

Mr. Peter S. Hastings
Licensing Manager
Duke Cogema Stone & Webster
P.O. Box 31847
Charlotte, NC 28231

SUBJECT: PERFORMANCE REQUIREMENTS OF 10 CFR PART 70.61 AND THE DOUBLE
CONTINGENCY PRINCIPLE

Dear Mr. Hastings:

The purpose of this letter is to provide you with additional guidance on the relationship between the performance requirements of 10 CFR 70.61 (i.e., that criticality must be “highly unlikely”) and the requirement in 10 CFR 70.64 to meet the double contingency principle for criticality accident scenarios, as included in the enclosure. This information was requested in Duke Cogema Stone and Webster’s (DCS’) response to Question 40 of the NRC Request for Additional Information (RAI), dated August 31, 2001.

Sincerely,

/RA/

Andrew Persinko, Sr. Nuclear Engineer
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket: 70-3098
Enclosure: Performance Requirements and
Double Contingency Principle

cc:
J. Johnson, DOE
H. Porter, SCDHEC
J. Conway, DNFSB
D. Moniak, BREDL
G. Carroll, GANE
R. Thomas, Environmentalist, Inc.

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Performance Requirements and Double Contingency Principle

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed your request for additional guidance on the relationship between the performance requirements of 10 CFR 70.61 and the double contingency principle (DCP) in 70.64(a)(9), as discussed during the October 11, 2001, public meeting. Specifically, you had requested guidance on whether complying with the DCP was sufficient to meet the performance requirement that criticality be made "highly unlikely," and if not, what additional commitments would be needed to meet the performance requirements.

The NRC considers these requirements (10 CFR 70.61(b) and 70.64(a)(9)) to be two separate requirements that must be met independently. NUREG-1718, "Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility," Appendix A, "Example Procedure for Risk Evaluation," contains examples of an acceptable way to meet both the performance requirement in 70.61 and the DCP. For each credible accident sequence leading to criticality, an applicant must demonstrate that the likelihood of criticality is highly unlikely, and that at least two unlikely, independent, and concurrent changes in process conditions must occur before criticality is possible. As stated in NUREG-1718, this may be done quantitatively (as in Appendix A) or qualitatively.

In addition to the guidance in Appendix A of NUREG-1718, the NRC has recently approved the Integrated Safety Analysis (ISA) Plans for two Part 70 facilities, Nuclear Fuel Services, Inc. (NFS) and BWX Technologies, Inc. (BWXT). Methods described in the Safety Evaluation Reports (SERs) for the BWXT ISA Plan (dated July 10, 2001) and the NFS ISA Plan (dated October 30, 2001) would be acceptable for meeting the regulatory requirements for the MOX Fuel Fabrication Facility.

The staff maintains that additional commitments beyond committing to the DCP is necessary to demonstrate compliance with the performance requirements. In addition, augmenting the DCP with a general commitment to applying management measures and complying with industry standards is too ambiguous to ensure that the performance requirements are met. Adopting an index likelihood method similar to that described in your response to Question 39 of the Request for Additional Information (dated June 21, 2001) for other hazards would be acceptable for meeting the performance requirements of 10 CFR 70.61.

Enclosure