

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

FORM G-2  
(Rev. 8/98)

TYPE TEST:

- Open Flow  
 Deliverability

TEST DATE: 9/4/2013

API No. 15-057-~~20715~~ 20,715-0000

Company Ritchie Exploration		Lease Brown 3AB			Well Number 1	
County Ford	Location NW NW		Section 3	TWP 28s	RNG (E/W) 2	Acres Attributed 640
Field Mississippian		Reservoir Mississippian				Gas Gathering Connection Superior Pipeline
Completion Date 3-1-11		Plug Back Total Depth 5114		Packer Set at none		
Casing Size 4.500	Weight 10.500	Internal Diameter 4.052	Set at 5144	Perforations 4982	To 5005	
Tubing Size 2.875	Weight 8.700	Internal Diameter 2.500	Set at 5005	Perforations	To	
Type Completion (Describe) gas		Type Fluid Production saltwater		Pump Unit or Traveling Plunger? no		
Producing Thru (Annulus/Tubing) tubing		% Carbon Dioxide 0.074		% Nitrogen 15.878		Gas Gravity- Gg 0.692
Vertical Depth (H) 5151		Pressure Taps flange			Meter Run Size 3.068	
Pressure Buildup: Shut in		8/31/2013@1115		TAKEN	9/3/2013@1330	
Well on Line: Started		9/3/2013@1330		TAKEN	9/4/2013@1330	

**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						269	283	269	283	74.2	
Flow	1.375	29.4	18.20	85		157	171	140	154	24.0	

**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>
9.486	43.8	28.23	1.2021	0.9768	1.0026	315		0.692

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

(P<sub>c</sub>)<sup>2</sup> = 80.3      (P<sub>w</sub>)<sup>2</sup> = 29.4      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> =

$(P_c)^2 - (P_a)^2$	$(P_c)^2 - (P_w)^2$	$\frac{[(P_c)^2 - (P_a)^2] \text{ or } [(P_c)^2 - (P_d)^2]}{[(P_c)^2 - (P_w)^2]}$	LOG	Backpressure Curve Slope "n" ----- or ----- Assigned Standard Slope	n x LOG	Antilog	Open Flow Deliverability = R x Antilog Mcf/d
80.11	50.94	1.573	0.1966	1.000	0.1966	1.573	495

OPEN FLOW      495      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 herein and that said report is true and correct. Executed this the 11 day of Sept, 2013

Witness (if any)  
No witness  
For Commission

**KCC WICHITA**

**SEP 23 2013**

**RECEIVED**

*[Signature]*  
For Company  
Checked by