



Wood Products Manufacturing Online Training Resources Coming In Fall 2021

By Cherie Whelan, Director SAFE Companies



BCFSC has been working with the Manufacturing Advisory Group to develop training geared specifically to the wood products manufacturing sector.

Wood Products Manufacturing Hazard Identification and Risk Assessment Training

This will be a 1 hour online interactive module available through BCFSC's online learning centre. The course has been designed to help workers new to manufacturing wood products manufacturing:

- Understand what hazards and risks are
- Become aware of common hazards in wood products manufacturing worksites
- Learn how to assess and control risks

Wood Products Supervisor Training. This training is geared towards new supervisors and is leveraging the material from the BCFSC Forest Supervisor Training. The BCFSC Training Department is working with a MAG project team to update the BCFSC Forest Supervisor training with wood products specific content and make it available in six 1-1.5 hour online interactive modules with the following topics

- **Module 1** - Cornerstones of Effective Safety Supervision, Roles and Responsibilities of Safety Supervisor, Business and Regulatory Requirements
- **Module 2** - Due Diligence, Documentation
- **Module 3** - Training and Orientation / Communication
- **Module 4** - Hazard ID / Inspections / Investigations
- **Module 5** - Effective Communication
- **Module 6** - Leadership Styles – Tips and Tricks

Both the Hazard ID/Risk Assessment and Supervisor Training courses will be available in Fall 2021, so stay tuned! 🎧

Industry Embracing Critical Control Management: Workshops Completed at 10 Sites

By Gordon Murray, Executive Director, WPAC

In 2020, the Wood Pellet Association of Canada and the BC Forest Safety Council teamed up to introduce and implement the Critical Control Management (CCM) process across BC's wood pellet and MDF plants. The uptake and learnings are providing key insight into how the industry can benefit from Bow Tie Analysis which forms the foundation of CCM. To date, workshops, led by researchers at Dalhousie University and BCFSC staff, have been completed at 10 of the 15 sites.

The pellet industry has a record of embracing new systems, processes and technologies to make plants safer and the CCM workshops are no exception. Plant employees participate in bow tie analysis workshops, led by Kayleigh Rayner Brown, P.Eng., M.A.Sc. Participants receive education, training and mentoring in the necessary knowledge and skills required to identify

site-specific critical controls. BCFSC Safety Advisors Bill Laturus and Tyler Bartels summarize the information developed at the workshops into a workable template for the plant to use when it submits its plan to WorkSafeBC.

“There’s a natural journey happening at these workshops,” says Laturus. “By working together, plant staff are open and honest about the potential hazards and collectively they develop processes that improve safety. As the days go by, they begin to get excited at the prospect of applying this approach at a larger scale not just combustible dust but chemicals for example or preventing back injuries, you name it, bow ties and CCM have very broad applications”.

Successful workshops mean getting the right people at the table every day of the workshop – no small feat in a plant and managing holiday schedules on top of it.

“The level of commitment and work that went into getting the right people to the workshop while ensuring back up at the plant was excellent and it paid off,” says Rayner Brown. “As a result, we had strong energy and an eagerness to, analyze, discuss and learn, which resulted in people identifying tangible and practical changes that could be easily implemented.”

West Fraser’s WestPine MDF plant in Quesnel is the most recent operation to participate, alongside Canfor and Premium Pellets which have also completed their workshops. Greg Rye, WestPine’s Safety Resource Co-ordinator, says the workshop helped the team discover opportunities for further protective barriers and illustrated and validated the controls they need to have in place.

“What stood out for me was how comprehensive the process, especially working with an expert like Kayleigh,” says Rye. “Next steps for us will be to identify those controls deemed to be ‘critical’ and to begin to document our critical controls management plan.”

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Manufacturing Safety

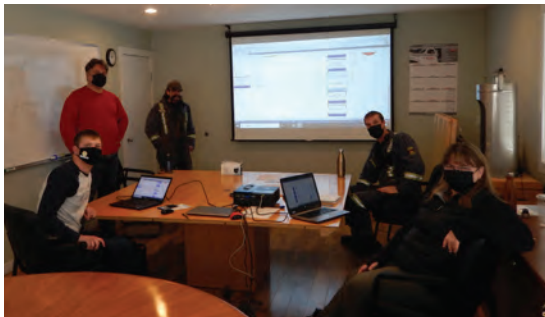
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Rye also has advice for the plants participating in upcoming workshops.

“Bring a diverse group of people together and really engage in the process. Also take time to look at the bow tie [webinars](#) which were a great primer on the process and we recommend everyone complete them in advance.”

WorkSafeBC is funding the Dalhousie University Department of Process Engineering and Applied Science Innovation at Work research project that will build on the WPAC funded CCM project workshops and transfer this knowledge to employees and employers throughout the wood pellet industry across Canada and internationally.

You can read more about CCM on WPAC’s [website](#). 🌐



Pellet plants across BC are embracing critical control management, with 10 of the 15 sites already completed in this important initiative.

Tips for a Successful Bow Tie Workshop:

- **Complete Webinar #1 and #2** in the [WPAC Safety Foundation Webinar series](#) for a primer about bow tie analysis and critical controls management.
- **Collect useful documents** before the workshop so that the team can use them to refer to, like piping and instrumentation diagrams (P&IDs) and corporate risk management programs.
- **Develop a Terms of Reference** ahead of the workshop, get buy-in from all participants so commitments and objectives are clear.
- **Identify key personnel** in your organization that should participate in the workshop and begin planning and scheduling early! Your team should consist of Subject Matter Experts (SMEs) knowledgeable in the operations and maintenance of the facility and its controls ideally, including:
 - » Operations (Manager, Supervisor, Operators),
 - » Maintenance staff,
 - » Electrical staff,
 - » Safety (EHS, OHS & Process Engineering), and
 - » Process Control & Instrumentation.
- **Engage a facilitator** with experience and knowledge in bow tie analysis should lead the workshop.
- **Schedule 5-minute breaks every hour** (hard-stops) during the workshops.
- **Invest in solid/good quality audio-visual equipment.**
- **Be adaptable and nimble** to make the most of the discussions, learnings



Fibre Pile Management

By Michele Fry, Director, Communications

Wood fibre manufacturing dedicated to biomass fuel production such as wood pellet manufacturing uses industrial waste products such as hog fuel or wood chips from lumber mills, pulp and paper mills, wood products manufacturing and more to create their fuel products. Traditionally these waste products are stored in large fibre piles at manufacturing work sites. If not managed correctly, the accumulation of wood fibre in piles can pose a significant fire risk. These piles contain materials that consolidate and pack together. The range of moisture content combined with various particle size and densities within the material leads to microbial growth and biological activity. The combination of these factors can cause the fibre piles to self-heat over time due to the microbial decay of the wood fibre triggering combustion within the pile(s).

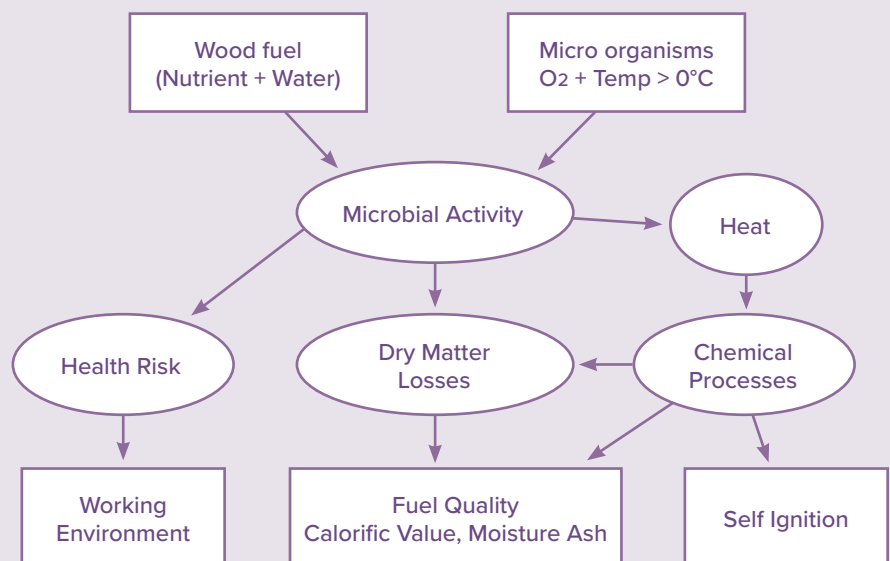


Figure 1. Source *Best Practices in Fibre Pile Management

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The hazardous result of this biological, physical and chemical reaction generates smouldering pockets that can endure continuously for months creating gaps and fire pockets that can collapse under any weight. These smoulders can even lead to surface fires and open flames when exposed to oxygen such as wind, exposure from another fire or from other ignition sources close to the piles.

Effective management of wood piles and good safety planning can help decrease the risk of internal fires caused when fibre piles self-heat causing combustion. The risk of spontaneous ignition increases if the raw material or solid biofuel is initially moist, the stored volume is large and the ambient temperature is high. Follow these **Best Practices in Fibre Pile Management** and control methods developed by *Dr. Shahab Sokhansanj and *Dr. Fahimeh Yazdanpanah to help mitigate the risks of spontaneous fibre pile fires to help keep workers safe and your fibre protected.

STORAGE:

- Fibre pile storage should preferably be located on dry, level ground on an asphalt or concrete surface close to the transport road.
- The dry, level ground should be free of stumps, stones and large residues.
- The storage area should be located in an area higher than the transport road(s) to avoid rainwater saturating the storage pile from the water accumulating on the road(s).
- Outside storage piles should preferably be covered to avoid precipitation or the accumulation of moisture.
- Store dry fibre piles (<20% moisture content) to avoid microbial growth
- Different types and qualities of fibres such as hog fuel and wood chips should never be mixed and should be stored separately.
- Fibre piles should preferably be stored in small piles.
- Store fibre piles for a short period of time.
- Ensure fibre pile storage management controls are in place with inventory and timeline management as essential control measurement.
- Store the material such for FIFO (First In-First Out)
- Avoid compacting the material – (i.e.) running heavy equipment on the material.
- Use these rules of thumb:
 - » FIFO (First In-First Out) – store the material to ensure the material is transported first in – first out to reduce the risk of some material sitting in the pile for an extended period of time.
 - » Raise piles in elongated stacks using a rule of thumb = base width twice the height of the stack.
 - » Fibre pile typical heights: clean wood chips without bark 15m | chipped forest residue 15m | bark 7m | sawdust 6m.

CONTROL MEASURES:


- Use a Forward Looking Infrared (FLIR) camera or thermal imaging camera to identify hot spots early.
- Monitor the temperature at several different locations in the bulk.
- Measuring the CO concentration in the air above the fuel surface is one possible method for detection of activity in the fuel bed.
- Other detection methods include multi-gas detectors and sensitive “electronic nose” detectors.
- Understand the signs of an on-going self-heating process to detect the hazard. The first sign is often a sticky and irritating smell.
- Initiate firefighting if the smell or sight of fire is sensed from the storage pile such as the smell or sight of smoke (not steam or water vapour) or if flames or embers are spotted. Use trained fire fighters or contact the local fire department to safely expose and extinguish fibre pile smolders/fires.
- Ensure workers do not climb up on and equipment does not scale or drive on a fibre pile that is suspected of self-heating.
- Restrict public access to fibre storage areas.
- Follow all established safe work procedures regarding fibre pile storage.
- If you suspect the pile is self-heating
 - » Don't go on top, instead seek help and advice from your supervisor.
 - » Check to see if your safe work procedures follow a process. If there is no procedure in place, ask your supervisor for help.

To learn more about Fibre Pile Management, visit [Wood Pellet Association of Canada](#)

Resources:

[Best Practices Fibre Pile Management](#)

[BCFSC Fibre Pile Management Crew Talk](#)

[WPAC Safety Alert: Fibre Pile Fatality](#) 

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