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Cognitive biases in process hazard analysis

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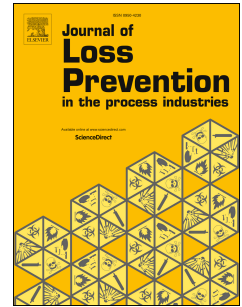
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## COGNITIVE BIASES IN PROCESS HAZARD ANALYSIS

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### Abstract

Many decisions are made by process hazard analysis (PHA) teams in identifying hazard scenarios and determining if there is a need to reduce the risk of catastrophic accidents. Observations of PHA teams conducting studies indicated that such decisions are not always made rationally.

Cognitive psychologists have studied how people make decisions and the conditions under which those decisions may be unreliable. It has been shown that various cognitive biases influence decisions by people and can hinder rationality. This body of knowledge was researched and correlated with observations of decision making by PHA teams during the performance of studies to explain and understand why PHA teams may make erroneous decisions. The application of cognitive psychology to decision making in PHA has not been addressed previously.

PHA facilitators must understand the impact of cognitive biases on PHA studies because they can seriously impact the quality of study results. Hazard scenarios may be missed, risks estimated incorrectly, and important recommendations for risk reduction omitted. This paper discusses cognitive biases that have been observed during the performance of PHA studies, gives examples of their effects, and provides

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