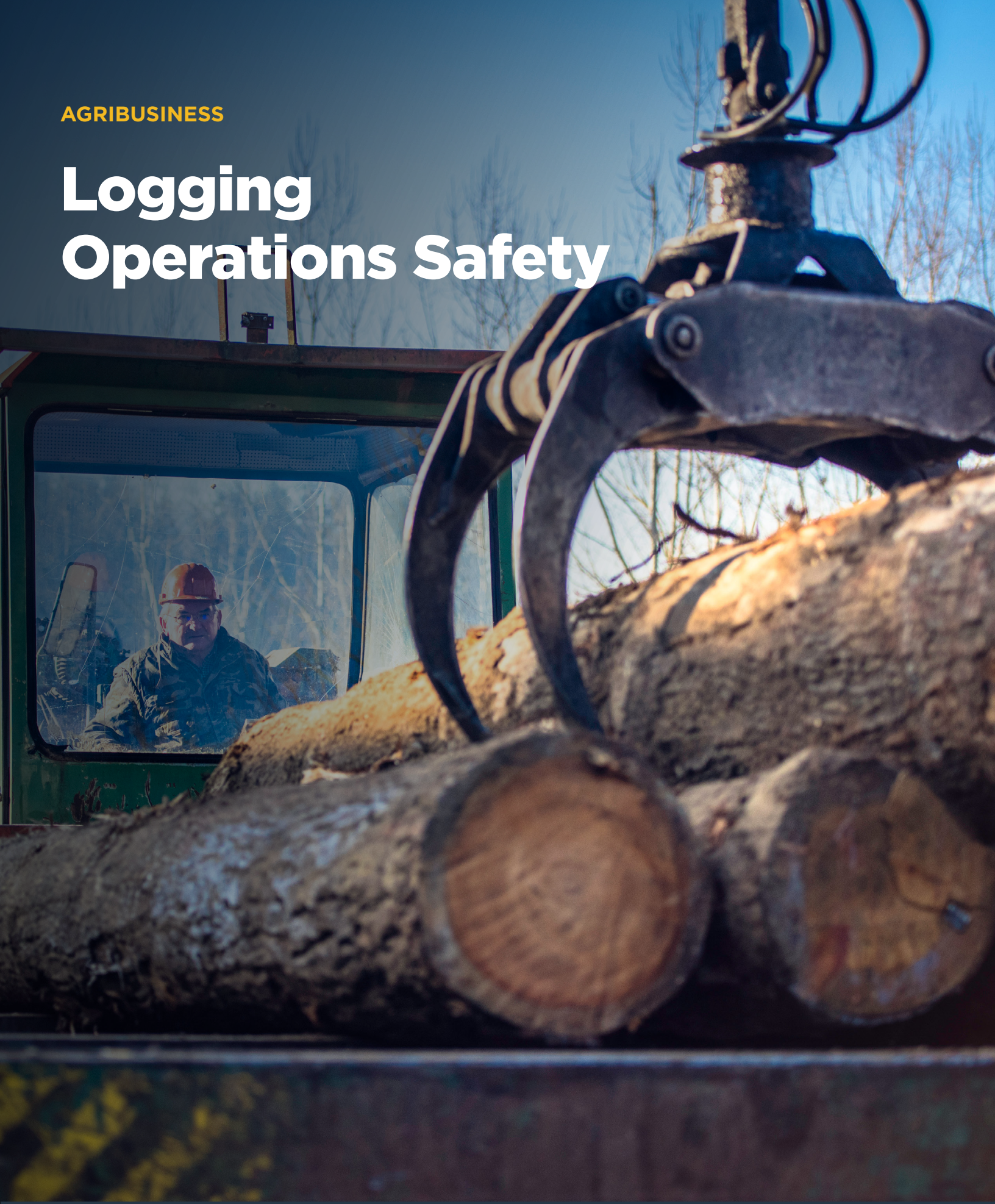
AGRIBUSINESS

Logging Operations Safety



Introduction

By most measures, the logging industry holds the infamous position of ranking amongst the most dangerous jobs in both the United States and Canada. Cutting and falling trees to get to market is an infinitely complex variable set of tasks in a high-risk work environment where safety must be top priority. In the U.S., logging had a fatal work injury rate of 82 per 100,000 full-time equivalent (FTE) workers in 2021. Canada had a better rate at 33.3 per 100,000 FTE workers, but that number skyrockets to 100 per 100,000 in the high-risk areas of British Columbia.

Nonfatal injuries are likewise overly represented in this industry, with lost time injury rates being

up to 40 percent

higher than private industry in recent years.

These statistics are reflective of the significant hazards faced by employees in this industry. They also underline the importance of logging operators prioritizing the development and implementation of rigorous safety precautions to mitigate those hazards.

Industry Introduction

Before discussing details surrounding the identification and mitigation of high-risk hazards within the logging industry, it's important to better understand a few of the higher risk jobs. These include both manual and mechanical operations in the North American logging industry.

- **Fallers** are usually the first role that people think of when it comes to logging. The broad definition of the role is to cut down trees. However, it is much more detailed than simply using a chainsaw to fall trees. To ensure safety and efficiency a faller must review the falling area, check the falling area for danger trees and apply the knowledge of tree characteristics and cutting techniques to control the direction of the fall to ensure the job is done safely and competently.
- A **Bucker** usually works alongside fallers, trimming the tops and branches of felled trees and bucking (cutting) the logs into specific lengths. Buckers are constantly measuring and cutting trees on the ground which can be tedious and physical work.
- Logging **Slingers, Chasers** and **Choke Setters** can work with cable yarding systems and other log transport systems. They are responsible for rigging trees in preparation to be moved by the mechanical system. Staying out of the line of fire of logs is the number one safety concern for these roles.
- Logging **Machine Operators** operate machines to harvest, transport and process logs. This role can be further broken down into **Mechanical Tree Processors** and **Forward Operators** who use various mechanical equipment to fall, delimb and cut logs into specific lengths. **Cable Yarding Operators** then use mechanical cables and chains to transport logs after they have been felled and rigged.

Regulatory Overview

Logging operations in both Canada and the United States must follow government standards and regulations that ensure safety is the highest organizational priority for logging employers.

In Canada, forestry operations must meet minimum safety requirements and standards in the provincial jurisdiction the forestry operation resides in. In each province, legislation exists that allows a government agency to create, maintain and enforce safety regulations for logging operations. Provincial governments have formal legislation in place in each province that provides the legal authority and framework to govern the health and safety activities of most private industries such as logging.

In the United States the industry is regulated through federal OSHA and state plans. 29 CFR 1910.266 is the OSHA federal safety standard that specifically addresses logging operations. Other federal general industry standards such as 29 CFR *1910.212* Machinery and Machine Guarding address hazards that could occur in logging as well.

In some states such as Oregon and Washington, where logging is a large industry, unique state plans adopt the federal standard but also provide more comprehensive standards in addition to the federal standard.

Let's look at a few of the *leading hazards* that exist within this industry.

UNSTABLE OR DANGER TREES

A danger tree is any unstable tree, live or dead, that may unexpectedly fall either partially or totally. When a tree falls unexpectedly, it presents a high-risk safety hazard to any logging personnel in the vicinity. Tree stability is determined by many factors including location of the tree, stature, work activities around the tree, tree condition and weather. It is often difficult to determine the stability of a tree as multiple factors can contribute to a tree being unstable.

In 2009 a faller was tragically killed in British Columbia when he was attempting to fall three green trees near a danger tree. One of the trees was "limb-tied" with the nearby dead dangerous tree. As the trees started to fall as expected, the limbs of the dangerous tree harpooned in the opposite unexpected direction, contacting the faller and tragically killing him.

CHAINSAW KICKBACK

The chainsaw is an indispensable piece of equipment used by thousands of North American loggers every day. The chainsaw makes efficient work of felling and cutting up trees but deserves to be treated with respect and care. One of the leading hazards of a chainsaw is when a "kickback" happens. A kickback can occur when the moving chain at the tip or the nose of the guide bar strikes an object, causing the wood to close in, pinching the saw chain in the middle of the cut. Both these situations cause the chainsaw guide bar to launch back and up towards the operator. Injuries from this type of incident are often serious or even fatal.

In 2022 a New Brunswick man was fatally injured when the chainsaw he was using to delimb a tree kicked back striking him in the groin area right above his protective chaps. The saw severed his femoral artery and unfortunately, he did not make it to the hospital.

“LINE OF FIRE” HAZARDS

“Line of fire” hazards exist when a worker is in the danger zone of a potential release of hazardous energy. These hazards can be broken down into three categories and are one of the leading causes of incidents in the logging industry.

- **Caught-in or between hazards** exist when there is a risk of a person being squeezed, caught, crushed, pinched or compressed between two or more objects, or between parts of an object. Trees, logs and equipment are always moving on logging work sites and often workers find themselves in danger of being caught between two of the objects or one of the objects and terrain.
- **Struck-by hazards** exist when there is a risk of a logger coming into forcible contact with a flying, falling, swinging or rolling object. It is very common for large logs and trees to move unpredictably when they are being felled, skidded and transported. That unpredictable movement could lead to an object contacting a logger.
- **Released energy hazards** are caused when stored or “pent-up” energy is released unexpectedly by a piece of equipment. Energy sources that release uncontrollably could include electrical, mechanical, hydraulic, pneumatic, chemical and thermal. Improper use or malfunctioning logging equipment machinery could lead to uncontrolled energy releases causing serious injury or death.

In 2023 there were four fatal “line of fire” incidents in the United States involving logging workers. Often the incidents are workers being struck by logs or falling trees.

SLIPS, TRIPS AND FALLS (STF)

In the logging industry, slips, trips and falls are seemingly innocent hazards. However, a large percentage of lost time injuries in the industry are due to employees losing their footing and injuring themselves. Most industries work to prevent slips, trips and falls by developing walkways to eliminate or reduce the risk of this hazard. Unfortunately, this is impossible in the logging environment. Combine the uneven and unpredictable terrain inherent with the industry with mud, snow and ice, and we see the hazard level rises considerably from moderate to high potentially leading to serious injuries.

WORKING ALONE OR IN ISOLATION

Often logging activities occur in remote locations where the high-risk task of falling and processing trees is performed by employees working in small groups or alone. An injury that can be cared for with relative ease in a non-remote setting can escalate to serious quickly if the injured employee cannot get help in a timely manner. Often the dynamic nature of logging activities given the scope of the work area and the type of activities leads to scenarios throughout the workday where an employee will be isolated or working alone. Some of the challenges that logging companies and employees face when working alone or in isolation are:

- Defining working alone or in isolation scenarios and training employees to identify these circumstances when they arise.
- Having a check-in procedure that is appropriate for the work that is being performed and the location the work is taking place in.
- Developing an emergency response plan or procedures that address the working alone or isolation hazard that is appropriate for the work that is being performed and the location the work is taking place in.

In 2017, a logger was killed in an incident in British Columbia when the feller buncher he was using to cut trees on a slope tipped over backwards and caught fire. He had no escape route out of the equipment and because he was working alone at the time, with no means to call for help, he was unable to escape.

Managing the Risk

Even though logging is a very high-risk job, the risk can be managed and lowered so every logger can go home safely at the end of the day. In British Columbia, a province that has an enormous logging industry, there were no fatalities as of August 2023 and only two in 2022. Although that is two too many, this is a province that saw 34 fatalities in 2005 and was consistently over 10 fatalities a year for many years after. In the United States, the number of fatalities in the logging industry according to U.S. Bureau of Labor Statistics has been declining in the last decade and a half. In 2007 there were 97 deaths in the logging industry, but that frequency is now down to under 60 in 2021/2022. Below we'll explore how the logging industry is reducing fatalities and controlling the high-risk hazards that have plagued the industry in the past.

HEALTH AND SAFETY PROGRAMS

A Health and Safety Program is progressively becoming a minimum standard for each logging company. Several jurisdictions in North America such as Oregon and British Columbia have regulations in place that require companies to have some sort of health and safety program or advanced planning for logging activities. An effective health and safety program provides a framework for how companies manage the high-risk activities that are prevalent in the logging work they do.

An effective health and safety program in any organization must demonstrate commitment from the top management level. A logging company owner or manager sets an example for everyone by taking safety seriously.

It is encouraged that every logging employer implement a written health and safety program with the following features:

- Written statement of management commitment to safety
- Inspections
- Accident investigation/incident management
- Emergency response
- Hazard identification and control
- PPE (Personal Protective Equipment)
- Training
- Auditing

HAZARD IDENTIFICATION AND CONTROL

One of the cornerstones of any effective logging health and safety plan is how companies identify hazards and control them. The following safety planning and procedures must be completed prior to any forest work activities.

- **Pre-work hazard assessment and control.** Each day, a competent person must make a general inspection of work areas to evaluate any hazards, including danger trees, snags, logs, rocks and other objects.
- **Pre-work safety meeting.** A crew safety meeting must be held to inform the workers of any known or reasonably foreseeable risks in the work location and the actions that must be taken to eliminate or minimize those risks. The details of the meeting must be documented.
- **Field hazard identification.** Mark identified hazards that cannot be eliminated with hazard notification. This actively notifies workers of marked hazards in their work areas.
- **Ongoing field level hazard assessment.** Logging work areas are very dynamic and changing constantly throughout the day. Restricting hazard assessment and control to the start of the day would be a gap in the hazard identification and control process. Each company should have an ongoing field-level hazard assessment process that monitors for possible condition changes throughout the workday.

TRAINING AND SKILLS DEVELOPMENT

The logging industry attracts many young workers due to their ability to perform the physical work the industry requires. It is also a relatively easy industry to enter, making it appealing to young workers with minimal experience. It is a proven fact that young workers have a higher risk of injury or fatality in all industries, including logging, due to:

- Inexperience
- Lack of understanding of their workplace
- Lack of preparation for the workplace
- Limited situational awareness
- Exposure to more dangerous jobs
- Hesitancy to ask questions

With these facts in mind, it's important to realize that any effective training system for young logging employees must extend beyond simple teaching. Instead, training should ensure consistent demonstration of safe work practices being performed by the employee in question while in a work setting (not just in the training environment).

Conclusion

Even though statistics have improved in some jurisdictions, many metrics still show logging to be one of the most dangerous occupations in the world. Given the nature of the risk that loggers encounter every day at work, safety is and will continue to be a critical component in how logging companies operate. Serious injuries and fatalities are not viable for any company from an ethical, moral, reputational and business perspective. However, it has been demonstrated that these types of incidents are preventable. Developing a comprehensive safety plan that touches the entire organization, implementing this plan with measurable results, and continually seeking improvement in the plan has proven to be effective in controlling the high-risk hazards associated with the logging industry. Take advantage of your newfound knowledge and look to lower the risk of injury for your logging employees.

If you have any questions concerning how to implement safety policies and programs addressing safe work practices for your organization, please don't hesitate to contact a HUB Risk Services specialist. Putting these concepts in place will help ensure the ongoing protection of your people, your property and your profitability.

Contact a **HUB Agribusiness specialist** to get started.

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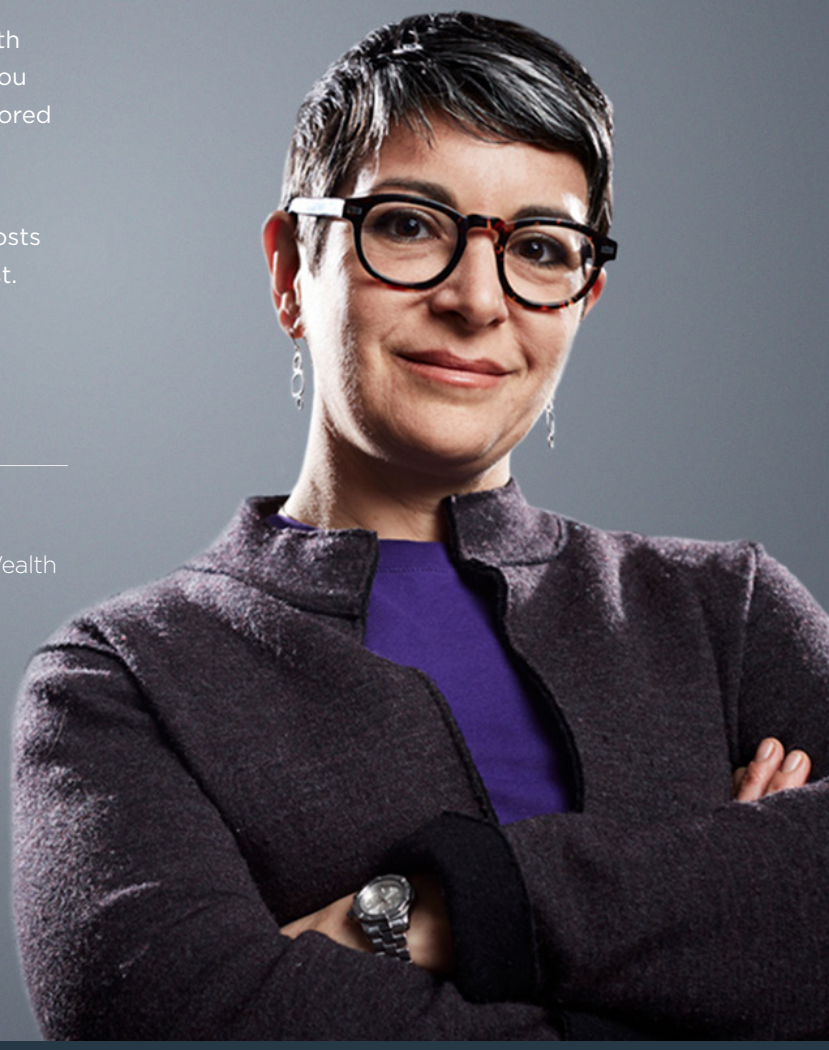

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