

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

Type Test:

- Open Flow **AST**  
 Deliverability

(See Instructions on Reverse Side)

Test Date:  
7/24/2013

API No. 15  
15-023-20586 - 0000

Company Rosewood Resources		Lease Isernhagen		Well Number 1-22	
County Cheyenne	Location SWSW	Section 22	TWP 3S	RNG (E/W) 41W	Acres Attributed 80
Field St. Francis		Reservoir Niobrara		Gas Gathering Connection Branch Systems Inc.	
Completion Date 9/10/2004		Plug Back Total Depth 1441'		Packer Set at	
Casing Size 4 1/2"	Weight 10.5#	Internal Diameter 4.052	Set at 1490'	Perforations 1320'	To 1358'
Tubing Size none	Weight	Internal Diameter	Set at	Perforations	To
Type Completion (Describe) Single (Conventional)		Type Fluid Production Dry Gas		Pump Unit or Traveling Plunger? <input checked="" type="radio"/> Yes / No Pumping Unit	
Producing Thru (Annulus / Tubing) Annulus		% Carbon Dioxide		% Nitrogen	
Vertical Depth(H) 1358'		Pressure Taps Flange		(Meter Run) (Prover) Size 2"	
Pressure Buildup: Shut in 7-23 20 13 at 11:10 (AM) (PM) Taken 7-24 20 13 at 11:20 (AM) (PM)		Well on Line: Started 7-24 20 13 at 11:20 (AM) (PM) Taken 7-25 20 13 at 1:10 (AM) (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>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						221	235.4				
Flow						62	76.4			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>
						2		

### (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: $\frac{P_c^2 - P_w^2}{P_c^2 - P_a^2}$	Backpressure Curve Slope = "n" ----- 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 21 day of November, 2013.

KANSAS CORPORATION COMMISSION

Witness (if any)

DEC 26 2013

*Samuel Matney*  
For Company

For Commission

CONSERVATION DIVISION  
WICHITA, KS

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 Isernhagen 1-22 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: 11/21/13

Signature: *Jonnu Martiney*

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KANSAS CORPORATION COMMISSION Title: Production Assistant

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WICHITA, KS

**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.

W349

Isernhagen 01-22

St. Francis

St. Francis

None

July-13

DATE	Casing		MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
	PSI	STATIC			
7/1/2013	52	65		3	
7/2/2013	52	65		3	
7/3/2013	54	67		3	
7/4/2013	54	67		3	
7/5/2013	54	67		3	
7/6/2013	54	67		3	
7/7/2013	55	68		3	
7/8/2013	65	78		3	
7/9/2013	65	78		3	
7/10/2013	56	69		3	
7/11/2013	59	72		3	
7/12/2013	65	78		3	
7/13/2013	73	86		3	2.5
7/14/2013	75	88		2	
7/15/2013	55	68		3	
7/16/2013	54	67		3	
7/17/2013	53	66		3	
7/18/2013	63	76		3	
7/19/2013	69	82		2	
7/20/2013	72	85		2	
7/21/2013	74	87		2	
7/22/2013	71	84		2	
7/23/2013	66	75		3	si for state test - cp 66
7/24/2013	221	84		0	24 reopened - cp 221
7/25/2013	77	90		4	
7/26/2013	59	72		2	
7/27/2013	53	66		2	
7/28/2013	55	68		2	
7/29/2013	54	67		2	
7/30/2013	53	66		2	3.5
7/31/2013	84	97		2	5.5

Total

80

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W349  
 Isernhagen 01-22  
 St. Francis  
 St. Francis  
 None  
 August-13

DATE	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
8/1/2013	77	90		3	
8/2/2013	76	89		2	
8/3/2013	74	87		2	
8/4/2013	72	85		2	
8/5/2013	63	76		2	
8/6/2013	53	66		3	
8/7/2013	48	61		2	
8/8/2013	52	65		2	
8/9/2013	56	69		2	
8/10/2013	53	66		2	
8/11/2013	51	64		2	
8/12/2013	52	65		2	
8/13/2013	50	63		2	
8/14/2013	51	64		2	
8/15/2013	51	64		2	0.5
8/16/2013	63	76		2	
8/17/2013	62	75		2	
8/18/2013	62	75		2	
8/19/2013	63	76		2	1.5
8/20/2013	76	89		2	1
8/21/2013	85	98		2	
8/22/2013	88	101		2	5
8/23/2013	72	85		2	
8/24/2013	79	92		2	1
8/25/2013	86	99		2	1
8/26/2013	64	77		2	
8/27/2013	49	62		3	
8/28/2013	48	61		2	
8/29/2013	78	91		2	1
8/30/2013	84	97		2	
8/31/2013	85	98		2	

Total

65

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W349

Isernhagen 01-22

St. Francis

St. Francis

None

September-13

DATE	Casing		MCF	HRS		REMARKS (Maximum length 110 characters)
	PSI	STATIC		DOWN		
9/1/2013	105	118		2	1	
9/2/2013	91	104		2		
9/3/2013	91	104		2	22	
9/4/2013	164	177		0	10	
9/5/2013	110	123		4		
9/6/2013	86	99		3	1	
9/7/2013	78	91		2		
9/8/2013	90	103		2		
9/9/2013	99	112		2		
9/10/2013	101	114		2		
9/11/2013	126	139		2		
9/12/2013	165	178		1	18	
9/13/2013	105	118		2	4	
9/14/2013	77	90		2	2	
9/15/2013	84	97		2		
9/16/2013	61	74		2		
9/17/2013	52	65		2		
9/18/2013	51	64		2		
9/19/2013	45	58		2		
9/20/2013	45	58		2		
9/21/2013	61	74		2		
9/22/2013	69	82		2		
9/23/2013	59	72		2		
9/24/2013	52	65		2	4	
9/25/2013	84	97		2		
9/26/2013	72	85		2		
9/27/2013	49	62		3		
9/28/2013	52	65		2		
9/29/2013	53	66		2		
9/30/2013	57	70		2		
10/1/2013						

Total

61

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