“Analysis of Past Criticality Accident” -Purpose and Plan of the Activity-

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Background

- Rough estimation based on experience of past criticality accidents has been done in common.
- Analysis of criticality accident is complicated and difficult due to its nature such as a wide range of time scales, coupling of neutron transport and thermal hydraulics, variety of conditions, etc.
- There is increasing needs of accurate consequence analysis of criticality accident

  (over-estimation -> best-estimation).
- Some methods have been proposed but confirmation of their applicability and accuracy is up to the user.

Purpose

- Consequence analysis will be made for a variety of past criticality accidents and
- Compare the results calculated by using methods based on different technologies
- To make clear the modeling and parameters which are key to accurate estimation
- For information useful
  - to assess the applicability of methods to the CA
  - to improve or develop methods

Plan

- Proposer will propose cases of criticality accident
  - A variety of cases shall be chosen,
    - Fuel type: solution, metal, etc.
    - Other condition: forced cooling, boiling, etc.
- Participants will choose one or more cases and estimate important quantities such as number of fissions, peak power, profile of power and temperature, etc.
  - Modeling is important issue here.
- Sensitivity of some parameters to the consequence will be studied
  - Key parameters shall be investigated.