

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

Form G-2  
(Rev. 8/96)

Type Test

Open Flow  
 Deliverability

(See Instructions of Reverse Side)

Test Date: 3/7/14

API No. 15- 129 21403 - 0000

Company <b>ANADARKO E&amp;P ONSHORE</b>		Lease <b>ARNOLD</b>		Well Number <b>C-1</b>	
County <b>Morton</b>	Location <b>1450FNL&amp;1250FWL</b>	Section <b>8</b>	TWP <b>33S</b>	RNGE (E/W) <b>41W</b>	Acres Attributed <b>640</b>
Field <b>DUNKLE</b>		Reservoir <b>WABUNSEE</b>	Gas Gathering Connection <b>Anadarko Gathering</b>		
Completion Date <b>09/01/95</b>		Plug Back Total Depth <b>2956</b>		Packer Set at <b>NA</b>	
Casing Size <b>5.5</b>	Weight <b>15.5</b>	Internal Diameter <b>4.95</b>	Set at <b>3009</b>	Perforations <b>2904</b>	To <b>2914</b>
Tubing Size <b>2.375</b>	Weight <b>4.7</b>	Internal Diameter <b>1.995</b>	Set at <b>2932</b>	Perforations <b>NA</b>	To <b>NA</b>
Type Completion (Describe) <b>SINGLE GAS</b>		Type Fluid Production <b>WATER</b>	Pump Unit or Traveling Plunger? <b>Pumping Unit</b>	Yes / No <b>PUMP</b>	
Producing Thru (Annulus / Casing) <b>CASING</b>		% Carbon Dioxide <b>0.196</b>	% Nitrogen <b>25.086</b>	Gas Gravity - G <sub>g</sub> <b>0.754</b>	
Vertical Depth (H) <b>2909</b>	Pressure Taps <b>Flange</b>		(Meter Run) <b>X</b>	(PROVER) <b></b>	Size <b>2</b>
Pressure Buildup: Well on Line:		Shut in <b>3/3/14</b> Started <b>n/a</b>	at <b>8:40 am</b> at <b>n/a</b>	(AM)(PM) (AM)(PM)	Taken <b>3/4/14</b> Taken <b>n/a</b>
			at <b>8:40 am</b> at <b>n/a</b>	(AM)(PM) (AM)(PM)	

**OBSERVED SURFACE DATA**

Duration of Shut-in **24 Hours**

Static / Dynamic Property	Orifice Size Inches	Circle One: Meter or Prover Pressure psig	Pressure Differential in (h) 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						<b>16</b>	<b>30.4</b>	<b>PUMP</b>		<b>24</b>	
Flow	<b>0.500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>60</b>	<b>N/A</b>	<b>0</b>	<b>PUMP</b>		<b>N/A</b>	<b>0</b>

**FLOW STREAM ATTRIBUTES**

Plate Coefficient (F <sub>b</sub> ) (F <sub>p</sub> ) Mcfd	Circle One: Meter or Prover Pressure psia	Pressure Extension Sqrt ((P <sub>m</sub> )(H <sub>w</sub> ))	Gravity Factor F <sub>g</sub>	Flowing Temperature Factor F <sub>t</sub>	Deviation Factor F <sub>DV</sub>	Metered Flow R (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>
<b>1.219</b>	<b>14.4</b>	<b>0</b>	<b>1.151</b>	<b>1.063</b>	<b>1.000</b>	<b>0</b>	<b>0</b>	<b>0.000</b>

**(OPEN FLOW) (DELIVERABILITY) CALCULATIONS**

(P<sub>c</sub>)<sup>2</sup>= 0.924      (P<sub>w</sub>)<sup>2</sup>= 0      P<sub>d</sub>= %      (P<sub>c</sub>-14.4)+14.4=       (P<sub>w</sub>)<sup>2</sup>=0.207  
(P<sub>d</sub>)<sup>2</sup>=

(P <sub>d</sub> ) <sup>2</sup> -(P <sub>a</sub> ) <sup>2</sup> or (P <sub>d</sub> ) <sup>2</sup> -(P <sub>w</sub> ) <sup>2</sup>	(P <sub>d</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>w</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. (P <sub>c</sub> <sup>2</sup> -P <sub>w</sub> <sup>2</sup> ) and divide by:	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG()	Antilog	Open Flow Deliverability Equals R x Antilog Mcfd
<b>0.717</b>	<b>0.924</b>	<b>0.776</b>	<b>-0.11</b>	<b>0.883</b>	<b>-0.097</b>	<b>0.8</b>	<b>0</b>

**Open Flow**

**Deliverability**

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 4th day of March 2014

Witness (if any)

For Commission

**KCC WICHITA**

**APR 02 2014**

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**Thomas L. Walsh**  
For Company

Checked by

I declare under penalty or perjury under the laws of the state of Kansas that I am aut exempt status under Rule K.A.R. 82-3-304 on behalf of the operator Anadarko E&P Onshore and that the foregoing information and statements contained on this application form are true and correct to the best of my knowledge and belief based upon gas production records and records of equipment installation and/or of type completion or upon use of the gas well herin named.

I hereby request a permanent exemption form open flow testing for the ARNOLD C-1 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 vacuume at the present time; KCC approval Docket No. \_\_\_\_\_
- is incapable of producing at a daily rate in excess of 150 mcf/D

Date: 3/31/14

Signature: Madeleine Brown

Title: PRODUCTION ENGINEER

**Instructions** All active gas wells must have at least on original G-2 form on file with the conservation division. If a gas well meets 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 obtain a testing exemption.

At some point during the succeeding calender year, wellhead shut-in pressure shall be 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 yearley in the same manner.

The G-2 form conveying the newest shut-in pressure reading shall be filed with the Wichita office no later than thirty (30) days after the taking of the pressure reading. The form must be signed and dated on the front side as though it was a verified report of test results.

**KCC WICHITA**

**APR 02 2014**

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