Using MFM methodology to generate and define major accident scenarios for quantitative risk assessment studies - DTU Orbit (09/11/2017)

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Generating and defining Major Accident Scenarios (MAS) are commonly agreed as the key step for quantitative risk assessment (QRA). The aim of the study is to explore the feasibility of using Multilevel Flow Modeling (MFM) methodology to formulating MAS. Traditionally this is usually done based on historical incidents or the outcome of HAZOP/HAZID. This paper suggests using MFM to model the plant, and then performs systematic reasoning based on the model to produce casual paths of plant failure scenarios. The cause trees generated by MFM are transformed into fault trees, which are then used to calculate likelihood of each MAS. Combining the likelihood of each scenario with a qualitative risk matrix, each major accident scenario is thereby ranked for consideration for detailed consequence analysis. The methodology is successfully highlighted using part of BMA-process for production of hydrogen cyanide as case study.

General information

State: Published
Organisations: Department of Electrical Engineering, Automation and Control, Center for Electric Power and Energy, Energy system operation and management , Department of Chemical and Biochemical Engineering, CAPEC-PROCESS, China University of Mining And Technology
Authors: Hua, X. (Ekstern), Wu, Z. (Ekstern), Lind, M. (Intern), Wu, J. (Intern), Zhang, X. (Intern), Frutiger, J. (Intern), Sin, G. (Intern)
Number of pages: 6
Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 27th European Symposium on Computer Aided Process Engineering (ESCAPE 27)
Volume: 40
Publisher: Elsevier Science
Editors: Espuña, A., Graells, M., Puigjaner, L.
Edition: 1
ISBN (Print): 9780444639653
ISBN (Electronic): 9780444639707
Main Research Area: Technical/natural sciences
Conference: 27th European Symposium on Computer Aided Process Engineering, Barcelona, Spain, 01/10/2017 - 01/10/2017
Major Accident Scenarios, Multilevel Flow Modeling, QRA
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017