

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

Type Test:

- Open Flow
- Deliverability

Test Date: 1/06 to 1/07/11

API No. 15  
15-077-21088-0000

Company <b>Hart Energies</b>		Lease <b>Connie Sue</b>		Well Number <b>1</b>	
County <b>Harper</b>	Location <del>09WSE</del> <b>S2NWSE</b>	Section <b>29</b>	TWP <b>31S</b>	RNG (E/W) <b>09W</b>	Acres Attributed
Field <b>S2NWSE</b>		Reservoir <b>Mississippian</b>		Gas Gathering Connection <b>Lumen-WWGG</b>	
Completion Date <b>7/20/10</b>		Plug Back Total Depth <b>4520 CIBP</b>		Packer Set at <b>none</b>	
Casing Size <b>5.5</b>	Weight	Internal Diameter	Set at <b>4850</b>	Perforations <b>4410</b>	To <b>4420</b>
Tubing Size <b>2.875</b>	Weight	Internal Diameter	Set at <b>1000</b>	Perforations <b>open</b>	To
Type Completion (Describe) <b>single</b>		Type Fluid Production <b>Oil &amp; SW</b>		Pump Unit or Traveling Plunger? Yes / No <b>No</b>	
Producing Thru (Annulus / Tubing) <b>Tubing</b>		% Carbon Dioxide <b>.0421</b>		% Nitrogen <b>33.4159</b>	
Vertical Depth(H)		Pressure Taps <b>Flange</b>		(Meter Run) (Prover) Size <b>3"</b>	
Pressure Buildup: Shut in <b>1/03</b> 20 <b>11</b> at <b>10:00am</b> (AM) (PM) Taken <b>1/06</b> 20 <b>11</b> at <b>10:00 am</b> (AM) (PM)					
Well on Line: Started <b>1/06</b> 20 <b>11</b> at <b>10:15 am</b> (AM) (PM) Taken <b>1/07</b> 20 <b>11</b> at <b>1:15 pm</b> (AM) (PM)					

### OBSERVED SURFACE DATA

Duration of Shut-in **72** 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						1460	1474.4	1460	1474.4	72	
Flow	1.500	26.5	10.1	58		1314	1328.4	1314	1328.4	27	

### 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>
11.41	40.9	20.32	1.163	1.002	-----	270		.739

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 2173.855 : (P<sub>w</sub>)<sup>2</sup> = 1764.646 : 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: P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup>	Backpressure Curve Slope = "n" ----- or Assigned Standard Slope	n x LOG [ ]	Antilog	Open Flow Deliverability Equals R x Antilog (Mcfd)
2173.648	409.209	5.312	.7252	.901	.6534	4.51	1218

Open Flow **1218** Mcfd @ 14.65 psia X .50 = Deliverability **609** 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 28th day of January, 20 11.

\_\_\_\_\_  
Witness (if any)

\_\_\_\_\_  
For Commission

*[Signature]*  
\_\_\_\_\_  
For Company

*[Signature]*  
\_\_\_\_\_  
Checked by

**RECEIVED**

**MAY 1-2-2011**

**KCC WICHITA**