Joint Zoom meeting
17 June 2021

**South Cumbria &
North Lancashire Branch**

**South Cumbria Occupational
Health & Safety Group**

Topic: *Safety I and Safety II; a critical review of safety management*

Speaker: Christian Reeve CMIOSH PIEMA, Head of SHE, *BAE Systems Submarines,* Barrow-in-Furness.

Attendees: 84

Elsa Mason, Vice Chair, *South Cumbria and North Lancashire IOSH Branch* welcomed members to the meeting. She then welcomed and introduced our speaker, Christian Reeve, Head of SHE, *BAE Systems Submarines* who

Christian began his presentation with a brief overview of the scope of work undertaken at *BAE*'s Barrow-in-Furness submarine building facility. He explained that there were currently two main work programmes: the Astute Class submarine building programme that is nearing completion and the Dreadnought submarine building programme that started recently. He explained that both programmes created potentially high hazard environments due to the use of multi-facility production lines with dynamic building areas and to the installation of nuclear systems during the building process.

Christian then went on to compare the differences between Safety I and Safety II management systems. He defined Safety I management systems as being the traditional way of safety management that seeks to eliminate accidents and hazardous incidents by imposing rigid safe systems of work and by analysing what went wrong after adverse incidents. Using this system risk assessments and accident investigations are based on the premise that workplace accidents are caused by equipment failures or malfunctions, and/or human failures, that can be identified and analysed during the follow-up investigation process. Future failures of this type can then be managed by revising the safe system of work so that the problems identified are eliminated.

Christian explained that since the 1850s, when engineering pioneers developed new ways of mechanised working, workplace safety thinking had evolved. He divided this evolution into four 'Ages':

- The *Age of Technology*: workers treated like cogs in a machine.
- The *Age of Human Factors*: workers controlled by a rules-based culture, originally defined by Frederick Winslow Taylor.
- The *Age of Safety Management*: safety management systems imposed on workers by managers, with little input from skilled employees undertaking specific tasks.
- The *Age of Cognitive Complexity*: a growing realisation that workers' safety ought to be part of a more complex overall workplace management process.

Christian then explained that Safety II management systems aim to look at things which 'go right' as a way of identifying ways of improving other workplace activities. He described this system as a proactive management system that recognises that skilled and knowledgeable workers can provide solutions to potential workplace problems, as they arise, if they are trusted with this responsibility.

Christian used the normal curve of distribution to help distinguish between the basic principles of the Safety I and Safety II management approaches:

Safety I: focusses on avoiding things going wrong by setting up rigid safe systems of work and analysing the small number of workplace accidents and major incidents (about 1% of workplace activity), as a way of improving workplace safety management systems.

Safety II: focusses on looking at what goes right (about 98% of workplace activity), as a way of improving integrated productivity and safety management systems.

Christian suggested that a successful modern workplace is one where safety, operational practices and resources are aligned with the way work is organised. He said that there is no 'right' or 'wrong' way of working other than the need to develop ways of working that protect workers from potential hazards while allowing them to do their jobs as efficiently as possible. It involves trusting their expertise enough to give them responsibility to change the way that they are working if they encounter an unexpected set of circumstances.

Christian explained that moving towards adopting a Safety II approach cannot be achieved by desk studies. It requires:

- Closing the gap between how people work, and how managers think that the work is being done. This can be done by:
  - Regular surveys: observing how employees do their day-to-day work.
  - Team Resource Management: identifying limiting factors such as lack of the best equipment for the job, training needs etc… and involving workers in identifying ways of working more efficiently.
- Looking at what works well, understanding why it works well and assessing whether, or not, a similar approach would be as effective in a different work environment.
- Making thorough assessments of work systems with the aim of improving both workplace safety and work efficiency at the same time.
- Taking account of areas where potential system, equipment and/or human failures may occur.

Christian ended his presentation by saying that both the Safety I and the Safety II management approaches are 'ways of seeing' but that neither is the definitive 'way of seeing'.

This was followed by an interesting short question session, chaired by Patrick McMurray. Christian recommended that managers should try 'thinking differently' about ways of managing workplace safety and productivity. He suggested that using a tailored blend of Safety I and Safety II management approaches might be the best way to improve overall safety culture and efficiency in many workplaces.

Elsa Mason, then thanked Christian for his thought-provoking presentation and reminded members that our Branch's next meeting was about *Health risk management* on 15 June 2021.

Related HSE information:

Managing risks: Managing risks and risk assessment at work – Overview -HSE

Health & Safety made simple: Health and Safety Made Simple: The basics for your business (hse.gov.uk)

Consulting and involving workers: Consulting and involving your workers (hse.gov.uk)

Human factors: behavioural safety approaches: Human factors: Behavioural safety approaches - an introduction (hse.gov.uk)

Other related information:

Safety I and Safety II in the medical context: Safety I and Safety II - CARe (resiliencecentre.org.uk)

Safety II site visit questions: Safety-2-Site-visit-questions.pdf (safetree.nz)