El Paso Natural Gas Company

El Paso, Texas

October 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 Wildcat Pictured Cliffs Pool, and in the Blanco Mesa Verde Pool. The El Paso Natural Gas Company San Juan 28-7 Unit No. 73 (PM) is located 990 feet from the North line and 1090 feet from the East line of Section 28, Township 28 North, Range 7 West, N.M.P.M., Rio Arriba County, New Mexico.

This well has been completed in the Point Lookout and Cliff House 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 175 feet with 150 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 2875 feet with 250 sacks of cement. Top of the cement was at 1660 feet which is above the top of the Pictured Cliffs at 2675 feet.
3. 5 1/2" liner set from 2791 feet to 5059 feet with 300 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in three intervals and fractured with water and sand.
6. The Cliff House section was perforated in three intervals and fractured with water and sand.
7. The Pictured Cliffs formation was perforated in one interval 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 2869 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.

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 to dually complete has not been sought. 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 test showing commercial production from the two formations.

It is intended to dedicate the E/2 of Section 28, Township 28 North, Range 7 West to the Mesa Verde formation and the NE/4 of Section 28, Township 28 North, Range 7 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,

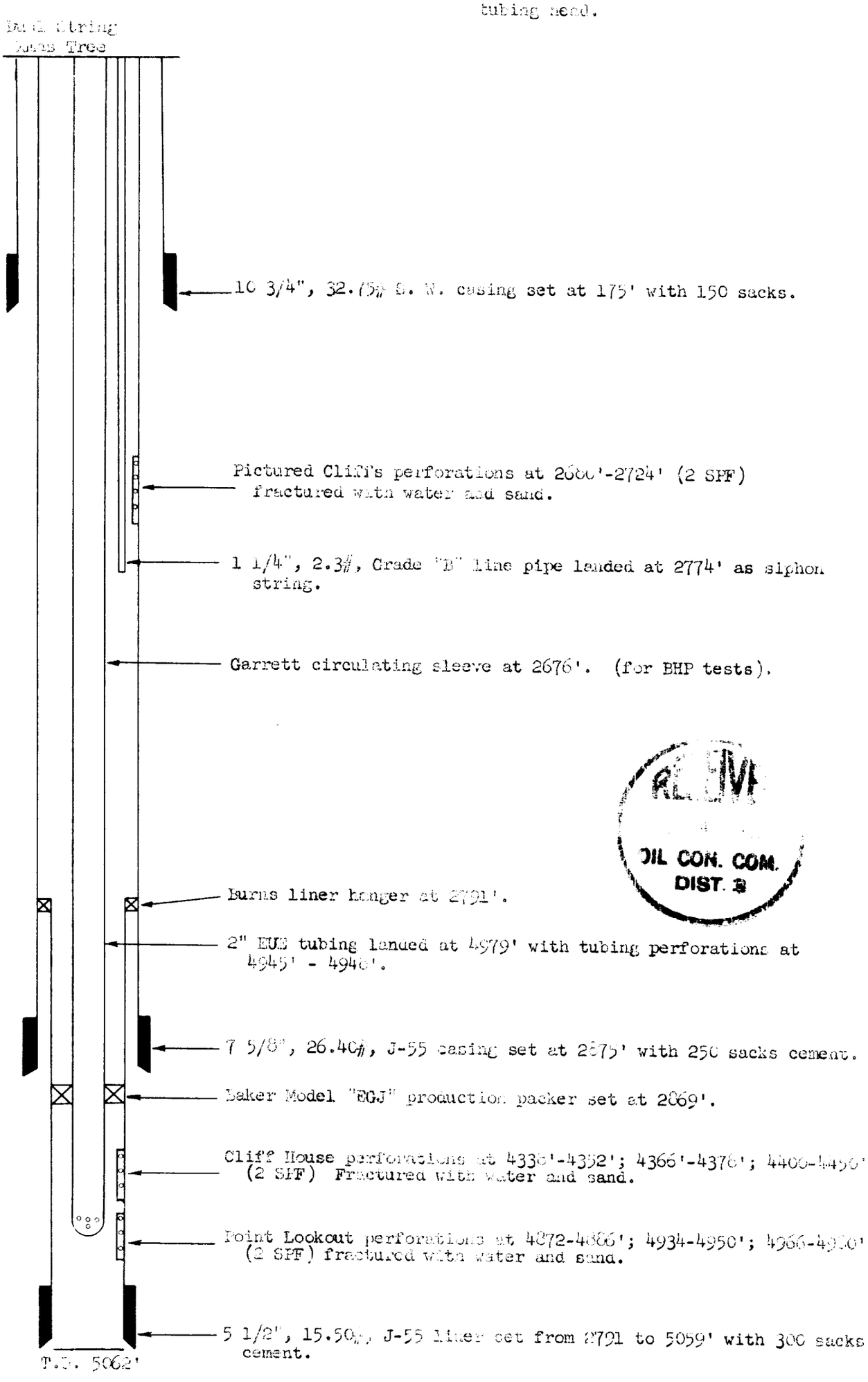
ORIGINAL SIGNED E. S. OBERLY

E. S. Oberly
Division Petroleum Engineer

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

SCHEMATIC DIAGRAM OF WELL COMPLETION
El Paso Natural Gas Co., San Juan 27-7 Unit No. 73 (PM)
(NW/4 Section 21, T27N, R7W)

Zero reference 10.0' above tubing head.



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 5, 1957, I was called to the location of the El Paso Natural Gas Company San Juan 28-7 Unit No. 73 (PM) Well located in the NE/4 NE/4 of Section 28, Township 28 North, Range 7 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 2869 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 7 day of OCT, 1957.

Karl B. Macleod
Notary Public in and for San Juan County,
New Mexico

My commission expires February 24, 1960.

RECEIVED
OCT 9 1957
OIL CON. COM.
DIST.

EL PASO NATURAL GAS COMPANY

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

September 27, 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, San Juan 28-7 Unit No. 73, NE 28-28-7, Rio Arriba 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 2869 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours September 17, 1957 with the following data obtained:

Pictured Cliffs SIPC - 939 psig; shut-in 12 days
Pictured Cliffs SIPT - 939 psig

Mesa Verde SIPT - 1048 psig; shut-in 12 days

Time Minutes	PC Flowing Pressure Casing Psig	MV SIPT Psig	PC Working Pressure, Psig	Temp °F
0	On through casing			
15	352	1048		66
30	240	1048		67
45	178	1048		71
60	153	1049		75
180	81	1049	82	74

The choke volume for the Pictured Cliffs was 1101 MCF/D with an A.O.F. of 1110 MCF/D.

The Mesa Verde zone was tested September 26, 1957 with a 3/4" choke for 3 hours with the following data obtained:

Pictured Cliffs SIPC - 980 psig; shut-in 9 days
Pictured Cliffs SIPT - 980 psig

Mesa Verde SIPT - 1071 psig; shut-in 21 days.

Time Minutes	MV Flowing Pressure Tubing Psig	PC SIPC Psig	MV Working Pressure, Psig	Temp °F
15	486	984		67
30	456	984		68
45	438	983		69
60	421	985		70
180	371	983	Calculated 728	72

The choke volume for the Mesaverde test was 4604 MCF/D with an A.O.F. of 7380 MCF/D.

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

Very truly yours,

R. A. Ullrich
Gas Engineer

RAU/jla

cc: E. J. Coel, Jr.
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

Date: September 26, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, SAN JUAN 28-7 UNIT NO. 73, Rio Arriba County, N.M.

Tested By: R. A. Ullrich

Location ..... Sec. 28 T. 28 R. 7 990'N, 1090'E

Shut-In Pressure ..... P.C. SIPC 980 psig ; (Shut-in 21 days)
M.V. SIPT 1071 psig

0.750" Choke Volume ..... 4604 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 ..... 7330 MCF D

Working Pressure On ..... Calculated ..... 728 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5062 - c/o 4990

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Final SIPC (P.C.) - 983 psig; packer at 2869; Garrett Sleeve at 2676

Lewis D. Galloway
L. D. Galloway

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

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

DUAL COMPLETION

FORM 2-178 6-56

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DATE September 26, 1957

Operator: El Paso Natural Gas Company		Lease: San Juan 28-7 Unit No. 73	
Location: 990'N, 1090'E, Sec. 28-28-7		County: Rio Arriba	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter: 7-5/8	Set At: Feet: 2864	Tubing: Diameter: 2	Set At: Feet: 4969
Pay Zone: From: 4338	To: 4980	Total Depth: 5062 - c/o 4990	
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 at 2791 to 5059	
Shut-In Pressure, Casing, PSIG: PC 980	12 = PSIA: 992	Days Shut-In: 21	Shut-In Pressure, Tubing PSIG: 1071	12 = PSIA: 1083
Flowing Pressure: P PSIG: 371	12 = PSIA: 383		Working Pressure: P_w PSIG: Calculated	12 = PSIA: 740
Temperature: T °F: 72	n: .75		Fpv (From Tables): 1.039	Gravity: .670

Final SIPC (PC) - 983 psig; packer at 2869; Garrett sleeve at 2676

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

Q = 12.365 x 383 x .9887 x .9463 x 1.039 = 4604 MCF/D

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

Aof $\left(\frac{1,172,889}{625,289}\right)^n$ = $1.8757^{.75}$ x 4604 = 1.6030 x 4604

Aof = 7380 MCF/D

RECEIVED
OCT 9 1957
OIL CON. COM.
DIST. 3

TESTED BY R. A. Ullrich

WITNESSED BY

cc: E. S. Oberly (6)

L. D. Galloway

L. D. Galloway

Form 2-28 (Rev. 1-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: September 17, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, SAN JUAN 28-7 UNIT NO. 73, Rio Arriba County, N.M.

Tested By: R. A. Ullrich and R. R. Davis

Location ..... Sec. 28 T. 28 R. 7 , 990'N, 1090'E

Shut-In Pressure ..... P.C. SIPC 939 psig ; (Shut-in 12 days)
P.C. SIPT 939 psig
M.V. SIPT 1048 psig

0.750" Choke Volume ..... 1101 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 ..... 1110 MCF/D

Working Pressure On tubing ..... 82 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5062 - c/o 4990

Field ..... Undesignated

H_2S ..... Sweet to lead acetate.

Final SIPT (MV) - 1049 psig. Packer at 2869. Sleeve at 2676

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~R. Whitworth~~
~~W. T. Lotshaw~~
~~Carl Hallet~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
~~Robert Lambert~~
Jack Purvis
~~W. V. Valik~~
C. C. Kennedy
E. J. Coel, Jr.
A. J. Dudenhoeffer
File

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

OIL CON. COM.
DIST. 3

DUAL COMPLETION

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DATE / September 17, 1957

Operator: El Paso Natural Gas Company	Lease: San Juan 28-7 Unit No. 73
Location: 990'N, 1090'E, Sec. 28-28-7	County: Rio Arriba; State: New Mexico
Formation: Pictured Cliffs	Pool: Undesignated
Casing: Diameter 7-5/8, 5-1/2 liner - Set At: Feet 2864, 2791 to 5059	Tubing: Diameter 1-1/4; Set At: Feet 2764
Pay Zone: From 2680; To 2724	Total Depth: 5062 - c/o - 4990
Stimulation Method: Sand Water Frac.	Flow Through Casing: X; Flow Through Tubing:

Choke Size, Inches: .750	Choke Constant: C 12.365		
Shut-In Pressure, Casing: PC 939 PSIG	+ 12 = PSIA 951	Days Shut-In 12	Shut-In Pressure, Tubing: PC - 939 PSIG + 12 = PSIA 951
Flowing Pressure: P PC Casing - 81 PSIG	+ 12 = PSIA 93		Working Pressure: Pw 82 PSIG + 12 = PSIA 94
Temperature: T 74	F_t .850	n	Fpv (From Tables) 1.006; Gravity .645

Starting SIPT MV - 1048 psig; Final - 1049 psig. Packer at 2869. Sleeve at 2676

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

Q = 12.365 x 93 x .9868 x .9645 x 1.006 = 1101 MCF D

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

Aof = $\left(\frac{904,401}{895,565}\right)^n$ $1.0098^{.85}$ x 1101 = 1.0083 x 1101

Aof = 1110 MCF D

TESTED BY: Dick Ullrich and Bob Davis

WITNESSED BY:

cc: E. S. Oberly (6)

L. D. Galloway