

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

Type Test: Open Flow (See Instructions on Reverse Side)

Deliverability

Test Date: 6/20/2002

API No. 15  
023-20438-00-00

Company <u>NOBLE ENERGY INC.</u>		Lease <u>SCHLEPP</u>		Well Number <u>24-29</u>	
County <u>CHEYENNE</u>	Location <u>SESW/4</u>	Section <u>29</u>	TWP <u>3S</u>	RNG (E/W) <u>41W</u>	Acres Attributed <u>160</u>
Field <u>CHERRY CREEK</u>		Reservoir <u>NIOBRARA</u>		Gas Gathering Connection <u>BITTER CREEK PIPELINE</u>	
Completion Date <u>6/17/02</u>		Plug Back Total Depth <u>1634</u>		Packer Set at	
Casing Size <u>4 1/2</u>	Weight <u>10.5 #</u>	Internal Diameter <u>4.052"</u>	Set at <u>1658</u>	Perforations <u>1484</u>	To <u>1524</u>
Tubing Size	Weight	Internal Diameter	Set at	Perforations	To

Type Completion (Describe) <u>SINGLE (GAS)</u>	Type Fluid Produced <u>RECEIVED</u>	Pump Unit or Traveling Plunger? Yes / <input checked="" type="radio"/> No	
Producing Thru (Annulus / Tubing) <u>CASING</u>	% Carbon Dioxide <u>-</u>	% Nitrogen <u>-</u>	Gas Gravity - G <sub>g</sub> <u>0.6</u>
Vertical Depth (H) <u>1524</u>	Pressure Taps <u>KCC WICHITA</u>	Flange	(Meter Run) (Prover) Size <u>2"</u>
Pressure Buildup: Shut in _____ 19 _____ at _____ (AM) (PM) Taken <u>6/20/02</u> <input checked="" type="radio"/> at _____ (AM) (PM)			
Well on Line: Started <u>6/26/02</u> <input checked="" type="radio"/> at <u>11:30</u> (AM) (PM) Taken _____ 19 _____ at _____ (AM) (PM)			

### OBSERVED SURFACE DATA

Duration of Shut-in \_\_\_\_\_ Hours

Static / Dynamic Property	Orifice Size inches	Circle one: <u>Meter</u> 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						<u>254</u>	<u>267</u>	<u>NA</u>	<u>NA</u>	<u>-</u>	<u>-</u>
Flow	<u>3/8</u>	<u>86</u>	<u>145</u>	<u>64.5</u>		<u>86</u>	<u>99</u>	<u>NA</u>	<u>NA</u>	<u>24</u>	<u>0</u>

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>s</sub> ) (F <sub>p</sub> ) Mcfd	Circle one: <u>Meter</u> or Prover Pressure psia	Press Extension $\frac{1}{S} P_m \times H_w$	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>
<u>0.6860</u>	<u>100.4</u>	<u>120.66</u>	<u>1.291</u>	<u>0.9867</u>	<u>1.000</u>	<u>105</u>		

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>c</sub>)<sup>2</sup> = 72.0 : (P<sub>w</sub>)<sup>2</sup> = 10.02 : P<sub>d</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ : (P<sub>s</sub>)<sup>2</sup> = 0.207  
(P<sub>d</sub>)<sup>2</sup> = \_\_\_\_\_

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>s</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>s</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: $\frac{P_c^2 - P_w^2}{P_c^2 - P_s^2}$	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG [ ]	Antilog	Open Flow Deliverability Equals R x Antilog Mcfd
<u>71.79</u>	<u>61.92</u>	<u>1.1594</u>	<u>0.0642</u>	<u>0.87</u>	<u>0.0559</u>	<u>1.1373</u>	<u>119.9</u>

Open Flow 120 Mcfd @ 14.65 psia      Deliverability 101 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 2 day of APR, 1903.

Witness (if any)

*Gray Thronckmy*  
For Company

For Commission

Checked by

**Schlepp 24-29**

**- first 24 hours flow data into pipeline**

**- data used as "one point"**

Date	Total Flow MCFD	Hrs On	DP_Avg	SP_Avg	PT_Avg
6/27/2002	101	24.0	145.019 InH2O	85.8728 psi	64.4668 DegF

**RECEIVED**  
**APR 07 2003**  
**KCC WICHITA**