El Paso Natural Gas Company

12-28-9

El Paso, Texas

September 4, 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 and the Aztec Pictured Cliffs Extension Pool. The El Paso Natural Gas Company Warren No. 2 (PM) is located 1460 feet from the South line and 1750 feet from the West line of Section 12, Township 28 North, Range 9 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 the Pictured Cliffs formation. Completion has been accomplished in the following manner:

1. 10-3/4" surface casing set at 173' with 150 sacks of cement circulated to the surface.
2. 7-5/8" intermediate casing set at 2371' with 250 sacks of cement. Top of cement was at 1220' which is above the top of the Pictured Cliffs formation at 2163'.
3. 5-1/2" liner set from 2296' to 4639' with 300 sacks of cement. Top of the liner was squeezed with 200 sacks.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in seven 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' with the tubing perforations set opposite the Point Lookout perforations and 1-1/4" grade "B" line pipe was run as a siphon string with the tubing perforations set opposite the Pictured Cliffs perforations. The Point Lookout gas will be produced through the 2" tubing and the Pictured Cliffs gas through the casing.

COPY

El Paso Natural Gas Company

El Paso, Texas

September 8, 1971

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

Dear Sir:

In accordance with regulations we submit herewith a well history and log for the Mesa Verde and the Mesa Verde Gallup completions of the Navajo Nation Gas Company Tiffen No. 1 (PM) in Section [illegible], Township [illegible] South, Range [illegible] West, N. M. P. M., San Juan County, New Mexico.

This well has been completed in the Mesa Verde section of the Mesa Verde formation and the Gallup formation. Completion has been accomplished as follows:

1. [illegible]-3/4" surface casing set at [illegible]' with 150 sacks of cement circulated to the surface.
2. [illegible]" intermediate casing set at 23[illegible]' with [illegible] sacks of cement. Top of cement was at 11[illegible]' which is above the top of the Fruitland Cliffs formation at 2[illegible]'.
3. [illegible]" liner set from 22[illegible]' to 40[illegible]' with [illegible] sacks of cement. [illegible] the liner was squeezed with [illegible] sacks.
4. The casing and liner were tested for leaks before perforating.
5. The Gallup section was perforated in seven intervals and fractured with water and sand.
6. The Fruitland Cliffs formation was perforated in [illegible] intervals and fractured with water and sand.
7. All perforations were cleaned after fracturing and completion was accomplished by setting a Baker model [illegible] packer at [illegible]' and running at 23[illegible]' with the tubing perforations set opposite the Fruitland Cliffs perforations and 1-1/4" [illegible] "F" line pipe with a pump seating nipple and the tubing perforations set opposite the Gallup perforations. The Gallup production was commingled through the 2" tubing and the Fruitland Cliffs was produced through the tubing.

COPY

8. A Garrett circulating sleeve was installed in the 2" tubing string just below the Pictured Cliffs perforations. This will enable bottom hole pressure tests to be taken if it is required at a future date.

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 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 this dual completion to allow production from both known producing formations eleminating the high initial cost of drilling two separate wells.

All Offset Operators to the drilling block of this well have been notified of the intention to dually complete and have sent letters of approval to this effect. Enclosed is a copy of such a letter from each Offset Operator. Also 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 tests showing commercial production from the two formations.
(e) Two plats showing the location of the well and Offset Operators.

It is intended to dedicate the W/2 and W/2 of the E/2 of Section 12, Township 28 North, Range 9 West to the Mesa Verde formation, and the W/2 of Section 12, 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 of this matter.

Yours truly,

ORIGINAL SIGNED E. J. COEL
E. J. Coel
Senior Petroleum Engineer

EJC/dgb
Encl.
cc: Emery Arnold
Sam Smith
Phil McGrath

ORIGINAL SIGNED E. J. COEL

February 12, 1957

Standard Oil Company of Texas
P. O. Box 1249
Houston 1, Texas

Re: Warren #2 Well

Gentlemen:

El Paso Natural Gas Company proposes a Dual Completion well to be located in the S/2 (All) of Section 12, Township 28 North, Range 9 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 SE/4 SW/4 of Section 36, Township 29 North, Range 9 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 remain,

Very truly yours

T. W. Bittick

T. W. Bittick
Division Landman
Lease Department

TWB:BG:cc

The above mentioned Dual Completion well is hereby approved.

STANDARD OIL COMPANY OF TEXAS

by: H. W. Mathews

H. W. Mathews, Mgr., NCJV Properties

FEB 18 1957, 1957.

RECEIVED
SEP 6 1957
OIL CON. COM.
DIST. 3

February 14, 1957

Delhi-Taylor Oil Corporation
Carrigan Tower
St. Paul at Pacific
Dallas, Texas

Re: Warren #2 Well

Gentlemen:

El Paso Natural Gas Company proposes a Dual Completion well to be located in the S/2 (All) of Section 12, Township 29 North, Range 9 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 S/2 NE/4 of Section 32, Township 29 North, Range 9 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 remain,

Very truly yours

T. W. Battick

T. W. Battick
Division Landman
Lease Department

TWB:PG:cc

The above mentioned Dual Completion well is hereby approved.

DELHI-TAYLOR OIL CORPORATION

By: [illegible]

[illegible], 1957.

RECEIVED
SEP 6 1957
OIL CON. COM.
DIST. 3

February 12, 1957

Mr. [illegible] Gilmore
[illegible] North Marienfield
Midland, Texas

Re: Warren #2 Well

Dear Mr. Gilmore:

El Paso Natural Gas Company proposes a Dual Completion well to be located in the S/2 (All) of Section 12, Township 30 North, Range 9 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 [illegible] Section 12, Township 30 North, Range 9 West, which adjoins the [illegible], 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 remain,

Very truly yours

T. W. Battick

TWB:RG:cc

T. W. Battick
Division Landman
Lease Department

The above mentioned Dual Completion well is hereby approved.

W. W. GILMORE

_____, 1957.

March 1[illegible], 1957

Aladdin Petroleum Company
[illegible] Petroleum Building
Wichita 2, Kansas

Re: Warren #2 Well

Gentlemen:

Please refer to our letter of February 12, 1957 wherein we requested your approval of our dually completing the Warren #2 Well located in the S/2 of Section 19, Township 2[illegible] North, Range 2 West.

Inasmuch as you are the owner of the NW/4 SE/4 and the SW/4 SE/4 of Section 19, Township 19 North, Range 2 West, and you have no objections to our drilling and completing this well, we would appreciate your returning one copy of our letter which was forwarded to you by date of February 12, 1957.

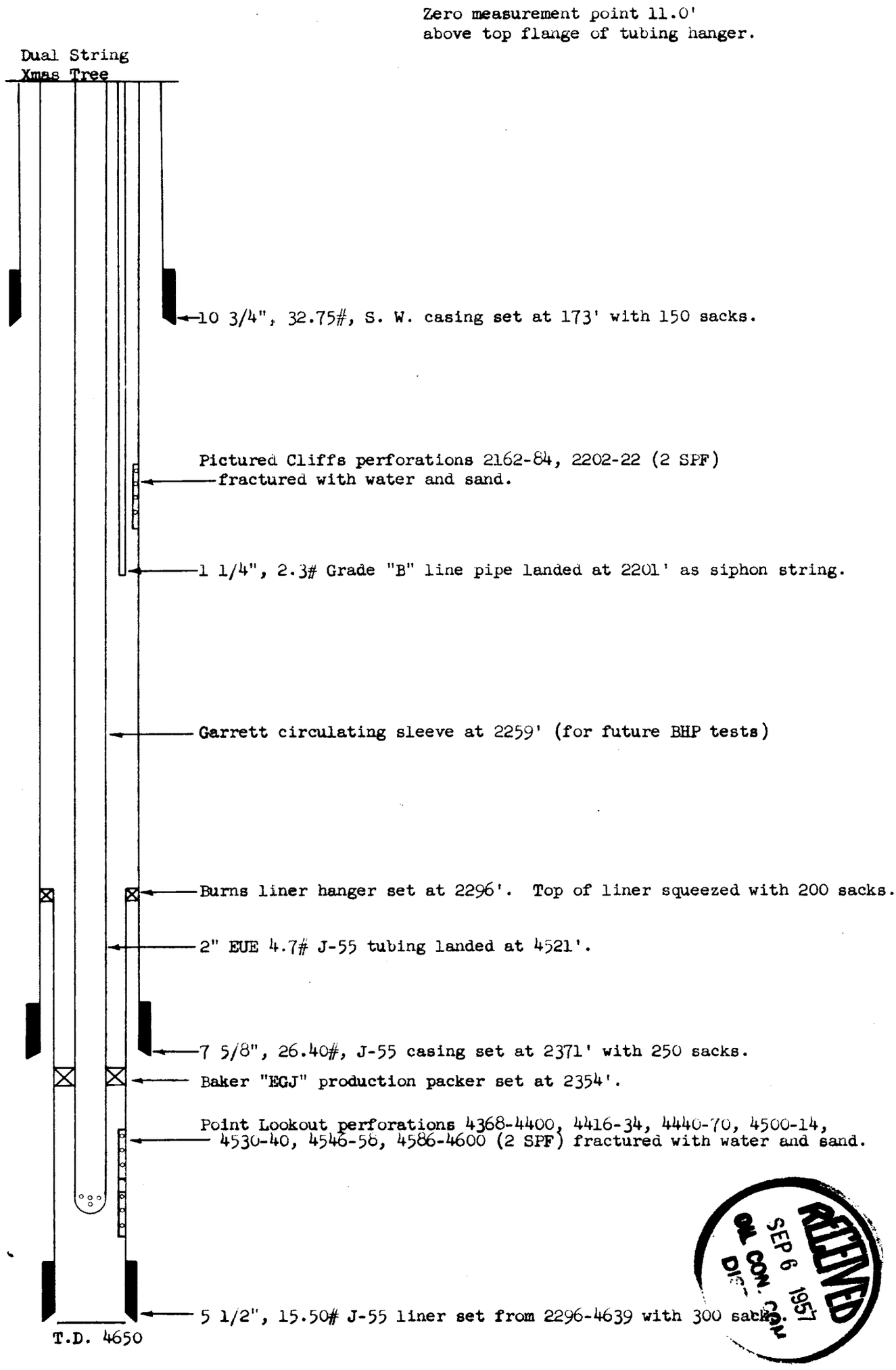
If you have misplaced our letter, a letter from you stating that you have no objections to our proposed dual completion would be appreciated.

Very truly yours

TTW:bc:cc

C. T. Little
Division Landman
Lease Department

SCHEMATIC DIAGRAM OF DUAL COMPLETION
El Paso Natural Gas Company Warren No. 2 (PM)
(E/2 W/2 Section 12, T28N, R9W)



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 August 4, 1947, I was called to the location of the El Paso Natural Gas Company Warren No. 2 (PM) Well located in the E/2 W/2 of Section 12, Township 28N, Range 9W, 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 2354 feet. The production packer was properly set 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 30 day of Aug, 1957.

Neal D. Mackey
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.

August 23, 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, Warren No. 2, SW 12-28-9, San Juan 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 2354 feet, and a Garrett Sleeve at 2259 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours August 14, 1957 with the following data obtained:

Pictured Cliffs	SIPC 855 psig; shut-in 10 days
Mesa Verde	SIPT 1017 psig

Time	Flowing Pressure	Pictured Cliff SIPC	Temp °F
0	1017	855	
15 min.	452	855	66
30 min.	415	856	71
45 min.	397	856	74
1 hour	376	857	74
3 hours	313	857	80

The choke volume for the Mesa Verde test was 3906 MCF/D with an A.O.F. of 5347 MCF/D. The well was shut-in for 7 days and the Pictured Cliff zone was tested August 21, 1957 through a 3/4" choke for three hours with the following data obtained:

Mesa Verde	SIPT 1028 psig; shut-in 7 days
Pictured Cliffs	SIPC 876 psig
Pictured Cliffs	SIPT 876 psig

Form: 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: August 14, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on El Paso Natural Gas Company well Warren No. 2, San Juan County, New Mexico.

Tested By: K. C. McBride

Witnessed by: Fred Cook (NMOCC)

Location ..... Sec. 12 T. 28 R. 9 , 1460S, 1750W

Shut-In Pressure ..... Pictured Cliffs SIPC 855 psig; (Shut-in 10 days)
Mesa Verde SIPT 1017 psig

0.750" Choke Volume ..... 3906 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 ..... 5349 MCF/D

Working Pressure On Calculated ..... = 590 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac

Total Depth ..... 4650 c/o 4610 Packer @2354

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Ending Pictured Cliffs SIPC 857 psig.

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~R. W. Harris~~ Bill Parrish
W. T. Hollis
~~G. O. Walker~~ H. H. Lines
W. M. Rodgers
~~Wayne Shook~~ Dean Rittmann
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
~~W. V. Hoffer~~
C. C. Kennedy
E. J. Coal, Jr. (6)
A. J. Dudenhoeffer
File

Time	Flowing Pressure	Mesa Verde SIPT	Temp °F
0	876	1028	
15 min	588	1029	
30 min.	487	1029	
45 min	410	1029	
1 hour	363	1029	
3 hours	220	1030	66

The choke volume for the Pictured Cliff test was 2820 MCF/D with an A.O.F. of 3002 MCF/D. The results of the above tests indicate there is no packer leakage.

Very truly yours,

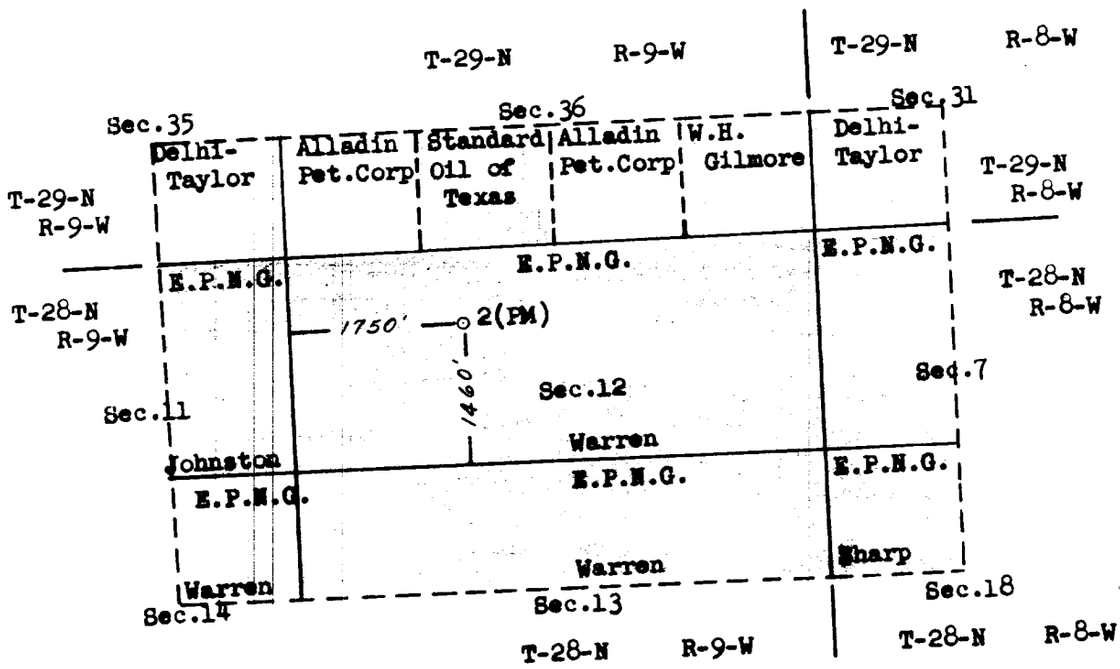
Tom Grant

Tom Grant
Gas Engineer

TBG/jla

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

PLAT SHOWING LOCATION OF DUALLY COMPLETED
EL PASO NATURAL GAS WARREN NO. 2 (PM)
AND OFFSET ACREAGE



EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE	DATE	No.
DRAWN BY	CHECKED BY	

FORM 7-132 (10-56)

FORM 23-75 (1-57)

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE August 21, 1957

Operator: El Paso Natural Gas		Lease: Warren No. 2	
Location: 1460'S, 1750'W, Sec. 12-28-9		County: San Juan	State: New Mexico
Formation: Pictured Cliffs		Pool: Wildcat	
Casing: Diameter 5-1/2	Set At: Feet 2396	Tubing: Diameter 1-1/4	Set At: Feet 2190
Pay Zone: From 2162	To 2222	Total Depth: Packer at 2354	
Stimulation Method: Sand Water Frac.		Flow Through Casing: X	Flow Through Tubing:

Choke Size, Inches: 0.750		Choke Constant: C 12.365			
Shut-In Pressure, Casing: 876 PSIG	+ 12 = PSIA 888	Days Shut-In 7	Shut-In Pressure, Tubing: 876 PSIG	+ 12 = PSIA 888	
Flowing Pressure: P 220 PSIG	+ 12 = PSIA 232		Working Pressure: P_w PSIG	+ 12 = PSIA 237	
Temperature: T 66 °F	n = .850		Fpv (From Tables) 1.021	Gravity .640	

Final SIPT (MV) - 1030 psig

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

Q = 12.365 x 232 x .9943 x .9682 x 1.021 = 2820 MCF/D

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

Aof $\left(\frac{788,544}{732,375} \right)^n$ $1.0766^{.85}$ x 2820 = 1.0647 x 2820

Aof = 3,002 MCF/D

TESTED BY: T. B. Grant

WITNESSED BY:

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

L. D. Galloway

L. D. Galloway

Form 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: August 21, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, Warren No. 2, San Juan County, New Mexico.

Tested By: Tom Grant

Location ..... Sec. 12 T. 28 R. 9 ,1460'S, 1750'W

Shut-In Pressure ..... PC SIPC 876 psig; PC SIPT 876 psig; MV SIPT 1028 (Shut-in 7 days)

0.750" Choke Volume ..... 2820 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 ..... 3002 MCF/D

Working Pressure On tubing ..... = 225 Psig

Producing Formation ..... Pictured Cliff

Stimulation Method ..... Sand Water Frac.

Total Depth ..... Packer at 2354

Field ..... Wildcat

H_2S ..... Sweet to lead acetate.

Final SIPT (MV) - 1030 psig

Bill Parrish
Dean Rittmann

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~[illegible]~~
W. T. Hollis
~~[illegible]~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
~~[illegible]~~
C. C. Kennedy
E. J. Coel, Jr. (6)
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File