

October 8, 2015

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

FROM: Marissa G. Bailey, Director **/RA/**
Division of Fuel Cycle Safety, Safeguards,
and Environmental Review
Office of Nuclear Materials Safety
and Safeguards

James L. Rubenstone, Deputy Director **/RA/**
Yucca Mountain Directorate
Office of Nuclear Materials Safety
and Safeguards

SUBJECT: RESULTS OF PERIODIC REVIEW OF REGULATORY GUIDES

This is in response to your August 17, 2015, memorandum requesting staff from the Office of Nuclear Materials Safety and Safeguards (NMSS) to perform the 5 year periodic review of regulatory guides (RGs) supporting our programs.

As discussed in Management Directive 6.6, "Regulatory Guides," the U.S. Nuclear Regulatory Commission staff reviews RGs approximately every 5 years to ensure that these continue to provide useful guidance. As requested in Enclosure 3 of your memorandum, the staff of the above mentioned Divisions conducted a periodic review of the following RGs:

- RG 3.12, "General Design Guide for Ventilation Systems of Plutonium Processing and Fuel Fabrication Plant";
- RG 3.71, "Nuclear Criticality Safety Standards for Fuels and Material Facilities";
- RG 4.16, "Monitoring and Reporting Radioactivity in Releases of Radioactive Materials in Liquid and Gaseous Effluents from Nuclear Fuel Processing and Fabrication Plants and Uranium Hexafluoride Production Plants";
- RG 4.17, "Standard Format and Content of Site Characterization Plans for High-Level Waste Geologic Repositories"; and
- RG 5.80, "Pressure-sensitive and Tamper-Indicating Device Seals for Material Control and Accounting of Special Nuclear Material."

CONTACT: Osiris Siurano-Perez, NMSS/FCSE
(301) 415-7827

The results of the staff's review of each of the RGs are summarized in the enclosure. In summary, the staff did not identify any technical or regulatory issues in the review of RGs 3.12, 4.16, and 4.17. As such, the staff has determined that no changes to these three RGs are warranted. With regard to RG 5.80, the staff has determined that a revision to this RG is necessary. A revision to RG 3.71 is currently in progress.

Enclosure:

Office of Nuclear Material Safety and
Safeguards Results of Periodic Review of
Regulatory Guides

The results of the staff's review of each of the RGs are summarized in the enclosure. In summary, the staff did not identify any technical or regulatory issues in the review of RGs 3.12, 4.16, and 4.17. As such, the staff has determined that no changes to these three RGs are warranted. With regard to RG 5.80, the staff has determined that a revision to this RG is necessary. A revision to RG 3.71 is currently in progress.

Enclosure:
 Office of Nuclear Material Safety and
 Safeguards Results of Periodic Review of
 Regulatory Guides

DISTRIBUTION:

FCSS r/f	TBoyce, RES	MBayssie, RES	LCuadrado, FCSE
DDitto, FCSE	CMarkley, YMD	CMoyer, RES	TNaquin, FCSE
CTripp, FCSE			

ML15272A429

OFFICE	FCSE	FCSE	RPMB	MC&AB	MSLB	YMD	DFCSS
NAME	OSiurano	DMiller	RJohnson	DWillis	MKotzalas	JRubenstone	MBailey
DATE	9/30/15	9/30/15	10/01/15	10/01/15	10/01/15	10/01/15	10/08/15

OFFICIAL RECORD COPY

Regulatory Guide Periodic Review

Regulatory Guide Number: **3.12**
 Revision: **1**
 Title: **General Design Guide for Ventilation Systems of Plutonium Processing and Fuel Fabrication Plants**

Office/Division/Branch: **NMSS/FCSE/FMB**
 Technical Lead: **Tyrone Naquin**

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)?

There are no technical or regulatory issues with the current version of the RG. One of the references cited was superseded in 2012. The ASME AG-1-2012, Code on Nuclear Air and Gas Treatment, cited in the standing RG is a 2003 version. The standard is available online at no charge.

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

There are no technical or regulatory issues with the current version of the RG. A dated ASME standard will not impact regulatory compliance.

3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contract dollars?

Since there are no technical or regulatory issues with the current version of the RG, the level of effort is 0 FTE and 0 contract dollars. The change to update the ASME standard does not merit the effort to update the guide.

4. Based on the answers to the questions above, what is the recommended staff action for this RG (Revise, Review, Administrative Change, or Withdraw)?

The recommended staff action is to declare this RG as REVIEWED. There are no technical or regulatory issues with the current version of the RG. The RG is needed and is acceptable in its current version.

5. If a RG should be revised, provide a conceptual plan and timeframe to accomplish this.

N/A

6. References:

N/A

[Type here]

Regulatory Guide Number: **3.71**
Revision: **2**

Title: **Nuclear Criticality Safety Standards for Fuels and Material Facilities**

Office/Division/Branch: **NMSS/FCE/PORSB**
Technical Lead: **Christopher Tripp**

Staff Action Decided: **Revise**

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

RG-3.71 endorses specific versions of the ANSI/ANS-8 Series standards related to nuclear criticality safety (NCS), with some exceptions based on U.S. Nuclear Regulatory Commission (NRC)-specific positions and regulations. RG-3.71 is referenced in NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility." As of Revision 2 of this Standard Review Plan (SRP), specific dates of these standards are not given, but rather the SRP states that the most recent endorsed versions of the standards should be used. Therefore, when there is a new standard or a new version of an existing standard, RG-3.71 can be updated to reflect the latest industry practice rather than having to revise the SRP. This increases regulatory flexibility. New standards are issued every few years, and existing standards are always being reviewed and reaffirmed or revised periodically. The acceptance criteria in the NCS Chapter of the SRP state that applicants can commit to the ANSI/ANS-8 Series standards as one acceptable way to meet the regulations, and it is, therefore, important that new standards and new versions of existing standards be reviewed periodically to keep the NRC's licensing guidance up-to-date. There are no known deficiencies with the existing version of RG-3.71, but there is a need to keep it up-to-date with current industry practices.

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

Licensees commit to specific versions of the ANSI/ANS-8 Series standards in their license applications, and licensees must comply with those commitments. Therefore, there is no impact on inspection. The impact on licensing is that the SRP states that licensees should commit to the most recent endorsed version of the standards, so there would be an impact if the NRC has not reviewed and endorsed, in whole or in part, a new standard or updated an existing standard.

There are currently few anticipated new fuel cycle applications, with the exception of a new medical isotope facilities. It is conservatively estimated that there may be two or three such applications in the next 5 years. In addition, one or two fuel facility license renewals and up to 10 license amendments may occur in the same time period, which could be impacted.

[Type here]

3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contract dollars?

NRC staff and not contractor resources should be used. There are currently 17 ANSI/ANS-8 Series standards endorsed in whole or in part by RG-3.71. In addition, there are about six NCS-related ISO standards that the staff considers valuable to review for regulatory acceptability. RG-3.71 is currently on a 5-year review cycle, and it is estimated that that up to five new standards or new versions of existing standards may have come out since its last revision. The staff has been involved as representatives on the standards committees, and as a result, should already have a working knowledge of the changes. It is therefore anticipated that only about 80 hours of staff time would be needed to complete a review for the ANSI/ANS-8 Series standards, and perhaps 2 months for the ISO standards, which have not previously been endorsed. That represents a total of about 400 hours, or 0.2 FTE for technical staff review.

4. Based on the answers to the questions above, what is the recommended staff action for this RG (Revise, Review, Administrative Change, or Withdraw)?

The staff recommends that this RG be revised (Note: a revision to this RG is currently in process).

5. If a RG should be revised, provide a conceptual plan and timeframe to accomplish this.

RG-3.71 is on a 5-year review cycle; it was last revised in December 2010. This is a low-priority item compared to inspection and licensing work. The recommended plan is as follows:

- a. Ask the existing ANSI/ANS-8 Series standards representatives to review the current versions and identify if there are any changes needed to RG-3.71.
- b. Distribute the ISO standards to the technical staff for a similar review.
- c. Prepare a draft and circulate it among the NCS specialists (through the NCS Technical Advisory Group).
- d. Resolve comments and prepare a draft Revision 3 of RG-3.71 by the end of February 2016.

6. References:

N/A

[Type here]

Regulatory Guide Number: **4.16**
Revision Number: **2**

Title: **Monitoring and Reporting Radioactive Materials in Liquid and Gaseous Effluents from Nuclear Fuel Cycle Facilities**

Office/Division/Branch: **NMSS/FCSE/FMB**
Technical Lead: **Tyrone Naquin**

Staff Action Decided: **Reviewed with no issues identified**

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

This RG was originally published in March 1978. It was first revised in December 1985. In 2010, it was updated to include current references and updated regulatory guidance, terminology, compliance standards, and translation to exposure estimates. Included in the update was criteria for documentation of sample results. ANSI standards were added, which are still in effect today, to move from former National Council on Radiation Protection guidance from 1978.

There are no technical or regulatory issues with the current version of the RG. One of the references cited, ANSI/HPS N13.1, "Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities," was superseded in 2011. The update does not affect the technical content of the RG. The basis for documentation requirements, ANSI/ASQ E4-2004, "Quality Systems for Environmental Data and Technology Programs," is unchanged since the last revision.

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

There are no technical or regulatory issues with the current version of the RG. A dated ASME standard will not impact regulatory compliance.

3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contract dollars?

Since there are no technical or regulatory issues with the current version of the RG, the level of effort is 0 FTE and 0 contract dollars. The change to update the ASME standard does not merit the effort to update the guide.

4. Based on the answers to the questions above, what is the recommended staff action for this RG (Revise, Review, Administrative Change, or Withdraw)?

The recommended staff action is to declare this RG as REVIEWED. There are no technical or regulatory issues with the current version of the RG. The RG is needed and is acceptable in its current version.

[Type here]

- 5. If a RG should be revised, provide a conceptual plan and timeframe to accomplish this.**

N/A

- 6. References:**

N/A

[Type here]

Regulatory Guide Number: **5.80**
Revision: **1**

Title: **Pressure-Sensitive and Tamper-Indicating Device Seals for Material Control and Accounting of Special Nuclear Material**

Office/Division/Branch: **NMSS/FCSE/MCAB**
Technical Lead: **David Ditto**

Staff Action Decided: **Revise**

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

RG 5.80, "Pressure-Sensitive and Tamper-Indicating Device Seals for Material Control and Accounting of Special Nuclear Material," issued in December 2010, establishes the NRC's position for acceptable applications to the distribution, use and deposition of tamper indicating devices and pressure sensitive seals for fuel and non-fuel facilities. Since the last publication of RG 5.80 the NRC has not identified any technical issues for fuel or non-fuel facilities that require a technical revision of this RG. However, while staff has not identified any technical issues with this RG, the staff recommends the RG be revised to comply with the elements of formatting as outlined in TEC-004, Rev. 0.

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

There are no significant impacts to fuel cycle and other non-power facilities that currently use tamper indicating devices if this RG is not updated at this time. However, it is the staff's plan to revise this RG and issue Revision 1 by the last quarter of 2015.

3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contract dollars?

An estimate of the effort needed to revise this RG is between 0.10 FTE and 0.20 FTE. No contract dollars required.

4. Based on the answers to the questions above, what is the recommended staff action for this RG (Revise, Review, Administrative Change, or Withdraw)?

The staff recommends that this RG be revised (currently in process).

5. If a RG should be revised, provide a conceptual plan and timeframe to accomplish this.

This RG is currently under revision. The staff plans to provide Revision 1 of RG 5.80 to the Division of Fuel Cycle Safety, Safeguards, and Environmental Review management for review and approval by November 1, 2015. The final draft Revision 1 is expected to be transmitted to the Office of Nuclear Regulatory Research by the first quarter of 2016. The final/revised RG is expected to be issued by mid-2016.

[Type here]

6. References:

N/A

[Type here]

Regulatory Guide Number: **4.17**
Revision: **1**

Title: **Standard Format and Content of Site Characterization Plans for High-Level-Waste Geologic Repositories**

Office/Division/Branch: **NMSS/YMD**
Technical Lead: **Christopher Markley**

Staff Action Decided: **Reviewed with no issues identified**

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

Site characterization for one identified site has occurred, and there are no announced plans for characterization of additional sites for geologic repositories for high-level waste.

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

Regardless of whether or not the RG is updated for the known issues, the site characterization for the one identified site has occurred, and there are no announced plans for characterization of additional sites.

3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contract dollars?

An estimate to address identified issues has not been developed.

4. Based on the answers to the questions above, what is the recommended staff action for this RG?

The staff recommends that RG 4.17 should not be updated. Though site characterization for the one identified site has occurred, the related adjudicatory proceeding is currently on hold.

5. If an RG should be revised, provide a conceptual plan and timeframe to accomplish this (i.e., technical basis development by a contractor and anticipated year(s) of funding; endorsement of consensus standard or industry guidance document; staff review of licensing and operating experience in the technical area; need for technical coordination with other offices; related rulemaking, etc.).

N/A

6. References:

N/A