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Overview of WCAP-17788

In-Vessel Debris Limits for Closure of NRC Generic Letter 2004-02

Jeffrey Brown

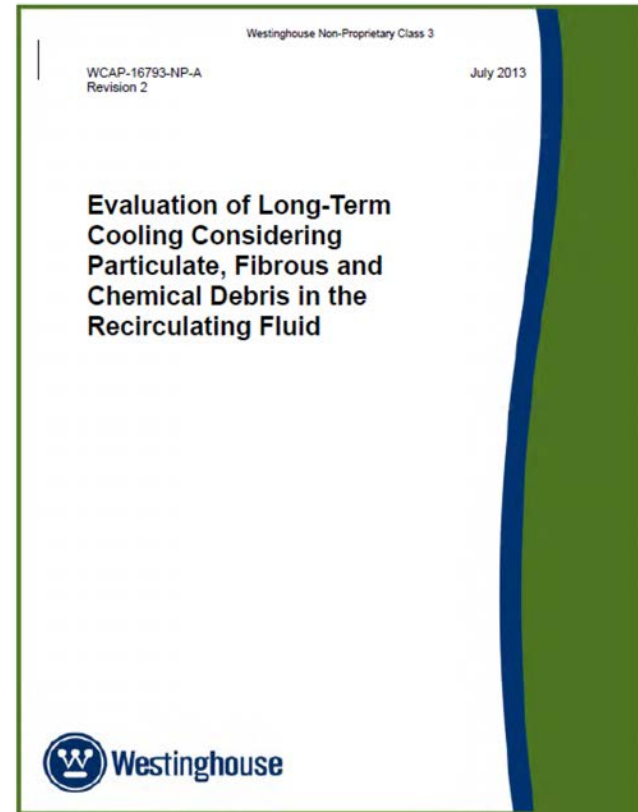
Pressurized Water Reactor Owners Group

October 20, 2015

History of Fiber Limits

WCAP-16793-NP-A, Revision 2

- Bounding Parametric Approach
- Single result applicable to all
- Determine generic fiber limit to ensure head loss is low and sufficient cooling flow
- No design of experiment
- Limited understanding of phenomena
- NRC staff approved WCAP in 2013



Bases for a Second PWROG Program

WCAP-16793-NP-A, Revision 2

- Final generic result is acceptable for a limited number of plants (approximately 1/3 of total number of plants)
- Minimal to no margin for many low fiber plants
- Significant analytic margins available to support increased limits

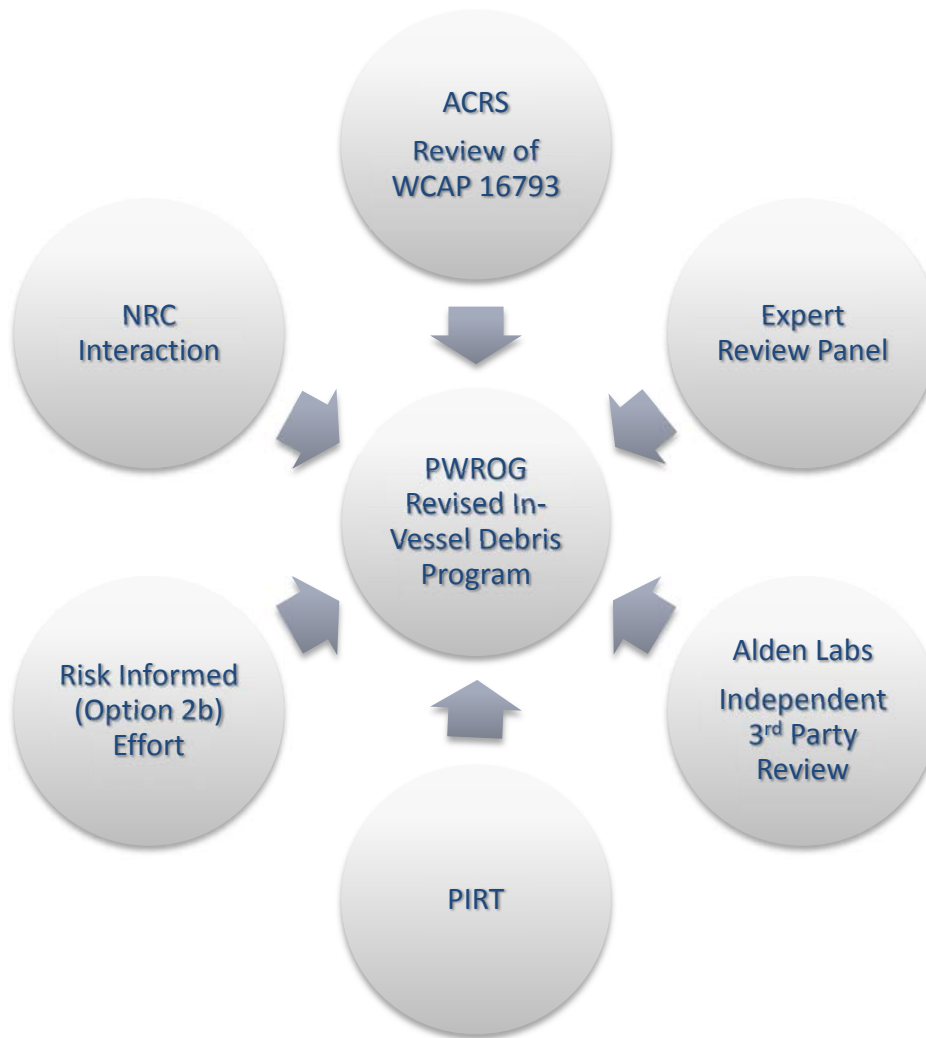


PWROG Executive Committee direction to establish technical team to redevelop PWROG In-vessel debris program

PWROG Developed a New Program for In-Vessel Debris (2012)

- Objective was to increase in-vessel fiber limits while demonstrating Long Term Core Cooling (LTCC)
- Establish phenomenological understanding of fiber beds
- Consider process timing
- Evaluate prototypical plant conditions (e.g., chemical effects)
- Include research preparation and literature review
- Use design of experiment

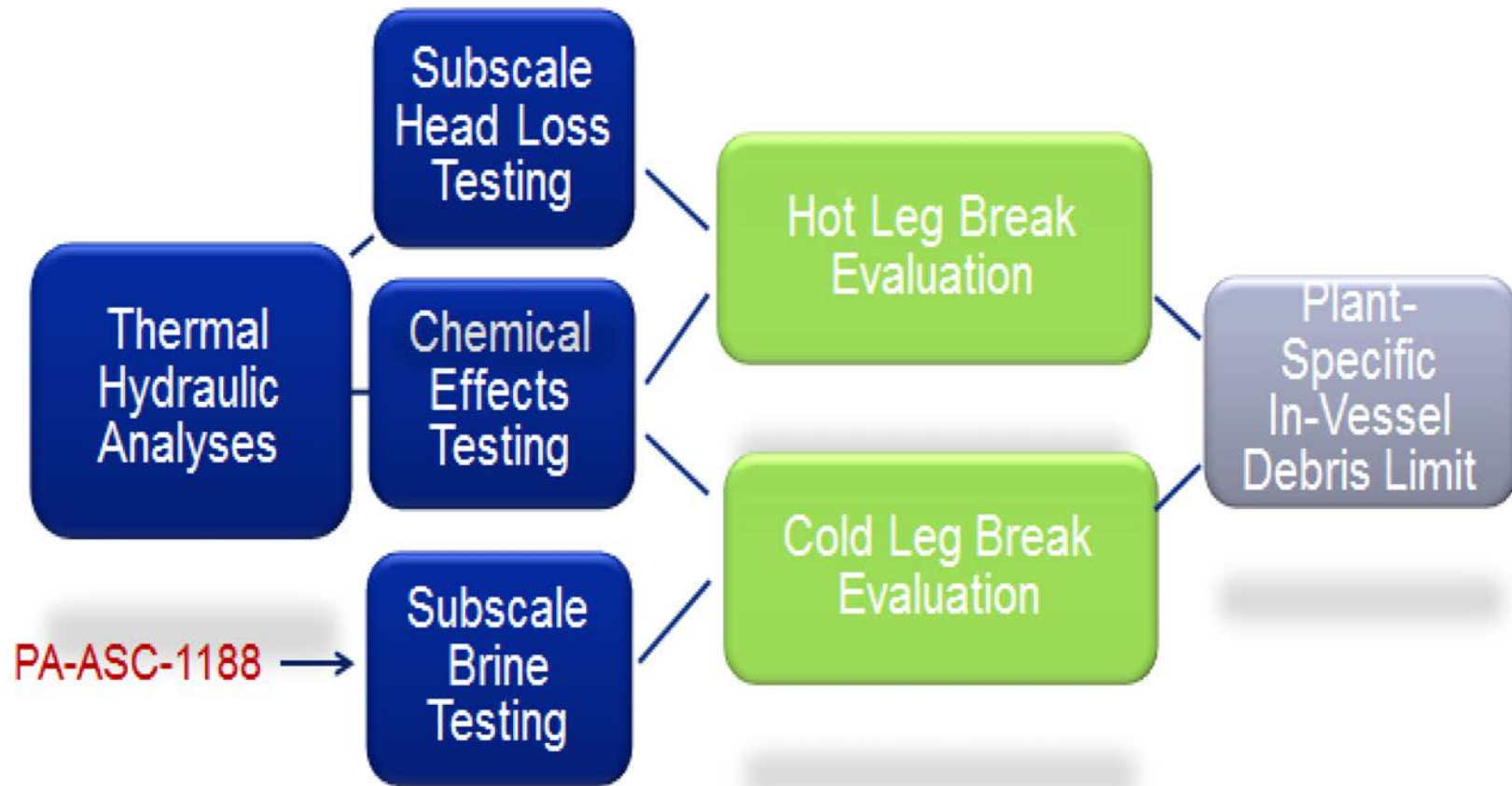
Program is based on a diverse set of inputs and oversight



PWROG Program Collaboration



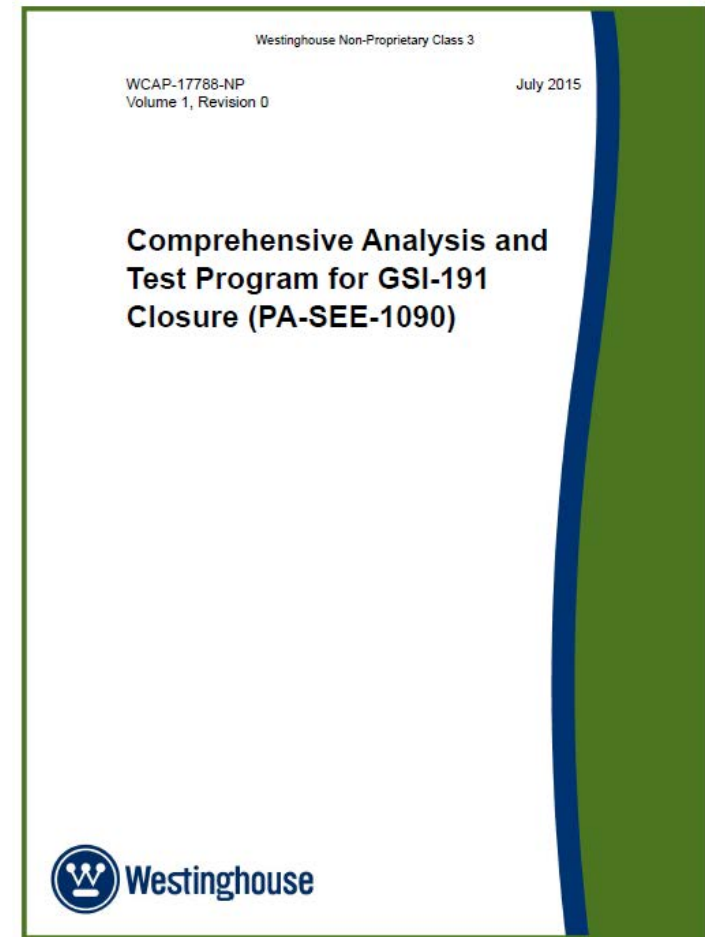
WCAP-17788 Program Organization



The New Program Improves on Previous Limits

WCAP-17788

- Methodology for plant specific application
- Considers HLB and CLB conditions
- Debris limits based on plant design
- Improved limits for all plants





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