

Getting on the Same Page in Process Safety

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An important thing I have learnt in 28 years in catastrophic risk management is that the hazardous properties of materials, substances and energy never take any time off to allow us to figure out how to contain and manage the associated risks. The next most important point to make is that we fully know how to effectively manage such risks. We know how to do this through a system known as process safety management. So why do major catastrophic accidents keep occurring? If we know how to manage such risks. In many years dealing with major incidents, I don't believe such events occur because of a blatant dis-regard for safety precautions; especially as many who bear the full impact of such disasters are those front line workers who are so frequently blamed as the cause for not following the rules or procedures.

Understand and Describe Risk in Plain Language

I think the answer has to lie in education and understanding of major hazard risks and in presenting the concepts of process safety management in plain and simple terms for all those involved.

Actually talk about hazard and harm rather than risk because most people are more comfortable when you avoid discussions around probability.

Delivering the right safety and environmental protection outcomes involves people at all levels within an organisation from senior executives, managers and operational staff. Safety is not just the responsibility of a small dedicated professional team, we all have to 'Get on the Same Page' and get involved in the same way because the hazards are always on the same page and always present, no matter how inconvenient this is for us. Confusion, misunderstanding and misaligned priorities can all lead to catastrophic consequences. The hazards and the safety risks will all still be present whether or not those involved in controlling this risks all have the same focus.

I always start a discussion about process safety by talking about a piece of furniture – usually a table. We all share a common basic knowledge and understanding of a table and we all could probably consistently describe one to someone who had never encountered a table before.

But the term process safety does not conjure up the same shared understanding. The subject has tended to be the preserve of safety professionals and engineers who frequently attempt to describe this aspect of risk management in complex language or terminology. Using phrases such as safety barriers, bow ties, as low as reasonably practicable, ALARP, SFIRP, Safety Integrity Level, SIL, HAZOP, HAZID etc.

No wonder ordinary workers and senior executives lose interest in the first few minutes into a discussion about process safety. A simpler, plain language approach has to be adopted.

Simple Questions to discover Essential Information and Get a Shared Understanding

Although the risks associated with hazardous materials and energy are complex the way to manage such risks can be broken down into some simple steps and the answers to these questions can be agreed and communicated throughout an organisation:

- How could it go catastrophically wrong? – Hazard Identification.
- Where / when will the process most likely go wrong and what would the consequences be? – Risk Assessment.
- What controls or systems are there to prevent a major accident or to limit escalation? – Determining the Control and Mitigation Measures (or barriers).

- Which of these are most vulnerable to failure? – Reliability Assessment.
- What information is available to show these control systems continue to operate to the desired performance standard? – Measuring and monitoring by incident investigation and active monitoring using key performance indicators.

Many of you will recognise these were the points Gordon MacDonald on the steps of the court following HSE's prosecution following Buncefield.

Driven from the Top

Answering such questions; implementing and maintaining a process safety management system does not occur spontaneously. It has to be driven and led by senior executives from the Board Level down through the organisation. Strong process safety leadership is required.

Controls need to fit the Risk like a Glove

Unfortunately, there is no 'one size fits all' solution to process safety management, especially relating to the control and mitigation measures required to prevent the catastrophic failure of plant and equipment. These control measures or preventative and mitigation barriers have to be closely tailored to the risks and to the way the plant or equipment could fail – the challenges to the integrity of the processes and plant. The control measures have to exactly fit the risk profile of the organisation.

Miss some key measures and a major hazard challenge will not be effect controlled. Overdo the control measures and you will be 'gold plating' the safety system – which incurs unnecessary expense both in design and operation.

A great deal of thought and effort is required to design and implement the right system, tailored to the risk profile of the organisation.

But then it all Goes Wrong from Day 1

Another important lesson I have learnt from investigation major accidents is that most effort and resource is applied during the design and implementation of a process safety management system and subsequently the system is expected to run without failure – like a modern high-tech automobile.

Unfortunately, we know that systems of control start to deteriorate as immediately as they are commissioned and implemented. This is mainly due to modification and change but also human ingenuity to work around and outside documented procedures and systems in order to get the job done, save time and improve performance of the production system. This endeavour is to be welcomed provided that the control of the ever present major hazards is not degraded.

Regrettably, many well-meaning employees have not been involved in the system design or had the relevance of the procedure properly explained to them. Most people have no concept of the hazard, let alone of process safety risk.

Get on the Same Page

Use plain language – after all people do safety not systems

My proposal for everyone involved in major hazard risks to 'get on the same page' is to ensure everyone who works alongside such risks fully understand the hazards they are exposed to, and entirely understand and accept the associated control measures or procedures. A degree of differentiation and visibility of the risks is required against a backdrop of 'proceduralisation' of business activities.

Cover Asset management at the Same Time and Stay in Business

The good news is that effective asset management and good process safety management are one and the same thing. Both are aimed at effective containment of hazardous substances or energy, and

both rely on accurate information on the status of the plant, process conditions and of control systems.

Knowledge and understanding of how such systems degrade and fail is essential. Get this combination of asset management and process safety right and not only will the plant be safe but it can be run at maximum efficiency and costly activities such as maintenance can be precisely targeted to avoid unnecessary expense. How to achieve this goal of safe operation, reliable plant via efficient asset management and reduced operational costs is now well understood and has been increasingly the practice of high reliability organisations, such as within the energy sector. They can operate with a 'no surprises' asset performance status through effective KPIs and positive confirmation that critical safety systems, including human performance, are intact and delivering the desired safety outcomes.

High Reliability and No Surprises

The objective of a high reliability major hazard business can be readily and effectively achieved through: Simplify and demystifying process safety management. Engage everyone within a high hazard organisation by using common plain language descriptions of risks and control measures so that the importance of critical procedures and control measures are distinguished from other activities, understood and accepted. Making risks and performance of critical control measures visible and describing them using simple language. Undertake this alongside an integrated asset management programme and a highly effective, reliable and profitable business will be achieved.

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