

**ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST**

FORM G-2  
(Rev.8/98)

TYPE TEST:

- Open Flow  
 Deliverability

TEST DATE: 11-2-1999

API No. 15-075-20668

Company <b>Horsehoe Operating Inc</b>		Lease <b>Dikeman</b>			Well Number <b>1</b>	
County <b>Hamilton</b>	Location <b>C NW/4</b>	Section <b>15</b>	TWP <b>22s</b>	RNG(E/W) <b>40</b>	Acres Attributed <b>320</b>	
Field <b>Bradshaw</b>		Reservoir <b>Winfield</b>		Gas Gathering Connection <b>Heritage</b>		
Completion Date <b>5/6/1998</b>		Plug Back Total Depth <b>2765</b>		Packer Set at		
Casing Size <b>4.500</b>	Weight <b>10.500</b>	Internal Diameter <b>4.052</b>	Set at <b>2765</b>	Perforations <b>2727</b>	To <b>2737</b>	
Tubing Size <b>2.375</b>	Weight <b>4.700</b>	Internal Diameter <b>1.995</b>	Set at <b>2734</b>	Perforations To		
Type Completion (Describe) <b>Single Gas</b>		Type Fluid Production <b>Water</b>		Pump Unit or Traveling Plunger? <b>Pumping Unit</b>		
Producing Thru (Annulus/Tubing) <b>casing</b>		% Carbon Dioxide <b>.024</b>		% Nitrogen <b>25.716</b>		Gas Gravity- Gg <b>.759</b>
Vertical Depth (H) <b>2732</b>		Pressure Taps <b>flange</b>			Meter Run Size <b>2.067</b>	
Pressure Buildup: Shut in		<b>10-28-1999@4:pm</b>		TAKEN	<b>11-1-1999@12:30pm</b>	
Well on Line: Started		<b>11-1-1999@12:30pm</b>		TAKEN	<b>11-2-1999@1:30pm</b>	

**OBSERVED SURFACE DATA**

Static/ Dynamic Property	Orifice Size in.	Meter Pressure psig	Pressure Diff. In. H <sub>2</sub> O	Flowing Temp. t.	WellHead Temp. t.	Casing WellHead Press. (P <sub>w</sub> ) (P <sub>t</sub> ) (P <sub>c</sub> )		Tubing WellHead Press. (P <sub>w</sub> ) (P <sub>t</sub> ) (P <sub>c</sub> )		Duration (Hours)	Liquid Prod. Barrels
						psig	psia	psig	psia		
Shut-in						152	165			92.5	
Flow	1.000	63.0	35.00	63		86	99			25.0	18.0

**FLOW STREAM ATTRIBUTES**

COEFFICIENT (F <sub>b</sub> ) Mcf/d	(METER) PRESSURE psia	EXTENSION $\sqrt{P_m \times H_w}$	GRAVITY FACTOR F <sub>g</sub>	FLOWING TEMP FACTOR F <sub>t</sub>	DEVIATION FACTOR F <sub>pv</sub>	RATE OF FLOW R Mcf/d	GOR	G <sub>m</sub>
5.070	76.3	51.68	1.1478	.9971	1.0061	301	17458.8	.979

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

(P<sub>c</sub>)<sup>2</sup> = 27.3      (P<sub>w</sub>)<sup>2</sup> = 10.1      38.1      %      (P<sub>c</sub> - 14.4) + 14.4 =      (P<sub>a</sub>)<sup>2</sup> = 0.207  
(P<sub>d</sub>)<sup>2</sup> = 3.97

$(P_c)^2 - (P_a)^2$ or $(P_c)^2 - (P_d)^2$	$(P_c)^2 - (P_w)^2$	$\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_d)^2}$ or $\frac{(P_c)^2 - (P_a)^2}{(P_c)^2 - (P_w)^2}$	LOG	Backpressure Curve Slope "n" ---- or ---- Assigned Standard Slope	n x LOG	Antilog	Open Flow Deliverability = R x Antilog Mcf/d
27.15	17.20	1.578	.1982	.609	.1207	1.320	398
23.36	17.20	1.358	.1329	.609	.0809	1.205	363

OPEN FLOW      398      Mcfd @ 14.65 psia      DELIVERABILITY      363      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 herein and that said report is true and correct. Executed this the 22 day of Nov, 19 99

Witness (if any)

For Company

For Commission

Checked by

I declare under penalty or 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 Horsehoe Operating Inc 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 herein named.

I hereby request a permanent exemption from open flow testing for the Dikeman 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 incapable of producing at a daily rate in excess of 150 mcf/D

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

#### Instructions:

All active gas wells must have at least an 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 calendar 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 yearly 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.