

**From:** [Mark Leyse](#)  
**To:** [Doyle, Daniel](#)  
**Cc:** [CMRSVINICKI Resource](#); [CMROSTENDORFF Resource](#); [CMRBARAN Resource](#); [boblelse@aol.com](mailto:boblelse@aol.com); [shadis@prexar.com](mailto:shadis@prexar.com); [Burnell, Scott](#); [Bladey, Cindy](#); [DeJesus, Anthony](#); [Inverso, Tara](#); [Dave Lochbaum](#); [Ed Lyman](#)  
**Subject:** [External\_Sender] Re: Re: Status of PRM-50-93/95  
**Date:** Friday, October 16, 2015 11:46:11 AM

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Dear Mr. Doyle:

Thank you for your response and for placing my e-mail in ADAMS.

I have two simple questions about the TRACE simulation of FLECHT Run 9573. The questions are just to clarify work the NRC has *already completed* in its draft interim review.

As stated in the draft interim review, the TRACE simulation had results for cladding temperatures at five different elevations of the test bundle, at 18 seconds. For example, the TRACE simulation using Baker-Just predicted that the cladding temperature would be 1598.4 K at the six foot elevation.

**First)** Were the TRACE results the peak cladding temperature (PCT) at each of the five different elevations?

**Second)** Was the value of 1598.4 K that TRACE predicted (using Baker-Just) the PCT at the six foot elevation?

Thank you,

Mark Leyse

P.S. As previously stated, the TRACE simulation is discussed in the "Draft Interim Review" in ADAMS at ML12265A277.

I figure that the TRACE results are the predicted PCT at each of the five different elevations. But I would just like to have that confirmed.

On Thu, Oct 15, 2015 at 4:40 PM, Doyle, Daniel <[Daniel.Doyle@nrc.gov](mailto:Daniel.Doyle@nrc.gov)> wrote:

Mr. Leyse,

The NRC has not completed its evaluation of the petitions, so I am not able to provide a detailed response to your questions about the TRACE simulation discussed in the draft interim review. As noted in the disclaimer, the document is not final and it may be revised before the NRC takes final action on the petitions. Your email below has been added to ADAMS (ML15288A506).

Dan Doyle

Project Manager

Office of Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

[daniel.doyle@nrc.gov](mailto:daniel.doyle@nrc.gov)

[\(301\) 415-3748](tel:(301)415-3748)

**From:** Mark Leyse [mailto:[markleyse@gmail.com](mailto:markleyse@gmail.com)]

**Sent:** Sunday, October 11, 2015 7:22 AM

**To:** Doyle, Daniel; CHAIRMAN Resource; CMRSVINICKI Resource; CMROSTENDORFF Resource; CMRBARAN Resource; RulemakingComments Resource; PDR Resource

**Cc:** [bobleuse@aol.com](mailto:bobleuse@aol.com); [shadis@prexar.com](mailto:shadis@prexar.com); Burnell, Scott; Bladey, Cindy; Inverso, Tara; Dave Lochbaum; Matthew G. McKinzie; Thomas B. Cochran; Deborah Brancato; Geoffrey Fettus; Diane Curran; Paul Gunter; Paul Gallay; Alemayehu, Bemnet; [michal\\_freedhoff@markey.senate.gov](mailto:michal_freedhoff@markey.senate.gov); Ed Lyman

**Subject:** [External\_Sender] Re: Status of PRM-50-93/95

Dear Mr. Doyle:

Thank you for your update. I appreciate that the NRC Staff is considering comments I made to the Commissioners on January 31, 2013 in its review of PRM-50-93 and PRM-50-95.

On April 12, 2014, I sent the Staff additional comments that reiterate and further expand on issues I raised in my presentation to the Commissioners. I request that the Staff also consider and respond to my April 12, 2014 comments. The April 12, 2014 comments are in ADAMS at ML14104B253.

I also appreciate that you said I may contact you and ask questions. I would like to ask several questions. They relate to issues I raised with the Commissioners on January 31, 2013.

My questions concern the TRACE computer code simulation of FLECHT Run 9573 that

was performed for the Staff's review of PRM-50-93 and PRM-50-95. The TRACE simulation is discussed in the "Draft Interim Review" in ADAMS at ML12265A277.

**First)** Why was the severely damaged section of the test bundle of FLECHT Run 9573 *not simulated* in the TRACE simulation?

**Second)** Was the severely damaged section of the test bundle of FLECHT Run 9573 *intentionally omitted* from the TRACE simulation?

**Third)** Why were the results of the TRACE simulation of FLECHT Run 9573 compared to the *average* of the available thermocouple measurements at each particular elevation and not to the *highest* thermocouple measurement at each particular elevation?

**Fourth)** Given that the highest cladding temperature (the PCT) is the concern in LOCA analysis (key to power uprate calculations), do you believe the Staff erred by not comparing the *highest* thermocouple measurement at each particular elevation to the results of its TRACE simulation of FLECHT Run 9573?

**Fifth)** How much money did the NRC spend on its TRACE simulation of FLECHT Run 9573, including interpreting and reporting the simulation's results?



**A photograph of the severely damaged section of the test bundle of FLECHT Run 9573.**

I devoted many well-referenced pages to discussing FLECHT Run 9573. I provided quotes and information from a Westinghouse report that discusses FLECHT Run 9573. The Westinghouse report is referred to in the NRC's "Draft Interim Review." The Westinghouse report is in ADAMS at ML070780083.

As I stated before: Westinghouse reported, regarding FLECHT Run 9573, that a “[p]ost-test bundle inspection indicated a locally severe damage zone within approximately  $\pm 8$  inches of a Zircaloy grid at the 7 ft elevation.”

(The quote is from page 3.97 of Westinghouse's “PWR FLECHT (Full Length Emergency Cooling Heat Transfer) Final Report,” WCAP-7665, April 1971.)

My main point in discussing FLECHT Run 9573 was that a section of the test bundle overheated and heavily oxidized. Yet Staff members "simulated" the test without including what Westinghouse called the "severe damage zone."

I would appreciate it if you would answer my questions.

Thank you,

Mark Leyse

P.S. Please place this e-mail in ADAMS.

On Tue, Jun 23, 2015 at 10:51 AM, Doyle, Daniel <[Daniel.Doyle@nrc.gov](mailto:Daniel.Doyle@nrc.gov)> wrote:

Mr. Leyse,

I am writing to provide an update on your letters dated November 17, 2009, and June 7, 2010, in which you submitted petitions to the U.S. Nuclear Regulatory Commission (NRC). In your letter dated November 17, 2009, you requested that the NRC amend the regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 and Appendix K to Part 50 to require that the rates of energy release, hydrogen generation, and cladding oxidation from the metal-water reaction considered in emergency core cooling system evaluation calculations be based on data from multi-rod (assembly) severe fuel damage experiments. In addition, you requested that the NRC create a new regulation to establish a minimum allowable core reflood rate in the event of a loss-of-coolant accident (LOCA). In your letter dated June 7, 2010, you requested that the NRC order Vermont Yankee Nuclear Power Station (Vermont Yankee) to lower the licensing basis peak cladding temperature to 1,832 degrees F in order to provide a necessary margin of safety in the event of a LOCA.

The NRC docketed your November 17, 2009, letter as petition for rulemaking (PRM) 50-93. A notice of receipt and request for public comment on PRM-50-93 was published in the *Federal Register* on January 25, 2010 (75 FR 3876). Your letter dated June 7, 2010, was submitted as a petition for enforcement action under 10 CFR 2.206. On August 6, 2010, the NRC denied your § 2.206 petition because it did not demonstrate that Vermont Yankee was in violation of any NRC regulations. Because your § 2.206 petition asserted that there were generic inadequacies in NRC regulations, the NRC decided to review it under 10 CFR 2.802 as a petition for rulemaking and docketed it as PRM-50-95. Because PRM-50-93 and PRM-50-95 address similar issues, the NRC consolidated these two petitions for review as a single petition for rulemaking activity. Another *Federal Register* notice was published on October 27, 2010 (75 FR 66007), and the comment period was reopened. The public comment period ended on November 26, 2010. Thirty-two public comments have been received to date on the combined petitions. These comments have been posted at [regulations.gov](http://www.regulations.gov) (ID: NRC-2009-0554).

The NRC staff is considering the merits of your PRM and the public comments received. As described in the NRC's letter to you dated August 25, 2011, the NRC has decided to increase the visibility to the public of the NRC's review of these particular petitions. The NRC will publicly release its draft interim reviews regarding each group or category of issues on a periodic basis as the review progresses. These draft interim reviews will be posted on [regulations.gov](http://www.regulations.gov). So far, the NRC has publicly released four draft interim reviews:

- [Evaluation of CORA test series \(8/23/11\)](#)
- [Evaluation of LOFT LP-FP-2 \(9/27/11\)](#)
- [Evaluation of conservatism of 2200F, metal-water reaction rate correlations.](#)

- [and “the impression left from run 9573” \(10/16/12\)](#)  
• [Evaluation of request to establish minimum reflood rate \(3/8/13\)](#)

The NRC staff will consider and respond to the comments you made regarding PRM-50-93 and PRM-50-95 at the Commission briefing on public participation in NRC regulatory decision-making on January 31, 2013, in the review of these petitions.

The NRC is considering the remaining issues and will notify you as the draft interim reviews are completed. Once the petitions have been resolved, a notice will be published in the *Federal Register* explaining the Commission’s finding. You will also receive a letter at that time notifying you of the action that the Commission has taken.

Please feel free to contact me at [Daniel.Doyle@nrc.gov](mailto:Daniel.Doyle@nrc.gov) or [301-415-3748](tel:301-415-3748) if you have questions.

Sincerely,

Dan Doyle

Project Manager

U.S. Nuclear Regulatory Commission

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