Feb 27 1981

Mr. Keith A. Chen, P.E.
Director - Research
Wisconsin Gas Company
626 East Wisconsin Avenue
Milwaukee, Wisconsin 53202

Dear Mr. Chen:

Your letter to this office of February 6, 1981, concerns the use of full encirclement stainless steel band clamps for permanent repair of damaged plastic pipe. We agree with your interpretation that Subpart G of 49 CFR Part 192 (and, thus, 192.311) is only applicable during the construction of a transmission line or main. However, as further discussed below, even if the band clamp were considered a "patching saddle," as intended by 192.311 (which it is not), its use to permanently repair plastic pipe either during construction or after operation may be prohibited under 192.703(b).

In regard to the term "patching saddle" as used in 192.311, these words were added to the final rule as a result of comments to the proposed rule stating that defective plastic pipe should be permitted to be repaired. These comments clearly had in mind the use of a saddle made of material similar to that of the pipe being repaired that would be joined to the pipe by fusion, solvent cement, adhesion, or similar methods. Typical comments that prompted the Office of Pipeline Safety to permit use of a "patching saddle" were:

> "We feel that patching of a plastic main should be allowed. Should be no difference between a patch over a gouge or the installation of a service tee." (Iowa Public Service Company)
>
> "The use of solvent weld half-soles on polyvinyl chloride pipe has proven to be a safe, economical method of repair for scratches, gouges, and grooves on mains in service." (Central Telephone and Utilities Corporation)

Thus, a band clamp is inconsistent with the meaning intended by "patching saddle."

Another reason why "patching saddle" does not mean a band clamp is that when 192.311 was issued, 192.281(e)(2) was also issued, requiring a rigid internal tubular stiffener to be used in conjunction with each compression type mechanical coupling. This requirement recognizes the compressive forces of the sealing gasket used in a compression coupling and the fact that plastic materials under constant stress will tend to cold flow. A full encirclement stainless steel band clamp, like a compression coupling, subjects the plastic pipe to compressive stress but does not provide internal support for the pipe that may be needed to prevent cold flow of the plastic.

Because of the question of cold flow of plastic pipe, we believe that the safety of a permanent repair by use of a band clamp is questionable under some conditions, depending on the stiffness of the plastic pipe involved. Where unsafe conditions would result, 192.703(b) would forbid use of the band clamp as a repair method.

In your letter, you state that "Wisconsin Gas conducted tests on the stainless steel clamp used as a patching saddle which determined that the performance met the required safety and serviceability tests of the code." We would appreciate your sending us these data and any other data available on the problem of cold flow of plastic pipe under continuous gasket pressure as discussed above.

Sincerely,

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