

El Paso Natural Gas Company

El Paso, Texas

December 30, 1957

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 Wildcat Pictured Cliffs Pool and in the Blanco Mesa Verde Pool. The El Paso Natural Gas Company San Juan 28-6 Unit No. 66 (PM) is located 890 feet from the North line and 1650 feet from the East line of Section 11, Township 27 North, Range 6 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 3587 feet with 250 sacks of cement. Top of the cement is at 3000 feet, which is above the top of the Pictured Cliffs at 3468 feet.
3. 5 1/2" liner set from 3533 feet to 5808 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 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 3669 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 sipnon string. The Point Lookout gas will be produced through the 2" tubing and the Pictured Cliffs gas through the casing.

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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.

Since El Paso Natural Gas Company is the only operator of the San Juan 28-6 Unit, the approval of any other operator has not been sought 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 11, Township 27 North, Range 6 West to the Mesa Verde formation and the NE/4 of Section 11, Township 27 North, Range 6 W st 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

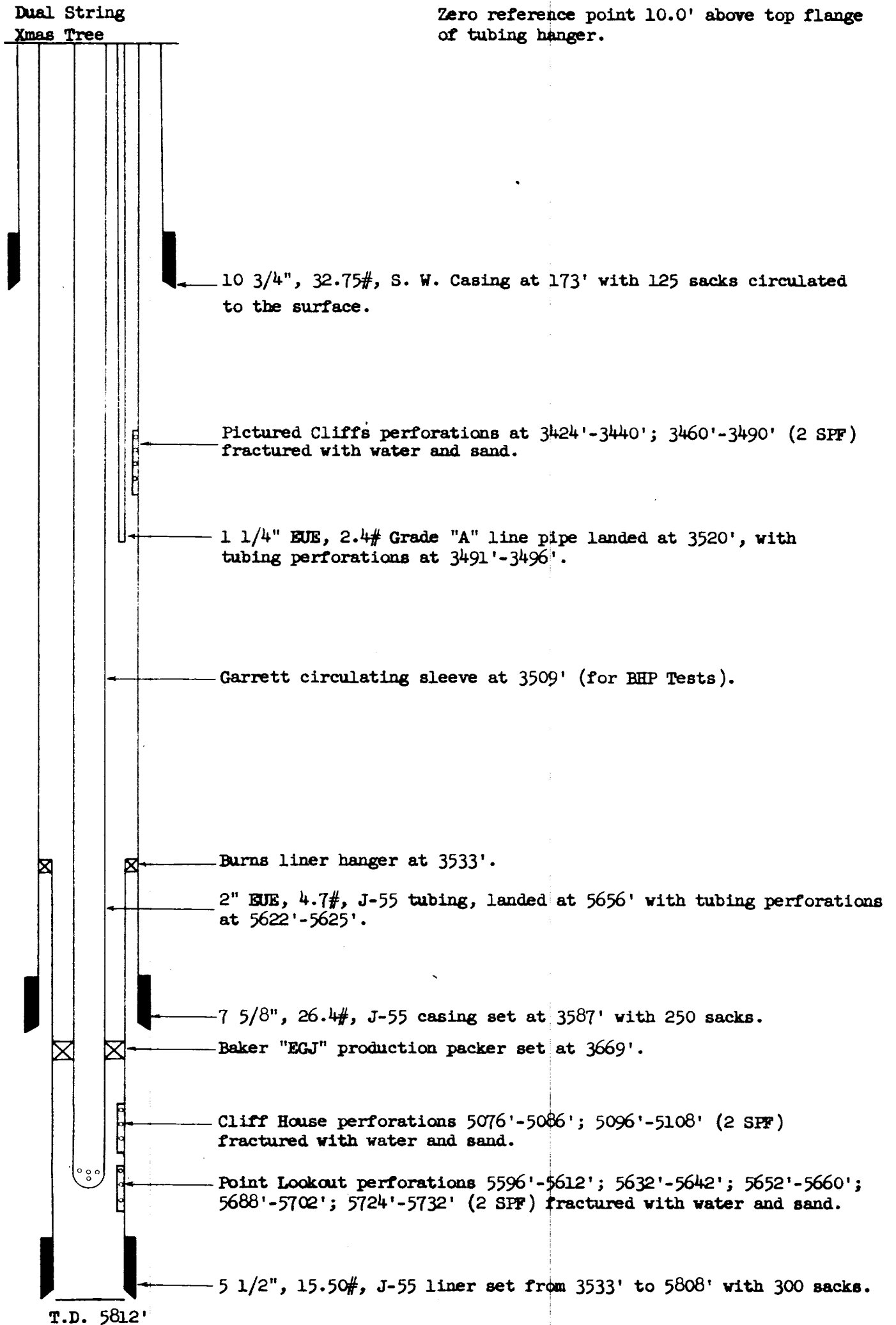
E. S. Oberly
Division Petroleum Engineer

ESO:dgb

Encl.

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

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EL PASO NATURAL GAS SAN JUAN 28-6 UNIT NO. 66 (PM)
NE/4 Section 11, T-27-N, R-6-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 8, 1957, I was called to the location of the El Paso Natural Gas Company San Juan 28-6 Unit No. 66 (FN) Well located in the NW1/4 of Section 11, Township 27 North, Range 6 West, N.M.P.M., for advisory service in connection with installation of a production packer. In my presence, a Baker Model "BJ" Production Packer was set in this well at 3669 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 31 day of DEC, 1957.

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

My commission expires February 24, 1960.

I, Frank M. Haddock, being first duly sworn, depose and say as follows:

I am an employee of Baker Oil Tooling, Inc., and since

November 5, 1937, I was called to the location of the El Paso

Natural Gas Company San Juan No. 100 (1st) Well located

in the N-10E 1/4 of Section 11, Township 27 North, Range 6 West, N.M.P.M.,

for advisory service in connection with installation of a production

packer. In my presence, a Baker Model 1907 Production Packer

was set in this well at 3000 feet in accordance with the usual

practices and customs of the industry.

Frank M. Haddock

Subscribed and sworn to before me, a Notary Public in and for

San Juan County, New Mexico, this 11th day of _____, 1937.

*Notary Public in and for San Juan County,
New Mexico*

My commission expires February 24, 1938.

EL PASO NATURAL GAS COMPANY

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

December 2, 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 28-6 Unit No. 66
(PM), 890'N, 1650'E, Sec. 11-27-6, 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 3669 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours November 20, 1957 with the following data obtained:

Pictured Cliffs SIPC 1106 psig; shut-in 11 days

Pictured Cliffs SIPT 1106 psig

Mesa Verde SIPT 1038 psig; shut-in 11 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	Open	1038		
15	342	1038		47
30	204	1038		49
45	178	1039		51
60	137	1039		53
180	102	1040	105	55

The choke volume for the Pictured Cliffs was 1355 MCF/D with an A.O.F. of 1368 MCF/D.

The Mesa Verde zone was tested November 27, 1957 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 1114 psig; shut-in 7 days

Pictured Cliffs SIPT 1114 psig

Mesa Verde SIPT 1063 psig; shut-in 18 days

<u>Time Minutes</u>	<u>MV Flowing Pressure Tubing Psig</u>	<u>PC SIPC Psig</u>	<u>MV Working Pressure, Psig</u>	<u>Temp ° F</u>
0	Open	1114		
15	591	1120		52
30	456	1120		53
45	399	1120		55
60	351	1120		55
180	271	1120	Calculated 560	59

The choke volume for the Mesa Verde test was 3383 MCF/D with an A.O.F. of 4344 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 TESTTo: Mr. Ed E. Alsup
From: Gas Engineering Department

Date: November 27, 1957

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 28-6 UNIT NO. 66 (M), Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location Sec. 11 T. 27N R. 6W 890'N, 1650'E

Shut-In Pressure P.C. SIPC 1114 psig ; (Shut-in 7 days)
P.C. SIPT 1114 psig
M.V. SIPT 1063 psig - shut-in 18 days0.750" Choke Volume 3383 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 4344 MCF/D

Working Pressure On Calculated 560 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 5812

Field Blanco

H2S Sweet to lead acetate.

Final SIPC (PC) - 1120 psig

cc: D. H. Tucker

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W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

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Jack Purvis

~~*****~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

Bill Parrish
Dean Rittmann
Samuel Smith
E. S. Oberly (6)Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE November 27, 1957

Operator El Paso Natural Gas Company		Lease San Juan 28-6 Unit No. 66 (M)	
Location 890'N, 1650'E, Sec. 11-27-6		County Rio Arriba	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 3577	Tubing: Diameter 2"	Set At: Feet 5645
Pay Zone: From 5076	To 5732	Total Depth: 5812	
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. 3553 - 5808	
Shut-In Pressure, Casing: PC 1114	PSIG 1126	Days Shut-In 7	Shut-In Pressure, Tubing MV 1063	PSIG 1075
Flowing Pressure: P 271	PSIG 283		Working Pressure: P _w Calculated	PSIG 572
Temperature: T 59			Fpv (From Tables) 1.032	Gravity 0.685

Final SIPC (PC) 1120 psig. 1-1/4" at 3508. Packer at 3669. Sleeve at 3509CHOKE VOLUME - Q C x P_c x F_c x F_g x F_{pv}

$$Q = 12.365 \times 283 \times 1.001 \times 0.9359 \times 1.032 = 3383 \text{ MCF/D}$$

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

$$\text{Aof } \left(\frac{1,155,625}{828,441} \right)^n = 1.3949^{.75} \times 3383 = 1.2840 \times 3383$$

$$\text{Aof } 4344 \text{ MCF/D}$$

TESTED BY S. V. Roberts

WITNESSED BY _____

cc: E. S. Oberly (6)

L. D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE November 20, 1957

Operator El Paso Natural Gas Company		Lease San Juan 28-6 Unit No. 66	
Location 890'N, 1650'E, Sec. 11-27-6		County Rio Arriba	State New Mexico
Formation Pictured Cliffs		Pool Undesignated	
Casing: Diameter 7-5/8	Set At: Feet 3577	Tubing: Diameter 1-1/4	Set At: Feet 3508
Pay Zone: From 3424	To 3490	Total Depth: 5812	
Stimulation Method Sand Water Frac.		Flow Through Casing X	Flow Through Tubing

Choke Size, Inches 0.750		Choke Constant: C 12.365		5-1/2" liner. 3533-5808	
Shut-In Pressure, Casing, 1106	PSIG	- 12 = PSIA 1118	Days Shut-In 11	Shut-In Pressure, Tubing 1106	PSIG - 12 = PSIA 1118
Flowing Pressure: P 102	PSIG	- 12 = PSIA 114		Working Pressure: P _w 105	PSIG - 12 = PSIA 117
Temperature: T 55	F	n 0.85		F _{pv} (From Tables) 1.011	Gravity 0.670

Final SIPT (MV) - 1040 psig. 2" at 5645. Packer at 3669. Sleeve at 3509

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

$$Q = 12.365 \times 114 \times 1.0048 \times .9463 \times 1.011 = 1355 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{1,249,924}{1,236,235} \right)^n = 1.0110^{.85} \times 1355 = 1.0094 \times 1355$$

$$A_{of} = 1368 \text{ MCF/D}$$

TESTED BY S. V. Roberts

WITNESSED BY _____

cc: E. S. Oberly (6)


L. D. Galloway