

KANSAS CORPORATION COMMISSION
ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

FORM G-2
 (Rev.8/98)

TYPE TEST:

- ☒ Open Flow
☒ Deliverability

TEST DATE: 11/3/99 API No. 15-075-20665

Company Horseshoe Operating Inc		Lease Suerte		Well Number 1	
County Hamilton	Location SW NE	Section 20	TWP 23s	RNG (E/W) 41	Acres Attributed
Field Bradshaw	Reservoir Winfield	Gas Gathering Connection KN			
Completion Date 6-16-1998	Plug Back Total Depth	Packer Set at			
Casing Size 4.500	Weight 10.500	Internal Diameter 4.052	Set at 2510	Perforations 2478	To 2788
Tubing Size 2.375	Weight 4.700	Internal Diameter 1.995	Set at 2401	Perforations	To
Type Completion (Describe) single gas	Type Fluid Production water	Pump Unit or Traveling Plunger? pumping unit			
Producing Thru (Annulus/Tubing) casing	% Carbon Dioxide .148	% Nitrogen 39.689	Gas Gravity- Gg .821		
Vertical Depth (ft) 2483	Pressure Taps Flange	Meter Run Size 2.067			
Pressure Buildup: Shut in	10/30/99 @ 8:30am	TAKEN	11/2/99 @ 1:45 PM		
Well on Line: Started	11/2/99 @ 1:45 pm	TAKEN	11/3/99 @ 1:45 PM		

OBSERVED SURFACE DATA

Static/ Dynamic Property	Orifice Size in.	Meter Pressure psig	Pressure Diff. In. H ₂ O	Flowing Temp. t.	WellHead Temp. t.	Casing WellHead Press. (P _w) (P _c) (P _o)		Tubing WellHead Press. (P _w) (P _t) (P _c)		Duration (Hours)	Liquid Prod. Barrels
						psig	psia	psig	psia		
Shut-in						114	127			77.5	
Flow	.750	38.0	45.00	63		65	78			24.0	47.4

FLOW STREAM ATTRIBUTES

COEFFICIENT (F _b) Mcfd	(METER) PRESSURE psia	EXTENSION $\sqrt{P_m \times H_w}$	GRAVITY FACTOR Fg	FLOWING TEMP FACTOR Ft	DEVIATION FACTOR Fpv	RATE OF FLOW R Mcfd	GOR	G _m
2.780	51.4	48.09	1.1036	.9971	1.0036	147	3115.1	1.769

(OPEN FLOW)(DELIVERABILITY) CALCULATIONS

(OPEN FLOW)(DELIVERABILITY) CALCULATIONS

$(P_c)^2 = 16.2$	$(P_w)^2 = 6.2$	29.8	%	$(P_c - 14.4) + 14.4 =$	$(P_a)^2 = 0.207$	$(P_d)^2 = 1.44$
$(P_c)^2 - (P_a)^2$ 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 Mcfd
16.05	9.99	1.607	.2059	.751	.1547	1.428
14.79	9.99	1.480	.1703	.751	.1279	1.342
						210
						198

OPEN FLOW 210 Mcfd @ 14.65 psia DELIVERABILITY 198 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 8 day of Nov, 19 99

Witness (if any)

For Commission

Original: Wichita
 Copy : Dodge City
 Copy: Horseshoe Operating

For Company

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 Suerte
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: 11-8-99

Signature: Paul Simpson

Title: Tester

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.

KANSAS CORPORATION COMMISSION ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

(See Instructions on Reverse Side)

Type Test

☐ Open Flow

☐ Deliverability

Test Date **8/27/99**

API No 15 075 20665

Company

Horseshoe Operating

Lease

Suerte

Well Number

1

County

Hamilton

Location

S W N E

Section

20

TWP

23S

RNG (E/W)

41W

Acres Allocated

Field

Bradshaw

Reservoir

Winfield

Gas Gathering Connection

KN

Completion Date

6/16/98

Plug Back Total Depth

2512'

Packer Set at

Casing Size

4 1/2

Weight

10.5

Internal Diameter

4.052

Set at

2510'

Perforations

2478' - 88'

To

Tubing Size

2 3/8

Weight

4.7

Internal Diameter

2.000

Set at

2401'

Perforations

To

Type Completion (Describe)

Single-Gas

Type Fluid Production

Water

Pump Unit or Traveling Plunger? Yes / No

Producing Thru (Annulus / Tubing)

% Carbon Dioxide

% Nitrogen

Gas Gravity - G_g

Vertical Depth(H)

Pressure Taps

(Meter Run) (Prover) Size

Pressure Buildup: Shut in **8/26** 19 **99** at **11:00** **(AM)** (PM) Taken _____ 19 _____ at _____ (AM) (PM)
Well on Line: Started **8/27** 19 **99** at **11:00** **(AM)** (PM) Taken _____ 19 _____ at _____ (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 ₂ O	Flowing Temperature t	Well Head Temperature t	Casing Wellhead Pressure (P _w) or (P _i) or (P _e)		Tubing Wellhead Pressure (P _w) or (P _i) or (P _e)		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In							79		0		
Flow							51		0		

FLOW STREAM ATTRIBUTES

Plate Coefficient (F _s) (F _p) Mcf/d	Circle one: Meter or Prover Pressure psia	Press Extension $\sqrt{P_m \times H_w}$ psi	Gravity Factor F _g	Flowing Temperature Factor F _{tt}	Deviation Factor F _{pv}	Metered Flow R (Mcf/d)	GOR (Cubic Feet/Barrel)	Flowing Fluid Gravity G _m

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_e)² = _____ (P_w)² = _____ P_g = _____ % (P_e - 14.4) + 14.4 = _____ (P_g)² = 0.207 (P_g)² = _____

$\frac{(P_e)^2 - (P_w)^2}{(P_e)^2 - (P_a)^2}$ or $\frac{(P_e)^2 - (P_w)^2}{(P_e)^2 - (P_a)^2}$	$\frac{(P_e)^2 - (P_w)^2}{(P_e)^2 - (P_a)^2}$	Choose formula 1 or 2 1 $P_e^2 - P_w^2$ 2 $P_e^2 - P_a^2$ divided by $P_e^2 - P_a^2$	LOG of formula 1 or 2, and divide by $P_e^2 - P_w^2$	Backpressure Curve Slope = "n" or Assigned Standard Slope	$n \times \text{LOG}$	Antilog	Open Flow Deliverability Equals R x Antilog Mcf/d

Open Flow Mcf/d @ 14.65 psia Deliverability Mcf/d @ 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 **September**, 19**99**

Signature

Signature