

RIC 2006

Session W3D

GSI 191

Industry Actions for GSI 191
Maurice (Mo) Dinger
Technical Staff Engineer
Wolf Creek Nuclear Operating Company
3/8/06



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.**