



# Investigation of Improved Characterization of Level 1 PRA End-States

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## Project Origin

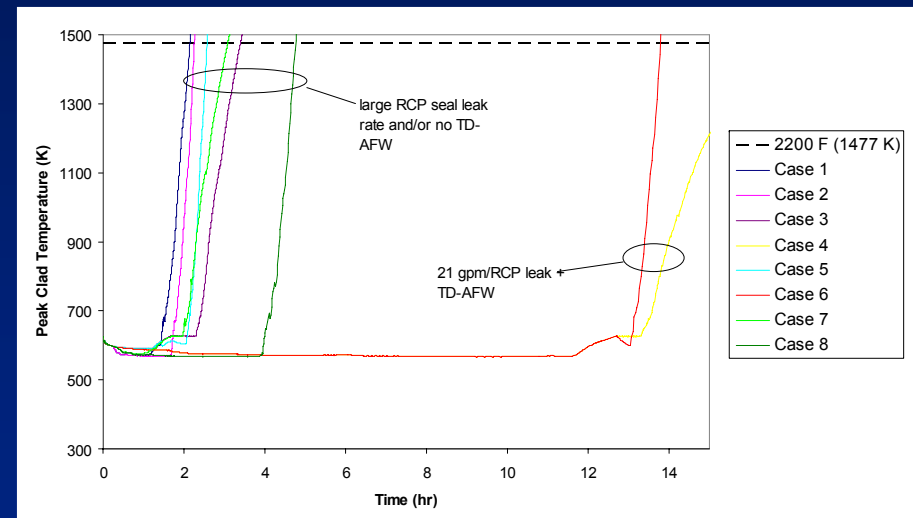
- Brings together several different items:
  - Residual concerns regarding in-house T/H success criteria project
    - Time needed to turn around fuel heatup
    - Variability in ‘representative’ analyses
  - Various debates about core damage surrogates
  - Interest in quantification of conservatism in LPSD core damage surrogates
  - Past work (currently dormant) on phenomena-based core damage definition

## Tasks – Literature Review

- Significant interactions on core damage surrogates as part of the ASME(/ANS) PRA standard development
  - There are some specific supporting requirements of interest in the existing standard
- Past investigations during NUREG-1150, NUREG/CR-6143/44, etc.
- Identify state-of-practice/state-of-art for Level 1 PRA end-states: What does the end state represent, and how should/does it relate to core damage

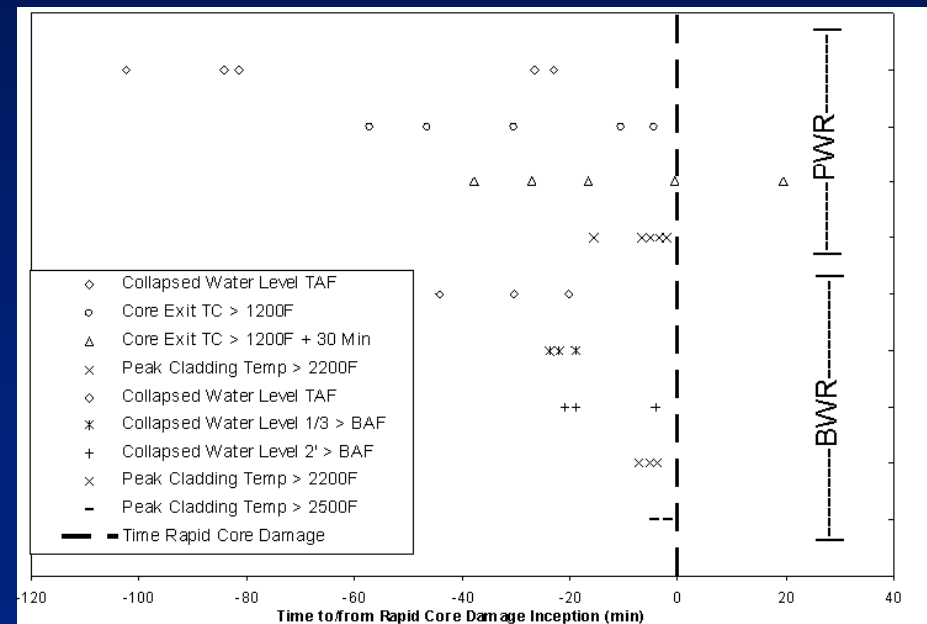
# Tasks – Sequence Variability

- Lots of past work to look at parameter and model uncertainty in system code analysis (e.g., NUREG/CR-5305)
- Not aware of any contemporary work to systematically address the issue of variability within sequence specification
- Recent TH success criteria work mainly dealt with differences in response for different event tree paths



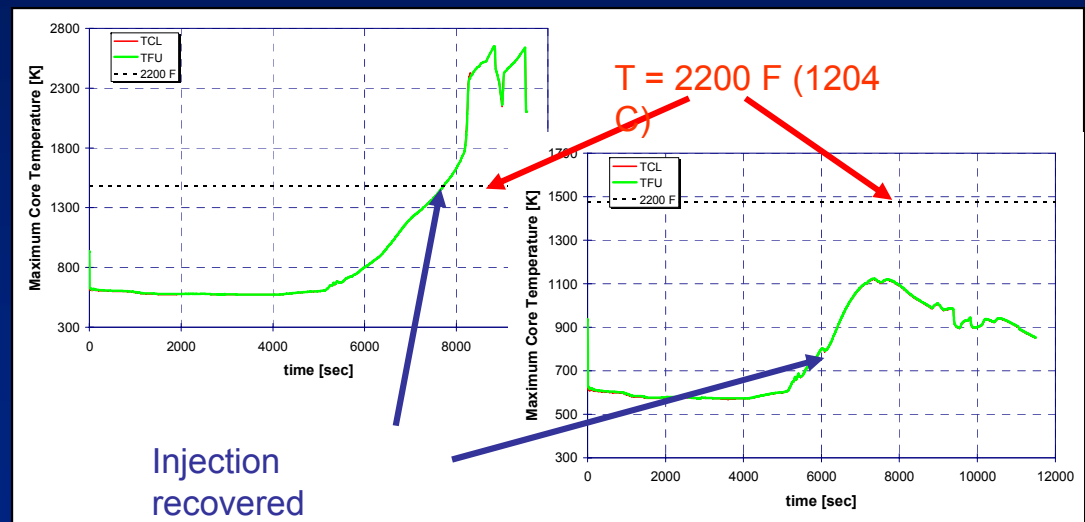
# Tasks – Core Damage Surrogates

- Recent work to look at relative timings for different surrogates
- Similar work performed (but perhaps not well-documented?) for NUREG-1150



# Tasks - AC Power Recovery Timing

- Recent (limited) work in TH success criteria project
- Time to arrest fuel heatup is only 1 aspect (time for operators to realign equipment, etc.)



## Summary – Desired Outcomes

- Improved definition of “core damage”
- Better understanding of within sequence variability
- Improved PRA success criteria
- Increased realism in risk evaluations



**Questions?**