

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. 94 (PM) is located 800 feet from the South line and 1850 feet from the West line of Section 30, Township 28 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 at 172 feet with 175 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 2624 feet with 250 sacks of cement. Top of the cement is at 2030 feet which is above the top of the Pictured Cliffs at 2467 feet.
3. 5 1/2" liner set from 2582 feet to 4887 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 six intervals and fractured with water and sand.
6. The Pictured Cliffs formation was perforated in two intervals 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 2816 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 30, Township 28 North, Range 7 West to the Mesa Verde formation and the SW/4 of Section 30, Township 28 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)

1. RESEARCH DESIGN AND DATA COLLECTION (10%)
This section outlines the research design and data collection methods used in the study.

The study employed a quantitative research design to investigate the relationship between the variables. Data was collected through a survey of 100 participants using a structured questionnaire.

The questionnaire was designed to measure the dependent variable and the independent variable. The data was analyzed using descriptive statistics and inferential statistics to determine the significance of the findings. The results of the study are presented in the following sections.

The study was conducted in a controlled environment to ensure the validity of the results. The participants were randomly selected from a population of 1000 to ensure representativeness.

The data was collected over a period of 10 weeks to ensure the reliability of the findings. The results of the study are presented in the following sections.

2. RESULTS AND DISCUSSION (10%)

The results of the study are presented in the following sections.

The data was analyzed using descriptive statistics and inferential statistics to determine the significance of the findings.

The results of the study are presented in the following sections.

3. CONCLUSION (10%)

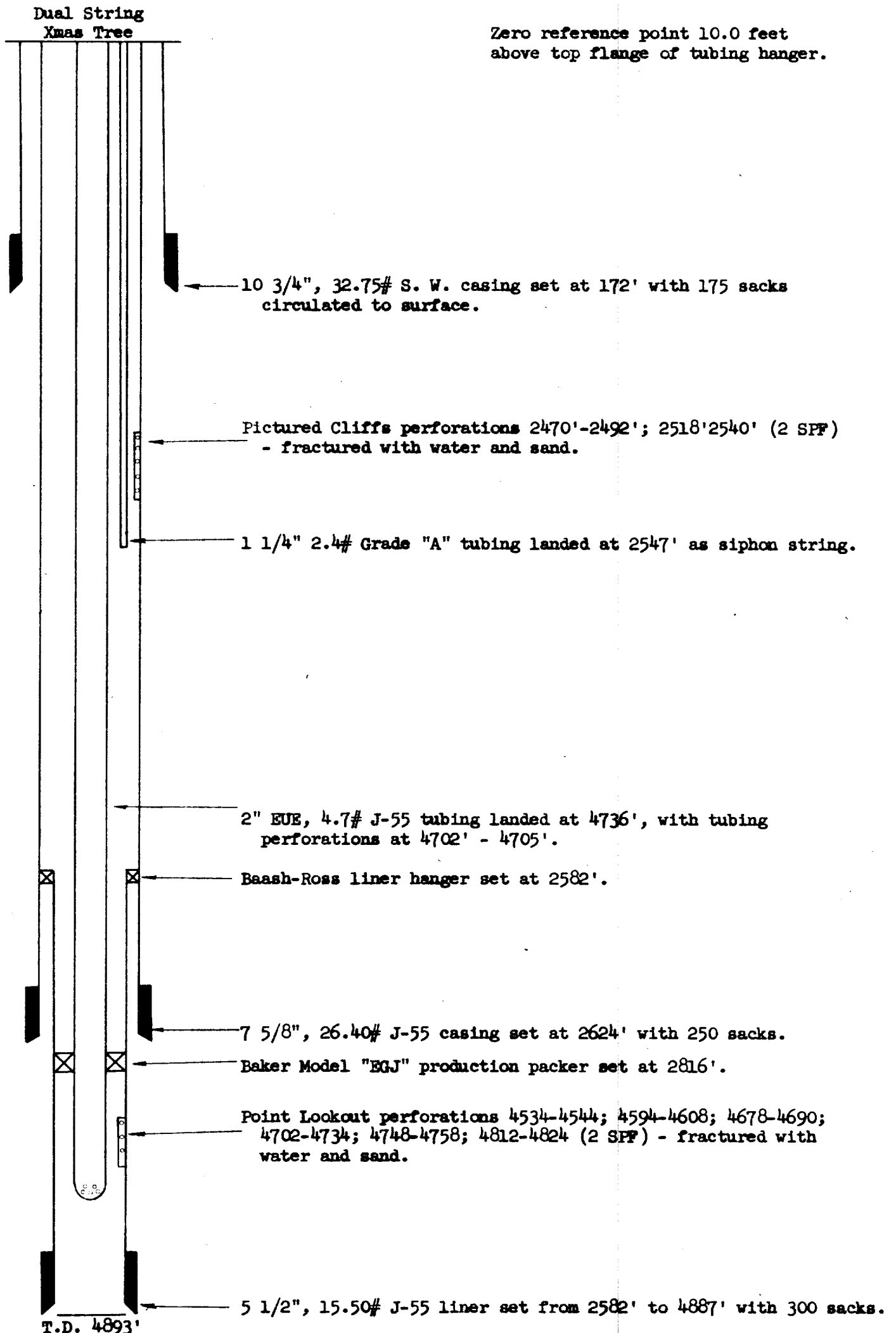
The study concluded that the relationship between the variables is significant.

The results of the study are presented in the following sections.

The data was analyzed using descriptive statistics and inferential statistics to determine the significance of the findings.

The results of the study are presented in the following sections.

SCHEMATIC DIAGRAM OF DUAL COMPLETION
El Paso Natural Gas San Juan 28-7 Unit No. 94 (FM)
SW/4 Section 30, T-28-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 January 11, 1958, I was called to the location of the El Paso Natural Gas Company San Juan 28-7 Unit No. 94 (EM) Well located in the SESEW/4 of Section 30, Township 28 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 "EQJ" Production Packer was set in this well at 2618 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.

Don L. MacLachlan
Notary Public in and for San Juan
County, New Mexico

My commission expires February 24, 1960.

1. The following information was obtained from the files of the FBI and the State Department:

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7. The following information was obtained from the files of the FBI and the State Department:

8. The following information was obtained from the files of the FBI and the State Department:

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10. The following information was obtained from the files of the FBI and the State Department:

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EL PASO NATURAL GAS COMPANY

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

February 7, 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. 94 (M),
800'S, 1850'W, Sec. 30-28-7, Rio Arriba County, N.M.

Dear Mr. Arnold:

The subject well was dually completed in the Pictured Cliffs and Mesa Verde zones and a packer was set at 2618 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours January 29, 1958 with the following data obtained:

Pictured Cliffs SIPC 999 psig; shut-in 17 days
Pictured Cliffs SIPT 999 psig

Mesa Verde SIPT 1055 psig; shut-in 17 days

<u>Time Minutes</u>	<u>PC Flowing Pressure Casing Psig</u>	<u>MV SIPT Psig</u>	<u>PC Working Pressure, Psig</u>	<u>Temp ° F</u>
0	-	1055		-
15	110	1048		52
30	72	1048		54
45	58	1050		56
60	41	1050		56
180	28	1050	33	56

The choke volume for the Pictured Cliffs was 498 MCF/D with an A.O.F. of 498 MCF/D.

The Mesa Verde zone was tested February 5, 1958 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 983 psig; shut-in 7 days
Pictured Cliffs SIPT 983 psig

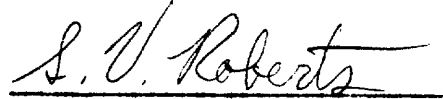
Mesa Verde SIPT 1056 psig; shut-in 24 days

<u>Time</u> <u>Minutes</u>	<u>MV Flowing Pressure</u> <u>Tubing Psig</u>	<u>PC SIPC Psig</u>	<u>PC Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
0	-	983		-
15	372	987		58
30	330	987		60
45	311	987		61
60	287	987		61
180	214	987	Calculated 416	60

The choke volume for the Mesa Verde test was 2645 MCF/D with an A.O.F. of 3016 MCF/D.

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

Very truly yours,



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. Alsop

Date: February 5, 1958

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 28-7 Unit No. 94 (M), Rio Arriba County, N.M.

Tested By: S. V. Roberts and Tony King

Location Sec. 30 T. 28N R. 7W 800'S, 1850'W

Shut-In Pressure P.C. SIPC 983 psig ; (Shut-in 7 days)
P.C. SIPT 983 psig

M.V. SIPT 1056 psig; shut-in 24 days

0.750" Choke Volume 2645 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 3016 MCF/D

Working Pressure On Calculated = 416 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 4893 - c/o 4840

Field Blanco

H₂S Sweet to lead acetate.

Final SIPC (PC) - 987 psig. Packer at 2618. 1-1/4 at 2537

cc: D. H. Tucker

~~*****~~~~*****~~~~*****~~

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

~~*****~~

Jack Purvis

~~*****~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

Bill Parrish

Dean Rittmann

E. S. Oberly (6)

Samuel Smith

D. N. Canfield

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE February 5, 1958

Operator El Paso Natural Gas Company		Lease San Juan 28-7 Unit No. 94 (M)	
Location 800'S, 1850'W, Sec. 30-28-7		County Rio Arriba	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 2612	Tubing: Diameter 2"	Set At: Feet 4726
Pay Zone: From 4534	To 4824	Total Depth: 4893 - c/o 4840	
Stimulation Method Sand Water Frac.		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches 0.750		Choke Constant: C 12.365		5-1/2" liner. 2482 - 4887	
Shut-In Pressure, Casing, PSIG PC 983	- 12 = PSIA 995	Days Shut-In 24	Shut-In Pressure, Tubing PSIG MV 1056	- 12 = PSIA 1068	
Flowing Pressure: P PSIG 214	- 12 = PSIA 226		Working Pressure: Pw PSIG Calculated	- 12 = PSIA 428	
Temperature: T F 60	n = 0.75		Fpv (From Tables) 1.026	Gravity .705	

Initial SIPC (PC) - 983 psig; final - 987 psig. 1-1/4" at 2537. Packer at 2618

CHOKE VOLUME - Q C x P_c x F_c x F_g x F_{pv}

$$Q = 12.365 \times 226 \times 1.000 \times .9225 \times 1.026 = 2645 \text{ MCF/D}$$

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

$$Aof = \left(\frac{1,140,624}{957,440} \right)^n \cdot 1.1913^{.75} \times 2645 = 1.1403 \times 2645$$

$$Aof = 3,016 \text{ MCF/D}$$

TESTED BY S. V. RobertsWITNESSED BY Tony King

cc: E. S. Oberly (6)

L. D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. Ed E. Alsup

Date: January 29, 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. 94 (P), Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location Sec. 30 T. 28N R. 7W 800'S, 1850'W

Shut-In Pressure P.C. SIPC 999 psig ; (Shut-in 17 days)
P.C. SIPT 999 psig

M.V. SIPT 1055 psig; shut-in 17 days

0.750" Choke Volume 498 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 499 MCF/D

Working Pressure On tubing = 33 Psig

Producing Formation Pictured Cliffs

Stimulation Method Sand Water Frac.

Total Depth 4893 - c/o 4840

Field Undesignated

H₂S Sweet to lead acetate.

Final SIPT (MV) - 1050 psig

cc: D. H. Tucker

Wayne Cheek

Drilling Department

B. D. Adams

Jack Purvis

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

Bill Parrish

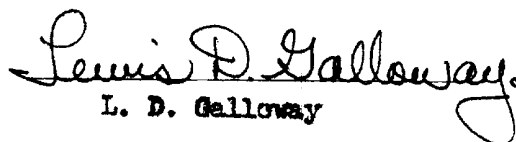
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