

Well Name Winningham #3

Legal Description NE/4 SE/4 Section 30-25S-37E, Lea County, New Mexico

Producing Pool Jalmat Means of Lifting Pump Jack

Date Installed September, 1959

Casing Pressure October, 1958 \_\_\_\_\_ Tubing Pressure October, 1958 \_\_\_\_\_

Casing Pressure October 1959 220 Tubing Pressure October, 1959 70 (when pumping)

Estimated water produced daily October, 1958 20 Barrels per day

~~Estimated water produced daily October, 1959~~ 23.46 Barrels per day Sept. 25, 1959

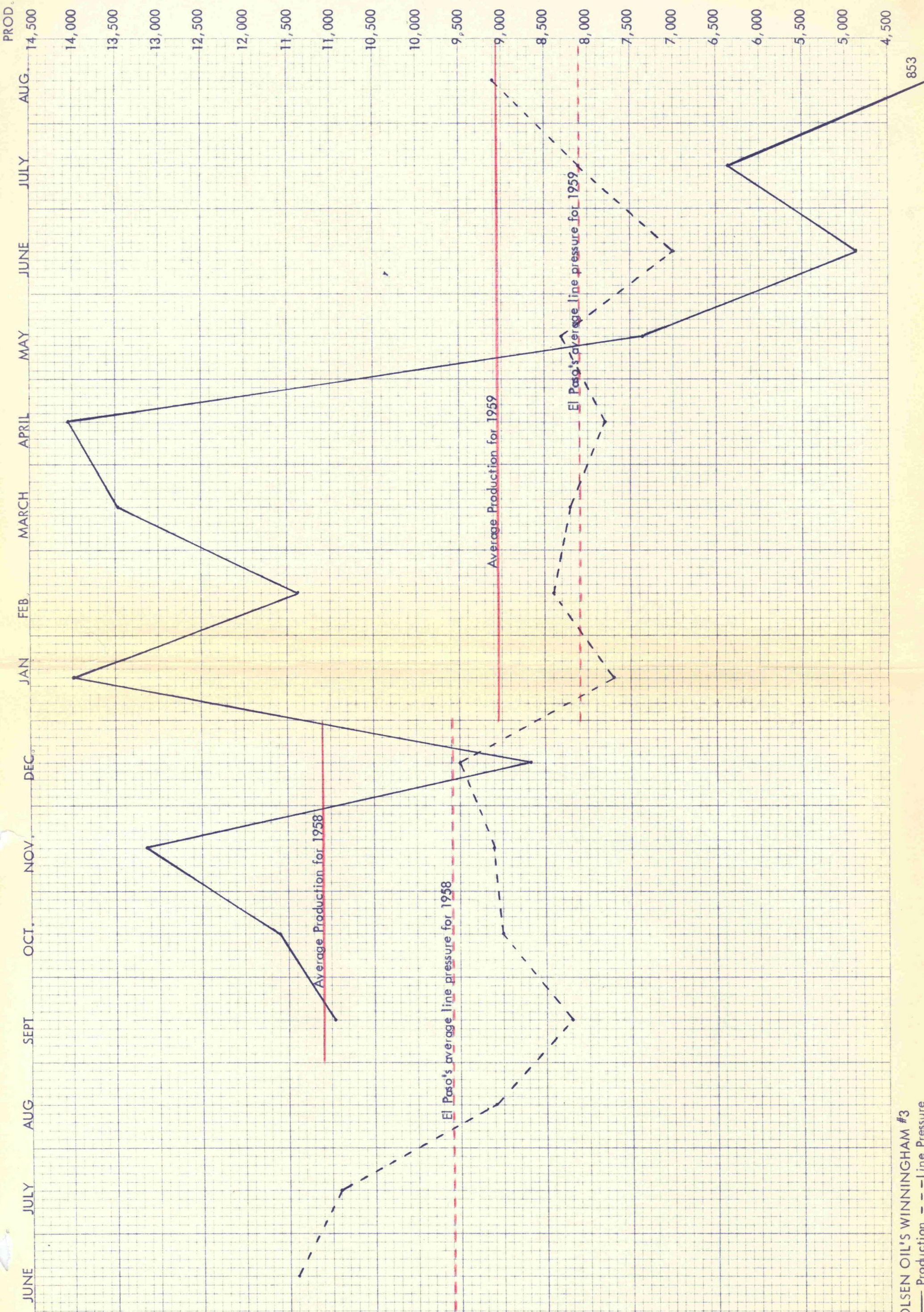
Over production July, 1959 - 55,430 MCF

Exo 2



Line Pressure

ND. 3400-10 DIETZEN GRAPH PAPER 10 X 10 PER INCH  
EUGENE DIETZEN CO. MADE IN U.S.A.

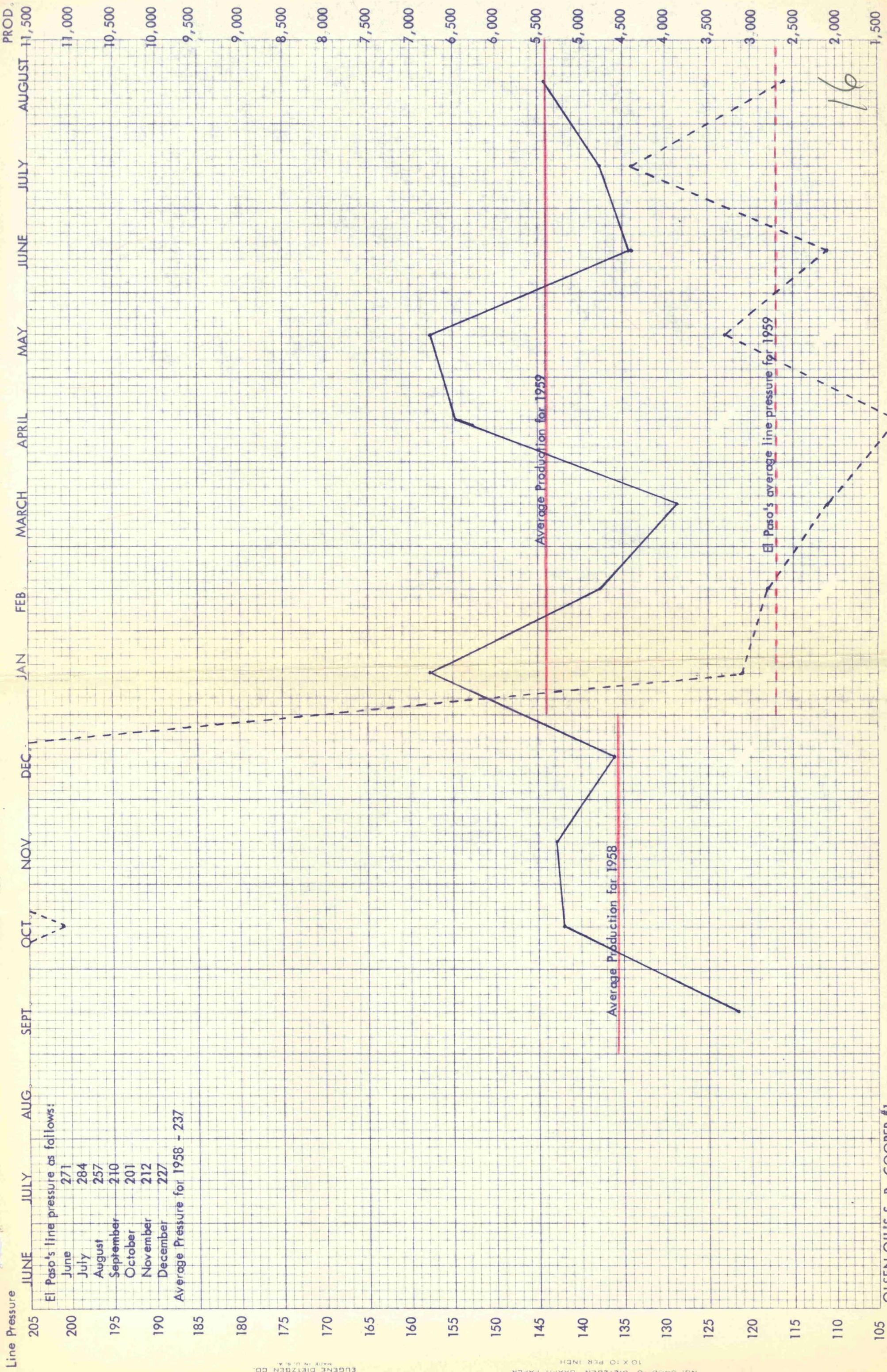


OLSEN OIL'S WINNINGHAM #3  
— Production - - - Line Pressure



Over production August, 1959 - 20,630 MCF





OLSEN OIL'S S. R. COOPER #1  
— Production — — — Line Pressure



Well Name Repollo #1

Legal Description SW/4 NW/4 Section 28-25S-37E, Lea County, New Mexico

Producing Pool Jalnet Means of Lifting Pump Jack

Continental EMSCO (HP DD-57 Westinghouse 20) Cost of installation with rods,

tubing, electric motor, etc. - \$8,000.00 Date Installed March, 1953

Casing Pressure October, 1958 84 Tubing Pressure October, 1958 420

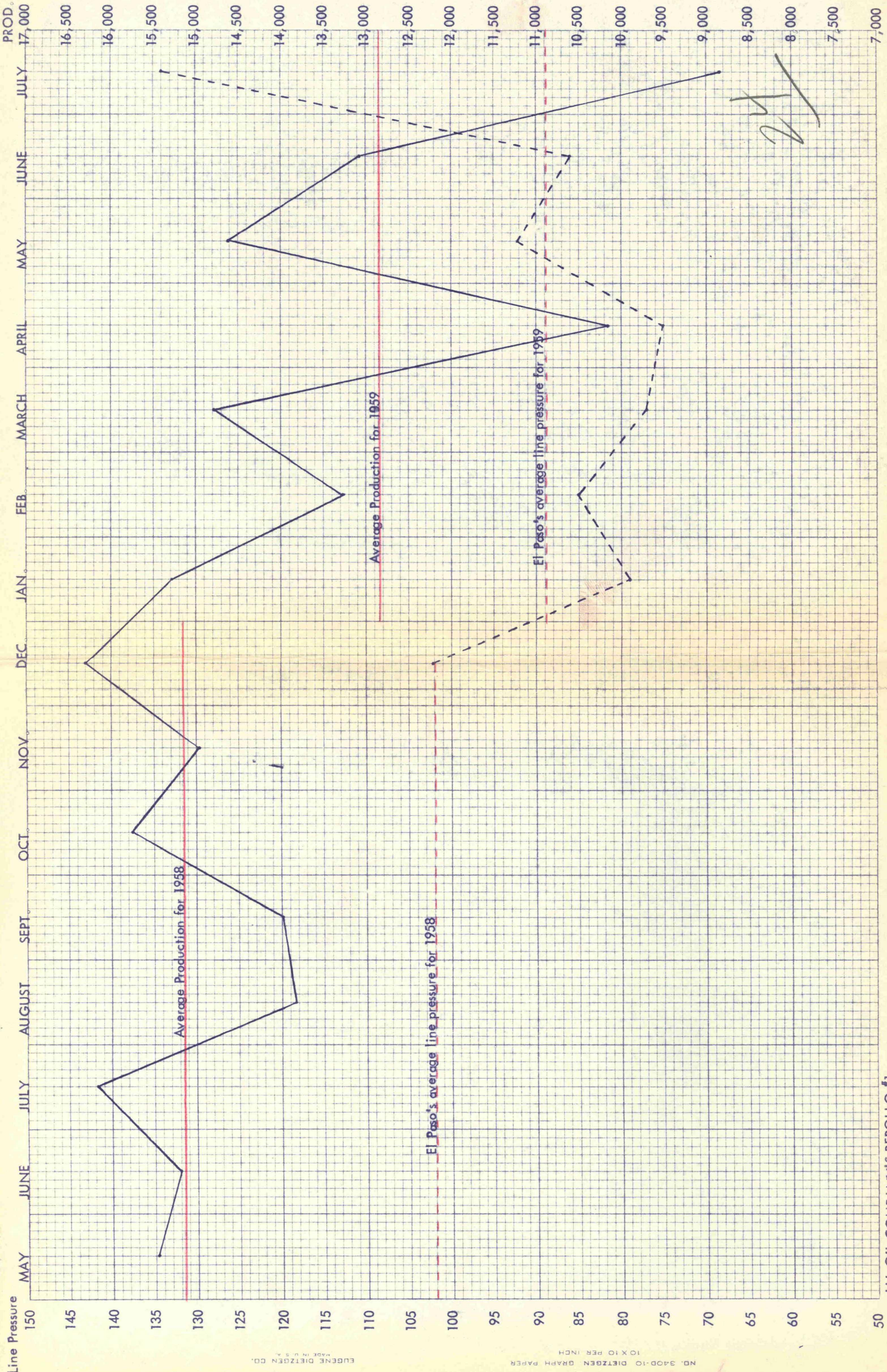
Casing Pressure October, 1959 -0- Tubing Pressure October, 1959 -0-

Estimated water produced daily October, 1958 750 to 1500 Barrels per day

Estimated water produced daily October, 1959 500 to 750 Barrels per day

Over production 123,712 MCF





24

Line Pressure

JAL OIL COMPANY'S REPOLLO #1  
— Production — — Line Pressure



33  
Well Name Dyer #3

Legal Description SE/4 NE/4 Section 31-25S-37E, Lea County, New Mexico

Producing Pool Jalnet

Means of Lifting Free Piston

Piston makes trip every two hours to keep well from logging off.

Date Installed Dec. 19, 1956

Casing Pressure October, 1958 ----- Tubing Pressure October, 1958 229.2

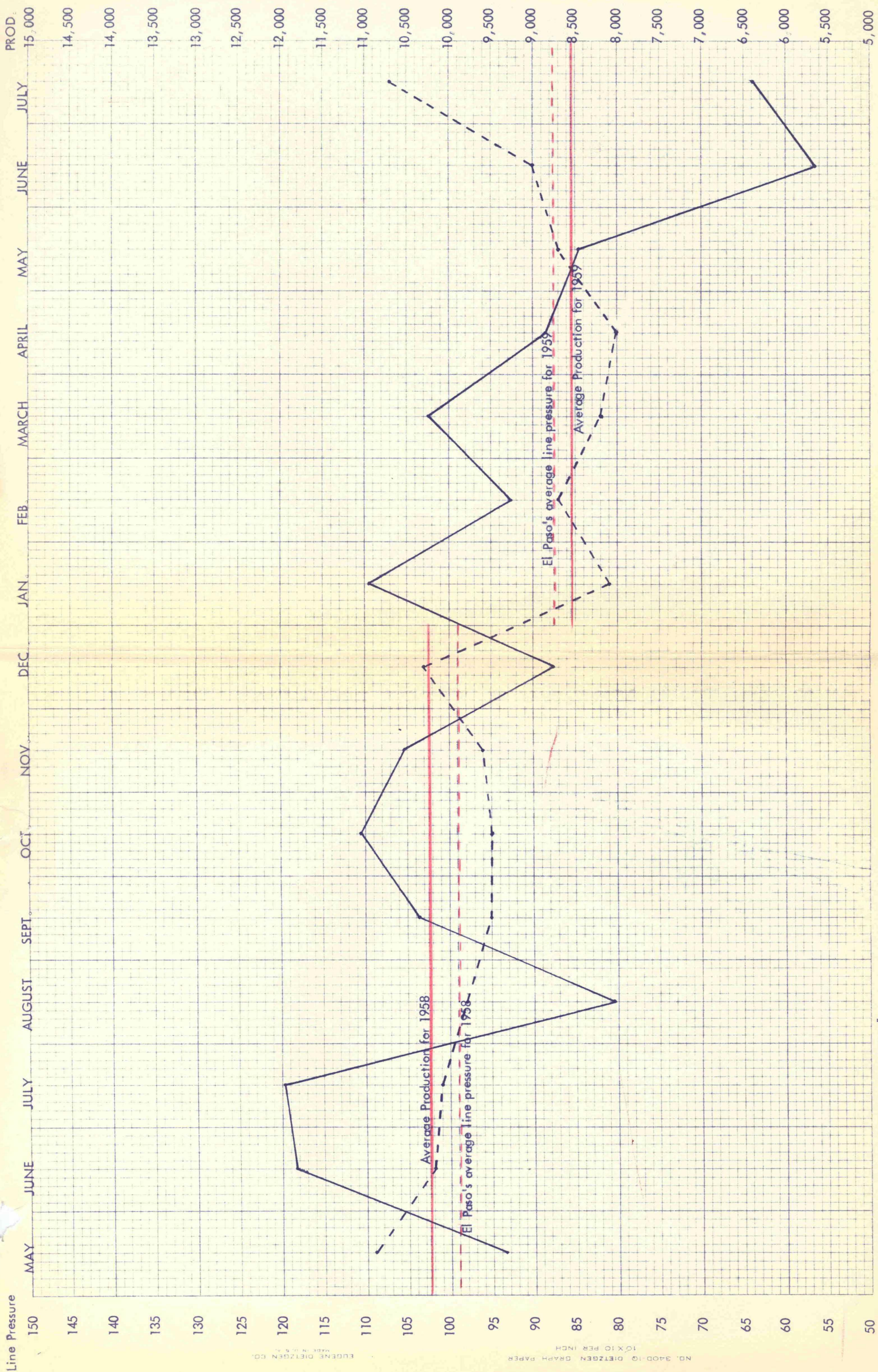
Casing Pressure October, 1959 140 Tubing Pressure October, 1959 160

Estimated water produced daily October, 1958 10 Barrels per day

Estimated water produced daily October, 1959 10 to 20 Barrels per day

Over production Sept., 1959 65,000 MCF





PRODUCTION FROM JAL OIL COMPANY'S DYER #3

— Production — — — Line Pressure



December 8, 1953

Box 1334

Jal, New Mexico

R. Olsen Oil Company  
Drawer "2"  
Jal, New Mexico

ATT'N: Mr. Aaron Cummings

Dear Sir:

We were unable to run a minimum contract test on your Jenkins #1 and S. R. Cooper #1 on date scheduled (November 9, 1953). The Jenkins #1 was logged off and would not produce into our line; the S. R. Cooper #1 wellhead valve leaks.

If remedial work is done on these wells, please notify our Dispatching Department when well is ready for production.

Yours very truly,

EL PASO NATURAL GAS COMPANY

Edward Mabe  
Gas Engineer

cc: Mr. J. W. Baulch, Jr.  
Dispatching Department  
Box 1334, Jal, New Mexico

EM:ds

|                             |                       |
|-----------------------------|-----------------------|
| BEFORE EXAMINER UTZ         |                       |
| OIL CONSERVATION COMMISSION |                       |
| <i>App</i>                  | EXHIBIT NO. <u>17</u> |
| CASE NO. <u>1778 - 1779</u> |                       |

ILLEGIBLE



## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit \_\_\_\_\_ Sec. 23 Twp. 24 Rge. 36 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-8-57  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity 1665 Bar. Pressure 13.2  
 nt from Previous Test: .878 Date of Previous Test: 2-15-57

| FLOW DATA |                              |                                     |             |                      | TUBING DATA |                    | CASING DATA |             | Duration of Flow Hr. |
|-----------|------------------------------|-------------------------------------|-------------|----------------------|-------------|--------------------|-------------|-------------|----------------------|
| No.       | <del>XXXX</del><br>Line Size | <del>XXXXXX</del><br>x Orifice Size | Press. psig | Diff. h <sub>w</sub> | Temp. °F    | Press. psig        | Temp. °F    | Press. psig |                      |
| Shut-in   |                              |                                     |             |                      |             | <u>679-710-708</u> |             |             | <u>24-48-72</u>      |
| 1.        | <u>4 x .750</u>              |                                     | <u>207</u>  | <u>10.89</u>         | <u>57</u>   | <u>210</u>         |             |             |                      |
| 2.        |                              |                                     |             |                      |             |                    |             |             |                      |

| No. | Coefficient (24-Hour) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor F <sub>t</sub> | Gravity Factor F <sub>g</sub> | Compress. Factor F <sub>pv</sub> | Rate of Flow Q-MCF PD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|----------------------------------|-------------------------------|----------------------------------|-------------------------------------|
| 1.  | <u>3.435</u>          | <u>48.95</u>     |               | <u>1.0029</u>                    | <u>.9498</u>                  | <u>1.023</u>                     | <u>164</u>                          |
| 2.  |                       |                  |               |                                  |                               |                                  |                                     |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{520.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{49.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{507.3}{470.3} = 1.079 = B$$

$$\log B = .033021 \times (n_t) .878 = .028992; \text{Antilog} = 1.069 = B^{n_t}$$

$$Q = 164 \times (B^{n_t}) 1.069 = 175 = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name L. D. Southern

Position L. D. Southern

EL PASO NATURAL GAS COMPANY

Witnessed by:

Name \_\_\_\_\_

Company BEFORE EXAMINER UTZ

Name OIL CONSERVATION COMMISSION

Company APP. EXHIBIT NO. 18

CASE NO. 1778-1779

Sent out 3-18-57

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## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
 Pool Jalnet Type Well Single Date of Test 7-(19-26) 1957  
 Producing Thru: Casing; \_\_\_\_\_ Tubing X Gravity .665 B.P. Pressure 13.2  
 at from Previous Test: .878 Date of Previous Test: 3-8-57

| FLOW DATA |              |                 |                |                         | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|-------------------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |              |                 |                |                         |             | 499-508-488    |             |                | 24-48-72                   |
| 1.        | 4 x .750     |                 | 217            | 10.24                   | 90          | 218            |             |                | 24                         |
| 2.        |              |                 |                |                         |             |                |             |                |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 3.435                            | 48.53            |                  | .9723                                  | .9498                               | 1.019                                  | 157                                      |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 271.6$$

$$P_d^2 = 12.8$$

$$P_t^2 = 53.5$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{258.8}{218.1} = 1.187 = B$$

$$\log B = .074451 \times (n_t) .878 = .065368 ; \text{Antilog} = 1.162 = B^{n_t}$$

$$Q = 157 \times (B^{n_t}) 1.162 = 182 = D_t$$

Unit Size 1.00

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield  
Position \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

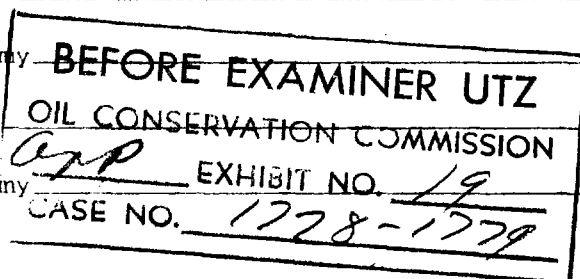
Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_





**EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST**

(To Determine Wellhead Deliverability at 100 PSIG)

**BEFORE EXAMINER UTZ****OIL CONSERVATION COMMISSION**unp EXHIBIT NO. 20CASE NO. 1778-1779

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-(7-14) 1958  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .665 Bar. Pressure 13.2  
 nt from Previous Test: .878 Date of Previous Test: 7-26-57

| FLOW DATA |                          |                 |                |                         |             | TUBING DATA        |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|--------------------------|-----------------|----------------|-------------------------|-------------|--------------------|-------------|----------------|-------------|----------------------------|
| No.       | Wellbore<br>Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                          |                 |                |                         |             | <u>608-490-670</u> |             |                |             | <u>24-48-72</u>            |
| 1.        | <u>4 x .750</u>          |                 | <u>234</u>     | <u>12.25</u>            | <u>54</u>   | <u>238</u>         |             |                |             | <u>24</u>                  |
| 2.        |                          |                 |                |                         |             |                    |             |                |             |                            |

| No. | Coefficient<br>Fig.<br>(24-Hr) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>                   | <u>55.01</u>     |                  | <u>1.0058</u>                          | <u>0.9498</u>                       | <u>1.027</u>                           | <u>185</u>                               |
| 2.  |                                |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{466.8}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{63.1}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{454.0}{403.7} = 1.125 = B$$

$$\log B = .051152 \times (n_t) .878 = .044911 ; \text{Antilog} = 1.109 = B^{n_t}$$

$$Q = 185 \times (B^{n_t}) 1.109 = 205 = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
72 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No.: 60-800

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield

Position \_\_\_\_\_

Witnessed by:  
Name B. G. Boas

Company El Paso Natural Gas Company

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

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## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 21  
CASE NO. 1778-1779

Company R. Olsen Oil Company Lease S.R. Cooper Well No. 1  
Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
Pool Jalmat Type Well Single Date of Test 9-15/9-19/58  
Producing thru: Casing \_\_\_\_\_ Tubing X Gravity .672 Bar. Pressure 13.2  
n<sub>t</sub> from Previous Test: .878 Date of Previous Test: 3-14-58

| FLOW DATA |              |                 |                |                         | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|-------------------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |              |                 |                |                         |             | 684-677-705    |             | 684-677-705    | 24-48-72                   |
| 1.        | 4" x .750    |                 | 223            | 9.00                    | 49          | 225            |             |                | 24                         |
| 2.        |              |                 |                |                         |             |                |             |                |                            |

| No. | Coefficient<br>FLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 3.435                            | 46.11            |                  | 1.0107                                 | .9449                               | 1.027                                  | 155                                      |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 515.8$$

$$P_d^2 = 12.8$$

$$P_t^2 = 56.7$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{503.0}{459.1} \times 1.096 = B$$

$$\log B = .0398106 \times (n_t) .878 = .0349537 \quad \text{Antilog} = 1.086 = B^{n_t}$$

$$Q = 155 \times (B^{n_t}) 1.086 = 168 \quad \text{Unit Size } 1.00 \quad \text{Meter Station } 60-800$$

n<sub>t</sub> = Slope of Wellhead Deliverability  
Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

D<sub>t</sub> = Wellhead Deliverability at Delivera-  
bility Pressure (P<sub>d</sub>), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name J.B. Murray  
J.B. Murray

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

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NEW XICO OIL CONSERVATION COMMISSION  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Form C-122-C

4-1-54

Pool Jalnet Formation Yates County Lea  
Initial Annual Special Date of test 4-18-58  
Company Jalnet Co., Inc. Lease Dyer Well No. 3  
Unit H 1 Sec. 31 Twp. 25 Rge. 37 Purchaser E. P. N. G.  
Casing 6 5/8 Wt. 19.5 I.D. 2.792 Set at 2792 Perf. 2800 To 2974  
Tubing 2 1/2 Wt. 6.5 I.D. 2.441 Set at 2960 Perf. 2800 To 2974  
Gas Pay: From 2945 To 2977 L 2792 x G. 680 = GL 1899 Bar. Press. 13.2  
Producing Thru: Casing ✓ Tubing ✓ Type Well Single  
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

| Started |         | Taken   |         | Duration<br>Hours | Type<br>Taps | Line<br>Size | Orifice<br>Size | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|---------|---------|---------|---------|-------------------|--------------|--------------|-----------------|------------------|-------------------|---------------|
| Date    | time    | Date    | time    |                   |              |              |                 |                  |                   |               |
| 4-14-58 | 8:45 AM | 4-15-58 | 8:45 AM | 24                | FIG.         | 4            | 1.250           | 108.2            | 19.36             | 70            |
|         | PM      |         | PM      |                   |              |              |                 |                  |                   |               |

FLOW CALCULATIONS

| Static<br>Pressure<br>P <sub>f</sub> | Differ-<br>ential<br>h <sub>w</sub> | Meter<br>Extension<br>$\sqrt{P_f h_w}$ | 24-Hour<br>Coeff-<br>icient | Gravity<br>Factor<br>F <sub>g</sub> | Temp.<br>Factor<br>F <sub>t</sub> | Compress-<br>ability<br>F <sub>pv</sub> | Rate of Flow<br>MCF/Da. @ 15.025 psia<br>Q |
|--------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------------------|--------------------------------------------|
| 108.2                                | 19.36                               | 45.72                                  | 9.643                       | .9393                               | .9905                             | -                                       | 410                                        |

SHUT-IN DATA

| Shut-in |         | Press. Taken |          | Duration<br>Hours | Wellhead Pressure<br>(P <sub>c</sub> ) psia |        | W.H. Working Pressure<br>(P <sub>w</sub> ) and (P <sub>t</sub> ) psia |        |
|---------|---------|--------------|----------|-------------------|---------------------------------------------|--------|-----------------------------------------------------------------------|--------|
| Date    | Time    | Date         | Time     |                   | Tubing                                      | Casing | Tubing                                                                | Casing |
| 4-15-58 | AM      | 4-16-58      |          | 24                | 229.2                                       |        | 123.2                                                                 |        |
|         |         | 4-17-58      | 11:20 AM | 48                | 173.2                                       |        |                                                                       |        |
|         | 1:20 PM | 4-18-58      | PM       | 72                | 108.2                                       |        |                                                                       |        |

FRICTION CALCULATIONS (if necessary)

$$P_w = 15.2 + (5.81)(6.122) = 15.9$$

SUMMARY

P<sub>c</sub> = 229.2 psia

Q = 410 MCF/Da.

P<sub>w</sub> = 126.1 psia

P<sub>d</sub> = 183.4 psia

D = 248 MCF/Da.

DELIVERABILITY CALCULATIONS

$$P_w = 126.1 \quad P_c = 229.2 \quad P_w + P_c = 550.2$$

$$1 - \frac{P_w}{P_c} = .4498 \quad 1 + \frac{P_w}{P_c} = 1.5502 \quad \left| 1 - \frac{P_w}{P_c} \right| \left| 1 + \frac{P_w}{P_c} \right| = M = .6973$$

$$.36 + M = .5163 \quad \log 9.7129021 - 10 \times (n) = .763$$

$$= 9.7809443 - 10 +$$

COMPANY E. P. N. G.  
ADDRESS Jalnet Co., Inc.  
AGENT and TITLE R. D. Southern  
WITNESSED H. H. Dyer  
COMPANY E. P. N. G.

Log Q = 2.6127339

Log D = 12.3937282 - 10

Antilog = 248 = D

REMARKS

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# El Paso Natural Gas Company

El Paso, Texas

December 4, 1956

ADDRESS REPLY TO  
P. O. BOX 1984  
EL PASO, NEW MEXICO

B. Olsen  
2808-14 Liberty Bank Bldg.  
Oklahoma City 2, Oklahoma

Gentlemen:

The Dyer 3 H 31-25-37  
LEASE NO. UNIT S - T - R

Jalnat is off for the following reason:  
POOL

☐ Separator out of order.

☒ Logged off.

☐ Insufficient pressure to produce into the line.

☐ Shut in at the wellhead.

☐ Producing a great amount of fluid.

☐ Froze off in the well.

☐ As your request.

Remarks:

This will confirm my telephone conversation with your Jal Office on this date.

When this situation is corrected and the well is ready to be produced, please contact this office.

If additional information is required, please contact this office.

Yours truly,

EL PASO NATURAL GAS COMPANY

cc: B. Olsen  
Drawer #2  
Jal, New Mexico

D. B. Smith  
Dispatching Department  
D. B. Smith

cc: EAS  
VLP  
FNW  
RTW  
Central File  
FILE

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EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen (Personal) Lease Dyer Well No. 3  
 Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 7-(12-19) 1957  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .685 Bar. Pressure 13.2  
 n<sub>t</sub> from Previous Test: .767 Date of Previous Test: 2-8-57

| FLOW DATA |                      |                 |                |                         |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|----------------------|-----------------|----------------|-------------------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Flow<br>Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                      |                 |                |                         |             | 237-208-119    |             | 308-316-320    |             | 24-48-72                   |
| 1.        | 4 x 1.250            |                 | 106            | 32.49                   | 78          | 132            |             |                |             | 24                         |
| 2.        |                      |                 |                |                         |             |                |             |                |             |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 9.643                            | 62.18            |                  | .9831                                  | .9359                               | 1.011                                  | 558                                      |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$Q_t = Q \left[ \frac{P_c^2 - P_t^2}{P_c^2 - P_d^2} \right]^{n_t}$$

$$P_c^2 = \underline{111.0}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{21.1}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{98.2}{89.9} = 1.092 = B$$

$$\log B = .038223 \times (n_t) .767 = .029317; \text{Antilog} = 1.070 = B^{n_t}$$

$$Q = 558 \times (B^{n_t}) 1.070 = 597 = D_t$$

Unit Size 1.00

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name Jack T. Littlefield

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

ILLEGIBLE



ILLEGIBLE

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
Unit H Sec. 31 Twp. 25 Rge. 37 County Lee  
Pool Jalnet Type Well Single Date of Test Sept. 8-12, 1958  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .686 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 3-14-58

| FLOW DATA |                   |              |             |              | TUBING DATA       |             | CASING DATA       |             | Duration of Flow Hr. |
|-----------|-------------------|--------------|-------------|--------------|-------------------|-------------|-------------------|-------------|----------------------|
| No.       | Line Size         | Orifice Size | Press. psig | Diff. $h_w$  | Temp. $^{\circ}F$ | Press. psig | Temp. $^{\circ}F$ | Press. psig | Temp. $^{\circ}F$    |
| Shut-in   |                   |              |             |              |                   | 288         |                   |             |                      |
| 1.        | <u>4" x 1.250</u> |              | <u>90</u>   | <u>20.25</u> | <u>72</u>         | <u>104</u>  |                   |             | <u>24</u>            |
| 2.        |                   |              |             |              |                   |             |                   |             |                      |

| No. | Coefficient $FLQ$ (24 Hour) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------------|------------------|---------------|-------------------------|----------------------|---------------------------|------------------------------------|
| 1.  | <u>9.643</u>                | <u>45.71</u>     |               | <u>.9887</u>            | <u>.9352</u>         | <u>N11</u>                | <u>408</u>                         |
| 2.  |                             |                  |               |                         |                      |                           |                                    |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{90.7}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{13.7}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{77.9}{77.0} = 1.012 = B$$

$$\log B = \underline{.0051805} \times (n_t) \underline{.767} = \underline{.0039734}; \text{ Antilog} = \underline{1.009} = B^{n_t}$$

$$Q = \underline{408} \times (B^{n_t}) \underline{1.009} = \underline{412} = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 24 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $F_g$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name J. B. Murray

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

This well was not shut-in due to logging off. The Jenkins No. 1 shut-in pressure was used for this test - which is the nearest offset.



EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
Pool Jalmat Type Well Single Date of Test 3-(7-14) 1958  
Producing Thru: Casing \_\_\_\_\_ Tubing I Gravity .680 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 7-19-57

| FLOW DATA |              |                 |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |              |                 |                |                |             | 224-194-135    |             | 264-277-283    |             | 24-48-72                   |
| 1.        | 4 x 1.250    |                 | 93             | 21.16          | 47          | 108            |             |                |             | 24                         |
| 2.        |              |                 |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 47.36            |                  | 1.0127                        | 0.9393                     |                                 | 435                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{87.7}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{14.7}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{74.9}{73.0} = 1.026 = B$$

$$\log B = \underline{.01147} \times (n_t) \underline{.767} = \underline{.008549}; \text{Antilog} = \underline{1.020} = B^{n_t}$$

$$Q = \underline{435} \times (B^{n_t}) \underline{1.020} = \underline{444} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a ~~24~~ hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (13.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability  
Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No. 60-832

I hereby swear and affirm that the  
information given above is true and  
correct.

Name \_\_\_\_\_

Position \_\_\_\_\_

Witnessed by:  
Name \_\_\_\_\_

Company El Paso Natural Gas Company

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

ILLEGIBLE



ILLEGIBLE

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
 Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-6/3-13/1959  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .691 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 9/12/58

| FLOW DATA |                                 |                                            |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|--------------------------------------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | <del>Flow</del><br>Line<br>Size | <del>Orifice</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |                                 |                                            |                |                |             | 196*           |             |                |                            |
| 1.        | 4 x 1.250                       |                                            | 117            | 9.00           | 75          | 124            |             |                | 72                         |
| 2.        |                                 |                                            |                |                |             |                |             |                |                            |

Data obtained from deliverability test dated 3/6-3/13/1959

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 34.28            |                  | .9859                         | .9318                      | 1.012                           | 307                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{13.8} *$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{18.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{31.0}{25.0} = 1.240 = B$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

$$\log B = 0.093422 \times (n_t) \underline{.767} = 0.071655 ; \text{Antilog} = 1.179 = B^{n_t}$$

$$Q = 307 \times (B^{n_t}) \underline{1.179} = 362 = D_t$$

Unit Size 1.00  
 Meter Station NO. 60-832

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name David H. Dyer  
 Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

\* Well could not be shut-in. Shut-in pressure taken from R. Olsen-Winningham No. 3

# ILLEGIBLE

Pool Jalmat Yates Lea  
 Initial X 3-6/3-13-59  
 Company Jal Oil Company Dyer 3  
 Unit H 31 25 37 El Paso Natural Gas Company  
 Casing 6 5/8 19.5 2792 To  
 Tubing 2 1/2 6.5 2960 To  
 Gas lay: From 2945 2977 2960 .691 2045 Bar. Press 13.2  
 Producing Interval: Casing X Type Single  
 Series 90 Graduated G.G. or G. O. Dual

| Started | Time | Date    | Time | Duration | Type | Size | Office | Static | Differ- | Flow  |
|---------|------|---------|------|----------|------|------|--------|--------|---------|-------|
| Time    |      |         |      | Hours    | Test | Size | Size   | Press. | ential  | Temp. |
| 3-9-59  | 1:45 | 3-10-59 | 1:45 | 24       | Flg. | 4    | 1.250  | 130.2  | 9.00    | 75    |

| Static   | Differ-  | Pressure | ential   | Pressure | Flow     | Rate of Flow |
|----------|----------|----------|----------|----------|----------|--------------|
| Pressure | Pressure | Pressure | Pressure | Pressure | Pressure | Pressure     |
| Pressure | Pressure | Pressure | Pressure | Pressure | Pressure | Pressure     |
| 130.2    | 9.00     | 34.23    | 9.643    | .9318    | .9859    | 1.012        |
|          |          |          |          |          |          | 307.0        |

| Static   | Time     | Pressure | Flow     | Rate of Flow |
|----------|----------|----------|----------|--------------|
| Pressure | Pressure | Pressure | Pressure | Pressure     |
| Pressure | Pressure | Pressure | Pressure | Pressure     |
|          |          |          |          |              |
|          |          |          |          |              |

$$P_w^2 = (137.2)^2 + (5.866 \times 307.0) = 19.2$$

SUMMARY

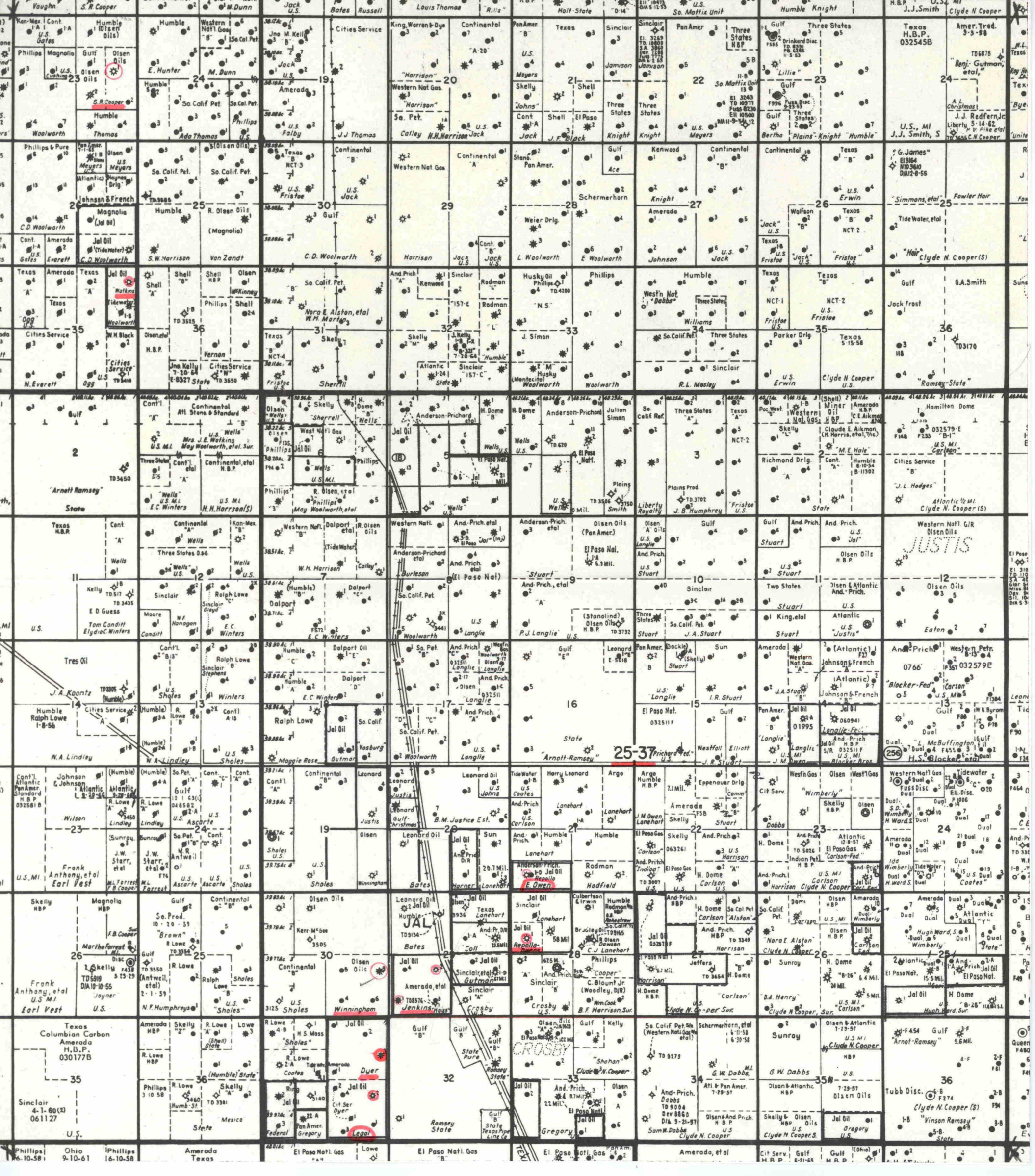
$P_c = 209.2$  psia  
 $Q = 307.0$  MCF/Da.  
 $P_w = 138.6$  psia  
 $P_g = 167.4$  psia  
 $Q = 218.8$  MCF/Da.  
 $Q = 9.85284 \times 10^{-10}$

$P_w = 138.6$   $P_c = 209.2$   $P_g = 167.4$   
 $Q = 307.0$   $Q = 218.8$   $Q = 9.85284 \times 10^{-10}$

Company El Paso Natural Gas Company 2.48714  
 Address P. O. Box 1384, Jal, New Mexico 12.33998-10  
 Agent and Title Gas Tester 218.8  
 Witnessed El Paso Natural Gas Company = D

\*P was taken from R. Olsen Winningham No. 3 well could not be shut-in due to water logging off well bore.







# El Paso Natural Gas Company

El Paso, Texas

December 27, 1955

ADDRESS REPLY TO:  
P. O. BOX 1384  
JAL, NEW MEXICO

R. Olsen  
Drawer 2  
Jal, New Mexico

#28-1

Gentlemen:

The Evo Orens 1-4 21-25-37  
LEASE NO. UNIT S - T - R

Jalut is off for the following reason:  
POOL

- ☐ Separator out of order.
- ☒ Logged off.
- ☐ Insufficient pressure to produce into the line.
- ☐ Shut in at the wellhead.
- ☐ Producing a great amount of fluid.
- ☐ Froze off in the well.
- ☐ At your request.

When this situation is corrected and the well is ready to be produced, please contact this office.

If additional information is required, please contact this office.

Yours truly,

EL PASO NATURAL GAS COMPANY

Dispatching Department  
D. B. Gilt

cc: EAS  
VMP  
FNW  
WMF  
RTW  
FILE

ILLEGIBLE



NEW MEXICO OIL CONSERVATION COMMISSION  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Form C-122-C

4-1-54

Pool Jalisco Formation Yatic County Lea  
Initial Annual Special ✓ Date of test 5-16-58  
Company Jalisco Oil Co. Lease Quadrant Well No. 1  
Unit M Sec. 21 Twp. 25 Rge. 37 Purchaser L.P.N.B.  
Casing 3 1/2 Wt. 15.5 I.D. 2.976 Set at 2582 Perf. open hole To   
Tubing 2 1/2 Wt. 6.5 I.D. 2.441 Set at 2772 Perf. 2769 To 2772  
Gas Pay: From 2605 To 2772 L 2769 x G .610 = GL 1855 Bar. Press. 13.2  
Producing Thru: Casing ✓ Tubing ✓ Type Well Single  
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

| Started |         | Taken   |         | Duration<br>Hours | Type<br>Taps | Line<br>Size | Orifice<br>Size | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|---------|---------|---------|---------|-------------------|--------------|--------------|-----------------|------------------|-------------------|---------------|
| Date    | time    | Date    | time    |                   |              |              |                 |                  |                   |               |
| 5-12-58 | 8:25 AM | 5-11-58 | 8:25 AM | 24                | FIG.         | 4            | 1.250           | 113.2            | 25.00             | 70            |
|         | PM      |         | PM      |                   |              |              |                 |                  |                   |               |

FLOW CALCULATIONS

| Static<br>Pressure<br>P <sub>r</sub> | Differ-<br>ential<br>h <sub>w</sub> | Meter<br>Extension<br>√P <sub>r</sub> h <sub>w</sub> | 24-Hour<br>Coeff-<br>icient | Gravity<br>Factor<br>F <sub>g</sub> | Temp.<br>Factor<br>F <sub>t</sub> | Compress-<br>ability<br>F <sub>pv</sub> | Rate of Flow<br>MCF/Da. @ 15.025 psia<br>Q |
|--------------------------------------|-------------------------------------|------------------------------------------------------|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------------------|--------------------------------------------|
| 113.2                                | 25.00                               | 53.15                                                | 9.643                       | .9463                               | .9905                             | 1.010                                   | 485                                        |

SHUT-IN DATA

| Shut-in |         | Press. Taken |         | Duration<br>Hours | Wellhead Pressure<br>(P <sub>c</sub> ) psia |        | W.H. Working Pressure<br>(P <sub>w</sub> ) and (P <sub>t</sub> ) psia |        |
|---------|---------|--------------|---------|-------------------|---------------------------------------------|--------|-----------------------------------------------------------------------|--------|
| Date    | Time    | Date         | Time    |                   | Tubing                                      | Casing | Tubing                                                                | Casing |
| 5-13-58 | 8:25 AM | 5-14-58      |         | 24                | 418.2*                                      |        |                                                                       |        |
|         |         | 5-15-58      | 8:25 AM | 48                | 420.2*                                      |        | 227.2                                                                 |        |
|         | PM      | 5-16-58      | PM      | 72                | 425.2*                                      |        |                                                                       |        |

FRICTION CALCULATIONS (if necessary)

$$P_w = 51.6 + (8.12)(6.130) 52.6$$

DELIVERABILITY CALCULATIONS

$$P_w = 229.4 \quad P_c = 425.2 \quad P_w + P_c = 539.5$$

$$1 - \frac{P_w}{P_c} = \frac{.4605}{1.5395} \quad 1 + \frac{P_w}{P_c} = \frac{1.5395}{.4605} \quad \left| 1 - \frac{P_w}{P_c} \right| \left| 1 + \frac{P_w}{P_c} \right| = M \quad .7089$$

$$.36 + M = .5078 \quad \log 9.7056927 - 10 \times (n) = .771**$$

SUMMARY

$$P_c = 425.2^* \text{ psia}$$

$$Q = 485 \text{ MCF/Da.}$$

$$P_w = 229.4 \text{ psia}$$

$$P_d = 340.2 \text{ psia}$$

$$D = 288 \text{ MCF/Da.}$$

$$= 9.7730891 - 10 +$$

COMPANY

ADDRESS

AGENT and TITLE

WITNESSED

COMPANY

\*\* average Jalisco Slope

REMARKS

\* The shut-in used to calculate this test was taken from the nearest off-art well (Sun-Lancho #1) as required by the N.M. Comm.

ILLEGIBLE

## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Personal Lease Eva Owen Well No. 1  
 Unit M Sec. 21 Twp. 25 S Rge. 37 E County Lea  
 Pool Jalant Type Well Single Date of Test 1-13-56  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .670 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .932 Date of Previous Test: 10-4-52

| FLOW DATA |              |                 |                |                |             | TUBING DATA        |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|--------------------|-------------|----------------|-------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |              |                 |                | <u>7.4</u>     |             | <u>360/270/212</u> |             |                |             | <u>24/48/72</u>            |
| 1.        | <u>4 X</u>   | <u>1.250</u>    | <u>257</u>     | <u>54.76</u>   | <u>71</u>   | <u>291</u>         |             |                |             | <u>24</u>                  |
| 2.        |              |                 |                |                |             |                    |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>9.643</u>             | <u>121.59</u>    |                  | <u>.9896</u>                  | <u>.9463</u>               | <u>1.028</u>                    | <u>1,129</u>                             |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{139.3}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{92.5}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{126.5}{46.8} = 2.702 = B$$

$$\log B = .431685 \times (n_t) .932 = .402330 ; \text{Antilog} = 2.525 = B^{n_t}$$

$$Q = 1,129 \times (B^{n_t})^{2.525} = 2,851 = D_t$$

 $n_t$  = Slope of Wellhead DeliverabilityCurve ( $P_c^2 - P_t^2$  vs.  $Q$ ) $Q$  = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$  $P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA $P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia $P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements) $D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name C. M. Cole  
C. M. Cole  
 Position Gas Engineer

Witnessed by:

Name Earl G. SmithCompany EPNG

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

ILLEGIBLE



| Started |      | Arrived |      | Duration<br>Hours | Type<br>Tonn | Line<br>Size | Orifice<br>Size | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|---------|------|---------|------|-------------------|--------------|--------------|-----------------|------------------|-------------------|---------------|
| Date    | Time | Date    | Time |                   |              |              |                 |                  |                   |               |
| 3-9-59  | 9:15 | 3-10-59 | 9:15 | 24                | Flg.         | 4            | 1.000           | 108.2            | 57.76             | 66            |

| WELL LOG DATA |         |           |           |                         | FLOW DATA                               |        |        |        |
|---------------|---------|-----------|-----------|-------------------------|-----------------------------------------|--------|--------|--------|
| Date-Time     |         | Flow Rate | Direction | Wellhead Pressure (psi) | I.H. Working Pressure (Pw) and (Pb) psi |        |        |        |
| Date          | Time    | Rate      | Direction | Hours                   | Tubing                                  | Casing | Tubing | Casing |
| 3-10          | 9:15 AM | 3-11-59   | 9:15 AM   | 24                      |                                         | 416.2  | 126.2  | 290.2  |
|               |         | 3-12-59   |           | 48                      | *                                       | 429.2  |        |        |
|               |         | 3-13-59   |           | 72                      |                                         | 434.2  |        |        |

## SUMMARY

9.85606-10

1. 329.6 = D

ILLEGIBLE

# El Paso Natural Gas Company

El Paso, Texas

March 5, 1959

|                                    |  |
|------------------------------------|--|
| Sh. No.                            |  |
| City                               |  |
| Ed. No.                            |  |
| Code                               |  |
| ADDRESS HERE TO<br>POST OFFICE BOX |  |
| SAN ANTONIO, TEXAS                 |  |

28-5

Jal Oil Company  
P. O. Box 1744  
Midland, Texas

Gentlemen:

During the month of January, 1959, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| <u>WELL NAME</u> | <u>DATE</u> | <u>DAYS</u> | <u>REASON</u>                                 |
|------------------|-------------|-------------|-----------------------------------------------|
| Jack No. 1       | 1/ 8        | 1           | Freeze in El Paso line                        |
| Hodges No. 2     | 1/ 8        | 1           | Freeze in El Paso line                        |
| Gutman B No. 1   | 1/12        | 1           | El Paso heater repairs                        |
| Gutman D No. 1   | 1/21        | 1           | Freeze in El Paso line                        |
| Eva Owens No. 1  | 1/ 1-31     | 31          | Shut in - state regulations<br>(Overproduced) |
| Jenkins No. 2    | 1/ 1-16     | 16          | Logged off with fluid                         |

Yours very truly,

EL PASO NATURAL GAS COMPANY

*JWB*  
J. W. Baugh, Jr.,  
Gas Production Engineer

JWB, Jr, bjc  
cc: Jal Oil Company - Jal, W. M.  
E. A. Scarsce  
F. M. Woodruff  
Central File  
File

ILLEGIBLE

COPY



## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmat Formation Yates County Lea  
 Initial X Annual \_\_\_\_\_ Special \_\_\_\_\_ Date of Test 8-22-58  
 Company Jal Oil Company, Inc. Lease Watkins Well No. 2  
 Unit H Sec. 35 Twp. 24 Rge. 36 Purchaser \_\_\_\_\_  
 Casing 5 1/2 Wt. 13.5 I.D. \_\_\_\_\_ Set at 2982 Perf. \_\_\_\_\_ To \_\_\_\_\_  
 Tubing 2 Wt. \_\_\_\_\_ I.D. \_\_\_\_\_ Set at 2869 Perf. \_\_\_\_\_ To \_\_\_\_\_  
 Gas Pay: From 2942 To 2954 L \_\_\_\_\_ x G \_\_\_\_\_ = GL \_\_\_\_\_ Bar. Press. 13.2  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Type Well Single  
 Date of Completion: 8-22-58 Packer: None  
 Single-Bradenhead-G. G. or G. O. Dual

| Flow Data |                                 |                                         |                |             |              | Tubing Data    |              | Casing Data    |              | Duration       |
|-----------|---------------------------------|-----------------------------------------|----------------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|
| No.       | <del>XXXX</del><br>Line<br>Size | <del>XXXX</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>hw | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | of Flow<br>Hr. |
| Sl        |                                 |                                         |                |             |              |                |              | 1018           |              | 72             |
| 1.        | 4 x 2.000                       |                                         | 285            | 4.41        | 81           | 660            |              | 838            |              | 24             |
| 2.        | 4 x 2.000                       |                                         | 312            | 11.56       | 88           | 507            |              | 688            |              | 24             |
| 3.        | 4 x 2.000                       |                                         | 323            | 3.6         | 76           | 440            |              | 583            |              | 24             |
| 4.        |                                 |                                         |                |             |              |                |              |                |              |                |
| 5.        |                                 |                                         |                |             |              |                |              |                |              |                |

| No. | Coefficient<br>(24-Hour)<br>Fig. | $\sqrt{h_{wpw}}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>± 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 25.58                            | 36.25            |                  | .9804                                  | .9608                               | 1.025                                  | 895                                      |
| 2.  | 25.58                            | 61.30            |                  | .9741                                  | .9608                               | 1.027                                  | 1507                                     |
| 3.  | 25.58                            | 65.99            |                  | .9850                                  | .9608                               | 1.029                                  | 1644                                     |
| 4.  |                                  |                  |                  |                                        |                                     |                                        |                                          |
| 5.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

Gas Liquid Hydrocarbon Ratio \_\_\_\_\_ Mcf/bbl.  
 Gravity of Liquid Hydrocarbons \_\_\_\_\_ deg.  
 F<sub>c</sub> Measured (1-e<sup>-s</sup>) \_\_\_\_\_  
 Specific Gravity Separator Gas \_\_\_\_\_  
 Specific Gravity Flowing Fluid \_\_\_\_\_  
 P<sub>c</sub> 1031.2 P<sub>w</sub> 1063.4

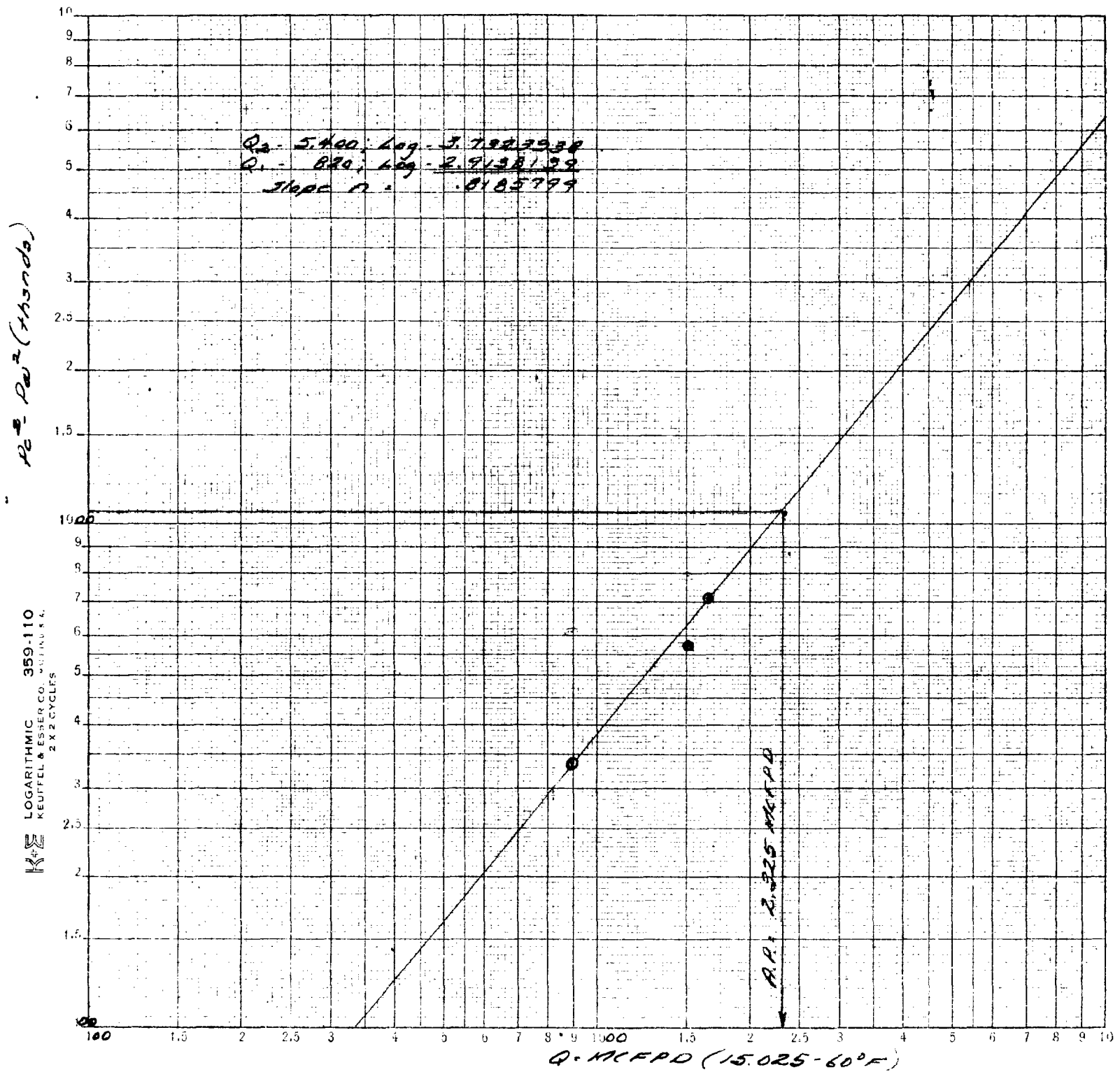
| No. | <del>xx</del><br>P <sub>t</sub> (psia) | P <sub>w</sub><br>t | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup><br>t | BEFORE EXAMINER UTZ<br>OIL CONSERVATION COMMISSION<br>EXHIBIT NO. <u>30</u><br>CASE NO. <u>1778-1779</u> | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
|-----|----------------------------------------|---------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------|
| 1.  | 673.2                                  | 453.2               | 610.2                                                          |                                                                                                          | 724.5                       | 338.9                                                     |
| 2.  | 520.2                                  | 270.6               | 792.8                                                          |                                                                                                          | 491.7                       | 571.7                                                     |
| 3.  | 453.2                                  | 205.4               | 858.0                                                          |                                                                                                          | 355.5                       | 707.9                                                     |
| 4.  |                                        |                     |                                                                |                                                                                                          |                             |                                                           |
| 5.  |                                        |                     |                                                                |                                                                                                          |                             |                                                           |

\* Well was flowing load oil and water

Wellhead Potential: 2,000 MCFPD; θ 50.5 ; n<sub>t</sub> .819  
 Potential: 2,325 MCFPD; θ 50.5 ; n .819  
 Conducted by: H.H. Karby  
 Witnessed by: \_\_\_\_\_  
 Calculated by: H.H. Karby

30-2

JAL OIL CO., INC  
WATKINS #2  
UNIT H, 35-24-36; LEA CO., N.M.  
8-22-58





30-3

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
Geological Survey, Lubbock District, Texas  
(Lubbock District)

Pool Jalnat Formation Yates County Lea  
Initial X And Special Date of test November 10-14, 1958  
Company Jal Oil Company Lease Watkins Well No. 2  
Unit H Sec. 35 Twp. 24 R. 36 Landowner El Paso Natural Gas Company  
Casing 5 1/2 In. 15.54 L.S. set at 2982 Perf. To  
Tubing 2 In. 4.74 L.S. set at 2869 Perf. To  
Gas Pay: From 2942 To 2954 2869 .660 Assumed G. 1894 Bar. Press 13.2  
Producing thru: Casing X Tubing X Type well Single  
Series meter run Produced at Single - Bradenhead-G.C. or G. O. Dual

FLOW DATA

| Started  |         | Taken    |         | Duration<br>Hours | Type<br>Taps | Line<br>Size | Orifice<br>Size | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|----------|---------|----------|---------|-------------------|--------------|--------------|-----------------|------------------|-------------------|---------------|
| Date     | time    | Date     | time    |                   |              |              |                 |                  |                   |               |
| 11-10-58 | 8:00 AM | 11-11-58 | 8:00 AM | 24                | Flg.         | 4"           | 1.500           | 256.2            | 43.56             | 85            |
|          | PM      |          | PM      |                   |              |              |                 |                  |                   |               |

FLOW CALCULATIONS

| Static Pressure | Differ-ential | Meter Extension | Line Loss | Gravity Factor | Temp. Factor | Compress-ability | Rate of Flow        |
|-----------------|---------------|-----------------|-----------|----------------|--------------|------------------|---------------------|
| Pf              | hw            | Pf Pw           | Ind. In.  | Pg             | Pt           | Fpv              | MCF/Da. 15.025 psia |
| 256.2           | 43.56         | 105.64          | 13.99     | .9535          | .9768        | 1.022            | 1,406               |

SHUT-IN PRESSURE

FLOW DATA

| Shut-in  |         | Press. Taken |         | Duration<br>Hours | Wellhead Pressure<br>(Pc) psia |        | W.H. working Pressure<br>(Pw) and (Pt) psia |        |
|----------|---------|--------------|---------|-------------------|--------------------------------|--------|---------------------------------------------|--------|
| Date     | Time    | Date         | Time    |                   | Tubing                         | Casing | Tubing                                      | Casing |
|          |         |              |         |                   |                                |        |                                             |        |
| 11-11-58 | 8:00 AM | 11-12-58     |         | 24                | 723.2                          | 728.2  | 376.2                                       | 584.2  |
|          |         | 11-13-58     | 8:00 AM | 48                | 712.2                          | 745.2  |                                             |        |
|          |         | 11-14-58     |         | 72                | 633.2                          | 747.2  |                                             |        |
|          | PM      |              | PM      |                   |                                |        |                                             |        |

FRICTION CALCULATIONS (if necessary)

Pw Measured.

SUMMARY

Pc = 747.2 psia  
Q = 1,406 MCF/Da.  
Pw = 584.2 psia  
Pd = 597.8 psia  
D = 1,320 MCF/Da.

DELIVERABILITY CALCULATIONS

Pw 584.2 Pc 747.2 Pw + Pc .7818  
1 -  $\frac{P_w}{P_c}$  .2182 1 +  $\frac{P_w}{P_c}$  1.7818  $\left(1 - \frac{P_w}{P_c}\right) \left(1 + \frac{P_w}{P_c}\right) = 1$  .3888  
.36 + M .9259  $\log \frac{P_w + P_c}{P_c}$  9.966564-10  $\log \left(1 - \frac{P_w}{P_c}\right)$  .819

= 9.972652-10 +

Company El Paso Natural Gas Company  
Address P. O. Box 1384 - Jal, New Mexico  
Agent and Title J. B. Murray  
Witnessed  
Company

LOG Q = 3.147985  
LOG D = 13.120637  
LOG Q = 1320 = D

ILLEGIBLE

|                     |                        |             |                |               |                                    |
|---------------------|------------------------|-------------|----------------|---------------|------------------------------------|
| Pool                | <u>Jalnet</u>          |             | <u>Yates</u>   |               | <u>Lee</u>                         |
| Initial             |                        | <u>X</u>    |                |               | <u>2-20/2-27-59</u>                |
| Company             | <u>Jal Oil Company</u> |             | <u>Watkins</u> |               | <u>2</u>                           |
| Unit                | <u>H</u>               | <u>35</u>   | <u>24</u>      | <u>36</u>     | <u>El Paso Natural Gas Company</u> |
| Casing              | <u>5 1/2</u>           | <u>15.5</u> |                | <u>2982</u>   | <u>To</u>                          |
| Tubing              | <u>2</u>               | <u>4.7</u>  |                | <u>2869</u>   | <u>To</u>                          |
| Gas Pay: Prod.      | <u>2942</u>            | <u>2954</u> | <u>2869</u>    | <u>0.669</u>  | <u>Bar. Press 13.2</u>             |
| Producing Item: Gas |                        |             | <u>X</u>       | <u>Single</u> |                                    |
| Series              | <u>40</u>              |             |                |               | <u>Single or Dual</u>              |

Company El Paso Natural Gas Company      Total = 2.873786  
Address P. O. Box 1384 - Jal., New Mexico  
Agent and Title J. B. Murray Gas Tester      Total = 12.813418 - 10  
Witnessed \_\_\_\_\_  
Company El Paso Natural Gas Company      Total = 650.8 = D

\* The TBG. pressure on this well did not have any pressure on 72 hour shut-in.



# ILLEGIBLE

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
CASE NO. 1778-1779  
EXHIBIT NO. 34

Company Jal Oil Company Lease Jenkins Well No. 1  
Unit M Sec. 29 Twp. 25 Rge. 37 County Lea  
Pool Jalmat Type Well Single Date of Test 3-6/3-13/1959  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .673 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .983 Date of Previous Test: 9/12/58

| FLOW DATA |           |              |             |             |          | TUBING DATA |          | CASING DATA |          | Duration of Flow Hr. |
|-----------|-----------|--------------|-------------|-------------|----------|-------------|----------|-------------|----------|----------------------|
| No.       | Line Size | Orifice Size | Press. psig | Diff. $h_w$ | Temp. °F | Press. psig | Temp. °F | Press. psig | Temp. °F |                      |
| Shut-in   |           |              |             |             |          | 196*        |          |             |          |                      |
| 1.        | 1 x 1.250 |              | 100         | 23.00       | 60       | 113         |          |             |          | 24                   |
| 2.        |           |              |             |             |          |             |          |             |          |                      |

Data obtained from deliverability test dated 3-6/3-13/1959

| No. | Coefficient $FLQ$ (24 hr) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|---------------------------|------------------|---------------|-------------------------|----------------------|---------------------------|------------------------------------|
| 1.  | 9.643                     | 51.07            |               | 1.000                   | .9442                | 1.011                     | 470                                |
| 2.  |                           |                  |               |                         |                      |                           |                                    |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 43.8 *$$

$$P_d^2 = 12.8$$

$$P_t^2 = 15.9$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{31.0}{27.9} = 1.111 = B$$

$$\log B = 0.045714 \times (n_t) .983 = 0.044937 ; \text{Antilog} = 1.109 = B^{n_t}$$

$$Q = 470 \times (B^{n_t}) 1.109 = 521 = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

Unit Size 1.00  
Meter Station No. 60-782

I hereby swear and affirm that the information given above is true and correct.

Name David H. Dyer

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

\* Well could not be shut-in. Shut-in pressure taken from R. Olsen - Winningham No. 3

# ILLEGIBLE

Pool Jalmat Yates Lea  
 Initial X Date 3-6/3-13-59  
 Company Jal Oil Company Jenkins 1  
 Unit M 29 25 37 El Paso Natural Gas Company  
 Casing 5 1/2 15.5 2686  
 Tubing 2 4.7 3022  
 Gas rate (scf) 2686 3172 3022 .673 = 13.2  
 Producing from Single  
 Series 40 Str. No. Ardenhead-G.C. or G. G. Dual

| Start Date |         | Stop Date | Duration | Flow Rate | Orifice Size | Static Press. | Differential | Flow Temp. |       |
|------------|---------|-----------|----------|-----------|--------------|---------------|--------------|------------|-------|
| Date       | Time    | Date      | Time     | Flg.      | Size         | Size          | Press.       | Press.     | Temp. |
| 3-9-59     |         | 3-10-59   |          | Flg.      | 4            | 1.250         | 113.2        | 23.00      | 60    |
|            | 2:00 PM |           | 2:00     |           |              |               |              |            |       |

| Static Pressure<br>Pp | Differential<br>Pw | Expansion<br>Pex | Factor<br>F | Compressibility<br>Fv | Rate of Flow<br>Qp/Da. @ 15.025 psia |       |
|-----------------------|--------------------|------------------|-------------|-----------------------|--------------------------------------|-------|
| 113.2                 | 23.04              | 51.07            | 9.643       | .9442                 | 1.011                                | 470.1 |

| DATE - TIME |    |             |    |                   | SLOW DATA                     |        |                                           |        |
|-------------|----|-------------|----|-------------------|-------------------------------|--------|-------------------------------------------|--------|
| Date - Time |    | Date - Time |    | Duration<br>Hours | Wellhead Pressure<br>(G) psia |        | D.D. Working Pressure<br>(W) and (L) psia |        |
|             |    |             |    |                   | Tubing                        | Casing | Tubing                                    | Casing |
|             | AM |             | PM |                   | *                             | *      | 126.2                                     | 173.2  |
|             | PM |             | PM |                   |                               |        |                                           |        |

Pressure (if not already)

Pw Measured

SUMMARY

P<sub>c</sub> = \* 209.2 psia  
 Q = 470.1 MCF/Da.  
 P<sub>w</sub> = 173.2 psia  
 P<sub>d</sub> = 167.4 psia  
 P<sub>h</sub> = 521.5 MCF/Da.  
 = 0.04505 +

P<sub>w</sub> 173.2 P<sub>c</sub> 209.2 P<sub>w</sub> + P<sub>c</sub> .8279  
 1 - P<sub>w</sub> P<sub>c</sub> P<sub>w</sub> P<sub>c</sub> P<sub>w</sub> P<sub>c</sub>  
 P<sub>c</sub> .1721 P<sub>c</sub> 1.828 P<sub>c</sub> .3146  
 .36 + M 1.144 P<sub>c</sub> .05843 P<sub>c</sub> .771 = 0.04505 +

Company El Paso Natural Gas Company Log # 2.67219  
 Address P. O. Box 1384, Jal, New Mexico  
 Agent and Title Gas Tester Log # 2.71724  
 With El Paso Natural Gas Company Log # 521.5 = D

\* P<sub>c</sub> was taken from R. Olsen Winningham No. 3. Well could not be shut-in due to water logging off well-bore



EL PASO NATURAL GAS COMPANY

BEFORE EXAMINER UTZ  
CONSERVATION COMMISSION

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

EXHIBIT NO. 35  
CASE NO. 1778-1779

Company R. Olsen, Personal Lease Legal Well No. 2  
 Unit I Sec. 31 Twp. 25 S Rge. 37 E County Lea  
 Pool Jalnet Type Well Single Date of Test 11-4-55  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .680 Bar. Pressure 13.2  
 nt from Previous Test: 1,000 Date of Previous Test: 10-7-53

| FLOW DATA |                                 |                                         |                |                         |              | TUBING DATA        |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|-----------------------------------------|----------------|-------------------------|--------------|--------------------|-------------|----------------|-------------|----------------------------|
| No.       | <del>2000</del><br>Line<br>Size | <del>2000</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F  | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                                 |                                         |                |                         |              | <u>423/365/297</u> |             |                |             | <u>24/48/72</u>            |
| 1.        | <u>4</u>                        | <u>x</u>                                | <u>1.500</u>   | <u>247</u>              | <u>26.01</u> | <u>68</u>          | <u>287</u>  |                |             | <u>24</u>                  |
| 2.        |                                 |                                         |                |                         |              |                    |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | <u>13.99</u>             | <u>82.24</u>     |                  | <u>.9924</u>                           | <u>.9393</u>                        | <u>1.027</u>                           | <u>1,101</u>                             |
| 2.  |                          |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{190.3}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{90.1}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{177.5}{100.2} = \underline{1.772} = B$$

$$\log B = \underline{\quad} \times (n_t) \underline{1.000} = \underline{\quad}; \text{Antilog} = \underline{1.771} = B^{n_t}$$

$$Q = \underline{1,101} \times (B^{n_t}) \underline{1.771} = \underline{1,950} = D_t$$

n<sub>t</sub> = Slope of Wellhead Deliverability  
Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
a ~~24~~ hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

D<sub>t</sub> = Wellhead Deliverability at Delivera-  
bility Pressure (P<sub>d</sub>), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name C. M. Cole  
C. M. Cole  
Position Gas Engineer

Witnessed by:

Name Ed Mabe

Company EPNG

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen (Pers) Lease Legal Well No. 2  
 Unit I Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 1-31/2-7 1958  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .680 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .923 Date of Previous Test: 2-8-57

| FLOW DATA |                                 |                                            |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |                |
|-----------|---------------------------------|--------------------------------------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|----------------|
| No.       | <del>Line</del><br>Line<br>Size | <del>Orifice</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig |                            | Temp.<br>°F    |
| Shut-in   |                                 |                                            |                |                |             |                |             |                |                            |                |
| 1.        | 4 x 1.250                       |                                            | 115            | 34.81          | 54          | 153            |             |                |                            | 24<br>24-48-72 |
| 2.        |                                 |                                            |                |                |             |                |             |                |                            |                |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 66.75            |                  | 1.0058                        | .9393                      | 1.014                           | 618                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{\hspace{2cm}}$$

$$P_d^2 = \underline{\hspace{2cm}}$$

$$P_t^2 = \underline{\hspace{2cm}}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = B$$

$$\log B = \underline{\hspace{2cm}} \times (n_t) \underline{\hspace{2cm}} = \underline{\hspace{2cm}}; \text{Antilog} = \underline{\hspace{2cm}} = B^{n_t}$$

$$Q = \underline{\hspace{2cm}} \times (B^{n_t}) \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = D_t$$

**Compressor was on during test.**

**Meter Station No. 60-795**

**Unit Size: 1.00**

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Witnessed by:

Name J. B. Murray

Name

Jack T. Littlefield

Company

El Paso Natural Gas Company

Position

Name

EL PASO NATURAL GAS COMPANY

Company

**NOTE: Well cannot be shut-in logs off quickly.**

$n_t$  = Slope of Wellhead Deliverability  
 Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
 Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
 a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
 flowing thru tubing and vice versa),  
 psia

$P_d$  = Deliverability Pressure (113.2 psia  
 for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
 bility Pressure ( $P_d$ ), MCF/Day



EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Legal Well No. 2  
 Unit I Sec. 31 Twp. 25 Rgs. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test August 8-15, 1958  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .688 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .923 Date of Previous Test: 1-31/2-7, 1958

| FLOW DATA |                                   |                                          |                |                |             | TUBING DATA    |                          | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|-----------------------------------|------------------------------------------|----------------|----------------|-------------|----------------|--------------------------|----------------|-------------|----------------------------|
| No.       | <del>Press.</del><br>Line<br>Size | <del>Temp.</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F              | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                                   |                                          |                |                |             | 171            | Logged off after 24 hrs. |                |             | 24                         |
| 1.        | 4 x 1.250                         |                                          | 85             | 28.09          | 78          | 88             |                          |                |             | 24                         |
| 2.        |                                   |                                          |                |                |             |                |                          |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 52.46            |                  | .9831                         | .9339                      | 1.000                           | 464                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

**Compressor on during test.**

$$D_t = Q \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2}^{n_t}$$

$$Q = 33.9$$

$$P_c^2 = 12.8$$

$$P_t^2 = 10.2$$

$$\frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} = \frac{21.1}{23.7} = 0.8903 = B$$

$$\log B = 9.949536-10 \times (n_t) .923 = 9.953422-10 ; \text{Antilog} = 0.8980 = B^{n_t}$$

$$Q = 464 \times (B^{n_t}) 0.8980 = 417 = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
 Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
 Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
 a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
 flowing thru tubing and vice versa),  
 psia

$P_d$  = Deliverability Pressure (113.2 psia  
 for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
 bility Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
 Meter Station No.: 60-795

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name R. A. Mikel  
R. A. Mikel

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Pool Jalmat Yates - 7 Rivers Lea  
 Initial X Date 3-6/3-13-59  
 Company Jal Oil Company Legal 2  
 Unit I 31 25 37 2778 2922 2922 .703  
 Casing 7 20 2778 2922 2922 .703  
 Tubing 2 4.7 2778 2922 2922 .703  
 Gas lay: 2778 2922 2922 .703 13.2  
 Producing interval X Single  
 Series 40 Motor Oil Gas Water Steam Oil Gas Water Steam

| Start Date |         | Start Time |      | Flow Rate | Flow Unit | Flow Direction | Static Press. | Differential | Flow Temp. |    |
|------------|---------|------------|------|-----------|-----------|----------------|---------------|--------------|------------|----|
| 3-9-59     | 1:30 PM | 3-10-59    | 1:30 | 24        | Flg.      | 4              | 1.250         | 133.2        | 18.49      | 75 |

| Static Pressure | Differential | Flow Rate | Flow Unit | Flow Direction | Static Pressure | Differential | Flow Temp. |
|-----------------|--------------|-----------|-----------|----------------|-----------------|--------------|------------|
| 133.2           | 18.49        | 49.63     | 9.643     | .9239          | .9859           | 1.014        | 442.1      |

| Date | Time | Flow Rate | Flow Unit | Flow Direction | Static Pressure | Differential | Flow Temp. |
|------|------|-----------|-----------|----------------|-----------------|--------------|------------|
|      |      |           |           |                |                 |              |            |

Flow Rate (if necessary)

Pw Measured

SUMMARY

$P_c = 209.2$  psia  
 $Q = 442.1$  BCF/Da.  
 $P_w = 178.2$  psia  
 $P_d = 167.4$  psia  
 $P_s = 567.6$  BCF/Da.  
 $P = 1.0854$

Pw 178.2 209.2 .8518  
 $1 - \frac{P_w}{P_c} = .1482$   $1.852$   $.2745$   
 $.36 + \frac{P_w}{P_c} = 1.311$   $.11760$   $.923$

Company El Paso Natural Gas Company 2.64552  
 Address P. O. Box 1384, Jal. New Mexico 2.75406  
 Agent and Title John D. Whittington Gas Tester 56.76  
 Company El Paso Natural Gas Company = D

\*  $P_c$  was taken from R. Olsen Winningham #3. Well could not be shut-in due to water logging off well bore.



EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST** CORRECTED COPY  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Legal Well No. 2  
 Unit I Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalnet Type Well Single Date of Test 4/6/3-13/1959  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .703 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .923 Date of Previous Test: 8-15-58

| FLOW DATA |                                 |                                            |                |                         | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |             |
|-----------|---------------------------------|--------------------------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|----------------------------|-------------|
| No.       | <del>LINE</del><br>Line<br>Size | <del>ORIFICE</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig |                            | Temp.<br>°F |
| Shut-in   |                                 |                                            |                |                         | * 196       |                |             |                |                            | 72          |
| 1.        | 4 x 1.250                       |                                            | 120            | 18.49                   | 75          | 130            |             |                |                            | 24          |
| 2.        |                                 |                                            |                |                         |             |                |             |                |                            |             |

Data obtained from deliverability test dated 3-6/3-13/1959

| No. | Coefficient<br>FLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                            | 49.63            |                  | .9859                         | .9239                      | 1.014                           | 442                                      |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 43.8$$

$$P_d^2 = 12.8$$

$$P_t^2 = 20.5$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{31.0}{23.3} = 1.330 = B$$

$$\log B = .12385 \times (n_t) .923 = .11431; \text{Antilog} = 1.304 = B^{n_t}$$

$$Q = 442 \times (B^{n_t}) 1.304 = 576 = D_t$$

Meter Station No. 60-795  
Unit Size 1.00

I hereby swear and affirm that the information given above is true and correct.

Name David H. Dyer

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

\* Well could not be shut-in. Shut-in pressure taken from R. Olsen - Winningham No. 3

READ &amp; INITIAL

## El Paso Natural Gas Company

El Paso, Texas

August 14, 1958

|     |  |
|-----|--|
| gib |  |
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Jal Oil Company  
 Drawer Z  
 Jal, New Mexico

Gentlemen:

We are unable to produce your Dyer 3 H 31-25-37  
LEASE NO. UNIT S. T. R.  
 in the Jalnat POOL for the following reason:

|                          |                                        |                                  |
|--------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER   | LOGGED OFF                             | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD<br>X | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

When this situation is corrected and the well is ready to be produced, please contact this office.

Remarks: This will confirm my telephone conversation with Mr. Watson on August 14, 1958. Mr. Watson stated that the Jal Oil Company was pulling the tubing on this well.

Yours truly,

EL PASO NATURAL GAS COMPANY

R. L. Pagan  
 Dispatching Department  
 R. L. Pagan

ELP:bjc  
 cc: E. A. Seearse  
 F. N. Woodruff  
 R. T. Wright  
 Central File  
 File

ILLEGIBLE

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
Pool Jalnet Type Well Single Date of Test Sept. 8-12, 1958  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .686 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 3-14-58

| FLOW DATA |                                  |                                          |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|----------------------------------|------------------------------------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | <del>Inner</del><br>Line<br>Size | <del>Outer</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                                  |                                          |                |                |             | 288            |             |                |             |                            |
| 1.        | <u>1" x 1.250</u>                |                                          | <u>90</u>      | <u>20.25</u>   | <u>72</u>   | <u>104</u>     |             |                |             | <u>24</u>                  |
| 2.        |                                  |                                          |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>FLG<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|---------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>9.613</u>                    | <u>15.71</u>     |                  | <u>.9887</u>                  | <u>.9352</u>               | <u>.911</u>                     | <u>408</u>                               |
| 2.  |                                 |                  |                  |                               |                            |                                 |                                          |

 $Q_t = Q$ 

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{90.7}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{13.7}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{77.9}{77.0} = 1.012 = B$$

$$\log B = .0051805 \times (n_t) .767 = .0039734 ; \text{Antilog} = 1.009 = B^{n_t}$$

$$Q = 408 \times (B^{n_t}) 1.009 = 412 = Q_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 24 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$P_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00

Meter Station No.: 60-832-01

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

I hereby swear and affirm that the information given above is true and correct.

Name

J. B. Murray

Position

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

This well was not shut-in due to logging off. The Jenkins No. 1 shut-in pressure was used for this test - which is the nearest offset.



EL PASO NATURAL GAS COMPANY  
 MINIMUM CONTRACT TEST  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
 Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-(7-14) 1958  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .680 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 7-19-57

| FLOW DATA |           |              |             |             |          | TUBING DATA |          | CASING DATA |          | Duration of Flow Hr. |
|-----------|-----------|--------------|-------------|-------------|----------|-------------|----------|-------------|----------|----------------------|
| No.       | Line Size | Orifice Size | Press. psig | Diff. $h_w$ | Temp. °F | Press. psig | Temp. °F | Press. psig | Temp. °F |                      |
| Shut-in   |           |              |             |             |          | 224-194-135 |          | 264-277-283 |          | 24-48-72             |
| 1.        | 4 x 1.250 |              | 93          | 21.16       | 47       | 108         |          |             |          | 24                   |
| 2.        |           |              |             |             |          |             |          |             |          |                      |

| No. | Coefficient (24-Hour) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|-------------------------|----------------------|---------------------------|------------------------------------|
| 1.  | 9.643                 | 47.36            |               | 1.0127                  | 0.9393               |                           | 435                                |
| 2.  |                       |                  |               |                         |                      |                           |                                    |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{87.7}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{14.7}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{74.9}{73.0} = 1.026 = B$$

$$\log B = .011147 \times (n_t) .767 = .008549; \text{Antilog} = 1.020 = B^{n_t}$$

$$Q = 435 \times (B^{n_t}) 1.020 = 444 = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 24-hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
 Meter Station No. 60-832

I hereby swear and affirm that the information given above is true and correct.

Name Jack T. Littlefield

Position \_\_\_\_\_

Witnessed by: B. G. Boaz

Company El Paso Natural Gas Company

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Dyer Well No. 3  
 Unit H Sec. 31 Twp. 25 Rge. 37 County Lea  
 Pool Jalmet Type Well Single Date of Test 3-6/3-13/1959  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .691 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .767 Date of Previous Test: 9/12/58

| FLOW DATA |                                 |                                            |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|--------------------------------------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | <del>Flow</del><br>Line<br>Size | <del>Orifice</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                                 |                                            |                |                |             | 196*           |             |                |             | 72                         |
| 1.        | <u>1 x 1.250</u>                |                                            | <u>117</u>     | <u>9.00</u>    | <u>75</u>   | <u>124</u>     |             |                |             |                            |
| 2.        |                                 |                                            |                |                |             |                |             |                |             |                            |

Data obtained from deliverability test dated 3/6-3/13/1959

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>9.643</u>             | <u>34.28</u>     |                  | <u>.8859</u>                  | <u>.9318</u>               | <u>1.012</u>                    | <u>307</u>                               |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{13.8} *$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{18.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{31.0}{25.0} = 1.240 = B$$

$$\log B = \underline{0.093422} \times (n_t) \underline{.767} = \underline{0.071655}; \text{Antilog} = \underline{1.179} = B^{n_t}$$

$$Q = \underline{307} \times (B^{n_t}) \underline{1.179} = \underline{362} = D_t$$

Unit Size 1.00  
 Meter Station NO. 60-832

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name David H. Dyer

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

\* Well could not be shut-in. Shut-in pressure taken from R. Olsen-Winningham No. 3

NEW MEXICO OIL CONSERVATION COMMISSION  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Form C-122-C

4-1-54

120

Pool Jabmat Formation Yates County Lea  
Initial Annual Special 7-18-58 Date of test  
Company Int. Oil Co., Inc. Lease Nyer Well No. 3  
Unit H. 1 Sec. 31 Twp. 25 Rge. 37 Purchaser L. P. N. 4  
Casing 6 5/8 Wt. 19.5 I.D. Set at 2792 Perf. To  
Tubing 2 1/2 Wt. 6.3 I.D. 2.441 Set at 2960 Perf. 2800 To 2924  
Gas Pay: From 2945 To 2977 L 2792 x G. 680 GL 1899 Bar. Press. 13.2  
Producing Thru: Casing Tubing Type Well Single  
Single- Bradenhead-G.G. or G.O. Dual

FLOW DATA

| Started |         | Taken   |         | Duration<br>Hours | Type<br>Taps | Line<br>Size | Orifice<br>Size | Static<br>Press. | Differ-<br>ential | Flow<br>Temp. |
|---------|---------|---------|---------|-------------------|--------------|--------------|-----------------|------------------|-------------------|---------------|
| Date    | time    | Date    | time    |                   |              |              |                 |                  |                   |               |
| 4-14-58 | 8:45 AM | 4-15-58 | 8:45 AM | 24                | FIG.         | 4            | 1.250           | 108.2            | 19.36             | 70            |
|         | PM      |         | PM      |                   |              |              |                 |                  |                   |               |

FLOW CALCULATIONS

| Static<br>Pressure<br>P <sub>r</sub> | Differ-<br>ential<br>h <sub>w</sub> | Meter<br>Extension<br>√P <sub>r</sub> h <sub>w</sub> | 24-Hour<br>Coeff-<br>icient | Gravity<br>Factor<br>F <sub>g</sub> | Temp.<br>Factor<br>F <sub>t</sub> | Compress-<br>ability<br>F <sub>pv</sub> | Rate of Flow<br>MCF/Da. @ 15.025 psia<br>Q |
|--------------------------------------|-------------------------------------|------------------------------------------------------|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------------------|--------------------------------------------|
| 108.2                                | 19.36                               | 45.72                                                | 9.643                       | .9393                               | .9905                             | —                                       | 410                                        |

4.4

SHUT-IN DATA

| Shut-in |         | Press. Taken |          | Duration<br>Hours | Wellhead Pressure<br>(P <sub>c</sub> ) psia |        | W.N. Working Pressure<br>(P <sub>w</sub> ) and (P <sub>t</sub> ) psia |        |
|---------|---------|--------------|----------|-------------------|---------------------------------------------|--------|-----------------------------------------------------------------------|--------|
| Date    | Time    | Date         | Time     |                   | Tubing                                      | Casing | Tubing                                                                | Casing |
| 4-15-58 | AM      | 4-16-58      |          | 24                | 229.2                                       |        | 123.2                                                                 |        |
|         |         | 4-17-58      | 11:20 AM | 48                | 173.2                                       |        |                                                                       |        |
|         | 1:20 PM | 4-18-58      | PM       | 72                | 108.2                                       |        |                                                                       |        |

FLOW DATA

FRICTION CALCULATIONS (if necessary)

$$P_w = 15.2 + (5.81)(12.2) = 15.9$$

SUMMARY

P<sub>c</sub> = 229.2 psia

Q = 410 MCF/Da.

P<sub>w</sub> = 126.1 psia

P<sub>d</sub> = 183.4 psia

D = 248 MCF/Da.

DELIVERABILITY CALCULATIONS

P<sub>w</sub> 126.1 P<sub>c</sub> 229.2 P<sub>w</sub> + P<sub>c</sub> .5502  
 $1 - \frac{P_w}{P_c} = .4498$   $1 + \frac{P_w}{P_o} = 1.5502$   $\left| 1 - \frac{P_w}{P_s} \right| \left| 1 + \frac{P_w}{P_c} \right| = M$  .6973  
 $.36 + M = .5163$   $\log 9.7129021 - 10 \times (n) = .763$   $= 9.7809443 - 10 +$

Log Q = 2.6127839

Log D = 12.3937282 - 10

Antilog = 248 = D

COMPANY L. P. N. 4  
 ADDRESS Jabmat  
 AGENT and TITLE R. D. Southern  
 WITNESSED R. D. Southern  
 COMPANY L. P. N. 4

REMARKS



Pool **Jalmat** Yates **Lea**  
 Initial **X** Date **2-20/2-27-59**  
 Company **R. Olsen Oil Company** **S. R. Cooper** **1**  
 Unit **H** **23** **24** **36** **El Paso Natural Gas Company**  
 Casing **7** **23** **3010** **To**  
 Tubing **2 1/2** **6.5** **3197** **To**  
 Gas Pay: From **3127** **3215** **3197** **0.660** **bar. press 13.2**  
 Producing Interval: **X** **Single**  
 Series **40** **Di. No. - Gradehead-C.C. or G. C. Fuel**

| Started<br>Date | Time     | Stopped<br>Date | Time  | Production<br>Barrels | Type<br>Test | Line<br>Size | Orifice<br>Size | Static<br>Pressure | Differ-<br>ential | Flow<br>Temp. |
|-----------------|----------|-----------------|-------|-----------------------|--------------|--------------|-----------------|--------------------|-------------------|---------------|
| 2-23-59         | 10:00 AM | 2-24-59         | 10:00 | 24                    | Flg.         | 4"           | .750            | 240.2              | 1.96              | 63            |

| Static<br>Pressure<br>Pr | Differ-<br>ential<br>hw | Water<br>Extension<br>Pr hw | Gas<br>Extension<br>Pr hw | Gravim.<br>Factor | Temp.<br>Factor | Compress-<br>ibility<br>Z <sub>avg</sub> | Rate of Flow<br>Q (SCF/Da. @ 15.025 psia) |
|--------------------------|-------------------------|-----------------------------|---------------------------|-------------------|-----------------|------------------------------------------|-------------------------------------------|
| 240.2                    | 1.96                    | 21.70                       | 3.435                     | 0.9535            | 0.9971          | 1.024                                    | 72.56                                     |

|         |         |         |       |       | FLOW DATA                |       |                                          |        |
|---------|---------|---------|-------|-------|--------------------------|-------|------------------------------------------|--------|
| Date    | Time    | Day     | Hour  | Hours | Wellhead Pressure (psia) |       | Well Working Pressure (lw) and (lt) psia |        |
|         |         |         |       |       | Adding                   | Using | Tubing                                   | Casing |
| 2-24-59 | AM      | 2-25-59 | 10:00 | 24    | 655.2                    | 655.2 | 252.2                                    | 395.2  |
|         |         | 2-26-59 |       | 48    | 684.2                    | 684.2 |                                          |        |
|         | 3:45 PM | 2-27-59 |       | 72    | 679.2                    | 679.2 |                                          |        |

Pressure (psia) (if necessary)

P<sub>w</sub> Measured

SUMMARY

P<sub>c</sub> = 679.2 psia

Q = 72.56 SCF/Da.

P<sub>w</sub> = 395.2 psia

P<sub>d</sub> = 543.4 psia

P = 42.54 SCF/Da.

P<sub>w</sub> 395.2 P<sub>c</sub> 679.2 P<sub>d</sub> P<sub>e</sub> 0.5819

1 -  $\frac{P_w}{P_c}$  0.4181 1 -  $\frac{P_d}{P_c}$  1.5819  $\left( \frac{P_w}{P_c} \right) \left( \frac{P_d}{P_c} \right) = 0.6614$

.36 + M 0.5443 9.735838 - 10 0.878 = 9.768066 - 10 +

Company **El Paso Natural Gas Company** Log # = **1.860697**

Address **P. O. Box 1384 - Jal., New Mexico**

Agent and Title **J. B. Murray - Gas Tester** Log # = **11.628763 - 10**

Witnessed **J. B. Murray** Log # = **42.54** = B

Company **El Paso Natural Gas Company**

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
Pool Jalmat Type Well Single Date of Test 2-20/2-27-59  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .666 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .878 Date of Previous Test: 9-19-58

**Data from Deliverability Test 2-20/2-27-59**

| FLOW DATA |                 |                 |                |                | TUBING DATA        |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|-----------------|-----------------|----------------|----------------|--------------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size    | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F        | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |                 |                 |                |                | <u>642-671-666</u> |                |             |                | <u>24-48-72</u>            |
| 1.        | <u>4 X .750</u> |                 | <u>227</u>     | <u>1.96</u>    | <u>63</u>          | <u>239</u>     |             |                | <u>24</u>                  |
| 2.        |                 |                 |                |                |                    |                |             |                |                            |

| No. | Coefficient<br>Flg.<br>(24-Hr) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>                   | <u>21.70</u>     |                  | <u>.9971</u>                  | <u>.9491</u>               | <u>1.024</u>                    | <u>72</u>                                |
| 2.  |                                |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{468.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{63.6}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{455.3}{404.5} = 1.126 = B$$

$$\log B = .0515384 \times (n_t) .878 = .0452507; \text{Antilog} = 1.110 = B^{n_t}$$

$$Q = 72 \times (B^{n_t}) 1.110 = 801$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )  
 $Q$  = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$   
 $P_c$  = Maximum Shut-in Pressure observed in a 24 hour period, PSIA  
 $P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia  
 $P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)  
 $D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No.: 60-800

I hereby swear and affirm that the information given above is true and correct.

Name H. H. Kerby

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

# El Paso Natural Gas Company

El Paso, Texas

March 1, 1939

|                     |     |
|---------------------|-----|
| Post. No.           | 793 |
| Sh. No.             |     |
| City                |     |
| State               |     |
| Post Office         |     |
| ADDRESS REPLY TO    |     |
| POST OFFICE BOX 124 |     |
| EL PASO, TEXAS      |     |

Jal Oil Company  
P. O. Box 1744  
Midland, Texas

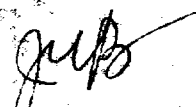
Gentlemen:

During the month of January, 1939, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| <u>WELL NAME</u> | <u>DATE</u> | <u>DAYS</u> | <u>REASON</u>                               |
|------------------|-------------|-------------|---------------------------------------------|
| Jack No. 1       | 1/ 8        | 1           | Freeze in El Paso line                      |
| Hodges No. 2     | 1/ 8        | 1           | Freeze in El Paso line                      |
| Gutman B No. 1   | 1/12        | 1           | El Paso heater repairs                      |
| Gutman B No. 1   | 1/21        | 1           | Freeze in El Paso line                      |
| Eva Owens No. 1  | 1/ 1-31     | 31          | Shut in-state regulations<br>(Overproduced) |
| Jenkins No. 2    | 1/ 1-16     | 16          | Logged off with fluid                       |

Yours very truly,

EL PASO NATURAL GAS COMPANY

  
J. W. Bauich, Jr.  
Gas Production Engineer

JWB,Jr:bjc  
cc: Jal Oil Company - Jal, N. M.  
E. A. Scarsce  
F. H. Woodruff  
Central File  
File

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December 8, 1953

Box 1374

Jal, New Mexico

R. Olsen Oil Company  
Drawer "Z"  
Jal, New Mexico

ATTN: Mr. Aaron Cummings

Dear Sir:

We were unable to run a minimum contract test on your Jenkins #1 and S. R. Cooper #1 on date scheduled (November 9, 1953). The Jenkins #1 was logged off and would not produce into our line; the S. R. Cooper #1 wellhead valve leaks.

If remedial work is done on these wells, please notify our Dispatching Department when well is ready for production.

Yours very truly,

EL PASO NATURAL GAS COMPANY

Edward Mabe  
Gas Engineer

cc: Mr. J. W. Baulch, Jr.  
Dispatching Department  
Box 1374, Jal, New Mexico

EM:ds

17  
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## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Sent out 3-18-57

Company L. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit \_\_\_\_\_ Sec. 23 Twp. 24 Rge. 36 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-8-57  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity 1665 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .878 Date of Previous Test: 2-15-57

| FLOW DATA |                                 |                                            |                |                | TUBING DATA |                    | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|--------------------------------------------|----------------|----------------|-------------|--------------------|-------------|----------------|----------------------------|
| No.       | <del>Well</del><br>Line<br>Size | <del>Orifice</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |                                 |                                            |                |                |             | <u>679-710-708</u> |             |                | <u>24-48-72</u>            |
| 1.        | <u>4 x .750</u>                 |                                            | <u>207</u>     | <u>10.89</u>   | <u>57</u>   | <u>210</u>         |             |                |                            |
| 2.        |                                 |                                            |                |                |             |                    |             |                |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>             | <u>48.95</u>     |                  | <u>1.0029</u>                 | <u>.9498</u>               | <u>1.023</u>                    | <u>164</u>                               |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{520.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{19.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{507.3}{470.3} = 1.079 = E$$

$$\text{Log } B = .033021 \times (n_t) .878 = .028992 ; \text{Antilog} = 1.069 = B^{n_t}$$

$$Q = 164 \times (B^{n_t}) 1.069 = 175 = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name L. D. Southern

Position L. D. Southern

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

**EL PASO NATURAL GAS COMPANY**  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
 Pool Jalnet Type Well Single Date of Test 7-(19-26) 1957  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .665 Bpr. Pressure 13.2  
 nt from Previous Test: .878 Date of Previous Test: 3-8-57

| FLOW DATA |                 |                 |                |                         |             | TUBING DATA        |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|-----------------|-----------------|----------------|-------------------------|-------------|--------------------|-------------|----------------|-------------|----------------------------|
| No.       | Line<br>Size    | Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                 |                 |                |                         |             | <u>499-508-488</u> |             |                |             | <u>24-48-72</u>            |
| 1.        | <u>4 x .750</u> |                 | <u>217</u>     | <u>10.24</u>            | <u>90</u>   | <u>218</u>         |             |                |             | <u>24</u>                  |
| 2.        |                 |                 |                |                         |             |                    |             |                |             |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>                     | <u>48.53</u>     |                  | <u>.9723</u>                           | <u>.9498</u>                        | <u>1.019</u>                           | <u>157</u>                               |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \cdot \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{271.6}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{53.5}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{258.8}{218.1} = 1.187 = B$$

$$\text{Log } B = .074451 \times (n_t) .878 = .065368 ; \text{Antilog} = 1.162 = B^{n_t}$$

$$Q = 157 \times (B^{n_t}) 1.162 = 182 = D_t$$

**Unit Size 1.00**

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name Jack T. Littlefield

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name 19

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY



EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
Unit H Sec. 23 Twp. 24 Rce. 36 County Lea  
Pool Jalmat Type Well Single Date of Test 3-(7-14) 1958  
Producing Thru: Casing \_\_\_\_\_ Tubing I Gravity .665 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .878 Date of Previous Test: 7-26-57

| FLOW DATA |                          |                 |                |                | TUBING DATA |                    | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------------------|-----------------|----------------|----------------|-------------|--------------------|-------------|----------------|----------------------------|
| No.       | Wellbore<br>Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig |                            |
| Shut-in   |                          |                 |                |                |             | <u>608-490-670</u> |             |                | <u>24-48-72</u>            |
| 1.        | <u>4 x .750</u>          |                 | <u>234</u>     | <u>12.25</u>   | <u>54</u>   | <u>238</u>         |             |                | <u>24</u>                  |
| 2.        |                          |                 |                |                |             |                    |             |                |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>                     | <u>55.01</u>     |                  | <u>1.0058</u>                 | <u>0.9498</u>              | <u>1.027</u>                    | <u>185</u>                               |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{466.8}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{63.1}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{454.0}{403.7} = 1.125 = B$$

$$\log B = \underline{.051152} \times (n_t) \underline{.878} = \underline{.044911}; \text{Antilog} = \underline{1.109} = B^{n_t}$$

$$Q = \underline{185} \times (B^{n_t}) \underline{1.109} = \underline{205} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
72 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (13.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No.: 60-800

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield  
Position \_\_\_\_\_

Witnessed by:  
Name \_\_\_\_\_

Company El Paso Natural Gas Company

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company: 70

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lessee S.R. Cooper Well No. 1  
Unit H Sec. 23 Twp. 24 Rge. 36 County Lea  
Pool Jalmat Type Well Single Date of Test 9-15/9-19/58  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .672 Bar. Pressure 13.2  
n<sub>t</sub> from Previous Test: .878 Date of Previous Test: 3-14-58

| FLOW DATA |                         |                            |                |                         |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow,<br>Hr. |
|-----------|-------------------------|----------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|-------------|-----------------------------|
| No.       | <del>Line</del><br>Size | <del>Orifice</del><br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                             |
| Shut-in   |                         |                            |                |                         |             | 684-677-705    |             | 684-677-705    |             | 24-48-72                    |
| 1.        | 4" x .750               |                            | 223            | 9.00                    | 49          | 225            |             |                |             | 24                          |
| 2.        |                         |                            |                |                         |             |                |             |                |             |                             |

| No. | Coefficient<br>PLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 3.435                            | 46.11            |                  | 1.0107                                 | .9449                               | 1.027                                  | 155                                      |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$Q_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{515.8}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{56.7}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{503.0}{459.1} \times 1.096 = B$$

$$\log B = .0398106 \times (n_t) .878 = .0349537 \quad \text{Antilog} = 1.086 = B^{n_t}$$

$$Q = 155 \times (B^{1/n_t}) 1.086 = 168 \quad \text{Unit Size } 1.00 \quad \text{Meter Station } 60-800$$

n<sub>t</sub> = Slope of Wellhead Deliverability  
Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

B = Wellhead Deliverability at Delivera-  
bility Pressure (P<sub>d</sub>), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name J.B. Murray  
J.B. Murray

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Olsen Oil & Inc  
Winningham #3

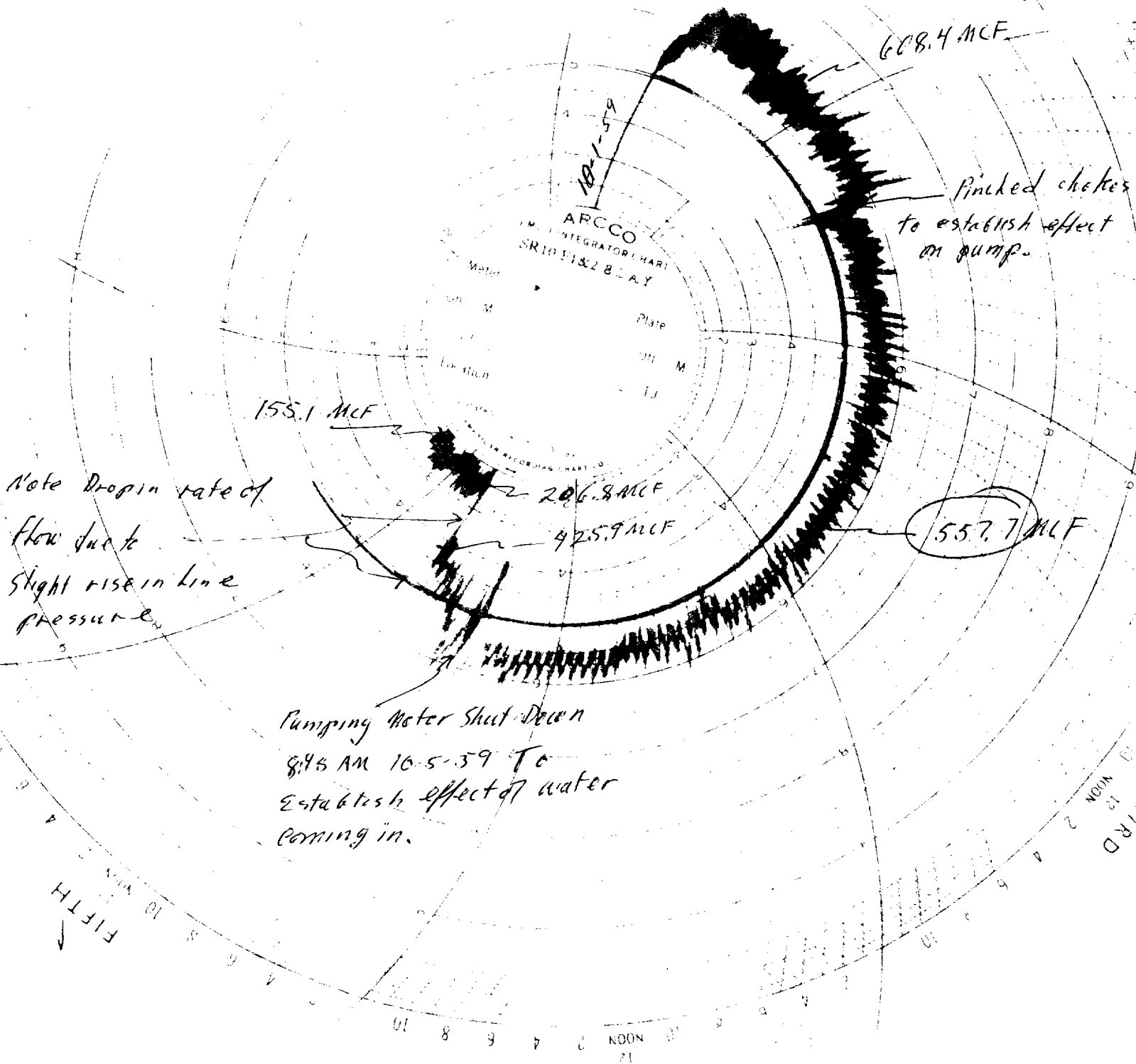
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# El Paso Natural Gas Co Gas Chart

Taken off & photostated

7:20 AM 10-6-59

Water Production  
23.46 bbls/day





# El Paso Natural Gas Company

El Paso, Texas

July 27, 1959

|                |  |
|----------------|--|
| Ranich         |  |
| Shirlet        |  |
| Eller          |  |
| Gill           |  |
| Hedgcock       |  |
| Gordon         |  |
| ADDRESS ONLY   |  |
| JAL NEW MEXICO |  |

Jal Oil Company  
P. O. Box 1744  
Midland, Texas

Gentlemen:

During the months of January through May, 1959, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| WELL NAME       | DATE    | DAYS | REASON                                   |
|-----------------|---------|------|------------------------------------------|
| Christmas No. 1 | 4/ 7- 9 | 3    | Shut in-Deliverability T-st              |
| Hodges No. 2    | 4/10-16 | 7    | Shut in while offset well being tested   |
| Eva Owens No. 1 | 4/ 1-30 | 30   | Shut in-state regulations (Overproduced) |
| Jenkins No. 2   | 1/18-22 | 5    | Logged off with fluid                    |
| Jenkins No. 2   | 2/ 1-28 | 28   | Logged off with fluid                    |
| Jenkins No. 2   | 3/ 2-31 | 30   | Logged off with fluid                    |
| Jenkins No. 2   | 4/ 1-30 | 30   | Logged off with fluid                    |
| Jenkins No. 2   | 5/ 1- 9 | 9    | Logged off with fluid                    |

Yours very truly,

EL PASO NATURAL GAS COMPANY

ORIGINAL SIGNED

J. W. BAULEH, JR.

J. W. Bauleh, Jr.  
Gas Production Engineer

JWB,Jr:bja  
cc: Jal Oil Company - Jal, N. M.  
E. A. Scarce  
F. N. Woodruff  
Central File  
File

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# El Paso Natural Gas Company

El Paso, Texas

April 22, 1959

READ & INITIAL

|                |  |
|----------------|--|
| Carl B.        |  |
| Shirley        |  |
| Miller         |  |
| Willie         |  |
| Carol          |  |
| Gordon         |  |
| ADDRESS ROOM   |  |
| JAL NEW MEXICO |  |

Jal Oil Company  
P. O. Box 1748  
Midland, Texas

Gentlemen:

During the months of February and March, 1959, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| <u>WELL NAME</u> | <u>DATE</u> | <u>DAYS</u> | <u>REASON</u>                               |
|------------------|-------------|-------------|---------------------------------------------|
| Woolworth No. 1  | 2/24-26     | 3           | Shut in-Deliverability Test                 |
| Woolworth No. 1  | 3/ 5- 8     | 4           | El Paso setting separator                   |
| Jack No. 1       | 2/24-26     | 3           | Shut in-Deliverability Test                 |
| Hodges No. 2     | 2/24-26     | 3           | Shut in-Deliverability Test                 |
| Gregory No. 2    | 3/11        | 1           | Leak in El Paso line                        |
| Eva Owens No. 1  | 3/ 1- 4     | 4           | Shut in-state regulations<br>(Overproduced) |
| Eva Owens No. 1  | 3/10-12     | 3           | Shut in-Deliverability Test                 |
| Eva Owens No. 1  | 3/13-18     | 6           | Shut in-state regulations<br>(Overproduced) |
| Watkins No. 2    | 2/24-26     | 3           | Shut in-Deliverability Test                 |
| Watkins No. 2    | 3/ 5- 8     | 4           | El Paso setting separator                   |

Yours very truly,

EL PASO NATURAL GAS COMPANY

ORIGINAL SIGNED

J. W. BAULCH JR.

J. W. Baulch, Jr.  
Gas Production Engineer

JWB,Jr:bjc  
cc: Jal Oil Company - Jal, N. M.  
K. A. Searce  
F. W. Moorhuff  
Central File  
File

ILLEGIBLE

COPY

# El Paso Natural Gas Company

El Paso, Texas

June 8, 1953

|          |                   |
|----------|-------------------|
| Baugh    | <i>[initials]</i> |
| Shirley  | <i>[initials]</i> |
| Miller   | <i>[initials]</i> |
| Griff    | <i>[initials]</i> |
| Hedgcock | <i>[initials]</i> |
| Gordon   | <i>[initials]</i> |
|          | <i>[initials]</i> |
|          | <i>[initials]</i> |

Jal Oil Company  
 Drawer 2  
 Jal, New Mexico

Gentlemen:

This letter will confirm our conversation on June 5, 1953, concerning the reclassification of gas wells in the Jalmat Pool.

The New Mexico Oil Conservation Commission has reclassified four (4) of your wells connected to our gathering system from marginal to non-marginal status. The wells are the Byer #3, Legal #2, Jenkins #1 and Repollo #1 in the Jalmat Gas Pool. The allowables were made retroactive to July, 1952, and all of the wells are now overproduced due to being produced at all times as marginal wells.

Since the Repollo #1 makes a considerable amount of water and if it should be ordered shut in by the New Mexico Oil Conservation Commission due to overproduction then it would probably be detrimental to the well with probable complete loss of gas production. It would probably be advantageous to request permission for an exception to the rules from the New Mexico Oil Conservation Commission to allow the Repollo #1 to continue to produce at all times. The Commission granted an exception to the rules in 1952 to allow it to continue to produce for a one year period when it was overproduced prior to being reclassified as a marginal well.

As you have requested in the past, the Repollo #1 well will be left producing into our system until we are notified otherwise.

Yours truly,

EL PASO NATURAL GAS COMPANY

*[Signature]*  
 D. B. Gillett  
 Dispatching Department

DBG:bjc

bcc: KAS, WHP, FSW, Central File, RTW, File

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COPY

9



1957

**EL PASO NATURAL GAS COMPANY**  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Co. Lease Winningham Well No. 3  
 Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-29-57  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .660 Bar. Pressure 13.2  
 $n_1$  from Previous Test: 1.000 Date of Previous Test: 7-22-55

| FLOW DATA |              |                 |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |              |                 |                |                |             | 266/275/272    |             |                |             | 24/48/72                   |
| 1.        | 4 x 1.250    |                 | 187            | 11.56          | 66          | 189            |             |                |             |                            |
| 2.        |              |                 |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 48.08            |                  | .9943                         | .9535                      | 1.018                           | 448                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{83.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{40.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{70.3}{42.3} = 1.662 = B$$

$$\log B = \underline{\quad\quad\quad} \times (n_1) \underline{1.000} = \underline{\quad\quad\quad}; \text{Antilog} = \underline{1.662} = B^{n_t}$$

$$Q = \underline{448} \times (B^{n_t}) \underline{1.662} = \underline{745} = D_t$$

$n_t$  = Slope of Wellhead Deliverability

Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 24 hour period, PSIA

$F_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name Jack F. Littlefield

Position \_\_\_\_\_

Witnessed by:

Name Earl G. Smith

Company El Paso Natural Gas Company

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

10

1958

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease Winningham Well No. 3  
Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
Pool Jalmat Type Well Single Date of Test 9-15/9-19/58  
Producing Thru: Casing \_\_\_\_\_ Tubing I Gravity .686 Bar. Pressure 13.2  
nt from Previous Test: .771 Date of Previous Test: 3-14-58

| FLOW DATA |                                 |                                         |                |                         | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |             |
|-----------|---------------------------------|-----------------------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|----------------------------|-------------|
| No.       | <del>Flow</del><br>Line<br>Size | <del>Flow</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig |                            | Temp.<br>°F |
| Shut-in   |                                 |                                         |                |                         |             | 200-82-12      |             | 249-256-261    |                            | 24-48-72    |
| 1.        | 4" x 1.250                      |                                         | 108            | 28.09                   | 76          | 121            |             |                |                            | 24          |
| 2.        |                                 |                                         |                |                         |             |                |             |                |                            |             |

| No. | Coefficient<br>FLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | <u>9.643</u>                     | <u>58.35</u>     |                  | <u>.9850</u>                           | <u>.9352</u>                        | <u>1.011</u>                           | <u>525</u>                               |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{75.2}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{18.0}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{62.4}{57.2} = 1.091 = B$$

$$\log B = .0378248 \times (n_t) .771 = .0291629 ; \text{Antilog} = 1.070 = B^{n_t}$$

$$Q = \underline{525} \times (B^{n_t}) 1.070 = \underline{562} = D_t$$

Unit Size 1.50  
Meter Station 60-836

I hereby swear and affirm that the information given above is true and correct.

Name J. B. Murray  
Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

1959

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease Winningham Well No. 3  
Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
Pool Jalnet Type Well Single Date of Test 1-16-59  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .679 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .771 Date of Previous Test: 9-19-58

| FLOW DATA |                        |                            |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|------------------------|----------------------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Proven<br>Line<br>Size | Shut-in<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                        |                            |                |                |             | 208-213-210    |             |                |             | 24-48-72                   |
| 1.        | 4 x 1.250              |                            | 78             | 63.56          | 64          | 85             |             |                |             | 24                         |
| 2.        |                        |                            |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                            | 63.03            |                  | .9962                         | .9400                      | NIL.                            | 570                                      |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{51.2}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{9.6}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{38.4}{41.6} = .9231 = B$$

$$\log B = \underline{9.9652488-10} \times (n_t) \underline{.771} = \underline{9.9732068-10} : \text{Antilog} = \underline{.9402} = B^{n_t}$$

$$Q = \underline{570} \times (B^{n_t}) \underline{.9402} = \underline{536} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability  
Pressure ( $P_d$ ), MCF/Day

Unit Size 1.50  
Meter Station No. 60-836

I hereby swear and affirm that the  
information given above is true and  
correct.

Name H.H. Kerby

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

12

1957

Pool Jalmat Yates Lea  
 Initial X Date 3-6/3-13-59  
 Company R. Olsen Oil Company Winningham Well No. 3  
 Unit I Sec. 30 25 37 El Paso Natural Gas Company  
 Basin 7 20 2664  
 Taping 24 6.5 3083 3052 To 3082  
 Gas day: from 3052 3082 3052 .679 = 2072 bar. press 13.2  
 receiving tank: X Single  
 Series Standard G.C. or U. S. Fuel

| Start Date | Time    | End Date | Time | Well No. | Type | Line Size | Orifice Size | Static Press. | Differ-ential | Flow Temp. |
|------------|---------|----------|------|----------|------|-----------|--------------|---------------|---------------|------------|
| 3-9        | 1:00 P. | 3-10     | 1:00 | 24       | Flg. | 4         | 1.250        | 113.2         | 30.25         | 71         |

| Static Pressure<br>psia | Differential<br>psia | Flow Temperature<br>°F | Flow Factor<br>Q | Factor<br>F | Compressibility<br>F <sub>pv</sub> | Rate of Flow<br>Q = 15.025 psia |
|-------------------------|----------------------|------------------------|------------------|-------------|------------------------------------|---------------------------------|
| 113.2                   | 30.25                | 58.52                  | 9.643            | .9400       | .9896                              | 1.010                           |

| FLOW DATA |      |          |           |              |                        |                         |                 |
|-----------|------|----------|-----------|--------------|------------------------|-------------------------|-----------------|
| Date      | Time | Well No. | Line Size | Orifice Size | Static Pressure (psia) | Working Pressure (psia) | Flow Temp. (°F) |
| 3-10      | 1:00 | 3-11     | 24        | 203.2        | 130.2                  |                         |                 |
|           |      | 3-12     | 48        | 209.2        |                        |                         |                 |
|           |      | 3-13     | 72        | 205.2        |                        |                         |                 |

$$P_w^2 = (130.2)^2 + (5.866 \times 530.1)^2 (.133) = 18.3$$

| SUMMARY |               |
|---------|---------------|
| $P_c =$ | 209.2 psia    |
| $Q =$   | 530.1 MCF/La. |
| $P_w =$ | 135.3 psia    |
| $P_o =$ | 167.4 psia    |
| $L =$   | 366.1 MCF/La. |
| $=$     | 9.83928-10 +  |

|             |       |             |            |             |       |             |       |
|-------------|-------|-------------|------------|-------------|-------|-------------|-------|
| $P_w$       | 135.3 | $P_c$       | 209.2      | $P_o$       | 167.4 | $P_o - P_w$ | .6467 |
| $P_o - P_w$ | .3533 | $P_o - P_c$ | 1.6467     | $P_o - P_o$ | .5818 | $P_o - P_o$ | .5818 |
| $P_o - P_o$ | .6188 | $P_o - P_o$ | 9.79155-10 | $P_o - P_o$ | .771  | $P_o - P_o$ | .771  |

Company El Paso Natural Gas Company Log # 2.72436  
 Address P. O. Box 1384, Jal, New Mexico Log # 12.56364-10  
 Agent and Title John Wailing Gas Tester  
 Witness El Paso Natural Gas Company Log # 366.1 = D

13



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May 21, 1959

Gentlemen:

|                        |                                        |                                  |
|------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER | LOGGED OFF                             | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD    | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

Remarks: This will confirm our Mr. Stanke's telephone conversation with your office May 15, 1959. Mr. Stanke advised your office that the above well was found apparently logged off with 21 1/2" and would need to be relogged before normal production could be obtained.

Yours truly,

i. y. Paran

Dispatching Department

cc: A. A. Source  
F. M. Woodruff  
R. T. Wright  
Central File  
File ✓

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## El Paso Natural Gas Company

El Paso, Texas

July 29, 1959

|           |  |
|-----------|--|
| Mr. L. B. |  |
| Mr. J. B. |  |
| Mr. C. B. |  |
| Mr. D. B. |  |
| Mr. E. B. |  |
| Mr. F. B. |  |
| Mr. G. B. |  |
| Mr. H. B. |  |
| Mr. I. B. |  |
| Mr. J. B. |  |
| Mr. K. B. |  |
| Mr. L. B. |  |
| Mr. M. B. |  |
| Mr. N. B. |  |
| Mr. O. B. |  |
| Mr. P. B. |  |
| Mr. Q. B. |  |
| Mr. R. B. |  |
| Mr. S. B. |  |
| Mr. T. B. |  |
| Mr. U. B. |  |
| Mr. V. B. |  |
| Mr. W. B. |  |
| Mr. X. B. |  |
| Mr. Y. B. |  |
| Mr. Z. B. |  |

Given via, Incorporated  
 341,  
 New Mexico

Gentlemen:

We are unable to produce your Leasing 1 30-25-37  
 LEASE NO. UNIT S. T. R.  
 in the Leasing for the following reason:  
 POOL

|                        |                                        |                                  |
|------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER | LOGGED OFF                             | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD    | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

When this situation is corrected and the well is ready to be produced, please contact this office.

Remarks: This will confirm telephone conversation between our Mr. Stankovic and your Miss Mary Jo Morris on July 24, 1959. Mr. Stankovic advised Miss Morris that the above well was apparently logged off with fluid. Please notify this office when the well has been unloaded.

Thank you for your cooperation.

Yours truly,

EL PASO NATURAL GAS COMPANY

ELP:je  
 cc. F. A. Pearce  
 E. N. Woodruff  
 R. T. Wright  
 Central File  
 File

Dispatching Department

R. L. Pagan

15  
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HIGH PRESSURE GAS WELL TEST REPORT

June 9, 1950

Operator: R. Olsen

Well Name and Number: Repalle #1

Location: Section 28-25-37; 1900 N & 660 W; SW/4 NW/4

Shut-in Pressure, PSIG: 866

Open Flow, MCFPD 6,000

How Tested: Open Type Pitot Tube, through 2" casing. 660' on casing after blowing two hours.

Volume @ PSIG W.P., MCFPD

H<sub>2</sub>S, gr./100 cf.: 0.612

GPM (13.2 P.B.): 0.176

Acid Gases, % by Volume: 1.5

Approximate amount of pipe required to tie into our High Pressure System: 100 feet.

Remarks: This well is still making a considerable amount of water after being blown several hours at different times. After being shut-in several days, it accumulates so much water it unloads slowly. This would lead us to believe that formation water is present, but after running a test on a water sample, we found it contained only 7 parts per million chloride. The operators believe that it is water they pumped into the formation to kill the well at the time of drilling.

This well is included in our present high pressure contract coverage.

B. L. Kite (R.W.)  
B. L. Kite

cc: CLP, HES, DHT, EAS, GSK,  
JAE, JTE, WTB, EAB, JRC,  
JCO, R. Olsen, File

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Mr. D. H. Tucker

June 28, 1950

G. E. Kendrick

Jal Division Office

Re: R. Olsen Oil Company - Repollo No. 1

We are proceeding with arrangements to tie this well into our high pressure system and should have it tied in by July 18, 1950.

I will mention that this well is making water at the present time. If it does not clear up, Olsen should set a separator to take care of this excessive water.

  
G. E. Kendrick

CEK:pd

cc: H. F. Steen  
J. W. Baulch  
File

25  
ILLEGIBLE



G. E. Kendrick

August 29, 1951

A. O. Shiplet

Jal Division Office

Re: R. Olsen Repollo #1 Well

As you know, this well has made a large quantity of water since the initial tie-in to our High Pressure Gathering System. R. Olsen set a Parkersburg Hydroceptor to eliminate water getting into our system.

On March 13, 1951, this well was shut-in due to the inability of the Hydroceptor to eliminate water from our system. R. Olsen's Jal Office (Mr. French) was notified by telephone the same date.

On April 23, 1951, our office was notified by R. Olsen's Mr. French that the Hydroceptor had been repaired. That afternoon our Mr. Kiker and a representative of R. Olsen put the well on. However, after about one (1) hour, the well was turned off due to inability of the Hydroceptor to remove all the water.

R. Olsen's Jal Office (Mr. French, Mr. McColl and Mr. Enos) was notified before the end of each month that the well had not been produced. Also, that the well was getting behind on contract requirement.

On August 9, 1951, R. Olsen's Mr. McColl notified us that a high pressure separator was installed. Our Mr. Kiker put the well on that afternoon, and to date, is still on.

A. O. Shiplet

20  
ILLEGIBLE

Jal, New M do

J 23, 1954

Mr. Howard Olsen  
R. Olsen & Blount  
Drawer "Z"  
Jal, New Mexico

Dear Sir:

This will confirm our telephone conversation on June 23, 1954, regarding a shutdown at our Jal No. 3 Plant.

As stated our Jal No. 3 Plant will go off at 6:00 A.M. June 24, 1954, for approximately ten to twelve hours. During this period of time our Intermediate Gathering System will be off. Therefore we request you make necessary arrangements on your Repollo #1 well to prevent it logging off during this time.

Yours truly,  
EL PASO NATURAL GAS COMPANY

---

A. O. Shiplet

AOS:eeh  
cc:EAS, GEK,  
VMP, File ✓

22

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Personal Lease Repollo Well No. 1  
Unit \_\_\_\_\_ Sec. 28 Twp. 25 S Rge. 37 E County Lea  
Pool Jalnat Type Well Single Date of Test 12-2-55  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .650 Bar. Pressure 113.2  
n<sub>t</sub> from Previous Test: 1.000 Date of Previous Test: 5-29-53

| FLOW DATA |                         |                                 |                |                         |             | TUBING DATA    |             | CASING DATA      |             | Duration<br>of Flow<br>Hr. |
|-----------|-------------------------|---------------------------------|----------------|-------------------------|-------------|----------------|-------------|------------------|-------------|----------------------------|
| No.       | <del>Line</del><br>Size | <del>x</del><br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | * Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                         |                                 |                |                         |             |                |             | 750 *            |             |                            |
| 1.        | 4                       | x 1,000                         | 217            | 26.01                   | 58          |                |             | 225              |             | 24                         |
| 2.        |                         |                                 |                |                         |             |                |             |                  |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 6.135                    | 77.35            |                  | 1.0019                                 | .9608                               | 1.023                                  | 468                                      |
| 2.  |                          |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

\* This shut-in pressure assumed.  
Unable to shut-in well  
because of water  
production.

n<sub>t</sub> = Slope of Wellhead Deliverability  
Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

D<sub>t</sub> = Wellhead Deliverability at Delivera-  
bility Pressure (P<sub>d</sub>), MCF/Day

$$P_c^2 = 582.4$$

$$P_d^2 = 12.8$$

$$P_t^2 = 56.7$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{569.6}{525.7} = 1.083 = B$$

$$\log B = \log 1.083 = 0.034$$

$$Q = 468 \times (B^{n_t})^{1.000} = 507 = D_t$$

I hereby swear and affirm that the  
information given above is true and  
correct.

Name C. M. Cole

Position Gas Engineer

Witnessed by:

Name Earl G. Smith

Company EPNG

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

# El Paso Natural Gas Company

El Paso, Texas

March 25, 1955

Mr. Everett D. Legg  
R. Olson  
Drawer 720  
Jal., New Mexico

Dear Sir:

This will confirm my telephone conversation with you on March 25, 1955.

As stated, our Jal No. 3 Plant will go off at 9:00 A.M. (MST) March 28, 1955, for approximately thirty minutes. Then again on April 1, 1955, at 9:00 A.M. (MST) for approximately two (2) hours. During these periods of time the pressure on our Intermediate Outlying System will rise.

We are notifying you in order that you may vent your Repollo No. 1 Gas Well if you so desire.

Yours truly,

EL PASO NATURAL GAS COMPANY

---

A. D. Shipley

LOS:ju  
cc: R. T. Wright  
G. R. Hendrick  
File ✓

ILLEGIBLE

COPY



EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Per. Lease Repollo Well No. 1  
 Unit \_\_\_\_\_ Sec. 28 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 4-15-57 ✓  
 Producing Thru: Casing X Tubing \_\_\_\_\_ Gravity .650 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 12-2-55

| No.     | FLOW DATA        |                    |             |             |           | TUBING DATA |          | CASING DATA |          | Duration of Flow Hr. |
|---------|------------------|--------------------|-------------|-------------|-----------|-------------|----------|-------------|----------|----------------------|
|         | Prover Line Size | Choke Orifice Size | Press. psig | Diff. $h_w$ | Temp. °F  | Press. psig | Temp. °F | Press. psig | Temp. °F |                      |
| Shut-in |                  |                    |             |             |           |             |          |             |          |                      |
| 1.      | <u>4 X 1.000</u> |                    | <u>232</u>  | <u>1.00</u> | <u>72</u> |             |          | <u>232</u>  |          | <u>24</u>            |
| 2.      |                  |                    |             |             |           |             |          |             |          |                      |

| No. | Coefficient (24-Hour) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|-------------------------|----------------------|---------------------------|------------------------------------|
| 1.  | <u>6.135</u>          | <u>15.65</u>     |               | <u>.9887</u>            | <u>.9608</u>         | <u>1.022</u>              | <u>93</u>                          |
| 2.  |                       |                  |               |                         |                      |                           |                                    |

\* Unable to shut-in well because of water production

$$D_t = Q \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} n_t$$

$$P_c^2 = \underline{\hspace{2cm}}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{\hspace{2cm}}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = B$$

$$\log B = \underline{\hspace{2cm}} \times (n_t) \underline{\hspace{2cm}} = \underline{\hspace{2cm}}; \text{ Antilog} = \underline{\hspace{2cm}} = B^{n_t}$$

$$Q = \underline{\hspace{2cm}} \times (B^{n_t}) \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )  
 $Q$  = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$   
 $P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA  
 $P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia  
 $P_d$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)  
 $D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name Jack T. Littlefield  
 Position \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen (Pers) Lease Repollo Well No. 1  
 Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 1-31/2-7 1958  
 Producing Thru: Casing X Tubing \_\_\_\_\_ Gravity .665 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 4-15-57

| FLOW DATA |              |                 |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig |                            |
| Shut-in   |              |                 |                |                |             |                |             |                | 24                         |
| 1.        | 4 x 1.250    |                 | 107            | 25.00          | 63          |                |             | 118            | 24-48-72                   |
| 2.        |              |                 |                |                |             |                |             |                |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 54.77            |                  | .9971                         | .9498                      | 1.011                           | 506                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

Compressor was on during test.

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{\hspace{2cm}}$$

$$P_d^2 = \underline{\hspace{2cm}}$$

$$P_t^2 = \underline{\hspace{2cm}}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = B$$

$$\log B = \underline{\hspace{2cm}} \times (n_t) \underline{\hspace{2cm}} = \underline{\hspace{2cm}} ; \text{Antilog} = \underline{\hspace{2cm}} = B^{n_t}$$

$$Q = \underline{\hspace{2cm}} \times (B^{n_t}) \underline{\hspace{2cm}} = \underline{520 \text{ (Approx)}} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield

Position \_\_\_\_\_

Witnessed by:

Name J.B. Murray

Company El Paso Natural Gas Company

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

NOTE: Well cannot be shut-in. Logs off quickly.

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lessee Repollo Well No. 1  
Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
Pool Jalmat Type Well Single Date of Test August 8-15, 1958  
Producing Form: Casing X Tubing \_\_\_\_\_ Gravity .657 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 1-31/2-7, 1958

| FLOW DATA |                                 |                                         |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|-----------------------------------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | <del>Flow</del><br>Line<br>Size | <del>Flow</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig |                            |
| Shut-in   |                                 |                                         |                |                | Not shut-in |                |             |                |                            |
| 1.        | 4 x 1.250                       |                                         | 83             | 30.25          | 82          |                |             | 84             |                            |
| 2.        |                                 |                                         |                |                |             |                |             |                |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 53.89            |                  | .9795                         | .9556                      | 1.000                           | 486                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

Well cannot be shut-in; logs off quickly.

$P_t =$  \_\_\_\_\_

$$\frac{P_c^2 - P_d^2}{P_c^2 - P_t^2}$$

Compressor on during test.

$n_t =$  \_\_\_\_\_

$P_d^2 =$  \_\_\_\_\_

$P_t^2 =$  \_\_\_\_\_

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{1.000}{1.000} = B$$

Log B = \_\_\_\_\_ x  $(n_t)$  1.000 ; Antilog = \_\_\_\_\_ =  $B^{n_t}$

$Q =$  \_\_\_\_\_ x  $(B^{n_t})$  = 460 =  $D_t$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$F_g$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No.: 60-780

I hereby swear and affirm that the information given above is true and correct.

Name R. A. Mikel

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmit Formation Iates - 7 Rivers County LeaInitial \_\_\_\_\_ Annual \_\_\_\_\_ Special X Date of Test 4-18-58Company Jal Oil Company, Inc. Lease Repello Well No. 1Unit E Sec. 28 Twp. 25 Rge. 37 Purchaser El Paso Natural Gas CompanyCasing 7 Wt. 20 I.D. 6.456 Set at 2263 Perf. \_\_\_\_\_ To \_\_\_\_\_Tubing 2 Wt. 4.7 I.D. 1.995 Set at 2403 Perf. \_\_\_\_\_ To \_\_\_\_\_Gas Pay: From 2295 To 2453 L 2403 x G .665 = GL 1598 Bar. Press. 13.2Producing Thru: Casing X Tubing \_\_\_\_\_ Type Well Single

Single-Bradenhead-G. G. or G. O. Dual

Date of Completion: Approximately July 1950 Packer: \_\_\_\_\_

| Flow Data |                                                    |                            |                |             |              | Tubing Data    |              | Casing Data    |              | Duration       |
|-----------|----------------------------------------------------|----------------------------|----------------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|
| No.       | *****<br>Line<br>Size                              | *****<br>x Orifice<br>Size | Press.<br>psig | Diff.<br>hw | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | of Flow<br>Hr. |
| SI        |                                                    |                            |                |             |              | *412.0         |              |                |              | 72             |
| 1.        | 4 X 1.250                                          |                            | 92             | 42.25       | 71           |                |              | 92             |              | 24             |
| 2.        |                                                    |                            |                |             |              |                |              |                |              |                |
| 3.        | * Shut in pressure taken from Tbg. of offset well. |                            |                |             |              |                |              |                |              |                |
| 4.        |                                                    |                            |                |             |              |                |              |                |              |                |
| 5.        |                                                    |                            |                |             |              |                |              |                |              |                |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w p_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>9.643</u>             |                  | <u>105.2</u>     | <u>0.9896</u>                 | <u>0.9498</u>              |                                 | <u>604</u>                               |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |
| 3.  |                          |                  |                  |                               |                            |                                 |                                          |
| 4.  |                          |                  |                  |                               |                            |                                 |                                          |
| 5.  |                          |                  |                  |                               |                            |                                 |                                          |

Gas Liquid Hydrocarbon Ratio \_\_\_\_\_ Mcf/bbl.

Gravity of Liquid Hydrocarbons \_\_\_\_\_ deg.

 $F_c$  \_\_\_\_\_ (1-e<sup>-s</sup>)

Specific Gravity Separator Gas \_\_\_\_\_

Specific Gravity Flowing Fluid \_\_\_\_\_

 $P_c$  425.2  $P_w^2$  180.7

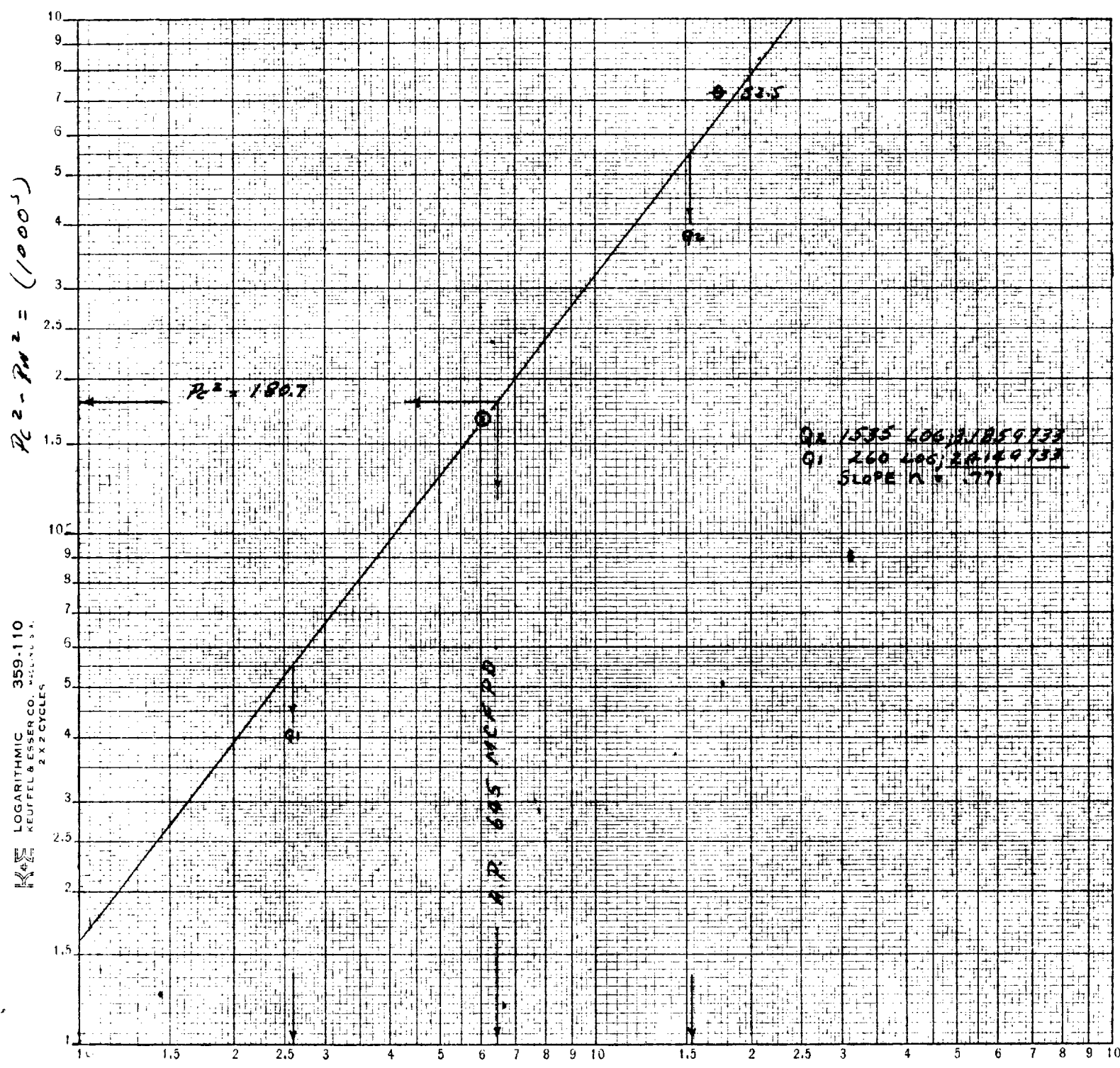
| No. | $\frac{P_w}{P_t}$ (psia) | $p_t^2$     | $p_c^2 - p_t^2$ | $F_c Q$         | $(F_c Q)^2$ | $(F_c Q)^2 (1-e^{-s})$ | $p_w^2$     | $F_c^2 - p_w^2$ |
|-----|--------------------------|-------------|-----------------|-----------------|-------------|------------------------|-------------|-----------------|
| 1.  | <u>105.2</u>             | <u>11.1</u> | <u>169.6</u>    | <u>Negative</u> |             |                        | <u>11.1</u> | <u>169.6</u>    |
| 2.  |                          |             |                 |                 |             |                        |             |                 |
| 3.  |                          |             |                 |                 |             |                        |             |                 |
| 4.  |                          |             |                 |                 |             |                        |             |                 |
| 5.  |                          |             |                 |                 |             |                        |             |                 |

\* Average Jalmit Slope

Wellhead Potential: \_\_\_\_\_ MCFPD;  $\theta_t$  \_\_\_\_\_ ;  $n_t$  \_\_\_\_\_  
Potential: 645 MCFPD;  $\theta$  52.5 ;  $n$  .771Conducted by: Earl G. SmithWitnessed by: J. B. MurrayCalculated by: Jack Whitting



7L OIL COMPANY  
 HEPOLLO No. 1  
 E-28-25-37 LEA CO., NM.  
 4-18-58



LOGARITHMIC 359-110  
 KEUFFEL & ESSER CO. NEW YORK, N.Y.  
 2 X 2 CYCLES

—  $Q = MCFPD$  —

20

# El Paso Natural Gas Company

El Paso, Texas

April 18, 1958

ADDRESS REPLY TO  
P. O. BOX 1304  
EL PASO, TEXAS

Jal Oil Company, Inc.  
Drawer 2  
Jal, New Mexico

Attention: Mr. Dewey Watson

Gentlemen:

With reference to the memorandum dated April 11, 1958 from Mr. A. L. Porter, Jr. of the New Mexico Oil Conservation Commission concerning delinquent multi-point tests in the Jalmat Pool, listed below are wells operated by your company on which we were unable to obtain any test data whatever. This information is being furnished to enable you to make any disposition of subject wells which you deem appropriate. Perhaps you will desire to have these wells exempt from the required multi-point tests. In any event, if the multi-point tests are not reported by June 1, 1958 or an exemption is not obtained on such wells, no allowable will be assigned on the July 1958 Gas Proration Schedule.

Owens No. 1      21-25-36      Produces with a piston lift.

Hepallo No. 1      20-25-37      Unable to shut-in due to water production.

Federal No. 2      31-25-37      Unable to shut-in

Yours truly,

EL PASO NATURAL GAS COMPANY

H. P. Wright

RTH:bm

cc: S. S. C. C. Santa Fe

S. H. C. C. Hobbs

Mr. F. M. Rainey, El Paso Natural Gas Company

Mr. J. W. Haulen, El Paso Natural Gas Company

ILLEGIBLE

EL PASO NATURAL GAS COMPANY  
State of New Mexico  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Pool **Jalmat** Formation **Yates - 7 Rivers** County **Lea**  
 Initial Annual **X** Special Date of test **3-6/3-13-59**  
 Company **Jal Oil Company** Lease **Repollo** Well No. **1**  
 Unit **E** Sec. **28** Twp. **25** Rge. **37** Purchaser **El Paso Natural Gas Company**  
 Casing **7** Wt. **24.0** I.D. Set at **2263** Perf. To  
 Tubing **2** Wt. **4.7** I.D. Set at **2403** Perf. To  
 Gas Pay: From **2295** To **2453** L **2263** x G **.656** = GL **1484** Bar. Press **13.2**  
 Producing Thru: Casing **X** Tubing Type Well **Single**  
 Series **90** Meter Run Packer at Single - Bradenhead-G.G. or G.O. Dual

## FLOW DATA

| Started |         | Taken |         | Duration | Type | Line | Orifice | Static | Differ- | Flow  |
|---------|---------|-------|---------|----------|------|------|---------|--------|---------|-------|
| Date    | Time    | Date  | Time    | Hours    | Taps | Size | Size    | Press. | ential  | Temp. |
| 3-9     | 8:45 AM | 3-10  | 8:45 AM | 24       | Flg. | 4"   | 1.250   | 110.2  | 34.81   | 72    |
|         | PM      |       | PM      |          |      |      |         |        |         |       |

## FLOW CALCULATIONS

| Static Pressure | Differ-entia   | Meter Extension   | 24-Hour Coeff-icient | Gravity Factor | Temp. Factor   | Compress-ability | Rate of Flow         |
|-----------------|----------------|-------------------|----------------------|----------------|----------------|------------------|----------------------|
| Pf              | h <sub>w</sub> | Pf h <sub>w</sub> |                      | F <sub>g</sub> | F <sub>t</sub> | F <sub>pv</sub>  | MCF/Da @ 15.025 psia |
| <b>110.2</b>    | <b>34.81</b>   | <b>61.93</b>      | <b>9.643</b>         | <b>.9564</b>   | <b>.9887</b>   |                  | <b>564.7</b>         |

## SHUT-IN DATA

## FLOW DATA

| Shut-in |      | Press. Taken |      | Duration | Wellhead Pressure      | W.H. Working Pressure                        |
|---------|------|--------------|------|----------|------------------------|----------------------------------------------|
| Date    | Time | Date         | Time | Hours    | (P <sub>c</sub> ) psia | (P <sub>w</sub> ) and (P <sub>t</sub> ) psia |
|         |      |              |      |          | Tubing                 | Casing                                       |
|         | AM   |              | AM   |          |                        |                                              |
|         | PM   |              | PM   |          |                        |                                              |

## FRICTION CALCULATION (if necessary)

$$P_w^2 = (111.2)^2 + (.740 \times 564.7)(.097) = 12.4$$

## SUMMARY

P<sub>c</sub> = **434.2** psia  
 Q = **564.7** MCF/Da.  
 P<sub>w</sub> = **111.2** psia  
 P<sub>d</sub> = **347.4** psia  
 D = **270.7** MCF/Da.

## DELIVERABILITY CALCULATIONS

P<sub>w</sub> **111.2** P<sub>c</sub> **434.2** P<sub>w</sub> + P<sub>c</sub> **.2561**  
 1 - P<sub>w</sub> / P<sub>c</sub> **.7439** 1 + P<sub>w</sub> / P<sub>c</sub> **1.256** 1 - P<sub>w</sub> / P<sub>c</sub> + P<sub>w</sub> / P<sub>c</sub> = M. **.9343**  
 .36 + M **.3853** Log **9.58580 - 10** x (n) **.771** = **9.68065 - 10** +

log Q = **2.75182**log D = **12.43247 - 10**Antilog = **270.7** = D

## REMARKS

\*P<sub>c</sub> was taken from Jal Oil Company Eva Owens #1. Well could not be shut-in due to water logging off

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Repollo Well No. 1  
 Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
 Pool Jalnet Type Well Single Date of Test 3-6/3-13/1959  
 Producing Thru: Casing X Tubing    Gravity    Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 8/15/58

| FLOW DATA |              |                 |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |              |                 |                |                |             |                |             |                |                            |
| 1.        | 4 x 1.250    |                 | 97             | 34.81          | 72          | 98             |             |                | 24                         |
| 2.        |              |                 |                |                |             |                |             |                |                            |

Data Obtained from Deliverability test dated 3-6/3-13/1959

| No. | Coefficient<br>FLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                            | 61.93            |                  | .9887                         | .9564                      | -                               | 565                                      |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 188.5 *$$

$$P_d^2 = 12.8$$

$$P_t^2 = 12.4$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{175.7}{176.1} = 0.9977 = B$$

$$\log B = 9.999000 - 10 \times (n_t) 1.000 = 9.999000; \text{Antilog} = 0.9977 = B^{n_t}$$

$$Q = 565 \times (B^{n_t}) .9977 = 564$$

Unit Size 1.00  
 Meter Station No. 60-780

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name David H. Dyer

Position   

Witnessed by:

Name   

Company   

Name   

Company   

\* Well could not be shut-in. Shut-in pressure taken from Jal Oil Co. - Eva Owens No. 1.

## El Paso Natural Gas Company

El Paso, Texas

July 29, 1959

|          |  |
|----------|--|
| Paulin   |  |
| Shurtlet |  |
| Triller  |  |
| Witt     |  |
| Redding  |  |
| Gordon   |  |
|          |  |
|          |  |

Jal Oil Company  
 Drawer 2  
 Jal, New Mexico

Gentlemen:

We are unable to produce your Rosillo 1 2 23-25-37  
 LEASE NO. UNIT S. T. R.  
 in the Jalant FOOL for the following reason:

|                          |                                        |                                  |
|--------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER   | LOGGED OFF                             | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD<br>X | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

When this situation is corrected and the well is ready to be produced, please contact this office.

Remarks: This will confirm conversation between our Mr. Gordon and your Mr. Ellis on July 27, 1959. Mr. Ellis stated that the above well was shut in July 27, 1959, to build up pressure.

Thank you for your cooperation.

Yours truly,

EL PASO NATURAL GAS COMPANY

*[Signature]*  
 Dispatching Department  
 R. L. Pagan *[Signature]*

ALP:bjc  
 cc: E. A. Pearce  
 E. M. Conner  
 J. L. Wright  
 Central File  
 File

ILLEGIBLE



NEW MEXICO OIL CONSERVATION COMMISSION  
One-point Back Pressure Test for Gas Wells  
(Deliverability)

Form C-123-0  
4-1-54

Pool Jalisco Formation San Juan County Santa Fe  
Initial Annual Special ✓ Date of test 5-16-58  
Company San Juan Co. Lease Ames Well No. 1  
Unit M Sec. 21 Twp. 25 Rge. 37 Purchaser L.H.N.B.  
Casing 5 1/2" Wt. 15.5 I.D. 4.576 Set at 2582 Perf. 4' 11" 11/16" To 2772  
Tubing 2 1/2" Wt. 6.5 I.D. 2.141 Set at 2772 Perf. 2769 To 2772  
Gas Pay: From 2645 To 2772 L 2769 x G 61 = GL 1855 Bar. Press. 13.2  
Producing thru: Casing ✓ Tubing ✓ Type Well dry  
Single- Bradenhead G.G. or G.O. Dual

FLOW DATA

| Started | Time    | Time    | Duration | Type | Line | Orifice | Static | Differ- | Flow  |
|---------|---------|---------|----------|------|------|---------|--------|---------|-------|
| Date    | Time    | Date    | Hours    | Temp | Size | Size    | Press. | ential  | Temp. |
| 5-12-58 | 8:25 AM | 5-12-58 | 24       | 71.6 | 4    | 1.250   | 113.2  | 25.00   | 70    |
|         | PM      |         |          |      |      |         |        |         |       |

FLOW CALCULATIONS

| Static Pressure | Differ-        | Meter     | 24-Hour | Gravity | Temp.  | Compress- | Rate of Flow          |
|-----------------|----------------|-----------|---------|---------|--------|-----------|-----------------------|
| P <sub>r</sub>  | h <sub>w</sub> | Extension | Coeff-  | Factor  | Factor | ability   | MCF/Da. @ 15.025 psia |
| 113.2           | 25.00          | 53.15     | 9.643   | .7463   | .7905  | 1.010     | 985                   |
|                 |                |           |         |         |        |           | Q                     |

SHUT-IN DATA

| Shut-in | Press.  | Duration | Wellhead Pressure      | W.H. Working Pressure                        |
|---------|---------|----------|------------------------|----------------------------------------------|
| Date    | Time    | Hours    | (P <sub>c</sub> ) psia | (P <sub>w</sub> ) and (P <sub>t</sub> ) psia |
| 5-13-58 | 9:25 AM | 24       | 113.2*                 |                                              |
|         | PM      | 48       | 120.2*                 | 227.2                                        |
|         |         | 72       | 125.2*                 |                                              |

FRICTION CALCULATIONS (if necessary)

$$P_w = 51.6 + (8.25)(6.120) = 120.526$$

SUMMARY

P<sub>c</sub> = 125.2 \* psia  
Q = 985 MCF/Da.  
P<sub>w</sub> = 229.4 psia  
P<sub>d</sub> = 340.2 psia  
D = 288 MCF/Da.

DELIVERABILITY CALCULATIONS

$$P_w = 229.4 \quad P_c = 125.2 \quad P_d = 340.2$$

$$1 - \frac{P_w}{P_c} = \frac{1 - \frac{P_w}{P_c}}{1 - \frac{P_d}{P_c}} \left( 1 - \frac{P_w}{P_c} \right) = M$$

$$.36 + M = .5078 \quad \log 2.7056987 - 10 = (n) \quad .771 * *$$

$$= 9.7730891 - 10 +$$

COMPANY San Juan Co.  
ADDRESS San Juan Co.  
AGENT AND TITLE L.D. Southam  
WITNESSED D.H. Myers  
COMPANY San Juan Co.

$$\log Q = 2.6857417$$

$$\log D = 12.4588309$$

$$\text{Antilog} = 288 = D$$

REMARKS

The shut-in used to calculate this test was taken from the record of this well (San Juan Co. 1) and the test was run on the same day.

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## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Personal Lease Eva Owen Well No. 1  
 Unit M Sec. 21 Twp. 25 S Rge. 37 E County Lea  
 Pool Jalnet Type Well Single Date of Test 1-13-56  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .670 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .932 Date of Previous Test: 10-4-52

| FLOW DATA |            |              |             |              | TUBING DATA |                    | CASING DATA |             | Duration of Flow Hr. |
|-----------|------------|--------------|-------------|--------------|-------------|--------------------|-------------|-------------|----------------------|
| No.       | Line Size  | Orifice Size | Press. psig | Diff. $h_w$  | Temp. °F    | Press. psig        | Temp. °F    | Press. psig | Temp. °F             |
| Shut-in   |            |              |             | <u>7.4</u>   |             | <u>360/270/212</u> |             |             | <u>24/48/72</u>      |
| 1.        | <u>4 x</u> | <u>1.250</u> | <u>257</u>  | <u>54.76</u> | <u>71</u>   | <u>292</u>         |             |             | <u>24</u>            |
| 2.        |            |              |             |              |             |                    |             |             |                      |

| No. | Coefficient (24-Hour) | $\sqrt{h_w P_w}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|-------------------------|----------------------|---------------------------|------------------------------------|
| 1.  | <u>9.643</u>          | <u>121.59</u>    |               | <u>.9896</u>            | <u>.9463</u>         | <u>1.028</u>              | <u>1,129</u>                       |
| 2.  |                       |                  |               |                         |                      |                           |                                    |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{199.3}$$

$$P_d^2 = \underline{12.8}$$

$$F_t^2 = \underline{92.5}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{126.5}{46.8} = \underline{2.702} = B$$

$$\log B = \underline{.431685} \times (n_t) \underline{.932} = \underline{.402330}; \text{Antilog} = \underline{2.525} = B^{n_t}$$

$$Q = \underline{1,129} \times (B^{n_t}) \underline{2.525} = \underline{2,851} = D_t$$

$n_t$  = Slope of Wellhead Deliverability Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if flowing thru tubing and vice versa), psia

$F_g$  = Deliverability Pressure (113.2 psia for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Deliverability Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the information given above is true and correct.

Name C. M. Cole  
C. M. Cole  
 Position Gas Engineer

Witnessed by:

Name Earl G. Smith

Company EPNG

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen Oil Company Lease S. R. Cooper Well No. 1  
 Unit H Sec. 23 Twp. 24 Rge. 36 County Lee  
 Pool Jalnet Type Well Single Date of Test 2-20/2-27-59  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .666 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .878 Date of Previous Test: 9-19-58

**Data from Deliverability Test 2-20/2-27-59**

| FLOW DATA |                          |                               |                |                | TUBING DATA |                    | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------------------|-------------------------------|----------------|----------------|-------------|--------------------|-------------|----------------|----------------------------|
| No.       | Pressure<br>Line<br>Size | Choke<br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig     | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |                          |                               |                |                |             | <u>642-671-666</u> |             |                | <u>21-48-72</u>            |
| 1.        | <u>4 X .750</u>          |                               | <u>227</u>     | <u>1.96</u>    | <u>63</u>   | <u>239</u>         |             |                | <u>24</u>                  |
| 2.        |                          |                               |                |                |             |                    |             |                |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>3.435</u>                     | <u>21.70</u>     |                  | <u>.9971</u>                  | <u>.9491</u>               | <u>1.024</u>                    | <u>72</u>                                |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{468.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{63.6}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{455.3}{404.5} = 1.126 = B$$

$$\log B = .0515384 \times (n_t) .878 = .0452507; \text{Antilog} = 1.110 = B^{n_t}$$

$$Q = 72 \times (B^{n_t}) 1.110 = 801 = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 12 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

Unit Size: 1.00  
Meter Station No.: 60-800

I hereby swear and affirm that the  
information given above is true and  
correct.

Name H. H. Kerby  
 Position \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

**BEFORE EXAMINER UTZ**  
 OIL CONSERVATION COMMISSION  
 Name UTZ EXHIBIT NO. 23  
 CASE NO. 1778-1779

HIGH PRESSURE GAS WELL TEST REPORT

June 9, 1950

Operator: R. Olson

Well Name and Number: Repalle #1

Location: Section 23-24-37; 1900 N & 640 W; SW/4 NW/4

Shut-in Pressure, PSIG: 865  
Open Flow, MCFPD 6,000

How Tested: Open Type Pitot Tube, through 2" on tubing. 660' on casing after blowing two hours.

Volume @ PSIG W.P., MCFPD

H<sub>2</sub>S, gr./100 cf.: 0.612

GPM (13.2 P.B.): 0.176

Acid Gases, % by Volume: 1.5

Approximate amount of pipe required to tie into our High Pressure System: 100 feet.

Remarks: This well is still making a considerable amount of water after being blown several hours at different times. After being shut-in several days, it accumulates so much water it unloads slowly. This would lead us to believe that formation water is present, but after running a test on a water sample, we found it contained only 7 parts per million chloride. The operators believe that it is water they pumped into the formation to kill the well at the time of drilling.

This well is included in our present high pressure contract acreage.

D. L. Kite (B.W.)  
D. L. Kite

cc: CJP, HPS, DHT, EAS, GHE,  
JMS, JTH, WTH, RAB, JRS,  
JOD, R. Olson, File

ILLEGIBLE

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
Ans. EXHIBIT NO. 25  
CASE NO. 1778-1779

Mr. D. H. Tucker

June 28, 1950

G. E. Kendrick

Jal Division Office

Re: R. Olsen Oil Company - Repollo No. 1

X We are proceeding with arrangements to tie this well into our high pressure system and should have it tied in by July 18, 1950.

I will mention that this well is making water at the present time. If it does not clear up, Olsen should set a separator to take care of this excessive water.

  
G. E. Kendrick

GEK:pd

cc: H. F. Steen  
J. W. Baulch  
File

ILLEGIBLE



G. E. Kendrick

August 29, 1951

A. O. Shiplet

Jail Division Office

Re: R. Olsen Repollo #1 Well

As you know, this well has made a large quantity of water since the initial tie-in to our High Pressure Gathering System. R. Olsen set a Farmanberg Hydroceptor to eliminate water getting into our system.

On March 23, 1951, this well was shut-in due to the inability of the Hydroceptor to eliminate water from our system. R. Olsen's Jail Office (Mr. French) was notified by telephone the same date.

On April 23, 1951, our office was notified by R. Olsen's Mr. French that the Hydroceptor had been repaired. That afternoon our Mr. Miller and a representative of R. Olsen put the well on. However, after about one (1) hour, the well was turned off due to inability of the Hydroceptor to remove all the water.

R. Olsen's Jail Office (Mr. French, Mr. McColl and Mr. Enos) was notified before the end of each month that the well had not been produced since, that the well was getting behind on contract requirements.

On August 9, 1951, R. Olsen's Mr. McColl notified us that a high pressure separator was installed. Our Mr. Miller put the well on that afternoon, and to date, is still on.

A. O. Shiplet

ILLEGIBLE

Jal, New M co

June 23, 1954

Mr. Howard Olsen  
R. Olsen & Blount  
Drawer "Z"  
Jal, New Mexico

Dear Sir:

This will confirm our telephone conversation on June 23, 1954, regarding a shutdown at our Jal No. 3 Plant.

As stated our Jal No. 3 Plant will go off at 6:00 A.M. June 24, 1954, for approximately ten to twelve hours. During this period of time our Intermediate Gathering System will be off. Therefore we request you make necessary arrangements on your Hecolite #1 well to prevent it logging off during this time.

Yours truly,  
EL PASO NATURAL GAS COMPANY

A. O. Shiplet

AOS:seh  
cc:EAS, GBK,  
VMP, File

ILLEGIBLE

## EL PASO NATURAL GAS COMPANY

## MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Personal Lease Repollo Well No. 1  
 Unit \_\_\_\_\_ Sec. 28 Twp. 25 S Rge. 37 E County Las  
 Pool Jalnat Type Well Single Date of Test 12-2-53  
 Producing Thru: Casing \_\_\_\_\_ Tubing I Gravity .650 Bar. Pressure 13.2  
 n<sub>t</sub> from Previous Test: 1.000 Date of Previous Test: 5-29-53

| FLOW DATA |                                 |                                            |                |                         |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|---------------------------------|--------------------------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | <del>Line</del><br>Line<br>Size | <del>Orifice</del><br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                                 |                                            |                |                         |             |                |             | 750 *          |             |                            |
| 1.        | 4                               | x 1,000                                    | 217            | 26.01                   | 58          |                |             | 225            |             | 24                         |
| 2.        |                                 |                                            |                |                         |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 6.135                    | 77.35            |                  | 1.0019                                 | .9608                               | 1.023                                  | 468                                      |
| 2.  |                          |                  |                  |                                        |                                     |                                        |                                          |

\* This shut-in pressure assumed.  
 Unable to shut-in well  
 because of water  
 production.

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 582.4$$

$$P_d^2 = 12.8$$

$$P_t^2 = 56.7$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{569.6}{525.7} = 1.083 = B$$

$$\text{Log } B = \text{_____} \times (n_t) \frac{1.000}{\text{_____}} = \text{_____}; \text{Antilog} = 1.083 = B^{n_t}$$

$$Q = 468 \times (B^{n_t}) \frac{1.083}{\text{_____}} = 507 = D_t$$

n<sub>t</sub> = Slope of Wellhead Deliverability  
 Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
 Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
 a 48 hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
 flowing thru tubing and vice versa),  
 psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
 for Minimum Contract Requirements)

D<sub>t</sub> = Wellhead Deliverability at Delivera-  
 bility Pressure (P<sub>d</sub>), MCF/Day

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name C. M. Cole

Position C. M. Cole  
Gas Engineer

Witnessed by:

Name Earl Q. Smith *EQS*

Company EPNG

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

# El Paso Natural Gas Company

El Paso, Texas

March 25, 1935

Mr. Kenneth D. Legg  
R. Olson  
Denver 21  
Cal., New Mexico

Dear Sir:

This will confirm my telephone conversation with you on March 25, 1935.

As stated, our Cal No. 3 Plant will go off at 9:00 A.M. (MST) March 26, 1935, for approximately thirty minutes. Then again on April 1, 1935, at 9:00 A.M. (MST) for approximately two (2) hours. During these periods of time the pressure on our Intermediate Gathering System will rise.

We are notifying you in order that you may vary your Nozzle No. 3 Gas Well if you so desire.

Yours truly,

EL PASO NATURAL GAS COMPANY

A. D. Shipley

cc: R. T. Wright  
C. E. Kendrick  
File

ILLEGIBLE

COPY

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen, Per. Lease Repollo Well No. 1  
 Unit \_\_\_\_\_ Sec. 28 Twp. 25 Rge. 37 County Lee  
 Pool Jalnet Type Well Single Date of Test 4-25-57  
 Producing Thru: Casing I Tubing \_\_\_\_\_ Gravity .650 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 12-2-55

| FLOW DATA |                        |                               |                |                         |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|------------------------|-------------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Prover<br>Line<br>Size | Choke<br>x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                        |                               |                |                         |             |                |             |                |             |                            |
| 1.        | 4 X 1.000              |                               | 232            | 1.00                    | 72          |                |             | 232            |             | 24                         |
| 2.        |                        |                               |                |                         |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{k_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | <u>6.135</u>             | <u>15.65</u>     |                  | <u>.9887</u>                  | <u>.9608</u>               | <u>1.022</u>                    | <u>91</u>                                |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

\* Unable to shut-in well because of water production

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{\hspace{2cm}}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{\hspace{2cm}}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = B$$

$$\log B = \underline{\hspace{2cm}} \times (n_t) = \underline{\hspace{2cm}}; \text{ Antilog} = \underline{\hspace{2cm}} = B^{n_t}$$

$$Q = \underline{\hspace{2cm}} \times (B^{n_t}) = \underline{\hspace{2cm}} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$E_d$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield

Position Jack T. Littlefield

EL PASO NATURAL GAS COMPANY

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_



EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company R. Olsen (Pers) Lease Repollo Well No. 1  
 Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 1-31/2-7 1958  
 Producing Thru: Casing X Tubing \_\_\_\_\_ Gravity .665 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 4-15-57

| FLOW DATA |              |                 |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|--------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |              |                 |                |                |             |                |             |                |             | 24                         |
| 1.        | 4 x 1.250    |                 | 107            | 25.00          | 63          |                |             | 118            |             | 24-48-72                   |
| 2.        |              |                 |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 54.77            |                  | .9971                         | .9498                      | 1.011                           | 506                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

**Compressor was on during test.**

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{\hspace{2cm}}$$

$$P_d^2 = \underline{\hspace{2cm}}$$

$$P_t^2 = \underline{\hspace{2cm}}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \underline{\hspace{2cm}} = \underline{\hspace{2cm}} = B$$

$$\log B = \underline{\hspace{2cm}} \times (n_t) \underline{\hspace{2cm}} = \underline{\hspace{2cm}} ; \text{Antilog} = \underline{\hspace{2cm}} = B^{n_t}$$

$$Q = \underline{\hspace{2cm}} \times (B^{n_t}) \underline{\hspace{2cm}} = \underline{520 \text{ (Approx)}} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield

Position Jack T. Littlefield

Witnessed by:

Name J.B. Murray

Company El Paso Natural Gas Company

Name \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

Company \_\_\_\_\_

**NOTE: Well cannot be shut-in. Logs off quickly.**

EL PASO NATURAL GAS COMPANY  
**MINIMUM CONTRACT TEST**  
 (To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Repollo Well No. 1  
 Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
 Pool Jalnat Type Well Single Date of Test August 8-15, 1958  
 Producing Thrst: Casing X Tubing \_\_\_\_\_ Gravity .657 Bar. Pressure 13.2  
 $n_1$  from Previous Test: 1.000 Date of Previous Test: 1-31/2-7, 1958

| FLOW DATA |              |                      |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|--------------|----------------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Line<br>Size | x<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |              |                      |                |                | Not shut-in |                |             |                |                            |
| 1.        | 4 x 1.250    |                      | 83             | 30.25          | 82          |                |             | 84             |                            |
| 2.        |              |                      |                |                |             |                |             |                |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 53.89            |                  | .9795                         | .9556                      | 1.000                           | 486                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

Well cannot be shut-in; logs off quickly.

$$n_1 = \frac{\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_1}}$$

Compressor on during  
test.

$n_1$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs.  $Q$ )

$Q$  = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum shut-in Pressure observed in  
a 48 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (113.2 psia  
for Minimum Contract Requirements)

$L_1$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_1} = \frac{L_1}{Q} = B^{n_1}$$

$$\log B = \frac{\log \left( \frac{L_1}{Q} \right)}{n_1} = \frac{\log \left( \frac{1.000}{486} \right)}{1.000} = \log B^{n_1}$$

$$B = \frac{L_1}{Q} = \frac{1.000}{486} = B^{n_1}$$

Unit Size: 1.00  
 Meter Station No.: 60-780

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name R. A. Mikel

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Jalmat Formation Yates - 7 Rivers County Lea  
 Initial \_\_\_\_\_ Annual \_\_\_\_\_ Special X Date of Test 4-18-58  
 Company Jal Oil Company, Inc. Lease Repello Well No. 1  
 Unit E Sec. 28 Twp. 25 Rge. 37 Purchaser El Paso Natural Gas Company  
 Casing 7 Wt. 20 I.D. 6.456 Set at 2263 Perf. \_\_\_\_\_ To \_\_\_\_\_  
 Tubing 2 Wt. 4.7 I.D. 1.995 Set at 2403 Perf. \_\_\_\_\_ To \_\_\_\_\_  
 Gas Pay: From 2295 To 2453 L 2403 x G .665 = GL 1598 Bar. Press. 13.2  
 Producing Thru: Casing X Tubing \_\_\_\_\_ Type Well Single  
 Single-Bradenhead-G. G. or G. O. Dual  
 Date of Completion: Approximately July 1950 Packer: \_\_\_\_\_

| Flow Data |                                                    |                 |                |             |              | Tubing Data    |              | Casing Data    |              | Duration<br>of Flow<br>Hr. |
|-----------|----------------------------------------------------|-----------------|----------------|-------------|--------------|----------------|--------------|----------------|--------------|----------------------------|
| No.       | Line<br>Size                                       | Orifice<br>Size | Press.<br>psig | Diff.<br>hw | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. | Press.<br>psig | Temp.<br>°F. |                            |
| 1.        | <del>4 X 1.250</del>                               |                 | 92             | 42.25       | 71           | 412.0          |              | 92             |              | 72                         |
| 2.        |                                                    |                 |                |             |              |                |              |                |              | 24                         |
| 3.        | * Shut in pressure taken from Tbg. of offset well. |                 |                |             |              |                |              |                |              |                            |
| 4.        |                                                    |                 |                |             |              |                |              |                |              |                            |
| 5.        |                                                    |                 |                |             |              |                |              |                |              |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w p_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    |                  | 105.2            | 0.9896                        | 0.9498                     |                                 | 604                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |
| 3.  |                          |                  |                  |                               |                            |                                 |                                          |
| 4.  |                          |                  |                  |                               |                            |                                 |                                          |
| 5.  |                          |                  |                  |                               |                            |                                 |                                          |

Gas Liquid Hydrocarbon Ratio \_\_\_\_\_ Mcf/bbl.  
 Gravity of Liquid Hydrocarbons \_\_\_\_\_ deg.  
 $F_c$  \_\_\_\_\_ (1-e<sup>-S</sup>)

Specific Gravity Separator Gas \_\_\_\_\_  
 Specific Gravity Flowing Fluid \_\_\_\_\_  
 $P_c$  425.2  $P_c^2$  180.7

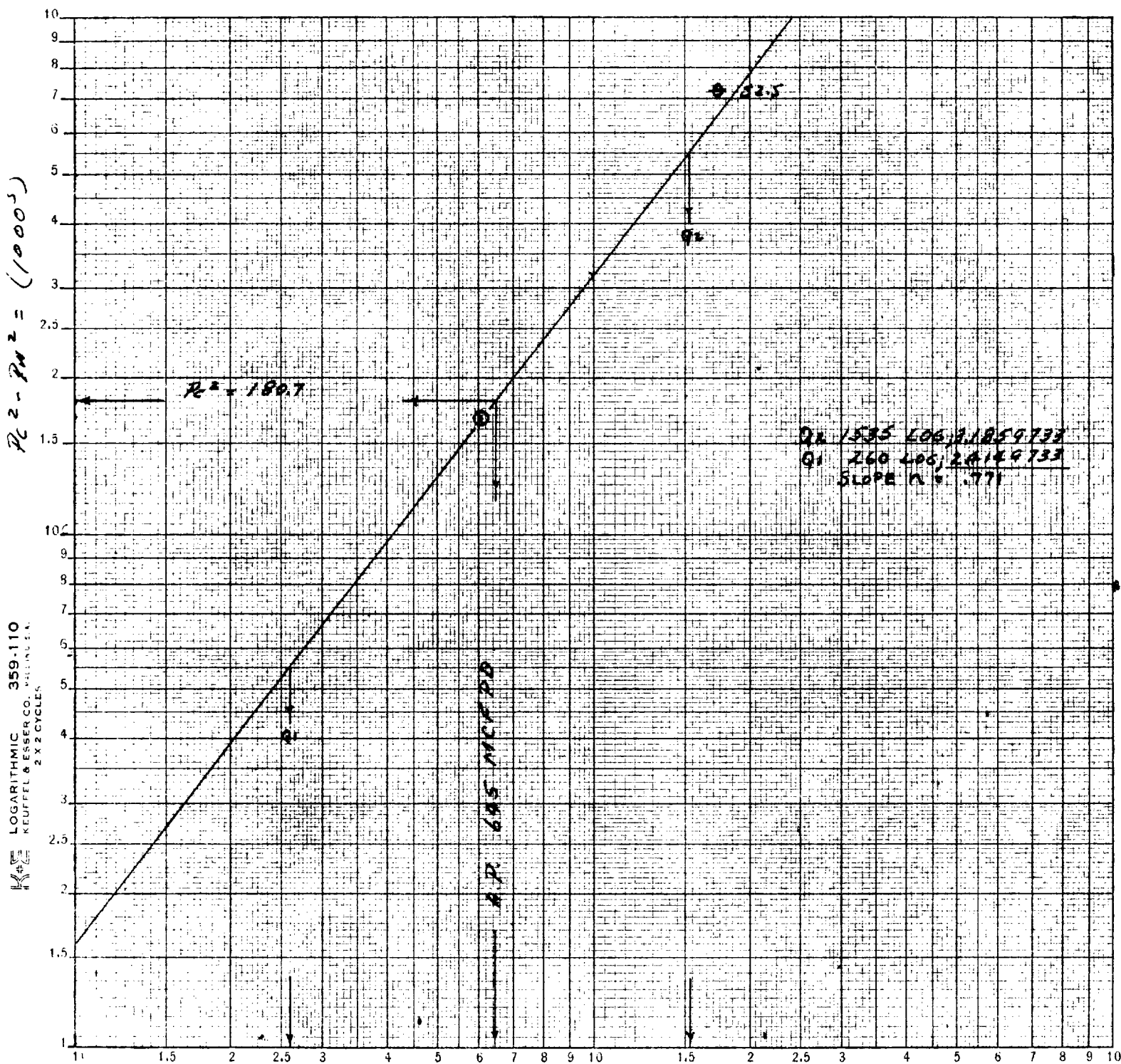
| No. | $P_w$<br>$F_t$ (psia) | $P_t^2$ | $P_c^2 - P_t^2$ | $F_c Q$  | $(F_c Q)^2$ | $(F_c Q)^2 (1-e^{-S})$ | $P_w^2$ | $P_c^2 - P_w^2$ |
|-----|-----------------------|---------|-----------------|----------|-------------|------------------------|---------|-----------------|
| 1.  | 105.2                 | 11.1    | 169.6           | Negative |             |                        | 11.1    | 169.6           |
| 2.  |                       |         |                 |          |             |                        |         |                 |
| 3.  |                       |         |                 |          |             |                        |         |                 |
| 4.  |                       |         |                 |          |             |                        |         |                 |
| 5.  |                       |         |                 |          |             |                        |         |                 |

\* Average Jalmat Slope

Wellhead Potential: \_\_\_\_\_ MCFPD;  $\theta_t$  \_\_\_\_\_ ;  $n_t$  \_\_\_\_\_  
 Potential: 645 MCFPD;  $\theta$  52.5 ;  $n$  .771

Conducted by: Earl G. Smith  
 Witnessed by: J. B. Murray  
 Calculated by: Jack Whitting

7L OIL COMPANY  
 REPOLLO No. 1  
 E-28-25-37 LEA CO., NM.  
 4-18-58



— Q = MCFPD —

# El Paso Natural Gas Company

El Paso, Texas

April 18, 1958

Oil Company, Inc.  
Drawer 2  
Jal, New Mexico

Attention: Mr. Dewey Watson

Gentlemen:

With reference to the memorandum dated April 11, 1958 from Mr. A. L. Porter, Jr. of the New Mexico Oil Conservation Commission concerning delinquent multi-point tests in the Jalisco Pool, listed below are wells operated by your company on which we were unable to obtain any test data whatever. This information is being furnished to enable you to make any disposition of subject wells which you deem appropriate. Perhaps you will desire to have these wells exempt from the required multi-point tests. In any event, if the multi-point tests are not reported by June 1, 1958 or an exemption is not obtained on such wells, no allowance will be assigned on the July 1958 Gas Production Schedule.

|               |          |                                            |
|---------------|----------|--------------------------------------------|
| Quem No. 1    | 21-25-36 | Produces with a piston lift.               |
| Repelle No. 1 | 26-25-37 | Unable to shut-in due to water production. |
| Federal No. 2 | 31-25-37 | Unable to shut-in                          |

Yours truly,

EL PASO NATURAL GAS COMPANY

R. F. Wright

KTW:cm

cc: N.E.O.C.O. Santa Fe

N.E.O.C.O. Hobbs

Mr. D. A. Rainey, El Paso Natural Gas Company

Mr. J. W. Smith, El Paso Natural Gas Company

ILLEGIBLE

COPY



## EL PASO NATURAL GAS COMPANY

State of New Mexico

One-point Back Pressure Test for Gas Wells  
(Deliverability)

Pool **Jalmat** Formation **Yates - 7 Rivers** County **Lea**  
 Initial Annual **X** Special Date of test **3-6/3-13-59**  
 Company **Jal Oil Company** Lease **Repollo** Well No. **1**  
 Unit **E** Sec. **28** Twp. **25** Rge. **37** Purchaser **El Paso Natural Gas Company**  
 Casing **7** Wt. **24.0** I.D. Set at **2263** Perf. To  
 Tubing **2** Wt. **4.7** I.D. Set at **2403** Perf. To  
 Gas Pay: From **2295** To **2453** L **2263** x G **.656** = GL **1484** Bar. Press **13.2**  
 Producing Thru: Casing **X** Tubing Type Well **Single**  
 Series **90** Meter Run Packer at Single - Bradenhead-G.C. or G.O. Dual

## FLOW DATA

| Started |         | Taken |         | Duration | Type | Line | Orifice | Static | Differ- | Flow  |
|---------|---------|-------|---------|----------|------|------|---------|--------|---------|-------|
| Date    | Time    | Date  | Time    | Hours    | Taps | Size | Size    | Press. | ential  | Temp. |
| 3-9     | 8:45 AM | 3-10  | 8:45 AM | 24       | Flg. | 4"   | 1.250   | 110.2  | 34.81   | 72    |
|         | PM      |       | PM      |          |      |      |         |        |         |       |

## FLOW CALCULATIONS

| Static Pressure | Differ-entia   | Meter Extension   | 24-Hour Coeff-icient | Gravity Factor | Temp. Factor   | Compress-ability | Rate of Flow         |
|-----------------|----------------|-------------------|----------------------|----------------|----------------|------------------|----------------------|
| Pf              | h <sub>w</sub> | Pf h <sub>w</sub> |                      | F <sub>g</sub> | F <sub>t</sub> | F <sub>pv</sub>  | MCF/Da @ 15.025 psia |
| <b>110.2</b>    | <b>34.81</b>   | <b>61.93</b>      | <b>9.643</b>         | <b>.9564</b>   | <b>.9887</b>   |                  | <b>564.7</b>         |

## SHUT-IN DATA

## FLOW DATA

| Shut-in |      | Press. Taken |      | Duration<br>Hours | Wellhead Pressure      |        | W.H. Working Pressure                        |        |
|---------|------|--------------|------|-------------------|------------------------|--------|----------------------------------------------|--------|
| Date    | Time | Date         | Time |                   | (P <sub>c</sub> ) psia |        | (P <sub>w</sub> ) and (P <sub>t</sub> ) psia |        |
|         |      |              |      |                   | Tubing                 | Casing | Tubing                                       | Casing |
|         | AM   |              | AM   |                   | *                      | *      | 111.2                                        |        |
|         | PM   |              | PM   |                   |                        |        |                                              |        |

## FRICTION CALCULATION (if necessary)

$$P_w^2 = (111.2)^2 + (.740 \times 564.7)(.097) = 12.4$$

## SUMMARY

P<sub>c</sub> = **434.2** psia  
 Q = **564.7** MCF/Da.  
 P<sub>w</sub> = **111.2** psia  
 P<sub>d</sub> = **347.4** psia  
 D = **270.7** MCF/Da.

## DELIVERABILITY CALCULATIONS

P<sub>w</sub> **111.2** P<sub>c</sub> **434.2** P<sub>w</sub> + P<sub>c</sub> **.2561**  
 $1 - \frac{P_w}{P_c} = 1 + \frac{P_w}{P_c} = 1.256$   $1 - \frac{P_w}{P_c} = 1.256$   $1 - \frac{P_w}{P_c} = 1.256$   $1 - \frac{P_w}{P_c} = 1.256$   $1 - \frac{P_w}{P_c} = 1.256$   
 $.36 + M = .3853$  Log **9.58580 - 10** x (n) **.771** = M. **.9343**  
 = **9.68065 - 10** +

Company **El Paso Natural Gas Company** Log Q = **2.75182**  
 Address **P. O. Box 1384 - Jal, New Mexico** Log D = **12.43247 - 10**  
 Agent and Title **Jack C. Whiting** Gas Tester  
 Witnessed  
 Company Antilog = **270.7** = D

## REMARKS

Spc was taken from Jal Oil Company Eva Owens #1. Well could not be shut-in due to water logging off well-bore.

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIG)

Company Jal Oil Company Lease Repollo Well No. 1  
Unit E Sec. 28 Twp. 25 Rge. 37 County Lea  
Pool Jalnet Type Well Single Date of Test 3-6/3-13/1959  
Producing Thru: Casing X Tubing    Gravity    Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 8/15/58

| FLOW DATA |           |              |             |             |          | TUBING DATA |          | CASING DATA |          | Duration of Flow<br>Hr. |
|-----------|-----------|--------------|-------------|-------------|----------|-------------|----------|-------------|----------|-------------------------|
| No.       | Line Size | Orifice Size | Press. psig | Diff. $h_w$ | Temp. °F | Press. psig | Temp. °F | Press. psig | Temp. °F |                         |
| Shut-in   |           |              |             |             |          | 421*        |          |             |          |                         |
| 1.        | 4 x 1.250 |              | 97          | 34.81       | 72       | 98          |          |             |          | 24                      |
| 2.        |           |              |             |             |          |             |          |             |          |                         |

Data Obtained from Deliverability test dated 3-6/3-13/1959

| No. | Coefficient<br>FLG.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                            | 61.93            |                  | .9887                         | .9564                      | -                               | 565                                      |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 188.5^2$$

$$P_d^2 = 12.8^2$$

$$P_t^2 = 12.4^2$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{175.7}{176.1} = 0.9977 = B$$

$$\log B = 9.999000 - 10 \times (n_t) 1.000 = 9.999000; \text{Antilog} = 0.9977 = B^{n_t}$$

$$Q = 565 \times (B^{n_t}) .9977 = 564 = D_t$$

Unit Size 1.00  
Meter Station No. 60-780

I hereby swear and affirm that the information given above is true and correct.

Name David H. Dyer

Position   

Witnessed by:

Name   

Company   

Name   

Company   

EL PASO NATURAL GAS COMPANY

\* Well could not be shut-in. Shut-in pressure taken from Jal Oil Co. - Eva Owens No. 1

## El Paso Natural Gas Company

El Paso, Texas

July 29, 1959

|          |  |
|----------|--|
| Paulch   |  |
| Shinlet  |  |
| Fuller   |  |
| Gilbert  |  |
| Hedgcock |  |
| Gordon   |  |
|          |  |
|          |  |

Jal Oil Company  
 Drawer 2  
 Jal, New Mexico

Gentlemen:

We are unable to produce your Repollo 1 S 28-21-37  
 LEASE NO. UNIT S-I-R  
 in the Jalost FOOL for the following reason:

|                          |                                        |                                  |
|--------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER   | LOGGED OFF                             | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD<br>X | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

When this situation is corrected and the well is ready to be produced, please contact this office.

Remarks: This will confirm conversation between our Mr. Gordon and your Mr. Ellis on July 27, 1959. Mr. Ellis stated that the above well was shut in July 27, 1959, to build up pressure.

Thank you for your cooperation.

Yours truly,

EL PASO NATURAL GAS COMPANY

*R. L. Pagan*  
 Dispatching Department  
 R. L. Pagan

NLP:b/c

cc: W. A. Scarsce  
 F. M. Woodruff  
 R. T. Wright  
 Central File  
 File

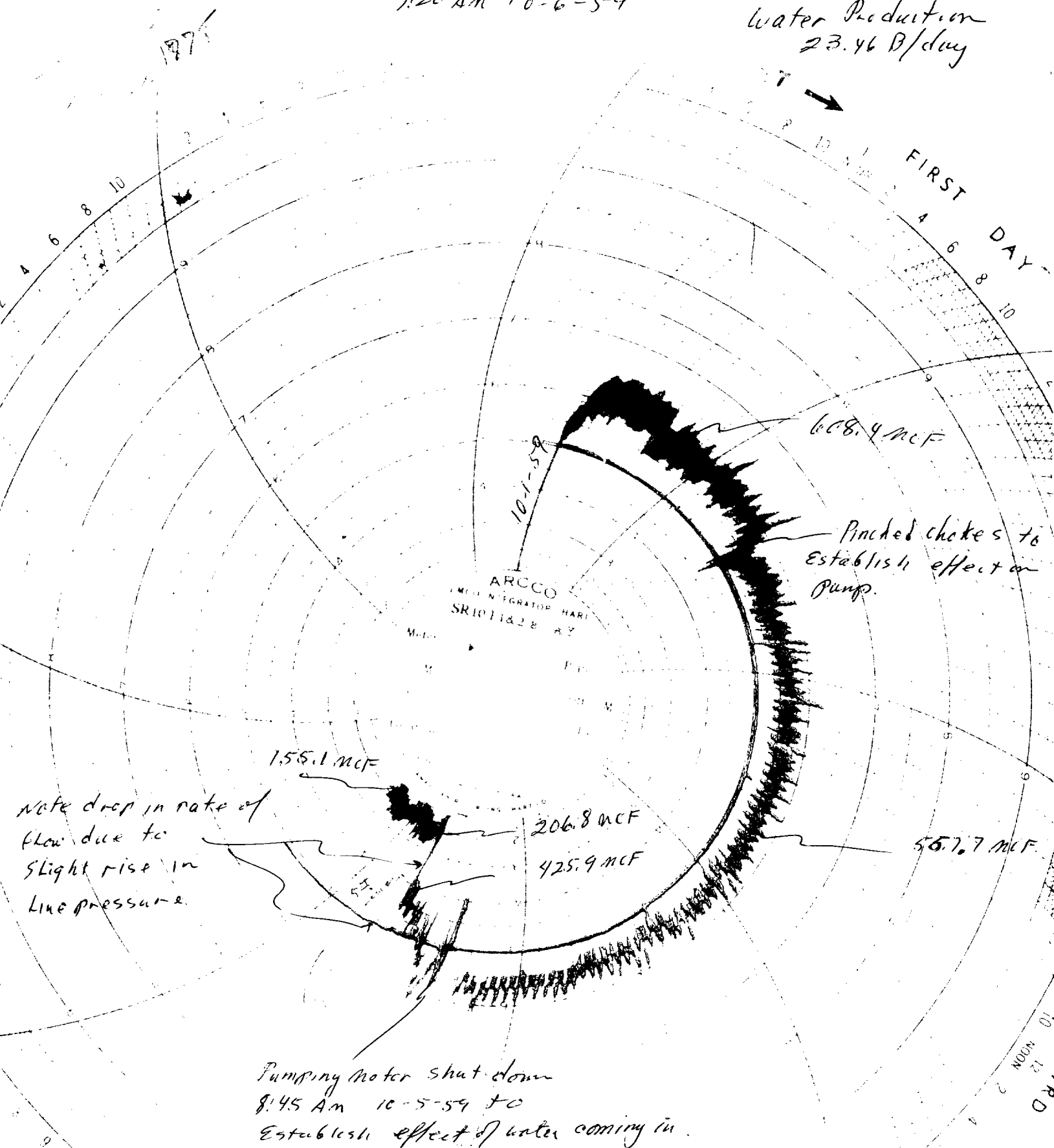
ILLEGIBLE

ILLEGIBLE

Taken off & photostated

7:20 AM 10-6-59

Water Production  
23.46 B/day



OIL CONSERVATION COMMISSION  
HOBBS, NEW MEXICO

August 25, 1954

Mr. R. Olsen  
2808 Liberty Bank Bldg.  
Oklahoma City, Okla.

Re: Deliverability test Repollo #1

Dear Sir:

Due to the fact that your Repollo #1 SW NW Sec. 28-25S-37E, Jelmato Pool, is producing a considerable amount of water as outlined in your letter of August 6, 1954, the Commission exempts the deliverability tests on the above-mentioned well.

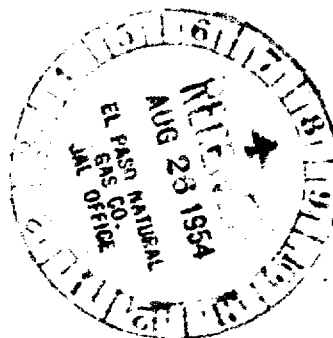
Yours very truly,

OIL CONSERVATION COMMISSION

*S. J. Stanley*  
S. J. Stanley  
Engineer

SJS/hs  
cc- Mr. Elvis Utz-Oil Commission-Santa Fe  
El Paso Natural Gas Company-Jal, New Mexico

|                             |                      |
|-----------------------------|----------------------|
| BEFORE EXAMINER UTZ         |                      |
| OIL CONSERVATION COMMISSION |                      |
| <i>ep</i>                   | EXHIBIT NO. <u>4</u> |
| CASE NO. <u>778-1729</u>    |                      |





OIL CONSERVATION COMMISSION

HOBBS, NEW MEXICO

*Not in oil  
must  
correct*

March 22, 1955

|                             |               |
|-----------------------------|---------------|
| BEFORE EXAMINER UTZ         |               |
| OIL CONSERVATION COMMISSION |               |
| APP.                        | EXHIBIT NO. 5 |
| FILE NO.                    | 1778-1779     |

W. R. Macey  
Oil Conservation Commission  
Box 871  
Santa Fe, New Mexico

RE: R. Olsen, Repollo #1, 28-25-37

Dear Sir:

The operator of the above gas well requests a waiver pertaining to over-production of the 160 acre proration unit as defined in Order R-520. The reason for the request is as follows:

The area in question is water-logged and presents an unusual operating practice for the continued production of gas. With respect to the above well the operator has installed pumping equipment sometime during the month of February, 1955, to "kick-off" the water-logged well. The operator pumped the well, for a period of four weeks prior to a show of gas and finally the well flowed. The well continually produces water with the gas. To maintain gas production an electrical pumping system is being installed at the present time to replace the regular type gas engine to insure a source of fuel whenever water-logging occurs. We have checked the records of the well and find that the Top of the Yates is at 2,292 and the Total Depth is 2,463; thereby plug-back operations are outruled.

The reason that this case has been reviewed in detail is that El Paso Natural Gas Co., may be forced to shut-in the well due to over-production as directed by your office.

The undersigned feels that the shutting-in of the well will cause premature abandonment. Furthermore, it will only be a matter of time whereby economics will cause the well to be plugged and abandoned. The desire of the operator is to extend the over-production rule for a period of one year and I sincerely feel that the waiver should be granted in the interest of conservation and perhaps a recommendation for disposal of the case be initiated.

Yours very truly,

S. J. Stanley  
District Engineer

SJS/jh  
cc: R. Olsen, Oklahoma City  
✓ El Paso Natural Gas, Jal  
O.C.C., Hobbs

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

March 25, 1955

R. OLSEN  
Jal, New Mexico

Dear Sir:

RE: R. Olsen Repollo No. 1,  
Section 28, Twp. 25S, Rge. 37E,  
Jalnat Gas Pool, Lea County, NM

Reference is made to correspondence pertaining to the over-production of gas from the above-captioned well. Permission is hereby granted to produce this well for a one-year period, despite its overproduced status, due to the fact that the well produces a considerable volume of water and it is apparent that if the well is shut in, a considerable amount of waste might result.

Both you and the transporter, El Paso Natural Gas Company, should attempt to produce the well in such a manner that the overproduction is made up as soon as possible.

Yours very truly,

W. B. Macey  
Secretary - Director

WBM:mr

cc: R. Olsen  
Liberty Bank Building  
Oklahoma City

El Paso Natural Gas Company  
Jal, New Mexico

Oil Conservation Commission  
Hobbs

JE

BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

APP. EXHIBIT NO. 6  
CASE NO. 1728-1779

# El Paso Natural Gas Company

El Paso, Texas

July 27, 1959

|                |  |
|----------------|--|
| READ & INITIAL |  |
| Ranish         |  |
| Shirley        |  |
| Miller         |  |
| Gill           |  |
| Hedgcock       |  |
| Gordon         |  |
| ADDRESS REP.   |  |
| JAL NEW MEXICO |  |

Jal Oil Company  
P. O. Box 1744  
Midland, Texas

Gentlemen:

During the months of January through May, 1959, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| <u>WELL NAME</u> | <u>DATE</u> | <u>DAYS</u> | <u>REASON</u>                            |
|------------------|-------------|-------------|------------------------------------------|
| Christmas No. 1  | 4/ 7- 9     | 3           | Shut in-Beliverability Test              |
| Hodges No. 2     | 4/10-16     | 7           | Shut in while offset well being tested   |
| Eva Owens No. 1  | 4/ 1-30     | 30          | Shut in-state regulations (Overproduced) |
| Jenkins No. 2    | 1/18-22     | 5           | Logged off with fluid                    |
| Jenkins No. 2    | 2/ 1-28     | 28          | Logged off with fluid                    |
| Jenkins No. 2    | 3/ 2-31     | 30          | Logged off with fluid                    |
| Jenkins No. 2    | 4/ 1-30     | 30          | Logged off with fluid                    |
| Jenkins No. 2    | 5/ 1- 9     | 9           | Logged off with fluid                    |

Yours very truly,

EL PASO NATURAL GAS COMPANY

ORIGINAL SIGNED

J. W. GAULCH JR.

J. W. Gaulch, Jr.  
Gas Production Engineer

JMB,Jr:bje  
cc: Jal Oil Company - Jal, N. M.  
E. A. Searce  
F. E. Woodruff  
Central File  
File

ILLEGIBLE

|                             |               |
|-----------------------------|---------------|
| BEFORE EXAMINER UTZ         |               |
| OIL CONSERVATION COMMISSION |               |
| APP.                        | EXHIBIT NO. 7 |
| CASE NO. 1728-1729          |               |

COPY

# El Paso Natural Gas Company

El Paso, Texas

April 22, 1959

READ & INITIAL

|          |  |
|----------|--|
| File     |  |
| Shipment |  |
| Order    |  |
| Address  |  |
| Other    |  |

Jal Oil Company  
P. O. Box 1708  
Midland, Texas

Continued:

During the months of February and March, 1959, we were unable to produce the following wells under contract to El Paso Natural Gas Company.

| WELL NAME       | DATE    | DAYS | REASON                                   |
|-----------------|---------|------|------------------------------------------|
| Poolworth No. 1 | 2/24-26 | 3    | Shut in-Deliverability Test              |
| Poolworth No. 1 | 3/1-8   | 8    | El Paso setting separator                |
| Pool No. 1      | 2/24-26 | 3    | Shut in-Deliverability Test              |
| Wright No. 2    | 2/24-26 | 3    | Shut in-Deliverability Test              |
| Gregory No. 2   | 3/11    | 1    | Loss in El Paso line                     |
| Eva Owen No. 1  | 3/1-4   | 4    | Shut in-state regulations (Overproduced) |
| Eva Owen No. 1  | 3/10-12 | 3    | Shut in-Deliverability Test              |
| Eva Owen No. 1  | 3/13-18 | 6    | Shut in-state regulations (Overproduced) |
| Wright No. 2    | 2/24-26 | 3    | Shut in-Deliverability Test              |
| Wright No. 2    | 3/5-8   | 4    | El Paso setting separator                |

Yours very truly,

EL PASO NATURAL GAS COMPANY

ORIGINAL SIGNED

J. W. BADLICH JR.

J. W. Badlich, Jr.  
Gas Production Engineer

Jal, Jr.  
Jal Oil Company - Jal, N. M.  
J. A. Badlich  
J. W. Badlich  
Contract File  
File

ILLEGIBLE

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
APP. EXHIBIT NO. 2  
CASE NO. 1778-1779

## El Paso Natural Gas Company

El Paso, Texas

June 8, 1955

|         |  |
|---------|--|
| Barth   |  |
| Shelton |  |
| Polley  |  |
| Gall    |  |
| Hodgins |  |
| Gardner |  |
|         |  |
|         |  |

Jal Oil Company  
 Drawer 2  
 Jal, New Mexico

Gentlemen:

This letter will confirm our conversation on June 3, 1955, concerning the reclassification of gas wells in the Jalant Pool.

The New Mexico Oil Conservation Commission has reclassified four (4) of your wells connected to our gathering system from marginal to non-marginal status. The wells are the Byet #2, Langel #2, Jenkins #1 and Repollo #1 in the Jalant Gas Pool. The allowances were made retroactive to July, 1955, and all of the wells are now overproduced due to being produced at all times as marginal wells.

Since the Repollo #1 makes a considerable amount of water and it should be ordered shut in by the New Mexico Oil Conservation Commission due to overproduction then it would probably be detrimental to the well with probable complete loss of gas production. It would probably be advantageous to request permission for an exception to the rule from the New Mexico Oil Conservation Commission to allow the Repollo #1 to continue to produce at all times. The Commission granted an exception to the rules in 1951 to allow it to continue to produce for a one year period when it was overproduced prior to being reclassified as a marginal well.

As you have requested in the past, the Repollo #1 well will be left producing into our system until we are notified otherwise.

Yours truly,

EL PASO NATURAL GAS COMPANY



D. B. Elliot  
 Dispatching Department

|                                 |
|---------------------------------|
| BEFORE EXAMINER UTZ             |
| OIL CONSERVATION COMMISSION     |
| <u>ADP</u> EXHIBIT NO. <u>9</u> |
| CASE NO. <u>1278-1279</u>       |

DAG:bjc

cc: EAS, WSP, FSP, Central File, SW, File

ILLEGIBLE



BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

EL PASO NATURAL GAS COMPANY

MINIMUM CONTRACT TEST

(To Determine Wellhead Deliverability at 100 PSIG)

APP. EXHIBIT NO. 10  
CASE NO. 1778-1779

Company R. Olsen Oil Co. Lease Winningham Well No. 3  
 Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 3-29-57  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .660 Bar. Pressure 13.2  
 $n_t$  from Previous Test: 1.000 Date of Previous Test: 7-22-55

| FLOW DATA |                      |                 |                |                |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|----------------------|-----------------|----------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Flow<br>Line<br>Size | Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                      |                 |                |                |             | 266/275/272    |             |                |             | 24/48/72                   |
| 1.        | 4 x 1.250            |                 | 187            | 11.56          | 66          | 189            |             |                |             |                            |
| 2.        |                      |                 |                |                |             |                |             |                |             |                            |

| No. | Coefficient<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|--------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                    | 48.08            |                  | .9943                         | .9535                      | 1.018                           | 448                                      |
| 2.  |                          |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = \underline{83.1}$$

$$P_d^2 = \underline{12.8}$$

$$P_t^2 = \underline{40.8}$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{70.3}{42.3} = 1.662 = B$$

$$\log B = \underline{\quad\quad\quad} \times (n_t) \underline{1.000} = \underline{\quad\quad\quad}; \text{Antilog} = \underline{1.662} = B^{n_t}$$

$$Q = \underline{448} \times (B^{n_t}) \underline{1.662} = \underline{745} = D_t$$

$n_t$  = Slope of Wellhead Deliverability  
Curve ( $P_c^2 - P_t^2$  vs. Q)

Q = Actual flow @ end of Flow Period at  
Wellhead Pressure  $P_t$

$P_c$  = Maximum Shut-in Pressure observed in  
a 24 hour period, PSIA

$P_t$  = Flowing Wellhead Pressure (tubing if  
flowing thru tubing and vice versa),  
psia

$P_d$  = Deliverability Pressure (13.2 psia  
for Minimum Contract Requirements)

$D_t$  = Wellhead Deliverability at Delivera-  
bility Pressure ( $P_d$ ), MCF/Day.

I hereby swear and affirm that the  
information given above is true and  
correct.

Name Jack T. Littlefield  
Position \_\_\_\_\_

Witnessed by:

Name Karl G. Smith

Company El Paso Natural Gas Company

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

EL PASO NATURAL GAS COMPANY  
MINIMUM CONTRACT TEST  
(To Determine Wellhead Deliverability at 100 PSIA)

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION

APP EXHIBIT NO. 11  
CASE NO. 1228-1779

Company R. Olsen Oil Company Lease Winningham Well No. 3  
Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
Pocli Jalnet Type Well Single Date of Test 9-15/9-19/58  
Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .686 Bar. Pressure 13.2  
 $n_t$  from Previous Test: .771 Date of Previous Test: 3-14-58

| FLOW DATA |                       |                          |                |                | TUBING DATA |                | CASING DATA |                | Duration<br>of Flow<br>Hr. |
|-----------|-----------------------|--------------------------|----------------|----------------|-------------|----------------|-------------|----------------|----------------------------|
| No.       | Inner<br>Line<br>Size | Outer<br>Orifice<br>Size | Press.<br>psig | Diff.<br>$h_w$ | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F                |
| Shut-in   |                       |                          |                |                |             | 200-82-12      |             | 249-256-261    | 24-48-72                   |
| 1.        | 4" x 1.250            |                          | 108            | 28.09          | 76          | 121            |             |                | 24                         |
| 2.        |                       |                          |                |                |             |                |             |                |                            |

| No. | Coefficient<br>FLQ.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>$F_t$ | Gravity<br>Factor<br>$F_g$ | Compress.<br>Factor<br>$F_{pv}$ | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|-------------------------------|----------------------------|---------------------------------|------------------------------------------|
| 1.  | 9.643                            | 58.35            |                  | .9850                         | .9352                      | 1.011                           | 525                                      |
| 2.  |                                  |                  |                  |                               |                            |                                 |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 75.2$$

$$P_d^2 = 12.8$$

$$P_t^2 = 18.0$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{62.4}{57.2} = 1.091 = B$$

$$\log B = .0378248 \times (n_t) .771 = .0291629; \text{Antilog} = 1.070 = B^{n_t}$$

$$Q = 525 \times (B^{n_t}) 1.070 = 562 = D_t$$

Unit Size 1.50  
Meter Station 60-836

I hereby swear and affirm that the  
information given above is true and  
correct.

Name J. B. Murray  
Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

EL PASO NATURAL GAS COMPANY  
 MINIMUM CONTRACT TEST  
 (To Determine Wellhead Deliverability at 100 PSIG)

BEFORE EXAMINER UTZ  
 OIL CONSERVATION COMMISSION  
 APP. EXHIBIT NO. 12  
 CASE NO. 1778-1779

Company R. Olsen Oil Company Lease Winningham Well No. 3  
 Unit I Sec. 30 Twp. 25 Rge. 37 County Lea  
 Pool Jalmat Type Well Single Date of Test 1-16-59  
 Producing Thru: Casing \_\_\_\_\_ Tubing X Gravity .679 Bur. Pressure 13.2  
 n<sub>t</sub> from Previous Test: .771 Date of Previous Test: 9-19-58

| FLOW DATA |                        |                            |                |                         |             | TUBING DATA    |             | CASING DATA    |             | Duration<br>of Flow<br>Hr. |
|-----------|------------------------|----------------------------|----------------|-------------------------|-------------|----------------|-------------|----------------|-------------|----------------------------|
| No.       | Proven<br>Line<br>Size | Shut-in<br>Orifice<br>Size | Press.<br>psig | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>psig | Temp.<br>°F | Press.<br>psig | Temp.<br>°F |                            |
| Shut-in   |                        |                            |                |                         |             | 208-213-210    |             |                |             | 24-48-72                   |
| 1.        | 4 x 1.250              |                            | 78             | 43.56                   | 64          | 85             |             |                |             | 24                         |
| 2.        |                        |                            |                |                         |             |                |             |                |             |                            |

| No. | Coefficient<br>Flg.<br>(24-Hour) | $\sqrt{h_w P_w}$ | Pressure<br>psia | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Compress.<br>Factor<br>F <sub>pv</sub> | Rate of Flow<br>Q-MCFPD<br>@ 15.025 psia |
|-----|----------------------------------|------------------|------------------|----------------------------------------|-------------------------------------|----------------------------------------|------------------------------------------|
| 1.  | 9.643                            | 63.03            |                  | .9962                                  | .9400                               | NIL.                                   | 570                                      |
| 2.  |                                  |                  |                  |                                        |                                     |                                        |                                          |

$$D_t = Q \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right]^{n_t}$$

$$P_c^2 = 51.2$$

$$P_d^2 = 12.8$$

$$P_t^2 = 9.6$$

$$\left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_t^2} \right] = \frac{38.4}{41.6} = .9231 = B$$

$$\text{Log } B = 9.9652488-10 \times (n_t) .771 = 9.9732068-10 ; \text{Antilog} = .9402 = B^{n_t}$$

$$Q = 570 \times (B^{n_t}) .9402 = 536 = D_t$$

n<sub>t</sub> = Slope of Wellhead Deliverability  
 Curve (P<sub>c</sub><sup>2</sup> - P<sub>t</sub><sup>2</sup> vs. Q)

Q = Actual flow @ end of Flow Period at  
 Wellhead Pressure P<sub>t</sub>

P<sub>c</sub> = Maximum Shut-in Pressure observed in  
 a 48 hour period, PSIA

P<sub>t</sub> = Flowing Wellhead Pressure (tubing if  
 flowing thru tubing and vice versa),  
 psia

P<sub>d</sub> = Deliverability Pressure (113.2 psia  
 for Minimum Contract Requirements)

D<sub>t</sub> = Wellhead Deliverability at Delivera-  
 bility Pressure (P<sub>d</sub>), MCF/Day

Unit Size 1.50  
 Meter Station No. 60-836

I hereby swear and affirm that the  
 information given above is true and  
 correct.

Name H.H. Kerby

Position \_\_\_\_\_

Witnessed by:

Name \_\_\_\_\_

Company \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

EL PASO NATURAL GAS COMPANY

| LOG DATA  |         |      |         |       | FLOW DATA                          |        |                                             |        |
|-----------|---------|------|---------|-------|------------------------------------|--------|---------------------------------------------|--------|
| Date-Time |         | Time |         | Hours | Wellbore Pressure<br>(lb./sq. in.) |        | Ann. Working Pressure<br>(lb. and (lt) psi) |        |
| Date      | Time    | Date | Time    |       | Running                            | Casing | Running                                     | Casing |
| 3-10      | AM      | 3-11 |         | 24    | 203.2                              |        | 130.2                                       |        |
|           |         | 3-12 |         | 48    | 209.2                              |        |                                             |        |
|           | 1:00 PM | 3-13 | 1:00 PM | 72    | 205.2                              |        |                                             |        |

366.1 = D

Read & Initial

El Paso, Texas

May 2, 1958

ILLEGIBLE

# El Paso Natural Gas Company

El Paso, Texas

July 29, 1959

|         |  |
|---------|--|
| Realtor |  |
| Agent   |  |
| Office  |  |
| City    |  |
| State   |  |
| Country |  |

Glen Wild, Incorporated  
Jal,  
New Mexico

Gentlemen:

We are unable to produce your Missingham 3 1 30-25-37  
LEASE NO. UNIT S - T - R  
in the Jalnat for the following reason:  
POOL

|                        |                                        |                                  |
|------------------------|----------------------------------------|----------------------------------|
| SEPARATOR OUT OF ORDER | LOGGED OFF<br>X                        | INSUFFICIENT PRESSURE TO PRODUCE |
| SHUT IN AT WELLHEAD    | PRODUCING AN EXCESSIVE AMOUNT OF FLUID | AT YOUR REQUEST                  |

When this situation is corrected and the well is ready to be produced, please contact this office.

Remarks: This will confirm telephone conversation between our Mr. Stankovic and your Miss Mary Jo Morris in July 28, 1959. Mr. Stankovic advised Miss Morris that the above well was apparently logged off with fluid. Please notify this office when the well has been unloaded.

Thank you for your cooperation.

Yours truly,

EL PASO NATURAL GAS COMPANY

|                             |
|-----------------------------|
| BEFORE EXAMINER UTZ         |
| OIL CONSERVATION COMMISSION |
| APP. EXHIBIT NO. <u>15</u>  |
| CASE NO. <u>1228-1229</u>   |

Dispatching Department  
R. L. Sagan

RECEIVED  
Mr. A. A. Ocasio  
Mr. H. Woodruff  
Mr. T. Wright  
Central File  
File

ILLEGIBLE



December 8, 1953

Box 1374

Jal, New Mexico

2417

R. Olsen Oil Company  
Drawer "E"  
Jal, New Mexico

ATTN: Mr. Aaron Cummings

Dear Sir:

We were unable to run a minimum contract test on your Jenkins #1 and S. R. Cooper #1 on date scheduled (November 9, 1953). The Jenkins #1 was logged off and would not produce into our line; the S. R. Cooper #1 wellhead valve leaks.

If remedial work is done on these wells, please notify our Dispatching Department when well is ready for production.

Yours very truly,

EL PASO NATURAL GAS COMPANY

Edward Mabe  
Gas Engineer

cc: Mr. J. W. Baulch, Jr.  
Dispatching Department  
Box 1374, Jal, New Mexico

EM:ds

Well Name S. R. Cooper #1

Legal Description SE/4 NE/4 Section 23-24S-36E, Lea County, New Mexico

Producing Pool Jalmat Means of Lifting Free Piston

Date Installed \_\_\_\_\_

Casing Pressure October, 1958 \_\_\_\_\_ Tubing Pressure October, 1958 \_\_\_\_\_

Casing Pressure October, 1959 125 Tubing Pressure October, 1959 110

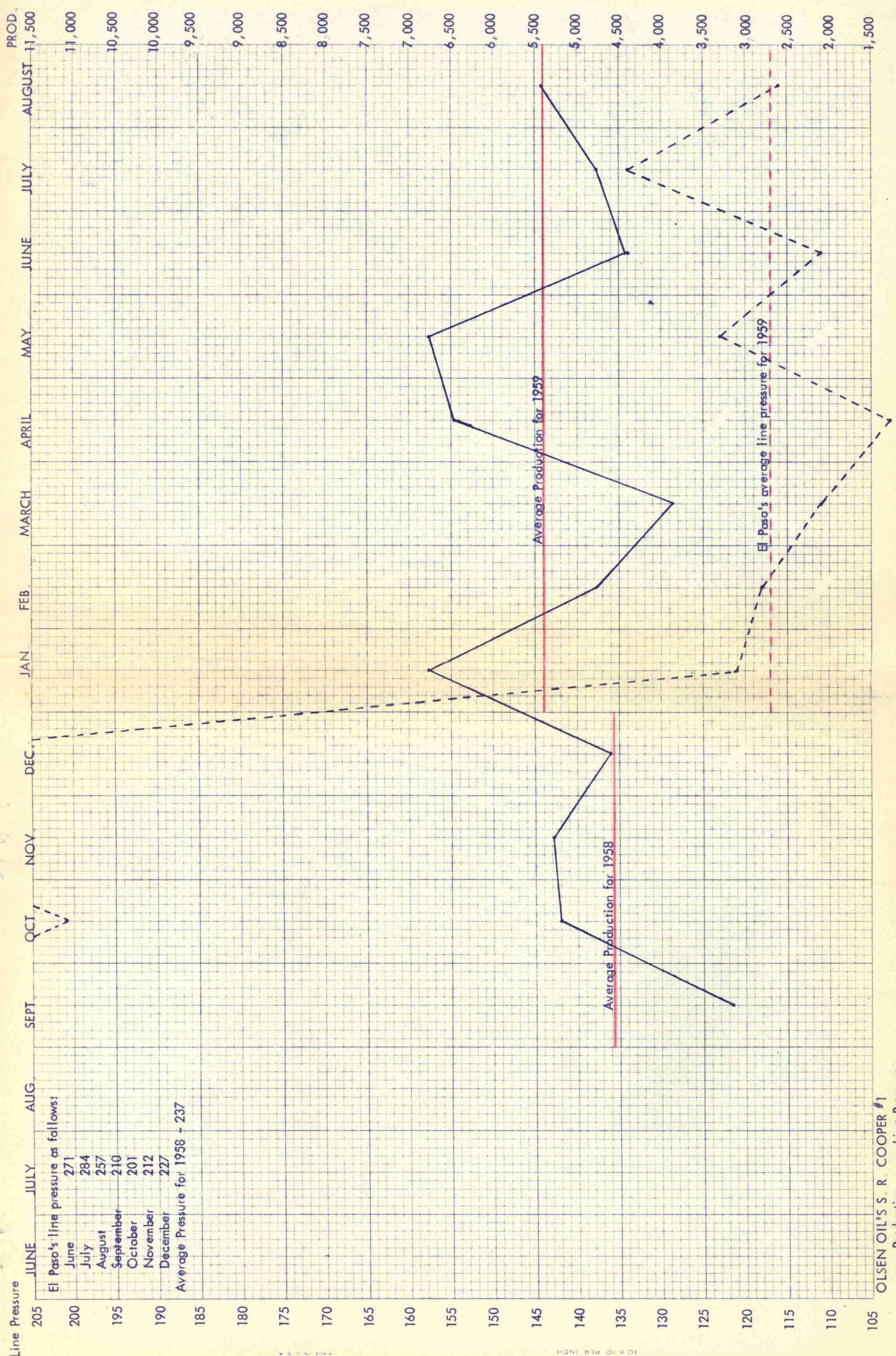
Estimated water produced daily October, 1958 15 Barrels per day

Estimated water produced daily October, 1959 16.5 Barrels per day

Over production ~~August~~, 1959 - 20,630 MCF *Sept 1*

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
son EXHIBIT NO. 16  
CASE NO. 1778





El Paso's line pressure as follows:

| Month     | Line Pressure |
|-----------|---------------|
| June      | 271           |
| July      | 284           |
| August    | 257           |
| September | 210           |
| October   | 201           |
| November  | 212           |
| December  | 227           |

Average Pressure for 1958 - 237

OLSEN OIL'S S. R. COOPER #1

— Production — — — Line Pressure



# El Paso Natural Gas Company

El Paso, Texas

December 27, 1955

R. Olsen  
Drawer Z  
Jal, New Mexico

|                             |            |
|-----------------------------|------------|
| BEFORE EXAMINER UTZ         |            |
| OIL CONSERVATION COMMISSION |            |
| EXHIBIT NO.                 | 28         |
| CASE NO.                    | 172.8-1779 |

ADDRESS REPLY TO:  
P. O. BOX 1384  
JAL. NEW MEXICO

Gentlemen:

The Eva Olsen LEASE 1-M NO. UNIT 21-25-37 S - T - R

Jalmit is off for the following reason:  
POOL

☐ Separator out of order.

☒ Logged off.

☐ Insufficient pressure to produce into the line.

☐ Shut in at the wellhead.

☐ Producing a great amount of fluid.

☐ Froze off in the well.

☐ At your request.

When this situation is corrected and the well is ready to be produced, please contact this office.

If additional information is required, please contact this office.

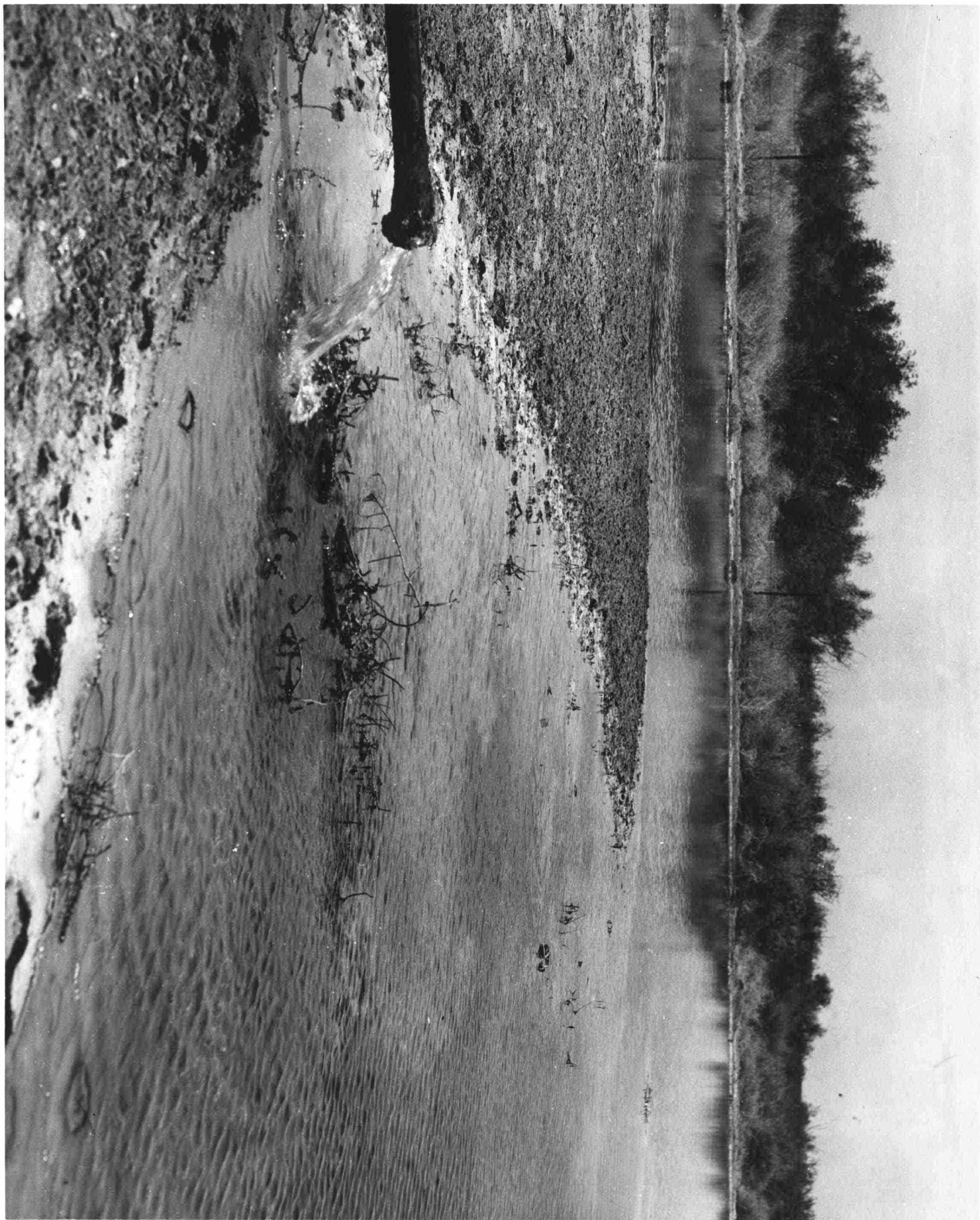
Yours truly,

EL PASO NATURAL GAS COMPANY

Dispatching Department  
D. S. Gillit

cc: EAS  
VMP  
FNW  
WMF  
RTW  
FILE

ILLEGIBLE



BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
228. EXHIBIT NO. 26  
CASE NO. 1778-1779

**MALONE PHOTO**  
426 EAST 48 FE 2-1022  
ODESSA, TEXAS