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**Does a HAZOP reveal to us all the hazards we need to know, or are we overlooking serious threats?**

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**Abstract**

The HAZOP process as part of a PHA has been well established and in LinkedIn groups discussions have been on the best supporting software and best practices; the latter, e.g., on different opinions whether a checklist and pre-population is desirable. Of course, all are apprehensive to missing a significant scenario. On the other hand, required time and effort is also a concern. That there is good reason for being concerned about hazard identification completeness appears from various studies over the years, e.g., in which in hindsight after an incident is analyzed whether the scenario had been predicted. In those studies figures of only half of the important scenarios identified are common. Over the years several efforts have been published of attempts to semi-automate the process. Intelligent/smart P&ID is a jump forward. A recent report on automated HAZOP from a highly experienced engineer who can look back on many years of using it, shows good success. More is in the pipeline. Yet, the experience, competence, spirit and ingenuity of a HAZOP team in brainstorming sessions remain needed to see and weigh the risks, although it can be doubtful that, as some assert, it is the single source. The present study comprehends a relatively modest attempt with means that are on every laptop to support a HAZOP study, given the availability of an intelligent P&ID. This Data-based semi-Automatic HAZard IDentification (DAHAZID), seeks to identify possible scenarios with a semi-automated system applying both HAZOP and FMECA. The new method will minimize the limitations of each method. This will occur by means of a thorough systematic preparation before the tools are applied. Rather than depending on reading drawings to obtain connectivity information of process system equipment elements, this research is generating and presenting in prepopulated work sheets linked components together with all required information and space to note HAZID results. Next, this method can be integrated with proper guidelines regarding process safer design and hazard analysis. To examine its usefulness, the method has been applied to a case study.

**Keywords:** HAZID, HAZOP, FMECA, DATA Mining, Safeguards, SQL, SmartPlant P&ID