### OECD Reduction of Severe Accident Uncertainties (ROSAU) Project

- **5 year Nuclear Energy Agency (NEA) project led by Argonne National Laboratory**
- Focus is on corium melt spreading, debris coolability, and MCCI

#### Status and Future Work
- CNL will join the project and perform duties associated with membership such as attending meetings
- Kickoff meeting planned for later this fiscal year
- Two categories of experiments planned:
  - Large-scale underwater melt spreading experiments
    - Dry spreading
    - Wet spreading (different water levels)
    - Low and high corium flow rates
  - Debris coolability and MCCI experiments. Two of the proposed tests are of particular interest:
    - Water ingestion cooling of in-vessel core melt
    - Water ingestion cooling with concrete basement

### OECD NEA – Corium Convection

- The release of fission products from a terminal bed of molten corium is an important contributor to releases in the long term
- If the corium is submerged under a water layer, fission products may be scrubbed out
- Efficiency of this process is uncertain
- Results will help guide severe accident management

#### Status and Future Work
- Planned for this fiscal year:
  - Conceptualization of experiments (determine how the experiments will be conducted and what phenomena is important)
  - Develop experimental test plan
  - Prepare design drawings and procure apparatus
  - Construction of apparatus and actual experiments and documentation planned for future years
  - Ex-vessel and in-vessel flooding being considered

### BARC – CNL Collaboration on Severe Accidents

- Previously CNL and Bhabha Atomic Energy Research Institute (BARC) collaborated on IVR severe accident research
  - Work undertaken under the R&D Cooperation program of the Joint Committee overseeing the Canada-India Nuclear Cooperation Agreement
  - Near wall void fraction in the end shield
  - Natural convection in shield tank and corium pool
  - Flow of corium through tubes
- This task is the continuation of this collaboration and will include the publication of experimental and simulation results from the previous collaboration and a joint report
  - Work will be carried out under the Nuclear S&T Agreement between Canada and India

#### Status and Future Work
- Discussions with BARC ongoing
- Leverage experimental and simulation results from previous CNL-BARC collaboration

### Flooded Corium Pool Scrubbing

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### Stakeholder (Primary)

- Flooded Corium Pool Scrubbing
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### Stakeholder (Secondary)

- Convection in corium pool
  - Previous corium convection experiments using corium simulant

- Proposed melt spreading facility
- Proposed vessel for water ingestion tests

- Previous corium convection experiments using corium simulant

- Convection in corium pool
- Proposed vessel for water ingestion tests

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