

El Paso Natural Gas Company

El Paso, Texas

June 10, 1958

ADDRESS REPLY TO
POST OFFICE BOX 997
FARMINGTON, NEW MEXICO

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

Dear Sir:

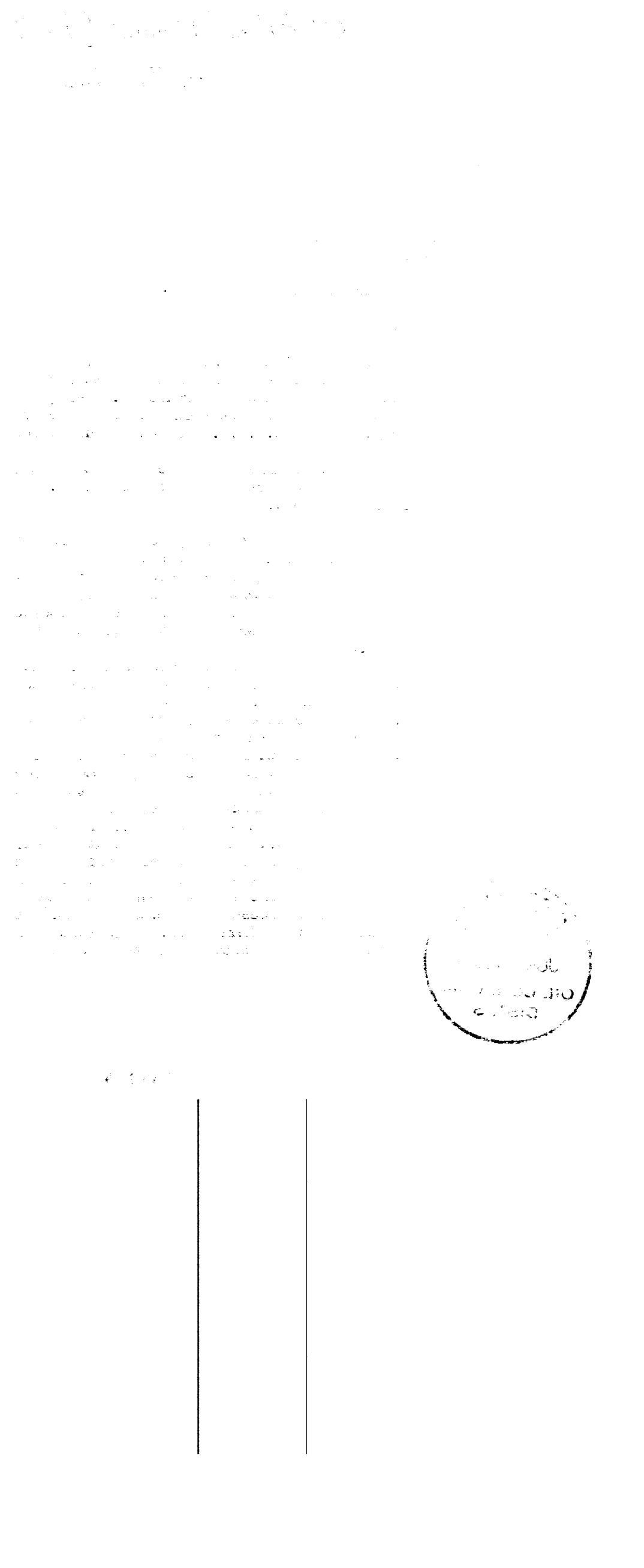
This is a request for administrative approval for a well dually completed in the Blanco Mesa Verde Pool and in the South Blanco Pictured Cliffs Pool. The El Paso Natural Gas Company Florence No. 14-D (FM) is located 1750 feet from the South Line and 1750 feet from the West line of Section 21, Township 27 North, Range 8 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 174 feet with 150 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 4461 feet and cemented with a two stage cementing procedure; 150 sacks across the base of the casing and 150 sacks across the Pictured Cliffs formation.
3. 5 1/2" liner set from 4421 feet to 4761 feet with 100 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 two intervals and fractured with water and sand.
7. All perforations were cleaned out after treatment and completion was accomplished by setting a Baker Model "EGJ" production packer on 2" EUE tubing at 4445 feet with tubing perforations set opposite the Point Lookout perforations. 1 1/4" EUE tubing siphon string was run with 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.
8. 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.



COPY



Administrative approval is requested for the dual completion to allow production from both known producing formations, eliminating the high initial cost of drilling two separate wells.

The offset operators to the drilling block have been notified of El Paso Natural Gas Company's intentions to dually complete this well. One of the operators, Western Natural Gas Company, has waived objections to dual completion plans. The other offset operator, R & G Drilling Company, was notified by letter on February 6, 1958. This operator has not yet replied with approval nor disapproval to the dual completion. Enclosed is a copy of a letter of approval from Western Natural Gas Company. 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 test 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 S/2 of Section 21, Township 27 North, Range 8 West to the Mesa Verde formation and the SW/4 of Section 21, Township 27 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,

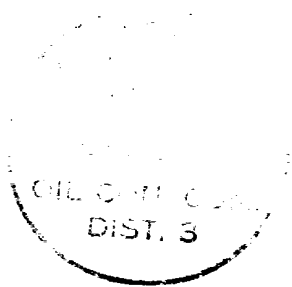
ORIGINAL SIGNED E. S. OBERLY

E. S. Oberly,
Division Petroleum Engineer

ESO:dgb

Encl.

cc: NMOCC (Emery Arnold) ✓
Sam Smith
USGS (Phil McGrath)



SCHEMATIC DIAGRAM OF DUAL COMPLETION
El Paso Natural Gas Co. Florance No. 14-D (PM)
SW/4 Section 21, T-27-N, R-8-W

Dual String
 Xmas Tree

Zero reference point 10.0' above top
 flange of tubing hanger.

10 3/4", 32.75# S. W. casing set at 174' with 150 sacks
 cement circulated to surface.

Pictured Cliffs perforations 2320-40; 2350-60 (2 SPF); fractured
 with water and sand.

1 1/4" EUE, 2.4# J-55 tubing set at 2360' as siphon string.

Two stage cementing tool at 2441'.

Top of liner hanger set at 4421'.

7 5/8", 26.40# J-55 casing set at 4481' and cemented in two
 stages: 150 sacks each stage.

Baker "EGJ" production packer set at 4445'.

Point Lookout perforations 4606-30; 4650-60; 4670-86 (2 SPF);
 fractured with water and sand.

2" EUE, 4.7# J-55 tubing landed at 4671', with tubing perforations
 at 4636'-39'.

5 1/2", 15.50# J-55 liner set from 4421' to 4761' with 100
 sacks of cement.

T.D. 4765'

OIL COMPANY
 DIS. 3

STATE OF NEW MEXICO }
 }
COUNTY OF SAN JUAN }

I, Mack M. Mahaffey, being first duly sworn upon my oath depose and say as follows:

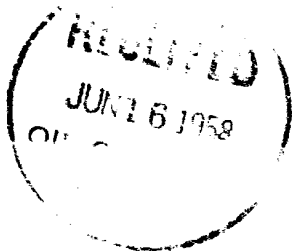
I am an employee of Baker Oil Tools, Inc., and that on April 25, 1958, I was called to the location of the El Paso Natural Gas Company Florence No. 14-D (FM) Well located in the NESEW/4 of Section 21, Township 27 North, Range 3 West, N.M.P.M., for advisory service in connection with installation of a production packer. In my presence, a Baker Model "EGJ" Production Packer was set in this well at 4445 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 12th day of June, 1958.

Paul S. Schaefer
Notary Public in and for San Juan
County, New Mexico

My commission expires February 24, 1960.



Journal of Management Studies, 36(7), 809–826.



EL PASO NATURAL GAS COMPANY

P. O. Box 997
Farmington, New Mexico

May 27, 1958

Mr. E. C. Arnold
Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico

Re: Packer Leakage Test on the El Paso Natural Gas
Company Well F orance No. 14-D (PM), 1750S,
1750W, 21-27-S, San Juan County, New Mexico.

Dear Mr. Arnold:

The subject well was dually completed in the P ictured C liffs and Mesa Verde zones and a packer was set at 4445 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours May 15, 1958, with the following data obtained:

PC SIPC 810 psig; shut-in 19 days
PC SIPT 811 psig;

MV SIPT 1084 psig; shut-in 19 days

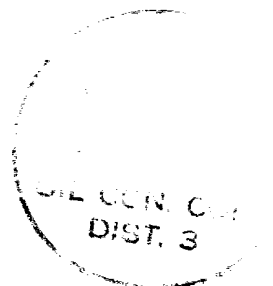
Time Minutes	MV Flowing Pressure Tubing Psig	PC SIPC Psig	MV Working Pressure, Psig	Temp ° F
15	399	811		70
30	356	811		74
45	340	809		72
60	327	809		72
120	298	812		72
180	279	812	595 (Calc.)	72

The choke volume for the Mesa Verde was 3335 MCF/D with an AOF of 4,133 MCF/D.

The Pictured C liffs zone was tested May 23, 1958 with a 3/4" choke for 3 hours with the following data obtained:

PC SIPC 820 psig; Shut-in 27 days
PC SIPT 821 psig;

MV SIPT 1090 psig; Shut-in 8 days



May 27, 1953

<u>Time Minutes</u>	<u>FC Flowing Pressure Casing Psig</u>	<u>FW SIFT Psig</u>	<u>FC Working Pressure-Psig Tbg.</u>	<u>Temp ° F</u>
15	676	1092		74
30	658	1092	668	75
45	658	1092		73
60	625	1092	638	69
120	568	1093	584	71
180	544	1094	558	72

The choke volume for the Pictured Cliffs test was 6,884 MCF/D with an AOF of 11,785 MCF/D.

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

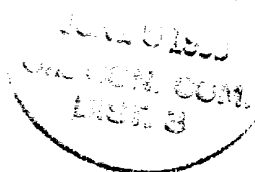
Very truly yours,

R R Davis

R. R. Davis
Gas Engineer

RRD/nb

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



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE May 15, 1958

Operator El Paso Natural Gas		Lease Florance No. 14-D (M)	
Location 1750S, 1750W; 21-27-8		County San Juan	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 4471	Tubing: Diameter 2	Set At: Feet 4661
Pay Zone: From 4421	To 4761	Total Depth: 4758	Shut-in 4/26/58
Stimulation Method Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches .75	Choke Constant: C 12.365	5-1/2 liner 4221 - 4761	
Shut-In Pressure, Casing, PSIG 810 (PC)	- 12 = PSIA 822	Days Shut-In 19	Shut-In Pressure, Tubing, PSIG 1084 (MV)
Flowing Pressure: P, PSIG 279	- 12 = PSIA 291	Working Pressure: P _w , PSIG (Calc.)	- 12 = PSIA 547
Temperature: T, °F 72	n = .75	F _{pv} (From Tables) 1.034	Gravity .730

Initial SIPC (PC) 810 PSIG

Packer at 4445

1-1/4 at 2350

Final SIPC (PC) 812 PSIG

CHOKE VOLUME : $Q = C \times P_c \times F_c \times F_g \times F_{pv}$

$$Q = 12.365 \times 291 \times .9887 \times .9066 \times 1.034 = 3,335 \text{ MCF/D}$$

$$\text{OPEN FLOW } A_{of} \propto Q \left(\frac{P_c^2}{P_c^2 - P_w^2} \right)^n$$

$$A_{of} = \left(\frac{1201216}{902007} \right)^n = \frac{1.3317}{1.2393}$$

$$A_{of} = 4133 \text{ MCF/D}$$

TESTED BY M. W. Rischard

WITNESSED BY _____

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE May 23, 1958

Operator El Paso Natural Gas Company		Lease Florance No. 14-D (P)	
Location 1750S, 1750W, 21-27-8		County San Juan	State New Mexico
Formation Pictured Cliffs		Pool South Blanco	
Casing Diameter 7-5/8	Set At: Feet 4471	Tubing Diameter 1-1/4"	Set At: Feet 2350
Pay Zone: From 2320	To 2360	Total Depth: 4758	Shut-in 4/26/58
Stimulation Method Sand Water Frac		Flow Through Casing X	Flow Through Tubing

Choke Size, Inches .75	Choke Constant: C 12.365		
Shut-In Pressure, Casing, PSIG (PC) 820	Days Shut-In 27	Shut-In Pressure, Tubing, PSIG (PC) 821	833
Flowing Pressure, P, PSIG 544	556	Working Pressure: P _w , PSIG 558	570
Temperature, °F 72	.850	F _{pv} (From Tables) 1.054	Gravity .650

Initial SIPT (MV) = 1090 PSIG 2" at 4661, Packer at 4445
Final SIPT (MV) = 1094 PSIG

CHOKE VOLUME = Q C x P_c x F_v x F_g x F_{pv}

Q 12.365 (556)(.9887)(.9608)(1.054) 6,884 MCF/D

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

$$A_{of} = \left(\frac{693,889}{368,989} \right)^n (1.8805)^{.85} (6,884) = (1.7120)(6,884)$$

A_{of} 11,785 MCF/D

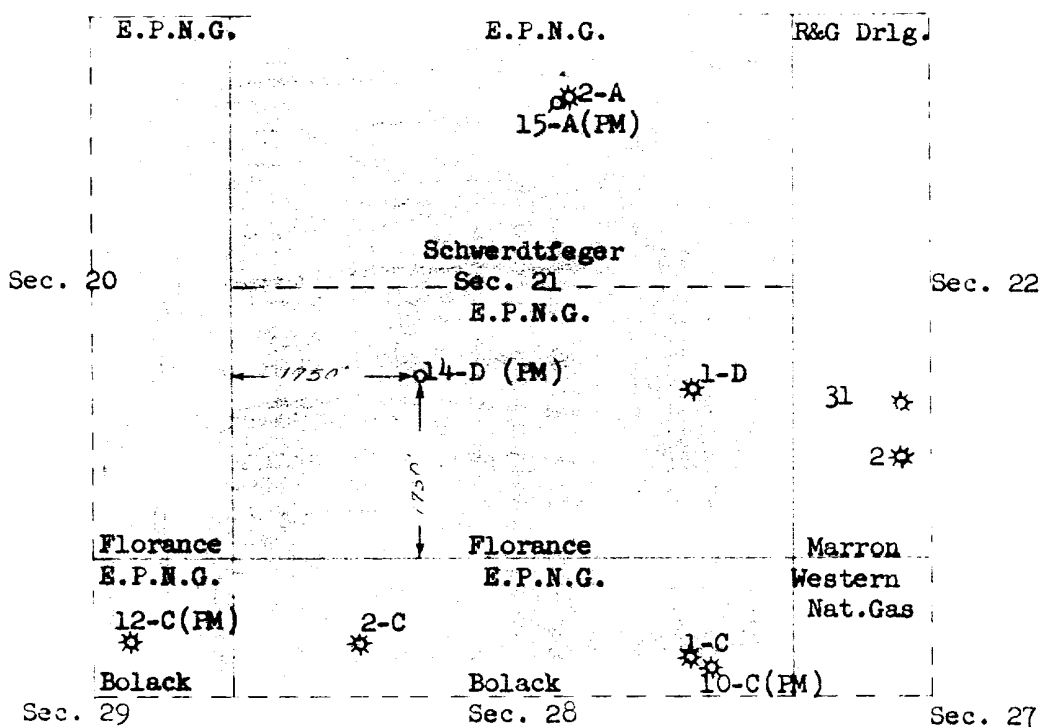
TESTED BY R. R. Davis

WITNESSED BY

Lewis D. Galloway
L. D. Galloway

PLAT SHOWING LOCATION OF DUALY COMPLETED
El Paso Natural Gas Co. Florance No. 14-D (PM)
and Offset Acreage

T-27-N, R-8-W



EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE

DATE

No.

DRAWN BY

CHECKED BY