

DRILL STEM TEST REPORT

Prepared For: **Black Raven Energy Inc**

165 S Union Blvd Suite 410
Lakewood CO 80228

ATTN: David Kunovic, Paul G

15-9-43w Sedgwick,CO

Last Woman Standing #943-15-24D

Start Date: 2015.11.03 @ 16:20:32

End Date: 2015.11.04 @ 01:18:42

Job Ticket #: 64901 DST #: 1

Trilobite Testing, Inc

1515 Commerce Parkway Hays, KS 67601

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TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

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Last Woman Standing #943-15-24D

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Job Ticket: 64901

DST#: 1

ATTN: David Kunovyc, Paul G

Test Start: 2015.11.03 @ 16:20:32

GENERAL INFORMATION:

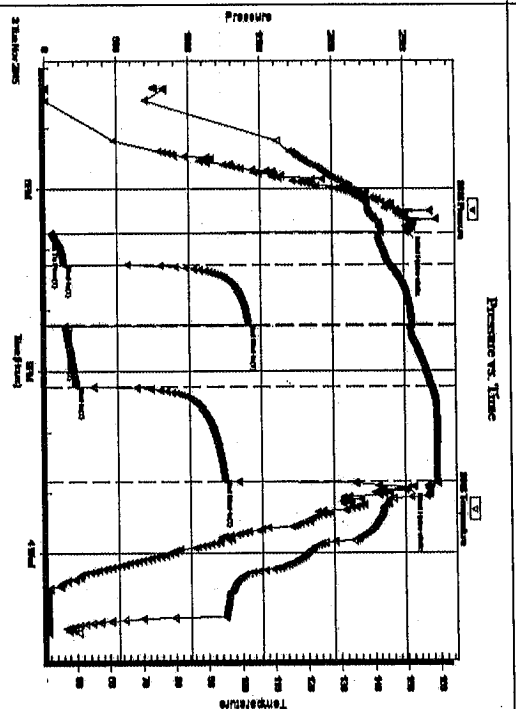
Formation: LKC "G"
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:44:12
 Time Test Ended: 01:18:42
 Interval: 5130.00 ft (KB) To 3173.00 ft (KB) (TVD)
 Total Depth: 3173.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inchest-hole Condition: Fair

Test Type: Conventional Bottom Hole (Initial)
 Tester: Ray Schwager
 Unit No: 70
 Reference Elevations: 3654.00 ft (KB)
 3643.00 ft (CF)
 KB to GRICE: 11.00 ft

Serial #: 8018 Inside
 Press@RunDepth: 207.63 psig @ 5137.00 ft (KB)
 Start Date: 2015.11.03 End Date: 2015.11.03
 Start Time: 16:20:32 End Time: 01:18:42

Capacity: 8000.00 psig
 Last Calib.: 2015.11.04
 Time On Btm: 2015.11.03 @ 18:41:57
 Time Off Btm: 2015.11.03 @ 22:55:11

TEST COMMENT: 30-FRP-wk to a fr bl 1/2" to 5 1/2" bl
 60-FRP-no bl
 90-FRP-no bl



PRESSURE SUMMARY

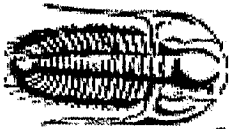
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2520.59	142.40	Initial Hydro-static
3	35.05	141.55	Open To Flow (1)
33	127.65	144.62	Shut-in(1)
93	1414.11	151.92	End Shut-in(1)
93	133.34	151.48	Open To Flow (2)
153	207.63	157.37	Shut-in(2)
247	1241.56	159.11	End Shut-in(2)
254	2516.92	156.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
250.00	Water	1.87
165.00	MMW 30%M70%W w/show of oil	2.31

Gas Rates

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



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Lakewood CO 80228

Job Ticket: 64901

DST#: 1

ATTN: David Kunovic, Paul G

Test Start: 2015.11.03 @ 16:20:32

GENERAL INFORMATION:

Formation: LKC "G"
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:44:12
 Time Test Ended: 01:18:42
 Interval: 5130.00 ft (KB) To 3173.00 ft (KB) (TVD)
 Total Depth: 3173.00 ft (KB) (TVD)
 Hole Diameter: 7.88 Inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Initial)
 Tester: Ray Schwager
 Unit No: 70

Reference Elevations: 3654.00 ft (KB)
 3643.00 ft (CF)
 KB to GR/CF: 11.00 ft

Serial #: 8700 Outside

Press@RunDepth: psig @ 5137.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.11.03

End Date: 2015.11.04

Last Callb.: 2015.11.04

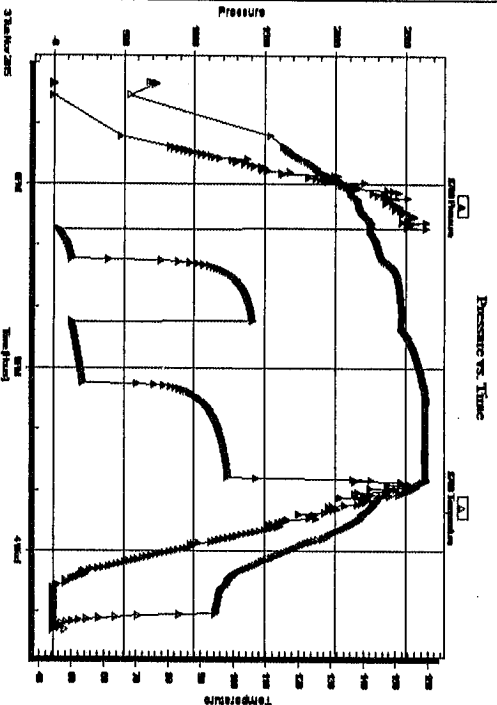
Start Time: 16:20:33

End Time: 01:17:58

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IFP-wk to a fr bl 1/2" to 5 1/2" bl
 60-IFP-no bl
 60-IFP-no bl, then surface to 3 1/2" bl
 90-FSIFP-no bl



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
250.00	Water	1.87
165.00	MW 30%MT0%W w/show of oil	2.31

Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Black Raven Energy Inc

Last Woman Standing #943-15-24D

165 S Union Blvd Suite 410

15-9-43w Sedgwick, CO

Lakewood CO 80228

Job Ticket: 64901

DST#: 1

ATTN: David Kunovic, Paul G

Test Start: 2015.11.03 @ 16:20:32

Tool Information

Drill Pipe:	Length: 4926.00 ft	Diameter: 3.80 inches	Volume: 69.10 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume:</u> 69.99 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	5130.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	43.00 ft			
Interval between Packers:	72.00 ft			
Tool Length:	72.00 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			5102.00	
Shut In Tool	5.00			5107.00	
Hydraulic tool	5.00			5112.00	
Jars	5.00			5117.00	
Safety Joint	3.00			5120.00	
Packer	5.00			5125.00	29.00
					Bottom Of Top Packer
Packer	5.00			5130.00	
Stubb	1.00			5131.00	
Perforations	6.00			5137.00	
Recorder	0.00	8018	Inside	5137.00	
Recorder	0.00	8700	Outside	5137.00	
Blank Spacing	33.00			5170.00	
Bullnose	3.00			5173.00	43.00
					Bottom Packers & Anchor
Total Tool Length:	72.00				



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FLUID SUMMARY

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Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length:	Water Salinity:	38000 ppm
Viscosity: 58.00 sec/qt	Cushion Volume:		bbl
Water Loss: 7.58 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure:		psig
Salinity: 8000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
250.00	Water	1.867
165.00	NW 30%NW70%W w/show of oil	2.315

Total Length: 415.00ft Total Volume: 4.182 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: RW .23 @ 55F

