

El Paso Natural Gas Company

El Paso, Texas

September 11, 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 Wildcat Pictured Cliffs Pool. The El Paso Natural Gas Company San Juan 20-7 Unit No. 76 (PM) is located 990 feet from the North line and 990 feet from the East line of Section 22, 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 3649 feet with 250 sacks of cement. Top of the cement is at 2945 feet which is above the top of the Pictured Cliffs formation at 3488 feet.
3. 5 1/2' liner set from 3603 feet to 5870 feet with 300 sacks of cement. The top of the liner was squeezed with 100 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in five intervals and fractured with water and sand.
6. The Cliff House formation was perforated in five 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 3666 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

Handwritten text at the top of the page, possibly a name or address, appearing as "A. D. ...".

Handwritten text below the top line, possibly a date or location, appearing as "1897".



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

The drilling block falls well within the boundaries of the San Juan 28-7 Unit, and since El Paso Natural Gas Company is the only operator of this unit the approval of any other operator for dually completing this well 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 E/2 of Section 22, Township 28 North, Range 7 West, to the Mesa Verde formation and the NE/4 of Section 22, 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. J. COEL

E. J. Coel
Senior Petroleum Engineer

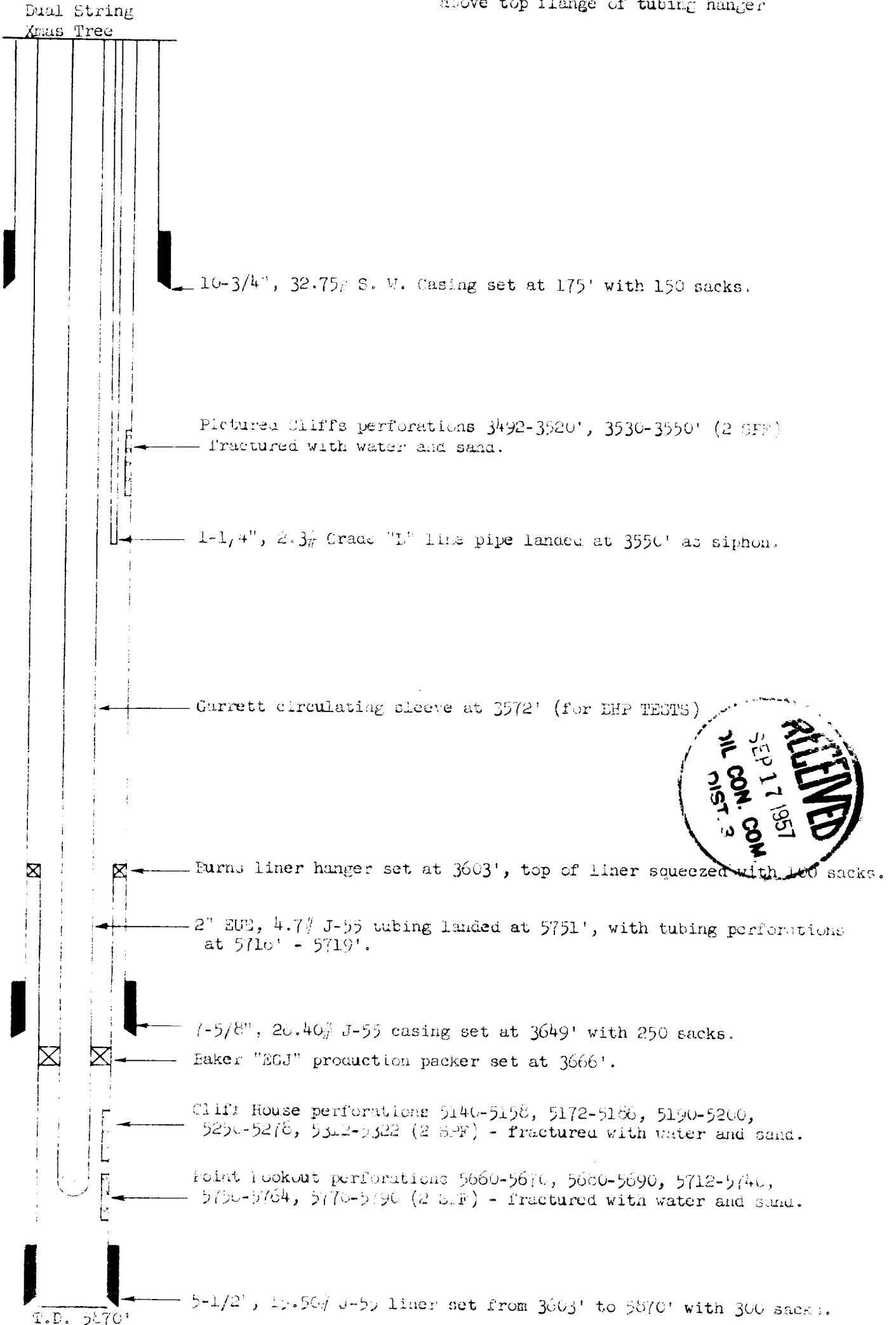
EJC;dgb

Encl.

cc: Emery Arnold
Sam Smith
Phil McGrath

SCHEMATIC DIAGRAM OF DUAL COMPLETION
 ERIC San Juan 28-7 Unit No. 78 (1H)
 (NE Section 22, T20N, R7W)

Zero reference point 9.5'
 above top flange of tubing hanger



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 14, 1957, I was called to the Location of the El Paso Natural Gas Company San Juan 28-7 Unit No. 76 (PM) Well located in the NE NE/4 of Section 22, Township 28 North, Range 7 West, 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 3666 feet. The production packer was properly set 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 12 day of Sept., 1957.

Paul MacLellan
Notary Public in and for San Juan County,
New Mexico

My commission expires February 24, 1960.



The undersigned hereby certifies that the information furnished herein is true and correct to the best of his knowledge and belief.

Witness my hand and the seal of the County of [County Name], State of [State Name], this [Day] day of [Month], 2011.

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]

[Name of Official]



[Name of Official]

EL PASO NATURAL GAS COMPANY

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

September 6, 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. 76,
NE 22-28-7, Rio Arriba County, New Mexico.

Dear Mr. Arnold:

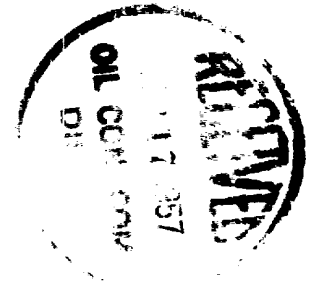
The subject well was dually completed in the Pictured Cliffs and Mesa Verde zones and a packer was set at 3665 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours August 29, 1957 with the following data obtained:

Pictured Cliffs SIPC - 941 psig) - shut-in 46 days
Pictured Cliffs SIPT - 941 psig)
Mesa Verde SIPT - 1066 psig - shut-in 46 days

<u>Time Minutes</u>	<u>PC Flowing Pressure Casing Psig</u>	<u>MV SIPT Psig</u>	<u>Temp °F</u>	<u>PC Psig Working Pressure</u>
15	383	1065	54	
30	237	1065	55	
45	175	1066	57	
60	151	1066	58	
180	86	1067	58	89

The choke volume for the Pictured Cliffs was 1193 MCF/D with an AOF of 1204 MCF/D. The Mesa Verde zone was tested September 5, 1957 with a 3/4" choke for 3 hours with the following data obtained:

Pictured Cliffs SIPC - 918 psig) - shut-in 7 days
Mesa Verde SIPT - 1072 psig) - shut-in 53 days



<u>Time Minutes</u>	<u>MV Flowing Pressure Psig</u>	<u>PC SIPC Psig</u>	<u>Temp °F</u>	<u>MV Working Pressure Psig</u>
15	532	923	62	
30	491	923	63	
45	450	923	64	
60	437	923	66	
180	362	923	68	Calculated - 747

The choke volume for the Mesa Verde test was 4538 MCF/D with an AOF of 7529 MCF/D.

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

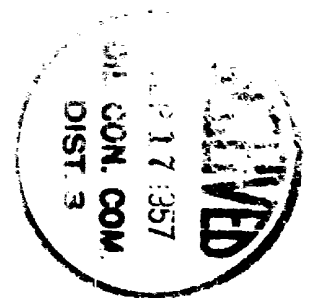
Very truly yours,



R. A. Ullrich
Gas Engineer

RAU/jla

cc: W. T. Hollis
W. M. Rodgers
E. J. Coel, Jr. (6)
File



EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup
From: Gas Engineering Department

Date: September 5, 1957
Place: Farmington, New Mexico

DUAL COMPLETION

Subject: Test data on the El Paso Natural Gas Company Well,
SAN JUAN 28-7 UNIT NO. 76, Rio Arriba County, N.M.

Tested By: R. A. Ullrich and J. Goodwin.

Location Sec. 22 T. 28 R. 7 990'N, 990'E

Shut-In Pressure P.C. SIPC 918 psig ; (Shut-in 53 days)
M.V. SIPT 1072 psig

0.750" Choke Volume 4538 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 7529 MCF/D

Working Pressure On Calculated = 747 Psig

Producing Formation Mesa Verde

Stimulation Method Sand Water Frac.

Total Depth 5875 - c/o 5810

Field Blanco

H₂S Sweet to lead acetate.

Final SIPC (Pictured Cliffs) - 923 psig. Packer at 3665. Sleeve at 3573

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

Bill Parrish
Dean Rittmann

L. D. Galloway
L. D. Galloway



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE September 5, 1957

Operator El Paso Natural Gas		Lease San Juan 28-7 Unit No. 76	
Location 990'N, 990'E, Sec. 22-28-7		County Rio Arriba	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 7-5/8	Set At: Feet 3639	Tubing: Diameter 2	Set At: Feet 5741
Pay Zone: From 5142	To 5790	Total Depth: 5875 - c/o 5810	
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 - 3611 to 5870	
Shut-In Pressure, Casing, PSIG PC 918	- 12 = PSIA 930	Days Shut-In 53	Shut-In Pressure, Tubing, PSIG 1072	+ 12 = PSIA 1084
Flowing Pressure: P, PSIG 362	- 12 = PSIA 374	Working Pressure: P _w , PSIG Calculated	- 12 = PSIA 759	
Temperature: T, °F 68	n = .75	F _{pv} (From Tables) 1.037	Gravity .660	

Final SIPC (Pictured Cliffs) - 923 psig. Packer at 3665. Sleeve at 3573

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

$$Q = 12.365 \times 374 \times .9924 \times .9535 \times 1.037 = \underline{4538} \text{ MCF/D}$$

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

$$Aof = \left(\frac{1,175,056}{598,975} \right)^n = 1.9617^{.75} \times 4538 = 1.6590 \times 4538$$

Aof = 7529 MCF/D

TESTED BY R. A. Ullrich and J. Goodwin

WITNESSED BY _____

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

Lewis D. Galloway
L. D. Galloway

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

Date: August 29, 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. 76, Rio Arriba County, N.M.

Tested By: Jess Goodwin and R. A. Ullrich

Location Sec. 22 T. 28 R. 7 990'N, 990'E

Shut-In Pressure PC SIPC 941 psig ; (Shut-in 46 days)
PC SIPT 941 psig

MV SIPT 1066 psig

0.750" Choke Volume 1193 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 1204 MCF/D

Working Pressure On tubing = 89 Psig

Producing Formation Pictured Cliffs

Stimulation Method Sand Water Frac.

Total Depth 5875 - c/o 5810

Field Undesignated

H₂S Sweet to lead acetate.

Final SIPT (Mesa Verde) - 1067 psig

cc: D. H. Tucker

Bill Parrish
Dean Rittmann

Lewis D. Galloway
L. D. Galloway

~~W. T. Hollis~~

W. T. Hollis

~~W. M. Rodgers~~

W. M. Rodgers

Wayne Cheek

Drilling Department

B. D. Adams

Roland Hamblin

Jack Purvis

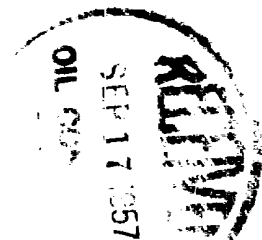
~~W. M. Rodgers~~

C. C. Kennedy

E. J. Coel, Jr. (6)

A. J. Dudenhoeffer

File



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE August 29, 1957

Operator El Paso Natural Gas Company		Lease San Juan 28-7 Unit No. 76	
Location 990'N, 990'E, Sec. 22-28-7		County Rio Arriba	State New Mexico
Formation Pictured Cliffs		Pool Blanco	
Casing: Diameter 7-5/8"	Set At: Feet 5875	Tubing: Diameter 1-1/4	Set At: Feet 3540
Pay Zone: From 3492	To 3550	Total Depth: 5875 - c/o 5810	
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 3611 to 5870	
Shut-In Pressure, Casing, PSIG 941	- 12 = PSIA 953	Days Shut-In 46	Shut-In Pressure, Tubing, PSIG 941	- 12 = PSIA 953
Flowing Pressure: P, PSIG 86	- 12 = PSIA 98		Working Pressure: P _w , PSIG 89	- 12 = PSIA 101
Temperature: T, F 58			F _{pv} (From Tables) 1.007	Gravity .630

Start SIPT (Mesa Verde) - 1066 psig; Final SIPT (Mesa Verde) - 1067 psig

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

Q **12.365 x 98 x 1.0019 x .9759 x 1.007** = 1193 MCF/D

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

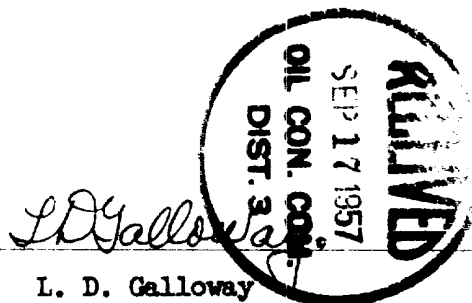
Aof = $\left(\frac{908,209}{898,008} \right)^n = 1.01135^{.85} \times 1193 = 1.0096 \times 1193$

Aof 1204 MCF/D

TESTED BY Jess Goodwin and R. A. Ullrich

WITNESSED BY _____

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



L. D. Galloway