

Planned Response to User Need NRO-2008-004  
Environmental Transport Branch  
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In anticipation of User Need NRO-2008-004, Office of Nuclear Regulatory Research (RES) staff and contractors have been working with Office of Nuclear Reactors (NRO) counterparts through the Technical Advisory Group on floods to address the need to revise Regulatory Guide (RG) 1.59, "Design Basis Floods for Nuclear Power Plants." This enclosure describes how RES staff and contractors plan to respond to User Need NRO-2008-004.

Response to the User Need's Section III, Deliverables

RES's Environmental Transport Branch has initiated three projects that will address User Need NRO-2008-004.

- "Technical Support for Revising Regulatory Guide 1.59," Pacific Northwest National Laboratory (PNNL), JCN N6575. This project started in September 2007 and will be issuing a draft NUREG/CR that addresses most of the issues raised in the user need request. Recommendations in this report on probable maximum precipitation (PMP) are based on existing NOAA Hydrometeorological Reports (HMRs). The report will not address climate change or tsunamis. Flood-surge estimates in the report will be based on NOAA's SLOSH code. Another project (JCN N6570, discussed next) will provide revised PMP estimates for part of the southeastern United States and will address climate change. Research on tsunamis is being done in response to User Need NRR-2008-011. Another project (JCN N6676, discussed below) will examine more advanced methods of estimating flood surge based on the ADCIRC code.
- "Research to Develop Guidance on Probable Maximum Precipitation Estimates for the Eastern United States," United States Bureau of Reclamation (USBR), JCN N6570. This project, which started in September 2008, will provide an update of NOAA's HMR 51 for the southeastern United States. Possible influences of climate change on PMP will focus on underlying rainfall data and available surface observations. The project will investigate climate influences using nonparametric Mann-Kendall test for trends in precipitation stations at selected durations (e.g., 6-hour, 12-hour, 1-day, and 3-day durations). In addition, the project will review recent climate change and extreme precipitation literature. The review will describe climate, hydroclimatology, hydrometeorology, and related studies that may impact PMP estimates. Climate change effects on PMP will be inferred from this review.
- "Research to Develop Guidance on Probable Maximum Storm Surge Flood Estimates along the U.S. Southern Coast," U.S. Army Corps of Engineers (COE), JCN N6676. This project also started in September 2008. It will provide NRC with a technical basis for estimating probable maximum floods due to the storm surge from extreme storm events along the southern coast of the United States.

Response to the User Need's Section IV, Milestones

- A. Conduct quarterly teleconferences to inform the NRO licensing staff of research findings and information sources, applications of flood estimation methods for a variety of sites, and review drafts of the NUREG sections.

Several of these teleconferences, organized through the Technical Advisory Group on Floods, have taken place. The Technical Advisory Group will continue to have teleconferences on a quarterly basis or more often if necessary.

- B. Provide a Memorandum to NRO DSER Division Director discussing the results of an investigation regarding the potential effects of global warming on the frequency and intensity of flooding events and effects on analysis of PMP and PMF.

RES will provide the memorandum in December 2008.

- C. Develop Draft NUREG for review by peer-reviewers and NRO licensing staff.

This report, once scheduled for delivery in June 2008, has had to be postponed to December 15, 2008, because the principal investigator for JCN N6575 has conflicting high-priority licensing assignments from NRO.

- D. Begin work on revising Reg Guide 1.59 using information and applications in Draft NUREG and other supporting research studies on PMP and Storm Surge Analyses.

RES will start revising RG 1.59 on December 15, 2008.

- E. Publish Draft NUREG for 60-day public comment period.

This draft is currently scheduled for delivery on April 10, 2009.

- F. Publish Final NUREG that incorporates resolution of public comments and research findings from supporting Federal Interagency Agreement studies.

RES plans to publish this report in October 2009.

- G. Issue Revised Reg Guide 1.59.

RES plans to issue a draft guide for comment in October 2009.