March 7, 2016

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

FROM: Timothy J. McGinty, Director ***/RA/***
Division of Safety Systems
Office of Nuclear Reactor Regulation

SUBJECT: RESULTS OF PERIODIC REVIEW OF REGULATORY GUIDE 1.45, "GUIDANCE ON MONITORING AND RESPONDING TO REACTOR COOLANT SYSTEM LEAKAGE"

This memorandum documents the US Nuclear Regulatory Commission (NRC) periodic review of regulatory guide (RG) 1.45, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage." As discussed in Management Directive 6.6, "Regulatory Guides," the NRC staff reviews RGs approximately every 5 years to ensure that the RGs continue to provide useful guidance. Documentation of the NRC staff review is enclosed.

Based on the results of the periodic review, the staff concludes that no changes to RG 1.45 Revision 1 are warranted. However, the staff will monitor operating experience regarding reactor coolant leakage over the next 5 year period to determine whether additional concerns develop that would warrant a revision of RG 1.45 at the next periodic review.

Enclosure:
Periodic Review of RG 1.45

CONTACT: Caroline Tilton, NRR/DSS
301-415-0990

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Based on the results of the periodic review, the staff concludes that no changes to RG 1.45 Revision 1 are warranted. However, the staff will monitor operating experience regarding reactor coolant leakage over the next 5 year period to determine whether additional concerns develop that would warrant a revision of RG 1.45 at the next periodic review.

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DISTRIBUTION:

ADAMS Accession No: ML16047A181 **NRR-106**

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NAME	CTilton	LPerkins	RElliott	GCasto	TMcGinty
DATE	03/3/2016	03/3/2016	03/4/2016	03/4/2016	03/7/2016

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Regulatory Guide Periodic Review

Regulatory Guide Number:	**1.45, Revision 1**
Title:	**Guidance on Monitoring and Responding to Reactor Coolant System Leakage**
Office/division/branch:	**NRR/DSS/STSB**
Technical Lead:	**Caroline Tilton**
Staff Action Decided:	**Reviewed with no issues identified**

1. What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?

Regulatory Guide (RG) 1.45 Revision 1 (Rev. 1), "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," issued in May 2008, describes methods that the NRC staff considers acceptable for use in implementing the regulatory requirements specified below with regard to selecting reactor coolant leakage detection systems, monitoring for leakage, and responding to leakage.

Although some general concerns have been raised regarding reactor coolant pressure boundary leakage (appropriate monitoring of unidentified and identified leakage, as well as the basis for and appropriate actions needed for various levels of leakages)[i], no specific safety concerns have been identified with RG 1.45. Nonetheless, the staff will continue to monitor operating experience at operating power plants to ensure that its regulatory guidance with regards to reactor coolant pressure boundary integrity, instrumentation, and operational leakage rates remains effective. In particular, the staff intends to monitor experience in implementing RG 1.45 and the below regulatory documents related to reactor coolant pressure boundary leakage.

- Inspection Procedure 71111.22, "Surveillance Testing," particularly section 02.02.b.17.
- Enforcement Guidance Memorandum, EGM-09-001, "Dispositioning Violations of NRC Requirements for Operability of Gaseous Monitors for Reactor Coolant System Leakage Detection (ADAMS Accession No. ML090300467)
- Technical Specifications Task Force (TSTF) Traveler (TSTF-513), "Revise Operability Requirements and Actions for RCS Leakage Instrumentation," for Pressurized Water Reactors (PWRs), and TSTF-514 for Boiling Water Reactors (BWRs)
- Information Notice (IN) 2005-24, "Nonconservatism in Leakage Detection Sensitivity" (ADAMS Accession No. ML051780073)

2. What is the impact on internal and external stakeholders of <u>not</u> updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

Since there are no specific issues identified with RG 1.45, there is no impact on internal or external stakeholders for not updating the RG.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

Not applicable.

4. Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?

Reviewed with no issues identified.

5. Provide a conceptual plan and timeframe to address the issues identified during the review.

The staff will monitor operating experience regarding reactor coolant leakage over the next 5 year period to determine whether any concerns develop that would warrant a revision of RG 1.45 at the next periodic review.

NOTE: This review was conducted in January 2016 and reflects the staff's plans as of that date.

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[i] Lochbaum, David, Union of Concerned Scientists, letter dated May 21, 2013 (ADAMS Accession No. ML13141A598) and NRC response (ADAMS Accession No. ML13196A511)