PRESSURE VESSEL SAFETY VALVE
COMMON-DISCHARGE HEADER SIZING

This policy is intended to apply to pressure vessel relieving device discharge lines which enter into a common-discharge header system. Past practice has been to ensure the internal area of a pressure relieving device discharge line header section equals or exceeds the summation of all pressure relieving device discharge line areas entering into that header section. Because of inconsistencies in the application and inappropriateness for use within large gas compressors or refineries, a standard policy is warranted.

ASME Section VIII, Division I, Appendix M, M-7(b) states that the sizing of any section of a common-discharge header downstream from each of the two or more pressure relieving devices that may reasonably be expected to discharge simultaneously shall be based on the total of their outlet areas. The main point of contention lies in what is considered as reasonable.

To avoid any personal interpretations into this definition, the following policy will now be implemented for common-discharge headers appearing in ASME B31.3 pressure piping systems submitted for design registration.

The internal area of a common-discharge header need not be increased to compensate for additional relief discharge tie-ins provided all of the following are performed:

1. It must be proven through pressure relief device manufacturer's specifications and supplemental calculations that each individual pressure relief device has sufficient capacity to relieve the entire pressure system under consideration.

2. It must be assured through calculations and logic that not more than one pressure relief device associated with the common-discharge header section in question can discharge at one time. This must be absolute.

3. A declaration indicating compliance with these preconditions must be made and stamped by a registered professional engineer from the Province of Saskatchewan.

Under no circumstances shall the internal area of a common-discharge header be less than the outlet area of any relief device entering into that header. Acceptance of this application will be site and product specific. Any change to pressure relieving devices, pressure equipment or production volumes must be declared and may result in required changes to the common-discharge header section in question.

If there are any further questions or concerns, feel free to contact the office at (306) 787-4567.