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NUCLEAR REGULATORY COMMISSION  
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MEMORANDUM TO: Brian E. Thomas, Director  
Division of Engineering  
Office of Nuclear Regulatory Research

FROM: Thomas H. Boyce, Chief */RA/ H. Karagiannis for*  
Regulatory Guidance and Generic Issues Branch  
Division of Engineering  
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SUBJECT: RESULTS OF PERIODIC REVIEWS OF REGULATORY  
GUIDES 1.109 AND 1.112

This memorandum documents the U.S. Nuclear Regulatory Commission (NRC) staff's periodic reviews of Regulatory Guide (RG) 1.109, Revision 1, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," and RG 1.112, Revision 1, "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light-Water-Cooled Nuclear Power Reactors." As discussed in Management Directive 6.6, "Regulatory Guides," the NRC staff reviews RGs periodically to ensure that the RGs continue to provide useful guidance. Documentation of the NRC staff reviews is enclosed, and a brief summary is below:

- RG 1.109 has been reviewed with a determination to be revised. This RG, issued in 1977, provides an acceptable method to calculate radiation doses from normal routine radioactive effluents from licensed nuclear power plant operations under annual average environmental conditions. In general, the calculation models, assumptions, parameter values, and methods for assessing the exposure pathway doses in RG 1.109, Revision 1, are adequate and conservative. However, revising the RG may assist applicants and licensees to perform more accurate dose calculations, may assist inspectors in determining if regulatory requirements are being adequately implemented, and improve the effectiveness and efficiency in NRC's licensing process by using an updated NRC Dose code. The staff plans to revise the guide and issue it for public comment by the end of FY 2020.
- RG 1.112 has been reviewed with a determination to be revised. This RG, issued in 2007, provides guidance for calculating annual average expected releases of radioactive material in gaseous and liquid effluents from light-water-cooled nuclear power reactors.

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The guide endorses an outdated standard (ANSI/ANS-18.1-1999). Therefore, when an applicant or licensee uses calculation models, design parameters, and assumptions that differ from the NRC endorsed GALE86 code and the ANSI/ANS-18.1-1999 standard, the alternative method requires additional review time and requests for additional information. The staff plans to revise this RG and issue it for public comment by the end of FY 2020.

Enclosure:  
Regulatory Guide Periodic Reviews

SUBJECT: RESULTS OF PERIODIC REVIEWs OF REGULATORY GUIDES 1.109 AND  
1.112

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