February 23, 2012

Mr. George H. Bidinger
17016 Cashell Road
Rockville, MD 20853

SUBJECT: DOUBLE CONTINGENCY PRINCIPLE AND THE U.S. NUCLEAR REGULATORY COMMISSION'S REGULATORY GUIDE 3.71

Dear Mr. Bidinger:

I am responding to your January 3, 2012, letter to Chairman Gregory B. Jaczko regarding the U.S. Nuclear Regulatory Commission's (NRC's) position on application of the double contingency principle (DCP), including your view that our position decreases the perception of risk of criticality and is causing confusion within the fuel cycle safety community.

Your January 3, 2012, letter stated that "[T]he ANSI/ANS-8.1 standard has always maintained the DCP as a recommendation because it was recognized that controls on two process conditions or two process parameters was [sic] not possible." We agree that the DCP is stated in ANSI/ANS-8.1 as a recommendation. Further, we believe that, depending on the specifics of the case, two controls on one process condition could meet the intent of the standard and could be acceptable for critically safety.

The DCP has been incorporated into NRC regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 70.64. NRC licensees have committed to ANSI/ANS-8.1 in their license application as a method of ensuring subcriticality during operations. NRC regulations 10 CFR 70.64 require that licensees comply with the DCP for new facilities or new processes at existing facilities. Note that by use of the word "should" in the regulations, the NRC recognized that there may be instances when establishing at least two unlikely, independent and concurrent changes in process conditions to preclude that a criticality accident is not feasible. The staff believes that the intent of the DCP is satisfied when the applicant or licensee has appropriately included sufficient redundancy and diversity to ensure that no single, credible event can lead to a criticality accident.

Applicable regulatory guidance (NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility") was developed to provide staff with appropriate review guidance and to make information about licensing acceptance criteria widely available to interested members of the public and the regulated industry. NUREG-1520 includes guidance for those few cases where ensuring at least two unlikely, independent and concurrent changes in process conditions is not possible or reasonable. Our regulatory approach to applying the DCP recognizes that 1) the principle must be applied to a broad range of facilities and 2) the implementation of the DCP will vary from facility to facility. This is a practical and appropriate use of the DCP that considers the uniqueness and variety of special nuclear material processes.

We are not aware of any large-scale confusion within the fuel cycle community regarding the staff's position on the DCP. We are aware of ongoing discussions concerning use of the term "process conditions" in the definition of DCP. The ANSI/ANS-8.1 workgroup and the nuclear criticality safety community are discussing the use of the term "process conditions." The NRC will consider the need for additional clarification upon the next revision of NUREG-1520 and Regulatory Guide 3.71. The discussions, however, may point out areas for future clarification but do not suggest urgent revisions are warranted.

Thank you for your continued interest in the NRC's regulation of nuclear criticality safety. We remain committed to supporting the development of industry consensus standards and using them in our regulatory framework wherever practical. If you have any additional questions or concerns, please do not hesitate to contact the NRC representative to the ANSI/ANS-8.1 committee, Mr. Thomas Marenchin. Mr. Marenchin may be reached at 301-492-3209, or via e-mail to Thomas.Marenchin@nrc.gov.

Sincerely,

**/RA/**

Catherine Haney, Director
Office of Nuclear Material Safety
and Safeguards

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Sincerely,

**/RA/**

Catherine Haney, Director
Office of Nuclear Material Safety
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