

## PrairieIslandISFSIPEm Resource

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**From:** Ruffin, Steve  
**Sent:** Wednesday, June 05, 2013 10:01 AM  
**To:** 'Zelenak, Brian R' (brian.r.zelenak@xcelenergy.com)  
**Cc:** Ruffin, Steve  
**Subject:** Revision of high burnup fuel RAI No. 3-2  
**Attachments:** HBU RAI for Additional Review.pdf

Brian,

In a letter dated January 31, 2013 (ML13035A083), the NRC provided NSPM with a request for additional information (RAI) in connection with its application for renewal of the Prairie Island Nuclear Generating Plant independent spent fuel storage installation license, Special Nuclear Material License No. SNM-2506. The RAI letter identified additional information the NRC staff needs to complete its review of this application. On March 18, the NRC staff held a RAI clarification teleconference with representatives of NSPM regarding the RAI letter (ML13099A218). A discussion on questions pertaining to clarification of the high burnup fuel (RAI No. 3-2) was deferred until a separate teleconference could be arranged for participation by the appropriate NRC staff.

The NRC staff has revised RAI No. 3-2. In the interest of time, I am providing the revised RAI 3-2 as an attachment to this email. I will also follow-up this email transmittal with a cover letter to NSPM and RAI 3-2 attachment. This is an Official Agency Record and will be added to ADAMS.

If you have questions, please feel free to contact me.

*Regards,*

*Steve Ruffin*  
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Division of Spent Fuel Storage and Transportation  
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**From:** Ruffin, Steve

**Created By:** Steve.Ruffin@nrc.gov

**Recipients:**

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Tracking Status: None

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### High Burnup RAI #3-2 Clarification

Provide justification for the acceptability of the storage of high burnup (HBU) fuel by providing a strategy that includes an aging management program (AMP) to demonstrate that HBU fuel is protected against possible degradation that may lead to gross ruptures for storage periods beyond 20 years and potential operational safety issues during removal from storage.

The requirements in 10 CFR 72.122(h) state that 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 removal from storage. The strategy should address reasonable and known physical or degradation phenomena associated with storage periods from 20 to 60 years, such as embrittlement of cladding from the ductile to brittle transition from hydride reorientation in the radial direction in HBU fuel.

The AMP should define specific inspection or monitoring of storage of the HBU fuel to address potentially conflicting information, uncertainties, or indications of the presence of specific potential aging effects of the fuel. The program may specify activities including inspection or monitoring of HBU fuel within the cask system after 20 years of storage at periodic intervals (e.g., every 10-20 years) during the renewal period; and may define an alternative, optional program to periodically review and use surrogate information from other confirmatory programs in the U.S. with similar type of HBU fuel. The applicant may also consider proposing licensing conditions to limit the scope or storage time of HBU fuel during the renewal period to address uncertainties and lack of confirmatory data.

In order to comply with the requirements of 10 CFR 72.122(h)(1), the AMP should address how the fuel will otherwise be confined if, at any time during the renewal period, the applicant obtains information that indicates the stored HBU fuel may be subject to gross cladding ruptures.

This information is needed to evaluate compliance with 10 CFR 72.122(h).