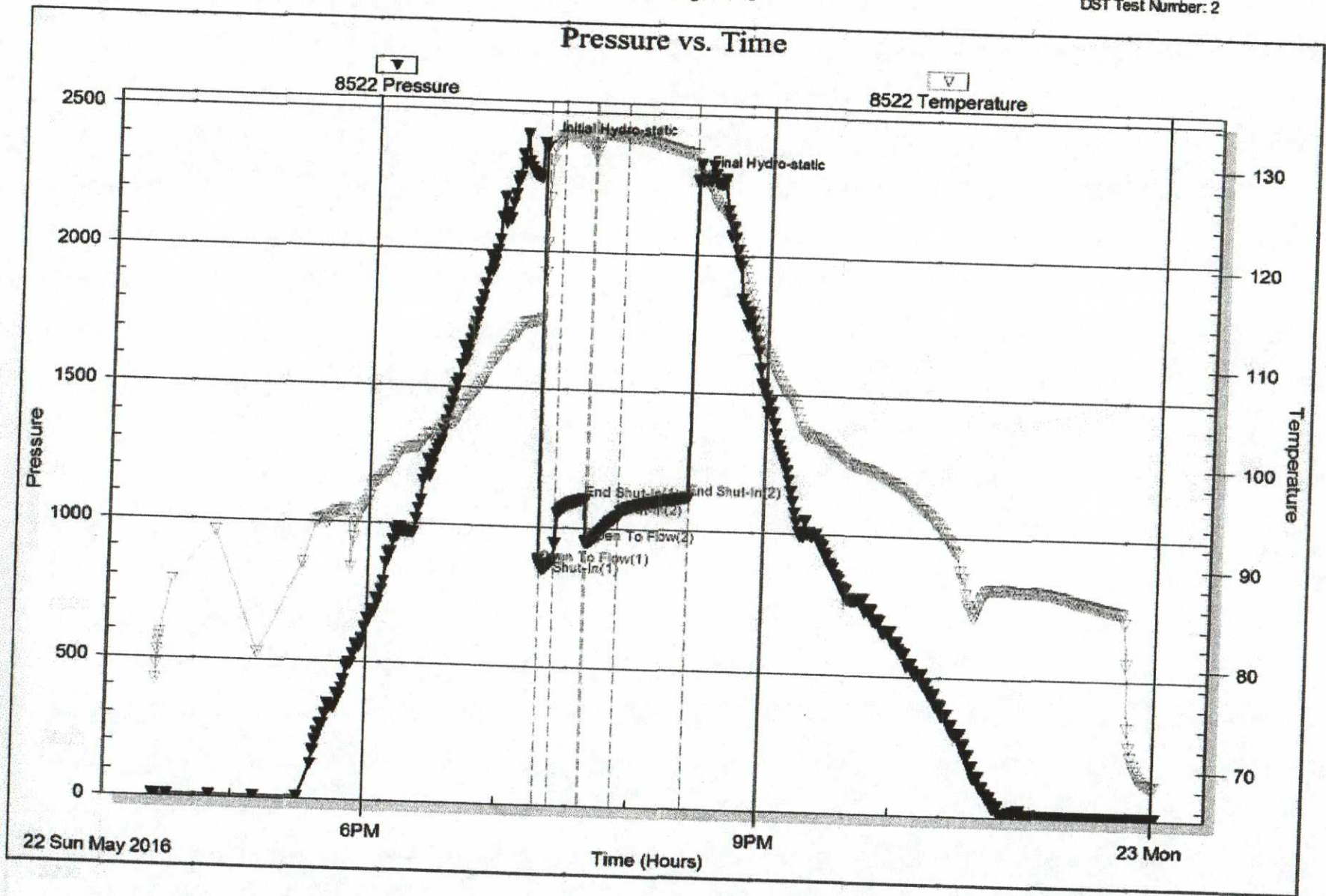
Recovery Comments: rw is .180 @ 68F= 42,000ppm

Serial #: 8522

Outside King Oil Operations

Singer #1-19

DST Test Number: 2

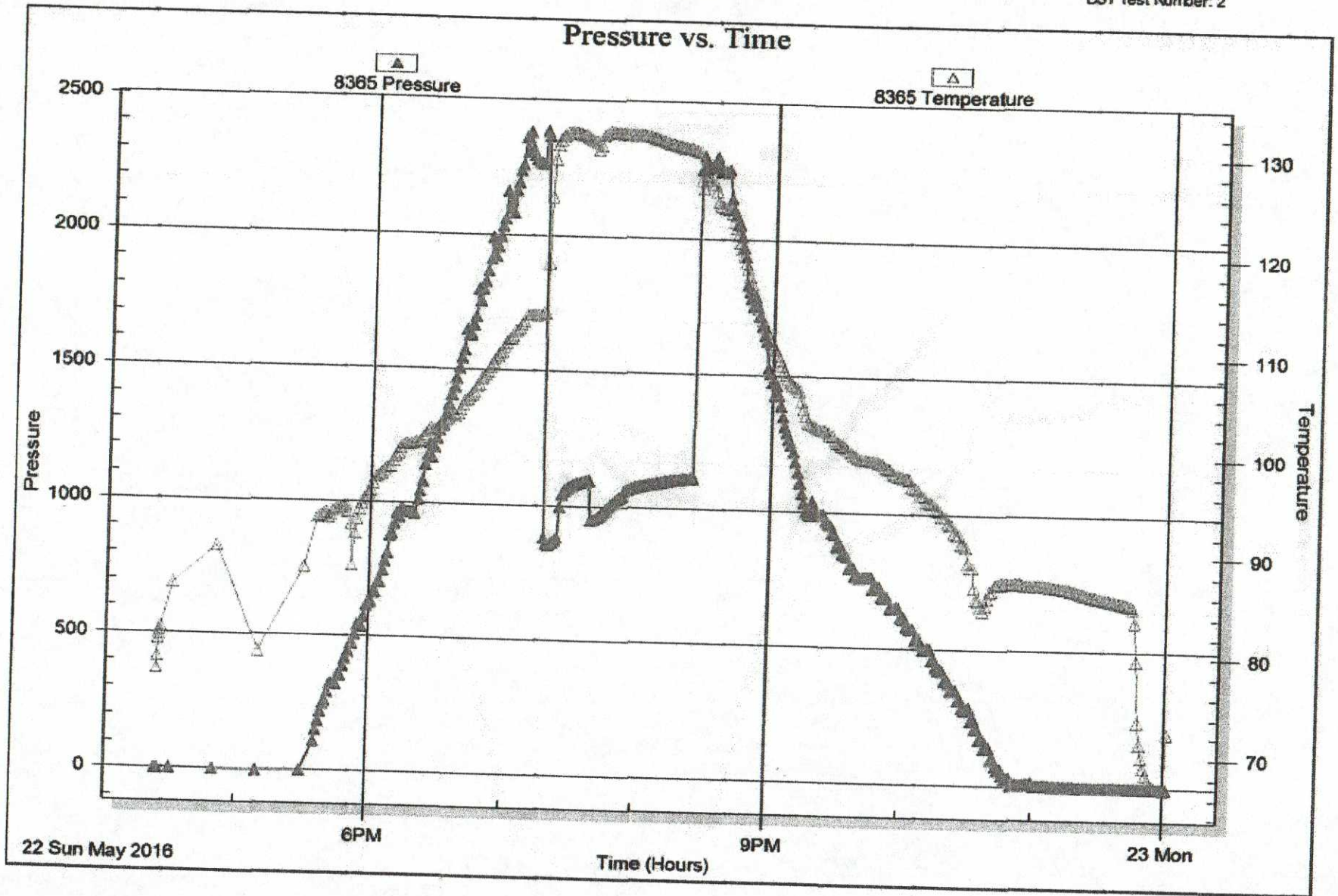


Serial #: 8365

Inside King Oil Operations

Singer #1-19

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **King Oil Operations**

1746 150th Ave
Ellis KS 67637

ATTN: Charlie Sturdavant

Singer #1-19

19 12s 31w Gove,KS

Start Date: 2016.05.23 @ 16:10:00

End Date: 2016.05.23 @ 21:47:00

Job Ticket #: 64649 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.05.25 @ 14:30:27

King Oil Operations
19 12s 31w Gove,KS
Singer #1-19
DST # 3
LKC "A - E"
2016.05.23



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

King Oil Operations

19 12s 31w Gove, KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64649

DST#: 3

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 16:10:00

GENERAL INFORMATION:

Formation: **LKC "A - E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:37:30

Time Test Ended: 21:47:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 78

Interval: **3984.00 ft (KB) To 4066.00 ft (KB) (TVD)**

Total Depth: 4663.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2939.00 ft (KB)

2931.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8365

Outside

Press@RunDepth: psig @ 3985.00 ft (KB)

Start Date: 2016.05.23

End Date:

2016.05.23

Capacity: 8000.00 psig

Last Calib.:

2016.05.24

Start Time: 16:10:05

End Time:

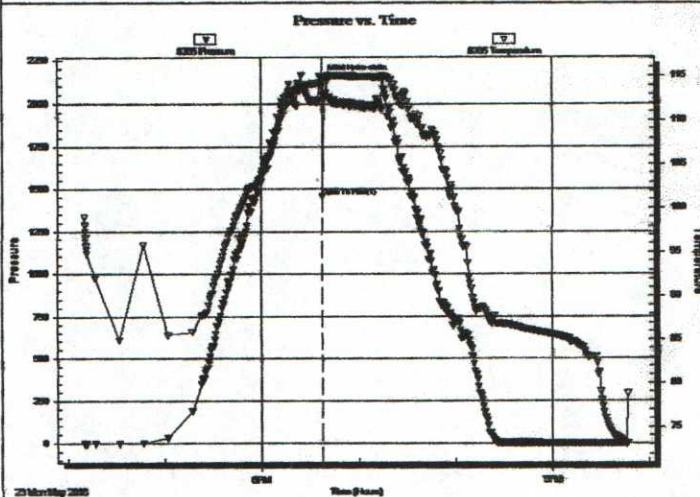
21:46:59

Time On Btm:

2016.05.23 @ 18:37:15

Time Off Btm:

TEST COMMENT: Misrun packers did not seat



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2148.19	114.27	Initial Hydro-static
1	1453.53	113.73	Open To Flow (1)

Recovery

Length (ft)	Description	Volume (bbl)
20.00	misrun - packer failure	0.15

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64649

DST#: 3

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 16:10:00

GENERAL INFORMATION:

Formation: **LKC "A - E"**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 18:37:30

Time Test Ended: 21:47:00

Test Type: **Conventional Bottom Hole (Reset)**

Tester: **Bradley Walter**

Unit No: **78**

Interval: **3984.00 ft (KB) To 4066.00 ft (KB) (TVD)**

Total Depth: **4663.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Good**

Reference Elevations: **2939.00 ft (KB)**

2931.00 ft (CF)

KB to GR/CF: **8.00 ft**

Serial #: 8522

Below (Straddle)

Press@RunDepth: **psig @ 4086.00 ft (KB)**

Start Date: **2016.05.23**

End Date:

2016.05.23

Capacity: **8000.00 psig**

Last Calib.:

2016.05.24

Start Time: **16:10:05**

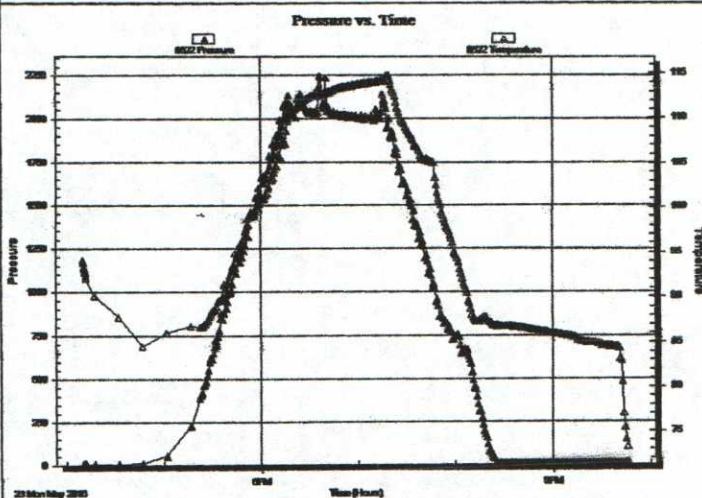
End Time:

21:46:59

Time On Btm:

Time Off Btm:

TEST COMMENT: Misrun packers did not seat



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	misrun - packer failure	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64649

DST#: 3

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 16:10:00

Tool Information

Drill Pipe:	Length: 3663.00 ft	Diameter: 3.80 inches	Volume: 51.38 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 312.00 ft	Diameter: 2.75 inches	Volume: 2.29 bbl	Weight set on Packer: 35000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			Total Volume: 53.67 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3984.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	679.00 ft			
Tool Length:	706.00 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			3958.00	
Shut In Tool	5.00			3963.00	
Hydraulic tool	5.00			3968.00	
Jars	5.00			3973.00	
Safety Joint	2.00			3975.00	
Packer	5.00			3980.00	27.00 Bottom Of Top Packer
Packer	4.00			3984.00	
Stubb	1.00			3985.00	
Recorder	0.00	8677	Inside	3985.00	
Recorder	0.00	8365	Outside	3985.00	
Perforations	7.00			3992.00	
Change Over Sub	1.00			3993.00	
Drill Pipe	63.00			4056.00	
Change Over Sub	1.00			4057.00	
Perforations	5.00			4062.00	
Blank Off Sub	1.00			4063.00	679.00 Tool Interval
Packer	3.00			4066.00	
Blank Spacing	1.00			4067.00	
Perforations	18.00			4085.00	
Change Over Sub	1.00			4086.00	
Recorder	0.00	8522	Below	4086.00	
Drill Pipe	573.00			4659.00	
Change Over Sub	1.00			4660.00	
Bullnose	3.00			4663.00	1000705.00 Bottom Packers & Anchor
Total Tool Length:	706.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64649

DST#: 3

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 16:10:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.99 in³

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	misrun - packer failure	0.147

Total Length: 20.00 ft Total Volume: 0.147 bbl

Num Fluid Samples: 0

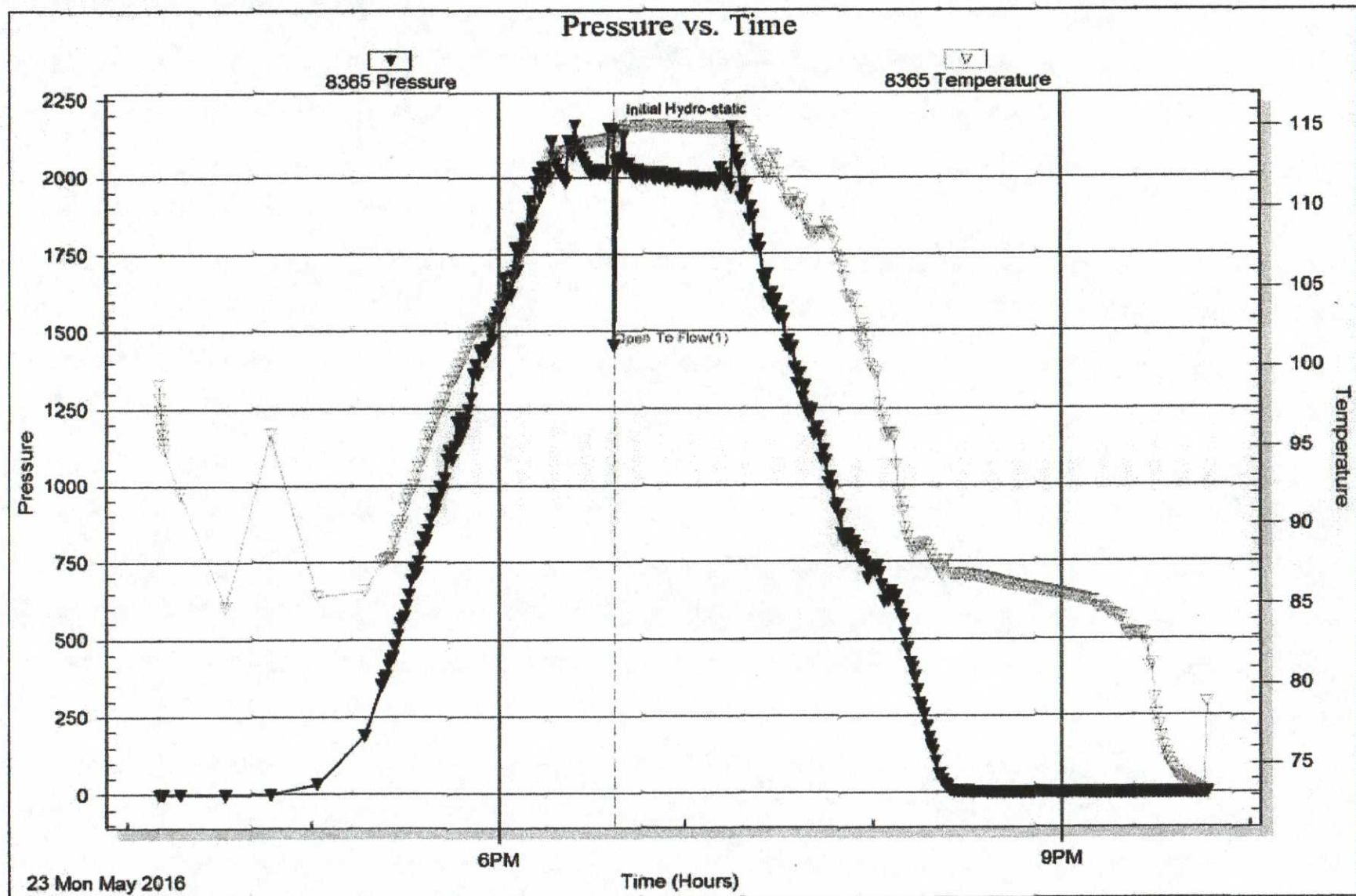
Num Gas Bombs: 0

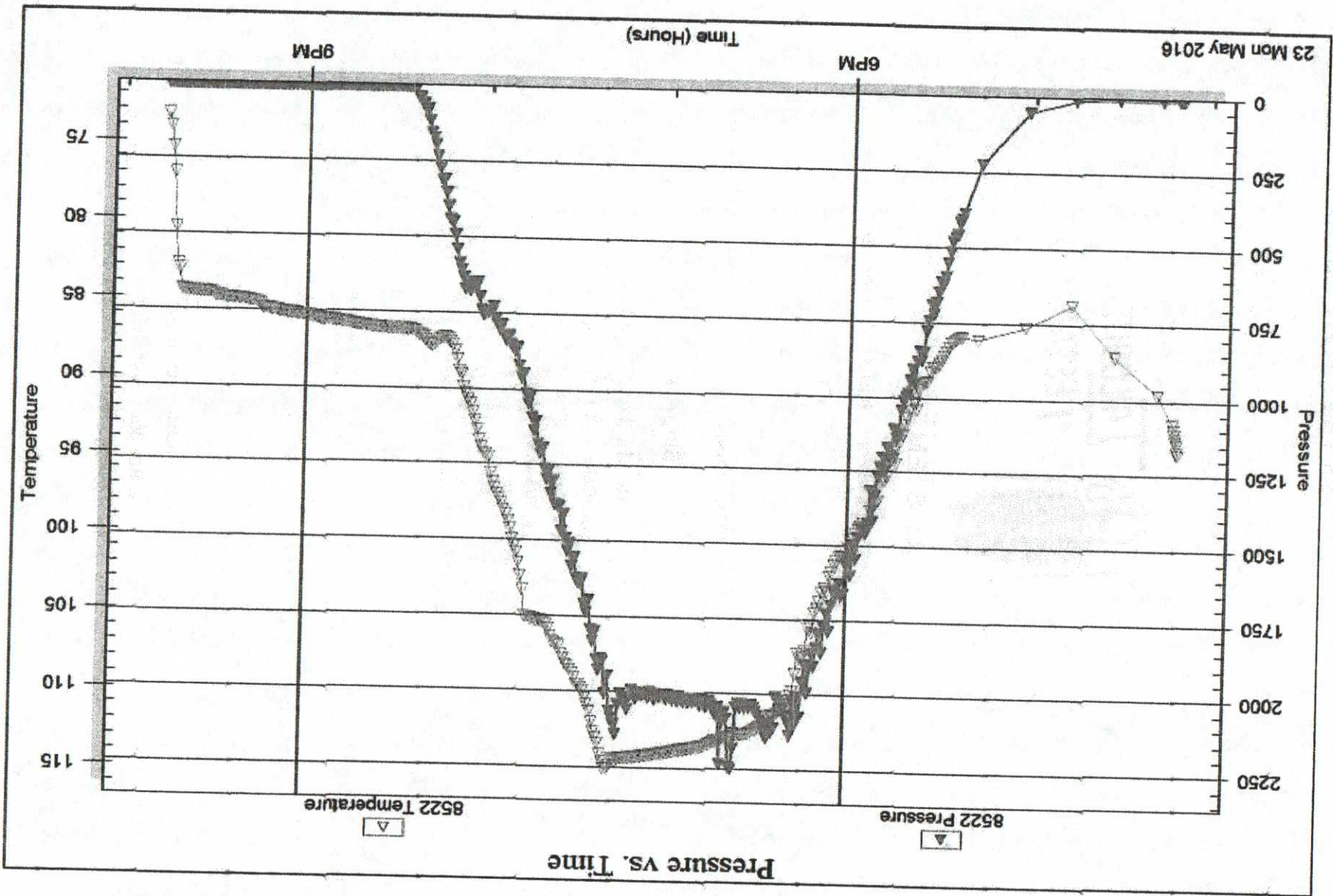
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: packers did not seat





Serial #: 8522

Below (Stranded) Operations

Singer #1-19

DST Test Number: 3

Pressure vs. Time



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **King Oil Operations**

1746 150th Ave
Ellis KS 67637

ATTN: Charlie Sturdavant

Singer #1-19

19 12s 31w Gove,KS

Start Date: 2016.05.23 @ 22:20:00

End Date: 2016.05.24 @ 06:39:00

Job Ticket #: 64650 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.05.25 @ 14:30:05



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64650

DST#: 4

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 22:20:00

GENERAL INFORMATION:

Formation: **LKC "A - E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:14:15

Time Test Ended: 06:39:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 76

Interval: **3990.00 ft (KB) To 4066.00 ft (KB) (TVD)**

Total Depth: 4663.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2939.00 ft (KB)

2931.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8365

Outside

Press@RunDepth: 452.08 psig @ 3991.00 ft (KB)

Start Date: 2016.05.23

End Date: 2016.05.24

Start Time: 22:20:05

End Time: 06:38:59

Capacity: 8000.00 psig

Last Calib.: 2016.05.24

Time On Btm: 2016.05.24 @ 00:14:00

Time Off Btm: 2016.05.24 @ 03:17:30

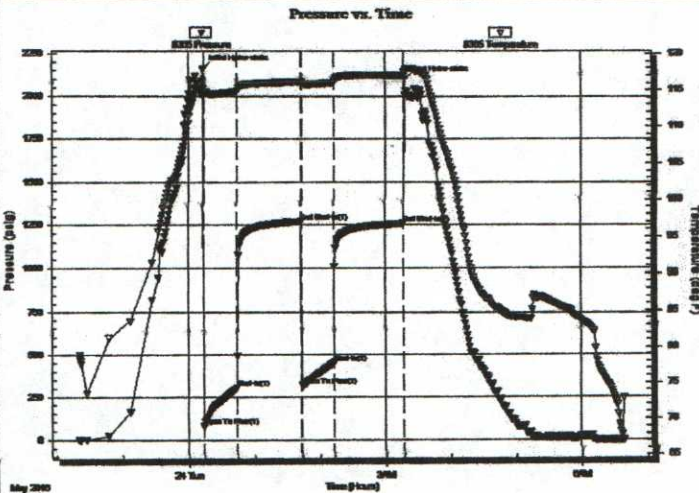
TEST COMMENT: IF: BOB in 6 min.

IS: Weak Surface blow, died in 14 min.

FF: BOB in 7 min.

FS: Surface blow, died in 22 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.17	115.20	Initial Hydro-static
1	78.12	114.44	Open To Flow (1)
31	301.92	114.77	Shut-in(1)
90	1271.47	116.11	End Shut-in(1)
91	317.60	115.80	Open To Flow (2)
120	452.08	115.98	Shut-in(2)
183	1260.17	116.93	End Shut-in(2)
184	2097.08	117.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
190.00	mcw 10m 90w (trace oil)	1.40
252.00	somcw 2o 15m 80w	2.72
126.00	gomcw 20g 20o 30m 30w	1.77
189.00	gomcw 20g 25o 25m 30w	2.65
142.00	gmw co 10g 25m 25w 40o	1.99

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

King Oil Operations

1746 150th Ave
Ellis KS 67637

ATTN: Charlie Sturdavant

19 12s 31w Gove, KS

Singer #1-19

Job Ticket: 64650

DST#: 4

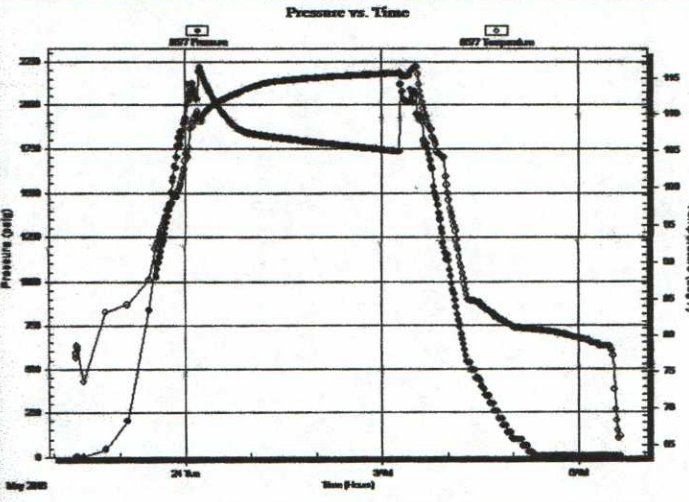
Test Start: 2016.05.23 @ 22:20:00

GENERAL INFORMATION:

Formation: **LKC "A - E"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 00:14:15
 Tester: Bradley Walter
 Time Test Ended: 06:39:00
 Unit No: 76
 Interval: **3990.00 ft (KB) To 4066.00 ft (KB) (TVD)**
 Reference Elevations: 2939.00 ft (KB)
 Total Depth: 4663.00 ft (KB) (TVD)
 2931.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 8.00 ft

Serial #: 8677 Below (Straddle)
 Press@RunDepth: psig @ 4086.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.05.23 End Date: 2016.05.24 Last Calib.: 2016.05.24
 Start Time: 22:20:05 End Time: 06:37:44 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: BOB in 6 min.
 IS: Weak Surface blow, died in 14 min.
 FF: BOB in 7 min.
 FS: Surface blow, died in 22 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
190.00	mcw 10m 90w (trace oil)	1.40
252.00	somcw 2o 15m 80w	2.72
126.00	gomcw 20g 20o 30m 30w	1.77
189.00	gomcw 20g 25o 25m 30w	2.65
142.00	grw co 10g 25m 25w 40o	1.99

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcfd)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64650

DST#: 4

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 22:20:00

Tool Information

Drill Pipe:	Length: 3663.00 ft	Diameter: 3.80 inches	Volume: 51.38 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 312.00 ft	Diameter: 2.75 inches	Volume: 2.29 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 73000.00 lb
			<u>Total Volume: 53.67 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3990.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	673.00 ft			
Tool Length:	700.00 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			3964.00		
Shut In Tool	5.00			3969.00		
Hydraulic tool	5.00			3974.00		
Jars	5.00			3979.00		
Safety Joint	2.00			3981.00		
Packer	5.00			3986.00	27.00	Bottom Of Top Packer
Packer	4.00			3990.00		
Stubb	1.00			3991.00		
Recorder	0.00	8522	Inside	3991.00		
Recorder	0.00	8365	Outside	3991.00		
Perforations	1.00			3992.00		
Change Over Sub	1.00			3993.00		
Drill Pipe	63.00			4056.00		
Change Over Sub	1.00			4057.00		
Perforations	5.00			4062.00		
Blank Off Sub	1.00			4063.00	673.00	Tool Interval
Packer	3.00			4066.00		
Blank Spacing	1.00			4067.00		
Perforations	18.00			4085.00		
Change Over Sub	1.00			4086.00		
Recorder	0.00	8677	Below	4086.00		
Drill Pipe	573.00			4659.00		
Change Over Sub	1.00			4660.00		
Bullnose	3.00			4663.00	1000699.00	Bottom Packers & Anchor
Total Tool Length:	700.00					



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

King Oil Operations

19 12s 31w Gove,KS

1746 150th Ave
Ellis KS 67637

Singer #1-19

Job Ticket: 64650

DST#: 4

ATTN: Charlie Sturdavant

Test Start: 2016.05.23 @ 22:20:00

Mud and Cushion Information

Mud Type: Invert

Mud Weight: 10.00 lb/gal

Viscosity: 44.00 sec/qt

Water Loss: 7.98 in³

Resistivity: ohm.m

Salinity: 3000.00 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: 34000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
190.00	mcw 10m 90w (trace oil)	1.396
252.00	somcw 2o 15m 80w	2.720
126.00	gomcw 20g 20o 30m 30w	1.767
189.00	gomcw 20g 25o 25m 30w	2.651
142.00	gmw co 10g 25m 25w 40o	1.992

Total Length: 899.00 ft Total Volume: 10.526 bbl

Num Fluid Samples: 0

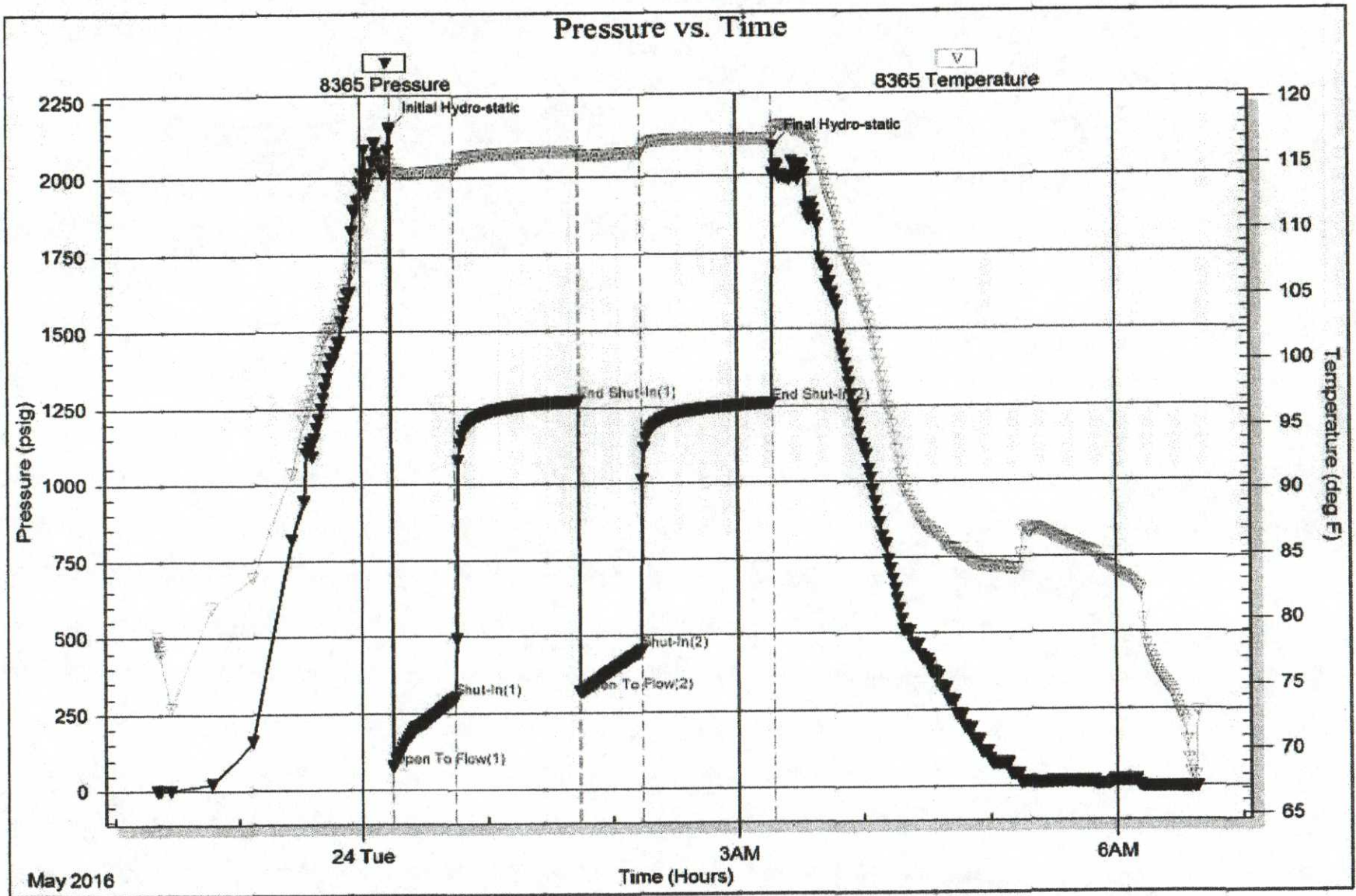
Num Gas Bombs: 0

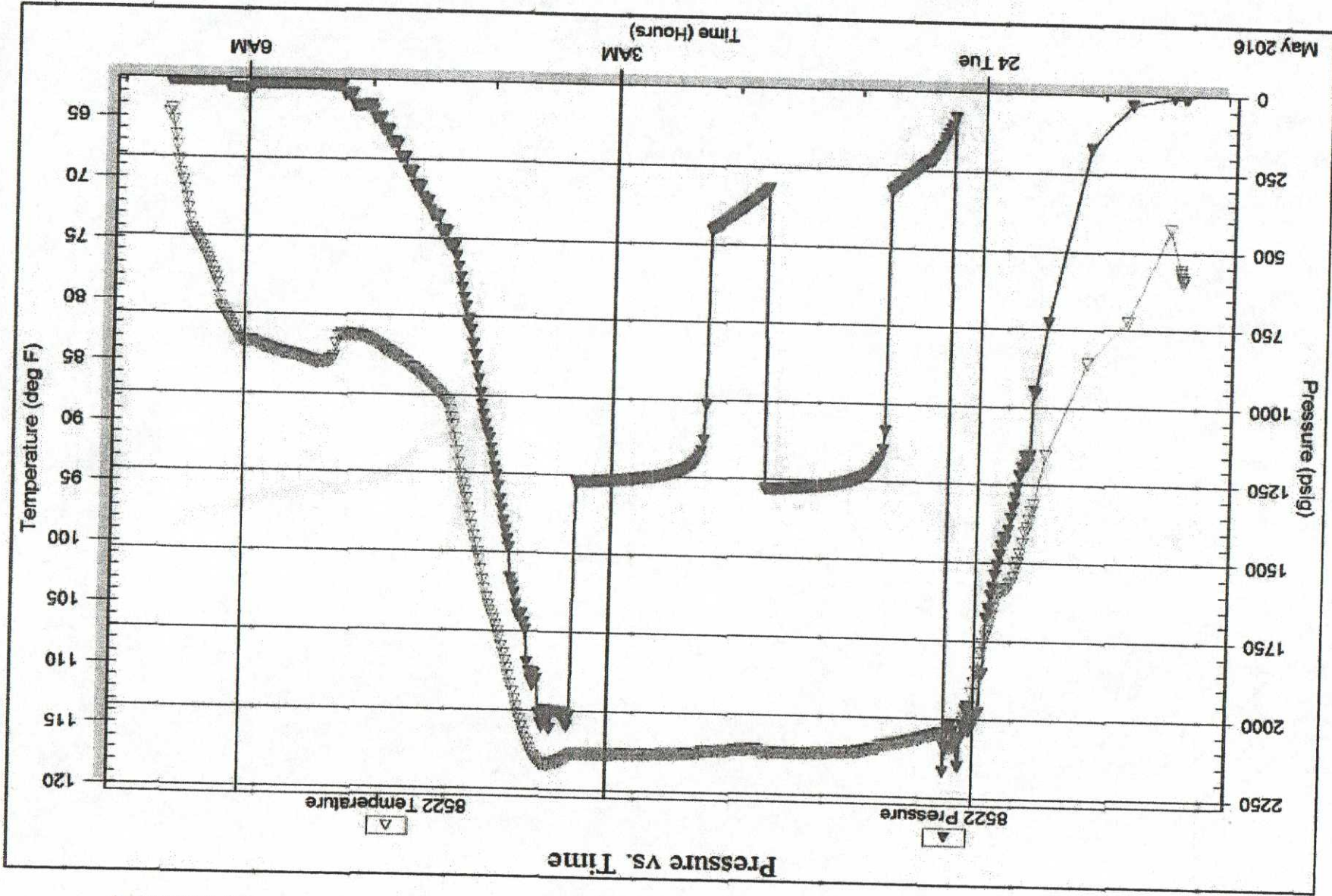
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .250 @ 63f = 34,000ppm





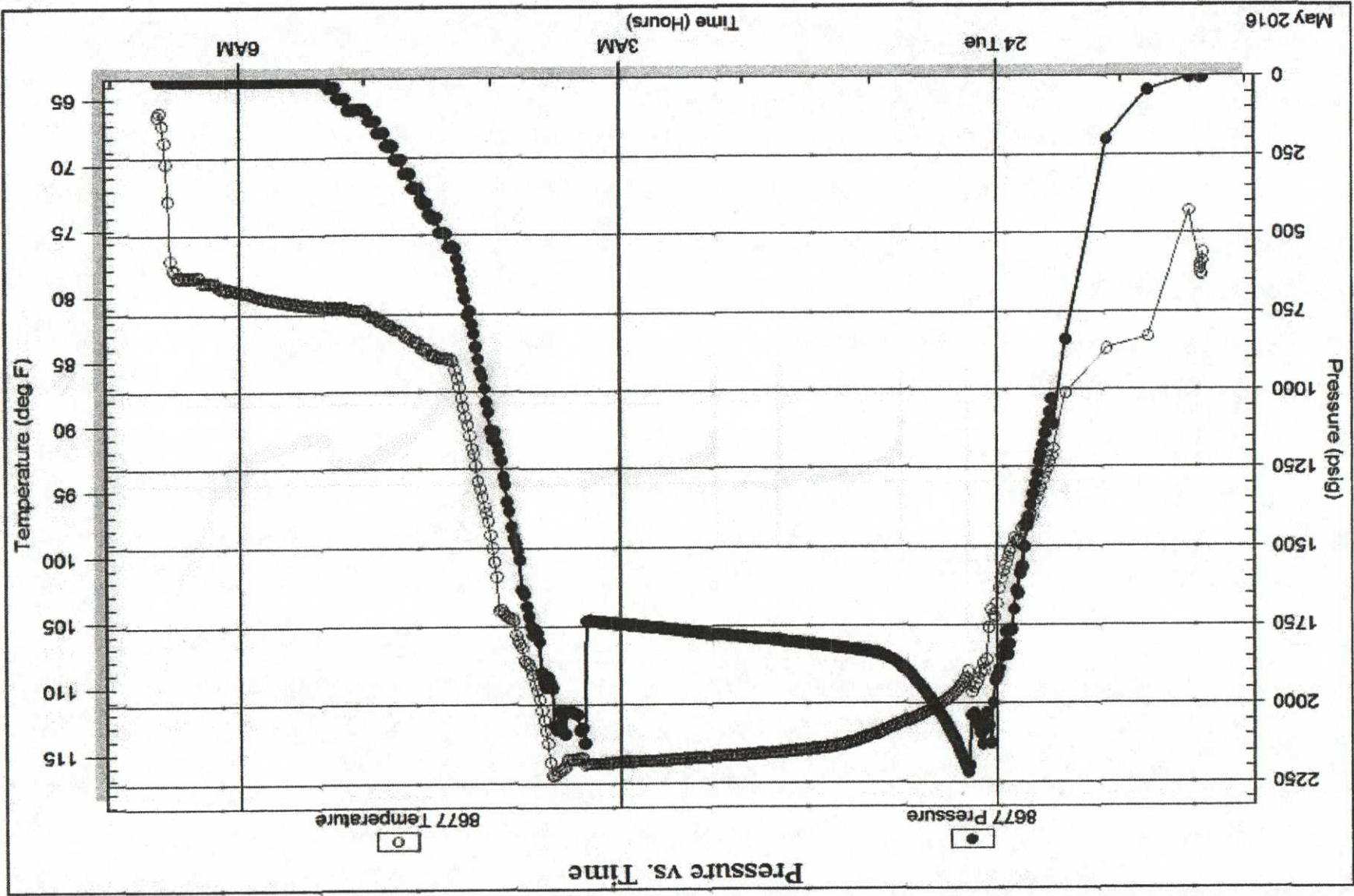
DST Test Number: 4

Singer #1-19

King Oil Operations

Inside

Serial #: 8522





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64775

Well Name & No. Singer 1-19 Test No. 1 Date 5-21-16
 Company King Oil Operations Elevation 2939 KB 2931 GL
 Address 1796 150th Ave Ellis KS 67637
 Co. Rep / Geo. Charlie Sturdavant Rig Discovery #1
 Location: Sec. 19 Twp. 1205 Rge. 31W Co. Love State KS

Interval Tested 4508-4535 Zone Tested Johnson
 Anchor Length 27 Drill Pipe Run 4171 Mud Wt. 9.6
 Top Packer Depth 4503 Drill Collars Run 0 Vis 44
 Bottom Packer Depth 4508 Wt. Pipe Run 312 WL 9.6
 Total Depth 4535 Chlorides 3000 ppm System LCM 1

Blow Description FFP - 1/4 in Blow
ISIP - No Blow
FFP - Weak Surface Blow in 3 min.
FSIP - No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Oil Speck Mud</u>	<u>1</u>		<u>99</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 20 BHT 117 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2329</u>	<input checked="" type="checkbox"/> Test 1150	T-On Location <u>23:09</u>
(B) First Initial Flow <u>30</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>00:12</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>02:54</u>
(D) Initial Shut-In <u>751</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>05:09</u>
(E) Second Initial Flow <u>34</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>07:06</u>
(F) Second Final Flow <u>34</u>	<input checked="" type="checkbox"/> Mileage <u>RT 220</u>	Comments _____
(G) Final Shut-In <u>816</u>	<input type="checkbox"/> Sampler 88rt 66	_____
(H) Final Hydrostatic <u>2262</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer _____

Initial Open <u>15</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1541</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1541</u>	

Approved By _____ Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway - Hays, Kansas 67601

Test Ticket

NO. 64648

Well Name & No. Singer #1-19 Test No. 2 Date 5/22/2016
 Company King Oil Operations Elevation 2939 KB 2931 GL
 Address 1742 150th Ave Ellis, KS 67637
 Co. Rep / Geo. Charlie Stoder Stordavant Rig Discovery #1
 Location: Sec. 19 Twp. 17s Rge. 31w Co. Loganville State KS

Interval Tested 4528 - 4580 Zone Tested Base Perm Sand
 Anchor Length 52' Drill Pipe Run 4204 Mud Wt. 9.5
 Top Packer Depth 4523 Drill Collars Run 0 Vis 44
 Bottom Packer Depth 4528 Wt. Pipe Run 312 WL 8.0
 Total Depth 4580 Chlorides 2000 ppm System LCM 1.5"

Blow Description FF: BOB @ 30 sec
ISL: No return
FF: BOB @ 30 sec
ISL: No return

Rec	Feet of	%gas	%oil	%water	%muc
<u>200</u>	<u>mcw</u>		<u>60</u>	<u>40</u>	
<u>2000</u>	<u>5 mcw</u>		<u>99</u>	<u>1</u>	
	<u>OIL Spools in tool</u>				

Rec Total 2200 BHT 131 Gravity — API RW 150 @ — °F Chlorides — ppm
 (A) Initial Hydrostatic 2373 Test 1150 T-On Location 1400
 (B) First Initial Flow 871 Jars 250 T-Started 1623
 (C) First Final Flow 887 Safety Joint 75 T-Open 1918
 (D) Initial Shut-In 1106 Circ Sub 4/c T-Pulled 2023
 (E) Second Initial Flow 951 Hourly Standby — T-Out 0001
 (F) Second Final Flow 1047 Mileage 88 rt 66 Comments —
 (G) Final Shut-In 1119 Sampler —
 (H) Final Hydrostatic 2265 Straddle —
 Shale Packer —
 Extra Packer —
 Extra Recorder —
 Day Standby —
 Accessibility —
 Sub Total 1541

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30

Sub Total 1541 MP/DST Disc't —

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4/10

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64649

Well Name & No. Singer 1-19 Test No. 3 Date 5/23/2016
 Company King Oil Operations Elevation 2939 KB 2931 GL
 Address 1746 150th Ave Ellis, Ks 67637
 Co. Rep / Geo. Charles Sturdavant Rig Discovery 1
 Location: Sec. 19 Twp. 12 S Rge. 31 W Co. Cove State Ks

Interval Tested 3984 4066 Zone Tested LKC A-TE
 Anchor Length 82 Drill Pipe Run 3663 Mud Wt. 9.5
 Top Packer Depth 3984 - 3979 Drill Collars Run 0 Vis 44
 Bottom Packer Depth 4066 Wt. Pipe Run 312 WL 8.0
 Total Depth 4663 Chlorides 3000 ppm System LCM 7th
 Blow Description _____

MIS RUN

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	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total _____ BHT 2146
 (A) Initial Hydrostatic _____
 (B) First Initial Flow _____
 (C) First Final Flow _____
 (D) Initial Shut-In MIS RUN
 (E) Second Initial Flow _____
 (F) Second Final Flow _____
 (G) Final Shut-In _____
 (H) Final Hydrostatic _____

Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm
 Test 950
 Jars 250
 Safety Joint 75
 Circ Sub NC
 Hourly Standby _____
 Mileage 66
 Sampler _____
 Straddle 600
 Shale Packer 250
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 2191

T-On Location 1520
 T-Started 1610
 T-Open 1837
 T-Pulled 1845
 T-Out 2147
 Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 2191
 MP/DST Disc't _____

Initial Open _____
 Initial Shut-In MIS RUN
 Final Flow _____
 Final Shut-In _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64650

Well Name & No. Singer 1-19 Test No. 4 Date 5/24/2006
 Company King Oil Operations Elevation 2934 KB 2931 GL
 Address 1746 150th Ave Ellis, KS 67637
 Co. Rep / Geo. Charlie Studevant Rig Discovery 1
 Location: Sec. 19 Twp. 12S Rge. 31W Co. Gove State KS

Interval Tested 3990 - 4066 Zone Tested LKC A-E
 Anchor Length 76 Drill Pipe Run 3663 Mud Wt. 9.5
 Top Packer Depth 3990 & 3994 Drill Collars Run 0 Vis 44
 Strat Bottom Packer Depth 4066 Wt. Pipe Run 315 WL 8.0
 Total Depth 4663 Chlorides 3000 ppm System LCM 1#

Blow Description IF BOB @ 6 min
TGI Wat Surface blow, died @ 14 min.
FF BOB @ 7 min
FSI Surface blow, died @ 22 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>112</u>	<u>GMWCW</u>	<u>10</u>	<u>40</u>	<u>25</u>	<u>25</u>
<u>189</u>	<u>GOMCW</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>25</u>
<u>126</u>	<u>GOMCW</u>	<u>20</u>	<u>20</u>	<u>30</u>	<u>30</u>
<u>252 + 169</u>	<u>SOMCW</u>	<u>%gas</u>	<u>2</u>	<u>80</u>	<u>15</u>
<u>190 + 142</u>	<u>MCW 1</u>	<u>%gas</u>	<u>%oil</u>	<u>90</u>	<u>10</u>

Rec Total 899 BHT 117 Gravity — API RW 250 @ 63 °F Chlorides 34,000 ppm

(A) Initial Hydrostatic	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2200</u>
(B) First Initial Flow	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2230</u>
(C) First Final Flow	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0007</u>
(D) Initial Shut-In	<input checked="" type="checkbox"/> Circ Sub <u>N/I</u>	T-Pulled <u>0307</u>
(E) Second Initial Flow	<input type="checkbox"/> Hourly Standby	T-Out <u>0639</u>
(F) Second Final Flow	<input checked="" type="checkbox"/> Mileage <u>N/C</u>	Comments
(G) Final Shut-In	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic	<input checked="" type="checkbox"/> Straddle <u>600</u>	<input type="checkbox"/> Ruined Shale Packer
	<input checked="" type="checkbox"/> Shale Packer <u>X3</u> <u>750</u>	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>40</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>2825</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>2825</u>	

Approved By _____ Our Representative [Signature]

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