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 the South Blanco Pictured Cliffs Pool Extension. The El Paso Natural Gas Company Storey No. 3 (PM) is located 1050 feet from the South line and 950 feet from the West line of Section 26, Township 28 North, Range 8 West, N.M.P.M., San Juan 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 2741 feet with 250 sacks of cement. Top of the cement is at 1360 feet which is above the top of the Pictured Cliffs formation at 2510 feet.
3. 5 1/2" liner set from 2683 feet to 4952 feet with 300 sacks of cement. The top of the liner was squeezed with 150 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in two intervals and fractured with water and sand.
6. The Cliff House section was perforated in two 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 EGJ production packer on 2" EUE tubing at 2790 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, eleminating 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 S/2 of Section 26, Township 28 North, Range 8 West to the Mesa Verde formation and the SW/4 of Section 26, 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,

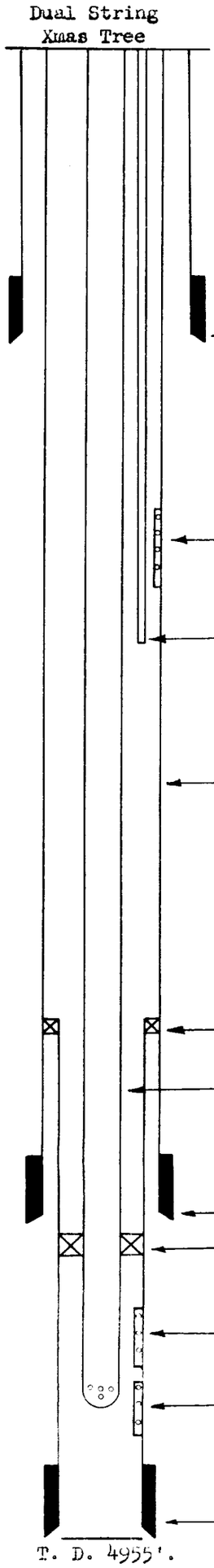
ORIGINAL SIGNED E.S.OBERLY

E. S. Oberly
Division Petroleum Engineer

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

ORIGINAL SIGNED L.S. OBERLY

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EL PASO NATURAL GAS STOREY NO. 3 (.M)
(SW Section 2, T-27-N, R-6-W)



Zero reference point 10.0' above tubing head.

10 3/4", 32.75#, S. W. casing at 174' with 150 sacks.

Pictured Cliffs perforations at 2510' - 2533'; 2550'-2565' (2 SPF) fractured with water and sand.

1 1/4", 2.3# Grade "B" line pipe landed at 2572'.

Garrett circulating sleeve at 2570' (for BHP tests).

Burns liner hanger at 2683'. Squeezed top of liner with 150 sacks cement.

2" EUE, 4.7# J-55 tubing landed at 4855'. Tubing perforations at 4820' to 4823'

7 5/8", 26.40# J-55 casing set at 2741' with 250 sacks.

Baker "EGJ" production packer set at 2790'.

Cliff House perforations at 4206' - 4222'; 4248' - 4290' (2 SPF) fractured with water and sand.

Point Lookout perforations at 4792' - 4840'; 4854' - 4870' (2 SPF) Fractured with water and sand.

5 1/2", 15.50# J-55 liner set from 2683' to 4952' with 300 sacks

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 29, 1957, I was called to the location of the El Paso Natural Gas Company Storey No. 3 (PM) Well located in the SW/4 SW/4 of Section 26, 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 "EGJ" Production Packer was set in this well at 2790 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.

Ken A. Schachele
Notary Public in and for San Juan County,
New Mexico

My commission expires February 24, 1960.

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NOV 5 1957
OIL CON. COM.
DIST. 3

STATE OF NEW MEXICO)
COUNTY OF SAN JUAN)

I, [illegible], being first duly sworn on my oath depose and say as follows:

I am an employee in Lease Oil Tools, Inc., and was in charge of the [illegible] work called for in the instalation of the 5½ inch Casing Tieback Assy. in a gas well located in the SW/4 SW/4 of Section 20, Township 27 North, Range 1 West, N. M. P. M. Laboratory service in connection with instalation of a production packer. In my presence, a Baker model "Lok" production Packer was set in this well at 4790 feet in accordance with the usual procedures and rules of the laboratory.

[illegible]

Subscribed and sworn to before me, a Notary Public in and for San Juan County, New Mexico, this _____ day of _____, 19[illegible].

_____
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 17, 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. 3 (PM), 1050'S, 950'W, Sec. 26-28-8, 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 2790 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours October 8, 1957, with the following data obtained:

Pictured Cliffs SIPC 892 psig; shut-in 9 days
Pictured Cliffs SIPT 892 psig

Mesa Verde SIPT 1038 psig; shut-in 9 days

Time Minutes	MV Flowing Pressure Tubing Psig	PC SIPC Psig	MV Working Pressure, Psig	Temp°F
15	437	894		65
30	382	894		66
45	358	894		67
60	339	895		67
180	258	896	Calculated-501	69

The choke volume for the Mesa Verde was 3205 MCF/D with an A.O.F. of 3931 MCF/D.

The Pictured Cliffs zone was tested October 16, 1957 with a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 934 psig; shut-in 16 days
Pictured Cliffs SIPT 934 psig

Mesa Verde SIPT 1053 psig; shut-in 8 days

Time Minutes	PC Flowing Pressure Casing Psig	MV SIPT Psig	PC Working Pressure, Psig	Temp°F
15	675	1054		59
30	635	1055		61
45	612	1056		62
60	550	1056		62
180	357	1057	356	65

The choke volume for the Pictured Cliffs test was 4425 MCF/D with an A.O.F. of 5128 MCF/D.

The results of the above tests indicate there is no packer leakage.

The Mesa Verde test was witnessed by A. R. Kendrick, New Mexico Oil Conservation Commission.

Very truly yours,

R. A. Ullrich
Gas Engineer

RAU/jla

cc: W. M. Rodgers
E. S. Oberly (6)
File

Form 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: October 8, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, STOREY NO. 3, San Juan County, New Mexico.

Tested By: R. A. Ullrich. Witnessed by: A. R. Kendrick, New Mexico Oil Conservation Commission

Location ..... Sec. 26 T. 28 R. 8 ,1050'S, 950'W

Shut-In Pressure ..... P.C. SIPC 892 psig; M.V. SIPT 1038 psig; (Shut-in 9 days)

0.750" Choke Volume ..... 3205 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 ..... 3931 MCF/D

Working Pressure On ..... Calculated ..... = 501 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 4955 - c/o 4930

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Final SIPC - 896 psig; Garrett Sleeve at 2570 - Packer at 2790

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Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~H. W. Hobbs~~
~~W. H. Hobbs~~
~~G. G. Walker~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
~~Roland Hobbs~~
Jack Purvis
~~W. W. Hobbs~~
C. C. Kennedy
E. J. Coel, Jr.
A. J. Dudenhoeffer
File

Bill Parrish
Dean Rittmann
E. S. Oberly (6)
Samuel Smith

FORM 23-75 (6-56)

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE October 8, 1957

Operator: El Paso Natural Gas Company		Lease: Storey No. 3	
Location: 1050'S, 950'W, Sec. 26-28-8		County: San Juan	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter: 7-5/8	Set At: Feet: 2730	Tubing: Diameter: 2	Set At: Feet: 4845
Pay Zone: From: 4206	To: 4878	Total Depth: 4955 - c/o 4930	
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 - 2863 - 4952	
Shut-In Pressure, Casing, PSIG: PC 892	+ 12 = PSIA	Days Shut-In: 9	Shut-in Pressure, Tubing PSIG: 1038	+ 12 = PSIA: 1050
Flowing Pressure: P PSIG: 258	+ 12 = PSIA: 270		Working Pressure: P_w PSIG: Calculated	+ 12 = PSIA: 513
Temperature: T F: 69	n: .75		Fpv (From Tables): 1.027	Gravity: .675

Final SIPC - 896 psig - Garrett Sleeve at 2570 - Packer at 2790

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

$Q = 12.365 \times 270 \times .9915 \times .9427 \times 1.027 = 3205$ MCF/D

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

$Aof = \left(\frac{1,102,500}{839,331} \right)^n = 1.3135^{.75} \times 3205 = 1.2265 \times 3205$

$Aof = 3931$ MCF/D

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TESTED BY: R. A. Ullrich

WITNESSED BY: A. R. Kendrick, N.M.O.C.C.

cc: E. S. Oberly (6)

L. D. Galloway

L. D. Galloway

Form 73-34 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: October 16, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, STOREY NO. 3 (PM) San Juan County, New Mexico.

Tested By: R. A. Ullrich

Location ..... Sec. 26 T. 28 R. 8 , 1050'S, 950'W

Shut-In Pressure ..... P.C. SIPC 934 psig ; (Shut-in 16 days)
P.C. SIPT 934 psig
M.V. SIPT 1053 psig

0.750" Choke Volume ..... 4472 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 ..... 5183 MCF/D

Working Pressure On tubing ..... = 366 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 4955 - c/o 4930

Field ..... Undesignated

H_2S ..... Sweet to lead acetate.

Packer at 2790. Sleeve at 2570. Final SIPT (MV) - 1057 psig

RECEIVED
NOV 5 1957
OIL CON. COM.
DIST.

L. D. Galloway

L. D. Galloway

cc: D. H. Tucker
~~R. W. Hudson~~
~~W. R. Mitchell~~
~~G. D. Wells~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
~~R. Leland Hamilton~~
Jack Purvis
~~W. W. Hoffman~~
C. C. Kennedy
E. J. Coel, Jr.
A. J. Dudenhoeffer
File
Bill Parrish
Dean Rittmann
E. S. Oberly (6)
Samuel Smith

FORM 23-15 (1-57)

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE October 16, 1957

Operator: El Paso Natural Gas		Lease: Storey No. 3 (PM)	
Location: 1050'S, 950'W, Sec. 26-28-8		County: San Juan	State: New Mexico
Formation: Pictured Cliffs		Pool: Undesignated	
Casing: Diameter: 7-5/8	Set At: Feet: 2730	Tubing: Diameter: 1-1/4	Set At: Feet:
Pay Zone: From: 2510	To: 2555	Total Depth: 4955 - c/o 4930	
Stimulation Method: Sand Water Frac.		Flow Through Casing: X	Flow Through Tubing:

Choke Size, Inches: 0.75	Choke Constant: C: 12.365	5-1/2" liner - 2683 to 4952	
Shut-in Pressure, Casing, PSIG: 934	+ 12 = PSIA: 946	Days Shut-In: 16	Shut-in Pressure, Tubing PSIG: 934 + 12 = PSIA: 946
Flowing Pressure: P PSIG: 357	+ 12 = PSIA: 369		Working Pressure: P_w PSIG: 366 + 12 = PSIA: 378
Temperature: T °F: 65	n: .85		Fpv (From Tables): 1.037 Gravity: .665

Start SIPT (MV) - 1053 psig; Final - 1057 psig. Packer at 2790. Sleeve at 2570

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

$Q = 12.365 \times 369 \times .9952 \times .9498 \times 1.037 = 4472$ MCF D

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

$Aof = \left(\frac{894,916}{752,032} \right)^n = 1.1899^{.85} \times 4472 = 1.1589 \times 4472$

Aof 5183 MCF D

REMARKS: R. A. Ullrich

WITNESSED BY:

cc: E. S. Oberly (6

L. D. Galloway

L. D. Galloway