

# El Paso Natural Gas Company

El Paso, Texas  
December 31, 1957

DIRECT REPLY TO:  
P. O. BOX 897  
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. 81 (PM) is located 1675 feet from the North line and 1750 feet from the East 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 and Cliff House 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 173 feet with 125 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 3568 feet with 250 sacks of cement. Top of the cement is at 2900 feet which is above the top of the Pictured Cliffs at 3403 feet.
3. 5 1/2" liner set from 3519 feet to 5838 feet with 300 sacks of cement. Top of the liner was squeezed with 100 sacks.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in four intervals and fractured with water and sand.
6. The Cliff House section was perforated in two intervals and fractured with water and sand.
7. The Pictured Cliffs formation was perforated in two intervals and fractured with water and sand.
8. All perforations were cleaned after treatment and completion was accomplished by setting a Baker Model "EGJ" production packer on 2" EUE tubing at 3558 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.

COPY

9. 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.
10. 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.

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 E/2 of Section 9, Township 27 North, Range 7 West to the Mesa Verde formation and the NE/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

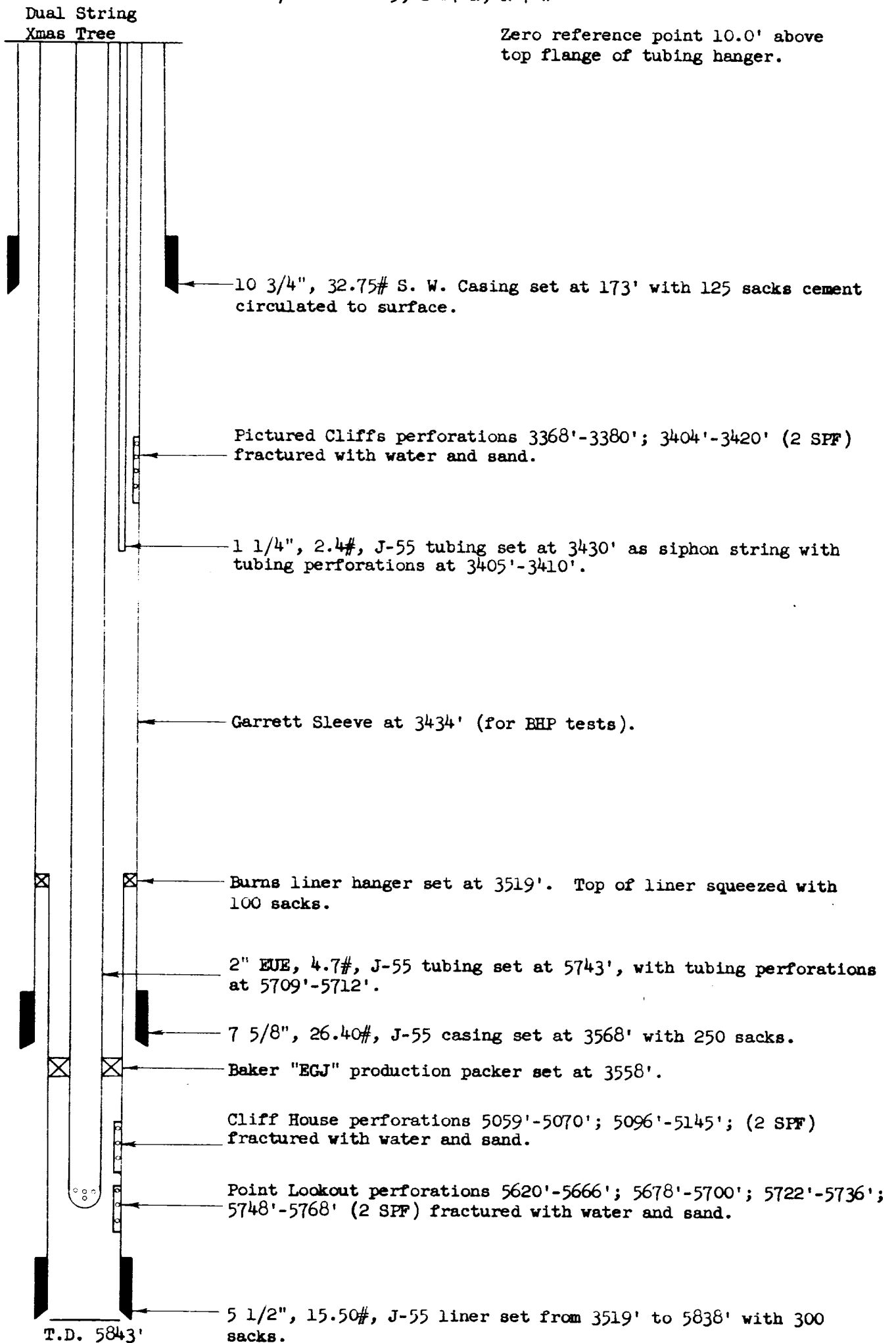
E. S. Oberly  
Division Petroleum Engineer

ESG:dgb

Encl.

cc: NMCCC (Emery Arnold) ✓  
Sam Smith  
USGS (Phil McGrath)

SCHEMATIC DIAGRAM OF DUAL COMPLETION  
EL PASO NATURAL GAS COMPANY SAN JUAN 28-7 UNIT NO. 81 (PM)  
NE/4 Section 9, T-27-N, R-7-W



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 November 10, 1957, I was called to the location of the El Paso Natural Gas Company San Juan 28-7 Unit No. 81 (PM) Well located in the SWNE/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 3558 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 10 day of DEC, 1957.

Paul A. MacIsaac  
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.

November 27, 1957

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.  
81 (PM), 1675'N, 1750'E, 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 3558 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours November 18, 1957 with the following data obtained:

Pictured Cliffs SIPC 835 psig; shut-in 9 days  
Pictured Cliffs SIPT 835 psig  
  
Mesa Verde SIPT 922 psig; shut-in 9 days

<u>Time</u> <u>Minutes</u>	<u>PC Flowing Press.</u> <u>Casing, Psig</u>	<u>MV SIPT Psig</u>	<u>PC Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
15	302	922		48
30	192	922		52
45	140	922		52
60	125	925	127	54
120	89	922		56
180	79	924	80	57

The choke volume for the Pictured Cliffs was 1,109 MCF/D with an A.O.F. of 1120 MCF/D.

The Mesa Verde zone was tested November 25, 1957 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 873 psig; shut-in 7 days  
Pictured Cliffs SIPT 873 psig  
  
Mesa Verde SIPT 970 psig; shut-in 16 days

<u>Time</u> <u>Minutes</u>	<u>MV Flowing Press.</u> <u>Tubing, Psig</u>	<u>PC SIPC Psig</u>	<u>MV Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
15	282	876		56
30	246	876		56
45	207	876		57
60	187	876		58
120	144	876		58
180	127	876	Calculated 266	60

The choke volume for the Mesa Verde test was 1637 MCF/D with an A.O.F. of 1743 MCF/D.

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

Very truly yours,

R. R. Davis

R. R. Davis  
Gas Engineer

RRD/jla

cc: W. M. Rodgers  
E. S. Oberly (5)  
File

EL PASO NATURAL GAS COMPANY  
GAS WELL TESTTo: Mr. Ed E. Alsup  
From: Gas Engineering Department

Date: November 25, 1957

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,  
SAN JUAN 28-7 UNIT NO. 81 (M), Rio Arriba County, N.M.

Tested By: R. R. Davis

Location ..... Sec. 9 T 27 R. 7 1675'N, 1750'E

Shut-In Pressure ..... P.C. SIPC 873 psig ; (Shut-in 7 days)  
P.C. SIPT 873 psig  
M.V. SIPT 970 psig - shut-in 16 days0.750" Choke Volume ..... 1637 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 ..... 1743 MCF/D

Working Pressure On ..... Calculated = 266 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5843

Field ..... Blanco

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

Final SIPC (PC) - 376 psig

cc: D. H. Tucker Bill Parrish  
~~R. H. H. H. H.~~ Dean Rittmann  
~~W. H. H. H. H.~~ Samuel Smith  
~~C. H. H. H. H.~~ E. S. Oberly (6)

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

~~R. H. H. H. H.~~

Jack Purvis

~~W. H. H. H. H.~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

*Lewis D. Galloway*  
L. D. GallowayHeavy fog of fresh water and condensate for first 3 minutes, then medium fog  
remainder of test period.

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATADUAL COMPLETIONDATE November 25, 1957

Operator <b>El Paso Natural Gas Company</b>		Lease <b>San Juan 28.- 7 Unit No. 81 (PM)</b>	
Location <b>1675'N, 1750'E, 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>3558</b>	Tubing: Diameter <b>2"</b>	Set At: Feet <b>5732</b>
Pay Zone: From <b>5059</b>	To <b>5736</b>	Total Depth: <b>5843</b>	
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing	Flow Through Tubing <b>X</b>

Choke Size, Inches <b>.750</b>		Choke Constant: C <b>12.365</b>	
Shut-In Pressure, Casing, PSIG <b>PC 873</b>	12 PSIA <b>885</b>	Days Shut-In <b>7</b>	Shut-In Pressure, Tubing, PSIG <b>MV 970</b>
Flowing Pressure: P, PSIG <b>127</b>	12 PSIA <b>139</b>	Working Pressure: P <sub>w</sub> , PSIG <b>Calculated</b>	12 PSIA <b>278</b>
Temperature: T, F <b>60</b>	<b>.750</b>	F <sub>pv</sub> (From Tables) <b>1.014</b>	Gravity <b>.680</b>

Final SIPC (PC) - 876 psig. Packer at 3558. Sleeve at 3434

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

$$Q = 12.365 \times 139 \times 1.0000 \times .9393 \times 1.014$$

1637

MCF D

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

$$Aof = \left( \frac{264,324}{887,040} \right)^n$$

$$1.0871^{.75} \times 1637 = 1.0646 \times 1637$$

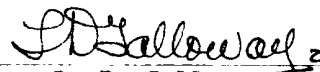
$$Aof = 1743 \text{ MCF D}$$

TESTED BY R. R. Davis

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

Heavy fog of fresh water and condensate for first 3 minutes, then medium fog remainder of test period.

cc: E. S. Oberly (5)

  
 L. D. Galloway



EL PASO NATURAL GAS COMPANY  
GAS WELL TEST

To: Mr. Ed E. Alsup

Date: November 19, 1957

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. 81 (P), Rio Arriba County, N.M.

Tested By: R. R. Davis

Location ..... Sec. 9 T. 27 R. 7 1675'N, 1750'E

Shut-In Pressure ..... P.C. SIPC 835 psig  
P.C. SIPT 835 psig ; (Shut-in 9 days)  
M.V. SIPT 922 psig0.750" Choke Volume ..... 1109 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 ..... 1120 MCF/D

Working Pressure On tubing ..... 80 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5843

Field ..... Undesignated

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

Initial SIPT (MV) - 922 psig. Final SIPT (MV) - 924 psig. Packer at 3558. Sleeve at 3434.

cc: D. H. Tucker

Bill Parrish

~~W. M. Rodgers~~

Dean Rittmann

~~W. M. Rodgers~~

Samuel Smith

~~W. M. Rodgers~~

E. S. Oberly (6)

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E. J. Coel, Jr.

A. J. Dudenhoeffer

File

L. D. Galloway

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE November 18, 1957

Operator <b>El Paso Natural Gas</b>		Lease <b>San Juan 28-7 Unit No. 81 (P)</b>	
Location <b>1675'N, 1750'E, 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> <b>5-1/2" liner</b>	Set At: Feet <b>3558</b> <b>2319 - 5838</b>	Tubing: Diameter <b>1-1/4</b>	Set At: Feet <b>3420</b>
Pay Zone: From <b>3368</b>	To <b>3420</b>	Total Depth: <b>5843</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>		
Shut-In Pressure, Casing, PSIG <b>835</b>	- 12 = PSIA <b>847</b>	Days Shut-In <b>9</b>	Shut-In Pressure, Tubing PSIG <b>835</b>
Flowing Pressure: P PSIG <b>79</b>	- 12 = PSIA <b>91</b>		Working Pressure: P <sub>w</sub> PSIG <b>80</b>
Temperature: F <b>57</b>		F <sub>pv</sub> (From Tables) <b>1.007</b>	Gravity <b>.630</b>

Initial SIPT (MV) - 922 psig; final - 924 psig. Packer at 3558. Sleeve at 3434

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

$$Q = 12.365 \times 91 \times 1.0029 \times .9759 \times 1.007 = 1109 \text{ MCF/D}$$

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

$$A_{of} = \left( \frac{717,409}{708,945} \right)^n = 1.0119^{.85} \times 1109 = 1.0101 \times 1109$$

$$A_{of} = 1120 \text{ MCF/D}$$

TESTED BY R. R. Davis

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

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