

WOOD PELLET AND BIOENERGY SAFETY SUMMIT

November 15-16, 2023 Prince George, BC



BC Forest Safety
Safety is good business

WORK SAFE BC

CANADIAN BIOMASS MEDIA PARTNER

WOOD PELLET AND BIOENERGY SAFETY SUMMIT

On November 15 & 16, 2023, more than 50 participants from wood pellet producers, operators, suppliers, and regulators from across Canada met to discuss evolving trends and regulatory topics. It was hosted by the Wood Pellet Association of Canada's (WPAC's) Safety Committee, in cooperation with the BC Forest Safety Council (BCFSC), WorkSafeBC, and media partner Canadian Biomass. We gratefully acknowledge WorkSafeBC for its generous funding of this program.

The summit provided an update on current safety initiatives that are creating a safer foundation for our industry. We heard from operators about their key learnings and experiences to date and identified priorities for 2024.

We also examined future trends in safety, such as process safety management (PSM), how it will impact the way workplace hazards are handled, and what the industry can do to be prepared for new PSM regulations. The presentation for day 1 can be found [here](#).

On the second day, participants attended a WorkSafeBC workshop about the Human Factor Approach to Safety and the 7-step Methodology to Improve Worker Interactions to Drive Safety.

PRE-MEETING: WORKING TOGETHER FOR A SAFER INDUSTRY

WPAC and WorkSafeBC met ahead of the summit on November 14 to review the outcomes of the 2023 workplan, and proposed items for the 2024 workplan. The day began with a site tour at Premium Pellet Ltd. in Vanderhoof. Later that day, the group reconvened to discuss WPAC's annual workplan.

This past year encompassed the completion of numerous successful projects, including combustible gas bow tie analysis, operator training, a full-day workshop in Ottawa, and preliminary work on PSM implementation. The Operator Training Program that was launched in May 2023 has received positive feedback from end-users—a review of user statistics and

completion will be reported, and additional communication of the program will be undertaken.

Building on the success of the critical controls management (CCM) project, further implementation of process safety through the rollout of an element-based approach, like the CSAZ767 framework, is being supported.

Another proposed initiative for 2024 is the development of tools to support the alignment of industry with the new combustible dust regulations coming into effect in BC.

The next meeting will take place in Q1 2024 to review the 2024 workplan.

WOOD PELLET AND BIOENERGY SAFETY SUMMIT

On November 15, 50 people from coast to coast across the wood pellet and bioenergy sector gathered, all driven by the desire to learn more about process safety and collaborate with their peers at the Wood Pellet and Bioenergy Safety Summit.

Everyone from the bioenergy sector was welcomed, recognizing the shared challenges and interests, with an open invitation to [join the monthly WPAC Safety Committee online meeting](#). Throughout the day, live polling of the participants was conducted so participants could share real-time feedback about their goals and priorities to shape the direction and take ownership of WPAC initiatives and projects. The meeting was kicked off with WPAC's video: *The Power of Pellets: Innovating Our Way to a Safer Product*.



STRONG FOUNDATIONS BUILD SAFER FUTURES: RECAPPING KEY SUCCESSES

The workshop began with opening remarks by Gordon Murray, Executive Director of WPAC; Julie Griffiths, WPAC's Safety Committee Chair and Quality, Sustainability & Environmental Program Coordinator for Shaw Renewables; and Mike Tasker, Operational Safety Officer with WorkSafeBC. They encouraged everyone to seek answers to questions about process safety, be vulnerable to challenges in their operation, and learn from the collective expertise in the room. The increased adoption of PSM throughout both simple and complex high-hazard industries was recognized—“*process safety isn't going anywhere.*”



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Gord shared the journey of the industry through process safety, catalyzed by the two tragic 2012 sawmill explosions in BC. Gord highlighted the numerous WPAC Safety Committee projects completed in recent years and how the Committee has supported process safety in operations. The message echoed later in the day by Mike is that both the frequency and severity of incidents have decreased over the recent years.

Gord provided an outlook on the proposed 2024 workplan, including a drum dryer working group, tools for meeting the requirements of new combustible dust regulations, as well as PSM implementation.

TOP THREE WAYS TO LEARN ABOUT PSM*



1. Peer-to-peer learning



2. Online resources



3. Tools (i.e., infographics)

*based on live polling of participants

THE NEXT STEP IN SAFETY: PROCESS SAFETY MANAGEMENT (PSM)

Kayleigh Rayner Brown, MASC, P.Eng. of Obex Risk guided participants through the fundamentals and business benefits of PSM; overlap and differences with personal safety; and the concepts of each of the 16 elements of the *CSA Z767 Process Safety Management standard*.



Kayleigh Rayner Brown, MASC, P.Eng. (Obex Risk) guided the participants through the fundamentals of PSM.

Live polling was conducted to explore the highest-priority PSM elements. Participants identified the same priorities identified in the recently completed project *Integrating Process Safety Management into Canadian Wood Pellet Facilities that Generate Combustible Wood Dust* funded by WorkSafeBC. These results are also aligned with the priorities identified as part of the outlined three-phase approach to

implementing PSM elements, with the important recognition that operations are at different levels of process safety maturity and advancement, and site-specific priorities need to be recognized and supported.

HIGHEST PRIORITY PSM ELEMENTS*

-  **Process safety culture**
-  **Process risk assessment and risk reduction**
-  **Human factors**
-  **Training and competency**
-  **Process and equipment integrity**
-  **Enhancement of process safety knowledge**

*based on live polling of participants

PROCESS SAFETY MANAGEMENT ELEMENTS

PROCESS SAFETY LEADERSHIP	UNDERSTANDING HAZARDS AND RISKS	RISK MANAGEMENT	REVIEW AND IMPROVEMENT
Accountability	Process knowledge and documentation	Training and competency	Investigation
Regulations, codes, and standards	Project review and design procedures	Management of change	Audits process
Process safety culture	Process risk assessment and risk reduction	Process and equipment integrity	Enhancement of process safety knowledge
Conduct of operations – senior management responsibility	Human factors	Emergency management planning	Key performance indicators

CSA Z767 Process safety management standard framework (Credit: CSA (2017))

THREE PHASE PROCESS

The implementation of the PSM elements has been broken down into three phases so it is achievable for smaller organizations.

PHASE 1

- Accountability
- Process safety culture
- Process risk assessment and risk reduction
- Management of change (MOC)
- Investigation
- Key performance indicators (KPIs)

PHASE 2

- Conduct of operations — senior management responsibility
- Process knowledge and documentation
- Human factors
- Training and competency
- Process and equipment integrity

PHASE 3

- Emergency management planning
- Project review and design procedures
- Audit process
- Regulations
- Standards and codes
- Enhancement of process safety knowledge

GETTING TO SAFER THROUGH PROCESS SAFETY MANAGEMENT

The summit featured a presentation by Lucie Janosek, CRST, Regional Manager, Energy Safety Canada, (developed in collaboration with Robert Waterhouse, Program Manager, Industry Development and Support), who shared their process safety journey.

The focus on process safety has led to the development of numerous process safety resources, as well as the establishment of a Process Safety Community of Practice to facilitate sharing and collaboration, to enhance process safety performance. Lucie offered that when beginning process safety implementation—*keep it simple and consistent*.

PSM IS COMING SOON: ARE WE READY?

Mike Tasker delved further into the business benefits of process safety—maximizing uptime with fewer production interruptions due to upset conditions, equipment issues, and preventing loss-producing incidents like fires and explosions. Mike also highlighted other benefits, such as the ability to obtain affordable insurance. Mike described how the previously completed CCM project fits into PSM, and that the WorkSafeBC Process Safety Initiative will continue to encourage the adoption of PSM frameworks as a systematic way to manage process safety hazards.



The summit featured a presentation by Lucie Janosek, Energy Safety Canada, (developed in collaboration with Robert Waterhouse).



Mike Tasker, WorkSafeBC, shared how PSM is changing in the way workplace hazards are being handled.

WHAT'S OUR SAFETY CULTURE?

The afternoon sessions involved deep dives into the critical element of process safety culture. Julie Griffiths presented on practices of a strong safety culture (reporting, just, flexible, and learning), incident case studies described by the [US Chemical Safety Board](#), along with her personal connection to the tragic Westray Coal Mine explosion in 1992.

Next, the case study of the pivotal shift at Alcoa that took place following a key focus on safety and changing habits throughout the organization was highlighted, as described in the book *The Power of Habit*. Safety culture and operational excellence drove dramatic increases in profitability and productivity.

The participants completed an anonymous safety culture survey, which allowed them to assess aspects, attitudes, and behaviours across their organization and the industry. With the large cross-section of participants, it was highlighted that it is important to learn about and reflect on, the different experiences and perspectives of those in your organization to identify opportunities for improvement.

“If you want to understand how Alcoa is doing, you need to look at our workplace safety figures. If we bring our injury rates down...it will be because the individuals at this company have... devoted themselves to creating a habit of excellence....Safety will be an indicator that we're making progress in changing our habits across the entire institution.”

— The Power of Habit

Everyone broke out into groups to work on their own unique case study that explored signals of weak safety cultures and actions that could be taken to improve safety culture and prevent the incident from occurring.

PSM BEST PRACTICES AND KEY LEARNINGS FROM AROUND THE WORLD

The remaining afternoon sessions were focused on the next steps for PSM implementation. Kayleigh shared the proposed next steps and outlook for PSM



Julie Griffiths, Shaw Renewables and WPAC Safety Committee Chair, led a discussion on how safety culture is a critical driver of PSM.



Participants explored signals of weak safety cultures and actions that could be taken to improve safety culture.

in the sector, including the PSM implementation strategy developed during the recent PSM research project. A key next step is establishing a collective commitment from industry to continue with PSM implementation over an achievable timeline through the next 5-7 years. This would be followed by the development of an industry-driven workplan.

Industry best-practices and resources for PSM implementation that have been identified and collected as part of the PSM research project were shared by Kayleigh. Links to these publicly available resources are found on the PSM Implementation page on [WPAC's website](#). The value of using PSM frameworks, like CSA Z767, as a guide for identifying gaps and corrective action plans, whether such a standard is formally adopted in regulation, was a point of discussion.

PSM IMPLEMENTATION STRATEGY

PSM implementation is aligned with our sector’s approach to continuous improvement and commitment to our people, the communities we operate within, and the customers we serve. Safety experts will do most of the hands-on work and will be guided by a steering committee.



Communicate and evaluate research outcomes; provide recommendations and gain consensus from stakeholders on the next actions.



Establish PSM Steering Committee, who will provide input on workplans, timelines and material and process development.



Develop process to provide ongoing support across the industry.



Develop implementation guide, workplan and milestones.



Develop self-assessment worksheets for each of the PSM elements.



Develop additional resources with input from operations based on their needs.



Complete qualitative gap analysis against CSA Z767 standard using the self-assessment sheets.



Develop action plans and other tools and resources to address identified areas for improvement.



Create library of PSM policies and procedures for operations to refer to and adapt accordingly.



Develop PSM implementation, site-specific and industry benchmarking process safety KPIs to monitor and report out on progress.



Develop additional guidance and resources to support operations for determining the effectiveness of PSM element implementation, as part of the Plan-Do-Check-Act cycle.

GETTING BUY-IN FROM ALL LEVELS

Throughout the day, a key message resounded throughout the live polling, breakout sessions, and discussion periods—the imperative of process safety

What do you think is the most important thing for process safety culture?
46 responses



leadership and buy-in. Gord rounded out the day with the next steps being undertaken by WPAC to support members in the decision to embrace this evolution of safety in the sector, including an upcoming industry-wide meeting with senior leadership.

STANDING UP AND STANDING OUT

During closing remarks, a stand-out participant who stepped up to the plate and outside their comfort zone to lead and provide input was recognized—Kevin Storie from Drax at High Level. Kevin was given his own copy of the book *The Power of Habit*—thank you for your courage and leadership, Kevin, and keep up the good work!

DAY 2: HUMAN FACTORS WORKSHOP



On November 16, WorkSafeBC hosted a sold out workshop on human factors in the process industry, the third of which was completed in collaboration with WPAC.

Jenny Colman, a Human Factor Specialist for WorkSafeBC's Risk Analysis Unit and Jennifer Fung, a Senior Engineer with the OHS Prevention Service Division of WorkSafeBC, guided participants through the fundamentals of human factors, the hierarchy of controls and ways to reflect on how systems are designed and if they *"make it easy for people to do the right thing."*

The role of human factors in process safety, along with it being one of the elements of the CSA Z767 PSM standard, was discussed. Human factors was also an element identified as a high priority the previous day. The afternoon involved hands-on, practical breakout activities to apply tools to help prevent human errors.

Closing remarks at the end of the day included a call to action to take a look at the way equipment and processes are designed and challenge the status quo to improve the quality of workplaces for everyone.

OBSERVATIONS AND KEY TAKEAWAYS

- The summit participants passionately hold safety as a core value, are eager to continue to improve safety, and are open to new approaches.
- When asked why they attended, the vast majority of participants responded to learn more about process safety.
- With respect to PSM implementation, it was recognized by the group that we're doing a lot of process safety already—PSM is just a structured way.
- Flexibility based on site-specific priorities for developing and implementing policies, procedures and management system elements is recognized as an important aspect of the practicality of the three-phased approach to implementing PSM.
- Process safety culture is a critical influencer of our sector's safety performance. We took a hard look at what our safety culture is and how we can continue to build on it through hands-on case studies and group work.
- The safety culture surveys collected will be analyzed to help identify where the industry should prioritize efforts to improve our safety culture; the results of the survey will be communicated. The survey will be completed again in the future to measure improvements and changes.
- The presentation slides will be distributed to all participants—if anyone has questions about the process safety resources we have available or others that you need, contact us.
- Following the safety summit, a WPAC meeting was held to discuss the pursuit of a sector-wide PSM implementation initiative. The next steps for this will be communicated in the near future.

RESOURCES

More information on the key initiatives and resources discussed in this report, visit our website at pellet.org/safety.

At the end of the Summit, participants were asked to share a word that would summarize a takeaway for them—they included:

- Alignment and buy-in
- Buy-in
- Clarity/roadmap
- Collaboration
- Communication
- Communication and accountability
- Empowerment
- Encouraging
- Guidance
- Knowledge
- Learnings and best-practices
- Management of change
- Next step, not a new start
- Path forward
- Pathfinding
- Relationships
- Resources
- Support for mandate
- Trust
- Vision
- Working with others