

PWR Owners Group



Executive Management Group/NRC Meeting
January 26, 2010

PWR Owners Group
January 2010 Executive Committee/NRC Meeting
Agenda

- **Introductions and Opening Remarks**
- **PWROG Executive Leadership Update**
- **Update on Key PWR Owners Group Regulatory Issues:**
 - **Gas Accumulation**
 - **GSI-191 (Sumps)**
 - **Materials Initiatives - Guide Card Wear**
 - **Risk - RG 1.200, Fire PRA development , Peer Reviews**
- **Tech Spec Task Force**
- **TR Improvement**
- **Regulatory Issue Resolution Protocol**

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Gas Voids

- **Gas Accumulation (GL 2008-01)**
 - Efforts ongoing to determine if pump gas acceptance criteria is sufficient for long term
 - Close gap between industry criteria and Division of Safety Systems (DSS) criteria
 - Simplified Equation to be validated with gas transport test data and observations
 - Planned “Roadmap” effort

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Gas Voids

- **Gas Accumulation (GL 2008-01) – *continued***
 - Joint Technical Specification Team formed under TSTF
 - Industry Program Guidance NEI 09-10 Guidelines for effective prevention and management of system gas accumulation
 - Computer based Training modules – Basic Overview, Engineering, Operations, Maintenance

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GSI-191

- **GSI-191 Debris Filter Testing**

- Final RAIs for WCAP-16793-NP, Rev. 1, received mid-January, 2010
 - Additional testing has been completed and RAI responses will be submitted to the NRC on February 10, 2010.
- Draft Safety Evaluation on WCAP-16793-NP, Rev. 1, anticipated in May 2010
 - NRC believes PWROG is on path to successful resolution of RAIs

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GSI-191

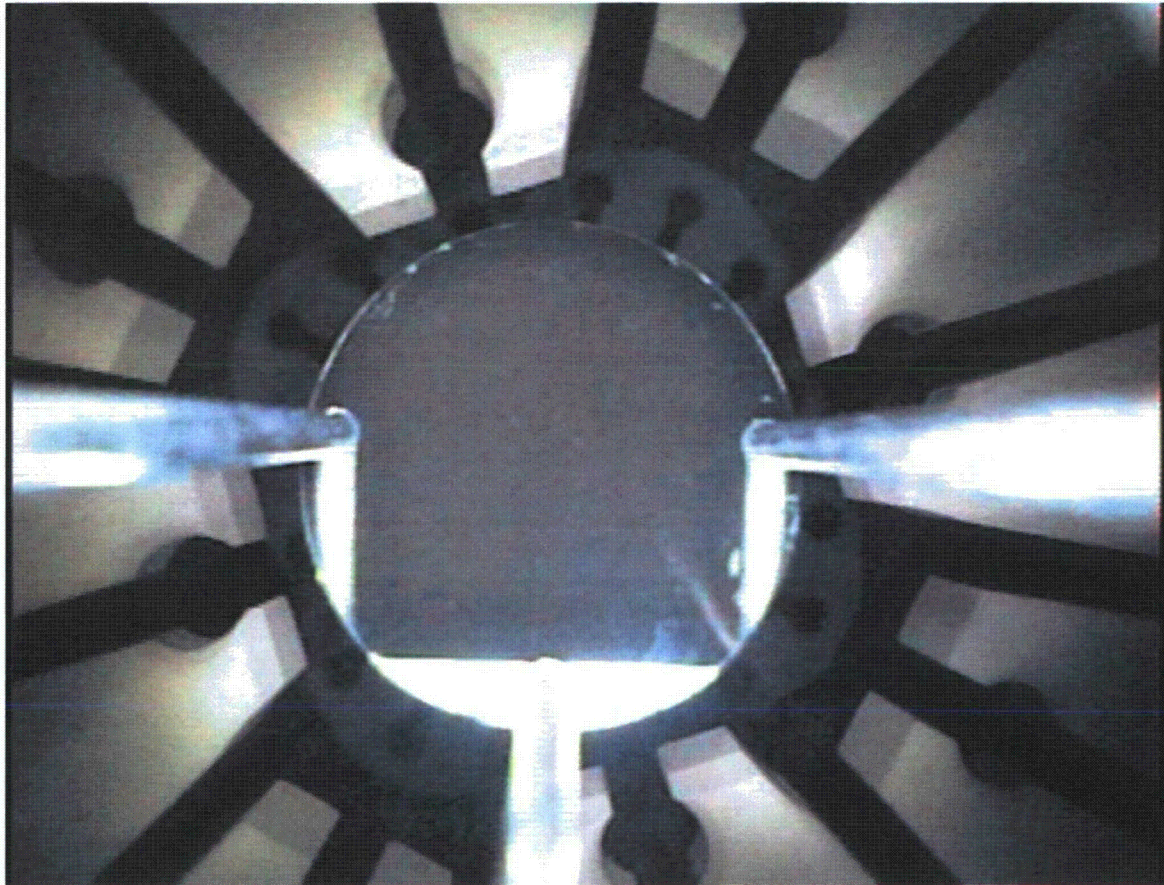
- **GSI-191 Zone of Influence (ZOI) Testing**

- Westinghouse/PWROG are addressing NRC questions regarding various WCAPs associated with jet impingement testing.
 - Confirmatory tests ongoing at Wyle Labs through late January / early February 2010
 - Weekly telecons held with NRC to discuss test plans and results
 - Westinghouse addressing inconsistency in minimum flow diameter in test loop – entered in Westinghouse Corrective Action Program and Part 21 process
 - Potentially impacts insulation and coatings ZOIs previously published

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**Measurement of Westinghouse Upper Internals Guide Tube
Card Wear**

- Guide tube guide cards form the guidance path for the fuel assembly rod control cluster assemblies (RCCAs) through the reactor upper internals.
 - The flow turbulence on the rodlets can cause the card wear near the rodlet holes (where the wear occurs).
 - After some amount of wear the rodlet could buckle becoming unguided which could affect scram time or control rod insertion.

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**Measurement of Westinghouse Upper Internals Guide
Tube Card Wear**



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**Measurement of Westinghouse Upper Internals Guide Tube
Card Wear**

- Upper Internals Guide Card Wear Measurement (GCWM) has been performed at two of the three pilot plants under a PWROG program to monitor and analyze the amount of Guide Card Wear.
 - The pilot program includes inspections at three different Westinghouse plant designs (14x14, 15x15 and 17x17)..
 - Additional measurement data available outside PWROG program as well as video inspection tapes
 - Data collected from the first two inspections have been analyzed to determine wear rates, project the anticipated remaining lifespan of the inspected guide tubes, and to determine the correlations between Guide Card wear and other factors such as core location (proximity to outlet nozzles) and RCCA rodlet drop time.

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**Measurement of Westinghouse Upper Internals Guide
Tube Card Wear**

- The findings from the second pilot inspection, which took place at Vandellos Unit 2 (EAS) in May 2009, have led to the issuance of an Westinghouse Interim Report per 10CFR21 (Oct 09).
 - Westinghouse analysis supported closure of the Interim Report in January 2010
 - NOT a substantial safety hazard
 - No concern from guide tube wear for 40 year design life
 - AP1000 shutdown rods good for 60 year design life

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**Measurement of Westinghouse Upper Internals Guide Tube
Card Wear**

- A follow-on Project Authorization, PA-MS-C-0688 “Westinghouse Upper Internals Guide Tube Card Wear – Fleet-wide Operational Projections and Contingencies” will be presented at the February 2010 General Session for vote. This follow-on project will include the following items
 - Provide a basis to determine how far into the future an inspection can be performed such that a premature or overdue inspection is avoided. This can be used as a basis to modify the requirements of MRP-227 to exclude inspection within the plus or minus two outages from the time of license renewal.
 - Provide wear projection curves to maximize intervals when subsequent inspection of the guide tube wear is required.

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Other Materials Issues

- WCAP-17128-NP (Flaw Evaluation of CE Design RCP Suction and Discharge Nozzle Dissimilar Metal Welds, Phase II Study) submitted to Staff for information
- WCAP-17096-NP, Revision 2, “Reactor Internals Acceptance Criteria Methodology and Data Requirements” to be submitted via EPRI
- SCC of Stainless Steel
 - Will issue a “white paper” by late March 2010 to support spring 2010 outages. The paper will address the recent OE from the Calloway, Wolf Creek and SONGS.
 - Qualitatively evaluate whether OD initiated SCC of SS lines represents an immediate safety concern
 - Summarize the instances of cracking observed thus far and how individual utilities have addressed the instances

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PRA Efforts Including Fire PRA, NFPA 805, and RG 1.200

- ASME / ANS PRA Standard endorsed in RG 1.200, Revision 2 in March 2009, with an effective implementation date of April 1, 2010
 - All voluntary risk-informed license applications will need to address RG 1.200 *for risk contributors significant to the application*, potentially including fire risk and external event risk, beginning in April 2010
 - To address NFPA 805, RG 1.200, or 10 CFR 50.48 exemptions, almost all PWRs are in the process of developing or will soon begin developing fire PRAs

- There are two important issues related to implementation of Revision 2 of RG 1.200 which are covered on the following slides

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PRA Efforts Including Fire PRA, NFPA 805, and RG 1.200

- Issue 1 - there is a significant degree of uncertainty on what will be required with regard to how risk from fire and external hazards is addressed.
 - For license applications, the risk impact can be dispensed via a qualitative argument or bounding evaluation if a portion of the model (fire, seismic, or other external external hazards) can be shown to be insignificant to the decision being made
 - NRC leadership has sent conflicting messages on what will be acceptable
 - Industry would like to have a more formal NRC interpretation
 - If all risk-informed applications, such as RITSTF initiatives, require PRA models that are fully compliant to RG 1.200, Revision 2, it will cause an immediate halt to many beneficial license applications
 - External hazards portion of Standard is still undergoing piloting
 - Issues exist with the results from current fire PRAs (*discussed on next slide*)

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PRA Efforts Including Fire PRA, NFPA 805, and RG 1.200

- Issue 2 - results from the fire PRAs based on existing guidance do not match industry fire experience making it impractical to pursue licensing applications as well as making the risk insights of the fire PRA models very suspect
 - NRC has imposed additional expectations on fire PRA that go beyond RG 1.200, Revision 2
 - Licensees are expected to justify deviations from NUREG/CR-6850, a specific fire PRA method, which is known to product results that do not comport with industry's operation experience
 - It is clear that fire PRA modeling issues will not be fully resolved and implemented by April 2010
 - Both Owners Groups are planning participating in the EPRI Fire PRA Improvement Plan contingent on Project approval

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PRA Efforts Including Fire PRA, NFPA 805, and RG 1.200

- Without a reasonable approach to meet RG 1.200, Revision 2, much of the progress that has been achieved using risk insights will be suspended
 - The suspension could last three to five years while
 - The EPRI Fire PRA Improvement Plan is conducted,
 - NRC agreement with realistic fire PRA methods is achieved, and
 - External hazard PRA models are piloted and the methods refined
 - An industry White Paper and letter is being submitted to NRC to propose a reasonable approach and then to work with NRC to agree on ground rules for continuing successful risk-informed applications and the impact of applying RG 1.200, Revision 2

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Traveler Reviews in 2009

- **Traveler production remained low in 2009**
 - Only 1 completion in 2008, down from 8-9 in 2006-7
 - While more Notices for Comment (NfC) were published (5 vice 1), only two Notices of Availability (NoAs) were published in 2009

- **In addition, the NRC is questioning their approval for 11 Travelers, resulting in withdrawals, RAIs, and uncertainty**

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Traveler Reviews in 2009

Description	2006	2007	2008	2009
Travelers Approved	8	9	1	2
Notices of Availability Published	6	9	1	2
Notices for Comment Published	9	5	1	5
NRC Letters (RAIs, etc.)	28	27	13	15
TSTF Letters	35	31	22	30

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Topical Report Improvement

- **2009 Licensing Forum Breakout**

- **LIC-500 R4 issued**
 - Need to benchmark performance (Industry and NRC)
 - Desired to get into next phase

- **Another effort to improve Licensing Actions (LAs)**
 - LATF and NEI 06-02, "License Amendment Request Guidelines"
 - Has been working back and forth with NRC (DORL) for years
 - DORL has effort underway to review LA Process
 - High similarities with Topical Reports
 - **Recommend doing this in a more collaborative fashion like TRs**

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Regulatory Issue Resolution Protocol (RIRP)

- **Need to get this in Gear!**
- **RIRP has been in planning for years under various names**
- **Finally a pilot on Medium Voltage Cables kicked off March 2009**
- **Many issues out there, some being addressed in alternate ways**
 - EDG frequency and voltage issue was proposed as the original pilot, now PWROG plans to kick off a project to address
 - Setpoint issue now under TSTF resolution in TSTF-493