

Lessons learned from 100s of HAZOPs... or how to get the most out of the HAZOP process



In the last issue of RISKworld we introduced some of the methods available to identify hazards associated with a process or design. One of the best known methods is the HAZOP (Hazard and Operability) study, which is an extremely useful technique for brainstorming hazards in a structured way.

There are, however, a number of common pitfalls which can give HAZOPs an undeserving poor reputation of being unnecessarily long, tedious and unfocused. To help get the most out of HAZOPs we have pooled decades of experience collected over several hundred HAZOPs to produce a compendium of practical tips (see inset).

Investment in HAZOP planning, in terms of understanding the design, getting the right information and people together and ensuring everyone is properly briefed is a key pre-requisite to a successful HAZOP. During the study itself, the emphasis is on drawing out and focusing the collective expertise to identify and characterise the full spectrum of hazards, spending time in proportion to the real issues and associated risk.

Before the HAZOP meeting

- Plan your HAZOP meeting well in advance.
- Understand the requirement - are you reviewing a concept design, a detailed design or a fully operational process? What level of detail of information is available?
- Define the boundaries of your HAZOP study; keep the boundaries simple and clear. Break the design down into logical, discrete study nodes that are relatively self-contained.
- Employ an experienced and independent facilitator as chairman and a separate scribe.
- Choose team members carefully; all members of the team should have a good understanding of the design or operations.
- Avoid using 'pressed' people or otherwise unwilling team members as they are unlikely to be productive.
- 4-6 core members is ideal; engage others on an 'as-required' basis.
- Prepare a suitably comprehensive pack of supporting information well ahead of time, including briefing material, study nodes, guidewords, design information, drawings, procedures, operating manuals, etc.
- Confirm the accuracy and validity of supporting information, and identify any limitations.
- Consider using a software tool to improve speed and accuracy, but guard against its potential to act as an unnecessary distraction for team members.

During the HAZOP meeting

- As chairman, give an overview of how you expect the meeting to operate; not every member of the team may have been to a HAZOP before.
- Ask everyone to identify themselves and why they are attending.
- Ask the designer to give an overview of the process or plant, to ensure that all members of the team understand the design.
- Ensure that all members of the HAZOP team are involved; ask open questions to draw people into the discussion.
- As chairman, make sure that you summarise the outcome of each discussion point to confirm agreement, including any actions.
- Look for evidence to back up any statements made, especially where they are used to rule out hazards.
- Beware of fallacies such as "this can't happen because I have never seen it" or "it's not credible because it hasn't happened before".
- Spend time proportionately to risk; major hazards deserve more attention than low consequence, low frequency hazards.
- Allow for regular short breaks to enable the team to re-focus, as attention can diminish over time.
- Allow plenty of time. It is better to finish early than late.
- Follow-up the HAZOP meeting with a summary of actions ahead of the formal minutes, so that progress can be made immediately.

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