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Briefs

Submission to the WCB on proposed amendments to OHSR Parts 6, 24 and 28-Toxic process gases

A pdf of the complete submission can be found here.

Submission

The BC Federation of Labour (“BCFED” “Federation”) appreciates the opportunity to provide our recommendations with respect to the proposed amendments to the *Occupational Health and Safety Regulation* (“OHSR”) Part 6: Substance specific requirements, Part 24: Diving, fishing and other marine operations and Part 28: Agriculture.

The Federation represents more than 500,000 members of our affiliated unions, from more than 1,100 locals working in every aspect of the BC economy. The Federation is recognized by the Workers’ Compensation Board (“WCB,” “Board”) and the government as a major stakeholder in advocating for the health and safety of all workers in BC and full compensation for injured workers.

The BCFED believes the proposed amendments to the OHSR go a long way to update and improve the existing requirements for toxic process gases (“TPGs”). The Federation also strongly supports ending the existing exemptions for fishing vessels and anhydrous ammonia fertilizer systems on farms.

In the following, we address those sections of the regulation we believe require further amendments.

We urge the Board of Directors to seriously consider our recommendations so we meet our shared goal to ensure that BC health and safety regulations set high standards for the prevention of injury and death for workers.

Introduction

Toxic gases like ammonia, chlorine, hydrogen sulfide or ethylene oxide are used, stored and/or produced in many BC workplaces, and pose a significant risk of injury or death to both workers and the public. In BC, there have been multiple fatalities that have devastated families and communities.

For example, Ut Van Tran, Chi Wai (Jimmy) Chan, and Han Duc Pham were killed in 2008 after being overcome by toxic gases in an enclosed space on a mushroom farm in Langley. Two other workers survived but suffered irreversible brain damage in the same incident. A deadly ammonia leak at the Fernie Memorial Arena in 2017 claimed the lives of City of Fernie employees Wayne Hornquist and Lloyd Smith and refrigeration contractor Jason Podloski. A 2022 incident at an Arctic Glacier ice plant in Kamloops resulted in a release of ammonia that killed Blair Duane Smith and injured two others.

And there have been other notable close calls. In 2018, maintenance of freeze-drying equipment at a pet food factory in Langley resulted in a ruptured evaporator and the release of a significant amount of ammonia. The area was evacuated for two days. A brand new chiller installed in an ice arena in Port Alberni in 2019 leaked ammonia and the facility was shut down.[1] In 2022, seven workers became ill after being exposed to ethylene oxide used to sterilize instruments at a veterinary clinic on Vancouver Island.[2] Dozens of children were sent to hospital after being exposed to chlorine gas at a pool in Williams Lake in 2012.[3]

An array of factors contributed to these incidents, including miscommunication, staffing changes,?equipment defects, poor maintenance, poor system design, a lack of training and the failure to adhere to requirements to employ qualified personnel or to understand and apply basic occupational health and safety rules.

The complexity and the risk associated with TPG systems merit detailed regulatory requirements that are effectively monitored and enforced by WCB. It is critical to ensure that workplaces are required to take steps to minimize the risks of injury or death. Clear and stringent requirements for the design, installation, operation, maintenance and inspection of TPG systems can make a difference to make workplaces safer.

The BCFED supports the work of the WCB on these regulatory amendments and believes the proposed requirements for toxic process gases will contribute to the safety of workers.

Amendments to Part 24: Diving, fishing and other marine operations

The Board proposes to remove Section 24.100, Ozone generators from the OHSR. Currently, this section says that ozone generating equipment on fishing vessels must be installed and operated in accordance with standards acceptable to the Board. WCB's supporting guideline G24.100 then clarifies that ozone is a toxic process gas and the requirements of Part 6 apply.

The explanatory notes say, "by repealing section 24.100, it will be clearer that the proposed amendments to *OHSR* Part 6 (TPG) will apply for ozone generators used in fishing vessels."

While the BCFED agrees that more clarity is needed, we do not agree that completely removing the section in Part 24 regarding ozone generating equipment is the best way to achieve it. We think revising this section to include a clear reference to the requirements for toxic process gases in Part 6 would offer explicit direction to workers and employers within the regulation.

Recommendation

The BCFED recommends that Section 24.100 be amended to identify that ozone used in ozone generating equipment on fishing vessels is a toxic process gas, and that the requirements in Part 6 of the OHSR apply.

Amendments to Part 28: Agriculture

The Board also proposes to repeal the exemption for anhydrous ammonia fertilization systems in Section 28.13 of the OHSR. The BCFED strongly supports ending this exemption.

First, the existing exemption unfairly codifies a lower standard for workplace safety for farmworkers, who are among the most vulnerable workers in BC. Removing this exemption ensures that farming operations are required to meet the same minimum standards as all other BC workplaces and is one step towards undoing the substandard treatment of farmworkers within the OHSR. As well, ensuring that farmworkers benefit from the same protections as other workers is particularly important in relation to toxic process gases, which pose a significant risk of serious injury or death.

Anhydrous ammonia fertilizer systems on farms in BC may include ammonia storage facilities on farmland and primarily involve the use of portable nurse tanks that are mounted on trailers and pulled across fields using a tractor and an injection system. These systems pose significant risks to both workers and the public, and there have been serious incidents in the agriculture sector in North America related to the storage, use and transportation of anhydrous ammonia fertilizer systems on farms. These incidents have resulted in chemical burns, injuries from explosions and several fatalities.[4]

Transport Canada recorded 249 incidents between 2002 and 2016 involving anhydrous ammonia transported in nurse tanks, including reports of injuries due to chemical exposure, and in some cases, evacuation of residents nearby as a preventive measure.[5] The agency is planning to strengthen the requirements for the transportation of anhydrous ammonia in nurse tanks.

It is also important to recognize that workers' experiences, past incidents, and research about farm safety have demonstrated gaps in the commitment to workers' health and safety on many of BC's farms. For example, a key factor driving the deaths of three workers at a Langley mushroom farm in 2012 was a stunning lack of attention to occupational health and safety.[6] Similarly, the deaths of three farmworker women in a van accident in 2007 revealed a total disregard for the basic

requirements of transportation safety for farmworkers.[7] This context lends support for the extension of the proposed requirements for toxic process gases to farm operations, as exemptions only serve to reinforce substandard safety practices at some farm operations in this sector.

Finally, it is notable that emerging green ammonia technology that allows farmers to make their own ammonia on site could mean more permanent ammonia systems and ammonia storage being established on farms. Going forward, it is critical that these systems meet the highest standards for safety, not be exempted from the proposed requirements.[8]

Amendments to Part 6: Substance specific requirements

6.116 Definitions and interpretation

In this section, the Board sets out simplified criteria for the definition of a toxic process gas and in so doing broadens the application of this part of the OHSR to both indoor and outdoor work environments. We think this is appropriate, and the BCFED supports these changes.

Table 6-1 includes a list of common toxic process gases, which are confirmed to be included in the revised definition. There are many additional gases that will fall under this definition, and workers and employers would benefit from additional guidance about common substances that are considered toxic process gases. We encourage the Board to develop a list that is as comprehensive as possible to be included in a revised guideline.

Recommendation

The BCFED recommends that the Board revise as soon as possible WCB Guideline 6.116.2 to reflect the revised definition of toxic process gases, including a full list of gases that are commonly found in BC workplaces.

6.117 General employer obligation respecting toxic process gases

This section includes an explicit duty for employers to eliminate toxic process gases from the workplace or, if that is not practicable, to comply with the requirements set out in subsequent sections. In general, the proposed amendments are a welcome addition to this section of the regulation. The proposed amendments say:

> *6.117 The employer must either*
>
> *(a) eliminate toxic process gases from the workplace, or*
>
> *(b) if elimination is not practicable, comply with sections 6.118 to 6.132.*

The proposed amendments do not include an explicit obligation for employers to identify and implement controls to minimize the potential risks to both workers and others from toxic process gases, although these requirements are effectively included in subsequent sections. Clearly including these obligations in Section 6.117 would offer more clarity to both workers and employers, and enhance enforceability.

Recommendation

The BCFED recommends that Section 6.117 (b) be further amended to include language specifically outlining employers' obligations to assess risk and implement controls to minimize the risks of toxic process gases to workers and others.

6.118 Employer obligations where elimination of toxic process gases not practicable and 6.119 Obligations to prepare assessment respecting toxic process gases

Overall, the BCFED strongly supports the additional detail and expanded requirements to conduct a risk assessment that are proposed in these sections. In particular, the BCFED appreciates the inclusion of considerations that must be addressed in the assessment.

However, we are concerned that the language used in the proposed amendments is unique compared to other parts of the OHSR and lacks clarity. In Section 6.118, the proposed amendments

say:

> *6.118 If the employer does not eliminate toxic process gases from the workplace, the employer must do the following:*
>
> *(a) minimize the quantity of toxic process gases present in the workplace;*
>
> *(b) in accordance with section 6.119, prepare a written assessment respecting*
>
> *(i) each TPG system used in the workplace, and*
>
> *(ii) each TPG system that the employer intends to use in the workplace;*
>
> *(c) prevent the inadvertent or uncontrolled release of toxic process gases;*
>
> *(d) prevent the exposure of persons to toxic process gases;*
>
> *(e) minimize the health and safety consequences to persons if a toxic process gas is released or if a person is exposed to a toxic process gas.*

And, in Section 6.119(2), the amendments read:

> *(2) An assessment under this section must, at a minimum,*
>
> *(a) describe each known and each reasonably foreseeable circumstance that may result in the release of a toxic process gas, the exposure of a person to a toxic process gas, or both, and*
>
> *(b) for each circumstance referred to in paragraph (a), set out an assessment of*
>
> *(i) the potential health and safety consequences that may arise in that circumstance,*
>
> *(ii) the ways in which those health and safety consequences can be prevented,*

(iii) the ways in which the released amount of a toxic process gas can be minimized, should a release occur, and

(iv) the ways in which the exposure of a person to a toxic process gas can be minimized, should a release occur.

The term “assessment” replaces the term “risk assessment” in existing Section 6.118 Risk assessment. This choice also diverges from terminology used in other parts of the OHSR, where “risk assessment” is used more often, including in Part 6, i.e., Sections 6.6, 6.45, 6.59.1 and 6.112.1.

The Canadian Centre for Occupational Health and Safety (“CCOHS”) defines risk assessment in the following way:

> *Risk assessment is a term used to describe the overall process or method of identifying hazards, assessing the risk of hazards, and prioritizing hazards associated with a specific activity, task, or job. It considers the probability or likelihood of harm from exposure and the potential consequence or severity of harm from exposure to a hazard.* [9]

The BCFED believes the “assessment” described in the proposed Sections 6.119(1) and 6.119(2) reflects the elements of the CCOHS definition, so we suggest that the term “risk assessment” would offer greater clarity and better consistency with other parts of the OHSR.

The proposed amendments in Section 6.119(2)(b) direct employers to “set out an assessment” of “the ways” to minimize adverse outcomes from the release of a toxic process gas. The BCFED is concerned that the expression “the ways” is unclear and without precedent in the OHSR, where the terms “controls” or “measures” are often used.

In addition, the proposed amendments in Section 6.119(b) do not clearly say that the assessment must be specific to the circumstances at the workplace, nor is there any reference to the hierarchy of controls. The proposed amendments do not specify whether the assessment is required to set out ***all*** of the potential “ways” that health and safety consequences could be minimized or the amount of a toxic process gas released could be minimized, if the assessment must identify only those “ways” that

are selected for that workplace, or if both are required.

Recommendation

The BCFED recommends that Sections 6.119(a) and 6.199(b) be further amended to provide clearer direction to workers and employers, including:

- Using the terms “risk assessment” and “controls” or “measures” instead of “assessment” and “the ways.”
- Specifying that for each known and reasonably foreseeable circumstance at the workplace, employers are required to identify and select multiple controls to effectively minimize the potential adverse consequences of the release of a toxic process gas.
- Adding direction to employers to identify and select multiple controls according to hierarchy of controls.
- Specifying that employers must prevent exposures, minimize and identify potential health and safety consequences to workers and other persons (vs “persons” only).

In the proposed Section 6.119(3), the Board sets out requirements for the review of the assessment. Section 6.119(3)(a) says:

> *(3) The employer must review and, if necessary, update an assessment under this section as follows:*
>
> > *(a) at regularly scheduled intervals that are determined in consultation with the persons referred to in section 6.120.*

The explanatory notes say that this approach was selected to “ensure that the time intervals specified in other parts of the *OHSR* and in other legislation, codes and/or standards are considered.”

The BCFED is concerned the Board has not proposed a prescribed minimum regular interval for the review of the assessment. In the experience of our affiliates, the pressures of busy workplaces can mean that regular reviews are not prioritized, and the time between reviews is extended as long as possible unless there is a minimum requirement. In the context of a system that is working without

incident, this can lead to complacency and the oversight of potentially important changes to the system and/or the context of the workplace over time. While some flexibility may be desirable given the demands of other related legislative requirements, a minimum time period between reviews should be established.

Recommendation

The BCFED recommends that Section 6.119 (3)(a) be amended to require the review of the assessments at regularly-scheduled intervals, with a maximum interval of every two years.

6.120 Employer has obligation to consult

The BCFED strongly supports including within the regulation an explicit requirement to consult with the joint occupational health and safety committee and worker representatives, as well as workers who operate or work on TPG systems and who may be affected by the control measures implemented in the workplace.

Section 6.120(b) requires an employer to consult with “one or more persons who are qualified to carry out an assessment.” The BCFED is concerned about the lack of detail about how qualified persons (“QPs”) are identified and what qualifications are required. Being able to effectively identify the hazards, assess the risks and recommend effective controls for TPG systems requires specialized knowledge and experience.

As such, we think specific information about the appropriate qualifications for a QP should be included in the regulation to give clear directions to employers when they are considering who the QP will be. As we have submitted previously to the Board, the existing language in OHSR Part 9, Confined space, Section 9.11, Qualifications offers a good model.

Recommendation

The BCFED recommends a further amendment to Section 6.120(b), to include information on qualified persons modeled on the language of Part 9, Confined space, Section 9.11, Qualifications.

6.122 Investigating unusual or unsafe conditions

The proposed amendments in this Section 6.122(1) and 6.122(2) say that employers must “promptly” investigate unusual or unsafe conditions, and ensure that any needed corrective actions are “promptly” taken. Given the magnitude of risk to workers and others from TPG systems, the BCFED believes that investigations and corrective actions must be completed with greater urgency. As such, we suggest replacing the term “promptly” with “immediately.”

In instances where a worker is injured or there was a near miss with the risk of serious injury to a worker, investigations must be conducted according to the requirements of Division 10 of the *Workers Compensation Act*, which includes the participation of worker representatives. The BCFED suggests that reference to these investigation requirements be made in this section.

The proposed Section 6.122(3)(a) requires records of investigations and corrective actions to be kept and made “readily available in the workplace.” However, the proposed amendments are not clear about who must have ready access to these records. In the experience of our affiliates, joint committee members and workers are regularly denied access to some records in the workplace. Given this real-world experience, a specific requirement to make the records readily available to workers and joint committee members or worker health and safety representatives should be included here. This recommendation also applies to other sections of the proposed amendments that refer to the availability of records.

Recommendation

The BCFED recommends that Section 6.122(1) and 6.122(2) be further amended to:

- replace the term “prompt” with “immediately” in reference to initiating investigations and completing corrective actions; and
- add reference to Division 10 investigation requirements, including the need to ensure worker participation.

Further, the BCFED recommends that all references in the proposed amendments to records being made “readily available at the workplace,” i.e., 6.122(3)(a) ,6.123(5)(c), 6.124(2)(b), 6.132(4), be amended to specify that the records must be readily available to workers and joint committee members or worker health and safety representatives.

6.132 Inspection and verification prior to starting up a TPG system

The BCFED supports the addition of this section to the regulation. Requiring employers to inspect and verify their risk assessment is another layer of protection during startup conditions, which are commonly associated with incidents. The proposed amendments for Section 6.132 say:

> *(1) The employer must complete an inspection of a new or existing TPG system before performing any of the following activities on any portion of that system:*
>
> *(a) energizing or activating the system;*
>
> *(b) producing chemicals in the system;*
>
> *(c) starting the flow of chemicals within or into the system.*
>
> *(2) Without limiting subsection (1), the employer must, before performing any of the activities described in that subsection, verify that*
>
> *(a) the assessment prepared under section 6.119 is up-to-date and, if applicable, reflects any modifications made to the TPG system, and*
>
> *(b) the requirements of sections 6.118 to 6.131 have been met.*
>
> *(3) The employer must ensure that the obligations set out in subsections (1) and (2) are supervised or carried out by persons who are qualified in respect of the TPG system.*
>
> *(4) The employer must keep records respecting the inspection and verification referred to in subsections (1) and (2) and must make these records readily available in the workplace.*

The BCFED suggests that this section can be strengthened to better protect workers. First, we propose the inclusion of a requirement to have a clear plan for system startup that is documented and communicated to all workers involved. We believe that orienting workers to the plan for starting up a TPG system will assist workplaces to establish methodical, stepwise and careful procedures for higher risk, non-routine processes.

Second, Section 3.8 of the OHSR requires the participation by joint committee members or worker health and safety representatives in inspections at the workplace. The BCFED believes that the participation of worker representatives should be required for the inspection set out in Section 6.132(1).

Next, Section 6.132(3) says that startup processes must be either carried out or supervised by a qualified person. This direction for a qualified person to “supervise” activities is vague and could allow a long-distance or otherwise ineffective approach to supervision. Investigations of the incident at Fernie Memorial Arena documented a lack of capacity for effective supervision by the rec centre’s facilities director, and supervision of the refrigeration mechanic during the incident was done over the phone.

The BCFED believes that rather than allowing an unqualified person to be supervised by someone that is qualified, a better approach is to ensure that a QP actually carries out the startup processed identified in the proposed Section 6.132(1). In saying this, we also reiterate our earlier comments about the need to specify who is a QP in this context.

Recommendation

The BCFED recommends that the proposed Section 6.132 be further amended to:

- include a requirement for employers to prepare and communicate a startup plan to all involved workers prior to performing the activities in 6.132(1); and
- require the participation of joint committee members or worker health and safety representatives in the inspection.

Further, the BCFED recommends that Section 6.132(3) be amended to:

- require a qualified person to carry out the activities specified in Section 6.132(1); and
- include information on appropriate QPs.

Conclusion

We appreciate the efforts of the WCB's Policy, Regulation and Research Department in developing the proposed amendments to the OHSR.

However, the BCFED urges the WCB Board of Directors to seriously consider our proposed amendments.

We encourage the WCB to develop an effective implementation strategy ensuring that all workers and employers are properly informed and supported to effectively practice these new requirements. Outreach to workplaces – including connecting with both employers and workers – will be critical.

In addition, the implementation strategy must be designed to take into consideration the diversity of the community of workers.

We urge the WCB Board of Directors to provide the necessary resources to ensure effective implementation, ongoing inspections and enforcement.

Again, we appreciate the opportunity to provide these recommendations.

[1] https://www.technicalsafetybc.ca/regulatory-resources/incident-investigations/ammonia-leak-alberni-valley-multiplex.

[2] https://www.worksafebc.com/en/health-safety/create-manage/incident-investigations/reporting-incidents-worksafebc/recent-incidents/search-for-incidents.

[3] https://www.cbc.ca/news/canada/british-columbia/chlorine-leak-at-b-c-pool-probed-1.1212425

[4] See, for example – “Employee suffers burns from an anhydrous ammonia splash,” https://www.osha.gov/ords/imis/accidentsearch.accident_detail?id=94253.015; “Anhydrous Ammonia Nurse Tank Rupture Kills Agricultural Cooperative Worker”https://face.public-health.uiowa.edu/Reports/PDF-Reports/Anhydrous%20NH3%20Tank.pdf; “Warning regarding ammonia nurse tank safety,” https://www.caar.org/essential-tips-for-those-who-work-around-grain-bins/; “Farmer seriously injured in anhydrous ammonia explosion” https://www.pjstar.com/story/news/accident/2013/12/05/farmer-seriously-injured-in-anhydrous/41613322007/; and “Employee Killed When Exposed to Anhydrous Ammonia” https://www.osha.gov/ords/imis/accidentsearch.accident_detail?id=200513448

[5] Regulatory Impact Analysis Statement, “Agricultural anhydrous ammonia exemption”, Canada Gazette, Part I, Volume 157, Number 49: Regulations Amending the Transportation of Dangerous Goods Regulations (Canadian Update), December 2023, https://gazette.gc.ca/rp-pr/p1/2023/2023-12-09/html/reg3-eng.html.

[6] Leibel, N. (2012) Inquest into the death of Jimmy Chi Wai Chan, BC Coroners Service https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/inquest/2012/verdict-tran-2012-05-16.pdf.

[7] Paonessa, M. (2009) Inquest into the deaths of Amarjit Kaur Bal, Sarabjit Kaur Sidhu, and Sukhvinder Kaur Punia, BC Coroners Service, https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/inquest/2009/verdict-bal-sidhu-punia-10-dec-2009.pdf.

[8] Mike Arsenault, CBC News, September 11 2024, “Green ammonia a potential game changer in agriculture, says Manitoba farmer,” https://www.cbc.ca/news/canada/manitoba/agriculture-ammonia-fossil-fuels-farmers-fertilizer-1.7319561

[9] https://www.ccohs.ca/oshanswers/hsprograms/hazard/risk_assessment.html.