

OpsPilot

HAZOP / HAZID — User Manual

Systematic Process Hazard Study · AI Engineering Co-Pilot



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What this guide covers — what a HAZOP/HAZID is, how the OpsPilot module facilitates the study, what to have ready, and the report you receive.

1. What is a HAZOP / HAZID?

A HAZOP (Hazard and Operability study) systematically examines a process design node by node, applying guide words — No, More, Less, Reverse, As-well-as — to each parameter to find credible deviations, their causes, their consequences and the safeguards against them. HAZID is the broader, earlier-stage hazard identification that casts a wider net across hazard categories. Both are team studies built on the discipline of asking the same structured questions of every node so nothing is skipped.

2. What the OpsPilot module does

Role	Responsibility
AI Facilitator (OpsPilot)	Proposes nodes, applies the guide words systematically, challenges vague consequences and weak safeguards, classifies safeguards rigorously, and builds a SMART, traceable action register. It cannot assess real plant risk alone — the team validates causes, consequences and safeguard effectiveness.
Study Lead / Scribe (you)	Provide the process knowledge, the P&ID detail and the plant reality. You confirm or correct each proposal and add what a description alone cannot reveal.

3. How it works — the 9-phase process

#	Phase
1	Study setup — scope, purpose, team, documents, risk matrix
2	Process description — confirmed by the team
3	Node identification — boundary, design intent, parameters
4	HAZOP workshop — guide words, causes, consequences, safeguards, risk ranking
5	HAZID prompting — broad hazard categories where applicable
6	Safeguard quality check — independence, availability, testing, operator response time

#	Phase
7	Action register — SMART actions traceable to deviations
8	Safeguard and uncertainty registers
9	Report generation

4. What you will be asked — have this ready

- The study scope and purpose, the team, the reference documents and the risk matrix.
- The P&IDs and a confirmed process description.
- For each node: the boundary, the design intent and the operating parameters.
- The real safeguards — and honest detail on whether they are independent, available and tested.

5. What you receive — the output

A complete HAZOP/HAZID report (Word) with the study basis, process description, node register, the worksheet (deviation by deviation), the action register, the safeguard register and an uncertainty register that records what the study could not resolve.

6. Worked example (illustrative)

Node: the feed line to a reactor. Parameter: flow. Guide word: “No.” Cause: feed pump trips. Consequence: loss of dilution, reactor temperature excursion. Safeguard: low-flow alarm to the operator. OpsPilot challenges the safeguard — is the alarm independent of the control system, is there time for the operator to respond before the excursion, is it tested? If the only safeguard is an operator alarm with seconds to act, that’s weak, and a SMART action follows: assess an automated low-flow trip. Every such action is traceable back to the exact deviation that raised it.

7. Getting the best result

- **Confirm the process description first.** A wrong intent makes every deviation wrong.
- **Be rigorous about safeguards.** “There’s an alarm” isn’t a safeguard until it’s independent, available and tested.
- **Keep actions SMART.** Vague actions don’t close; specific, owned, dated ones do.
- **Record the uncertainty.** What the team couldn’t resolve is itself a finding.

OpsPilot — AI Engineering Co-Pilot. Learn more at opsinnovatech.com