

El Paso Natural Gas Company

El Paso, Texas

August 29, 1956

DIRECT REPLY TO:
P. O. BOX 887
FARMINGTON, NEW MEXICO

Mr. A. L. Porter, Secretary and Director
Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Sir:

This is to request administrative approval for a well dually completed in the Blanco-Mesa Verde Pool and the Astec-Pictured Cliffs Pool. The El Paso Natural Gas Ludwick #10 is located 990' from the North Line and 990' from the East Line, Section 29, Township 30 North, Range 10 West, N.M.P.M., San Juan County, New Mexico.

This well has been completed in the Point Lookout member of the Mesa Verde formation and the Pictured Cliffs sandstone. Completion has been accomplished in the following manner:

1. 10 3/4" casing set at 174' with 250 sacks of cement.
2. 7" casing set at 4607' using multi-stage cement procedure--150 sacks at the base of the casing and 150 sacks across the Pictured Cliffs formation.
3. 5 1/2" liner set at 5298' to 4526' with 150 sacks of cement.
4. Before perforating either pay zone, both the casing and liner were tested under pressure for leaks and none were found.
5. Point Lookout formation was perforated and sand-water fraced at three intervals through the 5 1/2" liner.
6. Pictured Cliffs formation was perforated and sand-water fraced through the 7" casing.
7. Both formations were thoroughly cleaned after treatment, and completion was accomplished by setting a Baker Model "D" production packer below the Pictured Cliffs perforations in the 7" casing. 2" tubing was then run through the production packer to a point opposite the Mesa Verde perforations. Thus, the Mesa Verde will be produced through the 2" tubing, and the Pictured Cliffs formation will be produced through the tubing-casing annulus.



COPY

8. A Garrett Sidedoor Flow Nipple was installed on the 2" tubing above the production packer. This flow nipple will enable Bottom Hole pressures to be taken if they are required at a future date.
9. Initial Potential tests have been run and commercial production has been found at both zones. Also a packer leakage test has been run and witnessed by the Artec Oil Conservation Commission office. This test shows no communication in the well bore between the two producing formations.

Administrative approval is asked for this dual completion to allow production from both known producing formations without the high initial cost of drilling two wells.

The offset operators of this dual completion have been notified and I am enclosing telegrams from them waiving any objections to it. Also enclosed are;

- (a) Two copies of the Schematic Diagram of the mechanical installations.
- (b) Two copies of the plats showing the location of this well and the offset operators.
- (c) Two copies of an affidavit from the packer setting company stating that the packer used was set at the depth shown.
- (d) Two copies of the packer leakage tests as observed by a member of the Oil Conservation Commission.
- (e) Two copies of the initial potential tests showing commercial production from the zones.

It is intended to dedicate the E/2 of Section 29 to the Mesa Verde formation and the NE/4 of Section 29 to the Pictured Cliffs Production.

Any further information required will be furnished upon your request. Thank you for your consideration of this matter.

Yours very truly,

ORIGINAL SIGNED E. J. COEL

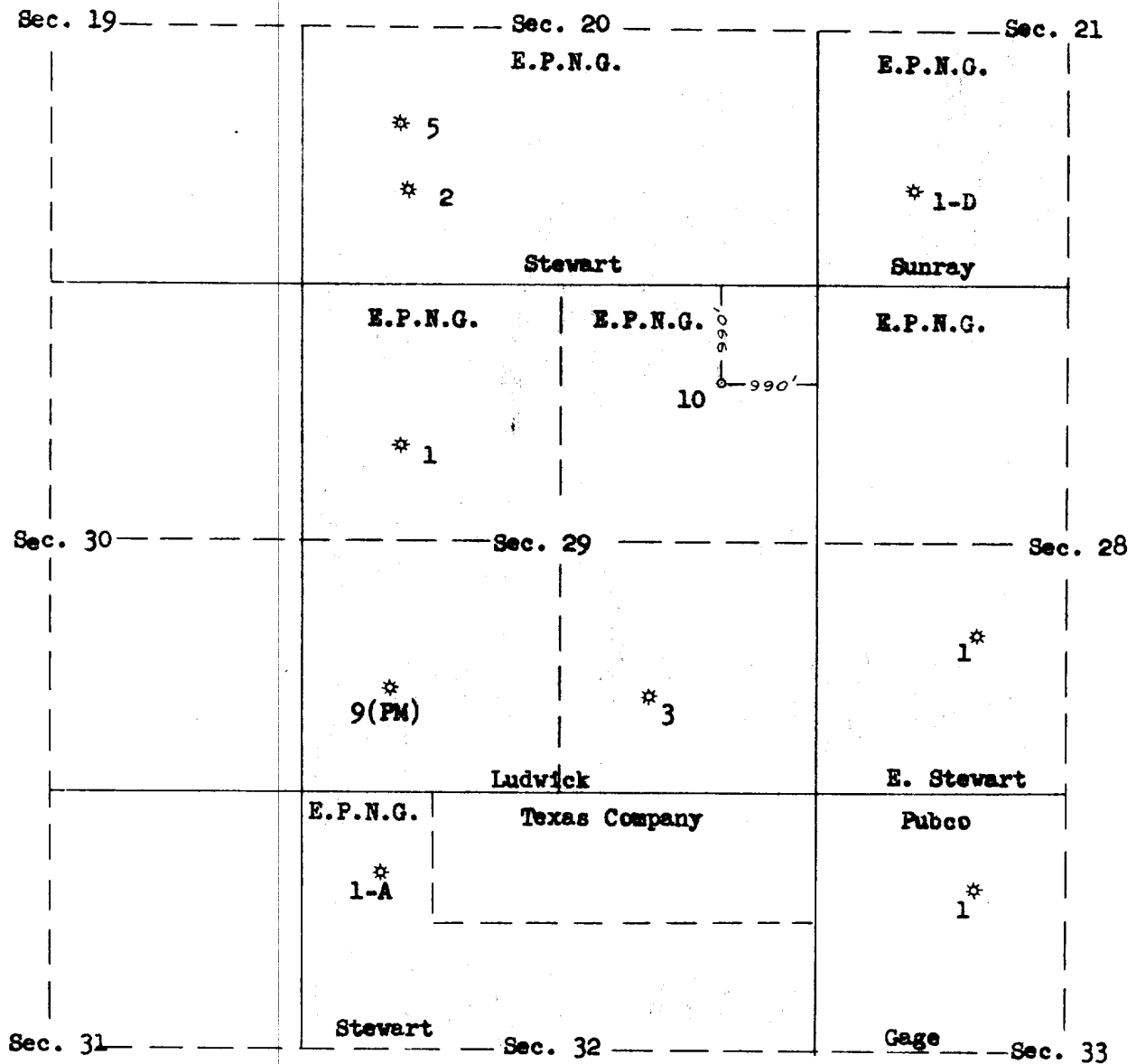
E. J. Coel
Senior Petroleum Engineer

EJC:ajh
Enclosure

cc: R. L. Hamblin
Phil T. McGrath
Emery Arnold ✓



PLAT SHOWING LOCATION OF DUAL COMPLETED
EPNG LUDWICK #10 & OFFSET ACREAGE



EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE

DATE

No.

DRAWN BY

CHECKED BY

EL PASO NATURAL GAS COMPANY

P. O. Box 997
Farmington, N.M.

August 23, 1956

Mr. E. C. Arnold
Oil Conservation Commission
Aztec, New Mexico

Re: Packer Leakage Test on the El Paso Natural
Gas Company Well, Ludwick # 10, NE 29-30-10,
San Juan County, New Mexico.

Dear Mr. Arnold:

This well was dually completed in the Pictured Cliff and Mesa Verde zones. A bridging plug was set at 4600 feet. This well was tested this date with the following results obtained:

SIPC - 563 psig (shut-in 9 days)
SIPT - 633 psig

The casing was opened at 11:40 P.M. through a 3/4" choke and was left open for three hours.

<u>Time</u>	<u>Casing Choke Pressure Psig</u>	<u>Temp. OF</u>	<u>Choke Vol. MCF/Day</u>	<u>Tubing Pressure Psig</u>
11:40 A.M.	Opened casing			633
11:55 A.M.	335	63	4808	636
12:10 P.M.	288	65	4121	637
12:25 P.M.	258	65	3698	637
12:40 P.M.	240	66	3445	638
2:40 P.M.	168	70	2430	

At 12:45 P.M. the tubing was opened through a 3/4" choke and was left open for three hours.

<u>Time</u>	<u>Tubing Choke Pressure Psig</u>	<u>Temp. OF</u>	<u>Choke Vol. MCF/Day</u>	<u>Casing Pressure Psig</u>
12:45 P.M.	Opened tubing			
2:40 P.M.	222	71	3112	168
2:55 P.M.	210	75	2935	340
3:10 P.M.	208	76	2903	364
3:25 P.M.	201	76	2811	386
3:40 P.M.	196	75	2745	400
3:45 P.M.	195	77	2632	405

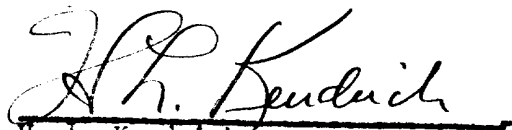


The tubing was shut-in at 3:45 P.M. The low shut-in pressure on the tubing may have been influenced by an accumulation of liquid in the tubing string. The tubing unloaded quite a bit of liquid.

The results of the data obtained during the test indicates that there is no leakage past the bridging plug.

This test was witnessed by Mr. Fred Cook of the New Mexico Oil Conservation Commission.

Very truly yours,


H. L. Kendrick
Gas Engineer

HLK/jla

cc: E. E. Alsup
D. H. Tucker
R. W. Harris
W. T. Hollis
Bill Parrish
D. V. Rittman
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File



EL PASO NATURAL GAS COMPANY
GAS WELL TESTTo: Mr. E. E. Alsup
From: Gas Engineering DepartmentDate: August 21, 1956
Place: Farmington, New MexicoDUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
LUDWICK # 10 (M), San Juan County, New Mexico.Tested By: H. L. Kendrick. Witnessed By: Mr. Fred Cook, New Mexico Oil Conservation
Commission

Location Sec. 29 T. 30 R. 10 ,990'N, 990'E

Shut-In Pressure SIPC psig ; (Shut-in 9 days)
SIPT 633 psig0.750" Choke Volume 2732 MCF/D @ 14.7 psia and 60° F. for 0.6
gravity gas. Flow through tubing for 3 hours.

Calculated 3 Hour Absolute Open Flow 4411 MCF/D

Working Pressure On Calculated working pressure = 431 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac

Total Depth 5315 - c/o - 5263

Field Blanco

H2S Sweet to lead acetate.

cc: D. H. Tucker

R. W. Harris

W. T. Hollis

~~W. M. Rodgers~~

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

Roland Hamblin

Jack Purvis

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C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoefter

File

D. V. Rittman
Bill Parrish*L. D. Galloway*
L. D. Galloway

(6)

EL PASO NATURAL GAS COMPANY
GAS WELL TESTTo: Mr. E. E. Alsup
From: Gas Engineering DepartmentDate: August 21, 1956
Place: Farmington, New MexicoDUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
LUDWICK # 10, (PC) San Juan County, New Mexico.Tested By: H. L. Kendrick. Witnessed By: Mr. Fred Cook, New Mexico Oil Conservation
Commission

Location Sec. 29 T. 30 R. 10 ,990'N, 990'E

Shut-In Pressure SIPC 563 psig ; (Shut-in 9 days)
SIPT psig0.750" Choke Volume 2430 MCF/D @ 14.7 psia and 60° F. for 0.6
gravity gas. Flow through casing for 3 hours.

Calculated 3 Hour Absolute Open Flow 2655 MCF/D

Working Pressure On Calculated working pressure = 169 Psig

Producing Formation Pictured Cliff

Stimulation Method Sand Water Frac

Total Depth Bridging Plug at 4600

Field Aztec

H₂S Sweet to lead acetate.cc: D. H. Tucker
R. W. Harris
W. T. HollisD. V. Rittman
Bill Parrish*L. D. Galloway*
L. D. Galloway~~*****~~W. M. Rodgers
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Drilling Department
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Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE August 21, 1956

Operator El Paso Natural Gas Company		Lease Ludwick # 10 (P)	
Location 990°N, 990°E, Sec. 29-30N-10W		County San Juan	State New Mexico
Formation Pictured Cliff		Pool Aztec	
Casing: Diameter 5½ 7	Set At: Feet 4526-5298 4607	Tubing: Diameter 2"	Set At: Feet 5203
Pay Zone: From 2703	To 2754	Total Depth: Bridging plug set at 4600'	
Stimulation Method Sand Water Frac		Flow Through Casing X	
		Flow Through Tubing	

Choke Size, Inches .750		Choke Constant: C 14.1605	
Shut-In Pressure, Casing, PSIG 563	- 12 = PSIA 575	Days Shut-In 9	Shut-In Pressure, Tubing PSIG 181
Flowing Pressure: P PSIG 168	- 12 = PSIA 180	Working Pressure: P _w PSIG Calculated	- 12 = PSIA 181
Temperature: T 70	F .85	F _{pv} (From Tables) 1.017	Gravity .670 est.

CHOKE VOLUME: $Q = C \times P_r \times F_c \times F_g \times F_{pv}$

$Q = 14.1605 \times 180 \times .9905 \times .9463 \times 1.017 = 2430$ MCF/D

OPEN FLOW: $A_{of} = Q \left(\frac{P_r}{P_c - P_w} \right)^n$

$A_{of} = \left(\frac{330,625}{297,864} \right)^n \quad 2430 (1.1099)^{.85} = 2430 \times 1.0925$

$A_{of} = 2655$ MCF/D

TESTED BY: **H. L. Kendrick**

WITNESSED BY: **Fred Cook, NMOC**

cc: **E. J. Coel, Jr.**



L. D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE August 21, 1956

Operator El Paso Natural Gas Company		Lease Ludwick # 10 (M)	
Location 990'N, 990'E, Sec. 29-30N-10W		County San Juan	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing Diameter 5 1/2 7	Set At: Feet 4526-5298 4607	Tubing Diameter 2"	Set At: Feet 5203
Pay Zone: From 4984	To 5218	Total Depth: 5315 - c/o - 5263	
Stimulation Method Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches .750		Choke Constant: C 14.1605	
Shut-In Pressure, Casing, PSIG 195	- 12 = PSIA 207	Days Shut-In 9	Shut-In Pressure, Tubing PSIG 633
Flowing Pressure: P 195	- 12 = PSIA 207	Working Pressure: P _w Calculated	- 12 = PSIA 443
Temperature: T 75	F 75	F _{pv} (From Tables) 1.021	Gravity .700 est.

CHOKE VOLUME = Q = C x P_i x F_i x F_g x F_{pv}

Q = 14.1605 x 207 x .9859 x .9258 x 1.021 = 2732 MCF/D

$$\text{OPEN FLOW } A_{of} = Q \left(\frac{P_c^2}{P_c^2 - P_w^2} \right)^n$$

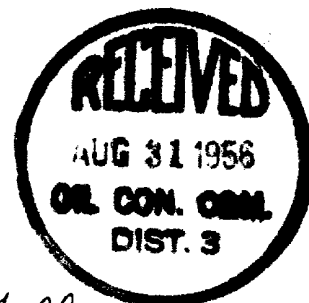
$$A_{of} = \left(\frac{416,025}{219,776} \right)^n = 2732 (1.8929)^{.75} = 2732 \times 1.6145$$

A_{of} = 4411 MCF/D

TESTED BY H. L. Kendrick

WITNESSED BY Fred Cook, NMOC

cc: E. J. Coel, Jr. (6)



L. D. Galloway
L. D. Galloway

STATE OF NEW MEXICO)
)
COUNTY OF SAN JUAN)

I, Mack Mahaffey, being first duly sworn upon my oath depose and say as follows:

I am an employee of Baker Oil Tools, Inc., and that on August 12, 1956, I was called to the location of the El Paso Natural Gas Company Ludwick #10 Well located in the NE/4 of Section 29, Township 30 North, Range 10 West, N.M.P.M. for the purpose of installing a production packer. Under my direct supervision a Baker Model D production packer was set at 2,809 feet. The production packer was properly set in accordance with the usual practices and customs of the industry.

Mack Mahaffey
Mack Mahaffey

Subscribed and sworn to before me, a Notary Public in and for San Juan County, New Mexico, the 22nd day of August, 1956.

MY COMMISSION EXPIRES FEB. 24, 1960

Paul Machalek
Notary Public in and for San Juan
County, New Mexico



TO THE HONORABLE
MEMBERS OF THE
COMMISSION ON THE STATUS OF WOMEN
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C.

Dear Members:

I am pleased to have the opportunity to present to you the results of the research conducted by the National Commission on the Status of Women. The Commission was established in 1961 by the President and has since that time been working to identify and eliminate the barriers to equality for women in the United States.

The Commission's report, "The Status of Women in the United States," is a comprehensive study of the role of women in American society. It covers a wide range of issues, including education, employment, family life, and political participation. The report is the result of extensive research and consultation with women from all walks of life.

I hope that this report will provide you with the information you need to make informed decisions about the status of women in the United States. I am confident that your efforts will lead to a more equitable and just society for all.

[Signature]

Very truly yours,
[Signature]

[Signature]

MY COMMISSION EXPIRES FEB. 24, 1980



SCHEMATIC DIAGRAM OF DUAL COMPLETION

EPNG LUDWICK #10

Single String
Xmas Tree

