

Background: License Condition 20 of the PINGP Independent Spent Fuel Storage Installation (ISFSI) Renewed License (Reference 1) requires issuance of procedures by March 8, 2016 to implement the specified Aging Management Programs (AMPs). One specific AMP relates to radiation monitoring of the cask neutron shield to detect a “loss of intended function”. The NRC Safety Evaluation Report (SER) provided with the Renewed License lists acceptance criteria for determining “loss of intended function” that conflict with the acceptance criterion specified in the AMP. This conflict needs to be resolved so that the proper acceptance criterion is established.

The AMP Section A2.6.2 (Appendix A to Reference 1) states the acceptance criterion as follows:

- The acceptance criterion for radiation dose monitoring of an in-service cask is the absence of an increasing trend.

The SER (page 3-40) states that “[t]he licensee will use the following criteria to determine if no loss of intended function has occurred:

- No unexpected upward trend in neutron radiation intensity.
- No apparent neutron spectrum shift.
- No change in the neutron axial radiation profile.
- Neutron radiation measurement locations must be comprehensive to ensure any neutron shield degradation is detected.
- Neutron detector(s) must be appropriate for detecting the neutrons at all energy levels.
- Neutron detector(s) must be calibrated following appropriate quality assurance program.”

Evaluation:

In this case, the root of the regulatory obligation is the Renewed License (Reference 1). License Condition 19 states:

20. NSPM shall create, update, or revise procedures for implementing the activities in the Aging Management Programs (AMPs) summarized in [SER Appendix A¹] within 90 days of the renewed license issuance.

NSPM shall maintain procedures that implement the AMPs throughout the term of this license. Each procedure for implementing the AMPs shall contain a reference to the specific AMP provision the procedure is intended to implement. The reference shall be maintained if procedures are modified.

¹ CAP 1508424 reconciles that this document to be Appendix A, Revision 2, which is the document posted in the SER.

Thus, the license specifically requires implementing the AMP that is summarized in SER Appendix A. In relation to the radiation monitoring program for the neutron shield, the SER specifically states the following acceptance criterion and no other:

The acceptance criterion for radiation dose monitoring of an in-service cask is the absence of an increasing trend.

Therefore, to comply with the license, this is the one and only acceptance criterion that must be observed. Establishing any other acceptance criteria in the AMP would require review for prior NRC approval and may require a license amendment request.

Further arguments against adoption of the SER items as acceptance criteria of the AMP are listed below.

1. The SER states that the six listed criteria “will” be used to determine if no loss of intended function has occurred. This statement is not a “shall” statement, and it does not originate as an NSPM commitment. Therefore, the statement carries little regulatory weight.
2. The SER itself makes contradictory statements about which acceptance criteria should be established for the AMP. After listing the six criteria (on page 3-40), the SER specifically states that the appropriate acceptance criterion to monitor the neutron shield is described in the AMP. Specific reference to the acceptance criterion in the AMP is made four times on page 3-41 of the SER.
3. If NRC intended this list to be an obligation, it would have been included them in the AMP or as Licensing Conditions.
4. These criteria have no stated basis in regulatory precedent or technical papers.
5. By any reasonable definition, the last item (neutron detectors must be calibrated) is not an “acceptance criterion”.
6. The fifth criterion (neutron detectors must detect neutrons “at all energy levels”) contradicts NSPM submittals and NRC acknowledgment that the measurements would be taken with a Rem-Ball, which does not cover all energy levels.

In short, the list of criteria on SER page 3-40 does not align with the Renewed License and contradicts other statements in the SER itself, and therefore should be used cautiously. If practical, the list should be considered as supplementary criteria after the primary criterion (stated in the AMP) has shown an increasing trend in radiation and the condition has been entered into the corrective action program (CAP).

Position: The regulatory obligation stated in the Renewed License is to establish the “specific acceptance criteria [criterion] in the AMP”. That acceptance criterion is clearly stated in the AMP as:

“absence of an increasing trend”.

The additional criteria stated in the SER should be treated as supplemental, and may be used to help determine if there is a loss of intended function. However, the overarching

criterion for making the determination shall be that stated in the AMP: “absence of an increasing trend”.

References:

1. NRC letter to NSPM (Kevin Davison), “Issuance of Renewed Materials License No. SNM-2506 for the Prairie Island Site Specific Independent Spent Fuel Storage Installation (TAC No. L24592)”, dated December 9, 2015 (ADAMS Accession No. ML15336A101).

Prepared by Glenn Adams 2/4/2016