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The Process Safety Audit – a False Sense of Security?

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Abstract

Audit is an essential element in the safety management systems operated by high risk industries and is legally mandated in many regimes which regulate major accident hazards. Widespread doubt has been expressed as to audit effectiveness and this paper explores the current debate and the response by several operators towards the audit challenge.

Introduction

A safety audit according to European Process Safety Centre[1] (EPSC) is

'A process of independent, systematic examination to assess the extent of conformance with defined standards and recognised good practice, to thereby identify opportunities for improvement.'

It is the aim of this paper to explore this description from the perspective of the internal auditing performed by a major hazards operator or in other words the process safety management (PSM) system owner.

Audit failings in major accidents

Investigations into major accidents in recent years have revealed flaws in PSM systems and more specifically shortcomings in the audit process itself which is designed to maintain and improve the system. In the aftermath of Texas City the BP U.S. Refineries Independent Safety Review Panel[2] (known informally as the Baker Panel) expressed its concern that:

'The principal focus of audits was with compliance and verifying that required management systems were in place to satisfy legal requirements. It does not appear, however, that BP used the audits to ensure that the management systems were delivering the desired safety performance or to assess a site's performance against industry best practices.'

In one of its ten key recommendations the Baker Panel made explicit reference to process safety auditing and proposed that BP should establish and implement an effective system to audit process safety performance at its US refineries.

Published criticism of safety auditing

The National Occupational Health and Safety Commission[3] whilst recognising several benefits of safety audit tools observed that they can act as a barrier to the effectiveness of a SMS. The Commission listed several shortcomings with audit tools which include their "one size fits all" approach and their inability to assess the elements which are pre-conditions for an effective SMS such as senior management commitment and employee involvement in the planning, implementation and review of a SMS.

The theme of audit frailty is further developed by Blewett and O'Keefe[4] who identified several weaknesses related to the auditing of SMS which include paperwork for its own sake (so called tick box auditing), inherent problems associated with scoring an audit and lack of auditor independence and competence.

EPSC member auditing practices

Across Europe the system of safety auditing is well established in the high hazards industries but prompted by the changing nature of process safety auditing, EPSC convened a working group in 2009 to consider its earlier report on SHE auditing practice for the process industries and published the revised report in 2012. An outcome of the working group was a survey of member practices with respect to process safety auditing. The respondents

without exception were large multinational organisations. Bigelow and Robson[5] identified two key factors which could affect the reliability and validity of safety audits which are:

1. **Auditor-related factors** include issues of competence, bias and independence of the individuals carrying out the audit.
2. **Process-related factors** include the theoretical basis for the audit; the existence of a coherent and comprehensive audit framework; the existence of clear standards for comparison; the use of multiple information sources; the choice of who to speak to and where to look when auditing a workplace; the weighting of various audit components; quality control issues; and details about procedures and objectivity.

Findings

EPSC members share the view that the bedrock of auditing is in fact ongoing self assessment from the audited facility and unless this occurs it is unlikely that the act of auditing independent to the site will achieve much value in the long term. There are encouraging signs that high hazard operators are changing up and improving their auditing operations in for instance unannounced or short notice audits, use of specific means of gathering audit evidence and benchmarking auditing processes with peer companies. New requirements and new sites (especially those that are acquired) present challenges as to how they are treated and integrated into a corporate audit programme. The most problematic areas for safety auditing remain the timely and effective follow up and close out of audit actions. Audits can add significant value in identifying operations which are too inwardly focused (not invented here syndrome), normalise deviant practice (for example temporary modes of operation which become permanent) and compliance only mentality.

Conclusions

Several commentators within the process safety community, Eames[6] and Sepeda[7] continue to see a role for audit albeit re-purposed or else as a complement to other assessment tools. This is in contrast to several observers outside of the process safety community that see deep rooted problems with auditing often related to inadequate PSM system implementation. Although there are few signs that audit based assurance is about to be reformed or replaced soon by more searching and reliable tools there is evidence on the ground that major hazard operators are trying out improvements to their auditing processes to increase effectiveness.

References

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