

Process Safety Initiative

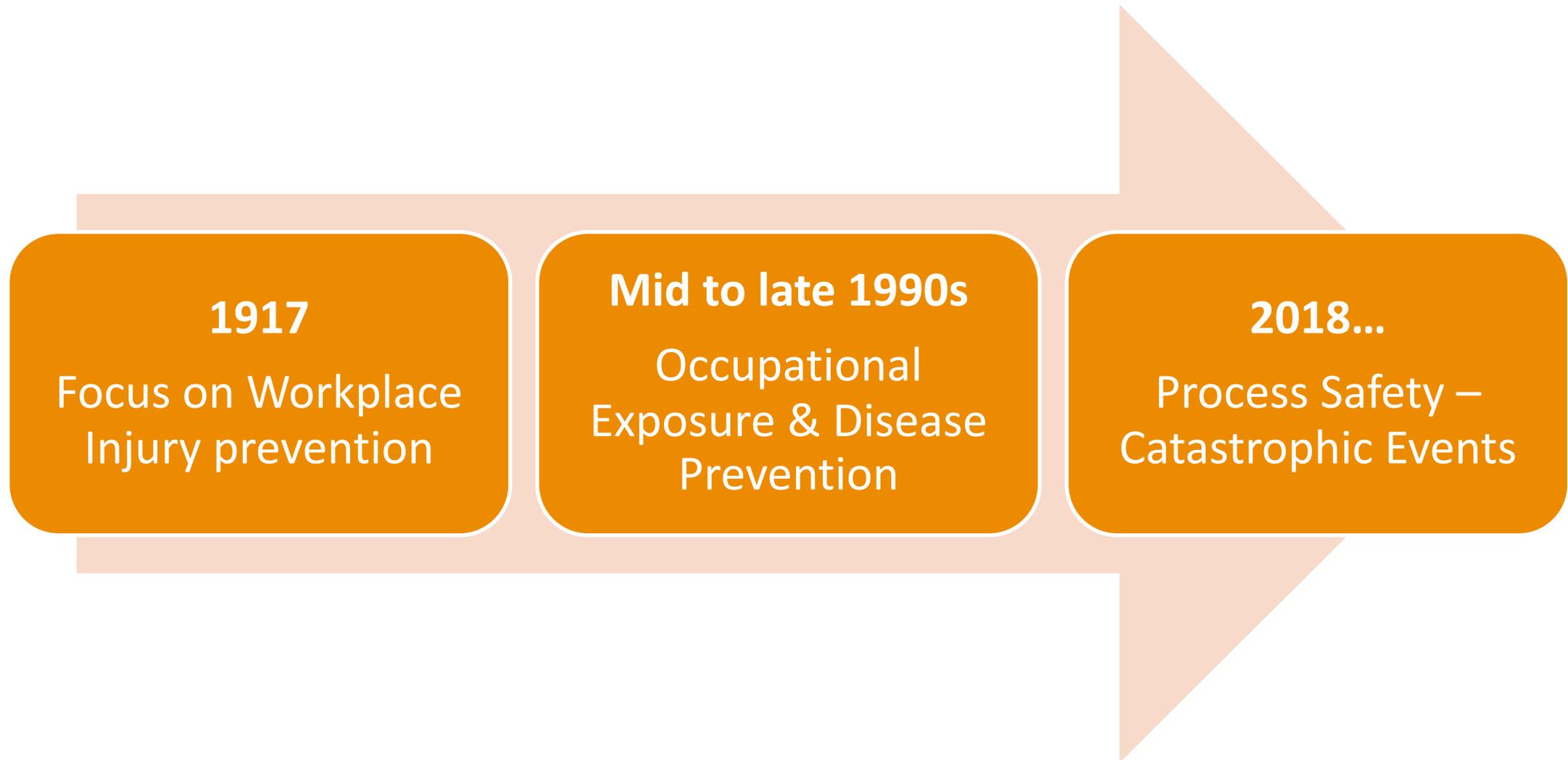
Where are we and how did we get here?

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Evolving Perspective of WorkSafeBC Prevention



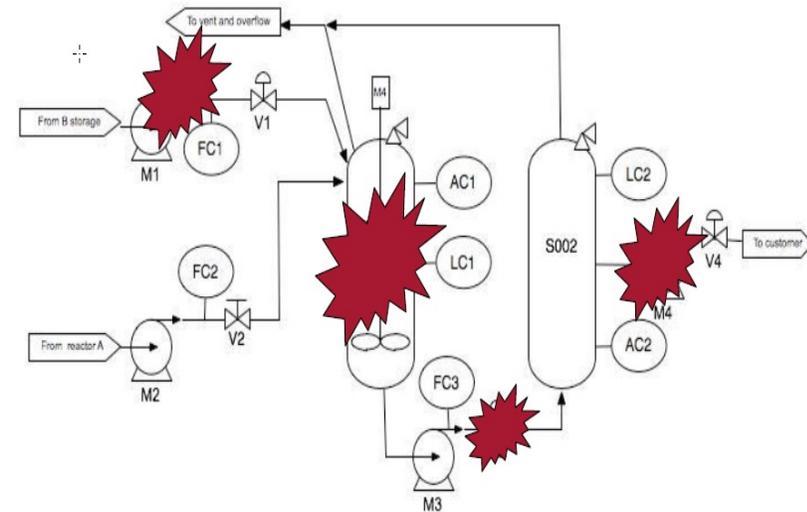
What's Different Between Traditional Occupational Health and Safety and Process Safety?

Personal Safety (OH&S)



**Higher frequency,
lower severity events**

Process Safety

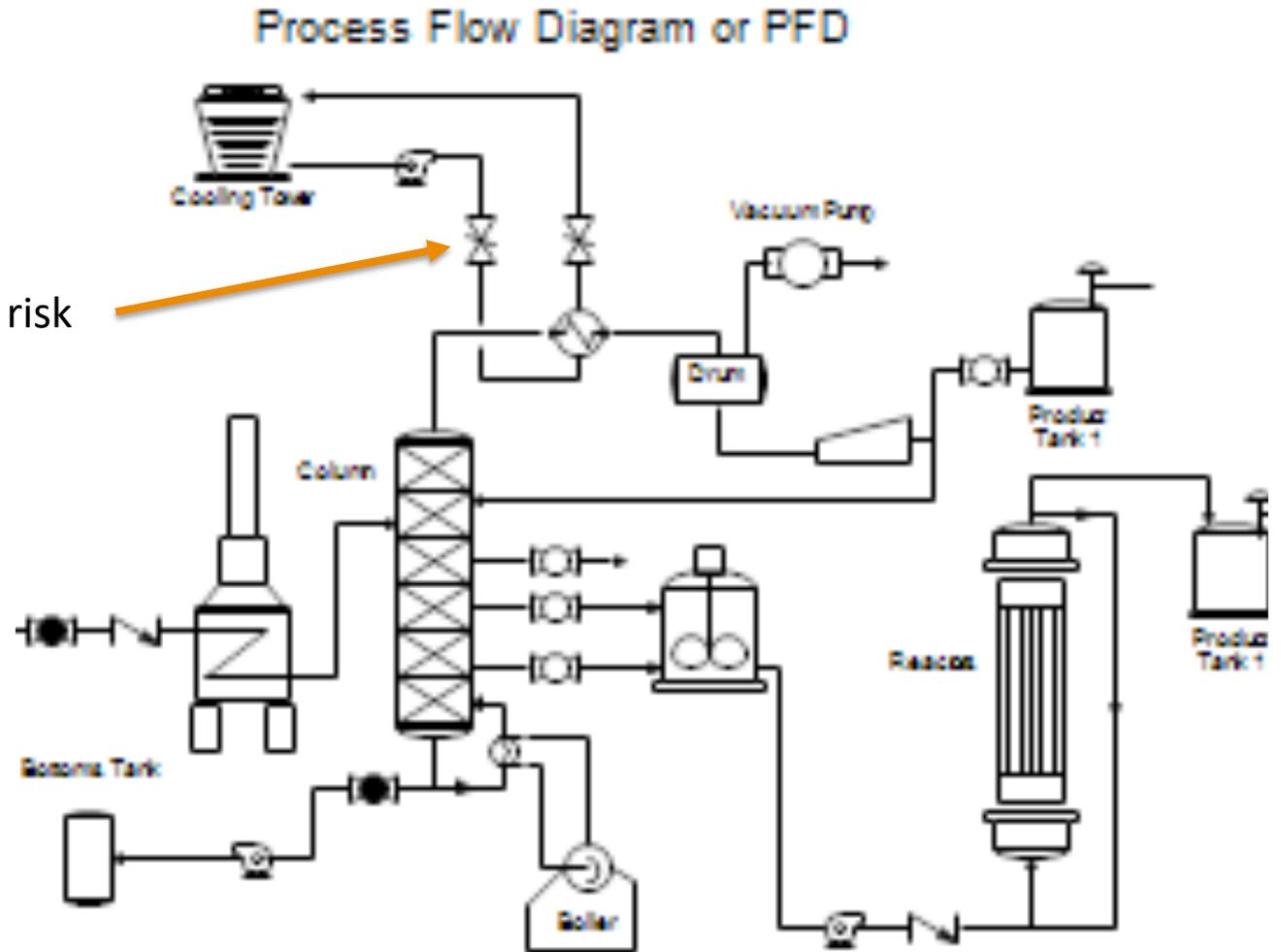


**Lower frequency,
higher severity events**

The challenge with Process Safety

Process safety hazards can be hard to detect and can lay dormant for years.

Maybe 1 valve poses the risk



What industries are being focused on?

- Wood pellet manufacturing
- Oriented strand board (OSB)
- Medium density fibre board (MDF)
- Biomass power generation
- Oil refineries
- Smelters
- Pulp & paper manufacturing
- Large commercial breweries
- Upstream oil & gas processing
- Chemical manufacturing
- Biogas production

What are we doing?

The Process Safety Initiative is gathering information to answer 3 fundamental questions related to selected process industries in BC:

1. Does the employer have sufficient awareness of their hazards and risks?
2. For those hazards and risks, has the employer implemented effective controls?
3. Are the controls being maintained in a reliable state?

Anything else?

- Beginning in 2022 we identified the need to evaluate the operational control systems within each facility.
- We developed and issued a survey (53 questions) that helps us understand the design, operation and maintenance of these systems.
- Results have been very positive.
- This part of the initiative is nearing completion.

So...anything else?

- We've been working with WPAC, BC Forest Safety Council and individual employers in conducting post-incident debrief sessions when unwanted events occur.
- These sessions are a collaborative tool to "work the problem".
- Two beneficial industry initiatives have emanated from these sessions:
 - Bed dryer working group and symposium
 - Equipment isolation working group and symposium

What assistance was available?

- WorkSafeBC partnered with all stakeholders to provide guidance and assistance.
- WorkSafeBC provided financial grants to Dalhousie University School of Process Engineering to assist the wood pellet industry in developing resources related to process safety.
- Dalhousie partnered with WPAC and BC Forest Safety Council to provide Bowtie risk analysis training and facilitation sessions for each employer location.
- This partnership has been very valuable throughout the journey into process safety.

What's up with wood pellet?

After consulting with industry and conducting a hazard identification, the team developed a work plan for the industry to focus on.

That plan is comprised of assessing 3 unwanted events that have catastrophic potential:

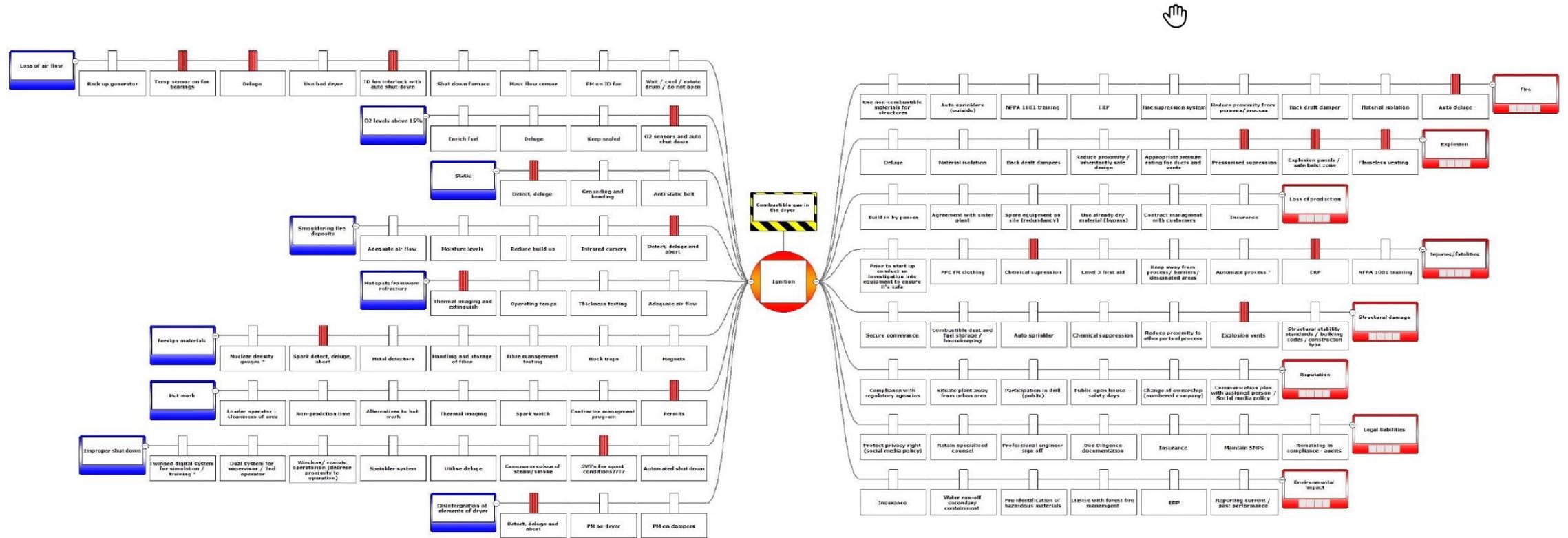
1. In-process fire and explosion
2. Silo fires and explosions
3. Flammable gas generation (Synthesis gas)

How is this being done?

- Each employer is being asked to conduct a Bowtie Risk Analysis to identify how each unwanted event could occur and the controls in place?
- The employer assembles a task team representing: operations, technical, maintenance, and engineering stakeholders and to conduct the assessments.
- The employer then submits the Bowties and supportive documentation to WorkSafeBC for review.
- WorkSafeBC uses relevant Regulations, codes and standards to evaluate the efficacy and reliability of controls in place.
- WorkSafeBC provides ongoing feedback and asks clarifying questions in a back-and-forth process until we have a clear understanding and can establish evidence in answering our 3 fundamental questions.

Uh...What's a Bowtie?

Combustible Dust in the Dryer



Helpful resources through the initiative.



How has it been going?

- Slow to start.
- This was very new to the industry.
- We underestimated the time it would take for industry to gain the skills needed for the exercise.
- Employer's and workers have invested significant resources to better understand their hazards and controls.
- Significant capital investments have been made to improve processes and lower risk.
- Although it took awhile to get going we're seeing real forward momentum now.
- Employer's are embracing the need for process safety as an essential part of their business.
- It's been time consuming and sometimes difficult but we're seeing improvements in risk reduction.

What does the future look like

- In 2023 we anticipate transitioning from an active roles in each location's process safety development to a monitoring and response role.
- We'll monitor reported incidents and provide assistance to employer's who need it.
- We'll always be ready to re-engage should the situation call for it.

Remember...

“The responsibility to manage the risk resides with
the party that creates it.”

But,

we can help.

Thank you