

STATE OF NEW MEXICO
COUNTY OF SAN JUAN

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

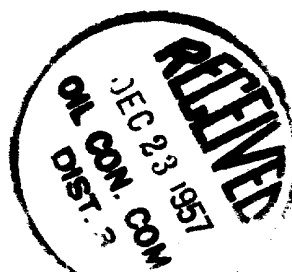
I am an employee of Baker Oil Tools, Inc., and that on
November 20, 1957, I was called to the location of the El Paso
Natural Gas Company San Juan 27-4 Unit #14-X (MD) Well located in
the NWSE/4 of Section 18, Township 27 North, Range 4 West, N.M.P.M.,
for advisory service in connection with installation of a production
packer. In my presence, a Baker Model "D" Production Packer was set
in this well at 7485 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 20 day of DEC,
1957.

Samuel M. MacLachlan
Notary Public in and for San Juan
County, New Mexico

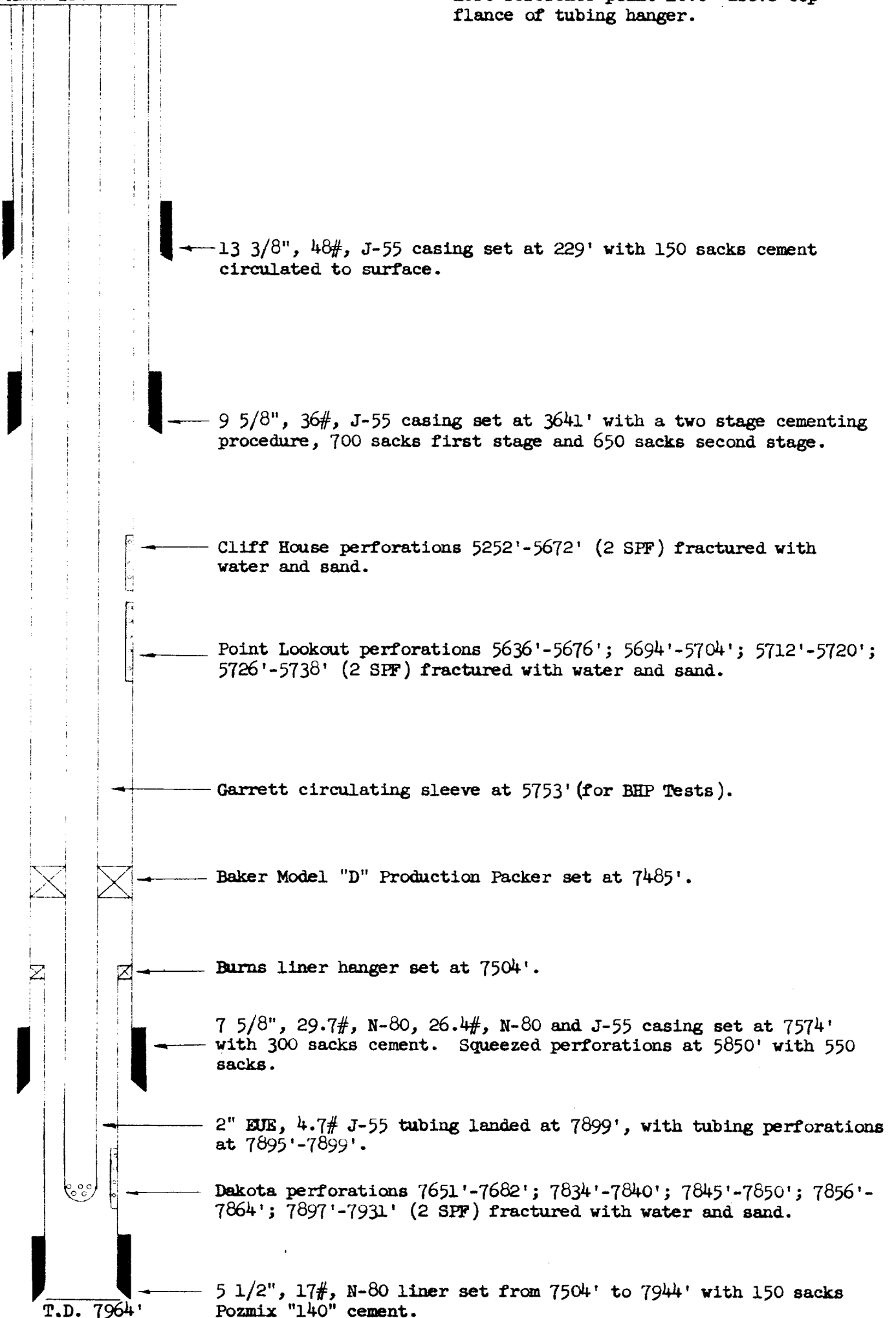
My commission expires February 24, 1960.



SCHEMATIC DIAGRAM OF DUAL COMPLETION
EL PASO NATURAL GAS SAN JUAN 27-4 UNIT NO. 14-X (MD)
SW/4 Section 18, T-27-N, R-4-W

Dual String
Xmas Tree

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



EL PASO NATURAL GAS COMPANY

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

December 11, 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 27-4 No. 14X (MD),
1160'S, 1190'W, Sec. 18-27-4, Rio Arriba
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 7485 feet. The Mesa Verde zone was tested through a 3/4" choke for three hours November 27, 1957 with the following data obtained:

Mesa Verde SIPC - 1033 psig; shut-in 7 days
Dakota SIPT - 1885 psig; shut-in 7 days

<u>Time</u> <u>Minutes</u>	<u>MV Flowing Press.</u> <u>Casing, Psig</u>	<u>Dak. SIPT Psig</u>	<u>MV Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
15	665	1890		60
30	557	1922		61
45	445	1932		64
60	394	1940		66
120	290	1957		72
180	260	1955	Calculated 261	75

The choke volume for the Mesa Verde was 3219 MCF/D with an A.O.F. of 3394 MCF/D.

The Dakota zone was tested December 4, 1957 with a 3/4" choke for three hours with the following data obtained.

Mesa Verde SIPC - 1067 psig; shut-in 7 days
Dakota SIPT - 1922 psig; shut-in 14 days



<u>Time</u> <u>Minutes</u>	<u>Dak. Flowing Press.</u> <u>Tubing, Psig</u>	<u>MV SIPC Psig</u>	<u>Dak. Working</u> <u>Pressure, Psig</u>	<u>Temp ° F</u>
15	152	1074		61
30	115	1073		62
45	111	1072		62
60	86	1072		62
120	82	1072		64
180	70	1072	Calculated 169	65

The choke volume for the Dakota test was 963 MCF/D with an A.O.F. of 969 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/jla

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

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. Ed E. Alsup

Date: November 27, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETIONSubject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 27-4 UNIT NO. 14 (M), Rio Arriba County, N.M.

Tested By: R. R. Davis

Location Sec. 18 T. 27 R. 4 , 1160'S, 1190'W

Shut-In Pressure M.V. SIPC 1033 psig ; (Shut-in 7 days)
Dak. SIPT 1885 psig0.750" Choke Volume 3219 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 3394 MCF/D

Working Pressure On Calculated = 261 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 7964 - c/o 7935

Field Blanco

H2S Sweet to lead acetate.

Final SIPT (Dakota) - 1955 psig

cc: D. H. Tucker

Bill Parrish

~~W. M. Rodgers~~

Dean Rittmann

~~W. M. Rodgers~~

Samuel Smith

~~E. S. Oberly~~

E. S. Oberly (6)

W. M. Rodgers

Wayne Cheek

Light fog during entire test period.

Drilling Department

B. D. Adams

~~W. M. Rodgers~~

Jack Purvis

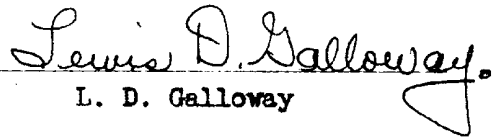
~~W. M. Rodgers~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File



L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATADUAL COMPLETIONDATE November 27, 1957

Operator El Paso Natural Gas Company		Lease San Juan 27-4 Unit No. 14 (M)	
Location 1160'S, 1190'W, Sec. 18-27-4		County Rio Arriba	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 7567	Tubing: Diameter 2"	Set At: Feet 7889
Pay Zone: From 5636	To 5738	Total Depth: 7964 - c/o 7935	
Stimulation Method Sand Water Frac.		Flow Through Casing X	Flow Through Tubing

Choke Size, Inches .750		Choke Constant: C 12.365		5-1/2" liner. 7504 - 7944	
Shut-In Pressure, Casing, PSIG MV 1033	12 PSIA 1045	Days Shut-In 7	Shut-In Pressure, Tubing PSIG Dak. 1885	12 PSIA 1897	
Flowing Pressure: P PSIG 260	12 PSIA 272		Working Pressure: Pw PSIG Calculated	12 PSIA 273	
Temperature: T °F 75	n .750		Fpv (From Tables) 1.026	Gravity .670	

Final SIPT (Dak.) - 1955 psig . Packer at 7485'. Sleeve at 5753'.

CHOKE VOLUME = Q C x P_i x F_i x F_g x F_{pv}

$$Q = 12.365 \times .9859 \times .9463 \times 1.026 \times 272 = 3219 \text{ MCF/D}$$

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

$$Aof = \left(\frac{1,092,025}{1,017,496} \right)^n = 1.0732^{.75} \times 3219 = 1.0544 \times 3219$$

$$Aof = 3394 \text{ MCF/D}$$

TESTED BY R. R. Davis

Light fog during entire test period.

WITNESSED BY _____

cc: E. S. Oberly (6)

L. D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. Ed E. Alsup

Date: December 4, 1957

From: Gas Engineering Department

Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 27-4 UNIT NO. 14X (D), Rio Arriba County, N.M.

Tested By: R. R. Davis

Location Sec. 18 T. 27N R. 4W .1160'S, 1190'W

Shut-In Pressure M.V. SIPC 1067 psig ; (Shut-in 7 days)
Dak. SIPT 1922 psig Shut-in 14 days

0.750" Choke Volume 963 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 969 MCF/D

Working Pressure On Calculated = 169 Psig

Producing Formation Dakota

Stimulation Method Sand Water Frac.

Total Depth TD: 7964 - c/o 7935

Field Wildcat

H₂S Sweet to lead acetate.

Final SIPC (MV) - 1072 psig

cc: D. H. Tucker

~~W. M. Rodgers~~

~~W. M. Rodgers~~

~~W. M. Rodgers~~

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

~~W. M. Rodgers~~

Jack Purvis

~~W. M. Rodgers~~

C. C. Kennedy

E. J. Coel, Jr.

A. J. Dudenhoeffer

File

Bill Parrish

Dean Rittmann

E. S. Oberly (6)

Samuel Smith

D. N. Canfield

Spray of water for 5 minutes after opening, then very heavy fog for
remainder of test.

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE December 4, 1957

Operator El Paso Natural Gas		Lease San Juan 27-4 Unit No. 14-X (D)	
Location 1160'S, 1190'W, Sec. 18-27-4		County Rio Arriba	State New Mexico
Formation Dakota		Pool Wildcat	
Casing: Diameter 7-5/8	Set At: Feet 7567	Tubing: Diameter 2"	Set At: Feet 7889
Pay Zone: From 7651	To 7931	Total Depth: 7964 - c/o 7935	
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 - 7504 - 7944	
Shut-In Pressure, Casing, PSIG 1067 MV	- 12 = PSIA 1079	Days Shut-In 7	Shut-In Pressure, Tubing PSIG 1922 Dak.	- 12 = PSIA 1934	
Flowing Pressure: P PSIG 70	- 12 = PSIA 82		Working Pressure: Pw PSIG Calculated	- 12 = PSIA 181	
Temperature: T °F 65			Fpv (From Tables) 1.009	Gravity .670	

Final SIPC (MV) = 1072 psig. Packer at 7485. Sleeve at 5753.

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

$$Q = 12.365 \times 82 \times .9952 \times .9463 \times 1.009 = 963 \text{ MCF/D}$$

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

$$Aof = \left(\frac{3,740,356}{3,707,595} \right)^n = 1.0088^{.75} \times 963 = 1.0066 \times 963$$

$$Aof = 969 \text{ MCF/D}$$

TESTED BY R. R. Davis

Spray of water for 5 minutes after opening, then very heavy fog for remainder of test.

WITNESSED BY _____

cc: E. S. Oberly (6)

L. D. Galloway
L. D. Galloway