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Project Number 694

April 9, 2014

OG-14-133

US Nuclear Regulatory Commission  
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11555 Rockville Pike  
Rockville, MD 20852

Attention: Mr. Victor Cusumano – Chief, Safety Issues Resolution Branch  
Mail Stop O-10A01  
Division of Safety Systems  
Office of Nuclear Reactor Regulation

Subject: PWR Owners Group  
**Identification of Issues from the April 1, 2014 Public Meeting Between NRC Staff and the PWR Owners Group (PA-SEE-1090)**

Dear Mr. Cusumano,

On April 1, 2014, the NRC met with representatives from the Pressurized Water Reactor Owners Group (PWROG) to discuss the thermal/hydraulic analysis effort to establish in-vessel debris limits above those approved in WCAP-16793-NP-A, Revision 2, in support of closure of NRC Generic Safety Issue 191. The purpose of this meeting was, in part, to initiate a dialogue in an effort to determine any NRC concerns and to solicit regulatory support for the general thermal/hydraulic analytical approach. The PWROG believes that NRC review and agreement is essential to ensure that supplementary head loss testing and follow-on thermal/hydraulics analyses do not proceed at risk.

During this meeting, the NRC requested that the PWROG identify specific issues that the staff is to consider and agree upon. The following itemizes the PWROG concerns that necessarily must be agreed to by the staff to facilitate further work.

1. Application of the COBRA/TRAC (Westinghouse) and RELAP5 (AREVA) models are considered an acceptable analysis tool to assess long-term core cooling with respect to 10CFR50.46.
2. Modification of the codes to effect simulation of debris accumulation at the bottom of the core in the manner described during the meeting would be an insignificant change that would address regulatory concerns regarding core cooling capability.
3. The COBRA/TRAC and RELAP5 codes can be configured to assess core cooling through the alternate flow paths (AFPs) described in the meeting by properly setting the appropriate hydraulic parameters associated with these flow paths.

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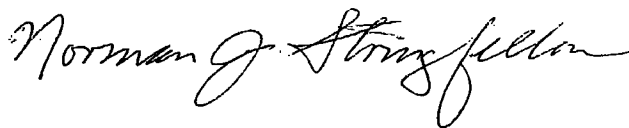
The PWROG requests that the NRC consider the general framework and applicability of the above noted codes, specifically for long-term cooling conditions. Agreement by the staff as to the acceptability of this approach does not imply that the NRC accepts the final results. The PWROG appreciates that the staff identified specific technical issues that must be successfully addressed as part of the overall program to achieve NRC acceptance of future regulatory submittals. Based on the discussions during the April 1, 2014 meeting, the technical issues identified include the following:

1. The impact on fluid properties on the thermal/hydraulic analysis results attributed to boron concentration are assessed.
2. Demonstration that the flow through AFPs continues to provide sufficient mixing in the core, such that excessive boric acid buildup in the lower portion of the core is avoided.
3. Evaluation of system response to potential core design power shapes peaked near the bottom of the core.
4. Demonstration that the core nodalization is sufficiently detailed such that it properly captures the required mixing and potential concentration effects important to boric acid buildup and dilution.
5. Meeting core cooling requirement would include demonstration that mixing in the core ensures sufficient flushing flow to maintain boric acid concentrations acceptably low.

The PWROG requests that the staff identify any additional major technical considerations that may have been overlooked in the April 1, 2014 discussions or that may have been missing in the thermal/ hydraulic analysis presentation. As discussed during this meeting, the evaluations for the analyses completed to date are readily available to the staff for inspection. The PWROG particularly requests the staff to identify if an audit of the analyses supporting the evaluations is necessary to mutually agree on the path forward, or if such review is necessary to better define a comprehensive list of technical issues important for the eventual review and approval of the future topical report. The PWROG further requests that any required audit of the approach be completed as soon as possible to support the current program schedule. The PWROG looks forward to additional discussions in the upcoming PWROG presentation on the comprehensive program, now scheduled for April 16, 2014.

Thank you for your attention to this matter. Please feel free to call me or John Maruschak if you need additional information.

Sincerely,



Jack Stringfellow, Chairman  
PWR Owners Group

NJS:jtm:rfn

cc: PWROG Management Committee  
PWROG SEE Subcommittee  
PWROG LSC Subcommittee  
PWROG PMO

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