Technical Safety Authority of Saskatchewan

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Pressure Relief Device Common Discharge Header Sizing

Information Paper IP-2016-07-06

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1. Scope

This information paper details how to design pressure relief device (PRD) common discharge header piping following the requirements of CSA B51-14 (except for Clauses 12.2.2.7 and 12.2.2.8) and ASME Section VIII Division I Appendix M. This applies to all PRD discharge piping that is interconnected with other PRDs through a common discharge header.

Please return to Policy Paper *TSASK-2016-07-01 Application for the Registration of a Pressure Piping Design* for detailed information on other submission requirements once you have finished reading this paper.

2. Common Discharge Header Sizing Less than the Sum of the Cross-sectional Areas of the PRDs Outlets

The cross-sectional area of a common discharge header may be less than the sum of the cross-sectional outlet areas of the PRDs that are connected into the discharge header if: (*All conditions must be met*)

1. The PRD design logic states absolutely that if one or more of the clearly identified PRD(s) relieve, the entire system pressure will be relieved. The common discharge header cross-sectional area shall not be less than the sum of the outlet areas of the relieving PRD(s). There may be more than one valve relieving at one time to relieve the entire system pressure.
2. The PRD design logic shall be proven to the satisfaction of TSASK through calculation and manufacturer design specifications.
3. A declaration of compliance with this information paper and these conditions shall be dated, signed and stamped by a Professional Engineer and submitted with *TSK-1011 – Application for the Registration of a Pressure Piping Design*.
4. When considering the fire case for the installation, good engineering judgement shall be applied as to whether or not the consideration of the fire case would realistically cause more of the vessels' relief valves to relieve pressure or not. And, in consideration of that case, deciding if the fire case considerations are already taken into account with the blocked flow scenario.

3. Overpressure Protection by System Design – Quality Management Systems (QMS) only

The provisions of *IP-2011-03-01 Overpressure Protection by System Design (OPPSD) Requirements* are available to Quality Management System (QMS) manual holders only.

4. Additional Information or Questions

4.1. Design of Pressure Piping Systems Inquiries

If possible, applicants should contact their Design Reviewer directly with questions. Be sure to include the TSASK reference number or provide enough detail that the Design Reviewer will know which application is being referenced.

For all other design inquiries, please contact TSASK Codes & Standards Compliance:

- By email at CodesandStandards@tsask.ca;
- By phone at either (306) 798-7111 (Regina) or Toll Free (866) 530-8599. Please ask to speak to either a TSASK Design Reviewer or the Manager, Codes & Standards Compliance; or
- Visit the TSASK website at www.tsask.ca for more information