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Process Safety for OHS Professionals

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Abstract: Process safety is a field dominated by engineers and OHS professionals come from a range of different disciplines. In addition to this process safety is often managed by engineers outside of the traditional safety function. This has led to a divide where OHS professionals don't always understand the purpose of process safety professionals and vice versa. This paper will explore what OHS professionals need to know about process safety and how they can work together to get better safety outcomes for all.

1 Introduction

In 2015 the IChemE Safety Centre (ISC) published a guidance document on process safety competency (IChemE Safety Centre, 2015). This guidance defines a series of process safety competency requirements across 21 key topics and then plotted this against an entire organisation to produce a competency matrix. This includes traditional occupational health and safety(OHS) based roles. The matrix rated competency across a four tiered structure, from awareness, basic application, skill application through to mastery. This document has been widely accepted as a model for process safety competency with many companies implementing the standards.

2 Recognising process safety and OHS professionals

Following the release of the guidance document, the Australian Occupational Health and Safety Education Accreditation Board (OHSEAB) approached the IChemE Safety Centre to better understand the competencies listed against the OHS professionals. This engagement was welcomed by the ISC members, as it showed a genuine interest in improving safety. The OHSEAB is the custodian of the Occupational Health and Safety Body of Knowledge (OHS BoK)¹. The OHS BoK is a free on line series of 39 chapters that details the knowledge needed by OHS professionals. They cover a range of topics from the nature of work and safety, physical

¹ <http://www.ohsbok.org.au/> accessed 4 September 2016

hazards, risk assessment and decision making. The OHS BoK currently lacks details on process safety or issues for practice in this field. This resource is also the basis for setting educational requirements in OHS. The OHS BoK is a single site with comprehensive information and as such is a well known resource in both Australia and overseas.

The two organisations agreed to collaborate on the development of a process safety specific chapter, to provide basic information to OHS professionals. The intent of this is not develop OHS professionals into process safety professionals, but to provide them with enough knowledge to recognise when they need to call in process safety experts.

A vital requirement to achieving good safety outcomes is for both process safety professionals and OHS professionals to work together. By educating OHS professionals to recognise process safety issues and by promoting knowledge of OHS with process safety professionals there is a better opportunity to realise these improved outcomes.

3 Development of the chapter

A technical committee was established containing both OHS and process safety professionals to develop the content for the chapter. A key aspect of the development is to ensure duplication does not occur between existing chapters and therefore many are cross referenced together. As the chapter started to develop it became apparent that there needed to be two chapters developed, one on process safety management and one on process safety hazards focusing on chemical hazards. This was done to ensure the chapters remained focussed and readable. These two chapters have been developed by the technical committee in conjunction with the director of the ISC and the registrar of the OHSEAB.

4 What is covered

The chapters have a common structure for preliminary information, before diverging into specific items. The preliminary sections are as follows:

1. Introduction, which covers the process for developing the chapter;
2. Historical Perspective which discusses relevant historical aspects that shape the purpose of the chapter; and
3. The extent of the problem which discusses why the chapter has been written and what it is trying to address.

The chapters then address specific matters as required.

4.1 Process Safety Management chapter

This chapter firstly had to clarify the role of the OHS professional verses the process safety professional. Illustrated examples are used to define the differences and similarities between OHS and process safety. The chapter utilised various stories and examples to show where process safety fits in with OHS.

The chapter then addresses some key aspects that the technical committee thought were important for OHS professionals to know. These included aspects such as the legislative environment, the nature of hazard identification and risk assessment, followed by the implementation of controls.

To enable a valid discussion of hazard identification and risk assessment the chapter also defines typically utilised documentation, such as engineering drawings and documents. This compliments the discussion on failure modes and failure rates as well as a discussion on technical risk assessments.

The discussion on control starts with the principles of inherently safer design and then a discussion on the application of management systems and assurance processes to monitor the health of control measures.

4.2 Process Safety Hazards (Chemical)

As the *Process Safety Management* chapter developed, it became apparent that a chapter was needed to discuss the typical process safety hazards and consequences. The chapter covers hazards of chemical, including flammability, explosive substances, oxidisers, corrosive substances, reactivity, pressure related hazards, steam, combustible dusts and toxicity. It also covers sources of ignition to compliment the discussion of flammable substances.

Once the hazards were defined the chapter moves onto various consequences, such as fires, explosions and toxic impacts. Both the type and impact of explosives are discussed.

Finally control methods are discussed. Elimination, as well as preventative and mitigative controls are defined, in addition to the differences between active, passive and administrative controls. The chapter explains the concept of layers of protection.

This chapter compliments the knowledge in the Process Safety Management chapter and it is intended that the two chapters are read together.

5 Next steps

Work continues on the chapters with the intention of launching them in November 2016. It is intended to promote the accessing of the OHS BoK as it provides quality information to assist OHS professionals and this material will now contain vital process safety information. This will help OHS professionals engage with process safety professionals when necessary to provide better safety outcomes. Additionally by having process safety recognised in the OHS BoK, there is an opportunity to raise the OHS knowledge of process safety professional.

This is a step toward better safety outcomes through collaboration and enhanced knowledge.

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References

IChemE Safety Centre. (2015). *Process Safety Competency - a model 2015*. Melbourne: IChemE.