

15-023-20043-00-00

STATE OF KANSAS - CORPORATION COMMISSION
MULTIPOINT BACK PRESSURE TEST

FORM CG-1

TYPE TEST: Initial Annual Special

COMPANY: Kan.-Nebr. Nat. Gas Co. LEASE: O'Brien WELL NO.: 1-30

COUNTY: Cheyenne LOCATION: 1350'FNL 1320'FEL SECTION: 30 TWP: 4S RNG: 41W ACRES: 160

FIELD: Wildcat RESERVOIR: Niobrara PIPELINE CONNECTION: None

COMPLETION DATE: PLUG BACK TOTAL DEPTH: PACKER SET AT:

CASING SIZE: 4 1/2" WT. ID. SET AT: 1361' PERF. TO: 1257' 1277'

TUBING SIZE: NO TBG WT. ID. SET AT: PERF. TO:

TYPE COMPLETION (Describe): Single (Gas) TYPE FLUID PRODUCTION: None

PRODUCING THRU: Casing RESERVOIR TEMPERATURE F: BAR PRESS - P_a: Bar. Press. Est. at 13.0Psia Psia

GAS GRAVITY - G_g: .608 BTU: .956 % CARBON DIOXIDE: % NITROGEN: API GRAVITY OF LIQUID:

VERTICAL DEPTH (H): TYPE METER CONN.: None (METER RUN) (PROVER) SIZE: Test run with 2" Critical Flow Prover

REMARKS:

OBSERVED DATA

DURATION OF SHUT-IN 3 wks.

RATE No.	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIF. (h _w) (hd)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS.		TUBING WELLHEAD PRESS.		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _t)(P _c) psia	psig	(P _w)(P _t)(P _c) psia		
SHUT IN						280.0	293.0	No	TBG		
1	3/16"	266.0	---	66	---	266.0	279.0	"	"	1	NONE
2	7/32"	261.0	---	66	---	261.0	274.0	"	"	1	"
3	1/4"	252.0	---	63	---	252.0	265.0	"	"	1	"
4	3/8"	223.0	---	60	---	223.0	246.0	"	"	1	"
5											

RATE OF FLOW CALCULATIONS

RATE NO.	COEFFICIENT (F ₁)(F ₂) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m z h_w}$	GRAVITY FACTOR F _g	FLOWING FACTOR F _t	DEVIATION FACTOR $\frac{1}{\gamma_{gv}}$	RATE OF FLOW Q Mcfd	GOR	Q _m
1	0.6237	279.0	---	1.282	0.9943	1.020	226.24		
2	0.8608	274.0	---	1.282	0.9943	1.025	308.16		
3	1.115	265.0	---	1.282	0.9971	1.024	386.76		
4	2.439	246.0	---	1.282	1.0000	1.022	786.11		
5									

PRESSURE CALCULATIONS

RATE NO.	P _t psia	P _c psia	P _w psia	(P _c) ² THOUSANDS	(P _w) ² THOUSANDS	PLOTING POINTS		100 $\frac{\% \text{ SHUT-IN } [P_w - P_a]}{P_c - P_a}$
						(P _c) ² - (P _w) ² THOUSANDS	Q Mcfd	
1		293.0	279.0	85.8	77.8	8.0	226.2	
2		293.0	274.0	85.8	75.0	10.8	308.2	
3		293.0	265.0	85.8	70.2	15.6	386.8	
4		293.0	246.0	85.8	60.5	25.3	786.1	
5								

INDICATED WELLHEAD OPEN FLOW 2,215 Mcfd @ 14.65 psia "n" = .961

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 19 th day of September, 1977.

STATE CORPORATION COMMISSION

NOV 2 1977

[Signature]
For Company

Witness (if any):

STATE OF KANSAS - CORPORATION COMMISSION
 ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

FORM G-2
 8-7-58

TYPE TEST: Deliverability Open Flow

COMPANY: Kansas-Nebr. Nat. Gas Co. LEASE: O'Brien TEST DATE: Sept. 15, 1977

COUNTY: Cheyenne LOCATION: 1350' FNL 1320' FEL WELL NO.: 1-30

FIELD: Wildcat RESERVOIR: Niobrara SECTION: 30 TWP: 4S RNG: 41W ACRES: 160

COMPLETION DATE: PIPELINE CONNECTION: None

CASING SIZE: 4 1/2" WT. I.D. SET AT PLUG BACK TOTAL DEPT. Packer Set At

TUBING SIZE: NO TBG WT. I.D. SET AT 1361' PERF. TO 1277'

TYPE COMPLETION (Describe): Single (Gas) TYPE FLUID PRODUCTION: None

PRODUCING THRU: Casing RESERVOIR TEMPERATURE F: Bar. Press. Est. 13.0 API Gravity of Liquid: 44.4

GAS GRAVITY - G_g: .608 BTU: .956 % CARBON DIOXIDE: % NITROGEN: BAR. PRESS - P_a: 13.0

VERTICAL DEPTH (H): TYPE METER CONN.: None (PROVER) SIZE: 2" Critical Flow Prover

SHUT-IN PRESSURE: SHUT IN: LOW TEST: STARTED Sept. 15 1977 AT 2:15 (AM)(PM) TAKEN 9-15 1977 AT 2:10 (AM)(PM) 9-16 1977 AT 3:00 (AM)(PM)

OBSERVED DATA

SHUT-IN OR FLOW	ORIFICE SIZE in.	METER (PROVER) PRESSURE psig	DIFF. in. (h _w)(h _d)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASING WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _t)(P _c) psia	psig	(P _w)(P _t)(P _c) psia		
SHUT-IN	7/32"	206	---	66	---	280.0	293.0	NO	TBG	24	NONE
FLOW						206.0	219.0	"	"		

DURATION OF SHUT-IN 3 wks.

RATE OF FLOW CALCULATIONS

EFFICIENT F _b (F _p) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m \times h_w}$	GRAVITY FACTOR F _g	FLOWING TEMP. F _t	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	G _m
3608	219.0	---	1.282	0.9943	1.020	245.10		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

85.8 ; (P_w)² = 47.9 ; P_d = _____ % (P_c - 14.4) + 14.4 = _____ ; (P_w)² = 0.207 ; (P_d)² = .2

$\frac{2 \cdot (P_a)^2}{2 \cdot (P_d)^2}$	(P _c) ² - (P _w) ²	$\frac{P_c^2 - P_w^2}{P_c^2 - P_d^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUALS R x ANTILOG Mcfd
6	37.9	2.25	.3522	.961	.3384	2.18	534.318

FLOW 534.32 Mcfd @ 14.65 psia

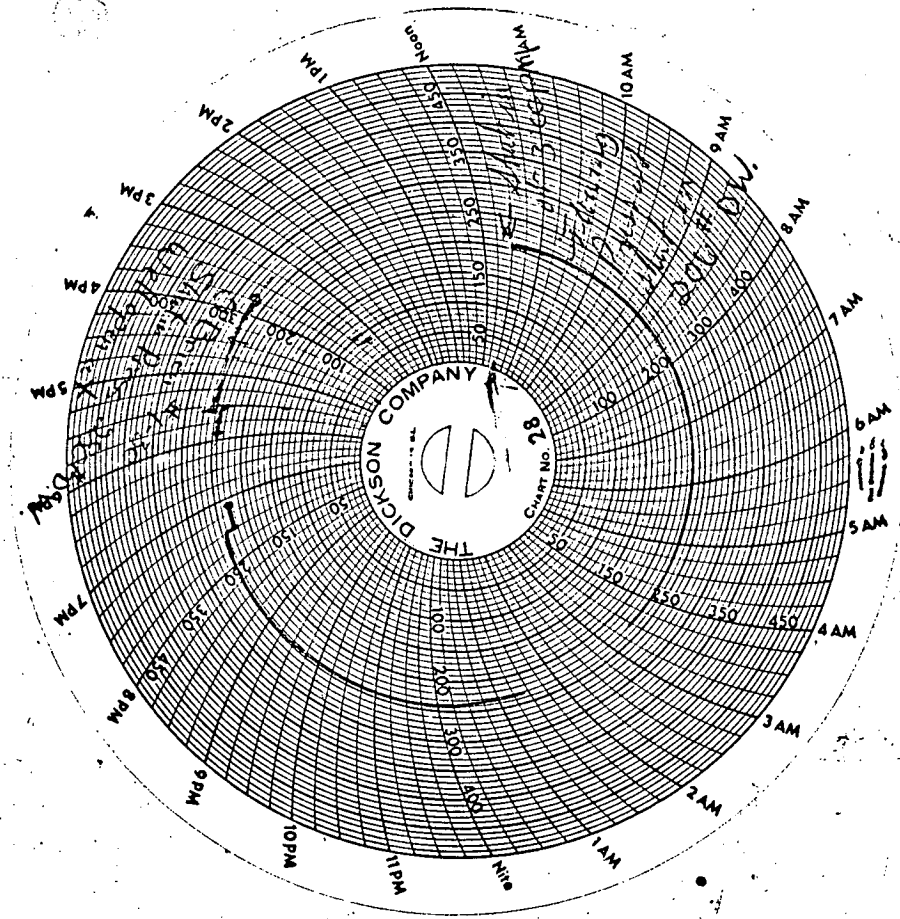
DELIVERABILITY Mcfd @ 14.65 psia

The undersigned authority, on behalf of the Company, states that he is duly authorized to make the above report and has knowledge of the facts stated therein, and that said report is true and correct.

Executed this the 19th day of September, 1977.

Witness (if any) _____

For Company _____



KANSAS-NEBRASKA NATURAL GAS COMPANY, INC.
Back Pressure Field Data Sheet

Date of Test 9-15 1977

Lease O'Brien Well No. 1-30 Company Kansas-Nebr. Nat. Gas
 Field Wildcat County Cheyenne State Kansas Location CNE Sec. 30-4S-41W
 Production Casing 4 1/2" Wt. Set at 1361 Perf. 1257 to 1277
 Tubing Size NO TBG Set at Perf. to
 Meter run None Conn. None Shut-in Pressure 280 psig. Well shut in 2 wks None
 Gravity BHT D.W. (Before or After)
 Test Run on: Casing, Tubing, Annulus (Cross out those not applicable.)
 Other remarks about test set-up: Well open at 2:15PM

OBSERVATIONS

Date	Time	Orif. Size	Flow. Temp.	Meter or Prover Pressure psig	Diff. h _w Inches of Water.	Wellhead Working Pressure psig	Remarks	
9-15-77	3:00P	2" x .125	68°	276		276	Blowing Dry	
	3:15P		68°	275		275	" " 1.7% Drawdown	
9-15-77	4:00P	2" x .1875	66°	267		267	Blowing Dry	
	4:15P		66°	266		266	" " 5% Drawdown	
9-15-77	5:00P	2" x .2188	66°	262		262	Blowing Dry	
	5:15P		66°	261		261	" " 6.7% Drawdown	
9-15-77	6:00P	2" x .250	63°	253		253	Blowing Dry	
	6:15P		63°	252		252	" " 10% Drawdown	
9-15-77	7:00P	2" x .375	60°	228		228	Blowing Dry	
	7:15P		60°	223		223	" " 20% Drawdown	
9-15-77		2" x .2188	Well Put on Stabilization Test.					
9-16-77	2:30P	2" x .2188	66°	207		207	Blowing Dry	
	2:45P		66°	206		206	" "	
	3:00P		66°	206		206	" " 26.4% Drawdown	
<p>Sample taken for BTU and specific Gravity and well shut in at 3:20 PM</p> <p style="text-align: right;"><i>[Signature]</i></p>								
<p>CONSERVATION DIVISION Wichita, Kansas</p>								

RECEIVED
STATE CORPORATE COMMISSION

Tested By Steven Steele
 Witness Steven McClymont

NOV 21 1977

CONSERVATION DIVISION
Wichita, Kansas

KNNG E21