November 6, 2002

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Geoffrey E. Grant, Director, DRP:RGN-III
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FROM: Farouk Eltawila, Director **/RA/**
Division of Systems Analysis and Regulatory Effectiveness
Office of Nuclear Reactor Research

SUBJECT: FINAL REPORT: "REGULATORY EFFECTIVENESS ASSESSMENT OF OPTION B OF APPENDIX J"

Attached is the final report, "Regulatory Effectiveness Assessment of Option B of Appendix J." This report evaluates the effectiveness of the revised, performance-based, risk-informed, voluntary Option B of 10 CFR 50, Appendix J, *Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors*. Regulatory expectations to outcomes were compared in the areas of cost saving and burden reduction to licensees, occupational radiation exposure reduction, and maintenance of safety.

The report concludes that risk-informing Appendix J has been effective. The revised Appendix J has been at least partially adopted by all currently operating nuclear power plants. Its adoption has resulted in cost saving and burden reduction to licensees, while maintaining safety. Occupational radiation exposure to workers has been reduced by the adoption of the revised Appendix J.

Drafts of this report were made available to internal peer reviewers who were requested to comment on the reasonableness of the approach, the appropriateness of the conclusions, and other documents that should be assessed to make the Nuclear Regulatory Commission's activities more effective, efficient, and realistic. In response, comments were received from NRR, Regional Offices, and RES Division of Risk Analysis and Applications. The report was modified to address comments.

This report is consistent with the NRC strategic performance goals of maintaining safety; increasing public confidence; and making NRC activities more effective, efficient, and realistic as follows:

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Maintaining safety – The study report confirms that safety was maintained with the implementation of Option B (i.e., implementation of Option B had, at most, only the expected marginal increase in risk). When considering other factors, such as the continued reduction in transient initiators, any risk increase from adoption of the revised Appendix J is likely to be even less than was expected when Option B was offered to licensees. This confirmation is based on operating experience and results of prior risk assessments. The reduction in occupational radiation exposure resulting from Option B directly contributed to the safety of nuclear workers. If the study had found that safety had not been maintained, appropriate recommendations would have been made.

Public confidence – Public confidence should be improved by confirming that implementation of Option B resulted in maintaining safety while burden and costs to licensees (ultimately, societal costs) and occupational radiation exposure were reduced.

Making NRC activities more effective, efficient, and realistic – The report compared the regulatory expectations to outcomes to assess the effectiveness of this regulation in achieving its goals and identify areas needing attention, if any. In this case, issuing a voluntary, risk-informed regulation was successful. Portions of the rule change were adopted by all licensees, with the vast majority of licensees adopting the entire rule change. Thus, all licensees took the opportunity to realize the significant benefits available. Benefits were achieved by licensees (and ultimately, society) while maintaining safety. This demonstrates the potential for further successes in risk-informing regulations.

Attachment: As stated **ADAMS Accession No. ML023100201**

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