December 7, 2011

MEMORANDUM TO: Brian Sheron, Director
Office of Nuclear Regulatory Research

FROM: William Ruland, Generic Issue Screening Panel Chair ***/RA/***
Division of Safety Systems
Office of Nuclear Reactor Regulation

SUBJECT: GENERIC ISSUE REVIEW PANEL RECOMMENDATION FOR THE PROPOSED GENERIC ISSUE PERTAINING TO THE FLOODING OF NUCLEAR POWER PLANT SITES FOLLOWING UPSTREAM DAM FAILURE

The Generic Issue Review Panel for the proposed Generic Issue pertaining to the flooding of nuclear power plant sites following upstream dam failure has completed its review of the related screening analysis. The issue was submitted to the Generic Issues Program in July 2010 and was accepted as a proposed Generic Issue in August 2010. The members of the panel were selected in February and March 2011. The panel reviewed the screening analysis of the proposed Generic Issue on flooding of nuclear power plants sites following upstream dam failures (see enclosure) and received briefings on the subject from staff in the Office of Nuclear Regulatory Research (RES). Further coordination has occurred with RES, the Office of Nuclear Reactor Regulation, the Office of Nuclear Material Safety and Safeguards, the Office of Federal and State Materials and Environmental Management Programs, and the Office of Nuclear Security and Incident Response. RES staff will also coordinate with interested stakeholders through a communication plan.

Management Directive 6.4, “Generic Issues Program,” dated November 17, 2009, provides overall guidance and seven specific criteria to determine whether an issue should be recommended as a Generic Issue. The issue must meet all seven of the criteria in order to be recommended as a Generic Issue. The panel has determined that this proposed issue meets the criteria and the overall intent of the guidance. The panel unanimously recommends that the issue of flooding of nuclear power plants sites following upstream dam failures be designated as a formal Generic Issue and proceed to the Safety/Risk Assessment stage of the Generic Issues Program.

CONTACT: Richard Perkins, RES/DRA
301-251-7479

The panel recommends the following definition of the Generic Issue:

- The Generic Issue pertains to the flooding of nuclear power plant sites as a result of upstream dam failure:
  - The evaluation should consider the frequency of exceeding the design-basis flood level or the flood protection elevation or both as a result of the failure of water impounding structures coupled with coincident flood events from applicable mechanisms.
  - The calculation of flood levels should include potential contributions from other reasonably hypothesized sources (such as probable maximum precipitation).
  - Possible effects on spent fuel pools at nuclear power plant sites should be assessed.
- Fuel cycle facilities and independent spent fuel storage installations (ISFSIs) have the potential for issues resulting from upstream dam failures. Separate lines of inquiry have begun on this issue for both fuel cycle facilities and ISFSIs. The evaluation process of the Generic Issue Program is being applied to flooding from upstream dam failure at fuel cycle facilities and ISFSIs as it was for nuclear power plants, through separate Generic Issues being proposed for both types of facilities.
- Examination of the effects of downstream dam failures on the availability of the ultimate heat sink is not currently within the scope of this Generic Issue due to the different technical nature of the topic. The effects of downstream dam failures on nuclear power plants have been proposed as a separate Generic Issue and are being evaluated through the Generic Issue Program.
- Nuclear power plant sites undergoing decommissioning with spent fuel still in the spent fuel pool were not formally evaluated during the screening assessment of this issue. However, the above definition is broadly written such that these sites are within the scope of the Generic Issue.

Enclosure:
Screening Analysis Report for the Proposed Generic
Issue on Flooding of Nuclear Power Plant Sites Following
Upstream Dam Failure

Approval of Recommendation: ***/RA/ 2/29/12***

Brian Sheron, Director
Office of Nuclear Regulatory Research

The panel recommends the following definition of the Generic Issue:

- The Generic Issue pertains to the flooding of nuclear power plant sites as a result of upstream dam failure:
  - The evaluation should consider the frequency of exceeding the design-basis flood level or the flood protection elevation or both as a result of the failure of water impounding structures coupled with coincident flood events from applicable mechanisms.
  - The calculation of flood levels should include potential contributions from other reasonably hypothesized sources (such as probable maximum precipitation).
  - Possible effects on spent fuel pools at nuclear power plant sites should be assessed.
- Fuel cycle facilities and independent spent fuel storage installations (ISFSIs) have the potential for issues resulting from upstream dam failures. Separate lines of inquiry have begun on this issue for both fuel cycle facilities and ISFSIs. The evaluation process of the Generic Issue Program is being applied to flooding from upstream dam failure at fuel cycle facilities and ISFSIs as it was for nuclear power plants, through separate Generic Issues being proposed for both types of facilities.
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Enclosure:
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Approval of Recommendation: ***/RA/ 2/29/12***
Brian Sheron, Director
Office of Nuclear Regulatory Research

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Memo to Brian Sheron from William Ruland dated 7 December 2011

SUBJECT: Generic Issue Review Panel Recommendations for the Proposed Generic Issue Pertaining to Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure

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