

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

Type Test:

- Open Flow **AST**  
 Deliverability

(See Instructions on Reverse Side)

Test Date:  
5/10/2013

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	
Vertical Depth(H) 1010'		Pressure Taps Flange		(Meter Run) (Prover) Size 2"	
Pressure Buildup: Shut in 5-9 20 13 at 11:25 (AM) (PM)		Taken 5-10 20 13 at 11:35 (AM) (PM)			
Well on Line: Started 5-10 20 13 at 11:35 (AM) (PM)		Taken 5-11 20 13 at 1:25 (AM) (PM)			

### OBSERVED SURFACE DATA

Duration of Shut-in 24 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>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						145	159.4				
Flow						61	75.4			24	0

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>s</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 (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
						21		

### (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>d</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>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: $\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2}$	Backpressure Curve Slope = "n" or Assigned Standard Slope	n x LOG $\left[ \frac{P_c^2 - P_a^2}{P_c^2 - P_w^2} \right]$	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 21 day of November, 20 13.

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*Samuel Martinez*  
For Company

Witness (if any)

For Commission

DEC 26 2013

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 1-23 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: 11/21/13

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Signature: \_\_\_\_\_



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Title: Production Assistant

CONSERVATION DIVISION  
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.

W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 May-13

DATE	Casing				HRS CYCLE DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
	PSI	STATIC	MCF	SPM			
5/1/2013	57	70	21	7	19	23	
5/2/2013	63	76	21	7	19	21	
5/3/2013	54	67	22	7	19	22	treated
5/4/2013	49	62	21	7	19	23	
5/5/2013	53	66	22	7	19	22	
5/6/2013	51	64	22	7	19	22	
5/7/2013	51	64	22	7	19	21	
5/8/2013	56	69	22	7	19	26	5.25 min bt
5/9/2013	59	72	22	7	9	11	si for state test - cp 64
5/10/2013	58	71	0	7	9	24	11 reopened - cp 145
5/11/2013	63	76	28	7	19	21	
5/12/2013	62	75	26	7	19	20	
5/13/2013	61	74	25	7	19	22	
5/14/2013	66	79	25	7	19	23	
5/15/2013	98	111	24	7	9	2.5	12 pu off high fp
5/16/2013	73	86	21	7	9	12	restarted pu
5/17/2013	56	69	21	7	19	26	
5/18/2013	57	70	22	7	19	25	
5/19/2013	72	85	22	7	19	24	
5/20/2013	67	80	22	7	19	25	
5/21/2013	49	62	23	7	19	22	
5/22/2013	56	69	22	7	9	2	10 pu off high fp
5/23/2013	140	153	12	7	0	10	0
5/24/2013	105	118	19	7	0	4	0
5/25/2013	94	107	22	7	0	0	0
5/26/2013	88	101	18	7	0	0	0
5/27/2013	85	98	18	7	0	0	0
5/28/2013	76	89	17	7	0	0	0
5/29/2013	65	78	16	7	0	0	0
5/30/2013	53	66	16	7	9	10	restarted pu
5/31/2013	51	64	18	7	19	21	

Total

632

475

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W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 June-13

DATE	Casing PSI	STATIC MCF	SPM	HRS CYCLE DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
6/1/2013	46	59	19	7 19		23
6/2/2013	52	65	19	7 19		22
6/3/2013	49	62	20	7 19		21
6/4/2013	48	61	20	7 19		24
6/5/2013	61	74	20	7 19		25 5.5 min bt
6/6/2013	67	80	20	7 19		22
6/7/2013	51	64	21	7 19		21
6/8/2013	54	67	21	7 19		23
6/9/2013	53	66	21	7 19		22
6/10/2013	60	73	21	7 19	2	21
6/11/2013	75	88	21	7 9	1	12 pu off hfp
6/12/2013	73	86	20	7 0		0
6/13/2013	55	68	18	7 9		12 restart pu
6/14/2013	58	71	19	7 19		26
6/15/2013	59	72	20	7 19		25
6/16/2013	60	73	21	7 19		24
6/17/2013	56	69	21	7 9		12 pu off
6/18/2013	49	62	19	7 0		0
6/19/2013	44	57	17	7 9		12 restart pu
6/20/2013	48	61	18	7 19		22
6/21/2013	55	68	19	7 19		19 calibrated meter
6/22/2013	74	87	20	7 19		20
6/23/2013	80	93	20	7 9		12 pu off hfp
6/24/2013	76	89	18	7 0		0
6/25/2013	79	92	16	7 0		0
6/26/2013	77	90	16	7 0		0
6/27/2013	74	87	15	7 19		0
6/28/2013	51	64	15	7 19		8 restart pu
6/29/2013	52	65	17	7 19		25
6/30/2013	51	64	18	7 19		24
7/1/2013						

Total

570

477

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CONSERVATION DIVISION  
 WICHITA, KS

W350  
 Isernhagen 01-23  
 St. Francis  
 St. Francis  
 Pumping Unit/Elec  
 July-13

DATE	Casing PSI	STATIC MCF	SPM	HRS CYCLE DOWN	Water BBLs	REMARKS (Maximum length 110 characters)
7/1/2013	53	66	19	7 19		23
7/2/2013	52	65	19	7 19		23 6 min bt
7/3/2013	55	68	20	7 19		21
7/4/2013	56	69	21	7 19		21
7/5/2013	56	69	20	7 19		19
7/6/2013	56	69	20	7 19		23
7/7/2013	67	80	20	7 19		22
7/8/2013	66	79	21	7 19		21
7/9/2013	66	79	21	7 19		23
7/10/2013	57	70	21	7 19		22
7/11/2013	59	72	21	7 19		21
7/12/2013	65	77	21	7 9		11 shut pumping unit off hfp
7/13/2013	74	87	20	7 0	2.5	0 treated well
7/14/2013	76	89	18	7 0		0
7/15/2013	55	68	17	7 10		12 started pu
7/16/2013	55	68	18	7 19		22 6.25 min bt greased
7/17/2013	54	67	19	7 19		21
7/18/2013	77	90	19	7 9		11 pu off hfp
7/19/2013	70	83	19	7 0		0
7/20/2013	73	86	17	7 0		0
7/21/2013	75	88	16	7 0		0
7/22/2013	71	84	15	7 0		0
7/23/2013	63	76	15	7 9		11 restart pu
7/24/2013	71	84	17	7 19		21
7/25/2013	78	91	18	7 9		11 pu off hfp
7/26/2013	61	74	17	7 9		11 restart pu
7/27/2013	54	67	17	7 19		22
7/28/2013	56	69	19	7 19		23
7/29/2013	55	68	19	7 19		22
7/30/2013	54	67	19	7 9	3.5	11 pu off hfp
7/31/2013	84	97	17	7 0	5.5	0

Total

580

448

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