Evaluation beyond a consequence-only approach: When is it really needed?

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The basic consequence analysis is the initial step for any facility siting analysis. It turns out, however, that many studies quickly demonstrate that the impact to buildings can be more significant than what have been defined as acceptable. For such cases, the analysis unfolds a set of more sophisticated approaches that should be considered; explosion exceedance curve, quantitative risk analysis, likelihood of building failure, among others. The current paper addresses a comprehensive methodology that comprises computational fluid dynamics (CFD) technique in the early stage of the analysis without compromising the time schedule and the budget. The more accurate results obtained with CFD modelling lead to cloud sizes which are mainly less conservative than traditional methods. The benefit of the analysis lies on the fact that it may be sufficient to show an acceptably low level of risk right at the initial stage. Therefore, it may avoid extra costs with a more detailed quantitative analysis.

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