

NRC INSPECTION MANUAL

NMSS/DSFM

TEMPORARY INSTRUCTION 2690/011

REVIEW OF AGING MANAGEMENT PROGRAMS AT INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS

Effective Date: 01/30/2018

CORNERSTONE: N/A

APPLICABILITY: This temporary instruction (TI) applies to a renewed license of a specific Independent Spent Fuel Storage Installation (ISFSI) or a renewed Certificate of Compliance (CoC).

2690/011-01 OBJECTIVE

The objective of this information-gathering TI is as follows:

- To evaluate, through inspection, whether licensees have adequate processes or procedures planned or in place to implement an Aging Management Program (AMP) consistent with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 72, and as provided in a renewed license of a specific ISFSI or a renewed CoC.

2690/011-02 BACKGROUND

In order for the U.S. Nuclear Regulatory Commission (NRC) to authorize the renewal of ISFSI specific licenses or CoCs for storage system designs, the specific licensee or CoC holder is required, per 10 CFR 72.42 or 10 CFR 72.240, respectively, to provide AMPs detailing how the intended functions of important to safety structures, systems, and components (SSCs) for the ISFSIs and storage systems will be maintained throughout the period of extended operation.

These AMPs have been approved by the NRC through the issuance of the renewed license or CoC, with license or CoC conditions that provide requirements for implementation of the AMPs by either the specific or general licensee. Generally, the renewed license or CoC will include a condition requiring the specific licensee or CoC holder, respectively, to incorporate a renewal supplement into the Final Safety Analysis Report (FSAR) that reflects the approved AMPs. The renewed license or CoC will also typically include a condition requiring the specific or general licensees to update, revise, or create programs or procedures for AMP implementation by a specific date. Additionally, some renewed licenses or CoCs may contain additional conditions related to specific aspects of the AMPs (e.g., timeframes for development of inspection or examination methods).

The purpose of this TI is to evaluate, through inspection, whether licensees have adequate processes or procedures planned or in place to implement AMPs provided in the renewed license or CoC. The scope of this TI does not include the licensees' performance of the aging

management activities that are detailed in the AMPs. After implementation of this TI, the staff will develop a new inspection procedure (or modify an existing inspection procedure) to address the licensees' performance of the AMP activities.

2690/011-03 INSPECTION REQUIREMENTS

Evaluate whether the licensee has adequate processes or procedures to implement the AMPs provided in the renewed license or CoC conditions, Technical Specifications (TS), or FSAR. The following inspection areas are itemized by each element of an AMP.

AMP Elements

- 03.01 Review of Scope. This section of an AMP contains the specific SSCs that are addressed by the AMP, as well as the SSC's intended function(s) that must be maintained throughout the period of extended operation.
1. Verify that the processes or procedures cover the SSCs that are defined in the scope of the AMPs.
 2. Verify that the processes or procedures contain a reference to the AMP for which they are intended to implement.
- 03.02 Review of Preventive Actions. This section of an AMP contains actions that will be used to prevent/mitigate aging effects and rates of aging for SSCs. Not all licensees' AMPs will contain this section. If applicable, perform the following:
1. Verify that there are processes or procedures for performance of preventive actions, as applicable.
- 03.03 Review of Parameters Monitored or Inspected. This section of the AMP lists the specific parameters that will be monitored or inspected and describes how these parameters are capable of identifying potential degradation prior to the loss of the SSC's intended function(s). For example, the parameters may be signs of deterioration, including corrosion, cracking, or sulfate and chloride concentrations, which are linked to aging effects on SSCs.
1. Verify that the processes or procedures involve monitoring and inspecting all parameters incorporated into each AMP.
- 03.04 Review of Detection of Aging Effects. This section of the AMP describes how aging effects will be detected prior to the loss of the SSC's intended function(s). It includes inspection and monitoring details, methods and techniques, frequency, sample size, data collection, and timing of inspections.
1. For each of the SSCs, verify that the specific types of inspections to be performed are clearly stated in the processes or procedures.
 2. Verify that the processes or procedures include performance of inspections or examinations at the specified intervals, information on the location and extent of inspection of the SSCs, and number of SSCs inspected (sample size).

3. If the AMP includes inspection of a limited sample size, verify that the licensee has a documented approach to select the most susceptible SSCs, and the most susceptible locations on those SSCs, for inspection.
4. If the AMP requires altering the sample size of some inspections based on aging effects observed, verify that the processes or procedures ensure that the sample size is expanded when said aging effects are observed.
5. Verify that the processes or procedures include provisions to ensure that any locations of identified aging effects are monitored during further inspections.
6. If the AMP includes inspections of opportunity, verify that the processes or procedures take advantage of opportunities to access usually inaccessible areas in order to check for aging effects.

03.05 Review of Monitoring and Trending. This section of the AMP describes how data will be collected and evaluated in order to determine the extent of the aging effects and the need for corrective or mitigative actions.

1. Verify that the processes or procedures clearly state which parameters will be trended, along with the monitoring methodology and timeline.
2. Verify that the processes or procedures have methods for comparing results taken at different times to determine changes in conditions of SSCs.
3. Verify that the processes or procedures require that results of inspections are used to establish rates of degradation in order to confirm that further inspections will occur prior to a loss of intended function.
4. Verify that the processes or procedures provide for alteration of inspection frequencies when necessary in order to ensure the integrity of the SSCs.

03.06 Review of Acceptance Criteria. This section of the AMP provides the criteria against which the need for corrective actions will be evaluated. The acceptance criteria are intended to ensure that the SSC's intended function(s) and the approved design bases are maintained during the period of extended operation.

1. Verify that the processes or procedures contain acceptance criteria described in the approved AMPs.
2. Verify that the licensee included a methodology for analyzing the results of the inspection against applicable acceptance criteria.

03.07 Review of Corrective Actions. This section of the AMP describes the measures to be taken when the acceptance criteria are not met. The licensee has the option to reference a corrective action program (CAP) which is consistent with the approved quality assurance (QA) program.

1. Verify that the CAP contains such provisions that any deviations from the acceptance criteria require entrance into the CAP.

2. In some cases, an AMP may include specific corrective actions. In that case, verify that the processes or procedures include those specific corrective actions.

03.08 Review of Confirmation Process. This section of the AMP verifies that preventive actions, if existing, are reasonable, and that appropriate corrective actions have been completed and are effective. The confirmation process is commensurate with the approved QA program.

1. Verify the AMPs are controlled by the QA program.

03.09 Review of Administrative Controls. This section of the AMP provides a formal review and approval process. Administrative controls are in accordance with the approved QA program.

1. Verify that the processes or procedures are updated when additional specifications or conditions are added to the license or CoC.
2. Verify that any modifications made to the AMPs have been properly evaluated against and implemented in accordance with the appropriate change control process (e.g., 10 CFR 72.48 or 10 CFR 50.59). Also verify that the AMP modification process is appropriately incorporated into the licensee's processes or procedures.
3. Verify that the licensee has processes or procedures in place for timely reporting of any inspection or monitoring results that trigger the 10 CFR 72.75 reporting criteria.

03.10 Review of Operating Experience. This section of the AMP references and evaluates applicable operating experience that was considered in development of the AMPs. It also includes provisions to conduct future reviews of operating experience to confirm the effectiveness of AMPs throughout the period of extended operation or identify the need for AMP modifications, as needed. It supports the determination that aging effects are managed such that SSCs continue to be capable of performing their intended functions.

1. Verify that there is a method to collect and assess operating experience during the period of extended operation, as described in the AMPs. If described in the AMPs, ensure that the processes or procedures require that the inspection findings be reported to an operating experience database (e.g., the Aging Management Institute of Nuclear Power Operations Database) in accordance with that database's user guidelines.
2. Verify that there are processes or procedures for implementing periodic operating experience assessments (sometimes referred to as "tollgates") throughout the period of extended operation, as described in the AMPs.

The inspectors should become familiar with the renewed ISFSI license or renewed CoC in use at the ISFSI, NRC safety evaluation report (SER) for the renewal, license or CoC conditions, TS, and FSAR. Note that the entirety of the approved AMPs may not be included in the renewed license or CoC. However, a summary of the approved AMPs will be included in the FSAR, and there may be additional license or CoC conditions related to specific aspects of the AMPs. In addition, in some instances, the renewal SER may contain the entire approved AMPs in an appendix or may contain a reference to a renewal document (e.g., application) with the entire final AMPs, and this may be a useful reference to inspectors for their inspection planning.

Additionally, the inspector may wish to refer to the references related to license or CoC renewal listed in section 2690/011-12.

05.01 Documentation Requirements

1. Upon completion of this TI, the results of the inspection should be reported in a routine inspection report (a resident quarterly report or standalone report), containing one of the following statements:
 - a. “The processes or procedures that the licensee has in place to implement the AMPs were inspected in accordance with paragraphs 03.01 – 03.10 of the TI and were found to be consistent with the AMPs provided in the renewed [license or certificate of compliance].”
- Or
- b. “The processes or procedures that the licensee has in place to implement the AMPs were inspected in accordance with paragraphs 03.01 – 03.10 of the TI and were found to be inconsistent with the AMPs provided in the renewed [license or certificate of compliance]. The processes or procedures did not [provide a list of deviations between the licensee’s program, processes or procedures in relation to the AMPs and describe the basis for the deviations].”

Inspections and all inspection documentation should be completed by May 31, 2019. Complete as many required inspection items as possible based on allocated inspection resources, inspection scheduling constraints and the licensee’s schedule for accomplishing their commitments.

2690/011-07 EXPIRATION

The TI will expire on January 30, 2020. During the time period from May 31, 2019 to January 30, 2020, the originating organization for this TI will prepare a final report documenting the TI results and delete the TI, per IMC 0040-07.04.

2690/011-08 CONTACT

The originating organization of this TI is the Office of Nuclear Material Safety and Safeguards, Division of Spent Fuel Management, Inspections and Operations Branch. Any technical questions regarding this TI should be addressed to Marlene Davis at 301-415-7447 or Marlene.Davis@nrc.gov.

2690/011-09 STATISTICAL DATA REPORTING

All direct inspection effort expended on this TI is to be charged to 2690/011 with an IPE code of TI. All indirect inspection effort expended on this TI for preparation and documentation should be attributed to activity code TPD.

2690/011-10 RESOURCE ESTIMATE

The estimated average time to complete the TI inspection requirements is 24-48 hours per inspection.

2690/011-11 TRAINING

Specialized training on the Review of Aging Management Programs at Independent Spent Fuel Storage Installations will be provided by NRC Headquarters prior to implementation of this TI.

2690/011-12 REFERENCES

10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste."

NUREG-1927, Rev. 1, "Standard Review Plan for Renewal of Specific Licenses and Certificates of Compliance for Dry Storage of Spent Nuclear Fuel," ML16179A148.

NEI 14-03, Rev. 2, "Format, Content and Implementation Guidance for Dry Cask Storage Operations-Based Aging Management," ML16356A210. [Note that this document is currently under NRC review for consideration for potential endorsement.]

NUREG-2214, "Managing Aging Processes in Storage (MAPS) Report," Draft Report for Comment, ML17289A237.

IMC 0040, "Preparing, Revising, and Issuing Documents for the NRC Inspection Manual."

END

ATTACHMENT 1

Revision History for TI 2690/011

REVIEW OF AGING MANAGEMENT PROGRAMS AT INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML17167A268 01/30/18 CN 18-002	First issuance. Completed 4 year search for commitments and found none.	Presentation to Regional counterparts June 22, 2017	ML17167A269