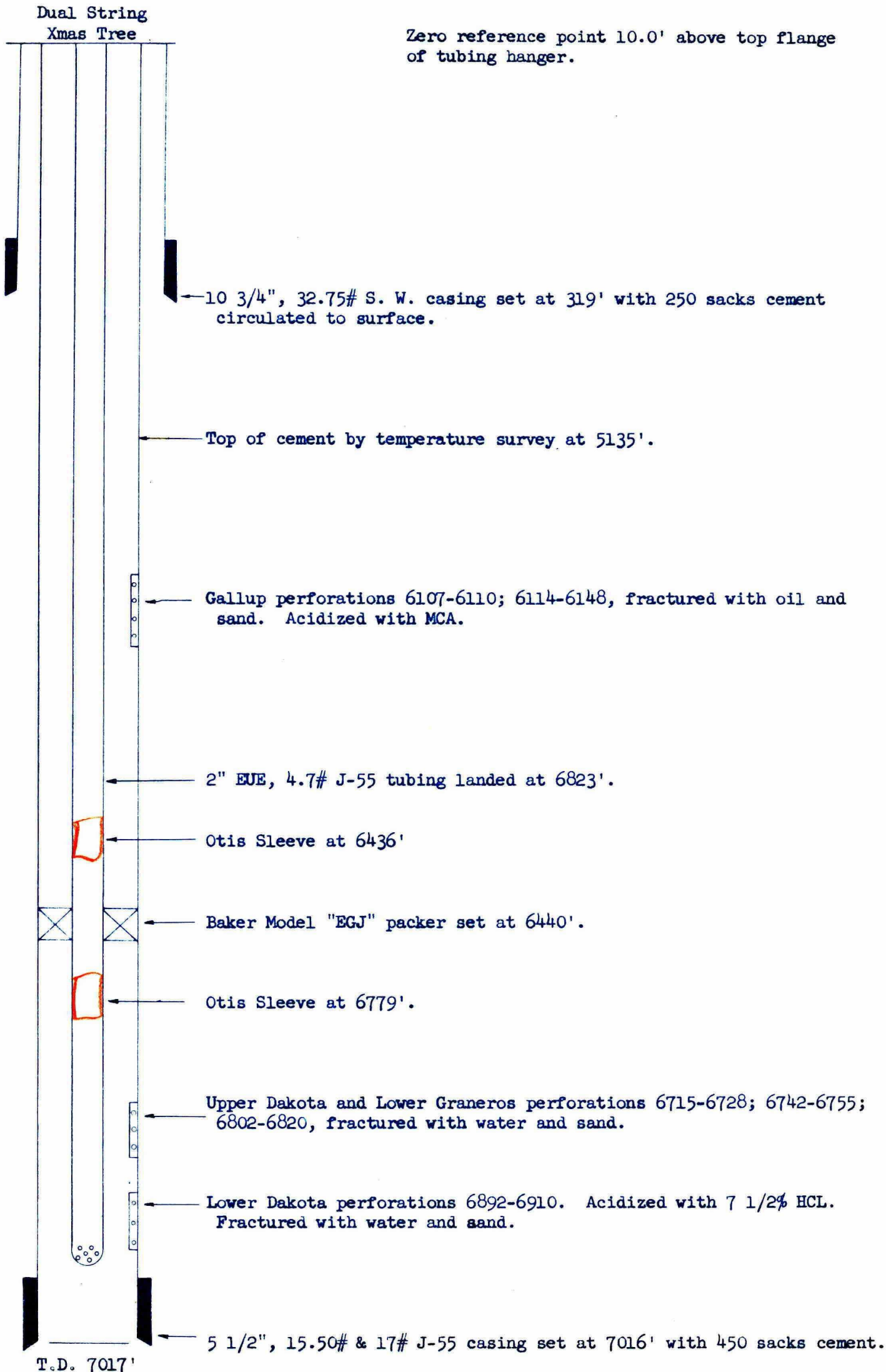
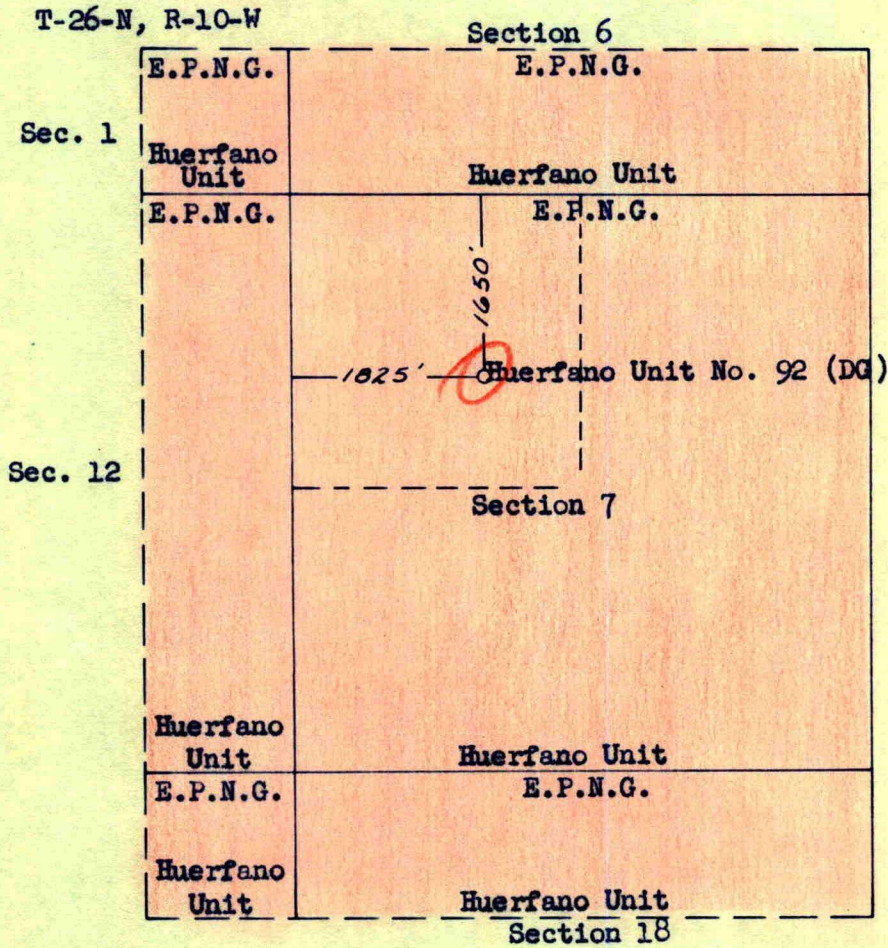


Schematic Diagram of Dually Completed
 El Paso Natural Gas Co. Huerfano Unit No. 92 (DG)
 NW/4 Section 7, T-26-N, R-9-W



Plat Showing Location of Dually Completed
 El Paso Natural Gas Co. Huerfano Unit No. 92 (DG)
 and offset Acreage

T-26-N, R-9-W



EL PASO NATURAL GAS COMPANY
 EL PASO, TEXAS

| | | |
|----------|------------|-----|
| SCALE | DATE | No. |
| DRAWN BY | CHECKED BY | |

EL PASO NATURAL GAS COMPANY

P. O. Box 997
Farmington, New Mexico

July 2, 1958

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

Re: Packer Leakage Test on the El Paso Natural Gas
Company Well Huerfano Unit No. 92 (DG), NW 7-26-9,
San Juan County, New Mexico.

Dear Mr. Arnold:

The subject well was dually completed in the Gallup and Mesa Verde zones and a packer was set at 6439'. The Gallup zone was tested thru a 3/4" choke for 3 hours, June 20, 1958, with the following data obtained:

SIPC (G) 1069 psig; Shut-In 15 days
SIPT (G) 1277 psig;

The choke volume for the Gallup was 1460 MCF/D with an AOF of 1585 MCF/D. This test was conducted with the Dakota sleeve closed and the Gallup sleeve open so that the Gallup could be tested through the tubing. This test could only serve as a Gallup potential test and not as a packer test.

The Dakota zone was tested through a 3/4" choke for three hours June 27, 1958, with the following data obtained:

SIPC (G) 1325 psig; Shut-In 7 days
SIPT (D) 1445 psig; Shut-In 15 days

| <u>Time Minutes</u> | <u>Dak. Flowing Pressure Tubing Psig</u> | <u>Gal. SIPC Psig</u> | <u>Dak. Working Pressure, Psig</u> | <u>Temp ° F</u> |
|-------------------------|--|-----------------------|--|-----------------|
| 0 | Opened Dak. tubing | 1325 | | - |
| 15 | 178 | 1328 | | 64 |
| 30 | 165 | 1328 | | 66 |
| 45 | 164 | 1328 | | 66 |
| 60 | 149 | 1326 | | 66 |
| 180 | 133 | 1291 | Calc. 293 | 68 |

July 2, 1958

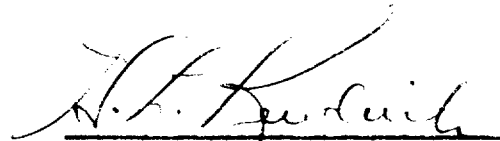
The choke volume for the Dakota was 1652 MCF/D with an AOF of 1708 MCF/D.

Both zones of this well produce oil thus making any tests for packer leakage hard to obtain. The data obtained from the Dakota test show decreasing pressures on the Gallup zone which may have been due to liquid accumulation in the annulus space and/or from liquids being produced with the gas from the Dakota zone.

The Dakota test was witnessed by Mr. Fred Cook, N.M.O.C.C.

If any other tests for packer leakage should be run on this well please advise us.

Very truly yours,


H. L. Kendrick
Gas Engineer

HLK/nb

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

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE June 20, 1958

| | | | |
|--|-----------------------------|--------------------------------------|---------------------------------|
| Operator El Paso Natural Gas Company | | Lease Huerfano No. 92 (G) | |
| Location 1650N, 1825W; 7-26-9 | | County San Juan | State New Mexico |
| Formation Gallup | | Pool Undesignated | |
| Casing: Diameter 5-1/2" | Set At: Feet 7004 | Tubing: Diameter 2" | Set At: Feet 6813 |
| Pay Zone: From 6114 | To 6148 | Total Depth: 7016 c/o 6877 | Re Shut-in 6/5/58 |
| Stimulation Method Sand Water Frac. | | Flow Through Casing | Flow Through Tubing X |

| | | | |
|---|------------------------------------|---------------------------|---|
| Choke Size, Inches .75 | Choke Constant: C 12.365 | | |
| Shut-in Pressure, Casing, PSIG 1069 (G) | 12 - PSIA 1081 | Days Shut-In 15 | Shut-in Pressure, Tubing, PSIG 1277 (G) |
| Flowing Pressure: P, PSIG 117 | 12 - PSIA 129 | | Working Pressure: Pw, PSIG 403 |
| Temperature 72 | | | Gravity .72 |
| | | | Fpv (From Tables) 1.014 |

Note: Dakota gas blocked off to wellhead!

Packer at 6439

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

C = (12.365)(129)(.9887)(.9129)(1.014) = 1460 MCF/D

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

Aof $\left(\frac{1,661,521}{1,489,296} \right)^n$ (1.1156)^{.75} (1460) = (1.0853)(1460)

Aof 1585 MCF/D

REMARKS: Unloaded heavy yellow stream of oil in 3 min. Diminishing to light oily fog for remainder of test.

TESTED BY S. V. Roberts

WITNESSED BY

L. D. Galloway
L. D. Galloway *L.D.G.*

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE June 27, 1958

| | | | |
|--|-----------------------------|--------------------------------------|---------------------------------|
| Operator El Paso Natural Gas Company | | Lease Huerfano No. 92 (D) | |
| Location 1650N, 1825W; 7-26-9 | | County San Juan | State New Mexico |
| Formation Dakota | | Pool Undesignated | |
| Casing: Diameter 5-1/2 | Set At: Feet 7004 | Tubing: Diameter 2" | Set At: Feet 6813 |
| Flow Zone: From 6715 | To 6910 | Total Depth: 7016 c/o 6877 | Shut-in 6/12/58 |
| Stimulation Method Sand Water Frac | | Flow Through Casing | Flow Through Tubing X |

| | | |
|--|------------------------------------|---|
| Choke Size, Inches .75 | Choke Constant: C 12.365 | Packer at 6439 |
| Shut-in Pressure: Casing, PSIG 1325 (Gallup) | + 12 = PSIA 1337 | Days Shut-In 15 (D) |
| Flowing Pressure: P, PSIG 133 | + 12 = PSIA 145 | Shut-In Pressure: Tubing, PSIG 1445 (Dakota) |
| Temperature: T, F 68 | | + 12 = PSIA 1457 |
| | | Working Pressure: P _w , PSIG Calc. 305 |
| | | Fpv (From Tables) 1.017 |
| | | Gravity .720 |

Final SIPC (G) = 1291 psig

CHOKE VOLUME = Q_c = C × P₁ × F₁ × F_g × F_v

Q_c (12.365) (145) (.9924) (.9129) (1.017) = 1652 MCF/D

OPEN FLOW Aof Q_o = $\left(\frac{P_1^2 - P_w^2}{P_1^2 - P_w^2} \right)^n$

Aof = $\left(\frac{2,122,849}{2,029,824} \right)^n$

(1.0458)^{.75} (1652) = (1.0342)(1652)

Aof = 1708 MCF/D

S. V. Roberts

Fred Cook (NMOC)

Lewis D. Galloway
L. D. Galloway