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NUCLEAR REGULATORY COMMISSION

Title: 10 CFR 2.206 Petition
 Vermont Yankee Nuclear Power Station
 RE Mark Leyse & Raymond Shadis

Docket Number: 50-271

Location: (telephone conference)

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Edited by John Boska, NRC Petition Manager

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 10 CFR 2.206 PETITION REVIEW BOARD (PRB)

5 CONFERENCE CALL

6 RE

7 VERMONT YANKEE NUCLEAR POWER STATION

8 + + + + +

9 WEDNESDAY

10 JUNE 23, 2010

11 + + + + +

12 The conference call was held, Ted Quay,
13 Chairperson of the Petition Review Board, presiding.

14 PETITIONERS: MARK LEYSE & RAYMOND SHADIS ON BEHALF OF
15 THE NEW ENGLAND COALITION

16 PETITION REVIEW BOARD MEMBERS

17 TED QUAY, Deputy Director, Division of Policy
18 and Rulemaking, Office of Nuclear Reactor Regulation
19 (NRR)

20 JOHN BOSKA, Petition Manager for 2.206 petition,
21 Plant Licensing Branch 1-1, NRR

22 BRETT KLUKAN, Attorney, Office of
23 General Counsel

24 TANYA MENSAH, Petition Coordinator, NRR

25 SHIH-LIANG WU,

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Nuclear Performance and Code Review
Branch, NRR
RICHARD DUDLEY,
Rulemaking and International Projects
Branch, NRR

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P-R-O-C-E-E-D-I-N-G-S

3:03 P.M.

MR. BOSKA: I'd like to thank everybody for attending this meeting. My name is John Boska and I am the NRC's petition manager for this petition.

We are here today to allow the petitioners, Mr. Mark Leyse and Mr. Raymond Shadis, to address the Petition Review Board on behalf of the New England Coalition, regarding their 2.206 petition dated June 7, 2010, on the fuel peak cladding temperature at the Vermont Yankee Nuclear Power Station, which is located near Brattleboro, Vermont.

I am the Petition Manager for the petition. The Petition Review Board Chairman is Ted Quay.

As part of the Petition Review Board's review of this petition, Mr. Leyse and Mr. Shadis have requested this opportunity to address the Petition Review Board, which may also be referred to as the PRB.

This meeting is scheduled to conclude by 4 p.m. The meeting is being recorded by the NRC Operations Center and will be transcribed by a court reporter. The transcript will become a supplement to the petition. The transcript will also be made

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1 publicly available.

2 I'd like to open this meeting with
3 introductions. As we go around the room, please be
4 sure to clearly state your name, your position, and
5 the office that you work for within the NRC for the
6 record. I'm John Boska. I'm a project manager in the
7 office of Nuclear Reactor Regulation, which is also
8 referred to as NRR.

9 MR. QUAY: I'm Ted Quay with NRR and I'm
10 the Petition Review Board Chairman.

11 MR. DUDLEY: I'm Richard Dudley, from the
12 Rulemaking Branch, Office of Nuclear Reactor
13 Regulation.

14 MR. KLUKAN: My name is Brett Klukan. I'm
15 an attorney with the Office of the General Counsel.

16 MR. ROBERT LEYSE: Could you repeat,
17 please? We can hear some, but not others.

18 MR. KLUKAN: We'll start with me. This is
19 Brad Klukan. I'm an attorney with the Office of the
20 General Counsel.

21 MR. SHADIS: Excuse me. Mr. Boska, this
22 is Ray Shadis. There's some background noise coming
23 in. It sounds like a radio transmission.

24 MR. BOSKA: All right, let me ask everyone
25 to please mute your phones if you're not talking so

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1 that it minimizes the background noise. If you don't
2 have a mute button on your phone, you can press the
3 keys star six on your phone to mute it.

4 And if you need to talk, you can unmute
5 your phone by pressing star six again.

6 Also, if you're on this call, please do
7 not put this call on hold since many phones play music
8 when a call is put on hold and that's very annoying
9 for the other callers. Thank you.

10 We'll continue with the introductions here
11 at NRC Headquarters.

12 MR. WU: My name is Shih-Liang Wu.
13 Reactor Engineer. I am from NRR, the Nuclear
14 Performance and Code Review Branch.

15 MR. BOWMAN: This is Greg Bowman. I'm a
16 Senior Enforcement Specialist in the Office of
17 Enforcement.

18 MR. BOSKA: And we've completed
19 introductions in the room.

20 At this time are there any NRC
21 participants from NRC Headquarters on the phone?

22 MS. MENSAH: Yes, this is Tanya Mensah. I
23 work in the Office of Nuclear Reactor Regulation and I
24 am the 2.206 Petition Coordinator.

25 MR. BOSKA: Thank you, Tanya.

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1 Are there any NRC participants from the
2 Regional Office on the phone?

3 (No response.)

4 Hearing none, we will continue. Are there
5 any representatives for the licensee on the phone?

6 MR. DeVINCENTIS: Yes, this is Jim
7 DeVincentis, D-E capital V-I-N-C-E-N-T-I-S, with
8 Entergy, and I'm the Licensing Manager.

9 MR. BOSKA: Welcome, Jim.

10 Mr. Mark Leyse, will you please introduce
11 yourself for the record?

12 MR. M. LEYSE: Sure, Mark Leyse. I
13 submitted the petition on behalf of the New England
14 Coalition.

15 MR. BOSKA: Thank you. And Mr. Shadis,
16 would you please introduce yourself for the record?

17 MR. SHADIS: Yes. My name is Raymond
18 Shadis, S-H-A-D-I-S. I am a consultant with New
19 England Coalition.

20 MR. BOSKA: Thank you. And I understand
21 that Robert Leyse, you are also on the line?

22 MR. R. LEYSE: That is correct.

23 MR. BOSKA: All right, thank you. Are
24 there any others such as members of the public on the
25 phone?

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1 MR. LOCHBAUM: Yes, this is David Lochbaum
2 with the Union of Concerned Scientists.

3 MR. BOSKA: All right.

4 MR. STEWART: Robert Stewart, President of
5 the New England Coalition.

6 MR. R. LEYSE: Could you repeat, please?

7 MR. STEWART: Robert Stewart, President of
8 the New England Coalition.

9 MR. BOSKA: All right, thank you.

10 MR. SAPORITO: This is Thomas Saporito.
11 I'm the Executive Director for
12 Endangeredplanetearth.blogspot.com, spelled S-A-P-O-R-
13 I-T-O.

14 MR. BOSKA: Thank you. Any other members
15 of the public?

16 (No response.)

17 All right, we will proceed. I'd like to
18 emphasize that we each need to speak clearly and
19 loudly to make sure that the court reporter can
20 accurately transcribe this meeting. If you do have
21 something that you would like to say, please first
22 state your name for the record.

23 At this time, I'll turn it over to the
24 Petition Review Board Chairman, Ted Quay.

25 MR. QUAY: Good afternoon. I'm Ted Quay,

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1 the Petition Review Board Chairman. Welcome to this
2 meeting regarding the 2.206 petition submitted by Mr.
3 Leyse and Mr. Shadis.

4 I'd like to first share some background on
5 our process. Section 2.206 of Title 10 of the Code of
6 Federal Regulations describes the petition process,
7 the primary mechanism for the public to request
8 enforcement action by the NRC in a public process.
9 This process permits anyone to petition the NRC to
10 take enforcement-type action related to the NRC
11 licensees or licensed activities. Depending on the
12 results of its evaluation, the NRC could modify,
13 suspend or revoke an NRC-issued license or take any
14 other appropriate enforcement action to resolve a
15 problem. The NRC staff's guidance for the disposition
16 of 2.206 petition requests is in Management Directive
17 8.11, which is publicly available.

18 The purpose of today's meeting is to give
19 the petitioners an opportunity to provide any
20 additional explanation or support for the petition
21 before the Petition Review Board makes an initial
22 recommendation on whether or not to accept this
23 petition for review.

24 This meeting is not a hearing, nor is it
25 an opportunity for the petitioners to question or

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1 examine the Petition Review Board on the merits or
2 issues presented in the petition request.

3 No decisions regarding the merits of this
4 petition will be made at this meeting.

5 Following the meeting, the Petition Review
6 Board will conduct its internal deliberations. The
7 outcome of this internal meeting will be discussed
8 with the petitioners.

9 The Petition Review Board typically
10 consists of a Chairman, usually a manager at the
11 senior executive service level at NRC. It has a
12 Petition Manager and a Petition Review Board
13 Coordinator. Other members of the Board are
14 determined by the staff based on the content of the
15 information in the petition request.

16 At this time, I would like to introduce
17 the Board. I am Ted Quay, the Petition Review Board
18 Chairman. John Boska is the Petition Manager for the
19 petition under discussion today. Tanya Mensah is the
20 office's Petition Review Board Coordinator. Our
21 technical staff includes: Shih-Liang Wu from NRR's
22 Nuclear Performance and Code Review Branch; Richard
23 Dudley from NRR's Rulemaking branch. We also have
24 legal advice from Brett Klukan, from the NRC's Office
25 of General Counsel.

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1 As described in our process, the NRC staff
2 may ask clarifying questions in order to better
3 understand the petitioners' presentation and to reach
4 a reasoned decision whether to accept or reject the
5 petitioners' request for review under the 2.206
6 process.

7 I would like to summarize the scope of the
8 petition under consideration and the NRC activities to
9 date. On June 7, 2010, Mr. Leyse and Mr. Shadis
10 submitted to the NRC a petition, ML No. 101610121,
11 under 10 CFR 2.206, regarding the fuel peak cladding
12 temperature at the Vermont Yankee Nuclear Power
13 Station, which may also be referred to as VY.

14 The petitioners request that the NRC order
15 the licensee to lower the licensing basis peak
16 cladding temperature in order to provide a necessary
17 margin of safety. The petitioners state that VY's
18 licensing basis peak cladding temperature of 1960
19 degrees F does not provide a necessary margin of
20 safety to prevent the fuel from melting in the event
21 of a loss-of-coolant accident, also referred to as a
22 LOCA, L-O-C-A. The petitioners state that data
23 indicates the licensing basis peak cladding
24 temperature should be lowered at least to 1832 degrees
25 F.

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1 The petitioners also state that although
2 revisions to the 10 CFR 50.46(b)(1) limit of 2200
3 degrees F on peak cladding temperature have been
4 proposed in a rulemaking petition, this petition has
5 been filed separately under 10 CFR 2.206 because the
6 concerns brought forward are plant specific and have
7 an immediate bearing on the safety margins at Vermont
8 Yankee and require prompt NRC review and action.

9 Allow me to discuss the NRC activities to
10 date. On or about June 7, 2010, the NRC received this
11 petition. On June 8th, this petition was assigned to
12 the NRC's Office of Nuclear Reactor Regulation for
13 evaluation. On June 15th, the petition manager
14 contacted the petitioners to offer the opportunity to
15 address the PRB, to which the petitioners agreed.
16 That led to this teleconference.

17 As a reminder for the phone participants,
18 please identify yourself if you make any remarks as
19 this will help us in the preparation of the meeting
20 transcript that will be made publicly available.

21 Mr. Leyse and Mr. Shadis, I'll turn it
22 over to you to allow you to provide any information
23 you believe the PRB should consider as part of this
24 petition, especially reasons why this petition should
25 be considered separately from the petition for

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1 rulemaking.

2 At this point, Mr. Leyse and Mr. Shadis,
3 you may proceed.

4 MR. M. LEYSE: I want to first -- I think
5 Ray will introduce New England Coalition and there --
6 some background. But initially I want to clarify one
7 thing.

8 We did not ask to lower the licensing
9 basis PCT to at least 1832 degrees Fahrenheit. We
10 said that it needed to be below that temperature. So
11 that could be substantially below 1832 degrees
12 Fahrenheit. That was a line that we drew. So we
13 didn't say that that would necessarily even be
14 adequate. And I wanted to clarify that.

15 MR. QUAY: Thank you.

16 MR. SHADIS: This is Raymond Shadis. I
17 would like to provide some background for this
18 petition. The concerns in this petition really
19 originate with, as far as New England Coalition is
20 concerned, really originate with the licensee's
21 application for extended power uprate.

22 Some three years ago, Entergy Vermont
23 Yankee entered into extended power uprate at an
24 increased thermal power of 120 percent of the original
25 licensed thermal power. New England Coalition, upon

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1 notice of their application, reviewed their
2 application documents and we provided several
3 contentions which were then reviewed by an Atomic
4 Safety and Licensing Board.

5 The number of contentions that we provided
6 was limited by our resources. We could not, at that
7 time, in the 60 days allowed, examine each and every
8 issue coming out of the extended power uprate
9 application in detail.

10 The question in this petition was not
11 among the contentions that we submitted. The Atomic
12 Safety and Licensing Board cast its decision and it
13 was then finalized by the Commission. At that point,
14 our opportunity to petition to reopen the licensing
15 proceeding ended.

16 Our understanding, based on what we were
17 told by the Atomic Safety and Licensing Board, and by
18 our reading of NRC rules and regulations, is that if a
19 safety issue emerges following the final decision of
20 the Commission, that the proper course is to submit a
21 10 CFR 2.206 petition.

22 The issue for us, for our members and
23 constituents, that live in the proximity of Vermont
24 Yankee, has an immediacy because that plant is now
25 operating at 120 percent of its original licensed

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1 thermal power.

2 The effects to be considered that heighten
3 or aggravate the question of peak cladding temperature
4 are that number one, the operation at in excess of
5 original licensed thermal power means very simply that
6 there is an excess of heat available that must be
7 removed in an emergency situation; and secondly, that
8 should a core accident take place, there is a
9 disproportionate increase in available fission
10 products, meaning from our point of view that the
11 severity of an accident is increased proportionally.

12 So from New England Coalition's point of
13 view, the point of view of its members and
14 constituents, the inputs leading to the possibility of
15 an accident and the consequences are increased and
16 therefore lend an urgency to our petition, and that is
17 something that cannot be addressed in any other
18 available avenue of redress, not in license -- excuse
19 me, not in rulemaking, not in allegations. By our
20 likes, there is no other NRC process available that
21 can act in the timely fashion that a Petition Review
22 Board can act.

23 So in short, that's the underlying
24 rationale for bringing this concern as a 2.206.

25 MR. QUAY: Okay. Mr. Leyse, are you ready

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1 to proceed then?

2 MR. M. LEYSE: Yes, I am. I just want to
3 draw your attention to certain parts of the petition,
4 namely, first on page ten, there's a discussion of the
5 extended power uprate calculations that were done that
6 determined the licensing basis peak cladding
7 temperature. And it's stated that the peak cladding
8 temperature was increased by 50 degrees Fahrenheit and
9 there's a statement that says "although the PCT
10 changes due to the CPPU" -- that's extended power
11 uprate -- "are greater than the typically seen 20
12 degrees Fahrenheit, these changes are small compared
13 to the margin to the 2200 degree Fahrenheit licensing
14 limit that the bounding licensing basis PCTs of 1960
15 degrees Fahrenheit and 1940 degrees Fahrenheit
16 provide." There was a licensing basis of 1940 degrees
17 Fahrenheit for a different type of fuel assembly.

18 Anyway, this really draws attention to
19 some of the issues that Ray Shadis has just discussed,
20 namely, this was a 20 percent uprate, and it increased
21 the peak cladding temperature by well over the
22 typically seen 20 degrees Fahrenheit, and there is a
23 real paper trail of opposition to the extended power
24 uprate.

25 And the fact of the matter is, as is

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1 extensively documented in the petition, there is
2 experimental data that was conducted that indicates
3 that if there were a large break LOCA at Vermont
4 Yankee, that there could, in fact, be a meltdown
5 because the temperature of 1960 degrees Fahrenheit
6 does not provide a necessary margin of safety. And
7 this data was not taken into account when the extended
8 power uprate was qualified.

9 And furthermore, before the extended power
10 uprate, the licensing basis peak cladding temperature
11 was 1910 degrees Fahrenheit and even at that level
12 there is experimental data that indicates that that
13 did not provide the necessary margin of safety. So
14 what you had was a situation where there wasn't a
15 necessary margin of safety and then you decreased
16 safety margins even further. These calculations that
17 were done on behalf of Entergy did not take into
18 account certified experimental data. This is data,
19 one, from CORA experiments where there were
20 autocatalytic runaway oxidation initiated at 1832
21 degrees Fahrenheit.

22 And then in addition to that, and there's
23 a paper that discusses this information also in the
24 ADAMS database. There was a paper that was presented
25 by Peter Hofmann and others in, I believe, 1990. Just

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1 give me one moment here. It was part of the
2 proceedings of the 19th Water Reactor Safety
3 Information Meeting and I believe that was 1990 that
4 that was presented, early '90s.

5 A lot of this data has been available
6 since the 1980s and furthermore, this business about
7 the 2200 limit, you know, there's experimental data
8 from the final LOFT experiment and that was performed
9 in 1985, and according to reports, autocatalytic
10 oxidation initiated at 2060 degrees Fahrenheit in that
11 case and that was with decay heat. That was an
12 experiment, but it was an actual accident.

13 You know, it's the only severe fuel damage
14 experiment that was done with decay heat and you know,
15 lo and behold, you had a temperature excursion that
16 commenced as soon as peak cladding temperatures in a
17 local area reached 2060 degrees Fahrenheit, according
18 to some reports. And then in about one minute's time
19 in that local area, the peak cladding temperature
20 increased to above 3,000 degrees Fahrenheit. It got
21 up to around 3,300 degrees Fahrenheit where Zircaloy,
22 that's the melting point of Zircaloy.

23 So clearly this data which there is a
24 paper regarding the LOFT experiments, the final LOFT
25 experiment that is in ADAMS, that says that this

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1 excursion commenced at 1400 degrees Kelvin, so that's
2 2060 degrees Fahrenheit.

3 There is the paper in ADAMS that was
4 presented on the Karlsruhe findings that said that
5 these excursions commenced between 1100 and 1200
6 degrees Celsius, so that would be 2012 degrees
7 Fahrenheit and 2192 degrees Fahrenheit. This
8 information was available in ADAMS and clearly there
9 are a number of other papers out there from Karlsruhe,
10 Germany, tests, other papers from Oak Ridge National
11 Labs, that discuss this data.

12 Also, I did have a quick question. I
13 mention a number of these papers that are not in the
14 ADAMS database and do you have access to them or would
15 you like me to provide you with those papers?

16 MR. BOSKA: Mr. Leyse, this is John Boska
17 at NRC Headquarters. We do have access to a lot of
18 papers, but if we find we're missing some of these, we
19 will ask you to tell us where we can get them,
20 probably.

21 MR. M. LEYSE: Okay, great. Okay. Yes,
22 because that's a pretty important thing because there
23 are a number of papers that I cite that are not in
24 ADAMS. But so I think the gist of the matter is that
25 these calculations were done and even calculations

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1 were done before the extended power uprate that the
2 licensing basis peak cladding temperature for Vermont
3 Yankee is based on and they did not take this data
4 into account.

5 And in the case of Vermont Yankee, you had
6 this 20 percent uprate. There was a lot of opposition
7 to that. And the fact of the matter is, what it
8 really comes down to, even beside all bureaucratic
9 procedures, Vermont Yankee right now is operating
10 such that its licensing basis peak cladding
11 temperature is 1960 degrees Fahrenheit and there's all
12 this data out there that shows that that is unsafe.
13 So that -- that compromises public safety. That's not
14 what the public is guaranteed by the Nuclear
15 Regulatory Commission. And this really should be
16 promptly acted upon and that should be rectified.

17 I want to also mention another thing just
18 to highlight, because I did take note that some people
19 from the Rulemaking Division are present. And I want
20 to point out that there is -- I mention liquefaction
21 of core components, BWR neutron absorbers. And there
22 is data that they will liquefy at the temperature of
23 1250 degrees Celsius. So that is also something that
24 -- when that was found, they said that this component
25 is, that there's liquefaction of this component at

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1 relatively low temperature and this is a very urgent
2 thing since the neutron absorbers at Vermont Yankee
3 are boron carbide and they are encased in stainless
4 steel.

5 And so a chemical reaction between boron
6 carbide and stainless steel, this will initiate around
7 1200 degrees Celsius and there will be liquefaction of
8 the core components of the stainless steel by about
9 1250 degrees Celsius.

10 So that's something that I discuss at
11 length also in the petition. So I think that should
12 be focused on.

13 And I wanted to see if Robert Leyse would
14 like to say something?

15 MR. R. LEYSE: Well, I would just remark a
16 lot of it relates to the Baker-Just equation and it
17 appears that NRC never really studied the basic
18 references behind that. This comes up in a rejection
19 of an earlier petition that I submitted several years
20 ago. But it's amazing to me that with all of the
21 hearings and everything else that has gone on, nobody
22 ever stumbles onto the fact that Baker-Just really was
23 not studied in detail.

24 Later, the regulators came up with
25 Cathcart-Pawel which presumably has a lot more margin

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1 than Baker-Just, but all of those were essentially
2 tests on single elements, the difference between a
3 match and a forest. And when you build a forest and
4 do a bundle test as opposed to a single rod test, it's
5 clearly a matter of record that the runaway is well
6 below 2200 degrees Fahrenheit. So that in a nutshell
7 is about what I think is behind much of this.

8 It's inexcusable that it's gone this far,
9 but it's there and it's still the regulation. That
10 summarizes what I have to say.

11 MR. M. LEYSE: I would just like to add
12 that Robert Leyse has done experiments with both --

13 MR. R. LEYSE: Robert Leyse will interrupt
14 and speak for himself.

15 MR. M. LEYSE: Good.

16 MR. R. LEYSE: I've been in the business
17 since 1950, about 90 percent of the time. And I was
18 involved in the FLECHT experiments at Westinghouse. I
19 designed key elements of that and many of my documents
20 are referenced elsewhere in PRM 50-93.

21 But you know, as one colleague of mine put
22 it one time, zirconium is funny stuff. When you deal
23 with it and perform experiments, you find things that
24 didn't work quite right -- but not on the record, but
25 the fact is there's more to be done. And certainly,

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1 there's no basis for 2200 Fahrenheit that will stand
2 up. Mark Leyse has cited many references. Others
3 have cited references. So Baker-Just simply can't
4 stand up. It's amazing to me all of the
5 hearings that I've gone through over the decades, ACRS
6 meetings, etcetera, it's simply -- it hasn't come up
7 in spite of all of these -- all of this evidence. The
8 single rod specimen simply doesn't provide the runway
9 conditions that you find when you test in bundles.
10 That's a matter of fact.

11 You can't find a bundle test anywhere that
12 hangs together at 2200 Fahrenheit. I believe that's
13 the end of my comments.

14 MR. M. LEYSE: Okay, this is Mark Leyse
15 again. I do want to just add to what Robert Leyse
16 just said, that the extended power uprate calculations
17 that were done to determine the licensing basis PCT
18 for Vermont Yankee, it states that it was the
19 calculated Appendix K PCT, so that would have been
20 with the Baker-Just equation.

21 Now the fact of the matter is that that is
22 a problem, but the real -- and that's completely
23 related to this petition, but this petition cites
24 experimental data in which there were temperature
25 excursions that commenced below 1960 degrees

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1 Fahrenheit which shows, illustrates, that Vermont
2 Yankee is operating in an unsafe condition without the
3 necessary margin of safety.

4 There are also experiments cited where
5 there was runaway oxidation commenced at a temperature
6 above 1960 degrees Fahrenheit, but still below the
7 limit of 2200. And this also indicates that there is
8 a problem with the margin of safety at Vermont Yankee
9 because Vermont Yankee, the 1960 degrees Fahrenheit,
10 Entergy's claim that that provides the necessary
11 margin of safety is predicated on the assumption that
12 2200 is indeed a valid limit. So this also indicates
13 that Vermont Yankee -- that these calculations were
14 not done conservatively.

15 And I just wanted to see if anyone else
16 who -- if Ray would like to say something again
17 regarding this?

18 MR. SHADIS: This is Raymond Shadis. No,
19 I think it is very clear that our concerns are with
20 conditions as they exist at this moment at Vermont
21 Yankee. For my part, that concludes my remarks.

22 MR. M. LEYSE: Is there anything that any
23 other person would like to say regarding this
24 situation at Vermont Yankee?

25 MR. SAPORITO: Yes. This is Thomas

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1 Saporito. I would like to make some comments if
2 that's all right.

3 MR. M. LEYSE: It's fine by me. I'm not
4 the Petition Review Board.

5 MR. QUAY: Yes, it's okay.

6 MR. SAPORITO: First of all, the issue
7 we're talking about is the possibility of a failure of
8 the fuel, fuel cladding, and release of fission
9 products through that event.

10 The petitioners spoke of a LOCA which
11 would certainly result in an unwanted release of that
12 type of radiation, but I suggest to the NRC that it
13 doesn't take a LOCA to achieve that same result and
14 therefore the petition is well founded and should be
15 considered by the PRB with a state of urgency.

16 For the record, and for this
17 communication, I am going to put a public document,
18 evidentiary document on the record. It's an article
19 published on June 23, 2010 by a reporter named Susan
20 Smallheer, S-M-A-L-L-H-E-E-R, a reporter with the
21 Brattleboro newspaper, I guess it's associated with
22 the Rutland Herald somehow.

23 Anyway, in this article, it talks about
24 several things, but the gist of this article deals
25 with an NRC public meeting held in Vermont and Samuel

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1 Collins who is the Region 1 Administration for the
2 Nuclear Regulatory Commission was present at that
3 meeting. Also present at that meeting was one of the
4 petitioners, the fellow Raymond Shadis, who is an
5 advisor to this New England Coalition.

6 Two hours into this meeting, Mr. Shadis
7 brought up an issue with respect to a new leak at the
8 Vermont Yankee plant associated with a cooling tower
9 that had failed back in 2007, but was subsequently
10 repaired by the licensee. And now there are two
11 leaks, ten gallons a minute out of that. But the NRC
12 didn't bring that issue to light for the benefit of
13 the public at the time of the meeting and I think it's
14 issues like that that the NRC Office of the Inspector
15 General should be looking at.

16 The Chairman of the NRC has on more than
17 one occasion reiterated to the public and assured the
18 public of more and more openness and transparency with
19 that Agency to better enlighten the public about NRC
20 operations and, for a member of the public to have to
21 bring this new information at a public hearing which
22 the NRC is hosting, is outrageous. It shows that the
23 NRC is not forthright, much like the licensee,
24 Entergy, in this situation.

25 Anyway, on the second page of this

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1 newspaper article the reporter points out that --
2 she's referring to the leaks of tritium that were
3 discovered earlier this year. But it says here, it
4 says "the variety of radioactive isotopes, not just
5 tritium, but strontium-90, cobalt-60, cesium-127, and
6 others have been found in the soil."

7 And this information has been
8 substantiated, to the best of my knowledge, earlier by
9 the state investigator who works for the environmental
10 agency for the State of Vermont. So you're not going
11 to find strontium, cobalt, and cesium out there in the
12 environment, outside of a reactor building, unless
13 you've got some fuel damage going on. And so we're
14 talking here about a 2.206 petition which is right on
15 point because it doesn't take a LOCA to cause this
16 problem which already exists. All of a sudden we have
17 some failed fuel. Otherwise, you wouldn't be having
18 these isotopes in the environment already.

19 The cladding temperature that the
20 petitioners have been talking about is unjustifiably
21 excessive to date. Yet, the NRC stands by and allows
22 this licensee to continue operation at full power as
23 if there was no threat to public health and safety and
24 the environment. That's outrageous. And that's
25 something the Inspector General should be looking at.

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1 The public relies on the on-site NRC
2 resident inspectors to be on the top of their toes
3 24/7 for our benefit. They should be out there in the
4 control room analyzing the operations from day to day
5 and they should be realizing that there's a problem
6 with the fuel cladding and that these fission products
7 are escaping from the boundaries contained within the
8 containment building, outside the conditions of the
9 licensee's NRC permits and license to operate that
10 nuclear reactor, and outside their technical
11 specifications for sure. Yet, the residents don't do
12 anything. The region doesn't do anything. The
13 regional administrator doesn't even tell the public
14 about a new leak of water coming from that plant, let
15 alone about any concern about these isotopes that have
16 already escaped into the environment.

17 So I'd like to know what the hell the NRC
18 is doing? Are they monitoring this plant or are you
19 just waiting for the reporters to bring this
20 information to the public's attention so that the
21 public can somehow put the NRC, the government agency
22 responsible for our public health and safety, between
23 a rock and a hard spot to do something. This is
24 indicative of an agency as a passive-reactive agency
25 and not a proactive agency.

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1 So you need to be a proactive agency as
2 evidenced by the BP oil disaster on-going off the
3 coast of Louisiana and now approaching Florida's coast
4 on the west end of this peninsula. There is no
5 proactive government in the MMS. And the NRC is in
6 the same position, but the consequences are much more
7 dire because we have public health and safety where
8 people can be killed and property damage that will be
9 so extensive, people will never come back to their
10 homes and their businesses.

11 So the NRC better use this as an
12 awakening, a call to arms, so to speak, to get
13 something going here. This is just incredible that
14 we're having this discussion because you already know
15 that there's a problem -- a fuel cladding problem out
16 there.

17 Now if the licensee is operating at 1960
18 degrees --

19 MR. M. LEYSE: It's not operating at that
20 -- that's the temperature which it would possibly
21 reach if there were a loss-of-coolant accident. I
22 just wanted to clarify that. My name is Mark Leyse.

23 MR. SAPORITO: Thank you, Mr. Leyse.
24 Whatever temperature that nuclear reactor is operating
25 at right now, it's obviously too high because we're

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1 having isotopes in the environment which shouldn't be
2 there. So on that note, I'm going to close because
3 there may be some other people who want to make some
4 comments, but the NRC needs to wake up and we need
5 some protection and you're our protection.

6 We can't afford to -- you should be
7 ordering the licensee to bring that reactor down in
8 power. I would request that on the record that they
9 be ordered to bring it down to 50 percent power right
10 now, just to be on the conservative side here.

11 Thank you very much.

12 MR. M. LEYSE: Yes, this is Mark Leyse. I
13 just wanted to add a couple of things just to clarify.

14 I'm sorry, you said your name is Thomas and you're
15 with which group?

16 MR. SAPORITO: I'm with the
17 Endangeredplanetearth.blogspot.com. We're on the
18 internet.

19 MR. M. LEYSE: Okay, thank you. I just
20 wanted to clarify that there can be perforations of
21 fuel cladding and actually there were crud-induced
22 corrosion failures at Vermont Yankee, I believe, back
23 in 2002. So there can be problems with fuel cladding,
24 fuel failures during normal operation or what are
25 called I think operational -- anticipated operational

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1 events.

2 But this is, in fact, a separate issue
3 where this is what would happen in the event of a
4 loss-of-coolant accident and what would happen in the
5 loss-of-coolant accident is the temperature of the
6 fuel cladding would increase and if it were to reach a
7 temperature of say around 1832 degrees Fahrenheit, it
8 is possible, according to experimental data that
9 runaway oxidation would commence and that would be
10 what would lead to a meltdown or a partial meltdown.
11 You would have this temperature excursion in a local
12 area and it would rise above 3,000 degrees Fahrenheit
13 within about 60 seconds time.

14 So I just wanted to clarify that.

15 MR. BOSKA: Mr. Leyse, this is John Boska
16 from NRC Headquarters. We understand that your
17 petition is concerned with the analysis of a loss-of-
18 coolant accident and we will focus on that aspect of
19 your petition.

20 MR. M. LEYSE: Okay, yes. I appreciate
21 that. And I would also like to clarify that, to
22 please look at the neutron absorbers, the reaction of
23 stainless steel and boron carbide which can also
24 initiate at relatively low temperatures.

25 MR. BOSKA: This is John Boska. We will

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1 take note of that.

2 MR. M. LEYSE: Thank you.

3 MR. QUAY: Okay, at this time does the
4 staff here at Headquarters have any questions for Mr.
5 Leyse or Mr. Shadis?

6 MR. KLUKAN: Mr. Leyse, this is Brad
7 Klukan again, the attorney on the Board. I don't have
8 the technical competence to speak to the matters in
9 your claim, but that's not really my question.

10 My question is simply this, you've already
11 brought this or have brought this simultaneously as a
12 petition for rulemaking. In what manner is your
13 request before us, request for enforcement, what is
14 the enforcement action that the NRC should take and
15 again, what is the breach of the NRC's rules or
16 regulations or statutes by which we operate?

17 MR. M. LEYSE: Well, I'm not sure if I'm
18 going to answer that exactly the way you phrased it.
19 But basically, we have a situation where yes, I filed
20 a rulemaking petition that is regarding the regulated
21 limit of the peak cladding temperature, fuel cladding
22 temperature. And I said that that needs to be lowered
23 and that should be based on data from fuel bundle
24 experiments.

25 I mean in an ideal world that would be

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1 done on data from multiple bundle fuel experiments,
2 something like a real reactor core. So that is the
3 rulemaking. However, that should not detract from the
4 fact that there is a big problem at Vermont Yankee
5 right now. This is a situation where there is a large
6 paper trail of objections to the 20 percent power
7 uprate that was done and that uprate increased the
8 licensed basis peak cladding temperature by 50 degrees
9 Fahrenheit which is above the typically seen 20
10 degrees Fahrenheit.

11 And so Vermont Yankee is currently
12 operating in an unsafe condition. If there were a
13 large break loss-of-coolant accident and the cladding
14 reached 1832 degrees Fahrenheit, approximately that,
15 there is a possibility that a meltdown would occur
16 because there would be a cladding excursion, cladding
17 temperature excursion possibly.

18 I mean this is certified, experimental
19 data and this is a very urgent matter.

20 And another thing I just wanted to
21 mention, the rulemaking petition that I submitted, 50-
22 93, that does not discuss the reaction of boron
23 carbide and stainless steel which can also commence at
24 a very low temperature where you have -- it will
25 liquify by the temperature of 1250 degrees Centigrade,

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1 according to experimental data and that is not part of
2 my rulemaking petition. So that also makes this issue
3 that for the first time been brought up in this
4 enforcement action petition.

5 MR. SHADIS: May I also? This is Raymond
6 Shadis. May I also offer some opinion on that
7 question?

8 MR. QUAY: Go ahead.

9 MR. SHADIS: Thank you very much. There
10 are several distinctions to be made between the
11 rulemaking petition and this 2.206 petition. In the
12 first instance, New England Coalition is the affected
13 party, we are members and constituents. And we were
14 not a part of the rulemaking petition. So that's one.
15 This 2.206 may be readily distinguished from the
16 rulemaking petition because New England Coalition is a
17 petitioner.

18 The second part of this is that this
19 petition flows from our New England Coalition's
20 participation in the licensing process as an
21 intervenor in the extended power uprate. The extended
22 power uprate of Vermont Yankee has aggravated the
23 situation with respect to the fuel temperature. It
24 has also -- it was also an action that has increased
25 the likelihood and the consequences of a severe

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1 accident.

2 It is also an action, the extended power
3 uprate, that has substantially reduced safety margins
4 and in this case, in particular, with respect to the
5 fuel. I think that also distinguishes between 2.206
6 and the rulemaking which is currently underway. The
7 2.206 with respect to this situation, this issue, is
8 really the only avenue of redress available to New
9 England Coalition. So I think on all of those counts
10 it is distinguished.

11 As far as invoking a particular NRC
12 regulation that is being violated, I would have to
13 either get back to you on that or simply invoke NRC's
14 charge under the Atomic Energy Act to protect the
15 public health and safety. And the permission of
16 Vermont Yankee to continue in this unanalyzed or
17 poorly analyzed situation, condition, is certainly a
18 violation of that charge.

19 The other thing I would point to as a
20 general reference are the general design criteria.
21 And I think that operating in this condition may be
22 precluded within the general design criteria. Vermont
23 Yankee was a plant that was constructed before the GDC
24 was finalized. However, the uprate application was
25 certainly filed after the GDC. So I would suggest

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1 looking there first. And then if the Petition Review
2 Board requires it, I guess we can dig further to see
3 what other particular subsections of the regulations
4 may apply. Thank you.

5 MR. M. LEYSE: Mark Leyse again, just to
6 provide a direct quote from the petition. This is an
7 issue that was not covered in PRM 50-93 and I'm
8 talking again about liquefaction of fuel assembly
9 components at low temperatures. In the CORA 16, 17,
10 and 18 tests, this damage, it occurred at this low
11 temperature and I'll just read. It says, "The damage
12 process started in the upper bundle region with
13 melting of the absorber blade by interaction of boron
14 carbide and stainless steel at about 1200 degrees
15 Celsius." That's on page 57.

16 So we're talking about this occurring at
17 2192 degrees Fahrenheit. And this is something that
18 was not brought up in my rulemaking petition. This is
19 something that definitely applies to Vermont Yankee.
20 So I would urge you to also keep that in mind as I
21 said before.

22 MR. DUDLEY: Mr. Leyse, this is Richard
23 Dudley of the rulemaking group. Other than the issue
24 you just summarized regarding the boron carbide
25 interaction with the stainless steel in the control

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1 rods, are all the other technical issues that you
2 mentioned in your 2.206 petition addressed in PRM 50-
3 93?

4 MR. M. LEYSE: I believe so. They are
5 addressed in PRM 50-93. In PRM 50-93, I did not make
6 a statement that said that licensing basis peak
7 cladding temperature should be below 1832 degrees
8 Fahrenheit. I made a more general statement that it
9 should be based on data from severe fuel damage
10 experiments conducted with bundles. But other than
11 the issue of interaction between boron carbide and
12 stainless steel, I think the issues are indeed covered
13 in the rulemaking petition. But I would still like to
14 just stress that this is still a very urgent matter.

15 The rulemaking process could take, I don't
16 know how long that could take, but it could take
17 several years. This is a pressing safety matter at
18 Vermont Yankee, so I think this is something that
19 should -- it's completely valid to bring this issue up
20 in a 2.206 petition regarding Vermont Yankee.

21 MR. QUAY: Okay, thank you. Has anybody
22 from the region joined us?

23 Does the licensee's representative have
24 any comments or questions of the petitioners?

25 (No response.)

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1 Hearing none, we've heard from members of
2 the public. Mr. Leyse and Mr. Shadis, thank you for
3 taking the time to provide the NRC staff with
4 clarifying information on the petition you have
5 submitted.

6 MR. LOCHBAUM: Excuse me. This is Dave
7 Lochbaum, I do have a question if there's still time?

8 MR. QUAY: We're way past our time, but
9 that's all right.

10 MR. LOCHBAUM: It will be a short
11 question. We'll see what the answer is.

12 In the introduction, Ted Quay provided a
13 good summary of the PRB process. The only question I
14 have about that summary was what's the mechanism for
15 reaching the decision that the PRB makes? Is it
16 unanimous? Is it a majority? Is it consensus?
17 What's the process for reaching that PRB decision?

18 MR. QUAY: That's internal to the staff,
19 Dave.

20 MR. LOCHBAUM: I just want to know if it's
21 majority, unanimous. That's not national secrets
22 here.

23 MR. QUAY: That's staff process.

24 MR. LOCHBAUM: Do you tell me you refuse
25 to answer that question? You refuse to answer whether

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1 it's unanimous, majority, whatever?

2 MR. QUAY: I'm answering it, probably
3 consensus, all right?

4 MR. LOCHBAUM: Thank you.

5 MR. BOWMAN: But there are vehicles
6 available to a staff member who disagrees with the
7 consensus position.

8 MR. QUAY: We have differing opinions. We
9 have non-concurrences and stuff like that that we have
10 to deal with. There are processes if somebody objects
11 to a staff action.

12 MR. R. LEYSE: This is Robert Leyse. Who
13 posed the question that was just heard relative to the
14 process?

15 MR. QUAY: David Lochbaum.

16 MR. R. LEYSE: Thank you.

17 MR. QUAY: Before we close, does the court
18 reporter need any additional information for the
19 meeting transcript?

20 REPORTER: I was just trying to get the
21 name of the "David" person.

22 MR QUAY: David Lochbaum.

23 REPORTER: How is that spelled?

24 MR. SHADIS: L-O-C-H-B-A-U-M.

25 MS. SALGADO: This is for the court

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1 reporter, this is Nancy Salgado, I'm the branch chief
2 in DORL, I signed in a little late.

3 REPORTER: What was the name?

4 MS. SALGADO: Nancy Salgado, S-A-L-G-A-D-
5 O.

6 MR. SHADIS: This is Raymond Shadis. One
7 last question here on the process. I am hopeful that
8 when the Petition Review Board puts together its draft
9 recommendations that we will be accorded, after we see
10 the draft recommendations, we'll be accorded an
11 opportunity to once again address the Petition Review
12 Board.

13 MS. MENSAH: This is Tanya Mensah, the
14 coordinator, that process is described in the
15 management directive and you do have a second
16 opportunity after you're informed -- it's referred to
17 as an initial recommendation. It's not a draft.

18 MR. SHADIS: Thank you very much.

19 MR. QUAY: Okay, with that I guess this
20 meeting is concluded and we will be terminating the
21 phone call. Thank you to all of the participants.

22 (Whereupon, at 4:08 p.m., the conference
23 call was concluded.)
24

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