Supporting Severe Accident Management in Nuclear Power Plants

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CONTEXT

NARSI: New Approach to Reactor Safety ImprovementS
EU Horizon 2020 project, 2017-2021
http://www.narsi.eu/

OBJECTIVES

Improve systems, resources and training to enable effective responses to severe accidents in nuclear power plants.

Develop “Severa”:
- a prototype demonstration-level decision support system,
- aimed at supporting the Technical Support Center
- while managing a severe accident
- and for training.

STAGES

1. Monitor operating parameters
2. Access the state of barriers
3. Predict accident progressions
4. Identify recovery actions
5. Assess the feasibility
6. Predict consequences
7. Access actions, suggest the best
8. Implement selected action(s)

SOME USER VIEWS

Possible actions
- Possible actions: Available systems

Alternatives: Available systems
- Assessment of radioactive releases
  - RC-E: Early release
  - RC-I: Release expected in several days
  - RC-L: Release not expected in several days
  - RC-N: Long-term concern

CONTRIBUTIONS

- Providing support in a difficult, time-critical and stressful situation
- Timely and useful information about the barriers and events
- Assessment: actions × systems → alternatives → consequences
- Operationalization of guidelines for a specific situation

Work in progress, to be completed in 2020 and validated in 2021.