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Fuel Retrievability

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Comment On: NRC-2015-0241-0001
Fuel Retrievability; Request for Comment on Draft Interim Staff Guidance

10/21/2015

80 FR 63843

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RULES AND PROCEDURES

General Comment

Comments on the draft ISG-2 Rev 2 Retrievability in Spent Fuel Storage Applications

- 1- Why isn't 10 CFR 72.122(h)(1) given as part of the regulatory basis? This section states "The spent fuel cladding must be protected during storage against degradation that leads to gross ruptures or the fuel must be otherwise confined such that degradation of the fuel during storage will not pose operational safety problems with respect to its removal from storage. This may be accomplished by canning of consolidated fuel rods or unconsolidated assemblies or other means as appropriate". If the applicant makes the safety case in the application that the canister is safe to use as the retrievable method then clearly there will be no operational safety issues hence the fuel no longer has to be prevented from having gross degradation
- 2- Why isn't 10 CFR 72.236(m) given as part of the regulatory basis? This section states "To the extent practicable in the design of spent fuel storage casks, consideration should be given to compatibility with removal of the stored spent fuel from a reactor site, transportation, and ultimate disposition by the Department of Energy." Clearly this clause is directly related to retrievability to the extent that you can interpret "compatibility with removal of the stored spent fuel from a reactor site" as retrievability.
- 3- Page 3, 2nd paragraph - Are you implying that for either Option B, or C that an AMP for either the canister (option B) or fuel (option C) would have to be in place for the initial storage period. Otherwise how do you guarantee that they will "monitor potential degradations that could affect the retrievability?"
- 4- Page 6, 2nd paragraph - Everything in this paragraph is true, which is the reason that the demonstration

F-RIDS = ADM-83
Case = E-Wong (FR 2013)

SOWE Renew Complete
Template = ADM-813

project was started by DOE and ISG-24 was developed and incorporated into NUREG-1927 Rev 2. The performance of the fuel in the demonstration would be monitored and related to the fuel in storage so that the cask or canister would not have to be opened. If this change is made why is DOE going to such lengths to do the demonstration?

5- Page 7 top paragraph - says that this guidance is consistent with the current IAEA safety Guide SSG-15 position on retrievability. The regulatory basis in this ISG revision says "The retrievability requirements is only applicable to normal and off-normal conditions and does not apply to accident conditions." Nowhere, in Part 72, is this exclusion to the retrievability clause stated. IAEA guide SSG-15 Section 6.1 states that "requirements were established in Ref (9) to maintain ... and to ensure retrievability of the spent fuel. These safety functions should be maintained during all operational states and accident conditions." Clearly there is an inconsistency between this revision and the IAEA guidance.

6- If the canister is the retrieval basis than 10 CFR 72.122(h)(1) [See item 1 above] can be met even if the fuel assembly is grossly degraded during extended storage provided all other safety considerations such as thermal, containment and criticality regulations can be met in the degraded state. A recent NUREG/CR from Oak Ridge supports the position that these regulatory requirements can be met with grossly degraded fuel. Hence there is no regulatory basis for the NRC to require that steps be taken to prevent gross rupture of the fuel rods. Applicant would no longer have to limit the maximum cladding temperature, dry the fuel other than removing gross water, or maintain internal atmosphere conditions suggested in ISG-1 Rev 3 to prevent gross rupture. As higher burnup fuel is loaded into casks or shorter cooling times are legislated to clear the reactor storage pools, the current suggested temperature limits may be approached or exceeded. The ultimate consequences is that the utilities may have storage systems from which the fuel cannot be removed on an assembly basis and repackaged if a standard canister is deemed necessary, or may not be acceptable by the DOE by the terms of the standard contract. The bottom line is that while the change to the retrievability guidance may be acceptable for storage it does not take into account the ramifications for the full back-end of the fuel cycle and thus violate 10 CFR 72.236(m)

Attachments

Comments on the draft ISG-2 Rev 2 revision

Comments on the draft ISG-2 Rev 2 Retrievability in Spent Fuel Storage Applications

Robert e Einziger Ph.D.

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