AN INDUSTRY PERSPECTIVE

ATF PIRTs

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June 12, 2018

PIRTs Role in the Licensing Process

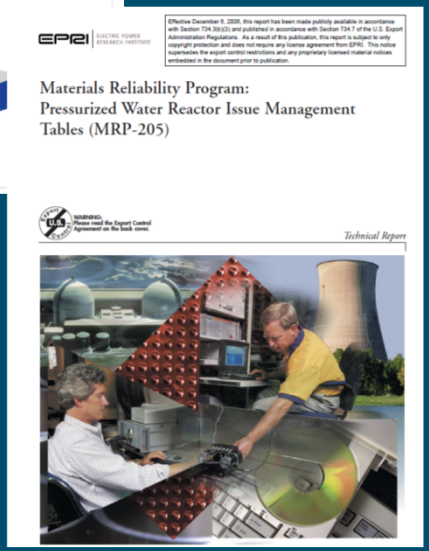
- The nuclear industry sees value in conducting a PIRT to focus research and development where focus is needed
  - Industry, DOE, and NRC PIRT cooperation key to reducing duplication of effort
- Expert elicitation of PIRTs adds regulatory efficiency and predictability by identifying key areas of risk and uncertainty
- PIRTs have been used by the nuclear industry to assess phenomena prioritization supporting determination of model uncertainty for evaluation:
  - Code Scaling, Applicability and Uncertainty (CSAU)

PIRTs Role in the Licensing Process

- Phenomena Identification & Ranking Table (PIRT) process to facilitate development:
  - Integral to the application of CSAU methodology
  - Provide guidance via consensus process where regulatory guidance does not exist
  - Leverage global resources to identify, prioritize, and target R&D to accelerate ATF innovation
  - Facilitate R&D decisions by identifying and ranking key technical, regulatory, and operational issues

- Issue Resolution Report:
  - Provide an approach to prioritize identified gaps as well as a plan to addresses them
  - Foster engagement that addresses generic technical and regulatory issues

PIRT Report



Resolution Report

Current Regulatory Infrastructure

- Current regulatory infrastructure is acceptable for qualification of some ATF concepts
  - Coated Zircaloy Cladding
  - Doped UO_2 Fuel Pellets
  - Ferritic Steel Cladding
- Significant work has already been completed for these ATF concepts and vendors are validating model adequacy
  - No additional phenomena have been identified
  - Fuel vendors will review ongoing testing for impact on phenomena or model uncertainties and update as appropriate
  - Conducting a PIRT on these ATF concepts now would be an inefficient use of resources
- Nuclear Industry is using the current licensing criteria as basis for licensing these ATF concepts

Nuclear Industry's Recommendation for PIRT use in ATF Development

- A PIRT would be beneficial to expedite the development and qualification of the ATF concepts using non-metallic cladding or non-UO_2 fuel forms
  - U_3Si_2 Fuel
  - SiC Cladding
  - Metallic Fuel
- Proposed PIRTs will identify gaps where additional research and testing may be necessary
  Fuel vendor design process and model uncertainties will be revised for these concepts
- NRC's cooperation with a PIRT would provide regulatory input with identifying and ranking key technical and regulatory issues
  - This could provide guidance to material testing, integral experiments, code development, and facilitate technical regulatory changes
- The crediting of regulatory benefits is separate from qualification and will be done at a later date
  - May or may not require a PIRT

Summary

- PIRTs provide regulatory efficiency and predictability by identifying and ranking the issues that need to be addressed
- Current regulatory infrastructure is adequate to license some ATF concepts
  - Coated Zircaloy Cladding
  - Doped UO_2 Fuel Pellets
  - Ferritic Steel Cladding
- PIRTs will provide value for specific ATF concepts where current regulatory infrastructure is lacking
  - U_3Si_2 Fuel
  - SiC Cladding
  - Metallic Fuel
- Industry stands ready to work with NRC to accomplish these fuel qualification PIRTs

Questions?