

June 9, 2000

Mr. Karl Jacobs, Chairman
Westinghouse Owners Group
New York Power Authority
14th Floor, Mail Stop 14K
123 Main Street
White Plains, NY 10601

SUBJECT: REQUEST FOR APPLICATION OF LEAK BEFORE BREAK IN RESPONSE TO DRAFT GENERIC LETTER, "POTENTIAL FOR DEGRADATION OF THE EMERGENCY CORE COOLING AND CONTAINMENT SPRAY SYSTEMS FOLLOWING A LOSS-OF-COOLANT ACCIDENT DUE TO CONSTRUCTION AND PROTECTIVE COATINGS DEFICIENCIES AND FOREIGN MATERIAL IN THE CONTAINMENT"

Dear Mr. Jacobs:

In late 1997, the U. S. Nuclear Regulatory Commission (NRC) issued for public comment a proposed generic letter (GL) entitled, "Potential for Degradation of the Emergency Core Cooling and Containment Spray Systems Following a Loss-of-Coolant Accident Due to Construction and Protective Coatings Deficiencies and Foreign Material in the Containment." In your letter dated November 25, 1997, you (the Westinghouse Owners Group) provided a comment on the subject GL. You noted that the NRC had previously modified the General Design Criterion (GDC) 4 requirements for protection against the dynamic effects of postulated pipe ruptures by a rule change in 1987 (*Federal Register* Volume 52, Number 207, dated October 27, 1987, pages 41288 through 41295). This rule change allowed a limited exception to the requirements of GDC 4 on the basis of application of leak-before-break (LBB) technology. In your letter you specifically requested that the provisions in that modification to GDC 4 be made part of the other Federal regulations and the proposed NRC generic letter identified above. We discussed our resolution of your comments in a meeting between the Westinghouse Owners Group (WOG) and senior management from the NRC's Office of Nuclear Reactor Regulation (NRR) on October 27, 1998. In recent meetings between the WOG and NRR senior management, you requested that we formally respond to your comments. Our response is provided herein.

You were not specific as to which other Federal regulations should be modified. However, you do state one example in which you suggest extending the LBB provisions of GDC 4. You stated that applying LBB to the dynamic effects of a pipe break would eliminate pipe breaks in LBB-qualified piping as a potential source of debris generation or a coatings removal mechanism. This is related to an ongoing program (i.e., the potential clogging of pressurized

water reactor (PWR) sumps by debris during a loss-of-coolant accident (LOCA))¹ being conducted by the NRC's Office of Nuclear Regulatory Research (RES). Your statement implies that debris generated by a pipe break during a LOCA need not be considered when evaluating whether the emergency core cooling system (ECCS) can provide long-term cooling in compliance with the requirements of Title 10 of the *Code of Federal Regulations*, Part 50, Section 46 (10 CFR 50.46). Section 50.46 provides criteria defining the required capabilities of the ECCS. The rule requires, in part, that a spectrum of pipe breaks be considered and that this spectrum include instantaneous double-ended breaks ranging in cross-sectional area up to and including the largest pipe in the reactor coolant system.

We considered your request in two parts. First, we considered your request relative to the generic letter. Second, we considered applicability of these provisions to other regulations, and in particular, 10 CFR 50.46. Regarding the generic letter, we considered your request during its preparation. However, we decided that your comments were not applicable to the generic letter because the primary focus of the generic letter is on quality assurance of protective coatings (i.e., the adequacy of utility coatings programs to ensure that coating systems will perform as expected during an accident) and on foreign material issues (i.e., debris inadvertently left inside the containment or safety systems). While the coating portion of the generic letter is somewhat related to your comment, there is a difference. Since the generic letter is more focused on coatings withstanding the LOCA environment as opposed to being stripped off by jet impingement from a broken pipe, and since the generic letter was not addressing LOCA-generated debris, we concluded that the generic letter was not the appropriate vehicle to address the LBB issue. The generic letter was issued as Generic Letter 98-04, "Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment," on July 14, 1998.

We also considered your proposal regarding extending the LBB provisions of GDC 4 to other regulations. On the basis of our review, we concluded that although the words in the Statements of Consideration for GDC 4 (cited in your letter) may be interpreted to be applicable to LOCA-generated debris, it was clearly not the intent of the current rule to do this. The intent of the rule change was to allow the removal of numerous pipe whip restraints and jet impingement barriers, which were believed to negatively affect plant performance and safety while not affecting emergency core cooling systems, containments, or environmental qualification. The application of LBB technology to regulations other than GDC 4 was not evaluated during the rule change, and the public was not given the opportunity to comment on your proposed application of LBB. Therefore, we believe that a rulemaking would be required to extend LBB to other regulations as you requested. However, we note that there are other activities underway that could result in an outcome similar to the changes you are seeking.

In SECY-98-300, "Options for Risk-Informed Revisions to 10 CFR Part 50 - 'Domestic Licensing of Production and Utilization Facilities,'" dated December 23, 1998, the NRC staff proposed three options for modifying the regulations in 10 CFR Part 50 to make them risk informed. The third option (Option 3) was to make changes to specific requirements in the body of regulations, including the GDCs. In SECY-99-264, "Proposed Staff Plan for Risk-Informing Technical

¹Generic Safety Issue 191, "Assessment of Debris Accumulation on Pressurized Water Reactor Sump Performance."

Requirements in 10 CFR Part 50," dated November 8, 1999, the NRC staff proposed a plan for accomplishing the study phase of Option 3. The purpose of the study phase is for RES to identify and make recommendations to the Commission regarding proposed changes to 10 CFR Part 50. The study phase of this plan was approved by the Commission in a staff requirements memorandum dated February 3, 2000, and is currently underway. We have been meeting with stakeholders to obtain input regarding the selection and prioritization of candidate regulations to be risk informed. The Nuclear Energy Institute has also surveyed the nuclear industry to identify candidate regulations for risk informing. The results of this survey indicate that there are seven main candidates for assessment and change. These candidates included, among others, 10 CFR 50.46, 10 CFR 50.44, and a number of the GDCs.

In a meeting on November 2, 1999, between NRR staff and WOG senior management, we discussed your proposal to redefine the design-basis accident. Specifically, we discussed changing the LOCA break size of the current large-break LOCA requirements of 10 CFR Part 50, and concluded that it would be a candidate for consideration under Option 3. A change in the LOCA break size could result in reduced debris generation during such an event. The process of redefining the design-basis accident would allow associated issues such as debris generation during a LOCA to be addressed during the rule change. We believe this to be the best approach for achieving your goals since it would allow both public participation and the development of supporting technical bases for the changes. On March 17, 2000, and May 18, 2000, meetings were held to discuss your proposal to redefine the design-basis accident. Another meeting will be held on July 11, 2000. We will continue to work with you in these efforts.

If you have other questions, please call me at 301-415-1395.

Sincerely,

/RA/

Stuart A. Richards, Director
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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