

October 10, 2001

MEMORANDUM TO: Stuart A. Richards, Director  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: Michael L. Scott, Project Manager, Section 2  
Project Directorate IV /RA/  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF SEPTEMBER 19, 2001, MEETING WITH  
WESTINGHOUSE OWNERS GROUP ON WCAP-14572,  
ADDENDUM 1, "WESTINGHOUSE OWNERS GROUP APPLICATION  
OF RISK-INFORMED METHODS TO PIPING INSERVICE INSPECTION  
TOPICAL REPORT"

On September 19, 2001, the NRC staff met with representatives of the Westinghouse Owners Group (WOG) at the WOG's request. The purpose of the meeting was to discuss and obtain NRC staff feedback on issues related to extending the risk-informed inservice inspection (RI-ISI) application to high-energy (HE) piping. This topic is an application of WCAP-14572, Addendum 1, "Westinghouse Owners Group Application of Risk-informed Methods to Piping Inservice Inspection Topical Report," (TR) which the staff is currently reviewing. The attachment contains a list of meeting attendees. Copies of the slides used during the meeting are available under ADAMS accession number ML012670378.

The WOG presentation focused on the application of RI-ISI to HE piping at Beaver Valley Unit 2, the lead plant for the implementation of WCAP-14572, Addendum 1. The staff noted that the WCAP Addendum refers to "other" augmented programs that could be changed using the methodology and asked if the pilot was going to include other augmented programs in addition to the break exclusion zone (BEZ) program. The WOG responded that only changes to the BEZ augmented inspection program are included in the pilot (though the pilot analysis also includes other HE piping) because it is of most interest to its members. Whether the methodology may only be applied to augmented programs specifically identified in the Addendum approved by the staff or whether each licensee can select augmented programs they would like to change was identified as an item for further discussion. The WOG further clarified that they are not seeking generic approval of application of RI-ISI methodology to flow-assisted corrosion (FAC) and that plants may seek application to FAC on a plant-specific basis.

The WOG presenter stated that the intent of the approach is to demonstrate that the proposed reduction in the BEZ augmented program will be consistent with General Design Criterion (GDC) 4. The staff noted that the GDC only allows for excluding dynamic effects from the design bases when "the probability of fluid system rupture is extremely low." The 100 percent inspection of welds in the BEZ is one of several items that helps ensure that the probability of fluid system rupture is extremely low, and therefore dynamic effects need not be considered in the piping in the BEZ. The WCAP methodology, includes the consequence of the rupture in the safety significance determination, and the safety significance will determine how many, and

where, inspections are needed. Thus the proposed RI-ISI program can accept relatively high piping rupture probability if the anticipated consequence of the pipe rupture is low. This does not comport with GDC 4. The staff stated that some minimum population of inspections might be needed to clearly demonstrate that GDC 4 continues to be fully implemented, or an exemption from the GDC may be required. This issue was also identified for further discussion. The staff recommended a minimum inspection of 25 percent of welds in the BEZ. This minimum percentage is the same as that required by ASME Section XI for Class 1 piping. The staff stated that the reduction of BEZ piping inspection from 100 percent to 25 percent would result in significant reduction in burden but would still maintain sufficient margin of safety and defense in depth.

The staff asked what criteria were used for indirect effects and how it is determined whether pipe whip would damage other structures, systems, or components. The WOG responded that the plant uses basic criteria identified in WCAP-14572 to determine where there is a potential to affect a set of important equipment. For areas where there is potential to affect important equipment, the pipe rupture analysis as described in the design basis is used to determine the actual equipment that would fail. The staff asked whether walkdowns are done inside containment, to which the answer was that Beaver Valley will conduct containment walkdowns in the spring when the plant is not at power.

The WOG stated that the pilot analysis will include all HE piping, not just those portions of the piping in the BEZ. The staff stated that it might not be best to have the lead plant submittal include all HE piping in the pilot when follow-on applications may only address the HE piping included in the BEZ. The staff suggested that the WOG talk to utilities and make the lead submittal representative of coming submittals from plants.

The staff also stated an opinion that adding HE line break to BEZ could allow plants to reduce BEZ inspections more than if they just considered the BEZ. The WOG replied that total results can be shown separately from BEZ results in the pilot. The staff stated that there is some confusion regarding whether Addendum 1 pertains to the BEZ or to all HE piping. The WOG replied that, from the beginning, it has included both. The scope of piping to be included in the BEZ evaluation was identified as an item for further discussion.

The staff stated that, after HE piping (which may be Class 1 or 2) is included with the BEZ, an exemption or relief request may be needed to change the number of inspections instead of a 10 CFR 50.59 evaluation. The staff noted that is not acceptable to change the number of inspections arising, for example, from American Society of Mechanical Engineers (ASME) Code Section XI locations both within the BEZ and in portions of the HE piping outside of the BEZ without a 10 CFR 50.55(a) relief request. It was unclear what regulatory vehicle would be needed if there was an RI-ISI program in place that was changed as a result of the application of the methodology to the BEZ. The interaction between the scope and the regulatory actions required to make the proposed changes was identified as an issue for further discussion.

The WOG noted that, because the TR review process is expensive, they would prefer to meet with the staff to discuss justification for applications to other augmented programs in addition to the BEZ. The staff replied that this would require specifying what other programs are being considered so that the appropriate staff could become involved.

The WOG stated that they plan to submit the pilot application by the first quarter of next year.

In closing the meeting, the participants agreed that the following issues were identified as needing further discussion.

- The question of whether the augmented programs that can be changed according to the methodology in the approved Addendum need to be defined in advance, or whether each licensee can apply the methodology to any programs they select using 10 CFR 50.59.
- Issues regarding GDC 4, which only allows for excluding dynamic effects from the design bases when "the probability of fluid system rupture is extremely low." The WCAP methodology includes the consequence of the rupture in the safety significance determination, and the safety significance will determine how many, and where, inspections are needed.
- Consideration of what the scope of the piping included in the base analysis population should be and how different scopes can (1) affect the number and locations of the welds selected for inspection and (2) affect the regulatory vehicle required to change the program.

Project No. 694

Attachment: Meeting Attendees

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Westinghouse Owners Group

Project No.694

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**MEETING WITH WESTINGHOUSE OWNERS GROUP**

**WCAP-14572, ADDENDUM 1, "WESTINGHOUSE OWNERS GROUP APPLICATION OF  
RISK-INFORMED METHODS TO PIPING INSERVICE INSPECTION TOPICAL REPORT"**

**SEPTEMBER 19, 2001**

**ATTENDANCE LIST**

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P. Kotwicki (Westinghouse)  
N. Palm (Westinghouse)  
R. Haessler (Westinghouse)  
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