

August 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 JULY 26, 2001, MEETING WITH WESTINGHOUSE ON  
POWER UPRATES

On July 26, 2001, the NRC staff met with representatives of the Westinghouse Electric Company (W) at the Company's request. The purpose of the meeting was for W to discuss recent licensing experience and lessons learned with uprates and plans for future power uprates. W also desired staff feedback on past power uprate licensing submittals and on W plans for future power uprate submittals. The attachment contains a list of meeting attendees. Copies of the slides used during the meeting are available under ADAMS accession number ML012080075.

The W presenter described their internal process for developing uprates. He then solicited staff feedback on previous power uprate submittals. The staff noted that they were pleased overall with the submittals. W stated that they believe the current process is well established and efficient. In response to a question from W, the staff stated that the idea of developing a standard review plan for power uprate submittals has been discussed. However, the idea is not currently being actively pursued because the staff believes resources would be better spent on reviews than on guidance, since there is already a review template for pressurized water reactors (PWRs) and expectations for the reviews are clear. The staff recently briefed the Advisory Committee on Reactor Safeguards (ACRS) on this position.

The staff noted that larger power uprates for PWRs are somewhat more difficult since PWRs do not have as large an analysis margin as do boiling water reactors (BWRs).

The staff also emphasized the need to address Regulatory Guide 1.174. The staff will be looking for a broad-scope risk analysis. The staff noted a number of specific areas that will need to be addressed, including changes to success criteria, event frequency, operator response, shutdown risk, and piping system vibration. Defense-in-depth and margin of safety will also need to be addressed. The staff suggested the Dresden and Quad Cities submittals as good sources for a list of considerations in the risk area. The staff is not, however, looking for a risk assessment for uprates of less than five percent.

The relatively quick review of the San Onofre uprate submittal was discussed. The staff stated that the submittal was "pure" (no other amendments included), staff resources were available, and the uprate was high priority due to the energy crisis in California.

The staff noted that the applicant can make development of a submittal easier if the applicant shows that there is already an analysis of record at a greater power level than that being requested. The staff has already concluded that small power uprates are not risk-significant.

The staff noted that they are considering holding a lessons-learned workshop with the industry after first-of-a-kind review of BWR submittals.

The staff emphasized that, if an approved code is used, the applicant needs to make sure the proposed application is within the restrictions on use of the code. If a licensee plans to use a new, unapproved code such as MAAP or GOTHIC to support a power uprate, the licensee should submit the code approval well before the license amendment so that review of the code does not delay the review of the power uprate. Regarding balance-of-plant information, the staff stated it is necessary to address the impacts of nonsafety equipment on safety equipment. Also, nonsafety electrical systems must be addressed to satisfy General Design Criterion 17.

The staff stated that, for larger uprates, applicants need to pay more attention to risk-significant events (such as station blackout and anticipated transient without scram). The plant's probabilistic risk analysis (PRA) should be re-examined. Risk insights go beyond design basis accidents and are very plant-specific. The reference point for the five-percent cutoff (above which risk analysis plays a bigger role) is that the power level sought is five percent or more above the original level analyzed. If a plant seeking an uprate has an outdated PRA that does not reflect the as-built, as-operated plant, the PRA may need to be upgraded to support the uprate.

W discussed likely impacts of the power uprates on the nuclear steam supply system (NSSS) components, NSSS systems, NSSS accident analyses, and NSSS-related programs. Greater increases in power will likely require more in-depth reviews in many of these areas to demonstrate acceptable results for the license submittal. Also, W indicated that it is currently developing technology to support extended power uprates and these extended uprates will likely require more balance-of-plant modifications.

The staff noted that the Office of Nuclear Regulatory Research (RES) is looking into synergistic effects of licensee changes (risk impacts) to see if some effect is present but not recognized. At this time, the staff is not aware of any issue that would preclude power increases of up to 20 percent. They added that the ACRS has not found anything either. The RES program is a three-year program.

The staff also advised W that, for first-of-a-kind reviews, applicants need to factor in about two additional months of staff review time for the staff to get a letter from the ACRS.

At the conclusion of the meeting, W indicated that they appreciated the staff's candor and feedback.

Project No. 700

Attachment: Meeting Attendees

cc w/attachment: See next page

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cc w/attachment: See next page

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Westinghouse Electric Company

Project No. 700

cc:

Mr. H. A. Sepp, Manager  
Regulatory and Licensing Engineering  
Westinghouse Electric Corporation  
P.O. Box 355  
Pittsburgh, PA 15230-0355

Mr. Andrew Drake, Project Manager  
Westinghouse Owners Group  
Westinghouse Electric Corporation  
Mail Stop ECE 5-16  
P.O. Box 355  
Pittsburgh, PA 15230-0355

**MEETING WITH WESTINGHOUSE**

**ON POWER UPRATES**

**JULY 26, 2001**

**ATTENDANCE LIST**

**WESTINGHOUSE ELECTRIC COMPANY**

M. Gancarz  
M. Golbobai  
J. Fasnacht  
R. Kim  
C. Brinkman

**NUCLEAR MANAGEMENT COMPANY**

H. Hanneman

**NRC**

J. Vermiel  
C. Liang  
H. Garg  
S. Bajwa  
M. Shuaibi  
S. Dembek  
J. Cushing  
M. Scott  
C. Hinson  
C. Holden  
N. Trehan  
G. Kelly  
C. Wu  
M. McConnell  
S. Ray  
D. Desauhiers  
E. Andruszkiewicz  
M. Rubin  
K. Manoly