

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

Type Test:

- Open Flow  Deliverability

(See Instructions on Reverse Side)

Test Date:  
6/22/14

API No. 15  
15-023-20564 - 0000

Company Rosewood Resources		Lease Isernhagen			Well Number 1-23
County Cheyenne	Location SWSW	Section 23	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 1528'		Packer Set at	
Casing Size 4 1/2"	Weight 10.5#	Internal Diameter 4.052	Set at 1576'	Perforations 980'	To 1010'
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	Gas Gravity - G <sub>g</sub> .6
Vertical Depth(H) 1010'		Pressure Taps Flange			(Meter Run) (Prover) Size 2"
Pressure Buildup: Shut in 6-7		20 14	at 11:25	<input checked="" type="radio"/> (AM) (PM) Taken 6-10	20 14 at 11:35 <input checked="" type="radio"/> (AM) (PM)
Well on Line: Started 6-22		20 14	at 11:35	<input checked="" type="radio"/> (AM) (PM) Taken 6-23	20 14 at 1:25 <input checked="" type="radio"/> (AM) (PM)

### 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						175	189.4				
Flow						62	76.4			360	0

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>p</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>tt</sub>	Deviation Factor F <sub>pv</sub>	Metered Flow R (Mcf/d)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
						16		

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

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

(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" ----- 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 12 day of December, 20 14.

Received  
KANSAS CORPORATION COMMISSION   
For Company

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

**FEB 25 2015**  
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 1-23 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

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KANSAS CORPORATION COMMISSION  
FEB 25 2015  
CONSERVATION DIVISION  
WICHITA, KS

Signature: *Jennell 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.

W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 June-1~~st~~

DATE	Casing PSI	STATIC	MCF	HRS DOWN	REMARKS (Maximum length 110 characters)
6/1/2013	58	71		21	0
6/2/2013	64	77		10	0
6/3/2013	67	80		10	0
6/4/2013	86	99		9	0 turn on pumping unit
6/5/2013	55	68		10	0
6/6/2013	56	69		11	0 turn off pumping unit
6/7/2013	164	177		8	9
6/8/2013	167	180		8	24
6/9/2013	170	183		0	24
6/10/2013	175	188		0	24
6/11/2013	175	188		0	24
6/12/2013	180	193		0	24
6/13/2013	172	185		0	24
6/14/2013	173	186		0	24
6/15/2013	174	187		0	24
6/16/2013	173	186		0	24
6/17/2013	173	186		0	24
6/18/2013	174	187		0	24
6/19/2013	175	188		0	24
6/20/2013	175	188		0	24
6/21/2013	174	187		0	24
6/22/2013	174	187		0	24
6/23/2013	127	140		23	5
6/24/2013	118	131		16	0
6/25/2013	109	122		14	0
6/26/2013	97	110		13	0
6/27/2013	88	101		12	0
6/28/2013	60	73		12	0
6/29/2013	58	71		13	0 started pumping unit
6/30/2013	61	74		13	0
7/1/2013					0

Total

203

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FEB 25 2015

CONSERVATION DIVISION  
 WICHITA, KS

W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 July-14

DATE	Casing PSI	STATIC	MCF	HRS DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
7/1/2014	60	73		14	0	31
7/2/2014	60	73		15	0	32
7/3/2014	59	72		15	0	33
7/4/2014	59	72		15	0	32
7/5/2014	62	75		15	0	31
7/6/2014	62	75		15	0	33
7/7/2014	77	90		15	0	32
7/8/2014	62	75		16	0	32
7/9/2014	62	75		16	0	31
7/10/2014	64	77		16	0	31
7/11/2014	64	77		16	0	33
7/12/2014	66	79		16	0	32
7/13/2014	67	80		16	0	31
7/14/2014	71	84		13	0	32
7/15/2014	57	70		12	0	33
7/16/2014	57	70		12	0	31
7/17/2014	61	74		7	0	31
7/18/2014	60	73		6	0	32
7/19/2014	60	73		6	0	33
7/20/2014	61	74		11	0	32
7/21/2014	87	100		14	0	31
7/22/2014	164	177		4	22	33
7/23/2014	90	103		16	7	31
7/24/2014	66	79		12	3	0
7/25/2014	58	71		12	4	10 started pumping unit
7/26/2014	56	69		13	0	31
7/27/2014	57	70		14	0	32
7/28/2014	58	71		14	0	33
7/29/2014	64	77		14	0	31
7/30/2014	58	71		15	0	33
7/31/2014	58	71		16	0	32

Total

411

935

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**FEB 25 2015**

CONSERVATION DIVISION  
 WICHITA, KS

W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 August-14

DATE	Casing PSI	STATIC	MCF	SPM	CYCLE	HRS DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
8/1/2014	58	71	15	7	18	0	31	
8/2/2014	58	71	15	7	18	0	31	
8/3/2014	57	70	14	7	18	0	31	
8/4/2014	58	71	13	7	18	0	31	
8/5/2014	58	71	12	7	18	0	31	
8/6/2014	58	71	12	7	18	0	31	
8/7/2014	59	72	12	7	18	0	32	
8/8/2014	60	73	11	7	18	0	32	pumping unit off restarted
8/9/2014	61	74	12	7	18	0	32	
8/10/2014	63	76	14	7	18	0	32	
8/11/2014	59	72	15	7	18	0	32	
8/12/2014	58	71	15	7	18	0	32	
8/13/2014	58	71	16	7	18	0	32	4 min BT
8/14/2014	56	69	16	7	18	0	31	
8/15/2014	64	77	16	7	18	3	31	
8/16/2014	62	75	16	7	18	0	31	
8/17/2014	62	75	16	7	18	0	31	
8/18/2014	62	75	17	7	18	0	31	
8/19/2014	67	80	16	7	18	2	31	
8/20/2014	67	80	16	7	18	0	31	
8/21/2014	60	73	17	7	18	0	32	
8/22/2014	68	81	17	7	18	0	31	
8/23/2014	58	71	17	7	18	0	32	
8/24/2014	60	73	17	7	18	0	32	
8/25/2014	74	87	17	7	18	0	32	
8/26/2014	61	74	18	7	18	0	32	
8/27/2014	62	75	18	7	18	0	32	
8/28/2014	58	71	8	7	18	0	32	
8/29/2014	57	70	9	7	18	5	32	
8/30/2014	57	70	9	7	18	0	32	
8/31/2014	70	83	18	7	18	0	32	

Total

454

978

Received  
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