

November 26, 2010

DOCKETED  
USNRC

Annette L. Vietti-Cook  
Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

November 26, 2010 (1:30pm))

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

Attention: Rulemakings and Adjudications Staff

**COMMENTS ON PRM-50-93 AND PRM-50-95; NRC-2009-0554**

NRC should not authorize Plant License Renewals or Power Uprates prior to its resolution of PRM-50-93 and PRM-50-95.

The 2200 degree Fahrenheit PCT limit is too high. The 2200 PCT limit is based on embitterment criteria. The Baker-Just equation was placed into 50.46 and it has been convenient in licensing. Its current use is fiercely defended by the NRC.

According to analyses funded by NRC, when the Baker-Just correlation is applied, the predicted thermal runaway starts at 2600 degrees Fahrenheit, while the alternative Cathcart-Pawel correlation of Reg. Guide 1.157 yields runaway at 2700. This is detailed on page 28 of PRM-50-93.

At a joint meeting of three ACRS subcommittees on May 31, 2002, there is the following pertinent exchange:

MR. LAUBEN: That's it. Sure. No.  
That's an easy and quantifiable way to compare it. It just gives you a minimum measure because what's really true because of the slope changes so much is that you can see a much bigger difference. **In general I would say I could never achieve turn-around much above 2300 in the limited 100 calculations I did with Baker-Just but I could reach something as close to 2800 with Cathcart-Pawel. Now that's -**

**MEMBER WALLIS: Maybe you need to show these calculations. Something more convincing than what we heard today --**

At another point in that joint meeting of three ACRS subcommittees on May 31, 2002:

**MEMBER WALLIS: 2200 has a very iffy basis. The only justification really is that it is worked over 30 or 40 years. If you are going to change it you're going to have to have some really good arguments.**

However, Member Wallis is wrong. There is nothing "iffy" about 2200. At Karlsruhe it had already been clearly demonstrated that 2200 is too high and there is nothing "iffy" about the fact that 2200 is too high. An array of experiments having multirod assemblies of rods with zirconium alloy cladding reveal that thermal runaway begins well below the 2600 to 2700 range. Perhaps the most impressive is LOFT LP-FP-2 where thermal runaway of the fuel bundle was initiated in the 2060 to 2240 degree Fahrenheit range. And, the series of CORA experiments at Karlsruhe with bundled electrically heated rods having Zirconium alloy cladding and uranium fuel pellets, yielded thermal runaway over a range from about 1800 to 2200 degrees Fahrenheit.

Although PRM-50-93 is dated November 2009, there is little evidence that the NRC has pursued its evaluation. On April 26, 2010, NRR issued a USER NEED REQUEST FOR TECHNICAL ANALYSIS OF PETITION FOR RULEMAKING ON 10 CFR 50.46 (PRM-50-93) and at that time the activity was (finally) assigned a high priority. Quoting from the User Need Request, *The requested deliverable for this user need is a technical letter report. Your office provided an outstanding technical analysis [reference 2] of a similar rulemaking petition, and we request the final deliverable for this user need be in this same format. We also request that a draft of your report be provided for comment by August 31, 2010 and the final report by September 30, 2010. We will provide comments on the draft within one week of receipt.*

However: On October 27, 2010, the NRC published for public comment a notice of consolidation of petitions for rulemaking. *The PRMs to be consolidated are PRM-50-93 filed by Mark Edward Leyse on November 17, 2009, and PRM-50-95 filed on June 7, 2010, by Mark Edward Leyse and Raymond Shadis, on behalf of the New England Coalition.* What Mark Leyse filed on June 7, 2010 was not a PRM, it was a 2.206 petition. It appears that by consolidating these actions by Mark Leyse, the NRC has substantially extended the deadline for producing a Technical Letter Report regarding PRM-50-93. Nevertheless, the priority is

established by the technical facts that are in the record and high priority attention by the NRC reviewers remains warranted.

In fact, Mark Edward Leyse first learned about the extended deadline when the ACRS Thermal Hydraulics Phenomena Subcommittee briefly discussed the matter on Monday, October 18, 2010. Mark Leyse and Robert Leyse had jointly made a 10 minute presentation, and at the end of the meeting the subcommittee discussed the matter as follows:

CONSULTANT KRESS: I found it very unusual

17 that public comments are made to the subcommittee.

18 Those usually go to the full committee. I don't know

19 what your obligation is with respect to those.

20 CHAIR BANERJEE: I think to report it to

21 the full committee and ask if -

22 CONSULTANT KRESS: Just report it to the

23 full committee.

24 CHAIR BANERJEE: ask if they wish it to be

25 made to the full committee. I don't think that we can

act on it.

2 CONSULTANT KRESS: No. That was my point.

3 It has to be acted by the full committee.

4 CONSULTANT WALLIS: But if you want a  
5 comment, it looked as if there could be a significant  
6 point here, I mean it's something that is not trivial  
7 to look at and see is there a question here and what's  
8 the evidence for -

9 CHAIR BANERJEE: Has the comments been made  
10 to the staff or is it just to the subcommittee?

11 MR. BAJOREK: This is Steve Bajorek.  
12 Actually there are two petitions in play right now.  
13 The petition they talked about brings up the point  
14 that they Baker-Just is possibly not conservative. He  
15 has the same comment on Cathcart-Pawel. Asks to look  
16 at some of these other test data that he claims we  
17 have not looked at before.  
18 He also submitted -

19 CHAIR BANERJEE: Particularly bundle data.

20 MR. BAJOREK: Bundle, yes. The staff has  
21 put together a small group to start to evaluate these  
22 concerns. We started to take a look at it and another

23 petition came in, this one on the behalf of  
24 Connecticut or Yankee, it's a plant that's been up for  
25 relicensing. There are --

CONSULTANT WALLIS: Vermont Yankee?

2 MR. BAJOREK: Vermont Yankee, that's right.  
3 Vermont Yankee is being relicensed. They have also put  
4 in a petition on their behalf where they cite many of  
5 the same concerns. Because these petitions are over  
6 lapping, the staff decided they were not going to look  
7 at them individually, they were going to put them  
8 together. We went through our OGC. They said that was  
9 an appropriate thing to do and now the window of time  
10 for evaluating those petitions and those concerns has  
11 been reopened and I think we have another -- I think  
12 we have a year to go through and reevaluate  
13 everything. So there's a group that is looking at  
14 that.

15 CHAIR BANERJEE: So I think we can report  
16 that to the full committee.

17 CONSULTANT WALLIS: But just report that.

18 That's all we have to do.

19 MEMBER ABDEL-KHALIK: And I think from the  
20 committee's perspective, we await the staff's  
21 evaluation and we will review the staff's evaluation.

22 MR. BAJOREK: He did make the point that  
23 while there was a user need letter, point out and the  
24 research was supposed to have responded by I think the  
25 end of August. That was the original schedule. But  
because they amended their own petition, and submitted  
2 another petition, OGC decided to lump it together and  
3 that window of time has moved out.

4 CHAIR BANERJEE: Okay. Well with that, I  
5 think I'd like to thank you all and adjourn the  
6 meeting.

Now, it is unlikely that the combined review of PRM-50-93 and PRM-50-95 adds sufficient complexity and data to justify a one year extension to the deadline for producing the Technical Analysis that is to be the basis of a recommendation to the NRC Commissioners for action on PRM-50-93 and PRM-50-95. Certainly, a substantial amount of review of PRM-50-93 should have been already completed prior to the merging of PRM-50-93 with the recent PRM-50-95.

Robert H. Leyse  
P. O. Box 2850  
Sun Valley, ID 83353

## **Rulemaking Comments**

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**From:** Bobleyse@aol.com  
**Sent:** Friday, November 26, 2010 12:16 AM  
**To:** Rulemaking Comments; Inverso, Tara  
**Subject:** Comment PRM-50-93 and PRM-50-95  
**Attachments:** The 2200 degree Fahrenheit PCT limit is too high.doc

Comment is attached.

Robert H. Leyse

Received: from mail1.nrc.gov (148.184.176.41) by TWMS01.nrc.gov  
(148.184.200.145) with Microsoft SMTP Server id 8.1.393.1; Fri, 26 Nov 2010  
00:15:35 -0500

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X-SBRS: 3.0

X-MID: 27281131

X-fn: The 2200 degree Fahrenheit PCT limit is too high.doc

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X-IronPort-Anti-Spam-Result:

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ESMTP; 26 Nov 2010 00:15:36 -0500

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2010 00:15:35 -0500

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[172.19.155.137]) by cia-db06.mx.aol.com (v129.7) with ESMTP id  
MAILCIADB067-90dd4cef4274370; Fri, 26 Nov 2010 00:15:32 -0500

From: <Bobleyse@aol.com>

Message-ID: <25f5b.288ee37c.3a209c74@aol.com>

Date: Fri, 26 Nov 2010 00:15:32 -0500

Subject: Comment PRM-50-93 and PRM-50-95

To: rulemaking.comments@nrc.gov, tara.inverso@nrc.gov

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