

# KANSAS CORPORATION COMMISSION ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

Type Test:

- Open Flow **AST**  
 Deliverability

(See Instructions on Reverse Side)

Test Date:  
6/2/2015

API No. 15  
181-20528-0000

Company Rosewood Resources, Inc.		Lease Milliken		Well Number 21-18	
County Sherman	Location NENW/4	Section 18	TWP 7S	RNG (E/W) 39W	Acres Attributed 80
Field Goodand		Reservoir Niobrara		Gas Gathering Connection Branch Systems Inc.	
Completion Date 6/7/08		Plug Back Total Depth 1264'		Packer Set at	
Casing Size 2 7/8"	Weight 6.5#	Internal Diameter 2.441	Set at 1264'	Perforations 1044'	To 1074'
Tubing Size NONE	Weight	Internal Diameter	Set at	Perforations	To
Type Completion (Describe) Single (Conventional)		Type Fluid Production DryGas		Pump Unit or Traveling Plunger? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Producing Thru (Annulus / Tubing) Annulus		% Carbon Dioxide		% Nitrogen	
Vertical Depth(H) 1280'		Pressure Taps Flange		(Meter Run) (Prover) Size 2"	
Pressure Buildup: Shut in 6-1		20 15 at 5:00		(AM) (PM) Taken 6-2	
Well on Line: Started 6-2		20 15 at 5:20		(AM) (PM) Taken 6-3	
				20 15 at 5:20 (AM) (PM)	
				20 15 at 6:00 (AM) (PM)	

### OBSERVED SURFACE DATA

Duration of Shut-in 24 Hours

Static / Dynamic Property	Orifice Size (inches)	Circle one: Meter Prover Pressure psig (P <sub>m</sub> )	Pressure Differential in Inches H <sub>2</sub> O	Flowing Temperature t	Well Head Temperature t	Casing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>t</sub> ) or (P <sub>c</sub> )		Tubing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>t</sub> ) or (P <sub>c</sub> )		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-in						36	50.4				
Flow						16	30.4			24	0

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>b</sub> ) (F <sub>p</sub> ) Mcfd	Circle one: Meter or Prover Pressure psia	Press Extension $\sqrt{P_m \times h}$	Gravity Factor F <sub>g</sub>	Flowing Temperature Factor F <sub>t</sub>	Deviation Factor F <sub>pv</sub>	Metered Flow R (Mcf/d)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
						60		

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS


(P<sub>a</sub>)<sup>2</sup> = 0.207  
(P<sub>g</sub>)<sup>2</sup> = \_\_\_\_\_

(P<sub>c</sub>)<sup>2</sup> = \_\_\_\_\_ : (P<sub>w</sub>)<sup>2</sup> = \_\_\_\_\_ : P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ :

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>a</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>g</sub> ) <sup>2</sup>	(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup>	Choose formula 1 or 2: 1. P <sub>c</sub> <sup>2</sup> - P <sub>a</sub> <sup>2</sup> 2. P <sub>c</sub> <sup>2</sup> - P <sub>g</sub> <sup>2</sup> divided by: P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup>	LOG of formula 1. or 2. and divide by: $\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG [ ]	Antilog	Open Flow Deliverability Equals R x Antilog (Mcf/d)

Open Flow Mcfd @ 14.65 psia      Deliverability      Mcfd @ 14.65 psia

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct. Executed this the 22 day of December, 20 15.

  
 Witness (if any) \_\_\_\_\_ For Company  
 For Commission \_\_\_\_\_  
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Checked by

I declare under penalty of perjury under the laws of the state of Kansas that I am authorized to request exempt status under Rule K.A.R. 82-3-304 on behalf of the operator Rosewood Resources, Inc.

and that the foregoing pressure information and statements contained on this application form are true and correct to the best of my knowledge and belief based upon available production summaries and lease records of equipment installation and/or upon type of completion or upon use being made of the gas well herein named.

I hereby request a one-year exemption from open flow testing for the Milliken 21-18 gas well on the grounds that said well:

(Check one)

- is a coalbed methane producer
- is cycled on plunger lift due to water
- is a source of natural gas for injection into an oil reservoir undergoing ER
- is on vacuum at the present time; KCC approval Docket No. \_\_\_\_\_
- is not capable of producing at a daily rate in excess of 250 mcf/D

I further agree to supply to the best of my ability any and all supporting documents deemed by Commission staff as necessary to corroborate this claim for exemption from testing.

Date: 12/22/15

Signature: Jannel Matney  
Title: Production Assistant

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**Instructions:** If a gas well meets one of the eligibility criteria set out in KCC regulation K.A.R. 82-3-304, the operator may complete the statement provided above in order to claim exempt status for the gas well.

At some point during the current calendar year, wellhead shut-in pressure shall have been measured after a minimum of 24 hours shut-in/buildup time and shall be reported on the front side of this form under **OBSERVED SURFACE DATA**. Shut-in pressure shall thereafter be reported yearly in the same manner for so long as the gas well continues to meet the eligibility criterion or until the claim of eligibility for exemption **IS** denied.

The G-2 form conveying the newest shut-in pressure reading shall be filed with the Wichita office no later than December 31 of the year for which it's intended to acquire exempt status for the subject well. The form must be signed and dated on the front side as though it was a verified report of annual test results.

W2582 WELL ID  
 Milliken 21-18 LEASE NAME  
 North Goodland FIELD  
 Goodland AREA  
 None EQUIPMENT  
 June-15 DATE

DATE	Line PSI	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
6/1/2015		35	36	48	0	24
6/2/2015		36	36	49	0	24 need to replace meter valve
6/3/2015		30	30	43	85	0
6/4/2015		26	26	39	83	0
6/5/2015		24	24	37	79	0
6/6/2015		23	23	36	76	0
6/7/2015		7	22	35	74	0
6/8/2015		7	21	34	73	0
6/9/2015		7	21	34	72	0
6/10/2015		7	20	33	71	0
6/11/2015		7	20	33	71	0
6/12/2015		7	20	32	70	0
6/13/2015		7	20	32	67	4
6/14/2015		7	20	32	68	0
6/15/2015		7	20	31	68	0
6/16/2015		7	18	31	67	0
6/17/2015		7	18	31	67	0
6/18/2015		7	18	31	67	0
6/19/2015		7	18	31	66	0
6/20/2015		7	18	31	64	1
6/21/2015		7	18	30	65	0
6/22/2015		7	17	30	65	0
6/23/2015		7	17	30	65	0 bp
6/24/2015		7	17	30	64	0
6/25/2015		7	17	30	62	2
6/26/2015		7	17	30	64	0
6/27/2015		7	17	30	64	0
6/28/2015		7	17	30	64	0
6/29/2015		7	17	30	64	0
6/30/2015		7	17	30	64	0
7/1/2015		7		0	0	0

Total

1929

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W2582 WELL ID  
 Milliken 21, 18 LEASE NAME  
 North Goodland FIELD  
 Goodland AREA  
 None EQUIPMENT  
 July-14 DATE

DATE	Line PSI	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
7/1/2014	6	17	30	63	0	
7/2/2014	6	17	30	62	0	
7/3/2014	6	16	29	62	0	
7/4/2014	6	16	29	62	0	
7/5/2014	6	16	29	62	0	
7/6/2014	6	16	29	61	0	
7/7/2014	6	16	29	62	0	
7/8/2014	6	16	29	62	0	
7/9/2014	6	16	29	62	0	
7/10/2014	6	16	29	62	0	
7/11/2014	6	16	29	61	0	
7/12/2014	6	16	29	61	0	
7/13/2014	6	16	29	61	0	
7/14/2014	6	16	29	60	0	
7/15/2014	7	17	30	53	6	
7/16/2014	7	16	29	60	0	
7/17/2014	7	16	29	59	0	
7/18/2014	7	17	30	58	0	
7/19/2014	7	17	30	58	0	
7/20/2014	7	17	30	58	0	
7/21/2014	7	17	30	57	1	
7/22/2014	7	17	30	58	0	
7/23/2014	7	17	30	54	3	
7/24/2014	7	17	30	59	0	
7/25/2014	7	17	30	59	0	
7/26/2014	7	16	29	59	0	
7/27/2014	7	16	29	59	0	
7/28/2014	7	17	30	46	9	
7/29/2014	7	17	30	60	0	
7/30/2014	7	17	30	60	0	
7/31/2014	7	16	29	60	1	

Total

1840

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W2582 WELL ID  
 Milliken 21-18 LEASE NAME  
 North Goodland FIELD  
 Goodland AREA  
 None EQUIPMENT  
 August-14 DATE

DATE	Line PSI	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
8/1/2014	7	16	29	60	2	
8/2/2014	7	16	29	60	0	
8/3/2014	7	16	29	60	0	
8/4/2014	7	16	29	60	0	
8/5/2014	7	16	29	60	0	
8/6/2014	7	16	29	60	0	
8/7/2014	7	16	29	60	0	
8/8/2014	7	16	29	60	0	
8/9/2014	7	16	29	60	0	
8/10/2014	7	16	29	60	0	
8/11/2014	6	16	29	60	0	
8/12/2014	6	16	29	60	0	
8/13/2014	6	16	29	60	0	
8/14/2014	6	16	29	60	0	
8/15/2014	6	16	29	60	0	
8/16/2014	6	16	29	60	0	
8/17/2014	6	16	29	60	0	
8/18/2014	6	16	29	60	0	
8/19/2014	6	16	29	60	0	
8/20/2014	6	16	29	60	0	
8/21/2014	6	16	29	60	0	
8/22/2014	6	16	29	60	0	
8/23/2014	6	16	29	60	0	
8/24/2014	6	16	29	60	0	
8/25/2014	6	16	29	60	0	
8/26/2014	6	16	29	60	0	
8/27/2014	6	16	29	60	0	
8/28/2014	6	16	29	60	0	
8/29/2014	6	16	29	60	0	
8/30/2014	6	16	29	60	0	
8/31/2014	6	16	29	60	0	

Total

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