El Paso Natural Gas Company

El Paso, Texas

June 7, 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 South Blanco Pictured Cliffs Extension Pool and the Blanco Mesa Verde Pool. The El Paso Natural Gas Company Storey No. 9-C (PM) is located 1700 feet from the South line and 990 feet from the West line of Section 34, 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 in the Pictured Cliffs formation. Completion has been effected in the following manner:

1. 10-3/4" surface casing set at 176' with 125 sacks cement circulated to the surface.
2. 7-5/8" intermediate casing set at 5092' with two stage cementing procedure, 200 sacks of cement at the base of the casing and 200 sacks [illegible] the Pictured Cliffs formation.
3. 5-1/2" liner set from 5016' to 5396' with 100 sacks cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in three intervals and fraced 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 out after fracturing and completion was accomplished by setting a Baker Model "EGJ" packer on 2" EUE tubing at 5113' with the tubing perforations opposite the Point Lookout perforations. 1-1/4" Grade "B" line pipe was run as a siphon string with tubing perforations opposite the Pictured Cliffs perforations.
8. The Mesa Verde gas will be produced through the 2" EUE tubing and the Pictured Cliffs gas through the casing.

COPY

9. A Garrett side door flow nipple was installed in the 2" EUE string just below the Pictured Cliffs perforations. This flow nipple will enable bottom hole pressure tests to be made in the future if it be so required.
10. Initial potential tests have been run showing commercial production in both zones. A packer leakage test has also been run, the test being witnessed by a member of the Aztec office of the Oil Conservation Commission. Results of this test show no communication in the well bore between the two zones.

Administrative approval is requested for this dual completion to allow production from both producing formations in order to eliminate the high initial cost of drilling two separate wells.

Inasmuch as El Paso Natural Gas Company is the sole operator of all acreage immediately adjacent to the drilling unit, the approval of any other operators has not been sought.

Enclosed with this letter are the following:

(a) Two copies of the schematic diagram of the mechanical installations.
(b) Two copies of the affidavit from a 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 S/2 of Section 34, Township 28 North, Range 9 West, to the Mesa Verde formation and the SW/4 of Section 34, 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 the matter.

Yours very truly,

ORIGINAL SIGNED E. J. COEL

E. J. Coel
Senior Petroleum Engineer

EJC/gks
Encl.
cc: Emery Arnold
R. L. Hamblin
Phil McGrath

EL PASO NATURAL GAS COMPANY

Box 997
Farmington, N.M.

April 18, 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 # 9-C, SW 34-28-9, 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 5101 feet. The Pictured Cliffs zone was tested April 9, 1957 with the following results:

Pictured Cliffs - SIPC - 687 psig; shut-in 7 days.
Pictured Cliffs - SIPT - 688 psig
Mesa Verde - SIPT - 989 psig

The casing was opened at 11:05 A.M. and flowed for three hours through a 3/4" choke.

Time	Casing Choke Pressure, Psig	Temp. °F	Tubing Pressure, Psig
11:05	Opened casing		989
11:20	437		988
11:35	420		989
11:50	363		989
12:05	313		989
12:35	263		989
1:05	232		989
2:05	204	63	989

The calculated choke volume was 3021 MCF/Day. After the well was shut-in eight days, the Mesa Verde zone was tested with the following results:

Pictured Cliffs - SIPC - 719 psig
Mesa Verde - SIPT - 1018 psig; shut-in 15 days.

The tubing was opened at 10:40 A.M. through a 3/4" choke and flowed for three hours.

Time	Tubing Choke Pressure, Psig	Temp. °F	Casing Pressure, Psig
10:40	Opened tubing		719
10:55	524		720
11:10	421		720
11:25	390		720
11:40	358		720
12:10	337		719
12:40	324		719
1:10	310		719
1:40	303	66	719

The calculated choke volume was 3692 MCF/Day. The results of the tests obtained indicate there is no packer leakage.

Very truly yours,

K. C. McBride
Gas Engineer

KCMcB/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

From: Gas Engineering Department

Date: April 17, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, STOREY # 9-C, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 34 T. 28 R. 9 , 1700'S, 990'W

Shut-In Pressure ..... Pictured Cliffs SIPC 719 psig ; (Shut-in 15 days)
Mesa Verde SIPT 1018 psig

0.750" Choke Volume ..... 3692 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 ..... 5180 MCF/D

Working Pressure On ..... Calculated ..... 609 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac

Total Depth ..... 5400 - c/o - 5320 . Packer at 5101

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Ending SIPC - 719 psig

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~R. Wilhelm~~
W. T. Hollis
~~C. B. Walker~~
W. M. Rodgers
~~Wayne Shell~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Bill Parrish
Dean Rittmann

Form 23-24 (Rev. [illegible])

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: April 9, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, STOREY # 9-C, San Juan County, New Mexico.

Tested By: K. C. McBride

Location ..... Sec. 34 T. 28 R. 9 , 1700'S, 990'W

Shut-In Pressure ..... Pictured Cliffs SIPC 687 psig ; (Shut-in 7 days)
Pictured Cliffs SIPT 688 psig
Mesa Verde SIPT 989 psig

0.750" Choke Volume ..... 3021 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 ..... 3308 MCF/D

Working Pressure On tubing ..... = 211 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac

Total Depth ..... 5400 - c/o - 5320 - Packer at 5101

Field ..... Undesignated

H_2S ..... Sweet to lead acetate.

Ending SIPT (M.V.) - 989 psig

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~**********~~
W. T. Hollis
~~**********~~
W. M. Rodgers
~~**********~~
Drilling Department
B. D. Adams
Roland Hamblin
Jack Purvis
W. V. Holik
C. C. Kennedy
E. J. Coel, Jr. (6)
A. J. Dudenhoeffer
File

H. H. Lines
Bill Parrish
Dean Rittmann

RECEIVED
JUN 12 1957
OIL CONS. COM.
DIST. 3

FORM 2-[illegible]

EL PASO NATURAL GAS COMPANY

DUAL COMPLETION

OPEN FLOW TEST DATA

DATE April 17, 1957

Operator: El Paso Natural Gas Company		Lease: Storey # 9-C	
Location: 1700'S, 990'W, Sec. 34-28-9		County: San Juan	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter 7 5/8	Set At: Feet 5002	Tubing: Diameter 2	Set At: Feet 5298
Pay Zone: From 5230	To 5310	Total Depth: 5400 - c/o - 5320.	Packer at 5101
Stimulation Method: Sand Water Frac		Flow Through Casing:	Flow Through Tubing: X

Choke Size, Inches: .750	Choke Constant: C 12.365	5½" liner 5016 to 5396	
Shut-in Pressure, Casing: 719 (P.C.) PSIG + 12 = PSIA	Days Shut-in: 15	Shut-in Pressure, Tubing: 1018 PSIG + 12 = PSIA	1030
Flowing Pressure: P: 303 PSIG + 12 = PSIA	315	Working Pressure: P_w: Calculated PSIG + 12 = PSIA	621
Temperature: T: 66 °F	.75	Fpv (From Tables): 1.037	Gravity: .710

Ending SIPC - 719 psig

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

$Q = 12.365 \times 315 \times .9943 \times .9193 \times 1.037$ 3692 MCF D

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

$Aof = \left(\frac{1,069,900}{675,259} \right)^n$ $(1.5711)^{.75} \times 3692 = 1.403 \times 3692$

Aof 5180 MCF D

TESTED BY K. C. McBride

WITNESSED BY

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

Lewis D. Galloway

L. D. Galloway

FORM 23-78 1-56

EL PASO NATURAL GAS COMPANY

DUAL COMPLETION

OPEN FLOW TEST DATA

DATE April 9, 1957

Operator: El Paso Natural Gas Company		Lease: Storey # 9-C	
1700'S, 990'W, Sec. 34-28-9		County: San Juan	State: New Mexico
Formation: Pictured Cliffs		Pool: Undesignated	
Casing: Diameter: 7 5/8	Set At: Feet: 5082	Tubing: Diameter: 1¼	Set At: Feet: 2998
Pay Zone: From: 2946	To: 2987	Total Depth: 5400 - c/o - 5320.	Packer at 5101
Stimulation Method: Sand Water Frac		Flow Through Casing: X	Flow Through Tubing:

Choke Size, Inches: .750	Choke Constant: C: 14.1605	5½" liner - 5016 to 5396	
Shut-In Pressure, Casing, PSIG: 687	+ 12 = PSIA: 699	Days Shut-In: 7	Shut-In Pressure, Tubing PSIG: 688	+ 12 = PSIA: 700
Flowing Pressure: P PSIG: 204	+ 12 = PSIA: 216	Working Pressure: Pw PSIG: 211	+ 12 = PSIA: 223
Temperature: T °F: .63	Ft: .85	Fpv (From Tables): 1.019	Gravity: .635

SIPT (M.V.) - 989 psig. Ending SIPT (M.V.) - 989 psig

CHOKE VOLUME Q = C x P_t x F_t x F_g x F_{pv}

Q = 14.1605 x 216 x .9971 x .9721 x 1.019 = 3021 MCF D

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

Aof = $\left(\frac{490,000}{440,271}\right)^n$ $(1.1129)^{.85}$ x 3021 = 1.095 x 3021

Aof = 3308 MCF D

RECEIVED JUN 12 1957 OIL CON. COM. DIST. 3

TESTED BY: K. C. McBride

WITNESSED BY:

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

L. D. Galloway

L. D. Galloway

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 April 2, 1957, I was called to the location of the El Paso Natural Gas Company Storey No. 9-C (PM) Well located in the SW/4 of Section 34, Township 28 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 5101 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 9 day of April, 1957.

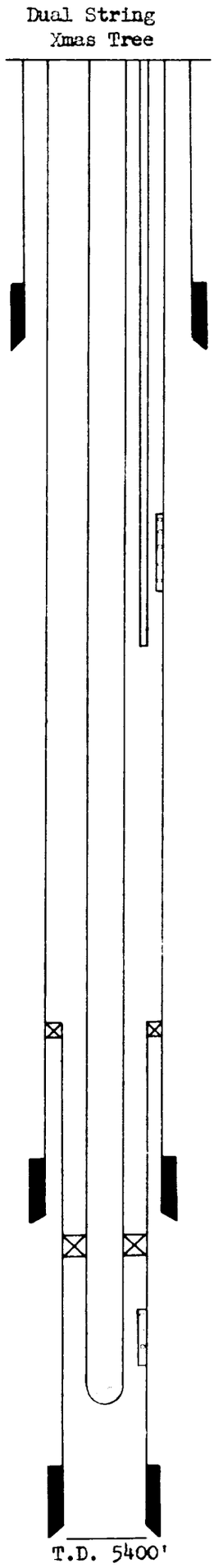
Notary Public in and for San Juan County, New Mexico

My commission expires

2-24-60

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EPNG STOREY NO. 9-C (PM)
(SW Section 34-28-9)

Measurement reference point is
10' above top of tubing hanger.



10-3/4" surface casing set at 176' with 125 sacks cement.

Pictured Cliffs perforations at 2946-2964'; 2977-2989'
with 2 shots per foot.

1-1/4" tubing set at 3010'.

Garrett sleeve at 2999'.

5-1/2" liner hanger set at 5016'.

7-5/8" intermediate casing set at 5092' with 300
sacks cement.

Baker "EGJ" production packer at 5101'.

Point Lookout perforations at 5230-5238'; 5248-5266';
5280-5310' with 2 shots per foot.

2" EUE tubing set at 5310' with perforated nipple at 5263'.

5-1/2" liner set from 5016' to 5396' with 100 sacks cement.