

On the Cover



Alek Egi, Kwantlen Polytechnic University Brewing and Brewery Operations Diploma instructor, demonstrates the removal of spent grain from the lauter tun.

Staying healthy and safe in B.C.'s burgeoning craft brewing industry

By Lynn Welburn

To keep workers healthy and safe on the job, WorkSafeBC works with partners to stay abreast of workplace hazards and risks — including in new and growing industries.

Canada's craft brewing industry has rapidly expanded over the past five years, with the number of licensed breweries growing almost 80 percent between 2009 and 2014. In 2014, there were 520 licensed breweries, with about one-fifth of them located in British Columbia (B.C.) and Yukon. Since 2009, the number of breweries in B.C. has more than doubled.

Canada has a lengthy history in beer-making; over the past decade the number of craft breweries has grown rapidly across the country increasing from 90 licensed breweries in 2004 to 520 in 2014. As the industry has grown, so has the need for better health and safety information, protocols, and innovations to better protect industry workers. Across B.C., annual total injuries show a rising trend, with a large number attributed to overexertion. From January 2010 to June 2015, 437 orders were cited, with 190 related to occupational hygiene concerns. Common concerns have included chemicals, confined spaces, and carbon dioxide.

Identifying risks, being proactive about health and safety

The health and safety needs of growing industries like craft brewing is just one of the issues being evaluated by WorkSafeBC's Risk Analysis Unit, more commonly known as the RAU. Director Vincent Russell says his department is "doing something no one else in North America is doing, evolving an approach to prevention with a broader vision — looking at new industries, processes, and products, scanning the horizon for indicators of risk."

To identify and assess new risks, the RAU gathers input from internal and external stakeholders, trawls the Internet, reviews news stories of incidents and prevention initiatives in other countries, and runs automated web-based searches seeking information that fits the unit's proactive mandate. The RAU also explores the less obvious, says manager Jordie Jacobs. "Beyond looking at information about things that have happened, we look at factors potentially influencing levels of risk, and near misses — things that

haven't happened, but could," says Jacobs. "These are things people don't always recognize because they aren't always tangible. Sometimes employers and workers can be skating near the threshold of a risk and not realize it."

Those who work directly on the front lines, namely the WorkSafeBC prevention officers who conduct worksite inspections, often identify potential hazards that can impact worker health and safety before incidents happen. This was the case when occupational hygiene officer Prescillia (Percy) Chua noted several risks within the craft brewing industry, including the potential risks associated with carbon dioxide (CO₂) exposure and confined spaces in craft brewing facilities. Chua's love of the food and beverage industry and keen interest in how things are made prompted her to look more closely at some craft breweries and their practices.

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—Jordie Jacobs, manager of the WorkSafeBC Risk Analysis Unit



WorkSafeBC occupational hygiene officer Percy Chua (left) and Strange Fellows brewing assistant Sebastien Bard review the keg cleaning process.

Strange Fellows brewer, Ray Tjerkstra uses personal protection equipment while working with chemicals used in the brewing process.



When she dug a little deeper, she started noticing some similar issues among even the smallest of operations.

“I saw a few common health and safety concerns, so I talked with other hygiene officers about what they were seeing. We were seeing the same things, so I took these concerns to the RAU,” says Chua. The result was the release of two risk advisories from the RAU to industry in November, 2015. See sidebar page 12.

Chua says many brewers may know CO₂ and confined spaces are dangerous, but sometimes it takes working with prevention officers to determine the best ways to minimize risk. “They know brewing and we know health and safety. By partnering with industry, by working together, we’re getting a mainly positive response.”

Chua believes everyone is on the same page. “None of us want to see the loss of life we saw a number of years ago in the wine industry,” she says, referring to workers who lost their lives on the job when they were overcome by exposure to high carbon dioxide levels in wine vats — creating confined spaces that proved deadly. From 2001 to 2010, WorkSafeBC statistics show a total of 17 deaths across all industries, as a result of confined-space incidents. “We need to be proactive, not reactive,” she says.

Brewers on board

Iain Hill, owner and co-founder of Vancouver’s Strange Fellows Brewing, agrees. That’s why his facility includes constant CO₂ monitoring — with alarms inside and outside buildings — as well as other safety precautions always at work. That said, Hill, an industry



Instructor Alek Egi reviewing beer in process in KPU's Brewing Instructional Laboratory.

veteran with more than 20 years' experience in the B.C. craft beer industry, knows worker health and safety doesn't start and end with constant CO2 monitoring.

"It seems to me some of our big hazards are chemicals, like caustic soda, and eye safety is one risk I take very seriously," says Hill. "We have eye wash stations and showers, and the guys have to wear safety gear. In a place like this, people are always on the move and moving fast — almost running. The boots we wear were designed for fish plants, so they have bottoms like suction cups that prevent slipping, which is also a really big risk."

In and of itself, the industry's sheer pace of growth could be a risk factor.

"There has been such incredible growth in such a short time," says Ken Beattie, executive director of the

BC Craft Brewers Guild. "Delivering education to all those who are new in the industry is a key point. Working with WorkSafeBC, our goal is to add value to what they're doing — because we have a wide reach."

Of the more than 110 craft breweries and brew pubs in the province, over 80 are members of the guild, says Beattie. As a result, the guild is able to get information out to breweries across the province quickly and effectively. This extends to getting representatives from 30 or 35 Lower Mainland breweries together in one room, he says.

Adds Beattie, "We want this industry to do it right, and we're looking for partners like WorkSafeBC to facilitate training and education programs. We're looking for ways to get the best information to the most members as quickly as possible."

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Classroom learning

In conjunction with the industry’s efforts and those of WorkSafeBC’s officers and Risk Analysis Unit, hands-on learning is another means of educating a cadre of new industry workers.

Kwantlen Polytechnic University (KPU) offers a two-year Brewing and Brewery Operations Diploma program. One of only three programs in Canada, and the only brewing diploma program of its kind in B.C., it allows students to study the science, production, and business of brewing. The program’s curriculum is developed in consultation with the BC Craft Brewers Guild and brewmasters from across the province.

Health and safety is woven throughout the various courses and teaching. Instructor Alek Egi says the students spend two days a week at the university’s on-site brewery, “so we cover a lot of health and safety practices.” There, students learn first-hand about the processes and equipment that will help them stay healthy and safe in the classroom — and ultimately on the job. “Safety is very important. We don’t want anyone hurt,” says Egi. Just as they will be doing at work in any brewery in B.C. or elsewhere, KPU students wear steel-toed, non-slip boots, ear protection, safety glasses or goggles, face shields to protect them from chemicals, and long-sleeve shirts, long pants, and heat-resistant gloves to keep them safe from hot surfaces.

Like the industry it serves, the Brewing and Brewery Operations Diploma program aims to stay as current as possible. As such, Egi says the new emphasis on CO₂ and confined spaces (see related sidebar) means both subjects are likely to feature prominently in the coming year’s curriculum.

It all adds up

While protocols and information will never be enough to keep workplaces like craft breweries completely incident-free, thanks to committed stakeholders, WorkSafeBC officers, and WorkSafeBC’s RAU team, the craft brewing industry is poised to continue growing while working with the industry to help protect its workers from risks they may face on the job — creating healthier and safer environments for this booming B.C. industry.

“Craft brewing is a relatively new industry, but it’s growing fast and it’s definitely easier to get change happening early rather than later,” says Chua. In other words, “It’s easier to mould a safety culture in the beginning than try to change things once they’re entrenched.” ☺



Craft brewing veteran Iain Hill (left) discusses the growth of the industry with Ken Beattie, executive director of the BC Craft Brewers Guild.

A backgrounder on risk advisories about CO2 and confined spaces

As part of its proactive approach to preventing worker injuries and deaths, WorkSafeBC's Risk Analysis Unit (RAU) works to identify potential risks before harm occurs, identifying specific categories of risk, including catastrophic risks, emerging risks, risks that are difficult to detect, slow acting harms, and others that may not be fully evident in claims data. Through this innovative approach, the RAU aims to prevent worker injuries and deaths. Some of these risks can be identified in new and growing industries, such as the province's craft brewing industry.

By looking at the craft brewing industry both inside and outside of B.C., the RAU identified two potential risks: confined spaces and carbon dioxide exposure.

WorkSafeBC subsequently issued educational advisories on both subjects.

Both the fermentation and bottling processes involve using or producing CO₂, which can lead to headaches, dizziness, unconsciousness, and even death on exposure.

In environments where CO₂ use or production is high, oxygen-depleted spaces can be especially hazardous to workers attempting to enter confined spaces for cleaning or other activities.

The advisories outline the risks and ways to reduce them while offering further resources for workers and management.

Find out more at worksafebc.com, search risk advisories.

- **WorkSafeBC Risk Advisory** —
Confined spaces in craft brewing
- **WorkSafeBC Risk Advisory** —
Carbon dioxide exposure in craft brewing

