

May 27, 2008

Mr. Thomas C. Houghton, Director
Strategic Regulatory Programs, Nuclear Generation Division
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, DC 20006-3708

SUBJECT: INDUSTRY INITIATIVE ON CONTROL OF HEAVY LOADS

Dear Mr. Houghton:

I am writing to clarify the approaches the Nuclear Regulatory Commission (NRC) staff considers acceptable for interim analyses, which I described in my letter to you dated May 16, 2008. In a telephone conversation on May 20, 2008, you indicated to me that the need to evaluate the reactor vessel supports and attached piping in completing interim analyses for reactor vessel head lifts over flooded refueling cavities was unclear.

The staff recognizes that facility owners that ultimately intend to develop more detailed load drop analyses using energy balance methods or enhance the reliability of the handling system to single failure proof crane equivalence may need additional time to complete such efforts. Therefore, development of an interim analysis may be necessary and is an acceptable approach. As I stated in my letter dated May 16, 2008, licensees may perform these interim analyses for reactor vessel head lifts over flooded refueling cavities that conform to the proposed analysis guidelines contained in "Industry Criteria for Reactor Vessel Head Load Drop and Consequence Analysis," which is in the NRC Agencywide Documents Access and Management System (ADAMS) as Accession No. ML081300340.

Many existing analyses completed since the late 1970s generally conform to these guidelines, with the exception that component supports and attached piping were not explicitly considered. Instead, the analyses assumed the reactor vessel supports were rigid, which is bounding with respect to stresses developed in the reactor vessel near the supports. These analyses considered form drag as the head moved through water, but neglected surface and hydraulic effects that are certain to further reduce the impact forces. The staff considers the margin provided by the neglected surface and hydraulic effects adequate to ensure reactor vessel support and loop piping stresses would remain within allowable limits. Therefore, these analyses are acceptable for use as the basis for comparative analyses when the refueling cavity will be flooded (i.e., the lower of fully flooded or flooded to within 15 feet of the bottom of the reactor vessel head whenever the head is above the guide studs) during the reactor vessel head lift. These comparative (parametric) analyses for lifts over flooded refueling cavities need only consider differences in reactor head lift height, head assembly weight, reactor vessel material properties, and reactor vessel and head geometry. However, the NRC staff understands these analyses will only be used on an interim basis during the period necessary to either complete more detailed load drop analyses using energy balance methods or enhance the reliability of the handling system to single failure proof crane equivalence.

From your letter dated April 22, 2008, we understand that you will combine into a single industry guideline the guidance documents related to load drop analyses and single failure proof crane equivalence with guidance on updating the plant Final Safety Analysis Report (FSAR) to reflect

the current licensing basis with respect to control of heavy loads. We consider this latter guidance essential to support clear updates to the FSAR and a more consistent licensing basis. For planning purposes in support of potential NRC endorsement through a Regulatory Issue Summary, please inform us of your schedule for completion of the combined industry guideline.

The NRC staff appreciates your continued interest in implementation of your initiative on heavy load handling. Please contact Mr. Steven Jones of the NRC staff at (301) 415-2712 to discuss any other concerns.

Sincerely,

/RA/

William H. Ruland, Director
Division of Safety Systems
Office of Nuclear Reactor Regulation

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