

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

Type Test:

- Open Flow  
 Deliverability

(See Instructions on Reverse Side)

Test Date:  
7-29-11

API No. 15  
15-081-20351-0000  
20,364

Company <b>CIMAREX ENERGY</b>		Lease <b>HOFFMAN</b>		Well Number <b>A-2</b>	
County <b>HASKELL</b>	Location <b>NW NWSESE</b>	Section <b>5</b>	TWP <b>30S</b>	RNG (E/W) <b>33W</b>	Acres Attributed
Field <b>HUGOTON</b>		Reservoir <b>CHASE</b>	Gas Gathering Connection <b>DCP MIDSTREAM</b>		
Completion Date <b>RECOMP. 6-11</b>		Plug Back Total Depth <b>2854</b>	Packer Set at <b>NONE</b>		
Casing Size <b>4.5</b>	Weight <b>11.6</b>	Internal Diameter <b>4.000</b>	Set at <b>2883</b>	Perforations <b>2628</b>	To <b>2779</b>
Tubing Size <b>2.375</b>	Weight <b>4.7</b>	Internal Diameter <b>1.995</b>	Set at <b>2753</b>	Perforations	To
Type Completion (Describe) <b>SINGLE GAS</b>		Type Fluid Production <b>WATER</b>		Pump Unit or Traveling Plunger? Yes / No <b>YES-PUMP</b>	
Producing Thru (Annulus / Tubing) <b>ANNULUS</b>		% Carbon Dioxide		% Nitrogen	
Vertical Depth(H) <b>2704</b>		Pressure Taps <b>FLANGE</b>		Gas Gravity - G <sub>g</sub> <b>.700</b>	
Pressure Buildup: Shut in <b>7-25-11</b> 20 at <b>0800</b> (AM) (PM) Taken <b>7-28-11</b> 20 at <b>0800</b> (AM) (PM)		Well on Line: Started <b>7-28-11</b> 20 at <b>0800</b> (AM) (PM) Taken <b>7-29-11</b> 20 at <b>0800</b> (AM) (PM)			

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### OBSERVED SURFACE DATA

Duration of Shut-in **72.0** Hours

Static / Dynamic Property	Orifice Size (inches)	Circle one: Meter Prover Pressure psig (Pm)	Pressure Differential in Inches H <sub>2</sub> O	Flowing Temperature I	Well Head Temperature I	Casing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>c</sub> ) or (P <sub>r</sub> )		Tubing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>c</sub> ) or (P <sub>r</sub> )		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In						71.5	85.9			72.0	
Flow	.750	4.2	79.5	95	75	43.6	58.0			24.0	23.5

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>o</sub> ) (F <sub>a</sub> ) Mctd	Circle one: Meter or Prover Pressure psia	Press Extension $\sqrt{P_c \times h}$	Gravity Factor F <sub>g</sub>	Flowing Temperature Factor F <sub>tt</sub>	Deviation Factor F <sub>nv</sub>	Metered Flow R (Mctd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
2.7402	18.60	38.45	1.1952	0.9680	1.0017	122.1	NONE	0.700

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 7.3 ; (P<sub>w</sub>)<sup>2</sup> = 3.4 ; P<sub>o</sub> = 67.8 % ; (P<sub>c</sub> - 14.4) + 14.4 = 85.9 ; (P<sub>c</sub>)<sup>2</sup> = 0.207 ; (P<sub>w</sub>)<sup>2</sup> = \_\_\_\_\_

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>a</sub> ) <sup>2</sup>	(P <sub>w</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>w</sub> <sup>2</sup> 2. P <sub>c</sub> <sup>2</sup> - P <sub>a</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: $\frac{P_c^2 - P_w^2}{P_c^2 - P_w^2}$	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG [ ]	Antilog	Open Flow Deliverability Equals R x Antilog (Mctd)
7.17	3.98	1.801	0.2555	0.850	0.2171	1.6487	201.31

Open Flow **201** Mctd @ 14.65 psia      Deliverability Mctd @ 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 29 day of JULY, 20 11.

Copy to KCC Wichita

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Precision Wireline & Testing

Mark of Brock

Witness (if any)

For Commission

For Company

Checked by