

El Paso Natural Gas Company

El Paso, Texas

October 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 Blanco Mesa Verde Pool and in the Wildcat Pictured Cliffs Pool. The El Paso Natural Gas Company San Juan 28-6 Unit No. 68 (PM) is located 1814 feet from the South line and 790 feet from the West line of Section 13, Township 27 North, Range 6 West, N.M.P.M., Rio Arriba County, New Mexico.

This well has been completed in the Cliff House and Point Lookout 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 174 feet with 150 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 3255 feet with 500 sacks of cement. Top of the cement is at 1090 feet which is above the top of the Pictured Cliffs formation at 3077 feet.
3. 5 1/2" liner set from 3203 feet to 5483 feet with 300 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section of the Mesa Verde was perforated in five intervals and fractured with water and sand.
6. The Cliff House section was perforated in four 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 BGJ production packer on 2" EUE tubing at 3278 feet with the tubing perforations set opposite the Point Lookout perforations. 1 1/4" Grade B line pipe 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" EUE 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.

Since the drilling block is well within the boundaries of the unit of which El Paso Natural Gas Company is the only operator, the approval to dually complete has not been sought from any other operator. I am enclosing:

- (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 13, Township 27 North, Range 6 West, to the Mesa Verde formation and the SW/4 of Section 13, Township 27 North, Range 6 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.

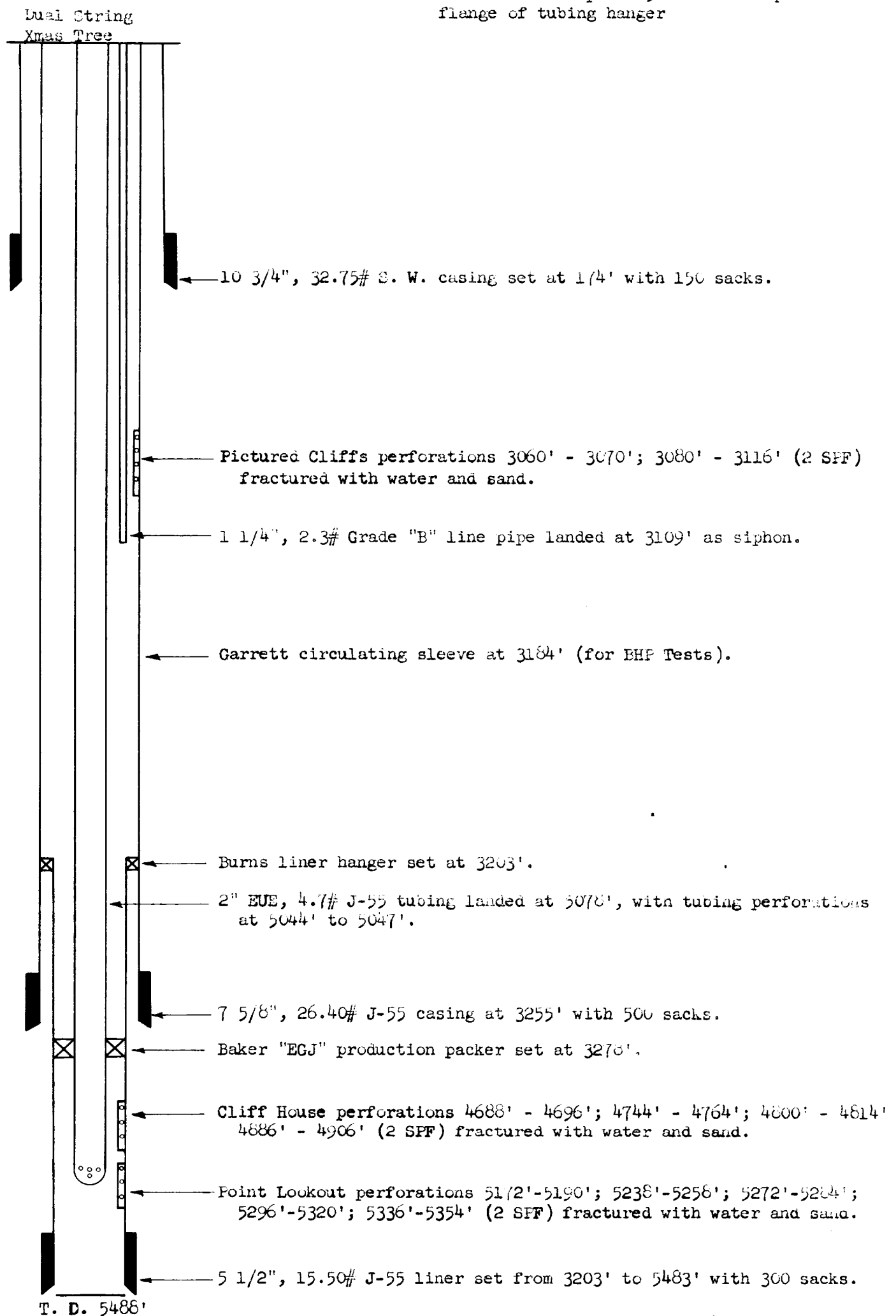
cc: Emery Arnold
Sam Smith
Phil McGrath





SCHEMATIC DIAGRAM OF DUAL COMPLETION
E. P. M. G. San Juan 26-6 Unit #68 (PM)
(SW Section 13, T27N, R6W)

Zero reference point 9.0' above top
flange of tubing hanger



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 September 7, 1957, I was called to the location of the El Paso Natural Gas Company San Juan 28-6 Unit No. 68 (FM) Well located in the NW/4 SW/4 of Section 13, 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 "EGJ" Production Packer was set in this well at 3278 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 1 day of Nov, 1957.

Paul A. MacCall
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.

October 10, 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. 68, (PM)
SW 13-27-6, 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 3278 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours September 17, 1957 with the following data obtained:

Pictured Cliffs SIPC 1091 psig; shut-in 10 days
Pictured Cliffs SIPT 1091 psig

Mesa Verde SIPT 1065 psig; shut-in 10 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>
15	448	1065		61
30	341	1065		62
45	225	1065		63
60	200	1065		65
180	137	1065	141	67

The choke volume for the Pictured Cliffs was 1738 MCF/D with an A.O.F. of 1767 MCF/D.

The Mesa Verde zone was tested October 9, 1957 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 1122 psig; shut-in 22 days
Pictured Cliffs SIPT 1122 psig

Mesa Verde SIPT 1104 psig; shut-in 32 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>
15	605	1125		62
30	546	1125		64
45	469	1125		64
60	448	1125		64
180	351	1125	Calculated 696	68

The choke volume for the Mesa Verde test was 4336 MCF/D with an A.O.F. of 6378 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: E. J. Coel, Jr.
W. M. Rodgers
E. S. Oberly (6)
File



EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: October 9, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 28-6 UNIT NO. 68, Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location Sec. 13 T. 27 R. 6 1814'S, 790'W

Shut-In Pressure P.C. SIPC 1122 psig ; (Shut-in 32 days)
P.C. SIPT 1122 psig
M.V. SIPT 1104 psig0.750" Choke Volume 4336 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 6378 MCF/D

Working Pressure On Calculated = 696 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 5484 - c/o 5400

Field Blanco

H2S Sweet to lead acetate.

Final SIPC (PC) - 1125 psig

cc: D. H. Tucker

~~R. W. Harris~~~~W. F. Hanks~~~~C. B. Vile~~

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

~~Robert Hendrix~~

Jack Purvis

~~W. V. Hanks~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

Bill Parrish

Dean Rittmann

E. S. Oberly (6)

Samuel Smith

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE October 9, 1957

Operator El Paso Natural Gas Company		Lease San Juan 28-6 Unit No. 68	
Location 1814'S, 790'W, Sec.13-27-6		County Rio Arriba	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 3245	Tubing: Diameter 2"	Set At: Feet 5069
Pay Zone: From 4688	To 5354	Total Depth: 5484 - c/o 5400	
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 - 3203-5483	
Shut-In Pressure, Casing, PSIG PC 1122	- 12 = PSIA 1134	Days Shut-In 32	Shut-In Pressure, Tubing PSIG MV 1104
Flowing Pressure: P 351	- 12 = PSIA 363	Working Pressure: P _w Calculated	- 12 = PSIA 708
Temperature: T 68	F 0.75	F _{pv} (From Tables) 1.040	Gravity 0.685

Initial SIPC (PC) 1122 psig - Final - 1125 psig; 1-1/4" at 3100; Packer at 3278 - Sleeve at 3184

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

$$Q = 12.365 \times 363 \times .9924 \times .9359 \times 1.040 = 4336 \text{ MCF/D}$$

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

$$Aof = \left(\frac{1,245,456}{744,192} \right)^n = 1.6735^{.75} \times 4336 = 1.471 \times 4336$$

$$Aof = 6378 \text{ MCF/D}$$

TESTED BY S. V. Roberts

WITNESSED BY _____

cc: E. S. Oberly (6)

L. D. Galloway
L. D. Galloway



EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: September 17, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 28-6 UNIT NO. 68, Rio Arriba County, N.M.

Tested By: S. V. Roberts

Location Sec. 13 T. 27N R. 6W 1814'S, 790'W

Shut-In Pressure P.C. SIPC 1091 psig ; (Shut-in 10 days)
F.C. SIPT 1091 psig
M.V. SIPT 1065 psig0.750" Choke Volume 1,738 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 1,767 MCF/D

Working Pressure On tubing = 141 Psig

Producing Formation Pictured Cliffs

Stimulation Method Sand Water Frac.

Total Depth 5484 - c/o 5400

Field Undesignated

H₂S Sweet to lead acetate.

Final SIPT (MV) - 1065 psig

cc: D. H. Tucker

Bill Parrish

~~W. M. Rodgers~~

Dean Rittmann

~~W. M. Rodgers~~

E. S. Oberly (6)

~~W. M. Rodgers~~

Samuel Smith

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

Roland Hamblin

Jack Purvis

~~W. M. Rodgers~~

C. C. Kennedy

E. J. Coal, Jr.

A. J. Dudenhoefter

File

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE September 17, 1957

Operator El Paso Natural Gas Company		Lease San Juan 28-6 Unit No. 68	
Location 1814'S, 790'W, Sec. 13-27-6		County Rio Arriba	State New Mexico
Formation Pictured Cliffs		Pool Undesignated	
Casing Diameter 7-5/8	Set At: Feet 3245	Tubing Diameter 1-1/4	Set At: Feet 3100
Pay Zone: From 3060	To 3116	Total Depth 5484 - c/o 5400	
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 - 3203 - 5483	
Shut-In Pressure, Casing, PSIG PC 1091	- 12 = PSIA 1103	Days Shut-In 10	Shut-In Pressure, Tubing PSIG PC - 1091	- 12 = PSIA 1103	
Flowing Pressure: P PSIG 137	- 12 = PSIA 149		Working Pressure: Pw PSIG 141	- 12 = PSIA 153	
Temperature: T °F 67			Fpv (From Tables) 1.015	Gravity 0.685	

SIPT (MV) - Initial - 1065 psig; Final - 1065 psig. 2" at 5069. Packer at 3278.
Sleeve at 3184

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

$$Q = 12.365 \times 149 \times .9933 \times .9359 \times 1.015 = 1,738 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{1,216,609}{1,193,200} \right)^n = 1.0196^{.85} \times 1738 = 1.0166 \times 1738$$

$$A_{of} = 1,767 \text{ MCF/D}$$

TESTED BY S. V. Roberts

WITNESSED BY _____

cc: E. S. Oberly (6)

L. D. Calloway
L. D. Calloway