



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

November 16, 1998

James Bruce, Esq.
P.O. Box 1056
Santa Fe, NM 87504

RE: Letter dated October 12, 1998 re: Order No. R-10622-A

Dear Mr. Bruce:

Enclosed are copies of the two deliverability tests (the first showing 2418 mcfd and the second 1732 mcfd) that the Division Artesia District Office has in its files, the latest required and witnessed by the District Office on October 17, 1998. The District Office did not find the October 1997 test Mr. Kellahin referred to in his November 2, 1998 letter as being filed with the Division.

Using a rough straight line decline curve based on these two data points, it appears that Read & Stevens is complying with the order. Mr. Kellahin's letter contains additional information on the well that we have not verified.

If you have any questions or desire additional information, please feel free to call me at 827-8156.

Sincerely,

A handwritten signature in cursive script that reads "Rand Carroll".

Rand Carroll

c w/enc: Tom Kellahin, Esq.
Lori Wrotenbery, OCD Director
Tim Gum, OCD Artesia

DELIVERABILITY TEST REPORT

Type Test		☐ Initial		☐ Annual		☒ Special		Test Date		10/17/98	
Company				Connection							
Read & Stevens, Inc.				GPM Gas Corporation							
Pool				Formation				Unit			
Buffalo Valley				Morrow							
Completion		Total Depth		Plug Back TD		Elevation		Form or Lease Name			
4-19-97		9050'		8998'		3492' GR		Harris Federal			
Coq. Size	Wt.	d	Set At	Perforations		Well No.					
5 1/2"	17#	4.892	9040'	From 8654' To 8678'		11					
Thb. Size	Wt.	d	Set At	Perforations		Unit		Sec.	Top.	Reg.	
2 3/8"	4.6#	1.995	8546'	From To		N		26	155	27E	
Type Well - Single - Broadhead - G.G. or G.O. Multiple						Packer Set At		County			
Single						8546'		Chaves			
Producing Time		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press. - P _a		State			
Tubing		157 # 8660'		60		13.2		New Mexico			
L	H	Cq.	% CO ₂	% N ₂	% H ₂ S	Prover	Meter Run	Taps			
8666	8666	0.634	0.3	1.20							
FLOW DATA				TUBING DATA				CASING DATA			
NO.	Prover Line Size	Choke Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow	
51	Total Flow Meter				71	435				48 hrs	
1.					74	220				3 hrs	
NO.	Coefficient (24-Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super. Compres. Factor F _{sp}	Rate of Flow Q, Mscf/d				
1.				0.9868	1.256	1.019	1,215				
NO.	P _r	Temp. R.	T _r	Z	Gas Liquid Hydrocarbon Ratio		Dry				
	0.465	534	1.57	0.963	A.P.I. Gravity of Liquid Hydrocarbons		Dry				
					Specific Gravity Separator Gas		0.634				
					Specific Gravity Flowing Fluid		XXXXX				
					Critical Pressure		674 p.s.i.g.				
					Critical Temperature		367 °R				
					P ₁		P ₂				
NO.	P ₁	P ₁ ²	P ₀ ² - P ₁ ²	P _w	P _w ²	P ₀ ² - P _w ²	P _a	P _a ²	P ₁ ² - P _a ²		
	233	54.4	146.5	322.4	104.0	96.9	393.7	155.0			

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = \left[\frac{200.9 - 3.99}{200.9 - 104} \right] = 2.031$$

$$\log \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = 0.3078$$

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n = 1.425$$

$$n \log \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = 0.154$$

$$\text{Deliv.} = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n$$

$$\text{Deliv.} = 1732 \text{ Mscf/d}$$

Multi Point Back Pressure Test
(Source of n)

Division

Company

Others

Read & Stevens, Inc.



DELIVERABILITY TEST REPORT

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 04-23-97	
Company Read & Stevens, Inc.			Connection GPM Gas Corporation		
Pool Buffalo Valley			Formation Morrow		Unit
Completion 04-19-97		Total Depth 9050'	Plug Seat TD 8998'	Elevation 3492' GR	Form or Lease Name Harrie Federal
Csg. Size 5 1/2"	Wt. 17#	d 4.892	Set At 9040'	Perforations From 8654 To 8678'	Well No. 11
Tub. Size 2 3/8"	Wt. 4.6#	d 1.995	Set At 8546'	Perforations From To	Unit Sec. Twp. Rng. N 26 15S 27E
Type Well - Single - Widenhead - G.G. or G.G. Multiple Single				Packer Set At 8546'	County Chaves
Producing thru Tubing		Reservoir Temp. °F 157 @ 8660'	Mean Annual Temp. °F 60	Base Press. - P _g 13.2	State New Mexico
L 8666	H 8666	Gg. 0.634	% CO ₂ 0.3	% N ₂ 1.20	% H ₂ S Proven Meter Run Taps
FLOW DATA			TUBING DATA		CASING DATA
NO.	Proven Line Size	Choke Orifice Size	Press. p.s.i.g.	D/L hr	Temp. °F
81	Total Flow Meter				
1.					
NO.	Coefficient (24-hour)	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor F _{sp}
1.			0.9962	1.256	1.003
NO.	P _r	Temp. R.	T _r	Z	Gas Liquid Hydrocarbon Ratio
	0.997	518	1.427	0.8827	DRY Gas
A.P.I. Gravity of Liquid Hydrocarbons					Met/bbl.
Specific Gravity Separator Gas					DRY
Specific Gravity Flowing Fluid					XXXXX
Critical Pressure					669 p.s.i.a.
Critical Temperature					366 °R
P ₁ P ₂					
NO.	P ₁	P ₂	P ₂ ² - P ₁ ²	P _w	P _w ²
	500	250.0	442.2	576.8	332.7
					P ₂ ² - P _w ²
					516.0
					266.3

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = \left[\frac{692.2 - 30}{692.2 - 332.7} \right] \frac{1.840}{1.356}$$

$$\text{Log} \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = \frac{0.2648}{0.1324}$$

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n = \frac{1.356}{1.356}$$

$$\text{Log} \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = \frac{0.1324}{0.1324}$$

$$\text{Deliv.} = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n$$

$$\text{Deliv.} = \frac{2418}{0.50} \text{ Mscf}$$

Multi Point Back Pressure Test
(Source of n)

Division

Company

Others

Read & Stevens, Inc.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501P. 3
Form C-122-C
Revised 10-1-79

DELIVERABILITY TEST REPORT

Type Test		☒ Initial ☐ Annual ☐ Special		Test Date			
Company		Read & Stevens, Inc.		Connection		GPM Gas Corporation	
Pool		Buffalo Valley		Formation		Morrow	
Completion		04-19-97		Total Depth		9050'	
Casing Size		5 1/2"		Plug Back TD		8998'	
Wt.		17#		Elevation		3492' GR	
Set At		4.892		Perforations		From 8654 To 8678'	
Tbg. Size		2 3/8"		Set At		8546'	
Wt.		4.6#		Perforations		From To	
Type Well - Single - Graduated - G.G. or G.O. Multiple		Single		Packer Set At		8546'	
Producing thru		Tubing		Reservoir Temp. °F		157 @ 8660'	
Mean Annual Temp. °F		60		Baro. Press. - P _a		13.2	
L		H		G _g		% CO ₂	
8666		8666		0.634		0.3	
% N ₂		1.20		% H ₂ S		Prover	
Meter Run		Taps		County		Chaves	
State		New Mexico		Unit		Sec. Twp. Rng.	
N		26		15S		27E	
FLOW DATA							
NO.	Prover Line Size	X	Choke Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Duration of Flow
1.	Total Flow Meter					70	96 hrs
1.						64	24 hrs
NO.	Coefficient (24-Hour)		Pressure P _m	Flow Temp. Factor Ft	Gravity Factor F _g	Super Compress. Factor F _{sp}	Rate of Flow Q, Mcfd
1.				0.9962	1.256	1.003	1.783
NO.	P _r	Temp. R.	T _r	Z	Gas Liquid Hydrocarbon Ratio Dry Gas Mcf/bbl.		
	0.997	518	1.427	0.8827	A.P.I. Gravity of Liquid Hydrocarbons Dry Deg.		
					Specific Gravity Separator Gas 0.634 XXXXXXXXXX		
					Specific Gravity Flowing Fluid XXXXX		
					Critical Pressure 669 p.s.i.a. p.s.i.a.		
					Critical Temperature 366 °R °R		
					PI PI ²		
NO.	P ₁	P ₁ ²	P _a ² - P ₁ ²	P _w	P _w ²	P _a ² - P _w ²	P _a
	500	250.0	442.2	576.8	332.7	359.5	516.0

$$\left[\frac{P_c^2 - P_d^2}{P_a^2 - P_w^2} \right] = \frac{692.2 - 30.6}{692.2 - 332.7} = 1.840$$

$$\text{Log} \left[\frac{P_c^2 - P_d^2}{P_a^2 - P_w^2} \right] = 0.2648$$

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n = 1.356$$

$$n \text{ Log} \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = 0.1324$$

$$\text{Deliv.} = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n$$

Deliv. 2418 Mcfd
n 0.50Multi Point Back Pressure Test
(Source of n)

Division

Company

Read & Stevens, Inc.

Others

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501Form C-122-C
Revised 10-1-78

DELIVERABILITY TEST REPORT

Type Test ☐ Initial ☐ Annual ☒ Special				Test Date 10/17/98	
Company Read & Stevens, Inc.				Connection GPM Gas Corporation	
Pool Buffalo Valley				Formation Morrow	
Completion 4-19-97		Total Depth 9050'		Plug Back TD 8998'	
Elevation 3492' GR		Form or Lease Name Harris Federal		Well No. 11	
Csg. Size 5 1/2"	Wt. 17#	d 4.892	Set At 9040'	Perforations: From 8654' To 8678'	
Tub. Size 2 3/8"	Wt. 4.6#	d 1.995	Set At 8546'	Perforations: From To	
Type Well—Single—Broadhead—G.G. or G.O. Multiple Single				Packer Set At 8546'	
Producing Thru Tubing		Reservoir Temp. °F 157 @ 8660'		Mean Annual Temp. °F 60	
Baro. Press. — P _a 13.2		State New Mexico		County Chaves	
L 8666	H 8666	Cq. 0.634	% CO ₂ 0.3	% N ₂ 1.20	% H ₂ S
Prover			Meter Run		
Taps					
FLOW DATA					
NO.	Prover Line Size	X Choke Orifice Size	Press. p.s.i.g.	Diff. in. H ₂ O	Temp. °F
51	Total Flow Meter				71
1.					74
TUBING DATA					
NO.	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
51			435		48 hrs
1.			220		3 hrs
CASING DATA					
NO.	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
51			435		48 hrs
1.			220		3 hrs
NO.	Coefficient (24-Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g
1.				0.9868	1.256
NO.	P _r	Temp. R.	T _r	Z	Gas Liquid Hydrocarbon Ratio
	0.465	534	1.57	0.963	Dry
					A.P.I. Gravity of Liquid Hydrocarbons
					Dry
					Specific Gravity Separator Gas
					0.634
					Specific Gravity Flowing Fluid
					XXXXX
					Critical Pressure
					674 p.s.i.g.
					Critical Temperature
					367 °R
					P _i P _i ²
NO.	P _i	P _i ²	P _e ² - P _i ²	P _w	P _w ²
	233	54.4	146.5	322.4	104.0
					96.9
					393.7
					155.0

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = \left[\frac{200.9 - 3.99}{200.9 - 104} \right] = 2.031$$

$$\log \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = 0.3078$$

$$\left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n = 1.425$$

$$n \log \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right] = 0.154$$

$$\text{Deliv.} = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n$$

Deliv. 1732 Mc/d
0.50

Multi Point Back Pressure Test
(Source of n)

Division

Company

Others

Read & Stevens, Inc.



OIL CONSERVATION DIVISION
ARTESIA, NEW MEX. 88210

TO: Lori

FROM: Tim Hum

DATE: 10-23-98

NUMBER OF SHEETS (INCLUDING TRANSMITTAL SHEET) 4

IF YOU HAVE ANY PROBLEMS WITH THIS TRANSMISSION, PLEASE CALL 505-748-1283.

FAX NUMBER (505) 748-9720

READ & STEVENS							
HARRIS FEDERAL NO. 11							
							IF 866 USED
DATE	DAYS	MCFFPM				OVER/UNDER	FOR MISS
					AT 50%	PROD	TEST
Apr-97		17605	4/23/97	FIRST DEL. TEST =	1209		
May-97	30	40278				4008	4008
Jun-97	30	33937				-2333	-2333
Jul-97	31	34202				-3277	-3277
Aug-97	31	33972				-3507	-3507
Sep-97	30	33804				-2466	-2466
Oct-97	28	31137		EST.	1095	477	6889
Nov-97	30	31962				-888	5982
Dec-97	31	31817				-2128	4971
Jan-98	31	29394				-4551	2548
Feb-98	28	26573				1087	2375
Mar-98	31	28674				-5271	1828
Apr-98	29	25607		EST	981	-2842	493
May-98	31	28105				-2306	1259
Jun-98	30	25920				-3510	-60
Jul-98	31	25954				-4457	-892
Aug-98							
Sep-98							
Oct-98			10/20/98	2ND DEL TEST=	866		
Nov-98							
					TOTAL	-37138	17768
LORI---- BASED ON THE EST. NOS. THERE IS NO PROBLEM OF BEING OVER ALLOWABLE.							
HOWEVER IF THE LAST TEST IS USED FOR THE MISSING TEST THERE IS AN OVERAGE. TWG.							