

KANSAS CORPORATION COMMISSION ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

Type Test:

- Open Flow
 Deliverability

Test Date:
6/24/2015

API No. 15
15-129-20665 - 0000

(See Instructions on Reverse Side)

Company Chesapeake Operating, L.L.C.		Lease Hayward			Well Number 2-20
County Morton	Location 660 FSL & 660 FWL	Section 20	TWP 31S	RNG (E/W) 40W	Acres Attributed
Field Kinsler		Reservoir Morrow	Gas Gathering Connection DCP Midstream Marketing LP		
Completion Date 6/28/83		Plug Back Total Depth 5709	Packer Set at		
Casing Size 5.5	Weight 14.0	Internal Diameter 5.012	Set at 5750	Perforations 4998	To 5028
Tubing Size 2.875	Weight 6.5	Internal Diameter 2.441	Set at 5100	Perforations	To
Type Completion (Describe) Single - Gas		Type Fluid Production Oil	Pump Unit or Traveling Plunger? Yes / No Pump Unit		
Producing Thru (Annulus / Tubing) Annulus		% Carbon Dioxide	% Nitrogen	Gas Gravity - G _g	
Vertical Depth(H) 5750		Pressure Taps		(Meter Run) (Prover) Size	
Pressure Buildup: Shut in 6/23 20 15 at 8:00 (AM) (PM) Taken 6/24 20 15 at 8:00 (AM) (PM)					
Well on Line: Started _____ 20 ____ at _____ (AM) (PM) Taken _____ 20 ____ at _____ (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 ₂ O	Flowing Temperature t	Well Head Temperature t	Casing Wellhead Pressure: (P _w) or (P _t) or (P _c)		Tubing Wellhead Pressure (P _w) or (P _t) or (P _c)		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In						3	17.4	0	14.4	24	
Flow											

FLOW STREAM ATTRIBUTES

Plate Coefficient (F _b) (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 _t	Deviation Factor F _{pv}	Metered Flow R (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G _m

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = _____ : (P_w)² = _____ : P_d = _____ % (P_c - 14.4) + 14.4 = _____ : (P_d)² = 0.207
(P_d)² = _____

(P _c) ² - (P _d) ² or (P _c) ² - (P _w) ²	(P _c) ² - (P _w) ²	Choose formula 1 or 2: 1. P _c ² - P _d ² 2. P _c ² - P _w ² divided by: P _c ² - P _w ²	LOG of formula 1. or 2. and divide by: $\left[\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2} \right]$	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG $\left[\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2} \right]$	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 3 day of November, 20 15.

Received
KANSAS CORPORATION COMMISSION

Witness (if any)

For Company

For Commission

Checked by

DEC 02 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 Chesapeake Operating, L.L.C. 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 Hayward 2-20 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: 11/3/2015

Signature: Sara Everett

Title: Sara Everett, Regulatory Analyst

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.