

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

Type Test:

- Open Flow **AST**  
 Deliverability

(See Instructions on Reverse Side)

Test Date:  
6/22/14

API No. 15  
023-20608-0000

Company Rosewood Resources, Inc.		Lease Isernhagen		Well Number 4-23	
County Cheyenne	Location SWSE/4	Section 23	TWP 3S	RNG (E/W) 41W	Acres Attributed 80
Field St. Francis		Reservoir Niobrara		Gas Gathering Connection Branch Systems Inc.	
Completion Date 5/27/2005		Plug Back Total Depth 1449'		Packer Set at	
Casing Size 4 1/2"	Weight 10.5#	Internal Diameter 4.052	Set at 1449'	Perforations 1250'	To 1282'
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) 1282'		Pressure Taps Flange		(Meter Run) (Prover) Size 2"	
Pressure Buildup: Shut in 6-7		20 14 at 8:15		<input checked="" type="radio"/> (AM) (PM) Taken 6-15	
Well on Line: Started 6-22		20 14 at 8:30		<input checked="" type="radio"/> (AM) (PM) Taken 6-23	
		20 14 at 8:30		<input checked="" type="radio"/> (AM) (PM) Taken 6-23	
		20 14 at 9:15		<input checked="" type="radio"/> (AM) (PM) Taken 6-23	

### OBSERVED SURFACE DATA

Duration of Shut-in 360 Hours

Static / Dynamic Property	Orifice Size (Inches)	Circle one: Meter or 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>i</sub> ) or (P <sub>c</sub> )		Tubing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>i</sub> ) or (P <sub>c</sub> )		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In						159	173.4				
Flow						60	74.4			360	0

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>d</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 (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
						24		

### (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" ----- or ----- Assigned Standard Slope	n x LOG [ ]	Antilog	Open Flow Deliverability Equals R x Antilog (Mcfd)

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 12 day of December, 20 14.

Received  
KANSAS CORPORATION COMMISSION

*Samuel Martiny*  
For Company

Witness (if any)

FEB 25 2015

For Commission

Checked by

CONSERVATION DIVISION  
WICHITA, KS

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 4-23 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: 12/12/14

Received  
KANSAS CORPORATION COMMISSION  
**FEB 25 2015**  
CONSERVATION DIVISION  
WICHITA, KS

Signature: *Jannell Martiny*  
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.

W355

Isernhagen 04-23

St. Francis

St. Francis

None

June-13<sup>th</sup>

DATE	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
6/1/2013 <sup>4</sup>	58	71		21	0
6/2/2013	64	77		20	0
6/3/2013	67	80		19	0 turn on pumping unit
6/4/2013	85	98		20	0
6/5/2013	55	68		20	0
6/6/2013	55	68		21	0 turn off pumping unit
6/7/2013	128	141		13	9
6/8/2013	135	148		13	24
6/9/2013	138	151		0	24
6/10/2013	143	156		0	24
6/11/2013	145	158		0	24
6/12/2013	150	163		0	24
6/13/2013	157	170		0	24
6/14/2013	158	171		0	24
6/15/2013	159	172		0	24
6/16/2013	135	148		0	24
6/17/2013	135	148		0	24
6/18/2013	134	147		0	24
6/19/2013	135	148		0	24
6/20/2013	135	148		0	24
6/21/2013	135	148		0	24
6/22/2013	135	148		0	24
6/23/2013	125	138		2	5
6/24/2013	118	131		25	0
6/25/2013	109	122		35	0
6/26/2013	96	109		31	0
6/27/2013	87	100		23	0
6/28/2013	61	74		22	0 started pumping unit
6/29/2013	59	72		23	0
6/30/2013	59	72		24	0
7/1/2013					0

Total

332

Received  
KANSAS CORPORATION COMMISSION

FEB 25 2015

CONSERVATION DIVISION  
WICHITA, KS

W355  
 Isernhagen 04-23  
 St. Francis  
 St. Francis  
 None  
 July-14

DATE	Casing PSI	STATIC	MCF	SPM	HRS CYCLE	DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
7/1/2014	59	72	24				0	
7/2/2014	60	73	24				0	
7/3/2014	60	73	24				0	
7/4/2014	60	73	24				0	
7/5/2014	62	75	24				0	
7/6/2014	62	75	24				0	
7/7/2014	76	89	23				0	
7/8/2014	63	76	23				0	
7/9/2014	63	76	23				0	
7/10/2014	64	77	23				0	
7/11/2014	64	77	23				0	
7/12/2014	66	79	23				0	
7/13/2014	67	80	23				0	
7/14/2014	72	85	24				0	
7/15/2014	57	70	24				0	
7/16/2014	57	70	24				0	
7/17/2014	62	75	24	6	7		0	13
7/18/2014	59	72	23	6	7		0	14
7/19/2014	59	72	23	6	7		0	15
7/20/2014	61	74	24	6	7		0	13
7/21/2014	99	112	24	6	7		0	14 3.5 BT
7/22/2014	126	139	2	6	7		22	15
7/23/2014	90	103	19	6	7		7	13
7/24/2014	66	79	24	6	7		3	0
7/25/2014	58	71	22	6	7		4	8 restarted PU
7/26/2014	56	69	22	6	7		0	14
7/27/2014	56	69	23	6	7		0	13
7/28/2014	59	72	23	6	7		0	14
7/29/2014	64	77	23	6	7		0	15
7/30/2014	58	71	23	6	7		0	13
7/31/2014	60	73	24	6	7		0	15

Total

700

189

Received  
 KANSAS CORPORATION COMMISSION

**FEB 25 2015**

CONSERVATION DIVISION  
 WICHITA, KS

W355  
 Isernhagen 04-23  
 St. Francis  
 St. Francis  
 None  
 August-14

DATE	Casing			SPM	CYCLE	HRS DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
	PSI	STATIC	MCF					
8/1/2014	58	71	23	6	7	0	32	
8/2/2014	58	71	23	6	7	0	32	
8/3/2014	56	69	24	6	7	0	32	
8/4/2014	59	72	24	6	7	0	32	
8/5/2014	58	71	24	6	7	0	32	
8/6/2014	58	71	24	6	7	0	32	
8/7/2014	59	72	24	6	7	0	32	
8/8/2014	60	73	24	6	7	0	32	3.5 min BT
8/9/2014	61	74	24	6	7	0	32	
8/10/2014	62	75	25	6	7	0	32	
8/11/2014	59	72	24	6	7	0	32	
8/12/2014	56	69	24	6	7	0	32	
8/13/2014	57	70	24	6	7	0	32	
8/14/2014	57	70	24	6	7	0	32	
8/15/2014	64	77	22	6	7	3	32	
8/16/2014	62	75	22	6	7	0	32	
8/17/2014	62	75	22	6	7	0	32	
8/18/2014	62	75	24	6	7	0	32	
8/19/2014	67	80	23	6	7	2	32	
8/20/2014	67	80	23	6	7	0	32	
8/21/2014	61	74	24	6	7	0	32	
8/22/2014	67	80	24	6	7	0	32	
8/23/2014	58	71	24	6	7	0	32	
8/24/2014	60	73	24	6	7	0	32	
8/25/2014	74	87	24	6	7	0	32	
8/26/2014	60	73	24	6	7	0	32	
8/27/2014	63	76	24	6	7	0	32	
8/28/2014	61	74	24	6	7	0	16	
8/29/2014	57	70	20	6	7	5	16	
8/30/2014	57	70	20	6	7	0	32	
8/31/2014	69	82	24	6	7	0	32	

Total

727

960

Received  
 KANSAS CORPORATION COMMISSION

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