

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: 10 CFR 2.206 Petition Review Board

Docket Number: Numerous

Location: Teleconference

Date: Thursday, November 16, 2017

Work Order No.: NRC-3392

Pages 1-69

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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10 CFR 2.206 PETITION REVIEW BOARD (PRB)
CONFERENCE CALL

RE

PETITION DATED SEPTEMBER 13, 2017 FOR ALL RENEWED
REACTOR OPERATING LICENSEES AND APPLICANTS
FOR REACTOR RENEWED OPERATING LICENSES

+ + + + +

THURSDAY

NOVEMBER 16, 2017

+ + + + +

The conference call was held, Joseph
Donoghue, Chairperson of the Petition Review Board,
presiding.

PETITIONER: SAMUEL MIRANDA

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PETITION REVIEW BOARD MEMBERS:

JOSEPH DONOGHUE, Deputy Director, Division of
Materials and License Renewal

LOIS JAMES, Petition Manager for 2.206
Petition

MARCIA SIMON, Senior Attorney, Office of
General Counsel

ERIC OESTERLE, Branch Chief, Division of
Materials and License Renewals, License
Renewal Projects Branch

RUSSELL ARRIGHI, Senior Enforcement
Specialist, Office of Enforcement

NRC HEADQUARTERS STAFF:

RHEX EDWARDS, Facilitator

JERRY DOZIER, Senior Risk Analyst, Division of
Risk Assessment; Branch Chief, Radiation
Protection and Consequences Branch

DOUGLAS BROADDUS, Branch Chief, NRR

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

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(1:39 p.m.)

1
2 MR. EDWARDS: Ladies and gentlemen, this
3 is Rhex Edwards from the NRC headquarters office. We
4 are set up here and are ready to get started.

5 I am going to mute all the lines, so that
6 we can proceed with some of the initial opening
7 remarks and get to the ground rules, essentially, for
8 the meeting. And when the appropriate time is made
9 in the meeting, we will open it back up for a question
10 and answer period.

11 Good afternoon. Welcome to the
12 November 16, 2017, Petition Review Board meeting with
13 the Petitioner, Mr. Samuel Miranda.

14 My name is Rhex Edwards, and with me is
15 Daniel Mussatti. He is going to be facilitating the
16 meeting with us to help ensure that today's meeting
17 is informative and productive. We will do our best
18 to make sure that everyone who wants to participate
19 has the chance to express their views without concern
20 as to how those views will be received. We certainly
21 appreciate your help accomplishing this goal.

22 For those of us that are here in the room,
23 if there is an emergency, go out the door here and
24 then follow the instructions of an NRC staff member.

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1 The purpose of this meeting is for the
2 Petitioner, Mr. Samuel Miranda, to address the
3 Petition Review Board for the petition of an increase
4 in the frequency of infrequent incidents by 50 percent
5 as a result of extension of the operating lifetime by
6 20 years; that is, by 50 percent.

7 In other words, the petition states that
8 a license renewal will significantly increase the
9 probability of a previously evaluated Condition III
10 accident.

11 This meeting will be scheduled from 1:30
12 to 3:30 Eastern Time. It is being recorded by the
13 NRC Operations Center and is being transcribed by a
14 court reporter. We have already confirmed that the
15 court reporter is on the line.

16 The transcript will become a supplement
17 to the petition and will also remain publicly
18 available. Prior to placing the transcript in ADAMS,
19 the Petition Review Board will review it to ensure
20 that it does not contain any allegations or sensitive
21 information.

22 To get a good transcript and minimize
23 distractions, we ask that you turn off or mute any
24 device that rings, buzzes, beeps, or alarms. If you

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1 must answer an emergent call, we request that you
2 exit the room before answering the call.

3 And for those dialing into the meeting,
4 please remember to mute your phones. If you do not
5 have a mute button on the phone, you may press star
6 6 on the phone, and then to unmute the phone press
7 star 6 again.

8 Please speak clearly and loudly to make
9 sure that the court reporter can actually transcribe
10 the meeting. And if you do have something you'd like
11 to say, please first state your name for the record.

12 We ask you to minimize any side
13 conversations during the meeting, and we will do our
14 best to have only one speaker at a time.

15 And I'd like to have the NRC meeting
16 participants introduce themselves first and, again,
17 ask that you clearly state for the record your name,
18 your position, and your organization. And for those
19 in the room, I am asking just that the Petition Review
20 Board panel introduce themselves, and for the rest we
21 will just have you sign the attendance sheet here in
22 the room.

23 So Mr. Donoghue?

24 MR. DONOGHUE: Good afternoon. I'm Joe

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1 Donoghue. I'm the Deputy Division Director in the
2 Division of Materials and License Renewal, and I'm
3 the Chair for this Review Board.

4 MR. KIM: This is Jim Kim. I'm the
5 backup 2.206 coordinator in the Division of Operating
6 Reactor Licensing in NRR.

7 MR. OESTERLE: Eric Oesterle. I'm the -
8 - currently, I'm the branch chief for the License
9 Renewal Projects Branch in the Division of Materials
10 and License Renewal. When Sam submitted his
11 petition, I was the chief of the Reactor Systems
12 Branch, Division of Safety Systems, and that's the
13 reason I'm here today.

14 MR. DOZIER: I'm Jerry Dozier, senior
15 reliability and risk analyst from the Division of
16 Risk Assessment, today also acting as the branch chief
17 of Radiation Protection and Consequences Branch.

18 MS. JAMES: Lois James. I am the
19 petition manager for this petition, and I am from the
20 Division of Materials and License Renewal in the
21 Office of NRR.

22 MS. SIMON: I'm Marcia Simon. I'm an
23 attorney in the Office of General Counsel advising
24 the PRB on the petition.

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1 MR. EDWARDS: All right. And, once
2 again, this is Rhex Edwards. I am the facilitator
3 for this meeting. That completes the NRC staff here
4 in headquarters. Given the number of people that are
5 on the phone, we ask that you provide your name,
6 email, position, to the petition manager, Ms. Lois
7 James.

8 Also, it is not required for members of
9 the public to make their presence known, but if there
10 are people on the phone that would wish to make their
11 presence known, we'd also ask you email your name,
12 position, and organization to the petition manager.
13 Again, that's Ms. Lois James, and she can be reached
14 at lois.james@nrc.gov. That's L-O-I-S, dot, J-A-M-
15 E-S, at nrc.gov.

16 And, finally, Mr. Miranda, would you
17 please introduce yourself for the record?

18 MR. MIRANDA: I'm Sam Miranda. I'm the
19 Petitioner, member of the public.

20 MR. EDWARDS: All right. Thank you, sir.

21 And before we begin, I'd like to first
22 share some general background on the process.
23 Section 2.206 of Title 10 of the Code of Federal
24 Regulations describes the petition process, the

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1 primary mechanism for the public to request
2 enforcement action by the NRC in a public process.

3 This process permits anyone to petition
4 the NRC to take enforcement-type action related to
5 NRC licensees or licensed activities. Depending on
6 the results of its evaluation, the NRC could modify,
7 suspend, or revoke an NRC-issued license or take any
8 other appropriate enforcement actions to resolve a
9 problem.

10 The NRC staff guidance for the
11 disposition of 2.206 petition requests is in
12 Management Directive 8.11, which is publicly
13 available.

14 The purpose of today's meeting is to give
15 the Petitioner an opportunity to provide an
16 additional explanation or support for the petition
17 before the Petition Review Board's initial
18 consideration and recommendation. This meeting is
19 not a hearing, nor is it an opportunity for the
20 Petitioner, licensees, or members of the public to
21 question or examine the Petition Review Board on the
22 merits or the issues presented in the petition
23 request.

24 No decisions regarding the merits of this

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1 petition will be made at this meeting, and the NRC
2 staff will respond to questions related to the 2.206
3 process only. They will not be responding to any
4 technical questions related to this petition.

5 Following this meeting, the Petition
6 Review Board will conduct its internal deliberations,
7 and the outcome of the internal meeting will be
8 discussed with the Petitioner. A Petition Review
9 Board typically consists of a chairman, a manager at
10 the senior executive service level at the NRC, it has
11 a petition manager and a Petition Review Board
12 coordinator.

13 Other members of the Board are determined
14 by the NRC staff based on the content of the
15 information in the petition request, and these
16 members have already introduced themselves.

17 And as described in our process, the NRC
18 staff may ask clarifying questions to better
19 understand the Petitioner's presentation and to reach
20 a reasoned decision whether to accept or reject the
21 Petitioner's request for review under the 2.206
22 process.

23 Also, as described in our process, the
24 licensees have been invited to participate in today's

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1 meeting to ensure that they understand the concerns
2 about their facility or activities. The licensees
3 may ask questions of the Petitioner to clarify the
4 issues raised. However, I would like to stress that
5 the licensees are not a part of the Petition Review
6 Board's decision-making process.

7 Licensees will have an opportunity to ask
8 the Petitioner questions after his presentation. And
9 then, finally, members of the public will have an
10 opportunity to ask the Petition Review Board
11 questions about the petition process.

12 I would now like to turn the meeting over
13 to Mr. Joseph Donoghue, the Chair of the Board, who
14 will discuss the specific petition under
15 consideration.

16 MR. DONOGHUE: Thanks, Rhex.

17 Good afternoon, all. I want to start by
18 apologizing to Mr. Miranda and all the participants
19 for delaying this meeting. It was all due to my
20 being out on extended sick leave unexpectedly the
21 first week of November, and I'm glad we were able to
22 reschedule it and hold it today.

23 I'd like to begin by summarizing the
24 Board's understanding of the scope of the petition

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1 that we are considering and the NRC activities to
2 date.

3 On the 13th of September 2017, Petitioner
4 requested the NRC to suspend licensees' authorization
5 to operate their plants for any period beyond their
6 originally licensed plant lifetimes until they can
7 demonstrate that their license renewals will not
8 cause a significant increase in the probability of an
9 accident previously evaluated, particularly with
10 respect to condition for the events.

11 Also, he requested that we suspend the
12 review of licensees' applications for authorization
13 to operate their plants for any period beyond their
14 originally licensed plant lifetimes until they can
15 demonstrate that their license renewals will not
16 cause a significant increase in the probability of an
17 accident previously evaluated, particularly with
18 respect to Condition III events.

19 And the third part of your request, which
20 was that we allow licensees who are already operating
21 their plants at their originally licensed plant
22 lifetimes a maximum of one year from the date of the
23 petition to submit a plan and schedule that will
24 produce a verifiable demonstration that continued

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1 operation of the plants will not cause a significant
2 increase in the probability of an accident previously
3 evaluated, particularly with respect to Condition III
4 events.

5 When we read the petition, we didn't see
6 any -- anything in the petition that looked like an
7 immediate action that we needed to take in your
8 request.

9 The Petitioner also requested that these
10 actions be taken based on a statement that an
11 extension of the operating lifetime of 20 years --
12 that is, by 50 percent -- would cause an increase in
13 the frequency of infrequent incidents by 50 percent.
14 In other words, a license renewal will significantly
15 increase the probability of a previously evaluated
16 condition-free accident.

17 Consequently, an applicant for a license
18 renewal cannot truthfully claim there is no
19 significant hazard associated with the proposed
20 license renewal.

21 The Petitioner defines "no significant
22 hazard" in accordance with 10 CFR Section 50.92,
23 issuance of an amendment, which specifies that a
24 proposed license amendment would not pose a

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1 significant hazard if operation of the facility, in
2 accordance with the proposed amendment, would not
3 involve a significant increase in the probability of
4 an accident previously evaluated.

5 So, to the actions so far. On October
6 5, 2017, the petition manager, Lois James, offered
7 the Petitioner an opportunity to address the Petition
8 Review Board prior to its internal meeting to make
9 the initial recommendation to accept or reject the
10 petition for review.

11 On October 10th, the Petitioner stated
12 that he wanted to address the PRB at a public meeting,
13 which you're having today, and -- that's what you're
14 having today.

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

19 Since this is a public meeting, I would
20 like to remind the PRB members, the licensees, the
21 Petitioner, and other meeting participants of the
22 need to refrain from discussing any NRC sensitive or
23 proprietary information during the proceedings.

24 Mr. Miranda, I will turn it over to you

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1 to allow you the opportunity to provide any
2 information you believe the PRB should consider as
3 part of your petition. The meeting is until 3:30.
4 I'd ask that you try to keep your remarks to no more
5 than 60 minutes to allow the other participants the
6 opportunity to ask questions concerning our meeting.

7 Mr. Miranda, I will help you keep time,
8 and will let you know when we are five minutes or so
9 from the end of the allotted time.

10 MR. MIRANDA: Okay. I do have a packet
11 for the Petition Review Board. This was an
12 enforcement petition. I don't see anyone from
13 Enforcement here.

14 MR. ARRIGHI: Yes. This is Russ Arrighi,
15 Office of Enforcement. I'm a PRB manager.

16 MR. EDWARDS: Understand, Russ. Thank
17 you for your introduction. We understand your
18 presence on the phone.

19 MR. MIRANDA: Is there anyone from the
20 Inspector General's Office?

21 MR. EDWARDS: I'll repeat that again. Is
22 there anyone on the phone from the NRC's Inspector
23 General's office? Doesn't sound like it. Ready to
24 proceed with the presentation?

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1 MR. MIRANDA: Let the transcript show
2 there is no one here from the Inspector General's
3 Office.

4 MR. EDWARDS: Understandably. That's
5 recorded.

6 MR. MIRANDA: Okay. My name is Sam
7 Miranda. I am the Petitioner for this petition. I
8 have 40 years of experience doing nuclear reactor
9 safety and licensing, 25 of which were with
10 Westinghouse Electric in Pittsburgh, 15 at the NRC
11 working in the Division of Safety Systems. And my
12 job, among other things, was to review license
13 amendment applications, including license renewals.

14 I also have a professional engineer's
15 license issued by the Commonwealth of Pennsylvania in
16 mechanical engineering, and bachelor's and master's
17 degrees in nuclear engineering from Columbia
18 University.

19 I have some slides here. There are not
20 many, but I'll go through them fairly slowly, mainly
21 because I understand there are people on the phone
22 who can't see them. So I'm not going -- I will be
23 describing what's on them. So, and you'll see as I
24 go through these slides why we are submitting this

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1 petition.

2 So now I'm on Slide 2, which is a map of
3 the United States indicating all of the plants that
4 have been granted license renewals for extensions of
5 20 years each. And it indicates that 84 of the 99
6 operating plants have license extensions of 20 years.
7 So almost done, aren't you? That's -- just about
8 everyone has a license extension.

9 And the next slide has a summary of
10 expiration dates according to plants, and this is a
11 very, very brief summary. I just have the first
12 three or four plants, the early ones, Indian Point 2,
13 Indian Point 3, Diablo Canyon.

14 Indian Point 2 had an expiration date on
15 the original license of 2013, and they are currently
16 operating in their extension period, which they
17 entered on September 29th.

18 Indian Point 3 had a license that expired
19 in 2013, and now they are operating in their renewal
20 period since December 12, 2015.

21 Coming up in Diablo Canyon -- the
22 expiration date for the original license is 2024.

23 And then I'll skip through a lot of the
24 sites -- there's a lot of them here, as you know,

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1 from the previous slides.

2 And I'll go to Watts Bar Unit 1. Their
3 expiration date is 2045. They were licensed in 1996.
4 Then we have Limerick and Vogtle 2, expire in 2049.
5 And then we have Watts Bar Unit 2, expiring in 2055.
6 And this is the plant that was licensed in 2015. So
7 their expiration date is an interesting one. I have
8 them on this slide because Watts Bar Units 1 and 2
9 are the same plants. They have the same design.

10 They were originally submitted for a
11 license -- operating license at the same time, and
12 then the licensing review of Watts Bar Unit 2 was
13 suspended for 20 years, and then it was resumed, and
14 I was the reviewer on that review. But this was an
15 interesting situation. You had a plant that was
16 already 20 years old under review for an original
17 operating license. In fact, it was already old. And
18 I was instructed at that time to look up Watts Bar
19 Unit 2 design and turn that -- how it differs in any
20 way, if there is any way, from Watts Bar Unit 1, which
21 was already approved.

22 So this is not exactly a license renewal.
23 It's an original license on a design that is already
24 20 years old. Something for you to think about.

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1 So there's -- it's Watts Bar Unit 2. It
2 expires -- the license expires in 2055, and, again,
3 on license renewal, we could operate potentially
4 until 2075. I don't know if anyone here can suggest
5 what it's going to look like in 2075. I know I won't
6 be here. But this is the -- this is the world of
7 license renewal.

8 We have another slide that might be of
9 interest. This is the Conowingo Dam. It's on the
10 Susquehanna River. It was opened in 1928. It's
11 operated by Exelon. And it's been operating now for
12 about 89 years and they're up for license renewal.
13 And the license is issued by the Federal Energy
14 Regulatory Commission, FERC, and their licenses are
15 issued in units of between 40 and 50 years.

16 This dam produces about 575 megawatts
17 electric, which makes it equivalent to about one-half
18 the capacity of a Westinghouse four-loop plant. And
19 this dam backs up water behind it on the Susquehanna
20 River that is used to cool Exelon's Peach Bottom
21 atomic power station.

22 So this is why -- this is why I'm showing
23 you this slide. This is not program-related. We
24 have NRC issuing license renewals for nuclear plants

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1 and FERC issuing license renewals for hydroelectric
2 plants, and one supplies cooling water for the other;
3 also, emergency power.

4 Now the time is evaporating on the
5 temporary extension. Their license expires in
6 September 2014. So we are really looking at
7 potentially having this dam to continue in operation
8 until 2067. And then that doesn't preclude further
9 extensions after that.

10 So I have moved to the next slide, and
11 this slide is a quote from American Nuclear Society
12 Standards, which was issued in 1983. It describes
13 in a couple of paragraphs the basic premise of nuclear
14 safety and licensing. And this is what all plants,
15 PWRs and BWRs were all based on this, and it's
16 important.

17 And, oddly enough, this hasn't been
18 written down, that I could see in my experience,
19 before this. And it's a very, very simple premise.
20 It states, "No situations in the plant that are
21 assessed as having a high frequency of occurrence
22 shall have a small consequence to the public. And
23 those extreme situations having the potential for the
24 gravest consequence to the public shall be judged

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1 having a very low frequency of occurrence."

2 In that sense, if you are designing a
3 plant, you want it to be able to tolerate the changes
4 you expect to happen on a fairly frequent basis and
5 design the plant such that -- that the serious
6 accidents are going to occur very, very rarely. I
7 call it the constant risk principle, if you define
8 "risk" as a product of probability and consequences
9 in the -- so this should be the same across all of
10 the accidents. High frequency accidents should have
11 no consequences. Low frequency accidents can have
12 high consequences. I think it's just a principle of
13 important design.

14 So from this principle, we have derived
15 four categories, and these are stated in the ANS
16 Standard 18.2, which was issued 10 years earlier in
17 1973. And this slide has the four categories listed.

18 Condition I, the first category, is
19 normal operation. And these are things that are
20 expected to occur frequently during the course of
21 plant operation, and these are not new. You might
22 call them accident. You might call them net level
23 transients.

24 You might just say they are normal

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1 maneuvering of the plant. But these happen very
2 frequently, and they will happen several times a year,
3 and these are things like changing power when they
4 are losing some equipment that you rely on for
5 upgrading the plant, which it won't cause any
6 situations that require any action by the fire
7 protection system. Just an operator action maybe.
8 The operator closes a valve or opens a valve or a
9 control system action, for example.

10 In that case, would any of these
11 accidents require the plant to shut down? And that
12 accident is called the design transient, and they are
13 all reported in the final safety analysis reports.

14 And they are important because they cause
15 the plant conditions to swing up and down, in
16 temperature, what pressure, what power level, and the
17 plant should be able to tolerate such swings, at least
18 a certain number of these swings, during a plant
19 lifetime, which is 40 years. The original operating
20 licenses are issued for 40 years.

21 So they keep track of these swings, and
22 it's possible that if the plant is not operated
23 properly and there are a lot of thermal transients or
24 pressurization transients, they may run out of

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1 transients. They may be forced to shut down because
2 this has too many -- too many of these stresses on
3 the reactor, on the thick metal sections of the
4 reactor.

5 The second condition, Condition II, I
6 think they also call it incidence of moderate
7 frequency or anticipated operational transients,
8 these are also accidents that shouldn't go on inside
9 the plant. And these are things like load rejections
10 or loss of feedwater or maybe some misplacement of
11 reactor -- of rods in the reactor core, a premature
12 withdrawal of rods.

13 These are minor incidents that can occur
14 during the course of the reactor unit's operation.
15 You can have several of them in a year, and they will
16 require some protective action and -- but the most
17 they will require is a reactor shutdown.

18 So then we have Condition I. Again, it's
19 normal operation. You can have a number of these
20 events in a reactor year.

21 Condition II, you could also have a
22 number of these in a reactor year, although not as
23 many. And if you can't control them, either through
24 operator actions or through action of a control

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1 system, which by the way a control system acts to
2 keep plants maybe in a normal range of operations,
3 acceptable range of operation, but the control system
4 cannot do that. In a reactor shutdown, your power,
5 and that's what happens: a reactor is shut down and
6 that should be the end of that event.

7 So both of these, Condition I and
8 Condition II events, are defined in terms of number
9 of events plus reactor year of operation.

10 Now we'll get to Condition III. This is
11 the subject of my petition. These are the infrequent
12 incidents, and these are defined just like the
13 Condition II events. They may occur during the
14 operation of the plant, but they are defined in terms
15 of plant lifetime, not current reactor year. You can
16 only have -- you can only have so many of these during
17 the reactor plant lifetime.

18 Now, they said -- it could be anything,
19 actually. It could be once, it could be more than
20 once, and these Condition III events can be -- some
21 can be serious, some not.

22 For example, a Condition III event
23 occurred at a Westinghouse plant in Switzerland in
24 1974, the Beznau Plant. They had a reactor turbine

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1 -- they had the turbine trip. A turbine trip should
2 not normally require any protective action. It
3 should be something the plant should be able to
4 tolerate.

5 Well, in this case, the turbine tripped
6 and caused the reactor coolant system pressure to
7 increase and open a pressurizer release valve. And
8 that's okay. That's normal. If the pressure
9 increases far enough, a release valve will open. And
10 after a while, after the pressure decreases, the
11 pressurizer release valve should close.

12 In this case, it didn't. It stuck open.
13 Actually, it's damaged. The yoke in the -- in the
14 release valve broke, and it's a cast iron valve. And
15 so that made it a Condition III event, and it did not
16 turn out to be very serious. The operators realized
17 what was happening, and they actuated the valve and
18 they were able to recover the plant without any
19 problems. This was in 1974.

20 Something like this happened again in
21 1979 in Harrisburg, Three Mile Island. They had a
22 stuck-open valve there, only in that case the
23 operators didn't know what was happening and they
24 made some mistakes. And that Condition III event

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1 became very serious; it became a Condition IV event
2 and caused a partial core meltdown.

3 The found cause: stuck open release
4 valve. In one case, the operators responded
5 properly. In the other case, they didn't.

6 And then there is the Condition IV
7 events. These are the limiting faults or sometimes
8 they are called design faults. These are not
9 supposed to happen at all. These are the major
10 coolant breaks where you have major reactor coolant
11 pipe breaks, 30-inch pipes breaking. This is not
12 supposed to happen.

13 But these are analyzed and presented in
14 the final safety analysis reports because these
15 are -- these are basically like design analyses.
16 These are the analyses that are used to determine how
17 much emergency core cooling flow you are going to
18 need to keep the core from melting. It helps you
19 size the flow capacities of the emergency core cooling
20 pumps, among other things.

21 So those are the four events, and I'm
22 concentrating in this petition on Condition III
23 because the Condition III events are just like the
24 Condition I and II. The difference is defined --

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1 frequency of occurrence is defined in terms of the
2 plant lifetime, not in terms of reactor year of
3 operation. And license renewals once in the plant
4 lifetime. They are making -- they are making a
5 change.

6 And when we talk about things like
7 increasing the probability of an accident, it is
8 another system. It is, you know, not so much -- it's
9 not so much approaching a safety limit from the
10 bottom, from the operations side. It is limiting the
11 safety limit.

12 Okay. You're reducing a safety margin,
13 not by -- not for your own operation, but just because
14 you've lowered it. Now you have only a couple of --
15 one or two events in a plant lifetime of 40 years,
16 and -- but you really need to meet the same number,
17 the same one or two events, in a 60-year lifetime, so
18 you can lower the limit.

19 Another point for this meeting, if I
20 could point to some kind of regulation that requires
21 a licensee to meet the American Nuclear Society
22 Standards that I've cited, 18.2, pressurized water
23 reactors, and 18.12 for boiling water reactors. I
24 will talk about the 18.2 because I'm more familiar

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1 with that. I spent most of my career working on
2 pressurized water reactors, but the dam water
3 reactors have equivalence to this.

4 And what I have here on this slide,
5 Slide 7, some quotes that I have from Byron and
6 Braidwood with the FSAR. And this is just an example.
7 There's nothing special about Byron and
8 Braidwood. You'll find them in just about every
9 FSAR.

10 The first quote comes from the
11 introduction to Chapter 15, which contains the safety
12 analysis. And in that introduction, page 15.0-13,
13 the licensee, Exelon, says, "In determining which
14 systems are necessary to mitigate the events of these
15 postulated events -- to mitigate the effects of these
16 postulated events, the classification system of ANSI
17 and 18.2-1972 is utilized." That classification is
18 what I have described in the previous slide, the four
19 categories of events. So here Exelon is saying, for
20 their Byron and Braidwood plants, they are using that
21 classification system.

22 Another quote from that same FSAR, "Thus,
23 consistent with the philosophy and format of ANSI and
24 18.2, the event is classified as a Condition III

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1 event. By definition, Condition III occurrences
2 include incidents, any one of which may occur during
3 the lifetime of a particular plant and shall not cause
4 more than a small fraction of fuel elements in the
5 reactor to be damaged." So that is the definition.
6 It's the frequency of occurrence defined according to
7 plant lifetime, not reactor year of operation.

8 And then, finally, in the references,
9 reference number 2 of that FSAR contains that
10 standard. So the conclusion -- the conclusion I
11 would make from this is that this standard, ANSI and
12 18.2, and also we have a standard for boiling water
13 reactors, they are in the current licensing basis,
14 CLB. It's called CLB in 10 CFR 54, the rule for
15 license renewals. It's the current licensing basis.
16 It is the basis upon which the NRC issues an operating
17 license.

18 So I don't need -- we don't need a
19 regulation to show that licensees are committed to
20 meet this standard. The licensees declare that in
21 their own submittals to the efforts -- to the NRC,
22 and NRC reviews these submittals and determines that
23 these -- that these design criteria have been
24 satisfied. And on the basis of that, they issue the

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1 operating license.

2 The next slide, Slide 8, is a summary of
3 what I have -- of what I described in terms of the
4 four conditions. And you can see there is quite a
5 difference between Conditions I and II and Conditions
6 III and IV. Conditions I and II are defined in terms
7 of reactor year of operation. Condition I is the
8 normal operation transients, and Condition II
9 transients, abnormal transients, are remedied by a
10 shutdown of a reactor. And this is specified in the
11 standard, in the ANS standard. It's specified and
12 it's also repeated in the current licensing basis.

13 Condition II events should require no
14 more than a reactor shutdown. Condition III events
15 may require a more protective action. They do not
16 occur as often as Condition II, but they could cause
17 more damage. And what we're doing when we look at a
18 license renewal, we are redefining the plant
19 lifetime. Now it goes to 60 years.

20 So whatever frequency of Condition II
21 events you had before, during the operation, the
22 original operation period, you know, from the
23 original operating license, 40 years, now you have to
24 have a frequency of occurrence, but you should have

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1 no more than -- you should have no more than those
2 conditions or events that you had originally been
3 licensed for for the 40-year plant lifetime.

4 Now these apply over 60 years. So, in
5 other words, the frequency of occurrence, the design
6 requirement for the frequency of occurrence, actually
7 goes down. Now, if you ask me what that number is,
8 I don't know what that number is. It could be one
9 or two, and it could be one very serious accident in
10 the plant lifetime period which just ended, or it
11 could have a couple of minor Condition III events
12 that are handled properly.

13 In terms of significant hazard
14 evaluation, 50.92, you can't -- you can't say. But
15 whatever that number is, whatever you want to call
16 it, it has increased. By definition, it has
17 increased. The lifetime has increased by 50 percent.

18 And then, finally, the Condition IV event
19 for the design faults, they are also defined in terms
20 of plant lifetime. That number is zero. They should
21 not occur. So it doesn't really matter what the
22 plant lifetime is. It could be 1,000 years, and the
23 Condition IV event should simply not occur.

24 Moving on to Slide 9, I am quoting now

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1 from 10 CFR 54, Section 54, which is the license
2 renewal rule, and there is the definition of current
3 licensing basis -- a specific plant and a licensee's
4 written commitments. And written commitments means
5 like, for example, declaring in their safety analysis
6 report that you are going to make the categorization
7 scheme of ANS 18.2, that's a written commitment. A
8 specific plant and the licensee's written commitments
9 for ensuring compliance with and operation with
10 applicable NRC requirements.

11 The plant-specific design basis. This
12 is also in the design basis, the frequency of
13 occurrence of a Condition III event is in the design
14 basis, including all modifications and admissions to
15 such commitments over the life of the license.
16 That's 50 years now, not 40. That is documented and
17 in effect.

18 The CLB includes -- this is still -- I'll
19 quote from 10 CFR 54. "The CLB includes the NRC
20 regulations contained in 10 CFR Parts 2, 19, 20, 21,
21 26, 30, 30, 50, 51, 54, 55, 70, 72, 73, 100, and
22 appendices thereto."

23 Now, if you look at 10 CFR 50, there is
24 lots of appendices. 10 CFR 50, Appendix A, is the

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1 appendix that contains the general design criteria.
2 So that would include the licensing basis, and it
3 also includes orders, license conditions, as
4 mentioned in technical specifications.

5 So I have a little card here that Mr.
6 Dozier has recognized. This is the famous Weibull
7 function. This is otherwise known as the bathtub
8 curve, and it is a plot of failure rate over time.
9 And so on the Y-axis you have failure rate, and then
10 on the X-axis time. And in this case, it should be
11 lifetime. It could be 40 years or 60 years.

12 And the time is divided into three
13 segments. The first segment is the decreasing
14 failure rate, and this is -- this describes occurrence
15 of flux initially, if failure rate is high initially
16 and then drops over time. And it's called the early
17 incident mortality failure. This is a component that
18 has just validated. It has just been operating. And
19 there are some problems with getting it calibrated or
20 something, and it fails. And this happens all the
21 time. But as you operate the plant over time, the
22 failure rate drops.

23 The second segment of this is called
24 constant failure rate, and that is -- that is defined

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1 as constant random failures. This is a straight line
2 going across the curve. It should have been a
3 straight line from there to the end of the time period
4 indicated. And these failures can occur for any
5 reason at all, or no reason at all. They are just
6 random.

7 These are the failures that you might
8 have described as failures occurring over the course
9 of reactor operation per reactor year. This is the
10 current reactor year failure. These are Condition I
11 and II events.

12 And then, finally, at the far right of
13 the curve, the later time, as far as increasing
14 failure rate. And this is also called the wear
15 failures for aging, and this is what license renewal
16 was concerned about. I'm trying to minimize the
17 number of failures due to age -- due to wear-outs.

18 So when you extend the plant lifetime,
19 you want to -- you're going to flatten out that curve
20 as much as you can, just the number of failures due
21 to wear-out. And you do things like replace gaskets
22 and rubber seals and other things that can degrade.

23 So if you add these two terms together,
24 the early incident mortality failure, which drops

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1 over time, the unit failures which decrease over time,
2 and then the constant failures, which are steady
3 across time, if you add all of these failures
4 together, then you get a curve with a minimum in the
5 -- it's a bathtub -- a bathtub curve.

6 In the middle, when you've been operating
7 for a while but you're not approaching the end of the
8 plant lifetime, the failure rate is at its lowest
9 rate.

10 This is why I filed this petition,
11 because I don't think that the NRC has considered the
12 effects of increasing the plant lifetime by 20 years,
13 or any other time actually. I understand they could
14 increase it another 20 years in the subsequent license
15 renewal. You could have a plant licensed to operate
16 for as long as 80 years. I don't think the NRC has
17 considered the effect of increasing the plant
18 lifetime when it comes to the Condition III failures,
19 which are defined in terms of plant lifetime.

20 No significant hazards. 10 CFR Part
21 50.92, licensees are required to submit one of these
22 along with their request for a license amendment.
23 And this is Slide 11.

24 And I'm moving from Slide 11, 10 CFR

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1 50.92, issuance of amendment. In determining whether
2 an amendment to a license will be issued to the
3 applicant, the Commission will be guided by the
4 considerations which governed the issuance of initial
5 licensing.

6 Okay. So you're asking for an extension
7 of a plant lifetime, but the Commission is adhering
8 to the considerations used in the issuance of the
9 initial license. So you might -- you might ask
10 yourself, well, for example, when you ask for a plant
11 license extension of 20 years, are you looking at an
12 additional 20 years of operation, or are you looking
13 at a plant that will be licensed to operate for 60
14 years? And there are plenty of references in 10 CFR
15 54 which indicate that you are looking at the entire
16 lifetime of the plant for the 60 years.

17 A good example would be the vessel
18 embrittlement, which a vessel has a lifetime of so
19 many years, depending upon the neutron flux it has to
20 experience. And a vessel doesn't care how long your
21 license is good for. The event comes and it -- the
22 plant lifetime is over.

23 The Commission will note at the time of
24 the termination that a proposed amendment to an

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1 operating license involves no significant hazards
2 consideration, if the operation of a facility in
3 accordance with the proposed amendment would not
4 involve: 1) a significant increase in the
5 probability or consequences of an accident previously
6 evaluated; or 2) could be a new or different kind of
7 accident from any accident previously evaluated; or
8 3) involve a significant reduction in the margin of
9 safety.

10 So in terms of this petition, and in terms
11 of license renewal, I am not really concerned with
12 the second point because I don't really expect a new
13 kind of accident to be created mainly because in the
14 renewal license they are usually not making major
15 design changes. They are not adding equipment that
16 could possibly fail.

17 If Conditions I and II -- 1 and 3,
18 increasing the probability, and 3, reducing the
19 margin of safety, I think are affected by increasing
20 the plant lifetime. And they are affected not so
21 much by increasing the probability or increasing
22 things like pressure, like temperature or power
23 level. They are affected from the other end. They
24 are affected by lowering the limit.

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1 Okay. Now it becomes more restrictive.
2 Now you have -- now you have Condition III events
3 occurring over a period of 60 years. Okay. That's
4 a 50 percent increase in plant lifetime. If you want
5 to use an old mathematical device where you take the
6 problem to the limit, now you can take it to the
7 limit. You can increase the plant lifetime to 1,000
8 years or 10,000 years. That would increase
9 significantly the number of Condition III events that
10 you can expect will occur over that period of time.

11 And by the way, for your information,
12 licensees don't have to request a 20-year extension
13 for their licenses. They could request a smaller --
14 a smaller extension that doesn't extend as far as 20
15 years.

16 Okay. I'm coming toward the end here.

17 So licensees have to show there is no
18 significance in the increase in the probability of a
19 Condition III event over the extended plant lifetime
20 -- 60 years. And don't forget there is no significant
21 reduction in the margin of safety for a Condition III
22 event occurring over the extended plant lifetime.

23 So the conclusion there is since the
24 frequency of occurrence of the Condition III event is

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1 defined in terms of plant lifetime, the lengthening
2 of the lifetime increase -- effectively increases the
3 events probability and effectively reduces the safety
4 margin because now the safety margin becomes harder
5 to meet. Now you have to have a 60-year period in
6 which you are looking at the frequency of occurrence
7 of Condition III events.

8 I would also -- this is -- I will wrap up
9 with a couple of slides concerning the petition review
10 process. And this is one reason I ask why the
11 Inspector General didn't have someone here for this
12 meeting, because the Inspector General's Office has
13 done an audit of the 2.206 process. And this is how
14 the NRC reviews petitions under 10 CFR 50, 2.206.

15 The Inspector General's audit made a note
16 that over the past three fiscal years ending fiscal
17 year 2016, NRC has received 38 petitions and hasn't
18 issued an order on one -- on even one. And this
19 petition -- I have two other petitions before this
20 that were not accepted. This petition would make the
21 third. So those other petitions, they were -- they
22 were submitted after fiscal year 2016. So these are
23 petition 39, 40, and 41.

24 And the reason that the NRC uses to not

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1 accept a petition, it's like a form letter, and it is
2 found -- the language is found in Management Directive
3 8.11, review process for 10 CFR 2.206 petitions. The
4 Petitioner raises issues that have already been the
5 subject of NRC staff review and evaluation, either on
6 that facility, other similar facilities, or on a
7 generic basis, for which a resolution has been
8 achieved. The issues have been resolved and the
9 resolution is applicable to the facility in question.
10 These requests will not be treated as a 2.206 petition
11 unless they present significant new information.

12 And if you look at this slide, if you
13 look at those words in bold, significant new
14 information, I would like to point out that this is
15 not a typo. There is nothing between "significant"
16 and "new." There is no comma, there is no "and,"
17 there is no "or," there is no connector.

18 So this is ambiguous, and I think -- I
19 think the NRC likes it that way, so they can use this
20 as an add condition or a fault condition, and it's
21 sort of used both ways.

22 So significant information -- significant
23 information has also an ambiguous definition.
24 Significant can be almost any -- what is significant

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1 to you may not be significant to me. And this is the
2 -- this is the famous -- this is what a lot of people
3 in PRA do, probabilistic risk assessment. They look
4 at things, and nothing seems to be significant to
5 them.

6 But I would like to point out that the
7 statement of considerations for the license renewal
8 rule, which is printed in the Federal Register issued
9 on May 8, 1995, this is a quote from that Statement
10 of Consideration. "The CLB, current license --
11 licensing basis, for current operating plants is
12 likely based on deterministic engineering criteria.
13 Consequently, there is considerable logic in
14 establishing license renewal scoping criteria that
15 recognized the deterministic nature of a plant's
16 licensing basis."

17 And what you find in the safety analysis
18 report are deterministic analyses. They are
19 conservative analyses, and by "conservative" I mean
20 that wherever there is a question, some uncertainty
21 or an error, those errors are counted in the analyses
22 only in the direction they would make the results
23 worse.

24 So that's the result when you finally

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1 reach the end of the analysis and you see the result,
2 that result will meet the declared design requirement
3 and it will be -- since it's a conservative analysis,
4 it could be interpreted to mean that this result can
5 be no worse than what you see here on this page. This
6 is the worst-case scenario.

7 The statement of consideration goes on,
8 and it's quite clear on this. The Statement of
9 Consideration says, "PRA will not be used to justify
10 poor performance of aging management or to reduce
11 regulatory or programmatic requirements."

12 For example, the regulatory requirement
13 in this case is that you have so many Condition III
14 events occurring over the plant lifetime. And what
15 this says is -- the Statement of Consideration says
16 you can't use PRA. You should not use PRA to reduce
17 the requirement. You can't say, "Oh, well, it is
18 only 20 years' extension, and the PRA analysis says
19 that you don't see much of a difference between the
20 frequency of occurrence and Condition III events
21 between the 40- or the 60-year plant lifetimes
22 considered." That's a departure for the
23 deterministic approach.

24 And new information -- this is something

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1 that I have seen in other petitions. New information
2 -- new information, if it is truly -- if your Petition
3 Review Board determines that there is no new
4 information in the petition, then it should provide
5 a basis for that. And the slide here says resolution
6 that has been achieved would be recorded in ADAMS
7 before any licenses are renewed, and this is -- this
8 is about 1993 when the license renewals activities
9 begin.

10 This should have been like, for example,
11 what I'm bringing up here in this petition about
12 Condition III events, that should have been resolved
13 before the renewals began in '93. And if it was
14 resolved, then you'll have a record of it announced.
15 But just sending me a letter, a closure letter, "Oh,
16 thank you, Mr. Miranda, for your petition, but there
17 is nothing new in it," that's not enough. You need
18 to give me an ADAMS accession where it shows some
19 kind of an evaluation or review that considered this
20 question and put it to bed.

21 So that's the end. That's the end of my
22 slide presentation, and I'll be happy to answer
23 questions.

24 MR. DONOGHUE: Mr. Miranda, thank you for

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1 your presentation. Would you be willing to email or
2 leave a copy with Lois James, a copy of your
3 presentation, so that the NRC could then make that
4 publicly available for others to see? That would be
5 appreciated.

6 MR. MIRANDA: Certainly.

7 MR. EDWARDS: And, at this time, since
8 this is a public meeting, I'd like to remind the
9 Petition Review Board members, the licensees, the
10 Petitioner, and other meeting participants, that we
11 need to refrain from discussing any sensitive or
12 proprietary information during today's public
13 meeting.

14 I am going to open the conference line.
15 The conference itself -- the conference line itself
16 is an open conference line, so I ask your help in
17 maintaining order in the questions. So I'd ask that
18 you refrain from asking until you are called upon.
19 We will proceed in a logical order, and first I'd
20 like to start with those in the room here from the
21 NRC headquarters staff.

22 Are there any staff in the room that have
23 questions for Mr. Miranda? Okay.

24 MR. BROADDUS: My name is Doug Broaddus.

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1 I'm the branch chief in NLR. I am the owner of the
2 2.206 petition process.

3 The question that I have, Sam, is defined
4 to -- or, Mr. Miranda I should say. I know you as
5 Sam here at the agency.

6 MR. MIRANDA: That's okay. I answer to
7 both.

8 MR. BROADDUS: Is with regards to the
9 reference that you make in 10 CFR 50.92. You stated
10 that you believe that the licensees have to require
11 or are required to demonstrate that there isn't a
12 significant increase in the hazards or the
13 probability of an accident that would occur.

14 So under 50.92, it makes a reference to
15 50.91, 10 CFR 50.91, which is the procedures by which
16 the NRC would follow when making a final determination
17 on significant hazards consideration. Are you
18 familiar with that section?

19 MR. MIRANDA: Yes.

20 MR. BROADDUS: Do you understand the
21 basis under which that -- the NRC would make a final
22 determination of significant hazards consideration?

23 MR. MIRANDA: Well, there is a Regulatory
24 Issue Summary 01-022, attributes of a proposed no

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1 significant hazards consideration determination.
2 And so this was issued to the industry, and I expect
3 the NRC follows it.

4 MR. BROADDUS: Yes. So that RIS was
5 guidance to licensees in -- when they are preparing
6 their initial analysis of no significant hazards
7 consideration. And then they have to indicate
8 whether there is or is not a significant hazards
9 consideration that is part of that.

10 Once the NRC receives that, we review
11 that, and we -- we are required to make a
12 determination -- an initial proposed determination
13 that we then publish in the Federal Register for the
14 members of the public to comment on associated with
15 that. Members of the public can then comment on it.

16 We only make a final determination on the
17 significant hazards consideration if there is a
18 hearing on an amendment that is currently ongoing at
19 the time that we are ready to issue our final
20 determination on the amendment. And that final
21 determination that we make is to determine whether or
22 not we would issue the amendment before or after the
23 -- is completed.

24 So what -- we sent you a question this

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1 ahead of time, so I think that question was trying to
2 understand, because that regulation is not intended
3 as a technical criteria for the NRC staff in making
4 their final determination as to whether or not we
5 approve an amendment request, do you believe -- what
6 do you believe is the relevance of that requirement
7 to a renewed license?

8 MR. MIRANDA: Well, this RIS says that
9 licensees are required in 10 CFR 50.91 to submit this
10 no significant hazards statement. And these are the
11 famous three noes. Answer no to each of the three
12 questions.

13 And so the fact that the licensee submits
14 a no significant hazards consideration, and answers
15 each of the three questions with a no, and the NRC
16 goes ahead and grants the license amendment, grants
17 the license renewal, 84 of them so far, it indicates
18 to me that there is a misunderstanding here.

19 A licensee can realize, I don't think --
20 I don't think the licensee asked the right questions,
21 nor the NRC. I don't think they realize that this
22 1972 standard is in their current licensing basis,
23 and they need to meet that design requirement, if the
24 licensee knows it or the NRC knows it. So the

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1 question is not asked, so they answer no to that
2 question -- to those two questions concerning safety
3 margin and probability of occurrence. They answer
4 no, and the NRC accepts it and issues the amendment.

5 MR. BROADDUS: A clarification, and then
6 I will ask another question. The first is that the
7 licensees do provide that, but the NRC must make their
8 own determination on whether or not we agree with
9 that when a licensee submits an amendment to it.

10 So we have to make -- when we publish it
11 in the Federal Register as our proposed
12 determination, that's our indication of whether or
13 not we agree with what the licensee has proposed or
14 if we believe that it's different.

15 And there are times when we write
16 something that's different than what the licensee
17 provides, and we may not disagree -- we may agree
18 with what they have submitted. We may provide
19 different criteria or such. So I just want to make
20 sure you understand that when they submit that that
21 it is not -- you know, the NRC doesn't look at it and
22 just say, "Yeah. Well, they said no for all three
23 of these, and, therefore, we're going ahead and we're
24 approving that."

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1 When we make our -- if there's a hearing
2 in place, or occurring at the time when we are ready
3 to -- ready to -- when we've completed our analysis
4 of the amendment, we are ready to issue that, whether
5 it's an approval or a denial, we would look at, you
6 know, is there a hearing in place?

7 And then we would have to make a final
8 determination, taking into account any additional
9 information that we have received during the
10 application as well as the comment -- any comments we
11 have received from members of the public during the
12 comment period, and then make a final determination.

13 Again, that final determination is
14 whether or not we can go forward and issue the
15 amendment prior to the completion of the hearing. So
16 that's the only reason that that is -- that is the
17 only reason that we use that final determination is
18 to determine whether or not there -- we have to hold
19 off in issuing our final determination, if there is
20 a -- if there is a hearing underway.

21 So the question -- the other question I
22 have is -- well, actually, it's not really a question
23 -- a clarification as well. So that only applies to
24 license amendments issued under -- submitted under

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1 50.90. It does not apply to license renewals under
2 50 -- submitted under 50 -- Part 54. So licensees,
3 when they submit their license renewal, are not
4 required to submit those -- address those three
5 criteria.

6 MR. MIRANDA: Okay. So what you're
7 saying is the request for a plant life extension or
8 a license renewal is not a license amendment?

9 MS. SIMON: That's correct.

10 MR. MIRANDA: But that's incorrect.
11 You've given me the license amendment.

12 MS. SIMON: License renewals are handled
13 under a different part of the regulation.

14 Oh, sorry, that was Marcia Simon.

15 MR. EDWARDS: Thank you. We can keep
16 going with questions.

17 MR. BROADDUS: So, given that, do you
18 have any additional -- is there anything else you can
19 convey to us as to why you believe that those criteria
20 apply to a license, a renewed license in this
21 instance?

22 MR. MIRANDA: Well, those criteria, it
23 was understood, in my 40 years of experience, they
24 apply to all license amendments, all licensing

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1 amendment requests, changes to design basis for
2 example. And increasing the plant lifetime is a
3 fundamental change to the design basis. That's in
4 the current licensing basis.

5 And whether or not a no significant
6 hazards determination is required, they still -- they
7 still need -- licensees still need to show in their
8 safety analysis report, they need to show in their
9 current licensing basis that they meet all the
10 requirements of the initial operating license, as
11 issued by the Commission.

12 Otherwise, you get into a slippery slope
13 here where you've got an agency, the Nuclear
14 Regulatory Commission, which is charged with
15 protecting the public health and safety. And they're
16 allowing a licensee to extend the operation of a plant
17 that was designed to operate for 40 years. Now we're
18 saying, well, we'll allow you to operate another 20
19 years, provided you can show us that you've taken
20 care of aging concerns and that you can continue to
21 operate the plants.

22 So suppose the licensee is perfect, and
23 they have considered every component and every
24 system, and they have looked at all of the bathtub

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1 curves like that, just for every component in the
2 plant, and they've done that for every component.

3 And then the NRC issues a license
4 renewal, and a lot of that has added another 20 years.
5 So what has that done to protect the public health
6 and safety? How has safety improved if you can't --
7 by definition, safety is not improving. What you
8 hope is that you are not degrading safety.

9 What you're doing is when you make that
10 request for a license renewal, you are trying to
11 convince the NRC that you are not degrading safety by
12 operating another 20 years, but you're certainly not
13 improving it.

14 MR. EDWARDS: Thank you. Any other
15 questions in the room from NRC staff? Go ahead. Ask
16 your question.

17 MR. DOZIER: My name is Jerry Dozier.
18 Are these like the two principles of license renewal
19 where basically they say that the regulatory process
20 is adequate to ensure the safety of all currently
21 operating plants, with the possible exception of the
22 detrimental effects of aging. And then the plant-
23 specific licensing basis must be maintained during
24 the renewal term in the same manner and to the same

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1 extent as during the regional licensing term. Those
2 were the two principles of license renewal when we
3 did that. Are you aware of those two principles?

4 MR. MIRANDA: Yes. Yes, I am. And I
5 did license renewals when I was here as well. And
6 what I'm saying is the definition of the plant-
7 specific basis, that the definition in terms of plant
8 lifetime, that has changed.

9 Condition III and IV events are defined
10 in terms of occurrences per plant lifetime. So their
11 definition -- the specific licensing basis remains
12 the same. The definition of "lifetime," as used in
13 the plant licensing basis, has changed.

14 MR. DOZIER: Also, when we do postulated
15 accidents, we -- you reported the safety review, and
16 actually like the SAMA analysis and the postulated
17 accident. That's evaluated over in actually the
18 environmental report.

19 And Section 5.5.1 of, you know, what we
20 call GEIS and you probably used the call report in
21 your evaluation. But in an environmental case, they
22 use the GEIS. And in Section 5.5.1 of that, it
23 evaluated postulated accidents, which you're talking
24 about. And basically it said, "And except in the

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1 impact of the environment from postulated accidents
2 during the license renewal period, the assumption has
3 been made that the license renewal process will ensure
4 that aging effects on the plants are controlled, and
5 the -- and that the probability of any radioactive
6 releases from accidents will not increase over the
7 license renewal period." And I was just wondering
8 if you had read that, since that is over in the
9 environmental section.

10 MR. MIRANDA: No. I was not involved in
11 this environmental --

12 MR. DOZIER: But it does -- but that is
13 for the postulated accidents --

14 MR. MIRANDA: Yeah. You just described
15 an assumption.

16 MR. DOZIER: Yes.

17 MR. MIRANDA: That is an assumption. The
18 analysis is in Chapter 15 of the FSAR. And part of
19 those analyses -- by the way, they do include
20 environmental effects, especially when it comes to
21 the errors that may be caused by adverse environments
22 in protection systems. They used a deterministic
23 accident -- so I think that goes a lot farther than
24 an assumption in the report.

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1 MR. DOZIER: Actually, could you clarify
2 that a little bit more? So say what you just said
3 maybe in a little bit different words?

4 MR. MIRANDA: Well, postulated
5 accidents, once they postulate it, they are -- these
6 are accidents that are specified in Reg Guide 1.70,
7 which is the standard format and guide for safety
8 analysis reports. And these accidents are divided
9 into five or six different categories, including
10 outputs by the way. And these categories are grouped
11 according to the effect they will have on the reactor
12 coolant system.

13 So there are postulated accidents that
14 could cause a reactivity excursion, or that could
15 cause a pressurization of the reactor coolant system,
16 or that could degrade the reactor coolant flow, or
17 that could cause some departure from nucleate
18 boiling. So all of these are specified,
19 and that's one way the NRC judges the safety analysis
20 reports. They look at them and they check as to
21 whether or not all of these accidents have been
22 analyzed, and that the analysis results indicate that
23 the requirements have been met. And these analyses
24 are deterministic and they are conservative.

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1 So if any uncertainty is involved, if an
2 environment, for example, could cause a false reading
3 on a water level sensor, you know, in the steam
4 generator, which would cause a false high level
5 reading, if these things are a concern in that
6 analysis they are accounted for, and they are
7 accounted for in a conservative direction, so that
8 the result, when it's finally achieved, the result is
9 a conservative result. And you can have a high
10 assurance of knowing that that design criteria has
11 been met, even when all of the worst-case
12 uncertainties have been cleared.

13 MR. DOZIER: Thank you. On your slide,
14 you talked about -- you have it up there now on the
15 significant information and what is significant,
16 okay? And then you showed the value, you know, one
17 over 40, and then you showed a value of one over 60.

18 And then, of course, you know, you
19 described like a condition -- you know, you said your
20 concern was Condition III, and you said that
21 increased. And so we go into the significance thing.
22 And I know, like you said, that -- but do you think
23 -- so what in a license renewal would you do
24 differently? Or it wouldn't bring it to a Category

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1 -- would it bring you to a Category II event, if it
2 went from -- I don't think so, but I'm just going to
3 ask the question.

4 MR. MIRANDA: Well, that's an interesting
5 question. If you have evidence that your operating
6 experience, that you're going to get more Condition
7 III events the longer you extend plant operation. So
8 a 60-year plant or an 80-year plant, maybe a 100-year
9 plant, like Conowingo, if you increase the plant
10 lifetime far enough, you may get enough Condition III
11 events occurring that you might -- that it might cause
12 you to say, you know what? Maybe this really ought
13 to be classified as a Condition II event. And that
14 would be a very, very serious conclusion because
15 Condition II events have a much more stringent
16 acceptance.

17 MR. DOZIER: Do you think we're there?

18 MR. MIRANDA: Oh, that's a judgment I --
19 that's a judgment I can't make. I just don't know,
20 and I've said so -- I said so with a slide. I don't
21 know what that number is. The definition that was --
22 -- that was constructed in 1973.

23 And, by the way, I was there when it was
24 written. That definition merely says that this is --

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1 - these are accidents that can occur, but they define
2 it in terms of plant lifetime. So these are not your
3 constant random failures that occur in Condition I
4 and II events. These are over the plant lifetime.
5 And when you extend the plant lifetime, you can expect
6 more of these occurrences. But they didn't say how
7 many there would be.

8 I don't know how many there would be, and
9 we know that some of these events are more serious
10 than others. You can have a stuck-open relief valve
11 as what occurred at Beznau in Switzerland, which was
12 not a serious problem, or you could have the same
13 stuck-open relief valve in Harrisburg at Three Mile
14 Island, which caused a core meltdown. And there were
15 other things involved. You know, they were operator
16 errors in one case and not the other.

17 So all I'm saying here is that I don't
18 see any evidence that in these 84 license renewals
19 that have already occurred whether this question was
20 considered.

21 MR. BROADDUS: If I can have one follow
22 up, going along with what Jerry -- this is Doug
23 Broaddus again. So I heard you say before that
24 licensees, you know, must comply -- must ensure that

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1 as part of their license renewal that they are
2 complying with their current licensing basis for
3 license renewal.

4 So to make sure that we understand what
5 you're trying to tell us from that perspective, do
6 you believe that the licensees are not currently in
7 compliance with their current licensing basis with
8 respect to the conditions?

9 MR. MIRANDA: That's why I asked for a
10 cost impaction. Okay. Basically, if you look at the
11 three items I specified, basically they request
12 licensees to look at this question. Except in one
13 case, for example, that if they take more than a year
14 to look at it, they might have to shut down. In no
15 other case would they have to shut down just to take
16 a look at it.

17 Under the current licensing basis that
18 remains unchanged. Condition III events are defined
19 over the course of a plant lifetime. The only thing
20 that changed is the value of the plant lifetime.
21 Okay? There are no new requirements here. They just
22 need to meet the current requirement as adjusted by
23 the action the licensee is taking asking for a
24 renewal, and the NRC is taking in granting the

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1 renewal.

2 MR. BROADDUS: So just to clarify, do you
3 have any comparative basis to say that they -- belief
4 or basis that you believe that they are not in
5 compliance? Yes, I understand you want them to
6 evaluate that to determine whether there are -- do
7 you have specific information that would indicate
8 that they are not in compliance?

9 MR. MIRANDA: Well, basically, there are
10 errors of commission and errors of omission. And I
11 would say this is an error of omission. They haven't
12 looked at it. And the NRC hasn't asked the question.
13 All right?

14 MR. BROADDUS: Thank you, sir.

15 MR. EDWARDS: Thank you. We have about
16 30 minutes left. Are there any quick questions?
17 Please, go ahead.

18 MR. DOZIER: So back to the -- I just
19 want mainly to -- oh, my name is Jerry Dozier. Okay.
20 So you said that -- you did say that it would increase
21 by 50 percent.

22 MR. MIRANDA: I'd like that.

23 MR. DOZIER: Okay. Is the change from
24 one time in 40 years to 1.5 within 60 years, is that

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1 -- does that come in -- I'm just trying to understand.

2 MR. MIRANDA: Yeah. I can't say that
3 because what you just said implies a uniform
4 probability distribution. That's the constant
5 failure mode that has occurred. That may not be the
6 case. We don't know what the probability
7 distribution is. All I know is that you have 20
8 extra years in which these things can occur, and that
9 reduces -- that reduces safety margin.

10 And I can't tell you how much the safety
11 margin is reduced, but I can tell you that the plant
12 life extension of 20 years, that's a 50 percent
13 increase of lifetime. That is significant. But if
14 that results in a significant increase in these
15 events, that would --

16 MR. OESTERLE: This is Eric Oesterle,
17 formerly chief of the Reactor Systems Branch. So
18 kind of a similar question, but I will ask it in a
19 different way. So, Sam, thanks. You provided the
20 comparison in a very easy-to-understand manner for
21 condition -- frequency of occurrence of Condition III
22 events. For example, you know, one over 40 years
23 versus one over 60 years.

24 So my question is this: do you believe

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1 or do you have any information that would cause us to
2 question the sufficiency of aging management programs
3 or the timeliness of aging analyses that are done for
4 license renewals, such that the frequency of
5 occurrence of Condition III events would increase
6 from 40 years to 60 years?

7 MR. MIRANDA: Well, I think that's two
8 questions in one. The aging management program is
9 kind of narrow in scope. You can only -- you can
10 only do aging management on the components you're
11 aware of, especially those components that degrade
12 with age, and there are always some that you may not
13 anticipate.

14 So as far as it goes, the aging management
15 program is a start. But then this is an unknown.
16 When you increase the plant lifetime, you know -- all
17 you know is that there are going to be more Condition
18 III events. And I can use that -- take it to the
19 limit approach, and I can say suppose the plant
20 lifetime is 1,000 years, and you know for sure there
21 are going to be more Condition III events, but you
22 still don't know how many.

23 So I think you need to ask the question
24 of yourselves, of the NRC, its reviewers, and also

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1 ask the licensees if they can provide some data to
2 indicate what kind of -- how frequently these
3 Condition III events can be predicted.

4 MR. DOZIER: On that number, okay, when
5 you gave the number, you said it's one to 40 years.

6 MR. EDWARDS: That's Jerry Dozier.

7 MR. DOZIER: I'm sorry. Jerry Dozier.

8 The guidance -- and then you said the
9 utility does the hazards evaluation. Does the
10 guidance say one in 40 years, or is it actually a
11 qualitative assessment?

12 MR. MIRANDA: The guidance was -- I read
13 out the design requirement from the standard. And
14 the standard says, "These are events that could occur
15 during the lifetime of a particular plant." They
16 don't say how many. All we know is that it's not
17 zero. Okay?

18 There is one -- there is one
19 classification of events, the Condition IV events.
20 Those are zero. But Condition III events, it's
21 greater than zero. We don't know how much greater.
22 I used an example of one over 40 or one over 60. It
23 could be more. It could be two. It could be three
24 or four.

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1 And these Condition III events are so
2 varied in scope. Some are much more serious than
3 others, and how you respond to that makes a big
4 difference.

5 For example, Three Mile Island. The one
6 thing I can say with certainty is if you're increasing
7 the plant lifetime by 50 percent, you're going to
8 increase the number of occurrences of Condition III
9 events. I'm not saying it's going to be 50 percent.

10 MR. DOZIER: The reason I'm asking that
11 was NEI 96-07 -- basically, in 50.59 you asked the
12 same question. And in that guidance it actually says
13 for most licensees accidents and transients have been
14 divided into categories based on a qualitative
15 assessment of frequency of qualitative analysis.

16 MR. MIRANDA: Well, that qualitative
17 assessment was before PRA was --

18 MR. DOZIER: This is 50.59, so it's not
19 -- hasn't had anything to do with --

20 MR. MIRANDA: Well, 50.59 does have two.
21 There is two versions that I know of of 50.59. And
22 for deterministic accident analyses, the
23 categorization scheme of that 1973 standard has been
24 used -- has been accepted, used, and committed to by

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1 licensees and reviewed by the NRC and licensees --
2 licenses have been granted based on that.

3 MR. DOZIER: But they don't have enough.
4 They don't have a one or a two. That's a question.

5 MR. MIRANDA: No, that's right. They
6 don't have a number. There was a later standard,
7 51.1, which attempted to put in numbers. And it is
8 a very complicated standard.

9 MR. DOZIER: Could you say that one
10 again?

11 MR. MIRANDA: 51.1.

12 MR. DOZIER: That's an ANSI standard?

13 MR. MIRANDA: 1982. That had something
14 like five categories of events. They called it
15 planned conditions, it looks like. That was not
16 adopted. It's out there. You can get a copy of it,
17 but nobody used it.

18 MR. EDWARDS: In an attempt to continue
19 to move questions along, Mr. Donoghue, did you have
20 some questions?

21 MR. DONOGHUE: Okay. Ready to move to
22 the phones?

23 MR. EDWARDS: I'm going to open the phone
24 lines up again. I'm going to open up the conference

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1 line. The conference line is not moderated, so I ask
2 that you respect everyone on the line and wait until
3 your particular group is called upon.

4 Is there anyone on headquarters staff or
5 NRC staff on the conference line that have questions?

6 PARTICIPANT: No, sir. We have none.

7 MR. EDWARDS: Not hearing any, how about
8 from the NRC regions, are there any members from the
9 NRC regional offices that have questions?

10 Okay. Not hearing any there, how about
11 members -- the licensees that are on the line, do you
12 have any questions?

13 Appearing that there are no questions
14 from members of the licensee, we move to members of
15 the public. And as we stated earlier, members of the
16 public may provide comments regarding the petition,
17 and they may ask questions about the 2.206 petition
18 process.

19 However, the purpose of the meeting is
20 not to provide an opportunity for the Petitioner, the
21 licensees, or the public to question or examine the
22 Petition Review Board regarding the merits of the
23 petition request.

24 Are there any members of the public on

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1 the phone that have questions or comments regarding
2 the 2.206?

3 MS. COLLINS: Yes. I am Jesse Collins
4 with Citizens' Resistance at Fermi Two, and I want to
5 thank Mr. Miranda for bringing this petition and for
6 filing it. I think because he is a former NRC
7 official it gives him more weight. We tried to stop
8 the Fermi 2 license extension and were granted a
9 hearing on it, which the NRC cancelled after one year.
10 We never had the hearing.

11 So I thank him. We tried to bring up
12 issues of danger and, anyway, I appreciate it. Thank
13 you, Mr. Miranda.

14 MR. EDWARDS: Thank you, Ms. Collins.

15 Mr. Miranda?

16 MR. MIRANDA: It is nice to be
17 appreciated.

18 MR. EDWARDS: And is there another member
19 from the public that has a comment or a question
20 regarding the 206 process?

21 MS. WARREN: I have a question, not a
22 comment.

23 MR. EDWARDS: Yes. Please state your
24 name and go ahead.

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1 MS. WARREN: My name is Barbara Warren.
2 I am with the Citizens' Environmental Coalition in
3 New York, and I believe I am asking about the license
4 renewal process.

5 All right. Is what is being stated here
6 is that there is no report that is issued that
7 addresses, at the end of the license renewal, when
8 the license is renewed, is there no document that
9 specifically addresses these conditions and what the
10 frequency would be expected to be under the additional
11 terms of the extended lifetime?

12 MR. EDWARDS: Ma'am, thank you for your
13 comment. The questions at this time are specific to
14 the 206 process, or if you have a comment regarding
15 the petition. But I'll see if anybody in the room
16 would be willing to answer that.

17 MR. DOZIER: Actually, when we do a
18 license renewal application, basically we have two
19 things. We have the license renewal review, the
20 safety aspect of it, and we have an environmental
21 impact statement.

22 In that environmental impact statement,
23 in Section 5.5.1 of that, you will find where we
24 address that. That was also one of the questions

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1 that I had for Mr. Miranda.

2 MR. BROADDUS: And I believe, though I'm
3 not -- this is Doug Broaddus. I'm not a license
4 renewal expert, but my understanding is that they do
5 -- at the end of the license renewal evaluation, there
6 is a safety evaluation report that is issued that
7 documents the NRC's basis, the issues that were
8 considered, as well as its basis for granting -- if
9 it is granted -- granting the license renewal. So,
10 yes, there is a -- to answer your question, there is
11 a document that addresses all of the issues that were
12 addressed in license renewal.

13 MR. MIRANDA: Okay. This is Sam Miranda.
14 And what I'm saying is in my petition that all of the
15 issues were not addressed. Just this particular one
16 concerning Condition III events. So you don't get
17 the answer if you don't ask the question.

18 MS. WARREN: Okay. And I may not be
19 asking it that well, but it does -- it does appear
20 that these are -- the issues you are raising are not
21 adequately being addressed, if I am understanding
22 this correctly. Thank you.

23 MR. EDWARDS: Ms. WARREN, thank you very
24 much for your comment.

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1 Any other members of the public that have
2 a question regarding the 2.206 process or a comment
3 regarding the petition itself?

4 MR. SCHONBERGER: Hello? Yes?

5 MR. EDWARDS: Yes, sir. Please state
6 your name and go ahead.

7 MR. SCHONBERGER: My name is David
8 Schonberger. I'm from the state of Michigan. My
9 comment is that the Atomic Energy Act which governs
10 the Part 54 renewal process could keep the NRC from
11 relicensing any existing nuclear power plant if it
12 would be "inimical to the health and safety of the
13 public."

14 And so that statutory requirement is all-
15 inclusive and aren't limited in scope. And all
16 questions pertaining to a determination of safety for
17 the license renewal period should be asked in the
18 process of license renewal in order to determine
19 adequate protection for -- and reasonable assurance
20 for health and safety for the public for the period
21 of extended operations.

22 Thank you.

23 MR. EDWARDS: Thank you, sir.
24 Appreciate your participation and your comment.

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1 Are there any other members of the public
2 that would like to make a comment or had a question
3 about the 206 process?

4 Again, star 6 on your phone if you've
5 muted it and you need to unmute it. And if you have
6 a question, please state your name and either ask
7 your question or give your comment now.

8 Okay. Circling back to maybe the
9 licensees, are there any members of the licensee that
10 would like to ask a question or provide a comment?

11 All right. Not hearing any, Mr. Miranda,
12 I'd like to thank you for your time and providing the
13 NRC staff with clarifying information about the
14 petition you submitted. The Petition Review Board
15 plans to meet internally within a couple of weeks to
16 discuss the information that you have provided in
17 your petition, as supplemented, and make its initial
18 recommendation on your petition.

19 Following that meeting, the petition
20 manager will inform you of the Petition Review Board's
21 initial recommendation to either accept or reject
22 your 2.206 petition for review, in accordance with
23 the criteria in Management Directive 8.11.

24 And, Mr. Donoghue, sir, would you have

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1 any closing remarks?

2 MR. DONOGHUE: Yes. Thank you, Rhex.

3 Thank you, Sam, Mr. Miranda, for your
4 presentation.

5 And thanks to all the participants for
6 making it a productive meeting. We were able to, in
7 a short amount of time, cover a lot of material. I
8 appreciate that.

9 I just want to let Mr. Miranda know, and
10 everybody know, about the next -- next steps in this
11 process is that the Board, the Petition Review Board,
12 will meet in early December to consider all of the
13 information before us. Following that meeting, we
14 will contact you, Mr. Miranda, following that meeting
15 with our recommendation on the petition. All right?

16 With that, I'll turn it back over to Rhex.

17 MR. EDWARDS: All right. And before we
18 close, does the court reporter need any additional
19 information for the meeting transcript?

20 THE COURT REPORTER: Yes. I just have a
21 couple of spelling questions, but I imagine it can
22 wait until we are off the record.

23 MR. EDWARDS: We can -- can you speak up
24 or get closer to the microphone?

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1 THE COURT REPORTER: Yes, sorry. There
2 were a couple of names that I just didn't quite catch.
3 First of all, Rhex, I was wondering if you could
4 please spell your last name for me?

5 MR. EDWARDS: Certainly. It's Edwards,
6 E-D-W-A-R-D-S.

7 THE COURT REPORTER: And there was a
8 gentleman from the Office of Enforcement?

9 MR. DONOGHUE: Russell Arrighi.

10 MR. EDWARDS: Yes. Arrighi, A-R-R-I-G-
11 H-I.

12 THE COURT REPORTER: Okay. And,
13 finally, the petition manager; what was her name?

14 MS. JAMES: Lois, L-O-I-S, and then my
15 last name is James, J-A-M-E-S.

16 THE COURT REPORTER: Ah. Thank you.
17 Okay.

18 MR. EDWARDS: Anything else?

19 THE COURT REPORTER: No. That is all.

20 MR. EDWARDS: Great. Thank you so much
21 for your participation. This meeting is concluded,
22 and we will be terminating the phone connection.
23 Thank you.

24 (Whereupon, the above-entitled matter

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1 went off the record at 3:19 p.m.)
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