

# 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 Blanco Mesa Verde Pool and in the South Blanco Pictured Cliffs Pool Extension. The El Paso Natural Gas Company Riddle No. 5-P (PM) is located 790 feet from the North line and 1090 feet from the East line of Section 32, Township 28 North, Range 8 West, N.M.P.M., San Juan 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 set at 174 feet with 200 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 2405 feet with 250 sacks of cement. Top of the cement is at 905 feet, which is above the top of the Pictured Cliffs at 2248 feet.
3. 5 1/2" liner set from 2340 feet to 4713 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 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 2354 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.

The offset operator to the acreage dedicated to this well has been notified of El Paso Natural Gas Company's intention to dually complete this well. The offset operator has consented to such operations, and enclosed is a copy of the operator's letter of approval. Also enclosed are:

- (a) Two copies of plats showing location of the well and offset operator.
- (b) Two copies of the schematic diagram of the mechanical installations.
- (c) Two copies of the affidavit from the packer setting company stating that the packer used was set at the depth shown.
- (d) Two copies of the packer leakage test as observed by a member of the Oil Conservation Commission.
- (e) Two copies of the initial potential test showing commercial production from the two formations.

It is intended to dedicate the E/2 of Section 32, Township 28 North, Range 8 West to the Mesa Verde formation and the NE/4 of Section 32, Township 28 North, Range 8 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)



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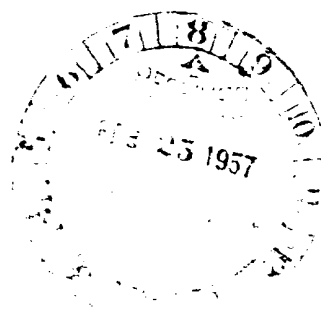
El Paso Natural Gas Company

FEB 18 '57

El Paso, Texas

LAND DEPT.

February 12, 1957



DIRECT REPLY TO  
P. O. BOX 99  
FARMINGTON, NEW MEXICO

Western Natural Gas Company  
1000 Main Street  
Houston 2, Texas

Re: Riddle 25-1 Well

Gentle Sir:

El Paso Natural Gas Company proposes a Dual Completion well to be located in the NW/4 of Section 32, Township 28 North, Range 3 West, San Juan County, New Mexico. This well will be dually completed in both the Pictured Cliffs and Mesa Verde formations.

Inasmuch as you are the owner of the NW/4 NW/4 of Section 4, Township 27 North, Range 3 West, which adjoins the drilling block, and if you have no objections to this proposed dual completion, we would appreciate your signing the attached copy of this letter and returning same to this office.

With kindest regards, we are,

Very truly yours,

*W. L. Riddle*

WLB:EG:mc

W. L. Riddle  
1915 Second St.  
Land Department

The above entitled Dual Completion well is hereby approved.

WESTERN NATURAL GAS COMPANY

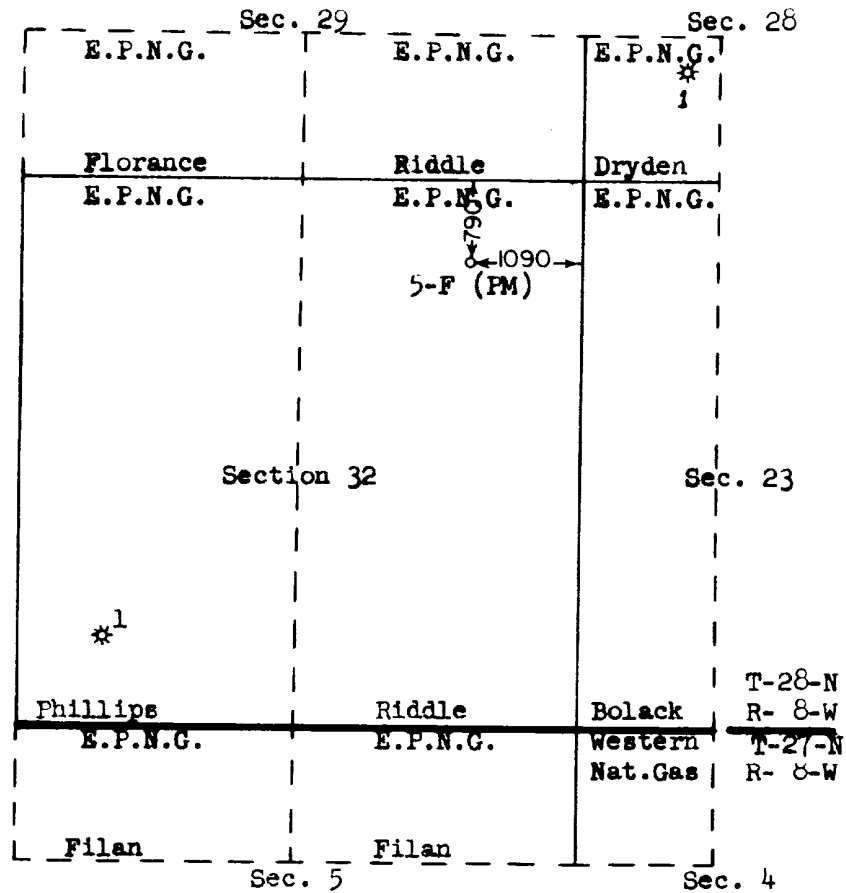
By:

*Paul C. Knight*

2-19

, 1957.

PLAT SHOWING LOCATION OF DUALY COMPLETED  
EL PASO NATURAL GAS COMPANY RIDDLE NO. 5-F (PM)  
AND OFFSET ACREAGE



EL PASO NATURAL GAS COMPANY  
EL PASO, TEXAS

SCALE

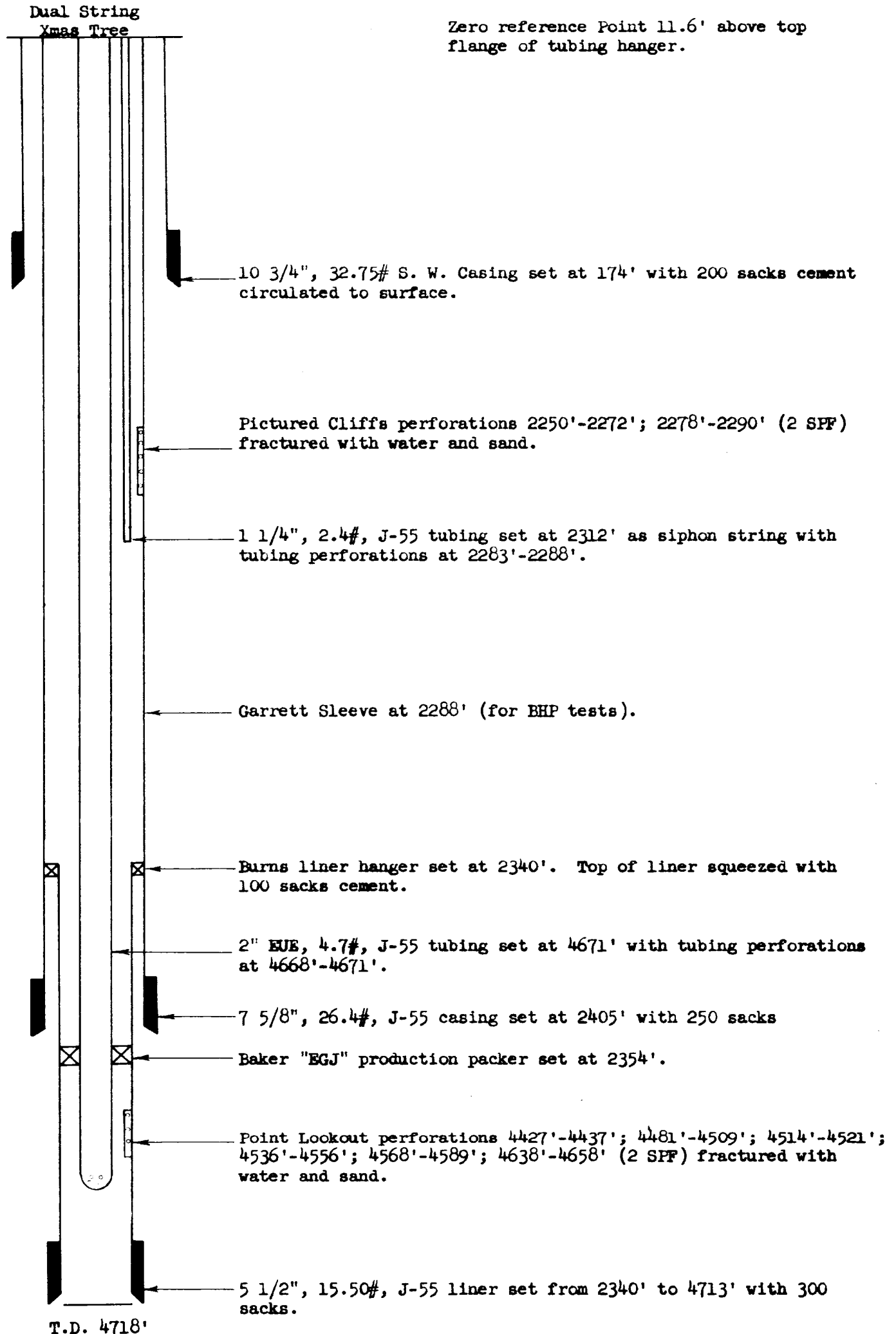
DATE

No.

DRAWN BY

CHECKED BY

SCHEMATIC DIAGRAM OF DUAL COMPLETION  
EL PASO NATURAL GAS COMPANY RIDDLE NO. 5-F (PM)  
NE/4 Section 32, T-28-N, R-8-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  
Riddle No. 5-F (PM) Well located in the NE1/4 of Section 32, Township  
28 North, Range 8 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 2354 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.

Wm. D. Macchale  
Notary Public in and for San Juan  
County, New Mexico

My commission expires February 24, 1960.



1919-1920

1921-1922

1923-1924

1925-1926

1927-1928

1929-1930

1931-1932

1933-1934

1935-1936

1937-1938

1939-1940

1941-1942

1943-1944

1945-1946

1947-1948

1949-1950

EL PASO NATURAL GAS COMPANY

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

November 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, Riddle No. 5-F (PM), 790'N,  
1090'E, Sec. 32-28-8, San Juan 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 2354 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 808 psig; shut-in 8 days  
Pictured Cliffs SIPT 808 psig  
  
Mesa Verde SIPT 1043 psig; shut-in 8 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	1043		
15	392	1043		56
30	313	1043		58
45	286	1043		60
60	271	1043		60
180	216	1045	221	62

The choke volume for the Pictured Cliffs was 2771 MCF/D with an A.O.F. of 2977 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 827 psig; shut-in 7 days  
Pictured Cliffs SIPT 827 psig  
  
Mesa Verde SIPT 1063 psig; shut-in 15 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	Open	827		
15	492	828		66
30	463	828		67
45	451	828		69
60	439	828		69
180	408	828	Calculated 785	69

The shoe count for the Mesa Verde test was 4929 MCF/D with an A.O.F. of 8971 MCF/Day.

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. Alsup

Date: November 25, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,  
RIDDLE NO. 5-F (M), San Juan County, New Mexico.

Tested By: S. V. Roberts

Location ..... Sec. 32 T. 28N R. 8W , 790'N, 1090'E

Shut-In Pressure .....	P.C. SIPC	827	psig	(Shut-in 7 days)
	P.C. SIPT	827	psig	
	M.V. SIPT	1063	psig	- shut-in 15 days

0.750" Choke Volume .....	4929	MCF/D @ 14.7 psia and 60° F. for 0.6 gravity gas. Flow through tubing for 3 hours.
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Calculated 3 Hour Absolute Open Flow .....	8971	MCF/D
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Working Pressure On	Calculated	= 875	Psig
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Producing Formation .....	Mesa Verde
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Stimulation Method .....	Sand Water Frac.
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Total Depth .....	4718 - c/o 4675
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Field .....	Blanco
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H <sub>2</sub> S .....	Sweet	to lead acetate.
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Final SIPC (PC) - 828 psig

cc: D. H. Tucker

Bill Parrish

~~W. M. Rodgers~~

Dean Rittmann

~~W. M. Rodgers~~

Samuel Smith

~~W. M. Rodgers~~

E. S. Oberly (C)

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

~~W. M. Rodgers~~

Jack Purvis

~~W. M. Rodgers~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

*Lewis D. Galloway*  
L. D. Galloway

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

Operator <b>El Paso Natural Gas Company</b>		Lease <b>Riddle No. 5-F (M)</b>	
Location <b>790'N, 1090'E, Sec. 32-28-8</b>		County <b>San Juan</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>2391</b>	Tubing: Diameter <b>2"</b>	Set At: Feet <b>4660</b>
Pay Zone: From <b>4427</b>	To <b>4658</b>	Total Depth: <b>4718 - c/o 4675</b>	
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing	Flow Through Tubing <b>X</b>

Choke Size, Inches <b>0.750</b>	Choke Constant: C <b>12.365</b>		<b>5-1/2" liner. 2340 - 4713</b>	
Shut-In Pressure, Casing, PSIG <b>PC 827</b>	- 12 = PSIA <b>839</b>	Days Shut-In <b>15</b>	Shut-In Pressure, Tubing PSIG <b>MV 1063</b>	- 12 = PSIA <b>1075</b>
Flowing Pressure: P PSIG <b>408</b>	- 12 = PSIA <b>420</b>		Working Pressure: P <sub>w</sub> PSIG <b>Calculated</b>	- 12 = PSIA <b>797</b>
Temperature: T °F <b>73</b>	n <b>0.75</b>		F <sub>pv</sub> (From Tables) <b>1.049</b>	Gravity <b>0.715</b>

**Final SIPC (PC) - 828 psig. 1-1/4" at 2301. Packer at 2354. Sleeve at 2288**CHOKE VOLUME =  $Q \cdot C \cdot P_1 \cdot F_1 \cdot F_g \cdot F_{pv}$ 

$$Q = 12.365 \times 420 \times .9877 \times .9161 \times 1.049 = \underline{4929} \text{ MCF/D}$$

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

$$Aof \cdot \left( \frac{1,155,625}{520,416} \right)^n = 2.2205^{.75} \times 4929 = 1.820 \times 4929$$

$$Aof = \underline{8271} \text{ MCF/D}$$

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. Ed E. Alsup

Date: November 18, 1957

From: Gas Engineering Department:

Place: Farmington, New Mexico

## DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well,  
RIDDLE NO. 5-F, San Juan County, New Mexico.

Tested By: S. V. Roberts

Location ..... Sec. 32 T. 28N R. 8W 790'N, 1090'E

Shut-in Pressure ..... P.C. SIPC 808 psig ; (Shut-in 8 days)  
 ..... P.C. SIPT 808 psig  
 ..... M.V. SIPT 1043 psig

0.750" Choke Volume ..... 2771 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.....	2977	MCF/D
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Working Pressure Or tying ..... = 221 Psig

Producing Formation..... Pictured Cliffs

Stimulation Method..... Sand Water Frac.

Total Depth ..... 4718 - c/o 4675

Field ..... Undesignated

H <sub>2</sub> S .....	Sweet	to lead acetate.
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Final SIPT (MV) - 1045 psig. 2" at 4660. Packer at 2354. Sleeve at 2288

cc: D. H. Tucker

Bill Parrish

+ - R + H + H + C +

Dean Rittmann

◆◆◆◆◆

Samuel Smith

~~CONFIDENTIAL~~

E. S. Oberly (6)

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

**†**

Jack Purvis

— — — — —

C. C. Kennedy

E. J. Cool, Jr.

A. J. Dudenhoeffer

File

Lewis D. Galloway  
L. D. Galloway

EL PASO NATURAL GAS COMPANY  
OPEN FLOW TEST DATADUAL COMPLETIONDATE November 18, 1957

Operator <b>El Paso Natural Gas Company</b>		Lease <b>Riddle No. 5-F</b>	
Location <b>790'N, 1090'E, Sec. 32-28-8</b>		County <b>San Juan</b>	State <b>New Mexico</b>
Formation <b>Pictured Cliffs</b>		Pool <b>Undesignated</b>	
Casing: Diameter <b>7-5/8</b>	Set At: Feet <b>2391</b>	Tubing: Diameter <b>1-1/4</b>	Set At: Feet <b>2301</b>
Pay Zone: From <b>2250</b>	To <b>2290</b>	Total Depth: <b>4718 - c/o 4675</b>	
Stimulation Method <b>Sand Water Frac.</b>		Flow Through Casing <b>X</b>	Flow Through Tubing

Choke Size, Inche <b>0.750</b>	Choke Constant: C <b>12.365</b>		<b>5-1/2" liner. 2340 - 4713</b>	
Shut-In Pressure, Casing, PSIG <b>808</b>	- 12 = PSIA <b>820</b>	Days Shut-In <b>8</b>	Shut-In Pressure, Tubing PSIG <b>808</b>	- 12 = PSIA <b>820</b>
Flowing Pressure: P PSIG <b>216</b>	- 12 = PSIA <b>228</b>		Working Pressure: P <sub>w</sub> PSIG <b>221</b>	- 12 = PSIA <b>233</b>
Temperature: T °F <b>62</b>	n = <b>0.85</b>		F <sub>pv</sub> (From Tables) <b>1.021</b>	Gravity <b>0.645</b>

**Final SIPT (MV) - 1045 psig. 2" at 4660. Packer at 2354. Sleeve at 2288**CHOKE VOLUME = Q = C × P<sub>c</sub> × F<sub>c</sub> × F<sub>g</sub> × F<sub>pv</sub> × γ

$$Q = 12.365 \times 228 \times .9981 \times .9645 \times 1.021 = \underline{2771} \text{ MCF/D}$$

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

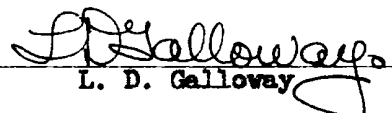
$$\text{Aof} = \left( \frac{672,400}{618,111} \right)^n = 1.0878^{.85} \times 2771 = 1.0742 \times 2771$$

$$\text{Aof} = \underline{2977} \text{ MCF/D}$$

TESTED BY S. V. Roberts

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

cc: E. S. Oberly (6)

  
 L. D. Galloway