

February 1, 1982

Mr. William A. Slagg, P.E., Director
Gas Bureau, Engineering Division
Wisconsin Public Service Commission
Hill Farms State Office Building
Madison, WI 53702

Dear Mr. Slagg:

We regret the delay in responding to your request for an interpretation of §192.201(a)(2)(i), and it is our conclusion that an interpretation, as such, is not necessary.

You are correct in stating that §192.201(a)(2)(i), when it states "may not exceed," means "may never exceed."

The allowable override of 10 percent of the MAOP is included in the regulation which, for your example, amounts to 6 psig. The MAOP plus the 6 psig equals 66 psig and not the 105 psig which the calculations, submitted by the operator, showed that the system could be subjected to for 21 seconds.

According to the relief regulator's manufacturer (see copy of Bulletin P-13F enclosed), the 2-inch model 63F back pressure regulator is undersized for this application.

If you have any further questions, please contact me.

Sincerely,

Melvin A. Judah
Acting Associate Director
for Pipeline Safety Regulation
Materials Transportation Bureau

Enclosure

September 29, 1980

Mr. Frank Fulton, Chief of Pipeline Safety
Enforcement Division
Room 8430 NASSIF Building
400 7th Street, South West
Washington, DC 20590

Dear Mr. Fulton:

The Gas Bureau of the Public Service Commission of Wisconsin encountered a field problem involving the sizing of relief valves which we believe requires an interpretation of the gas safety code by your office. The situation is not a particularly complicated one, per se, but neither is it an obvious one and the interpretation can have a considerable effect on both our inspection procedures and the design criteria of the gas utilities in Wisconsin.

Section 192.201 is entitled "Required capacity of pressure relieving and limiting stations" and states in subsection 192.201(a)(2)(i) that "If the maximum allowable operating pressure is 60 psig or more, the pressure may not exceed the maximum allowable operating pressure plus 10 percent or the pressure which produces a hoop stress of 75 percent of SMYS, whichever is lower."

The Wisconsin Gas Bureau has been interpreting the above usage of the term "may not exceed" as "may never exceed", (at least as far as overpressure relief design criteria are concerned) even for a period as short as a few seconds. Gas industry design criteria would appear to more generally base its calculations on the hourly considerations. It is this variance in interpretations which we are asking to be resolved by your office.

The problem which illustrates the differences in interpretations resulted from the Gas Bureau inspection of the Browntown town border and district regulator stations. The first district regulator station in Browntown in 10,900 feet of 2-inch pipe (equivalent) downstream from the

town border station. The town border station supplies gas at 270 psig, which is assumed to be the maximum pressure available at the first regulator station inlet. The outlet of this single, 2 inch body, Fisher 57 "S" regulator supplies a distribution system with an MAOP of 60 psig which is protected against overpressuring by a 2-inch Fisher 63F relief valve set at 66 psig with a rated capacity of 186,000 cubic feet per hour. Calculations and flow chart data agree that the critical flow to this regulator station is 50,000 cubic feet per hour. Interpretation of the situation on an hourly basis

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would indicate that the overpressure relief capacity is more than adequate. Gas Bureau interpretation of the attached data (supplied to us by the utility) would indicate that failure of the single regulator in a wide open position would subject the downstream distribution system to pressures in excess of MAOP + 10% (up to 105 psig.) for up to 21 seconds and therefore, the relief valve capacity is inadequate under subsection 192.201(a)(2)(i).

Our analysis of the situation is that the single Fisher 57 "S" regulator in wide open position with any pressure at its inlet in excess of approximately 173 psig can supply more gas to the relief valve than it can vent without increasing its inlet pressure (and thus the downstream system pressure) above the MAOP plus 10% figure. In the "worst case" condition, the drawdown of the linepack is a significant factor for some 21 seconds in the overpressuring situation. The data on the attached lateral analysis sheets are from standard computations, flow chart review and manufacturer's data.

We will be awaiting your interpretation.

Sincerely,

William A. Slagg, P.E., Director
Gas Bureau
Engineering Division