

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE June 17, 1965

Operator El Paso Natural Gas Company		Lease Huerfanito Unit No. 89 (MV)	
Location 1500'S, 1100'W, Section 23, T-27-N, R-9-W		County San Juan	State New Mexico
Formation Mesa Verde		Pool Blanco	
Casing: Diameter 5.500	Set At: Feet 6911	Tubing: Diameter 1.660	Set At: Feet 4636
Pay Zone: From 4514	To 4621	Total Depth: 6911	Shut In 6-9-65
Stimulation Method Sand Water Frac.		Flow Through Casing X	Flow Through Tubing

Choke Size, Inches .750	Choke Constant: C 12.365		Production Packer set at 4660 ft.	
Shut-in Pressure, Casing, PSIG 1051 (MV)	+ 12 = PSIA 1063	Days Shut-In 8	Shut-in Pressure, Tubing PSIG 441 (MV)	+ 12 = PSIA 453
Flowing Pressure: P PSIG 1.4" H ₂ O Impact on 2" Flow Nipple	+ 12 = PSIA		Working Pressure: P _w PSIG 479	+ 12 = PSIA 491
Temperature: T = 69 °F	n = .75		Fpv (From Tables)	Gravity .700
Ft = .9915				Fg = .9258

ISIPT (DK) = 2041 psig

FSIPT (DK) = 2044 psig

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

$$Q = 1.4" \text{ H}_2\text{O Impact Pressure on 2" Flow Nipple} = 139 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{1,129,969}{888,888} \right)^n = (139) (1.2712)^{.75} = (139) (1.1972)$$

$$A_{of} = 166 \text{ MCF/D}$$

NOTE: Opened tubing 15 minutes and unloaded heavy fog of water and Hydrocarbons, then opened casing. Blew clear gas for remainder of test.

TESTED BY R. J. Headrick
 CALCULATED BY H. L. Kendrick
~~WITNESSED BY~~
 CHECKED BY H. E. McAnally

L. D. Galloway
 L. D. Galloway



EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE June 2, 1965

Operator El Paso Natural Gas Company		Lease Huerfanito Unit No. 89 (DK)	
Location 1500'S, 1100'W, Section 23, T-27-N, R-9-W		County San Juan	State New Mexico
Formation Dakota		Pool Basin	
Casing: Diameter 5.500	Set At: Feet 6911	Tubing: Diameter 2.375	Set At: Feet 6695
Pay Zone: From 6608	To 6699	Total Depth: 6911	Shut In 5-23-65
Stimulation Method Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches .750	Choke Constant: C 12.365		Production Packer set at 4660 ft.	
Shut-In Pressure, Casing, PSIG 999 (MV)	+ 12 = PSIA 1011	Days Shut-In 10	Shut-In Pressure, Tubing PSIG (DK) 1896	+ 12 = PSIA 1908
Flowing Pressure: P PSIG 204	+ 12 = PSIA 216		Working Pressure: P _w PSIG Calc.	+ 12 = PSIA 453
Temperature: T = 73 °F F _r = .9877	n = .75		F _{pv} (From Tables) 1.022	Gravity .695 F _g = .9292

ISIPT (MV) = 46 psig

FSIPC (MV) = 1008 psig

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

$$Q = (12.365) (216) (.9877) (.9292) (1.022) = 2,505 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{3,640,464}{3,435,255} \right)^n = (2505) (1.0597)^{.75} = (2505) (1.0445)$$

$$A_{of} = 2,616 \text{ MCF/D}$$

NOTE: Well produced a heavy slug of oil after two minutes, then turned to a heavy spray of water with a trace of oil throughout the test.



TESTED BY R. F. Headrick
 CALCULATED BY H. E. McAnally
~~WITNESSED BY~~
 CHECKED BY T. B. Grant

Lewis D. Galloway
 Lewis D. Galloway

EL PASO NATURAL GAS COMPANY

DEVIATION REPORT

Name Of Company El Paso Natural Gas Company				Address Box 990, Farmington, New Mexico		
Lease Huerfanito Unit	Well No 89 (MD)	Unit Letter L	Section 23	Township 27N	Range 9W	
Pool Blanco Mesa Verde Ext. & Basin Dakota				County San Juan		

DEPTH

315'
1000
1440
1918
2422
2573
3076
3328
3611
3861
4676
4928
5368
5844
6163
6634
6716
6836

DEVIATION

3/4°
3/4°
3/4°
1/2°
1/2°
1 1/2°
2°
2°
1 1/2°
1/2°
3/4°
3/4°
3/4°
3/4°
1/4°
3/4°
1/2°
1/4°



I, the undersigned, certify that I, acting in my capacity as Petroleum Engineer of El Paso Natural Gas Company, am authorized by said Company to make this report; and that this report was prepared by me or under my supervision and directions and that the facts stated therein are true to the best of my knowledge and belief.

E. S. Olney

Subscribed and sworn to before me this 30th day of August, 1965.

Alonso G. Lugo

Notary Public in and for San Juan County, New Mexico

My commission expires October 5, 1968.

OIL CONSERVATION COMMISSION
3 DISTRICT

OIL CONSERVATION COMMISSION
BOX 871
SANTA FE, NEW MEXICO

DATE 9-10-65

Re: Proposed NSP _____

Proposed NWU _____

Proposed NSL _____

Proposed NFO _____

Proposed DC ✓

Gentlemen:

I have examined the application dated 9-1-65
for the EPING 16 miles from Cent #89 L-23-27N-2W
Operator Lease and Well No. S-T-R

and my recommendations are as follows:

None

Yours very truly,

Emory C. Dwyer

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
APPLICATION FOR MULTIPLE COMPLETION

Form C-107
5-1-61

Operator El Paso Natural Gas Company		County San Juan		Date September 1, 1965
Address Box 990, Farmington, New Mexico		Lease Barfano Unit		Well No. 89 (ND)
Location of Well L	Unit 23	Section 27N	Range 9N	

1. Has the New Mexico Oil Conservation Commission heretofore authorized the multiple completion of a well in these same pools or in the same zones within one mile of the subject well? YES _____ NO X
2. If answer is yes, identify one such instance: Order No. _____; Operator Lease, and Well No.: _____

3. The following facts are submitted:	Upper Zone	Intermediate Zone	Lower Zone
a. Name of Pool and Formation	Blanco Mesa Verde		Basin Dakota
b. Top and Bottom of Pay Section (Perforations)	4514-4642		6608-6699
c. Type of production (Oil or Gas)	Gas		Gas
d. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing

4. The following are attached. (Please check YES or NO)

Yes	No	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Diagrammatic Sketch of the Multiple Completion, showing all casing strings, including diameters and setting depths, centralizers and/or turbolizers and location thereof, quantities used and top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	c. Waivers consenting to such multiple completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*
<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

N

O

N

E

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES _____ NO _____. If answer is yes, give date of such notification _____.

CERTIFICATE: I, the undersigned, state that I am the Area Petroleum Engineer of the El Paso Natural Gas Co. (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

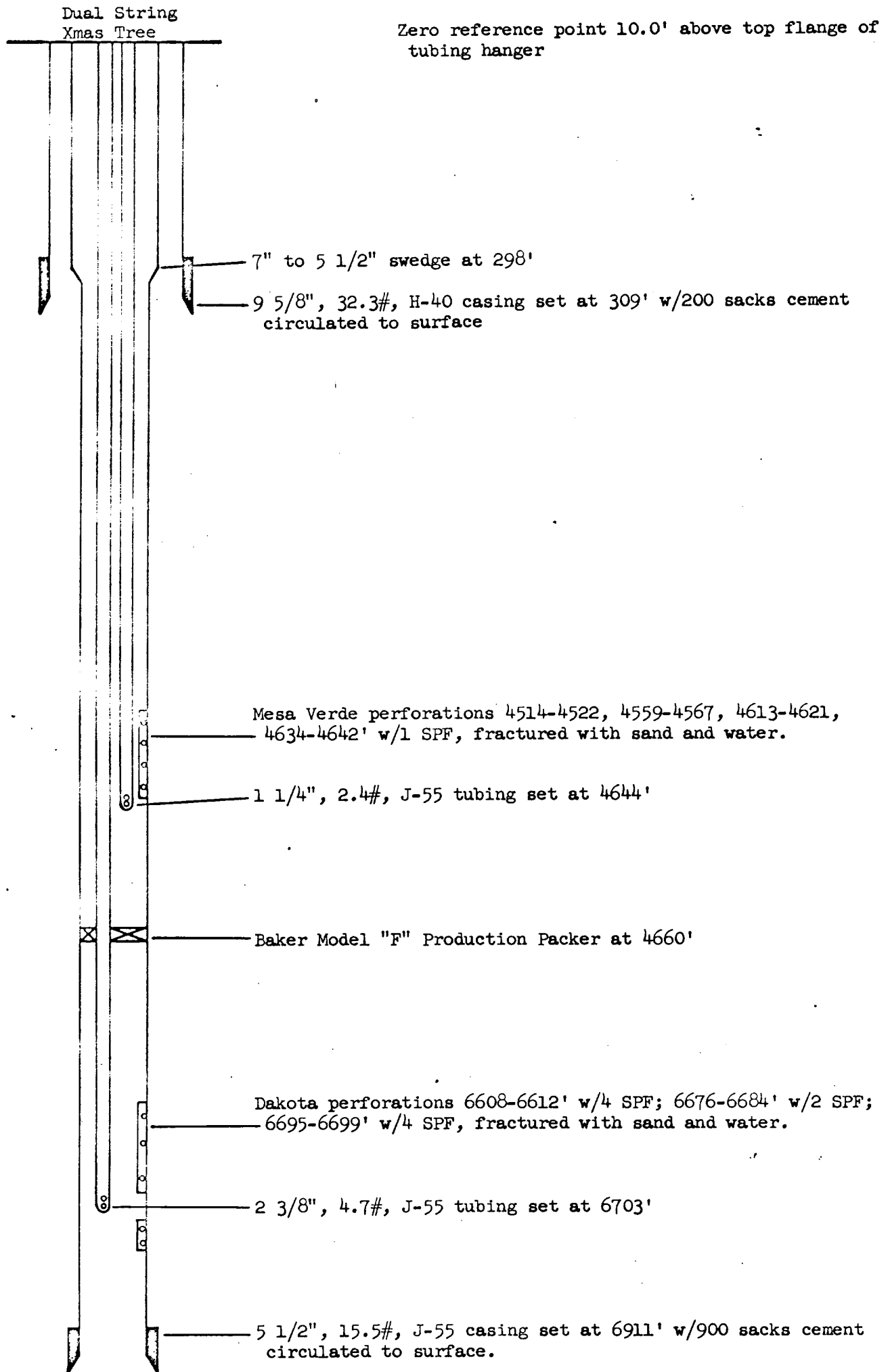
ORIGINAL SIGNED E. S. OBERLY

Signature

*Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed multiple completion will result in an unorthodox well location and/or a non-standard proration unit in one or more of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

Schematic Diagram of Dually Completed
El Paso Natural Gas Co. Huerfanito Unit #89 (MD)
SW/4 Section 23, T-27-N, R-9-W



T. D. 6911'

Plat Showing Location of Dually Completed
El Paso Natural Gas Co. Huerfanito Unit #89 (MD)
and Offset Acreage

T-27-N, R-9-W

Sec. 27

Sec. 26

ILLEGIBLE

EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

SCALE

DATE

No.

DRAWN BY

CHECKED BY

NEW MEXICO OIL CONSERVATION COMMISSION
PACKER SETTING REPORT

I, William L. Heard, being of lawful age and having full
Name of party making report

knowledge of the facts hereinbelow set out do state:

That I am employed by El Paso Natural Gas Company in the capacity of

Assistant Area Drilling Supt., that on May 22, 1965

I personally supervised the setting of a Baker Model "F" Packer
Make & type of packer

in El Paso Natural Gas Co., Huerfanito Unit,
Operator of well *Lease name*

Well no. 89 (MD) located in the Blanco M.V. Ext. & Basin Dakota field,

San Juan county, state of New Mexico, at a subsurface depth of

4660' feet, said depth measurement having been furnished me by

McCullough Wireline;

That the purpose of setting this packer was to effect a seal in the annular space between two strings of pipe where the packer was set so as to prevent the commingling, in the bore of this well, of fluids produced from a stratum below the packer with fluids produced from a stratum above the packer; that this packer was properly set and that it did, when set, effectively and absolutely seal off the annular space between the two strings of pipe where it was set in such manner as that it prevented any movement of fluids across the packer.


(Signature)

Assistant Area Drilling Supt.
(Title)

September 1, 1965
(Date)