

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

Type Test:

- Open Flow  
 Deliverability

**OST**

(See Instructions on Reverse Side)

Test Date:  
6/2/2015

API No. 15  
181-20490-0100

Company <b>Rosewood Resources, Inc.</b>		Lease <b>Wahrman</b>		Well Number <b>13-22H</b>	
County <b>Sherman</b>	Location <b>NE NWSW</b>	Section <b>22</b>	TWP <b>7S</b>	RNG (E/W) <b>39W</b>	Acres Attributed <b>80</b>
Field <b>Goodland</b>		Reservoir <b>Niobrara</b>		Gas Gathering Connection <b>Branch Systems Inc.</b>	
Completion Date <b>3/26/2007</b>		Plug Back Total Depth <b>3455'</b>		Packer Set at	
Casing Size <b>4 1/2"</b>	Weight <b>10.5#</b>	Internal Diameter <b>4.000</b>	Set at <b>3455'</b>	Perforations <b>3427'</b>	To <b>3442'</b>
Tubing Size <b>NONE</b>	Weight	Internal Diameter	Set at	Perforations	To
Type Completion (Describe) <b>Single (Horizontal)</b>		Type Fluid Production <b>Dry Gas</b>		Pump Unit or Traveling Plunger? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Producing Thru (Annulus / Tubing) <b>Annulus</b>		% Carbon Dioxide		% Nitrogen	
Vertical Depth(H) <b>3480'</b>		Pressure Taps <b>Flange</b>		(Meter Run) (Prover) Size <b>2"</b>	
Pressure Buildup: Shut in <b>6-1</b> 20 <b>15</b> at <b>1:25</b> (AM) <input checked="" type="checkbox"/> (PM) Taken <b>6-2</b> 20 <b>15</b> at <b>1:35</b> (AM) <input checked="" type="checkbox"/> (PM)		Well on Line: Started <b>6-2</b> 20 <b>15</b> at <b>1:35</b> (AM) <input checked="" type="checkbox"/> (PM) Taken <b>6-3</b> 20 <b>15</b> at <b>2:25</b> (AM) <input checked="" type="checkbox"/> (PM)			

### OBSERVED SURFACE DATA

Duration of Shut-in **24** Hours

Static / Dynamic Property	Orifice Size (Inches)	Circle one: Meter Prover Pressure psig (Pm)	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>1</sub> ) or (P <sub>o</sub> )		Tubing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>1</sub> ) or (P <sub>o</sub> )		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In						36	50.4				
Flow						6	20.4			24	0

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>v</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>
						13		

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>a</sub>)<sup>2</sup> = 0.207  
(P<sub>d</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>d</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>d</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: $P_c^2 - P_w^2$	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) \_\_\_\_\_ **KCC WICHITA** *Janell Martiny* For Company

For Commission \_\_\_\_\_ **APR 07 2016** \_\_\_\_\_ Checked by \_\_\_\_\_

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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 Wahrman 13-22H 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

**KCC WICHITA**  
**APR 07 2016**  
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Signature: *Jannell Martin*  
Title: Production Assistant

**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.

W2395  
 Wahrmann 13-22H  
 North Goodland  
 Goodland  
 None  
 June-15

DATE	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
6/1/2015	36	8	0	24	
6/2/2015	24	6	0	24	
6/3/2015	16	37	14	0	
6/4/2015	10	36	14	0	
6/5/2015	9	35	14	0	
6/6/2015	8	35	14	0	
6/7/2015	8	34	14	0	
6/8/2015	7	33	14	0	
6/9/2015	7	33	14	0	
6/10/2015	7	33	14	0	0 meter blank, rplcd bat, need solar panel
6/11/2015	6	32	15	0	
6/12/2015	5	33	13	0	
6/13/2015	5	33	14	4	
6/14/2015	5	32	14	0	
6/15/2015	5	31	14	0	
6/16/2015	5	32	14	0	
6/17/2015	5	31	14	0	
6/18/2015	5	31	14	0	
6/19/2015	5	31	14	0	
6/20/2015	5	32	13	1	
6/21/2015	5	31	14	0	
6/22/2015	5	31	14	0	
6/23/2015	5	31	14	0	
6/24/2015	5	31	14	0	
6/25/2015	5	32	13	2	
6/26/2015	5	31	14	0	
6/27/2015	5	31	14	0	
6/28/2015	5	31	14	0	
6/29/2015	5	31	14	0	
6/30/2015	5	31	14	0	
7/1/2015		0	0	0	

Total

390

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W2395

Wahmann 13-22H

North Goodland

Goodland

None

July-14

DATE	Casing		MCF	HRS		REMARKS (Maximum length 110 characters)
	PSI	STATIC		DOWN		
7/1/2014	18	31	13	0		
7/2/2014	18	31	13	0		
7/3/2014	18	31	13	0		
7/4/2014	18	31	13	0		
7/5/2014	18	31	13	0		
7/6/2014	18	31	13	0		
7/7/2014	18	31	13	0		
7/8/2014	18	31	13	0		
7/9/2014	18	31	13	0		
7/10/2014	18	31	13	0		
7/11/2014	18	31	13	0		
7/12/2014	18	31	13	0		
7/13/2014	18	31	13	0		
7/14/2014	20	33	11	0		
7/15/2014	20	33	12	6		
7/16/2014	20	33	12	0		
7/17/2014	20	33	12	0		
7/18/2014	20	33	12	0		
7/19/2014	20	33	12	0		
7/20/2014	21	34	11	0		
7/21/2014	20	33	12	1		
7/22/2014	20	33	12	0		
7/23/2014	21	34	11	3		
7/24/2014	20	33	12	0		
7/25/2014	20	33	12	0		
7/26/2014	20	33	12	0		
7/27/2014	20	33	12	0		
7/28/2014	22	35	9	9		
7/29/2014	20	33	12	0		
7/30/2014	19	32	13	0		
7/31/2014	19	32	12	1		

Total

380

KCC WICHITA

APR 07 2016

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W2395

Wahrmann, 13-22H

North Goodland

Goodland

None

August-14

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

Total

403

KCC WICHITA

APR 07 2016

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