



# **Mitigating Strategies Integrated Plan Review**

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## **Current Status**

- **Review in progress, with submittals prioritized by refueling outage schedules**
- **Many Integrated Plans identify open items**
- **Requests for additional information in the near term**

## **Requests for Additional Information**

- **Open items identified by NRC staff**
- **Some generic questions that could be addressed globally**

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## **Use of CENTS for this analysis**

- **WCAP-15996-A, ML053290344, is the current approved topical report on CENTS**
- **Safety Evaluation limits use to single-phase liquid for natural circulation cooling heat transfer**

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## **RCP Seal Leakage**

- **Discussion of how CENTS or other analysis models calculate pressure-dependent RCP seal leakage rates should be included**
- **Seal leakage testing data applicable to plant and ELAP conditions**

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## **Boron Mixing Model**

- **Boron mixing model should be discussed in relation to prevention of re-criticality**
- **Adequacy of the model should be based on analysis or test data applicable to ELAP conditions**

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## **PWR Containment Analysis**

- **Need to justify that code has adequate capability for performing analysis to demonstrate containment integrity during ELAP conditions**

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## **BWR Analysis with MAAP Code**

- **Need additional information concerning important modeling options used in analyses (e.g., two-phase level, heat transfer modeling, leakage and its mixing with drywell atmosphere, nodalization, etc.)**
- **Need additional basis that MAAP code models are capable of adequately modeling core and containment phenomena during ELAP**

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## **Battery Duty Cycles > 8 Hrs**

- **IEEE 535 clauses 5 and 8.2 would require justification for duty cycles longer than 8 hours for Class 1E batteries**
- **ML13094A397 pertains**

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## **Shutdown / Refueling Modes**

- **Specific analysis typically not performed for shutdown / refueling**
- **However, shutdown / refueling may present limiting conditions**
  - **For timing of makeup to reactor core with portable equipment if installed turbine driven pump(s) not available**
  - **For approaching PWR containments' pressure/temperature limits if secondary heat removal via steam generators is not available**

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## **Maintenance and Testing**

- **EPRI industry PM process to be relied on by licensees**

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## **BWR Early Venting**

- **Generic Letter 89-16 envisioned venting primarily to avoid exceeding primary containment pressure limit**
- **10 CFR 50.59 use appropriate with no changes to procedures as described in UFSAR**
- **No previous NRC review or acceptance of early venting**

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