El Paso Natural Gas Company

El Paso, Texas

August 14, 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 Aztec Pictured Cliffs Extension Pool. The El Paso Natural Gas Company Lackey No. 10-B (PM) is located 1750 feet from the North line and 1690 feet from the East line of Section 21, 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 accomplished in the following manner:

1. 10 3/4" surface casing set at 171 feet with 150 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 5398 feet and cemented with a two stage cementing procedure, 150 sacks at the base of the casing and 150 sacks across the Pictured Cliffs formation.
3. 5 1/2" liner set from 5297 feet to 5747 feet with 110 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 Pictured Cliffs formation was perforated in one interval 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 5401 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

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, eleminating the high initial cost of drilling two separate wells.

A letter of approval for dually completing this well has been received from Southern Union Gas Company, holders of the lease in the S/2 of the S/2 of Section 16, Township 28 North, Range 9 West, which adjoins the North boundry of the drilling block. A copy of this letter is enclosed. Also enclosed are:

(a) Two copies of plats showing location of this well and off-set 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 21, Township 28 North, Range 9 West, to the Mesa Verde formation and the NE/4 of Section 21, 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 in this matter.

Yours very truly,

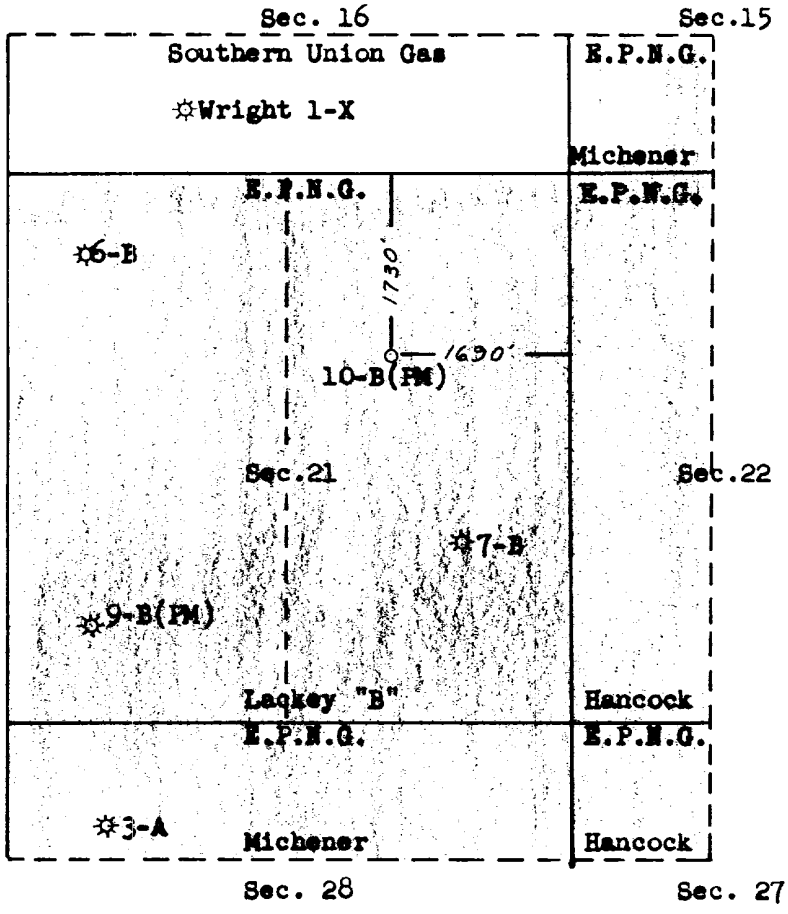
ORIGINAL SIGNED E. J. COEL

E. J. Coel
Senior Petroleum Engineer

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

PLAT SHOWING LOCATION OF DUAL COMPLETED
EL PASO NATURAL GAS LACKEY NO. 10-B(PM)
AND OFFSET ACREAGE

T-28-N R-9-W

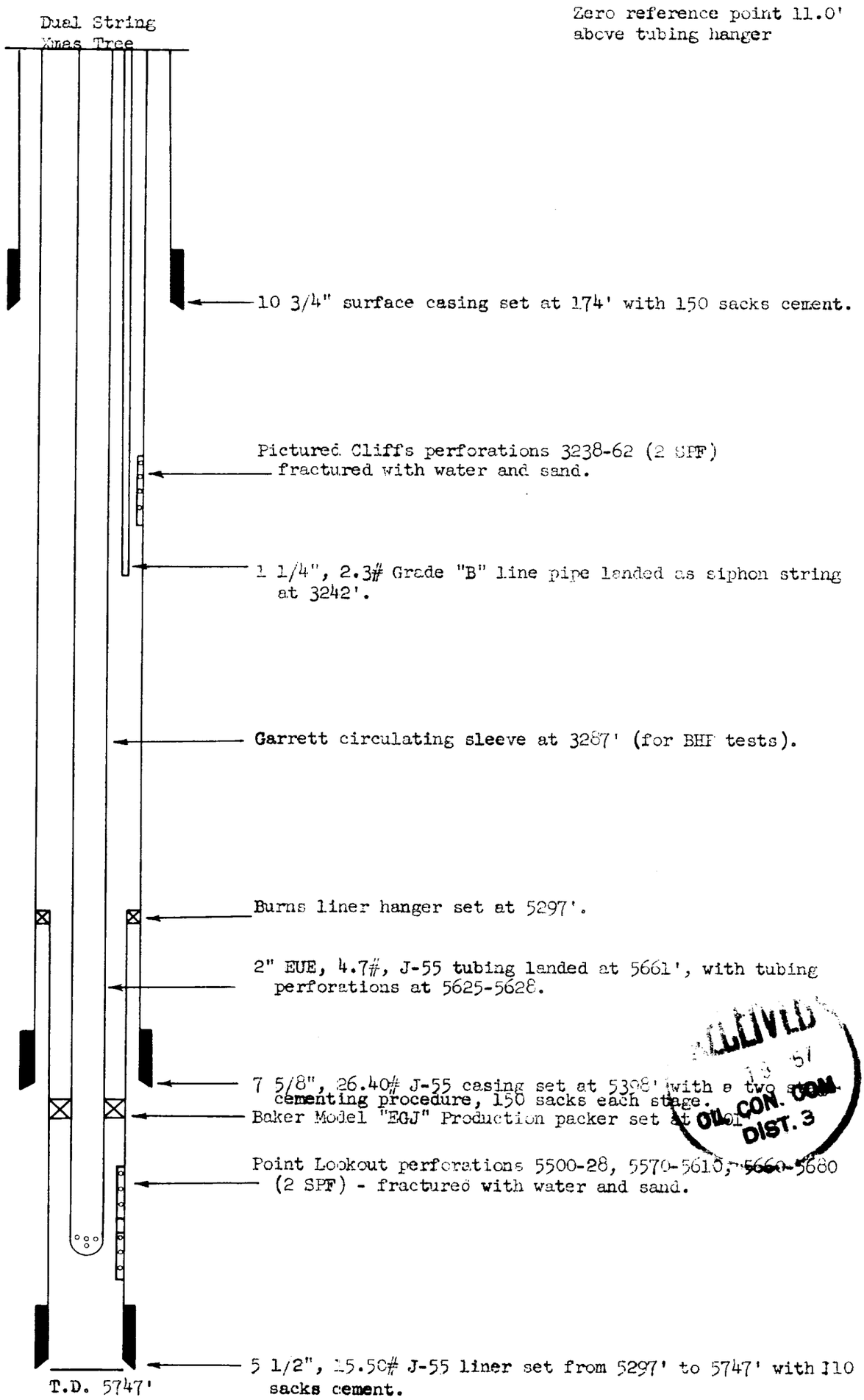


EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE	DATE	No.
DRAWN BY	CHECKED BY	

FORM 7-132 (10-56)

SCHEMATIC DIAGRAM OF DUAL COMPLETION
EPNG LACKEY NO. 10-B (PM)
(NE/4 Section 21, 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 June 21, 1957, I was called to the location of the El Paso Natural Gas Company Lackey No. 10-B (PM) Well located in the SWNE/4 of Section 21, 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 5401 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 7 day of Aug, 1957.

Notary Public in and for San Juan County, New Mexico

My commission expires February 24, 1960.

Time	Flowing Pressure	Mesa Verde SIPT	Temp °F
10:55	Opened casing	1021	
11:10	481	1021	57
11:25	410	1023	59
11:40	368	1023	59
11:55	340	1023	60
1:55	224	1024	62

The choke volume for the Pictured Cliffs test was 2863 MCF/D with an A.O.F. of 3187 MCF/D.

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

Very truly yours,

K. C. McBride

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

Box 997
Farmington, New Mexico

July 12, 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, Lackey No. 10-B, NE 21-28-9, 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 5401 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours June 28, 1957 with the following data obtained:

Pictured Cliffs SIPC 628 psig
Mesa Verde SIPT 927 psig; shut-in 7 days.

Time	Flowing Pressure	Pictured Cliffs SIPC	Temp°F
11:15	Opened tubing	628	
11:30	347	629	71
11:45	280	629	72
12:00	241	629	72
12:15	224	629	72
1:15	184	629	74
2:15	167	629	75

The choke volume for the Mesa Verde test was 2042 MCF/D with an A.O.F. of 2289 MCF/D. The well was shut-in for 14 days and the Pictured Cliffs zone was tested July 12, 1957 through a 3/4" choke for three hours with the following data obtained:

Pictured Cliffs SIPC 696 psig; shut-in 21 days
Pictured Cliffs SIPT 696 psig
Mesa Verde SIPT 1021 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: June 28, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, LACKEY NO. 10-B, San Juan County, New Mexico.

Tested By: K. C. McBride. Witnessed By: Mr. Fred Cook, New Mexico Oil Conservation Commission.

Location ..... Sec. 21 T. 28 R. 9 ,1750'N, 1690'E

Shut-In Pressure ..... P.C. SIPC 628 psig; M.V. SIPT 927 psig; (Shut-in 7 days)

0.750" Choke Volume ..... 2042 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 ..... 2289 MCF/D

Working Pressure On ..... Calculated ..... = 341 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5745 - c/o - 5704. Packer at 5401

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Ending Pictured Cliffs SIPC - 629 psig.

Lewis D. Galloway
L. D. Galloway

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

H. H. Lines
Bill Parrish
Dean Rittmann

Slight fog of distillate during 3 hour test.

JUL 1 57
OIL CON. COM.
DIST. 3

FORM 24-75 4-56

EL PASO NATURAL GAS COMPANY

DUAL COMPLETION

OPEN FLOW TEST DATA

DATE June 28, 1957

Operator: El Paso Natural Gas Company		Lease: Lackey No. 10-B	
Location: 1750'N, 1690'E, Sec. 21-28-9		County: San Juan	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter: 7 5/8	Set At: Feet: 5388	Tubing: Diameter: 2"	Set At: Feet: 5650
Pay Zone: From: 5500	To: 5580	Total Depth: 5745 - c/o 5704. Packer at 5401	
Stimulation Method: Sand Water Frac.		Flow Through Casing:	Flow Through Tubing: X

Choke Size, Inches: .750	Choke Constant: C: 12.365	5 1/2" liner - 5297 to 5747	
Shut-In Pressure, Casing, PSIG: 628 P.C.	+ 12 = PSIA: 640	Days Shut-In: 7	Shut-In Pressure, Tubing PSIG: 927 + 12 = PSIA: 939
Flowing Pressure: P PSIG: 167	+ 12 = PSIA: 179		Working Pressure: P_w PSIG: Calculated + 12 = PSIA: 353
Temperature: T °F: 75	n: .75		Fpv (From Tables): 1.018 Gravity: .710

Ending P.C. SIPC - 629 psig

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

Q = 12.365 x 179 x .9859 x .9193 x 1.018 = 2042 MCF D

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

Aof = $\left(\frac{881,721}{757,112} \right)^n$ = $1.1645^{.75}$ x 2042 = 1.1212 x 2042

Slight fog of distillate during 3 hour test.

Aof = 2289 MCF D

TESTED BY K. C. McBride

WITNESSED BY Fred Cook, New Mexico Oil Conservation Commission

OIL CON. COM. DIST. 3

L. D. Galloway

L. D. Galloway

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

Form 23-54 (Rev. 7-6)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: July 12, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well, LACKEY NO. 10-B, San Juan County, New Mexico.

Tested By: R. A. Ullrich.

Location ..... Sec. 21 T. 28 R. 9 1750'N, 1690'E

Shut-In Pressure ..... SIPC 696 psig; SIPT 696 psig; (Shut-in 21 days)

0.750" Choke Volume ..... 2863 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 ..... 3187 MCF/D

Working Pressure On tubing ..... = 232 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 5745 - c/o 5704. Packer at 5401

Field ..... Aztec

H_2S ..... Sweet to lead acetate.

Lewis D. Galloway
L. D. Galloway

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

H. H. Lines
Bill Parrish
Dean Rittmann

FORM 2-A/PRODUCER

EL PASO NATURAL GAS COMPANY

DUAL COMPLETION

OPEN FLOW TEST DATA

DATE July 12, 1957

Operator: El Paso Natural Gas Company	Lease: Lackey No. 10-B
Location: 1750'N, 1690'E, Sec. 21-28-9	County: San Juan; State: New Mexico
Formation: Pictured Cliffs	Pool: Aztec
Casing: Diameter 7 5/8; Set At: Feet 5388	Tubing: Diameter 1 1/4; Set At: Feet 3231
Pay Zone: From 3238; To 3262	Total Depth: 5745 - c/o 5704. Packer at 5401
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. 5297 to 5747
Shut-In Pressure, Casing, PSIG: 696	+ 12 = PSIA: 708	Days Shut-In: 21	Shut-In Pressure, Tubing PSIG: 696 + 12 = PSIA: 708
Flowing Pressure: P PSIG: 224	+ 12 = PSIA: 236		Working Pressure: P_w PSIG: 232 + 12 = PSIA: 244
Temperature: T °F: 62	n: .85		Fpv (From Tables): 1.023 Gravity: .650

Starting SIPT (Mesa Verde) - 1021 psig. Final SIPT (Mesa Verde) - 1024 psig

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

$Q = 12.365 \times 236 \times .9981 \times .9608 \times 1.023 = 2863$ MCF D

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

$Aof = \left(\frac{501,264}{441,728} \right)^n = 1.1347^{.85} \times 2863 = 1.1132 \times 2863$

Aof = 3187 MCF D

TESTED BY: R. A. Ullrich

WITNESSED BY:

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

L. D. Galloway

L. D. Galloway