

EXCELLENCE IN PROCESS SAFETY REQUIRES RISK-BASED DECISION MAKING

**Andrew Wilson, Principal
DuPont Sustainable Solutions
DuPont Australia Pty Ltd**

Both as managers and as human beings, we are continually making risk-based decisions; for example, approving a new project, committing to a performance target, giving an employee more latitude to solve a problem, or even crossing the road against a “flashing red man.” All of us have faced a choice between the convenient way (cross the road now –no cars are coming), and the safer way (wait for the lights to change to green). But do we, a select group of people who read Safeguard Magazine, always take the safer, less convenient, lower risk option? The probability of being hit by a car is very low, especially if we check before crossing. But the consequences of such an “accident” are very high, and could be fatal. As humans making risk-based decisions, we are good at quickly calculating the probability of an incident, but not so good at considering the consequence. This is what makes process safety so much more difficult to manage than personal safety – because events are unlikely, our natural response is to dismiss them by saying, “it’s never going to happen to me.”

RISK BASED APPROACH

DuPont Sustainable Solutions (DSS) advocates a differentiated risk approach that ensures that appropriate effort and resources are expended based on the specific risk profile of the industry and business a company is in, resulting not just in the desired end state, but ensuring value for investment. We recognise that there is no one-size-fits-all approach to managing risk. It is not practical to address all risks with the same level of intensity considering the limited resources most enterprises have.

Before applying a risk-based approach, organisations must first define their risk appetite in a way that takes into account the protection of people, assets, environment and business implications. This is usually done through a risk matrix. Consider your own organisation. How many risk matrices and tools are there? Ideally, an organisation’s risk appetite is defined by a single risk matrix that is approved by the board. This document explains to the organisation what level of risk acceptable, what needs to be mitigated, and what is unacceptable. If each function or site has its own risk matrix, then the organisation cannot make consistent risk-based decisions. The organisation’s risk appetite should be embedded in all its risk assessment tools.

Risk governance is defined in a way that takes all of this, as well as regulatory requirements, insurance and stakeholder’s considerations, into account. Once the “risk tolerance” is defined, a framework for managing risks should be developed that clearly defines proportionate control mechanisms.

ALLOCATION OF RESOURCES TO REDUCE RISK

Our experience is that risk management is most effective when it is integrated into the standard operation of the organisation (refer to Figure 1). A system for risk governance, as described above,

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oversees the allocation of resources to manage risk. The next step, often overlooked, is to “recognise risk.” This understanding of risk then informs and provides context on how the organisation undertakes activities such as the management of people, operations, maintenance, incidents, change and emergencies. Many organisations that are struggling with process safety work harder on the orange boxes in Figure 1. They write new procedures, increase maintenance inspections, prepare an updated emergency response plan or install new plant and equipment. A risk-based approach means taking a step back, and thinking about the red box below – “do we understand our risks?” Operating procedures can then include safe operating envelopes, maintenance inspection scopes and frequencies based on potential failure modes. “Weak signal” process safety incidents (e.g., a relief valve lifting) are investigated with the same degree of rigour as a personal injury, and specific emergency plans reflect credible scenarios identified during a HAZOP. Resources are then allocated to make sure that activities in the orange boxes are having the most impact on reducing risk. “If we are not reducing risk – why are we doing this work?” The concept of proportionality is paramount; the allocation of resources must not be equal or democratic, but rather deployed to reap maximum benefit in terms of risk reduction.



Figure 1 Integrated Risk Management Approach

APPLICATION

Importantly, this framework for risk-based allocation of resources does not just apply to those organisations managing hazardous materials such as in the oil and gas, or chemical industries. The model applies to any organisation that needs to manage operational risk, particularly those exposed to low-probability, high-consequence events. Do I understand the risks I am managing? Am I allocating resources on the basis of risk? Have I reduced the level of risk sufficiently?

About DuPont Sustainable Solutions

DuPont Sustainable Solutions (DSS) is one of 8 DuPont businesses. Bringing customers the benefits of an integrated global consulting services and process technology enterprise, DSS applies DuPont's real-world experience, history of innovation, problem-solving success, and strong brands to help organizations transform their workplaces and work cultures to become safer, more operationally efficient and more environmentally sustainable. For more information, visit our website at www.sustainablesolutions.com.au