

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

Type Test:

- Open Flow  
 Deliverability

(See Instructions on Reverse Side)

Test Date:

API No. 15  
15-181-20575-00-00

Company Noble Energy Inc		Lease Bucholtz		Well Number 31-6	
County Sherman	Location NW-SW-NW-NE	Section 6	TWP 6S	RNG (E/W) 39W	Acres Attributed
Field Goodland Niobrara Gas Area		Reservoir Niobrara		Gas Gathering Connection Prairie Star	
Completion Date 5/10/2011		Plug Back Total Depth 1484'		Packer Set at	
Casing Size 7", 4 1/2"	Weight 17#, 11.6#	Internal Diameter 9 7/8", 6 1/4"	Set at 410', 1532'	Perforations 1342'	To 1380'
Tubing Size 2 3/8"	Weight 4.7#	Internal Diameter 1.995	Set at	Perforations	To
Type Completion (Describe) Single (gas)		Type Fluid Production Saltwater		Pump Unit or Traveling Plunger? Yes / No yes	
Producing Thru (Annulus / Tubing) Tubing		% Carbon Dioxide		% Nitrogen Gas Gravity - G <sub>g</sub>	
Vertical Depth(H)		Pressure Taps		(Meter Run) (Prover) Size	

Pressure Buildup: Shut in 5/15 20 11 at 11:00  AM (PM) Taken \_\_\_\_\_ 20 \_\_\_\_\_ at \_\_\_\_\_ (AM) (PM)

Well on Line: Started 6/1 20 11 at 9:30  AM (PM) Taken \_\_\_\_\_ 20 \_\_\_\_\_ at \_\_\_\_\_ (AM) (PM)

### OBSERVED SURFACE DATA

Duration of Shut-in 384 Hours

Static / Dynamic Property	Orifice Size (inches)	Circle one: Meter Prover Pressure psig (P <sub>m</sub> )	Pressure Differential in Inches H <sub>2</sub> O	Flowing Temperature t	Well Head Temperature t	Casing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>t</sub> ) or (P <sub>c</sub> )		Tubing Wellhead Pressure (P <sub>w</sub> ) or (P <sub>t</sub> ) or (P <sub>c</sub> )		Duration (Hours)	Liquid Produced (Barrels)
						psig	psia	psig	psia		
Shut-In						186					
Flow											

### FLOW STREAM ATTRIBUTES

Plate Coefficient (F <sub>p</sub> ) (F <sub>p</sub> ) Mcfd	Circle one: Meter or Prover Pressure psia	Press Extension $\sqrt{P_m \times h}$	Gravity Factor F <sub>g</sub>	Flowing Temperature Factor F <sub>t</sub>	Deviation Factor F <sub>pv</sub>	Metered Flow R (Mcfd)	GOR (Cubic Feet/ Barrel)	Flowing Fluid Gravity G <sub>m</sub>

### (OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P<sub>w</sub>)<sup>2</sup> = 0.207  
(P<sub>o</sub>)<sup>2</sup> = \_\_\_\_\_

(P<sub>c</sub>)<sup>2</sup> = \_\_\_\_\_ : (P<sub>w</sub>)<sup>2</sup> = \_\_\_\_\_ : P<sub>o</sub> = \_\_\_\_\_ % (P<sub>c</sub> - 14.4) + 14.4 = \_\_\_\_\_ :

(P <sub>c</sub> ) <sup>2</sup> - (P <sub>w</sub> ) <sup>2</sup> or (P <sub>c</sub> ) <sup>2</sup> - (P <sub>o</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>o</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, and divide by: $\frac{P_o^2 - P_w^2}{P_c^2 - P_w^2}$	Backpressure Curve Slope = "n" ----- or ----- Assigned Standard Slope	n x LOG $\left[ \frac{P_o^2 - P_w^2}{P_c^2 - P_w^2} \right]$	Antilog	Open Flow Deliverability Equals R x Antilog (Mcfd)

Open Flow 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 therein, and that said report is true and correct. Executed this the 11 day of November, 20 11.

Witness (if any)

For Commission

*Charles Johnson*  
For Company

Checked by

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**KCC WICHITA**

I declare under penalty of 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 Noble Energy Inc and that the foregoing pressure information and statements contained on this application form are true and correct to the best of my knowledge and belief based upon available production summaries and lease records of equipment installation and/or upon type of completion or upon use being made of the gas well herein named.

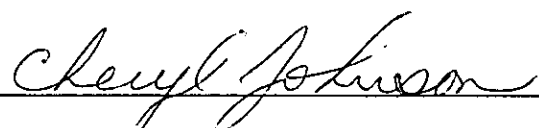
I hereby request a one-year exemption from open flow testing for the Bucholtz 31-6 gas well on the grounds that said well:

(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 not capable of producing at a daily rate in excess of 250 mcf/D

I further agree to supply to the best of my ability any and all supporting documents deemed by Commission staff as necessary to corroborate this claim for exemption from testing.

Date: 11/11/2011

Signature:   
Title: Regulatory Analyst II

**Instructions:** If a gas well meets one of 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 claim exempt status for the gas well.

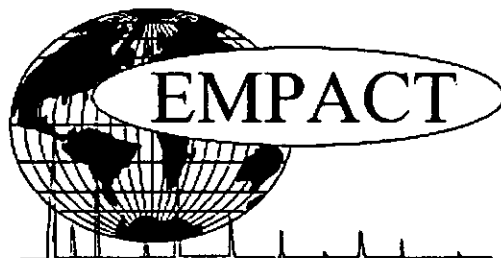
At some point during the current calendar year, wellhead shut-in pressure shall have been measured after a minimum of 24 hours shut-in/buildup time and shall be reported on the front side of this form under **OBSERVED SURFACE DATA**. Shut-in pressure shall thereafter be reported yearly in the same manner for so long as the gas well continues to meet the eligibility criterion or until the claim of eligibility for exemption IS denied.

The G-2 form conveying the newest shut-in pressure reading shall be filed with the Wichita office no later than December 31 of the year for which it's intended to acquire exempt status for the subject well. The form must be signed and dated on the front side as though it was a verified report of annual test results.

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**NATURAL GAS ANALYSIS**

PROJECT NO. :	201106109	ANALYSIS NO. :	09
COMPANY NAME :	NOBLE ENERGY	ANALYSIS DATE :	JUNE 26, 2011
ACCOUNT NO. :	YUMA	SAMPLE DATE :	JUNE 16, 2011
PRODUCER :		TO :	
LEASE NO. :	E1518120575	EFFECTIVE DATE :	JULY 1, 2011
NAME/DESCRIP. :	BUCHOLTZ 31-6		

\*\*\*FIELD DATA\*\*\*

SAMPLED BY :	M. MCCALL	CYLINDER NO. :	961
SAMPLE PRES. :	181	AMBIENT TEMP. :	
SAMPLE TEMP. :	85	GRAVITY :	
SAMPLE TYPE :	SPOT	VAPOR PRES. :	
FIELD COMMENTS :	NO PROBE		
LAB COMMENTS :			

COMPONENTS	NORM. MOLE%	GPM @ 14.65	GPM @ 14.73
HELIUM	0.12	-	-
HYDROGEN	0.03	-	-
OXYGEN/ARGON	0.04	-	-
NITROGEN	4.39	-	-
CO2	0.44	-	-
METHANE	92.99	-	-
ETHANE	1.40	0.372	0.374
PROPANE	0.41	0.112	0.113
ISOBUTANE	0.07	0.023	0.023
N-BUTANE	0.08	0.025	0.025
ISOPENTANE	0.02	0.007	0.007
N-PENTANE	0.01	0.004	0.004
HEXANES+	0.00	0.000	0.000
TOTAL	100.00	0.543	0.546
BTU @ 60 DEG F		14.65	14.73
NET DRY REAL =		882.2	887.0
NET WET REAL =		866.8	871.6
GROSS DRY REAL =		979.3	984.7
GROSS WET REAL =		962.2	967.6

RELATIVE DENSITY REAL (AIR=1 @ 14.696 PSIA 60F) : 0.5902

*NOTE: REFERENCE GPA 2261(ASTM D1945), 2145, & 2172 CURRENT PUBLICATIONS  
THIS DATA HAS BEEN ACQUIRED THROUGH APPLICATION OF CURRENT STATE-OF-THE-ART ANALYTICAL TECHNIQUES.  
THE USE OF THIS INFORMATION IS THE RESPONSIBILITY OF THE USER. EMPACT ANALYTICAL SYSTEMS, ASSUMES NO  
RESPONSIBILITY FOR ACCURACY OF THE REPORTED INFORMATION NOR ANY CONSEQUENCES OF ITS APPLICATION.*

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