

From: Tom Harlan <harlan@mdh-law.com>
Sent: Tuesday, September 23, 2014 1:51 PM
To: Trefethen, Jean
Cc: Bianca Chance
Subject: Finally : the cement studies referenced in the comments to the EA for PINGP.
Attachments: Appendix K.PDF

Follow Up Flag: Follow up
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Jean-

The email below to you bounced back because it was too large (too many attachments). So I am going break this up into 4 separate emails, this being the first of four. Thanks and let us know what other information you may need outside of what we have addressed below.

TH

Jean-

Sorry for the delay in getting back to you regarding the information on the concrete studies you requested. We had to look through a number of different files and documents to locate the requested studies. We have located, and I am attaching, two of the reports. These are briefly discussed below. In addition to these reports, there is one more that we need to locate.

Regardless, the two reports that are attached address the degradation of concrete used for the storage (or proposed storage) of spent nuclear fuel and high-level waste. These reports were referenced in an exhibit to the Monticello Certificate of Need for a License to establish an ISFISl but not in that exhibit itself. Regretfully, that exhibit itself was destroyed and, thus, the long time to locate the source of reference and the documents as well.

At the outset, it is referenced, and discussed in passing, in Appendix K to the Yucca Mountain EIS. For your reference, I am attaching Appendix K.

In Appendix K, there are three reports that discuss the degradation of concrete in and around Prairie Island (and Monticello) as well as what is identified (in one report) by the authors of those reports as Region 3. Two of these reports, which are attached, address this generally as follows:

1. The first study is called Documentation of National Weather Conditions Affecting Long-Term Degradation of Commercial Spent Fuel and DOE Spent Fuel and High-Level Waste. It is a 1998 study/report by W. Lee Poe Jr. and Paul F. Wise. Section 2.0 of this report references the Concrete Storage Model Degradation with the sub-parts detailing the conclusion that the freeze/thaw cycle is the most harmful and the quickest form of degradation to above ground cement storage modules. In Table 2-1, St. Cloud is referenced with an indication that there will be a roof collapse, as that term is defined in the report within 81 years. Note that later, in Table

2-2, page 11-13, that reference is made to Prairie Island and that the expected roof collapse is 84 years.

2. The second study is called Regional Binning for Continued Storage of Spent Nuclear Fuel and High-Level Wastes. It is a 1998 study/report conducted by W. Lee Poe, Jr. Section 1.3 analyzes the impacts of regional environmental conditions (weather) that are significant to the useful life of concrete used to store the SNF or HLW. Region 3, which is the region that Prairie Island is located, has an average concrete life of 72 years (mostly impacted by what appears to be the storage facilities on the Great Lakes). I would draw your attention to Table A.1.3-3, which breaks out the proposed or potential storage facilities in Region 3. Prairie Island is about 2/3rds of the way down on that chart, showing a useful life of concrete as being 87 years. I am not sure why there is a difference between the report referenced above and this report. Regardless, it illustrates that the useful life of the concrete storage facility is less than 100 years. It also illustrates that Prairie Island is one of the lowest in terms of useful life for concrete.

In addition to these reports, we are still trying to locate on more report: Long-Term Degradation of Concrete Facilities Presently Used for Storage of Spent Nuclear Fuel and High-Level Waste. This is a 1998 study/report by W. Lee Poe, Jr.. It is a revised report that is referenced in Appendix K so we will be looking for both the original and revised. Since at the time this report was commissioned, HT-40s were already being used for storage at Prairie Island, this will be an interesting report to review and see if it provides any value.

Finally, I am providing to you a portion of the Draft EIS that was conducted by the Minnesota Department of Commerce for the licensing of the Monticello storage facilities. I direct your attention to Section 5.3, on page 37 of the attached document. There, the Draft EIS references the "design lifetime of the cask storage system" identifying it as 60 years. Two points, first, this comment was for, some reason, deleted from the final EIS. Second, while this is not the same storage system as Prairie Island, it was chose by Xcel based on its experience. Why? Was the TN-40 less durable or robust or about the same? If more durable, then why not chosen?

We will continue to look for the Long-Term Degradation report and will provide that to you as soon as we can locate it. Thanks for your patience and feel free to contact Bianca or I if there is more information that you need. Thank you for the work that you are doing.

Regards

TH

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