El Paso Natural Gas Company

El Paso, Texas
October 30, 1957

DIRECT REPLY TO:
P. O. BOX 997
FARMINGTON, NEW MEXICO

RECEIVED
OIL CON. COM.
DIST. 3

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 South Blanco Pictured Cliffs Pool Extension. The El Paso Natural Gas Company Schwerdtfeger No. 10-A (PM) is located 1180 feet from the South line and 475 feet from the West line of Section 31, Township 28 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 172 feet with 200 sacks of cement circulated to the surface.
2. 7 5/8" intermediate casing set at 2300 feet with 250 sacks of cement. Top of the cement is at 995 feet which is above the top of the Pictured Cliffs formation at 2114 feet.
3. 5 1/2" liner set from 2238 feet to 4605 feet with 300 sacks of cement. The top of the liner was squeezed with 150 sacks of cement.
4. The casing and liner were tested for leaks before perforating.
5. The Point Lookout section was perforated in six 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 after treatment and completion was accomplished by setting a Baker Model EGJ production packer on 2" EUE tubing at 2327 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.

The offset operator to the drilling block has been notified of intentions to dually complete by registered letter and has returned a letter of approval of said intentions. Enclosed is a copy of the offset operator's letter of approval. 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 operator.

It is intended to dedicate the W/2 of Section 31, Township 28 North, Range 8 West, to the Mesa Verde formation and the SW/4 of Section 31, Township 28 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: Emery Arnold
Sam Smith
Phil McGrath

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FORM 52 2-57

PAN AMERICAN PETROLEUM CORPORATION

Roswell, New Mexico
February 27, 1957

File: E-50-986.510

Subject: Waiver of Objection
Dual Completion Permit
Pictured Cliffs and
Mesaverde Formations
W/2 Section 31, T-28-N, R-8-W,
San Juan County, New Mexico

New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Gentlemen:

The undersigned, being an authorized representative of the offset operator, has been duly informed by El Paso Natural Gas Company of their intention to dually complete their Schwerdtfeger Well No. 10-A in the Pictured Cliffs and Mesaverde Formations. Pan American Petroleum Corporation hereby waives all objections to the granting of a permit for this purpose.

This well is to be located in the W/2 of Section 31, T-28-N, R-8-W, San Juan County, New Mexico.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

Original Signed by
C. L. KELLEY

C. L. Kelley
District Superintendent

GWE/ms

cc: El Paso Natural Gas Company
P. O. Box 997
Farmington, New Mexico

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COPY

FORM 470 2-57

PAN AMERICAN PETROLEUM CORPORATION

Roswell, New Mexico
February 27, 1957

File: E-54-986.510

Subject: Waiver of Objections
Dual Completion Permits
Pictured Cliffs and Mesaverde
Formations, San Juan County,
New Mexico

El Paso Natural Gas Company
Box 997
Farmington, New Mexico

Gentlemen:

Your letters of February 12th advising of your intention to dually complete five wells to be located in the vicinity of Pan American acreage in San Juan County, New Mexico, have been directed to this office for reply. Attached are copies of Pan American's waivers of objection which have been furnished to the New Mexico Oil Conservation Commission. We presume that your letters of February 12, 1957, were intended as a request for a waiver from Pan American of any objection to your obtaining a permit to dually complete these wells.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

C. L. Kelley
District Superintendent

GWE/ms

Attach.

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McCully #3
Florance 3-C
Florance 6-C
Snoddgrass 10-a
Warren 5

El Paso Natural Gas Company

El Paso, Texas

February 12, 1957

DIRECT REPLY TO:
P. O. BOX 897
FARMINGTON, NEW MEXICO

Pacific Northwest Pipeline Corp.
720 Simms Building
Albuquerque, New Mexico

Re: Schwerdtfeger #10-A Well

Gentlemen:

El Paso Natural Gas Company proposes a Dual Completion well to be located in the W/2 of Section 31, Township 28 North, Range 8 West, San Juan County, New Mexico. This well will be dually completed in both the Pictured Cliffs and Mesa Verde formations.

Inasmuch as you are the owner of the NE/4 NE/4 of Section 1, Township 27 North, Range 9 West, which adjoins the drilling block, and if you have no objections to this proposed dual completion, we would appreciate your signing the attached copy of this letter and returning same to this office.

With kindest regards, we remain,

Very truly yours

T. W. Bittick

TWB:BG:cc

T. W. Bittick
Division Landman
Lease Department

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The above mentioned Dual Completion well is hereby approved.

PACIFIC NORTHWEST PIPELINE CORP.

By: [illegible]

February 18, 1957.

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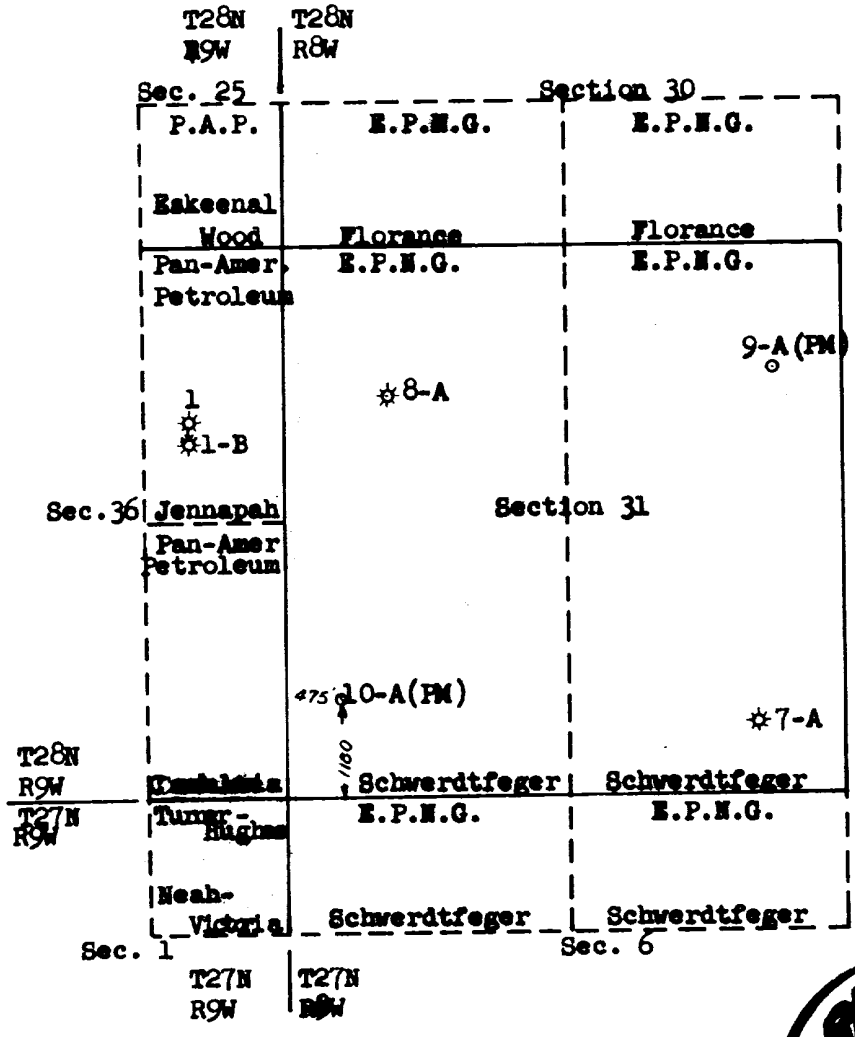
FEB 18 1957
P.N.P. CORP.

PLAT SHOWING LOCATION OF DUALLY COMPLETED
EL PASO NATURAL GAS COMPANY SCHWERDTFEGER NO. 10-A(PM)
AND OFFSET ACREAGE



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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
E. P. N. G. Schwerdtfeger #10-A (PM)
(SW Section 31, T28N, R8W)

Zero reference point 10.0 above top flange of tubing hanger

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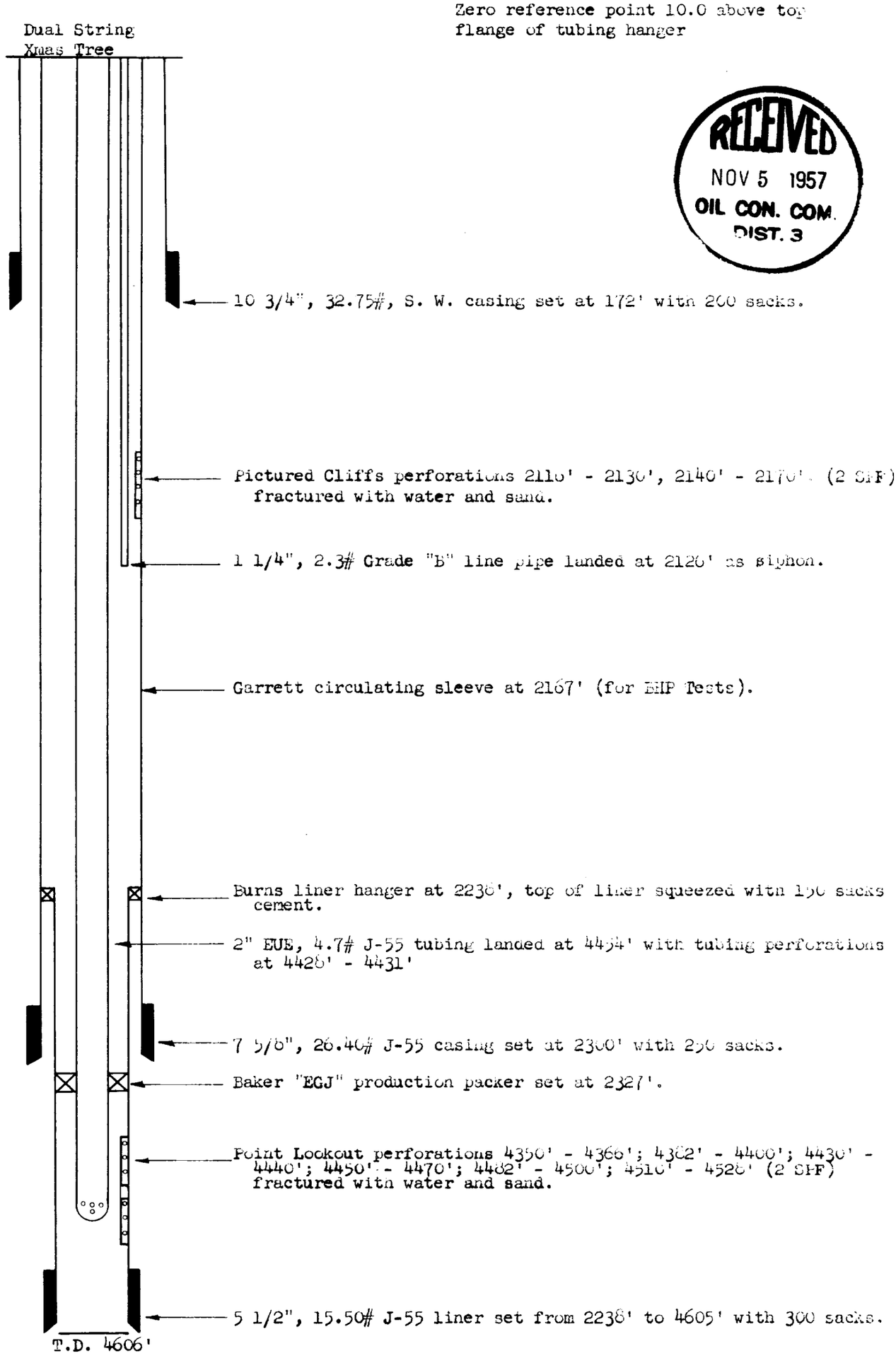

STATE OF NEW MEXICO)
)
COUNTY OF SAN JUAN)

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 14, 1957, I was called to the location of the El Paso Natural Gas Company Schwerdtfeger No. 10-A (PM) Well located in the SW/4 SW/4 of Section 31, Township 28 North, Range 8 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 2327 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 1 day of Nov, 1957.

Notary Public in and for San Juan County, New Mexico

My commission expires February 24, 1960.

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STATE OF NEW MEXICO

COUNTY OF SAN JUAN

I, Mace M. Amerstong, being first duly sworn on my oath, deposes and states as follows:

I am an employee of Amerstong Drilling Co., Inc., and on December 14, 1977, I was contacted by the [illegible] of the [illegible] Company to drill Jicarilla Indian [illegible] Township 26 North, Range 3 West, N.M.P.M., for purposes of [illegible] a production [illegible] a production [illegible]. In my presence, a rotary bucket and production packer was set in this well at 2367 feet, according to the usual practices and custom of the industry.

Subscribed and sworn to before me, a Notary Public in and for the State of New Mexico, County, New Mexico, this _____ day of _____, 19__.

_____
Notary Public, State of New Mexico
County, New Mexico

My commission expires January 21, 1980.

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EL PASO NATURAL GAS COMPANY

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

October 10, 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, Schwerdtfeger No. 10-A, (PM) SW 31-28-8, San Juan 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 2327 feet. The Pictured Cliffs zone was tested through a 3/4" choke for three hours September 27, 1957 with the following data obtained:

Pictured Cliffs SIPC 798 psig; shut-in 13 days
Pictured Cliffs SIPT 798 psig

Mesa Verde SIPT 1057 psig; shut-in 13 days

Time Minutes	PC Flowing Pressure Casing Psig	MV SIPT Psig	PC Working Pressure, Psig	Temp°F
15	550	1058		63
30	482	1059		63
45	448	1060		65
60	405	1060		66
180	309	1060	324	68

The choke volume for the Pictured Cliffs was 3909 MCF/D with an A.O.F. of 4589 MCF/D.

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

Pictured Cliffs SIPC 805 psig; shut-in 7 days
Pictured Cliffs SIPT 805 psig

Mesa Verde SIPT 1069 psig; shut-in 20 days

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Time Minutes	MV Flowing Pressure Tubing Psig	PC SIPC Psig	MV Working Pressure, Psig	Temp°F
15	509	805		71
30	480	805		72
45	461	805		73
60	446	805		73
180	390	805	Calculated 739	74

The choke volume for the Mesa Verde test was 4709 MCF/D with an A.O.F. of 7723 MCF/D.

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

Very truly yours,

S. V. Roberts

S. V. Roberts
Gas Engineer

SVR/jla

cc: E. J. Coel, Jr.
W. M. Rodgers
E. S. Oberly (6)
File

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DIST. 3

Form. 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: October 4, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

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

Tested By: S. V. Roberts. Checked by: T. Grant and B. Davis

Location ..... Sec. 31 T. 28N R. 8W 1180'S, 475'W

Shut-In Pressure ..... P.C. SIPC 805 psig ; (Shut-in 20 days)
P.C. SIPT 805 psig
M.V. SIPT 1069 psig

0.750" Choke Volume ..... 4709 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 ..... 7723 MCF/D

Working Pressure On ..... Calculated ..... = 739 Psig

Producing Formation ..... Mesa Verde

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 4606 - c/o 4576

Field ..... Blanco

H_2S ..... Sweet to lead acetate.

Final SIPC (PC) - 805 psig Packer at 2327 - Sleeve at 2167

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~[illegible]~~
~~[illegible]~~
~~[illegible]~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
~~[illegible]~~
Jack Purvis
~~[illegible]~~
C. C. Kennedy
E. J. Coel, Jr.
A. J. Dudenhoeffer
File

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

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DIST. 3

FORM 23-75 (6-56)

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE October 4, 1957

Operator: El Paso Natural Gas Company		Lease: Schwerdtfeger No. 10-A	
Location: 1180'S, 475'W, Sec. 31-28-8		County: San Juan	State: New Mexico
Formation: Mesa Verde		Pool: Blanco	
Casing: Diameter: 7-5/8	Set At: Feet: 2287	Tubing: Diameter: 2"	Set At: Feet: 4444
Pay Zone: From: 4350	To: 4528	Total Depth: 4606 - c/o 4576	
Stimulation Method: Sand Water Frac.		Flow Through Casing:	Flow Through Tubing: X

Choke Size, Inches: 0.750	Choke Constant: C: 12.365	5-1/2" liner - 2238 - 4605	
Shut-In Pressure, Casing, PSIG: PC 805	+ 12 = PSIA: 817 / Days Shut-In: 20	Shut-In Pressure, Tubing PSIG: MV 1069	+ 12 = PSIA: 1081
Flowing Pressure: P PSIG: 390	+ 12 = PSIA: 402	Working Pressure: P_w PSIG: Calc.	+ 12 = PSIA: 751
Temperature: T F: 74	n = 0.75	Fpv (From Tables): 1.048	Gravity: .715

Final SIPC (PC) - 805 psig; 1-1/4 at 2316 - Packer at 2327 - Sleeve at 2167

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

$Q = 12.365 \times 402 \times .9868 \times .9161 \times 1.048 = 4709$ MCF/D

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

$Aof = \left(\frac{1,168,561}{604,560} \right)^n = 1.9329^{.75} \times 4709 = 1.6400 \times 4709$

Aof = 7723 MCF/D

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NOV 5 1957
OIL CON. COM.
DIST. 3

TESTED BY S. V. Roberts

WITNESSED BY

cc: E. S. Oberly (6)

L. D. Galloway

Form 23-24 (Rev. 5-56)

EL PASO NATURAL GAS COMPANY
GAS WELL TEST

To: Mr. E. E. Alsup

From: Gas Engineering Department

Date: September 27, 1957

Place: Farmington, New Mexico

DUAL COMPLETION

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

Tested By: S. V. Roberts

Location ..... Sec. 31 T. 28N R. 8W 1180'S, 475'W

Shut-In Pressure ..... P.C. SIPC 798 psig; P.C. SIPT 798 psig; M.V. SIPT 1057 psig (Shut-in 9 days)

0.750" Choke Volume ..... 3909 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 ..... 4589 MCF/D

Working Pressure On tubing ..... = 324 Psig

Producing Formation ..... Pictured Cliffs

Stimulation Method ..... Sand Water Frac.

Total Depth ..... 4606 - c/o 4576

Field ..... South Blanco

H_2S ..... Sweet to lead acetate.

Final SIPT (MV) - 1060 psig

Lewis D. Galloway
L. D. Galloway

cc: D. H. Tucker
~~H. W. Hubbard~~
~~W. M. Hibbins~~
~~G. G. Mabley~~
W. M. Rodgers
Wayne Cheek
Drilling Department
B. D. Adams
~~R. R. Hamblin~~
Jack Purvis
~~W. M. Mabry~~
C. C. Kennedy
E. J. Coel, Jr.
A. J. Dudenhoeffer
File

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

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NOV 5 1957
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FORM 23-75 (6-56)

EL PASO NATURAL GAS COMPANY

OPEN FLOW TEST DATA

DUAL COMPLETION

DATE / September 27, 1957

Operator: El Paso Natural Gas Company		Lease: Schwerdtfeger No. 10-A	
Location: 1180'S, 475'W, Sec. 31-28-8		County: San Juan	State: New Mexico
Formation: Pictured Cliffs		Pool: South Blanco	
Casing: Diameter: 7-5/8	Set At: Feet: 2287	Tubing: Diameter: 1-1/4	Set At: Feet: 2316
Pay Zone: From: 2116	To: 2170	Total Depth: 4606 - c/o 4576	
Stimulation Method: Sand Water Frac.		Flow Through Casing: X	Flow Through Tubing:

Choke Size, Inches: 0.750	Choke Constant: C: 12.365		5-1/2" liner. 2238 - 4605	
Shut-In Pressure, Casing, PSIG: 798	+ 12 = PSIA: 810	Days Shut-In: 9	Shut-In Pressure, Tubing PSIG: 798	+ 12 = PSIA: 810
Flowing Pressure: P PSIG: 309	+ 12 = PSIA: 321		Working Pressure: P_w PSIG: 324	+ 12 = PSIA: 336
Temperature: T °F: 68	n = 0.85		Fpv (From Tables): 1.029	Gravity: 0.646

Initial SIPT (MV) - 1057 psig; final - 1060 psig. 2" at 4444 Packer at 2327 - Sleeve at 2167

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

Q = 12.365 x 321 x .9924 x .9645 x 1.029 = 3909 MCF/D

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

$$\text{Aof} = \left(\frac{656{,}100}{543{,}204} \right)^n = 1.2078^{.85} \times 3909 = 1.1740 \times 3909$$

Aof = 4589 MCF/D

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NOV 5 1957
OIL CON. COM.
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TESTED BY S. V. Roberts

WITNESSED BY

cc: E. S. Oberly (6)

L. D. Galloway

L. D. Galloway