

# Considerations for an effective and efficient 5-year process hazard review

The Control of Major Accident Hazards (COMAH) 2015 regulations requires upper tier COMAH establishments to review and update their safety report every 5 years. This includes a review of their chosen method to identify major accident hazards (MAH). If the hazard study is not completed correctly, some hazardous scenarios may be missed or incorrectly defined. This can result in errors in the design of protection systems for example; defining the wrong safety instrumented function (SIF) or under-sizing of a pressure relief valve. The hazard study methods commonly used to identify MAHs are HAZID, HAZOP, process hazard review (PHR) or process hazard analysis (PHA).

HAZID is a systematic top-down assessment technique that considers the MAH first and then identifies possible causes before a qualitative assessment of the likelihood and severity. HAZOP on the other hand, uses a bottom-up approach by engaging a structured line by line analysis of a system, process or operation. It identifies deviations and considers if they can lead to a hazard. It also includes qualitative assessment of the likelihood and severity of the consequence. A HAZOP study is more detailed and time consuming compared to a HAZID study. Both techniques complement each other and when applied together can be an effective approach to hazard identification. Even with well-practised HAZID and HAZOP methodologies, there are many pitfalls. Add these potential pitfalls to the resource and time constraints of a 5-year process hazard review and they can amplify the errors made.

A review of any hazard study method is time-consuming and resource-hungry. Streamlining, cost saving and industry skill gaps, make resourcing this important work challenging. This results in different approaches; some companies look to complete a full review of all HAZOPs, others take a more high-level approach and update the HAZID or review by exception. A key improvement that companies can make is to incorporate the updating of hazard studies into their management of change process therefore making it a live document. Companies should also consider the following:

**Preparation:** Time can be wasted when the team is unfamiliar with the process, the control philosophy, the associated procedures, the alarm response etc. There should be time set aside by the team to gather and learn the appropriate information before the meeting.

**Competence:** The hazard study review should be performed by a competent person who is familiar with hazard study guidelines and the requirement of the UK HSE.

**Independence:** It is also useful to have someone that is independent in the hazard study, usually the chair and scribe, so that the team is not blinded to the obvious and to ensure challenging questions are asked.

**Detail:** More, is a priority in this case. People forget. It can be difficult to recollect discussions from hazard study performed a week ago not to mention 5 years. It is therefore vital that important details are well documented, unambiguous include timelines and assumptions/information used.

**Safeguards** – Check independence e.g., don't use an alarm associated with the instrument that has failed. Record the "softer" safeguards such as maintenance, training, alarms etc. as these feed into other sections of the safety report. Be careful when copying and pasting, check all the safeguards are relevant to the hazard.

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