

15-181-20288-00-00
 STATE OF KANSAS - CORPORATION COMMISSION
 ONE POINT STABILIZED OPEN FLOW OR DELIVERABILITY TEST

FORM G-2
 8-7-58

10-7-92

TYPE TEST: Deliverability Open Flow TEST DATE: August 12, 1992

COMPANY: Tahosa Investment, Inc. LEASE: Bahe WELL NO.: # 1

COUNTY: Sherman LOCATION: Sec 30 TWP: 8S RNG: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: Peoples Natural Gas

COMPLETION DATE: July 5, 1991 PLUG BACK TOTAL DEPTH: 1117' KB PACKER SET AT: None

CASING SIZE: 4 1/2" WT. 10.5# L.D. SET AT 1133' KB PERF. 1009' TO 1028'

TUBING SIZE: None WT. L.D. SET AT PERF. TO

TYPE COMPLETION (Describe): 11,000 # 20/40 Sand 38% CO2 Gelled Water 91,000 # 10/20 Sand w/38% Gelled TYPE FLUID PRODUCTION: None

PRODUCING THRU Casing RESERVOIR TEMPERATURE: 83°F BAR. PRESS - P_w water: 12.9XXXXXX

GAS GRAVITY - G_g: .6819 % CARBON DIOXIDE: 11.49 % NITROGEN: 2.57 API GRAVITY OF LIQUID: N/A

VERTICAL DEPTH (H): 1135' KB (Drillers Depth) TYPE METER CONN.: Rotary Scallop (METER RUN) (PROVER) SIZE: N/A

SHUT-IN PRESSURE: SHUT IN August 12, 1992 AT 8:00 (AM) (PM) TAKEN August 15, 1992 AT 8:00 (AM) (PM)

FLOW TEST: STARTED August 27, 1992 AT 8:00 (AM) (PM) TAKEN August 30, 1992 AT 8:00 (AM) (PM)

OBSERVED DATA DURATION OF SHUT-IN: 72 HR.

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 WELL-HEAD PRESS		TUBING WELL-HEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _i)(P _c) psia	psig	(P _w)(P _i)(P _c) psia		
SHUT-IN						46.9					
FLOW				58 to 70°F		19.9					

RATE OF FLOW CALCULATIONS SEE ATTACHMENT

COEFFICIENT (F _b)(F _d) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION √P _{mshw}	GRAVITY FACTOR F _g	FLOWING TEMP. FACTOR F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	G _m
						66 Three Day Average		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 2033.2 ; (P_w)² = 396.0 ; P_d = _____ % ; (P_c - 14.4) + 14.4 = _____ ; (P_w)² = 0.207 ; (P_d)² = _____

(P _c) ² - (P _w) ² (P _c) ² - (P _d) ²	(P _c) ² - (P _w) ²	$\frac{P_c^2 - P_w^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUATION R = ANTILOG Mcfd
1866.8	1637.2	1.14	.057	.571	.0325	1.077	71

RECEIVED
 CORPORATION COMMISSION

OPEN FLOW 71 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 29TH day of SEPTEMBER, 1992.

OCT 5 1992
 CONSERVATION DIVISION
 Wichita, Kansas

TAHOSA INVESTMENT, INC.
 For Company
 Charles H. Johns
 Checked by

Witness (if any)

10-7-92

One Point Stabilized Open Flow Test

Tahosa Investment, Inc.
Bahe # 1
Section 30-T8S-R39W
Sherman County, Kansas

Parameters:

OF = Open flow, expressed in MCF/D

R = Stabilized producing rate, expressed in MCF per day at 14.65 pounds per square inch absolute and 60°F = 66 MCF/D

P_a = Atmospheric pressure, expressed in pounds per square inch absolute = 12.9 PSIA

P_c = Wellhead shut-in pressure of the well, expressed in pounds per square inch absolute = 34 PSIG + 12.9 PSI = 46.9 PSIA

P_w = Stabilized wellhead working pressure at rate R, expressed in pounds per square inch absolute = 7 PSIG + 12.9 PSI = 19.9 PSIA

n = Characteristic well slope as determined by the multi-point back-pressure test previously submitted

OF = R times $\left[\frac{P_c^2 - P_a^2}{P_c^2 - P_w^2} \right]^n$

OF = 66 MCF/D times $\left[\frac{(46.9)^2 - (12.9)^2}{(46.9)^2 - (19.9)^2} \right]^{0.571}$

OF = 66 MCF/D times (1.14)^{.571}

OF = 71 MCF/D

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STATE CORPORATION COMMISSION

OCT 5 1992

CONSERVATION DIVISION
Wichita, Kansas

September 29, 1992

Kansas Corporation Commission
2301 E. 13th
Hayes, KS 67601
Attn: Marvin Miller

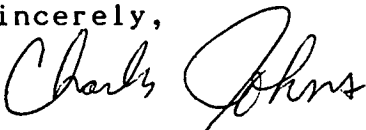
Re: One Point Stabilized Open Flow or Deliverability Test
Tahosa Investments, Inc.
Bahe # 1
Section 30-T8S-R39W
Sherman County, Kansas

Dear Mr. Miller:

Pursuant to our recent telephone conversation, the Bahe # 1 was shut in on August 12, 1992 for a One Point Test as required for new wells by the State Corporation Commission. At the conclusion of 72 hours the well built up to a pressure of 34 psig (46.9 psia). As we had discussed it was our intent to then test the deliverability of our well through the sales meter owned and operated by Peoples Natural Gas. Unfortunately, disruptions in market beyond our control, caused us to delay the subsequent stabilized flow test until August 27, 1992. The well then averaged 66 mcf/d over the next 72 hour test period at a flowing wellhead pressure of 7 psig (19.9 psia). Due to the extreme marginal nature of this well and to avoid venting of gas, the test required us to draw the wellhead working pressure down below the 75 % of wellhead shut-in pressure. This procedural change was discussed and accepted with Steve Durant in your Dodge City Office. The attached analysis reveals the Bahe # 1 has an open flow rate of 71 mcf/d.

Should you have any questions or comments regarding this procedure or calculation, please don't hesitate to contact me. I can be reached at the following phone number: 303-428-6985.

Sincerely,



Charles H. Johns

enclosure

chj
cc: Kansas Corporation Commission
Wichita Office

RECEIVED
STATE CORPORATION COMMISSION
OCT 5 1992
CONSERVATION DIVISION
Wichita, Kansas

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

FORM G-2
8-7-58

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COMPANY: Tahosa Investment, Inc. LEASE: Bahe WELL NO.: # 1

COUNTY: Sherman LOCATION: Sec 30 SECTION: 30 TWP: 8S RNO: 39W ACRES:

FIELD: Goodland RESERVOIR: Niobrara PIPELINE CONNECTION: Peoples Natural Gas

COMPLETION DATE: July 5, 1991 PLUG BACK TOTAL DEPTH: 1117' KB PACKER SET AT: None

CASING SIZE: 4 1/2" WT.: 10.5# L.D.: SET AT: 1133' KB PERF.: 1009' TO: 1028'

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PRODUCING THRU Casing RESERVOIR TEMPERATURE: 83° F BAR. PRESS - P_a: water 12.9XXXXXX

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VERTICAL DEPTH (H): 1135' KB (Drillers Depth) TYPE METER CONN.: Rotary Scallop (METER RUN)(PROVER) SIZE: N/A

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FLOW TEST: STARTED August 27 19 92 AT 8:00 (AM)(PM) TAKEN August 30 19 92 AT 8:00 (AM)(PM)

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SHUT-IN OR FLOW	ORIFICE SIZE in.	(METER) (PROVER) PRESSURE psig	DIFF. In. (h _w)(h _d)	FLOWING TEMP. t	WELL-HEAD TEMP. t	CASINO WELLHEAD PRESS		TUBING WELLHEAD PRESS		DURATION HOURS	LIQUID PROD. Bbls.
						psig	(P _w)(P _i)(P _c) psia	psig	(P _w)(P _i)(P _c) psia		
SHUT-IN						46.9					
FLOW				58 to 70° F		19.9					

RATE OF FLOW CALCULATIONS SEE ATTACHMENT

COEFFICIENT (F _p)(F _d) Mcfd	(METER) (PROVER) PRESSURE psia	EXTENSION $\sqrt{P_m \cdot h_w}$	GRAVITY FACTOR F _g	FLOWING TEMP. F _L	DEVIATION FACTOR F _{pv}	RATE OF FLOW R Mcfd	GOR	Q _m
						66 Three Day Average		

(OPEN FLOW) (DELIVERABILITY) CALCULATIONS

(P_c)² = 2033.2 ; (P_w)² = 3966.0 ; P_d = _____ % (P_c - 14.4) + 14.4 = _____ (P_w)² = 0.207 (P_d)² = _____

$\frac{(P_c)^2 - (P_d)^2}{(P_c)^2 - (P_w)^2}$	$(P_c)^2 - (P_w)^2$	$\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2}$	LOG []	"n"	n x LOG []	ANTILOG	OPEN FLOW DELIVERABILITY EQUATION R = ANTILOG Mcfd
1866.8	1637.2	1.14	.057	.571	.0325	1.077	71

OPEN FLOW 71 Mcfd @ 14.65 psia DELIVERABILITY Mcfd @ 14.65 psia

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Executed this the 29TH day of SEPTEMBER, 1992.

OCT 5 1992

CONSERVATION DIVISION
Wichita, Kansas
TAHOSA INVESTMENT, INC.

For Company
Charles H. Johns
Checked by

Witness (if any)

One Point Stabilized Open Flow Test

Tahosa Investment, Inc.
Bahe # 1
Section 30-T8S-R39W
Sherman County, Kansas

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P_w = Stabilized wellhead working pressure at rate R, expressed in pounds per square inch absolute = 7 PSIG + 12.9 PSI = 19.9 PSIA

n = Characteristic well slope as determined by the multi-point back-pressure test previously submitted

$$OF = R \text{ times } \frac{P_c^2 - P_a^2}{P_c^2 - P_w^2} n$$

$$OF = 66 \text{ MCF/D times } \frac{(46.9)^2 - (12.9)^2}{(46.9)^2 - (19.9)^2} 0.571$$

$$OF = 66 \text{ MCF/D times } (1.14) \cdot 571$$

$$OF = \underline{71 \text{ MCF/D}}$$

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STATE CORPORATION COMMISSION
OCT 5 1992
CONSERVATION DIVISION
Wichita, Kansas

876310-1

GAS VOLUME STATEMENT FOR 8/92

09/08/92 14:42:45

FROM: PEOPLES NATURAL GAS
TO: PEOPLES NATURAL GAS
TRANSACTION: PURCHASE
BILLING PERIOD: 07/28/92 thru 08/24/92

STATION NAME: TAHOSA-BAHE #1
MGM NUMBER: 438914 ACCOUNT NUMBER:
METER SIZE: 5M175 ID
CHROMATOGRAPH:
TEMP. RANGE: -30 - 120

Table with columns: EFF. DATE, REF NUM, CHART TYPE, STATIC RANGE, VOL CYCLES, CALC TYPE, CLOCK ROTATION, START INDEX, METER TYPE, CONTRACT PRESSURE, ATMD PRESSURE, BASE TEMP.

Main data table with columns: DATE DN OF, REF NUM, OFF INDEX, INDEX DIFF, FLOW TIME, FLOW TEMP, GRAV, AUG PSIG, MOL% N2, MOL% CO2, FPM, FTH, FPU^2, MCF@ PB=14.65, BTU (W), MMBTU.

-- Processed By Peoples Natural Gas

RECEIVED
STATE CORPORATION COMMISSION
OCT 5 1992
CONSERVATION DIVISION
Wichita, Kansas

876310-1

GAS VOLUME STATEMENT FOR 9/92

09/28/92 10:44:46

FROM: PEOPLES NATURAL GAS
 TO: PEOPLES NATURAL GAS
 TRANSACTION: PURCHASE
 BILLING PERIOD: 08/25/92 thru 09/28/92

STATION NAME: TAHOSA-BASE #1
 MGR NUMBER: 438914 ACCOUNT NUMBER:
 METER SIZE: 5M175 ID
 CHROMATOGRAPH:
 TEMP. RANGE: -30 - 120

EFF. DATE	REF NUM	CHART TYPE	STATIC RANGE	VOL CYCLES	CALC TYPE	CLOCK ROTATION	START INDEX	METER TYPE	CONTRACT PRESSURE	ATND PRESSURE	BASE TEMP
8/1	1	L7	100	10M	1	7 dag	431	ROTARY	14.6500	12.900	60
9/1	1	L7	100	10M	1	7 dag					

DATE BR OF	REF NUM	OFF INDEX	INDEX DIFF.	FLOW TIME	FLOW TEMP	GRAV	AUG. PSIG	MOL% N2	MOL% CO2	FPM	FTN	FPV*2	MCFB PB=14.65	BTU (W)	MMBTU
25 26	25	436	5	5.0	52.0	0.5928	48.5	3.330	1.830	4.1684	1.0156	1.0070	21	950	20
26 27	26	445	9	6.0	52.0	0.5928	48.5	3.330	1.830	4.1684	1.0156	1.0070	39	950	37
27 28	27	459	14	24.0	65.0	0.5928	49.5	3.330	1.830	4.2363	0.9905	1.0066	59	950	56
28 29	28	476	17	24.0	70.0	0.5928	48.5	3.330	1.830	4.1684	0.9811	1.0062	70	950	67
29 30	29	492	16	24.0	58.0	0.5928	49.5	3.330	1.830	4.2363	1.0039	1.0070	69	950	66
30 31	30	507	15	22.0	60.0	0.5928	49.0	3.330	1.830	4.2023	1.0000	1.0068	64	950	61
31 1	31	511	4	10.0	60.0	0.5928	48.5	3.330	1.830	4.1684	1.0000	1.0066	17	950	16
1 2	1	525	14	22.0	63.0	0.5928	48.5	3.330	1.830	4.1684	0.9943	1.0066	59	950	56
2 3	2	537	12	22.0	64.0	0.5928	49.0	3.330	1.830	4.2023	0.9924	1.0066	51	950	48
3 4	3	549	12	22.0	69.0	0.5928	48.5	3.330	1.830	4.1684	0.9830	1.0062	50	950	48
4 5	4	561	12	24.0	73.0	0.5928	48.5	3.330	1.830	4.1684	0.9756	1.0062	49	950	47
5 6	5	570	9	24.0	75.0	0.5928	48.5	3.330	1.830	4.1684	0.9720	1.0060	37	950	35
6 7	6	575	5	5.0	60.0	0.5928	48.5	3.330	1.830	4.1684	1.0000	1.0066	21	950	20
7 8	7	585	10	21.0	56.0	0.5928	49.0	3.330	1.830	4.2023	1.0078	1.0070	43	950	41
8 9	8	590	5	6.0	59.0	0.5928	48.5	3.330	1.830	4.1684	1.0019	1.0068	21	950	20
9 10	9	600	10	21.0	62.0	0.5928	48.5	3.330	1.830	4.1684	0.9962	1.0066	42	950	40
10 11	10	609	9	24.0	63.0	0.5928	48.5	3.330	1.830	4.1684	0.9943	1.0066	38	950	36
11 12	11	617	8	18.0	67.0	0.5928	48.5	3.330	1.830	4.1684	0.9867	1.0064	39	950	31
12 13	12	620	3	7.0	60.0	0.5928	48.5	3.330	1.830	4.1684	1.0000	1.0066	13	950	12
13 14	13	630	10	19.0	73.0	0.5928	48.5	3.330	1.830	4.1684	0.9756	1.0062	41	950	39
14 15	14	638	8	23.0	66.0	0.5928	48.5	3.330	1.830	4.1684	0.9886	1.0064	33	950	31
				373.0	63.2		48.7						870	950	827

-- Processed By Peoples Natural Gas

RECEIVED
 STATE CORPORATION COMMISSION

OCT 5 1992

To: Chuck Johns-

FROM: Sue [Signature]
 CONSERVATION DIVISION
 Wichita, Kansas

FAX No. 430-0319

P.N.G.

Phone No. 303-428-6985

GAS ANALYSIS

ANALYSIS NO.: 8233 II
 COMPANY: J-W OPERATING
 CYLINDER NO.: SS-142
 PRODUCER: TAHOA INVESTMENT CO

DATE RECEIVED: AUGUST 2, 1991
 DATE RUN: AUGUST 2, 1991
 DATE SAMPLED: JULY 31, 1991

DESCRIPTION:

COUNTY: SHERMAN STATE: KS SAMPLED FROM: "WELL" HEAD
 PERM. FROM: TO: ZONE: MO#:
 FIELD DETERMINATIONS: SAMPLE PRESS (PSIG): 19 SPEC. GRAVITY:
 AMBIENT TEMP (F): 100 SAMPLE TEMP (F): 72
 REQUESTED BY: D. JARRETT SAMPLED BY: R. BIVENS

CHROMATOGRAPH METHOD

COMPONENT	MOL%	G.P.A.*
HELIUM	0.06	
HYDROGEN	0.14	
OXYGEN/ARGON	0.03	
CARBON DIOXIDE	11.49	
NITROGEN	2.57	
METHANE	84.87	
ETHANE	0.66	0.177
PROPANE	0.09	0.024
I-BUTANE	0.01	0.005
N-BUTANE	0.02	0.006
I-PENTANE	0.01	0.005
N-PENTANE	0.01	0.004
HEXANES-PLUS	0.04	0.016
TOTAL	100.00	0.237

* CALCULATED VALUE BASED ON IDEAL GAS VALUES FROM LATEST G.P.A. PUB. 2145 @ 50F AND 14.65 PSIA.

** CALCULATED VALUE USING METHOD FROM G.P.A. PUB. 2172-84 AND GAS VALUES FROM 2145.

** GROSS HEATING VALUE PER CU.FT. @ 60F & 30 IN.HG SAT. 865.4 BTU
 ** GROSS HEATING VALUE PER CU.FT. @ 60F & 30 IN.HG DRY 879.8 BTU
 ** NET HEATING VALUE PER CU.FT. @ 60F & 30 IN.HG SAT. 779.3 BTU
 ** NET HEATING VALUE PER CU.FT. @ 60F & 30 IN.HG DRY 792.2 BTU
 ** SPECIFIC GRAVITY (AIR = 1.00) 0.6819

REMARKS: O.N. 77940
 FREE LIQUIDS WERE NOT DETECTED IN SAMPLE

ACCOUNT NUMBER:
 CENREF PROJECT NO.: PR911611

RECEIVED
 STATE CORPORATION COMMISSION

OCT 5 1992

CONSERVATION DIVISION
 WINTERS, MISSOURI