



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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October 28, 2015

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

FROM: Richard Y. Lee, Chief /RA/
Fuel and Source Team Code Development Branch
Division of Systems Analysis
Office of Nuclear Regulatory Research

SUBJECT: RESULTS OF PERIODIC REVIEW OF REGULATORY GUIDE
(RG) 1.126

This memorandum documents the US Nuclear Regulatory Commission (NRC) periodic review of regulatory guide (RG) 1.126, Revision 2, "An Acceptable Model and Related Statistical Methods for the Analysis of Fuel Densification." This RG, which was last revised in 2010, provides guidance for use in predicting the effects of fuel densification in light-water-cooled nuclear power reactors. 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 1.126 Revision 2 are warranted at this time. The staff did not identify any technical or regulatory issues in the review.

Enclosure:
As stated

CONTACT: Harold Scott, RES/DSA/FSCB
301-415-1682

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DISTRIBUTION:

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OFFICE	RES/DSA/FSCB	RES/DE/RGGIB	RES/DSA	SUNSI Review	RES/DE/RGGIB	RES/DSA
NAME	H. Scott	S. Burton	R. Lee	H. Scott	T. Boyce	M. Case
DATE	10/ 22 /15	10/ 22 /2015	10/ 28 /15	10/ 22 /15	10/ 22 /15	10/ 28 /15

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Regulatory Guide Periodic Review

Regulatory Guide Number: **RG 1.126, Revision 2**

Title: **An Acceptable Model and Related Statistical Methods for the Analysis of Fuel Densification**

Office/division/branch: **RES/DSA/FSCB**
Technical Lead: **H. Scott**

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 1.126, Revision 2, "An Acceptable Model and Related Statistical Methods for the Analysis of Fuel Densification," issued in March 2010, describes an analytical model and related assumptions and procedures that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for predicting the effects of fuel densification in light-water-cooled nuclear power reactors. To meet these objectives, the guide describes statistical methods related to product sampling that will ensure that this and other approved analytical models will adequately describe the effects of densification for each initial core and reload fuel quantity produced.

The guide considers fuel pellets with Uranium dioxide, mixed oxide, or Gadolinium oxide. Pellets with dopants such as chromia or silicate are expected to behave similarly and the equations in the guide can be used.

The NRC staff did not identify any technical or regulatory issues with the current version. The staff has reviewed the guide and has not identified any safety concerns or a need to revise it at this time

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

As no technical or regulatory issues were identified, there is no impact to internal or external stakeholders resulting from these activities.

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?

As no technical or regulatory issues were identified, no resources are required.

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.

No technical or regulatory issues were identified during the review. The staff currently is not planning to take any action on this guide.

NOTE: This review was conducted in September 2015 and reflects the staff's plans as of that date. These plans are tentative and are subject to change.