
Technical Specifications Task Force Improved Standard Technical Specifications Change Traveler

Addition of Spent Fuel Rack Neutron Absorber Monitoring Program

NUREGs Affected: 1430 1431 1432 1433 1434

Classification: 1) Technical Change

Recommended for CLIP?: No

Correction or Improvement: Improvement

NRC Fee Status:

Changes Marked on ISTS Rev 4.0

See attached justification.

Revision History

OG Revision 0

Revision Status: Active

Revision Proposed by: TSTF

Revision Description:

Original Issue

Affected Technical Specifications

5.5.18	Spent Fuel Rack Neutron Absorber Monitoring Program	NUREG(s)- 1433 1434 Only
	Change Description: New specification	
5.5.21	Spent Fuel Rack Neutron Absorber Monitoring Program	NUREG(s)- 1430 1431 1432 Only
	Change Description: New specification	

04-Feb-16

1. SUMMARY DESCRIPTION

The proposed change revises Technical Specifications (TS) Section 5.5, "Programs and Manuals", to add a new program titled, "Spent Fuel Storage Rack Neutron Absorber Monitoring Program." The propose of the program is to ensure the neutron absorber density assumed in the spent fuel rack nuclear criticality analysis remains conservative with respect to the actual plant conditions. The program may be adopted by licensees that credit spent fuel storage rack neutron absorber materials with neutron absorbing characteristics that may degrade over time.

2. DETAILED DESCRIPTION

Neutron absorbers serve as an important material to control reactivity in many spent fuel storage racks. As neutron absorbers significantly reduce reactivity, it is important to ensure that they continue to provide their criticality control function for the duration that they are relied on in the criticality analyses. Neutron absorber monitoring programs are developed with the purpose of ensuring that the neutron absorbers continue to provide the criticality control relied on in the criticality analyses. To accomplish this, the monitoring program must be capable of identifying unanticipated changes and of verifying that anticipated changes are occurring as expected.

This traveler was developed to provide guidance to licensees developing plant-specific license amendment requests that revise the spent fuel criticality safety analysis. The addition of TS controls on monitoring spent fuel rack neutron absorber material is typically part of license amendment requests revising the criticality analysis and revising other TS controls, such Spent Fuel Storage and Design Features. This traveler provides standard wording for such a program. Licensees may need to alter the proposed wording for their specific circumstances.

2.1. Description of the Proposed Change

The proposed change adds an optional specification to Section 5.5, "Programs and Manuals." The specification states:

5.5.XX [Spent Fuel Storage Rack Neutron Absorber Monitoring Program

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]

3. TECHNICAL EVALUATION

The TS Section 5.5 program imposes a requirement to have a licensee-controlled program that meets the description in the specification. Licensees should describe their planned licensee-controlled neutron absorber monitoring program in their license amendment request.

The exact nature of the monitoring program will be dictated by the types of neutron absorber materials in the spent fuel racks that are credited in the criticality analysis, and will typically

include coupon testing (if available), material testing, in-situ measurement, visual inspection, and monitoring of industry operating experience. The licensee program may reference an industry guidance document as the basis for their testing program.

4. REGULATORY EVALUATION

The following regulatory requirements have been considered:

Title 10 of the Code of Federal Regulations (10 CFR), Section 50.36, "Technical specifications," in which the Commission established its regulatory requirements related to the contents of the TS. Specifically, 10 CFR 50.36(c)(5) states, " Administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner."

10 CFR 50.68, "Criticality Accident Requirements," provides limits on the estimated ratio of neutron production to neutron absorption and leakage (k-effective) of the spent fuel storage racks loaded with fuel.

10 CFR 50, Appendix A, General Design Criteria (GDC) 61, "Fuel Storage and Handling and Radioactivity Control," and GDC 62, "Prevention of Criticality in Fuel Storage and Handling," provide design criteria for fuel storage.

The proposed addition of the Spent Fuel Rack Neutron Absorber Monitoring Program to the TS does not affect compliance with these regulations.

Enclosure 1

Technical Specifications Proposed Changes

5.5 Programs and Manuals

5.5.20 [Surveillance Frequency Control Program]

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

5.5.21 [*Spent Fuel Storage Rack Neutron Absorber Monitoring Program*]

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]

5.5 Programs and Manuals

5.5.19 Setpoint Control Program (continued)

3. If the as-found value of the instrument channel trip setting is less conservative than the specified AV, then the SR is not met and the instrument channel shall be immediately declared inoperable.
 4. The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the NTSP at the completion of the surveillance test; otherwise, the channel is inoperable (setpoints may be more conservative than the NTSP provided that the as-found and as-left tolerances apply to the actual setpoint used to confirm channel performance).
- e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.20 [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

5.5.21 [*Spent Fuel Storage Rack Neutron Absorber Monitoring Program*

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]

5.5 Programs and Manuals

5.5.19 Setpoint Control Program (continued)

- e. The program shall be specified in [insert the facility FSAR reference or the name of any document incorporated into the facility FSAR by reference].]

5.5.20 [Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

5.5.21 [*Spent Fuel Storage Rack Neutron Absorber Monitoring Program*

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]

5.5 Programs and Manuals

5.5.17 Surveillance Frequency Control Program (continued)

- a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.
- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

5.5.18 *[Spent Fuel Storage Rack Neutron Absorber Monitoring Program*

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]

5.5 Programs and Manuals

5.5.17 Surveillance Frequency Control Program (continued)

- b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.
- c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.]

5.5.18 *[Spent Fuel Storage Rack Neutron Absorber Monitoring Program*

This program provides controls for monitoring spent fuel storage racks that utilize neutron absorbing materials that are credited in the spent fuel storage rack criticality safety analysis to ensure the neutron absorbing material continues to provide the credited criticality control. The program shall require periodic inspection and monitoring of spent fuel rack neutron absorber materials on a performance-based frequency, not to exceed 10 years.]
