

EMERGENCY DISCHARGE LINE**No: SO-BP 2021-02****Date of Issue: March 30th, 2021**

This safety order is issued pursuant to section 31 of the Safety Standards Act. A person affected by this safety order may appeal this order in writing to the Safety Standards Appeal Board within 30 days. The appeal process is set out on the Safety Standards Appeal Board's website at www.gov.bc.ca/safetystandardsappealboard.

Failure to comply with a safety order is an offence under section 72 of the Safety Standards Act.

Part 1: Details of Regulated Work or Regulated Product

The scope of this safety order is applicable to all ammonia refrigeration plants that are subject to the application of the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation (“PEBPVR Safety Regulation”).

Part 2: Requirement(s) of this Safety Order

Any owner of a refrigeration plant, within the scope of this safety order, shall comply with the following requirements with respect to the emergency discharge line:

- 1) All new installations performed after the issue date of this safety order must meet **both** of these requirements:
 - a) The plant relief piping conforms with the requirements of the current adopted revision of CSA B52.
 - b) The emergency discharge line is eliminated from the design and therefore not a part of the installation.
- 2) All retrofit installations of existing refrigeration plants, including but not limited to equipment replacement, plant alterations, and installation upgrades, must meet these requirements:
 - a) If the plant relief piping is modified, the owner must ensure **both** of the following requirements are met:
 - (i) Upgrade the plant relief piping to conform with the requirements of the current adopted revision of CSA B52. The upgraded relief piping must be designed by a professional engineer or a class REF licensed contractor and must be submitted to Technical Safety BC with the Compliance Declaration form for documentation.
 - (ii) Eliminate the emergency discharge line from the design and the installation.
 - b) If the plant relief piping is not modified, the owner must ensure **one** of the following requirements is met:
 - (i) Upgrade the plant relief piping to conform with the requirements of the current adopted revision of CSA B52, and remove the emergency discharge line. The upgraded relief piping must be designed by a professional engineer or a class REF licensed contractor and must be submitted to Technical Safety BC with the Compliance Declaration form for documentation.

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- (ii) Create, implement, and maintain an Emergency Discharge Valve Safe Operation Procedure in accordance with section 4 of this safety order.
- 3) All existing refrigeration plants must meet these requirements:
 - a) If the plant relief piping is in compliance with the requirements of the current adopted revision of CSA B52 the owner must ensure **one** of the following requirements is met:
 - i) Remove the emergency discharge line
 - ii) Create, implement and maintain an Emergency Discharge Valve Safe Operation Procedure in accordance with section 4 of this safety order.
 - b) If the plant relief piping is not in compliance with the requirements of the current adopted revision of CSA B52, the owner must ensure **one** of the following requirements is met:
 - i) Upgrade the plant relief piping system to conform with the requirements of the current adopted revision of CSA B52 and remove the emergency discharge line. The upgraded relief piping must be designed by a professional engineer or a class REF licensed contractor and must be submitted to Technical Safety BC with the Compliance Declaration form for documentation.
 - ii) Create, implement, and maintain an Emergency Discharge Valve Safe Operation Procedure in accordance with section 4 of this safety order.
- 4) The Emergency Discharge Valve Safe Operating Procedure must meet all of these requirements:
 - a) At a minimum, the Emergency Discharge Valve Safe Operating Procedure must contain information on:
 - i) Circumstances at which the emergency discharge valve is allowed to be operated
 - ii) Person(s) authorized to operate the emergency discharge valve
 - iii) Emergency discharge valve box safeguarding and restricted access to the emergency discharge valve
 - iv) Contamination control plan after the emergency discharge valve is operated
 - v) Staff training plan and training record keeping
 - b) The Emergency Discharge Valve Safe Operating Procedure must be developed by a qualified individual* and submitted to the Technical Safety BC with the Compliance Declaration form for documentation..
 - c) The Emergency Discharge Valve Safe Operating Procedure must be demonstrated when requested by a Technical Safety BC safety officer.
 - d) All personnel who are authorized to operate the emergency discharge valve must be trained annually on the Emergency Discharge Valve Safe Operating Procedure.
 - c) Records of training must be made available upon request by Technical Safety BC safety officer.
 - d) A copy of the Emergency Discharge Valve Safe Operating Procedure must be made available to the local fire department in case of an emergency.
 - e) The Emergency Discharge Valve Safe Operating Procedure must be reviewed annually, and if any changes are made to the plant, it must be updated accordingly. The updated procedure (when applicable) must be resubmitted to Technical Safety BC for review.
 - f) The Emergency Discharge Valve Safe Operating Procedure must be easily available to those who are authorized to operate the valve in emergency situations.
- 5) All new installations must conform with the requirements of this safety order upon issuance.
- 6) Existing refrigeration plants must:

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- a) Submit your “Compliance Method Declaration – Emergency Discharge Line” form (FRM-1736-00), completed by a qualified individual* no later than June 30 2021. You must submit your documents to BPVRSupport@technicalsaftybc.ca.
- b) Implement the compliance method chosen in 6.(a) and submit your “Compliance Declaration – Emergency Discharge Line” form (FRM-1737-00), with proof of compliance** no later than February 28 2022. You must submit your documents to BPVRSupport@technicalsaftybc.ca.

Failure to comply with the requirements of this safety order may result in enforcement action under the Safety Standards Act and associated regulations. For more information regarding Technical Safety BC and progressive enforcement, please visit our enforcement webpage at: www.technicalsaftybc.ca/enforcement.

Submittal of the documents and safe operating procedures to Technical Safety BC does not relieve the owner(s) from their duty to ensure effective procedures are implemented to address safety risks.

* For the purpose of this safety order, a “qualified individual” is a professional engineer, a licensed class REF contractor, or a person in charge of the plant with a certificate of qualification of “refrigeration operator” or 4th class or higher power engineer in accordance with the PEBPVR Safety Regulation.

** Proof of compliance may be, but is not limited to, anything in the following list:

- A photo of the disconnected emergency discharge line at the pressure vessel
- A photo of the restricted access emergency discharge valve box complete with the safe operating procedure

Part 3: Details of Issue

This safety order is being issued to reduce the risk of personal injury or damage to property as a result of an accidental release of refrigerants by opening an emergency discharge valve, especially systems that use ammonia as a refrigerant. The accidental release of ammonia charge into the atmosphere would severely contaminate the neighbouring environment, and have the potential to cause injuries and even death to any person within the immediate vicinity and surrounding area.

Emergency discharge lines were initially introduced as a safety provision to prevent over-pressurization. Now, it’s important for refrigeration plants to provide the over-pressurization safety provision through proper design and installation of safety relief piping, and remove the emergency discharge line to prevent accidental release of refrigerant charge.

However, if the safety relief piping is only compliant with the original code of construction, which is older than the 2005 revision of CSA B52, the safety relief piping may not provide adequate provisions to protect the system against over-pressurization and the emergency discharge line may still be required. In such cases, a detailed Emergency Discharge Valve Safe Operating Procedure must be developed and implemented to restrict the access and operation of the emergency discharge valve to those who are fully trained on exposure control plans.

Clause 6.10 of CSA B52, 2018 edition, states: An emergency discharge system shall be provided when mandated by the authority having jurisdiction; otherwise, an emergency discharge system shall not be

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required for a new or existing refrigeration system where the relief piping is in compliance with the current requirements of Annex H of CSA B52, 2005 edition and newer. For an existing refrigeration system where the relief piping is not in compliance with current requirements of Annex H, consideration shall be given to the provision of an emergency discharge system.

As CSA B52, 2018 edition is not yet adopted in the PEBVPR Safety Regulation, this safety order is being issued to provide interim direction on the emergency discharge line requirements.

Part 4: Details of Ordering Safety Manager or Safety Officer

This Safety Order is being issued by a Provincial Safety Manager in accordance with sections 15 (d) and 31 of the Safety Standards Act.



Nav Chahal
Provincial Safety Manager – Energy (Acting)

Date: March 25, 2021

Failure to comply with a safety order is an offence under section 72 of the *Safety Standards Act*.

A person affected by this safety order may appeal this order in writing to the Safety Standards Appeal Board within 30 days. The appeal process is set out on the Safety Standards Appeal Board's website at www.gov.bc.ca/safetystandardsappealboard

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Safety Standards Act:

Safety Orders

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- (1) To prevent, avoid or reduce risk of personal injury or damage to property, a provincial safety manager may, in writing, issue a safety order.
 - (2) A safety order may be issued to any person in relation to any of the following:
 - (a) regulated work or regulated products generally;
 - (b) a specific class of regulated product or regulated work;
 - (c) a specific regulated product or regulated work.
 - (3) For certainty, a safety order issued under this section may apply to
 - (a) regulated work that meets the requirements under this Act,
 - (b) regulated work that previously met the requirements under this Act or a former Act but does not meet the current requirements under this Act,
 - (c) regulated products that meet the requirements under this Act, or
 - (d) regulated products that previously met the requirements under this Act or a former Act but do not meet the current requirements under this Act, including a regulated product that bears a certification mark.
 - (4) A safety order may specify any requirement that is intended to prevent, avoid or reduce the risk of personal injury or damage to property and may include any of the following orders:
 - (a) that an existing regulated work or regulated product must be made safe in compliance with the safety order;
 - (b) that a regulated product must be
 - (i) disconnected from a power source,
 - (ii) uninstalled, or
 - (iii) modified before continued use;
 - (c) that a regulated product must be operated, installed, manufactured or disposed of only as specified or that a regulated product must not be moved;
 - (d) that current or future regulated work or a regulated product must conform to the terms or conditions of the order;
 - (e) that a person take or refrain from taking any action that a safety manager considers necessary to prevent, avoid or reduce a risk of personal injury to persons or damage to property;
 - (f) that the manufacturer make reasonable efforts to recall the regulated product.
 - (5) The provincial safety manager must give written notice of the safety order to the following persons:
 - (a) the manufacturer of the regulated product;
 - (b) an owner of the regulated product if the identity of the owner is known to the provincial safety manager;
 - (c) the person in charge of the regulated work.
 - (6) The notice must state the reasons for the decision and that the person has the right to appeal the decision to the appeal board.
 - (7) Despite section 54, a safety order may not be stayed during an appeal.

References:

Safety Standards Act

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