

# RIC 2006 Session W3D GSI 191

Industry Actions for GSI 191  
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# Key Message

- GSI 191 is a priority issue for the industry
- Licensees are implementing hardware changes at the earliest possible outage
- The many facets of GSI 191 resolution are stretching the capabilities of the industry to resolve all facets by end of 2007
  - Chemical effects issue is evolving as tests are being completed by the industry
  - Downstream effects of debris on fuel is not a well understood phenomena
  - Manufacturing, scheduling ,strainer testing

# Industry Produced Documents major ones

- NEI 02-01 “Condition Assessment Guidelines Debris Source Inside PWR Containments”
- NEI 04-07 “Pressurized Water Reactor Sump Performance Evaluation Methodology”
- WCAP 16362 –NP “PRA Modeling for Sump Blockage”
- WCAP 16406-P “Evaluation of Downstream Sump Debris Efforts in Support of GSI 191”
- WCAP 16204 “ Evaluation of Potential WRG&EPG Changes to address NRC Bulletin 2003-01 Recommendations”
- Letter 2005-429 “ Transmittal of two WOG Documents – Template to Support WOG chemistry Efforts Follow on Testing and Framework to Interim Safety Assessment for GSI 191”
- WCAP 16530 “Evaluation of Post- Accident Chemical Effects in Containment Sump Fluids to Support GSI 191”
- EPRI 101805 “Design Basis Accident Testing of PWR Unqualified Original Equipment Manufacturer Coatings”

# After Initial Evaluations

- Plants reviewing evaluations for refinements to the initial evaluation
- Downstream Wear/ Blockage
  - Pumps/Valves/Fuel concerns
    - Possible solutions
      - Change out valves and pump wear surfaces
      - Change the debris source term
        - Change insulation
        - Install debris interceptor
        - Have vendor test to determine screen specific bypass factor
        - Determine hardness factors of the certain debris
        - Combination of all

# After Initial Evaluations

- Chemical Effects
  - Data provided to hardware vendors to determine head loss with a plant specific debris mix and screen
  - Head loss concerns
    - Possible solutions
      - Install screens with margin to handle
      - Change the Buffer agent to less “reactive” agent
      - Combination of all

# After Initial Evaluations

- NOTE
  - Each potential solution is plant depended and can impact other aspects of the evaluation

# Future issues

- This is a change in the License basis for the plant
  - Methods has to be in place to maintain as-built to the evaluation or evaluate any changes
    - Understand the evaluation
    - Know your margins
      - Coatings nonqualified
      - Latent debris
      - Changes to flow balances when the throttle valve openings are change.
      - Changes in coating types – use generic or specific
      - Changes in insulations

# Future Issues Cont.

- Examples of new programs that will be needed to be put in place
  - Latent Debris
    - Periodic surveys that monitor changes- NRC SE Requirement
    - Enhancements to current containment cleanliness programs
  - Coatings-
    - Periodic assessment be identified, described, and implemented during routine outages- NRC SE Requirements
  - Enhancement to Equipment /Rad Protection labeling programs
    - need to understand changes to amounts



# Summary

- The evaluations will be completed.
- Sump screens can and will be replaced
- Downstream effects will be addressed
- Chemical effects will be addressed
- **Plants will need to understand the evaluations so they can address future issues as they occur.**