



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

8100 East 22nd Street North Suite 700
P.O.Box 783188
Wichita, Kansas 67278-3188

ATTN: John Goldsmith

23-15s-36w Logan

Start Date: 2016.02.26 @ 16:52:00

End Date: 2016.02.26 @ 11:31:00

Job Ticket #: 01215 DST #: 2

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

Printed: 2016.02.26 @ 23:51:47



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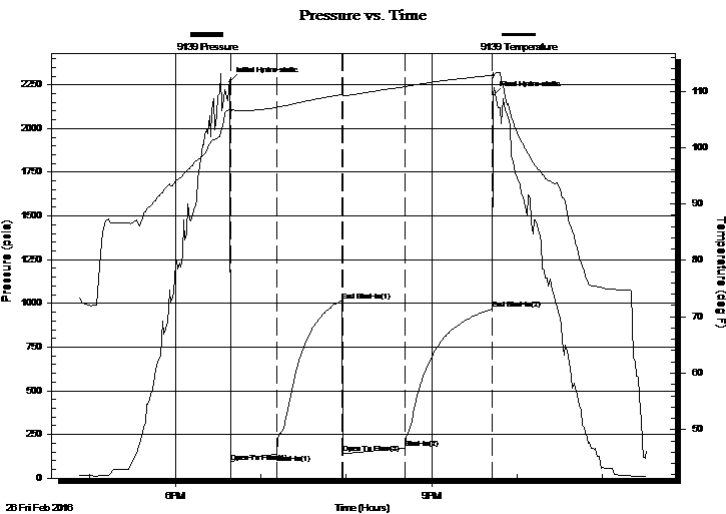
Test Start: 2016.02.26 @ 16:52:00

GENERAL INFORMATION:

Formation: **Altamont**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:41:00
 Time Test Ended: 11:31:00
 Interval: **4371.00 ft (KB) To 4435.00 ft (KB) (TVD)**
 Total Depth: 4435.00 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: 3258.00 ft (KB)
 3253.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 9139 Outside
 Press@RunDepth: 966.38 psia @ 4429.78 ft (KB) Capacity: 5000.00 psia
 Start Date: 2016.02.26 End Date: 2016.02.26 Last Calib.: 2016.02.26
 Start Time: 16:52:00 End Time: 23:31:30 Time On Btm: 2016.02.26 @ 18:38:30
 Time Off Btm: 2016.02.26 @ 21:43:30

TEST COMMENT: 1st Opening 30 Minutes Weak building blow built to 9 1/2 inches into the water
 1st Shut-In 45 Minutes-No blow back
 2nd Opening 45 Minutes-Weak building blow built to 10 1/2 inches into the water
 2nd Shut-In 60 Minutes-Very slight blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2266.29	107.24	Initial Hydro-static
1	89.32	106.07	Open To Flow (1)
33	136.48	107.13	Shut-In(1)
79	1014.77	109.40	End Shut-In(1)
79	141.46	109.17	Open To Flow (2)
123	170.71	110.79	Shut-In(2)
184	966.38	112.79	End Shut-In(2)
185	2190.78	112.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MUDDY OIL 55 OIL 45 MUD	0.30
60.00	MUDDY OIL 30 OIL 79 MUD	0.32
60.00	MUDDY OIL 45 OIL 55 MUD	0.84
90.00	MUDDY OIL 60 OIL 40 MUD	1.26
0.00	GAS IN THE PIPE	0.00

Gas Rates

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



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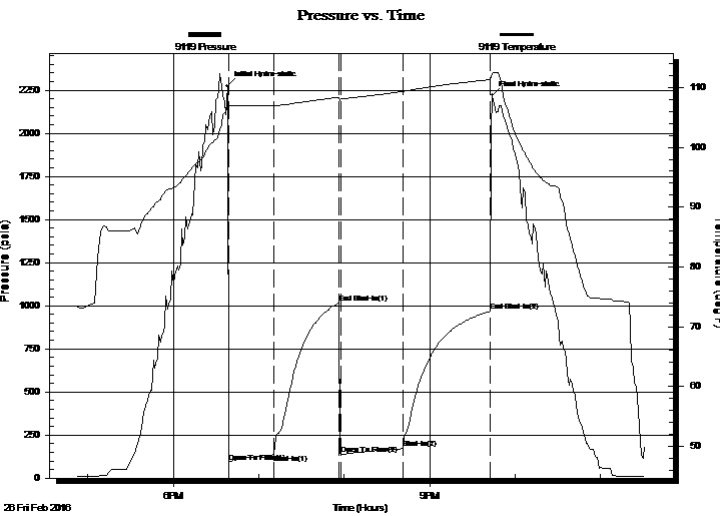
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 Interval: **4371.00 ft (KB) To 4435.00 ft (KB) (TVD)**
 Total Depth: 4435.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Gene Budig
 Unit No: 1
 Reference Elevations: 3258.00 ft (KB)
 3253.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 9119 Inside
 Press@RunDepth: 967.47 psia @ 4429.78 ft (KB) Capacity: 5000.00 psia
 Start Date: 2016.02.26 End Date: 2016.02.26 Last Calib.: 2016.02.26
 Start Time: 16:52:00 End Time: 23:31:30 Time On Btm: 2016.02.26 @ 18:38:00
 Time Off Btm: 2016.02.26 @ 21:44:00

TEST COMMENT: 1st Opening 30 Minutes Weak building blow built to 9 1/2 inches into the water
 1st Shut-In 45 Minutes-No blow back
 2nd Opening 45 Minutes-Weak building blow built to 10 1/2 inches into the water
 2nd Shut-In 60 Minutes-Very slight blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2276.46	107.18	Initial Hydro-static
1	90.27	106.81	Open To Flow (1)
33	136.51	106.94	Shut-In(1)
79	1017.72	108.37	End Shut-In(1)
80	140.72	108.16	Open To Flow (2)
124	171.14	109.33	Shut-In(2)
185	967.47	111.32	End Shut-In(2)
186	2221.11	112.33	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	MUDDY OIL 55 OIL 45 MUD	0.30
60.00	MUDDY OIL 30 OIL 79 MUD	0.32
60.00	MUDDY OIL 45 OIL 55 MUD	0.84
90.00	MUDDY OIL 60 OIL 40 MUD	1.26
0.00	GAS IN THE PIPE	0.00

Gas Rates

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



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TOOL DIAGRAM

Ritchie Exploration Inc

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DST#: 2

Test Start: 2016.02.26 @ 16:52:00

Tool Information

Drill Pipe:	Length: 4233.00 ft	Diameter: 3.80 inches	Volume: 59.38 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: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 72000.00 lb
			Total Volume: 59.96 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4371.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.78 ft			
Tool Length:	92.78 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4347.00	
Hydraulic tool	5.00			4352.00	
Jars	7.00			4359.00	
Safety Joint	2.00		Fluid	4361.00	
Top Packer	5.00			4366.00	
Packer	5.00			4371.00	29.00 Bottom Of Top Packer
Anchor	5.00			4376.00	
Change Over Sub	0.75			4376.75	
Drill Pipe	31.28			4408.03	
Change Over Sub	0.75			4408.78	
Anchor	21.00			4429.78	
Recorder	0.00	9119	Inside	4429.78	
Recorder	0.00	9139	Outside	4429.78	
Bullnose	5.00			4434.78	63.78 Anchor Tool

Total Tool Length: 92.78



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FLUID SUMMARY

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Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 63.00 sec/qt
Water Loss: 8.79 in³
Resistivity: ohm.m
Salinity: 7700.00 ppm
Filter Cake: 1.00 inches

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

Oil API: deg API
Water Salinity: ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	MUDDY OIL 55 OIL 45 MUD	0.295
60.00	MUDDY OIL 30 OIL 79 MUD	0.322
60.00	MUDDY OIL45 OIL 55 MUD	0.842
90.00	MUDDY OIL 60 OIL 40 MUD	1.262
0.00	GAS IN THE PIPE	0.000

Total Length: 270.00 ft Total Volume: 2.721 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

