

# El Paso Natural Gas Company

El Paso, Texas  
February 17, 1958

DIRECT REPLY TO:  
P. O. BOX 997  
FARMINGTON, NEW MEXICO



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

Dear Sir:

This is a request for administrative approval for a well dually completed in the South Blanco Pictured Cliffs Pool Extension and in the Blanco Mesa Verde Pool. The El Paso Natural Gas Company San Juan 28-7 Unit No. 93 (PM) is located 840 feet from the South line and 1550 feet from the West line of Section 9, Township 27 North, Range 7 West, N.M.P.M., Rio Arriba County, New Mexico.

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

1. 10 3/4" surface casing set at 173 feet with 125 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 3324 feet with 250 sacks of cement. Top of the cement is at 1535 feet which is above the top of the Pictured Cliffs at 3112 feet.
3. 5 1/2" liner set from 3281 feet to 5716 feet with 300 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in five intervals and fractured with water and sand.
6. The Pictured Cliffs formation was perforated in one interval and fractured with water and sand.
7. All perforations were cleaned after treatment and completion was accomplished by setting a Baker Model "EGJ" production packer on 2" EUE tubing at 3330 feet with the tubing perforations set opposite the Point Lookout perforations. 1 1/4" EUE tubing was run, with the tubing perforations set opposite the Pictured Cliffs perforations, as a siphon string. The Point Lookout gas will be produced through the 2" tubing and the Pictured Cliffs gas through the casing.
8. Initial potential tests have been run and commercial production has been found in both zones. A packer leakage test has been run and witnessed by a member of the Aztec office of the Oil Conservation Commission. This test shows no communication in the well bore between the two producing formations.

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Administrative approval is requested for the dual completion to allow production from both known producing formations, eliminating the high initial cost of drilling two separate wells.

El Paso Natural Gas Company, being the only operator of the San Juan 28-7 Unit, has not sought the approval of any other operator to dually complete this well. Enclosed are:

- (a) Two copies of the schematic diagram of the mechanical installations.
- (b) Two copies of the affidavit from the packer setting company stating that the packer used was set at the depth shown.
- (c) Two copies of the packer leakage test as observed by a member of the Oil Conservation Commission.
- (d) Two copies of the initial potential test showing commercial production from the two formations.

It is intended to dedicate the W/2 of Section 9, Township 27 North, Range 7 West to the Mesa Verde formation and the SW/4 of Section 9, Township 27 North, Range 7 West to the Pictured Cliffs formation.

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

Yours very truly,

ORIGINAL SIGNED E. S. OBERLY

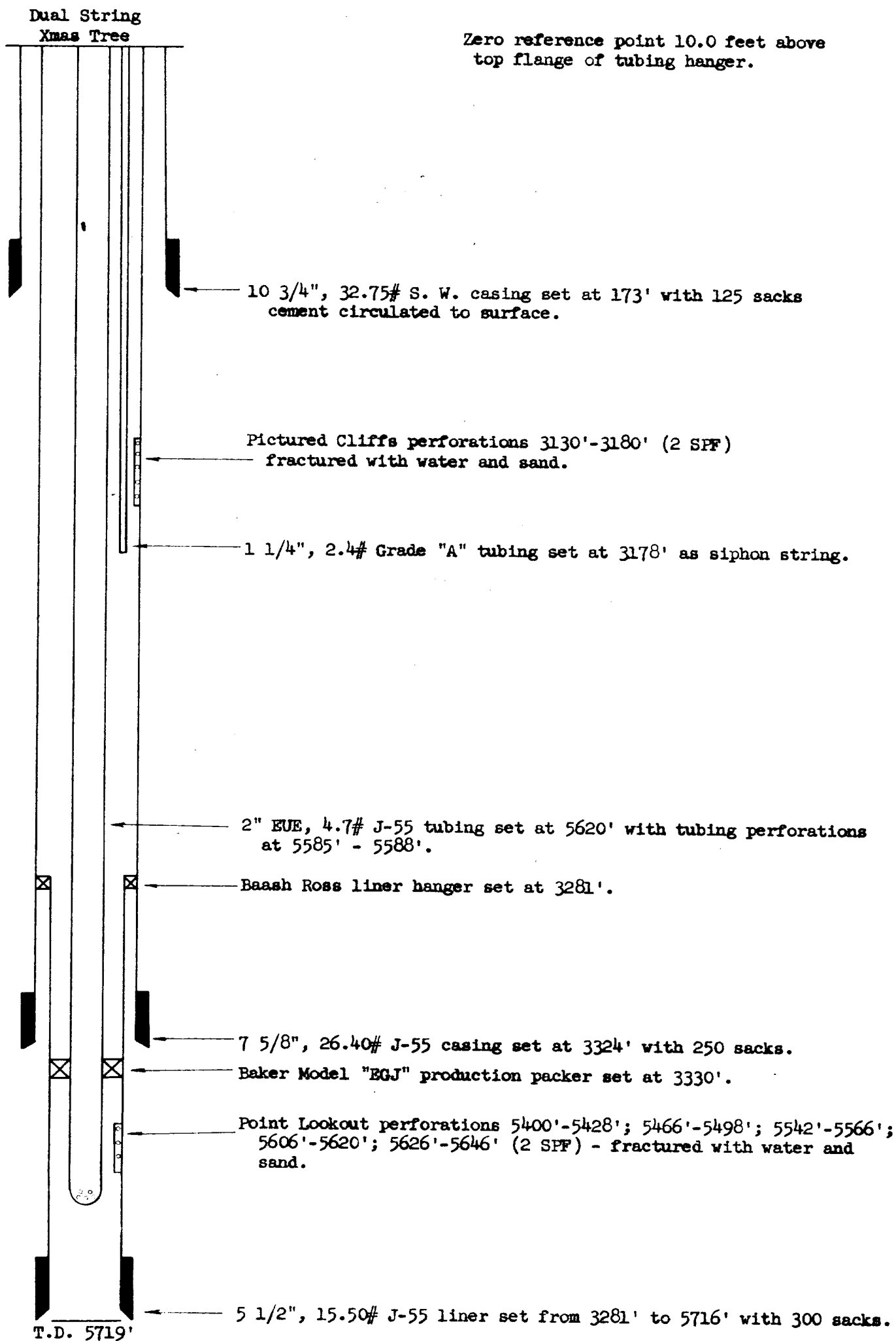
E. S. Oberly,  
Division Petroleum Engineer

ESO:dgb

Encl.

cc: NMOCC (Emery Arnold)  
Sam Smith  
USGS (Phil McGrath)

SCHEMATIC DIAGRAM OF DUAL COMPLETION  
El Paso Natural Gas Co. San Juan 28-7 Unit No. 93 (FM)  
SW/4 Section 9, T-27-N, R-7-W



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 December 21,  
1957, I was called to the location of the El Paso Natural Gas Company  
San Juan 28-7 Unit No. 93 (FM) Well located in the SESEW/4 of Section 9,  
Township 27 North, Range 7 West, N.M.P.M., for advisory service in connection  
with installation of a production packer. In my presence, a Baker Model "EGJ"  
Production Packer was set in this well at 3330 feet in accordance with the usual  
practices and customs of the industry.

Mack M. Mahaffey

Subscribed and sworn to before me, a Notary Public in and for San Juan  
County, New Mexico, the 13 day of FEB, 1958.

Paul H. MacLachlan  
Notary Public in and for San Juan  
County, New Mexico

My commission expires February 24, 1960.

EL PASO NATURAL GAS COMPANY

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

January 29, 1958

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

Re: Packer Leakage Test on the El Paso Natural Gas  
Company Well, San Juan 28-7 Unit No. 93 (M),  
840'S, 1550'W, Sec. 9-27-7, Rio Arriba County,  
New Mexico.

Dear Mr. Arnold:

The subject well was dually completed in the Pictured Cliffs and Mesa Verde zones and a packer was set at 3330 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours January 13, 1958 with the following data obtained:

Pictured Cliffs SIPC 991 psig; shut-in 23 days  
Pictured Cliffs SIPT 991 psig

Mesa Verde SIPT 1038 psig; shut-in 23 days

<u>Time</u> <u>Minutes</u>	<u>PC Flowing Pressure</u> <u>Casing Psig</u>	<u>MV SIPT Psig</u>	<u>PC Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
0		1038		
15	658	1047		51
30	642	1051		52
45	675	1052		58
60	665	1054		63
180	581	1054	563	63

The choke volume for the Pictured Cliffs was 7535 MCF/D with an A.O.F. of 10,572 MCF/D.

The Mesa Verde zone was tested January 27, 1958 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 1000 psig; shut-in 14 days  
Pictured Cliffs SIPT 1000 psig

Mesa Verde SIPT 1056 psig; shut-in 37 days

<u>Time</u> <u>Minutes</u>	<u>MV Flowing Pressure</u> <u>Tubing Psig</u>	<u>PC SIPC Psig</u>	<u>MV Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
0		1000		
15	375	1001		54
30	321	1002		54
45	267	1002		54
60	211	1002		54
730	124	1002	Calculated 259	56

The choke volume for the Mesa Verde test was 1598 MCF/D with an A.O.F. of 1680 MCF/D.

The results of the above tests indicate there is no packer leakage.

Very truly yours,

S. V. Roberts  
S. V. Roberts  
Gas Engineer

SVR/jla

cc: W. M. Rodgers  
E. S. Oberly (6)  
File

EL PASO NATURAL GAS COMPANY  
GAS WELL TEST

To: Mr. Ed E. Alsup

Date: January 27, 1958

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,  
SAN JUAN 28-7 UNIT NO. 93 (M), Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location ..... Sec. 9 T. 27N R. 7W 840'S, 1550'W

Shut-In Pressure ..... P.C. SIPC 1000 psig ; (Shut-in 14 days)  
P.C. SIPT 1000 psig  
M.V. SIPT 1056 psig; shut-in 37 days0.750" Choke Volume ..... 1598 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 ..... 1680 MCF/D

Working Pressure On ..... Calculated = 259 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5719

Field ..... Blanco

H<sub>2</sub>S ..... Sweet to lead acetate.

Final SIPC (PC) - 1002 psig

cc: D. H. Tucker

Bill Parrish

~~W. M. Rodgers~~

Dean Rittmann

~~W. J. Hall~~

E. S. Oberly (6)

~~W. J. Hall~~

Samuel Smith

W. M. Rodgers

D. N. Canfield

Wayne Cheek

Drilling Department

B. D. Adams

~~W. J. Hall~~

Jack Purvis

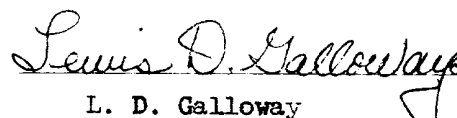
~~W. J. Hall~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File


  
L. D. Galloway

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE January 27, 1958

Operator <b>El Paso Natural Gas</b>		Lease <b>San Juan 28-7 Unit No. 93 (M)</b>	
Location <b>840'S, 1550'W, Sec. 9-27-7</b>		County <b>Rio Arriba</b>	State <b>New Mexico</b>
Formation <b>Mesa Verde</b>		Pool <b>Blanco</b>	
Casing Diameter <b>7-5/8</b>	Set At Feet <b>3312</b>	Tubing Diameter <b>2"</b>	Set At Feet <b>5610</b>
Pack Off From <b>5400</b>	<b>5661</b>	Total Depth <b>5719</b>	
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing	Flow Through Tubing <b>X</b>

Choke Size, Inches <b>.750</b>	Constant C <b>12.365</b>	5-1/2" liner. 3281 - 5716
Shut-in Pressure, Gas <b>1000</b>	PSIG - 12 PSIA <b>1012</b>	Days Shut-In <b>37 MV</b>
Flowing Pressure, P <b>124</b>	PSIG - 12 PSIA <b>136</b>	Shut-in Pressure, Tubing <b>1056 MV</b>
Temperature, T <b>56</b>	<b>.75</b>	Working Pressure, Pw <b>Calculated</b>
		PSIG - 12 PSIA <b>271</b>
		Pv From Tables <b>1.015</b>
		Gravity <b>.690</b>

Initial SIPC (PC) - 1000 psig; final - 1002 psig. 1-1/4" at 3168. Packer at 3330

CHOKE VOLUME  $Q = C \times P_1 \times F_1 \times F_g \times F_{pv}$

$C = 12.365 \times 136 \times 1.0039 \times .9325 \times 1.015$  1598 MCF/D

OPEN FLOW  $A_{of} = Q \left( \frac{P_1^2 - P_w^2}{P_c^2 - P_w^2} \right)^n$

$A_{of} = \left( \frac{1,140,624}{1,067,183} \right)^n \times 1.0688^{.75} \times 1598 = 1.0511 \times 1598$

$A_{of} = 1680$  MCF/D

BY S. V. Roberts

WITNESSED BY

cc: E. S. Oberly (6)

*L. D. Galloway*  
L. D. Galloway



EL PASO NATURAL GAS COMPANY  
GAS WELL TEST

To: Mr. Ed E. Alsup  
From: Gas Engineering Department

Date: January 13, 1958  
Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well,  
SAN JUAN 28-7 UNIT NO. 93 (P), Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location ..... Sec. 9 T. 27N R. 7W 840'S, 1550'W

Shut-In Pressure ..... P.C. SIPT 991 psig ; (Shut-in 23 days)  
P.C. SIPT 991 psig  
M.V. SIPT 1038 psig; shut-in 23 days

0.750" Choke Volume ..... 7535 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 ..... 10,572 MCF/D

Working Pressure On tubing ..... = 563 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5719

Field ..... Undesignated

H<sub>2</sub>S ..... Sweet to lead acetate.

**Final SIPT (MV) - 1054 psig**

cc: D. H. Tucker  
~~Richard H. H. H. H.~~  
~~W. M. Rodgers~~  
~~Wayne Cheek~~  
Drilling Department  
B. D. Adams  
~~Richard H. H. H. H.~~  
Jack Purvis  
~~W. M. Rodgers~~  
C. C. Kennedy  
E. J. Coel, Jr.  
A. J. Dudenhoeffer  
File

Bill Farrish  
Dean Rittmann  
Samuel Smith  
E. S. Oberly (6)  
D. N. Canfield

*Louis D. Galloway*  
L. D. Galloway

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATADUAL COMPLETIONDATE January 13, 1958

Operator <b>El Paso Natural Gas Company</b>		Lease <b>San Juan 28-7 Unit No. 93 (P)</b>	
Location <b>840'S, 1550'W, Sec. 9-27-7</b>		County <b>Rio Arriba</b>	State <b>New Mexico</b>
Formation <b>Pictured Cliffs</b>		Pool <b>Undesignated</b>	
Casing: Diameter <b>7-5/8</b>	Set At: Feet <b>3312</b>	Tubing: Diameter <b>1-1/4</b>	Set At: Feet <b>3168</b>
Pay Zone: From <b>3130</b>	To <b>3180</b>	Total Depth: <b>5719</b>	
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing <b>X</b>	Flow Through Tubing

Choke Size, Inches <b>0.750</b>		Choke Constant: C <b>12.365</b>		5-1/2" liner. 3281 - 5716	
Shut-In Pressure, Casing, <b>PC 991</b>	PSIG - 12 = PSIA <b>1003</b>	Days Shut-In <b>23</b>	Shut-In Pressure, Tubing <b>PC 991</b>	PSIG - 12 = PSIA <b>1003</b>	
Flowing Pressure: P <b>581</b>	PSIG - 12 = PSIA <b>593</b>		Working Pressure: P <sub>w</sub> <b>563</b>	PSIG - 12 = PSIA <b>575</b>	
Temperature: T <b>63</b>	F <b>0.85</b>		F <sub>pv</sub> (From Tables) <b>1.056</b>	Gravity <b>0.631</b>	

Initial SIPT (MV) - 1038 psig. Final SIPT (MV) - 1054 psig. 2" at 5610. Packer at 3330

CHOKE VOLUME = Q C x P<sub>i</sub> x F<sub>i</sub> x F<sub>g</sub> x F<sub>pv</sub>

$$Q = 12.365 \times 593 \times .9971 \times .9759 \times 1.056 \quad \underline{7535} \quad \text{MCF/D}$$

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

$$Aof = \left( \frac{1,006,009}{675,384} \right)^n \quad 1.4895^{.85} \times 7535 = 1.4030 \times 7535$$

$$Aof \quad \underline{10,572} \quad \text{MCF/D}$$

TESTED BY S. V. Roberts

WITNESSED BY \_\_\_\_\_

cc: E. S. Oberly (6)

*L. D. Galloway*  
L. D. Galloway