



DRILL STEM TEST REPORT

Prepared For: **Royal Energy**

P.O. Box 1820
Dodge City ,Kansas 67801

ATTN: Eli Felts

Alpers #2

4-23s-12w Stafford

Start Date: 2018.09.06 @ 18:53:00

End Date: 2018.09.07 @ 02:04:00

Job Ticket #: 01010 DST #: 4

Eagle Testers
1309 Patton Road Great Bend, Kansas 67530
620-791-7394

Printed: 2018.09.07 @ 02:28:10



DRILL STEM TEST REPORT

Royal Energy
 P.O. Box 1820
 Dodge City, Kansas 67801
 ATTN: Eli Felts

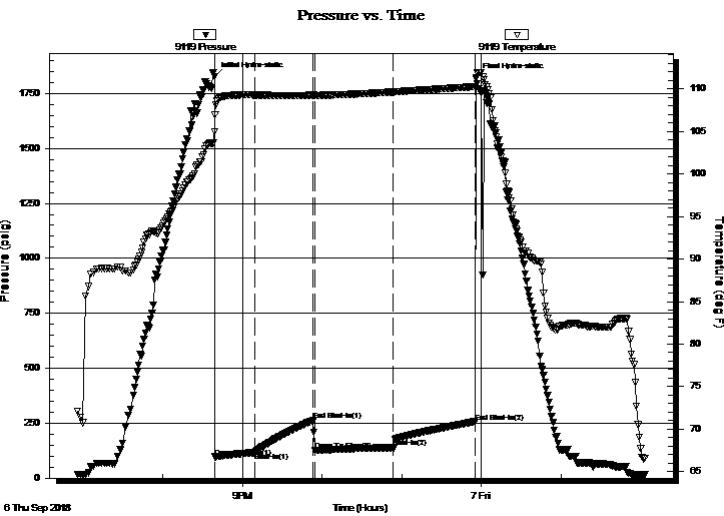
4-23s-12w Stafford
Alpers #2
 Job Ticket: 01010 **DST#: 4**
 Test Start: 2018.09.06 @ 18:53:00

GENERAL INFORMATION:

Formation: **Viola**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 21:10:00 Tester: Gene Budig
 Time Test Ended: 02:04:00 Unit No: 1
 Interval: **3542.00 ft (KB) To 3637.00 ft (KB) (TVD)** Reference Elevations: 1851.00 ft (KB)
 Total Depth: 3637.00 ft (KB) (TVD) 1841.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 9119 Outside
 Press@RunDepth: 255.38 psig @ 3632.06 ft (KB) Capacity: 5000.00 psig
 Start Date: 2018.09.06 End Date: 2018.09.07 Last Calib.: 2018.09.07
 Start Time: 18:53:00 End Time: 02:03:00 Time On Btm: 2018.09.06 @ 20:39:00
 Time Off Btm: 2018.09.06 @ 23:56:00

TEST COMMENT: 1st Opening 30 Minutes w eak building blow built to the bottom of the bucket in 9 minutes
 1st Shut-In 45 Minutes w eak blow back
 2nd Opening 60 Minutes w eak buiding blow built to the bottom of the bucket in 8 minutes
 2nd Shut-In 60 Minutes w eak blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1827.99	105.02	Initial Hydro-static
1	96.36	106.95	Open To Flow (1)
31	116.47	109.29	Shut-In(1)
75	263.87	109.28	End Shut-In(1)
76	127.97	109.25	Open To Flow (2)
135	139.02	109.65	Shut-In(2)
196	255.38	110.28	End Shut-In(2)
197	1821.80	111.19	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	180 feet of gas in the pipe	0.00
30.00	oil cut mud 10%Oil 90% Mud	0.42
60.00	very GASSY OIL CUT MUD	0.84
0.00	75%Gas 10%Oil 25% Mud	0.00
60.00	Very gassy oil cut mud	0.84
0.00	70%Gas 10%Oil 20%Mud	0.00

Gas Rates

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



DRILL STEM TEST REPORT

Royal Energy
 P.O. Box 1820
 Dodge City, Kansas 67801
 ATTN: Eli Felts

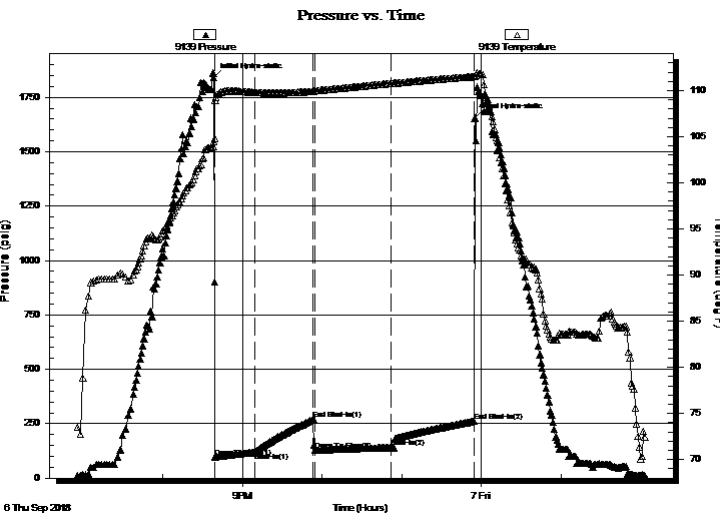
4-23s-12w Stafford
Alpers #2
 Job Ticket: 01010 **DST#: 4**
 Test Start: 2018.09.06 @ 18:53:00

GENERAL INFORMATION:

Formation: **Viola**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:10:00
 Time Test Ended: 02:04:00
 Interval: **3542.00 ft (KB) To 3637.00 ft (KB) (TVD)**
 Total Depth: 3637.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Reference Elevations: 1851.00 ft (KB)
 1841.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 9139 Inside
 Press@RunDepth: 261.67 psig @ 3632.06 ft (KB) Capacity: psig
 Start Date: 2018.09.06 End Date: 2018.09.07 Last Calib.: 1899.12.30
 Start Time: 18:53:00 End Time: 02:03:00 Time On Btm: 2018.09.06 @ 20:38:30
 Time Off Btm: 2018.09.06 @ 23:55:00

TEST COMMENT: 1st Opening 30 Minutes w eak building blow built to the bottom of the bucket in 9 minutes
 1st Shut-In 45 Minutes w eak blow back
 2nd Opening 60 Minutes w eak buiding blow built to the bottom of the bucket in 8 minutes
 2nd Shut-In 60 Minutes w eak blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1839.42	104.49	Initial Hydro-static
1	98.03	108.90	Open To Flow (1)
31	116.76	109.79	Shut-In(1)
75	270.28	109.93	End Shut-In(1)
77	128.83	110.00	Open To Flow (2)
134	139.66	110.78	Shut-In(2)
196	261.67	111.52	End Shut-In(2)
197	1654.46	111.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	180 feet of gas in the pipe	0.00
30.00	oil cut mud 10%Oil 90% Mud	0.42
60.00	very GASSY OIL CUT MUD	0.84
0.00	75%Gas 10%Oil 25% Mud	0.00
60.00	Very gassy oil cut mud	0.84
0.00	70%Gas 10%Oil 20%Mud	0.00

Gas Rates

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



DRILL STEM TEST REPORT

TOOL DIAGRAM

Royal Energy
 P.O. Box 1820
 Dodge City ,Kansas 67801
 ATTN: Eii Felts

4-23s-12w Stafford
Alpers #2
 Job Ticket: 01010 **DST#: 4**
 Test Start: 2018.09.06 @ 18:53:00

Tool Information

Drill Pipe:	Length: 3518.00 ft	Diameter: 3.80 inches	Volume: 49.35 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	74000.00 lb
			<u>Total Volume: 49.35 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3542.00 ft			Final	44000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	95.06 ft				
Tool Length:	125.06 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			3517.00	
Hydraulic tool	5.00			3522.00	
Jars	5.00			3527.00	
Safety Joint	5.00			3532.00	
Packer	5.00			3537.00	30.00 Bottom Of Top Packer
Packer	5.00		Fluid	3542.00	
Anchor	5.00			3547.00	
Change Over Sub	0.75			3547.75	
Drill Pipe	63.56			3611.31	
Change Over Sub	0.75		Inside	3612.06	
Anchor	20.00			3632.06	
Recorder	0.00	9119	Outside	3632.06	
Recorder	0.00	9139	Inside	3632.06	
Bullnose	5.00			3637.06	95.06 Bottom Packers & Anchor

Total Tool Length: 125.06



DRILL STEM TEST REPORT

FLUID SUMMARY

Royal Energy
 P.O. Box 1820
 Dodge City ,Kansas 67801
 ATTN: Eii Felts

4-23s-12w Stafford
Alpers #2
 Job Ticket: 01010 **DST#: 4**
 Test Start: 2018.09.06 @ 18:53:00

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: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 14.20 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 14000.00 ppm			
Filter Cake: 1.00 inches			

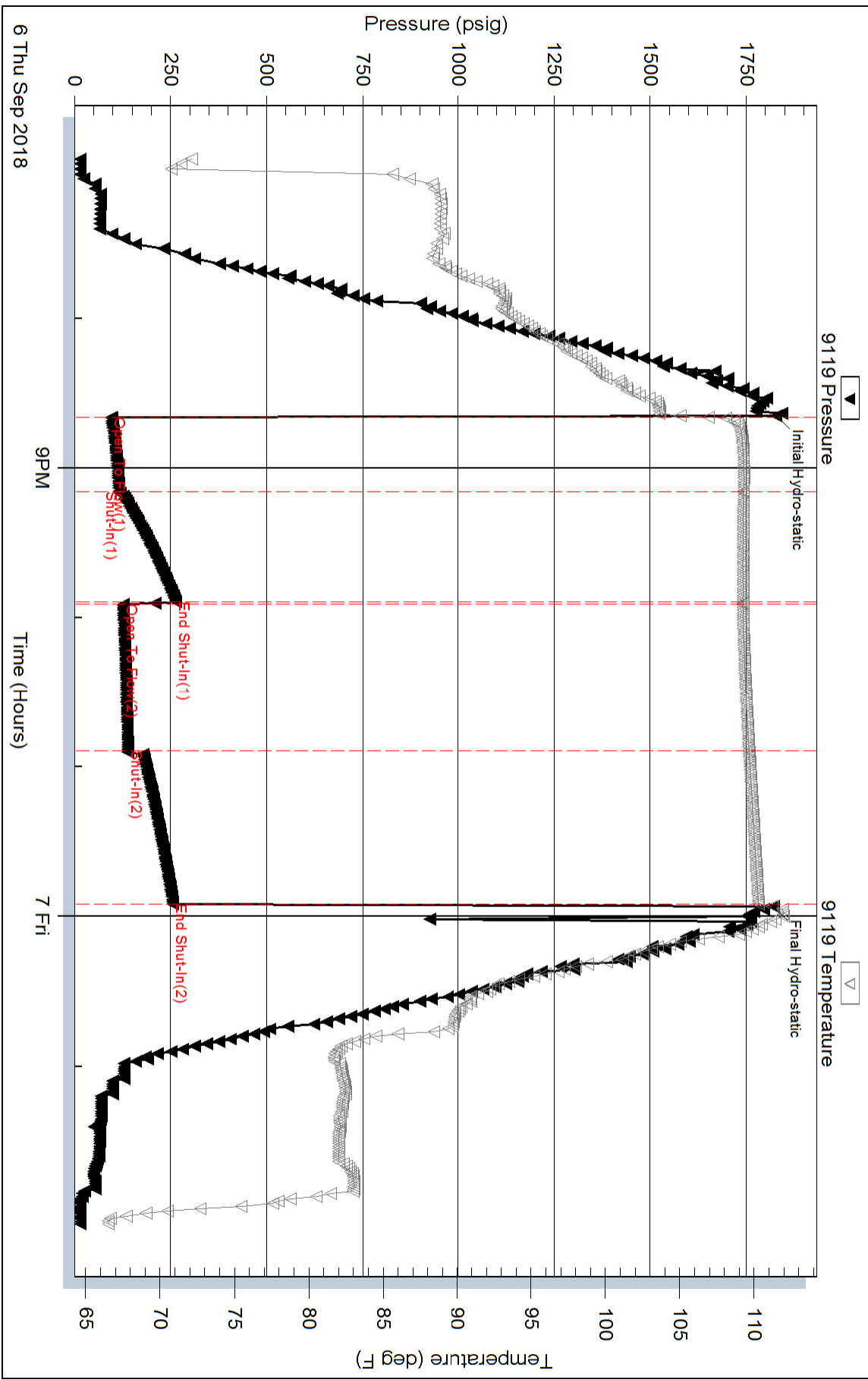
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	180 feet of gas in the pipe	0.000
30.00	oil cut mud 10%Oil 90% Mud	0.421
60.00	very GASSY OIL CUT MUD	0.842
0.00	75%Gas 10%Oil 25% Mud	0.000
60.00	Very gassy oil cut mud	0.842
0.00	70%Gas 10%Oil 20%Mud	0.000

Total Length: 150.00 ft Total Volume: 2.105 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time



Pressure vs. Time

