

# El Paso Natural Gas Company

El Paso, Texas

August 14, 1957

DIRECT REPLY TO:  
P. O. BOX 987  
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 Blanco Mesa Verde and Wildcat Pictured Cliffs Pools. The El Paso Natural Gas Company San Juan 27-5 Unit No. 27 (PM) is located 990 feet from the South line and 890 feet from the West line of Section 26, Township 27 North, Range 5 West, N.M.P.M., Rio Arriba County, New Mexico.

This well has been completed in the Point Lookout and Menefee sections 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 255 feet with 250 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 3507 feet with 250 sacks of cement. Top of the cement at 2200 feet, which is above the top of the Pictured Cliffs at 3295 feet.
3. 5 1/2" liner set from 3448 feet to 5704 feet with 300 sacks of cement. The top of the liner was squeezed with 100 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. Point Lookout and Menefee sections were perforated in four intervals and fractured with water and sand.
6. Pictured Cliffs formation was perforated in one interval and fractured with water and sand.
7. All perforations were cleaned out. Completion and completion was accomplished by setting a Baker Hughes production packer on 2" EUE tubing at 3570 feet with tubing perforations set opposite the Point Lookout perforations. Since the initial potential of the Pictured Cliffs formation was so large, no 1 1/4" siphon string was run. Point Lookout gas will be produced through the 2" EUE tubing and the Pictured Cliffs gas through the casing.

COPY

8. A Garrett circulating sleeve was installed in the 2" EUE tubing string just below the Pictured Cliffs perforations. This will enable the bottom hole pressure tests to be taken at a future date if so required.
9. 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.

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.

Drilling block is well within the boundaries of the unit, and since El Paso Natural Gas Company is the only operator of the unit, approval for dually completing the well has not been sought from any other operator. 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 26, Township 27 North, Range 5 West to the Mesa Verde formation and the SW/4 of Section 26, Township 27 North, Range 5 West is dedicated to the Pictured Cliffs formation.

Yours very truly,

ORIGINAL SIGNED E. J. COEL

E. J. Coel  
Senior Petroleum Engineer

EJC/dgb

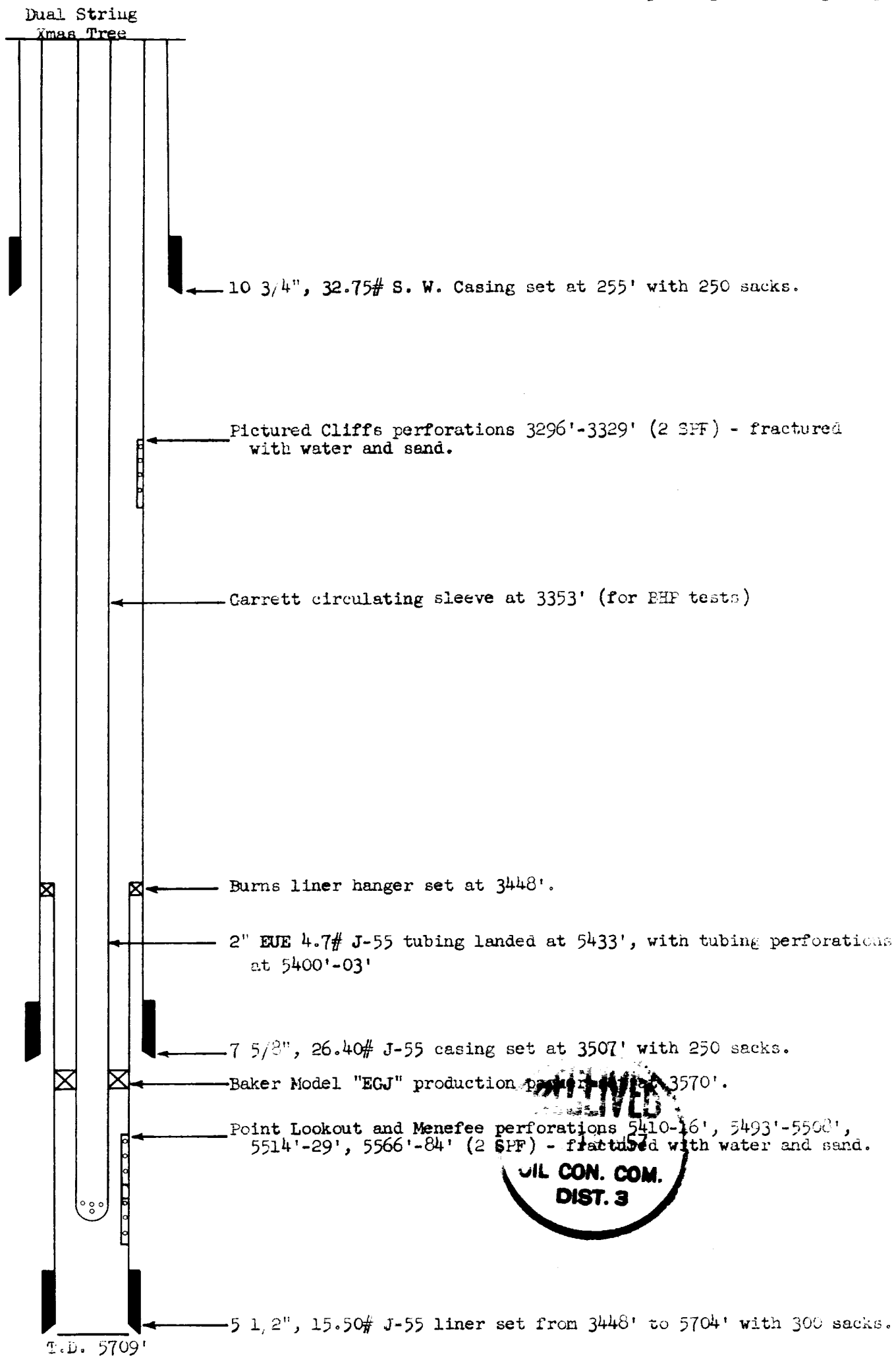
Encl.

cc: Emery Arnold  
R. L. Hamblin  
Phil McGrath



SCHEMATIC DIAGRAM OF DUAL COMPLETION  
EL PASO NATURAL GAS SAN JUAN 27-5 UNIT NO. 27 (PM)  
(SW/4 Section 26, T27N, R5W)

Zero reference point 10.0'  
above top flange of tubing hanger.



OIL CON. COM.  
DIST. 3

STATE OF NEW MEXICO     )  
                                      )  
COUNTY OF SAN JUAN     )

I, Mack M. 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 June 24,  
1957, I was called to the location of the El Paso Natural Gas Company  
San Juan 27-5 Unit No. 27 (PM) Well located in the SW SW/4 of Section 26,  
Township 27N, Range 5W, N.M.P.M. for the purpose of installing a production  
packer. Under my direct supervision a Baker Model "EGJ" production packer  
was set at 3570 feet. The production packer was properly set in accordance  
with the usual practices and customs of the industry.

Mack M. Mahaffey  
Mack M. Mahaffey

Subscribed and sworn to before me, a Notary Public in and for San  
Juan County, New Mexico, the 7 day of Aug, 1957.

Don D. MacIsaac  
Notary Public in and for San Juan County,  
New Mexico

My commission expires February 24, 1960.



# EL PASO NATURAL GAS COMPANY

Box 997  
Farmington, New Mexico

Mr. E. C. Arnold  
Oil Conservation Commission  
120 Eas Chaco  
Astec, New Mexico

Re: Packer Leakage Test on El Paso Natural Gas  
Company Well, San Juan 27-5 No. 27, SW 26-27-5,  
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 3570 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours July 23, 1957, with the following data obtained:

Pictured Cliffs SIPC 1080 psig.  
Mesa Verde SIPT 1151 psig. (shut-in 15 days)

<u>Time</u>	<u>Flowing Pressure</u>	<u>Pictured Cliffs SIPC</u>	<u>Temp °F</u>
11:30	Opened tubing	1080	--
11:45	226	1081	61
12:00	133	1081	63
12:15	78	1081	63
12:30	50	1081	64
1:30	45	1081	63
2:30	42	1081	62

The choke volume for the Mesa Verde test was 631 MCF/D with an AOF of 635 MCF/D. The well was shut-in for 8 days and the Pictured Cliffs zone was tested July 31, 1957, through a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 1079 psig. (shut-in 33 days)  
Mesa Verde SIPT 1146 psig.


<u>Time</u>	<u>Flowing Pressure</u>	<u>Mesa Verde SIPT</u>	<u>Temp °F</u>
11:05	Opened casing	1146	--
11:20	949	1148	65
11:35	940	1151	64
11:50	948	1152	67
12:05	945	1151	67
1:05	934	1151	67
2:05	946	1152	67



The choke volume for the Pictured Cliffs test was 12,056 MCF/D with an AOF of 42,983 MCF/D.

The results of the above tests indicate there is no packer leakage. The test was witnessed by Mr. Fred Cook of the New Mexico Oil Conservation Commission.

Very truly yours,

  
K. C. McBride  
Gas Engineer

MCMB:cje

cc: W. T. Hollis  
W. M. Rodgers  
E. J. Goel, Jr. (6)

File



EL PASO NATURAL GAS COMPANY  
GAS WELL TEST

To: Mr. E. E. Alsup

Date: July 24, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,  
SAN JUAN 27-5 UNIT NO. 27, Rio Arriba County, N.M.

Tested By: K. C. McBride

Location ..... Sec. 26 T. 27 R. 5 990'S, 890'W

Shut-in Pressure ..... PC SIPC 1080 psig ; (Shut-in 15 days)  
MV SIPT 1151 psig0.750" Choke Volume ..... 631 MCF/D @ 14.7 psia and 60° F. for 0.6  
gravity gas. Flow through for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 635 MCF/D

Working Pressure On ..... Calculated / = 93 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5700 - c/o 5610

Field ..... Blanco

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

cc: D. H. Tucker

Bill Parrish

~~R. W. Harts~~

Dean Rittmann

W. T. Hollis

H. H. Lines

~~C. O. Walker~~

W. M. Rodgers

~~Wayne E. Cook~~

Drilling Department

B. D. Adams

Roland Hamblin

Jack Purvis

~~W. J. Harts~~

C. C. Kennedy

E. J. Coel, Jr. (6)

A. J. Dudenhoefter

File

L. D. Galloway  
L. D. Galloway  
by J. H. K.

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATADUAL COMPLETIONDATE July 23, 1957

Operator <b>El Paso Natural Gas Company</b>		Lease <b>San Juan 27-5 Unit No. 27</b>	
Location <b>990'S, 890'W, Sec. 26-27-5</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>3495</b>	Tubing: Diameter <b>2"</b>	Set At: Feet <b>5423</b>
Pay Zone: From <b>5410</b>	To <b>5584</b>	Total Depth: <b>5700 - c/o 5610</b>	Packer at <b>3570</b>
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing <b>X</b>	

Choke Size, Inches <b>.750</b>	Choke Constant: C <b>12.365</b>	5-1/2" liner - 3448 to 5704
Shut-In Pressure, Casing, PSIG <b>PC 1080</b>	12 PSIA	Shut-In Pressure, Tubing PSIG <b>MV 1151</b>
Flowing Pressure: P <b>42</b>	12 PSIA	Working Pressure: Pw PSIG <b>Calculated 105</b>
Temperature: T <b>62</b>	F	Fpv (From Tables) <b>1.004</b>
	<b>.75</b>	Gravity <b>.675</b>

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

$$Q = 12.365 \times 54 \times .9981 \times .9427 \times 1.004 = 631 \text{ MCF/D}$$

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


$$A_{of} = \left( \frac{1,352,569}{1,341,544} \right)^n \times 1.0082 \times .75 \times 631 = 1.0061 \times 631$$

$$A_{of} = 635 \text{ MCF/D}$$

TESTED BY K. C. McBride

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

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

By: E. J. Coel, Jr.


L. D. Galloway  
L. D. Galloway



EL PASO NATURAL GAS COMPANY  
GAS WELL TEST

To: Mr. E. E. Alsup

Date: July 31, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on El Paso Natural Gas Company well San Juan 27-5 #27 Rio Arriba  
County, New Mexico.

Tested By: K. C. McBride

Witnessed by: Fred Cook (NMOCC)

Location ..... Sec. 26 T. 27N R. 5W

Shut-In Pressure ..... Pictured Cliff SIPT 1079 psig ; (Shut-in 33 days)  
Mesa Verde SIPT 1146 psig0.750" Choke Volume ..... 12,056 MCF/D @ 14.7 psig and 60° F. for 0.6  
gravity gas. Flow through casing for 3 hours.

Calculated 3 Hour Absolute Open Flow ..... 42,983 MCF/D

Working Pressure On ..... Calculated = 949 Psig

Producing Formation ..... Pictured Cliff

Stimulation Method ..... Sand Water Frac

Total Depth ..... 5700 c/o 5610 Packer @3570

Field ..... Undesignated

H2S ..... Sweet to lead acetate.

Ending Mesa Verde SIPT 1,152 Psig.

cc: D. H. Tucker

~~W. T. Hollis~~

W. T. Hollis

~~G. B. Walker~~

W. M. Rodgers

~~Wayne G. H. H. H.~~

Drilling Department

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*Lewis D. Galloway*  
L. D. Galloway

**EL PASO NATURAL GAS COMPANY**  
**OPEN FLOW TEST DATA**

**DUAL COMPLETION**DATE July 31, 1957

Operator <b>El Paso Natural Gas Company</b>		Lease <b>San Juan 27-5 #27</b>	
Location <b>990'S 890'W 26-27-5</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>3495</b>	Tubing: Diameter <b>No Tubing</b>	Set At: Feet
Pay Zone: From <b>3296</b>	To <b>3329</b>	Total Depth: <b>5700 c/o 5610 Packer @3570</b>	
Stimulation Method <b>Sand Water Frac</b>		Flow Through Casing <b>X</b>	Flow Through Tubing

Choke Size, Inches <b>.750</b>		Choke Constant: C <b>12.365</b>		5-1/2 liner 3448 to 5704	
Shut-In Pressure, Casing, PSIG <b>1079 (PC)</b>	12 = PSIA <b>1091</b>	Days Shut-In <b>33</b>	Shut-In Pressure, Tubing PSIG <b>1146 (MW)</b>	12 = PSIA <b>1158</b>	
Flowing Pressure: P PSIG <b>946</b>	12 = PSIA <b>958</b>		Working Pressure: Pw PSIG <b>Calculated</b>	12 = PSIA <b>961</b>	
Temperature: T <b>74</b>			Fpv (From Tables) <b>1.114</b>	Gravity <b>.700</b>	

**Ending Mesa Verde SIPT 1152 Psig .**CHOKE VOLUME =  $Q \cdot C \cdot P_c \cdot F_p \cdot F_g \cdot F_{pv}$ 

$$Q = 12.365 \times 958 \times .9868 \times .9258 \times 1.114 = 12.056 \text{ MCF/D}$$

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

$$A_{of} = \left( \frac{1,190,281}{266,760} \right)^{.85} = 12.056 \times 4.4619^{.85} = 12.056 \times 3,653$$

$$A_{of} = 42,983 \text{ MCF/D}$$

TESTED BY K. C. McBrideWITNESSED BY Fred Cook (NMGCC)

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



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