IChemE
Hull & Humber Members Group

Technical Symposium: Ageing Plants

Presentation synopsis

Ian Chapman, HM Specialist Inspector – Mechanical Engineering

During Ian's presentation he will cover:

- HSE Ageing Plant Strategic Priority – Discussion related to the work program and presentation of results with basic analysis of findings and sensitivities
- Introduction to the Asset Integrity work stream (developed from the Ageing Plant Strategic Priority). To introduce the revised topic areas with an emphasis on Initial asset Integrity and Leadership and Management.
- Some further examples of integrity failures and challenges
- HSE Work Streams, to include for a brief summary of the HSE position as relates to High Temperature Hydrogen Attack and introduce proposed research into the efficacy and development of Remote Visual Inspection techniques currently being deployed and developed.

Zsuzsanna Gyenes, PhD, Deputy to the Director - IChemE Safety Centre
Presentation title: *Ageing of hazardous installations*

Ageing is a phenomenon that is present in all process industries all over the world. It is sometimes mistakenly believed that ageing is about how old the establishment or the equipment is. Ageing of industrial facilities has a wider meaning that goes far beyond corrosion management. Everything associated with a site and its various processes can age, including not only equipment, but also people and procedures. Some ageing phenomena are sometimes only perceived through the lens of a specific activity, such as management of change (e.g., new staff make decisions without full information, e.g., they are not aware of a process's linkages with another process) or in operational control, where the process itself is outdated relative to modern safety performance standards. In the worst case, an ageing problem may only make itself known through an accident or near miss. For this reason, the effectiveness of the safety management system over time relies on a constant awareness of all the types of ageing impacts – loosely defined as material degradation, obsolescence, and organizational ageing - that affects in equipment, processes and knowledge-based elements. The case studies below show what ageing phenomena and how could contribute to an incident and what are the lessons from these events to avoid future occurrence. It is very often a problem to identify accidents that have lessons learned with ageing implications, and more importantly, understanding how each of these issues might be addressed by the safety management system. Key words that capture the type of ageing is difficult to find in incident investigation reports or incident reports.

Peter Marsh CEng MIChemE,Director – XBP Refining Consultants Ltd.
Presentation title: *Catastrophic Heat Exchanger Failure Case Study*

On 02-Apr-10, a shell-and-tube heat exchanger failed catastrophically at the Naphtha Hydrotreating Unit of the Tesoro Anacortes refinery (WA, USA) failed catastrophically. Seven people were killed in the ensuing fire. The failure was caused by an age-related metal degradation mechanism. This presentation describes the accident, its root causes and the implications for equipment design and operation.

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Andy Stanley, Managing Director – RAS Ltd. Risk & Hazard Management.
Presentation title: *Making sense of your data*

In line with the theme of leadership, asset integrity and engagement, I would like to suggest a session on the criticality of accurate data collection and communication for plant integrity related tasks. This includes a case study based on the experience of RAS Ltd as a risk management consultancy.

Lately within industry there has been a drive for learning from past incidents, within organisations and from the wider industry. These incidents are invariably caused by a number of failures, including equipment failures which might have started off as an isolated, minor incident but soon escalated to a major accident.

While learning from case studies of major accidents is undoubtedly critical in achieving continuous improvement in risk management, why is it that we have to wait until it is too late to take account of those minor integrity failings?

Our experience shows that often, due to a number of factors, organisations fail to record minor repairs to equipment. These fixes might seem insignificant at the time, but what if we begin to regard these with their true potential in mind, as near misses for major accidents? With more diligent recording of reactive maintenance tasks, no matter how minor, we can learn about what can go wrong and how better to manage it.
I would like to present our ideas as a case study which introduces this concept and demonstrates how we at RAS have helped our clients to move forward in data reporting and sharing. Common issues such as communicating up the management chain and between businesses will be explored, and our approach to solving these problems described.