

Mr. Mark Edward Leyse
P.O. Box 1314
New York, NY 10025

Dear Mr. Leyse:

I am responding to your letters to the U.S. Nuclear Regulatory Commission (NRC) dated November 17, 2009, and June 7, 2010. The NRC determined that ~~each of~~ these letters met the threshold sufficiency requirements for a petition for rulemaking (PRM) under Section 2.802 of Title 10 of the *Code of Federal Regulations* (10 CFR) "Petition for Rulemaking—Requirements for Filing." These petitions were docketed as PRM-50-93 on November 23, 2009 and PRM-50-95 on September 30, 2010, ~~respectively~~. The NRC published a notice of receipt and request for public comment on PRM-50-93 in the *Federal Register* (FR) on January 25, 2010 (75 FR 3876), and published a notice of consolidation of PRM-50-93 and PRM-50-95 and request for public comment on October 27, 2010 (75 FR 66007). These notices and the public comments that were submitted on the petitions can be found at www.regulations.gov under Docket ID NRC-2009-0554.

In your petitions, you asserted that data from multi-rod (assembly) severe fuel damage experiments indicate that specific aspects of the NRC's regulations and associated regulatory guidance pertaining to emergency core cooling system (ECCS) acceptance criteria and evaluation models are not conservative and that additional regulations are needed. Therefore, you requested that the NRC: (1) amend its regulations in 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," to require that the calculated maximum fuel element cladding temperature not exceed a limit based on data from cited experiments, rather than the limit of 2,200 degrees Fahrenheit (~~F~~) specified in 10 CFR 50.46(b)(1); (2) amend its regulations in Appendix K to 10 CFR Part 50, "ECCS Evaluation Models," and associated regulatory guidance in Regulatory Guide 1.157, "Best-Estimate Calculations of Emergency Core Cooling System Performance," to require that the rates of energy release, hydrogen generation, and Zircaloy cladding oxidation from the metal-water reaction of zirconium with steam considered in evaluation models used to calculate ECCS cooling performance be calculated based on data from cited experiments, rather than using the Baker-Just or Cathcart-Pawel equations; and (3) issue a new regulation that requires minimum allowable core reflood rates in the event of a loss-of-coolant accident (LOCA).

Throughout the review process for your petitions, the NRC staff made available to you and to the public a series of draft interim reports that included the staff's initial evaluation of specific issues and relevant data that were prioritized to determine the order in which they would be evaluated. These initial evaluations were not part of the standard PRM process, but were performed to: (1) enable the NRC staff to promptly respond to any significant safety issues, if any were to be identified; and (2) keep both you and the public informed of NRC's progress in evaluating the petitions.

The NRC staff completed its technical evaluation of the petitions and prepared a final technical safety analysis report that documents the official technical basis for the staff's evaluation. This final technical safety analysis report includes the NRC staff's evaluation of: (1) each of the three main issues raised in the petitions; and (2) additional technical issues that are not directly related to the requested changes to the NRC's regulations that were raised in either the petitions or in subsequent communications (e.g., e-mails~~s~~ messages, letters, and your oral statements ~~you made in during~~ a public Commission meeting ~~with the Commission~~). The final technical safety analysis report can be accessed using the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession No. ML16078A310.

The NRC has considered your petitions, public comments, and the arguments raised therein. In addition, the NRC received and considered the information in your emails to the Chairman dated March 12, 2018, and April 18, 2018. For the reasons stated in the enclosed *Federal Register* notice, your petitions for rulemaking are denied.

In summary, the NRC has concluded that you did not present sufficient new information or arguments to support the requested changes. In addition, the NRC disagrees with the arguments in the petitions and concludes that the requested amendments to its regulations and associated regulatory guidance are not necessary. Finally, the NRC reaffirms that its existing regulations continue to provide reasonable assurance of adequate protection of public health and safety.

These petitions are considered closed. If you have any questions regarding this matter, please direct them to Daniel Doyle at 301-415-3748 or Daniel.Doyle@nrc.gov.

Sincerely,

Annette L. Vietti-Cook
Secretary of the Commission

Enclosure:
Federal Register Notice