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Performance-Based Emergency Core Cooling Systems Cladding Acceptance Criteria

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General Comment

The year 2007 ACRS manipulation to relocate Appendix K to a regulatory guide.
Comment is attached

Attachments

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There are current manipulations to relocate Appendix K to a regulatory guide. The following three bullets are copied from ML14204A009, July 23, 2014.

- Bert Dunn from AREVA provided a presentation recommending relocating the requirements in Appendix K to a regulatory guide (ADAMS Accession No.ML14175A094).
- There was a significant amount of follow-on discussion on this topic, and the NRC staff noted that this was the first time this recommendation had been presented. Industry noted that this recommendation will likely come to the NRC in the form of a formal written comment, associated with the request for comment on renumbering the regulations.
- In a later discussion on the Appendix K topic, NRC's Office of General Counsel (OGC) noted that there is no legal reason why this information cannot be moved to a regulatory guide, but that both NRC and industry need to be aware of the implications.

AREVA (and likely others) seek to relocate the requirements in Appendix K to a regulatory guide because regulatory guidance is not enforceable.

Following is relevant history. During 2007, the ACRS encouraged the Chairman of the NRC to move the requirements in Appendix K to a regulatory guide. NRC staff responded that since regulatory guidance is not enforceable it cannot substitute for regulatory requirements.

Following are excerpts from those letters:

On May 23, 2007, Chairman of ACRS sent a letter to NRC Chairman Klein, PROPOSED TECHNICAL BASIS FOR THE REVISION TO 10 CFR 50.46 LOCA EMBRITTLEMENT CRITERIA FOR FUEL CLADDING MATERIALS, ML071490090.

The ACRS recommended that, "The staff should complete planned research needed to provide a sound basis for a regulatory guide applicable to current and future zirconium-based cladding alloys."

On July 11, 2007, NRC staff replied to ACRS, PROPOSED TECHNICAL BASIS FOR THE REVISION TO 10 CFR 50.46, ML071640115.

The NRC staff pointed out that, “However, an important regulatory challenge in developing a performance-based regulatory requirement for any type of fuel cladding is the need to develop objective and legally-enforceable acceptance criteria. Since regulatory guidance is not enforceable it cannot substitute for regulatory requirements.”

Clearly, AREVA (and likely others) seek to relocate the requirements in Appendix K to a regulatory guide because regulatory guidance is not enforceable.

In its letter of May 23, 2007, the ACRS erroneously declares that, “The correlation specified for the rates of steam reaction with the cladding is viewed by the technical community as an anachronism.” The fact is that while the correlation specified for the rates of steam reaction with the cladding is likely an anachronism, it is not viewed as such by the NRC staff as well as by the Nuclear Energy Institute (NEI). In fact, the correlation specified for the rates of steam reaction with the cladding is fiercely defended by the NRC staff as well as by the Nuclear Energy Institute.

This defense is well documented by the NEI in its comment 16 opposing PRM-50-93, *“The Baker-Just correlation, using the current range of parameter inputs, has been shown to be conservative and adequate to assess Appendix K ECCS performance. Data published since the Baker-Just correlation was developed has clearly demonstrated the conservatism of the correlation above 1800°F,”* refer to ML101040678, Industry Comments on Petition for Rulemaking (PRM-50-93); Multi-Rod (Assembly) Severe Fuel Damage Experiments. Docket ID NRC-2009-0554, April 12, 2010.

The NRC also fiercely defends Baker-Just. In its analysis of PRM-50-76, *“The Baker-Just correlation (Reference 4) using the current range of parameter inputs is conservative and adequate to assess Appendix K ECCS performance. Virtually every data set published since the Baker-Just*

correlation was developed has clearly demonstrated the conservatism of the correlation above 1800°F.” refer to Memo to Matthews/Black-Technical Safety Analysis of PRM-50-76, A Petition for Rulemaking to Amend Appendix K to 10 CFR Part 50 and Regulatory Guide 1.157 - ML041210109, April 29, 2004.

It appears that the above erroneous declaration by the ACRS was designed to augment its recommendation to relocate the requirements in Appendix K to a regulatory guide that would not be enforceable.