

2016.01 - Pressure Safety Valves

PURPOSE

This Safety Notice highlights recent deficiencies during a review onboard a marine installation or structure in the Canada-Newfoundland and Labrador (Can-NL) Offshore Area in relation to the handling, inspection and operation of pressure safety valves.

BACKGROUND

A pressure safety valve (PSV) is often the last device to prevent a catastrophic failure under pressure conditions. It is imperative that the PSV works at all times. If not properly handled, operated, and maintained, a PSV will pose as a hazard to the system, people, and environment it is intended to protect.

The following deficiencies were observed during the review:

- PSVs were noted to be shipped and stored in a manner which was not in accordance with either good industry practice or manufacturer's recommendations. The improper handling and storage of a PSV may alter the pressure setting, deform valve parts, and adversely affect seat tightness and valve performance during operation resulting in failure when placed in demand.
- The interlock key systems on the inlet and outlet of PSVs were not being managed in a manner to ensure that the valve is in the correct position and controlled. Without a proper management system in place, interlock systems can be operated by unauthorized personnel and valves can be opened and closed in the wrong sequence which can lead to serious consequences such as fatal injuries and equipment damage.
- PSVs observed with missing or improper material fittings for bellow leak detection pipe. Bellows failure can result in an uncontrolled release of a flammable gas or liquid and is an important concern in critical applications where a very precise set pressure is required. A mechanism is required to detect leaks at all times.
- There is a lack of requirements within the management system for the testing and recertification of PSVs. PSVs are a well-known source of leaking/emissions but a proactive testing and repair program can dramatically reduce losses and provide assurance that the valve will operate satisfactorily when needed.

LEGISLATION

- *Canada- Newfoundland and Labrador Atlantic Accord Implementation Act*(Section 205.015(2)(a))
- *Newfoundland Offshore Petroleum Drilling and Production Regulations* (Sections 5,8)
- *Newfoundland Offshore Petroleum Installations Regulations*:
 - Section 8(5)
 - Reference paragraph 17(3)(a), *American Petroleum Institute RP 520, Recommended Practice for the Design and Installation of Pressure-Relieving Systems in Refineries*.
 - Reference paragraph 17(3)(b), *American Petroleum Institute RP 521, Guide for Pressure-Relieving and Depressuring System*.
 - Reference subsection 35(1), *American Petroleum Institute RP 14E, Recommended Practice for Design and Installation of Offshore Production Platform Piping Systems*.

SAFETY NOTICE

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- Reference paragraph 35(2)(b), *American Society of Mechanical Engineers ASME Boiler & Pressure Vessel Code, sections I, II, IV, V, VII, VIII and IX.*
- Reference paragraph 35(2)(c), *Canadian Standards Association B51-M1991, Boiler, Pressure Vessel, and Pressure Piping Code.*
- Reference paragraph 18(4), *American Petroleum Institute RP 14C, Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms*

OTHER REFERENCES

- *Power Piping ASME Code for Pressure Piping, B31*
- *Center for Chemical Process Safety, Process Safety Beacon, What is a Safety Instrumented System, July 2009*
- *Crosby Pressure Relief Valve Engineering Handbook, May 1997*
- <https://www.stepchangeinsafety.net/safer-conversations/safety-alerts/gas-release-safety-release-valve>
- http://www.bsee.gov/uploadedFiles/BSEE/Inspection_and_Enforcement/Accidents_and_Incidents/a_cc_repo/2015/MC%20812%20Shell%20Offshore%2004%20Jul%202015.pdf

RECOMMENDED ACTION

- Operators, Employers, Suppliers and Providers of Service are requested to review and ensure their practices surrounding the design, shipping, storage, installation, inspection, testing, maintenance and operations of PSVs is in compliance with the regulations and referenced standards, and is conducted in accordance with industry best practice and manufacturer's recommendations.
- Operators are specifically required to pay specific attention to its practices of shipping, handling and storage of PSVs, the management of interlocks on PSVs, the proper installation and use of leak detection pipes on PSVs designed with a bellow and the testing and subsequent recertification of PSVs.

This notice shall be posted onboard installations which are operating under an authorization issued by the C-NLOPB in a prominent place accessible to every employee at the workplace.

Questions regarding this Safety Notice may be directed to a C-NLOPB Safety Officer at the address shown below.

Canada-Newfoundland and Labrador Offshore Petroleum Board

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