

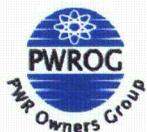
**NRC-PWR Owners Group Meeting
To Discuss Ongoing GSI-191 Issues**
WCAP-16793, Rev. 2 Supplemental
Information

NRC Meeting- August 22, 2012

Slide 1

WCAP-16793, Rev. 2 Supplemental Information

- By letter dated July 20, 2012, (OG-12-287) the PWROG submitted supplementary information for WCAP 16793.
- The three main topics of this supplemental information are:
 - The basis of the conservative, bounding, 15g/fuel assembly fiber limit defined in WCAP-16793-NP, Revision 2;
 - A discussion of the conservatisms inherent in the fuel assembly testing that was performed in support of WCAP-16793-NP, Revision 2 (Reference 2), including the effects of those conservatisms on PWROG generic per-fuel-assembly fiber limits; and,
 - A discussion regarding the consideration of break sizes (small versus large break) with respect to the fuel assembly testing that was performed.



WCAP-16793, Rev. 2 Supplemental Information

- The supplemental information submitted for WCAP 16793, Revision 2 was provided to establish a documented compendium of conservative arguments for utility use only for future operability assessments should a utility identify additional fibrous debris sources in containment that exceeded design bases limits.
- The supplement is not intended to satisfy the ACRS Thermal Hydraulic Subcommittee (T/H SC) technical concerns regarding the WCAP testing bases, protocol, or results.



WCAP-16793, Rev. 2 Supplemental Information

- The industry understands that the ACRS Thermal Hydraulic Subcommittee comments remain outstanding.
- The industry will not address the ACRS concerns in the context of WCAP 16793, Revision 2.
- Insights gained from the ACRS T/H SC meeting will be incorporated into the new deterministic in-vessel fiber testing programs predicated on satisfying the regulatory requirements for long-term core cooling.



Reasonable Expectation of Operability

- The Bases for Technical Specification 3.5.2 states:
 - “During the recirculation phase of LOCA recovery, RHR pump suction is transferred to the **containment sump.**”
 - “In MODES 1, 2, and 3, an ECCS train consists of a centrifugal charging subsystem, an SI subsystem, and an RHR subsystem. Each train includes the piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST upon an SI signal and automatically transferring suction to the **containment sump.**”



Reasonable Expectation of Operability

- The Bases for Technical Specification 3.5.2 states:
 - “During an event requiring ECCS actuation, a flow path is required to provide an abundant supply of water from the RWST to the RCS via the ECCS pumps and their respective supply headers to each of the four cold leg injection nozzles. In the long term, this flow path may be switched to take its supply from the **containment sump** and to supply its flow to the RCS hot and cold legs.”



Reasonable Expectation of Operability

- If a licensee incorporates the 15 g of fiber/FA limit contained in WCAP-16793, Rev. 2 in its licensing basis there can be circumstances where that limit may not be met:
 - Additional insulation that was not included in the calculation that determined that the 15 g of fiber/FA limit was met is identified
 - The amount of fiber that bypasses the screens and enters the core is higher than previously determined
 - Debris in containment is identified that would have resulted in exceeding the 15 g of fiber/FA in the past (Past Operability/Reportability)



Reasonable Expectation of Operability

- If any of these circumstances occur, the condition is entered into the Licensee's Corrective Action Program, which initiates an Operability Determination to address the nonconforming condition.
- The information contained in the Supplement to WCAP-16793, Rev. 2 can be used to assist licensees in making an Operability Determination.



Reasonable Expectation of Operability

- For example, consider the ambient test temperature
 - The generic testing was performed at an ambient temperature (approximately 72°F) versus the actual sump fluid temperature of approximately 265°F following a LOCA and decreasing to 120°F a few days later.
 - A lower water viscosity results in a lower pressure drop through the debris bed.
 - Darcy's Law provides the basis for the pressure drop – viscosity relationship, allowing calculation of a lower pressure drop across the debris bed.



Reasonable Expectation of Operability

- Summary and Conclusions
 - The supplemental information facilitates ease of use by Operations and Engineering personnel.
 - It helps them understand the margins involved.
 - It provides for rapid turn-around of the Prompt Operability Determination.
 - It will not be used to change the Current Licensing Basis.

