

El Paso Natural Gas Company

El Paso, Texas

August 14, 1957

DIRECT REPLY TO:
P. O. BOX 997
FARMINGTON, NEW MEXICO

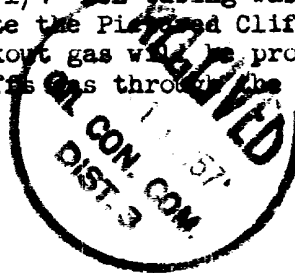
Mr. A. L. Porter
Secretary and Director
Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Sir:

This is a request for administrative approval for a well dually completed in the Blanco Mesa Verde Pool and in the Aztec Pictured Cliffs Extension Pool. The El Paso Natural Gas Company Storey No. 6-C (PM) is located 1103 feet from the North line and 990 feet from the East line of Section 22, Township 28 North, Range 9 West, N.M.P.M., San Juan 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 172 feet with 150 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 2633 feet with 250 sacks of cement. Top of cement at 1360 feet, which is above the top of the Pictured Cliffs formation at 2449 feet.
3. 5 1/2" liner set from 2555 feet to 4928 feet. The top of the liner was squeezed with 200 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. Point Lookout and Menefee sections were perforated in nine 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 after treatment and completion was accomplished by setting a Baker Model EGJ production packer on 2" EUE tubing at 2614 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.



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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.

Since El Paso Natural Gas Company holds all leases immediately adjacent to the drilling block the approval of any other operator has not been sought. 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 E/2 of Section 22, Township 28 North, Range 9 West, to the Mesa Verde formation and the NE/4 of Section 22, Township 28 North, Range 9 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. J. COEL

E. J. Coel
Senior Petroleum Engineer

EJC/dgb

Encl.

cc: Emery Arnold
R. L. Hamblin
Phil McGrath

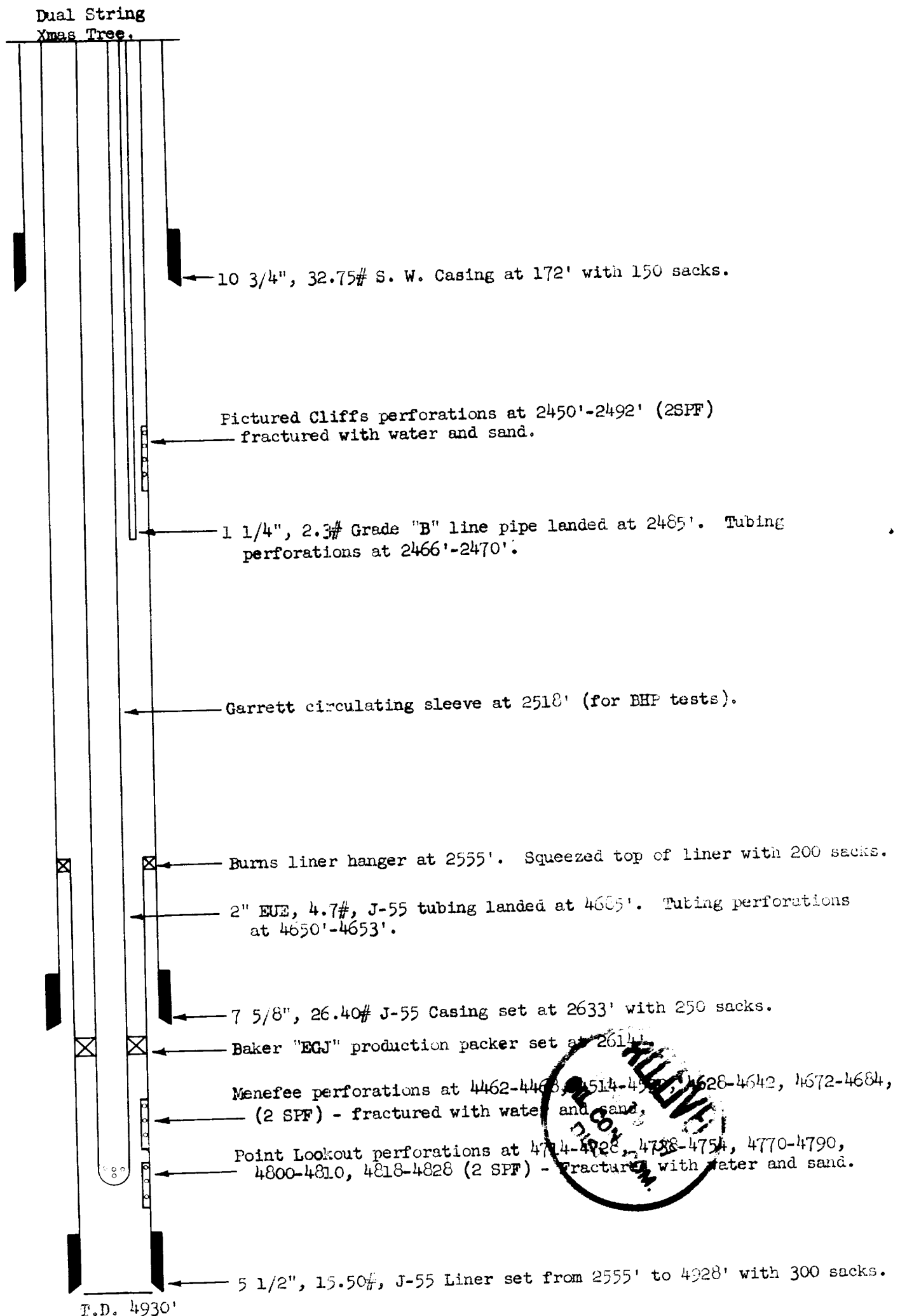


ORIGINAL SIGNED BY CORP



SCHEMATIC DIAGRAM OF DUAL COMPLETION
EPNG STOREY NO. 6-C (FM)
NE Section 22, T28N, R9W

Zero reference point 10.8'
above tubing head.



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 June 12, 1957, I was called to the location of the El Paso Natural Gas Company Storey No. 6-C (PM) Well located in the NENE/4 of Section 22, Township 26 North, Range 9 West, 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 2614 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.

Paul D. Macleod
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.

June 26, 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, Storey No. 6-C, Section
22-28-9, San Juan County, New Mexico.

Dear Mr. Arnold:

This well was dually completed in the Pictured Cliffs and Mesa Verde formations. A production packer was set at 2614 feet. The Pictured Cliffs zone was tested on June 19, 1957 and the following information was obtained:

SIPC and SIPT (Pictured Cliffs) - 699 psig; shut-in 7 days.
SIPT (Mesa Verde) - 1008 psig

The three hour open flow test through a 3/4" choke was started at 10:50 A.M.

<u>Time</u>	<u>Casing Choke Press. (PC) Psig</u>	<u>Tubing Press. (MV) Psig</u>	<u>Tubing Press. (PC) Psig</u>	<u>Temp °F</u>
10:50	Opened through casing.			
11:05	446	1009	462	68
11:20	382	1009	389	69
11:35	338	1009	345	71
11:50	313	1009	321	72
12:50	252	1012	259	74
1:50	224	1011	230	75

The calculated choke volume was 2841 MCF/D and the A.O.F. was 3154 MCF/D.

On June 26, 1957 the Mesa Verde zone was tested and the following information was obtained.

SIPC (Pictured Cliffs) - 735 psig
SIPT (Mesa Verde) - 1037 psig; shut-in 14 days.

The three hour open flow test through a 3/4" choke was started at 10:40 A.M.



<u>Time</u>	<u>Tubing Choke Press. (MV) Psig</u>	<u>Casing Press. (P.C.) Psig</u>	<u>Temp °F</u>
10:40	On through tubing.		
10:55	461	737	70
11:10	406	738	71
11:25	376	737	71
11:40	356	738	72
1:40	264	738	74

The calculated choke volume was 3273 MCF/D and the A.O.F. was 4033 MCF/D.

This test was witnessed by Mr. Fred Cook of the New Mexico Oil Conservation Commission.

Very truly yours,


R. A. Ullrich
Gas Engineer

RAU/jla

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



EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: June 26, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
STOREY NO. 6-C, San Juan County, New Mexico.

Tested By: R. A. Ullrich. Witnessed By: Fred Cook, New Mexico Oil Conservation Commission

Location Sec. 22 T. 28 R. 9 . 1103'N, 990'E

Shut-In Pressure P.C. SIPC 735 psig ; (Shut-in 14 days)
M.V. SIPT 1037 psig0.750" Choke Volume 3273 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 4033 MCF/D

Working Pressure On casing = 505 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 4930 - c/o 4850. Packer at 2614.

Field Blanco

H₂S Sweet to lead acetate.

Final SIPC (Pictured Cliffs) - 738 psig

cc: D. H. Tucker

Bill Parrish
Dean Rittmann
H. H. Lines*Lewis D. Galloway*
L. D. Galloway~~W. T. Hollis~~

W. T. Hollis

~~E. J. Coel, Jr.~~

W. M. Rodgers

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Drilling Department

B. D. Adams

Roland Hamblin

Jack Purvis

~~W. T. Hollis~~

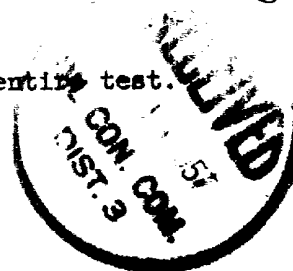
C. C. Kennedy

E. J. Coel, Jr. (6)

A. J. Dudenhoeffer

File

Well blew heavy mist of distillate during entire test.



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE June 26, 1957

Operator El Paso Natural Gas Company		Lease Storey No. 6-C	
Location 1103'N, 990'E, Sec. 22-28-9		County San Juan	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7 5/8	Set At: Feet 2623	Tubing: Diameter 2	Set At: Feet 4674
Pay Zone: From 4462	To 4828	Total Depth: 4930 - c/o 4850. Packer at 2614	
Stimulation Method Sand Water Frac.		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches 0.75		Choke Constant: C 12.365		5 1/2" liner - 2555 to 4928	
Shut-In Pressure, Casing, PSIG P.C. 735	- 12 = PSIA	Days Shut-In 14	Shut-In Pressure, Tubing PSIG M.V. 1037	- 12 = PSIA	1049
Flowing Pressure: P PSIG 264	- 12 = PSIA	276	Working Pressure: Pw PSIG Calculated	- 12 = PSIA	517
Temperature: T °F 74	n	.75	Fpv (From Tables) 1.027	Gravity	.670

Final SIPC (Pictured Cliffs) - 738 psig

CHOKE VOLUME : Q C x P_i x F_i x F_g x F_{pv}

$$Q = 12.365 \times 276 \times .9868 \times .9463 \times 1.027 = 3273 \text{ MCF/D}$$

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

$$Aof = \left(\frac{1,100,401}{833,112} \right)^n \quad 1,3208^{.75} \times 3273 = 1.2323 \times 3273$$

Aof 4033 MCF/D

Well blew heavy mist of distillate during entire test.

TESTED BY R. A. UllrichWITNESSED BY Fred Cook, New Mexico Oil Conservation Commission

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



L. D. Galloway
 L. D. Galloway

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: June 19, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
STOREY NO. 6-C, San Juan County, New Mexico.

Tested By: R. A. Ullrich.

Location Sec. 22 T. 28 R. 9 1103'N, 990'E

Shut-In Pressure P.C. SIPC 699 psig ; (Shut-in 7 days)
P.C. SIPT 699 psig
M.V. SIPT 1008 psig0.750" Choke Volume 2841 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 3154 MCF/D

Working Pressure On tubing = 230 Psig

Producing Formation Pictured Cliffs

Stimulation Method Sand Water Frac.

Total Depth 4930 - c/o - 4850. Packer at 2614.

Field Aztec

H₂S Sweet to lead acetate.

Final SIPT (Mesa Verde) - 1011 psig.

cc: D. H. Tucker

H. H. Lines

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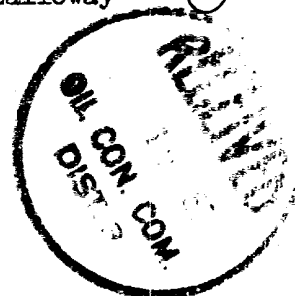
~~W. T. Hollis~~

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File

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETION

DATE June 19, 1957

Operator El Paso Natural Gas		Lease Storey No. 6-C	
Location 1103'N, 990'E, Sec. 22-28-9		County San Juan	State New Mexico
Formation Pictured Cliffs		Pool Aztec	
Casing Diameter 7 5/8	Set At Feet 2623	Tubing Diameter 1 1/4	Set At Feet 2475
Pay Zone: From 2450	To 2492	Total Depth: 4930 - c/o - 4850. Packer at 2614	
Stimulation Method Sand Water Frac.		Flow Through Casing X	

Choke Size, Inches 0.75	Choke Constant, C 12.365	5 1/2 inch liner - 2555 to 4928	
Shut-In Pressure, Casing 699	PSIG - 12 - PSIA 711	Days Shut-In 7	Shut-In Pressure, Tubing 699
Flowing Pressure, P 224	PSIG - 12 - PSIA 236		Flowing Pressure, P 230
Temperature, T 75	TF .85		Gravity .640

Starting SIPT (Mesa Verde) - 1008 psig; Final SIPT (Mesa Verde) - 1011 psig

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

$$C = 12.365 \times 236 \times .9859 \times .9682 \times 1.020$$

2841

MCF/D

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

$$A_{of} = \left(\frac{505,521}{446,957} \right)^n$$

$$1.1310^{.85} \times 2841 = 1.1103 \times 2841$$

A_{of} 3154

MCF/D

R. A. Ullrich

WITNESSED BY

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



L. D. Galloway
L. D. Galloway