Peer Review on " Nuclear Accident of NPP Jaslovské Bohunice A1 and Safety Theory Overview"

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Thank you for the opportunity to review the report.

Summary

The report outlines the importance of safety assessments and safety analyses in ensuring that a nuclear power plant is equipped to withstand a wide range of potential events and maintain safety. The document discusses the different types of safety analyses needed, including conservative analysis and probabilistic methods. It also emphasizes the importance of assessing safety functions, site characteristics, radiation protection, human factors, and safety over the lifetime of a facility. The paper highlights the need for a rigorous approach to safety in the nuclear industry and the continuous development of new technologies that prioritize safety above everything else. Overall, the paper supports the need for comprehensive safety analyses to ensure the safe operation of nuclear power plants.

Suggestions

The document provides a general introduction to nuclear safety theory and to the accidents that occurred at the NPP Jaslovské Bohunice A1. The conclusion makes a brief connection between the theory and the accidents in question. Here follow our remarks:

- There are some clarity issues on how the different types of safety analyses are directly related to the event as an answer to the third question in the assignment. The part on nuclear safety theory in the introduction is very general and not at all adapted to the accidents. Is it possible to change the disposition and make the connection more clear?
- Please provide further information on the specific roles and responsibilities of the government, regulatory bodies, and operating organizations during the lifetime of an NPP would be useful to fully understand the acceptance criteria for nuclear safety.
- It would also be beneficial to clarify how the safety margin and safety limits are calculated and how uncertainties in calculations are addressed when checking for the fulfillment of desired parameters.
- The descriptions of nuclear accidents are rather short and shallow, although we know that nuclear accidents often are complex and the results of several coinciding factors. Is it possible to elaborate on this part as well as the conclusions? For instance, if there was a lack of competence and safety culture at the NPP, why was this the case? Was this problem limited to this single NPP, or was it widespread? Is it possible to make a connection to the political situation in Czechoslovakia during the time?
- From our understanding, the fourth question requires us to assume the role of someone in charge of the unit and pick safety analyses suitable for the unit and the corresponding acceptance criteria. But the document does not provide enough evidence for the same.
- The conclusions that you provide, are they based on your own analysis or someone else's? If the latter, please provide references.