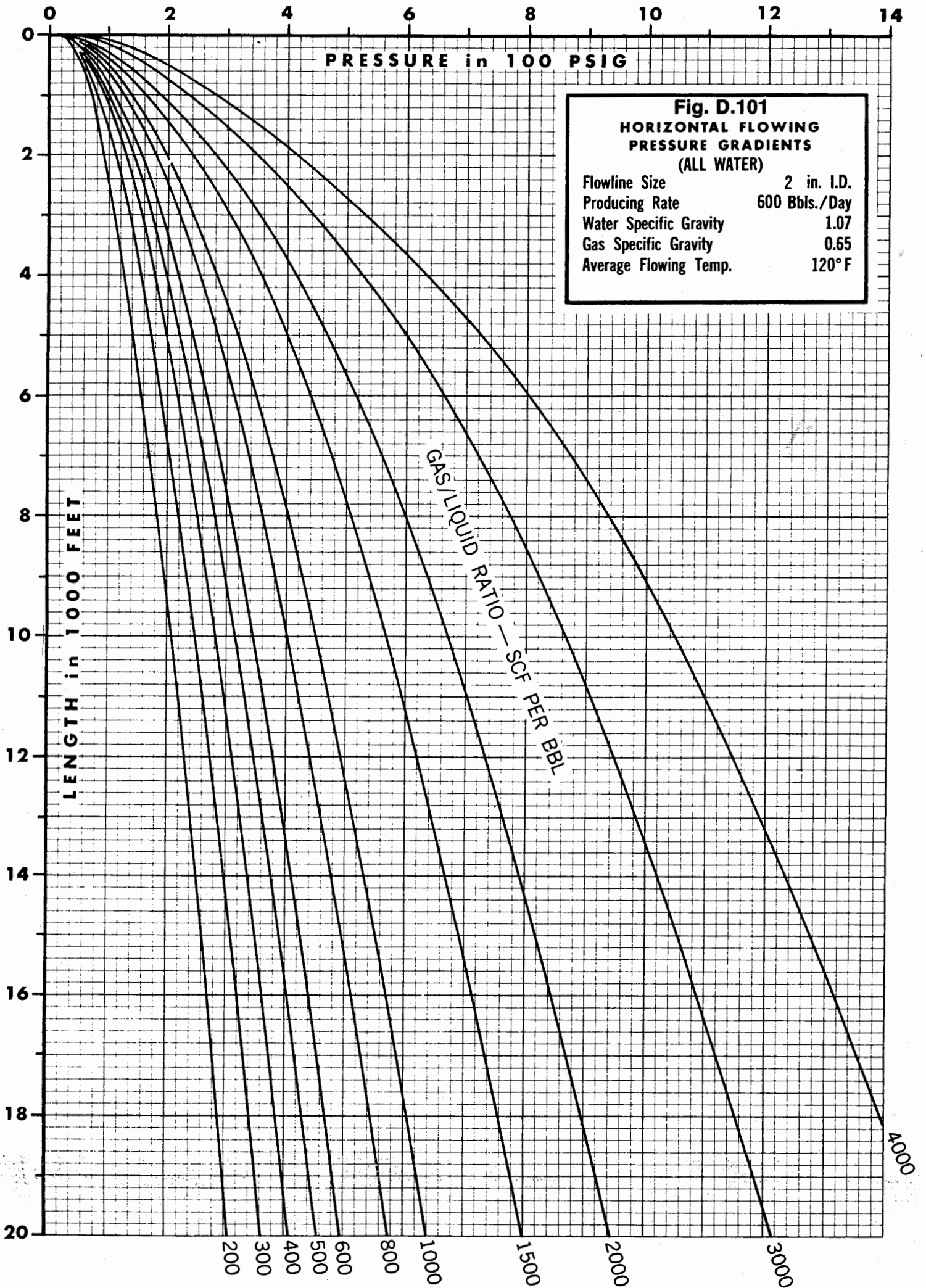


Appendix D: References

- D.1 Katz, et al., "Handbook of Natural Gas Engineering," McGraw-Hill Book Company, Inc., New York, 1959, pg. 320.
- D.2 Moody, L. F., "Friction Factors for Pipe Flow," Trans ASME, 66:671 (1944).
- D.3 Weymouth, T. R., "Problems in Natural Gas Engineering," Trans. ASME, 34:185 (1912).
- D.4 Brown, G. G., et al., "Unit Operations," John Wiley & Sons, Inc., New York, 1950.
- D.5 Cullender, M. H., and C. W. Brinkley, "Adaptation of the Relative Roughness Correlation of the Coefficient of Friction to the Flow of Natural Gas in Gas Well Casings," Report presented to Railroad Commission of Texas, Amarillo, November 9, 1950.
- D.6 "Flow of Fluids Through Valves, Fittings, and Pipe," Technical Paper No. 410, Engineering Division, Crane Company, Chicago, 1957.



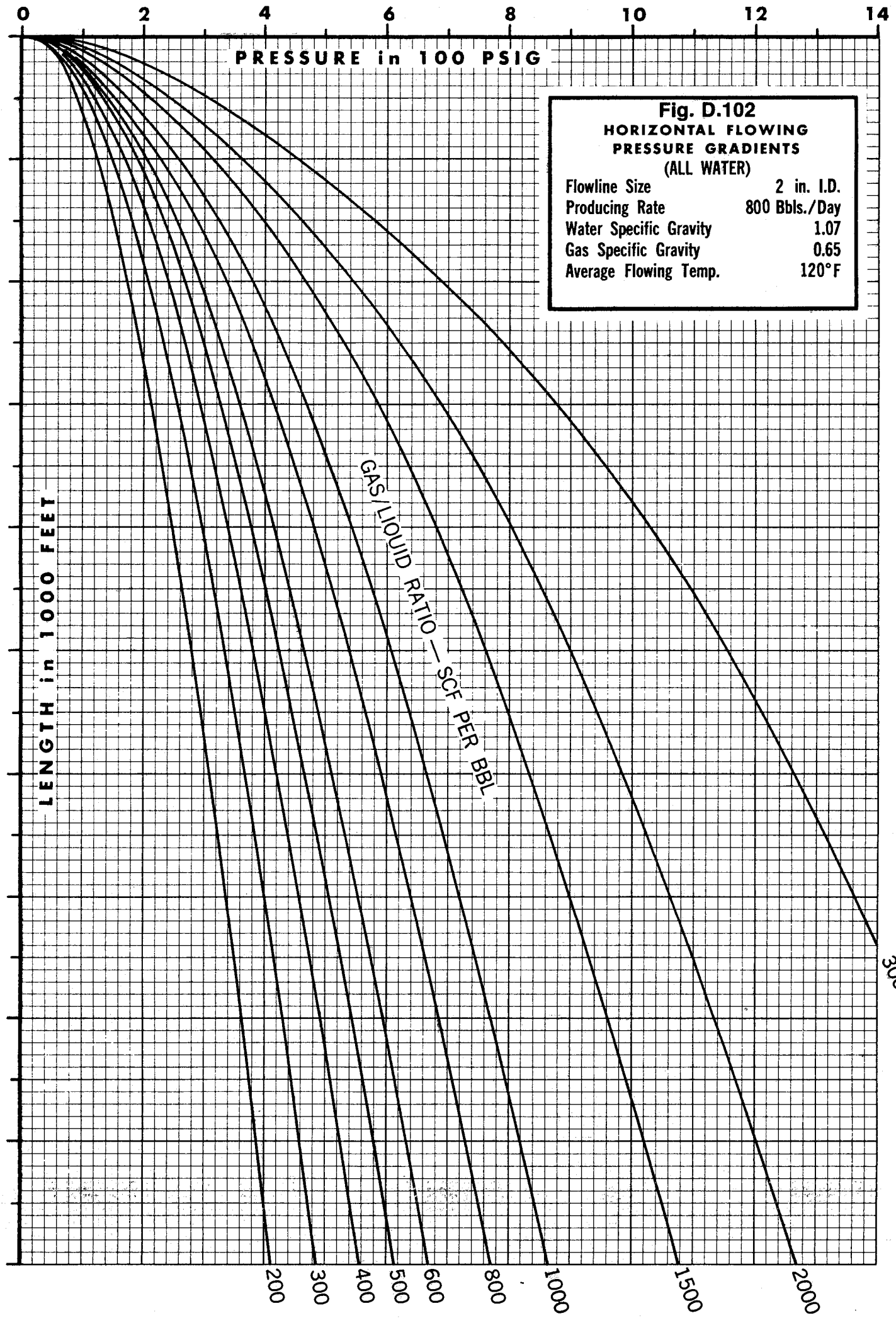


Fig. D.102
HORIZONTAL FLOWING
PRESSURE GRADIENTS
(ALL WATER)

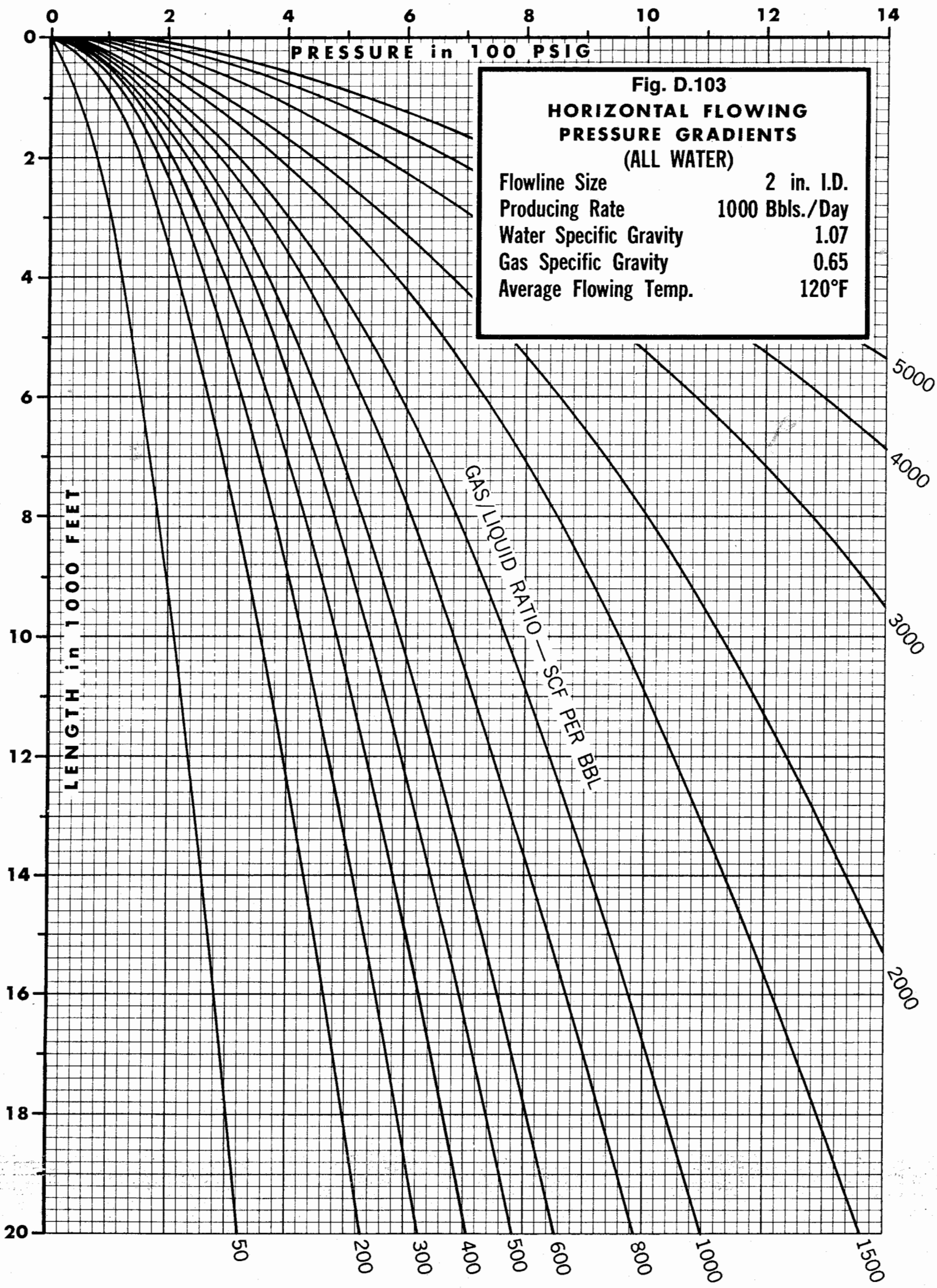
Flowline Size	2 in. I.D.
Producing Rate	800 Bbl./Day
Water Specific Gravity	1.07
Gas Specific Gravity	0.65
Average Flowing Temp.	120°F

LENGTH in 1000 FEET

PRESSURE in 100 PSIG

GAS/LIQUID RATIO — SCF PER BBL

200 300 400 500 600 800 1000 1500 2000 3000



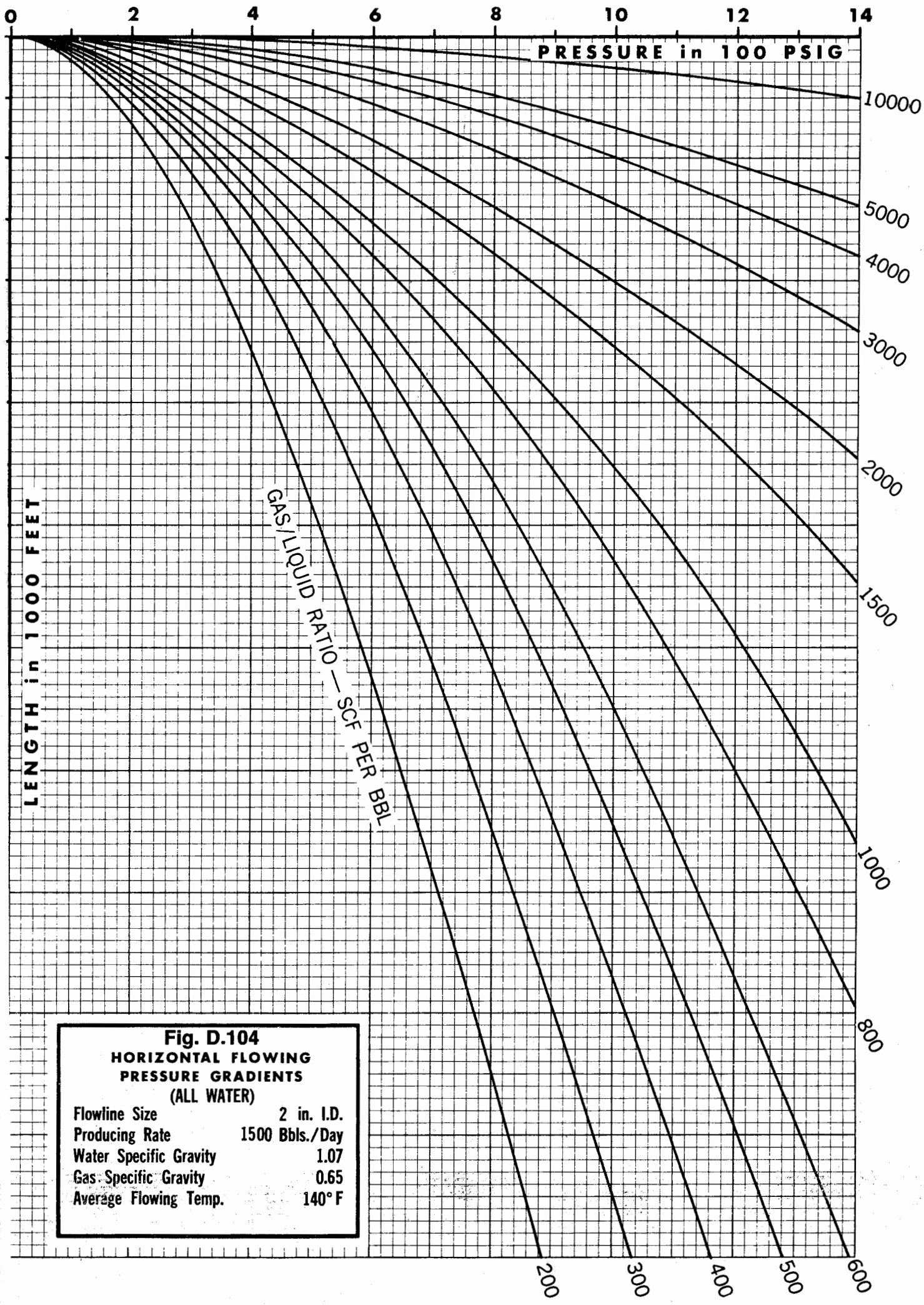
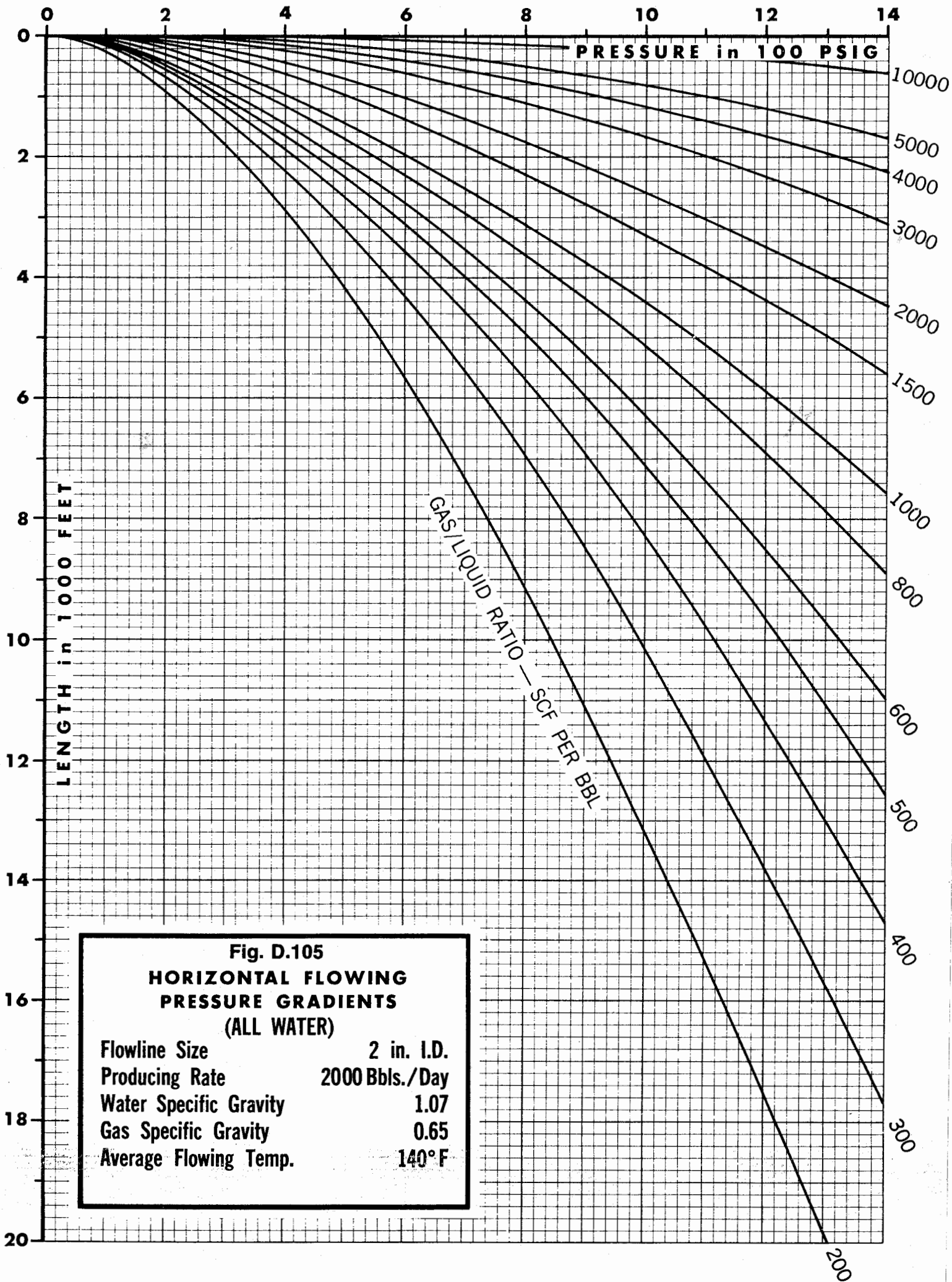


Fig. D.104
HORIZONTAL FLOWING
PRESSURE GRADIENTS
(ALL WATER)

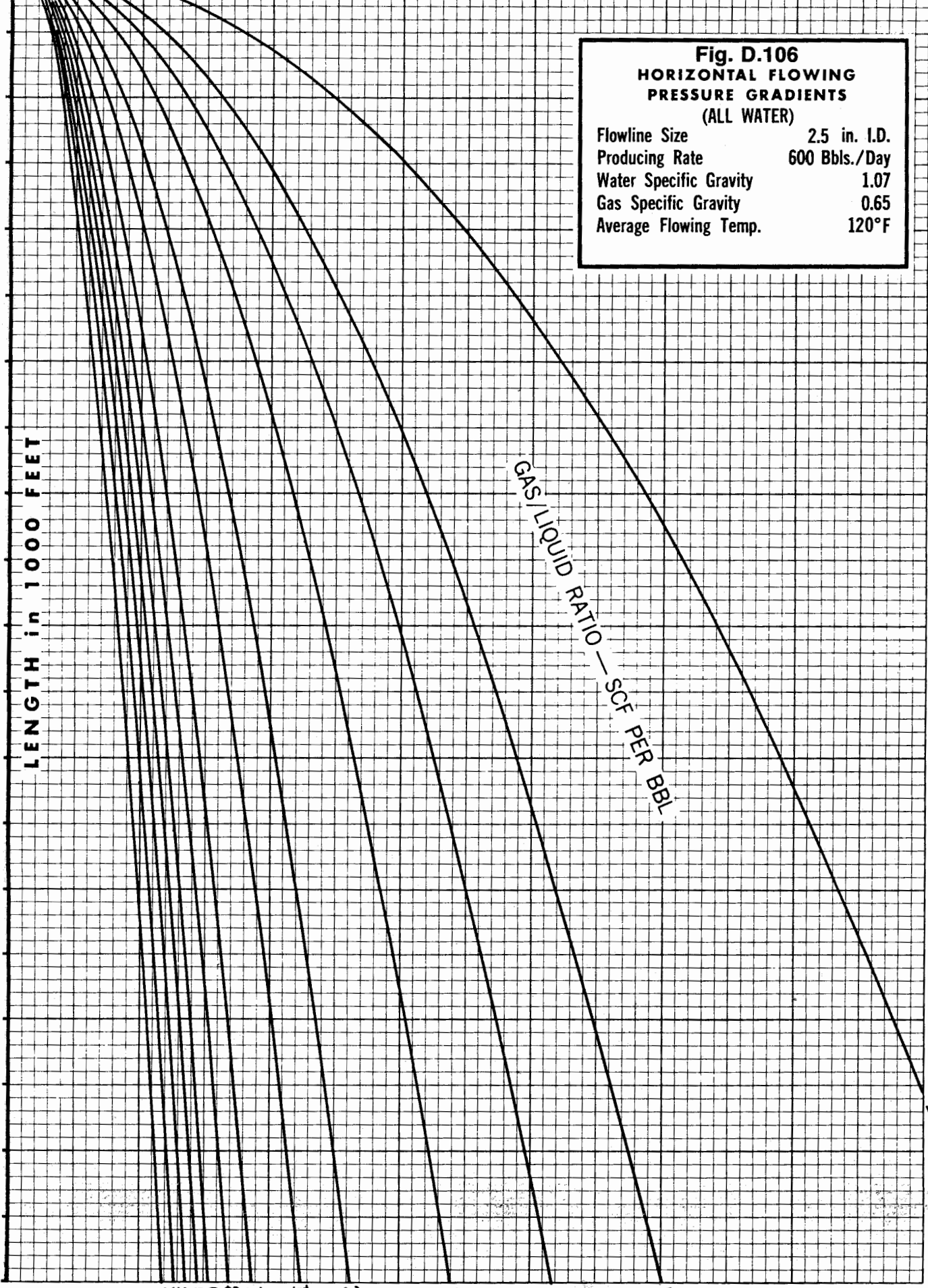
Flowline Size	2 in. I.D.
Producing Rate	1500 Bbls./Day
Water Specific Gravity	1.07
Gas Specific Gravity	0.65
Average Flowing Temp.	140° F



0 2 4 6 8 10 12 14
 PRESSURE in 100 PSIG

Fig. D.106
HORIZONTAL FLOWING
PRESSURE GRADIENTS
(ALL WATER)

Flowline Size	2.5 in. I.D.
Producing Rate	600 Bbls./Day
Water Specific Gravity	1.07
Gas Specific Gravity	0.65
Average Flowing Temp.	120°F

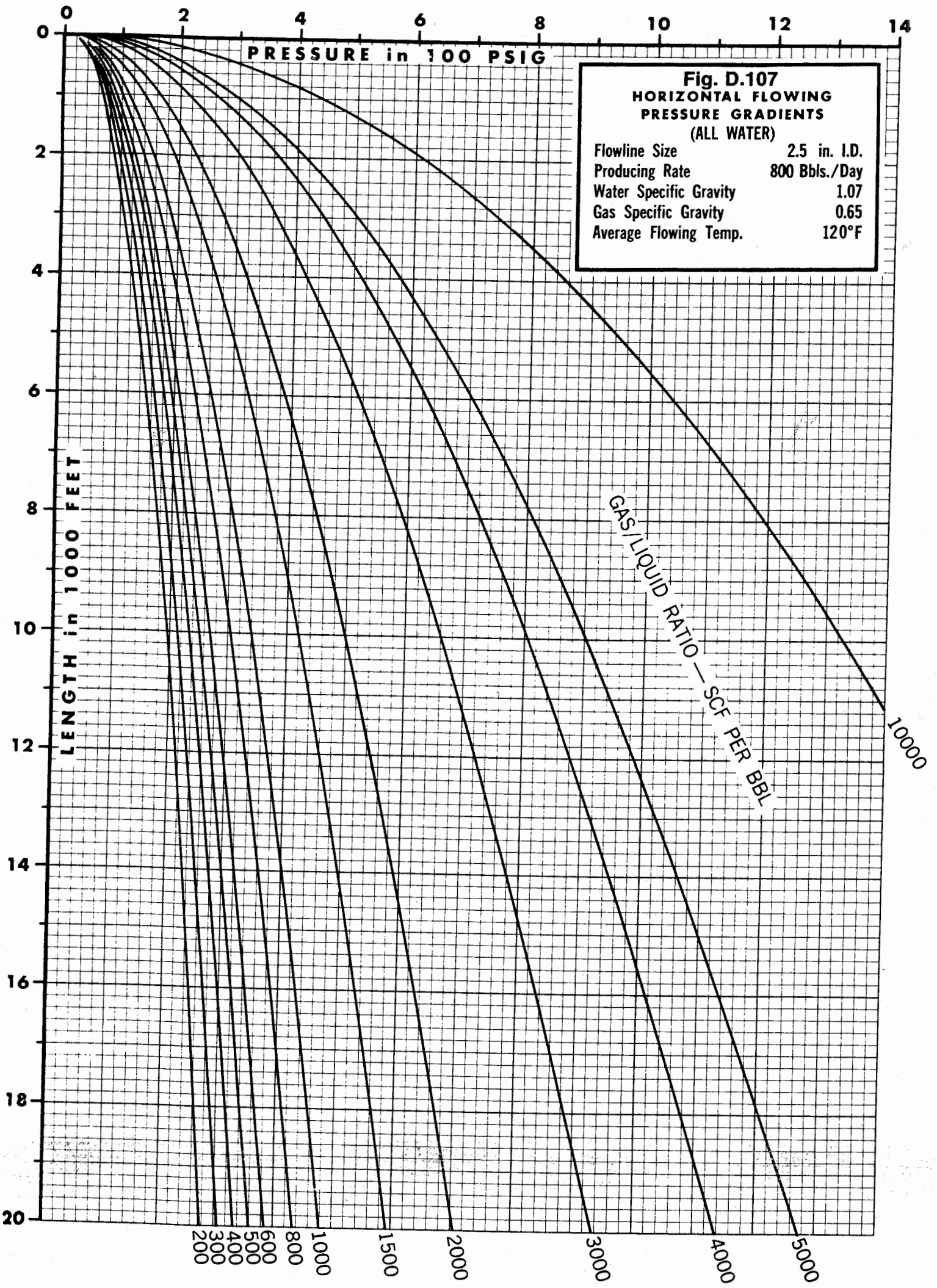


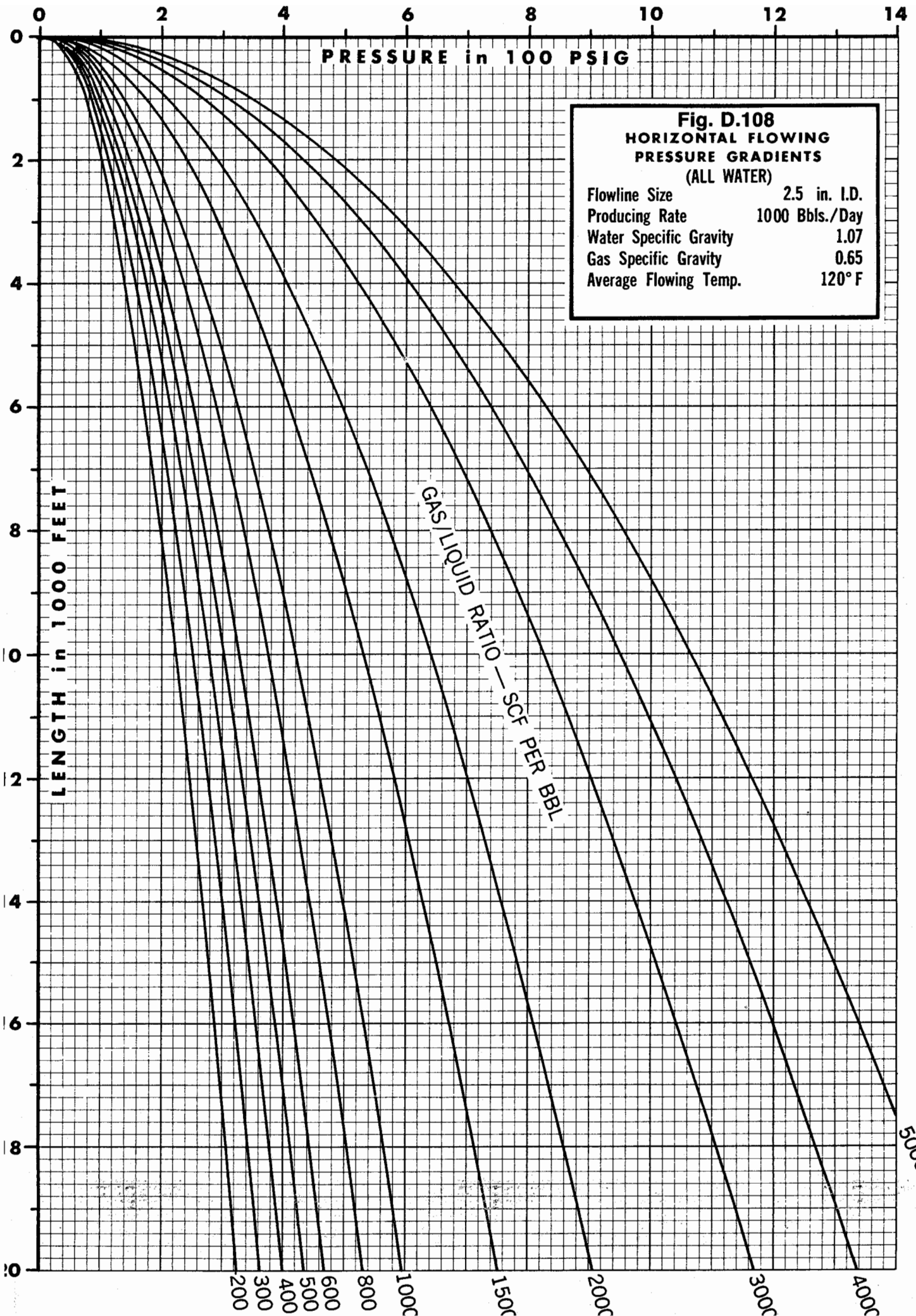
GAS/LIQUID RATIO—SCF PER BBL

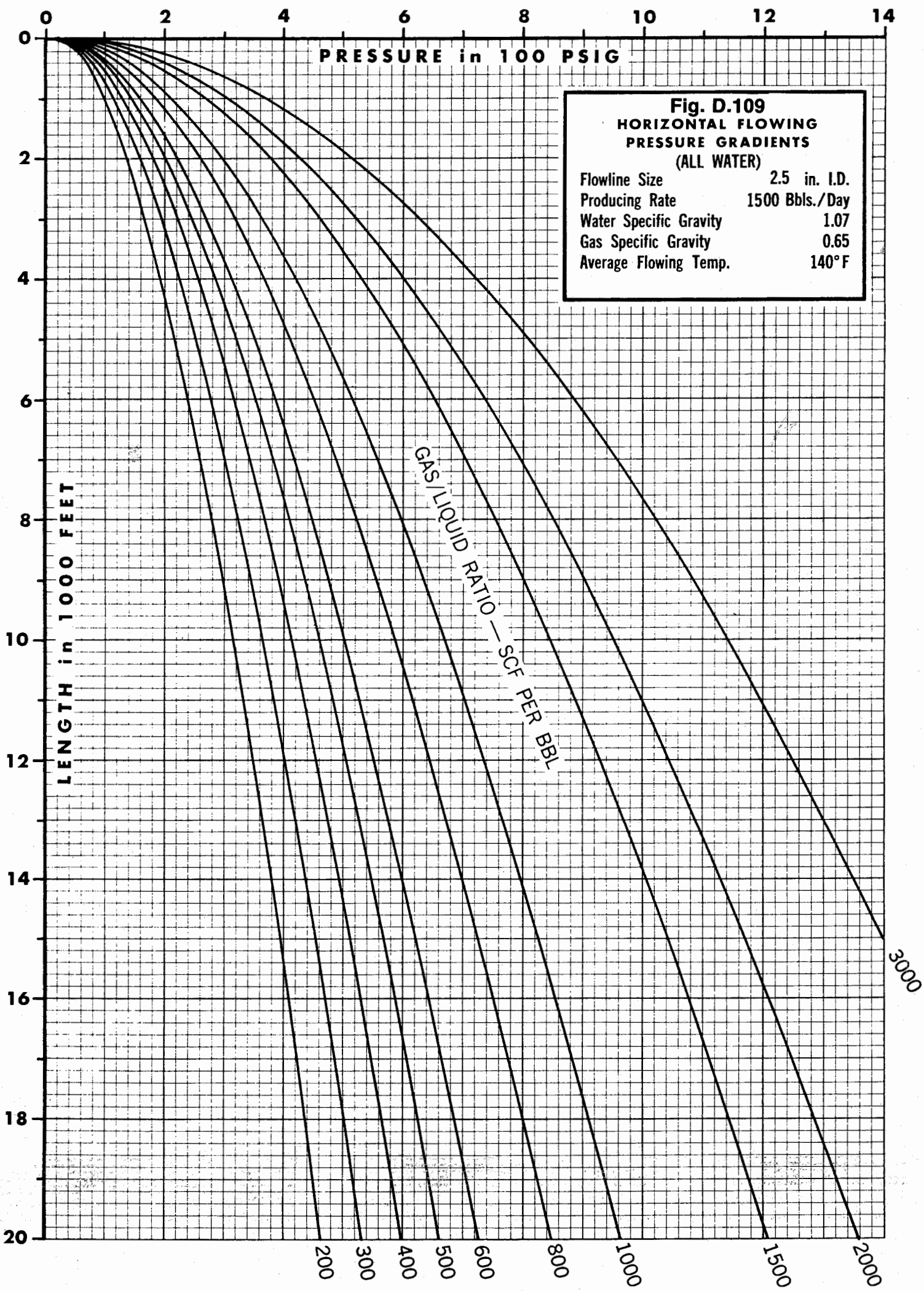
LENGTH in 1000 FEET

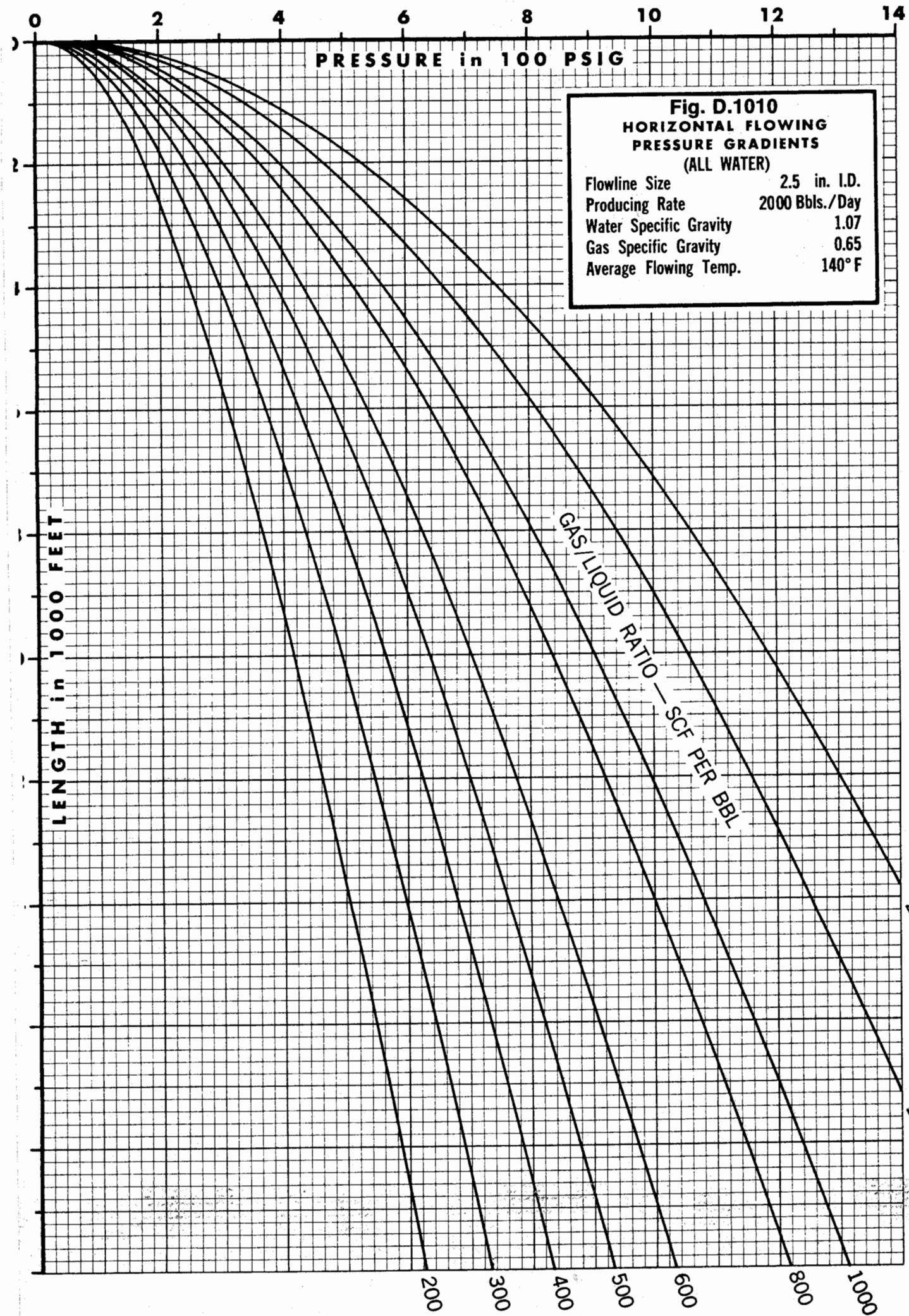
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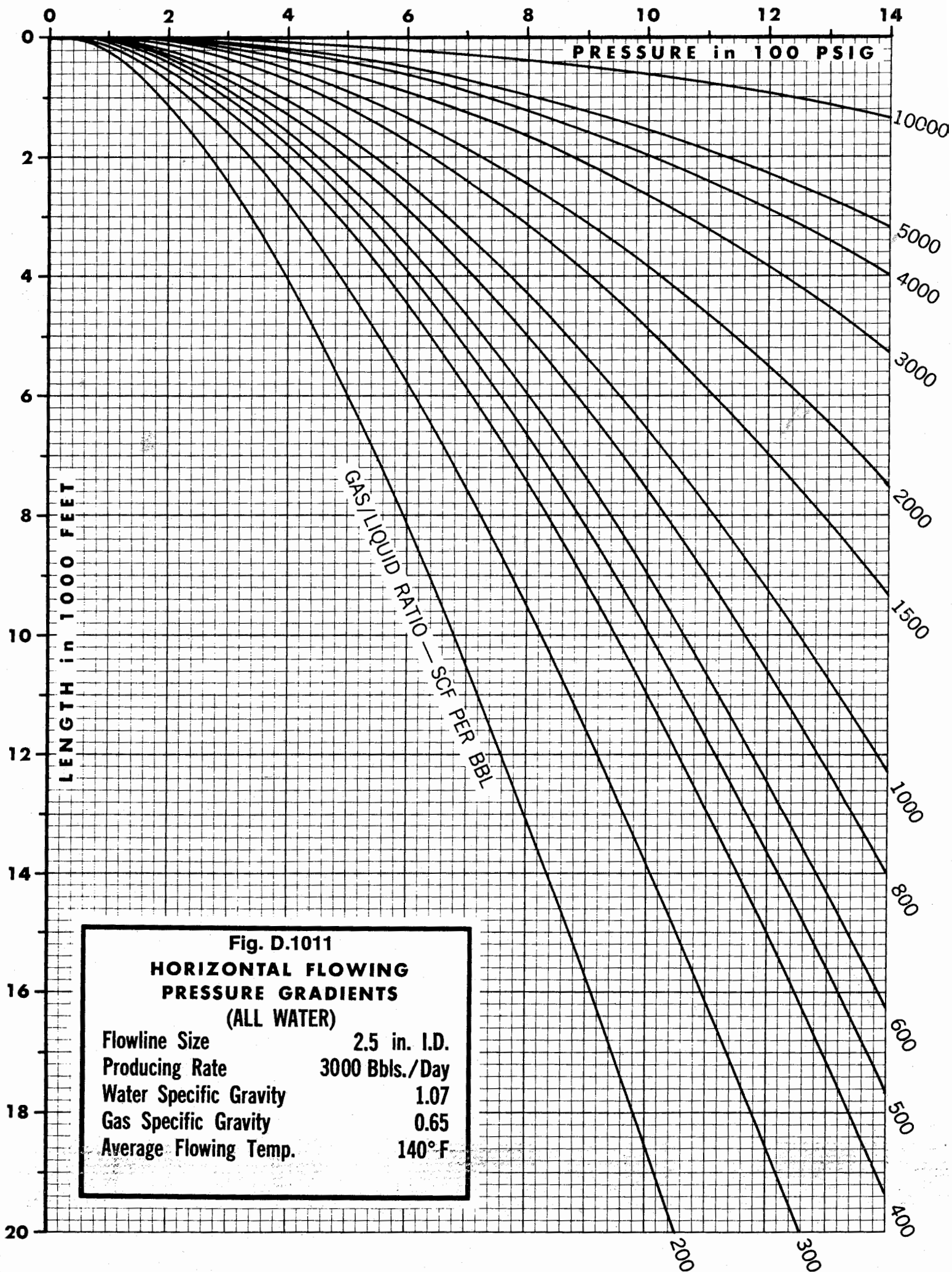
1000

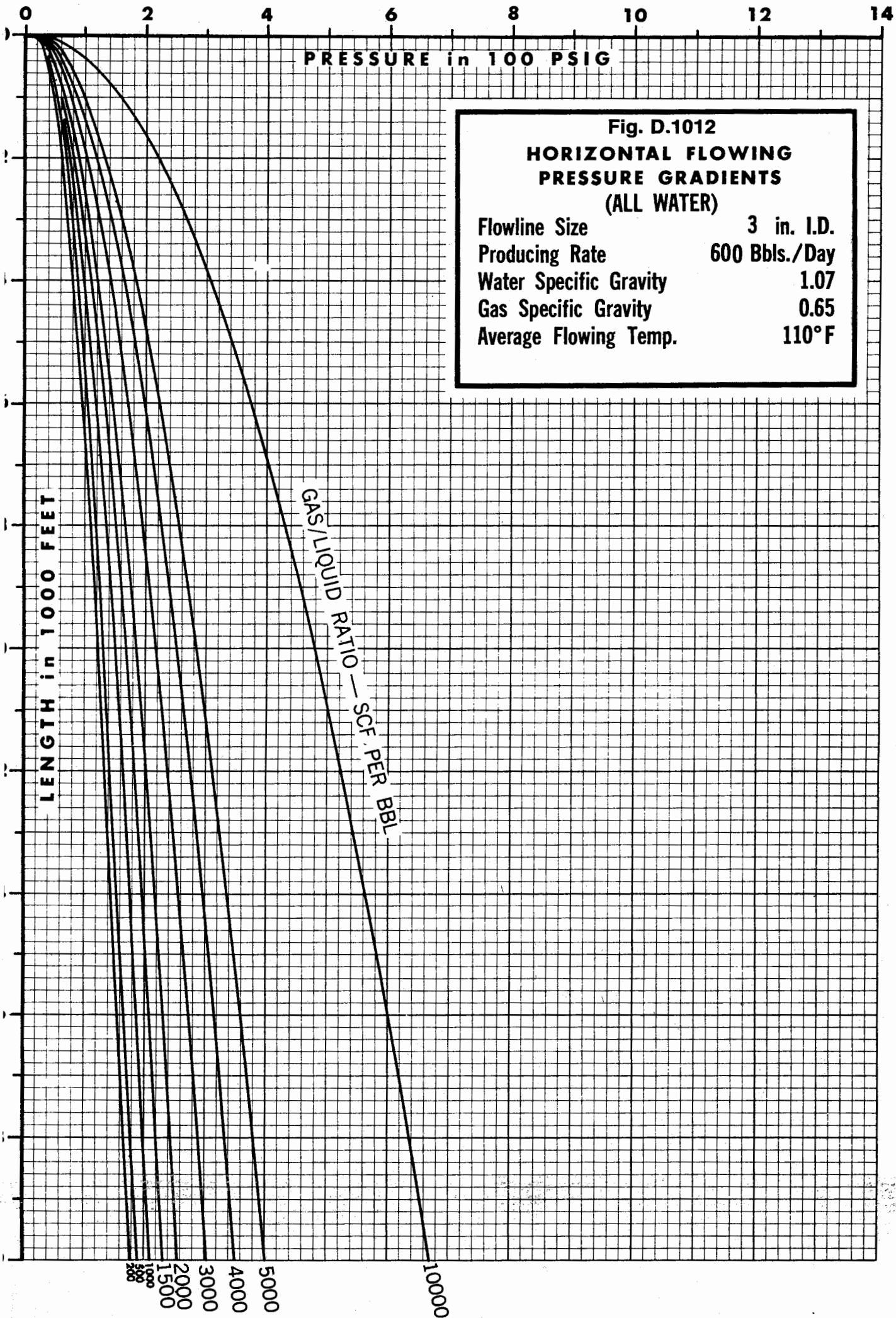


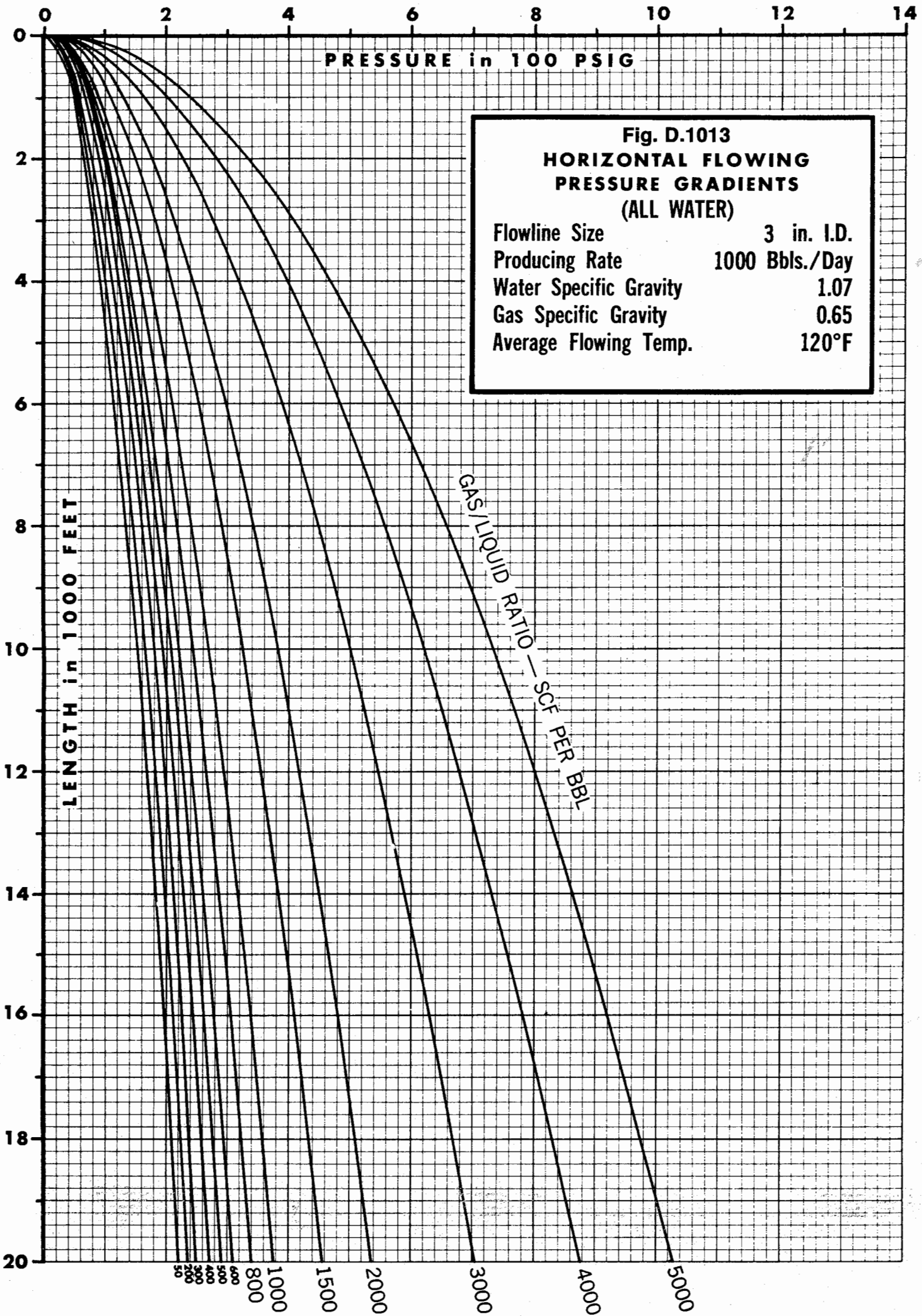


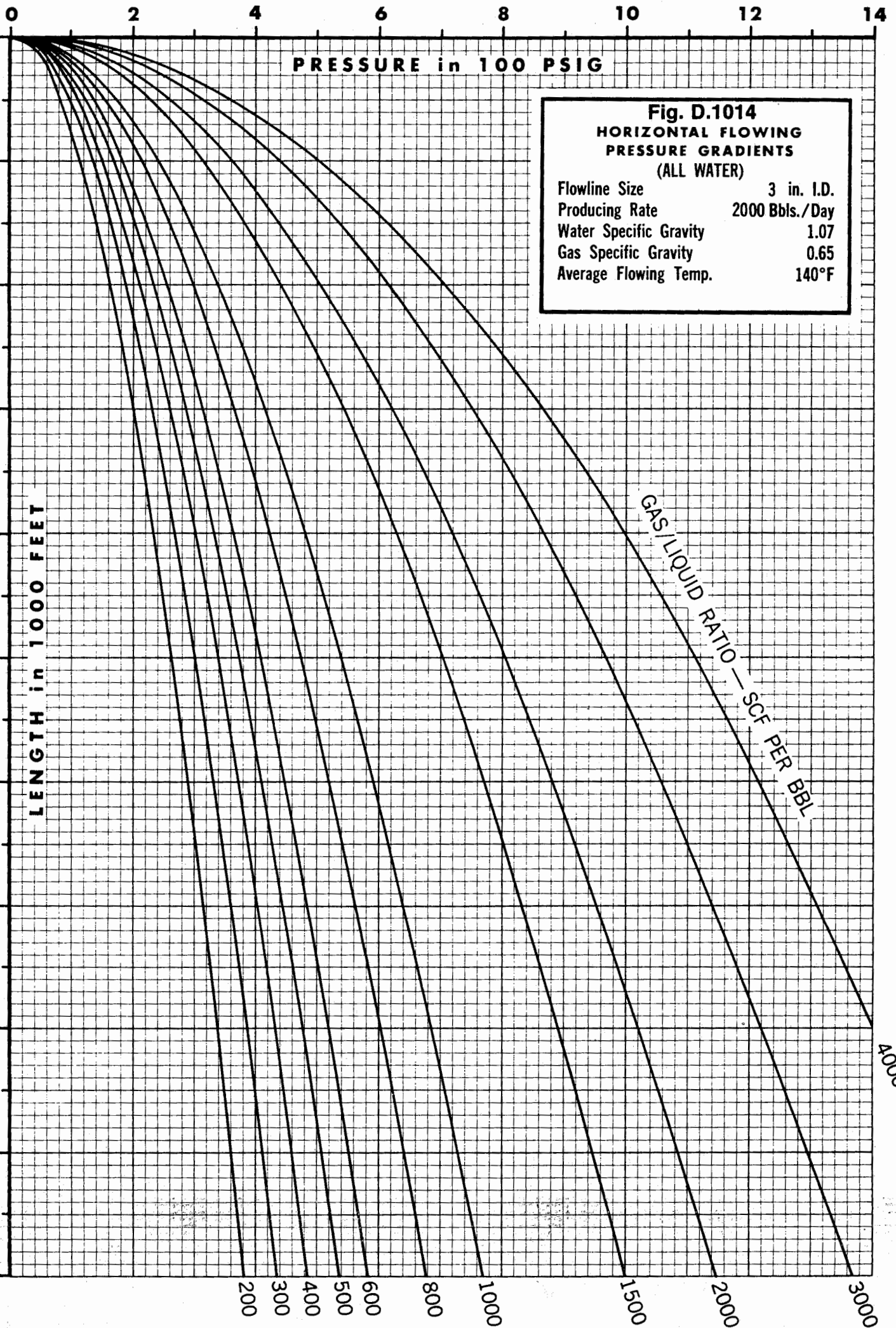


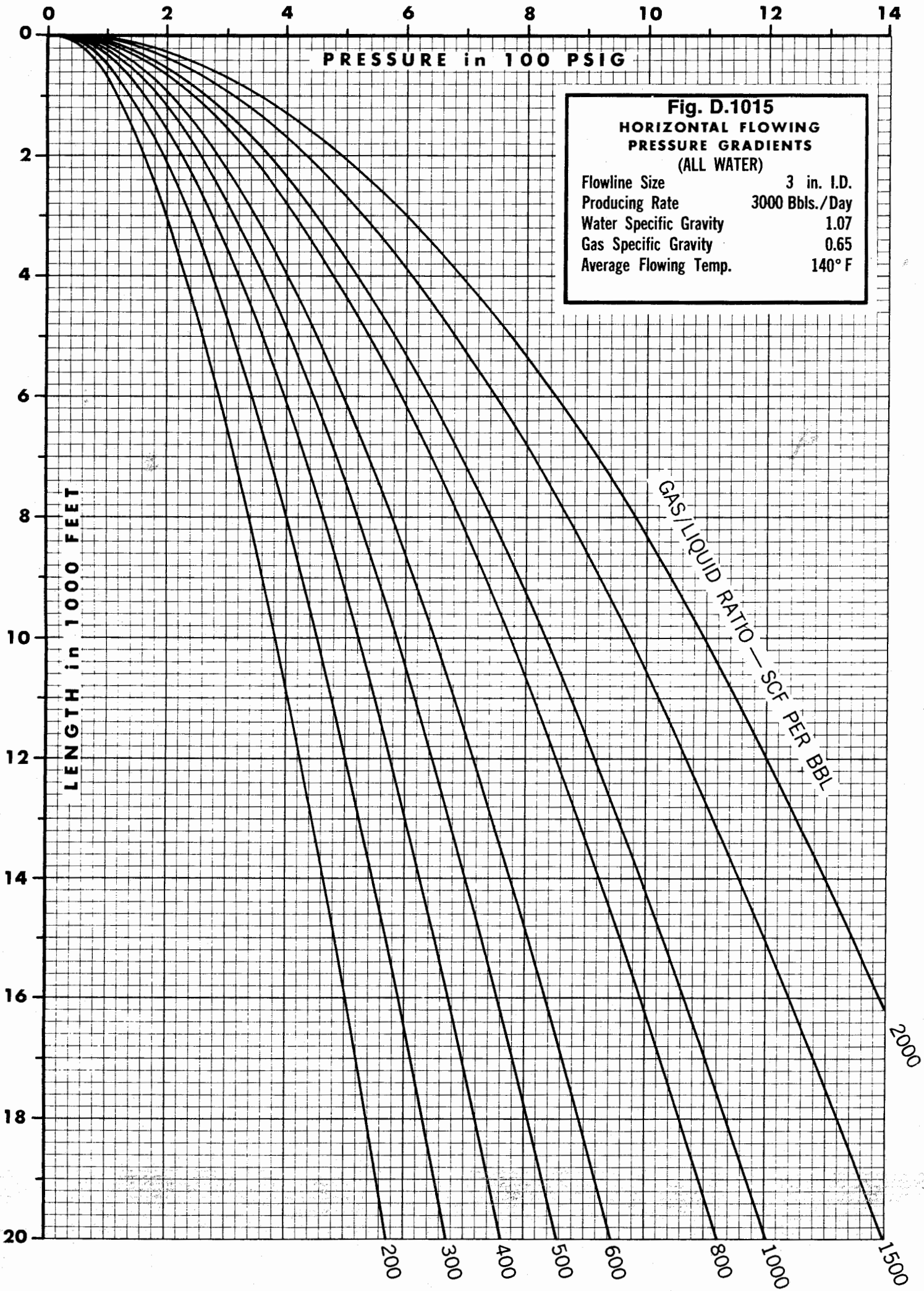


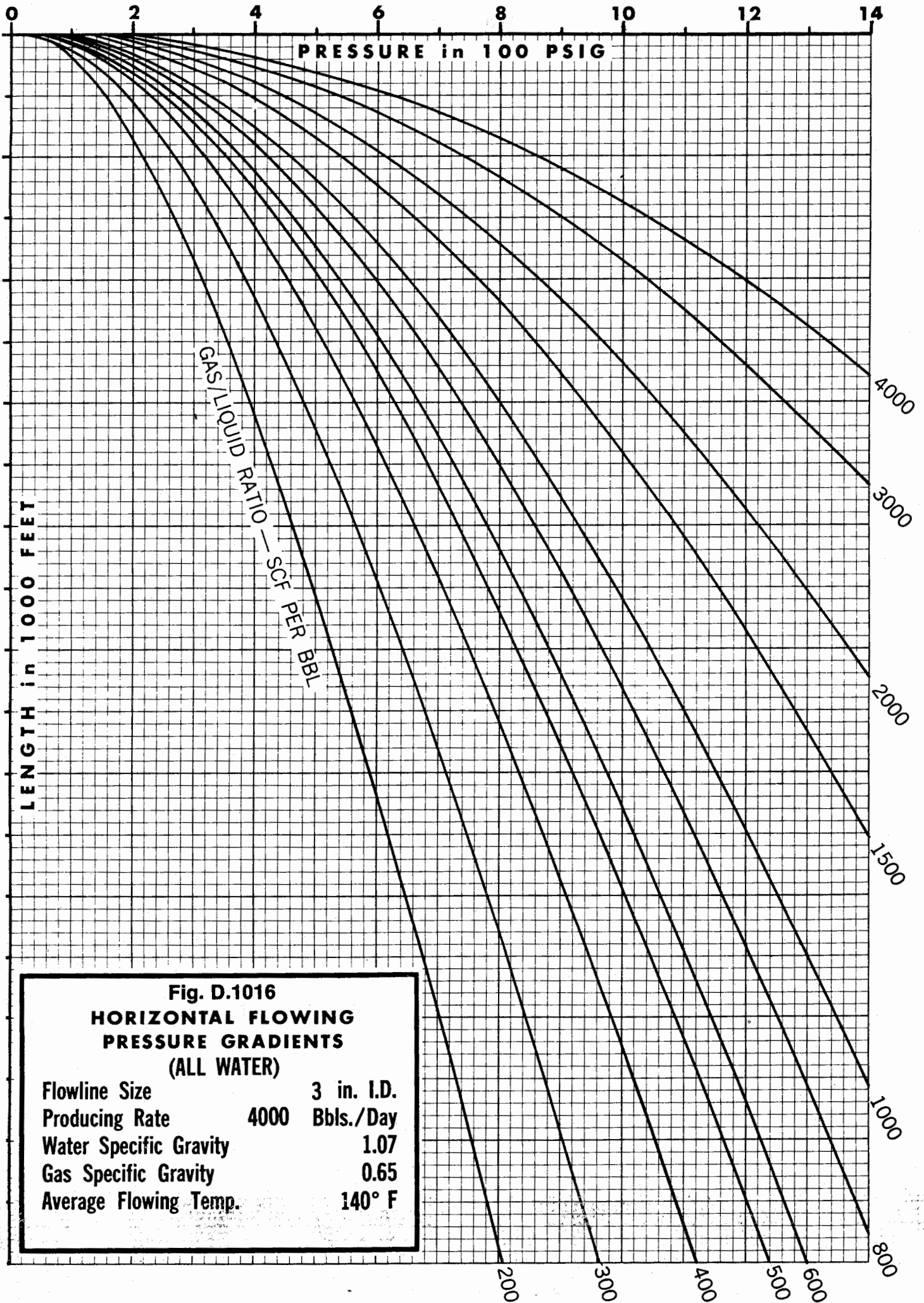












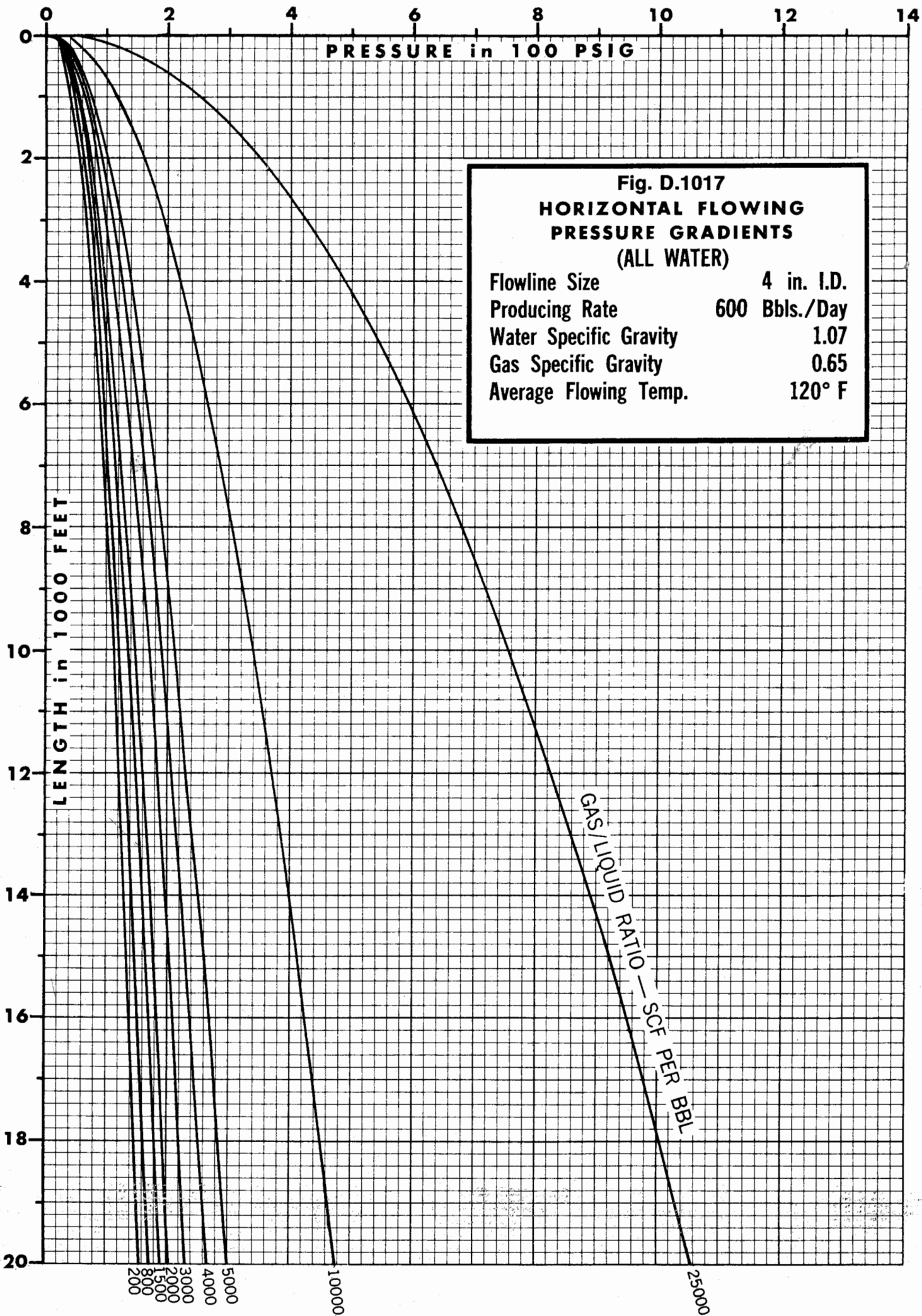


Fig. D.1017
HORIZONTAL FLOWING
PRESSURE GRADIENTS
(ALL WATER)

Flowline Size	4 in. I.D.
Producing Rate	600 Bbls./Day
Water Specific Gravity	1.07
Gas Specific Gravity	0.65
Average Flowing Temp.	120° F

GAS/LIQUID RATIO — SCF PER BBL

