

KANSAS CORPORATION COMMISSION

ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

Type Test:

(See Instructions on Reverse Side)

- Open Flow
 Deliverability

Test Date:
8/19/2013

API No. 15
15-075-20868-00-00

Company Linn Operating, Inc.		Lease McDonald		Well Number C-4 ATU-45	
County Hamilton	Location NW NW NW NW	Section 24	TWP 26S	RNG (E/W) 39 W	Acres Attributed 640
Field Hugoton-Panoma		Reservoir Chase	Gas Gathering Connection Jayhawk Gas Plant		
Completion Date 7/17/2013		Plug Back Total Depth 3106	Packer Set at NA		
Casing Size 5.5	Weight 15.5	Internal Diameter 4.95	Set at 3155	Perforations 2523	To 2717
Tubing Size NA	Weight NA	Internal Diameter NA	Set at NA	Perforations NA	To NA
Type Completion (Describe) Single		Type Fluid Production Dry Gas	Pump Unit or Traveling Plunger? Yes / No NO		
Producing Thru (Annulus / Tubing) Annulus		% Carbon Dioxide .074	% Nitrogen 15.725	Gas Gravity - G _g .7367	
Vertical Depth(H) Flange		Pressure Taps Flange		(Meter Run) (Prover) Size 3.068	
Pressure Buildup: Shut in 8/19 20 13 at 11:00 AM (AM) (PM)		Taken 8/22 20 13 at 11:00 AM (AM) (PM)			
Well on Line: Started 8/22 20 13 at 11:00 AM (AM) (PM)		Taken 8/23 20 13 at 11:00 AM (AM) (PM)			

OBSERVED SURFACE DATA

Duration of Shut-in 72 Hours

Static / Dynamic Property	Orifice Size (inches)	Circle one: Meter Prover Pressure psig (P _m)	Pressure Differential in Inches H ₂ O	Flowing Temperature t	Well Head Temperature t	Casing Wellhead Pressure (P _w) or (P _i) or (P _c)		Tubing Wellhead Pressure (P _w) or (P _i) or (P _c)		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In	1	21	0	73	73	21	35.4	NA	NA	72	0
Flow	1	18.1	47.6	73	73	18.1	32.5	NA	NA	24	0

FLOW STREAM ATTRIBUTES

Plate Coefficient (F _a) (F _p) Mcfd	Circle one: Meter or Prover Pressure psia	Press Extension $\sqrt{P_m \times h}$	Gravity Factor F _g	Flowing Temperature Factor F _{tt}	Deviation Factor F _{pv}	Metered Flow R (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G _m
4.912	32.5	39.332	1.165	.9877	1	222.329	0	0

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 1.2532 ; (P_w)² = 1.0563 ; P_d = _____ % (P_c - 14.4) + 14.4 = _____ ; (P_a)² = 0.207 ; (P_d)² = _____

(P _c) ² - (P _a) ² or (P _c) ² - (P _d) ²	(P _c) ² - (P _w) ²	Choose formula 1 or 2: 1. P _c ² - P _a ² 2. P _c ² - P _d ² divided by: P _c ² - P _w ²	LOG of formula 1. or 2. and divide by: $\left[\frac{P_c^2 - P_w^2}{P_c^2 - P_a^2} \right]$	Backpressure Curve Slope = "n" or Assigned Standard Slope	n x LOG $\left[\frac{P_c^2 - P_w^2}{P_c^2 - P_a^2} \right]$	Antilog	Open Flow Deliverability Equals R x Antilog (Mcfd)
1.0462	.1969	5.313	.725	.85	.6165	4.1355	919.447

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 20th day of August, 20 13.

RECEIVED
KANSAS CORPORATION COMMISSION
Shawn Hildreth

Shawn Hildreth
For Company

Witness (if any)

AUG 27 2013

For Commission

Checked by

CONSERVATION DIVISION
WICHITA, KS